SMALL ARROW ENGINEERING, LLC

John H. Bolte, PE
Principal

jbolte@small-arrow.com

Education:
Missouri State University -
MBA, May 1994

Kansas State University -
BS, Civil Engineering, 1982

Registrations:
Professional Engineer:
Missouri – E22511
Oklahoma – 18035
Kansas – 14094
Arizona – 37701
Arkansas - 14310

Professional Associations:
ASCE – American Society of Civil Engineers
ITE – Institute of Transportation Engineers

Professional Experience:
Apr 2010 to Present – Small Arrow Engineering, LLC

Apr 2008 to Mar 2010 – Olsson Associates

Sept 2006 to Mar 2008 – CJW Transportation Consultants

Mar 1996 to Aug 2006 – TSE (Tri-State Engineering)

Feb 1991 to Feb 1996 – MoDOT (Joplin District Office)

Apr 1985 to Jan 1991 – KPL Gas Service Company

Jan 1983 to Mar 1985 – The Gas Service Company

Experience Summary:

John Bolte brings over 32 years of project experience. His experience ranges from a broad background in transportation and site engineering to extensive work in the utility industry, with specific knowledge of natural gas systems design and operation, including compressed natural gas (CNG) fueling stations.

Relevant Experience – CNG and Natural Gas Distribution:

Johnson Controls, Allentown, PA. Project Engineer providing CNG design support services to Larson Design Group of Williamsport, PA for the installation of a slow fill CNG facility for the Rose Tree Media School District in Media, PA. Work included CNG enclosure design and equipment budget preparation.

Northeast Oklahoma Public Facilities Authority (NOPFA), Tahlequah, OK. Project manager responsible for development of plans and specifications for two new CNG Quick Fill Fueling Stations in Tahlequah and Stilwell, OK. The work was funded by a grant from DOE under the ARRA program with the Oklahoma Dept of Commerce. Total project budget was $2.2 million; stations completed in 2010.

The Gas Service Company, Kansas City, MO. Project engineer designing and preparing plans, specifications, and cost estimates for gas distribution system projects. Prepared work orders for installing and maintaining CNG quick/slow fill stations. Performed Stoner computer analysis on the distribution system for pressure & volume studies within the KC Metro area. Designed bridge attachment systems for pipeline crossings over rivers, highways and railroads.

Missouri Gas Energy, Ozark, MO. Project manager responsible for survey, design and right-of-way acquisitions for a new 8" T.F. steel supply line from a new TB Station on the Southern Star Pipeline near the CU James River Power Plant to the existing 6" steel Ozark supply line near Nixa, MO. Length was 3.5 miles with pressures of 260 psig MOP/275 psig MAOP. Total project cost - $800,000

KPL Gas Service, Joplin, MO. Design of 1000' of 16" thin film epoxy coated steel feeder main with 4" dual run town border regulators for system reinforcement of Joplin's largest town border station. This work was completed in partnership with Williams Natural Gas and was designed for a system pressure of 175 psig MAOP. Total project cost - $110,000.

KPL Gas Service, Joplin, MO. Design of 1200' of 12" T.F. steel crossing of Dry Fork Creek near Jasper, Missouri. The river crossing utilized concrete coated pipe installed in rock trench. Total project cost - $125,000. Also designed 800' of 12" double C/W X42 steel crossing of Spring River at Carthage, Missouri. This river crossing used bolt-on river weights and rock shield for installation in rock trench. Total project cost - $90,000. Both mains were relocated from bridge attachments, designed for a 150 psig MOP and were placed in service using hot tap tie-in procedures, in order to maintain service to 7000 customers in 9 towns.

KPL Gas Service, Joplin, MO. Formulated and implemented a 10 year service line replacement program for Joplin Division, involving the renewal of 2000 customer installed services/yard lines per year. Total project cost - $16,000,000.

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Experience Summary:

John Bolte brings over 30 years of project experience. His experience ranges from a broad background in transportation and site engineering to extensive work in the utility industry, with specific knowledge of natural gas systems design and operation.

