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KIRKWOOD PEDESTRIAN AND BICYCLE PLAN

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PLEASE SEE PLAN SUPPLEMENT, "COMMUNITY FEEDBACK" FOR PUBLIC COMMENTS

Introduction

In 2014, the City of Kirkwood started working with Trailnet to create a 15-year plan for enhancing walking and biking in streets and in parks in Kirkwood. The Kirkwood Pedestrian and Bicycle 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; and
- Identify opportunities for encouragement, education, enforcement, and evaluation.

The planning process was initiated in the beginning of 2014 and was finished in February 2015. The plan encompasses the City of Kirkwood. Connections to planned and existing routes in the Great Rivers Greenway network were also considered. The elements of that planning process are shown in Figure 1.

The vision of the residents of Kirkwood was the basis for the planning recommendations. Their vision of Kirkwood as a walkable and bikeable community, along with the needs identified in the outreach process, guided the planning priorities, and are integrated throughout the plan.

The planning approach centered on broad community engagement to develop a robust dialogue around the possibilities and challenges in Kirkwood. Trailnet worked with the City staff to identify community events where the planning team could reach out to residents. Working with the Planning Advisory Committee, the planning team hosted an Early Action Project designed to engage residents in their community.

A diagram showing the planning process and how community input was integrated throughout is on the next page.

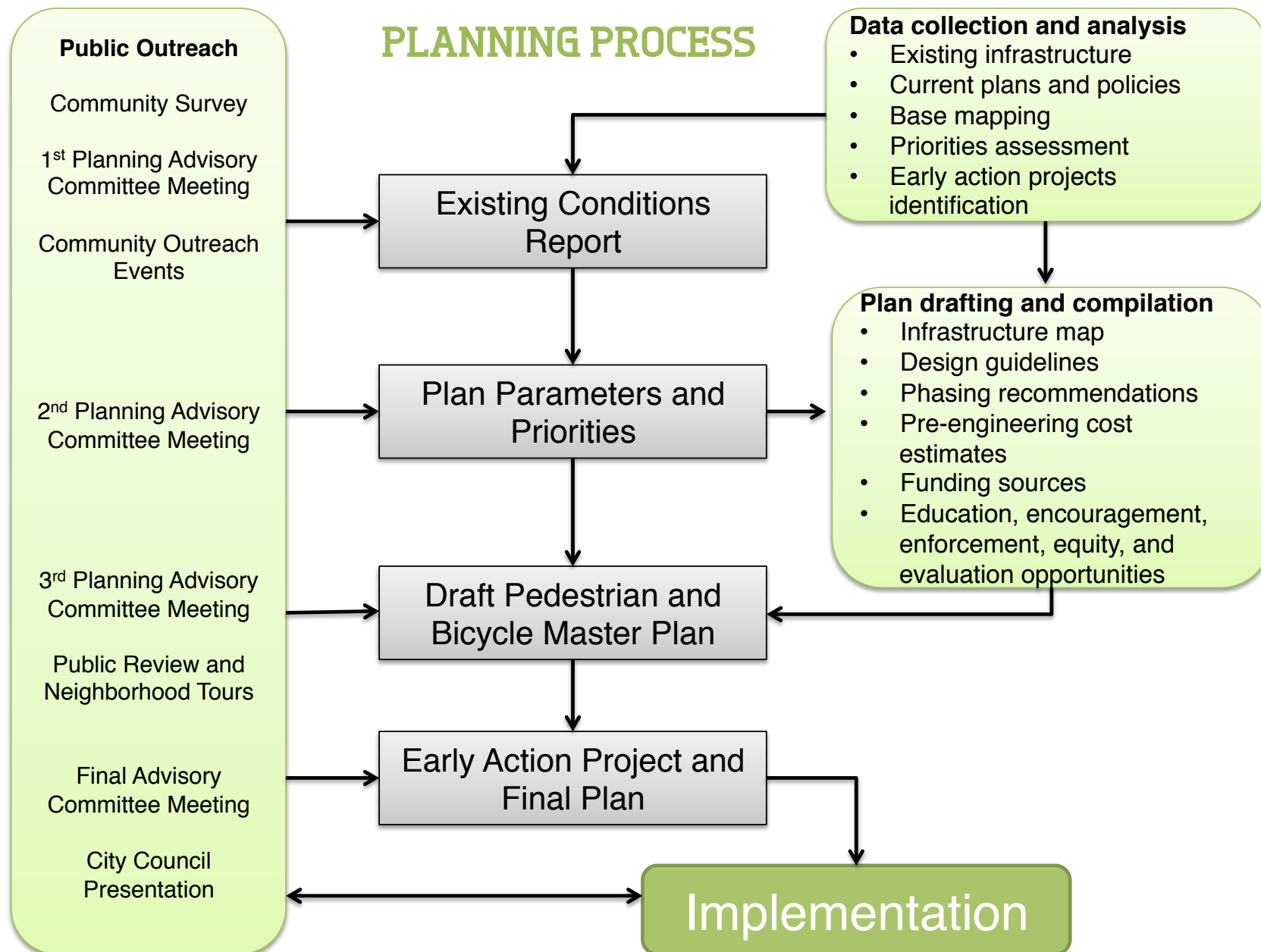


Planning Advisory Committee Meeting



Mayor McDonnell is active in working for better walking and biking in Kirkwood.

Figure 1: Planning Process



Benefits of a walkable and bikeable community

In a recent national report on walkable urbanism and its market impacts, Kirkwood was identified as the only Walkable Urban Place in Saint Louis County outside of the central corridor along I-64. The national study that recognized Kirkwood's walkability found that walkable urban places have had strong market success and are likely to have high demand in the future.¹

Building on current success will allow Kirkwood to become a more vibrant place and a premier community of choice in the region. Results from other cities suggest walkable and bikeable streets attract investment, increase property values, reduce congestion, and cost less to build and maintain than traditional roads. A few of these indicators can be found in the following references:

- 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.²
- In Memphis, a commercial district reported a 50% increase in commercial rents after striping bike lanes.³

1 Walkable Urban Places Report Page 29 of Appendices

2 Wardlaw, Michelle. Realtors report Americans prefer to live in mixed-use, walkable communities. National Association of Realtors. Web. 23 July 2014.

3 Marohn, Charles. Guerrilla Painting. Strong Towns, April 2012. Web. 8 March 2013.

- 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.⁴

By becoming one of the best places to walk and bike in the region, Kirkwood can increase home values, improve residents' access to local shopping and schools, and attract regional residents to local businesses.

Population trends

While Kirkwood's population has declined somewhat since reaching a peak population of 31,679 in 1970, the US Census Bureau currently projects slight growth in the city's population. According to the 2010 Census, Kirkwood's population was 27,540, a slight increase from its 2000 population of 27,324.

The US Census Bureau's population forecasts do not take into account the growing interest in traditional, walkable communities. Across the country, and in the region, baby boomers and millennials are choosing to live in more traditional neighborhoods with walking, biking, and shopping.⁵ It is reasonable to expect that with access to walking, biking, and shopping, Kirkwood will attract residents that demand better walking and biking.

4 Drennan, Emily. Economic Effects of Traffic Calming on Small Businesses. Department of Public Administration, San Francisco State University, December 2003. Web. 8 March 2013.

5 Leinberger, Christopher B and Mariela Alfonzo. Walk This Way. Brookings Institution. Web. 23 July 2014.



During the outreach process, several young families said they chose to live in Kirkwood based on walkability.

Demographics and transportation choices

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 Saint Louis County, well over the national decline of 2.8%.⁶ The decline in driving is likely the result of a combination of factors. Higher unemployment and rising gas prices are obvious factors, but do not fully account for the drop in driving. Several larger social trends, such as the Baby Boomers retiring and younger people becoming interested in walking, biking, and taking transit, could also be contributing to the decline.

Kirkwood has a number of senior living centers, and the 2012 American Community Survey (ACS) estimated 17.2% of residents

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. 23 July 2014.



Kirkwood residents enjoy walking, biking, and driving.



