



CITY OF OLATHE + MARC

# **Bike Share Implementation Strategy**

FEBRUARY 2018



# Acknowledgements

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# Executive Summary

## Project Goals

- Identify how bike share can benefit Olathe.
- Identify the local demand for bike share in Olathe.
- Identify the preferred system options and technologies for Olathe.
- Identify locations in Olathe with the most potential for bike share use.
- Develop a feasible and sustainable business model.

## Project Benefits

- **Health:** Bike share encourages physical activity. Riders report improved fitness, improved mood, and reduced stress.
- **Accessibility:** Bike share can expand access to jobs and services for those who need it most, and enhance the usability of local transit.
- **Quality of Life:** Bike share is particularly effective at increasing the visibility of cycling and active living in the community. Bike share users replace car trips, reducing congestion and improving air quality.
- **Local Business:** Bike share increases customer spending at nearby businesses and brings new visitors to community destinations.
- **Job Retention:** Bike share is an amenity that supports job growth and employee retention.

## System Options

- **Bike Library:** Bike libraries usually involve a fleet of bicycles that are rented out at a limited number of staffed kiosks.
- **Smart Locks:** The smart lock technology consists of a GPS- enabled lock that is put onto any bicycle.
- **Station-based Bike Share:** These systems are made up of a network of automated stations where bicycles are docked.
- **Smart Bikes:** Smart bike systems move away from physical stations and kiosks and integrate bike share technology directly into the bikes.
- **Electric Assist Technology:** With electric assist technology, bicycles have an electric motor that helps propel a rider as they pedal.

## Location Considerations

The project team conducted a range of analyses to evaluate preferred system options and locations in Olathe:

- **Demand:** Where would people bike if it was safe and comfortable?
- **Connectivity:** Where are there safe and comfortable routes today?
- **Area of Need:** What users have the greatest need for alternative modes of transportation?
- **Clustering:** Where are there multiple destinations in a close area?
- **Partnership:** What businesses or organizations might be interested in bike share?
- **Community Priorities:** Where do people want to see bike share?

## System Approach

**Smart Bike System:** A “smart bike” system is recommended for Olathe. Smart bike systems move away from physical docks and kiosks and allow riders to check out individual bikes through mobile applications and other platforms.

**Geofenced Hubs:** Smart bikes can be locked to most existing bike racks. Because of this, it is recommended that Olathe utilize digitally geofenced stations to maximize flexibility, reduce implementation complexity, and reduce cost.

**Accessibility for All Users:** There are successful models with other bike share systems, including in Kansas City, to offer subsidized cost memberships to low-income individuals. For those potential users who have access to smart phones or internet but do not have a credit card, there are a number of cash payment technologies that are compatible with bike share payment systems.

### BENEFITS OF A SMART BIKE SYSTEM

- **Easier to launch:** Lower capital cost than station-based bike share
- **Easier to grow:** More scalable than station-based bike share
- **Easier to access:** Park anywhere with custom geo-fencing of bike racks
- **Easier to use:** Active GPS gives detailed rider data and tracks bikes
- **Easier to manage:** Real time route tracking
- **Easier to adapt:** Digital geo-fencing greatly simplifies repositioning of bike share locations
- **Higher usage:** Emerging smart-bike systems are demonstrating higher ridership than station-based systems

## Phasing Strategy

For Olathe, a starter system of thirty smart bikes is proposed. These bikes are proposed to be distributed in three hub locations with the highest potential for ridership based on a variety of factors. The flexibility of digital geofencing means that additional locations can be accessed as part of the system, increasing the number of potential trips and expanding the reach of the starter fleet. Bikes are anticipated to use new and existing bike racks, but not depend on bike share docking infrastructure.

A near-term expansion is proposed from thirty bikes and three hubs to eighty bikes and eight hubs. This will provide coverage to most of the high-demand, high-potential ridership locations, and increase use of the system significantly.

## Recommended Locations

### Phase One Locations:

- Downtown Olathe (possible hub at County Admin Plaza)
- Stagecoach Park Area (possible hub at Community Center)
- Indian Creek Trail (possible hub at Indian Creek Trailhead)

### Phase Two Locations:

- Rolling Ridge Trail (possible hub at Rolling Ridge Trail @ 135th Street)
- Black Bob Park Area (possible hub at Black Bob Park trailhead)
- Mill Creek Trail (possible hub at Northgate Trail Access Park)
- Lake Olathe (possible hub at east shore parking area)

### High Potential Future Locations:

- 119th Street
- Cedar Lake / Olathe Health Campus



## Ridership Estimates

Phase	Hubs	Possible Routes	Projection Model A: Historical Kansas City Station Performance	Projection Model B: Suburban Trail Station Performance	Estimated Ridership: Olathe Bike Share
<b>Phase 1</b>					
Olathe System Only	3	3	3,226	3,600	3,400
Olathe System + Nearby County Hubs	7	21	3,754	5,200	4,500
<b>Phase 2</b>					
Olathe System Only	8	28	3,959	9,600	6,800
Olathe System + Nearby County Hubs	12	66	5,074	11,200	8,100

## Revenue Model Summary

Description	Year 1 (30 bikes)	Year 2 (30 bikes)	Year 3 (80 Bikes)	Year 4 (80 Bikes)	Year 5 (80 Bikes)	Year 6 (80 Bikes)
<b>Revenue</b>						
<b>Total Revenue</b>	<b>\$52,743</b>	<b>\$52,743</b>	<b>\$126,432</b>	<b>\$126,432</b>	<b>\$126,432</b>	<b>\$126,432</b>
<b>Capital Expenses:</b>						
<b>Total Capital Cost:</b>	<b>\$92,000</b>	<b>\$0</b>	<b>\$152,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Capital Cost with Federal Grant Match:</b>	<b>\$18,400</b>	<b>\$0</b>	<b>\$30,400</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Operating Expenses:</b>						
<b>Total Operating Expenses</b>	<b>\$51,103</b>	<b>\$54,853</b>	<b>\$111,393</b>	<b>\$119,643</b>	<b>\$119,643</b>	<b>\$119,643</b>
<b>Smart Bike System with Kiosks</b>						
Total Revenue	\$52,743	\$52,743	\$126,432	\$126,432	\$126,432	\$126,432
Total Expenses	\$69,503	\$54,853	\$141,793	\$119,643	\$119,643	\$119,643
<b>Net Revenue/ Expenses</b>	<b>(\$16,760)</b>	<b>(\$2,110)</b>	<b>(\$15,361)</b>	<b>\$6,789</b>	<b>\$6,789</b>	<b>\$6,789</b>
<b>Smart Bike System without Kiosks</b>						
Total Revenue	\$52,743	\$52,743	\$126,432	\$126,432	\$126,432	\$126,432
Total Expenses	\$64,703	\$51,953	\$130,893	\$114,743	\$114,743	\$114,743
<b>Net Revenue/ Expenses</b>	<b>(\$11,960)</b>	<b>\$790</b>	<b>(\$4,461)</b>	<b>\$11,689</b>	<b>\$11,689</b>	<b>\$11,689</b>





# I. BACKGROUND



# What Is Bike Share?

**Bike sharing allows users to check out bicycles from public locations at key areas around town. Each location contains multiple bikes and is conveniently located for short trips near businesses, entertainment, recreation destinations, and transit.**

**Bike share differs in several notable ways from bicycle rental programs. Bike share bikes are typically available from a larger network of locations, and designed so that riders can easily rent a bike at one station and drop it off at another. While bike share can be used for recreational riding, stations are often located to connect popular destinations, employment and population centers and transit hubs. Bike share is also designed for shorter trips - most systems incentivize riders to complete their rides within 30-60 minutes, making bikes available again to new riders.**



# Project Background

## Project Goals

Bike share in the Kansas City region is thriving and growing. In 2017, the regional bike share system expanded to more than forty stations and saw record ridership. New locations included areas north of the Missouri River and southern Jackson County, where the viability of recreation-focused bike share was demonstrated at Longview Lake. In 2018, several of Olathe's Kansas neighbors in Johnson and Wyandotte Counties are poised to implement bike share in their communities as well. As new technologies and funding opportunities converge, now is a great time for Olathe to explore bike share and the benefits it can provide.

To be successful, bike share in Olathe will have to look and function a little bit differently. The analysis and recommendations in this plan explore what a bike share system in Olathe could look like, where it would go, how it would work, and how it could operate sustainably over time. Specifically, the goals of this plan include:

- Identifying how bike share can benefit Olathe.
- Identifying the local demand for bike share in Olathe.
- Identifying the preferred system options and technologies for Olathe.
- Identifying locations in Olathe with the most potential for bike share use.
- Developing a feasible and sustainable business model.



## Project Partners

This project is a partnership between the City of Olathe and Mid-America Regional Council (MARC) and is made possible through a MARC Planning Sustainable Places grant.

The Planning Sustainable Places program works to advance detailed local planning and project development activities that further the creation of:

**VIBRANT** places that offer a mix of options for housing, jobs, services and recreation;

**CONNECTED** places with a variety of transportation options; and

**GREEN** places that support healthy living and a healthy natural environment.



# Project Benefits

## Health

The Kansas City region ranks too high for public health problems like obesity, diabetes, etc. Bike sharing gives people more convenient opportunities to get physical activity, and also boosts mental health. Bike share users report improved fitness, reduced stress, and improved mood.



## Accessibility

Olathe has some of the highest concentrations in Johnson County of households who do not have access to an automobile. Bike sharing can complement the transit system and give residents low-cost access to jobs and services. Because it extends the range of those without access to a car, bike share can enhance the function of the transit system, and expand the number of destinations accessible to users.



## Quality of Life

More options for short trips around town means less traffic on the road and less pollution in our air. Bike share also increases the visibility and popularity of cycling and active living throughout a community. Most bike share users use their own bike more after using the bike share system.



## Local Business

Bike share brings new visitors to the community and provides new opportunities for residents. Across the country, bike share users report spending more money at businesses near bike share stations and businesses report increased sales after the installation of bike share.



## Job Retention

Today's economy demands creative and talented people, and that workforce increasingly prefers vibrant communities with high quality amenities and choices for transportation. Bike sharing helps local companies attract and retain the best and brightest talent.



A close-up, black and white photograph of a bicycle wheel. The focus is on the spokes and the rim, which has a distinctive multi-spoke design. The background is blurred, showing the rest of the bicycle frame. A semi-transparent dark horizontal band is overlaid across the middle of the image, containing the text 'II. ANALYSIS' in a bright orange color.

## II. ANALYSIS



# Peer System Analysis

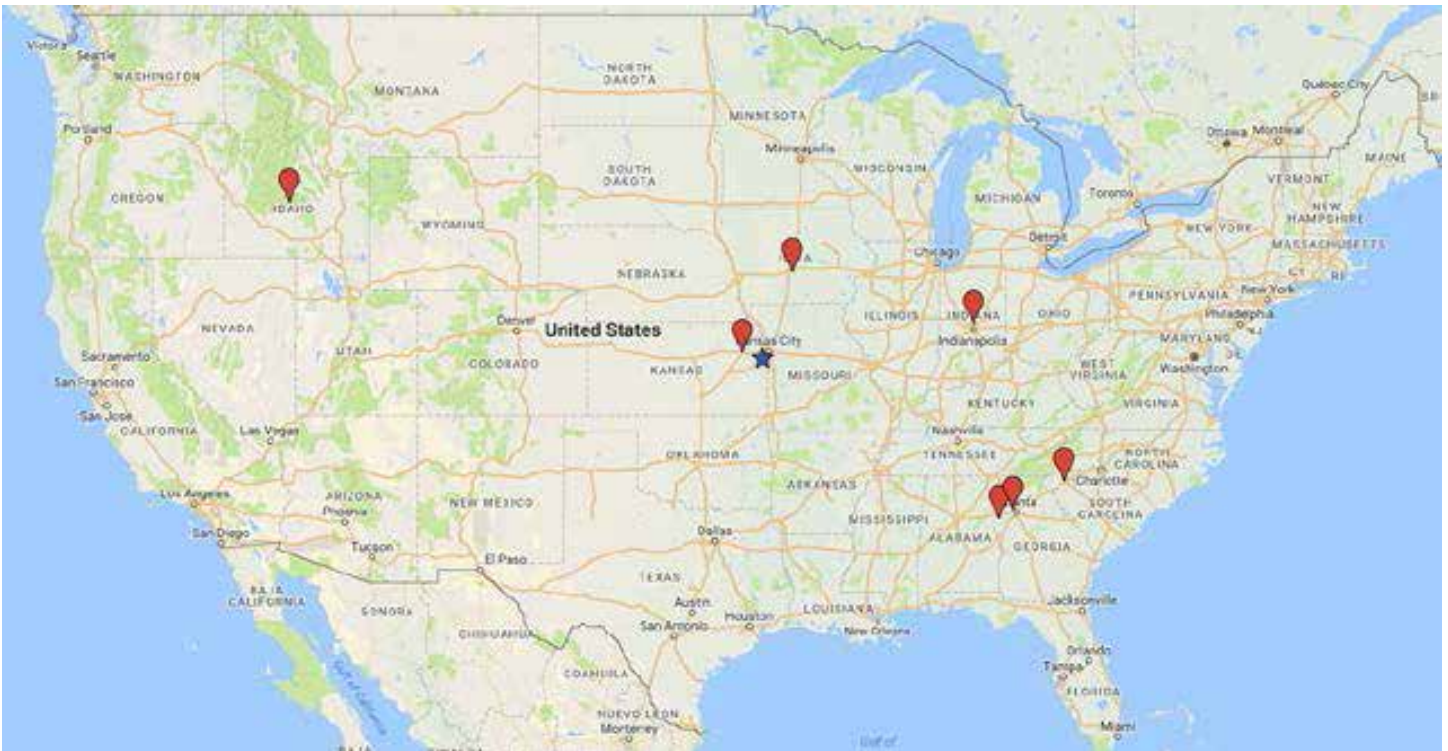
Many cities and regions in the U.S. are investing in bike share systems to improve local mobility, encourage more active lifestyles, and to promote a more bikable community. The relative success in these cities has significantly increased the visibility of bicycling and increased activity and investment in bicycling overall. Bike share systems in the U.S. are diverse and include different generations of technology, varying fee structures, funding strategies, and operational models.

The consultant team researched other peer bike share systems in the United States in order to better understand characteristics from communities with some similarities to Olathe. Many of the bike share systems we chose to investigate have a focus on recreational use and connecting different areas of town along both the local roadway and especially the off-road trail network.

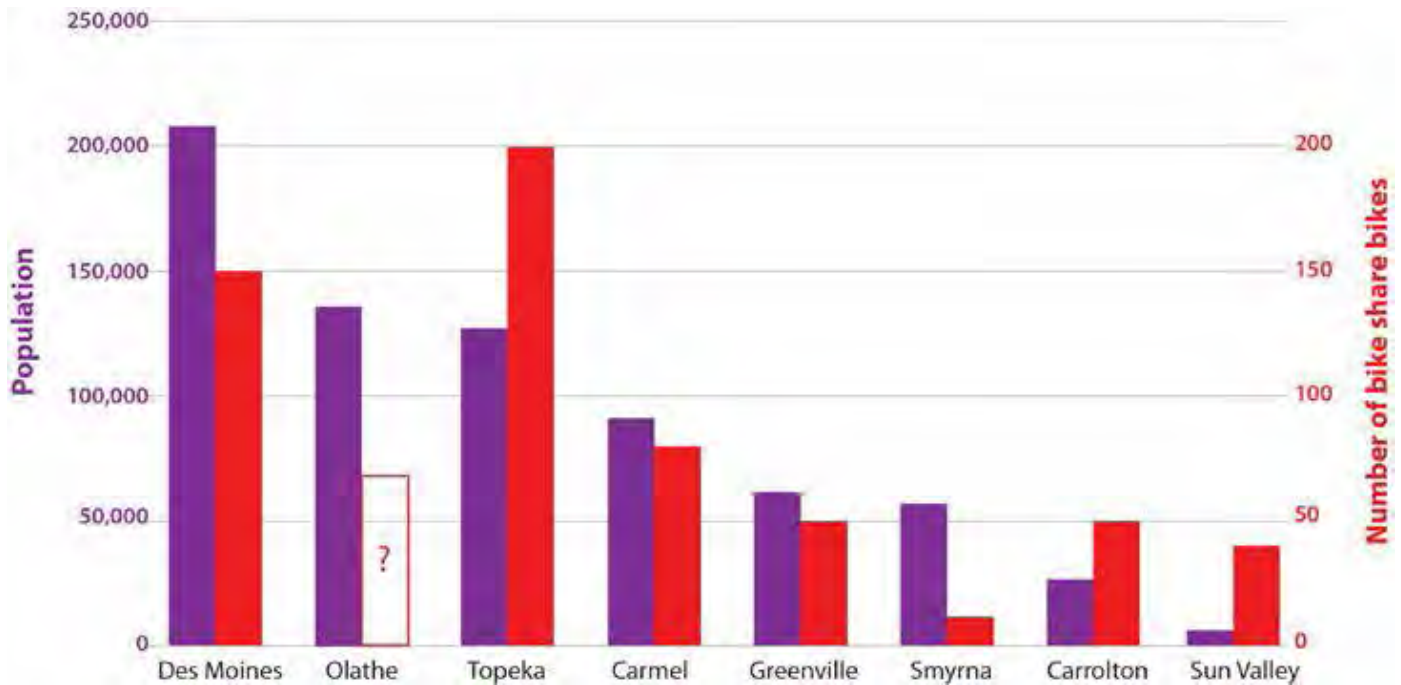
To provide a snap-shot of how peer cities have approached bike share, several case studies have been analyzed. Each of the systems utilize either dock/station-based or smart-lock systems, which features a range of costs and performance quality. Dockless bike share systems are becoming more prevalent in the U.S. but are not analyzed here because none have been in existence for more than a few months.

The summary of seven peer systems includes:

- Carmel, Indiana
- Carrollton, Georgia
- Smyrna, Georgia
- Topeka, Kansas
- Sun Valley, Idaho
- Greenville, South Carolina
- Des Moines, Iowa







The bar chart above shows the relationship between the population of the peer city and the number of bikes within the bike share system. Olathe is well positioned to run a successful bike share system oriented for a suburban community with a number of existing and popular trails, including:

- Indian Creek Trail
- Mill Creek Trail
- Stagecoach Park Trail
- Rolling Ridge Trail
- Heritage Park Trails
- Eastbrooke Trail
- Mahaffie Trail

In the future, bike share stations or hubs ought to be located in more urban areas of Olathe to support those who want to run errands or just take a short ride to a favorite lunch place. These stations located (potentially) at or near shopping and employment centers such as AMC Studio 28, Wal-Mart, the Courthouse, and at various parks and schools nearby will supplement the overall system by providing convenient access to a variety of destinations and for a variety of users.

The success of the peer systems that are oriented towards suburban trail and greenway use lend support for Olathe structuring their bike share system around trail heads and other popular outdoor areas. As an example, the trail-oriented bike share station at Longview Lake in suburban area of Kansas City (not included in peer city case studies) has the second highest monthly ridership of all stations in the system.

Since November 2015, the trail-oriented bike share system in Smyrna has averaged 219 trips per week, while the GreenBelt-focused system in Carrollton saw 10% of the city's population sign up within the first two months.

Providing a convenient, recreation-oriented bike share system in Olathe will encourage Kansans to be more physically active and provide access to places for those who cannot afford to or choose not to drive. The success of systems in cities of similar size and density supports the launch of a pilot system in Olathe adjacent to trail heads and on roads with bicycle lanes.

# Carmel, Indiana

**Population:** 91,065

**Launch Date:** March 2015

**Size:** At Launch: 22 bikes / two stations; Today: 80 bikes / 10 stations

**Station Orientation:** Four of the ten stations are on the Monon Rail Trail, the remainder are in a mix of residential areas and more urban downtown centers.

**Equipment Vendor:** Zagster

**Inaugural Year Usage:** 860 rides in June 2015. Five months later in October: 2,600 rides. The popular system has quadrupled in size since its debut.

**Funding:** Carmel pays Zagster \$1,320 per year per bike, or \$105,600 annually, including a one-time fee of \$8,600 to set up the docks and equipment. The city is sponsoring the cost for 44 of those bikes, Hamilton County Tourism Inc. is sponsoring 16, and Allegion, Carmel-Clay Parks and Recreation, Clay Terrace, Clay Township and Market District are sponsoring the remainder.

**Management / Operations:** Zagster provides re-balancing services as well as day-to-day management and operations.

**User Cost:** Users pay \$3 an hour to rent a bike with a limit of \$24 for 24 hours. Users also can buy monthly passes for \$15 or yearly passes for \$75. Carmel keeps 93 percent of the net revenues from the rental fees, which so far has generated enough to cover one-third of the city's total annual cost.

**Access:** Users download an app and choose a bike to reserve the bike via GPS location. Users can also reserve by text message.



# Carrollton, Georgia

**Population:** 26,562

**Launch Date:** February 2017

**Size:** At launch: 10 stations, 50 bikes.

**Station Orientation:** Seven are located on trails or near parks, including at the University of West Georgia. The remaining 3 are in Downtown Carrollton, at a Hospital and a mixed use commercial and residential neighborhood.

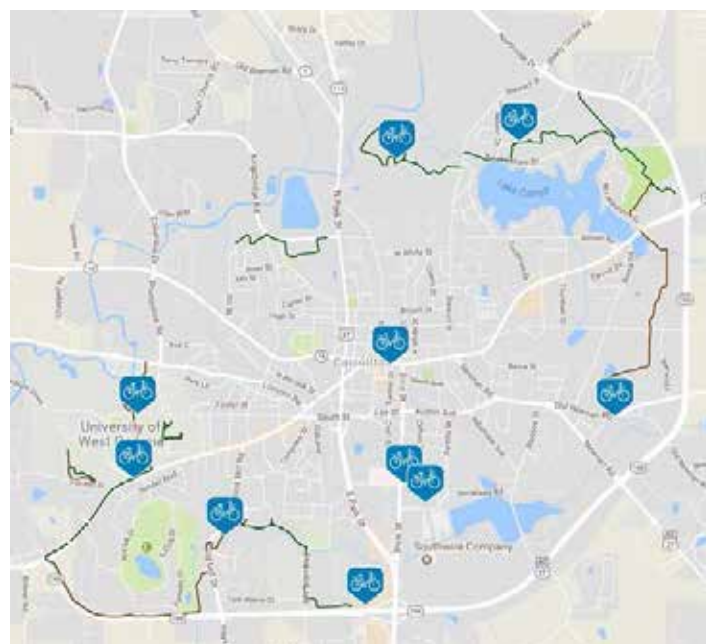
**Equipment Vendor:** Zagster

**Inaugural Year Usage:** As of August, 2017 - the system averages 500 rides per week.

**Funding:** Partnership between the City, Tanner Health System, Southwire Company, the University of West Georgia, and Friends of Carrollton GreenBelt.

**Management / Operations:** Zagster operations team runs the program. Carrollton's own Perpetual Motion Bicycles, Inc., performs the regular maintenance and any necessary repairs. User Cost: \$3/hour. Up to \$15 per ride. An additional \$30 overtime fee is charged for keeping a bike over 24 hours.

**Access:** Users download an app and chose a bike to reserve the bike via GPS location. Users can also reserve by text message.





# Smyrna, Georgia

**Population:** 56,664

**Launch Date:** November 2015

**Size:** At launch: three stations, 12 bikes. The system has expanded to five stations.

**Station Orientation:** Spread throughout the town, each station is on or near one of Smyrna's many trails or on the shared use path network.

**Equipment Vendor:** Zagster

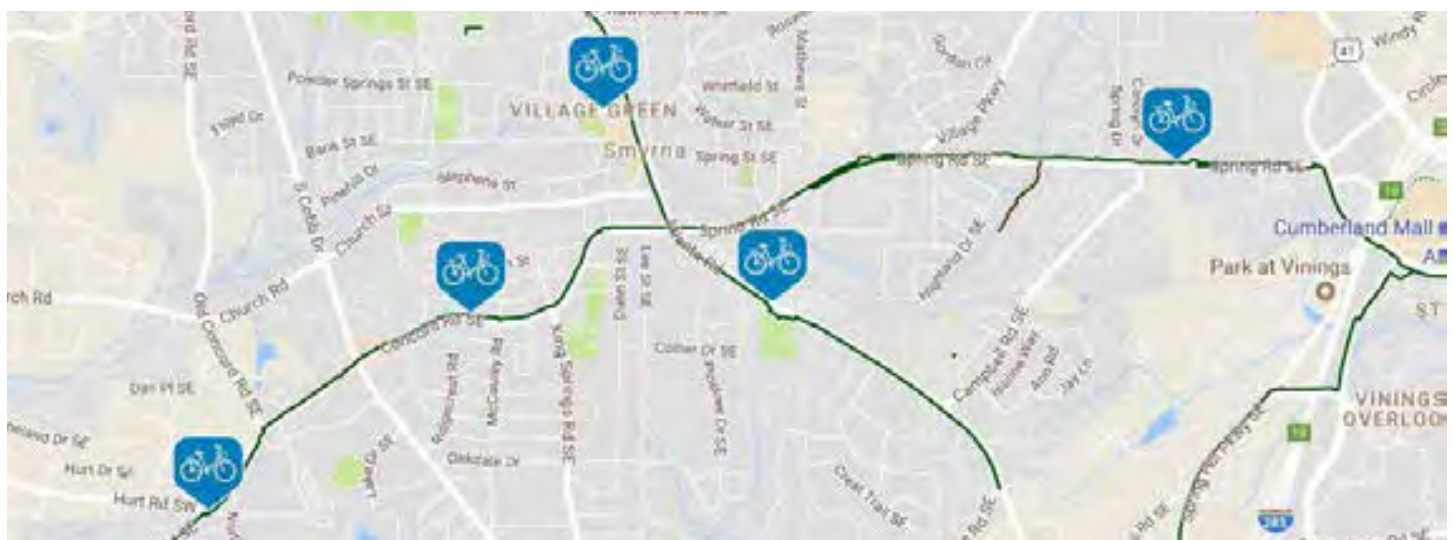
**Inaugural Year Usage:** n/a

**Funding:** Smyrna City Council voted 7-0 to pay \$32,960 to Zagster. Smyrna pays Zagster about \$2,000 per bike and keeps rental revenue.

**Management / Operations:** Zagster owns and maintains the bicycles, provides a website at [Zagster.com/Smyrna](http://Zagster.com/Smyrna) and replaces bikes every three years. Zagster provides maintenance, replacement parts, and weekly rebalance services.

**Cost:** Rides are free for the first hour. After the first hour, there is a \$2.00 an hour charge - up to \$40 per ride.

**Access:** Users download an app and choose a bike to reserve the bike via GPS location. Users can also reserve by text message.



# Topeka, KS

**Population:** 126,808

**Launch Date:** Spring 2015

**Size:** At launch: 10 stations, 100 bikes. Today: 17 stations, 200 bikes (with 120 auxiliary station hubs).

**Station Orientation:** Majority of stations located in downtown and at Washburn University. Many stations are in smaller residential areas, with the remainder connecting to popular Gage and Lake Shawnee parks.

**Equipment Vendor:** Social Bicycles

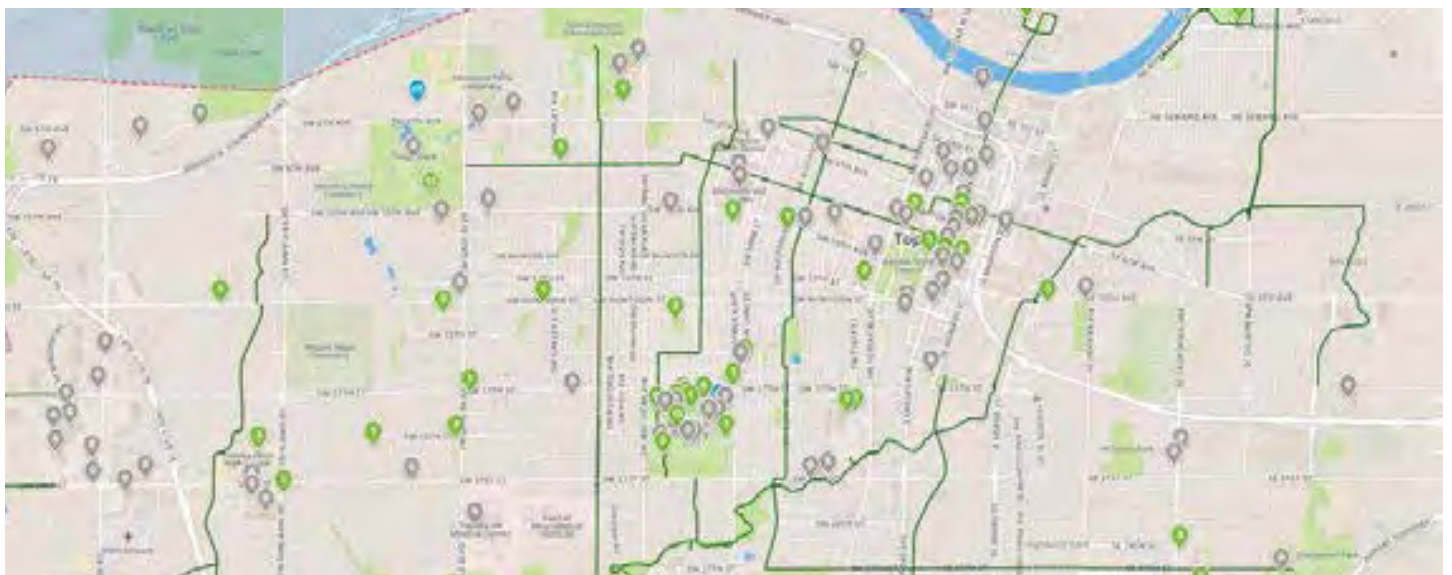
**Inaugural Year Usage:** n/a

**Funding:** The Metro Board purchased 50 bikes from Social Bicycles at a cost of \$167,625, or approximately \$2,794 per bike.

**Management / Operations:** Social Bicycles

**User Cost:** New in 2017: \$4 for adults, \$3 for students and \$2 for reduced pass users for a 24-hour pass. Annual passes are \$300.

**Access:** Users can find bikes at hub locations and reserve them from the web, a mobile app, or directly from the bike itself. There are 4 kiosk areas where users can sign up at a bike station.





# Sun Valley, Idaho

**Population:** 1,436

**Launch Date:** September 2012

**Size:** 40 bikes

**Station Orientation:** The majority of stations are in the downtown areas of Ketchum and Hailey, with the remainder near or along the popular Wood River Trail system.

**Equipment:** SoBi

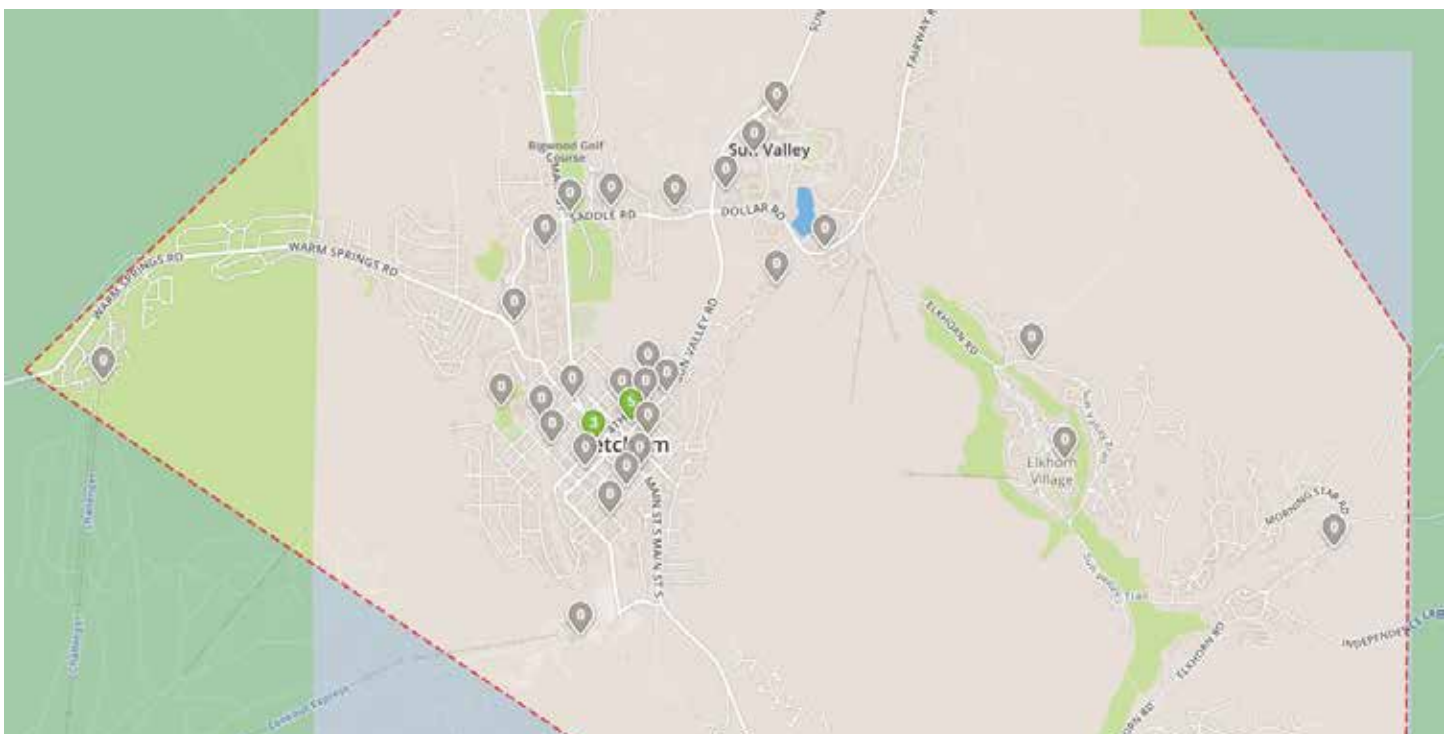
**Inaugural Year Usage:** n/a

**Funding:** \$20,000 portion of the City of Hailey's \$472,000 grant from the U.S. EPA in March 2011

**Management / Operations:** Privately managed by SoBi / Mountain Rides.

**User Cost:** \$65 seasonal membership, \$30 monthly membership, \$12 4-day pass, \$5 pay-as-you-go.

**Access:** Reserve using computer or hand-held digital device. Receive PIN# to unlock bicycle.



# Greenville, South Carolina

**Population:** 61,397

**Launch Date:** Spring 2013

**Size:** In 2017: 10 stations, 50 bikes.

**Station Orientation:** 4 stations downtown, 2 south of downtown near employment centers, and 4 near parks and on the Swamp Rabbit Trail.

