

**STARKWEATHER CREEK
MASTER PLAN 2004 UPDATE**



**City of Madison
Engineering Division
Parks Division**

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I. INTRODUCTION



Numerous water resource studies have been conducted for the Starkweather Creek watershed. The studies are briefly highlighted in the following section. Despite the attention that has been given to this urban stream, not many of the proposed improvements have actually been constructed. Water resource improvements are relatively expensive and are highly regulated in Wisconsin. In addition, environmental dollars have been spent in other program areas over the prior decades for a

variety of reasons. Most recently, mandated stormwater management programs have been dramatically expanded and have used up most of the water resource budget. Lastly, a significant portion of the proposed wetland improvements occur on privately-owned lands which the City of Madison cannot afford to purchase. Improvements on these lands are likely to occur only when the land is dedicated to the city during the platting process.

This recent effort to update the waterway master plan and find financial resources to fund the proposed improvements was triggered by a new city resolution supported by alderpersons and citizen groups representing areas affected by the watershed.

The purpose of this update is to revise the old goals and proposed improvements to reflect the current regulatory changes and to add new goals and improvements after conducting public meetings to gather input from all concerned citizens and interest groups. City staff have been working with the Friends of Starkweather Creek, WDNR, Alderpersons, County Supervisors, the Dane County Watershed Coordinator and adjacent Town governments.

The main goal of this project is to create an updated master plan that will address environmental concerns and recreational opportunities within the watershed from the mouth of the creek at Lake Monona upstream in both branches to their junction with the I-90 interstate highway. This update contains proposed improvements for water resources, bikepaths, walking trails and other park amenities. Reaches of the creek above I-90 will be addressed in the Planning Department's neighborhood planning process and the mandatory stormwater management plans now required by state law. See Figure #2 for a plan showing the limits of the watershed.

Additional goals are to create a watershed educational program and to look for other sources of funding such as state and federal grants.

The 2004 capital budget provided \$40,000 so the Engineering Division could start this project and hold public meetings. It is expected that the City Council will approve annual creek improvement funds of approximately \$150,000 per year for water resource projects starting with the 2005 budget. Bikepaths, walkways and park amenity improvements will also need to be funded in other parts of the capital budgets over the next few years. City staff will need to prioritize the many projects and decide which ones will be done in the first phases.

II. BACKGROUND

A. GENERAL

The resolution that was recently passed authorizing this master plan update is included in Appendix A. It calls for the following items:

1. Completion of hiking/biking trails along both branches
2. Initiation of a public education campaign
3. Reevaluation of infiltration areas and adoption of a plan to use them
4. Evaluation of ways to increase the stream base flow
5. Completion of prior goals from past improvement plans

City staff have selected the limits for this plan to be the mouth of Starkweather Creek at Lake Monona upstream in both branches to the I-90 interstate bridges. The watershed above the interstate will be developed according to the relatively recent stormwater management regulations and the existing neighborhood plans. Both of these items serve to protect the watershed, the delineated wetland areas and the infiltration areas shown in the prior studies.

The watershed has been defined in detail in the prior studies. The sections that are being currently evaluated in each branch total approximately 6.1 miles. The creek is generally shallow and has a silty bottom with areas of sand and gravel where flow velocity increases sufficiently to prevent the silt from accumulating. Current depth varies from 1-4 feet except for the lower section near the outlet where the creek bed has been dredged for boating activities. The creek was originally much deeper and has filled in with silt, sand and debris. The original depth of the creek was established when the creek was straightened around 1911 to improve flow capacity and to drain wetlands.

The improvement of fishing opportunities was explored with DNR staff whom recommended only minimal items like improved access points near the outlet to Lake Monona as there is no year-round fishery in the creek due to the low base flow and shallow depth.

B. PRIOR STUDIES

The following major studies were reviewed in the preparation of this master plan update:

Starkweather Creek Water Quality Plan	1983
Yahara Monona Watershed Plan	1992
Urban Wetlands in Yahara Monona Watershed	1990
Dane County Hydrologic Study	1997
Madison Urban Area and Dane County Bicycle Transportation Plan	2000
E. Washington Ave. Gateway Revitalization Plan	2003

The 1983 study contains the most information specific to Starkweather Creek and contains a history of the stream that discusses the effects of the original stream channelization in the 1920's. The stream has not been realigned since then. The studies suggest numerous water quality improvements of which about half have been constructed. A complete list of the proposed improvements from the prior plans is included in Appendix F. Some of the old recommendations are no longer feasible as state and federal regulations have changed and no longer allow some types of dredging projects, wing dams, wetland disturbance or shoreline revetments that are built out into the waterway. See the following section for more detail regarding the regulatory changes.

Note that flooding has never been a problem with this stream as the realignment and deepening in the 1920's has been very successful in increasing maximum stream flow. The 1983 plan only suggests minor maintenance items to reduce the potential for flooding; things such as removing debris, silt and dead trees found laying in the stream. The last time that the flooding potential was analyzed was in 1978 when the FEMA flood insurance rate model was run. There are a few bridges on the stream that can back up water during a large storm event but none cause any flood damage and there were no flood concerns raised by the modeling. Some of the bridges and box culverts that had backed up water have already been replaced with various highway projects.

C. PRIOR WATER RESOURCE IMPROVEMENTS

Prior water resource improvements have focused on shoreline revetments in park areas, which have reduced erosion of stream banks, and on dredging projects to keep the lower end of the stream open to boating. Maintenance dredging has also been required where significant storm sewer outfalls have deposited enough silt and sand to impede navigation or reduce the flow capacity of the stream. Stone revetments have been placed along Olbrich Park, Olbrich Gardens and the Waltersheidt Ditch. Vertical steel sheet piling has been placed along the west branch from East Washington Avenue to Fair Oaks Avenue.

D. REGULATORY ISSUES



The most recent regulatory change is still being implemented. DNR staff is still interpreting the new laws and deciding what type of permits are required for various improvement projects that affect the creek stream bed.

City staff are currently meeting with them to interpret the new regulations. Realignment of the creek, wing dams and dams to flood wetlands are not allowed. Minor encroachments into the waterway and grading may be allowed to create visual meanders. Dredging will be allowed after the proper permits are issued and a plan is agreed upon as to how any contaminated dredge spoils will be disposed. Wetland scrapes will also be allowed.

E. DANE COUNTY REGIONAL AIRPORT CREEK/WETLAND PROJECTS

The Federal Aviation Administration is emphasizing their regulations regarding the minimum setbacks required for runways as they pertain to railroads and highways. This has led to the creation of a very major railroad, highway and creek relocation project along the northwest side of the Dane County airport. The project is controlled by Dane County and the Wisconsin DOT and is regulated by the US Army Corps of Engineers and the WDNR. As it is officially a DOT project, it has different regulations than those the City of Madison abides by for its water resource improvements. Detailed information about the various stream and wetland changes and improvements created by this mandated FAA project are included in Appendix C.

F. PUBLIC MEETINGS AND INPUT

This master plan is a significant public works project and involves four aldermanic districts and numerous neighborhoods. The shoreline adjacent to the creek is owned by the city, businesses and homeowners. Many public interest groups have expressed interest in participating in this planning process. As a result, city staff conducted preliminary meetings with the “Friends of Starkweather Creek” and the “East Isthmus Neighborhoods Planning Council”. Large public meetings were held in April and June at Olbrich Gardens to gather input from the public, set priorities and gather data on what waterway and park improvements the public was interested in. A professional facilitator lead the meetings in order to ensure that all ideas were discussed and everyone’s priorities could be collected by city staff. Over 100 people attended the first meeting and had a chance to tour three stations set up for each of the major topic areas. Summaries of the public comments are included in Appendix D.

