

Bowman

Company Overview

Portfolio of Qualifications for
Professional Engineering & Surveying Services

2022



Who We Are

Bowman is a trusted, multi-faceted professional services firm offering a broad range of infrastructure, environmental management, energy and real estate solutions to both public and private clients across the country. From large commercial developments, to master planned communities, to local transportation projects, Bowman delivers outstanding project results, builds long-lasting relationships and leverages the growth of our organization to serve the constantly changing needs of our clients.



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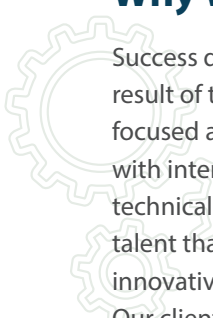
Years in Business

Current Revenue Pace (Millions)

Number of Employees (Approx.)

Offices Nationwide

Why We're Different



Success doesn't just happen. It's the result of thoughtful planning and focused action. At Bowman, we work with intention to deliver on-demand technical genius and industry leading talent that, when combined, produces innovative and solution-driven results. Our clients benefit from a balance of deep national resources often associated with large firms, and the flexibility and quick response associated with smaller boutique firms, to effectively navigate through intricate approval processes.

Markets

- Building Infrastructure
 - Commercial & Industrial
 - Education
 - Government
 - Healthcare & Senior Living
 - Mission Critical
 - Mixed-Use/Multi-Family
 - Parks & Recreation
 - Residential
 - Retail
- Power & Utilities
- Renewable Energy
- Transportation
- Water Resources
- Mining & Exploration

Services

- Civil & Site Engineering
- Transportation Engineering
- Mechanical Engineering
- Electrical Engineering
- Plumbing/Fire Protection
- Land Procurement/Right-of-Way
- Commissioning/Energy Efficiency
- Energy Transition
- Survey/Geospatial
- Water/Wastewater
- Construction Management
- Environmental Consulting
- Landscape Architecture
- Structural Engineering

Team Members

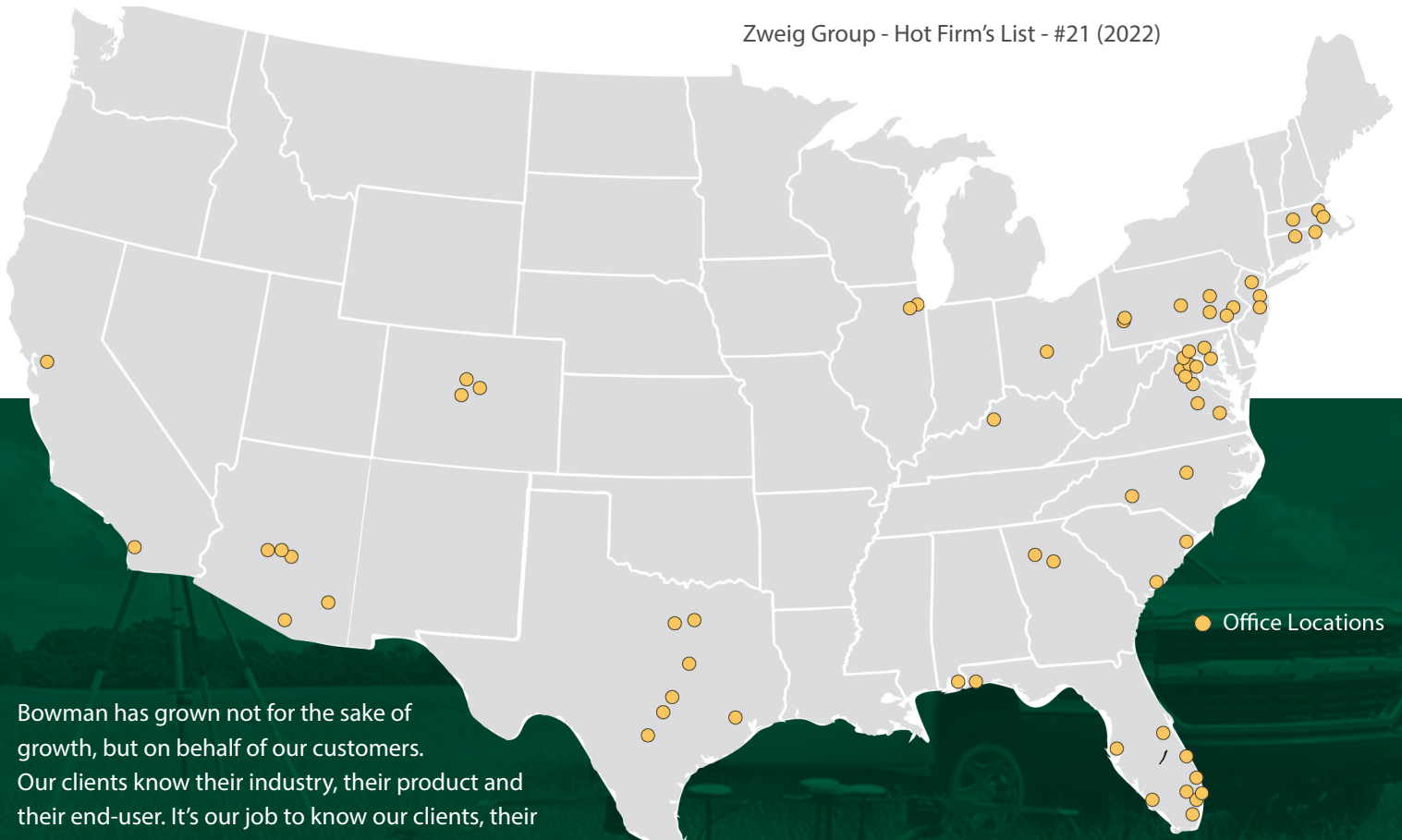
With more than 65 offices nationwide, we continue to add staff, services, and locations to continue to provide the best development and infrastructure services to our clients.

- 1,700+ Employees
- 100+ Fully Equipped Field Survey Crews
- 280+ Professional Engineers
- 60+ Professional Surveyors
- 100+ Right-of-Way and Land Professionals
- 13 Environmental Specialists
- 90+ Planners and Designers
- 20+ Registered Landscape Architects

Awards



- ENR - Top 500 Design Firms - #118 Overall (2022)
- ENR - Top 500 Design Firms Pure Designers - #98 (2022)
- ENR Mid-Atlantic - Top Design Firms - #26 (2022)
- ENR Southeast - Top Design Firms - #55 (2022)
- ENR New York - Top Design Firms - #75 (2022)
- ENR Texas & Louisiana - Top Design Firms - #61 (2022)
- Washington Business Journal
 - #9 - Largest Engineering Firm (2022)
 - #4 - Largest Landscape Architecture (2022)
- Louisville Business First Largest Engineering Firm - #19 (2022)
- MEP Giants - #88 (2022)
- Zweig Group - Hot Firm's List - #21 (2022)



Bowman has grown not for the sake of growth, but on behalf of our customers. Our clients know their industry, their product and their end-user. It's our job to know our clients, their project drivers and how to achieve them. By leveraging the expertise of our local teams and the extensive knowledge of our national resources, Bowman stands ready to deliver innovative development strategies, design concepts and technological advancements to your next project.

National Footprint ... One Team!

Building Infrastructure

Designers, developers and engineers all play an essential role in the development of successful communities by relating and responding to the needs of all community stakeholders. Our clients know their industry, their product and their end-user. It's our job to know our clients, their project drivers and how to achieve them. As a national multi-disciplinary consulting firm, Bowman's professional engineers collaborate with our designers, planners and surveyors to provide our clients with a deep bench of resources and integrated solutions on community projects of all types.

With a full spectrum of in-house capabilities, including site design / layout, grading, drainage, stormwater management, utilities, building system designs and more, our experts provide effective and value driven solutions for land development projects by assessing the best options for land use and by working closely with local governments to meet zoning and regulatory requirements.



Residential

With proven experience with more than 1,000 homebuilders and developers across the nation, Bowman is a strategic partner with the knowledge to anticipate challenges and deliver creative and affordable solutions that are customized to each community to enhance quality, maximize value, and boost aesthetic appeal. From single family homes to large master-planned subdivisions, from multi-unit apartments to modernized build for rent communities, Bowman's comprehensive technical capabilities, along with our staff's in-depth knowledge of local building regulations and longstanding relationships with key regulatory agencies, provides effortless alignment with our clients' vision and goals.



Mixed-Use/Multi-Family

Our changing economy in the past decade has elevated the demand for more mixed-use and multi-family developments. With extensive architect and developer relationships nationwide, Bowman's comprehensive knowledge of this specialized market provides our clients with wide-ranging design solutions to increase property values, ROI, and reduce construction costs while providing added value to potential buyers. Our integrated team of experts are exceptionally skilled in navigating every step of the process from due diligence, permitting, entitlements, building systems and construction management to ensure every project is a success.



Commercial & Industrial

Developing industrial properties comes with challenges that require participation from a wide variety of professionals. Factors such as topography, environmental issues, and utilities play a major role in how sites are laid out and designed, while site plan design, municipal reviews and zoning requirements present additional challenges. Bowman understands the complexities of developing large parcels of land and is well-versed in navigating issues such as site availability, project feasibility, zoning ordinances, approval processes, transportation impacts, utility infrastructure, neighborhood opposition and more. From the planning stage, through design and construction, clients rely on Bowman's integrated teams to bring their projects to life.



Education

From a small classroom building to a large master-planned campus, Bowman's team of experts understand the complexities, standards and requirements to successfully navigate challenges and create modern, competitive and safe educational institutions. Bowman has been providing services for colleges, universities and elementary districts since 1995 and have worked with some of the nation's oldest and most prestigious educational clients, both in urban and rural campus settings. Additionally, lessons learned from our experience on similar campus-like environments such as medical centers, senior living facilities and industrial/office parks gives us a keen understanding of potential impacts and gives Bowman the knowledge to overcome the most multi-faceted challenges and provide expertise in all stages of a project.



Mission Critical

With the continued robust growth rate in the service industry and increasing disaster recovery demands, the urgency to construct facilities to store and process a vast volume of data continues to grow. As a trusted advisor, Bowman understands that speed to market, proficiency and reliability are crucial components when it comes to the construction of these highly specialized infrastructures. From site selection to construction, our full-service team of experts provides mission critical clients with the highest level of confidentiality, demonstrated engineering, permitting and project management solutions, and delivers proven results to meet expedited schedules, mitigate potential impacts, and successfully meet the needs of this highly competitive market.



Retail

Retail development is a significant land use in virtually every community. From neighborhood strip malls, gas stations, convenience stores and quick service restaurants, it is a competitive market and often complicated process. From navigating due diligence and site availability, to zoning ordinances, public hearings and the permitting process, retail developments are often faced with time consuming roadblocks that can affect a project's speed to market. Bowman's agile teams have an in-depth understanding of marketplace trends and are experts in providing value-based solutions to help expedite timelines, minimize costs, reduce oversight and navigate even the toughest of municipalities to maximize the potential of the land.



Government

Reliable government facilities and infrastructure are imperative for a functional society – we rely on them to operate from day-to-day. From designing local roadways to improving intersections and drainage facilities to designing sites for schools, parks and military bases, Bowman has a proven track record. As a multi-disciplined engineering firm, Bowman understands the complexities and challenges states, cities, and local governments face and offers solutions that help balance otherwise limited resources to address the needs of today while being mindful of future development. From funding knowledge to permitting and community engagement, the professionals at Bowman are strategic thinkers and problem-solvers with the experience to examine complex issues and offer best-in-class solutions.



