Ewers Engineering

Statement of Qualifications

Infrastructure assessment • Engineering • Infrastructure management

Reducing infrastructure failure risk. Extending asset service life. Supporting defensible public investment.

Firm overview

Ewers Engineering, Inc. (EEI) is a California civil engineering consulting firm specializing in the assessment, planning, design and management of water, wastewater and stormwater infrastructure for public agencies. Led by Chris Ewers, P.E., a civil engineer with extensive professional experience, EEI integrates field investigation, hydraulic analysis, risk assessment, infrastructure economics and technical communication.

Distinguishing qualifications

Direct principal engineer involvement. Continuity from defining agency needs through technical evaluation, recommendations and implementation planning.

Independent engineering judgment. Assessment methods and improvement alternatives are selected according to the infrastructure, operating conditions and agency objectives.

Risk-based infrastructure management. Evaluation of likelihood and consequences of failure to direct resources toward meaningful risk reduction.

Decision-oriented engineering. Establish the decision to be supported before determining the extent of investigation and analysis.

Knowledge transfer. Develop tools, procedures, training and documentation that agency personnel can understand, maintain and apply.

Technical expertise

Wastewater force main condition assessment

EEI develops and implements condition assessment programs that integrate records, operating history, field investigation, failure mechanisms, asset criticality and engineering economics. Investigations begin with practical, broadly applicable methods before progressing to more specialized assessments where warranted.

Services include program development; failure risk modeling; pipeline location and configuration investigations; assessment technology selection; air valve and operating condition evaluation; interpretation of inspection findings; monitoring, maintenance, repair, rehabilitation and replacement strategies; and standard operating procedures.

Wastewater collection system hydraulic modeling

EEI develops hydraulic models to establish capacity limitations and evaluate operational and infrastructure alternatives. Model extent and complexity are matched to the engineering questions, from focused facility evaluations to comprehensive system analyses.

Applications include dry- and wet-weather capacity assessment, rainfall-derived infiltration and inflow, flow monitoring, gravity sewer and force main hydraulics, pump station performance and outage evaluations, development impacts, improvement alternatives and agency staff training.

Infrastructure asset management and capital improvement planning

EEI connects infrastructure condition and failure risk with maintenance, rehabilitation, replacement, funding and implementation capabilities. Services include asset valuation, criticality assessment, risk-driven maintenance programs, capital project prioritization, expenditure forecasting, funding scenarios, program staffing analysis and GIS-based decision-support tools.

Infrastructure reliability and emergency planning

Services include reliability and resilience evaluations, emergency response and business continuity planning, redundancy and operational alternatives, pump station outage duration assessments, operator training and standard operating procedures.

Engineering approach and delivery

EEI structures assignments around the decisions and outcomes required by the agency, balancing infrastructure reliability, regulatory obligations, operational constraints and available resources.

1. Establish the objective. Identify the issue, decision and agency constraints.

2. Evaluate existing information. Determine what is known, what remains uncertain and which information gaps materially affect the decision.

3. Develop the technical approach. Establish an appropriate scope of investigation, analysis and evaluation.

4. Evaluate alternatives. Consider risk, feasibility, service life, implementation constraints and financial implications.

5. Communicate findings. Document findings, assumptions, limitations, alternatives and recommendations.

6. Support implementation. Translate engineering findings into operational, maintenance and capital improvement activities.

Project delivery

Principal engineer involvement, technical quality review, schedule and budget management, and communication with agency personnel support project delivery. Supplementary technical resources and their roles are established according to assignment requirements.

Supporting engineering services

Water transmission and distribution planning and design; wastewater conveyance design; pump and lift stations; trenchless pipeline installation and rehabilitation; alignment and alternatives evaluation; raw water conveyance; water storage; water and stormwater hydraulics; design standards, drawings and specifications; bidding and construction support; and independent technical review.

Representative project experience

Force main condition assessment program development

City of Sacramento • Department of Utilities | Phase I completed | Project lead engineer

EEI developed a methodology using a critical force main as a template for the broader inventory. The work integrated records evaluation, field investigations, failure risk modeling, assessment technology selection, engineering economics and standard operating procedures. The evaluation supported the City's decision to initiate replacement rather than continue investing in the existing facility. EEI developed an implementation program defining projects, tasks, responsibilities and resources across four utility divisions.