**Equipment Vendor:** BCycle by Trek

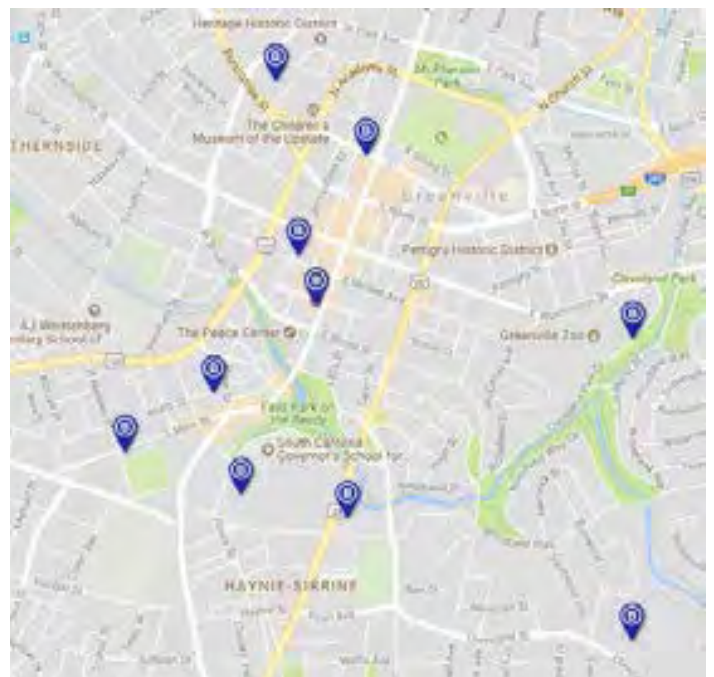
**Inaugural Year Usage:** 15,000 rides since launch.

**Funding:** Greenville Transit Authority, Greenville County Recreation District, Dority & Manning, P.A., City of Greenville, Upstate Forever, Greenville Health System

**Management / Operations:** Upstate Forever

**User Cost:** \$60 annual pass. 60 minutes included, each additional minute is \$4. \$5 for 24 hours. 30 minutes included, each additional minute is \$4.

**Access:** Users can access a bike at a dock-based kiosk with a credit card or electronic key. Credit card required at kiosk for daily passes.





# Des Moines, Iowa

**Population:** 207,510

**Launch Date:** September 2010

**Size:** 35 bikes, 6 stations

**Station Orientation:** 4 at Drake University, 8 in the downtown area, and the remainder either in residential neighborhoods and along the MLK Jr. Trail.

**Equipment Vendor:** B Cycle by Trek

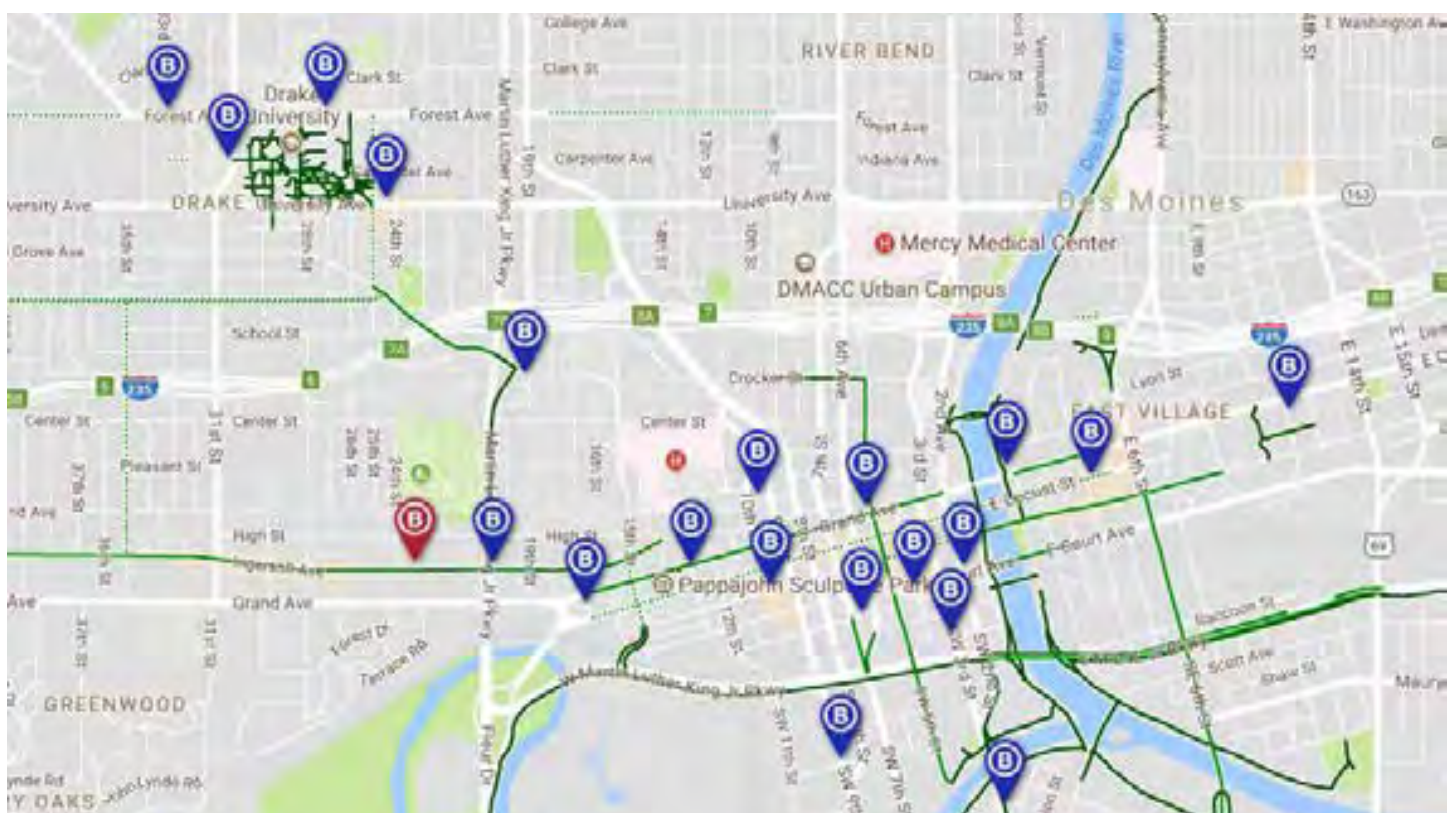
**Inaugural Year Usage:** n/a

**Funding:** n/a

**Management / Operations:** Managed by B Cycle

**Cost:** \$50 - annual (\$40 - student, senior) \$30 - month (\$20 student, senior). \$6 - 24 hr pass.

**Access:** Annual members receive a B-Card that allows them to check out bikes from the dock. Casual users swipe credit card at kiosk.





# Demand Analysis

A successful bike share system depends on good data. Demand modeling can tell us where people want to ride, and where they are likely to ride if adequate facilities exist. However, a demand analysis is only one of several critical inputs into a successful bicycle infrastructure strategy. Safety and crash data, network connectivity, equity, physical roadway constraints, and public feedback all contribute to a complete understanding of bicycle infrastructure priorities.

A complete strategy for bicycle infrastructure includes the following components:

## **Demand Modeling**

A model to determine the latent demand for cycling and bicycle infrastructure is the focus of this study. This model looks at potential trip generators and attractors and weights them according to a variety of demographic, distance, and observation factors.

## **Public Input**

Public input should be the foundation of a complete bicycle infrastructure strategy. Community priorities for destinations and preferred routes, user feedback on uncomfortable routes and locations with safety issues, and preferences for future facility types are all important inputs that inform smart infrastructure decisions.

## **Network Connectivity**

Bicycle infrastructure functions best as an interconnected network. In addition to specific streets and intersections that demonstrate high demand for bicycle infrastructure, the connectivity of the entire network is extremely important. Catalyst projects that bridge major gaps in the bike network have particular benefit and importance.

## **Safety and Collisions**

Places where cyclists are riding today and experiencing collisions or dangerous situations should be a priority for infrastructure improvements. An analysis of areas with high frequency of crashes, posted and observed vehicle speeds, presence of existing facilities, and related factors can identify locations for priority safety improvements.

## **Equity**

For some, bicycle infrastructure can be a community amenity, or recreational opportunity. For others, it can be a necessity to access jobs, services, and broader economic opportunity. For example, bicycle infrastructure is particularly important for areas with high concentrations of carless households, areas with limited transit service, and areas with high concentrations of poverty.

## **Feasibility for High Level of Comfort**

Whatever the latent demand or public desire for bicycle infrastructure, the physical conditions of the right of way and surroundings constrain what is feasible. Topography, major barriers like highway and railroads, opportunities for a direct route, traffic speed, and available space for facilities all impact what is possible, and inform where smart investments in bicycle infrastructure should be made. Sometimes investments can change the conditions of the road and the comfort of a route for cyclists.

# Measuring Demand

There are several ways to measure demand for bicycle infrastructure. Traditional travel demand forecasts use models built to estimate automobile trips and recalibrate those models to estimate bicycle trips. Such models can be useful but do have drawbacks. Often travel demand models do not take into account details of the circulation network, walking environment, or built environment that are minor for automobile trips but very important for whether and where pedestrians and cyclists travel.

Observations of where cyclists are riding today can provide valuable insight, but cyclist counts cannot be a direct proxy for latent demand because they have already internalized all of the physical barriers and constraints that impact a cyclist's decisions.

The following bicycle infrastructure demand analysis is not intended to be a trip projection like those described above. The goal of this analysis is to determine where people would ride bicycles if facilities made it convenient and comfortable to do so. Therefore, latent demand is considered separately from the barriers and constraints of the physical environment.

The analysis was conducted in GIS and based on City and Census data on transportation and land use. With robust citywide bicycle observations, a model for latent bicycle demand could be calibrated based on statistically significant factors that relate to observed behavior. In the absence of that data, the following analysis uses the most complete national research available to make assumptions about how and where people would ride. The model then aligns that data with local conditions to determine areas of high latent demand.

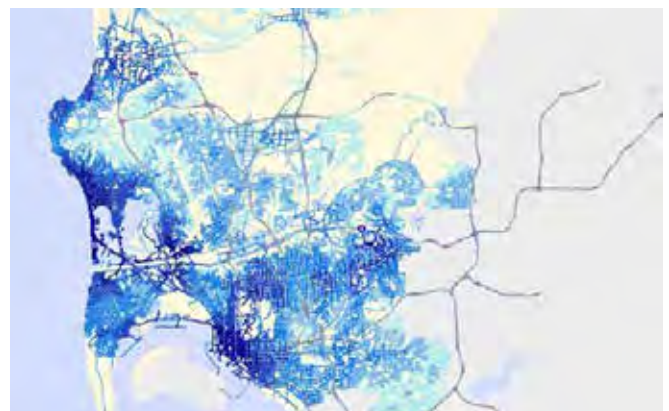
It should be noted that the latent demand analysis in this report is a sketch-level study. It identifies the relative demand for cycling in different areas of the community, in order to help prioritize investments. As such, it is not suitable to differentiate one specific street from another in a particular corridor or neighborhood.



Often, communities model bicycle demand by making minor adjustments to the way they estimate automobile trips.

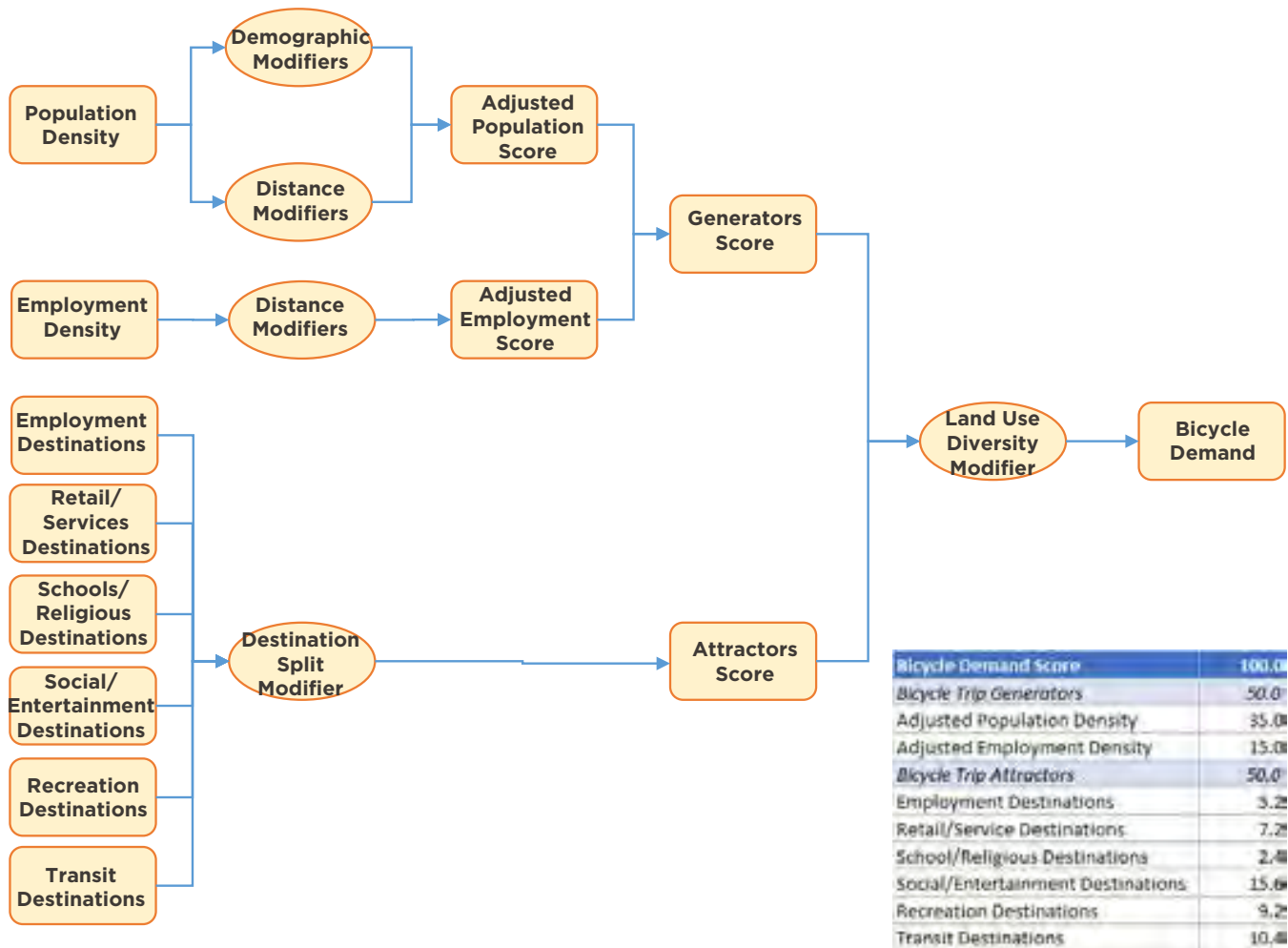


Santa Monica used Citywide observation data to identify which demand factors statistically correlated with observed behavior. These factors formed the basis of their bicycle and pedestrian demand model.



San Diego's Bicycle Master Plan uses a GIS-based latent demand analysis very similar to the one conducted in this study.

# Demand Analysis Model



The demand analysis assigns each area of the City a demand score between one and one hundred. Half of the demand score is based on bicycle trip generators, and the other half is based on bicycle trip attractors.

Bicycle trip generation is determined primarily by population and employment density. Because more trips are generated from home than from work, population density is weighted more heavily. The National Household Travel Survey (NHTS) provides a breakdown of bicycle trips by several different demographics, including age, income, education, and access to automobiles. This demand analysis combines trip research with block level census data to adjust an area's bicycle trip generators according to its unique demographic profile. The NHTS also provides data on trip length. The demand analysis model

uses this data to adjust trip generation scores based on proximity to various destinations.

Bicycle trip attraction is determined by the density of various trip destinations. Depending on the type of trip destination, density is determined by the number of jobs associated with the destination, school enrollment, church attendance, transit ridership, park classification, and other factors. NHTS data provides data on trip destinations that is used to weight trip attractors.

Finally, the combined trip generators and attractors scores are weighted with a land use diversity factor. National data indicates that a mix of uses correlates positively with bicycle and pedestrian trips. The final score indicates the relative demand for cycling in an area.

# Research on Cycling

This analysis incorporates national research and data on bicycling from a variety of sources, but in particular the National Household Travel Survey (NHTS) and the National Cooperative Highway Research Program (NCHRP) Report 770. This national data helped to inform the weights and factors applied to this demand analysis. For example, the NHTS provides a breakdown of bicycle trips by destination. Commute trips represented approximately eleven percent of all bicycle trips. Accordingly, employment destinations received approximately eleven percent of the priority for trip generators. Data is available for trip distance, which this analysis used to apply a decay factor to trip generation based on proximity to various types of destinations. Demographic profiles of cycling use were combined with local census data to modify trip generation likelihood. These assumptions based on national data provide a starting point for a bicycle network demand analysis. In the future, local observation can help to refine and improve our understanding.

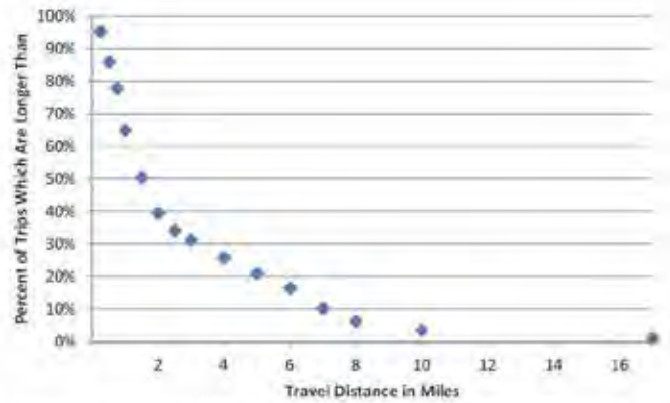
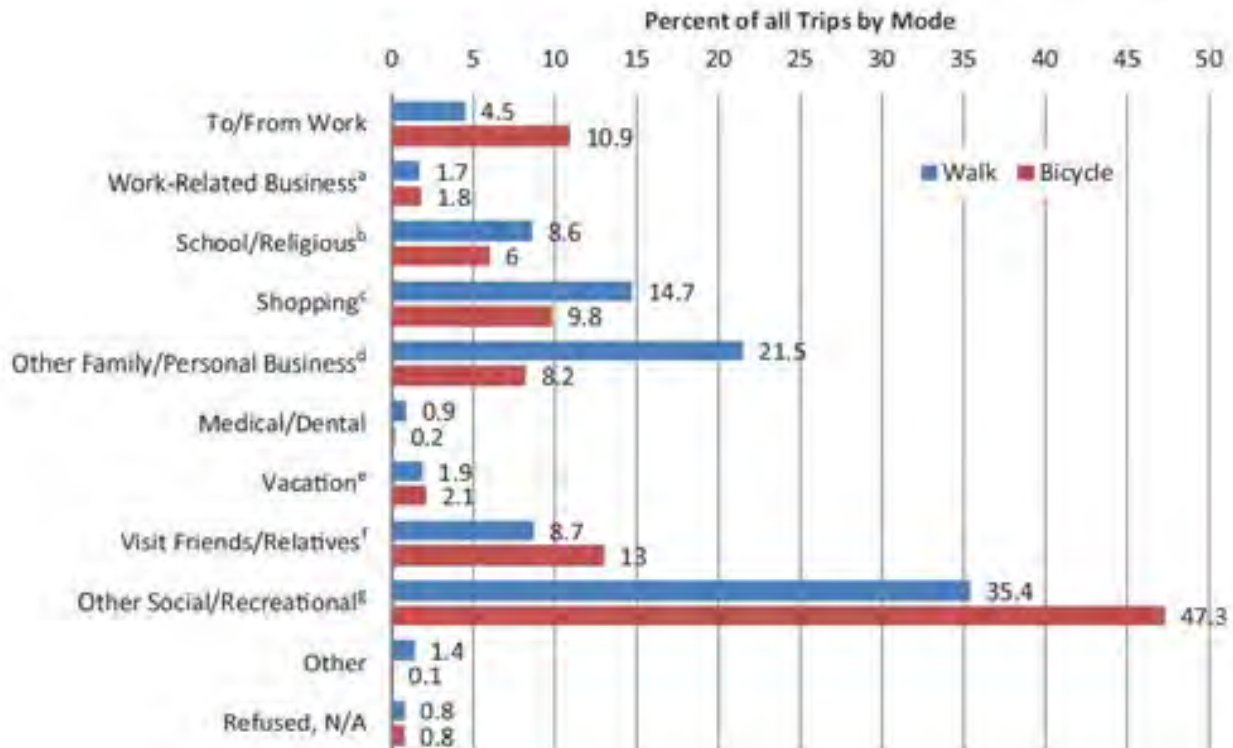


Figure 2-3. Bicycle trips by distance (2007/08 MWCOG Regional Travel Survey).

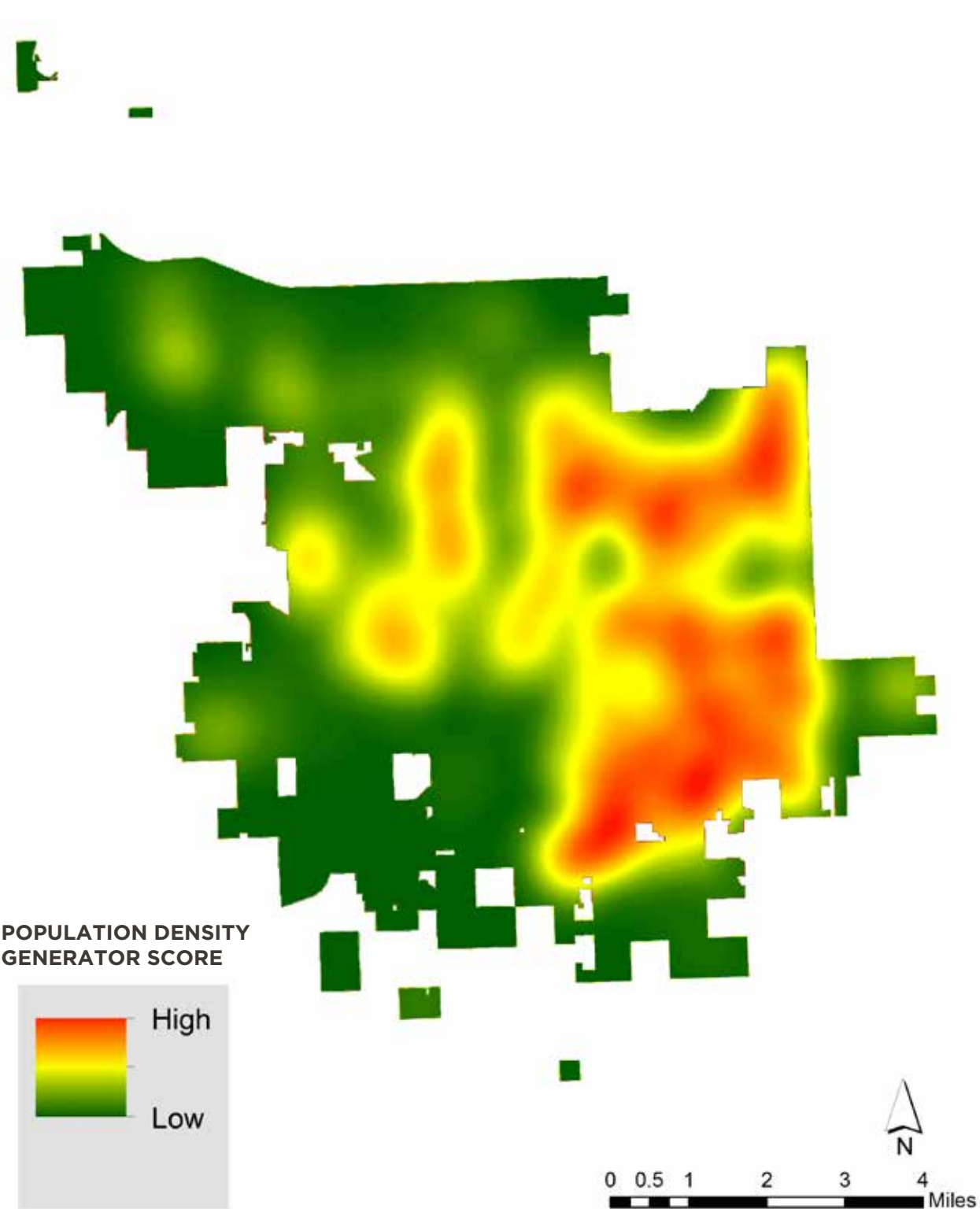
Source: NCHRP Report 770



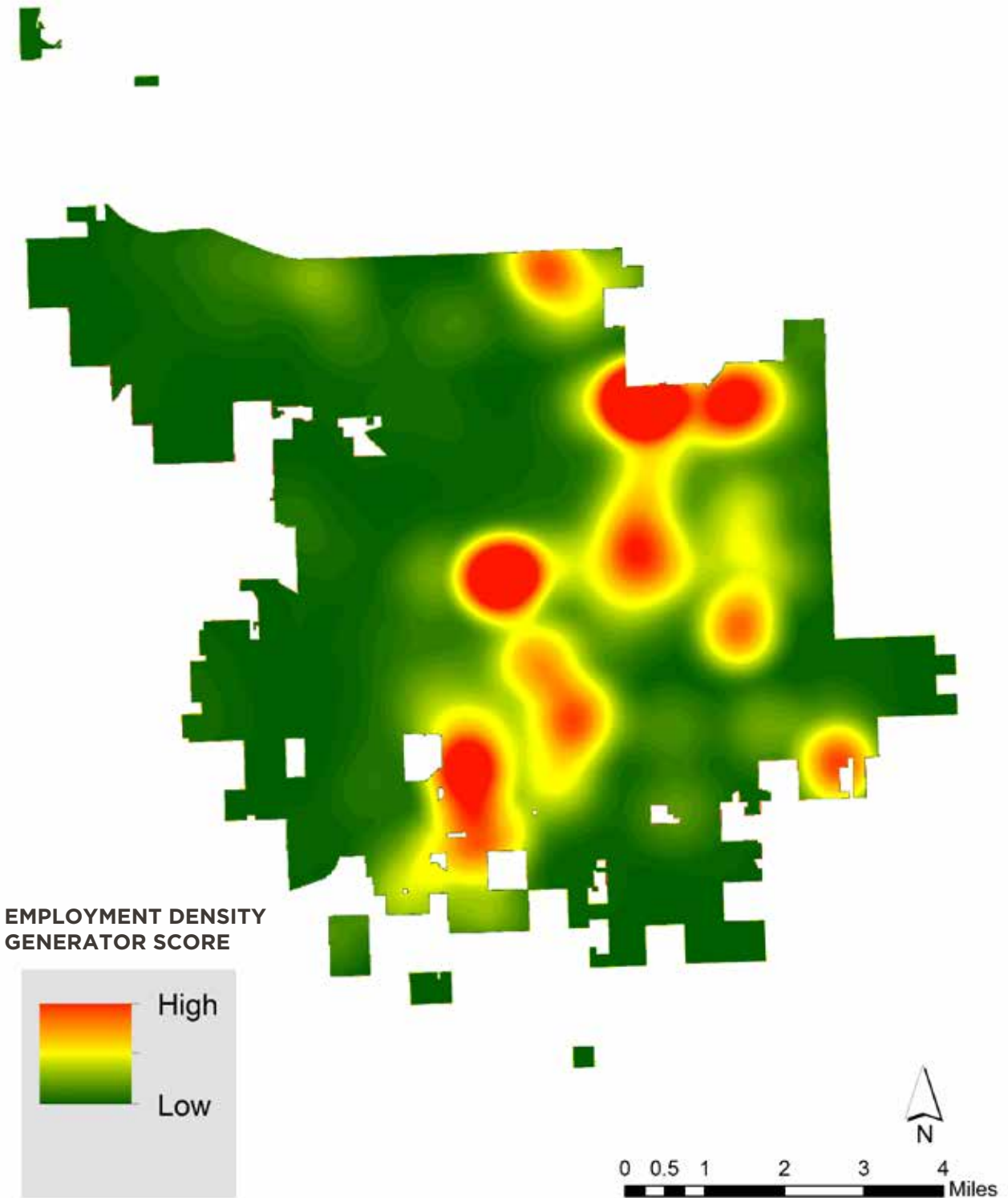
Source: NCHRP Report 770



# Bicycle Trip Generators: Population Density



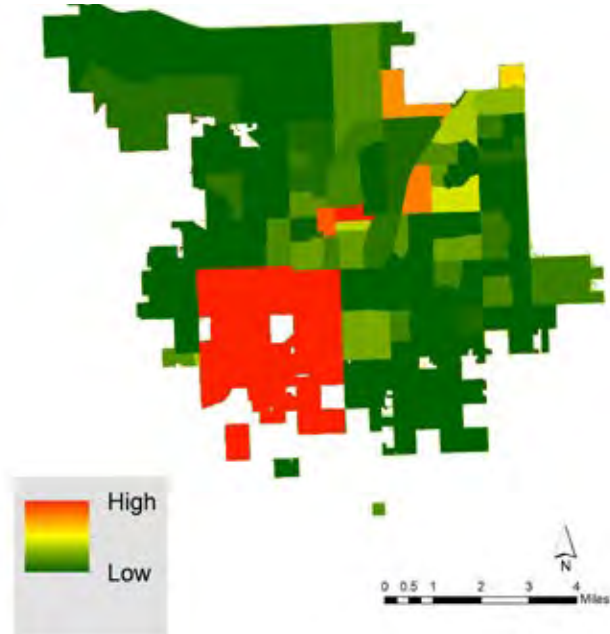
# Bicycle Trip Generators: Employment Density



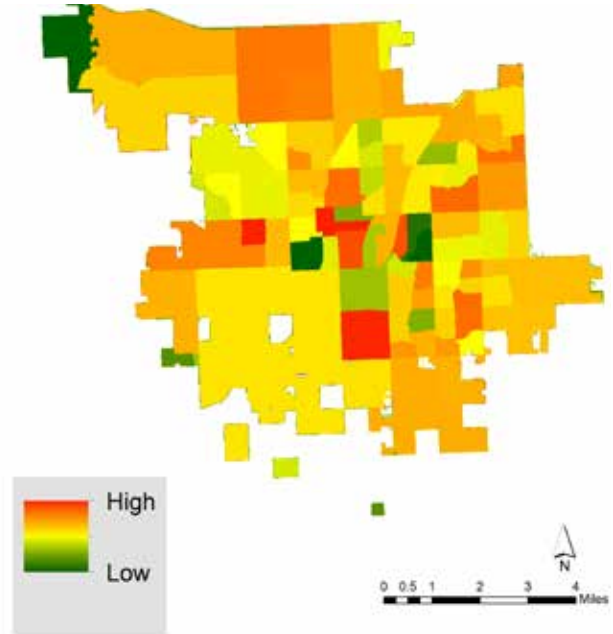
# Demographic Modifiers

Areas in red have a demographic profile with the strongest positive correlation to bicycle trips.

