



ThreeRivers
PARK DISTRICT



Rush Creek Regional Trail
master plan

May 2008

the **mission** of Three Rivers Park District is to promote environmental stewardship through recreation and education in a natural resources-based park system.

Three Rivers Park District was established in 1957 after legislation was enacted in 1955 allowing for the activation of park districts whose primary duties are “acquisition, development and maintenance of large parks, wildlife sanctuaries, forest and other reservations, and means for public access to historic sites and to lakes, rivers and streams and to other natural phenomena” (Minnesota State Statutes, Chapter 398.07).

Three Rivers Park District serves more than 5.4 million visitors each year with over 26,500 acres of park reserves, regional parks and special-use areas in Hennepin and six adjoining counties. Current outdoor-recreation activities in regional parks include camping, hiking, cross-country and downhill skiing, tubing, bicycling, horseback riding, nature interpretation, golfing, fishing and swimming. Three Rivers Park District also operates a natural resources management program, which administers the restoration and perpetuation of both native wildlife and plants in order to provide a quality recreational experience for park visitors.



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Executive Summary

Vision for Rush Creek Regional Trail

Three Rivers Park District envisions a highly scenic trail to connect the Crow River at Crow-Hassan Park Reserve with Elm Creek Park Reserve and the Mississippi River at Coon Rapids Dam Regional Park. The trail will follow Rush Creek for six miles and will incorporate regionally significant natural resource corridors composed of wetlands, creeks, big woods remnants and rural landscapes. The Rush Creek Regional Trail will provide the only east-west trail across the entire length of northern Hennepin County and will become a vital resource for the growing communities of northern Hennepin County.

Trail background and location

The Rush Creek Regional Trail consists of an existing regional trail east of Elm Creek Park Reserve and a proposed regional trail west of the Park Reserve.

The 5.6-mile trail segment connecting Coon Rapids Dam Regional Park in the City of Brooklyn Park to Elm Creek Park Reserve in the cities of Champlin, Dayton and Maple Grove opened to the public in 1981. There is an additional 1.6 miles of existing regional trail within Elm Creek Park Reserve, for a total existing regional trail length of 7.2 miles. The trail connects to Anoka County's regional trail network at Coon Rapids Dam Regional Park as well as Three Rivers Park District and Minneapolis Park and Recreation Board regional trail networks via the Shingle Creek and Medicine Lake Regional Trails.

The proposed 11.1-mile trail extension connects Elm Creek Park Reserve and Crow-Hassan Park Reserve. The proposed trail corridor follows the north side of Rush Creek for approximately 6 miles as it heads west from Elm Creek Park Reserve, and then heads northwest through Hassan Township to connect to Crow-Hassan Park Reserve. Much of the corridor traverses areas with regionally significant natural resources. The trail extension aligns with the trail plans for the City of Maple Grove and Hassan Township. Three Rivers Park District will work with the local communities, land-owners and developers to protect regionally significant natural resource areas as part of the trail corridor whenever possible.

Acquisition

Three Rivers Park District utilizes the willing seller approach to acquisition. Acquisition will occur when land-owners plan to sell or are considering development of their property. Local municipalities will also play an important role in the acquisition phase by working with developers regarding zoning opportunities such as transfer of development rights and facilitating development of plans that include land for future trail development.

Trail development

This Master Plan focuses on extending the Rush Creek Regional Trail from Elm Creek Park Reserve to the Crow River in Crow-Hassan Park Reserve. The Master Plan recommends development of a multiuse, bituminous (paved) trail. The trail will provide spring, summer and fall use, and may allow winter use at the discretion of the local community. Trail uses will include bicycling, walking, running, in-line skating, commuting and dog walking. Whenever possible, the proposed trail alignment will utilize natural resources corridors.

The proposed trail extension requires a minimum corridor at least 16 feet wide. Ideally, the corridor width will provide natural screening for both trail users and adjacent homeowners. Three Rivers Park District will examine and consider expansion of the corridor width to protect regionally significant natural resources on a case-by-case basis as opportunities arise.

There will be 12 at-grade road crossings along the proposed trail segment. Two require Type I Crossings and 10 require Type II Crossings. Roadway crossings will have surface paint and safety signing marking the trail location.

One railroad crossing is located at the BNSF Railway line in Maple Grove.

Signage, screening, overlooks and rest areas are important elements of regional trails, and their proper design and placement help ensure the trail functions as it is planned. Trailheads with parking, restrooms and drinking water are proposed in Elm Creek Park Reserve and in Crow-Hassan Park Reserve.

Operations and management

Rush Creek Regional Trail operates under Three Rivers Park District ordinances and policies. The trail is overseen by full-time professional operations and maintenance staff.

Three Rivers Park District uses a combination of Park Service Officers (PSOs) and certified Park Police Officers (PPOs) for trail patrol on the Rush Creek Regional Trail.

The Elm Creek work cluster of Three Rivers Park District's Mississippi River Division provides maintenance services including mowing, trail inspections, sign maintenance, solid-waste management, trail sweeping and edge management for the Rush Creek Regional Trail.

Acquisition costs

It is difficult to accurately project the total acquisition cost associated with the development of the trail corridor from Elm Creek Park Reserve to Crow-Hassan Park Reserve. However, actual costs will reflect the size of individual parcels, zoning, the degree to which the acquired land is developable, negotiations with developers, and negotiations with the local community. Assuming an average corridor width of 100 feet, to include protection of regionally significant natural resources along the trail corridor, the acquisition land value is estimated to be between \$8 to \$16 million in 2007 dollars.

Development costs

Trail development for the 11.1-mile-long section of the proposed Rush Creek Regional Trail includes grading and removals, paving, bridge construction, drainage, signage, striping and landscaping. The total estimated development cost for the Rush Creek Regional Trail in 2007 dollars is \$7,119,000.

Maintenance operating costs

The total annual operating and maintenance costs are estimated at \$96,000 in 2007 dollars when the proposed Rush Creek Regional Trail is complete. An additional one-time cost of approximately \$63,000 in 2007 dollars for site-specific equipment is required the first year the trail is fully open.

The current annual cost for Public Safety services for the existing portion of the Rush Creek Regional Trail is approximately \$80,000. The increase in projected annual operating costs for Public Safety services is minimal, resulting in an annual expected cost of approximately \$85,300. An estimated one-time cost of \$27,000 for a trail patrol vehicle is required.

Additional annual natural resources operating costs associated with the trail corridor from Elm Creek to Crow-Hassan Park Reserves are dependent on the amount and type of land acquired by the Three Rivers Park District.

Funding sources

The Metropolitan Council and State of Minnesota provide funding for acquisition, development and redevelopment projects through the Regional Parks Capital Improvement Program (CIP). The development proposed in this Master Plan may be funded through the Regional Parks CIP, through Three Rivers Park District bonds, donations, and/or other funding sources available at the time of development.

Additional acquisition funding opportunities through federal, state and county programs will be used when applicable.

Annual operating costs are funded through the Three Rivers Park District General Fund Budget.

All operating costs and associated staff/equipment are subject to the annual operating budget preparation process administered by the Superintendent and are considered formally by the Board of Commissioners.



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SECTION I: Planning Framework

Overview

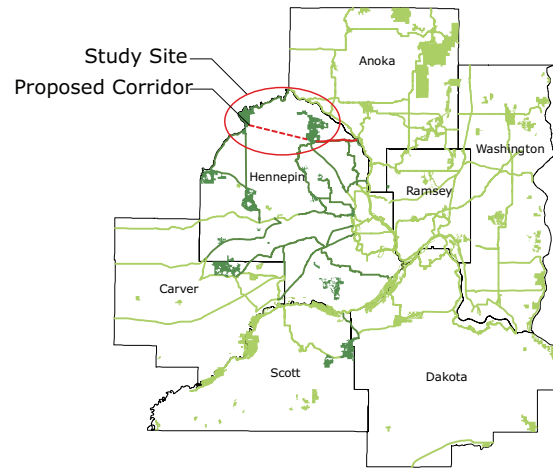
The Rush Creek Regional Trail currently connects Coon Rapids Dam Regional Park to Elm Creek Park Reserve. The Rush Creek Regional Trail Master Plan proposes an extension of the trail west from Elm Creek Park Reserve to Crow-Hassan Park Reserve. When completed the trail will be over 18 miles long, will connect to regional trails along the Mississippi and Crow Rivers, will serve as the primary east/west regional trail in northern Hennepin County, and will remove a primary gap in the metropolitan area's network of regional trails and parks.

This section of the Master Plan provides background on the Metropolitan Regional Parks System and Three Rivers Park District, and the guiding principles used by Three Rivers Park District in planning and managing parks and trails.

Metropolitan Regional Parks System

The Twin Cities' nationally renowned Metropolitan Regional Parks System significantly contributes to the area's high quality of life. Preserving green space for recreation and resource protection enhances the region's livability and its economic strength.

The Metropolitan Regional Parks System includes 35 regional parks, 11 park reserves, 22 trails, and six special recreation areas and is still growing. Currently, there are 52,000 acres of protected lands, with planned acquisition of an additional 18,000 acres over the next 25 years. The Metropolitan Regional Parks System is made up of 10 park implementing agencies, consisting of six county park departments, three city park departments and Three Rivers Park District.



The dark green areas denote parks and trails of the Regional Parks System owned and operated by Three Rivers Park District. The Rush Creek Regional Trail is shown in red.

The Metropolitan Council (Council) is a regional planning agency that oversees and provides partial funding of the regional parks system. The Council works with the implementing agencies to assist in the acquisition and development of regional parks and trails to provide outdoor recreation for public enjoyment and natural resources protection. The Council and implementing agencies also develop regional park policies to protect the region's water quality, promote best management practices, and help integrate the parks system with housing, transportation and other regional priorities.

The Council also provides guidance in the development of master plans for units of the regional parks and trail system. The Rush Creek Regional Trail Master Plan reflects that guidance. Each regional park or trail must have a master plan approved by the Council prior to receiving any acquisition, development or operational funding from the Council.

The master plan must address a series of topics, including boundaries and acquisition, recreation demand forecasts, natural resources management, development concept, implementation schedule, and development and operational cost estimates. Public input is encouraged throughout the master planning process. The Council's planning requirements help ensure consistency between the implementing agencies and the Council's own regional plans.

Three Rivers Park District

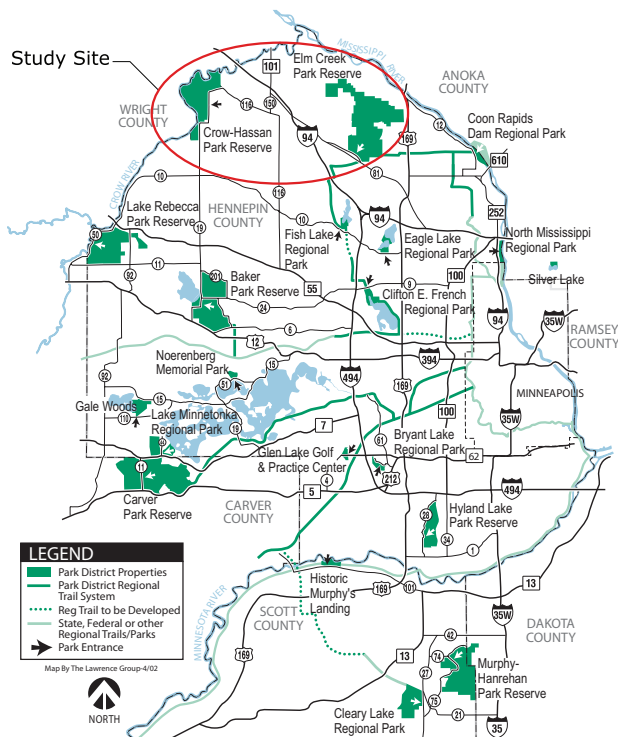
Three Rivers Park District is an independent, special park district charged with the responsibilities of acquisition, development and maintenance of regional park reserves, regional parks, regional special recreation features and regional trails for the benefit and use of the citizens of suburban Hennepin County, the seven-county Twin Cities metropolitan area and the State of Minnesota. Three Rivers Park District works cooperatively with the Metropolitan Parks and Open Space Commission, Council and State Legislature as 1 of 10 implementing agencies of the Metropolitan Regional Parks System.

the **mission** of Three Rivers Park District is to promote environmental stewardship through recreation and education in a natural resources-based park system.

Three Rivers Park District was established in 1957 by the Minnesota State Legislature when prominent members of the community promoted the benefits of parks in the outlying areas of Hennepin County. Three Rivers Park District’s first park, Baker Park Reserve, was created when Morris T. Baker donated 210 acres of land, including a large section of shoreline on Lake Independence.

Today, Three Rivers Park District owns and manages approximately 26,500 acres of regional park reserves, regional parks, and regional special recreation features, and over 200 miles of paved and unpaved trails through the parks and along regional trail corridors.

Three Rivers Park District owns and operates 26,500 acres of regional park reserves, regional parks and regional special recreation features, and over 200 miles of paved and unpaved trails within the parks and regional trail corridors.



Relationship to other plans

The extension of the Rush Creek Regional Trail was identified as a desired trail in the Northwest Hennepin County League of Cities 1995 plan. That plan identified an alignment along County Road 144 from Elm Creek Park Reserve to Crow-Hassan Park Reserve. As part of the Rush Creek Regional Trail master planning process, the 1995 alignment was reevaluated and a new preferred corridor alignment through northern Maple Grove and the southern portion of Hassan Township was identified. The City of Maple Grove's plans identify a corridor along Rush Creek as a future linear park with a trail on a similar alignment as that of the Rush Creek Regional Trail. Hassan Township's plans identify this corridor as a future trail route. The Rush Creek Regional Trail Master Plan complements and builds upon local plans for development of a trail within the corridor.

District-wide planning guidelines

Three Rivers Park District manages its lands under four categories of regional open space: regional park reserves, regional parks, regional trail corridors and regional special recreation features.

Regional park reserves

Regional park reserves provide and protect representative areas of major landscape types found in the metropolitan area for the purposes of conservation, and outdoor recreation and to perpetuate appreciation and enjoyment by the public. The minimum size is 1,000 acres, with a desirable size of 2,000 acres or more. As a legacy to future generations and to establish and maintain an uncompromising sense of nature, 80 percent of each regional park reserve's land base shall be restored to and retained in a natural state as a viable entity, permitting up to 20 percent to be developed for compatible active-recreation use. Three Rivers Park District owns and operates nearly 22,800 acres within seven regional park reserves.

Regional parks

Regional parks provide a diversity of resources, contiguous to or including water resources, which can accommodate a wide variety of compatible outdoor-recreation uses. The minimum site size is 100 acres, with a preferable site size of 200 or more acres. Three Rivers Park District develops active-recreation areas in regional parks in a manner that maintains sufficient natural areas to ensure quality outdoor-recreation experiences in a natural resources setting. Three Rivers Park District owns and operates over 3,000 acres within 10 regional parks.

Regional trail corridors

Regional trail corridors provide for recreational trail activities on linear resources. They perform a recreational-transportation function, provide access to regional parks and park reserves, and may be located along either natural or built features. To be recognized by the Council or Three Rivers Park District, regional trails must serve a linking or destination function. In addition to recreational function, linking trails provide the backbone of the regional trail network by connecting regional parks to one another. Destination regional trails are routed and developed to provide high-quality recreation experiences that traverse significant natural resource areas. However, destination trails also may be a component of the linking network.

