

Farnsworth Group Transportation Engineering



Farnsworth Group has been providing Transportation Engineering services in the Midwest area for more than 50 years. Farnsworth Group works with local communities, county engineers, and the State Department of Transportation on a multitude of transportation projects.

As a multi-disciplined engineering and architectural consulting firm, Farnsworth Group offers a full range of services. Our expertise includes conceptual planning, feasibility studies, Phase I studies, Phase II design and Phase III construction inspection, as well as offering Professional Traffic Operations Engineer (PTOE), LEED and Context Sensitive Solutions professionals. We provide these services for federal, state, county and local governments in both urban and rural environments. Our experience working with contractors and government agencies allows us to get the project completed on schedule, within budget and to the specifications.

Services

- Feasibility studies
- Location and design studies
- Environmental impact studies
- Traffic analysis and projections
- Capacity studies, accident review & geometric design
- Transportation planning
- Parking analysis, planning and design
- Type, size, and location studies
- Drainage studies and design
- Professional Traffic Operations Engineer (PTOE) services
- Transportation facilities design
- Construction observation and administration
- Traffic signal analyzation and design
- Bridge design
- Hydraulic calculations
- Bridge condition reports
- Pedestrian/bicycle paths & structures

Transportation Services

Plans, Specifications & Estimates

- Freeways
- Roads & Streets
- Highway Structure: Simple
- Highway Structure: Typical
- Traffic Signals

Studies

- Location Drainage
- Traffic Studies
- Safety Studies
- Feasibility Studies

Hydraulic Reports

- Waterways Typical

Location & Design Studies

- Rehabilitation
- Reconstruction/Major Rehabilitation

Environmental Studies & Reports

- Environmental Assessment

Special Design Studies

- Railway Engineering

Special Services

- Survey
- Electrical Engineering
- Mechanical Engineering
- Sanitary Engineering
- Architecture
- Landscape Architecture
- Construction Inspection

We're a **traditional firm with innovative ideas.** Vision, quality and dedication are standard in every job we do.

Farnsworth Group Select Project Experience

Murdoch Avenue Bridge Reconstruction | Webster Groves, Missouri

Constructed in 1930, the existing concrete bridge over the BNSF Railway tracks had deteriorated to become structurally insufficient as well as deficient in vertical clearance over the tracks. As a vital connector between the City and Interstate Highway 44, the City took action to secure federal matching funds through the BRM program administered by MoDOT. Farnsworth Group was chosen through a QBS process to provide engineering services for the new replacement bridge.

The project location for the new bridge was tightly confined to the south by the I-44 westbound on-ramp and to the north by Frisco Avenue and a large building. Compounding these horizontal constraints was the requirement by BNSF and MoDOT to increase the clearance to at least 22'-0" from the existing 20'-10". Together these constraints challenged the design team to find a unique solution that was not only cost effective, but also minimized the shutdown time.

Through a series of meetings with the City, MoDOT and BNSF, the design team gained consensus for the use of precast concrete, flat-top, 3-sided bridge sections. These precast sections allowed for the thinnest bridge deck to maximize vertical clearance. Considerable time was spent developing the appropriate crest and sag vertical curves road profile over the bridge while at the same time minimizing the impact to surrounding roads. Working with BNSF, design variances were granted for both horizontal and vertical clearance from their rails to help make this project possible.



Completed: 2012 **Cost:** \$1,920,000

North Rock Hill Road | Webster Groves, Missouri

The North Rock Hill Road project consists of the reconstruction of approximately 0.37 miles of concrete road from North of Kirkwood Ave to Bismarck Ave in Webster Groves, MO.

The project included the removal of the existing concrete road and asphalt shoulder outside of the mountable curb that the home owners were using for parking. The new road consisted of widening the existing road to provide a full parking lane for the residents. Pervious Interlocking Concrete Pavers (PICP) we used in the parking lanes to address the Metropolitan St. Louis Sewer District's Stormwater Quality and Volume reduction requirements.



