FOREST PARK GREAT STREETS STUDY

EXISTING CONDITIONS REPORT

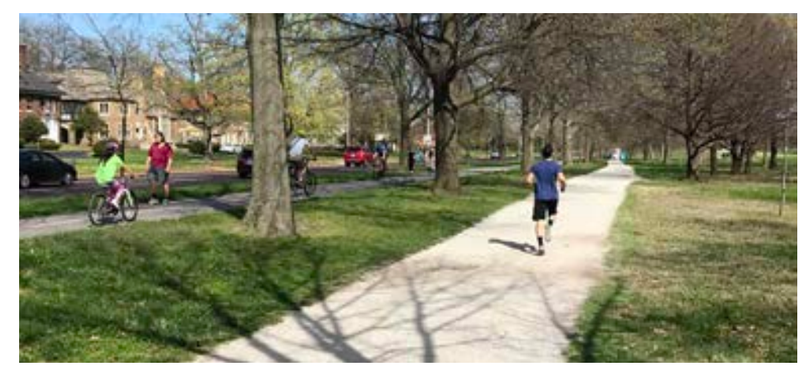
PREPARED FOR THE CITY OF ST. LOUIS, FOREST PARK FOREVER AND EAST-WEST GATEWAY COUNCIL OF GOVERNMENTS
SEPTEMBER, 2017











FOREST PARK GREAT STREETS STUDY

ACKNOWLEDGEMENTS

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LIST OF FIGURES

EXISTING CONDITIONS REPORT

In addition to data collected by the design team, data in this package was collected through the following sources:

- *Arcis Golf*
- *BJC Healthcare*
- *City of St. Louis*
- *East-West Gateway Council of Governments*
- *FEMA*
- *Forest Park Forever*
- *Great Rivers Greenway*
- *Jacobs*
- *Missouri Spatial Data Information Services*
- *Metropolitan Sewer District (MSD)*
- *St. Louis County*
- *St. Louis Zoo*
- *St. Louis Art Museum*
- *St. Louis Science Center*
- *Trailnet*
- *Washington University St. Louis and Washington University Medical Center*

BACKGROUND

FOREST PARK GREAT STREETS STUDY

As the neighborhoods and institutions that surround Forest Park thrive and the institutions within it expand, access to and within the Park is strained. Visitors to Forest Park arrive mostly by automobile for a range of activities, from leisurely strolls to formal theater productions. Bicyclists enjoy improved regional access due to the expanding regional greenway and bicycle route network. Pedestrians and runners from the adjacent neighborhoods and campuses use the Park daily. Transit access to the Park is provided directly by multiple bus lines and the soon-to-open Loop Trolley, and through three nearby light rail stations. Despite operation of a bus trolley, circulation throughout the Park and adjacent places relies significantly on the use of personal automobiles, which compounds congestion and parking problems and creates numerous conflicts with pedestrians and bicyclists, particularly on peak days and during events. This study will begin to implement the 2016 Connectivity and Mobility Study with specific projects for implementation.

The St. Louis Great Streets Initiative was established in early 2006 to expand the way communities think of their streets. Rather than viewing a roadway project as solely a way to move more cars and trucks faster, the goal of the initiative is to trigger economic and social benefits by centering communities around interesting, lively and attractive streets that serve all modes of transportation.

By applying the principles of Great Streets to the access routes to, around and within Forest Park, the Forest Park Great Streets Study will develop a multi-modal access and circulation strategy which increases the safety, convenience, accessibility to and within Forest Park resulting in an improved visitor experience.

PREVIOUS STUDIES

2016 FOREST PARK CONNECTIVITY AND MOBILITY STUDY

With new challenges and opportunities, emerging technologies, and shifts in societal trends, the City of St. Louis Parks Department and Forest Park Forever embarked upon a strategic look at connectivity and mobility for all visitors to Forest Park. In 2015 these entities embarked on creating this visionary framework study to explore and identify how visitors connect to and move around the Park. The Forest Park Connectivity Study was an initiative intended to build upon the projects and visions set forth in the 1995 Forest Park Master Plan addressing mobility and the total park experience. The study identified short, intermediate, and long-term ideas to improve connectivity and the overall visitor experience. The ideas identified in the framework plan range from recommendations for policy changes to identifying future projects that balance people, culture, and nature.

1995 FOREST PARK MASTER PLAN:

The Master Plan completed in 1995 will serve as a guide for this study. The following vision statement summarizes the intent of this plan.

A VISION OF FOREST PARK'S FUTURE

Forest Park is a gathering place for St. Louisans and our guests, an urban park that is the home for attractions, events and activities that reflect our interests, culture, and history. It is a place to experience wonders great and small, natural and man made. an inspiring vista, an endangered species, an Old World masterpiece, real world technology, or a shady glen that offers a moment of tranquility. It is a place we share, and a place for which we share responsibility.

Forest Park provides us with settings to appreciate the world around us, and within ourselves. ***It is easily accessible, yet free of the constant intrusions of daily life****. Here we may walk barefoot in the grass, hear the sweet song of a migratory bird, watch young children catching their first fish or neighbors enjoying a summer's day. We may contemplate a piece of art or architecture, float on the lakes amidst falling autumn leaves, walk silently through a forest on freshly fallen snow, or lie in the fields of wildflowers as spring arrives.*

As home to many of our finest cultural institutions, Forest Park is a place to come face to face with a baby chimpanzee, take a journey through the heavens or back in time, hear the stars sing at night, or uncover the secrets of a pharaoh's tomb. It is a place of learning and discovery, of unique experiences that bring us back again and again.

As a center of recreational activity, Forest Park teems with athletes and sports enthusiasts at all levels, ages, and skills. Its paths, fields, courses and courts allow those involved in each activity the freedom to enjoy the Park without limiting the enjoyment of others.

As a focal point for special events, Forest Park gives us reasons to celebrate our heritages, our hopes, and our happiness. Our gatherings here help define our community and demonstrate the warmth, wonder, and friendship that we share.

No where else can we share the variety and totality of experiences that Forest Park provides. The strength of the Park flows from that sharing, from our willingness and ability to protect the Park for all of us in all of our uses. *Forest Park is more than a symbol of the beauty and tradition of St. Louis; it is a place where we define our community and celebrate our pluralism every day.*

OVERVIEW

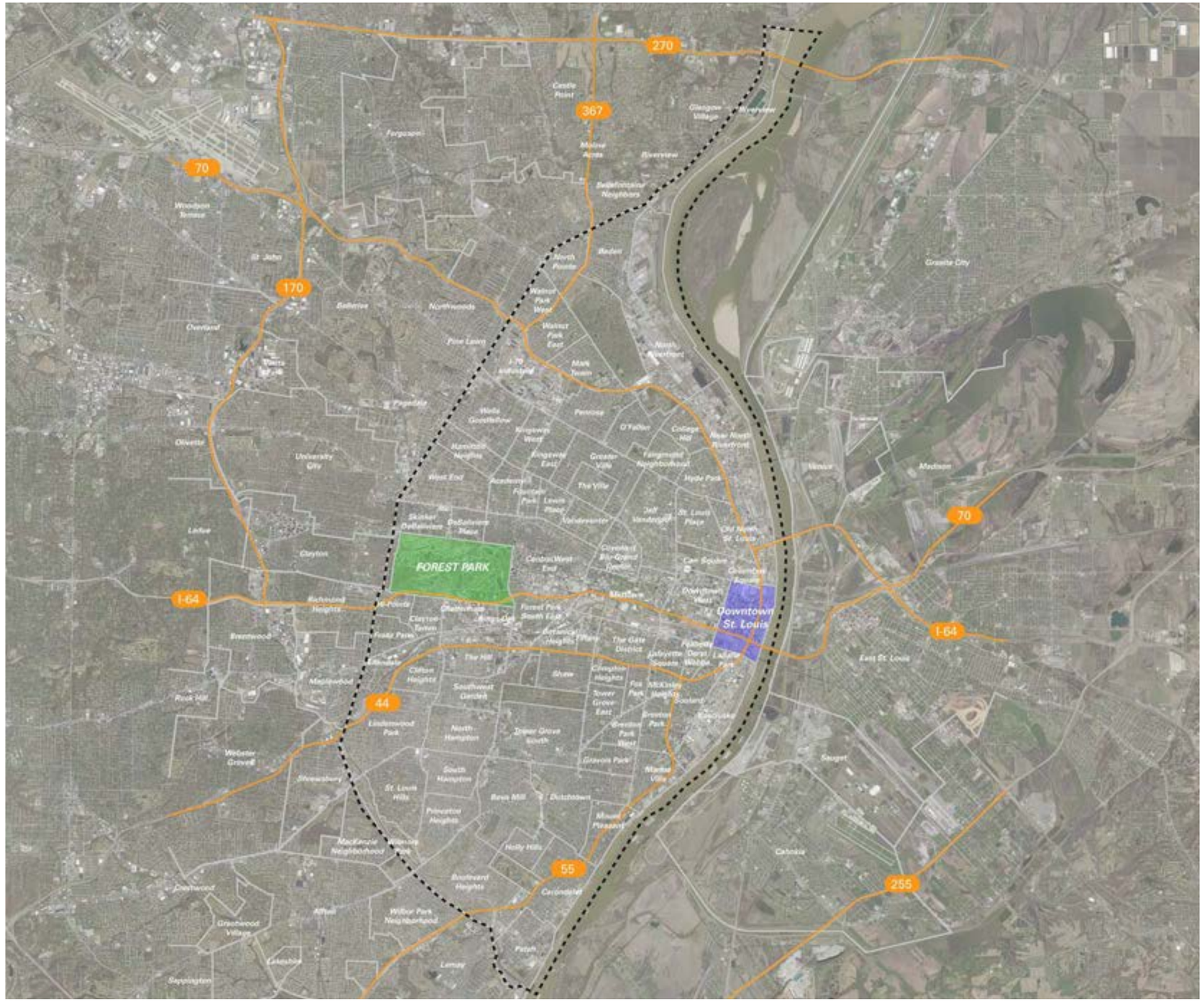
Forest Park is a historic civic park of 1,300 acres that sits 5 miles west of Downtown St. Louis. The Park primarily serves the public with a variety of cultural and educational attractions, and natural areas such as forests and prairies, and an extensive network of walking and biking trails, and connections to regional recreational networks. The park is home to the popular Saint Louis Zoo, Missouri History Museum, the Municipal Opera Theatre (The Muny), St. Louis Art Museum and St. Louis Science Center.

With over 13 million annual visitors, the Trust for Public Land lists Forest Park as the 7th most visited City park in the United States. The park has also been recognized as "One of America's great public spaces" by the American Planning Association, as "#1 City Park in the United States" by readers of USA Today, as "Best City Park in America" by Thrillist, and as one of the most beautiful city parks by Fodor's Travel.

First opened to the public in 1876, the Park has served as a nexus for activity in the region, hosting events such as the 1904 Louisiana Purchase Exposition and the 1904 Summer Olympics, as well as a wide range of popular festivals and events today. Notable for its wide range of recreational opportunities as well as its history, Forest Park attracts visitors from surrounding neighborhoods, the city and county of St. Louis at large, as well as tourists from around the country and worldwide.

Programming of the Park is primarily passive and maintaining this condition is a principle objective of the 1995 Master Plan. The Park's founders highlighted the vision that St. Louisans wanted a park that *"the rich and poor, the merchant and mechanic, the professional man and the day laborer, each with his family and lunch basket, can come and enjoy his own ... all without stint or hindrance ... and there will be no notice put up to 'Keep off the grass.'"*

The Park is operated, maintained & sustained through an innovative public/private partnership between the City of St. Louis Department of Parks, Recreation & Forestry and Forest Park Forever, a private nonprofit conservancy.



NEIGHBORHOOD CONTEXT

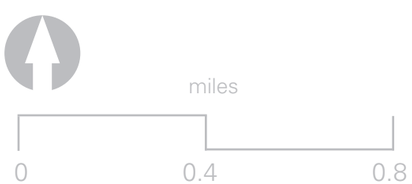
LEGEND

St. Louis City Limits

OVERVIEW

Neighborhoods bordering Forest Park vary in character and composition, though they share close proximity to area employment centers, easy access from surrounding highways, and positive real estate and demographic indicators relative to the city. Though population loss in the city of St. Louis is well-documented—and persistent—the Central Corridor has been the site of most of the city's redevelopment efforts of the past several decades, with much of this activity occurring in the neighborhoods surrounding the Park.

Individually analyzing conditions in the neighborhoods surrounding the Park highlights their unique identities, while providing context to guide future land use and development strategies. Their diversity provides a snapshot of St. Louis as a whole, and the presence of these neighborhoods and their residents contributes to Forest Park's role as a neighborhood park, in addition to a cultural center and tourist attraction.



	POPULATION 2016	POPULATION CHANGE 2010-2016	MEDIAN HOUSEHOLD INCOME	MEDIAN HOUSING VALUE
Central West End	14,800	2.0%	$40,700	$342,000
Forest Park Southeast	3,100	7.4%	$31,300	$134,700
Highlands	1,100	31.8%	$44,400	$147,100
Dogtown	6,000	-0.2%	$48,200	$144,200
Demun	11,800	0.1%	$59,000	$467,500
Skinker Debaliviere	3,800	-0.9%	$41,600	$248,900
Debalivere Place	3,600	5.0%	$49,800	$189,800

Source: Esri, 2016

NEIGHBORHOOD SUMMARIES

CENTRAL WEST END

Despite citywide population decline of more than eight percent since 2000, the Central West End continues to thrive, growing by four percent over the same period. The neighborhood is one of the city's most diverse in terms of land use and density. The Barnes-Jewish Hospital and St. Louis Children's Hospital campus (BJC) occupies a large portion of the western edge of the neighborhood, while Euclid Avenue anchors the highly walkable commercial district, which is home to restaurants, bars, and local retailers. Residential uses include a combination of upscale rentals and large single-family homes concentrated in the Central West End's northern and eastern sections. Much of the recent development activity in the city has been located within the neighborhood, including four high-end apartment properties and several prominent first-floor retailers.

FOREST PARK SOUTHEAST

Forest Park Southeast has grown incrementally—but steadily—since the 1990s, and is anchored by a thriving commercial district along Manchester Avenue between Kingshighway and Vandeventer Avenue. After significant population loss and disinvestment throughout much of the middle of the past century, redevelopment of the storefronts along Manchester was championed by a number of LGBT-friendly bars and night clubs. Additional commercial and retail users followed, which enhanced the marketability for the rehabilitation of existing homes and development of new apartments over the past decade.

HIGHLANDS

Originally the site of the Checkerdome Arena, the area south of the Park between Oakview Place and Highland Drive was redeveloped as a mixed-use property with modern apartments, office space (conventional and medical), and retail. Immediately to the east, the campus of St. Louis Community College Forest Park occupies much of the former Forest Park Highlands amusement park site followed by the St. Louis Science Center and St. Louis University High School.

DOGTOWN

Located south of the Park, the area known as Dogtown consists of the three city neighborhoods of Hi-Pointe, Clayton-Tamm, and Franz Park. The neighborhood is predominantly residential and includes a large number of bungalows built in the 1920s and 1930s, small duplexes, and apartment buildings. Local retailers, bars, and restaurants are concentrated near the intersection of Clayton and Tamm avenues, while auto-oriented commercial uses are located along of Hampton Avenue. Residents of the area include singles, families, and long-term senior residents.

DEMUN

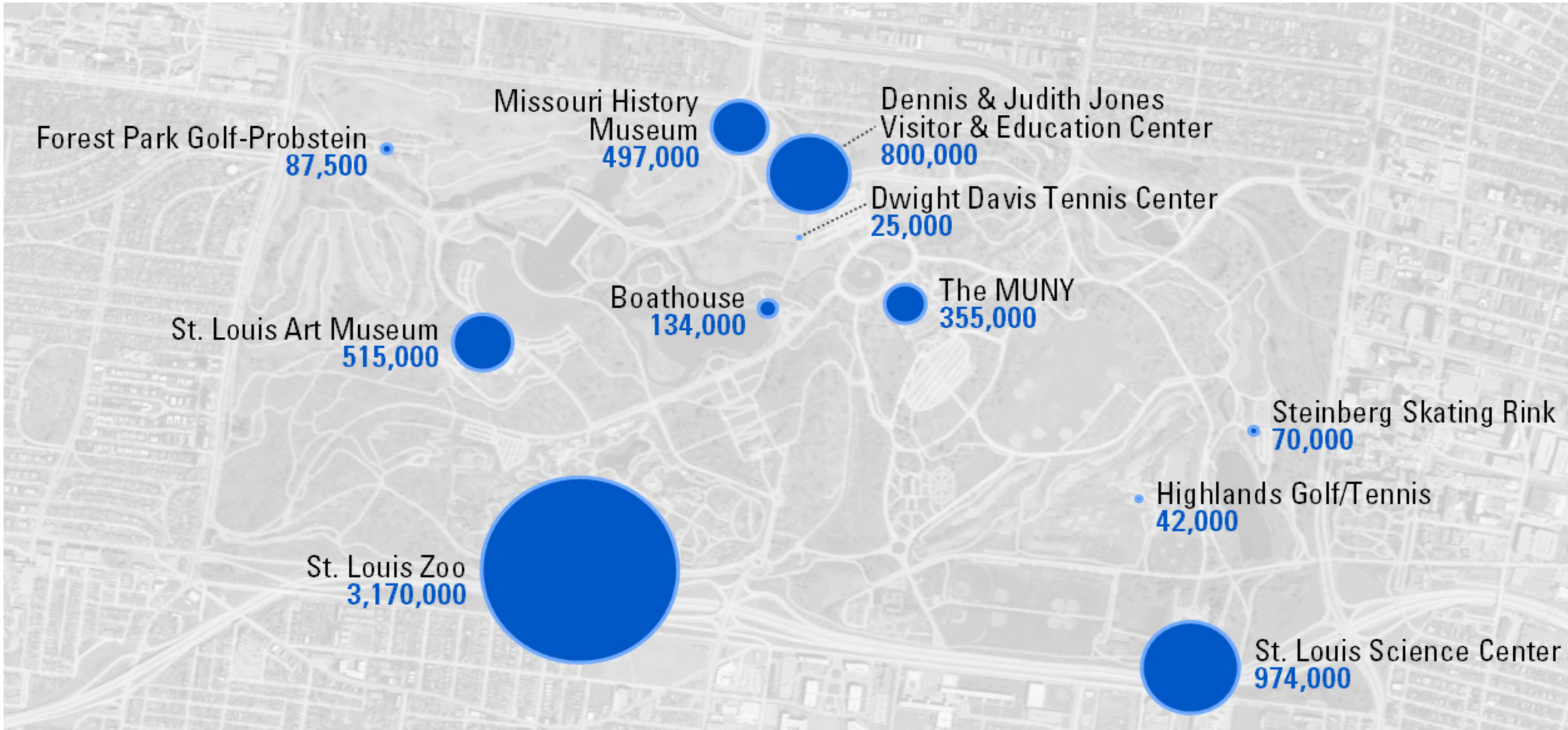
Demun straddles the boundary between the city and county of St. Louis and is defined in large part by the presence of Washington University. Most of the institution's 15,000 students and 5,000 staff are concentrated on the 120-acre main campus located between Skinker and Big Bend boulevards at the northern edge of the neighborhood. Other institutional uses in the area include Fontbonne University and Concordia Seminary, while commercial uses are located along Clayton Road to the south. Historic, expansive single-family homes positioned along tree-lined residential streets occupy most of the central portion of the neighborhood, while condos and apartments are concentrated near DeMun Avenue and along Skinker facing the Park.

