STURGIS COMMUNITY
NON-MOTORIZED TRAILWAY MASTER PLAN

Sturgis Community Partners:
Sturgis Area Community Foundation
Sturgis Hospital
City of Sturgis
Fawn River Township
Sturgis Township
Sherman Township
Burr OakTownship

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INTRODUCTION

The City of Sturgis and the neighboring townships of Sturgis, Fawn River, Sherman, and Burr Oak (the Sturgis Community) understand the importance of non-motorized trail systems, and are committed to developing a connected network of non-motorized trails within their community. The Sturgis Community also recognizes that non-motorized systems are a wonderful community asset due to the many benefits including: recreation, alternative transportation, increased mental and physical well-being, pollution reduction, conservation of natural resources, increase in property values, and improved quality of life. The Sturgis Community has developed this Trailway Master Plan for both on and off-road, non-motorized facilities in order to promote linkages between, schools, businesses, services, parks, natural resources, and cultural and historic landmarks to each other as well as to adjacent communities. This master plan is intended to serve as a guide to non-motorized trail and bike lane planning, funding, design and construction into the future. The Master Plan will also serve as a document that can communicate the coordinated goals and direction of non-motorized transportation in the Sturgis Community.

PURPOSE OF THE MASTER PLAN

The purpose of this plan is to create a 20-year vision for both on and off-road non-motorized facilities that will provide safe, enjoyable, and convenient connections within the community and beyond. Goals for the master plan include:

- Utilize community and stakeholder involvement and input to develop the vision.
- Describe the benefits of a connected non-motorized trailway system.
- Identify trail connections within the City of Sturgis as well as connections to points of interest within the Townships of Sherman, Burr oak, Fawn River and Sturgis.
- Illustrate potential non-motorized connections throughout the Sturgis Community.
- Serve as a guide for implementation strategies, planning, funding, design, and construction.
- Utilize the plan to connect beyond the Sturgis Community to regional systems.

The document that follows identifies the benefits of non-motorized transportation; reviews existing local and regional systems including points of interest within the community such as schools, parks, and recreational areas; maps illustrating the proposed locations for non-motorized facilities; design considerations and, an implementation strategy including estimates of probable costs and potential funding strategies.

BENEFITS OF NON-MOTORIZED SYSTEMS

Non-motorized systems can provide many benefits that can strengthen the well-being of the community while providing opportunities to improve economic and environmental conditions. Non-motorized systems promote healthier communities and increased recreational opportunities by providing connections to schools, parks, businesses, downtowns, and shopping centers. Non-motorized systems can also boost local economies by attracting visitors and increasing property values. These systems can also lessen environmental impacts associated with automobiles by: providing alternate transportation opportunities; reducing the traffic burden on the community; lessening vehicle congestion; and decreasing fossil fuel emissions. The following describes these benefits in more detail.

Recreation

As communities grow, through population increases and economic growth, the demand for recreational facilities tends to increase. The Sturgis Community is home to many wonderful recreational points of interest such as natural and historic areas, campgrounds, and lakes. However, users mostly rely on the automobile to access to these facilities because a safe, non-motorized route does not exist. Non-motorized systems can improve recreation opportunities by linking downtown and residential core areas with local and regional parks, shopping centers, and schools. Trails accommodate a wide range of active recreational interests, such as bicyclists, walkers, runners, hikers, in-line skaters, and cross-country skiers. By providing access to lakes, parks, and natural resource areas, non-motorized systems also encourage passive recreation endeavors such as fishing, picnicking, camping, hiking, and outdoor education. By connecting Sturgis and adjacent townships with each other and with recreational areas, non-motorized systems can improve the quality of life for the residents of the Sturgis Community.

Environmental

Non-motorized systems promote the concept of reducing pollution and conserving important natural features. By reducing the number of vehicles on the road, non-motorized systems can improve air and water quality. Connections through greenway corridors can also help protect sensitive ecological systems by minimizing the likelihood of intense development of these areas. Investment in the community's non-motorized network is an investment in the health and integrity of the community's natural resources.

Alternative Transportation

The lack of a developed non-motorized system within the Sturgis Community would suggest that the community is heavily reliant on the automobile. Walking or bicycling as a mode of transportation can be difficult and often dangerous, and, as a result short trips that could easily be made by bicycle or foot are often made by car. But, as more people become frustrated by fuel costs, traffic congestion, and maintenance, that accompany automobile commuting, communities are looking for alternative ways to get around. As support grows for alternative transportation modes, more communities are looking to non-motorized systems for answers. These efforts are reducing automobile-dependency, while making walking and biking safer, more enjoyable, transportation options.

Physical and Mental Well-Being

The recreation opportunities created by non-motorized systems can contribute to improved physical and mental well-being by providing immediate access to destination-based corridors that are safe and enjoyable. The presence of non-motorized systems can eliminate structural and motivational barriers to more active lifestyles, increase social interaction, and enhance physical and mental well-being. It has been well documented that increased physical activity, such as walking, running, or bicycling can reduce the risk of several health problems. These facilities can also serve as gathering points for community clubs and social groups such as running and bicycling clubs, walk- to-work days, and charity races. By making physical activity safer and easier, non-motorized systems can reinforce the culture and acceptability of active communities and can help spread awareness about the importance of regular exercise. In addition to physical health benefits, non- motorized systems may also provide other advantages, such as improved mental outlook, enhanced well being, increased sense of self reliance, improved social relationships, and a greater sense of independence and freedom.

Economic Development

As communities look for ways to help boost the local economy, many identify the implementation of non-motorized systems to help complement these efforts. Access to non-motorized systems has proven successful at contributing to increased property values, increased business, attracting tourism, and lowering health costs.

The access provided by non-motorized systems is widely regarded as an attractive component of a community. Such systems can provide places for children to recreate, access to natural features, and reduce automobile reliance. These characteristics are often sought by potential homebuyers, and are often touted as key selling points by real estate agents. Non-motorized systems provide a unique amenity that can enhance the character and economic vitality of nearby properties.

Attracting visitors and stimulating economic activity are central to Michigan's economic development objectives. Local and regional non-motorized systems can increase the circulation of people and money within and between communities. Trails that link regional communities can transform ordinary communities into destinations. Coupled with unique natural features such as lakes, rivers, and parks, these destinations become even more desirable for prospective visitors. Local communities, in turn, benefit by providing equipment, refreshments, and lodging to trail users.

EXISTING FRAMEWORK

There are many factors that have been considered in studying the current conditions within and around the Sturgis Community. Each of these elements is critical in developing a long-term non-motorized plan that makes sense, is safe, and can be implemented.

Utilizing aerial photographs and City GIS data, a base map of existing conditions was generated, for both the City of Sturgis as well as the neighboring Townships, as a foundation for future non-motorized transportation planning. Local points of interest such as parks, schools, and roads were mapped in relation to the City boundaries. Existing conditions information also included an understanding of primary regional points of interest within the adjacent Townships such as campgrounds, boat access sites, Township Halls, and other community assets. Providing connections to these destinations was a guiding principal throughout the development of the overall non-motorized vision.

The following includes a description of local and regional non-motorized systems; a description of the primary destinations within and in close proximity to the Sturgis Community; a description of the existing system within the Sturgis Community; and other related conditions that affect the location of proposed connections.

REGIONAL TRAIL SYSTEMS

To help develop the non-motorized vision for the Sturgis Community, it is important to review how the area fits into the bigger picture of regional non-motorized systems.

NORTH COUNTRY NATIONAL SCENIC TRAIL

The North Country National Scenic Trail (NST) consists of 1700 miles of certified segments and links scenic, natural, recreational, historic, and cultural areas in seven northern tier states: New York, Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, and North Dakota. The eastern end is at New York's Crown Point State Historic Site on the shore of Lake Champlain and the western end is at Lake Sakakawea State Park in west central North Dakota where it joins the route of the Lewis & Clark National Historic Trail. In between it meanders through the states including Michigan where it uses a stretch of the Battle Creek Linear trail and travels north to the shores of the Great Lakes. When completed, the North Country Trail will be the longest in the U.S. traversing more than 4,000 miles.

KAL-HAVEN TRAIL

The Kal-Haven Trail is a 34-mile crushed limestone path that traverses along a former railroad bed between Kalamazoo and South Haven. Sections of this trail also have equestrian trails that run adjacent to the main trail.

KALAMAZOO RIVER VALLEY TRAIL

The Kalamazoo River Valley Trailway Partnership (KRVTP) was formed to create a 30-mile linear park, linking several destinations throughout the Kalamazoo River Valley. The Proposed Kalamazoo River Valley Trailway is part of a larger initiative to restore the ecological integrity of the Kalamazoo River and the industrial remnants, or "brown fields," along its banks.

Battle Creek Linear Park

The Linear Park contains 17 miles of paved path, including four loops, interpretive signage, and a number of amenities. Accessible from several parking and non-motorized pathways, the Linear Park provides picnicking, playground, and fishing opportunities for people of all ages and abilities.

