



ROADS

Multi-Modal Transportation
Planning and Design



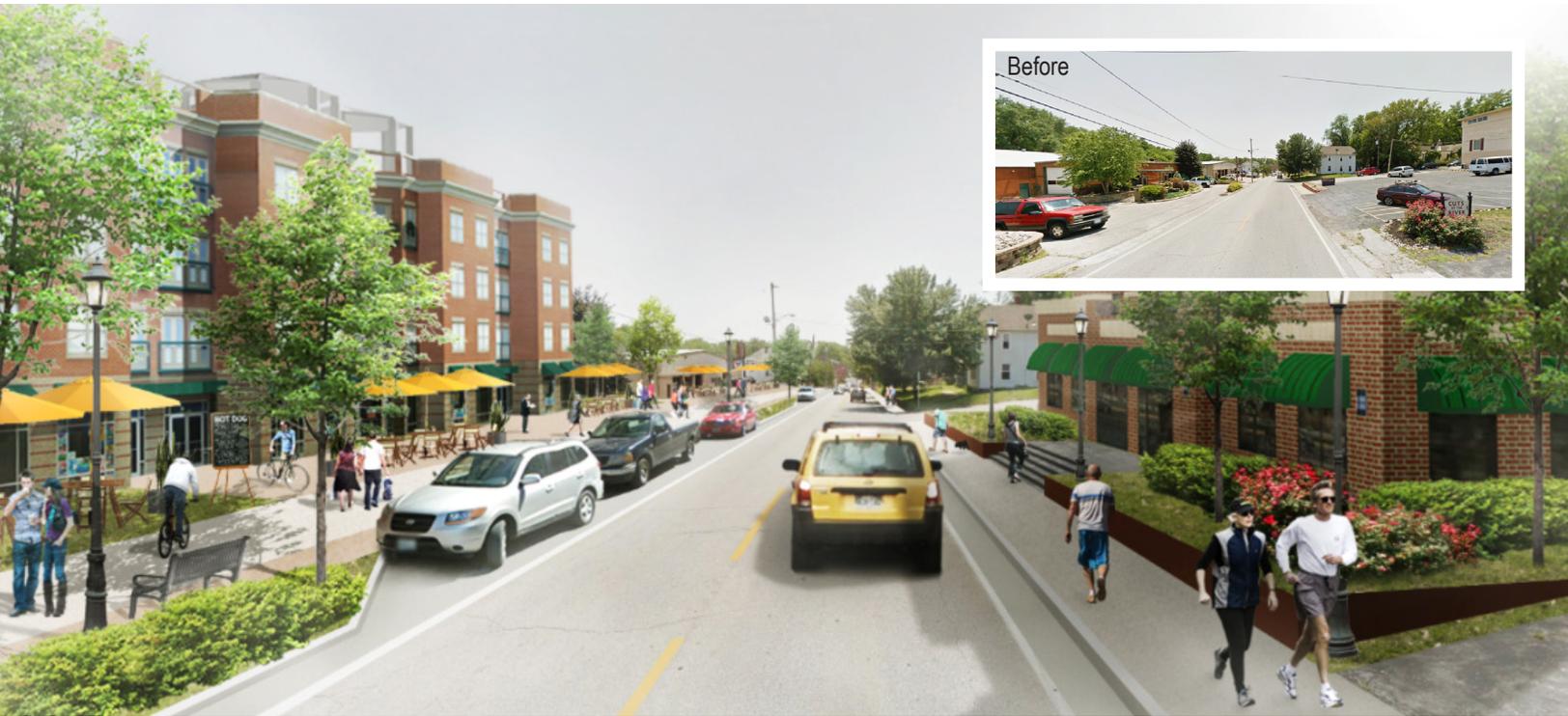


Stadium Boulevard



WHO WE ARE

CFS is a full-service consulting firm that provides professional engineering, transportation and traffic planning / engineering services throughout the Midwest. Our staff of over 90 professionals offers client-focused solutions for public infrastructure, private development, structural, geotechnical and survey projects. As a medium sized firm, we maintain stability, constantly push the state-of-art, while always focused on our core values of service and project quality. We consider it a privilege to have partnered with hundreds of communities and clients for the past half-century.



