Acknowledgements

Steering Committee

Mayor's Task Force on Walk & Bike-ability
Sarah Harly, Co-Chairperson
Margaret Johnson, Co-Chairperson
Jerry Breakstone
Linda Fried
Amo Perlows
Jane Schaefer
Beverly Jane Spudich
John Watson
Carol Wofsey

Non-Voting Members
Richard Wilson, Department of Public Works and Parks
Sinan Alpaslan, Department of Public Works and Parks
Laura Ellen, Missouri Department of Transportation
Lynnette Hicks, Department of Public Works and Parks
Toby Moriarity, St. Louis County Highways & Traffic
Patrick Owens, Great Rivers Greenway
Karl Scheidt, University City School District

Elected Officials
Shelley Welsch, Mayor
Stephen Kraft, City Council First Ward
Terry Crow, City Council First Ward
L. Michael Glickert, City Council Second Ward
Paulette Carr, City Council Second Ward
Arthur Sharpe, Jr., City Council Third Ward
Byron Price, City Council Third Ward

Administration
Lehman Walker, City Manager
Richard Wilson, PE, Director of Public Works and Parks
Lynnette Hicks, Senior Public Works Program Manager
Sinan Alpaslan, PE, City Engineer
Ewald Winkler, Street and Park Operations Superintendent
Andrea Riganti, AICP, Director of Community Development
Raymond Lai, AICP, Deputy Director of Economic &
Community Development
Colonel Charles Adams, Chief of Police
Chief Adam Long, Fire Chief

Plan Commission
Linda Locke, Vice-Chairperson
Ben Halpert
Lisa Greening
Ciri Moran
Ben Senturia
Evelyn Hollowell
Daidre Lewis (former Chairperson)
Nova Felton (former member)

Planning Consultants
Ann Rivers Mack, TrainNet; Executive Director
Cindy Mense, TrainNet; Chief Operating Officer
Kevin Neill, TrainNet; Community Planning Manager
John T. Hoal, Ph.D., AICP, H3 Studio; Founding Principal
Timothy Breihan, A.AIA, H3 Studio; Project Manager

Stakeholder Interviewees
Eren Berr
Martha Bhattacharya
Jan Belts
Howard Demore
David & Margaret Gray
John Holaham
Lisa Kuehne
Peter Mueller
Patience Naa Kai Kanyi
Dave and Jitka Olander
David Polite
Richard Sandler
Maggie Stanley-Majors
Lisa Talley
Nigel Taylor
Bryan Young
Mary Zaggy
JANICE M. HAMMONDS, RECORDER OF DEEDS
ST. LOUIS COUNTY MISSOURI
41 SOUTH CENTRAL, CLAYTON, MO 63105

TYPE OF INSTRUMENT
RESOL

GRANTOR TO GRANTEE
CITY OF UNIVERSITY CITY

PROPERTY DESCRIPTION:

Lien Number Notation Locator

NOTE: I, the undersigned Recorder of Deeds, do hereby certify that the information shown on this Certification Sheet as to the TYPE OF INSTRUMENT, the NAMES of the GRANTOR and GRANTEE as well as the DESCRIPTION of the REAL PROPERTY affected is furnished merely as a convenience only, and in the case of any discrepancy of such information between this Certification Sheet and the attached Document, the ATTACHED DOCUMENT governs. Only the DOCUMENT NUMBER, the DATE and TIME of filing for record, and the BOOK and PAGE of the recorded Document is taken from this CERTIFICATION SHEET.

RECORER OF DEEDS DOCUMENT CERTIFICATION
STATE OF MISSOURI )
SS.
COUNTY OF ST. LOUIS )

Document Number

00592

I, the undersigned Recorder of Deeds for said County and State, do hereby certify that the following and annexed instrument of writing, which consists of 95 pages, (this page inclusive), was filed for record in my office on the 19 day of December 2013 at 12:16PM and is truly recorded in the book and at the page number printed above.

In witness whereof I have hereunto set my hand and official seal the day, month and year aforesaid.

CLB2 Deputy Recorder

Janice M. Hammonds
St. Louis County, Missouri

Mail to:

LYNN HICKS
CITY OF UNIVERSITY CITY
6801 DELMAR
ST LOUIS, MO 63130

RECORDING FEE 328.00
(Paid at the time of Recording)
Resolution 2013 - 17

A RESOLUTION ADOPTING THE BICYCLE AND PEDESTRIAN MASTER PLAN AS A SUPPLEMENT TO THE 2005 COMPREHENSIVE PLAN UPDATE

WHEREAS, a Bicycle and Pedestrian Master Plan was presented to the Plan Commission of the City of University City for consideration in accordance with the University City Charter, Section 62 which states that "...The plan commission shall have the authority to prepare and submit to the council for its approval a master plan for the physical development of the city, including the general location, character and extent of streets, bridges, parks, waterways, and other public ways, grounds and spaces, together with the general location of public buildings and other public property, public utilities, and the extent and location of any public housing or slum clearance projects, and shall recommend such modifications of said plan, from time to time, as it deems in the city's interest.;"; and

WHEREAS, a public hearing was held at the April 8, 2013 City Council meeting with public comments expressed and received; and

WHEREAS, at the same April 8, 2013 City Council meeting, the City Council passed a motion "to send the Draft Bicycle and Pedestrian Plan along with the comments from the just held Public Hearing and the comments from this Council back to the Plan Commission to be read, analyzed with regard to compliance with the Charter and University City Municipal policies, and considered for incorporation into the new Comprehensive City Plan that is in process of being developed"; and

WHEREAS, on August 27, 2013 the Plan Commission held a second public meeting that included wide public dissemination of the meeting notice as well as an Open House and distribution of a comprehensive set of questions and answers; and

WHEREAS, upon consideration of the public comments received, certain revisions have been made to the original Master Plan; and

WHEREAS, the Plan Commission, at their September 25, 2013 meeting, as the result of the review of the relevant sections of the City Charter of University City and University City Municipal Ordinances, unanimously voted to return the Revised Bicycle and Pedestrian Master Plan to the City Council with a recommendation that said plan be adopted as a supplement to the Comprehensive Plan Update of 2005; and

WHEREAS, the Plan Commission agrees to consider for incorporation the analysis and conclusion of the Revised Bicycle and Pedestrian Master Plan into the development of the next Comprehensive Plan Update.

NOW, THEREFORE, BE IT RESOLVED that the Bicycle and Pedestrian Master Plan, attached as Exhibit A, is hereby adopted as a supplement to the Comprehensive Plan Update of 2005 by the City Council of University City, Missouri.

BE IT FURTHER RESOLVED that the City Council of University City recognizes that its adoption of the Bicycle and Pedestrian Master Plan does not immediately commit City funds toward project implementation, and recommends that the City Manager explore funding opportunities for any relevant aspect of the Plan.

BE IT FURTHER RESOLVED that before a private subdivision is included with the implementation of the Bicycle and Pedestrian Master Plan, the City Manager will secure all necessary approvals from the trustees or other relevant authority associated with the impacted private subdivision.
BE IT FURTHER RESOLVED that the City Council of University City directs the City Manager to develop a priority and feasibility list of the bike/walk projects including accessible sidewalks for Council approval and implementation.

ADOPTED THIS 14th DAY OF OCTOBER, 2013.

Shelley Welsch
Shelley Welsch, Mayor

ATTEST:

Joyce Pumm, City Clerk
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Executive Summary

University City has a rich history that is reflected in its current assets and amenities; its location as an inner-ring suburb and its interconnected street grid presents unique opportunities for enhancing walking and biking for transportation, recreation, and fitness. In an effort to move University City towards being one of the most sustainable cities in the St. Louis Metropolitan region, the Bicycle and Pedestrian Plan builds upon University City’s outstanding historic character and seeks to provides viable transportation options for all residents.

The Bicycle and Pedestrian Plan is a partnership between The City of University City and Trailnet, a non-profit organization working throughout the St. Louis area. The Bicycle and Pedestrian Plan is funded through a grant from the Missouri Department of Transportation and supports the goals of the Mayor’s Task Force on Bike and Walk-ability by providing recommendations and design options to promote equity in mobility for all University City residents, regardless of their age, income, or ability. The planning process took place over the course of 14 months and included regular meetings with the Mayor’s Task Force on Bike and Walk-ability, Steering Committee, Stakeholder Interviews, two Public Workshops, and special workshops with City staff, Commissioners, and elected officials.

VISION & GOALS

University City possesses remarkable physical connectivity, access to transit, and regionally-significant location and amenities. The Plan aims to make University City the St. Louis region’s premier walk-able and bike-able city by creating a community with universal accessibility and transportation alternatives that enable residents, no matter their age or ability, to walk and bike to their destinations—school, work, shopping, recreation, and play. The Plan intends to achieve this vision by fulfilling the following Goals:

- Create an “equity of mobility” within University City by providing universally-accessible transportation alternatives;
- Support and increase ongoing investment in and revitalization of University City;
- Encourage walking and cycling as legitimate modes of transportation and promote public health and healthy and active lifestyles.
ELEMENTS OF THE PLAN

The Bicycle and Pedestrian Plan outlines capital improvement projects, policy and operational initiatives, cost opinions, available funding sources, and implementation priorities. Elements include:

BICYCLE AND PEDESTRIAN FACILITY NETWORK: The Facility Network consists of four facility types designed to accommodate existing street dimensions while ensuring that all University City residents are within one quarter mile (five-minute walk) or less of a bicycle and pedestrian route. Facility types include Bike/Walk Streets; Sharrors; Bike Lanes; and Bike Routes. All bike and pedestrian routes include streetscape enhancements to improve pedestrian comfort and safety by delineating pedestrian zones, providing shade and nighttime lighting, and beautification.

IMPLEMENTATION GUIDE: The Implementation Guide is the “how-to” of the Bicycle and Pedestrian Plan. It is structured to support and facilitate existing and ongoing initiatives and prioritize capital improvement projects with a high value-to-cost ratio in order to build momentum for the implementation of the Plan. Projects that the community intends to complete or consider in order to implement the Bicycle and Pedestrian Plan are categorized by timeframes of 1-5 Years; 5-15 Years; and 10-20 Years.

POLICIES, OPERATIONS & MAINTENANCE: In addition to capital improvement projects, the Plan includes several policy, operations, and maintenance recommendations. These recommendations are designed to enhance safety, awareness, and user ship of new and improved bike and pedestrian facilities and evaluate the success of implementation initiatives over time.

