

# MASTER PLAN

*submitted to the*

**City of Sedgwick, Kansas**

*Tradition with a Vision*



*for*

**City Wide Hike & Bike Trail System**

March 2012

**WILSON**  
& COMPANY

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City Administrator: Jaclyn Reimer

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*Kansas Department of Transportation*

# Master Plan – City Wide Hike & Bike Trail System

## 1.0 INTRODUCTION

1.1 PURPOSE: The purpose of this report is to provide the City of Sedgwick with a 5-year master plan for the systematic development and implementation of a city wide hike & bike trail system. The proposed improvements which will include both new construction and rehabilitation of existing infrastructure will enhance the existing network of sidewalks and trails. The 5-year master plan is intended to be flexible to accommodate several major infrastructure projects which are in the planning stage and may or may not materialize in the near future. The preliminary concept of the overall improvements will be broken into several construction phases and prioritized. These phases can be further modified or combined to take full advantage of future funding opportunities.

1.2 NEED: Hike & bike trails are needed to augment the existing sidewalk system which will provide a safe network to connect open spaces, parks, and other areas of interests. A safe, well maintained, user friendly system will encourage use and promote a healthy active lifestyle.

1.3 AREA OF INTEREST & LIMITS OF REPORT: The area of interest is predominately within the existing city limits of Sedgwick and generally can be defined as the area bounded by the Little Arkansas River and Sand Creek on the west and by Hoover Road to the east. 1st Street was considered the southern boundary and 8th Street to the north.

2.0 CRITERIA: ADA compliant sidewalk ramps shall be constructed at each curbed street crossing. Max longitudinal grade without ramps or landings shall be 5%. Max cross slope shall be 2%. New combined use hike & bike paths shall be constructed to a minimum width of 10'. Existing sidewalks in residential areas with right-of-way restraints can be reconstructed to 5' minimum width and shall be constructed of concrete with a minimum 4" thickness. For 10' wide concrete segments the pathway shall be at least 5" thick over a compacted or stabilized subgrade. In open area spaces where desired by the City, asphalt surfacing may be substituted for concrete for the 10' wide trails.

In open areas, there should be at least a 5' buffer or shoulder from a slope of 3:1 or steeper adjacent to the trail. There shall be at least a 2' clearance from any sign or fixed object adjacent to a 10' hike & bike trail.

Final design of future hike & bike segments shall comply with applicable ADA and AASHTO standards in use at the time of design.



A summary of key criteria is summarized in the table below.

AASHTO Criteria	Shared-Use Paths	
Cross Slope	2%	Maximum
Longitudinal Slope	5%	Maximum
Ramps	8.3%	Maximum
Width for Shared-Use Sidewalk or Trail	10'	Minimum
Vertical Clearance	8'	Minimum
Horizontal Clearance	2'	Minimum
Grading (2' adjacent to path)	6:1	Maximum
Separation from top of steep slope ( $\geq 3:1$ )	5'	Minimum
Railings, fences, or barriers adjacent to Path	42"	Minimum

3.0 **KEY DESTINATIONS:** To promote use, the proposed trail system should connect or be in close proximity to key destinations that generate pedestrian and bicycle traffic. Key destinations are shown in the map below and include schools, parks (existing & proposed), athletic facilities, and open recreational areas.