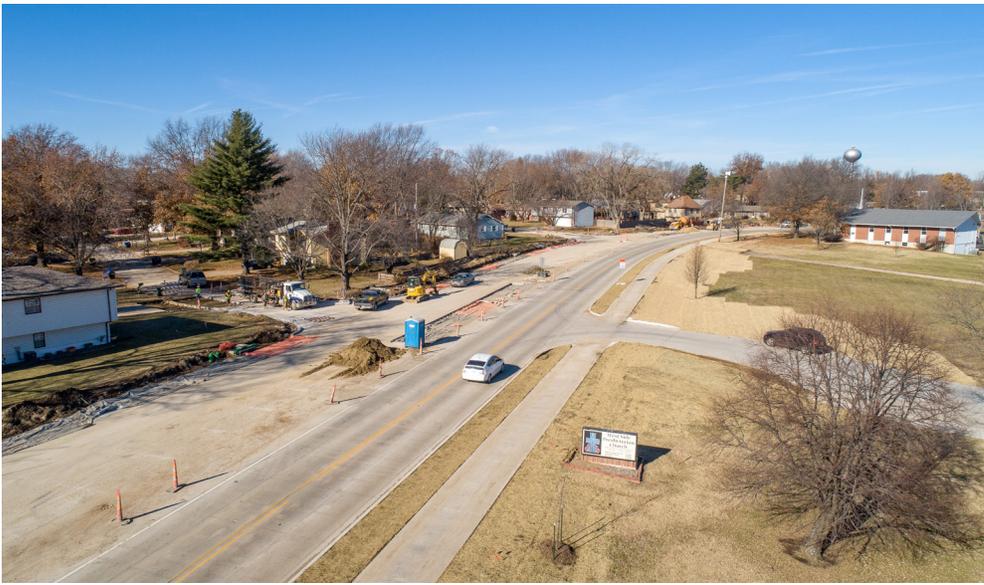
Route 9

The study for Missouri Highway Route 9 in Parkville, MO and Riverside, MO provided specific design details to turn the urban two-lane highway into a two-lane/three-lane "Complete Street" with enhancements in safety, congestion mitigation, and aesthetics to engage pedestrians, recreational and commuter bicyclists, and public transportation users. By incorporating comments from the personalized public meetings and one-on-one meetings, the study determined the optimal benefits both on a large scale for the future population growth and on a small scale for the local users/business owners.

Priority Matrix

| Route 9 Project Segments | Priority Rank 1 to 12 (1 is most preferred) | Required Scoring Criteria | | | | | |
|--|---|---------------------------|---------|--------------------------|----------------|-----------------|--------------------|
| | | Need | Urgency | Ease of Constructability | Cost | Economic Impact | Benefit of Traffic |
| | | High-Med-Low | Y or N | Y or N | \$ | High-Med-Low | Y or N |
| Route 45 to 62nd St | 9 | Low | N | Y | \$750,353.85 | Low | N |
| 62nd St to Parkville Athletic Complex (PAC) | 8 | Med | N | Y | \$550,076.57 | Med | Y |
| PAC to Lakeview Dr | 10 | High | Y | N | \$1,518,450.81 | Med | Y |
| Lakeview Dr to 13th St | 11 | Med | Y | Y | \$2,031,710.41 | Low | N |
| 13th St to 12th St | 6 | High | Y | N | \$908,953.32 | Low | Y |
| 12th St to 7th St | 7 | Low | N | Y | \$785,360.36 | Low | N |
| 7th St to 5th St | 1 | Med | Y | Y | \$603,511.79 | Med | Y |
| 5th St to 2nd St | 12 | Low | N | Y | \$198,542.52 | Low | N |
| 2nd St to White Alloe Creek | 5 | High | Y | N | \$537,728.65 | High | Y |
| White Alloe Creek to Park University Entrance Dr | 4 | Med | Y | N | \$414,886.40 | Med | Y |
| Park University Entrance Dr to Coffey Rd | 3 | High | Y | N | \$1,560,160.95 | Med | Y |
| Coffey Rd to Mattox Rd | 2 | High | Y | Y | \$1,554,565.40 | High | Y |
| | | Sum \$11,414,291.01 | | | | | |





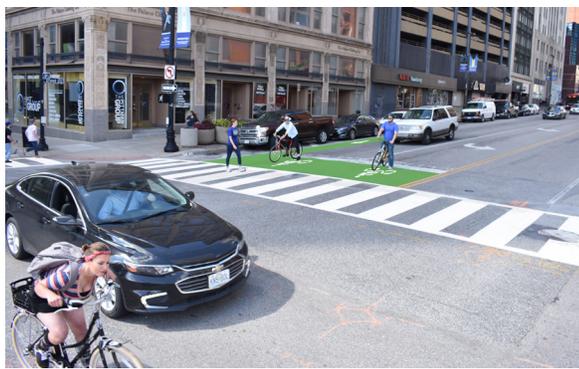
Kasold Drive Reconstruction

The Kasold Drive Improvements Project includes the complete reconstruction of a mile long stretch of a major arterial street surrounded by established residential and commercial areas. The proposed design includes a new median concrete street, recreational path, signals, a new stormwater collection and conveyance system and the replacement of a water transmission main, in addition to the relocation of various existing utilities. CFS worked with the City of Lawrence to provide a substantial public involvement program that included meetings, surveys and a project website.



