



Pipestone Active Living Partnership

Pipestone Bicycle and Pedestrian Master Plan

Pipestone, Minnesota

Prepared By

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Pipestone Bicycle and Pedestrian Master Plan

Adopted by the City of Pipestone City Council

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COMMUNITY PLANNING TEAM

The following community leaders, city staff and citizens served on the master planning team:

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Superintendent, Pipestone Area Schools

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Executive Director, Chamber of Commerce & Visitors' Bureau

Laurie Ness, Mayor

Director, Pipestone County Medical Center

Scott Swanson

Director, Public Works Department

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Project Coordinator, Pipestone Active Living

PIPESTONE CITY COUNCIL MEMBERS

Harry Hansen

Barbara Heyl

Laurie Ness, Mayor

Fred Portz

Jim Stout

PIPESTONE - A HISTORY INTERTWINED WITH TRAILS

Pipestone's history is intertwined with the creation of trails. Native Americans journeyed across the Plains to quarry pipestone. Euro-American settled the area, transforming Tallgrass prairies to productive farms. Railroads followed, laying down trails of steel rails. A system of roadways evolved, connecting farms to market towns and towns to each other. These various forms of trails allowed Americans to do what they love best – to move.

Like most western towns that were established in the 19th century, Pipestone's street system was based upon a grid pattern. Sidewalks were installed alongside the streets, creating a grid of pedestrian walkways connecting homes to school and church, as well as to the shops and stores downtown. Walking was a way life and paved walks provided a safe and dry route.

By mid-century, America's love affair with the automobile made it easy and fashionable to drive short distances, replacing a walk to the post office or grocery store, with a quick trip there and back. Bicycles, once embraced as an innovative way to get around town, were relegated to serving the needs of children and a minority of economically disadvantaged or unconventional adults. Americans relished their love of cars, and walking became something that only those that couldn't drive or afford gasoline were forced to do.

During the same time period, people's occupations and lifestyles changed. Jobs requiring hard physical labor went from being the norm to involving fewer manual workers often using powered tools. Daily routines for many workers changed from active to sedentary. Hours after work increasingly were filled with passive recreation with each new 20th Century generation embracing a new media – first radio, then television, and finally electronics that varied from laptops to game devices. Connection to nature declined, as leisure time spent inside experiencing media replaced time spent outdoors.

Eating habits changed, as family recipes were replaced by timesaving mixes and boxed foods. America's success in agriculture made calories "cheap", allowing consumers to purchase and consume more food. Two-income families, pressed for time, adopted a new food source, the drive-through lane. Meals



The Pedal Pushers — women's bicycling group

consisting of "hot, salty and lots" replaced Mom's home cooking. Waistlines expanded, making physical activity more difficult. Fit individuals became the exception instead of the norm. American's lack of fitness became a national concern, as costs for health care related to people's lifestyles and lack of activity ballooned. Leaders in health care and local communities called for action, to create healthy lifestyles and active living.

PIPESTONE ACTIVE LIVING VISION

Pipestone is a community that cares about health and fitness by assuring all generations the opportunity to live active lifestyles.

Prevention Minnesota, an initiative launched in 2006 by Blue Cross Blue Shield of Minnesota, was established to address Minnesota's leading killers, by targeting tobacco use, heart disease and preventable cancer. The program examined the root causes of these preventable diseases and established four goals, with the intent of dramatically improving the health of Minnesotans. Increasing physical activity by 50%, defined as ensuring all Minnesotans were moderately active, could result in 30% fewer cases of heart disease as well as reductions in the frequency of strokes, colon cancer, osteoporosis and other health problems. Pipestone was one of eight communities selected to receive an award from Blue Cross to participate in the Active Living Minnesota program.

CITIZEN ACTIVISTS AND ADVOCATES

Pipestone Active Living (PAL) was formed to engage community organizations and civic leaders in developing a vision that incorporates active living principles, making physical activity a part of everyday life. Each of PAL's eleven partner organizations serves on the Active Living board. The Board appointed a subcommittee to investigate increasing bicycling and walking opportunities in the community. The committee, appropriately named, The Pathfinders, embraced their charge, and developed several concepts showing possible trail routes and other improvements to encourage active transportation in and around Pipestone.

The Partnership hosted several educational events, where community and civic leaders gathered to develop a vision of how to take the committee's concepts and move them forward to create a plan of action. In 2010, PAL sponsored a local "Complete Streets" workshop, which helped local leaders understand how city development and public works projects can contribute to a more walkable and bikeable community. Earlier in 2010, the Board determined that creating a community bicycle and pedestrian master plan would help refine the citizen trail planner's concepts into a formal document. And that document could serve as the community's road map for creating a community laced with walks and trails.



PIPESTONE ACTIVE LIVING PARTNERS

City of Pipestone
Pipestone County
Pipestone County Medical Center
Pipestone Area Schools
Southwest Health & Human Services
Pipestone Chamber of Commerce
Pipestone National Monument
Keepers of the Sacred Tradition
of Pipemakers
Minnesota West Community &
Technical College
Pipestone Blandin Leadership Group
Pipestone Ministerial Association
Friends of the Casey Jones Trail

COMMUNITY BENEFITS OF ACTIVE TRANSPORTATION

Promoting active lifestyles is a key component in creating healthy and vibrant communities. Active transportation involves all forms of human-powered movement. Walking, riding a bicycle, using in-line skates, running, jogging or using a self-powered wheelchair are all modes of active transportation.

Each mode places the individual at the center of the activity controlling their speed, direction and destination.



Active living is a year-round experience

Active transportation immerses the participant in the outdoors, allowing them to sense warmth or cold, the fragrance of lilacs in bloom or the blast of the winter wind. Seasonal changes in the weather will affect the number of persons who engage in active transportation. This makes having the option to take a walk, go for a stroll, have a quick a run, or do a bike ride that more important. In Pipestone, good weather is to be embraced and celebrated by going outside to enjoy it. Ensuring that the opportunities to engage in active transportation exist must be a community priority.

Getting people on their feet and moving around town has other benefits. It can help to create a sense of community. Interaction becomes possible and more likely. Greeting others becomes part of the act of passing one another on the street. Bicyclists stop and compare both bikes and their most recent rides. Joggers and runners move in packs, enjoying their run and running mates. Active transportation can replace driving for pleasure, long one of America's largest recreational past time, with a new passion for being outdoors, feeling one's muscles at work and enjoying interactions with other townsfolk and neighbors.

Incorporating active transportation into the lifestyles of people of all ages and abilities should be a community goal. Parents share the responsibility of conducting a walking school bus helps younger children get to school safely. Creating Safe Routes to School can encourage older students to get themselves and their friends to school. Ensuring that a continuous system of walks occurs throughout each neighborhood in town makes it easier for adults, and everyone else, to walk to the store, take the dog for a walk, or drop something off at a nearby friend's home. Having bicycle-friendly streets allows bicyclists of all ages to use their bikes for transportation as well as recreation.

ACTIVE LIVING

The Pipestone Active Living Partnership promotes active living through advocating for sound policy, educating about healthy lifestyles, and by coordinating projects, programs, and promotions in order to foster a culture of community among all generations in Pipestone.

TRANSPORTATION VALUE OF WALKS, BIKE ROUTES AND TRAILS

Sidewalks, bike routes and trails expand a community's transportation infrastructure, allowing citizens to select the transportation mode that best works for them. Having a variety of transportation modes allows citizens to evaluate each trip to decide if their schedule allows them to walk or ride a bike instead of driving a motor vehicle. This choice contributes to creating more sustainable communities, allowing individuals to lower their personal transportation costs, reduce their carbon footprint, and use their transportation needs to become more physically active.

Spreading a community's transportation needs across several modes of movement instead of relying solely on motorized travel can provide important public benefits as well. A reduction in vehicle travel can result in a decreased need for a community to invest in new or expanded streets. Decreasing traffic levels on existing streets can lower the cumulative impact that vehicles have on pavement and decrease maintenance expenses. Reducing the daily total number of cars traveling on community streets will decrease traffic congestion providing for a safer and more pleasant driving experience for the remaining motorists. This translates into lower levels of pollution, better air quality and a less noisy urban environment.



Night on the Casey Jones Trail

Identifying The Pieces

Creating active lifestyles involves incorporating physical activity into everyday routines. Providing the public infrastructure needed – walks, bike routes and trails – to encourage active transportation falls to the community at-large. City streets must be flanked by a system of sidewalks that form a network extending throughout town. Encouraging the City of Pipestone to implement its "Complete Streets" policy will ensure that all new streets and reconstruction of existing streets will include walks and other features to provide accessible and safe routes for pedestrian along the City's street network. By incorporating "Complete Streets" concepts into new public projects, the needs of all citizens will be served.

City streets should also provide safe passage for bicyclists. Most of Pipestone's streets have very low or low Average Daily Traffic (ADT) levels. This makes these streets attractive to younger or less experienced bicyclists to use, to safely get around town. More experience bicyclists may prefer to ride more direct routes that include riding on busier streets. To encourage citizens to use bicycles for transportation and to raise the public's awareness of bicycles as a mode of transportation, at least one pair of cross-town bike routes should be developed. Signing these routes will make motorists more aware of the possible presence of bicyclists on those streets. It will encourage an increased use of bikes for transportation, contributing to a more active community.

Where there are higher traffic levels, like along US 75 near the Industrial Park and on North Hiawatha Avenue, creation of separate, bicycle and pedestrian trails is appropriate. These off-road trails, commonly called, shared-use paths, can provide a non-motorized option to access to areas of town where people work or where community destinations are located. Providing a less expensive option for workers to travel to work allows them to evaluate their transportation options and select the one that best serves their needs.



Shared-use paths can also serve community recreational needs, providing scenic routes for citizens and out-of-town visitors to enjoy and reconnect with nature. Such trails allow individuals to experience the local landscape, while engaging in a recreational activity. Including both “home to work” and recreational trails in a community’s transportation portfolio makes a community more attractive to businesses considering relocating there, as well as to potential new residents.



Raising the local residents’ awareness regarding the opportunities for active transportation is a necessary early step in creating an active community. Conducting a community information and education campaign is one method to raise awareness. As citizens in Pipestone embrace more active lifestyles, providing information and education to local motorists is an important element in providing streets that are safe for biking. Community events like “bike rodeos” can educate young riders on the safe operation of bicycles and the importance of wearing safety helmets. Including traffic safety information for pedestrians, bicyclists and motorists should be part of the campaign.

Putting The Pieces Together

Implementing active lifestyles will require action from all members of the Pipestone community. Community leaders, many who serve on the PAL board, need to understand and embrace the contents of this plan. Encouraging the City Council to implement the Pipestone Bicycle and Pedestrian Master Plan and Pipestone’s “Complete Streets” policy are the next important steps. Establishing a partnership between local elected officials, government staff, business and civic leaders, and other members of the community is critical to long-term success. Working together, this group can leverage resources to implement the plan, one project at a time.



Pipestone Bike Rodeo

This master plan should be viewed as a work in progress. It provides a vision of a future Pipestone that includes complete streets, bike routes and other trails. Transforming that vision to reality rests in the hands of the leaders and citizens of Pipestone.

GOALS FOR PIPESTONE'S PEDESTRIAN AND BICYCLE SYSTEM

Goals define the “big picture” accomplishments that the community expects to achieve by implementing the master plan. Unlike objectives, whose completion is relatively easy to assess, goals serve to incorporate broader and long-term values into the community vision. During the design of each walk, trail or bike route project, as well as during the development of any community activities related to walking or bicycling, a review of master plan’s goals should occur. Periodically, the community as a whole should review the master plan’s goals to ensure that they reflect the consensus vision of local residents.

Goal #1: Ensure that opportunities exist that allow all Pipestone citizens to engage in active transportation as part of daily active living. Since weather will decrease participation seasonally, a variety of options for walking and bicycling should be available to community residents.

Goal #2: Ensure that Pipestone’s pedestrian and bicycling system provides a safe place to walk and bicycle for residents of all ages

Goal #3: Ensure that a community-wide system of walks, trails and bicycle friendly routes exists so citizens can walk and bicycle to and through all areas of Pipestone

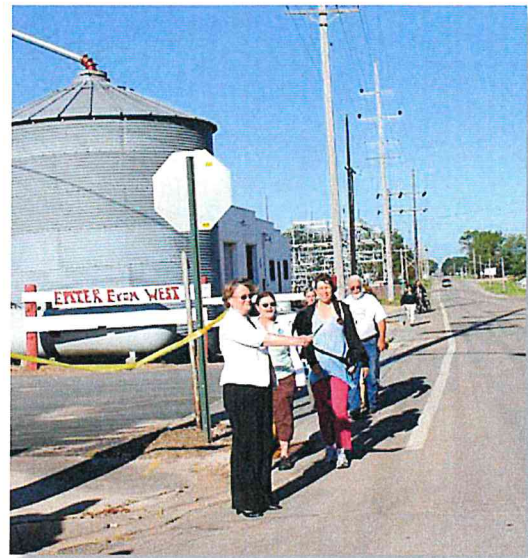
Goal #4: Ensure that the City of Pipestone implements the adopted “Complete Streets” policy to guide inclusive transportation design for all public works projects and within all new developments in town

Goal #5: Ensure that safe ways to educational facilities exist for students who attend Pipestone’s three schools and Minnesota West Community and Technical College

Goal #6: Ensure that trails are accessible to visitors of all abilities and comply with the Americans with Disabilities Act



Night on the Casey Jones Trail



4th Street NW Bike Lane ribbon cutting

COMPONENTS OF A COMMUNITY BICYCLE AND PEDESTRIAN SYSTEM

Pedestrian and bicycle routes need to run to where people want to go. Like streets and highways, non-motorized routes need to take people to their desired destinations. Once destinations are determined, the routes needed to connect them can be defined.

Determining Destinations and Routes

A majority of trips have a destination. Destinations may include work, school, church, Post Office, store, local park, or home of a friend. In all cases, travelers select their route based upon the place they are starting at, and the location where they want to end up. Some trips may include multiple destinations, but the process of selecting routes between those destinations is the same. Determining reasonable routes for community bikeways, walks and trails is based upon the same rationale, where do people want to and how can we safely get them there?

During the community input phase of this planning process, participants were asked to identify destinations in Pipestone that are important to the community and should be served by pedestrian and bicycle routes. A list of the destinations that were identified in all the meetings includes:

- Schools
- Neighborhoods
- Parks
- Casey Jones Trail
- Downtown
- Highway commercial areas
- Industrial Park
- MnWest college campus
- Pipestone National Monument
- RV Campground on North Hiawatha Avenue
- Hiawatha Club property
- Indian Lake
- Cemeteries



The Square

After identifying potential destinations, participants were asked to identify critical connections between the various destinations on the list. The following connections were identified as being important to the community:

- Schools and adjacent neighborhoods where students live
- Schools to schools
- Parks to other parks
- MnWest Campus to Downtown

- National Monument to Downtown
- Casey Jones Trail to Downtown
- 8th Avenue East and Highways 23/75 commercial areas to Downtown
- Hiawatha Club property to Downtown
- RV campground to Downtown
- RV campground to Casey Jones Trail
- Indian Lake area to town
- Industrial Park to residential areas
- Future community garden site to residential areas

These routes, if implemented, will become “link trails” which are linear trails connecting two or more destinations together. These link trails could consist of existing sidewalks, on-street bike routes, separate shared-use paths, or some combination of these routes.

During the discussion on routes, community members identified two potential loop trails that could serve recreational or transportation purposes. Like a link trail, a loop trail can use existing sidewalks, on-street bike routes, separate shared-use paths, or some combination of these routes. The following potential loop trails were identified:

County Road Loop – route beginning at Highway 30, extending south on 70th Avenue (8th Avenue SW) to 91st Street, east to 80th Avenue and then north to Highway 30. The south walk of The Square can serve as final portion of this loop.

National Monument/MnWest campus/Indian Lake Loop – route beginning at 4th Street North and North Hiawatha Avenue extending north to 121st Street, west and south on 121st Street to 111th Street, east on 111th Street to 8th Avenue NW, south to 4th Street NW and east on 4th Street NW to Hiawatha Avenue.



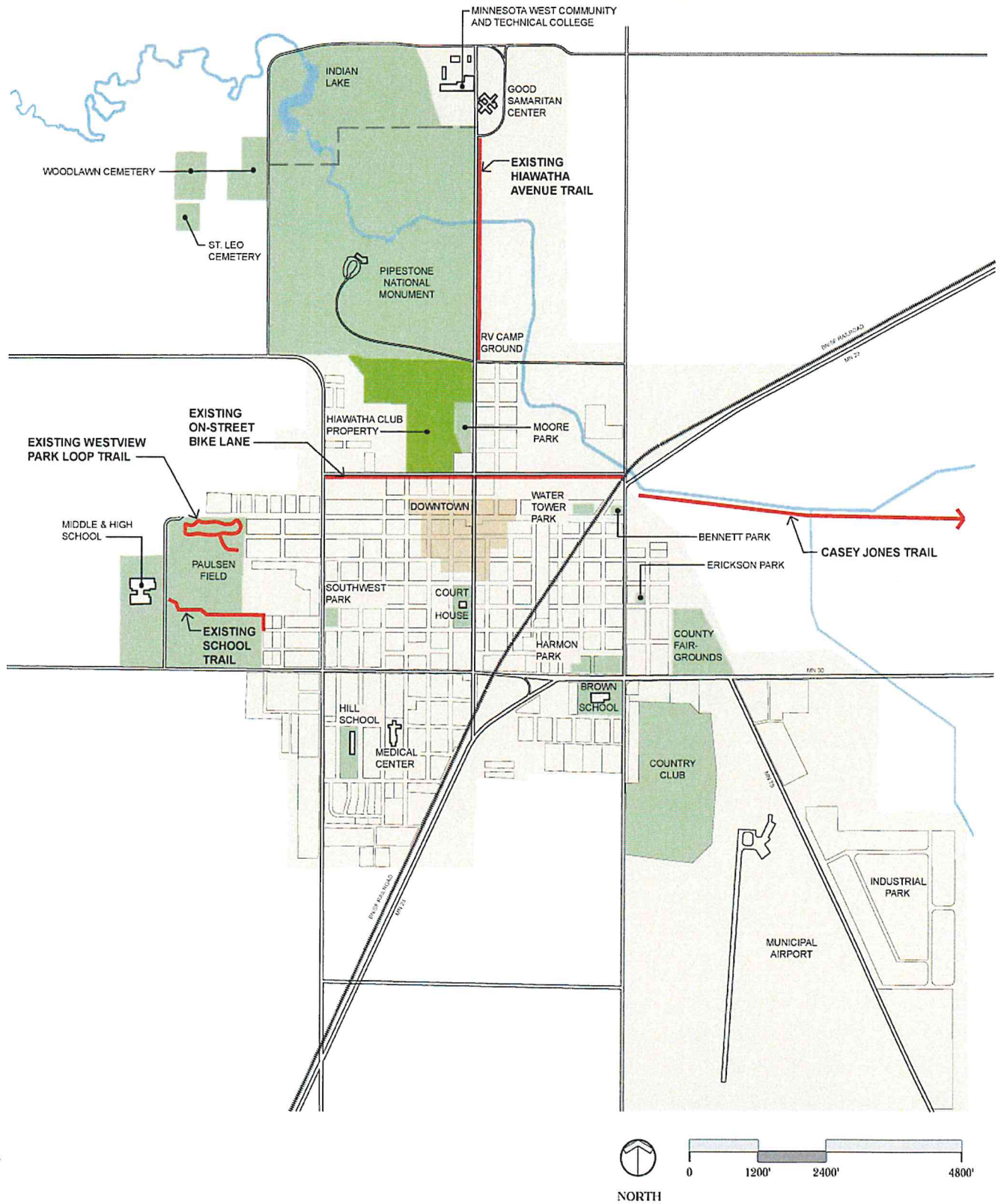
The Reynolds Family

Community members felt that each of these loops will provide trail visitors with a high-quality experience through two different rural areas adjacent to town. They felt that development of these trails would encourage greater recreational use of trails in the Pipestone area. Several runners and bicyclists commented that they already use the county road loop. All of them commented that 80th Avenue is fairly narrow, and can be dangerous if traffic is present when they are running or riding on the road. During one meeting, a person who lives south of town and drives this road daily made the same comment from the perspective of a motorist.