Completed: 2012 **Cost:** \$800,000

South Elm at I-44 Streetscape Enhancements | Webster Groves, Missouri

Completed in 2006, the City of Webster Groves utilized the Farnsworth Group team for the design of streetscape enhancements along South Elm Avenue between Big Bend Boulevard and Glendale Road. Total length of the project along South Elm is approximately 2,600 lineal feet, plus the four triangular areas adjoining the on/off ramps for Interstate 44. The project included the removal of old steel guardrail, curbs, road pavement, sidewalks and slope paving under both the BNSF railway and the I-44 overpass.

Amenities designed to replace the removals include:

- Stone imprinted concrete barrier walls with a form liner for special imprint to protect the bridge columns and to provide landscape planters
- Relocation of pedestrian sidewalk behind the bridge columns
- Stepped segmental retaining walls under and adjoining the bridges with landscaping
- Decorative unit pavers along the north portion of the project and the median/island
- Decorative street lights along the total length
- Landscaping along South Elm and the four on/off ramps for I-44
- Irrigation watering system
- Special grow-lighting for plantings under the bridges
- Special collection system for bridge stormwater runoff to protect landscaping from impact through existing scuppers
- ADA accessible routing provided throughout



Project funding included the Federal Highway Administration through its TEA-21 and the City of Webster Groves. Project approvals were coordinated with the Missouri Department of Transportation and the Metropolitan St. Louis Sewer District., as well as the City and BNSF.

Project design was completed with the assistance of a local landscape design firm. Coordination meetings were held between the Project Team and the City of Webster Groves including the City's horticulturist to address design issues being incorporated into the final plan. Webster Groves piggy-backed the streetscape beautification project with improvements to the Big Bend/South Elm signalized intersection project also completed by Farnsworth Group. This provided smooth in-house coordination with both projects.

Completed: 2006 **Cost:** \$1,495,600

South Main Street Reconstruction | St. Charles, Missouri

Farnsworth Group served as the City of St. Charles' professional representative in the planning and design of this South Main Street project. This project involved the reconstruction of historic South Main Street from Boone's Lick south to the Reservoir. Roadway improvements included the removal of approximately 1,100 lineal feet of existing brick pavement, concrete curbs and sidewalks, and replaced them with a new brick roadway on a concrete and aggregate base, new concrete curbs, storm sewers, and brick sidewalks. Amenities included gas street lights, street trees, decorative signs, and benches.

As required for the preparation of the design and right-of-way plans, we provided both topographic and design surveys. The field survey work included establishing a survey centerline tied to all property corners, and establishing both horizontal and vertical control points to be used for the construction of this project. Our services also included locating all visible utilities and determining the flow line elevations of all storm and sanitary sewer structures.



Completed: 2012 **Cost:** \$1,100,000

Monsanto Drive Bridge Rehabilitation | Creve Coeur, Missouri

The scope of work for the rehabilitation of the Monsanto Drive Bridge consisted of the following:

- Removal and replacement of the expansion joints at the abutments.
- Jacking and removing the existing bearings at the abutments.
- Place additional concrete on the abutment caps.
- Install laminated neoprene bearing pad assemblies at the abutments.
- Repair the concrete deck.
- Install an epoxy polymer concrete overlay surface to the concrete deck.
- Clean and paint all existing structural steel.
- Clean and paint the existing bearings at the piers.
- Shop modify the existing handrail.
- Perform minimal adjacent roadway repairs.



Completed: 2013 **Cost:** \$646,430

Route 41 Bridge over Gallett Creek | Pontiac, Illinois

Farnsworth Group provided design services for the replacement of the IL Route 41 Bridge over Gallett Creek. The new, three-span bridge measures 72'-0" back to back of the abutments. Engineering services included designing the proposed structure, performing the hydraulic analysis of the existing and proposed structure and preparing the hydraulic report.

Completed: 2010 **Cost:** \$740,000