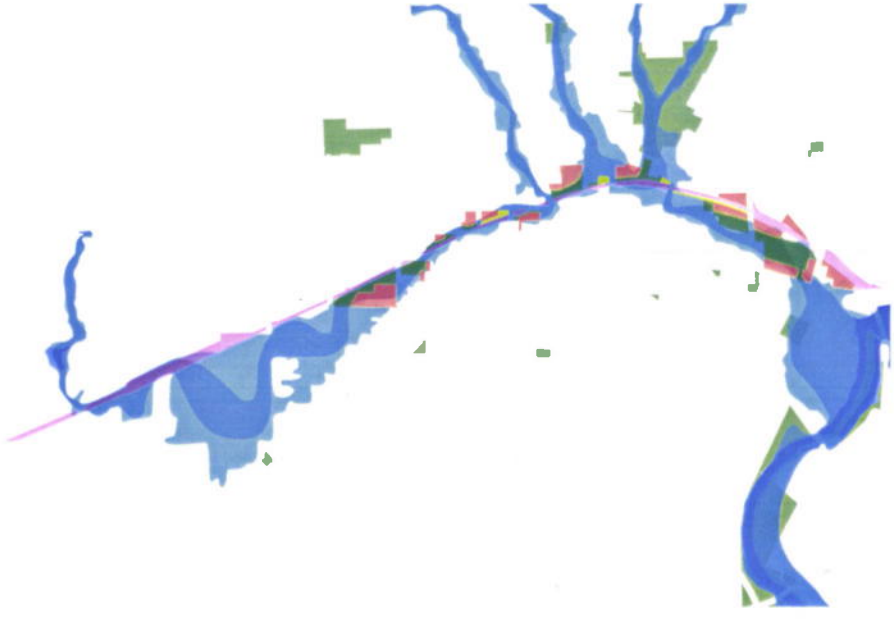
allen creek greenway

supplementary research and preliminary analysis



MAP TEAM 031
RICHARD BOLE
MICHAEL DI CRISTINO
MELANIE GLOVER
FRANZ E. KURATH

Stephen M. Ross School of Business at the University of Michigan
Allen Creek Corridor, MAP 2005, April 26, 2005

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

The Allen Creek Corridor MAP required extensive research of various subject matters and issues raised by the proposed greenway. This document, one of four produced by the MAP team, contains the majority of the research and preliminary analysis of the project. Topics covered include the history of the creek, affordable housing, property values, comparable greenways and storm water management. Additionally, specific notes from the many stakeholders interviewed have been compiled and included within this report.

This document does not contain any specifics about the proposed greenway route or the sites analyzed for potential edge development. Intended as a research companion document, it is not a stand-along document and is meant to provide supplementary information for specific topics addressed in the final report and presentation.

DEFINITIONS OF A GREENWAY

A fundamental aspect that has not been sufficiently dealt with in the decades of discussion about the Allen Creek Greenway is what encompasses the definition of a greenway. For this reason, the very vision of the greenway has never been well defined and remains elusive. The following will seek to clarify this question through the use of the Natural Resources Defense Council definition of a greenway as "undeveloped land usually in cities, set aside or used for recreation or conservation."

In Greenways: The Beginning of an International Movement, Fabos and Ahern describe "corridors of various widths, linked together in a network in much the same way as our networks of highways and railroads have been linked." The authors note that nature's "super-infrastructure" that helps define these linkages is pre-existent.

Researchers at the University of Massachusetts working on the New England Greenway describe three common types of greenway:

1. **Recreational Greenways** - paths and trails of various kinds, often of relatively long distances, based on natural corridors as well as canals, abandoned railbeds, and other public rights-of-way. Trails and routes often have scenic quality as they pass through diverse and visually significant landscapes. Many successful recreational greenways and green spaces occur where networks of trails link with water-based recreational sites and areas.
2. **Ecological Greenways** - significant natural corridors and open spaces, usually along rivers and streams and ridgelines that provide for wildlife migration, biodiversity and appropriate nature studies.
3. **Cultural and Historic Greenways** - places or trails with historic heritage and cultural values to attract tourists and to provide educational, scenic, recreational and economic benefit. They are usually along a road or highway, the most representative of them making an effort to provide pedestrian access along the route or at least places to alight from the car. They can also provide high quality housing environments at the edges of the greenway (green space) for permanent and seasonal

housing and sensitively located alternative infrastructure for commuting (e.g. bike paths within urban areas).

These definitions seem to support the idea of creating a greenway within the Allen Creek Corridor; a greenway following the creek's original route that flows naturally into a greater network of linear paths along the Huron River. Taken in the context of the larger Huron River Trail system, the corridor has strong recreational potential. The well-documented need for flood mitigation in this watershed also suggests strong potential ecological benefits (see Water section). The corridor's historical and cultural potential is less obvious, but appropriate natural space-oriented development could help to continue Ann Arbor's legacy as the "tree city." For a list of comparable greenways that encounters issues similar to those facing the proposed Allen Creek Greenway see Appendix A p.51.

KEY TOPICS OF CONCERN

Before the greenway can become a reality, a few significant issues must be addressed. These include the engagement of the Ann Arbor Railroad, the management of the floodplain and Allen Creek drain, the dwindling affordable housing stock, security concerns, how open space affects a community's livability, the Ann Arbor Park system, what to do with the three highly contested city parcels as well as stakeholder and resident reactions. The following will explore these topics in detail in order to develop a clearer picture of what is involved with the development of the Allen Creek Greenway.

RAILROAD

One of the unique and possibly cumbersome aspects of the proposed Allen Creek Greenway, is that it will closely follow the route of the Ann Arbor Railroad, frequently within the right-of-way of the railroad. Due to the close proximity of the greenway route to the rail lines it will be critical to engage the railroad early in the public planning process. This will ensure that specific design and safety specification are known. Without the early buy-in of the Ann Arbor Railroad, implementation of a greenway along this corridor seems highly unlikely.

The political nature of the contents of this report necessitated limited and superficial contact wit the Ann Arbor Railroad. For this reason, safety and design specifications obtained from a prior agreement between the city of Ann Arbor and the Norfolk Southern Railway Company were used as a likely comparable for those to be negotiated between the city and the Ann Arbor Railroad.

LICENSE

As currently proposed, the 2.1 mile greenway route will require the use of approximately 1.4 miles of land in the right-of-way of the Ann Arbor Railroad. This will require the attainment of a license from the railroad for the construction of the greenway at a minimum expense of $4,000 per acre per year. In addition to the cost of the railroad license, the city will be expected to pay for all necessary design and safety expenses.

TABLE OF CONTENTS

DOCUMENT GUIDE

The Allen Creek Corridor MAP project work is contained in four separate documents.

1. Final Report: ***Allen Creek Greenway: Preliminary Feasibility Study***
2. Presentation: ***Allen Creek Greenway: Preliminary Feasibility Study Presentation***
3. Research: ***Allen Creek Greenway: Supplementary Research and Preliminary Analysis***
4. Model: ***Allen Creek Financial Model***

The ***Allen Creek Greenway: Preliminary Feasibility Study*** and ***Allen Creek Greenway: Preliminary Feasibility Study Presentation*** contain the team's final analysis and recommendations, presenting the findings in a format suitable to the respective medium. The final report and presentation are stand-alone documents, however, much of the supporting research and data analysis is located in the two companion documents.

The first companion document, ***Supplementary Research and Preliminary Analysis***, is comprised of the team's notes and collective research with numerous source references. Information about city property values, city planning documents and potential funding sources are just some of the topics captured. It is meant as a source of information for the other documents and the project's analysis. It is not meant to be a stand-alone document.

The ***Allen Creek Financial Model*** is the second companion document. This Excel workbook contains much of the critical and sensitive data regarding specific city parcels and values. The extensive model was used to generate the cost/benefit numbers presented in the final report and presentation.

LETTER OF TRANSMITTAL

Allen Creek Steering Committee:

This document and accompanying presentation are the results of a 7-week study undertaken as part of the Multidisciplinary Action Project (MAP) program at the Stephen M. Ross School of Business at the University of Michigan.

The document begins with an overview of the project provided in a comprehensive Executive Summary format. Supporting information and more detailed analysis of each individual topic follows the conclusions at the end of the summary section.

The MAP team would like to extend a special thank you to the members of a citizen group committed to the idea of making the Allen Creek Greenway a reality: Peter Allen, Hank Byma, Amy Kuras, Joe O'Neal, Martin Schwartz and Margaret Wong.

We would also like to thank the many individuals who helped us better understand the issues at hand: Janis Bobrin, Jonathan Bulkley, Norman Cox, Leigh Greden, Rene Greff, Jerry Hancock, John Hieftje, Matt Horning, Jeffrey Kahan, Matthew Naud, Susan Pollay, Laura Rubin, Harry Sheean and Dennis Wojcik.