For either trail type, adjacent land with significant natural resources can be acquired as part of the trail corridor. Three Rivers Park District currently operates 70 miles of regional trails with a planned system total of 150 miles.

Regional special recreation features

Regional special recreation features support participation in needed regional recreational opportunities that have a limited and specific purpose and are not found in regional park reserves and regional parks, or along regional trail corridors. The factors of public demand, public support, financial feasibility, county-wide or regional significance, and the inherent recreational or cultural benefits of the feature are considered before designation. Three Rivers Park District owns and operates three regional special recreation features.

SECTION II A: The Existing Rush Creek Regional Trail

Trail background

The existing 5.6-mile trail segment of the Rush Creek Regional Trail opened to the public in 1981. This segment connects Coon Rapids Dam Regional Park in the City of Brooklyn Park to Elm Creek Park Reserve in the cities of Champlin, Dayton and Maple Grove. An additional 1.6 miles were designated within Elm Creek Park Reserve, for a total existing trail length of 7.2 miles. The trail also connects to Anoka County's regional trail network at Coon Rapids Dam Regional Park as well as Three Rivers Park District and Minneapolis Park and Recreation Board regional trail networks via the Shingle Creek and Medicine Lake Regional Trails.

The existing Rush Creek Regional Trail Corridor is significantly wider than most other regional trails. Its corridor width expands greater than 1,000 feet in several locations. This allows the trail alignment to gradually weave across the corridor, incorporating significant variety in the trail, while enhancing the user experience. The available corridor width incorporates several large mowed turf areas adjacent to the trail, which contrasts other wooded and dense vegetated sections of the trail. Tree shrub plantings visually and physically separate the surrounding residential development from the trail.

When originally developed, the Rush Creek Regional Trail traveled through the farm country of Brooklyn Park. Today, those farms are gone and have been replaced by homes. What remains is a very popular and successful regional trail and open space/greenway corridor that connects Elm Creek Park Reserve, the largest park within the regional parks system, to the Mississippi River. The significant benefits of this trail and greenway reflect the wise investments in land preservation made a quarter of a century ago.

Neighborhood trail connections allow users to access the trail at multiple locations along the route. Trailhead functions such as restrooms, picnic areas, parking and water are available in Coon Rapids Dam Regional Park and Elm Creek Park Reserve. Rest areas with benches located at two-mile intervals along the trail provide users with an intermediate location for resting and enjoying the open space.

The existing Rush Creek Regional Trail is a very popular and successful trail. Currently it connects Elm Creek Park Reserve to Coon Rapids Dam Regional Park.

The existing trail corridor consists of dual treadways. The primary trail is the 10-foot-wide multi-use paved trail used by bicyclists, walkers, dog-walkers and in-line skaters. A secondary turf trail roughly parallels the paved trail and was originally developed for snowmobile and equestrian use. With the development of the area and snowmobile restrictions applied by local cities, local horse owners moved away from the trail corridor, resulting in no current equestrian or snowmobile use on the turf trail. However, the turf trail is still used by visitors preferring to walk, run or bike on a nonpaved surface. The Master Plan does not recommend the immediate removal of the turf trail. However, the Master Plan recommends that the Three Rivers Park District periodically reevaluate the turf trail to determine if the benefits of providing a secondary turf trail outweigh the potential environmental impacts associated with that trail.

The trail crosses several roads at grade. These crossings generally consist of signage and crosswalk striping on the road warning vehicular traffic of the trail crossing and signage for trail users to stop prior to crossing the road. Exceptions include the pedestrian bridge over Highway 169, tunnels under Douglas Avenue North and Noble Avenue North, and a signalized crossing at Jefferson Highway.

SECTION II B: Rush Creek Regional Trail - Proposed Extension

Location

The extension of the Rush Creek Regional Trail Corridor is located in north-central Hennepin County, between Elm Creek Park Reserve and Crow-Hassan Park Reserve, within the cities of Maple Grove, Dayton and Hassan Township. The existing segment of Rush Creek Regional Trail, which runs west from Coon Rapids Dam Regional Park through Elm Creek Park Reserve, is 7.2 miles long. The proposed trail will connect Elm Creek Park Reserve and Crow-Hassan Park Reserve and add approximately 11.1 miles to the regional trail's total length. When completed the trail will extend for over 18 miles, will connect between the Mississippi River and the Crow River, will serve as the primary east/west regional trail in northern Hennepin County, and will remove a primary gap in the metropolitan area's network of regional trails and parks.

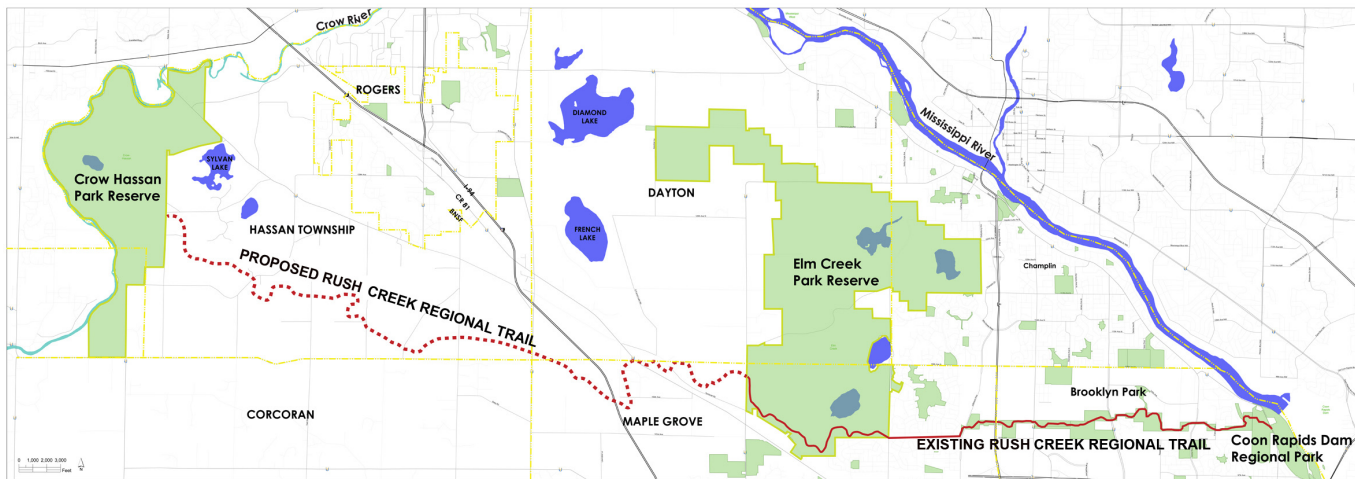


Figure 1: Location Map

Trail description

The extension of Rush Creek Regional Trail begins at the existing trail near the Rush Creek Group Camp entrance in Elm Creek Park Reserve. The proposed trail, west of Elm Creek Park Reserve, shadows Rush Creek in the city of Maple Grove. It remains outside the creek's flood zone but close enough to maintain a visual connection to the water as the creek winds through a remnant maple-basswood forest.

The trail crosses County Road 81, Interstate 94 and the BNSF Railway line adjacent to Rush Creek. Grade-separated crossings are required to cross both highways, although the railroad crossing is at-grade because the line receives infrequent use of one train per day. Trail location and specific crossing details may change, pending final design of the 105th Interchange on I-94.

The trail extends north after crossing the railroad, while still following the Rush Creek drainage. The trail is located in the southwestern corner of the City of Dayton and the southeastern portion of Hassan Township as it crosses County Road 101. Current traffic levels on County Road 101 indicate that an at-grade crossing is sufficient. Future development in the area, along with increasing traffic levels, may indicate a need for a grade-separated crossing in the future. The trail is located within a proposed residential development following Rush Creek in the southeastern corner of Hassan Township. The trail will cross County Road 116 at-grade and the trail routed will extend south through an agricultural area. Increasing traffic and future development in this area may indicate a need for a grade-separated road crossing in the future.



County Road 81 and BNSF Railroad over Rush Creek.



Rush Creek in southeast Hassan Township.

Three Rivers Park District uses a willing-seller approach to acquire land for regional trails.

Acquisition

The basic premise for Three Rivers Park District regional trail land-acquisition is a willing-seller approach. This means acquisition will occur when landowners plan to sell or are considering development of their property. A large factor in this method of acquisition is the timing of development. As development occurs in a given area, owners may consider the possibility of selling, as the land near them is sold and developed. In turn, it is difficult to determine when acquisition will occur and when the trail construction will begin.

It is important to obtain an inventory of trail parcels recommended for acquisition and to maintain good relationships with property owners. This acquisition method allows Three Rivers Park District to maintain communication with owners and municipalities when land sales are contemplated. The local municipality also has an important role, as developers often contact the City about zoning and other development issues. With Three Rivers Park District's continued coordination with local municipalities and the City as a knowledgeable proponent, the inclusion of the regional trail in land development is more assured. Three Rivers Park District, the City and developers work together to formulate a development plan that includes a provision for the trail. This successful strategy is commonly used by Three Rivers Park District when acquiring regional trail land.

Parcel acquisition alternatives to discuss with owners include the following:

- Routing of the trail to utilize portions of the property with marginal development potential. This could include land adjacent to wetland or flood fringes.
- Acquire easements for the trail that may allow the owner/developer to count some or all of the acreage toward development densities.
- Work with the City and owner/developer to secure park dedication lands for the trail in advance of the actual development.
- Acquisition of the entire property/parcel, with the intent to resell the property subject to easements for the trail.
- Acquisition of the development rights to the property. The areas of development would then be negotiated with the developer.
- Donation of a portion of the property for a trail corridor.

Ultimately, most landowners are concerned that the regional trail will result in less value for their property. Several national and local studies have found that off-road trails increase property values in the immediate area of the trail.



SECTION III: Demand and Public Process

The recreational need for extending Rush Creek Regional Trail to Crow-Hassan Park Reserve

The Metropolitan Council's 2030 Regional Parks Policy Plan identified the cities within the northwestern area of Hennepin County as being underserved by the existing regional trail network (Figure 2). To meet this need, the Council recommended development of a regional trail connecting Elm Creek Park Reserve to Crow-Hassan Park Reserve (Figure 3). As proposed in this Master Plan, the Rush Creek Regional Trail provides regional trail service to the cities of Brooklyn Park, Osseo, Maple Grove, Dayton, Rogers, Hanover and Corcoran, and Hassan Township.

The Council identifies two types of regional trails:

- **Destination Regional Trail**

A destination regional trail is a destination itself, providing a high-quality recreation experience that traverses significant natural resource areas where the trail treadway will have no adverse impact on the natural resource base; and

- **Linking Regional Trail**

A linking regional trail links two or more units of the regional recreation open-space system.

The existing and planned portions of the Rush Creek Regional Trail serve both as a destination and a linking regional trail.

Figure 2

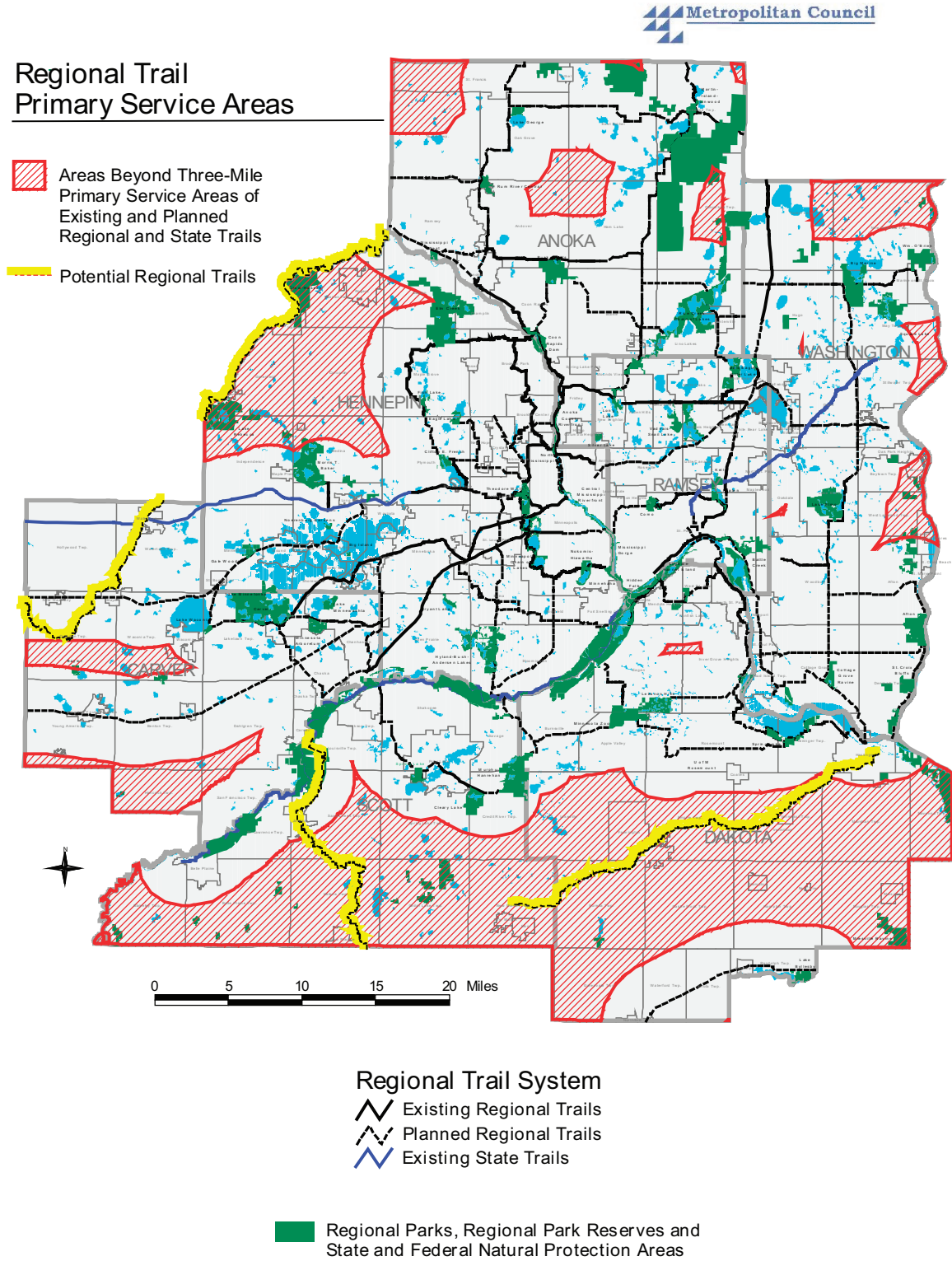
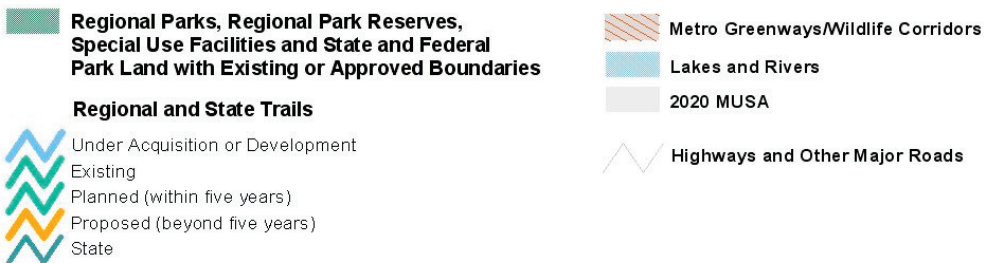
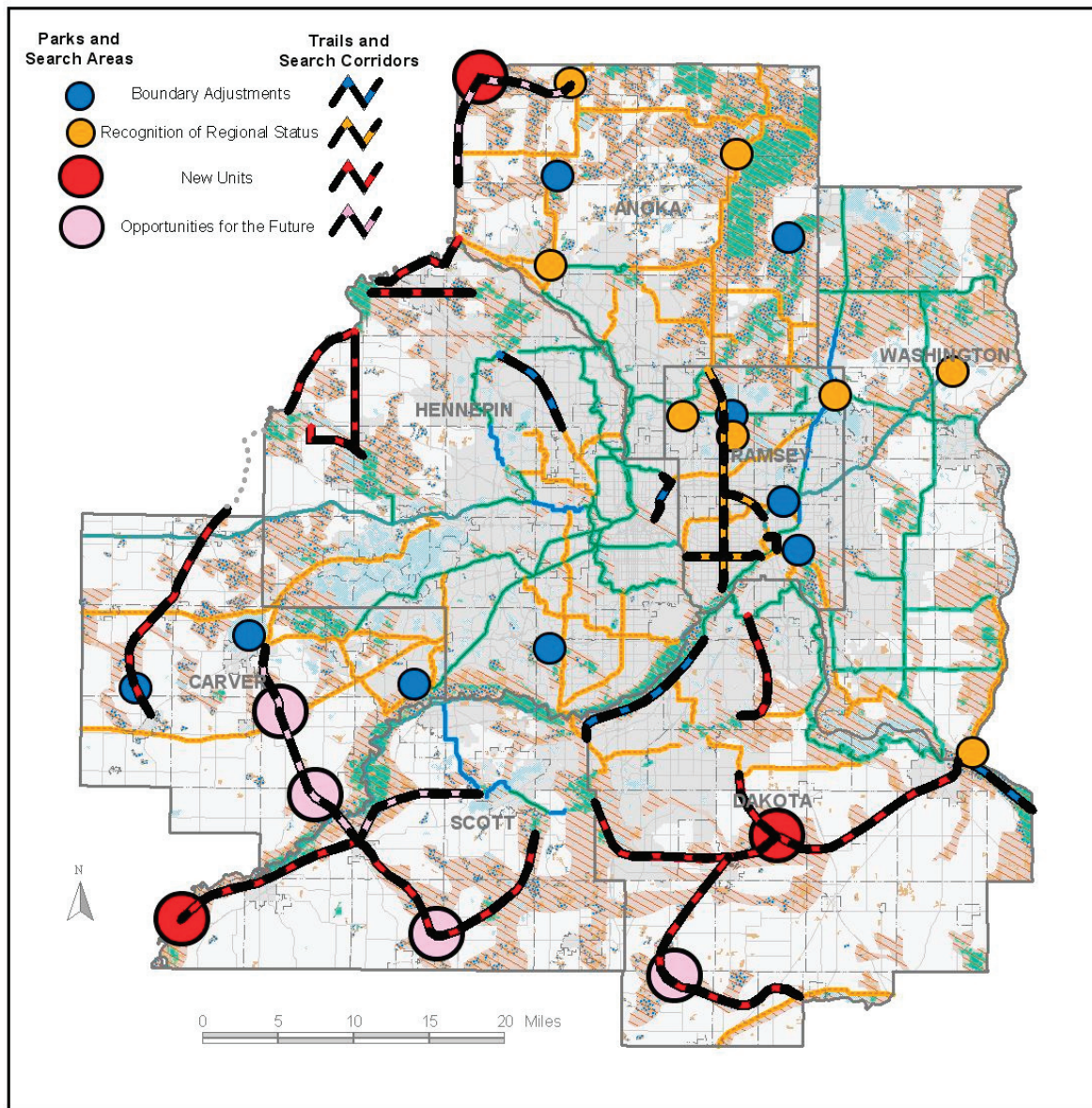