SKINKER DEBALIVIERE

The primarily residential Skinker DeBaliviere neighborhood bounds the northwest corner of the Park between its namesakes of Skinker Boulevard and DeBaliviere Avenue. MetroLink's Blue Line roughly bisects the neighborhoods diagonally between Forest Park Parkway in the southeast to Delmar Boulevard to the north, while Metro's bus depot occupies more than ten acres of the neighborhood's northeast corner. Two-story brick homes and two- to four-family apartment buildings constructed in the early 1900s are the most common building type. The area immediately north of Forest Park is known as the Catlin Tract, which consists of historic mansions with lots that extend to Forest Park Parkway. This tract creates significant pedestrian barriers to and from the heart of the neighborhood to the north.

DEBALIVIERE PLACE

Forming a portion of the northern border of the Park between DeBaliviere Avenue and Union Boulevard, DeBaliviere Place includes a large number of stately historic homes similar to the neighboring Central West End. Gated streets are common, and single-family residences along the landscaped boulevards of Kingsbury Place and Washington Terrace have recently sold for $700,000 or more. Several condominium buildings form the southern boundary of the neighborhood, while a small amount of retail, a private high school, and mixed commercial uses are located along the western boundary separating DeBaliviere Place from Skinker DeBaliviere.


Missouri History Museum
497,000
Dennis & Judith Jones Visitor & Education Center
800,000
Forest Park Golf-Probstein
87,500
Dwight Davis Tennis Center
25,000
Boathouse
134,000
The MUNY
355,000
St. Louis Art Museum
515,000
Steinberg Skating Rink
70,000
Highlands Golf/Tennis
42,000
St. Louis Zoo
3,170,000
St. Louis Science Center
974,000

OVERVIEW

Forest Park attracts approximately 13 million visitors annually. The anchor institutions and Park partners track attendance, which represented just under six million of these visitors in 2016. City of St. Louis oversees permitting of Park events and festivals, which attracted an estimated 941,000 attendees in 2016. Understanding the visitation patterns of the remaining six million visitors is more challenging given the limited availability of data. Historically, total visitation counts have been based on traffic volume and not necessarily counts of joggers, cyclists, and picnickers. However, given the lack of alternative sources, the following breakdown of visitors per "experience" is based on the best available data and reasonable assumptions.

VISITOR EXPERIENCE

ARTS & CULTURAL INSTITUTIONS (831,000 VISITORS)

The St. Louis Art Museum (SLAM) is one of the region's premiere cultural attractions and the $130 million expansion of its East Building in 2013 (aka "Modern Wing") has led to a increase in annual attendance. The Muny is an 11,000-seat amphitheater with performances running most nights from late-May to early-July that attract more than 350,000 spectators.

FAMILY AND EDUCATIONAL ATTRACTIONS (4,641,000 VISITORS)

Over one-third of the visitors to Forest Park come for its family and educational attractions, including the St. Louis Zoo, St. Louis Science Center, and Missouri History Museum. The St. Louis Zoo is often ranked as the top visitor attraction in the region and is one of the only zoos in the country with free admission.

SPECIAL EVENTS & FESTIVALS (941,000 VISITORS)

In addition to events hosted by the anchor institutions, there are dozens of events in Forest Park throughout the year that attract hundreds of thousands of visitors. These events include road races and walks, music festivals and concerts, movies, parades, and sports. It was estimated that in 2016, these events and festivals attracted just under 950,000 attendees. Approximately one-third of these visitors attended two multi-day events that included the Balloon Glow and Great St. Louis Balloon Race (est. 180,000 attendees) and Fair St. Louis and Fireworks (est. 150,000 attendees).

ACTIVE RECREATIONAL ACTIVITIES & SPORTS (4,304,000 VISITORS)

It is assumed that of the more than six million estimated visitors not included in the visitor counts of the anchor institutions/partners or events/festivals, approximately two-thirds engage in physical activity including team sports such as softball, baseball, cross country, and rugby as well as running, rollerblading or cycling. When including the visitor counts at Probstein Golf Course, Highlands Golf-Tennis, and Dwight Davis Tennis Center, there are an estimated 4,304,000 visitors that engage in active recreation annually.

PASSIVE RECREATIONAL ACTIVITIES (2,281,000 VISITORS)

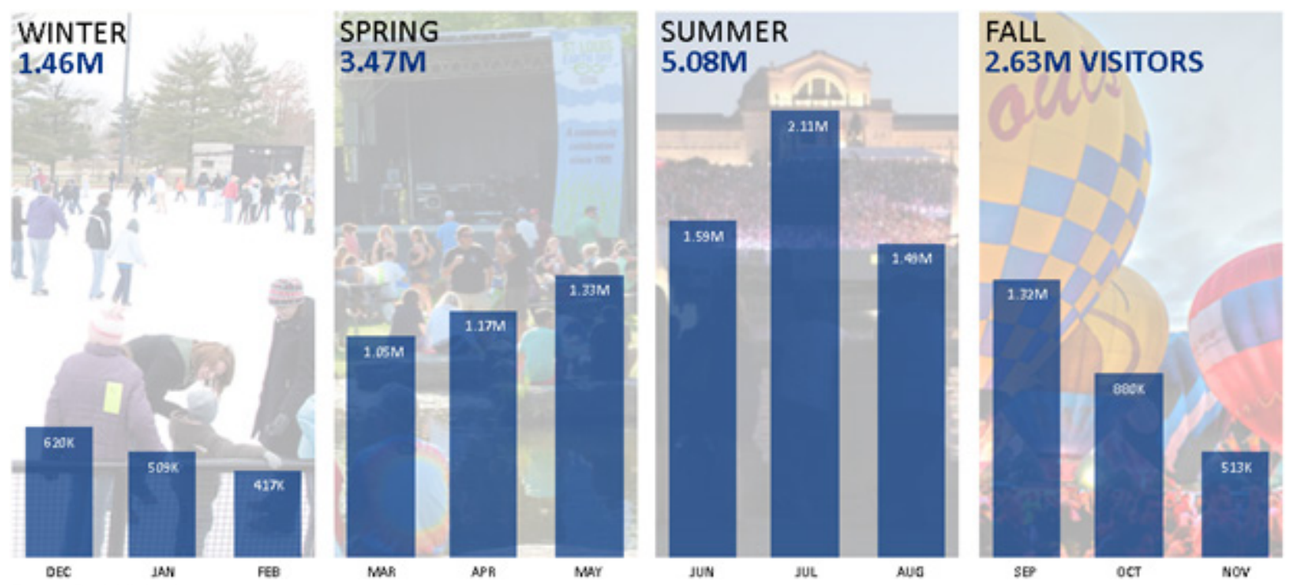
Of the more than six million estimated visitors not included in the visitor counts of the anchor institutions/partners or events/festivals, it is assumed that approximately one-third engage in passive recreational activities, such as hiking, birdwatching, strolling, and picnicking. Additionally, the seasonal recreational visitors to the Boathouse (157,000) and Steinberg Skating Rink (70,000) brings the total estimated number of passive recreational visitors to 2,281,000, or just under 18 percent of all visitors to the Park.

SEASONAL ATTENDANCE

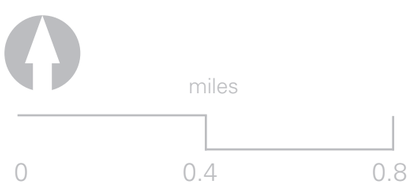
Based on monthly attendance reporting from the Park partners and institutions, and special event and festival schedule from the city of St. Louis, it is assumed that active and passive recreational visitors follow similar attendance patterns with the highest proportion of visitors in the summer months. Based on these assumptions, approximately 40 percent of all Forest Park visitors come from June through August. In June and July, the St. Louis Zoo alone attracts nearly a million visitors.

SPATIAL ATTENDANCE

Mapping the annual attendance of the Park partners and anchor institutions shows which portions of Forest Park are "weighted," putting a strain on road networks and circulation patterns. The southwest and central portions of the Park have the highest concentrations of visitors, whereas the northeast section has less activity given the lack of anchor institution. Most of the visitors to the southeast section are on the south side of Interstate 64 at the St. Louis Science Center or seasonal during winter at the Steinberg Skating Rink. There is no data available to inform spatial visitation patterns for active and passive recreational visitors.



Forest Park Visitation



RETAIL DISTRICTS & CLUSTERS

Legend

1 Delmar Loop (465,500 SF)

2 Skinker Station (18,000 SF)

3 DeMun (31,000 SF)

4 Clayton Road (330,400 SF)

5 Hi-Pointe (37,300 SF)

6 Dogtown (76,200 SF)

7 Hampton Avenue (62,200 SF)

8 Highlands (6,100 SF)

9 The Grove (266,500 SF)

10 Central West End (520,100 SF)

11 DeBaliviere (38,500 SF)

Areas requiring an in-depth study

St. Louis City Limits

miles

0 0.4 0.8

OVERVIEW

Though nearly two million square feet of retail space is contained within a number of distinct nodes close to Forest Park, limited pedestrian access and connectivity funnels Park users towards only a handful of easily-accessed retail destinations. While better-quality, walkable commercial districts in the Delmar Loop, Central West End, and Forest Park Southeast have performed well in recent years, difficulty accessing Forest Park directly from these areas creates a physical barrier between retail and Park experiences. Improved connectivity within the retail zones would reduce pressure on the Park without requiring improvements within the Park. Additionally, the highly seasonal nature of visitation in the Park suggests the need for more "pop-up" retail uses/amenities rather than permanent improvements.

PRIMARY RETAIL DISTRICTS

CENTRAL WEST END

Retail in the Central West End is largely concentrated along Euclid Avenue and Maryland Plaza. Though some retail storefronts are located throughout the neighborhood, bars and restaurants are predominant. Current average lease rates are some of the highest in St. Louis—more than $20 per square foot—and less than three percent of the current inventory of 700,000 square feet is vacant.

The highly desirable residential real estate in the neighborhood creates a built-in market of higher-end consumers. Upscale restaurants are common, as well as niche uses such as furniture store specializing in modern imports and a boutique pet store. The presence of the BJC campus, which includes more than 15,000 daily employees, creates a complimentary daytime retail demand pool. The city's only Whole Foods is located on the ground floor of the Orion apartment development, and the region's first Shake Shack is slated to be completed in 2017 in the first floor of the newly-built Euclid development.

DELMAR LOOP

The Loop commercial district stretches about 0.75 mile from Rosedale Avenue in St. Louis to Kingsland Avenue in neighboring University City. Originally the turn-around point for the street car line, The Loop is one of the region's most visible entertainment districts, and includes several concert venues as well as numerous bars and restaurants. Shopping along the corridor also includes a mix of boutique clothing stores, bookstores, and record stores.

The area is popular among Washington University students, while prominent venues such as The Pageant and Tivoli Theatre attract visitors from across the region throughout the week. The increasing popularity of this district has manifested itself most recently in the nearly-completed Loop Trolley, a two-mile street car line running between Delmar and Forest Park that will create a better connection between the Park and The Loop.

FOREST PARK SOUTHEAST

The stretch of Manchester Avenue between Kingshighway and Vandeventer Avenue forms a walkable commercial district anchoring the larger Grove neighborhood. A diverse collection of bars and restaurants lining the corridor are mixed with service-oriented commercial uses and office space occupied by community development agencies and design firms. Retail rents in the area remain relatively affordable—around $9.50 per square foot, on average—signaling additional opportunity for growth.

OTHER RETAIL CLUSTERS

HI-POINTE

A small neighborhood retail node along the western boundary of Dogtown includes the historic Hi-Pointe movie theater, several restaurants, and the Cheshire hotel.

DOGTOWN

Retail uses in Dogtown are centered on the intersection of Clayton and Tamm avenues about two blocks south of Interstate 64 and two blocks west of Hampton Avenue. The early 1900s brick storefronts retain much of their century-old character, and commercial spaces are fully-occupied by a mix of bars, restaurants, and local services.

DEBALIVIERE

Retail uses along DeBaliviere Avenue vary significant in terms of quality and character. Streetfront retail facing the DeBaliviere Metrolink Station quickly turns to more auto-oriented uses moving north including a dialysis center and strip retail set back behind surface parking.

HIGHLANDS

Retail uses in the Highlands are located on the ground floor of the office buildings that were built on the site in the mid-2000s. Though somewhat institutional in appearance, an eclectic mix of a coffee shop, yoga studio, and Jimmy John's sandwich shop serve the residents of the adjacent apartment communities as well as daily employees of the surrounding offices and neighboring St. Louis Community College.

SKINKER STATION

A small node of mixed-use retail occupies the northeast corner of the intersection of Skinker Boulevard and Forest Park Parkway adjacent the Metrolink's Skinker Station. The building includes the popular Kayak's Coffee, and two small restaurants on the ground floor, with the second and third floors occupied by offices of Washington University.

DEMUN

A small neighborhood commercial node is located along DeMun Avenue between Northwood and Southwood avenues. Storefronts face Concordia Park—part of the Concordia Seminary campus—while the 1920s building stock is well-occupied for both commercial and residential uses.

HAMPTON AVENUE

Forest Park's primary gateway is defined by auto-oriented commercial development lining Hampton Avenue. Fast food, gas stations, liquor stores, and car dealerships are all present, and the six-lane roadway carries significant traffic during rush hour and weekends, limiting walkability.

CLAYTON ROAD

Similar to Hampton Avenue, auto-oriented uses dominate the portion of Clayton Road stretching from the park's edge to Big Bend Boulevard, including a large retail center anchored by Schnucks. The corridor serves a diverse market including portion of Clayton, Richmond Heights, and St. Louis.

EMPLOYMENT CENTERS

Legend

1 Washington University—North Campus (300 employees)

2 Washington University—Danforth Campus (4,200 employees)

3 St. Mary's Hospital (2,100 employees)

4 Highlands (800 employees)

5 St. Louis Community College (1,000 employees)

6 Barnes Jewish Hospital (15,000 employees)

7 Cortex (3,800 employees)

St. Louis City Limits

miles

0 0.4 0.8

OVERVIEW

About 28,000 daily non-retail employees work in five distinct employment centers surrounding the Park. The presence of these employees creates a large captive market for potential development along Forest Park's periphery and helps to maintain vibrancy and density throughout the week.

Two of the St. Louis region's five largest employers maintain some presence in the neighborhoods surrounding the Park, including the two primary employment centers for BJC Healthcare and Washington University. Often, the Park's main role for peopleis as a part of their daily commute or a free parking lot. While there are inevitable restrictions upon workday schedules that limit the ability of some employees to visit the Park before, after, or during the workday, facilitating access between employment nodes and the Park is key. Forest Park can function as a quiet midday respite from work, or a destination for lunch or after-hours events. Though at times underutilized, the green space of Forest Park provides indirect benefits to employers in the area that cannot be matched by suburban office parks or Downtown office buildings.

EMPLOYMENT SUMMARIES

WASHINGTON UNIVERSITY IN ST. LOUIS

The 169-acre Danforth Campus of Washington University in St. Louis is the institution's primary campus, home to the majority of the student body, and the bulk of academic programs. Washington University's north campus is located at Rosedale Avenue and Delmar Boulevard and houses a variety of additional administrative functions.

Since parking on-campus can be costly at Washington University, parking in the unregulated free spots within Forest Park is a possible alternative. Currently, Forest Park's parking management system does not prevent such spillover. However, regulations on neighborhood streets like Lindell Boulevard prevent student parking during the daytime hours. The easy pedestrian linkage between the western edge of the Park and Washington University's campus leads to market potential for some development types, though much of this space adjacent to the campus within the Park is occupied by the Probstein Golf Course.

CORTEX

In 2002, Cortex was founded by a partnership of Washington University, Saint Louis University, the University of Missouri-St. Louis, and the Missouri Botanical Garden with an initial investment of $29 million. The goal was to leverage the development potential of the St. Louis region's major higher educational, research, and health care institutions. Today, Cortex is an internationally recognized urban mixed-use center of research, innovation, and business growth that adds both jobs and wealth to the St. Louis region. Since its inception, Cortex has completed or has under construction 1.6 million square feet of new and rehabilitated space totaling $500 million of investment, generating 3,800 new jobs in the district.

ST. LOUIS COMMUNITY COLLEGE (STLCC)

St. Louis Community College Forest Park is the state's largest provider of health technology training, offering 13 medical programs and certifications. In addition to about 1,000 faculty and staff, the Forest Park location boasts a total enrollment of just over 8,000 students.

Although students and faculty at the community college can see the Park from campus, the campus is cut off from the Park by Interstate 64. Students who wish to access the Park from campus must travel west to Hampton or east to the pedestrian underpass near the Science Center in order to cross the highway—a significant detour.

HIGHLANDS

The offices at the Highlands include a variety of financial, marketing, and real estate firms, while a mix of commercial and retail users occupy some first floor spaces. The western building was constructed in 2001 during the initial redevelopment phase of the site, while a second building to the east followed in 2008.

Though employees in this area are located near Forest Park's southern boundary—particularly the Aviation Fields and, to a lesser extent, the Jewel Box—lack of immediate access points funnels potential visitors towards the highly trafficked Hampton entrance via car.

BARNES JEWISH CHRISTIAN HEALTHCARE (BJC)

BJC Healthcare is the largest employer in the St. Louis region and maintains its largest concentration of facilities and employees in the Central West End. Barnes-Jewish Hospital, St. Louis Children's Hospital, Goldfarb School of Nursing, and the St. Louis Rehabilitation Institute are all located in the area, in addition to numerous research labs, physicians' offices, and administrative services. The Washington University School of Medicine is immediately north of the main Barnes-Jewish building, while the Shriner's Children's Hospital is just east.

About half of all non-retail workers in the areas surrounding the Park are employed by BJC, with most immediately across from the Park's eastern boundary. Though these employees have the greatest potential to engage with the Park, the nature of their work affects this ability significantly. Administrative staff could likely access the eastern portions of the Park during a lunch break or after working hours. Most medical positions, however—doctors, nurses, and technicians—often lack the freedom to leave facilities during working hours, or work non-traditional 12 hour shifts. Nonetheless, a large captive market of nearly 15,000 employees could provide significant support for new commercial and retail uses around the Park's periphery.

RECENT / PLANNED DEVELOPMENT

Legend

Key Development Sites

1 Former St. Luke's Hospital

2 Forest Park-DeBaliviere Metrolink Station Area

3 Former Forest Park Hospital

4 Drury Development Site

Multi-Family Development

5 West End City Apartment (82 units)

6 100 N. Kingshighway (305 units

7 Citizen Park (217 units)

8 The Orion (177 units)

9 The Euclid (72 units)

10 Aventura at Forest Park(150 units)

11 Gateway Lofts (56 units

12 Encore at Forest Park (246 units

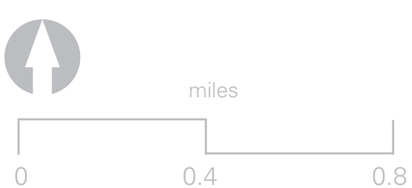
Capital Improvement/Expansion

13 Washington University Medical Center

14 Shriner's Hospital

15 Washington University Danforth Campus East End Expansion

St. Louis City Limits



OVERVIEW

The St. Louis region has recently experienced a significant uptick in multi-family construction, much of which has occurred within the neighborhoods proximate to the Park. Despite limited projected regional population growth, the areas near Forest Park present the best market opportunities for higher-density development moving forward.

According to Marcus and Millichap, the St. Louis region added about 1,600 new apartment units in 2016, with an additional 2,500 units scheduled for completion this year. The city has captured a significant share of this development, issuing permits for nearly 1,000 multi-family units last year, a ten-year high. Specifically, five major apartment complexes totaling 563 units are currently under construction, while the 217-unit Citizen Park in the Central West End was also recently completed.

KEY DEVELOPMENT SITES

1 ST. LUKE'S HOSPITAL SITE

Though several proposals have been made, the most visible redevelopment effort of the former St. Luke's Hospital site has been the "Delmar Divine", a mixed-use development to include 180,000 square feet of office space for area non-profits as well as 160 apartments and ground- floor retail space. The $90 million proposal is a joint effort between Clayco, Washington University, and former Build-A-Bear CEO Maxine Clark.