Healthcare & Senior Living

Bowman's approach to navigating the ever-changing market utilizes comprehensive engineering and design methodologies to provide owners with creative and cost-effective solutions to maximize patient comfort and create adaptable care communities. From small clinics to large medical office buildings, hospital campus additions/renovations, to assisted living, memory care and skilled nursing facilities, Bowman's experts understand the complexities and standard requirements to successfully develop these modern care environments, as well as focusing on the importance of avoiding disruptions without impacting the facilities day-to-day operations during renovation projects.



Parks & Recreation

Bowman brings a collaborative approach to creating parks and recreation facilities that balance the needs of the community through a thoughtful planning, design and implementation process. From park master planning to construction management services, our experts have the experience to successfully complete projects on-time and on-budget. Our team of planners, engineers and landscape architects are skilled at transforming recreational visions into reality by helping our clients work through complex land use regulations, environmental permitting and financial challenges. Through listening, collaboration and technical expertise, we strive to express the uniqueness of communities for years to come.



Building Infrastructure



South Riding

Loudoun County, VA

South Riding is the largest example of neo-traditional development in the Northern Virginia area. Bowman was involved with the project from the rezoning stage to planning and final design. Major infrastructure design, land planning, surveying, and civil engineering services were provided for all of the multi-family portions.



La Cima Subdivision

San Marcos, TX

La Cima is a 2,031 acre commercial and low density residential development located in Hays County, within the ETJ of the City of San Marcos, TX. The site is located within the Edwards Aquifer Recharge Zone. Bowman provided professional environmental, engineering, and surveying services for La Cima Developers.



East Edisto

Charleston, SC

East Edisto is approximately 80,000 acres in the Low Country of South Carolina. Development across the property is anticipated to take place over the next 50 years. Bowman provided civil engineering and surveying services.



Cedar Crest Estates

Fairfax, Loudoun & Prince William Co., VA

Residential community on 900 acres spanning three counties. Bowman assisted with entitlements, and provided network controls using GPS, photogrammetry mapping, an ALTA survey, and conducted a route survey, platting, and construction stakeout for 1 1/2 miles of utility infrastructure extensions.



Piedmont

Prince William County, VA

Piedmont is a premier development in Northern Virginia. It Piedmont is situated in a luxurious setting with homes from 16 of the nation's top homebuilders. Bowman was retained to provide surveying, land planning, and engineering services for the community.



Terravella

Queen Creek, AZ

The property is located on 120 acres and consists of three 360 residential lots and an 11.3-acre commercial parcel. Bowman provided complete design and survey services for the project. The project included coordination with Kinder Morgan Gas company and Salt River Project for an electric transmission line to be constructed adjacent to the project.

Building Infrastructure



Layton Lakes

Chandler, AZ

Provided civil design and platting services for this 350-acre, 550-lot master planned lake community. Design included roadway, utility backbone and infrastructure, on-site grading of the lake and basin system use for floodplain, storm water, and amenities. Also provided oversight for preparation of a CLOMR/LOMR with FEMA.



West Jensen P.U.D.

Jensen Beach, FL

1,500 acre project of residential/commercial/multi-use development and environmentally sensitive areas constructed between 1998 and 2007. The development entailed extensive coordination between multiple developers, contractors, regulatory agencies, neighboring residents, and other consulting firms.



Hawk's Landing

Fort Pierce, FL

640-acre tribal development consists of single and multi-family residential, commercial, administration and recreational facilities. Bowman provided engineering, site, utility, stormwater, paving design and permitting, off-site water and wastewater mains, boundary, topographic, wetland, as-built, right-of-way and quantity surveys.



Villages of Leesburg

Leesburg, VA

Bowman designed and entitled this mixed-use development which is modeled around a traditional Towne Center. The site includes office, retail, pedestrian walkways, and residential above retail space and commercial areas. This complex project involved the management and coordination with several specialty consultants.



Metropolitan Park 6 "Met 6"

Arlington, VA

Project consist of redevelopment of aging industrial sites to vibrant buildings including approximately 550 units and street level retail space. Bowman provided full engineering and surveying support from conceptual design to final construction documents, and support through complete Administrative 4.1 Site Plan process.



The Parks at Walter Reed

Washington, DC

As part of the design team to develop the Master Plan for redevelopment, Bowman provided surveying and civil engineering support for this 66-acre mixed-use campus. Bowman developed schematic development including analysis of on-site an off-site roadway, existing and proposed wet and dry utility systems.

Building Infrastructure



Rhode Island Metro

Washington, DC

This transit-oriented project has been recognized for its smart growth and green design, including immediate access to public transportation, innovative shared parking, walk-ability and connectivity, green roof and energy efficient systems and building materials. Bowman provided full site plan including location and external dimensions.



View at Waterfront

Washington, DC

Two new multi-use towers containing 276 residential units and roughly 4,000 sq. ft. of ground-floor retail along M Street adjacent to the existing Pei Towers. The project also included several levels of subsurface parking rehabilitation of existing courtyard with an existing pool. The project was designed to achieve LEED Silver.



14th Street & U Street "The Louis"

Washington, DC

Redevelopment of a seven-story residential building with ground floor retail, upper level amenity terrace, green roof and below ground parking. The development included approximately 102,500 sq. ft. of residential space and 17,400 sq. ft. of retail space. Bowman provided design drawings, permitting and coordination.



JRs @ Tysons

Tysons, VA

A 26-story mixed-use highrise urban plazas with recreation amenities and underground parking facilities. The one-acre site is the first of its kind in size and scope to be approved and located within one-half mile of the new McLean Metro station. Bowman provided engineering, landscape architecture, surveying and environmental consulting.



LC Line Street

Charleston, SC

A mixed-use development includes a 255-unit 9-story apartment building, parking garage, train shed, and 5 historic houses that will make up a restaurant, bar, pool and apartments. Several historical buildings had to be relocated, while the train shed, and smokestack are preserved and built into the development plan.



Wakefield Commons

Raleigh, NC

This 80 unit apartment development is located in the heart of vibrant Wakefield and offers Section 42 Low-Income Housing Tax Credit (LIHTC). Located in a watershed, multiple stormwater and grading challenges surfaced and were designed around all while ensuring the project naturally blended into the existing environment.

Building Infrastructure



Retreat on Milledge

Athens, GA

Bowman completed structural engineering analysis and design of multiple residential units and parking garages for this 170-unit University of Georgia student housing project. On-site amenities include fully-furnished apartments, a large clubhouse, resort-style pool and private study rooms.



Retreat at Kennesaw

Kennesaw, GA

The Retreat at Kennesaw is a brand new student apartment community that provides residents with upscale living near Kennesaw State University, complete with designer features and spacious units. Bowman completed structural engineering analysis and design of multiple residential housing units and a 14,000 sq. ft. clubhouse.



Ariza - Plum Creek Apartments Phase III

Kyle, TX

This 349-unit development is located near the Plum Creek golf course. Our civil team provided site design which required coordination between the golf course, adjacent apartments, the developer, and utilities. Our services also included platting, detention design, and median opening design.



Alexan Heights Multifamily

Houston, TX

Our team provided site development and designed roadway, drainage and utility improvements to serve a new multi-family development in the historic Houston Heights neighborhood. The project required an upgrade to substandard roadways and drainage within the immediate area based on City of Houston design standards.



Block 37

Chicago, IL

This urban mixed-use project includes 400,000 sq. ft. above grade retail mall, entertainment, and approximately 100,000 sq. ft. 17-story Class A office space, a Pedway level consisting of an additional 30,000 sq. ft. feet of retail space and a future CTA facility that will serve to connect the Blue and Red Lines.



Asbury Ocean Club

Asbury Park, NJ

Multi-story mixed-use development of 128 residential units, a 56-room hotel and 21,928 sq. ft. of retail space within the 230 acre waterfront redevelopment area of Asbury Park. Scope included site layout, grading and utility design, analysis of existing utilities providing service to the site, project permitting and construction specification preparation.

Building Infrastructure



Discovery Elementary School

Arlington County, VA

Bowman provided civil engineering, surveying, scanning, and construction administration services. The project involved the construction of a new elementary school on the existing Williamsburg Middle School campus with new synthetic turf soccer fields, a multi-purpose field, and a baseball diamond.



Academies of Loudoun

Loudoun County, VA

Bowman staff was responsible for the land planning feasibility and commission permit legislative process, landscape architecture, arboriculture, civil engineering, environmental, and surveying services for Loudoun's premier STEM education facility. The project combined three different schools into one 320,000 sq. ft. facility.



Arlington County Public Schools On-Call Contract

Arlington County, VA

Bowman has developed feasibility studies of existing school sites for potential additions and/or new school construction. Bowman personnel performed research, obtained school as-built plans and utility maps, made site visits, and performed full topographic surveys.



MacFarland Middle School

Washington, DC

The project consisted of the mechanical, electrical and plumbing commissioning services for the newly renovated 110,000 sq. ft. 3-story school was built originally in 1923. Additions to the original building were constructed in 1925, 1927 and 1932. It is the Owner's intent is to achieve LEED for Schools Version 4, LEED Gold.



Banneker High School

Washington, DC

Bowman provided the full design and construction plans for Banneker High School. The project included construction of a new school building and tennis courts, athletic track and field, skate park, dog park and basketball courts. Scope also included SWM, DDOT coordination and permitting, and utility infrastructure design.



Kushner Academy Fields

Livingston, NJ

Bowman provided civil engineering, landscape architecture and surveying services for the redesign of their recreational fields and playground areas. Project improvements consisted of a synthetic turf soccer field, three basketball courts, swimming pools, a natural grass baseball field, and a camping area with cabins for the students.

Building Infrastructure



Meeting Street Academy Phase II

Charleston County, SC

Bowman provided civil engineering and surveying services for this elementary school project. The project consisted of an approximately 17,640 sq. ft. expansion to the existing structure on two levels. Other project components included playground and basketball court expansions, sidewalk additions, and new parking spaces.



The Oliver Street School

Newark, NJ

Lead engineer for this new 137,000 sq. ft. school that houses 938 students, grades Pre-K through 6th. Scope included engineering and surveying services for the redevelopment of the site, boundary and topographic surveying, site design, and landscape architecture, as well as all necessary local, county and state permitting for the project.



Sole-Source Cx District-Wide Bond

Roaring Fork Valley, CO

Provided third party commissioning services for the construction of a new High School (HS2), renovation and addition to an existing high school (WHS), and MEP upgrades to 10 other District facilities. Weld County School District RE-4 includes the towns of Windsor and Severance, along with surrounding areas of Windsor.



George Mason University Peterson Family Health Sciences Hall

Fairfax County, VA

Bowman provided landscape architecture and constructibility services for this 160,000 sq. ft., five-story building that includes a working health clinic accessible to the public, a kitchen where students will practice nutrition science, classrooms, and labs for nursing.



George Mason University Housing

Fairfax, VA

Bowman provided engineering and surveying services to this multi-phased, design/build housing project. Project consisted of a development of 422 total units, including 75 apartments, 105 yard townhomes, 164 urban townhomes, 58 duplex units and 20 small lot units. This project was the 2010 Grand Award Winner for Builder's Choice magazine.



