



### Licensures

Senior staff hold professional licenses in the following states:

- Connecticut
- Delaware
- Florida
- Georgia
- Iowa
- Maine
- Maryland
- Massachusetts
- New Hampshire
- New Jersey
- New York
- North Carolina
- Pennsylvania
- Rhode Island
- South Carolina
- Tennessee
- Vermont
- Virginia

## Company Profile

Milone & MacBroom, Inc. is an employee-owned firm founded in 1984 and licensed for the practice of engineering, survey, and landscape architecture. The firm has developed a collaborative team of specialty planning and design practices in site design, water resource engineering & environmental science, transportation & traffic engineering, water & wastewater engineering, and construction phase services. We are one of the largest consulting firms in the Northeast, serving clients from Maine to South Carolina to Illinois. Our corporate headquarters is located in Cheshire, Connecticut, with regional offices in Maine, Massachusetts, New York, Vermont, and South Carolina.

### Our Philosophy

Over the firm's history, we have developed an excellent reputation for technical innovation and award-winning designs. The depth and capabilities of our highly experienced staff allows the firm to meet complex project requirements and challenging schedules. Our success and future growth is founded on respect for our clients, colleagues, and the communities in which we live and work. We are proud of the diversity of our client base and the strong reputation that we have built.

### Our Mission

The team of professionals at Milone & MacBroom Inc. is committed to building strong partnerships with our clients and to delivering technically sound, cost effective, and environmentally sensitive designs. We strive to integrate the disciplines of our firm and provide an exceptional work environment that is focused on providing quality service to each client we serve.

### Management

The firm is managed by a 13 member Board of Directors:

- John M. Milone, P.E. - President
- James G. MacBroom, P.E. - Senior Vice President
- Vincent C. McDermott, FASLA, AICP - Senior Vice President
- Jeanine A. Gouin, P.E., Vice President
- Stephen R. Dietzko, P.E. - Vice President
- Robert A. Jackson, L.S. - Vice President
- Edward A. Hart, P.E. - Vice President
- John R. Gilmore, P.E. - Vice President
- Thomas R. Sheil, L.A. - Vice President
- Mark R. Arigoni, L.A. - Principal
- Nicolle E. Burnham, P.E. - Principal
- Anthony A. Ciriello, Jr., P.E. - Principal
- Thomas J. Daly, P.E. - Principal



## Services

Milone & MacBroom, Inc. offers a wide range of multidisciplinary services, as well as professional experience in the following:

### Civil Engineering

- Site Design/Planning
- Feasibility Studies
- Hydrologic & Hydraulic Analysis
- Stormwater Management
- Structural Engineering & Design
- Coastal Structure Design
- Flood Mitigation
- Land Use Permitting
- LEED Accredited Design

### Landscape Architecture

- Master Planning
- Urban Design
- Parks, Playground & Recreational Facilities Design
- Bikeways & Greenways Design
- Athletic Facility & Field Design
- Streetscape Design
- Computer Visualizations

### Water Resources Engineering & Environmental Science

- Watershed Planning
- River Management & Restoration
- Geomorphologic Based Design
- Dam Stability Analysis & Dam Removal Design
- Sediment Transport Analysis
- Scour Analysis
- Fish Passage Design
- Natural Resource Permitting
- Tidal & Inland Wetland Restoration
- Lake & Pond Restoration
- Habitat Assessment
- Environmental Impact Evaluations
- Wetland Delineation & Assessment

### Water & Wastewater Engineering

- Water Supply Analysis & Planning
- Ground Water Supply & Development
- Water Treatment & Distribution Design
- Wellhead Protection
- Sewage Treatment & Distribution Design
- Pump Station Design
- Sanitary Sewer Design
- Infiltration & Inflow Studies
- CSO LTCP & Mitigation
- SCADA System Design
- Hydraulic Analysis and Modeling

### Transportation & Traffic Engineering

- Highway & Roadway Design
- Traffic Impact Studies
- Traffic Calming Techniques
- Bridge Design & Inspection
- Traffic Control Signal Design
- Parking Lot Design & Studies
- Pavement Management
- "Complete Streets" Design
- Context Sensitive Design Solutions
- Corridor Management Planning
- Multimodal Transportation Integration
- Value Engineering

### Construction Phase Services

- Construction Document Development
- Bidding Assistance
- Cost Estimating
- Resident Engineering
- Sediment & Erosion Control Inspections
- Project Administration Services
- Periodic Site Observation

### Utility Engineering

- Communications Industry Design
- Siting Approvals & Permitting
- Gas/Power Main Layout
- Routing Analysis

### Survey & Mapping

- Boundary, Topographic & Bathymetric Survey
- Construction Stakeout
- ALTA/ACSM Certifications
- GPS Survey
- GIS Based Mapping

### Planning

- Regional, Community & Neighborhood Planning
- School Enrollment, Redistricting & Facility Planning
- Grant Application Preparation
- Community Outreach
- Economic & Market Analysis
- Fiscal Impact Analysis
- Federal Housing & Community Development
- Hazard Mitigation Planning
- Transit Oriented Development Planning
- GIS Applications

# Swamp Rabbit Trail

## Greenville, South Carolina

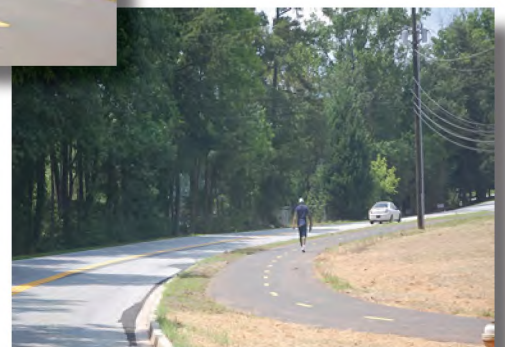
Milone & MacBroom, Inc. was retained by the City of Greenville to provide construction documents for an approximate 2.5 mile trail from the Reedy River on Cleveland Street to the Reedy River near I-85. The trail is located mostly within the right-of-way of the existing roads and varies from 10-14 feet in width. The site was complicated by existing utilities, the need for SCDOT lane shifting along parts of the alignment and the handling of storm water runoff. Passing by Greenville Technical College and two multi-family developments, the trail provides much needed safety and connectivity to pedestrians and bicyclists. Upon completion, the combined City and County effort will extend the Swamp Rabbit Trail from Lake Conestee to Travelers Rest and will be approximately 15 miles long.

### SERVICES PROVIDED:

- Survey
- Civil Engineering
- Structural Engineering
- Landscape Architecture
- Construction Administration

### CLIENT:

City of Greenville  
Greenville, South Carolina



# Renaissance Park

## Spartanburg, South Carolina

Milone & MacBroom, Inc. was retained by the City of Spartanburg to design roadways and infrastructure to connect the Chapman Cultural Center, Renaissance Hotel and the USC Upstate George Dean Johnson Business School located in downtown Spartanburg. The work included the design of roadways, a water system, a sanitary sewer system, landscaping and storm drainage. Also included in the design was a regional detention basin to account for the improvements within the area bounded by Church Street, St. John Street, Daniel Morgan Boulevard, and Converse Street. The site was complicated by existing road locations, tight building confines, and a 50' elevation difference from one side of the site to the other.

As part of the City's ongoing bicycle connectivity plan, bike lanes were included on the streets. The City intends to retrofit some of the surrounding streets for bike lanes to provide commuters with a safe route to the development.

A drainage study was also being performed for an approximate 20 acre developed area south of St. John Street that drains to the site. Due to flooding problems in the road, the existing culverts needed to be upsized and the City was proactive by performing the work during the development of the site.

### **SERVICES PROVIDED:**

- Engineering
- Permitting
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Spartanburg  
Spartanburg, South Carolina



# Edgewood Avenue Relocation

## Clemson, South Carolina

Milone & MacBroom, Inc. was retained by the City of Clemson to provide consulting services for the preparation of construction documents for the relocation of Edgewood Avenue. The project involved the relocation of a problem intersection by constructing approximately 500 linear feet of new road. A traffic signal was also installed at the newly created, four-way intersection.