2 FOREST PARK-DEBALIVIERE METROLINK SITE

As one of the busiest stations within the MetroLink system, the existing Metro-owned parking lot and adjacent properties at the Forest Park-DeBaliviere station represent one of the region's best opportunities for Transit Oriented Development (TOD). Two parcels are owned by Metro and are improved with surface parking and a bus drop-off circle, while the four remaining parcels are under separate private ownership.

3 FOREST PARK HOSPITAL SITE

The St. Louis Zoo acquired the 13.5-acre site of the former Forest Park Hospital in 2012 with plans to expand parking and establish a "South Campus" including an educational center, research and laboratory space, exhibit area, and commercial space. A seven-story parking structure was retained, while remaining hospital buildings were demolished.

4 DRURY DEVELOPMENT SITE

Drury Development Corporation acquired 15 residential parcels along the eastern edge of Kingshighway near the Interstate 64 interchange in 2014, and is now seeking to demolish the corner building along Oakland Avenue. Though details are not confirmed, this is likely the most recent step in long-standing efforts since 2008 to develop a new hotel at the site.

RECENT/PLANNED MULTI-FAMILY DEVELOPMENT

5 **West End City Apartments** is a modern 82-unit expansion to the historic Congress, Senate, and Westmoreland apartments located along Union Boulevard near Forest Park Parkway. Construction also included expanded common area amenities including a pool and fitness center The original buildings were completed between 1925 and 1926, with the new addition extending the community's footprint to the west across a former surface parking lot.

6 **100 N. Kingshighway** is a planned 36-story, 305-unit apartment tower to be located immediately east of the Park at the intersection of Kingshighway and West Pine. Designed by Studio Gang, the building will be the tallest in the Central West End and its scalloped design is a distinct, modern, departure from the existing structures in the area.

7 **Citizen Park**, developed by Opus, will be a 12-story building with 217 studio, one-, and two-bedroom apartments, as well as two floors of penthouse apartments. The building also includes street-level retail.

8 **The Orion** is a recently-completed seven-story building that includes 177 one-, two-, and three-bedroom apartments and a Whole Foods Market on the ground floor.

9 **The Euclid** is located directly across from The Orion, and is being developed by Koman Group. When completed in summer 2017, the project will include 72 apartments over 12,000 square feet of office space and street level retail (including St. Louis' first Shake Shack location).

10 **Aventura** was completed in late 2013 offering 150 units and marketed heavily to medical professionals and students at the nearby Washington University School of Medicine. Its low-rise suburban design is atypical given its location near the northern edge of Forest Park Southeast.

11 **Gateway Lofts** will add 56 units on the southwest corner of Manchester and Newstead Avenues in the western edge of Forest Park Southeast, directly across from the Urban Chestnut brewery.

12 **Encore at Forest Park** is the third and final residential phase of The Highlands development along the Interstate 64 corridor. It will include 246 one-, two-, and three-bedroom units and is located within a larger mixed-use development including a hotel, retail, and office space.

RECENT/PLANNED CAPITAL IMPROVEMENTS

13 WASHINGTON UNIVERSITY MEDICAL CENTER

The long-term Campus Renewal Project is a $1 billion renovation and construction investment targeting all three of the center's component institutions. This includes significant expansion to current patient service areas—including a new inpatient tower and clinical expansion for the cancer center—as well as the opening of a new administrative office building.

14 SHRINER'S HOSPITAL

The new $50 million, 90,000 square foot Shriner's Hospital opened in mid-2015 and overlooks Interstate 64 near Clayton and Newstead avenues. The three-story facility includes 12 inpatient beds as well as guest rooms for families.

15 WASHINGTON UNIVERSITY DANFORTH CAMPUS EAST END EXPANSION

Focusing on portions of the Danforth Campus east of Brookings Halls, planned expansion efforts will include three new academic buildings, two new multi-use facilities, an underground parking garage, and expanded green space. Surface parking lots currently occupy much of the expansion area, which faces Skinker Boulevard near the park's northwest corner.

EXISTING CONCESSIONS & SEASONAL/UNDERUTILIZED STRUCTURES

Legend

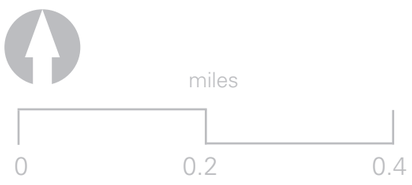
Existing Concessions

1. St. Louis Zoo (various concessions)
2. St. Louis Art Museum (Panorama and cafe)
3. Probstein Golf Course (Ruthie's Bar and Grill)
4. Missouri History Museum (Bixby's)
5. Dennis & Judith Visitor and Education Center (Forest Perk Cafe)
6. Boathouse Forest Park
7. St. Louis Science Center (various concessions)
8. Highlands Golf & Tennis (Keagan's Restaurant)

Seasonal/Underutilized Structures

9. Comfort Station
10. Cabanne House
11. Forest Park Hatchery
12. Steinberg Skating Rink
13. South Central Fields Comfort Station (under construction)
14. Aviation Fields Concession Stand
15. Maintenance Buildings

1/4 Mile Walking Radius
St. Louis City Limits



EXISTING CONCESSIONS

In order to inform future planning efforts related to retail and concession enhancements in Forest Park, it is important to recognize that certain portions of the Park are currently well-served by retail amenities and concessions. In many cases, however, the on-site amenities directly serve patrons of the institution and have are less welcoming to a broader universe of Park visitors. For example, retail and concessions amenities at the St. Louis Zoo are primarily positioned for zoo visitors. Other retail and food and beverage amenities at the anchor institutions and Park partners would certainly support expanded demand and foot traffic, although access and parking is a primary deterrent.

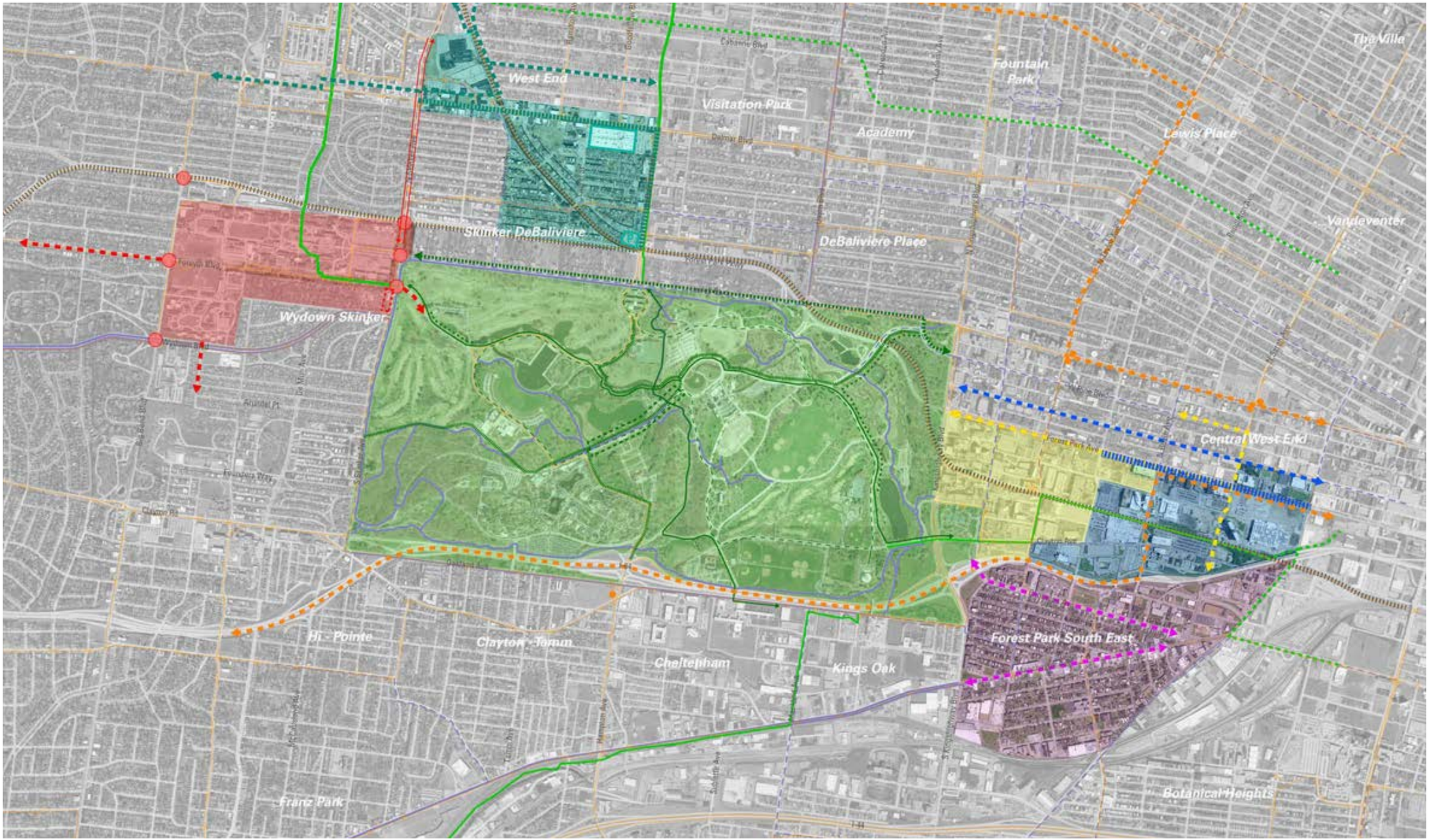
In general, the Boathouse and Forest Perk Café at the Visitor Center are the only amenities that cater towards all Park visitors; however, visitors to the Boathouse represent only one percent of total Forest Park visitors annually, implying that there are opportunities to better position existing retail and concessoins at the Park or expand service offerings to capture a larger share of visitor spending.

Since on-site spending at each of the existing food, beverage, and concessions offerings at the anchor institutions or Park partners directly supports their operations, it is critical that any expansion of future retail offerings 1) expands offerings within the Park, 2) captures a larger share of demand, and 3) does not directly compete with existing concessions offerings.

SEASONAL AND UNDERUTILIZED STRUCTURES

Given limitations on new development in the Park as specified in the 1995 Forest Park Master Plan, there may be opportunities to leverage existing structures in the Park that are underutilized and/or used seasonally for potential expansion of concessions, retail amenities or programming. These structures include the Steinberg Skating Rink, which draws 60,000 to 70,000 visitors from November through February, but remains dormant for spring, summer, and early fall, the Forest Park Fish Hatchery building, which is used occasionally for educational programming and parks maintenance, the Cabanne House, which is currently used as a rental event space, and the comfort station near Grand Drive that is currently vacant. Other seasonal strictures include the concession stand at Aviation Fields that is only used when team sports are in session as well as the South Central Fields comfort station that will offer seasonal concessions. Though the maintenance buildings located just west of the Aviation Fields are currently in use to support Park maintenance and operations, there may be opportunities to move some of these functions elsewhere and repurpose the buildings for an alternative use.

EXISTING NEIGHBORHOOD PLANS



LEGEND

- Existing Bus Route
- Existing Bus Stop
- Existing Bike Trail
- Bike St. Louis Proposed Trail
- Great Rivers Greenway (GRG) Trail
- Proposed GRG Trail
- Existing Railroad Line

PLANNING STUDY ANALYSIS

The design team analyzed a series of planning documents that provided baseline knowledge as to how the community imagines the area evolving in the future. Using this information, the team will be able to integrate existing concepts into the Great Streets study to create a seamless, implementable plan for Forest Park and ultimately provide better accessibility to Forest Park.

FOREST PARK CONNECTIVITY AND MOBILITY STUDY, 2016

- Suggested commuter bike routes
- Proposed Cycleway
- Suggested street bulb-outs/Traffic calming
- Suggested future transit lines
- Removal of on-street parking
- Suggested time-limit parking

The Forest Park Connectivity and Mobility Study was vital in informing the partners and the community about the connectivity issues of the Park. Nine strategies were derived from this study to improve pedestrian and transit level mobility.

- Improve connectivity with surrounding neighborhoods for pedestrians and bicyclists
- Strengthen east-west and north-south connections through the Park for cyclists
- Improve the dual path system
- Reduce conflicts for on-street cycling
- modes of transit
- Improve connections with other modes and destinations for pedestrians and bicyclists
- Improve parking function within the Park
- Enhance real-time communications

Using these principles to inform and guide the initial planning of the Great Streets study, the design team can now prioritize the areas of greatest concern and create a plan that responds to the concerns raised in the mobility study while layering in findings from stakeholder and public meetings.

The study suggests areas for improved pedestrian circulation as well as introducing commuter bikeways to allow direct travel through the Park. Vehicular parking was another key concern within this study which aimed to remove or limit on-street parking to encourage more transit users and reduce congestion caused by large events.

FOREST PARK SOUTHEAST NEIGHBORHOOD VISION, 2015

- Suggested pedestrian connectivity improvement locations
- Desire to introduce bikeshare, transit shuttles and greenway

The Southeast Neighborhood is currently being revitalized as an up and coming district adjacent to Forest Park. As this area continues to develop, there is a desire to introduce bicycle share programs, transit shuttles, and greenways to further connect the neighborhood past Interstate 64 with the Cortex District and Forest Park.

Moving forward with the Great Streets Study, it is important to note this increased mobility interest and to integrate pedestrian infrastructure along the southeast corner of the Park.

URBAN PLANNING ROUNDTABLE COMPREHENSIVE TRAFFIC & MOBILITY STUDY, 2015

- Bike Route for Future Consideration

The important takeaway with this Mobility Study is the importance of Forest Park Avenue as a key pedestrian street for the Cortex area. With this in mind, there needs to be stronger connections from this street into Forest Park. Bikeways were also proposed in order to better serve those in this node.

WASHINGTON UNIVERSITY MOBILITY STUDY, 2016

- Suggested satellite campus bicycle connector
- Suggested pedestrian crossing improvements
- Suggested street bulb-outs/Traffic calming

This mobility study aimed to connect the north and south portions of the Danforth Campus using a pedestrian corridor as well as separated bicycle paths. The plan also promotes the implementation of strategic bicycle crossings across Skinker Boulevard towards Forest Park.

This plan creates an opportunity to work with Washington University to meet mutual goals of this Great Streets study and the campus planning study.

RAPID TRANSIT CONNECTOR STUDY, 2015

- Suggested bus rapid transit line
- Suggested bus rapid transit stop

The goal of this connector study was to work closely with the residents of St. Louis to determine where a Bus Rapid Transit (BRT) line should be implemented to serve those commuting or visiting downtown and the surrounding suburbs.

Two of the planned BRT lines run near Forest Park on the northwest side near the Cortex District as well as Interstate 64. Integrating the planning of these BRT lines can help inform where these stops should and should not be as well as the routing of the line itself. The integration of this transit system with other existing modes would result in stronger connections into Forest Park from the entirety of St. Louis.

CORTEX DISTRICT TRANSIT ORIENTED DEVELOPMENT STUDY, 2012

- Preferred bike route location
- Road perceived as unfriendly to pedestrians
- Lack of district-wide parking strategy

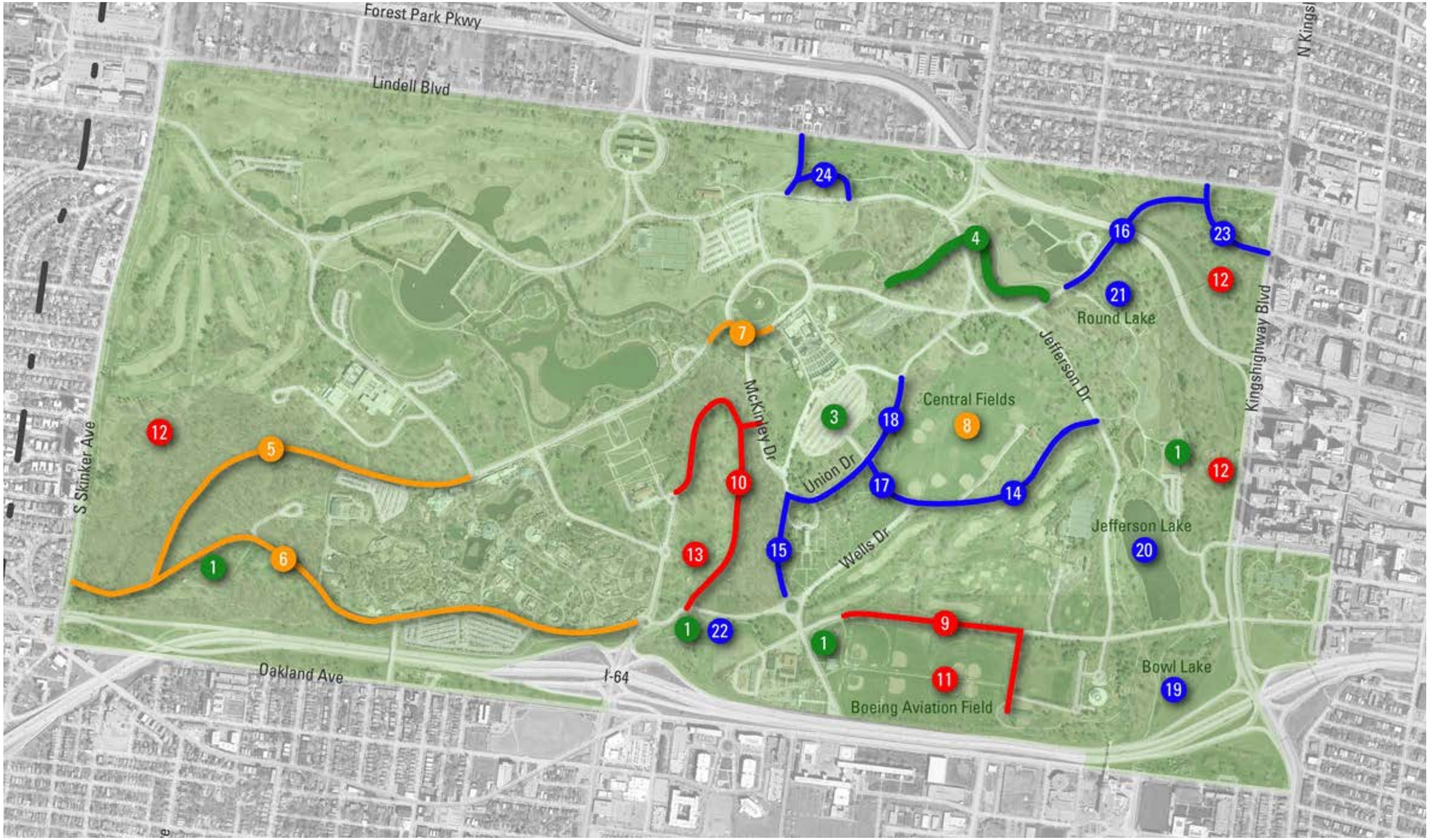
The Cortex TOD study recognizes a district wide parking issue which could lead to increased parking in Forest Park. Interestingly, the Cortex study claims that Forest Park Avenue is perceived as unsafe to pedestrians and recommends a east-west bicycle crossing along Laclede Avenue to resolve these concerns of pedestrian safety.

DELMAR LOOP / FOREST PARK - DEBALIVIERE TRANSIT ORIENTED DEVELOPMENT PLAN, 2013

- Suggested Bike Connection
- Metro Bus Garage to be relocated Potential Future Parking
- Existing Bike Trail

The Delmar Loop & Forest Park -DeBaliviere Transit Oriented Development Plan (TOD) looks to revitalize the area between the two stations as a vibrant, mixed-use node to attract those using public transportation while enticing new riders.

The TOD plan recommends an increase in both private and public parking as well as introducing more bicycle lanes to better serve the growing area. With Forest Park to the south, increases in parking could potentially allow for more regulated or even removal of congested on street parking near the Washington University Campus. The recommended bicycle connectors are intended to better connect the communities north of Delmar Boulevard, but can be combined with planned infrastructure for Forest Park to further link the area.


