THE CITY OF

SpringHill

KANSAS

Sidewalk Strategy

March 2020

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Introduction

The Spring Hill Sidewalk Strategy presents a plan for a more complete sidewalk network in Spring Hill. A Priority Network of pedestrian improvements is proposed that focuses on safe, comfortable, continuous infrastructure connecting important destinations. The Sidewalk Strategy provides a comprehensive and phased approach to implementing this network with recommendations for design, funding, and project delivery that provide a feasible path to a more walkable community.

This strategy begins with an analysis of the existing sidewalk network, including widths, conditions, and coverage of existing sidewalks. Intersections are evaluated to understand safety and connectivity challenges in locations where conflicts with automobiles may occur. In addition to evaluating existing infrastructure, future land use plans, codes and policies, and technical specifications for public improvements are analyzed to understand their impacts on walkability in Spring Hill.

A Priority Sidewalk Network is proposed that builds upon existing sidewalk infrastructure to connect all major destinations and neighborhoods in the community. Design options for these priority connections are explored, including sidewalks and alternative approaches to pedestrian connectivity that can help to address some of the cost and logistical challenges to traditional sidewalk construction.

Planning-level cost estimates are included for potential near-term projects to provide a sense of scale for the resources required to address pedestrian safety and connectivity needs in Spring Hill. These costs should not need to be carried entirely by the City of Spring Hill. The Sidewalk Strategy identifies a variety of regional, state, and federal programs that can support Spring Hill's efforts to improve pedestrian infrastructure. The Sidewalk Strategy also looks at best practices for project delivery that can support the implementation of projects through coordination with regular street maintenance and other planned street projects.

The following principles guide the location and design of pedestrian improvements identified in this strategy. Pedestrian connections in Spring Hill should be:

Safe and Comfortable for All Ages and Abilities

Pedestrian routes and facility designs should ensure that people of all ages and abilities can safely travel, and support streets that are inviting, comfortable, and functional for all users.

Direct and Continuous

Routes should provide a direct and efficient path to destinations without gaps or barriers, while also being located so that all areas of the city have convenient access to high-quality facilities nearby.

Connecting Important Destinations

People walking want to travel to the same destinations as motorists. Pedestrian routes should be located and prioritized to connect people to the destinations they want to visit.

Existing Conditions

Sidewalks

The first step in planning for sidewalk improvements is understanding the location and condition of existing sidewalks in Spring Hill. The following sidewalk inventory includes the location, width, repair, and general coverage of sidewalks in Spring Hill. This data was collected through a mix of field observations and analysis of aerial photography and digital mapping sources.

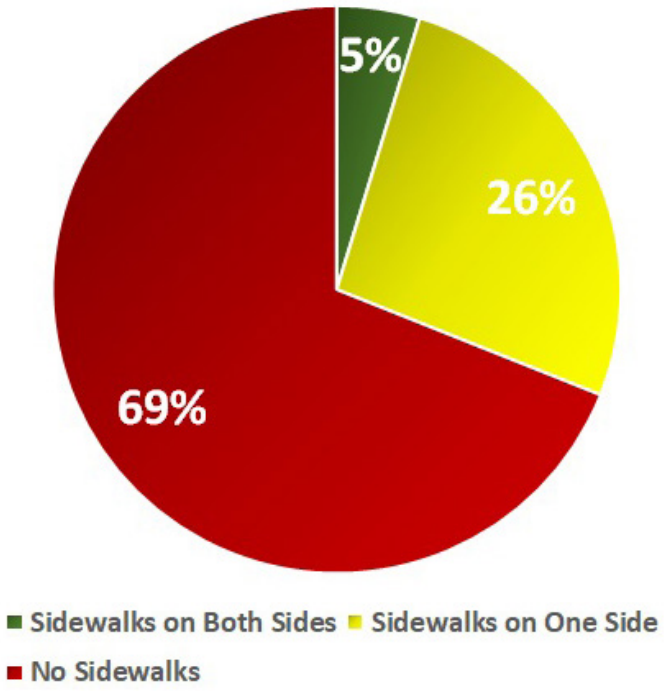
Sidewalk Coverage

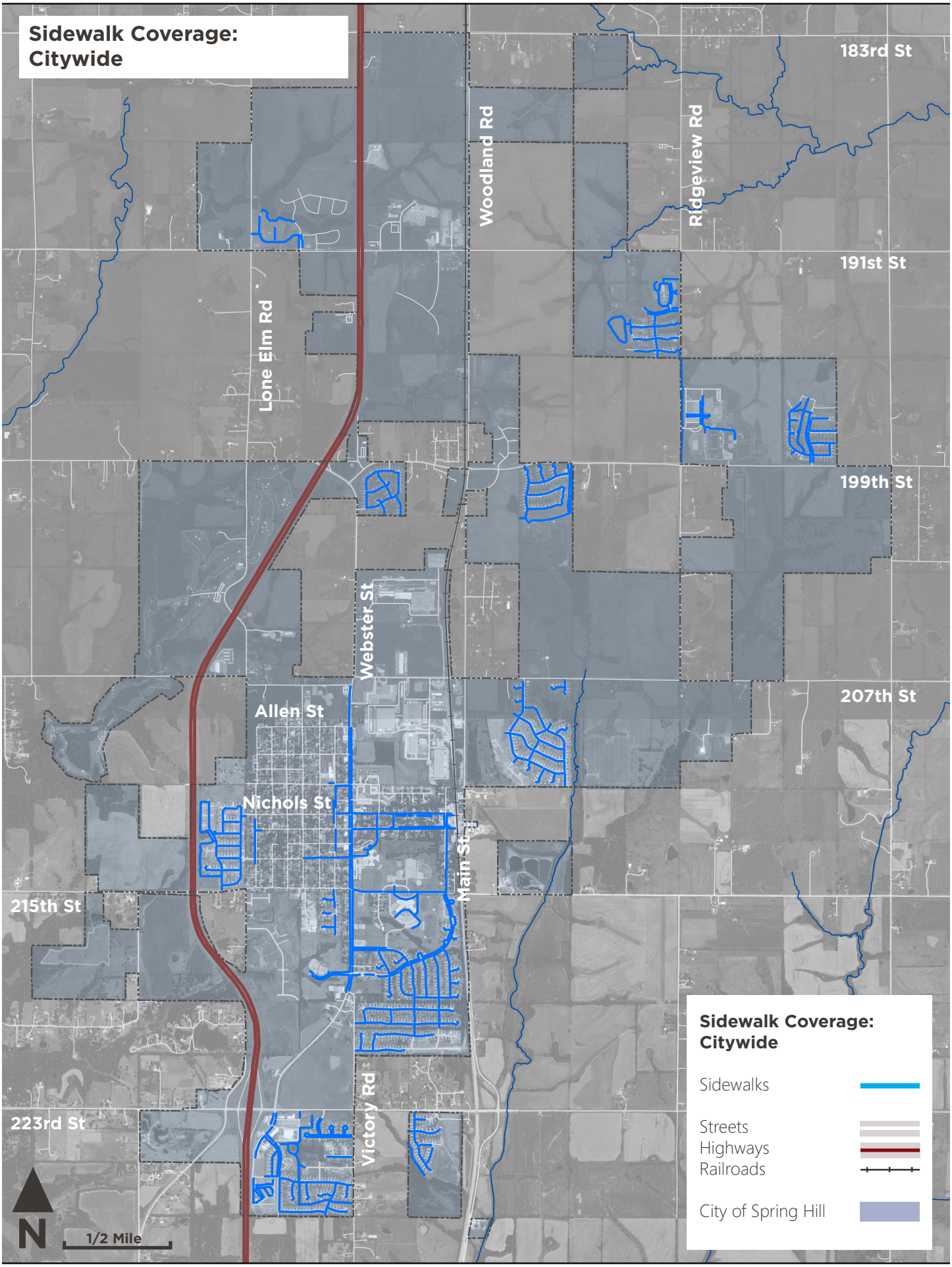
There are approximately 75 centerline miles of streets in Spring Hill. Approximately 23 miles (31%) of these streets have sidewalks of some kind. 26% of streets have sidewalks on one side of the street, while about 5% of streets have sidewalks on both sides. In total there are approximately 30 miles of sidewalks in Spring Hill, including streets with sidewalks on both sides and off-street trails.

Newer subdivisions generally have sidewalks on all streets, but usually these sidewalks are on one side of the street only. Many streets in older neighborhoods have no sidewalks. Webster Street and a small portion of Ridgeview Road in front of Spring Hill High School are the only arterial streets with existing sidewalks.

While newer subdivisions have sidewalks, the lack of sidewalks on arterial streets and regional trail connections means that most subdivisions are isolated from destinations including schools, parks, shopping, and places of employment.

Spring Hill Sidewalk Coverage

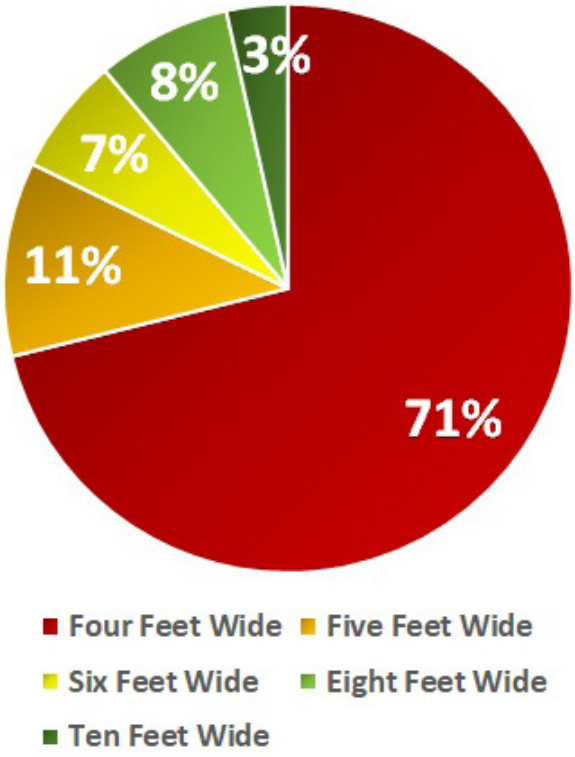


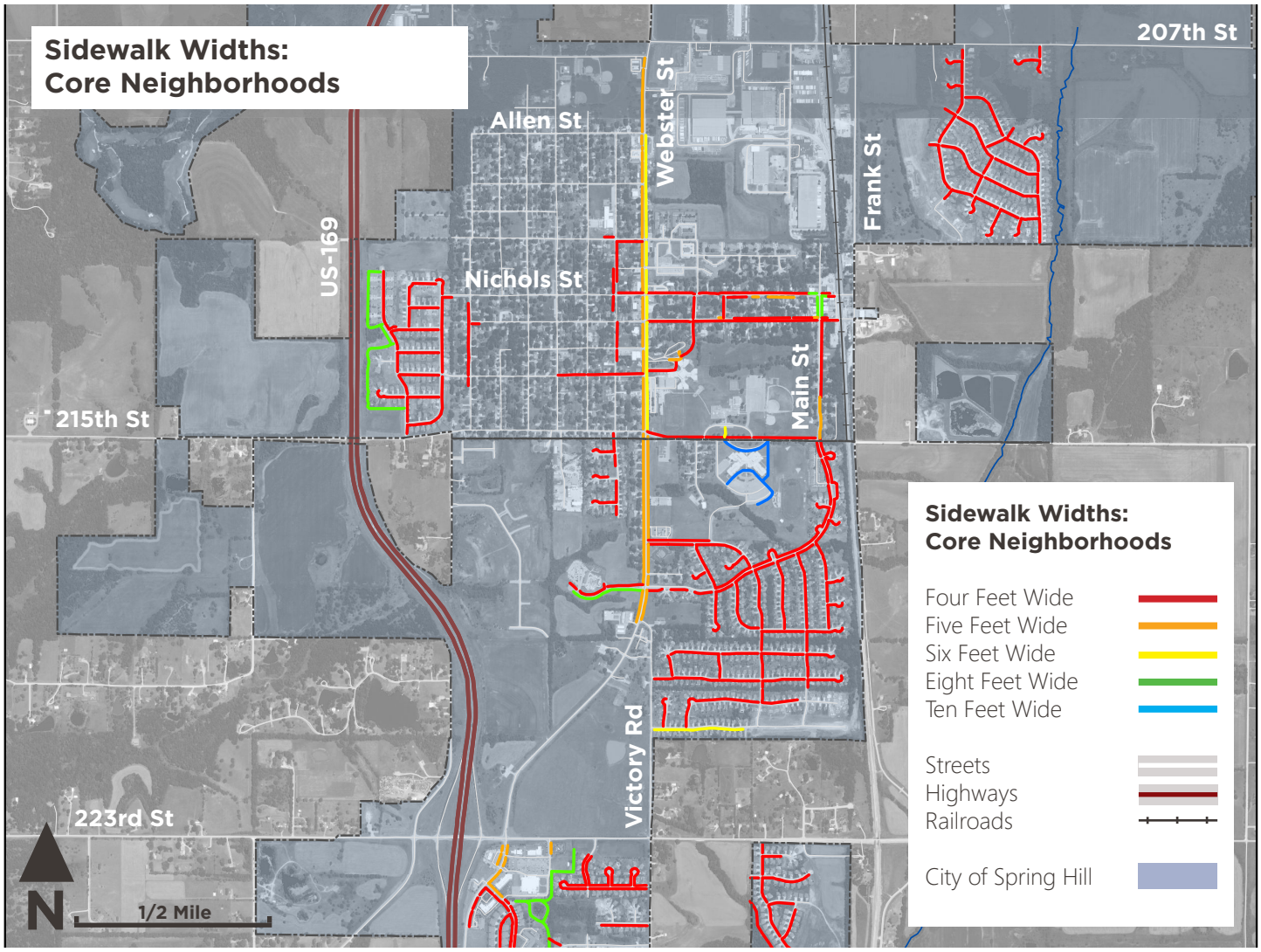

Sidewalk Coverage: Citywide
183rd St
191st St
199th St
207th St
215th St
223rd St
Woodland Rd
Ridgeview Rd
Lone Elm Rd
Webster St
Allen St
Nichols St
Main St
Victory Rd
N
1/2 Mile
Sidewalk Coverage: Citywide
Sidewalks
Streets
Highways
Railroads
City of Spring Hill