College Avenue (SC 133) was narrowed from three lanes to two in order to provide additional parking and calm traffic. A traffic study was completed for the entire area reflective of the new lane arrangements and road relocation. As a result of the lane reduction on SC 133, a 1,000-foot section was removed from the State DOT system and converted to a City maintained road.

The project required an extensive public involvement process. Meetings were held with the downtown committee, neighborhood churches and the general public at the Concept, Preliminary, and Final Design phases.

A 600 linear foot section of existing sewer was replaced in conjunction with the work. This portion of the work was complicated by limited right of way and the need for bypass pumping of a significant sewer flow.

The project was complicated by a watercourse and wetland crossing, difficult topographic constraints, property issues, and high traffic volumes. The project was funded in part by ISTEA funds and SC DOT 'C' funds.

Construction administration services were provided for installation of retaining walls, stairs, roadways, storm drainage, box culverts, sidewalk, traffic signal, landscaping, and erosion control.

### **SERVICES PROVIDED:**

- Survey
- Traffic Study
- Engineering
- Landscape Architecture
- Permitting
- Construction Administration

### **CLIENT:**

City of Clemson  
Clemson, South Carolina



# College Avenue Improvements

## Clemson, South Carolina

Milone & MacBroom, Inc. was retained by the City of Clemson to provide consulting services for the preparation of construction documents for the continued redevelopment of College Avenue. The scope of this phase is to provide streetscape improvements from Edgewood Avenue to US Highway 123. The concept plan will include travel lane reconfiguring and the addition of on-street parking. In conjunction with the roadway improvements, approximately 1700 linear feet of ductile iron was installed beneath College Avenue. The utility installation was necessary to replace aging and degraded existing service. The project is located in Clemson's downtown district and is part of their overall redevelopment plan. The project involves an approximate 1,560-foot extension of streetscape improvements along College Avenue. The streetscape will provide a gateway into the downtown and Clemson University. Stamped asphalt crosswalks were utilized in several locations on College Avenue and the side streets.

College Avenue (SC 133) was widened to accommodate specific traffic enhancements. In addition to the aesthetic improvements, among these were the development of widened medians and a delineated turning lane. Cross walks were delineated in the vicinity of two proposed bus stops. These were included into the design to promote a safer environment for the Clemson University students who regularly use the public transportation system.

The project required an extensive public involvement process. Meetings were held with the downtown committee and the general public at the Concept, Preliminary, and Final Design phases.

The project is complicated by property issues, high traffic volumes, and time constraints. The project was completed in the spring of 2004. The project was partially funded by the SCDOT.

### **SERVICES PROVIDED:**

- Survey
- Public Meetings
- Engineering
- Permitting
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Clemson  
Clemson, South Carolina



# College Avenue Streetscape

## Clemson, South Carolina

Milone & MacBroom, Inc. was retained by the City of Clemson to provide consulting services for the preparation of construction documents for streetscape improvements to College Avenue.

College Avenue (SC 133) was narrowed from three lanes to two to provide additional parking and calm traffic. A traffic study was completed for the entire area reflective of the new lane arrangements and road relocation.

The project required an extensive public involvement process. Meetings were held with the downtown committee, neighborhood churches and the general public at the Concept, Preliminary, and Final Design phases.

The project was complicated by a watercourse and wetland crossing, difficult topographic constraints, property issues, and high traffic volumes. The project was funded in part by ISTEAF funds and SC DOT 'C' funds.

Construction administration services were provided for installation of retaining walls, stairs, roadways, storm drainage, box culverts, sidewalk, traffic signal, landscaping, and erosion control.

### **SERVICES PROVIDED:**

- Survey
- Public Meetings
- Engineering
- Landscape Architecture
- Permitting
- Construction Administration

### **CLIENT:**

City of Clemson  
Clemson, South Carolina



# Downtown Revitalization Study

## Saluda, South Carolina

The Town of Saluda retained Milone & MacBroom, Inc. to first evaluate opportunities to improve its downtown business sector. The goal was to identify improvements that the town could easily implement to revitalize its downtown area and make it more aesthetically pleasing, efficient and attractive to shoppers and pedestrians, and attractive to conduct retail business.

As monies become available, the Town desired to be in a position to have selected projects prioritized so it could quickly move into design and construction of improvements.

The downtown revitalization study area was Saluda's central business district (CBD) with the north-south Main, and east-west Church Streets being primary focus points.

The Saluda Downtown Revitalization Study prepared by Milone & MacBroom, Inc. evaluated all types of improvements, such as landscape buffering, traffic calming, reconstructing roads and sidewalks, aesthetic treatments to storefronts, and rerouting trucks.

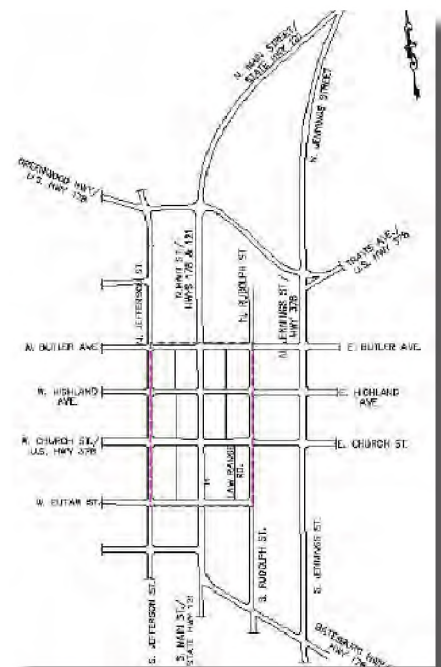
The study was approved by the SC Department of Commerce, and the Town of Saluda town is currently implementing the Church Street revitalization, which is the first of several projects that the study prioritized that the town should undertake.

### SERVICES PROVIDED:

- Planning

### CLIENT:

Town of Saluda  
Saluda, South Carolina



# Northside/Cleveland Park Redevelopment

## Greenville, South Carolina

Milone & MacBroom, Inc. was retained by the City of Spartanburg to develop conceptual redevelopment plans of a distressed three-block neighborhood within the City limits. An assessment of existing roadways and infrastructure was performed. The plans were developed reflective of existing infrastructure and community input. The conceptual plans developed ranged from total demolition to preservation of existing structures. All plans implemented crime prevention design strategies.

A single composite plan was compiled from the alternatives and detailed cost estimates prepared along with plans for implementation. The project is part of a continuing City community redevelopment initiative. It was funded by a Community Development Block Grant.

