

# MILL CREEK PARK RECREATION MASTER PLAN

January 26, 2009



**JJR**

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## TABLE OF CONTENTS

I	INTRODUCTION .....	1
A.	PURPOSE OF THE MASTER PLAN .....	3
B.	DESIGN PROCESS .....	3
II	DATA COLLECTION .....	5
A.	PARK HISTORY .....	5
1.	Regional Context .....	7
2.	Natural Features .....	8
3.	Mill Creek Park Framework Plan .....	10
III	MASTER PLAN .....	17
A.	VISION STATEMENT .....	18
B.	GOALS AND OBJECTIVES .....	18
C.	PUBLIC INPUT .....	20
D.	FINAL DESIGN .....	21
1.	Master Plan .....	22
2.	Phasing/Estimating .....	42
3.	Funding and Community Support .....	44
FIGURES:		
	Figure 1: Location Map .....	1
	Figure 2: Existing Conditions .....	6
	Figure 3: Soil Types .....	9
	Figure 4: Mill Creek Park Framework Plan .....	11
	Figure 5: Downtown Development Authority Framework Plan .....	13
	Figure 6: Overall Trail System Plan .....	25
	Figure 7: Village Waterfront and Warrior Creek Park Enlargement Plan .....	31
	Figure 8: Village Waterfront .....	33
APPENDICES		
A.	ITEMIZED CONSTRUCTION COST ESTIMATE .....	A-1
B.	POTENTIAL GRANT SOURCES .....	A-7

## REFERENCES



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## SECTION I • INTRODUCTION

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The Village of Dexter (Village) in southeast Michigan is a pleasant community in the center of Washtenaw County that has retained much of its historic charm. Dexter was established on the banks of Mill Creek in the 1820s when Samuel Dexter moved to the area and built a dam across the creek about ¼ mile upstream from the Huron River, which created Mill Pond. The dam served as an economic engine for the Village in that it provided hydropower for the sawmills and gristmills that supplied much of the timber and flour for the growing community within the Village and its surrounding farmlands.

By the 21<sup>st</sup> century, the Village had evolved into a bedroom community serving Ann Arbor and the Detroit metropolitan area, and the dam no longer served its original purpose. The dam was removed in 2008 and Mill Pond dissipated, which presented the opportunity to reshape the landscape adjacent to Mill Creek and provided the catalyst for the planned development of Mill Creek Park, a linear park that includes Warrior Creek Park, the Mill Pond land, and adjacent areas.

Other significant projects that were catalysts for the development of this area as a park include the following:

- Replacement of Main Street Bridge over Mill Creek – Provides a pedestrian linkage between Warrior Creek Park and the drained pond area. Rapids were also constructed, providing a unique water-related recreation opportunity.
- Expansion of the commercial district along Jeffords Street – Creates a physical connection to the drained pond area, allowing for the development of street-side park amenities.
- Construction of new high school to the south – Creates the opportunity to provide a non-motorized linkage to the downtown and also contributes to the restoration of the Outdoor Education Area for students.
- A new residential development to the west of the Village – Creates increased demand for park amenities and the need for a non-motorized connection to the downtown.
- Construction of a new library and Farmers Market on the north and east sides of Warrior Creek Park – Creates an opportunity to revisit park uses in this area and develop more compatible recreational experiences.
- Plans to develop a non-motorized trail connecting the Hudson Mills, and Dexter-Huron Metroparks via a connector trail through the Village – Provides non-motorized access to downtown.
- Plans to develop a trail connecting the downtown to the Scio Township Park to the south.

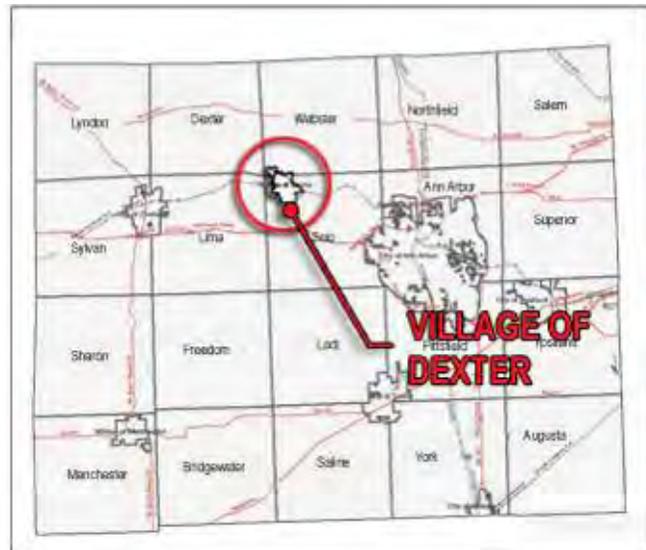


Figure 1: Location Map

The Mill Creek Park Recreation Master Plan articulates a new vision for Mill Creek, one in which the creek valley serves as a new amenity for downtown Dexter and as a link in a regional system of water- and land-based trails for hikers, bikers, and paddlers. The study area for the Mill Creek Park Recreation Master Plan is roughly bounded by the Norfolk Southern Railroad on the north, the Village on the east, Shield Road on the south, and Dexter-Chelsea Road on the west. More specifically, Mill Creek Park is 56 acres located on the east side of the creek, including a large area that was formerly inundated by the Mill Pond.

The land area that makes up Mill Creek Park is owned by three entities:

Warrior Creek Park	3 acres	Village of Dexter
Mill Pond Area	24 acres	Village of Dexter and Forest Lawn Cemetery
Remainder of Park	29 acres	Dexter Community Schools

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## A PURPOSE OF THE MASTER PLAN

The purpose of the Mill Creek Park Recreation Master Plan (Master Plan) is twofold:

- Prepare a document that will guide capital improvements at the park through the creation of a long-term, multi-year phasing strategy.
  - Secure funding from private and public sources for the implementation of the capital improvements.
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## B DESIGN PROCESS

The design process was a collaborative effort between a variety of stakeholders including the Mill Creek Park Concept Planning Committee (Committee), ECT, JJR, the Village, Dexter Downtown Development Authority (DDA), and the public. The Committee played an instrumental role during all phases of the design process. They provided timely decisions and direction to the design team and technical support throughout the process.

Development of the Master Plan consisted of five distinct phases: data collection, analysis, public input, design alternatives, and final design.

The data collection phase consisted of gathering relevant information from public and private sources. A significant portion of data was supplied by the Village. Their project documentation extends back to 1824 when the Village was first established, and support documents included construction drawings, architectural renderings, and other relevant information. Other relevant data included proposed road alignments, site plans, topographic surveys, and historic photographs. The Dexter Area Historical Museum provided a collection of writings and photographs to document the history of the Village.



After collection, the data was organized, interpreted, and evaluated based on its importance to the park (analysis phase). Significant features catalogued under this phase included the natural and physical characteristics of the site. The natural characteristics consist of prominent landforms, vistas, water resources, and plant communities. The physical characteristics include the arrangement of existing recreation facilities on the site, adjacent land uses, and infrastructure improvements.

Public input was obtained during two critical phases. Prior to the development of the three design alternatives, the public provided valuable feedback about their future vision of the park. Following this public forum, goals and objectives were refined that helped guide the creation of the design alternatives. The alternatives were then reviewed internally with the Committee and refined into the concept design. The concept design was then presented at the second public forum, which contributed heavily to the development of the Master Plan presented in this report.



The final design phase included the development of the Master Plan, budget estimate, and phasing strategy. Refinements were made based on input from the Committee and critical stakeholders, and the end product is presented in the Final Design section of this report.

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## SECTION II • DATA COLLECTION

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### A PARK HISTORY

The dam that formed the Dexter Mill Pond was originally built by Samuel Dexter in 1824. Over time, the dam served several sawmills and grist mills, and the 22-acre impoundment was used by Village residents for a variety of recreational activities including fishing, boat races, racing horses on the frozen surface, and ice skating. The dam was last upgraded in 1932 when the Main Street Bridge was reconstructed in this location. The last mill served by the dam was demolished in the late 1950s. The Village Fire Station sits on the site of a former grist mill that was built on the east side of the Mill Creek dam.



By the early 21<sup>st</sup> century, the Main Street Bridge had deteriorated to the point that in 2008 it was demolished and replaced with a new structure. Because the dam was dependent on the bridge abutments to maintain its structural integrity, a decision was made to remove the dam as part of the bridge replacement project, and dam removal was completed in the fall of 2008.

Downtown Dexter is located on the east side of Mill Creek between the Norfolk Southern railroad and Forest Street. Warrior Creek Park is located on the north side of Main Street, and the new Dexter District Library and Dexter Farmers Market have been built on the east and north sides of the park. Land uses on the south side of Main Street include a gas station, village parking lot, and several commercial, and light industrial businesses. Forest Lawn Cemetery is south of the downtown area. A mix of light industrial, commercial and residential uses lie along Grand Street and Baker Road on the east side of the former Mill Pond. The Creekside Middle School is located at the south end of the project area and occupies most of the land at the northwest intersection of Baker and Shield Roads. The school site includes the Outdoor Education Area, which consists of the wooded natural area between Mill Creek and the school's athletic fields. The Outdoor Education Area includes trails and overlooks, provides a setting for students to conduct outdoor studies and is open to the public.

The land on the west side of Mill Creek is located within Scio Township. Single-family residences make up the majority of land uses on the west side of the creek, with the exception of the Mill Creek Sport Indoor Gun store north of Main Street, and the American Legion Post and Knights of Columbus Hall, both located just south of Main Street on Dexter-Chelsea Road. The Bates Farms Subdivision occupies a large tract of land along Mill Creek just north of Shield Road. The Dexter High School is located on the west side of Mill Creek south of Shield Road; the school property includes approximately ½ mile of frontage on Mill Creek south of the project area. The Bates Grist Mill was built in 1840 near the crossing of Mill Creek under Shield Road. Residential subdivisions, the historic Gordon Hall property, the Smith Woods Park and Miller Preserves (owned by Washtenaw County Parks and Recreation Commission) lie further west of the Village beyond Dexter-Chelsea Road.

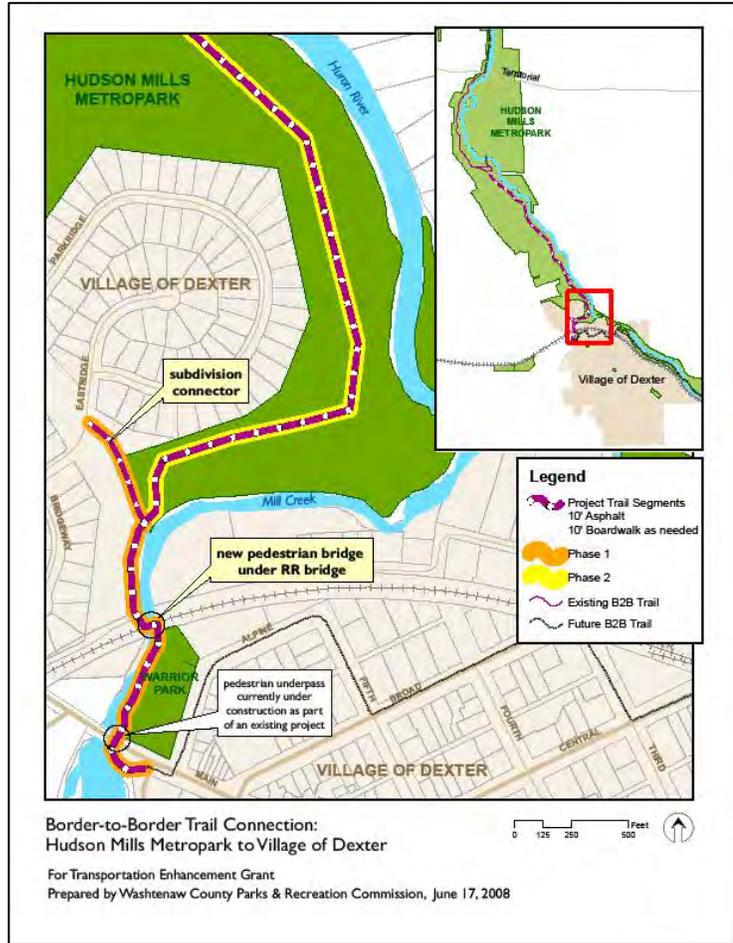
Most of the land on the east side of Mill Creek in the project area is owned by the Village of Dexter, Dexter Community Schools, and the Forest Lawn Cemetery.