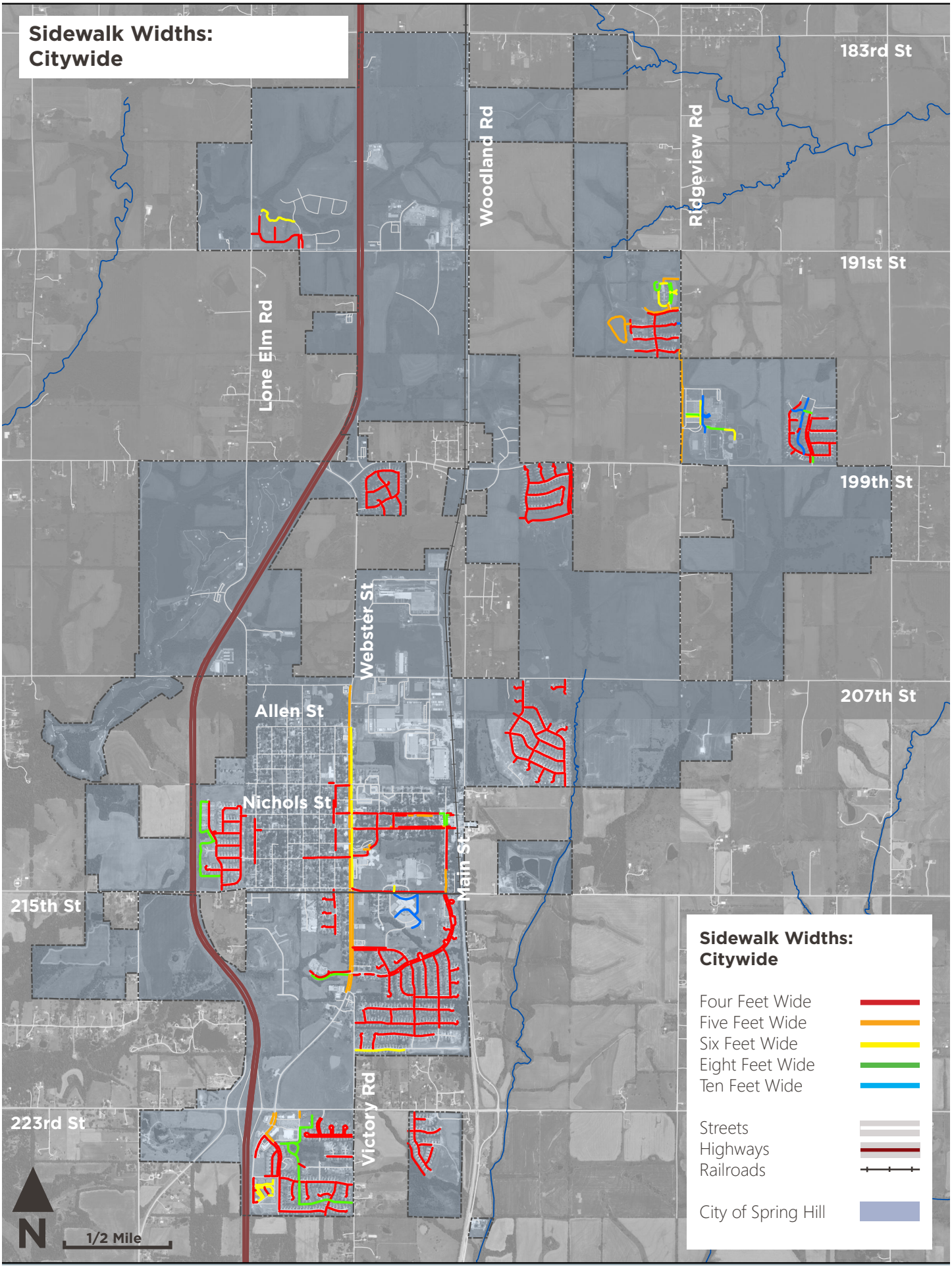
Sidewalk Widths

The vast majority of sidewalks in Spring Hill are four feet wide. Generally, a minimum of six feet is necessary for two people (a couple, or a parent and child for example) to walk side by side on a sidewalk. The National Association of City Transportation Officials recommends a minimum of five to seven feet for the pedestrian "through zone," which is the area of the sidewalk that is free from furniture, utilities, and other obstructions. Existing trail segments in Spring Hill are generally six to eight feet wide. This is a comfortable width for walking trails, but a minimum of ten to twelve feet is usually required for safe and comfortable interaction of pedestrians and cyclists on the same trail.

Spring Hill Sidewalk Widths






Sidewalk Widths:
Citywide
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191st St
199th St
207th St
215th St
223rd St
Woodland Rd
Ridgeview Rd
Lone Elm Rd
Webster St
Allen St
Nichols St
Main St
Victory Rd
N
1/2 Mile
Sidewalk Widths:
Citywide
Four Feet Wide
Five Feet Wide
Six Feet Wide
Eight Feet Wide
Ten Feet Wide
Streets
Highways
Railroads
City of Spring Hill

Sidewalk Conditions

An assessment of sidewalk conditions was completed using Johnson County and Miami County aerial photography, block by block digital photography, and direct field observations. Sidewalk conditions are organized into three categories: good, fair, and poor.

Good sidewalks have a smooth and continuous paved surface with minimal cracks or upturned segments. Good sidewalks are separated from automobile conflicts with a curb or landscape buffer and well-defined driveway crossings.

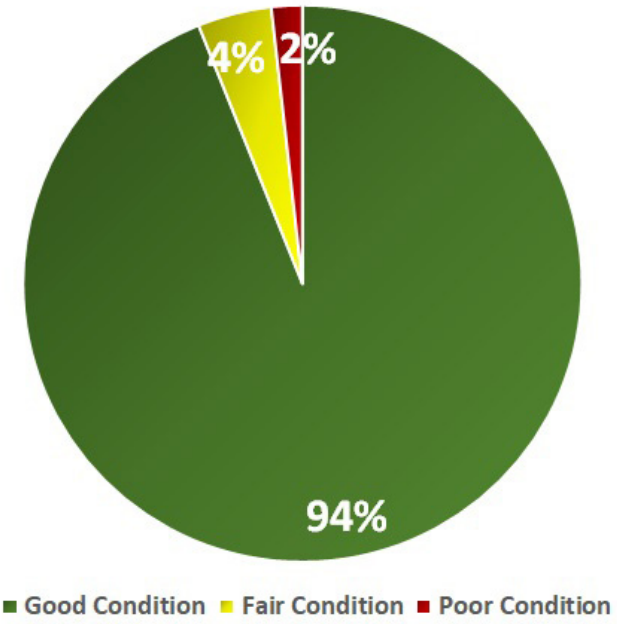
Fair sidewalks are continuous and paved but may have cracks or upturned segments that make use difficult for those with mobility challenges. Some Spring Hill sidewalks have encroaching vegetation which shrinks the already narrow four-foot walking path.

Poor sidewalks are in significant disrepair, are overgrown, or are missing large segments entirely. These sidewalks are functional only for the able-bodied in ideal weather conditions.

Most of Spring Hill's sidewalks are in good condition. Older sidewalks in Spring Hill's historic neighborhoods are more likely to be in fair or poor condition. Some older sidewalks are constructed with bricks or pavers, which adds charm to Spring Hill's historic neighborhoods but can create mobility challenges when not properly maintained. Many of Spring Hill's trail segments are paved with asphalt instead of concrete and showing wear and cracks that limit accessibility.

Roughly 28 miles of sidewalks are in good condition. This represents 94% of all sidewalks in Spring Hill. 1.3 miles of sidewalks are in fair condition while .5 miles are in poor condition.

Spring Hill Sidewalk Conditions



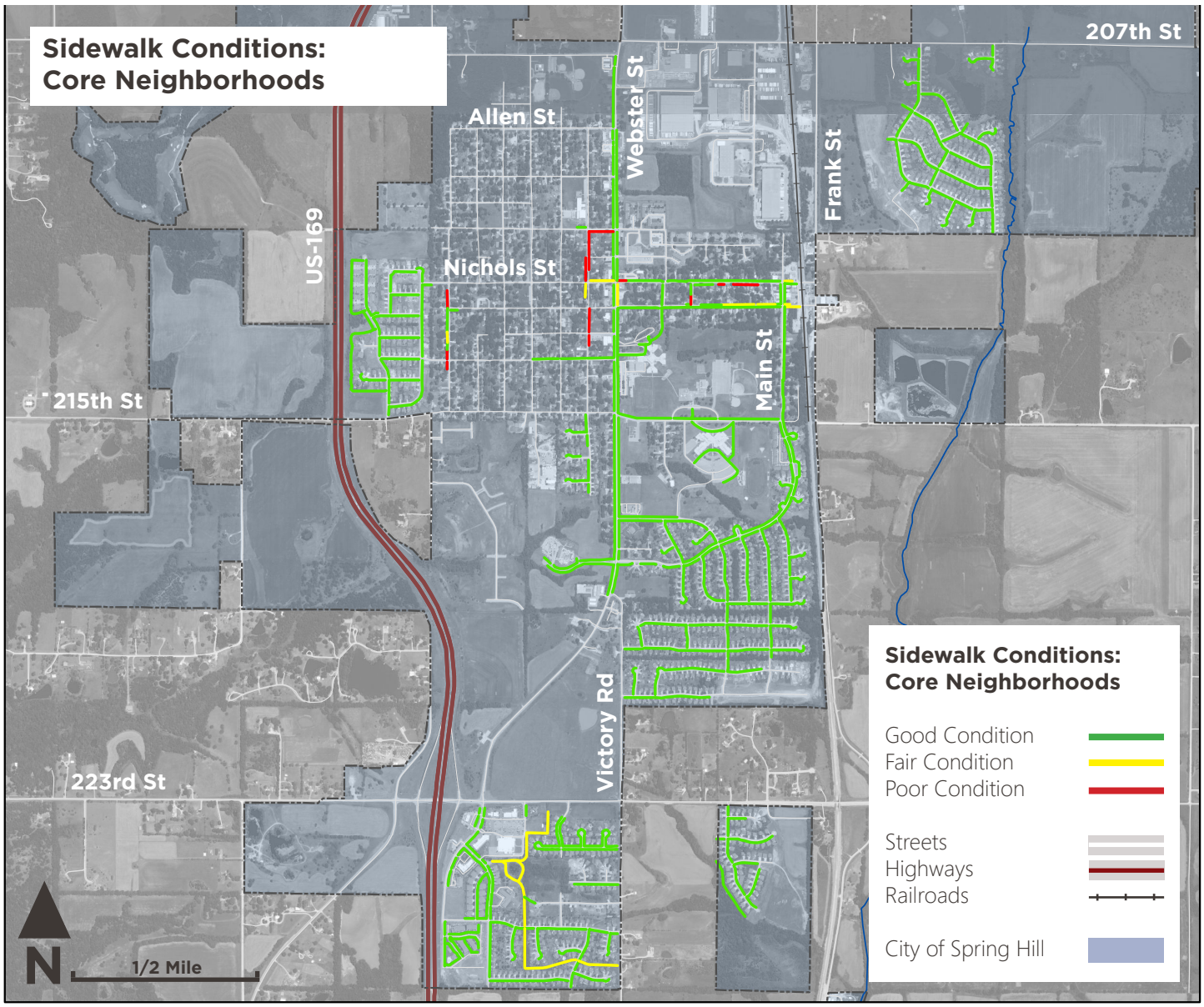
Example of Sidewalk in Good Condition

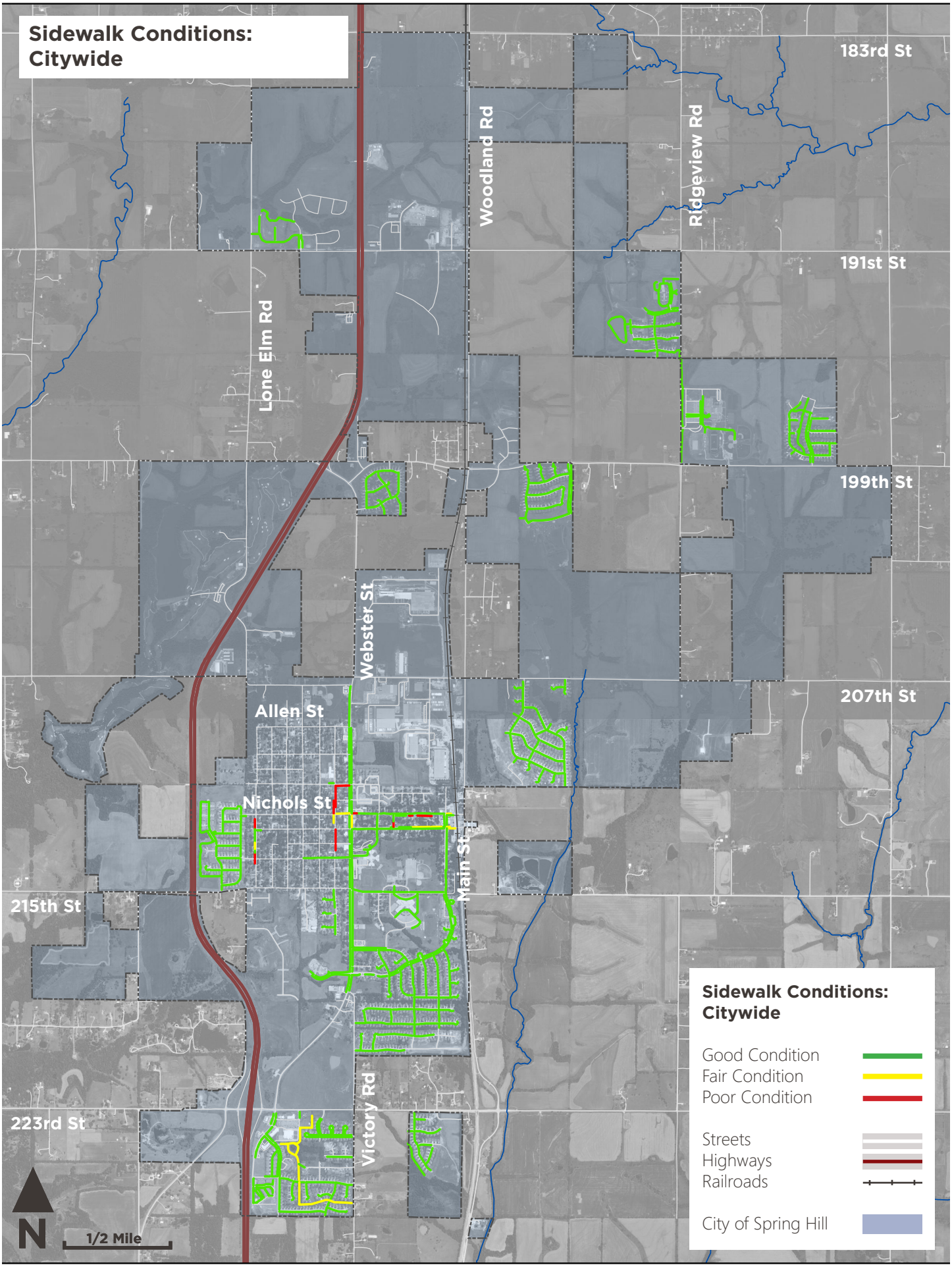
Example of Sidewalk in Fair Condition

Example of Sidewalk in Poor Condition

Brick pavers provide historic charm but can be difficult to traverse if not maintained.

Some of Spring Hill's asphalt trails need maintenance.


Sidewalk Conditions:
Core Neighborhoods
207th St
Allen St
Webster St
Frank St
US-169
Nichols St
Main St
215th St
Victory Rd
223rd St
N
1/2 Mile
Sidewalk Conditions:
Core Neighborhoods
Good Condition
Fair Condition
Poor Condition
Streets
Highways
Railroads
City of Spring Hill


Sidewalk Conditions: Citywide
183rd St
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1/2 Mile
Sidewalk Conditions: Citywide
Good Condition
Fair Condition
Poor Condition
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Intersections

Intersections are the primary barrier to walkability in all parts of Spring Hill, including locations with new sidewalks and locations with no sidewalks at all. Intersections are locations of particular interest because these are places where pedestrian routes cross and conflict with automobile traffic. These are the most likely locations for pedestrian injuries and deaths, and major intersection crossings are the barriers most likely to discourage walking trips.

Where intersections are not accessible for those on foot, especially those who have challenges seeing or moving, the intersection conditions reduce the utility of the adjacent sidewalk segments. To get the most from existing sidewalk investments, improved access and safety at intersections is necessary.

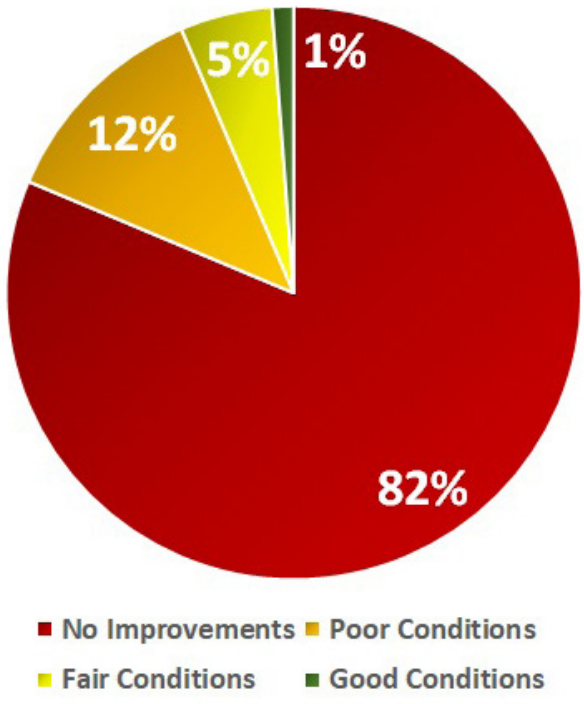
Good intersection treatments for pedestrians include clearly marked crosswalks with ramps that are accessible for all users on both sides of the street crossing. Good intersections also provide clear guidance and direction for pedestrians and drivers about where pedestrians will enter the street and what path they will take while crossing.