OPINION OF PROBABLE COST: An Opinion of Probable Cost has been assembled to assist University City in developing capital improvements programming, departmental budgeting, grant writing, and fund-raising. It is based on the Gateway Bike Plan and similar projects in the St. Louis Region.

FUNDING SOURCES: Creative Funding Sources are necessary for the development of a bicycle- and pedestrian-friendly community and University City should seek to draw from the diverse range of federal, local, and private-sector funding programs available to fund both infrastructure improvements and programs. Local funds should be leveraged as match for external funding in order to maximize the City’s investment.
Introduction

The City of University City has a rich history that is reflected in its current assets and amenities. University City has many pedestrian-friendly, historic neighborhoods with tree-lined streets; accessible business areas; and neighborhood schools and parks. The Delmar Loop—the premier shopping and entertainment district in the St. Louis region—is the City’s most recognizable asset. University City’s location as an inner-ring suburb and its interconnected street grid presents unique opportunities for enhancing walking and biking for transportation, recreation, and fitness. At the same time, the City’s aging infrastructure presents challenges to achieving this goal.

In an effort to move University City towards being one of the most sustainable cities in the St. Louis Metropolitan region and to make the streets safer for bicyclists and pedestrians, a Mayor’s Task Force on Bike and Walk-ability was established in October 2010. This task force is charged with reviewing best practices locally, nationally, and internationally to determine how to make University City’s streets safe for walking and biking, and discovering how to move forward on making University City a “complete streets” community. The Bicycle and Pedestrian Plan builds upon University City’s outstanding historic character and the mandate of the Bike Walk Task Force. The Plan focuses on improving existing pedestrian- and bicycle-oriented neighborhoods and commercial districts, supporting the creation of new walk-able and bike-able infrastructure, and connecting to amenities in University City and neighboring communities. Through the integration of programming, policy, and planning, the Bicycle and Pedestrian Plan provides viable transportation options for all residents.

The Bicycle and Pedestrian Plan is a partnership between The City of University City and Trailnet, a non-profit organization working throughout the St. Louis Metropolitan Area to foster healthy and active communities through innovative programs, planning, and policies that promote walking and bicycling. The Bicycle and Pedestrian Plan is funded through a grant from the Missouri Department of Transportation (MoDOT) Surface Transportation Program (STP) for the development of Walk-able Bike-able Communities (Phase 3.) The Plan supports the goals of the Mayor’s Task Force on Bike and Walk-ability by providing recommendations and design options to promote equity in mobility for all University City residents, regardless of their age, income, or ability.
Planning Process

The Planning Process for the Bicycle and Pedestrian Plan is divided into a Pre-Planning stage and four Phases covering each of the project tasks and work products. These Phases are: Phase A: Analysis of Existing Data & Conditions; Phase B: Plan Goals, Vision & Objectives; Phase C: Bicycle & Pedestrian Plan (including Design Options); and Phase D: Implementation & Funding Strategy. This process took place over the course of 14 months and included regular meetings with the Mayor’s Task Force on Bike and Walk-ability, Bicycle and Pedestrian Plan Steering Committee, Stakeholder Interviews, two Public Workshops, and special workshops with City staff, Commissioners, and elected officials.

BICYCLE & PEDESTRIAN PLAN STEERING COMMITTEE

The Steering Committee consisted of the Mayor’s Task Force on Bike and Walk-ability as well as representatives from Great Rivers Greenway, Saint Louis County Highways and Traffic, MoDOT, University City School District, and University City staff. The Steering Committee served as a representative, decision-making body to guide the planning process, lead public outreach efforts and spread the word about the Plan, and provided feedback and critique on the various phases of the Plan. The Steering Committee met four times throughout the process, at the conclusion of each project phase.

STAKEHOLDER FOCUS GROUPS

The City of University City and the Steering Committee identified 26 Stakeholders to be interviewed as part of the Planning Process. Stakeholders included University City residents, business and property owners, merchants, institutions, and other interested parties. The Stakeholders were interviewed over the course of two days in small focus groups. These Stakeholder Focus Groups, along with a professional analysis of bike-able and walk-able conditions in University City, resulted in a list of Consensus Issues that were developed and revised through a process of public review and feedback.
DEVELOPMENT OF THE PLAN

The Consensus Issues and summary of the site analysis conducted in Phase A were presented to the Steering Committee at their first meeting and to the University City community in the first Public Workshop. Following this Workshop, the Steering Committee approved the draft Plan Goals, Vision, and Objectives for the Bicycle and Pedestrian Plan. The Plan Goals, Vision, and Objectives represent the consensus values of the University City community for bike- and walk-ability and serve as the foundation for the Bicycle and Pedestrian Plan.

Next, a draft Bicycle and Pedestrian Facility Network was developed. This included particular routes and alignments for proposed facility types—including bike-walk streets, on-street bike lanes, sharrow, off-street paths, streetscape improvements, and greenways—and design options for each facility type. These design options were presented to the Steering Committee at their third meeting and to the University City community in the second Public Workshop for review and feedback.

Utilizing the public input gathered at the second Public Workshop in coordination with the Mayor’s Task Force on Bike and Walk-ability, University City City Council, and the Plan Commission, the City developed the final Bicycle and Pedestrian Plan. The Plan includes the final Bicycle and Pedestrian Facility Network, an Implementation Guide outlining specific Projects, an Opinion of Probable Cost, and a description of possible Funding Sources.

This comprehensive sequence of public engagement, summarized in detail to the left, has resulted in a Plan and implementation strategy developed with transparency and supported by public input among neighborhood residents. These are the hallmarks of a successful public planning process. Following completion of the planning process, the Bicycle and Pedestrian Master Plan was adopted by the City Council as an Addendum to the City of University City 2005 Comprehensive Plan. Resolution 2013-17 is included in the appendix.
**Existing Conditions**

University City is located in the heart of the St. Louis Metro area. The 5.9 square-mile City sits between Interstate 170 and the City of St. Louis city limits and is intersected by major regional arterial corridors. Additionally, the City is served by the Metrolink light rail transit system and Metrobus lines, making University City one of the most well-connected communities in the Metro region.

University City has shown an excellent capacity to plan for its future in an environmentally-, socially-, and economically-sustainable way. Public space and planning initiatives including streetscape improvements to the Delmar Loop; Chuck Berry Plaza; Great Rivers Greenway (GRG) Centennial Greenway (incorporated in this Plan but designed and implemented by GRG); the ongoing Parkview Gardens Neighborhood Sustainable Development Plan (with which this Plan has been closely coordinated); cross-jurisdictional development planning for the I-170/Olive Boulevard interchange with Olivette; and pending adoption of a City-wide *Complete Streets* Ordinance (see page 38) all demonstrate University City’s commitment to the creation of great places rooted in University City’s history. These efforts have been augmented by continued private investment throughout University City, evidenced by the ongoing stability of University City’s residential and retail markets. The Bicycle and Pedestrian Plan is intended to unify the City’s planning efforts under the vision of a bike-able and walk-able community, supported by vibrant commercial districts, great streets, and public spaces.

**ISSUES & CHALLENGES**

University City faces a number of challenges to improving biking and walking conditions. University City is divided by a number of arterial roads including Big Bend Boulevard, Delmar Boulevard, Hanley Road, McKnight Road, Midland Boulevard, North and South Avenue, Olive Boulevard, Vernon Avenue, and Woodson Road. These arterial roads are under the jurisdiction of St. Louis County Highways and Traffic and MoDOT. Historically, these streets were developed as major regional arteries. With the construction of I-64 and I-170, traffic volumes on several of these arteries has declined and some have excess capacity for vehicular traffic. As a result, traffic speeds often exceed posted limits and these streets are perceived as dangerous to pedestrians and cyclists. It will be essential for University City to coordinate future improvements on these streets with St. Louis County and MoDOT and advocate for improvements to benefits all types of users.
There are a number of traffic signals and crossing points throughout the city that are perceived as unsafe or do not provide high levels of service to cyclists and pedestrians. These include a lack of manual- or automatic activation for bikes (Jackson Avenue at Delmar Boulevard), lack of pedestrian-only crossing modes at intersections with limited visibility (Big Bend Boulevard at Delmar Boulevard), and pedestrian crossings of arterial roads without electric signals (Delmar Boulevard at Trinity Avenue; Olive Boulevard at Heman Park.) Finally, many existing sidewalks are not accessible, lacking curb cuts or designated crossing points at intersections, and a number of neighborhoods in areas west of North & South Avenue have no sidewalks or curbs, or sidewalks on one side of the street only. The comprehensive list of Consensus Issues and an illustrative map are presented on the following page.

ASSETS & OPPORTUNITIES

University City’s gridded streets provide excellent connectivity within and between neighborhoods, with numerous pedestrian and bicycle alternative routes to major streets. In addition, University City’s seventeen parks, fourteen primary and secondary schools, and numerous regional and neighborhood commercial districts are well-distributed throughout this city; over fifty-percent of University City residents live within a five-minute walk (one-quarter mile) of a park, school, and commercial district, and nearly all residents live within a five-minute bike ride (one mile). University City is also exceptionally well-served by regional transportation. There are six Metrolink stations in and around University City, and all regional arterials host MetroBus lines. The planned Centennial Greenway also bisects the City in its route from Forest Park to Creve Coeur Lake, placing University City at the doorstep of the “River Ring” greenway network. Nearly all of University City residents are within a five-minute walk (one-quarter mile) of a Metrobus stop, over thirty-percent are within a ten-minute walk (one-half mile) and nearly all residents are within a ten-minute bike ride (two miles) of Metrolink and the Centennial Greenway.