Figure 2: Existing Conditions

1. Regional Context

There are several ongoing activities occurring beyond the limits of the Village that can affect the development of Mill Creek Park. Washtenaw County Parks and Recreation Commission, in collaboration with local communities and organizations, is developing the Border to Border Trail, which is planned to run along the Huron River from Portage Lake near the northern county line to Belleville Lake near the eastern county line just east of Ypsilanti. Plans for the trail include a connection to the Village via a trail that extends from Hudson Mills Metropark south along Mill Creek. Several routes are being evaluated to determine the best route to connect the Village including building the trail through the Mill Creek viaduct, boring a tunnel under the railroad, and utilizing Island Lake Road through the existing railroad overpass. Completion of this trail system will allow trail users to include a visit to downtown Dexter as part of their excursion along the Huron River.



Scio Township recently secured funds to purchase a 67-acre parcel on Mill Creek, just south of the Village. Acquisition of this parcel, which includes about a 1/2 mile of frontage on the west side of Mill Creek, combined with the high school property, creates the potential to extend a future trail system south along Mill Creek, eventually extending to Marshall Road and beyond.

## 2. Natural Features



Mill Creek is the largest tributary to the Huron River. The creek has been altered by human development since European settlers first arrived in the area in the 1820s. Samuel Dexter built a dam across Mill Creek in 1824 shortly after arriving in the area, before the Village of Dexter existed. Farmers cleared much of the forests and prairies in the watershed, and the

channel of Mill Creek was dredged and straightened as early as 1904 to facilitate drainage of low-lying areas and enhance crop production.

The dam created a significant barrier between the Huron River and the upper reaches of Mill Creek. The number of fish species observed in Mill Creek is less than would be expected in similar habitats due to the dam, the inundation of high-gradient habitat, and the effects of channelization. Existing fish species include green sunfish, Johnny darter, white sucker, common shiner, creek chub, greenside darter madtom, and yellow bullhead. Removal of the dam will allow fish species from the Huron River to recolonize the creek. These species may include small mouth bass, northern pike, rock bass, hornyhead chub, grass pickerel, rainbow darter, and black redhorse. Removing the dam was the number one priority for ecological rehabilitation and restoration of Mill Creek (Seelback and Wiley, 1996, HRWC, 2006).



The channel of Mill Creek is somewhat dynamic as it establishes a new course within the sediments of the former impoundment. While the channel and banks are somewhat unstable, the Michigan Department of Environmental Quality (MDEQ) requires that these conditions be addressed as part of the bridge replacement and dam removal project. It is expected that additional improvements will be needed to address ongoing changes in the stream geomorphology, expedite the restoration of stream channel habitats, and facilitate the return of fish species that are expected to recolonize the stream now that the dam has been removed. The extent of the post-dam removal floodplain is currently under study, but it is expected that the floodplain will extend across the lower elevations of the Park extending outward to the adjacent upland slopes.



The area within the former Mill Pond supported a mix of emergent and submergent wetlands. The newly-exposed bottomlands are being colonized with emergent wetland plants that can survive the dry conditions, plants from the seedbank that are responding to the lack of inundation, and upland species that are invading from adjacent upland areas. Species observed in the former Mill Pond bottom include soft rush, bidens, common plantain, common ragweed, common milkweed, cattail willow, and invasive species including purple loosestrife, reed canary grass and several upland grasses. It is likely that these vegetation communities will continue to evolve as soil moisture conditions within the former impoundment respond to the removal of the dam.

Forested wetlands occupy most of the riparian areas upstream from the Mill Pond. Most of these wetland areas are dominated by non-native invasive species including purple loosestrife and reed canary grass. The upland areas adjacent to the pond are typically manicured landscapes and old field areas associated with light industrial, commercial, residential, and educational land uses.



The wildlife found in the study area is typical of that found in the region. One rare species, the Blandings turtle, has been known to occur at the Creekside Middle School Outdoor Education Area; however, the wetland habitat in that area is not expected to be affected by removal of the dam. Species that will be most directly affected by removal of the dam include wetland-dependent species such as waterfowl, mink and muskrat, reptiles, and amphibians. Most of these species are widespread and can find suitable similar habitats locally (Wolinski, 2002, Schaeffer, undated). It may be possible to restore or enhance some wetland habitats as part of the Master Plan.

Soils can be categorized into three types (figure 3), including organic or muck soils, pond sediments, and fine textured loam. Organic soils occur in the low-lying areas adjacent to Mill Creek. These soils are unsuitable for many types of development but are highly suitable for habitat restoration such as wetlands and floodplains. Pond sediment is currently unclassified but can be considered a mosaic of fine silts, sand, and clays transported from upstream agricultural fields that exist throughout the watershed. The dam removal has exposed these soils, which have naturally drained and hardened. This soil type can be suitable for both trail construction and habitat restoration depending on its depth to groundwater.

Fine textured loamy soils exist predominately on the school district property in the lower elevations of the site. They have moderate to severe limitations for most types of development due to high seasonal water tables, but if properly drained, would result in very stable trails and parking areas.

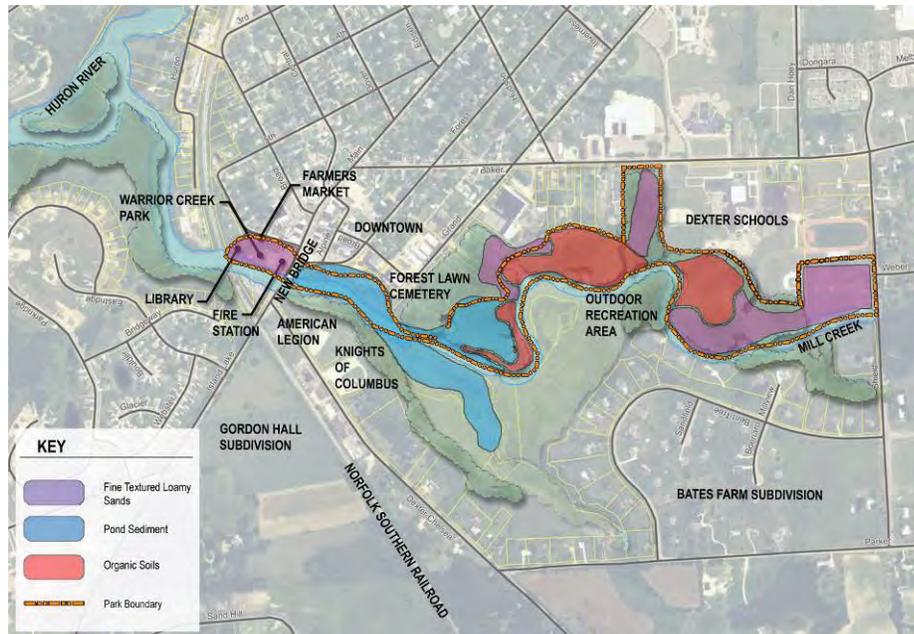


Figure 3: Soil Analysis

3. Mill Creek Park Framework Plan

Creation of Mill Creek Park offers significant opportunities to meet many environmental, recreational, and downtown development goals of the Village and the region. Removal of the dam and restoration of the riparian ecosystem can address the restoration goals identified in the Mill Creek Subwatershed Plan. Mill Pond Park can provide an attractive waterfront setting for the Village that complements the goals of the Dexter Downtown Development Strategic Plan and provides opportunities to link the Dexter school system, local neighborhoods, and downtown Dexter with the Border to Border Trail and future non-motorized trails to the south.

The purpose of the framework plan is to delineate areas of the project site with common conditions to guide future development and provide a context for the site’s physical opportunities and limitations. The Mill Creek Park Framework Plan is shown in figure 4 and discussed in more detail below.

- a. **1** Stream Channel and Riparian Zone The channel and riparian zone will experience the most dramatic changes as a result of the removal of the Mill Creek dam, particularly between the dam itself and the CreeksideSchool Outdoor Education Area. The formerly inundated creek channel and adjacent land adjacent will be replaced by a meandering, free-flowing channel and exposed bottomlands. The vegetation community will change from submergent and emergent wetland plants to a mix of emergent, shrub-scrub, and forested wetlands, and, in some cases, upland habitats.



The formerly inundated creek channel and adjacent land adjacent will be replaced by a meandering, free-flowing channel and exposed bottomlands. The vegetation community will change from submergent and emergent wetland plants to a mix of emergent, shrub-scrub, and forested wetlands, and, in some cases, upland habitats.

Removal of the 10-foot-high dam restored a high-gradient reach of Mill Creek and allows fish populations that were once separated by the dam to swim freely between the Huron River and the headwaters of Mill Creek. The Washtenaw County Road Commission, as part of the conditions of its MDEQ permit for the project, is installing a series of rock sills to absorb the change in grade and manage the headcutting of the Mill Creek channel within the sediment that has accumulated behind the dam. The rock sills are designed to allow fish passage between the Huron River and the upper reaches of Mill Creek. During high flows, these rock sills also create whitewater rapids that can provide a challenge to canoeists and kayakers that is unique in the region.



- (1) Opportunities: Aquatic habitat enhancement, streambank stabilization, stream buffers, canoeing and kayaking, fishing, stormwater management
- (2) Constraints: Ongoing changes in channel geomorphology as the stream adapts to post-dam removal conditions; rapids may require portaging in low water conditions; partnerships with adjacent landowners are needed to accomplish aquatic habitat enhancement goals on both sides of the creek

