

### Ryan Kanagy | Associate Principal



#### EDUCATION

- The Pennsylvania State University
  - Bachelor of Science, Engineering Science, 1997

#### PRACTICE AREAS

- Mechanical Engineering
- Inspections
- Design
- Balance Testing and Analysis
- Constructability Review
- Construction Observation and Troubleshooting
- Gear Assessment/Design
- Wire Rope Inspections
- Emergency Response
- Heavy Movable Structures

#### REGISTRATIONS

- Professional Engineer in FL, MN, NJ, NY, and WA

#### PROFESSIONAL AFFILIATIONS

- Heavy Movable Structures

#### CONTACT

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#### EXPERIENCE

Ryan Kanagy has more than twenty-one years of experience as a mechanical engineer, including sixteen years providing engineering services for heavy movable structures projects where he has focused on movable bridge machinery systems. His work has covered a range of movable roadway and rail bridge types and vintages and includes the design of new machinery; load rating of existing machinery; preparation of plans, specifications, and estimates; bridge machinery safety inspections; field project engineering; emergency call-out services to troubleshoot, identify, and resolve machinery failures and operational malfunctions; and strain gage drive testing and bridge balancing. Mr. Kanagy is also experienced in construction engineering inspection, including yellow-line review of shop drawings, review of equipment installation procedures, shop inspection, machinery alignment verification, and oversight of system commissioning.

#### REPRESENTATIVE PROJECTS

- Bayville Bridge Design - Nassau County, NY: Scoping inspection and rehabilitation design; replacement of span drive machinery, curved and flat treads, and tail lock machinery
- SR 99 Duwamish River Bridges - Seattle, WA: Rehabilitation of west bridge hydraulic system and center locks; rehabilitation of east bridge trunnion girder pins
- Quogue Bridge Design - Suffolk County, NY: Rehabilitation of span drive and span lock systems at double-leaf trunnion bascule bridge
- Burlington-Bristol Lift Bridge - Bristol, PA: Supervision of and involvement with span drive testing, operating rope tension measurements, counterweight rope replacements, and sheave trunnion cracking mitigation
- SR104 Hood Canal Bridge Special Repair - Kitsap County, WA: Rehabilitation to address span drive machinery resonance
- Burlington Canal Lift Bridge Inspection - Burlington, ON, Canada: Condition assessment of machinery for near- and long-term use; rope, gear, and bearing wear measurements and review of component alignment

- Houghton Hancock Vertical Lift Bridge - Houghton, MI: Rehabilitation of tower drive vertical lift bridge; field gear alignment review, gear design analysis, strain gage balance recordings, balance recommendations, rope tension measurements, and indexing adjustments
- Woodrow Wilson Memorial Bridge - Alexandria, VA: Construction services for new twin double-trunnion bascule bridge; detailed balance calculations for all components
- Union Pacific Freeport Vertical Lift Bridge - Freeport, TX: On-site field support for replacement of main counterweight and operating ropes of span drive vertical lift bridge
- LaSalle Causeway Bascule Bridge - Kingston, ON, Canada: Lead mechanical engineer for comprehensive detailed inspection and secondary mechanical inspection; mechanical and electrical inspection of all machinery systems, bridge utility service, and power and control systems
- Norfolk Southern Bridge 229-50-AGS Vertical Lift Bridge Inspection - AL: Inspection of machinery on tower drive vertical lift railroad bridge; condition assessment of machinery for near- and long-term use
- Angoon Ferry Terminal - Angoon, AK: Review of ferry lift electromechanical cylinders; evaluation of major cylinder internal components supporting ramp loads in accordance with AASHTO LRFD Bridge Design Specifications
- Crescent Beach Bridge - St. John's County, FL: Removal and installation of air buffer machinery on double-leaf bascule bridge; review of contractor's plans for feasibility and/or compliance to design specifications
- Route 88 Bascule Bridge - Westport, MA: In-depth calculations to minimize bridge imbalance throughout rehabilitation
- Bridge of Lions - St. Augustine, FL: Mechanical engineer for design of new movable span machinery for superstructure replacement of historic double-leaf rolling bascule bridge