WHAT WE DO

- Civil Engineering
- Site Development
- Transportation Planning and Engineering
- Traffic Analysis and Engineering
- Landscape Architecture
- Environmental Planning
- Utility Coordination
- Bridge Design and Inspections
- Park and Recreation Facilities
- Electrical Engineering
- Wastewater Planning and Design
- Sewage Collection and Treatment
- Water Treatment and Distribution
- Surveying
- GIS Mapping
- Geotechnical
- Cost Estimation
- Lake and Dam Design and Restoration
- Streambank Stabilization
- Construction Inspection



Bike KC Downtown Loop

This project provides 12 miles of bike lanes in downtown Kansas City. This project involved coordination between multiple city departments and the KCATA. It included improvements to several streets and intersections. It provides inter-connectivity to 4 of the 12 bike sharing stations and many KCATA bus stops throughout the Downtown and Crossroads District. CFS was responsible for design, PS&E submittal, bidding and construction phase services, including inspection.





VISION-LED PLANNING & PRIORITY SETTING

At the core of our parks and recreation work is the philosophy that successful projects are led by a shared community vision. We are regularly tasked with incorporating the perspectives of various stakeholders - citizens, government, regulatory agencies, and special interest groups - into our projects to achieve the highest mutual benefit to all involved. We are committed to bringing individuals together so that all “voices” are heard and realized.

CREATIVITY IN DESIGN

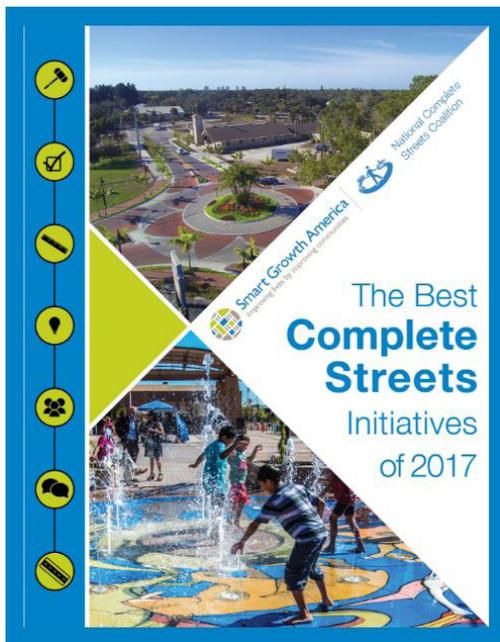
CFS strives to bring beauty and authenticity to every place. Our designs account for the needs and wants of the citizens which results in more active lifestyles. By incorporating local plazas and gateway features, we take a normal gray infrastructure project and adapt technology and green practices to expand the area’s feeling of vibrancy. We have been recognized by our clients, our peers, and the people who visit and enjoy the parks, streetscapes, and other public spaces that our creativity has elevated the status of the community.



TRANSPORTATION PLANNING

We build consensus by identifying the connections, overlaps and magnets between planning issues. With a strong history in transportation planning and many years of experience working with and for KDOT/MoDOT, we are focused on improving transportation options and more specifically Green and Complete Streets. CFS has designed, engineered, and implemented dozens of blocks of high-performance green streets and complete streets in Kansas and Missouri.