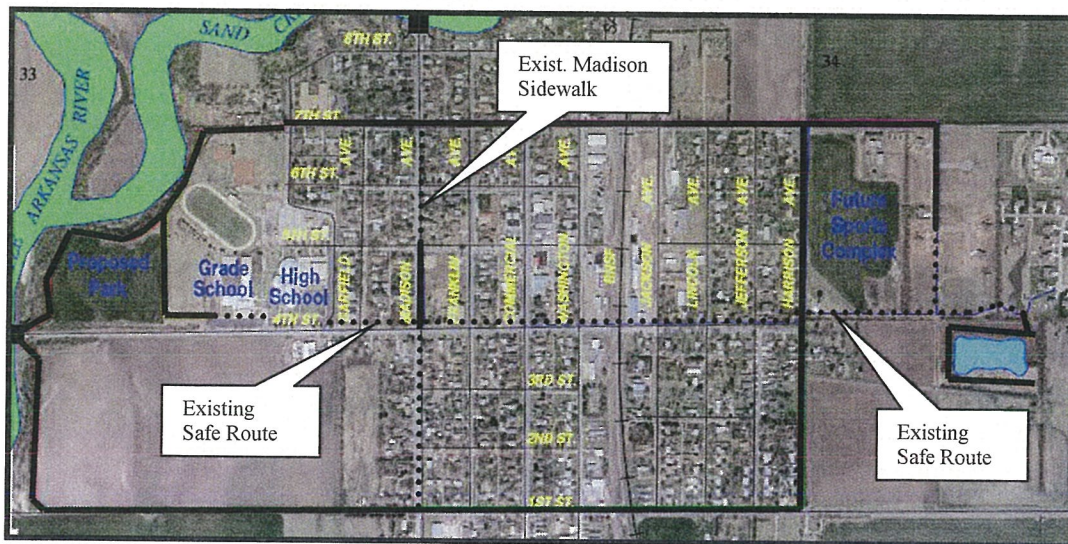
4.0 **EXISTING INFRASTRUCTURE AND COMPONENTS:** The proposed improvements will connect to and expand on the recent improvements along 4th Street made under the Safe Routes to School program. The Safe Route extended east past 4th and Harrison to connect to residential developments on the east side. The pathway is along the south side of a proposed sports complex, and also along the north side of a recently constructed detention pond which the City plans to beautify and create a park like area for recreational use. The Safe Route to School provides the major centrally located east-west route. This segment is the essential back bone through the City with easy connections to existing residential grid system of streets and sidewalks.

The City currently has a cost sharing program to fund 50% of construction costs and 100% of all ADA curb access requirements in the repair or replacement of existing sidewalks. Participation is contingent with submitting an application with bids in advance of construction or sidewalk repair. The City may require two or more bids if deemed necessary and the City may reject any or all bids for any reason. Upon approval and inspection of finished work, the City will tender their share.

It is recommended the City continue to fund and support this program on an annual basis. When there are competing applications for limited funding, priority should be given to the project that best serves or expands on the proposed Safe Routes to Schools, and or the proposed city wide hike & bike system.

**5.0 PRELIMINARY CONCEPT:** The preliminary concept is to provide a hike and bike trail system around the perimeter of the City which can be used for recreational purposes. It will have connections to key destinations and to the interior part of the city by means of improvements along primarily developed residential areas, including 4<sup>th</sup> Street, Harrison Avenue, and Madison Avenue.

The BNSF Railroad runs north and south and effectively bisects the city. There are 3 at-grade railroad crossings; 1<sup>st</sup> Street, 4<sup>th</sup> Street, and 7<sup>th</sup> Street. The hike & bike crossings at 1<sup>st</sup> and 7<sup>th</sup> Street are part of the proposed improvements. The crossing at 4<sup>th</sup> street was already improved through the Safe Routes to School program. The 4<sup>th</sup> Street improvements will function as the backbone of the system and will allow connectivity from the interior parts of the City to the perimeter trail. Madison currently has sidewalk and will provide for a complete north-south connection from 1<sup>st</sup> Street to 7<sup>th</sup> Street. Improvements to Harrison Avenue and Fern Street will provide two more north- south connections.