University of Maryland Housing

College Park, MD

Bowman provided surveying, planning and engineering for this off-campus university apartment complex including boundary and topographic surveys, a full easement and agreement package, a detailed utility layout plan and complete SWM plan, and a detailed site plan, forest stand delineation, and final landscape package.

Building Infrastructure



The University of Texas at Austin Tennis Center

Travis County, TX

Provided the complete site development services. The natural area preservation requirements, topography of the site and mature trees increased the challenge of providing a stormwater collection system, water quality facilities, vehicular access, and other utilities allowing the various building pads to blend in.



Colorado State University Halls

Pueblo, CO

Retained as the overall commissioning authority for this construction project and also led the team on the LEED certification of these concurrent projects for Culebra and Greenhorn Halls. The new buildings include 223,000 sq. ft. on three floors and associated support facilities. LEED Gold certification was pursued.



Salt Lake City Community College-Center for New Media

Salt Lake City, UT

Included MEP and building envelope systems modeling, commissioning, and verification services for the more than 140,000 sq. ft. of new space at their South City Campus, including 4 main projects: Career Technical Education Bldg, Facilities Annex Bldg, Center for New Media, and Chiller Plant Expansion.



Amazon Bldg. BWI5 - Project Rook

Baltimore City, MD

Bowman provided various professional services for this 346,400 sq. ft. warehouse facility. The team's responsibilities included stormwater management design, storm drain design and layout, water and sanitary sewer design, storm drain design, erosion and sediment control design, permitting and retrofit for stormwater pond conversion.



Amazon Building RIC3

Richmond, VA

Bowman supported this 461,700 sq. ft. project by providing a wide array of services including transaction due diligence, land planning, civil/site engineering, stormwater management design, land surveying and environmental permitting.



Amazon Bldg. PNE5 - 18 Applegate

Township of Robbinsville, NJ

Bowman provided civil engineering and landscape architecture services for this Amazon project located in the Township of Robbinsville, New Jersey. Responsibilities included revising a previous site plan, meeting preparation and attendance, permitting assistance, and site visits.

Building Infrastructure



FedEx Distribution Center

Chandler, AZ

Bowman provided Survey and Civil Engineering Design services for the new FedEx Distribution Facility located on 48-acres near the Chandler airport at Gilbert and Queen Creek Roads in Chandler, Arizona. The finished building is approximately 310,000 sq. ft. under roof and will serve the southeast valley communities.



Global Logistics Park

Staten Island, NY

Distribution park consisting of 4 million sq. ft. of industrial buildings and related site infrastructure. Bowman provided survey layout services as the Surveyor-of-Record for the entire project. This work has included site controls, complete site infrastructure and as-builts, site layout of footings and foundations, interior piers and plumbing.



I-95 Logistics Distribution Center

Baltimore City, MD

This is a 62 acre, one million-square-foot distribution center across from Richmond Marine Terminal (RMT). Bowman provided a wide array of services, including transaction due diligence, land planning, civil/site engineering, stormwater management design, land surveying, and environmental permitting.



Walmart

Various Locations, FL & Nationwide

To date, Bowman has provided more than \$56M in consulting services for over 500 Walmart stores across the country. These projects typically include a new building and parking lot and Bowman is generally responsible for designing all on-site utilities, grading and erosion control, coordination with adjacent land owners, and facilitating city approvals.



Costco

Various Locations, VA, MD & NJ

Bowman provided various civil engineering and ALTA, NSPS and surveying services for several Costco Warehouse locations in Virginia, Maryland and New Jersey.



Sam's Club

Various Locations, CO, FL, GA & SC

This challenging project included a full parking lot redesign due to a perched water table. Bowman worked with the client, general contractor and local municipality to keep the project on schedule. Bowman's team redesigned the parking lot in a expedited manner while the store remained fully operational.

Building Infrastructure



Royal Farms

Various Locations, VA

Bowman is providing due diligence, and site/civil engineering for the construction of a number of new c-store/fueling stations across Virginia. Bowman's services provide Royal Farms with adequate information to make a well-informed decision about whether or not to move forward into the permitting/approval period.



Circle K

Various Locations, Nationwide

Services include site, utility, drainage and stormwater management design, rezoning, permitting and rezoning services for new ground-up sites as well as raze and rebuild sites. Permitting was with Cities, Counties, NRCS, EPD and DOT. Sites are approximately two acres with stores ranging from 4,000 to 8,000 sq. ft. Some sites include EV charging.



7-Eleven

Various Locations, Nationwide

Bowman provided engineering services for 50+ new ground-up 7-Eleven stores throughout Florida, the Carolinas and the South. Projects involve geometric site layout design, utility design, storm sewer design and calculations, grading, production of construction documents, and full permitting and processing services to get site permits.



Chase Bank

Various Locations, Florida

Bowman was the preferred engineer to help identify, evaluate, and permit potential development sites. Bowman performed the conceptual plan, civil design, permitting, and construction certification efforts. A typical free-standing branch was approximately 4,000 sq. ft. with 3 to 4 drive thru locations and 30 parking spaces.



Walgreen's

Various Locations, MD, VA & AZ

Bowman has designed more than 20 Walgreens stores in Arizona, Maryland, and Virginia. Services provided include complex engineering designs, surveying, due diligence, feasibility studies, zoning and entitlement services, construction drawings, landscape architecture, and construction administration.



O'Reilly Auto Parts

Various Locations, FL, TX, MI, WI

Projects involved civil services, redevelopment including demo and engineering a new build. Bowman provided acquisition of all site related permits including the DOT for the driveway connections, City for water and sewer connections, and County for stormwater licenses. We also obtained project entitlements.

Building Infrastructure



Chick-Fil-A

Various Locations, Southeast

Bowman currently works with Chick-Fil-A across the state of Southeast on many of their new stores. Services include preparing site development plans, coordinating County approval processes, and overall civil engineering from design through construction.



Starbucks

Various Locations, FL & Southeast

Bowman's partnership with Starbucks began in 2013 and has since grown into becoming one of their preferred civil engineers. Our teams work closely with management to produce site development and construction management plans for new stores across the region including Downtown Disney and other high-profile sites.



Culver's

Various Locations, Southeast

Bowman currently works with Culver's to help expand their footprint in Florida and throughout the Southeast market. Our team works closely with the owners providing services including conceptual site planning, site development plans, civil construction documents, site entitlement, permitting and construction management.



Black Rifle Coffee Company

Various Locations, FL, GA, NC

Since going public in 2022, BRCC is focused on national expansion of its new prototype which includes a 300 sq. ft. dog park. Bowman provides civil engineering and surveying services including due diligence and permitting support across the southeast.



Swig

Various Locations, Southeast, Midwest

Bowman supports Savory's development team across the Midwest and Southeast with development services for four of their restaurant brands including Swig. Bowman currently provides engineering services including due diligence, site development plans and entitlement and permitting support.



Taco Bell

Various Locations, CO, TN

Bowman provides civil engineering services for franchisees through a strategic partnership with the Brands National Consultant. This include full civil engineering design and permitting services on projects from Tennessee to Colorado.

Building Infrastructure



Dulles International Park - Phases I-II

Sterling, VA

This two phase development project included the retrofitting of an existing 30-year old warehouse/flex building. Bowman provided preliminary site layout and due diligence, as-built survey, preliminary earthwork analysis, final site design/permitting, construction administration services, construction stake-out and final as-built survey for project closeout. In an effort to keep an aggressive permitting schedule, this project was minimized to disturb less than one (1) acre such that a VSMP permit was not needed. Additionally, the existing and proposed utilities were confined within a small land area, which made it challenging during installation and required complex coordination with multiple entities to ensure success.



NOVA Data Center Phases I-III

Sterling, VA

Provided a feasibility study and a layout for the preliminary site, extensive topographic survey, floodplain study and alteration, as-built survey, preliminary earthwork analysis, final site design/permitting, utility coordination construction administration services as well as construction stake-out and final as-built surveys.



Confidential Arizona Data Center

Phoenix, AZ

The masterplan for the client facility will be looking at the entire campus, encompassing Buildings A, B and C, to utilize 50MW in Building A, 20MW in Building B, and 50MW in Building C. Scope includes preliminary meetings, surveys and investigations to determine if the site should be modernized and conceptual grading and utility design.



Western Suburb Data Center

Chicago, IL

Bowman prepared conceptual layouts for this 2-story data center expansion totalling nearly 500,000 sq.-ft. Bowman conducted confidential discussions with the zoning department and pre-application meetings with the review team to expedite the process. Prepared preliminary plans for review and early construction cost estimates.

Western Suburb Cloud Center

Chicago, IL

Two-story Cloud Center includes ring road, parking, stormwater management and utility extensions. Provided survey, annexation and rezoning of the unincorporated parcel, annexation agreement negotiation, conceptual layout, meetings with the zoning dept., preliminary plans, final construction documents and permitting.

Building Infrastructure



INOVA Center for Healthy Living

Fairfax, VA

Renoation of 20,000 sq. ft. of a second-generation medical facility included new layout of electrical heat VAV system exhaust fans, design of all interior lighting power, power distribution, fire alarm and raceways for telephone and data communication systems and plumbing system design for treatment rooms, new pantry area and retail space.



Medical University of South Carolina Children's Hospital

Charleston, SC

Bowman was contracted to perform surveying services to provide construction staking, topographic surveys, and as-built surveys for multiple contractors in support of the development of this award winning 'Best Children's Hospital' that opened in early 2020.



Baptist Health Medical Office Bldg

Louisville, KY

This five-story 120,000 sq. ft. facility acts as a primary care hub housing physician practices, ambulatory surgery center, urgent care physical and occupational therapy, imaging, lab and retail pharmacy. Bowman is providing survey, site design, layout, planning approval and civil engineering design with construction staking services.



Norton CMA Medical Offices

Louisville, KY

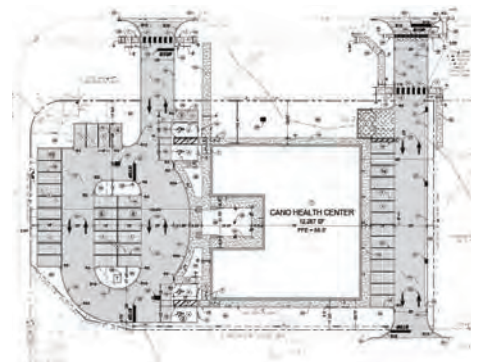
Bowman completed the surveying, planning, site layout and civil engineering designs for major renovations to an existing retail building adjacent to the hospital campus. Project included complete survey of site, site development plan and required agency updates for approvals, landscape plan and more.



Fallsgrove Medical Office Building

Rockville, MD

Provided mechanical, plumbing, electrical engineering and fire sprinkler design for this five story, 119,900 sq. ft., LEED Silver, office building with 150,000 sq. ft., three level, naturally ventilated parking structure. The office building first floor is designed for retail tenant space including provisions for a future restaurant.



Cano Health

Poinciana, FL

The proposed Cano Health medical building will consist of constructing a +/- 13,000 sq. ft. medical building/outpatient wellness center on +/- 1.2 acres. Associated site work includes parking, internal drive aisle/circulation, on site water and sewer utilities, landscaping, irrigation, and onsite stormwater conveyance system.