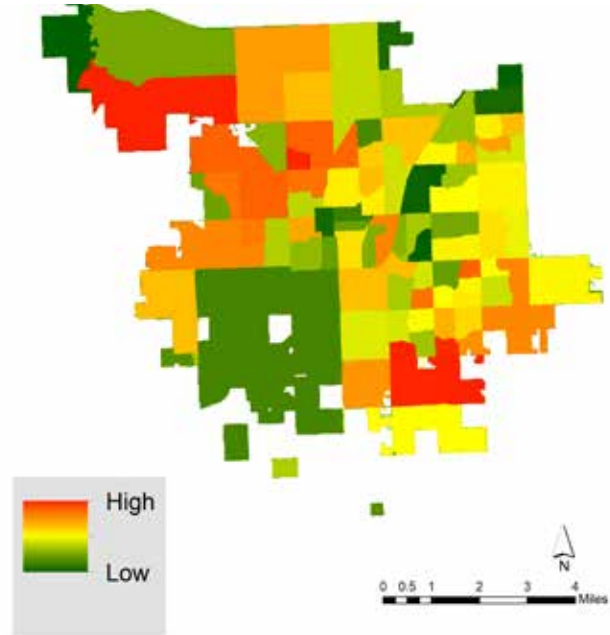
**DEMOGRAPHIC MODIFIER:  
CARLESS HOUSEHOLDS**



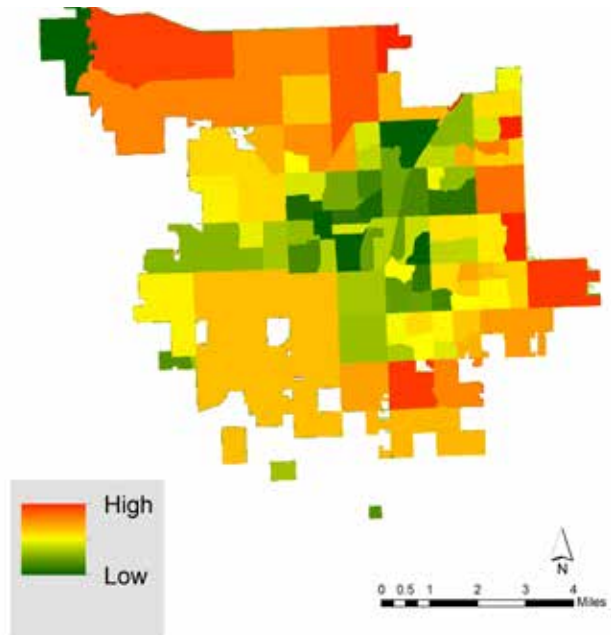
**DEMOGRAPHIC MODIFIER:  
INCOME**



**DEMOGRAPHIC MODIFIER:  
AGE**

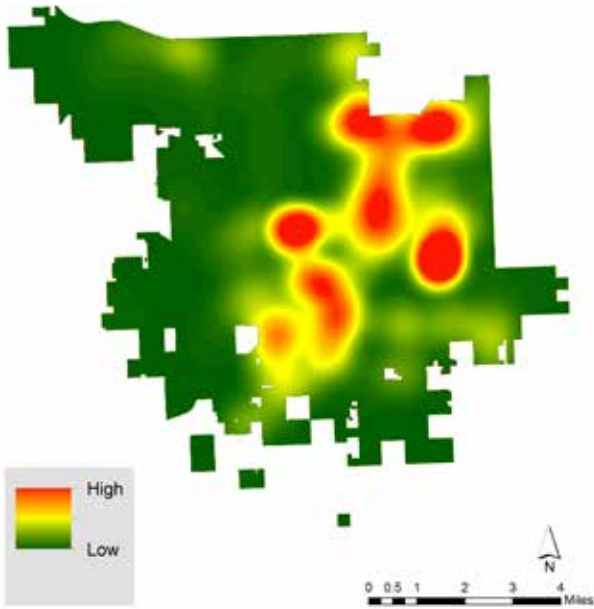


**DEMOGRAPHIC MODIFIER:  
EDUCATION**

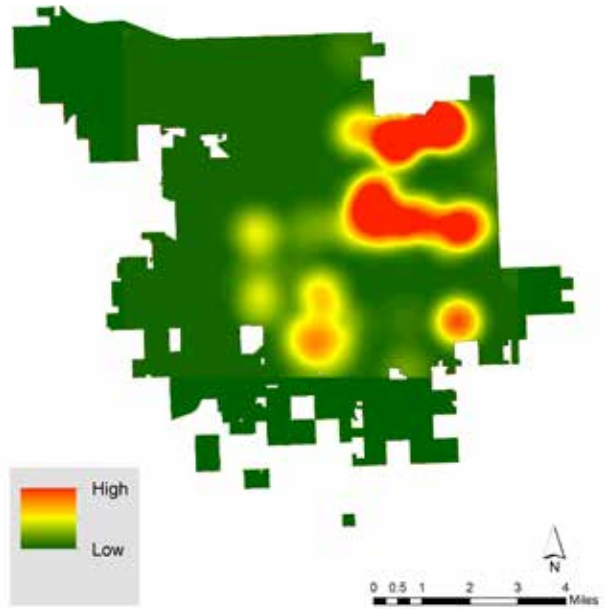


# Bicycle Trip Attractors

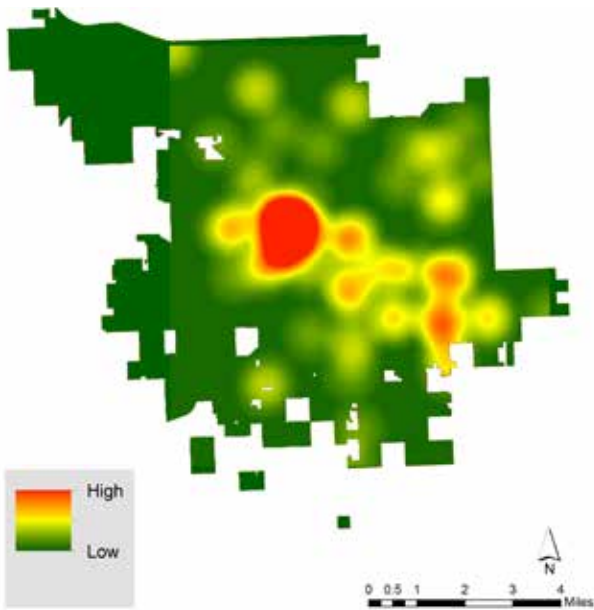
**EMPLOYMENT  
DESTINATIONS**



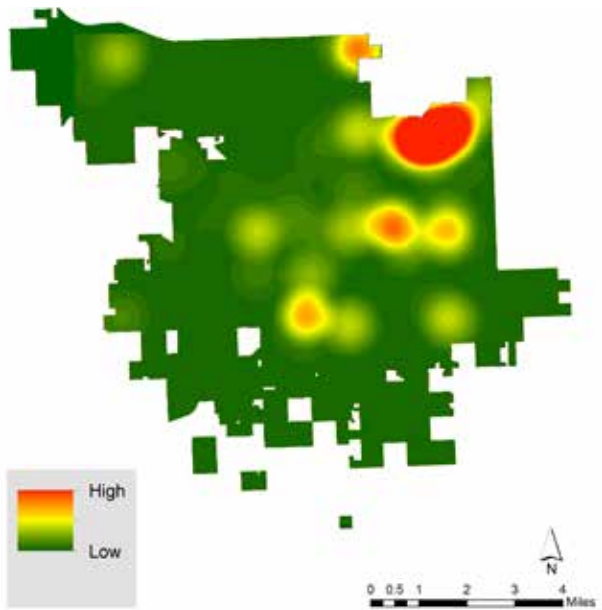
**RETAIL/SERVICE  
DESTINATIONS**



**SCHOOL/RELIGIOUS  
DESTINATIONS**

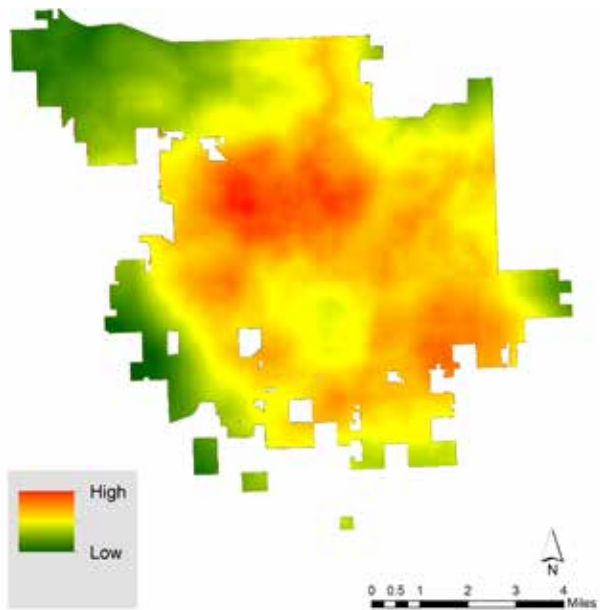


**SOCIAL/ENTERTAINMENT  
DESTINATIONS**

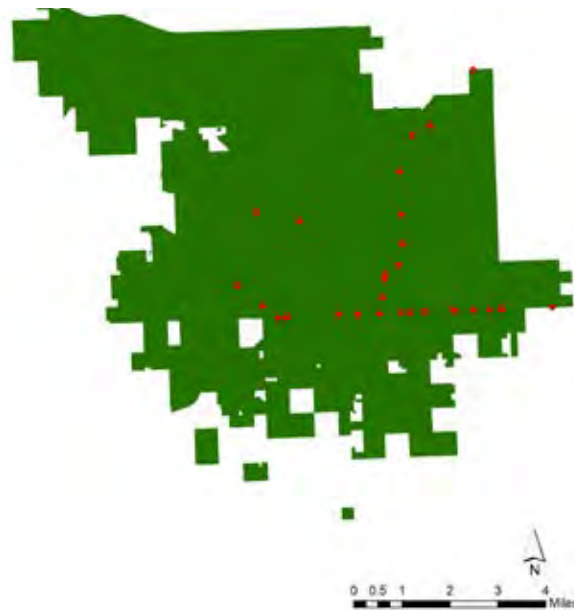




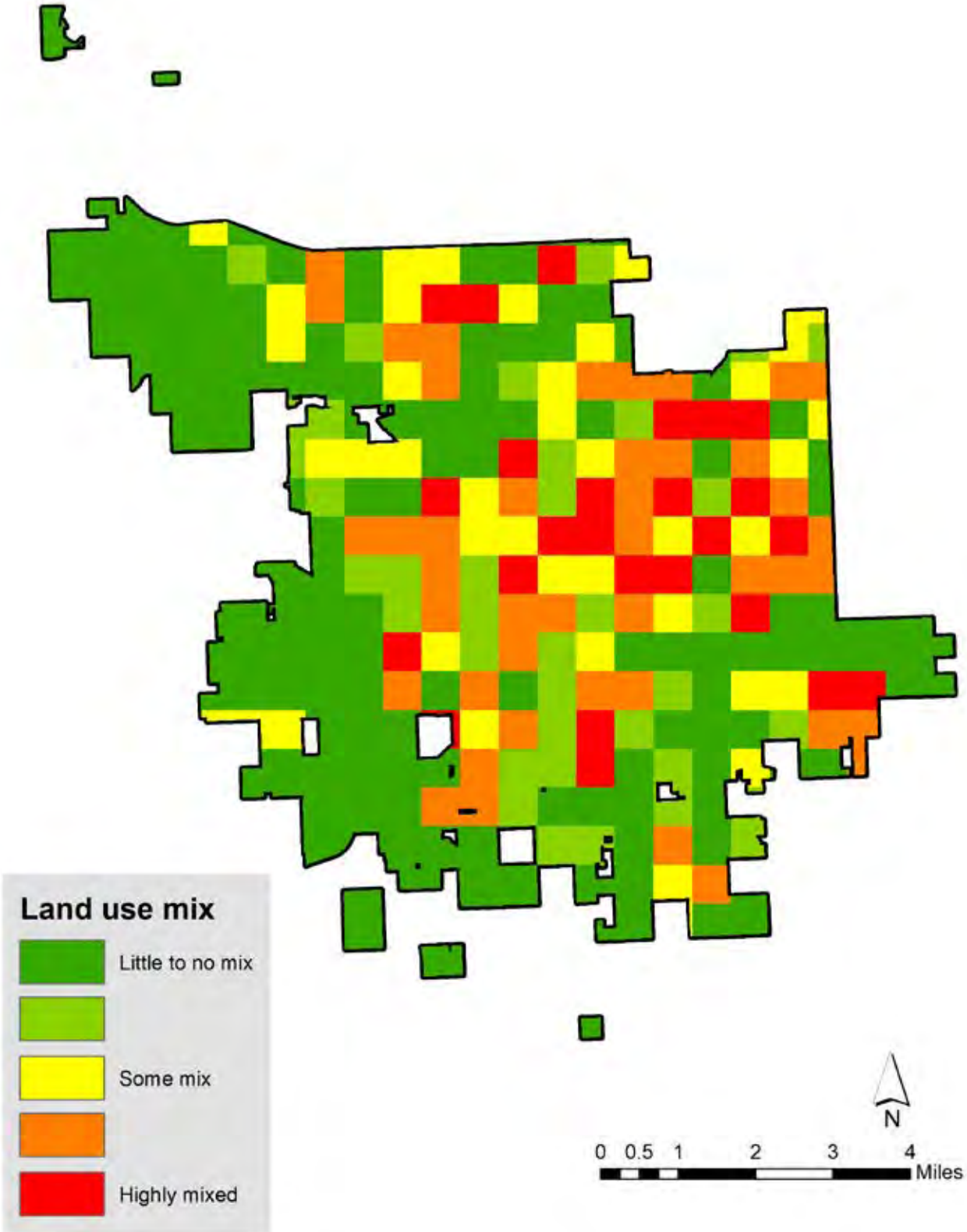
### RECREATION DESTINATIONS



### TRANSIT DESTINATIONS

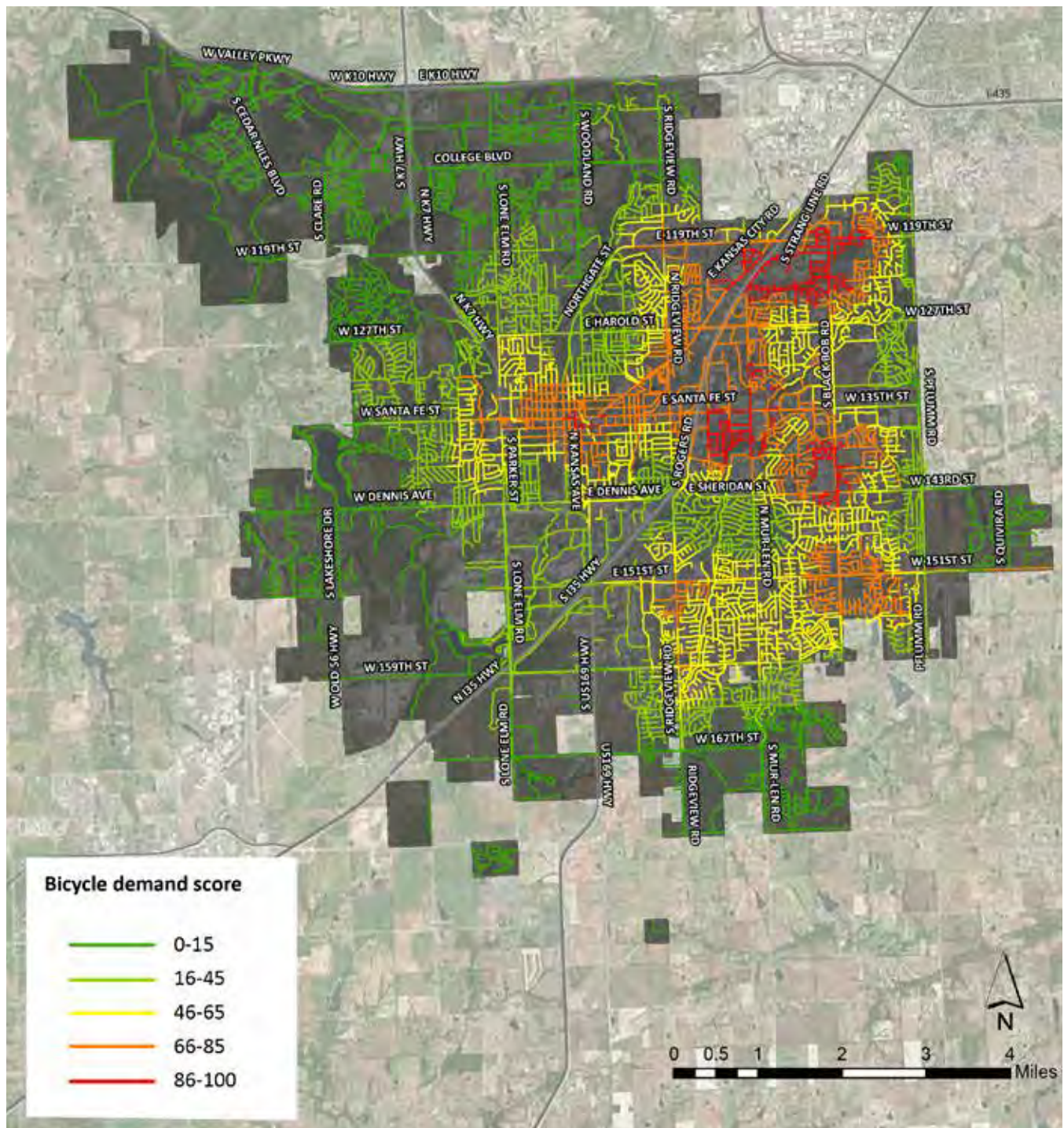


# Land Use Diversity Modifiers



# High Bicycle Demand

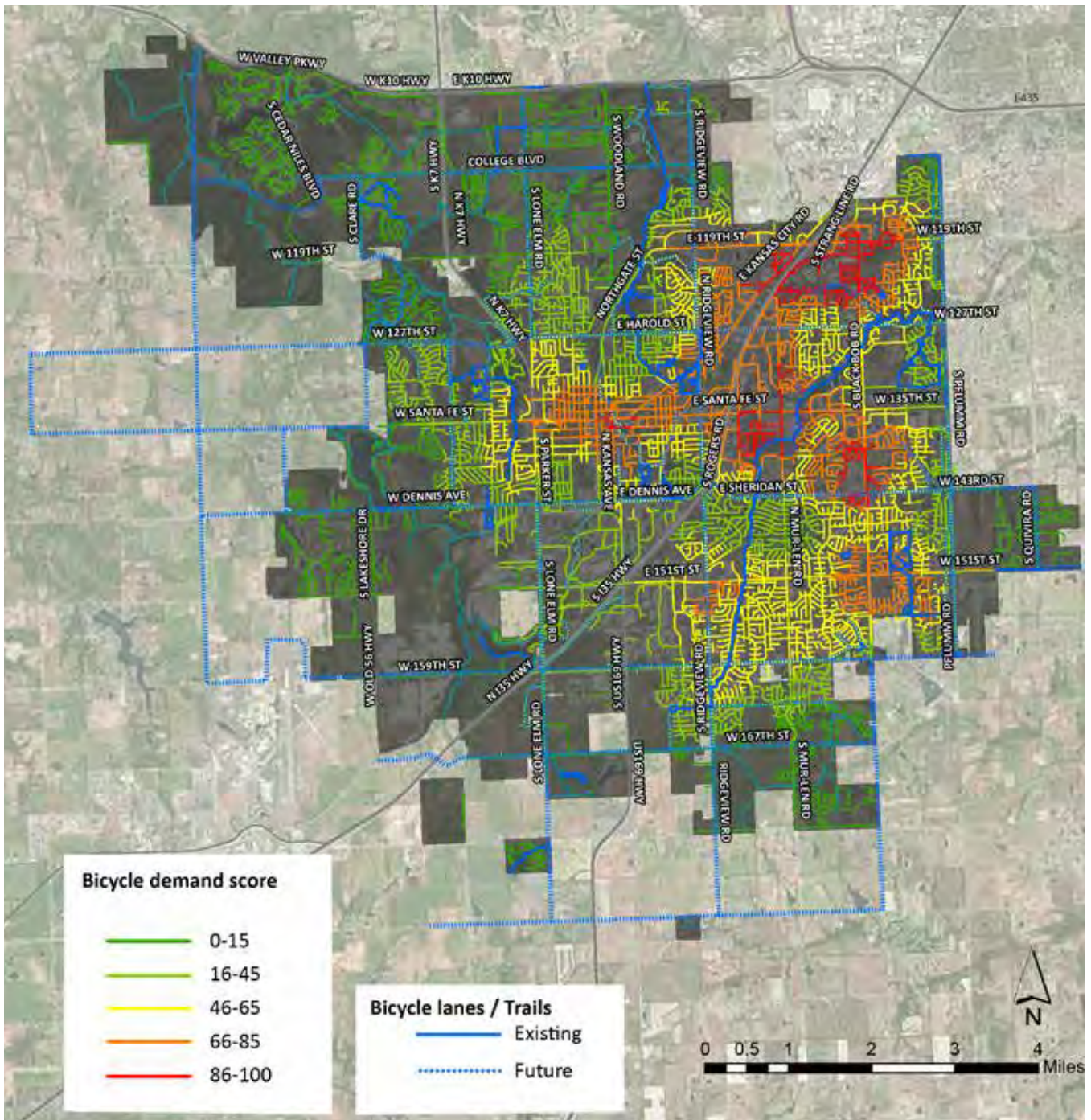
The map below illustrates where the highest demand for cycling exists in Olathe. These are areas where people are most likely to bike assuming that there is a safe and comfortable route for them to do so. Generally, the areas of highest demand are located where there is the highest density of population and employment, and the highest concentration of destinations and amenities. In Olathe, areas around 119th and 135th Street have a high potential for ridership. Original Town, and areas on either side of I-35 also have a mix of users and denser development, so these areas see potential for bike ridership as well.





# Planned Bike Routes

No matter how much potential exists for bike ridership in an area, individuals will only make a decision to ride a bike if they have a safe and comfortable route between their origin and destination. The map below overlays the existing and planned trails and bicycle facilities throughout Olathe. Where areas of high demand overlap with quality, connected infrastructure, these places have the most likelihood of generating bicycle trips. These are also the places with the greatest potential for bike share to be successful. Existing Mill Creek, Indian Creek and Rolling Ridge trails traverse and connect several areas of high demand. On-street facilities on 127th Street and 143rd Street also connect important destinations. Strategic projects to connect gaps in comfortable bike infrastructure could have a major impact on the likelihood of bicycle trips and the growth potential of bike share in Olathe.

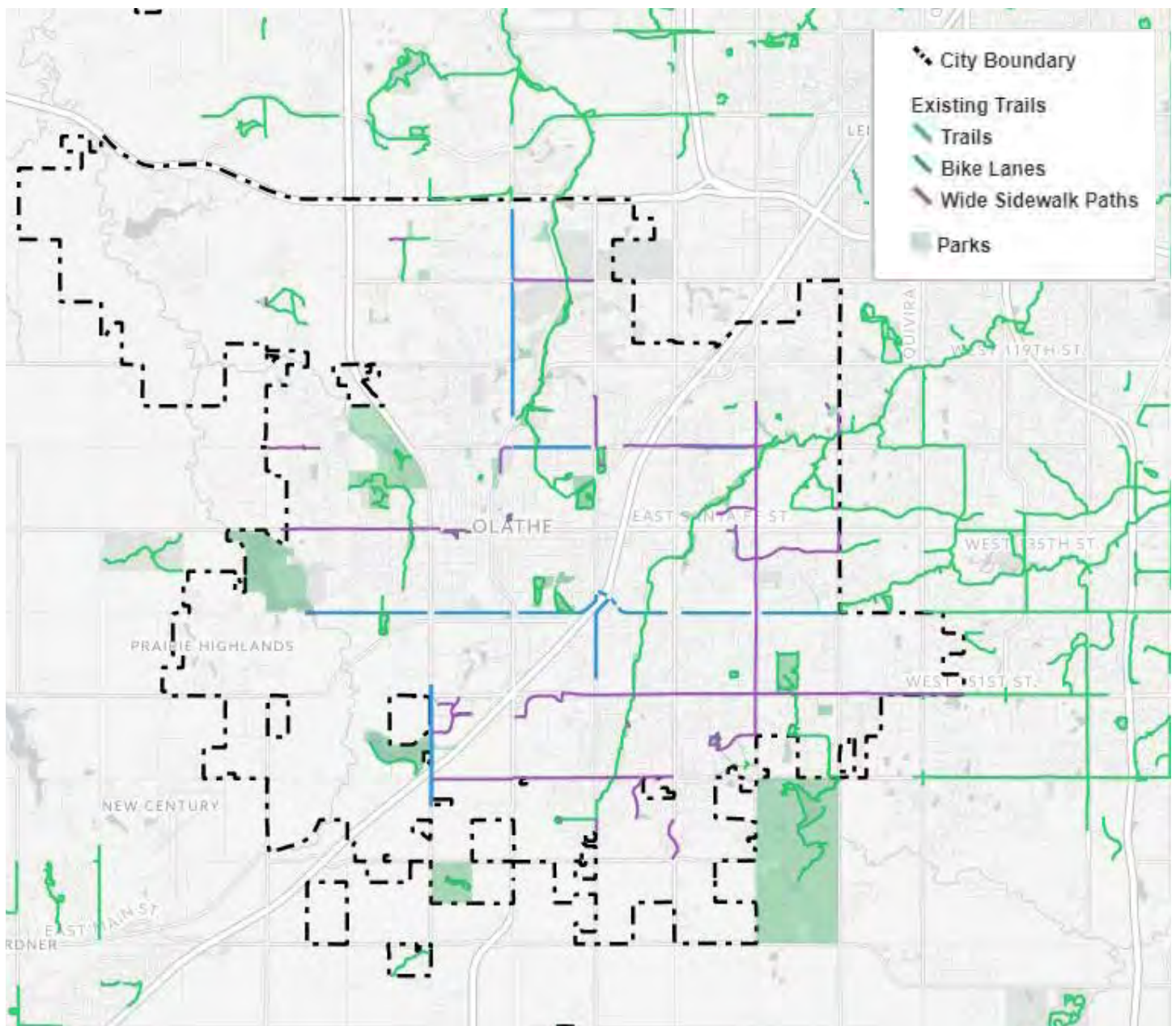




# Connectivity Analysis

Connectivity is essential to the success of bike share. In short, people will ride bicycles where it is safe and comfortable to do so. It does not matter how many people, jobs, or destinations are concentrated in an area if there is no convenient way to access them. The following map illustrates Olathe's existing network of comfortable bicycle routes. It includes on-street bike lanes, off-street trails, and sidewalk paths wide enough to comfortably accommodate cyclists and pedestrians together. The Indian Creek and Mill Creek Trails provide major north-south connectivity through Olathe, while facilities on 127th Street, 143rd Street, and 151st Street provide east-west connectivity.

## COMFORTABLE BICYCLE ROUTES



# Mobility Needs Analysis

For some residents, alternative modes of transportation are a necessity. Bike share can help to provide an additional transportation option to those who need it, expanding access to jobs and services, and extending the reach of local transit service. A mobility needs analysis looks at a variety of indicators to identify concentrations of people with unique mobility challenges. Some of those factors most directly related to bike share are identified below:

## **Percent of residents age 18 and younger**

Residents who are too young to drive often still have mobility needs separate from their parents. Without accommodation for alternative transportation modes like walking, biking, and transit, it can be difficult for young people to get around for school, recreation, and other trips.

## **Percent of households in poverty**

Because our transportation systems are focused on the automobile, and because the cost to own, operate, and maintain an automobile averages to eight or nine thousand dollars per year, residents living in poverty face particular mobility challenges.

## **Percent of households with no car**

Households with no car depend exclusively on alternative modes of transportation. Where concentrations of carless households are high, alternative transportation is not just helpful but urgent to ensure residents have adequate access to the goods, services, and employment opportunities necessary to thrive.

## **Percent of commuters taking transit**

By choice or necessity, transit commuters are already committed to alternative transportation. All transit trips begin and end with walking or biking to connect riders to their ultimate destinations. Areas with high concentrations of transit users benefit from safe, comfortable, and convenient walking and biking options.

## **Percent of commuters cycling**

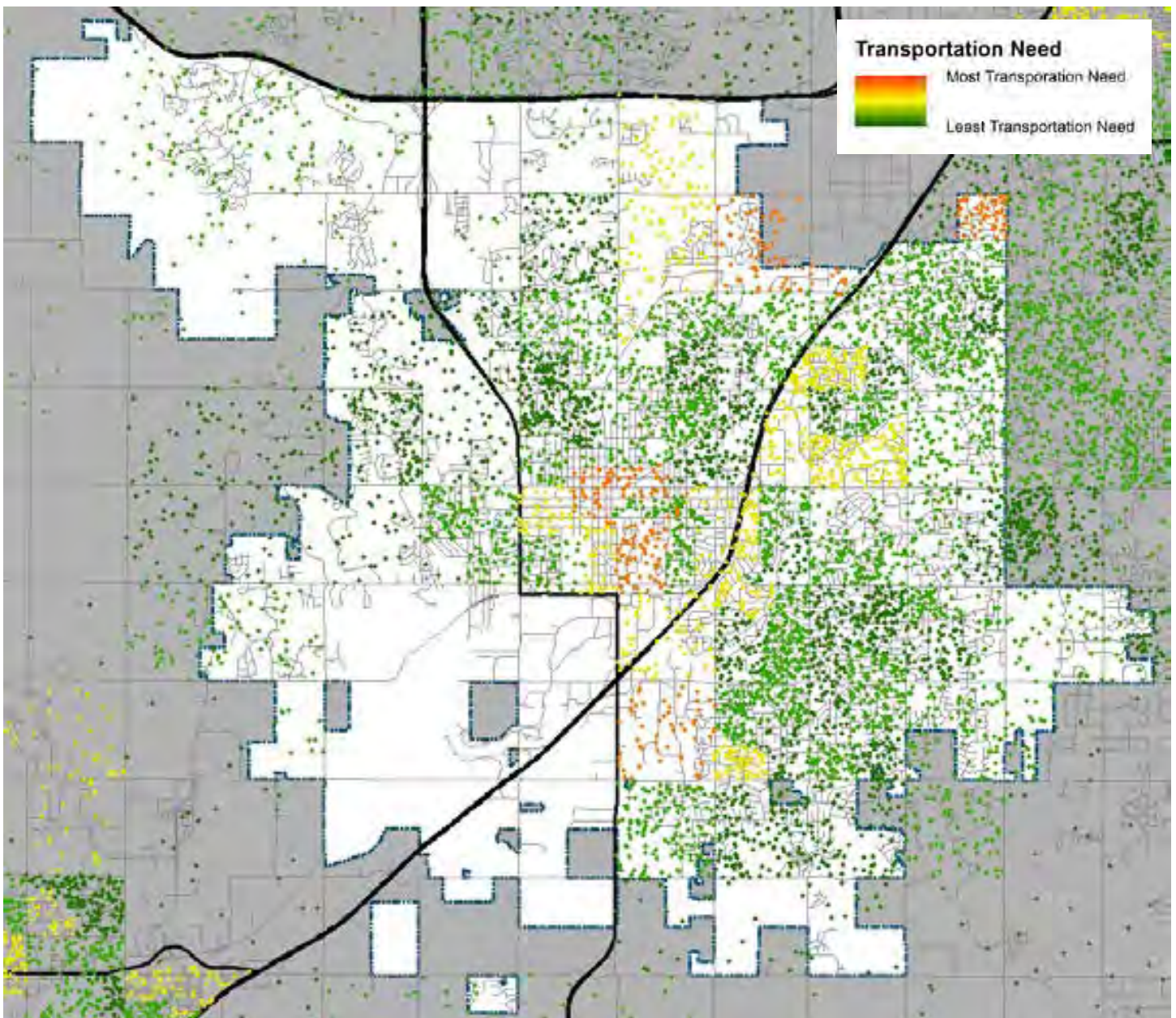
The number of people biking is a way to evaluate the quality and performance of bicycle facilities. Areas with high concentrations of potential bikers, but with low levels of biking have potential for strategic interventions to better capture the potential.





This following map identifies areas with a high need for alternative modes of transportation, with orange representing greater need and green representing less need. This transportation need index is a composite of a variety of demographic and socioeconomic factors related to mobility (including: % residents aged under 18, % residents aged over 65, % households in poverty, % zero-car households, % workers commuting via transit, bike, or on foot, % residents disabled, and job-worker balance). The dots on the map show population density, with each dot representing twenty residents.

## AREAS OF NEED FOR ALTERNATIVE TRANSPORTATION





# Community Priorities

Bike share can only be successful in Olathe if it is deployed in the locations where people want to ride. It should be located to serve desirable destinations, and to provide safe and comfortable routes between destinations. The long term viability of the system is strengthened by project partners whose missions and organizational goals align with the opportunities bike share provides. These operational considerations about where bike share is located and how it operates are driven by community engagement. This project engaged the public through a variety of venues and activities:

## Steering Committee

A City-appointed steering committee shared knowledge on needs and opportunities in Olathe, and provided guidance on recommendations. The steering committee also explored partnerships to expand the benefit of the proposed bike share system. This committee was composed of a diverse group of public, private, and institutional stakeholders with a potential interest in bike share.

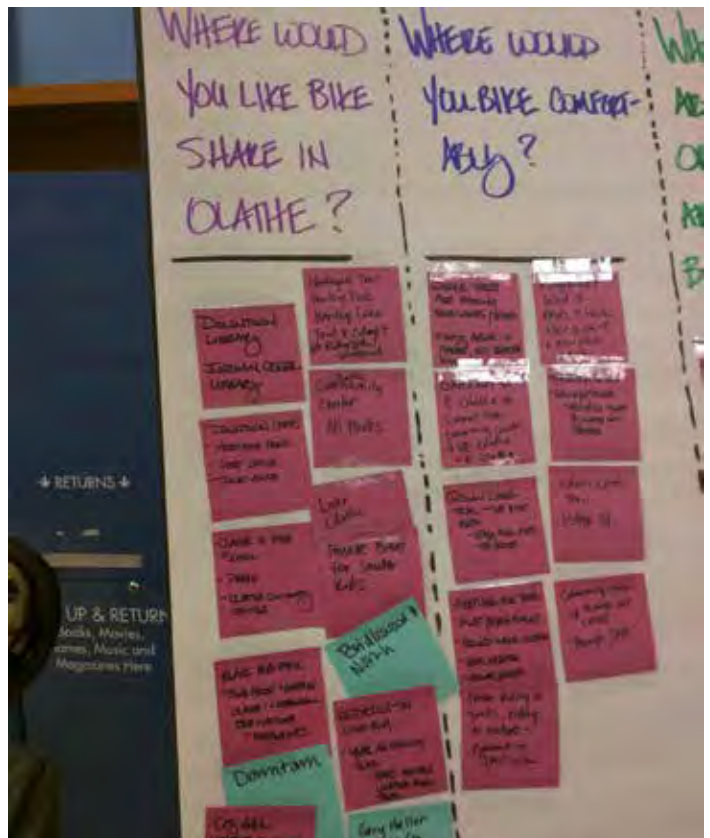
## Stakeholder Meetings

The project team worked with the City of Olathe to identify potential partners and sponsors for bike share implementation. These one-on-one engagement efforts extended beyond education and station planning. They directly translated to implementation strategies, operational business models, and potential financial support.

## Community Events and Public Outreach

The project team engaged the general public at a variety of scheduled community events and unscheduled activities at community facilities. In addition to information about the project and process, three key questions were posed:

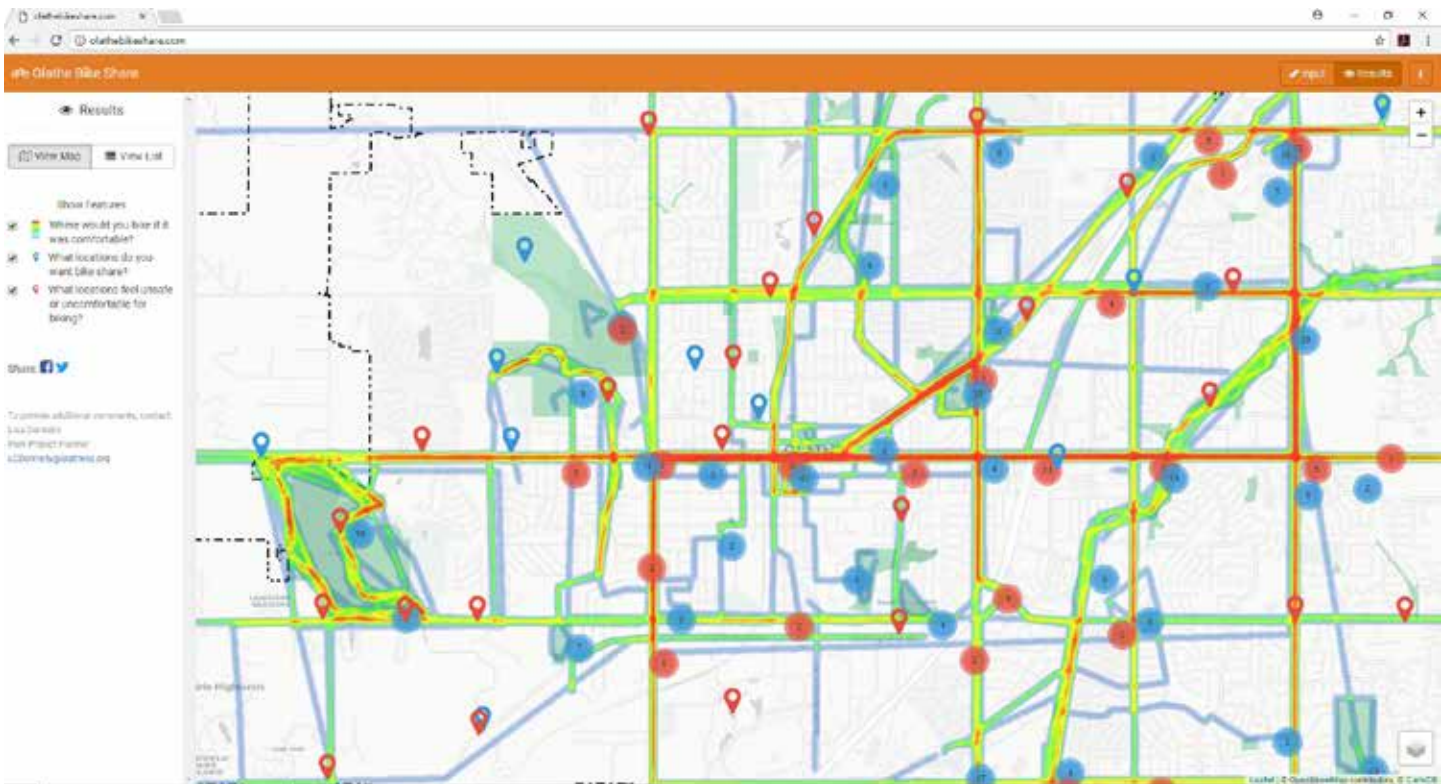
- Where would you bike if it was comfortable?
- What locations do you want bike share?
- What locations feel unsafe or uncomfortable for biking?