Figure 3

System Plan Update
All Recommended Additions and Changes



Population trends affecting the use of the Rush Creek Regional Trail

The Council is responsible for tracking and forecasting population growth within the seven-county Twin Cities Metropolitan Area. The Council estimates that as of 2005, there were 2.81 million people living within the seven-county Twin Cities Metropolitan Area. The regional population is expected to increase to 3.71 million by 2030—a 32 percent increase from 2005.

In 2005, 179,840 people were living within Hennepin County’s cities and townships located within three miles of the existing and planned regional trail. The population of that area is expected to grow to 285,030 by 2030—a 59 percent increase from 2005.

| Cities within 3 miles of the regional trail | Population Trends | | | |
|---|-------------------|-----------------|-------------------|-----------|
| | 2005 Population | 2030 Population | '05 to '30 change | % Change |
| Brooklyn Park | 71,048 | 85,000 | 13,952 | 20 |
| Champlin | 24,071 | 25,800 | 1,729 | 7 |
| Corcoran | 5,884 | 24,600 | 18,716 | 318 |
| Dayton | 5,007 | 28,700 | 23,693 | 473 |
| Greenfield | 2,847 | 4,300 | 1,453 | 51 |
| Hanover | 507 | 630 | 123 | 24 |
| Hassan Township | 2,648 | 4,500 | 1,852 | 70 |
| Maple Grove | 58,420 | 84,000 | 25,580 | 44 |
| Osseo | 2,492 | 3,300 | 808 | 32 |
| Rogers | 6,716 | 24,200 | 17,484 | 260 |
| Sum | 179,640 | 285,030 | 105,390 | 59 |
| All Hennepin County | 1,150,912 | 1,387,900 | 236,988 | 21 |
| Seven-County Metro | 2,810,179 | 3,713,900 | 903,721 | 32 |

SOURCE: Metropolitan Council

Table 1: Population Trends Affecting Rush Creek Regional Trail Use

Recreation trends

Statewide Trends

As part of the Statewide Comprehensive Outdoor Recreation Plan (SCORP), the Minnesota Department of Natural Resources (MNDNR) recently completed a 10-year projection of adult outdoor-recreation participation. Trail-based activity participation rates were included in this projection.

Table 2 shows the 2004 to 2014 participation projections for trail-based recreation activities. Walking and running are the only trail activities that are projected to increase in participants and participation hours. Participation in cross-country skiing, bicycling and in-line skating activities are expected to decrease by 30 to 44 percent. Snowmobiling is expected to remain nearly static with a participation decrease of about 4 percent.

| Trail Activity | Percent of Population Participation Annually | | | Number of Annual Participants (000s) | | | Number of Annual Hours of Participation (000s) | |
|----------------------|--|-------|----------|--------------------------------------|-------|----------|--|---------|
| | 2004 | 2014 | % Change | 2004 | 2014 | % Change | 2004 | 2014 |
| Walking/hiking | 54.40 | 54.40 | 0.00 | 1,896 | 2,181 | 15.00 | 129,655 | 149,079 |
| Bicycling | 29.00 | 17.80 | -38.50 | 1,011 | 715 | -29.30 | 31,890 | 22,552 |
| Running/jogging | 14.20 | 15.20 | 6.80 | 5 | 610 | 22.80 | 24,332 | 29,870 |
| In-line skating | 11.30 | 6.20 | -44.80 | 394 | 250 | -36.50 | 11,384 | 7,229 |
| Snowmobiling | 9.80 | 8.20 | -16.80 | 342 | 327 | -4.30 | 10,260 | 9,817 |
| Cross-country skiing | 6.50 | 3.20 | -51.40 | 227 | 127 | -44.10 | 3,669 | 2,052 |

SOURCE: MNDNR

Table 2: Population Trends for Trail-Based Activities in Minnesota

Table 3 shows the trail activities in ranked order based upon their share of total trail activity hours. Walking is by far the most popular activity, accounting for over two-thirds of all participation hours. Bicycling is currently the second most popular activity, accounting for 15 percent of all participation hours, though it is expected to decrease to 10 percent of all participation hours by 2014. Running/jogging is expected to surpass bicycling in participation hours over the next 10 years. In-line skating and snowmobiling each account for about 5 percent of participation hours.

Walking and running are the only trail activities that are projected to increase by 2014.

| Trail Activity | Annual Hours of Participation | | | |
|----------------------|-------------------------------|---------------------|---------|---------------------|
| | 2004 | % of combined hours | 2014 | % of combined hours |
| Walking/hiking | 129,655 | 61 | 149,079 | 68 |
| Bicycling | 31,890 | 15 | 22,552 | 10 |
| Running/jogging | 24,332 | 12 | 29,870 | 14 |
| In-line skating | 11,384 | 5 | 7,229 | 3 |
| Snowmobiling | 10,260 | 5 | 9,817 | 4 |
| Cross-country skiing | 3,669 | 2 | 2,052 | 1 |
| Total | 211,189 | 100 | 220,598 | 100 |

SOURCE: MNDNR

Table 3: Trail Activities Ranked by Hours of Participation

In general, recreation use trends are affected by demographic trends. Increasing median age, urbanization, increasing minority populations and decreasing household size are historically associated with less overall recreation participation per capita. Gender does not affect participation rates. Higher levels of education and higher incomes are historically associated with more overall recreation participation per capita. These trends indicate that over time the Rush Creek Regional Trail will likely see increases in walking and running, and decreases in bicycling. In-line skating and cross-country skiing are expected to be minor uses of the trail (less than 5 percent of the total activity hours each) and are also expected to decrease in use over time. However, due to above-average education levels and higher incomes of residents within the core and primary service areas of the trail, higher overall participation rates than the state average are expected, and any decreases over time would likely be less severe than the statewide projections.

Regional trends

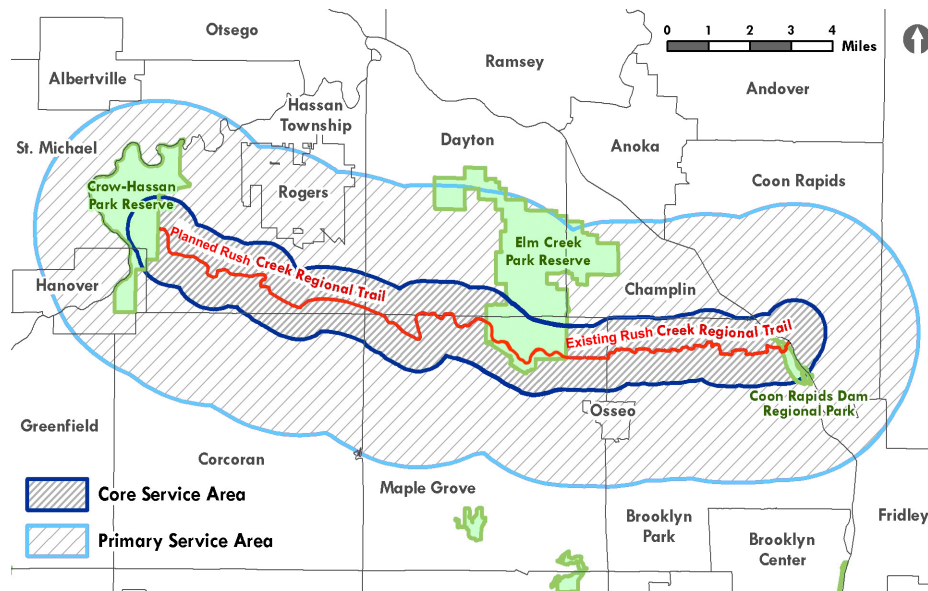
Use of Three Rivers Park District regional trails has steadily increased over the last seven years and is expected to continue to increase. There were 829,000 visits to the six Three Rivers Park District regional trails open in 2000. By 2004, visits to those same trails had increased by 42 percent, to 1,178,000.

In the long term, regional trail visitation is expected to continue to increase in the developing areas at a rate equal to or greater than the increase in the population of those areas. Within fully developed areas where the population levels are expected to remain relatively stable, trail visitation levels will reflect shifting demographics of those areas. For example, a greater percentage of the baby-boomer generation uses trails than other age groups, and this group is expected to continue to use trails well into their retirement years, though ambulatory challenges will likely shift use from in-line skating and biking to walking. As this generation ages, trail use will initially decrease and then increase when the housing stock turns over to younger families with larger households.

Service area of the Rush Creek Regional Trail

Studies performed by the Council indicate that 50 percent of the regional trail users live within 0.75 miles of the trail, and 75 percent live within 3 miles of the trail. The remaining 25 percent of regional trail users live beyond 3 miles of the trail. The 0.75-mile area around the trail is considered the core service area, and the 3-mile area around the trail is considered the primary service area of the trail.

Figure 4 shows the expected core and primary service areas of the Rush Creek Regional Trail.



Source: Three Rivers Park District

Figure 4: Service Areas

Projected use of the Rush Creek Regional Trail

In 2006, the Council estimated that the existing portion of the Rush Creek Regional Trail had 607,000 visits, identifying it as the most popular Three Rivers Park District regional trail. This level of use reflects the status of the existing trail as both a destination and a linking trail, and also reflects the significant population increases in the area immediately surrounding the trail over the last few years.

Based on the current population density of the service area of the planned section of the trail, if the entire trail were open today, there would be an additional 134,000 visits, for a projected total of 741,000 annual visits. The 2030 population of the communities within the trail service area is expected to increase by 59 percent. Assuming use rates are stable, in 2030, the complete trail visitation will be approximately 1.2 million annual visits.

Types of use and seasonal use

Activity use of the Rush Creek Regional Trail is expected to be similar to use of other Three Rivers Park District regional trails (Table 4), and will provide walking, dog walking, running/jogging, bicycling and in-line skating opportunities during the nonwinter months. Three Rivers Park District’s seasonal-use data of existing regional trails indicates that significant use of the trail will occur in the spring, summer and fall seasons (Table 5). Winter use of the Rush Creek Regional Trail is dependent on weather conditions and independent use agreements reached with local communities to maintain and operate the trail during the winter season (defined as November 15 through April 1).

| Activity | Percent of Expected Use |
|-----------------|-------------------------|
| Bicycling | 76 |
| Walking/hiking | 13 |
| Running/jogging | 7 |
| In-line skating | 4 |
| Other | <1 |

Source: Three Rivers Park District
Table 4: Expected Use Distribution by Activity

| Quarter | Percent of Total Trail Visitation Occurring in that Quarter |
|------------|---|
| Jan-March | 5 |
| April-June | 37 |
| July-Sept | 35 |
| Oct-Dec | 24 |

Source: Three Rivers Park District
Table 5: Average Seasonal-Use Distribution on Three Rivers Park District Regional Trails



Of the various uses along the regional trail, bicycling is expected to have the highest usage at 76 percent.

Special needs populations

Three Rivers Park District is committed to providing access and recreational opportunities to all people, including persons with disabilities, minorities and other special-population groups. Three Rivers Park District meets this commitment through appropriate facility design and programming considerations, and by actively addressing potential barriers to participation.

Three Rivers Park District pursues promotional outreach activities, and works with special-interest organizations such as the Courage Center and Wilderness Inquiry to further encourage participation in activities and use of park facilities. If arrangements are made in advance, interpreters and alternative forms of printed material are available at programmed events.