Being able to walk to local destinations can reduce transportation costs for families.

in Kirkwood were over 65. The travel needs of these retirees will focus more on visiting family, shops, friends, houses of worship, and parks and recreational destinations, instead of commuting. As Kirkwood has strong local retail, recreational, and dining options, many of these trips may be within walking and biking distance. By creating streets that invite residents to walk and bike, Kirkwood can help residents choose to visit local businesses on foot or by bike, rather than drive out of the area.

There are also a number of residents who cannot drive due to age, health, or lack of access to a vehicle. In 2012, the ACS found that 5.3% of Kirkwood households did not have access to a car. In addition to these households, 17.7% of the population under 16 and depends on being driven, walking, biking, or taking transit. Driving ability declines with age, and it is also reasonable that some of the 8.7% of Kirkwood 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 in order to access daily needs and enjoy a high quality of life.

Housing and transportation costs

The combined cost of housing and transportation in a community play a large role in whether or not it is affordable. Making sure that residents have cost-efficient transportation choices like walking, biking, and transit, can help families afford housing in their desired neighborhood. Housing affordability is generally defined as 30% of income or

less, based on the rent threshold for rental programs in the US, and the general lending guidelines used by Fannie Mae and Freddie Mac. In Kirkwood, over ¼ of households spend more than 30% of their income on housing, and most of those residents (19.5% of the total population), spend over 35% of their income on housing, according to the 2007 – 2011 ACS.

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. For some households, being able to access schools, shops, or even jobs by foot or bike can even let them choose to have fewer cars, a large cost-savings. Education and encouragement can also help residents become more aware of the transportation options already existing in the community.

In general, a combined housing and transportation cost of 45% of household income is considered affordable. Based on the Location Affordability Portal, a tool produced by the US Department of Transportation, the average combined cost of housing and transportation in Kirkwood is 50% of the median income in the St. Louis region. For a retired couple, the average cost of housing and transportation is 54% of the typical retirement income in the region. While Kirkwood exceeds the affordability for the median income household in the region, Kirkwood does have a higher median household income. This means average housing and transportation costs make up 36% of the median income in Kirkwood.

Existing Conditions

Overview

Strategic investments in walking and biking can improve quality of life and health for residents and ease congestion and parking demand. The following analysis looks at how to expand support for walking and biking in order to improve life and business in Kirkwood.

Land use and transportation network

The City of Kirkwood was founded in 1853 before motor vehicles or modern bicycles. As such, the traditional neighborhoods were designed on a walkable scale, and were served by the Pacific rail line. Currently, the Kirkwood Amtrak station is still an important part of the community and is used by residents throughout the region for long distance trips.

The city has grown, and now contains roughly three distinct urban forms: Traditional Town Center, Suburban Commercial, and Suburban Residential. Each of these development patterns offers different opportunities for improving walking and bicycling, and demand solutions that address the particular situation.

1. Traditional town center:

Based around the Amtrak station, Kirkwood’s historic town center was designed for walking, with commercial buildings, civic buildings and residences all within walking distance of the station. Kirkwood’s walkable heritage is a

unique advantage in attracting and retaining retail, offices, and residents. The traditional neighborhoods are thriving, and attracting residents. The walkable downtown brings people from all over the region to Kirkwood’s restaurants and retail.

Kirkwood can build on the strength of the existing areas, and extend the vibrant retail areas along Kirkwood Road through street design that prioritizes safe and comfortable walking. The section of Kirkwood Road that serves downtown is a great example of a road diet that slows traffic, allows for parking, and contributes to a vibrant downtown. Extending the road diet several blocks north and south is an opportunity to strengthen walking and biking in the core, where it can boost retail and residential demand.

The Amtrak station also offers the opportunity to attract tourists to Kirkwood; several other towns in Missouri attract tourists who arrive by rail to explore historic cities and enjoy nearby bicycle trails. For tourists visiting by rail, a pleasant walking environment is crucial, as they will not be driving. The Amtrak trains in Missouri allow bicycles, and there is high demand for visiting trails via Amtrak. A high-quality bicycle connection to Grant’s Trail will help Kirkwood attract tourists interested in exploring bicycle trails.

In order to enhance the traditional town center, the focus should be on prioritizing walking, including fully connecting the street grid, enhancing crosswalks, and traffic calming, as needed. Improving bicycling

within the traditional town center will expand transportation options for residents. The well-connected street grid and low-traffic streets serve experienced bicyclists well. However, neighborhood greenways and enhanced crossings at major arterials can make bicycling a safer and more viable choice for a larger number of residents.

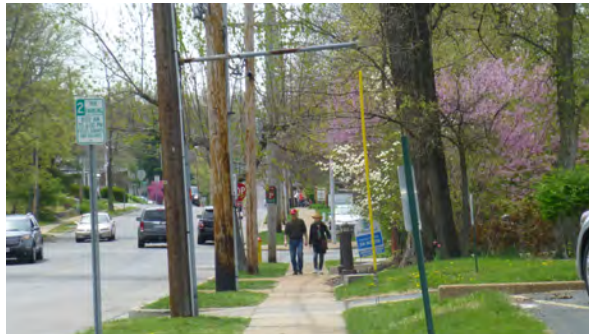
2. Suburban commercial:

The commercial development along Manchester Road and near the I-44 interchange on Kirkwood Road was designed to serve customers arriving by car. These businesses rely on access for drivers, and this is unlikely to change during the life of the plan.

However, pedestrians and bicyclists shop at, work at, or live near these retail establishments. These commercial areas need continuous sidewalks that are wide enough for pedestrians to feel comfortable, along with safe and frequent crossings for people walking. In these areas, the focus should be on connections between key destinations, especially schools, grocery stores, and areas of high employment and housing. Continuous sidewalks along Kirkwood Road are important in order to safely connect the Meacham Park neighborhood to schools, shopping, transit, and parks.

3. Suburban residential:

The City of Kirkwood includes neighborhoods that were developed for cars as the main form of transportation. These neighborhoods



Residents walking in Kirkwood.



Bike St. Louis in Kirkwood is one of three bicycle routes in the city.

tend to have low-traffic streets, often laid out in curvilinear fashion, with cul-de-sacs and low sidewalk coverage. These streets can be pleasant for walking and biking, when they have low numbers of cars, and the cars travel slowly. The low-traffic residential streets are connected by collector and arterial streets, that can feel dangerous for people walking and biking. The high speeds of cars and infrequent crossings on arterial roads can dissuade people from walking or biking.

During the public outreach process, residents in these neighborhoods talked about wanting to walk and bike, but cited lack of sidewalks, and needing to cross busy streets as the main barrier. For example, crossing I-270 at Big Bend Boulevard is unpleasant and feels dangerous for many residents west of I-270. Making sure that arterials and collectors have sidewalks and safe and frequent crossing opportunities is of primary importance to helping residents in suburban residential areas walk and bicycle.

Streets that connect through neighborhoods, rather than end in cul-de-sacs should be considered for sidewalks as well. The narrow streets in these neighborhoods means building sidewalks can involve difficult tradeoffs of either expanding roadways, or not providing safe walking access. On some residential streets traffic calming or traffic diversion can also help slow car traffic, creating safer streets for all users.

Connectivity

The street connectivity in Kirkwood, regardless of development pattern, is interrupted by large arterials that form barriers, as they have few safe crossings. Likewise, the railroads also form barriers, as there are few official crossings. Throughout the public outreach process, residents noted that the rails are difficult to cross on bike or using a stroller or wheelchair. 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

The commuting patterns of Kirkwood residents largely resemble those of St. Louis County overall (Figure 2). The majority of commuters (85.2%) drive alone. However, residents of Kirkwood are more likely to work at home, but less likely to take public transportation. Kirkwood has a significant potential to increase biking and walking commuting as 22.2% of residents work within Kirkwood, according to the 2012 American Community Survey (ACS). 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 Kirkwood live within bicycling (3 miles) or even walking (1 mile) distance of their place of work, given Kirkwood’s size.