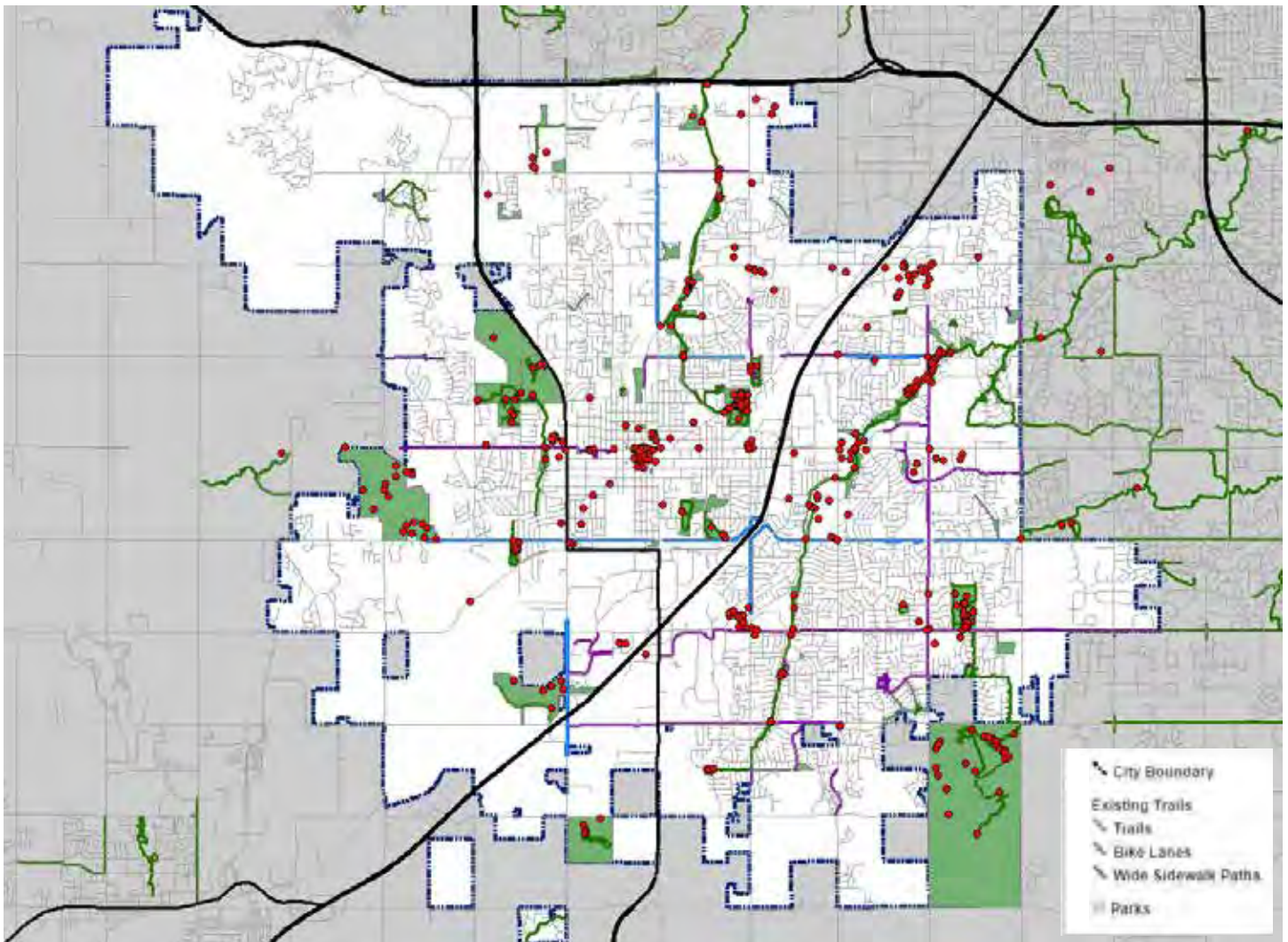
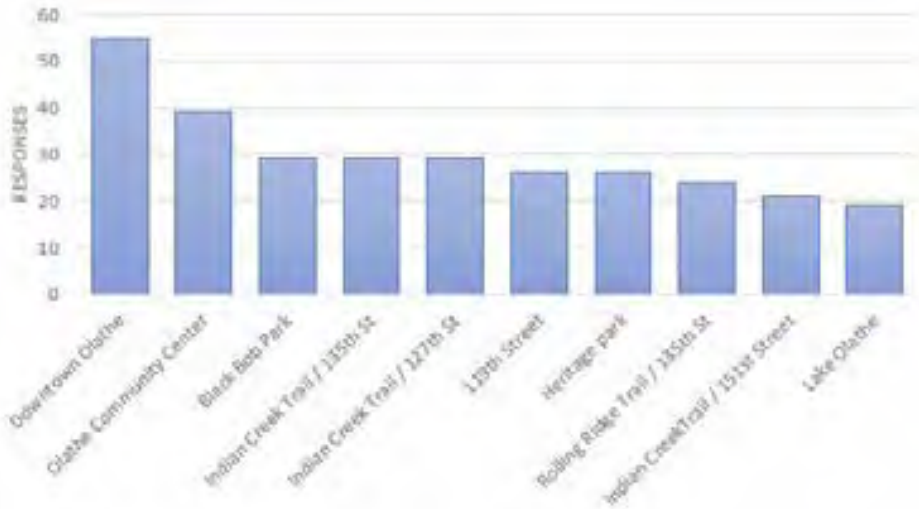
## Online Engagement

These questions were also posed to the general public through an interactive website: [olathebikeshare.com](http://olathebikeshare.com). This site provided an interactive map of Olathe and surrounding areas including comfortable biking routes such as trails, bike lanes, and wide sidewalk paths that could accommodate cyclists. Users were able to input locations where they wanted bike share, places they felt were unsafe or uncomfortable, the various routes they might ride, and comments about their selection. More than six hundred unique users shared their ideas for bike share in Olathe.



# Community Priority Locations

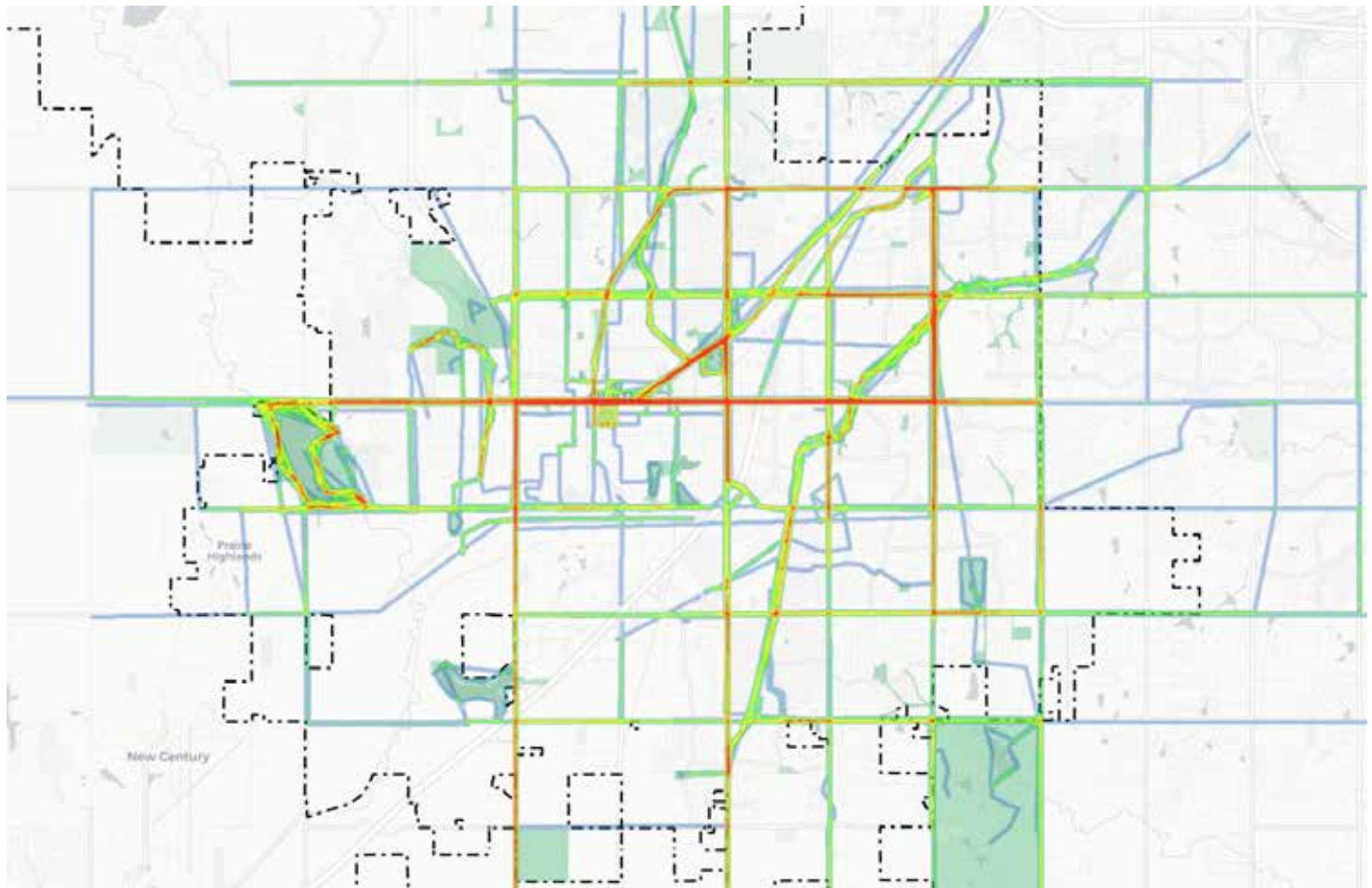
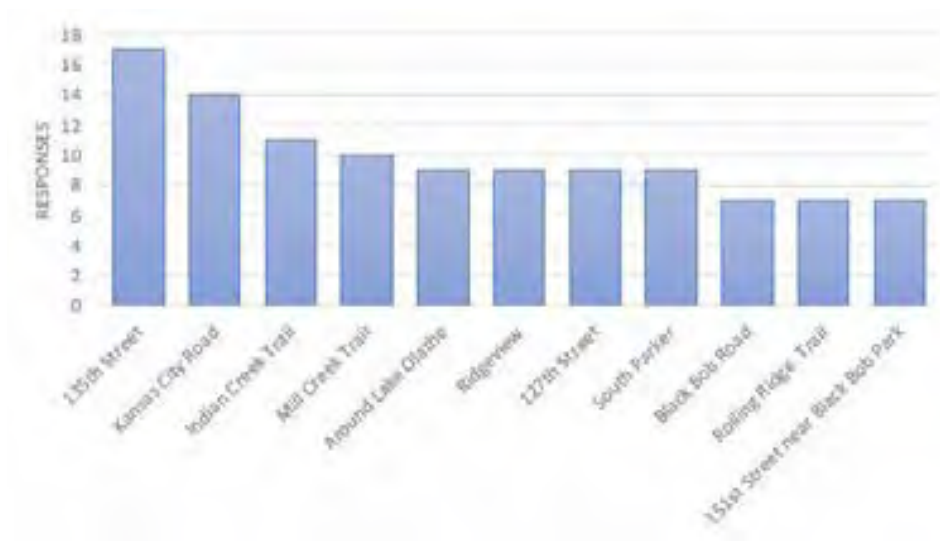
## WHAT LOCATIONS DO YOU WANT BIKE SHARE?





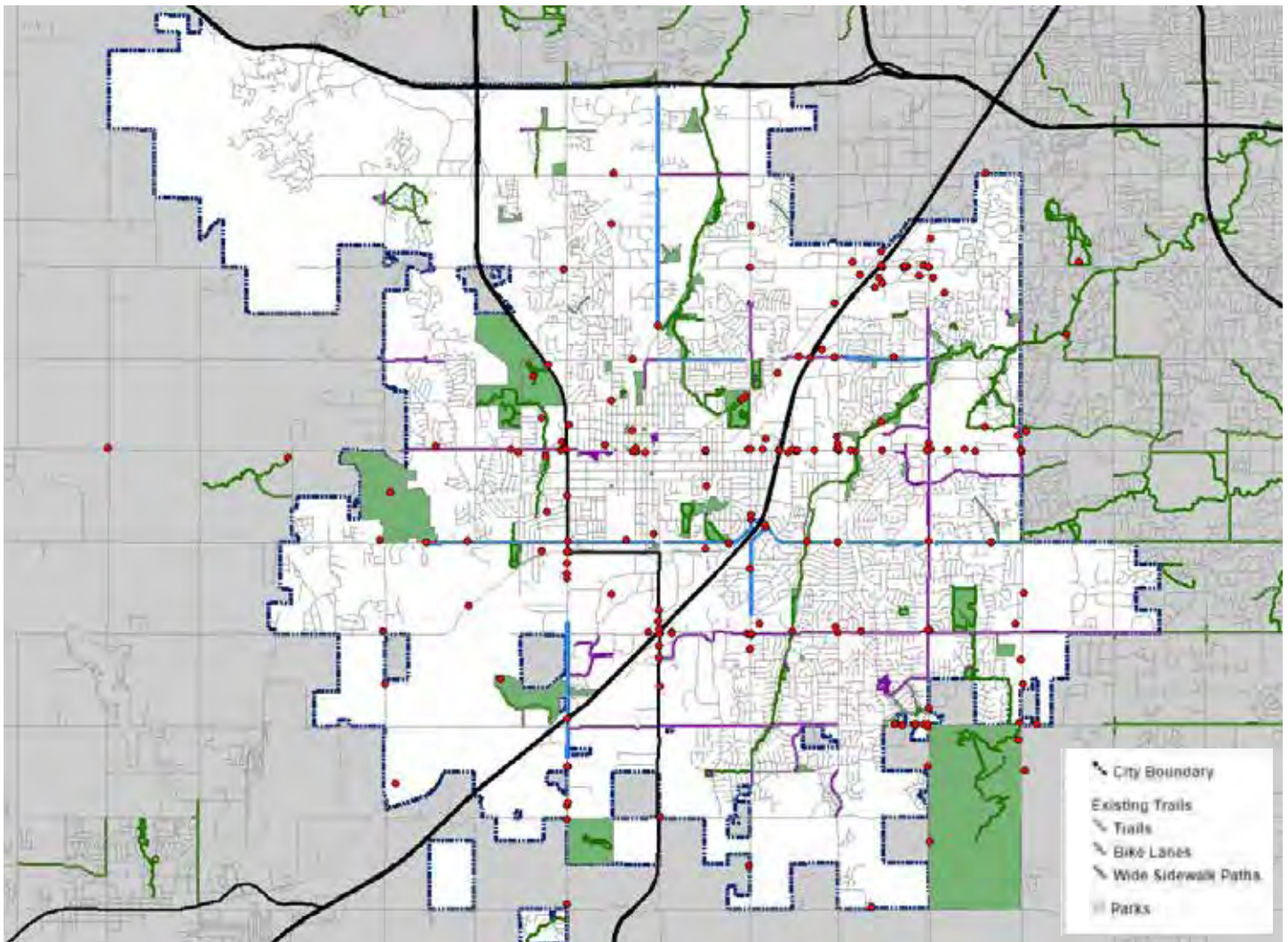
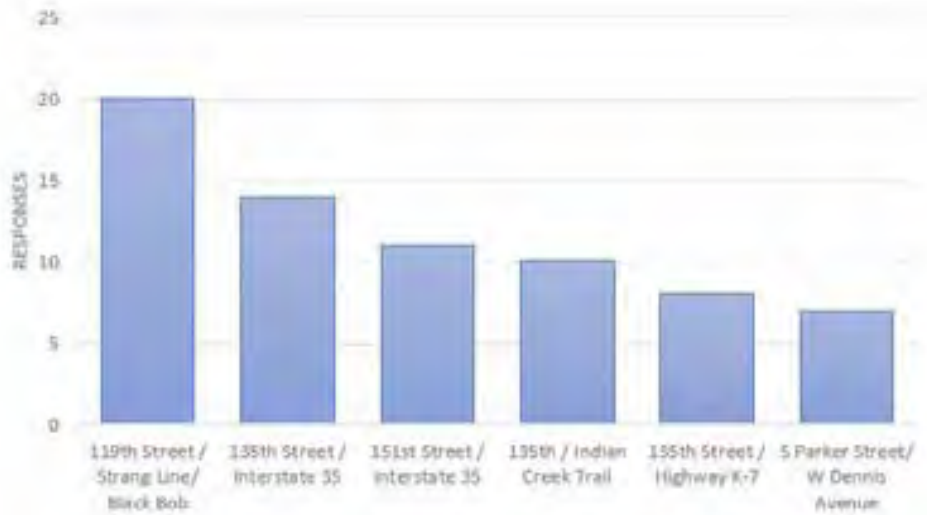
# Community Priority Routes

WHERE WOULD YOU BIKE IF IT WAS COMFORTABLE?



# Community Identified Barriers

## WHAT LOCATIONS FEEL UNSAFE OR UNCOMFORTABLE FOR BIKING?







### III. SYSTEM PLANNING

# System Options

## Bike Library

A bike library is the simplest system type to deploy and requires the least technological sophistication and upfront capital. Bike libraries usually involve a fleet of bicycles that are rented out at a limited number of staffed kiosks. While bikes may be branded, they are unlikely to have checkout or tracking technology. Check-out and check-in of bikes must be handled by staff members. The lack of automation limits the size of systems that adopt the bike library model.

In terms of cost, bike libraries can range from the low end, where personal use bikes can be purchased for rent, to the higher end, where a specific type of bicycle could be purchased and used uniformly across rental locations. Bike share bicycles (as opposed to store purchased bikes) have the advantage of working for a wider range of riders and for long term outdoor use on varied surfaces. Bike share bicycles could also accommodate a formal check out process that tracks ridership. With either type of bike, a check-out kiosk would require concrete pads with bike racks on them. Then potential users retrieve a key to access the bike from a system staff member.



### SYSTEM FEATURES

In-depth data tracking	—
Opportunity for corporate partnerships	~
Potential for high ridership	—
Real time route tracking	—
Local bike share system compatibility	—
Compatible with equity programs	~
App available	—
Heads-up display with bike directions	—

### PROS

- Lower capital cost to start
- Good way to have a program also work for children

### CONS

- Difficult to track usage data
- Difficult to get users to sign waivers
- Low chance of revenue
- Lower chance of corporate partnerships
- Requires staff support
- Only accessible during hours of operation
- Bike libraries are often stocked with department store quality bikes, which gives the end user a lesser quality ride that will cost more to maintain
- Not compatible with regional bike share system

## Smart Locks

The smart lock technology consists of a GPS-enabled lock that is put onto any bicycle. Most smart lock programs are designed for private use rentals. Citizens can sign up and acquire a lock from a vendor and then put their personal bike out for rent. This could be replicated on a public program level, but there is not much precedent of success for this type of use for a public bike share system.

A smart lock system is more flexible than some other bike share system options. Locks and bikes can be located anywhere, and any type of bicycle provided by anyone can be integrated into the system. However, there are tradeoffs including lack of uniform safety and maintenance standards, and limited opportunities for corporate partnerships (there are no stations, kiosks, or on-bike space for ads, info, or system marketing).



### SYSTEM FEATURES

In-depth data tracking	+
Opportunity for corporate partnerships	-
Potential for high ridership	~
Real time route tracking	+
Local bike share system compatibility	-
Compatible with equity programs	-
App available	+
Heads-up display with bike directions	-

### PROS

- Active GPS gives detailed rider data and tracks bikes
- Low cost

### CONS

- No maintenance regulation
- Bikes may not be uniform
- Not a proven formula on any large scale
- Locks not attached to bikes, could be removed
- Little opportunity for corporate partnership
- Not compatible with regional bike share system
- Generally requires a smartphone



## Station-Based Bike Share

Most bike share systems that have deployed between 2006 and 2016 rely on “station-based” technology. These systems are made up of a network of automated stations where bicycles are docked. To check out a bike, a user pays with a credit card at an automated kiosk attached to the station. Users who have previously purchased a membership can use their member card to check out, either at the kiosk or simply by tapping the card to a reader on a bike dock. The system will then unlock a bike for the user to take.

With station-based bike share, it is easy to identify where bikes will be located, both for the user or the bike sharing agency. By having the physical kiosk in a permanent location, it allows visitors to simply walk up to a station and use a bike at any moment without having to be registered. Station based bikes can unlock in response to a credit card, app, or a member key, providing a secure locking point to deter theft and safely transmit usage and billing information.



### SYSTEM FEATURES

In-depth data tracking	+
Opportunity for corporate partnerships	+
Potential for high ridership	+
Real time route tracking	~
Local bike share system compatibility	+
Compatible with equity programs	+
App available	+
Heads-up display with bike directions	-

### PROS

- Most common form of bike share so many people will already be somewhat familiar
- Kiosks are user friendly
- Data tracking for trip routes as well as user health and demographics
- Not limited to hours of operation
- Can be compatible with regional bike share system

### CONS

- Capital heavy to start
- Tends to perform better in more densely populated areas
- Requires linear space in popular areas along with electrical access or a clear sky for solar power

## Smart Bikes

Smart bike systems move away from physical stations and kiosks and integrate bike share technology directly into the bikes. Using a mobile phone or website interface, the location of available bicycles are mapped. A user reserves a bicycle and receives a code that they enter on a keypad on the bicycle. The bicycle is then unlocked for use. The rider returns the bicycle to another location when finished, locks it, and “checks in” the bike via the app or a button on the bike.

Because the technology for smart bikes is integrated into the bicycle itself, costly docking infrastructure is not required. Instead of physical stations, parking locations for smart bikes can be managed through digitally geofenced “hubs,” which are often simply public bicycle racks. Locations for parking smart bikes can be easily moved, expanded, and adapted to meet the needs of the system. Smart bike technology is becoming more popular around the country because it combines lower capital costs, increased flexibility, and robust data tracking tools.

### SYSTEM FEATURES

In-depth data tracking	+
Opportunity for corporate partnerships	+
Potential for high ridership	+
Real time route tracking	+
Local bike share system compatibility	+
Compatible with equity programs	~
App available	+
Heads-up display with bike directions	+



### PROS

- Less capital heavy to deploy than station based bike share
- Active GPS gives detailed rider data and tracks bikes
- Lock up anywhere
- Geofencing return zones is simple and inexpensive
- Kiosks can expand accessibility and visibility, but not required

### CONS

- Requires a constant data connection for every bike
- Smartphones not required, but makes system much easier to use

## Electric Assist Technology

Electric assist bikes are the fastest growing segment of the bicycle industry. With electric assist technology, bicycles have an electric motor that helps propel a rider as they pedal. Electric assist bikes only give assistance while the user is pedaling, so there is no throttle. Riders must pedal to get a benefit. Electric assist can give users an extra boost to overcome hilly topography or wind, and make it easier for work trips where riders must arrive at their destination without being tired or perspiring.

Smart bike technology can be integrated into an electric assist bicycle, but some docking stations are required for recharging. The electric-assist motors make this technology more expensive than a typical bike share bicycle.



### SYSTEM FEATURES

In-depth data tracking	+
Opportunity for corporate partnerships	+
Potential for high ridership	+
Real time route tracking	+
Local bike share system compatibility	+
Compatible with equity programs	+
App available	+
Heads-up display with bike directions	+

### PROS

- Active GPS gives detailed rider data and tracks bikes
- Pedal assistance for riders removes several barriers that inhibit ridership
- Accommodates and encourages more types of riders
- Kiosks can expand accessibility and visibility, but not required

### CONS

- Most capital heavy of the bike share systems to deploy
- Requires docks for charging



# Dockless Bike Share Considerations



## What is Dockless Bike Share?

As the name suggests, dockless bike share does not require a dock for the bicycle to be returned to. These bikes can be returned and picked up from anywhere. Some dockless bikes, including smart bikes (described elsewhere in this study), have built in locks that allow them to be fixed to bike racks and other predetermined pick-up and drop-off locations. There are also a class of dockless bike share bikes which are not locked up to a rack or dock at all, but instead lock inside the rear wheel, meaning the bike remains untethered from physical objects such as a bike rack. By contrast, kiosk-based bike share requires users to pick up and return bikes from designated stations, in which bikes are locked into stationary docks.



## Dockless Bike Share Benefits

Dockless bike share, including “smart bikes,” offers several advantages over station-based bike share:

**Cost:** Capital costs for equipment tend to be lower for dockless systems than station-based systems.

**Bikes First:** Dockless systems allow bike share systems to focus investments more directly in bicycles for end users, rather than support infrastructure. This supports more bikes and more users for a similar level of investment.

**Coverage:** Because they can be parked anywhere, dockless bike share bikes can provide greater geographical coverage, with greater flexibility for users who do not need to return bikes to physical stations.

## Dockless Bike Share Concerns

As dockless bike share systems expand across the United States, communities are learning important lessons about potential drawbacks of dockless bike share systems:

**Business Model:** Some for-profit vendors of dockless bike share have demonstrated business model sustainability issues including:

- Relying heavily on short-term venture capital funding
- Selling user data by collecting information on user phones
- Creating deposit schemes that require users to deposit money into an account for the bike share company to invest and earn interest, like an unregulated bank
- A focus on market-share growth that does not account for long-term viability of bike share operations or community impacts

**Safety:** There are some dockless vendors producing bikes that do not meet basic American safety standards. Any vendors considered for bike share should be required to provide third party documentation that bikes comply with federal consumer safety standards (16 CFR 1512, ISO 4210), as well as any local requirements for lighting, from a reputable U.S.-based bicycle testing lab.

**Maintenance:** For-profit dockless vendor operational models often do not include maintenance of the bikes. When bikes go missing or are in disrepair they are typically replaced rather than fixed. This creates both operational and liability issues, since most models only plan for bike replacement every two years, and the maintenance and safety of each bike is certain to degrade over time. Bike share operations should require documentation of regular maintenance checks and repairs on every bike.

**Cluttering of Streets and Sidewalks:** Operations in cities across the country have highlighted community challenges with dockless bike share parking. The flexibility of parking bikes anywhere can also lead to blocking of public rights of way, and critical

ADA access. Some for-profit dockless bike share systems do not have mechanisms to lock bikes to anything, making return of a bike in the middle of a sidewalk or laying over into the street possible. Some dockless bike share vendors are working with state governments to preempt local regulation of dockless bike share, which would limit the ability of local governments to effectively manage the parking of dockless bikes in their communities.

**Coverage and System Balancing:** Dockless bike share can have greater area coverage than station-based bike share due to the flexibility of moving and parking anywhere. However, some dockless companies do not balance bikes by moving them to neighborhoods that aren't ridden to as often. This results in an uneven distribution of bikes, puts underserved neighborhoods automatically at a disadvantage, and means bike share bikes are not always available where people want to use them most.

**Waste:** Because some dockless bike share vendors use low quality bikes and do not provide maintenance of bikes once deployed, these bikes are sometimes considered "disposable." When riders find bikes in disrepair, they typically dispose of them where they are, and there are many examples of bikes in waterways, greenspace, impound lots, and junk yards. In some cases, cities collect disposed bikes at taxpayer expense while bike share vendors import additional new bikes into the market.

**Longevity:** Because it is so new, the dockless bike share industry remains volatile. There are no successful examples yet of for-profit dockless bike share companies maintaining services and operations in a sustainable model, year to year. Some of the world's largest dockless bike share companies have recently shut down, with a loss of deposits for users. Other large for-profit dockless bike share companies have announced their intent to shift away from bike share to car-sharing and other services. This uncertainty creates some additional risk for local governments making long term plans for bike share amenities in their communities.

# Bike Share Locations

To be successful, bike share should be located where it has the greatest potential for ridership. Experience with Kansas City's regional bike share system, and with other systems around the country suggests several important factors that impact bike share usage:

**Community Priorities:** Foremost, bike share should be located where potential users say they want to ride. This planning process undertook a survey of more than 800 residents (in person and online) to gather feedback on desired bike share locations.

**Latent Demand:** Ultimately bike share ridership is based on how many desirable trips can be made with the system, and how many potential riders are within a convenient distance to use bike share for these trips. As part of this study, a model was developed for Olathe bike share that looks at potential trip generators and attractors and weights them according to a variety of demographic, distance, and observation factors.

**Areas of Need:** For some, bicycle infrastructure can be a community amenity, or recreational opportunity. For others, it can be a necessity to access jobs, services, and broader economic opportunity. For example, bicycle infrastructure is particularly important for areas with high concentrations of carless households, areas with limited transit service, and areas with high

concentrations of poverty. Bike share location decisions can evaluate these factors, both to identify areas of potential ridership, but also to ensure that investment in bike share amenities serve those who need it most.

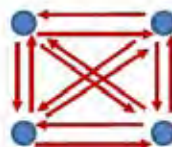
**Clustering:** Bike share works best when several potential destinations are clustered in close proximity to each other. Bike share ridership data indicates that ridership correlates most directly with the number of potential trips, not the number of locations. That means that where many potential destinations and bike share locations are clustered close together, bike share ridership in those areas increases exponentially.

**Connectivity:** Bicycle infrastructure functions best as an interconnected network. In addition to specific streets and intersections that demonstrate high demand for bicycle infrastructure, the connectivity of the entire network is extremely important. Bike share locations that have direct access to a safe and comfortable trail, shared path, or on-street bicycle facility are more functional for a larger population, and therefore see higher ridership.

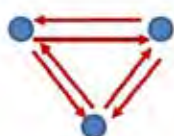
The following tables inventory the suitability of potential bike share locations based on a composite of all these criteria. These locations are organized into geographic areas, where a primary hub could be supported by a variety of satellite destinations.



**2 Locations**  
**2 Possible Trips**



**4 Locations**  
**12 Possible Trips**



**3 Locations**  
**6 Possible Trips**



**5 Locations**  
**20 Possible Trips**

*Clustering: Bike share ridership correlates closely with the number of possible trips. That means that additional destinations in an area increase the potential for ridership exponentially.*





Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>DOWNTOWN OLATHE</b>						
County Admin Plaza	High	High	High	Medium-High	Medium	High
City Hall	High	High	High	Medium-High	Medium	High
Library	High	High	High	Medium-High	Medium	High
School for Deaf	High	High	High	Medium-High	Medium	High
Mill Creek Center	High	Medium-High	High	Medium-High	Medium	High
Post Office	High	High	High	Medium-High	Medium	High
Woodland Park	High	Medium-High	High	Medium-High	Medium	High



Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>STAGECOACH PARK AREA</b>						
Community Center	High	Medium-High	Low	Medium-Low	High	Medium-High
Mahaffie House	High	Medium-High	Low	Medium-Low	High	Medium-High
Two Trails Park	Medium	Medium-High	Low	Medium-Low	High	Medium
Olathe North High School	Low	Medium-High	Low	Medium-High	High	Medium



Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>ROLLING RIDGE TRAIL</b>						
Rolling Ridge Trail @ 135th Street	High	Medium-High	Low	Medium-High	High	Medium-High
Ernie Miller Natuer Center	Medium	Medium-Low	Low	Medium-Low	Medium	Medium
Prairie Center Park	High	Medium-Low	Low	Medium	High	Medium-High
Olathe West High School	Low	Medium-Low	Low	Medium	Medium	Medium-Low
Calamity Line Park	High	Medium-High	Medium	High	Medium	Medium-High
Oregon Trail Park	High	Medium-Low	Low	Medium	High	Medium-High
Walmart	High	Medium	Low	High	Medium	Medium-High
CVS	Low	Medium-High	Medium	High	Medium	Medium-High
Rolling Ridge School Park	Low	Medium	Low	Medium	High	Medium
Oregon Trail Schools	Low	Medium-Low	Low	Medium	High	Medium





Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>INDIAN CREEK TRAIL</b>						
Indian Creek Trailhead	High	Medium	Low	Medium	High	Medium-High
Mid-America Nazarene University	High	High	Low	Low	High	Medium-High
Garmin	High	Medium	Medium	Medium-Low	High	Medium-High
Olathe South High School	Med	Medium	Low	Medium-Low	High	Medium
Olathe East High School	High	Medium	Low	Medium-Low	High	Medium-High
135th Street @ Indian Creek Trail	High	High	Medium	Medium-Low	High	Medium-High
135th Street @ Black Bob Road	Medium	Medium-High	Medium	Medium-Low	Medium	Medium
Heatherstone Park	Low	Medium	Low	Medium-Low	Medium	Medium-Low
Madison Place	Medium	Medium-Low	Low	Low	High	Medium
Southdowns Park	Medium	Medium	Low	Medium-Low	High	Medium
Arrowhead Park	Medium	Medium	Low	Medium-Low	High	Medium
Eastbrooke Park	Low	Low	Low	Medium-Low	High	Medium



Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>BLACK BOB PARK AREA</b>						
Black Bob Park Trailhead	High	Medium-High	Low	Medium-Low	High	Medium-High
Black Bob Park Pool & Athletic Fields	High	Medium-High	Low	Medium-Low	High	Medium-High
Prairie Trails West Shopping Center	Medium	Medium-High	Low	Medium-Low	High	Medium
Brougham Park	Low	Medium	Low	Medium-Low	Medium	Medium-Low
Haven Park	Low	Medium-High	Low	Medium-Low	Medium	Medium
Parkhill Manor Park	Low	Medium-High	Low	Medium-Low	High	Medium



Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>MILL CREEK TRAIL</b>						
Northgate Trail Access Park	High	Medium-Low	Low	Low	High	Medium
Northwood Trails Access Park	High	Medium-Low	Medium	Medium-Low	High	Medium-High
Corporate Ridge Office Park	Medium	Medium-Low	Medium	Low	Medium	Medium
Ridgeview Marketplace	Medium	Medium-Low	Medium	Low	Medium	Medium
Johnson County Sunset Building	Medium	Medium-High	Medium	Low	Medium	Medium

Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>LAKE OLATHE</b>						
Lake Olathe East Shore Parking Area	High	Low	Low	Medium-Low	Medium	Medium
Lake Olathe Beach	High	Low	Low	Low	Medium	Medium
Prairie Center Park	Low	Low	Low	Low	Low	Low





Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>CEDAR LAKE AREA</b>						
Cedar Lake Park	Medium	Medium-Low	Low	Low	Low	Medium-Low
Olathe Medical Center	Low	Medium-Low	Low	Low	Low	Medium-Low
Great Mall Site	Low	Medium-Low	Low	Low	Low	Medium-Low

Location	Community Priority	Latent Demand	Area of Need	Clustering	Connectivity	Overall Suitability
<b>119TH STREET AREA</b>						
AMC	High	High	Low	Medium	Low	Medium
Arapahoe Park	Low	High	Low	Medium	Medium	Medium
119th Street @Black Bob Road	High	High	Low	Medium	Low	Medium
119th Street @Greenwood Street	Low	High	Low	Medium-Low	Low	Medium-Low

# Bicycle Infrastructure

## Infrastructure Gap Analysis

During January and February 2018, the project team conducted a field inventory of possible infrastructure gaps for the Olathe Bike Share Implementation Strategy. Potential infrastructure gaps were identified by mapping the following information:

### **Potential bike share locations including:**

- Recommendations from Steering Committee and olathebikeshare.com public comments
- Initial recommendations for primary and secondary bike share locations

### **Bike lane, trail, and shared use path extensions including:**

- Bike infrastructure recommendations from the Olathe Transportation Master Plan and Cedar Creek Connectivity Plan
- Steering Committee and olathebikeshare.com public comments

### **Unsafe or uncomfortable bike routes including:**

- Steering Committee recommendations
- olathebikeshare.com public comments

### **Physical barriers including:**

- Steering committee and olathebikeshare.com public comments
- Unsafe railroad and road crossings

The project team used aerial photographs to complete a virtual, in-house inventory of possible infrastructure gaps and then entered the field with cameras and mobile devices to verify their findings. While in the field, staffers used AmigoCloud, an internet-based mobile application, to conduct the inventory. The process involved:

- Selecting a starting point within a designated inventory area
- Analyzing the inventory area, noting changes in the typical roadway section, barriers, and other features
- Verifying data inventory questions including the following:
  - Bike facility present - Yes/No
  - Facility Type (bike lane, sharrow, shared use path)
  - Number of lanes
  - Lane width
  - Sidewalk (width of less than 8 feet)
  - Other comments
  - Photos
- Photographing the study area as necessary

## Gap Analysis Outcomes

A total of 43 data points were generated in the field to verify initial findings. The project team created two maps, included on the following pages. They outline current bike share opportunities and constraints. Destination points and potential bike share locations have been identified by the team in conjunction with comments provided by the public via [olathebikeshare.com](http://olathebikeshare.com). Barriers and gaps in both the on-street and off-street network were also identified and confirmed with Vireo field work.