Building Infrastructure



Resort Lifestyle Communities

Various Locations, FL, IL and Nationwide

Bowman partnered with Cameron General Contractors to provide program management assistance to develop Resort Lifestyle Community's portfolio of luxury 55 and older senior communities. Bowman also executed a wide range of civil engineering, survey, planning, landscape design, environmental and permitting services for each project site.



Water Valley Senior Living

Windsor, CO

Project included a two-story addition to an existing 121-unit senior living complex. Bowman provided mechanical and plumbing engineering, and construction administration services. The HVAC system included heat pump technology for new systems and expansion of existing chilled and hot water fan coil systems.



Central Park at Lowes Island

Loudoun County, VA

This 55+ adult living community was originally zoned as a strip mall with retail shops and Bowman was hired to prepare the rezoning package and site plan. Additional services included engineering the community's utilities, roadways and stormwater management system, and providing boundary, topographical and stake-out survey services.



Hills at Leander

Leander, TX

The Hills at Leander is a 228-unit senior living apartment complex located on approximately 10 acres of gently sloping land. Bowman provided civil engineering, boundary and topographic surveying, preliminary and final plat processing, Phase 1 feasibility studies, zone plan preparation, site plans and construction administration and documentation.



Certus Premier Memory Care

Melbourne, FL

Design and permitting of a new 44,063 sq. ft. assisted living memory care facility on 6.41 acre lot. This single-story 64 unit facility includes parking, amenities, utility design and stormwater management. Permitting with Town of Palm Shores, Brevard County, City of Cocoa Utilities, and St. John's River Water Management District. Building not yet constructed.



Arrowhead Valley

Peoria, AZ

15-acre site with FEMA mapped flood plain and includes a 68,000 sq. ft. building footprint with three stories and 9,000 sq. ft. of parking. Provided civil engineering including site plan, grading, drainage utility and stormwater pollution prevention, and ALTA and topographic surveys, legal descriptions and exhibits, final plat and construction staking.

Building Infrastructure



Hal & Bernie Hanson Regional Park

Loudoun County, VA

Bowman provided civil site design, environmental planning and construction administration for this 259 acre park which includes 17 athletic fields with lighting, a dog park, skate park, disc-golf course, nature center building, a lodge facility, park office and maintenance buildings, tree/wetland preservation, playgrounds and more.



Alethia Tanner Park

Washington, DC

Bowman provided design for stormwater management, utility services and site grading for this 2-acre park that mixes hardscape with lawn area and playgrounds. Included renovation of part of the Metropolitan Branch Trail allowing for pedestrian and bicycle connections throughout the park.



Lubber Run Community Center

Manassas, VA

Provided surveying and civil engineering services for this award-winning 22 acre site which includes a 50,000 sq. ft. replacement structure with multi-purpose room, a fitness center with locker rooms, a gymnasium, preschool area, community meeting rooms, kitchen, reception and office space for county-wide parks and recreation staff.



Martin County Aquatic Center

Martin County, FL

The project includes the site civil engineering four pools and associated recreational amenities. Includes design and permitting of site features including pool decking and drainage, access roadways and parking, stormwater management conveyance facilities, stormwater storage and treatment, site grading, water and wastewater utilities.



Branch Brook & Yanticaw Park

Essex County, NJ

Essex County sought a team to prepare design and construction documents for the improvements of a total of three baseball and soft ball fields. As the primary engineer, Bowman's services included a field surveying and topographical mapping, drainage design, permits, and construction documentation and administration.



Levitt Pavilion

Denver, CO

Bowman provided civil engineering for this 7,500 capacity amphitheater project with a 1,500 sq. ft. stage, for Denver's Department of Parks and Recreation. Bowman provided engineering and survey services. The scope of the project included the required infrastructure and site planning.

Transportation

Functional transportation systems are crucial in connecting our communities and play an essential role in the development of our society. From the early canal system to the introduction of the US Interstate, roadways, bridges and waterways have all played a major part in building a thriving economy. To keep these systems operating optimally, government and transit agencies continually are enhancing, building new or repairing existing infrastructure.

With a resource of national experts at our disposal, Bowman excels in the delivery of challenging transportation projects that require complex solutions within both congested urban and rural environments. From major freeway systems and urban arterials to rural highways, to rail and bridge projects, Bowman's transportation engineers plan, design and oversee the construction process for safe, efficient and reliable transit projects of all sizes and scopes. Bowman has a vast understanding of agency rules and regulations, and works closely with municipal, county and state officials to provide guidance, professional insight, and functional and cost-effective designs while staying up-to-date on continually changing industry trends.



Areas of Expertise

- Roadway Design
- Drainage Design
- Right of Way Services
- Traffic Studies
- Transportation Planning
- ITS & Tollways
- Lighting and Illumination
- Interstate Justification Reports
- Corridor Studies
- Signal Warrant Evaluations
- Intersection Improvements
- Route/Alignment Studies
- Highway/Freeway Design
- Traffic Engineering
- Traffic Signal Design
- Signing / Pavement Marking Plans
- Roundabouts
- Utility Design/Coordination
- Public Involvement/Consensus Building
- Access Management Plans
- Transit Design
- Alternate Delivery Methods
- Structural Engineering



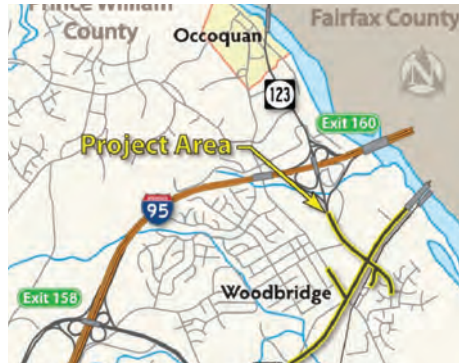
Transportation



Route 460 Corridor Improvement Project (P3)

Petersburg to Suffolk, VA

This VDOT PPP project includes construction of 55 miles of four-lane divided limited access highway. Project will be tolled with funds used to pay for project costs. Project also includes design of intermediate interchanges at four major crossroads. The project made it to 15% before getting canceled by VDOT.



VDOT Route 1/123

Woodbridge, VA

Bowman provided relocation services for this VDOT project in a highly developed area of Prince William County in Northern VA. Project widened both Routes 1 and 123, and built a new Route 123, grade-separated over Route 1 and the CSXT railroad, alongside several other intersection improvements to significantly improve traffic flow.



FDOT Districts IV and V

Multiple Counties, FL

Bowman is currently contracted by District IV for district-wide surveying and mapping services, and has provided similar services to both District IV and V in the past. Bowman has recently been recognized by FDOT for our conscientious effort to use Disadvantage Business Enterprises on all FDOT funded projects.



Grand Parkway (P3)

Houston, TX

This P3 involved design and construction of a 12 mile portion of Section I-1 of State Highway 99 (the Grand Parkway) from north of US 90 to south of SH 146. Bowman's services include mainline design, three full access interchanges, 11 bridges, retaining walls, drainage, safety lighting, utility adjustments and ITS facilities and traffic signals.



Tri-State Tollway Mile Long Bridge

Chicago, IL

The Mile Long Bridge is a critical piece of infrastructure to the Central Tri-State Tollway (I-294) corridor as it carries drivers over two major railroads, three water sources and local roads, and over a major distribution center for UPS and Burlington Northern Santa Fe (BNSF) Railway. Providing engineering and construction management services.



Portsmouth Bypass (DBFOM)

Portsmouth, OH

\$634 million, 16-mile, four-lane, limited-access highway being delivered as a DBFOM. Bowman provided overall design and design management, roadway and drainage design, hydrologic and hydraulic calculations, traffic engineering/management, electrical design, ITS, tolling systems and ATCs through the Tender Phase.

Transportation



Casey Arborway

Boston, MA

Provided transportation engineering and conceptual design services on the design team for this project. In addition to design services, we also provided construction services, particularly as it related to the signal timings and traffic management.



Ferry Street Improvements

Easthampton, MA

Designed intersection and roadway improvements on Ferry Street and prepared construction plans and contract documents for bidding. The primary goal of the project was to improve a roadway section of Ferry Street and intersection improvements with the construction of a mini roundabout.



Commonwealth Ave Bridge Replacement

Boston, MA

As part of a Design-Build team for the superstructure replacement of the Commonwealth Avenue Bridge, our experts coordinated with the project team to design effective temporary traffic control plans that allowed the contractor to replace the bridge in the most efficient manner.



North Tarrant Expressway Segment 3A (DBFOM)

Forth Worth, TX

Design services and design management of the new I-30 Direct Connector, IH-820 DC at Mark IV Parkway and Segment 3C South Expressway. Scope includes roadway design, ITS, illumination, hydrologic/hydraulic analysis and traffic management and reconstruction of nine interchanges.



Transform I-66 Outside the Beltway

Fairfax and Prince William Counties, VA

This VDOT PPP project involves the major reconstruction of I-66 between Gainesville Interchange and the Capital Beltway, a distance of approximately 20 miles. Scope included ROW acquisition, relocation consulting, surveying, ROW plan preparation and utility relocation design/coordination.



Cowpath Road & Orvilla Road Intersection Improvement Project

Hatfield Township, PA

The project involved the evaluation of the intersection which consisted of two offset, signalized T-intersections with the legs of Orvilla Road located approx. 165ft apart. The team provided traffic data collection & analysis, post-construction stormwater management design and right-of-way engineering.

Transportation



West Palm Beach Bike Master Plan

West Palm Beach, FL

This project included preparing maps depicting the future bicycle network, recommending typical sections, planning level cost estimates and prioritization of improvement projects. The Master Plan provides a guide to the city regarding bicycle corridors, ultimate bicycle facilities and appropriate treatments.



City of Fort Myers Bicycle & Pedestrian Master Plan

Fort Myers, FL

For this project, efforts included an extensive inventory of existing bicycle and pedestrian facilities, literature research, a needs assessment, agency coordination, and a robust public outreach process. A project website was created to solicit input from the community.



FDOT Traffic Operations Safety Studies

District 6, FL

Our team performed work and was responsible for managing subconsultant teams in the preparation and submittal of various types of traffic studies and assessments, including: safety studies; qualitative assessments; signal warrant analyses; arterial analyses; left-turn phase warrant analyses; and fatal crash reviews.



Linfield-Trappe Road & Township Line Road Intersection Improvements

Upper Providence Township, PA

The project included the installation of opposing exclusive left-turn lanes at the intersection along Township Line Road, and replacement of old span wire traffic signal equipment with fully modernized traffic signal, pedestrian signal facilities and ADA compliant curb ramps.



Dallas 5-Leg

Dallas Borough, PA

The project tasks included environmental studies/clearance, utility coordination, preliminary engineering, final design and preparation of construction plans, specifications and estimate (PS&E package). The project will be submitted and advertised for construction through PennDOT's Engineering and Construction Management System (ECMS).



Walk Phoenixville Pedestrian Walkability & Accessibility Plan

Borough of Phoenixville, PA

Conducted a comprehensive evaluation to assess pedestrian accommodations throughout the entire borough. This led to the development of a pedestrian walkability and accessibility plan to address necessary policy changes, maintenance and operational issues and needed capital improvements.

Transportation



Swarthmore Roundabout

Swarthmore, PA

Our team was engaged by Swarthmore College to resolve a complicated and dangerous intersection on Chester Road in connection with their Swarthmore Town Center West development concept. The Chester Road project required the incorporation of a “Complete Streets” transportation solution and extensive community outreach.