Fair intersection treatments provide a path at street crossings that connects sidewalk segments on either side of a street but also present some barriers for pedestrians. These connections may have crossings with basic striping or faded pavement markings that make it difficult for driers to identify the presence of a crosswalks. Fair intersections may have ramps that are not fully accessible or that require unsafe routing of pedestrians in the street.

Poor intersection treatments are locations where sidewalks are present on both sides of the street, but the segments are not connected in a way that is safe and comfortable for all users. Poor intersections are missing pavement markings of any kind. Poor intersections may be missing access ramps entirely, or have ramps that are not fully functional or accessible. Poor intersections may direct pedestrians into the street in a manner that puts them in conflict with automobiles.

Identified intersections with **no improvements** are generally locations where a sidewalk is not present today but the route is identified as a future priority connection.

Spring Hill Intersection Conditions on Priority Routes

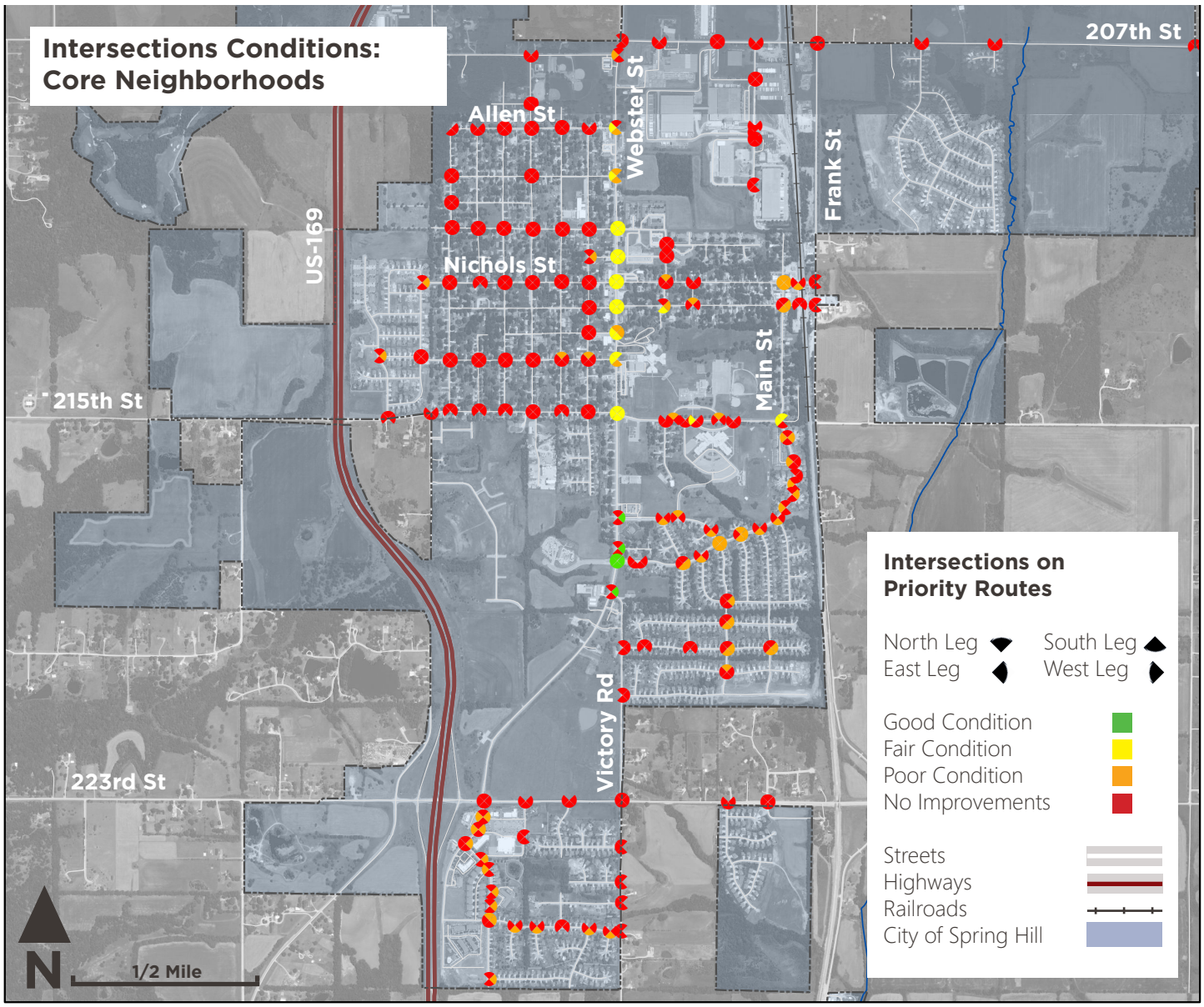


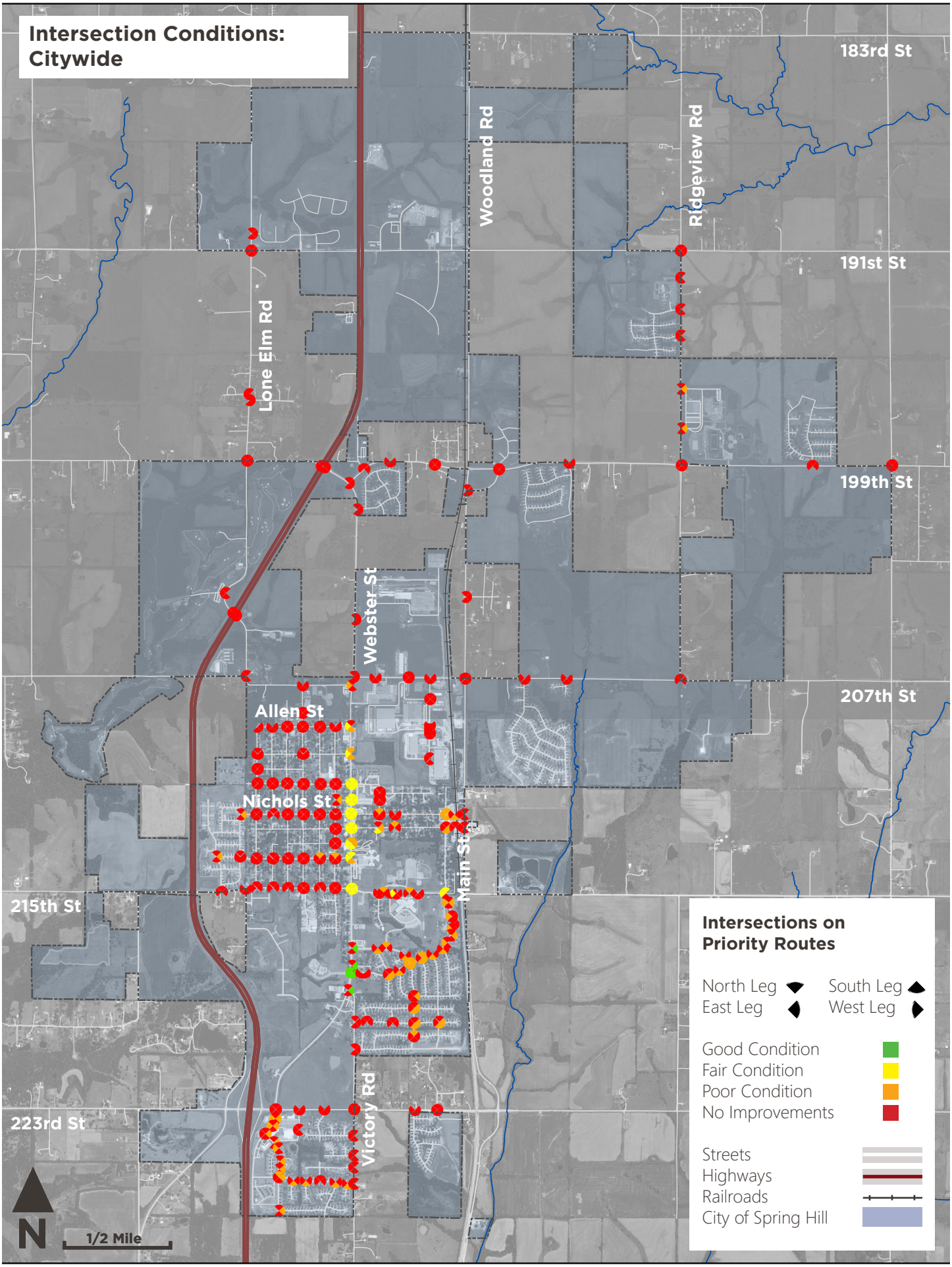
Example of Intersection Crossing in Good Condition

Example of Intersection Crossing in Poor Condition

Example of Intersection Crossing in Fair Condition

Example of Intersection Crossing with No Improvements


Intersections Conditions:
Core Neighborhoods
207th St
Allen St
Webster St
Frank St
US-169
Nichols St
Main St
215th St
Victory Rd
223rd St
N
1/2 Mile
Intersections on
Priority Routes
North Leg
South Leg
East Leg
West Leg
Good Condition
Fair Condition
Poor Condition
No Improvements
Streets
Highways
Railroads
City of Spring Hill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Intersections on Priority Routes
North Leg
South Leg
East Leg
West Leg
Good Condition
Fair Condition
Poor Condition
No Improvements
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Intersection Barrier:
Sidewalks that stop before intersections

Many sidewalks in Spring Hill stop before they reach major intersections. This condition makes the route impassible for people in wheelchairs, pushing strollers, or facing other mobility challenges. Even able-bodied pedestrians are unable to use these connections in rain and snow. The lack of any visible markings or infrastructure at cross streets increases the risk of being struck by an automobile for pedestrians. This condition appears to be prevalent because subdivision codes require sidewalks but do not include provisions for connecting these sidewalks to existing City infrastructure.

Intersection Barrier:
Sidewalks that continue across the street with no access

Spring Hill's subdivision codes require sidewalks to be constructed with new streets, but do not include provisions for connecting these sidewalks or any guidance on the treatment of sidewalks at intersections. As a result, two connecting streets may both have sidewalks but the sidewalks themselves do not connect to each other, creating barriers for people walking.

Intersection Barrier:
Sidewalks parallel to destinations/parking with no access

In some locations, new development complies with requirements to provide sidewalks on adjacent streets but provides no accommodation to connect these sidewalks in a way that would provide access to desired destinations. In these cases, pedestrians are required to navigate through streets, driveways, and parking areas to reach business and services, and the provided sidewalks have limited utility.

Intersection Barrier:

Sidewalk ramps that do not meet the United States Access Board Public Right of Way standards for accessibility (PROWAG)

There are many intersections in Spring Hill that provide ramps to enter a crosswalk but these ramps do not comply with Americans with Disabilities Act requirements for accessibility, generally defined by the United States Access Board Public Right of Way guidlines (PROWAG). These guidelines are designed to ensure that street crossings are safe for all users. Common issues include ramp widths, ramp grades, ramp cross slopes, a lack of detectable warning surfaces, and lack of appropriate directional guidance for pedestrians entering the intersection.

Intersection Barrier:

Sidewalk ramps that drain improperly or collect debris

In some locations, construction of sidewalk ramps creates a negative slope that collects runoff and debris. This debris makes the ramps and crosswalks more difficult to traverse and also covers colored and textured pavement markings designed to increase visibility and safety.

Intersection Barrier:

Sidewalk ramps that direct pedestrians into the middle of the intersection or away from the receiving ramp

While it is possible to design blended transitions for sidewalk ramps in constrained locations that are ADA compliant, many Spring Hill intersections locate ramps that create an unclear path for pedestrians and direct people crossing the street into the middle of the intersection and away from the receiving ramp on the other side of the street. This represents both a safety concern and a convenience barrier for pedestrians who must take a winding and circuitous path when their desired route is a straight line.

Destinations

The strategy for improving sidewalk infrastructure in Spring Hill focuses on connecting people to the City's major destinations with safe, comfortable, direct routes for walking. Many existing streets in the City do not have sidewalks and resources are not available to construct sidewalks everywhere they are missing. By focusing pedestrian infrastructure improvements to serve key destinations, Spring Hill can ensure that new infrastructure serves the areas with the greatest latent demand for walking trips, and that sidewalk investments will have the greatest possible utility to residents of the community.

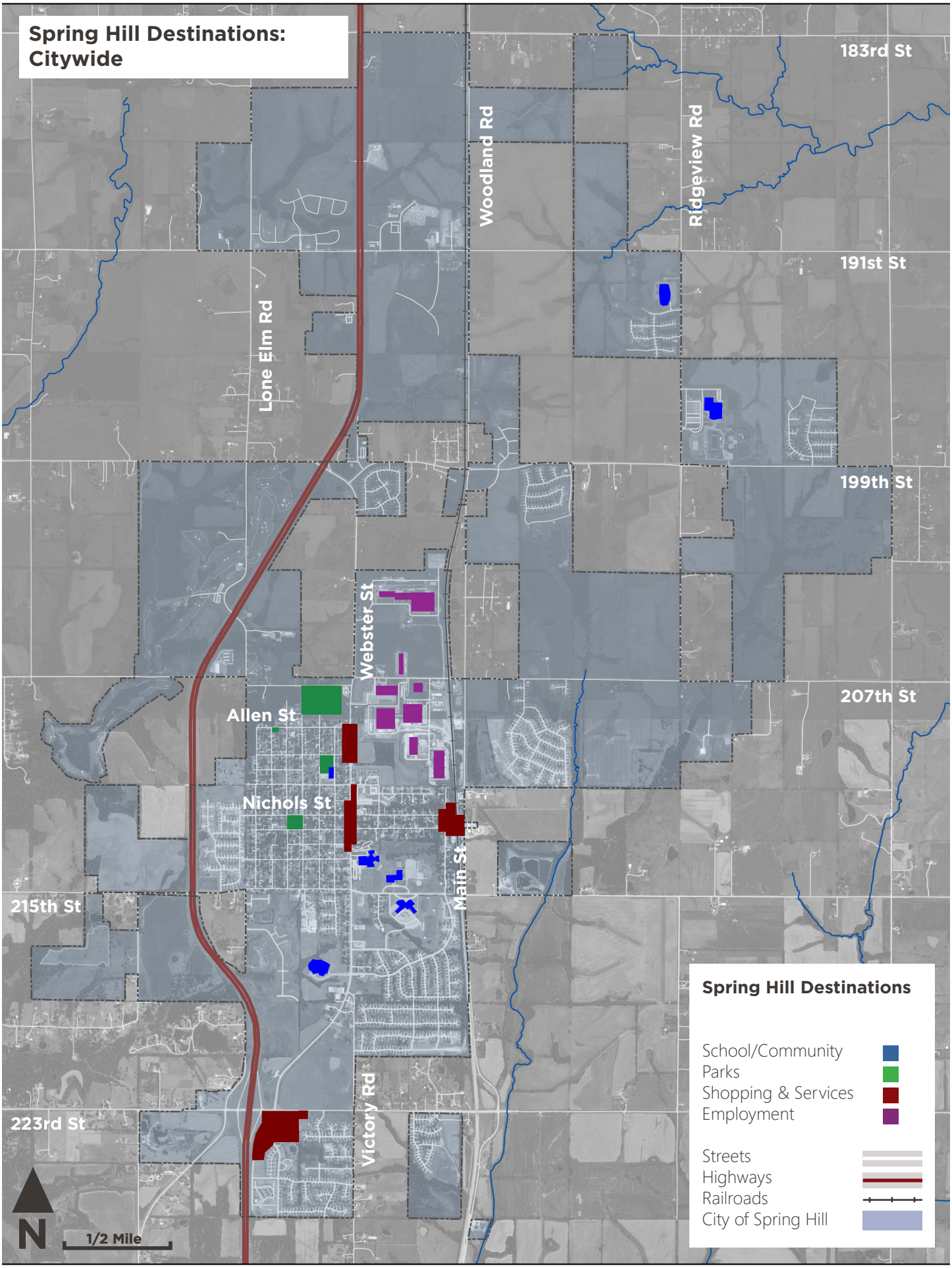
Data from the National Household Travel Survey tells us that recreation is the single most common purpose for walking trips. However, most walking trips are for specific tasks like shopping, personal services, or walking to work. By understanding where Spring Hill residents go for the daily activities of their lives, especially where those destinations are concentrated together within a short distance, we can understand where the greatest demand exists for sidewalks. In Spring Hill, the downtown area, Webster Street, and retail on 223rd Street are the primary shopping and service destinations. The industrial area north of Downtown is the largest concentration of employment. Schools and parks throughout Spring Hill are also important destinations.

