



AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Maine

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ACEC of Maine
Engineering Excellence Awards Announced
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ORONO - The American Council of Engineering Companies (ACEC) of Maine presented its prestigious 2024 Engineering Excellence Awards at its Annual Fall Forum on November 15, 2023 in Orono, Maine. As a prelude to the national ACEC competition for the most innovative engineering projects in the country, these awards recognize engineering projects which exemplify quality, innovation, value, and client satisfaction.

Grand Conceptor Award

GZA - Erosion-Slope Stability Toolkit for Highways

GZA served as sole consultant and developed a prototype Esri ArcGIS toolkit to serve as a screening-level tool to identify roadway vulnerability to erosion and slope failures in the New England States.

Their client was the New England Transportation Consortium (NETC) and the work was completed in response to their request for proposal. MaineDOT currently serves as the lead agency for NETC. The group also includes transportation departments from New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut

The objectives of the study were to develop a systematic approach and framework to evaluate and screen potential for erosion and slope instability along roadway corridors; and to create a prototype toolkit to serve on the desktop of transportation professionals responsible for highway planning, design, construction, maintenance and repair.

Honor Award for Data Collection and Analysis Using Innovative Technology

Sebago Technics – Dover, NH AID Demo Project

Sebago Technics played a pivotal role in the Dover Accelerated Innovation Deployment (AID) Demonstration Project, which aimed to revolutionize traffic signal optimization with Automated Traffic Signal Performance Measures (ATSPM). Recognizing that most applications of Signal Performance Measures (SPM) data utilize snapshot data limited to a short amount of time, Sebago partnered with Dover to assess signal behavior throughout the year, encompassing all traffic variations.

A game-changer in this project was Sebago's innovative Design Headway Methodology for optimizing traffic signal timings utilizing real-time data collection. This methodology nearly negates the need for

extended field surveys, simulations, and calibrations, allowing engineers to use a vast amount of real-time data for automating optimized signal timings. This approach offers not only time savings but also cuts down costs considerably.

A vital component of the project was also its commitment to community engagement. In conjunction with the City, Sebago reached out to the Dover community through newsletters and surveys, ensuring their feedback was integral to the project. The awareness campaign even witnessed increased participation from various City departments, emphasizing the importance of engineering in daily life.

Despite various challenges like extensive data volume, disruptions in the fiber optic interconnects, and global pandemic-related delays, Sebago's expertise and adaptability helped ensure the project's success. In essence, Sebago Technics, through the Dover AID Demonstration project, has set a benchmark in traffic signal optimization, paving the way for future endeavors in this domain.

Honor Award for Building Community Awareness of Climate Change Impacts

Sebago Technics – St. George Resiliency Project

Throughout 2023, Sebago has been using new technology (and existing technology applied in different ways) to show expected coastal flooding and explore options for adapting to rising sea water levels. The Town of St. George, Maine asked Sebago Technics to proactively bridge the topic of change and sea level rise across four to five generations with members of their community, working on the solutions together.

More specifically, Sebago's primary roles in the St. George Resiliency Project included using the latest survey-geomatics and reality capture technologies and techniques to collect current and accurate centimeter-level information from key sites selected for the project, which represent various ocean/mainland intersection scenarios for Maine's Mid-Coast region; processing the captured data to create highly accurate digital mirrors of the real-world locations surveyed; creating visual, interactive, actionable models of the potential impacts of rising sea levels on the Town of St. George for various time frames including today, 2050, and 2100 based on modeling projections; and ensuring the models created are easy for laypersons to understand, interact with, and relate to on a personal level to garner community engagement, discussion, and support for mitigating rising sea levels in the Town of St. George.

St. George has about 125 miles of coastline and is already seeing the impacts of rising sea levels on town roads, public property, and private property. Getting the community involved and proactively planning what to do about it will save the Town and its residents valuable time and money, both now and into an uncertain future. Considering Maine has 3,478 miles of tidal coastline, the lessons and approaches learned here could be of great benefit to the rest of the state.

Honor Award for a Practical Solution to a Rehabilitation Project

Haley & Aldrich, Inc. - Retaining Wall Rehabilitation/Camden, Maine

The Maine Department of Transportation (MaineDOT) engaged longtime partner Haley & Aldrich to evaluate the stability of an approximately 100-year-old, dry-laid granite-block retaining wall located on the eastern side of U.S. Route 1 in Camden, Maine. U.S. Route 1 is a critical transportation corridor that is essential to Maine's tourism industry and to local and regional traffic. It sees nearly 10,000 vehicles per day. Portions of the wall had become dislodged and showed signs of outward displacement, which contributed to ground surface settlement and utility pole rotation above the wall, causing safety concerns for pedestrian and vehicular traffic and affecting Americans with Disabilities Act (ADA) compliance. MaineDOT trusted our team to investigate the likely causes of wall movement and to develop recommendations for practical rehabilitation alternatives that considered cost, traffic, environment, and design life.