Forest Park Pkwy
Lindell Blvd
N Kingshighway Blvd
S Skinker Ave
McKinley Dr
Union Dr
Jefferson Dr
Wells Dr
Oakland Ave
I-64
Round Lake
Central Fields
Jefferson Lake
Bowl Lake
Boeing Aviation Field
24
4
16
23
12
21
7
3
18
8
1
12
5
10
17
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13
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19

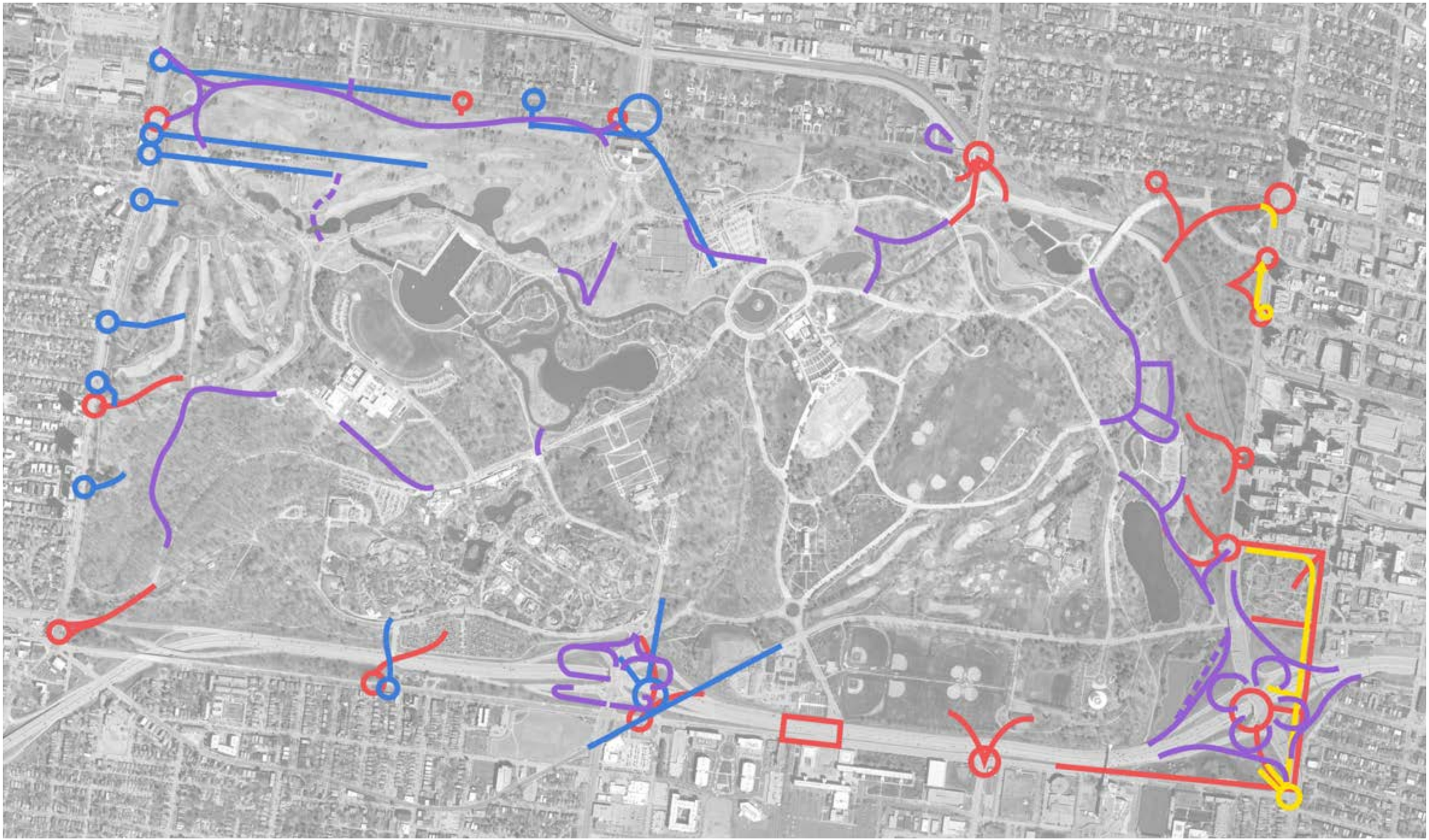
LEGEND

- Completed Projects
- Under Construction
- In Design Phase
- Future Project

Data Source: Projects are from the 2012 Stormwater Master Plan.
Project status information is from Forest Park Forever

PROJECT NUMBER	PROJECT NAME/DESCRIPTION	STATUS
1	Comfort station upgrades phase 1 (urgencies at specific sites)	Completed 2014
2	Park-wide signage	Completed 2014
3	Festival and parking plaza at the Upper Muny	Completed 2015
4	Riparian/shoreline landscape restoration	Completed 2014
5	Government Drive (Wells to Fine Arts)	Under Construction in 2017
6	Wells Drive part 1 (Skinker to Tamm & west of Hampton)	Under Construction in 2017
7	Liberal Arts Bridge and Muny tributary	Under Construction in 2017
8	Central Fields	Under Construction in 2017
9	Aviation Field access (parking along Clayton Road, road to SLMP stables)	In Design Phase, Target Start Year:2018
10	Concourse & Carr Lane Drives with Cross Park Connector Trail	In Design Phase, Target Start Year:2018
11	Aviation Field (complete lighting, irrigation, access road)	In Design Phase, Target Start Year:2018
12	Miscellaneous trails (various sites)	In Design Phase, Target Start Year:2018
13	Nature Playscape	In Design Phase, Target Start Year:2018 or 2019
14	Wells Drive part 2 (Macklind to Jefferson)	Anticipated Project, 2018 Target
15	McKinley Drive (Wells to Union)	Anticipated Project, 2018 Target
16	Grand Drive (Columbus Bridge to West Pine)	Anticipated Project, 2020 Target
17	Macklind Drive (Union to Wells)	Anticipated Project, 2018 Target
18	Union Drive (McKinley to Theatre)	Anticipated Project, 2018 Target
19	Bowl Lake	Anticipated Project, 2019 Target
20	Jefferson Lake	Anticipated Project, 2019 Target
21	Round Lake	Anticipated Project, 2019 Target
22	Comfort station upgrades phase 2 (comfort stations and park amenities)	Anticipated Project, 2019 Target
23	West Pine Boulevard	Anticipated Project, 2020 Target
24	Cricket Drive and Linear Meadows	Anticipated Project, 2021 Target

HISTORIC PARK VEHICULAR ENTRIES



Source: Aerial, City of St. Louis Public Datasets

LEGEND

- 1995 Master Plan Road Changes
- 1995 Existing Conditions Map
- 1904 World's Fair Entries
- 1903 Kingshighway Plan Entries
- 1876 Kern Plan Entries

THE KERN PLAN

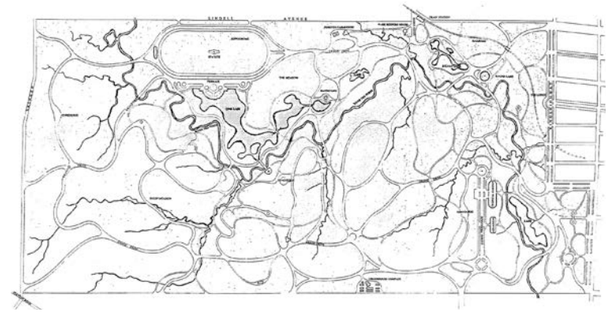
The original plan, designed by Maximilian G. Kern, prescribed 20 entrances into the Park, concentrated primarily on the east side which was closer to developed areas. Major entrances to the Park were located at the Park's northeast and southeast corners. The surrounding environs were mostly farmland and virgin forest which inspired both the name of the Park and the pastoral, winding nature of the paths and carriageways winding through the Park.

KESSLER AND FOREST PARK

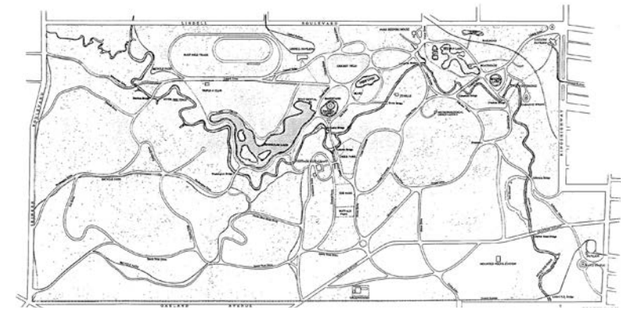
George Edward Kessler proposed forming "a well-defined and well-connected system" of major St. Louis Parks, including Forest Park, Tower Grove Park, Carondelet Park, and O'Fallon Park. The proposed system centered on a boulevard design for Kingshighway that he envisioned would benefit the city economically, provide recreation, and boost civic pride. Kessler also designed the site of the Louisiana Purchase Exposition also known as the 1904 World's Fair which spurred traffic and development on the north and west sides of the Park. The sprawling fairgrounds extended west of the Park into what is now Washington University, though few structures from the Exposition remain in the Park today.

LATE 20TH CENTURY

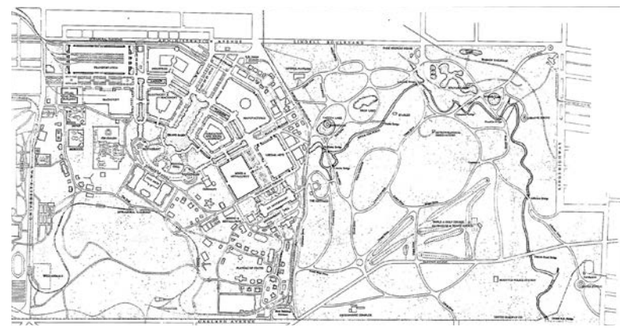
The Forest Park Master Plan was adopted in 1995. It outlined the history of the Park and a comparison of approaches regarding amenities of the Park



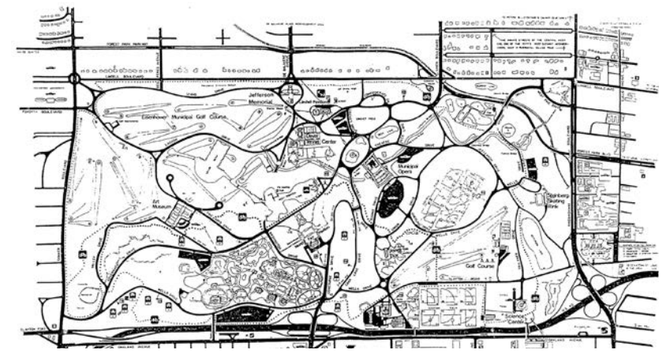
1876 Kern Plan



1903 Kingshighway Plan

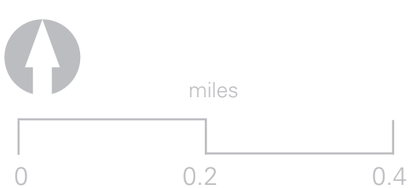


1904 World's Fair Map

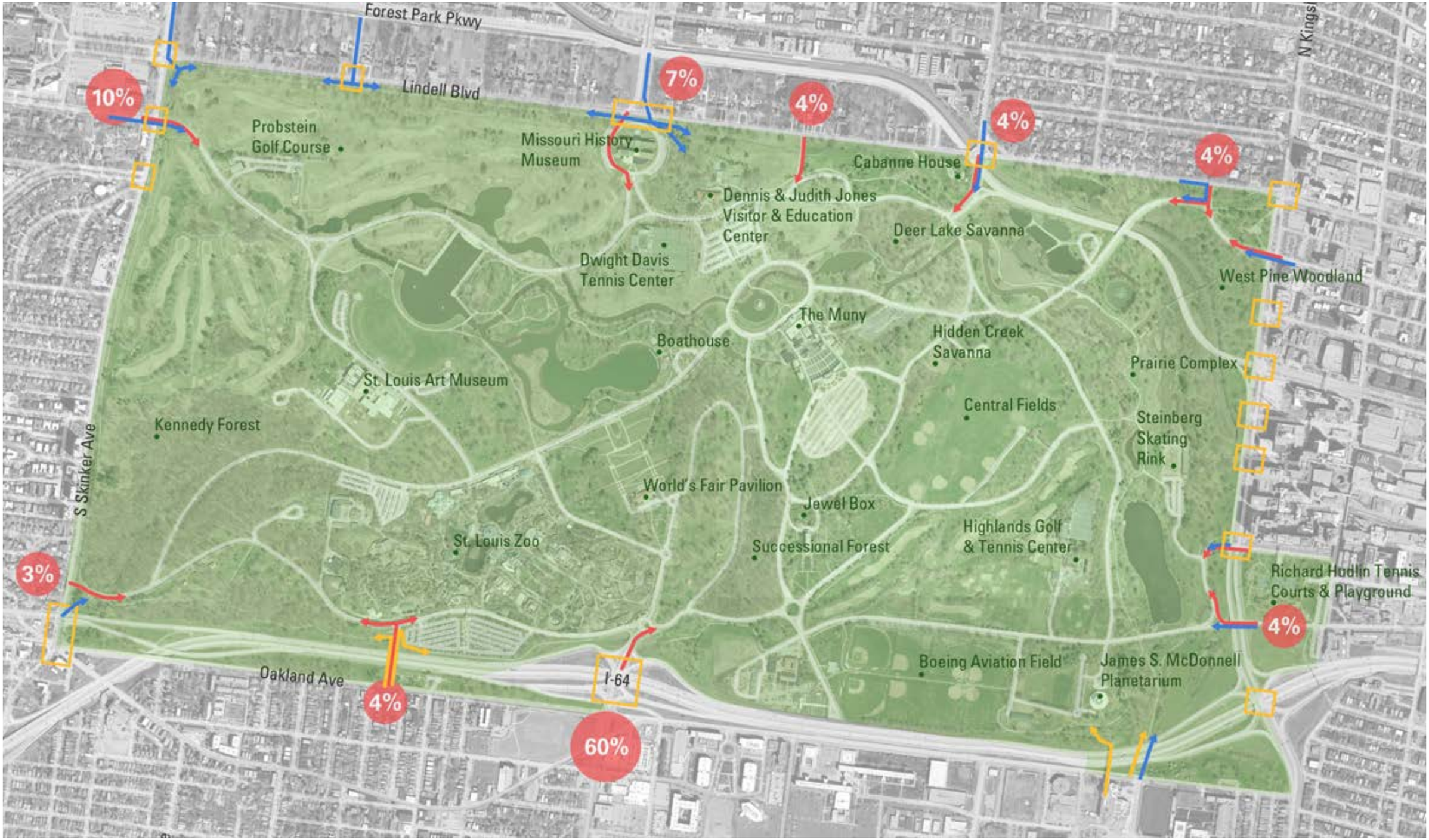


1995 Existing Conditions Map

1995 Master Plan



EXISTING PARK ENTRIES



LEGEND

- Signalized Crosswalk (Pedestrians/Cyclists)
- Pedestrian Connection
- Great Rivers Greenway Bicycle Directed Entry
- Vehicular Entry
- X% Percentage of Vehicles Entering Park

miles

0 0.2 0.4

GETTING INTO THE PARK

Multi-modal transport has been supported since the early days of the Park when people accessed it by train, horse-drawn carriage, or on foot. Carriageways soon gave way to roads, bike paths, and trails. About a quarter of the existing entrances allow access for cars, bikes, and pedestrians. The remaining entrances are limited to one or two forms of transporation. Compared to the original Street Railway Sysems plan, the amount of public transportation connections running along or to Forest Park have also declined due to the end of the Street Car era in lieu of the personal vehicle.

PEDESTRIANS

Wherever cars can enter, pedestrians can enter as well. The entrance at Kingshighway Boulevard and Forest Park Parkway is the only location not currently accessible to both motor vehicles and pedestrians. However, current construction in this area will bring the intersection to grade and improve pedestrian access.

Additionally, a tunnel beneath the interstate provides pedestrian-only access at the southeast corner of the Park.

Undesignated pedestrian access into the Park is notable in areas of the Park border with "desire lines", or foot trails cut through the vegetation. Areas with challenges to pedestrian access warrant special consideration in this study.

CYCLISTS

Cyclists have fewer options to access the Park. Designated access points for bikes, such as bike lanes and bike crossings, are located mostly along the northern half of the Park from Washington University to other points along Lindell Boulevard. The southern border of the Park is notably lacking in officially designated bike entries.

It should be noted that many of these access points are part of the Dual Path System. Stretches of this system are accessible to pedestrians (and bicycles to some extent). For example, much of the path along Skinker

1896 Street Railway Systems Map of the City of St. Louis

Boulevard runs closely parallel to the street, allowing for greater access to the dual path system from the adjacent neighborhoods. The same applies to Lindell Boulevard west of DeBaliviere Avenue.

MOTOR VEHICLES

Motor vehicles can access the Park primarily from the corners of the Park as well as two central entrances, Hampton Avenue (60% of weekend traffic) from Interstate 64 on the south and DeBaliviere Avenue on the north. From Kingshighway Boulevard, motorized vehicles can access Forest Park at the Hospital Drive intersection and at West Pine Drive. At the southeast corner of the Park, one can enter the Park from Clayton Avenue as it passes under Kingshighway Boulevard.

There are four entrances to the Park from Lindell Boulevard that welcome 20% of the motorized vehicles: DeBaliviere Boulevard is the main entrance from the north, used by 7% of the vehicles entering the Park during weekends, followed by Union Boulevard, Cricket Drive, and W Pine Drive, with a lower usage of 4%.

From Skinker Boulevard, Lagoon Drive is the second most used entrance to the Park (10% of the vehicles entering). Data collected in the 2008 Circulation Study also shows a high volume of pedestrians and bicyclists in the intersection of Lagoon Drive and Skinker Boulevard, which leads to low safety conditions and long queues for vehicles entering or exiting the Park. Wells Drive is the south entrance to the Park from Skinker Boulevard, and used by 3% of the vehicles.

Interstate 64 represents the main access for regional traffic to many of the Park's attractions, including the Zoo and The Muny. From west to east, exit 33C connects with Skinker Boulevard, exit 34B connects with Hampton Avenue, the main entrance to the Park (accommodating 60% of the total volume of vehicles entering the Park), and 36A connects with Kingshighway Boulevard. During peak season on weekends, and during specific events, queues for the Hampton Avenue exit back up into the northern most driving lane to 36A exit legs. In addition, Hampton Avenue connects Interstate 64 and I-44, so traffic is usually high, regardless of the level of Park activity.

The Clayton Avenue underpass at Kingshighway Boulevard presents challenges for bike access

Hampton Avenue overpass at Interstate 64

Lagoon Drive entry at Skinker Boulevard

Wells Drive entry at Skinker Boulevard

Forest Park Parkway at Skinker Boulevard

INSTITUTION ACCESS GUIDANCE

DIRECTED ENTRIES FROM WEBSITES

Park institutions differ in what directional information is provided to prospective visitors on their respective websites. Most of the sites contain a "Visit" link but the content provided varies in whether directions are provided, what transit, access and parking facilities are described, and whether there is consistent reference to Park facilities, linkage to *forestparkmap.org* etc. Several websites provide only an address and linkage to external map sites, such as Google maps, based on the address of the location, but not to the facility entrance or parking facilities. The wayfinding assets on each website are recorded in the table below.

Only three institutions (St. Louis Zoo, The Muny and the St. Louis Science Center) provide specific directions (see maps to right), and these tend to favor access by car to parking facilities. The directions provided show a reliance on Interstate 64 as a common access corridor and as a result a reliance on access from Hampton Avenue and Kingshighway Boulevard Park entries.

Forestparkmap.org is an online map resource created and maintained by Forest Park Forever that provides comprehensive and graphically clear online dynamic map of Park facilities with detailed information about features of the Park. The map does not provide recommendations on wayfinding to Park destinations from points outside or inside the Park. External links to Google Maps are provided to key institutions in the Park based on address, but not to appropriate parking, pedestrian, bus or bike facilities.