G. DANE COUNTY AND TOWN WATER RESOURCE PROGRAMS

City staff have worked closely with the Dane County Watershed Coordinator to integrate governmental programs. The county is largely responsible for water resources outside of the city limits, which is now mostly in two relatively small headwater areas of Starkweather Creek.

The Dane County Land Conservation Department implements erosion control programs, agricultural conservation practices, education/outreach programs and waterway grants. The County is working with the City to look for water resource funding for headwater areas outside of Madison.

The County provides landowners, land users and decision makers the most current, cost-effective and productive planning and technical tools available. Some of the conservation programs that they use follow: Grassland Reserve Program, Wetlands Reserve Program, Wildlife Habitat Incentives Program, Conservation Reserve Program and Environmental Quality Incentives Program. Some of these programs will apply to the creek headwater areas and they are currently being explored. The County work plan involves six major goals which are compatible to the city goals for Starkweather Creek.

The County also helps manage a citizen stream monitoring program which has a monitoring site at Starkweather Creek at Milwaukee Street. The data has just started to be collected. It will be reviewed to see how it might best be used to monitor progress of the City and County programs over the next decade.

As Town funding is limited, the Towns of Burke and Blooming Grove have water resource programs that are managed by the county.

III. BIKEPATHS

A. SCOPE AND PURPOSE

Bike paths are included in this study of improvements to the Creek and related watershed measures for three main reasons. First, bike paths provide access and connectivity for users of the parks and green spaces adjacent to the creek. This includes access for all forms of non-motorized travel, included handicapped users, potentially increasing the value of the parks and green spaces for a larger number of people. Bike paths provide this access and connectivity with far less environmental impact than motor vehicle access.

Second, the creek corridor may provide opportunities for off-street bike routes serving both commuters and recreational users. The City's bike network can provide a viable alternative to automobile travel only if there are direct, continuous routes without major barriers. Some sections of the undeveloped creek corridors have the potential to provide key segments of the bike network through this urbanized watershed.

Third, there are portions of the creek and its immediate environs which are relatively natural or have potential for natural habitat restoration, and a paved bike path may not be compatible with these uses. For this reason it is important that bike path planning to be coordinated with other watershed improvements to assure that these "special places" are preserved.

For purposes of this study, "bike paths" are assumed to be:

- Paved, generally 10- to 12-foot wide;
- In conformance with established geometric, safety and handicap accessibility standards, including minimum curve radii and maximum grades and minimum horizontal clearance to obstacles such as trees;
- Open to all non-motorized users, including bicyclists, pedestrians, skaters, and wheelchairs;
- Maintained for year around use, including snow plowing and, where necessary, de-icers during winter months.

This definition distinguishes bike paths from other types of pedestrian facilities such as conventional sidewalks; narrower paved paths intended primarily for pedestrians; and boardwalks or unpaved paths intended exclusively for pedestrians. This section of the report focuses on bike paths, and other types of paths or walkways are discussed in more detail in Section IV.

B. Summary of Public Input

Following is a summary of bikepath comments received at the April 21, 2004 workshop, [the June 2, 2004 Public Meeting] and in various meetings with Friends of Starkweather Creek and other advocacy groups. A complete archive of the comments from the April 21 meeting, including the number of comments and "dots" (indicating agreement from other workshop participants) are included in Appendix A.

This summary is intended to convey the intent of the most prevalent comments on the major issues, and may not reflect all of the specific individual comments included in the appendix. We recognize that some of the comments conflict with others, and the final recommendations need to balance competing interests.

1. Improve connectivity of the bike path network for transportation purposes between the Isthmus area and destinations on the East side of Madison and beyond, including M.A.T.C., East Towne, Dane County Airport, Glacial Drumlin Trail in Cottage Grove and Sun Prairie.

2. Improve safety for bikes and pedestrians, particularly at crossings of major arterials such as East Washington Avenue, Aberg Avenue, Highway 30 and Interstate 90.
3. Improve safety for bikes sharing streets with automobile traffic, especially North Fair Oaks Blvd.
4. Link parks and greenways to on-street bike routes
5. Pedestrian connectivity between nearby parks and other green spaces is important. Specific mentioned connections include:
 - a. Olbrich Park– OB Sherry Park
 - b. Olbrich Park – Dixon Greenway
 - c. OB Sherry Park – Voit farm
 - d. Washington Manor Park – Bridges Golf Course
 - e. Washington Manor Park – Greenway East of Creek
6. Recognize that paved bike paths are not always compatible with lower intensity uses such as walking and habitat / wildlife restoration. Paved bike paths in many locations would conflict with the serenity and/or natural values of the green space. Specific places mentioned include:
 - a. Garver property (Olbrich Park)
 - b. Greenway east of creek from East Rail path to OB Sherry Park
 - c. MG&E property and Dixon Greenway along West Branch from Fair Oaks Ave. to Milwaukee St.
 - d. Voit farm along East Branch
7. Use Federal funded projects to help complete bike and pedestrian links.
8. Provide handicapped access to creek at regular intervals
9. Remove sheet piling and riprap (boulders) along creek edge and replace with vegetated banks.
10. In general, new paving should be kept to a minimum to promote water infiltration and reduce runoff.
11. Improve bike and pedestrian connectivity between neighborhoods where there is currently a barrier. Specific mentioned connections (and barriers) include:
 - a. Olbrich Park – Eastmoreland neighborhood (Creek and railroad)
 - b. Eken Park – North Side neighborhoods (Packers Ave.)
 - c. Worthington Park – Eken Park neighborhoods (E. Washington Ave.)
 - d. Eken Park – Carpenter / Ridgeway neighborhoods (Aberg Ave.)
12. Avoid paving, mowing and de-icing agents in wetlands and other sensitive areas near the creek.

13. Bike path lighting is needed for safety.
14. Bike path lighting should be minimal or use motion-activated lights to reduce light pollution.
15. Recognize the conflict between fast bikers and walkers sharing same path and consider including secondary parallel path for walking and running.
16. For many bicyclists, off-street paths are preferable to on-street bike lanes.
17. Better path signage is needed for safety, route guidance and to identify nearby important destinations.

C. General Planning Goals

The general planning goals outlined below reflect the comments received during this planning process as well as overall transportation goals of the City, reflected in previous planning documents, actions undertaken with approval of the Common Council and recommendations from City staff. The general goals formulated here were used to guide the development of the specific recommendations and priorities contained in the next section.

The City's bike and pedestrian network should be expanded and its connectivity improved in order to provide a viable transportation alternative, reduce the number of automobile trips and promote a healthy lifestyle.

Bike paths to and within parks and greenways are appropriate to provide access to these facilities for more people with relatively little environmental impact.

Priority should be given to projects that create bike and pedestrian links across existing barriers such as high volume streets and highways, railroads and, the creek itself.

Paved bike paths should avoid, or be on the perimeter of ecologically sensitive areas such as wetlands or areas providing wildlife habitat.

Paved bike paths may not be appropriate in "natural" areas which are considered by users to have high value, or potential value for tranquility, walking, nature observation, etc. This includes much of the area immediately adjacent to the creek.

The planning process must recognize different classes, functions, and requirements of bike and pedestrian facilities.

Paved bike paths serve a transportation function as well as recreation. They meet established safety and geometric standards, are maintained for year-around use and accommodate a variety of non-motorized uses. Ideally, routes are continuous

(on a combination of on-street bike lanes and separate paths), relatively direct and connect to desired destinations for shopping, employment, school and recreation.