### **SERVICES PROVIDED:**

- Planning

### **CLIENT:**

City of Spartanburg  
Spartanburg, South Carolina



# Gilder Creek Multi-Use Trail

## Mauldin, South Carolina

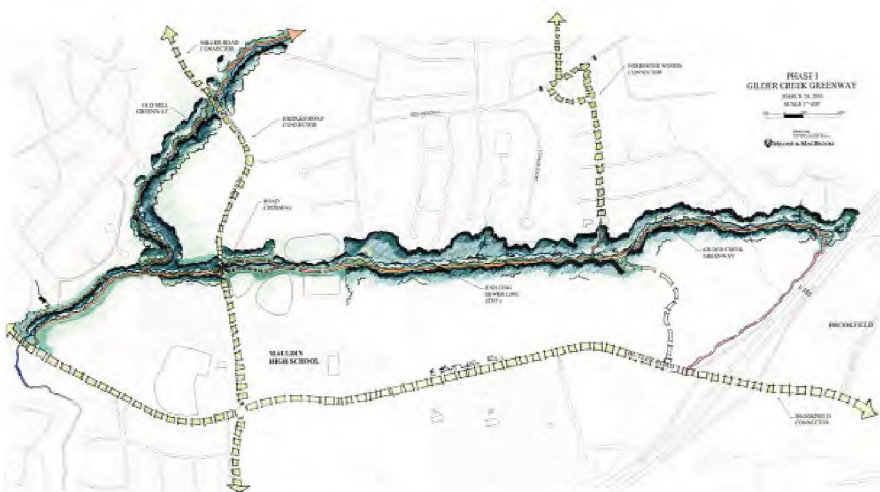
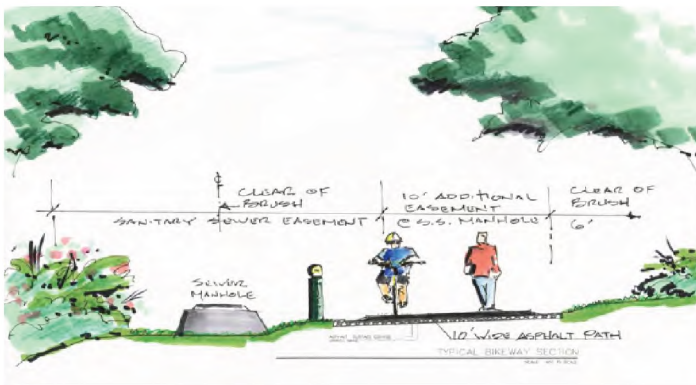
Milone & MacBroom, Inc. was retained by the City of Mauldin to prepare construction plans for 9,000 LF of multi-use paved trail to be used for biking, running, walking, and skating. The trail runs parallel to the Gilder Creek and is to be used for both recreation and alternate transportation. The access points are planned with the middle one having a parking lot to serve those using the trail. The easy access to Mauldin High School and a number of subdivisions will make it effortless for people to use the trail daily. Milone & MacBroom, Inc. has conducted numerous public meetings of the City Council that were open to the public. Design of the trail was completed in 2005 and construction is pending due to obtaining property easements.

### SERVICES PROVIDED:

- Survey
- Master Plan
- Engineering
- Landscape Architecture
- Public Outreach

### CLIENT:

City of Mauldin  
Mauldin, South Carolina



# Bikeways and Greenways Master Plan

## Mauldin, South Carolina

Milone & MacBroom, Inc. prepared a comprehensive greenways and bikeways study for the City of Mauldin, South Carolina and surrounding areas to further develop plans that identify opportunities for greenways and bikeways in the Mauldin area. The study analyzed all feasible on and off-road possibilities for a system of walking, jogging, and bicycling routes for recreation and alternative transportation.

The study first addressed the major greenway corridors, and determined the feasibility of developing each greenway as a recreation and alternative transportation route. The study then identified all major points of interest or destination such as existing recreation areas, schools, cultural and business centers, and historic sites. Neighborhoods were analyzed for possible connections as well. Possible routes of connection were then analyzed ranging from off road paths to shared road options. G.I.S. mapping was utilized to identify utility corridors, property ownership, etc., in an effort to better understand all options. Once initial concepts had been developed they were tested by performing field reconnaissance, which identified opportunities and constraints that do not show up in mapping. Once routes had been field tested, and required improvements noted, a concept level plan was developed with descriptions of each segment and opinions of probable costs associated with their development. The final component was an Action Plan outline that established an approach for implementation of the plan.

Milone & MacBroom, Inc. conducted periodic public meetings of the City Council and project committee that were open to the public.

### **SERVICES PROVIDED:**

- Survey
- Master Plan
- Engineering
- Landscape Architecture
- Public Outreach

### **CLIENT:**

City of Mauldin  
Mauldin, South Carolina



# Downtown Revitalization

## Central, South Carolina

Milone & MacBroom, Inc. was retained by the Town of Central to provide master planning and design services for the downtown area comprising Main Street north from Werner Street to Church Street. The plan encompassed sidewalk improvements, landscaping, and re-configuration of travel lanes, on-street parking, and crosswalks, overhead utility relocation and lighting design. The Town desired to relocate building water service connections on the south side of Main Street to the rear of the structures. A water main was designed from Main Street to Werner Street with an extension on the adjacent rear alley.

In 2010 Milone & MacBroom, Inc. completed the design of the Bank Street Sidewalk Improvements project for the Town.

### **SERVICES PROVIDED:**

- Survey
- Planning Study
- Engineering
- Landscape Architecture

### **CLIENT:**

Town of Central  
Central, South Carolina



# Inman Downtown Revitalization

## Inman, South Carolina

Milone & MacBroom, Inc. was retained by the City of Inman to provide master planning and design services for the downtown area comprising Main Street and Mill Street. The plan encompassed sidewalk improvements, public spaces, traffic and parking reconfiguration, overhead utility relocation and landscaping with the grant they received the City was able to install the street lighting, a new traffic signal, and new sidewalk on Main Street. Milone & MacBroom, Inc. provided construction administration services for the project.

### **SERVICES PROVIDED:**

- Planning Study
- Survey
- Engineering
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Inman  
Inman, South Carolina



# Town Square Redevelopment

## Belton, South Carolina

Milone & MacBroom, Inc. was retained by the City of Belton to provide design services to prepare construction documents for the re-development of the Town Square. The square, located at the heart of Belton's historic downtown was reconfigured to minimize asphalt, reconfigure parking, provide landscaping and lighting. Canopies built on the building facades were removed and the sidewalks replaced with a concrete and unit paver pattern. The project also addressed handicap access, traffic calming, and SC DOT coordination for crosswalks, traffic signals, and roadway reconfiguration.

Milone & MacBroom, Inc. provided construction administration services for demolition, installation of new sidewalks, drainage, asphalt, striping, and ancillary improvements. Milone & MacBroom, Inc. also assisted the City of Belton with a TEA 21 grant application for extension of the project. Milone & MacBroom, Inc. completed the design of phase 2 of the downtown improvements.

### **SERVICES PROVIDED:**

- Survey
- Engineering
- Permitting
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Belton  
Belton, South Carolina



# East Main Street Improvements

## Spartanburg, South Carolina

Milone & MacBroom, Inc. was retained by the City of Spartanburg to design streetscape improvements to a 1,800 foot section of Main Street in downtown Spartanburg. The area has experienced a recent increase in new construction and improvements to existing buildings. Main Street has limited parallel parking and is four lanes wide. Traffic speeds are too high for a downtown area but due to the wide lanes and number of lanes, traffic calming is difficult. The existing street trees are older and which are showing signs of distress.

The streetscape project included narrowing the road from 4 lanes to two 11' lanes, adding parallel parking along the south side, installing bike lanes on both sides of the road, and installing new landscaping. Most of the side streets do not line up with one another north to south making crosswalks difficult to place. By placing the crosswalks between some of the offset roads and installing pedestrian refuge islands in the median, pedestrians will be able to cross Main Street safely without having to cross the entire street at once.

### **SERVICES PROVIDED:**

- Survey
- Engineering
- Landscape Architecture

### **CLIENT:**

City of Spartanburg  
Spartanburg, South Carolina



# US Hwy 123/Tiger Boulevard Improvements

## Clemson, South Carolina

Milone & MacBroom, Inc. was retained by the City of Clemson to provide consulting services for the US Highway 123, Tiger Boulevard enhancement project. The Tiger Boulevard project involved the relocation and widening of sidewalks away from the road edge, decorative lighting and installation of landscaping.

The desired first phase of work on Tiger Boulevard spans from Lake Hartwell eastward to the KFC. The second phase spans from KFC to just past the Ramada Inn. Construction documents were prepared for both these sections. The span from the Ramada Inn to Highway 93 was designed at concept level only to match the proposed improvements to the west.

### **SERVICES PROVIDED:**

- Survey
- Engineering
- Permitting
- Landscape Architecture

### **CLIENT:**

City of Clemson  
Clemson, South Carolina



# Major Rudolf Anderson, Jr. Bridge

## Greenville, South Carolina

Milone & MacBroom, Inc. was retained by the City of Greenville to provide professional consulting services for the design of a pedestrian bridge associated with the Swamp Rabbit Trail on McDaniel Avenue. The Continental style bridge spans 118 linear feet with the abutments sitting outside of the floodway. The bridge will match the design of the existing bridge that crosses the Reedy River in downtown.

