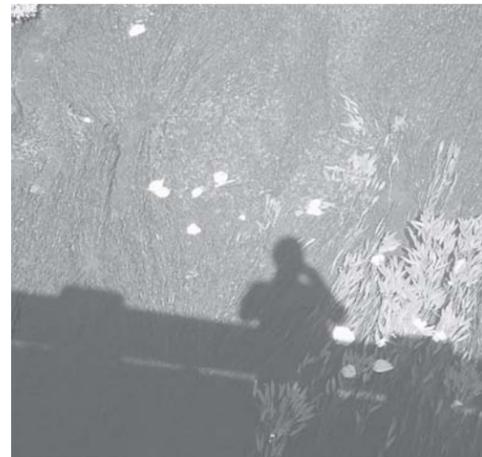


boneyard creek

MASTER PLAN



PREPARED FOR: THE CITY OF URBANA ILLINOIS
MAY 2008

boneyard creek
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EXECUTIVE SUMMARY

THE BONEYARD'S HISTORY

Two hundred years ago, what we now know as Boneyard Creek was called Silver Creek by Native Americans, who built their camps along its banks near what is now East Main Street. By the mid-1800s settlers had begun to refer to Silver Creek as the Boneyard. Stories claim that this name came from the piles of sun-bleached bones found along the banks of the creek, either left by the Native Americans or killed during a major blizzard.

As Urbana grew and the Illinois Industrial College (now the University of Illinois) was established in 1867, the silvery-clean creek was known by both names—Silver Creek and the Boneyard. The name Boneyard for such a beautiful creek seemed offensive to local citizens, and at the turn of the century, a proposal was presented to make the name Silver Creek official, but was turned down.

The creek runs through the cities of Champaign and Urbana, eventually connecting with the Saline Branch in the northeastern part of Urbana. It runs through the core of downtown Urbana, in a half-mile stretch between Main and Vine Streets.

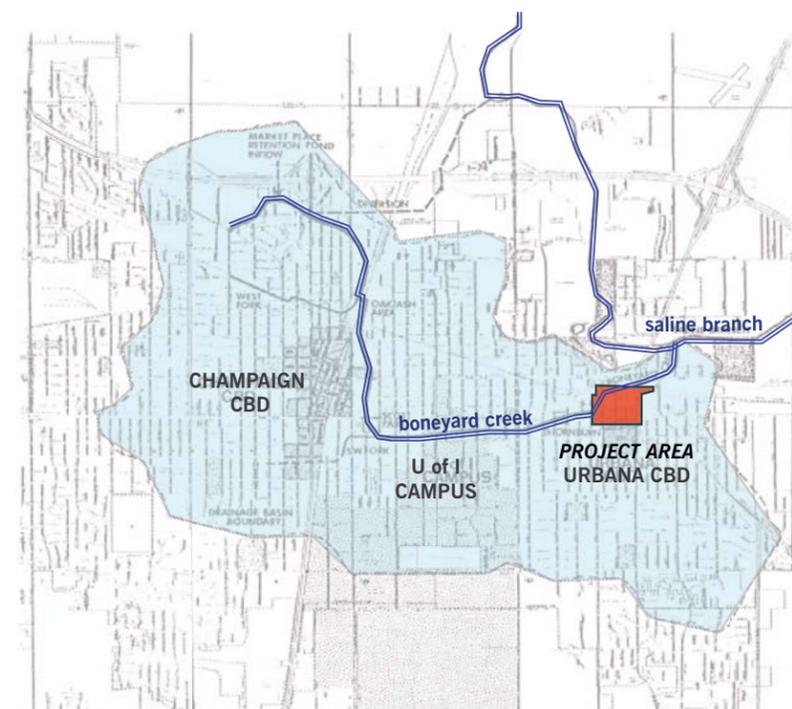
Like many urban streams, the Boneyard Creek was channelized in the early part of the 20th century for flood control, and the sheet pile walls were installed in the 1960s. Because the creek flows mainly through private property, a maintenance easement was established in the 1960s to allow the City of Urbana Public Works Department to perform maintenance within the channel. This easement only covers maintenance, and no permanent improvements or alterations of the channel can be completed without agreements of the associated property owners and modification of the easement.

GROUNDWORK FOR THE MASTER PLAN

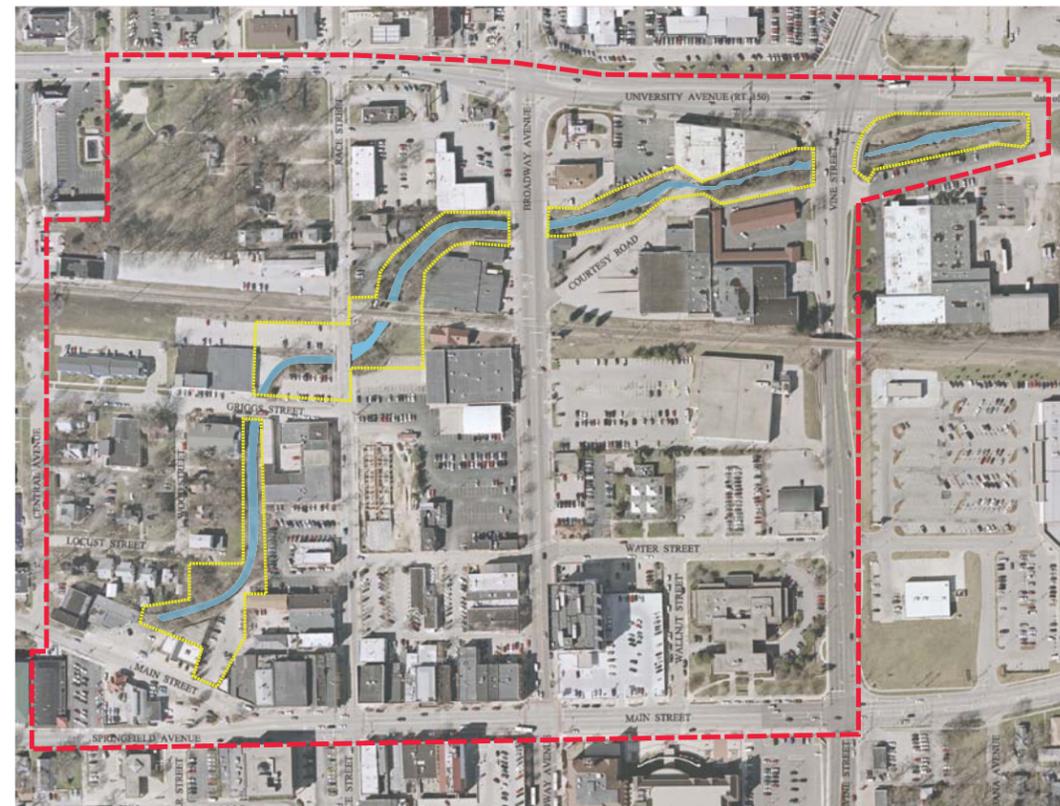
Focusing on a renewed downtown, Urbana undertook several significant planning efforts in the early part of this decade. These included the Urbana Downtown Plan in 2002, the Comprehensive Plan in 2005 and recent amendments to the Tax Increment Finance District Plans, each of which noted the potential for revitalization and renewal of the Boneyard as a significant public amenity.

In 2006, this master planning effort was launched, covering the segment between Main and Vine streets. This plan addresses the following issues:

- Create pedestrian connectivity between Downtown and surrounding neighborhoods and commercial developments.
- Enhance the physical appearance of the creek through improvements such as naturalization, landscaping, bank stabilization, and other amenities, while maintaining the creek's primary drainage function.
- Provide opportunities to add fencing, lighting, overlooks, and/or public art within the corridor.
- Facilitate adjacent property uses and create urban design standards for public and private development along the creek.
- Create an end product with a community-wide use.
- The existing 1978 Boneyard Creek Master Plan will still pertain to all other reaches of the Boneyard Creek.

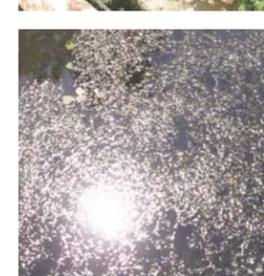
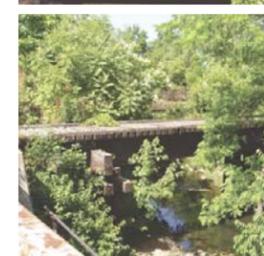


Boneyard Creek watershed and project area



Boneyard Creek Master Plan project area

— — — — — project context area — — — — — detailed project area



Existing conditions of Boneyard Creek



Preferred images for the Boneyard's future, selected by the public during planning workshops



A 25-year vision plan illustrates how future developments can be focused along a revitalized Boneyard Creek

A RENEWED BONEYARD CREEK: A VISION FOR REVITALIZATION

The Master Plan is intended to transform Boneyard Creek from a highly urbanized drainage ditch into a place for people—a destination for the local community with spaces for leisure and enjoyment. The plan creates a system of small parks and open spaces that are connected by a continuous linear trail. Sheet pile walls will be removed along some sections of the creek, and the banks will be terraced back where feasible and appropriate in order to recreate a naturalized channel with a higher ecological function and greater civic beauty.

The following five broad goals have shaped the plan.

1. Enhance the Local Community

- Make creek improvements that encourage appropriate development
- Create spaces along the creek that will increase the vitality of Downtown
- Protect privacy of residential neighborhoods
- Combine infrastructure and beautification projects to minimize capital costs

2. Create a Network of Pedestrian and Bicycle Connections

- Improve pedestrian and bicycle access to Downtown and the surrounding community
- Link the Boneyard Creek trail to existing parks and open spaces
- Provide physical and visual access to increase safety of the creek

3. Protect and Enhance Wildlife and Habitat

- Enhance habitat at the river bend near Silvercreek Restaurant
- Provide vegetation that could provide shade and habitat for fish

4. Improve Flood Control and Water Quality

- Improve creek banks susceptible to erosion
- Remove the Courtesy Road Bridge which is a channel restriction during flood events
- Mitigate sediment and contamination within the creek

5. Provide spaces for Active and Passive Recreation

- Create public gathering spaces adjacent to the creek
- Create an outdoor gathering space at the Station Theater



Aerial perspective overlooking Main Street: Future redevelopments and the Boneyard's improvements can create an exciting new district in Downtown Urbana.

SUMMARY OF THE MASTER PLAN

The Boneyard Creek Master Plan divides the creek into five distinct segments; each based on their respective location and physical properties. The proposed plans for each segment explore near-term solutions for improved beautification, access, safety and ecological conditions of the creek. In addition the Master Plan illustrates future redevelopment scenarios with a 25-year vision, showing the link between a revitalized Boneyard Creek and the future relationships that can be created with new urban redevelopments.

SEGMENT 1: Main Street to 119 North Race Street Redevelopment

This area offers the opportunity to create a significant public gathering space for Downtown. The plan proposes a small park and plaza that could be used for everyday activities for nearby residents or for smaller, organized events. The channel in this segment will be completely transformed, removing the sheet pile walls and laying back the banks to create a more naturalized channel and a feeling of openness along the creek. The proposed plan creates a small terrace that allows seating next to the water's edge. Small weir structures are built within the channel to create backwater areas and drops in the creek during low flow months. This will increase the sound of running water and establish the conditions for native plantings along the channel banks. The north bank will be planted to increase habitat values and provide a much desired privacy buffer between existing residential neighbors and this newly created public space.

A drive cut and public parking are created off of Main Street. The parking area can be designed to look and feel like a public plaza, with a patterned surface and street trees planted in between parking stalls.

Over the long term, the plan illustrates a vision for a new commercial and entertainment district for downtown Urbana. New plaza spaces and outdoor cafés can be incorporated to provide creek-edge dining and shopping opportunities. Proposed modifications to Springfield Avenue and Main Street could allow for on-street parking that would help support new developments in the area. Street trees could be planted along Main Street and improved sidewalks would create an environment that would support retail and entertainment uses in the area

SEGMENT 2: 119 North Race Street Redevelopment to Griggs Street

This area is the most confined of all the reaches within the project area. Opportunities for expansion of the channel and its banks are limited by the encroachment of buildings and adjacent properties on both sides of the creek. Because of these constraints, and the anticipated redevelopment along Race Street in the near future, short-term proposals suggest minimal modifications to the channel cross-section, and focus on increasing the beauty and ecological function of the channel using only minor public investment. The expectation is that these improvements will provide a catalyst to change perceptions about Boneyard Creek, and to provide opportunities for future development to incorporate the creek edge in a more meaningful way.

The sheet pile walls will be maintained within this segment, but will be beautified with native vines and aquatic plantings within the channel bottom. The concrete channel bottom will be removed to create a narrow low-flow channel, that will increase the ecological value of the creek, and sustain vegetation planted along the creek edges.

The plan calls for a continuous trail at the top of bank along the east of edge of the channel, with a cantilevered segment near Griggs Street, where space constraints are most severe.

As new development occurs, the intent is to encourage businesses to create "back porches" that overlook the creek and can provide places for gathering. Access easements could be incorporated between adjacent buildings that would provide safe and pleasant pedestrian connections.

SEGMENT 3: Griggs Street to Broadway Avenue

The proposed improvements along Segment Three have a tremendous opportunity to transform the downtown area and create a central park that will bring value to the community. This segment also benefits from the reconstruction of the Race Street Bridge which has been identified in the City's Capital Improvement Plans. A tremendous opportunity exists to integrate proposed beautification improvements with the new bridge construction, and create a small urban park that can be connected on both sides of Race Street below the bridge.

The park will provide access to the creek edges and public spaces for everyday leisure. The sheet pile walls will be removed and the banks will be terraced back to create a feeling of openness and security in the park. The plan proposes an outdoor amphitheater and plaza on the east side of Race Street. This will act as an outdoor venue for the Station Theater and public events. The existing railroad trestle bridge will be maintained in its original position, but will be upgraded to include a decked walkway and decorative railing. The trestle bridge will be above the theater acting as an overlook as well as connecting pedestrians from Race Street to the Station Theater at the street grade elevation.

The trail continues to the north of the existing rail line to an area that will be more natural in character. The creek in this area is comprised of a soft bottom channel and the banks support mature trees. The improvements in this area will create a low-flow channel, maintain mature trees, and revegetate the ground layer plants to preserve the natural feeling that currently exists. A low water bridge crossing is proposed from the east edge of the creek to the west edge at the Silvercreek Restaurant. This will give patrons of the restaurant an opportunity to enjoy the creek or stroll along the trail. An opportunity also exists to create expanded outdoor dining for the restaurant along the creek.

The plan also illustrates a 25-year vision where infill development is centered around Boneyard Creek and the Central Park. The block size between Race Street and Broadway Avenue is narrow enough to support businesses that would have frontage along Broadway Avenue, with back-of-house functions that face onto the park. The future phase plan creates an exciting new area and truly unique district within the fabric of Downtown Urbana.

SEGMENT 4: Broadway Avenue to Vine Street

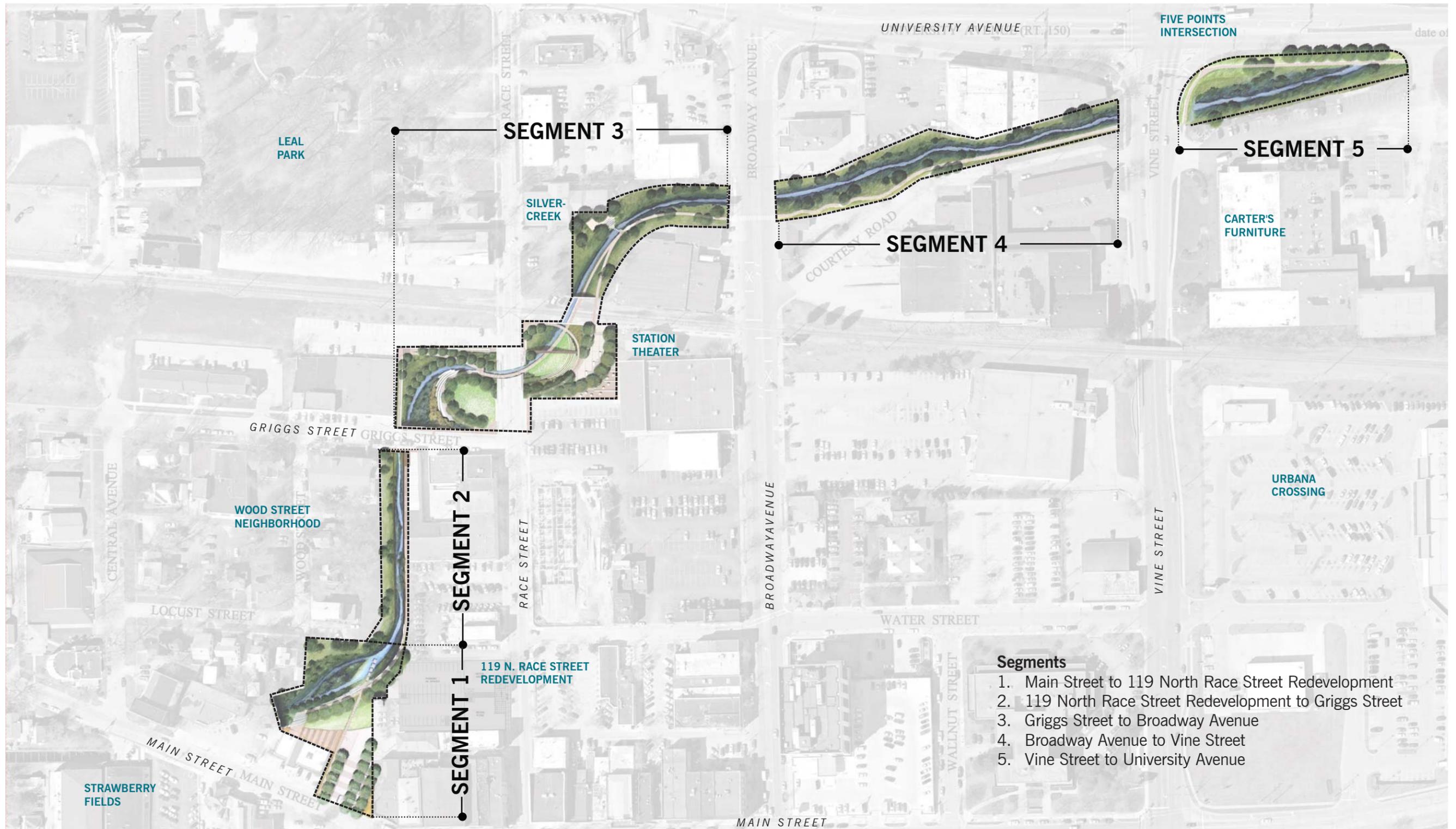
The property between Broadway Avenue and Vine Street has been identified as an area of possible redevelopment in the near future, so only modest recommendations are made in the short term. The plan creates a trail at the top of bank that would make a continuous pedestrian connection from the previous segments to those located to the east.