A secondary network referred to here as paved walkways, also serve a transportation function, but primarily for pedestrians. These would generally meet sidewalk design standards and be maintainable for year-around use. They need not be continuous over long distances and can be less direct than bike paths, but a high priority is continuity across barriers such as busy highways, railroads and waterways. These facilities will generally be open to bikes and skaters. (It is important to consider them here because they provide access to the bike network and also because, if they provide a viable transportation link and attract a large volume of bikes, it would be more appropriate to design to the higher bike path standards.)

A third network consists of hiking trails, not necessarily paved or maintained for winter use and not intended for wheeled use. These are referred to in this section as hiking trails, but are discussed in detail only in other sections of this report.

There will inevitably be conflicting interests and priorities between different users of the Starkweather Creek corridor. This report can, at best, provide an overall framework for future planning and identify significant hurdles to completing a bike and pedestrian network in the watershed. An open and inclusive public involvement process must be part of any future planning, design or construction of any segments of the network.

D. Specific Recommendations

Backbone Routes

Planning for future bike routes in the watershed should focus on two “backbone” bike routes. The first is a West Branch path, beginning at the existing East Rail path near Wirth Park and extending approximately 1.0 mile to the existing Starkweather path in Bridges Golf Course (2C and 2D). The second is an East Branch path, beginning in the same location and extending approximately 3.5 miles to City View Drive, just east of I-90. Both of these routes can be designed and built in phases and, particularly for the East Branch route, there are a number of alternative corridors for segments of the route which need further study before selecting the preferred location.

The West Branch path will complete the bike link from the Isthmus neighborhoods and points west (via the East Rail path) to MATC (via the existing Starkweather path.). The two major barriers to the on-street routes in this corridor are East Washington Ave. and Aberg Ave. We recommend that this path be constructed in three phases.

First, and key to the whole route, is an overpass of East Washington (Segment 2C-2). This project would be consistent with, and require partial implementation of the East Washington Avenue Gateway Revitalization Plan, which calls for removal of the frontage road in the east quadrant and construction of a new street connecting Webb Ave. with Marquette St.

The overpass could be built as part of a larger project, but at a minimum should connect with the new street, on the east side of the creek, and extend to Hoard Street on the west side of the creek. This would provide reasonable on-street connections to the overpass, making it a valuable stand-alone project even if the other segments of the path are not built immediately.

Second priority should be an overpass of Aberg Avenue between Washington Manor Park and the Bridges golf course (2D). We recommend that the overpass structure be located near the creek and that it have several clear spans in the park (in addition to the spans over the highway) to permit open access to the creek from the rest of the park. We also recommend that the project include a path along the creek, at least as far south as Commercial Avenue. It should also include provision for crossing the creek (by modification of the existing culvert or a new pedestrian bridge in the park). Again, this would be a valuable stand-alone project.

The West Branch route would be completed with a path along the railroad and the creek between Wirth Park and the east Washington Overpass (2C-1). We recommend that the path be located along the railroad edge of Dixon greenway, cross the creek at Milwaukee Street or on a separate bridge, and extend northwest along the east side of the creek. A portion of this route would be on-street., but consideration should be given to removing Clyde Gallagher Ave. north of Worthington Ave.

The East Branch path will link the Isthmus neighborhoods with commercial employment and retail areas, particularly East Towne. It also will provide bike access to important recreational properties along the creek as well as an “escape route” for bike trips out of Madison. It would be located along the C.M.& St. P RR corridor (future high-speed rail) from Dixon greenway to Jacobson Ave. and along the railroad and/or creek from there to I 90.

The major barriers along this route are Highway 30, Stoughton Road, the Thompson / Lien road intersection and I 90. In addition, it would be very difficult to create a continuous route without shared use of the railroad corridor in some locations, a significant coordination hurdle. It would also potentially cross wetlands, with the resulting environmental and regulatory concerns. For these reasons, it is very unlikely that this path would be built as a single project. A challenge will be to identify segments of the path which could be logical stand alone projects if other segments are not constructed in the immediate future.

Most likely, segments of this path will be constructed as opportunities arise due to adjacent development (or re-development) or significant street and highway construction

projects. Short term efforts need to be focused on preserving potential corridors, doing additional study to refine alternatives and identifying related projects with potential for cooperation on bike path construction. Following are suggested logical segments which might be considered as stand alone projects:

Dixon greenway to N. Fair Oaks (1A-1) – connects Isthmus and West Branch path with potential on-street route to MATC.

N. Fair Oaks to Marsh View path (1A-2) – provides connection between neighborhoods divided by Highway 30 and to significant employment and recreational properties along Marsh View Path.

Marsh View path to Sycamore Park (1B) – Provides safe crossing of Stoughton Road, access to major retail site and very significant recreational areas in Sycamore Park.

Sycamore Park to E. Springs Dr. (1C) – This could be an important recreational path for much of its length through Sycamore Park as well as completing the connection to East Towne for shopping and employment. There are at least two major alternatives for this segment one generally following the rail corridor and one further north generally following the creek. The first would require a crossing of the creek and wetlands and would require use of railroad property. The second would occupy wetlands and areas near the creek which might better be preserved for lower intensity uses, but has the potential to be a very scenic recreational route. Much more study of this area is needed, and it is beyond the scope of this report to select an alternative.

East Springs to City View Dr. (1D) – would create a safe link across I 90, a major barrier to bike and pedestrian travel, linking neighborhoods and commercial areas. Depending on development in the area, this could be a very viable and important stand alone project.

Other Major Routes

Several other recommended paths serve a more limited role in the overall bike network but create important linkages and would likely attract a significant number of bicyclists as well as pedestrians. For this reason we recommend they be planned as paved bike paths rather than walkways.

The Marsh View Path (4C) connects Corporate Dr. on the south side of the Madison Corporate Center with Mayfair Ave. and Commercial Ave. on the north side of Highway 30. This project will construct a very significant link between neighborhoods across Highway 30, the railroad and the creek, all major barriers to existing bike and pedestrian mobility. This project is in final design at this time and is scheduled to be constructed in 2005 with 80% Federal funding under the Statewide Enhancements Program.

A Lien Rd. to East Springs Dr. connector (1E) would link a major residential area with the East Towne area for employment and shopping. It would also connect both these areas to the East Branch path when it is completed. Provision for this path is being

included in the plans for the subdivision south of the railroad, and north of the railroad it would be located on existing publicly owned land. It appears to be a very viable and valuable stand-alone project but is complex because of proximity to wetlands, crossings of the creek and crossing the railroad. We recommend that additional survey and engineering be done to explore options for the railroad and creek crossings and to determine probable costs.

A bike path connection from OB Sherry Park to the Marsh View path (4B) would traverse and connect significant lengths of park and open space, likely attracting a large number of bike riders. We recommend planning for a paved bike path to be built in conjunction with future development of the Voit property. This could use the existing path in OB Sherry Park and a short on-street segment on Leon Street. North of Milwaukee Street it would consist of approximately 0.6 miles of separate path and a bridge over the Marsh View Branch connecting to the Marsh View path (4C). On the Voit property, the path should be located to the extent possible on high ground, not immediately adjacent to the creek, leaving room for a walking path or natural restoration along the creek. In the near term, efforts should be focused on refining and preserving a path corridor and on including provisions for this path in any development plans for the Voit property. Any planned wetland restoration in this area should take into account this future path.