Villanova Pedestrian Bridge

Radnor Township, PA

Completed the engineering and design of a pedestrian bridge and associated roadway improvements apart of Villanova University’s campus improvement project. To place this structure in the best location, we designed new vehicular access west of the structure, which served to separate vehicular and pedestrian movements.



John Rolfe Parkway Sidewalk Improvements

Henrico County, VA

Bowman is under contract with the County of Henrico Department of Public Works to provide engineering services for the federally funded CMAQ. John Rolfe Parkway Sidewalk Design. The project will result in the construction of 3,600 feet of sidewalk within the County Right-of-Way on John Rolfe Parkway.



Metra/US Route 45 Bridge

Orland Park, IL

Bowman provide Phase II engineering design of a 2-span steel through girder railroad bridge. The project included modifications to the geometry and configuration of the Metra Southwest Service Line Bridge including raising the bridge profile.



Stearns Road

Kane County, IL

Bowman provided Phase II engineering services for the design of the New Stearns Road. Other roadways included in this project include McLean Boulevard and IL Route 31. Bowman’s staff prepared plan, specifications, and estimates for the construction of this new four-lane roadway.



Ellsworth Road Improvements

Queen Creek, AZ

Bowman provided design services for street grading, drainage and retention for this award-winning project that encompassed a half mile stretch of roadway. Services included roadway design, conflict resolution, hydraulic study and hydrologic analysis, in-depth drainage studies and reporting, water, sewer and right-of-way acquisition.

Transportation



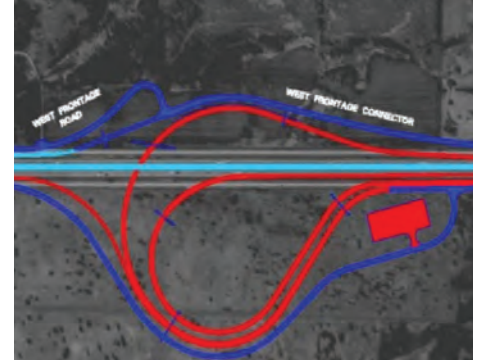
Wacker Dr. Viaduct Reconstruction Chicago, IL

Bowman staff provided design engineering services for the replacement of the Wacker Drive Viaduct at the upper level and the rehabilitation of the lower level roadway. The existing structure was designed as a cornerstone of Daniel Burnham's 1909 visionary plan for Chicago.



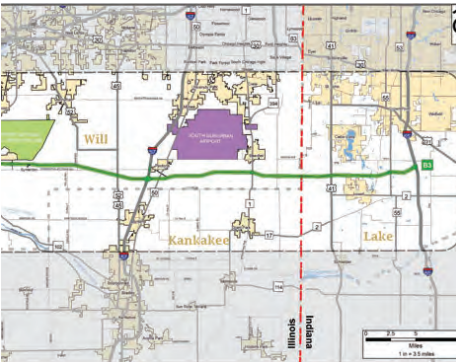
Kennedy Expressway Reconstruction Chicago, IL

Bowman performed design engineering services for the improvement of 2.75 miles of the Kennedy Expressway from west of Kimball Avenue to the Edens Junction. Scope of services included reconstruction of all three roadways, rehabilitation of cross-bound structures, and design of two new bridge structures.



Arsenal Road interchange Improvements Will County, IL

Bowman was responsible for Phase II engineering services for the preparation of plans, specifications, and estimates for the removal and relocation of the Arsenal Road Interchange. The proposed configuration includes a flyover of I-55 for the southbound exit ramp and a loop for northbound travel.



Iliana Corridor (P3) Wilmington, IL

This 50-mile access-controlled highway connects Illinois south of Metropolitan Chicago to northwest Indiana. Bowman provided civil design services to the 60% design stage of the project which included roadway, drainage design, structural and traffic engineering, construction management, ITS, ROW, electrical and sustainable design.



North South Tollway (I-355) DuPage County, IL

Bowman staff functioned as the Prime Design Engineering and Construction Section Engineer of the North South Tollway, or I-355. A new toll facility was designed which connected I-290 with I-55 through the heart of DuPage County.



Tri-State Bridge Inspection Cook County, IL

Bowman staff provided design services for the Phase I study, inspection, and structural evaluation of 21 mainline and ramp bridges between Balmoral Avenue and Touhy Avenue. As part of the study, feasibility of widening the Tri-State Tollway was evaluated, as well as the impacts to the bridge structures.

Transportation



Lake Shore Drive Viaducts

Chicago, IL

Bowman provided Phase II design services for the replacement of the Lake Short Drive (US 41) Viaducts over Lawrence Avenue and Wilson Avenue. Both roadways will be reconstructed to provide minimum vertical clearance under US 41 as well as a new typical section to accommodate shared bicycle lanes.



Illinois 38 at Kautz Road

DuPage County, IL

Work included data collection, traffic studies, noise and air quality analyses, wetlands delineation, right-of-way acquisition, and public involvement. Improvements to the intersection included a closed drainage system, lighting, landscaping, utility relocations, and structural design of the bridge.



I-64 Over the Wabash River

Mt. Carmel, IL

Bowman was responsible for civil and structural support for Phase I and Phase II engineering services as required for the preparation of Bridge Conditions Reports, Hydraulic Reports, TS&I's, Combined Design Report, Environmental Assessment, and the preparation of preliminary and final contract plans for the replacement of the bridge.



Central Tri-State Tollway Improvements

Cook County, IL

Bowman was responsible for Phase I and Phase II design for the Open Road Tolling Program, roadway widening, bridge widening, and toll and interchange ramp modifications on the I-294 tollway. Bowman worked closely with Illinois Tollway during Phase I and Phase II.



County Road 804

Grand County, CO

Grand County, Winter Park Ranch Water and Sanitation District, and the Town of Fraser had a common interest in completing infrastructure improvements in County Road 804, including a new storm sewer system, a water main replacement, and improvements to the existing road surface and new road striping.



112th Avenue Widening

Northglenn, CO

Bowman was retained by the City of Northglenn Public Works to design and perform construction management for widening the existing corridor. The project included underground utility improvements, reconstruction of the 112th Ave alignment, intersection and signal improvements and concrete flatwork, drainage channel.

Transportation



Route 29, Berkmar Drive Extension *Albemarle County, VA*

Bowman provided topographic/planimetric and property corner location surveys for this project. The project consisted of establishing secondary control for survey work, performing field run surveys on approximately 80-acres, and as-built preparation and delivery services in accordance with VDOT standards.



Stafford County On-Call *Stafford County, VA*

Bowman is leading a multi-disciplined team providing on-call engineering services with Stafford County to provide roadway and other linear improvements projects with local, state, or federal funds. Projects included Route 1 Turn Lane Improvements, US Route 1 Corridor Study, and US Route 1 and VA Route 630 Intersection Improvements.



10th Street Improvements *Roanoke, VA*

This VDOT project included roadway improvements to provide curb, gutter, sidewalks and bike lanes, as well as improving safety and flow of traffic. Bowman managed right-of-way and easement acquisition efforts, as well as negotiations for more complicated acquisitions and coordinated with VDOT appraisers.



VDOT Route 643 *Loudoun County, VA*

Bowman was retained to provide surveying and engineering services for this project. This proffered improvement included approximately 3,900 LF of divided road construction between Loudoun County Parkway and Hartley Place. Project was completed on time and within budget.



Transportation Planning and Engineering Consultant Services *City of Fairfax, VA*

Bowman provided planning, civil engineering, surveying and landscape architecture services to the City of Fairfax in support of an on call task order contract. The projects include improvements to existing roadways and planning of future roadway extensions and connections.



Australian Ave. Corridor Study *Palm Beach County, FL*

Bowman provided an alignment study for Australian Avenue from the current terminus at Blue Heron Boulevard northward to three optional intersections with Dixie Highway. The services included engineering as necessary for the concept of evaluation of three proposed alignments, as well as review of the 'no-build' alternative.

Power and Utilities

As the needs of power and utility clients has evolved, so has Bowman. This is evident by the firm's expanded full-service consulting platform and continued national expansion. Bowman has successfully maneuvered the most contentious and complex land development projects through the permitting and entitlement phases, and recognizes the importance of domestic energy exploration, production, transmission, and distribution for our country's economic growth, energy security and clean-power strategies.

Comprised of engineers, surveyors, environmental specialists and other niche professionals, Bowman understands its clients' business needs and supports them by making confident decisions while reviewing project objectives, and delivering data and recommendations that address property, regulatory, technical and budgetary elements that can support a project's short- and long-term goals. From initial feasibility efforts through to final construction staking, Bowman is focused on the greater good — delivering highly functional systems to our clients and their stakeholders.



Capabilities

Oil & Gas

- Gas Distribution Replacement & Relocation
- Full Right-of-Way Mapping
- Routing
- Construction Layout
- As-Built, Boundary & Topographic Surveys
- 3D/4D Modeling/3D Laser Scanning
- Slide/Slip: Monitor Pipeline Deflection & Stress
- GIS Project Tracking

- Hydrographic/Bathymetric Mapping & Submerged Subsurface Pipeline
- Crossing Locations
- Aerial Imaging & Digital Elevation Models
- Turnkey Easement Acquisition Services

Electric Power

- Power Undergrounding
- Electric Grid Resiliency
- Intelligent Electronic Systems
- Storm Hardening

- Existing Facility Mapping & Inspection
- 3D System Documentation
- Landowner Outreach
- Right-of-Way & Easement Acquisition
- Survey Base Mapping
- Right-of-Way Platting
- Easement Exhibit Preparation
- Locality & DOT Permitting
- Electric Distribution & Transmission

Power & Utilities



Florida Power & Light Storm Secure Undergrounding Program

Statewide, FL

Managed easement acquisition on this electric undergrounding effort. Reviewed/coordinated design plans, prepared easement base mapping/exhibits, title research and tracking/reporting database. Obtained 2,386 signed easements and 10,564 signed junction box agreements in 14 months.



NiSource

Various Locations, OH

Bowman is currently executing this gas distribution mapping project for Columbia Gas of Ohio (NiSource). During the course of NiSource's GPS Technology Program, Bowman will map more than 4,000 miles of gas distribution infrastructure over a three (3) year period.



PGL Gas Main Installation

Chicago, IL

Bowman provided over 70 gas main installation and replacement projects; the design of permanent bridge supports of existing gas mains at proposed utility crossings; and maintenance of traffic plans for neighborhood projects..



Southwest Gas Eng/Survey On-Call

Various Locations, AZ

Bowman is providing engineering and surveying services for an on-going upgrade to their pipeline systems. Provided construction drawings for 80,000+ linear feet of pipeline, completed 175+ surveying projects including boundary and topographic surveys, right-of-way determination, construction staking of easements.



Dominion Undergrounding

Various Locations, VA

Providing right-of-way, permitting, and surveying services covering one third of Virginia. The program is expected to span 10 years, from 2015 to 2025. Over the course of the program, the owner will be converting between 4,500 and 5,000 miles of overhead power distribution lines to underground across the Commonwealth.



People's Natural Gas TP371 Pipeline

Indiana/Armstrong, PA

Provided surveying for the replacement of an existing 12" line for a 20" line in an existing right-of-way that needed to be widened to 60" and was paralleled by a total of 99 other gas lines. Challenges included crossing 55 wetlands, 72 streams and 27 roads, of which 14 were state roads.

