





Ulteig delivers comprehensive engineering/design, program management, technical services and field services that strengthen infrastructure vital to everyday life. An employee-owned company, Ulteig connects people and resources to develop compelling, integrated solutions across the Lifeline Sectors® of power, renewables, transportation and water. Ulteig leverages its expertise throughout North America with a wide range of public and private clients.

STATEMENT OF QUALIFICATIONS

TRANSPORTATION



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WHO WE ARE

Ulteig is a leader in the engineering industry. We are a team of forward-thinking, innovative experts who make critical connections, putting together the complex, multi-disciplinary strategies needed in today's changing world.

In over 75 years, the Ulteig team has expanded to more than 900 professionals, offering a full range of engineering solutions across 13 offices and various satellite locations throughout North America. We are well-positioned to respond to our clients' evolving needs in a flexible, agile and collaborative manner.

Today, Ulteig manages an average of 2,000 technical and field service projects per year. We are continually expanding our portfolio of projects that serve our core Lifeline Sectors[®].

THE VALUES AT OUR CORE

CLIENT SUCCESS We create exceptional value through our expertise and collaborative approach.

INTEGRITY We are authentic and always do what's right.

ENTHUSIASM We are passionate about the work we do and have fun doing it.

INCLUSION We seek diverse backgrounds, empower all voices, and value all perspectives.

AGILITY We act with speed, flexibility and balance.

We leverage ingenuity and foster creative outcomes.

AWARDS AND RECOGNITION



INNOVATION

MOVED UP 15 SPOTS

#124

ON THE ENGINEERING
NEWS-RECORD (ENR) ANNUAL
TOP 500 DESIGN FIRMS LIST.

TOP WORKPLACE RECOGNITION

ZWEIG GROUP HOT FIRM

THE DENVER POST

MINNEAPOLIS/ST. PAUL BUSINESS JOURNAL

STAR TRIBUNE

PRAIRIE BUSINESS MAGAZINE

BEST PLACE FOR WORKING PARENTS

HOW WE WORK

More than ever before, communities rely on the connections that bring infrastructure, services and information to their citizens. Ulteig is committed to designing, planning, building, sustaining and maintaining the interconnected infrastructure vital to everyday life.

OUR PEOPLE & THE PROMISE WE MAKE:

Ulteig is wholly built on the belief that growth starts with individual achievements. Innovation requires talented, curious people. Our employee-owners work in multi-disciplinary teams across core Lifeline Sectors® to learn from each other, create new approaches and devise expert solutions.

In 2021 alone, the Ulteig team grew by nearly 25%. With more than 900 employee-owners completing projects in 46 states and 2 provinces in Canada, and projected growth in 2022, our footprint continues to span North America.

100%

EMPLOYEE OWNED







300 LICENSED PROFESSIONAL ENGINEER

35+
CONSTRUCTION
MANAGEMENT
PROFESSIONALS





10+ BRIDGE/ STRUCTURAL PROFESSIONALS

125+







175+
PROJECT MANAGEMENT &
FIELD SERVICE EMPLOYEES





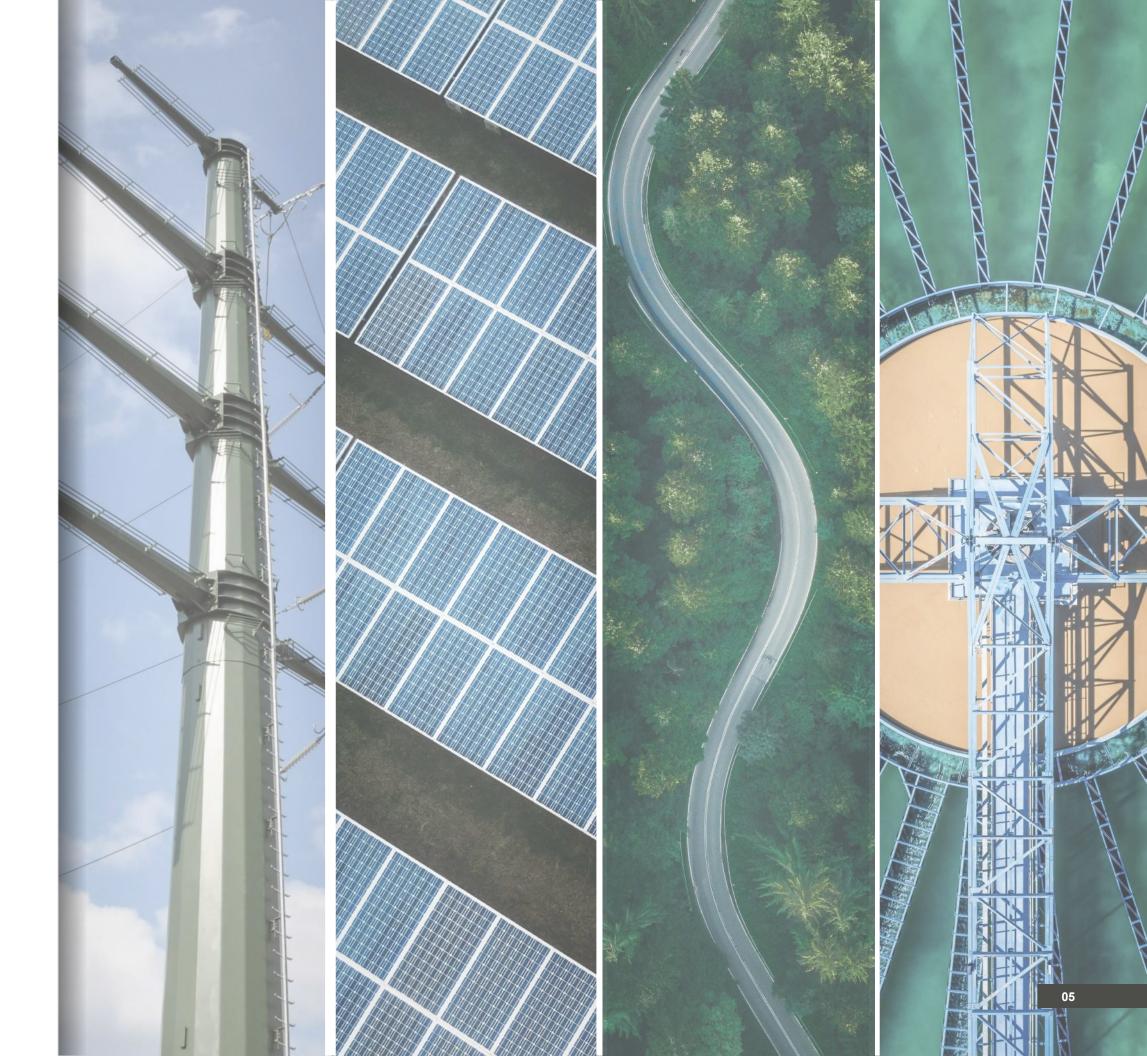






At Ulteig we work across the country's entire infrastructure, the silent foundation that sustains everyday life. We specialize in Power, Renewables, Transportation and Water, and call these LIFELINE SECTORS.

We registered the term Lifeline Sectors because we feel so strongly about what we do. We are creating and maintaining lifelines. We are helping people live cleaner, safer and healthier lives.



LAND SERVICES

Delivering a wide range of land services from land surveying, geographic information systems and right-of-way acquisition. Ulteig brings a unique combination of capacity and experience to your project.

ENVIRONMENTAL

Our environmental team understands the big picture of what your project intends to accomplish. We work together to find solutions that meet your needs while minimizing impacts to the environment and complying with federal, state and local regulations.