Michigan Department of Transportation Southwest Michigan Non-Motorized Plan

The Michigan Department of Transportation (MDOT), Southwest Region has been working toward developing a Non-Motorized Transportation Investment Plan. The Plan focuses on the nine counties comprising MDOT's Southwest Regional jurisdiction, including: Allegan, Barry, Van Buren, Kalamazoo, Calhoun, Berrien, Cass, St. Joseph, and Branch Counties. Guided by community input, MDOT developed nine non-motorized facility maps, one for each county in the Southwest Region. These maps identify existing and proposed non-motorized routes for each of the counties involved.

River Country Tourism Council

The River Country Tourism Council is a resource that promotes leisure activities and provides recreational information for the Southwest Michigan area. In addition to providing information about golfing, camping, lodging, boating, swimming, fishing, and parks, it also provides bicycle route maps around the area. The outlined bicycle routes follow existing roadways and there are eight different routes totaling 221 miles. The different routes vary in skill level, include various points of interest, and have different themes such as covered bridges, lakes, rolling and curvy terrain, and dirt tracks.

Pumpkinvine Nature Trail System

The Pumpkin Vine Trail System is composed of 26 miles of paved trails that traverses through the Indiana communities of Elkhart, Goshen, Middlebury, and Shipshewana. The trail system follows the original route of the abandoned Pumpkinvine Railroad line that at one time passed through the City of Sturgis. The trail system passes through urban areas, small towns, and agricultural communities. The countryside along the Pumpkinvine Nature trail includes the third largest Amish community in the U.S.

Related Initiatives

A number of related planning efforts exist within the Sturgis Community that relate to or have an effect on the proposed non-motorized trailway system within the community.

City of Sturgis 2010 Land Use Master Plan

A land use master plan was developed in 2010 for the City and focuses on encouraging quality new growth while preserving the small town character. The Plan outlines goals and objectives for land use, roadways, utilities, and other City services, including parklands and trailways, to guide the future growth and development of the City.

5-year Parks and Recreation Action Plan

The 5-year action plan helps guide community leaders in making decisions regarding future recreation planning and investments. The action plan contains improvement goals for the City's parks as well as a capital improvement schedule, which outlines recreation projects and budgets through 2012.

2008 Street Improvements
The City developed a list and plan for future street improvement projects. As these projects become funded, adding non-motorized trail facilities to the projects should be considered.

2011 Cooperation, Collaboration & Consolidation Plan
The Cooperation, Collaboration and Consolidation Plan was developed as a means of working with other local communities to achieve the following goals: Improve services and reduce costs. The plan outlines a listing of projects, partners, cost savings and benefits. By partnering with other organizations and municipalities the Sturgis Community can become an improved, more efficient organization better able to provide for the citizens and strengthen the community. The plan also identifies the development of walking and biking trails within the Sturgis Community as a potential collaboration project.

Existing conditions
In developing the non-motorized trailway system, a number of existing conditions, both within the City of Sturgis and within the adjacent townships, were considered including existing trail networks, parks, schools, and other local and regional points of interest.

Existing Trail Networks
Currently, the Sturgis Community has a very limited system of existing non-motorized systems.

- Existing Bike Lane: There is approximately 3,792-feet (0.72 miles) of marked bicycle lanes located along both sides of Chicago Road (US 12), which runs east/west through the downtown section of Sturgis between x Road and South Lakeview Ave.
- Existing Side Path: There is approximately 1,313-feet (0.25 miles) of an 8-foot wide paved side path along the north side of E. Lafayette St. between North Lakeview Ave. and the Sturgis Middle School.
- Existing Trails: Thurston Woods Park features an extensive paved trail system that is contained within the park and branches out to the adjacent Doyle Community Center.

City of Sturgis Parks
The City park system is one of the gems of the community and includes 15 mostly developed park sites. All of the park facilities are considered primary destinations in terms of making non-motorized connections.

- Thurston Woods Park features the most extensive existing trail network with the City of Sturgis and should be a primary connection point for future non-motorized trails.
- Pahl Point Park features nature trails and, although located outside of the City core area, should be a future connection point through a regional trail connection.

Schools
The City of Sturgis is served by Sturgis Public Schools. All of the school facilities are also considered primary destinations in terms of making non-motorized connections. The school district includes 5 elementary schools, 1 middle school and 1 high school. There are also 5 other private school facilities within the City and are also considered primary destinations. School facilities provide many recreational opportunities to the community.

DOYLE COMMUNITY CENTER

The Doyle Center is a large facility (75,000 square feet) that houses a range of indoor and outdoor recreation facilities. Facilities include: a complete fitness center, tennis, basketball, racquetball, and volleyball courts, an indoor walking track, outdoor sand volleyball courts, and an outdoor paved path around the facility. The community center building is located adjacent to Thurston Woods Park and connects to the trails in the park.

RAILROAD LINES

There are two main railroad lines that bisect the City into four parts. The line running from Sturgis to the west is owned by Michigan Southern Railroad and is an active line that proceeds to White Pigeon and beyond to Elkhart Indiana. The line running to the east is owned by the Indiana Northeastern Railroad and proceeds to the Village of Burr Oak and beyond to Coldwater, but not an active line. The north / south railroad is an active line. These railroad lines provide opportunities to incorporate non-motorized trail systems within the railroad right of way.

- The Pumpkinvine Railroad, abandoned in 1960, was a railroad line that once ran from Goshen, Indiana through Sturgis and on to Battle Creek. The railroad right of way has since reverted back to the property owners and its original location is hardly identifiable anymore. During the public input process the community expressed interest in trying to locate a non-motorized trail system in the location of the original Pumpkinvine railroad as a gesture to the history of the community as well as a means of connecting to the Pumpkinvine Trail system in Indiana.

REGIONAL POINTS OF INTEREST

The Sturgis Community is lucky to contain many wonderful recreational, historical, and cultural points of interest within the adjacent Townships of Fawn River, Sherman, Sturgis, and Burr Oak. The following points of interest were identified as primary destination connections with the regional non-motorized system due to their recreation potential:

- Camp Fort Hill
- Tamarack Lake
- Thompson Lake
- Minnewaukan Lake
- Omena Lake
- Grey Lake
- Stewart Lake
- Sweet Lake
- Cade Lake Campground
- Lee Lake
- The Amigo Center
- St. Joseph County Conservation Club
- Nottawa Stone School
- Fawn River Township Hall
- Burr Oak Village / Township Hall
- Fish Lake
- Perrin Lake
- Prairie River Lake
- Sturgis Township Hall

- Sherman Township Hall
- Klinger Lake
- The Fawn River

NON-MOTORIZED TRAIL SYSTEM

The Sturgis Community has developed this plan to be used as a guide for non-motorized system planning, funding, design, and construction into the future. The Non-Motorized Trailway Plans shown in this report represent a long-term vision for the development of non-motorized facilities. Additional work will need to follow this initial planning effort including further planning, public involvement, design, and implementation. This is a living document and it is anticipated that, over time and as additional information is collected, it is possible that the proposed locations for non-motorized trails could change due a number of issues such as funding, leadership changes, project priorities, public opinion, and land use. This master plan is a planning document that serves as a foundation and starting point for the development of non-motorized connections.

Understanding that this master plan is a foundation for the Sturgis Community, a steering committee was developed to guide its development. Utilizing available mapping information, the steering committee met a number of times to confirm the accuracy of the information, provide input as to proposed improvements, desirable connections, points of interest, and review public input. The Sturgis Community also held public workshops to garner input and to assist in plan formulation for a potential non-motorized network, priority routes and corridor connections. The planning process culminated with the identification of a non-motorized network that traverses the Sturgis Community providing connections to downtown Sturgis, schools, parks, institutions, neighborhoods, as well as routes that provide connections to regional points of interest within the four adjacent Townships of Fawn River, Sherman, Sturgis, and Burr Oak.

TYPES OF TRAIL NETWORKS

Non-motorized facilities and accommodations can take many forms and designs. During the development of the Master Plan, it became evident through field observations, steering committee comments, as well as public input that a variety of "types" of non-motorized systems will likely be utilized to, over time, develop a connected network. The "types" of non-motorized systems planned within the Sturgis Community are described on the following pages and maps.

BIKE LANE

Bike lanes are on-street facilities that are typically 4 to 5 feet in width and are delineated by a six-inch stripe on the left-hand side of the lane, as well as in-pavement markings such as the symbol of a bicycle and arrow. They designate a space on the roadway exclusively for the use of bicyclists and typically include periodic signage along the route indentifying the bike lane. Motor vehicles are not permitted to drive, park or stand in the bike lane. However, right turning vehicles can enter the bike lane at intersections to complete their turn. Bicycle lanes offer the following benefits:

- Utilize existing pavement for the bike lane which minimizes construction costs.
- Reduce pedestrian/bicyclist conflicts by keeping bikes of sidewalks.
- Establish the correct position of bicyclists on the roadway.
- Provide bicyclists a separate safe space to travel at their own speed.
- Make motorists aware that bicyclists have a space on the road.