Of the two trails, a larger segment of community members voiced support for the loop trail around the Monument and Indian Lake. Citizens felt this trail will appeal to walkers, runners and bicyclists. Many noted that the North Hiawatha Avenue portion of the trail could provide a transportation function, since it would better connect the center of town to the Good Samaritan Center and the MnWest campus. Advocates felt that this trail will be attractive to tourists visiting the National Monument, as well as guests at the RV campground. Indian Lake was often mentioned as a stopping point along the trail. The National Park Service (NPS) is taking a more active role in assisting the Minnesota Department of Natural Resources to manage that area. NPS intends to install several interpretive wayside exhibits near Indian Lake, explaining the ethno-cultural landscape within the Monument that is visible from that location.



Pipestone quarry at Pipestone National Monument



Existing Trails and Community Destinations

Complete Streets

During several of the meetings and the community open house, the topic of “Complete Streets” was discussed. A Complete Streets seminar was held in Pipestone in early November 2010 and many community leaders, government staff and other citizens attended. Citizen support for a Complete Streets policy existed in the community.

The City of Pipestone adopted a Complete Streets policy in February 2011 to ensure that non-motorized transportation needs are incorporated into all future public works projects, as well as required in all future private developments occurring in Pipestone’s planning and zoning jurisdiction.

Analysis of Community Input

The master planning team analyzed information gathered during the community input phase, to determine the type of pedestrian and bicycle improvements that could best meet Pipestone’s non-motorized needs. The following items were determined to be important in creating an active community:

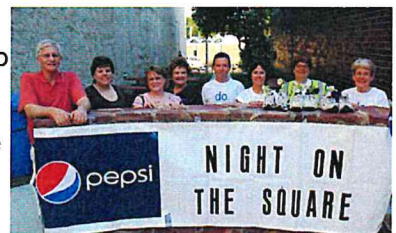
PRESERVE the current sidewalk grid that extends throughout most of Pipestone. Require that property owners actively maintain existing walks, including snow removal in the winter

REQUEST that the Pathfinders group further refine the gap analysis they developed, that documents streets that lack sidewalks. Evaluate each gap identified to determine if a need exists for a walk in these locations. Request that the City Engineer provide an estimate to construct walks at the identified locations. Prioritize a list of locations, based upon a combination of need and probable cost

ADVOCATE that the City implement its adopted “Complete Streets” policy

ENSURE that the PAL safety campaign planned for 2011 includes a strong component on bicycle safety, to educate both riders and motorists

WORK WITH the Minnesota Department of Transportation to improve pedestrian and bicyclist safety on area highways and to increase the number of marked pedestrian crossing on state highways that pass through the community



ENCOURAGE the City of Pipestone and Pipestone County to continue working in partnership to ensure that county-maintained roads adjacent to town can safely accommodate motorized and non-motorized uses

WORK IN partnership with local National Park Service staff to develop trails and walks that better connect the town and Monument

ENHANCE the visitor experience on “The Square” walking trail by working with business owners along 8th Avenue East to better define the area sidewalks, create an alternate route along 7th Avenue East, and create a “Half Square” route running along South Hiawatha Avenue, to offer visitors a shortened route

DETERMINE possible routes for a number of link trails in Pipestone that connect destinations

DETERMINE a possible route for a link trail to provide safer and more convenient access to the Casey Jones Trail

PROVIDE at least one north-south and one east-west bike route extending across town, to increase public awareness of bicycles use on public streets and to encourage Pipestone residents to use bicycles for intra-city transportation



Silver Sneakers Program. Photo Courtesy of Pipestone Publishing Co.



CREATE a South Country loop trail that includes a combination of shared-use paths along busier county roads and an on-road trail for the one very low-volume road

CREATE a loop trail that is a shared-use path that begins in Moore Park, runs north to the National Monument, incorporates the existing North Hiawatha Avenue trail, extends north to the MnWest campus, then west to Indian Lake and community cemeteries, then south to and through the Hiawatha Club property to return to Moore Park

IDENTIFY locations in Pipestone where “indoor walking trails” can be established to ensure that citizens of all ages and abilities can safely walk during the winter

and inclement weather

CREATE a committee including PAL, Senior Center, Good Samaritan Center and City Parks and Recreation to provide recreational programming related to walking for older adults and safe places for elderly adults to walk. Study the feasibility of how to provide cost-effective transportation to and from walking classes.

OPPORTUNITIES AND CONSTRAINTS ANALYSIS

In every community, opportunities exist to assist in the development of pedestrian and bicycle trails. These may include unused corridors where walks or trails can easily be developed, such as beside a creek or along an abandoned railroad line. Similarly, every community has constraints which hinder or impede the development of pedestrian and bicycle trails. Often these constraints include barriers, such as narrow street rights-of-way, discontinuous street patterns, railroads or busy streets and highways. Pipestone has a mixture of opportunities and constraints.

Opportunities

Abandoned railroad lines – An abandoned railroad line exists north of 2nd Street NW/NE, in two locations. The tracks have been removed from these areas. The western segment is about 3 blocks long and occurs west of 8th Avenue NW. The eastern segment is located between North Hiawatha Avenue and 8th Avenue NE.

Unused railroad line – Prins Feed and Grain Company owns an unused rail spur that begins at their elevator complex on 8th Avenue NE and extends southeast to Highway 30.

Pipestone Creek – Pipestone Creek runs along the northern edge of Pipestone.

Low traffic volume streets – Most streets in Pipestone, with the exception of the highways, carry low to moderate levels of traffic. In almost every case, the high traffic volume streets have a parallel low traffic volume street within one to two blocks.

Grid walk system – Most of Pipestone is based upon a grid street layout, and most of these streets have sidewalks along one or both sides.

Level topography – Pipestone is located on flat or gently sloping topography, making it easy to conform to accessibility guidelines in most cases.





Constraints

BN/SF Railroad – The railroad passes through the eastern side of town. Crossing the railroad is restricted locations where a street crossing exists. Not all railroad crossings in Pipestone include pedestrian walks to use to cross the tracks.

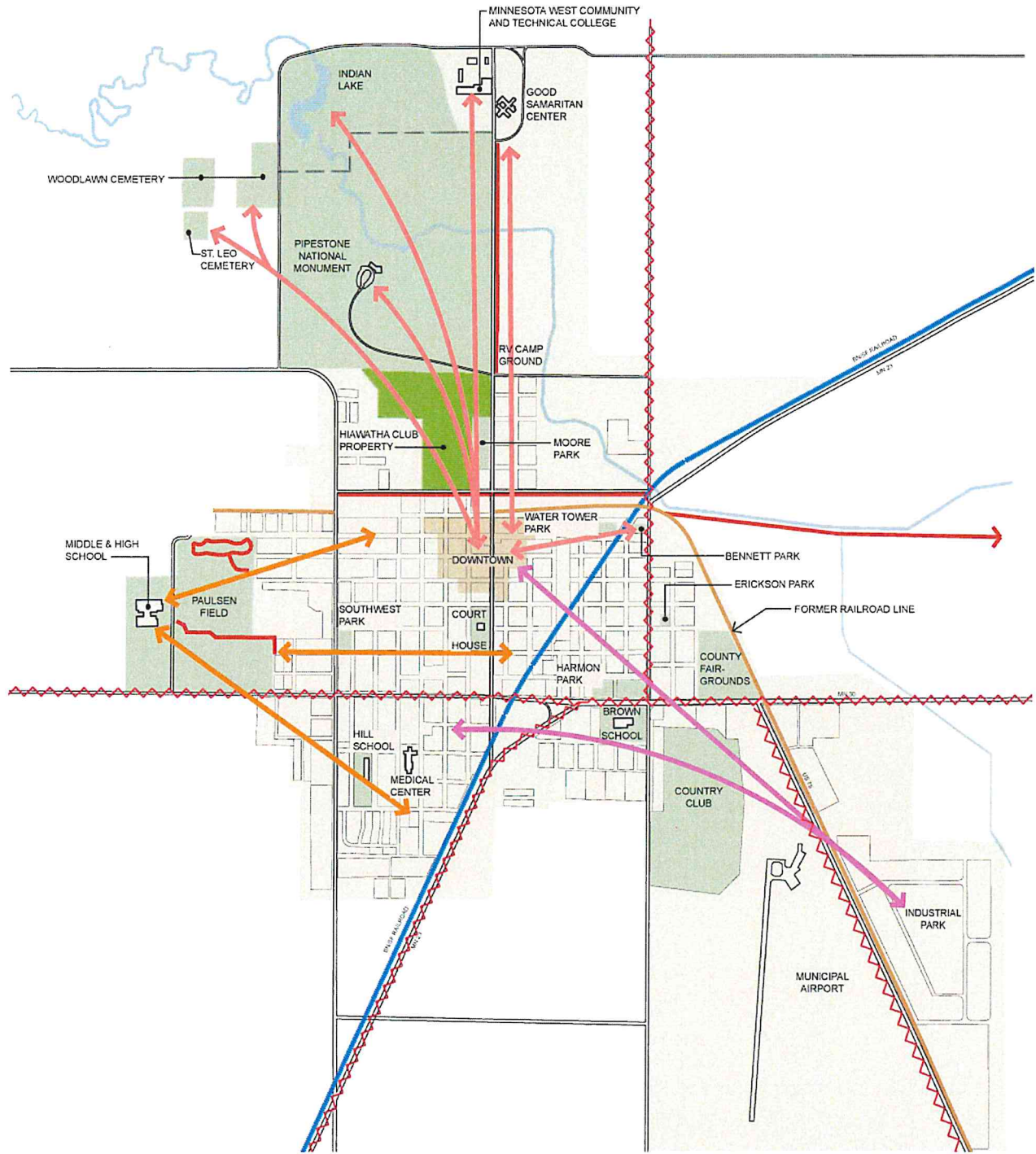
Busy highways – US Highway 75 and Minnesota Highways 23 and 30 pass through town, providing significant barriers to pedestrian and bicycle movement. The danger involved in crossing a busy highway is dependent upon the age and physical ability of persons wishing to cross it, and the intensity of traffic at that time.

Highway intersections with traffic signals – Only one traffic signal exists in Pipestone to control traffic on the highways passing through town. The intersection's location in the town's southeastern corner decreases its utility as a safe pedestrian or bicycle crossing for most residents in town.

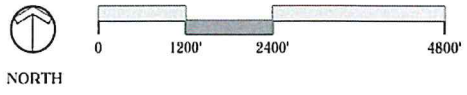
Lack of marked pedestrian crossings along local highways – Few signed and marked pedestrian crosswalk exist along the highways in Pipestone.

New residential areas lack sidewalks – Newer residential areas on the southwestern and southern edge of Pipestone lack sidewalks.

In master planning, the goal is to capitalize on opportunities and develop strategies to minimize the negative impact of constraints. Based on other factors influencing the master plan, not every opportunity will be incorporated into the final master plan. Some constraints can easily be eliminated, such as constructing walks in areas where they are needed but don't exist. In other cases, more significant constraints, such as a railroad or highway can only be mitigated by determining alternatives that minimize their impact of the pedestrian and bicycle system.



- LEGEND**
- EXISTING COMMUNITY TRAIL
 - - - BUSY HIGHWAYS & STREETS
 - EXISTING RAILROAD
 - FORMER RAILROAD LINES



Opportunities and Constraints Analysis

DESIGN STANDARDS FOR PIPESTONE'S PEDESTRIAN AND BICYCLE SYSTEM

Establishing design standards for pedestrian and bicycle improvement projects will result in a more consistent system of walks, bike routes and trails. Pavement types and widths should be consistently applied throughout all of Pipestone's pedestrian and bicycle system. Design of walks, bike routes and trails should also conform to adopted federal and state design standards and manuals. Detailed pavement design (thickness, pavement cross-section and subgrade preparation) should be based upon area soil characteristics and locally accepted design criteria. As public facilities, all pedestrian and bicycles projects must conform to the Americans with Disabilities Act guidelines that have been issued to provide guidance on the design of public projects.

Pavement Types and Widths

The following pavement types and widths will be used when designing various pedestrian and bicycle projects in Pipestone:

Street sidewalks on residential and commercial property – concrete pavement
– width as required by zoning ordinance or Public Works standards

The Square – areas of walk replacement in existing route
– match existing 5'-0" wide concrete pavement unless walk width is being increased due to another trail project
– possible expansion to 8'-0" wide concrete pavement of portions of the trail or the entire trail in the future if pedestrian traffic warrants

Link Trails – separate trail serving as a "shared-use path"
Low use trails
– crushed aggregate with 6-foot minimum width with 2 foot shoulders

City trail standard
– paved 8-foot minimum width with 2 foot shoulders
– increase width if required by funding source, such as Safe Route to Schools
– paved 10-foot width with 2 foot shoulders on trails where heavier walking and biking traffic is anticipated

Loop Trails – separate trail serving as a "shared-use path"
Low use trails
– crushed aggregate with 6-foot minimum width with 2 foot shoulders

City trail standard
– paved 8-foot minimum width with 2 foot shoulders
– increase width if required by funding source
– paved 10-foot width with 2 foot shoulders on trails where heavier walking and biking traffic is anticipated

DESIGN GUIDES AND MANUALS

National and state guides and manuals exist that define best practices in the design and development of pedestrian and bicycle projects. These design guides and manuals provide information on accepted practices.

Guide for the Development of Bicycle Facilities, 1999. American Association of State Highway and Transportation Officials, Washington, DC. www.transportation.org

Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004. American Association of State Highway and Transportation Officials, Washington, DC. www.transportation.org

2010 ADA Standards for Accessible Design, 2010. U.S. Department of Justice, Washington, DC www.ada.gov/2010ADASTandards_index.htm

A Policy in Geometric Design of Highways and Streets, 5th Edition, 2010. American Association of State Highway and Transportation Officials, Washington, DC. www.transportation.org

Manual of Uniform Traffic Control Devices (MUTCD), 2009. Federal Highway Administration, Washington, DC. <http://mutcd.fhwa.dot.gov/>

Minnesota DOT Bikeway Facility Design Manual, 2007. Minnesota Department of Transportation, St. Paul, MN <http://www.dot.state.mn.us/bike/designmanual.html>

The Mn/DOT Bicycle Modal Plan, 2005. Minnesota Department of Transportation, St. Paul, MN <http://www.dot.state.mn.us/bike/pdfs/modalplan.pdf>

Minnesota DOT Road Design Manual – Uniform Design Guideline for Mn/DOT Projects, 2004. Minnesota Department of Transportation, St. Paul, MN www.dot.state.mn.us/design/rdm

Minnesota Manual of Uniform Traffic Control Devices (MN MUTCD), 2005 with 2007 and 2009 Revisions. Minnesota Department of Transportation, St. Paul, MN www.dot.state.mn.us/trafficeng/publ

Other web resources related to walk, trail and bikeway planning and design:

Manuals and Guides for Trail Design, Construction, Maintenance, and Operation, and for Signs <http://www.fhwa.dot.gov/environment/rectrails/manuals.htm>

Designing for Non-motorized Transportation http://www.bikewalk.org/pdfs/fed_nonmotor_design2011.pdf

THE ROUTES

Following the planning meetings, three Loop Trail routes, four Link Trail routes, three Safe Ways To School, and three On-Street Bicycle Routes were defined, including:

Loop Trails

- The Square
 - "The Half Square"
 - The Square – 7th Ave. East Alternate
- Indian Lake Trail
- South Country Trail

Link Trails

- Casey Jones Trail Extension
- Industrial Park Trail
- Historic Downtown Trail
- Creek Trail

Safe Ways To School

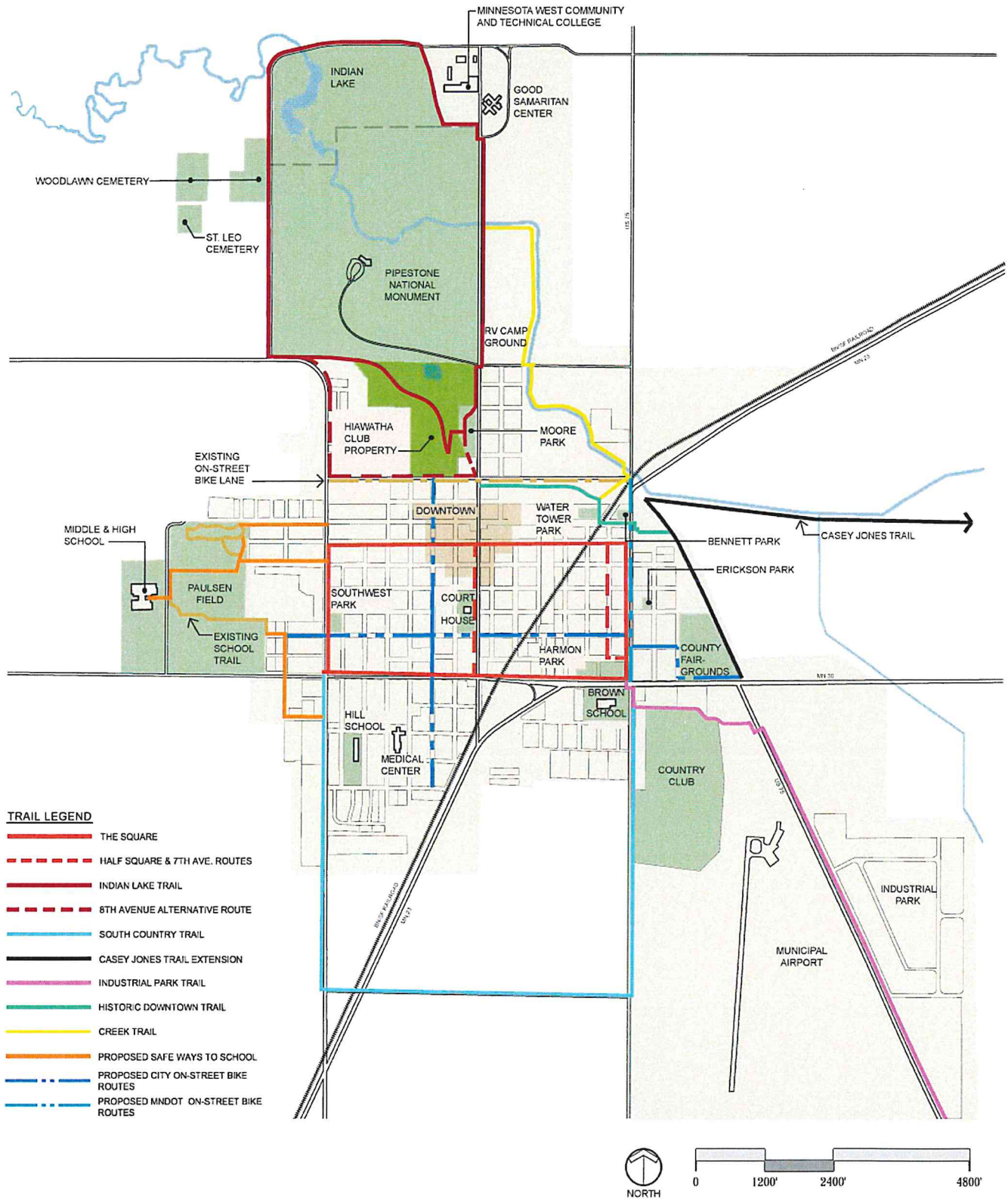
- Existing School Trail
- South Route
- 2nd Streets Route

On-Street Bicycle Routes

- East/West Route: 5th Street South
- North/South Route: 3rd Avenue West
- US Highway 75 Bicycle Lanes

All of the routes have been evaluated and alternative alignments for each route have been examined. The proposed routes were developed to minimize traffic conflicts between motorists and walkers/bikers wherever possible.