We would like to also thank our MAP team advisors, Peter Allen, Anne Harrington and Gretchen Spreitzer, for helping us navigate through the challenging and rewarding MAP process.

The Allen Creek Corridor MAP Team

Richard Bole
Michael di Cristino
Melanie Glover
Franz E. Kurath

April 28, 2005

Allen Creek Steering Committee

Allen Creek Corridor MAP Team (031):

Richard Bole
Michael di Cristino
Melanie Glover
Franz Kurath

Project Liaison(s)
Joe O'Neal
Margaret Wong
Leigh Greden

Faculty Team
Peter Allen
Anne Harrington
Gretchen Spreitzer

MICHIGAN
ROSS SCHOOL OF BUSINESS

April 28, 2005

SAFETY AND DESIGN REQUIREMENTS

Actual safety and design requirements for the Ann Arbor Railroad may differ from the requirements of Norfolk Southern, but the following provides insight into some of the critical specifications:

- Any pathway in the right-of-way of the railroad will require the erection and maintenance of a 6-foot high chain-link fence that is at least twenty-five (25) feet from the centerline of the rail track.
- All buildings or structures that are intended to be constructed in the railroad's right-of-way will first require the approval of the railroad and, if permitted, must have roofs made of metal or non-combustible material to reduce the risk of fire.
- Any greenway designs that entail the traversing of the railroad tracks are required to leave twenty-three (23) feet of overhead space directly above the tracks as well as nine (9) feet on either side of the centerline of the tack. This nine-foot distance is increased by one and one-half (1.5) inches for every degree of curvature in the track.

Other trails and greenways across the country have been constructed with different design requirements, so it may be useful to look at other comparables.

INTERACTION WITH AN ACTIVE RAILROAD LINE[1]

The Rails-To-Trails Conservancy compiles data on the growing number of rails-with-trails along active railroads in the United States. In 2000, at the time of the Conservancy's last published study, the number of rails-with-trails had ballooned from the 37 reported in the 1995 study to 61. The researchers surveyed trail managers to collect key data about the relationship between these trails and the railroads that they follow. The data collected on key railroad related issues were as follows:

Average Path Distance from the Railroad Tracks

Norfolk Southern Railroad's required distance of at least twenty-five feet from the centerline and nine feet for any overpasses would critically impact the proposed greenway's construction. However, there is wide variance in the average distance between the tracks and the trail required by other rail lines with most trails being less than 50 feet from the track and 13% of trails were between 2 and 7 feet from the track.

Barriers used with Rails-with-Trails

The Norfolk Southern Railroad requirement for a six foot chain link fence serves as a barrier between the track and the trail. In 71% of the cases reviewed, there was some type of barrier between the tracks and the trail. Vegetation was the most common type of barrier with grade separations, chain-link fences and ditches being other common barrier types.

---

[1] Rails-to-Trails Conservancy (2000) *Design, Management and Operating Characteristics of 61 Trails Along Active Rail Lines*: http://www.railtrails.org/whatwedo/information/rwt.pdf

Traversing the Railroad Tracks

The proposed route of the Allen Creek Greenway requires the crossing of the Ann Arbor Railroad. While this increases the complexity of greenway designs, of the 61 cases reviewed, 54% of them had trail designs that required crossing railroad tracks.

Frequency of Trains on the Tracks

The majority of the trails reported having trains pass 3-9 times per hour; however, several stated that the tracks are used much less frequently. In the case of the Ann Arbor Railroad, the frequency of the trains is much less frequent.

Type of insurance

In 98% of the cases, the trails are insured against liability and the majority of time the insurance is paid for by a government agency. In 26% of cases the government agency indemnifies the rail carrier against liability.

Accident data

Of the 61 cases, there has only been one reported accident involving a rail-with-trail in the United States. Anecdotal evidence suggests that rails-with-trails may actually decrease accidents by discouraging people from walking or cycling on the tracks.[2]

WATER

The Washtenaw County Drain Commission describes the Allen Creek basin as, "5.5 square miles in size and is by and large completely built out. The area's land use is 84% urban, 5% forested, 1% wetland, and 10% other (mostly parks and open space)."

One significant design consideration for a greenway in the Allen Creek valley is the floodway[3] and floodplain[4] of this water system. The natural Allen Creek was buried in a storm drain in the 1920s including all or portions of the West Park-Miller, Murray-Washington and Eber White branches. Covering the creek, however, did not eliminate the water issues which led to its containment.

The Allen Creek valley remains an active watershed area with critical problems. The Allen Creek drain is an identified non-point[5] source of pollution for the Huron River resulting from urban runoff (e.g. phosphorous, e coli).[6] The Allen Creek valley is prone to flooding[7] due to the significant amount of developed space in the watershed. As a result, a considerable

---

[2] Rails-to-Trails Conservancy (2000) *Design, Management and Operating Characteristics of 61 Trails Along Active Rail Lines*: http://www.railtrails.org/whatwedo/information/rwt.pdf

[3] The stream channel plus that portion of the overbanks that must be kept free from encroachment in order to discharge the 1 percent annual chance flood without increasing flood levels by more than 1.0 foot

[4] For a given flood event, that area of land adjoining a continuous watercourse that has been covered temporarily by water

[5] Storm water conveyed pollution that is not identifiable to one particular source, and is occurring at locations scattered throughout the drainage basin. Typical sources include erosion, agricultural activities, and runoff from urban lands

[6] Washtenaw Drain Commissioner's Office

[7] Significant flood events occurred in 1918, 1947 and 1968

portion[8] of the watershed is covered by impervious surface.[9] With greatly reduced natural infiltration in the watershed, the amount of runoff that must be handled by the Allen Creek drain in a rain event has increased substantially, yet the drain's capacity remains fixed at that of a 1.5 year rain event.

Whatever the exact vision of the Allen Creek Greenway, it will run along the valley floor and it may provide opportunities to improve some of the conditions noted above. However, the greenway's usefulness in detention/retention of water may be limited to some extent because it lies in the conveyance zone of the watershed. A conveyance zone is the term used to describe the channel of a river or stream as well as the adjacent land. If this area remains unobstructed, it will discharge a 100-year flood without increasing the water surface elevation more than one tenth of one foot (e.g., 1/10'- rise floodway).

HYDROLOGY STUDY OF THE ALLEN CREEK WATERSHED

To fully understand the hydrology of the Allen Creek watershed would require a full hydrologic and hydraulic study of the watershed. Such a study would involve monitoring water levels to establish water elevations during rain events and overland flows. Since there is little accurate data, a dynamic model of the watershed cannot be created. It is difficult to answer some of the feasibility questions such as daylighting the creek without accurate information about water volume and velocity. This data would also be useful to the city for weighing the impact of development proposals within the floodway and floodplain.

In the city's Capital Improvements Plan Draft, project UT-ST-04-01 allocates $200,000 in 2007 and 2008 for an Allen Creek Improvements Re-Study to be funded by bond/note proceeds.[10] "This project will utilize updated overland flow data, to be gathered during Federal Emergency Management Agency (FEMA) Floodplain Study, to study storm water flow characteristics and improvement options leading to potential projects in the creekshed."[11]

Although a study that would result in a dynamic model has not been undertaken, FEMA is updating the maps used by the National Flood Insurance Program (NFIP) and is specifically reviewing the Allen Creek. This updated study (expected late Fall 2005) should provide the city with a much better picture of water behavior within the watershed. The FEMA study will result in new boundaries for the floodplain and floodway and will offer greater detail in flood level elevations. FEMA's flood information provides a snapshot in time or a static model since it cannot be revised to reflect future development and other changes within the studied area. There seems to be some debate if the information obtained from a dynamic model would justify the expense of approximately $300,000.[12]

---

[8] Elizabeth Riggs of the Huron River Watershed Council reported that the impervious coverage in the Allen Creek Watershed rose from 28.3% (1985) to 39.6% (1995) based on SEMCOG data

[9] Anything that prevents the movement of water into the soil (e.g. asphalt, rooftops and concrete)

[10] City of Ann Arbor (2004) *Capital Improvements Plan Draft FY2006-11*, Summary, p. 22

[11] City of Ann Arbor (2004) *Capital Improvements Plan Draft FY2006-11*, Project Submittal Forms, Utilities - Storm Sewer, p. 8

[12] Washtenaw Drain Commissioner's Office

While it would be useful to look at similar watersheds (e.g. Mallets Creek[13]) for clues, the land usage, location within the city and natural and manmade features of the Allen Creek would require specific analysis. However, it seems clear that because the Allen Creek is in a more developed area that was built in large part prior to current storm water regulations, many issues will be more severe: greater impervious coverage, less retention, poorer water quality and water surge volume.

Flood Mitigation

The Michigan Department of Environmental Quality (MDEQ) has changed the size of the 100-year 24-hour rain event used to calculate the floodplain for Washtenaw County. The previous event had been 4.8 inches over 24 hours. The new event is 4.36 inches over 24 hours.