LEGEND

- Directed Path of Travel
- Primary Parking Lot
- Destination

* on website
↘ via link to 3rd party

	Specific Driving Directions	General Location/Address/link to external map	ADA/Drop off Location	Directions to Paid Parking	Directions to Free Parking	Member Parking	Encourages/Links to Transit Use	Encourages FP Trolley Use	Special Shuttles/Transit	Encourages Remote Parking	Encourages Biking/Walking	Indicates Bike Parking	Special event closures/changes to access
Forest Park Visitor & Education Center	*	↘	*		*		*	*			*	*	*
Missouri History Museum		↘	*		*		*	*					*
Muny	*		*		*	*			*				
St Louis Science Center	*		*	*	*	*	*	*		*			
St Louis Art Museum			*	*	*	*	*				*		
St Louis Zoo	*			*		*	*	*	*				*
Boathouse	*				*			*					
Dwight Davis Tennis Center		↘											
Highlands Golf & Tennis		↘											
Probstein Golf Center		↘											
Shakespeare Theater		↘					*	*			*	*	↘

ST. LOUIS ZOO

The St. Louis Zoo has two entrances, one north and one south. Directions from the zoo's website address people in cars arriving from the interstates as well as for the Forest Park Trolley, MetroLink, and MetroBus.

For each interstate, directions are broken down further to include alternate routes for Eastbound and Westbound traffic. The Zoo is primarily accessed from the Hampton Interchange, but the website suggests visitors take other exits instead.

The Zoo is the 10th stop on the Forest Park Trolley's Blue Route. The trolley provides a connection between the Zoo and MetroLink, allowing visitors car-free access to the Zoo and other attractions around the Park.

THE MUNY

The Muny has 3 primary instances of directed path of travel advertised on their website. This includes personal vehicle, the Metrolink, and varying bus services.

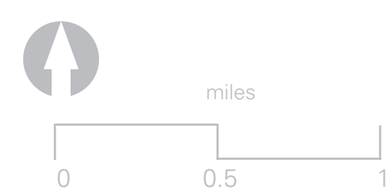
Vehicular traffic is directed from Interstate 64 along Kingshighway Boulevard or Hampton Avenue to the Muny's main parking lot. The attraction strongly suggests arriving at the venue early due to lack of parking near the building.

The Muny Trolley connects with the Metrolink to provide visitors with frequent service from the Forest Park - DeBaliviere station to the drop-off directly in front of the building.

The St. Clair Square Muny Express and Alton and Edwardsville Muny Express also provide access to the attraction but only on Fridays. Illinois Bus Services also connect with the Muny from multiple areas in the state.

ST. LOUIS SCIENCE CENTER

The directed path of travel for the St. Louis Science Center routes vehicular traffic around the Park rather than through it to the southeast corner of the project study area. The primary parking lot is located south of Interstate 64 which is connected to the building (north of the interstate) with a pedestrian overpass. Similar to the Muny, the St. Louis Science Center recommends using the Forest Park Trolley connection with the Forest Park - DeBaliviere Station to travel to the attraction using public transportation



EXISTING ROADWAY NETWORK

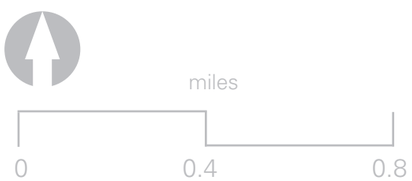
Legend

- 1 Lane
- 2 Lanes
- 3 Lanes
- 4 Lanes
- 5 Lanes
- 6+ Lanes
- St. Louis City Limits

Data Source: City of St. Louis

Note: 1. Roads mapped only included 'through' lanes which excludes turning lanes.

Note 2. I-64 is two 4-lane sections.



OVERVIEW

Effective Forest Park limits are Kingshighway Boulevard to the east, Lindell Boulevard to the North, Skinker Boulevard to the west and Interstate 64 and Oakland Avenue to the south. Kingshighway Boulevard and Skinker Boulevard are classified as primary streets by the City of St. Louis, while Lindell Boulevard is classified a secondary street, and Oakland Avenue falls in the tertiary streets group as classified by Metro St. Louis.

ROADS ADJACENT TO THE PARK

Kingshighway Boulevard (35 MPH) is a north-south primary street that connects I-70 to the north with Route 30 to the south. Its segment from Lindell Boulevard to Oakland Avenue is the eastern border of the Park, and separates it from Central West End, with the Barnes Jewish Hospital and Washington University School of Medicine. Designed as a bidirectional roadway, its section has three to four lanes per direction, with median and turning lanes (115 ft. curb to curb), and on-street parking permitted in some segments (See traffic volumes on pages 26-27). Bus routes run through it.

Lindell Boulevard (25 MPH) connects Skinker Boulevard with Kingshighway Boulevard to the north, and is populated by mansions that face the Park. Once part of the Park, it became part of the public street network after the World's Fair of 1904, and although it is open to motorized vehicles, bus routes cannot run through it. The road section consists of two driving lanes per direction, with on-street parking permitted in some of the segments.

Skinker Boulevard (35 MPH) is the western border of the Park and limits with Demun, a neighborhood that houses an extended residential area, with single family homes and apartment buildings, as well as the Washington University main campus. The road section has 2 lanes per direction, with a two-way left turn lane, and on-street parking permitted in several segments on both sides. Bus routes run along it.

Oakland Avenue (30 MPH) is a tertiary street and southern border of the Park. It has one lane per direction for motorized vehicles, plus buffered bike lanes on both sides and on-street parking on the southern side. Turning lanes occur west of Hampton Avenue with a median to the east. The exception to this is the segment west of the Skinker Boulevard intersection which has two lanes eastbound. Bus routes run along it.

Interstate 64 is the closest interstate to the Park and represents the main access for regional traffic to the Park main attractions, including the Zoo and The Muny.

ROADS WITHIN THE PARK

The majority of roads within the Park are circuitous non-striped bidirectional, and are 30 to 40 feet wide curb to curb. Many allow on-street parallel parking, most of it unrestricted.

Lagoon Drive - Grand Drive provides a continuous east-west connection on the northern portion of the Park, and Wells Drive-Clayton Avenue give an east-west connection to the south. Government Drive-Theater Drive-Grand Drive draw a diagonal from the southwest corner to the northeast corner. Other shorter roads link these routes to improve accessibility to all destinations.

EXISTING TRAFFIC VOLUMES

Legend

- < 5000 Vehicles
- 5,001 - 10,000 Vehicles
- 10,001 - 15,000 Vehicles
- 15,001 - 20,000 Vehicles
- 20,001 - 30,000 Vehicles
- 30,001 - 64,547 Vehicles

Data Source: City of St. Louis, 2012

ANNUAL AVERAGE DAILY TRAFFIC VOLUMES

Average daily traffic volumes in 2012 vary significantly around the Park. Interstate 64 traffic loads surpassed 120,000 vehicles in the segment adjacent to the Park, while Kingshighway Boulevard traffic volumes varied from 60,000 vehicles from Forest Park Parkway to Interstate 64, to 40,000 vehicles from that point to Lindell Avenue. North of Lindell Avenue traffic volumes decrease to 30,000 vehicles.

Skinker Avenue average daily traffic was lower than 30,000 vehicles near Lindell Boulevard intersection, and increased slightly to the South north of Oakland Street intersection. Oakland Avenue carried 4,000 vehicles west of Macklind Avenue, and 8,000 vehicles from this point to Kingshighway Boulevard intersection.

Lindell Boulevard traffic loads ranged from 4,000 to 6,000 vehicles, and doubled east of Kingshighway Boulevard.

Note: This map will be updated with any further data gathered after the opening of Forest Park Parkway. In addition, traffic counts from the roudabout study will be incorporated.

miles

0 0.4 0.8

Legend

- < 500 Vehicles
- 501 - 1,000 Vehicles
- 1,001 - 2,500 Vehicles
- 2,501 - 3,500 Vehicles
- 3,500 - 5,000 Vehicles
- 5,001 - 22,200 Vehicles

Data Source: 2008 Accessibility and Circulation Report

ANNUAL AVERAGE DAILY WEEKEND TRAFFIC VOLUMES - NO EVENT

Motorized vehicles entrances are located in the Park perimeter. Weekend traffic volumes collected during the 2008 Forest Park Access, Circulation and Parking Study showed that 60% of the vehicles entering the Park used the Hampton Avenue entrance, while Lagoon Drive was the second most used entrance, with 10% of the vehicles using it on weekends.

With the exception of Hampton Avenue from Oakland Avenue to Concourse Dr., with over 35,000 vehicles on weekends, the rest of the roads carried less than 10,000 vehicles on weekends. The same study pointed out that the roads in the eastern portion of Forest Park was under-utilized with traffic volumes below 2,000 vehicles, and that the internal traffic volumes besides the roadways mention above show that the Park's traffic within the Park is evenly spread out.

The lack of congestion and park usage at certain hours on weekdays makes it attractive as a cut through for commute traffic, especially along Clayton Road and Lagoon Drive, and the Hampton/Concourse Drive intersection to access Interstate 64. Most recent traffic volumes collected during the spring of 2017 in Concourse Drive, Wells Drive and Washington Drive show clear commute patterns on weekdays, with over 1000 vehicles per hour (VPH) in both directions during the peaks of the day.

EXISTING TRAFFIC VOLUMES AT INTERSECTIONS

(AM)

(PM)

LEGEND

- < 500 Vehicles
- 501 - 1,000 Vehicles
- 1,001 - 2,500 Vehicles
- 2,501 - 3,500 Vehicles
- 3,500 - 4,500+ Vehicles

Data Source: City of St. Louis, BPS

EXISTING TRAFFIC VOLUMES

Traffic data at intersections during AM and PM peak hour was provided from the City of Saint Louis for the intersections comprised in the area limited by Kingshighway Boulevard, South Vandeventer Avenue and Lindell Avenue.

As AM and PM commute flows are often in opposite directions, volumes at certain intersections vary significantly in both periods. However, in both peak hours, given the geometry of the roadway, Kingshighway Boulevard intersections support volumes that are five time as high as other volumes in nearby intersections.

Overall PM peak hour volumes are slightly higher than AM peak volumes in this area on average, although the difference between both periods vary among intersections. Traffic volumes on Forest Park Parkway are typically 20% higher during PM peak hours than AM peak hours, and so are the intersections on Kingshighway from Forest Park Parkway to Lindell Boulevard.

Turning movements on peak hours collected in 2015 for the Study of the Forest Park Parkway-Kingshighway Boulevard intersection are available for the following intersections: Kingshighway Boulevard and Interstate 64, West Pine, Lindell Avenue and Delmar Boulevard.

(AM)

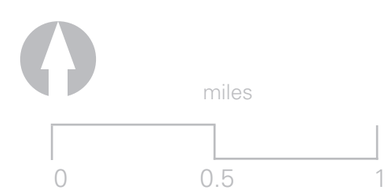
(PM)

PROJECTED TRAFFIC VOLUMES

Projected volumes for 2018 are 11% higher on average than traffic than 2015, while overall PM flows do not vary significantly.

On Kingshighway Boulevard, AM peak volumes are expected to increase 7% in respect to the baseline scenario, although volumes will still be lower from Lindell Boulevard to Forest Park Parkway, while PM peak period are expected to decrease 12%. In particular, volumes in this segment will be lower than in the 2015 scenario. Similarly, traffic is expected to decrease also in the Interstate 64 intersection.

Traffic on Forest Park Parkway intersections will be higher in both AM and PM peak periods in the projected scenario, in particular at Taylor Avenue intersection.



EXISTING ROAD SPEEDS - MARKED

LEGEND

- 25 MPH
- 30 MPH
- 35 MPH
- 45 MPH
- 55 MPH

MARKED ROAD SPEEDS

Posted speed limit ranges from 15 to 25 mph within the park, and the most recent inventory indicated that there were 500 traffic signs in the park. Around the park, posted speeds on Lindell Boulevard is the lowest, limited to 25 mph, followed by Oakland Avenue, marked at 30 mph. Marked speeds on Kingshighway Boulevard and Skinker Boulevard is 35 mph.

It is estimated that the designed speed for roads around the park are as follows:

- Local Roads - 25 mph
- Collectors - 30-35 mph
- Arterials - 35-40 mph

miles

0 0.4 0.8

EXISTING ROAD SPEEDS - AVERAGE ACTUAL SPEEDS

(AM)

(PM)

AVERAGE ACTUAL ROAD SPEEDS

On average, motorized vehicle speeds driving on the section of Kingshighway Boulevard running from Lindell Boulevard to Oakland Avenue are significantly lower than the speed limit (35 mph) during peak hours in both directions (higher southbound than northbound during AM peaks), but reach the limit in the segment between Interstate 64 and I-44 during some off-peak hours.

The speed limit for Skinker Boulevard is 35 MPH and data show that this limit is rarely surpassed.

Speed data collected in this same study showed that on weekdays the highest 85th percentile speeds recorded were located eastbound on Government Drive between the Boathouse and the World's Fair Pavilion and southbound Carr Lane Drive, as well as in Faulkner Drive, Grand Drive and Lagoon Drive with speeds between 30 mph and 39 mph. Faulkner Drive and Government Drive have road width of 40 feet and are relatively long roadways. General speed trends do not appear to change notably from the weekdays to the weekends.

LEGEND

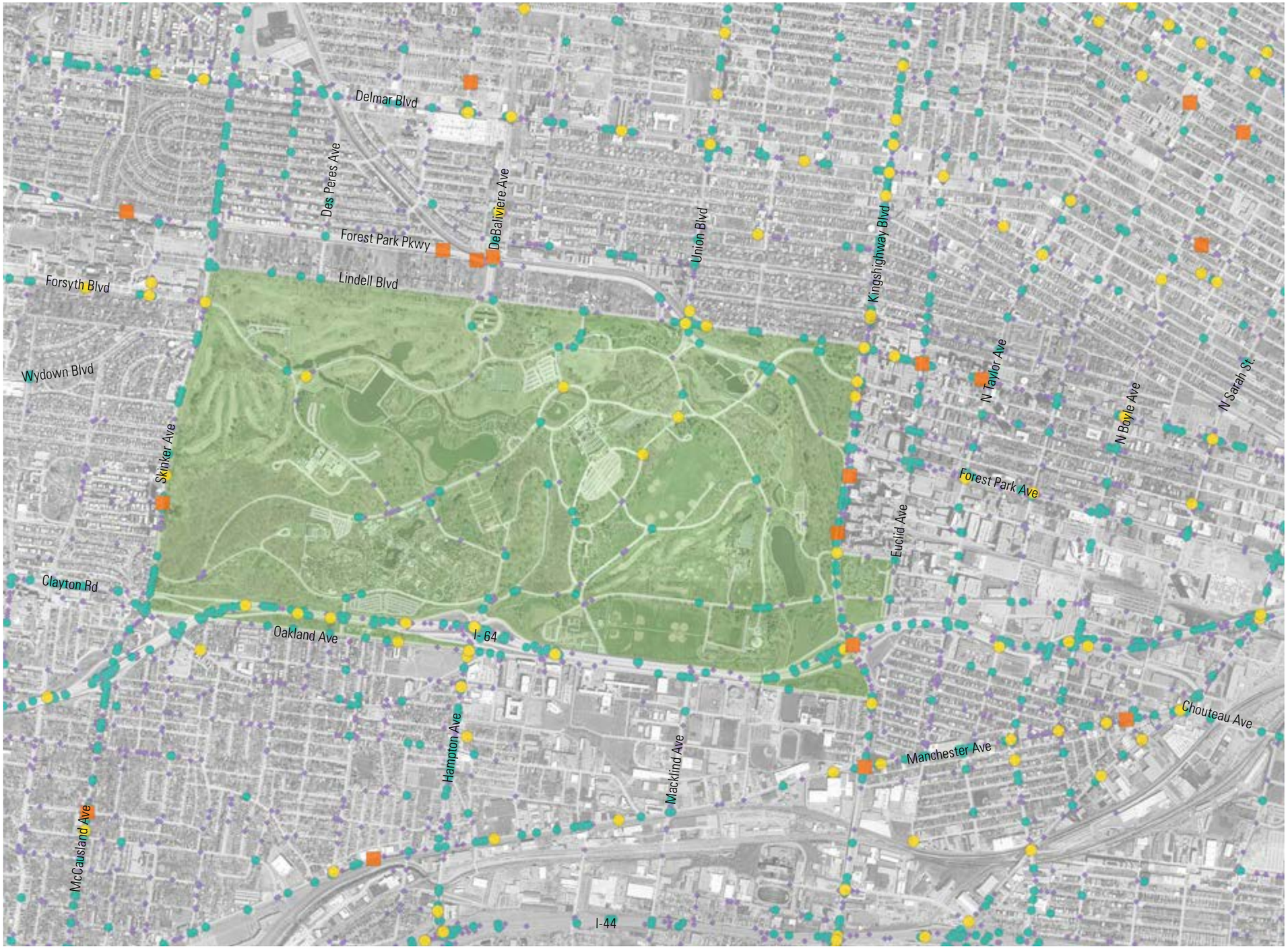
- < 20 MPH
- 21-25 MPH
- 26 - 45 MPH
- 46+ MPH

Data Source: RITIS, 2016

miles

0 0.5 1

TOTAL TRAFFIC COLLISIONS (2011–2015)



LEGEND

- Fatality
- Disabling Injury
- Minor Injury
- Property Damage

Data Source: MODOT

miles

0 0.4 0.8

TRAFFIC COLLISIONS - BY MODE (2011–2015)

FATAL AND INJURY TRAFFIC COLLISIONS (PEDESTRIANS, 2011-2015)

Traffic collisions involving pedestrians were reported in several locations scattered both in the adjacent roads to the Park, as well as along the internal Park network. Four of them were registered as fatalities at Skinker Boulevard north of the Wells Drive Park entrance, at Forest Park Parkway and Debaliviere Avenue intersection, and on Lindell Boulevard east at the Euclid Avenue and Taylor Avenue intersections. Several collisions with different level of injuries occurred at Lindell Boulevard east of Kingshighway Boulevard and Hampton Avenue south of Oakland Avenue. In the Park, traffic collisions involving pedestrian with minor injuries occurred at several intersections along Clayton Ave.