Each of the existing and proposed routes is described in detail in this section. The description includes a written narrative and map.



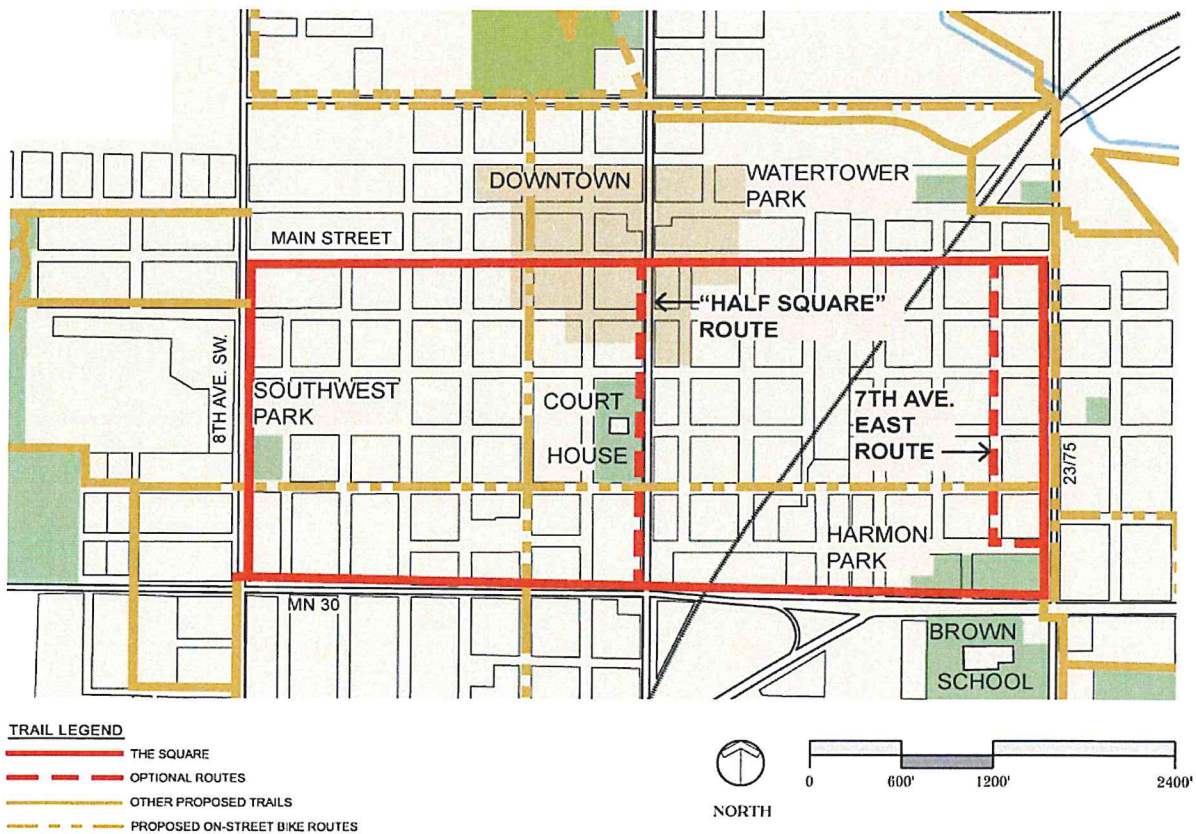
Pipestone Bicycle and Pedestrian Master Plan

LOOP TRAILS

The Square

Description:

The Square is an established walking trail used by the community. It follows sidewalks located along primary streets and highways, forming a loop walking experience. The trail can be accessed at any point along its route. An attraction to walkers is that the entire route is highly visible from the adjacent streets and that it passes through some of Pipestone's busiest commercial areas. It also passes by several city parks. The trail crosses the BN/SF Railroad line on-grade at a signalized crossing on Main Street, and crosses under the railroad when adjacent to Highway 30.



Uses: Walking

Trail Surface: Paved sidewalks paralleling community streets and highways

Trail Type: Loop trail

Length: 2.8 miles

Location: Central area of community

Linkages:

The Square’s central location and east to west extent across the community, allows it to serve as the core walking route for the community. Most residents who live north of Highway 30 and west of 8th Avenue East can directly access the Square without crossing a major street. The sidewalk gird in the center of town provides easy access to it. Other community trails should connect to it where feasible.

General Alignment:

The Square’s north leg runs from 8th Avenue West to 8th Avenue East along the south side of Main Street. Its east leg runs from Main Street to Highway 30 along the west side of 8th Avenue SE, which also serves as a section of Highways 23 and 75. Its south leg runs along the north side of Highway 30 from 8th Avenue SE to 8th Avenue SW. Its west leg runs along the east side of 8th Avenue SW from Highway 30 to Main Street.

Detailed Route Description:

Sidewalks that comprise the Square are five-foot wide concrete walks. A cursory review of the condition of the sidewalks indicated that most were in acceptable condition. Snow was present on portions of the route, so some problem areas may not have been apparent. The walks were a consistent width of five feet along the entire route.



Night on The Square

Curb ramps exist at all street crossings. A variety of curb ramp designs occur along the route and not all ramps may comply with current ADA requirements. A detailed analysis would be required to determine the number of ramps requiring replacement to achieve ADA compliance.

Land use along the Highways 23/75 trail section is a mix of residential and commercial uses. Many of the commercial properties are located there to be accessible to highway motorists. Several businesses have one or more very wide driveways. In some cases, pavement in front of these businesses extends from the front of buildings out to the curb. Walk-

ways on these properties are poorly defined and vehicles sometimes park on the walks, blocking pedestrian access. A gas station on the southwest corner of the Highways 23/75 and Main Street intersection has wide driveway approaches on along the highway side and a nearly continuous curb cut along its frontage on Main Street. An alley and a parking lot for an adjacent restaurant exists on west of the gas station building, which increases the extent of curb cuts and increases the length of area where pedestrians are exposed to vehicles entering or existing these properties.

The City should explore options with all landowners along the section of Highway 23/75 to determine if a reduction in the number of curb cuts, as well as a reduction in width for all curbs, is feasible to improve pedestrian safety. The Minnesota Department of Transportation would need to be part of these discussions, since this stretch of roadway is designated as a state and federal highway. The City could test the effectiveness of marking the location of the public sidewalk at locations where vehicles are regularly parked on the sidewalk, to see if it decreases or eliminates this problem.

A similar situation exists at the intersection of Highway 30 and 8th Avenue Southwest. A nearly continuous drive approach occurs along 8th Avenue, north of the intersection. Patrons of this popular restaurant often park on the sidewalk since the parking lot directly abuts it. One solution to this problem would be to install wheel stops along the parking lot edge to prevent vehicles from accidentally parking or driving on the walk. An alternate solution would be to replace the continuous curb-cut along 8th Avenue with a 24-foot wide drive approach at the parking lot's north end.

On the portion of trail along Highway 30, from South Hiawatha Avenue west to 5th Avenue SW, alleys cross the trail mid-block. The alleys are gravel-surfaced and vehicles may track rocks onto the sidewalk. Sightlines at these alleys currently allow motorists and pedestrians to see each other. The City should ensure that these sightlines are preserved if any of the properties adjacent to Highway 30 are redeveloped.

A public alley located in the 600 NE block of Main Street abuts the west end of a bowling alley. The building blocks motorists' views of pedestrians walking west along the building's north side. A stop sign installed for north-bound traffic would improve safety for west-bound pedestrians. Residential and business driveways cross the trail on nearly every private property. Because the Square is an established walking trail, most homeowners are probably used to seeing walkers and aware of the need to look for them when they enter or exit their driveways. Most businesses have fairly well defined driveway approaches, with the exception of those discussed earlier.

Route Enhancements:

Two options exist to enhance The Square, the Half Square and the 7th Avenue East Alternate route.

The Half Square: Adding a north-south route at the mid-point of the Square along South Hiawatha Avenue would provide two benefits. It would create two shorter loops of slightly different lengths for walkers desiring a shorter distance. The west half square route would be 1.8 miles in length and the east half square would be 1.9 miles in length. It would also encourage walkers to alter their walking pattern, allowing them to walk a figure eight pattern using the Half Square route as the cut-across.

7th Avenue East Alternate: An alternate route could be established to follow 7th Avenue SE to allow walkers to avoid the traffic congestion and pedestrian safety issues along Highways 23/75. This alternate route would pass through a residential neighborhood, using existing walks along the west side of 7th Avenue. A landmark exists at each end. Bole Mor Lanes is located at its north end, and Harmon Park anchors its southern end. At the south end of 7th Avenue, walkers would go east to 8th Ave SE and rejoin the trail primary route.

Proposed Enhancements:

Signage: Adding signage to The Square walking route would increase its visibility to the community. Signage would increase the public's awareness of the route and could contribute to pedestrian safety. The signage could be designed to play upon the trail's name. Signage installed along the route would require the permission of the City of Pipestone, and along Highways 23, 30 and 75 it would need to comply with Minnesota Department of Transportation requirements.

Distance Markers: Distance markers could be added to the route to allow people to determine the length of their walk. These could be plastic disks inserted into the walk pavement and spaced along the route to mark a standard distance such as a quarter-mile. A starting point, such as the intersection of Main Street and Hiawatha Avenue, could be selected if the markers also included a cumulative distance.



Benches: A few benches exist on public property along The Square. The number of benches could be increased to provide walkers with more places to rest or sit and enjoy the outdoors. Additional benches could be added at city parks and other city-owned property. Benches could be added in the downtown area to enhance the shopping experience, as well as serve walkers. Shade is an essential element in selecting locations for benches.

Widening trail from 5 feet to 8 feet: In the future all or portions of the Square could be widened to accommodate additional foot traffic if needed. The community should complete other trails before seriously contemplating this enhancement.

Promotion & Events:

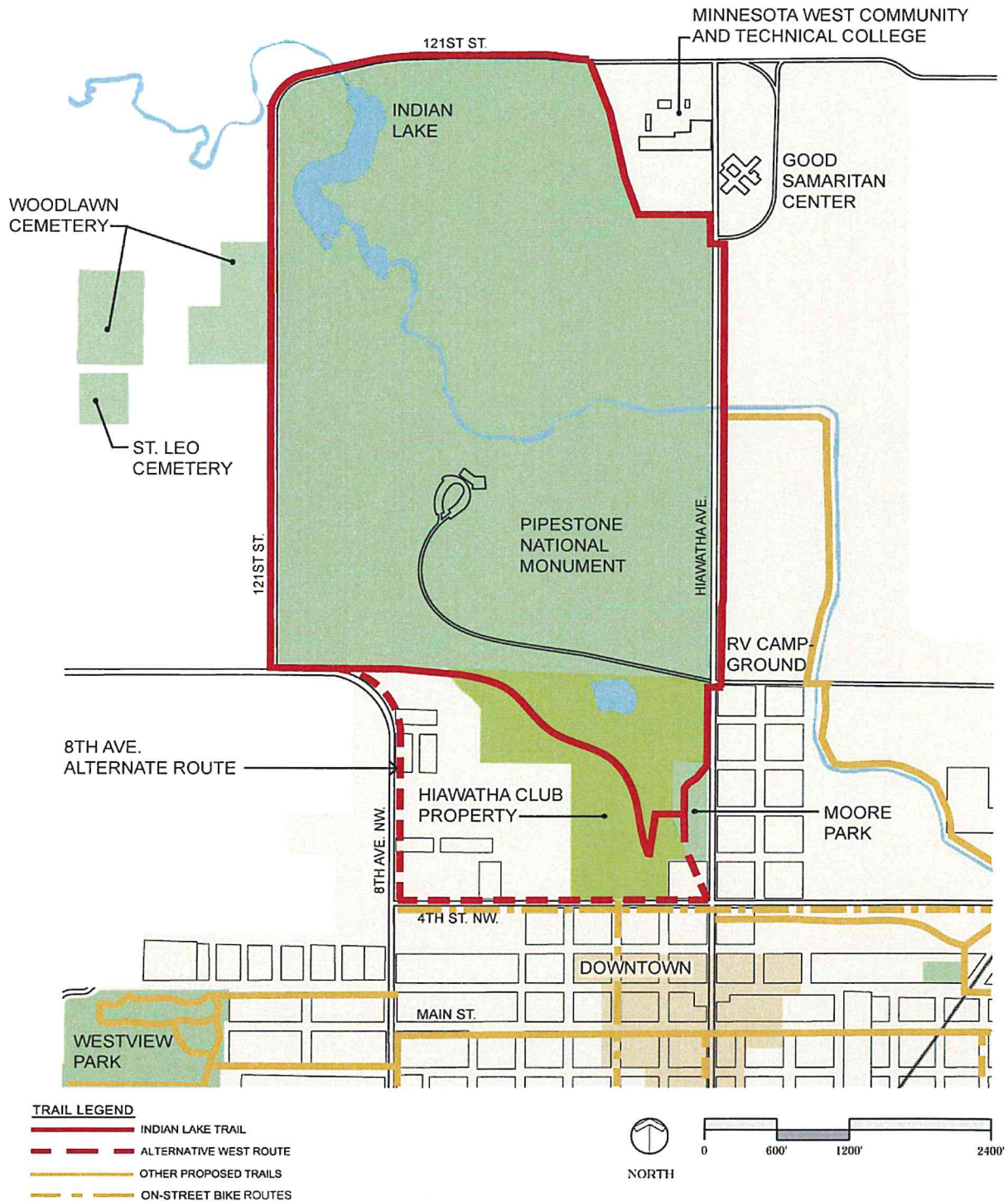
The Square should be promoted in local convention and tourism information. Signage along the route would increase its visibility to visitors and local citizens. PALP could team with local businesses along the route to host special events or activities tied to the businesses. With the number of restaurants along the route, it would be possible to do a Taste of Pipestone event that could showcase local talents and emphasize healthy eating and activity. Another idea would be to periodically designate an adjacent street as a temporary route for The Square, to add variety to the walking experience. The Partnership could post a trail map on its site and issue a press-release informing the public of this temporary change. Citizens and visitors who were interested could participate. Others, who are not interested, could still walk the permanent route. If any of the alternate routes passed by historic buildings, interpretive information could be included on the trail map. The trail map might also include a visual scavenger hunt along the route to increase interest in the alternate route project, using features on select buildings or other features as clues.



Indian Lake Trail

Description:

This trail will connect Downtown to the Minnesota West Community and Technical College (MnWest), Pipestone National Monument and Indian Lake. The trail will incorporate the existing trail that runs along the east side of North Hiawatha Avenue.



Uses: Walking, running, biking, in-line skates & persons using mobility devices

Proposed trail surface: Paved trail with an 8-foot width

Trail Type: Loop trail – shared use path

Length: 3.4 miles beginning and ending at Moore Park

Location: Northwest quadrant of the community

Linkages:

This trail will link to the existing and proposed bike lanes running along 4th Street NE/NW. It will link to The Square and the Historic Downtown Trail via existing walks along North Hiawatha Avenue.

General Alignment:

The trail will begin at the parking lot in Moore Park on North Hiawatha Avenue. The trail will run north through the park and then along the west side of Hiawatha Avenue to the intersection with 9th Street North. There the trail will cross the streets to the intersection's northeast corner. At this point, the trail will use the alignment of the existing North Hiawatha Avenue trail which extends from 9th Street NE to 12th Street NE. At 12th Street NE the trail will cross to the west side of Hiawatha and run along the campus' southern boundary. When it reaches the west side of the campus, will run on or near the remnant of the historic railroad bed. At the campus' north edge, the trail will cross to the north side of 121st Street (County Road 67) and run west to Pipestone Creek. The trail will follow the curve in 121st Street, to run south past Woodlawn Cemetery to the intersection of 121st Street and 111th Street. There the trail will cross to the east side of 121st Street and run east along the north side of 111th Street, paralleling the south boundary of the National Monument to the northwest corner of the Hiawatha Club property. The trail will run southeast through the property before turning east to enter Moore Park and return to the trailhead and parking lot.

Detailed Route Description:

The trail will begin at the parking lot in Moore Park on North Hiawatha Avenue. The trail will run north through the park and then along the west side of Hiawatha Avenue as it passes by the Hiawatha Club property. When the trail reaches the intersection of North Hiawatha Avenue and 9th Street North, the trail will cross from the intersection's southwest corner to its southeast corner and then to its northeast corner. At this point, the trail will follow the alignment of the existing North Hiawatha Avenue trail which extends from 9th Street NE to 12th Street NE. The existing pavement for the North Hiawatha Avenue trail is in poor condition and will be replaced with new pavement. At the 12th Street intersection, the trail will cross to the west side of North Hiawatha Avenue and then run north along the west side of North Hiawatha Avenue to the southern boundary of the MnWest



Existing North Hiawatha Avenue Trail segment

campus. This route will take it south of the former Indian School superintendent's house before turning to the northwest. A historic railroad line ran along the western edge of the campus. If the railroad grade still exists and is useable, the trail will run along it. If it does not exist, the trail will run just east of the trees that run along the campus boundary. A small portion of the west parking lot may need to be removed to provide space for the trail.

When the trail reaches the north edge of the campus, it will cross to the north side of 121st Street. There it will turn and run west along the north side of 121st Street to the east bank of Pipestone Creek. Near the creek, the trail will pass in front of a farmstead. The trail will need to hug the road edge as it passes in front of the farmstead until it is on the west side of the farmstead's driveway. At that point, the trail will swing north slightly, to allow it to span Pipestone Creek on a pre-engineered metal bridge. The two double-box culverts that convey Pipestone Creek under 121st Street will influence the location and length of this bridge. Just downstream of the east box culvert, a tributary stream enters on the east side of Pipestone Creek. A section of boardwalk will be needed to span this tributary. The trail's bridge and boardwalk will need to be elevated to be above level of the 100-year flood. This may be higher than the existing surface of 121st Street. If the existing box culverts for 121st Street are replaced in the future, a pedestrian crossing could be included in the design of that structure eliminating the need for a separate bridge. Timing of the box culvert replacement and trail construction will determine the feasibility of this option.