University City’s existing connectivity and access to regional transit and amenities provides a remarkable framework for increasing walk and bike-ability. This puts University City in the unique position to deliver true transportation equity to its residents, making walking, biking, or utilizing transit for daily trips as easy as driving. Following through with this opportunity can help make University City the first walk-able, bike-able, and truly car-optional community in the St. Louis region.
CONSENSUS ISSUES

1. Major corridors lack sufficient pedestrian amenities including sidewalks, crosswalks, lighting, shade, and A.D.A.-accessible curb cuts and are uncomfortable or perceived as unsafe to walk or bike.
2. The Loop is congested with both cars and pedestrians and is uncomfortable and perceived as unsafe for bikes.
3. There is a lack of visible and conveniently-located bicycle parking and storage facilities in the Loop.
4. Many major intersections along Delmar Boulevard are perceived as unsafe.
5. Midland Boulevard is a good bike route, but traffic speed and parked cars result in negative perceptions of safety and comfort.
6. Existing, dedicated bike routes and pedestrian paths do not connect to meaningful destinations; city-wide and regional bike routes are not well-identified or -marked.
7. Traffic signals at the crossing of major arterial roads, are not timed for cyclists and do not activate when bikes are present.
8. Bicycle connectivity to the west is limited to one route along Old Bonhomme Road.
9. There is a lack of direct and identified bike and walk routes to Metrolink.
10. Many streets lack sidewalks and curbs, particularly in west of North & South Avenue.
11. Sidewalks along Olive Boulevard, east of Ferguson Avenue, are often obstructed.
12. There are numerous physical barriers preventing connectivity to the south and east.
13. The Centennial Greenway bridge at Forest Park Parkway is not ADA-accessible.
14. Topography and the River Des Peres corridor result in fundamental issues of flooding for sections of University City.
15. The Olive Boulevard commercial corridor lacks a coherent regional identity.
Vision

“To make University City the region’s premier walk-able and bike-able city by creating a community with universal accessibility and transportation alternatives. To enable residents, no matter their age or ability, to walk and bike to their destinations—school, work, shopping, recreation, and play.”

Plan Vision, Goals & Objectives

University City recognizes the unique opportunity presented by its remarkable physical connectivity, access to transit, and regionally-significant location and amenities. In order to realize this potential to make University City the premier walk-able and bike-able community in the St. Louis Metro area, the Bicycle and Pedestrian Plan intends to fulfill the following Goals:

1) Create an “equity of mobility” within University City by providing universally-accessible transportation alternatives, including biking, walking, and transit for all residents on a daily basis, including children, the elderly, the disabled, and the disadvantaged.

2) Support and increase ongoing investment in and revitalization of University City by providing amenities, services, tools, and policies that increase the competitiveness of University City as a premier business, shopping, entertainment, and residential community in the St. Louis region, supported by access to transit and walk-able, bike-able neighborhoods and districts.

3) Encourage walking and cycling as legitimate modes of transportation and promote public health and healthy and active lifestyles through facility and infrastructure improvements; programming; special events and activities; public outreach; data collection; and safety education and enforcement.

The Bicycle and Pedestrian Plan Vision unifies the three Goals and also outlines the consensus values and desires of the University City community. The Bicycle and Pedestrian Plan Objectives, presented on the following pages, outline specific strategies to achieve these Goals and fulfill the project Vision.
**Objective #1**

**Improve pedestrian access to University City parks and schools**
by enhancing existing sidewalks and constructing new sidewalks and, A.D.A.-accessible crosswalks, safe intersections, streetscapes and public realm amenities surrounding parks and schools.

**Objective #2**

**Create an equity of mobility for all residents by enhancing walkability through the creation of great streets throughout University City.** Develop sustainable landscapes; improve the condition and accessibility of existing sidewalks, crosswalks, intersections, and facilities; implement new sidewalks where possible; promote multi-modal ushership with traffic-calming design, signage, programming, and enforcement; and implement operations and maintenance standards and programs.

**Objective #3**

**Improve the safety and comfort of pedestrian connectivity across major regional arterials,** including Delmar Boulevard, North Hanley Road, Midland Boulevard, North & South Road, Olive Boulevard, McKnight/Woodson Road, and Big Bend Boulevard through the implementation of enhanced safe crosswalks, signals, safety enforcement, and programming.
Objective #4

Utilize the unique landscape of the River Des Peres to develop regional connections to the south and west by coordinating with Great Rivers Greenway to promote and facilitate the development Centennial Greenway.

Objective #5

Enhance north/south and east/west pedestrian and bicycle connectivity between neighborhoods, commercial and recreational destinations, amenities, and transit with on-street pedestrian and bicycle routes consisting of improved sidewalks and streetscapes, intersections, share-the-road signage and markings, and bike lanes where possible.

Objective #6

Connect University City neighborhoods to regional business districts, greenway networks, and transit with a system of bicycle and pedestrian routes consisting of bicycle boulevards, on-street bike lanes, and off-street path connectors linking University City parks, schools, Olive Boulevard, and the Delmar Loop
Objective #7

Create walk-able, neighborhood- and resident-oriented commercial districts by facilitating pedestrian-oriented new and infill development and supporting the creation and retention of businesses that attract regional visitors while supporting neighborhood needs and local residents.

Objective #8

Promote an increase in walking and cycling by developing walking and bicycling programs and activities; engaging school children, families, senior citizens, and community organizations; and implementing an ongoing, scheduled data-collection program to establish baseline pedestrian and cycling data and to quantify improvements in pedestrian and cycling use throughout the implementation of the Bicycle & Pedestrian Plan.

Objective #9

Coordinate with existing and ongoing planning efforts including the St. Louis Regional Bike Plan, Centennial Greenway, Olive Boulevard Design Guidelines, the Parkview Gardens Sustainability Plan, the Loop Trolley, and neighboring bike/walk plans to develop a relevant Bicycle & Pedestrian Master Plan for University City that contributes to city-wide and regional interconnectivity, mobility, and investment.
Bicycle & Pedestrian Facility Network

The Bicycle and Pedestrian Plan’s Facility Network consists of four primary facility types designed to accommodate existing street dimensions and ensuring that all University City residents are within one quarter mile (five-minute walk) or less of a bicycle and pedestrian route. These facility types are:

BIKE/WALK STREETS: Also known as “bicycle boulevards,” these are shared-use streets that give preference to bikes over vehicular traffic. They are indicated with markings, signage, and optional traffic calming devices. This is the preferred facility type on low-volume neighborhood streets.

SHARROWS: Sharrows utilize painted, full-lane width enlarged shared lane markings with signage. Enlarged shared lane markings are optionally paired with bicycle-zone lane markings (the “Big Green Stripe.”) This is the preferred facility type where bike lanes are not possible.

BIKE Lanes: Bike Lanes are dedicated, directional traffic lanes for bicycles, located outside of vehicular traffic lanes. They are a minimum of 5-feet wide and indicated with stripes, directional arrows, and signage. This is the preferred facility type for all roads where possible.

BIKE ROUTES: Bike Routes consist of Share-the-Road and Bicycle Route signage and optional shared-lane markings (as permitted.) It is recommended for streets where dedicated bicycle facilities are either not possible due to road width or traffic conditions or not permitted by governing agencies.

All facility types include streetscape enhancements consisting of curb and sidewalk improvements/replacement, tree lawns, street trees, and optional decorative street lighting. These enhancements improve pedestrian comfort and safety by delineating pedestrian and vehicular zones, discouraging right-of-way obstruction by parked cars, providing shade and nighttime lighting, and beautification. Additionally, Lewis Park is a pedestrian facility only with no bike paths proposed.

The proposed GRG Centennial Greenway, while considered part of the Bicycle and Pedestrian Facility Network and utilizing existing and proposed off-street facilities including Heman Park, Mona Terrace, and the Wilson Avenue buyout area, is an initiative of Great Rivers Greenway and is not discussed in further detail. Details for each facility type are presented on the following pages.
BICYCLE & PEDESTRIAN FACILITY NETWORK

BIKE/WALK STREETS
A. North Bike/Walk Corridor
B. Central Bike/Walk Corridor
C. North & South Connector
D. Etzel Avenue
E. Pennsylvania Connector
F. Kingsbury Connector

SHARROWS
G. Jackson Avenue
H. Purdue Avenue
I. Old Bonhomme Road/
   Swarthmore Lane
J. 82nd Boulevard
K. Enright Avenue Connector
L. Sutter Avenue Connector
M. 81st Avenue
N. Kingsland Avenue

BIKE LANES
O. Olive Boulevard
P. Kingsland Avenue
Q. Old Bonhomme Road
R. Ferguson Avenue
S. Pershing Avenue

BIKE ROUTES
T. St. Louis County Arterials
U. Neighborhood Streets & Connectors

CENTENNIAL GREENWAY*
V. Centennial Greenway
W. Centennial Greenway Alternate Route
X. Shaw Park Spur

*Centennial Greenway is a previously-approved planning initiative of Great Rivers Greenway (GRG) and is included as-is in the University City Bicycle & Pedestrian Plan. GRG maintains full authority over ongoing and future planning, design, and implementation of the Centennial Greenway.

Note: Any closed roads shall remain closed and will only be adjusted for pedestrian and bicycle travel.
FACILITY TYPES

Bike/Walk Streets (Bicycle Boulevards)

Bike/Walk Streets, also known as Bicycle Boulevards, are shared-use streets that give priority to bicycles over vehicular traffic. Bike/Walk Streets are ideally implemented on low-volume, low-speed residential streets that parallel arterial roads. Bike/Walk Streets encourage cyclists to avoid major thoroughfares by providing alternate routes, and encourage vehicular through-traffic to avoid neighborhood streets. Design, programming, and enforcement initiatives include:

- **STOP SIGNS**: Existing 4-way stop intersections should be changed to 2-way stop intersections for cross traffic, allowing Bike/Walk Street cyclists and traffic to proceed without stopping.

- **SPEED LIMITS**: Speed limits on Bike/Walk Streets should not exceed 20 miles per hour.

- **LANE MARKINGS AND SIGNAGE**: Bike/Walk Streets should be indicated with enlarged, full-lane width shared-lane markings (bike-and-chevron stencil), striping, and way-finding signage.

- **TRAFFIC-CALMING**: Bike/Walk Streets should include traffic-calming elements, including speed tables, rumble-strips, curb bulb-outs, and chicanes.

- **DIVERTERS**: Bike/Walk Streets can include optional traffic diverters at designated cross streets. These diverters will direct vehicular traffic onto parallel collector or arterial roads, restricting vehicular traffic to local traffic only while allowing bicycle traffic to pass through.

- **STREETSCAPE ENHANCEMENTS**: Bike/Walk Streets should include curb and sidewalk improvements, tree lawns, street trees, and optional decorative street lighting.

