

ACEC Missouri

2024 Engineering Excellence Awards

Grand Conceptor Award



Crawford, Murphy & Tilly, Inc., St. Louis

PROJECT TITLE:

**MacArthur Bridge Approach
West Span Replacement**

CLIENT/OWNER:

**Terminal Railroad Association of
St. Louis**

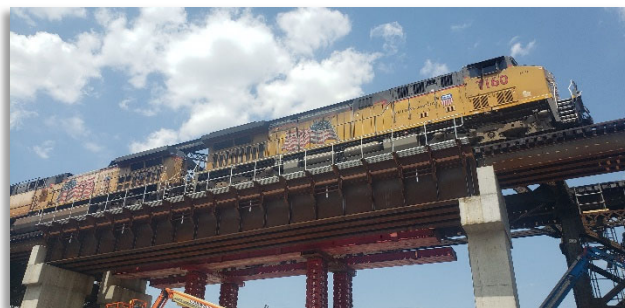
The MacArthur Rail Bridge in downtown St. Louis is a critical link in the national freight and passenger rail transportation network. Owned by the Terminal Railroad Association of St. Louis (TRRA), it carries six Class I railroads, Amtrak and other shortline carriers. At 4.4 miles, the 100-year-old structure is the second longest railroad bridge in the nation. It is also the fourth busiest bridge that crosses the Mississippi River. Although the bridge could certainly be classified as a workhorse, it was not without deficiencies that limited its utility.

Due to a curve in the track next to a truss span the bridge could only accommodate a rail car width of 13 ft, 4 in. This meant that dimensional loads – those wide cars carrying oversized loads such as wind turbines had to be rerouted over 300 miles.

The MacArthur Bridge West Approach Span Replacement project, located over Broadway Avenue, replaced the existing 125-ft open-deck-through-truss structure with a three-span, ballast deck, deck plate girder and steel beam span bridge that will accommodate rail car width up to 15 ft. It features the innovative use of helical piles to support the bridge's foundation, one of the first known applications of this solution on a bridge.

The project's downtown location presented significant challenges during construction, as did the existing bridge's unusual configuration. The team was only allowed 48 hours of accumulative time in which both tracks could be placed out of service as the existing span was removed and the new spans put into place. The task required extensive sequencing and logistics as every inch of limited space was needed to accommodate materials and equipment.

The Design-Build delivery method for the project proved to be advantageous given the site conditions, restrictions and challenges. Having the engineer on-site during construction was critical for keeping the project progressing ahead of schedule, as it allowed problems to be solved and challenges overcome much more quickly and efficiently. TRRA budgeted \$14 million for this project. The team of Crawford, Murphy & Tilly and Goodwin Brothers Construction came in with a winning bid of \$8.7 million, thanks to various cost-savings innovations and measures that opened opportunities to remove 2,600 lf of long-abandoned steel structural elements, enhancing aesthetics and safety for the neighborhood and traveling public. The team also proposed plans that reduced by half the time that both tracks needed to be out of service for the span change-out.





ABNA Engineering, Inc., St. Louis

PROJECT TITLE:
Forest Park Waterways Bathymetric Survey

CLIENT/OWNER:
Forest Park / St. Louis Board of Public Service

The client for this project, Forest Park Forever, required surveying services as part of a project to control flooding while enhancing water features in Forest Park, a 1200-acre park located in the heart of the Greater St. Louis region. For this project, ABNA was the prime surveyor of record. Our efforts provided bathymetric and other surveying information regarding lake volume that was crucial for hydraulic models required to create successful design solutions.

Once completed, the project is expected to improve flood control both within Forest Park and across the entire River Des Peres watershed. Construction cost for this project is \$2.4M, and the project is scheduled to be completed in the next two years.

Specifically, ABNA completed surveys of three of Forest Park's major waterways: Round Lake, Jefferson Lake, and Bowl Lake & Seven Pools. ABNA staff also completed and delivered more than 50 acres of topographic survey. The survey of the lakes gathered data to obtain depth of silt and approximate depth of lakes. Where the lake was over 3 feet deep, sonar technology was used to obtain a dual reading of the top silt and bottom of the pond. Where the lake was less than 3 feet deep, ABNA's surveying staff used conventional survey methods to obtain all required information.