Three Rivers Park District has several programs designed to assist in obtaining access for persons for whom cost could be a barrier to participation. The "Parks for All People" program is designed to provide free passes for swimming and cross-country skiing to qualified recipients of Hennepin County economic assistance programs. Discounted camping, equipment rental, and educational programs are available. Three Rivers Park District does not charge entrance fees to its regional parks or park reserves.

Public process

To help plan the extension of the Rush Creek Regional Trail from Elm Creek Park Reserve to Crow-Hassan Park Reserve, a Task Force was assembled to identify and then to review possible trail alignments. Task Force members included a mix of staff and elected officials from the cities of Corcoran, Dayton, Maple Grove and Rogers, Hassan Township, and staff from Hennepin County, Minnesota Department of Transportation, Elm Creek Watershed District and Three Rivers Park District. SRF Consulting Inc. (SRF) acted as the facilitator of the Task Force.

The first Task Force meeting occurred in January of 2007, and focused on identification of potential trail alignments between Elm Creek and Crow-Hassan Park Reserves. The second Task Force meeting occurred in March of 2007, at which time the Task Force reviewed assessments of the three alignments originally identified in the first meeting, and a fourth hybrid alignment, which combined parts of two of the original alignments. The Task Force determined that the hybrid alignment was the preferred alignment, as it offers the highest public value for trail users and the local communities while maintaining consistency with local community trail plans.

The only significant issue raised at city meetings and the public open house centered on acquisition strategies for the regional trail. Staff explained the typical acquisition strategies used for regional trails as detailed in this Master Plan. The explanation of the strategies appeared to sufficiently answer any concerns that were raised regarding acquisition.

The Task Force met for the third time in July of 2007 to review the draft Rush Creek Regional Trail Master Plan. Comments and suggestions raised at that meeting have been addressed and incorporated in the Master Plan.

Formal review

The master plan was reviewed and approved by the Metropolitan Parks and Open Space Commission and was subsequently approved by the Metropolitan Council in February of 2008. At the request of the Metropolitan Council, prior to development of new trail segments, the Park district will send final plans to Metropolitan Council Environmental Services for review and comment to ensure the integrity of the interceptor system.

The City Councils of Dayton and Maple Grove, and the Town Board of Hassan, each approved a resolution of support for the master plan. Those resolutions also grant consent to Three Rivers Park District to acquire properties from willing sellers for the development of the regional trail corridor as identified in the master plan.

A second public open house was held on January 31, 2008, at Eastman Nature Center. Invitations were sent to the 320 landowners whose property is within 1,000-feet of proposed trail alignment between Elm Creek and Crow-Hassan Park Reserves. Seventy-five landowners attended along with some elected officials and staff from the involved communities. Overall, the discussion was very positive, with many residents expressing support for the trail. The primary concerns of residents focused on trail corridor acquisition — how the willing-seller approach works and the timing of acquisition and development. A small sub-group of horse riders expressed interest in having the western portion of the trail also include a separate equestrian path if the corridor is sufficiently wide to accommodate both a paved and a non-paved trail. The concept of a potential equestrian trail in the western portion of the regional trail corridor has been incorporated into the final version of the master plan.

SECTION IV: Resource Assessment and Management

Three Rivers Park District's system of parks is designed to protect and preserve natural settings while satisfying the public demand for outdoor recreation opportunities. In order to preserve natural areas in perpetuity, yet make them accessible to the general public, an active program of natural resources management, rather than an attitude of passive protection, is necessary. Natural resources management practices may also be necessary as a means of protecting the health and safety of the public. The primary goal of natural resources management efforts is to restore, preserve and protect natural resources and native wildlife populations, consistent with parkland classification.

Complementary to this goal is the mind-set that this corridor can serve dual purposes. First and foremost, the corridor is a pedestrian corridor linking outdoor-recreation opportunities. Second, the corridor may function as an ecological corridor. As an ecological corridor, the corridor preserves habitat and encourages connectivity for wildlife and vegetation between larger patches of natural areas. Other benefits of an ecological corridor include buffering existing high-quality natural areas from future development, ensuring long-term protection and management of high-quality natural resources, and preserving the desired user experience through a natural area.

To meet this goal, Three Rivers Park District will consider acquisition of natural areas adjacent to the minimum trail corridor.

Natural resources inventory-expansion

Topography-existing

The existing Rush Creek Regional Trail is located within the limits of the Mississippi River outwash plain of the Wisconsin glaciations. Outwash plains generally have slopes less than 3 percent with highly stratified soils and excellent drainage. Historically, the flat topography and glacial outwash made for successful potato and sod farms. However, this type of landscape is also a rich source of aggregate. Today, the area is predominantly residential.



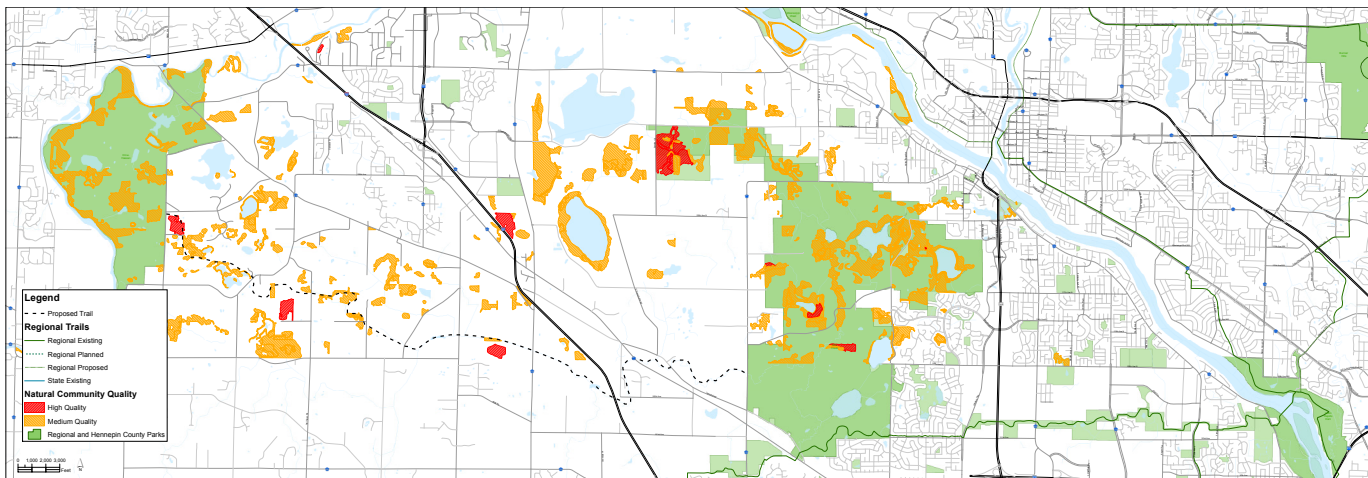
Wetlands along the proposed Rush Creek Regional Trail Corridor.

Rare, endangered and threatened species inventory

No rare, endangered or threatened species are known to inhabit the landscape of the existing or proposed extension of the Rush Creek Regional Trail.

Native plant communities inventory

The Minnesota Department of Natural Resources County Biological Survey does not recognize any native plant communities along the existing or proposed extension of the Rush Creek Regional Trail. However, small native plant communities may exist. Three Rivers Park District will conduct an analysis prior to construction.



Source: MN DNR
Figure 5: High-Quality Natural Communities

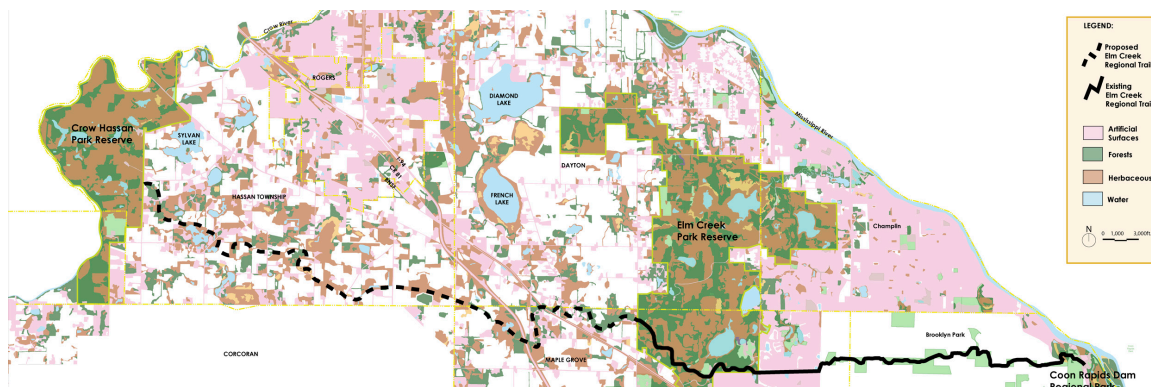
Vegetation

The Minnesota Land Cover Classification System (MLCCS) is a system developed to categorize the urban and built-up areas in terms of land cover rather than land use. According to the MLCCS, the three dominant types of vegetation along the proposed Rush Creek Regional Trail Corridor are deciduous forest, woodlands and herbaceous (Figure 6).

Deciduous forests occur primarily in the deciduous forest-woodland zone; they are less common in the prairie zone and the conifer-hardwood forest zone. On dry sites, the most common canopy dominants of deciduous forests are oak, aspen and birch trees. Sugar maple, basswood, elm and ash trees are common dominants on moist sites. Pines, especially white pine, sometimes form a minor part of the forest canopy. Where the forest canopy is broken or interrupted (typically in oak-dominated forests) there is usually a dense layer of tall shrubs, including hazelnuts, dogwoods, prickly ashes and cherries. Beneath the denser canopies formed by mesic tree species such as sugar maple, the shrub layer is sparse or absent.

Woodlands are identified as open stands of trees with crowns not usually touching (generally forming 25 - 60 percent cover). Canopy tree cover may be less than 25 percent in cases where it exceeds shrub, dwarf-shrub, herb and nonvascular cover, respectively.

Herbaceous-Herbs (graminoids, forbs and ferns) dominant (generally forming at least 25 percent cover; trees, shrubs and dwarf-shrubs generally with less than 25 percent cover). Herb cover may be less than 25 percent where it exceeds tree, shrub, dwarf-shrub and nonvascular cover, respectively. (*Minnesota Land Cover Classification System, Minnesota Department of Natural Resources, Central Region. 2004*)



Source: MN DNR

Figure 6: Minnesota Land Cover Classification System Map

Woody vegetation along the Regional Trail Corridor between Elm Creek Park Reserve and Coon Rapids Dam Regional Park consists of coniferous and deciduous trees and shrubs that were planted in the early 1980s to provide screening and landscaping for the corridor as well as volunteer vegetation and trees and shrubs that remain from old homesteads and farmsteads. The corridor is divided into two distinct sections when describing the vegetation and its management.

The mile-long Boundary Creek section at the west end of the trail corridor was planted in the early 1980s with shade trees, groupings of pines and spruce, and large beds of deciduous shrubs. Turf grass was established under the shade trees and between the plantings across the full width of the corridor. The landscape design intent was to define the trail alignments, provide screening and blend the corridor with the adjacent new residential subdivision. A mixture of native and nonnative species were planted due to the need for year-round screening (conifers) and limited availability of native deciduous shrub planting stock at the time. Many of the shrub beds were renovated in the early 1990s using native species.

Ongoing woody vegetation management in the Boundary Creek section includes trimming to maintain shade trees, trimming for trail clearance, removal or trimming of hazard trees and removal of invasive species. Periodic shrub bed renovation or replacement is necessary to maintain the appearance and effectiveness of these landscape plantings.



The existing Rush Creek Regional Trail Corridor is planted with coniferous and deciduous trees and shrubs that help provide screening and landscaping to the corridor.



Boundary Creek section of the Rush Creek Regional Trail.

Barring major disturbance, no significant forest or shade tree management activities are planned at this time for the trail corridor between Boundary Creek and the Coon Rapids Dam.

The appearance of the trail corridor east of the Boundary Creek section is more natural. On upland sites, the woody vegetation is a combination of row-planted conifers, small groupings of planted deciduous trees and shrubs, and many areas occupied by volunteer deciduous trees and shrubs. Unmowed grass and herbaceous vegetation dominate the ground layer. The conifers—red, jack and white pine, and white spruce, white and red cedar—were planted in 1982 to provide visual screening and protection for the trail corridor. Deciduous stock was planted in the period from 1982 through 1984. It included native tree species and a mix of both native and exotic shrubs. The volunteer woody vegetation is primarily aspen, box elder and green ash with an understory dominated by exotic buckthorn and honeysuckle. Most of it originated in the same time period as the planted stock, or later. There are several locations along the trail corridor where older trees and shrubs are present at former home sites or farmsteads. Just west of Zane Avenue, the trail corridor passes through mature oak woods in the City of Brooklyn Park’s Oak Grove Park.

Lakes, wetlands and streams

The Rush Creek Regional Trail utilizes high-quality natural resource corridors for a significant portion of the corridor. The trail corridor along the Rush Creek drainage contains a large quantity of Type I and Type II wetlands.

The proposed extension of the Rush Creek Regional Trail follows Rush Creek for 6 of the trail’s 11.1 miles, a significant portion of the trail between Elm Creek Park Reserve and Crow-Hassan Park Reserve.

Watershed

The Rush Creek Regional Trail is located in the Mississippi River watershed. More specifically, the trail lies within the Rush Creek watershed, which drains a 51-square-mile area of north-central Hennepin County.

Resource management

Wildlife management

Most of the Rush Creek Regional Trail property from Elm Creek Park Reserve to Coon Rapids Dam Regional Park has dense residential or commercial development just beyond the boundaries. Most of the trail corridor is planted with trees and shrubs or allowed to succeed to trees and shrubs to provide screening for the users of the trail. Wildlife on the corridor consists primarily of edge species that can survive in this relatively narrow band of vegetation or in the adjacent residential backyards.



Rush Creek connects many wetland basins along its course.

The only area where intensive efforts have been made to manage wildlife or to provide for different types of habitat is between Noble and Zane Avenues. This section of the trail corridor encompasses two small open areas totaling 5.5 acres planted with dry site prairie species. These fields are burned every three years in accordance with identified prairie management practices. There are also two shallow wetlands in this area, and the surrounding uplands have maturing stands of trees, many of which are aspens. The combination of prairie, wetland and woodland provides substantial habitat diversity for such a small area.

Wildlife management levels and techniques on the proposed corridor appropriately reflect the lands acquired for development of the regional trail.

Water resources management

Rainfall runoff from the paved multi-use trail on the Rush Creek Regional Trail sheet flows into the adjacent forests, grasslands and wetlands along the trail corridor. The trail corridor and surrounding parkland ultimately drain into the Mississippi River.

The stormwater runoff generated by the impervious trail surface infiltrates into the soil along the adjacent trail corridor. The soils under and adjacent to the trail are composed primarily of Nessel loam, Dakota loam, Esterville sandy loam and Isan sand soils. The Hennepin County Soil Survey indicates these soils have a permeability of 0.63 to 6.0 inches/hour.

The area needed to infiltrate trail runoff water was estimated using design guidelines from Claytor and Schueler, 1996. The required design criteria are as follows:

- Infiltration area equals 100 percent of impervious area
- Soils have a minimum percolation rate of 0.52 inches/hour
- Runoff water sheet flows into infiltration area
- Soils are protected from compaction
- Unmowed vegetation is maintained on the treatment area

For the trail project, all of these criteria are met. The existing and new trail sections will be 10 feet wide, constructed in a minimum 16-foot-wide corridor. With an average corridor width of 100-feet, the available infiltration area will exceed the impervious area by a factor of approximately 10:1.