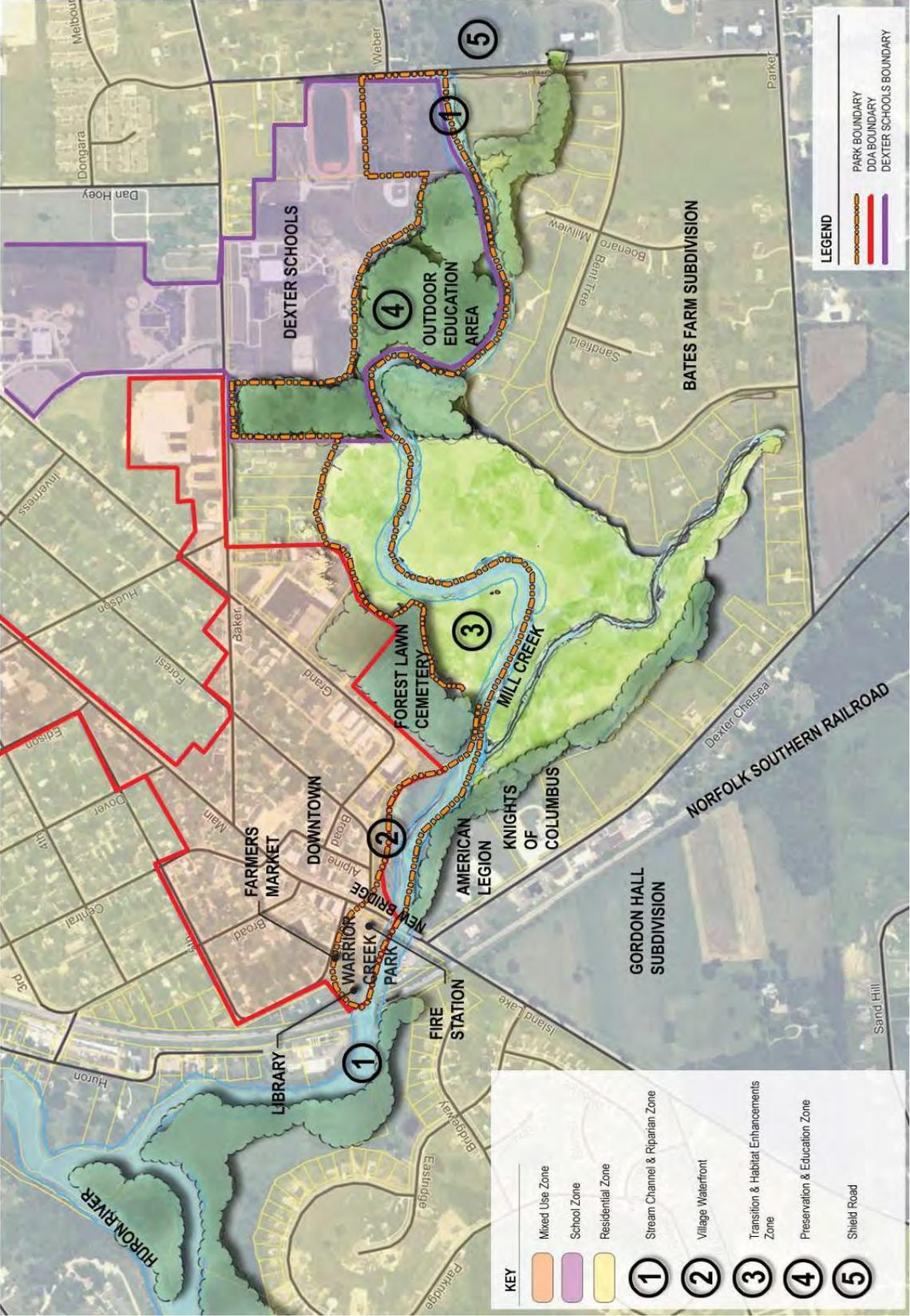


Figure 4: Mill Creek Park Framework Plan

- b. **2 Village Waterfront** The area between the railroad and Grand Street provides an opportunity to create a waterfront amenity for the Village. The proposed Border to Border Trail is planned to enter the Village near the point where Mill Creek crosses under the railroad at Warrior Creek Park. The Main Street Bridge includes a pedestrian underpass that allows pedestrians to travel between Warrior Creek Park and Mill Pond Park without having to navigate traffic on Main Street and creates an opportunity for a hiking trail that would connect the Dexter schools with the downtown, Hudson Mills Metropark, and other destinations along the Border to Border Trail.

The DDA completed its Downtown Development Strategic Plan in 2006. In that plan, Village residents and the DDA recognized the potential to create a waterfront park in the area that was occupied by the former Mill Pond that would serve as a focal point for future downtown development. Since then, the DDA purchased land on the west side of Jeffords and is implementing a streetscape improvement project with newly-aligned roads, parking areas, and amenities such as new light fixtures, street trees, benches, and planters (figure 5). These improvements are intended to provide the impetus for future mixed-use development that would include additional retail, office, and residential uses. Mill Creek Park would provide an attractive setting for downtown Dexter and serve as a gathering point during festivals such as Dexter Daze. The sidewalk areas along Jeffords Street can provide informal gathering space for vendors, musicians, performers, and artists. The open space between Jeffords Street and the creek can provide attractive views of the creek valley; a pleasant environment for strolling, picnicking, and other passive recreation activities; and an opportunity to enjoy a natural environment within the Village setting. The downtown area can serve as a hub to a regional land and water trail system serving the hikers and bikers on the Border to Border Trail, and paddlers plying the waters of Mill Creek and the Huron River. The park can also serve as a gateway to the Village for visitors entering from the west.



There is a significant change in elevation between Jeffords and Alpine Streets and the land adjacent to the creek in Warrior and Mill Creek Parks. This change in grade will likely require the connection of steep slopes to transition between the downtown area and the park areas below. Pedestrian access will require ramps and steps, and providing universal access to users of all abilities may prove to be challenging.

There are three locations where stormwater from downtown is discharged into the creek. Plans for the new Main Street Bridge and Jeffords Street improvements include installation of swirl concentrators designed to remove sediments, grease, and oils from the stormwater before it enters the creek. While it will be necessary to convey this stormwater across Mill Creek Park in this area, there are opportunities to utilize this water as an amenity through the creation of decorative drainage channels that look like streams when the water is flowing during storms or like dry creek beds once the rain has stopped. Shallow basins that can detain stormwater can also be located in this area to treat stormwater prior to discharging it into the creek. Depending on the amount of water discharged and soil conditions, these basins can be designed to be dry between storms or to hold water and act as a water feature.

- (1) Opportunities: Pedestrian trails connecting the downtown with schools and the Border to Border Trail; access for canoeing, kayaking and fishing; picnicking; informal performance and vendor space; historic site interpretation; stormwater management; stormwater features
- (2) Constraints: Large change in grade; challenges in providing access for users of all abilities; provide flooding limiting the types of recreation experiences.

c.

**3** Habitat Enhancement Zone The dam created inundated or saturated conditions in this zone, and this area is primarily emergent wetland. Most of this wetland is dominated by reed canary grass, with the exception of lower areas that support emergent species that prefer deeper water. Linear mounds of earth on either side of the Mill Creek channel, and the uniform channel cross-section in this area are evidence of past dredging activities. The change in water levels resulting from removal of the dam is expected to shift the vegetation community to a complex of forested wetlands interspersed with vernal pools. The presence of reed canary grass is a concern in this area, since this aggressive non-native species can crowd out native species that are necessary for diverse plant and wildlife communities.



Three storm sewer systems discharge in this area. The northern discharge is a 30" storm sewer that discharges water from the Grand South (D-14) drainage district through an unstable, eroded stream channel. The southern discharge is a 30" storm sewer that discharges stormwater from the Kensington drainage district (D-15). These are the two largest drainage districts in the Village, at approximately 50 and 90 acres, respectively. The third larger diameter pipe discharges stormwater from the residential areas south of Dan Hoey Road in the vicinity of the Outdoor Education Area. The stormwater discharged from these outfalls is untreated, since most of the

developed area served by these systems was built prior to the enactment of current stormwater regulations.

- (1) Opportunities: Creation of stormwater treatment wetlands; habitat enhancement; trail to connect Village and schools; environmental interpretation and education
- (2) Constraints: Aggressive non-native species such as reed canary grass can interfere with establishment of a diverse native plant community; untreated stormwater discharges; eroding stream channel

- d. **4** Preservation and Education Zone This zone includes the Creekside Middle School and its Outdoor Education Area. The natural areas in this zone consist largely of forested riparian areas and wetlands interspersed with vernal pools and a remnant oxbow of Mill Creek. It is expected that this area will experience the least amount of change as a result of the removal of the dam. The Outdoor Education Area includes trails, boardwalks, and overlooks, and provides important opportunities for environmental education for Dexter students. Some sections of these trails are in disrepair and would need to be upgraded to serve students of all abilities. There is an existing parking lot serving the Outdoor Education Area from Baker Road that can serve as a hub for a trail system that connects the Dexter school system with Mill Creek, the Village, and the Border to Border Trail. Dexter Community Schools has purchased the parcel on the northeast quadrant of Mill Creek and Shield Road. This site can provide parking and a canoe launch, thus serving as an important regional hub for a canoe system that can serve Mill Creek and the Huron River.



- (1) Opportunities: Environmental education; habitat protection and enhancement; parking; canoe launch
- (2) Constraints: Sections of existing trail system are in need of repair

- e. **5** Shield Road This zone includes the new high school, which is located on the southwest quadrant of Mill Creek and Shield Road. The high school property includes about a ½ mile of forested riparian area on Mill Creek, which can be developed to include environmental education opportunities and extend a trail system further south towards the Scio Township Park property. An unpaved parking lot exists in this location and can serve as parking for hikers. A canoe launch in this area may be a possibility. There are no sidewalks in this area; the school system is currently studying potential pedestrian links between the Dexter High School and Creekside Middle School.

- (1) Opportunities: Parking area; boat launch; connection to potential trail systems extending south along Mill Creek
- (2) Constraints: Pedestrian-vehicle conflicts on Shield Road in vicinity of bridge over Mill Creek

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## SECTION III • MASTER PLAN

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This section of the report describes the last three phases of the design process and includes public input, design alternatives, and final design.

The final master plan represents a culmination of the previous data collection and analysis of the natural and physical characteristics of the site and surrounding land. The public input process and the goals and objectives established the direction of the Master Plan, while the design alternatives identified and sorted through the various design features to be included in the final design. The final design includes the Master Plan illustrative graphics, its supporting narrative, phasing strategy and budget estimate.

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In October 2007, the Village Council established the Mill Pond Park Concept Planning Committee (Committee) and empowered the seven members to act within the following parameters:

- The Committee will provide a single distinct channel for any and all ideas, historic and new, relative to the Mill Pond redevelopment to be shared and researched.
- The overall goal is to use this open information exchange to create a redevelopment plan that takes into account stormwater, aesthetic, recreational, ecological, and financial objectives.
- Any funding required must be requested through the Village Manager, who will determine availability.

Over the course of the following year, the Committee met periodically to define the project scope and vision. Individual members contributed their personal priorities for guiding the future development at the park, and as a result, a series of goals and strategies were developed to help the Committee establish a focus to serve as a guide for the future of the park.



The following is a summary of this year-long effort:

## A VISION STATEMENT

The Mill Creek Park planning team will recommend to Village Council a concept for a linear park in the area of the existing Mill Pond, Warrior Creek Park, and adjacent areas. We will seek the input of stakeholders and integrate the work of prior study groups and the lessons of other communities. By thoughtfully considering aesthetic, cultural, ecological, financial, historical, and recreational objectives, we will develop a vision that attends to the needs and preferences of today while protecting the creek and its watershed for the future.

## B GOALS AND OBJECTIVES

1. Goal: Restore and protect the Mill Creek and its watershed consistent with today's best practices of system stewardship.

### Objectives:

- Improve water quality and erosion control through the implementation of effective stormwater management techniques including bioretention and biofiltration.
- Develop a process by which sediment control is effectively maintained long term.
- Restore native habitat including wetlands and bottom vegetation.
- Restore and improve the creek's natural riparian buffers.



2. Goal: Select, develop, and enhance site appropriate passive and low-impact active recreation opportunities.

### Objectives:

- Develop ecologically sound boardwalks, pathways, small decks, and/or other infrastructure conducive to:
  - Wildlife watching.
  - Photography.
  - Painting, drawing, and sketching.
  - Sitting, contemplation, and conversation.
- Develop areas conducive to fishing, both traditional and fly fishing, including an elevated dock or deck for children.
- Develop and maintain the creek for navigation by canoe and kayak paddlers including a landing or landings for easy loading/unloading and creek access.
- Consider pathways that will allow use by:
  - Walkers/hikers.
  - Walkers with strollers.
  - Physically-challenged persons.
  - Inline skaters.
  - Skateboarders.
  - Cyclists.



- Cross-country skiers.
  - Snowshoers.
  - Consider the installation of a dual-purpose skating area accommodating both summer and winter skating activities.
  - Develop assets supportive of education, both static information for casual visitors and programmed activities provided by Dexter Community Schools and other interested agencies or groups. They should include information kiosks, species or habitat identifiers, and a larger area for small group gathering. Assets will focus on site-specific natural features, flora and fauna, natural history, and local history.
3. Goal: To develop the park as a trail system hub and a link to adjacent recreation areas and community assets.