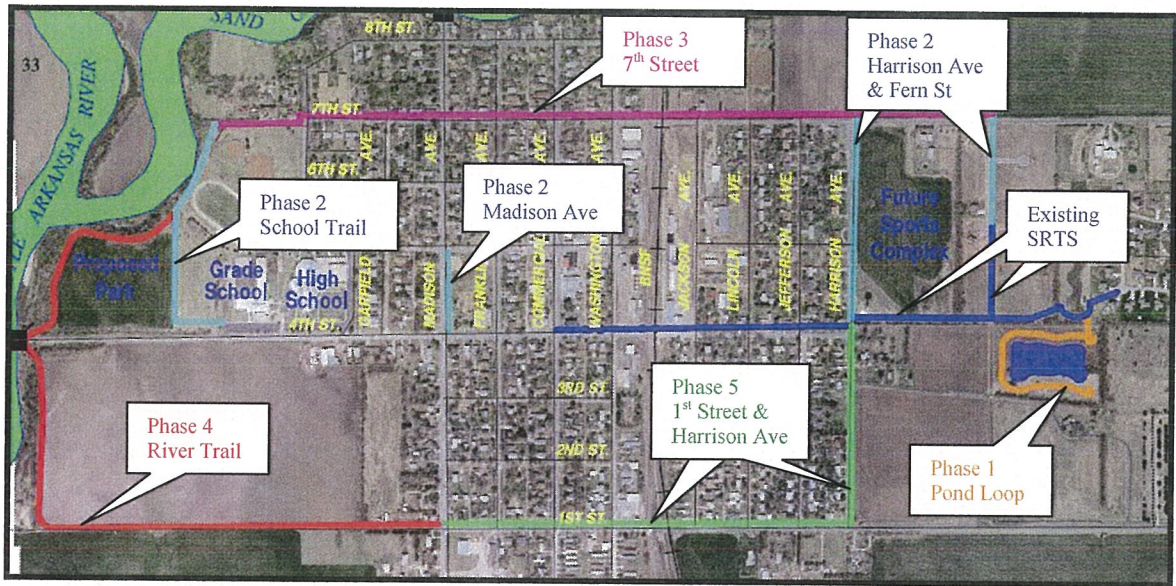


**6.0 PROPOSED PHASING:** The construction of the proposed improvements shall be broken into phases and sequenced over a multiyear program to better fit potential funding opportunities. This will also allow the program a great deal of flexibility so that it can be coordinated and assimilated into other major infrastructure improvement projects such as a proposed sports complex in the south east corner of Harrison Avenue and 7<sup>th</sup> Street, or a potential truck route via a new road extension of 1<sup>st</sup> Street as shown in the City of Sedgwick Comprehensive Plan 2008-2030.

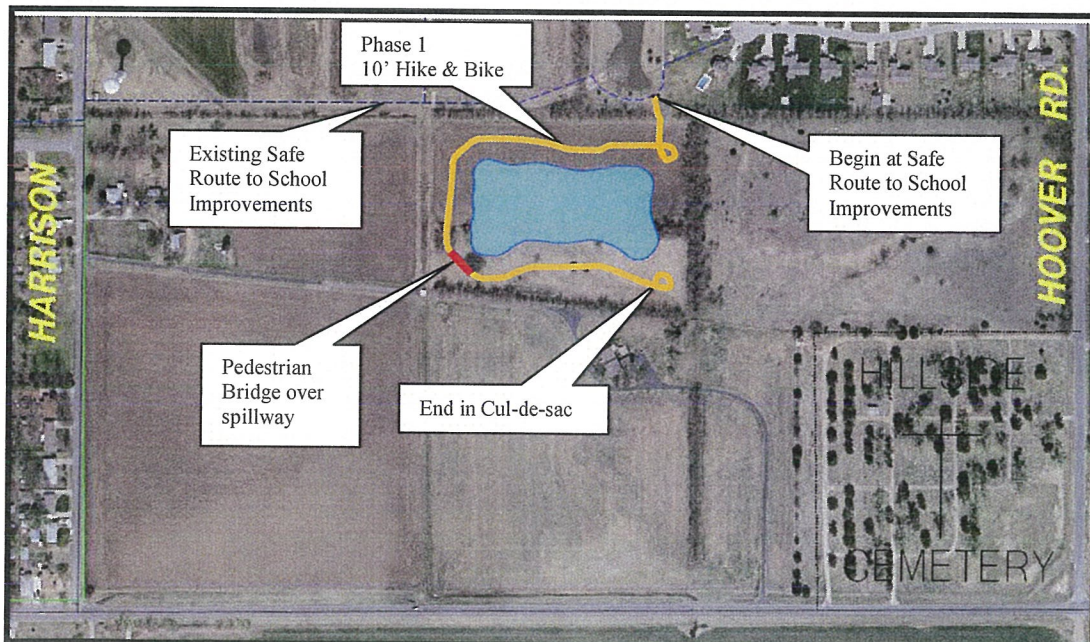
For planning purposes a 5-year program is proposed. The initial phases include sections that could be constructed on existing city right-of-way and would extend or



connect to existing primary routes such as the Safe Routes to School improvements. Phases in the later stages of the program may require right-of-way or permanent easement acquisition. Each phase will also require additional planning and design to develop the actual proposed improvements and detailed cost estimates for approval by the City.



**Phase 1:** Construct 10' Hike & Bike trail around the perimeter of the recently constructed detention pond northwest of Hillside Cemetery. The proposed improvement will connect to the east end of the Safe Routes to School improvements. A small pedestrian bridge will span the outlet and emergency spillway in the southwest corner of the pond. Cul-de-sacs are planned for the east end terminals.





Total estimated Phase 1 length of 10' Hike & Bike is 1830 feet.  
Phase 1 also includes one 70' x 14' pedestrian bridge.

