



WEBSTER GROVES

BICYCLE AND PEDESTRIAN MASTER PLAN

COMPLETED AUGUST 2014





ACKNOWLEDGEMENTS

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- Councilmember Kathy Hart
- Councilmember Toni Hunt
- Councilmember Greg Mueller
- Councilmember Debi Salberg
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SECTION ONE

1

INTRODUCTION

INTRODUCTION

In 2012, the Sustainability Commission and the City of Webster Groves started working with Trailnet, a local non-profit, to create a 20-year plan for enhancing livability through biking and walking improvements. Trailnet has partnered with the Webster Groves School District since 2006 on Safe Routes To School, a program that encourages students to walk to school. Trailnet secured federal funding through Surface Transportation Funding and awarded an 80% subsidized plan to The City of Webster Groves upon receipt of their winning application. The Webster Groves Bicycle and Pedestrian Master Plan will help the City make decisions to leverage the limited funding available for biking and walking, including:

- Prioritize investments in walking and biking based on cost, available right-of-way, and strengthening the overall network
- Encourage routine maintenance and upgrades to be opportunities to improve the biking and walking network
- Strengthen applications for state and federal funding
- Identify opportunities for encouragement, education, enforcement, and evaluation

PLANNING PROCESS

The planning process was initiated in the fall of 2013 and finished in the summer of 2014. The plan encompasses the City of Webster Groves. Connections to planned routes in the Great Rivers Greenway network were also considered along with streets owned by St. Louis County and the Missouri Department of Transportation.

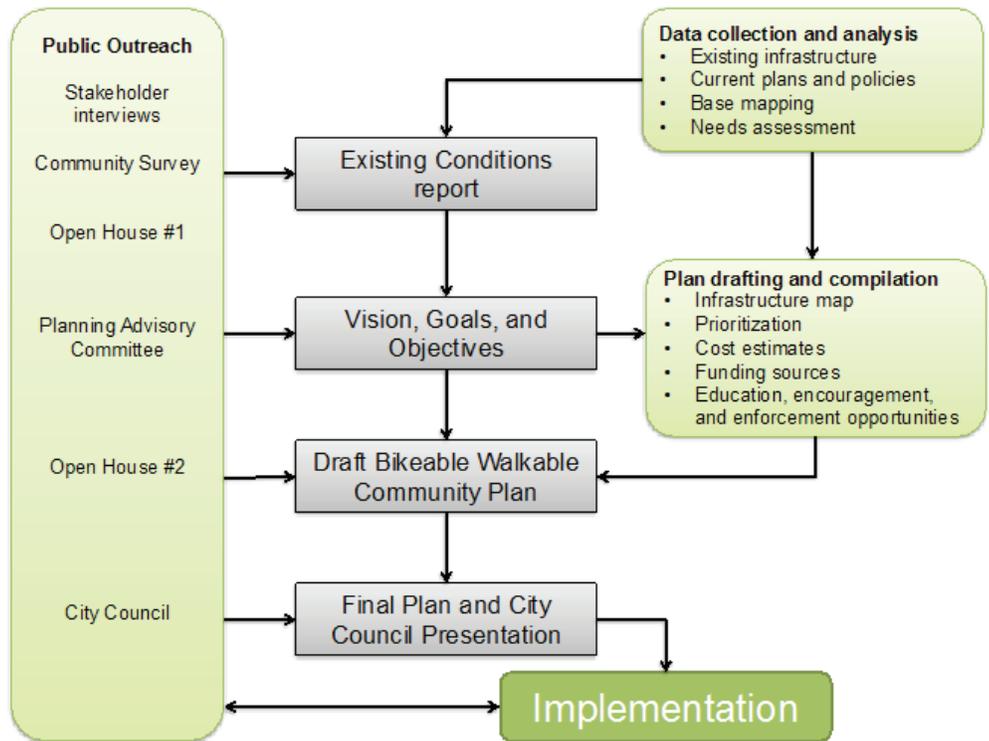
The vision of the Sustainability Commission and the residents of Webster Groves drove the planning process. The outreach process included work with the Sustainability Commission, the Planning Advisory Committee, two public meetings at Webster Groves City Hall, two work sessions with the City Council, and a survey available online and on paper. A summary of each meeting and a copy of the survey questions can be found in the appendices. The needs identified in the outreach process are integrated throughout the plan, including the Vision, Goals, and Objectives, and the prioritization of projects.

The Planning Advisory Committee was involved throughout the planning process, with representation from community stakeholder groups including the Sustainability Commission, City staff, Webster University, local businesses, and people who walk and bicycle for pleasure and transportation. The Planning Advisory Committee met three times, and was invited to give input on the draft plan. A summary of the Planning Advisory Committee meetings and membership attendance can be found in Appendix C.



Residents attend the first public meeting at Webster Groves City Hall.

Figure 1: The public outreach process



SECTION ONE

2

BENEFITS OF A WALKABLE/BIKABLE COMMUNITY



A walkable neighborhood: Old Town Webster



Car focused development: typical post-war neighborhood in southern Webster Groves



Bicycle infrastructure investment in Old Town

BENEFITS OF A WALKABLE/BIKABLE COMMUNITY

Bikeable and walkable streets attract investment, increase property values, reduce congestion, and cost less to build and maintain than traditional roads. There are many well documented examples of these benefits:

- The National Realtor's Association 2013 Community Preference Survey found that **60% of respondents prefer walkable neighborhoods**, with a mix of housing and businesses, compared to neighborhoods that require driving between destinations.¹
- In Memphis, a commercial district reported a **50% increase in commercial rents after striping bike lanes**.²
- When San Francisco improved biking and walking access on Valencia Street, **two-thirds of merchants said the increased levels of bicycling and walking improved business**.³
- In 2008, Portland estimated its **entire bicycle network cost the same as one mile of urban freeway**, approximately \$60 million.⁴

By improving bikeability and walkability Webster Groves can increase home values, improve residents' access to local shopping and schools, and attract regional tourists to local businesses.

DEMOGRAPHIC TRENDS

The population of Webster Groves was 22,995 in the 2010 census, a number that has been stable since 1980. Currently, the US Census Bureau projects slight growth in population, while the official State of Missouri population projections expect the population to decrease slightly, along with the population in the County overall.

These population forecasts do not take into account the growing interest in traditional, walkable communities,⁵ or the Webster Groves Development Foundation, which includes plans for mixed-use development and condominiums in already established commercial areas. It is reasonable to expect that the carefully planned development within existing districts will result in an increase of population precisely in the areas where there is greatest demand for biking and walking transportation options.

TRANSPORTATION PREFERENCES

Shifting preferences in travel modes can be seen in the numbers of vehicle miles traveled (VMT) in the St. Louis region. Between 2007 and 2011, the number of vehicle miles traveled (VMT) decreased 4.5% in St. Louis County, well over the national decline of 2.8%. The decline in driving is likely the result of a combination

1. Wardlaw, Michelle. *Realtors report Americans prefer to live in mixed-use, walkable communities*. National Association of Realtors. Web. 4 December 2013.
2. Marohn, Charles. *Guerrilla Painting*. Strong Towns, April 2012. Web. 8 March 2013.
3. Drennan, Emily. *Economic Effects of Traffic Calming on Small Businesses*. Department of Public Administration, San Francisco State University, December 2003. Web. 8 March 2013.
4. Geller, Roger. *Build it and they will come: Executive Summary*. City of Portland, April 2011. Web. 8 March 2013.
5. Leinberger, Christopher B and Mariela Alfonzo. *Walk This Way*. Brookings Institution. Web. 5 December 2013.



Bike/ pedestrian bridge at Deer Creek Trail

of factors. Higher unemployment and rising gas prices are obvious factors, but do not fully account for the drop in driving.⁶ The drop is result of several larger social trends, such as the Baby Boom generation retiring and younger people becoming interested in walking, biking, and taking transit.

Webster Groves has a number of housing options targeted towards seniors. The amount of condominiums and apartments for seniors is expected to increase, based on the Webster Groves Development Foundation. The travel needs of these retirees will focus more on visiting family, shops, friends, houses of worship, and parks and recreational destinations. Many of these trips could be shorter distances, where using a car is neither necessary nor desired.



Senior Living along Lockwood Avenue takes advantage of walkability of Old Town.

In addition to those who prefer not to drive, there are residents who cannot drive due to age, health, or lack of access to a vehicle. In 2012, the American Community Survey found that 6.9% of Webster Groves households did not have access to a car. In addition to these households, the 21.5% of the population that is under 16 is reliant on being driven, walking, or biking. Driving ability declines with age, and it is reasonable that some of the 7.6% of Webster Groves residents over 75 may be aging out of driving. These numbers underscore the importance of a transportation system that allows residents to bike, walk and take transit safely.

TRANSPORTATION COSTS



Car-oriented development can raise transportation costs for families, when walking and biking are not viable options.

In Webster Groves, 24.2% of residents spend over 35% of their monthly incomes on housing costs, with another 7% of residents spending between 30 and 35%, according to the 2007 – 2011 American Community Survey. Housing affordability is generally defined as 30% of income or less.

Recently, the US Department of Transportation has introduced another way of looking at affordability, by combining housing and transportation. The Location Affordability Portal, a tool produced by the US Department of Transportation, shows that the average combined cost of housing and transportation in Webster Groves is 52% of the median income in the St. Louis region.⁷ For a retired couple, the average cost of housing and transportation is 57% of the typical retirement income in the region. This indicates Webster Groves is unaffordable to the average resident in the region. However, the median income in Webster Groves is higher than the rest of the region; the average housing and transportation costs in Webster Groves are 35% of the median income for households within Webster Groves.

Improving transportation options is one way to help families manage the cost of living. Making biking and walking easier, can help families choose to reduce transportation costs by biking, walking, or taking transit. Education and encouragement can also help residents become more aware of the transportation options already existing in the community.

6. East West Gateway Blog. *The roads less traveled- vehicle miles traveled on the decline in the St. Louis region.* East West Gateway Website, 28 May 2013. Web. 5 December 2013.

7. U.S. Department of Housing and Urban Development. *Location Affordability Portal.* U.S. Department of Housing and Urban Development. Web. 5 December 2013.

SECTION THREE

3

EXISTING CONDITIONS AND ANALYSIS



An older, walkable neighborhood.



A typically very congested school zone at Mary Queen of Peace on Lockwood Avenue



Car focused development and roadways limit pedestrian and bicycle access.

OVERVIEW

Webster Groves is well positioned to become an outstanding walkable and bikeable community, with its strong urban design and community interest in active transportation. Judicious investments in walking and biking can help Webster Groves by:

- Enhancing the reputation of Webster Groves as a livable community
- Easing traffic congestion during school pick-up and drop-off
- Reducing parking demand in local business districts by enticing people to walk and bike for transportation

The following analysis focuses on how Webster Groves' currently supports walking and biking, how support can be expanded, and the potential benefits from doing so.

LAND USE AND TRANSPORTATION NETWORK

Many of the neighborhoods that make up Webster Groves were originally developed to be walkable. These neighborhoods were based around the Pacific rail line, at a time when people depended on foot, rail, and horse carriage for transportation. This heritage gives Webster Groves three distinct advantages:

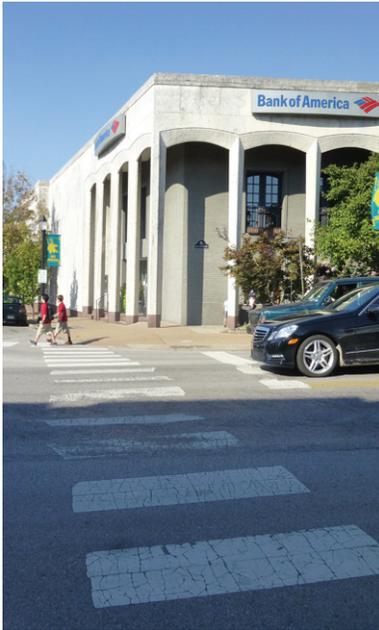
1. Most neighborhoods in Webster Groves have schools, parks, and commercial areas within walking distance.
2. On residential and commercial streets within Webster Groves, the historic design of the streets is well scaled to the pedestrian, and makes walking in the City a pleasant experience.
3. Webster Groves' has a high density of intersections in its traditional neighborhoods, allowing for efficient and pleasant walking trips.

With the rise of the automobile in the 1950's, the transportation system in Webster Groves shifted to accommodate cars. Arterials, including Watson and Laclede Station Road along the City's boundaries, provide easy and fast access for people driving. However, these streets can present barriers to walking and biking:

1. Many residents perceive these streets to be dangerous and unpleasant to bicycle along due to traffic noise and lack of facilities.
2. Commercial properties along these streets are designed to be auto-oriented, with larger parking lots and higher infrastructure needs and lack of pedestrian scale design.

Likewise, residents report hesitation to walk and bike on smaller-scale streets within the City that carry large volumes of traffic, such as Elm Avenue and Kirkham, due to noise and speed. Some residents have also expressed concern regarding cut-through traffic on neighborhood streets.

The high density of intersections is interrupted in parts of Webster Groves, by large



A high visibility crosswalk in Old Webster.

institutional land uses, including Eden Seminary and Webster University, and I-44. In areas where there are fewer pedestrian and bicycle connections, it becomes even more important to ensure that the connections are safe and welcoming to all users.

GETTING TO WORK

Webster Groves’ residents commuting patterns largely resemble those of St. Louis County overall (Table 1). The majority of commuters (83.34%) drive alone. However, residents of Webster Groves are more likely to work at home, but less likely to take public transportation.

Webster Groves has a **significant potential to increase biking and walking commuting as 18.2% of residents work within Webster Groves**, according to the 2011 American Community Survey (ACS). Based on the geographic boundaries and the street network of Webster Groves, few trips between any two points within Webster Groves can exceed 5 miles. While ACS data does not track how far people live from their places of work, it is reasonable to assume that some of the residents that work within Webster Groves live within bicycling (3 miles) or even walking (1 mile) distance of their place of work.

Less than one fifth of all trips in the US are trips to or from work. However, as commute trips are more likely to occur during peak hour, **encouraging residents to bike or walk can help ease congestion during peak hour**. It can also **reduce parking demand** at workplaces. Even small shifts can have large impacts on congestion- during the recession in 2008, congestion dropped 30% in the nation’s 100 most congested areas when vehicle miles traveled in those areas dropped by 3.7.⁸

While Webster Groves has potential to shift some work trips during peak hours, the most promising way to increase biking and walking is to focus on short trips that are not work related, including trips to schools, parks, stores, and local institutions.

TABLE 1 - MEANS OF TRANSPORTATION TO WORK (ACS 2012)

	Webster Groves		St. Louis County	
	Count	Percent	Count	Percent
Drive alone	9,797	83.34%	397,729	84.04%
Carpool	732	6.23%	30,848	6.52%
Public Transportation	164	1.40%	11,468	2.42%
Bicycle	53	0.45%	1,037	0.22%
Walk	211	1.79%	7,582	1.60%
Taxicab, other	14	0.12%	3,751	0.61%
Work from home	785	6.68%	20,853	4.41%
Total	11,756	100.00%	473,268	100.00%

8. INRIX. INRIX National Traffic Scorecard Reveals Startling 30 Percent Decrease in Traffic Congestion in 2008. INRIX..



High demand for bicycle parking at Webster Groves High School.



Additional overflow parking at the high school.



Dead-end streets can serve as alternate entrances for bikes and pedestrians.

GETTING TO SCHOOL

Webster Groves has excellent, and centrally located, public and private schools. The quality of education is one of Webster Groves’ advantages, and **33.1% of households have children under 18**. As students live near schools, the Webster Groves School District does not provide busing, thereby increasing the demand for safe walking and biking routes.

Since 2008, the Webster Groves School District has been encouraging children to walk and bike to school through Safe Routes To School (SRTS) programming. Edgar Road Elementary School partnered with Trailnet for the initial SRTS program, and the program has since grown to include all of the elementary schools in the Webster Groves School District. Currently Trailnet is working with the district to address district wide policies for encouraging biking and walking.

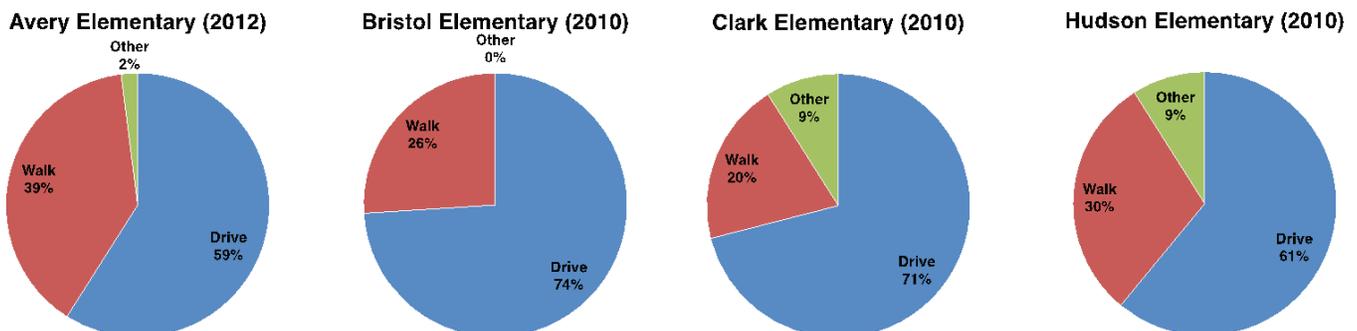
Encouraging more students to bike and walk to school through education, encouragement, and engineering can benefit Webster Groves in many ways:

- Reducing peak hour congestion; Figure 1 shows that over half of families drive students to school at Webster Groves elementary schools with SRTS data.
- Walking and biking can increase memory and performance at school.⁹
- Safe routes for walking ‘school busses’ and biking ‘trains’ to school can decrease burdens placed on working parents.
- Walking and biking to school and after school activities can help save gas money for families; in Webster Groves, 6.6% of all families with children under 18 have experienced poverty in the past 12 months (ACS 2012).

Some residents are concerned that gaps in the sidewalk network make walking to school unsafe or uncomfortable for children. Infrastructure investments, along with encouragement and education, are key in getting students walking and biking in order to reduce congestion.

FIGURE 2 - SRTS SURVEY RESULTS ON HOW ELEMENTARY SCHOOL STUDENTS GET TO SCHOOL IN THE WEBSTER SCHOOL DISTRICT*

* These charts show available data. Edgar Road School did not have recent survey data available. Hudson Elementary is included as it is part of the Webster Groves School District.



9. Martinez-Gomez, David, Jonatan R. Ruiz, Sonia Gomez-Martinez, Palma Chillon, Pablo Rey-Lopez, Ligia E. Diaz, Ruth Castillo, Oscar L. Veiga, and Ascension Marcos. “Active Commuting to School and Cognitive Performance in Adolescents.” *Archives of Pediatric and Adolescent Medicine* 165.4 (2011): 300-05. The JAMA Network. American Medical Association. Web. 07 Dec. 2013.



Crosswalks in the Old Webster business district.



Children cross the street in Old Webster.



Planters on sidewalk in Old Orchard.

GETTING TO STORES, RESTAURANTS, AND COMMUNITY INSTITUTIONS:

The high quality and density of shopping districts and local businesses are a unique and vital resource in Webster Groves. Many households are within easy walking distance of shops, banks, schools, parks, and transit. When residents choose to walk and bike rather than drive to these destinations, it reduces parking demand and decreases congestion within commercial districts.

Encouraging walking and biking to local destinations is gaining attention as an economic development strategy, for several reasons:

- Stores can **attract additional walking customers without adding parking**. Adding bicycle parking is less costly and requires less space than adding car parking.
- People who walk and bike to stores tend to make more frequent trips, resulting in **increased spending over a month**.¹⁰
- Encouraging walking and biking to stores and restaurants is **another way to promote buying local**, as people tend to make shorter trips when walking and biking.

Each of the five commercial districts offers unique challenges and opportunities. Linking them to surrounding neighborhoods and reducing the island effect from busy roads will enhance livability and business viability.

Crossroads: The historic storefronts benefit from a good sense of scale and the grocery store anchoring this district. Close to Webster University, this area could become a more prominent walking and biking destination. Residents reported Big Bend and Elm as a deterrent to walking, along with the low elevation of the sidewalk along Big Bend to the east.

Old Orchard: The continuous storefronts along Big Bend form a compact and scenic shopping district, close to Webster University and residential neighborhoods. The vitality of the area is further bolstered by Gazebo Park, and the popular businesses at and near Old Orchard Gallery. Challenges for people biking and walking in the district include lack of bike parking and few crossing opportunities for pedestrians to access the park.

Old Webster: Historic Old Webster offers a variety of shops in a scenic setting. With a mix of uses, and wide sidewalks, the area draws a great deal of pedestrian traffic. Off-site parking adds people who are walking the last ¼ mile. A few minor design changes could improve the walking experience in the district, such as increasing the number of official pedestrian crossings along Lockwood and improving pedestrian and motorist sightlines at the intersection of Lockwood and Gore.

Kirkham and Watson: Both of these districts feature auto-oriented design on higher-traffic streets. Outside of the Walgreen’s in the Watson area, residents did not express interest in walking or biking to these areas. The City of Webster Groves does not maintain Watson Avenue. The plan recommends focusing limited resources on commercial districts that can be more easily enhanced for biking and walking.

10. Clifton, Kelly J. “Business Cycles: Catering to the Business Market.” *Transportation Research News* May 2012: n. pag. *Transportation Research Bureau*. Transportation Research Bureau. Web. 12 Nov. 2013.



Walking path in Blackburn Park



Recreation Center walkway



Trailhead at Deer Creek Trail



Trail and bridge over Deer Creek

GETTING TO THE PARK

The Webster Groves Master Plan proposes a loop connecting the park system. Throughout the outreach process, residents supported a park loop as a way to help residents get exercise and explore the great parks of Webster Groves. The proposed loop did not specify infrastructure, but many of the parks can be connected through signage on existing low-traffic routes.

During the planning process, residents expressed concern over some gaps in the sidewalk network near parks, specifically on Florence near Blackburn Park and Central Avenue near Southwest Park. Both of these locations have been studied, and the current configuration reflects the desires of the property owners along the roadway.

GETTING EVERYWHERE ELSE

For some residents, walking and biking is not a matter of choice, but necessity. The 2012 ACS estimated that 6.7% of Webster Groves households had no access to vehicles. Better biking and walking facilities could greatly increase their quality of life, by giving households safer access to jobs, schools, services, and shops.



Neighbors have limited access to the park due to a lack of sidewalk continuity and crosswalks.

WALKING CONDITIONS

Current facilities:

- Trails in some parks.
- Two pedestrian bridges over I-44.
- Sidewalks, many with ramps.
- Some high visibility crossings.
- Lack of continuity in some areas, especially south of I-44 and in northern Webster Groves.
- On some streets, residents express frustration with frequent crossings in order to stay on sidewalks.

Opportunities:

- Culture of walking: Many Webster Groves residents already walk for pleasure and transportation.
- Meaningful local destinations: Webster Groves has an abundance of local stores, restaurants, parks, schools, and employment that allows residents to walk as a viable form of transportation.
- Upcoming improvements: The next cycle of street repaving in Webster Groves, will trigger ADA requirements for updated pedestrian ramps. The work will be a good opportunity to improve accessibility.

Challenges:

- High cost of new infrastructure: Sidewalks and safe crossing infrastructure, such as pedestrian islands, can often be expensive, with limited grant funding opportunities.
- Limited sidewalks in some neighborhoods: In northern Webster Groves, and south of I-44, many neighborhood streets do not have sidewalks.
- Building consensus: While most residents in Webster Groves favor sidewalks, they do not necessarily want to incur the cost a sidewalk being built in front of their home. For a sidewalk to be continuous, residents along an entire block must agree to the sidewalk.

BIKING CONDITIONS

Current facilities:

- Every road in Webster Groves outside of I-44 can be counted as a bicycle facility, as bicycles are vehicles under Missouri law.
- Nearby greenways, including Grant's Trail and Deer Creek Trail.
- Pedestrian and bicycle bridge over I-44 between Glendale Road and Woodhaven Street.
- Many residents believe the parking lanes designated by white stripes are intended as bicycle lanes.
- Experienced cyclists in the area are comfortable with most of the roads, but residents who are interested in biking, or who bike with children, expressed concern over the lack of dedicated space for biking.
- Residents expressed concern about traveling on high-speed and high-volume roads in the area, specifically Kirkham, Elm, portions of Big Bend, Laclede Station, and Watson.

Opportunities:

- Supportive and active community: Webster residents and parents care about their community and see the value in enhancing bicycling conditions.
- Low-traffic local roads: Many streets are already well designed for bicycling, but lack wayfinding to help residents navigate the routes.
- Regional connectivity: several existing and planned greenways are in or near Webster Groves and a MetroLink station is within biking distance. Local connections can increase residents' connections to nearby shopping, transit and greenways.

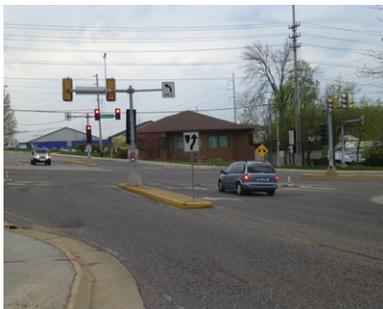
Challenges:

- Limited right-of-way: As a historic community, many of Webster Groves' streets were not planned to accommodate separate space for people walking, biking, driving, and taking transit.
- Bicycling parking: Demand for safe and convenient bicycle parking exceeds supply in commercial centers and schools.
- Driving habits: Residents report cut-through traffic and distracted driving make them feel unsafe while cycling on slower-traffic streets.

SECTION FOUR

4

REVIEW OF EXISTING PLANS



The traditional focus on cars as the primary means of transportation can lead to streets that are unwelcoming to people walking and biking.



An example of going beyond minimum crosswalk requirements in Old Town

REVIEW OF EXISTING PLANS

FEDERAL

Since March of 2010 the policy of the US Department of Transportation (DOT) Policy, which applies to every transportation agency, is to “incorporate safe and convenient walking and bicycling facilities into transportation projects¹¹.” Recommended actions most relevant to this plan are:

- Considering biking and walking **equal** to cars when designing and updating infrastructure
- Ensuring transportation options for people of **all ages and abilities**
- Making biking and walking part of doing business for the agency, by collecting data on biking and walking, performing regular maintenance on biking and walking facilities, and setting mode share targets.

The DOT also recommends going beyond minimum design standards to ensure that facilities are safe, comfortable, and able to accommodate increased demand. In August of 2013, the DOT has shown its commitment to exceeding standards by endorsing two design guidebooks that recommend higher standards for biking and walking: the National Association of City Transportation Officials’ *Urban Bikeway Design Guide* and the Institute of Transportation Engineers’ *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*.

In this century, the DOT has shown a steady move towards higher level of design standards for biking and walking. In the context of this plan, it is prudent to assume the trend will continue, and strive for design solutions that will match DOT policy now and in the near future.

STATE

In 2011, the State of Missouri adopted a Complete Streets resolution. Accordingly, the Missouri Department of Transportation (MoDOT) actively works to incorporate bicycle and pedestrian facilities into projects. Municipalities can partner with MoDOT to improve biking and walking access during routine maintenance of MoDOT facilities by showing demand and a plan to enhance connectivity for biking and walking throughout the community. MoDOT operates I-44, and Watson Road, which runs along the southern border of Webster Groves.

MoDOT’s Long Range Transportation Plan (2007) states that bicycling and walking facilities are integrated into road projects. The majority of the plan focuses on car and freight traffic. At the time this plan was created, MoDOT was updating their Long Range Transportation Plan.

REGIONAL

Moving Transit Forward

Bi-State Development Agency (MetroTransit)

In the next 5 to 10 years, there are no foreseeable major transit projects in the planning area. MetroTransit’s long range plan mentions two potential major routes in

11. March 2010 Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations

the study area: Bus Rapid Transit along the I-44 corridor and Commuter Rail along the existing passenger rail line that goes through Webster. Neither of these proposed routes include information on stops, so it is uncertain if they would improve transit access in Webster. Currently, MetroTransit is conducting a feasibility study for the first phase of rapid transit, and I-44 is not included in the study. The plan notes that the commuter rail is dependent on state and federal level policies.