Consideration should be given to construction of an off-street path connecting the existing Starkweather Path at Anderson Street with the existing bike path in Reindahl Park (5D). This connection would create an important link for recreational riders who are reluctant to use on street routes. Coordination should be done with Dane County Regional Airport (DCRA) on the feasibility of locating this path on airport development property.

Secondary Routes and Connectors

A paved walkway should be constructed through Olbrich Park from Atwood Ave. to OB Sherry Park (2A and 4A) in conjunction with development of the Garver property as parkland. This should include a pedestrian bridge over the Starkweather Creek into OB Sherry Park. This is not a major transportation route, and it passes through sensitive parkland. Therefore, we recommend that it be planned as a paved walkway rather than bike path and that the exact location of the walkway be determined by Parks Division to coordinate with the overall development plan for the park.

A paved walkway should be planned for, between the East Branch /West Branch confluence in O.B. Sherry Park to Dixon greenway (2B). We recommend the walkway be located along the northeast bank of the West Branch in order to preserve the park and MG&E lands along the southwest bank for walking trails and habitat restoration. This walkway could be accessed from Olbrich Park by way of the proposed new bridge (segment 4A) and the existing bridge over the West Branch, or more directly by a new bridge over the West Branch into Olbrich Park. A major hurdle to this link is the railroad crossing. A new at-grade crossing of this line would not likely be approved, and there is

not sufficient freeboard between the water elevation (during a significant storm) and the tracks to construct an underpass. We recommend, for the short-range, efforts to preserve the corridor and, long-range survey and engineering to determine the feasibility and probable cost to raise the track.

On Street Routes and Connectors

South Fair Oaks Ave. (5E) is a viable on-street bike transportation alternative connecting near-East neighborhoods and the East Rail path with the future East Branch path and points north. It is currently designated as a bike route, and in most locations has sufficient width to accommodate parking, bicycles and a single traffic lane. Several workshop participants commented on the need for marked bike lanes to improve the safety of this route. This and other measures, such as removing parking in some locations, may be needed to preserve the viability of this key on-street route, particularly as traffic volumes increase over time.

North Fair Oaks Ave. from the East Branch path to Anderson St. (5B) likewise is a viable and key on-street bike route, crossing Highway 30 and East Washington Ave. and providing access to the MATC area. It is currently designated as a bike route, but not marked with bike lanes, and has safety deficiencies in some locations. The most critical of these is the crossing of East Washington. Current plans for the East Washington improvement address the problem by providing bike lanes on Fair Oaks on both approach legs of the intersection. We recommend consideration be given to marking bike lanes on the remainder of the route and investigating other improvements to preserve the long-term viability of this bike route.

Walter Street between the East Rail path and Milwaukee Street (5A) provides a valuable north-south link, and will become more important if development occurs on the Voit property. It is not currently designated as a bike route on the City's bicycle route map. We recommend it be designated as a bike route and [any suggested improvements??]

Portage Road at Hanson Road (5F) is the first "bikeable" crossing of I-90 north of Lien Road, two miles to the south. As such it provides an important route out of the city for touring bicyclists and commuters. We recommend that any plans for work on this segment of road include paved shoulders to accommodate bikes and widening of the bridge to include bike lanes.

Long Range Future Routes

An Airport connector between the existing Starkweather Path and Anderson Street near International Lane (3A) would provide a non-motorized alternative transportation route into the airport and other employment centers in that area. Planning for this off-street segment should include consideration of marking the paved shoulders on Anderson St. and the wide curb lane on International Lane as bike lanes if feasible. This study was not

able to fully evaluate the feasibility of this corridor but we recommend it be included in this master plan for further study and coordination

Exhibits displayed at the April 2004 public workshop indicated a possible off-street path extending through the airport, along the west side of the airport along the planned relocated CP Rail corridor (3B and 3C). Preliminary discussion with Dane County Regional Airport indicate that there is not a feasible corridor for an off-street path in this area. The airport has acquired lands for future expansion extending west as far as CTH CV between Government Dr. and Dovetail Rd. Lands were acquired with FAA funds, restricting use of the property to airport functions and excluding recreational use.

The airport plans to re-channelize Starkweather Creek through the wetlands, relocate the CP Rail line to the west and relocate a portion of CTH CV and the north perimeter road in a project to be let in late 2004 and completed in 2006. This project includes construction of 5' paved shoulders along CTH CV, which will improve the safety of this segment for bikes. Dane County plans to resurface the remainder of CTH CV following the airport expansion project. We recommend that paved shoulders be included in the County's resurfacing project. (These on-road improvements are now identified in this plan as Segment 5F). A bikeroute linkage is needed between Anderson Street/Swanson Street and CTH CV/Government Road through the airport commercial development.

The April 2004 exhibits showed an off-street path around the north side of the airport along the proposed relocated security fence (3D). Recent coordination with the airport indicates that there is no feasible corridor in this area, for reasons discussed above. We recommend additional planning to identify a combination of on-road improvements and separate path which would connect CTH CV at Hoepker Road with USH 51. This segment must include a safe crossing of USH 51, and consideration should be given to a bike and pedestrian overpass. Planning efforts should focus on preserving this corridor even if a path is not constructed immediately.

Development plans for lands northeast of the airport should include provision for a future path between Hanson Road at USH 51 and Hoepker Rd. at I-90 (3E). Efforts should focus on preserving the corridor and constructing segments of the path in conjunction with other development activity.

E. Funding and Schedule

General

The bike path plan outlined here should be seen as a long-range concept plan, to be refined, programmed, budgeted and built over the next fifteen or more years. A "typical" bike path project, perhaps more than most transportation improvements, tends to involve a unique set of constraints and combination of funding sources. The projects in the Starkweather Creek watershed are also in competition for funding with other projects within the City and throughout the metropolitan area. Therefore, it is beyond the scope

of this study to determine an accurate cost for these improvements or establish a schedule for their construction. What follows is a general discussion of costs, funding sources, opportunities and constraints which will control the timing of implementation of the plan.

Costs

Costs for bike paths vary widely depending on terrain, need for retaining walls or other structures, real estate costs and need for lighting, fencing or other amenities. The following cost figures are provided for planning purposes only, to assist users of this report to determine the general magnitude of cost for a segment. They are intended to include engineering as well as construction costs:

Basic asphalt path, including grading, base, paving, restoration and minor incidentals:
\$75-\$100 per linear foot

Low (2' - 4') retaining walls: \$100 - \$130 per linear foot

High (5'-7') retaining walls: \$150 - \$220 per linear foot

Steel Safety Railing: \$60 - \$80 per linear foot

Lighting: \$14 - \$18 per linear foot of path

Fencing: \$12 - \$15 per linear foot

Minor structure over creek: \$60,000 - \$100,000

Major structure over 4-lane highway, including approaches: \$600,000 - \$800,000

Funding Sources

The most important funding source for major bike path projects is Federal (TEA-21) discretionary funding, administered through the WDOT Statewide Enhancements Program. Candidates for this funding are evaluated and ranked by the Dane County Metropolitan Planning Organization (MPO) and selected on a statewide basis in a competitive process. These projects are typically funded with 80% federal funds and 20% matching local funds. These projects must meet Federal and State standards for environmental review, design and contract letting.

Currently, two projects in the Starkweather Creek watershed are planned for Enhancement funding: Marsh View Bike Path, approved for \$346,400 in Enhancement funding and scheduled for construction in 2005; East Washington Overpass, application for \$1,280,000 in Federal funds submitted in April 2004 for design in FY 2006 and construction in FY 2007.