PAVED SHOULDER

A paved shoulder refers to additional pavement width of at least 4-feet that has been added to an existing roadway in order to more safely accommodate bicycles. On more rural roadways where bicycle travel is common or desired, wide paved shoulders are highly desirable and are often the

best way to accommodate bicyclists. Shoulders for bicycle use are not typically provided on roadways with curb and gutter. On secondary roadways without curb and gutter where there are few commercial driveways and intersections with other roadways, many bicyclists prefer riding on wide, smoothly paved shoulders. This alternative can be another low cost way to provide non-motorized trail connections by only having to add 4-feet of pavement to a gravel shoulder.

Side Path

A side path is a two-way shared use path located adjacent to a roadway. Typically there is a green space between the pathway and adjacent roadway. Side paths can be effective facilities along roadway corridors with limited adjacent development. This type of facility may have issues such as high construction costs, spatial limitations, easement needs, and conflicts with driveways, utilities, and other site appurtenances.

Off-Road Trailway

Off-road trailways are multi-use facilities that are separated from vehicular travel. Off-road trailways typically follow rivers or waterways, utility easements, greenway corridors, or railroad lines. Off-road trailways offer the following benefits:

- Provide alternative linkages and connections through natural areas.
- Utilize existing utility or railroad right of way reduces land acquisition or easement requirements.
- Provide recreation within natural settings.
- Ability to accommodate many recreational uses.
- Is considered an amenity when adjacent to businesses thus helping increase property values.
- Provides the ability to connect regionally between communities thus attracting tourism and helping boost local economies.

Public Input Process

During the development of the Non-Motorized Trailway Master Plan, two public workshops and two steering committee meetings were held in order to better understand the desires, needs, and preferred routes of the community.

Steering Committee Meeting #1 – February 23, 2012

The first steering committee meeting was a brain-storming and information gathering meeting. Members of the committee were presented with maps of the community and asked to provide suggested points of interest for connections. In addition committee members were asked to write down what they thought were important goals to achieve with the master plan. The group also discussed potential trail routing ideas within the community.

Workshop #1 – April 12, 2012

Approximately 30 people attended the public workshop. The purpose of the meeting was to raise the level of awareness of the Non-Motorized Master Plan; identify the benefits of non-motorized systems; discuss potential routes, connections, and points of interest; gather insight, ideas, concerns, and opinions; and finally, to gauge priority corridors, routes and connections. The attendees were broken up into four groups and each group were provided a map of the City of Sturgis, a map of the regional area of the adjacent townships, and markers, and were asked to write and/or sketch their ideas on the maps. At the end of the workshop each group was asked to

present their thoughts and ideas.

STEERING COMMITTEE MEETING #1 – APRIL 25, 2012

The goal of the second steering committee meeting was to review and distill all of the feedback and ideas that were gathered at the public workshop meeting. The design team took all of the suggested routes and connection points from the public and mapped them on a regional map of the community and the Sturgis City map. The maps were presented to the committee and committee members were asked to provide feedback on the ideas they liked the most and the ideas that weren't as desirable. The main idea that came out of this meeting was to create a hierarchy system of trail types and logical phasing of priority connections.

WORKSHOP #2 – MAY 17, 2012

Approximately 20 people attended the second public workshop. The purpose of the meeting was to continue to raise awareness of the Non-Motorized Master Plan; to review the potential non-motorized network; to discuss implementation strategies and design considerations; and finally, to gather input, comments, and concerns regarding the Master Plan concepts. After an overview of the project and draft Master Plan, participants discussed a variety of issues and concerns regarding the proposed routes, connections, design considerations, and implementation strategies.

SOCIAL MEDIA

A facebook page was also created for the project as a means for the community to provide feedback and comments regarding the project. Meeting notes and schedules, plans, and informational articles were regularly posted on the page for public review. The facebook page attracted 15 community members who were active in providing feedback and asking questions about the project.

PROPOSED TRAIL NETWORK

The City of Sturgis and Regional Area maps on the following pages illustrate the foundation for a vision for both on and off-road non-motorized facilities that when implemented, will provide a convenient, and safe option to link schools, businesses, parks, lakes, and other points of interest to each other as well as to adjacent communities and resources.

As has been described, the Non-Motorized Transportation Trailway Master Plan maps represent a long-term vision and is intended to serve as a guide to non-motorized system planning, funding, design and construction into the future. Significant amounts of work, further planning, public involvement, design, and implementation efforts will need to follow this master planning effort.

The overall Sturgis Area Plan has been broken into five logical phases in order to help the community plan for funding in attainable sections. Phase One consists of bicycle lanes that create the primary spine of the system through the City utilizing existing wide paved roadways and connecting to the existing bicycle lane in the downtown area. This main spine also looks to connect beyond the City limits and connect to the regional trail system. Phase One would be considered a short-term goal (0-5 years). Phase Two begins to create an outer loop trail around the City and is made up of a combination of bicycle lanes, paved shoulders, side paths and one small section of off-road trail. Phase Two would be considered a moderate-term goal (6-10 years). Phases Three and Four begin to create internal secondary loop systems within the City limits that connect to the main spine and outer loop. These phases utilize all four trail types and include

utilizing railroad right of way. Phases Three and Four are likely long-term goals (10+ years). Phase Five includes connections from the overall trail network to specific destination points that are not connected to the overall system. It is likely that these connections will be either widened sidewalks or side paths. Phase Five will likely be part of new development or roadway reconstruction projects and the timing will depend on those future projects.

The regional non-motorized trail system has not been broken down into phases as these connections will be more difficult to implement and require coordination and collaboration with multiple municipal agencies. Therefore the timing of implementation of the system is unknown at this time. The implementation of certain bicycle lane or paved shoulder sections could correspond with upcoming County road projects, however it is likely that the regional system will be a long-term goal (10+ years). The regional system utilizes a combination of bicycle lanes, paved shoulders, side paths, and off-road trails to connect to points of interest. Secondary destination connections have also been identified to connect points of interest that aren't connected by the overall regional trail network. These connections will need further study as to the trail type and location due to existing natural features, but will likely fall into the side path or off-road type.

Estimated Distances of Non-Motorized Transportation Network within the City of Sturgis
(Calculations estimated and based off GIS mapping)

Phase 1

Bike Lane:	
Nottawa St:	3.00
Chicago Rd:	2.40
Total Bike Lane:	5.40
Total Phase 1:	**5.40**

Phase 2

Bike Lane:	
N. Centerville Rd:	0.86 mi
N. Lakeview Ave:	0.47 mi
E Lafayette St:	0.28 mi
Total Bike Lane:	1.61 mi
Paved Shoulder:	
Fawn River Rd:	2.50 mi
S. Franks Ave:	0.70 mi
N. Centerville Rd:	0.66 mi
N. Lakeview Ave:	0.53 mi
Total Paved Shoulder:	4.39
Side Path:	
Franks Ave:	1.1 mi
White School Rd:	1.3 mi
Total Side Path:	2.4 mi

Off-Road:

Franks Ave to Lakeview Ave:	0.20 mi
Total Off-Road:	0.20 mi
Total Phase 2:	**8.60 mi**

Phase 3

Bike Lane:	
E. South St:	1.00 mi
S Lakeview Ave:	0.45 mi
E. Congress St:	0.35 mi
Vinewood Ave:	0.30 mi
Total Bike Lane:	2.10 mi
Paved Shoulder:	
W. South St:	0.20 mi
Total Paved Shoulder:	0.20 mi
Side Path:	
Broadus St.	0.34 mi
S. Lakeview Ave:	0.10 mi
Total Side Path:	0.44 mi
Off-Road:	
Railroad Line	1.60 mi *(between Franks Ave. and Centerville Rd.)*
Railroad Line	0.66 mi *(between Chicago St. and South St.)*
Total Off-Road:	2.26 mi
Total Phase 3:	**5.00 mi**

Phase 4

Bike Lane:	
S. Lakeview Ave:	0.20 mi
N. Lakeview Ave:	0.30 mi
Lafayette St:	0.91 mi
Total Bike Lane:	1.41 mi
Paved Shoulder:	
S. Lakeview Ave:	0.32 mi
Total Paved Shoulder:	0.32 mi
Side Path:	
Clay St:	0.50 mi
Lafayette St:	0.10 mi
Total Side Path:	0.60 mi
Off-Road:	
Railroad Line:	0.69 mi *(Lafayette St to North City limits)*
Railroad Line:	2.90 mi *(Mckee St to South City limits)*

Railroad Line:	0.51 mi *(Franks Ave. to Bighill Rd)*
Total Off-Road:	4.10 mi
Total Phase 4:	**6.43 mi**

Phase 5

Side Path:

Magnolia St:	0.14 mi
Wenzel St:	0.16 mi
Congress St:	0.15 mi
Arden Park Ave:	0.15 mi
Jerolene St:	0.30 mi
N. Lakeview:	0.50 mi *(from Lakeview through subdivision to Wall School)*
Total Side Path:	1.40 mi
Total Phase 5:	**1.40 mi**
Total All Phases:	**26.83 mi**

Estimated Distances of Non-Motorized Transportation Network within the Regional Network (Calculations estimated and based off aerial photographs)

Bike Lane:

Shimmel Rd:	12.80 mi
US 12:	14.90 mi
Centerville Rd:	1.80 mi
M-66/Nottawa Rd:	8.70 mi
S. Nottawa Rd:	1.40 mi
Total Bike Lane:	39.60 mi

Paved Shoulder:

Fawn River Rd:	6.50 mi
Big Hill Rd:	2.50 mi
Airline Rd:	3.70 mi
Balk Rd:	6.20 mi
Banker St. Rd:	7.00 mi
Middle Colon Rd:	6.60 mi
Centerville Rd:	1.20 mi
Featherstone Rd:	0.94 mi
Total Paved Shoulder:	34.64 mi

Side Path:

Hackman Rd:	5.00 mi
Featherstone Rd:	5.00 mi
N. Lakeview Ave:	1.25 mi
Carls Rd:	1.65 mi
Airline Rd:	2.30 mi
Total Side Path:	15.20 mi

Off-Road:

Railroad Line:	8.70 mi	*(East Sturgis City limits to Burr Oak)*
Railroad Line:	3.60 mi	*(North Sturgis City limits to Banker St. Rd.)*
Railroad Line:	4.00 mi	*(West Sturgis City limits to US 12)*
Total Off-Road:	16.30 mi	

Secondary Destination Trails:

Airline Rd. to Camp Fort Hill:	0.43 mi
Airline Rd. to Thompson Lake:	1.10 mi
Banker St. Rd. to Nottawa Stone School	4 mi
Big Hill Rd. to Cade Lake to US 12	2.32 mi
Total Secondary Destination Trails:	7.85 mi

Total Regional Trails: 113.59 miles

IMPLEMENTATION STRATEGIES

The strategies discussed in this section of the report are actions that will work toward implementation of the proposed non-motorized system as well as highlight the Sturgis Community as a non-motorized friendly community. It is possible that over time the particulars and details of this plan, the proposed corridors, and the types of systems may change due to timing of other projects, funding opportunities, public opinion, etc. Because of this fact, this section of the Master Plan in particular should be reviewed and updated on a regular basis as priorities shift, segments are implemented, and funding opportunities and sources change.

This section summarizes recommended actions, evaluation criteria for prioritizing routes, cost estimates for implementation, recommendations regarding policies and ordinances, and potential funding sources. It should be noted that, although an important element of walkable communities, sidewalks were not evaluated and not addressed as part of this planning process.

PRIORITY SELECTION CRITERIA

This Master Plan is a 20-year vision and will take time and funding to be fully realized. The criteria below have been developed in order to help determine how the priority of projects could be selected for implementation. Many of the routes and corridors may be implemented based on the timing of other road or development projects however; there are other factors and elements that should be considered when determining the selection of the initial implementation projects. Over time, as the non-motorized system expands, priority route selection criteria will likely change.

- Ease of implementation
    - Few design conflicts
    - Lower construction costs
    - No environmental challenges
    - Right of way or easement available
- Provides access to multiple destinations / points of interest / recreational activities
- Coincides with other road reconstruction, utility, or park construction projects
- Will improve and/or enhance unsafe areas
- Provide barrier free accessibility
- Provides connections to existing local and/or regional non-motorized facilities
- Includes connections to schools
- Provides alternate transportation modes
- Provides connections to other communities
- Degree of impact on vehicular traffic capacity
- Available funding sources

ACTION PLAN

The following actions will assist in the implementation of a connected non-motorized system within the Sturgis Community. The recommended actions have been broken into two categories: short-term actions and on- going actions. Short-term actions should be the focus of the first 5 years (2013 - 2018) of this plan. On-going actions are those things that will require continuous attention and focus through- out the life of the plan. The recommended actions are not listed in any order of priority as they are all essential to the plans success. These actions are in addition to the actual implementation of non-motorized segments and routes.

Short-Term Actions

- Adoption of the Non-Motorized Plan by the City of Sturgis and the Townships of Fawn River, Sherman, Sturgis, and Burr Oak.
- Incorporate the Non-Motorized Plan into existing, current, or future Land Use and Park Master Plans.
- Identify a priority system for trail sections that can be implemented to existing roadways at minimal costs
- Identify potential attainable funding sources.
- Identify upcoming road and reconstruction projects that could include trail segments.
- Work with developers to encourage inclusion of trails with development projects.
- Develop a dedicated maintenance program for the non-motorized system as well as the adequate funds to support the program.
- Develop ordinance and policy language that addresses and encourages non-motorized system connectivity.
- Develop a public awareness campaign to raise awareness of the benefits of trail systems
- Develop a coordinated signage and way-finding program for the non-motorized system (both on- and off-road). Consistent signage that enables the user to know where they are, where they're going, as well as destinations in the area will provide for a more enjoyable and beneficial system. Also providing distance marker signage would be beneficial in identifying trail lengths for users.
- Investigate the need and location for trail way amenities such as bicycle racks, rest stops, benches, and restroom facilities.
- Develop designs for trail heads.

On-Going Actions

- Hold meetings with key stakeholders such as MDOT, County Road Commission and adjacent Township leaders to recognize and celebrate accomplishments, and discuss upcoming non- motorized projects and efforts. This will ensure continued momentum, coordination, cooperation, and connectivity. This will also remind agencies of the commitment to non-motorized facility development.
- Several segments of the proposed regional system are within County road right-of-way. Significant coordination with the County Road Commission will be required on a continual basis to discuss the potential for soliciting grants and providing space for non-motorized facilities or accommodating non-motorized facilities within a planned design and construction project.
- Initiate conversations and meetings with the railroad companies to discuss opportunities for obtaining right of way of abandoned lines or securing easements to plans trails along side the railroads.
- Raise the level of awareness of the plan both internally and externally. Further planning, design, construction, and maintenance of the non-motorized system will require cooperation and coordination from multiple municipal departments including Parks and Recreation, Engineering, and Planning as well as City Commission and Township Boards.
- Continue to promote the plan in newsletters, local newspaper, cable television, radio, and social media outlets.
- Monitor and investigate land acquisition opportunities that would enable the development of the non-motorized system.

- The Non-Motorized Trailway master Plan is a living document and should be reviewed and updated as needed on a regular basis, especially as segments become implemented.
- Incorporate the latest AASHTO standards as the standard for non-motorized construction within the City.
- Research the location of the original Pumpkinvine Railroad and explore alternatives to bring this back to life in the form of a non-motorized trail.
- Establish relationship with MDNR to assist in acquisition of rail to trail projects.

PROBABLE OPINION OF COSTS

The implementation of the non-motorized system will require widespread resources and will take several years, however the planning of the system will be a continuing effort. The primary consideration during the planning for the implementation phase of the Master Plan is construction costs. Construction costs will certainly dictate the phasing and/or timing of the improvements as well as potential funding sources. This section of the Master Plan provides a summary of probable costs for implementation. The costs indicated are a starting point in planning for the cost of implementation and are intended as a guide in establishing preliminary budgets. More detailed engineering design, analyses and site-specific design data must be collected as part of a more detailed design phase and prior to funding requests being submitted.

Estimated Costs for Types of Non-Motorized Elements

Trailway Element	Cost per Mile	Cost per LF
Bike Lane, 4' wide *(Add markings to existing pavement)*	$15,840	$3.00
Bike Lane, 4' wide *(Part of road reconstruction)*	$105, 600	$20.00
Paved shoulder, 4' wide *(Paving existing shoulder)*	$52,800	$10.00
Paved shoulder, 4' wide *(Adding 4' of paving)*	$105,600	$20.00
Repaint shoulders to reduce lane width	$1,000	n/a
Side path, 8' wide	$211,200	$40.00
Side Path, 10' wide	$237,600	$45.00
Side Path, 12' wide	$264,000	$50.00
Off-Road Trail, 8' wide	$132,000	$25.00
Off-Road Trail, 10' wide	$158,400	$30.00
Off-Road Trail, 12' wide	$184,800	$35.00
Timber Boardwalk	n/a	$250.00

Other potential costs related to trail development	
ADA curb ramp with tactile warning	$500 each
Painted crosswalk	$500 each
Traffic signs	$500 each
Pedestrian signs/mile markers	$150 each
Concrete sidewalk	$5.00 per SF
Concrete curb and gutter	$15.00 per LF
Benches	$1,000 - $2,000 each
Trash receptacles	$750 - $1,500 each
Bicycle racks	$500 - $1,000 each

The costs listed above are for bituminous pavement unless otherwise noted. The cost for the bike lane and paved shoulder assume both sides of the street in per mile estimates and assumes no curb and gutter. Please note that these costs can vary based on actual field conditions and do not include items such as engineering and design, surveying, geotechnical work, or easement acquisitions.