Figure 1: Rainfall Frequency[14]

2-year	5-year	10-year	25-year	50-year	100-year
2.26"/24hrs	2.75/24hrs	3.13/24hrs	3.60/24hrs	3.98/24hrs	4.36/24hrs

The city of Ann Arbor participates in the FEMA National Flood Insurance Program (NFIP), which allows city residents residing in the floodplain to obtain flood insurance. By participating in the program the city agrees to follow the development guidelines established by the federal program. Failure to adhere to the restrictions would jeopardize resident's ability to obtain flood insurance.

The Allen Creek is part of the larger Huron River system and has been subject to a number of significant flood events. Since 1918 there have been over 10 recorded flood events (Huron River crest in excess of 15'). Three rain events resulted in major[15] (1947, 1918) and moderate[16] flooding (1968).

(1) 18.30 ft on 03/14/1918 (5840 cfs)
(2) 18.00 ft on 04/05/1947 (5170 cfs)
(3) 16.97 ft on 04/05/1950 (4170 cfs)
(4) 17.50 ft on 06/26/1968 (4610 cfs)
(5) 16.74 ft on 03/09/1974 (4650 cfs)[17]

The most recent events were in 1981 (15.91') and 1982 (15.95').[18] Since the Allen Creek drain only has capacity for a 1.5 yr storm, significant flooding occurs along the Allen Creek valley during major rain events.

---

[13] A surface level creek in Ann Arbor that has been the subject of a recent restoration project due to its issues with flooding, pollution and loss of habitat: http://www.ewashtenaw.org/government/drain_commissioner/malletts_creek/index_html

[14] Huff and Angel. (1992) *Rainfall Frequency Atlas of the Midwest*

[15] Extensive inundation and property damage, usually characterized by the evacuation of people and livestock, and the closure of both primary and secondary roads (17')

[16] Inundation of secondary roads, transfer to higher elevation may be necessary to save property. Some evacuation may be required (18')

[17] National Weather Service: http://www.crh.noaa.gov/cgi-bin/ hps.cgi?dtx&annm4&prob_stage#Historical

The draft of the Hazard Mitigation plan for the city of Ann Arbor identifies urban flooding as a major risk to the city and it inhabitants:

> **Risks # 8 and # 9 Flood Hazards: Urban Flooding**[19]
> Potential vulnerable areas with regard to flooding include the Huron River, Allen Creek, Mallets Creek, Traver Creek, Swift Run Drain and Millers Creek.
>
> Goal: Reduce the city's vulnerability to urban flooding.
>
> Mitigation Strategy: Planning
>
> Develop and implement a specific Flood Mitigation Plan for the city of Ann Arbor. In a flood mitigation plan the city should thoroughly examine each of the following of typical flood mitigation strategies:
> - Acquisition. Public acquisition and management of flood prone properties.
> - Relocation. Permanent relocation of flood prone structures to areas outside the floodplain.
> - Redevelopment. Rebuilding damaged or flood prone structures in such a way that the risk is reduced.
> - Modifications. Site and structural modification to flood proof structures.
> - Public Works Measures. Storm water management system improvements to reduce flooding. Examples include in-line detention facilities, storm water pipe modifications, reforestation, and native landscaping.
> - Planning and Regulatory Measures. Modifying land use plans, modifying zoning, re-mapping floodplain boundaries, developing additional floodplain development regulations, development moratoria, and open space planning.
> - Incentives. Create financial incentives and disincentives based on flood risk factors.
> - Lead by Example. Establish clear and consistent government policy for public owned land in the floodplain aimed at preventing public buildings in the floodplain.
> - Public Education and Awareness Measures. Tools include; public relations, information dissemination, public hearings, surveys, polls, workshops, seminars, etc.

---

[18] National Weather Service: http://www.crh.noaa.gov/cgi-bin/hps.cgi?dtx&annm4&prob_stage#Historical
[19] City of Ann Arbor (2004) Hazard Mitigation Plan (draft): http://www.ci.ann-arbor.mi.us/CityAdministration/EnvironmentalCoordination/City%20of%20Ann%20Arbor_Hazard%20Plan%20Draft.pdf

Mitigation Strategy: Acquisition
Encourage public acquisition and responsible redevelopment and management of properties in flood prone areas.

Mitigation Strategy: Modifications
When acquisition and redevelopment is an inappropriate strategy encourage proper structural modification to flood proof structures.

Mitigation Strategy: Incentives
Create financial incentives and disincentives for development within flood prone areas based on flood risk factors.

Mitigation Strategy: Technology
Revise, update and make accessible to the public electronic versions of flood maps.

Building Restrictions

The city of Ann Arbor participates in FEMA's National Flood Insurance Program (NFIP), which allows city residents residing in the floodplain to obtain flood insurance. By participating in the program the city agrees to follow the development guidelines established by the federal program. Failure to adhere to the restrictions would jeopardize resident's ability to obtain flood insurance.

In addition to FEMA, other regulatory bodies that have jurisdiction over development within the floodplain include local authorities (city of Ann Arbor, Washtenaw County) and the state. Specific building codes restrict the type of development that can occur in the floodway and floodway fringe.[20] Historic district structures are exempt from all floodplain codes. A summary of these basic restrictions is as follows:

1. No new residential development in the floodway (state)
2. Residential development is allowed in the floodway fringe, but it must be elevated above the floodplain elevation (state)
3. Commercial development is allowed in the floodway and floodway fringe, but it must be elevated above the floodplain elevation or the structures must be flood-proofed[21] (state)

Review of development by the state will include determining the impact of the proposed development on water flow to see if the development introduces an unacceptable obstruction. Local codes require that development does not adversely affect the storage capacity of the floodplain.[22]

---

[20] The area between the floodway and floodplain boundaries

[21] Any combination of changes to a structure or property using berms, flood walls, closures or sealants, which reduces or eliminates flood damage to buildings or property

[22] Mitigation of natural features (c) One-hundred year floodplain: Floodplain areas shall be mitigated to provide no net loss of storage capacity .... If mitigation is proposed off-site, it shall be located in the same watershed as the development site: http://www.fema.gov/fima/nfip.shtm

The following passage from the FEMA website explains that floodplain regulation is not intended to discourage development, but to make sure that current property owners are not adversely affected by new development:

> The regulatory floodway, which is adopted into the community's floodplain management ordinance, is the stream channel plus that portion of the overbanks that must be kept free from encroachment in order to discharge the 1 percent annual chance flood without increasing flood levels by more than 1.0 foot (some states specify a smaller allowable increase). The intention of the floodway is not to preclude development. Rather, it is intended to assist communities in prudently and soundly managing floodplain development and prevent additional damages to other property owners. The community is responsible for prohibiting encroachments, including fill, new construction, and substantial improvements, within the floodway unless it has been demonstrated through hydrologic and hydraulic analyses that the proposed encroachment will not increase flood levels within the community. In areas that fall within the 1 percent annual chance floodplain, but are outside the floodway (termed the "floodway fringe"), development will, by definition, cause no more than a 1.0 foot increase in the 1 percent annual chance water surface elevation. Floodplain management through the use of the floodway concept is effective because it allows communities to develop in flood prone areas if they so choose, but limits the future increases of flood hazards to no more than 1.0 foot.[23]

The city of Ann Arbor is currently in the process of developing a flood mitigation plan that will be brought forward for public approval. Flood mitigation "includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies."[24] In practical terms, flood mitigation attempts to either reduce the volume or obstruction of flood waters. Depending on the nature of the actual development of the greenway, it may help to reduce floodplain elevations (i.e. through removal of obstructions, increased conveyance, and increased infiltration).

Should the greenway be developed in a manner that mitigates flooding, Michigan's Natural Resources And Environmental Protection Act, Act 451 of 1994, allows Michigan cities to acquire interest in land necessary for flood control by purchase, gift, exchange, condemnation or otherwise (see Appendix B p.52).

Storm Water Retention

Ann Arbor anticipated the problems of storm water management long before law required them to be addressed. The Environmental Quality Policies section of the Greater Downtown Plan (1973) plan stressed the need to minimize obstruction of the natural water drainage and

[23] FEMA (2004) Flood Hazard Assessment and Mapping Requirements: http://www.fema.gov/nfip/fhamr.shtm#80

[24] FEMA (2004): http://www.fema.gov/hazards/floods/

percolation within watersheds.[25] The need to "utilize the upper reaches of the creeksheds as retention areas for urban runoff"[26] was recognized in the same section.