Most physical gaps in the Olathe bicycle network are the result of large infrastructure associated

with highways, rail lines, and waterways. These occurrences create various conditions in profile and slope that make navigation by bicycle more challenging. A range of inconsistencies exists between the different types of bicycle facilities as a result of these physical barriers. Striped bike lanes, for example, often terminate or disappear before reaching major intersections. In these instances, the on-street facility user is expected to either merge into traffic or transfer to an off-street facility, which may or may not be present. Incongruities in the bicycle network may ultimately hinder persons from feeling comfortable riding a bicycle on Olathe streets.

*Inconsistencies / changes in on-street bicycle facilities*







*Bike lane on Lone Elm Road, noted by users as being uncomfortable or unsafe, with a posted speed of 45 miles per hour.*

Additionally, community members specifically identified several on-street routes as being unsafe or uncomfortable. These routes are typically on the shoulders of the roadway, protected by a single stripe. This is the prevailing bike lane typology in Olathe. Vehicle speeds and roadway widths are contributing factors to the perceived safety of bicyclists. In terms of on-street facilities, wide roadways with high travel speeds are perceived as being less safe when compared to narrower neighborhood streets with lower posted speeds.

As stated prior, a majority of the identified network gaps correspond to physical barriers like large highway interchanges and at-grade rail crossings. Other gaps, like those on West Harold Street and North Hedge Lane, are associated with new infrastructure and development. While the greenways and trails in Olathe's system are

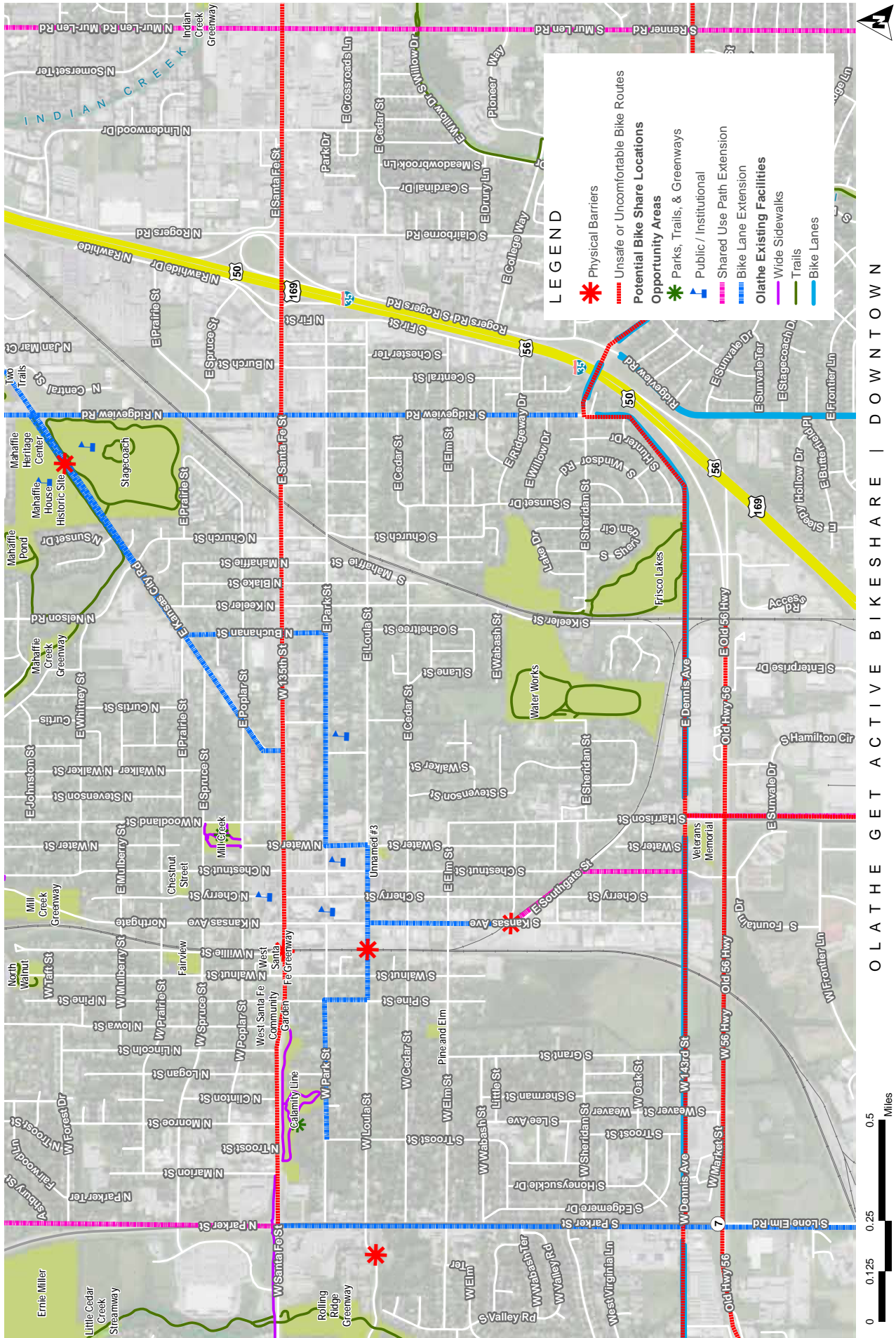
well-connected and navigable, potential bike-share connections to major retail, civic, and commercial destinations are often most direct via on-street facilities and shared use paths. As an example, the Johnson County Offices and nearby restaurants on E 119th Street have great proximity to the Mill Creek greenway and could connect to the greenway with a shared use path on Northgate. This connection would provide a safe route for pedestrians and cyclists alike to access key destinations along East 119th Street.

The greatest opportunities for improved bicycle facilities exist where there are no large physical barriers in areas with key destinations. Ultimately, prioritization of bike share programming would consider locations throughout Olathe where a connected network of bicycle facilities is most readily operable.



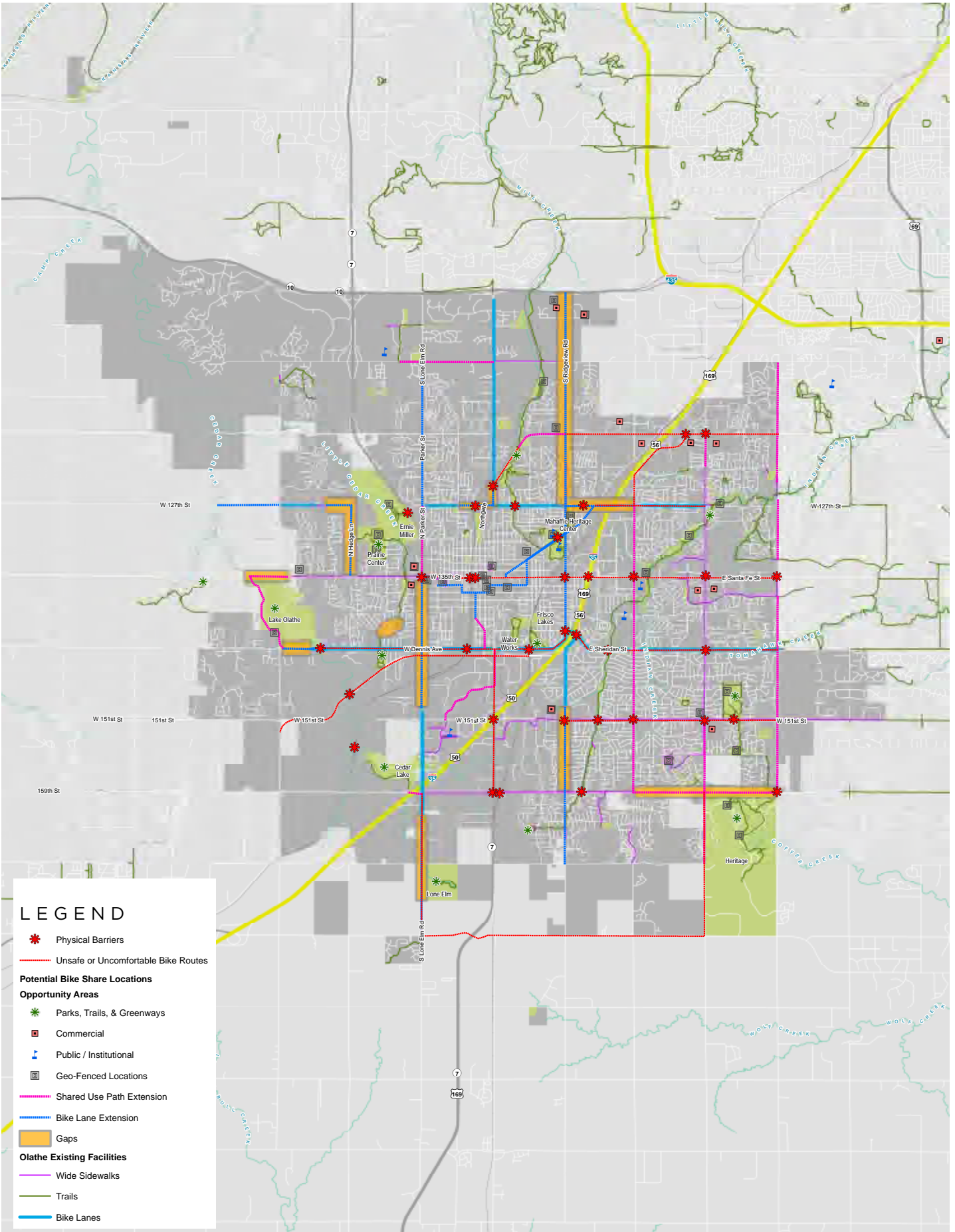
*A potential connection location to the Mill Creek Greenway via a shared use trail along Northgate, leading to 119th Street destinations*





OLATHE GET ACTIVE BIKESHARE | DOWNTOWN





**LEGEND**

- \* Physical Barriers
- Unsafe or Uncomfortable Bike Routes
- Potential Bike Share Locations**
- Opportunity Areas**
- \* Parks, Trails, & Greenways
- Commercial
- ⬇ Public / Institutional
- Geo-Fenced Locations
- Shared Use Path Extension
- Bike Lane Extension
- Gaps
- Olathe Existing Facilities**
- Wide Sidewalks
- Trails
- Bike Lanes

0 0.5 1 2 Miles

OLATHE GET ACTIVE BIKESHARE



## On-Street Bike Network Recommendations

While the City of Olathe has an impressive trail network, there are opportunities to enhance connections and crossings, enhance on-street facilities, and provide improvements that will be beneficial for active transportation overall while providing a network that will work in concert with the bike share program.

In general, there is not an extensive on-street bike network, although there are dedicated bike lanes and signed shared roadway sections. For many of the high-volume arterials in the City, side paths are 8' wide and serve pedestrians and bicyclists. Opportunities exist to enhance this side path system, including providing side paths in areas that currently only have a 4' to 6' sidewalk. Additional upgrade opportunities exist at crosswalks for pavement marking and signage. Enhancements should include signing, high visibility crosswalk markings, yield markings and/or green pavement color. Crosswalks and median island cut throughs should be improved so that they are the same width as the side paths leading into the intersection.

### South Kansas Avenue

A section of roadway - Kansas Avenue from Dennis Avenue north into the downtown area - is suited for bike lanes that would connect Dennis Avenue facilities to Downtown. North of Cedar Street, shared bike lanes may be a more suitable solution with available space along angled parking. Additional traffic calming is also suggested for keeping travel speeds low in downtown.

### Crossing Interstate 35

The 151st Street bridge over Interstate 35 was investigated to see if there was the possibility of placing dedicated bike lanes or implementing a shared use path for a crossing of Interstate 35. Due to the arrangement of the existing bridge structure, there does not appear to be a feasible way to implement separated bike facilities on the bridge or widen the existing 6' sidewalk on



the south side. If the bridge were to be replaced in the future, it could be designed to allow room for a low stress bikeway in the form of a side path or two-way bikeway next to the sidewalk.

In lieu of the 151st Street route, upgrading bicycle facilities is recommended via the Sheridan-Dennis-Ridgeview corridor, which crosses Interstate 35 under a bridge structure. The main feature of this corridor, which connects to 151st Street, Olathe South High School and the Garmin headquarters is the presence of roundabouts. The City has implemented included slip ramps, which allow for bicyclists to bypass the intersection and use the side paths through the roundabout. This is an option that less experienced bicyclists may prefer over negotiating through the roundabout in a travel lane.



Slip ramps are recommended at any locations where they are not currently present. It is also recommended to widen crosswalks to function as sidepaths and add yield markings prior to the pedestrian/bicycle crosswalks. The existing sidewalks around the roundabouts mostly appear to be wide enough for two-way bicycle traffic and/or passing space around pedestrians. Signage could be added to state that “bicyclists can access side paths via slip ramps” (or similar messaging).

### **Bike Lanes at Intersections**

While there are bike lanes in the active transportation network, they do not extend through intersections. There are two options to address this need for through bike lanes at intersections. One is to narrow travel lanes where space is available. The other option is a relatively low-cost solution of using a combined bike lane/turn lane, which places a suggested bike lane within the inside portion of a dedicated motor vehicle turn lane for through bicycle movements. Shared lane markings or conventional bicycle stencils with a dashed line can delineate the space for bicyclists and motorists within the shared lane or indicate the intended path for through bicyclists. This treatment includes signage advising motorists and bicyclists of proper positioning within the lane. As noted in NACTO such lanes can provide the following:

- Preserves positive guidance for bicyclists in a situation where the bicycle lane would otherwise be dropped prior to an intersection.
- Maintains bicyclist comfort and priority in the absence of a dedicated bicycle through lane.
- Guides bicyclists to ride in part of the turning lane, which tends to have lower speed traffic than the adjacent through lane, allowing higher speed through traffic to pass unimpeded.
- Encourages motorists to yield to bicyclists when crossing into the narrow right-turn lane.
- Reduces motor vehicle speed within the right turn lane.
- Reduces the risk of ‘right hook’ collisions at intersections.

One intersection in particular that could benefit from extension of bike usage pavement markings through the intersection is at Dennis Avenue and Parker Street/Lone Elm Road. Inclusion of through pavement markings through the intersection would raise the level of service for on-road cyclists. There is a similar situation at the intersection of Dennis Avenue and Harrison Street.



*Example of a shared right turn lane and NACTO illustration*



## Downtown Olathe to Rolling Ridge Trail Connection



Upgrading access between downtown Olathe and the Rolling Ridge Trail to the west would facilitate bike share usage and connectivity of bike share hubs. Due to high traffic on 135th Street, on-street bike lanes are challenging. Between the Rolling Ridge Trail and Calamity Line Park, a shared use path on each side of 135th Street can provide a corridor for both bikes and pedestrians. Existing sidepaths are 8 feet wide. Any that are less than 8 feet wide should be replaced with a shared use path with a minimum width of 10 feet if possible. The intersection at 135th Street and Parker Street (Hwy K7) has existing pedestrian crosswalks on each side of the intersection. Those crosswalks could be widened and enhanced with high visibility markings and/or green pavement coloring.

From Calamity Line Park east to downtown, expansion of sidewalks to sidepaths is more difficult due to property constraints. An alternate route could cut through Calamity Line Park on the existing park paths to Park Street. From there bicyclists could access downtown on Park Street. Although there is not enough width on Park Street (existing width is approximately 24' wide) to place dedicated bike lanes, the low stress nature of this residential street can accommodate a "bicycle boulevard" or "calm street" application (with shared use pavement markings and signage) to enhance wayfinding and comfort for cyclists connecting to and from Downtown.

## 119th Street Retail District Connections

A safe and comfortable route to shopping, services, and entertainment on 119th Street is an important connection for bike share. Today, there is a potential corridor connection in the area of Arapaho Park, near the AMC theater complex. This could be routed through or around the parking areas to enhance connectivity to the southwest portion of the shopping and retail district in the 119th Street corridor east of Interstate 35. However, this connection is not highly visible, requires routing through circuitous residential streets, and only connects to a portion of the 119th Street retail area.

The simplest method to provide comfortable bike access to 119th Street may be an extension of the existing shared path that currently ends at 123rd Street. There appears to be room from a widened sidewalk/shared path to cross from the west side to east side of Black Bob at 123rd Street, and then continue north to 119th Street. Recent sidewalk construction has expanded the sidewalks on the south side of 119th Street east through the entirety of the 119th Street retail area. With this short sidewalk gap improvement, cyclists would have a safe and comfortable way to access most of the businesses in the area.

## 135th Street / Indian Creek Trail Connection

Community feedback and an analysis of latent demand have identified the retail areas along 135th Street as desirable bike share destinations, but existing infrastructure barriers limit access and connectivity to the area. In particular, there is no direct access to the north side of 135th Street via the Indian Creek Trail pedestrian tunnel under 135th street. The south side has trail connectors to the sidewalk on the south side of 135th street, but the topography on the north side is not favorable for a simple trail connection without retaining walls to manage the ramps necessary for the connection. One potential design solution is a ramp system with retaining walls that could provide ADA compliant access from the trail to the sidewalks on the north side of 135th Street. The sidewalks along both sides of 135th Street could be widened to 8' to 10' wide sidepaths heading east to Black Bob Road. Black Bob Road has an existing 8' sidepath that can be connected, providing access to other parts of the City.





## Connecting Johnson County Sunset Building to Mill Creek



Connectivity from the Johnson County Government Campus on 119th Street to the Mill Creek Trail to the west would be an asset to the bike share network. Trail access via existing pathways in the residential area west of the campus are privately owned and too narrow and steep to provide comfortable bike access. A feasible connection is possible via 119th Street then southwest along Northgate. This route could take the form of a shared use path, 10'-12' wide, on the north side of the roadway. This route would provide connection to Mill Creek Trail as well as to Mill Creek Streamway park (a potential bike share hub location) via the bridge underpass on Northgate.

## Connectivity Around Olathe Medical Center

Connectivity between the Olathe Medical Center and nearby destinations such as the Great Mall redevelopment area to the north and Cedar Lake to the west would link several employment, retail, and recreation destinations, and provide active transportation amenities that could support the mission of Olathe health. Due to the arrangement of the existing roadway, on-street bike facilities are not practical. Side paths appear to be a feasible solution to offer a connected, low stress network. While there are 8 foot side paths present in this area, there are also stretches of 5 foot sidewalk that would need to be addressed. The 5 foot sidewalks should be widened (preferably to 10 foot minimum width). 153rd Street and sections of Olathe Medical Center Parkway in particular have narrow sidewalks currently. Side paths could be extended to Lone Elm Road and thus provide connection to the Cedar Lake area. Previous studies have shown these additional connections to Cedar Lake including a potential trail connection south of the Cedar Lake Village development located to the southwest of the Olathe Medical Center. This route could include a connection under the bridge on Lone Elm Road adjacent to Cedar Lake. An underpass at this location in combination with the associated trail segments would improve connectivity.



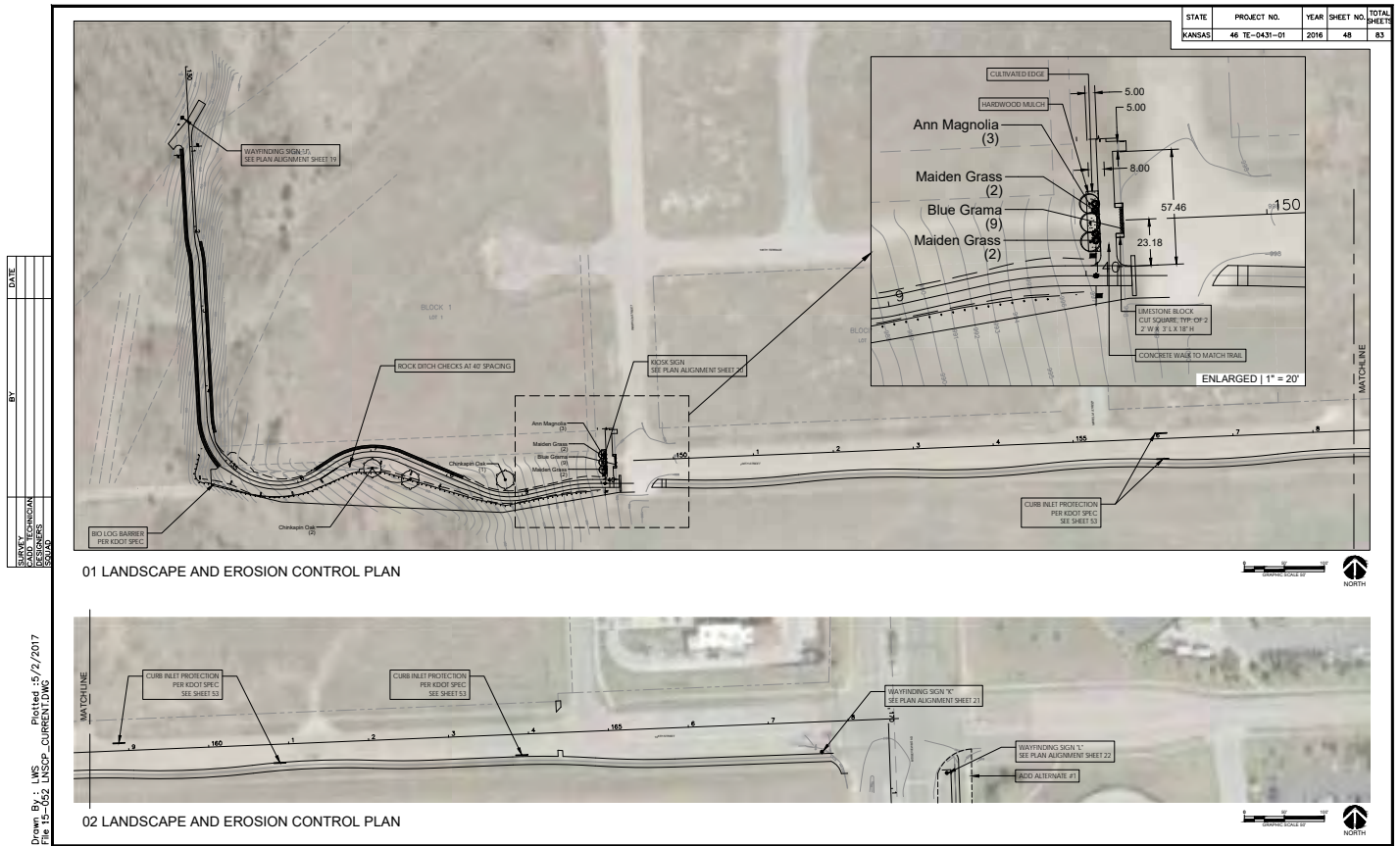
## Connectivity Around Lake Olathe

The potential to upgrade access for bicycles around Lake Olathe was reviewed with respect to the South Cedar Creek Connectivity Plan. There are currently access roads running along the east and west sides of the lake. Access to the north and south sides of the lake are provided via 135th Street and Dennis Avenue respectively. The roadway on the east side of the lake is in poor condition and the roadway on the west side of the lake is in fair to poor condition. Although there is potential in a few locations to provide a side path adjacent the access roadways, topography and bridge structures constrain the width of the roadway in many locations. Most areas around the lake could utilize an on-street bicycle facilities like an advisory bike lane. This type of facility works in situations where traffic speeds are slow and traffic volumes are low. Shared lane markings could provide awareness for drivers and wayfinding for cyclists, but would not increase the safety or comfort of cyclists travelling around the perimeter of Lake Olathe. Due to the hilly topography and tight curves, separate paths would be the safest option where they are feasible. At a minimum, uphill pedaling cyclists would benefit from a dedicated “climbing lane” to avoid backing up traffic.



*Advisory bike lanes are an option for constrained roads with low traffic.*

# Mill Creek / Gary Haller Trail Access



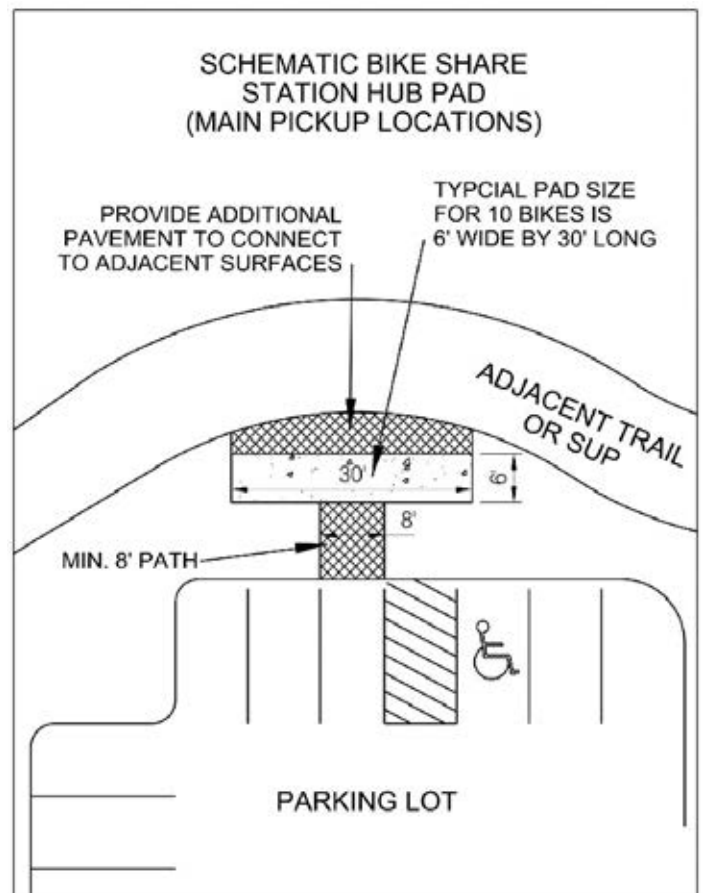
There is an existing gravel pathway that extends from the west end of 106th Street to the Garry Haller Trail along Mill Creek, south of Ridgeview Marketplace. The pathway has a rough gravel surface and a steep slope of up to 30% grade. It was observed that this pathway is being used currently by trail users to access Mill Creek trail. This route is the most convenient and direct access to the Mill Creek trail and further destinations from the Ridgeview Marketplace and Corporate Ridge developments. Bike share trail access could appeal to hotel guests, employees during lunch breaks, or area residents accessing the retail and restaurants on Ridgeview Road.

A trail connection between Ridgeview Road and the Garry Haller Trail is planned for construction in late 2018 along with other trail improvements that connect neighborhoods from the Gary Haller Trail in the east to K-7 in the west.

## Bike Share Hubs

Several potential bike share hub locations are identified in this feasibility study. The basic hub location infrastructure is a concrete pad with branded bicycle racks. The size of the bike pad is typically 6' wide for perpendicular parking (plus any desired pad edging space). The Olathe bike share program envisions approximately 10 parking stalls at their primary hub stations, which requires a pad 30 feet in length. Some best practice features, per NACTO guidance on bike share stations on sidewalks and in open spaces, include adequate clearance for adjacent passing pedestrians and cyclists, placed at periphery of parks for visibility and security, and in proximity to school, transportation hubs and parking lots for park and ride users. Other items to consider for inclusion at hub locations are bollards or other protective barriers such as a curb and proximity to light poles. A paved connection to adjacent pavement, nearby trash receptacles, benches and restroom facilities are also useful amenities in proximity to a hub location.

The following schematic layout shows a sample pad layout. Pads for the Olathe bike share system will likely be smaller than shown. It should be noted that pads and new physical infrastructure are not necessary for the operation of a smart bike system. Smart bikes can be parked in any digitally geofenced area, and be locked anywhere a typical bike can go. However, in high use locations, site improvements can enhance the access to and functionality of the bike share system.





# Potential Hub Locations

## Stagecoach Park

One potential bike share hub location is at Stagecoach Park near the intersection of Kansas City Road and Ridgeview Road. The location is also home to the Olathe Community Center and the park has internal as well as adjacent trails along the edge of the park grounds in the public right of way. This location is ideal in general and specific siting of the bike share pad could be in proximity to parking areas, light poles, and the adjacent roadway. The park and the community center are destinations for bike share users as well as the nearby trails.



## Indian Creek Trailhead

Indian Creek Trailhead on Blackbob Road has parking nearby with a restroom and trash receptacles. The location is adjacent to Indian Creek Trail.



## MidAmerica Nazarene University

Indian Creek Trail crosses College Way on the MidAmerica Nazarene campus just east of Lindenwood Drive. The location could serve as a bike share hub, with nearby parking available and good proximity to campus. The crossing itself is unmarked and could benefit from hi-visibility pavement markings and advance signage.



### Rolling Ridge Trail at 135th Street

There is good access to 135th Street from Rolling Ridge Trail via the pedestrian underpass and trail connectors to the paths on the both sides of the street. There is retail shopping present to the east, including a Walmart location and a potential bicycle route into downtown. The precise location of a bike share hub can be either along the trail, or near adjacent businesses to utilize parking in partnership with the Walmart, Firestone, or both. A location close to Walmart may be too far from the trail, while a location with more direct trail access near the Firestone service center may not provide adequate parking stalls.

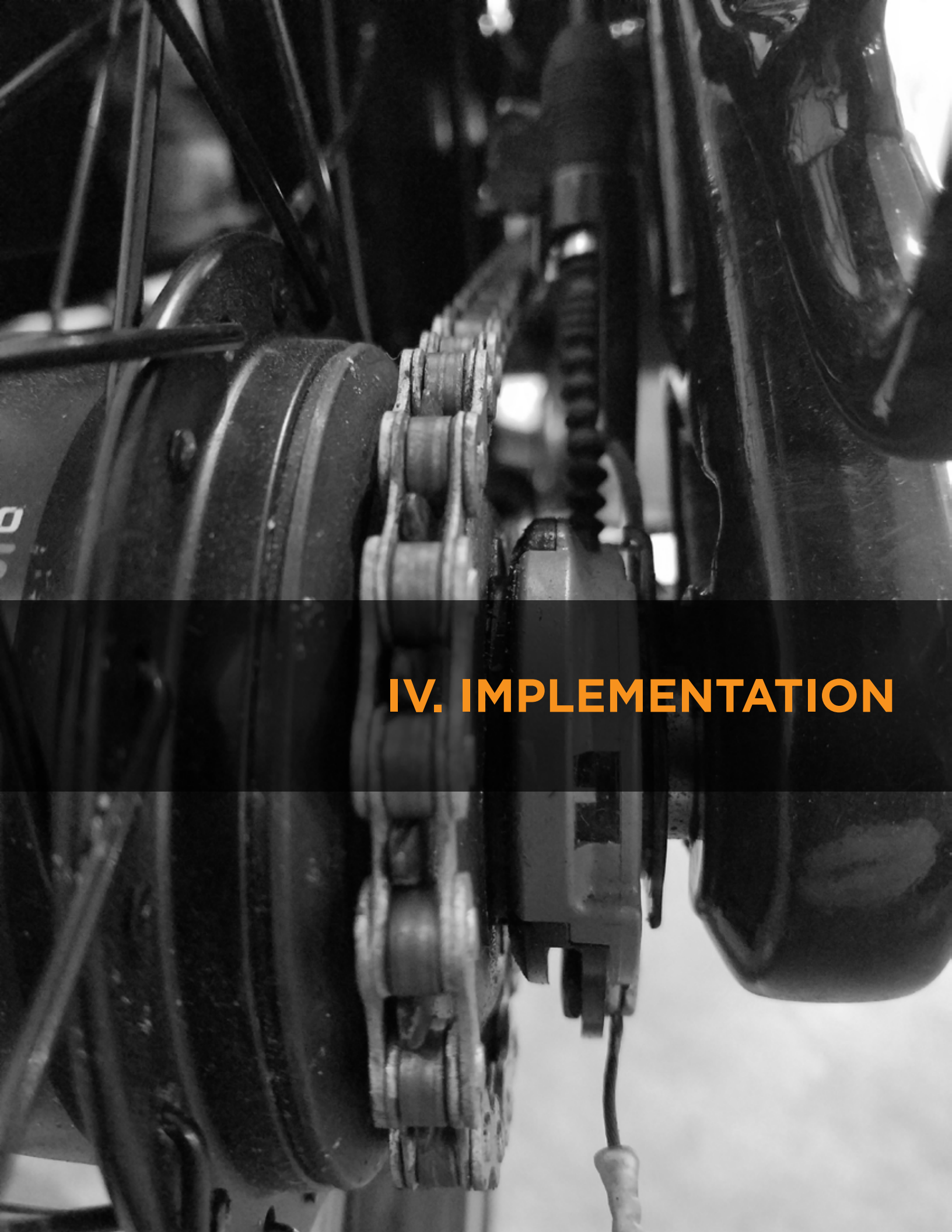


### County Administration Plaza

A good location for a bike share hub is in downtown Olathe at the current Johnson County Courthouse location. This has good access to many businesses in downtown, as well as City Hall and the Olathe Public Library. The site can be located near an existing plaza area with adequate light poles nearby and proximity to the downtown street grid. Note: the Johnson County Courthouse area is being redeveloped in the near future – planning for the redevelopment could include provisions for a bike share hub location.