Due to flooding this area experiences, the bridge will be elevated above the 25 year floodplain to lessen the impacts of storm events. A conditional letter of map revision CLOMR has been submitted to FEMA and a letter of map revision LOMR will be submitted upon completion of the project.

To allow the bridge to standout and to provide added safety, it will be lit with uplights and rail lights. The lighting was designed to not adversely affect surrounding users and wildlife while still being functional.

### **SERVICES PROVIDED:**

- Survey
- Civil Engineering
- Structural Engineering
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Greenville  
Greenville, South Carolina



# Cleveland Street Pedestrian Bridge

## Greenville, South Carolina

Milone & MacBroom, Inc. was retained by the City of Greenville to provide professional consulting services for the design of a pedestrian bridge for the Swamp Rabbit Trail on Cleveland Street. The Continental style bridge spans 170 linear feet with the abutments sitting outside of the floodway. The bridge matches the design of the existing bridge that crosses the Reedy River in downtown.

The bridge is parallel an existing SCDOT bridge on Cleveland Street. Milone & MacBroom, Inc. coordinated closely with the SCDOT to ensure compliance with the regulations and bridge design requirements. The abutments are located in the 100-year floodplain but the low chord of the bridge is above the floodplain level. A conditional letter of map revision (CLOMR) has been submitted to FEMA and a letter of map revision (LOMR) was be submitted upon completion of the project.

To provide added safety, the bridge is lit with acorn style lights and rail lights. The lighting was designed to not adversely affect surrounding users and wildlife while still being functional.

### **SERVICES PROVIDED:**

- Survey
- Engineering
- Permitting
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Greenville  
Greenville, South Carolina



# Vedado Lane & Fourth Street Drainage Improvements

## Greenville, South Carolina

Milone & MacBroom, Inc. was retained by Greenville County to provide topographic survey, engineering design and permitting for two proposed drainage improvement projects in Greenville County. The Vedado Lane improvement project consisted of upgrading an existing culvert under Vedado Lane, making minor roadway modifications, removing upstream channel obstructions, making channel improvements and stabilizing the stream bank on adjoining properties.

The Fourth Street project consisted of upgrading the existing structure under Fourth Street and making minor roadway modifications. MMI had to verify existing field conditions, provide a topographic survey, perform design and specify the sizes for all new drainage structures. A sanitary sewer line was relocated as part of the design.

### **SERVICES PROVIDED:**

- Survey
- Engineering
- Permitting
- Landscape Architecture

### **CLIENT:**

Greenville County  
Greenville, South Carolina



# Henderson Drainage Basin Improvements

## Greenville, South Carolina

Milone & MacBroom, Inc. was retained by the City of Greenville to prepare a hydrologic study of six existing roadway culverts and to design the replacement of culvert crossings at two roadways. The proposed plan involves the construction of two roadway ConSpan culverts to preclude roadway overtopping that currently occurs under the 25 year flood event. The subject area being analyzed for hydraulic information consisted of the Reedy River Tributary 2 from the Reedy River to Laurens Road. The project area is approximately 1,065 acres. While the City plans to eventually upgrade all six roadway culverts, Halidon Road and Parkins Mill Road were analyzed for replacement of existing culverts at this time. Analyzing the entire watercourse and constructing a comprehensive model provided an excellent means of uniform basin analysis and flood mitigation. It allows the City to measure the impact of multiple improvements upon flood levels, roadway overtopping, and private structures.

### **SERVICES PROVIDED:**

- Engineering
- Permitting
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Greenville  
Greenville, South Carolina



# University Center Regional Detention Basin

## Greenville, South Carolina

Milone & MacBroom, Inc. was retained by the City of Greenville for the design of a regional detention area at the upper end of a commercially developed, highly urbanized 420-acre watershed to control peak flows in the downstream watercourse that has a history of flooding. The improvements to the site include removal of existing vegetation, excavation, construction of an earthen dam with concrete overflow section and associated drainage improvements. The project is complicated by existing surrounding improvements and difficult topography. This project is publicly funded by a stormwater utility.

### **SERVICES PROVIDED:**

- Engineering
- Permitting
- Landscape Architecture
- Construction Administration

### **CLIENT:**

City of Greenville  
Greenville, South Carolina



# Bus Rapid Transit & TOD Feasibility Analysis

## Greenville, South Carolina

In the Fall 2010, the City of Greenville was awarded a Sustainable Communities Challenge Grant by the U.S. Housing and Urban Development (HUD), which provides Greenville a unique opportunity to create a more livable community, promote access to jobs and a robust economy, support effective and efficient land use patterns for defined study area, and improve mobility for residents and businesses.

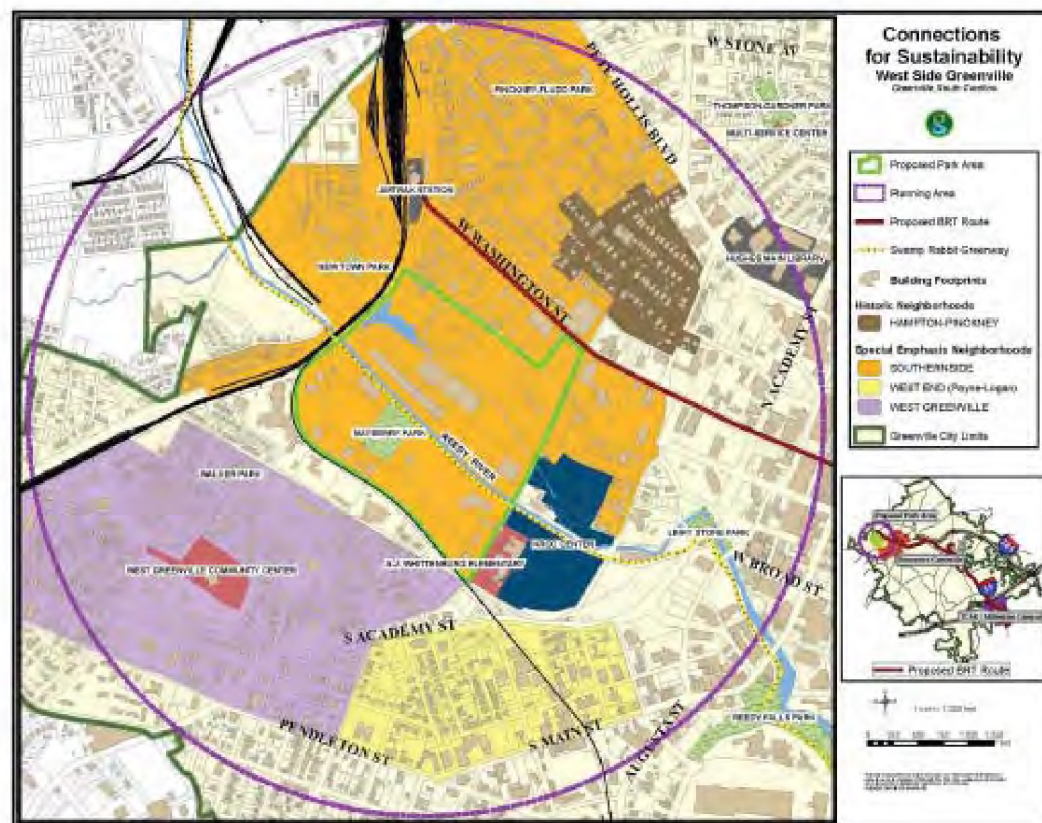
Milone & MacBroom, Inc., as part of a larger project team, assisted the City of Greenville with a feasibility study focusing on BRT concepts and TOD viability and opportunities along the West Greenville/Reedy River Corridor. Milone & MacBroom, Inc.'s role includes TOD site identification and analysis, public agency and stakeholder coordination, and geographic information system (GIS) analysis and mapping.