Future phase plans illustrate how new development can provide valuable river frontage. A vehicular bridge is proposed that would better connect properties on both sides of the creek, and would make properties more accessible from University Avenue. This would create an opportunity to consolidate adjacent properties and increase the land area required for certain types of development and at the same time maintain an open channel and trail along the Boneyard that would be a valued asset for new development.

SEGMENT 5: Vine Street to University Avenue

Segment Five is a small reach of creek that is confined by Vine Street and University Avenue which carry heavy traffic volumes, which is not very hospitable to pedestrians. It does, however, offer the potential to become an important visual gateway for the City of Urbana. This area is highly visible for those traveling south along Cunningham Avenue. Additionally, Segment Five has better long-term potential to become a valued area for improvements if the Boneyard Creek trail were to become a longer commuter trail that expanded north, across University Avenue, and connected with trails planned along the Saline Branch.

In the short term, the plan proposes selective thinning of invasive vegetation as well as native planting for erosion control improvements along the creek. The plan also proposes an extension of the sidewalk that would better connect pedestrians from the creek to the east along University Avenue.



Segments

1. Main Street to 119 North Race Street Redevelopment
2. 119 North Race Street Redevelopment to Griggs Street
3. Griggs Street to Broadway Avenue
4. Broadway Avenue to Vine Street
5. Vine Street to University Avenue

Boneyard Creek Master Plan illustrating the five segments.

boneyard creek
A FRAMEWORK FOR REVITALIZATION

PURPOSE AND SCOPE OF THE BONEYARD CREEK MASTER PLAN

Downtown Urbana offers many opportunities to develop a distinct image as a gathering place for the community. Facilities that offer a “sense of place” – an atmosphere of pedestrian scale, visual interest, market opportunity, and activity – tend to be more successful, and demonstrate longevity as they create their own identity.

Focusing on a renewed Downtown, the City of Urbana undertook several significant planning efforts in the early part of this decade. These included the Urbana Downtown Plan in 2002, the Comprehensive Plan in 2005 and the Tax Increment Finance District Plans, each of which noted the potential for revitalization and renewal of the Boneyard as a significant public amenity.

The Boneyard Creek Master Plan sets forth an overall vision to create a greenway in Downtown Urbana. The plan identifies individual projects along the creek that can be phased to create a coherent creek greenway in the project area. The Master Plan document provides order of magnitude costs as well as implementation strategies so that projects can be realized in the very near future.

In addition, the Master Plan provides future phase plans with a 25-year vision. These plans illustrate redevelopment scenarios for lands adjacent to the creek. In the future, new developments can orient themselves facing the creek to capitalize on a Downtown amenity resulting in a creek greenway that is knitted into the urban fabric of Downtown Urbana.

PLANNING PROCESS AND SCHEDULE

Preparation of the Master Plan for Boneyard Creek began in April of 2007 and concluded in May of 2008. The design team and City officials led workshops with key stakeholders and the public in order to accomplish the following:

- Define project scope and parameters
- Define technical design criteria for the Boneyard Creek
- Identify preferences for uses in and along the Boneyard Creek
- Identify key properties for preservation, acquisition, and redevelopment
- Identify key focus areas for revitalization and public amenities

The planning for the Boneyard Creek Master Plan was divided into three major steps:

STEP I. Visioning Plan: This includes Inventory and Analysis of existing conditions, identification of Opportunities and Constraints along the corridor, and concluded with a Planning Framework which guided the development of alternatives.

STEP II. Master Plan Alternative Development: The team prepared design concepts ranging in scale, complexity, and character. The concepts were presented to City officials, key stakeholders and the public for feedback and a plan was drafted based on preferred concepts.

STEP III. Design Refinement and Master Plan Preparation: The design team refined the concept and vision to include both short term (Phase 1) and long term (Future Phase) plans for Boneyard Creek and the surrounding urban context. The design team refined engineering concepts necessary for plan implementation and developed order of magnitude cost summaries for the Phase 1 plans. This step culminated in the Master Plan Document for Boneyard Creek.

SUMMARY OF PAST PLANNING EFFORTS

The Boneyard Creek Master Plan will look to strengthen the ideas, goals, and objectives that have been set forth in previous planning efforts by the City, State and their respective consultants. The projects examined in detail are:

- The Boneyard Creek Master Plan (1978)
- The Urbana Downtown Strategic Plan (2002)
- The Champaign County Greenway and Trails Plan (2004)
- The Urbana Comprehensive Plan (2005)
- The TIF No. 1 and No. 2 Plans (2005)
- The Capital Improvement Plans (2006, 2007)

The plans make key recommendations to encourage redevelopment and create public amenities in Downtown Urbana. Recommendations include infill growth with mixed-use redevelopments and higher density urban housing. Key pedestrian and bicycle networks are recommended that will better link the University of Illinois and Carle Medical Center to Downtown. And finally, the plans identify the need for public squares and amenities that will enhance the image and safety, such as the beautification of Boneyard Creek.

Some improvements identified in past planning efforts are considered high priority, near-term construction projects. By combining these projects with the proposed Boneyard Creek improvements identified in this Master Plan, the City can minimize construction costs as well as lessen the amount of disturbance in the downtown area.

PROJECT AREA

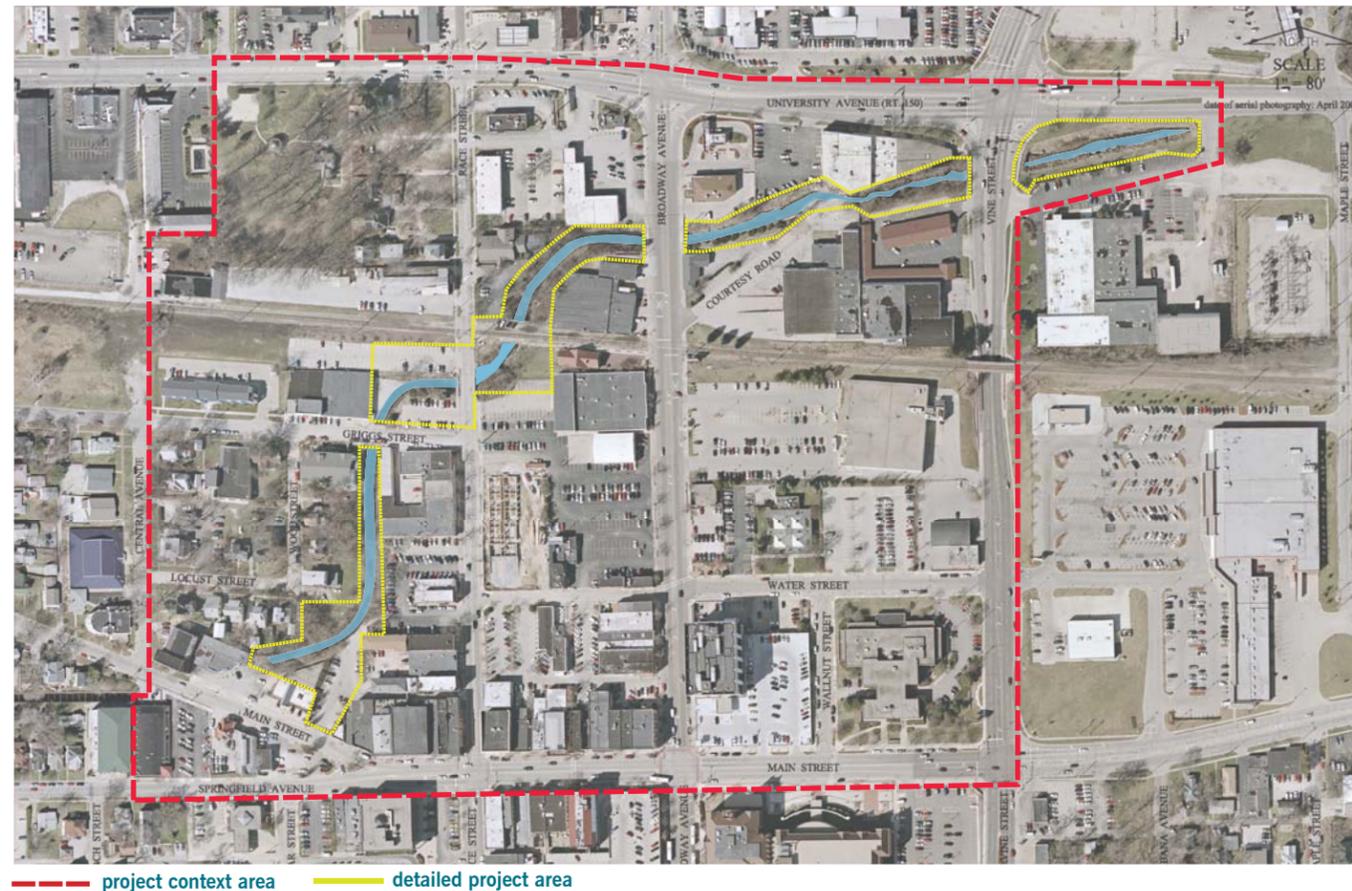
Boneyard Creek functions as a major storm drainage channel through Downtown Urbana. In most sections of the Creek, the channel is narrow and deep, with vertical sheetpile or gabion walls along its sides. In its current condition, Boneyard Creek does not offer a usable public amenity.

The scope area for this Master Plan could best be summarized as the reach of Boneyard Creek as it traverses through Downtown Urbana from the Main Street and Springfield Avenue intersection to University Avenue, just north of Carter's Furniture. Boneyard Creek measures roughly 2,500 feet in length throughout the study area. Although the proposed solutions for the Master Plan are limited to the creek and immediate land adjacencies, this Master Plan suggests potential impacts and benefits of the plan on the larger urban context of Downtown Urbana. The context area is bounded by Springfield Avenue to the south and University Avenue to the north; Central Avenue on the west to just beyond Vine Street on the east.

CORE PLANNING ISSUES FOR THE PROJECT

The revitalization of the Boneyard Creek corridor is expected to add important amenities to the Downtown fabric and can, potentially, serve as a catalyst for additional private and public Downtown improvements. It is important to point out that this project is not without its inherent challenges that will need to be addressed. Proposed plans need to be visionary, yet practical, to arrive at a successful solution that is able to be implemented in the near future. The critical issues that we have identified include:

- *Working within the context of adjacent land uses to plan a corridor that improves the channel, provides recreation, and enhances surrounding land uses and values.* Surrounding land uses are mixed, ranging from commercial business to light industrial and manufacturing/distribution facilities. Many businesses are new and in good condition and likely contribute jobs and tax revenues to the community. The plan will need to successfully integrate a greenway corridor into this use mix, provide access to the creek, and maintain a safe environment to ensure that users can view the creek as an amenity.



- *Addressing property ownership and constraints within the channel easement.* The City of Urbana does not own the land within the Boneyard Creek corridor. Much of the property is in private ownership, with a maintenance easement. The easement varies in width, but on average is approximately twenty-five feet on either side of the center line of the channel, and allows for temporary access and maintenance. No permanent improvements can be constructed within this easement unless it is amended through an agreement with the adjoining property owners followed by proper preparation and recording of the amended easement. This creates logistical hurdles when considering permanent construction of trails and other improvements within the channel. The potential improvements described in the Master Plan will require negotiations between the City and property owners that would allow for permanent construction of public improvements and use within the channel.

- *Providing suitable connectivity to Downtown.* Carle Medical, the City's second largest employer, is severely disconnected from the downtown by University Avenue. Improving pedestrian and bicycle connections into Downtown from Carle Medical and the University have been major goals of past planning efforts. The Boneyard Creek Master Plan cannot accommodate all connectivity needs for Downtown Urbana, however this Master Plan suggests that gateways, physical and visual connections, and important destinations along the creek, will improve the future connectivity into Downtown.
- *Developing a sound phasing plan, creating estimates of probable construction costs, and identifying potential financing sources can help move the Boneyard Master Plan towards implementation.*

A FRAMEWORK FOR BONEYARD CREEK REVITALIZATION

The Master Plan is intended to transform Boneyard Creek from a highly urbanized drainage ditch into a place for people—a destination for the local community with spaces for leisure and enjoyment. The plan creates a system of small parks and open spaces that are connected by a continuous linear trail. Sheet pile walls will be removed along some sections of the creek, and the banks will be terraced back where feasible and appropriate in order to recreate a naturalized channel with a higher ecological function and greater civic beauty.

The Boneyard Creek Framework Plan is developed to aid preliminary thinking about the types of improvements that might be introduced, and the potential value they will bring to the community of Urbana. The framework plan combines mapping, analysis, and feedback from the visioning phase and forms the foundation for design that occurs in subsequent phases of the Master Plan. The Framework Plan illustrates areas along the creek for parks, plazas, and natural areas. At the same time the framework plan defines key access points into the creek and preliminary trail alignments.

The following five broad goals have shaped the Framework Plan:

1. Enhance the Local Community

- Make creek improvements that encourage appropriate development
- Create spaces along the creek that will increase the vitality of Downtown
- Protect privacy of residential neighborhoods
- Combine infrastructure and beautification projects to minimize capital costs

2. Create a Network of Pedestrian and Bicycle Connections

- Improve pedestrian and bicycle access to Downtown and the surrounding community
- Link the Boneyard Creek trail to existing parks and open spaces
- Provide physical and visual access to increase safety of the creek

3. Protect and Enhance Wildlife and Habitat

- Enhance habitat at the river bend near Silvercreek Restaurant
- Provide vegetation that could provide shade and habitat for fish

4. Improve Flood Control and Water Quality

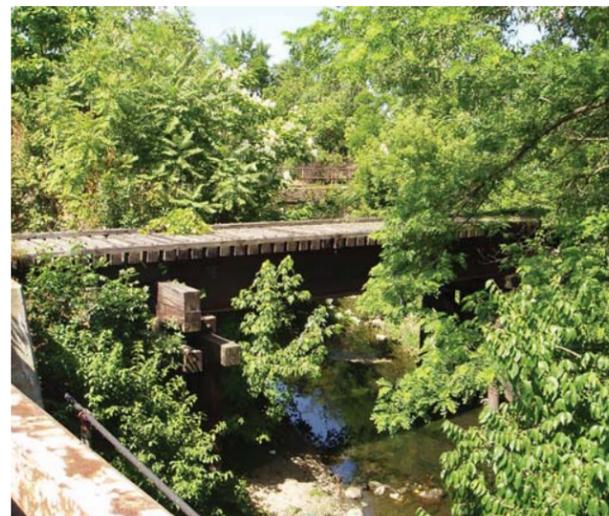
- Improve creek banks susceptible to erosion
- Remove the Courtesy Road Bridge which is a channel restriction during flood events
- Mitigate sediment and contamination within the creek

5. Provide spaces for Active and Passive Recreation

- Create public gathering spaces adjacent to the creek
- Create an outdoor gathering space at the Station Theater