Transportation Improvement Plan 2014 - 2017

East West Gateway Council of Governments

The only scheduled and funded project in the study area is repaving and adding pedestrian facilities to the section of Berry Road from Big Bend to the Manchester.

Regional Transportation Plan: 2040

East West Gateway Council of Governments

The Regional Transportation Plan does not have any recommended projects in the study area, though the proposed interchange at Shrewsbury and I-44, scheduled for 2031 to 2040, could impact Webster Groves.

OneSTL: Plan for a Prosperous, Healthy, Vibrant St. Louis Region

East West Gateway Council of Governments

The plan focuses on sustainability throughout the region, and underlines the connections between sustainable transportation and economic vibrancy. The plan calls for implementation through a network of regional partners, including local governments, that choose to become network members.

Gateway Bike Plan, Shady Creek/ Deer Creek Greenway Concept Plan

Great Rivers Greenway

The Gateway Bike Plan focuses on connecting the region through bike routes. The emphasis is on supplementing existing multi-use paths and future paths planned by Great Rivers Greenway, the regional recreation tax district.

TABLE 2- GATEWAY BIKE PLAN PROPOSED ON-STREET FACILITES

Infrastructure	Roads
Bike Lanes	Watson Road (Laclede Station to Grant) Elm Avenue (Lockwood to Glendale) Lockwood, (Rock Hill to Sherwood)
Shared Lane Markings (Sharrows)	Rock Hill (Lockwood to city limits) Kirkham (Rock Hill to city limits) Glendale (Elm to Edgar) Elm (Edgar to Watson) Jackson (Edgar to city limits) Lockwood (Sherwood to Berry) Old Orchard (Garden to Jackson) Garden (Laclede Station to Old Orchard)
Share the Road Signage	Bompart (Jackson to Pacific) Pacific (Bompart to Deer Creek)
Wide Outside Lane	Laclede Station (Murdoch to city limits)
Needs Further Study	Big Bend (city limits to city limits) Murdoch (Big Bend to city limits) Laclede Station (Murdoch to Big Bend)



Wayfinding to bicycle and pedestrian bridge



On-street shared lane signage

Multi Use Paths:

Currently there are no major multi-use paths in Webster Groves, Grant's Trail runs just south of the City, and the Deer Creek Trail is just north of the City, with small portions in the City boundaries. The planned Shady Creek Greenway would connect to the Deer Creek Trail, and continue through Webster Groves, near the Old Webster and Kirkham Development areas. These paths function as part of the bike/walk network to surrounding communities and are popular destinations for people biking and walking in Webster.

On- Street Network:

The recommended routes provide intra-regional connectivity for Webster Groves residents. Most of the recommended facility types are most suited for experienced cyclists who are comfortable sharing the road with traffic. The current plan will supplement the recommended Gateway Bike Plan routes with an emphasis on neighborhood routes and inter-connectivity for residents. National bicycle design guidelines (both AASHTO and NACTO) have been updated since the Gateway Bike Plan was drafted. The current plan incorporates the facility types in these updated guidelines to provide for riders of all ages and abilities.

COUNTY

St. Louis County Bicycle Facilities Plan

Saint Louis County Highways and Traffic

The St. Louis County Bicycle Facilities Plan applies to the following roads in the study area that are maintained by St. Louis County:

- Laclede Station Road
- Murdoch Avenue
- Big Bend Boulevard
- Berry Road

The Bicycle Facilities Plan sets design guidance for experienced commuter cyclists. The Bicycle Facilities Plan allows for wide outside lanes (13' to 15') or bike lanes to be used as bicycle facilities. Arterial and major collector roads with a minimum 14' wide outside lanes can be signed with Bike Route signs following the MUTCD design. Roads with speeds over 35 mph are not recommended for shared travel. The county regularly updates their Bicycle Facilities Plan so check their website for updates:

<http://www.stlouisco.com/PropertyandRoads/HighwayPublicationsManuals>



An informal path to Grant's Trail highlights the residents' desire for connections.



The Deer Creek Trail is an integral part of the park trail loop.



Webster Groves' parks offer recreational opportunities for all ages.

WEBSTER GROVES

Parks Master Plan

The City of Webster Groves

In 1998, the City of Webster Groves worked with SWT Design to create a parks master plan. The plan proposed a trail connecting all of the parks in Webster Groves. The suggested 10.5 mile loop included signage, landscaping, ADA compliant infrastructure, and a variety of experiences, including natural areas and commercial centers.

The plan recommended bicycle parking at parks, and suggested trail design that would allow for some bicycling within parks. These recommendations are carried forward in the current plan, where they still align with community input and street design constraints.

Development Foundation

The City of Webster Groves

The Development Foundation for Webster Groves allows for controlled, economically feasible development in five areas in the City. The plan balances design character and economic realities, with a focus on mixed development and preservation of Webster Groves' small town feeling. The recommendations include a bicycle and pedestrian trail system. Design guidelines and plans for each of the development areas emphasize the importance of pedestrian connectivity, including wide sidewalks, pedestrian bumpouts, ADA ramps, and frequent pedestrian crossings.

The plan calls for mixed development, including multifamily housing in the development areas. Increased population, especially of younger and older residents, will lead to an increased demand for walking and biking in and between the development nodes. The current plan should account for the expected increase in pedestrian and bicycle demand.

Improved biking and walking infrastructure is an opportunity to increase the desirability of these areas for development. Across the country, biking and walking infrastructure has been associated with increased commercial and residential development. As the Millennial generation¹², and the Baby Boomer generation, are increasingly interested in low-car lifestyles, bikeable and walkable areas are becoming increasingly sought after. Webster Groves is well positioned to attract young professionals and retirees alike, with a strong network of biking and walking options.

12. <http://www.realtor.org/articles/how-millennials-move-the-car-less-trends>.

SECTION FIVE 5

VISION, GOALS, AND OBJECTIVES



A narrow residential street without sidewalks.



A path to Grant's Trail.



Pedestrian cut-through, bench and play equipment.

VISION: Enhanced livability through biking and walking

GOALS AND OBJECTIVES:

Goal 1: Enhance safe walking and biking opportunities in the City of Webster Groves via operations, policies, and procedures

Objectives:

- a. Representatives of the Sustainability Commission will meet with relevant boards and commissions to look for ways that their work can support the vision of enhanced livability through biking and walking.
- b. Representatives of the Sustainability Commission will work with the Department of Public Works to look for ways that street design and maintenance decisions can support the vision of enhanced livability through biking and walking.
- c. The Department of Public Works will consider national guidelines for bicycle and pedestrian infrastructure. These considerations may include the following:
 - 1. Traffic calming and/or diversion along designated biking and walking routes, depending on funding, public support, and traffic conditions.
 - 2. Striping low-traffic designated bicycle routes in a manner comfortable for people bicycling and driving.
 - 3. Play streets as an alternative to sidewalks for dead-end, residential streets with support from residents
 - 4. Consulting bicycle and pedestrian infrastructure best practices as described in guide books published by the National Association of City Transportation Officials (NACTO) or the American Association of State Highway Officials (AASHTO).

Goal 2: Help guide residents along safe, local routes for biking and walking through a network of designated biking and walking routes

Objectives:

- a. Designate a network of safe biking and walking routes along local streets connecting schools, parks, shopping areas, pedestrian overpasses, the library, and civic buildings.
- b. The Sustainability Commission will work with the City of Webster Groves to make maps of routes available through kiosks, printed maps, and the internet, as appropriate and as funding allows.
- c. The Sustainability Commission will work with the Department of Public Works to place wayfinding signs and optional pavement markings along routes.
- d. The Sustainability Commission and the Department of Public Works will prioritize designated routes when allocating available funding for sidewalks or crosswalks.

Goal 3: Connect pedestrian infrastructure into a safe and convenient pedestrian network

Objectives:

- a. The Sustainability Commission will work with the Department of Public Works to evaluate available grants for funding to address intersections or gaps in sidewalk network based on priorities, such as gaps within a ½ mile of schools or along designated walking routes. When appropriate, the Sustainability Commission will collaborate with local institutions on the proposed improvements.
- b. When a Saint Louis County road is scheduled for improvements within Webster Groves, coordinate with Saint Louis County to provide safe sidewalks.
- c. When a Missouri Department of Transportation (MoDOT) road is scheduled for improvement within or adjacent to Webster Groves, coordinate with MoDOT to provide safe sidewalks.

Goal 4: Connect bicycle infrastructure into a safe and convenient bicycle network

Objectives:

- a. Identify at least two key N/S and E/W bike routes for context appropriate, low-stress infrastructure.
- b. The Sustainability Commission will work with the Department of Public Works to apply for grants as available to seek funding for implementation of these bicycle routes. When appropriate, the Sustainability Commission will collaborate with local institutions on the proposed improvements.
- c. When a Saint Louis County road is scheduled for improvement within Webster Groves, coordinate with Saint Louis County to enhance bicycle safety.
- d. When a Missouri Department of Transportation (MoDOT) road is scheduled for improvement within or adjacent to Webster Groves, coordinate with MoDOT to enhance bicycle safety.

Goal 5: Provide safety education for road users of all ages and modes to promote a positive culture of road decorum

Objectives:

- a. The Sustainability Commission will contact the Webster Kirkwood Times or other local media regularly to provide roadway safety information.
- b. The Sustainability Commission will provide roadway safety information through the internet, brochures, and/or smart phone applications, as appropriate and as funding allows.
- c. Representatives of the Sustainability Commission will meet with the Police Department as necessary to identify any opportunities to enhance safety awareness.
- d. The Recreational Center will consider adding a bicycle safety class from a certified instructor to their roster of education classes.
- e. The Sustainability Commission will coordinate with local schools to look for ways to enhance safe walking and biking to schools.

SECTION SIX

6

RECOMMENDATIONS: EDUCATION



A car waits for a pedestrian crossing Gore Avenue.



League of Illinois Bicyclist's online safety quiz.

RECOMMENDATIONS: EDUCATION

Education on traffic law and safety helps residents of all ages to share the road, whether they are biking, walking, or driving. For people who are interested in bicycling, education on best commuting routes or on-road cycling can help them make bicycling a habit. For pedestrians, it is important to understand how to walk safely, including children walking to and from school.

RECOMMENDED PROGRAMS

Safety Literature for All Roadway Users

In order to share the roads safely, pedestrians, cyclists and drivers must understand the laws and statutes at the local and state level. Distributing safety literature at civic buildings, recreational centers, local shops, or even as a law enforcement warning, helps the public learn about traffic laws in a cost-effective way. Safety literature should be easy to read, concise, and visually appealing in order to reach the widest audience possible.

The City can also increase awareness of bicycle safety by sharing online education, such as the League of Illinois Bicyclist's Bike Safety Quiz.
<http://www.bikesafetyquiz.com>

Bicycle and Pedestrian Safety Brochures can be ordered free-of-charge from Missouri Department of Transportation.
<https://www4.modot.mo.gov/OrderSystem/pub/displayOrder.doc>

Trailnet distributes "Rules of the road" cards for bicyclists.
Packs of cards can be picked up at the Trailnet office, 411 N 10th Street, St. Louis.

Online Resources:

- FHWA Materials for creating a safety campaign
http://safety.fhwa.dot.gov/local_rural/pedcampaign/
- Missouri Bicycle Federation
<http://mobikefed.org/content/missouris-bicycle-and-pedestrian-laws>
- Pedestrian Safer Journey Campaign
<http://www.pedbikeinfo.org/pedsaferjourney/>
- RAGBRAI Ride Right Coloring Book
<http://ragbrai.com/wp-content/uploads/2009/09/RideRightBook2013.pdf>
- Trailnet
<http://trailnet.org/work/walking/safe-routes-school/>

EDUCATION IN SCHOOLS



Schools can focus on changing perceptions of biking and walking.



Walking with children to school can encourage good, life-long habits.

It is important to encourage children to walk and bike to school safely and educate parents and school district staff on the benefits of walking and bicycling to school. Biking and walking education in schools is the most effective way to teach children how to use the roads safely. In Webster Groves, as many children live within walking and bicycling distance to school, education will help students to improve their own safety and get exercise.

Webster Groves Public Schools have partnered with Trailnet in Safe Routes to School (SRTS) programming since 2006. The national Safe Routes to School program is a major resource for biking and walking programming in schools. It was founded to educate children on safety and to encourage families to incorporate physical activity into their daily routines. Programs that help children to walk and bike safely include Walking School Buses, Bike Trains, Bicycle Rodeos, National Walk to School Day, and Safe Routes to School walking maps.

Lessons that are incorporated into the classroom will reach all students. These lessons can also be effective at reaching parents, who are the ones driving at and near schools. Typically, biking and walking education is incorporated into Physical Education courses. Several model curricula are available online through the Safe Routes to School National Partnership (<http://www.saferoutespartnership.org/state/bestpractices/curriculum>).



Avery Elementary School walk-to-school day flyer.

Online Resources:

- Trailnet's Safe Routes to School Program:
<http://trailnet.org/programs/safe-routes-to-school>
- Safe Routes to School National Partnership:
<http://www.saferoutespartnership.org/>
- National Center for Safe Routes to School:
<http://www.saferoutesinfo.org/>
- FHWA Safe Routes to School:
<http://safety.fhwa.dot.gov/saferoutes/>



Cyclists learning the rules of the road and defensive cycling in a bicycle training course

BICYCLE EDUCATION CLASSES

It is important to encourage safe and confident cycling by providing education to residents in the Webster Groves. Though most adults know how to drive a car, they have never learned the rules of the road in terms of cycling. The proper knowledge and skills make bike commuting safer, more relaxed, and more enjoyable.

Bicycle education courses can be organized through the City or through community organizations such as churches. In addition to the fee for hiring an instructor, a bicycle education course typically requires meeting space for 3 hours, and access to an empty parking lot for 3 hours. Locally, Trailnet offers a 3-hour hands-on class on how to ride as visibly, predictably, and safely as possible, and Cycling Savvy offers a series of three 3-hour courses.

Online Resources:

- League Certified Instructors:
<https://www.bikeleague.org/bfa/search/map?bfaq=>
- Trailnet's Bikesmart
<http://trailnet.org/events/bike-smart>

ONGOING COMMUNITY SAFETY AWARENESS

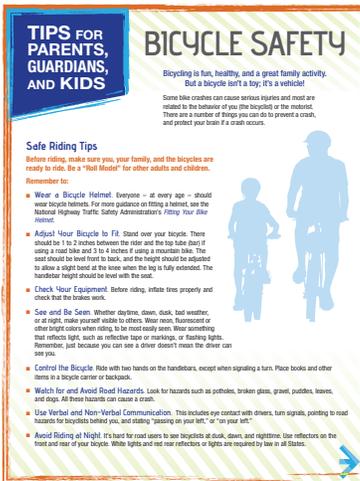
Ongoing safety education and awareness would help encourage all drivers to be on alert for bicyclists and pedestrians and to slow down, when appropriate. A major factor of unsafe behavior is speeding. People do not feel safe cycling and walking if motor vehicles are speeding or not paying attention to the roadway.

Ongoing safety awareness efforts could encourage all road users to “share the road” and emphasize the safety benefits of slowing down for motorists. The Sustainability Commission can work with the City, and local channels, including schools, universities, churches, neighborhood groups, and businesses to increase safety awareness. The plan objectives include three core actions for increasing awareness. Resources for implementing these objectives are listed below:

1. The Sustainability Commission will contact the Webster Kirkwood Times or other local media regularly to provide roadway safety information.

Resources

- The National Highway Traffic Safety Administration offers a strong guide to getting road safety stories in the media:
<http://www.trafficsafetymarketing.gov/TOOLS/Media/Earned/Earned+media+%E2%80%93+Getting+started>



Bicycle safety information can reduce injuries and help all road-users to cooperate.



The Text-Star app disables text messaging above 10 mph.

2. The Sustainability Commission will provide roadway safety information through the internet, brochures, and/or smart phone applications, as appropriate and as funding allows.

Resources

- The National Highway Traffic Safety Administration has a variety of safety brochures that can be downloaded and distributed digitally or physically <http://www.trafficsafetymarketing.gov/CAMPAIGNS/Bicycle+Safety/Campaign+Materials>
- Bikes Belong Foundation has an overview of effective safety messaging and safety campaigns to help guide content and messaging of an app http://bikesbelong.oli.us/Bikes%20Belong%20Foundation%20Safety%20Campaign%20Best%20Practices%20Report_reduced.pdf

Existing apps for drivers:

- The Text-STAR app allows users to turn off text messaging if they are traveling over 10 mph. The app will automatically reply, saying they are busy. <http://www.text-star.com/>
- The Drive Scribe app allows users to block text messaging and records driver safety, including speed limit violations. <http://drivescribe.com/>

Existing apps for children:

- The National Highway Traffic Safety Administration produced a traffic safety app for young children. More information, and related videos and activities: <http://www.nhtsa.gov/parents/>

3. Representatives of the Sustainability Commission will meet with the Police Department as necessary to identify any opportunities to enhance safety awareness.

- The Enforcement Recommendations (page 26) in this plan contain resources for working with law enforcement on increasing safety.

SECTION SEVEN 7

RECOMMENDATIONS: ENFORCEMENT



Traffic calming on a private residential street.

RECOMMENDATIONS: ENFORCEMENT

Working with local police to strengthen enforcement programs fosters safe and lawful behaviors of all roadway users. Enforcement programs often focus on reducing crashes and conflicts between motorists and cyclists and/or pedestrians. Common themes are:

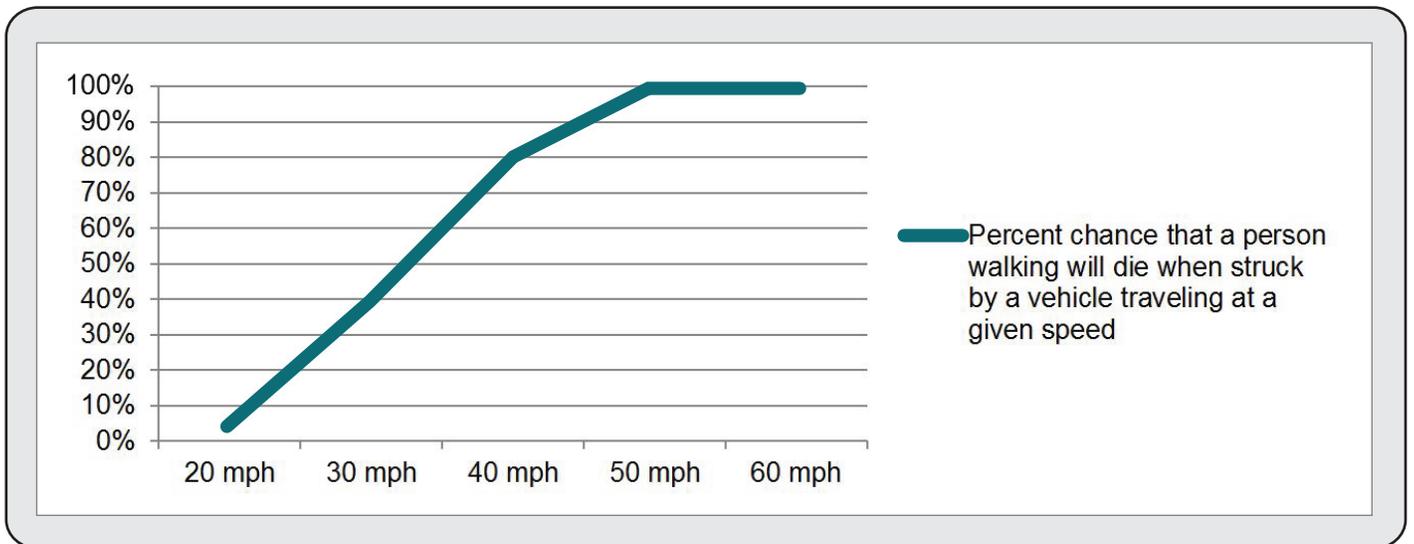
- Speed limit enforcement programs
- Distribution of local and state bicycle and pedestrian laws
- Raising awareness of the rights and responsibilities of all road users

Research shows that the higher the speed, the more severe the crash will be when a vehicle collides with a pedestrian or bicycle (See Figure 3). With effective enforcement, motorists tend to stop speeding, creating a safer environment for all roadway users.

Law enforcement officers are the only ones who can enforce laws for bicyclists, pedestrians, and motorists to improve safety. They also come in contact with all roadway users on a daily basis. This puts law enforcement officers in a unique position to assist with and add credibility to community efforts to encourage bicycling and walking and improve safety.

Enforcement programs can be very effective in changing roadway behaviors, but can be seen as unpopular with the public. Efforts that involve education first, such as distribution of safety information instead of tickets, or speed radar trailers, should be

FIGURE 3 - VEHICLE SPEED AND DEATH IN PEDESTRIAN CRASHES¹³



13. Leaf, W.A., and D.F. Preusser. United States. National Highway Traffic Safety Administration. *Literature Review on Vehicle Travel Speeds and Pedestrian Injuries*. Washington, D.C.: US Department of Transportation, 1999. Web.



School Zone signage



Speed limit enforcement is vital

a part of any enforcement program or campaign.

Recommended Programs

Increased Publicity of the Targeted Enforcement Program

Webster Groves has an existing targeted enforcement program allowing police officers to monitor vehicle speed limits on streets where residents request enforcement. Increasing awareness of the Targeted Enforcement Program through existing City media, such as the City newsletter or the City website, could help inform residents that Targeted Enforcement is available to address speeding concerns.

School Zone Enforcement

Webster Groves has a high percentage of children who bike and walk to school. Targeting speeding motorists in school zones would help create a safer environment for school children. Strict enforcement of the 25 MPH zone is recommended. Targeted enforcement and education efforts can also include motorists that fail to yield at crosswalks.

Law Officer Training

It is important for law enforcement officers to be trained on pedestrian and bicycle laws and rules in order to properly enforce the laws. Officers play a critical role in assuring all roadway users obey laws. This will prevent crashes and create safer roadways for all users.

The State of Missouri Statutes, include traffic rules for motorists, bicyclists, and pedestrians. All Missouri law enforcement officers should be familiar with the rules as to enforce them lawfully. <http://www.moga.mo.gov/statutes/C300.HTM>.

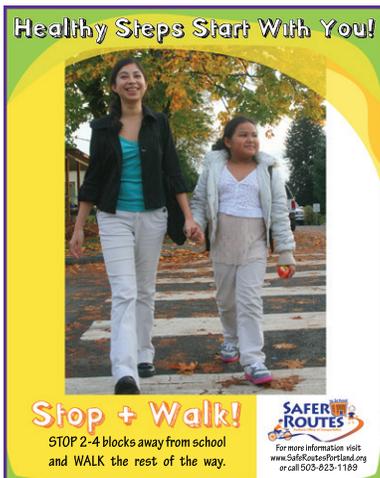
There are several resources for training law officers. The National Highway Traffic Safety Administration offers free on-line resources including videos for officer training on pedestrian and bicycle laws.

- Pedestrian Safety Training for Law Enforcement
[http://www.nhtsa.gov/Driving+Safety/Pedestrians/Pedestrian+Safety+Training+for+Law+Enforcement+\(CD-ROM\)](http://www.nhtsa.gov/Driving+Safety/Pedestrians/Pedestrian+Safety+Training+for+Law+Enforcement+(CD-ROM))
- Bicycle Safety Training for Law Enforcement
<http://www.nhtsa.gov/Driving+Safety/Bicycles/Enhancing+Bicycle+Safety:+Law+Enforcement's+Role>

SECTION EIGHT

8

RECOMMENDATIONS: ENCOURAGEMENT



Portland's Stop and Walk campaign poster



Bike St. Louis map illustrates local routes

RECOMMENDATIONS: ENCOURAGEMENT

Encouragement allows residents to share in the joy of biking and walking. Creating a safe and positive environment for residents to try out active transportation is a powerful tool in becoming more bikeable and walkable. The following programs are recommendations for increasing interest in biking and walking.

RECOMMENDED PROGRAMS

Stop + Walk Campaign

The City, in conjunction with the school district could organize a “Stop + Walk” campaign to encourage students to get dropped off two to four blocks from school and walk the rest of the way. This program encourages healthy activities like walking while also reducing traffic congestion around schools.

Online Resource

- The City of Portland has a successful Stop + Walk program: <http://www.portlandoregon.gov/transportation/article/226864>

Community Walks and Rides

Community rides and walks encourage residents to be active and get to know each other in a friendly and supportive environment. Community rides or walks help residents to discover the joy of being active and help strengthen community. Events have designated routes, typically loops, which end at the starting place. The pace should be accessible for all participants.

Online Resources

- Live Well Ferguson has several examples of successful events: <http://livewellferguson.com/main/>
- Walkinginfo.org has several ideas for promoting walking, including examples of successful programs: <http://www.walkinginfo.org/promote/strategies.cfm>

Walking and Biking Maps

Being able to safely get around the city will help encourage more people to bike and walk. The creation of a walking and biking transportation map will help residents know and understand the best routes and how to access city locations such as schools, library, and business districts by walking, biking, or taking transit.

Online Resources

- Kirkland, WA has excellent examples of neighborhood walking maps: http://www.kirklandwa.gov/depart/parks/Parks/Neighborhood_Walking_Maps.htm
- FeetFirst has published a handbook on creating neighborhood walking maps: http://www.feetfirst.org/wp-content/uploads/2013/02/Services_How-To-Kits_Community-Map-Making-Handbook.pdf



Programs such as Trailnet's Shift Your Commute encourage commuting to work.

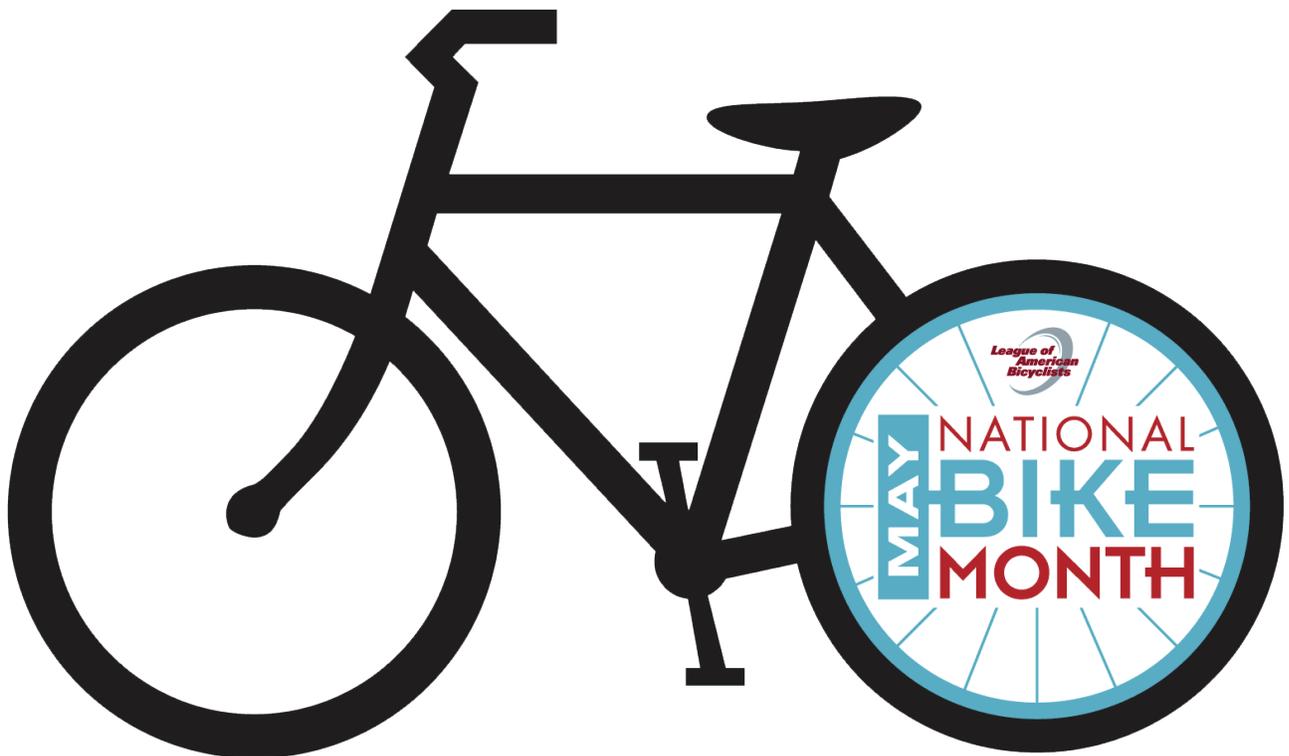
National Bike Month Activities

National Bike Month is in May. The City can encourage residents and employees of all ages to bike in and around Webster Groves for transportation and recreational purposes during National Bike Month. Webster Groves can participate in National Bike To Work Day, for example, by working with a local café that is interested in hosting a Bike To Work Day Station.