POTENTIAL FUNDING OPPORTUNITIES

Potential funding sources for non-motorized planning, design and construction change and evolve on a yearly basis. Understanding available funding programs, their requirements and deadlines requires continuous monitoring. A few of the more common funding sources have been detailed here as a reference and resource. These are in addition to traditional funding methods such as the general fund, millages, bonds, DDA's, etc.

MICHIGAN NATURAL RESOURCES TRUST FUND

The MNRTF provides financial assistance to local governments for land acquisition and the development of land for public outdoor recreation. Any individual, group, organization, or unit of government may submit a land acquisition proposal. However, only state and local units of government can submit development proposals. All proposals for grants must include a local match of at least 25% of the total project cost. An updated Parks and Recreation Master Plan must be on file with the MDNR prior to application. There is no minimum or maximum for acquisition projects. For development projects, the minimum funding request is $15,000 and the maximum is $300,000. Applications are due in April and August for acquisition projects and April for development projects.

LAND AND WATER CONSERVATION FUND

The Land and Water Conservation Fund (LWCF) is a federal appropriation to the National Park Service who distributes funds to the Michigan Department of Natural Resources for land acquisition and development of outdoor recreation facilities. Due to limited funds within this program, the MDNR has focused funding on outdoor development projects. Applications are due in April and the LWCF program requires a 50% local match. The LWCF program utilizes the same application as the MNRTF program.

TRANSPORTATION ENHANCEMENT FUNDS (MDOT)

Transportation Enhancements (TE) activities are federally funded community-based projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic and environmental aspects of the transportation infrastructure. To be eligible, a project must relate to surface transportation. Eligible activities that relate to the implementation of this Master Plan include:

- Pedestrian and bicycle facilities
- Preservation of abandoned railway corridors
- Pedestrian and bicycle safety and education activities

A minimum 20% local match is required for proposed projects and applications are accepted on an on-going basis. County Road Commissions, Cities, and Villages may apply for these funds. MDOT requires adherence to AASHTO Design Standards for Non-Motorized Facilities. This means that all paved paths must be a minimum of 10-feet wide with 2-foot gravel shoulders on each side of the trail.

DALMAC FUND

Established in 1975 to promote bicycling in Michigan, the DALMAC Fund is administered by the Tri-County Bicycle Association and supported by proceeds from DALMAC. The DALMAC Fund supports safety and education programs, bicycle trail development, state-wide bicycle organizations, and route mapping projects. Applications must be submitted between January 1st and March 15th. They are reviewed by the DALMAC Fund Committee and approved by the Board. Grants are made between June and August of the year they were submitted. Applications can be found at www.biketcba.org.

KODAK AMERICAN GREENWAYS AWARDS

Kodak, The Conservation Fund, and the National Geographic Society, provide small grants to stimulate the planning and design of greenways in communities throughout America. Made possible by a grant from Eastman Kodak, the program also honors groups and individuals whose ingenuity and creativity foster the creation of greenways. The application period typically runs from March 1st through June 1st. Program goals are to: develop new, action-oriented greenways projects; assist grassroots greenway organizations; leverage additional money for conservation and greenway development; and, recognize and encourage greenway proponents and organizations. Maximum grant is $2,500, however, most grants range from $500 to $1,500. For more information visit: www.conservationfund.org.

BIKES BELONG

The Bikes Belong Coalition is sponsored by members of the American Bicycle Industry. Their mission is to put more people on bikes more often. The program funds projects in three categories: Facility, education, and capacity building. Requests for funding can be up to $10,000 for projects such as bike paths, trails, lanes, parking, and transit, and safe routes to school. Applications are reviewed on a quarterly basis. More information can be found at www.bikesbelong.org.

STURGIS AREA COMMUNITY FOUNDATION

The Sturgis Area Community Foundation (SACF) is a nearly 18 million dollar community foundation dedicated to serving, supporting and meeting the charitable needs of the Sturgis area. Since inception in 1962 with an initial contribution of $500.00 from the Rotary Club of Sturgis, the Foundation has been improving the quality of life and advancing philanthropy in the community. Funding priorities of the foundation include:

- Improving living and working conditions for the citizens of the Sturgis area.
- Youth and recreation
- Public, educational, charitable or benevolent purposes
- Care of the sick or aged

Grant applications are due by October 15th. For more information see www.sturgisfoundation.org/

GENERAL DESIGN CONSIDERATIONS

The following information provides guidance for typical non-motorized situations within the Sturgis Community. These are intended as guidelines only, although they are based on standards established by the American Association of State Highway and Transportation Officials (AASHTO). There are a number of factors, including actual field conditions that often complicate the design and construction of trail systems, especially in urban areas. Each of the potential trail connections will require detailed analysis and design prior to construction in order to safely accommodate non-motorized transportation. All appropriate standards (outside of this document) that are required for construction should be referenced at the time of design.

BIKE LANE

Bike lane markings can be used to define available road space specifically for bicyclists, and can increase a bicyclists' confidence in motorists not straying into their path of travel. Bike lane markings are also helpful to motorists as they would be less likely to swerve as they pass by a bicyclist. Per national AASHTO and MUTCD standards, the following includes design considerations for bike lanes

- Bike lanes should be one-way facilities and carry bike traffic in the same direction as adjacent motor vehicle traffic.
- A bike lane should be delineated from the motor vehicle travel lanes with a 6-inch solid white line. An additional 4-inch solid white line can be placed between the parking lane and the bike lane. This second line will encourage parking closer to the curb, providing added separation from motor vehicles, and where parking turnover or usage is light, can discourage motorists from using the bike lane as a through travel lane.
- A minimum lane width of 5-feet measured from face of curb; or a minimum of 4-feet of rideable surface measured from the gutter pan edge.
- Directional arrow markings should be placed on the pavement to indicate direction of travel with the flow of traffic. Other standard pavement markings include a white bicyclist symbol and the words "Bike Lane".
- Bike lane striping should not be installed across any pedestrian crosswalks, or railroad crossings, and, in most cases, should not continue through any street intersections.
- At signalized or stop-controlled intersections with right-turning motor vehicles, the solid bike lane striping to the approach should be replaced with a broken line with 2-foot dashes for a distance of 50-200-feet.
- If parking is permitted, the bike lane should be placed between the parking area and the travel lane and have a minimum width of 5 feet.
- If there is a bus stop or high right-turn volume, the 6-inch solid white line should be replaced with a broken line for the length of the bus stop.
- At intersections a separate bike lane should be placed to the right of the right most through lane. Bike lanes should never be placed to the right of a right turn lane.

PAVED SHOULDER

Adding or improving paved shoulders often is the best way, particularly in more rural areas, to accommodate bicyclists and benefit motor vehicles. AASHTO suggests that paved shoulders be at least 4-feet wide to accommodate bicycle travel. However, where 4-foot widths cannot be achieved, any additional shoulder width is better than none at all. The measurement of "usable" shoulder width should not include the width of a gutter pan. A five-foot shoulder is recommended measured from the face of guardrail, curb or other roadside barriers. Additional

shoulder width is desirable if motor vehicle speed exceeds 50 mph, or the percentage of trucks, buses, etc. is high.

The paved shoulder should be of adequate width, smoothly paved, and have adequate strength and stability to support vehicle loads without rutting. Rumble strips or raised pavement markers are not recommended where shoulders are used by bicyclists unless there is a mini- mum clear path of 1 foot from the rumble strip to the traveled way, 4 feet from the rumble strip to the outside edge of paved shoulder, or 5 feet to adjacent guardrail, curb or other obstacle.