ABNA also prepared topographic surveys and land surveys, including the watersheds around the project site, as required for adequate drainage design, construction easements, and project transitions. Survey data was collected in the field with GPS and robotic instrumentation. By use of a topographic survey, watershed boundaries were verified within the project area and a detailed field site assessment confirmed the current condition of watersheds.

ABNA's Surveying Department delivered all services while navigating the complexities of performing tasks in a popular outdoor space. This required ABNA's staff both to perform their responsibilities as unobtrusively as possible and to interface with the public, thereby serving as representatives for the organization and upholding its reputation for excellence in building and maintaining the region's public infrastructure.

In addition to accommodating the activities of park visitors, ABNA's surveying team took careful measures to avoid disturbing wildlife and to preserve the appearance and health of vegetation throughout the park. ABNA's staff also successfully addressed the presence of structures, water features, and groupings of trees to capture and render accurate topographic data, including information regarding the surface and beds of the water features.

Burns & McDonnell, Chesterfield

PROJECT TITLE:

Ameren Missouri Community Solar Project – Montgomery County

CLIENT/OWNER:

Ameren Missouri



As the world works to move away from fossil fuels, utility companies are turning to renewable solutions such as sun, wind, rain, tides, waves, and geothermal heat. According to a recent International Energy Agency (IEA) report, roughly half of CO2 emission reductions that the world needs to achieve net zero by 2050 will need to come from technologies that are at the demonstration or prototype phase and not yet commercially available. This requires engineers and constructors to constantly look for new means and methods for delivering these complex projects.

A new 6.5-MW solar farm stands in a field just north of Interstate 70 in Mid-Missouri. For Ameren Missouri, this high-visibility placement is a proud advertisement for the renewable power it is adding to support customers in its service territory. The project — designed and built by Burns & McDonnell using engineerprocure-construct (EPC) project delivery for fast, efficient completion — is part of the utility's community solar program. The program is an opportunity for customers who would prefer to have their energy footprint deferred through renewable energy by paying into the program. That creates a pool of funding to build solar installations like this solar facility.

The attraction for consumers: It's a simple way to subscribe to renewable generation. By doing so, they pay to offset their power intake that otherwise likely would have come from fossil generation. For Ameren, simplification is a valuable product of the program. It is far easier, and faster, to invest a pool of solarintended funds into collective renewable energy projects than to deal with the complications of interconnecting hundreds of residential rooftop solar units. Having a good portion of that renewable power centrally located makes it easier to interconnect, distribute and utilize. The new solar farm generates enough power to meet the needs of more than 1,100 residential and business customers.



Burns & McDonnell, Chesterfield

PROJECT TITLE:

STL Jet Fuel System Upgrades and Remediation

CLIENT/OWNER:

**STL Fuel Company, LLC and
St. Louis International Airport**

As the number of air travelers grows, airlines are adding more planes, flights and destinations, thus increasing the need for additional jet fuel. At St. Louis Lambert International Airport increased flights meant more demand for jet fuel. Burns & McDonnell completed two phases of a major project at St. Louis Lambert International Airport, including the construction of a state-of-the-art jet fuel storage facility and the decommissioning of the existing outdated storage system. This project modernized its jet fuel storage facilities and operations. The previous underground storage facility was constructed in 1957 and expanded in 1985. This facility was outdated, posed environmental challenges and could not sufficiently meet the business operations needs at the airport. Burns & McDonnell conducted a feasibility study, leading to the decision to construct a new above-ground storage facility with the capacity to store 3 million gallons of jet fuel.

Burns & McDonnell designed and built a new \$50 million fuel storage facility, which includes three above-ground storage tanks, an 11,000-foot underground fuel transfer pipeline, a control operations building, a backup power

system, and a fire suppression system. These upgrades doubled the airport's fuel storage capacity and improved the reliability and safety of aircraft refueling. After constructing the new fuel storage facility, Burns & McDonnell decommissioned the old underground fuel storage facility, which consisted of 49 underground tanks. During the removal process, the team disconnected the pump system, extracted usable fuel, cleaned the tanks and recycled materials. By reusing materials, the project was able to reduce costs by nearly \$500,000. Strict environmental safeguards were put in place, including soil testing and air quality monitoring. These measures facilitated a removal process with no detrimental impacts on the environment.