As indicated above, the soils have a percolation rate of 0.63 to 6.0 inch/hour, well in excess of the required 0.52 inch/hour. Construction activities during trail construction are restricted. Therefore, the adjacent soils will be protected from compaction. With the exception of a three-foot-wide safety zone along each side of the trail, vegetation in the corridor is on existing lots of large mowed areas, allowing establishment of natural vegetation. The natural vegetation will promote the infiltration of stormwater runoff from the impervious trail surface.

SECTION V: Development Plan

Development Location

The Rush Creek Regional Trail will extend west from Elm Creek Park Reserve to Crow-Hassan Park Reserve following the general alignment shown in Figure 7. While the intent of the Master Plan is for the trail to develop along this general alignment, the exact location of the trail will reflect the opportunities that arise for acquisition, easements and neighborhood developments. The trail will likely develop as a series of small segments over a period of several years. This strategy takes advantage of the opportunity to locate and build the trail in or adjacent to future development areas prior to construction. Trail segments will have logical beginnings and ends, and will incorporate nonpermanent detours as needed to adjoin segments while waiting for future acquisition and easement opportunities.

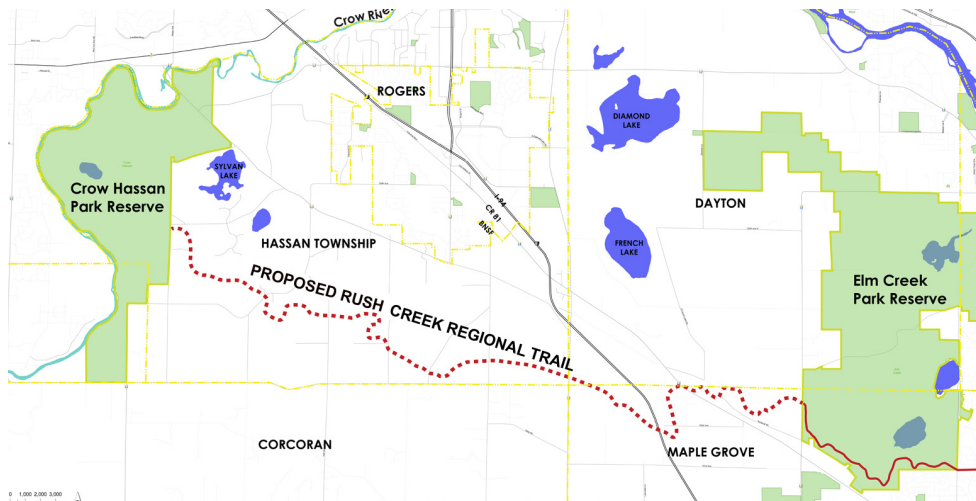


Figure 7: Proposed Trail Extension

Corridor width

The existing trail corridor east of Elm Creek Park Reserve ranges in width from 55 feet to over 1,000 feet. At a minimum, the proposed extension of the trail requires a corridor 16 feet in width. Ideally, the corridor width will be sufficient to provide natural screening for both trail users and adjacent homeowners. There may be opportunities to expand the corridor width to include regionally significant natural resource areas. Three Rivers Park District will examine and consider expansion of the corridor width on a case-by-case basis as opportunities arise.

Design intent

Three Rivers Park District plans to extend the Rush Creek Regional Trail from Elm Creek Park Reserve to the Crow River in Crow-Hassan Park Reserve. The development plans are consistent with existing regional trails and include development of multiuse, bituminous (paved) trail. The trail will provide spring, summer and fall use, and may allow winter use at the discretion of the local communities or Three Rivers Park District. Expected trail uses include bicycling, walking, running, in-line skating, commuting and dog walking.

A separate non-paved trail to accommodate equestrian use in the western portion of the trail corridor leading to Crow-Hassan Park Reserve warrants future consideration. The addition of an equestrian trail will be dependent on successful acquisition of a corridor wide enough to accommodate both trails, and on the level of demand for an equestrian trail at the time when development is to occur.

Whenever possible, the trail will utilize natural resource corridors to promote recognition as a destination trail, and to provide significant ecological and social benefits. A regional trail would be a complementary use in these natural areas and would provide public access and the opportunity to educate users about the importance of protecting wetlands, stream corridors and woodland tracts from development.

Site preparation along the corridor will require standard construction preparation, tree trimming, minor excavation, subgrade preparation, and the removal and restoration of some curb and gutter and bituminous pavement sections. Grading may be necessary along portions of the proposed trail route to provide adequate drainage.

Primary trail design elements

The proposed trail will be designed in accordance with MNDNR Trail Planning, Design and Development Guidelines which, in turn, reflect state and federal guidelines. As per the DNR Guidelines, the trail is a recommended 10 feet wide with a bituminous surface and a 3-foot grass clear-zone on each side. A bituminous trail surface is the preferred surface treatment because it has a more cost-effective life-cycle surface than other surface treatments, does not migrate toward adjacent properties and is less prone to erosion. Bituminous trails offer a wide variety of trail uses including bicycling, walking, running and in-line skating, which are all very popular activities on other Three Rivers Park District regional trails. In addition, the existing segment of the Rush Creek Regional Trail from Coon Rapids Dam to Elm Creek Park Reserve and connecting regional trails have bituminous trail surfaces.

As per the DNR guidelines, the trail will be 10 feet wide with a 3-foot grass clear-zone on each side.

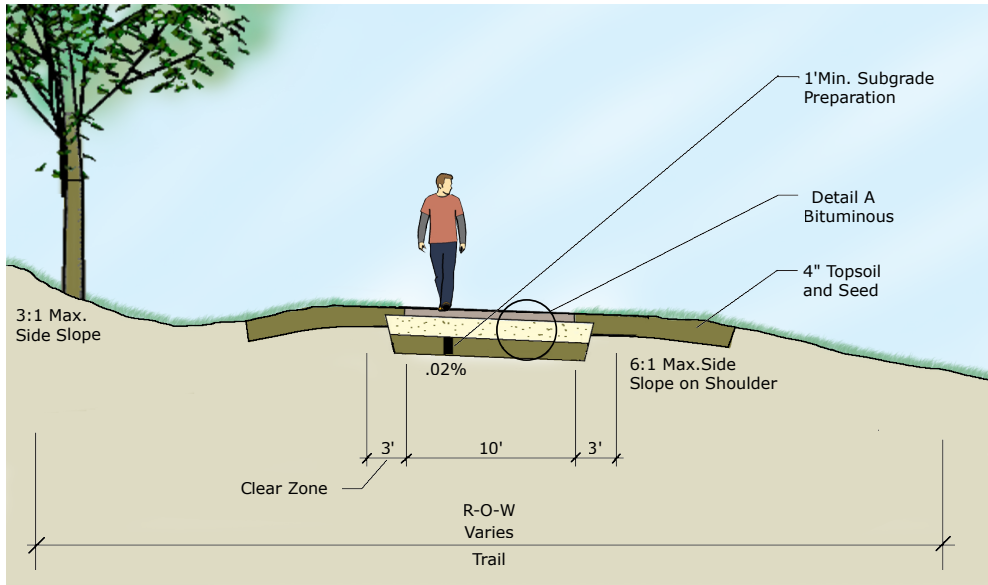


Figure 8: Typical Trail Section

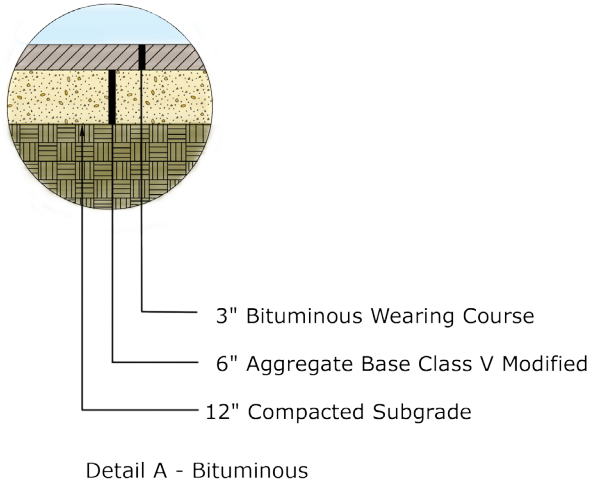


Figure 9: Bituminous Trail Detail

There will be 12 at-grade road crossings along the proposed trail segment. Three will require Type I Crossings and 9 will require Type II Crossings. In addition to safety signage, roadway crossings will have surface paint marking the trail location.

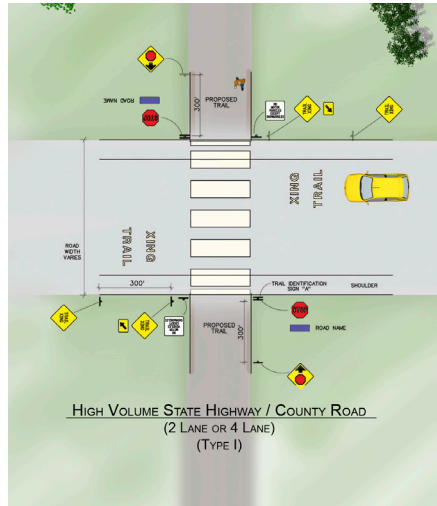


Figure 10: Type I
Typical Crossing Details

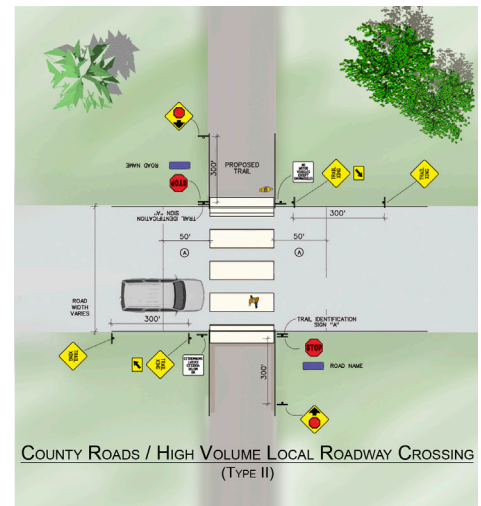


Figure 11: Type II

| Road (East to West) | Crossing Type |
|---------------------|-----------------|
| County Road 121 | Type I |
| Territorial Road | Type II |
| County Road 81 | Grade separated |
| Garland Lane N | Type II |
| 105th Ave | Type II |
| Interstate 94 | Grade separated |
| County Road 101 | Type I |
| County Road 116 | Type I |
| Valley Drive | Type II |
| Tilton Trail South | Type II |
| Trail Haven Road | Type II |
| Tucker Road | Type II |
| 123rd Ave North | Type II |
| Park Drive | Type II |

Table 6: Roadway Crossing Schedule

The Rush Creek Regional Trail expansion crosses County Road 81 and Interstate Highway 94, two busy roadways that require grade-separated crossings. Grade-separated crossings include either a trail bridge that crosses over the roadway or a tunnel that passes under the roadway.

The trail expansion also crosses a low-use BNSF Railway line. An at-grade crossing of the railroad tracks with appropriate signage and crossing elements will provide a safe and effective way for trail users to cross the tracks.

Supporting trail elements

Access, signage, screening, overlooks and rest areas are important elements of regional trails. Their proper design and placement add aesthetic and functional value to the trail. In addition, trailheads are important elements because they provide the amenities visitors need to prepare for trail use and a location for visitors to access the trail. Trailheads on the Rush Creek Regional Trail will be located in Coon Rapids Dam Regional Park, Elm Creek Park Reserve and in Crow-Hassan Park Reserve. The trailhead amenities typically include parking, rest room facilities, drinking water, benches or tables, bicycle racks, trash receptacles and space for people to prepare before getting on the trail.

The Rush Creek Regional Trail will follow beautiful natural corridors that include Rush Creek's wetlands, forests and scenic rural settings. There are a number of potential locations to consider when incorporating scenic overlooks to allow trail users to admire the views from a location other than on the trail itself. Viewpoints that look over water or have scenic vistas are popular locations for trail users to stop and take in the views.

Proper signage along the trail is important for safety and way-finding. Three Rivers Park District will install traffic control signs, such as stop signs at road crossings and street name signs at bridges and intersections, as well as informational and directional signage consistent with Three Rivers Park District's System-wide Trail Signage Plan.

The Rush Creek Regional Trail will follow beautiful natural corridors that include wetlands, forests and scenic rural settings.



Typical Signage Images

The number of driveway crossings will be dependent on the trail location determined in conjunction with future development. The design phase will address individual driveway crossings. Generally, where the trail crosses a roadway, the crossing is marked with safety signage and surface paint to alert motorists and trail users. Driveway crossings will be marked with signage to alert trail users of the upcoming crossing, and general warning signs may be placed in areas with greater congestion. Vegetation will be kept out of the required clear-zones to maintain sight lines and Three Rivers Park District will not plant additional vegetation in these zones. Special corridor provisions may be added for sight issues, such as mirrors, to enhance trail visibility from driveways.



Typical rest area on a regional trail.

Rest stops on regional trails provide places for trail users to exit the trail; they also provide an area for amenities not generally found in midcorridor, such as trash receptacles, benches and bicycle racks. The design team will evaluate and incorporate appropriate rest stop locations during the design phase of the project.

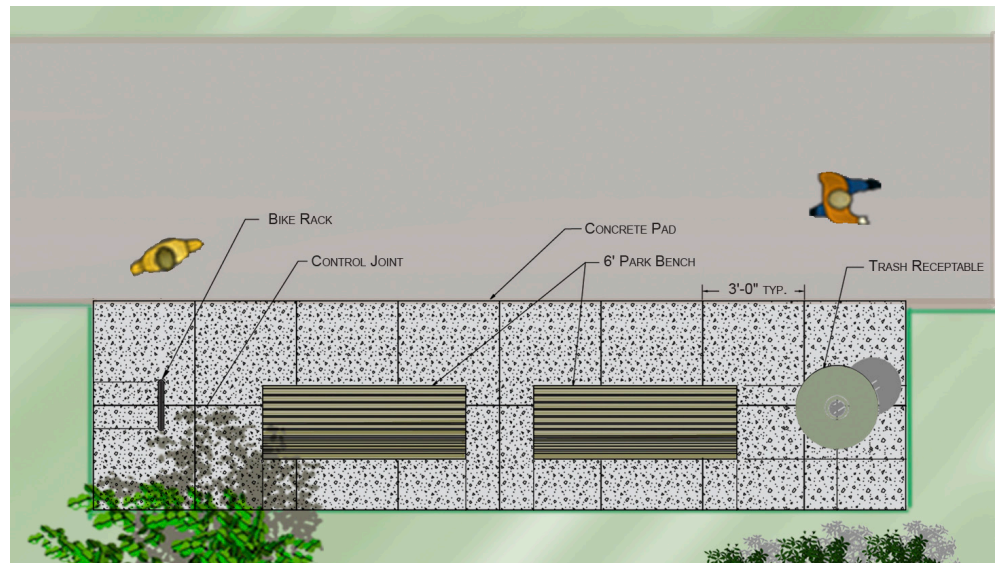


Figure 12: Typical rest area detail

Drinking water will be available at public facilities such as parks along the trail. Trail kiosk maps will show locations of water stops adjacent to or near the trail. Drinking water will also be available at the trailheads in Elm Creek Park and Crow-Hassan Park Reserves and Coon Rapids Dam Regional Park.