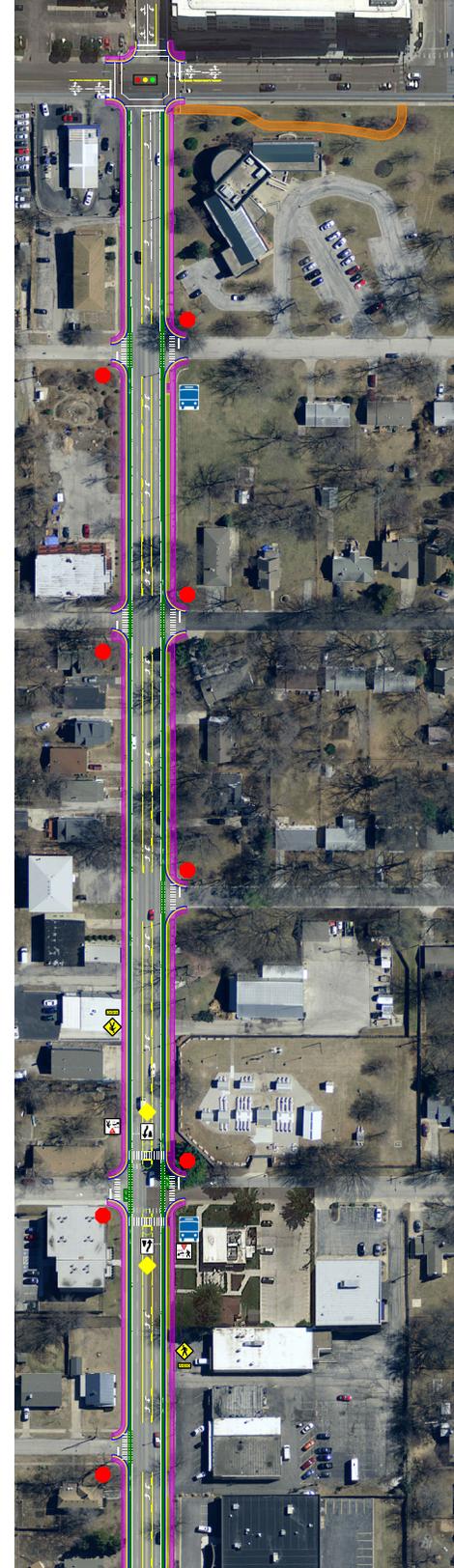




City of Warsaw Complete Streets National Award

CFS has provided a variety of engineering and planning services for the City of Warsaw since 2003 that have addressed a wide range of infrastructure needs and improvements. During that time, Warsaw developed over 40 miles of a diverse mix of natural surface trails, boardwalks, paved trails, mountain bike trails, safe routes to schools, complete streets, sidewalks, pedestrian bridges and trailheads that will make Warsaw one of the most bike and pedestrian focused communities in the country. These projects have received high praise from the community and visitors to the area and have shown to be a great benefit to the City.

<https://smartgrowthamerica.org/resources/best-complete-streets-initiatives-2017/>

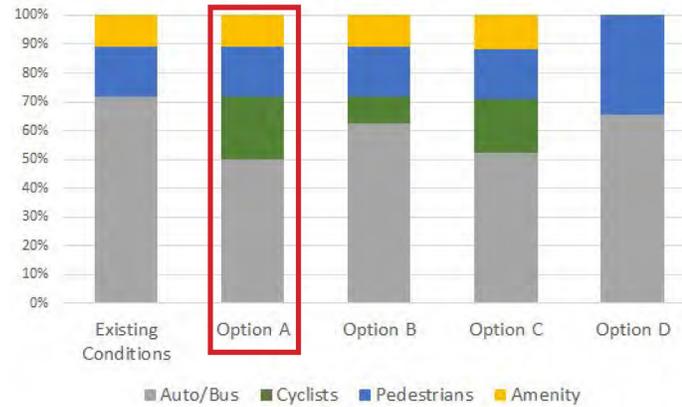


Andrew Robertson Setting Up the Video Traffic Counters

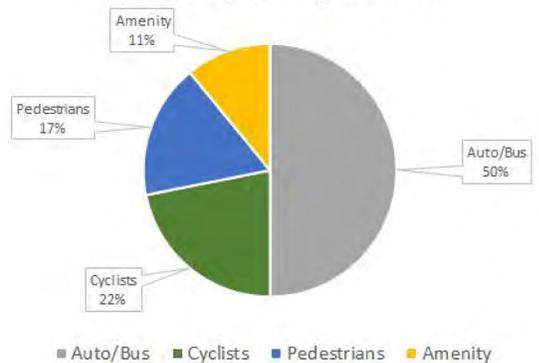
47th Street Complete Street Study

The study provided specific design recommendations to turn an urban four lane undivided arterial into a three-lane "Complete Street" with enhancements in safety, congestion mitigation, and aesthetics to better accommodate all transportation users. Pedestrian crossings and increased safety for bicycles were a main focus. With input from several public meetings, one-on-one meetings, and a walking tour of the corridor, the study determined the optimal benefits for handling a growth of traffic due to new development along the corridor.