Both phases of the project were successfully completed. The new fuel facility was operational in August 2021. This project was recognized as one of Airport Businesses' "2022 Projects of the Year." The decommissioning of the old fuel storage area was a success. Despite its complexity, the project was completed in October 2022 at a cost of \$8 million. There were no recordable health and safety incidents, regulatory violations, or complaints from airport passengers or tenants. Burns & McDonnell successfully addressed the increasing demand for jet fuel and prepared St. Louis Lambert International Airport for continued growth and development. The project exemplifies the firm's commitment to safe, efficient and cost-effective solutions.

The new fuel facility and the decommissioning of the old fuel facility took place between November 2016 and October 2022. In November 2016, STL Fuel Company LLC commissioned Burns & McDonnell to conduct a feasibility study to help determine whether to modify portions of the existing fuel storage system or build an entirely new system. The study concluded that a new fuel storage system would provide economic, environmental and operational benefits. In October 2017, Burns & McDonnell started construction of the new fuel storage facility. In November 2021, the firm started the decommissioning process for the old jet fuel storage facility. The decommissioning was completed in October 2022. The project budget was \$58 million, and the project came in at budget.

HR Green Inc., St. Louis

PROJECT TITLE:

**Route 94/Route 364/Muegge Road Interchange
Project Management Consultant (PMC)**

CLIENT/OWNER:

Missouri Department of Transportation



For this project, HR Green pioneered a first of its kind concept in which a consultant works in-house with the Missouri Department of Transportation. The in-house role, known as Project Management Consultant (PMC), is to both design and manage the project from the beginning through construction. Unique funding parameters, staff shortages within the District, and the complexity of the Route 94 / Route 364 / Muegge Road Interchange improvements, MoDOT selected the HR Green Team to pilot the PMC process for this project.

The construction of the Route 94 / Route 364 / Muegge Road Interchange was the culmination of years of diligent planning; multiple grant / funding submittals; coordination between city, county, and state agencies; and the tireless efforts of the design and construction team to manage the process. The HR Green Team took the groundwork laid by those before them, improved upon the concepts, and expanded the scope – resulting in a completed corridor that met the project's goals of improved capacity, mobility, safety, and maintenance of the system.

The previous interchange at Route 94 / Route 364 / Muegge Road was constructed in the early 2000's as a peak-hour commuter interchange and lacked several movements to make it fully directional. During the conceptual phase, the team proposed a signalized Diverging Diamond Interchange (DDI) in lieu of the grade-separated concept that was previously studied, which saved the project over \$1M. This concept included widening the bridge over Route 94 to add a second southbound lane and construct an additional lane on Route 94 between the interchange and Zumbehl Road to improve traffic flow and capacity. With the cost savings and an additional federal funding grant, the Team was able to expand Route 94 north and add a third lane from Zumbehl Road to I-70. MoDOT also accelerated a future resurfacing project so that the whole corridor could be completed at the same time.

The project was a joint effort between the MoDOT, St. Charles County, and the City of St. Charles, with each entity providing funding towards the total project. MoDOT Cost Share funding, federal STP funding, St. Charles County

Road Board funding, and City of St. Charles funding were all used to make this project a reality. It was also a joint effort between multiple teaming partners to coordinate & contribute skill sets that spurred the success of the project.

While the project solved the primary infrastructure challenges that have plagued the stakeholders of the area since the original interchange was opened, a secondary benefactor of the project was MoDOT. The St. Louis District was not only able to maintain their existing infrastructure and enhance it with monetary contributions from their city and county partners, but also demonstrate proof of concept of the PMC delivery method as a viable and efficient way to supplement their internal staff by using consultants to deliver projects on their Statewide Transportation improvement Program (STIP). This allows MoDOT PMs to focus their attention on other district-wide priorities, thus reducing project load. The success of this initial PMC contract has resulted in MoDOT expanding the use for two other locations where like projects along similar corridors have been bundled together under the PMC model in the St. Louis District. The success has drawn the attention of other MoDOT Districts and the Central Office to explore ways to implement it as a statewide practice.