Encouraging residents of Kirkwood who work in Kirkwood to walk or bike can improve transportation in the following ways:

Figure 2: Means of Transportation to Work (ACS 2012)

	Kirkwood		St. Louis County	
	Count	Percent	Count	Percent
Drive Alone	9,797	85.2%	397,729	84.0%
Carpool	732	4.8%	30,848	6.5%
Public Transportation	164	1.2%	11,468	2.4%
Bicycle	63	0.1%	1,037	0.2%
Walk	211	1.5%	7,582	1.6%
Taxicab, other	14	0.6%	3,751	0.6%
Work at Home	785	6.8%	20,853	4.4%
Total	11,758	100.0%	473,268	100.0%

- A small reduction in driving can reduce peak hour congestion- during the recession in 2008, congestion dropped 30% in the nation’s 100 most congested areas. Meanwhile, vehicle miles traveled in those areas dropped by only 3.7.¹
- Walking and biking to work can reduce the demand for parking at workplaces. The average annual cost of a space in a surface parking lot can range from \$430 in a suburban setting to \$2,000 in a central business district.²

The 2013 ACS found 1 in 5 workers living in Kirkwood also work in Kirkwood, suggesting there is the potential to shift some work trips during peak hours. But based on the 2009 National Household Transportation Survey (NHTS), less than 1 in 5 trips is work-related for American households. The most promising way to increase biking and walking is to focus on short trips, including trips to schools, parks, stores, and local institutions.

Getting to school

Kirkwood has excellent, and centrally located, public and private schools. In Kirkwood, 28.7% of households have children under 18. For many students, schools are within walking or bicycling distance.

1. INRIX. INRIX National Traffic Scorecard Reveals Startling 30 Percent Decrease in Traffic Congestion in 2008. INRIX.
 2. Litman, Todd. Transportation Cost and Benefit Analysis: Techniques, Estimates, and Implications. Rep. Victoria Transport Institute, 28 Aug. 2013. Web. 14 Aug. 2014. 5.4-10

Some residents are concerned that gaps in the sidewalk network make walking to school unsafe or uncomfortable for children. Safe, high quality infrastructure is key in getting students walking and biking and to reduce congestion. Encouragement and education campaigns can only work when safe and comfortable walking and biking routes exist.

During the public outreach process, safe access to the middle schools was frequently mentioned. The Meacham Park neighborhood is not served by a continuous sidewalk route to Nipher Middle School. Currently, many students walk along Fillmore, as Kirkwood Road does not have a continuous sidewalk on the east side from Big Bend to the railroad tracks. The Fillmore and Big Bend crossing could be improved for pedestrians. A bigger obstacle for students is the unprotected railroad crossing at Fillmore. It is vital to provide a safe and continuous route for students, and all residents, with an accessible and official railroad crossing.

Manchester Road makes pedestrian access to North Kirkwood Middle School difficult. Both students and parents reported that compliance at the pedestrian crossing near the school is low. A full signal, or a High-intensity Activated crossWalk (HAWK) beacon, could help students and other residents cross Manchester Road safely. Crossing Kirkwood Road is also a barrier for students that live east of the arterial. Improved crossings are an option for helping students get to school.



Not all suburban residential neighborhoods have sidewalks.

Getting to stores, restaurants, and community institutions:

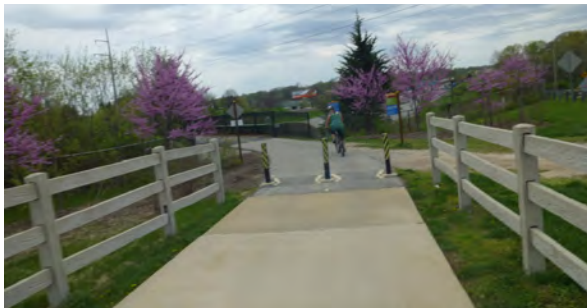
The high quality and density of shopping districts and local businesses are a unique and vital resource in Kirkwood. Many households are within easy walking distance of shops, banks, schools, parks, and transit. When residents choose to walk and bike rather than drive to these destinations, it reduces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

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

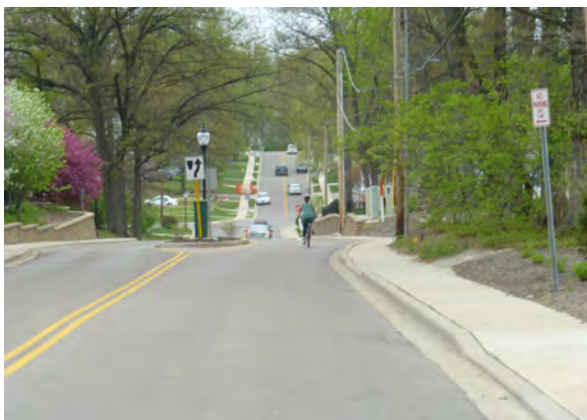
- Stores can attract additional walking customers without adding parking. Adding bicycle parking is less costly and requires less space than adding car parking.
- People who walk and bike to stores tend to make more frequent trips, resulting in



Parks are a popular destination for residents in Kirkwood.



Grant's Trail is a regional asset and a key recreational destination for Kirkwood residents.



Sidewalks on Holmes connects Grant's Trail to the rest of Kirkwood.

increased monthly spending.³

- 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.

Getting to the park

Access to Kirkwood Park was brought up by residents during the public engagement period; several expressed concern with the lack of sidewalks along Adams. The railroad crossing at South Geyer was also seen as a barrier for residents south of the park. Several residents felt that South Geyer was not safe for bicycling, especially with children. While there is a continuous sidewalk along one side of South Geyer, several residents felt it was difficult to cross the street to access the sidewalk. Both Emmenegger Park and Powder Valley Conservation Center are served by roads with narrow or nonexistent shoulders. The narrow right-of-way along these roads precludes many facility types. The narrow lanes and slower design speed of the road within Powder Valley Conservation Center is an example of a possible design that would improve non-motorized access without expanding the roadway.

Access to Grant's Trail, owned by The Great Rivers Greenway, was one of the most frequently cited issues for residents throughout the public process. Holmes Ave, the point of access to the Kirkwood trailhead, was recently

³ 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.

repaved and has an ADA compliant sidewalk. However there are no bicycle lanes and many residents expressed concern the railroad tracks were difficult to cross by bicycle. Any proposed treatment must be a collaboration between the town of Oakland and Kirkwood, as the maintenance of the street is split between the two municipalities.

Getting everywhere else

For some residents, walking and biking is not a matter of choice, but necessity. The 2012 ACS estimated that 5.3% of Kirkwood households had no access to vehicles. These households depend on walking and biking infrastructure in order to reach necessities, like food, jobs, schools, and transit, not to mention recreation.

Summary of biking conditions

Current facilities:

- Every street in Kirkwood outside of I-270 and I-44 can be counted as a bicycle facility, as bicycles are vehicles under Missouri law.
- Two greenways owned by The Great Rivers Greenway, Grant's Trail and Meramec Greenway, provide lower stress routes for bicyclists.
- There are three designated bicycle routes, marked by signage and wayfinding, including Bike St. Louis in Kirkwood.
- There is a bicycle lane on West Rose Hill Ave. between Couch Ave. and South Geyer Rd.

Opportunities:

- Kirkwood residents are engaged in the community and support more opportunities for safe bicycling.
- Many streets are already well designed for bicycling, and some have wayfinding signs to help navigate routes.
- Kirkwood is connected to neighboring communities through the Great Rivers Greenway network, and Saint Louis County is planning on placing bike lanes on Adams from Kirkwood to Webster Groves, through Glendale.
- There are meaningful destinations within biking distance, including schools and shops.

Challenges:

- Narrow right of way, as many streets were not planned with walking, biking, and driving in mind.
- Major arterials owned by MoDOT and Saint Louis County are perceived by some residents as barriers to safe walking and biking.
- The gaps in the pavement at the train tracks cause challenges for some people walking, bicycling, or using wheeled devices.

Summary of walking conditions

Current facilities:

- There are nearby greenways, including Meramec Greenway and Grant’s Trail;

Grant’s Trail is connected to the city center with continuous sidewalks.

- Existing sidewalk network is strongest in the city center; newer neighborhoods are more likely to lack sidewalks or have a discontinuous network.
- Kirkwood has several enhanced crosswalks including decorative crosswalks in the central business district and high visibility crosswalks at some crossings; some residents reported motorist compliance issues at the pedestrian crossings along Geyer and across Manchester at the North Middle School
- The train tracks partially interrupt the street grid; several of the existing crossings are in poor condition and are difficult for residents with wheelchairs or strollers.