Destination: Downtown

Destination: 223rd Street Retail Area

Destination: Parks, Schools, and Community Facilities

Destination: Employment Centers


Spring Hill Destinations: Citywide
183rd St
191st St
199th St
207th St
215th St
223rd St
Lone Elm Rd
Woodland Rd
Ridgeview Rd
Webster St
Allen St
Nichols St
Main St
Victory Rd
N
1/2 Mile
Spring Hill Destinations
School/Community
Parks
Shopping & Services
Employment
Streets
Highways
Railroads
City of Spring Hill

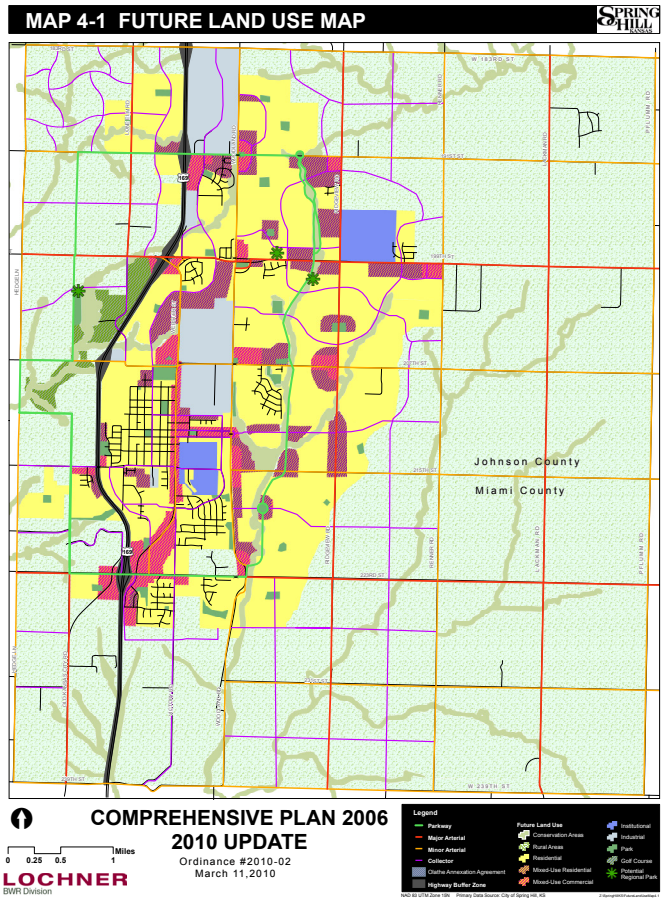
Plans and Policies

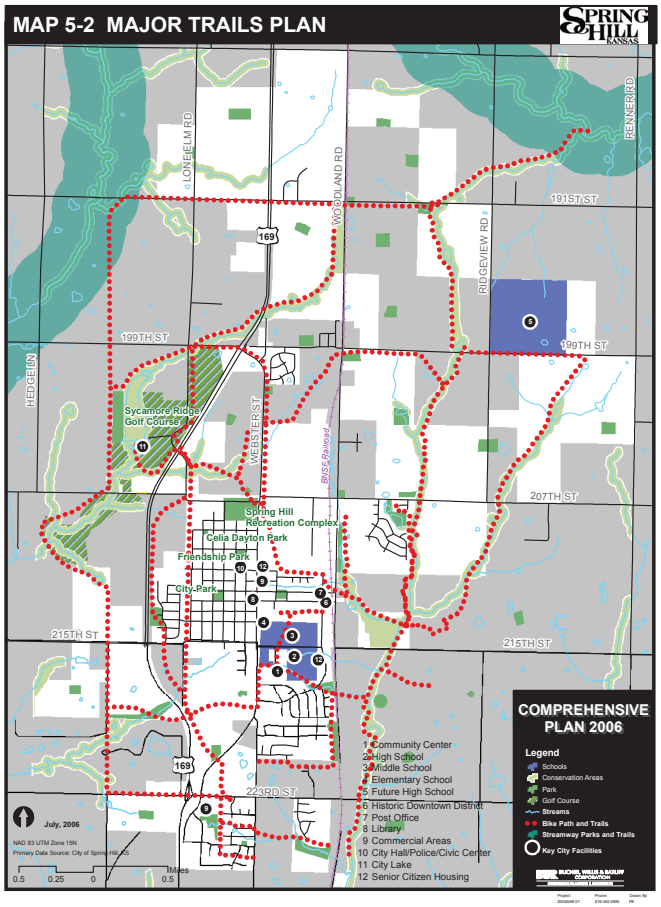
Comprehensive Plan

When planning for future sidewalk improvements, it is important to examine future destinations, amenities, and development patterns in addition to what exists today. Spring Hill's Comprehensive Plan outlines a vision for the future development of the community with potential new destinations including new commercial centers along most major arterials. The largest planned commercial center is along Webster Street between 215th St and 223rd Street. A major new industrial center is also identified north of 191st Street.

The Major Trails Plan highlights future parks and open space opportunities linked by a network of trails that connect various amenities and destinations. Most of the trails identified on the Major Trails plan are off-street connections along streams and riparian areas.

For both new development projects and new infrastructure connections, Spring Hill has historically implemented the recommendations of its Comprehensive Plan in an incremental piecemeal fashion as individual properties develop. This enables Spring Hill to share the costs of new infrastructure and amenities with the developers whose projects are creating new demands for City services. However, it results in major connectivity challenges, and does not provide a clear path to retrofit older areas of the community where infrastructure and amenities are lacking. One of the key goals of the Spring Hill Sidewalk Strategy is to identify ways to improve connectivity within existing developments and across gaps in development activity.





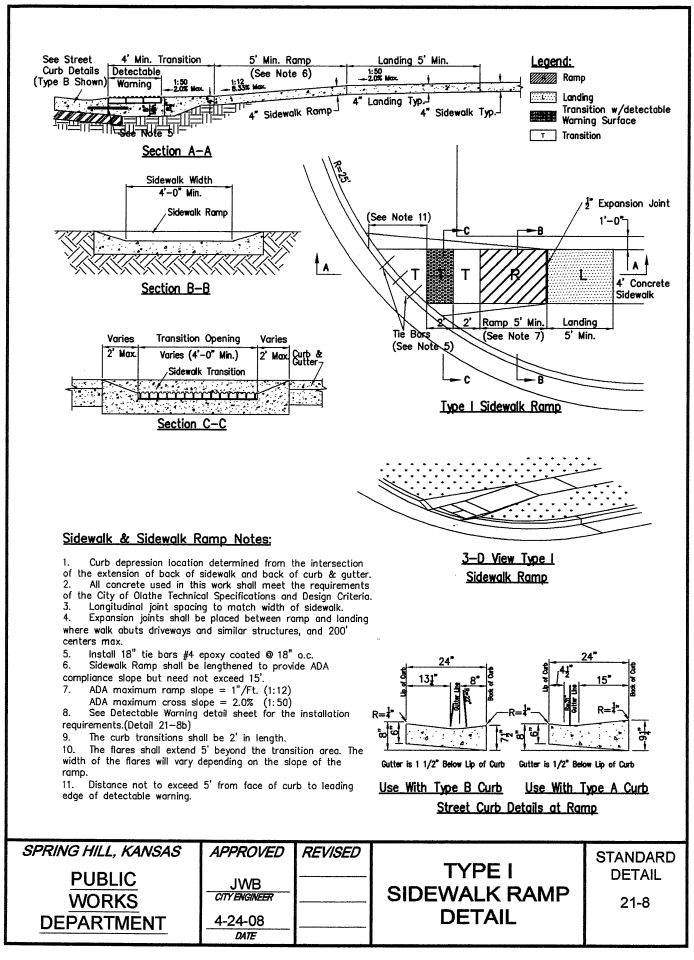
Subdivision Regulations

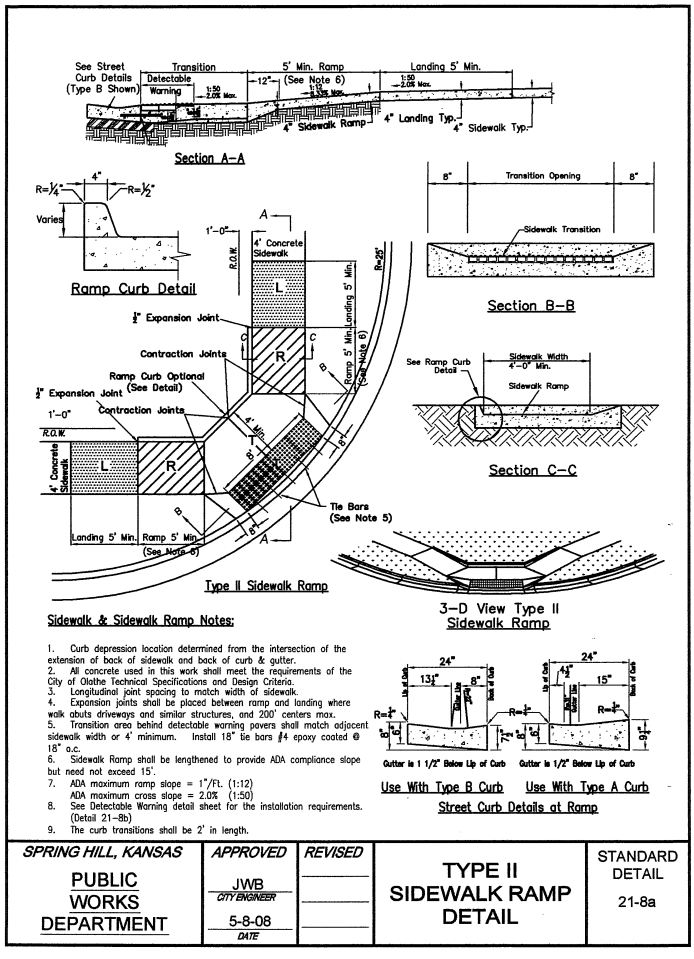
Spring Hill's Subdivision Code requires the construction of sidewalks on all new streets. On local streets, a four foot sidewalk is required on one side of the street in residential and industrial areas. A four foot sidewalk is required on both sides of the street in commercially zoned areas. For collector and arterial streets a five foot sidewalk is required on both sides of the street.

Streets that are identified in the Major Trails Plan as being part of the trail system are required to be wider than typical in accordance with the trail design criteria for the City. Spring Hill also requires the dedication of easements and construction of trail connections where off-street trails are identified in the Major Trail Plan through areas that are being subdivided.

Technical Specifications for Public Improvements

Spring Hill's Technical Specifications for Public Improvements include several details for sidewalks and sidewalk ramps. These details provide guidance for construction methods and provisions that directly impact the functionality and accessibility of sidewalks including slopes, cross slopes, detectable warning surfaces, landing zones, and other criteria. While the sidewalk details included in Technical Specifications represent a safe and accessible sidewalk treatment, they constitute a "one-size-fits-all" application that may not be feasible or appropriate in all contexts. The "Policy Recommendations" section of this document identifies additional considerations and ramp options that can support a safer and more accessible pedestrian experience in a variety of contexts. Design and construction of sidewalks and ramps should be guided by the "Technical Requirements" of the Public Right of Way Access Board's Right of Way Guidelines.





Key Challenges

Providing a complete and connected sidewalk network in Spring Hill will require solutions to several key challenges. These challenges range from physical and engineering constraints, to land use decisions, to policy and funding priorities. Many of these challenges have evolved over time as the result of incremental infrastructure and development decisions. Solutions to these challenges will also take time to achieve results, but immediate and steady progress is possible. The recommended Priority Network and various design and policy options presented in this strategy attempt to address these challenges in a manner that is both comprehensive and feasible.

Key Challenge:
Narrow Right-of-Way

Streets in Spring Hill's older neighborhoods can be quite narrow - eighteen feet wide for two way traffic in some locations. These narrow streets help to calm traffic and keep car speeds low enough to safely interact with pedestrians. However, narrow streets make it more difficult to provide dedicated space for pedestrians. While most Spring Hill Streets have plenty of right-of-way for potential improvements, some important connections have right-of-way as narrow as thirty feet wide. The combination of narrow streets and narrow right-of-way (in places) constrains options for pedestrian connectivity.

Key Challenge:
Lack of Curbs and Gutters

Many Spring Hill Streets lack curbs and gutters, relying on drainage ditches adjacent to the roadway to handle stormwater runoff. This makes sidewalk construction potentially more expensive and more difficult. Construction of sidewalks in areas with no curbs requires either extra space within the right-of-way, to locate sidewalks beyond the drainage areas (and closer to adjacent residences), or it requires major modifications or improvements to the stormwater infrastructure. This could range from additional grading and culverts to construction of full curbs and gutters. Drainage issues are most complicated at intersections, where drainage is constrained by the cross-street infrastructure, and pedestrian routes require specific orientation and location to provide safe and accessible crossings.

Key Challenge:
Major Street Crossings

While most Spring Hill streets are relatively calm and low traffic, several busy arterials and highways combine busy traffic, high speeds, long crossings, and uncontrolled intersections to create major barriers to connectivity. Some important sidewalk connections may only be possible with signalization or geometric changes at crossings of major streets. This can add significant cost and complexity to pedestrian improvements.

Key Challenge:
Gaps in Development

Sidewalks are most useful in areas where there are concentrations of residents, employees, and destinations within a walkable distance. Shorter distances encourage more walking trips, and require less infrastructure to connect locations. The scattered development patterns of Spring Hill's newer development means that not only are distances much longer for walking trips, but many more miles of sidewalks are necessary to connect different parts of the community. Adding to the challenge, high-speed, high-traffic arterial streets are often the only location for these connections.

Key Challenge:
Lack of Dedicated Funding Sources

Less than one third of Spring Hill's streets have sidewalks today. Most of the gaps are in areas that are already developed. The model of developer-funded sidewalks for new projects cannot fill the gaps in pedestrian connectivity for older parts of town, and street maintenance budgets are not scaled to address sidewalk infrastructure needs that have been decades in the making. Filling gaps in the sidewalk network will require major investments in pedestrian connectivity, and these investments must compete with other priorities in the community. Combined, these factors mean there is no easy fix to Spring Hill's connectivity challenges.