PLANNING AND STUDIES

Our in-house experts manage all aspects of a wide range of studies in transportation planning, traffic engineering, and smart infrastructure. With direct access to our team, you have more efficient, reliable and insightful analysis to support informed business decisions. We leverage our vast experience in the transportation market to help you plan for the future.

INTEGRATED SOLUTIONS

Clients depend on us to deliver comprehensive engineering and technical services that strengthen infrastructure vital to everyday life. We provide services in six primary areas of expertise. Ulteig solutions can be leveraged according to your project needs across all of our LIFELINE SECTORS®.

ASSET MANAGEMENT

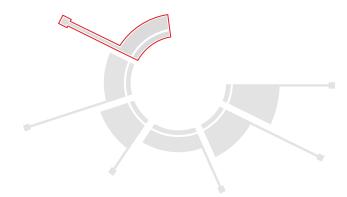
At Ulteig, we focus on using data, information, insight, technology and engineering to manage your day-to-day business needs as well as develop strategic long-term plans for management and investments. Our experts develop the data-driven insights critical to creating an informed and prioritized asset roadmap for your business.

PROJECT DELIVERY SERVICES

As your trusted partner, Ulteig will work with you to determine the best resources to satisfy your unique needs. Our suite of services encompasses a range of solutions related to program and project management, construction management, and other consultative services.

DESIGN AND ENGINEERING

As industry leading infrastructure experts, we develop context-sensitive and cost-effective designs for every phase of transportation projects. We specialize in design, implementation and engineering for work in roadway, highway, bridges and structures.



LAND SERVICES

As the layout of a project takes shape, Ulteig Surveying, GIS and ROW professionals draw on their expertise to efficiently and effectively manage land surveying projects to keep a project moving forward. From surveying 30+ miles of rural highway to acquiring transmission line ROW for projects crossing three states, Ulteig's Land Services team leverages the latest technology and tools to ensure a project is successful from the very start.

EXPERTISE

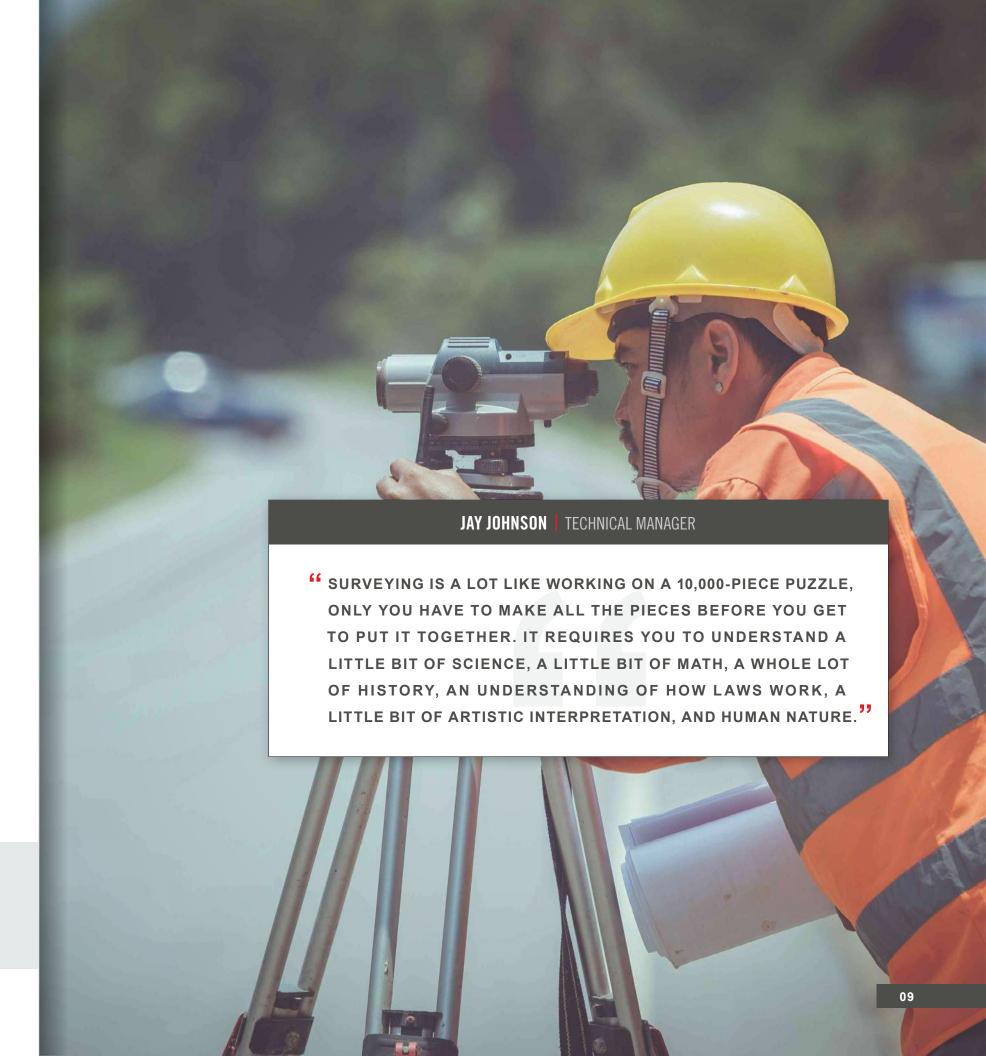
- Large-Scale Highway and Roadway Corridors
- Relocation Assistance and Services
- Land Acquisition

- Title Research
- Crop Damage Assessments
- Lease Program Management

EXPERT SPOTLIGHT JEFF EICKELMAN, SENIOR LAND SURVEYOR

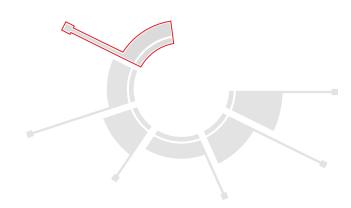


Jeff has extensive local and national experience consulting with CDOT, FHWA and municipalities on everything from topographic surveys to staking transmission lines to multiyear, highly complex corridor projects.



LAND SERVICES

LAND SURVEYING



Ulteig's seasoned, highly trained survey team has built a reputation for survey precision and dependability. We use industry-leading hardware and software to gather and lay out field information for many types of land surveys and construction staking projects. Every survey is unique and customized to your precise needs.

LAND SURVEYING EXPERTISE

- ALTA/NSPS Land Titles
- Boundary Surveys
- · Cadastral Surveys
- Construction Staking Surveys
- Control Surveys
- · Highway and Road Surveys
- Land Descriptions
- Land Divisions

- Design Surveys
- Easement Surveys
- · Elevation Certificates
- Expert Witness Services
- Forensic Surveys
- Global Positioning System Surveys
- Mapping
- Subdivision Platting

GEOGRAPHIC INFORMATION SYSTEMS (GIS) EXPERTISE

- · Data Collection and Custom Mapping
- GIS Server Solutions
- · Technical Support For Utilities
- 360 VMI: Video & Mapping Integration
- · Geometric Network Modeling

- GIS Needs Assessments and Implementation Plans
- Mobile Mapping Solutions
- · Site Selection
- Suitability Modeling
- · Utility Mapping and Modeling

RIGHT-OF-WAY ACQUISITION EXPERTISE

- Relocation Assistance and Services
- Land Acquisition
- Title Research

- Crop Damage Assessments
- · Lease Program Management





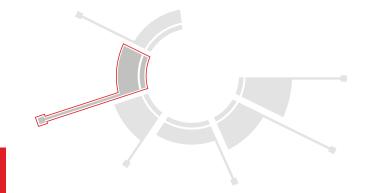
U.S. 52 PASSING LANES | ND

Heavy-duty truck traffic and agriculture equipment traffic has increased along U.S. 52, and the North Dakota Department of Transportation (NDDOT) has turned to Ulteig to design passing and turn lane improvements along the 36-mile stretch from Carrington to Fessenden to:

- Improve the flow of traffic;
- Increase efficiency for drivers;
- Reduce the hazard of slower-moving ag equipment;
- Stabilize transportation speeds;
- And make the transportation route accessible and efficient for all vehicles by considering vehicle size and speed of traffic.