Existing sheet pile walls near Race Street

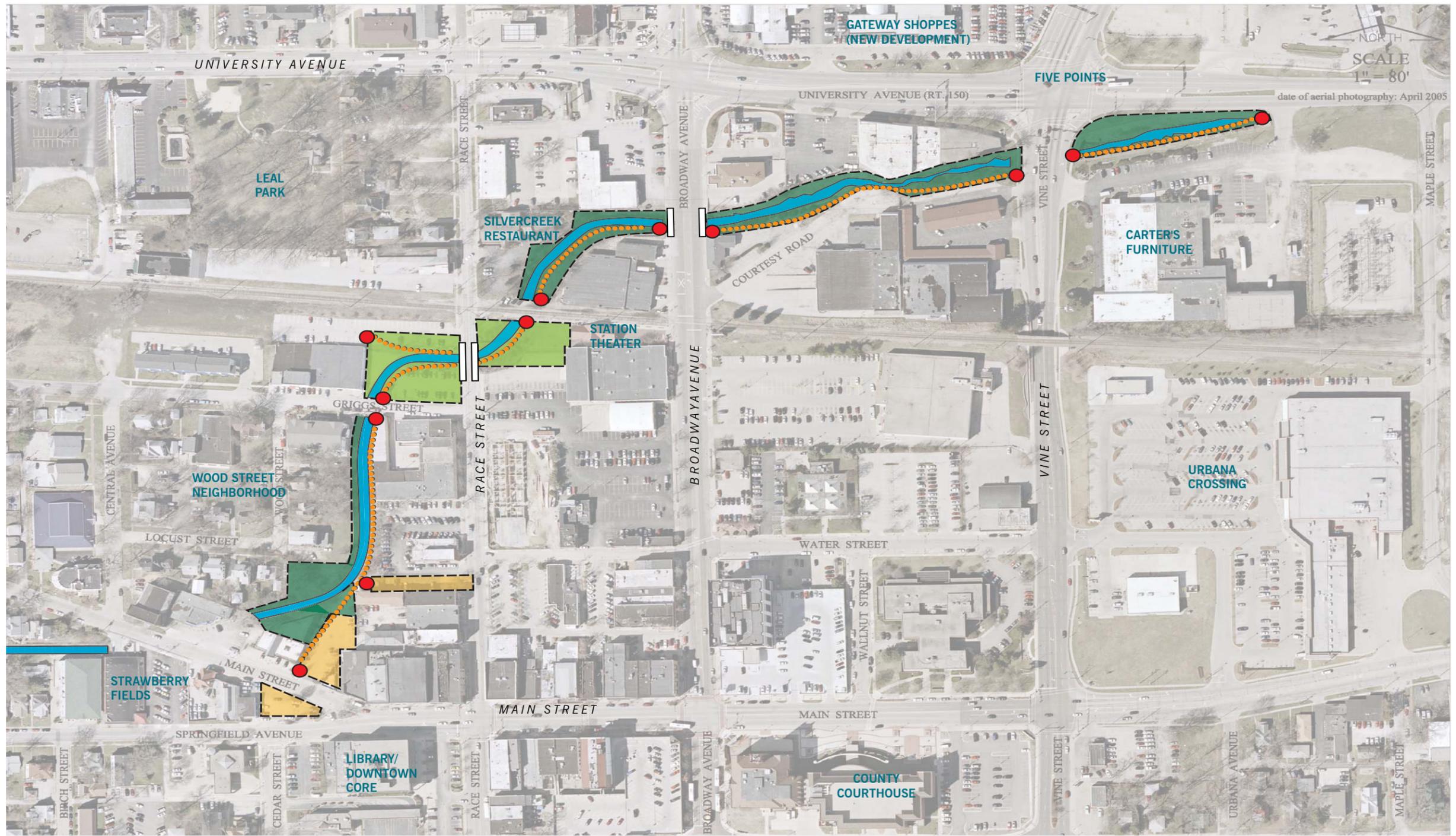


Existing trestle bridge near Station Theater



Existing overgrown banks near Silvercreek Restaurant

The following pages in this section summarize the analysis and community input that helped shape the framework plan.



Boneyard Creek Framework Plan

- natural area
- park
- plaza
- trail
- access points / gateways
- signature bridge

DESTINATIONS AND CIRCULATION

Boneyard Creek offers the potential to serve as a greenway “spine” around which future pedestrian activity is organized, and which would facilitate improved connections between major activity centers.

A great opportunity exists to increase the vitality of Downtown if better pedestrian connections are made between Carle Hospital and the Downtown core. Carle is less than ½ mile from the Downtown core, and has 3,000 employees present at the center at any given time. Yet employees rarely make Downtown a destination for lunch or dinner. As it exists, University Avenue remains a physical barrier between Carle Hospital and Downtown, making street crossings difficult and unsafe for pedestrians. There is an exiting pedestrian overpass that crosses University Avenue. Opportunities exist to strengthen connections at the overpass and key intersections to create desired connectivity between Carle and Downtown.

Additional pedestrian routes have been proposed which will greatly enhance the accessibility into the Downtown core. These include improved sidewalk treatments and bicycle lanes along Race and Broadway Streets. Also, the City has identified the railroad corridor as a future opportunity for creating “rails to trails”, that would create a major pedestrian and bicycle access route that would link Urbana with Campustown and Champaign.

The Destinations and Circulation map, along with other analysis maps in this document, leads to the discovery of a major nexus of activity that lies within the project area. This area is highly visible, located at the intersection of Race Street, the Boneyard Creek, and the future railroad corridor trails. In addition there is continued activity in this area that is vital for creek revitalization and safety. Silvercreek restaurant and the Station Theater are located within this area, and the Race Street corridor remains an active area for exciting new developments and City projects. This nexus of activity creates a primary focal point of the project area and an opportunity to create a centrally located park. This is a logical area to consider a “Phase 1” of improvements for the Boneyard Creek Revitalization Plan.



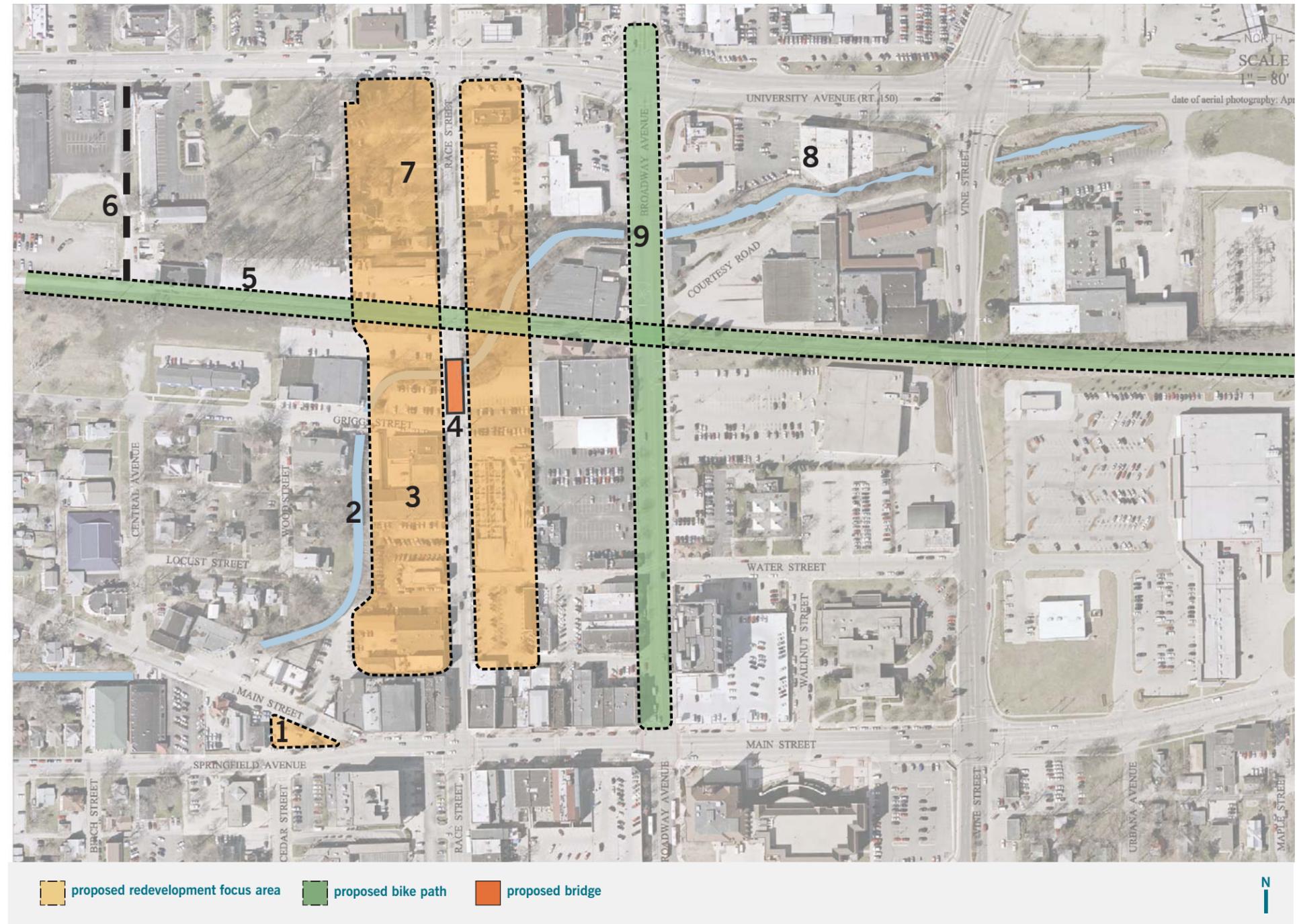
PROPOSED PROJECTS

The Boneyard Creek Master Plan will look to strengthen the ideas, goals, and objectives that have been set forth in previous planning efforts. By doing this, infrastructure and beautification projects along the Boneyard can be combined in order to minimize construction costs and lessen the amount of disturbance in the downtown area.

The Race Street corridor is currently an area of interest for redevelopment. New developments along the corridor will bring streetscape improvements such as safe pedestrian walkways and bicycle lanes. These improvements create better connectivity between the downtown core and areas to the north, like Carle Hospital and Crystal Lake Park.

The following projects have been proposed as part of various City plans. Some projects have been realized at the planning level and have achieved funding for implementation. Proposed Boneyard Creek Improvements can be combined with these projects in order to strengthen connectivity and the image of Urbana.

1. Main Street/ Springfield Ave. Plaza
2. Boneyard Creek
3. Race Street Redevelopment Corridor
4. Race Street Bridge Reconstruction
5. Proposed bike connections along RR corridor
6. Recommended pedestrian connection to Carle Hospital
7. Proposed business redevelopment at Race Street/ Leal Park area
8. Proposed redevelopment at University Avenue and Vine Street
9. Broadway Avenue streetscape and bike path
10. Additional resources for lot acquisition, parking expansion, and private development assistance



OPPORTUNITIES AND CONSTRAINTS

There are a number of opportunities, as well as constraints, within the project area. Some opportunities are outside the scope of this master plan, such as ‘Green Connections’-- creating a network of tree-lined avenues that connect existing Downtown streets to the Boneyard. However, these opportunities could greatly improve the accessibility and character of the Creek and the Downtown environment, and are therefore important to include in this section of the Master Plan.

A. Main Street and Springfield Avenue: This area has tremendous opportunity for redevelopment and is adjacent to the Downtown core. This area has been identified for the creation of a major public gathering space in previous City plans. This is also the beginning of the Boneyard Creek project area. Opportunities exist to integrate proposed creek improvements with new developments to create a vital district within Downtown Urbana.

B. A narrow Boneyard Creek Channel: Creating “space” for trails and other improvements is made difficult by sheet pile walls and steep sloping banks that are characteristic of the channel in this creek segment. The master plan will need to achieve a balance between solutions that will “fit” within these confined spaces, and solutions that will require land negotiations in order to create a safe, attractive and maintainable greenway corridor.

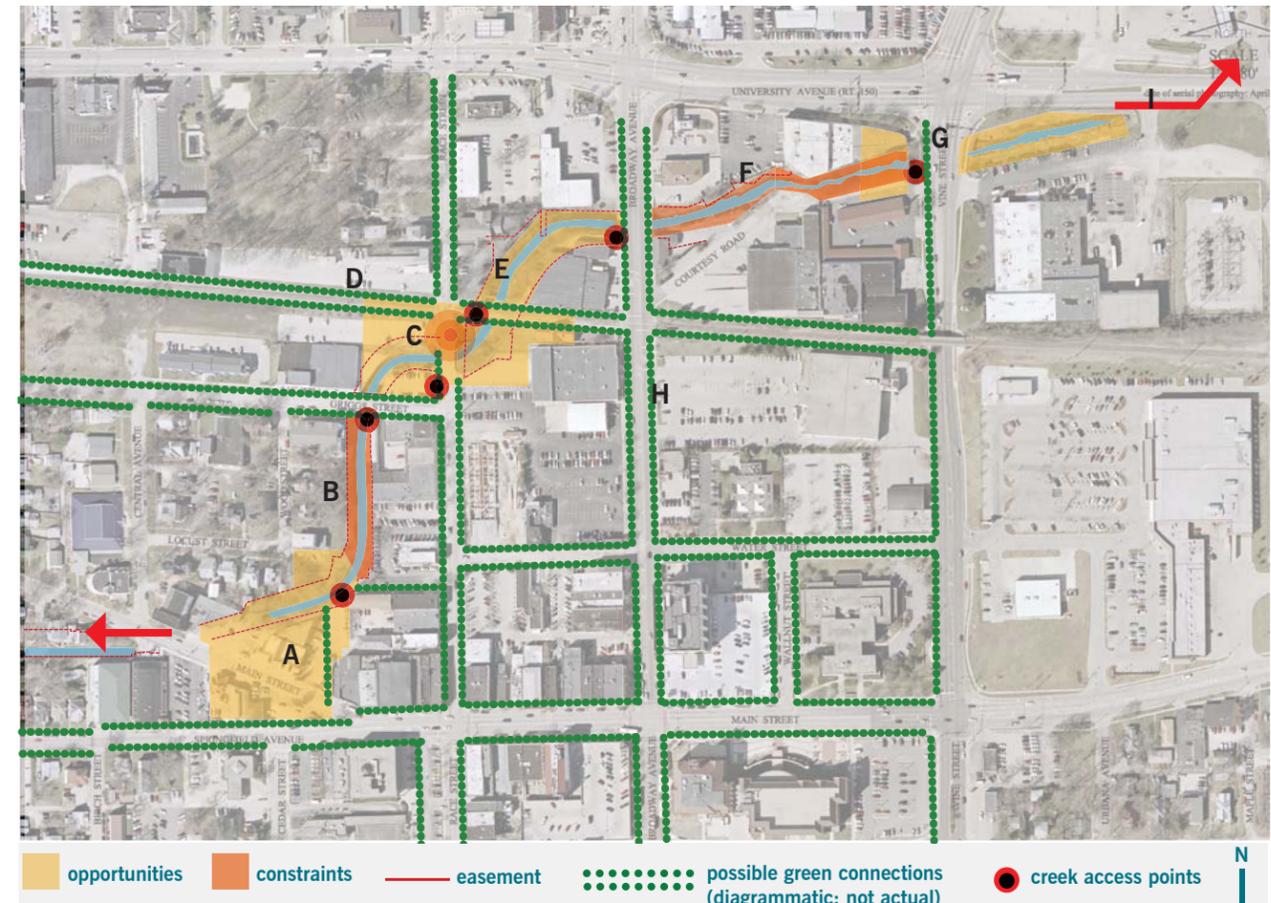
C. The Boneyard Creek Center: Located at the intersection of Race Street and the railroad corridor, this area has tremendous opportunity to create a significant public event space and park along Boneyard Creek. Existing neighbors, such as the Silvercreek restaurant and the Station Theater, are well established businesses that provide continued activity in the area. Active businesses such as these help to create the feeling of safety in an area, which is critical when locating a public amenity such as this.

D. Leal Park Connectivity: Connectivity from Leal Park to the Downtown could be improved. The park has been identified as underutilized within the City. Proposed improvements along the creek and railroad corridor can create a linkage between Leal Park and new public spaces.

E. Bend at Silvercreek Restaurant: This area has been identified as having a desirable natural character, and could provide opportunities to increase habitat along the creek. There is considerable space adjacent to the creek for sustaining diverse plant ecologies as well as creating unique creek features, such as drops and riffle pools, which are characteristic of healthy waterways.

F. Creek Segment from Broadway Avenue to Vine Street: This area is comprised of a moderately deep and narrow channel that is subject to erosion. The land area adjacent to the creek consists of expansive paved parking lots and underutilized developments. The land in this area has been identified as having the potential to change in the very near future, and thus costly creek improvements may be unwise in the near-term. Solutions for this area will focus on stabilizing the creek’s banks and managing erosion. A long-term vision for the Boneyard along this stretch anticipates a high density mixed-use redevelopment scenario.

G. Intersection of University Avenue and Vine Street: Urbana lacks a defined “sense of arrival” when traveling by vehicle from the north along Cunningham Avenue. This intersection has the opportunity to create a “Gateway” and sense of arrival into the City. This can be achieved by creating signage, sculpture, or improving landscape treatments at the intersection.



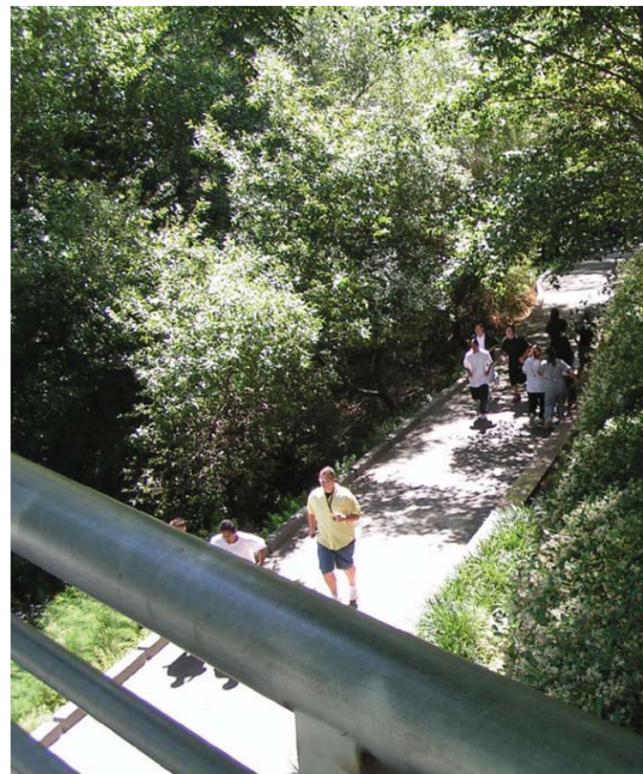
H. Creek Access and “Green Connections”: Access to Boneyard Creek will be provided at locations where the creek and major streets intersect. Multiple access points will increase usability of proposed creek paths, as well as the feeling of connectivity between the Creek and Downtown. There is a great opportunity to expand this sense of connectedness to the creek by creating pedestrian friendly, tree-lined avenues along existing City streets. These pedestrian avenues create a network of “Green Connections” that extend well beyond the boundaries of creek, increasing the beauty of the Downtown fabric, and at the same time creating feeling of nature in the City.