Opportunities:

- Kirkwood residents are physically active and engaged in their community; throughout the outreach process, residents talked about choosing to live in Kirkwood because of its active lifestyle.
- The strong downtown business district and train station gives residents and tourists meaningful destinations for walking trips.
- The historic residential and commercial districts have connected street grids.
- The parks, green space, and greenways in Kirkwood have great trails for walking.

Challenges:

- Sidewalk infill requires significant investment, will increase impervious surfaces and impact stormwater runoff, and may require removal of trees.
- The railroad tracks are a barrier to connecting streets.
- Many streets have a limited paved area and right-of-way, constraining the options for additional infrastructure.



The City of Kirkwood has Shared The Road signs on bicycle routes.

Safer People, Safer Streets:

Summary of U.S. Department of Transportation Action Plan to Increase Walking and Biking and Reduce Pedestrian and Bicyclist Fatalities

September 2014



The Department of Transportation has been increasing their focus on pedestrian and bicycle safety in the last several years.

Review Of Existing Plans and Policies

FEDERAL POLICY

In March of 2010 the US Department of Transportation (DOT) signed the Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations. The principle goal of this policy, is to “incorporate safe and convenient walking and bicycling facilities into transportation projects.” Recommended actions most relevant to this plan are:

- Considering biking and walking equal to other modes of transportation 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 showed 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’ (NACTO) 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 POLICY

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 the following surface streets within Kirkwood:

- Manchester Rd (100)
- N Kirkwood Rd/ Lindbergh Rd (61/67)

Additionally, MoDOT operates I-44 and I-270, which are both partially within the boundaries of the City, but are separated highways for motor vehicles only.

In 2013, MoDOT updated their long range transportation plan, *MoDOT on the Move*. Two

of the four goals in this plan are directly related to walking and biking transportation:

- Keep all travelers safe, no matter the mode of transportation
- Give Missourians better transportation choices

In support of these goals, the plan states that road projects are evaluated for demand and need, and bicycling and walking facilities are integrated into projects when needed.

Specific treatments mentioned are upgrading signs, signals, lighting, and sidewalks or bicycle lanes.

The plan focuses on the financial implications of the decline in demand for car travel, and the concomitant increase in demand for passenger rail, transit, walking and bicycling. The plan underlines the growing popularity of the Missouri River Runner, the state-supported train route that serves Kirkwood.

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 the study area: Bus Rapid Transit along the I-44 corridor and Commuter Rail along the existing passenger rail line that goes through

Kirkwood. Neither of these proposed routes include information on stops, but they would potentially improve transit access to Kirkwood.

MetroTransit is concluding a feasibility study for the first phase of rapid transit, and I-44 was not included as a recommendation. Commuter rail is dependent on state and federal level policies.

Transportation Improvement Plan 2015 - 2018,
East West Gateway Council of Governments

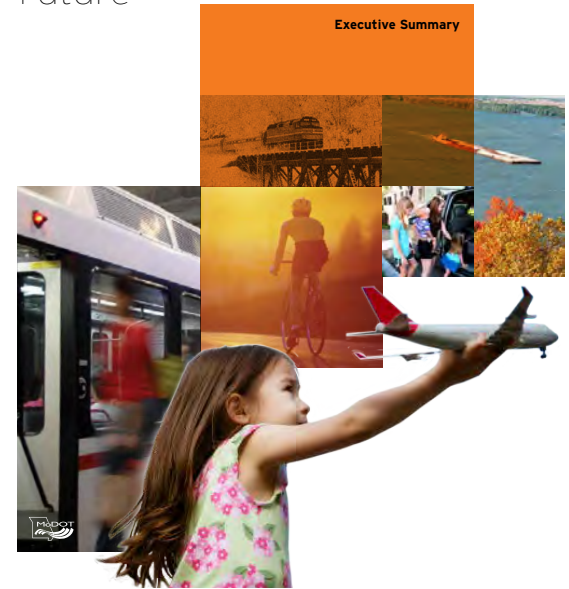
The only scheduled and funded project in the study area that may impact walking and biking is the scheduled rehabilitation of the Big Bend Road Bridge at I-270. The funding indicates the bulk of the preliminary engineering and construction will take place in 2017. This plan can help to recommend the bicycle and pedestrian accommodations on the rehabilitated bridge.

Regional Transportation Plan: 2040,
East West Gateway Council of Governments

The only major project in the regional long range transportation plan is replacing the I-44 bridges over the Meramec River in 2021-2030. A new bridge could create opportunities to connect Kirkwood to parks in Fenton and Sunset Hills. East West Gateway Council of Governments is updating the regional long range plan at the time this plan was written.

FEBRUARY 2014

A Vision for Missouri's Transportation Future



One of the priorities in MoDOT's most recent long range plan is expanding transportation choice.

Figure 3: Proposed on-street bicycle facilities in the Gateway Plan

Infrastructure	Roads
Bike Lanes	Manchester (<i>city limits to city limits</i>) Geyer (<i>Argonne to Adams</i>)
Paved Shoulders	Kirkwood (<i>Big Bend to 1-44</i>) Geyer (<i>Balmagoun Ln. to north city limits of Kirkwood</i>)
Shared Lane Markings (sharrows)	Kirkwood (<i>Big Bend to Manchester</i>) Holmes (<i>Adams to Grant's Trail / Leffingwell</i>) Woodlawn (<i>Adams to city Limits</i>) Geyer (<i>Adams to Manchester</i>) Geyer (<i>Argonne to Balmagoun Ln.</i>) Woodbine (<i>Kirkwood to Craig</i>) Craig (<i>Woodbine to Big Bend</i>)
Share The Road Signage	Dougherty Ferry (<i>Ballas to Geyer</i>) Geyer (<i>Manchester to city limits</i>)
Wide outside	Adams (<i>Dougherty Ferry to Woodlawn</i>) Craig (<i>Big Bend to city limits</i>)
Needs further study	Big Bend (<i>Geyer to city limits</i>) Adams (<i>Woodlawn to Holmes</i>)



Gateway Bike Plan,
The Great Rivers Greenway District

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.

Multi-use paths:

There are two trailheads in Kirkwood, Grant’s Trail and the Meramec Greenway. There are no current plans to extend either trail.

On-street network:

The recommended routes provide intra-regional connectivity for Kirkwood residents. Most of the recommended on-street facilities are shared-use facilities. See Figure 3 for a list of proposed facilities. 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 from the American Association of State Highway Officials (AASHTO) 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:

- Ballas Rd.
- E. Adams Ave.
- Big Bend Blvd.
- Marshall Rd.

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 standard design in the Manual on Uniform Traffic Control Devices (MUTCD), the document which describes the standards for traffic signs, road markings, and signals. Roads with speeds over 35 mph are not recommended for shared travel.

St. Louis County has also recently created a Road Diet Policy that sets guidelines for when streets can be considered for a reduction in lanes in order to make space for bike lanes. St. Louis County continues to update its policies in order to implement Complete Streets.

KIRKWOOD

Kirkwood Vision 2015

The long term vision for the City of Kirkwood is set by Vision 2015 and its subsequent 3 year update, which is set to be updated in the coming years. The Pedestrian and Bicycle Plan will support the goals pertaining to improved

walkability and walking infrastructure, and bicycle trails and infrastructure. Pedestrian and bicycle improvements can also support the goals pertaining to increased downtown vibrancy and accommodate a range of socio-economic needs. Vision 2015 contains an appendix titled, "Downtown Urban Design Plan," that has an appendix focused on transportation in the city center titled "Downtown Transportation Plan."

Appendix 1: Downtown Transportation Plan

The appendix assesses existing conditions and projects future traffic flow. The bulk of the appendix is devoted to creating streets that support pedestrian traffic and vibrant commercial areas. The plan underscores the possibility for increased livability, urban redevelopment, and crime prevention through traffic calming. Potential controversy, especially with speed tables and vertical calming, is also addressed.

Based on studies of other communities, five treatments are recommended, along with warrants and project selection procedures. The following treatments are recommended for downtown Kirkwood:

- Mid-block median
- Neckdowns
- Raised crosswalks
- Textured Pavement Treatments
- Roadway striping (lane diets)
- Coordinated traffic signals

The recommended treatments have been used around the country with documented success and popularity. The plan provides detailed information on programs in Boulder and Portland and their successes.