The second major source is City of Madison G.O. funding budgeted through the Engineering Division Capital Budget. Individual projects are scoped and listed in the

Engineering Division's annual budget, including capital funds covering the 20% local share of Federally funded projects.

A third source is City of Madison Parks Division Capital Budget. Bike and pedestrian facilities serve both transportation and recreation needs. Paved walkways located in parks are generally funded through the Parks budget.

A fourth source is private development funding, typically as part of a residential or commercial development. Both the City and private developers recognize the value added to a development in having effective bike and pedestrian facilities serving the development and providing access to nearby residential, employment, retail or recreational resources. Where appropriate, the Development Agreement with the City can include a dedication of public land and construction of bike or pedestrian facilities.

Other resources which should be sought, either for funding or for real estate, to complete segments of the path include: public utilities, Dane County, owners and operators of the rail corridors, private sector supporters, civic and neighborhood organizations.

Schedule

The schedule for completion of any particular segment of the network depends on many variables, including: perceived importance or priority of the segment; degree of public and political support (or opposition); magnitude of technical difficulty or cost; availability of necessary real estate; timing of related private-sector development; and availability of funding. It is beyond the scope of this study to lay out a schedule for completion of this network or most of its segments. However, some near term or time-sensitive elements should be noted.

The Marsh View path is in final design scheduled for construction in 2005. The agreement for Federal funding is in place and the City's local share has been budgeted. The owner of the Madison Corporate Center has offered to provide the necessary real estate and WisDOT Bureau of Rails is supporting the application for a new rail crossing for the path. Approval of the new crossing has not yet been obtained from the Office of Commissioner of Railroads, and a public hearing on this issue will be scheduled for later this year.

The decision on Federal funds for the East Washington overpass is anticipated in Fall of 2004. If funding is approved, it will take two or more years to complete preliminary engineering and environmental studies, acquire the necessary real estate and complete final plans. Construction would likely take place in 2007 at the earliest, and would have to be coordinated with the phased East Washington reconstruction project currently in progress.

Several private development proposals adjacent to the East Branch path and the Lien Road to East Springs connector (E1) are in various stages of review and negotiation. Engineering Division needs to continue to refine the concept and location for this path to

assure that opportunities to construct segments of the route are maximized and potential segments of the corridor are preserved.

Parks Division is actively planning expansion of Olbrich Park and development of the Garver property, affecting the location and design of several important elements of the plan.

As noted earlier, Dane County Regional Airport is currently planning a major expansion scheduled to be let for construction in late 2004 and completed in 2006. Future airport expansion will affect the location of any future bike network in this area. Engineering Division staff as well as interested civic and advocacy groups need to work with airport planners to clarify the legal and safety issues and identify feasible locations for a path network.

IV. WALKING TRAILS AND PARK AMENITIES

A. REVIEW OF PAST PLANS



The public comments generally support the goals, objectives and recommendations of past plans. There appears to be broad support for protection of the north half of the Voit –Madison Corporate Center properties south of Highway 30. A large environmental corridor was identified here in the original 1983 Starkweather Plan. It is clear from the meetings that there is broad public support for preserving this area, restoring and enhancing the wetlands and adjacent uplands similar to the way Madison’s Conservation Parks are managed. The southern part of this area is likely to develop at

some time in the future. Any development approval for this area should secure the necessary open space land in the northern part and along the Creek. Trails should also access and traverse the area, with the type of trails, locations and connections to be planned in conjunction with any development.

B. SUMMARY OF PUBLIC COMMENTS

Comments in this category overlapped with many comments in the bike trail and water resources sections. Combining the comments from all categories, the following issues were most important, based on dot voting:

Paths and Routes-190 dots. These comments indicate broad support for expansion of trail networks for biking and/or walking, connected to where people want to go, with safe crossings of difficult areas.

One area of conflict within the category was how much emphasis should be placed on paved bike paths within the Starkweather corridor. 27% of dots specifically supported the paved bike path system. 13% specifically supported separate and/or unpaved walking paths. 14% were opposed to paved paths in general or in specific locations. The remaining 46% were about other trail issues or were not clear what their preferences were in this regard. See bike path section for more details.

Green space, Open Space, Plantings-152 dots. There is broad agreement to preserve more greenspace and functional ecosystems before they're lost. Preserve connected green corridors between and including parks. Preserve, protect and restore wetlands, natural areas, diverse native plant and wildlife communities. Preserve quiet natural places for passive recreation. There is broad support for natural landscapes and streambanks, preference for vegetation rather than rocks, and rocks rather than steel walls.

Improve Water Quality and Flow-104 dots. See water resource section for details.

Habitat and Wetlands-65 dots. Broad support to preserve and restore wildlife and their habitat. Protect and enhance wetlands for wildlife, infiltration and water quality improvements.

Canoe and Kayak Support-51 dots. Broad support to provide more landing sites and storage facilities for nonmotorized watercraft, deepen the creek and improve water quality, plan for canoe access under all bridges.

Public Education-32 dots. Broad support to show where the creek and watershed are, where public land and trails are. Explain what is happening in the watershed and what the improvement projects are. Provide information city-wide and also for watershed neighborhoods.

Other Comments-20 dots.

Areas of Conflict: Based on all the comments, the only apparent area of conflict is where the desired improvements (trails, canoe access, bridges, bank stabilization etc.) are necessary in areas where they will reduce the amount of natural area, or where they may disrupt quiet natural places. The challenge for us is to balance these two issues to provide for the desired uses in the corridor, but not all in the same location. Design will have to be carefully considered to provide continuity of both bike trails through areas where the corridor is narrow, and still provide enough quiet trails without bikes. Conflict or concern is also likely over the damage/disruption caused by construction, even when the construction objective is supported.

C. COORDINATION OF PARK TRAILS AND BIKEPATHS



It was clear from the public meetings that there is strong support for two kinds of trail systems. One is a system of paved paths and walkways that provide a multipurpose bike, pedestrian, accessible, transportation and recreation trail system. The second is a hiking trail system that does not have bikes. One design goal is to create a paved system that is safe and well connected for transportation purposes that bikers will prefer to use. A second design goal is to include the more attractive and secluded natural areas in an alternate or parallel system of hiking trails that people may prefer for a scenic stroll,

nature study and contemplation, without speedy bike traffic. When either system is being planned, both systems need to be considered to ensure that we reach the best balance between the two uses and the best locations for both.

D. RECOMMENDATIONS

Proposed short term projects

2004-2005 Olbrich North Hiking Trail – The adopted plan for the Garver area calls for a natural corridor with a hiking trail on the west and north sides of the property in an area that currently has poor quality vegetation. At Fair Oaks, this trail hiking trail should be extended north of the Creek to OB Sherry via the Ivy Street bridge. Make these trails and native restorations a high priority Parks project for 2005 to get this established before other improvements are done at Garver. Other existing footpaths cross the railroads (without easements) to the bike path and to the Dixon Greenway, providing a connected network of hiking trails. Paved pedestrian paths should be added as part of future garden development. A potential location was also identified to add a paved walkway connection along the northeast side of the Creek, connecting the bike path by the Thai pavilion to the bike path at Milwaukee Street. This route may only be a long-term option, requiring railroad permission and possible track changes. It was identified as the preferred alternative to going south of the creek.

2005-2006 Hargrove Ditch Project – This plan recommends that the Park Commission consider modification or elimination of the lighted softball field adjacent to the Thai Pavilion garden to provide a trail connection and other park uses for that area. If the Park Commission approves, a paved pedestrian path should be built across the drainage ditch as a separate park project in 2006. This will provide trail access from Atwood to the existing bike path. All restoration of the ditch and trail project should use bioengineering

/ native vegetation. This project will include the path, a bridge across the ditch consisting of large metal culvert pipes and landscaping. This work will be coordinated with any restoration required for dredging projects along the ditch.