Other common events include family group rides, adult and children cycling classes, and bike-to-school days. The League of American Bicyclists has a number of valuable online resources to help make local efforts successful, including an event organizing handbook, a calendar linking to local events and activities, and tips for people interested in commuting to work.

Online Resource

- Trailnet Bike to Work Day resources: (Trailnet website is in the process of being updated, this will be included in the final version)
- League of American Bicyclists
<http://bikeleague.org/content/plan-bike-month-event>



SECTION NINE

9

RECOMMENDATIONS: ENGINEERING

RECOMMENDATIONS: ENGINEERING

Prioritized Recommendations

The proposed walking and biking networks are presented in prioritized maps and tables (See Map 1 for bike network, see Map 5 for pedestrian network.) The plan is intended to serve as a guide for a fifteen year period. Implementation of any recommendations during that time period ultimately depends on funding for construction and ongoing maintenance becoming available. Prioritization provides a framework for phased implementation, given constrained resources. The prioritization is based on community preferences, feasibility, and impact. The prioritization methods emphasize creating a network for walking and biking to community destinations.

If the opportunity to implement a project arises before the proposed phase, the phasing schedule should not prevent it from being implemented. In Webster Groves, streets are repaved roughly every seven years, creating opportunities for restriping. Recommendations that require restriping should take advantage of this cycle. Likewise, shared lane markings should not be added when a street is scheduled to be repaved in the next year. Ultimately, the recommendations should be balanced by the Director of Public Works to ensure coordination with planned maintenance schedules.

PRE-ENGINEERING OPINION OF COST

The following information provides a general opinion of probable construction costs for the recommended facilities in the Webster Groves Bicycle and Pedestrian Master Plan. Costs are based on conceptual design evaluation of the facilities and pre-engineering design development. The unit cost numbers are based on cost data in Trailnet's Streets For Everyone (2013) and FHWA's Costs for Pedestrian and Bicyclist Infrastructure Improvements (2013). The costs were adjusted for inflation to reflect the year 2015 construction market. They are subject to traditional market place fluctuations.

The following costs are based on the very conservative assumption that all of the sidewalks must be replaced to meet ADA compliance. Many of these priority corridors already have full or partial sidewalks, at least along one side. As the scope of the project did not include a detailed, sidewalk assessment, the cost estimates are based on the worst-case scenario. The engineering phase of any sidewalk project should start by inspecting the sidewalk for ADA compliance.

Finally, the renovation of the pedestrian bridge at Selma calls for a detailed engineering feasibility study in order to produce a credible cost estimate. Pedestrian bridges over freeways can range from \$1 million to several million, based on design, width, and right-of-way constraints. The project is included in the plan, as it is an important way to provide safe and comfortable access over I-44 for people walking, bicycling, and using mobility devices.

TABLE 3 - PRE-ENGINEERING OPINION OF COST *

Infrastructure Type	Description	Median	Min	Max	Cost unit
Bicycles	Bicycle lane	\$ 98,640.68	\$ 5,360.00	\$ 536,680.00	mile
	Advisory Bike Lane	\$ 98,630.40	\$ 5,360.00	\$ 536,680.00	mile
	Buffered Bicycle Lane	\$ 126,772.80	N/A	N/A	mile
	Signed route	\$ 27,240.00	\$ 5,360.00	\$ 64,330.00	mile
	Shared lane markings	\$ 160.00	\$ 22.00	\$ 600.00	each
	Signed route with SLM every 250 ft	\$ 30,620.00	\$ 5,820.00	\$ 77,000.00	mile
	Pedestrian	Crosswalk	\$ 3,070.00	\$ 600.00	\$ 5,710.00
Curb Ramp		\$ 740.00	\$ 89.00	\$ 3,600.00	each
Sidewalk + curb		\$ 989,630.40	\$ 121,440.00	\$ 1,214,400.00	mile
Pedestrian Route with crosswalks and signage		\$ 57,940.00	N/A	N/A	mile
Crossing island		\$ 10,460.00	\$ 2,140.00	\$ 4,1700.00	each
Ped/bike push button		\$ 230.00	\$ 61.00	\$ 2,510.00	each
Traffic Calming		Traffic circle	\$ 27,190.00	\$ 5,000.00	\$ 523,080.00
	Curb extension	\$ 10,150.00	\$ 1,070.00	\$ 41,170.00	each

* Cost estimates based on Costs for Pedestrian and Bicyclist Infrastructure Improvements, UNC Highway Safety Research Center (2013). Minimum and maximum costs reflect a wide range of circumstances meant to illustrate worst and best case scenarios, and provide context to pre-engineering cost estimates.

TABLE 4 - PRE-ENGINEERING OPINION OF TOTAL COSTS

	Total Length (miles)	Total Cost
Priority Pedestrian Gaps	8.4	\$ 8,354,692.25
Pedestrian Network Signage and Crosswalks	32.4	\$ 1,600,180.30
Bicycle Network	25	\$ 860,314.70
	Total cost of estimated projects	\$ 10,815,187.25

BICYCLE PRIORITIZATION

The proposed bicycle improvements in Webster Groves are broken into three phases. Each phase is presented as a coherent set of projects that will provide connectivity to important destinations, and build upon one another.

The first phase helps to implement one of the recommendations in the Webster Groves Parks Master Plan from 1998. The plan envisioned a walking and biking loop that connected the parks of Webster Groves. The first phase of the plan connects the parks, along with the regional trails near the City. Connections to parks and trails were one of the highest priorities for residents throughout the planning process.

The first phase also includes a portion of Edgar Road that is set to be repaved in 2017. This section is a key connection for walking and biking, as it is a low-traffic connection over I-44. The planning repaving offers an opportunity to pilot advisory bicycle lanes as a solution to constrained right-of-way on Edgar Road.

The first phase is the largest, as it establishes a network for bicycling in Webster, that can be built upon in the future. The total mileage for Phase 1 is 13.3 miles with an estimated cost of approximately \$475,620 (see Map 2).

The second phase focuses on connecting schools to the bicycling network. The total mileage is 6.7, with an estimated cost of approximately \$273,610 (See Map 3). This phase contains an extension of the Edgar Road advisory bicycle lanes, if they were successful during the first phase.

The third phase expands the network to commercial areas and enhances overall network connectivity. This is the smallest phase with a total length of 4.9 miles and an estimated cost of approximately \$181,320 (See Map 4).



Lockwood is a popular bicycling route for residents and visitors in Webster Groves.

MAP 1 - PROPOSED BICYCLE INFRASTRUCTURE



MAP 2 - PROPOSED BICYCLE INFRASTRUCTURE IMPLEMENTATION - PHASE ONE



Legend

Bicycling Routes
 - Consist of Wayfinding Signage and Share the Lane Markings

- Phase 1: Connections to Parks and Trails
- Deer Creek Trail
- Deer Creek Trail Expansion
- Parks
- Roads
- Waterways
- ★ City Hall
- 🚒 Firehouse
- 🏠 Recreation Center
- 📖 Library
- 🎓 Schools
- City Boundary

Zoning

- Residential
- Multiple Family Residence
- Commercial
- Industrial
- Planned Commercial
- Planned Environmental Unit

TABLE 5 - PROPOSED BICYCLE INFRASTRUCTURE - PHASE ONE

PHASE 1					Total Length (miles)		12.5
					Total Cost	\$463,374.09	
Route	Beginning	End	Length (feet)	Infrastructure	Cost (per LF)	Cost	
Bell Ave	Reasnor Ave	W Waymire Ave	160	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,022.99	
Oak Ave	Harper Ave	Cherry Ave	170	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,086.30	
E Rose Ave	Belton Ave	Elm Dr	180	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,150.20	
Hart Ave	Sanguinet Ave	Harper Ave	180	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,150.20	
Lanvale Dr	Kenore Ct	E Old Watson Rd	180	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,150.20	
Dale Ave	Spring Ave	Page Ave	210	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,341.90	
St Georges Pl	Elm Dr	Albany Ct	230	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,469.70	
Page Ave	Dale Ave	Lockwood Park	260	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,661.40	
Cherry Ave	Oak Ave	W Lockwood Ave	280	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,789.20	
W Waymire Ave	Bell Ave	N Elm Ave	310	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,980.90	
S Bompert Ave	E Lockwood Ave	Big Bend Blvd	320	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,044.80	
E Ravine Ave	Holland Ave	Lorraine Davis Ln	330	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,108.70	
Newport Ave	Brentwood Blvd	Oakwood Ave	330	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,108.70	
Sanguinet Ave	S Iola Dr	Hart Ave	410	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,619.90	
Selma Ave	E Jackson Rd	S Forest Ave	410	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,619.90	
Kenora Ct	Lanvale Dr	Cheshire Ln	500	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,195.00	
N Iola Dr	W Kirkham Ave	Clairmont Ave	510	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,258.90	
E Glendale Rd	Albany Ct	Colebrook Dr	530	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,386.70	
Belton Ave	E Drake Ave	E Rose Ave	580	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,706.20	
Foote Ave	McKee Park	Slocum Ave	590	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,770.10	
Reasnor Ave	Ennis Ave	Bell Ave	650	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,153.50	
S Iola Dr	Clairmont Ave	Sanguinet Ave	660	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,217.40	
E Drake Ave	Belton Ave	Wells Ave	690	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,409.10	
E Thornton Ave	N Elm Ave	Holland Ave	690	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,409.10	
Harper Ave	Hart Ave	Oak Ave	700	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,473.00	
Spring Ave	Oakwood Ave	Dale Ave	740	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,728.60	
Culverhill Dr	Sunningwell Dr	Watson Rd	810	Signed Route with Shared Lane Markings	\$ 6.39	\$ 5,175.90	
Ronald Dr	Cannonbury Dr	Cheshire Ln	880	Signed Route with Shared Lane Markings	\$ 6.39	\$ 5,623.20	
W Thornton Ave	Ennis Ave	N Elm Ave	990	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,326.10	
Ennis Ave	W Thornton Ave	Reasnor Ave	1010	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,453.90	
W Frisco Ave	Sherwood Drive	S Rock Hill Rd	1010	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,453.90	
Sunningwell Dr	Cannonbury Dr	Culverhill Dr	1070	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,837.30	
Wells Ave	E Drake Ave	E Old Watson Rd	1160	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,412.40	
Elm Dr	E Rose Ave	St Georges Pl	1190	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,604.10	
Orchard Ave	E Lockwood Ave	Oakwood Ave	1210	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,731.90	
E Jackson Rd	Edgar Rd	Selma Ave	1220	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,795.80	
S Forest Ave	Selma Ave	Colebrook Dr	1250	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,987.50	
Holland Ave	E Thornton Ave	S Brentwood Blvd	1490	Signed Route with Shared Lane Markings	\$ 6.39	\$ 9,521.10	
Sylvester Ave	E Swon Ave	E Lockwood Ave	1500	Signed Route with Shared Lane Markings	\$ 6.39	\$ 9,585.00	
E Old Watson Rd	S Elm Ave	Kenore Ct	1710	Signed Route with Shared Lane Markings	\$ 6.39	\$ 10,926.90	
E Swon Ave	S Elm Ave	Sylvester Ave	1780	Signed Route with Shared Lane Markings	\$ 6.39	\$ 11,374.20	
E Waymire Ave	N Elm Ave	E Thornton Ave	1190	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,604.10	
Oakwood Ave	N Bompert Ave	Big Bend Blvd	2160	Signed Route with Shared Lane Markings	\$ 6.39	\$ 13,802.40	
Oakwood Ave	Newport Ave	Orchard Ave	2290	Signed Route with Shared Lane Markings	\$ 6.39	\$ 14,633.10	
Colebrook Dr	S Forest Ave	E Glendale Rd	2320	Signed Route with Shared Lane Markings	\$ 6.39	\$ 14,824.80	
W Lockwood Ave	Hollywood Place	W Swon Ave	2410	Buffered bicycle lane	\$ 24.01	\$ 57,864.10	
Sherwood Drive	W Lockwood Ave	W Frisco Ave	2490	Signed Route with Shared Lane Markings	\$ 6.39	\$ 16,166.70	
Edgar Rd	Big Bend Blvd	E Jackson Rd	2530	Signed Route with Shared Lane Markings	\$ 6.39	\$ 47,260.40	
E Lockwood Ave	Sylvester Ave	Big Bend Blvd	3140	Signed Route with Shared Lane Markings	\$ 6.39	\$ 20,064.60	
W Swon Ave	W Lockwood Ave	S Elm Ave	3310	Signed Route with Shared Lane Markings	\$ 6.39	\$ 21,150.90	
W Old Watson Rd	Grant Rd	S Elm Ave	3530	Signed Route with Shared Lane Markings	\$ 6.39	\$ 22,556.70	
S Rock Hill Rd	Baker Ave	W Old Watson Rd	5700	Signed Route with Shared Lane Markings	\$ 6.39	\$ 36,423.00	
N Bompert Ave	E Pacific Ave	E Lockwood Ave	5720	Signed Route with Shared Lane Markings	\$ 6.39	\$ 36,550.80	

MAP 3 - PROPOSED BICYCLE INFRASTRUCTURE IMPLEMENTATION- PHASE TWO

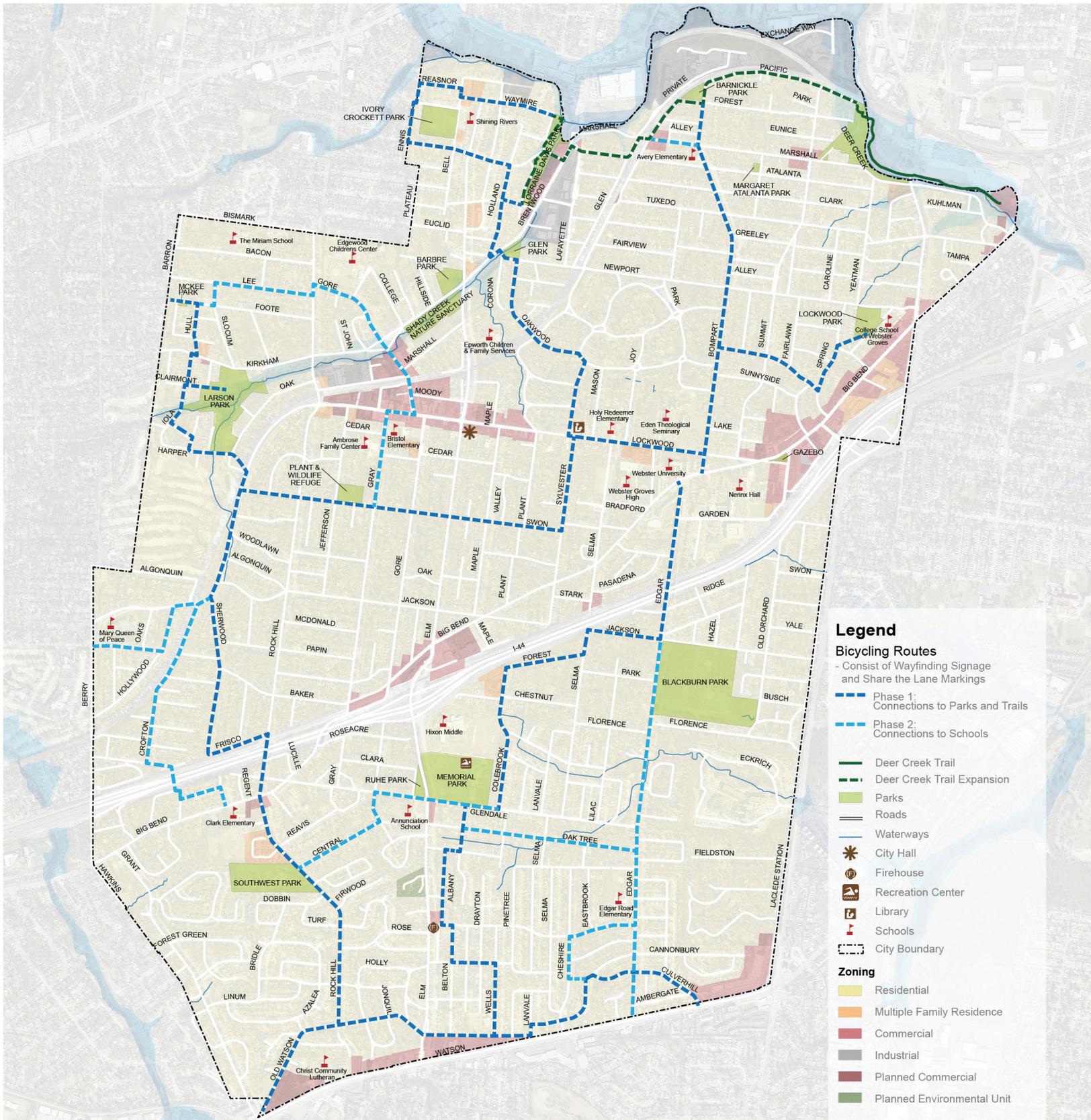


TABLE 6 - PROPOSED BICYCLE INFRASTRUCTURE - PHASE TWO

PHASE 2					Total Length (miles)	6.07
					Total Cost	\$ 204,736.19
Route	Beginning	End	Length (feet)	Infrastructure	Cost (per LF)	Cost
N Rock Hill Rd	N Gore Ave	Lee Ave	170	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,022.99
Cannonbury Drv	Cheshire Ln	Sunningwell Drv	240	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,533.60
Windsor Ct	Foreston Pl	Big Bend Blvd	290	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,853.10
Slocum Ave	Lee Ave	Foote Ave	370	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,364.30
Glendale	Bike/ped bridge	Crofton Ave	390	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,492.10
Woodhaven Rd	Foreston Pl	Bike/ped bridge	390	Signed Route with Shared Lane Markings	\$ 6.39	\$ 2,492.10
S Gore Ave	W Glendale	Central Ave	490	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,131.10
Clairmont Ave	S Iola Dr	Larson Park	580	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,706.20
E Glendale Rd	S Elm Ave	Albany Ct	610	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,897.90
Cheshire Ln	Hampshire Ct	Cannonbury Drv	660	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,217.40
Foreston Pl	Woodhaven Rd	Windsor Ct	670	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,281.30
Hollywood Place	Lockwood Ct	W Lockwood Ave	700	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,473.00
Albany Ct	E Glendale Rd	St Georges Pl	730	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,664.70
Hull Ave	Foote Ave	W Kirkham Ave	840	Signed Route with Shared Lane Markings	\$ 6.39	\$ 5,367.60
W Glendale	S Gore Ave	S Elm Ave	850	Signed Route with Shared Lane Markings	\$ 6.39	\$ 5,431.50
Hampshire Ct.	Cheshire Ln	Edgar Rd	1040	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,645.60
Lockwood Ct	W Lockwood Ave	Hollywood Place	1060	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,773.40
Central Ave	S Gore Ave	S Rock Hill Rd	1480	Signed Route with Shared Lane Markings	\$ 6.39	\$ 9,457.20
Lee Ave	Slocum Ave	N Rock Hill Rd	1560	Signed Route with Shared Lane Markings	\$ 6.39	\$ 9,968.40
Crofton Ave	W Lockwood Ave	Glendale	2700	Signed Route with Shared Lane Markings	\$ 6.39	\$ 17,253.00
Oak Tree Dr	Albany Ct	E Glendale Rd	2750	Signed Route with Shared Lane Markings	\$ 6.39	\$ 17,572.50
N Gore Ave	N Rock Hill Rd	Lockwood Ave	2800	Signed Route with Shared Lane Markings	\$ 6.39	\$ 17,892.00
Gray Ave	Baker Ave	W Lockwood Ave	4660	Signed Route with Shared Lane Markings	\$ 6.39	\$ 29,777.40
Edgar Rd	E Jackson Rd	Watson Rd	6020	Signed Route with Shared Lane Markings	\$ 6.39	\$ 38,467.80

MAP 4 - PROPOSED BICYCLE INFRASTRUCTURE IMPLEMENTATION - PHASE THREE



Legend

- Bicycling Routes**
- Consist of Wayfinding Signage and Share the Lane Markings
- Phase 1: Connections to Parks and Trails
 - Phase 2: Connections to Schools
 - Phase 3: Connections to Commercial Areas
 - Phase 4: To be Determined: Bike/ Pedestrian Bridge
 - Deer Creek Trail
 - Deer Creek Trail Expansion
 - Parks
 - Roads
 - Waterways
 - ★ City Hall
 - Firehouse
 - Recreation Center
 - Library
 - Schools
 - City Boundary
- Zoning**
- Residential
 - Multiple Family Residence
 - Commercial
 - Industrial
 - Planned Commercial
 - Planned Environmental Unit

TABLE 7 - PROPOSED BICYCLE INFRASTRUCTURE - PHASE THREE

PHASE 3				Total Length (miles)		4.7
				Total Cost		\$ 192,204.42
Route	Beginning	End	Length (feet)	Infrastructure	Cost (per LF)	Cost
N Elm Ave	Euclid Ave	Fox Pl	80	Signed Route with Shared Lane Markings	\$ 6.39	\$ 511.20
Selma Ave	Stark St	Pasadena Ave	180	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,150.20
Catalina Ave	Pasadena Ave	Edgar Rd	250	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,597.50
N Rock Hill Rd	Euclid Ave	Bismark Ave	310	Signed Route with Shared Lane Markings	\$ 6.39	\$ 1,980.90
Fox Pl	N Elm Ave	Holland Ave	470	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,003.30
Stark St	Sylvester Ave	Selma Ave	590	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,770.10
Tulip Dr	S Rock Hill Rd	Linum Ln	600	Signed Route with Shared Lane Markings	\$ 6.39	\$ 3,834.00
Lee Ave	Barron Ln	Slocum Ave	690	Signed Route with Shared Lane Markings	\$ 6.39	\$ 4,409.10
Barron Ln	Bismark Ave	Lee Ave	997	Signed Route with Shared Lane Markings	\$ 6.39	\$ 6,370.83
Baker Ave	S Rock Hill Rd	S Gray Ave	1150	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,348.50
W Jackson Rd	Gray Ave	S Elm Ave	1170	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,476.30
W Lockwood Ave	Rock Hill Rd	S Brentwood	1170	Signed Route with Shared Lane Markings	\$ 6.39	\$ 7,476.30
Pasadena Ave	Selma Ave	Catalina Ave	1310	Signed Route with Shared Lane Markings	\$ 6.39	\$ 8,370.90
Sylvester Ave	E Jackson Rd	E Swon Ave	1500	Signed Route with Shared Lane Markings	\$ 6.39	\$ 9,585.00
Linum Ln	Tulip Dr	Grant Rd	1680	Signed Route with Shared Lane Markings	\$ 6.39	\$ 10,735.20
E Lockwood Ave	S Elm Ave	Sylvester Ave	1720	Signed Route with Shared Lane Markings	\$ 6.39	\$ 10,990.80
E Jackson Rd	S Elm Ave	Sylvester Ave	1780	Signed Route with Shared Lane Markings	\$ 6.39	\$ 11,374.20
W Lockwood Ave	W Swon Ave	Rock Hill Rd	1930	Buffered Bicycle Lane	\$ 24.01	\$ 46,339.30
Bismark Ave	Barron Ln	N Rock Hill Rd	2110	Signed Route with Shared Lane Markings	\$ 6.39	\$ 13,482.90
Euclid Ave	N Rock Hill Rd	N Elm Ave	2350	Signed Route with Shared Lane Markings	\$ 6.39	\$ 15,016.50
Garden Ave	Big Bend Blvd	Edgar Rd	2640	Signed Route with Shared Lane Markings	\$ 6.39	\$ 16,869.60

PEDESTRIAN PRIORITIZATION

As Webster Groves has an existing pedestrian network, phasing recommendations are based on identifying high-priority corridors, for which improvements should be targeted. The network of corridors was identified based on neighborhood feedback, destinations, addressing barriers, and ensuring coverage throughout Webster Groves. The corridors were evaluated using criteria based on the community survey, in addition to considerations of feasibility and connectivity (See Appendix A and F).

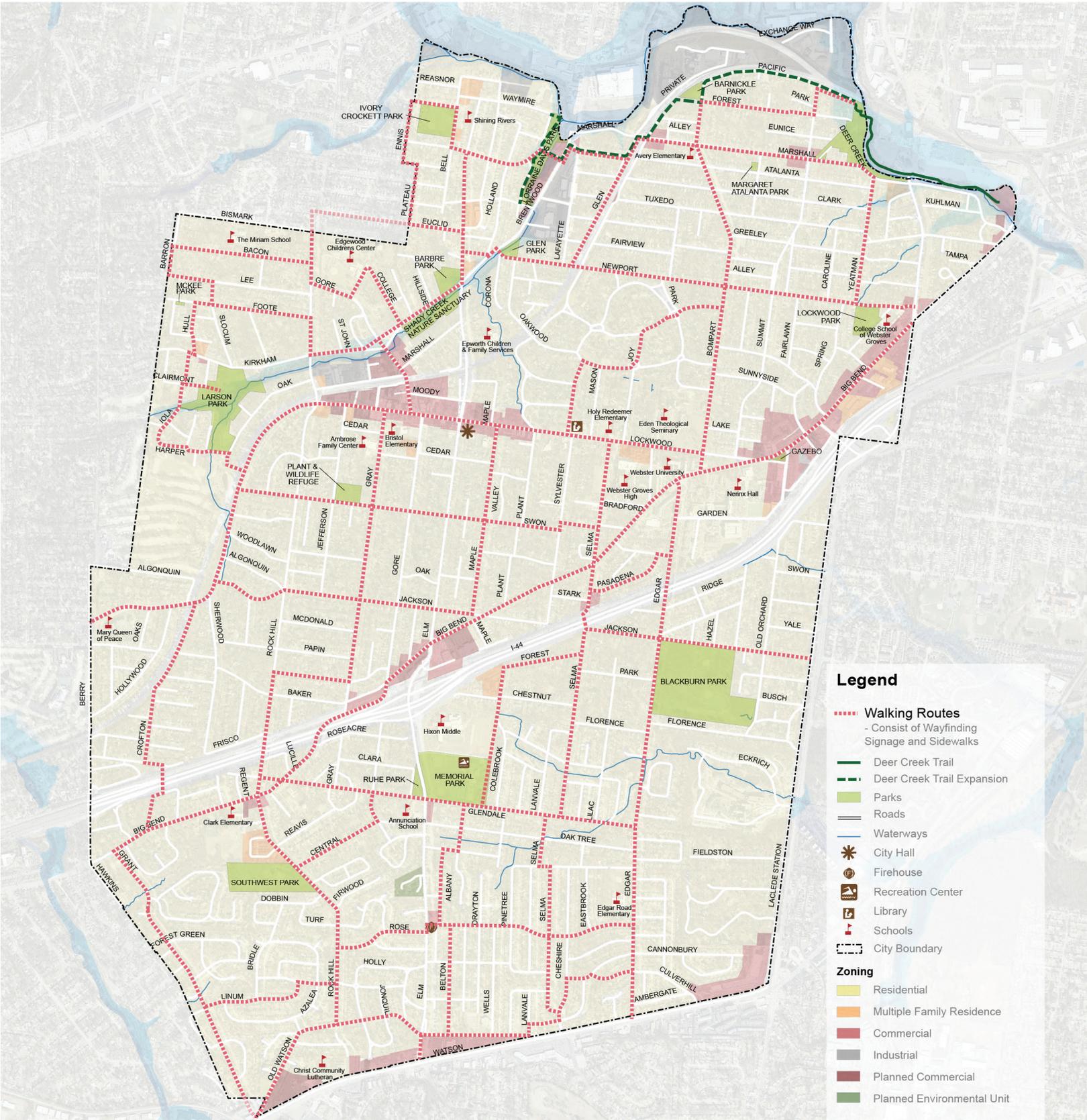
Many of the corridors have partial or full sidewalk coverage along at least one side of the street. The study focused on providing a continuous network of sidewalks along at least one side of the street; providing sidewalks on both sides of the street would require further study and additional costs. Sidewalk gaps were defined as places where there is not a continuous sidewalk along at least one side of the street. Some corridors have sidewalks that alternate between sides of streets. When this happens, priority should be given to those sections that have no sidewalks, followed by sections that have sidewalk, but require users to cross the street to access it. The corridors that have full sidewalk coverage are included in the prioritization, as they remain high-priority for intersection improvements. However, these segments do not have any recommended sidewalk projects. See Map 5 for the full recommended sidewalk network. The priorities are in Table 8.