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LEGEND

- Fatality
- Disabling Injury
- Minor Injury
- Property Damage

FATAL AND INJURY TRAFFIC COLLISIONS (BICYCLISTS, 2011-2015)

A significant number of traffic collisions involving cyclists were reported along Skinker Avenue (from Delmar Boulevard to Oakland Avenue), Delmar Boulevard and Lindell Boulevard, although most of them didn't represent any serious injury. Collisions that derived to disabled injuries were reported close to the intersection of Union Boulevard with Forest Park Parkway/Lindell Boulevard, as well as in the Park, where Grand Drive and Jefferson Drive meet.

miles

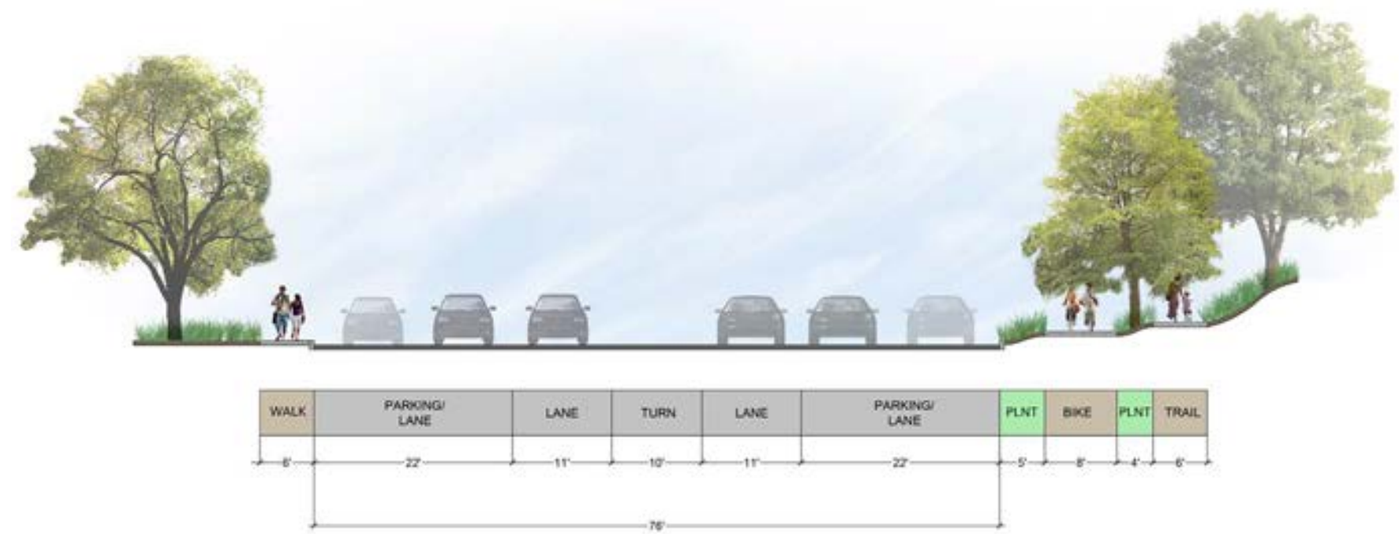
0 0.5 1

EXISTING ROAD SECTIONS

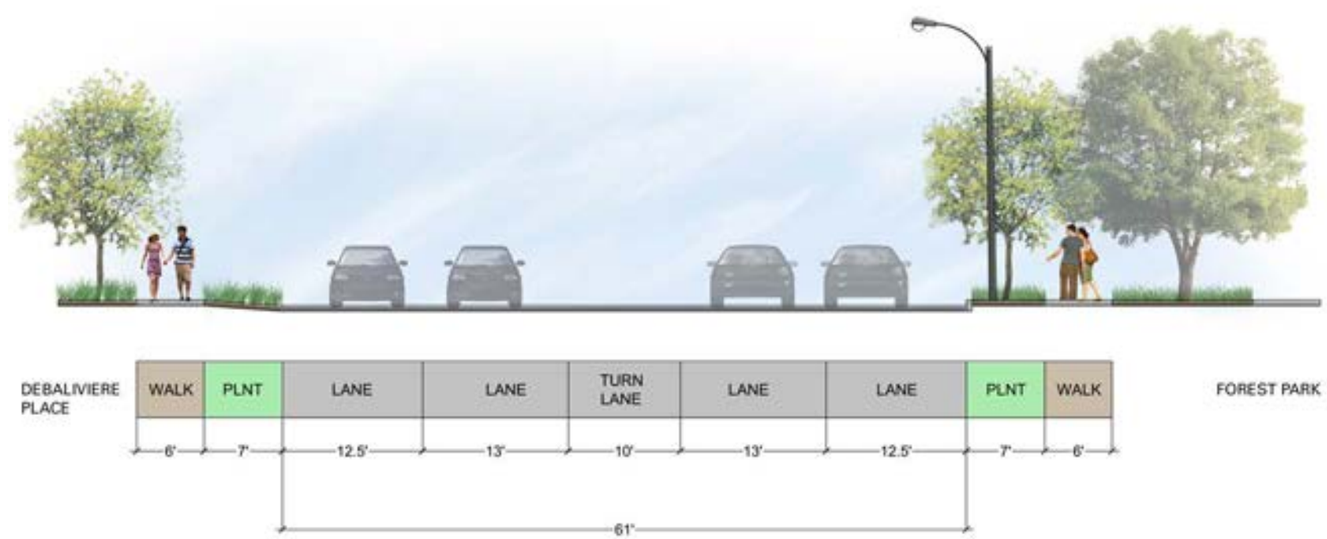
ROAD SECTION BASELINES

14 Cross sections have been documented for key perimeter roads, connecting streets and typical Park interior roads. Sections document existing dimensions of overall road width, sidewalks, parking and driving lanes, bike lanes and medians.

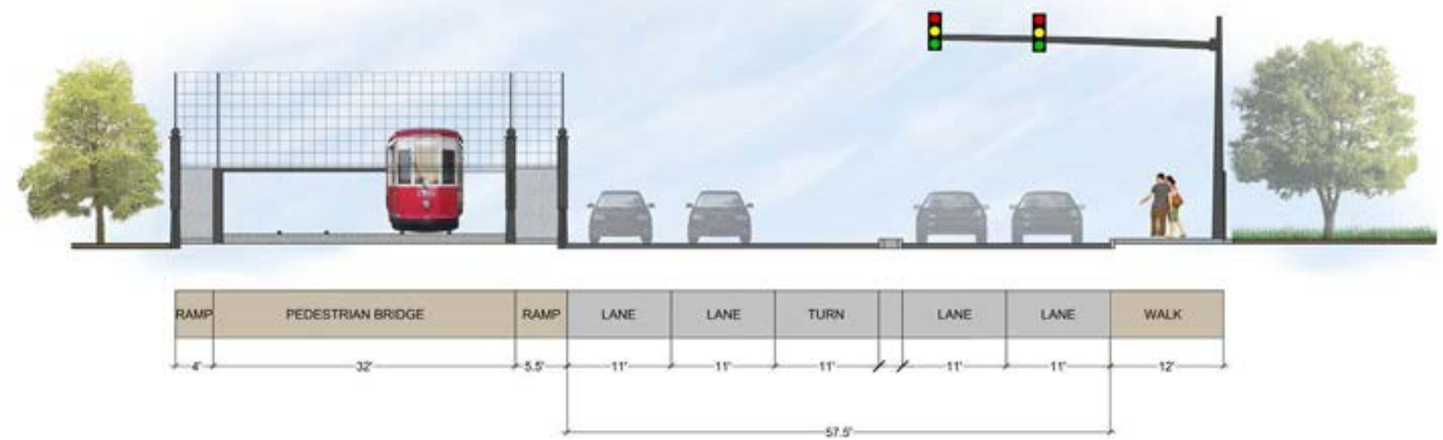
Sections will be used as a baseline for further analysis and to assess potential improvements to access, safety and traffic.



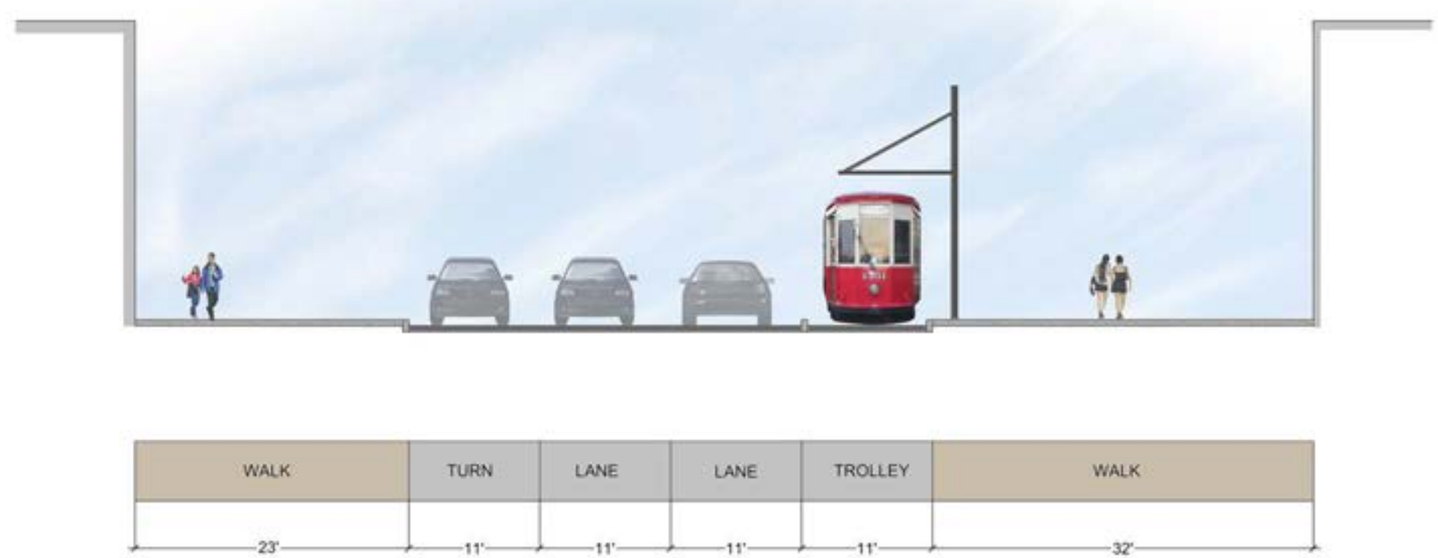
1 South Skinker Boulevard - 29,410 Vehicles per Day (VPD)