The first of five segments to be constructed in this multi-year project began with planning, environmental and field studies in June 2021, and was bid in May 2022. Our Environmental team performed on a tight timeline and secured a Documented Categorical Exclusion (CATEX) along with other surveys, delineations, reviews and assessments which evaluated both the current highway landscape and the effects of the proposed passing lanes project.

Construction began in 2022.



ENVIRONMENTAL

At Ulteig, we built an environmental team that understands the big picture of what your project intends to accomplish. Our team possesses the technical and project management expertise necessary to keep your projects moving forward. Our team handles and prepares all the environmental documentation, permitting and fieldwork, ensuring federal, state and local agency stakeholders are satisfied and that your project proceeds from concept to reality as quickly, efficiently and responsibly as possible.

EXPERTISE

ENVIRONMENTAL DOCUMENTATION

- National Environmental Policy Act Review (Catex, EA, EIS)
- Planning & Environmental Linkage Studies
- Section 4(f) Evaluation
- Section 6(f) Conversion
- Traffic Noise Analysis
- Section 7 Biological Assessment
- · Wildlife Accommodation Assessment
- Mitigation Plans
- Phase I Environmental Site Assessment
- · Spill Containment and Countermeasures Plan
- · Stormwater Pollution Prevention Plan
- · Environmental Construction Plan Notes/Specifications

FEDERAL, STATE & LOCAL **PERMITTING**

- · Section 404 and State Water Resources Permits
- · Section 401 Water Quality Certification
- · Section 9 Bridge Permit
- · Section 402 National/State Pollutant Discharge Elimination System Permit
- · Watershed District Permit
- · Floodplain Development Permit
- Floodway "No Rise" Certifications
- · Zoning Permit

- Public Engagement Meetings

- · Individual Stakeholder Meetings

STAKEHOLDER INVOLVEMENT

- · Agency Coordination
- · Online Project Mapper and Comment Platform
- · Media Coordination
- Direct Mailings
- · Surveys and Questionnaires

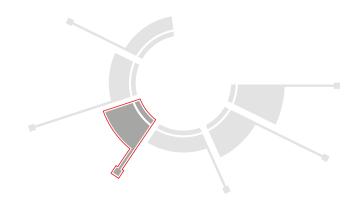


EXPERT QUOTE

EXPERT SPOTLIGHT MIKAYLA BOCHE, ENVIRONMENTAL TECHNICAL MANAGER



Mikayla has over a decade of experience in natural resource management. She leads a team that analyzes all facts of the environmental, social and economic impact of Ulteig projects and ensures that projects not only meet national and state-specific standards for environmental accountability, but exceeds them.



Our goal is to ensure that consensus is reached and innovative, expert solutions are carried out, creating efficiencies and facilitating communication along the way.

EXPERTISE

- Capital Improvement Plans
- Feasibility Studies
- Hydrology & Hydraulic Analysis
- Traffic Analysis
- Corridor Studies
- · Site Impact Analysis
- Multi-Modal Plans

- Environmental Documents
- Public Participation and Consensus Building
- Traffic Modeling
- · Travel Demand Forecasting
- Signal Timing & Coordination

STUDIES

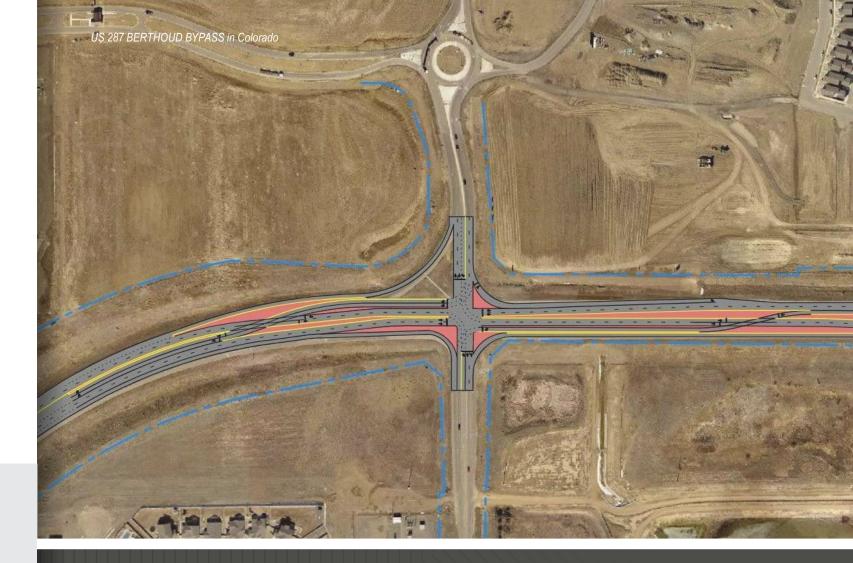
Ulteig's diverse transportation group is well positioned to conduct a wide range of studies. We manage all aspects of the studies in-house, resulting in better efficiency and communication, and giving you direct and reliable access to our team.

Our studies help clients weigh the myriad alternatives and make informed business decisions. With our vast experience and knowledge of the regulatory environment, we provide insightful analysis to help guide in decision-making, and advise of potential pitfalls and future project considerations.

EXPERT SPOTLIGHT ABDULLAH KURKCU, LEAD TRAFFIC MODELER



Abdullah has a portfolio of diverse experience in Transportation Engineering and Data Science subjects. With a proven ability to research, identify and quickly resolve problems, he is committed to outstanding work and research quality and is continuously seeking challenging projects to grow in his career.





US 287 BERTHOUD BYPASS | CO

In summer 2022, Ulteig completed a corridor study of US 287 through Berthoud, Colorado to determine the long-term traffic control needs at several key intersections. Berthoud is experiencing significant new residential development and CDOT wants to establish the future plan for access along US 287 so that all parties (CDOT, Town of Berthoud, Larimer County, and private developers) can work toward a common vision for that corridor. The study included an alternatives evaluation and design recommendation for the US 287/Berthoud Parkway intersection, determined future access and traffic control at the Sunset Court intersection, and established the need and design parameters for an interchange at US 287/CR 10E.

The project showcased the breadth of the Ulteig traffic team's capabilities; they created a Synchro model of the corridor to evaluate the existing signals and stop-controlled intersections and used Rodel to evaluate an existing roundabout, and then created a TransModeler model of the corridor to evaluate more complicated intersection design alternatives, ultimately identifying a partial continuous flow intersection as the preferred option at US 287/Berthoud Parkway. The team also used MicroStation to create conceptual designs and cost estimates for each of the potential alternatives for the US 287/Berthoud Parkway intersection, which included two at-grade options (enhanced turn lanes and partial continuous flow) and three interchange options (diamond, single point urban interchange, and diverging diamond).

TRANSPORTATION PLANNING



Ulteig's planning services are grounded in the concept of mobility and healthy community design. Planning also relies on preserving and enhancing the qualities that make a community unique. We combine community policy planning and design specialties in land use, transportation, recreation area/trails and design guidelines. These plans help establish a long-range vision for the community or corridor to address growth and development challenges head-on.