**Phase 2:** Construction will included 4 short north south segments.

Construct 10' Hike & Bike trail from the west end of sidewalk along 4<sup>th</sup> Street and adjacent to the schools. The connection will swing north to Sand Creek and along the backside of the existing athletic facilities to Wellhouse Road on the north. The City of Sedgwick Comprehensive Plan 2008-2030, shows a proposed park to be located north of 4<sup>th</sup> Street and between the Little Arkansas River and the schools. The design of this segment of hike & bike shall consider the potential development of this area into a park facility.

Construct ADA accessible ramps at curb street intersection along Madison Ave from 1<sup>st</sup> Street to 7<sup>th</sup> Street. Complete missing segments of sidewalk along Madison Ave, most notably along the east side between 4<sup>th</sup> and 5<sup>th</sup> Street.

Construct sidewalk along the west side of Harrison beginning at the Safe Routes to School improvements at 4<sup>th</sup> Street and running north to 7<sup>th</sup> Street.

Construct 10' Hike & Bike beginning at the Safe Routes to School improvements at Fern Circle and running north along Fern Street to 7<sup>th</sup> Street.

Completion of Phase 2 will provide 3 north south connections between the Safe Routes to School improvements along 4<sup>th</sup> Street and 7<sup>th</sup> Street to the north.



Total estimated Phase 2 length of 10' Hike & Bike is 4,270 feet.

**Phase 3:** Construct 10' Hike & Bike trail from the north end of Phase 2 improvements near Wellhouse Rd and turn west along Wellhouse Road and 7<sup>th</sup> Street. Currently there is intermittent sidewalk in place along the north side of 7<sup>th</sup> Street. Existing sections if in good condition and meeting minimum standards can be left in place and utilized. The first priority will be to construct sidewalk in the missing sections. Second priority will be to rehabilitate or reconstruct the existing sidewalks



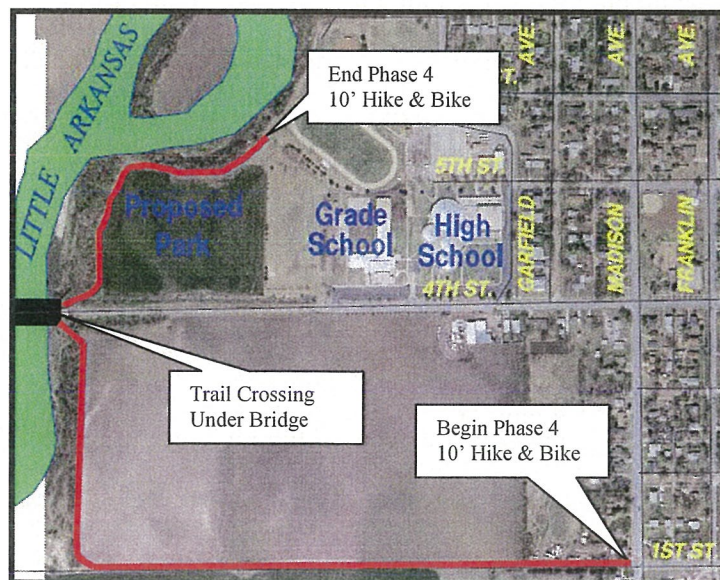
that may be in substandard condition or do not meet minimum criteria. Improvements will run along the north side and extend east to Fern St. Completion of Phase 3 will provide an east-west route along the northern section of the City. Any improvements in the vicinity of Harrison and 7<sup>th</sup> Street shall take into consideration a future planned sports complex in the southeast corner of this intersection.



Total estimated Phase 3 length of 10' Hike & Bike is 5,070 feet.