Relevant Experience – Transportation / Traffic:

50th and Main Street, Joplin, MO. Project Manager for a comprehensive transportation study for a new access to a commercial development in the SE Quadrant of the I-44 & Main Street Interchange. Study was completed as a joint effort between the developers, City of Joplin, Joplin R8 School District, and MoDOT Dist 7.

Downstream Casino Transportation Study – I-44 & Rte 400 Joplin, MO. Project Manager for a traffic study to establish a new access break from Rte 400 into the new casino and improvements to the existing I-44 and Rte 400 Interchange. Study recommended design of multi-lane roundabouts to provide access to the casino off Rte 400 and at the new ramp terminals along I-44.

Peninsula Parkway Transportation Group Study, Stone County, MO. Project manager for preliminary design that provided cost estimates and new roadway corridors for a transportation study to relieve congestion in the west Branson area along Hwy 76.

McClelland Boulevard and 32nd Street, Joplin, MO. Project manager for the intersection improvements at 32nd Street and McClelland Avenue, which lies between two large hospital complexes in Joplin's medical services district. The four-way stop intersection functioned well except when shift changes overwhelmed it and unacceptable queues developed. Improvements include signalization with video detection, preemptive capabilities (for emergency vehicles), protected left turns in all directions, with dual lefts for southbound, turning east. The signal also has full pedestrian access controls and is ADA compliant for a future sidewalk system.

Newman Road (Rte TT) and Duquesne Road Improvements, Joplin, MO. Project manager for this busy intersection on the campus of Missouri Southern State College which was controlled by four-way stop signs. A skewed approach, heavy pedestrian traffic, and high left turn movement through the intersection contributed to a very high accident rate. Improvements included a new fully actuated eight phase signalized intersection, widening and straightening the approach lanes on Duquesne Road, turning islands, full pedestrian access for Missouri Southern State College, and installation of preemptive devices. This design was completed for the City of Joplin, with plans reviewed and approved by MoDOT, as this traffic signal is now operated and maintained by District Seven.

Garrison Avenue, City of Carthage, MO. Projects included improvements to Garrison Avenue, a major north/south corridor. Improvements include modifications to two existing signalized intersections, actuated eight phase signalized intersection at Central Avenue (Route 96) and Garrison (Route 571), widened the approaches from four directions and increased turning radii. Also completed designs for a fully actuated 8 phase signalized intersection at Chestnut St. and Garrison (Rte 571).

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MRV, Inc (Developer of Kohl's Stores) for North Park Crossing, L.LC. Project manager for development of plans for a new signalized intersection at 7th Street (Rte 66) and Geneva Avenue, as an entrance to the new Kohl's commercial development. MoDOT relocated Geneva Avenue on the north to align with the Geneva Avenue on the south. The Geneva approaches were widened to accommodate left turn lanes and improved geometrics. The signal required a design variance, as it is closer to the Rangeline Road intersection than normal design requirements. The 7th and Geneva signal was interconnected to signals at Rangeline and 7th, Rangeline and 4th, Rangeline and Mall Road, and Rangeline and Turkey Creek Boulevard.

Route 14 Improvements, Missouri Department of Transportation District 8. Project engineer responsible for the design of improvements to Route 14 in Christian County between Nixa and Ozark, Missouri. This rapidly developing commercial and suburban corridor is generating traffic volumes that are exceeding the capacity of the existing two-lane section. Design improvements include traffic modeling using CORSIM software, roadway widening using urban design criteria (access management, signalized intersections) and analysis of the existing Route 65/14 interchange at Ozark to develop capacity improvements. Total project cost is estimated at $20 million; Rte 65/14 interchange improvements were completed in 2009.