Our highly qualified, well-integrated team of professionals provide high-quality, actionable and innovative solutions for your community. We use our depth of resources to deliver plans with a focus on increased economic vitality and quality of life, as well as long-term community accessibility, mobility and economic development. We provide a customized team of community planning, transportation planning and public engagement specialists with backgrounds in traffic, transportation engineering, bicycle/pedestrian planning and ADA accessibility.

ULTEIG'S PLANNING SERVICES ARE GROUNDED IN THE CONCEPT OF MOBILITY AND HEALTHY COMMUNITY DESIGN.

EXPERTISE

- Planning of Transportation, Transit and Trail Projects
- Sustainable and Context Sensitive Design
- · Complete Streets
- · Healthy Community Planning

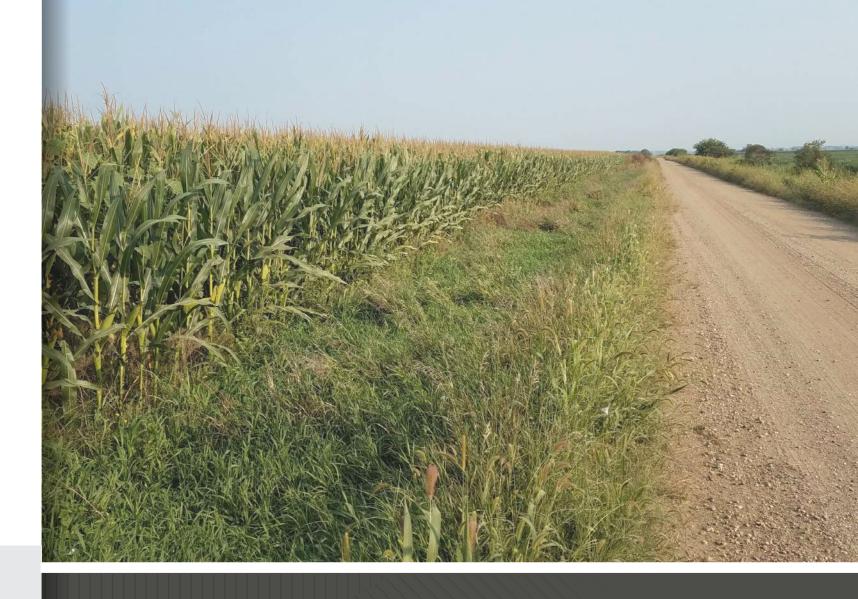
- · Community Outreach and Involvement
- Multimodal Transportation
- · Geographic Information Systems
- · Bicycle and Pedestrian Planning

In addition, our team has the depth of resources to remain flexible enough to tackle whatever alternative topics may emerge during a planning process. This includes reviewing various growth scenarios, transportation policy, and access and economic development opportunities, trade-offs and constraints assessment.

THE ULTEIG DIFFERENCE IS TEAM EXPERTISE.

With decades of experience, our transportation planning professionals are ready to dive into whatever your project entails. We are visionaries who see the big picture while also tracking the most minute project details. Our project managers are certified through the American Institute of Certified Planners (AICP) and are knowledgeable in infrastructure project planning, feasibility studies, funding procurement, bicycle/pedestrian planning, technology implementation and healthy community design.







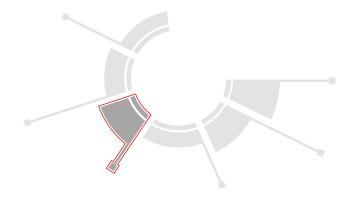
UNION COUNTY MASTER TRANSPORTATION PLAN | SD

The Union County Master Transportation Plan is a long-term planning guide that examines and prioritizes safety, infrastructure, and operations needs from a multimodal perspective to enhance economic and social well-being of county residents. It provides years of vision and guidance for local decision-makers.

Plan analysis includes traffic, safety, freight, pavement condition, bicycle/ pedestrians, transit, design standards, access management, and future needs for a 20-year planning horizon. The study includes a Bicycle and Pedestrian Plan, a 10-Year Paving Plan, a Bridge Replacement Plan, and an Enhancement Project Implementation Plan.

The project was completed on time and within budget in 2022.

TRAFFIC ENGINEERING



Traffic congestion, public safety, access and quality of life are all interrelated.

Our experience with all parties and stakeholders—including residents, council members, DOT officials, businesses and other groups— make Ulteig uniquely qualified to assist you with any traffic-related issue. Through managing multi-phase traffic engineering, roadway and municipal projects, we've learned that success is often dependent upon the unique nature of a project. Our multi-discipline team, spread across several states, is structured to allow for effective coordination among team members. Experience helps us to approach each project holistically by establishing regular quality assessments, project milestones, design deliverables and deadlines for each step in the project development process. This allows our team to be an efficient, knowledgeable resource dedicated to helping our clients identify, analyze and address traffic concerns.

For any improvement project, special consideration and planning is conducted to ensure:

- Traffic continues to flow during construction while allowing access to adjacent properties.
- · Regular communication exists with businesses, residents and other stakeholders to make sure critical issues are being addressed.
- · Information is provided to affected adjacent property owners, through traffic users, community organizations, schools, transit providers and policy makers.
- · Pedestrian, bicycle and transit access, as well as overall safety concerns, are identified and addressed as the highest priority.
- · ADA accessibility during construction is addressed accordingly, particularly when sidewalks and other facilities may be temporarily unavailable for use.

Ulteig provides data-driven multimodal mobility solutions to address current and emerging needs. Integrated, connected and smarter use of transportation can shape our travel, cities and society for decades to come

EXPERTISE

- Smart City Applications
- Sidewalk and Access Improvements
- · Connected and Autonomous Vehicle Implementation
- · Capacity and Flow Optimization
- · Rideshare and Curbside Management
- Traffic Analysis
- · Active Traffic Management
- · Traffic Impact Studies
- · Safety Analysis

- · Travel Demand Modeling
- · Traffic Control Design
- · Signal Timing and Coordination





Blake is a technical manager for traffic engineering with a background primarily in transportation planning. He has experience working on traffic design, project management and almost every aspect of traffic engineering,



HAWK SIGNAL WILL IMPROVE BICYCLE & PEDESTRIAN TRAFFIC | CO

The City of Centennial, Colorado, has contracted with Ulteig for the design of a mast arm pedestrian hybrid beacon signal (HAWK) on South Holly St. The HAWK signal will be installed on Holly Street between Easter Avenue and Fremont Avenue. It will provide an important pedestrian and bicyclist connection to the adjacent Willow Spring Open Space trail system. The ultimate location for the HAWK signal will take into consideration existing topography, trail connections and utilities. The project includes the design of a new raised median within Holly Street and ancillary items such as striping modifications, signage installation, curb ramp installations, fiber interconnects, grading, erosion control and landscaping.

SMART INFRASTRUCTURE SAFER ROADS THROUGH TECHNOLOGY

Ulteig embraces a new era and ideology in transportation and traffic, using technology and innovation to optimize the performance and capacity of the existing transportation network. Ulteig's forward-thinking team seeks out industry-leading information, working with our clients to implement cutting-edge practices and emerging technologies to best benefit the public.

SMART WORK ZONES

The Region 1 Smart Work Zone Guidelines provide a clear, consistent project approach by establishing a SWZ design workflow that runs in parallel to the design process for roadway projects. The workflow begins at the project scoping level and ultimately provides plan sheets, an operations plan and project specifications. This is to help contractors understand what is included in the smart work zone items they are bidding on and how they are expected to work in the field.

The Smart Work Zone Guidelines document provides a "toolbox" that includes basic system layouts for 10 SWZ strategies. This allows a project designer to select and tailor the appropriate strategies to mitigate for the expected construction traffic impacts.