Qualifications demonstrated: Condition assessment, engineering economics, replacement decisions and agency-wide program development.

Collection system capacity assessment

San Rafael Sanitation District | Current multiphase engagement | Project lead engineer

EEI developed an approximately 2,200-node hydraulic model of the downtown gravity collection system. The work incorporated flow monitoring, manhole surveys, independent modeling of six metered sewersheds and rainfall-derived infiltration and inflow analysis accounting for antecedent soil moisture. The District received a capacity assessment tool identifying system constraints under design storm conditions, together with staff training. Subsequent work has focused on broader collection system management.

Qualifications demonstrated: Wet-weather hydraulic modeling, field investigation, capacity assessment and knowledge transfer.

Force main condition assessment program development

City of Millbrae • Public Works | Phase I completed; continuing engagement | Project lead engineer

EEI evaluated three critical wastewater force mains, including facilities in environmentally sensitive areas. The assessment integrated condition, operations, maintenance, environmental constraints, criticality and replacement economics. EEI developed near-term maintenance and improvement actions, prioritized investigations and a scope for subsequent program development. Phase II focuses on air valve performance and targeted modifications to extend service life.

Qualifications demonstrated: Risk-based assessment, environmental constraints and phased implementation.

Representative project experience

Force main assessment and sewershed transfer feasibility

City of Davis • Public Works Utilities and Operations | Completed assignments | Project lead engineer

EEI integrated records investigation, field location, configuration mapping, risk modeling and physical examination of pipe material. The assessment provided information on deterioration and remaining service potential and prompted the City to initiate replacement. A subsequent study identified an alternative conveyance strategy addressing transportation corridor and permitting constraints, with conceptual costs, schedules and task requirements.

Qualifications demonstrated: Condition assessment, remaining service life, alternatives development and capital planning.

Force main asset management and replacement planning

San Rafael Sanitation District | Current multiphase engagements | Project lead engineer

EEI has assisted the District with a risk-based management approach for approximately 15 miles of force mains. A 16-element risk model, implemented through a GIS-based tool covering 774 pipeline segments, supports prioritization and scenario evaluation. Related capital planning integrates pipeline characteristics, criticality, permitting, conceptual replacement costs and funding requirements.

Qualifications demonstrated: GIS-based decision support, failure risk modeling and long-term capital investment planning.

Long-term capital improvement program development

City of Vallejo | EEI served as subconsultant

EEI provided specialized asset valuation and risk-based capital planning services for the City's water infrastructure. The City selected EEI's proprietary risk-driven CIP software to prioritize improvements, forecast costs and rates, and evaluate future project management staffing requirements.

Qualifications demonstrated: Asset valuation, capital planning, funding analysis and organizational resource planning.

Professional leadership and agency experience

Chris Ewers, P.E. | Principal Engineer / CEO

Chris founded EEI and has extensive professional civil engineering experience in planning, design, assessment and management of water, wastewater and stormwater infrastructure. His professional journalism background supports clear communication of complex engineering concepts, technical training and presentation of findings to agency personnel and management.

Professional registration: California Professional Civil Engineer No. 69612.

Education: B.S., Civil Engineering, University of Wyoming, Laramie; B.A., Journalism, University of Oregon, Eugene.

Additional principal engineer experience includes large-diameter transmission mains, municipal distribution systems, raw water conveyance, regional water supply, storage facilities, trenchless design, master planning and construction administration.

Additional representative EEI agency experience

Fairfield-Suisun Sewer District — Force main assessment program for approximately 12 miles of large-diameter pipelines, GIS risk tool and operations, engineering and maintenance recommendations.

City of Tulare — Risk-based capital planning, maintenance program development and utility benchmarking.

City of Livermore — Combined emergency response and business continuity planning for water and wastewater utilities.

City of San Diego — Pump station inventory, labeling, tagging and operator training.

Central Contra Costa Sanitation District — Phase I emergency management document updates and upgrades.

Professional engagements

Project-specific qualifications, professional references, current fee schedules, personnel availability and supporting procurement documentation are available upon request.

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