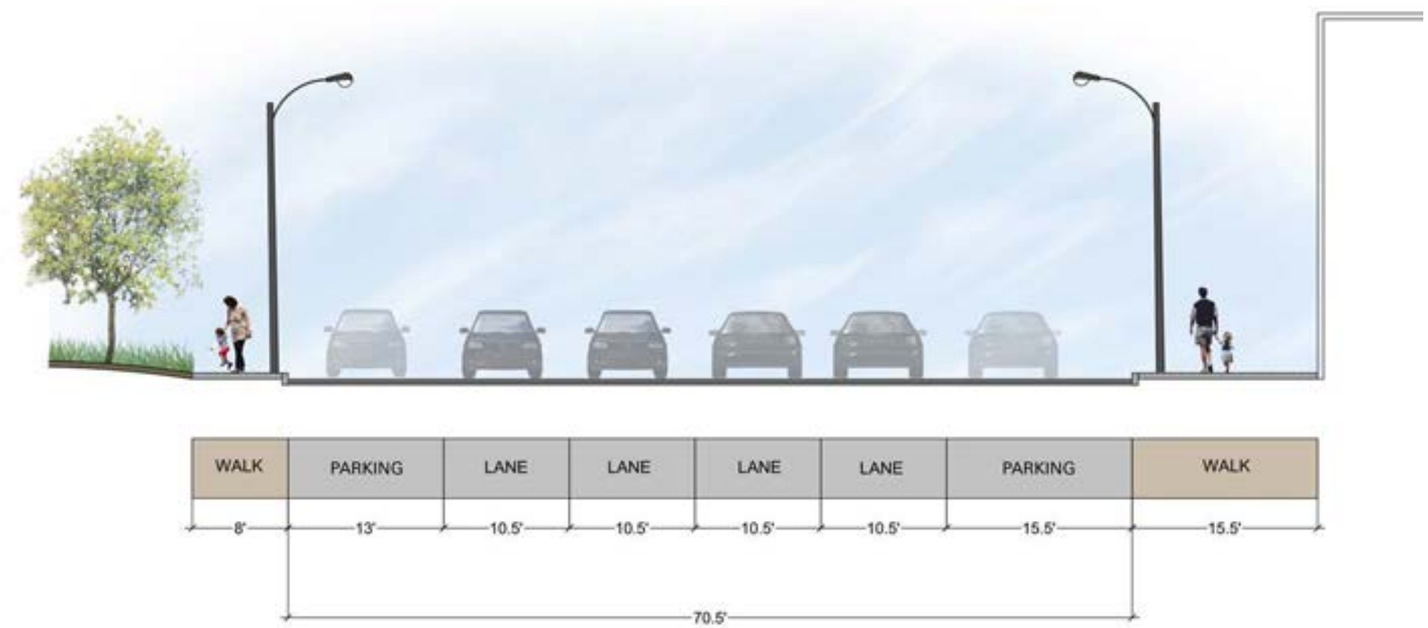
2 Lindell Boulevard - 19,890 VPD



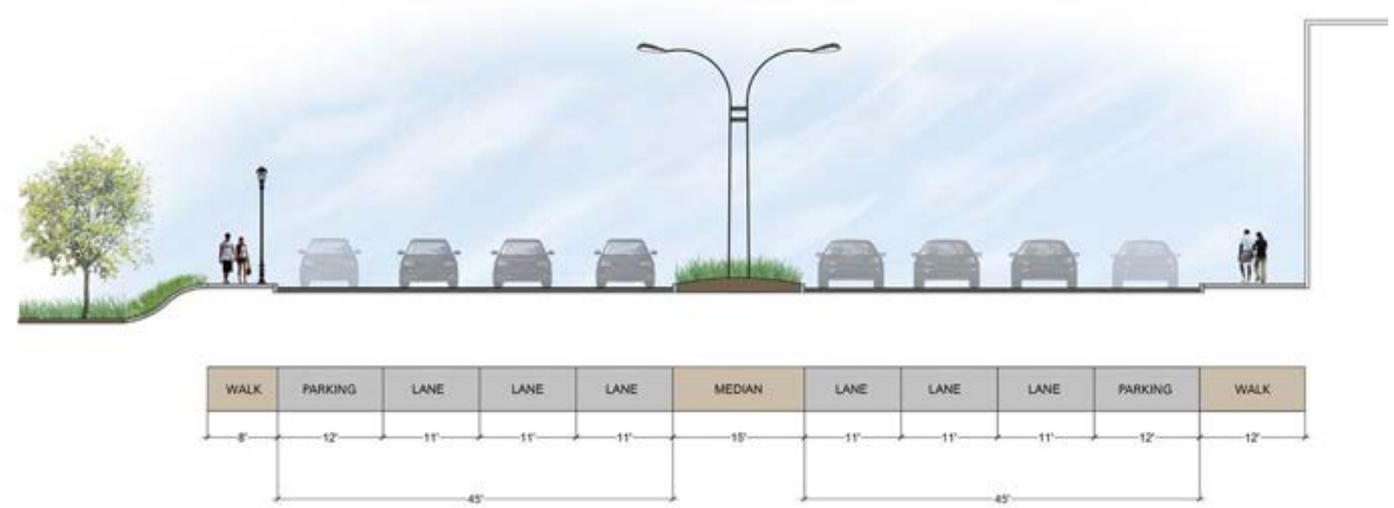
3 Forest Park Parkway - 14,216 VPD



4 DeBaliviere Avenue

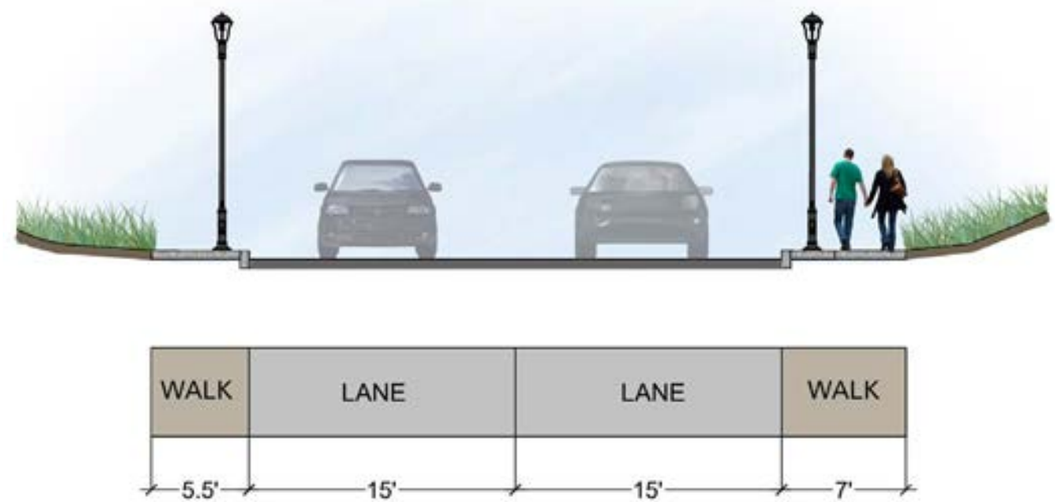


5 North Kingshighway Boulevard

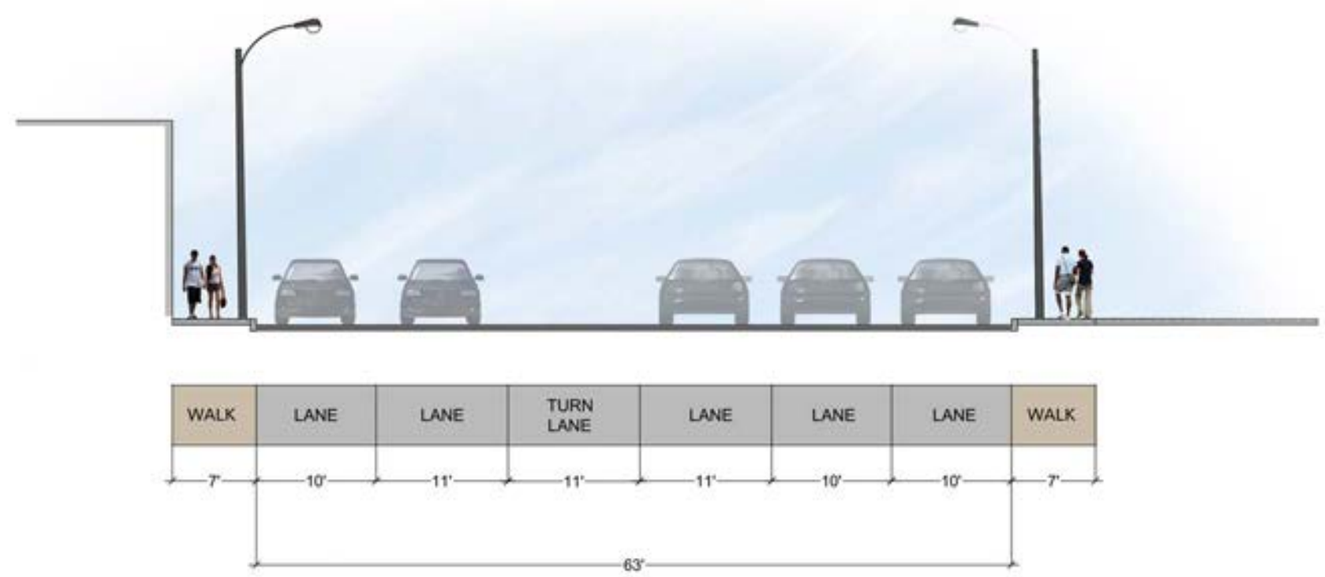


6 South Kingshighway Boulevard - 60,667 VPD

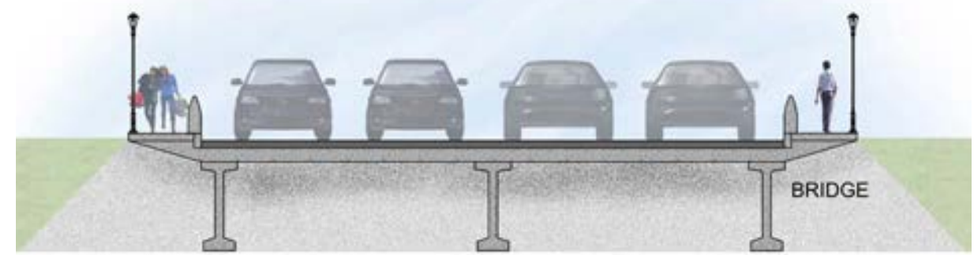
EXISTING ROAD SECTIONS

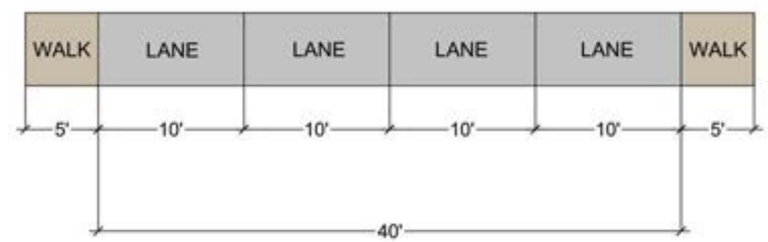


7 Clayton Avenue



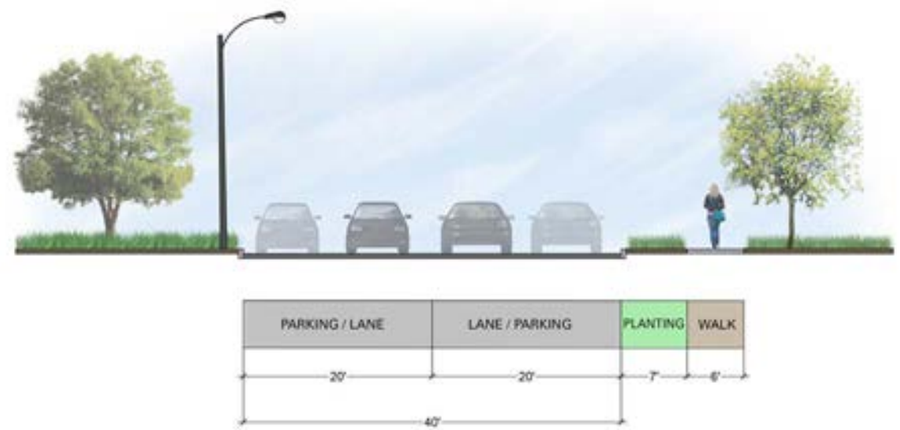
8 Hampton Avenue - 42,577 VPD



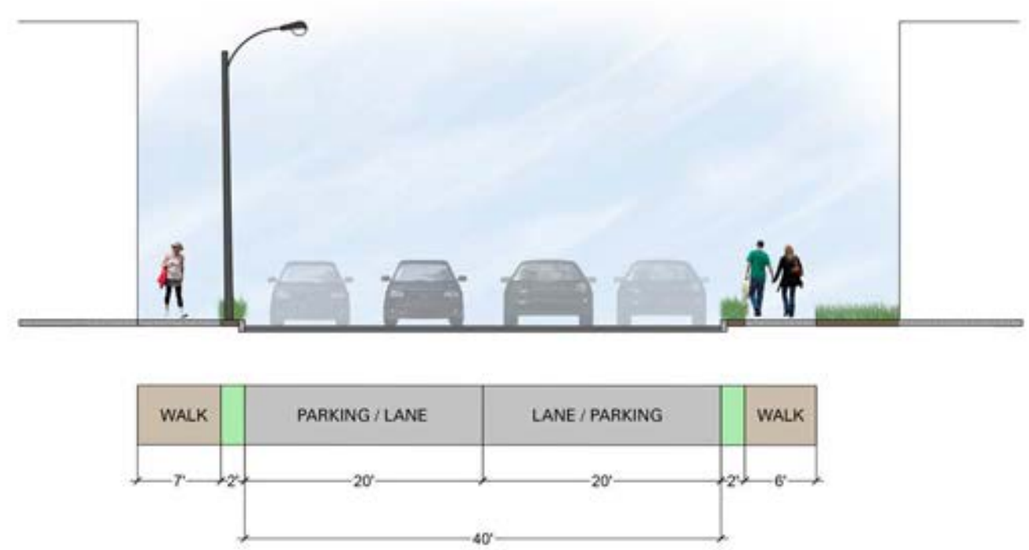


9 Tamm Drive - 2,500 to 3,500 VPD

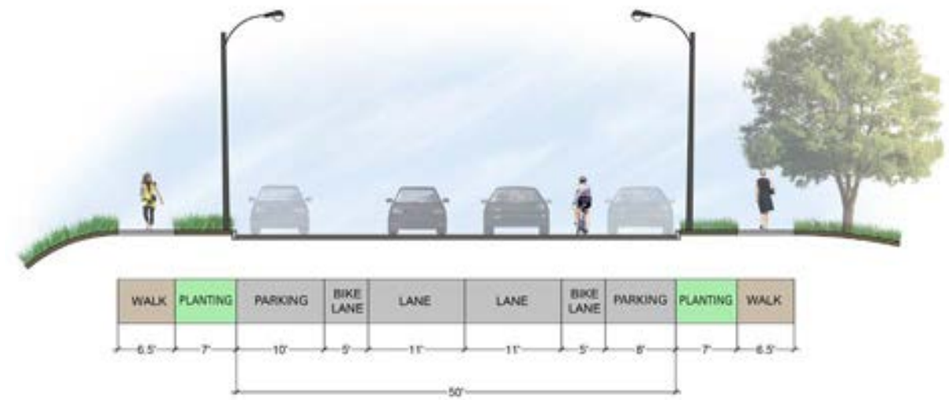
10 Lagoon Drive at Art Hill - 2,500 to 3,500 VPD



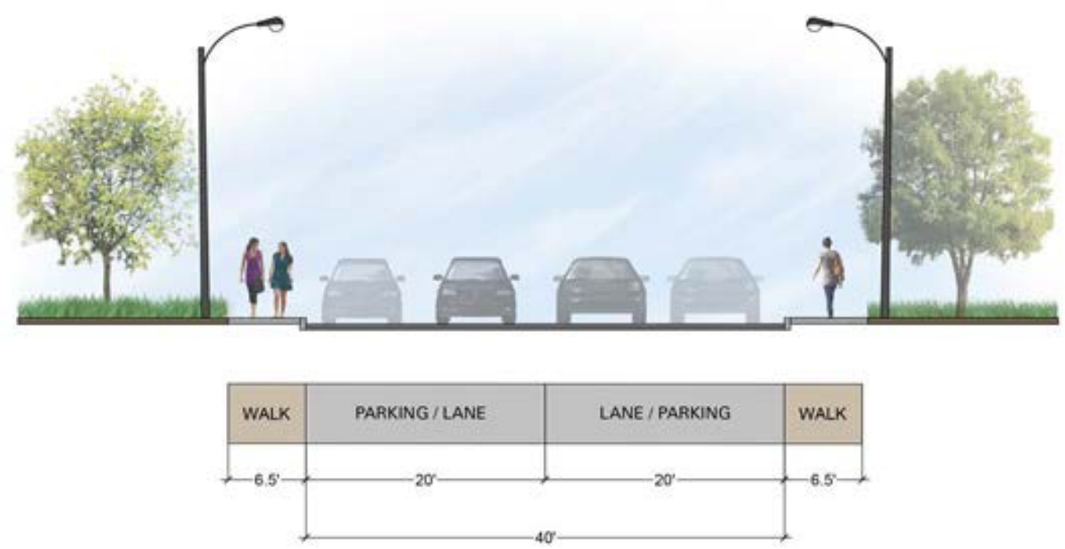
11 Lagoon Avenue - 2,500 to 3,500 VPD



12 Tamm Avenue - 2,500 to 3,500 VPD



13 Grand Avenue - 1,000 to 2,500 VPD



14 Theatre Drive - 1,000 to 2,500 VPD


Probstein Golf Course
Missouri History Museum
Cabanne House
Dennis & Judith Jones Visitor & Education Center
Deer Lake Savanna
Dwight Davis Tennis Center
West Pine Woodland
The Muny
Boathouse
Hidden Creek Savanna
Prairie Complex
St. Louis Art Museum
Central Fields
Steinberg Skating Rink
Kennedy Forest
World's Fair Pavilion
Jewel Box
Highlands Golf & Tennis Center
St. Louis Zoo
Successional Forest
Richard Hudlin Tennis Courts & Playground
Boeing Aviation Field
James S. McDonnell Planetarium

LEGEND

- Unrestricted On-Street Parking
- Time-Limited On-Street Parking
- Off-Street Parking (with supply)
- Building/Area of Interest
- Entry Point to Building/Area of Interest
- Park Walkways

CURRENT PARKING CONDITIONS

Forest Park has 7,812 parking spaces on-site, sited primarily adjacent to major Park institutions. 3,941 of those spaces are off-street. All on-street parking facilities are free of cost and most are unregulated by time limits. Most off-street parking facilities are free to the public with the exception of the four paid parking areas at the St. Louis Art Museum, the St. Louis Science Center and the St. Louis Zoo. Each of these lots typically charges between $10-15 to park for the day. During events and on peak weekends, parking and queuing for parking can create congestion choke points near major institutions and access points. There are over 1,250 parking spaces on the streets that bound the edges of the Park. Many of these spaces are regulated by day of the week and/or time of day. For example, parking is not allowed on a large part of the south side of Lindell Boulevard west of the History Museum on weekdays and some parking on the north side is time-limited to one hour of parking at certain times.

PAST FINDINGS:

- Parking on both sides of the street causes congestion in some areas.
- More than 50 percent of zoo visitor survey respondents report parking on-street during their visit.
- 34 percent of zoo survey respondents report experiencing traffic congestion getting into the zoo parking lots.
- According to past study data, only 40 percent of parking facilities are utilized during peak season Saturdays and during Muny events. This means that, even though facilities directly adjacent to facilities may be full during an event, there may be thousands of empty parking spaces elsewhere in the Park.
- There can be as many as 1,250 employees at Park institutions on a daily basis, most of which do not have dedicated parking areas.

Lower Muny Lot

On-street parking along Clayton Avenue looking east

Emergency vehicles use on-street parking on the eastern side of the park.

Congested on-street parking during a Muny event.

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WEEKDAY PARKING DEMAND - MIDDAY PEAK

Legend

- <30%
- 31-60%
- 61-80%
- 81-90%
- 91+%
- Data Unavailable

Data Collected Wednesday, June 21, 2017

PARKING UTILIZATION

During a typical weekday peak period, 2,770 cars were parked in Forest Park, filling about a quarter of the total parking supply.

Parking occupancy data was collected during a typical weekday in June from 10AM to 2PM. During this period, 2,757 total cars were observed in the Park, with 916 cars parked on-street (24% of all on-street supply) and 1,841 parked off-street in lots (47% of total off-street supply). On this day, on-street parking demand was concentrated in the western half of the Park near the zoo, golf course, and visitor center. Likewise, most off-street parking demand was concentrated in the western half of the Park, specifically in the golf course, zoo, and art museum parking lots, while there was also significant demand near the planetarium. During the middle of the day, the Muny was almost entirely vacant.

This study is considered a "snapshot" of this singular moment in time. Among the factors that could contribute to abnomalies in the data is the fact Government Drive had just reopened to vehicular access. This would explain the relative abundance of available parking spaces in the southwest section of that street in the Park.

PARKING PROVISION

Parking spaces per acre in Forest Park are average when compared to other noteable urban parks in the U.S.

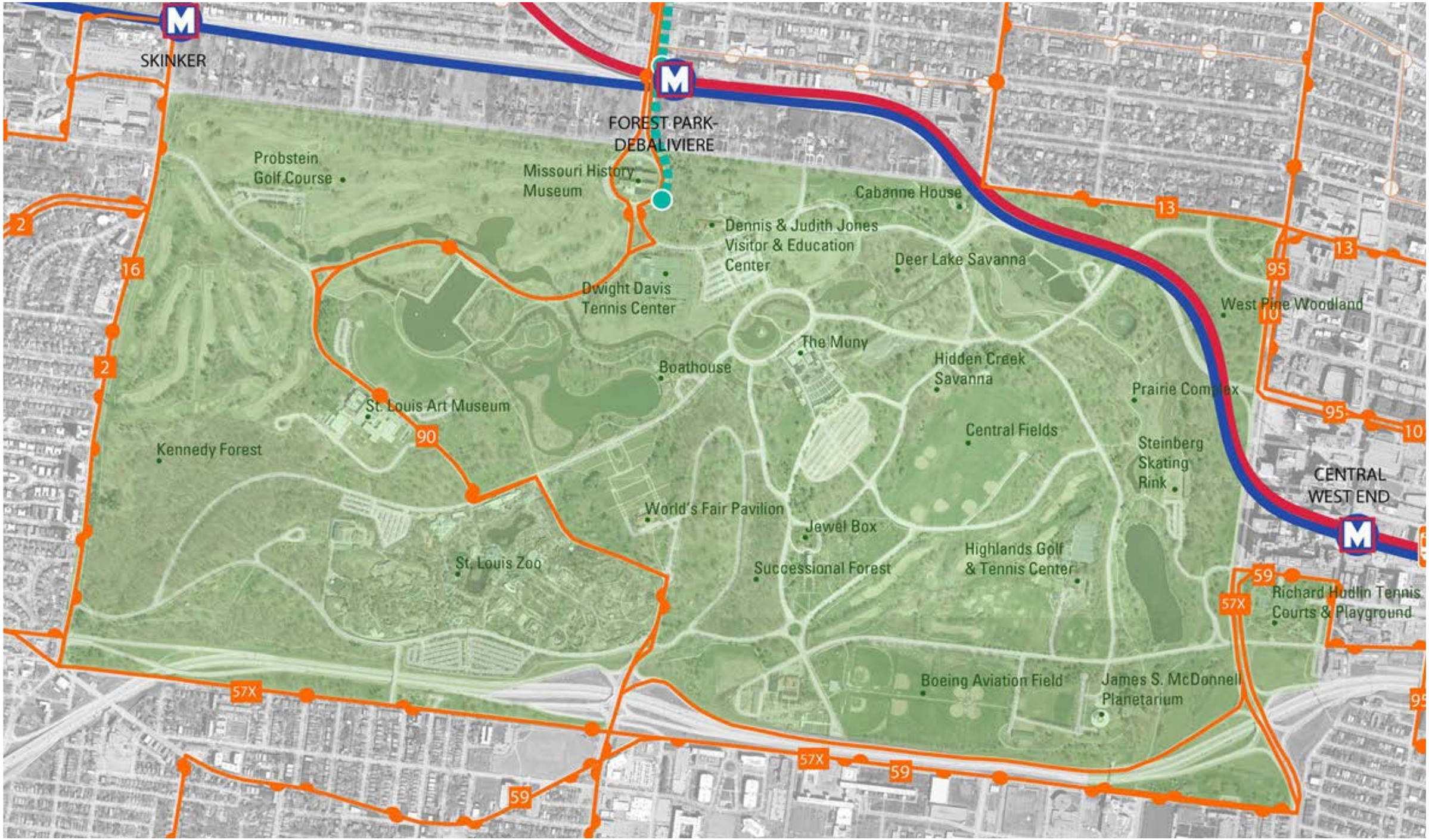
	Location	Acreage	Parking Spaces (Approx)	Parking Spaces Per Acre (Approx)
Memorial Park	Houston	1,466	2,250	2
Forest Park	**St. Louis**	**1,371**	**5,000**	**4**
Hermann Park	Houston	445	2,700	6
Balboa Park	San Diego	1,200	7,500	6

Annual attendance at the Saint Louis Zoo is among the highest in the country. The chart below compares the number of annual visitors with the amount of Zoo parking offered. (Source: The Trust for Public Land and The Association of Zoos and Aquariums, 2016)

	Location	Annual Attendance	# of Parking Spaces	Visitors Per Space
Lincoln Park Zoo	Chicago	3,500,000	1,019	3,435
National Zoo	D.C.	2,500,000	824	3,034
Saint Louis Zoo	**St. Louis**	**3,070,000**	**1,420**	**2,162**
Houston Zoo	Houston	2,376,000	1,200	1,980
Oregon Zoo	Portland	1,625,000	989	1,643
Woodland Park Zoo	Seattle	1,276,000	929	1,374
Memphis Zoo	Memphis	1,061,000	875	1,213
San Diego Zoo	San Diego	3,500,000	3,000	1,167
Como Park Zoo	Saint Paul	1,773,000	2,188	810
Bronx Zoo	New York	1,863,000	2,800	665

0 0.2 0.4

EXISTING TRANSIT ROUTES



LEGEND

Metrolink

MetroBus Routes that Directly Serve Forest Park

Other MetroBus Routes

The Loop Trolley

EXISTING TRANSIT ROUTES

The Metro Transit network surrounds Forest Park, but for the most part, buses do not enter the Park. The only mainline route that traverses the Park is Crosstown route 90, serving western attractions. Route 90 is rerouted to avoid congested Park roads on summer weekends when the Forest Park Trolley runs. While several other routes serve the Park perimeter, people who use these routes to reach the Park may need to cross arterial streets or travel circuitous routings to reach their destination. There are three rail stations a few blocks off the Park's perimeter; Central West End is a vibrant walkable district and Forest Park-DeBaliviere is the ad-hoc gateway to the Park, due to circulator connections. A new rail service (not operated by Metro) will soon connect the north central part of the Park (History Museum) to University City Delmar Loop, a neighborhood commercial district.

0 0.2 0.4

PARK CIRCULATOR ROUTES AND STOPS

LEGEND

Blue Trolley

Green Trolley

Metrolink

PARK CIRCULATOR

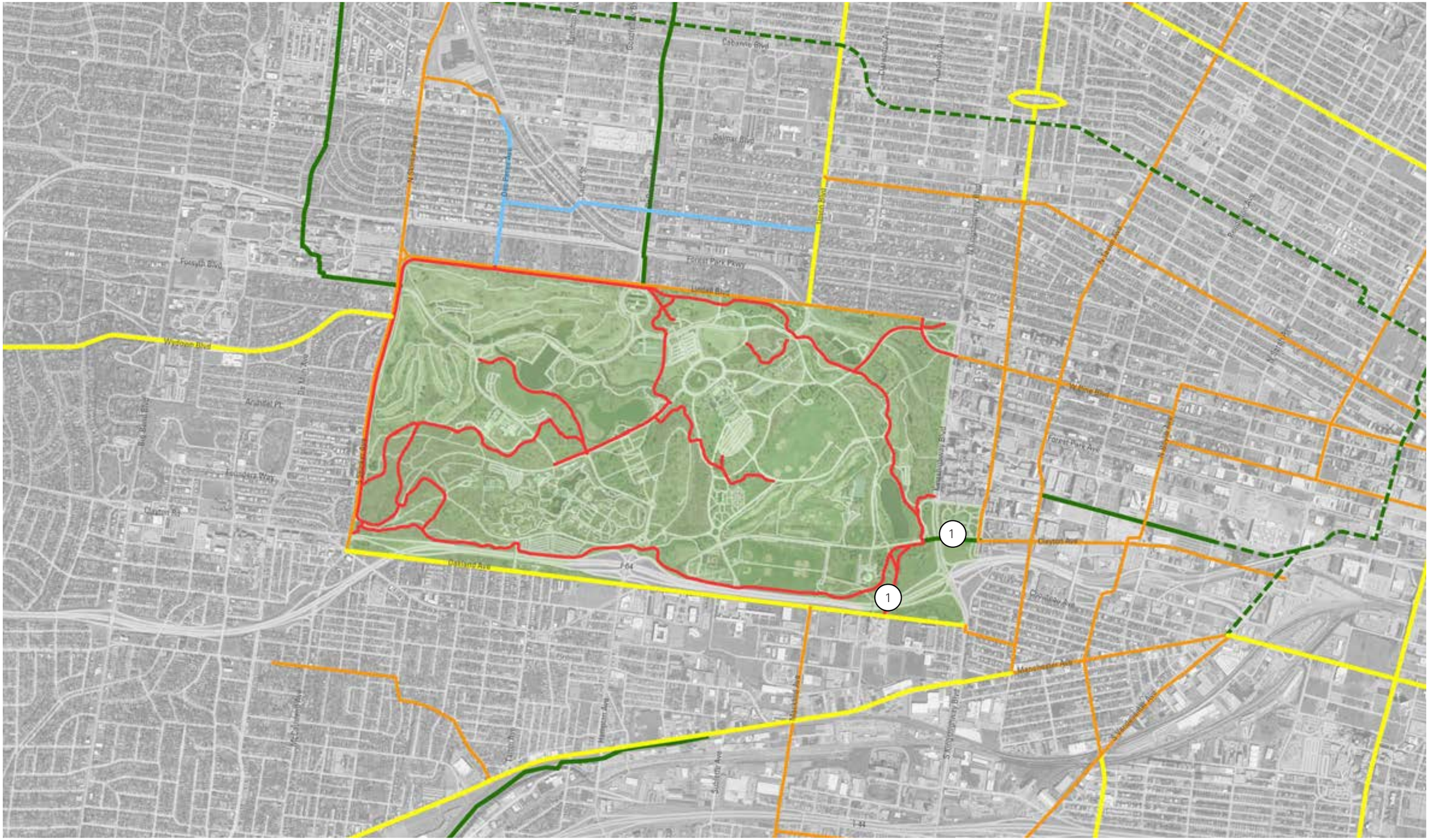
The Forest Park Trolley, operated by Metro, is the Park's primary circulator. It is a transit bus with a park theme livery. Two routes run from Forest Park - DeBaliviere rail station, serving western and eastern attractions respectively. Other than at the station, these routes do not reach outside the Park and do not approach Kingshighway Boulevard. or the Central West End. Metro reports that it is a challenge to maintain timely performance in the context of heavy Park attendance.