EXPERT SPOTLIGHT JEFF REAM, PE, PRINCIPAL ENGINEER - CIVIL



Jeff utilizes his 30+ years of experience in the industry to do signal warrant analyses, signal coordination studies, intersection operations evaluations, pedestrian safety evaluations, parking studies and traffic forecasting. His core focus is on traffic operations, and he also has experience in transportation planning and travel demand modeling.



Ulteig authored a variable speed limits (VSL) development guide for implementing a technology-based approach to changing speed limits in response to weather and traffic conditions. Under this approach, an algorithm computes an appropriate, safe speed based on real-time traffic, road, and weather data and communicates it to the traveling public.

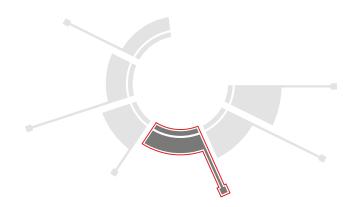
The guide includes identifying safety problems that may be susceptible to correction through VSL, evaluating feasibility of VSL deployment, developing the algorithm for a specific corridor, VSL design, systems engineering analysis, integration with CDOT's existing ITS software systems, testing, calibration, maintenance, operations, and public involvement.

Ulteig delivered the final draft in October 2022.

PROJECT HELPING TO ESTABLISH SMART WORK ZONE GUIDELINES | CO

Ulteig developed a consistent approach to incorporating SWZ guidelines into construction projects using commercial SWZ systems to provide credible, real-time, actionable information to drivers. Using the ITS V-Diagram, all strategies were assessed to ensure compliance with the required systems engineering process.

The guidelines provide a clear and consistent project approach by establishing a SWZ design workflow that runs in parallel to the roadway project design process. Ulteig developed a toolbox for 10 SWZ strategies, allowing a project designer to tailor appropriate strategies to mitigate construction traffic impacts. The toolbox was incorporated as part of the construction bid process.



We put our vast knowledge and experience to work for you, assisting from conceptual design through detailed design and construction support. Ulteig's high quality designs are context-sensitive and cost-effective. Our designs strive to balance the competing needs and desires of the clients and end users, while building the framework for quality controls that will guide the implementation of the project. We offer detailed design work, development and review of design calculations, selection and design implementation. Our goal is to provide solid commitment through unmatched client services and create a positive experience for our clients.

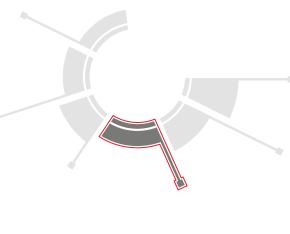




Paul serves as a technical expert and project leader on many types of transportation and traffic related projects. These projects include roadway, intersection and multimodal/recreation trail designs as well as traffic signal design, traffic analysis, impact studies and modeling.



ROADS AND HIGHWAYS



Ulteig is an advanced firm that stays attuned to cutting-edge practices and the community elements of transportation facility development. We understand that facility planning and design must be environmentally friendly and sustainable, and our many private sector and governmental clients find us responsive and time conscientious. We are committed to effective and continuous communication with our clients and involved stakeholders to promote solutions that are supported by area staff and elected officials.

DESIGN EXPERTISE

- Structures and Bridges
- Water Resources, Drainage and Utilities
- Multi-Use Recreational Trails
- Roundabouts
- Streets and Highways
- Traffic Signals and Lighting
- Reconstruction and Rehabilitation

- · Autocad and Microstation
- Construction Traffic Control and Detour Plans
- Value Engineering and Constructability Reviews
- Alternative Delivery
- Independent Cost Estimating
- Civil 3D, MicroStation, Geopak and ORD

CONSTRUCTION EXPERTISE

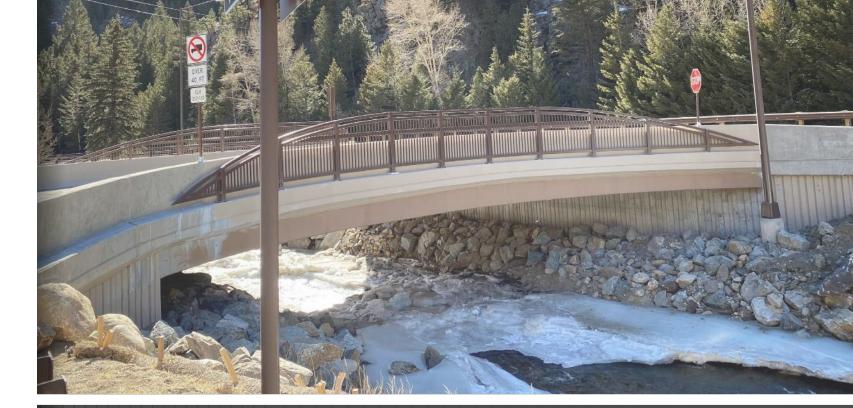
- Project Management
- Bidding Phase Services
- Shop Drawing Review
- Records and As-Builts

- On-Site Construction
 Observation
- Project Close-Out
- Schedule Management

EXPERT SPOTLIGHT JASON ADAMS, PE, SENIOR ENGINEER



Jason has over 15 years of transportation design experience. He has collaborated with TxDOT as well as cities and counties throughout the state of Texas. He strives to provide high-quality transportation designs for clients' that tailor to their specific needs.





FALL RIVER ROAD | CLEAR CREEK COUNTY, CO

Ulteig was hired by Colorado Department of Transportation (CDOT) to complete the design of the Fall River Road project. Begun as an urgent response to improve safety for bicyclists who used the busy westbound I-70 to access the Fall River community, the project evolved to a vehicular bridge, adding an alternate route for emergency vehicles on I -70 in heavy congestion such as peak ski travel season.

LISTENING TO OUR CLIENT

The project supports CDOT's Whole System – Whole Safety initiative by improving safety conditions for all modes of transportation using I-70. The project design also accommodates future greenway trail projects from the Clear Creek County master plan, avoiding the need for future modification.

LISTENING TO THE COMMUNITY

An added challenge was revealed through stakeholder engagement with the local rafting community. Because the proposed bridge would be located almost directly above a rapid, the standard one-foot freeboard design for Clear Creek County bridges would not be adequate. Ulteig incorporated rafters' goals by modifying the original design to accommodate a vehicular bridge with eight feet of freeboard.

RESULTS

This project was a powerful reminder to go beyond the "usual" stakeholders and ensure that a transportation solution truly embraces the needs and accommodates the impacts of the whole community. Without the extensive community engagement facilitated by Ulteig, this inclusivity would not have been possible.

Ulteig has won WTS Innovative Transportation Solution of the Year Award for our work with Fall River Road.

ROADWAY DESIGN



Our designs are context sensitive and cost-effective. We balance the competing needs and desires of our clients and end-users. We offer detailed design work, development and review of design calculations, selection and design implementation. Our goal is to provide unmatched services and create a positive experience for our clients.

We have extensive experience in meeting the requirements and expectations of all levels of government—federal, state, regional and local. We put our vast knowledge and experience to work for you, from conceptual design through detailed design and construction support.

EXPERTISE

- Schematic Designs
- Plans, Specifications, Estimates
- · Freeway and Interstate
- Interchange Improvements
- Roundabouts
- · Streets and Highways

- Multimodal Design
- Reconstruction and Rehabilitation
- Construction Traffic Control and Detour Plans
- Trail Design
- Main Street Corridor Design
- Safety Corridors
- Signing & Striping
- Destination Lighting
- Resiliency
- Drainage
- Erosion Control

EXPERT SPOTLIGHT JOSH KUEBER, PE, SENIOR ENGINEER



Josh is Senior Engineer in the Civil Department with over 13 years of experience producing engineering designs, plans, drawings, specifications, cost estimates, project proposals for private, city, county and department of transportation engineering projects.