Finally, improvements to the Selma pedestrian bridge are recommended, but not included in the phasing, as any improvements are dependent upon partnership with MoDOT. In order to meet ADA standards, any improvements made to the Selma pedestrian bridge will have to accommodate wheelchairs. The Selma pedestrian bridge was included in the plan, as it is important part of the pedestrian network for Webster Groves residents. Improvements will allow users of all ages and abilities to have a low-stress connection over I-44.



The compact layout of Old Webster makes walking to school feasible and pleasant.

MAP 5 - PROPOSED PEDESTRIAN INFRASTRUCTURE



Legend

- - - **Walking Routes**
- Consist of Wayfinding Signage and Sidewalks
- Deer Creek Trail
- - - Deer Creek Trail Expansion
- Parks
- Roads
- Waterways
- ★ City Hall
- Firehouse
- Recreation Center
- Library
- Schools
- City Boundary

Zoning

- Residential
- Multiple Family Residence
- Commercial
- Industrial
- Planned Commercial
- Planned Environmental Unit

TABLE 8 - PEDESTRIAN CORRIDOR PRIORITIZATION

Route	Streets	From	To	Length (Feet)	Total Length (Feet)	Recommended Infrastructure	Priority
Lockwood					13120		550
	W Lockwood Ave	Berry Rd	S Elm Ave	7920		Sidewalk	550
	E Lockwood Ave	S Elm Ave	Garden Ave	5200		Sidewalk	550
Big Bend					16160		440
	Big Bend Blvd*	City Limit	City Limit	16160		Sidewalk	440
Bompart					6040		410
	N Bompart Ave	E Pacific Ave	E Lockwood Ave	5720		Sidewalk	410
	S Bompart Ave	E Lockwood Ave	Big Bend Blvd	320		Sidewalk	410
Edgar					8550		410
	Edgar Rd	Big Bend Blvd	Watson Rd	8550		Sidewalk	410
Newport					7290		305
	Newport Ave	N Laclede Station Rd	N Elm Ave	7290		Sidewalk	305
Foote/Kirkham					5440		295
	Foote Ave	McKee Park	N Rock Hill Rd	2150		Sidewalk	295
	N Rock Hill Rd	Foote Ave	W Kirkham Ave	570		Sidewalk	295
	W Kirkham Ave	N Rock Hill Rd	N Elm Ave	2720		Sidewalk	295
Rock Hill					6130		285
	S Rock Hill	W Old Watson Rd	Simmons Ave	6130		Sidewalk	285
Swon					5880		275
	E Swon Ave	S Elm Ave	Selma Ave	2570		Sidewalk	275
	W Swon Ave	S Elm Ave	W Lockwood Ave	3310		Sidewalk	275
Maple					3010		265
	S Maple Ave	E Jackson Rd	W Lockwood Ave	3010		Sidewalk	265
Glendale					5970		265
	W Glendale Rd	S Rock Hill Rd	S Elm Ave	2640		Sidewalk	265
	E Glendale Rd	S Elm Ave	Edgar Rd	3330		Sidewalk	265
Marshall/ Thornton					6850		250
	Marshall Ave	Yeatman Ave	Glen Rd	3800		Sidewalk	250
	Atalanta Ave	S Brentwood Blvd	Glen Rd	900		Sidewalk	250
	Glen Rd	Marshall Ave	Atalanta Ave	350		Sidewalk	250
	S Brentwood Blvd	Atalanta Ave	E Thornton Ave	260		Sidewalk	250
	E Thornton Ave	S Brentwood Blvd	N Elm Ave	1290		Sidewalk	250
	W Thornton Ave	N Elm Ave	Bell Ave	250		Sidewalk	250
Central/ Gore					1970		250
	S Gore Ave	W Glendale Rd	Central Ave	490		Sidewalk	250
	Central Ave	S Rock Hill Rd	S Gore Ave	1480		Sidewalk	250
Gray					5840		240
	Simmons Ave	S Rock Hill Rd	Gray Ave	1180		Sidewalk	240
	Gray Ave	Baker Ave	W Lockwood Ave	4660		Sidewalk	240
Bacon/College					4720		220
	Bacon Ave	N Rock Hill Rd	Barron Ln	2190		Sidewalk	220
	N Rock Hill Rd	Bacon Ave	N Gore Ave	320		Sidewalk	220
	N Gore Ave	Home Ave	N Rock Hill Rd	660		Sidewalk	220
	Home Ave	College Ave	N Gore Ave	520		Sidewalk	220
	College Ave	W Kirkham Ave	Home Ave	1030		Sidewalk	220
N Gore					1320		215
	N Gore Ave	W Kirkham Ave	W Lockwood Ave	1320		Sidewalk	215
Belton/Albany					7480		215
	Belton Ave	E Old Watson Rd	E Rose Ave	1760		Sidewalk	215
	Albany Ct	St. Georges Pl	E Glendale Rd	730		Sidewalk	215
	Elm Dr	E Rose Ave	St. Georges Pl	1190		Sidewalk	215
	St. Georges Pl	Elm Dr	Albany Ct	230		Sidewalk	215
	Colebrook Dr	E Glendale Rd	S Forest Ave	2320		Sidewalk	215
	S Forest Ave	Colebrook Dr	Selma Ave	1250		Sidewalk	215
Bell/ N Elm					2690		210
	Bell Ave	E Thornton Ave	Almentor Ave	640		Sidewalk	210
	N Elm Ave	W Kirkham Ave	Thornton Ave	2050		Sidewalk	210
Crofton/ Pedestrian Bridge					3730		210
	Crofton Ave	W Lockwood Ave	Glendale	2700		Sidewalk	210
	Glendale	Crofton Ave	Foot bridge	390		Sidewalk	210
	Glenoak Pl	Outer Rd	Big Bend Blvd	530		Sidewalk	210
	Outer Rd	Foot bridge	Glenoak Pl	110		Sidewalk	210
	Outer Rd	Foot bridge	Glenoak Pl	110		Sidewalk	210

* Prioritized route without wayfinding signage, to comply with Saint Louis County Highways and Traffic policy

TABLE 9 - COSTS FOR PEDESTRIAN IMPROVEMENTS, WALKING ROUTES WITH GAPS

Streets	From	To	Length	Total Length	Recommended Infrastructure	Unit Cost (LF)	Sidewalk Gap Length	Total Sidewalk Gap Cost	Corridor Cost (including sidewalk gaps, signage and crosswalks)	Total Sidewalk Replacement Cost	Priority
Edgar Route				8550				\$ 251,156.20	\$ 344,949.70	\$ 1,602,526.50	410
Edgar Rd	Big Bend Blvd	Watson Rd	8550		Sidewalk	\$ 187.43	1340*				
Newport Route				7290				\$ 74,972.00	\$ 154,943.30	\$ 1,366,364.70	305
Newport Ave	N Laclede Station	N Elm Ave	7290		Sidewalk	\$ 187.43	400				
Foote/Kirkham Route				2150				\$ 215,544.50	\$ 239,130.00	\$ 402,974.50	295
Foote Ave	McKee Park	N Rock Hill Rd	2150		Sidewalk	\$ 187.43	1150				
N Rock Hill Rd	Foote Ave	W Kirkham Ave	570		Sidewalk	\$ 187.43	0				
W Kirkham Ave	N Rock Hill Rd	N Elm Ave	2720		Sidewalk	\$ 187.43	0				
Glendale Route				2640				\$ 70,286.25	\$ 99,247.05	\$ 494,815.20	265
W Glendale Rd	S Rock Hill Rd	S Elm Ave	2640		Sidewalk	\$ 187.43	375				
Central/Gore				1970				\$ 369,237.10	\$ 390,848.00	\$ 369,237.10	250
S Gore Ave	W Glendale Rd	Central Ave	490		Sidewalk	\$ 187.43	490				
Central Ave	S Rock Hill Rd	S Gore Ave	1480		Sidewalk	\$ 187.43	1480				
Bacon/College Route				2710				\$ 507,935.30	\$ 537,664.00	\$ 507,935.30	220
Bacon Ave	N Rock Hill Rd	Barron Ln	2190		Sidewalk	\$ 187.43	2190				
Home Ave	College Ave	N Gore Ave	520		Sidewalk	\$ 187.43	520				
N Rock Hill Rd	Bacon Ave	N Gore Ave	320		Sidewalk	\$ 187.43	0				
N Gore Ave	Home Ave	N Rock Hill Rd	660		Sidewalk	\$ 187.43	0				
College Ave	W Kirkham Ave	Home Ave	1030		Sidewalk	\$ 187.43	0				
Bellon/Albany Route				3910				\$ 732,851.30	\$ 775,744.00	\$ 732,851.30	215
Bellon Ave	E Old Watson Rd	E Rose Ave	1760		Sidewalk	\$ 187.43	1760				
Albany Ct	St. Georges Pl	E Glendale Rd	730		Sidewalk	\$ 187.43	730				
Elm Dr	E Rose Ave	St. Georges Pl	1190		Sidewalk	\$ 187.43	1190				
St. Georges Pl	Elm Dr	Albany Ct	230		Sidewalk	\$ 187.43	230				
Colebrook Dr	E Glendale Rd	S Forest Ave	2320		Sidewalk	\$ 187.43	0				
S Forest Ave	Colebrook Dr	Selma Ave	1250		Sidewalk	\$ 187.43	0				
Bell/Elm Route				640				\$ 119,955.20	\$ 126,976.00	\$ 119,955.20	210
Bell Ave	E Thornton Ave	Almentor Ave	640		Sidewalk	\$ 187.43	640				
N Elm Ave	W Kirkham Ave	Thornton Ave	2050		Sidewalk	\$ 187.43	0				
Crofton/Pedestrian Bridge Route				3730				\$ 431,089.00	\$ 472,007.10	\$ 699,113.90	210
Crofton Ave	W Lockwood Ave	Glendale	2700		Sidewalk	\$ 187.43	1270				
Glendale	Crofton Ave	Foot bridge	390		Sidewalk	\$ 187.43	390				
Glenoak Pl	Outer Rd	Big Bend Blvd	530		Sidewalk	\$ 187.43	530				
Outer Rd	Foot bridge	Glenoak Pl	110		Sidewalk	\$ 187.43	110				
Selma (south) Route				6450				\$ 890,292.50	\$ 961,049.00	\$ 1,208,923.50	200
Selma Ave	E Jackson Rd	Cheshire Ln	6450		Sidewalk	\$ 187.43	4750				
Yeatman Route				2060				\$ 386,105.80	\$ 408,704.00	\$ 386,105.80	190
Yeatman Ave	Marshall Ave	Newport Ave	2060		Sidewalk	\$ 187.43	2060				
Forest Pacific Route				790				\$ 119,955.20	\$ 128,621.50	\$ 148,069.70	175
E Pacific Ave	Deer Creek Park	Summit Ave	790		Sidewalk	\$ 187.43	640				
Summit Ave	E Pacific Ave	N Forest Ave	480		Sidewalk	\$ 187.43	0				
N Forest Ave	Summit Ave	N Bompert Ave	1800		Sidewalk	\$ 187.43	0				
Barron/Iola/Harper Route				3040				\$ 386,105.80	\$ 419,454.60	\$ 569,787.20	160
Barron Ln	Bacon Ave	Lee Ave	470		Sidewalk	\$ 187.43	470				
Slocum Ave	Lee Ave	Foote Ave	370		Sidewalk	\$ 187.43	370				
Hull Ave	Foote Ave	W Kirkham Ave	840		Sidewalk	\$ 187.43	530				
Harper Ave	S Iola Dr	Oak Ave	1080		Sidewalk	\$ 187.43	410				
Cherry Ave	Oak Ave	W Lockwood Ave	280		Sidewalk	\$ 187.43	280				
Lee Ave	Barron Ln	Slocum Ave	720		Sidewalk	\$ 187.43	0				
N Iola Dr	W Kirkham Ave	Clairmont Ave	510		Sidewalk	\$ 187.43	0				
S Iola Dr	Clairmont Ave	Harper Ave	1090		Sidewalk	\$ 187.43	0				
Clairmont Ave	S Iola Dr	Larson Park	580		Sidewalk	\$ 187.43	0				
Oak Ave	Harper Ave	Cherry Ave	170		Sidewalk	\$ 187.43	0				
Rose/Hampshire Ct. Route				4840				\$ 907,161.20	\$ 960,256.00	\$ 907,161.20	160
W Rose Ave	S Rock Hill Rd	S Elm Ave	1500		Sidewalk	\$ 187.43	1500				
E Rose Ave	S Elm Ave	Pine Tree Ln	1350		Sidewalk	\$ 187.43	1350				
Hampshire Ct	Pine Tree Ln	Edgar Rd	1990		Sidewalk	\$ 187.43	1990				
Old Watson Route				5320				\$ 687,868.10	\$ 746,228.50	\$ 997,127.60	160
E Old Watson	S Elm Ave	Watson Rd	1790		Sidewalk	\$ 187.43	140				
W Old Watson	Grant Rd	S Elm Ave	3530		Sidewalk	\$ 187.43	3530				
Euclid/N Rock Hill Route				2350				\$ 108,709.40	\$ 134,488.90	\$ 440,460.50	155
Euclid Ave	N Elm Ave	N Rock Hill Rd	2350		Sidewalk	\$ 187.43	580				
N Rock Hill Rd	Euclid Ave	Bacon Ave	830		Sidewalk	\$ 187.43	0				
Lanvale/Sunningwell Route				2040				\$ 382,357.20	\$ 404,736.00	\$ 382,357.20	155
Sunningwell Dr	Canonbury Dr	Edgar Rd	670		Sidewalk	\$ 187.43	670				
Cheshire Ln	Kenora Ct	Canonbury Dr	690		Sidewalk	\$ 187.43	690				
Kenora Ct	Cheshire Ln	Lanvale Dr	500		Sidewalk	\$ 187.43	500				
Lanvale Dr	Kenora Ct	E Old Watson Rd	180		Sidewalk	\$ 187.43	180				
Canonbury Dr	Cheshire Ln	Sunningwell Dr	240		Sidewalk	\$ 187.43	0				
Almentor/Plateau Route				2890				\$ 541,672.70	\$ 573,376.00	\$ 541,672.70	135
Plateau Ave	Lithia ave	Euclid Ave	960		Sidewalk	\$ 187.43	960				
Lithia ave	Ennis Ave	Plateau Ave	230		Sidewalk	\$ 187.43	230				
Ennis Ave	Almentor Ave	Lithia ave	980		Sidewalk	\$ 187.43	980				
Almentor Ave	Bell Ave	Ennis Ave	720		Sidewalk	\$ 187.43	720				
S Elm Route				400				\$ 74,972.00	\$ 79,360.00	\$ 74,972.00	135
S Elm Ave	E Old Watson Rd	Watson Rd	400		Sidewalk	\$ 187.43	400				
Linum Ln and Tulip Dr Route				2280				\$ 427,340.40	\$ 452,352.00	\$ 427,340.40	110
Tulip Dr	S Rock Hill Rd	Linum Ln	600		Sidewalk	\$ 187.43	600				
Linum Ln	Tulip Dr	Grant Rd	1680		Sidewalk	\$ 187.43	1680				
Jackson Route				3570				\$ 669,125.10	\$ 708,288.00	\$ 669,125.10	90
E Jackson Rd	Selma Ave	S Laclede Rd	3570		Sidewalk	\$ 187.43	3570				
			86960	69620			41005				
		Total miles:	16.5			Gap miles:	8.44		\$ 763,731.40		
									\$ 8,354,692.25		
									\$ 9,118,423.65		
									\$ 13,048,876.60		

* Sidewalk alternates sides of street. Highest priority should go to the 340 feet between Ridge Avenue and Virginia Avenue on the east side of Edgar Road.

TABLE 10 - COSTS FOR PEDESTRIAN IMPROVEMENTS, WALKING ROUTES WITH NO GAPS

Streets	From	To	Length	Total Length	Recommended Infrastructure	Unit Cost (LF)	Signage and Crosswalk Cost	Sidewalk Replacement Cost	Priority
Lockwood Route				13120			\$ 143,926.40	\$ 2,459,081.60	550
W Lockwood Ave	Berry Rd	S Elm Ave	7920		Sidewalk	\$ 187.43			
E Lockwood Ave	S Elm Ave	Garden Ave	5200		Sidewalk	\$ 187.43			
Big Bend Route*				16160			\$ 93,889.60*	\$ 3,028,868.80	440
Big Bend Blvd	City Limit	City Limit	16160		Sidewalk	\$ 187.43			
Bompart Route				6040			\$ 66,258.80	\$ 1,132,077.20	410
N Bompart Ave	E Pacific Ave	E Lockwood Ave	5720		Sidewalk	\$ 187.43			
S Bompart Ave	E Lockwood Ave	Big Bend Blvd	320		Sidewalk	\$ 187.43			
Rock Hill Route				6130			\$ 67,246.10	\$ 1,148,945.90	285
S Rock Hill	W Old Watson Rd	Simmons Ave	6130		Sidewalk	\$ 187.43			
Swon Route				5880			\$ 64,503.60	\$ 1,102,088.40	275
E Swon Ave	S Elm Ave	Selma Ave	2570		Sidewalk	\$ 187.43			
W Swon Ave	S Elm Ave	W Lockwood Ave	3310		Sidewalk	\$ 187.43			
Maple Route				3010			\$ 33,019.70	\$ 564,164.30	265
S Maple Ave	E Jackson Rd	W Lockwood Ave	3010		Sidewalk	\$ 187.43			
Glendale Route				3330			\$ 36,530.10	\$ 624,141.90	265
E Glendale Rd	S Elm Ave	Edgar Rd	3330		Sidewalk	\$ 187.43			
Marshall/Thornton Route				6850			\$ 75,144.50	\$ 1,283,895.50	250
Marshall Ave	Yeatman Ave	Glen Rd	3800		Sidewalk	\$ 187.43			
Atalanta Ave	S Brentwood Blvd	Glen Rd	900		Sidewalk	\$ 187.43			
Glen Rd	Marshall Ave	Atalanta Ave	350		Sidewalk	\$ 187.43			
S Brentwood Blvd	Atalanta Ave	E Thornton Ave	260		Sidewalk	\$ 187.43			
E Thornton Ave	S Brentwood Blvd	N Elm Ave	1290		Sidewalk	\$ 187.43			
W Thornton Ave	N Elm Ave	Bell Ave	250		Sidewalk	\$ 187.43			
Gray Route				5840			\$ 64,064.80	\$ 1,094,591.20	240
Simmons Ave	S Rock Hill Rd	Gray Ave	1180		Sidewalk	\$ 187.43			
Gray Ave	Baker Ave	W Lockwood Ave	4660		Sidewalk	\$ 187.43			
N Gore Route				1320			\$ 14,480.40	\$ 247,407.60	215
N Gore Ave	W Kirkham Ave	W Lockwood Ave	1320		Sidewalk	\$ 187.43			
Oakwood Route				3980			\$ 43,660.60	\$ 745,971.40	185
Hawthorne Ave	Joy Ave	N Bompart Ave	1380		Sidewalk	\$ 187.43			
Joy Ave	Hawthorne Ave	Oakwood Ave	620		Sidewalk	\$ 187.43			
Oakwood Ave	Joy Ave	Orchard Ave	770		Sidewalk	\$ 187.43			
Orchard Ave	Oakwood Ave	E Lockwood Ave	1210		Sidewalk	\$ 187.43			
W Jackson Route				4150			\$ 45,525.50	\$ 777,834.50	185
W Jackson Rd	W Lockwood Ave	S Elm Ave	3580		Sidewalk	\$ 187.43			
E Jackson Rd	S Maple Ave	S Elm Ave	570		Sidewalk	\$ 187.43			
Grant Route				4800			\$ 52,656.00	\$ 899,664.00	180
Grant Rd	Watson Rd	Big Bend Blvd	4800		Sidewalk	\$ 187.43			
Pasadena Route				1310			\$ 14,370.70	\$ 245,533.30	140
Pasadena Ave	Selma Ave	Catalina Ave	1310		Sidewalk	\$ 187.43			
Glen Route				1930			\$ 21,172.10	\$ 361,739.90	110
Glen Rd	Newport Ave	Atalanta Ave	1930		Sidewalk	\$ 187.43			
			83850	83850					
		Total miles:	15.9			Crosswalk and signage cost	\$ 836,448.90		
						Total sidewalk replacement cost	\$ 15,715,586.25		

* Prioritized route without wayfinding signage, to comply with Saint Louis County Highways and Traffic policy



A high visibility crossing



A pedestrian crosses Gore Avenue

THE AMERICAN WITH DISABILITIES ACT (ADA)

In 1990, Congress passed the American with Disabilities Act, which prohibits discrimination and ensures equal opportunities for people with disabilities. This includes planning in the public rights of way and assuring accessibility for all roadway users. Title II of the American with Disabilities Act requires all public rights of way and facilities be accessible for all users.

According to the survey conducted in the early stages of this planning process, 9% of respondents in Webster Groves use a walking device or aid, including a cane or wheelchair. It is important to assure all pedestrian facilities accommodate people with disabilities. There are several retirement facilities within Webster Groves, and it is important to provide a comfortable and safe walking environment for these residents that may be unable to drive or lack access to a car.

The United States Access Board develops guidelines for public rights of way for various users including people with visual impairments and people in wheelchairs. These guidelines cover pedestrian access to streets and sidewalks (crossings, curb ramps, etc), roadway designs, constraints such as slopes, and placement of street amenities (benches, signs, bus stops, etc.) Below is a list of common pedestrian facilities and minimum ADA standards and design guidelines. It is important to note, these are only minimums.

- Sidewalks – Minimum width for the pedestrian access route of a sidewalk is four feet. This means that the clear zone should be four feet. If planning to add amenities (street furniture, etc.) in the right of way, then sidewalks should be much wider. To accommodate for passing, sidewalks should include intervals of passing space every 200 feet if they are four feet wide. Sidewalk grade and pedestrian access routes should be no greater than five percent grade.
- Curb ramps – The minimum dimension of the turning space of a curb ramp shall be four feet by five feet, while the running slope shall be five percent minimum but no great than 8.3 percent.
- Detectable warning surfaces – Delineate the boundary between the pedestrian access route and vehicular routes. All curb ramps shall consist of truncated domes aligned in a square or radial grid pattern. Detectable warning surfaces shall also contrast with adjacent surfaces, either light on dark or dark in light. Bright yellow is a popular color for truncated domes.
- Pedestrian Signals – All pedestrian signal phase timing shall comply with the Manual on Uniform Traffic Control Devices (MUTCD). Accessible pedestrian signals provide information in non-visual formats. Accessible signals can be integrated into the pushbutton, as to activate a sound when the WALK signal activates. Signal standards and designs must follow MUTCD guidelines, which can be found here: <http://mutcd.fhwa.dot.gov/html/2009/part4/part4e.htm>.



Pedestrian signage on Lockwood Avenue draws attention at a mid-block crossing.



An example of a non-ADA compliant sidewalk

There are many resources available to ensure pedestrian facilities are complying with ADA guidelines and regulations. All federally funded projects including new and altered facilities must comply with ADA guidelines.

Resources

- United States Access Board: Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way:
<http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines>
- Federal Highway Administration: Americans with Disabilities Act/ Section 504 of the Rehabilitation Act of 1973 (504):
<http://www.fhwa.dot.gov/civilrights/programs/ada.cfm>
- Federal Highway Administration: Designing Sidewalks and Trails for Access:
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalks/index.cfm
- United States Access Board ADA Standards:
<http://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards>
- US Department of Transportation: Bicycles and Pedestrians:
<http://www.dot.gov/bicycles-pedestrians>
- United States Access Board Public Rights-of-Way Resources:
<http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/other-prov-resources>
- Accessible Pedestrian Signals: A Guide to Best Practices:
<http://www.apsguide.org/index.cfm>
- US Department of Transportation: Accessible Sidewalks and Street Crossings:
http://www.bikewalk.org/pdfs/sopada_fhwa.pdf
- Federal Highway Administration: Manual on Uniform Traffic Control Devices:
<http://mutcd.fhwa.dot.gov/index.htm>



A high visibility crosswalk with Rectangular Rapid Flashing Beacon



Safety islands allow pedestrians to cross wide streets in two stages.



Restricting right turns on red greatly improves pedestrian and bicyclist safety.

INTERSECTIONS

Throughout the public engagement process, Webster Groves residents expressed interest in enhanced intersection design to increase safety and comfort. At intersections, people walking, biking, and driving have to negotiate with traffic coming from multiple directions. The complexity of intersections necessitates a careful design approach taking into account volume, lane configuration, and speeds. The Plan Objectives call for the Sustainability Commission to work with the City to address intersections as needed, and as funding allows. The following treatments are recommended as potential solutions for intersections in Webster Groves.

High Visibility Crosswalks: Crosswalks with thick lines perpendicular to the pedestrian's path, as opposed to the traditional parallel lines, increase visibility for people driving. High Visibility Crosswalks are appropriate for any place where crosswalks should be used. High visibility crosswalks should be used near schools, and other destinations that draw a high volume of pedestrians. High visibility crosswalks can be used at signalized intersections, at mid-block crossings, and at stop-controlled intersections. On streets with more than three lanes, or with high volumes or speed, crosswalks alone will not improve safety.

The Urban Street Design Guide offers a concise guide to crosswalk design and use. <http://nacto.org/usdg/intersection-design-elements/crosswalks-and-crossings/conventional-crosswalks/>

Pedestrian Safety Islands: On streets with more than two lanes, pedestrian safety islands, or medians, can enhance safety and allow pedestrians to cross the street in two stages. Safety islands are especially important for intersections near schools, childcare facilities, and retirement homes, or other locations that are likely to attract pedestrians that may walk more slowly than the general population. Medians can also help to calm traffic by narrowing the lane width. The pedestrian safety island should be defined by concrete, but the area where the pedestrians stand does have to be raised above street level.

The Urban Street Design Guide has guidelines for designing pedestrian safety islands. <http://nacto.org/usdg/pedestrian-safety-islands/>

Restrict right turn on red: Restricting right turns on red signals improves pedestrian safety with relatively low costs. Right turns on red can increase pedestrian crashes, as drivers may not yield to the pedestrians, though they are legally required to do so. The restriction should be considered as a possible solution near schools or other locations where there are a high number of pedestrians.