### **SERVICES PROVIDED:**

- Feasibility Study
- GIS

### **CLIENT:**

City of Greenville  
Greenville, South Carolina



# Swamp Rabbit Trail Railroad Bridge Inspections

## Greenville, South Carolina

Greenville County's plan for the Swamp Rabbit Tram Trail is to connect suburban Greenville County to the downtown area. The connection will allow people a safe route to bike or walk between these areas, and will help alleviate parking problems in urban areas.

Milone & MacBroom, Inc. was retained to inspect eight bridges which varied in length from 55 feet to 225 feet. All of the bridges were constructed with timber trestles except for one which was constructed of concrete. The inspection followed the guidelines of the National Bridge Inspection Standards (NBIS). The timber bridge decks were inspected for decay, parasitic activity, weathering, and indicating physical damage. An inspection was also conducted for abutments, wingwalls, bents, sleepers, bearing seats, girder connections, and scour.

A separate bridge inspection report for each bridge was published containing cover page, field notes, sketches, completed NBIS standard inspection forms, supporting photographs, executive summary, and load rating calculations.

### **SERVICES PROVIDED:**

- Bridge Inspection

### **CLIENT:**

Greenville County Recreation District  
Greenville, South Carolina



# Route 2 & Ramps over Willow Brook

## East Hartford, Connecticut

Milone & MacBroom, Inc. was selected by the CTDOT to design improvements to an approximate 620-foot long culvert under Connecticut's Route 2 and the entrance and exit ramps over Willow Brook in the town of East Hartford, Connecticut. The improvements were part of the State's List 8 Bridge Reconstruction Program. The existing structure was a cast-in-place reinforced concrete box culvert 12-feet wide and 10-feet high and comprised of 20 panels each measuring about 31-feet in length.

The project involved the rehabilitation of all deteriorated concrete, including work on the culvert roof, walls, and floor, as well as the headwalls and concrete aprons. Work also involved riprap slope protection at the inlet to this structure. As part of the project, a complex staged water handling plan was developed.

### **SERVICES PROVIDED:**

- Engineering

### **CLIENT:**

Connecticut Department of  
Transportation



# Route 195 Bridge over Interstate 84

## Tolland, Connecticut

Milone & MacBroom, Inc. was selected by the CTDOT to provide design services for the rehabilitation of the Route 195 Bridge over I-84 in the town of Tolland, Connecticut, as part of the State's List 8 Bridge Reconstruction Program. The former bridge was a three-lane structure constructed in 1956, two spans of equal length for a total structural length of approximately 200-feet.

The rehabilitation of the bridge included the widening of the structure from 39-feet to 67-feet. The widened structure provides for four travel lanes, shoulders, and a sidewalk. Widening involved extension of existing abutments and the center pier located in the highway median. Given subsurface conditions, the new substructure components were founded on friction piles. The bridge was also raised to meet current design criteria for required under clearance with the deck removed in stages, each girder was tacked to its new elevation. Included in the project was over 1,100 feet of roadway reconstruction and the design of two traffic signals at the eastbound and westbound I-84 on and off ramps. The project was an extensive program for the maintenance and protection of traffic and a seismic (earthquake) analysis.

### **SERVICES PROVIDED:**

- Survey
- Roadway Design
- Traffic Engineering
- Permitting
- Construction Inspection

### **CLIENT:**

Connecticut Department of Transportation



# Merritt Parkway Landscape Master Plan

## Fairfield County, Connecticut

The Merritt Parkway is a 38-mile scenic road which connects Fairfield County to the highway system in New York, built in the 1930s. The parkway was placed on the National Register in recognition of its 38 art deco and art modern bridges and its overall landscape character.

Milone & MacBroom, Inc. was selected as the primary consultant to develop a plan to rehabilitate the parkway's landscape which has suffered from years of neglect due to financial limitations. What had been a pastoral landscape of stately shade trees, abundant with flowering environmental trees and shrubs, has become overgrown with invasive species and dented guiderails.

The consultant team's charge was to prepare a detailed inventory of the existing conditions. Original planting concepts were researched from photographs, interviews with the original landscape architect, video tapes, aerial photography, and field investigation. This effort served as the basis for the development of a design treatment manual. The master plan includes a phased construction program and an operations and maintenance plan.

### **Design Awards:**

- 1995 Preservation Award from the Connecticut Trust for Historic Preservation
- 1995 Merit Award from the Connecticut Chapter, American Society of Landscape Architects in recognition of "Outstanding Professional Achievement"
- Merit Award for Design from the National Endowment of the Arts and the U.S. Department of Transportation

### **SERVICES PROVIDED:**

- Landscape Master Plan

### **CLIENT:**

State of Connecticut  
Department of Transportation



# I-395 Resurfacing, Bridge & Safety Improvements

## Plainfield, Connecticut

The Connecticut Department of Transportation retained Milone & MacBroom, Inc. to provide construction administration and inspection services for approximately five miles of roadway resurfacing, bridge reconstruction, and safety improvements. Milone & MacBroom, Inc. was responsible for ensuring compliance with all Connecticut Department of Transportation requirements, including record keeping, testing of materials, and nuclear density testing of pavements.

### **SERVICES PROVIDED:**

- Construction Administration & Inspection

### **CLIENT:**

State of Connecticut  
Department of Transportation



Hartford/Bloomfield, Simsbury, Farmington, Berlin/Cromwell, Connecticut

The Connecticut Department of Transportation selected Milone & MacBroom, Inc. to provide traffic engineering services for the design of more than 40 traffic signals in six towns in the State of Connecticut. The state identified these UTCS controlled traffic signals in need of replacement with current state-of-the-art closed loop signal system equipment.

Plans and specifications were prepared for four construction projects ranging in value from \$650,000 to \$1,250,000. Traffic control signal design tasks included incorporating emergency vehicle pre-emption, coordinating right-of-way activities, equipment modernization, coordination with utility companies, and preparation of communication plans. Work in the Town of Simsbury included coordinating with the Town's ongoing greenway design project in order to establish safe pedestrian crossings at various intersections. Plans were developed using MicroStation. The work required converting available AutoCAD files for use in MicroStation and also required digitizing intersections which were not available in electronic format. Special provisions were developed for non-standard items and reviewed using CTDOT's 'spec checker' program. The project was completed in Metric units.

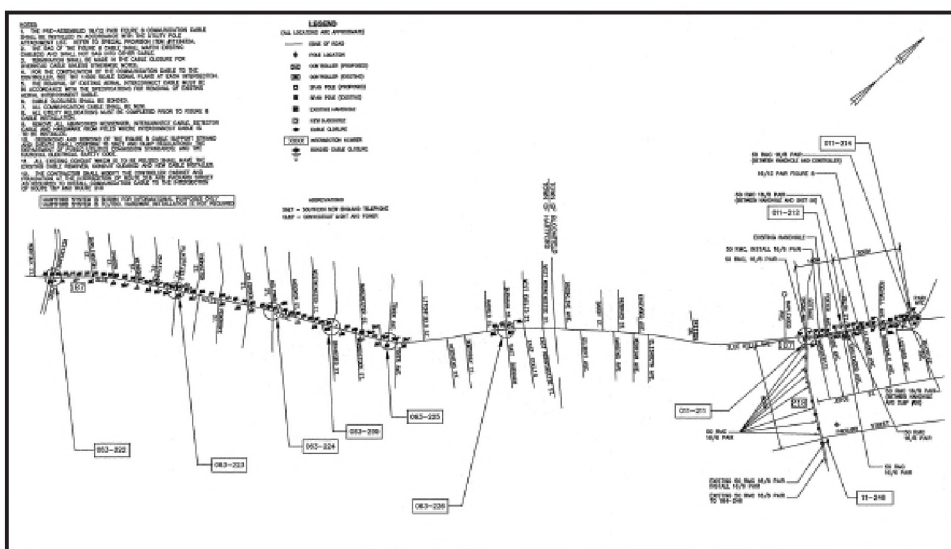
Traffic operations throughout these project corridors were improved through the optimization of traffic signal timings, resulting in improved vehicle progression through coordinated signals to maximize available capacity. The improvements enhanced vehicle and pedestrian safety as well.