Prior to the 1990s, urban runoff from new developments was uninhibited, but eventually the repercussions of the Clean Water Act (1972) resulted in strict storm water management policies. Storm water retention/detention[27], now required by law, has introduced a significant new cost to development. An estimate of the cost for storm water management to a downtown development ranges from $4,000 to $5,000 per residential unit.[28]

The need for management is clear since "a parking lot can generate 16 times the runoff of an undisturbed meadow."[29] Additionally, "asphalt and other surfaces – parking lots, roads, and rooftops – prevent water filtration into the ground, thereby generating higher runoff volumes than would occur prior to development. ... Storm sewers and storage ponds offer an alternate path for storm water; however, this route bypasses the vegetation and soil that would naturally slow, filter and treat storm water."[30]

However, retention/detention in the actual 100-yr floodplain is discouraged (prohibited) explicitly in the Washtenaw Drain Commissioner's design criteria:

> The placement of retention/detention basins within a 100-year floodplain is prohibited. Any appeal to this prohibition must be accompanied with adequate information that verifies that the facility will meet the requirements of these rules during flood events.[31]

Retention/detention of storm water should be achieved outside of the floodplain, ideally at the source of water's origin if it lies outside of the floodplain. Visions of the proposed greenway should probably not contain retention ponds or basins unless a compelling engineering case can be made for their existence since a majority of the greenway would most likely lie in the floodplain.

> In-line detention basins are strongly discouraged in all circumstances, and are prohibited on watercourses greater than 2 square miles upstream or on a County drain. In-line basins are also prohibited if the waterway to be impounded traverses any area outside of the proposed development.[32]

---

[25] City of Ann Arbor (1973) *General Development Plan,* "3. Control the physical development of creeksheds and adjoining land areas to minimize obstruction of the natural water drainage and percolation patterns." p. 15
[26] City of Ann Arbor (1973) *General Development Plan,* p. 15
[27] Retention involves holding storm water until it evaporates or naturally percolates and detention involves constraining the flow of water into the watershed over time (drain outlets)
[28] Email communication from Fred Beal, Downtown Residential Task Force Proposals Draft.doc, p. 3
[29] Schueler, Thomas R. (1994) The Importance Of Imperviousness *Watershed Protection Technique,1(3).*
[30] Michigan DEQ: http://www.deq.state.mi.us/documents/deq-water-greatlakes-protection-imperviousness.pdf
[31] Design Criteria for Storm Water Management Systems, Washtenaw Drain Commissioner's Office
[32] Design Criteria for Storm Water Management Systems, Washtenaw Drain Commissioner's Office

In the simplest of terms, once the water has reached the floodplain (conveyance zone) the preferred action is to move the water out rather than to detain.[33] In a flood situation, a detention pond in a floodplain is unable to constrain flow because it will most likely be underwater, and, therefore, ineffective in controlling output flow into the drain.

While the greenway may not be useful in retaining/detaining water, it might be effective in helping to move (convey) water out of the floodplain in support of the existing drain.[34] A greenway that included section of water quality swales (*see* Water Quality) or bioswales[35] could help to channel the water along the drain path.

WATER QUALITY (HURON RIVER WATERSHED)

The proposed greenway could be an effective storm water management system for water quality through natural absorption (e.g. rain gardens) of storm water and the capture of pollutants by natural means (e.g. filter strips).

MDEQ has identified excess phosphorus as the principal water quality concern in the middle Huron[36] and its tributaries – mandating 50% reduction. Several years of study by the Huron River Watershed Council's Middle Huron Initiative demonstrates that nearly half of this target must be achieved through improved storm water management to treat non-point source phosphorus.

Figure 2: Common Sources and Examples of Non-point Source Pollutants[37]

Sources	Examples
Cars, rooftops	Zinc, cadmium, copper, chromium, arsenic, lead, oil, gasoline, grease, hydrocarbons
Lawn, septic, household and aerial deposition	Nitrogen, phosphorus, pesticides, oil, gasoline, grease, hydrocarbons, leaves, human, and animal waste
Pet and animal waste	Viruses, bacteria, protozoa
Topsoil and bank erosion	Sand, soil, and silt
Road salts	Sodium chloride

The first flush volume of runoff will be captured and detained 24 hours or within a permanent pool. This volume is determined runoff from 0.5 inches of rain per acre of the land tributary. This volume can be determined by: 1815 x acreage x the relative imperviousness factor C.[38]

[33] Jerry Hancock, Floodplain Manager, City of Ann Arbor
[34] Dennis Wojcik, Chief Engineer, Washtenaw Drain Commissioner's Office
[35] A vegetated drainage channel which accepts, absorbs and treats runoff water, graywater or effluent water, using natural biological systems and processes
[36] The middle Huron begins with the Mill Creek basin in western Washtenaw County and extends downstream through Belleville Lake in western Wayne County.
[37] Michigan DEQ, http://www.deq.state.mi.us/documents/deq-water-greatlakes-protection-imperviousness.pdf
[38] Design Criteria for Storm Water Management Systems, Washtenaw Drain Commissioner's Office

The volume and storage provided for controlling the bankfull[39] flood will be equal to or in excess of the runoff from a 1.5-year, 24-hour storm, which can be determined by: 8170 x acreage x the relative imperviousness factor C.

The release rate from the bankfull storage volume will be such that this volume will be stored not less than 24 nor more than 48 hours.[40]

Bioswales and Rain Gardens

The following terms represent common language used in discussions regarding bioswales and rain gardens

Water Quality Swales – A water quality swale is an artificial, well-vegetated watercourse designed to accommodate concentrated flows without erosion. Vegetated waterways reduce runoff velocity, filter sediment and absorbed chemicals from sheet erosion, and deliver intermittent flows to storm water ponds.[41]

Filter Strips – A filter strip is a naturally vegetated area or native landscaping area used to filter sediment, organic matter, and other pollutants from surface water runoff. Mown turf or non-native grass species shall not be used as filter strips. Filter strips may be used as a water quality treatment measure throughout the site, but are most beneficial when adjacent to watercourses (including swales), wetlands, or any other area that could be detrimentally affected by sediment loading, organic matter, nutrients or pesticides.[42]

Rain gardens – Attractive landscaping features planted with perennial native plants designed to absorb storm water run-off from impervious surfaces such as roofs and parking lots.[43]

The Huron River has Total Maximum Daily Load (TMDL) amounts that exceed the standards established for total phosphorus and *E. coli* and the Allen Creek drain has been identified as a source of these pollutants. The Washtenaw Drain Commissioner is implementing a rain garden program within the Allen Creek valley to evaluate their effectiveness in improving water quality and reducing water volume. The goal of this project is to reduce non-point source impairments to the Huron River by establishing rain gardens as a green infrastructure supplement to traditional storm water conveyance. The rain gardens proposed in this project are intended to fully retain 80% of all storm events annually in an existing high-density residential setting.

---

[39] The flow that fills the channel up to the top of banks, prior to flooding
[40] Design Criteria for Storm Water Management Systems, Washtenaw Drain Commissioner's Office
[41] Michigan DEQ: http://www.deq.state.mi.us/documents/deq-water-greatlakes-protection-imperviousness.pdf
[42] Michigan DEQ: http://www.deq.state.mi.us/documents/deq-water-greatlakes-protection-imperviousness.pdf, p. 87
[43] Rain Gardens of West Michigan : http://www.raingardens.org/Index.php

The objectives of the test program are as follows:

1. Install rain gardens on residential or commercial properties to capture and infiltrate 1,725 ft3 of storm water runoff. This is the volume equivalent of the first flush runoff from 1 acre of impervious surface (pavement and rooftop) or 3.2 acres of lawn.
2. Involve 20 property owners in rain garden planning and construction to promote creekshed stewardship.
3. Provide a cost benefit analysis of rain gardens and assess the relative feasibility of rain gardens as urban storm water infrastructure.[44]

The rain gardens will be designed to capture and infiltrate the runoff from the first 0.5 inches of runoff within 24-36 hours. Locally, more than 80% of all events are smaller than this and will be fully retained. Larger events will be partially retained – any runoff in excess of the first flush will overflow to the storm sewer. The ability of runoff to concentrate and mobilize non-point source pollutants will be greatly reduced for the first 0.5 inch of all precipitation events.

The Department of Environmental Quality (DEQ) classifies rain gardens as bioretention when determining cost share. According to the Environmental Protection Agency (EPA), bioretention removes 65-87% of influent phosphorus.[45] Removal rates for copper, lead, zinc and total nitrogen are 43, 70, 64 and 49% respectively. Pathogen removal efficiency is unknown.

The city of Ann Arbor will collaborate with Washtenaw County on this project. The city's commitment to this project is a cash commitment of $19,500. There are no other outside sources of funding.