The FHWA Pedestrian Safety and Countermeasure Selection System offers guidance on restricting right turns on red: http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=49

Signal timing: Signal timing offers an inexpensive way of enhancing walking and biking safety and comfort. Signals should be timed to provide adequate time for pedestrians to cross the street. The MUTCD requires a minimum of 7 seconds for the initial walk phase. The entire walk phase should allow a pedestrian to cross the street at an average of 3.5 seconds or less (4E.06). Lower speed calculations should be



Signal timing lets pedestrians know how long they have to cross the street.

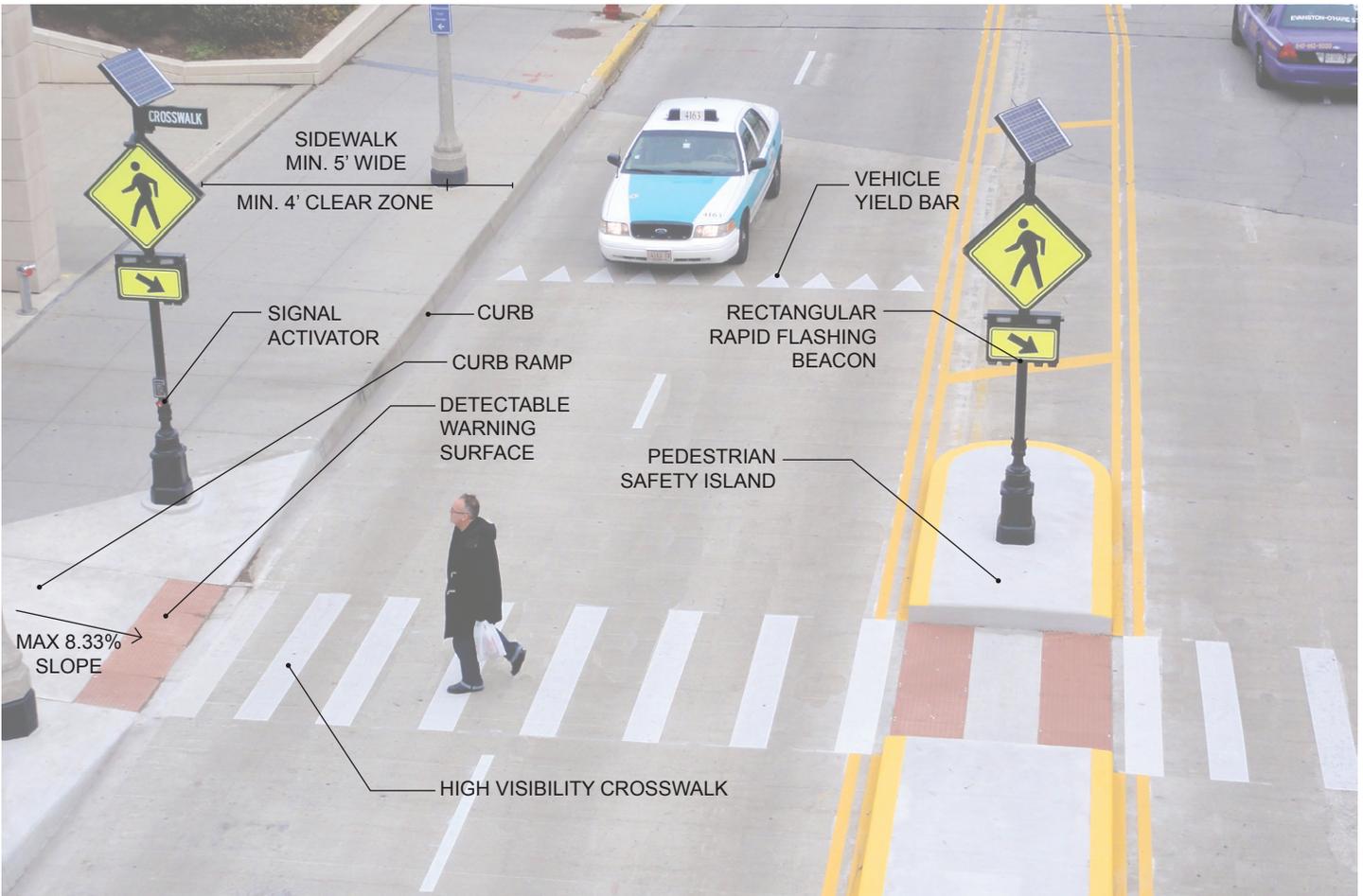
used near schools, retirement homes, or other places where pedestrians may walk more slowly than the general population.

The Urban Street Design Guide offers guidance on pedestrian-friendly signal timing: <http://nacto.org/usdg/signal-cycle-lengths/>

Adjusting signal timing is another relatively low-cost option for improving pedestrian safety at intersections. Adjusting signals for a Leading Pedestrian Interval can reduce crashes by up to 60%. By allowing pedestrians to start crossing the street 3 to 7 seconds before the light turns green for cars, pedestrians receive a head start that increases their visibility and can allow them to enter the crosswalk before turning cars start negotiating for the space. Leading Pedestrian Intervals can be considered for intersections with heavy pedestrian traffic and heavy turning traffic.

The Urban Street Design Guide offers specific guidance on phasing for Leading Pedestrian Intervals:

<http://nacto.org/usdg/leading-pedestrian-interval/>



Pedestrian crossing elements



School zones must be strictly enforced to encourage walking to school.



A speed monitor trailer



Residents have prepared an impromptu speed limit sign on Elm Avenue.

TRAFFIC CALMING

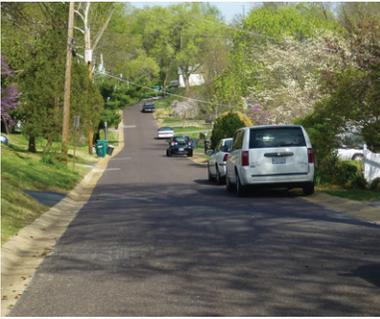
Traffic calming can improve safety, reduce noise in neighborhood streets, and enhance walking and biking friendliness when there is not enough right-of-way to add separate facilities. During public meetings, and through the public survey, several residents reported that they felt drivers were speeding on neighborhood streets. The perception that people are driving dangerously fast on local streets can prevent people from walking or biking for transportation or recreation.

Well-designed traffic calming should be implemented as the last step in a phased approach to lowering speeds on neighborhood streets. The following process outlines steps that should be taken before considering traffic calming:

1. **Establish need:** If residents perceive speeding on their streets, the first step is to establish that drivers are exceeding the speed limit. Speed should be monitored during peak hours and off-peak hours to determine if speeds exceed the speed limit, and by how much.
2. **Speed monitor trailer:** If speeding is determined to be a problem, the City should place their speed monitor trailer along the street, in order to raise awareness of speeding behavior. The trailers allow drivers to monitor their own speed and self-correct. The speed monitor can be placed on the street for as long as the City and the neighbors feel is appropriate. Three months after the speed trailer is removed, speeds should be monitored to determine if the trailer had a lasting effect.
3. **Spot enforcement:** The City of Webster Groves has an existing spot enforcement program. If speeding persists, an officer should monitor speeds on the street, and issue warnings or tickets as necessary. Speeds should be monitored three months after the spot enforcement activities in order to determine if they have had a lasting effect.
4. **Traffic calming:** If the previous steps have not had a lasting impact in reducing speeds, physical traffic calming should be considered. Traffic calming generally works to slow speeds by diverting drivers from a straight line of travel, either vertically (like speed tables) or horizontally (like an extra curve). This guide will list a number of possible traffic calming techniques that can be used. Many communities have funded traffic calming by combining it with green infrastructure, such as rain gardens. The Funding Sources Guide has more information on green infrastructure grants.

OPTIONS FOR TRAFFIC CALMING

The following traffic calming techniques can be considered in Webster Groves on neighborhood streets if other options to reduce speeding have been exhausted. The options are listed in order of effectiveness. The first option is the lowest cost, while the cost of curb extensions or mini-roundabouts depends largely on the size and material used.



Many residential streets in Webster Groves do not have a centerline, which calms traffic.



Curb extensions shorten the distance for pedestrians to cross the street and increase visibility.

Centerlines: One of the simplest traffic calming approaches can be leaving streets free of centerlines unless they are warranted. When centerlines are not present, drivers tend to view the street as shared space, and slow down in order to be able to negotiate with oncoming traffic. As drivers often hesitate to cross centerlines when passing people on bicycles, streets without centerlines can be more bicycle-friendly as well. Currently, Webster Groves has many residential streets without centerlines that function well.

The streets in Webster Groves are resurfaced approximately every seven years, based on the budget. When streets are scheduled for resurfacing, it creates the opportunity to evaluate if streets meet the warrant for centerline striping. The MUTCD establishes that centerline markings shall be placed on streets with an ADT of 6,000 or greater (Section 3B.01). For collectors with less than 6,000 ADT and a traveled way of 20' or more, centerlines may not be necessary.

The City of Alameda has a summary of centerline removal approaches, which they consider a Level One traffic calming approach:

<http://www.acgov.org/pwa/programs/traffic/measures.htm#1A>

Curb extensions: Webster Groves has a number of curb extensions in the Old Webster area. These curb extensions help to slow traffic, by narrowing driving lanes, and encouraging drivers to slow down in order to negotiate the tighter lanes. Curb extensions can also shorten pedestrian crossing distance and increase visibility of pedestrians crossing the street. Curb extensions can take multiple forms, from the bulb-outs used in Old Webster Groves, to a simple extension that tightens the curb radii, in order to discourage fast turning movements.

The Urban Street Design Guide has a thorough inventory of curb extension types and applications:

<http://nacto.org/usdg/street-design-elements/curb-extensions/>



A wide neighborhood street without sidewalks



Older neighborhoods in Webster Groves are well connected by sidewalks.



Low traffic streets in Webster Groves are ideal for a play street treatment.

SIDEWALKS

What

Sidewalks are elevated from the roadway by several inches and separated from the street by a curb, and made of concrete.

Why

Sidewalks improve safety and comfort for pedestrians.

When

Sidewalks give pedestrians safe and comfortable space on virtually any roadway. Play streets are an alternative to sidewalks for narrow residential streets with very low traffic and speed.

How

Sidewalks should follow ADA guidelines. Street furniture or light posts should be placed to preserve at least a 48" continuous through path. Each intersection should have a sidewalk ramp (see ADA guidelines for more information). When possible, sidewalks should be on both sides of the street. If it is only possible to provide sidewalks on one side of the street, it is important to ensure that the sidewalk is provided on the same side along the length of the street. Every time a pedestrian crosses the street, it increases the chances of a crash.

Resources

- Urban Street Design Guide (National Association of City Transportation Officials) <http://nacto.org/usdg/street-design-elements/sidewalks/>

PLAY STREETS

What

Play streets allow neighborhoods on dead end streets to give space to people walking, children playing, and people riding bicycles by slowing car traffic and restricting traffic to local trips.

Why

Play streets allow people walking, biking, and driving to share space safely, by designing for very slow speeds. Typically, multiple traffic calming techniques and devices are used to ensure safety and a pleasant place for all residents. This can include narrow streets, well placed planters, benches, and even on-street parking. Play streets do not have separate areas for biking and walking. They should be marked clearly with signs.

When

Play streets can be implemented on narrow, low-traffic, dead end streets. Residents should be involved in every step of the process to ensure buy-in.

How

Play streets should have a design speed of 10 mph or less. Traffic calming devices and techniques are site specific and should be evaluated on an individual basis. The illustrations are general guidelines rather than a prescription. Play Streets are permitted under the Missouri Model Traffic Ordinance, 300.185 and 300.190. The



Some elements of Longfellow Avenue play street in Santa Monica, CA.



Neighborhood streets could easily reworked to become a pedestrian friendly play street.

City of Webster Groves must adopt these provisions in order to pursue Play Streets.

Using the street

The space is designed for pedestrians, but motorists and cyclists may share it. Pedestrians are allowed to walk in the street, but they should be aware and careful of other users.

Cyclists may use the space but must yield due to pedestrians and exercise caution. Recommended speed is 5 mph.

Only motorists with local business should drive on play streets. Motorists must exercise caution and yield to all other users. Recommended speed is 5 mph.

Resources

Urban Street Design Guide (National Association of City Transportation Officials)

<http://nacto.org/usdg/residential-shared-street/>



Bike St. Louis directional signage shows the distance to local destinations.



A map of the Dardenne Greenway trail at Barat Haven is helpful to cyclists.

DESIGNATED ROUTE SIGNAGE

What

Designated route signs help guide people walking and biking along safer, lower-traffic streets. Signs should include information on popular destinations and distance. Well-designed signs can enhance the aesthetics and sense of place.

Why

The best routes for driving are not necessarily the best routes for walking and biking. Many residents may not be familiar with navigating local streets beyond their own neighborhood. Wayfinding signs raise awareness of walking and biking as an option, and help people find destinations through local streets.

When

Route signs should be placed along safe streets for biking and walking. The frequency of signs depends on the number of turns in the designated route. At a minimum, signs should be placed before and after every turn or junction to ensure people are able to navigate the routes.

How

The Manual on Uniform Traffic Control Devices contains Bicycle Route signs (Section 9B.21). These signs can contain destination and distance information. Many cities choose to create customized signs, which enhance local identity, and/or contain pedestrian information as well. The Bike St. Louis wayfinding signs are a local example of custom wayfinding.

Using the street

Route signs do not alter how people driving, walking, or biking use the street.

Additional references

Manual on Uniform Traffic Control Devices, 2009 (US Department of Transportation): Section 9B.20 Bicycle Guide Signs

Wayfinding System Study (City of Portland, Maine, 2008)
<http://www.portlandmaine.gov/planning/wayfindingreport.pdf>

Urban Bikeway Design Guide, Second Edition (National Association of City Transportation Officials)
<http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/>



A shared lane marking placed in a drive lane



Typical shared lane marking dimensions

SHARED LANE MARKINGS

What

A white bicycle and two chevron arrows are painted in the middle of the traffic lane. The shared lane markings are applied along the entire bicycle route to help guide cyclists.

Why

Shared lane markings alert drivers to the presence of cyclists. The markings indicate proper lane position to cyclists and to drivers.

When

Shared lane markings should be used on street with speeds under 30 mph and with less than 3,000 ADT.

How

The Manual on Uniform Traffic Control Devices recommends shared lane markings be placed every 250 feet. More frequent placing is used to guide cyclists along higher traffic routes or as wayfinding along routes with frequent turns.

Using the street

Motorists should give cyclists room to operate safely. If there is no opposing traffic, they may pass on the left, giving cyclists at least 3 feet of passing distance.

Cyclists should position themselves over the shared lane markings to increase safety, visibility, and predictability

Additional references:

Manual on Uniform Traffic Control Devices, 2009 (US Department of Transportation): Section 9C.07 Shared Lane Marking

Guide for the Development of Bicycle Facilities, Fourth Edition (American Association of State Highway and Transportation Officials):

4.4 Marked Shared Lanes

Urban Bikeway Design Guide, Second Edition (National Association of City Transportation Officials):

<http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/shared-lane-markings/>



Lockwood Avenue is an ideal candidate for a buffered bike lane.



Buffered lane would begin where Lockwood widens to four lanes.



The area around Mary Queen of Peace would remain as currently configured due to high vehicular demand.

BUFFERED BICYCLE LANES

What

Buffered bicycle lanes are defined by solid white lines 5' or more from the edge of the curb or parking lane, with an additional buffer at least two feet wide. The buffer can be between the bicycle lane and the car lane, or between the bicycle lane and parked cars. Painted bicycle symbols show the lanes are reserved for the exclusive use of cyclists.

Why

Buffered bicycle lanes improve safety for cyclists and provide increased separation from faster-moving cars. Bicycle lanes allow less experienced cyclists to feel comfortable navigating busier streets.

When

Bicycle lanes are most useful on streets with volumes over 3,000 ADT and speed limits under 35 mph. Buffered bicycle lanes provide additional comfort for cyclists, and should be used whenever space allows. Buffers are particularly important for road diets where an entire traffic lane is converted to a bicycle lane, as it helps to further define the space as for bicycles and discourages cars from traveling in the bicycle lane.

How

Buffered bicycle lanes should be 5' or wider. They are defined by solid white lines with bicycle markings and arrows placed in the lanes. The buffer should be defined by two parallel white lines; if the buffer is wider than 3' the space should be filled with horizontal stripes placed no less than 40' apart. Bike lanes can be continued through intersections using dotted lines. They should not be placed to the right of right turn only lanes.

Buffered bicycle lanes can be retrofitted onto existing streets that are below capacity through narrowing traffic lanes (a lane diet), or removing traffic lanes (a road diet).

Using the street

Motorists may not drive in the bicycle lanes. Motorists should check for cyclists when turning left or right.

Cyclists should be aware of motor vehicles turning at intersections. Cyclists are not required to ride in the bicycle lanes.

Additional references

Manual on Uniform Traffic Control Devices, 2009 (US Department of Transportation): Section 9C.04 Markings for Bicycle Lanes

Guide for the Development of Bicycle Facilities, Fourth Edition (American Association of State Highway and Transportation Officials):

4.6 Bicycle Lanes

4.7 Bicycle Lane Markings and Signs

4.8 Bicycle Lane at Intersections

4.9 Retrofitting Bicycle Facility on Existing Streets and Highways

Urban Bikeway Design Guide, Second Edition (National Association of City Transportation Officials)

<http://nacto.org/cities-for-cycling/design-guide/bike-lanes/buffered-bike-lanes/>



Lockwood Avenue, west of Old Webster, is reduced to two lanes to accommodate buffered bike lanes.



Bike parking is in high demand at Webster Groves High School.



Overflow parking

BICYCLE PARKING GUIDELINES

Secure bicycle parking is essential for people who use their bicycles for any kind of trip.

Design:

Bicycle racks must support the bicycle frame and allow the user to lock both their frame and their front wheel to the rack simultaneously (two-point locking). Many bicycles feature “quick-release” tires that can be removed within seconds, so many cyclists insist on two-point locking.

The safest, easiest, and most cost-effective design is the u-rack, shaped like an inverted U. One rack can support two bicycles, and costs approximately \$100. Creative racks typically cost far more money, and do not provide the safety or capacity of a standard u-rack. Wave racks, schoolyard racks, and comb racks do not support the frame, and can bend the tires on bicycles.

Location:

Bicycle parking is important for any destination where people might bicycle, including stores, schools, parks, civic buildings, restaurants, businesses, and trails. Webster Groves has several decorative bike racks in Old Webster that provide parking, in addition to a rack in front of the Hub Bicycle Shop. However, in the survey, 104 of 161 respondents indicated bicycle parking at stores would help them to bicycle more to local destinations. The following destinations could increase access for bicyclists by offering public bicycle parking:

- Old Orchard Business District
- Crossroads Business District
- Webster Groves City Hall

Placement:

Careful bicycle rack placement is essential when installing racks. The following guidelines will help to ensure the racks are useful for bicyclists, and do not block access for people walking:

- Racks should be placed at least 24” from the nearest building and 30” from the nearest rack.
- Racks should be placed near the entrances of buildings or other destinations to increase convenience for cyclists, without blocking doorways or presenting trip hazards to pedestrians.
- Racks should be placed in conspicuous, well-lit areas to discourage theft.
- When possible, racks should be placed under roof overhangs or shelters to protect bicycles.

Cost:

For private development, the City can require developers to provide bicycle parking, just as it does with car parking.

Basic u-racks are approximately \$100 each. The installation is estimated at \$200 for labor.

More information on site design and rack placement can be found in the Association of Pedestrian and Bicycle Professionals’ “Bicycle Parking Guidelines.”
c.ymcdn.com/sites/www.apbp.org/resource/resmgr/publications/bicycle_parking_guidelines.pdf



Bike parking design elements

SECTION TEN

10

RECOMMENDATIONS: EVALUATION AND IMPLEMENTATION

RECOMMENDATIONS: EVALUATION AND IMPLEMENTATION

To turn the plan into reality, Webster Groves must set clear goals, take action, and evaluate their work to make sure they are on course. The following recommendations will help Webster Groves achieve the plan vision and manage the work at hand:

Designate a bicycle and pedestrian coordinator on City staff

The bicycle and pedestrian coordinator serves as the central point for coordinating information about bicycling and walking, especially in regards to implementation of the plan. Coordination duties for a plan of this size are estimated to take approximately 10 hours per month, which would not justify additional staff. The coordinator will perform the following tasks:

- Be prepared to be the go-to person for biking and walking questions within the community
- Participate in Sustainability Commission meetings when the Bicycle and Pedestrian Plan is addressed
- Monitor Local Government Briefings for regional and federal grant opportunities, check for potential projects and submit applications as appropriate
- Monitor street maintenance and repair; when streets are scheduled for repaving, will look for an opportunity to implement plan
- When St. Louis County or MoDOT facilities within the City bounds are set for repaving, contact the appropriate agency to see how plan can be implemented during the restriping process

Online Resources: The League of American Bicyclists has a report on the importance of bicycle and pedestrian staff in communities:

http://www.advocacyadvance.org/site_images/content/why_bike_ped_staff_april_2010.pdf

Continuing engagement with the Sustainability Commission

The Sustainability Commission will continue to be engaged in the plan progress, as detailed in the Vision, Goals, and Objectives. In addition to the responsibilities outlined in the objectives, the Sustainability Commission should consider the following activities to monitor success of plan implementation:

- Set an annual work plan, with a maximum of three objectives to accomplish per year
- At the end of every year, write a short annual summary of progress and the two to three objectives to be achieved within the first year, to be shared with the community
- Lead a follow-up online survey, five years after plan implementation begins, to monitor changes in perceptions of walking and biking in Webster Groves

Online Resources: The League of American Bicyclists has a report on best practices for bicycle and pedestrian advisory committees, which has many applicable lessons for the Sustainability Commission:

http://www.advocacyadvance.org/site_images/content/why_bike_ped_staff_april_2010.pdf



A volunteer conducting a bike count survey

Annual Bike/ Walk Counts

Biking and walking counts are an annual inventory of how many people are using active transportation in the community and can track progress over time. The national American Community Survey contains some data on transportation, but it is infrequent and the margin of error increases in communities with smaller populations. The National Project for Bicycle and Pedestrian Documentation coordinates an annual nation wide count. The methodology has been designed to be easy for volunteers to use. The basic steps are as follows:

- Determine dates and times. The annual national count takes place in the second week of September on a Tuesday, Wednesday, or Thursday. Afternoon counts in Webster Groves (4 - 6 pm or 5 - 7 pm) could capture commuting and recreational travel.
- Determine locations. At least two sites within Webster Groves should be chosen based on expected activity and based on future infrastructure projects.
- Recruit volunteers and count. One volunteer will be needed for each site. Volunteers will need a clipboard, instructions, and a data entry sheet.
- Collect data and enter it into a spreadsheet. The data can be uploaded to the national project for a free summary report. The data can also be sent to Trailnet to be included in their annual counts. The counts can be shared with the community to generate support for biking and walking in the community.
- Online Resources: The National Project for Bicycle and Pedestrian Documentation has information on all aspects of setting up a count program, including data entry sheet, training materials for volunteers, and information on site selection: <http://bikepeddocumentation.org/>

Largest Increase by Mode				
Location	2012	2013	Δ	
	S. Florissant & Suburban	7	21	↑200%
	Telegraph & Erb	7	13	↑86%
	Grand & Arsenal	42	65	↑55%
	Eichelberger & Tamm	24	85	↑254%
	Manchester & Bopp	21	54	↑157%
	18th & Locust	29	72	↑148%
	Eichelberger & Tamm	39	102	↑162%
	S. Florissant & Suburban	34	65	↑91%
	Manchester & Bopp	30	57	↑90%

Counts sponsored by Great Rivers Greenway

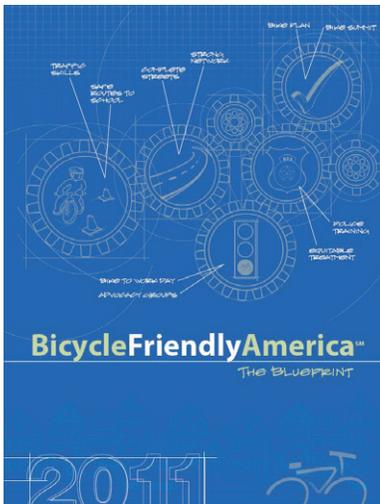
Tallies of pedestrians and bicyclists help to inform future planning.

Trailnet has organized bicycle and pedestrian counts in the region since 2012. More information on how Webster Groves can participate in the ongoing efforts can be found at trailnet.org.

Seek Bicycle Friendly Community and Walking Friendly Community Status

The Bicycle Friendly and Walk Friendly program are free and help the communities receive national and regional attention for their achievements. Both programs honor cities with different levels of awards: Bronze, Silver, Gold, or Platinum, and honorable mentions. The Bicycle Friendly program has recently introduced Diamond level as the highest level possible. The programs are designed to be easy to use for the communities, with comprehensive websites and online applications. To apply for a Bicycle or Walk Friendly Designation, the bicycle and pedestrian coordinator should:

- Review the application online, and decide which objectives need to be completed before the community will be ready to go for bronze
- When the community is ready, the bicycle and pedestrian coordinator will complete and submit the application.



Bike Friendly America, the blueprint for Bike Friendly Communities

Online Resources:

League of American Bicyclists Bicycle Friendly Program:
<http://www.bikeleague.org/content/communities>

Walk Friendly Communities:
<http://www.walkfriendly.org/>

RECOMMENDATIONS: FUNDING SOURCES

Bicycle and pedestrian improvements can be funded through a variety of federal and local sources. Federal funds are well suited to higher cost infrastructure projects, such as sidewalks or renovation of the pedestrian bridge at Selma. The proposed bicycle treatments in Webster Groves are paint only. They could be implemented through routine maintenance, set-aside funds, or grouped as one federal funding application. Maintenance funding is rare, Webster Groves should plan for the cost of ongoing maintenance out of pocket.

FEDERAL FUNDING SOURCES

In July 2012, a new transportation bill was authorized, Moving Ahead for Progress in the 21st Century, MAP-21. There are several programs within Map-21 that are available to fund bicycle and pedestrian projects and improvements. In addition to funding sources through Map-21, there are other federal funding options. Federal funding sources are described below in more detail, including contact information for each source.

Surface Transportation Program (STP)

The Surface Transportation Program provides flexible funding that may be used by States and localities for projects to preserve or improve conditions and performance on any Federal-aid highway, bridge projects on any public road, facilities for nonmotorized transportation, transit capital projects and public bus terminals and facilities. STP funds are administered through the Missouri Department of Transportation. Fifty percent of a State's STP funds are to be distributed to areas based on population (suballocated), with the remainder to be used in any area of the State.

<http://www.fhwa.dot.gov/map21/stp.cfm>

Highway Safety Improvement Program (HSIP)

The HSIP emphasizes a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. Eligible projects include safety improvements for all roadway users.

<http://www.fhwa.dot.gov/map21/hsip.cfm>

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The CMAQ Program is a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. The CMAQ has new performance-based features.

<http://www.fhwa.dot.gov/map21/hsip.cfm>

Transportation Alternatives Program (TAP)

The Transportation Alternatives Program is a new funding program under MAP-21. TAP provides for a variety of alternative transportation projects that were previously eligible activities under separately federally funded programs. This program is funded at a level equal to two percent of the total of all MAP-21 authorized Federal-aid highway and highway research funds, with the amount for each State set aside from the State's formula apportionments. Pedestrian, bicycle, trails, and safe routes to school programs are eligible for TAP funding. Specifically:

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation.

- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.

TAP is administered by the Missouri Department of Transportation. East West Gateway Council of Governments allocates the funds in the St. Louis region.

<http://www.fhwa.dot.gov/map21/tap.cfm>

<http://ewgateway.org/TransAlternatives/transalternatives.htm>

Safe Routes to School Program (SRTS)

SRTS is a program incorporated into the MAP-21, Transportation Alternatives Program. The program was formerly independent of TAP. At the time this plan was written, federal funding with regards to the program was undecided. Funds are administered through the Missouri Department of Transportation.