Objectives:

- Design and develop pathways linking:
    - Adjacent recreational areas including the Smith Woods Park and Miller Preserve, and the county's Border to Border Trail.
    - Community landmarks including Monument Park and the historic Gordon Hall estate.
    - Neighborhoods including Westridge, the Cedars of Dexter retirement community, Island Hills Estates, and Bates Farms.
    - Schools including Creekside Intermediate and Dexter High.
  - Develop and install wayfinding signage to assist visitors in identifying where they are and in navigating to their next destination.
  - Develop the park in a way that will allow it to anchor and be integrated into a larger, unified linear park stretching from the Huron River to Shield Road and points beyond, should it be desirable in the future.
  - Integrate park access points into the adjacent vision of the DDA.
4. Goal: Build on "Dexter as a Destination" promotional efforts and stimulate additional economic activity.



Objectives:

- Develop and install wayfinding signage to assist park visitors in navigating to community assets including the historic downtown business district.
- Develop the park with an eye towards ecologically sound activities that will increase visitors to our community year-round.
- Identify future adjacent or park-inclusive retail space supporting park visitors and activities.
- Consider the need for increased parking demand caused by park visitors and any potential solutions within and/or outside of the park.

5. Goal: Foster community development through collaborative planning amongst Village, township, county, regional, and state commissions, authorities, agencies, and stakeholders.

Objectives:

- Identify and meet with various stakeholders and subject matter experts.
- Communicate our meetings and our activities to the public and stakeholders in as open and transparent a manner as possible.
- Invite input throughout the process and adopt changes that will improve our concept recommendation and/or its goals and strategies.



## C PUBLIC INPUT

Public input during the design process is a valuable tool that helps to shape the direction of all master plans. The first opportunity for public input occurred early in the design process and helped to shape the development of the design alternatives. This public forum was convened as a stakeholder workshop held on September 29, 2008, at the Senior Citizens Center to generate ideas and facilitate discussion on intended uses for the Master Plan. Approximately 50 people attended. Participants broke into groups representing topics on: 1) Mill Creek Valley – Recreation, 2) Mill Creek Valley – Ecology, 3) the Village/DDA Zone, and 3) the Warrior Creek Park Zone. Following the group discussions, the participants were asked to provide a summary of their discussions.

The findings of the stakeholders validated the goals and strategies assembled by the Committee and provided sufficient clarity for the development of the design alternatives.



Over the following three months, the design team and Committee met monthly in open meetings (workshops) at the Village Hall to review, discuss, and refine the alternatives. Over this time period, five alternatives were evaluated and cross-checked with the goals and strategies. From this dialogue, the concept plan (illustrative graphics) was prepared.

On December 15, 2008, a second public forum was held at the Senior Citizens Center to present the concept plan and obtain input. Over 60 residents attended. Input was very positive, and the concept plan was well received by the audience.

Following the public forum, the design team and Committee met again and determined that the concept plan required very minimal revisions.



Over the course of the following six weeks, the plan was presented to the DDA, Village Parks and Recreation Commission, and Village Planning Commission. On January 26, 2009, the Village Council unanimously approved the Master Plan.

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## D FINAL DESIGN

The final design for Mill Creek Park includes the Master Plan (illustrative graphics), accompanying text describing the park's design features, the phasing strategy, and the budget estimate.

### Park Design Overview

The Master Plan represents a refinement of the design alternatives following feedback from the public meetings and direction from the Committee. It represents a long-term vision of the Village and is intended to serve as the framework for future improvements. Like all master plans, it should be considered a flexible document that is subject to change as the park continues to evolve and improvements are implemented.

In accordance with the goals and objectives, the park will be developed with a variety of recreation experiences for all age groups. When completed, park users will:

- Use the park as a multi-use trail system linking the downtown to areas within and outside the Village.
- Experience water recreation including canoeing, kayaking, and fishing.
- Learn about the parks ecosystem, environmental stewardship, and the historical events that have shaped the present day character of the park.
- Enjoy a leisurely stroll along Mill Creek to observe wildlife and experience nature.
- Experience community-organized events such as performances and concerts, art in the park, and other community activities.
- Sit on a grassy knoll eating lunch or reading a book and enjoying the view.
- Join a volunteer group to lead nature walks, maintain wildflower meadows, and pull invasive species such as purple loosestrife.
- Use the many park features including playground, picnic shelter, restrooms, ice-skating rink, cross-country ski trails, and other activities.

The park is intended to be open to the public year-round, but dawn to dusk hours of operation for portions of the park should be considered. Maintenance and security are also important issues to be considered by the Village in determining when and how the park improvements will be constructed. Partnerships between Washtenaw County, Huron-Clinton Metropolitan Authority (HCMA), Dexter Community Schools, adjacent landowners, adjacent townships, and the DDA are opportunities to be understood by the Village as part of the overall strategies to phase, finance, maintain and monitor the park areas.

Lastly, the Village has the opportunity to expand the park trail system, develop related compatible uses, and restore habitat functions on the west side of Mill Creek where these amenities are currently not planned and will require partnerships with adjacent landowners.

## 1. Master Plan

The Master Plan is presented in two illustrative graphics that are titled:

- Overall Trail System Plan
- Village Waterfront and Warrior Creek Park Enlargement Plan

Proposed improvements identified on each plan are described in detail below as design features. At the end of each description, the feature is prioritized based on a three-level phasing plan. There is no specific timeframe for implementation of the design feature and will be based on the most appropriate sequencing of the work, the needs of the park users, or the availability of financing for its implementation. As with the Master Plan, the phasing is flexible and should be periodically reviewed and updated.

Refer to part 2, of this section (Estimating) for cost information.

- a. Overall Trail System Plan (Figure 6) The Overall Trail System Plan identifies the project boundary, primary access points into the park, non-motorized shared-use path, secondary trails, trailhead parking, habitat enhancement zones, and key points of interest. The following is a brief description of each design features shown on this plan.

- (1) Shared-Use Path (red symbol) Approximately 1.8 miles in length, the shared-use path is intended to provided connectivity to the downtown, residential areas in the Village and adjacent townships, the school system, Hudson Mills Metropark, the planned Scio Township Park, and points of interest to the south and west of the Village. It will become an important link to the planned trail system to be constructed along the Huron River, in-part through a partnership between Washtenaw County Parks and Recreation Commission and Huron-Clinton Metroparks. The shared-use path is anticipated to expand southward to Jackson Road in Scio Township as part of future partnerships and coordination between the Village, Scio Township, and Dexter Community Schools.

The northern connection to the Hudson Mills trail system is anticipated to occur west of the Village via a new or existing underpass below the elevated railroad tracks. Other options are being considered, but this location is the most logical. The Washtenaw County Parks and Recreation Commission is expected to identify the preferred connection point in 2009. This path will utilize the Main Street surface where pavement markings will identify bicycle lanes.



Six-foot-wide sidewalks will be provided across the new Main Street Bridge and will be widened to eight feet east of the bridge. Turning south on Jeffords Street, the shared-use path will continue to be road surface until it merges onto the park trail system near the Forest Lawn Cemetery. At this point, the path will become non-motorized and continue south to Shield Road. Most of the shared-use path will parallel the creek bank taking

advantage of existing higher ground. When the path enters the Dexter Community Schools property, the path will traverse the existing intermittent creek in an east/west direction and connect to the east trailhead access point at Baker Road. It will also extend north/south along the west edge of the athletic fields until it re-enters the large woodlot and forested floodplain area.

The east trailhead is the existing parking area adjacent to Baker Road on property owned by Dexter Community Schools. There are two possible locations for the south trailhead at either of the two proposed parking areas adjacent to Shield Road. This property is also owned by Dexter Community Schools. South of Shield Road, the path will continue to the new high school and eventually extend south until it connects with Jackson Road in Scio Township.

The path will be fully accessible and designed to meet AASHTO standards (including signage), constructed on grade wherever possible. A 10- to 12-foot-wide asphalt surface suitable for a variety of non-motorized uses is strongly recommended; however, other sustainable materials should be considered. On the Dexter Community Schools property, limited earthwork will be required to construct the trail at a slope not to exceed 5%, and some tree clearing will be required in the woodlot adjacent to the south terminus. During the winter months, the path will not be maintained except for possible grooming as a cross-country ski trail.



Construction of this design feature is a high priority.

- (2) Secondary Trails (black symbol) Secondary trails are intended for pedestrian use only and are situated in areas that access unique natural or man-made features. The trails adjacent to the Village Waterfront and within Warrior Creek Park are described under the next section of this report. The



remainder of the trail segments occur south of the Village Waterfront improvements. The siting of these trails will provide the users with a range of experiences including wildlife viewing, environmental interpretation, and access to unique natural features. The trail system located on the Dexter Community Schools property will

provide access through and around the existing wetland and wooded floodplain and provide opportunities for outdoor classrooms that emphasize environmental education. The existing trail does not meet accessibility requirements, has fallen into disrepair, and will be abandoned.

These trails will be fully accessible, 5 to 6 feet wide, and constructed with wood and recycled decking or other sustainable materials. They will be

situated as close to existing grade as possible, negating the need for railing except where adjacent to open water.

Construction of this design feature has varying priorities ranging from high to low depending on financing, implementation of habitat enhancements, available financing, and the needs of Dexter Community Schools.

- (3) Trailhead Parking The trailhead parking areas are located along the south and east terminus points of the park. The east trailhead is the existing parking lot accessed from Baker Road and is currently used for vehicular parking by Dexter Community Schools. Improvements at this location will be limited to signage, litter receptacles, portable restrooms, benches, and trail development.



At Shield Road, two opportunities for trailhead parking are identified. Both parking areas would be gravel surface and sized to accommodate 10 to 15 vehicles. On the north side of Shield Road, the residential parcel recently acquired by Dexter Community Schools could serve as a new access point to the creek for boating and to the trail. This site is currently lawn and woodland and would require full site development. On the south side of Shield Road, the trailhead parking would utilize the existing cleared and graded area, but would also need to be enlarged. Access to the creek for canoe/kayak launching would be more difficult than on the north side due to distance and topography. Conversely, this location would offer interpretive opportunities because it is the location of the former Bates Grist Mill. The stone wheel is on display at the Dexter Area Historical Museum and could be easily relocated to this area.



Trailhead signage, litter receptacles, portable restrooms, and benches will also be provided at each location.

Construction of this design feature is a high priority and should be coordinated with the shared-use path (feature 1).