Zora Road, St. Louis Ave, and Florida Ave Intersection Improvements, Joplin, MO. Project manager and design engineer for completion of plans for design improvements to the intersections of Zora Road with St. Louis Ave and Florida Ave in north Joplin. The design compliments the City's plans to widen Zora to five lanes between Rangeline Road and Main Street. Both intersections had existing two-way stops, giving priority to Zora. They were modified to fully signalized intersections, using video detection, preemptive devices, full pedestrian access, bicycle lanes and ADA compliant crossings. Project cost was $500,000; built in 2003.

Schifferdecker Avenue Improvements, Joplin, MO. Project manager for one mile of Schifferdecker Avenue which was widened from 2 lanes to 3 lanes, with a future 5-lane corridor from 7th Street to 20th Street. The work included design of a new storm sewer system and drainage improvements in the Short Creek watershed, utility relocation, ADA compliant sidewalks, new signalized intersections at Junge and 20th Streets, and the signal improvements at 7th Street. The intersections were modified to accept the new 5-lane approach, full pedestrian access and the Junge and 20th Street intersections use video detection. The signals at 7th Street (Route 66) were interconnected to the new signals at the Wal-Mart Super Center. The project budget for was $2.8 million.

Corridor Study along Spur I-44 in St. Robert, MO. Project Manager for a 2 mile long corridor leading into the North Gate of Ft. Leonard Wood in the City of St. Robert, MO for Missouri Department of Transportation District 9. The project involved improvements to the two-mile corridor between I-44 and Ft. Leonard Wood in St. Robert, MO. The scope of the project required; addressing traffic congestion with one mile long traffic queues, making this a walkable community for both Army trainees and community residents, managing access to more than 150 businesses, and giving the corridor a "gateway" appearance for the main entrance to Ft. Leonard Wood. The design plans include eight-foot concrete sidewalks along both sides of the road, storm sewer systems for the corridor, landscaping suggestions, two new traffic

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signals, improvements to three existing traffic signals, and access managed entrances for numerous businesses.

Civil War Road and Route 71 Diamond Interchange Design, Jasper County and Missouri Department of Transportation. Design and preparation of plans for installation of a new diamond interchange at Civil War Road (Carthage, Missouri) on Route 71. This design involved relocating a 12-inch natural gas main, overhead electric transmission lines and constructing new ramps and lowering the existing crossroad grade to accommodate trucks under the existing overpass. Also, the ramp alignments were shifted to miss existing active underground quarry activity being conducted by Carthage Stone, Inc. Total project cost - $1,600,000.

Route 171 and Route 43 Intersection Improvements, Village of Airport Drive and Missouri Department of Transportation. Design and preparation of plans for widening, resurfacing, signal and lighting modifications at the Route 171 and Route 43 intersection north of Joplin (Stones Corner). This design involved completion of modifications under traffic and installation of dual left turn lanes to accommodate increased turning volumes. Total project cost - $240,000.

Route 82 Improvements, El Dorado Springs and Missouri Department of Transportation. Design and preparation of plans for pavement repair, storm sewer, curb and gutter, widening and resurfacing along Route 82 (Main Street) in El Dorado Springs. This design involved installing new storm sewer systems to alleviate flooding problems and repairing existing concrete joints along the one mile long project to improve drivability. Total project cost - $400,000.

Interstate 44 Improvements, Jasper County and Missouri Department of Transportation. Design and preparation of plans for highway signing, cold milling and resurfacing of eastbound and westbound I-44 in Jasper County near Sarcoxie. This 5-mile long project involved widening and rehabilitation of the existing bridges over Center Creek and the Burlington Northern Railroad as well as maintaining traffic with temporary crossovers. Total project cost - $5,600,000.

Route FF Horizontal Alignment, Jasper and Newton County and Missouri Department of Transportation. Design and preparation of plans for replacement of the existing bridge over Grove Creek and correction of horizontal alignment on Route FF, Jasper/Newton County, east of Joplin. This design involved installation of a new reinforced concrete triple box bridge and raised the profile grade to alleviate flooding problems. Total project cost - $1,100,000.