I. An Expanded Boneyard Creek Network: The project “site” for this Master Plan is limited to a small reach of Boneyard Creek and therefore, on its own, does not create a commuter “network” of pedestrian and bicycle trails. The proposals put forth in this Master Plan can be described as a series of parks and destinations along the Boneyard that are linked by neighborhood trails. This plan is not intended to provide a commuter bike path at a Citywide scale. However, there is a tremendous opportunity for the Boneyard Master Plan to grow outward from the Downtown core to create a larger “network” that connects Urbana to the University and the City of Champaign to the west, and connects to trails along the Saline Branch to the northeast.

A COMMUNITY DRIVEN PLANNING PROCESS

Urbana residents' input has also shaped the framework for revitalization. The following is a summary of comments which reflect the communities' desires for a revitalized Boneyard Creek:

- Provide landscape plantings to buffer residential side of creek
- Bike and pedestrian paths along creek to stay on commercial side of creek
- Replace ugly sheet pile!
- Get rid of parking across from Adult Education; create a park here
- Create a beautiful, safe trail
- Trees!
- Create an outdoor amphitheater at the Station Theater
- Improve habitat at the reach near Silvercreek restaurant
- Keep and use the existing railroad trestle
- Build out the area around Silvercreek as a night entertainment district
- Convert old lumberyard area to a beer garden
- Better use needed of empty buildings
- Create a small park next to theater
- Create a naturalized pond
- Create a dramatic gateway to Downtown from University Avenue and Vine Street
- Remove the Courtesy Road Bridge
- Build beautiful bridges at street crossings
- Make the path continuous along the creek
- Excessive parking and more concrete are not desired downtown
- Leal Park is vastly underused; the Boneyard Plan should provide connections to Leal Park.
- The plan might take on different character along the different reaches of the creek
- Planning should occur with property owners. The plan needs to be phased.
- The plaza area at Springfield and Main is a great place to bring together different people and cultures
- How can art be integrated into the plan? There is currently a Public Art Program with focus on environmental art.



Most preferred images for the Boneyard's future, selected by the public during planning workshops.

boneyard creek
MASTER PLAN SUMMARY

MASTER PLAN NARRATIVE

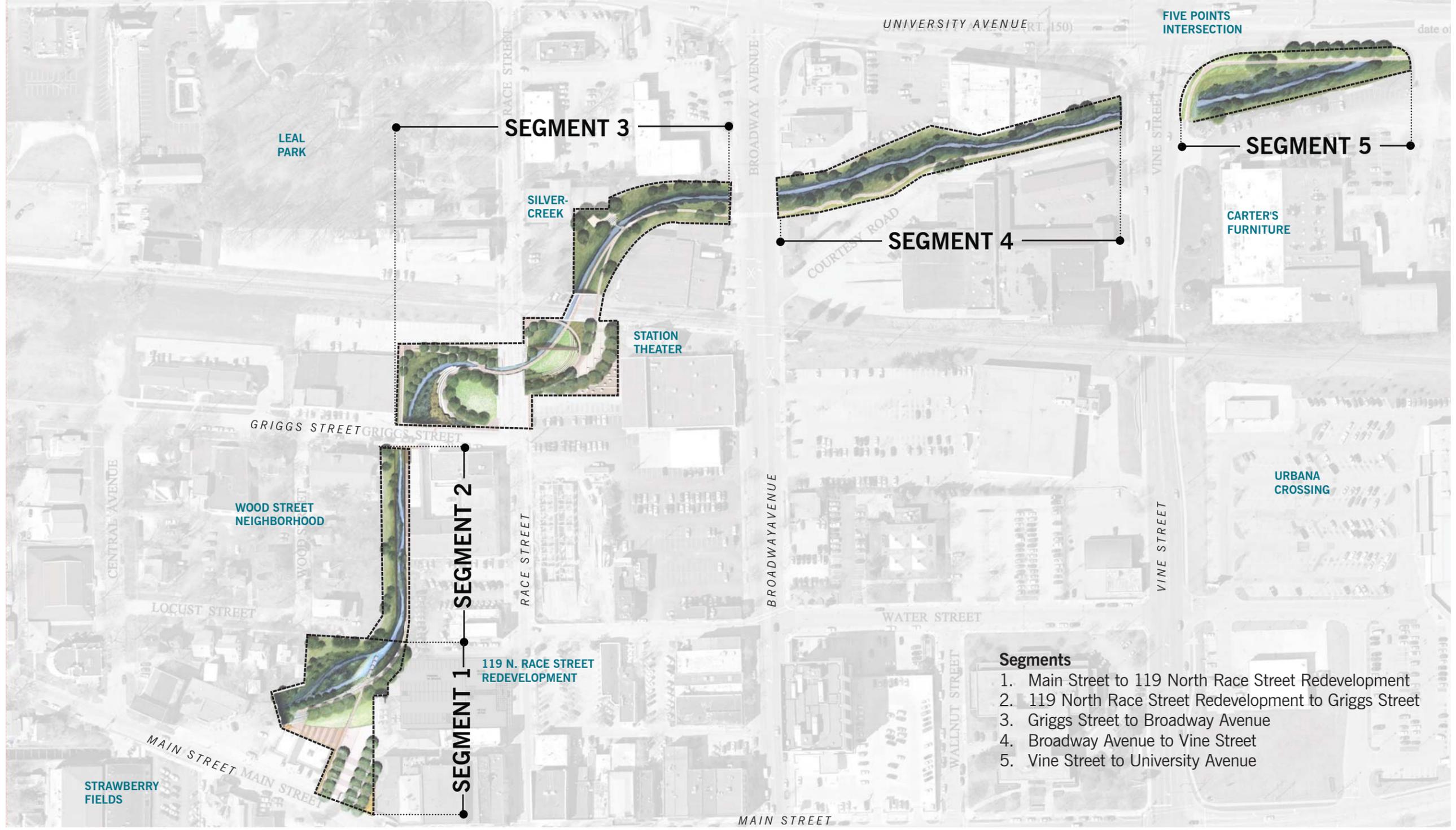
The proposed master plan is intended to transform Boneyard Creek from a highly urbanized drainage ditch into a place for people—a destination for the local community with spaces for leisure and enjoyment. The plan creates a system of small parks and open spaces that are connected by a continuous linear trail. Sheet pile walls will be removed in select locations and the banks will be laid back in order to recreate a naturalized channel with a higher ecological function and greater civic beauty.

The creek sits approximately 12-15 feet below the street level. Where feasible, the banks will be laid back in order to “open up” the channel to the street to increase visibility and safety along the creek. Pedestrian access will be provided from the street level at major intersections as well as strategic points along properties adjacent to the creek.

One of the more challenging aspects of the master plan is that the City of Urbana does not own the land that is the Boneyard Creek corridor. There is an existing easement that allows the City to access and maintain the creek, however this does not presently allow for the construction of improvements within the corridor. Implementing the Master Plan recommendations which include: bank stabilization, trails and public access, and parks and other landscape improvements, will require an amendment of the existing easement with the agreement and cooperation of the adjoining property owners. Additionally, recommendations for future improvements may require “partnering” with private landowners that will provide access through their property, or to encourage compatible, creek-oriented development.

The Boneyard Creek Master Plan has been divided into five segments that are based on their respective physical conditions. The proposed plans for these segments respond to these conditions, and solutions vary based on the opportunities and challenges that lie within each segment. The proposed segments could be viewed as individual project areas that could be phased independently to make up a greater whole when each segment is fully completed.

The Master Plan Summary illustrates plans for two phases of development. Phase I represent a five year vision for Boneyard Creek. Future Phase Plans represents a twenty-five year vision and illustrate future redevelopment scenarios. The Future Phase Plans illustrate the relationship that can be created between a revitalized creek in Phase I, and future urban redevelopments that are focused along the Boneyard.



SEGMENT 1 | PHASE 1

SEGMENT 1-Phase 1: Main Street to 119 North Race Street Redevelopment

Segment One provides the opportunity to open up the Boneyard Creek channel and create a significant public gathering space for Downtown. This segment is closest in proximity to established businesses that make up the Downtown core. The plan proposes a small park and plaza that could be used for everyday activities for nearby residents or for smaller, organized events. The channel in this segment will be completely transformed, removing the sheet pile walls and laying back the banks to create a more naturalized channel and a feeling of openness along the creek. The proposed plan creates a small terrace that allows seating next to the water's edge. Small weir structures are built within the channel to create backwater areas and drops in the creek during low flow months. This will increase the sound of running water and establish the conditions for native plantings along the channel banks.

The north bank will be planted to increase habitat values and add trees within the City. This bank also provides a much desired privacy buffer between existing residential neighbors and this newly created public space.

A drive cut and public parking are created off of Main Street. The parking area can be designed to look and feel like a public plaza, with a patterned surface and street trees planted in between parking stalls. This area will be the primary access way for pedestrians entering the space. This space also serves as an entryway to the parking garage for the redevelopment of 119 North Race Street.

The location of the first home in Urbana resides within this Segment. The house belonged to William Tomkins and was built in 1822. A great opportunity exists to create a design element that signifies the history of Urbana's first home.

Described below are program elements and construction features for the proposed improvements in Segment One:

Demolition/ Removals:

- Remove sheet pile walls- (approx 500lf each side)
- Remove the concrete channel bottom (approx. 6,000sf)
- Remove chain link fence

Built Features:

- Terrace walls and steps along south bank for seating and access along the creek (approx 1,000lf of terrace walls)
- Retaining walls and railing at the existing tunnel opening (approx. 150lf).
- 12,000sf of plaza, parking, and access drive from Main Street
- 8' wide trail that extends into segments to the north
- Small weirs to create pools and drops during low-flow months
- Decorative guardrail on top of retaining wall

Vegetation and Character:

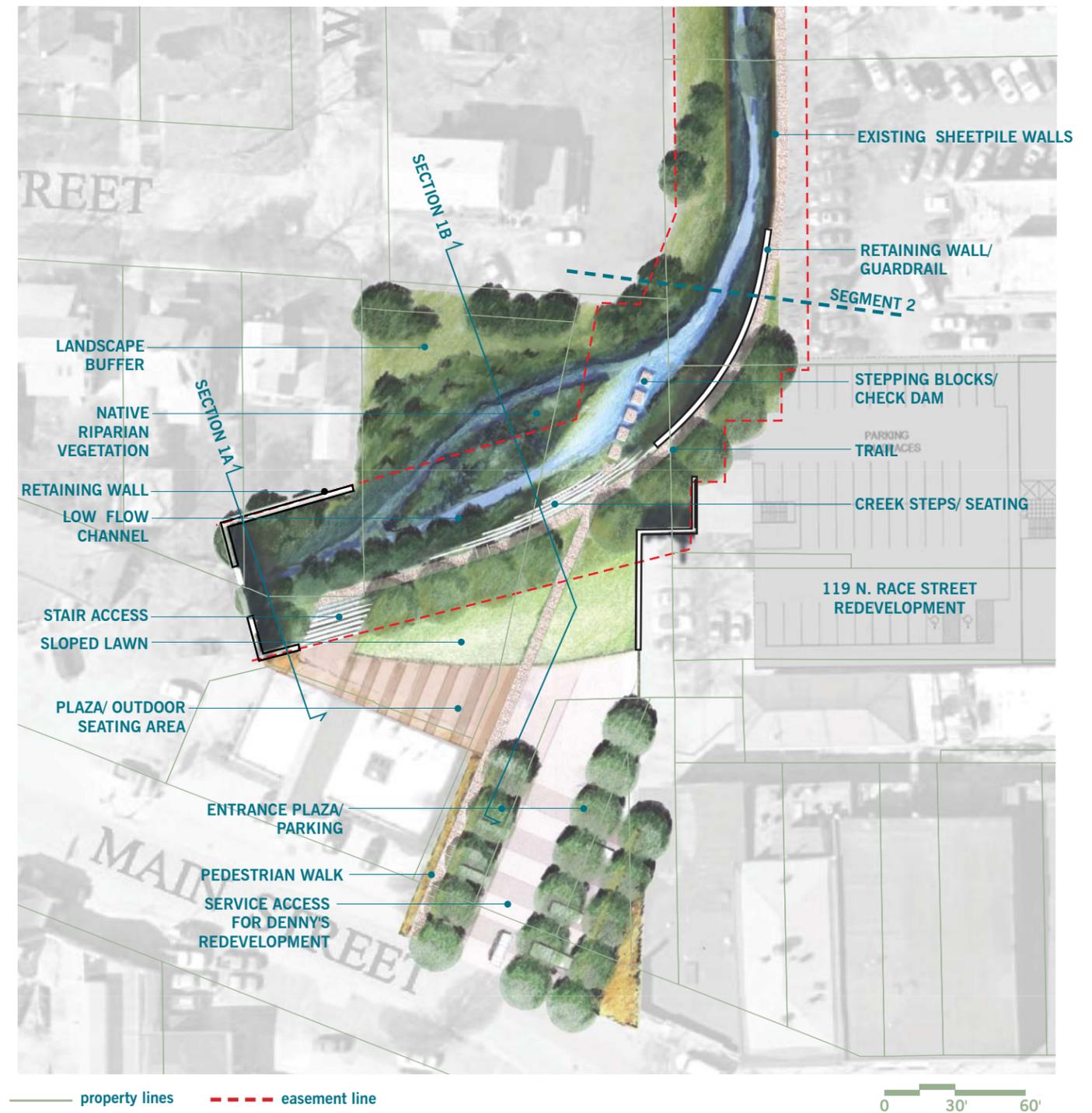
- South bank: "park like" with shade trees and lawn
- North Bank: Native in character—riparian vegetation to increase habitat value and act as a buffer for residential neighbors
- In Channel: native riparian and emergent aquatics (approx 4,000sf)

Art Opportunities

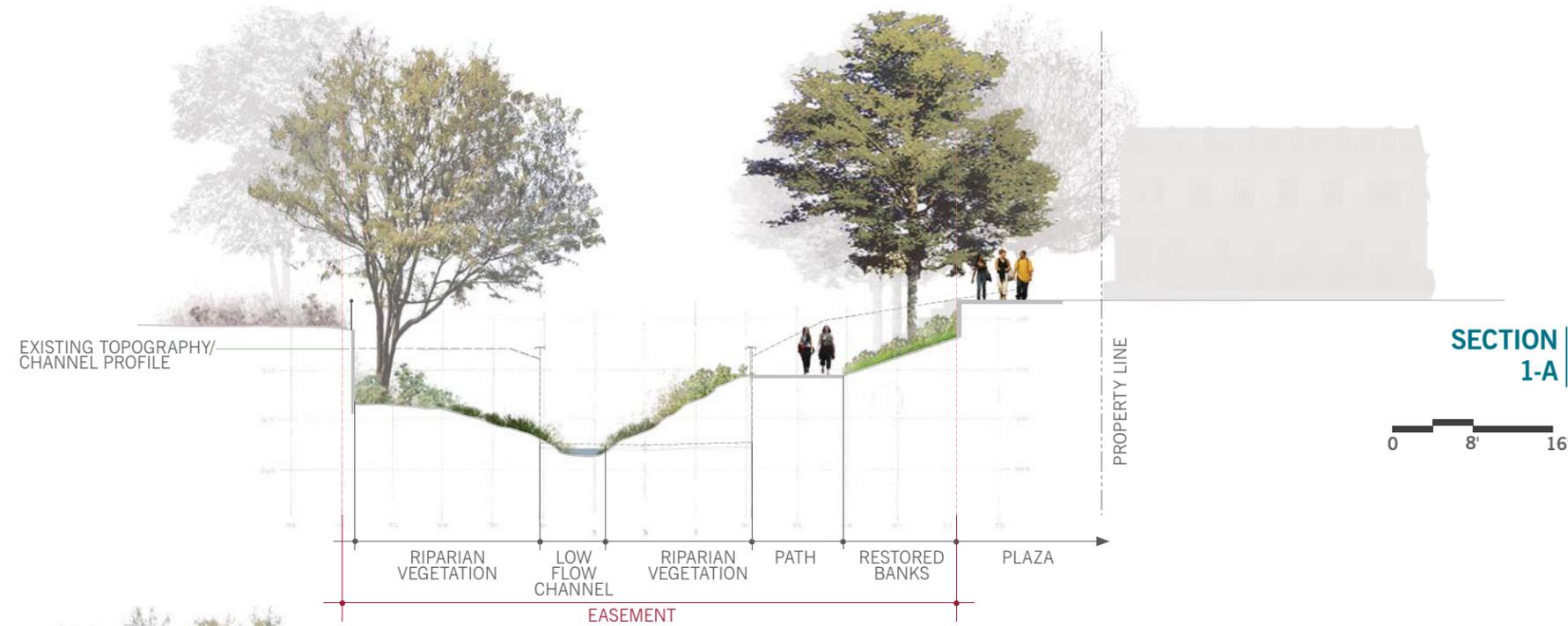
- Integrated art with structures such as weirs, paving, terraces, or railings
- Gateway or entryway features from the plaza area to the creek
- Environmental art to illustrate restored habitat and species of the Boneyard Creek
- Interpretive Art to signify the Tomkins house

Land Partnering/ Requirements:

- Agreement with adjacent property owners to amend the existing maintenance easement



PHASE 1 | SEGMENT 1



Above: example of seating steps.
Lower left: potential outdoor seating/ dining at creek plaza.
Lower right: example of creek edge and check dam.