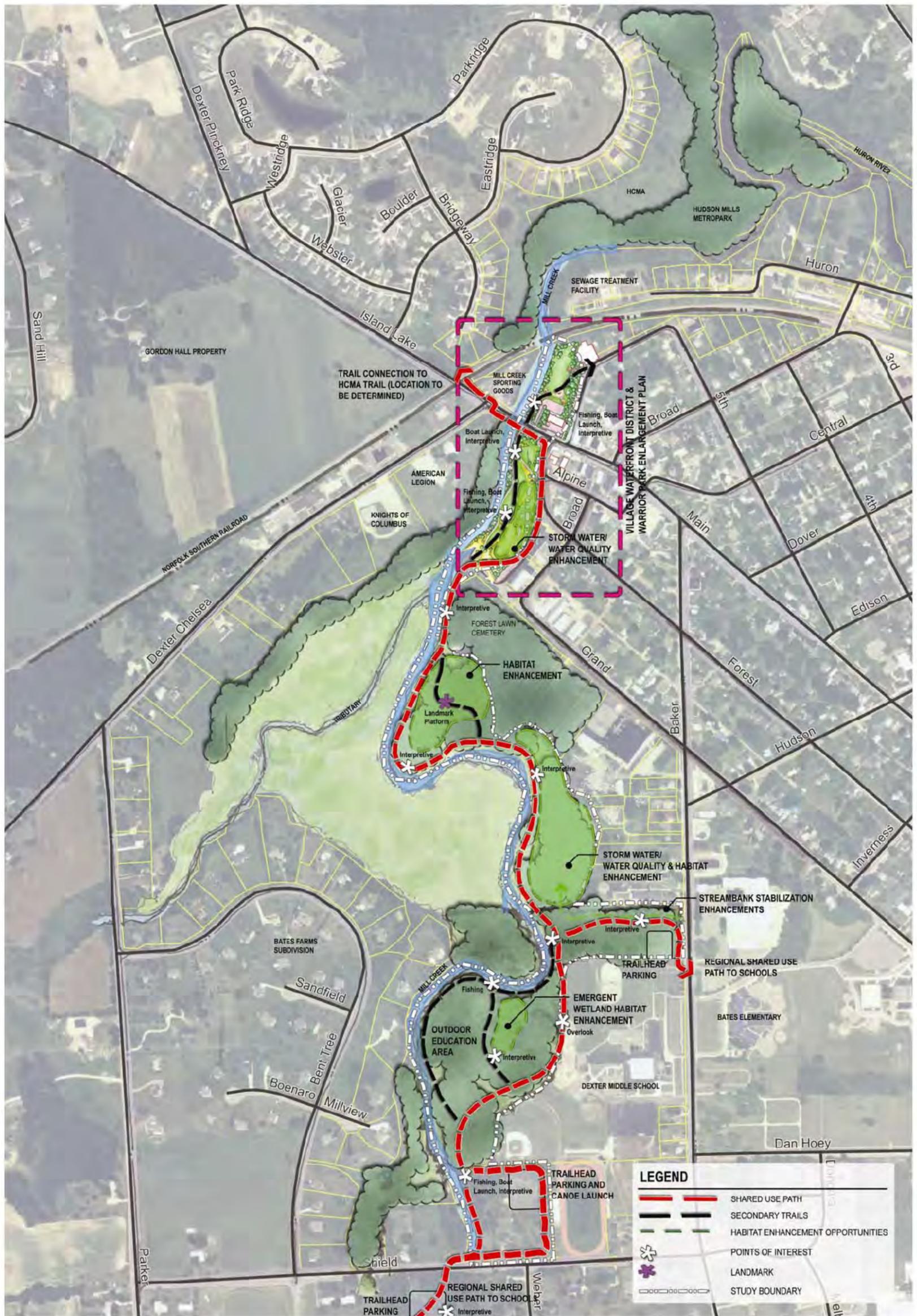


Figure 6: Overall Trail System

(4) Habitat Enhancement Zones Habitat enhancement opportunities will focus on:

- Replacing habitat lost as a result of the dam removal.
- Stabilizing Mill Creek banks and the channel bottom to restore spawning, feeding, and rearing functions associated with aquatic species habitat.
- Providing stormwater pre-treatment prior to its discharge to the creek.
- Reducing sediment deposits in the creek and wetlands from the small tributary that originates at the stormwater outfall at Baker Road.
- Providing environmental education, wildlife viewing, and improved habitat for migratory birds, waterfowl, and mammals.
- Controlling invasive and exotic plant species.



These enhancement opportunities are considerable and will require a phased approach to implementation. Volunteer groups could be created to assist in invasive species control, environmental education, vegetation installation, associated bio-engineering measures including streambank stabilization and constructing habitat structures, and long-term monitoring.



More extensive improvements that will require heavier construction equipment (backhoe, small bulldozers, and front-end loaders) will be completed by licensed contractors. The types of enhancements utilizing contractors will be earthwork for stormwater pre-treatment facilities and more extensive habitat enhancements associated with streambank stabilization and creek bottom restoration. Herbiciding large areas of reed canary grass will also require professional assistance from licensed herbicide applicators with specialized equipment.

Construction of this design feature has varying priorities ranging from high to low depending on financing, implementation of secondary trails, and the needs of Dexter Community Schools.

- (5) Key Points of Interest Key points of interest are stopping points along the shared-use path and secondary trail system. The focus of each point of interest will vary. Each location would be identified by a widening of the path and will include benches and interpretive signage to explain its purpose. The focus of each point will require the development of a theme and/or program. Topics will include, but not be limited to: habitat enhancement interpretation, prominent views, fishing access to the creek, environmental education, historical sites, or a location where users could take a rest and enjoy the scenery.



Construction of this design feature has varying priorities ranging from high to low depending on financing, implementation of habitat enhancements, available financing, and needs of Dexter Community Schools.

- (6) Landmark Feature The landmark feature is located near the center of the park in the vicinity of the creek or habitat restoration area. This feature is planned to be an observation platform that will provide extensive views of the natural areas of the site. The tower will be approximately 20 feet tall, constructed of wood and recycled materials, and be mostly ADA accessible. Portions of the tower will be enclosed with a roof and screening to protect the users from inclement weather and biting insects. It will also contain interpretive signage and seating areas where outdoor classes could be conducted with small groups. The structure will also be visible from the Village Waterfront and Main Street area and a short hiking distance for downtown visitors.



Construction of this design feature is a moderate to high priority and should be coordinated with the secondary trail (feature 2) and habitat enhancement zones (feature 4).

- b. The Village Waterfront and Warrior Creek Park Enlargement Plan (Figure 7 and 8)  
The Village Waterfront and Warrior Creek Park improvements represent the greatest intensity of park improvements. This only seems logical based on their proximity to the downtown area. Bisected by Main Street and flanked by steep landforms, access into these areas creates barrier-free accessibility challenges that are reflected in the design. These two park areas will provide a variety of recreation experiences and will serve as an important recreation opportunity in the downtown. Four-season events including concerts, ice-skating, fishing, canoeing/kayaking, art and sculptural exhibits, walking tours, and historic and environmental education programs are major components of this plan.

This plan identifies 21 design features. Each feature represents an area of the park that should be constructed under one phase of construction unless otherwise described. Sequencing with other features is an important consideration when determining their priority. The following is a description of each feature.

- (1) Jeffords Street/DDA Walkway and Plaza (Figure 8) This feature is represented on the plan by the linear system of walks and circular plaza's situated along Jeffords Street. In conjunction with the current street and utility upgrades in this area, the walkway and plazas are intended to:
- Provide connectivity to the park, downtown, and the expanding commercial district.
  - Create an accessible area that will provide additional space in the downtown for existing and future special events and programs.
  - Create a transition space between the urban areas of the Village and the natural areas of the park.

This design feature includes the development of four circular plazas aligned with the street systems east of Jeffords Street. These plazas are linked with a curvilinear sidewalk system completing the street-side pedestrian system. Proposed improvements will include many of the same design features that currently exist in the downtown area and will create a feeling of continuity along the street. Concrete sidewalks, pavers, historic light fixtures, litter receptacles, benches, maintained landscape planting, and an irrigation system are part of this feature. Rain gardens could be integrated into the street side planting beds for treatment of stormwater runoff. The entire area is intended to be fully accessible and will require ramps, pedestrian crosswalks, and appropriate traffic calming measures. The grades of this area will be closely aligned with Jeffords Street. Due to the steep drop-off along the west edge of the sidewalks and plazas, a short stone retaining wall to complement the stone seating area is suggested above the accessible ramp (feature 3A) to provide maintainable slopes.

The four plaza areas will serve as multi-use space. Uses could include sculpture displays, vendor displays during special events, overlooks to the park and Mill Creek watershed, and interpretive panels.

Construction of this design feature is a high priority due to the road and infrastructure improvements under construction along Jeffords Street.

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Figure 7: Village Waterfront and Warrior Creek Park Enlargement Plan



- 1** **Jeffords Street / DDA Walkway and Plazas**

  - Concrete Walks
  - Special Paving
  - Street Lights
  - Stone Retaining Wall
  - Benches / Litter Receptacles
  - Landscape and Irrigation
- 2** **Stone Seating Area**

  - Random Rock Outcroppings
  - Performance Area / Special Paving
  - Electricity
  - Lawn
- 3** **ADA Ramp**

  - Concrete Walk 10' Wide
  - Ramps and Landings at 8%
  - Handrails
- 4** **Concrete Walk**

  - Widths Vary
  - On-Grade Installation
- 5** **Unmowed Slopes**

  - Native Upland Grasses and Forbs
  - Scattered Rock Outcroppings
  - Scattered Trees and Shrub Massings
  - Steep Slopes
- 6** **Lawn Areas**

  - Mowed Lawn
  - Scattered Rock Outcroppings
  - Scattered Tree and Shrub Massings

Figure 8: Village Waterfront

(2) Stone Seating Area The stone seating area will provide multiple uses including a performance area, sculpture displays, and general public seating when no formal activities are underway.



This feature includes randomly placed limestone rock outcroppings in appropriate sizes and patterns that will serve as seating, a paved performance area (pavers to match feature 1 pavers), electricity for temporary lighting and sound amplification, gently sloping mowed lawn for additional seating, and a landscaped backdrop. While the area is not

accessible to those with limited mobility, the circular plaza on Jeffords Street (feature 1) is in close proximity to this area and will become the accessible seating area during performances.

Construction of this design feature is considered a high priority and will be incorporated into the unmowed slopes (feature 10) at the time they are constructed and stabilized.



(3A) Accessible Ramp This feature will create the primary accessible access to the lower areas of the park, including Warrior Creek Park via the sidewalk underpass below the new Main Street Bridge. The grade change between Jeffords Street and the connecting sidewalk to this bridge underpass is approximately 20 feet and will require this ramp to be in excess of 300 feet in length.

The ramp will be 10 feet wide, concrete pavement, and designed to meet accessibility guidelines. Other sustainable pavement materials should be considered as a concrete substitution. Maximum slopes will not exceed 8.33% and will include appropriate sized landings and decorative handrails. Wherever possible, openings in the handrail system should be provided for access to this ramp from the adjacent lawn areas (feature 11).

Construction of this design feature is considered a high priority and should be proceed in conjunction with feature 1.

(3B) Accessible Ramp – Warrior Creek Park This feature will serve as an important secondary accessible ramp that will provide access to Warrior Creek Park from the intersection of Main and Alpine Streets. It is considered important due to the expectations that the Main Street Bridge underpass will be inundated with creek floodwater during periodic rain events and will negate the ability to access the park from the 3A ramp. Its design and construction must take into consideration the steep slopes that exist in this area, the timing of construction of the sidewalks along Alpine Street, and the future site improvements that may occur at the fire station. Current grade change between Main Street and Warrior Creek Park is approximately 22 feet and will require this ramp to be in excess of 325 feet in length.

The ramp construction will be the same as the feature 3A ramp except that segmented block retaining walls will be necessary due to the excessively steep slopes below the Dexter Farmers Market, to protect the two large oak trees near the bottom of this ramp, and to maintain parking on the east side of the fire station.

Construction of this design feature is considered low priority due to the uncertainty of future improvements at the fire station, which may provide alternative means of access to Warrior Creek Park.

- (3C) Walks All walks in Warrior Creek Park will be concrete. Other sustainable materials should be considered as a concrete substitution. The pavement will have varying widths based on location and use (between 5 and 10 feet wide). Intended for pedestrian use only, this feature will serve as the primary walking surface in the park. It will be constructed on grade and will not require railing.

Construction of this design feature is considered high to low priority depending on its location in the park and the timing of construction of other features.