IMEG, St. Louis

PROJECT TITLE:

Missouri Botanical Garden Jack C. Taylor Visitor Center

CLIENT/OWNER:

Missouri Botanical Garden

The new Jack C. Taylor Visitor Center at the Missouri Botanical Garden, dedicated to sustainability and highlighting the uniqueness of rare plants from around the world, is a showcase of innovation and conservation. Featuring a new 91,700-square-foot facility and a renovated 2,100-square-foot historic green house, the visitor center significantly expanded the facility's ability to handle a higher visitor flow—a much-needed improvement—and provides the ability to host community events, indoor weddings, and world-class seminars on botany.

IMEG served as the Engineer of Record for the mechanical, electrical, plumbing, fire protection, and technology design for the visitor center, which includes an event center, gift shop, meeting spaces, restaurant with garden views, auditorium, and conservatory, as well as the 2,100-square-foot renovation of the historic Linnean House—the oldest continuously operated public greenhouse west of the Mississippi.

Inherently sustainable in its nature, the visitor center features many innovative and efficient systems, including a rainwater collection system, outdoor air control, displacement ventilation in the high-entry lobby, and Mediterranean plant climate control. The complexities of these design aspects, along with the garden's continual operation during construction, created challenges for the design team that were solved with innovative solutions and strategic phasing.

The Jack C. Taylor Visitor Center is prominent in the St. Louis community for events and education. With new accessibility features, increased visitor capacity, and thoughtful design elements for comfort and a natural aesthetic, the visitor center creates a dynamic experience from the moment guests arrive.

TREKK Design Group, LLC, Kansas City

PROJECT TITLE:

Distribution Manhole Inspection Program

CLIENT/OWNER:

Evergy



Evergy serves more than 1.7 million residential, commercial, and industrial electric customers in Missouri and Kansas, with a service territory covering 28,130 square miles. The utility owns more than 10,100 miles of transmission lines and approximately 52,000 miles of distribution lines. Any disruption of service could affect thousands of its users, so it is vital that the utility be proactive in maintaining its infrastructure.

Evergy established its ongoing Distribution Manhole Inspection Program to identify electrical, structural, and maintenance issues within the distribution system to comply with mandatory statewide inspections, make proactive repairs, and improve long term capital planning. The program requires approximately 710 structures across Missouri and Kansas be inspected on an annual basis.

Historically, manhole structure inspections required human confined space entry to observe and collect data on the electrical components of the distribution system. These structures may sometimes be filled with water and require pumping/dewatering before field technicians can descend into them. Significant training, safety documentation, and extreme care is required by field staff to complete these inspections. In response, Evergy made it a priority to find a safer and more efficient method to complete the inspections and refine the overall Distribution Manhole Inspection Program.

Evergy selected TREKK Design Group (TREKK) to help achieve its vision. TREKK has performed thousands of investigations on sub-surface manhole infrastructures. The need for a safer way to collect subsurface conditions in hazardous environments led to the development of the firm's TREKK360 unmanned entry technology.

TREKK360 allows technicians to conduct safer and more efficient remote inspections from the surface, leveraging 360-degree imaging and infrared camera technology. This eliminated the need for confined space entry and significantly reduced the time required to complete inspections. TREKK also developed data systems and platforms to deliver data directly into Evergy's computerized maintenance management system (CMMS). Overall, the new technology has reduced safety risks and the overall cost of the inspection program.



TWM, Inc., St. Louis

PROJECT TITLE:

Route 100 (Manchester Road) Rehabilitation

CLIENT/OWNER:

Missouri Department of Transportation

Thouvenot, Wade & Moerchen, Inc. (TWM) worked with the Missouri Department of Transportation (MoDOT) to redesign and improve a 4.7-mile corridor of Route 100 (Manchester Road) from North Kirkwood Road to Big Bend Road in St. Louis County. Manchester Road was showing signs of aging and was littered with failing pavement, insufficient drainage facilities, utility conflicts, deteriorating traffic signals and noncompliant, or even absent, pedestrian facilities.