The Rush Creek Regional Trail will pass through predominantly rural settings. In certain locations and as development occurs along the corridor, screening may be needed to provide visual protection to and from the trail. Where possible, using vegetation to screen the trail is aesthetically pleasing and very effective. In areas that require a physical barrier, vinyl-coated wire fence is both effective and transparent, allowing natural light onto the trail and views out from the trail.



Vinyl-coated wire fence



Natural vegetation screening

The Rush Creek Regional Trail will become part of the greater metropolitan regional trail system and an added asset to the extensive regional trail system of Three Rivers Park District. The regional trail will increase the potential for connections to other regional trails in the area, including the Medicine Lake Regional Trail and the proposed Crow River Regional Trail. Each adjacent community has an opportunity to connect its local parks and trails to the Rush Creek Regional Trail, which will ultimately increase the exposure of community members to a wide network of trail opportunities. Three Rivers Park District encourages adjacent communities to plan local trail connections to minimize the impact to the regional trail.

Once constructed, the Rush Creek Regional Trail will allow trail users to travel from the Mississippi River at Coon Rapids Dam all the way to the Crow River at Crow-Hassan Park Reserve on an independent trail alignment. In addition, the Rush Creek Regional Trail will offer a safe and scenic alternative to on-road bicycle riding. Wright County trails on the western side of the Crow River may access the Rush Creek Regional Trail by way of the proposed Crow River Regional Trail. This trail connection provides access to the Cities of Hanover and St. Michael.



SECTION VI: Operations and Management

Rush Creek Regional Trail is operated under Three Rivers Park District ordinances and policies. The trail is overseen by full-time professional operations and maintenance staff. Services and maintenance staffing levels will increase as needed through the employment of seasonal staff. Park Service Officers and Park Police Officers provide public safety services. Maintenance services for Rush Creek Regional Trail are provided by maintenance operations emanating from Elm Creek Park Reserve.

Ordinances

Three Rivers Park District Board of Commissioners has adopted a set of ordinances that define the rules and regulations of Three Rivers Park District in order to provide for the safe and peaceful use of the parks and corresponding facilities; for the educational and recreational benefits and enjoyment of the public; for the protection and preservation of the property, facilities and natural resources; and for the safety and general welfare of the public.

A copy of the ordinances may be obtained from the Three Rivers Park District Web site (www.ThreeRiversParkDistrict.org). Rules and regulations are also posted throughout Three Rivers Park District properties and facilities. Posted information includes park hours, permitted and prohibited activities, fees, map of the park and/or trails, and who to contact in case of an emergency. Three Rivers Park District Police and Park Service Officers regularly patrol all property and trails on foot and by horse, bicycles and motor vehicles. When necessary, ordinances may be enforced via citations.

Operations—Public safety

The Public Safety Section consists of Park Police Officers, Park Service Officers and support staff. Park Police Officers are licensed peace officers in the State of Minnesota and have the authority to arrest and detain criminal offenders and enforce a variety of traffic laws just like other law-enforcement officers throughout the state. Additionally, Park Service Officers are highly trained in administering first aid. Officers are trained and certified as Emergency Medical Technicians and First Responders. Park Police Officers strive to be proactive and utilize a variety of alternative patrol techniques that include horse-mounted, bicycle, electric scooter and four-wheel ATV patrols.

Park Service Officers have enforcement authority as well, but it is limited to minor park offenses. Park Service Officers are an important component of the Public Safety function, and communicate directly with the Park Police Officers when they observe suspicious or criminal behavior. Park Service Officers are very knowledgeable about park activities and readily assist with traffic flow, parking issues, and park guest information as well as administer first aid to park users who are ill or injured.

Three Rivers Park District's Public Safety Plan includes the general patrol of regional parks, park reserves and regional trails by a Park Police Officer or Park Service Officer. Many high-volume parks have a Park Service Officer stationed at the respective park to be readily available to provide assistance to park users.

Mutual Aid

Three Rivers Park District participates in a statewide mutual aid program that facilitates the sharing of public safety resources in times of emergency or other unusual conditions. This program serves to facilitate the assistance received from surrounding police agencies.

Staffing

Three Rivers Park District uses a combination of Park Service Officers and certified Park Police Officers for Trail Patrol on the Rush Creek Regional Trail. Staffing emanates from the Elm Creek Division Public Safety office; staff currently assigned to the Rush Creek Regional Trail will also provide service to the trail extension. Daily coverage of the trail corridor will continue to be provided.

Operations—Maintenance

Due to extensive property holdings, geographic distribution of facilities and the need to create an efficient and cost-effective work force, Three Rivers Park District organizes and budgets maintenance services in three geographic divisions. Within each division are two work clusters that typically provide maintenance service for four to six Three Rivers Park District parks, park reserves and regional trails. The Elm Creek Work Cluster of Three Rivers Park District's Mississippi River Division provides maintenance services for the Rush Creek Regional Trail.

During the growing season, Three Rivers Park District mows an optimal three-foot-wide shoulder of turf grass adjacent to the trail surface at regular intervals to ensure a manageable and groomed appearance. The level of mowing reflects community expectations for the landscapes through which the trail traverses. Overhead vegetation is maintained to provide a clear-zone to a recommended height of 10 feet over the trail and shoulders. Occasionally, trimming of woody vegetation may extend to a greater width to avoid situations where limbs may overhang shoulder zone. Also, in areas with tall grasses, additional clear-zone may be maintained to inhibit grasses from falling onto the trail or clear-zone.

Three Rivers Park District staff conducts trail inspections to identify possible safety issues, vandalism and nonroutine maintenance concerns on the same schedule as trash and litter pickup. These routine maintenance tasks are regularly scheduled during the Memorial Day to Labor Day season and on an as needed basis during the remainder of the year. Leaf debris is blown mechanically or swept from the trail on an as-needed basis. Trail bridge and boardwalk structures are inspected on an annual basis with visual review as part of ongoing maintenance operations. The project may include fencing, which also contributes to an increased need for maintenance attention. Extraordinary maintenance occurs in response to storm damage, vandalism or other unplanned circumstances.

The Rush Creek Regional Trail expansion will receive scheduled striping, seal coating and redevelopment under Three Rivers Park District's pavement management program and in accordance with Park District standards. Nonscheduled trail repair and striping will be performed on an annual and as-needed basis. Three Rivers Park District will treat for noxious weeds at the request of cities and may spot-spray for broadleaf weeds on an as-needed basis in response to safety concerns.



Three Rivers Park District mows an optimal three-foot-wide shoulder of turf grass adjacent to the trail surface at regular intervals to ensure a manageable and groomed appearance.

Proposed Maintenance Activities

Three Rivers Park District's present policy provides for the operation of the trail from April 1 to November 15. Local municipalities wishing to offer winter use of the trail may apply for a winter trail operations permit from Three Rivers Park District. If winter operations are permitted, the local municipality is responsible for operations and maintenance.

Additional staffing and equipment are needed to operate and maintain the extension of the existing trail corridor; however, some equipment and staffing resources will be shared with the existing Three Rivers Park District maintenance operations emanating from the Elm Creek Work Cluster. Routine maintenance is outlined below.

- **April and May:** Sign inventory and replacement, spring cleanup, limited mowing, garbage pickup, fence repair, bridge and boardwalk repair (as needed).
- **June, July, August and September:** Erosion repair, fence repair, sign and post replacement, trail trimming, mowing, weed control, garbage collection, bridge and boardwalk repair (as needed).
- **October and November:** Garbage collection, major vegetative trimming, bituminous patching, erosion repair, disease and hazard tree removal and striping.
- **December to March:** No planned operations or maintenance during winter unless permitted to area cities and/or Three Rivers Park District elects to conduct winter trail activities.
- **Throughout the year and storm-related damage:** Erosion repair, tree removal, trail sweeping, fence and other structure repairs.

Several specific management/maintenance programs are in place to ensure a safe, user-friendly experience to all trail programs.

- **Sign Maintenance:** Directional, safety, regulatory, interpretive and informational signage is typically installed during trail development. During the operational season, signage is inspected as part of the routine inspection and maintenance tasks.
- **Solid-waste management:** Three Rivers Park District contracts solid-waste removal. Receptacles are located in designated areas along the trail and include recycling containers. Recycling material includes cardboard, aluminum, paper and glass. Three Rivers Park District encourages recycling through provision of comingling (nonseparation) of recycling materials. All recycling and waste generated by Three Rivers Park District is processed; land filling is not allowed.

- **Sweeping/Blowing/Vacuumping:** Natural debris such as leaves, acorns, twigs and grass clippings are swept, blown or vacuumed on a regular maintenance schedule or as needed. Extraordinary maintenance may be required in the event of storm debris.
- **Pavement Management Program:** Pavement management is a systematic method for tracking and addressing pavement conditions at a District-wide level. The pavement management program greatly enhances Three Rivers Park District’s ability to perform preventive maintenance and optimize pavement condition and performance.

The pavement management system provides Three Rivers Park District with a tool to assist in making consistent, cost-effective decisions about maintaining and preserving the pavement investment.

| Year | Pavement Management Activity |
|------|---|
| 0 | Original construction of the paved trail |
| 3 | Seal coating |
| 7 | Routine maintenance - crack filling, minor patching, minor curb repairs |
| 11 | Routine maintenance - crack filling, minor patching, minor curb repairs |
| 13 | Seal coating |
| 18 | Routine maintenance - crack filling, minor patching, minor curb repairs |
| 21 | Routine maintenance - crack filling, minor patching, minor curb repairs |
| 25 | Total reconstruction |

Table 7: Anticipated Trail Pavement Management Cycle

- **Contractual Services:** Three Rivers Park District may contract for tree trimming for problem situations where tree heights exceed 40 feet. Trail striping services, and pothole and crack repairing are provided on a contractual, as-needed basis.
- **Trail/Bridge Repair:** Trails and bridges are inspected annually in the spring as part of the preseason maintenance program and are then inspected regularly by Three Rivers Park District maintenance staff as part of ongoing, routine operations. Minor trail repair is handled on a timely basis, and probable major repair needs are evaluated and recommended to Three Rivers Park District management for planning or engineering review. Major projects are submitted to Three Rivers Park District Board of Commissioners for funding as part of the annual operating budget, preservation and rehabilitation program, or capital improvement program.
- **Noxious Weed Management:** Three Rivers Park District mechanically or chemically removes noxious weeds at the request of cities. The Park District proposes to spot-spray for broadleaf weeds on an as-needed basis to control potential safety concerns.

- **Edge Management:** Trail shoulders are planted with a roadside, low-maintenance, deep-rooting turf mix. Shoulders are mowed on a regular schedule to a width of three feet. Woody vegetation is also managed within this three-foot shoulder zone. Significant trees may be retained near the trail edge in some locations and safely managed through signage and trail alignment in the area.

Outreach and marketing

Three Rivers Park District's Marketing Communications Section manages a centralized marketing communications function that oversees public relations, marketing, media relations, the Web site, brand management, event planning and promotion. A number of effective marketing and outreach tools are used to promote Three Rivers Park District, including but not limited to an annual distribution of a District-wide map, the Web site, direct mail, press releases, centralized reservation system, feedback phone line, brochures, ads and on-site promotion.

Three Rivers Park District collaborates with a wide array of community, business and government organizations to promote its facilities, programs and services, and to educate the public about its resources. Three Rivers Park District also works with the Metropolitan Regional Parks System and the State Office of Tourism to leverage shared opportunities for creating awareness and visibility, and works with county agencies to provide information about scholarship programs available to individuals receiving economic assistance.



SECTION VII: Estimated Costs and Funding

Operating costs

In order to maximize operating resources, Three Rivers Park District maintains geographically dispersed work units for maintenance, public safety, and facility and program services. Natural Resources Management services are dispersed on a system-wide basis. Three Rivers Park District monitors all resources needed to provide support services across Three Rivers Park District work units.

Current-year operating costs include an estimate of labor hours expended at the park unit, commodities and contracted services directly charged to the park unit. Administrative and management costs are not included in the estimates. The estimates for future operating budget expenditures, as reflected in this Master Plan, represent anticipated additional costs incurred by District-wide or geographical work units as capital development is implemented.

Maintenance operating costs

The 2007 annual cost for maintaining the existing Rush Creek Regional Trail is \$45,000. At the time the Master Plan is fully implemented and the trail completed to Crow-Hassan Park Reserve, the annual operating and maintenance costs are estimated to increase by \$51,000 to a total of \$96,000 in 2007 dollars.

Due to the cost savings associated with providing maintenance through subregional work clusters, much of the maintenance equipment and tools needed for maintenance of planned facilities are already in place. However, when the trail is fully implemented an estimated one-time cost of approximately \$63,000 is anticipated to purchase site-specific equipment.

Public safety operating costs

The current annual cost for Public Safety services for the existing portion of Rush Creek Regional Trail is approximately \$80,000.

The increase in projected annual operating costs for Public Safety services is minimal. Staffing will be assigned from within the existing Public Safety services complement. Some equipment operational cost increase is projected for an annual increase of \$5,300. There is an estimated one-time cost of \$27,000 for trail patrol vehicles in 2007 dollars.

Natural resources operating costs

The current annual cost for Wildlife Operations on the Rush Creek Regional Trail is minimal and estimated at \$1,000. The prairie units are burned every third year, but units are inspected and managed to control exotic species annually.

The current annual costs for the Water Resources Management operating Rush Creek Regional Trail is approximately \$250 for periodic inspections of culverts and erosion problems.

The current annual operating cost for Forestry and Horticulture Operations for the Rush Creek Regional Trail is approximately \$12,000. These funds cover the costs for Shade Tree Management activities including oak wilt control, small tree/shrub planting projects and landscape maintenance work.

Additional annual natural resource operating costs associated with the trail corridor from Elm Creek to Crow-Hassan Park Reserves are dependent on the amount and type of land acquired by Three Rivers Park District for that segment.

Program and facility services operating costs

There are no program and facility services operating costs associated with the development or operation of the Rush Creek Regional Trail.

Acquisition Costs

Acquisition strategies for the land needed for locating the trail will include direct purchase, direct purchase with resale of land not required for the trail, permanent easements, donations and negotiations with cities and developers. Consequently, it is very difficult to accurately project the total acquisition costs associated with development of the trail from Elm Creek Park Reserve to Crow-Hassan Park Reserve.

Assuming an average corridor width of 100 feet to include protection of regionally significant natural resources along the trail corridor, the acquisition land value will be between \$8 to \$16 million.

Development Costs

Trail development will include the cost to prepare the site, construct bridges, add tunnels and modify drainage patterns where necessary, pave the trail and install signage, striping and landscaping. The total estimated development cost for the Rush Creek Regional Trail in 2007 dollars is \$7,119,000. A detailed cost estimate is attached in Appendix C.