After the trail crosses Pipestone Creek it will run adjacent to the road until it reaches the north edge of Woodlawn Cemetery. For this segment of trail, additional fill will need to be placed on the north/west side of the existing road embankment to raise the trail to the same elevation as the road. A five-foot wide horizontal separation between the road's outer edge and the adjacent trail edge is needed to provide the required safety separation between vehicle and trail traffic.

At the cemetery, the trail will swing away from the road and run in the green space between the road and the cemetery fence. The trail will cross the 116th Street and then continue along the west side the 121st Street ditch.



Walking and biking on roads is allowed at Pipestone National Monument

At the intersection of 121st and 111th Streets, the trail will cross to the east side of 121st and run east along the north side of 111th Street, to a point north of 8th Avenue NW. At this point the trail will continue east immediately south of the boundary of the National Monument. The trail will run east along a tree line to the northwest corner of the Hiawatha Club property. The trail will cross a wetland in this area on a boardwalk, to minimize its impact.

After reaching the wetland's eastern edge, the trail will run along the tree line on the east side of the small creek that runs through the Hiawatha Club property. This alignment parallels the alignment of the existing power line easement. As the trail nears Moore Park, it will turn east and extend to Moore Park, returning visitors to the trailhead and parking lot which is the trail's starting point.

8th Avenue NW Alternate Trail Route:

Intersection of 111th Street and 8th Avenue NW to intersection of 4th Street NW and North Hiawatha Avenue

If it is not possible to run a trail through the Hiawatha Club property, an alternate route for the trail will be necessary to return it to its starting point. After crossing 121st Street and running east, it will turn south when it reaches 8th Avenue NW and follow the east side of 8th Avenue NW. The trail will continue south to the intersection of 8th Avenue NW and 4th Street NW, where it will turn east and run to Hiawatha Avenue along the north side of the road. The area on the north side of 4th Street North is fairly undeveloped, with the exception of two single-family homes and a garden center near 4th Avenue NW. In front of the two homes, the trail will need to hug the curb to minimize its impact on these properties. The width of the trail in this short segment could also be reduced from 8 feet to 5 feet if needed. The garden center's parking lot entrance will need to be redesigned to create one or two driveway approaches to improve traffic safety for the property and provide a more defined corridor for the trail. The City will need to work with these property owners to ensure the final design meets their needs as well as those of the trail. The trail will continue east along the north side of 4th Street NW to its intersection with North Hiawatha Avenue. Just west of Hiawatha Avenue, the trail will cross in front of another single family home and the south end of the property owned by the Keepers of the Sacred Tradition of Pipe-makers. The trail would turn north and run along the west side of Hiawatha Avenue, to return visitors to the trailhead and parking lot at Moore Park.

Bicyclists could ride the existing eastbound and proposed westbound bike lanes along 4th Street NW, instead of riding the trail paralleling 4th Street NW. When they reach North Hiawatha Avenue, they could either rejoin the shared-use path or ride north on Hiawatha Avenue to the trailhead and parking lot.

Proposed Enhancements:

Trailhead: This trail will serve local residents and tourists. A trailhead structure with information on the Indian Lake Trail is appropriate at this location, as well as information on the entire Pipestone community trail and walk system. A small structure could be designed to provide this information and be a visual focal point for the park and trail.

Directional Signage: Directional signage along the loop trail will assist trail visitors in navigating the trail.

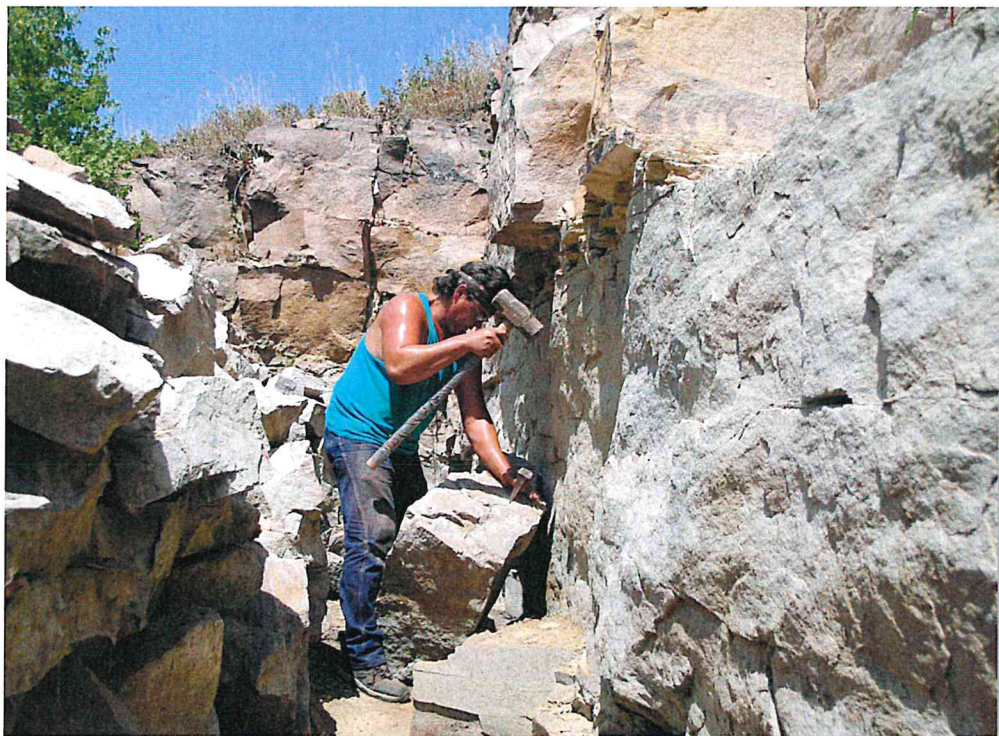
Wayside Interpretive Exhibits and Electronic Media: Due to the cultural and natural resources along the trail, providing interpretive information to visitors will enhance their experience. History of the Pipestone quarries, Indian School and settlement period could be explained on wayside exhibits or using electronic media that visitors download prior to their visit.

Distance Markers: Distance markers could be added to the route to allow people to determine the length of their walk. These could be plastic disks inserted into the walk pavement and spaced along the route to mark a standard distance such as a quarter-mile. A starting point, such as the intersection of Main Street and Hiawatha Avenue, could be selected if the markers also included a cumulative distance.

Benches: Adding a few benches along the route will enhance the visitor experience. Locations can be selected that provide excellent views of the natural landscape and Pipestone. Shade is an essential element in selecting locations for benches, so locations like the tree line on the west side of the campus, near Indian Lake, and Woodlawn Cemetery are good locations for benches.

Promotion:

Currently, an annual event is staged using the existing North Hiawatha Avenue Trail that includes Mn-West and the National Monument. Creation a loop trail will expand the opportunities to host additional events and walks. Woodlawn and St. Leo Cemeteries provide locations where local history could be incorporated into an event using re-enactors to represent early community and Native American leaders. The Chamber of Commerce and regional tourism groups can promote the trail and the events in their materials.

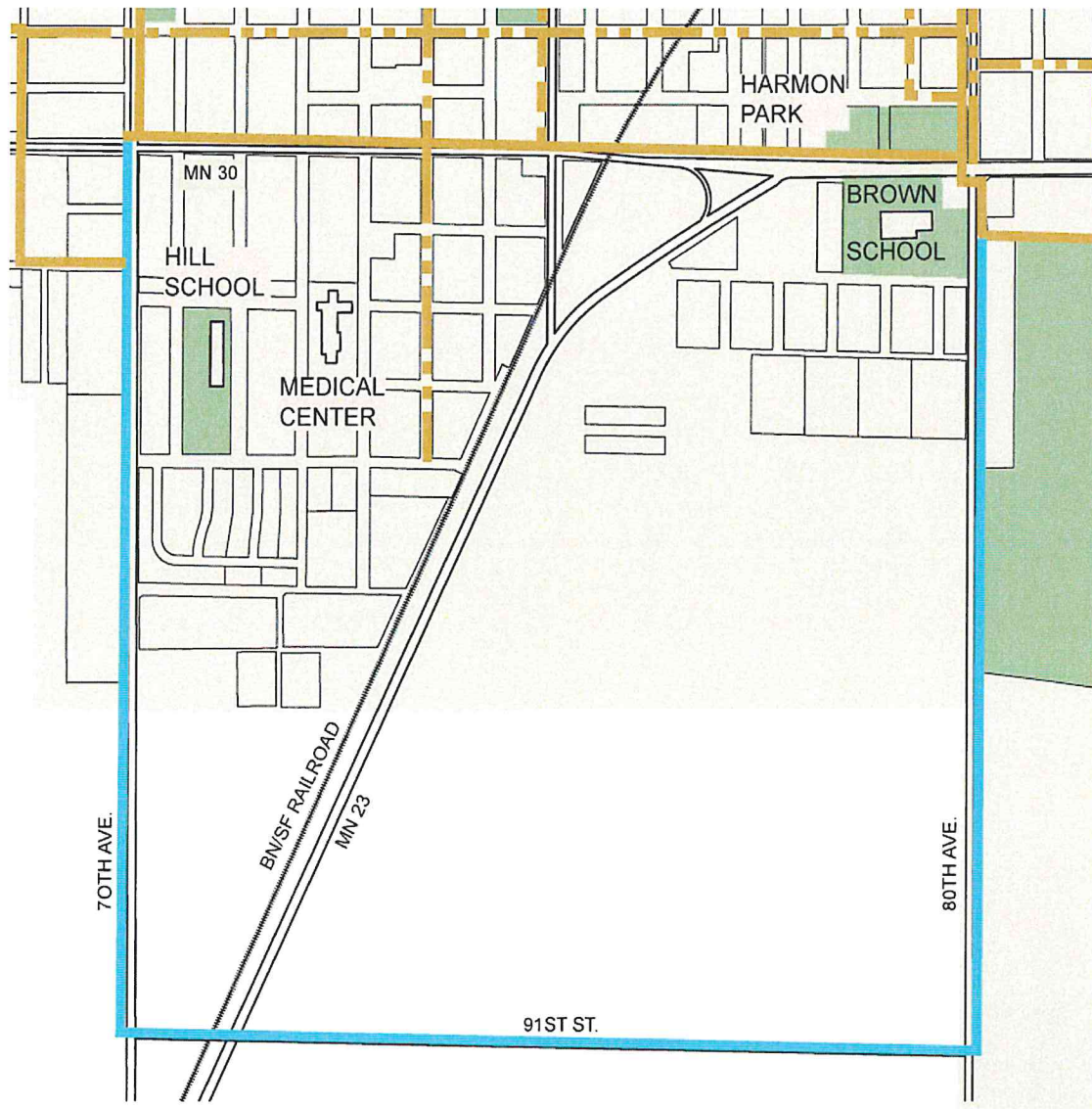


Pipestone Quarrier

South Country Trail

Description:

This trail will use 70th Avenue, 91st Street and 80th Avenue to create a three-mile loop extending south of town. Runners and bicyclists who enjoy its rural character regularly use these roads. Both 70th and 80th Avenues are county roads and lack wide shoulders. 91st Street is a township road which receives minimal vehicle traffic, because it dead ends east of 80th Street and has only one farmstead along it, between 70th and 80th Avenues. This trail will use portions of existing walks, new sections of soft-surfaced trail, and portions of existing roads for its routes. Since portions of the trail occur on a rural road, it may not be appropriate for use by younger children.

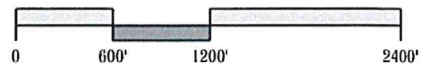


TRAIL LEGEND

- SOUTH COUNTRY TRAIL
- OTHER PROPOSED TRAILS
- - - PROPOSED ON-STREET BIKE ROUTES



NORTH



Uses: Walking, running, biking

Proposed Trail Surface: Combination of existing paved walks, 6-foot wide crushed aggregate surfacing on shared use portions of trail, and gravel surfacing where trail runs on an existing township road

Trail Type: Loop trail – shared use path

Length: 3.0 miles from west end at 8th Avenue SW (70th Avenue) and Highway 30, and east end at 8th Avenue SE (80th Avenue) and Highway 30. 4.0 miles if returning to starting point

Location: Southern edge of town and rural area immediately south of town

Linkages:

This trail will link to the southwest and southeast corners of The Square. It will link to one of the Safe Routes to School trail options at 8th Avenue SW and Highway 30. It will link to the Industrial Park Trail near the intersection of 8th Avenue SE and Highway 30.



Farmstead on 70th Avenue

General Alignment:

The trail will use existing rights-of-way where feasible. Additional right-of-way will be needed for some portions of the trail. The proposed alignment for this trail utilizes existing walks and a segment of a service road, due to space constraints in town. It utilizes a low-use township road south of town.

Detailed Route Description:

The trail begins on the southwest corner of 8th Avenue SW and Highway 30 intersection. A concrete walk extends south along the west side of 8th Avenue SW to the intersection at 13th Street SW. A farmstead exists southwest of this intersection. A new paved walk will be extended to the farmstead's southern edge. To preserve the mature trees in front of the farmhouse, the trail may need to hug the curb and be reduced in width for this section or use the road shoulder for a short distance. A crushed aggregate trail will begin at the farmstead's southern edge and run along the west edge of the right-of-way. The existing right-of-way appears to have adequate room to accommodate a trail that would be six feet wide.

The crushed aggregate trail will extend south along 70th Avenue to its intersection with 91st Street. Near the intersection, the trail will run in front of a gas pipeline service yard. The crushed aggregate path will end when the trail reaches the northern edge of 91st Street. At this point, the trail will turn east and run on 91st Street to 80th Avenue as a "Share the Road" trail.

A short distance east of the 70th Avenue intersection, 91st Street crosses a BN/SF Railroad line and Minnesota Highway 23. Good sightlines exist to both the north and south at these crossings. Adequate space exists between the rail line and the highway for trail visitors to wait for traffic to ease. A farmstead is located southeast of where 91st Street crosses Highway 23. A driveway extends north to 91st Street from the farmstead. Conifer trees partially block sightlines for the driveway and a standard driveway warning sign might be warranted to inform trail visitors of the driveway.

At 91st Street's intersection with 80th Avenue, the trail will cross to the east side of 80th Avenue and resume as a shared-use path, paralleling the existing road. A crushed aggregate trail will run along the eastern edge of the existing right of way. It appears that the existing right-of-way does not have enough room to accommodate the trail. Scattered mature trees occur along the east side of 80th Avenue for the first quarter mile north of 91st Street. If an easement can be obtained, the trail could thread its way through the trees, providing a pleasant experience for trail visitors. North of the treed area, the trail will need to hug the existing right-of-way to minimize the amount of land needed for the trail. The trail will cross a small drainage channel flowing to the west under 80th Avenue. It appears that wetlands flank both sides of the channel. The most economical way to cross the channel may be to extend the existing culvert, placing the trail's west edge about 5 feet off of the eastern edge of the road.

After the trail crosses the channel, it can curve east and run along the edge of the Pipestone Country Club. Where the trail crosses in front of the country club's parking lot, it will need to again run about five feet away from the east edge of 80th Avenue. The existing ditch may need to be filled in to create a flat corridor for the trail. If the ditch is filled, a continuous culvert will be needed under the trail to convey water that currently flows down the ditch. A row of houses exists north of the Country Club, served by a separate access road that parallels 80th Avenue.

When the crushed aggregate trail reaches the south end of this road, it the trail will end. Bicyclists using the trail can ride the service road north to where ends at the drive to Amdahl Motors. Runners can follow the service road or run in the median between the service road and 80th Avenue. A concrete walk will be extended from the Amdahl Motors driveway north past Casey's General Store to the intersection with Highway 30, where the trail ends.

Alternate Trail Development:

An alternate way to develop this trail would be to increase shoulder widths on 70th and 80th Avenues to provide room for runners and bicyclists. The trail segment along 91st Street could remain a "Share the Road" section due to its low traffic volume.



8th Avenue SE and Highway 30

Proposed Enhancements:

Directional Signage: Due to the trail's change from a shared use path to a "Share the Road" trail along 91st Street, installing direction signage at each end of the 91st Street segment is needed.

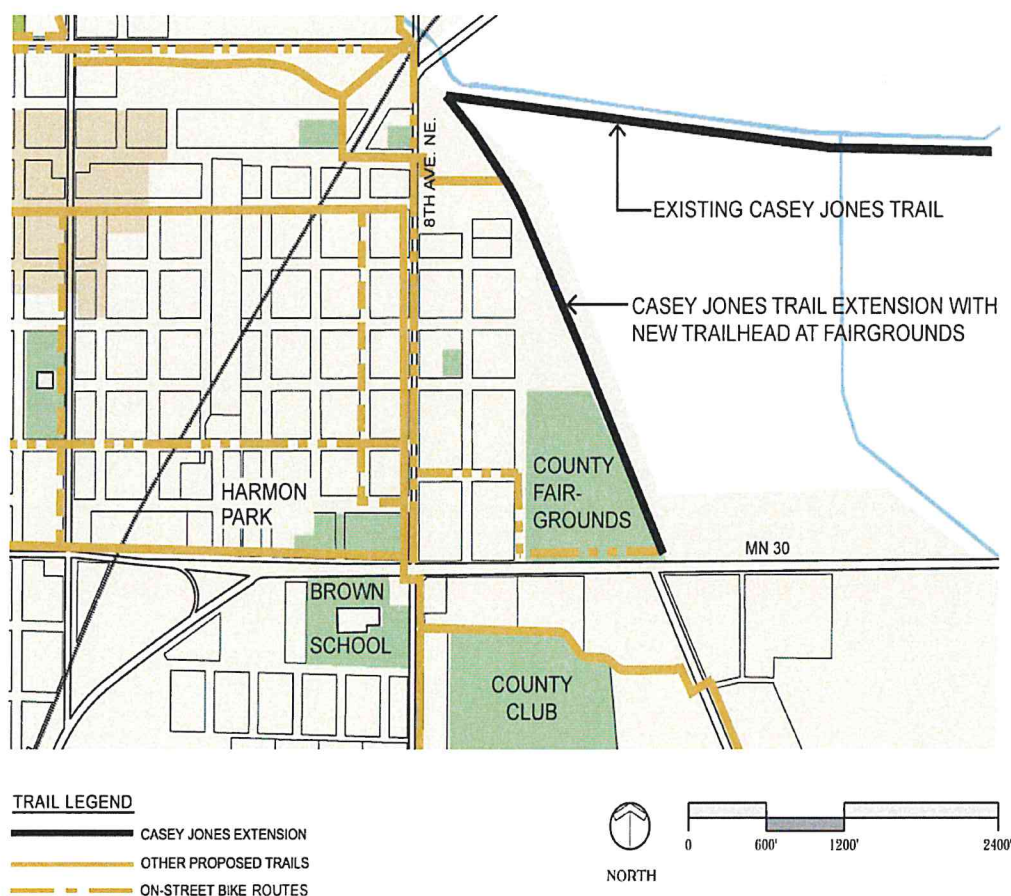
Promotion: This trail will attract visitors who desire its solitude. Due to its combination of trail types, use of a low-traffic volume road and intent to provide visitors with an opportunity for solitude, having events on this trail isn't desirable.

LINK TRAILS

Casey Jones Trail Extension

Description:

The Casey Jones Trail is one of Minnesota's first state trails and its longest section open to the public extends east from Pipestone for 13 miles. Access from the rest of Pipestone to the trailhead for pedestrians and bicyclists is currently difficult, due to the traffic levels on Highways 23/75. Moving the current trailhead south to the southern edge of the Pipestone County Fairgrounds would alleviate access and traffic safety concerns with the existing trailhead. The additional parking space and buildings at the fairgrounds site will be useful when special events are planned to occur on the Casey Jones Trail.