<http://www.fhwa.dot.gov/map21/tap.cfm>

<http://www.modot.org/safety/SafeRoutestoSchool.htm>

State and Community Highway Safety Grant Program (Section 402)

Section 402 are used to support State and community programs to reduce deaths and injuries. Pedestrian safety has been identified as a national priority. Section 402 funds can be used for a variety of safety initiatives including conducting data analyses, developing safety education programs, and conducting community-wide pedestrian safety campaigns.

<http://safety.fhwa.dot.gov/policy/section402/>

National Highway Performance Program (NHPP)

Also a program of MAP-21, the NHPP provides funding for projects including bicycle transportation and pedestrian walkways on principle arterials and on the Interstate Highway System.

<http://www.fhwa.dot.gov/map21/nhpp.cfm>

Recreational Trails Program (RTP)

The RTP is a program incorporated into the MAP-21, Transportation Alternatives Program. However, funding for this program is administered by the Missouri Department of Natural Resources, a division of the State Parks. Grants are available for trail development and renovation. Projects require a minimum of a 20% local match.

http://www.fhwa.dot.gov/environment/recreational_trails/

<http://www.mostateparks.com/page/55065/outdoor-recreation-grants>

Environmental Protection Agency

The Environmental Protection Agency offers a variety of grants that address community health. Grants may help fund green infrastructure that can also be used enhance walkability and bikeability. These broad-based community grants require significant collaboration with local coalitions. Trailnet is available to partner and help with community engagement on this type of grant. As grants opportunities are always evolving, the EPA website should be checked regularly.

<http://www.grants.gov/web/grants/view-opportunity.html?oppld=252553>

Learn more about federal funding here:

<http://bikewalkalliance.org/resources/reports/advocacy-advance-reports/64-understanding-federal-funding-for-biking-and-walking-projects-and-programs>

LOCAL FUNDING SOURCES

Local funding for bicycle and pedestrian projects and programs is an important component when considering developing new facilities. Many federal programs require a local match, the below funding sources can be used to fund projects in full *or to be used as a local match when using federal funds.*

Local Option Economic Development Sales Taxes

Cities in the State of Missouri have the option to impose a local sales tax of not more than one half per cent to be used to fund projects including pedestrian improvements related to stormwater management (sidewalks, curbs, gutters, etc.)

Capital Improvement Budget Set-Aside

Webster Groves could make a policy decision to set-aside a percentage of capital improvement budget to fund bicycle and pedestrian projects. These projects could be incorporated into other road work being done (complete streets) or stand-alone projects. These funds can be leveraged as a local match to secure federal funds.

Other Local Options

A few other local funding options including the creation of a Community Improvement or Neighborhood Improvement District or assessing development fees are also possible to fund improvements. Information on these funding options can be found at:

<http://www.missouridevelopment.org/community%20services/Local%20Finance%20Initiatives.html>

Private Funding Sources

Several national and state foundations provide grants for pedestrian and bicycle projects. These grants can play a significant role in funding projects and providing match for federal funds.

Bikes Belong Grant Program

Bikes Belong is a national organization dedicated to putting more people on bikes. The organization funds multi-use trails with a strong desire to leverage federal funding.

<http://www.bikesbelong.org/grants/>

Robert Wood Johnson Foundation (RWJF)

The RWJF offers a wide range of funding opportunities to promote healthy and active living. The website offers details on various grants and calls for proposals.

<http://www.rwjf.org/applications/solicited/cfplist.jsp>

TABLE 11 - FUNDING SOURCES

	TAP	CMAQ	STP	HSIP	RTP	NHPP	Section 402
Bicycle lane	X	X	X	X		X	
Shared bicycle lane (Sharrows)	X	X	X	X		X	
Signed bike route	X	X	X				
Sidewalks	X	X	X	X			
Crosswalks	X	X	X	X			
Signals	X	X	X	X		X	
Curb cuts and ramps	X	X	X	X			
Traffic calming (Road diet, Play street, etc.)	X		X	X			
Bike racks	X	X	X				
Educational safety brochure			X		X		
Training		X	X				X
Technical Assistance	X	X	X				X
Programs							
<i>TAP = Transportation Alternative Program</i>							
<i>CMAQ = Congestion Mitigation and Air Quality Improvement</i>							
<i>STP = Surface Transportation Program</i>							
<i>HSIP = Highway Safety Improvement Program</i>							
<i>RTP = Recreational Trails Program</i>							
<i>NHPP = National Highway Performance Program</i>							
<i>Section 402 = State and Community Highway Safety Grant Program</i>							

SECTION ELEVEN

11

A. COMMUNITY SURVEY AND ANALYSIS

SECTION A. WEBSTER GROVES SURVEY ANALYSIS

Summary

The Webster Groves Bike Walk Survey was available electronically and in paper from October 17, 2013 through December 31, 2013. The survey was made available through the City's website and at City Hall. Additionally, Trailnet and Planning Advisory Committee members emailed invitations to take the survey electronically. Overall, 161 responses were collected. Due to the collection method, the survey is not necessarily representative of all of Webster Groves.

The survey results suggested that biking and walking are already an integral part of transportation in Webster Groves among the respondents. Walking and biking are highly valued by the survey respondents, based on the following results:

- Almost a quarter of respondents reported not driving daily (22.9%);
- The majority of respondents reported biking or walking at least a few times a week;
- The majority of people who reported driving daily wanted to drive less frequently;
- Overall, respondents expressed a strong desire for more opportunities to bike and walk.

With an already high rate of walking, respondents still expressed a desire to walk and bike more. Of the 73 people who walk daily, 47 expressed a desire to walk more and none expressed a desire to walk less. Of the 61 respondents who walk a few a times a week, 48 reported wanting to walk more, and only one respondent wanted to walk less. Preferences are similar for frequent bicyclists, of 21 respondents who bicycle every day, 19 reported wanting to bike more. Of the 58 who bike several times a week, 52 would like to bike more, and only one would like to bike less.

In contrast, of the 124 who drive daily, 91 reported wanting to drive less, and none reported wanting to drive more frequently (see Figure 2 for a summary of all respondents' preferences). The data suggests that people in Webster Groves are eager for more opportunities to choose walking and biking over driving, even among those who already are biking and walking.

Priorities

A strong majority (80.1%) of respondents indicated that bicycling and walking should be considered a priority in terms of transportation in their community. Only three respondents did not think it should be a priority.

Respondents were also asked what trips should be prioritized within the community. Going to school was seen as the most important trip with 129 respondents indicating it was important or very important. Going to parks or trails was the second most prioritized trip purpose, with 114 respondents seeing it as important or very important. Going to work had 103 important or very important responses, while going to local stores had 102.

Figure 1: Transportation habits

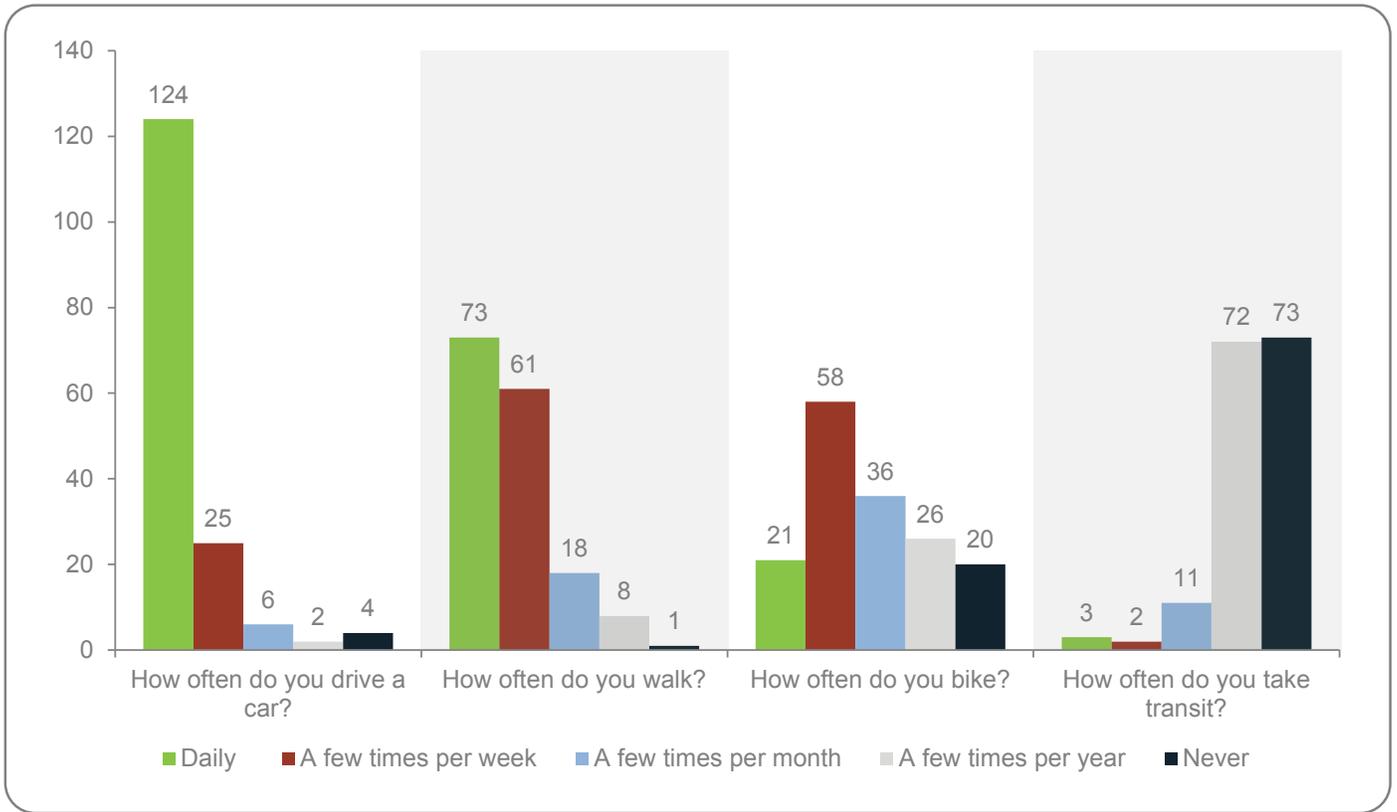
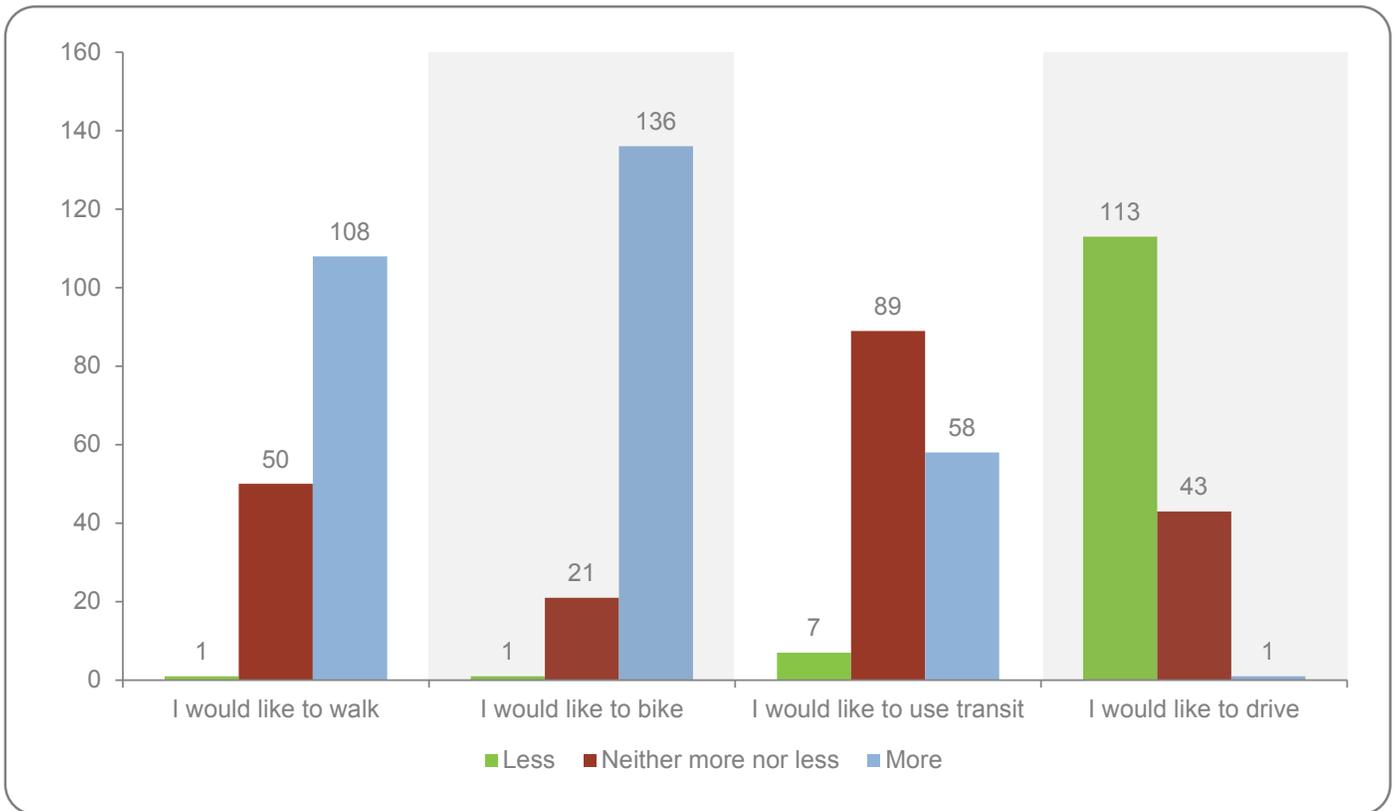


Figure 2: What respondents would like to change about how they get around



WALKING

Walking habits

A strong majority of respondents reported walking a few times a week or more (83.2%), with 43.5% of total respondents walking daily (see Figure 1). When asked why they walk, 105 respondents indicated they walk for fun or fitness. The next most popular reasons were to spend time with family and friends (71) and to exercise pets (66). The most frequent destinations were parks and community centers (76) and local stores (66). Going to school (29), transit (16), and work (11) were the least common reasons for walking (see Figure 3).

Walking accessories

Respondents were asked whether they used canes, wheelchairs, strollers, or other walking accessories and their experience using such devices. People using such devices are often a vulnerable population, including those who cannot walk without some form of assistance. Of respondents, 14 indicated using a device, and 10 of those were strollers, 2 were canes or walking sticks, and 1 person reported using crutches, while another reported an electric scooter. Overall, the respondents slightly agreed or were neutral, that it was safe, pleasant, and easy to use their walking accessories in Webster Groves. Sidewalk stability and motorists were singled out as problems in the open-ended questions.

The walking environment

The majority of respondents agreed that it is easy, safe, and comfortable to walk in Webster Groves. Respondents were more likely to agree or strongly agree that it is enjoyable to walk in Webster Groves, as compared to it being easy to walk. Perceptions of the walking environment did not vary with reported frequency of walking.

Following the general favorable impression of walking, when respondents were asked what prevented them from walking more, lack of time was the most cited reason. The other four most common reasons selected can be addressed within this plan, namely crossing busy roads, lack of sidewalks, uneven and poorly maintained sidewalks, and fast cars. It is important to note that crime and hills were largely not seen as deterrents (see Table 1).

Encouraging walking

When asked what would help them to walk more often, respondents cited separated walking infrastructure most frequently, including walking paths, cut-throughs, and sidewalks (see Table 2). Sidewalk ramps were the least selected option, though it is worth noting that they are vital for safe walking for those using strollers, wheelchairs, and other walking devices.

Figure 3: Why respondents walk

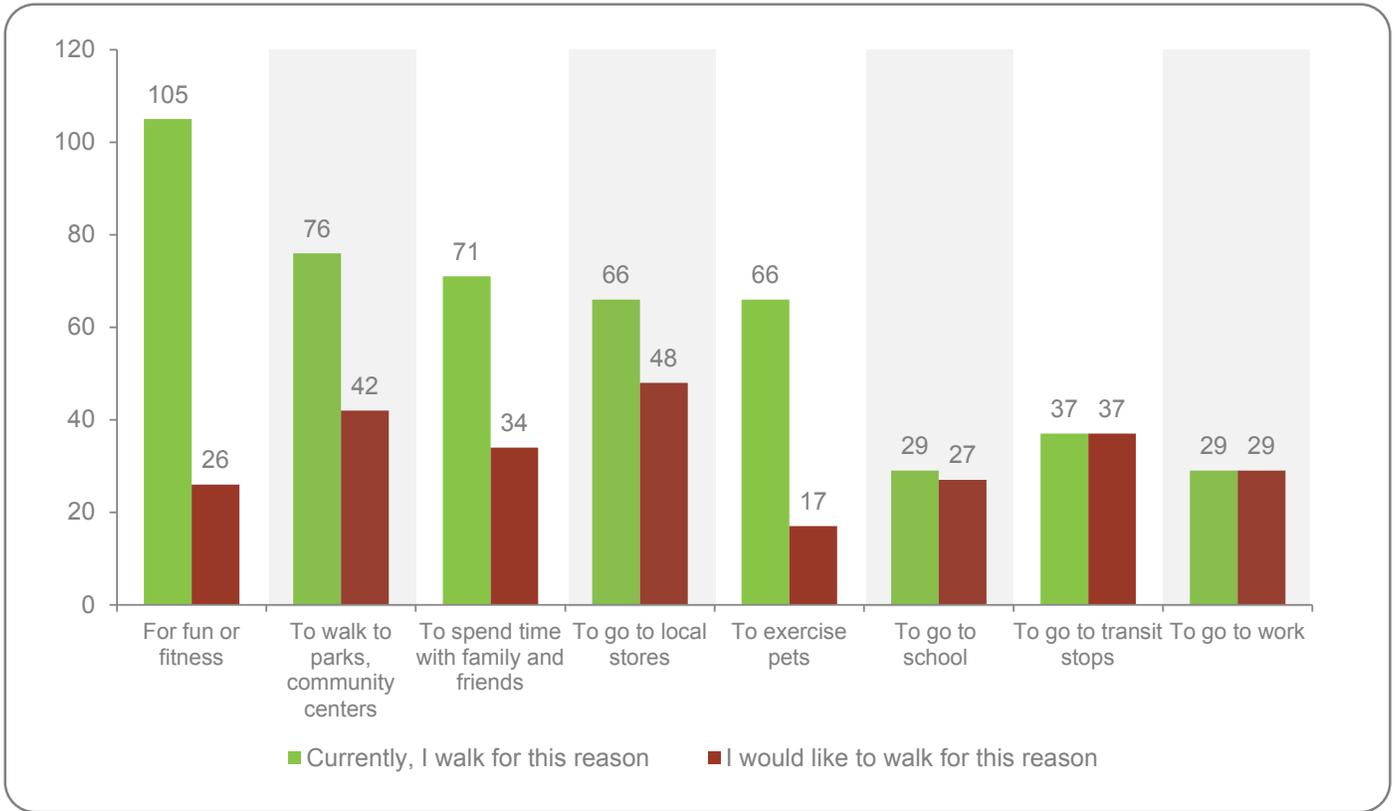


Table 1: What prevents people from walking more

Answer Choices	Responses	
Lack of time	57.45%	81
Crossing busy roads	37.59%	53
Lack of sidewalks	36.17%	51
Uneven and poorly maintained sidewalks	29.08%	41
Fast cars	27.66%	39
Weather	26.24%	37
Rude drivers	21.99%	31
Not enough street lighting	19.86%	28
Trash and debris on the sidewalk and shoulder	4.96%	7
Lack of sidewalk ramps	2.84%	4
Physical ability	2.13%	3
Hills	1.42%	2
Crime	1.42%	2
Total Respondents: 141		

Table 2: What would help respondents walk more

Answer Choices	Responses	
More biking and walking paths	75.78%	97
More direct routes and pedestrian cut-throughs	57.81%	74
More sidewalks	46.88%	60
Safer ways to cross the street	40.63%	52
Sidewalks in better condition	35.16%	45
More signs marking walking routes and destinations	29.69%	38
Slower traffic	24.22%	31
More sidewalk ramps	6.25%	8
Total Respondents: 128		

BICYCLING

Bicycling habits

A strong majority of respondents reported bicycling at least occasionally. Only 12.4% of respondents reported never biking, which is about the same proportion that report biking daily (see Figure 1). Almost half (49.0%) of respondents report bicycling at least a few times a week or more.

The reasons that respondents cited for bicycling were similar to those for walking, though respondents were more likely to bicycle to work, and less likely to bicycle to school.

Fitness and family are still major motivators for respondents who bicycle. Many respondents also expressed a desire to bike to local stores (see Figure 4).

Types of bicyclists

Respondents were asked about what type of cyclist they considered themselves, to gauge the skill and interest level of respondents, based on Roger Geller's Four Types of Cyclists. The majority of respondents said they are enthused and confident (70), with 23 identifying as strong and fearless, and 52 as interested but concerned. Four respondents identified as no way, no how. Geller originally estimated the strong and fearless to be 1-2% of the population, and the no-way, no-how type to be approximately a third of the population. The high number of strong cyclists shows that the survey was distributed to people who are already involved in cycling in some way. As Geller included those who cannot physically cycle, such as infants, in the no-way, no-how, the low numbers may be result of survey respondents being neither very young, nor very old.

Figure 4: Why respondents bicycle

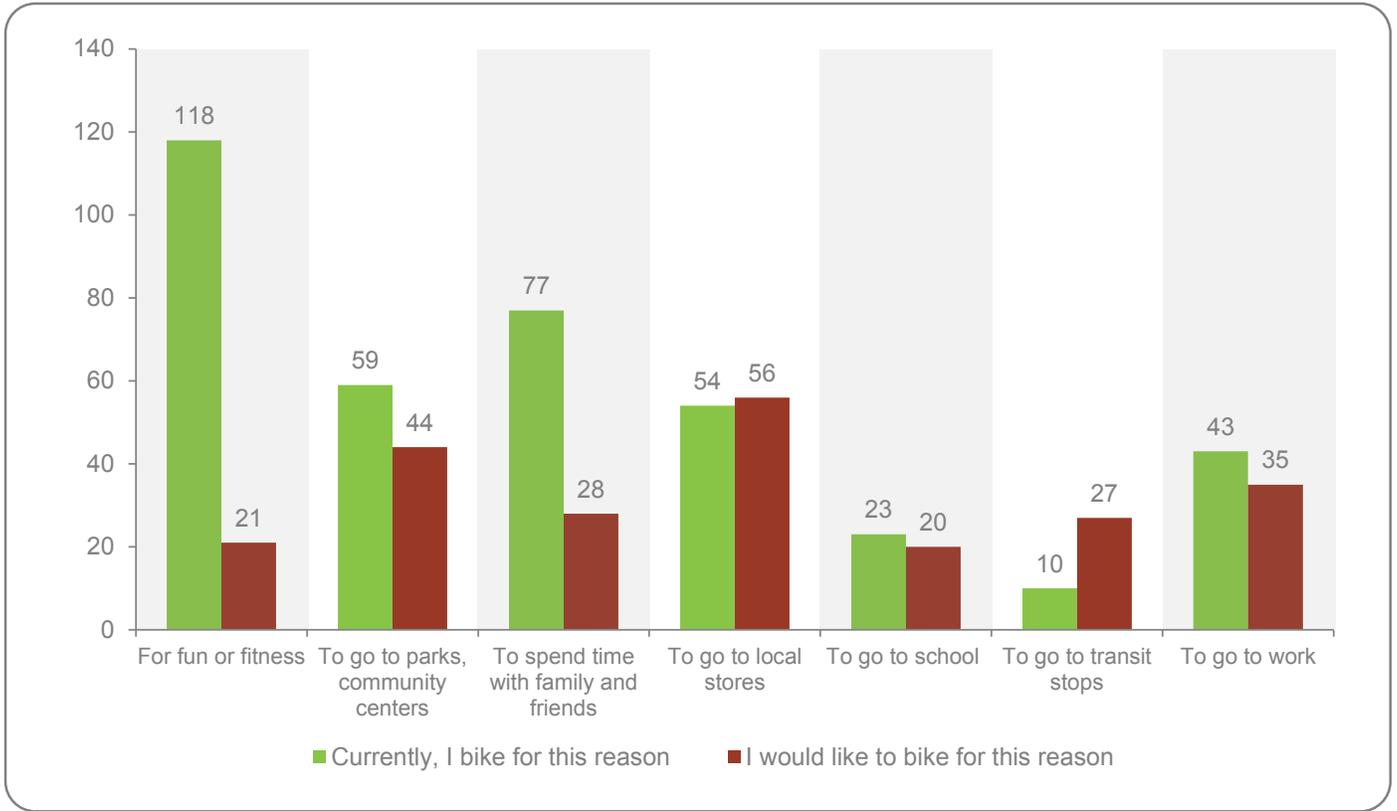
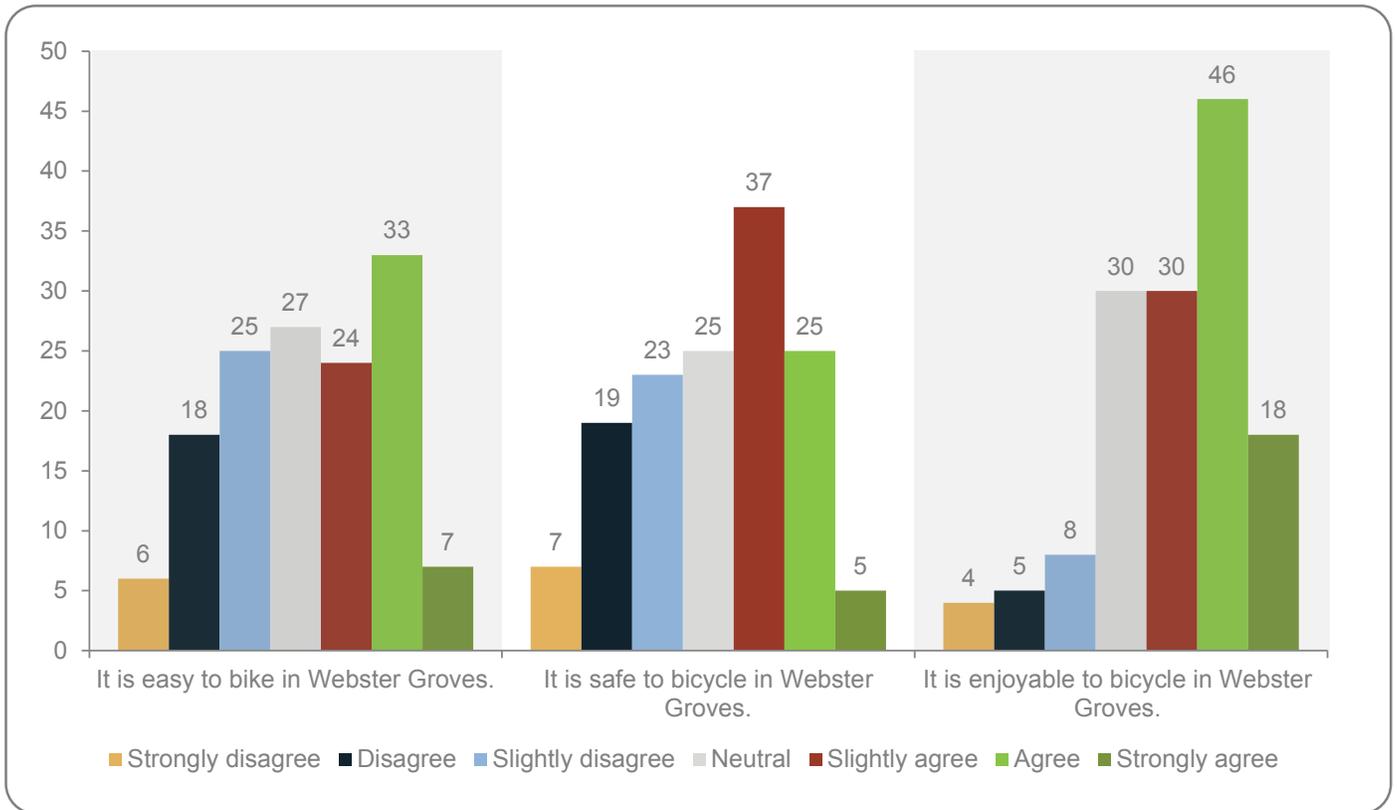


Figure 5: How respondents perceive bicycling in Webster Groves



The bicycling environment

As compared to walking, respondents did not strongly agree with the statements that it is safe, easy, and enjoyable to bicycle in Webster Groves. Respondents were most likely to agree or strongly agree with the statement that it is enjoyable to bicycle in Webster Groves. They were less likely to find it easy or safe (see Figure 5).