Power & Utilities



MarkWest Cadiz-Hopedale Pipeline *Harrison County, OH*

Surveying services in support of the design of a Horizontal Directional Drill that incorporated a 20" High Pressure Line (ANSI 600), 20" Low Pressure Line (ANSI 600), 12" NGL Line (ANSI 600), 12" Liquid Ethane Line (ANSI 900) and a 4" Natural Gas Fuel Line (ANSI 600) to cross US 22 Cadiz Piedmont Road since a conventional bore was not feasible.



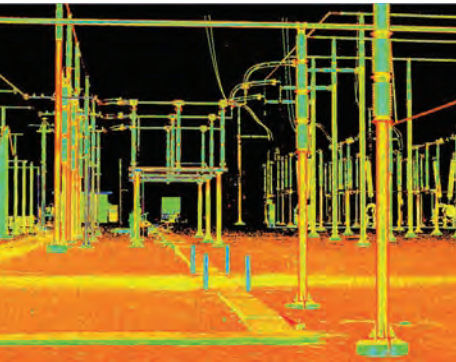
MarkWest Majorsville-Hopedale Pipeline *Various Locations, OH, WV*

This 53 mile long NGL pipeline project for MarkWest transports a C2+Y mix from WV to OH. The line crossed the Ohio River, I-70, SR-40, SR-22, several wetlands, creeks, and other county and state highways, and involved complex routing and multiple re-routes due to environmental and land issues.



MarkWest Mariner West Pipeline *Washington, Alleghany & Beaver Co., PA*

Installation of a new 10" line carrying ethane from the Houston Plant to a point just south of the Ohio River located at the NOVA Chemicals property. This project was originally designed by two different consultants. Bowman provided surveying services in support of the design of valve nests, launchers and receivers for ethane.



Dominion Critical Transmission Substation Security Plan

Various Locations, VA

3D scanning services are being conducted for Dominion Energy on multiple substations to capture survey grade 3D data, perimeter fences, towers, and associated equipment, including ground elevations within each substation and around specified transmission towers outside each substation.



TECO - Gate Station Sites

Various Locations, FL

Bowman was contracted to scan sixteen (16) gate stations throughout Florida. Tampa Electric (TECO) services the Tampa Bay area's electricity needs with 4,700 megawatts. Bowman is collecting data on the exterior of each gate station, including photo imagery. This task includes establishing a control network, scanning the gate station areas from multiple locations to obtain overlapping cloud data, registering the scans together using overlapping targets, and importing known coordinates. The imagery is integrated with the point cloud data.

Renewable Power and Energy Solutions

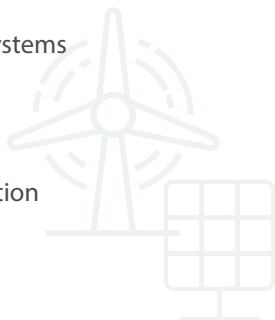
After a brief decline in 2018, the global solar market continues to show positive signs of growth. Investors are becoming increasingly comfortable with solar assets and land owners are acquiring projects earlier in the development cycle in the hopes of capturing a greater profit margin. Subsequently, as the energy market accelerates, major players in the wind, and oil and gas markets are also adapting to the changing energy landscape and moving into the electricity space.

With highly experienced professionals fueling the success of the solar, wind, energy, oil, gas, and mining industries, Bowman has become a trusted partner providing complete site and infrastructure solutions to meet your project needs. From initial conceptualization to final commissioning, Bowman professionals have provided the industry with a number of engineering, permitting, and project management solutions. While our reach is national, our highly experienced professionals are local, providing you with focused regional expertise.



Program Expertise

- Gas Distribution Replacement and Relocation
- Power Undergrounding
- Electric Grid Resiliency
- Intelligent Electronic Systems
- Storm Hardening
- Renewables
- 3D System Documentation



Trusted Relationships

Solar / Wind Energy

- AES Corporation
- Avangrid
- Nexamp
- Samsung
- Sun Tribe Solar
- Swinerton
- Terra-Gen
- Tesla
- Turning Point Energy
- EDF Renewables

Electric

- Dominion Energy
- Duke Energy
- Exelon
- Florida Power and Light
- Oncor
- Salt River Project
- Southern Power Company
- Tampa Electric (TECO) / People's Gas
- Xcel

Renewable Power and Energy Solutions



SITE SELECTION

Select strategically located properties with access to the grid, high level environmental criteria, interconnection feasibility and potential cost, local zoning and community receptiveness



ENERGY STORAGE SYSTEM & ECONOMIC OPTIMIZATION

Complete renewable energy system feasibility, including shading analysis, and solar plus storage economic analysis for optimal tariff selection and rebates.



LAND ACQUISITION, AGREEMENTS & MAPPING

Perform a land title review and constraints mapping of title and environmental features, landowner outreach and option agreements secured, apply for grid interconnection



DUE DILIGENCE & SITE DESIGN

ALTA and topo survey, finalize gen-tie lines/ interconnection and necessary easements, environmental surveys and mitigation measures, site layout, civil and structural design, identify applicable codes, equipment listings, electrical and environmental permits and studies required



PERMITTING

Liaison with Federal, State and local authorities to obtain permits and licenses, local zoning and entitlement approval process, identify cost effective alternate environmental mitigation measures



CONSTRUCTION

Site inspections, field reports, environmental compliance monitoring, design modifications, and construction certifications needed for Substantial Completion and Guaranteed Commercial Operation Date (GCOD), commissioning, construction stakeout, construction admin, bidding & management

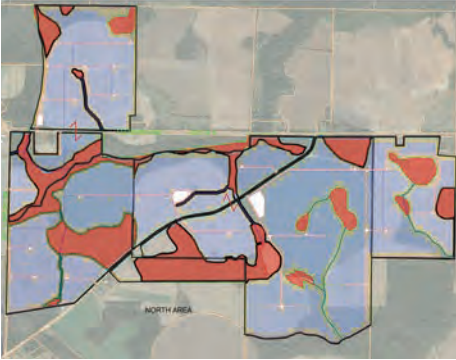


OPERATIONS & MAINTENANCE AND MEASUREMENT & VERIFICATION

Post-construction inspections, environmental compliance, wildlife impact reduction strategies, SWPPP compliance, UAV inspections, solar and wind energy O+M, commissioning, and ongoing M+V.

Bowman's project experience reflects a broad range of services. Our various departments work in concert to provide the unique ability to meet virtually all of your project needs in-house. We focus on careful planning and detailed follow-through at every phase of your project.

Renewable Energy



Samsung Renewables

Eastern, US

Bowman provided site engineering and local zoning entitlement services for this planned 120 MW solar energy generation facility located on 1,250 acres north-east of the City of Sasser to connect to the Georgia Power electric transmission network.



SunTribe Solar Array

Westmoreland County, VA

This project is a 5-acre 2,100-solar panel array located on the existing 20-acre Cople Elementary school property. Bowman provided comprehensive engineering and construction-support services, including civil engineering, stormwater design and permitting, tree survey and arborist services, land survey, and structural engineering.



Toms River Solar -EDF Renewables

Toms River, NJ

Bowman provided base mapping for 727 acre, 35 MW DC site using conventional and UAS surveying. Also included staking the concrete ballast for the solar panels, transformer pads, utility poles, and fencing. The project limits of the solar facility encompassed 120 acres. Bowman prepared an ALTA/NSPS Land Title Survey for the overall site and more.



WMATA

Landover, MD

1.2 MW rooftop installation and interconnection into the facility's main service switchgear. Sizing equipment necessary to integrate the PV array with the site load, including the array circuit wiring. Bowman developed single-line and three-line diagrams with required electrical details for PV systems in accordance with NEC, IEEE and local AHJ.



Connell Solar L'Oreal Headquarters

Berkeley Heights, NJ

Obtained land use approvals for this LEED Gold Certified headquarters. The project sits on 12.83 acres and included the installation of over 21,000 sq. ft. rooftop solar panels and 91,000 sq. ft. of parking lot canopy solar panels. Bowman performed initial due diligence research of municipal zoning, site plans, and coordination through approval process.



ERM Solar City

Various Locations, US

Bowman performed various services for the proposed 1099 kW solar array: New Solar Field, 4 AC, Greenport, NY - surveying and site plan preparation including boundary survey research of 4 acres. Carnegie Center Solar Canopy Project, West Windsor, NJ - surveying and site plan preparation on 4 Sites.

Renewable Energy



International Solar Developer and Manufacturer - Site Acquisition

Various Locations, VA

Bowman is providing land acquisition services for the development of several utility-scale solar energy facilities throughout Virginia. Our services include landowner outreach, and site control support to lease and/or purchase specific geographies identified by the client.



Lynchburg College Rooftop Solar

Lynchburg, VA

Bowman provided surveying services including control, utility location, boundary and topographic surveys for four sites at Lynchburg College including the physical therapy building, a parking lot, the Dillard Fine Arts building, and the Tate Hall building. This survey provides basis for final array layout and future site development plans.



AES Clean Energy

Various Mid-Atlantic Locations

Bowman is providing land acquisition services for various utility-scale solar energy generation sites in the Mid-Atlantic. Services include competitor search, parcel selection, assessment data collection, land owner outreach, negotiation, recordation, collection and report preparation for each parcel.



Virginia Union & Washington & Lee University Rooftop Solar

Richmond/Lexington, VA

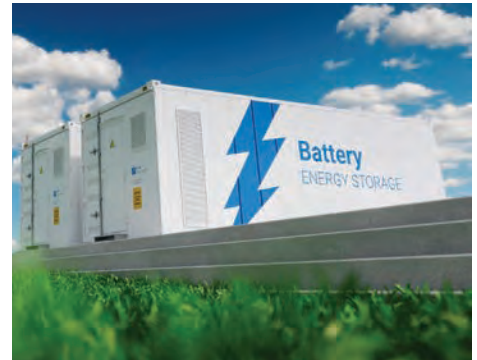
Bowman provided surveying services including control, utility location, boundary/topographic surveys for pitched roofing. Identified the current State Plane Coordinate System (NAD 83 and NAVD 88) and provided slopes for parking areas and ADA parking of existing ramps and ADA parking.



Cople Elementary Solar Array

Westmoreland, VA

A 5-acre 2,100-solar panel array located on an existing 20-acre Elementary School property. Bowman provided comprehensive engineering and construction-support services, including civil engineering, stormwater design and permitting, tree survey and arborist services, land survey, and structural engineering.

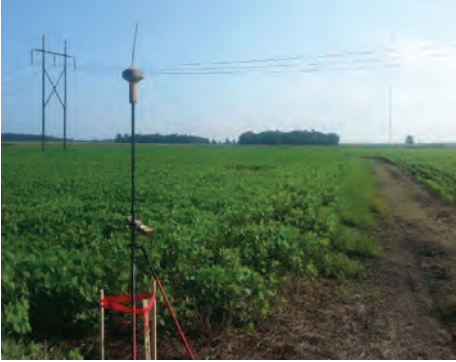


Empower Energies

Various Locations, NJ, NY, TX

Bowman was awarded seven projects with Empower Energies for a REIT portfolio including five in Texas, one in New York and one in New Jersey totaling over \$2M. Projects include solar farms and select battery storage facilities. Bowman is providing civil, electrical and structural engineering, as well as surveying and mapping services.