A number of proposed Bike/Walk Streets pass through private subdivisions. While subdivision residents have been involved in the planning process, coordination with and approval of subdivision Trustees will be required to implement planned facilities. In addition, an agreement would be executed between the Trustees and the City to address issues such as maintenance. The Bike/Walk Street facility network is illustrated on the facing page, and design details for Bike/Walk Streets are presented on page 18.
FACILITY TYPES

Bike/Walk Streets (Bicycle Boulevards)

1. North Bike/Walk Corridor
2. Central Bike/Walk Corridor
3. North & South Connector
4. Etzel Avenue
5. Pennsylvania Connector
6. Kingsbury Connector
FACILITY TYPES

**Bike/Walk Streets (Bicycle Boulevards)**

**EXISTING CONDITIONS**
- Two (2) Travel Lanes (TR)
- Two (2) Parking Lanes (P)

**PHASE 1**
- Bicycle boulevard pavement markings (1 per 100 feet)
- Bicycle boulevard striping
- Bicycle boulevard signage
- All improvements within existing curb-to-curb right-of-way
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Sharrors consist of full-lane width enlarged shared-lane makings (bike-and-chevron stencil), Share-the-Road signage on shared-use streets. Bike/Walk Streets are ideally implemented on low- to medium-volume, low-speed and medium-speed residential streets and secondary connector streets where the development of Bike/Walk Streets or Bike Lanes is not feasible or possible due to street width or required through-traffic connectivity. Sharrors can improve cyclist safety by calling attention to cyclists from motorists. Design, programming, and enforcement initiatives include:

- **ENLARGED SHARED-LANE MARKINGS:** Streets with Sharrors should be indicated with enlarged shared-lane marking (bike-and-chevron stencil.) Markings should be 8- to 10-feet wide and located in the center of the traffic lane (outside traffic lane on 4-lane roads.)

- **SPEED LIMITS:** Speed limits on streets with Sharrors should not exceed 30 miles per hour.

- **SIGNAGE:** Streets with Sharrors should be indicated with Share-the-Road signage, optional Bike Route signage, and way-finding signage to parks and other amenities.

- **BICYCLE-ZONE LANE MARKINGS:** Streets with Sharrors can include optional bicycle-zone lane markings, also referred to as “the Big Green Stripe.” Bicycle-zone lane markings should consist of a 5- to 7-foot painted green lane between two white stripes, located in the outer half of traffic lane (outside traffic lane on 4-lane roads.)

- **STREETSCAPE ENHANCEMENTS:** Streets with Sharrors should include curb and sidewalk improvements, tree lawns, street trees, and optional decorative street lighting.

The Sharrow facility network is illustrated on the facing page, and design details for streets with Sharrors are presented on page 24.
FACILITY TYPES

Sharrows

1. Jackson Avenue
2. Purdue Avenue
3. Old Bonhomme Road/
   Swarthmore Lane
4. 82nd Boulevard
5. Enright Avenue Connector
6. Sutter Avenue Connector
7. 81st Avenue
8. Kingsland Avenue
FACILITY TYPES

Sharrows

EXISTING CONDITIONS
- Two (2) Travel Lanes (TR)
- Two (2) Parking Lanes (P)

PHASE 1
- Lane-width Share-the-Road Arrows (1 per 175 feet)
- Share-the-Road signage
- All improvements within existing curb-to-curb right-of-way
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FACILITY TYPES

Bike Lanes

Bike Lanes consist of dedicated, striped lanes within the curb-to-curb dimension of the roadway. Regional standards for bike lane design are 2 one-way bike lanes located on the outside of the traffic lanes on each side of the roadway. Bike lanes are positioned between outermost traffic lane and the curb or the parallel parking lane, if present. Bike lanes are the preferred facility type for all roadways, given sufficient right-of-way or pavement width exists. Design, programming, and enforcement initiatives include:

- **STRIPPED LANES:** Bike Lanes are one-way, 5- to 6- feet wide, and indicated by two white stripes. Bike Lanes should be located on the outside of traffic lanes, between the outermost traffic lane and the curb or parallel parking lane, if present. If Bike Lanes are located between traffic lanes and parallel parking lanes, the combined width of the Bike Lane and parallel parking lane should be a minimum of 13 feet to minimize door zone conflicts.

- **SPEED LIMITS:** Speed limits on streets with Bike Lanes should not exceed 40 miles per hour.

- **SIGNAGE:** Bike Lanes should be indicated with Bike Lane and Share-the-Road signage and way-finding signage to parks and other amenities.

- **STREETSCAPE ENHANCEMENTS:** Streets with Bike Lanes should include curb and sidewalk improvements, tree lawns, street trees, and optional decorative street lighting.

The Bike Lane facility network is illustrated on the facing page, and design details for Bike Lanes are presented on pages 28 to 30.
FACILITY TYPES

Bike Lanes

1. Olive Boulevard
2. Kingsland Avenue
3. Old Bonhomme Road
4. Ferguson Avenue
5. Pershing Avenue
**FACILITY TYPES**

**Bike Lanes : Olive Boulevard**

**EXISTING CONDITIONS**
- One (1) Center Turn Lane (TL)
- Four (4) Travel Lanes (TR)

**PHASE 1**
- One (1) Center Turn-Lane (TL)
- Four (4) Travel Lanes (TR)
- Two (2) striped Bike Lanes (BL)
- Lane widths as shown
- All improvements within existing curb-to-curb right-of-way

**PHASE 2**
- Tree lawns
- Repair curbs and sidewalks as required
- Street trees
- Decorative street lighting (OPTIONAL)
- Underground utilities (OPTIONAL)
FACILITY TYPES

Bike Lanes: 2-Lane Streets

EXISTING CONDITIONS
- Two (2) Travel Lanes (TR)
- Two (2) Parking Lanes (P)

PHASE 1
- Two (2) Travel Lanes (TR)
- Two (2) striped Bike Lanes (BL)
- One (1) or Two (2) Parking Lanes (P)
- Lane widths as shown
- All improvements within existing curb-to-curb right-of-way

PHASE 2
- Repair curbs and sidewalks as required
- Street trees
- Decorative street lighting (OPTIONAL)
- Underground utilities (OPTIONAL)
FACILITY TYPES

Bike Lanes : Divided Streets

EXISTING CONDITIONS
- Four (4) or Two (2) Travel Lanes (TR)
- Two (2) Parking Lanes (P)
- Center median

PHASE 1
- Four (4) or Two (2) Travel Lanes (TR)
- Two (2) striped Bike Lanes (BL)
- Two (2) Parking Lanes (P)
- Lane widths as shown
- All improvements within existing curb-to-curb right-of-way

PHASE 2
- Repair curbs and sidewalks as required
- Street trees
- Decorative street lighting (OPTIONAL)
- Underground utilities (OPTIONAL)
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**FACILITY TYPES**

**Bike Routes**

Bike Routes consist of roads that are designated as bicycle and pedestrian routes, but do not feature dedicated bicycle facilities or markings on the road itself. Bike Routes are roads that are either required for comprehensive bicycle connectivity and/or currently designated as University City bike routes but on which dedicated bicycle facilities are not possible due to road width and right-of-way constraints, or not permitted due to jurisdictional regulations. Roads under the jurisdiction of St. Louis County Highways and Traffic are included in this facility type. Design, programming, and enforcement initiatives include:

- **SPEED LIMITS**: Speed limits on Bike Routes should not exceed 35 miles per hour.

- **SIGNAGE**: Bike Routes should be indicated with Share-the-Road signage and way-finding signage to parks and other amenities.

- **SHARED-LANE MARKINGS (Where Permitted)**: Bike Routes can be indicated with standard shared-lane markings (bike-and-chevron stencil.) Markings should conform to standards set forth in the Gateway Bike Plan, the regional bicycle master plan completed in 2011 by Great Rivers Greenway District. Shared-Lane Markings should be implemented on all streets where permitted; Shared-Lane Markings are currently not permitted on roads in the St. Louis County Arterial Road System (ARS.)

- **STREETSCAPE ENHANCEMENTS**: Bike Routes should include curb and sidewalk improvements, tree lawns, street trees, and optional decorative street lighting.

The Bike Route facility network is illustrated on the facing page, and design details for Bike Routes are presented on pages 34.
FACILITY TYPES

Bike Routes

ST. LOUIS COUNTY ARTERIAL ROADS
1. McKnight Road
2. Midland Boulevard
3. North & South Avenue
4. Olive Boulevard
5. Pennsylvania Avenue
6. Vernon Avenue
7. Woodson Road

UNIVERSITY CITY STREETS
8. Balson Avenue
9. Forsyth Boulevard
10. Fullerton Avenue
11. Hazelwood Lane
12. Kempland Place
13. Melrose Avenue
14. Oakbrook Lane
15. Partridge Avenue
16. Polk Avenue
17. Purcell Avenue
18. Raymond Avenue
19. Roberts Avenue
FACILITY TYPES

Bike Routes

EXISTING CONDITIONS
- Two (2) Travel Lanes (TR)
- Two (2) Parking Lanes (P)

PHASE 1
- Share-the-Road signage
- Share-the-Road lane markings (as permitted)

PHASE 2 & PHASE 3
- Repair curbs and sidewalks as required
- Street trees
- Decorative street lighting (OPTIONAL)
- Underground utilities (OPTIONAL)
Implementation Guide

The *Implementation Guide* is the “how-to” of the Bicycle and Pedestrian Plan. The Plan is an ambitious vision that encompasses 30 miles of on-street bicycle and pedestrian facilities and streetscape enhancements. The *Implementation Guide* organizes and prioritizes the various projects, as specified by the City of University City and the Plan Steering Committee.