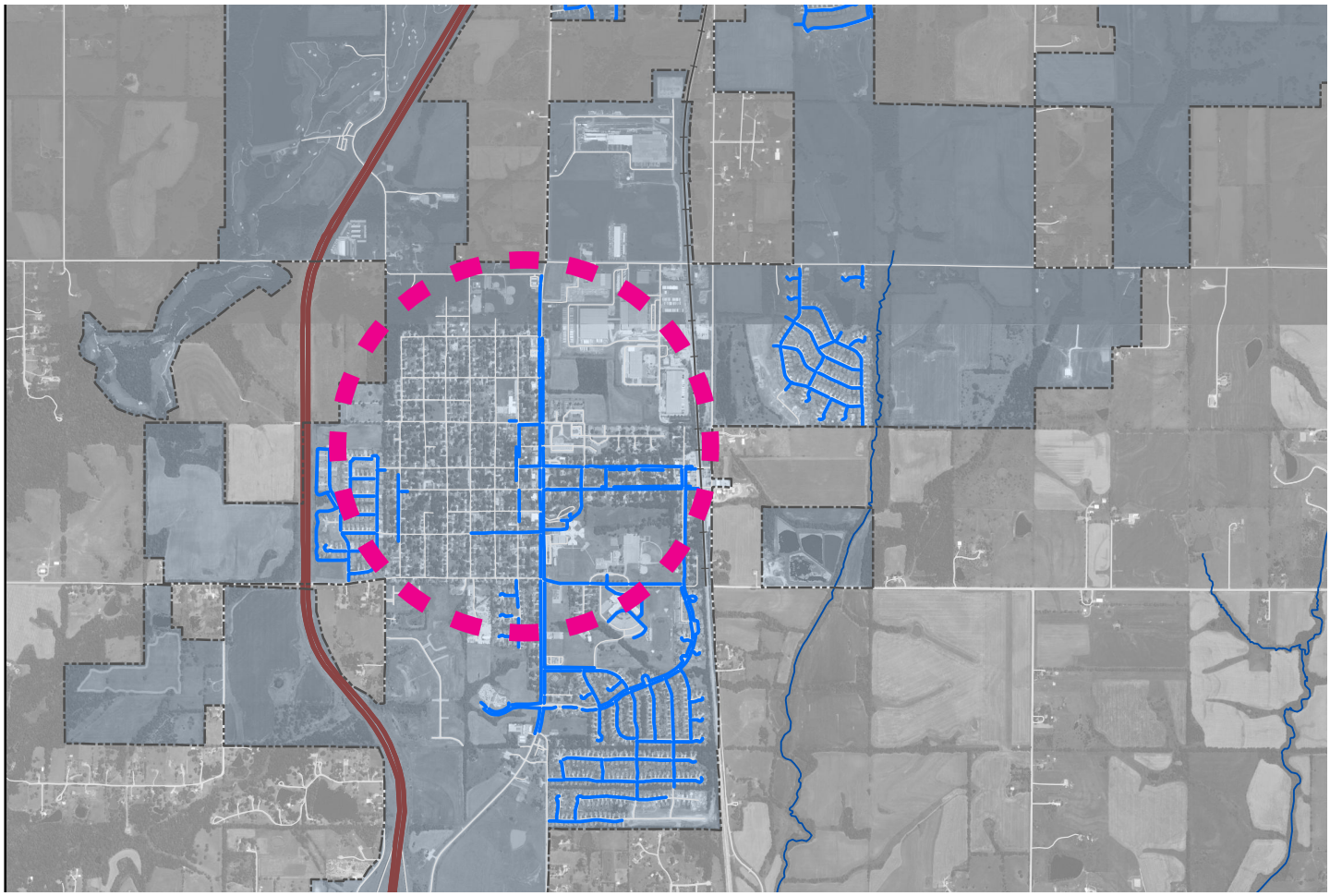
Priority Network

With a focus on leveraging existing infrastructure and connecting important destinations, a Priority Sidewalk Network can be established. The Priority Sidewalk Network is an interconnected citywide network of pedestrian routes that connect to all major destinations and neighborhoods in the community. This Priority Sidewalk Network identifies the best routes for direct and comfortable connections to places that people want to go. Many of these routes have sidewalks today, but there are also many gaps where no sidewalks exist.

Based on anassessment of existing sidewalks and destinations, the Priority Sidewalk Network focuses on the following outcomes:

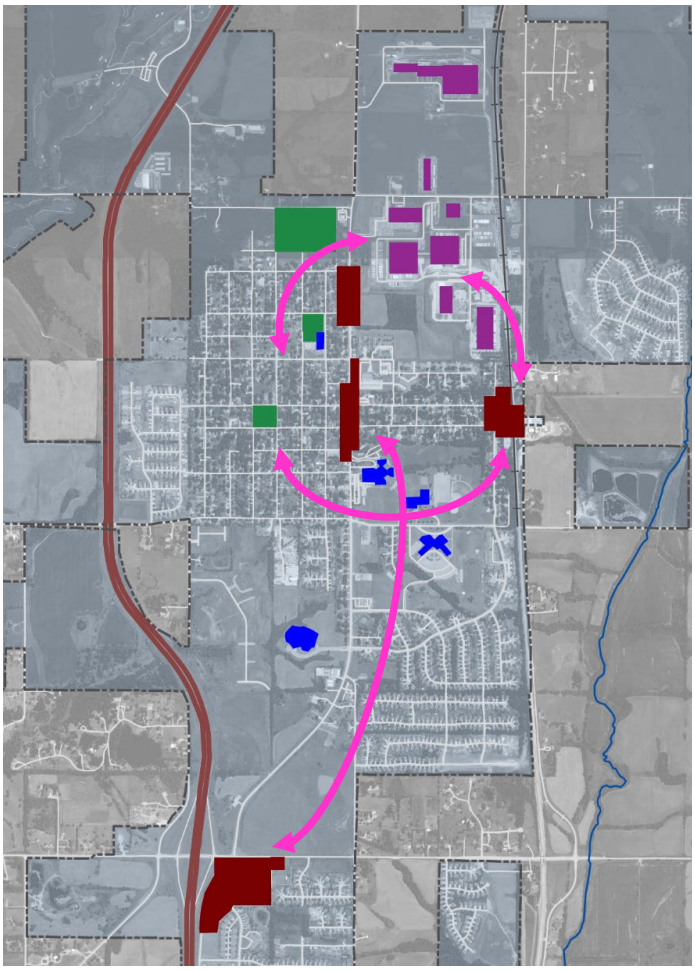
Creating a Walkable Community Core

The compact street grid and close proximity of many destinations and services gives the central area of Spring Hill the greatest potential for improved walkability. However, most of Spring Hill's older neighborhoods, including several multifamily residential complexes, have no sidewalks at all. The top priority for the sidewalk network should be connecting older neighborhoods to nearby destinations.



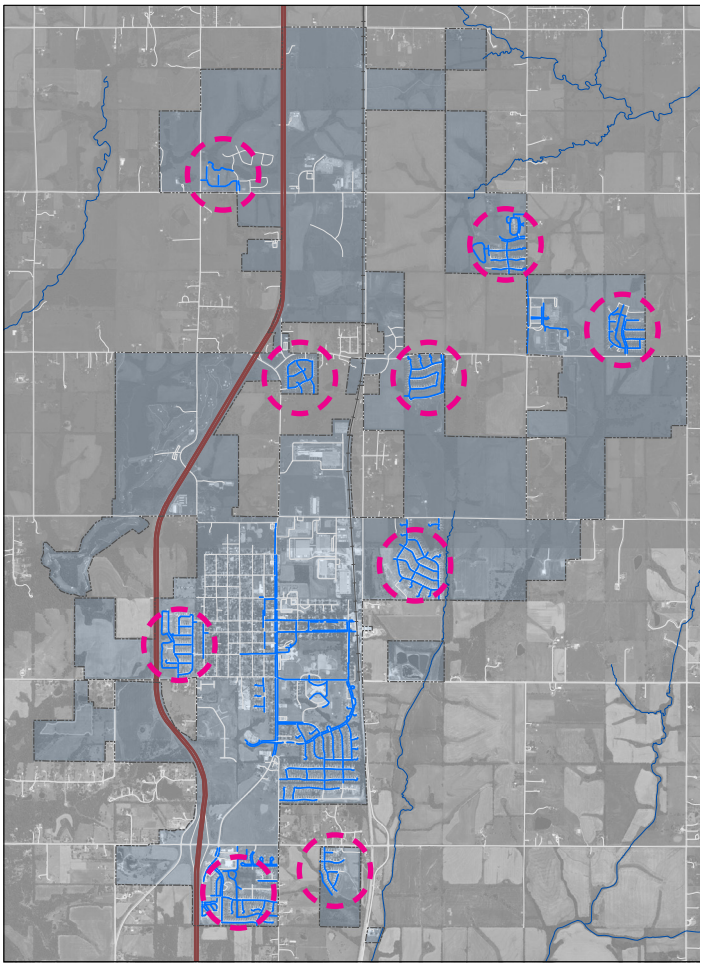
Connecting Shopping, Services, and Employment

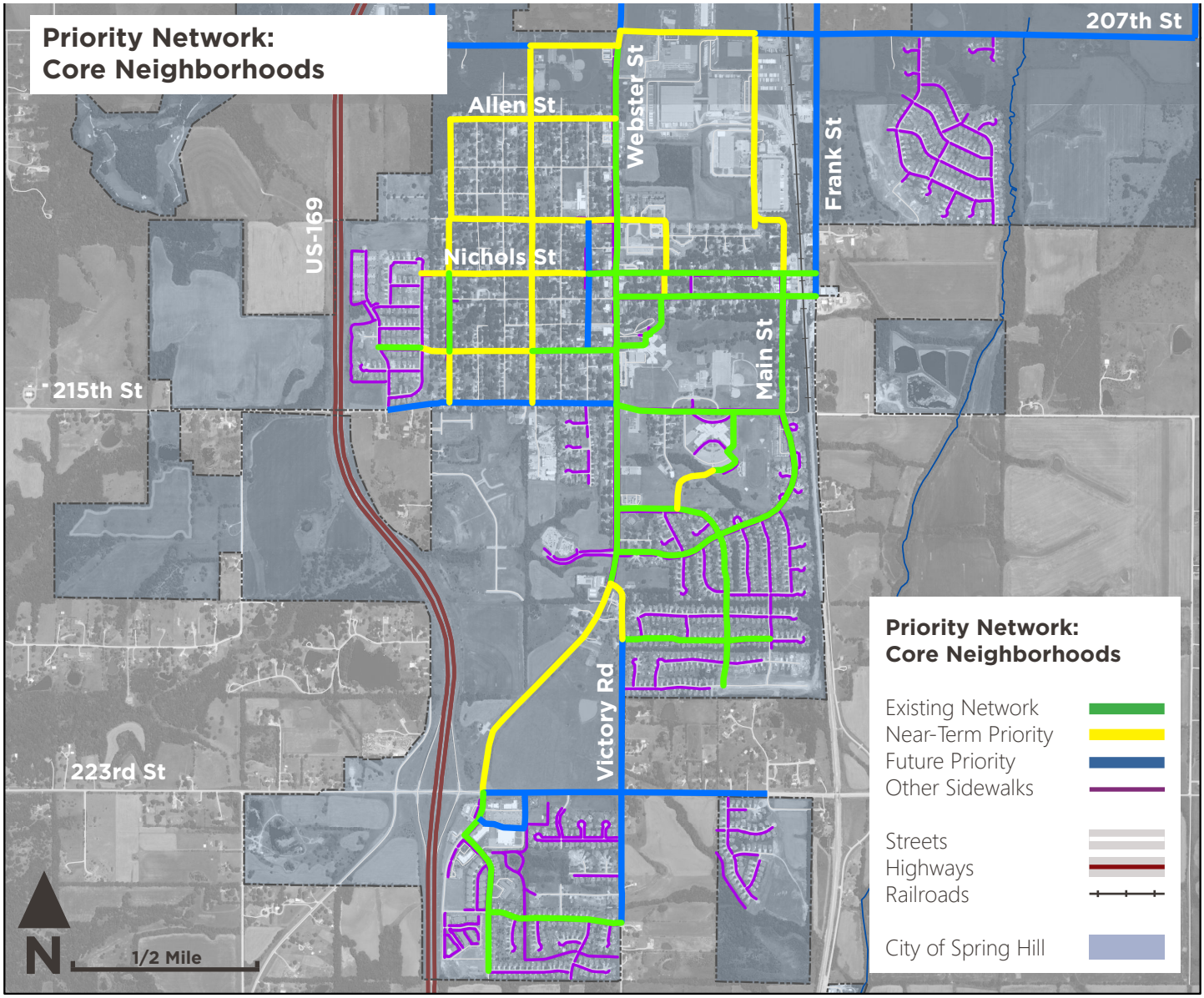
With a full-service grocery store and a mix of other services, the major retail development near US 169 and 223rd Street is an important destination for all of Spring Hill and surrounding communities. Less than two miles from the historic downtown of Spring Hill, this shopping center is highly walkable to most Spring Hill neighborhoods, but there are no pedestrian connections from this destination to other parts of the community. Likewise the industrial employment area between Webster and Lincoln Streets is highly walkable from Spring Hill neighborhoods and commercial areas in the Downtown and along Webster Street, but there are no pedestrian connections of any kind to this employment center. Connections to these shopping, service, and employment destinations would provide mobility options for residents and a lifeline for those may be unable to drive or afford a car.



Linking Clusters of Connectivity

Many of Spring Hill's new residential developments have a new and complete network of sidewalks within the confines of each residential subdivision, but these subdivisions are isolated from each other and from community destinations. The third priority for a sidewalk network is to provide a spine of quality pedestrian connections along major arterials to ensure that all Spring Hill residents have a viable pedestrian route to desired destinations.





Historically, Spring Hill streets (and Johnson and Miami County arterial roads) were developed without sidewalks. While sidewalks are now required with new street construction, 69% of Spring Hill's approximately 75 centerline miles of streets have no sidewalks of any kind. The cost and scale providing sidewalks on every street where they are missing is beyond the capacity of Spring Hill's budget and the resources of the community.

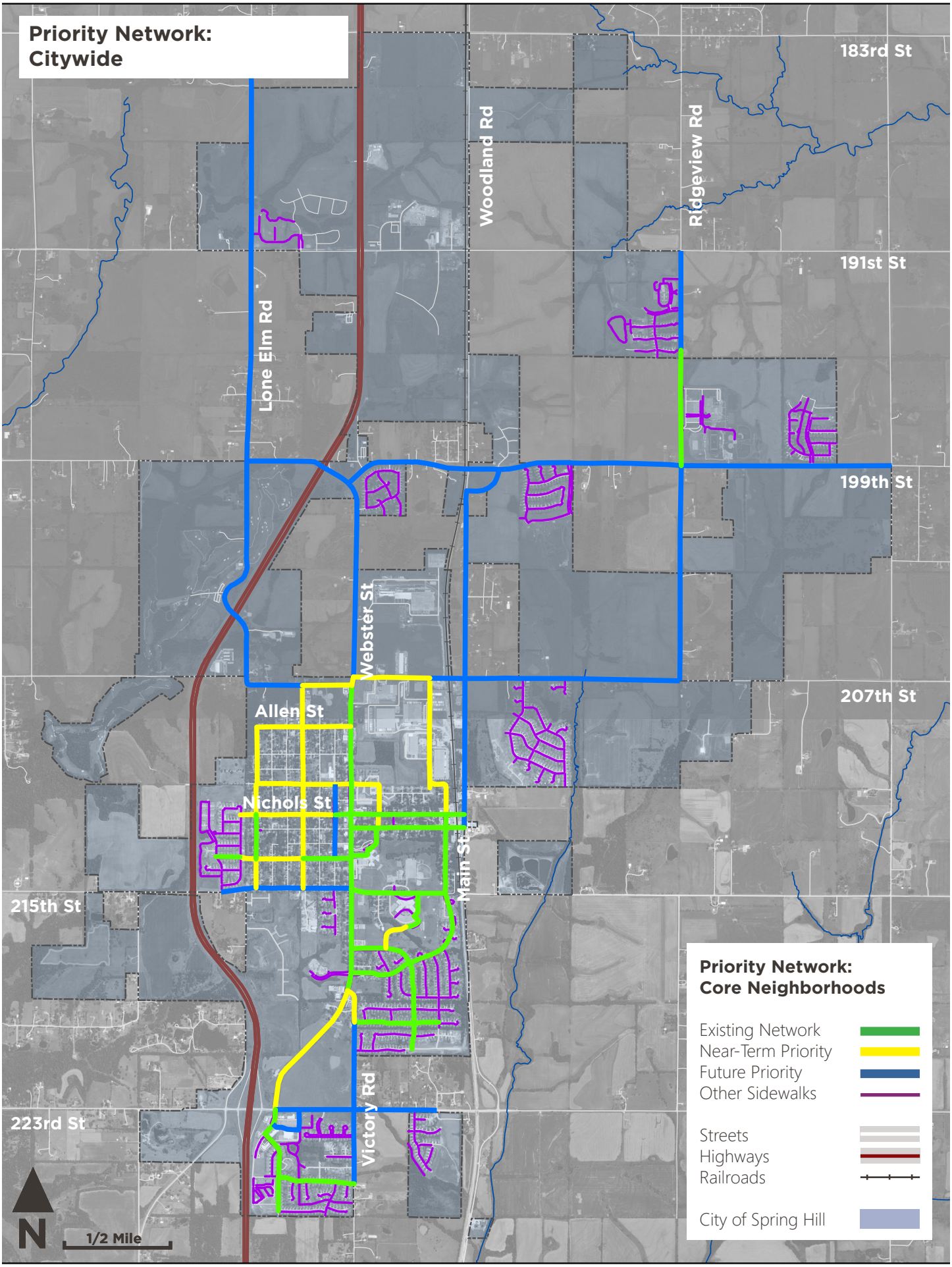
The purpose of the Priority Network for sidewalks in Spring Hill is to provide a roadmap for investment in sidewalks that is focused on the segments with the greatest potential to benefit Spring Hill residents and connect important community destinations.