Uses: Hiking, biking, in-line skating on paved sections, snowmobiling. A separate equestrian trail will parallel the trail extension

Trail Surface: Paved 8-foot wide trail surface for hiking and biking. Soft-surface equestrian trail will parallel the extension

Trail Type: Link trail – shared use path

Length: 0.65 mile

Location: Northeast and southeast quadrants of the community

Linkages:

The Casey Jones currently links Pipestone to the village of Woodstock. When completed, the trail will link ten communities together. Since this trail serves out-of-town visitors, it should connect to other community trails that provide access to Pipestone's commercial areas, downtown and Pipestone National Monument.

General Alignment:

The trail extension will begin at the current trailhead, and run southeast along an existing seasonal snowmobile trail to the Pipestone County fairgrounds. The trail will continue along the eastern side of the fairgrounds to just north of Highway 30 where a new trailhead will be constructed. If this occurs, the existing trailhead could be removed.

Detailed Route Description:

The trail extension will begin at the current trailhead, which is on the east side of Highways 23 and 75, approximately two blocks north of Main Street. Prins Feed and Grain Company is immediately south of the trailhead. The extension could follow the alignment of the seasonal snowmobile trail, which runs south to the fairgrounds east of the railroad tracks owned by Prins to near 3rd Street SE. If the section of railroad right-of-way from 3rd Street SE south to Highway 30 could be purchased from Prins, the trail could follow the railroad grade south to the highway. There is an undeveloped area south of the fairground's race track that could be used for a new trailhead that would include a new parking lot. MnDOT will most likely allow access to this proposed parking lot from Highways 30/75 only, at the existing curb cut that serves as the south entry point to the fairgrounds.

Relocating the trailhead to the fairgrounds will require the consent and cooperation of the various partners related to the development and management of the Casey Jones Trail as well as the County Fair Board. MnDOT should be included in this process to ensure that access issues are fully addressed.

Proposed Enhancements:

Trailhead Structure and Signage: Several signs attached to a wooden slat structure provide general information about the trail, as well as the rules and regulations for its use by pedestrian, bicyclists, equestrians and snowmobilers. A separate colored map provides general information about the trail and its future extensions. A third sign provides information on the funding sources used to establish the trail.



Existing Casey Jones Trail

The signage could easily be consolidated into a single, trailhead structure. The trailhead structure could be designed to have a railroad theme, to tie to the trail corridor's history. The structure might take on the appearance of a trackside covered waiting area and include space for a pair of benches. This feature would make the trailhead easily identified by first time visitors and serve as a visual image in promoting the trail. A local service club or the Casey Jones' Friends group could undertake construction of this project.

Trail Mileage Markers: Mileage markers could be placed along the entire Trail at quarter-mile increments to assist visitors in determining their distance from town. These markers could be wooden posts with information routed into them or precast concrete markers made to resemble railroad markers. The markers could use a system that shows the remaining distance to Woodstock on the side visible when headed east and the return distance to Pipestone on the opposite side when headed west.



Katy Trail Trailhead, Mokane, Missouri

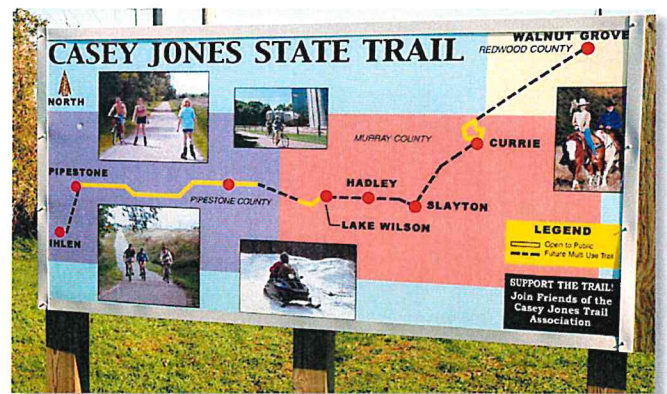


Shade structure on MoPac Trail, Nebraska

Shade structures:

Similar rails-to-trails routes that cross through farm fields have installed shade structures with benches periodically along their routes. These structures are useful where shade is limited or non-existent. These structures allow trail visitors to take a break out of the sun, and becoming stopping points where groups of travelers can rendezvous visitors can linger to enjoy the landscape. These structures should be located where they have view of the surrounding area, such as at a hilltop or near a creek, and will receive breezes. The design of these structures should follow a railroad theme.

Promotion: The Friends of the Casey Jones Trail Association actively promotes events along the trail each year. The Friends group, PALP, the Pipestone Chamber of Commerce and the City's Parks and Recreation staff should work together to host events on the Trail near Pipestone. During the December 7th Community Open House, a citizen who regularly visits the trail suggested creating additional events, such as hosting a summer star grazing party on the trail or holding an impromptu walk when the wildflower bloom is at its peak. These events would promote use of the Casey Jones Trail and could be promoted using each of the organization's websites and through social media like PALP's Facebook page.

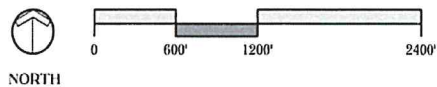
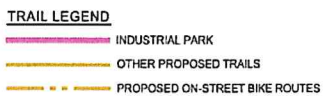
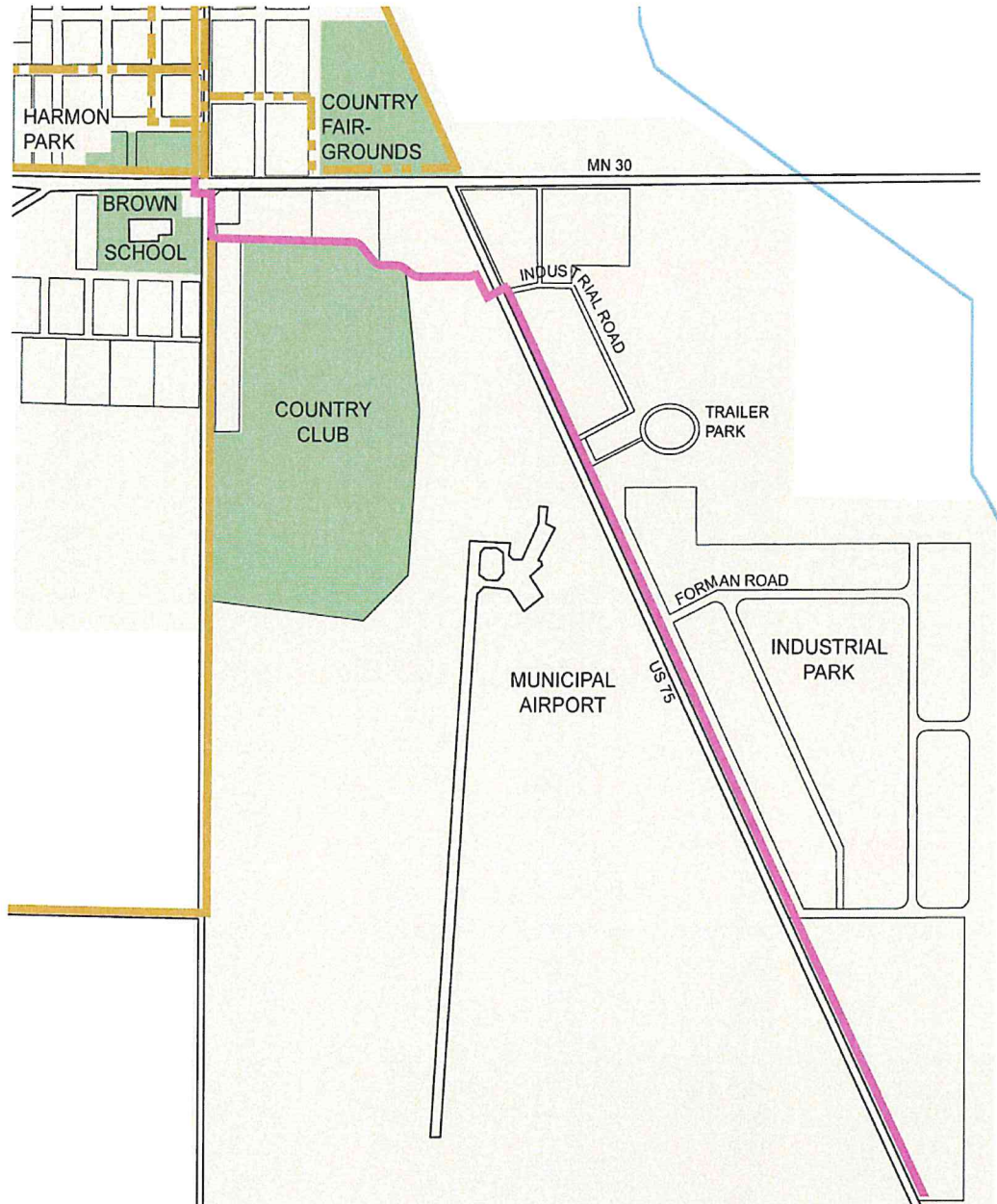


Casey Jones Trail route map

Industrial Park Trail

Description:

This trail will provide a connection to the industrial park in the southeast corner of Pipestone to The Square, and the on-street bike trail that serves the center portion of town. The goal of the Industrial Park Trail is to provide the 500 to 1,000 persons who work in the area with a viable and safe alternative to driving their vehicles to work. The trail will also provide a safe non-motorized route for residents of the adjacent trailer park to walk or bike to nearby stores.



Uses: Walking, running, biking, in-line skates & persons using mobility devices

Proposed Trail Surface: Paved trail with a 8-foot width

Trail Type: Link trail – shared use path

Length: 1.8 miles from 8th Avenue SE and Highway 30 intersection, to south end of Suzlon property

Location: Southeast quadrant of the community

Linkages: This trail will link to The Square and the on-street bike trail on 5th Street SE/SW. The trail will link with a share a short segment of the South Country Trail. In the future, the section of this trail paralleling Highway 75 could become part of the southern extension of the Casey Jones Trail, running south to Split Rock Creek State Park and Luverne.

General Alignment: The Industrial Park Trail will begin at the south end of the Suzlon property and extend north to a point approximately 940 feet south of the Highway 30/75 intersection. There the trail will cross from the east to west sides of Highway 75. The trail will then run along the behind the businesses that front onto Highway 30/75, along the northern edge of the Pipestone Country Club west to 8th Avenue SE/80th Avenue. The trail will turn and run along the east side of 8th Avenue SE to the intersection with Highway 30, where the trail ends.

Detailed Route Description:

In the industrial park area, the trail is proposed to be located along the eastern edge of the Highway 75 right-of-way, immediately east of the road ditch. An overhead electrical distribution line parallels the highway, as does a row of shade trees further to the east. If possible, the trail should run between these features to minimize its impacts on adjacent industrial properties. Where roads and driveways enter the industrial park from Highway 75, the trail will run west to these intersections so pedestrians and bicyclists cross these side streets at these intersections.



Highway 75 Corridor

It may be possible to locate this trail within the US 75 right-of-way. MnDOT allows trails within the highway rights-of-way if safety requirements can be met and if the trail can be designed to allow for the continuation of existing drainage patterns. Further study will be required to determine if the trail could be located within the US 75 right-of-way.

The trail will cross to the west side of Highway 75 at its intersection with Industrial Road, approximately 940 feet south of the Highway 75/30 juncture. After crossing the road, the trail will follow the western edge of the highway right-of-way adjacent to the road ditch for about 1.3 miles. There it will turn west and run along the southern property boundaries of the businesses that front onto Highways 75/30,

along the northern edge of the Pipestone Country Club. In reviewing this route, it appears that a trail corridor can be selected that has a minimal impact on the commercial properties and the Country Club. It will require the cooperation of all the landowners in this area to make this trail feasible. Near the west end of this segment, adjacent the north most duplex that fronts on 8th Avenue SE, the potential trail corridor is very restricted. To thread a trail through this area it may be necessary to remove the south row of parking along Amdahl Motor's west parking lot. It appears that the lot will still function with the south row of parking removed. A screen fence may be desirable along this section of trail, to provide separation between the trail and the homes to the south.

Alternate Trail Route:

An alternate route for the northern section of this trail would be to run the trail north along the east side of Highway 75 to its junction with Highway 30. At that intersection the trail would cross to the west side of Highway 75 and run along the south side of Highways 75/30 to the intersection with 8th Avenue SE. This route would have pedestrians and bicyclists crossing five entries to businesses along this short section of trail, creating traffic conflicts between motorists and trail users.

Future Connection to Casey Jones Trail:

If the Casey Jones Trailhead is relocated to the south end of the fairgrounds, a northern spur from the Industrial Park Trail could be extended north to align with where the former railroad line crossed Highway 30. This would allow a direct connection south of the fairgrounds to the trail that will extend to Luverne.

Proposed Enhancements:

Directional Signage: Directional signage along the portion of trail between the Highway 30/75 businesses and the Pipestone Country Club would assure trail visitors that they are on the correct trail. Additional signage in the area of the Country Club and adjacent homes would inform visitors to remain on the trail and not enter private property.

Promotion: This trail will assist in making the Pipestone Industrial Park more attractive to businesses considering locating there, since it will provide workers with a safe alternate route to work. The Chamber of Commerce and local economic development group can promote the trail in their materials. An event could be held annually to recognize people who walk or bike to work in the industrial park.



Highway 75 at Forman Road

Historic Downtown Trail

Description:

This trail will provide a connection from the Casey Jones Trail (CJT) west to the historic district in downtown Pipestone.

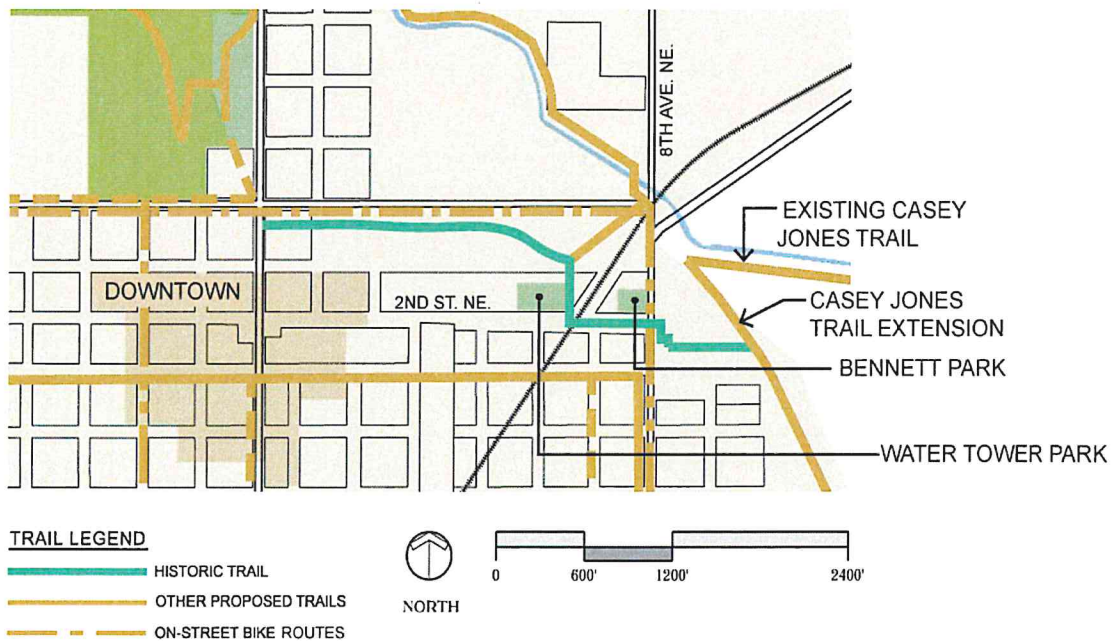
Uses: Walking, running, biking, in-line skates & persons using mobility devices

Proposed Trail Surface: Paved trail with an 8 foot width

Trail Type: Link trail – shared use path

Length: 0.55 mile from current end of CJT to North Hiawatha Avenue

Location: Northeast quadrant of the community



Linkages:

This trail will link the Casey Jones Trail to downtown. The Historic Downtown trail ends a short distance from the Indian Lake Trail. Signage can direct bicyclists to the Indian Lake Trail via local streets. Pedestrians can walk north on Hiawatha's existing sidewalks. Pedestrians can walk south on Hiawatha to reach The Square walking trail and Main Street businesses.

General Alignment:

This trail will follow a former railroad right-of-way owned by the City. The challenge in developing this trail will be finding a safe and acceptable crossing at Highways 23/75 and at the Burlington Northern / Santa Fe Railroad. The trail will run through an older industrial area that includes the City Public Works Shop and yard. It also runs near two small city parks.

Detailed Route Description:

Crossing Highways 23 and 75: The acute-angle intersection of Highways 23 and 75 along with the close proximity of the Burlington Northern / Santa Fe Railroad create a complex traffic situation which will be difficult and expensive to change. Until traffic levels warrant a redesign of the intersection to a modern intersection that would most likely included signalization, the existing situation will remain status quo. Creating a surface crossing for the Historic Downtown Trail immediately west of the current end of the Casey Jones Trail is not likely feasible.

The Highway 23, BN /SF Railroad and Highway 75 bridges crossing Pipestone Creek lack adequate clearance between normal water and low steel to allow the trail to be routed under them to avoid at-grade crossing to get from the east to west sides of 23/75. The selection of a location of an on-grade crossing should be done with consultation with MnDOT.



Watertower Festival Parade

The alignment which appears most feasible is routing the portion of the trail that is east of Highways 23/75 around the east side of the Prins Feed and Grain Company and then run the trail west along the southern edge of their property, while remaining north of Kelly's Koffee Shop. The trail would then run north paralleling the east side of the highways until it was even with the southwest corner of 2nd Street. To improve safety for trail visitors and grain trucks entering the Prins property, the current south driveway entry would be moved slightly north to align with 2nd Street NE. The highway crossing for the trail would extend from the southeast to southwest corner of 2nd Street NE.

Upon crossing the highways, the trail would continue along the south side of 2nd Street NE and cross the BN/SF Railroad tracks. A pedestrian/trail crossing does not exist at this rail crossing. The trail should cross the tracks at a 90 degree angle which will require the trail east side of the tracks to swing slightly to the south before reaching the east track. The crossing should be constructed to provide safe passage for bikes. A signalized railroad crossing may be required by the railroad at this pedestrian crossing.

After crossing the railroad, the trail will cross to the north side of 2nd Street NE and continue north along the eastern edge of Watertower Park. Trail visitors could use the park's picnic shelter, tables and restrooms. The trail will continue north to reach the city-owned former railroad right-of-way that extends west to North Hiawatha Avenue. The trail will follow this right-of-way ending at North Hiawatha Avenue.

Proposed Enhancements:

Directional Signage: Directional signage along the trail will provide visitors with information on local destinations.