Manchester Road traverses six communities, so TWM engineers developed a robust public outreach program and attended large public meetings to present the design elements and interact with businesses and residents to keep them well-informed on design progress. The project required regular communication with key stakeholders including Metropolitan Sewer District (MSD), Metro/Bi-State, Great Rivers Greenway (GRG), and numerous utility companies to create an inclusive project that maximized the investment of all entities.

Improvements included variable depth mill and fill pavement resurfacing, curb and gutter rehabilitation, new bus pads and bus shelters, stormwater facility updates, drainage upgrades, pedestrian facility analysis and ADA improvements, bridge replacement, traffic signal replacement and required upgrades, structural design of a pedestrian underpass and adjacent retaining walls, and streetscape elements such as decorative lighting, wayfinding signage, and City Identification Features. The arched pedestrian underpass required realigning Dorothy Avenue and raising Manchester Road to accommodate the underpass, adding 1000' of shared-use path to connect Rogers Parkway to GRG's Deer Creek Greenway, consolidating entrances along Manchester Road, pedestrian facility analysis and improvements, an additional 10' wide shared-use path running along the south side of Manchester Road through the Brentwood city limits, and safety elements such as pedestrian-scale lighting and

pedestrian actuated rapid rectangular flashing beacons installed at regular intervals to allow pedestrians to more safely cross Manchester Road.

The ability to meet the original schedule was altered by the COVID-19 pandemic. The right-of-way acquisition process was just under way by MoDOT staff when face-to-face meetings were no longer possible. This difficulty in negotiating and obtaining the necessary land rights delayed the project by one year. TWM was able to shift responsibilities to outside projects to maintain the same project engineering staff for the Pedestrian Underpass project despite the schedule delay. The PS&E deliverables were delivered on time per MoDOT/City schedule. TWM's design solutions made critical improvements to the roadway while also creating safe and enjoyable recreational spaces for residents and increasing connectivity for non-motorized transportation.

Honor Awards

GBA, Lenexa, KS

PROJECT TITLE:

Route 171 Intersection Safety Improvements

CLIENT/OWNER:

Missouri Department of Transportation



This project included 14.5 miles of resurfacing Route 171, a two-lane rural highway from the Kansas State Line to Route 43, a specialized roundabout design at the intersection of Route YY/96 and Route 171 to coordinate with the adjacent railroad crossing and scoping of other intersection safety improvements along the corridor. The intersection, located in Jasper County, at the junction of Missouri Route 171 and Routes YY/96, just northwest of Carl Junction, was particularly dangerous due to its proximity to a railroad crossing and history of semitrucks that high centered at the intersection resulting in trains crashing into trucks. To make matters worse, there was not enough separation to allow trucks at the stop sign while waiting to turn or cross at the intersection without the rear end of their trailers extending across the track. High speeds along Route 171 were also a concern through the intersection.

A roundabout would be straightforward, but the railroad crossing presented a unique challenge, one that GBA was ready to tackle. As a first step, GBA studied the traffic volumes at the intersection. Approximately 20 trains crossed at the intersection daily traveling at a maximum speed of 55 mph. This resulted in the west leg of the intersection being blocked for nearly one hour each day. Using the construction year 2021 and design year 2041, factoring in historic growth patterns within the vicinity, traffic volumes on Route 171 were predicted to nearly double within 20 years. Utilizing a SIDRA software program, a quick stochastic analysis was completed that ensured there would be enough capacity provided within the proposed roundabout to address the predicted increase in traffic volume. A microsimulation of the intersection operations during a train crossing was performed using VISSIM software.