The Priority Network seeks to achieve the identified goals of creating a walkable community core, connecting shopping, services, and employment, and ultimately linking together what are today scattered pockets of connectivity.

Existing Network: The Priority Network for Spring Hill sidewalks was crafted to take advantage wherever possible of existing sidewalks, and to supplement these sidewalks with additional segments that expand their usability and connectivity. Approximately 7.6 miles of the Priority Network has existing sidewalks.

Near-Term Priority: Near-Term Priority streets focus on the most important new segments to improve walkability in the core neighborhoods and link major destinations. While the approximately 5.8 miles of Near-Term Priority segments represent only about 20% of the entire Priority Network, they provide access and connectivity to all parts of the community except isolated residential enclaves.

Future Priority: To truly connect all parts of Spring Hill and its several scattered residential developments, new pedestrian infrastructure is needed on approximately 14.6 miles of mostly arterial roads in Johnson and Miami Counties. These are long segments that today traverse mostly agricultural areas, so their potential benefits are less imminent than the segments identified as near-term priorities. These connections represent future priorities as resources permit or as other planned improvements are made to these arterial connections.


Priority Network:
Citywide
183rd St
191st St
199th St
207th St
215th St
223rd St
Lone Elm Rd
Woodland Rd
Ridgeview Rd
Webster St
Allen St
Nichols St
Main St
Victory Rd
N
1/2 Mile
Priority Network:
Core Neighborhoods
Existing Network
Near-Term Priority
Future Priority
Other Sidewalks
Streets
Highways
Railroads
City of Spring Hill

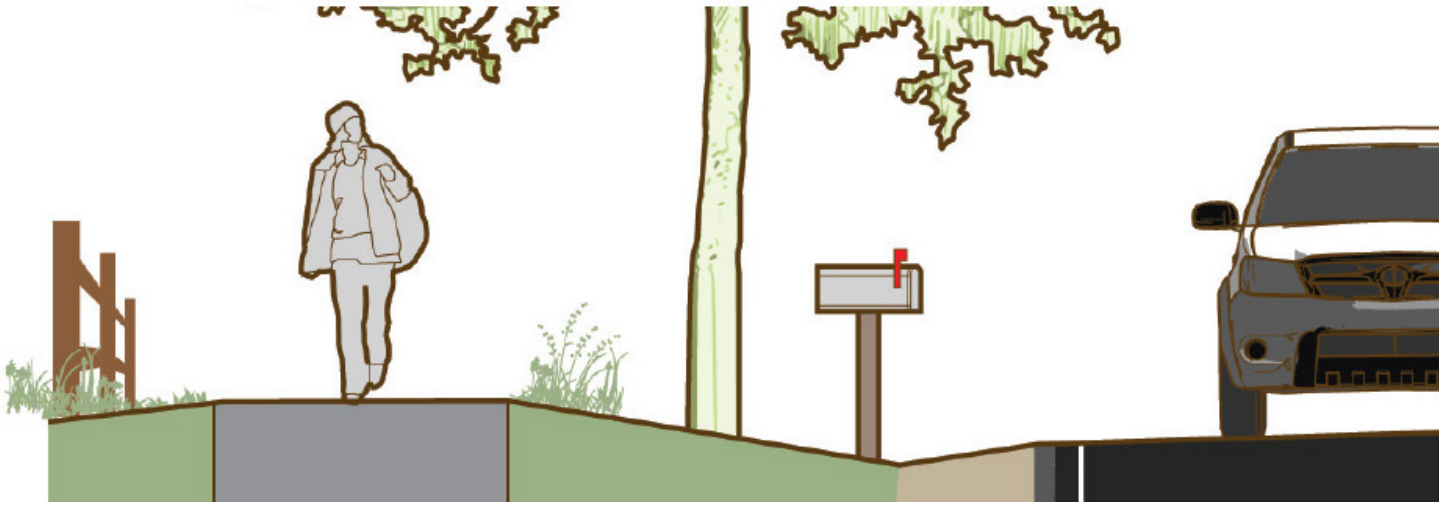
Design Options

Sidewalks

Sidewalks are the common standard for pedestrian infrastructure and provide a dedicated space for walking that is physically separated from traffic by a curb or buffer space. Physical separation from the roadway provides a space for pedestrians that offers the highest standards of safety, comfort, and accessibility to all ages and abilities.

Sidewalks are appropriate on all types of streets and are the preferred infrastructure for pedestrians in any environment that has moderate to high traffic speeds and volumes. Because they are located outside the edge of the existing roadway, sidewalks require a larger cross-section within the right-of-way. The construction of sidewalks can also be expensive, especially in locations without curbs, gutters, and stormwater infrastructure.

New sidewalks in Spring Hill should be constructed at least six feet wide. This allows two people to walk side by side. It also provides sufficient space for turning and maneuvering to meet accessibility guidelines. A six-foot sidewalk is wide enough to provide an accessible "through zone" around obstructions including utility poles, street furnishings, signs, lighting, and other obstructions. When constructed adjacent to roads with no curbs or gutters, it may be beneficial to locate sidewalks to the far side of the adjacent drainage ditch where conditions and available right-of-way permit. This configuration allows for sidewalk construction that does not interfere or require changes to existing drainage ditches, reducing the overall scope and cost of new sidewalk construction projects.



On streets without curbs, constructing sidewalks to the far side of drainage ditches can reduce costs associated with stormwater infrastructure, and also increases the buffer area between pedestrians and traffic. Image from FHWA Small Town and Rural Multimodal Network Guide.

Paved Shoulders

Many of Spring Hill's arterial streets have shoulder areas that could be paved to make them more functional and comfortable for pedestrians and cyclists. Because they provide dedicated space outside of motor vehicle travel lanes, paved shoulders can be an appropriate design on streets with moderate to high traffic volumes and speeds. Paved shoulders are typically less expensive and require less space than traditional sidewalks. As the volume and speed of traffic increases, the level of comfort on paved shoulders declines, as does the number of people willing to make walking trips in these conditions.

The width of paved shoulder areas should scale with traffic volumes ranging from four feet for low volume collector streets to eight feet for busy arterials. Rumble strips, contrasting pavement colors and materials can all help differentiate the shoulder areas from the roadway and reduce encroachments of motor vehicles into the paved shoulder area.

Pedestrian Lanes

In some locations, Spring Hill streets are wider than necessary to serve the level of traffic present on the street. In these locations, pedestrian lanes may be an appropriate solution to serve pedestrians. Pedestrian lanes provided dedicated space for pedestrians within the paved area of a street. They essentially function as sidewalks that are at the same grade as adjacent auto traffic lanes.

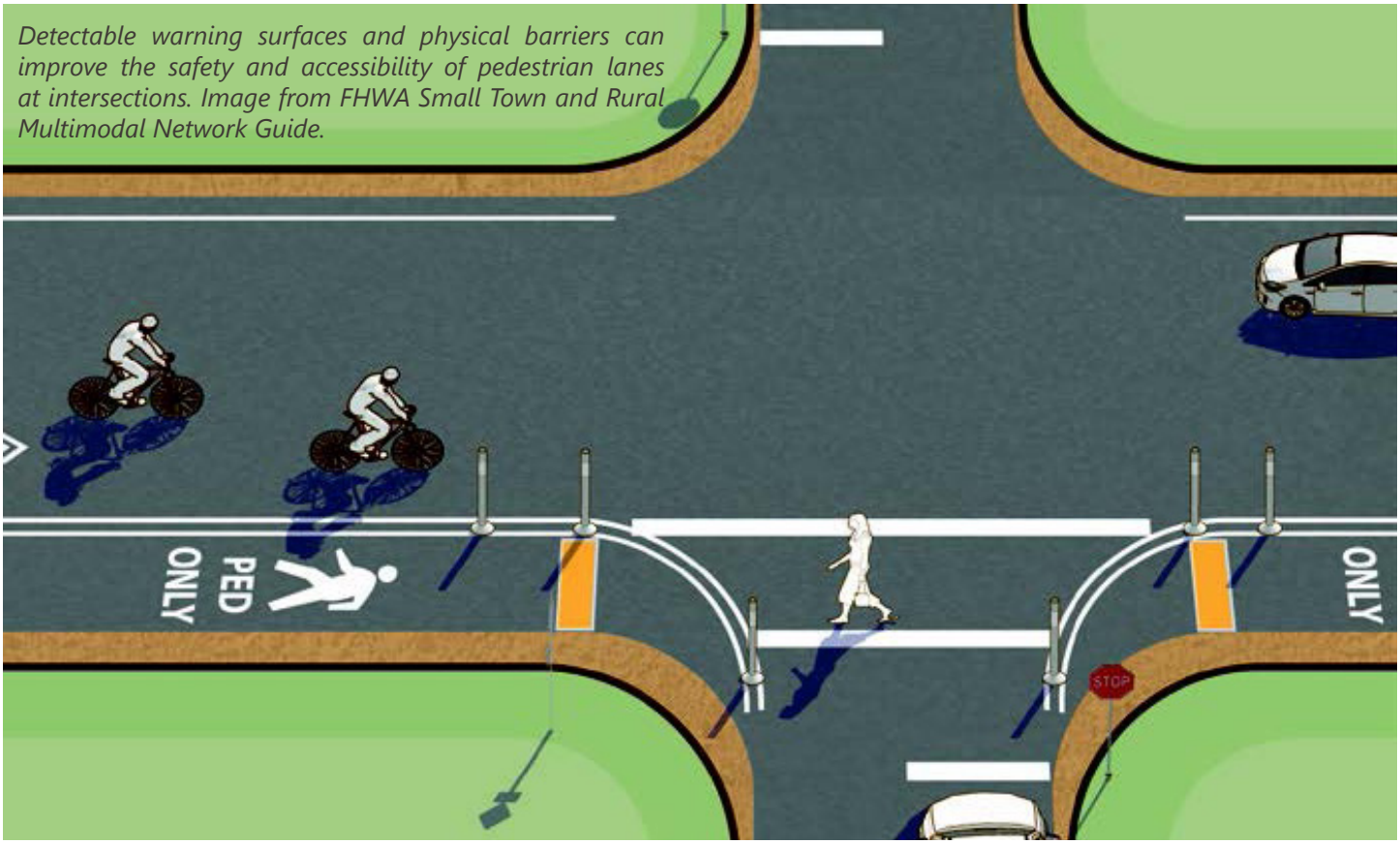
Where existing street sections permit, reallocating excess pavement is a much less expensive strategy to provide pedestrian connections than new sidewalk construction. Because they function like sidewalks, pedestrian lanes should follow standards for accessibility, especially in advance of intersections, because it is more difficult for people with vision impairment to recognize they are entering crosswalks or areas of conflict with automobiles.

At their most basic, pedestrian lanes may consist of a striped white line with periodic PED ONLY markings in the pedestrian area. The use of concrete curb stops or flexible delineator posts can increase separation and improve safety for pedestrian lanes. However, these physical separations must be coordinated with street maintenance strategies including street sweeping and snow removal.

Pedestrian lanes can integrate with the traditional sidewalk network.

Physical barriers like curb stops are a low cost way to improve the safety and comfort of pedestrian lanes.

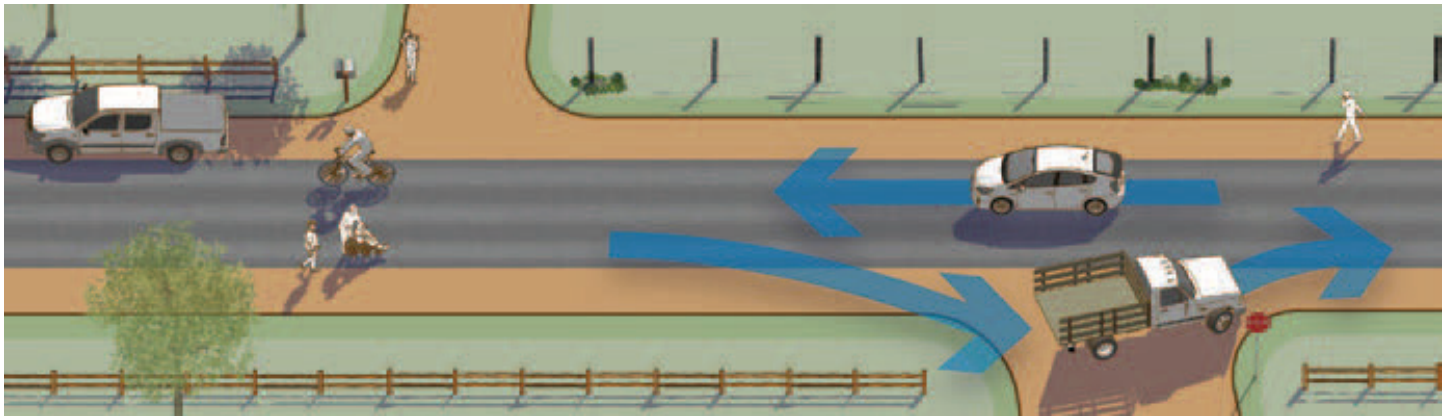
Detectable warning surfaces and physical barriers can improve the safety and accessibility of pedestrian lanes at intersections. Image from FHWA Small Town and Rural Multimodal Network Guide.



Advisory Shoulders

Advisory shoulders use dashed pavement markings to create usable shoulders on the existing pavement of local streets. Generally, advisory shoulders convert two narrow traffic lanes into a single, bi-directional travel lane and use the extra space to provide a place for pedestrians. Where two cars are passing in opposite directions, they encroach into the shoulder area only for the distance necessary to safely pass oncoming traffic.

Advisory shoulders are appropriate on streets with low to moderate traffic and moderate traffic speeds. They are most useful when streets are too narrow to provide two travel lanes and dedicated space for pedestrians. With wider street sections, other solutions like Pedestrian Lanes may be more appropriate because they provide greater comfort and separation from traffic.



On yield streets, drivers may use driveways or shoulder areas to pass. The narrow travel lane increases safety by ensuring slower speeds. Image from FHWA Small Town and Rural Multimodal Network Guide.

Yield Streets

Yield streets provide a low speed travel area without lane markings that is shared by motor vehicles, pedestrians, and bicyclists. Yield roadways are appropriate only in locations with very low traffic volumes and traffic speeds. In these conditions, they may effectively serve pedestrian needs for minimal cost.

A narrow, constrained roadway is an important design element to ensure vehicle speeds remain slow and that yield streets function effectively. Typically, a yield street will have a single, bi-directional travel lane for automobiles where infrequent passing cars use shoulder areas or driveways to pass. Streets with paved areas wide enough for two lanes of traffic generally encourage traffic speeds that are too high for a safe and comfortable mixing of cars and pedestrians. FHWA's Small Towns and Multimodal Networks guide recommends yield streets between twelve and twenty feet wide.

Signage and pavement markings may enhance yield streets, providing wayfinding, branding, and encouraging additional awareness for drivers that there are other users in the street.

Near-Term Priority Projects

Routes identified as near-term priorities for pedestrian improvements can be evaluated as individual project segments. Based on the length of the segment, pavement conditions, available right-of-way, and potential design solutions, a planning-level cost estimate can be identified.