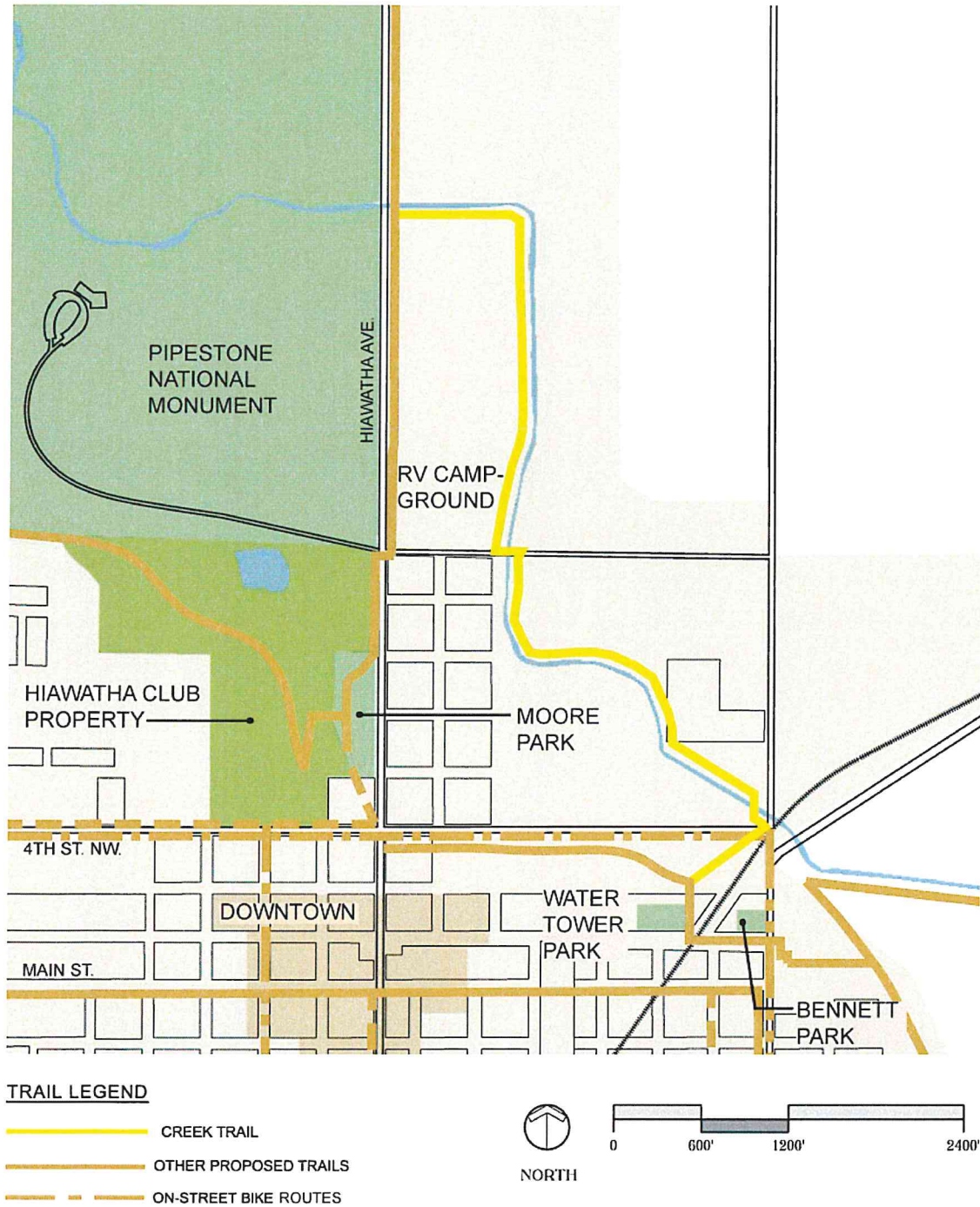
Promotion:

This trail will be valuable to providing visitors with easy access to downtown and the National Monument. It will be of value to tourists using the Casey Jones who are looking for services, are interested in downtown's historic buildings, or are staying at the historic downtown hotel.

Creek Trail

Description:

This trail will provide a connection from the North Hiawatha Avenue trail to the intersection of 4th Street NE and US 75 to running along the banks of Pipestone Creek.



Uses: Walking, running, biking, in-line skates & persons using mobility devices

Proposed Trail Surface: Paved trail with an 8 foot width

Trail Type: Link trail – shared use path

Length: 1.3 miles

Location: Northeast quadrant of the community

Linkages:

This trail will link the Indian Lake Trail to the east end of the 4th Street NW/NE bike route. The Casey Jones Trail is a short distance to the east. Traffic conditions on the streets between the two trails make it difficult and dangerous to go directly from the Creek Trail to the Casey Jones Trail. A connection from the Creek Trail to the proposed Historic Downtown Trail could easily be made. This would create a longer, but safer way to link to the Casey Jones Trail and better integrate the Creek Trail into the city's trail system.

General Alignment:

This trail will follow the east bank of the creek from its beginning near US 75 and 4th Street NE. It will cross to the west bank near 9th Street NE and continue along the west bank until it reaches the existing North Hiawatha Avenue trail which will be integrated into the proposed Indian Lake Trail.

Detailed Route Description:

This trail will begin at the south end of the pedestrian bridge which crosses Pipestone Creek on the east side of North Hiawatha Avenue. The trail will extend east and then south along this side of the creek to 9th Street NE. The trail will cross to the south side of the street and then cross to the other bank. A 6 ½ foot wide shoulder exists on the 9th Street NE Bridge. This shoulder area is not separated from vehicle traffic. It may be possible to use this shoulder as a pedestrian crossing over the creek if a physical barrier could be installed to protect pedestrians from vehicles. If this is not possible, a separate pedestrian bridge should be installed south of the 9th Street NE Bridge to serve trail visitors. The trail will continue south to the existing trailer park, near US 75. The City of Pipestone is considering purchasing this property to remove residences from a flood prone area, and to create a permanent open space. The US 75 bridge does not include a pedestrian walk. A new pedestrian bridge will be located west of the highway bridge to allow trail visitors to reach the intersection of 4th Street NE and US 75.

At the intersection of 4th Street NE and US 75, the Creek Trail will leave the banks of Pipestone Creek and extend to connect to two other community trails. A westbound bike lane is proposed to be added to the existing eastbound 4th Street bike lane, to create two-way travel. An extension of the Creek Trail, from the intersection of 4th Street NE and US 75 southwest to the Historic Downtown Trail, will avoid the creation of a link trail that dead ends for pedestrians and bicyclists who aren't comfortable riding in a bike lane along a city street. The trail section south of 4th Street NE can parallel the BN/SF Railroad track to near Watertower Park where it can intersect the Historic Downtown Trail. This segment of the trail will cross a BN/SF side track. This track serves a fuel distribution business located on 4th Street NE

and is a low-speed, low use track. A pedestrian crossing on this track should be possible, so long as all safety requirements set by BN/SF are met. This crossing should allow bicycles to safely cross the track.

The portion of the Creek Trail that follows Pipestone Creek passes through an undeveloped area of Pipestone that includes a number of farm fields, scattered private residences, and open space. The trail will travel along the top of the creek bank, curving as needed to avoid existing mounds of soil and to preserve existing trees. A limited amount of brush removal will be needed to create the corridor for the trail.

Piles of soil exist periodically along the trail from past dredging of Pipestone Creek. The alignment of this trail should integrate these soil piles, areas with large cottonwood trees and brushy patches into its design, to create interest and variety along the trail. Some of the lower soil piles could serve as locations where the trail could be elevated to provide views across the adjacent fields. Using these existing features will create a more engaging and enjoyable trail experience.

Proposed Enhancements:

Directional Signage: Directional signage along the trail will provide visitors with information on local destinations.

Distance Markers: Distance markers could be added to the route to allow people to determine the length of their walk. These could be plastic disks inserted into the walk pavement and spaced along the route to mark a standard distance such as a quarter-mile. A starting point, such as the intersection of Main Street and Hiawatha Avenue, could be selected if the markers also included a cumulative distance.

Benches: Adding a few benches along the route will enhance the visitor experience. Locations can be selected that provide excellent views of the natural landscape and Pipestone Creek. Shade is an essential element in selecting locations for benches, so placing benches under mature trees is preferred..

Promotion:

This trail will provide visitors with a walk or ride through a natural area. This will be attractive to local residents wishing for a trail with a bit more solitude or tourists exploring Pipestone’s trails.



Looking south from 9th Street Bridge

Safe Ways To School

SOUTH ROUTE

Description:

Pipestone currently has an existing trail that extends west to the Middle/High School from the west terminus of 5th Street Southwest. This route will create an additional feeder route to the existing trail, providing a safe route to school for students living in the expanding residential neighborhoods south of Highway 30. This new connection will eliminate the need for students to walk and ride down the shoulders of a busy Trunk Highway to attend classes.

Uses: Walking, running, biking, in-line skates & persons using mobility devices

Proposed Trail Surface: Paved walks with an 5-foot width

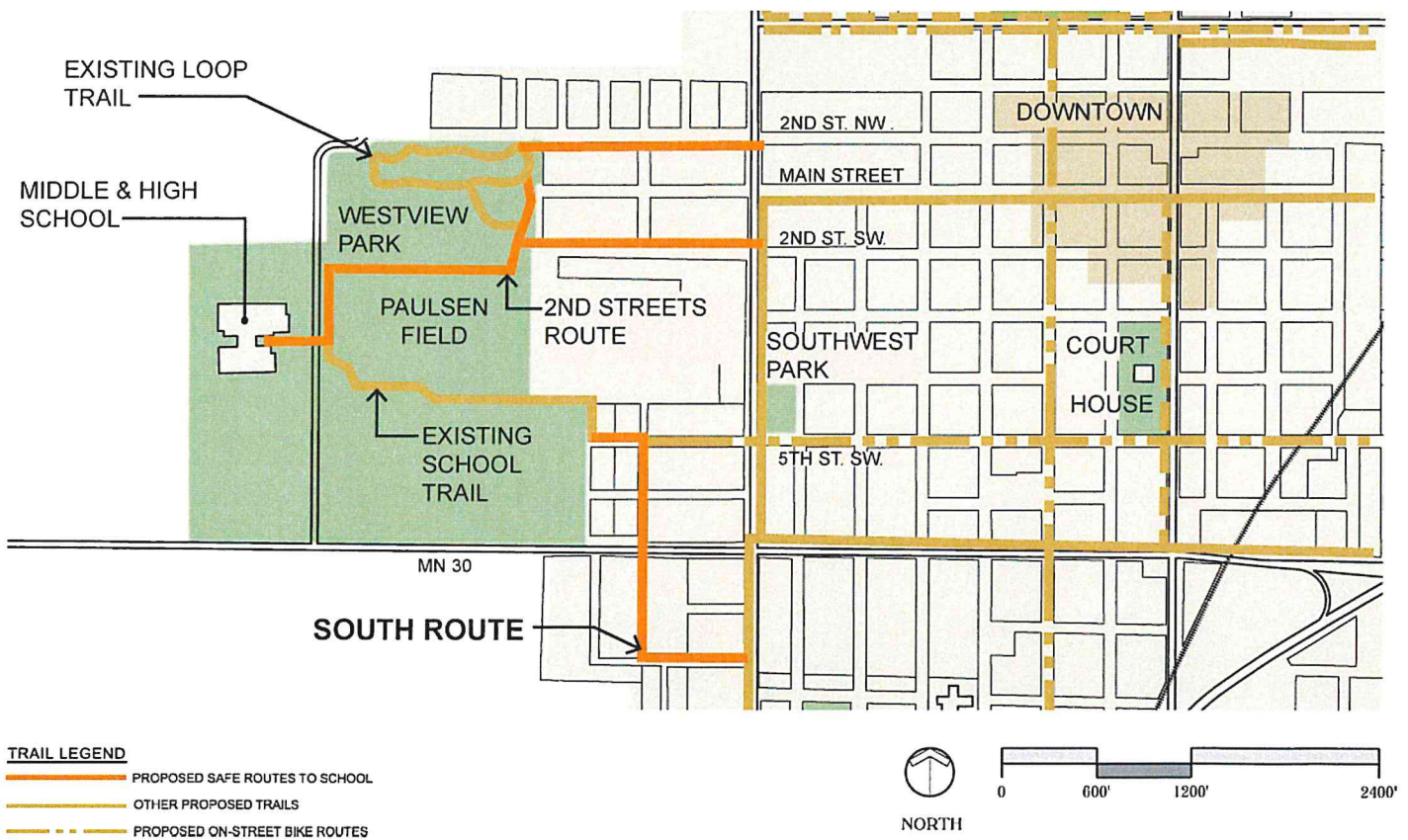
Trail Type: Link trail – street side walk

Length: 0.40 mile

Location: Southwest quadrant of the community

Linkages:

The South Route will connect to southwest corner of The Square and South Country Trails.



General Alignment:

The trail will follow using city streets that lack sidewalks and utilize an existing un-used public easement to connect the east end of the existing school trail. Sidewalks will be constructed in areas where they currently do not exist.

Detailed Route Description:

The trail will begin at the intersection of 8th Avenue SW and run west along the north side of 9th Street SW for about two blocks. The trail will turn north and run along a public easement that extends to the south side of Highway 30. The trail will cross Highway 30 at this location which is at the highway’s high point. The trail will continue north along the west side of 9th Avenue SW to 5th Street SW. Sidewalks will be constructed in areas where they do not currently exist. Students will follow the existing walk on the north side of 5th Street SW to the beginning of the existing school trail.

Proposed Enhancements:

Directional Signage: Directional signage along the trail will direct students to school.

Promotion:

This trail will be valuable to promoting Pipestone’s family friendly culture by the City, Chamber of Commerce and Pipestone Area School District.



Existing Safe Way To School Trail

2ND STREETS ROUTE

Description:

Pipestone currently has an existing trail that extends west to the Middle/High School from the west terminus of 5th Street Southwest. This route will create an additional SRS trail, providing a safe route to school for students living in the residential areas north of the existing SRS trail. This SRS will eliminate the need for students to walk and ride along a narrow city street to attend classes.

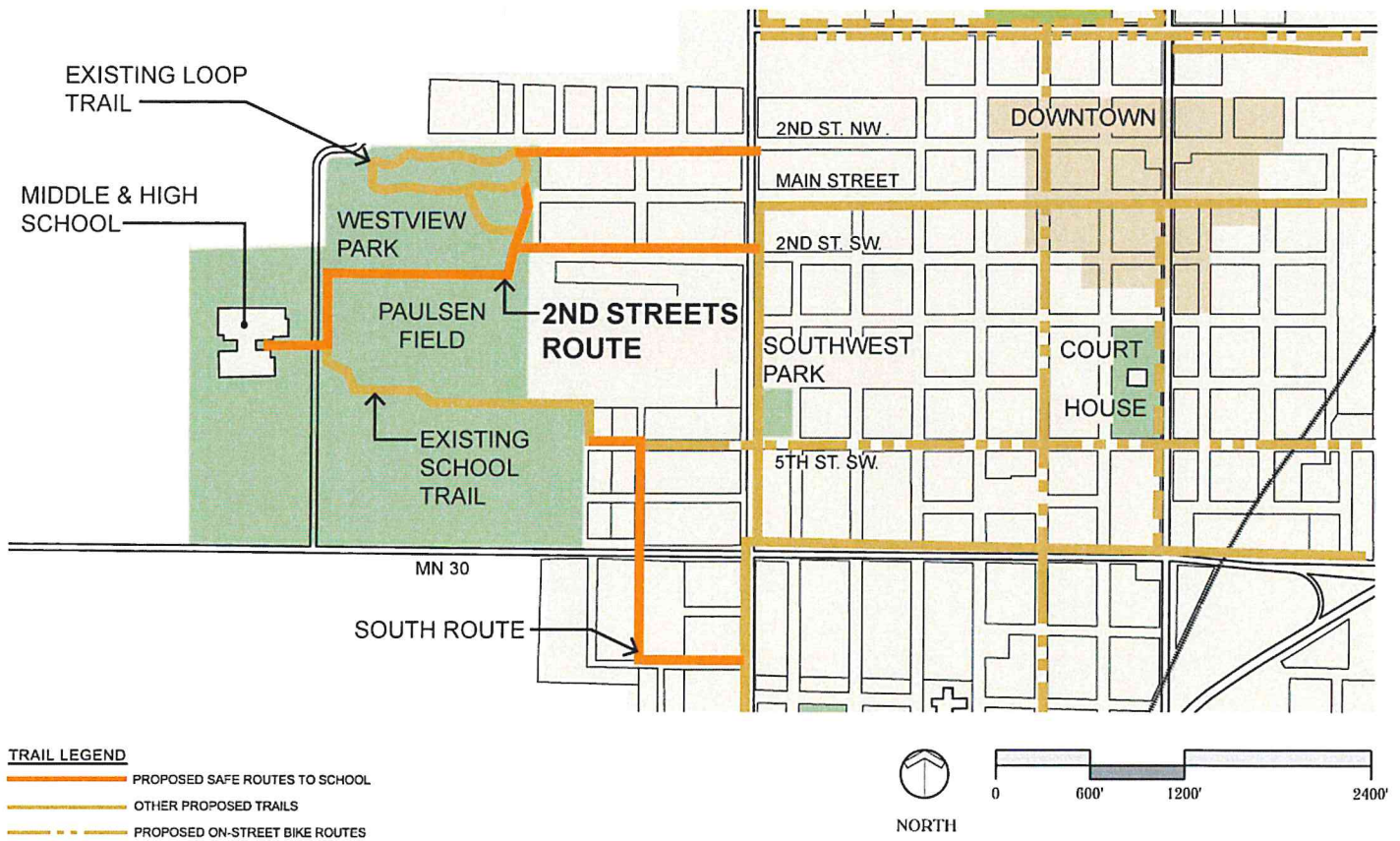
Uses: Walking, running, biking, in-line skates & persons using mobility devices

Proposed Trail Surface: Paved trail with an 8-foot width

Trail Type: Link trail – shared use path

Length: 0.40 mile

Location: Northwest quadrant of the community



Linkages:

The 2nd Streets option will connect to existing sidewalks on 2nd Street NW and 2nd Street SW that run east to 8th Avenue SW providing pedestrian access to the residential areas to the north and east of 8th Avenue.

General Alignment:

These trails utilize existing area walks west of 8th Ave West along 2nd Street NE and 2nd Street SW, a portion of the trails within Westview Park and a new section of trail west to the school.

Detailed Route Description:

The east end of this school trail will utilize existing sidewalks west of 8th Ave West that run along the south side of 2nd Street NW and the north side of 2nd Street SW to create a cost effective solution to improving safe access to the Middle and High Schools. After entering Westview Park, the trail will travel along a portion of the existing loop trail that runs to the south. A new section of trail will be constructed to extend south ending near the existing walking trail that extends from Paulsen Field northwest to the ballfields in Westview Park. This section of new trail will extend over the South Branch of Pipestone Creek. A new pedestrian bridge will be placed across the creek for the trail.

The 2nd Street SW leg uses the existing walk along the north side of the street. The sidewalk will need to be extended across the south end of the west-most lot on the block. The trail will cross 10th Avenue SW and continue to run along the north side of 2nd Street NW into Paulsen Field. The street crosses the creek using a box culvert. The north end of the box culvert has sufficient room to allow a retaining wall and guardrail will be installed on top of it to provide space for the trail. The 2nd Street NW leg of the school trail merges with the 2nd Street SW just west of the creek. The combined trail will continue west on the northern edge of Paulsen Field before turning and extending south to the west end of the existing school trail.



Proposed Enhancements:

Safe Walk To School at Highway 30 Crossing

Directional Signage: Directional signage along the trail will direct students to school.