The Haley & Aldrich team incorporated geotechnical and structural design expertise to ensure a comprehensive evaluation of the wall's condition, to determine the likely factors that contributed to the observed displacement and sidewalk and roadway settlement, and to design and oversee the construction of a practical, cost-effective solution that minimized impacts to traffic and the environment. Focusing on these elements, we developed multiple rehabilitation alternatives and worked collaboratively with MaineDOT to thoroughly evaluate each and assist in the selection of a preferred alternative. This alternative included construction of a cast-in-place concrete buttress in front of a portion of the wall, removal and resetting of the upper courses of granite blocks and slope protection, drainage improvements, and sidewalk reconstruction.

Honor Award for a Transportation Planning and Worker Safety

HNTB - Portland Area Widening & Safety Improvements

The Portland Area Widening & Safety Improvements stands as a testament to dedication, innovation and excellence in infrastructure engineering. Project coordination, contract sequencing and the maintenance of traffic proved to be some of the greatest challenges for the project team. In each instance, the project team conceptualized and delivered effective solutions for safety and to ease the travelling experience for drivers. Stroudwater River Bridge widening. Through their effort, the team was able to resolve schedule delays caused by the COVID-19 pandemic, delivering this enormous program on schedule and under construction budget, all while maintaining rigorous worksite safety practices and providing sensible traffic flow through the work area.

As the project draws to a close, its positive impact on the Portland area is undeniable. Drivers now enjoy a more efficient, less congested travel experience enhanced by significant safety improvements. This remarkable endeavor has exceeded expectations in enhancing the transportation landscape of the Portland area. "This is an exciting day in the evolution of transportation in Maine," said MTA Executive Director Peter Mills. "We are always responding to capacity challenges as we manage the greatest flow of vehicular traffic that exists in the state of Maine. This project will have a dramatic impact on reducing congestion through this busy corridor." Drivers can now enjoy a safer highway, less traffic congestion, and a smoother, more efficient trip around Portland.

Honor Award for Environmental Restoration

Haley Ward, Inc. – Old Town Landfill Reclamation and Closure

Haley Ward, Inc. partnered with City of Old Town to lead the first ever reclaimed landfill in the State of Maine. In 2019, the City of Old Town retained Haley Ward, Inc. for design options and cost estimates to close the Old Town Construction and Demolition Debris (CDD) Landfill. Haley Ward completed cost estimates and design options for the City which included options to close the landfill completely or to reclaim the site by moving all the waste to another landfill. The City carefully considered all options, advocated for the closed landfill program through the Department of Environmental Protection before reaching a final decision. Despite the higher cost associated with reclaiming the landfill, the City chose a path that would ultimately allow the land to be used for other purposes in the future. By choosing to reclaim the landfill, this meant that the solid waste within the landfill needed to be excavated and transported to another adjacent landfill that could support the solid waste.

Honor Award for Integration of Sustainable Features

WBRC – South Portland Middle School

While the existing two middle schools in South Portland served their purpose for many years, they had grown outdated and no longer met needs or current education standards. The new 175,000sf South Portland Middle School was designed to bring together all 5th - 8th grade students in the district and to provide as many opportunities to those students as possible.

Sustainability was a cornerstone of the project and was of particular interest to the community throughout the design process. Sustainable elements, such as photovoltaics, geothermal, preservation of green space, electric vehicle charging, and a large-scale rainwater collection were seamlessly incorporated into the project.

It was critical that the end user's needs were met, so the design team worked with the school department, faculty and staff, and students from the inception of the project through the opening of the building for the school year. Throughout the project, input from the school department was reviewed and incorporated to ensure that the client's needs were met.

The new middle school puts engineering on display, both in the classrooms and on the exterior of the building. The large-scale sustainable systems in use are unlike anything the school department has had access to before and encourages the community and students alike to engage with sustainable solutions in a way they haven't previously been exposed to. South Portland Middle School provides new opportunities for all students, including the chance to learn about engineering hands-on in their new school.

Honor Award for Application of Renewable Building Materials

Thornton Tomasetti – 317 Maine Community Music Center

During this time of historic uncertainty and change, music continues to be a grounding source of relief, joy, comfort, and connection. 317 Main Community Music Center is a not-for-profit, community-based music education center in Yarmouth, Maine that serves more than 500 individuals in the local community each week. The organization's mission and vision are to ensure everyone has the space and resources to connect as a community through music. 317 Main has embraced the opportunity to design and build an environmentally responsible, tailormade venue that will serve the community now and in the future.

The design team, including Architect Paul Designs Projects and Structural Engineer Thornton Tomasetti, worked closely with 317 Main to expand the existing building with new practice and recording studios, a 200-seat, all-wood performance hall, and a café to support community and musical gatherings. This 9,000-square-foot addition allows the center to offer additional music instruction and creates a vibrant community resource. The structural design included use of CLT (cross laminated timber) for the elevator shafts and the main performance space, Founders Hall. In designing to the expansion, the project team designed the new space with thoughtful consideration of the center's context in downtown Yarmouth and the existing building; the addition blends with the existing building by using similar exterior materials, including clapboard siding and details taken from the barn that once stood on the property.