SEGMENT 2 PHASE 1

SEGMENT 2-Phase 1: 119 North Race Street Redevelopment to Griggs Street

Segment Two of the Master Plan is the most narrow and confined space of all the reaches within the project area. Opportunities for expansion of the channel and its banks are limited by the encroachment of buildings and adjacent properties on both sides of the creek. It is apparent that there is likely redevelopment to occur along Race Street in the near future. The initial plan within this segment is intended to increase the beauty and ecological function of the channel using only minor public investment. The proposed improvements call for minimal modifications to the channel cross-section and remain almost entirely within the walled channel. A major objective of the plan in this segment is to provide a catalyst that changes perceptions about the Boneyard Creek. New redevelopments along Race Street will consider the creek as a valued amenity rather than an eyesore, and possibly create new spaces along the creek for leisure and enjoyment.

The sheet pile walls will be maintained in this segment, but will be planted with vines and native riparian vegetation to minimize the visual impact. The plan calls for the removal of the concrete channel bottom to create a narrow low-flow channel. This will increase the ecological value of the creek, and sustain vegetation planted along the creek edges.

There is no public access into the channel along this segment. Instead, the plan calls for a continuous trail at the top of bank along the east edge of the channel. At the north end of this segment, near Griggs Street, the available space for a trail becomes confined by the encroachment of nearby buildings. The plan calls for a deck to be built over the channel in this area. The deck will provide a connection from the trail to Griggs Street, and at the same time offer a public gathering space that overlooks the creek to the south.

Described below are program elements and construction features for the proposed improvements in Segment Two:

Structures to be maintained:

- Sheet pile walls on both sides of the channel
- Maintain existing 36" sanitary sewer along east side of channel

Demolition and Removals:

- Remove the concrete channel bottom in order to create a low-flow channel. The structural stability of the sheet pile walls are to be maintained
- Existing chainlink fence on both sides of the channel

Built Structures:

- 8' concrete trail/ walk at top of bank (approx. 320lf)
- 1,000sf elevated deck/ creek overlook
- Decorative guardrail on top of sheetpile walls

In Channel Structures:

- Toe stabilization along low flow channel

Vegetation/ Character:

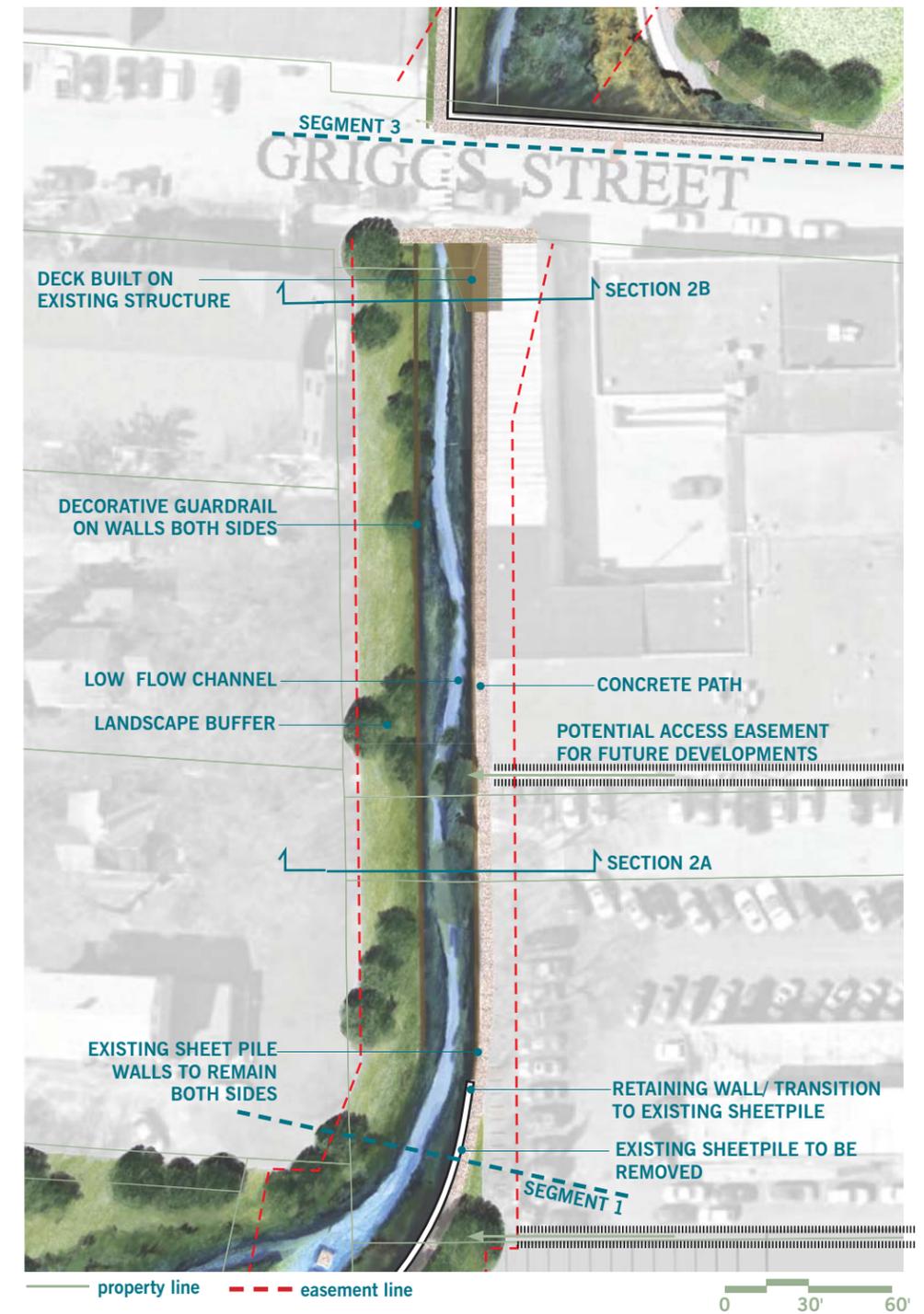
- Plant top bank on the west side of creek to create buffer along residential properties
- Hanging vines along sheet pile walls
- Create wetland and emergent aquatics along a low-flow channel
- Plant riparian vegetation outside of the low-flow channel edges

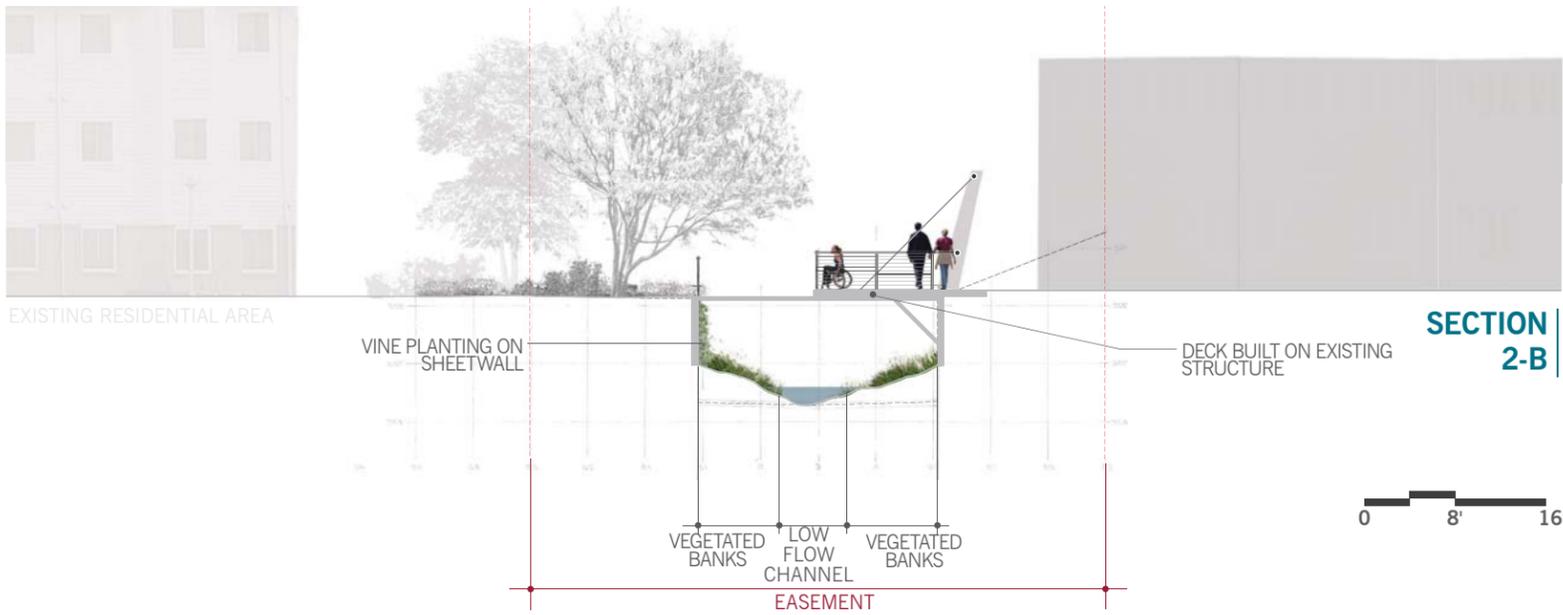
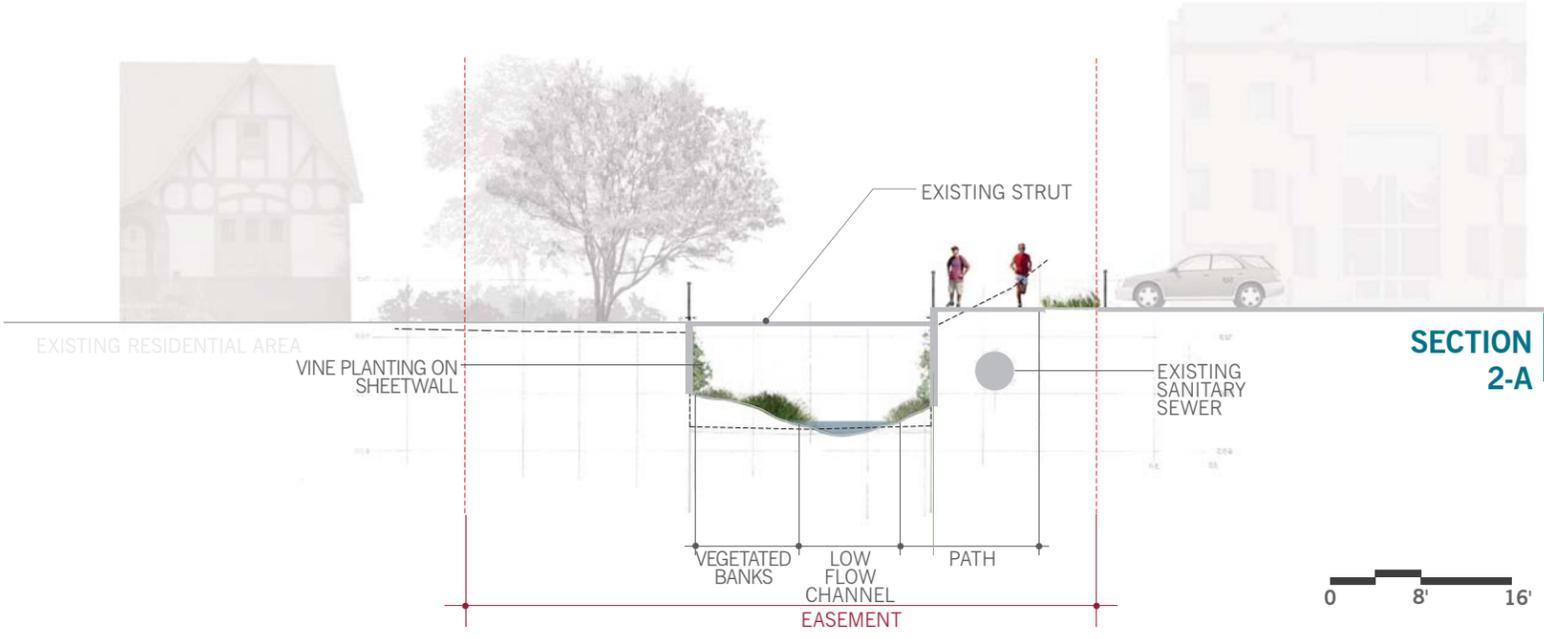
Art Opportunities

- Integrated art with structures such as decking, paving, and railings
- Art that visually enhances or modifies sheet pile walls
- Environmental art to illustrate restored habitat and species of the Boneyard Creek

Land Partnering/ Requirements:

- Agreement with adjacent property owners to amend the existing maintenance easement





Above example: Access easements between select properties can ensure public accessibility to the Boneyard when future redevelopments are completed along Race Street.



Above: Vines can be planted on existing sheet pile walls to minimize visual impacts.

SEGMENT 3 PHASE 1

SEGMENT 3-Phase 1: Griggs Street to Broadway Avenue

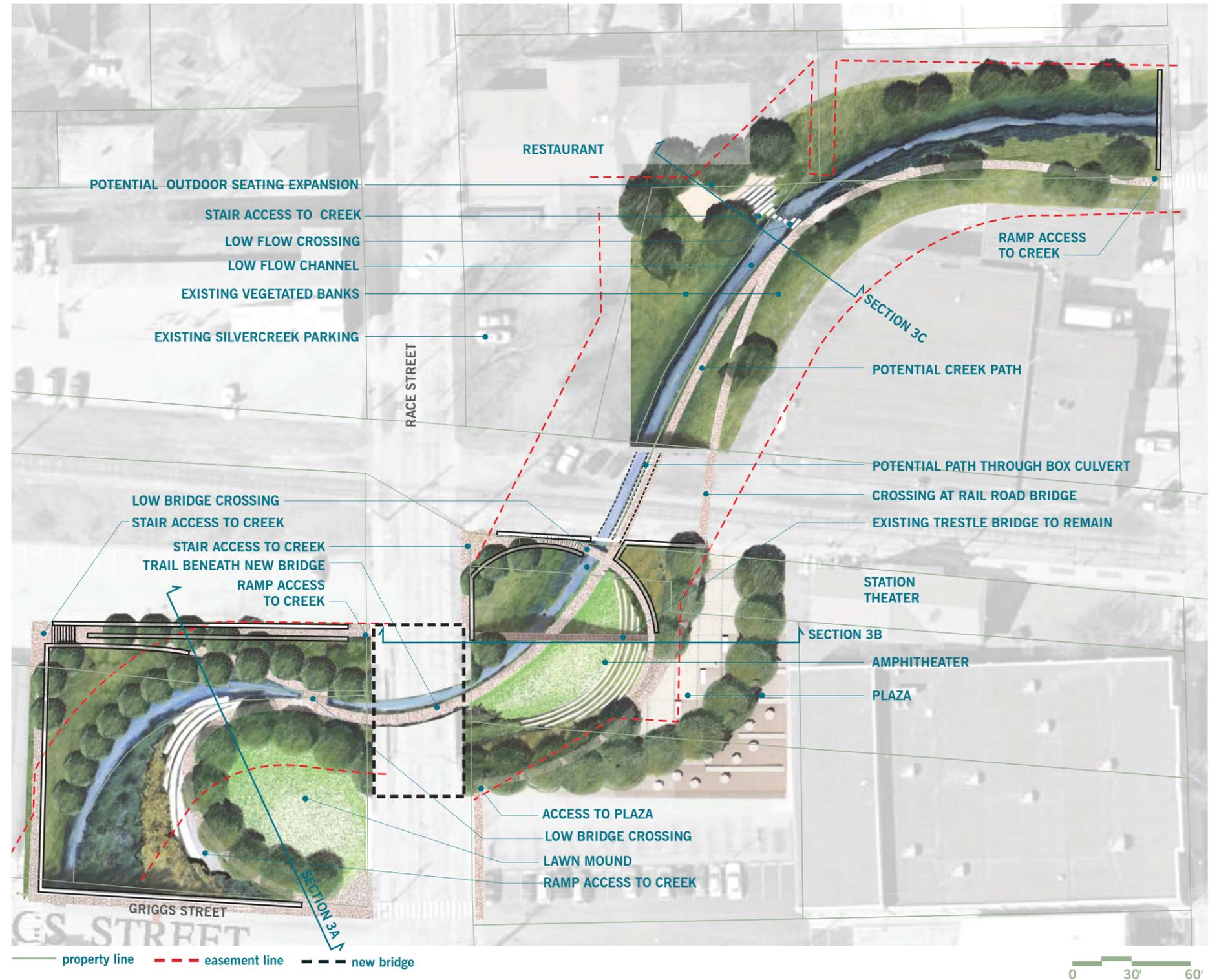
The proposed improvements along Segment Three have a tremendous opportunity to transform the downtown area and create a central park that will bring value to the community. The land area surrounding the Boneyard Creek in this segment is comprised of stable businesses like Silvercreek Restaurant and the Station Theater. At the same time, there are underutilized properties and expansive parking lots that lie vacant. There is expected growth anticipated for this area and a great opportunity to reuse underutilized properties. Also planned in this segment is the reconstruction of the Race Street Bridge which has been identified in the City's Capital Improvement Plans. A tremendous opportunity exists to integrate proposed beautification improvements with the new bridge construction, and create a small urban park that can be connected on both sides of Race Street below the bridge.