KIRKWOOD CITY CODE

Walking

Based on Chapter 20, Section 2, Subdivision A, property owners are required to maintain the sidewalks in front of their premises, including if the sidewalk becomes hazardous due to lack of maintenance. The City of Kirkwood can repair the sidewalk if the property owner fails to do so after receiving proper notice. The property owner will be billed for the work in this case.

The code allows for the City of Kirkwood to address hazardous sidewalks efficiently. It also places the liability of sidewalks firmly on residents. Sidewalk cost-sharing programs can build support for sidewalks and maintenance among residents.

Biking

The Kirkwood City Code includes an entire section devoted to bicycles, Chapter 4 1/2. The Code differs from Missouri State Law in two ways:

- The requirements for retroreflective material on the pedals and wheels of a bicycle are much more specific than those of the Missouri State Statutes. Currently the

Kirkwood City Code requires reflectors on both sides of the pedals in addition to reflectors on both the rims and spokes of both sides of bicycle tires (Section 4 ½ - 3 P. 4).

- The City Code requires bicyclists to use paths adjacent to streets or highways when they have been officially designated (4 ½ - 5).

The City of Kirkwood also has three designated bike routes, which are currently shared facilities marked by signage. These routes have been considered as part of the planning process for the City of Kirkwood, and are incorporated into the proposed alternatives within the plan.



The planning priorities were guided by public outreach and the Planning Advisory Committee

Plan Priorities and Parameters

The priorities and parameters of the plan provide the structure and aim of the plan. The priorities were created with the Planning Advisory Committee and the City Staff, to ensure the priorities fit residents' needs, while staying within City resources (see Appendix B).

The Kirkwood Pedestrian and Bicycle Master Plan encompasses a 15 year planning horizon. Recommendations take into account parameters set by the City of Kirkwood for staff time and budget. The planning priorities are:

- Safely connecting schools, businesses, and parks
- Traffic calming infrastructure that supports walking, biking and accessibility for people of all ages and abilities
- Education and promotion of walking, biking, and greenspace in Kirkwood
- Financial responsibility and consideration of multiple funding sources

The priorities guided the selection and prioritization of recommendations in the plan. The following recommendations on education, enforcement, and encouragement were based on the third and fourth priorities. The first, second, and fourth priorities formed the basis of the prioritization process for the walking and biking infrastructure recommendations.

Education

Education on traffic law and safety helps residents of all ages share the road, whether they are biking, walking, or driving. For people 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 MoDOT: <https://www4.modot.mo.gov/OrderSystem/pub/displayOrder.do>

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:

- Missouri Bicycle Federation: <http://mobikefed.org/content/missouris-bicycle-and-pedestrian-laws>
- Trailnet: <http://trailnet.org/2014/07/31/missouri-bicycle-laws/>
- RAGBRAI Ride Right Coloring Book: <http://ragbrai.com/wp-content/uploads/2009/09/RideRightBook2013.pdf>

Education in schools

It is important to encourage children to walk and bike to school safely and educate parents, 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 Kirkwood, as many children live within walking and bicycling distance to school, education will help students to improve their own safety and get exercise.

Keysor Elementary School in Kirkwood has worked with Trailnet since 2012 to host Keysor Bike Week. During a week in October all of the students at Keysor Elementary School take part in bicycle safety classes with trained bicycle safety instructors and Kirkwood Police Officers. In 2014, Bike Week culminated in a community ride with Mayor McDonnell.

Bike Week is popular with students, parents, and teachers, as it helps students to ride safely,

while encouraging physical activity. Bike Week should be expanded to all elementary schools in the Kirkwood School District.

Lessons incorporated into the classroom will reach all students. These lessons can also be effective at reaching parents, who are the ones driving to 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>).

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.

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/>



Bike Week at Keysor Elementary School helps students learn how to ride safely.



Kirkwood Police officers help teach bicycle safety to Keysor Elementary students.



Bicycle education courses teach safe riding skills and basic mechanics.

Bicycle education classes

It is important to encourage safe and confident biking by providing education to residents in Kirkwood. Though most adults know how to drive a car, they have never learned the rules of the road in terms of biking. The proper knowledge and skills make biking 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. Locally, Trailnet offers a 3 hour hands-on class on how to ride as visibly, predictably, and safely as possible.

There are several trained bicycle safety instructors in St. Louis. It is also possible for a Kirkwood staff person to become a trained instructor by attending a three day workshop. Workshops are periodically held in St. Louis. League Certified Instructors can be found here: <https://www.bikeleague.org/bfa/search/map?bfaq=>

Online Resources:

- Trailnet's Bikesmart: <http://trailnet.org/events/bike-smart>

Enforcement

Enforcement programs foster 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:

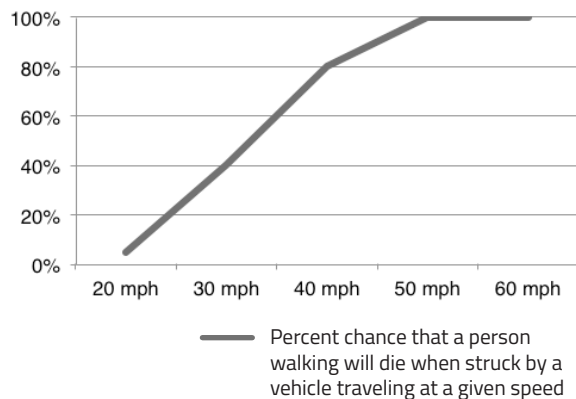
- Speed limit enforcement programs
- Distribution of local and state bicycle and pedestrian laws
- Raising awareness of the rights and responsibilities of all road users

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 4). 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

Figure 4:
Vehicle speed and death in pedestrian crashes



speed radar trailers, should be a part of any enforcement program or campaign.

Recommended programs

Positive Tickets

Officers can reinforce good behavior and reward people for doing the right thing by giving them positive tickets (See Figure 5). Officers can reward people walking, bicycling, and driving with such tickets. Frequently, positive tickets can be exchanged for a small incentive at a local retailer. As part of the planning process, positive tickets will be designed and distributed to Kirkwood Police. Increased Publicity of the Targeted Enforcement Program.

School Zone Enforcement

Targeting speeding motorists in school zones would help create a safer environment for school children. Strict enforcement of the 20 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. All Missouri law enforcement officers should be familiar with the rules as to enforce them lawfully.

Resources

- State of Missouri Statutes, including traffic rules for motorists, bicyclists, and pedestrians: <http://www.moga.mo.gov/statutes/C300.HTM>
- 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>

Figure 5: A sample positive ticket

The form features the Kirkwood Police logo at the top, which includes a circular emblem with 'KIRKWOOD' and 'EST. 1853' and a banner below that says 'WAY TO GO!'. Below the logo are four lines of text with blank lines for input: 'Name: _____', 'Awarded for: _____', 'Date: _____', and 'Awarded by Officer _____'.



Officers on bicycles can easily interact with residents. Photo source: www.pedbikeimages.org/



Community walks and rides can foster community and encourage activity.



Downtown events can help get people out walking.

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 based on the responses in the community survey, along with national best practices for encouraging walking and biking.

RECOMMENDED PROGRAMS

Active transportation rewards programs

Working with local businesses to offer rewards for those who arrive on foot or by bike can be a great way to promote local businesses and active transportation. Bicycling incentives are common in communities throughout the country. For example, businesses can reward those who have a helmet to show they biked. As it's more difficult to prove that a customer arrived on foot, walking incentives are more rare. A few ways to incentivize walking and biking to local retail include:

- Retailers offer specific rewards to those who arrive by bicycle. Usually, the incentive is small, like a 5% discount at a restaurant, or a free upgrade on drink size at a café. For example, in the Central West End, Café Ventana offers a beignet to customers with a helmet. Individual retailers can opt to offer bicycle incentives and choose to promote them on their own, or work with other businesses.

- Retailers coordinate to offer rewards on a specific day. The Bike Saturdays program in Long Beach, California, is an example of coordination among businesses and the City to promote local shops and restaurants, while encouraging people to bicycle, and reduce parking demand. Participating businesses put a sticker on their windows, and receive recognition on the City's website. In return, they agree to offer discounts or incentives, like a free soft drink at a restaurant, to cyclists on Saturdays. A similar program could encourage residents to try bicycling, and it can also encourage them to explore local businesses.