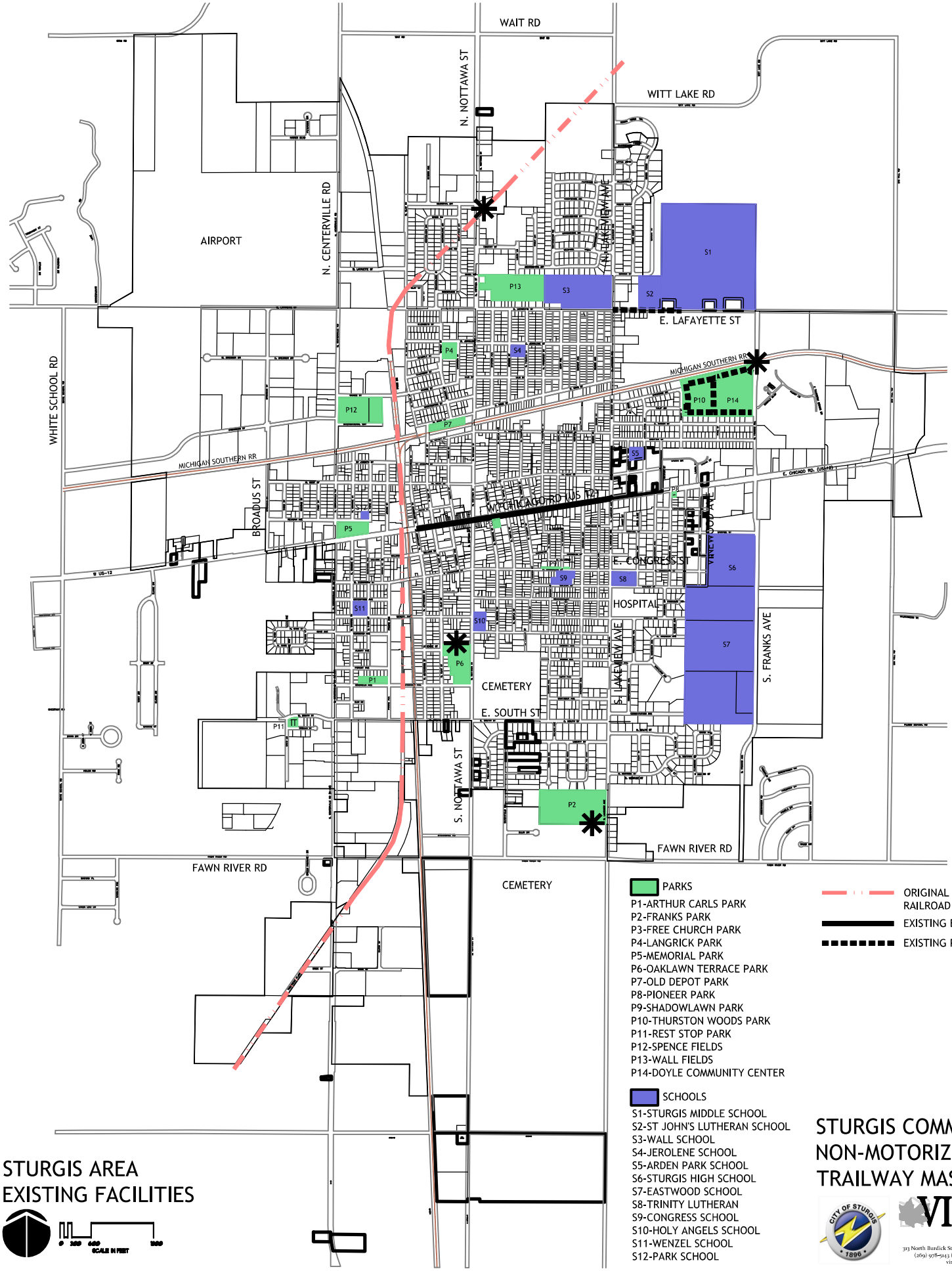
SIDE PATH AND OFF-ROAD TRAILS

When on-road improvements are not feasible, a side path or off-road trailway are typically developed. There are challenges with these types of facilities including, the need for easements and/or right of way, environmental challenges, site distance at intersections, and conflicts with infrastructure such as driveways, utilities, street crossings, and sidewalks. Care should be taken in the design of these facilities to ensure a safe and enjoyable route. When designing these facilities the following design criteria should be considered:

- Consider striping side paths and adding bicycle pavement markings to differentiate them from sidewalks.
- Provide ladder style crosswalks at all road intersections.
- Curb cuts at intersections should be the same width as the path.
- For multi-use trails, the trail should be a minimum 12-wide hard surfaced path, with the option of a 10-foot or 8-foot minimum width in rural low traffic areas.
- Trails should have a 2-3-foot clear shoulder, 125-foot minimum site distance, and 95-fot minimum curve radii.
- Cross slopes on paths shall not exceed 2 percent, and longitudinal slopes shall not exceed 5 percent if possible.
- Side paths should be separated from motorized traffic by a green space.
- If paths need to cross a railroad line, the path should cross at 90 degrees.
- Bollards may need to be placed at the intersections of trails and roadways to prevent vehicles from driving on the trail.
- Mid-block crossings with center medians are preferred to cross multi-lane roadways. It is also desirable to have a pedestrian activated signal at mid-block crossings.

ROUTE SIGNS

In Michigan, mandatory uniform bicycle signs, their placement, and pavement markings are described in the Michigan Manual on Uniform Traffic Control Devices. Bicyclists are typically expected to abide by the same signs as motorists, although there are some signs that are designed specifically for bicycle use. In addition to the MMUTCD requirements, distinctive signs may be developed to denote specific or unique routes and increase the awareness of non-motorized facilities.



PARKS
P1-ARTHUR CARLS PARK
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P13-WALL FIELDS
P14-DOYLE COMMUNITY CENTER

SCHOOLS
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ORIGINAL PUMPKIN VINE RAILROAD ALIGNMENT
EXISTING BIKE LANE
EXISTING PAVED TRAIL

STURGIS AREA EXISTING FACILITIES

SCALE IN FEET

STURGIS COMMUNITY NON-MOTORIZED TRAILWAY MASTER PLAN

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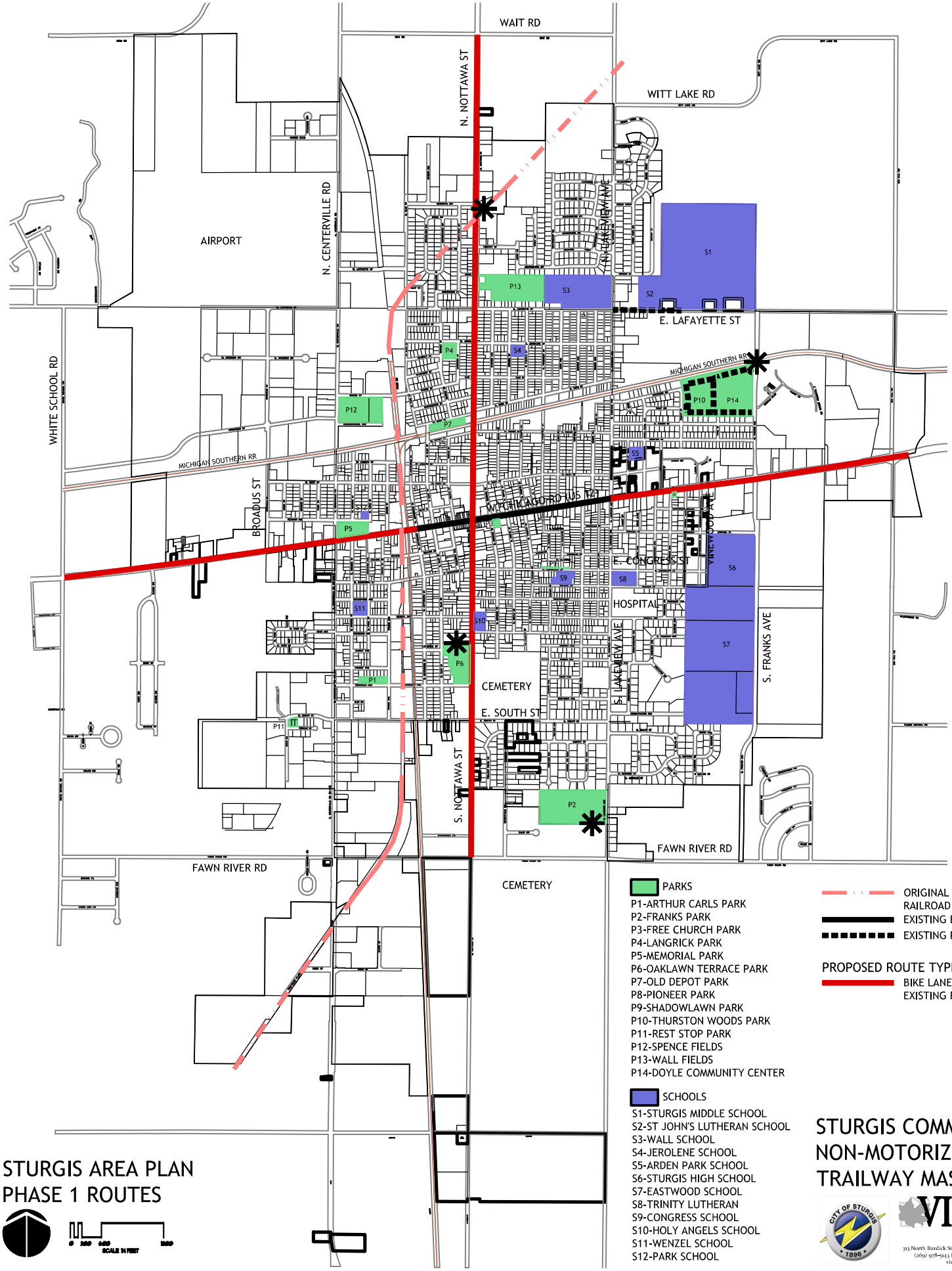

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ORIGINAL PUMPKIN VINE RAILROAD ALIGNMENT
EXISTING BIKE LANE
EXISTING PAVED TRAIL