**SERVICES PROVIDED:**

- Traffic Engineering

**CLIENT:**

State of Connecticut  
Department of Transportation



# I-91 Resurfacing, Bridge & Safety Improvements

## Windsor to East Windsor, Connecticut

Milone & MacBroom, Inc. provided construction engineering and inspection services for 7-miles of resurfacing, bridge, and safety improvements on Interstate 91. The project extends from CT 305 in the Town of Windsor to CT 140 in the Town of East Windsor. Milone & MacBroom, Inc. was responsible for ensuring compliance with all Connecticut Department of Transportation requirements, including record-keeping, testing of materials, and nuclear density testing of pavements.

### **SERVICES PROVIDED:**

- Construction Engineering & Inspection

### **CLIENT:**

State of Connecticut  
Department of Transportation



# State Route 25 Intersection Improvements

## Trumbull, Connecticut

Milone & MacBroom, Inc. prepared plans for widening and signalization improvements at two intersections along Route 25 in Trumbull. At the intersection of Routes 25 and 111 where the expressway portion of Route 25 ends, a Route 25 dedicated southbound right turn lane was designed along with necessary signal modifications and illumination.

Existing drainage systems were also upgraded to meet the current requirements set forth in CTDOT's Drainage Manual. Milone & MacBroom, Inc. assisted the State in establishing permanent drainage rights where existing pipes traverse private properties and secured the necessary State environmental permits for the work.

The second intersection improvement area includes turn lanes and installation of new signals on Route 25 at Tashua Road and Spring Hill Road. Tashua Road is a scenic Town road and coordination with the Town and public was important. Milone & MacBroom, Inc. also coordinated utility test pits and utility relocations and prepared right-of-way maps for various temporary and permanent easements and partial acquisitions.

The project evolved out of a study conducted by the Greater Bridgeport Regional Planning Agency.

### **SERVICES PROVIDED:**

- Survey
- Traffic & Transportation Engineering
- Permitting

### **CLIENT:**

State of Connecticut  
Department of Transportation



# Route 6 Intersection Improvements

## Plymouth, Connecticut

Milone & MacBroom, Inc. provided construction engineering and inspection services for the realignment and reconstruction of Route 6 at Scott Road and Seymour Road in the Town of Plymouth. The project required intersection improvements coinciding with the roadway realignment; the excavation and disposal of controlled material; and the installation of a new traffic signal, storm drainage system, and water main.

### **SERVICES PROVIDED:**

- Construction Engineering & Inspection

### **CLIENT:**

State of Connecticut  
Department of Transportation



# State Route 25 Intersection Improvements

## Monroe, Connecticut

Milone & MacBroom, Inc. developed final plans for widening and signalization improvements at three intersections along Route 25 in Monroe's historic Stepney area. The intersections have been designed in accordance with State and Federal policies and procedures with valuable input from the Town. The project includes construction of dedicated turn lanes at the various intersections to improve level-of-service within the corridor. Operational analyses were performed using SYNCHRO, Version 7, which is a software package approved by the CTDOT. This model has the ability to analyze intersections to determine appropriate lane geometry and lane designations, signal timing and phasing, and pedestrian accommodations. Existing drainage systems were upgraded to meet the current requirements set forth in CTDOT's Drainage Manual. The firm assisted the State in establishing permanent drainage rights where existing pipes traverse private properties. The work involved full-depth reconstruction of approximately 1,000 feet of roadway and lowering the grade up to five feet to improve sight distances on approach to the Stepney Green. Project-specific maintenance and protection of traffic and detour plans were developed and related utility coordination was crucial to construction staging.

Context sensitive design solutions were implemented in order to minimize impacts to the surroundings since much of the work occurred within the Historic District. This effort was coordinated through a carefully planned public involvement program. The work occurred within a watershed protection area, so coordination with CT DEEP, CT DPH, and the water utility company was an important factor. A State inland wetland permit was granted for work involving upgrade of numerous existing drainage discharges. The firm prepared right-of-way maps for numerous temporary and permanent easements and acquisitions and also performed construction phase services. Such work included developing plans for temporary signalization which was added to the project by construction order.

### SERVICES PROVIDED:

- Survey
- Traffic & Transportation Engineering
- Utility Coordination
- Permitting
- Public Outreach
- Construction Administration

### CLIENT:

State of Connecticut  
Department of Transportation



# Replacement of U.S. 7 Bridge over CL&P Penstocks

## New Milford, Connecticut

Milone & MacBroom, Inc. provided construction administration and inspection services for the replacement of Bridge No. 00557, U.S. 7 over CL&P Penstocks in New Milford for the Connecticut Department of Transportation. The existing two span bridge was replaced with a single span precast concrete arch bridge that was relocated to the northeast to flatten a sharp curve in the roadway. A total of six (6) stages were required to build the bridge and approaches. Alternating two-way traffic was maintained during construction utilizing temporary traffic signals. The project includes cast-in-place footings and wingwalls, riprap erosion protection, drainage systems, and paving, as well as a 40' span precast concrete arch superstructure, 870 feet of concrete retaining walls, lane widening, and installation of subbase and concrete base and utility relocations. Milone & MacBroom, Inc. performed inspection and record keeping in accordance with CTDOT policies and procedures. This project required the use of Site Manager Software.

### **SERVICES PROVIDED:**

- Construction Administration & Inspection

### **CLIENT:**

State of Connecticut  
Department of Transportation



# Bridge No. 00609, U.S. Route 8 Southbound

Litchfield/Harwinton, Connecticut

# Bridge No. 00562, U.S. Route 7

Salisbury/Canaan, Connecticut

The Connecticut Department of Transportation retained the services of Milone & MacBroom, Inc. to provide construction administration and inspection services for rehabilitation of Bridge No. 00609 (Route 8 Southbound) over the Naugatuck River and B&M Railroad in Litchfield and Harwinton and Bridge No. 00562 (Route 7) over the Housatonic River in Salisbury and Canaan.

Bridge No. 00609 is a seven (7) span structure with steel rolled beams on four shorter spans and continuous steel plate girders for the longer three spans. The rehabilitation included replacement of the concrete deck, placement of 3" Superpave and waterproofing, removal of deteriorated lateral bracing, strengthening of girders near pier 6, replacement of girder splices at pier 6, replacement of expansion bearings in rolled beam span, repair of superstructure components (South Abutment and Piers 1-9), and the painting of the entire steel superstructure. To accomplish the work, the bridge was closed and Southbound traffic was detoured onto the Route 8 Northbound bridge. Our construction personnel were also responsible for inspecting the installation of traffic signals to ensure compliance with the plans and specifications.

Bridge No. 00562 is a three (3) span deck truss structure with two (2) variable depth trusses and a concrete deck. The entire bridge was replaced with a single 243' span consisting of steel plate girder and composite concrete deck supported on pile founded concrete abutments. Milone & MacBroom, Inc. performed inspection and record keeping in accordance with CTDOT policies and procedures. This project required the use of Site Manager Software.

## **SERVICES PROVIDED:**

- Construction Administration & Inspection

## **CLIENT:**

State of Connecticut  
Department of Transportation



# Value Engineering Workshop: I-95 Resurfacing & Safety Improvements

East Lyme, Waterford & New London, Connecticut

Milone & MacBroom, Inc. has been selected by the CTDOT under an on-call contract arrangement to provide value engineering services on a task basis. As part of a Federally mandated process and working under this contract, CTDOT authorized Milone & MacBroom, Inc. to conduct a Value Engineering (VE) Study on the design for the Interstate 95 Resurfacing and Safety Improvements project in East Lyme, Waterford, and New London, Connecticut. The purpose of the project was to upgrade the deteriorated pavement and to make critical safety upgrades including installing new precast concrete barrier curb, replacement of some existing guide rail which does not meet current standards, additions and improvements to the existing drainage system to accommodate the new barrier curb, new four-inch bituminous concrete park curb, barrier walls at rock cuts lacking sufficient clear zone, improvements to nine bridges, and barrier wall protection for bridge piers and overhead and cantilever sign supports.