- (4) Stormwater Treatment Area Down slope and immediately to the south of the Stone Seating Area (feature 2), a 0.5-acre stormwater treatment wetland is proposed. This feature will be designed to improve the quality of stormwater discharge from the existing and future streets and building rooftops located to the east of Jeffords Street. The wetland will generally be dry (saturated soil) except after rain events. After each rain event, stormwater will be discharged into this wetland via two storm sewer pipes (feature 5). Nutrients and suspended sediments will be filtered through dense wetland vegetation. The accumulated rainwater will percolate into the ground, and surplus rainwater will reach Mill Creek via overland flow. Other benefits to this wetland will be to compensate for lost resources attributed to the dam removal and to create a transition area from the mowed lawn areas (feature 11) and the floodplain and wetland areas to the south.



The wetland will require up to 3 feet of excavation and occur as part of the overall mass grading of the site. Excavated soil will be placed on the slope areas above the wetland to meet the fill requirements necessary to construct features 1, 2, 10 and 11. Once excavated, the wetland will be seeded with a wet meadow seed mix that will contain a diverse collection of wetland grasses and forbs. Long-term maintenance of this wetland will be required to control invasive plant species (volunteer program). Native shrubs and small trees and bird houses will be strategically located around the perimeter of the wetland to provide habitat for birds and small mammals. Interpretive signage will also tell the story of the wetland and its multiple functions.

In the future, should it be desired, the site could be maintained as a mowed lawn area.

Construction of this design feature is considered a high priority since the earthwork to be excavated from this area will be used as part of site mass grading.

- (5) Stormwater Features In three locations, stormwater outlets will be constructed or are already in place along the east edge of the park. These outlets create the opportunity to develop a creative and functional approach to outletting the water to the creek in lieu of extending pipes directly to the creek bank. In these locations, the outlet pipes will be extended or slightly altered so that they discharge into small rock-lined stream channels. Two of the channels will outlet into the stormwater treatment wetland (feature 4) while the third will discharge into Mill Creek.



These features will be sized based on the amount of anticipated flow and constructed with boulders, rock outcroppings, and smaller aggregate, and will be dry except during rain events. A natural edge of native grasses, forbs, and shrubs is suggested to create an appearance of a small stream.

Interpretive signage will be included.

Construction of this design feature is considered a high priority for the two outlet pipes that currently discharge onto the site.

- (6) Boardwalk Trails through and along the floodplain areas of the park require the development of a walking surface that will minimize impacts to these areas, create safe passage during and after minor flood events and minimize permitting issues associated with wetland and floodplain fill.



This feature will be 8 feet wide and constructed of wood and recycled decking or other sustainable materials. They will be situated as close to existing grade as possible (slightly elevated for floodwater conveyance), negating the need for railing except where adjacent to or cantilevered over the open water.

Interpretive signage will be added where applicable to provide information on the creek ecosystem, riparian buffers, and the stormwater wetland.

Construction of this design feature is considered a high priority and will be built when funding becomes available.

- (7) Boardwalk Platform At two strategic locations north and south of the Main Street Bridge, wood observation platforms will give pedestrians direct access to the water's edge. These platforms are situated where park users can view and learn about stream ecology, observe the rapids below the bridge, fish, and observe wildlife.



Each platform will be wheelchair accessible, constructed of wood and recycled decking or other sustainable materials, and have benches, interpretive signage, and decorative safety railing. They will be slightly elevated above existing grade and cantilevered over the creek banks.

Construction of this design feature is considered a high to moderate priority and will occur in conjunction with or subsequent to the boardwalk (feature 6).

- (8) Canoe/Kayak Access Non-motorized boating on Mill Creek will be an important activity in the park. It is envisioned that canoeists and kayakers will use the creek for recreation, to access the downtown area, and to paddle to various destination points along Mill Creek and the Huron River. Tubing would also be considered a viable form of water recreation. There are no plans for canoe rentals, but the plan provides three locations where paddlers can enter and exit the creek. As discussed under the Overall Trail System Plan, a canoe/kayak launch is proposed at the Shield Road trailhead. Boaters will be able to travel downstream and either "shoot" the rapids below the Main Street Bridge or safely take-out and carry the boat around to the Warrior Creek Park access. At Warrior Creek Park, boaters can re-enter the creek and continue downstream. Conversely, boaters will also navigate upstream from the Huron River and take-out at the park.

Each access point will be designed for paddlers to safely exit and enter the creek. The banks will be broken to allow for perpendicular access along the shoreline. Each access point will be graded as a ramp so canoes/kayaks can be safely beached on a sand and gravel surface without the use of handrails. The access points will be 20 feet deep by 10 to 15 feet wide, and the banks will be stabilized with large stone (similar to stone used in feature 2). The stone will also double as seating.

The construction of this design feature is considered a high priority and will occur in conjunction with the boardwalk (feature 6) and concrete walks (feature 3C).

- (9) Riparian Buffer The success of habitat restoration along the creek edge in Mill Creek and Warrior Creek Park is related to the extent that the creek banks are stabilized; sufficient habitat is provided for fish, other aquatic species, mammals, and birds; and a sufficient buffer is provided where lawns and park users have limited access to the creek edge.



In the short period of time following the dam removal, the creek channel and its configuration has been undergoing a continuous evolution. Shifting of the channel bottom and the formation of meanders and riffle/pool complexes are ongoing events that will most likely continue. This process has resulted in the downstream migration of remnant pond sediments. While the MDEQ permit for the bridge construction and dam removal requires that the streambanks be stabilized as part of that project, additional habitat enhancements and streambank stabilization measures will help to further stabilize the channel and banks and expedite the return of aquatic species to the creek. The interpretive opportunities to educate the park users on these processes are significant and should be part of the restoration strategy. This feature will include in-stream habitat structures, bank stabilization measures, native landscape plantings, limited rock outcroppings for secondary access to the water's edge, and interpretive signage.

A phased habitat restoration program should be developed for the creek between Warrior Creek Park and Shield Road. Prioritization of design features identified in the restoration program should focus first on Warrior Creek Park and the creek section adjacent to the village waterfront. The village waterfront area should include both east and west banks of Mill Creek and should be considered high priority. Upstream of these areas, a less aggressive approach to restoration will focus on restoration activities in critical locations that can be accomplished without the use of heavy equipment while allowing the rest of the area to naturalize to its new post-dam removal habitat.

- (10) Unmowed Slopes (Figure 8) As part of the overall mass grading of the park immediately to the west of the Jeffords Street/DDA Walkway and Plaza (feature 1), a transitional slope will be required that will vary in height from 10 to 20 feet. Once mass grading is completed, the park will have an upper terrace that follows the grades of Jeffords Street and a lower terrace that generally follows the slope of Mill Creek. The lower terrace will fall within the creek floodplain. The slope that separates these terraces will be too steep to mow and requires stabilization to minimize erosion. These slopes will vary and will be graded to create a landform that emulates a naturally occurring bluff that typically occurs between bottom land and upland glacial landforms. These areas will be stabilized with a native seed mix that contains a diverse collection of native grasses and forbs, informal plantings of native trees and shrubs, and scattered rock outcroppings that create an extension of the stone seating area (feature 2).

Maintenance (volunteer program or hired personnel) will be necessary to control invasive plant species and the encroachment of low-quality pioneer tree and shrub species that may otherwise dominate these areas.

Construction of this design feature is considered a high priority to stabilize the slopes and protect the completed improvements along Jeffords Street. This work should be completed in conjunction with the completion of features 1, 2, and 3. Native vegetation could be phased over time, but a temporary slope stabilization seed mix will be necessary.

- (11) Lawn Areas The gentle to moderate slopes on the upper and lower terraces of the park along Jeffords Street will provide an excellent opportunity for the establishment of lawn areas for informal activities such as lounging, picnicking, and enjoying close and distant views to the park and creek. These areas will be graded to complement the configuration of the unmowed slopes and will be maintained by village personnel as a mowed lawn. Scattered rock outcroppings and small groupings of native and ornamental trees and shrubs will be blended into the area to provide shade and seating to enjoy the views. A lawn sprinkler system will not be necessary, but could improve the quality of lawn.

Construction of this design feature is considered a high priority and will be completed in conjunction with features 1, 2, 3A, 4, and 10.

- (12) Sloped Steps – Warrior Creek Park Between the fire station and the newly constructed access drive into Warrior Creek Park, pedestrian access to and from Main Street is provided. This feature is designed as a series of sloped and elongated step sections with ornamental handrail, referred to as a peron. Constructed of concrete to match the sidewalk materials, these steps will become an important feature during flood events when the sidewalk below the Main Street Bridge is flooded. It is not a handicapped-accessible walk, and during flood events, wheelchair access will not be possible to Warrior Creek Park until the feature 3B ramp is installed.

Due to the grade change in the lawn areas and adjacent drive, the steps will require a sloped retaining wall on the east side and a rock lined swale on the west side.

Construction of this design feature is considered a high priority and will occur in conjunction with other sidewalk improvements along Main Street in front of the fire station.

- (13) Pervious Parking Lot – Warrior Creek Park As part of the Village's efforts to improve the quality of the stormwater entering Mill Creek, the plan to develop a pervious parking lot to replace the existing gravel lot and storm sewer is provided. This feature will consist of a deep gravel/sand drainage layer with small diameter drain pipe below precast pavers designed for this application. The small diameter drain pipes will slowly release the water to the creek after being filtered through the sand/gravel medium.

Construction of this design feature is a low priority until the future of the fire station is determined.

- (14) Picnic Shelter – Warrior Creek Park An accessible picnic shelter will provide park users with a central location in Warrior Creek Park to stage small group picnic events. When combined with the other site improvements (features 3C, 15, 16, and 17), this feature will greatly increase the use of this park throughout the year. A prefabricated shelter sized for medium-sized groups is proposed. The shelter design should complement the Dexter Farmers Market pavilion on the hillside above. In addition, a two-sided stone fireplace is suggested on the north side of the shelter adjacent to the multi-use lawn area (feature 17) for use principally during the winter months when this area will be utilized for ice-skating. Other features of the shelter will include a drinking fountain, and electricity and lighting for evening use and sound amplification.

Construction of this design feature is a moderate to high priority since there is already ample parking and existing site amenities to accommodate group picnic events.

- (15) Restroom Structure – Warrior Creek Park Constructed with building materials to match the picnic shelter and Dexter Farmers Market pavilion, this four-season accessible restroom will include separate facilities for men and women. It will be connected to the Village sewer system and will be equipped with running water, lights, and electricity. When combined with features 3C, 14, 16, and 17, this feature will greatly increase the use of the park and provide improved facilities.



Construction of this design feature is a low priority until the future of the fire station is determined. The existing portable restrooms should be maintained until a permanent structure can be provided.

- (16) Play Apparatus – Warrior Creek Park The current play apparatus has use limitations for the disabled. This feature will be upgraded to a medium-sized, multi-use structure that will be designed to be universally accessible. The style of the apparatus will complement the picnic shelter and restroom architecture. Safety fall material will be designed to include ADA approved surface materials. When combined with features 3C, 14, 15, and 17, this feature will greatly increase park use.

Construction of this design feature is a moderate to high priority so that children of all abilities can have a place to play.

- (17) Multi-Use Lawn Area – Warrior Creek Park A  $\frac{3}{4}$ -acre lawn area will provide sufficient space for a variety of low impact uses. The feature will require minor earthwork and will be maintained as mowed lawn. Types of activities that will be suited to this location with minor site modifications will include: bocce and rock climbing,



group picnic events, ice-skating, and informal games. When combined with features 3C, 14, 15, and 16, this feature will greatly increase park use.



relocation.

Construction of this design feature is high priority since the improvements will greatly increase use of this area. Existing playground equipment will require

- (18) Wood Platform w/Steps – Warrior Creek Park Connectivity to Warrior Creek Park and the Main Street Bridge underpass from the neighborhood area to the east can be greatly improved through the construction of this feature. Secondary access benefits will also be gained for users at the Dexter Farmers Market and outdoor classrooms that will be sponsored by the new library.