Renewable Energy



Avangrid Desert Wind Farm

Pasquotank/Perquimans Counties, NC

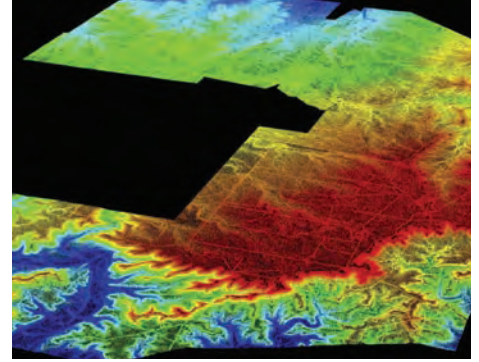
Bowman provided surveying services for this 330-megawatt, 25,000+ acre wind farm consisting of 150 turbines. Bowman completed an ALTA/NSPS Land Title Survey in 2011. Bowman performed updates and recertification to the original ALTA/NSPS survey on a land assemblage consisting of 64 parcels, which included 5 new parcels.



Mehoopany Wind Farm

Wyoming County, PA

Bowman established an extensive geodetic control network by GPS survey methods on this 12,000 acre wind farm consisting of 65 individual parcels. 22 primary control monuments were established with an additional 36 secondary control stations set on NAD83 and NGVD88 datum and performed all post processing computations.



King's Creek Wind Farm

Throckmorton & Haskell Counties, TX

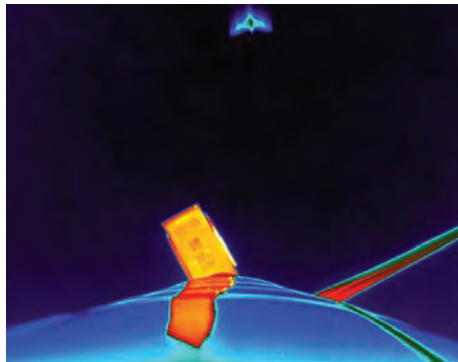
Multi-phase aerial and ALTA survey for an approximate 50,000 acre wind farm. Scope included a manned aircraft aerial survey to collect ortho imagery and an on-the-ground boundary survey to produce ALTA surveys. Utilized a fixed-wing, manned aircraft to collect high resolution ortho imagery and Lidar data for topographic and planimetric surveys.



Broad Reach Power Interconnected Battery Energy Storage Systems

Various Locations, TX

Bowman is providing a range of services for multiple transmission and distribution interconnected BESS projects to store solar power throughout Texas. Bowman performed ALTA and topographic surveys, Phase I Environmental Site Assessments, final plats, geotechnical and critical issues analyses.



Tier 3 Bat Risk Assessment Study

Southern, TX

Bowman is providing project management and research expertise for a study comparing thermal imaging cameras with acoustic detectors for conducting bat risk assessments as part of USFWS Tier 3 efforts.



Ultrasonic Acoustic Deterrents

San Marcos, TX

Bowman is providing research expertise to the U.S. Department of Energy's Wind Energy Technology Office for a study assessing bat species responses to varying sound patterns of an ultrasonic acoustic deterrent designed to reduce bat fatalities at wind turbines. The study is taking place in the world's largest outdoor bat flight cage.

Electric Vehicle Charging



Charge Ahead Colorado

Boulder, CO

Under this grant program to fund local governments, provided engineering design, infrastructure recommendations and installed over ten (10) EV supply equipment stations throughout Boulder. Integrated existing electrical service at each location. Installations included a mix of single and dual-head vehicle chargers. Assisted with grant compliance.



New York State Energy Research & Development Authority

New York, NY

Bowman is providing technical assistance, recommendations and training to architects and engineers nationwide on EV charging infrastructure requirements under the New York and New York Stretch Energy Codes, fleet replacement, charging schedules and funding.



Arlington County EV Infrastructure

Arlington County, VA

Bowman is providing engineering design services for the electrical systems at eleven County facilities. Scope of work includes evaluation of existing electrical infrastructure at each facility, recommendations report for the installation of Level 2 and Level 3 EV charging stations, and preparation of permit ready drawings for installation.



2720 Federal Boulevard

Denver, CO

This multi-family apartment building features forty (40) EV-ready parking spaces and three (3) EV charging stations. Efficient design elements included a water source heat pump system with energy recovery and LED lighting. Bowman provided MEP engineering and commissioning services.



Wild Ivy (11 Dorchester Drive)

Colorado Springs, CO

Provided mechanical, electrical, and plumbing design as well as energy rating/modeling for this 4-story, 45,000 sq. ft., mixed-use apartment building. The building includes six (6) electric vehicle charging stations and twenty-five (25) additional EV-ready parking spaces.



Salud Health Centers

Various Locations, CO

Over 120,000 sq. ft. of new construction including three 40,000 sq. ft. facilities and 50,000 sq. ft. of remodel and infill construction. Provided mechanical, electrical, plumbing, low voltage, fire alarm, energy modeling, retrocommissioning and commissioning services. Included six (6) EV charging stations.

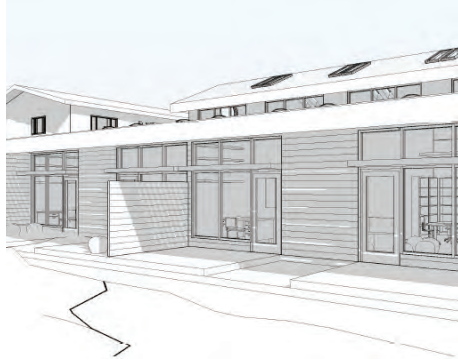
Electric Vehicle Charging



Boulder County Services HUB

Lafayette, CO

Provided mechanical, electrical and plumbing design, energy and daylight modeling, and LEED certification administration/consulting for this 2-story, 40,000 sq. ft. corporate facility. The building includes electrical infrastructure for two (2) electric vehicle charging stations and is wired photovoltaic (PV) ready for a future rooftop PV system.



Hillside School

Longmont, CO

Provided mechanical, electrical and plumbing design as well as energy and daylight modeling for this 2-story, 15,000 sq. ft. school. Project involves 2 phases of construction. The building includes two (2) electric vehicle charging stations and includes a rooftop photovoltaic (PV) array.



Additional Experience

189 County Road 355 (1)
Breckenridge, CO

400 Utica (2)
Boulder, CO

1333 Cinnamon Street (2)
Longmont, CO

Hillside School (2)
Gunbarrel, CO

Segall Residence (2)
Steamboat Springs, CO

Never Summer Farm (1)
Boulder, CO

North Vista Highlands Clubhouse (1)
Pueblo, CO

B Hazy Ranch (2)
Boulder, CO

3810 Spring Valley Road (2)
Boulder, CO

Aspen House (2)
Aspen, CO

Sleep Inn/Mainstay Choice Hotel (2)
Mesa, AZ

Fall River Apartments (1)
Longmont, CO

PCD Engineering (2)
Longmont, CO



Various Fueling Station Sites for Circle K, WaWa and Parker's Kitchen

Various Locations, Nationwide

Bowman provides site, utility, drainage and stormwater design, as well as rezoning and full permitting services for new ground-up fueling station sites ranging from 3,000 - 8,000 sq. ft. for some of the nations prominent convenience store clients. Numerous sites incorporate EV charging stations and include entitlements and development of strategic plans for market driven initiatives and representation at public hearings and workshops, technical assistance for prototype stores, Chapter 527 TIA Reports, traffic impact studies, etc.



Water Resources

Water is an essential part of the world and community we live in. From drinking water to wastewater systems, advanced water treatment and management practices serve to protect public health. Bowman engineers have a passion for developing innovative and sustainable solutions for effective and safe public water supplies, and the conversion of wastewater into an environmentally beneficial resource. With years of experience and unique local knowledge, Bowman has the resources necessary to help you define challenges, determine your objectives, and most importantly, accomplish your goals. Our in-house expertise ranges from planning, design and construction management to assist municipalities, county agencies, public utilities and private clients meet their potable water and wastewater needs. Bowman also regularly works with state and federal governments in maintaining their existing systems, and for clients who need funding assistance, our teams have expertise in attaining grants, funds and loans.

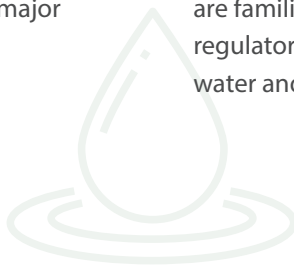


Funding Sources

- Bowman has made a name for ourselves in supporting local jurisdictions finding grants and low interest loans in the water and wastewater utility industry.
- Finding sources of funding to maximize the ability to implement capital projects has proven to be a major benefit to our clients.
- Our support in this work includes:
 - Identifying potential funding sources
 - Preparing funding applications
 - Administration of the funding requirements

Familiarity with Regulators

- Bowman's knowledge of local and state regulations and ability to obtain permits is a critical success factor to keep projects on schedule and within budget.
- Our proactive approach with the regulatory community includes early engagement and Bowman team members are familiar with the requirements of the various regulatory agencies that may have jurisdiction over the water and wastewater systems.



Areas of Expertise

Water Systems

- Hydraulic Modeling
- Filtration Systems
- Water Pumping and Storage Systems
- Elevated Storage Tanks
- Groundwater Withdrawal Permitting
- Community Water and Water Treatment Systems
- Reverse Osmosis Systems
- Water Master Planning
- Disinfection/Treatment Systems
- Distribution Systems
- Membrane Treatment Systems
- Funding Assistance

Wastewater Systems

- Advanced Wastewater Treatment Systems
- Nutrient Removal Systems
- On-Site Mass Drainfield Systems
- Land Application Systems
- Community Wastewater Systems
- Regulatory Permitting
- Pump Stations
- Collection Systems
- Wastewater Master Planning
- Odor Control Systems
- Alternative On-Site Sewage Systems
- Reuse Systems

Bowman partners with our clients to provide innovative solutions to water and wastewater challenges for municipal, commercial and industrial applications. We design fit-for-purpose solutions to leverage best practices in the industry and attain successful outcomes cost effectively and thoughtfully.

Water Supply Planning Service

Our water team can support the establishment of water demand forecasts and coordinate with municipal agencies to find optimal ways to meet the water demands while minimizing the capital outlay. We utilize in-house computerized hydraulic modeling tools to vet multiple water supply solutions quickly and cost effectively.

Advanced Wastewater Treatment

Bowman has been involved with some of the most advanced wastewater treatment needs for converting wastewater into a resource. We are experienced with developing effective solutions and leveraging technologies for providing lasting value.

Water Conservation Technology and Strategy

Increasingly, water scarcity is a growing concern. Our engineering team has developed solutions for communities and industries to reduce consumption, and increase the efficient and effective uses of water.

Water Reuse

We develop advanced water treatment solutions that can be used to reclaim wastewater or utilize other alternative water supplies as a source of beneficial reuse for irrigation systems, industrial reuse and other sustainable solutions for meeting the needs of communities.

Water Resources



Nelson County Service Authority On-Call Engineering Agreement

Nelson County, VA

Bowman provided civil, water/wastewater and surveying services for this on-call. Scope included impoundment structure analyses, coordination with the Department of Conservation and Recreation (DCR), design of improvements, construction drawings, specifications, and construction administration services. Water/wastewater services included a pilot study, preliminary evaluations, cost estimates and reports, water quality studies, and odor control issues.