The following tables are a detailed *Project List* and actions that the community intends to complete or consider in order to implement the Bicycle and Pedestrian Plan. These projects and actions consist of *Phases* with corresponding *Priority Levels* and time frames. Projects are categorized by the following *Priority Levels*:

<table>
<thead>
<tr>
<th>PRIORITY LEVEL 1 (SHORT-TERM; 1-5 Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIORITY LEVEL 2 (MEDIUM-TERM; 5-15 Years)</td>
</tr>
<tr>
<td>PRIORITY LEVEL 3 (LONG-TERM; 10-20 Years)</td>
</tr>
</tbody>
</table>

Within each *Priority Level*, individual projects may be prioritized based on a variety of considerations and ongoing evaluation. The City capital improvement program budget will outline how priorities are implemented. Examples of priority considerations may include:

- Connectivity to existing bike routes and/or bicycle and pedestrian plans in neighboring cities
- Equitable distribution of bicycle and pedestrian routes throughout University City
- Conversion of existing University City bike routes to new bicycle and pedestrian facilities
- Connectivity to *Centennial Greenway* existing and planned routes and/or Metrolink Stations

This *Implementation Guide* is structured to support and facilitate existing and ongoing initiatives and prioritize projects with a high value-to-cost ratio in order to build momentum for the implementation of the Bicycle and Pedestrian Plan. It does not prohibit existing or future projects from occurring outside the priority recommendations.
### PROJECT LIST

**BIKE/WALK STREETS (BICYCLE BOULEVARDS)**

<table>
<thead>
<tr>
<th>North Bike/Walk Corridor</th>
<th>Phase 1</th>
<th>Priority Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Bike/Walk Corridor</td>
<td>Implement bicycle boulevard pavement markings (1 per 100 feet), striping, and road signage on identified streets. Review and modify if necessary location and orientation of stop-street intersections.</td>
<td></td>
</tr>
<tr>
<td>Etzel Avenue</td>
<td>Phase 2</td>
<td>Priority Level 2</td>
</tr>
<tr>
<td>Pennsylvania Connector</td>
<td>Repair or replace sidewalks and street curbs as necessary. Replace existing roll curbs with vertical curbs as feasible. Implement new sidewalks if no sidewalks exist. Replace missing or damaged street trees as necessary. Implement traffic-calming devices at intersection if necessary.</td>
<td></td>
</tr>
<tr>
<td>Kingsbury Connector</td>
<td>General Improvements</td>
<td>Priority Level 1</td>
</tr>
<tr>
<td></td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement educational programming, traffic-safety monitoring, and enforcement.</td>
<td></td>
</tr>
</tbody>
</table>

**SHARROWS**

<table>
<thead>
<tr>
<th>Jackson Avenue</th>
<th>Phase 1</th>
<th>Priority Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purdue Avenue</td>
<td>BASIC IMPLEMENTATION: Implement lane-width shared lane markings (1 per 175 feet, outside traffic lanes) on each side of the road and two Share the Road signs per mile.</td>
<td></td>
</tr>
<tr>
<td>Old Bonhomme Road</td>
<td>General Improvements</td>
<td>Priority Level 1</td>
</tr>
<tr>
<td>82nd Boulevard</td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement educational programming, traffic-safety monitoring, and enforcement.</td>
<td></td>
</tr>
<tr>
<td>Sutter Avenue Connector</td>
<td>Priority Level 1</td>
<td></td>
</tr>
<tr>
<td>81st Avenue</td>
<td>Phase 2</td>
<td>Priority Level 3</td>
</tr>
<tr>
<td>Kingsland Avenue</td>
<td>ENHANCED IMPLEMENTATION: Repair, replace, or construct new sidewalks as necessary. Replace damaged or missing street trees as necessary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Improvements</td>
<td>Priority Level 1</td>
</tr>
<tr>
<td></td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement educational programming, traffic-safety monitoring, and enforcement.</td>
<td></td>
</tr>
</tbody>
</table>

**Enright Avenue Connector**

(East City Limits to Kingsland Avenue via Enright/Loop North)

<table>
<thead>
<tr>
<th>Enright Avenue Connector</th>
<th>Phase 1</th>
<th>Priority Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASIC IMPLEMENTATION: Implement lane-width shared lane markings (1 per 175 feet, outside traffic lanes) on each side of the road and two Share the Road signs per mile.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Improvements</td>
<td>Priority Level 1</td>
</tr>
<tr>
<td></td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement educational programming, traffic-safety monitoring, and enforcement.</td>
<td></td>
</tr>
<tr>
<td>Phase 2</td>
<td>ENHANCED IMPLEMENTATION: Repair, replace, or construct new sidewalks as necessary. Replace damaged or missing street trees as necessary.</td>
<td>Priority Level 3</td>
</tr>
<tr>
<td>General Improvements</td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement educational programming, traffic-safety monitoring, and enforcement.</td>
<td>Priority Level 1</td>
</tr>
</tbody>
</table>

**PRIORITY LEVEL 1** *(SHORT-TERM; 1-5 Years)*

**PRIORITY LEVEL 2** *(MEDIUM-TERM; 5-15 Years)*

**PRIORITY LEVEL 3** *(LONG-TERM; 10-20 Years)*
## PROJECT LIST

### BIKE LANES

**Olive Boulevard**  
**Kingsland Avenue**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Priority Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Implement two bike lane lines and bike-and-arrow symbols (1 per 175 feet) on each side of the road.</td>
<td>Priority Level 1</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Replace damaged or missing street trees as necessary. Implement OPTIONAL signature street lighting. Implement OPTIONAL underground utilities.</td>
<td>Priority Level 3</td>
</tr>
<tr>
<td>General Improvements</td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement traffic-safety monitoring and enforcement.</td>
<td>Priority Level 1</td>
</tr>
</tbody>
</table>

**Old Bonhomme Road**  
**Ferguson Avenue**  
**Pershing Avenue**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Priority Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Implement two bike lane lines and bike-and-arrow symbols (1 per 175 feet) on each side of the road.</td>
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</tr>
<tr>
<td>Phase 3</td>
<td>Replace damaged or missing street trees as necessary.</td>
<td>Priority Level 3</td>
</tr>
<tr>
<td>General Improvements</td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement traffic-safety monitoring and enforcement.</td>
<td>Priority Level 1</td>
</tr>
</tbody>
</table>

### PEDESTRIAN & STREETSCAPE IMPROVEMENTS

**St. Louis County Arterials**  
*(McKnight Road, Midland Boulevard, North & South Avenue, Pennsylvania Avenue, Vernon Avenue, Woodson Road)*

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Priority Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Implement Share the Road signage (2 per mile, or at the beginning/end of each street segment.)</td>
<td>Priority Level 2</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Repair or replace sidewalks and street curbs as necessary. Replace existing roll curbs with vertical curbs as feasible. Implement new sidewalks if no sidewalks exist.</td>
<td>Priority Level 2</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Replace damaged or missing street trees as necessary. Implement OPTIONAL signature street lighting. Implement OPTIONAL underground utilities.</td>
<td>Priority Level 3</td>
</tr>
<tr>
<td>General Improvements</td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement traffic-safety monitoring and enforcement.</td>
<td>Priority Level 2</td>
</tr>
</tbody>
</table>

**PRIORITY LEVEL 1** *(SHORT-TERM; 1-5 Years)*  
**PRIORITY LEVEL 2** *(MEDIUM-TERM; 5-15 Years)*  
**PRIORITY LEVEL 3** *(LONG-TERM; 10-20 Years)*
# PROJECT LIST

## PEDESTRIAN & STREETSCAPE IMPROVEMENTS

### Neighborhood Streets and Connectors

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Priority Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Implement shared lane markings (1 per 175 feet, outside traffic lanes) on each side of the road. Implement Share the Road signage (2 per mile, or at the beginning/end of each street segment.)</td>
<td>Priority Level 2</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Repair or replace sidewalks and street curbs as necessary. Replace existing roll curbs with vertical curbs as feasible. Implement new sidewalks if no sidewalks exist.</td>
<td>Priority Level 3</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Replace damaged or missing street trees as necessary.</td>
<td>Priority Level 3</td>
</tr>
</tbody>
</table>

### CENTENNIAL GREENWAY*

#### Centennial Greenway*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Priority Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Improvements</td>
<td>Address all intersections and crosswalks for universal accessibility, safety, and pedestrian comfort &amp; walk-ability. Implement traffic-safety monitoring and enforcement.</td>
<td>Priority Level 2</td>
</tr>
</tbody>
</table>

#### Priorities

- **Priority Level 1** *(SHORT-TERM; 1-5 Years)*
- **Priority Level 2** *(MEDIUM-TERM; 5-15 Years)*
- **Priority Level 3** *(LONG-TERM; 10-20 Years)*
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Policies, Operations & Maintenance

In addition to the Projects previously listed, the Bicycle and Pedestrian Plan includes several policy, operations, and maintenance recommendations. These City-wide initiatives include enhancing universal accessibility; Complete Streets enhancements; programming; operations and maintenance for enforcement, education, and data-collection.

COMPLETE STREETS

Complete Streets refers to the idea that streets need to work for everyone; people who drive but also pedestrians, cyclists, transit-users, senior citizens and youth, and the able-bodied and the disabled. One of the first items completed by the Mayor’s Task Force on Walk and Bike-ability was the development of a Complete Streets policy for University City; this policy is pending adoption by the University City City Council. Bicycle and pedestrian facilities proposed in the Plan have been designed to achieve the pending Complete Streets policy. In addition, the Plan recommends the implementation of Complete Streets on all University City-owned streets, including the construction of new vertical curbs along existing streets, the replacement of roll-curbs with vertical curbs as feasible, and the construction of sidewalks along streets where sidewalks do not currently exist. These improvements should be prioritized based upon the recommendations of the Bicycle and Pedestrian Plan.

UNIVERSAL ACCESSIBILITY

Through the planning process, University City learned that, while many streets throughout the city may be ADA-accessible, they do not necessarily provide a high level of service to users with disabilities. The Bicycle and Pedestrian Plan recommends a City-wide program to provide enhanced universal accessibility through intersection, sidewalk, crosswalk, and signal design, including:

1) Designated crossing points at all intersections with accessible-curb cuts oriented perpendicular to the street;
2) Tactile surface changes at curb cuts and crosswalks;
3) Traffic and walk signals countdown timers, audible signals, and protected crossing phases (pedestrian-only) where necessary (i.e. Big Bend Boulevard at Delmar Boulevard);
4) Installation of at least one electronic, on-demand pedestrian-crossing signal at Olive Boulevard between Midland Boulevard and Pennsylvania Avenue.

PROGRAMMING & OPERATIONS

The Bicycle and Pedestrian Plan recommends continued recreational, educational, and public outreach activities and events. In addition, the Plan recommends specific programming and operational initiatives to help fulfill the goals of the Plan and provide ongoing management, including:

UTILIZE CITY STAFF TO FACILITATE ONGOING IMPLEMENTATION: In order to maintain long-term momentum and accountability for the Plan and to provide a clearing house for all bicycle- and pedestrian-oriented improvements, the Plan recommends utilizing City staff within the Department of Public Works and Parks and the Department of Community Development to serve as cheerleaders and provide a single point of contact for ongoing implementation of the Plan and other bicycle and pedestrian amenities and enhancements.