Summary of Expected Costs

| Cost Category | One-time expected cost | Annual expected costs upon trail completion |
|-------------------|-------------------------------------|---|
| Maintenance | \$63,000 | \$96,000 |
| Public Safety | \$27,000 | \$85,300 |
| Natural Resources | \$0 | \$13,250 |
| Acquisition | \$8,000,000 to \$16,000,000 | N/A |
| Development | \$7,119,000 | N/A |
| TOTAL | \$15,209,000 to \$23,209,000 | \$194,550 |

Table 8: Final Acquisition and Development Estimates in 2007 Dollars ⁽¹⁾

(1) 2007 Dollars

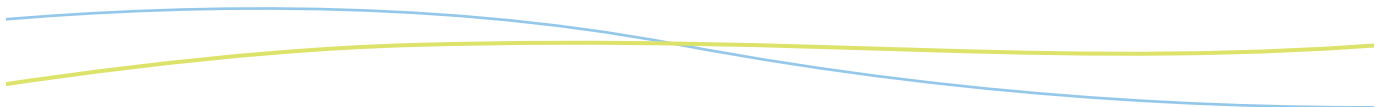
Funding sources

Annual operating costs are funded through Three Rivers Park District's General Fund Budget. The primary source of funds is property tax, with some revenue received from the State of Minnesota as part of the Operations and Maintenance Fund allocations from the Council. Three Rivers Park District's Park Maintenance and Rehabilitation Fund, which includes revenues allocated to Three Rivers Park District from the State of Minnesota Lottery-in-Lieu of funds source, as well as Three Rivers Park District general obligation bonds may fund a portion of the annual rehabilitation costs.

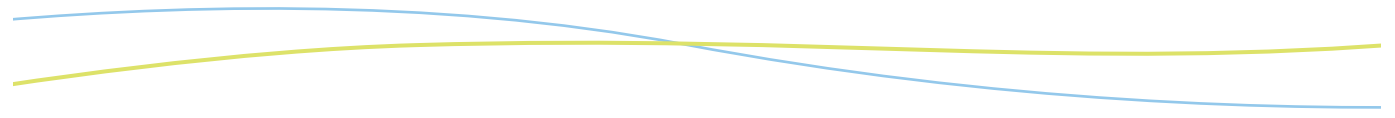
The Council and State of Minnesota provide funding for acquisition, development and redevelopment projects through the Regional Parks CIP. The development proposed in this Master Plan may obtain funding through the Regional Parks CIP, through Three Rivers Park District bonds, donations and/or other funding sources available at the time of development.

Additional funding opportunities through federal, state and county programs will be solicited when applicable.

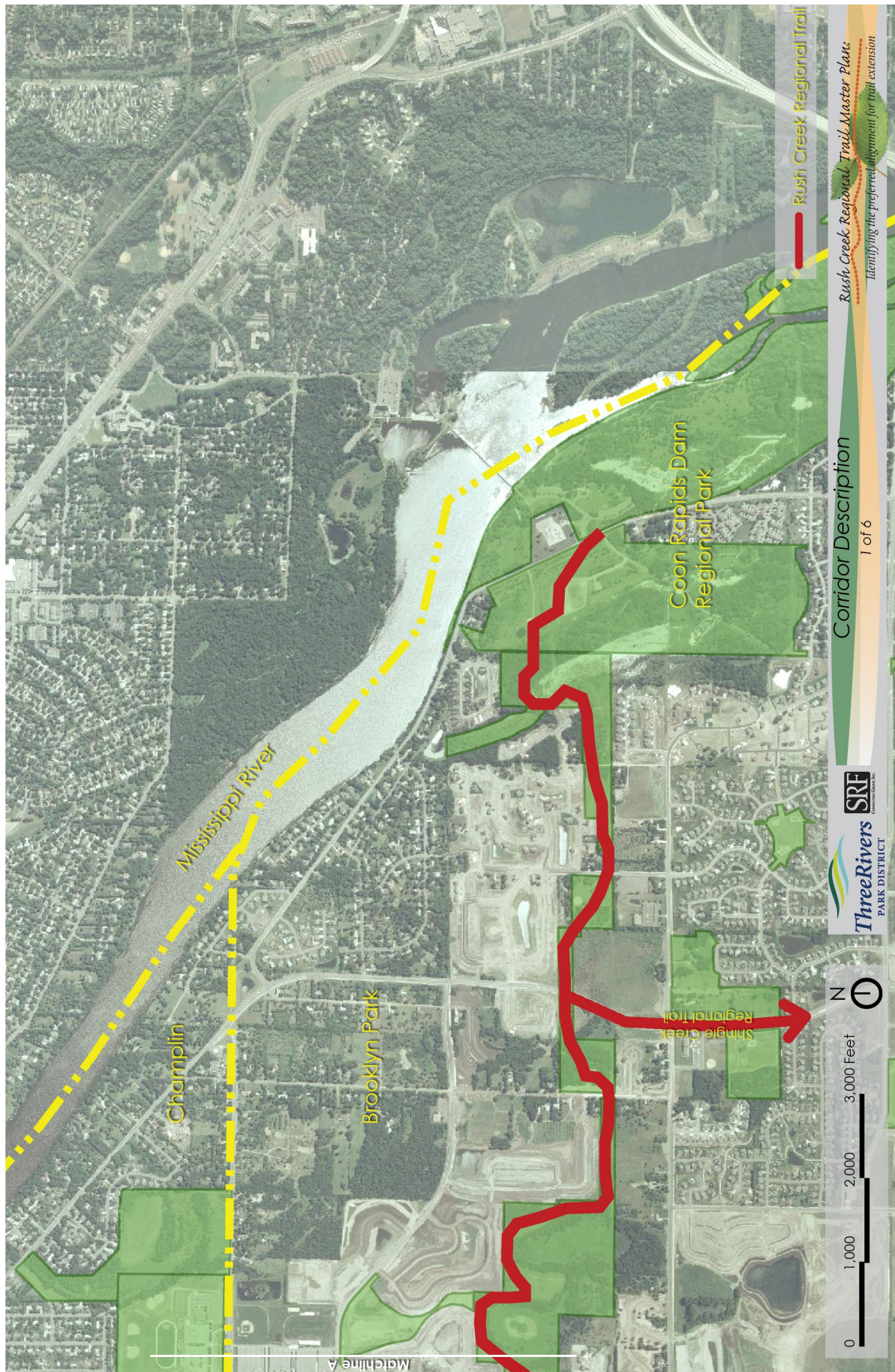
All operating costs and associated staff/equipment are subject to the annual operating budget preparation process administered by the Superintendent and are considered formally by the Board of Commissioners.