Douger Branch Bridge Replacement on Route P, Lawrence County and Missouri Department of Transportation. Design and preparation of plans for replacement of the existing bridge over Douger Branch on Route P, Lawrence County, north of Verona, Missouri. This design involved installation of a new precast I-girder 3 span bridge and raised the profile grade to alleviate flooding problems from backwater of Spring River. Total project cost - $550,000.

Route JJ Improvements from Route P to Route Z, Jasper County and Missouri Department of Transportation. Design and preparation of plans for widening, shouldering and resurfacing of Route JJ between Rte P and Rte Z in Jasper County, Missouri. This 4 mile long project included the rehabilitation of the existing bridge over Center Creek and installation of standard guardrail. Total cost - $1,100,000.

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Oakridge Drive Intersection Improvements, Neosho and Missouri Department of Transportation. Design and preparation of plans for intersection modifications at Oakridge Drive (Neosho, Missouri) on Route 60, Newton County. This design involved correcting a skewed intersection, adding turning radii for truck traffic, left turn bays on Rte 60 and installing conduits for future signalization. Total cost - $125,000.

Storm Water:

Joplin Creek/Willow Branch Box Culvert Bridge Replacements, Joplin, MO. Project manager for design of three new box culvert bridges at two locations along Joplin Creek and one location on Willow Branch. Locations include 4th Street, 5th Street and Murphy Boulevard, and 5th and Cox Streets. Design also included new channel lining along Joplin Creek to provide erosion control. The City used STP Federal Bridge 80/20 matching funds and the MoDOT local public agency (LPA) procedures on this project. The replacement of the RCB across Murphy Boulevard allowed for an HS-20 loading, making Murphy Boulevard legally capable of carrying truck route load limits.

Kentucky Ave Relief Storm Sewer, Joplin, MO. Project manager for design of new storm sewer system to alleviate flooding problems along Kentucky Street between 7th and 10th Streets. This project received priority ranking in the City's Stormwater Master Plan. The site is located adjacent to and east of Joplin's Main Street downtown area. The neighborhood includes a mixture of light commercial and older single homes land uses. The project included replacement of an existing stone and concrete box drainage structure with an 8' by 5' pre-cast reinforced concrete box and installation of a storm water collection system through 4 intersections with approximately 30 inlets. This new system provides relief for a 25-year storm event.

Civil / Site:

Joplin South Middle School, Joplin, MO. Project manager for site grading, water quality, stormwater design, and the design of a single lane roundabout for a new middle school for the Joplin R-VIII School District.

Joplin East Middle School, Joplin, MO. Project manager for site grading, stormwater detention, water quality and stormwater system design for a new middle school for the Joplin R-VIII School District. This project also included the widening of 20th Street to include turn lanes.

Callaway Ridge Subdivision, Joplin, MO. Project manager for design of streets, stormwater collection, stormwater detention, and sanitary sewer and water for a 20-acre gated subdivision.

Fayetteville National Cemetery, Fayetteville, AR. Project manager for the Department of Veterans Affairs. Plans included storm sewer modifications, main entrance improvements, an additional 316 grave sites, columbaria with 1,200 niches, storage building, site landscaping and irrigation system. The plans and specifications for this work were completed in accordance with V.A. guidelines and Arkansas State Highway and Transportation Standards. Total project cost - $450,000.

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Ft. Smith National Cemetery, Ft. Smith, Arkansas. This federally funded project involved curb and gutter, storm sewer modifications, pavement repairs, and hot-mix asphalt resurfacing of the roadways within the Ft. Smith National Cemetery in Fort Smith, Arkansas. The plans and specifications for this work were completed in accordance with Veteran Affairs guidelines and Arkansas State Highway and Transportation Standards.

Mercy Health System, Fort Scott, Kansas. The 72-acre site replaced an aging and outdated hospital. Project engineer for the following: entrances from the east and the west, including access to Highway 69 with widening for turning lanes (KDOT construction permit); storm water management for the site, including three detention ponds; utility connections including water, sanitary sewer, and gas service; parking lots, site grading with lighting and landscaping and new heliport. Total project cost - $22 million.