DAYLIGHTING THE ALLEN CREEK

Daylighting of the creek has been suggested in tandem with the development of a greenway. While experts seem to disagree about the feasibility of the idea, everyone seems to agree that it would be an expensive proposition. Even if the creek remains confined to a drain, it is expected that significant funds will be required in the future to maintain and potentially increase the capacity of the drain (one study estimated this amount at $41 million).[46]

Without hard data from a study of Allen Creek, experts depend on professional experience with similar watersheds to make judgments. A study[47] of Ann Arbor's own Mallets Creek suggests extreme water surges are likely during rain events because the Allen Creek watershed has an even greater percentage of impervious surfaces. Such surges resulting from these extensive areas of impervious surface can create dangerous conditions from high volume and velocity flows. Daylighting would require that effective measures be taken to

---

[44] Washtenaw County RFP # 6178,Allen Creek Rain Gardens: http://www.ewashtenaw.org/government/departments/finance/purchasing/online_bids/assets/2005bidstatusreport/rfp6178.pdf

[45] EPA: http://cfpub2.epa.gov/npdes/stormwater/menuofbmps/post_4.cfm

[46] Per conversation with Joe O'Neal

[47] Grueber, E., Ridgeway, K., Wingard, R.(2000, April 18) Malletts Creek Restoration Project: SWMM Modeling Report, Applied Science, Inc.: http://www.ewashtenaw.org/content/dc_mc_appendixk.pdf

reduce these potential surges – detention/retention of storm water at headways and reduction of impervious surface. Steps like these would occur outside of the immediate greenway area.

Daylighting would improve water quality by allowing the water to "breathe," but illicit connections and urban runoff would need to be eliminated or substantially reduced to realize significant improvement in water quality. Additionally, to create an ecologically sound waterway would require a significant reduction in the amount of impervious surface in the Allen Creek watershed.

AFFORDABLE HOUSING

With the cost of living in Ann Arbor ever increasing, specifically the cost of housing, the need to increase the availability of affordable housing is on the rise. In 2000, the median household income and median home price in the city were $46,299 and $181,400 respectively, making Ann Arbor one of the most expensive cities to reside in the state of Michigan.[48] More importantly, it places home ownership and even rental out of range for many of the city's residents, of which 12,488 households or approximately 27% have incomes of less than $25,000.

According to the department of Housing and Urban Development (HUD), it is considered an economic hardship if a household is spending more than 30% of its income towards housing costs. Based upon this parameter a family earning $25,000 a year, should spend no more than $7,500 a year or $625 a month on all of their housing expenses. At an interest rate of 6.79% with a 5% down payment the family could afford a mortgage of approximately $100,000. In 2000, approximately 7% of single family homes were priced below $100,000 and the median market rents were $742 a month creating a shortfall in the amount of affordable housing units available (see Appendix C p.53).

This decline in the affordable housing stock over the past twenty years makes removal of additional affordable units which happen to be in the path of the proposed greenway unacceptable. This is particularly true because the homes currently located in the floodway are affordable due to sheer market control and not government subsidies or grants. One reason these homes are affordable, however, is their location in the floodway, which is less desirable due to safety concerns.

Ideally, the proposed new development along the greenway would be required (e.g. formal stipulation) to replenish the affordable units removed for its construction on a greater than 1-to-1 basis. Since the new units will be developed at a higher cost and on more valuable land located outside of the floodway, the ability of the new units to maintain their affordability may rely heavily on government subsidies and/or incentives. This poses a question as to whether the new development would remain affordable indefinitely, particularly with expected property value appreciation.

[48] City of Ann Arbor, MI Comparison of 2000 and 1990 U.S. Census Data: http://www.ci.ann-arbor.mi.us/communityservices/planning/planning/census/census%20comparision-final.pdf

SECURITY

Urban parks require a greater degree of security due to their location. The urban setting of these parks presents the challenges of transience, homelessness and drug trafficking. While not a major problem in Ann Arbor, security is a concern regularly raised when discussing the city's urban parks. Ann Arbor's underused public areas, such as Liberty Plaza, which have suffered from loitering and other nuisances in the past, are not attractive places for public congregation. However, given the city's fiscal position, adding police patrols to additional park space is not a possibility.[49]

One way for a public park area to remain an active and viable space is to have "eyes on the park." The concept of "eyes on the park" means that appropriate edge development surrounding the greenway is required to keep the area active and safe. Mixed use development, including retail, office, and residential, create an active environment which encourages pedestrian traffic and public area usage. Since funds for increased security of a proposed greenway would have to come at the expense of other areas, it is critical that the greenway be self-monitoring with its own "eyes on the park".

Sculpture Plaza is a good example of a successful, active public space, where people congregate to relax, eat, read the paper, and socialize. The area around Sculpture Plaza includes the Food Coop, Kerrytown, and the Farmer's Market all of which are attractive destination spots for Ann Arbor residents.

LIVABILITY AND THE VALUE OF OPEN/GREEN SPACE

Traditional advocates of open space dislike attempts to quantify the economic impacts of parks and trails. They argue that open space provides benefits, anthropogenic[50] and otherwise, which can never be quantified believing there is no way to assess the value of providing a habitat to migratory birds, or a venue for a parent and child to enjoy a walk together.

While the proposed Allen Creek Greenway may have many unquantifiable benefits, more tangible benefits may also be realized. For example, if the greenway is of an appropriate scale it might have a significant positive impact on water quality, erosion, floods and other problems stressing the Huron River Watershed.

Although we are unable to quantify many of these benefits, we would like to highlight some of the open space benefits that have been observed and in some cases quantified by researchers, especially those that are particularly relevant to Allen Creek.

PROPERTY VALUES

In 2001 Dr. John Crompton of Texas A&M University compiled the results of 25 major studies examining the effects of open space on property values. Crompton found that 20 of 25 studies concluded that open space and parks increased proximate property values. Four of the five other studies reached ambivalent conclusions possibly because of methodological

[49] Per conversation with Mayor John Hieftje on 4/8/05
[50] human-oriented

limitations. Crompton emphasized the difficulty involved in averaging diverse studies but proposed the following guidelines for use by local planners:

> Properties abutting or fronting a passively used park can be assumed to be worth 20% more than comparable properties without this amenity. In areas where passively used parks are large (over 25 acres), well-maintained and attractive, this value may be much lower. Additionally, heavy active use may result in no value increase at all, although a premium of approximately 10% could be anticipated on property 2-3 blocks from such a park. Properties that are within 500 feet of a small park are likely to be positively impacted. For larger community-sized parks, properties within 2,000 feet are likely to be positively impacted.[51]

While we do not know exactly how the Allen Creek Greenway would be used, it seems clear that the park would have a neighborhood scale, causing properties within a wide radius to appreciate.

Corporate Relocation and Retention

In 1997, a group of researchers conducted a study on the effects of parks and open space on corporate location decisions. Researchers interviewed representatives from 73 economic development agencies and 174 businesses in the state of Colorado. All of the businesses had relocated, expanded or been launched in Colorado in the previous five years. The economic development officials surveyed in the study ranked quality-of-life second behind operating costs among general categories influencing corporate location decisions. They further ranked recreation/parks/open space third behind primary/secondary education and cost of living/housing among six-quality-of-life sub-categories. Company respondents, on the other hand, ranked quality-of-life first among categories and recreation/parks/open space second among quality-of-life sub-categories.

One of Ann Arbor's strengths is its ability to attract small, innovative companies that tap the city's highly educated workforce. This 1997 study suggested that these small companies were among the most likely to weigh quality-of-life issues in general and open space specifically when deciding where to locate. As Ann Arbor continues to grow, it will need to cater to corporations who value open space. The Allen Creek Greenway could be particularly attractive to businesses because of its proximity to downtown and potential for lunchtime recreational use.

Green Infrastructure

Significant further research is needed in order to quantify the cost savings that might be realized from decreased flood mitigation and insurance as well as determine the effect of increased vegetation as a result of the greenway. Evidence from other cities indicates that these impacts might be significant:

---

[51] Crompton, John (2001) *The Impact of Parks and Open Space on Property Values and the Property Tax Base* Texas A&M University. Department of Recreation, Park & Tourism Sciences.

> Leaders in Johnson County, Kansas, expected to spend $120 million on storm water control projects. Instead, voters passed a $600,000 levy to develop a county-wide streamway park system. Development of a greenway network along streambeds addressed some of the County's flooding problems, and provided a valuable recreational resource. In 1999 the county commissioned a twenty-year master plan which recommended that even more benefits, in terms of flood control, storm water management and recreational use, could be realized if a more than ten-fold increase in the size of the streamway park system were enacted.[52]

A 2002 study of San Antonio, Texas by American Forests found that the annual positive economic impact of the city's trees was $70 million. This study included many benefits, such as reduced home cooling costs and decreased storm water management costs. The study estimated that trees saved it from adding 678 million cubic feet of storm water handling capacity at an approximate cost of $1.3 billion. Additionally the study made a high estimate of per tree pollution control benefits, possibly reflecting a recent increase in the value of such services to cities.[53]

ANN ARBOR PARKS

The Ann Arbor Parks and Recreation system is comprised of 156 parks totaling 2056 acres.[54] The Central Planning Area,[55] where the proposed greenway would be situated, contains 21 parks, which total 171 acres, or about 8.3% of the park system. The same area houses approximately 33% of Ann Arbor's population, or about 36,000 people and over 11,000 residences. With over 23 persons per acre, the Central Area has the highest density of any planning area within Ann Arbor.