When asked what prevented them from bicycling more, 78 respondents cited lack of infrastructure, slightly more than those who cited lack of time. The next three most common responses had to do with interactions with people driving, including crossing busy roads, fast cars, and rude drivers. Again, crime was not a major deterrent, though hills were cited as a reason by 11 people. Though the survey sample was biased towards those who are familiar with biking and walking, 13.0% of respondents cited not knowing how to bike in traffic as a deterrent for biking more (see Table 3).

Encouraging bicycling

When asked what would help them to bicycle more often, respondents cited infrastructure most frequently, with more than half of respondents indicating more biking and walking paths, more bike lanes, and more direct routes and cut-throughs. A fifth (20.5%) of respondents indicated that education on how

Table 3: What prevents people from bicycling more

Answer Choices	Responses	
Lack of bike infrastructure	59.09%	78
Lack of time	56.06%	74
Crossing busy roads	41.67%	55
Fast cars	40.15%	53
Rude drivers	38.64%	51
Weather	31.06%	41
Uneven and poorly maintained pavement	19.70%	26
Not sure how to bicycle on streets	15.91%	21
Not enough street lighting	10.61%	14
Hills	8.33%	11
Trash and debris on the sidewalk and shoulder	8.33%	11
Lack of ramps	6.06%	8
Physical ability	3.79%	5
Crime	1.52%	2
Total Respondents: 132		

to bicycle on streets would help them to bicycle more (see Table 4). Finally, when asked where bicycle racks could help encourage bicycling, over half of respondents (104) indicated stores. Parks, community centers, and schools were all indicated by more than 30% of the respondents. Having a secure place to lock a bicycle is essential for bicycling for transportation. The survey suggests that Webster Groves does not have enough bike parking to meet demand near businesses.

Table 4: What would help respondents bicycle more

Answer Choices	Responses	
More biking and walking paths	76.30%	103
More bike lanes	74.07%	100
More direct routes and cut-throughs for people biking and walking	66.67%	90
More signs that show people on bikes can use the street	51.85%	70
More signs showing bike routes and destinations	51.11%	69
Slower traffic	33.33%	45
Safer ways to cross the street	29.63%	40
Education on how to bicycle on streets	24.44%	33
Total Respondents: 135		

YOUTH SURVEY RESULTS

March 4, 2014

Methodology

Surveys were distributed at Clark, Bristol, and Edgar Road Elementary Schools, at the Webster Groves Recreation Center, and during the first Open House for the Bicycle and Pedestrian Plan. Overall, 77 surveys were completed, with 75 by children and 2 by adults.

The surveys were designed to be used by elementary school children. The only question read “How would you make Webster Groves a better place to walk and bike? Please use the space below to write or draw what you would like to see.” Five lines were provided for text, along with a large box for drawings.

The survey answers were collected, and the text and drawings were classified into a number of comment topics (see Table 5). Several surveys contained comments on multiple topics (i.e., sidewalks and bike racks); each comment was tallied rather than each survey. Location specific data was preserved. Answers that did not directly relate to active transportation (i.e., more swimming pools) were not included in the official summary.

Results

Of the 77 responses, the three most frequent comment topics were expressing the need for more biking and walking facilities:

- Need more bike lanes or bike/walk lanes (32)
- Need more and wider sidewalks (29)
- Need more bicycle and pedestrian paths (11)

Bike lanes and sidewalks were overwhelmingly popular, and third most popular topic, “need more bicycle and pedestrian paths” was mentioned less than half as frequently. While infrastructure was by far mentioned the most frequently, comments addressing the safety of interactions between people driving, walking, and biking were also common (see Table 1).

The results reflect the ways that children travel frequently, by foot and by bicycle. For children, especially young teens, safe biking and walking can increase their opportunities for safe and independent travel. Children and young adults who cannot drive often prioritize walking, biking, and transit and safety above driving convenience. While safer streets are slower streets, they do offer time savings for parents, by reducing the need for older children to be driven to destinations.

Table 5: Classification of Survey Comments

Comment Topics	Number of Comments
Need bike lanes or bike/ walk lanes	32
Need more and wider sidewalks	29
Need more bike and pedestrian paths	11
Need slower traffic/ speed bumps	9
Need better signage to make cars aware	7
Better pavement and sidewalk quality (more level, less rocky)	6
Need safer street crossings (includes crosswalks, signage and lights)	6
Need more crosswalks	5
Need to encourage walking and biking	4
More parks for kids/ more playgrounds	4
More bike racks	4
Need enforcement of pedestrian safety laws	3
Clean sidewalks and roads of trash, snow, etc.	3
Put in sidewalks to Blackburn Park on E. Jackson so kids don't have to walk or ride in the street	2
Need pedestrian bridges over streets to stay safe	2
Need more crossing guards to keep kids safe	2
More trees/ trash cans	2
Have a car-free day on certain days	2
Traffic too aggressive at Laclede Sta. Rd. and Big Bend too dangerous for kids to use most existing crosswalks	1
Need more bike/ walk to school days	1
Need more benches on/by the sidewalk	1
Need a skateboard park	1
Need a parade for people walking and biking	1
More stores to ride to	1

Figure 6: Sample of Biking and Walking Survey

Webster Groves Bike Walk Survey

Transportation Choices

This anonymous survey will take 10 minutes. Your answers will help Trailnet and Webster Groves understand what the community needs in the Webster Groves Bikeable Walkable Community Plan.

In this survey, "walking" refers to any kind of traveling that is usually done on a sidewalk, including using a walker, a wheelchair, or any mobility device.

"Biking" refers to using a bicycle, handcycle, tricycle, or recumbent.

You will have a chance to tell us more about what "walking" and "biking" mean for you.

*** 1. Please answer each question to let us know how you currently travel in and around Webster Groves.**

	Daily	A few times per week	A few times per month	A few times per year	Never
How often do you walk?	<input type="radio"/>				
How often do you bike?	<input type="radio"/>				
How often do you take transit?	<input type="radio"/>				
How often do you drive a car?	<input type="radio"/>				

2. Is there anything that you would like to change about how you usually get around?

	less	neither more nor less	more
I would like to walk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to bike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to use transit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to drive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Walking

3. How do you feel about the following statements?

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
It is easy to walk in Webster Groves.	<input type="radio"/>						
It is safe to walk in Webster Groves.	<input type="radio"/>						
It is enjoyable to walk in Webster Groves.	<input type="radio"/>						

Webster Groves Bike Walk Survey

4. Why do you walk now? Why would you like to walk in the future? Check any reasons that apply you.

	Currently, I walk for this reason	I would like to walk for this reason
To go to work	<input type="radio"/>	<input type="radio"/>
To go to school (or to take my children to school)	<input type="radio"/>	<input type="radio"/>
To go to local stores	<input type="radio"/>	<input type="radio"/>
To go to parks, community centers, and libraries	<input type="radio"/>	<input type="radio"/>
To go to transit stops	<input type="radio"/>	<input type="radio"/>
For fun or fitness	<input type="radio"/>	<input type="radio"/>
To exercise pets	<input type="radio"/>	<input type="radio"/>
To spend time with friends or family	<input type="radio"/>	<input type="radio"/>

Other (please specify)

5. What prevents you from walking more?

- | | |
|---|--|
| <input type="checkbox"/> Lack of time | <input type="checkbox"/> Fast cars |
| <input type="checkbox"/> Hills | <input type="checkbox"/> Lack of sidewalk ramps |
| <input type="checkbox"/> Weather | <input type="checkbox"/> Lack of sidewalks |
| <input type="checkbox"/> Crossing busy roads | <input type="checkbox"/> Not enough street lighting |
| <input type="checkbox"/> Uneven and poorly maintained sidewalks | <input type="checkbox"/> Crime |
| <input type="checkbox"/> Rude drivers | <input type="checkbox"/> Trash and debris on the sidewalk and shoulder |
| <input type="checkbox"/> Physical ability | |

Other (please specify)

6. What changes would help you to walk more often?

- More sidewalks
- More sidewalk ramps
- Slower traffic
- More signs marking walking routes and destinations
- Sidewalks in better condition
- Safer ways to cross the street
- More biking and walking paths
- More direct routes and pedestrians cut-throughs

Other (please specify)

Webster Groves Bike Walk Survey

7. Please share any streets that are particularly difficult to walk on.

***8. When you are walking, do you use any accessories or mobility devices, such as a stroller, a cane, a wheeled cart, a walker, a wheelchair, or an electronic mobility cart?**

Yes

No

Walking Accessories

***9. Please tell us what kind of accessories you use, and whether you use them everyday, or just sometimes.**

10. If you use an accessory or mobility device, how do you feel about the following statements?

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
It is easy to use my walking accessory or mobility device in Webster Groves.	<input type="radio"/>						
It is safe to use my walking accessory or mobility device in Webster Groves.	<input type="radio"/>						
It is pleasant to use my walking accessory or mobility device in Webster Groves.	<input type="radio"/>						

11. If you use multiple walking accessories or mobility devices, please tell us about your experience using the accessories in Webster Groves.

Bicycling

***12. When it comes to bicycling, how would you describe yourself?**

- Strong and fearless-- I feel comfortable riding my bicycle on ANY road, even in heavy traffic.
- Enthused and confident-- I feel comfortable riding my bicycle in most situations, but I avoid roads with lots of fast cars.
- Interested but concerned-- If I ride, it is mostly on trails or very quiet streets. I would like to ride more, but it feels dangerous.
- No way, no how-- I have no interest in riding a bicycle.

Bicycling

Webster Groves Bike Walk Survey

13. How do you feel about the following statements?

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
It is easy to bicycle in Webster Groves.	<input type="radio"/>						
It is safe to bicycle in Webster Groves.	<input type="radio"/>						
It is enjoyable to bicycle in Webster Groves.	<input type="radio"/>						

14. What kinds of bicycles do you and your family ride?

- Adult bicycles
- Recumbents or handcycles
- Child bicycles or tricycles
- Adult tricycles

Other (please specify)

15. Why do you bicycle now? Why would you like to bike in the future? Check any reasons that apply you.

	Currently, I bike for this reason	I would like to bike for this reason
To go to work	<input type="radio"/>	<input type="radio"/>
To go to school (or to take my children to school)	<input type="radio"/>	<input type="radio"/>
To go to local stores	<input type="radio"/>	<input type="radio"/>
To go to transit stops	<input type="radio"/>	<input type="radio"/>
To go to parks, community centers, and libraries	<input type="radio"/>	<input type="radio"/>
For fun or fitness	<input type="radio"/>	<input type="radio"/>
To spend time with friends or family	<input type="radio"/>	<input type="radio"/>

16. What prevents you from bicycling more?

- Lack of time
- Hills
- Weather
- Not sure how to bicycle on streets
- Crossing busy roads
- Uneven and poorly maintained pavement
- Rude drivers
- Physical ability
- Fast cars
- Lack of ramps
- Lack of bike infrastructure
- Not enough street lighting
- Crime
- Trash and debris on the sidewalk and shoulder

Other (please specify)

Webster Groves Bike Walk Survey

17. What changes would help you to bicycle more often?

- More bike lanes
- More biking and walking paths
- Slower traffic
- More signs that show people on bikes can use the street
- More signs showing biking routes and destinations
- Safer ways to cross the street
- More direct routes and cut-throughs for people biking and walking
- Education on how to bicycle on streets

Other (please specify)

18. Please share any streets that are particularly difficult to bicycle on.

19. Where in your community could bicycle racks help people to bicycle more?

- | | |
|--|--|
| <input type="checkbox"/> Schools | <input type="checkbox"/> Community centers |
| <input type="checkbox"/> Stores | <input type="checkbox"/> Parks |
| <input type="checkbox"/> Transit stops | |

Other (please specify)

Community values

20. Please check the events and programs that would be good for your community.

- | | |
|---|--|
| <input type="checkbox"/> Bicycle classes for adults | <input type="checkbox"/> Community bike rides |
| <input type="checkbox"/> Bicycle classes for children | <input type="checkbox"/> Greater police enforcement of transportation laws |
| <input type="checkbox"/> Community walks and fun runs | <input type="checkbox"/> Programs that encourage children to walk and bike to school |
| <input type="checkbox"/> Neighborhood walking groups | <input type="checkbox"/> Programs that encourage people to bike and walk to local businesses |

Other (please specify)

Webster Groves Bike Walk Survey

21. When it comes to transportation, should bicycling and walking be considered a priority in your community?

Yes

No

I don't know

22. When it comes to transportation decisions, how should the following trips be considered for people bicycling, walking, driving, or taking transit?

	Not at all important	A little important	Somewhat important	Important	Very important
Going to school	<input type="radio"/>				
Going to the store	<input type="radio"/>				
Going to restaurants and cafes	<input type="radio"/>				
Going to work	<input type="radio"/>				
Going to parks or trails	<input type="radio"/>				
Going to visit friends or other social events	<input type="radio"/>				
Going to places of worship	<input type="radio"/>				

23. For every \$100 dollars in the transportation budget, please write down how much you think should be spent on each type of transportation. Use numbers only- for example 10 instead of \$10.

Cars

Transit

Bicycles

Pedestrians

24. What is your age?

Under 18

19 - 34

35 - 49

50 - 64

65 and older

25. What is your gender?

26. What is your ethnicity?

Webster Groves Bike Walk Survey

27. If you would like to receive updates about the Bike/Walk planning process, including upcoming events and activities, please provide your contact information below. All survey answers will be confidential.

Name:

Address:

Address 2:

City/Town:

State:

ZIP:

Country:

Email Address:

***28. Would you like to be included in future email updates about bicycling and walking in the region?**

Yes

No

SECTION ELEVEN

11

B. HIXSON MIDDLE SCHOOL SURVEY
ANALYSIS

SECTION B: HIXSON MIDDLE SCHOOL SURVEY ANALYSIS

Methodology

An online survey was administered to students and teachers of Hixson Middle School, with the help of a Girl Scout Troop. The Girl Scouts, all students at Hixson, helped to guide the content of the survey, and publicized the survey at the school. The survey had 81 respondents, including 68 students, 1 parent, and 7 staff members. The respondents had a roughly even gender split, with 38 respondents identifying as female, 30 as male, 2 as other, and 11 declined to answer.

The survey questions were based on the general public survey, but adapted for middle school students. Specifically, references to driving were removed, along with questions about walking and biking with young children. Students were asked if they used scooters, rollerblades, and skateboards, in addition to bicycles. The questions addressing the experience of walking and biking in Webster Groves were streamlined to be more age appropriate.

Transportation habits

As the majority of the respondents can not legally drive, the survey answers offer insight into how those who do not drive experience walking and biking in Webster Groves. Despite not being able to drive, riding in a car was still the most common travel activity, with 61 respondents reporting riding in a car daily, and another 10 reporting a few times a week. In contrast, 41 respondents walk daily and 19 walk a few times a week. Bicycling is even less common, with the most common answer being a few times a month (38) followed by never (19). When it comes to taking the bus, the majority of respondents reported never riding it (52). Only 14 respondents reported riding the bus daily, the second most common response (see Figure 1).

The high rate of riding in cars does not seem to reflect transportation preferences. For biking, there is a strong desire for more (58), with only 20 reporting neither more nor less. For walking, respondents were mixed on whether they wanted neither more nor less (36) or more (35). However, for buses, travel patterns seem to reflect preference- 38 respondents reported wanting to take the bus less, even though only 25 reported taking the bus at all.

Respondents mostly walk for recreation, rather than transportation. The top two most common reasons for walking were for fun or fitness (54) or to spend time with friends or family (50). As these trips do not have a specific destination, walkers can choose pleasant and safe routes.

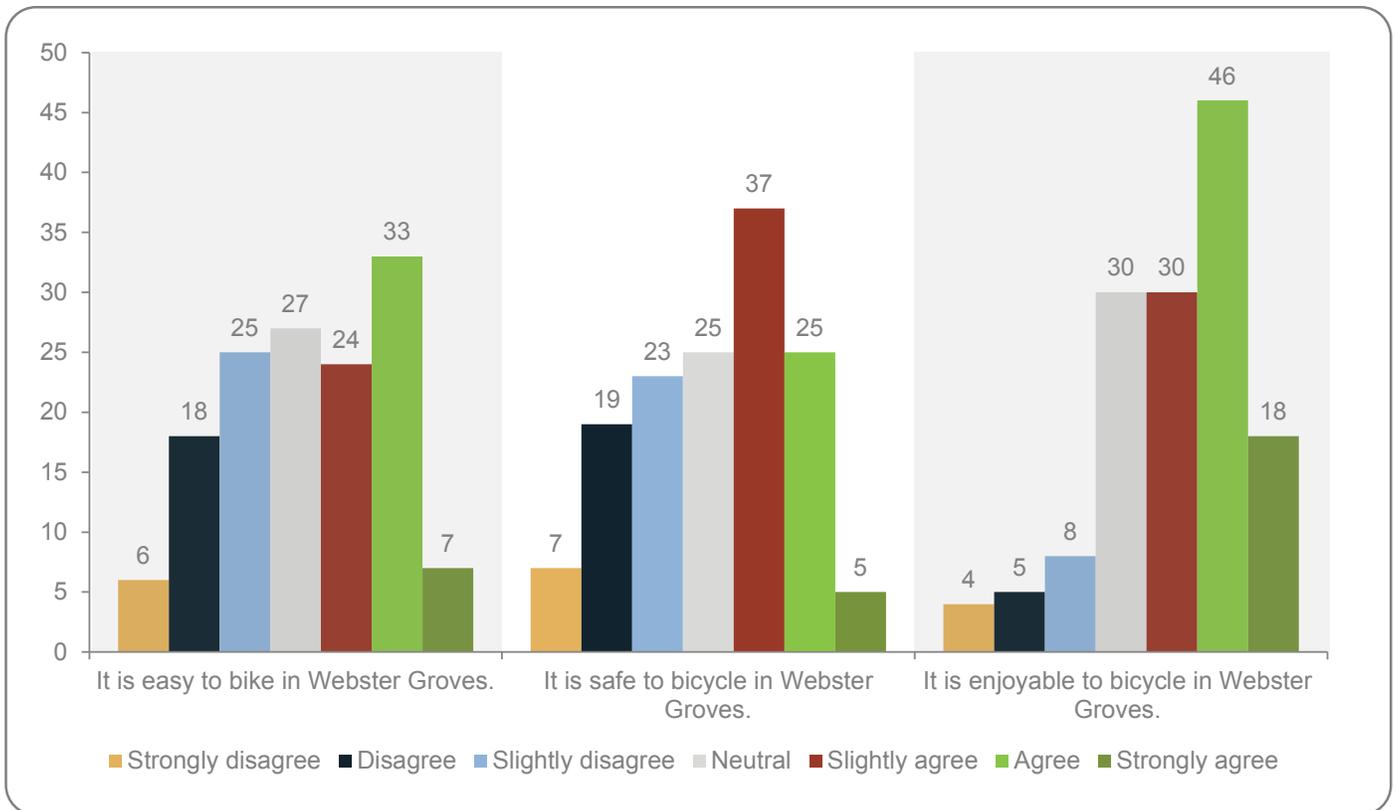
In contrast, the least common reasons for walking had defined destinations: going to school (24) and going to bust stops (25). Around 40 respondents

each reported walking to parks, to local stores, and to exercise pets. While these trips are purposeful, they offer more choice with regards to route and time of day, as compared to commuting.

Again, the travel habits did not necessarily reflect preferences. Going to school was the most common answer when respondents were asked why they would like to walk in the future (37). This discrepancy could be due to the location of Hixson Middle School. Throughout the planning process, many residents expressed interchange north of the school as a barrier to walking and biking. Concerns over the interchange could be preventing students that live north of I-44 from walking to school.

When it comes to biking, the reasons cited for biking are similar to those for walking. Most respondents reported biking for fun or fitness (51) and slightly fewer reported biking to spend time with friends or family (39). Going to parks and local stores were again clustered in the middle at around 35, with going to school (13) and bus stops (8) as the least common reasons. The low number of people biking to bus stops can be partially explained by the low use of buses by respondents, and the fact that while all MetroTransit buses have bike racks, it is not certain that the racks will have space available.

Figure 1: Transportation habits



As with walking, the most common answer for why respondents would like to bike in the future was to go to school (39). Going to bus stops was the second most desirable reason (28), followed closely by going to local stores (26). The strong desire to bike to bus stops does not fit well with overall stated dislike for busses. However, it is possible that respondents were interested in biking to light rail stops. The survey did not include references to light rail, as there are no light rail stops in Webster Groves, but there are two light rails stops within biking distance of Webster Groves.

Enhancing walking and biking

Respondents seem interested in walking and biking, especially for commuting, yet reported walking and biking more for recreation than for transportation. An important question is why respondents do not walk and bike as much as they report wanting to? There are clearly barriers to walking and biking that are out of the control of the City, such as weather, hills, and lack of time. The questions in the survey focused on how the built environment impacts behavior.

The majority (44) of respondents agreed or strongly agreed with the statement “It is safe to walk in Webster Groves.” Despite the strong sense of safety, respondents still expressed a desire for infrastructure. When asked what would help them walk more, the two most popular answers were more sidewalks (57) and more paths (50). These answers echo comments on how students were forced to walk in the streets due to lack of sidewalks that were heard throughout the public outreach process.

When it comes to bicycling in Webster Groves, there was less agreement over safety- 19 respondents were neutral on whether it is safe, while 34 agreed or strongly agreed that it felt safe. Similar to walking, respondents felt that increased infrastructure would help them to bicycle more, with paths (57), bike lanes (49), and safer ways to cross the street (47) being the most popular responses.

Though infrastructure has often been associated with novice bicyclists, half of the respondents described themselves as “enthused and confident” on a bicycle, with another reporting they were “strong and fearless.” This level of confidence is much higher than in the general population, where it is estimated approximately 2% of cyclists are strong and fearless, and another 7% are enthused and confident. The expressed confidence, coupled with the expressed desire for more infrastructure, suggests that for respondents, the comforts of infrastructure are appreciated at all skill levels.

Finally, respondents were asked if they though walking and biking should be a priority when it comes to transportation. The majority (48) thought it should be a priority, while 1 did not, and the rest did not know. These results are consistent with the overall expressed desires to walk and bike more, along with the desire for increased infrastructure.

Conclusions

Overall the results suggest the most parents and guardians at Hixson are spending time driving students to and from school, or other destinations. The high use of cars for travel seems to be a product of both preference and the built environment, with many students expressing a desire to walk and bike more. The time spent driving students to school and other activities represents a real burden on parents and guardians in terms of time and fuel costs. Replacing some of these car trips with walking and biking can benefit students, and the community, in important ways, including improved student health, reduced emissions, and reduced congestion during school pick-up and drop-off times.

Figure 2: Sample of Biking and Walking Survey

Webster Groves Biking and Walking Survey for Hixson Middle School

Transportation Choices

This anonymous survey will take 10 minutes. Your answers will help Trailnet and Webster Groves understand what the community needs in the Webster Groves Bikeable Walkable Community Plan.

1. Please answer each question to let us know how you currently travel in and around Webster Groves.

	Daily	A few times per week	A few times per month	Never
How often do you walk?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you bike?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you take the bus?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you ride in a car?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Is there anything that you would like to change about how you usually get around?

	less	neither more nor less	more
I would like to walk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to bike	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to take the bus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Walking

3. How do you feel about the following statement?

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
It is safe to walk in Webster Groves.	<input type="radio"/>						

4. Why do you walk now? Why would you like to walk in the future? Check any reasons that apply you.

	Currently, I walk for this reason	In the future, I would like to walk for this reason
To go to school	<input type="checkbox"/>	<input type="checkbox"/>
To go to local stores	<input type="checkbox"/>	<input type="checkbox"/>
To go to parks, community centers, and libraries	<input type="checkbox"/>	<input type="checkbox"/>
To go to bus stops	<input type="checkbox"/>	<input type="checkbox"/>
For fun or fitness	<input type="checkbox"/>	<input type="checkbox"/>
To exercise pets	<input type="checkbox"/>	<input type="checkbox"/>
To spend time with friends or family	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input style="width: 100%; height: 20px;" type="text"/>	

Webster Groves Biking and Walking Survey for Hixson Middle School

5. What changes would help you to walk more often?

- More sidewalks
- More sidewalk ramps
- Slower traffic
- More signs marking walking routes and destinations
- Sidewalks in better condition
- Safer ways to cross the street
- More biking and walking paths
- More direct routes and pedestrians cut-throughs

Other (please specify)

6. Please share any streets that are particularly difficult to walk on.

Bicycling

7. Do you use any of the following? Please check all that apply.

- Bicycle
- Roller blades
- Scooter
- Skateboard

Other (please specify)

8. When it comes to bicycling, how would you describe yourself?

- Strong and fearless-- I feel comfortable riding my bicycle on ANY road, even in heavy traffic.
- Enthused and confident-- I feel comfortable riding my bicycle in most situations, but I avoid roads with lots of fast cars.
- Interested but concerned-- If I ride, it is mostly on trails or very quiet streets. I would like to ride more, but it feels dangerous.
- No way, no how-- I have no interest in riding a bicycle.

9. How do you feel about the following statement?

	Strongly disagree	Disagree	Slightly disagree	Neutral	Slightly agree	Agree	Strongly agree
It is safe to bicycle in Webster Groves.	<input type="radio"/>						

Webster Groves Biking and Walking Survey for Hixson Middle School

10. Why do you bicycle now? Why would you like to bike in the future? Check any reasons that apply you.

	Currently, I bike for this reason	In the future, I would like to bike for this reason
To go to school	<input type="radio"/>	<input type="radio"/>
To go to local stores	<input type="radio"/>	<input type="radio"/>
To go to bus stops	<input type="radio"/>	<input type="radio"/>
To go to parks, community centers, and libraries	<input type="radio"/>	<input type="radio"/>
For fun or fitness	<input type="radio"/>	<input type="radio"/>
To spend time with friends or family	<input type="radio"/>	<input type="radio"/>

11. What changes would help you to bicycle more often?

- More bike lanes
- More biking and walking paths
- Slower traffic
- More signs that show people on bikes can use the street
- More signs showing biking routes and destinations
- Safer ways to cross the street
- More direct routes and cut-throughs for people biking and walking
- Education on how to bicycle on streets

Other (please specify)

12. Please share any streets that are particularly difficult to bicycle on.

Priorities

13. When it comes to transportation, should bicycling and walking be considered a priority in your community?

- Yes
- No
- I don't know

Webster Groves Biking and Walking Survey for Hixson Middle School

14. What is your role at Hixson Middle School?

Student

Teacher or staff member

Other (please specify)

15. What is your gender?

SECTION ELEVEN

11

C. WEBSTER GROVES HIGH SCHOOL SURVEY ANALYSIS

SECTION C: WEBSTER GROVES HIGH SCHOOL SURVEY ANALYSIS

Paper copies of the survey were left at Webster Groves High School to encourage students to fill out the surveys. Sixteen students responded. Half of the students said that they are not interested in bicycling, so there were only 8 responses for the questions specific to bicycling. With such a small sample, it is hard to establish set trends, however the differences in responses between high school students and the general population were intriguing.