The VE Study included the following three phases of effort:

- **Pre-Workshop:** Suggesting appropriate team members' skill sets, reviewing available materials, preparing a briefing document for distribution to the VE Study Team, preparing a study agenda for CTDOT's approval, and preparing data and computation sheets for the development of recommendations.
- **Workshop:** Conducting a six-day VE Study at the main office of Milone & MacBroom, Inc. at 99 Realty Drive in Cheshire, Connecticut. In addition to a certified value specialist, the skill set of team members included highway designers, bridge engineers, traffic engineers, maintenance engineers, pavement specialists, and construction engineers.
- **Post-Workshop:** Writing, editing, and submitting a VE Study Report and meeting and responding to questions from CTDOT as requested.

Overall project construction costs including contingencies and incidentals to construction were estimated by the designer in 2010 dollars at \$28 million. Following completion of the VE Workshop, the total nonredundant potential net savings from the implementation of all 11 recommendations was estimated to be approximately \$6.8 million, or approximately 25 percent of the estimated total project budget of \$28 million. In addition to the 12 cited recommendations, the VE Study Team identified 30 ideas that it felt were worthy of further consideration by the CTDOT and brought them forward as design or contract suggestions.

## SERVICES PROVIDED:

- Value Engineering

## CLIENT:

State of Connecticut  
Department of Transportation  
Constructability Review Unit



# Value Engineering Workshop: Route 2 Resurfacing, Bridge, and Safety Improvements

## Glastonbury & Marlborough, Connecticut

Milone & MacBroom, Inc. has been selected by the CTDOT under an on-call contract arrangement to provide value engineering services on a task basis. As part of a Federally mandated process and working under this contract, CTDOT authorized Milone & MacBroom, Inc. to conduct a Value Engineering (VE) Study on the design for The Resurfacing, Bridge, and Safety Improvements on Route 2 project in Glastonbury and Marlborough, Connecticut. The purpose of the project was to upgrade the deteriorated pavement and to make necessary repairs to 11 bridge decks and parapets in this highway section, as well as other safety improvements such as guardrail replacement and/or resetting, headwall repairs, and curbing replacement. Route 2 on either side of this project had already been upgraded with similar improvements.

The VE Study included the following three phases of effort:

- **Pre-Workshop:** Suggesting appropriate team members' skill sets, reviewing available materials, preparing a briefing document for distribution to the VE Study Team, preparing a study agenda for CTDOT's approval, and preparing data and computation sheets for the development of recommendations.
- **Workshop:** Conducting a six-day VE Study at the main office of Milone & MacBroom, Inc. at 99 Realty Drive in Cheshire, Connecticut. In addition to a certified value specialist, the skill set of team members included highway designers, bridge engineers, traffic engineers, maintenance engineers, pavement specialists, and construction engineers.
- **Post-Workshop:** Writing, editing, and submitting a VE Study Report and meeting and responding to questions from CTDOT as requested.

Overall project construction costs including contingencies and incidentals to construction were estimated by the designer in 2010 dollars at \$59 million. Following completion of the VE Workshop, the total nonredundant potential net savings from the implementation of all nine recommendations was estimated to be approximately \$15.07 million, or approximately 26 percent of the estimated total project budget of \$59 million. In addition to the nine cited recommendations, the VE Study Team identified 28 ideas that it felt were worthy of further consideration by the CTDOT and brought them forward as design or contract suggestions.

### SERVICES PROVIDED:

- Value Engineering

### CLIENT:

State of Connecticut  
Department of Transportation  
Constructability Review Unit



# Value Engineering Workshop: Route 25 Resurfacing, Bridge, and Safety Improvements

## Trumbull, Connecticut

Milone & MacBroom, Inc. has been selected by the CTDOT under an on-call contract arrangement to provide value engineering services on a task basis. As part of a Federally mandated process and working under this contract, CTDOT authorized Milone & MacBroom, Inc. to conduct a Value Engineering (VE) Study on the design for The Resurfacing, Bridge, and Safety Improvements on Route 25 project in Trumbull, Connecticut. The purpose of the project was to refurbish the existing concrete pavement, to resurface deteriorated flexible pavements, and to make necessary repairs to 23 bridge decks in this highway section, as well as other safety improvements such as guide rail replacement, catch basin modifications, and curbing removal.

The VE Study included the following three phases of effort:

- **Pre-Workshop:** Suggesting appropriate team members' skill sets, reviewing available materials, preparing a briefing document for distribution to the VE Study Team, preparing a study agenda for CTDOT's approval, and preparing data and computation sheets for the development of recommendations.
- **Workshop:** Conducting a six-day VE Study at the main office of Milone & MacBroom, Inc. at 99 Realty Drive in Cheshire, Connecticut. In addition to a certified value specialist, the skill set of team members included highway designers, bridge engineers, traffic engineers, maintenance engineers, pavement specialists, and construction engineers.
- **Post-Workshop:** Writing, editing, and submitting a VE Study Report and meeting and responding to questions from CTDOT as requested.

Overall project construction costs including contingencies and incidentals to construction were estimated by the designer in 2010 dollars at \$28 million. The VE Study Team found minimal opportunities for savings on this project. Following completion of the VE Workshop, the total nonredundant savings possible are in the magnitude of \$2.8 million or approximately 13 percent of the estimated total project budget of \$28 million. In addition to the five cited recommendations, the VE Study Team identified 20 ideas that it felt were worthy of further consideration by CTDOT and has brought them forward as design or contract suggestions.

### SERVICES PROVIDED:

- Value Engineering

### CLIENT:

State of Connecticut  
Department of Transportation  
Constructability Review Unit



# Value Engineering Workshop: Rehabilitation of the Putnam Bridge over the CT River (Route 3)

## Glastonbury & Wethersfield, Connecticut

Milone & MacBroom, Inc. has been selected by the CTDOT under an on-call contract arrangement to provide value engineering services on a task basis. As part of a Federally mandated process and working under this contract, CTDOT authorized Milone & MacBroom, Inc. to conduct a Value Engineering (VE) Study on the design for the Rehabilitation of the Putnam Bridge over the CT River (Route 3) in Glastonbury and Wethersfield, Connecticut. The purpose of the project is to correct active leakage which is occurring particularly at the deck joints over the pier locations, behind copolymers panels along the inside face of the original concrete parapets, and at the median gutter lines beneath the precast concrete median barrier, which is causing the superstructure to deteriorate at a rapid pace. The proposed improvements will include new parapets, median barrier, partial deck replacement, deck joint replacement, fascia stringer replacement, scuppers and drainage repairs to resolve the leakage issues, replacement and rehabilitation of the bearings, and the structural steel and catwalk repairs, address the bridge's major deficiencies, restore its load-carrying capacity, and remove the bridge from the structurally deficient list. The VE Study included the following three phases of effort:

- **Pre-Workshop:** Suggesting appropriate team members' skill sets, reviewing available materials, preparing a briefing document for distribution to the VE Study Team, preparing a study agenda for CTDOT's approval, and preparing data and computation sheets for the development of recommendations.
- **Workshop:** Conducting a five-day VE Study at the main office of Milone & MacBroom, Inc. at 99 Realty Drive in Cheshire, Connecticut. In addition to a certified value specialist, the skill set of team members included highway designers, bridge engineers, traffic engineers, maintenance engineers, pavement specialists, and construction engineers.
- **Post-Workshop:** Writing, editing, and submitting a VE Study Report and meeting and responding to questions from CTDOT as requested.