The design and construction of this feature will be similar to the boardwalk (feature 6). A series of steps and landings designed to emulate a series of switchbacks will be necessary based on the steep slopes and limited space for this feature. At the uphill end, the steps will be connected to the pavement system constructed at the library site. At the downhill end, the steps will be terminated at a wood platform that will be sized for small groups. It will then connect to the proposed sidewalk system. No accessible ramps are proposed.

Construction of this design feature is a moderate priority. Since the library is completed, this feature's construction will not impact other features.

- (19) Slope Restoration – Warrior Creek Park The steep slopes surrounding Warrior Creek Park are currently well vegetated and stable. The embankment adjacent to the Dexter Farmers Market is overgrown with invasive, low quality trees and understory plants, and the slopes around the fire station are mostly lawns that are difficult to maintain. Improvements with this feature will include the removal of undesirable plant species, minor grade modifications to the slopes, debris removal, and planting native and ornamental trees, shrubs, and groundcover. When planning these improvements, long-term maintenance costs will need to be considered.

The implementation of this feature will entail a phased approach that requires coordination with other site improvements. At the west side of the fire station, slope restoration could be completed in conjunction with the sloped steps (feature 12) and construction of the new driveway into the park. However, the uncertain future of the fire station could limit the extent of this restoration effort on the east and west side of the building. The steep slope below the Dexter Farmers Market will require coordination with the accessible ramp and wood platform (features 3B and 18).

## 2. Phasing/Estimating

Estimating is based on current pricing and prepared at a level commensurate with master planning. As such, design contingencies are reflected at 15% of the estimate, and engineering, permitting, and material testing services are included at an additional 15% of construction costs. Numbers are rounded to the nearest dollar increment. Pricing will require periodic updating based on demands for products and services, inflation, and other predictable factors.

A three-phase implementation strategy was developed by prioritizing each of the proposed design features as High, Moderate and Low Priority. High Priority features should be implemented in the first phase of construction while lesser priority features would be constructed in future phases. The timeframe for implementation of these features has no specific dates; however, it is the intent of the Village to complete a substantial number of these features in the next 3 to 5 years. As with the Master Plan, the phasing is flexible and should be periodically reviewed and updated as the plan is implemented.

### High Priority: (red bullet ●)

These features are ranked High Priority based on one or more of the following criteria:

- It provides the highest level of benefit in meeting the stated goals and objectives.
- It provides ADA accessibility to the park.
- It improves pedestrian safety and access to the downtown.
- Funding is currently available for implementation.

### Moderate Priority (yellow bullet ●)

These features are ranked as moderate priority based on one or more of the following criteria:

- It creates a secondary benefit but not essential to meeting the stated goals and objectives.
- It is related to a high priority design feature but cannot be constructed in advance of the related high priority design feature.
- Funding is not currently available for implementation.

### Low Priority (Blue Bullet ●)

These features are ranked as low priority based on one or more of the following criteria:

- It contributes the least value in meeting the stated goals and objectives.
- It cannot be completed in advance of a related higher ranked priority.
- Future land use decisions could alter, or negate the need for this design feature.
- Funding is not currently available for implementation.

In several instances, multiple priorities are identified for the same feature. Under Part III of this report, each design feature description is followed by an explanation of the synergies with other design features and the rationale for multiple priorities.

It should be noted that, in certain instances specific components of a design feature could also have different priorities. For instance, interpretive signage is identified as a component of several design features but could be constructed at a later date.

#### DESIGN FEATURE PRICING SUMMARY

a.	<u>Overall Trail System Plan (Figure 6)</u>		
	●	(1) Shared-Use Path .....	\$ 733,850
	● ● ●	(2) Secondary Trails .....	\$ 606,190
	●	(3) Trailhead Parking .....	\$ 42,900
	● ● ●	(4) Habitat Enhancement Zones .....	\$ 163,150
	● ● ●	(5) Key Points of Interest .....	\$ 113,100
	●	(6) Landmark Feature .....	\$ 224,900
b.	<u>Village Waterfront and Warrior Creek Park Enlargement Plan (Figure 7)</u>		
	●	(1) Jeffords Street/DDA Walkway and Plaza .....	\$ 379,340
	●	(2) Stone Seating Area .....	\$ 107,900
	●	(3A) Accessible Ramp .....	\$ 67,340
	●	(3B) Accessible Ramp – Warrior Creek Park .....	\$ 155,480
	● ● ●	(3C) Walks .....	\$ 29,120
	●	(4) Stormwater Treatment Wetland (Optional) .....	\$ 53,495
	●	(5) Stormwater Swales .....	\$ 66,300
	●	(6) Boardwalk .....	\$ 390,000
	● ●	(7) Boardwalk Platform .....	\$ 99,840
	●	(8) Canoe/Kayak Access .....	\$ 10,270
	● ●	(9) Riparian Buffer .....	\$ 461,500
	●	(10) Unmowed Slopes .....	\$ 113,100
	●	(11) Lawn Areas .....	\$ 188,110
	●	(12) Sloped Steps – Warrior Creek Park .....	\$ 25,220
	●	(13) Pervious Parking Lot – Warrior Creek Park .....	\$ 106,600
	●	(14) Picnic Shelter – Warrior Creek Park .....	\$ 88,855
	●	(15) Restroom Structure – Warrior Creek Park .....	\$ 181,025
	●	(16) Play Apparatus – Warrior Creek Park .....	\$ 96,200
	●	(17) Multi-Use Lawn Area – Warrior Creek Park .....	\$ 11,050
	●	(18) Wood Platform w/Steps – Warrior Creek Park .....	\$ 86,970
	●	(19) Slope Restoration – Warrior Creek Park .....	\$ 120,900
		Total Cost – Park Improvements .....	\$ 4,904,705

#### 4. Funding and Community Support

When the design features (capital improvements) listed above are complete, the park will be a major attraction and source of pride for the Village and community at large.

A wide variety of funding and management assistance can be made available to help realize this vision.

Partnerships: Several partnership opportunities are available to the Village and are as follows:

The *DDA* has a vested interest in financing portions of the park that will help to attract new businesses to the downtown. The list of design features that will attract these businesses is long. The *HCMA* is interested in the development of a shared-use trail system. Financing, maintenance, and security could be provided for portions of the trail system that overlaps with this trail system. The *Washtenaw County Parks and Recreation Department* is interested in expanding its park system in the region and completing the Border to Border Trail along the Huron River. Land acquisition, financing, maintenance, and security could be provided to the park to help realize these interests. *Dexter Community Schools (DCS)* maintains ownership of a portion of the park and additional land to the east and south. DCS is interested in the development of a system of connecting non-motorized trails and the reestablishment of the Creekside School Outdoor Education Area, and could provide financing, maintenance, and security to those portions of the park situated on DCA property. *Scio Township* is also interested in the development of a park and connecting trail system to the Village. Land south of Shield Road and adjacent to Mill Creek is targeted for this use. Revenue sharing with the Village could help to realize a greater trail connection and expansion of Mill Creek Park south of Shields road to include this land. *Riparian landowners* share a significant common boundary with the park on the west side of the creek. Land-sharing or acquisition of these natural areas will vastly increase the size of the park.

Grants and other revenue streams: The Michigan Department of Natural Resources and other state and federal grant programs dedicated to habitat restoration, environmental programming, and trail system design and development are available to communities on an annual basis. The primary stipulation for receiving financial assistance under these programs is in the form of matching finances from the Village or a government partner identified above. Other sources of financing, maintenance, and security exist through individual donors such as landowners and businesses, non-profit organizations and foundations, and contributions and volunteers from the Village and its citizens.

The collective assortment of partnerships, grants, and other revenue streams identified above will serve to provide a continuing resource stream for the park for many years into the future.

## APPENDIX A: ITEMIZED CONSTRUCTION COST ESTIMATE

<u>Description</u>	<u>Quantity</u>	<u>Total Cost</u>
<b>a OVERALL TRAIL SYSTEM PLAN</b>		
<b>(1) Shared Use Path</b>		
Clearing	1 Acre	\$10,000
Earthwork	2,700 CYD	\$11,000
Asphalt Path (12 feet wide)	6,000 LFT	\$520,000
Signage and Pavement Markings	Allowance	\$10,000
Culvert Pipe Crossing	Allowance	\$7,500
Restoration	1.5 Acre	\$6,000
Engineering and Contingency (15% & 15%)		\$169,350
<b>Total Shared Use Path:</b>		<b>\$733,850</b>
<b>(2) Secondary Trail</b>		
Clearing	0.5 Acre	\$5,000
Earthwork	250 CYD	\$1,300
Boardwalk (5 feet wide)	11,500 SFT	\$460,000
Engineering and Contingency (15% & 15%)		\$139,890
<b>Total Secondary Trail:</b>		<b>\$606,190</b>
<b>(3) Trailhead Parking ( 2 locations)</b>		
Clearing	Allowance	\$2,000
Earthwork	CYD	\$4,000
Gravel Surfacing	12,000 SFT	\$15,000
Perimeter Fencing	600 LFT	\$6,000
Traffic Control Signage	Allowance	\$1,000
Trailhead Signage	2 Each	\$4,000
Litter Receptacles	4 Each	\$1,000
Engineering and Contingency (15% & 15%)		\$9,900
<b>Total Trailhead Parking:</b>		<b>\$42,900</b>
<b>(4) Habitat Enhancement Zones</b>		
<i>Landmark Platform Area</i>		
Invasive Plant Species Controls	6 Acres	\$12,000
Low Head Berm	Allowance	\$10,000
Stabilized Outlet	Each	\$5,000
Restoration Seeding	6 Acre	\$18,000
Bird Boxes/Nesting Platforms	5 Each	\$500
Engineering and Contingency (15% & 15%)		\$13,650
<b>Total:</b>		<b>\$59,150</b>
<i>Stormwater Area</i>		
Invasive Plant Species Controls	8 Acres	\$16,000
Low Head Berm	Allowance	\$10,000
Storm water Structure (overflow)	Allowance	\$5,000
Restoration Seeding	3 Acres	\$9,000
Bird Boxes/Nesting Platforms	5 Each	\$500
Engineering and Contingency (15% & 15%)		\$12,150
<b>Total:</b>		<b>\$52,650</b>
<i>Streambank Stabilization (Small Stream on School Property)</i>		
Clearing and Debris Removal	Allowance	\$10,000