- Work with local businesses to encourage them to become certified Bicycle Friendly Businesses through the League of American Bicyclists. This program will help them identify ways to better serve cyclists, including by providing bicycle parking, or places for cyclists to store their helmets.

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. Organizing a community ride or walk is a great way to get volunteers involved in promoting walking and biking, while building community support.

Community rides can also be an opportunity for partnership. The Alpine Shop in Kirkwood hosts rides out of their shop. Trailnet has also worked with Kirkwood to host rides.

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 understand the best routes and how to access city destinations such as schools, library, and the business district by walking, biking, or taking transit. As part of the planning process, walking and biking maps will be created.

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 Kirkwood for transportation and recreational purposes during National Bike Month. Kirkwood can participate in National Bike To Work Day, by working with a local café that is interested in hosting a Bike To Work Day Station.

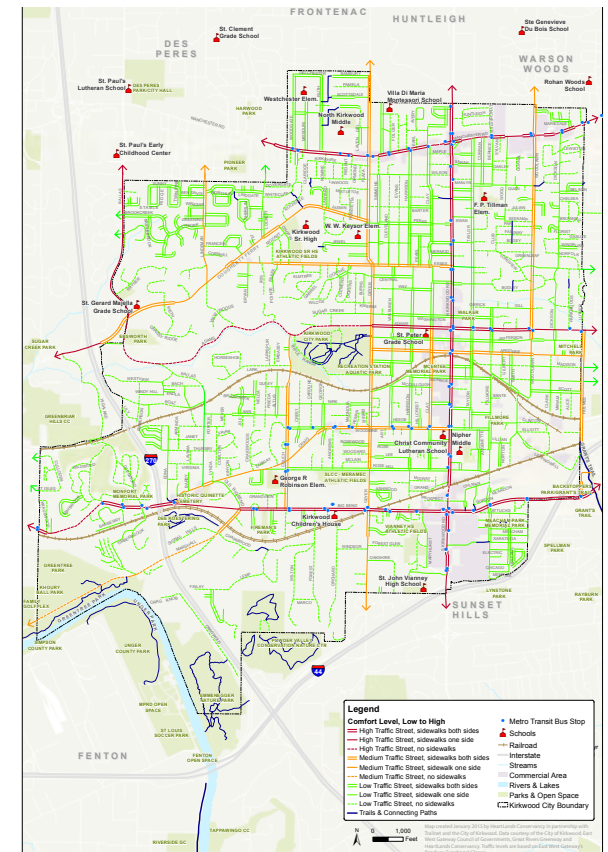
Other common events include family group rides, adult and children cycling classes, and bike-to-school days. The League of American Bicyclists has a number of valuable online resources to help make local efforts successful, including an event organizing handbook, a calendar linking to local events and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

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.cf>
- Trailnet Bike to Work Day resources: <http://trailnet.org/work/bicycling/bike-work-day-month/>
- League of American Bicyclists: <http://bike-league.org/content/plan-bike-month-event>



Bike to Work Day events are already hosted throughout the region.



Community walking maps can help people choose new walking routes.

Routes and Prioritization

The proposed walking and biking networks are presented in prioritized maps and tables. 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. Recommendations that require restriping should be implemented when roads are scheduled to be repaved and painted. 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.



Kirkwood's vibrant downtown offers many walking destinations.

Recommended Routes for Walking

The recommended walking route network is designed to provide a comprehensive walking network within Kirkwood, and to enhance walkability. The proposed routes were created based on public comment identifying high priority corridors and destinations. Routes were designed to create a network of walking routes within $\frac{1}{4}$ mile of residents when possible.

The density and purpose of recommended routes varies with the neighborhood design, as outlined in the Existing Conditions Report. The method behind the recommended routes for each type of development are explained below.

Traditional town center: The recommended network bolsters the walking-oriented street design of Kirkwood's traditional town center. The streets are arranged in a grid, and many feature sidewalks. The key focus for these routes is filling in sidewalk gaps in order to bolster the existing walking network. A dense walking network is recommended in order to build upon and expand the current walking-friendly state of the town center. By improving and expanding the dense walking network, more Kirkwood residents will be able to walk to stores, schools, and civic buildings in the town center.

Suburban residential: These neighborhoods were designed primarily for transportation in cars, with walking as a recreational activity.

Many neighborhoods are based on a hierarchy of streets, where local streets serve residences and then feed into higher traffic collectors and arterials. Several local streets stop in a dead end or cul-de-sac. The recommended routes on these streets focus on providing as continuous of a network as possible, based on the street pattern. Through streets that lead to parks and schools were prioritized. For local streets without through connections, the most effective way of addressing pedestrian safety is often on an individual basis, as described in the section on traffic calming.

Suburban commercial: In the suburban commercial areas, the focus is on providing safe and continuous walking routes to destinations and neighborhoods. The proposed Kirkwood Road road diet is an opportunity to expand the walking-friendly traditional town center to make more commercial destinations easily reachable on foot.

Walking infrastructure

With one exception, the recommended infrastructure type is a sidewalk. For pedestrian infrastructure, design of facilities is based upon ADA regulation and the right-of-way available. The following sections highlight recommendations that differ from, or go beyond, sidewalk recommendations.

Adams Road and Ballas Road

Sidewalks are not possible on Adams Road and Ballas Road in the Sugar Creek area, due to the width of the road. Nevertheless, the Sugar

Creek area is a popular place for walking and biking in Kirkwood. The suggested treatment is to make slightly more room for walking by restriping the driving lanes to 10' the next time Adams is repaved. Driving lane width of 10' is allowed in national roadway design guidelines and research does not show a safety advantage to increased lane width, except for on freeways, where speeds exceed 55 mph.

Argonne Drive

A pedestrian plaza and mid-block crossing should be installed permanently on E Argonne Drive, between the Farmer's Market and the parking lot (the eastern-most cut through). A second pedestrian plaza should be installed at the western-most cut through on W Argonne Drive. At the intersections with Clay Avenue, Kirkwood Road, and Taylor Avenue, the medians should be extended to the crosswalks, and curbs should be installed opposite the medians, to create a pedestrian safety island in the center of the crosswalk.

Kirkwood Road

Currently, Kirkwood Road has two through lanes with on-street parking in Downtown Kirkwood. The thriving stores and pedestrian traffic demonstrate the success of this road design in Downtown Kirkwood. The road diet and on-street parking should be extended north to Washington Avenue and south to Woodbine Avenue in order to enhance pedestrian safety and increase parking for the commercial destinations along Kirkwood Road. After observing results from the initial road diet expansion, the City of Kirkwood should consider the feasibility of expanding the road

diet north to Morningside Drive and south to Rose Hill Avenue, in order to increase safety in residential neighborhoods and improve pedestrian access to Nipher Middle School.