HIGHWAY 1804 RECONSTRUCTION FROM RED MIKE TO CR 42 | ND

The historic highway ND 1804, while sturdy before, was not originally built to handle a heightened amount of road use. In 2010, the BAKKEN OIL BOOM caused a 400% increase in average annual traffic along the route, 45% of which was heavy-duty truck traffic hauling oil. Not only did traffic increase, but speed did as well, from 50 mph to 65 mph. This increased the minimum stopping sight distance to notice obstacles and brake to avoid said obstacle from 13 car lengths (at 50 mph) to 21 car lengths (at 65 mph). In order for the roadway to be able to temporarily handle these changes in traffic, the existing roadway was posted for reduced weight limits. An entire re-construction of the highway was due — and Ulteig was called upon to make it happen.

CHALLENGES OVERCOME

The complexity of the rolling hills, land slide area, stream hydraulics, USACE recreational land, and cultural sites surrounding the construction area proved to be mighty obstacles.

When working with rolling terrain, one needs to address opportunities for passenger vehicles to pass large vehicles on steep grades. This is accomplished by adding passing/climbing lanes. Because of rolling terrain, all intersections and accesses were reviewed for intersection sight distance, and several driveways had to be relocated due to inadequate sight distance.

There was an existing large hill approximately halfway through the project that contained lignite seams with an active slide, and the existing ditches and culverts had steep grades, requiring several energy dissipation measures to be considered. A combination of adjusting ditch grades, riprap, riprap basins, baffle rings, broken-back pipes, and drop manholesere incorporated into the design to mitigate pipe velocities.

The project also traverses a mile of recreational USACE-controlled lands along White Tail Bay. White Tail Bay is part of the Lake Sakakawea-operating flood pool, requiring any material placed below an elevation of 1858.6 feet to be mitigated. White Tail Bay had just recently had a second boat landing constructed at a new location to accommodate seasonal changes in the lake levels. This roadway improvement constructed a right turn lane at the new access. The initial concept would have resulted in the costly extension of a triple barrel box culvert, but our team proposed shifting the access easterly, avoiding the box culvert extension and allowing more room to improve the access grades. The cumulative effect of roadway widening, turn lanes, and access improvements, could have had severe impacts to the USACE flood pool. Ulteig leveraged its experience from previous projects and proposed lowering the roadway to maintain the original footprint and provide a widened ditch along the roadway to mitigate all flood pool impacts.

BRIDGE & STRUCTURES DESIGN

Ulteig is equipped to design new bridge or retaining wall structures. We can evaluate the condition of existing structures and propose repairs to improve the longevity and/or increase the capacity of the structure. As a team we take a pragmatic approach towards design, which includes looking for cost effective solutions that efficiently meet the needs of the traveling public. We understand that structures are often one piece of the greater transportation infrastructure and the design considerations must reflect this.

Ulteig is a leader in specialized bridge inspection and load ratings. Our team members maintain certification and training for general bridge inspection, fracture critical bridge inspections and scour analysis/plans of action. This degree of experience allows us to provide exemplary services and successful solutions for our clients.

EXPERTISE

BRIDGE DESIGN

- · Prestressed Concrete
- Traditionally Reinforced Concrete
- Steel
- Timber
- · Culvert Design
- Precast and Cast-In-Place Concrete

BRIDGE LOAD RATING

- Prestressed And Reinforced Concrete, Slabs, Steel and Timber
- Reinforced Concrete Box Culverts and Metal Culverts
- Trusses Including Gusset Plates
- Railroad Car Frames
- Unique Structures

WALL INSPECTION

BRIDGE INSPECTION

- · Fracture Critical Bridges
- Scour Critical Bridges

WALL DESIGN

- MSE Walls
- · Soil Nail Walls
- Cast-In-Place Concrete
- · Soldier Pile and Lagging

ANCILLARY STRUCTURE DESIGN

- · Sign Structures
- · Barrier Gates
- Light Poles

ANCILLARY STRUCTURE INSPECTION

We put our vast knowledge and experience to work for you, from conceptual design through detailed design and construction support.

Our experts understand technology's role in designing our future infrastructure, creating efficiencies and allowing our clients to visualize a project and make field updates in real-time. This includes piloting the Microsoft HoloLens 2 on transportation projects to check roadway right-of-way

CDOT I-70 BRIDGE REPLACEMENT OF F-13-S_MINOR | CO

At mile post 211 is F-13-S_Minor, a 200-foot wide, concrete box culvert (CBC) primarily used by the Colorado Department of Transportation (CDOT) as a turnaround point for snowplows and other maintenance vehicles, which allows them to avoid going all the way into Silverthorne to turn around.

Built in the 1960s, CDOT determined that it was time to replace the aging culvert with two separate bridges that meet a 100-year design life while reducing the risk of impacting an adjacent landslide area. The scope also included expanding a 20-foot-wide, single-lane underpass, which is currently functionally obsolete and structurally deficient, to a two-lane, 36-foot-wide underpass; and increasing the height from 13 feet, 6 inches to 16 feet, 6 inches.

PROBLEM.

In studying this stretch of highway, the Ulteig engineers had to contend with several complex issues, including a landslide-prone slope north of the structure. During the 1960s, the slope above and near the F-13-S_Minor CBC experienced multiple landslides.

The project was built in a narrow mountain corridor flanked by a 1,000-foot hillside and a 500-foot cliff at 10,000 feet altitude. The vertical descent from the Eisenhower Tunnel is more than 2,360 feet over 8.6 miles on I-70 Westbound after exiting the tunnel. A seven percent grade exists for seven miles. Because this freeway is a major artery for passenger cars and 18-wheelers, the roadway had to be kept open during construction.

SOLUTION

The Ulteig team focused on the future, improving on the current engineering and infrastructure to create a new bridge that will meet CDOT's requirements for the next 100 years. Engineering a bridge with a 100-year life is unique and above the required industry standard of 75 years. The team completed construction by September 2022, meeting an aggressive 18-month schedule.

Ulteig studied landslide monitoring data collected in May 2020 and Sept. 2020 and conducted a survey in May 2021. To mitigate against the risk imposed by the landslide area, Ulteig and CDOT engineers determined that I-70 westbound needs to be shifted up to 10 feet to the southeast away from the landslide. This shift makes this project not only a bridge replacement but also a major roadway realignment project with high visibility due to its location. To reduce vibration, the team used micropiles placed further away from the landslide. A geotech consultant also monitored the area closely for significant changes. The team created a complex phasing approach that allowed for traffic to flow during the entire construction process.

The Ulteig bridge and transportation team also:

- Widened the underpass without widening the roadway above it.
- Designed drainage systems that can quickly, efficiently, and safely move water coming down a mountainside during a rainstorm or spring run-off. In addition, they prevented water from collecting inside the underpass in the traveled way where it could freeze in the winter.
- Designed proposed bridges for a minimum of four feet of fill (instead of the current 18 feet) to be placed on top of it to prevent roadway icing.
- Designed roadway concurrently with wall structures.





OUR GOALS FOR EVERY PROJECT

We approach every project with one goal in mind: to provide value during the construction phase that results in construction cost savings, quality and schedule reduction.

The Ulteig PDS team excels at project and portfolio management, pre-construction strategy, key contractor management, indicative pricing and estimating, permitting and land control coordination, risk modeling and management, contractor bid review, construction management, scheduling and controlling, financial due diligence and budget management, procurement coordination, key stakeholder management, on-site quality management, document controlling and design process oversight.