2005-2006 Sycamore to Lien Trail and Wetlands Project – Design and permitting for this project should begin in 2005 with improvements starting in 2006. Initial trail construction should be for a hiking trail along the Creek that also provides necessary access for emergency sewer maintenance. Wetland enhancements should be designed to provide native restorations, wildlife habitat, natural flood overflows to the wetlands and increased infiltration.

2006-2007 East Springs Trails and Wetlands – This area from Zeier Road to Lien Road has a stormwater management system and protected springs and wetlands that offer opportunities for education programs. Full planning and construction of trails and restorations will not be scheduled until additional land dedications and development decisions are made on adjacent lands. However, restoration and management activities, and some hiking trail development could occur sooner. It would be an excellent project for volunteer involvement as early as 2004.

Long-term: Airport Area Trails and Restorations – The Airport has several restorations planned in conjunction with its expansion, but they may not be accessible to the public due to federal restrictions. Public trail access is desired around the west side of the Airport (to Warner Park and Cherokee Marsh), and east of the Airport to Westchester Gardens and the Northeast Greenspace. The City of Madison should continue to work with the Airport to identify locations where trails may be acceptable.

E. BUDGET

Parks Division staff requested \$30,000 in it's 2005 budget for Starkweather Creek for landscaping , hiking trails and education/outreach programs. There is nearly unlimited potential for park restoration sites, but very limited funds. Madison has 1600 acres of conservation parks and 1100 acres (these included) of other natural open space. Only 800 acres of these 2700 acres are currently managed at a cost of \$300/acre/year.

F. OTHER PARK ISSUES

Olbrich-Yahara Place Shoreline Protection – This project is scheduled for Feb-May 2006. The extent of trail connections, and natural restorations, have not yet been determined, but this project offers great opportunities to meet objectives voiced in the Starkweather public meetings.

Several park issues from the public meeting do not relate specifically to Starkweather Creek. To respond to these issues, Parks staff offers the following suggestions, which may be pursued separately from the Starkweather process:

1. Because recreation and natural area projects overlap with many trail and water resource projects, the primary recommendation is to make all projects comprehensive in planning for all three concerns to be addressed if appropriate. For example, bike trail projects should consider preservation of desirable natural vegetation and features, should coordinate with shoreline improvements so multiple disruptions are not required, and should restore to native vegetation.
2. Projects should also address the various interests, and be spread geographically to different neighborhoods. In many areas, projects will have to be delayed until ownership, development or other issues are resolved.
3. Create an off-street bike path system for recreational use and to provide bikers of all abilities with easy access to the parks they need for recreation.
4. Create separate hiking trail systems in natural places to provide a quiet natural experience for those who seek it.
5. Preserve and restore native vegetation, with priority for areas near the stream and along trails.
6. Modify existing parks if necessary. . Contacts with neighborhoods regarding parks will often occur for reasons other than Starkweather Creek issues. The Parks staff will continue working with neighborhoods as requested, but will also raise the issues related to implementing or coordinating with the Starkweather Creek Plan. Requests for implementation of sections of the Starkweather Plan through parks will also be forwarded to neighborhoods for consideration of how it might affect or be coordinated with other park changes.

V. WATER RESOURCES

A. ANALYSIS OF ALTERNATIVES

1. Bank Stabilization

The various groups writing this master plan update looked at many kinds of bank stabilization techniques. Different treatments were recommended for specific stretches of the creek. No one liked the vertical steel sheeting so it was recommended that it be removed in the sections of the creek where it is currently failing, whenever feasible. A more natural treatment was recommended in these areas and cut limestone blocks will be used in areas of the creek without sufficient right of way to install sloped banks. DNR staff are also interested in more natural looking bank treatments and will not issue permits for any project with large slopes of rock revetment. See Figure #4 for details on the recommended bank stabilization options.

2. Upland Improvements



Naturally looking stream banks were preferred by the vast majority of people reviewing the improvement options. Native plants and grasses will be installed where feasible. The UW-Extension plant specialists will be used to prepare planting lists of suitable materials.

City staff will be attempting to promote a voluntary landscaping program for key privately owned parcels adjacent to the creek that will be visible to public bikepaths and walking trails. One option that will be explored is a 50% co-pay program in which the city will provide the landscape materials if the property owner enters an agreement to plant the materials and maintain them.

3. Erosion Control

Erosion control will be implemented under the existing city and state regulations. In recent years this program has been dramatically improved and expanded. City staff will put a higher emphasis on inspecting construction immediately adjacent to the creek.

The WDNR has also been emphasizing this program by educating municipalities and contractors and issuing fines when appropriate.

4. Infiltration Practices

City staff has reviewed the existing city planning programs to protect infiltration areas in proposed new developments and is not recommending any changes to city procedures. The city is currently working with the WDNR to get infiltration considerations to take place earlier in the development plan approval process. The Engineering Division's hydrogeologist has updated the map of key infiltration areas located in the creek headwaters. The Planning Department will attempt to protect these areas by requiring developers to place them in open green space uses and list them as part of the stormwater management plan. City staff are currently studying whether or not new ordinances are required to formalize any new requirements. The recent changes in state storm water management rules have already required more infiltration areas to be built.

5. Stream Base Flow Improvements

As the Starkweather Creek watershed is already highly developed with a high percentage of impermeable surfaces, it is unlikely that the creek base flow will be substantially increased. Prior federal and state studies in other highly developed watersheds have shown that increasing base flow is not economically feasible. It is expected that if all the recommendations of this updated master plan are implemented, base flow might remain about the same as the last remaining open areas are developed.

The location of Madison's new high-capacity water supply wells will greatly influence future creek base flows. However, prior studies conducted for the City of Madison Water Utility have shown that the utility has little flexibility in the location and operation of their wells due to the large groundwater drawdown that has already occurred in the whole metropolitan area. The utility still has to construct a few wells on this side of town and the specific location of the wells could have a significant impact on local groundwater levels and the creek base flow. It is not possible to locate these wells outside of the city limits.

It should also be noted that new high-capacity water wells for the adjacent municipalities could also reduce the creek base flow.

Another option to increase the creek base flow is to divert water into the watershed from either groundwater or surface water from outside of the watershed. The potential source of the water, regulatory feasibility, costs and impacts of this option have not been studied.

6. Detention Basins

The WDNR currently prefers that stormwater management programs use dry detention basins to promote infiltration and to collect sediment before it enters wet basins, wetlands or streams. Detention basins of any consequence require too much room to be able to be retrofitted into already developed areas. New developments are already required to provide detention and infiltration basins so staff is not recommending any revisions to the regulations.



The Voit property in the Town of Burke and vacant lands east of Highway 51 are a few of the opportunities to construct sizable detention basins along the creek. Decisions regarding the Voit property will be made when it is developed.

An area east of the airport and north of Reider Road, is already owned by the city. It is recommended that the city seek regulatory permission to scrape the ground in this area to create a restored wetland and a dry detention basin with more storage capacity. This project has a medium priority so it is likely that it will not be budgeted until after 2010.

7. Wetland Improvements

The WDNR and US Army Corps no longer allow for new wet detention ponds to be constructed in wetlands. The preferred method of wetland restoration is to lower the existing ground by scraping to a level near the water table so that wetland plants can recolonize the disturbed soils.