SAFETY OUTREACH, PROGRAMMING, AND ENFORCEMENT: The Plan recommends safety education and outreach programming. These programs can be coordinated through the University City Police and Fire Departments and should utilize public safety professionals and local experts. These programs can be implemented through University City schools, existing City programs and events, and community groups including Scout troops, churches, and civic organizations. In addition, the Plan recommends a comprehensive, city-wide speed-limit, traffic signal, and pedestrian safety enforcement programs. A list and detailed descriptions of potential programming opportunities may be found on page 82 of the Appendix.

DATA COLLECTION, BENCHMARKING, AND MEASUREMENT: In order to establish achievable goals and evaluate the success of the Plan, it is recommended that an ongoing data collection and measurement program be implemented and maintained. This program would consist of initial data collection to establish baseline conditions for increasing safety, awareness, and daily instances of walking and biking. An annual data collection program to measure actual increases in safety, awareness, and daily instances of walking and biking should be conducted for a recommended minimum of five years.
MAINTENANCE

The bicycle and pedestrian network will require periodic maintenance, including street sweeping, road resurfacing, road restriping, replacement of deficient sidewalk segments, replacement of worn signage, pot hole filling, and other activities. These maintenance activities should be considered during the development of an annual capital budget. Timing for maintenance varies by activity.

The sweeping of on-street bicycle facilities can be incorporated into the Department of Public Works and Parks regular street sweeping program. Generally, on-street bicycle facilities should be swept a minimum of two times a year. If a roadway is resurfaced with chip seal or a similar surface, loose gravel should be swept shortly after resurfacing to reduce negative impacts to cyclists.

Pavement re-stripping and repainting of pavement markings should be completed every two to three years, or as needed. The placement of pavement markings will have an impact on their lifespan and need for replacement. A shared lane marking will last longer when placed in the middle of the travel lane, as directed in the MUTCD, rather than to the right of the travel lane or in the wheel track, where constant wear and tear from vehicle tires can reduce the lifespan of pavement markings.

Outdated, missing, or damaged route signs, “Share The Road” signs, and other signs installed as part of the non-motorized transportation network will require replacement on an as-needed basis. Reflectivity and readability may also factor into the decision to replace signs.

Common sidewalk maintenance issues like tree root damage, cracking, ponding, and step separation are addressed as part of the City’s annual sidewalk improvement program. The City’s currently utilizes a rating system to determine need for improvements on a block-by-block basis, addressing blocks most in need of attention, as funding is available.

Additional information relating to bicycle facility maintenance can be found in the Gateway Bike Plan, the regional bicycle master plan completed in 2011 by Great Rivers Greenway District. Relevant information can be found in Appendix D (maintenance concerns and scheduling) and Appendix L (maintenance costs – P. 48) of the Gateway Bike Plan.
Opinion Of Probable Cost

An Opinion of Probable Cost has been assembled for each project in the Bicycle and Pedestrian Plan. It is based on the Gateway Bike Plan, Appendix L (Facility Cost Tool) and on similar projects in the St. Louis Region. This Opinion will assist the City of University City in developing capital improvements programming, departmental budgeting, grant writing, and fund-raising for bicycle and pedestrian projects. Cost Opinions provided in this section include options that may not be necessary for all projects, and as such, actual costs may be lower than the averages used here. The Opinion of Probable Cost is presented in the tables on the following pages.

COST OPINION CONTINGENCY

The Opinion of Probable Cost includes a Contingency of Thirty-Percent (30%) in addition to enumerated unit-costs. This Contingency is intended to account for planning, design, engineering, and site preparation work not reflected in enumerated unit-costs.

DISCLAIMERS

This Opinion of Probable Cost represents a good-faith effort by the City of University City, supported by the most current information that is publicly available. All proposals contained herein are understood by the City of University City to: 1) be representative of public consensus from the Bicycle and Pedestrian Plan, and; 2) have the expressed approval of the City of University City.

This Opinion of Probable Cost is limited only to the conditions and factors expressly enumerated herein. All other conditions and factors that have not been expressly enumerated herein are excluded from this Opinion of Probable Cost, including but not limited to:

DEMOLITION

Unless otherwise noted, all potential costs associated with demolition of existing buildings, roads, sidewalks, and infrastructure, are deemed to be indeterminate and are not included in this Opinion of Probable Cost.
LAND ACQUISITION
Unless otherwise noted, all potential costs associated with land acquisition are deemed to be indeterminate and are not included in this *Opinion of Probable Cost.*

ENVIRONMENTAL REMEDIATION
Unless otherwise noted, all potential costs associated with environmental remediation are deemed to be indeterminate and are not included in this *Opinion of Probable Cost.*

UTILITIES & PUBLIC INFRASTRUCTURE
Unless otherwise noted, all potential costs associated with the installation, repair, upgrade, or augmentation of utilities and infrastructure within public right-of-ways (excluding Street, Streetscape, and Bicycle & Pedestrian Improvements as enumerated herein) are deemed to be indeterminate and are not included in this *Opinion of Probable Cost.*

This *Opinion of Probable Cost* is completely and totally non-binding and is provided for purposes of comparison only. It is not intended or authorized to serve as a cost estimate for the purpose of contracts, construction cost determinations, or soliciting bids. All lengths, areas, quantities, facility types, and projects provided for in this *Opinion of Probable Cost* are based upon the Bicycle and Pedestrian Plan with the approval of the City of University City.

The figures presented in the *Opinion of Probable Cost* are expressed in 2012 U.S. dollars and do not account for future inflation.

CONDITIONS OF USE
This *Opinion of Probable Cost* is recognized and acknowledged to be a non-binding document. The City of University City offers no guarantee or warranty, expressed or implied, for the information contained herein. Any individual or entity using this *Opinion of Probable Cost* for any purpose agrees to save and hold harmless the City of University City, Trailnet, and H3 Studio, Inc. from any and all costs or damages, direct or otherwise, that may arise from said use of this *Opinion of Probable Cost.*
# BICYCLE & PEDESTRIAN PLAN

## OPINION OF PROBABLE COST

### ONE HUNDRED PERCENT (100%) BICYCLE FACILITY IMPLEMENTATION

**Shared Lane Marking/Signage Treatment**

*Shared lane marking/signage treatment assumes 30 shared lane marking symbols per mile on each side of the road, plus two "Share the Road" signage assemblies per mile.*

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Cost Per Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forsyth Boulevard</td>
<td>3,690</td>
<td>0.70</td>
<td>$21,000.00</td>
<td>$14,676.14</td>
</tr>
<tr>
<td>Westgate Avenue</td>
<td>670</td>
<td>0.13</td>
<td>$21,000.00</td>
<td>$2,664.77</td>
</tr>
<tr>
<td>Balson Avenue</td>
<td>1,812</td>
<td>0.34</td>
<td>$21,000.00</td>
<td>$7,206.82</td>
</tr>
<tr>
<td>Oakbrook Lane</td>
<td>2,636</td>
<td>0.50</td>
<td>$21,000.00</td>
<td>$10,484.09</td>
</tr>
<tr>
<td>Melrose Avenue</td>
<td>753</td>
<td>0.14</td>
<td>$21,000.00</td>
<td>$2,994.89</td>
</tr>
<tr>
<td>Purcell Avenue</td>
<td>819</td>
<td>0.16</td>
<td>$21,000.00</td>
<td>$3,257.39</td>
</tr>
<tr>
<td>Roberts Avenue</td>
<td>341</td>
<td>0.06</td>
<td>$21,000.00</td>
<td>$1,356.25</td>
</tr>
<tr>
<td>Raymond Avenue</td>
<td>1,913</td>
<td>0.36</td>
<td>$21,000.00</td>
<td>$7,608.52</td>
</tr>
<tr>
<td>Partridge Avenue</td>
<td>1,090</td>
<td>0.21</td>
<td>$21,000.00</td>
<td>$4,335.23</td>
</tr>
<tr>
<td>Hazelwood Lane</td>
<td>1,350</td>
<td>0.26</td>
<td>$21,000.00</td>
<td>$5,369.32</td>
</tr>
<tr>
<td>Kempland Place</td>
<td>372</td>
<td>0.07</td>
<td>$21,000.00</td>
<td>$1,479.55</td>
</tr>
<tr>
<td>Fullerton Avenue</td>
<td>342</td>
<td>0.06</td>
<td>$21,000.00</td>
<td>$1,360.23</td>
</tr>
<tr>
<td>Polk Avenue</td>
<td>450</td>
<td>0.09</td>
<td>$21,000.00</td>
<td>$1,789.77</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$64,582.95</strong></td>
</tr>
<tr>
<td><strong>Contingency (30%)</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$19,374.89</strong></td>
</tr>
<tr>
<td><strong>Shared Lane Marking/Signage Totals</strong></td>
<td><strong>16,238</strong></td>
<td><strong>3.08</strong></td>
<td></td>
<td><strong>$83,957.84</strong></td>
</tr>
</tbody>
</table>

**Shared Lane Signage Treatment**

*Assumes 2 "Share the Road" signage assemblies every mile, or at the end/beginning of each street segment.*

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Cost Per Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vernon Avenue*</td>
<td>5,296</td>
<td>1.00</td>
<td>$1,000.00</td>
<td>$1,003.03</td>
</tr>
<tr>
<td>Midland Boulevard*</td>
<td>9,906</td>
<td>1.88</td>
<td>$1,000.00</td>
<td>$1,876.14</td>
</tr>
<tr>
<td>North &amp; South Avenue*</td>
<td>9,605</td>
<td>1.82</td>
<td>$1,000.00</td>
<td>$1,819.13</td>
</tr>
<tr>
<td>McKnight Road*</td>
<td>4,822</td>
<td>0.91</td>
<td>$1,000.00</td>
<td>$913.26</td>
</tr>
<tr>
<td>Pennsylvania Avenue*</td>
<td>4,857</td>
<td>0.92</td>
<td>$1,000.00</td>
<td>$919.89</td>
</tr>
<tr>
<td>Woodson Road*</td>
<td>2,220</td>
<td>0.42</td>
<td>$1,000.00</td>
<td>$420.45</td>
</tr>
<tr>
<td>Olive Blvd (Kingsland to E City Limits)*</td>
<td>2,930</td>
<td>0.55</td>
<td>$1,000.00</td>
<td>$554.92</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$7,506.82</strong></td>
</tr>
<tr>
<td><strong>Contingency (30%)</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$2,252.05</strong></td>
</tr>
<tr>
<td><strong>Shared Lane Signage Treatment Totals</strong></td>
<td><strong>39,636</strong></td>
<td><strong>7.51</strong></td>
<td></td>
<td><strong>$9,758.86</strong></td>
</tr>
</tbody>
</table>

* St. Louis County Arterial Road System (ARS)

** Missouri Department of Transportation (MoDOT)
BICYCLE & PEDESTRIAN PLAN
OPINION OF PROBABLE COST

ONE HUNDRED PERCENT (100%) BICYCLE FACILITY IMPLEMENTATION

Sharrows

The sharrow treatment assumes 30 lane-width lane markings on each side of the road, plus two Share-the-Road signage assemblies per mile.