Overall project construction costs including contingencies and incidentals to construction were estimated by the designer in 2011 dollars at \$33 million. Following completion of the VE Workshop, the total non redundant potential net savings from the implementation of all 9 recommendations was estimated to be approximately \$10 million, or approximately 33 percent of the estimated total project budget of \$33 million. In addition to the 9 cited recommendations, the VE Study Team identified 39 ideas that it felt were worthy of further consideration by the CTDOT and brought them forward as design or contract suggestions.

### SERVICES PROVIDED:

- Value Engineering

### CLIENT:

State of Connecticut  
Department of Transportation  
Constructability Review Unit



# On-Call Value Engineering Assessments

Milone & MacBroom, Inc. was selected by the Connecticut Department of Transportation to provide Value Engineering project reviews on an “on-call” basis. Since 2008 the firm has completed VE review of the following:

- Project one, which consisted of **I-95 Resurfacing, Bridge and Safety Improvements in East Lyme, Waterford, and New London**. VE analysis recommendations includes \$6.8 million in non-redundant savings.
- Project two, which consisted of **Route 2 Resurfacing, Bridge and Safety Improvements in Glastonbury/Marlborough**. This analysis resulted in \$15.07 million in recommended non-redundant savings.
- Project three, which was **Route 25 Resurfacing, Bridge and Safety Improvements in Trumbull**. This analysis resulted in \$2.8 million in recommended non-redundant savings.
- Project four which was **Rehabilitation of Putnam Bridge over the CT River in Glastonbury/Wethersfield**. This analysis resulted in \$10 million in recommended non-redundant savings

Analyses are completed in accordance with FHWA protocols using staff specifically trained in VE analysis. Work completed on each assignment varies depending on the project but generally includes:

- Constructability reviews
- Value engineering innovation studies
- Peer review of design documents
- Investigation, analysis and determination of potential cost overruns and claims
- Preparing constructability and quality assurance practices
- Developing design phase VE guidelines and implementation plans
- Reviewing contract schedules and timelines
- Cost estimating for non-standard contract items
- Critical path method review services.

## SERVICES PROVIDED:

- Value Engineering

## CLIENT:

State of Connecticut  
Department of Transportation  
Constructability Review Unit



# State Pier Planning Study & Design

## New London, Connecticut

The Connecticut Department of Transportation selected Milone & MacBroom, Inc. to analyze the State Pier in the Port of New London and determine the best uses for the facility. The study will recommend commercial marine uses that are compatible with the current and future uses that surround the facility.

Work includes the identification of the infrastructure needs and deficiencies, an assessment of current and future markets and trends in the shipping industry, an exploration of the alternative uses and the costs and benefits of those uses, the identification of environmental opportunities and constraints, and the development of an appropriate strategy that contributes to the economic prosperity of the Port of New London and the surrounding region.

Milone & MacBroom, Inc. has begun work on the design portion of the project.

### SERVICES PROVIDED:

- Planning Study
- Market Assessment
- Infrastructure Evaluation
- Intermodal Connectivity

### CLIENT:

State of Connecticut  
Department of Transportation  
Newington, Connecticut



# Milling & Overlay and Pavement Preservation

E. Hartford/Manchester, Cromwell/Berlin, Enfield, Manchester, Bolton/Union, Connecticut

Milone & MacBroom, Inc. performed construction phase services for the milling & paving and pavement preservation for five separate projects throughout the State of Connecticut. The project assignments involved milling and paving, roadway widening, construction of modular block walls, pipe lining, utility relocations and incidental work such as resetting drainage structures and loop detectors, pavement markings, and maintenance and protection of traffic. Project assignments included:

- Milling & Overlaying on I-84 Eastbound and Westbound - East Hartford & Manchester, Connecticut (State Project No. 0042-0312)
- Milling & Overlaying on Route 9 Northbound and Southbound - Cromwell & Berlin, Connecticut (State Project No. 0033-0128)
- Pavement Preservation on CT 220 - Enfield, Connecticut (State Project No. 0048-0194)
- Overlaying on Route 6 - Manchester & Bolton, Connecticut (State Project No. 0076-0216)
- Pavement Preservation on I-84 Westbound - Union, Connecticut (State Project No. 0145-0103)

Milone & MacBroom, Inc. was responsible for ensuring compliance with all Connecticut Department of Transportation requirements including record-keeping, testing materials, and nuclear density testing of the new pavement. The inspector's most significant challenge was ensuring the safe and convenient maintenance and protection of traffic during night time milling paving.

## **SERVICES PROVIDED:**

- Construction Phase Services

## **CLIENT:**

State of Connecticut  
Department of Transportation



# Scour Analysis Training for Maine Department of Transportation

## Augusta, Maine

Milone & MacBroom, Inc. was contracted by the Maine Department of Transportation to conduct scour analysis training for 20 engineers in the Department's Bridge Design Group. The firm developed training materials and conducted a one day course on river dynamics and scour as it relates to bridge design. Specific topics included:

- River dynamics
- Evaluating channel adjustments
- Sediment stability and transport
- Channel scour
- Scour evaluation methods
- Scour countermeasure methods

The Federal Highway Administration's HEC-18, HEC-20, and HEC-23 manuals were used to provide the framework for current scour analysis and countermeasure design. The training also went beyond the manuals to cover the history of development of scour equations and the limitations of analysis methods. The intention was to develop an understanding not only of analysis methods, but also of the potential shortcomings of the various analytical methods.

### **SERVICES PROVIDED:**

- Scour Analysis Training

### **CLIENT:**

Maine Department of Transportation  
State of Maine



# MassDOT Bridge Replacement Analyses

## Taunton, West Bridgewater, Westfield, & West Stockbridge, Massachusetts

Through our on-call contract with the Massachusetts Department of Transportation, Milone & MacBroom, Inc. performed hydrologic and hydraulic analyses on the following bridges in support of the Accelerated Bridge Replacement Program:

- Washington Street Bridge over Mill River in Taunton
- West Center Street Bridge over Hockomock River in West Bridgewater
- Route 187 over Great Brook Bridge in Westfield
- Route 41-Great Barrington Road Bridge over Williams River in West Stockbridge

The work consisted of preparing hydrologic and hydraulic analyses for each structure, evaluating potential flood impacts and scour susceptibility, and preparing reports supporting the hydraulic design of each bridge.

### **SERVICES PROVIDED:**

- Engineering
- Scour Analysis
- Hydrologic & Hydraulic Analyses
- FEMA Coordination

### **CLIENT:**

Massachusetts Department of  
Transportation  
Boston, Massachusetts



# I-91 & I-90 Interchange Access Alternatives

## Holyoke, Westfield, & Springfield, Massachusetts

Milone & MacBroom, Inc. served as prime civil, traffic & transportation planning, and environmental engineering consultant for the design of highway interchange and local route connections for a proposed resort casino and hotel. The firm developed new and modified interchanges and arterial roadway improvement plans, including provisions to manage traffic and improve upon safety and congestion.

Involved in site assessments and feasibility with a focus on highway access, local traffic circulation and associated right-of-way, environmental, neighborhood, and utility impacts. The firm evaluated sites in three municipalities and prepared conceptual plans and profiles for a new interchange off I-91 in Holyoke, along with a fly-over northbound exit ramp and mainline improvements. Work on local roadways included signalization, optimization, and turn lanes. Several sites in Westfield and Springfield were also evaluated with impacts to the Interstate and/or state arterial routes.

We prepared a detailed feasibility study which included site reconnaissance, identification and location of wetlands, biological assessment, traffic counts, and utility and access studies. In order to accomplish this, the project team met with the MassDOT, Pioneer Valley Planning Commission, and other regulatory agencies.

### **SERVICES PROVIDED:**

- Civil Engineering
- Environmental Assessment
- Traffic & Transportation Planning
- Highway Design
- Utility Design

### **CLIENT:**

Hard Rock International &  
Paper City Development, LLC