The following wetland improvements are being proposed in this master plan update:

1. The existing wetlands in the O.B. Sherry Park will be improved and expanded. An area will be scraped to improve the diversity of plants and ponds will be dug in adjacent upland areas.
2. The largest proposed wetland improvement involves the land recently acquired by the city south of Lien Road. This area was drained when the creek was straightened many decades ago. City staff is proposing to work with the WDNR to select the most cost-effective method to restore this large wetland and incorporate it into the adjacent city park. The master plan for this park is currently being updated.
3. The existing wetlands in the Voit property will be evaluated when that parcel is developed. These wetlands are one of the largest undeveloped areas remaining in the watershed and their protection will be given a high priority. It is expected the wetlands will be expanded and improved.
4. As discussed above, the wetlands east of the airport can also be improved. It is expected that scraping will add some diversity to the wetland vegetation as well as increasing the runoff storage capacity.
5. The area just upstream from Lien Road, next to East Town Mall, also has some wetland restoration potential. Most of this area is privately owned so the wetland will not be improved until the land comes in to be replatted.
6. The other wetland projects proposed in this master plan update involve relatively minor pieces of property, most of which are city parkland. Some areas will be expanded a little and some areas just need restoration.

8. Creek Bed Improvements

The US Army Corps of Engineers and the WDNR no longer allow unlimited large scale dredging and stream relocation projects. The installation of meanders, wingdams (installed to improve stream velocity) or dams (installed to reflood wetlands) are not allowed. Some dredging will be allowed to remove silt and sand blocking the flow of the stream at storm sewer outlets.

The City is looking at ways to make the straight portions of the stream look natural by widening the stream in alternating pockets, lowering the bank slopes and creating littoral shelves for water plants. See figure #5 for a typical plan view of this proposal.

B. BUDGETS, SCHEDULES AND PHASING

1. Budgets

The 2004 capital budget provided for \$40,000 in the Engineering Division budget to start the stream reconstruction process and hold public meetings. It is expected that the City Council will approve annual creek improvement funds of approximately \$150,000 per year for water resource projects starting with the 2005 budget. Bikepaths, walkways and park amenity improvements will also need to be funded in other parts of the capital budgets over the next few years. City staff will need to prioritize the many projects and decide which ones will be done in the first phases.

The two branches of the stream total more than 6 miles and total costs are expected to exceed five million dollars just for the water resource portions of the plans. City staff estimate that the whole project will need to be phased over ten years or more unless significant grant money is obtained. The City's current tight budget situation has forced it to postpone many worthy projects so it is expected that the Common Council will only be able to provide around \$150,000 per year for this project. Currently, Engineering Division staff are recommending that the City spend \$180,000 per year for at least the first three years of this program so that key improvements of each type can be constructed to be used with the public education/outreach program.

The first three years of the water resource budget has been selected with input from various officials, Friends of Starkweather Creek and citizens that attended the public meetings. The specific water resource projects for 2005-2007 are listed in Appendix E.

2. Schedules

The first public meeting was held on April 21, 2004 to gather information about what the goals of the project should be and what the priorities were for the various interest groups. The second meeting was held on June 2, 2004 to evaluate the proposed specific projects that city staff were recommending. After further input, the plans were adjusted and were presented to various city boards and commissions in June and July of 2004.

The 2005 Starkweather Creek budget was submitted for review by the Mayor's budget committee in August of 2004.

The specific project plans and specifications for the 2005 work will be prepared over winter so that the project can be bid in February 2005 and construction can start in the spring.

3. Phasing

After much discussion, it was the consensus of people participating in the planning process that the first phase should include a sample of various creek improvements that will be implemented in the watershed over the next decade. These first projects can also be used with the public education/outreach programs.

After the first year, city staff will attempt to budget improvements equally on each branch. Priority will be given to those projects that can immediately impact the water quality and prevent further erosion and deterioration of stream banks, uplands and wetlands.

The project will be phased over at least fifteen years unless significant grant money is found.

C. MAINTENANCE PROGRAMS

If the City is going to spend nearly five million dollars in improvements to the creek, significant maintenance programs will need to be established to ensure that the new improvements are functional and available to be used with the ongoing education/outreach programs and tours.

Waterways, banks, bikepaths and storm sewer sediment traps will have to be maintained by the Engineering Division. Mowing, planting and the maintenance of walking trails and wetlands are the responsibility of the Parks Division. It is unlikely that the Parks Division staff and budget will be expanded enough over the next few years to provide all of the mowing and maintenance envisioned by these plans. It is likely that community support and ongoing volunteer maintenance will be needed.

The need to build a coalition to support 15-20 years of improvements to the creek is one of the most important aspects of this project. City staff are strongly recommending that we continue to work with public interest groups, like the Friends of Starkweather Creek, to ensure that this new master plan is implemented.

VI. EDUCATION AND OUTREACH

The Olbrich Gardens staff and the Olbrich Neighborhood Partnership Committee have developed the following set of goals for interpreting the Starkweather Watershed in the Gardens and in other watershed locations.

1. Explain what makes a watershed and how does Starkweather Creek (S.C.) fit into the Starkweather watershed as a whole.

2. Create awareness that people are part of the Starkweather watershed and have an effect on the watershed.
3. Empower people to be advocates for the Starkweather watershed in their own home environments.
4. Create a wetland demonstration restoration plan within the watershed.

The Committee has suggested the following methods or points of interest for presenting these ideas to the public:

1. Create a walking tour through Olbrich Botanical Gardens/Park starting at Lake Monona.
2. Highlight a sewer discharge and intake point and explain its effect on the Starkweather Creek watershed.
3. Explain native vegetation restoration and its effect on the S.C. watershed.
4. Demonstrate a rain garden showing how it improves infiltration into the watershed.
5. Show examples of wetlands in Olbrich and O.B. Sherry Park.
6. Explain habitat biodiversity and interdependence within a native wetland.
7. Explain the history of industry's effect on Starkweather Creek.
8. Illustrate the current and future development along Milwaukee Street and their effect on Starkweather Creek watershed.
9. Create a map of the urban watershed and the natural springs.

VII. SUMMARY OF RECOMMENDATIONS

A. BIKEPATHS

These recommendations pertain primarily to paved bike paths (typically 10-foot wide, conforming to established geometric and ADA standards). Paved walkways, intended mainly for pedestrians, are narrower than bike paths, and generally conform to sidewalk standards.

Backbone Bike Path Routes

Bike path planning in the watershed should focus on two “backbone” routes: West Branch path, beginning at the existing East Rail path near Wirth Park and extending 1.0 mile to the existing Starkweather path; and East Branch path, beginning in the same location and extending 3.5 miles to City View Drive, just east of I- 90. Both routes can be built in phases.

West Branch Phase 1: Overpass of East Washington Ave. This project would require partial implementation of the East Washington Avenue Gateway Revitalization Plan, which calls for removal of the frontage road in the east quadrant. At a minimum should extend from Darbo / Marquette on the east side of the creek to Hoard Street on the west side of the creek.

West Branch Phase 2: Overpass of Aberg Avenue between Washington Manor Park and the Bridges golf course. Recommend several clear spans in the park to open access to the creek. Project should extend south to Commercial Ave. and should also include new pedestrian structure crossing the creek.

West Branch Phase 3: Path along the railroad and the creek between Wirth Park and the East Washington Overpass. The initial path should follow the upland(sewer route) through the Dixon greenways, cross the creek at Milwaukee Street or on a separate bridge, and extend northwest along the east side of the creek. A portion of this route would be on-street.