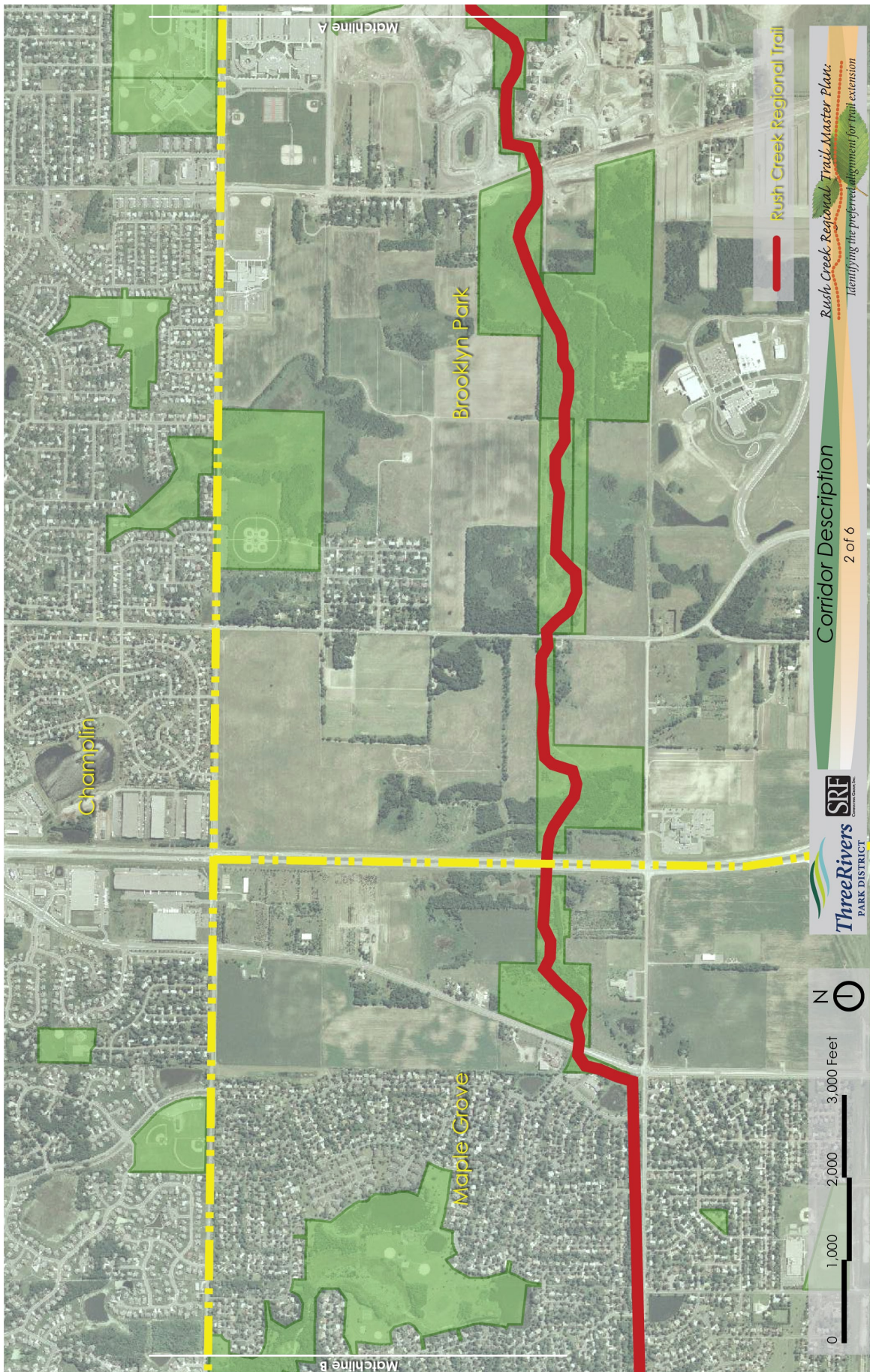


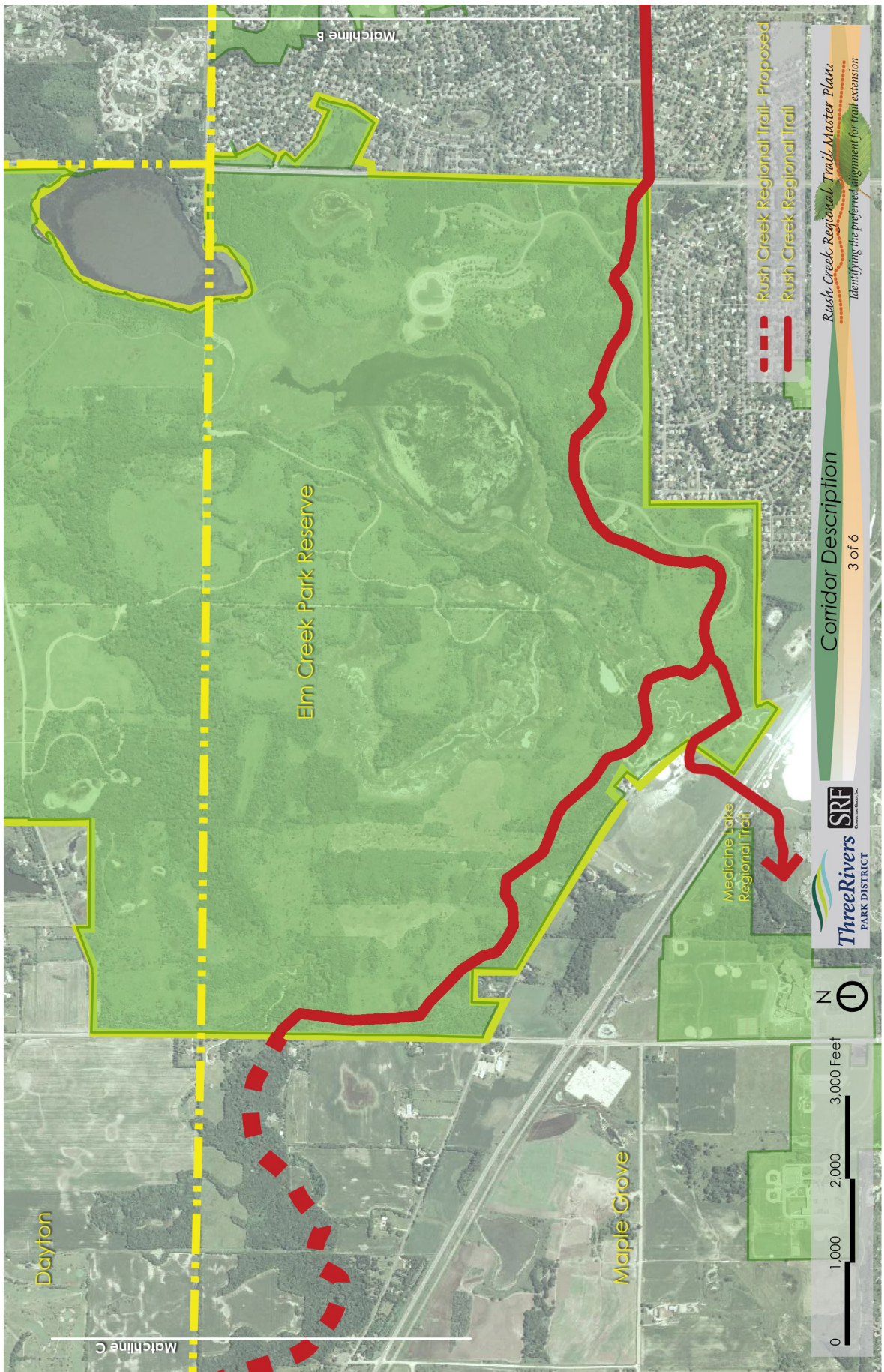
APPENDICES



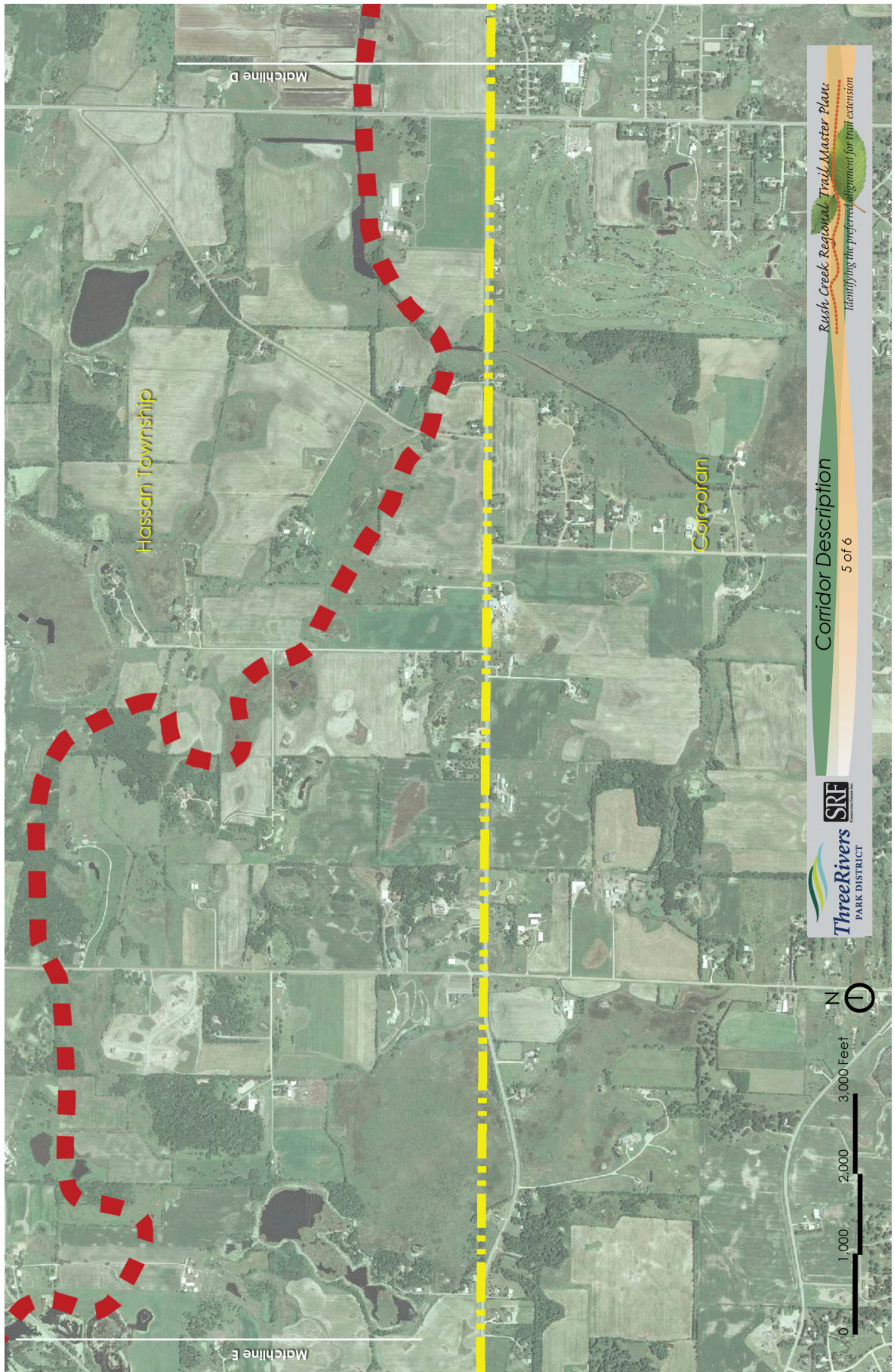
APPENDIX A: Trail Plans

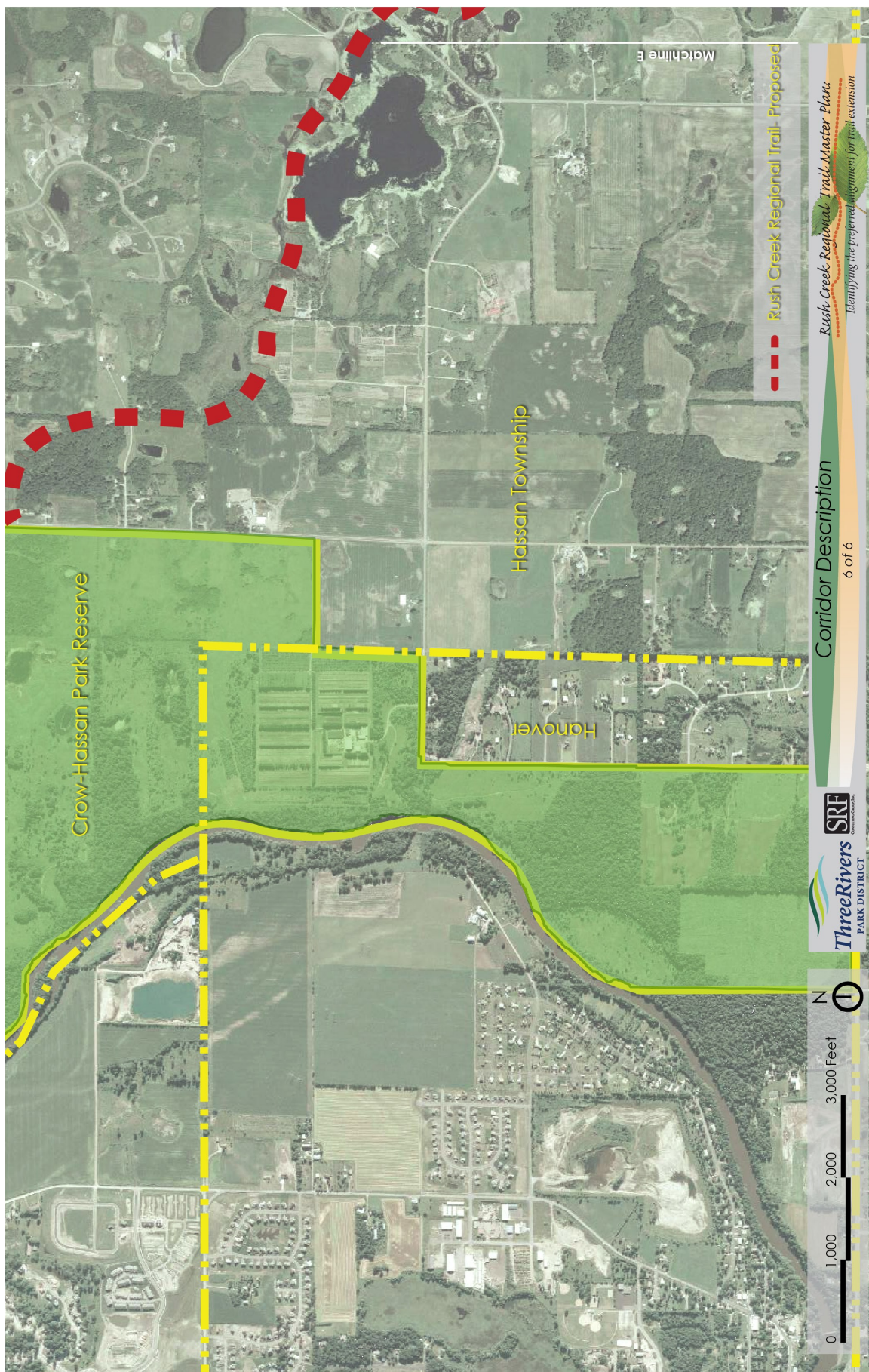












APPENDIX B: Wetland Descriptions

| Wetland Type | Soil | Hydrology | Vegetation | Common Sites |
|--------------|--|--|--|--|
| 1 | Usually well-drained during much of the growing season | Covered with water or waterlogged during the variable seasonal periods | Varies greatly according to season and duration of flooding from bottomland hardwoods to herbaceous plants | Upland depressions, bottomland hardwoods (floodplain forests) |
| 2 | Saturated or nearly saturated during most of the growing season | Usually without standing water during most of the growing season but waterlogged within at least a few inches of the surface | Grasses, sedges, rushes, various broadleaved plants | May fill shallow basins, sloughs or farmland sags; may border shallow marshes on the landward side and include low prairies, sedge meadows and calcareous fens |
| 3 | Usually waterlogged during the growing season | Often covered with 6" or more of water | Grasses; bulrushes; spikerush; and various other marsh plants, such as cattail, arrowhead, pickereralweed and smartweed | May nearly fill shallow lake basins or sloughs; may border deep marshes on landward side, commonly as seep areas near irrigated lands |
| 4 | Usually covered with 6" to 3' or more of water during the growing season | Usually covered with 6" to 3' or more of water during the growing season | Cattail; reed; bulrush; spikerush; and wild rice; open area may have pond weed, duckweed, waterlily, and spatterdock | May completely fill shallow lake basins, potholes, limestone sinks and sloughs; may border open water in such depressions |
| 5 | Inundated | Usually covered with less than 10-foot-deep water; includes shallow ponds and reservoirs | Fringe of emergent vegetation: pond weed, duckweed, waterlily and spatterdock | Shallow lake basins and may border large open water basins |
| 6 | Usually waterlogged during the growing season | Often covered with as much as 6" of water; water table is at or near the surface | Includes alder, willow, buttonbrush, dogwood and swamp privet | Along sluggish streams, drainage depressions and occasionally on floodplains |
| 7 | Waterlogged within a few inches of the surface during the growing season | Often covered with as much as 1' of water; water table is near the surface | Hardwood and coniferous swamps with tamarack, northern white cedar, black spruce, balsam fir, balsam poplar, red maple, and black ash; deciduous sites frequently support beds of duckweed and smartweed | Mostly in shallow ancient lake basins, old riverine oxbows, flat terrains and along sluggish streams |
| 8 | Usually waterlogged during the growing season | Water table at or near the surface | Woody, herbaceous or supporting a spongy covering of mosses; typical plants are heath shrubs, sphagnum mosses, sedges, leatherleaf, Labrador tea, cranberry and cottongrass; may include stunted black spruce and tamarack | Mostly on shallow glacial lake basins and depressions, flat terrain, along sluggish streams |

APPENDIX C: Detailed Cost Estimate

ENGINEER'S ESTIMATE: Rush Creek Regional Trail- DRAFT (2007 construction dollars)

| NOTES | ITEM NUMBER | ITEM DESCRIPTION | UNIT | TOTAL ESTIMATED QUANTITY | EST. UNIT PRICE | TOTAL ESTIMATED COST |
|-------|-------------|---|----------|--------------------------|-----------------|-----------------------|
| | | GRADING / REMOVALS | | | | |
| 1 | 2021.501 | MOBILIZATION | LUMP SUM | 1 | \$145,000.00 | \$145,000.00 |
| | 2101.501 | CLEARING | ACRE | 66 | \$3,500.00 | \$231,000.00 |
| | 2101.506 | GRUBBING | ACRE | 66 | \$3,500.00 | \$231,000.00 |
| | | ROCK CONSTRUCTION ENTRANCE | EACH | 6 | \$2,100.00 | \$12,600.00 |
| | | TREE / BRUSH TRIMMING | HOUR | 60 | \$105.00 | \$6,300.00 |
| | 2104.501 | REMOVE CURB AND GUTTER | LIN FT | 60 | \$8.50 | \$510.00 |
| | 2104.505 | REMOVE BITUMINOUS PAVEMENT | SQ YD | 14 | \$7.00 | \$98.00 |
| | 2104.513 | SAW CUT BITUMINOUS PAVEMENT | LIN FT | 60 | \$6.30 | \$378.00 |
| 2 | 2105.501 | COMMON EXCAVATION | CU YD | 26,000 | \$8.50 | \$221,000.00 |
| 2 | 2105.507 | SUB GRADE EXCAVATION | CU YD | 26,000 | \$12.50 | \$325,000.00 |
| | 2105.525 | TOPSOIL BORROW (LV) | CU YD | 8,500 | \$25.00 | \$212,500.00 |
| | | SUBTOTAL: GRADING / REMOVALS | | | | \$1,385,386.00 |
| | | PAVING | | | | |
| | 2211.503 | AGGREGATE BASE (CV) CLASS 5 | CU YD | 13,000 | \$30.00 | \$390,000.00 |
| | 2340.501 | BITUMINOUS WEAR MIX 2340, TYPE 41 | TON | 10,770 | \$55.00 | \$592,350.00 |
| | 2531.501 | TRAIL CURB RAMPS | LIN FT | 60 | \$21.00 | \$1,260.00 |
| | | SUBTOTAL: PAVING | | | | \$983,610.00 |
| | | BRIDGES | | | | |
| | | PRE-FABRICATED TRAIL BRIDGE FOR COUNTY ROAD 81 CROSSING | EACH | 1 | \$1,500,000.00 | \$1,500,000.00 |
| | | PRE-FABRICATED TRAIL BRIDGE FOR HIGHWAY I-94 CROSSING | EACH | 1 | \$1,500,000.00 | \$1,500,000.00 |
| | | SUBTOTAL: BRIDGES | | | | \$3,000,000.00 |
| | | DRAINAGE | | | | |
| | 2501.511 | 18" CS PIPE CULVERT | LIN FT | 1,100 | \$21.00 | \$23,100.00 |
| | 2501.515 | 18" GS APRON | EACH | 44 | \$157.00 | \$6,908.00 |
| | 2511.505 | HAND-PLACED RIPRAP | CU YD | 207 | \$370.00 | \$76,516.00 |
| | | SUBTOTAL: DRAINAGE | | | | \$106,524.00 |
| | | SIGNAGE & STRIPING | | | | |
| | 2563.601 | TRAFFIC CONTROL | LUMP SUM | 1 | \$10,000.00 | \$10,000.00 |
| | 2564.531 | FURNISH AND INSTALL SIGN PANELS TYPE C | SQ FT | 700 | \$52.00 | \$36,400.00 |
| | | MISCELLANEOUS TRAIL SIGNAGE | LUMP SUM | 1 | \$3,640.00 | \$3,640.00 |
| | 2564.602 | PAVEMENT MESSAGE (SPECIAL) - EPOXY | EACH | 12 | \$260.00 | \$3,120.00 |
| | 2564.603 | 4" SKIP LINE YELLOW - PAINT | LIN FT | 14,784 | \$0.52 | \$7,687.68 |
| 4 | 2564.603 | 4" SOLID LINE WHITE - PAINT | LIN FT | 3,000 | \$0.52 | \$1,560.00 |
| | 2564.604 | ZEBRA CROSSWALK WHITE - EPOXY | SQ FT | 3,000 | \$5.25 | \$15,750.00 |
| | | SUBTOTAL: SIGNAGE & STRIPING | | | | \$78,157.68 |
| | | LANDSCAPING | | | | |
| 3 | 2573.502 | SILT FENCE, TYPE PREASSEMBLED | LIN FT | 59,136 | \$5.00 | \$295,680.00 |
| | 2575.501 | SEEDING | ACRE | 27 | \$2,600.00 | \$70,720.00 |
| | 2575.505 | SODDING (TYPE LAWN) | SQ YD | 2,600 | \$6.30 | \$16,380.00 |
| | 2575.523 | WOOD FIBER BLANKET TYPE REGULAR | SQ YD | 470 | \$6.30 | \$2,961.00 |
| | 2575.532 | COMMERCIAL FERTILIZER ANAL. 10-0-10 | POUND | 85 | \$5.25 | \$446.25 |
| | 2575.608 | SEED MIXTURE 30B | POUND | 2,775 | \$5.25 | \$14,568.75 |
| | 2557.501 | BLACK VINYL-CLAD CHAIN LINK FENCING | LIN FT | 1,500 | \$30.00 | \$45,000.00 |
| | | TRAILHEAD | EACH | 2 | \$10,500.00 | \$21,000.00 |
| | | SUBTOTAL: LANDSCAPING | | | | \$466,756.00 |
| | | SUBTOTAL TRAIL ELEMENTS | | | | \$6,020,433.68 |
| | | ALLOWANCE FOR TEMPORARY CONSTRUCTION EASEMENTS | | | | \$15,000.00 |
| | | DESIGN & ENGINEERING (8% of subtotal) | | | | \$481,634.69 |
| | | CONSTRUCTION OBSERVATION AND CONSTRUCTION ADMINISTRATION (10% of subtotal) | | | | \$602,043.37 |
| | | TOTAL | | | | \$7,119,111.74 |

NOTES:

- 1 Includes survey and layout.
- 2 Common and subgrade excavation calculated for 11.1 miles, 12 feet wide, 1 foot deep.
- 3 Assumes the equivalent of one side of the trail for the entire length of the trail.
- 4 Estimate for 4" solid line white - paint is 5% of total trail length.