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kingsland Avenue</td>
<td>1,068</td>
<td>0.20</td>
<td>$42,000.00</td>
<td>$8,495.45</td>
</tr>
<tr>
<td>Enright Avenue</td>
<td>1,173</td>
<td>0.22</td>
<td>$42,000.00</td>
<td>$9,330.68</td>
</tr>
<tr>
<td>Loop North</td>
<td>812</td>
<td>0.15</td>
<td>$42,000.00</td>
<td>$6,459.09</td>
</tr>
<tr>
<td>Sutter Avenue</td>
<td>2,570</td>
<td>0.49</td>
<td>$42,000.00</td>
<td>$20,443.18</td>
</tr>
<tr>
<td>Jackson Avenue</td>
<td>6,380</td>
<td>1.21</td>
<td>$42,000.00</td>
<td>$50,750.00</td>
</tr>
<tr>
<td>Ahern Avenue</td>
<td>922</td>
<td>0.17</td>
<td>$42,000.00</td>
<td>$7,334.09</td>
</tr>
<tr>
<td>Purdue Avenue</td>
<td>3,210</td>
<td>0.61</td>
<td>$42,000.00</td>
<td>$25,534.09</td>
</tr>
<tr>
<td>Old Bonhomme Road</td>
<td>4,244</td>
<td>0.80</td>
<td>$42,000.00</td>
<td>$33,759.09</td>
</tr>
<tr>
<td>Swarthmore Lane</td>
<td>2,587</td>
<td>0.49</td>
<td>$42,000.00</td>
<td>$20,578.41</td>
</tr>
<tr>
<td>81st Avenue</td>
<td>1,877</td>
<td>0.36</td>
<td>$42,000.00</td>
<td>$14,930.68</td>
</tr>
<tr>
<td>Hafner Place</td>
<td>1,283</td>
<td>0.24</td>
<td>$42,000.00</td>
<td>$10,205.68</td>
</tr>
<tr>
<td>82nd Boulevard</td>
<td>3,473</td>
<td>0.66</td>
<td>$42,000.00</td>
<td>$27,626.14</td>
</tr>
<tr>
<td>Sub-Total</td>
<td></td>
<td></td>
<td></td>
<td>$235,446.59</td>
</tr>
<tr>
<td>Contingency (30%)</td>
<td></td>
<td></td>
<td></td>
<td>$70,633.98</td>
</tr>
<tr>
<td><strong>Sharrows Total</strong></td>
<td><strong>29,599</strong></td>
<td><strong>5.61</strong></td>
<td></td>
<td><strong>$306,080.57</strong></td>
</tr>
</tbody>
</table>

Bike Lane Treatments

Bike lane facility assumes 2 lane lines and 30 bike and arrow symbols per mile on each side of the road.

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive Boulevard (W City Limits to Kingsland)**</td>
<td>16,394</td>
<td>3.10</td>
<td>$31,560.00</td>
<td>$97,991.41</td>
</tr>
<tr>
<td>Kingsland Avenue*</td>
<td>5,203</td>
<td>0.99</td>
<td>$31,560.00</td>
<td>$31,099.75</td>
</tr>
<tr>
<td>Ferguson Avenue</td>
<td>3,675</td>
<td>0.70</td>
<td>$31,560.00</td>
<td>$21,966.48</td>
</tr>
<tr>
<td>Pershing Avenue</td>
<td>3,150</td>
<td>0.60</td>
<td>$31,560.00</td>
<td>$18,828.41</td>
</tr>
<tr>
<td>Groby Road</td>
<td>4,593</td>
<td>0.87</td>
<td>$31,560.00</td>
<td>$27,453.61</td>
</tr>
<tr>
<td>Old Bonhomme Road</td>
<td>2,921</td>
<td>0.55</td>
<td>$31,560.00</td>
<td>$17,459.61</td>
</tr>
<tr>
<td>Sub-Total</td>
<td></td>
<td></td>
<td></td>
<td>$214,799.27</td>
</tr>
<tr>
<td>Contingency (30%)</td>
<td></td>
<td></td>
<td></td>
<td>$64,439.78</td>
</tr>
<tr>
<td><strong>Bike Lane Totals</strong></td>
<td><strong>35,936</strong></td>
<td><strong>6.81</strong></td>
<td></td>
<td><strong>$279,239.05</strong></td>
</tr>
</tbody>
</table>

* St. Louis County Arterial Road System (ARS)
** Missouri Department of Transportation (MoDOT)
**BICYCLE & PEDESTRIAN PLAN**

**OPINION OF PROBABLE COST**

### ONE HUNDRED PERCENT (100%) BICYCLE FACILITY IMPLEMENTATION

**Bike/Walk Streets (Bicycle Boulevards)**

This treatment type assumes bicycle boulevard pavement markings every 100 feet and 2 signs per block (300 feet). Does not include traffic calming devices.

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Cost Per Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northmoor Drive</td>
<td>1,584</td>
<td>0.30</td>
<td>$44,100.00</td>
<td>$13,230.00</td>
</tr>
<tr>
<td>Asbury Avenue</td>
<td>1,123</td>
<td>0.21</td>
<td>$44,100.00</td>
<td>$9,379.60</td>
</tr>
<tr>
<td>Maryland Avenue</td>
<td>763</td>
<td>0.14</td>
<td>$44,100.00</td>
<td>$6,372.78</td>
</tr>
<tr>
<td>Williams Avenue</td>
<td>2,270</td>
<td>0.43</td>
<td>$44,100.00</td>
<td>$18,959.66</td>
</tr>
<tr>
<td>Washington Avenue</td>
<td>349</td>
<td>0.07</td>
<td>$44,100.00</td>
<td>$2,914.94</td>
</tr>
<tr>
<td>Vassar Avenue</td>
<td>470</td>
<td>0.09</td>
<td>$44,100.00</td>
<td>$3,925.57</td>
</tr>
<tr>
<td>Kingsbury Boulevard</td>
<td>4,674</td>
<td>0.89</td>
<td>$44,100.00</td>
<td>$39,038.52</td>
</tr>
<tr>
<td>Yale Avenue</td>
<td>203</td>
<td>0.04</td>
<td>$44,100.00</td>
<td>$1,695.51</td>
</tr>
<tr>
<td>Stanford Avenue</td>
<td>1,494</td>
<td>0.28</td>
<td>$44,100.00</td>
<td>$12,478.30</td>
</tr>
<tr>
<td>Pennsylvania Avenue</td>
<td>1,377</td>
<td>0.26</td>
<td>$44,100.00</td>
<td>$11,501.08</td>
</tr>
<tr>
<td>Cornell Avenue</td>
<td>3,368</td>
<td>0.64</td>
<td>$44,100.00</td>
<td>$28,130.45</td>
</tr>
<tr>
<td>Balson Avenue</td>
<td>1,910</td>
<td>0.36</td>
<td>$44,100.00</td>
<td>$15,952.84</td>
</tr>
<tr>
<td>Blackberry Avenue</td>
<td>4,133</td>
<td>0.78</td>
<td>$44,100.00</td>
<td>$34,519.94</td>
</tr>
<tr>
<td>Wild Cherry Lane</td>
<td>331</td>
<td>0.06</td>
<td>$44,100.00</td>
<td>$2,764.60</td>
</tr>
<tr>
<td>Burr Oak Lane</td>
<td>470</td>
<td>0.09</td>
<td>$44,100.00</td>
<td>$3,925.57</td>
</tr>
<tr>
<td>Warder Avenue</td>
<td>764</td>
<td>0.14</td>
<td>$44,100.00</td>
<td>$6,381.14</td>
</tr>
<tr>
<td>Mt. Olive Avenue</td>
<td>1,396</td>
<td>0.26</td>
<td>$44,100.00</td>
<td>$11,659.77</td>
</tr>
<tr>
<td>Canton Avenue</td>
<td>8,867</td>
<td>1.68</td>
<td>$44,100.00</td>
<td>$74,059.60</td>
</tr>
<tr>
<td>Braddock Drive</td>
<td>2,228</td>
<td>0.42</td>
<td>$44,100.00</td>
<td>$18,608.86</td>
</tr>
<tr>
<td>Fullerton Avenue</td>
<td>226</td>
<td>0.04</td>
<td>$44,100.00</td>
<td>$1,887.61</td>
</tr>
<tr>
<td>Kempland Place</td>
<td>793</td>
<td>0.15</td>
<td>$44,100.00</td>
<td>$6,623.35</td>
</tr>
</tbody>
</table>

**Sub-Total**

$324,009.72

**Contingency (30%)**

$97,202.91

**Bike/Walk Street Totals**

$421,212.63

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BICYCLE & PEDESTRIAN PLAN
OPINION OF PROBABLE COST

ENHANCED STREETSCAPE & PEDESTRIAN IMPROVEMENTS TO MEET COMPLETE STREET GUIDELINES

Curb & Sidewalk Improvements
This improvement assumes 6-inch concrete curbs and 4-foot concrete sidewalks on each side of the road. This improvement assumes that 80% of facility lengths will receive these improvements.†

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Cost Per Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Streets</td>
<td>128,162†</td>
<td>24†</td>
<td>$464,640.00</td>
<td>$11,278,220.80†</td>
</tr>
<tr>
<td>Sub-Total</td>
<td></td>
<td></td>
<td></td>
<td>$11,278,220.80</td>
</tr>
<tr>
<td>Contingency (30%)</td>
<td></td>
<td></td>
<td></td>
<td>$3,383,466.24</td>
</tr>
<tr>
<td>Curb &amp; Sidewalk Improvements Totals</td>
<td>128,162†</td>
<td>24†</td>
<td></td>
<td>$14,661,687.04†</td>
</tr>
</tbody>
</table>

Street Tree Improvements
This improvement assumes 2 inch caliper, deciduous hardwood trees, 40 feet on-center, on each side of the road. This improvement assumes that 60% of facility lengths will receive these improvements.