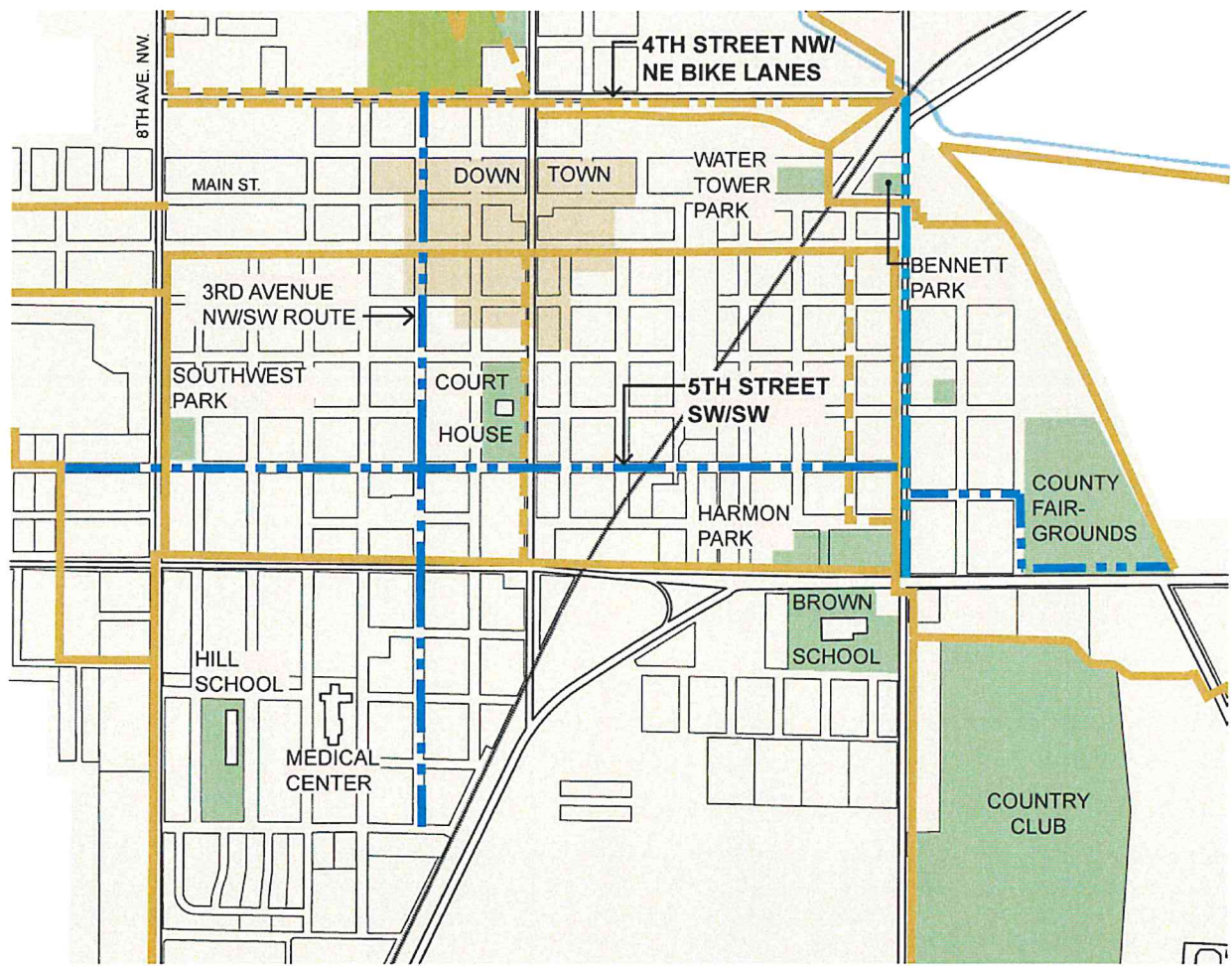
Promotion: This trail will be valuable to promoting Pipestone’s family friendly culture by the City, Chamber of Commerce and Pipestone Area School District.

On-Street Bike Routes

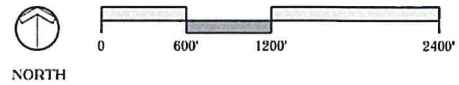
5TH STREET SOUTHWEST / SOUTHEAST

Description:

Pipestone has one designated bike lane along the south side of 4th Street North. This eastbound-only lane extends from 8th Avenue NW to 8th Avenue NE. A westbound bike lane should be added to the north side of 4th Street to create a two-way transportation route. The City of Pipestone should create a second east-west bike route in the southern portion of town. The intent of designating a pair of east-west on-street cross-town bike routes is two-fold. Doing so will raise the public's awareness that bikes can be used on local streets like motor vehicles. It will also identify two existing streets that citizens can easily access to ride a bicycle across town.



- TRAIL LEGEND**
- PROPOSED ON-STREET BIKE ROUTES
 - PROPOSED ON-STREET BIKE ROUTE - MNDOT US75
 - ON-STREET BIKE ROUTES
 - OTHER PROPOSED TRAILS



Uses: Biking

Proposed Trail Surface: Route uses existing street

Trail Type: Link trail – Shared roadway with motor vehicles

Length: 1.6 miles

Location: Southwest and southeast quadrants of the community

Linkages:

The west end of this bikeway connects to the existing shared use path that runs west to the High and Middle Schools. Near its east end, this trail meets 8th Avenue SE, which is the community's busiest commercial corridor. MnDOT plans to add bike lanes on both sides of the section of 8th Avenue SE/NE from 4th Street NE to Highway 30. The 5th Street SW/SE bike route will cross 8th Avenue and continue east on 5th Street SE to 10th Avenue SE where it will turn south and run to the north side of Highway 30/75. The trail will follow the north side of the highway to the proposed new trailhead ending at the Casey Jones Trail extension, assuming that the trailhead is relocated to the fairgrounds.

An opportunity exists at 8th Avenue SE to connect the 5th Street SW/SE bike route to the proposed Industrial Park Trail. This could be done by extending a spur bike route south from the 7th Avenue SE intersection to 6th Street SE. The spur trail will then turn east and run along 6th Street SE to its intersection with 8th Avenue SE. At this intersection, the route would turn south and run on a new 8-foot wide trail that will replace the current sidewalk that runs along the west side of 8th Avenue SE. This trail will extend to Highway 30 where the proposed Industrial Park Trail would begin.

General Alignment:

West end of 5th Street SW to 8th Avenue SE on existing street

Detailed Route Description:

Route crosses 8th Avenue SW and South Hiawatha Avenue, both of which are moderately busy streets. Traffic signs at the intersection require traffic on 5th Street to yield to traffic on the busier streets. Stop signs occur at other intersections along the route moderating traffic speeds in the area. A pedestrian crossing will be needed at 8th Avenue SE where the route crosses that street.



Watertower Festival Parade

Proposed Enhancements:

Bike Route Signage: Bike route signs could be placed along both routes. All signage should comply with the MN MUTCD manual.

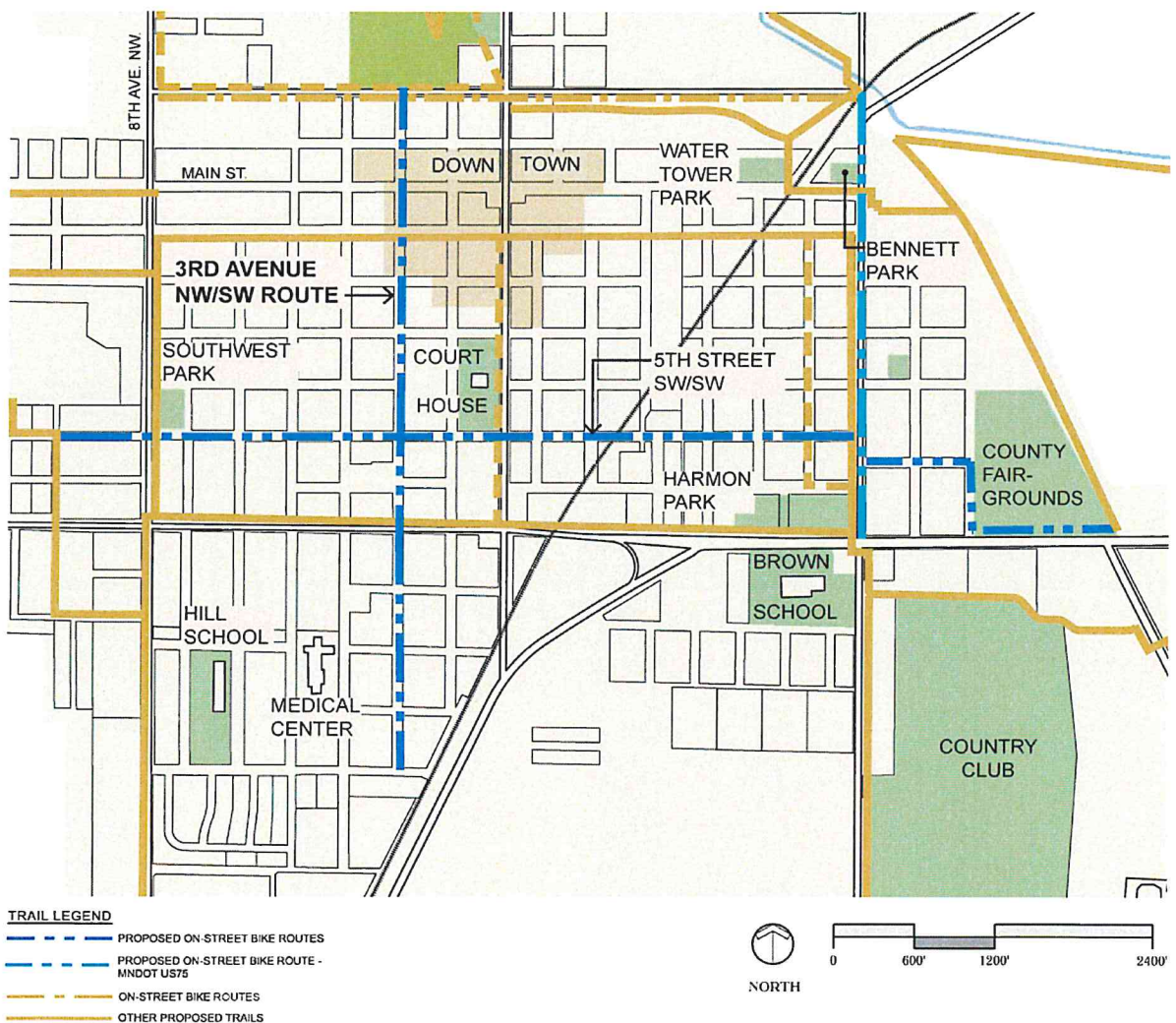
Promotion:

This route will assist in promoting the use of bicycles for transportation purposes. The route should be shown on all Pipestone trail maps and be featured on PAL website and in its publications.

3RD AVENUE NORTHWEST / SOUTHWEST

Description:

Minnesota Department of Transportation will be re-striping the portion of US 75 between 4th Street NE and Highway 30 to include bikes lanes in the summer of 2011. The City of Pipestone should create a second north-south bike route in the western portion of town. The intent of designating a pair of north-south on-street cross-town bike routes is two-fold. Doing so will raise the public's awareness that bikes can be used on local streets like motor vehicles. It will also identify two existing streets that citizens can easily access to ride across town.



Uses: Biking

Proposed Trail Surface: Route uses existing street

Trail Type: Link trail – Shared roadway with motor vehicles

Length: 1.0 mile

Location: Northwest and southwest quadrants of the community

Linkages:

This trail connects to the eastbound bike lane on 4th Street NW at its northern end. It could also easily be linked to the Indian Lake Trail, which runs north of 4th Street NW.

General Alignment:

The North end of the route begins at intersection with 4th Street NW, and ends at the intersection with 11th Street SW. Areas south of this intersection can be accessed by traveling west on 11th Street SW.

Detailed Route Description:

The route crosses a busy section of Highway 30. Traffic on 3rd Avenue yields to Highway 30 traffic. The only signalized crossing that exists on Highway 30 is at its intersection with 8th Avenue East, about $\frac{3}{4}$ of a mile to the east. Based upon the City's recent meeting with MNDOT officials it is doubtful that this intersection, or others along Highway 30, would be marked as a pedestrian crossing, which would also benefit bicyclists.

Proposed Enhancements:

Bike Route Signage: Bike route signs could be placed along both routes. All signage should comply with the MN MUTCD manual.

Promotion:

This route will assist in promoting the use of bicycles for transportation purposes. The route should be shown on all Pipestone trail maps and be featured on PAL website and in its publications.



Watertower Festival Parade

WALK, BIKE ROUTE, AND TRAIL COSTS

To help determine the feasibility and desirability of implementing the proposed projects in this master plan, the probable cost of those projects was determined. A planning level opinion of probable costs has been developed for each of the proposed link trails, each loop trail, each Safe Routes to School route, and the two on-street bicycle routes.

Since these projects are still in the planning stage, the cost opinions are based on the information that is known at this point, rather than on detailed design plans. The length of each trail was established using city base maps. The master planning team's staff made observations in the field, along each corridor. This provided an understanding of site conditions and probable types of construction to be included in each trail project. Using this information, the master planning team used their knowledge of trail design and construction methods to develop the cost opinions. This information allowed the master planners to determine the probable construction cost for each trail.

Several other costs must be added to the cost of construction, to determine the total project cost. Professional fees are required to complete a topographic survey and design the project. Bond fees are needed to ensure complete of construction and payment of the materials used. A project contingency is added to cover the cost of unknown conditions and items that will be required to complete the project that are not yet identified. These four items are added to the probable cost of construction to arrive at the total project cost.

LIST OF PROJECT COSTS

Loop Trails	
The Square	\$110,000
The "Half Square" Route	\$16,400
7 th Avenue East Route	\$18,400
Indian Lake Trail	\$1,225,000
South Country Trail	\$195,000
Link Trails	
Casey Jones Trail Extension to Fairgrounds	\$225,000
Industrial Park Trail	\$450,000
Historic Downtown Trail	\$195,000
Creek Trail	\$630,000
Safe Ways to School	
Existing School Trail – seal coat & signs	\$4,500
South Route	\$100,000
2 nd Streets Route	\$240,000
On-Street Bicycle Routes	
5 th Street South – signage only	\$4,300
3 rd Avenue West – signage only	\$3,200
COMMUNITY-WIDE TRAIL SYSTEM COSTS – 2011 DOLLARS	\$3,420,000

The costs above do not include any costs related to land acquisition or obtaining easements where the proposed trails will run on land that is privately owned. Right-of-way costs are difficult to determine at the master planning level, because detailed examination of property records, property boundary surveys, and property appraisals are required to calculate these costs. In many communities, easements have been donated for trail projects. In other cases, land has been purchased at market value.

APPENDIX A – Planning Level – Opinion of Probable Costs

PLANNING LEVEL OPINION OF PROBABLE COSTS: SUMMARY

Planning Level - Opinion of Probable Cost Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota
Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615
Filename: MP Cost Opinion 03_17_11.xls

The costs indicated below for each trail includes construction costs plus contingency and design fees in Year 2011 Dollars.

Loop Trails

The Square - assumes replacement of 15% of total length of walks and 15% of all curb ramps	\$110,000
The "Half Square" Route - assumes replacement of 15% of total length of walks and 15% of all curb ramps	\$16,400
7th Avenue East Route - assumes replacement of 15% of total length of walks and 15% of all curb ramps	\$18,400
Indian Lake Trail	\$1,225,000
South Country Trail	\$195,000

Link Trails

Casey Jones Trail Extension to Fairgrounds	\$225,000
Industrial Park Trail	\$450,000
Historic Downtown Trail	\$195,000
Creek Trail	\$630,000

Safe Ways to School

Existing School Trail - seal coat & signs	\$4,500
South Route	\$100,000
2nd Streets Route	\$240,000

On-Street Bicycle Routes

5th Street South - signage only	\$4,300
3rd Avenue West - signage only	\$3,200

COMMUNITY-WIDE TRAIL SYSTEM COST IN YEAR 2011 DOLLARS **\$3,420,000**

Notes:

1. Cost opinions are based upon route descriptions in master plan report.
2. Construction items and estimated quantities are based upon limited field observations and not detailed design. Banner Associates / Big Muddy Workshop compared proposed routes to other similar trail projects to develop these planning-level opinions of probable cost.
3. Cost for land acquisition or easements for trail rights-of-way are not included in this cost opinion.
4. Routing the Indian Lake Trail on the 8th Avenue Alternate will increase trail length by 2,600 lineal feet and increase construction cost by \$12,100.