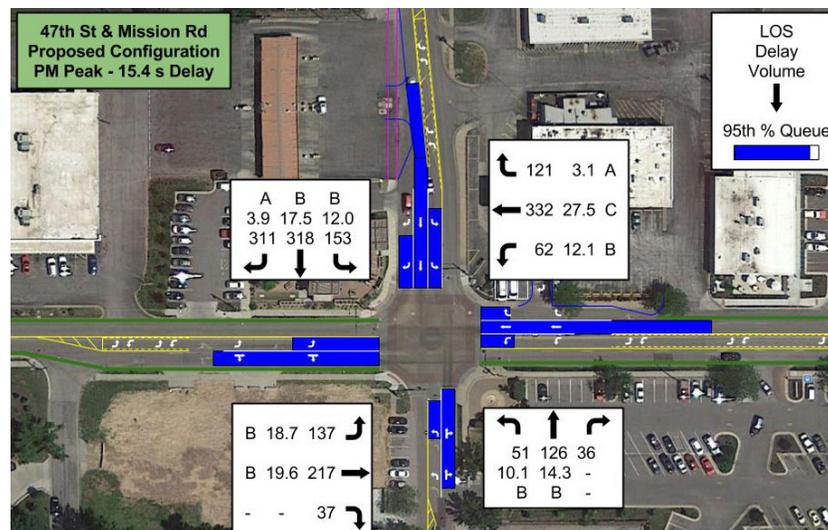
Comparison: Right of Way Allocation



Option A: Right of Way Allocation



Alternative Comparison Analysis



PM Peak Traffic

TRAFFIC ENGINEERING

CFS evaluates traffic conditions with regards to speed, congestion, level-of-service, crashes, and projected land use utilizing the latest in data gathering technology. We help communities to analyze this data in order to provide safe and effective transportation solutions. We also often include the interplay of vehicles with pedestrians, bicyclists, and public transit to provide “complete streets” designs. We are regularly called on to provide traffic impact studies, traffic calming solutions, improved crossing designs, and lane capacity analysis.

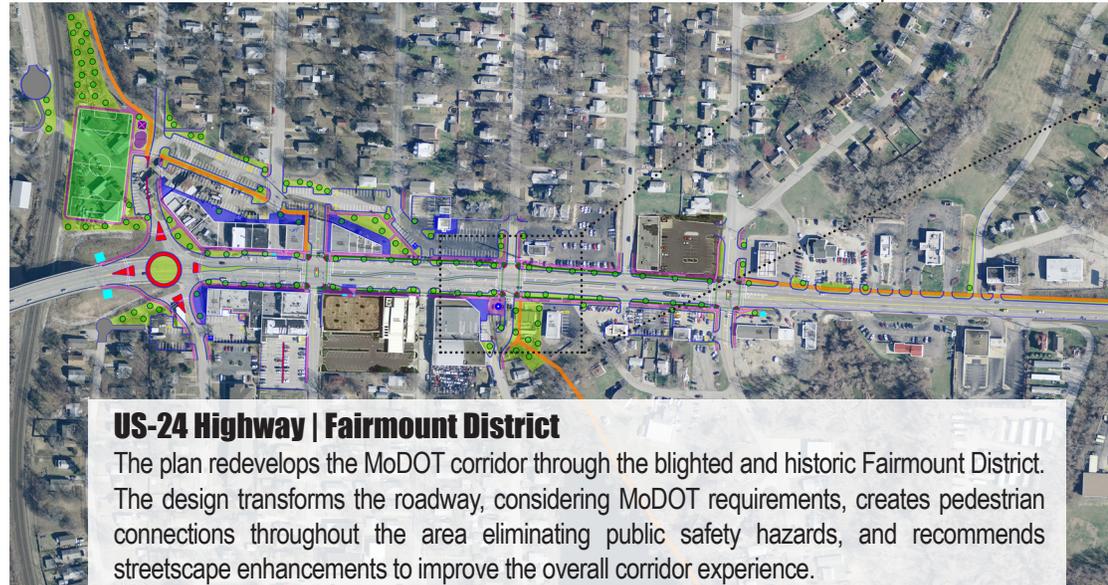
COMPLETE STREETS

As city life in America continues to grow, communities feel the increasing gap between the needs of vehicular traffic and other modes of transportation. CFS offers experience in all aspects of complete street projects, including road diets, multi-modal design and transit-oriented design. This new focus on integrating various forms of transportation with an eye toward common sense approaches results in a functional, connected, and attractive street and overall road network. We gain consensus for the overall preferred design, remove unsafe travel conditions, reduce travel times, and implement Intelligent Transportation Systems. We work toward a sustainable goal of reducing emissions by designing shared-use paths, bike-ways, and scalable transit stops.