NEED

The 2000 Park, Recreation, and Open Space (PROS) plan—released before the 2000 census—adopts a standard of the ratio of parkland per citizen or household to determine park need. The ratio they chose was the amount of public space per person or household in 1990, and they project that number into the future to predict need. As of 1999, there were 17.51 acres of total parkland per 1,000 residents and 5.38 acres of neighborhood parkland was available per 1,000 residents. Total Ann Arbor parkland per capita was .0175 acres.

The Central Planning Area contains just .0057 acres per capita (less than one-third the Ann Arbor average), and this does not account for the fact that Downtown Ann Arbor is a commercial center with a workday population that exceed its residential population. It also fails to account for the many heavily used public areas not considered parks such Elizabeth Dean Promenade on Main Street. The PROS Plan details specific strategies for the

---

[52] Johnson County Master Plan (2004) *Johnson County MAP 2020* Johnson County, Kansas: http://jcprd.com/pages/map2020.cfm

[53] Harte, Alexis (2003) San Antonio: Restoring the Urban Oasis. *American Forests Magazine*: http://www.americanforests.org/productsandpubs/magazine/archives/

[54] Amy Kuras – Ann Arbor Parks and Recreation Planner

[55] Ann Arbor is comprised of four planning areas: The Central, Northeast, West, and South Areas.

development and enhancement of park space within the Central Planning Area. Strategies for addressing increasing public space include: [56]

- Development of a detailed open space plan for public and private land.
- Acquisition of sites, including a lot on East Liberty, an old service station at Summit and North Main, the Old Clark station at Division and Detroit, the vacant lot at Washtenaw and Vinewood, and sites within the student residential areas south of Central Campus.
- Study open space redevelopment opportunities, and their financial implications, for city owned parcels.
- Purchase easements or lease private property where acquisition is not possible or attractive.
- Encourage the Downtown Development Authority to engage the issues of park and open space development.
- Create a city methodology for identifying potential public space as parcels come to market.
- Investigate the possibility of acquiring right-of-ways from the Ann Arbor Railroad and Norfolk Southern to develop a pedestrian walk/bicycle path to connect to the Huron River park system.

GOALS

The PROS Plan details needs and usage of public space within Ann Arbor. The plan was developed to help plan and coordinate the park and recreational needs for Ann Arbor. To that end, and to ensure that public space addresses the needs of the Ann Arbor citizenry, the plan put forward the following nine goals and objectives:[57]

1. Provide an efficient recreation and open space system, where all the components will complement each other in providing a broad spectrum of services that minimizes duplication.
2. Achieve and maintain a balanced parks, recreation and open space system, accessible to all of the community.
3. Assure a firm financial basis for the park, recreation and open space system.
4. Assure adequate and suitable provisions of land and facilities to meet present and future parks, recreation and open space needs in terms of maintenance and development.
5. Foster the quality of life in Ann Arbor by paying particular attention to the park, recreation and open space system as a visual and functional resource.
6. Assure citizens a voice in the decision-making process of the park, recreation and open space system, including acquisition, planning and development.
7. Develop recreation programs, services and facilities after assessing changing trends and community needs.

---

[56] City of Ann Arbor (2000) *Parks and Recreation Open Space Plan,* p. 4-8: http://www.ci.ann-arbor.mi.us/CommunityServices/Parks/Pros%20Plan/pros.html

[57] City of Ann Arbor (2000) *Parks and Recreation Open Space Plan,* Section C: http://www.ci.ann-arbor.mi.us/CommunityServices/Parks/Pros%20Plan/pros.html

8. Appropriately utilize (while preserving and restoring) the Huron River and areas of natural, historical or architectural significance.
9. Enhance the Huron River and its tributaries as Ann Arbor's most significant natural resource and a source of its domestic water supply. Park development and acquisition affecting the Huron River watershed should restore and preserve the Huron River and its tributaries, improve water quality, preserve wildlife habitat, manage storm water, and enhance recreation opportunities.

The PROS Plan also classifies public space according to usage and/or purpose. Classifications and their descriptions include:[58]

4. Neighborhood Parks- Public space within a quarter mile of each neighborhood resident. Neighborhood parks include playgrounds and sporting facilities (such as basketball courts), and eating areas and benches. They are usually not programmed.
5. Urban Parks/Plazas- Open space for high density residential and commercial areas. They are designed to blend into urban settings and include generous infrastructure, such as eating areas and other amenities.
6. Special Facilities- Public space for a specific purpose or subset of the population. Examples include cemeteries and golf courses.
7. Historic Sites- Protected public areas because of their historical significance, historic sites can be an entire park or located within a park. While fragile areas and structures are protected, historic sites can also be used for functions such as weddings and meetings.
8. Community Wide Parks- Larger than neighborhood parks, they offer diverse functionality, such as picnic areas, sporting areas, and pools. These parks are designed to accommodate larger crowds, and include parking areas and are usually near to public transit.
9. Non Parkland Open Space- Recreational areas but they are not parks. Examples include bike paths and landscaped areas.
10. Natural Areas and Preserves- A natural area or preserve designation is given to those areas that are ecologically significant to Ann Arbor. The designation is based on the Floristic Quality Index (FQI), which is a measure of how undisturbed (by human development) a given area of land is. The preserve designation is given to the highest quality natural areas (least disturbed and thus the highest FQI rating), and thus warrant the most stringent level of protection. Recreation, such as biking or hiking is severely limited in preserve areas. Natural areas have lower FQI ratings. While not undisturbed areas, they are highly restorable, and thus warrant resources towards rehabilitation.
11. Naturalized Open Space Parks- A naturalized park is an area which has been disturbed by human development, but has since re-vegetated. These areas are non-programmed, but allow for a greater level of recreational activity.

[58] City of Ann Arbor (2000) *Parks and Recreation Open Space Plan*: http://www.ci.ann-arbor.mi.us/CommunityServices/Parks/Pros%20Plan/pros.html

DEVELOPMENT AND MAINTENANCE COSTS

Most experts agree that the new greenway must be actively used. This active use coupled with edge development will provide the "eyes on the park" that will allow the park to self-police. Experts often cited West Park as an example of the nuisance activities that can be happen when a public area is underutilized.

Our team asked Park Planner Amy Kuras to suggest what type and amount of amenities would be required to make a vibrant, actively used park. Kuras responded with suggested amenities and estimates for what those amenities might cost. Operating under the assumption that there will eventually be a 2.1 mile fenced recreational path and about ten additional acres of parkland, we have adapted her estimates to approximate the total park development costs. The park includes basic amenities like picnic pavilions and benches as well as more unconventional amenities such as climbing rocks and a skateboard park. Finally the park assumes significant expenditures on landscaping to make it aesthetically pleasing.

The park development estimates used in our model start with costs likely to be incurred in creating "green field" sites in which parks can be developed. For removal of several buildings and pavement we have estimated costs of $1 million. For soil remediation at contaminated sites we have estimated $1.7 million.

As noted above, our estimate for the new park development costs assume an "amenity packed" park. This type of park will be much more expensive than a simpler alternative. Our total estimate for park development costs, excluding demolition, in 2005 dollars is about $5 million. We have assumed that these expenditures will closely track the acquisition of land, assumed to occur over several decades. As part of the short-term plan's costs we have included the entire cost of a fenced trail lined by trees and benches. This cost (part of the $5 million) is anticipated to be approximately $2.2 million.

The accuracy of our estimates for the continuing park maintenance was hindered by inability to obtain the current maintenance budget for the city since it is mixed with other service activities. Ideally, the maintenance budget of Gallup Park could be used as a proxy for greenway maintenance, given its similar linear nature. We were also able to obtain average maintenance budgets for the 61 other rails-with-trails in the United States. In 2000 dollars this amount was in the range of $16,000 to $33,000 per year. We have used the high end of this range in our model. Although the average rail-with-trail is almost twice as long as the proposed trail, we believe that the high end of this range is most appropriate (and actually quite low) because the Allen Creek Greenway will require maintenance for active use, such as snow-plowing the path and frequent removal of refuse.

BUDGET (MILLAGE)

The Parks & Recreation Department generates revenue for specific purposes from three designated property tax millages. Total millage collected from the three millages is currently (FY 2004/05) is 1.4162[59]. A description of each millage is as follows:

---

[59] City of Ann Arbor(2004) *City of Ann Arbor Budget FY 2004/05* , p 45 & 54

- 1995 Parks Rehabilitation & Development- totals .469 mills. This fund is for the rehabilitation and restoration of various parks of the Ann Arbor Park System.
- 2003 Parks Repair & Restoration- totals .4601 mills. This fund is to provide for maintenance and repair costs of the Ann Arbor Park System.
- 2004 Open Space & Parkland Preservation (also called the Greenbelt Millage)- totals .4871 mills. This fund is to provide for the preservation and protection of open space, natural habitats, parkland, and water. The revenue provided is used towards the acquisition of open space both within the city (1/3 of total revenue) and outside the city.