APPENDIX • ITEMIZED CONSTRUCTION COST ESTIMATE

Earthwork	500 CYD	\$5,000
Bank Stabilization	700 LFT	\$105,000
Site Restoration	Allowance	\$20,000
Engineering and Contingency (15% & 15%)		\$42,000
<b>Total:</b>		<b>\$182,000</b>
<i>Outdoor Education Area (School Property)</i>		
Invasive Plant Species Controls	10 Acre	\$20,000
Stabilized Outlet	Each	\$1,000
Site Restoration - wetland seeding	6 Acres	\$18,000
Bird Boxes/Nesting Platforms	5 Each	\$500
Engineering and Contingency (15% & 15%)		\$11,850
<b>Total:</b>		<b>\$51,350</b>
<b>Total Habitat Enhancement Zones:</b>		<b>\$163,150</b>
<b>(5) Key Points of Interest (9 locations)</b>		
Canoe/Kayak Launch	Each	\$8,000
Wood Platforms w Railing and Benches	6 Each	\$46,000
Asphalt Areas with Railing and Benches	3 Each	\$15,000
Interpretive Signs	9 Each	\$18,000
Engineering and Contingency (15% & 15%)		\$26,100
<b>Total Key Points of Interest:</b>		<b>\$113,100</b>
<b>(6) Landmark Feature</b>		
Structure	625 SFT	\$155,000
Interpretive Signage	6 Each	\$18,000
Engineering and Contingency (15% & 15%)		\$51,900
<b>Total Landmark Feature:</b>		<b>\$224,900</b>
<b>TOTAL OVERALL TRAIL SYSTEM PLAN:</b>		<b>\$2,066,090</b>
<b>(1) Jeffords Street/Waterfront Walkway and Plaza</b>		
Earthwork	3,000 CYD	\$30,000
Concrete Pavement (Main Street sidewalk included)	11,000 SFT	\$44,000
Plaza Pavement	2,500 SFT	\$25,000
Concrete Planter Curb in Plaza Areas	150 LFT	\$1,800
Ornamental Street Lights (included Main Street)	15 Each	\$75,000
Boulder Edge Retaining Wall (2' high)	65 Ton	\$13,000
Litter Receptacles	4 Each	\$8,000
Ornamental Benches	8 Each	\$16,000
Topsoil	200 CYD	\$4,000
Landscape Plantings and Restoration	Allowance	\$75,000
Engineering and Contingency (15% & 15%)		\$87,540
<b>Total Jeffords Street/Waterfront Walkway and Plaza:</b>		<b>\$379,340</b>
<b>(2) Stone Seating Area</b>		
Earthwork	2,000 CYD	\$20,000
Rock Outcroppings	150 Ton	\$30,000
Plaza Pavement	700 SFT	\$14,000
Electrical Supply	Allowance	\$10,000
Topsoil	150 CYD	\$3,000
Landscape Plantings and Restoration	Allowance	\$6,000
Engineering and Contingency (15% & 15%)		\$24,900
<b>Total Stone Seating Area:</b>		<b>\$107,900</b>

**(3A) Accessible Ramp (South Side of Main Street)**

Earthwork	1,000 CYD	\$10,000
Concrete Pavement - 10 Feet Wide	3,200 SFT	\$12,800
Handrail	600 LFT	\$24,000
Site Restoration	Allowance	\$5,000
Engineering and Contingency (15% & 15%)		\$15,540
<b>Total Accessible Ramp:</b>		<b>\$67,340</b>

**(3B) Accessible Ramp - Warrior Creek Park**

Clearing	Allowance	\$7,000
Earthwork	1,000 CYD	\$10,000
Concrete Pavement - 10 Feet Wide	3,800 SFT	\$15,200
Handrail	760 LFT	\$30,400
Site Retaining Walls	400 LFT	\$52,000
Site Restoration	Allowance	\$5,000
Engineering and Contingency (15% & 15%)		\$35,880
<b>Total Accessible Ramp:</b>		<b>\$155,480</b>

**(3C) Concrete Walks (Various Widths)**

Earthwork	70 CYD	\$700
Concrete Pavement	5,300 SFT	\$21,200
Restoration	Allowance	\$500
Engineering and Contingency (15% & 15%)		\$6,720
<b>Total Concrete Walks:</b>		<b>\$29,120</b>

**(4) Storm water Treatment Wetlands (Optional)**

Earthwork	2,500 CYD	\$25,000
Seeding	1 Acre	\$4,000
Bird Boxes/Nesting Platforms	3 Each	\$150
Landscape Plantings	Allowance	\$7,000
Stabilized Wetland Outlet Swale	Allowance	\$1,000
Interpretive Sign	2 Each	\$4,000
Engineering and Contingency (15% & 15%)		\$12,345
<b>Total Storm water Treatment Wetlands:</b>		<b>\$53,495</b>

**(5) Storm Water Feature - 3 Locations**

Pipe Extensions	200 LFT	\$10,000
Drainage Structure	3 Each	\$9,000
Dry Stream Channel	175 LFT	\$26,000
Interpretive Sign	3 Each	\$6,000
Engineering and Contingency (15% & 15%)		\$15,300
<b>Total Storm water Feature:</b>		<b>\$66,300</b>

**(6) Boardwalk**

Timber Structure with Recycled Decking Products (8 Feet Wide)	5,800 SFT	\$290,000
Wire Mesh Railing with Wood Frame	120 LFT	\$6,000
Interpretive Sign	2 Each	\$4,000
Engineering and Contingency (15% & 15%)		\$90,000
<b>Total Boardwalk:</b>		<b>\$390,000</b>

**(7) Boardwalk Platform (3 Locations)**

Timber Structure with Recycled Decking Products (8 Feet Wide)	1,200 SFT	\$60,000
Wire Mesh Railing with Wood Frame	80 LFT	\$4,000
Interpretive Sign	4 Each	\$8,000
Bench	8 Each	\$4,000
Litter Receptacle	3 Each	\$800
Engineering and Contingency (15% & 15%)		\$23,040
<b>Total Boardwalk Platform:</b>		<b>\$99,840</b>

**(8) Canoe/Kayak Access Point (2 Locations)**

Earthwork	60 CYD	\$600
Gravel Surface	1,000 SFT	\$1,300
Rock Outcropping	30 Ton	\$6,000
Engineering and Contingency (15% & 20%)		\$2,370
<b>Total Canoe/Kayak Access Point:</b>		<b>\$10,270</b>

**(9) Riparian Buffer Zone**

Earthwork	2,500 CYD	\$25,000
Topsoil	800 CYD	\$16,000
Landscape Plantings	Allowance	\$60,000
Bank Stabilization/Habitat Development	2,400 LFT	\$240,000
Rock Outcroppings	50 Ton	\$10,000
Interpretive Signage	2 Each	\$4,000
Engineering and Contingency (15% & 15%)		\$106,500
<b>Total Riparian Buffer Zone:</b>		<b>\$461,500</b>

**(10) Unmowed Slopes**

Earthwork	5,500 CYD	\$55,000
Topsoil	400 CYD	\$8,000
Native Seed Mix	0.5 Acre	\$2,500
Erosion Control Blanket	0.5 Acre	\$2,500
Rock Outcropping	70 Ton	\$14,000
Landscape Plantings	Allowance	\$5,000
Engineering and Contingency (15% & 15%)		\$26,100
<b>Total Unmowed Slopes:</b>		<b>\$113,100</b>

**(11) Lawn Area**

Earthwork - Fill	2,500 CYD	\$25,000
Earthwork - Cut	4,600 CYD	\$46,000
Topsoil	1,900 CYD	\$38,000
Lawn Seed Mix	2.4 Acre	\$7,200
Erosion Control Blanket	2.4 Acre	\$10,500
Rock Outcropping	40 Ton	\$8,000
Landscape Plantings	Allowance	\$10,000
Engineering and Contingency (15% & 15%)		\$43,410
<b>Total Lawn Area:</b>		<b>\$188,110</b>

**(12) Sloped Steps - Warrior Creek Park**

Earthwork	100 CYD	\$1,000
Concrete Pavement 6' Wide	720 SFT	\$3,600
Railing	120 LFT	\$4,800
Retaining Wall (3 Feet High)	LFT	\$9,000
Cobble Edge	15 Ton	\$1,000

Engineering and Contingency (15% & 15%)		\$5,820
<b>Total Sloped Steps:</b>		<b>\$25,220</b>
<b>(13) Pervious Parking Lot - Warrior Creek Park</b>		
Earthwork	600 CYD	\$6,000
Infiltration System	CYD	\$6,000
Underdrainage	Allowance	\$5,000
Pavement	7,800 SFT	\$62,000
Sidewalk	625 SFT	\$2,500
Restoration	Allowance	\$500
Engineering and Contingency (15% & 15%)		\$24,600
<b>Total Pervious Parking Lot:</b>		<b>\$106,600</b>
<b>(14) Picnic Shelter - Warrior Creek Park</b>		
Earthwork	25 CYD	\$250
Pre-Fab Structure (25' x 25')	Each	\$35,000
Stone Fire Place	Allowance	\$10,000
Concrete Pavement and Walk	825 SFT	\$4,100
Tables	10 Each	\$5,000
Grille	2 Each	\$1,500
Electricity	Allowance	\$5,000
Drinking Fountain	Allowance	\$6,000
Litter Receptacle	4 Each	\$1,000
Restoration	Allowance	\$500
Engineering and Contingency (15% & 15%)		\$20,505
<b>Total Picnic Shelter:</b>		<b>\$88,855</b>
<b>(15) Restroom Structure - Warrior Creek Park</b>		
Earthwork	25 CYD	\$250
Building (25' x 25')	Each	\$125,000
Utilities	Allowance	\$10,000
Concrete Pavement	750	\$3,500
Restoration	Allowance	\$500
Engineering and Contingency (15% & 15%)		\$41,775
<b>Total Restroom Structure:</b>		<b>\$181,025</b>
<b>(16) Play Apparatus - Warrior Creek Park</b>		
Earthwork	50 CYD	\$500
Structure	Each	\$30,000
Safety Fall Material	2,200 SFT	\$40,000
Bench	2 Each	\$3,000
Restoration	Allowance	\$500
Engineering and Contingency (15% & 15%)		\$22,200
<b>Total Play Apparatus:</b>		<b>\$96,200</b>
<b>(17) Multi-Use Lawn Area - Warrior Creek Park</b>		
Site Removals	Allowance	\$1,000
Earthwork	Allowance	\$5,000
Lawns	0.7 Acre	\$2,500
Engineering and Contingency (15% & 15%)		\$2,550
<b>Total Multi-Use Lawn Area:</b>		<b>\$11,050</b>

**(18) Wood Platform With Steps**

Clearing	Allowance	\$3,000
Wood Structure with Recycled Decking Products	1050 SFT	\$63,000
Concrete Pavement	100 SFT	\$400
Restoration	Allowance	\$500
Engineering and Contingency (15% & 15%)		\$20,070
<b>Total Wood Platform with Steps:</b>		<b>\$86,970</b>

**(19) Slope Restoration - Warrior Creek Park**

Debris Removal	Allowance	\$5,000
Tree Clearing	Allowance	\$5,000
Earthwork	500 CYD	\$5,000
Landscape Plantings	Allowance	\$75,000
Slope Stabilization Fabric	Allowance	\$3,000
Engineering and Contingency (15% & 15%)		\$27,900
<b>Total Slope Restoration:</b>		<b>\$120,900</b>

**GRAND TOTAL****\$4,904,705**

**APPENDIX B: POTENTIAL GRANT SOURCES**

<b>Grant</b>	<b>Funding Agency</b>	<b>Amount</b>	<b>Match</b>	<b>Time Line</b>	<b>Special Requirements</b>	<b>Description</b>
Clean Michigan Initiative (CMI)	State of Michigan (DEQ)	No Min or Max	25%	2009 deadline not yet posted, Last known deadline was October, 2008	Community must have a Watershed Management Plan filed with the State	Provide funding to address sources of non point source pollution and best management practices improvements.
Federal Clean Water Act 319	State of Michigan (DEQ)	No Min or Max	25%	2009 deadline not yet posted, Last known deadline was October, 2008	Community must have a Watershed Management Plan filed with the State	Provide funding to implement non point source activities identified in DEQ approved watershed management plans.
Michigan Natural Resources Trust Fund	State of Michigan (DNR)	\$15,000 to \$500,000	25%	2009 deadline not yet posted, Last known deadline was April 1, 2008	Community must have a DNR approved 5 year recreation plan on file	Provide funding for development for public outdoor recreation.
Land and Water Conservation Fund	State of Michigan (DNR)	\$30,000 to \$75,000	50%	2009 deadline not yet posted, Last known deadline was March 1, 2008		Provide funding to develop land for outdoor recreation
Great Lakes Fish and Wildlife Restoration Act	U.S. Fish and Wildlife Service	No Min or Max	25%	Pre-Proposals due: January 23, 2009		Provide funding for cooperative conservation, restoration and management of the fish and wildlife resources. and their habitats in the Great Lakes Basin.
Economic Stimulus Package	Federal?	?	?	?	Implementation must occur within 120 days?	Greening and Infrastructure?

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