Water / Wastewater:

Callaway Ridge Public Sewer Extension, Joplin, MO. Project manager for approximately 3,000 linear feet of 12-inch sanitary sewer main in a public–private partnership with the developer and the City of Joplin.

Missouri American Water, Newton County, MO. Project manager responsible for an EPA funded project. The project involved topographic survey, design, right-of-way acquisition and construction observation for a new water distribution system. The new system provides residents of Northern Newton County a cleaner water supply. The existing water supply had contamination from past lead and zinc mining activities. The system includes a new deep well water supply, a 400,000 gallon elevated storage tank, and a booster station to provide supply from the Joplin water system to approximately 1,500 threatened households and 500 contaminated households. Total project cost is estimated at $19 million, with a completion date of 2008.

Jasper County Public Water Supply District #3, Prosperity, MO. Project manager for new rural water district. Due to turn-of-the-century lead and zinc mining, shallow aquifers in rural Jasper County are contaminated. The need was sufficient to create a new rural water district, Jasper County PWSD #3. Completed the design and plans for the system, including 37 miles of water distribution lines, a 150,000-gallon elevated storage tank, and connection to the water supply of both the City of Carterville and the City of Duenweg. The district began construction with nearly 400 customers, with 200 more customers joining the district before construction was complete. A potential customer base of 1,200 has been allowed for in the system design. The district system was designed using CYBERNET computer modeling software under extended period conditions, simulating actual expected flows and pressures within the network. Also, we provided construction inspection services as the Water Supply District constructed the distribution system and water tower. System was completed and placed in service in 2001.

Heritage Acres Wastewater Collection System and Lift Station, Joplin, MO. Heritage Acres is a rural subdivision with more than 250 building lots. When the subdivision was twenty-five percent complete, Missouri Department of Natural Resources determined they had surpassed the maximum number of lots for individual

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septic systems and the developer was required to provide a collection/treatment system. The Phase I system collects wastewater for at least 100 lots, including more than 10,000 linear feet of collection system, a lift station, two miles of force main and another half mile of gravity sewer. The wastewater is sent to the Webb City Regional Wastewater Treatment Plant through the City of Carterville's municipal collection system. The project was completed on time and is currently in use. Total Project Cost: $500,000.

Electrical:

Interstate Lighting System for Rangeline Road cloverleaf interchange on I-44, replacing the original lighting system (circa 1964), bringing the roadway illumination to current MoDOT standards for urban interchanges. The new system includes six 100'high mast towers and two 45'adaptation luminaries.

Urban / Regional Planning:

Wildwood Ranch Master Plan, Joplin, MO. Project manager for Wildwood Ranch, a 2,000-acre cattle ranch located in Jasper and Newton Counties west of Joplin. Oversaw planning study of demographic, economic, and topographic information as well as local infrastructure. The Master Plan provided the ranch owners various development alternatives and provided the local government officials and economic developers a guide to promote development and growth in a pro-active manner. The plan included residential, commercial, and industrial land uses.

Crossroads Commercial Center, Joplin, MO. Project manager for completion of a land-use plan for a 240-acre area located near the junction of I-44 and Rte 71 on Rte FF (32nd Street). The property is adjacent to the Crossroads Business and Industrial Park and is currently used for agriculture and rural residences. Plans included identifying high visibility locations, a transportation grid to provide street access and recommending appropriate land uses. Work was coordinated with the Joplin Area Chamber of Commerce, the City of Joplin and approximately six property owners. Plans also included promotional materials to attract a large anchor commercial facility, hospitality and service sector users.

Webb City Prosper Industrial Park, Webb City, MO. Project Manager for development of a sketch plat for a new 220 acre Industrial Park to occupy mined land that is being remediated by the EPA under a Super Fund effort. Site to contain rail access for multimodal uses.