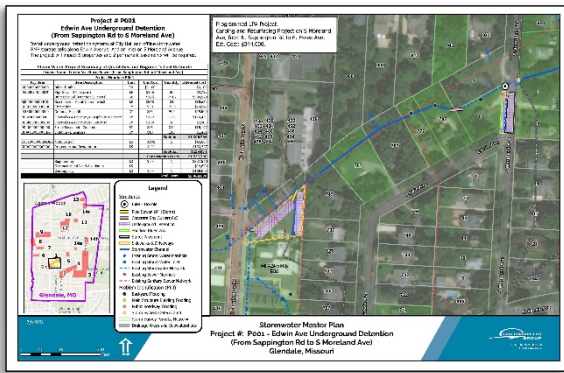
GBA presented conceptual design recommendations to MoDOT that included: 1) Relocate the center of the roundabout approximately 100 feet east of the existing intersection; 2) Install a 175-foot inscribed circle diameter and 10-foot raised truck apron to accommodate heavy truck traffic; 3) Reduce speeds as vehicles approach the roundabout from 55 mph to 25 mph; and 4) Install a westbound right-turn bypass lane.

To stop vehicles from waiting in the roundabout when a train was present, blank-out signs would be installed on two of the roundabout approaches. GBA worked closely with the railroad to provide a preemptive connection between the railroad's infrastructure and the blank-out signs. The blank-out signs were designed to activate when the railroad lights began flashing (approximately 25 seconds prior to the train entering the intersection) and turn off when the train passed. Through local public engagement, a detour route was developed for construction that split southbound traffic to Route M and northbound traffic to Route H. By splitting the traffic, head-to-head truck traffic would be avoided.

Lochmueller Group, Inc., St. Louis

PROJECT TITLE:
Stormwater Master Plan

CLIENT/OWNER:
City of Glendale



As the City of Glendale continues to experience stormwater runoff issues in various areas, it was determined that a Stormwater Master Plan (SWMP) would be an important planning tool to ensure that the city's needs are properly evaluated. The City of Glendale hired Lochmueller Group, Inc. (Lochmueller) to prepare a SWMP to help the City identify localized stormwater issues throughout the community. The problems observed in the City included roadway flooding, main structure building flooding, backyard flooding, basement backups, driveway flooding, sink holes, storm system deterioration and channel ditch erosion. The plan was designed to assist the City with prioritizing the identified and known problem areas, address existing and anticipated future stormwater related concerns, provide a detailed analysis of the high priority issues, and provide recommendations to resolve these problems.

Step one involved conducting an audit of the existing conditions of the City of Glendale. Information about stormwater drainage concerns were acquired from the Metropolitan St. Louis Sewer District (MSD), as well as from City staff with knowledge of history of stormwater issues in the area and input from local residents. A stormwater needs assessment was conducted which analyzed the data collected in the field. The number of problems in an area as well as the severity of the problems identified were considered. A hydraulic analysis was conducted to determine capacities of the stormwater system in Glendale, and using the subwatershed drainage areas, areas of insufficient capacity were identified throughout the City. From this information the areas where projects were recommended were identified.

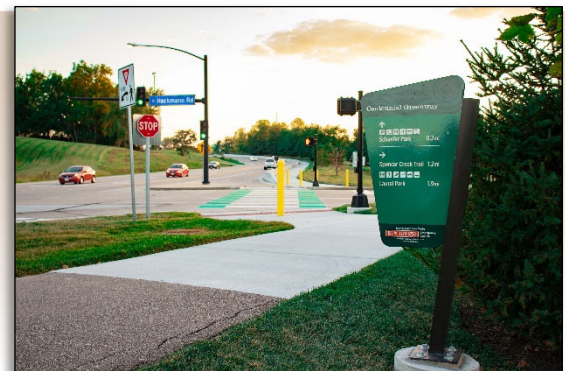
The City of Glendale's Stormwater Master Plan was scheduled for completion September 27, 2022. Lochmueller submitted the completed SWMP July 7, 2022, over two full months ahead of schedule. However, in late July, the St. Louis metropolitan area experienced a series of historical rainfall events. These rainfall events caused substantial flooding events in the City of Glendale. With these new data in mind, Lochmueller updated the SWMP with two additional projects. An addendum to the SWMP was composed and submitted to the City on December 19, 2022.