The creek is approximately 15 feet below the street level in this area. Sheet pile walls will be removed and the creek banks will be laid back to create a feeling of openness and security in the park. The park will provide public access to the creek edges and landscape spaces for everyday leisure.

The plan proposes an outdoor amphitheater and plaza on the east side of Race Street. This can act as an public event space as well as a performance venue for the Station Theater. The existing railroad trestle bridge will be maintained in its original position, but will be upgraded to include a decked walkway and decorative guardrail. The trestle bridge deck will be above the theater and act as an overlook. At the same time the bridge will connect pedestrians from Race Street to the Station Theater at the street grade elevation.

The pedestrian trail continues north of the existing rail line to an area that will be more natural in character. The creek in this area is comprised of a soft bottom channel and the banks support mature trees. The improvements in this area will include: creating a low-flow channel, maintaining mature trees, and revegetating the ground layer plants to preserve the natural feeling that currently exists. There are existing adjoining box culverts that span beneath the rail line. The culverts measure 16' wide X 12' tall each. There is an opportunity to create a trail through one of the culverts so that the park is connected on the north and south sides of the rail tracks. The trail would be raised so that it is both safe for pedestrians and would not impede flood levels. This connection would offer a continuous trail from Griggs Street to Broadway Avenue that would not be interrupted by vehicular traffic or train crossings.

A low water bridge crossing is proposed from the east edge of the creek to the west edge at the Silvercreek Restaurant. This will give patrons of the restaurant an opportunity to enjoy the creek or stroll along the trail. An opportunity also exists to create expanded outdoor dining for the restaurant along the creek.



Described below are program elements and construction features for the proposed improvements in Segment Three:

Structures to be maintained:

- Railroad trestle to remain and be reused within the park
- (2) Box culverts beneath RR tracks
- 36" Sanitary along east side of creek

Demolition and Removals:

- Remove sheet pile walls north of Griggs Street and west of Race Street (approx 360lf)
- Remove concrete channel bottom (approx. 3,600sf)
- Possible relocation of 36" sanitary sewer on west side of creek (approx. 120lf just north of Griggs Street)

Built Structures:

- Race Street Bridge per City CIP (approx 70' span w/ 10' minimum clearance below)
- 8' wide continuous trail (approx. 650lf)
- Terrace walls, steps, and theater (approx. 1,250lf)
- (4) Access points- steps and ramps to the creek (locations at Griggs and Race Street intersection, at southeast side of Race Street, at northeast side of Race Street, and at Broadway Avenue)

In Channel Structures:

- Toe stabilization along the low-flow channel
- (1) Weir structure, combined with low-water crossing at Silver Creek Restaurant
- (3) Low bridge crossings
- Possible raised concrete walkway through existing box culvert

Vegetation/ Character:

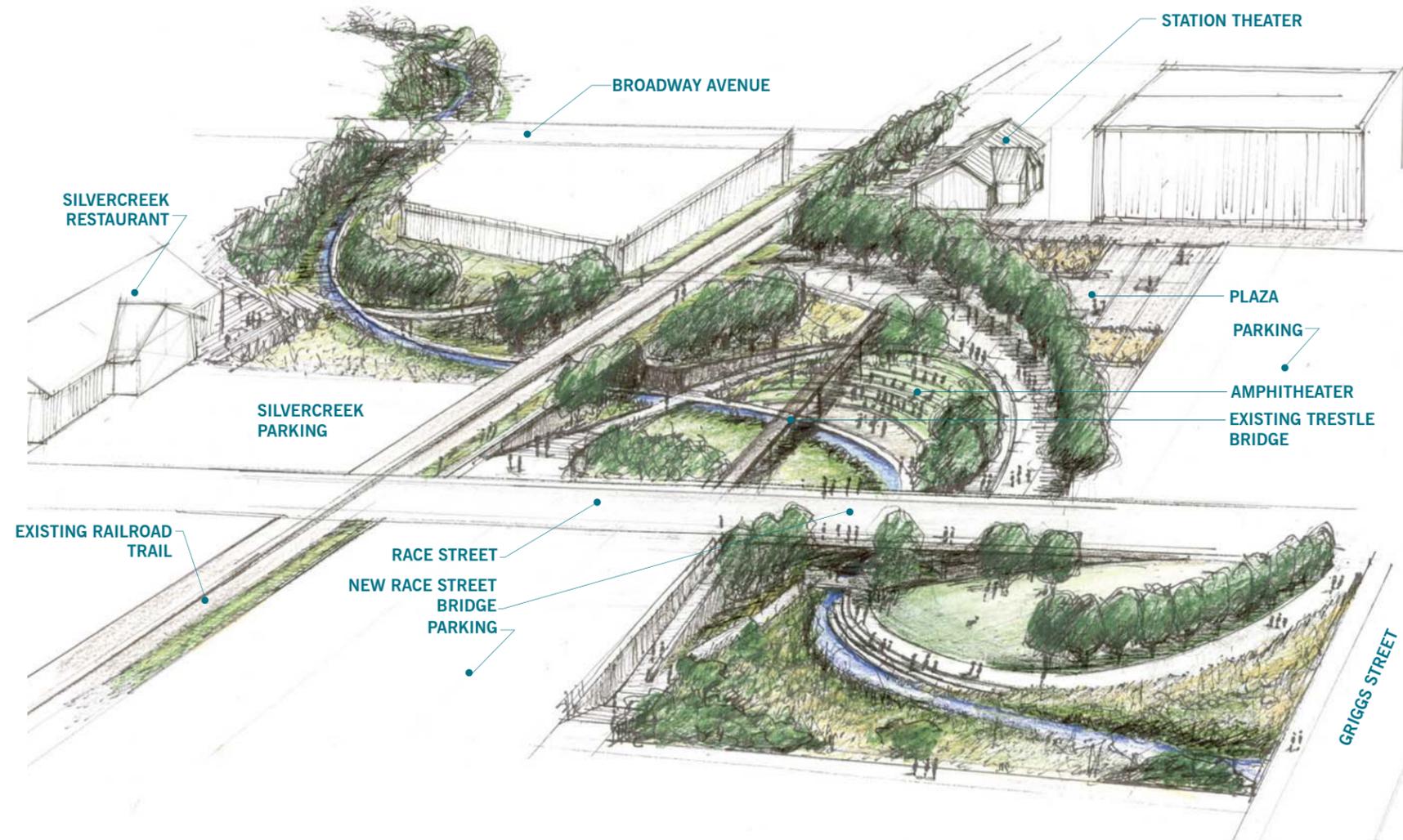
- South bank: "park like" with shade trees and lawn
- North bank: native in character with riparian vegetation
- In Channel: native riparian and emergent aquatics
- From RR crossing to Broadway Avenue- native in character with existing trees and riparian vegetation along both sides of the bank.

Art Opportunities

- Integrated art with structures such as decking, paving, walls and railings
- Interpretive art at the theater plaza and amphitheater
- Interpretive art at the railroad trestle that illustrates railroad use or history
- Environmental art to illustrate restored habitat and species of the Boneyard Creek

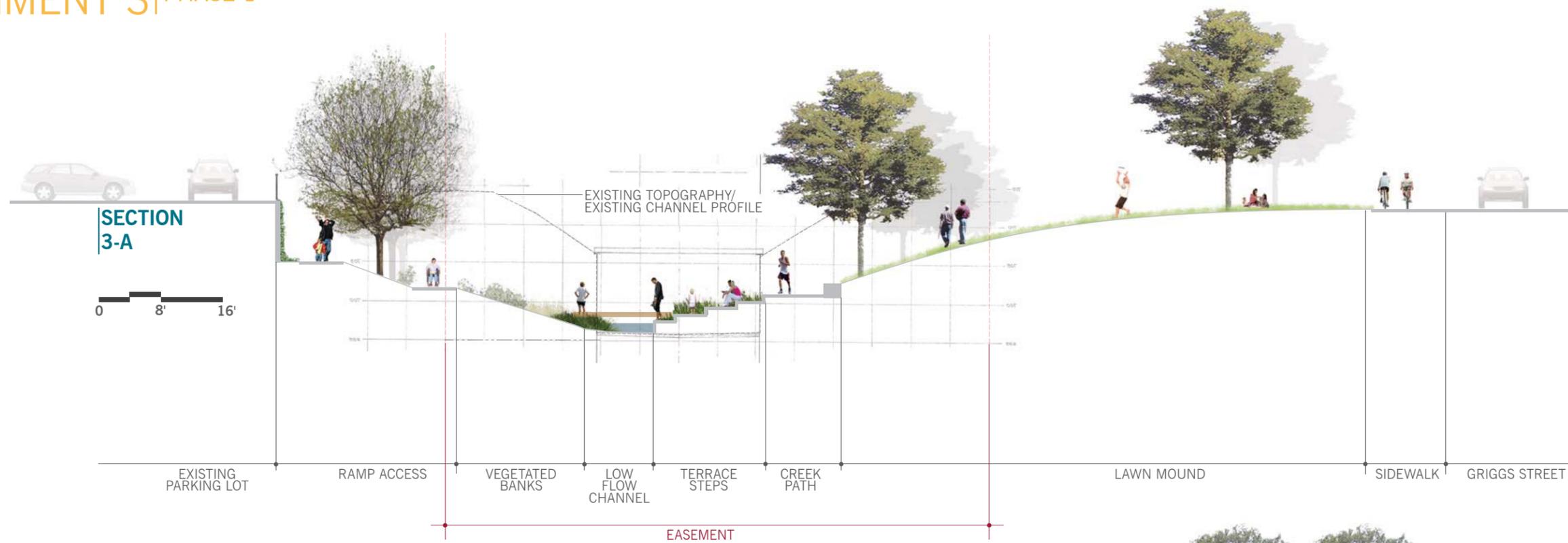
Land Partnering/ Requirements:

- 4,000sf (parking currently owned by school district)
- 1,200sf (City owned parking)
- 1,200sf (parking currently at privately owned property)
- Agreement with adjacent property owners to amend the existing maintenance easement



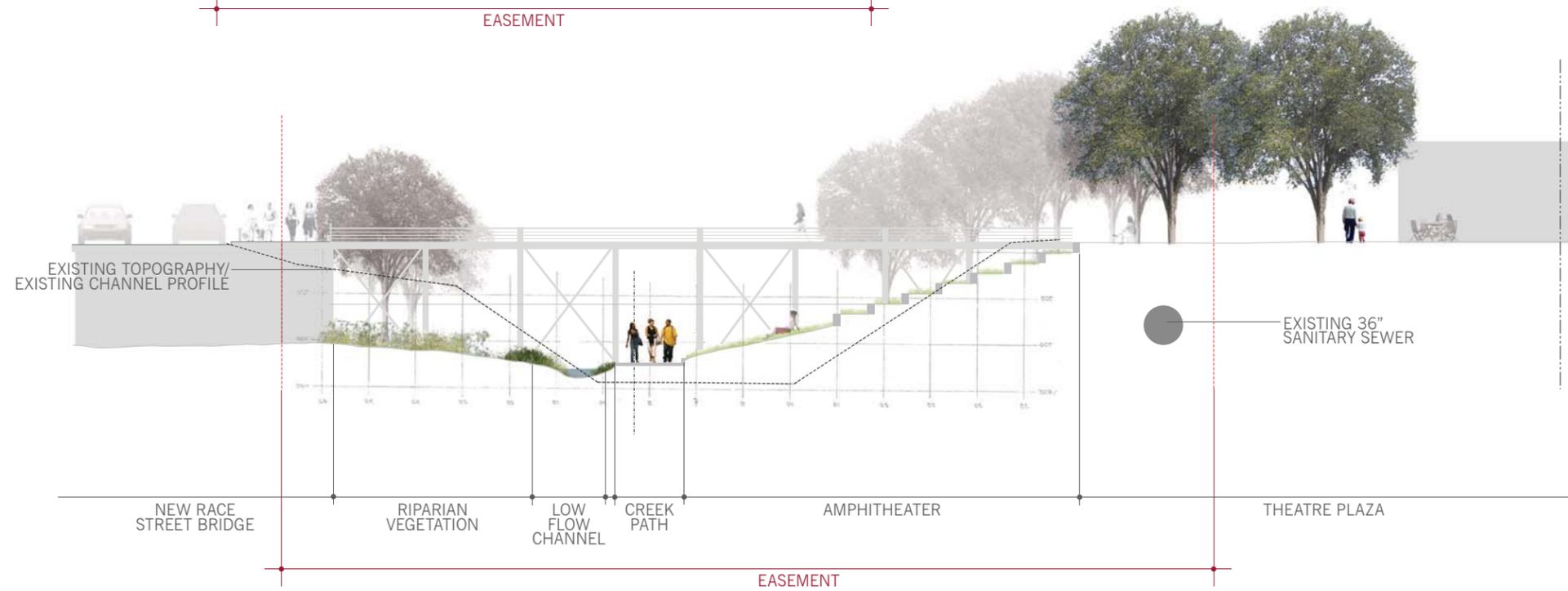
Boneyard Creek- Segment 3 character sketch

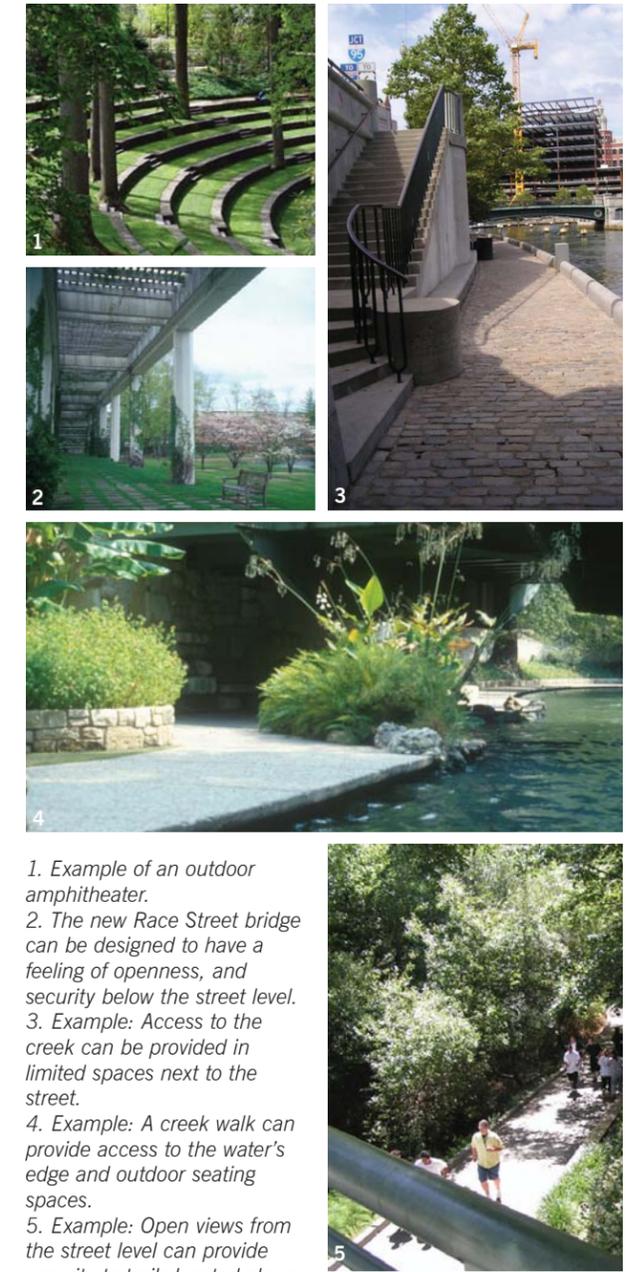
SEGMENT 3 PHASE 1



SECTION 3-B

0 8' 16'





1. Example of an outdoor amphitheater.
2. The new Race Street bridge can be designed to have a feeling of openness, and security below the street level.
3. Example: Access to the creek can be provided in limited spaces next to the street.
4. Example: A creek walk can provide access to the water's edge and outdoor seating spaces.
5. Example: Open views from the street level can provide security to trails located along the creek.

SEGMENT 4 PHASE 1

SEGMENT 4 Phase 1: Broadway Avenue to Vine Street

The property between Broadway Avenue and Vine Street has been identified by the City as an area of possible redevelopment in the short-term future. Thus the plan concludes that public investment for channel modifications or beautification in this area should be modest in the first phase so as to accommodate future redevelopment that could be better oriented to the creek. Therefore the plan proposes vegetation along the banks to improve erosion control, as well as the creation of a trail at the top of bank that would make a continuous pedestrian connection from the previous segments to those located to the east.

The vision for this area is better described in the future phase plans, which illustrate how new developments can incorporate creek improvements to create a valued amenity.