CITY PARCELS

Recently, a debate has begun over what should be done with city owned parcels, specifically the maintenance yards at 415 West Washington and 721 North Main Street and the surface lot at First and William. Both maintenance yards, pending their relocation to Stones School and Ellsworth, will become available in the next two years for possible redevelopment by the private sector.

The proposal set forth to the City Council by Councilpersons Easthope (D-5th Ward) and Johnson (D-1st Ward) in late March lobbied to have all three city lots set aside for strictly parkland development in an effort to thwart the DDA's 3-site proposal that aims to place a large parking deck on the First and William lot. The Easthope-Johnson plan, which was heavily supported by greenway proponents the Friends of the Ann Arbor Greenway and the Board of the Old Westside Association, would set aside the three parcels for integration into the proposed greenway and prohibit all development. While the Easthope-Johnson proposal was voted down by the majority of the Council, both it and the DDA 3-site plan have sparked a heated debate over the future for city owned land. Some argue that city parcels should not be sold to the private sector for development, but should remain under the city's control. Others argue that the city should not be in the real estate development or property management business and that vacant city parcels should be sold if the land can be developed to a higher and better use. Choosing to restrict the development rights of the three city parcels would add approximately 8.5 acres of land to the park system and would most likely exacerbate the city's revenue problem. If turned into parks, the sites would not generate any property tax revenue and would require funds for maintenance, safety patrol and development costs.

Allowing the three sites to be developed by the private sector would add the sites to the property tax roles and thus generate increased tax revenue for the city. It would also provide more development opportunities within the downtown area, protecting the townships and farmland from the effects of urban sprawl, as well as increasing density downtown.

STAKEHOLDER POSITIONS

In an effort to gain a better understanding of what the proposed greenway would mean to residents of Ann Arbor, several key stakeholders in the community were interviewed and their ideas and concerns were documented. The following represents a summary of their general feelings towards the greenway, their thoughts on critical design aspects as well as

their concerns regarding its construction. A detailed matrix of the individual responses can be found in Appendix D on page 54.

General Feelings

When stakeholders were asked for their feelings regarding the greenway the main topics that continued to come up surrounded the recent DDA 3-site proposal, having a lively downtown, and park space. While there were some that vehemently opposed the DDA proposal, others approved of the idea of adding density to the downtown area; however, several disliked the plan to place a large parking deck on the First and William lot. Common complaints cited about the parking structure include its costly price tag and the creation of a physical obstruction in the floodway. There was a general consensus regarding the need and desire to maintain a vibrant and lively downtown. Many are in favor of having denser mixed-use development in the downtown area in order to maintain an attractive downtown and to curtail the amount of urban sprawl that is taking place in the greater Ann Arbor area. Finally, where many opinions differ is on the amount and location of open park space in the downtown area. While some believe that the First and William lot along with the other two city parcels should be converted into park space, many others believe that while these lots are critical to the development of the greenway, they need to have a good mixture of park space and dense development.

Design Aspects

When asked about what design characteristics they envisioned for the proposed greenway, the responses centered on the need for the path to have spines and linkages, development mixed with park space and provide some relief to the flooding issues in the area. Suggestions offered to provide the spines and linkages were to connect the greenway with existing parks in the area such as West Park and the Huron River trail. Additionally, respondents expressed the need for the greenway to connect with destination spots and link into the city's non-motorized path system.

In terms of development, the majority agree that the greenway must have dense development facing it in order to provide 24-hour "eyes on the park". Stakeholders believe this is essential to keeping the greenway a safe, vibrant and heavily utilized path. Additionally, representatives from the Huron River Watershed Council and the Washtenaw County Drain Commission expressed the idea of using the greenway as a flood mitigation tool in order to reduce the flooding that occurs in some downtown areas.

Concerns

Of the many concerns expressed by the different stakeholders, the common ones were safety, the reduction in affordable housing stock, lack of enough linkages and funding. Safety was a major concern with many interviewees, reiterating the need for development along the edges of the greenway in order to keep "eyes on the park" and not have to increase the burden on the police department.

The concern over the reduction in the affordable housing stock comes as a result of the proposed greenway route which would remove homes in the floodway which are currently market controlled affordable. Replacing these homes with expensive new development may

require significant government intervention in order to maintain a percentage of affordable housing units.

Additionally, many are concerned that the proposed greenway route does not provide enough linkages to destination points in order to make it a viable non-motorized transportation route. Many doubt the path's usefulness for cyclist due to its numerous road crossings, most of which are non-intersection crossings. If the greenway is not considered a priority route in the city's non-motorized transportation system, funding from sources such as MDOT and Act 51[60] will be severely compromised. Furthermore, with the recent across the board reductions in federal funding the issue of how to fund the greenway is a chief concern.

ADDITIONAL COMMENTS

The stakeholders interviewed for this report represent a variety of opinions and positions of Ann Arbor residents; however limited specific reaction from those that reside in the neighborhoods that will abut the proposed greenway was gathered during the term of this project. The following represents the stated opinions of the Board of the Old West Side Association and anticipated reaction as well as benefits and drawbacks for other neighborhoods groups:

Old West Side

The Old West Side Association, founded in 1967, is the neighborhood group dedicated to preserving the historic character and environment of the area formerly known as the "Old 5th Ward". The Old West Side encompasses the area "bounded by South Main and the Ann Arbor Railroad tracks on the east, West Washington on the north, Crest, Soule and South Seventh on the west and Pauline on the south."[61] Some of the residents of this neighborhood have been very vocal in their support for converting the three city parcels entirely into park and open space. They have vehemently opposed the DDA 3-Site proposal, particularly the construction of the parking deck at First and William that would border their neighborhood and the downtown area. The greenway represents an opportunity to provide an aesthetic neighborhood asset as well as provide non-motorized access to the Huron River and the University of Michigan's Athletic Area.

North Main Area

The North Central Property Owners Association represents those residents within the area bounded by East Ann at the south, Argo Dam at the north, Broadway at the east and North First[62] to the west. For residents in this area and their neighbors to the west, the greenway will provide a safe, non-motorized route to the downtown area as well as easier access to the Huron River. The proposed appropriate development described in the integrated greenway vision will add visual appeal to the area through the re-use of the North Main City Yard as well as establish a better connection between this area and points further south.

---

[60] Act 51 is tax revenue received by the city from the gas and weight tax and is designated to fund transportation expenses including non-motorized

[61] Old West Side Association – Neighborhood Association: http://www.oldwestside.org

[62] Actual boundary is about a half-a-block west of North First Street: http://www.ci.ann-arbor.mi.us/CommunityServices/Planning/Planning/neighborhoods/central/nort.html

Downtown

For residents within the downtown area, the greenway represents not only a visually appealing attraction that provides much needed green space, but it would also serve as a catalyst to attract a greater variety of merchants to the area helping to create a more livable and pedestrian-oriented downtown. The greenway will also serve as a recreational trail connecting these residents to the Huron River as well as to the athletic arenas at the University of Michigan.

CITY CONTEXT

DEMOGRAPHICS

The city of Ann Arbor has experienced both job and population growth in a state that has seen the opposite in a majority of its cities. The city's residents are well-educated; more than 69% of its residents over 25 years of age have at least four years of college education. Over 40% of the working population is employed in managerial and professional positions.[63]

Land values have also been on the rise in the city with single-family homes appreciating in value by approximately 5.67% per annum for the last 10 years.

Figure 3: City of Ann Arbor U.S. Census Data[64]

	1990	2000
Population[65]	109,592	109,472
Median Household Income	$33,344	$46,299
Single-family Housing Unit Value	$116,400	$181,400
Gross Rent Units Less than $499	9,779	3,984
Gross Rent Units $500 to $749	9,710	8,614
Private wage and salary workers	40,622	43,080
Government workers	15,771	14,772

While most of the data for the city looks positive, there are a few blemishes including the availability of affordable housing units (rent less than $499), which have dropped by over 50% (5,795) since 1990. One reason cited for the decrease in affordable housing is that the University has relied on Ann Arbor housing stock to help fulfill its student housing needs rather than building additional dormitories.[66]

ANN ARBOR ECONOMICS

The city of Ann Arbor is one of the few bright spots in the state with a balanced budget and predicted growth for the coming years. The city has received a AAA bond rating on its most recent general obligation debt issuance and a AAA bond rating on its most recent revenue bond issuance. Property Tax revenue increases slightly exceeded inflation rates for the past

[63] City of Ann Arbor (2004) *City of Ann Arbor 2004/05 Budget*, p. 35

[64] City of Ann Arbor (2003) *City of Ann Arbor 2000 and 1990 Census Comparison*: http://ci.ann-arbor.mi.us/CommunityServices/Planning/Planning/census/census%20comparison-final.pdf

[65] 114,024 in 2002

[66] Ann Arbor Mayor John Hieftje, 4/8/2005 interview

four years. Tax base growth from additions has led inflation rates for the past six years.[67]

However, growing demands on the city's services (e.g. police and fire) and increases in city expenses (e.g. pension benefits) have outpaced revenue growth (~ 5% versus 2%, respectively). The largest single source of funds for the city, property tax, has grown ~ 4% per year; however, other sources of revenue (e.g. shared state revenue) have fallen significantly resulting in a net loss. Since the city has limited means in which to raise additional revenues (e.g. capped property tax millage, no local sales tax), it has relied on extreme cost cutting measures, principally slashing its fulltime employee count to 1985 levels.