**Phase 4:** Construct 10' Hike & Bike from the west end of 1<sup>st</sup> Street at Madison Avenue west

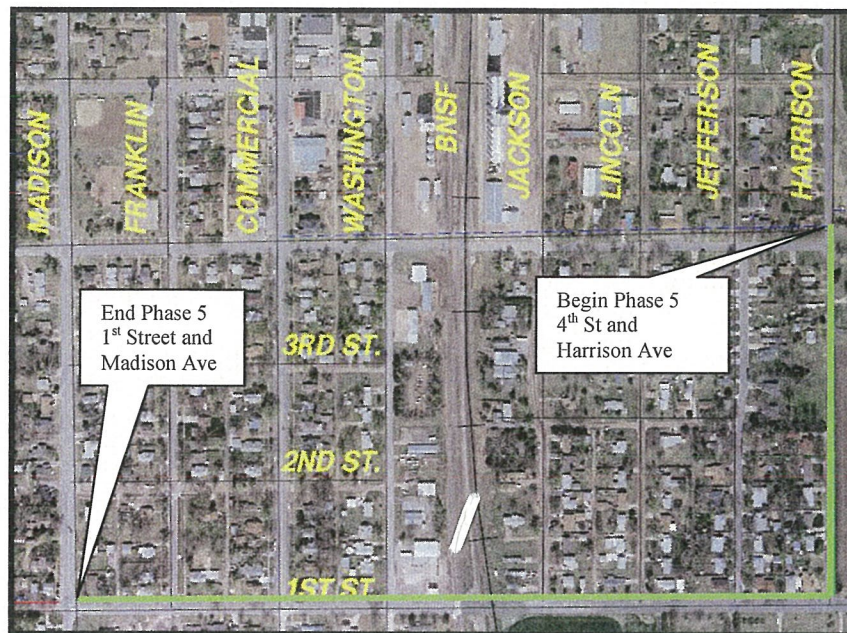
Completion of Phase 4 will allow a south loop to be made using 4<sup>th</sup> Street, South River Trail, and Madison Ave.



Total estimated Phase 4 length of 10' Hike & Bike is 5,005 feet.

**Phase 5:** Construct 10' Hike & Bike along 1<sup>st</sup> Street between Madison Avenue and Harrison. Construct 10' Hike & Bike along Harrison Ave between 1st Street and 4<sup>th</sup> Street.

Completion of Phase 5 will provide for a third improved rail crossing. It will also provide connectivity for a south loop.



Total estimated Phase 5 length of 10' Hike & Bike is 3,900 feet.

**7.0 ESTIMATED CONSTRUCTION COSTS:** Construction costs are constantly changing and with any long term phased plan, estimates should be periodically updated. Future phases may be adjusted as necessary to maintain an achievable goal over time. Construction costs are shown below based on Kansas Department of Transportation's 4th Quarter 2011 Unit Bid Prices and adjusted based on KDOT's inflation rate table. Each proposed phase has a current estimated construction cost based on 2011 dollars and inflated to the proposed year of implementation in the overall 5-yr plan. Costs are for simple concrete construction, and do not account for grading, subgrade treatment, drainage, right-of-way or easement acquisition, utility adjustments, lighting, or future maintenance. Costs are for 10' concrete Hike & Bike. Trails in open areas or park settings may have a Hot Mix Asphalt (HMA) surfacing substituted for concrete.



PHASE	HIKE & BIKE LENGTH Ft.	AREA Sq. Yds.	HIKE & BIKE COST 2011	HIKE & BIKE RAMPS	RAMPS UNIT COST 2011	ADJUSTED PHASE TOTAL	REMARKS
1	1,830	2,033	\$89,500			\$220,700	*East Pond (FY 2012)
2	4,270	4,744	\$208,700	10	\$13,200	\$237,700	North River Trail (FY 2013)
3	5,070	5,633	\$247,900	12	\$6,600	\$282,200	7th Street (FY 2014)
4	5,005	5,561	\$244,700			\$293,400	South River Trail (FY 2015)
5	3,900	4,333	\$190,700	14	\$18,400	\$262,000	1st Street (FY 2016)
<b>TOTAL</b>			<b>\$981,500</b>		<b>\$38,200</b>	<b>\$1,296,000</b>	

\*Note Phase 1 Includes a 70' x 14' Pedestrian Bridge at \$128,100

## 8.0 REFERENCES:

- Guide for the planning, Design and Operation of Pedestrian Facilities: American Association of State Highway and Transportation Officials, July 2004
- Guide for the Development of Bicycle Facilities: American Association of State Highway and Transportation Officials, 1999
- City of Sedgwick Comprehensive Plan 2008-2030: Professional Engineering Consultants, P.A.
- Kansas Bicycle Transportation Facilities Guide: Kansas Department of Transportation, December 1997

## APPENDIX

- A. Revised Inflation Rates for Construction Costs - May 2010, Kansas Department of Transportation

## APPENDIX A

### REVISED INFLATION RATES FOR CONSTRUCTION COSTS – MAY 2010 KANSAS DEPARTMENT OF TRANSPORTATION