While the total cost of the recommended projects is estimated at approximately \$21.5 million, through the benefit/cost analysis, Lochmueller identified a collection short-term, high-impact projects. The estimated cost for this collection of short-term projects is \$3.8 million. As of October 2023, one of the recommended non-capital improvement program projects has moved forward with implementation. A portion of one of the CIP projects, the Edwin Avenue Storm Sewer Improvement project, is in design by a private developer and will be funded through MSD's reimbursements program. The rest of the projects have yet to move to design or construction. As part of the SWMP development, Lochmueller aided the City in applying for ARPA funding for the short-term project bundle, but the application was not successful. Lochmueller is presently assisting the City in exploring other funding sources.

Lochmueller Group, Inc., St. Louis

PROJECT TITLE:
Centennial Greenway: Christy Drive to Schaefer Park

CLIENT/OWNER:
Great Rivers Greenway



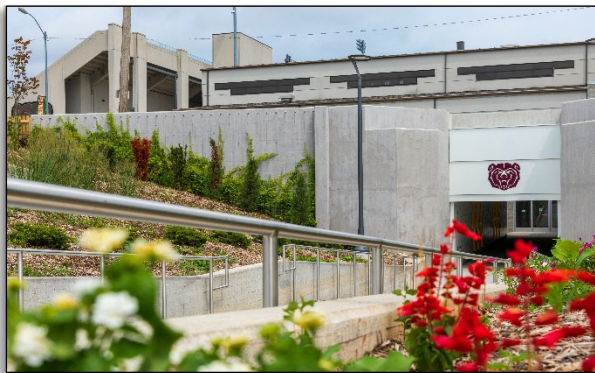
St. Charles County has a large network of existing urban trails throughout St. Peters and St. Charles. Although the network is approximately 20 miles long, some sections were not continuous and were not equally accessible to all residents. To rectify this unequal access, Great Rivers Greenway hired Lochmueller Group, Inc. (Lochmueller) to design the Centennial Greenway: Christy Drive to Schaefer Park project. The project is a 1,950 LF extension of an existing urban trail along Old Highway 94 in St. Charles County. The overall goal was to connect the existing Centennial Greenway to the Katy Trail, the St. Charles Heritage Museum, Schaefer Park, and the newly paved walking path on McClay Road.

Lochmueller's design included the trail, installing new curb-and-gutter, utility coordination, pedestrian signals, storm sewers improvements, wayfinding signage, and public engagement. The wayfinding portion of Lochmueller's scope included approximately 10,000 LF of wayfinding improvements along other existing trails in addition to the new Centennial Greenway Extension. This created a uniform wayfinding experience in the region that reflected the cities of St. Charles and St. Peters' commitment to equitable public amenities.

The completed urban trail is an inviting, paved walking path for pedestrian and bicycle use with new landscaping, wayfinding signage, ADA and safety features at intersections and crossings, and sub-grade storm sewer improvements. Residents and visitors can now walk, ride a bike, or use a wheelchair on an accessible and vibrant greenway between Schaefer Park, over Highways 364 and 94, and to the Katy Trail and Creve Coeur Park, which were previously inaccessible from one another. Lochmueller included innovative safety features such as a concrete barrier to protect pedestrians and slow down traffic, green pavement markings at potentially dangerous crossings, and rectangular rapid flashing beacons (RRFBs), which are pedestrian crossing beacons that passively detect pedestrians or bicyclists to activate automatically.

The positive impacts that multi-use trails like the Centennial Greenway have on communities range from increased physical activity in residents, increased property values, higher economic growth, and improved public health. Studies show that residents living in communities adjacent to multiuse trails are identified with increased physical fitness, noting convenience and access to the trail as a key factor. Studies also show neighborhood trails are associated with a two percent house price premium, while trails surrounded by greenbelts were associated with a five percent house premium. Similar to top-rated schools and low crime, trails are considered an attractive public amenity, leading to increased property values.