CITY BUDGET –REVENUE SOURCES

Property tax accounts for 25% of the city's budgeted revenues and is the single largest source of funds for the city.[68] Fees for services (e.g. water) account for the second largest portion of annual revenues. State law prohibits the city from raising funds via a city sales tax.

The city receives revenues from the following sources: taxes, licenses, permits & registrations, intergovernmental revenues (state shared revenue, grants), charges for services (e.g. fire & police, municipal services, recreation), fines & forfeits (e.g. parking tickets), investment income, miscellaneous, prior year surplus, contributions, and transfers/reimbursements (see Figure 4 below).

Figure 4: City of Ann Arbor Budget Revenue Sources[69]

City Revenues	Projected 2003/04	Request 2004/05	% Inc	% of Total
Taxes	$67,413,546	$72,714,054	8%	25%
Licenses, Permits & Registration	$4,338,501	$4,349,793	0%	1%
Intergovernmental Revenues	$22,439,797	$24,851,930	11%	8%
Charges For Services	$55,949,345	$58,826,179	5%	20%
Fines & Forfeits	$5,372,760	$5,851,024	9%	2%
Investment Income	$2,826,348	$3,321,709	18%	1%
Miscellaneous Revenue	$541,078	$837,891	55%	0%
Prior Year Surplus	$31,169,936	$61,421,188	97%	21%
Operating Transfers	$36,017,417	$39,991,568	11%	13%
Contributions	$363,395	$361,821	0%	0%
Sale Of Bonds		$14,463,304		5%
Intra Governmental Sales	$10,114,152	$9,779,395	-3%	3%
Totals	**$236,546,275**	**$296,769,856**	25%	100%

[67] City of Ann Arbor (2004)*City of Ann Arbor Budget, 2004/05*, p. 27

[68] Property taxes represent 49% of the city's external (ie: not an Operating Transfer, Intra Governmental Sale or use of Prior Year Fund Balance) revenues

[69] City of Ann Arbor (2004) *City of Ann Arbor Budget, 2004/05*, p. 72

Due to the large capital improvement projects already underway, City Hall Expansion ($20 million) and Maintenance Facility ($26.5 million), there is likely to be little or no city money available from the General Fund; however potential sources of funding include millages for parks, streets and solid waste.

However, the availability of Tax Increment Financing (TIF) within the Downtown Development Authority (DDA) district as well as for brownfields is a potential source of funds for development of a greenway. A more detailed analysis of potential greenway funding can be found in the Financing and Funding section of this report.

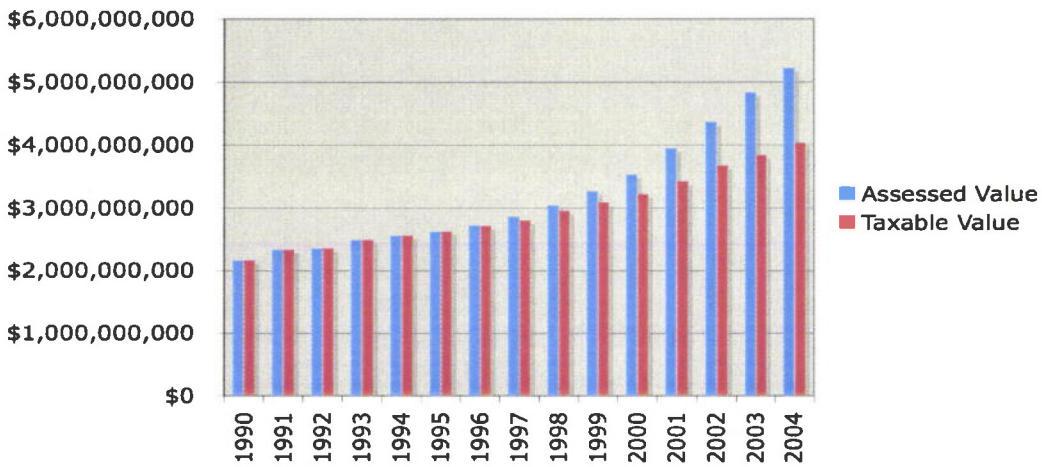
The Headlee Amendment (1978) and Proposal A (1994) have prevented the city from benefiting fully from the appreciation of land value in Ann Arbor. Since the annual increase in taxable value of property is capped at the rate of inflation (CPI), a growing disparity between the assessed value and the taxable value has arisen (see Appendix E p.59). This disparity exist because the city is unable to recognize the tax gain from appreciation unless the property changes hands (e.g. sale) which has caused the spread between assessed and taxable value to grow to over 29% (~ $1.2 billion).

Figure 5: Spread Between Assessed and Taxable Property Value[70]

Year	Assessed	Taxable	Δ Assessed	Δ Taxable	Spread
2002	$4,370,512,600	$3,679,656,241	10.60%	7.26%	18.78%
2003	$4,835,407,200	$3,834,978,133	10.64%	4.22%	26.09%
2004	$5,222,389,700	$4,033,493,468	9.26%	5.18%	29.48%

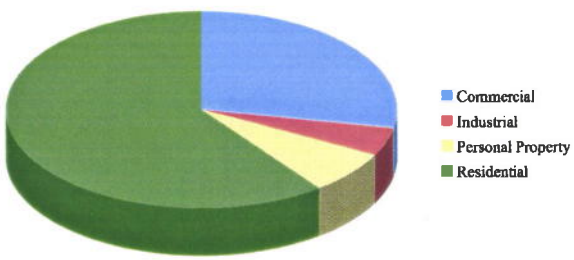
[70] City of Ann Arbor (2004): http://ci.ann-arbor.mi.us/FinancialAdminServices/Assessor's/valuehist.html

Figure 6: Spread Between Assessed and Taxable Property Value[71]



Although residential property generates less tax per taxable dollar (47.3625 versus 59.6817 mills), the taxable value of residential property is over double the taxable value of commercial property as represented in the Figure 7 and 8 below:

Figure 7: Taxable Value by Class in 2004[72]



[71] City of Ann Arbor (2004): http://ci.ann-arbor.mi.us/FinancialAdminServices/Assessor's/valuehist.html
[72] City of Ann Arbor (2004): http://ci.ann-arbor.mi.us/FinancialAdminServices/Assessor's/taxvalues.html

Figure 8: Taxable Value and Millage by Class in 2004[73]

Class	Taxable Value	%	Millage	~ Unrealized Tax[74]
Commercial Real	$1,134,844,412	28%	59.6817	$19,867,498
Industrial Real	$188,745,907	5%	59.6817	$3,547,767
Personal Property	$275,715,700	7%	47.3625	$3,941,637
Residential	$2,434,187,449	60%	47.3625	$33,785,459
Totals	**$4,033,493,468**			**$61,142,360**

The spread would translate to roughly an additional $21.4 million (35% of the Unrealized Tax) for the city annually (i.e. 7% of the 2004/05 budget). The tax benefit of land appreciation to the city will only be realized as properties are sold.

A majority of property tax collected (~ 72%) goes to the state's funds with the remaining portion (~28%) allocated to the city's coffers. The actual allocations are shown in Figure 9. Total Park millage is 1.4164 (roughly $6.2 million) of which one third is earmarked for the Greenbelt.[75] Approximately, 1/3 of the Greenbelt millage can be used to obtain land within the downtown area.

Figure 9: Breakdown of Millage Allocation in 2004[76]

City Revenue from Property Tax	Millage
General Operating Fund	6.21250
Solid Waste Collection	2.51370
AATA	2.09480
City Employee Benefits	2.09480
Street Repair	1.96930
Debt Service	0.60000
Park Acquisition (greenbelt millage)	0.48710
Park Repair & Restoration	0.46920
Park Rehabilitation & Development	0.46010
Totals	**16.90150**

[73] City of Ann Arbor (2004): http://ci.ann-arbor.mi.us/FinancialAdminServices/Assessor's/taxvalues.html
[74] Property tax that would be collected if the fully assessed value were taxable
[75] Voter passed initiative to permanently preserve 8,000 acres of farmland in Washtenaw County by buying developer rights from willing farmers, earmarking a millage of .48710 or roughly $2 million per annum for 30 years
[76] City of Ann Arbor (2004)*City of Ann Arbor Budget 2004/05*, p. 54