Matrix Evaluation of Accomplishments

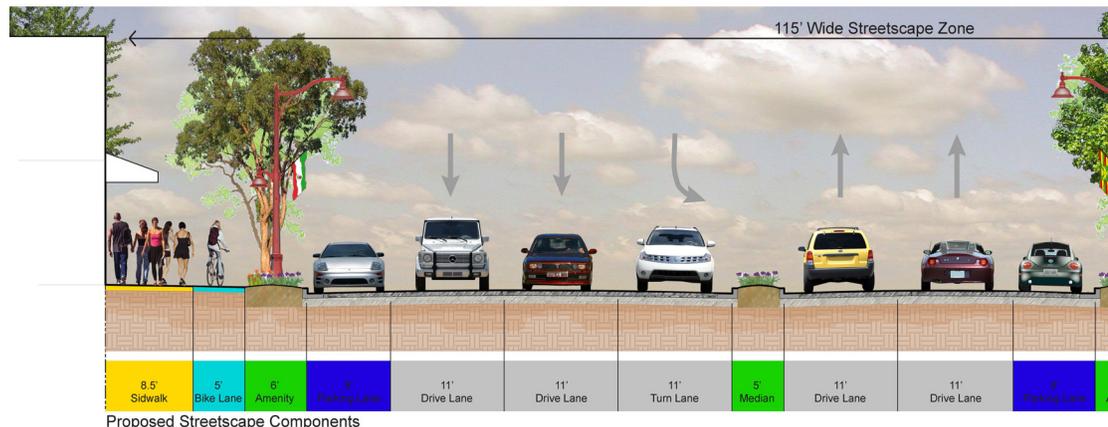
| Criteria | Alt #1 | Alt #2 | Alt #3 | Existing |
|--|--------|--------|--------|----------|
| Project Goals | | | | |
| Safe and Comfortable Env. for Pedestrians | ● | ● | ● | ● |
| Access & Mobility for all Users | ● | ● | ● | ● |
| Supportive Environment for Businesses | ● | ● | ● | ● |
| Create a Destination | ● | ● | ● | ● |
| Connectivity to Surrounding Needs | ● | ● | ● | ● |
| Parking Safety and Functionality | ● | ● | ● | ● |
| Visual Appearance & Cleanliness | ● | ● | ● | ● |
| Feasibility | | | | |
| MoDOT Support | ● | ● | ● | |
| Project Cost to Design and Build | ● | ● | ● | |
| Potential for State and Federal Dollars to Offset Cost | ● | ● | ● | |
| Future Maintenance Cost | ● | ● | ● | |
| Phasing – Ability to Implement Over Time | ● | ● | ● | |
| Anticipated Community Support | ● | ● | ● | |

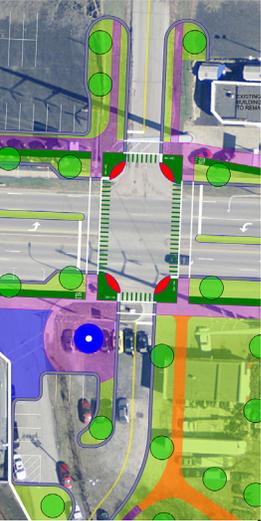
Symbols:
 ● Poor
 ● Marginal Performance
 ● Average
 ● Better Performance
 ● Successful / Best Alternative



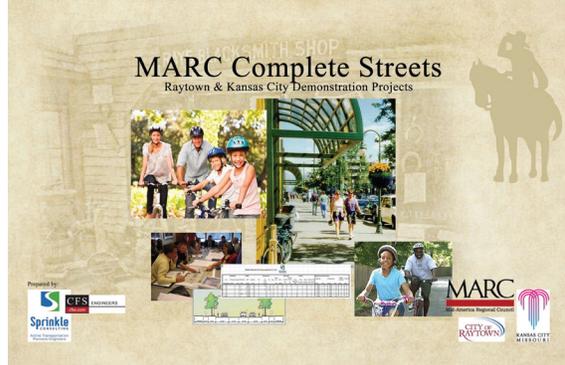
US-24 Highway | Fairmount District

The plan redevelops the MoDOT corridor through the blighted and historic Fairmount District. The design transforms the roadway, considering MoDOT requirements, creates pedestrian connections throughout the area eliminating public safety hazards, and recommends streetscape enhancements to improve the overall corridor experience.