## **IV. IMPLEMENTATION**



# System Approach

A successful bike share system is comprised of several important and interrelated elements. Bicycles are the centerpiece, and must be designed to meet the diverse needs of users while supporting the effective operation and management of the overall system. Users need places to park the bikes, whether it is a traditional bike share dock and kiosk or a digitally geofenced rack. To be successful, these locations must be thoughtfully located to provide the greatest service and access to potential users. Software that provides a user-friendly interface for customers is critical, along with software that assist with the maintenance, balancing, payment processing, and other details of bike share system management. A bike share system works best when all these elements are designed to work together in a manner that is intuitive, highly functional, and enjoyable for customers to use.

A “smart bike” system is recommended for Olathe. Smart bike systems move away from physical docks and kiosks and allow riders to check out individual bikes through mobile applications and other platforms. Instead of physical stations, bicycles are allocated to digitally geofenced “hubs,” which are often simply public bicycle racks. Through a mobile app, the locations of bicycles are mapped. A user reserves a bicycle through their phone or a keypad on the bike itself. The bicycle is then unlocked for use. The rider returns the bicycle to another digitally geo-fenced location when finished, locks the bike, and “checks in” the bike via mobile app or keypad on the bike.

Smart bike systems eliminate the upfront capital costs of installing stations, with most cost associated with the bicycles themselves. Smart bikes can be checked out by users anytime, anywhere, on their own. That means that smart bikes do not have costs associated with rental staffing. The flexibility in hours and location also means that smart bikes can generate more trips, which increases the user fee potential. Because of their visibility, flexibility, and ability to integrate into a broader network (reaching more potential users), smart bikes have a higher potential for sponsorship revenue.



## BENEFITS OF A SMART BIKE SYSTEM

- **Easier to launch:** Lower capital cost than station-based bike share
- **Easier to grow:** More scalable than station-based bike share
- **Easier to access:** Park anywhere with custom geo-fencing of bike racks
- **Easier to use:** Active GPS gives detailed rider data and tracks bikes
- **Easier to manage:** Real time route tracking
- **Easier to adapt:** Digital geo-fencing greatly simplifies repositioning of bike share locations
- **Higher usage:** Emerging smart-bike systems are demonstrating higher ridership than station-based systems

## Bicycles

Bike share bikes should be fun to ride, low maintenance, easy to adjust, and should comfortably fit riders in a wide range of sizes and abilities. A bike share system in Olathe should use bicycles that are specifically designed for bike sharing. The frames and components should be rust, salt, sand, and weather resistant to accommodate high-impact outdoor, four season use. Bikes should be designed with ease of maintenance in mind, and be compatible with typical bike shop tools and maintenance standards. Bikes should also have uniformity in design and appearance to enhance awareness and visibility of the bike share system, provide users with a familiar experience, and simplify maintenance.

Bikes should include RFID technology for tracking and anti-theft purposes. On-board GPS capabilities can assist with the tracking of bikes and overall fleet management and performance. Bikes should include features that enhance the safety and comfort of the user, including front and rear integrated lighting and multi-speed shifting. Smart bike technology provides the opportunity to provide information on a heads-up display mounted on the bike, including turn-by-turn directions, and other trip information. An integrated lock is important for bikes in a smart bike system to ensure that bikes can be secured almost anywhere that is a desirable destination.



## Hubs

Smart bikes can be locked to most existing bike racks. Because of this, it is recommended that Olathe utilize digitally geofenced stations to maximize flexibility, reduce implementation complexity, and reduce cost. Bikes are secured within geofenced areas with a lock that is integrated into the bike itself and engaged and disengaged by the user through a mobile app or on-board touchscreen and RFID reader.

Geofencing technology can be used to define tight boundaries for each station in order to ensure bicycles are parked in a well-defined area within the streetscape. Typically, this would mean defining the footprint of the station/hub as approximately 50'-80' in length (depending on the number of racks included) by 10'-20' in width. These dimensions provide a small extra buffer that affords the opportunity for a user to park the smart bike at a nearby bike rack, sign pole or fence in the event that the designated station is full. Parking the bicycle outside of the geofenced area triggers a small fee, typically \$1 or \$2.

A number of smart bike systems in the U.S. also employ a "super hub" strategy. This provides a much larger geofenced area--from a few blocks in size to an entire neighborhood or campus--for users to park the bike within without incurring any penalty or fee for not parking at a designated station. Although this provides a significant convenience for bike share users, the super hub strategy is likely to have an impact on revenue as a not insignificant amount of funds can be raised from people who prefer to spend an extra dollar or two to park right in front of their final destination, whether there is a nearby station or not.

Smart bike systems alleviate some of the demands for system rebalancing that are typical with a station-based bike share. Through a mobile app, users can locate and check out bikes around the community, and return them to any bike rack or station once they have completed their trip.

Each geofenced bike parking area or bike share station should be customized to fit its proposed location. In general, the inherent flexibility of stations and of the smart bike system overall allows easy integration with any part of the city.

# Kiosks

In some circumstances it may be desirable to have a physical bike share station dock and kiosk:

- Kiosks provide a method for walk-up customers to pay for a rental without access to a smartphone or use of a mobile app. (Those who plan ahead are able to rent bikes without smartphones through the on-board display on the bikes themselves, but individual bikes may not be able to process credit card payments.)
- Kiosks can provide valuable awareness and wayfinding information in high traffic areas, including information about other locations in the network, desirable routes, and branding and advertising opportunities.
- Bike share docks provide locations to charge electric-assist bicycles, if this technology is integrated into the bike share system in the future.
- For non-dock based bike share systems (i.e. smart lock systems), it is important to note that kiosks are not required at every station or hub. Because transactional kiosks are the most expensive portion of a station, they can be omitted from stations/hubs in which few walk-up users--frequently short term visitors to the city--are expected. Some cities that incorporate such hybrid systems (i.e. smart bikes parked at stations) have installed kiosks in a small percentage of the stations, in some cases as low as 10-15% of the total.



Kiosks can make it easier for walk-up users to rent a bike.



Docks can provide locations to charge electric-assist bikes.

Where bike share stations are installed, they should be designed to thoughtfully integrate into the landscape where they are located.

- Kiosks should be constructed of durable, theft-resistant hardware.
- Kiosks should allow for on-demand walk-up user registration and payment, and cover all basic station functionality (registration with a credit card, check-in/out, nearest bike/dock availability, fifteen-minute extensions for full stations, etc).
- Kiosks can provide an opportunity to integrate system maps and bicycle routes, promotions, safety information, and also offer sponsorship opportunities.
- Stations should accommodate different power options including solar power, battery power, and direct A/C connections.
- Wireless technology with encryption should be used to connect each station to the bike share system's management software. Station equipment should maintain its condition and security in the event of a power failure or wireless data connection disruption.
- Optionally, a Multi-Frequency RFID (MF-RFID) reader allows stations to accept a range of existing RFID cards (student ids, corporate ids, transit cards, etc.). Because a smart bike system allows bike check out directly from a mobile app, RFID readers are not essential for the operation of the system but can provide an additional point of access, especially if they are already used for other purposes. RFID technology can be incorporated directly into smart bikes as well.



## User Experience

A bike share system in Olathe should provide an intuitive and user-friendly experience that allows users to engage the system in multiple ways.

### Registered Users:

- Entering a unique user ID and pin via touchscreen on the bicycle
- Checking out a bicycle using a mobile app
- Checking out a bicycle using an RFID card such as a student ID, corporate ID, transit card, or dedicated bike share membership card

### Walk-Up Users:

- Downloading a mobile app and purchasing a pass using the sign-up process in the application
- Purchasing access at a kiosk

## Payment Systems

In addition to providing multiple points of access, a smart bike system should also offer multiple methods of payment, including credit card, cash, online, RFID cards, etc.

Payment systems should provide options for online payments as well as payment made through a mobile app, and accept both credit and debit cards. Security measures can ensure that bike share operators never directly handle customer credit card information. Security features on bikes and kiosks should make it difficult for unauthorized parties to access system components. Access to potentially sensitive areas should be restricted and logged to make it difficult to disable core security features.

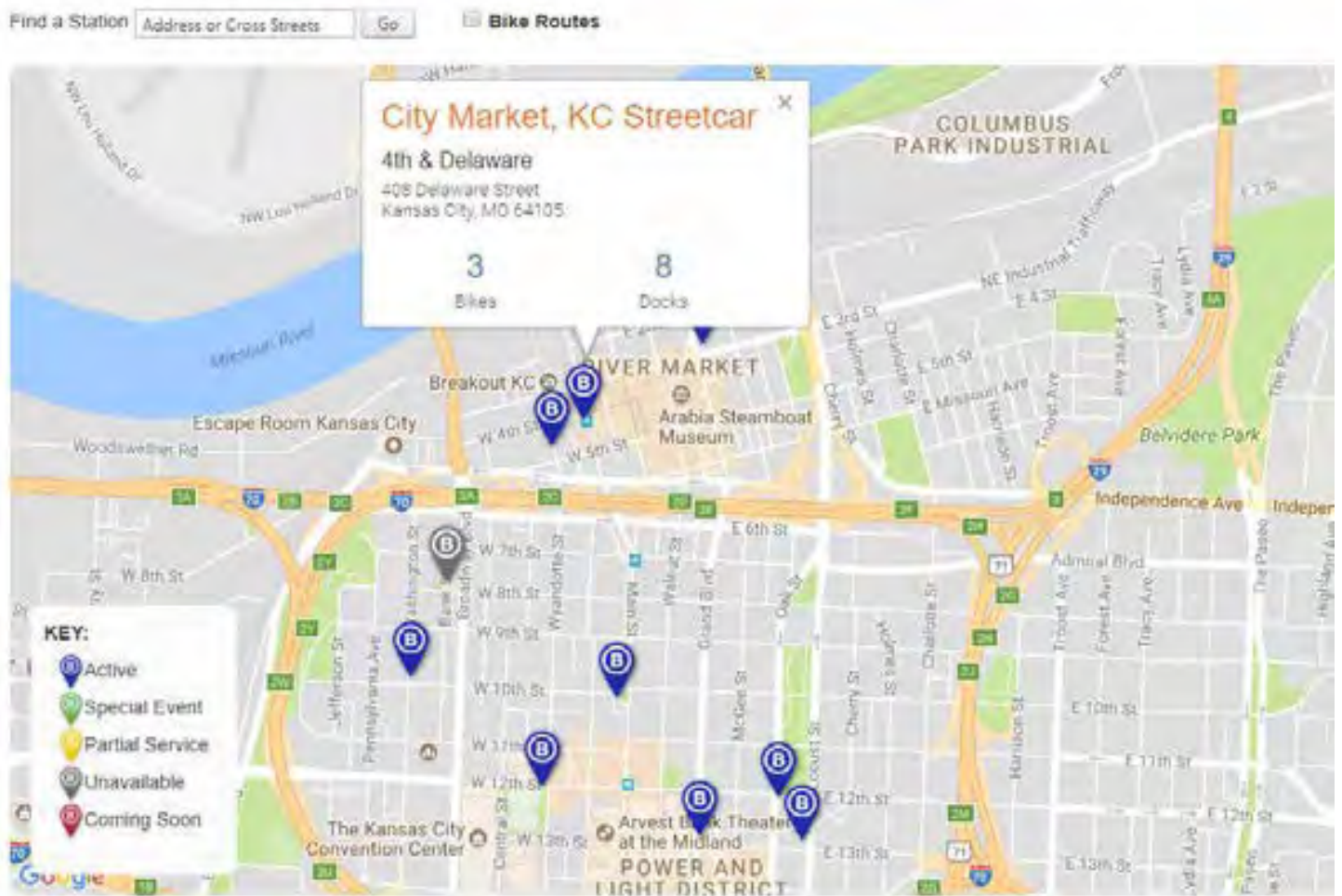
## Accessibility for All Users

Census data indicates that Olathe has some of the highest concentrations of carless households in Johnson County. For these households, alternative modes of transportation are a necessity. Bike share can help to expand access to jobs and services for those who need it most, and help to increase the number of households who are able to access and utilize the transit service that is available in the community.

Often, those who have the greatest need for alternative modes of transportation like bike share may not have access to banking services and credit cards, and may not have a smartphone. It is important to provide these users ways to access the bike share system, and there are several options available.

There are successful models with other bike share systems, including in Kansas City, to offer subsidized cost memberships to low-income individuals. Subsidized cost memberships are available through partner organizations that actively work with unbanked and underserved populations. These partner organizations are able to provide and manage membership cards for eligible users, ensuring that bike share services can be made available to those who need it without compromising the security and theft prevention features of the bike share system. The smart bike system is fully compatible with non-profit bike share subsidy programs. This subsidy program can also be used on a cash basis by having those partner organizations collect money from patrons and distribute membership cards. If City departments and facilities are equipped to provide direct services (and eligibility screening) to unbanked populations, bike share memberships could be administered directly by the City as well.

For those potential users who have access to smart phones or internet but do not have a credit card, there are a number of cash payment technologies that are compatible with bike share payment systems. PayNearMe is one such program that allows users to pay cash at participating retail locations (such as pharmacies, convenience stores, and grocery stores) with the assistance of an app in order to purchase from any participating vendor, including bike share.

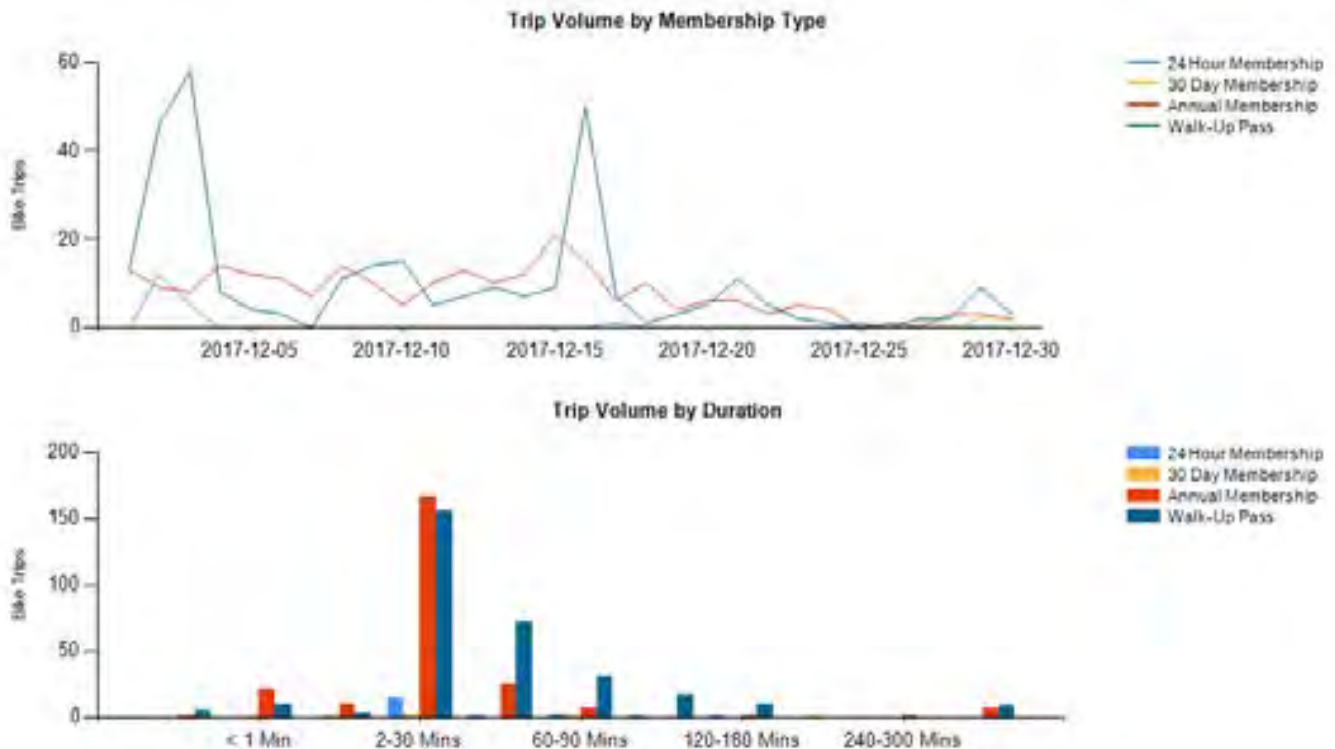


## Community Website

A public facing website is a key component of a successful bike share system. A website provides both static information (what is bike share, how do you use it, etc.), as well as real-time maps and information on bike availability. The website provides a platform for prospective users to complete online subscriptions, purchases, renewals, and upgrades, and can include a member portal with personalized data (profile information, ride and payment history, health and environmental impact, rankings, etc.).

## Mobile App

With a smart bike system, a mobile application is the simplest and most important point of access for riders. The mobile app makes bike share accessible and appealing to more users because it helps to remove barriers to entry. A mobile app can provide an easy way for new users to join and navigate a system, and provides existing members tools to find bikes, rent bikes, and interact with the bike share operator, if necessary.



## Administrative Software

In addition to a public facing website, bike share operations require an administrative operations website with reporting capabilities, data exports, and real-time system performance information. An administrative website should be available to a variety of users with predefined permissions and accessible from multiple devices. An administrative website could include the following capabilities:

- Remote management capabilities
- Subscriber and member management
- Corporate account management
- Inventory management
- Reports and metrics
- Configurable notifications (maintenance events, overdue bikes)
- Rebalancing, maintenance, and issue tracking
- Membership and rental limits and filters

## System Compatibility

The bike share system options and locations proposed for Olathe are intended to operate as a mostly standalone satellite system to the regional bike share system operating in the Kansas City region. While it is not essential that bike share in Olathe be compatible and interoperable with other parts of the regional system, there are significant benefits. In particular, Olathe should consider compatibility with bike share infrastructure planned for installation by Johnson County in parks throughout the county. Compatibility will increase the number of potential destinations for Olathe riders, encourage users from other parts of the system to visit Olathe, and boost ridership overall.

In addition to regional compatibility, some bike share operators also offer reciprocity in other cities around the United States, adding additional value to annual members of an Olathe bike share system.



# Phasing Strategy

## System Size

Program size, both in terms of the number of bikes and hub locations, and in terms of geographic reach, has a direct impact on the success of a system. Other successful bike share systems have proven that a core cluster of loosely spaced locations with an appropriate ratio of bikes to locations are the most successful models. For Olathe, a starter system of thirty smart bikes is proposed. These bikes are proposed to be distributed in three hub locations with the highest potential for ridership based on a variety of factors. The flexibility of digital geofencing means that additional locations can be accessed as part of the system, increasing the number of potential trips and expanding the reach of the starter fleet. Bikes are anticipated to use new and existing bike racks, but not depend on bike share docking infrastructure.

It is anticipated that a thirty bike starter fleet for Olathe will be supplemented by a deployment of seventy bikes by Johnson County Parks & Recreation, including station locations near Olathe, and locations connected to Olathe by high-use recreational trails. The additional bikes and destinations are expected to support the Olathe starter fleet and boost ridership overall.

Historical bike share ridership in Kansas City and around the country correlates closely with the number of possible trips between locations. That means that each additional station or hub that is added to the network adds more possible routes and more riders than the one before. Operational and financial efficiencies increase as the bike share system grows larger. For that reason, a near-term expansion is proposed from thirty bikes and three hubs to eighty bikes and eight hubs. This will provide coverage to most of the high-demand, high-potential ridership locations, and increase use of the system significantly.

## Location Considerations

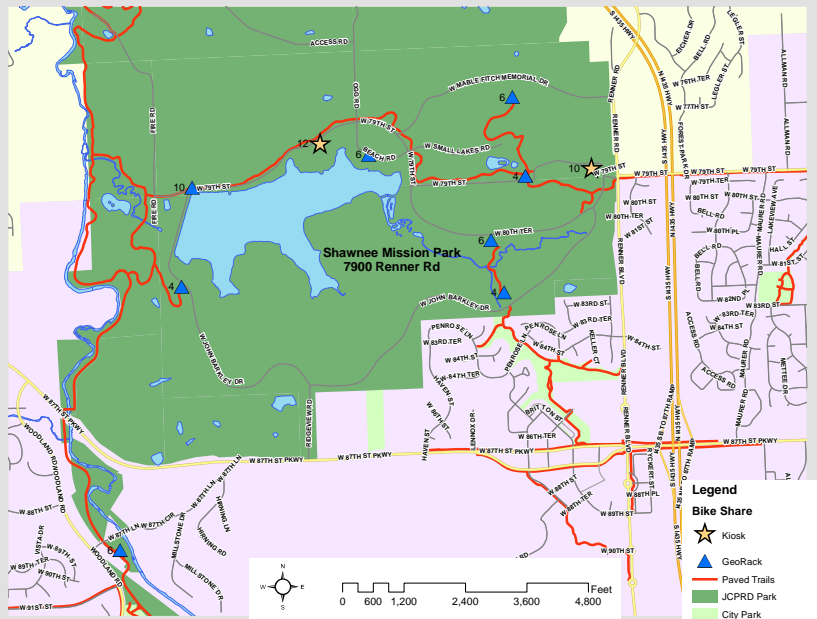
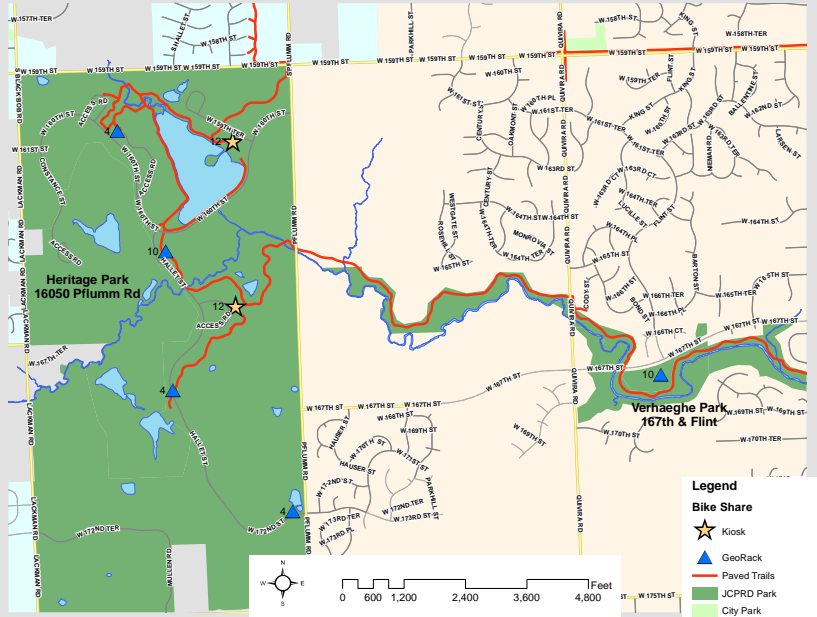
Locations for bike share are driven by usage. Bikes should be located in desirable locations that are also easy to access. Examples could include a highly used recreational trailhead, a sidewalk adjacent to a bus stop, or a parking lot for a high-traffic community facility. Selecting the best locations for bike share is dependent on several factors:

- **Demand:** Where would people bike if it was safe and comfortable?
- **Connectivity:** Where are there safe and comfortable routes today?
- **Area of Need:** What users have the greatest need for alternative modes of transportation?
- **Clustering:** Where are there multiple destinations in a close area?
- **Partnerships:** What businesses or organizations might be interested in bike share?
- **Community Priorities:** Where do people want to see bike share?

Location decisions should also take into account rebalancing needs as the system is used over time and actual ridership is measured. Rebalancing is accomplished by a truck or bike trailer dedicated to moving bikes manually from location to location. GPS and bike data will inform when and where bikes need to be moved to ensure bikes are available where they are needed in popular locations. As data becomes more robust and regular, geo-fenced locations and bike distribution can be adjusted to meet demand with less need for substantial, ongoing rebalancing efforts.

## BIKE SHARE IN JOHNSON COUNTY

Johnson County Parks and Recreation District has been awarded federal funding for bike share through the Transportation Alternatives (TA) component of the Surface Transportation Program (STP). Johnson County plans to launch a system with seventy bikes in late 2018 or early 2019 at three park locations: Shawnee Mission Park, Heritage Park, and Meadowbrook Park/Arts and Heritage Center. Locations at Heritage Park and Shawnee Mission Park (connected to Olathe along the Mill Creek Trail), are ideally located to support bike share in Olathe. There is an opportunity to fully integrate the system options and technologies planned for Johnson County with a potential Olathe bike share system. Both systems would benefit from concurrent deployment.



## Locations and Smart Bikes

Location decisions for smart bike systems work a little differently than traditional station-based models. The flexibility of digitally geo-fenced locations for smart bikes means that many more locations for bike share can be provided, dramatically increasing the geographic reach of the system. The tradeoff with greater flexibility of locations is predictability for users. If a limited number of bikes are scattered in many locations across the community, it can be difficult for users to find a bike in the locations where they want to ride. Decisions about how many locations are geo-fenced and how bikes are rebalanced within those areas will impact the accessibility and efficiency of the network.

In general, the following principles apply:

- Riders are encouraged to return bikes to designated geo-fenced areas.
- It is possible to dock bikes outside designated geo-fenced areas, but penalties may be applied to discourage it.
- Riders may be incented to return bikes to high-use hubs to provide reliable access for as many users as possible.

Within the service area for Olathe's smart bike system, three tiers may be designated:



### Hubs:

- Locations of highest use
- Bikes always available
- Users incented to return here
- Staff rebalances bikes to these locations

### Other Designated Locations:

- Locations of moderate use
- Bikes sometimes available
- Users permitted to return here

### Undesignated Locations

- Flexibility for all users
- Additional cost outside geo-fenced areas
- Operator collects bikes from undesignated locations

## Site Considerations

Bike share locations should be sited in safe, convenient and visible locations. Locations may include the public right of way in the street, on sidewalks, or in parks and other public lands. They can also be located on private property using a license agreement with the property owner. Bike share locations must be available at all times to the public and to the operator for the purpose of maintenance and bicycle redistribution. Where possible, bike share locations should consider opportunities for nearby parking access for maintenance vehicles.



## Phasing

There are several options to implement a bike share system over multiple phases. A strong, visible, and well-publicized start to the program provides the greatest likelihood of success and takes advantage of the inherent buzz and excitement that will accompany the program. Growing the size of the system quickly will enable Olathe to reach a critical mass of coverage and ridership that achieves the most efficient balance of operating costs with membership and advertising revenue. A few basic phasing principles are critical to ensure that the system provides an adequate level of service in the early stages of build-out:

- Location density is critical, and trumps geographical breadth of coverage.
- Implement as many hubs as possible in each phase - at a minimum three hubs should be implemented at a time in any one area.
- Balance opportunity with strategy. For example, funding availability for a particular location should be one metric but not the only factor in implementation phasing.

If funding can be secured for an initial deployment in three locations, the following phasing plan represents one option for roll out of bike share to high demand locations throughout the community. This phasing plan focuses on clustering stations in a fairly tight geography in the first year and expanding the service area in subsequent years. Additionally, this phasing plan prioritizes deployment in locations that have both high potential for recreational use and favorable density and demographics for other types of trips. This is just one of many potential phasing scenarios.

## Proposed Locations

The following areas are recommended for the initial deployment of bike share in Olathe. Each area includes one location that would function as a “hub” with a focus on ensuring bicycles are always available. Other designated locations in the area help to create a cluster of connected destinations. The flexibility of a smart bike system with geo-fenced hubs allows flexible adaptation of bike locations and system balancing as patterns of ridership emerge.

Recommended locations rate strongly in several criteria, including latent demand, connectivity, clustering of destinations, and areas of need. These areas were also identified as the highest priorities by the community.

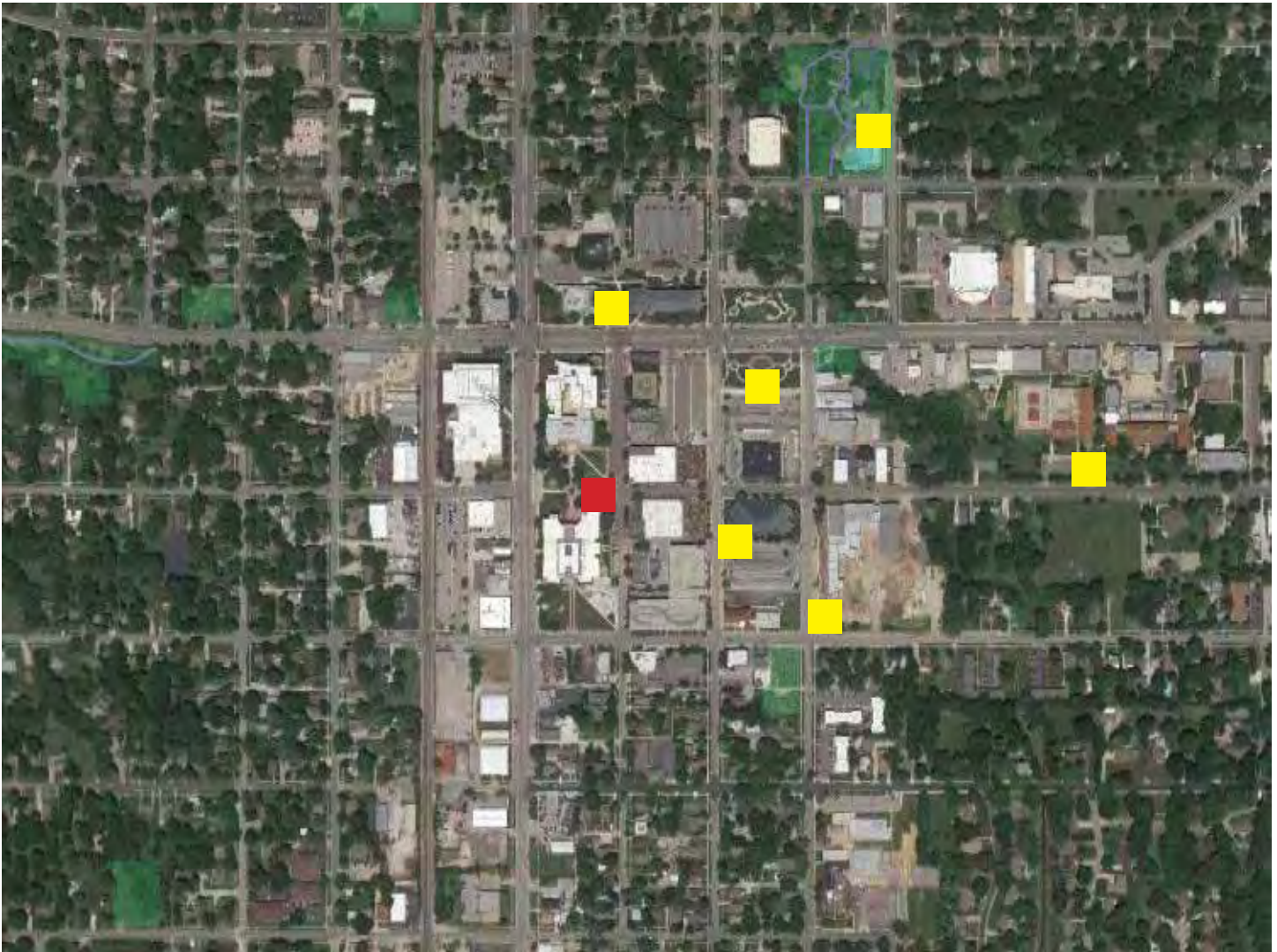
## Phase One Locations



### OLATHE COMMUNITY CENTER

- **Primary Hub:** Olathe Community Center
- **Other Geo-Fenced Locations:** Mahaffie House, Olathe North High School, Stagecoach Park, Two Trails Skate Park
- **Latent Demand:** Moderate - High
- **Connectivity:** Mill Creek Trail, Mahaffie Trail, Stagecoach Park Trail
- **Area of need:** High
- **Clustering:** Close to Downtown destinations, Olathe North High School, retail, multifamily housing
- **Partnerships:** Olathe Parks, Olathe Schools
- **Community Priority:** High

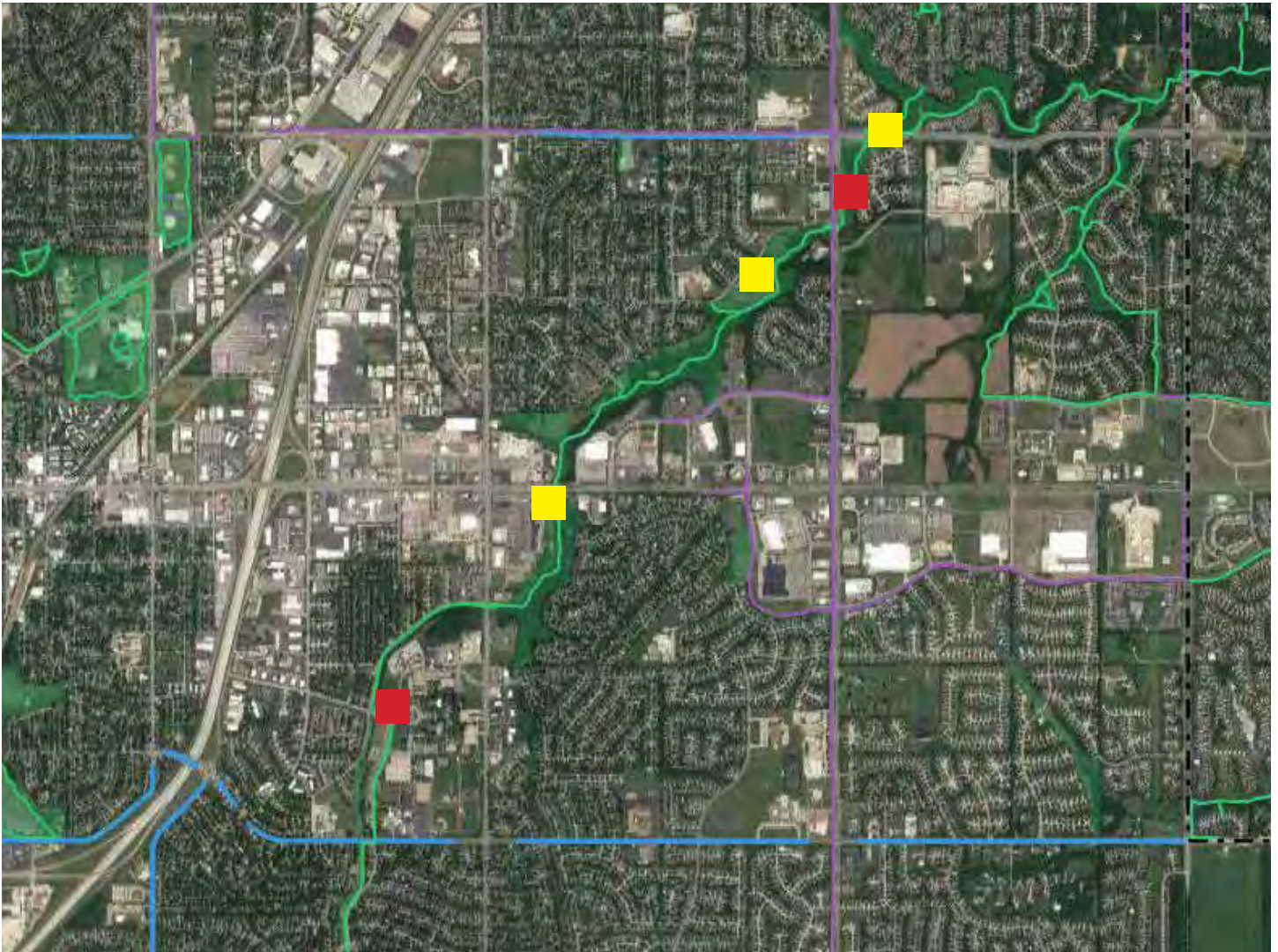




**DOWNTOWN OLATHE**

- **Primary Hub:** County Administration Building Plaza
- **Other Geo-Fenced Locations:** City Hall, Library, School for Deaf, Mill Creek Center, Post Office, and other local businesses
- **Latent Demand:** High
- **Connectivity:** Near, but not directly connected to Mill Creek, Community Center, Rolling Ridge Trails
- **Area of need:** High
- **Clustering:** City Hall, County Admin, Library, School for Deaf, Mill Creek Center
- **Partnerships:** Johnson County, School for Deaf, Library
- **Community Priority:** High



