Geocomp

Technologies to manage risk for infrastructure

Active Risk Management®

Active Risk Management® provides quantitative understanding of risk and the potential impact to cost, schedule and quality.

Geocomp helps owners, contractors, and engineers identify, assess and mitigate risks associated with construction in the natural and built environments.

Our focus is to quantify the potential impact of each risk element on project cost and schedule so that clients can understand which risks are significant and merit efforts to reduce their effects on the project.

Active Risk Management®

Geocomp's concept of Active Risk Management® (ARM) provides an organized approach to reducing risk by identifying, analyzing, monitoring, and responding to project risk over the life time of the project. Using risk assessment processes, tools, and techniques, Geocomp helps project teams minimize the probability and consequences of adverse events and maximize the probability and consequences of positive events throughout the life of the project.

Active Risk Management® relies heavily on close monitoring of key performance indicators during design and construction to detect warning signs that risk elements are emerging that threaten the project's schedule and cost. Early detection permits early intervention with risk mitigation strategies to reduce the cost and schedule consequences of these risk elements.

Our Active Risk Management® experts work with infrastructure teams to:

- Develop a risk management framework for the project life cycle
- Identify and quantify potential risks that can impact cost and schedule
- Develop potential risk mitigation strategies
- Continuously monitor risk factors using *i*SiteCentral®
- Produce real-time data for informed decision making
- Recommend proactive risk response strategies
- Evaluate and manage threats, vulnerabilities, and consequences

With so many varied teaming arrangements for today's infrastructure projects, proactive risk management has become an essential element of project success. Identifying risks early in the process and understanding how those risks can potentially impact projects is critical in developing an effective risk management strategy and helping obtain a timely and cost-effective completion.

Representative ARM Project Summaries

ATLANTA INTERNATIONAL AIRPORT, Atlanta, GA

Benefit/Role: Helped avoid disruption to existing airport facilities during new construction.

Geocomp designed and implemented real-time performance monitoring system to help minimize risk of a shutdown from ground movements during excavation of rail line extension beneath the Delta Air Lines baggage handling facility.

CENTRAL ARTERY/TUNNEL PROJECT, Boston, MA

Benefit/Role: Saved the owner an estimated $500,000,000.

Geocomp helped save the owner an estimated $500,000,000 in avoided risk costs by managing and executing a highly effective risk monitoring system to identify unacceptable structural performance early enough to implement contingency measures.

THE COLONY, Park City, UT

Benefit/Role: Identify and manage client risk for a savings of millions of dollars.

Geocomp was retained to determine the extent and impact of corrosion of steel reinforcements in side hill roadways, vehicle bridges and ski cross-overs on a 4,400 acre mountain slope ski-in and out residential community. Intrusion of deicing salts led to accelerated corrosion of the metallic reinforcements. A detailed protocol to determine remaining service life for over 50 structures was established using reliability analysis. A phased program for remediation was developed to assist the client in developing present value remediation costs. This approach saved the client millions of dollars over the alternative of removing and replacing all structures.

COX COMMUNICATIONS TOWER 1, Atlanta, GA

Benefit/Role: Projected long-term wall movements.

Excessive vertical and horizontal deformations were observed by the real-time monitoring system. Geocomp determined the cause and subsequently recommend remedial actions. Geocomp projected long-term wall movements so final design of permanent wall could incorporate appropriate allowances for future movement. Client was able to implement remedial measures and prevent damage to nearby structures.

CRENSHAW / LAX TRANSIT CORRIDOR, Los Angeles, CA

Benefit/Role: Mitigate risk of unexpected movement to adjacent buildings and utilities.

Geocomp's contract includes instrumentation and monitoring for over one mile of twin bored tunnels, three cut-and-cover/station excavations, and one low excavation location using our iSiteCentral® GIS web-based software to provide real-time assessment of construction related activity. The construction activity will be monitored continuously to help the contractor control excavation/tunneling work and to mitigate risk of unexpected movement to adjacent buildings and utilities.

ELLIS SQUARE PARKING GARAGE, Savannah, GA

Benefit/Role: Helped client avoid a catastrophic collapse of deep excavation support system.

Geocomp helped the client avoid a catastrophic collapse of their deep excavation support system when unexpected soft soils were encountered. We developed contingency measures to complete the job and monitoring systems to minimize additional damage to surrounding buildings.