EXPERTISE

PROJECT DEVELOPMENT

- Bid Package Preparation
- Architect/Engineer/
 Contractor Selection

COST

- Project Budget Development
- Project Cost and Cash Flow Forecasting
- Project Cost Estimating
- Pay Application Processing
- Change Order Reviews

SCHEDULING

- · Critical Path Schedule Modeling
- Schedule Scenario Forecasting
- Earned Value Analysis

SCOPE

- Contract Management
- RFI Management
- Procurement and Logistics Coordination
- Financing Due Diligence

QUALITY & RISK MANAGEMENT

- · Perpetual Risk Management
- Qualitative & Quantitative Risk Analysis
- Issues Tracking and Resolution

COMMUNICATION

- Coordination with Stakeholders
- · Progress Reports and Meetings
- Document Control

SAFETY

· Site Safety Audits

PDS WHAT IS PROJECT DELIVERY SERVICES?

PDS IS A GROUP THAT OFFERS A RANGE OF SERVICES IN PROJECT MANAGEMENT.

PROJECT MANAGEMENT

CONSTRUCTION MANAGEMENT

PORTFOLIO MANAGEMENT

PDS IS HERE TO FIT WHEREVER YOU NEED.



Owner/Developer needs to fill a position to manage a project or portfolio on their behalf.



Ulteig's PDS team is available to help Owner/Developer at any stage in the project.



Ulteig's PDS team will integrate into the Owner/Developer's organization to put project into action.



Ulteig's PDS team will interface with the Owner/Developer's team and manage their contract on behalf of the company.



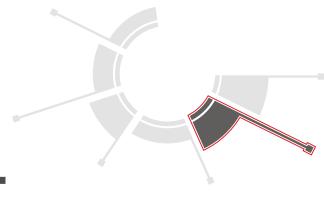
Ulteig's PDS team manages the contractors, engineers and suppliers on behalf of a project or portfolio.



Ulteig's PDS team will take the project to COD, then hand it off to O & M to maintain the project.

PROJECT DELIVERY SERVICES

PROJECT MANAGEMENT



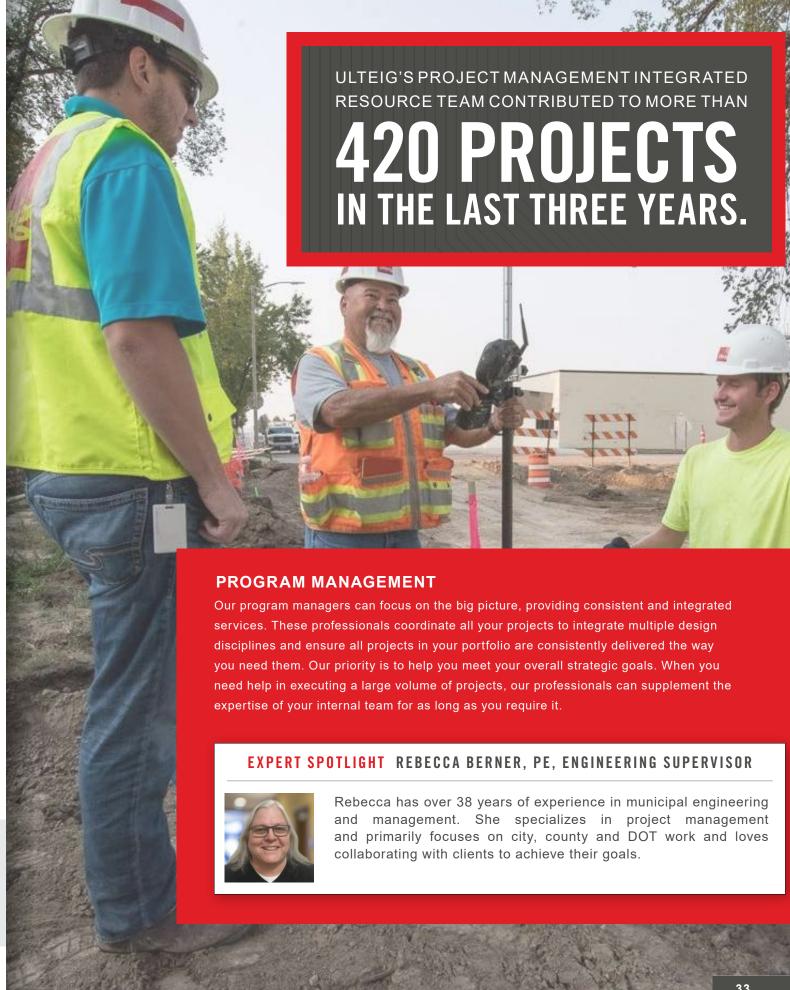
Our project managers have experience throughout a project's life cycle, from development through construction and operation. We coordinate and streamline all aspects of the project, working with subcontractors and arranging all necessary service s to ensure objectives are being met. Your project's success is our highest priority, and we consistently deliver creative solutions, on time and within budget.

Successful project management begins by assessing and aligning with our clients' requirements and objectives, and culminates with safely delivering projects on time and on budget, despite all issues and obstacles that challenge that objective. Exceptional project management is distinguished by attentive and responsive communication with clients and stakeholders, perpetual proactive risk management and creative resolution of conflicts and issues. Ulteig project managers consistently deliver this value to our clients by employing sophisticated schedule modeling and project controls techniques coupled with expert judgment attained through years of experience delivering successful energy and infrastructure projects. Acting as the project owner's representative and advocate, Ulteig project managers leverage this expertise on behalf of our clients to consistently deliver unparalleled service and value that yields tangible results for the projects we manage.

EXPERTISE

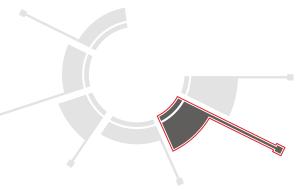
- · Coordination With Stakeholders
- Qualitative and Quantitative Risk Analysis
- Perpetual Risk Management
- · Critical Path Schedule Modeling
- Schedule Scenario Forecasting
- Project Cost Estimating
- Project Budget Development
- Project Cost & Cash Flow Forecasting
- Earned Value Analysis
- Contract Administration
- Bid Package Preparation
- Architect/Engineer/ Contractor Selection
- Pay Application Processing

- Change Order Reviews
- RFI Management
- Issues Tracking and Resolution
- Procurement and Logistics Coordination
- Permit Compliance
- Progress Reports and Meetings



PROJECT DELIVERY SERVICES

CONSTRUCTION MANAGEMENT



Our engineers, construction managers, technicians and field coordinators accelerate your project success and build directly from decades of knowledge and best practices. We deliver safe, timely and cost-effective results.

Ulteig provides a wide range of construction management services tailored to the specific needs of our individual clients. We bring the same high standards of service to all projects, regardless of scope or size. Working as an extension of your team, we become your eyes and ears in the field, making sure all crews and equipment adhere to design and project specifications. In all cases, Ulteig construction managers actively head off logistical and stakeholder challenges, giving our clients piece of mind that their project will stay on track. Ulteig also offers alternative delivery methods to the design-bid-build process for clients who want an outside-the-box approach.

Our construction management team has vast experience, ranging from municipal sidewalk projects to resurfacing to interstate reconstruction. We are a leader in project management and construction management. When inevitable conflicts arise, Ulteig works on your behalf to provide a single, independent point of contact for issue resolution. We do more than observe and report, we listen and actively lead the team to solve schedule, equipment and contractor delays. We regularly monitor and report on project safety, schedules, cost and quality. We also provide daily performance reports to keep you informed at every step.