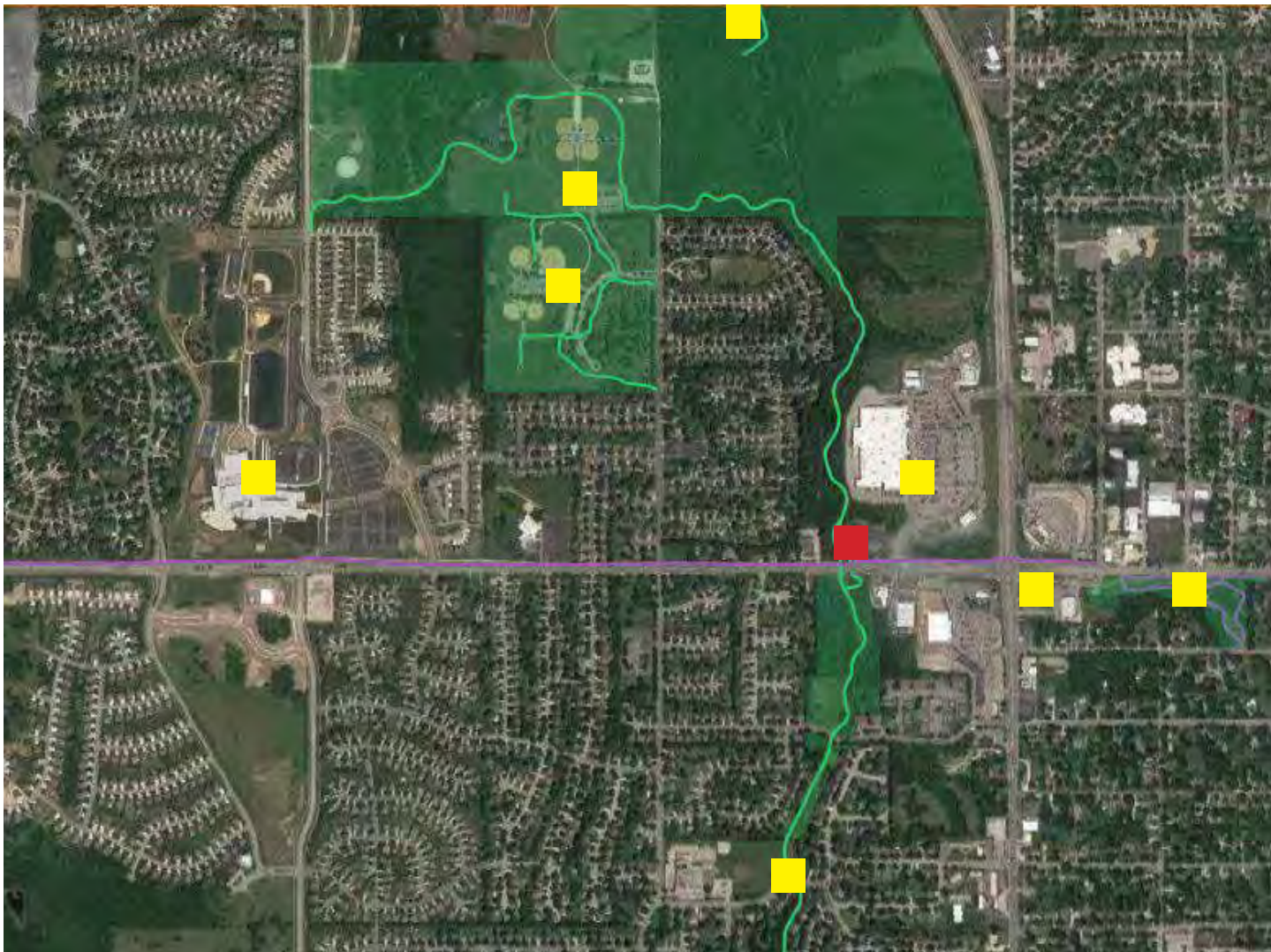


**INDIAN CREEK TRAIL / 135TH STREET**

- Primary Hub:** MidAmerica Nazarene University / Frontier Park
  
- Other Geo-Fenced Locations:** Garmin, Olathe South High School, Olathe East High School, 135th Street retail, Corporate Woods, Heatherstone Park
  
- **Latent Demand:** High in places
  - **Connectivity:** Local and regional connectivity to many destinations
  - **Area of need:** Low - Moderate
  - **Clustering:** Close to Downtown destinations, Olathe North High School, retail, multifamily housing
  - **Partnerships:** MidAmerica Nazarene University, Garmin, Olathe South High School, Olathe East High School, 135th Street retail, Corporate Woods, JCCC High
  - **Community Priority:** High



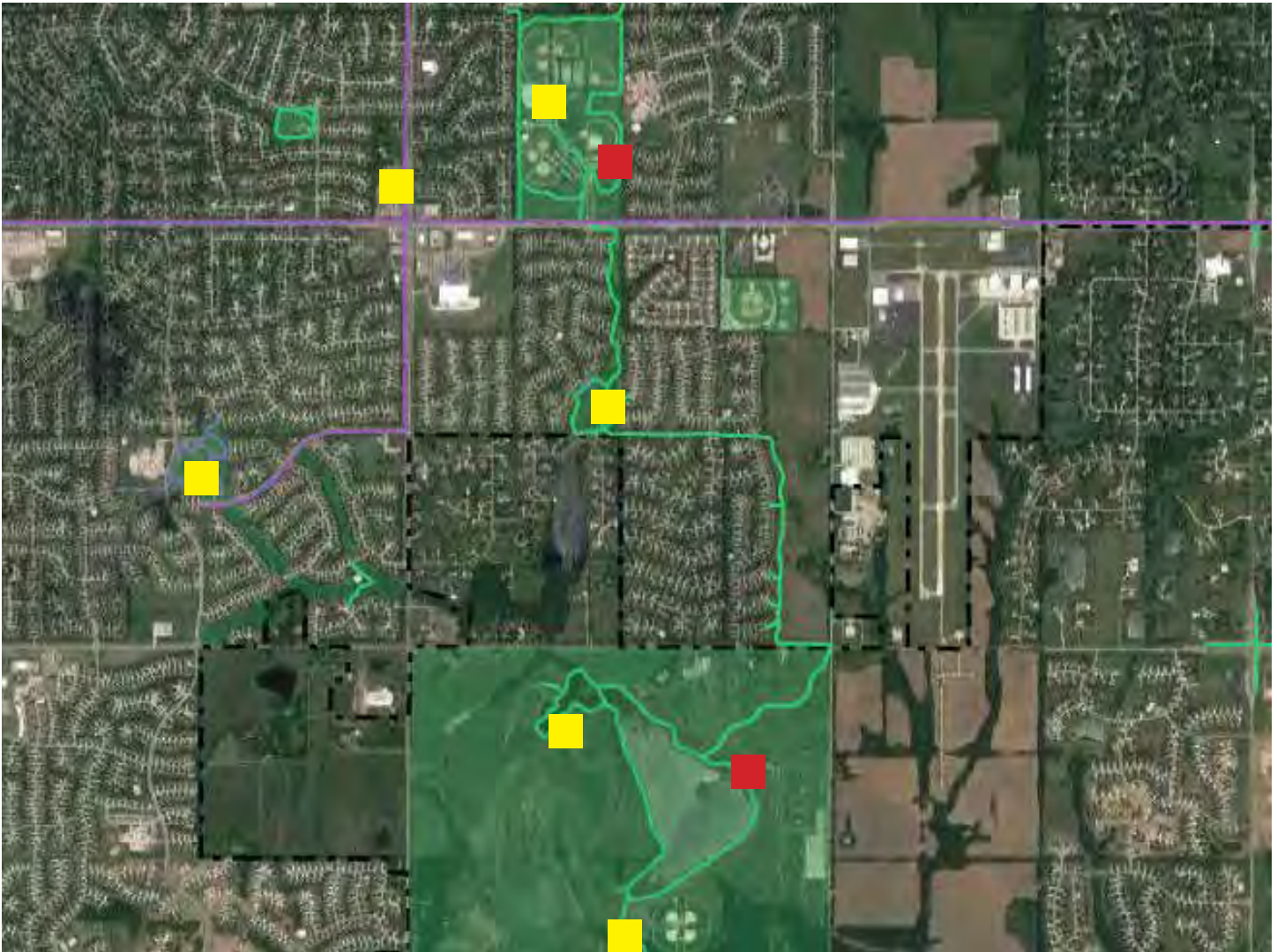
## Phase Two Locations



### ROLLING RIDGE TRAIL

- **Primary Hub:** Rolling Ridge Trail at 135th Street
- **Other Geo-Fenced Locations:** Ernie Miller nature Center, Prairie Center Park, Olathe West High School, Calamity Line Park, Oregon Trail Park, Walmart, CVS
- **Latent Demand:** Moderate
- **Connectivity:** Rolling Ridge Trail, 135th Street Shared Path, 143rd Street Bike Lanes, Nature Center Trails
- **Area of need:** Moderate
- **Clustering:** Nature Center, Prairie Center Park, Walmart, Olathe West High School, CVS, Calamity Line Park, Oregon Trail Park
- **Partnerships:** Johnson County Parks, Olathe Schools, Walmart, CVS
- **Community Priority:** High

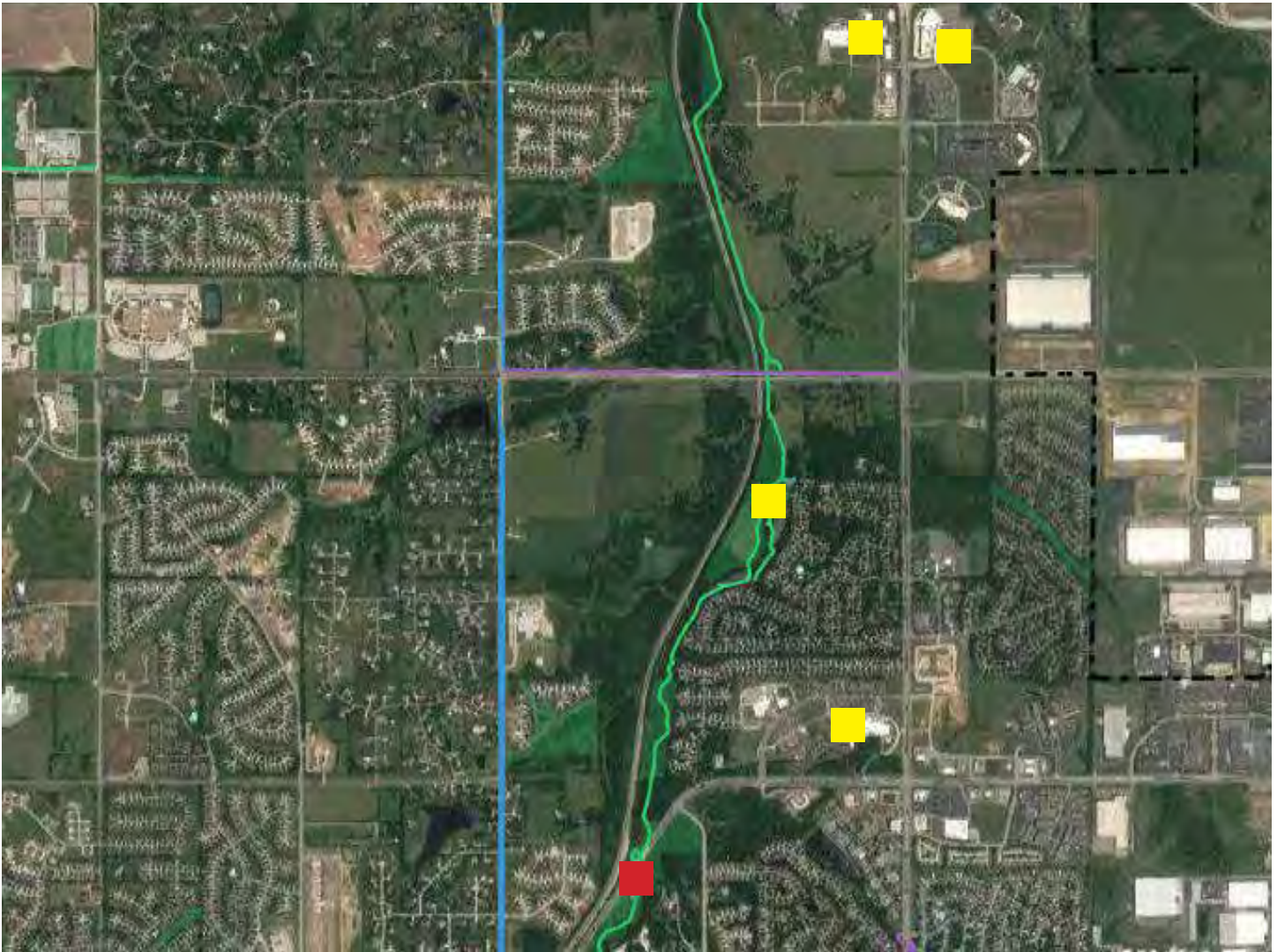




**BLACK BOB PARK**

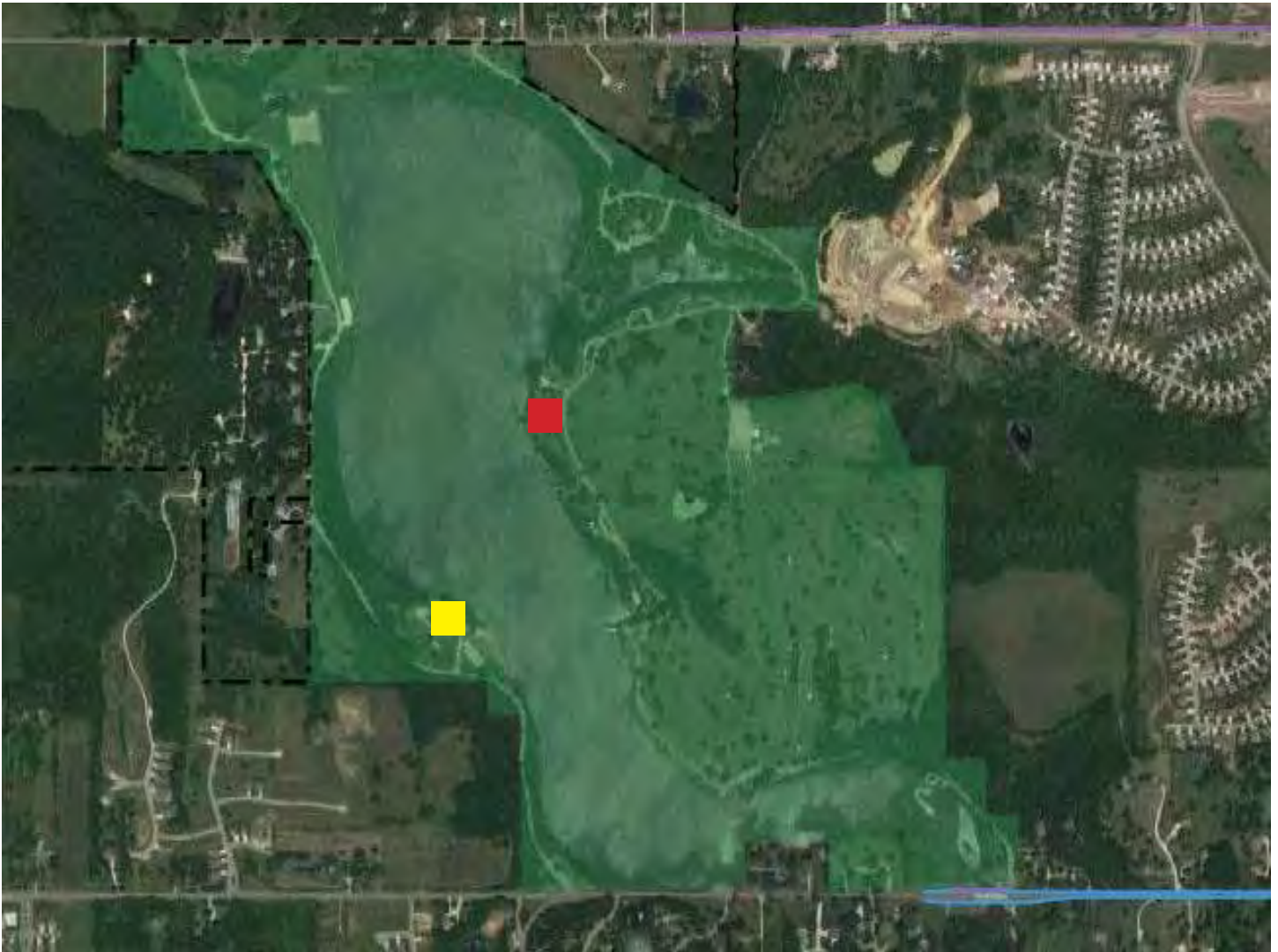
- **Primary Hub:** Black Bob Park Trailhead
- **Other Geo-Fenced Locations:** Black Bob Park Pool and Athletic Fields, Prairie Trail West shopping center, Brougham Park, Parkhill Manor Park
- **Latent Demand:** Moderate
- **Connectivity:** Heritage Park Trails, Black Bob Park Trails, Sidewalks Paths to Neighborhoods
- **Area of need:** Low
- **Clustering:** Black Bob Park, Heritage Park, Prairie Trails West
- **Partnerships:** Johnson County Parks, Shopping Center
- **Community Priority:** High





**MILL CREEK TRAIL**

- Primary Hub:** Northgate Access Park
- Other Geo-Fenced Locations:** Northwood Trails Access Park, Corporate Ridge Office Park, Ridgeview Marketplace shopping center, Johnson County Sunset Office
- **Latent Demand:** Low - Moderate
- **Connectivity:** Mill Creek Trail, regional connections north to many destinations
- **Area of need:** Low
- **Clustering:** Linear connection to many destinations but few concentrations
- **Partnerships:** Johnson County Sunset Office, Corporate Ridge Office Park, Ridgeview Marketplace shopping center
- **Community Priority:** Moderate



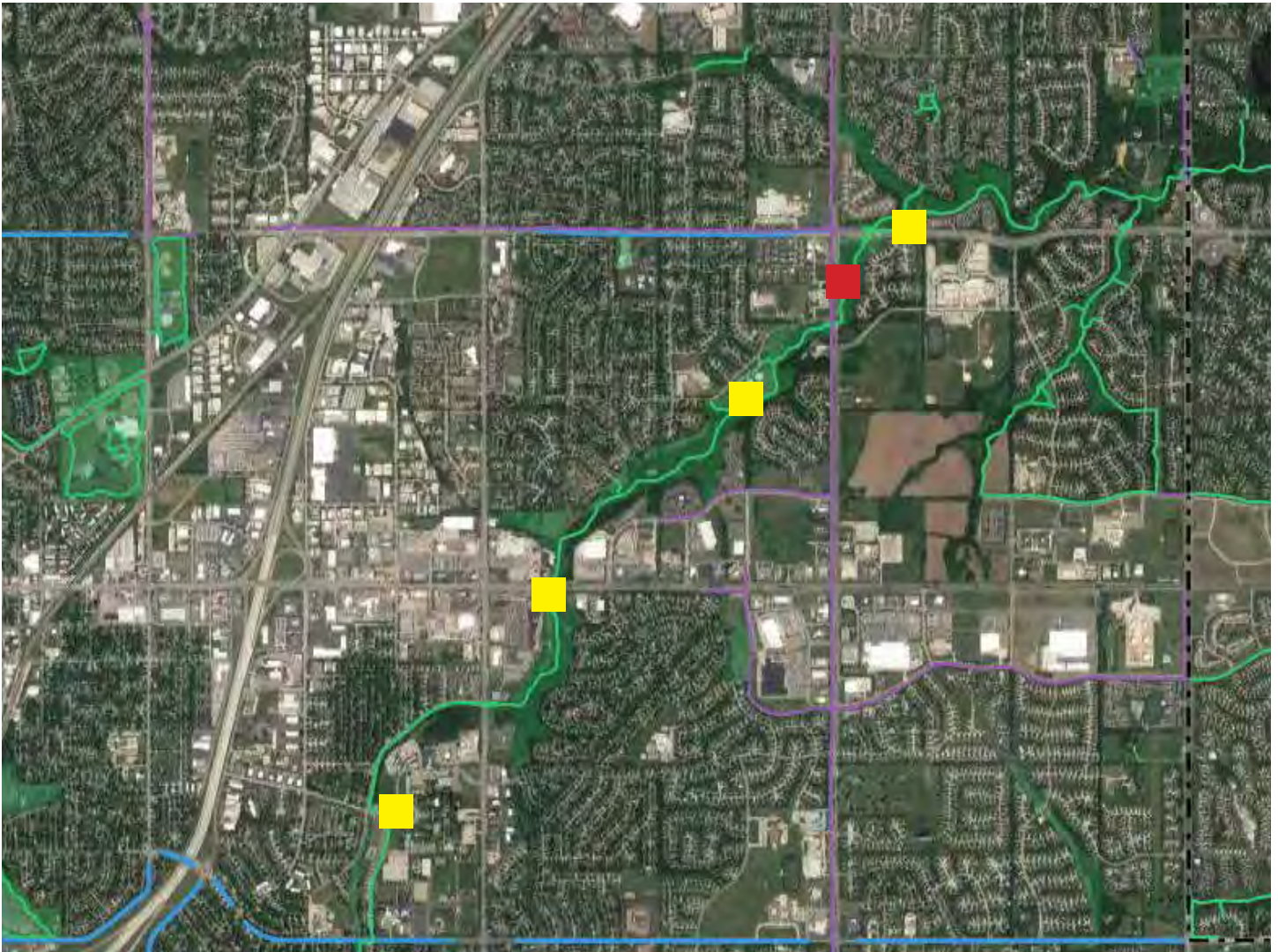
**LAKE OLATHE**

**Primary Hub:** Lake Olathe east shore parking area

**Other Geo-Fenced Locations:** Lake Olathe Beach, Prairie Center Park

- **Latent Demand:** Low
- **Connectivity:** 135th Street Sidewalk Path, 143rd Street bike lane
- **Area of need:** Low
- **Clustering:** Near Rolling Ridge Trail destinations
- **Partnerships:** Johnson County Parks
- **Community Priority:** High





**INDIAN CREEK TRAIL / 127TH STREET**

**Primary Hub:** Indian Creek Trailhead

**Other Geo-Fenced Locations:** Garmin, Olathe South High School, Olathe East High School, 135th Street retail, Corporate Woods, Heatherstone Park, MidAmerica Nazarene University, Frontier Park

- **Latent Demand:** High in places
- **Connectivity:** Local and regional connectivity to many destinations
- **Area of need:** Low - Moderate
- **Clustering:** Linear connection to many destinations but few concentrations
- **Partnerships:** MidAmerica Nazarene University, Garmin, Olathe South High School, Olathe East High School, 135th Street retail, Corporate Woods, JCCC High
- **Community Priority:** High



## High Potential Future Locations

There are some locations that rank as high in latent demand and community priority, but would be difficult for bike share today because of limited connectivity, infrastructure barriers, or other issues. These locations may be ideal locations for bike share with some improvements to the built environment, and should be considered for bike share expansion in future years.



### 119TH STREET

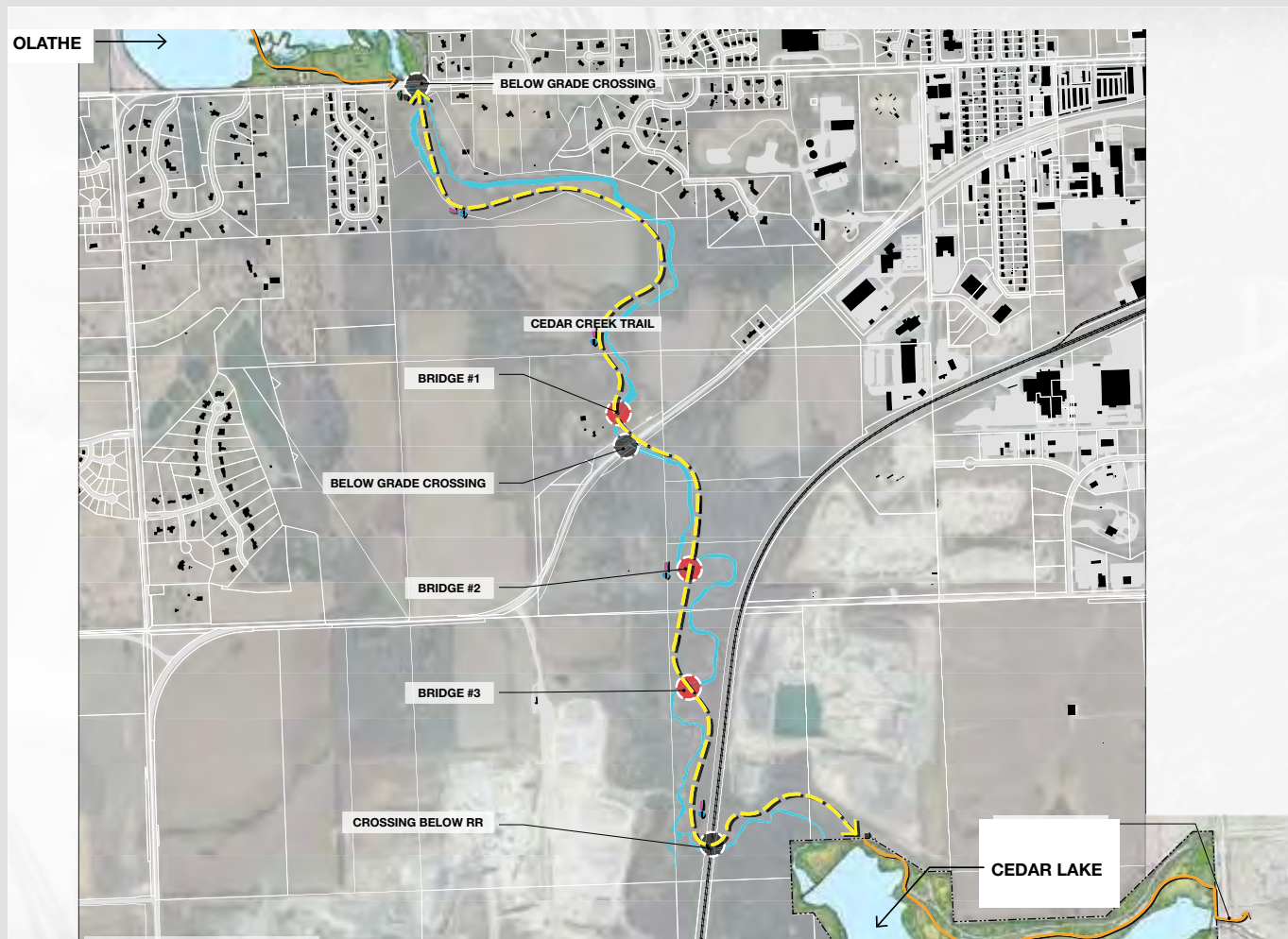
The commercial area around 119th Street and Black Bob Road has the highest latent demand for bike share in all of Olathe, for understandable reasons. Nowhere is there a greater mix and density of shopping, services, entertainment, and office activity. Additionally, multifamily housing in the area means the 119th Street corridor has some of the highest residential density in Olathe. This is a location where people would ride bikes for short trips to many destinations if it was safe and comfortable to do so. Unfortunately, the lack of bicycle infrastructure and the physical layout of developments makes biking in this area challenging. Even a single safe and comfortable bike connection to the heart of this commercial district could make it a very successful bike share location in the future.



### CEDAR LAKE/OLATHE MEDICAL CENTER

As a major employment center with a mission related to health and active living, the Olathe Medical Center campus has potential as a bike share hub. Other medical centers around the region and the country successfully integrate bike share into on-site medical services, physical therapies, and other health related initiatives. There is decent connectivity between the Olathe Medical Center and Cedar Lake, which provides an attractive recreation destination for biking. In the future, trail connections could link Cedar Lake to Lake Olathe and the Rolling Ridge Trail. As the former Great Mall site to the north of Olathe Medical Center redevelops in the future, this will provide additional destinations that further increase the potential of this area as bike share hub, if safe and comfortable connections can be provided. Extension of bike facilities on Lone Elm Road to the north and the south to connect the area with Downtown Olathe and Lone Elm Park will help this hub to integrate into a broader bike share network in Olathe.

## LAKE OLATHE / CEDAR LAKE TRAIL CONNECTION



A trail connection is planned between Lake Olathe and Cedar Lake that will connect two of Olathe's major recreational amenities, and help those on bike and on foot cross major highway and railroad barriers. The trail will be approximately 2.34 miles long, with a ten foot wide hard surface. The project has received grant funding through MARC for 2019-2020, with construction anticipated to begin in October 2019.

## Ridership Estimates

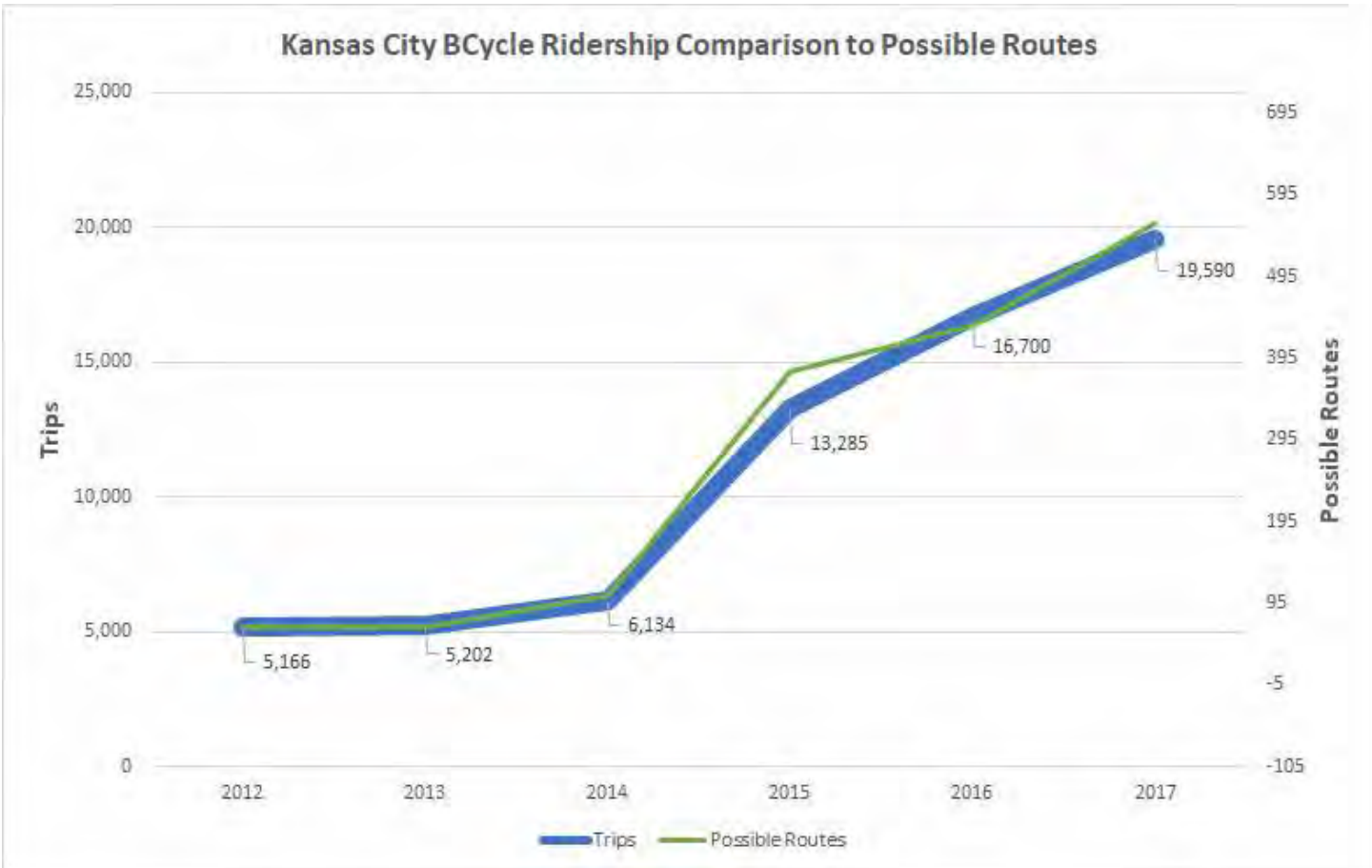
Bike share ridership varies in systems across the United States based on a multitude of factors including system size, quality of bike infrastructure, demographic factors, and operational models. To estimate ridership for a bike share system in Olathe, the performance of the Kansas City bike share system is used as a closely related proxy. Bike share ridership for the Kansas City system correlates very closely with the number of possible routes between stations (rather than the number of bikes or stations). That means that each new station adds more routes, and more ridership, than the one before. This relationship can be used to estimate future ridership based on the number of anticipated stations. With a smart bike system there can be many geo-fenced locations. For the purpose of ridership estimates, possible routes are determined by connections between primary hubs.

In 2017, the Kansas City BCycle system opened a bike share station at Longview Lake in Jackson County, MO. Unlike most other stations in the Kansas City bike share network, this station is geographically separate from the rest of the

system, and primarily serves users of recreational trails in park areas. The ridership at Longview Lake in 2017 was comparable to the highest performing stations in the Kansas City system. This indicates that a) satellite locations can be high performing and b) that there may be a ridership premium along well-used recreational trails. Because a potential bike share system in Olathe would function as a geographically independent system and focus initial deployment adjacent to popular recreational trails, this case study can be useful for considering ridership in a potential Olathe bike share system.