Representative ARM Project Summaries *continued*

iLEVEE, New Orleans, LA

Benefit/Role: Quantitative risk prioritization tool to enable systematic selection of reaches within the flood protection system for effective risk reduction through monitoring.

Geocomp used risk assessment tools and decision theory aids to identify where monitoring can be deployed to provide the largest reduction in risk. Within this context, Geocomp developed a probability analysis tool which integrates and transforms data from field instruments and routine field inspections into quantitative measures of risk for each levee component to help prioritize investment decisions.

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MassDOT) ACCELERATED BRIDGE PROGRAM, MA

Benefit/Role: Geocomp's early detection of risks has permitted MassDOT to provide timely intervention with pre-planned risk mitigation plans and programs to reduce the consequences of risks due to accelerated construction.

Geocomp is providing Active Risk Management® (ARM) services to MassDOT as part of their Accelerated Bridge Program (ABP) which has been established to rehabilitate and restore state bridges. Geocomp's expertise in risk management for heavy civil construction along with our ARM process has been instrumental in minimizing the probability and consequences of adverse events (threats) and maximizing the probability and consequences of positive events (opportunities) for 10 bridges located in the Boston area.

MassDOT RTE. 79/I-195 INTERCHANGE IMPROVEMENTS DESIGN-BUILD PROJECT, Fall River, MA

Benefit/Role: Facilitated qualitative risk analysis for one of the contracting joint-venture teams on this $200 million project. Performed quantitative risk analysis to calculate contingency budgets at various confidence levels for both firms in the joint venture, allowing one firm to reduce its planned contingency by over $1 million.

Geocomp facilitated qualitative risk analysis workshops (which also had a quantitative aspect) for both contracting partners comprising one of the joint-venture teams prequalified for this project. Based on the risks identified in these workshops and costs identified by the team members, Geocomp went on to use quantitative risk analysis to calculate contingency budgets at various confidence levels for both firms.

METROPOLITAN TRANSIT AUTHORITY NEW YORK CITY TRANSIT (MTA NYCT) RISK ASSESSMENT CONSULTANT SERVICES, New York, NY

Benefit/Role: Identify and quantify possible risks and define risk mitigation measures.

Geocomp is providing consulting services to help New York MTA NYCT identify and quantify possible risks and define risk mitigation measures associated with construction of new transit facilities and upgrading of existing facilities for the next four years.

SOUTH STATION I-93 UNDERPASS, Boston, MA

Benefit/Role: Managed risk assessment team.

Geocomp managed the risk assessment team to evaluate relative risks for constructing I-93 under a Massachusetts Bay Transportation Authority (MBTA) subway station by open cut supported excavation and by NATM tunnelling methods.

TONEN KAWASAKI REFINERIES, Japan

Benefit/Role: Saved client approximately $100 million.

Geocomp saved the client approximately $100 million in avoided construction costs by using risk based concepts to design and construct alternate earthquake proofing measures. These refineries were the only ones in the Kawasaki industrial area of Japan to survive the 2011 Great Earthquake without serious damage.

Active Risk Management™

Representative ARM Experience

Active Risk Management® for Infrastructure Projects	Risk Monitoring	Remedial Engineering Investigation and Design	Cost, Schedule, or Constructability Reviews	Qualitative Risk Analysis	Quantitative Risk Analysis	Active Risk Management®	Cost or Schedule Contingency Planning
Atlanta International Airport APM Tunnel	✓					✓	
Central Artery Tunnel (CA/T)	✓	✓		✓	✓	✓	
The Colony	✓	✓		✓	✓	✓	✓
Cox Communications Tower 1	✓	✓	✓				
Crenshaw / LAX Transit Corridor	✓						
East Side Access Project	✓						
iLevee	✓			✓	✓	✓	
MassDOT Accelerated Bridge Program			✓	✓	✓	✓	✓
MassDOT Rt. 79 / I-195 Interchange			✓	✓	✓		✓
MTA Risk Assessment Consultant Services			✓	✓	✓		✓
South Station I-93 Underpass	✓	✓	✓	✓	✓		
Tonen Kawasaki Refineries	✓	✓	✓	✓	✓	✓	✓