6' Amenity
5' Bike Lane
8.5' Sidewalk

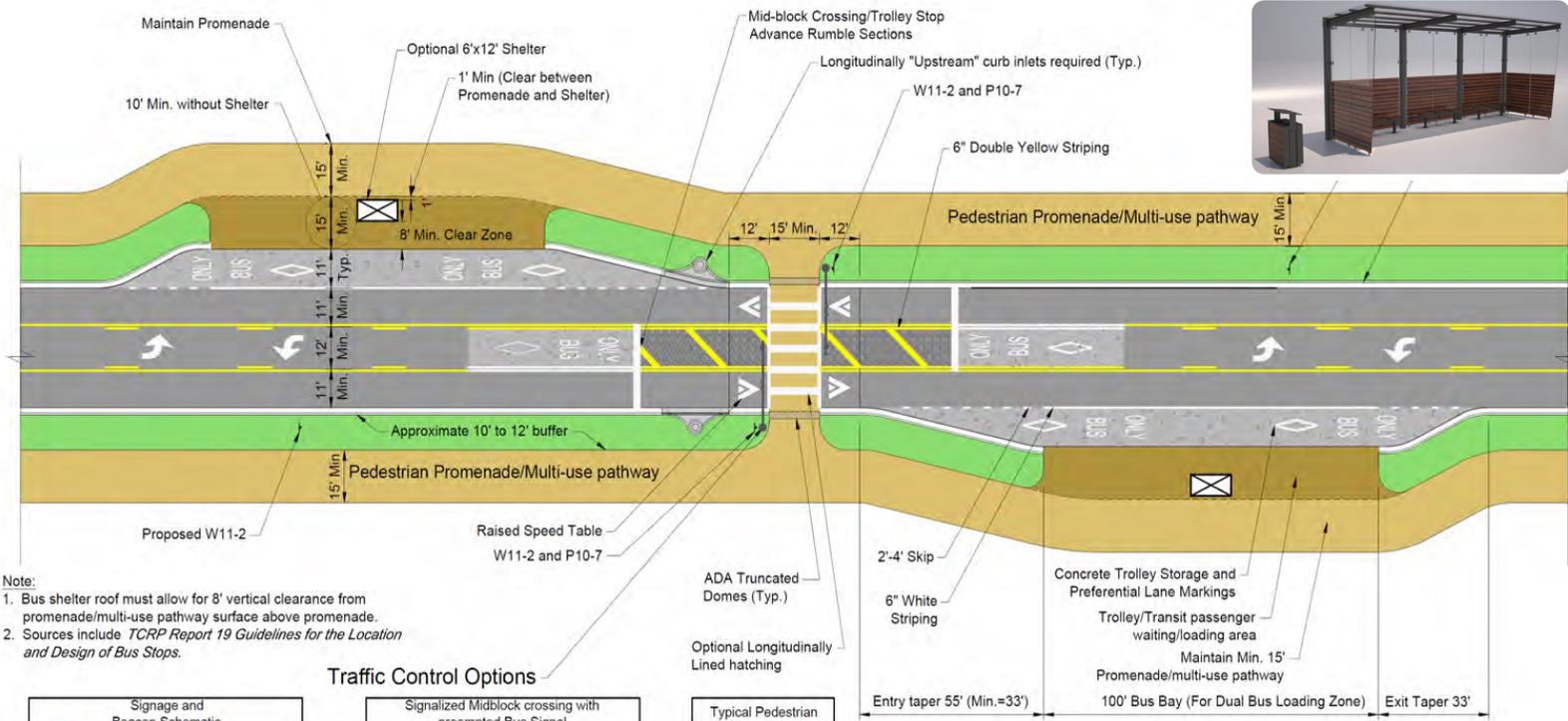


MARC Complete Streets Planning Study

In early 2011 MARC received a grant from the Health Care Foundation of Greater Kansas City to support introduction of Complete Streets' policies to local officials throughout the Kansas City area, and to encourage policy adoption and implementation. MARC engaged the Sprinkle-CFS Engineers to develop a Complete Streets Planning Study and subsequent tools, including training sessions for municipal staff members. The plan assists MARC's member communities with the development of unique, local policies regarding "livable corridors" within their constrained rights-of-way and shrinking fiscal budgets. Within this scope of work were two "pilot projects", one in the City of Raytown, and the other in Kansas City, Missouri, where the design team was asked to assist these communities with the creation of master plans for two specific corridors.