Angelica Gutierrez, a Senior Project Manager with GRG, described the success of the greenway as "pivotal. It created connections for people to walk, run, ride a bike or use a wheelchair to get to neighborhoods, parks, schools, businesses and other places they want to go in the surrounding communities." This Centennial Greenway extension brings all of these benefits to the residential and commercial communities along Old Highway 94 and Schaefer Park. Lochmueller is proud to help communities reinvent their futures through local developments that will tangibly benefit local residents for decades to come.



Olsson, Inc., Springfield

PROJECT TITLE:

MSU Grand Avenue Pedestrian Underpass

CLIENT/OWNER:

Missouri State University

Although the Grand Street Tunnel was a key pedestrian gateway to the Missouri State University (MSU) campus, it was utilized reluctantly due to its lack of sight distance and its stairs being a barrier to many. Despite its limitations, the tunnel has consistently served as a primary route for students, faculty, staff, and visitors who park in lots 18, 22, and 24 located south of Grand Street. The objective of this project was to transform the tunnel into a welcoming and accessible campus entrance, seamlessly connecting MSU's southern property to the main campus. In addition, the project added ADA-compliant parking spaces within these lots to enhance accessibility for all individuals, including patrons of Tent Theatre productions. The full design team included: Olsson (Civil, Master Planning, Geotechnical, Landscape Architecture, and Surveying); H Design (Architecture); J&M Engineering (Structural); and Colvin Jones Davis (Mechanical, Electrical, and Plumbing).

Unfortunately, these lots did not offer any ADA parking spaces because there was no accessible path across Grand Street. Furthermore, the existing tunnel was not very welcoming for those individuals who wanted to use it. As a result, often pedestrians were dangerously jaywalking across this busy 4-lane street above the tunnel.

An ADA accessible ramp system was designed on Lot 22 down to the existing tunnel under Grand Street. A new elevator was also designed on the north end of the tunnel in front of the Art Annex. Phase I Master Planning Design included a charete, probable construction cost, and schedule for design/construction. Goals of this phase included identifying issues/obstacles; reviewing ADA compliance for the pedestrians' pathways; and producing an Opinion of Probable Construction Cost for Construction Phase I and a project design and construction schedule. Phase II Design (and Phase I Construction) included the civil and landscape design of the underpass improvements (elevator on north, ramp on south, and new finishes/lighting within the tunnel), as well as the construction period services for this work.

TREKK Design Group, LLC, Kansas City

PROJECT TITLE:

I-49 Outer Road Conversion Design-Build

CLIENT/OWNER:

City of Grandview



The I-49 outer road system in the City of Grandview (City) was converted to one-way traffic in the 1980s. Following this change, these facilities were not operating the way the City had envisioned. The one-way traffic, originally designed as a safety measure, had evolved into increased travel time and confusion for non-familiar drivers. As a result, the City has been planning for decades to revert the outer road system back to two-way traffic to decrease travel time and improve opportunities for economic development.

These roads carry thousands of vehicles per day as they enter and exit I-49 or complete local trips through Grandview. Through this section, the outer roads are home to many businesses, and side streets lead to residential neighborhoods. To complete the conversion, the City facilitated the first Missouri Department of Transportation (MoDOT) Local Public Agency (LPA)-led design- build contract with the TREKK Design Group and Radmacher Brothers Excavating (TREKK/RBE) design-build team. The primary goal of the project was to convert the outer roads from one-way to two-way traffic.

The existing pavement was to be treated with a microsurface to increase its longevity. New sections of sidewalk were also included in the project scope to provide more connectivity for pedestrians. The City also wanted to address the erosion issues happening along the corridor with the addition of enclosed storm sewer.

The portion of the outer roads converted to two-way traffic extends nearly 3 miles from MO-150 north to Harry S. Truman Drive. The project impacted two interchanges along the corridor as part of the outer road conversion, 140th Street and Main Street. New access points from I-49 to the outer road system are possible via two roundabouts near 140th Street.

The significant accomplishment of the project was the incorporation of a third roundabout introduced by the design-build team at the I-49 northbound ramps, East Outer Road, and Main Street. This innovative design enhances safety for all users, minimizes travel times, and promotes economic activity. Design and construction began in May 2021. Despite a number of challenges, including material scarcity related to the pandemic, the team delivered the project ahead of schedule in November 2022.