Longview Boulevard

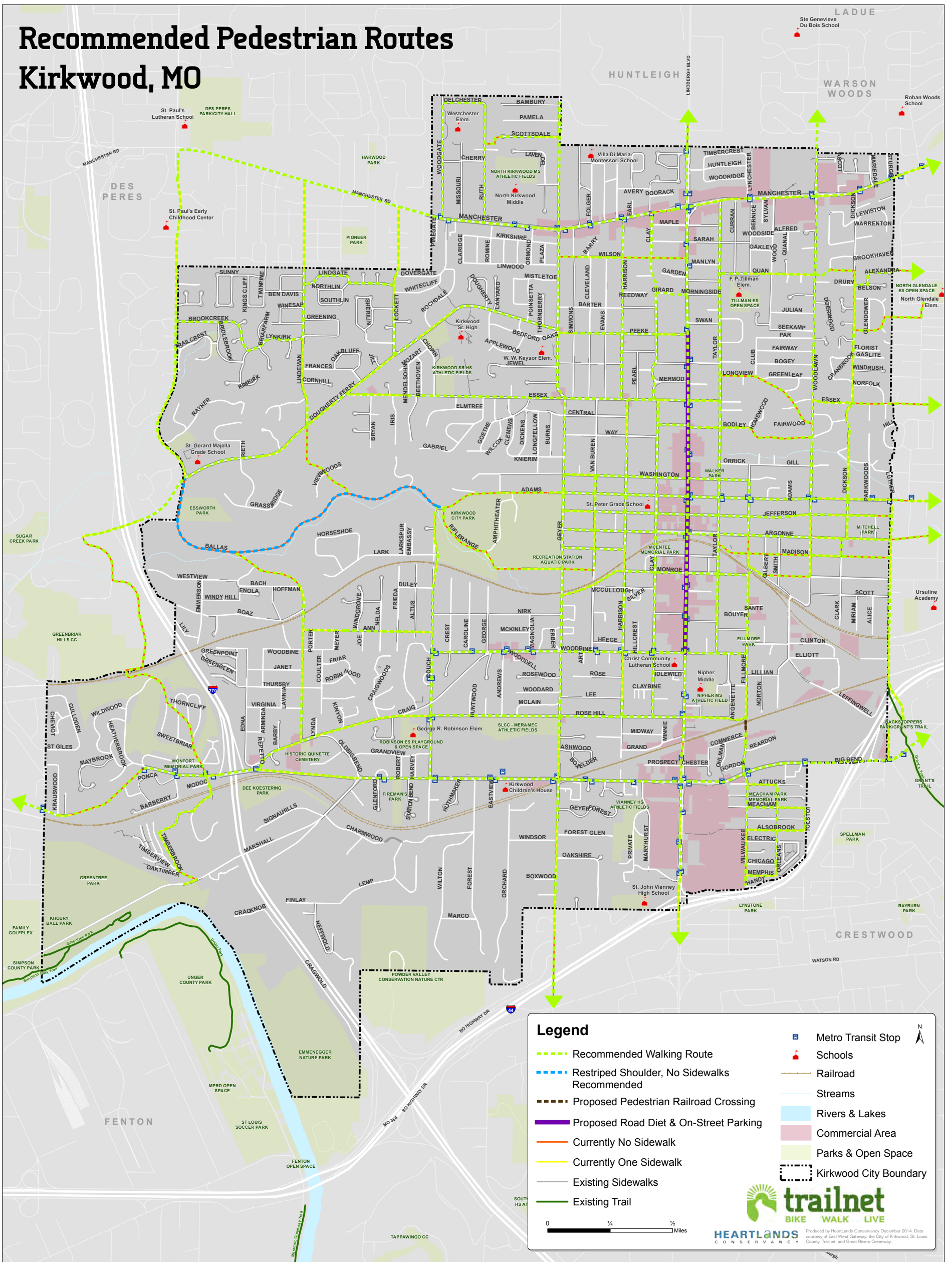
The recommended sidewalk on Longview Boulevard should be placed in the center of the median. This placement will preserve parking, while providing a pleasant and safe walking route. On the section from Club Lane to Taylor Avenue, the curb should be extended in order to create a sidewalk on the north side. The sidewalk will help to calm traffic along this residential street. The medians should be extended to the crosswalks throughout the street, in order to calm traffic and provide pedestrian safety.



Residents talk with the planning team about recommended improvements on Argonne Drive

Figure 6.

Recommended Pedestrian Routes Kirkwood, MO



Legend

- - - - - Recommended Walking Route
- - - - - Restriped Shoulder, No Sidewalks Recommended
- - - - - Proposed Pedestrian Railroad Crossing
- - - - - Proposed Road Diet & On-Street Parking
- - - - - Currently No Sidewalk
- - - - - Currently One Sidewalk
- - - - - Existing Sidewalks
- - - - - Existing Trail
- Metro Transit Stop
- Schools
- - - - - Railroad
- - - - - Streams
- - - - - Rivers & Lakes
- - - - - Commercial Area
- - - - - Parks & Open Space
- Kirkwood City Boundary

0 1/4 1/2 Miles

trailnet
BIKE WALK LIVE

HEARTLANDS CONSERVANCY
Produced by Heartlands Conservancy December 2014. Data courtesy of East-West Gateway, the City of Kirkwood, St. Louis County, Trailnet, and Great Rivers Greenway.

Pedestrian Prioritization

As Kirkwood 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 Kirkwood. The corridors were evaluated using criteria based on the community survey, in addition to considerations of feasibility and connectivity (See Appendix A).

Many of the corridors have partial or full sidewalk coverage. 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 Figure 6 for the full recommended sidewalk network. The priorities are in Figures 10 & 11.

Finally, a railroad crossing at Fillmore is recommended, but not included in the phasing, as any improvements are dependent upon partnership with the railroad company and MoDOT. The At Grade Railroad Crossing design summary, (refer to Design Guidelines) provides a summary of considerations for the proposed railroad crossing.

Figure 7: Sidewalk Gaps in recommended network

Streets	Recommendation	Length (mi)	Prioritization
Kirkwood	Sidewalk	0.10	375
Manchester	Sidewalk	0.08	370
Big Bend	Sidewalk	0.35	240
Jefferson	Sidewalk	0.07	205
Fillmore south of railroad tracks	Sidewalk	0.08	195
Fillmore at Madison	Sidewalk	0.07	195
Ballas	Sidewalk	0.32	185
Essex	Sidewalk	0.17	165
Longview	Sidewalk	0.45	150
Clark	Sidewalk	0.07	145
Milwaukee	Sidewalk	0.09	135
Van Buren	Sidewalk	0.13	115
Madison	Sidewalk	0.57	110
Southbrook	Sidewalk	0.10	90
Timberbrook	Sidewalk	0.10	90
Monroe	Sidewalk	0.38	85
Rifle Range	Sidewalk	0.27	85
Bodley	Sidewalk	0.27	80
Brownell	Sidewalk	0.37	60
Wilson	Sidewalk	0.34	55
Lindeman	Sidewalk	0.37	45
Glenwood	Sidewalk	0.59	30
Highland	Sidewalk	0.73	0
	Total	6.08	

Figure 8: Streets with one side Sidewalk in recommended network

Streets	Recommendation	Length (mi)	Prioritization
Kirkwood	Sidewalk	0.32	260
Big Bend	Sidewalk	0.51	245
Geyer	Sidewalk	0.61	235
Manchester	Sidewalk	0.64	225
Adams	Sidewalk	0.32	190
Ballas	Sidewalk	2.09	125
Couch	Sidewalk	0.31	115
Dougherty Ferry between Ballas and Geyer	Sidewalk	0.81	105
Dougherty Ferry at i-270	Sidewalk	0.25	105
Rose Hill east of Kirkwood	Sidewalk	0.26	80
Rose Hill at Couch	Sidewalk	0.13	80
Essex at Dougherty Ferry	Sidewalk	0.42	75
Essex east of Woodlawn	Sidewalk	0.16	75
Woodlawn	Sidewalk	0.25	65
Clay	Sidewalk	0.10	60
Craig	Sidewalk	0.34	60
Jefferson	Sidewalk	0.39	60
Peeke	Sidewalk	0.15	60
N Harrison south of Essex	Sidewalk	0.15	55
S Harrison north of Monroe	Sidewalk	0.09	55
S Harrison south of Woodbine	Sidewalk	0.18	55
Madison	Sidewalk	0.13	55
Taylor	Sidewalk	0.19	55
Fillmore	Sidewalk	0.44	50
Scott	Sidewalk	0.05	40
Argonne	Sidewalk	0.31	35

Figure 8 cont. : Streets with one side Sidewalk in recommended network

Streets	Recommendation	Length (miles)	Prioritization
Monroe	Sidewalk	0.43	30
Washington	Sidewalk	0.13	30
Meacham	Sidewalk	0.11	25
Memphis	Sidewalk	0.12	25
Orleans north of Memphis	Sidewalk	0.05	25
Orleans south of Attucks	Sidewalk	0.09	25
Van Buren	Sidewalk	0.26	25
Alsobrook	Sidewalk	0.24	20
Attucks	Sidewalk	0.12	20
Bodley	Sidewalk	0.18	20
Milwaukee	Sidewalk	0.14	20
Tolstoi	Sidewalk	0.09	20
Lindeman	Sidewalk	0.70	15
Ann	Sidewalk	0.38	0
Dickson	Sidewalk	0.92	0
Dickson	Sidewalk	0.09	0
Holmes	Sidewalk	1.09	0
Lockett	Sidewalk	0.43	0
Quan	Sidewalk	0.26	0
Scottsdale	Sidewalk	0.09	0
Timberbrook	Sidewalk	0.52	0
Wilson	Sidewalk	0.17	0
	Total: (to add sidewalks to streets)	16.20	
	Total: (for entire recommended)	22.27	