Described below are program elements and construction features for the proposed improvements in Segment Four:

Structures to be maintained:

- Existing gabion walls

Demolition and Removals:

- Courtesy Road Bridge and abutment is identified as a high priority in the City's future plans

Built Structures:

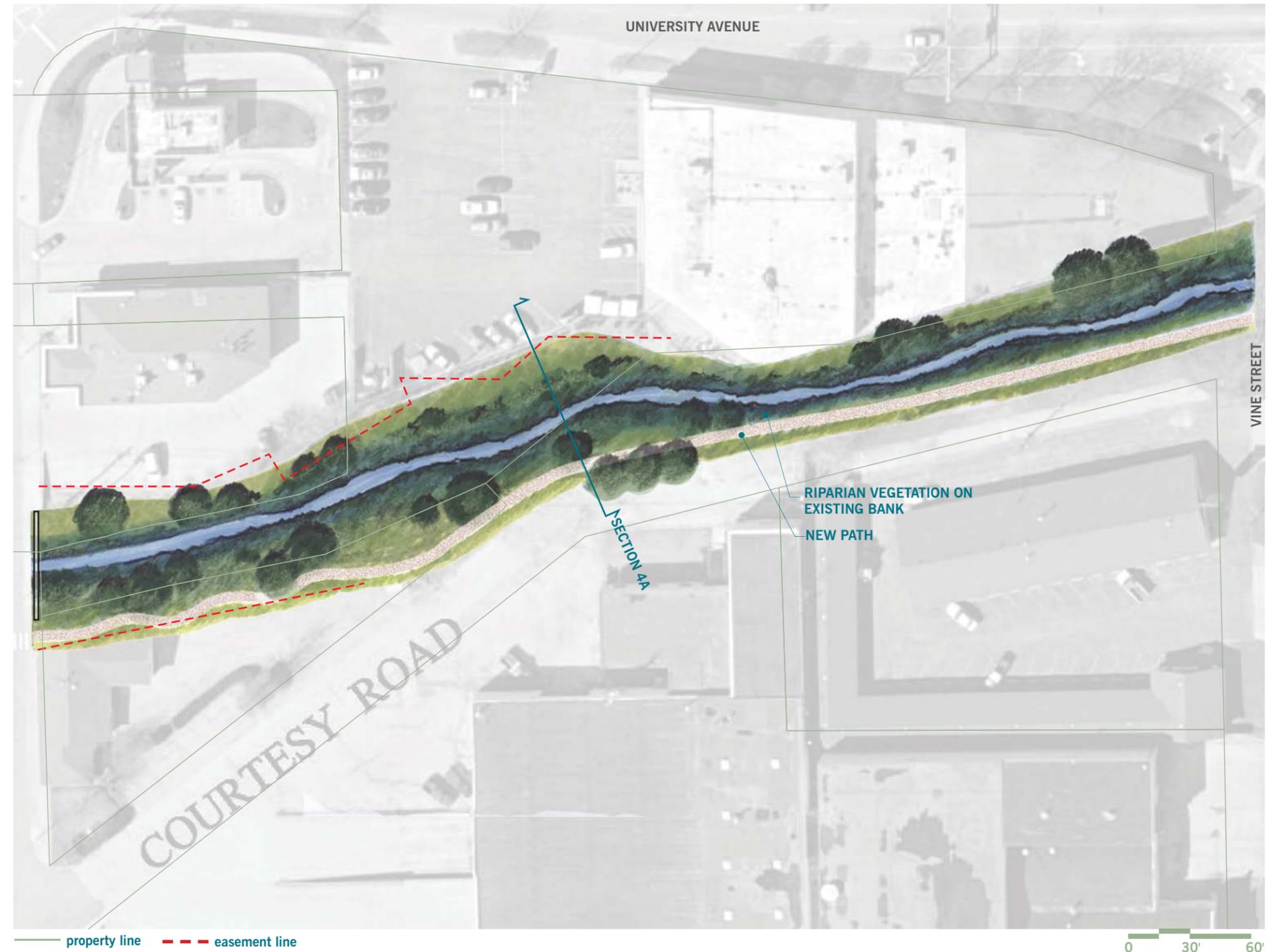
- 8' wide trail on top of bank (approx. 560lf)

Vegetation / Character:

- Native riparian for erosion control

Land Partnering/ Requirements:

- Agreement with adjacent property owners to amend the existing maintenance easement





Above: In tight reaches physical access may be limited, but a path located on top of bank allows for visual engagement of the creek and the feeling of a connected trail.



SEGMENT 5 | PHASE 1

SEGMENT 5-Phase 1: Vine Street to University Avenue

Segment Five is a small reach of creek that is confined by Vine Street and University Avenue which carry heavy traffic volumes. Thus it creates an environment unsuitable for leisure or pedestrian activity. However, the land area around Segment Five does have the potential to become an important visual gateway for the City of Urbana. This area is highly visible for those traveling south along Cunningham Avenue (Vine Street) entering Urbana. Segment Five has better long-term potential to become a valued area for improvements if the Boneyard Creek trail were to become a comprehensive commuter trail that expanded to the north, across University Avenue, and connected up to trails planned along the Saline Branch.

In the short-term, the plan proposes selective thinning of invasive vegetation as well as planting riparian vegetation that will make erosion control improvements along the creek. The plan also proposes an extension of the sidewalk that would better connect pedestrians from the creek to the east along University Avenue. Finally, this segment could accommodate an entry sign or integrated art piece that is of visual interest and welcoming for those who enter Urbana from the north.

Described below are program elements and construction features for the proposed improvements in Segment Five:

Structures to be maintained:

- Existing culvert below Vine Street
- Existing culvert at University Avenue

Demo Removals:

- Selective thinning of vegetation

Built Structures:

- 8' wide trail (360lf along University Ave. ROW)

Vegetation/ Character:

- Native riparian vegetation along creek banks
- Street trees and manicured landscape at top banks and gateway feature

Land Partnering/ Requirements:

- Agreement with adjacent property owners to amend the existing maintenance easement



boneyard creek
FUTURE PHASE PLANS

SEGMENT 1 | FUTURE PHASE

SEGMENT 1-Future Phases: Main Street to Denny's Redevelopment

The future phase plans for Segment One illustrate a 25-year vision for the area at Springfield and Main Street. The plans show possible relationships that can be created between a revitalized Boneyard Creek and future development, whereby these new developments better respond to the creek and incorporate it as an amenity.

The plan illustrates the vision for a new commercial and entertainment district for Downtown Urbana. New plaza spaces and outdoor cafes can be incorporated with the Boneyard Creek's parks and terraces, created in the Phase I plans, to create an exciting new public space. Proposed modifications to Springfield Avenue and Main Street could allow for on-street parking that would help support new developments in the area. Street trees could be planted along Main Street and improved sidewalks would create an environment that would support retail and entertainment uses in the area.



Above: Aerial perspective overlooking Main Street. Future redevelopments and the Boneyard's improvements can create an exciting new district in Downtown Urbana.



SEGMENT 2-Future Phases: Denny's Redevelopment to Griggs Street

The Segment Two channel is the most narrow and confined space of all areas studied in this Master Plan. The future phase plans illustrate how future private redevelopments along Race Street can be designed to encourage rear patios and semi-public spaces that can provide access to, or overlook, the creek. Future redevelopments could be set back from the creek to allow the removal of sheet pile walls. This would give them access to the creek as well as enable the ability to lay back the banks and create a naturalized channel in this section. The plan also shows how the arrangement of potential new developments can increase accessibility to the creek which will provide a feeling of security within this confined channel cross section. Access easements could be incorporated in between adjacent developments that allow people to connect freely from Race Street to the creek.

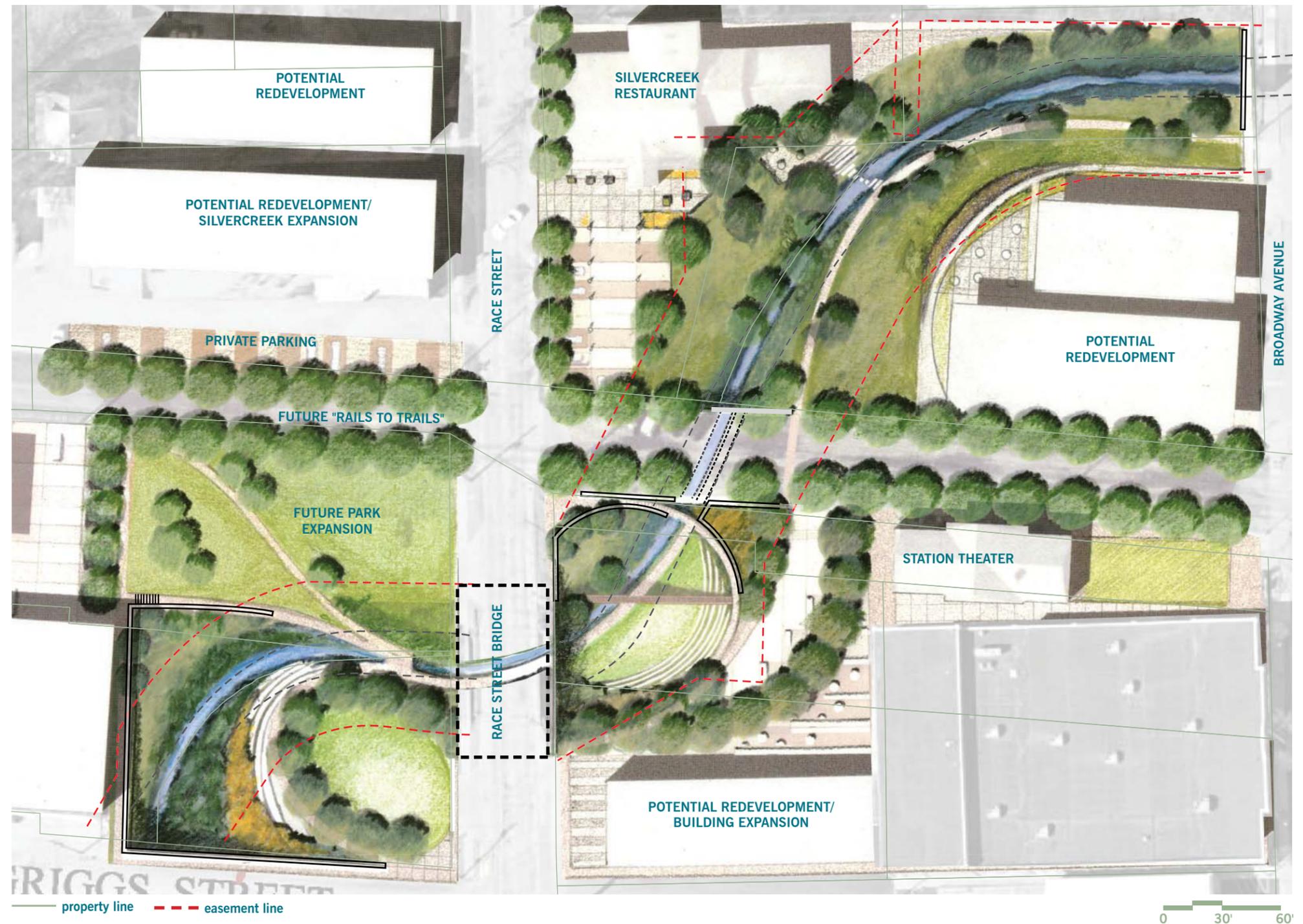


SEGMENT 3 | FUTURE PHASE

SEGMENT 3-Future Phase: Griggs Street to Broadway Avenue

The area surrounding this segment has a tremendous opportunity to develop in the future. Properties in this area are currently occupied by surface parking lots and underutilized buildings. At the same time this area is home to two well established businesses, Silvercreek Restaurant and the Station Theater. The City's Downtown Strategic Plan indicates that the rail corridor could become a future "rails to trails" project that would encompass connecting Downtown Urbana with the surrounding community and the City of Champaign. The possibility of these future trails along the corridor only strengthens the proposal for a Central Park at Boneyard Creek shown in Phase I. A fully developed park at Boneyard Creek, future trails along the railroad corridor, and continued developments along the Race Street corridor create the type of positive activity that can support new infill developments within this area.

The future phase plan illustrates a 25-year vision where infill developments are centered around Boneyard Creek and the Central Park. The block size between Race Street and Broadway Avenue is narrow enough to support businesses that would have frontage along Broadway Avenue, with back-of-house functions that face onto the park. The future phase plan creates an exciting new area and truly unique district within the fabric of Downtown Urbana.



FUTURE PHASE | SEGMENT 4

SEGMENT 4-Future Phase: Broadway Avenue to Vine Street

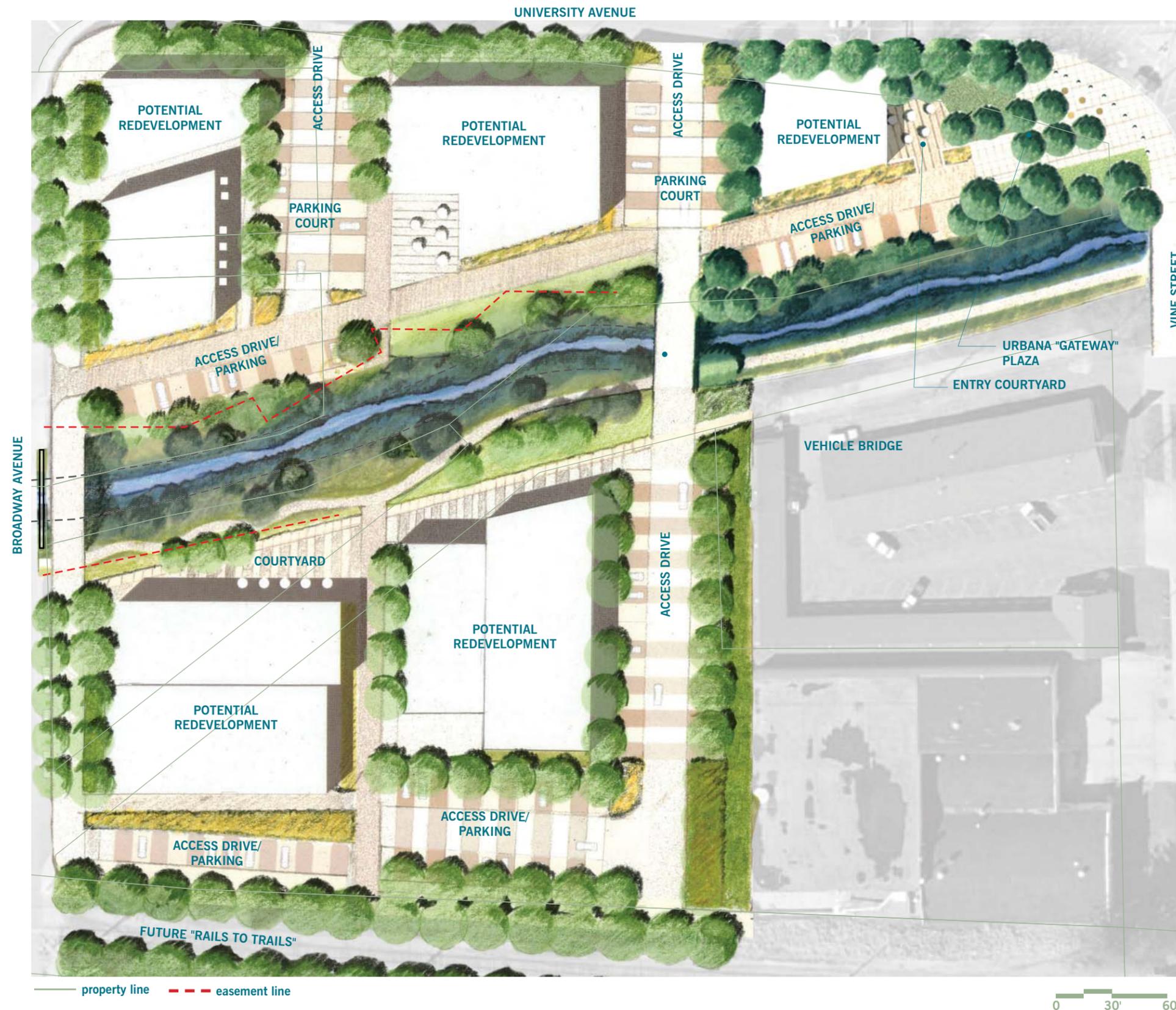
The property between Broadway Avenue and Vine Street has been identified by the City as an area of future redevelopment. The Phase I plan proposes modest improvements along this reach, in the short-term, so that future redevelopments preserve the ability to orient toward the creek. The Phase II plans illustrate how new developments could incorporate creek improvements that expand upon plans created in previous segments, thus creating a continuous trail network throughout the master plan project area.

This plan assumes that new developments along University Avenue will require parking with the number of spaces equal to, or greater than, what currently exists. This plan meets the assumed requirements and shows a parking count of 6 cars per 1,000 square feet of development. Furthermore the plan illustrates how parking can be better integrated with new developments so that a pedestrian friendly environment can be created.

The properties between University Avenue and the creek are somewhat limited in their land area. In addition, the Boneyard Creek restricts the connectivity from University Avenue to properties on the south side of the creek. This plan illustrates a vehicular bridge that would better connect properties on both sides of the creek, and would make properties more accessible from University Avenue. This would create an opportunity to consolidate adjacent properties and increase the land area required for certain types of development, at the same time it would provide an open channel and trail along the Boneyard that would be an asset for new developments.

SEGMENT 5-Future Phase: Vine Street to University Avenue

Segment Five is a small reach of creek that is confined by Vine Street and University Avenue, thus the land area in this segment is not expected to change significantly. The improvements indicated in the Phase I illustrate both a near-term and long-term vision.



boneyard creek

CHANNEL ENGINEERING & COST SUMMARIES

OVERVIEW

The reach of Boneyard Creek through the study area consists of 2500 feet of open channel starting at Main Street and ending at the culvert crossing beneath University Avenue. It passes beneath five bridges (Griggs Street, Race Street, Broadway Avenue, Courtesy Road and Vine Street) and through twin 12 foot by 16 foot box culverts at the Norfolk Southern railroad crossing. The channel falls 6.5 feet over the study reach, leading to an average gradient of 0.3 percent. Approximately 8.3 square miles of primarily urban area in the Cities of Urbana and Champaign drain to this reach, and the estimated 2-, 10- and 100-year flows at the bottom end of the reach are 780, 1100 and 1310 cfs respectively.