PROPOSED ROUTE TYPES:
BIKE LANE STRIPPING OF EXISTING PAVEMENT

STURGIS AREA PLAN
PHASE 1 ROUTES

SCALE IN FEET

STURGIS COMMUNITY NON-MOTORIZED TRAILWAY MASTER PLAN

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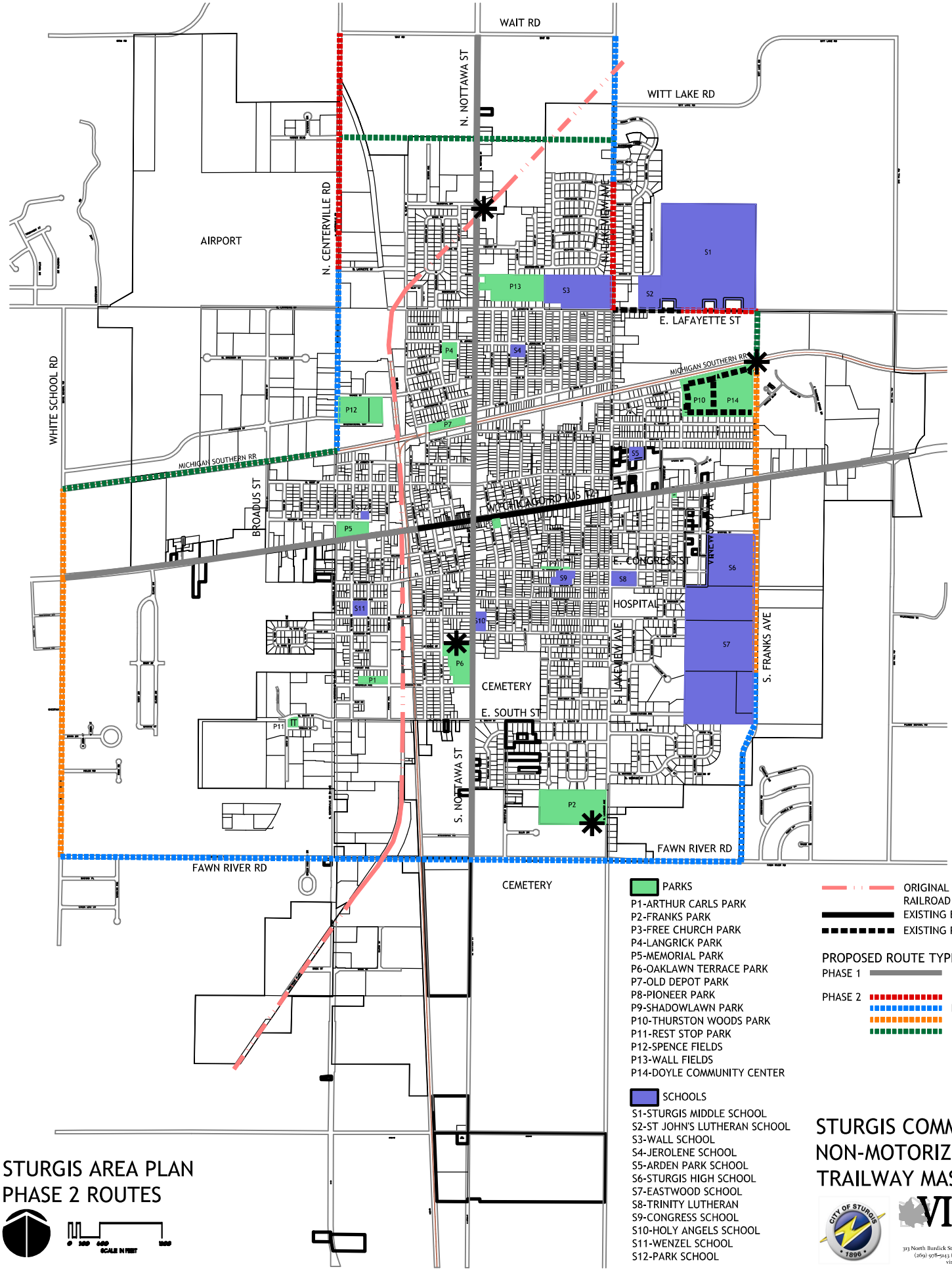

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ORIGINAL PUMPKIN VINE RAILROAD ALIGNMENT
EXISTING BIKE LANE
EXISTING PAVED TRAIL

PROPOSED ROUTE TYPES
PHASE 1
PHASE 2
BIKE LANE
PAVED SHOULDER
SIDE PATH TRAIL
OFF-ROAD TRAIL

STURGIS AREA PLAN
PHASE 2 ROUTES

0 300 600 1200
SCALE IN FEET

STURGIS COMMUNITY NON-MOTORIZED TRAILWAY MASTER PLAN

CITY OF STURGIS 1896

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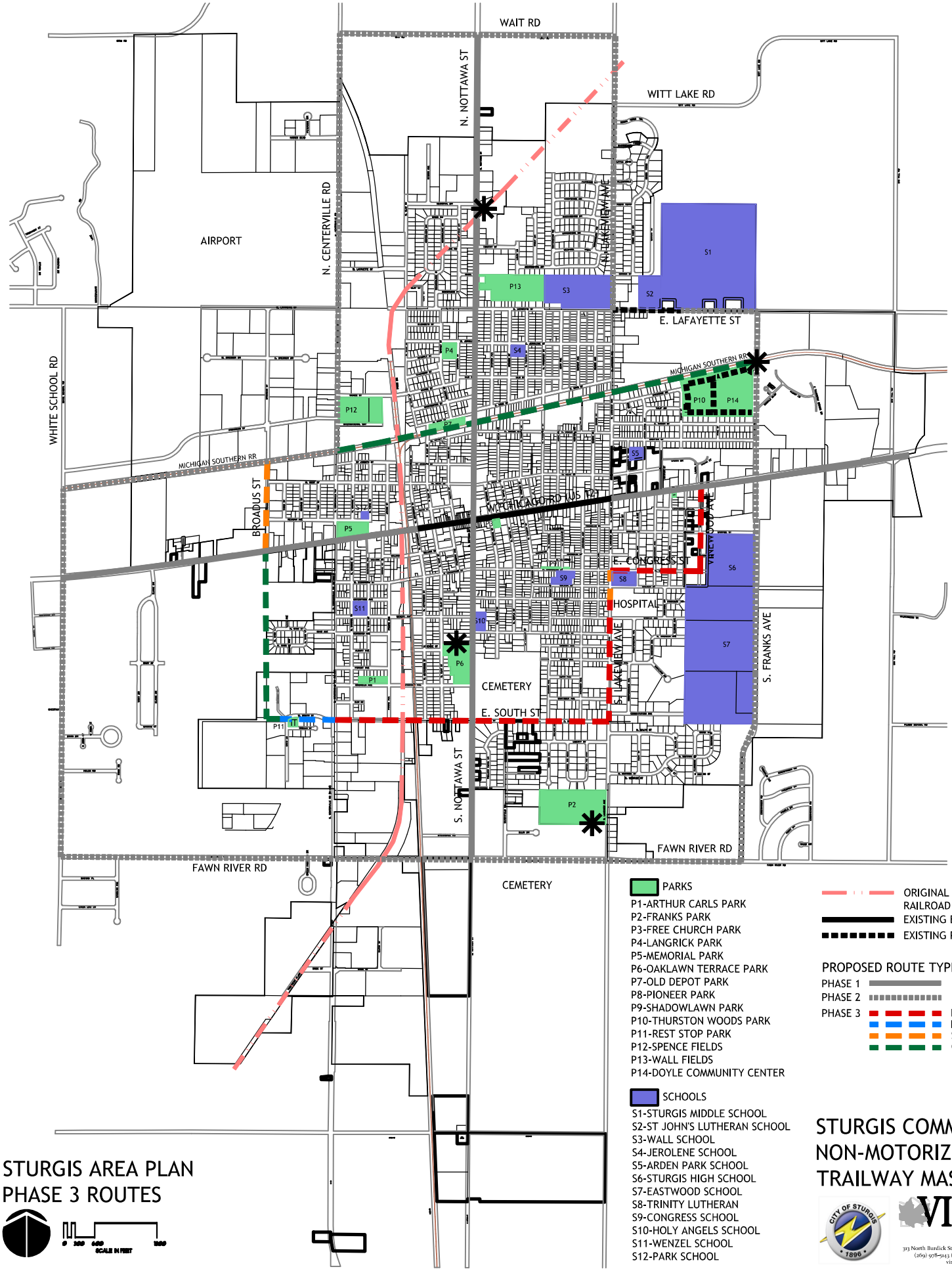

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ORIGINAL PUMPKIN VINE RAILROAD ALIGNMENT
EXISTING BIKE LANE
EXISTING PAVED TRAIL