East Branch path will be constructed in segments as opportunities arise due to private development or significant highway projects. Short term efforts to focus on corridor preservation, alternative study and identifying projects with potential for cooperation.

East Branch Segment 1: Dixon greenway north to N. Fair Oaks – connects Isthmus and West Branch path with potential on-street route to MATC.

East Branch Segment 2: N. Fair Oaks to Marsh View path – provides connection between neighborhoods divided by Highway 30 and destinations along Marsh View Path.

East Branch Segment 3: Marsh View path to Sycamore Park– Provides safe crossing of Stoughton Road, access to major retail site and significant recreational areas in Sycamore Park.

East Branch Segment 4: Sycamore Park to E. Springs Dr. – Important recreational path through Sycamore Park and East Towne. One alternative generally follows the rail corridor and one further north generally follows the creek. More study is needed, to select an alternative.

East Branch Segment 5: East Springs to City View Dr. – would create a safe link across I-90, a major barrier to bike and pedestrian travel, linking neighborhoods and commercial areas.

Other Major Routes

The Marsh View Path: - connects Corporate Dr. with Mayfair Ave. at Commercial Ave. north of Highway 30. Provides a very significant link between neighborhoods across Highway 30, and the railroad. Project is scheduled to be constructed in 2005 with 80% Federal funding.

Lien Rd. to East Springs Dr. Connector: – would link a major residential area with the East Towne area for employment and shopping, and connect both these areas to the East Branch path. Appears to be a very viable and valuable stand alone project but is complex because of proximity to wetlands, crossings of the creek and crossing the railroad. Recommend additional survey and engineering to explore options for the railroad and creek crossings.

OB Sherry Park to the Marsh View path Connector: - North of Milwaukee Street it would consist of approximately 0.6 miles of separate path and a bridge over the Marsh View Branch connecting to the Marsh View path. Should be located to the extent possible on high ground, not immediately adjacent to the creek. Short term, efforts should be focused on refining and preserving a path corridor pending development plans for the Voit property.

On Street Routes and Connectors

The following on-street routes connect paths and provide bike connections to neighborhoods and important employment, recreational and educational destinations. Recommend further study of need for marked bike lanes and other safety measures, particularly as traffic increases.

- South Fair Oaks Ave. from Atwood to East Branch path
- North Fair Oaks Ave. from East Branch path to Anderson St.:
- Walter Street from existing East Rail path to Milwaukee Street:
- Anderson Street from existing Starkweather path to International Lane
- Hanson Rd. from USH 51 to Portage Rd.: include paved shoulders and widening of the bridge over I-90 to include bike lanes.
- CTH CV Government Road to Hoepker Rd.

Long Range Future Routes

Recent coordination with Dane County Regional Airport indicate that there is not a feasible corridor for an off-street path west or north of the airport. Recommend additional planning to identify a combination of on-road improvements and separate path that would connect CTH CV with destinations north and east of the airport. Plans should include a future path between Hanson Road at USH 51 and Hoepker Rd. at I-90 (3E). Efforts should focus on preserving the corridor and constructing segments of the path in conjunction with private development.

B. PARKS

Planning

Plan paved walkways, hiking trails, park facilities and natural areas restoration in coordination with the major bike trails and water resource improvements in the Starkweather watershed.

Hiking Trails and Natural Landscape Improvements

1. 2004-2005 Olbrich North Hiking Trail and trailside restoration.
2. 2005-2006 Hargrove Ditch trail crossing from Olbrich Softball to Bike path with restoration of ditch banks.
3. 2005-2006 Sycamore to Lien trail and wetland project in conjunction with water resource improvements and prairie restoration.
4. 2006-2007 East Springs trails and wetlands, in conjunction with bike trail and water resource improvements between Zeier Road and Lien at I-90.
5. Long-term: Airport area trails and restorations and Milwaukee Street area trails and restorations.

Paved Walkways

Olbrich Gardens from Atwood Ave. to OB Sherry Park: Build in conjunction with development of the Garver property including a pedestrian bridge into OB Sherry Park. Recommend exact location be determined by Parks as part of overall development plan for the park.

East /West Branch confluence in O.B. Sherry Park to Dixon greenway: Recommend the walkway be located along the northeast bank of the West Branch in order to preserve the park and MG&E lands along the southwest bank for walking trails and habitat restoration. Major hurdle is the railroad crossing as there is not sufficient freeboard between the creek and the tracks to construct an underpass. Recommend short-range efforts to preserve the corridor

Education

Work with the Olbrich Gardens staff and committees to include interpretation of the Starkweather Watershed as part of their public education program, within and beyond Olbrich Gardens.

C. WATER RESOURCES

The most important aspect of this project is the need to build a coalition to support 15-20 years of improvements to the creek. City staff are strongly recommending that we continue to work with public interest groups, like the Friends of Starkweather Creek and the East Isthmus Planning Council, to ensure that this new master plan is implemented.

Low-Cost Initiatives/Staff Projects

The following list of non-monetary or low-cost initiatives were selected after evaluating the comments and priorities gathered at the public meetings and at interviews with elected officials, the Friends of Starkweather Creek and the East Isthmus Planning Council:

1. Promote residential and commercial rain gardens in the watershed.
2. Start discussions with J.C.Penney Company and East Towne to voluntarily improve wetlands on or adjacent to their properties.
3. Keep the stream natural looking. Begin discussions with adjacent residential/commercial property owners to plant shrubs and trees provided by the City.
4. Meet with the DNR to see if the law has changed to allow water resource improvements like meanders, dredging, etc., which are highly regulated or banned.
5. Research and write grants to be able to expand the program.
6. Meet with MG&E to discuss funding of potential wetland improvements on their two properties.
7. Attempt to increase the number of creek clean-up days and improve litter control/education programs.
8. Install trash traps at storm sewer outlets and work with volunteers to maintain them and keep labor costs low (try pilot-scale project).
9. Promote better infiltration planning. Review and evaluate current regulations with the DNR and City Planning Dept.
10. Emphasize the existing erosion control/enforcement program in this water shed (publicize the existing program, publish the enforcement phone number).
11. Remove sediments in the Olbrich Park ditch with the existing landfill program remediation of this area.
12. Meet with Sewerage District to look into low-cost options for odor control of the sanitary sewer and lift station at Olbrich Park.

Early projects were selected so that work will be started on both branches of the creek and so that every major interest group will have at least one of their projects chosen. Emphasis was also given to selecting one type of each shoreline improvement so that the education and outreach effort would have examples to use with their activities.

Public Works Projects

The first water resource projects, to be built in 2005-2007, will be selected to emphasize the following designs:

1. Remove and replace the sheet metal retaining walls along the creek from East Washington Ave. to Fair Oaks Ave.
2. Install bioengineered slopes where feasible.
3. Install natural looking stream banks.
4. Install low-profile riprap when a bank revetment is required due to high water velocity and scour.
5. Improve wetlands and remove canary grasses.
6. Landscape stream banks with native plantings
7. Attempt to dredge the stream to remove obstacles so that more of it is opened to canoeists.
8. Attempt to add meanders, or littoral shelves if meanders are not allowed by the DNR.
9. Install sedimentation control devices at storm sewer outfalls.
10. Evaluate more opportunities to promote infiltration in developing areas.
11. Promote more wildlife use of the stream corridor.
12. Attempt to maintain or increase stream base flow.

The specific size, location and cost of each project is listed in the tables in Appendix E.

City staff and the “Friends of Starkweather Creek” will need to continue devoting resources to finding suitable grant money as it appears that the city can only fund modest improvements to the creek over the next few years.