Currently the channel from Main Street to Race Street (Segments 1, 2 and a portion of 3) consists of a flat concrete floor with sides consisting of vertical sheet piling. From Race Street to University Avenue the channel bottom is “natural” and downstream of Broadway Avenue some of the banks are reinforced by rock-filled gabion structures. The urbanized nature of its watershed would tend to suggest that the sediment carried by the creek is likely to be relatively fine and the quantity of sediment would be less than the flow could potentially carry (leading to the potential for erosion). However, deposition of gravel in the reach immediately upstream of the Urbana city limits and elsewhere suggests that the picture may be somewhat more complicated and that there may be sources of coarser sediments within the watershed.

CHANNEL DESIGN: *Macro Scale*

The Macro Scale design describes the existing and proposed modifications to the channel cross-section from top of bank to top of bank. In Segments 1 and 3 the existing sheet pile walls and concrete bottom would be replaced with a new cross-section consisting of a concentrated low-flow channel (width of approximately 2-10 feet) and banks rising at 5:1 to 3:1 slopes up to meet existing grades. Similarly, the existing “natural” bottom channel in Segment 3 (Race Street to Broadway Avenue) would be replaced with a low-flow channel and laid-back banks. The existing concrete bottom would be removed from the entire reach between Main Street and Race Street to facilitate construction of both an inset low-flow channel and vegetated stream banks. The new channel bed and banks would be constructed at approximately the level of the existing bed. Since the channel bottom in Segment 2 contributes to the structural stability of the sheet piling (which will remain in place), either a new bracing system may have to be installed beneath the current channel bottom

or a system using existing I-beam cross members may be used to provide appropriate wall support as determined by a structural analysis.

In the segments where the banks are sloped back the “shear stress”, or the force that tends to rub material off of the sides and bottom of the channel, would be low enough (0.3-0.5 pounds per square foot) that the vegetation, once in place, would be sufficient to resist erosion. In Segment 2, where the vertical sheet piling would remain, and in the vicinity of the railroad culvert, shear stress would be somewhat higher (1.0-1.3 pounds per square foot) but within the range that only relatively light reinforcement would be required for stability in most places.

The south bank in Segments 1 and 3 would consist of “park-like” conditions with public areas and short grass lawns; the north bank in those Segments would consist of more “natural” conditions. The vegetated channel banks would be managed to support native prairie grasses and other herbaceous vegetation (with only occasional trees and shrubs), to maintain adequate conveyance during high flow events. This vegetation would also promote sediment trapping and thereby provide some benefits to downstream water quality. Segment 2 would be vegetated using native herbaceous plant species, and the banks would be built using planted riprap to resist the higher shear stress. Special consideration will be required to ensure smooth flow conditions at the transition locations between channel segments and at the railway culvert crossing due to the differences in cross-sectional characteristics.

Appropriate design measures would be incorporated on the outside of bends in Segment 1 and Segment 3 to reinforce these areas against scour during moderate and high flows. The flow velocities at these locations are estimated to be in the range of 5.5-7.5 feet per second, so it is likely that these measures would include vegetation reinforced with buried rock or plastic netting. Also, to the extent possible the design of the features at the bends would encourage smooth flows during high flows to reduce the incidence of eddies and the deposition of sediment within public areas.

Modeling indicates that the combination of channel improvements and the reduced restrictions at the Courtesy Road and Race Street Bridges would result in reduced water levels during large storm events. For the 100-year event the maximum water levels in the creek reach between Race Street and Broadway Avenue was modeled to be 4 to 7 inches lower, and the maximum water level would be 0.5 to 2 inches lower elsewhere through the project area.

CHANNEL DESIGN: *Micro Scale*

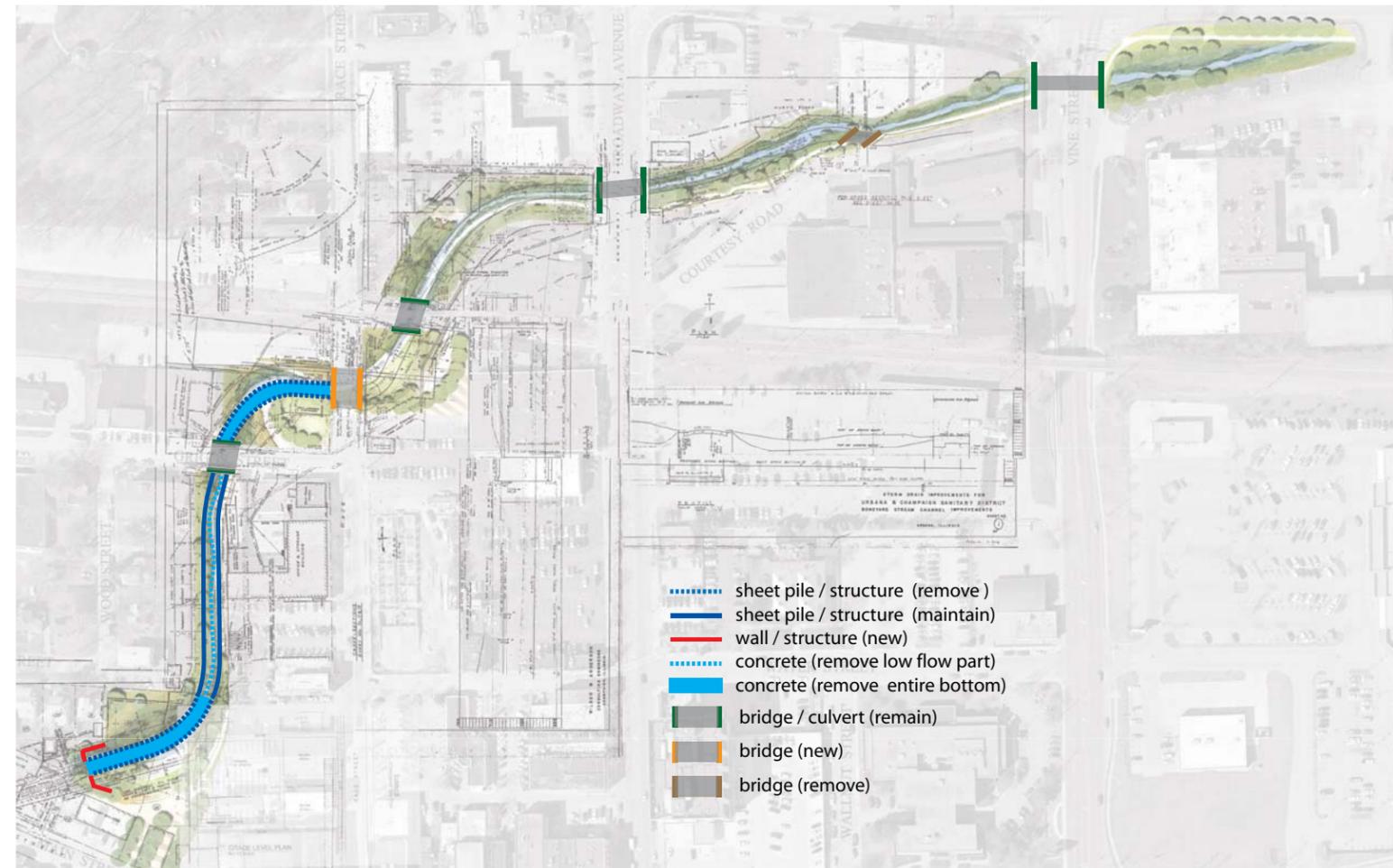
The Micro Scale design describes the proposed modifications to the water and its immediate landscape adjacencies, primarily the low-flow channel. For biological and aesthetic reasons, a more confined low flow channel will be constructed to concentrate the creek channel during normal flow periods. The low flow channel will vary from approximately 2 to 10 feet wide and its edges will consist of defined toes (bottom edges) at each bank that will extend approximately 1 foot above the level of the low flow channel. The toes will be designed to form smooth curves along the channel. Along the “natural conditions” banks large rock will generally be used to construct these toes, although for the downstream portion of Segment 3 coconut fiber roll may be considered. All of these toe areas will be planted with native emergent wetland plant species such as bulrush. On the “park” banks shaped stone blocks may be used to establish the toe.

Where the existing concrete bottom is removed a new low flow channel will have to be constructed. In these areas (Segments 1, 2 and a portion of 3), a one-foot thick layer of rounded river stone (6-inches average diameter) would be placed to form the new channel substrate. Features would be incorporated to keep the flow from “disappearing” into the rock bottom and to provide appropriate variability in low-flow hydraulic and habitat conditions. The self-maintaining pool-riffle sequence developed by researchers at the University of Illinois and tested in northern Illinois can be used to guide this design. These pools and riffles would create desirable and sustainable habitat conditions including pools on the order of 2-3 feet deep, although in low flow periods there may be issues with stagnant water that will need to be studied in further detail during final engineering of the proposed improvements.

In the downstream portion of Segment 3 the creek will flow across its existing natural substrate, to some degree allowed to establish the inset channel. Some degree of erosion and sedimentation will occur immediately upon construction and the creek will create some sort of small-scale meandering within the low flow channel. Ideally, the flow in the channel would be confined to a one to two foot wide area during low flow periods to maintain desirable depth, velocity, and algal conditions throughout the year.

Features will be constructed within the low flow channel to encourage the creek to maintain desirable conditions, which include stability, heterogeneous habitat, depth of flow and flow velocity (absence of stagnant conditions).

- One such feature is a rock check dam. Check dams may be included to maintain grade control in the natural bed portion of the low flow channel, thereby preventing excessive downcutting and providing an acceptable average slope. For purposes of this project, the check dams will be essentially underground features consisting of an approximately 3-foot deep layer of rock that extends to 0.5 feet above the bottom of the constructed channel and extending into the constructed banks. They can be spaced to control grade every 0.5 to 1.5 foot of fall as desired for stability. The dams will allow water to “back up” upstream. The gradual slope on the downstream face of the dam will prevent them from becoming barriers to fish passage. The exposed angular rock will also provide surfaces for macroinvertebrates to attach, and stepping stones can be incorporated to provide human access.
- A feature that will be included to increase habitat value within the low flow channel (with either constructed or natural bottom) is the point bar. In the natural bottom reach these low rock features will be incorporated during the design process to encourage the creek to develop pool-riffle morphology within the low flow channel; by pushing the flow toward the far bank the creek will tend to erode a deeper pool at the tip and just downstream of this structure. They will also create protected areas that will encourage the development of wetland vegetation, especially immediately downstream of the structure. In the constructed bottom reaches the point bars would not serve to adjust the channel bed but the variable hydraulic conditions produced during moderate flows would enhance fish habitat conditions. The point bars will not extend significantly above the toe of slope to minimize impacts during high flows and will consist of rock sized to maintain stability. If possible, measures will be included to allow vegetative growth on the point bars.



SHEET PILE AND CONCRETE REMOVALS PLAN.

The proposed plan illustrates the demolition and removal of sheet pile and concrete within the Boneyard Creek channel. The plan also locates new walls that will need to be constructed in order to accommodate parks and open spaces shown in the master plan.

The recommended method for demolition and removal are for the steel sheet pile walls to be cut down to the elevation of the creek. The wall sections would then be removed, and the remaining sheet pile and footers would be buried in place. The sections of sheet pile walls that would be removed are approximately twelve to fifteen feet in height. The plan recommends that nearly 1,080 linear feet be removed.

The plan recommends that nearly 840 linear feet (approximately 16,800 square feet) of concrete should be removed from the channel bottom. Some of the concrete may be able to be reused to rebuild channel banks or used for creek stabilization.

PRELIMINARY COST ESTIMATES

Opinion of Probable Construction Costs were developed for the proposed improvements for each of the five creek segments. The preliminary costs shown are for the Phase I Plan only. Preliminary estimates are developed for each Segment as an individual project, independent of other Segments. Significant costs could be saved in mobilization, contracting, design and engineering if projects are grouped. The preliminary estimates do not designate costs “by whom” knowing that to realize the Boneyard Creek as a valued amenity for Urbana will most likely require both public and private partnerships.

Segment 1: Main Street to 119 N. Race Street Redevelopment EST COSTS \$2,300,000

Structures to be maintained:

- Existing Tunnel Opening at Piccadilly

Site Preparation and Demolition

- Remove/ “cut down” sheet pile walls- approx 600lf
- Remove concrete channel bottom- approx. 300lf
- Remove existing surface paving
- Earthwork

Utilities:

- Maintain Existing 36” Sanitary Sewer along south side of channel

Hardscape and built Structures:

- Terrace Walls/ Steps along south bank- approx 750 lf of walls
- Wing walls at opening (Retaining)- approx. 150lf
- 12,000sf plaza/ parking/ access drive
- Retaining walls- approx. 200lf
- Pedestrian Walk- 2,400sf

In Channel Structures and Creek Stabilization:

- Reconstructed “soft” channel bottom
- Weir structures

Landscape Improvements

- South bank: “Park like” with shade trees and lawn
- North bank: Native in character—riparian vegetation as buffer
- In channel: native and emergent aquatics- approx 4,000sf

Soft Costs

- General Conditions, Permitting, Mobilization, Design and Engineering,
- Construction Management, Contingency (30%)
- Factor for tight working conditions

Land Acquisition/ Partnering: (costs not included)

- Agreement with adjacent property owners to amend the existing maintenance easement

Segment 2: 119 N. Race Street Redevelopment to Griggs Street EST COSTS \$1,700,000

Structures to be maintained:

- Sheet Pile walls both sides
- Griggs Street Bridge

Site Preparation and Demolition:

- Remove concrete bottom- 300lf
- Remove chainlink fence
- Earthwork

Utilities:

- Maintain existing 36” Sanitary Sewer along east side of channel

Hardscape and built Structures:

- 8’ concrete trail/ walk at top of bank- approx. 2160sf
- Walkway/ deck built over sheet pile structure- 1,200sf
- Guardrail- 300lf

In Channel Structures and Creek Stabilization:

- Channel Bottom and sides
- Weir Structures
- Stabilize existing sheet pile walls- steel brace/ concrete

Landscape Improvements:

- Plant top bank on west side of creek
- Hanging vines along sheet pile walls
- Create native/ emergent aquatics along low-flow
- Backfill to cover concrete bottom, plant riparian vegetation

Soft Costs

- General Conditions, Permitting, Design and Engineering,
- Construction Management, Contingency (30%)
- Factor for tight working conditions

Land Acquisition/ Partnering: (costs not included)

- Agreement with adjacent property owners to amend the existing maintenance easement

Segment 3: Griggs Street to Broadway Avenue EST. COSTS \$2,600,000

Structures to be maintained:

- Railroad trestle to be reused as walkway/overlook
- Guardrail and decking surface added for walkway safety
- (2) Box culverts beneath RR tracks
- Broadway Avenue Bridge

Site Preparation and Demolition:

- Remove/ "cut down" sheet pile walls- approx 480lf
- Remove concrete channel bottom- 240lf
- Selective Clearing- 0.5 acres
- Earthwork

Utilities:

- Maintain 36" Sanitary along east side of creek

Hardscape and Built Structures:

- Coordinate with Race Street Bridge- City CIP- approx 70' span w/ 10' clearance
- 8' wide trail- 7,800sf
- Terrace walls, steps, theater- approx. 2,500sf
- (2) Access points to creek- steps and ramps
- Retaining walls- 450lf
- Plaza surfacing- approx. 8,000sf
- Guardrail- approx. 150lf

In Channel Structures and Creek Stabilization:

- Channel alignment and soft bottom construction-700lf
- Weir structures
- (3) low bridge crossings
- Concrete walkway through existing box culvert (Optional)

Landscape Improvements:

- South bank: "Park like" with shade trees and lawn
- North Bank: Native in character—riparian vegetation
- In Channel: wetland and emergent aquatics- approx
- From RR crossing to Broadway- Native in character—riparian vegetation along both sides

Soft Costs

- General Conditions, Permitting, Design and Engineering,
- Construction Management, Contingency (30%)
- Factor for tight working conditions

Land Acquisition: (costs not included)

- 4,000sf (parking currently owned by school district)
- 1,200sf (City owned parking)
- 1,200sf (parking currently at USGS building property)

Segment 4: Broadway Avenue to Vine Street EST. COSTS \$100,000

Structures to be maintained:

- Existing gabion walls

Site Preparation and Demolition:

- Courtesy Road Bridge and Abutment (per City CIP; no costs added)

Utilities:

- None

Hardscape and Built Structures:

- 8' wide trail- 4,800sf

In Channel Structures and Creek Stabilization:

- Toe Stabilization at bridge removal

Landscape Improvements:

- Selective clearing and revegetation

Soft Costs

- General Conditions, Permitting, Design and Engineering,
- Construction Management, Contingency (30%)

Land Acquisition: (costs not included)

- Agreement with adjacent property owners to amend the existing maintenance easement

Segment 5: Vine Street to University Ave. EST. COSTS \$200,000

Structures to be maintained:

- Existing culvert below Vine
- Existing culvert at University

Site Preparation and Demolition:

- Selective Thinning of Vegetation

Hardscape and Built Structures:

- 5' wide trail- 360lf along University Ave. ROW
- Entry sign or "Gateway Feature"

In Channel Structures and Creek Stabalization:

- Erosion control and revegetation on creek banks

Landscape Improvements:

- Revegetation and tree planting

Soft Costs

- General Conditions, Permitting, Design and Engineering,
- Construction Management, Contingency (30%)

Land Acquisition: (costs not included)

- Agreement with adjacent property owners to amend the existing maintenance easement

ALL SEGMENTS TOTAL ESTIMATED CONSTRUCTION COSTS \$6,900,000