The table below develops an estimate for Olathe ridership numbers between the expected ridership for a typical station or hub in Kansas City and the ridership expected from a high-use recreational trail corridor. Estimates from Olathe also consider the additional trips and destinations for an Olathe system that would be associated with nearby Johnson County bike share locations. These ridership estimates are used to develop the fare estimates of the Olathe bike share revenue model.





**OLATHE BIKE SHARE RIDERSHIP ESTIMATES**

Phase	Hubs	Possible Routes	Projection Model A: Historical Kansas City Station Performance	Projection Model B: Suburban Trail Station Performance	Estimated Ridership: Olathe Bike Share
<b>Phase 1</b>					
Olathe System Only	3	3	3,226	3,600	3,400
Olathe System + Nearby County Hubs	7	21	3,754	5,200	4,500
<b>Phase 2</b>					
Olathe System Only	8	28	3,959	9,600	6,800
Olathe System + Nearby County Hubs	12	66	5,074	11,200	8,100

# System Operations

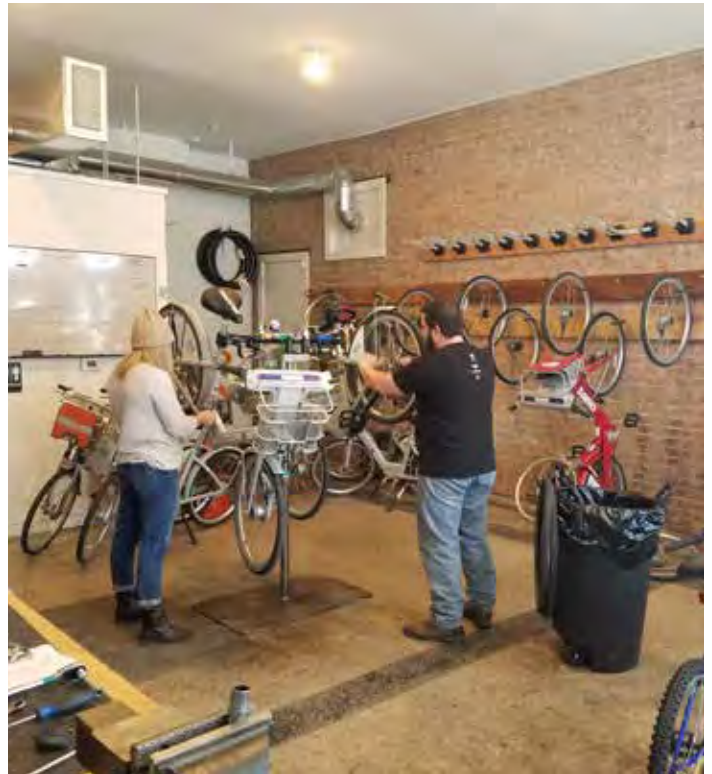
## Staffing Structure

Whether an Olathe bike share system is operated and managed by City staff or a third-party operator, there are several roles that are critical to effective operations. The staffing structure for bike share operations could be organized in different ways, including full-time staff or as part-time responsibilities of staff with other roles.

A bike share director should be the primary point of contact for issues pertaining to bike sharing. The director coordinates between all members of the bike share team to ensure successful execution of bike share. In addition to ensuring that marketing, customer service, sponsorship and potential policy changes are handled appropriately, the director oversees a team of technicians who are responsible for resolving defects and bicycle balancing and distribution as well as station issues. If the City contracts with a third-party operator, the City contact for all bike share management and operations issues should be designated and responsibilities clearly defined.

A fleet technician is responsible for system balancing, performing in-field maintenance checks, and in-shop repairs and maintenance on bicycles. An operations manager monitors system performance, records and tracks equipment issues, and provides technical support as needed. The bike share director will be responsible for vendor relationships, parts ordering, and system health. A membership and marketing manager should lead public relations and marketing efforts to ensure a successful launch with widespread system adoption. Working closely with the bike share director and operations manager, the membership and marketing manager will work with sponsors to increase revenue and ensure that sponsors receive the value they have been promised.

Every member of the team will work to support all policy and process changes that enhance bicycling. To do this, staff will build relationships with key members of City staff as well as key stakeholders in the community.



## System Maintenance

A comprehensive system maintenance plan should be developed for the Olathe bike share system. The maintenance plan should include:

- A fully equipped maintenance facility
- On-the-ground supervision during all hours the system is manned
- A staff team with an emphasis on cross training – allowing scheduling flexibility and efficiency in staffing
- A service vehicle with the capacity to transport multiple bicycles
- Unique maintenance records for each bicycle

Bikes should be maintained on a continuous basis by operations staff. In addition to daily monitoring, routine check-ups and maintenance should be performed. Each bicycle should be uniquely identified so that its use and maintenance history can be monitored. Operators of the Olathe bike share system should be able to use tablets in the field to record each visit and repair at stations and on bicycles. This information can be recorded in maintenance software for historical tracking. The “health of the fleet” should be monitored twenty-four hours a day, seven days a week, by a central computer that performs routine checks automatically. In the event a bike is not functioning properly, this can register in the back-office and trigger an immediate response (such as remotely designating a bicycle “out of service”).

Most routine bicycle maintenance can be done “in the field,” using specially equipped maintenance vehicles that have tools, parts, and supplies necessary to perform routine tasks. The following bike repairs/adjustments may be performed in the field: minor adjustments, inflating tires, adjusting brakes and gears, fixing reflectors, adjusting baskets, replacing stickers, cleaning bikes, removing graffiti, and other functions. All cleaning can be performed on site.

Unexpected maintenance and cleaning notifications are reported by the fleet team during site visits. Customers should also be able to submit a maintenance notification via phone or online. All bicycles and stations should be posted with toll-free customer service numbers to alert the customer service staff to coordinate a response to all in-field maintenance needs. If a user-generated call comes in for a repair, the customer service personnel can create a ticket in the system to alert the service technician of the need for a repair. If a repair is needed on a bike, the bike can be remotely locked down by the customer service personnel to prevent it from being checked out by another user prior to the repair. The fleet team should check maintenance tickets regularly to ensure all repairs are addressed in a timely manner.



## Performance Requirements

The following table is an example of a maintenance schedule that identifies preventative and reactive maintenance and monitoring of the bike share system. This schedule should be adapted to the observed user patterns for an Olathe bike share system once it has been operational for some time.

## Customer Service

Prompt customer service response is important to respond to any issues that might arise for users of the bike share system. Local staff should be available by phone or email during regular working hours. One of the benefits of a bike share system is that it is available twenty-four hours a day, seven days a week. During off-hour times, customers should still be able to reach customer service for critical issues. A bike share system in Olathe should consider use of a customer service center that takes calls and handles issues twenty-four hours a day. A policy to respond to all customer inquiries within twenty-four hours is helpful.

### EXAMPLE PERFORMANCE SCHEDULE

Task Name	Maintenance Action	Staff Scheduled	Service Initial	By Whom
Preventative Maintenance Inspection	Minor on site adjustments & repairs, maintenance standards checklist, cleaning (bikes and kiosk), kiosk check, battery changes & maintenance	Daily	Every 14 days	System Technicians
Reactive Maintenance	Repair to broken, defective, or worn parts	As Needed	Est. 0-3 Bikes per Day	System Technicians
Tune Ups	Scheduled and preventative bicycle maintenance, replace parts as scheduled or necessary	Bi Annual	Est. 3 Bikes per day	System Technicians
Station Monitoring	Reallocation, customer service, kiosk checks - ensure online, reacting to kiosk issues	Daily	Daily	System Technicians / Customer Service
Kiosk Management	Software upgrades & kiosk maintenance	As Needed	As Needed	Operations Manager
Upgrades, Retrofits, Auxiliary Tasks	Adding upgrades, changing parts, changing sponsor decals	As Needed	Est. 1 Bike per day	System Technicians
Replacement of Bicycles	Build new bicycles and replace	As Needed	As Needed	System Technicians

## System Balancing

A balancing and redistribution strategy should maximize availability of bicycles to the most possible users. Staff should monitor the system throughout the day and adjust the balancing schedule accordingly. Over the first few months, usage patterns should be observed, providing guidance on where to “pre-balance” the system to maximize bicycle availability from high-demand locations. The efficiency of redistribution is vastly diminished during peak traffic hours, so it is important to focus on “staging” the system ahead of high demand periods. On weekends, holidays, and during non-rush hours on weekdays, redistribution will occur on an as-needed basis or as user patterns require, and vehicle resources will be reallocated for station maintenance, broken bike collection, cleaning, and other system needs.

In addition, the future operator for Olathe’s program can also use pricing incentives to help balance bicycles currently in circulation. This can be done by providing a modest price credit--frequently \$1--to any users who rides a bike share bike back into a zone of high demand. Some systems even incorporate a “gamification” strategy in which users compete against each other to find the bikes in need of relocation and receive points or credits when returning them to areas where the operator would like to see them parked. In Hamilton Ontario, bicycles in need of relocation are marked in blue on the real-time, smartphone app map and users are given \$0.75 in credits when bikes are moved back into the primary service area. According to Hamilton’s General Manager, there are a number of bike share members who compete against each other to see who can recoup their annual \$85 member fee fastest, \$0.75 at a time.

## Marketing Strategy

Marketing and communications are an important part of ensuring bike share program success. Marketing programs:

- Introduce the program to the community and explain how it works
- Encourage ridership to generate user revenue and offset public operating costs
- Raise the profile of bicycling and promote other related bicycle programs in the community

A marketing strategy for bike share includes key components like branding and messaging appropriate to the local market. Common bike share marketing activities include:

- Attendance at strategic community events prior to and following program launch, e.g. farmers markets, local festivals, and athletic events
- Outreach to large institutions, e.g. major employers, higher education campuses, etc.
- Cultivation of a robust social media presence
- Cross-promotion with related organizations interested in recreation, transportation, the outdoors, sustainability, etc.
- Partner with tourism and visitor boards
- Encourage membership activation and renewal through promotional events like ridership contests, photo contests, and prize drawings
- Advertising and earned media in local media outlets
- Official partners in print, TV, radio, and digital media

Likely demographics for bike share use in Olathe include college students, millennials, active seniors, individuals without access to an automobile, and park patrons. As bike share is deployed, the City may learn that there are unanticipated users that could be marketed to to expand ridership.

## Sponsorships

Corporate sponsorships are often the foundation of bike share revenue models, providing vital funding to start, operate, and maintain bike share. Sponsorship program components include:

- Sponsorship tiers at various price levels with associated benefits and assets
- Catalog of advertising/branding assets like bikes decals and station signage
- Branding and sponsor cross-promotion opportunities
- Sales collateral such as brochures, prospectuses, etc.

Communities are increasingly outsourcing bike share sponsorship to third-party consultants that specialize in corporate sponsorship, marketing of causes, and naming rights. Multi-year sponsorship deals are preferable when possible to ensure long-term sustainability.

A variety of sponsorship levels are common across many bike share systems:

- Title or presenting sponsorship with naming rights and significant branding
- Category sponsorship, often with exclusivity, e.g. “the official banking partner of bike share”
- Station or bike sponsorships connected with one or more specific locations or number of bikes
- Miscellaneous advertising opportunities for small businesses and/or short-term marketing campaigns

## Public Relations

Bike share often becomes one of the most visible bicycle-related services or amenities in a community, a focal point for media and community interest. Municipalities benefit from a strategic public relations plan that takes advantage of the opportunities to bring exposure to all the community’s bike-related facilities and programs. For example,

- Existing infrastructure like trails, bike lanes, and bike parking
- Planning and public policy activities such as trail or bike master plans, and other public input processes
- Connections with public transit, car sharing, or other transportation activities
- Context for how bike share fits into other city initiatives like recreation, transportation, economic development, workforce recruitment and retention, sustainability, or public health

Program operators and municipalities should be prepared to respond to inquiries about how bike share fits into these initiatives and meets community goals.



## Crisis Communications

Bike share has proven itself as a very safe program, with very low rates of crashes or bodily injury. However, municipalities and bike share operators must be prepared for the worst-case scenario of a serious injury, fatality, or damage to equipment. A crisis communication plan provides a proactive response to problems by identifying chain of command, designated media contacts, and pre-planned messaging.

## Theft Reduction and Hazard Insurance

Risk mitigation should be a priority for all bike share programs. Any time a bike share bicycle is involved in a crash or other incident, liability may become an issue. Bike share program operators can establish proactive policies that reduce vulnerability. Bike share program operators combine four basic strategies to minimize risk: insurance, user responsibility agreements, physical maintenance, and public outreach, to create the safest possible context for riders, sponsors, and supporters alike.

Partnership with a knowledgeable, invested insurance broker will be key to developing the appropriate risk mitigation structure to minimize liabilities.

### Coverage Considerations and Planning

**Maintenance and Presentation:** Rigorous standards of bicycle maintenance are important for minimizing liability in a bike share program. In addition to standard maintenance measures, bicycle visibility features (such as reflectors and lights) are particularly important, and should be regularly inspected and carefully maintained.

**Helmets:** Helmets are not required in any major bike share program in the U.S., unless located in a municipality with a mandatory helmet law. Issues, including hygiene and proper fit/sizing, limit helmet requirements for the self-service model. Outreach will be key to encouraging helmet use. To minimize liability, bike share system operators are encouraged to promote helmet use. This is often accomplished by partnering with local retailers to offer discounts on helmets for bike share users.

## Potential Types of Risk

Bike sharing, like many activities in life, involves risks. The system presents the user with a choice that must be based on personal skill, education and risk awareness. But, like all risks, mitigation is possible for both the rider and the administering bike share entity. The risks that a bike share system in Olathe must be prepared to address are briefly described below. These risks, if carefully considered, are not an impediment to a safe and effective implementation of bike sharing.

- Injury resulting from an improperly maintained bike or docking station
- Injury sustained by not wearing a recommended helmet
- Injury sustained as a result of a rider's poor route selection or decision to ride in unsafe conditions (weather, etc.)
- Injury sustained as a result of imprudent or improper use on the part of the rider
- Injury sustained by a rider under the influence of alcohol or drugs
- Injury sustained as a result of failure by a rider to respect traffic rules
- Injury resulting from failure by the rider to properly adjust the bike before riding
- Injury relating to other vehicles not respecting rider rights
- Injury to pedestrians or others caused by a bike share rider
- Injury resulting from a collision with a motorized vehicle
- Fiscal risk to the administering organization as a result of expired or cancelled credit cards
- Theft of bikes or vandalism to bikes and docking stations

## Risk Management

Information available from other cities indicates that insurance, maintenance, education and outreach are the most effective ways to minimize risk while providing a positive transportation alternative. Potential risks can be resolved or minimized through prudent risk mitigation strategies. Examples of risk management strategies include:

- Developing comprehensive, mandatory conditions of use (including enforceable waivers) that clearly state the responsibilities and obligations of riders
- Integrating the waivers into the rental agreement for both term members as well as one-time-use purchasers
- Obtaining appropriate levels of general liability and other insurance for the administering organization
- Purchasing and installing bikes and stations with safety considerations in mind, such as lighting systems that turn on automatically and ergonomically correct features and functions
- Carrying out regular maintenance on both bikes and stations to ensure they are in safe operating condition
- Continually working with the local community to develop a safe cycling infrastructure partnership, including the designation of bike lanes and enhanced enforcement of laws intended to protect users of all types of transportation
- Developing and delivering educational programs for driver and riders that focus on cycling and driving safety
- Ensuring red card processing that protects against the use of stolen or fraudulent cards

## Data and Performance Tracking

Operations of a successful bike share system should include reporting software that tracks all aspects of the operations from sales and revenue to trip usage to membership to station balancing. Live GPS functions on each bicycle provide a wealth of rider knowledge that can be utilized for data-based decision making regarding infrastructure changes or upgrades.

Below are some examples of useful reporting metrics:

- Membership Sales
- Revenue Details
- Promotion Discounts
- Member Trip Activity
- Maintenance Trip Activity
- Individual Bike Maintenance history
- Top Trip Routes
- Top Hubs and Station Locations
- Member Account Activity
- Lapsed Account Details
- Balancing Events

# Business Plan

## Capital Costs

Because of the equipment-intensive nature of a bike share system, its launch is a capital-intensive effort. In order to get a bike share program off the ground, the following capital costs must be funded:

- Purchase of bicycles
- Manufacturing and installation of station kiosks
- Purchase of service and distribution vehicles
- Development of a website and app
- Purchase and installation of necessary hardware and software

The total cost of these capital expenses is primarily driven by the number and type of bicycles and stations selected, the size and density of the coverage area, and the system operator selected.

## Operating Costs

Bike share system operating costs are typical of any operating business and are largely driven by personnel costs. Although many aspects of bike share are automated or managed via online resources, personnel costs remain the largest portion of operating budgets.

Post-launch, operating costs for a bike share system include:

- **Labor:** Covers labor cost for all maintenance, rebalancing services, and administration.
- **Insurance:** As a public service that often operates in the right of way, mitigating liability is key to any bike share operation. Insurance covers bodily injury and property damage to include products and operations.
- **Software Fees:** Software fees cover all upkeep for software on bikes and kiosks. Website and app hosting costs are also covered here.

- **Replacement Parts:** All bike fleets need to be regularly maintained and repaired to ensure their maximum value is realized. The replacement parts budget covers all routine and major replacement parts over the life of the bike. All bike parts and kiosks are covered under full warranty for one-year, making the parts budget for the years of equipment procurement lower.
- **Merchant Fees:** Merchant fees cover costs associated with payment processing. The cost of merchant fees is dictated by the amount of membership sales and usage fees.
- **Fleet Vehicles:** Vehicles will need to be maintained for field operations. This cost includes fuel and regular maintenance.
- **Electricity:** Station kiosks that are AC powered will have a small additional power cost. Stations average less than \$40 per year in energy costs.
- **Membership Cards:** Some members opt into having an RFID membership card to make bike check-outs more convenient and fast. These cards have a cost of \$2 per unit.
- **Warehouse/storage fees:** These costs would only occur should equipment be procured ahead of an implementation date.
- **Tax:** Local tax will be collected on all usage fees.
- **Legal:** This covers the cost of any legal documents such as agreements to use the public right-of-way and partner with local private sponsors.
- **Marketing Direct Costs:** Marketing costs include a multi-faceted approach that includes digital, print, and direct marketing efforts.
- **Outreach and Education:** Outreach and education includes informational and educational materials and classes on how bike share works, safety tips, and resources.



## Revenue Sources

Bike share systems typically take advantage of three revenue streams: membership (rider) fees, advertising, and sponsorships. The balance of these three streams is dependent on several factors but is primarily driven by the size of the local population (residential population, business population, and visitors), anticipated ridership (via both short and long-term memberships/passes), and market conditions for advertising sales. In addition to sustainable revenue streams, many communities use a variety of grant funding to support capital costs for initial deployment of the system.

### Membership Sales

To encourage repeated use of bike share systems, programs generally offer short- and long-term memberships in addition to one-time usage fees. Membership fees are kept low to encourage use, but even so, they represent an important source of revenue for bike share programs. Reasonable usage and membership fees are key to encouraging use of the system, because other relatively comparable alternatives for transportation do exist (bus fares, cost of gas, etc.). Because bike share functions most efficiently when bikes are available for as many users and trips as possible, rates charged for use typically have an escalating scale of cost that can be based on half-hour or one-hour increments. Membership sales can be configured in many ways to balance the unique ridership needs in Olathe. Below is one example of membership tiers for different types of users:

**Annual Membership:** This option is for locals who plan to use bike share several times during the year. A modest annual rate would encourage purchase yet still provide reasonable revenue stream. The first hour of use for annual members is free, followed by an escalating scale beyond that first hour.

**Multi-Day Membership:** This option allows users to ride several times in one day, week, or month and save money with free minutes each time they check out a bike. Multi-day passes are good options for people who are in town for a conference, visiting for the weekend, or want to spend the day touring the city.

**Twenty-Four Hour Rental:** This option works more like a traditional bike rental. Users keep a bicycle all day with a higher rental rate but no additional fees. This option would appeal to those who know they'll be riding throughout a given day.

**Single Ride Option:** Users ride once or twice and pay as they go. They are able to purchase single ride pass and ride for 30 minutes to any other designated location in the system. This option is appealing to visitors and first-time bike share users.

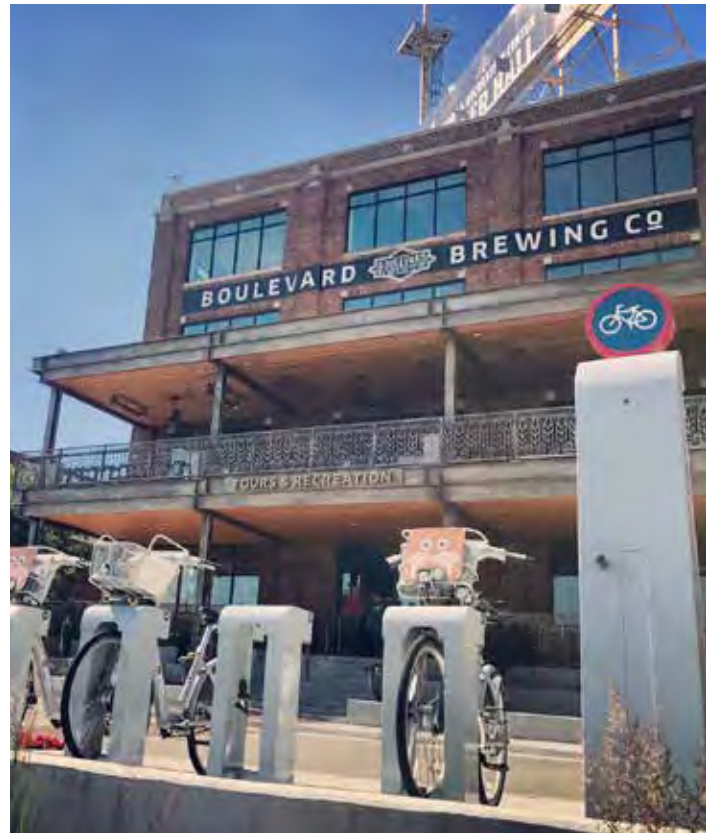
### Recommended Fee Structure

Pricing structure, like most parts of the program, can be tailored over time as usage and needs are further developed with system data. Industry best practices and the guidance from the Advisory Committee both support a rate structure that allows Olathe bike share to be compatible with the regional bike share system. The Kansas City region's bike share rate structure is consistent with many peer communities and was specifically designed to keep memberships economical and below bicycle rental market rate for users. Today, walk up rates are \$3 per 30 minutes for walk-up users, or \$65 annual memberships with unlimited 60 minute trips. Additionally, subsidized membership programs are available to low income individuals.

### Advertising Revenue

Bike share programs offer two significant platforms for advertising: stations and bicycles. Effective bike share advertising programs can reduce the membership fees required for self-sustainability or can fund system maintenance and expansion. Advertising sales complement membership, sponsorship, and daily sales in the overall budget plan. There are many elements to advertising the bike share product and concept, beginning with the bike itself, then the kiosk, and finally the website, and at public relations opportunities and events.

Advertising sales can be handled multiple ways. The sales can be outsourced to local companies who sell outdoor media and/or managed by bike share staff. In addition, advertising sales may use bundling techniques to sell advertising to partner organizations.



## Sponsorships

Even with excellent execution of membership and advertising programs, most bike share systems experience a gap between revenue and operating costs. In many cases, bike share systems take advantage of private sponsorships to close this gap. While sponsorships are particularly important in the first one to three years of a bike share program, they remain an important source of revenue on an ongoing basis.

City or third-party operators of the bike share system can cultivate sponsors directly and/or contract with a professional venue and asset management company to bring established sponsor partnerships with compatible audiences to the bike share system.

Sponsor benefits can be tailored on a custom basis to meet each partner organization's needs. Bike share offers best in class brand engagement with highly visible advertising in many of the most heavily trafficked areas in the region.

Possible sponsor benefits may include:

- Naming rights on stations
- Branding on bikes and/or stations, with multiple location options
- Digital engagement on website, app, station touch screens, and bike display
- Integration with corporate health and wellness initiatives
- Category exclusivity
- Opportunity to select station location on property site
- Data sharing
- Special events or free ride days to generate awareness
- Subsidized or free memberships for partner staff and/or tenants

## Revenue Model

The following table outlines a cost and revenue model for two phases of bike share deployment in Olathe over a period of six years. The revenue model anticipates an initial deployment of thirty bikes, with an expansion to eighty bikes in year three. The time frame of these phases is flexible. The revenue model identifies the full range of costs and expenses for funding and operating a bike share system based on real costs of existing, established bike share systems and estimated ridership in Olathe. The revenue model includes likely federal grant match opportunities and sponsorship revenue as part of a complete and realistic funding model.

The membership sales projections assume a fee structure consistent with the existing regional system - a base \$3.00 fee per trip with some number of longer trips incurring additional fees. The average revenue per trip is assumed to be \$3.75, consistent with the performance of the regional bike share system in Kansas City.

Key takeaways from this revenue model include the following:

- There is a net cost for initial deployment of the system. Overall costs of a smart bike system are lower than station-based models, and large portions of the capital funding can be mitigated by federal grant opportunities, but a net cost to purchase bike share bikes remains.
- With reasonable targets for ridership and sponsorship, a bike share system in Olathe can be revenue-neutral or revenue-positive once the system is deployed and operating. Over time, this revenue can reimburse capital costs, and be used to enhance and expand the system.
- Because there are more route options and a larger coverage area, a bike share ridership increases geometrically with system size. Larger systems are also able to more efficiently utilize one-time costs. Together these factors mean that a larger system performs better financially.
- Up to 80% of the capital costs associated with deployment of bike share, including the purchase of bikes, can be funded through a variety of federal grants.
- Sponsorship is key to revenue-neutral or revenue-positive funding model, but there are clear benefits and many successful examples of private system sponsors for bike share systems.
- The revenue model includes projections for a system with station kiosks and without station kiosks. Because there is a capital cost for kiosks, and an ongoing cost for their upkeep and operations, the kiosk options in the revenue model do not perform as well as non-kiosk options. However, a system with at least some kiosks offers better performance and flexibility, as well as a more versatile user experience.
- The revenue model includes funding for activities related to community education and direct marketing. While the bike share system can technically operate without these line items, they are included because of the value they provide to the visibility and use of the system over time.



## OLATHE BIKE SHARE REVENUE MODEL

	Description	Year 1 (30 bikes)	Year 2 (30 bikes)	Year 3 (80 Bikes)	Year 4 (80 Bikes)	Year 5 (80 Bikes)	Year 6 (80 Bikes)
<b>Revenue</b>							
	Membership Sales + fees	\$16,743	\$16,743	\$30,432	\$30,432	\$30,432	\$30,432
	Title Sponsor	\$30,000	\$30,000	\$80,000	\$80,000	\$80,000	\$80,000
	Category Sponsors	\$6,000	\$6,000	\$16,000	\$16,000	\$16,000	\$16,000
	Total Sponsorship Income	\$36,000	\$36,000	\$96,000	\$96,000	\$96,000	\$96,000
<b>Total Revenue</b>		<b>\$52,743</b>	<b>\$52,743</b>	<b>\$126,432</b>	<b>\$126,432</b>	<b>\$126,432</b>	<b>\$126,432</b>
<b>Capital Expenses:</b>							
	Kiosks	\$24,000	\$0	\$40,000	\$0	\$0	\$0
	Bikes	\$60,000	\$0	\$100,000	\$0	\$0	\$0
	Bike Racks	\$8,000	\$0	\$12,000	\$0	\$0	\$0
<b>Total Capital Cost:</b>		<b>\$92,000</b>	<b>\$0</b>	<b>\$152,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Capital Cost with Federal Grant Match:</b>		<b>\$18,400</b>	<b>\$0</b>	<b>\$30,400</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Operating Expenses:</b>							
	Labor	\$20,000	\$20,000	\$40,000	\$40,000	\$40,000	\$40,000
	Connectivity + cell usage	\$7,200	\$7,200	\$19,200	\$19,200	\$19,200	\$19,200
	Bike Parts	\$0	\$3,750	\$3,750	\$10,000	\$10,000	\$10,000
	Kiosk Parts	\$0	\$2,900	\$2,900	\$4,900	\$4,900	\$4,900
	Membership Card Costs (\$2 per card)	\$750	\$350	\$350	\$350	\$350	\$350
	Software/hosting fee	\$6,120	\$6,120	\$16,320	\$16,320	\$16,320	\$16,320
	Outreach / Education costs	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
	Legal	\$5,000	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
	Marketing Direct Costs	\$3,260	\$3,260	\$8,600	\$8,600	\$8,600	\$8,600
	Insurance	\$3,240	\$3,240	\$8,640	\$8,640	\$8,640	\$8,640
	Office supplies	\$800	\$800	\$1,200	\$1,200	\$1,200	\$1,200
	Merchant account fees	\$1,565	\$1,565	\$4,220	\$4,220	\$4,220	\$4,220
	Tax (7.975% on Membership sales and usage fees)	\$668	\$668	\$1,213	\$1,213	\$1,213	\$1,213
<b>Total Operating Expenses</b>		<b>\$51,103</b>	<b>\$54,853</b>	<b>\$111,393</b>	<b>\$119,643</b>	<b>\$119,643</b>	<b>\$119,643</b>
<b>Smart Bike System with Kiosks</b>							
Total Revenue		\$52,743	\$52,743	\$126,432	\$126,432	\$126,432	\$126,432
Total Expenses		\$69,503	\$54,853	\$141,793	\$119,643	\$119,643	\$119,643
<b>Net Revenue/ Expenses</b>		<b>(\$16,760)</b>	<b>(\$2,110)</b>	<b>(\$15,361)</b>	<b>\$6,789</b>	<b>\$6,789</b>	<b>\$6,789</b>
<b>Smart Bike System without Kiosks</b>							
Total Revenue		\$52,743	\$52,743	\$126,432	\$126,432	\$126,432	\$126,432
Total Expenses		\$64,703	\$51,953	\$130,893	\$114,743	\$114,743	\$114,743
<b>Net Revenue/ Expenses</b>		<b>(\$11,960)</b>	<b>\$790</b>	<b>(\$4,461)</b>	<b>\$11,689</b>	<b>\$11,689</b>	<b>\$11,689</b>

## Ownership and Financial Structure

Around the world, bike share systems have been managed by public, private, and non-profit owners and operators. In all cases, the goal of the management and financing structure is to facilitate a self-sustaining model that supports a robust program capable of growing and evolving to meet changing community needs.

Bike share systems throughout the world are typically either non-profit owned and operated or owned by a municipality and operated by a non-profit. There are pros and cons to each model.

The regional bike share system in Kansas City has operated almost entirely as a private non-profit venture, allowing local municipalities to keep resources largely focused on other projects. Although the non-profit owned and operated model lowers the burden of financial risk for public entities, it is important to note that because of the required use of City infrastructure and designation as a public transportation and recreation service, municipal partnerships remain essential to the success of any bike share program in any model.

Cities can use various departments for oversight over their local bike share operator. This is often determined by the internal organization and responsibilities within a city. Often cities delegate a position within the department most closely tied to bicycle infrastructure and programming, but this is not always the case. Oversight for most cities entails doing reporting on system performance metrics and future planning on a regularly occurring basis.

The most common departments maintaining oversight of bike share are the City Manager's Office, Public Works, Transportation Department/ Authority, and Parks Departments. Denver's oversight comes from Public Works, Cincinnati's oversight comes from the Mayor's Office, Salt Lake City oversight comes from the City Manager's office, Jackson County, Michigan's oversight comes from the Parks Department. Kansas City, Missouri's oversight formerly came from Public Works, but is currently within the City Manager's Office.

### Non-Profit Owner / Operator:

The non-profit owner and operator model offers a number of advantages for municipalities. This model offers a turn-key service that demands far less resources from local municipalities. There is little to no staff time needed for oversight of the program since the non-profit takes on the full management responsibilities. Non-profits assume the financial risk above and beyond any partnership agreements that are in place. The non-profit often puts all revenue back into the system for maintenance and expansion. This helps to ensure a continuous cycle of system development and improvements.

The tradeoff for municipalities with a non-profit owner model is that under this model municipalities often have less control of operational standards. However, this is sometimes unnecessary anyway because nonprofits assume the financial risk and therefore have motivation to maintain high operational and performance standards to encourage healthy ridership levels.

### Non-Profit Owner / Non-Profit Operator Summary:

- Turn-key, little to no municipal staff time required for oversight
- Financial risk owned by non-profit organization and not municipality
  - Non-profit assumes financial risk above and beyond any partner agreements
  - Non-profit puts all revenue back into system expansion and maintenance
- Less operational controls for municipality
  - Often not needed because non-profit adheres to strict standards to ensure quality services and promote ridership growth

### **Municipal Owner / Non-profit Operated:**

An operating model where a municipality owns the system and a non-profit operates the system is the most common in major cities across the United States. This occurs when bike share is made a local priority and public funding sources are designated for procuring bike share equipment. Municipalities then contract with local non-profits for the operations of the system. The level of operational services provided by the non-profit organization is determined by the municipality's capacity for additional services.

The investment often required for municipal-owned bike share systems means that municipalities often must dedicate their own staff time for oversight of the program partnership to ensure success. The municipality is fully responsible for all financial risks and liabilities, although some of the liability can be mitigated by assigning some operational services to the non-profit operator (insurance, for example). This model also offers a greater degree of control of operational practices to a municipality. Due to the risk involved for municipalities under this model, many municipalities set stringent operational and performance standards for the non-profit operators to maintain.

### **Municipal Owner / Non-Profit Operator Summary:**

- Staff labor required for oversight
- Municipality sets which services are contracted out, such as:
  - Fundraising
  - Insurance
  - Software Fees
  - Administration
  - Repairs/Maintenance
  - Balancing
  - Public Outreach/Education
  - Legal
  - Website / app hosting & maintenance
  - Merchant account fees

- Municipality carries any financial risk
- Municipality responsible for all liabilities
- More controls on operations
  - Can set operational metric standards such as bike balancing performance and maintenance schedules.

### **Municipal Owner / For-Profit Operated:**

Bike share systems owned by a municipality but operated by a for-profit company is a newer concept that has emerged in the last few years. This model is substantially similar to the municipal-owned and non-profit-operated model. The advantage to using a for-profit operator is that some of them operate multiple systems around the country and can bring a level of experience to any city's bike share program. Working with a for-profit company also often means paying additional contract fees for the same services offered by a local non-profit.

Municipalities starting a program for the first time may find using a for-profit vendor with lots of experience is an advantage. However, there is no indication that a for-profit company offers any additional benefits over an experienced non-profit operator if one is available.

### **Municipal Owner / For-Profit Operator Summary:**

- Similar to non-profit operator model
- May offer experience from operations of multiple systems across the county
- May come with an additional contract fee