The circulator is branded as the Forest Park Trolley - a rubber tire bus painted to have the aesthetic of a traditional trolley.

Park circulator stops are indicated with a yellow flag and a map. Stops are often doubled with the MetroBus stops within the Park.

0 0.2 0.4

EXISTING BICYCLE INFRASTRUCTURE



LEGEND

- Off-Street Bicycle Lane
- Bicycle Boulevard
- On-Street Bike Lane
- Sharrow Lane
- Great Rivers Greenway (GRG) Planned Trail
- GRG Completed/Active Project

Note 1. Chouteau Greenway and River Des Peres Greenways are currently in final planning/alignment.

0 0.4 0.8

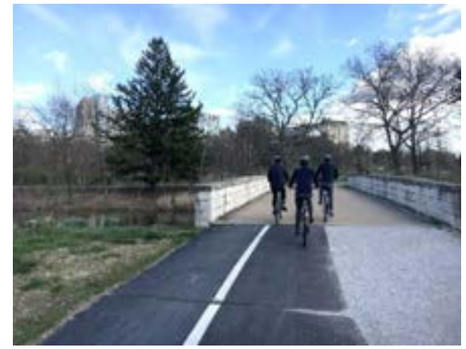
CURRENT BICYCLE CONNECTIONS

Existing bicycle infrastructure in and around Forest Park primarily serves the Delmar Loop (Northwest) and the Southeast Neighborhoods as well as Park users. Survey information from the Forest Park Connectivity and Mobility Study indicates that approximately 17% of respondents bike to Forest Park. Lindell Boulevard and Skinker Boulevard are both considered part of the bike network, and designed as sharrows.

Great Rivers Greenway and Bike St. Louis have proposed additional routes to link Forest Park to already existing connections while also strengthening the regional network by creating new infrastructure. Specifically, past recommendations have proposed strengthening east-west and north-south connections, redesigning Clayton Road for 2-way bicycle access and studying the potential to implement a two-way protected bikeway on Lindell.

Even with the new connections proposed by these plans, gaps remain in connectivity. These gap areas are potential locations for implementing greenways, leisure bikeways and commuter routes to connect to and through the Park. The areas with gaps in connectivity also are adjacent to the least pedestrian oriented corners of the Park; the area bordered by North Kingshighway and Interstate 64.

The dual path network primarily runs around the perimiter of the Park but lacks service to the north east edge along Kingshighway Boulevard. The system lacks interior routes that would allow users to make smaller loops. Comments received from trail users have expressed that underpass connections are often undesirable because of lighting conditions in or around bike tunnels, which create a sense lack of safety. Some sections of the dual path system are dark at night and present challenges for navigation as well as safety for pedestrian or bike park users leaving evening events. Further study of trail lighting is recommended.



DUAL PATH SYSTEM

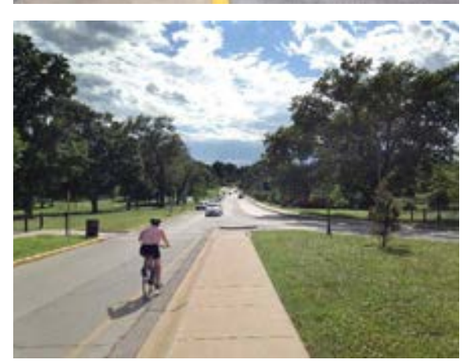
The dual path system comprises a recreational trail of two typically parallel 10' wide pathways, one surfaced in gravel and one in asphalt intended to separate pedestrian traffic from wheeled traffic. There are a mix of biker abilities on bike trails leading to conflicts between faster moving bikes and slower moving bikes and other users.

GAPS IN NETWORK

Gaps in the network are evidenced by the formation of desire paths.

CONNECTION TO SURROUNDING AREAS

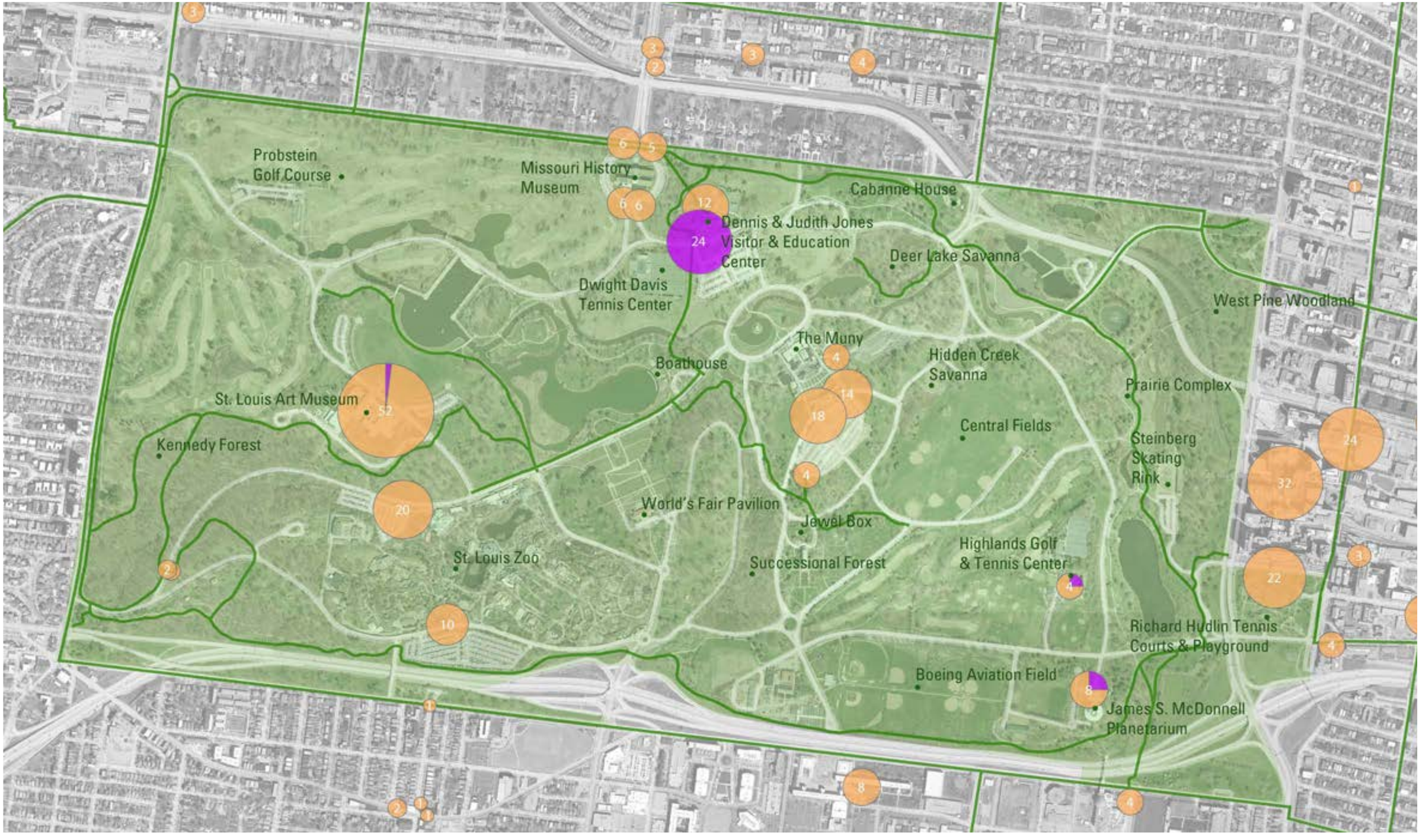
Clayton underpass under Kingshighway (left) creates a condition where cyclists need to ride wrong-direction against traffic to access the park.



BIKING INTERIOR PARK ROADS

Lack of road striping and presence of parking creates some safety challenges for cyclists using park roadways. Great Rivers Greenway considers connections between greenways entering at the perimeter of the park to be primarily via existing streets within the park.

BICYCLE PARKING



LEGEND

- Occupied Spots
- Available Spots
- Bike Network

*Circle scaled to total bike parking supply at location.

Data Collected Wednesday, June 21, 2017

BIKE PARKING SUPPLY & WEEKDAY PEAK OCCUPANCY

Forest Park has 45 bike racks of varying types throughout the Park, with the total capacity to park 220 bikes. During a midday weekday data collection sweep, 28 bikes were observed parked at the various racks within the Park (filling 13% of the total capacity).

Note: Further study is needed to determine the amount of actual public bike parking in front of the Visitor & Education Center versus the amount of bie parking used by private vendors. In addition, bike parking counts will be updated to include the Central Fields renovations, which will add bike racks with capacity to house 36 bikes. General information about future bicycle parking availability will be provided through analysis of future planned developments and requirements for those developments to provide bicycle parking facilities.

The Muny Theatre "U" racks are blocked from access by security fencing during events

Wave racks, as pictured here at the History Museum, are a common rack type throughout the park

The North Zoo Parking Lot has a rack inside the gates of the lot by the parking guard

The St. Louis Art Museum has high capacity for bike parking with easy-to-use racks

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EXISTING PEDESTRIAN TRAILS

LEGEND

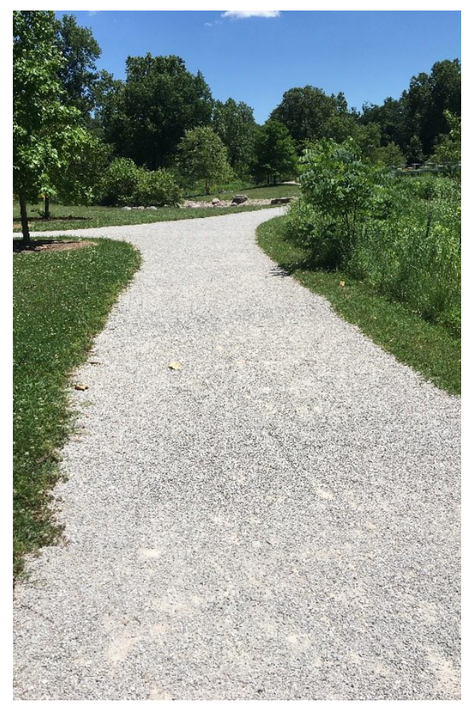
- Asphalt Recreation Path
- Gravel Recreation Path
- Asphalt Path Connection
- Other Pathways

WALKING FOREST PARK

Survey information from the Forest Park Connectivity and Mobility Study completed in 2016 indicates that approximately 15% of all respondents travel to Forest Park by walking. 50% of survey respondents travel by foot once they have entered the Park. Around 38% of respondents reported living in a park-adjacent zip code.

Past recommendations from mobility and access studies have included the following: strengthening east-west and north-south connections, expanding bump-outs and raised crosswalks, establishing a connectivity plan for pedestrians to Central West End station, enhance crossings on Skinker, and fill all gaps in the sidewalk network and consider constructing sidewalks along all roadways.

Intersections with the higher volumes of pedestrians crossing are NS flows in Lagoon Drive at Skinker Boulevard intersection, EW flows crossing DeBaliviere Boulevard along Lindell Avenue, flows along Government Drive crossing Washington Drive and Fine Arts Dr., and crossing Hampton Avenue at Wells Drive intersections. Forest Park has installed pedestrian and bicycle treatments at the Visitor's Center, Union Drive at Grand Drive, Grand Drive at Jefferson Drive and Wells Drive at Skinker Boulevard. The treatments include bump-outs, textured pavement and clear and proper signage to inform drivers of the crosswalk.



DUAL PATH SYSTEM

The pedestrian component is surface with "Chat" gravel, which provides a more forgiving surface for runners and walkers and is generally permeable. Users of mobility devices and parents with strollers, as well as pedestrians who prefer a firmer walking surface use the asphalt path. The mix of speeds and users result in conflicts with faster-moving bike traffic and skaters.

SIGNAGE

Signs indicate "wheels to the right, heels to the left" or similar, but signs are often not heeded. Focus group respondents suggested there is a general sense among users that other users should behave with greater courtesy and users are seeking more clarity about whether these are hard-and-fast rules or guidelines and how these are enforced or encouraged.

GRAVEL PATH ACCESSIBILITY FOR ALL USERS

Some segments of the path network are surfaced only in gravel, and this creates an accessibility challenge for some visitors, such as those using mobility devices like wheelchairs and walkers. Though gravel and crushed stone paths do not automatically fail ADA compliance, in reality these segments can be problematic for wheelchairs and other mobility devices. Due to compaction and/or binding requirements for accessible gravel pathways, they can experience higher levels of water retention, leading to issues with puddles and erosion.

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Skinker DeBaliviere
Forest Park Pkwy
Lindell Blvd
DeBaliviere Place
N Kingshighway
Kingshighway Blvd
S Skinker Ave
Oakland Ave
I-64
Hi-Pointe
Clayton-Tamm
1
2
3
4
5
6
7
8
8

LEGEND

- Water/Sewer Main
- Sewer Channel
- Existing Green Infrastructure
- Approximate Watershed that drains to Forest Park's Linear Connected Waterway System (LCWS)

DRAINAGE & INFRASTRUCTURE

There is an extensive network of existing utilities through Forest Park that serve the numerous Park facility sites and museums. Utilities include:

- Storm and Sanitary Sewers – Metropolitan St. Louis Sewer District
- Water – St. Louis City Water
- Natural Gas – Laclede Gas
- Electric – Ameren Missouri
- Telecom – AT&T and Charter

STORMWATER MANAGEMENT

Drainage areas in the Park are described in the 2012 Forest Park Stormwater Master Plan. Runoff either flows into the combined sewer leading to the River Des Peres storm sewer or drains to open channels that lead to the Linear Connected Waterway System (LCWS). According to the Stormwater Master Plan, "the park-wide LCWS project can be considered as one large series of Best Management Practices (BMP) for water quality, flood protection and channel protection before water leaves the Park and enters the River Des Peres."

BENCHMARKS

The LCWS is categorized as a protected waterway by the State. Therefore, projects that drain into the LCWS are required to meet the Metropolitan Sewer District's Phase II requirements and provide Best Management Practices (BMPs) to reduce and treat runoff. Projects with less than one acre of distrubance do not require BMPs. However, projects that drain into the Des Peres storm sewer need volume reducing BMPs if they have a 1 cubic foot per second or greater impact, but do not require water treatment BMPs.

BEST MANAGEMENT PRACTICES

The Park and its institutions are currently using a variety of green infrastructure and stormwater best management practices (BMPs) to protect the Park's LCWS and provide necessary flood protection. Recent projects have been required by the Metropolitan St. Louis Sewer District to incorporate BMPs that reduce runoff volumes and improve the stormwater quality to comply with the Clean Water Act and MSD's Phase II Permit requirements.

1. WELLS DRIVE & GOVERNMENT DRIVE

18 on-street bioretention basins incorporated into reconstructed roads and sidewalks

2. ART MUSEUM

Two bioretention basins constructed with Museum expansion, collects/treats runoff from Sculpture Garden area and rear of Art Museum

3. FINE ARTS DRIVE & GOVERNMENT DRIVE

Open channel bioswale collects/treats runoff from hillside and Shakespeare In The Park facility

4. DEBALIVIERE AVENUE SIDEWALK

Amended soils running along new meandering sidewalk between Forest Park Parkway and Lindell Boulevard constructed with Loop Trolley improvements.

5. FESTIVAL PARKING PLAZA (UPPER MUNY LOT)

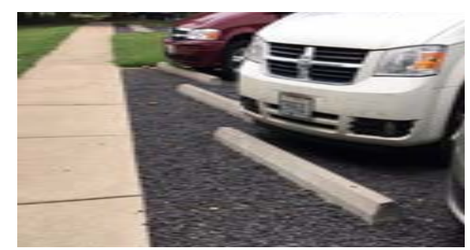
Bioretention basins installed in center medians between parking stalls collects/treats runoff from parking lot

6. KINGSHIGHWAY BOULEVARD DUAL PATH

Three raingarden/bioretention basins collects/treats street runoff from Kingshighway Boulevard and Clayton Avenue

7. ZOO SOUTH PARKING LOT

Permeable paver medians installed between parking rows.



8. ART MUSEUM & WORLD'S FAIR PAVILION PERMEABLE PARKING

Limestone gravel inset parking behind the Art Museum along Valley Drive and granite chip parking at World's Fair Pavilion

ECOLOGICAL ASSETS AND TOPOGRAPHY

LEGEND

- Ecological Asset Zone
- Open Water
- Existing Green Infrastructure

Data Sources: 1995 Master Plan Passive Space Character and Use Map; Forest Park Interactive Map at forestparkmap.org

URBAN ECOLOGY

Passive open space in Forest Park is comprised of upland and bottomland forests, open grassy meadows and lakes and lagoons. The passive areas surround and connect the Park's active spaces and cultural institutions – from Kennedy Forest to Art Hill and Post Dispatch and Bowl Lakes through the linear connected water system and paths. The natural areas remain partly isolated from one another, however the passive zones are critical to support wildlife corridors and habitat, provide mature vegetation as well as to provide recreational demands such as paddle boating, bird watching, paddle boarding, fishing and hiking for example. The natural areas within the Park serve to cleanse and infiltrate stormwater, improve air quality reduce erosion, and cool temperatures. As Great Streets goals are implemented throughout and around the Park's perimeter, the opportunity to connect these forested and passive areas - through path connections or habitat connections - should be considered. Much of the existing roadways and paths drain into the combined sewer system leading to the River Des Peres or flow in open channels that lead to the linear connected waterway system. The Great Streets study recommended the implementation of the project should consider green infrastructure improvements appropriate to the Park context to lessen the impact on the combined sewer system and to protect the quality of the lake system.

Interpretive signage placed throughout the park adds an educational element to the Park's ecological zones

Restored prairie areas protect waterways, provide wildlife habitat and enhance the visitor's experience

Rain gardens help filter stormwater runoff and reduce erosion throughout the Park

The Park's many water bodies provide excess stormwater holding capacity, reducing the risk of flooding while adding a natural amenity

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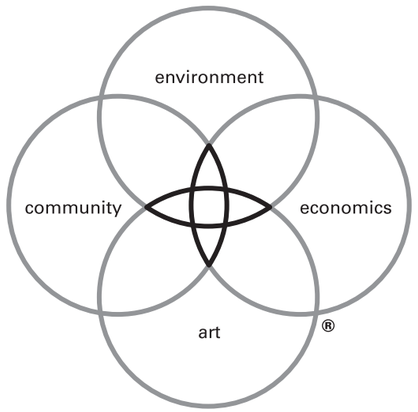
CONCLUSIONS

As the Great Streets process begins to evaluate the potential projects identified in the 2016 Connectivity and Mobility Study, a vast library of data was identified to aid in the feasibility process. Much of the needed data is expressed in the existing conditions report, however there are areas recommended for further study as the priority projects for implementation are identified. As part of the future work to implement the Connectivity and Mobility Study recommendations, future data collection may include:

- Peak day parking
- Projected future bicycle parking availability
- Traffic speeds in and around the Park
- User counts of the dual path system
- Adjacent parking garage locations and pricing
- Parking counts for the southwest corner of the Park taken substantially after the re-opening of Government Drive
- Traffic volumes at all intersections within the study area
- Traffic volumes taken after the re-opening of Forest Park Parkway
- Infrastructure age



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