Figure 9: Streets with Sidewalks on both sides in recommended network

Streets	Recommendation	Length (miles)	Prioritization
Geyer	Sidewalk	2.46	235
Geyer	Sidewalk	0.17	235
Kirkwood	Sidewalk	2.38	200
Kirkwood	Sidewalk	0.26	200
Big Bend	Sidewalk	2.48	185
Big Bend	Sidewalk	0.16	185
Manchester	Sidewalk	2.22	165
Adams	Sidewalk	0.99	130
Ballas	Sidewalk	0.09	125
Couch	Sidewalk	0.79	115
Fillmore	Sidewalk	0.34	110
Dougherty Ferry	Sidewalk	0.42	105
Dougherty Ferry	Sidewalk	0.49	105
Dougherty Ferry	Sidewalk	0.24	105
Delchester	Sidewalk	0.17	80
Rose Hill	Sidewalk	1.01	80
Ruth	Sidewalk	0.46	80
Woodgate	Sidewalk	0.45	80
Craig	Sidewalk	0.07	75
Essex	Sidewalk	1.07	75
Woodlawn	Sidewalk	1.47	65
Clay	Sidewalk	1.55	60
Clay	Sidewalk	0.38	60
Jefferson	Sidewalk	0.86	60
Peeke	Sidewalk	0.37	60
Harrison		0.71	55

Figure 9 cont.: Streets with Sidewalks on both sides in recommended network

Streets	Recommendation	Length (miles)	Prioritization
Harrison	Sidewalk	0.86	55
Madison	Sidewalk	0.25	55
Taylor	Sidewalk	1.60	55
Fillmore	Sidewalk	0.43	50
Woodbrine	Sidewalk	1.26	50
Argonne	Sidewalk	1.00	35
Monroe	Sidewalk	0.49	30
Washington	Sidewalk	0.62	30
Meacham	Sidewalk	0.12	25
Orleans	Sidewalk	0.23	25
Van Buren	Sidewalk	0.09	25
Van Buren	Sidewalk	0.03	25
Bodley	Sidewalk	0.18	20
Lindeman	Sidewalk	0.28	15
Alexandra	Sidewalk	0.13	0
Ann	Sidewalk	0.14	0
Belson	Sidewalk	0.05	0
Brookcreek	Sidewalk	0.37	0
Dickson	Sidewalk	0.06	0
Lindgate	Sidewalk	0.38	0
Lockett	Sidewalk	0.17	0
Lynkirk	Sidewalk	0.24	0
Quan	Sidewalk	0.12	0
Scottsdale	Sidewalk	0.14	0
	Total:	31.34	

Figure 10: Existing Connector Paths

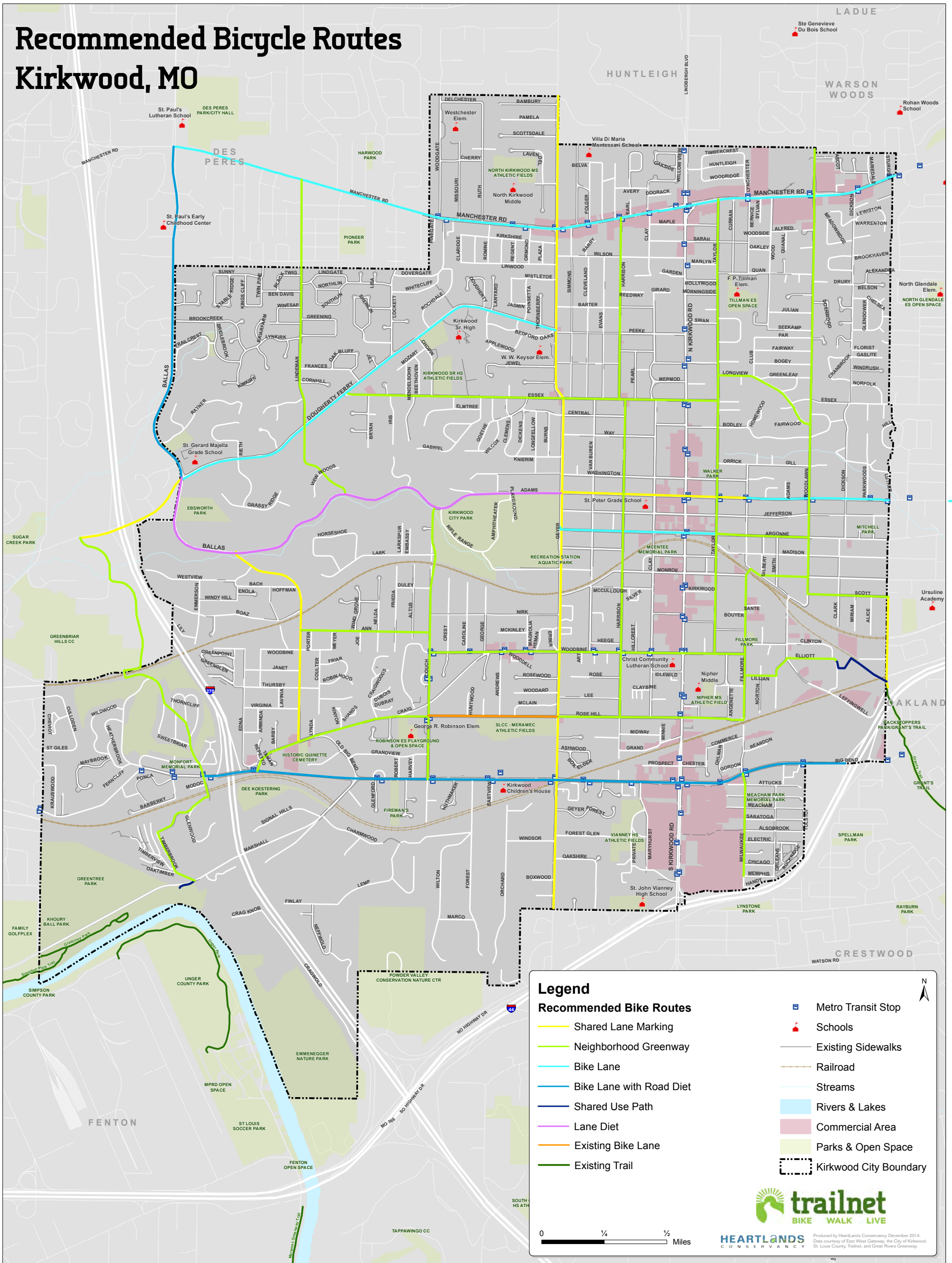
Streets	Recommendation	Length (miles)	Prioritization
Scottsdale Connection	Path	0.09	140
Alexandra	Path	0.02	0
Girard	Path	0.13	0
Quan	Path	0.07	0
	Total:	0.30	

Figure 11: Connections, paths, lane diets and road diets

Streets	Recommendation	Length (miles)	Prioritization
Fillmore	Ped Rail crossing	0.03	220
Kirkwood	Road diet & on-street parking	1.28	155
Ballas	Restriped shoulder	0.45	125
Adams	Restriped shoulder	1.41	110
Marshall	Meramec Greenway Connection	0.06	65
	Total:	3.24	

Figure 12:

Recommended Bicycle Routes Kirkwood, MO



Legend

- Shared Lane Marking
- Neighborhood Greenway
- Bike Lane
- Bike Lane with Road Diet
- Shared Use Path
- Lane Diet
- Existing Bike Lane
- Existing Trail
- Metro Transit Stop
- ▲ Schools
- Existing Sidewalks
- Railroad
- Streams
- █ Rivers & Lakes
- █ Commercial Area
- █ Parks & Open Space
- Kirkwood City Boundary

0 1/4 1/2 Miles

trailnet
BIKE WALK LIVE

HEARTLANDS
CONSERVANCY

Produced by Heartlands Conservancy December 2014.
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St. Louis County, Trailnet, and Great Rivers Greenway.