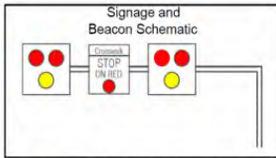
Temporary Exhibits

CFS through its design process typically discusses with City staff the opportunity of creating temporary exhibits or "Better Blocks." As temporary showcase projects, these opportunities display proposed recommendations for a day, using low or no cost temporary solutions to inspire people about the possibilities of better, permanent design improvements. Temporary exhibits showcase the transformation of an existing roadway into a living demonstration of a green, complete and livable community asset, typically including bicycle and transit facilities. Exhibits are typically created with paint, chalk, cones, painted old tires, temporary trees, lighting, landscaping, crosswalks, street furniture, and more.

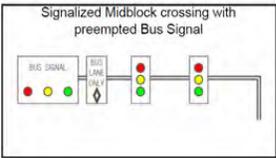


- Note:
1. Bus shelter roof must allow for 8' vertical clearance from promenade/multi-use pathway surface above promenade.
 2. Sources include *TCRP Report 19 Guidelines for the Location and Design of Bus Stops*.

Traffic Control Options



OR



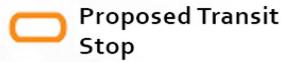
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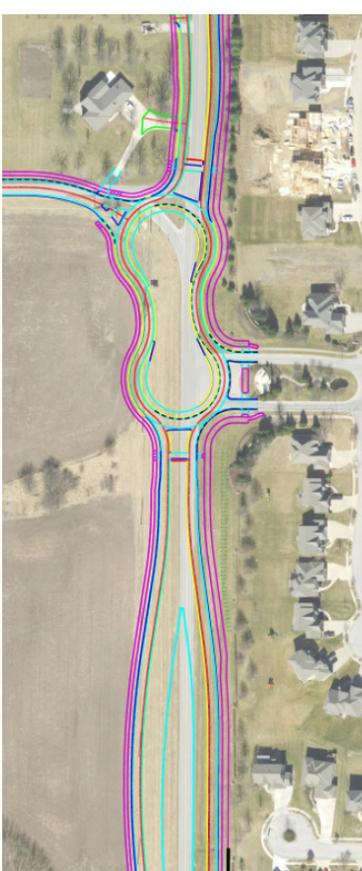


US-76 Transit Design

Multi-modal transportation elements include a 15-foot wide pedestrian “promenade”, multi-use pathway, reduction of driveway access points, pedestrian crosswalks with new signalization and the implementation of a regional transportation management system to improve travel and congestion. CFS developed trolley stop locations, shelter pad design/requirements, and shelter design. CFS coordinated with the City, MoDOT and property owners to facilitate additional easement area for the stops as well as roadway modifications.

LEGEND





INNOVATIVE FUNDING AND PROJECT DEVELOPMENT

We know that many cities, counties and agencies move forward with planning and in many cases, don't have the answers with how to ultimately fund their desired improvements. CFS has over twenty years of experience helping communities move projects from a vision to reality. Our team has experience analyzing existing revenue streams, recommending efficiency measures and identifying new funding sources, both public and private.

SUSTAINABILITY

CFS Engineers recognizes the reality of limited natural resources within our projects and seek opportunities to implement sustainable practices within every one of our projects. Our concept of green streets and green infrastructure starts first with the protection of natural resources (trees, waterways and other green spaces) as the underlying foundation that sustains life and enables economic development. These resources must be protected, maintained and preserved. Within our typical design approach is the evaluation of alternatives to greening our existing "gray infrastructure" (roads, bridges, and infrastructure) — effectively softening the lines between the human-made and natural environments. We create urban roads and infrastructure that serve human needs and protect and restore environmental quality at the same time.

The CFS Engineers approach to sustainable design includes:

- Advocating economic approaches within design that recognize natural resources as capital assets;
- Promoting multidisciplinary, whole system, integrated, and multi-objective goals in all phases of project planning, design, construction, and operations;
- Practicing what we preach with our own firm's energy and material conservation.

MORE THAN MEETS THE EYE

We are more than just an engineering firm. Our team includes dynamic professionals passionate about tackling challenges and generating real-world, common sense solutions. CFS integrates a broad range of services within one organization offering comprehensive approaches to clients.

We're not just an engineering firm; we're an extension of your values and hard work.



One Vision. One Team. One Call.



ENGINEERS

OFFICE LOCATIONS

Kansas City, Missouri
Kansas City, Kansas
Jefferson City, Missouri
Lawrence, Kansas
Springfield, Missouri
Topeka, Kansas
Horton, Kansas