EXPERTISE

- Real-Time Construction Status
- Cost Reporting
- Conflict Resolution
- Lessons Learned/Debrief Meetings
- Request for Information (RFI) Management
- Environmental Monitoring, Mitigation and Restoration
- · Disciplined Change Control
- Document Control
- Major Equipment Deliveries

- Third-Party Engineering Design Reviews
- Constructability Reviews
- Construction Manager-At-Risk (CMAR)
- Lump Sum Design-Build
- Progressive Design-Build
- Construction Manager/General Contractor (CMGC)
- Engineer Procure Construct (EPC)
- Owners Rep Services
- Contract Administration
- Coordination With Stakeholders

- Schedule Management
- Project Cost Forecasts
- Value Engineering
- Risk Management
- Progress Reports and Meetings
- Real Time In-Field Data Logging and Remote Access
- Change Order Analysis and Tracking
- Dispute Avoidance and Resolution
- Alternative Delivery, Including Owner's Rep Services, CMAR, Design-Build and CMGC







I-76/CO 52 ROUNDABOUT INTERSECTION | CO

The \$11.7 million project, as reported by CDOT, was supported with matching funds from the federal government and began construction in May 2020. Construction was completed in Fall 2021. A primary feature of the project was the construction of two oversized roundabouts, which were about two times the size of ordinary roundabouts.

COMPONENTS OF THE PROJECT INCLUDED:

- Expanding CO 52 to four lanes from two lanes at I-76
- Realigning four ramps to accommodate the new roundabouts
- Upgrading one traffic signal light
- Widening a bridge located over the interstate, which included new bike path
- Adding a sidewalk along the north side of CO 52 to increase pedestrian and bicycle connectivity

Besides the obstacle of maintaining smooth and timely construction progress in the middle of a pandemic, the other big challenge was maintaining traffic flow on I-76. The freeway is a significant East-West transportation route that many heavy-duty truck drivers rely upon to transport goods across the country.

"To maintain safe and undisturbed traffic flow, we enacted many temporary traffic movements, as well as extra temporary widening so we could build the new structure without stopping traffic," said Bob Smith, PE. "It was absolutely the biggest challenge in construction, but nevertheless something that was a large priority for us."

While Ulteig collaborated with CDOT and other partners to oversee construction management for the project, Castle Rock Construction of Colorado LLC handled the project's construction. The renovations impacted approximately a one-mile area. All ramps and roadways for the project were built using concrete from a plant that was built on-site. Concrete was used, as opposed to asphalt, to ensure the longevity and durability of the new roadway.



SERVING AS OWNER'S REP FOR THE W 72ND AVE BOND PROJECT

Ulteig is currently serving as the City of Arvada's Owner's Rep for the W 72nd Avenue Bond project. This CMGC project includes widening W. 72nd Ave. between Kipling and Simms from two lanes to four with all new pavement, curb and gutter, 14 ft shared-use paths on both sides of the roadway, lighting, and landscaping. It also includes:

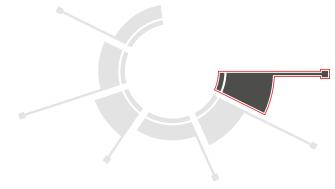
- An underpass at the Union Pacific Railroad crossing near Oak St. to eliminate traffic backups
- Drainage improvements and right-of-way acquisition

Ulteig is working as the owner's representative for the city, bringing expertise in the CMGC process. The team is providing services that include design review, value engineering, schedule review, cost negotiations, and public outreach.

Once construction begins, Ulteig will continue as the owner's rep, managing the construction process and fully inspecting, testing and documenting final quantities and payment. Ulteig also developed a GIS-based right-of-way tracking tool to assist the City with tracking the status of the 84 property easements and acquisitions needed to complete the project.



ASSET MANAGEMENT



Managing and optimizing assets has never been more important. At Ulteig, Asset Management focuses on using data, information, insights, technology and engineering to manage your day-to-day business needs as well as identifying and prioritizing strategic asset management, investment decisions and long-term planning. Our team of experts works with you to capture and use data to develop insights critical to determining an informed, prioritized asset management and investment roadmap for your business.

Ulteig defines Asset Management as the data-driven, systematic tracking of key infrastructure elements to assess organizational risk, governing and automating capital spend. Our team utilizes sophisticated data analytics to derive intelligence that informs client business models, investment decisions and solutions that drive operational efficiency.



SOUTH DAKOTA COUNTIES SIGN INVENTORY AND REPLACEMENT | SD

SPEARHEADING A LARGE-SCALE SIGN REPLACEMENT PROJECT

For the Minnehaha County East and West Sign Replacement Construction Administration project, the Ulteig team inventoried the newly installed signs, delineators and object markers on the county, township and city roads.

Administration of this project included developing:

- A GIS inventorying system utilizing our Esri Enterprise server to streamline the data collection.
- A customized map application that is accessed through the Esri Collector App. This application:
 - Provided a customized interface to record information within multiple fields.
 - Enabled scaling of the inspection by allowing multiple inspectors to inventory sign installations simultaneously
- Customized reporting accessed the GIS database information and allowed for very efficient and quick quantity calculations for contractor pay applications.

This project consisted of the inventory and inspection of approximately 16,000 signs, delineators and object markers in the east and 13,000 signs in the west.

AM WHAT IS ASSET MANAGEMENT?

AM IS A GROUP THAT OFFERS A SUITE OF TOOLS AND SERVICES TO TRACK, MANAGE AND PLAN FOR REPLACEMENT OF ASSETS TO MAXIMIZE FUTURE ASSET PERFORMANCE.









Clients in all Lifeline Sectors have assets







Ulteig's AM team utilizes a trusted client partnership to their benefit. Their deep systems knowledge is available to help converge systems to better manage and optimize client assets.



Clients hire Ulteig's AM team to systematically track, provide solutions and/or replace aging assets.



Ulteig's AM team acts as a liaison between the client and the right Ulteig-provided and/or third-party solution for improved data capturing, asset management, and investment prioritization.



Ulteig's AM team identifies system issues, determines upgrade plans, and catalogs assets to prepare for future use and newer technology.



Ulteig's AM team coaches and collaborates with client to manage their assets and evolving business needs.

EXPERTISE

- Technology Evaluation
- Data Sharing & Integration
- · Analysis, Reporting & Planning
- Asset Optimization and Information Management
- Insight Development
- Discovery & Assessment
- Application Hosting, Development & Maintenance

WHAT MAKES ULTEIG DIFFERENT?

We are committed to creating a positive experience for our clients throughout a project's duration, offering the advantage of accessibility through exceptional project management, attentiveness and responsive communication.

Ulteig anticipates needs and delivers results with trademark accuracy and timeliness. We proactively manage risks and project issues, constantly reassessing and strategically aligning with our clients' vision, objectives and requirements. We tailor designs and services to meet and exceed expectations.

IT'S ALL ABOUT CONNECTING with clients and their needs. Throughout the process, we are accessible and transparent, listening and solving through the daily connections that are essential to this work. Our clients and their customers depend on these connections that ultimately bring essential services to millions. While our experience spans the nation, we maintain a hometown feel.

A STRONG CONNECTION IS FOUNDATIONAL, whether it involves wires, roads, pipes or people committed to working together for a common purpose. Ulteig generates the connections that strengthen infrastructure—planning, collaborating and creating reliable solutions for our clients and the communities they serve.

WE LISTEN. WE SOLVE.® Our tagline captures the essence of our unique position in the marketplace. "We listen" speaks to partnership, to becoming integrated in our clients' business and truly understanding their needs. We are constantly listening. "We solve" is the promise we make to clients and their communities – we offer comprehensive, long-lasting solutions. This represents everything Ulteig stands for.

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