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Cost Per Mile</th>
<th>Cost Per Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Streets</td>
<td>96,121</td>
<td>18</td>
<td>$31,500.00</td>
<td>$573,450.34</td>
</tr>
<tr>
<td>Sub-Total</td>
<td></td>
<td></td>
<td></td>
<td>$573,450.34</td>
</tr>
<tr>
<td>Contingency (30%)</td>
<td></td>
<td></td>
<td></td>
<td>$172,035.10</td>
</tr>
<tr>
<td>Street Tree Improvements Totals</td>
<td>96,121</td>
<td>18</td>
<td></td>
<td>$745,485.44</td>
</tr>
</tbody>
</table>

† The City of University City will generally only replace curbs when needed. Curb replacement and final costs are dependent on the condition of the area.
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Funding Sources

Creative Funding Sources, both internal and external, are necessary for the development of a bicycle- and pedestrian-friendly community. Funding programs for bicycle and pedestrian improvements vary significantly with regard to type of improvement, total allowable project cost, required local match, competitiveness, and other important characteristics. The City of University City should seek to draw from the diverse range of federal, local, and private-sector funding programs available to fund both infrastructure improvements and programs. Local funds should be leveraged as match for external funding in order to maximize the City's investment. As a policy, the City should integrate bicycle and pedestrian improvements with planned and scheduled capital improvement projects. The list of funding sources presented below should be referenced throughout plan implementation.

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.

  More information:
  http://www.ewgateway.org/
  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.

  More information:
  http://www fhwa dot gov/map21/hsip cfm

• **Congestion Mitigation and Air Quality 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.

  More information:
  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.

  More information:
  http://www fhwa dot gov/map21/tap cfm
• **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.

More information:
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.

More information:
http://www.fhwa.dot.gov/environment/recreational_trails/
http://www.mostateparks.com/page/55065/outdoor-recreation-grants

• **Safe Routes to School Program (SRTS)**
SRTS is a program incorporated into the MAP-21, Transportation Alternatives Program. Funds are administered through the Missouri Department of Transportation.

More information:
http://www.fhwa.dot.gov/map21/tap.cfm
http://www.modot.org/safety/SafeRouteToSchool.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.

More information:
http://safety.fhwa.dot.gov/policy/section402/
LOCAL FUNDING SOURCES

Local funding sources play a vital role in developing a bicycle and pedestrian network. While external funds are available for many projects, most require a local match of 20 to 50 percent. A number of different options should be explored to create a dedicated stream of funding for bicycle and pedestrian infrastructure and programming, including use of existing local option sales taxes as well as new taxes, impact fees, and capital improvements set-asides.

- **Local Option Sales Taxes**
  In 1995, the Missouri State Legislature approved enabling legislation that allowed cities to levy a sales tax for park improvements and/or storm water control purposes. Since 1995, over 100 municipalities in the state have voted to levy such a tax. In November 2001, voters in the City of University City approved a ½ cent sales tax on all retail sales in the City’s corporate boundaries to fund construction, maintenance and repair of park infrastructure. These funds can be used to provide a local match for external funding sources, thus maximizing the impact of local investment. Additionally, the City also has a ½ cent capital improvement sales tax, which can be directed towards bicycle and pedestrian facilities as well. It is important to note that University City’s Local Option Sales Tax is restricted to projects located on Olive Boulevard or in the section of the Delmar Loop located in University City only.

- **System Development Charges/Developer Impact Fees**
  As new development occurs, the municipality may charge developers to fund the additional service capacity required by the development. These development charges, or impact fees, can be used to construct transportation infrastructure, including roads, transit stations or stops, and bicycle and pedestrian facilities.

More information:
http://www.impactfees.com/index.php
http://www.mdt.mt.gov/research/toolkit/m1/ftools/dei/if.shtml
• **Community Improvement Districts (CID)**
A CID is a defined area in which property owners pay an additional tax or fee to finance capital improvements, additional security, or marketing the district as a commercial destination. Potential capital improvements include sidewalks, street lighting, benches, trash receptacles, information kiosks, public art projects, and other pedestrian-oriented features.

More information:
http://www.moga.mo.gov/const/a03038c.htm
http://www.stlrcga.org/Documents/Incentives/MO_CID%20Detail.pdf
http://www.missouridevelopment.org/community%20services/Local%20Finance%20Initiatives/Community%20Improvement%20District.html

• **Neighborhood Improvement Districts (NID)**
Similar to CID’s, NID’s are created to finance public-use improvements through special tax assessments to property owners in which the improvements are made. Typical improvements in NID’s include sidewalk and crosswalk improvements, street lighting systems, parks and recreational facilities, pedestrian bridges, overpasses or tunnels, and landscaping enhancements.

More information:
http://www.moga.mo.gov/statutes/C000-099/0670000453.HTM
http://www.missouridevelopment.org/community%20services/Local%20Finance%20Initiatives/Neighborhood%20Improvement%20District.html

• **Capital Improvement Budget Set-Asides**
Amending the capital improvement budget to require a set-aside for bicycle and pedestrian projects can ensure a constant annual funding stream for plan implementation. A set aside can be allocated as a percent of the total budget, or as a fixed dollar amount. These bicycle and pedestrian funds can be used to fully finance projects or can be leveraged as local match to secure external funding.
• **Special Issue Bonds**
  Local governments use bonds as a means of financing infrastructure needs, which include, but are not limited to, streets, schools, highways, bridges, sewer and water systems, parks, and trails. In many cases, municipalities and other local agencies will allocate a specific amount of the bond for bicycle and pedestrian projects. In King County, Washington, for example, $33 million of a $100 million bond to protect open space in urban areas was set aside for trail development.¹ In most cases, like that in King County, bicycle and pedestrian projects are part of a larger bond issue, most often a component of transportation or parks bonds.

**REGIONAL FUNDING SOURCES**

There are at least two funding sources dedicated to parks and greenways in the St. Louis region.

• **St Louis County Municipal Park Grant**
  This program provides roughly $3 million annually for the 91 municipalities throughout St. Louis County to fund regional and local parks initiatives. The Funds are administered through the St. Louis County Municipal League.

  More information:
  http://www.muniparkgrants.org/

• **Great Rivers Greenway District (GRG)**
  GRG, the local parks and recreation tax district for City of St. Louis, St. Louis County, and St. Charles County, has partnered with municipalities and counties in the St. Louis Metropolitan Area to develop an interconnected system of trails and greenways. While GRG does not directly provide funds to local municipalities, GRG collaborates frequently with local government agencies to develop construction and maintenance agreements. The Centennial Greenway, a GRG project that will connect University City and other St. Louis County communities and the City of St. Louis through recreational and alternative transportation opportunities, is currently in the

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early stages of development. Projects like the Centennial Greenway rely on creative partnerships with local agencies to ensure these assets will serve the region for years to come.

More information:
http://www.greatrivers.info/

PRIVATE SECTOR 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.

  More information:
  http://www.bikesbelong.org/grants/

- **Missouri Foundation for Health’s (MFH) Healthy and Active Communities Program**
  MFH is the state’s largest healthcare foundation working to improve health in communities it serves. Through the Healthy and Active Communities Program, MFH funds projects to combat obesity including bike-to-school programs, increasing access to multi-use trails, and other innovative programs and infrastructure improvements to increase physical activity.

  More information:
  http://www.mffh.org/
• 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.

More information:
http://www.rwjf.org/applications/solicited/cfplist.jsp

OTHER FUNDING SOURCES

• Adopt a Bikeway/Sidewalk/Trail Program
Local organizations, businesses and community groups often engage in civic projects, including Adopt-A-Highway programs and other landscaping and beautification projects. The City could develop an “Adopt-A-Trail” or “Adopt-A-Sidewalk” program to assist in the routine maintenance or landscaping of the City’s bicycle and pedestrian network.

• Community Fundraising
While community fundraising cannot and should not be looked to fund all bicycle and pedestrian projects, it can be an innovative way to raise projects funds while also building community awareness and support for bicycle and pedestrian transportation and recreation. Fundraising events, “buy-a-brick” programs for sidewalk projects, and other creative funding strategies have been utilized in other communities in the United States with great success.

• Corporate Partnerships
Corporate donations and partnerships can provide an unconventional source of funds for bicycle and pedestrian projects. Many businesses understand the value of bicycle and pedestrian infrastructure, parks and open space, and opportunities for healthy and active living as contributing factors to both economic development and quality of life for employees. As such, corporations and local businesses alike have funded trail and greenway projects across the nation. The City should seek out opportunities to partner with the business community to aid in the implementation of this plan.
## BICYCLE & PEDESTRIAN PLAN
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Projects Extents
PROJECT EXTENTS

North Bike/Walk Corridor

STREETS
- Canton Avenue
- Braddock Drive
- Fullerton Avenue
- Kemplan Place

PROJECT EXTENTS

Central Bike/Walk Corridor

STREETS
- Yale Avenue
- Pennsylvania Avenue
- Stanford Avenue
- Vanderbilt Avenue
- Jackson Avenue
- Balsoni Avenue
- Blackberry Avenue
PROJECT EXTENTS
North & South Connector

STREETS
- Wild Cherry Lane
- Burr-Oak Lane
- Warder Avenue
- Mona Terrace Park
- Groby Road
- Mt. Olive Avenue

PROJECT EXTENTS
Etzel Avenue

STREETS
- Etzel Avenue, East City Limits east to Olive Boulevard
PROJECT EXTENTS

Pennsylvania Connector

STREETS

- Pennsylvania Avenue
- Vassar Avenue
- Washington Avenue
- Williams Avenue
- Maryland Avenue
- Asbury Avenue
- Lindell Boulevard
- Northmoor Drive

PROJECT EXTENTS

Kingsbury Connector

STREETS

- Waterman Avenue
- Center Street
- Kingsbury Boulevard
- Flynn Park
PROJECT EXTENTS

Jackson Avenue

STREETS
- Jackson Avenue
- North Jackson Avenue
- Ahern Avenue

PROJECT EXTENTS

Purdue Avenue

STREETS
- North City Limits south to Ahern Avenue
PROJECT EXTENTS
Old Bonhomme Road & Swarthmore Lane

STREETS
• Old Bonhomme Road (South City Limits north to Groby Road)
• Swarthmore Lane (Old Bonhomme Road north to Groby Road)

PROJECT EXTENTS
82nd Boulevard

STREETS
• North City Limits south to Canton Avenue