Notably, the majority of the students reported driving daily (9); few students reported biking or using transit regularly. The high school students were the only group that was largely satisfied with how they travel. Seven students reported wanting to drive more, but most students were satisfied with how frequently they walked, biked, and took transit.

Though the students did not differ from the general population in terms of how they perceived walking and biking in Webster Groves, they were more likely to identify hills, weather, and lack of time as barriers, as opposed lack of infrastructure. Several students wrote in that they were too lazy to walk more.

Finally, almost half of respondents did not think walking and biking should be a priority when it comes to transportation in Webster Groves. However, when asked how much money should be devoted to driving, walking, biking, and transit, the respondents split the money fairly evenly between the modes. Compared to the general population, the high school students seemed find that all modes should be funded, with no priority given to any one mode.

SECTION ELEVEN

11

D. PAC MEETING SUMMARIES

SECTION D: PLANNING ADVISORY COMMITTEE MEETING SUMMARIES

SUMMARY OF FIRST PLANNING ADVISORY COMMITTEE MEETING

October 28, 2013

ATTENDEES:

Committee Members:

Jeff DePew, Webster University, Sustainability Commission
 Ron Clipp, The Hub Bicycle Co
 Sam Ward, Webster Groves High School
 Paul Reitz, Sustainability Commission
 Patricia LaPresta, Sustainability Commission
 Cathy Vespereny, Webster Groves School District
 Dave Garth, Webster Groves Parks and Recreation
 David Wilson, East West Gateway/ Resident
 Tobi Moriarty, St. Louis County Highways and Traffic
 Paul Verheyen, City of Webster Groves Public Works

Project Team

Steve Wylie, City of Webster Groves
 Cindy Mense, Trailnet
 Marielle Brown, Trailnet

MEETING NOTES:

1. The meeting started with an overview of planning process and committee roles. All committee members have previously been involved in planning processes and were familiar with the general process.
2. Public Outreach: Committee members were asked to help with public outreach in order to get the community involved.
 - Open House- several members of the committee took postcards to help advertise the Open House. Marielle will send emails with invitations to several members of the committee.
 - Survey Distribution- the paper survey will be distributed by several committee members. It will also be made available at City Hall, the Rec Center, and the YMCA.
3. Committee members were asked to analyze Strengths, Weaknesses, Opportunities, and Threats (SWOT) to bicycling and walking in Webster Groves. Members wrote ideas on sticky notes and posted them on large sheets of paper. Marielle and Cindy summarized the ideas and asked clarification questions. All of the notes are included at the end of the notes. The main themes were:

Strengths

- Urban design: a built environment conducive to pleasant walking and biking, including low traffic neighborhood streets and traditional business districts
- Density: meaningful destinations within short distances, including schools, parks, and businesses making walking and biking desirable
- Infrastructure: sidewalks in many parts of town, mostly with ramps
- Culture and education: A culture of walking and biking, including (mostly) aware and polite drivers

Weaknesses

- Traffic: fast, heavy traffic on main streets do not allow for safe biking or walking; many people drive through Webster Groves to access the freeway or other major roads and destinations and such cut through traffic on major roads leads to people driving on local roads at high speeds.
- Infrastructure: no dedicated bike lanes in the City; narrow streets and a built-up city do not allow a lot of room for new dedicated facilities; sidewalks are limited in some areas, specifically south of I-44
- Discontinuous street network: the freeway, arterials, and railroad form physical barriers for biking and walking

Opportunities

- Low-hanging fruit: many potential improvements in Webster Groves are low-cost and effective, including signed routes and pedestrian crossing flags
- Supportive community: Webster residents and parents care about their community and are able to work together over common issues; the region has also supported bicycle and pedestrian infrastructure through the recent vote to increase funding for greenways
- Regional connectivity: several existing and planned greenways are in or near Webster Groves; local connections can increase residents' connections to nearby shopping, transit and trails through these greenways

Threats

- Culture: distracted and rude driving is increasing; residents can be resistant to changes in street layout and parking
- Road design and maintenance: road design and maintenance schedules do not necessarily consider pedestrian and bicycle needs

4. Committee members discussed planning priorities and how the plan can balance competing interests and constraints, including cost, limited right of way, safety concerns, and congestion. Committee members discussed the following:
 - Connections between important destinations were emphasized, including schools, parks, the Recreation Center, the MetroLink, business districts, and retirement communities.
 - Bicycling is an important mode for 12 to 16 year olds to develop health and independence.
 - Meaningful destinations are important for encouraging people to walk or ride.
 - Pedestrian malls that emphasize cars over people can encourage people to choose to walk over drive.
 - Many committee members agreed that low-traffic and safe biking and walking routes existed, but residents were not aware of them. Signage, maps, and smart phone apps were mentioned as possible solutions. Several signed bike routes existed in Webster in the 1970s.
 - Speeding traffic creates safety concerns on many major roads. Signage and enforcement are not effective in the long term. Physical traffic calming can interfere with traffic movement and emergency services.
5. Committee members were invited to draw on a map of Webster Groves, indicating problem spots and desirable routes. Several issues emerged:
 - Cut through traffic from people driving on local roads to reach arterials created danger. Newport and Culver Hill were highlighted as concerns.
 - Drugstores, including Walgreens and a new CVS increase traffic, but lack safe pedestrian and bicycle access.
 - The freeway is a barrier to pedestrian and bicycle access.
 - The freeway exit near Hixon Middle School poses serious danger to students.
 - The suggested park connector loop in the Parks Master Plan may be outdated, due to higher traffic on some of the roadways now.

SWOT ANALYSIS RESULTS

Strengths

- Relatively flat
- Smaller size community
- Residential streets are relatively quiet
- Smaller market areas (not giant parking lots)
- Low speed limits
- Sidewalks were corrected for smoothness and reduced obstructions
- Ramps are installed on most corners
- Plan for updating in place
- Street grid
- Multiple ways to get from “A” to “B”
- Lots of destinations in close proximity
- Many shops, schools, parks and rec opportunities to walk/ bike to
- Concentrated commercial areas
- Low traffic
- Aware drivers
- Interested residents
- Relatively flat
- Few major roads
- Mostly wide streets
- Walkable business districts
- Easy accessibility
- A lot of cycling and pedestrian traffic
- Kind drivers
- Wide shoulders are common
- Many bike racks
- Educated bikers
- Families
- Parental driving
- Close to schools
- Polite population respecting walkers and riders
- Many nice residential streets with little traffic
- 4 business districts makes walking and riding very manageable
- Neighborhood schools make for short walks and rides
- Lots of places to walk
- Many places to walk that don't have a lot of traffic
- Lots of sidewalks
- Public bike racks
- Lots of walkers and bikers

Weaknesses

- Cut through traffic
- Close vicinity to highway
- Drive too fast
- Schools
- Limited sidewalks south of I-44
- Limited funding
- Narrow street R.O.W.s
- Traffic
- No bike trails
- No bike lanes
- People park in the shoulders
- Lack of bike racks
- Narrow streets in the business districts
- No easy way to access Grant's Trailnet
- On-street parking
- Resistance to change
- Poor policing of crosswalks
- Narrow roads
- Narrow streets (i.e. Edgar) with no shoulders
- Education needed ie bikers use of road
- Main thoroughfare- Big Bend, Elm- are very narrow in some sections
- Lacking bike paths
- Many cars driving through community
- Some roads- high speed e.g. Laclede Station
- Barriers- Railroads, highways
- Limited bike parking
- Bike thefts
- Very big hills in some sections

Opportunities

- Universities and hospitals nearby- access to a center of possible users
- Interest of young students in biking to give them independence
- Additional tax funding for trails in region
- More greenways
- Redevelopment
- Street repaving/ upgrades
- Many schools with concerned parents
- Ability to connect to other communities and trails
- Connect close by shopping
- Better pedestrian signage
- Maps to hand out to people where to ride
- Master plan for Memorial Park is being developed
- Close knit community
- Pedestrian crossing flags
- Bike and walking specific roads
- Bike lanes
- No parking on shoulders
- More bike racks
- Bike trails

Threats

- CVS on Hanley @ Watson “near Culver hill”
- Nasty drivers
- Driving behavior
- Culver Hill, Newport
- Increasingly distracted drivers
- Residents resistance of change
- Funding for Greenways
- Increased traffic
- Building roads without pedestrians or cycling in mind
- Roads that are in need of maintenance
- Connect to project along River Des Peres

SUMMARY OF SECOND PLANNING ADVISORY COMMITTEE MEETING

February 6, 2014

ATTENDEES:

Sam Ward	Resident
Ron Clipp	The Hub Bicycle Co
David Wilson	East West Gateway and resident
Paul Verheyen	Webster Groves
Jason Flanery	Webster Groves Police Department
Patricia LaPresta	Sustainability Commission
Jeff DePew	Webster University and Sustainability Commission
Michelle Voegele	MoDOT
Paul Reitz	WG Sustainability Commission
Tobi Moriarty	St. Louis County Highways and Traffic
Steve Wylie	Webster Groves
Marielle Brown	Trailnet

Meeting Notes:

1. The Committee discussed upcoming public outreach efforts. Committee members should be promoting the upcoming open house. Media outreach opportunities were identified, including the Webster-Kirkwood Times and the Webster University newspaper. Post cards were distributed. The upcoming Draft Plan Review period was discussed; the plan will be available for review at City Hall and the Recreation Center. The Committee also reviewed public input from the first open house and the survey. Webster Groves residents report a high level of biking and walking and interest in improving biking and walking options. Trail access is an important issue for the community.
2. The Vision, Goals, and Objectives were reviewed and discussed. Based on committee feedback, the Bicycle Education recommendation will no longer specify adult classes.
3. The draft pedestrian and bicycle routes were reviewed by the committee. Recommendations for changes based bicycle and pedestrian demand and motor vehicle traffic were recorded and will be incorporated into the map for the Open House. The Committee would like to see prioritization more clearly illustrated. The cost of replacing signage and painting symbols is a priority when considering routes.

SUMMARY OF THIRD PLANNING ADVISORY COMMITTEE MEETING

July 24, 2014

ATTENDEES:

Jeff DePew	Webster University, Sustainability Commission
Patricia LaPresta	Sustainability Commission
Tobi Moriarty	St. Louis County Highways and Traffic
Sgt. Jason Flanery	Webster Groves Police Department
Marielle Brown	Trailnet

Meeting Notes:

1. The meeting started with an overview of the plan, including the major changes to the Draft Plan since the recommendations were presented at the second open house.
2. The committee members offered feedback on the plan, including improving legibility and accuracy of street names. Several members were uncomfortable with the Advisory Bicycle Lanes. The proposed bicycle lanes on Lockwood Avenue should match the bicycle lanes that will be painted on Adams Avenue in the spring.
3. The committee discussed ways to increase awareness of the plan and of bicycle safety education. Patricia LaPresta and Jeff DePew suggested considering setting up a booth at upcoming City events to increase awareness of bicycle safety.
4. Marielle Brown will contact the Webster Kirkwood Times about the upcoming City Council presentation.
5. The committee emphasized the importance of connections to surrounding communities; Trailnet is currently working with Kirkwood on a Pedestrian and Bicycle Master Plan, and the proposed routes in Webster Groves will be taken into consideration during the planning for Kirkwood.

SECTION ELEVEN 11

E. OPEN HOUSE SUMMARIES

SECTION E: OPEN HOUSE SUMMARIES FIRST OPEN HOUSE SUMMARY

November 12, 2013 5:30 to 7:00
Webster Groves City Hall

Twenty-nine residents signed the attendance sheet. Elected officials and staff from the City were present, along with Planning Advisory Committee members and Sustainability Commission members. The planning team from Trailnet and SWT helped to answer questions and record feedback. Feedback was gathered in three official ways, through an informal poster poll, mapping, and comment cards. Residents also talked with planners and filled out surveys.

Figure 1: Poster Poll Results

Infrastructure type	Number of dots
Bicycle lane	35
Sidewalks	22
High visibility crosswalk	19
Advisory bike lane	16
Bicycle rack	11
Shared lane marking	11
Neighborhood traffic circle	11
Wider sidewalks	11
Curb ramp	10
Speed table	9
Raised crosswalk	9
Neighborhood greenway	8
Rapid flash beacon	7
Play street	6
Median island	4
Buffered bicycle lane	4
Curb extension	3
Cycle track	2
Improving bridge over I-44	2

Poster Poll:

Each attendee received six stickers to place on three posters showing the building blocks of a walkable and bikeable community. The three posters had examples of infrastructure arranged by cost, from sidewalk ramps to cycling tracks. Residents were not forced to operate within a budget, but each infrastructure type had the cost prominently displayed. One resident added “Improve the bridge over I-44.” This section was added to the tally of dots in Table 1.

Overall, residents prioritized bicycle lanes, sidewalks, and crosswalks. Bicycle lanes, and advisory bicycle lanes which are used on narrow streets, received 54 of 200 total dots, indicating the desire for designated space for people bicycling. Shared lane markings, in addition to higher levels of infrastructure were less popular with residents.

For walking infrastructure, sidewalks and high visibility crosswalks received 41 of 200 dots. Additional traffic calming, including neighborhood traffic circles and speed tables received 29 dots as well. The priorities on the posters echoed the comments from the attendees valuing safe and easy walking access to schools, parks, and local shops.

Mapping:

Residents were invited to draw on maps of the planning area, noting their current routes, their desired routes, and any barriers. A few persistent themes emerged:

Walking-

- Many residents enjoyed walking in their own neighborhoods for exercise
- Lack of sidewalks is a barrier, on both higher and lower speed roads
- Residents are frustrated by sidewalks on only one side of the street, as they have to cross streets often to stay on a sidewalk
- Narrow, channelized sidewalk ramps are a tripping hazard, and can be difficult to use with strollers and wheelchairs
- Cut-through traffic on residential streets is a barrier to safe and pleasant walking
- Higher volume roads are a barrier to walking; the sidewalks along Big Bend do not provide adequate separation from traffic
- The pedestrian bridges over I-44 are difficult to find and need upgrades
- There is no safe pedestrian access to Walgreens and compliance with the stop sign is low

Bicycling-

- Residents enjoy bicycling on low-traffic residential streets, but find it challenging to discover new routes
- The bicycle and pedestrian bridge over I-44 is popular, but residents have a hard time finding it
- Many residents expressed the desire for separated bicycle space, and mentioned riding on the sidewalk rather than ride in mixed traffic
- Both novice and experienced cyclists consider the major streets in Webster Groves are considered unpleasant for bicycling, including Elm, Lockwood, Big Bend, and Kirkham
- Grant's Trail is a great local resource, but many residents do not feel safe bicycling to the trail
- Elm is very challenging for cyclists at the I-44 ramp due to poor visibility and high speeds.

Comment Card Responses:

1. Webster Groves needs better bicycle access to Grant's Trail. 1. Lockwood -> Berry -> Adams -> Holmes is good but could use pavement markings. 2. Big Bend is fair but could use pavement markings. Watson is dangerous- especially at bottom of W. Old Watson cul-de-sac where only a rut connect to Grant Rd Watson intersection.

Youth Surveys:

Youth were invited to answer the question, "How would you make Webster Groves a better place to walk and bike?" They could write and draw their answers. Each of the answers was accompanied by a picture of a bike lane.

1. Bike lane on Big Bend!
2. Bike lanes on Elm Ave.
3. The more bike lanes the merrier! More Bike Lanes!! Seriously, like 100 more.

SECOND OPEN HOUSE SUMMARY

February 11, 2014 5:30 to 7:00

Webster Groves City Hall

Fifty-eight residents signed the attendance sheet. Representatives from Trailnet and City Staff were present, along with members of both the Planning Advisory Committee and Sustainability Commission. The planning team from Trailnet helped to answer questions and record feedback. Feedback was gathered in three official ways: an informal poster poll, maps to draw on, and comment cards. Residents also talked with planners and asked questions after the presentation.

Poster Poll:

Each attendee received three stickers to place on a poster asking them what should be most important when prioritizing sidewalks. The results (Table 1) show filling in sidewalk gaps to be the highest priority, followed by connecting to trails and parks. Schools and commercial areas were equally popular, and almost as popular as trails. Overall, the results suggest strong support for a robust sidewalk network, linking popular neighborhood destinations. In the Other section, there was only one comment, "Yield to pedestrians in crosswalks," and eight stickers, suggesting support for increased signage or enforcement on yielding in crosswalks.

Figure 1: Poster Poll Results

When it comes to sidewalks, what should be the highest priorities?	Number of dots
Filling in existing gaps	44
Connecting trails and parks	35
Connecting to schools	31
Connecting to commercial areas	31
Other	8

Summary of Community Input on Proposed Routes:

The draft routes for the Bicycle and Pedestrian Master Plan were displayed on four separate posters; separate posters displayed the proposed infrastructure types. The bicycle routes were displayed in draft phases, while the priority walking network was shown on one map. Attendees were invited to draw directly on the maps and to leave sticky notes with comments. Comment cards were also available for further inputs. The following points summarize the emergent themes from the written and oral comments:

Walking:

- Residents are eager for sidewalk connections and improvements, especially leading to parks and schools.
- Residents want to feel safe while crossing the street- comments mentioned more frequent crosswalks, more enforcement, lower speeds, and pedestrian-friendly signal timing
- Residents would like to see Big Bend improved for walking and biking, though very little of it is included in the draft routes.

Bicycling:

- Residents were concerned about speeding cars and high traffic on some of the proposed routes, especially Edgar Road during rush hour.
- Residents want increased connectivity both within the City and beyond. Webster is near several trails and a MetroLink station. Residents are very interested in connections for both commuting and recreation.
- Residents expressed a desire for higher levels of infrastructure, specifically bike lanes and a ramp at the existing pedestrian crossing at Selma.

Participant Written Comments:

Bike Routes Phase One

- *“Bike lanes!” is written along Gore, just south of Swon*
- *“Speeding and people running stop signs at Sylvester and Lockwood” is noted. The intersection is circled in red.*
- *The southern tip of the city boundary is circled with the note, “Help get us to Grant’s Trail.”*
- *Rose from Albany to Rock Hill is highlighted in Red. The line continues down Rock Hill to the intersection with Old Watson. “Ramp” is noted.*
- *“Need to get from Rock Hill to Watson somehow” is noted, with an arrow from Watson to Rock Hill.*

Bike Routes Phase Two

- *An arrow points out of Webster Groves from Murdoch Cut Off to River Des Peres Greenway. “Metrolink?” and “How to get to River Des Peres?” are noted next to the arrow.*
- *Swon, from Laclede Station to Calvert, is highlighted as a potential route.*
- *Edgar from Jackson to Big Bend is noted as “Not safe at rush hour.”*
- *A ramp is requested at the pedestrian crossing at Selma.*
- *The trail from Edgar Court to Laclede Groves is noted.*
- *The connection between Villawood Lane and Fieldston is noted, as are the connectors behind Edgar Road Elementary.*
- *N Iola from Kirkham to Harper is noted as a blind zig-zag, with many operational issues.*

Bike Routes Phase Three

- *Brentwood/ Kirkham is highlighted with the note, “This is a nice street to ride.”*

- *A route along Oakwood to Sunnyside and up Spring is highlighted as well, leading to the College School. The intersections of Big Bend and Laclede is marked as “Awkward timing and islands.”*
- *Walking Routes Map*
- *“Have you considered the historic walks?”*
- *“Newport sidewalks are not connecting. There is no safe access to Lockwood Park.”*
- *“Bike ramp from Sylvester to Forest or in that general area please.”*
- *“Trash cans often block sidewalks making walking with a stroller difficult. * Education!”*
- *“Be sure to keep paved paths along edge of nature sanctuary at street, not the middle: fragile habitat!”*
- *“Would like to see something enhanced for cycling on Big Bend.”*
- *“Kids at College School walk and bike around and thru town, not just to/from school.”*
- *Kirkham from College to Elm is circled with the comment, “High-traffic street that needs 2 sidewalks.”*
- *Rock Hill and Oak has an arrow with the note, “A lot of kids walk through here.” Another person added, “Yes!”*
- *Crofton, between Lockwood and Sheffield is circled with the note, “Make priority, no existing sidewalk.”*
- *Central is marked as an important school route & a car cut-thru route.*
- *Where Big Bend crosses I-44 is marked as “existing sidewalks to use”, along with the section of Big Bend from Maple to Gray.*
- *Big Bend from Edgar to Laclede is noted, “Need here, commercial districts lot of existing to work with.” Another resident added a circled 1 to indicate further support.*
- *“Consider Big Bend!!” is written in all caps.*
- The intersection of Laclede and Newport is circled with the notes:
 - “School crosswalk needed.”*
 - Is this school zone for speed limits?”*
 - This intersection is used by TCS students- right now. It’s very unfriendly to pedestrians.”*
- The intersections of Elm and East Old Watson, and Belton and Watson, are marked with, “These intersections are a mess.” Another resident has noted, “I agree!”

Comment Cards/ Email:

- *On streets targeted for sidewalks, where none currently exist, have you considered the alternative to a just a sidewalk- i.e. a “multi-use path” which both pedestrians and bikes can use at the same time. Similar to a bike lane, but w/ a clear delineation to (bike or walker) such as “reflective bumps” with yellow bike lane? Thanks.*
- *Mark Kirkham for cycling between Rock Hill and Newport. Address the intersection at Laclede Station Road and Big Bend.*
- *Consideration of student dorms on Garden Ave. – speed reductions on roads possible (lowering speed limit)*
- *Metrolink connectivity – important for students and people who don’t drive cars.*
- *Edgar Bridge – high traffic at rush hour.*
- *Most existing bike traffic is currently on Lockwood. That should be first priority for markings and signage.*
- *I think that the sidewalks are quite good in Webster Groves (although there are some gaps and this plan is very good for intra-Webster travel). Glendale, our next door neighbor, needs to have its streets looked at as well (especially as it connects much of Webster to Kirkwood). A large demand for a larger connection throughout St. Louis and its suburbs exists, so I think WG and Trailnet should collaborate with other towns and the City.*
- *Please deal with crosswalks for safe access to schools and parks.*
- *Connection to Metrolink station?*
- *Bike lane along Laclede Station Rd.?*
- *Cross Laclede @ Jackson – no sidewalk until Blackburn (?) park.*
- *Poor connections over I-44*
- *Poor connections to adjacent communities.*
- *Looks like you did a great job. It would be great to have routes that could get us to the River Des Peres and Kirkwood bike trails!*
- *Trash cans block sidewalks, making walking with a stroller difficult.*
- *Walking from the Larsen Park to Glendale area is difficult because there is no sidewalk on Kirkham.*
- *Good plans for discovering areas of interest. Still need rules for the road with shared traffic. Keep Webster Green.*
- *Everything sounded great tonight. Sharrows and bike route signs will make a great impact and any additional signage, especially on the busier “safer” thoroughfares will be greatly appreciated (like Lockwood or Edgar).*
- *Maximize express nature of bike routes by avoiding and/or removing stop signs/ lights.*

- *Enforce rules of the road for cyclists to minimize hate toward cyclists that results when too many ignore stop signs, etc.*
- *Safety issue! Enforce clear windshield requirement for motorists. Way too much “peephole” driving going on when motorists don’t take the time to clear snow/frost from windshield.*
- *Thanks for the opportunity to provide input. Very excited about these plans and can’t wait to see some of these start to become a reality!*
- *Edgar Rd. is not a good option during rush hour – especially for middle school kids trying to get to/from Hixson. I think long-term, the best option would be to upgrade the steps at the Selma Bridge to ramps – Yes it’s more expensive, but would really open up the route north/south across I-44.*
- *My overall biggest concern is that our primary arteries are not bike friendly, and we have a lot of kids that ride everywhere....Big Bend, especially.*
- *I have said for a long time that Lockwood in particular needs to be striped appropriately so drivers know where the lanes are, when is it okay to be two lanes, where are there designated turn lanes, what is the parking lane, what is the bike lane, etc. I referred to South Elm where the pavement is very clearly marked for at least driving and parking. Why can Lockwood, one of the busiest streets in town, especially for pedestrians, be striped with the same effort? It drives me nuts to see people passing on the right around someone making a left turn. That is illegal, unless it is striped for two lanes in each direction or there is a turn lane. It is also very dangerous for pedestrians and cyclists.*
- *Just to follow up on our conversation several days ago, I am adamantly opposed to having a sidewalk installed in front of my house (555 E. Jackson Rd.). About a year ago, I was asked if I’d like to sign a petition for sidewalks on E. Jackson. I said absolutely not. Shortly afterward, I contacted city hall and was told that a petition had been submitted, but there was no funding, therefore no plans for sidewalks.*
- *Now I understand that E. Jackson is included in the walkable-bikeable city proposal. Again, I am very opposed to this. First, as I pointed out to the woman last year when she said she wanted sidewalks because she “liked to walk”, Blackburn Park has wonderful walking paths. Second, sidewalks on E. Jackson are very haphazard; there are walks on a few of the houses on my side of the street (across from Blackburn) as you head toward Laclede Station Rd., and a few others just off Edgar Rd.*
- *To add a sidewalk in front of my house would mean giving up a few feet of my front yard to Webster, which I don’t want to do. Adding a sidewalk to the house on my left would impact the side/backyard.*
- *After spending far more time and energy than I care to think shoveling the drive and walks this year, I abhor the possibility of having to add more snow clearing to my life. I also don’t want the responsibility of shoveling a front walk, the liability if someone falls on the walk, or the responsibility/costs of replacing sidewalk slabs if they get broken.*
- *I’m also not wild about having more foot traffic and litter from young people cutting across the end of my yard on their way home from school or ballgames,*

and dropping soda cans/cups/chip bags as they walk.

- *You had mentioned that someone made a point they “s/he couldn’t reach a destination without cutting across the park, which closes at dusk”. This is a specious argument. First, there’s a walk that extends from the E. Jackson parking lot JUST inside the park. This sidewalk runs inside the park for a short distance, then OUTSIDE the ballfield fence lines and on the very edge of the park the remainder of the distance to Edgar Rd all the way to Edgar Rd. and down Edgar to Florence. There’s no need to cut across the entire park. Second, during baseball season which should start any day now, every game night--about every night--the ball field lights stay on within the park until about 11pm, sometimes longer.*
- *You also mentioned that since there’s still no immediate funding, any sidewalk installation would be well over a year or two away. Personally, I hope it’s a decade or two away! I suspect that the woman who submitted the petition didn’t give the neighbors who signed it details on their projected liabilities. I wish I had known about the February meeting; I would certainly have attended and made my opinions known. Since I missed the meeting, here are my thoughts. Thank you.*
- *We spoke on the telephone and I would like to follow up with a thank you....good job! I am a resident of Bacon Ave in Webster Groves. I have watched the traffic pattern on Bacon Avenue for many years. Frequently, it is a near disaster. The many drivers taking students to the Miriam School and the children walking in the street to the Steger School are all at risk daily. I believe sidewalks will be the answer. Thank you for making Bacon Avenue a priority in the plan.*

SECTION ELEVEN

11

F. PRIORITIZATION MATRIX

Figure 1: Prioritization Matrix for Route Evaluation

	Project:			
	Project Location(from, to):			
	Facility Type:			
	Facility Length (feet):			
	Jurisdiction:			
	Criteria	Number	Multiplier	Score
1	Proximity to attractors/destinations			
1.1	Number of Public and Private Schools (k-12 and University) near route		30	0
1.2	Direct access to a transit stop (yes=1; no=0)		15	0
1.3	Direct access to a commercial area (yes=1; no=0)		20	0
1.4	Number of public facilities (city hall, library, etc.) within 1/4 mile from route		10	0
1.5	Number of parks with direct access		25	0
2	Connectivity			
2.1	Number of existing or planned routes connected by the proposed pedestrian route		10	0
2.2	Access to a regional multi-use path (yes=1; no=0)		25	0
2.3	Crosses major barrier (yes=1; no=0)		40	0
3	Feasibility			
3.1	Recommended by community feedback (4=maximum support; 0=little to no support)		15	0
3.2	Recommended by agency feedback (4 = maximum support; 0= little to no support)		15	0
	Grand Total			0