ROUTES: THE SQUARE, "HALF SQUARE", AND 7TH AVENUE EAST ALTERNATE

Planning Level - Opinion of Probable Cost

Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota

Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615

Filename: MP Cost Opinion 03_17_11.xls

ITEM	QTY.	UNIT	UNIT COST	ITEM TOTAL
The Square Walking Trail - 15% of walk length & 15% of curb ramps replaced - 13,600 lineal feet				
Remove damaged walks & ramps	1,233	SY	\$10.00	\$12,330
Concrete disposal	135	CY	\$12.00	\$1,620
Replacement concrete walk	11,100	SF	\$4.50	\$49,950
Replacement curb ramp	17	EA	\$400.00	\$6,800
Directional trail signage	26	EA	\$175.00	\$4,550
Spread topsoil & finish grade - 2' each side of walk	986	SY	\$0.50	\$493
Turfgrass sod - 2' each side of walk	986	SY	\$4.00	\$3,944
Subtotal Construction Costs				\$79,687
Project Contingency - 20%				\$15,937
Bond Fee - 1.5%				\$1,434
DD's, CD'S, CA - 10%				\$9,562
Topographic Survey Allowance				\$3,500
Total Construction Costs				\$110,121
AMOUNT TO USE FOR PROJECT BUDGET:				\$110,000
The "Half Square" Walking Trail - 15% of walk length & 15% of curb ramps replaced - 2,100 lineal feet				
Remove damaged concrete walks & ramps	173	SY	\$10.00	\$1,730
Concrete disposal	20	CY	\$12.00	\$240
Replacement concrete walk	1,557	SF	\$4.50	\$7,007
Replacement curb ramp	3	EA	\$400.00	\$1,200
Directional trail signage	4	EA	\$175.00	\$700
Spread topsoil & finish grade - 2' each side of walk	140	SY	\$0.50	\$70
Turfgrass sod - 2' each side of walk	140	SY	\$4.00	\$560
Subtotal Construction Costs				\$11,507
Project Contingency - 20%				\$2,301
Bond Fee - 1.5%				\$207
DD's, CD'S, CA - 10%				\$1,381
Topographic Survey Allowance				\$1,000
Total Construction Costs				\$16,396
AMOUNT TO USE FOR PROJECT BUDGET:				\$16,400
The Square - 7th Avenue East Alternate Route - 15% of walk length & 15% of curb ramps replaced - 2,300 lineal feet				
Remove damage concrete walks & ramps	188	SY	\$10.00	\$1,880
Concrete disposal	21	CY	\$12.00	\$252
Replacement concrete walk	1,694	SF	\$4.50	\$7,623
Replacement curb ramp	4	EA	\$400.00	\$1,600
Directional trail signage	4	EA	\$175.00	\$700
Spread topsoil & finish grade - 2' each side of walk	200	SY	\$0.50	\$100
Turfgrass sod - 2' each side of walk	200	SY	\$4.00	\$800
Subtotal Construction Costs				\$12,955
Project Contingency - 20%				\$2,591
Bond Fee - 1.5%				\$233
DD's, CD'S, CA - 10%				\$1,555
Topographic Survey Allowance				\$1,000
Total Construction Costs				\$18,334
AMOUNT TO USE FOR PROJECT BUDGET:				\$18,400

ROUTES: INDIAN LAKE TRAIL & SOUTH COUNTRY TRAIL

Planning Level - Opinion of Probable Cost

Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota

Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615

Indian Lake Trail - new trail - 18,000 lineal feet

Misc. tree & brush clearing	0.20	AC	\$20,000.00	\$4,000
Remove asphalt pavement - N. Hiawatha Ave. trail	2,728	SY	\$7.50	\$20,460
Remove concrete pavement - MnWest campus	270	SY	\$10.00	\$2,700
Concrete & asphalt disposal	345	CY	\$12.00	\$4,140
Trail bed grading/ subgrade preparation	14,087	LF	\$3.00	\$42,261
Imported fill - 121st street & 111st street	2,545	CY	\$15.00	\$38,175
8' wide paved trail	15,250	SY	\$27.00	\$411,750
Pedestrian bridge - 75 length - Pipestone Creek	75	LF	\$2,000.00	\$150,000
Structural boardwalk - 8' wide - by pedestrian bridge	915	SF	\$60.00	\$54,900
On-grade boardwalk - 8' wide - Hiawatha Club	3,500	SF	\$20.00	\$70,000
24" corrugated metal pipe - 7 locations	140	LF	\$53.00	\$7,420
24" CMP flared end section	14	EA	\$284.00	\$3,976
Curb & gutter - 111th street	500	LF	\$15.00	\$7,500
Curb ramp w/ detectable warning strip	4	EA	\$400.00	\$1,600
Bench w/ concrete base	5	EA	\$1,000.00	\$5,000
Trailhead structure	1	Allow	\$10,000.00	\$10,000
Directional trail signage	13	EA	\$175.00	\$2,275
Highway crosswalk signage	4	EA	\$500.00	\$2,000
Crosswalk striping - highway	2	EA	\$400.00	\$800
Crosswalk striping - street	2	EA	\$165.00	\$330
Erosion control blanket - type 1- 4' each side of trail	12,363	SY	\$2.25	\$27,817
Silt fence	3,960	LF	\$3.00	\$11,880
Seeding - 4' each side of trail	12,363	SY	\$0.75	\$9,272

Subtotal Construction Costs				\$888,256
Project Contingency - 20%				\$177,651
Bond Fee - 1.5%				\$15,989
DD's, CD'S, CA - 10%				\$106,591
Topographic Survey Allowance				\$36,000

Total Construction Costs				\$1,224,487
AMOUNT TO USE FOR PROJECT BUDGET:				\$1,225,000

South Country Trail - new trail - 8,700 lineal feet

Trail bed grading	9,122	LF	\$3.00	\$27,366
Imported fill - 80th ave. in front of culvert	55	CY	\$15.00	\$825
5' sidewalk in front of farmstead on 70th ave.	2,760	SF	\$4.50	\$12,420
Curb & gutter	126	LF	\$15.00	\$1,890
6" depth crushed aggregate fines - 6' wide	3,431	SY	\$10.50	\$36,026
36" corrugated metal pipe extension	30	LF	\$120.00	\$3,600
Single wing catch basin	2	EA	\$2,600.00	\$5,200
18" corrugated metal pipe	200	LF	\$42.00	\$8,400
Curb ramp w/ detectable warning strip	5	EA	\$400.00	\$2,000
Directional trail signage	12	EA	\$175.00	\$2,100
Highway crosswalk signage	4	EA	\$500.00	\$2,000
Crosswalk striping - highway	2	EA	\$400.00	\$800
Crosswalk striping - street	8	EA	\$165.00	\$1,320
Erosion control blanket - type 1- 3' each side of trail	4,081	SY	\$2.25	\$9,182
Silt fence	5,030	LF	\$3.00	\$15,090
Seeding - 3' each side of trail	4,081	SY	\$0.75	\$3,061

Subtotal Construction Costs				\$131,280
Project Contingency - 20%				\$26,256
Bond Fee - 1.5%				\$2,363
DD's, CD'S, CA - 10%				\$15,754
Topographic Survey Allowance				\$17,400

Total Construction Costs				\$193,052
AMOUNT TO USE FOR PROJECT BUDGET:				\$195,000

ROUTES: CASEY JONES TRAIL EXTENSION & INDUSTRIAL PARK TRAIL

Planning Level - Opinion of Probable Cost

Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota

Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615

Casey Jones Trail Extension to Highway 30 - new trail - 3,400 lineal feet

Tree protection fence	300	LF	\$2.00	\$600
Misc. tree & brush clearing	0.20	AC	\$20,000.00	\$4,000
Trail bed grading/ subgrade preparation	2,720	LF	\$3.00	\$8,160
8' wide paved trail	3,040	SY	\$27.00	\$82,080
25 stall gravel parking lot w/ 2 accessible stalls	1	Allow	\$40,000.00	\$40,000
18" corrugated metal pipe - 3 locations	75	LF	\$42.00	\$3,150
18" flared end section	6	EA	\$246.00	\$1,476
Bench w/ concrete base	2	EA	\$1,000.00	\$2,000
Trailhead structure	1	Allow	\$10,000.00	\$10,000
Directional trail signage	3	EA	\$175.00	\$525
Erosion control blanket - type 1 - 3' each side of trail	1,813	SY	\$2.25	\$4,079
Silt fence	1,860	LF	\$3.00	\$5,580
Seeding - 3' each side of trail	1,813	SY	\$0.75	\$1,360
Subtotal Construction Costs				\$163,010
Project Contingency - 20%				\$32,602
Bond Fee - 1.5%				\$2,934
DD's, CD'S, CA - 10%				\$19,561
Topographic Survey Allowance				\$6,800
Total Construction Costs				\$224,907
AMOUNT TO USE FOR PROJECT BUDGET:				\$225,000

Industrial Park Trail - new trail - 9,700 lineal feet

<u>Amdahl parking lot modification</u>				
Sawcut	200	LF	\$4.00	\$800
Remove concrete pavement - south row of prk. lot	263	SY	\$10.00	\$2,630
Concrete disposal	45	CY	\$12.00	\$540
Replacement curb & gutter	290	LF	\$15.00	\$4,350
Parking lot stall striping	15	EA	\$20.00	\$300
<u>Trail development</u>				
Trail bed grading/ subgrade preparation	9,672	LF	\$3.00	\$29,016
8' wide paved trail	8,597	SY	\$27.00	\$232,119
Curb ramp w/ detectable warning strip	6	EA	\$400.00	\$2,400
24" corrugated metal pipe	30	LF	\$53.00	\$1,590
24" CMP flared end section	2	EA	\$284.00	\$568
18" corrugated metal pipe - 8 locations	160	LF	\$42.00	\$6,720
18" flared end section	24	EA	\$246.00	\$5,904
18" reinforce concrete pipe - extend 4 culverts	80	LF	\$47.00	\$3,760
Extend 18" H.D.P.E.	12	LF	\$24.00	\$288
Privacy fence - 6' height	191	LF	\$42.00	\$8,022
Directional trail signage	10	EA	\$175.00	\$1,750
Highway crosswalk signage	1	EA	\$500.00	\$500
Crosswalk striping - highway	2	EA	\$400.00	\$800
Erosion control blanket - type 1 - 3' each side of trail	6,448	SY	\$2.25	\$14,508

ROUTES: HISTORIC DOWNTOWN TRAIL & CREEK TRAIL

Planning Level - Opinion of Probable Cost

Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota

Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615

Historic Downtown Trail - new trail - 3,900 lineal feet

Remove concrete driveway	300	SY	\$8.00	\$2,400
Concrete disposal	40	CY	\$12.00	\$480
Trail bed grading/ subgrade preparation	3,895	LF	\$3.00	\$11,685
8' wide paved trail	3,462	SY	\$27.00	\$93,474
Construct concrete driveway	300	SY	\$27.00	\$8,100
18" corrugated metal pipe - 2 locations	40	LF	\$42.00	\$1,680
18" flared end section	4	EA	\$246.00	\$984
Curb ramp w/ detectable warning strip	4	EA	\$400.00	\$1,600
Directional trail signage	3	EA	\$175.00	\$525
Pedestrian railroad crossing	1	Allow	\$10,000.00	\$10,000
Highway crosswalk signage	1	EA	\$500.00	\$500
Crosswalk striping - highway	1	EA	\$400.00	\$400
Crosswalk striping - street	2	EA	\$165.00	\$330
Erosion control blanket - type 1- 3' each side of trail	2,600	SY	\$2.25	\$5,850
Seeding - 3' each side of trail	2,600	SY	\$0.75	\$1,950
Subtotal Construction Costs				\$139,958
Project Contingency - 20%				\$27,992
Bond Fee - 1.5%				\$2,519
DD's, CD'S, CA - 10%				\$16,795
Topographic Survey Allowance				\$7,800
Total Construction Costs				\$195,064
AMOUNT TO USE FOR PROJECT BUDGET:				\$195,000

Creek Trail - new trail - 7,100 lineal feet

Clearing & grubbing - 30' width - 25% of trail length	1.10	AC	\$9,000.00	\$9,900
Debris removal & disposal	1	Allow	\$10,000.00	\$10,000
Trail bed grading/ subgrade preparation	6,990	LF	\$6.00	\$41,940
8' wide paved trail	6,213	SY	\$27.00	\$167,751
Pedestrian bridge - 75' length - adjacent to US75	75	LF	\$2,000.00	\$150,000
Pedestrian railroad crossing	1	Allow	\$10,000.00	\$10,000
Curb ramp w/ detectable warning strip	2	EA	\$400.00	\$800
Bench w/ concrete base	3	EA	\$1,000.00	\$3,000
Directional trail signage	5	EA	\$175.00	\$875
Crosswalk striping - street	2	EA	\$165.00	\$330
Erosion control blanket - type 1- 11' each side of trail	15,400	SY	\$2.25	\$34,650
Silt fence	6,200	LF	\$3.00	\$18,600
Seeding - 11' each side of trail	15,400	SY	\$0.75	\$11,550
Subtotal Construction Costs				\$459,396
Project Contingency - 20%				\$91,879
Bond Fee - 1.5%				\$8,269
DD's, CD'S, CA - 10%				\$55,128
Topographic Survey Allowance				\$14,200
Total Construction Costs				\$628,872
AMOUNT TO USE FOR PROJECT BUDGET:				\$630,000

ROUTES: SAFE WAYS TO SCHOOL – EXISTING AND NEW SOUTH ROUTE TRAILS

Planning Level - Opinion of Probable Cost

Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota

Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615

Safe Ways to School - Existing School Trail - seal coat & signs - 2,000 lineal feet

Asphalt seal coat - exg. asphalt trail	1,740	SY	\$1.70	\$2,958
Trail sign	2	EA	\$175.00	\$350
Subtotal Construction Costs				\$3,308
Project Contingency - 20%				\$662
Bond Fee - 1.5%				\$60
DD's, CD'S, CA - 10%				\$397
Total Construction Costs				\$4,426
AMOUNT TO USE FOR PROJECT BUDGET:				\$4,500

Safe Ways to School - South Route - new trail - 1,900 lineal feet

Remove 8" - 12" tree	3	EA	\$325.00	\$975
Grading allowance - near MN30 - south side	1	Allow	\$5,000.00	\$5,000
Trail bed grading/ subgrade preparation	1,920	LF	\$3.00	\$5,760
5' wide paved walk	1,067	SY	\$27.00	\$28,809
Curb ramp w/ detectable warning strip	6	EA	\$400.00	\$2,400
24" corrugated metal pipe	30	LF	\$53.00	\$1,590
24" CMP flared end section	2	EA	\$284.00	\$568
Directional trail signage	7	EA	\$175.00	\$1,225
Highway crosswalk signage	2	EA	\$500.00	\$1,000
Crosswalk striping - highway	1	EA	\$400.00	\$400
Crosswalk striping - street	2	EA	\$165.00	\$330
Erosion control blanket - type 1 - 4' each side of trail	3,255	SY	\$2.25	\$7,324
Silt fence	3,580	LF	\$3.00	\$10,740
Seeding - 4' each side of trail	3,255	SY	\$0.75	\$2,441
Subtotal Construction Costs				\$68,562
Project Contingency - 20%				\$13,712
Bond Fee - 1.5%				\$1,234
DD's, CD'S, CA - 10%				\$8,227
Topographic Survey Allowance				\$3,800
Total Construction Costs				\$95,536
AMOUNT TO USE FOR PROJECT BUDGET:				\$100,000

ROUTES: SAFE WAYS TO SCHOOL – 2ND STREET ROUTE AND ON-STREET BIKE ROUTES

Planning Level - Opinion of Probable Cost

Pipestone Bicycle & Pedestrian Master Plan

Pipestone, Minnesota

Design Firms: Banner Associates, Inc. & Big Muddy Workshop, Inc.

March 17, 2011

BMW Project Number: #0615

Safe Ways to School - 2nd Streets Route - new trail - 2,000 linear feet

Trail bed grading/ subgrade preparation	2,270	LF	\$3.00	\$6,810
Remove concrete flume	16	SY	\$10.00	\$160
Remove 8" - 12" tree	1	EA	\$325.00	\$325
8' wide paved trail	2,010	SY	\$27.00	\$54,270
Curb ramp w/ detectable warning strip	1	EA	\$400.00	\$400
Segmental retaining wall	135	FSF	\$20.00	\$2,700
Pedestrian bridge - 50' length	50	LF	\$2,000.00	\$100,000
Directional trail signage	3	EA	\$175.00	\$525
Erosion control blanket - type 1- 3' each side of trail	1,513	SY	\$2.25	\$3,404
Silt fence	125	LF	\$3.00	\$375
Seeding - 3' each side of trail	1,718	SY	\$0.75	\$1,289
Subtotal Construction Costs				\$170,258
Project Contingency - 20%				\$34,052
Bond Fee - 1.5%				\$3,065
DD's, CD'S, CA - 10%				\$20,431
Topographic Survey Allowance				\$4,000
Total Construction Costs				\$231,805
AMOUNT TO USE FOR PROJECT BUDGET:				\$240,000

On-Street Bicycle Routes - 5th Street South - signage only - install by City staff

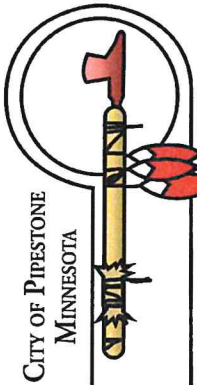
Highway crosswalk signage	2	EA	\$500.00	\$1,000
Crosswalk striping - highway	1	EA	\$400.00	\$400
Trail sign - two signs per block	48	EA	\$45.00	\$2,160
Subtotal Construction Costs				\$3,560
Project Contingency - 20%				\$712
Total Construction Costs				\$4,272
AMOUNT TO USE FOR PROJECT BUDGET:				\$4,300

On-Street Bicycle Routes - 3rd Avenue West - signage only - install by City staff

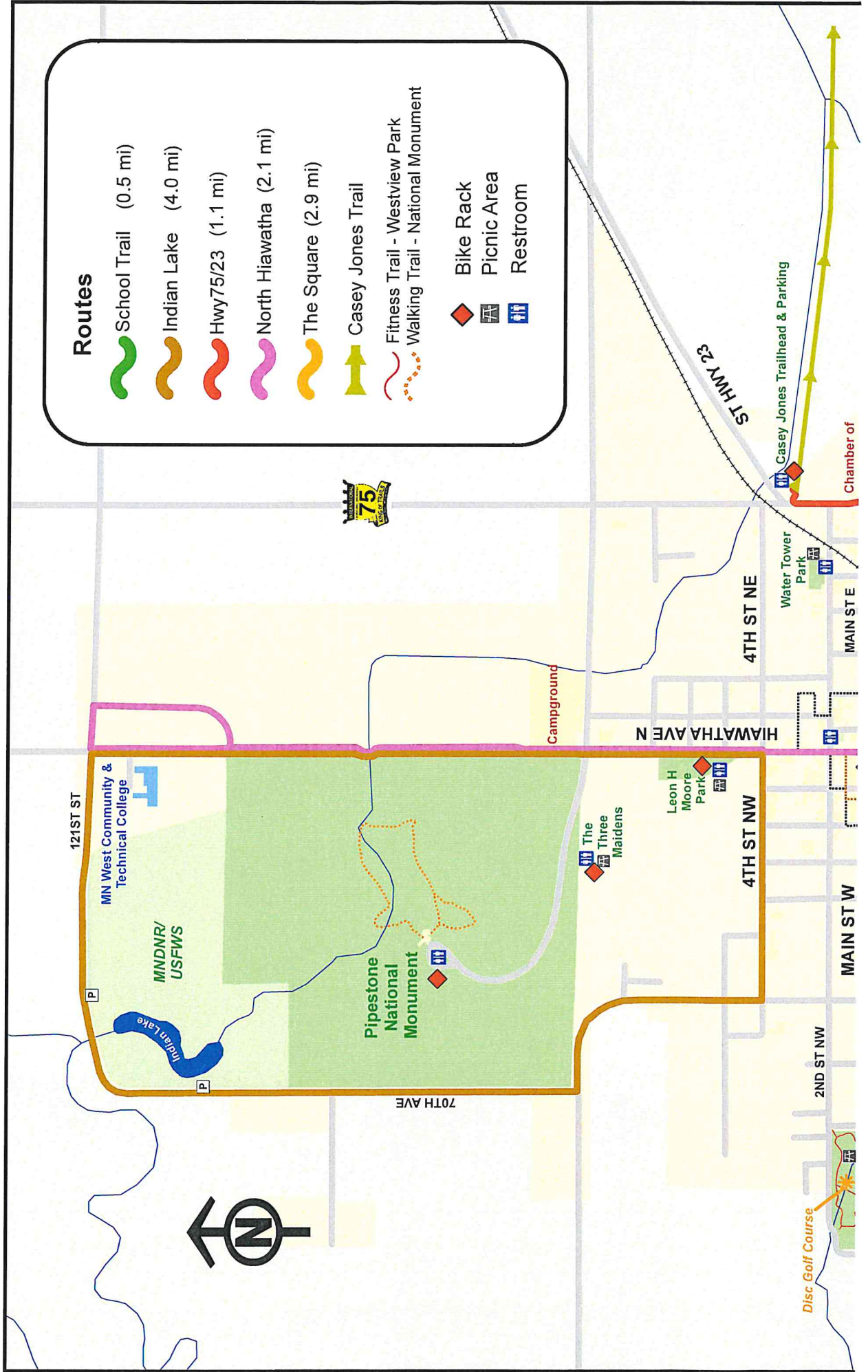
Highway crosswalk signage	2	EA	\$500.00	\$1,000
Crosswalk striping - highway	1	EA	\$400.00	\$400
Trail sign - two signs per block	28	EA	\$45.00	\$1,260
Subtotal Construction Costs				\$2,660
Project Contingency - 20%				\$532
Total Construction Costs				\$3,192
AMOUNT TO USE FOR PROJECT BUDGET:				\$3,200

APPENDIX B – Pipestone Walking & Biking Routes Map

Note: Map is current at the date of this report, March 2011.



Pipestone Walking & Biking Routes



APPENDIX C – 11 x 17 Master Plan Map