PROPOSED ROUTE TYPES
PHASE 1
PHASE 2
PHASE 3
BIKE LANE
PAVED SHOULDER
SIDE PATH TRAIL
OFF-ROAD TRAIL

STURGIS AREA PLAN
PHASE 3 ROUTES

SCALE IN FEET

STURGIS COMMUNITY NON-MOTORIZED TRAILWAY MASTER PLAN

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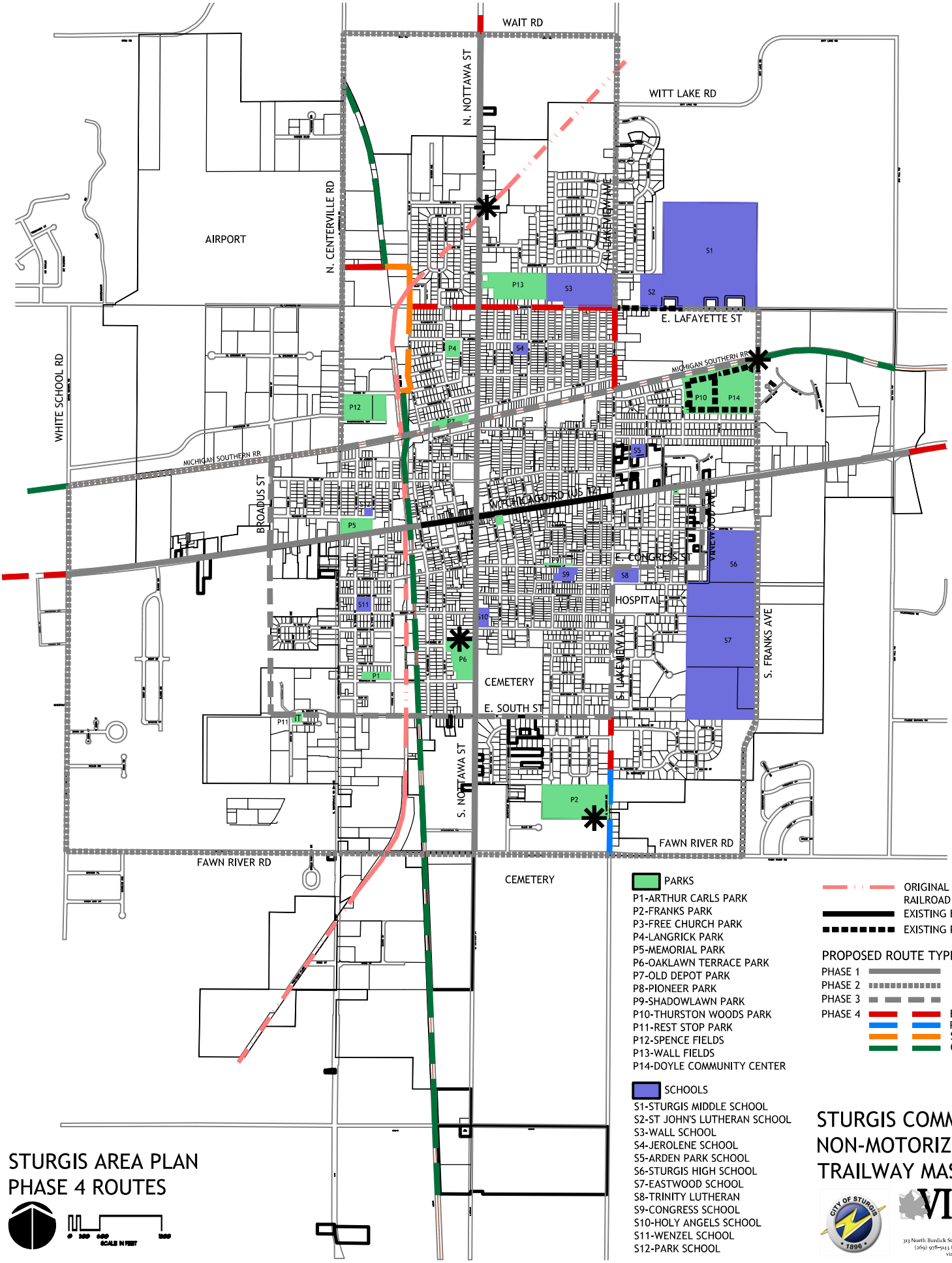

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ORIGINAL PUMPKIN VINE RAILROAD ALIGNMENT
EXISTING BIKE LANE
EXISTING PAVED TRAIL

PROPOSED ROUTE TYPES
PHASE 1
PHASE 2
PHASE 3
PHASE 4
BIKE LANE
PAVED SHOULDER
SIDE PATH TRAIL
OFF-ROAD TRAIL

STURGIS AREA PLAN
PHASE 4 ROUTES

SCALE IN FEET

STURGIS COMMUNITY NON-MOTORIZED TRAILWAY MASTER PLAN

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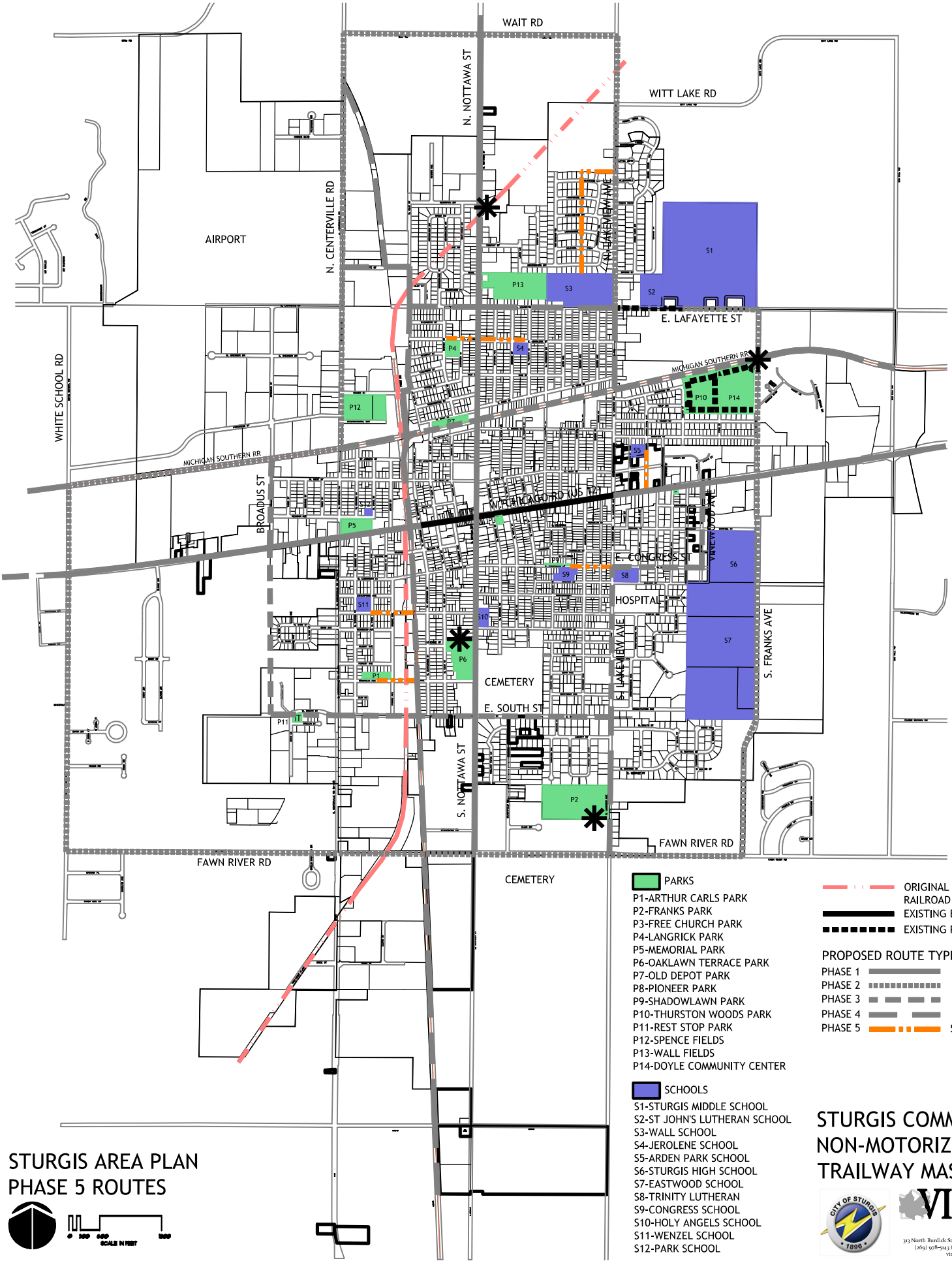

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ORIGINAL PUMPKIN VINE RAILROAD ALIGNMENT
EXISTING BIKE LANE
EXISTING PAVED TRAIL

PROPOSED ROUTE TYPES
PHASE 1
PHASE 2
PHASE 3
PHASE 4
PHASE 5
SIDE PATH TRAIL

STURGIS AREA PLAN
PHASE 5 ROUTES

0 300 600 1200
SCALE IN FEET

STURGIS COMMUNITY NON-MOTORIZED TRAILWAY MASTER PLAN

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