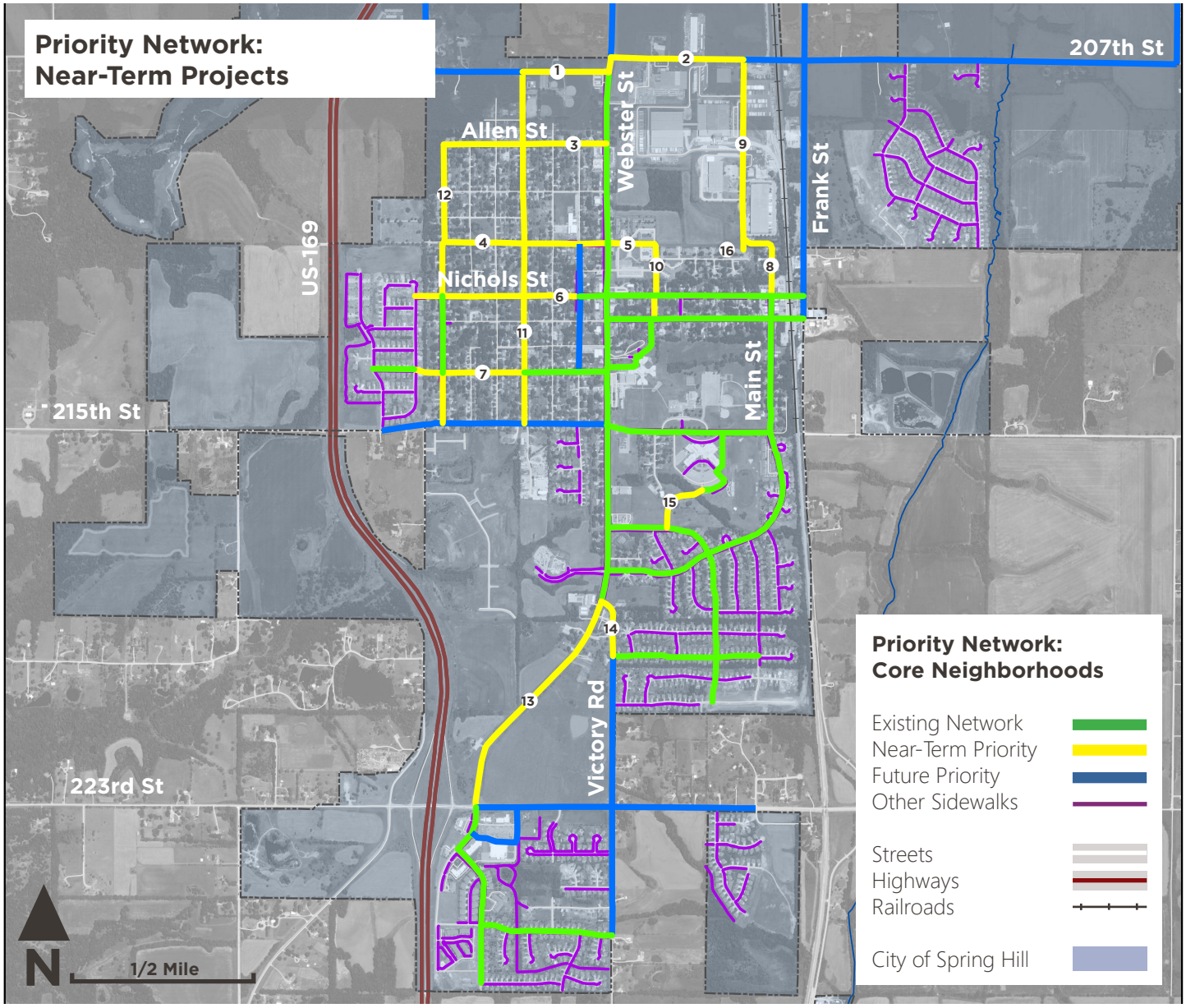
Cost information is based on unit costs for recent projects in Spring Hill, including sidewalk construction, trail construction, pavement markings and thermoplastic striping. Actual cost information from other similar projects around the region is also considered to develop estimates for costs of pedestrian improvements per linear foot.

Costs vary significantly based on the design approach identified for each segment. While they provide less separation and comfort for pedestrians, improvements that focus on pavement markings within existing paved areas are much less expensive that new sidewalk construction. It is worthwhile to evaluate the potential design options for each segment based on implementation priorities. **There may also be unique site constraints that affect project costs.** Drainage and stormwater infrastructure is the most likely source of additional cost for new sidewalk projects.

As a high-level strategy, the Spring Hill Sidewalk Strategy does not provide detailed design guidance for individual projects or replace the community engagement and outreach that shapes improvements on individual streets and corridors. Each part of the Priority Network will requre a more detailed design process, which offers opportunities to adapt improvements to the specific needs of the community as they evolve over time.

Priority Network: Near-Term Projects

	Priority Network Segment	Length (ft)	Pavement Width (ft)	ROW Width (ft)	Shoulder	Design Option	Cost/ Linear Foot	Cost Estimate	
								Low	High
1	W North Street	1,225′	22′	35′	No	Sidewalk	$80-$120	$98,000	$147,000
2	207th Street	1,888′	36′	80′	Curb	Sidewalk	$80-$120	$151,040	$226,560
3	W Allen Street	2,310′	20′	35′	No	Advisory Shoulder	$5-$25	$11,550	$57,750
4	W Lawrence Avenue	2,318′	18′	60′	No	Sidewalk	$80-$120	$185,440	$278,160
5	E Lawrence Avenue	666′	25′	N/A	Yes	Pedestrian Lane	$5-$25	$3,330	$16,650
6	W Nichols Street	2,342′	20′	60′	No	Sidewalk	$80-$120	$187,360	$281,040
7	W Spring Street	1,569′	18′	60′	No	Sidewalk	$80-$120	$125,520	$188,280
8	N Main Street	670′	18′	35′	No	Advisory Shoulder	$5-$25	$3,350	$16,750
9	N Lincoln Street	3,012′	30′	60′	Curb	Pedestrian Lane	$5-$25	$15,060	$75,300
10	N Race Street	1,082′	25′	50′	Yes	Pedestrian Lane	$5-$25	$5,410	$27,050
11	Washington Street	4,996′	20′	60′	No	Sidewalk	$80-$120	$399,680	$599,520
12	Harrison Street	2,886′	18′-20′	80′	No	Sidewalk	$80-$120	$230,880	$346,320
13	S Webster Street	3,546′	22′	150′	Yes	Paved Shoulder	$50-$80	$177,300	$283,680
14	Victory Road	857′	25′	70′	No	Sidewalk	$80-$120	$68,560	$102,840
15	Middle School Connector	870′	25′	N/A	Curb	Pedestrian Lane	$5-$25	$4,350	$21,750
16	Wilson Street Connector	160′	N/A	N/A	N/A	Shared Use Path	$120-$150	$19,200	$24,000
	Total	**30,397′**						**$1,686,030**	**$2,262,650**


Priority Network:
Near-Term Projects
207th St
Allen St
Webster St
Frank St
US-169
Nichols St
Main St
215th St
Victory Rd
223rd St
1
2
3
4
5
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14
15
16
N
1/2 Mile
Priority Network:
Core Neighborhoods
Existing Network
Near-Term Priority
Future Priority
Other Sidewalks
Streets
Highways
Railroads
City of Spring Hill

Funding and Implementation Strategies

Funding Sources

COORDINATION WITH STREET STRIPING SCHEDULES

All streets require periodic striping. When streets and intersections identified as priorities for pedestrian improvements are scheduled for restriping, there is an opportunity to implement improvements as part of the regular striping program.

COORDINATION WITH PLANNED RESURFACING

While street resurfacing is less frequent than restriping, all streets require regular maintenance and repair. It is likely that most streets in the City will require resurfacing over the course of implementation of the Spring Hill Sidewalk Strategy. These resurfacing projects can be aligned with recommended pedestrian improvements to minimize additional costs.

SURFACE TRANSPORTATION PROGRAM

The Federal Highway Administration allocates Surface Transportation Program (STP) funds to the Mid-America Regional Council, the region's metropolitan planning organization in order to fund a variety of multimodal and roadway projects. MARC's funding objectives include increasing mode choice (walking, biking, and transit), and better integrating projects into the community. Due to the complexity and requirements of federal grant administration, Surface Transportation Program funds are most applicable for larger or combined projects.

CONGESTION MITIGATION & AIR QUALITY PROGRAM

Federal Congestion Mitigation and Air Quality (CMAQ) funds are used to pay for transportation projects that improve air quality in areas where the Environmental Protection Agency considers air quality to be poor, or where there have been air quality problems in the past. Sidewalk and bike projects are ideal candidates for CMAQ funds because they focus on supporting non-polluting walking and biking trips. Due to the complexity and requirements of federal grant administration, Congestion Mitigation and Air Quality Program funds are most applicable for larger or combined projects.

TRANSPORTATION ALTERNATIVES PROGRAM

This federal program sets aside funds specifically for a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, and other community improvements. These funds can't be used for traditional road capacity projects, making Spring Hill pedestrian projects more competitive.

SAFE ROUTES TO SCHOOL PROGRAMS

Spring Hill Sidewalk Strategy projects are eligible for state and federal funding sources devoted to improving Safe Routes to School. Safe Routes to School (SRTS) is an approach that promotes walking and bicycling to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and bicycling to school. While SRTS grants focus on connecting students to school, these projects have benefits for the entire community.

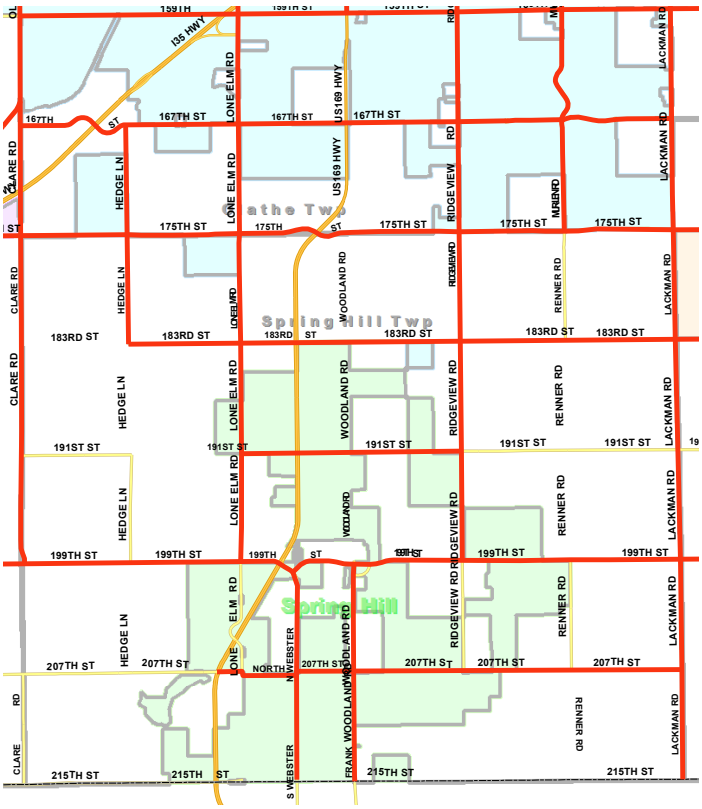
COUNTY ASSISTANCE ROAD SYSTEM (CARS) PROGRAM

Through the County Assistance Road System (CARS) program, Johnson County assists local communities with the construction and maintenance of major arterials in the County. For CARS projects, Johnson County pays for 50% of project construction costs. Route enhancements including sidewalks, bike paths, lighting, and other improvements are eligible through CARS. Pedestrian improvements could also be funded as part of larger cpacity or maintenance projects. Within Spring Hill, several major arterials identified as part of the Priority Network for sidewalks are eligible for CARS funding.

COORDINATION WITH PRIVATE PARTNERS

New development and redevelopment projects are often responsible for infrastructure improvements adjacent to their projects. As Spring Hill Sidewalk pedestrian projects are implemented over the course of several years, there will likely be opportunities to coordinate private development site improvements with plan recommendations.

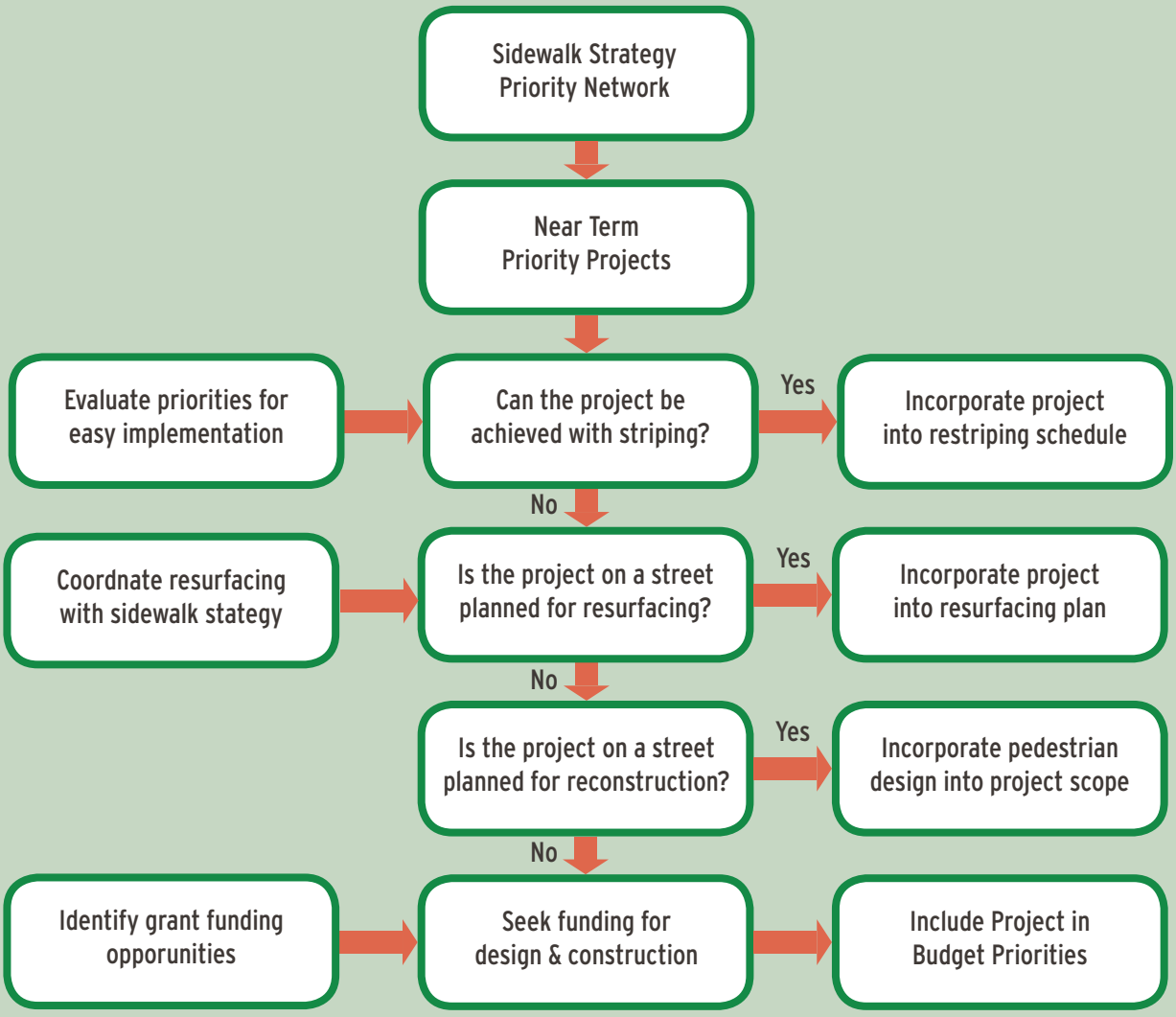
CARS Eligible Routes in Spring Hill



Coordination with Existing Projects

Sometimes implementation of the Spring Hill Sidewlk Strategy will depend on projects of opportunity. Over the life of the plan, routes identified on the Priority Network will see routine restriping, resurfacing, and in some cases reconstruction. These are opportunities to coordinate pedestrian improvements, save money, and support community goals more efficiently. There are also numerous grant opportunities that can support implementation of the plan. Where projects are eligible and competitive for these opportunities, implementation of the Spring Hill Sidewalk Strategy can be accelerated.

This project coordination chart outlines a decision process to assist with the implementation of the Spring Hill Sidewalk Strategy. By aligning projects in the Priority Network with existing funding streams for maintenance and other infrastructure, the overall cost and timeline of implementation for the Sidewalk Strategy can be reduced.



Project Delivery Strategies

Unlike traditional infrastructure projects that can be slow, expensive, and permanent to build, many pedestrian infrastructure projects can be implemented quickly and adjusted over time. Cities that are successfully implementing pedestrian and bicycle infrastructure are increasingly pursuing new models of project delivery that are faster, more flexible, and ultimately more efficient in achieving community goals.

As Spring Hill evaluates project priorities and phasing, there are opportunities to pilot and test configurations before permanent improvements are made. Projects can also be implemented iteratively, beginning with basic features like paint and signage and incorporating more permanent infrastructure over time. This approach can deliver benefits to safety and ridership quickly without requiring a large upfront investment. This approach also builds confidence in more permanent improvements because incremental improvements can demonstrate how they will function.

Demonstration

Pilot

Interim Design

Permanent Installation

Policy Recommendations

SUBDIVISION REGULATIONS:
MINIMUM SIDEWALK WIDTH

The current minimum width of four feet for Spring Hill sidewalks does not provide adequate space for two people to comfortably walk side by side (a parent and child, for example). A minimum sidewalk width of six feet is recommended, with a recommended five foot minimum "through zone" that is unobstructed by obstacles including utility poles and access panels, signage, lighting, trees, and other barriers.

SUBDIVISION REGULATIONS:
ACCESSIBLE ROUTE BETWEEN INTERSECTING STREETS WITH SIDEWALKS

While Spring Hill's Subdivision Regulations require a sidewalk on all streets, they do not specify that sidewalks on intersecting streets must connect to each other. As a result, there are many locations in Spring Hill where there is no way to get from one sidewalk to another at intersecting streets. In addition to creating barriers to comfort and safety, this condition undermines sidewalk investments by making the required improvements less functional. A clarification in the Subdivision Regulations is recommended requiring that there must be an accessible route between sidewalks on intersecting streets.

SUBDIVISION REGULATIONS
ACCESSIBLE ROUTE FROM SIDEWALK TO ENTRANCES

The purpose of sidewalks is to provide pedestrian access to destinations throughout the community. For developments where there is no safe and accessible path between required sidewalks and building entrances, the adjacent sidewalks provide little value. Sometimes the only path between sidewalks and building entrances requires pedestrians to navigate through driveway entrances and parking areas - locations where the risk of collision and injury is highest. An amendment to Subdivision Regulations is recommended for non-residential and multifamily developments that requires an accessible route from sidewalks on adjacent streets to building entrances.

This recent Spring Hill sidewalk has no receiving ramp or direct connection to the sidewalk of the intersecting street.

This recent Spring Hill sidewalk has a receiving ramp that maintains pedestrian connectivity between the intersecting streets.

There is no pedestrian connection between this sidewalk and the entrance of the adjacent shopping center.

Policy Recommendations

TECHNICAL SPECIFICATIONS: ADOPT PROWAG STANDARDS FOR ACCESSIBILITY

The United States Access Board's Guidelines for Pedestrian Facilities in the Public Right-of-Way ensure that sidewalks, pedestrian street crossings, pedestrian signals, and other facilities for pedestrian circulation and use constructed or altered in the public right-of-way by state and local governments are readily accessible to and usable by pedestrians with disabilities. Adoption of PROWAG standards as part of technical specifications will remove ambiguity in ADA requirements and provide clearer guidance on a variety conditions that may not be suitable for Spring Hill's existing ADA ramp templates.

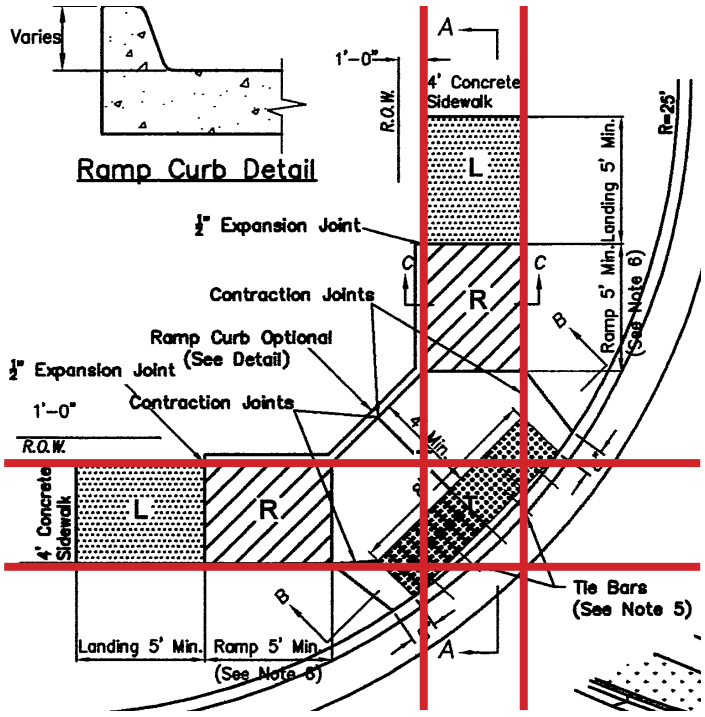
TECHNICAL SPECIFICATIONS: DIRECT PATH AT INTERSECTIONS

Spring Hill's Technical Specifications for Public Improvements include details for sidewalk ramps in constrained locations that permit perpendicular sidewalks to share a single, blended transition ramp into the intersection. As illustrated, the shared sidewalk detail maintains a direct path across the street for pedestrians traveling on sidewalks in both directions and meets guidelines for accessibility. In practice, developers have used this permitted shared ramp template to build one ramp instead of two in locations that are unconstrained and sidewalks have wide buffers from the street. There are two problematic consequences to this practice: 1) The path of pedestrians is made more confusing and circuitous, requiring them to divert from their desired route to continue traveling in a straight line, and 2) Offset shared ramps often direct pedestrians into the middle of the intersection with no receiving ramp and increased potential for conflict with automobiles.

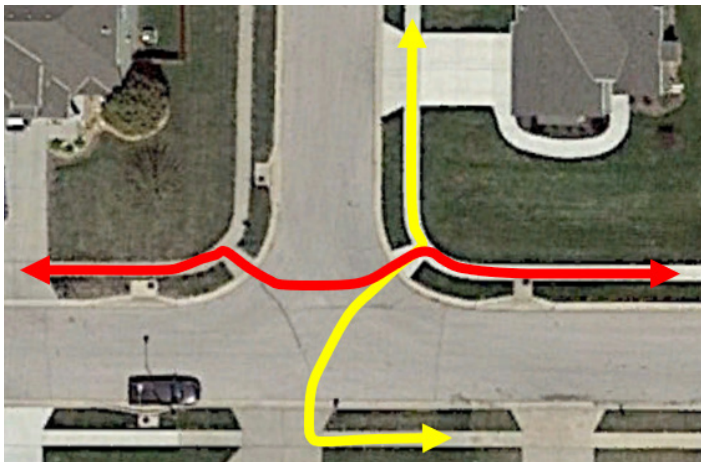
An amendment to the Technical Specifications is recommended to clarify that blended transition ramps are appropriate only in locations where a directness of route on the sidewalk can be maintained. Additionally, ramp templates that directional guidance for people with visual impairments are preferred (see example to the right).

TECHNICAL SPECIFICATIONS: DIRECT PATH AT INTERSECTIONS

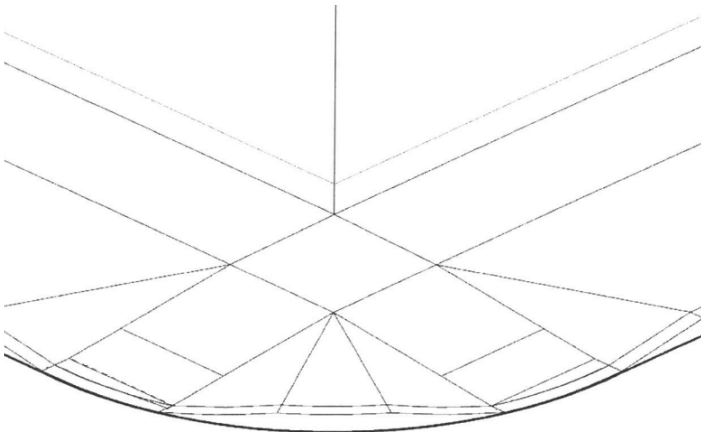
In many locations, sidewalk ramps direct pedestrians into an intersection with no accessible way for them to exit the intersection and reach the sidewalk on the other side of the street. An amendment to the City's technical specifications is recommended that requires a receiving ramp for pedestrians across the intersection and requires the directing and receiving ramp to align with each other for a clear and direct path across the street.



Spring Hill Sidewalk Detail - Directness of path maintained through shared ramp

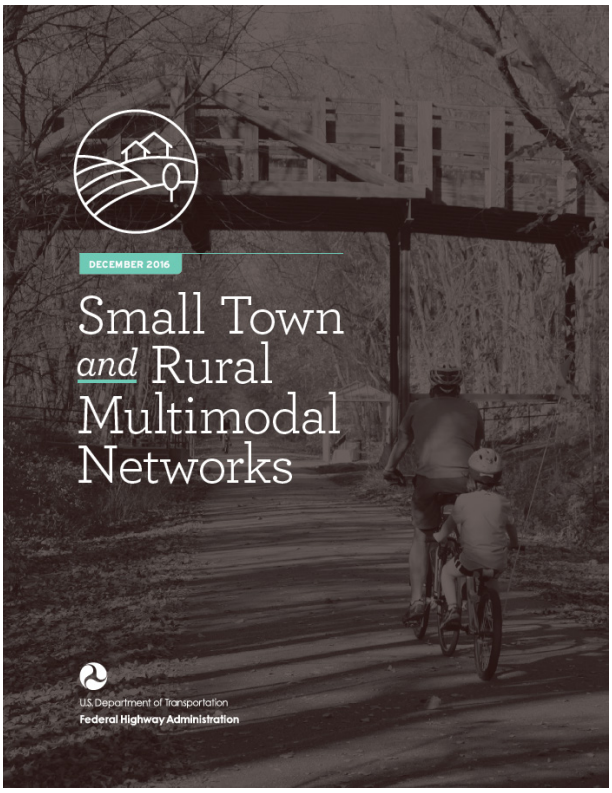


As implemented, many of Spring Hill's shared ramps require circuitous routes that place pedestirans in conflict with cars.

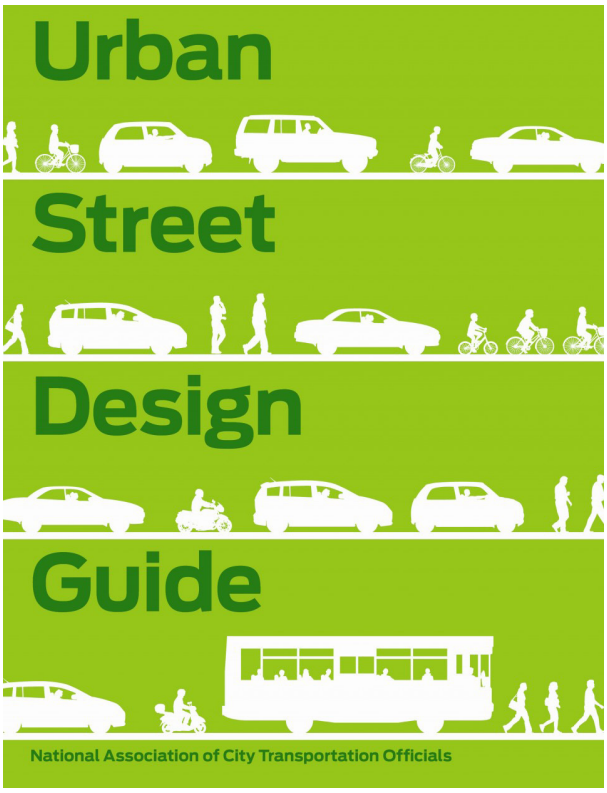


This example ramp provides a direct path for pedestrians and clear directional guidance.

Additional Resources

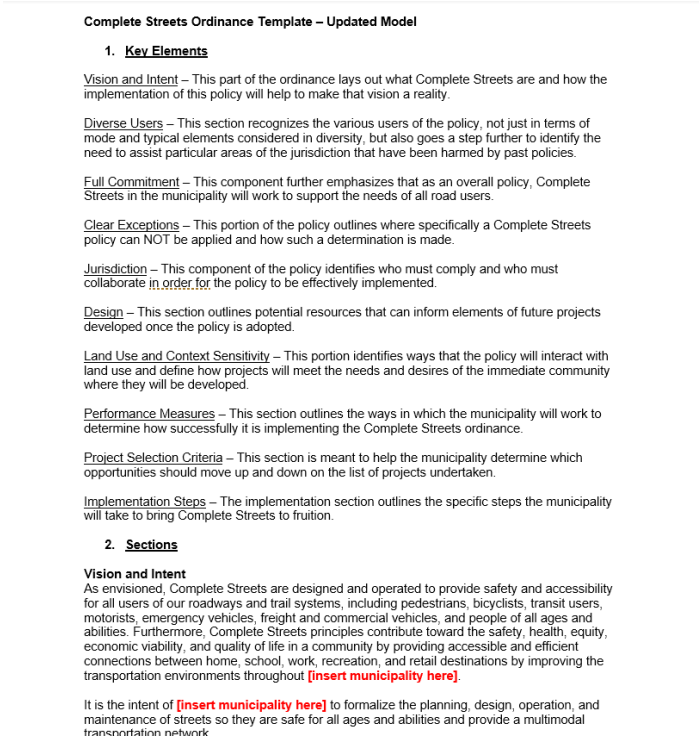


FHWA - Small Town and Rural Multimodal Networks Guide
https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/



NACTO Urban Street Design Guide
https://nacto.org/publication/urban-street-design-guide/

Quick Builds for Better Streets: A New Project Delivery Model for U.S. Cities
peopleforbikes.org



Complete Streets Ordinance Template – Updated Model

1. **Key Elements**

Vision and Intent – This part of the ordinance lays out what Complete Streets are and how the implementation of this policy will help to make that vision a reality.

Diverse Users – This section recognizes the various users of the policy, not just in terms of mode and typical elements considered in diversity, but also goes a step further to identify the need to assist particular areas of the jurisdiction that have been harmed by past policies.

Full Commitment – This component further emphasizes that as an overall policy, Complete Streets in the municipality will work to support the needs of all road users.

Clear Exceptions – This portion of the policy outlines where specifically a Complete Streets policy can NOT be applied and how such a determination is made.

Jurisdiction – This component of the policy identifies who must comply and who must collaborate in order for the policy to be effectively implemented.

Design – This section outlines potential resources that can inform elements of future projects developed once the policy is adopted.

Land Use and Context Sensitivity – This portion identifies ways that the policy will interact with land use and define how projects will meet the needs and desires of the immediate community where they will be developed.

Performance Measures – This section outlines the ways in which the municipality will work to determine how successfully it is implementing the Complete Streets ordinance.

Project Selection Criteria – This section is meant to help the municipality determine which opportunities should move up and down on the list of projects undertaken.

Implementation Steps – The implementation section outlines the specific steps the municipality will take to bring Complete Streets to fruition.

2. **Sections**

Vision and Intent
As envisioned, Complete Streets are designed and operated to provide safety and accessibility for all users of our roadways and trail systems, including pedestrians, bicyclists, transit users, motorists, emergency vehicles, freight and commercial vehicles, and people of all ages and abilities. Furthermore, Complete Streets principles contribute toward the safety, health, equity, economic viability, and quality of life in a community by providing accessible and efficient connections between home, school, work, recreation, and retail destinations by improving the transportation environments throughout **[insert municipality here]**.

It is the intent of **[insert municipality here]** to formalize the planning, design, operation, and maintenance of streets so they are safe for all ages and abilities and provide a multimodal transportation network.

Model Complete Streets Ordinance
https://bikewalkkc.org/planning/policycodes/

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Kansas City, MO 64109
816-205-7056
planning@bikewalkkc.org

Our mission is to redefine our streets as places for people to build a culture of active living.

BIKE WALK KC