Town of Broadway Water Treatment Plant Upgrade

Town of Broadway, VA

Bowman provided major upgrades to the Town of Broadway's Water Treatment Plant via a design/build contract with English Construction. The upgrades included the installation of a state of the art 1.8MGD Pall Corp. MF membrane treatment system in a new concrete filtration building, upgraded and automated chemical feed systems, a 100,000-gallon well storage tank, and a 350,000-gallon finished water clearwell.



Middlesex Regional Water System

Middlesex County, VA

Bowman is assisting the Middlesex Water Authority (MWA) with developing a regional water system in lower Middlesex County. Due to poor groundwater quality in the individual shallow wells throughout the eastern portion of the County, the MWA has sought to develop a regional water system to serve the entire eastern section of the County. This effort began with Bowman being hired to identify and evaluate deep well sources for the supply of high quality water and to develop a storage and distribution system to serve this area of the county.



Town of Dendron Water System Upgrade

Town of Dendron, VA

Bowman prepared the Preliminary Engineering Report (PER) to aid in evaluating potential water system improvements. The design of this project included the refurbishment of two existing groundwater wells, demolition of the existing pumping and storage facility, the installation of a new 250,000 gallon elevated storage tank, and the installment of approximately 18,500 linear feet of new 8" and 6" PVC waterline including fire hydrants. The design services included performing a hydraulic model of the distribution.

Water Resources



Catlett-Calverton Wastewater Treatment System

Fauquier County, VA

The project is for a central wastewater collection, treatment and disposal system to serve the service districts of Catlett and Calverton and includes a new collection system consisting of individual Septic Tank Effluent Pump (STEP) systems that transfer wastewater to a central wastewater treatment plant. The wastewater treatment plant will treat wastewater utilizing an Integrated Fixed Film Activated Sludge (FAS) technology. Effluent will be disposed of through the use of subsurface drip irrigation drainfields.



Town of White Stone Wastewater Master Plan and System Design

Lancaster County, VA

Bowman worked with the town to develop a sewer master plan in order to establish the existing and future wastewater needs of the town. The master plan evaluated multiple technically feasible alternatives for providing central wastewater service to the town. The final master plan document presented an appropriate phasing approach, recommended the collection and treatment technology, and included a rate structure analysis for when the system is operational.



Town of Onancock Water System Improvements

Accomack County, VA

Bowman worked to upgrade the municipal water system which no longer met the community needs. Bowman developed and prepared a Preliminary Engineering Report (PER) on the water system to determine needed upgrades. The project also included an environmental assessment of the upgrades to the water distribution system and included preparation of a report and coordination with reviewing agencies.



Charles City County Annual Services Contract

Charles City County, VA

Bowman was selected by Charles City County to perform utility engineering services for various water and wastewater systems. Bowman is responsible for the services associated with attending various meetings with county staff, as required, meeting with regulatory officials and representatives from the funding agencies in pursuit of financing for multiple projects, and attending public meetings as required. Bowman also provides other miscellaneous engineering services, as required and as requested by the county.

Water Resources



Local Water Project (LWP)

Pacific Grove, CA

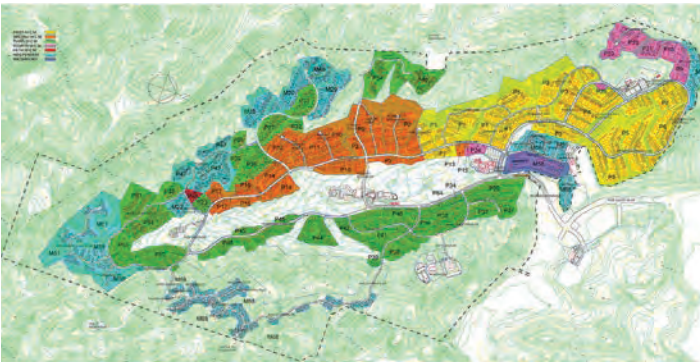
The City of Pacific Grove's Local Water Project was planned, designed, and built to replace the use of potable water for the irrigation of its municipal golf course, cemetery, and other irrigation demands. This 0.25MGD membrane bioreactor is a satellite plant that recycles wastewater suitable for unrestricted non-potable use pursuant to state and regional regulatory agency requirements. A Design-Build procurement was completed for the selection of the design engineer and construction contractor functioning as a fully integrated team.



Coronado Golf Course Modernization

Coronado, CA

The City of Coronado identified the need to augment its potable water supplies with recycled water per day for the irrigation of its municipal golf course, street medians and parks. Working in collaboration with its water purveyor, the feasibility study and design-builder procurement has been completed and the project is finalizing negotiations with the best value highest qualified low-cost integrated team. The project will produce up to 1MGD of recycled wastewater suitable for irrigation of ornamental landscapes and turf areas.



Golden Rain Foundation Rossmoor

Walnut Creek, CA

The Golden Rain Foundation is the caretaker association responsible for the construction and operation of the backbone infrastructure for the Rossmoor Community. With a population of approximately 10,000, the community surrounds 27 holes of golf. Maintaining proper irrigation of its urban forest will assist in their reduction of impacts from wildfires. A Design-Build procurement will be completed for the selection of the design engineer and construction contractor to function as a fully integrated team following final approvals from its board.



California Department of Water Resources (CDWR)

Sacramento, CA

The CDWR was legislatively authorized to make use of Design-Build procedures for the restoration of the Salton Sea. The motivating factor is the speed at which D-B procurements can be completed relative to traditional modes of Design-Bid-Build contracts. Salton Sea restoration was determined to be a critical element in protecting shoreline. The team was selected by DWR to develop their D-B program including conducting a series of educational workshops on D-B contracting methodologies.

Mining

Mining is an industry that relies on a variety of engineering disciplines. From mining, geologic, civil, geotechnical, mechanical, chemical and environmental engineering, our in-house capabilities and deep bench of resources allows Bowman to provide total site and infrastructure solutions, from initial site exploration through reclamation.

In every aspect of a mining project’s lifecycle, Bowman is committed to delivering “fit for purpose” solutions with a sense of urgency and a strong commitment to client service and quality. Our clients additionally benefit from our ability to navigate the regulatory process and meet tight schedules, while maintaining a culture high in regard for health and safety standards throughout all phases of project execution. By consistently delivering high-quality, innovative, cost-effective and efficient management of mine site and design challenges, Bowman delivers successful projects time and again.



Program Expertise

Bowman has a well networked and highly collaborative team of engineering, land survey and geoscience professionals that provide exceptional mining services including:

- Survey
- Mine Facility Design
- Process Infrastructure Design
- Hydrogology and Hydraulics
- Construction Quality Assurance
- Mine Water and Environment

Safety

Safety is a top priority for Bowman and one of our firm’s cultural values. Managed by our corporate Safety Director, we are well-versed and able to fully comply with client and vendor safety plans across multiple market sectors. We have a zero tolerance mindset and take a proactive approach to the well being of all our teams across the country.

Year	EMR
2021	0.75
2020	0.68
2019	0.71
2018	0.81
2017	0.81

Areas of Expertise

Mineral Process Plant Design (MPPD)

- Crushers
- SX/EW
- Concentrators
- Ore Conveyance
- Acid Plants
- Piping and Pumping Systems
- Construction Quality Assurance (CQA)

Mine Facility Design (MFD)

- Rock Stockpiles
- ROM Leach Stockpiles
- Engineered Heaps
- Tailings Storage Facilities (TSF)
- Lined Ponds and Impoundments
- Construction Quality Assurance (CQA)

Mine Infrastructure Design (MID)

- Basic Operational Infrastructure
 - Roads
 - Utility Corridors
 - Material Transportation Corridors
- Facilities Site Designs
 - Offices
 - Warehouses
 - Equipment Turnarounds
 - Septic Systems
 - Fuel Docks
 - Substations
 - Parking
- Construction Quality Assurance (CQA)

Project Controls

- Manage Accounting Functions
- Monitor Project Financial Performance and Address Issues
- Ensure Proper Use of Sarbanes Oxley Controls
- Establish and Monitor Project Controls
- Manage Cost Control Functions

Mine Water Management and Environment

- Hydrogeology
- Hydrology and Hydraulics
- Mine Water Treatment Technology and Plants
- Water Supply
- Protection and Permitting
- Mine Dewatering/Depressurization

Survey

- Terrestrial and Aerial LiDAR
- UAV Mapping
- Topographic Maps
- Orthographic/Orthorectified Photos
- Construction Staking
- Bathymetric Surveys

Bowman's project experience reflects a broad range of services. Our various departments work in concert to provide the unique ability to meet virtually all of your project needs in-house. We focus on careful planning and detailed follow-through at every phase of your project.

Mining



Confidential Leach Pad Phase II

Southeast, AZ

Bowman performed value engineering and design optimization for the phase II design of a leach pad in a canyon with aggressive slopes (~2.5H:1V). The design included liner subgrade, geomembrane and GCL, solution collecting pipe network, and overliner drain rock. After completing the design, Bowman was selected to perform Engineer of Record services and Construction Quality Assurance for the project.



Confidential Wash Settlers

Southeast, AZ

The development of a new pit at this mine required additional infrastructure. Bowman, having previously designed the original settlers during another project, designed two new Wash Settlers with related structures, containment, equipment, storage, piping and instrumentation. Bowman provided engineering, CQA and construction management services throughout the duration of the project.



Confidential Conveyor Corridor

Southeast, AZ

A new leach pad is being developed to meet the needs of a new pit. A major earthwork and multi-plate overpass project was undertaken to link the existing conveyor system to the new leach pad. As part of this project, Bowman provided temporary traffic control and temporary road designs as well as engineered drawings, specifications, construction scopes of work, and bid packages for the earthwork stormwater controls and new traffic underpass.

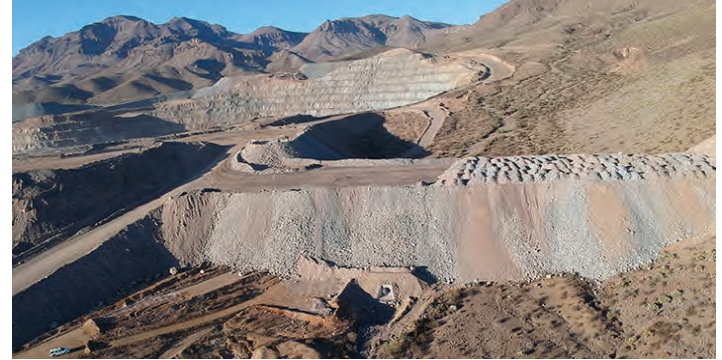


Confidential Stockpile Dams

Southeast, AZ

Bowman performed the engineering design for multiple stormwater retention dams. The design process included watershed analyses, lithological investigation and interpretation, earthen structure stability analyses, and flow considerations for a 100-year storm event. During the construction process, Bowman performed construction quality assurance (CQA) which consisted of construction administration and oversight, liner installation inspection, and verification of specification and drawing compliance.

Mining



Confidential Stormwater Diversions and Culverts

Southeast, AZ

Bowman designed three stormwater diversions to protect a Leach Pad. These diversions required the engineering design of several structures including channels, levees, energy dissipation structures (gabion drop structures and stilling basins) and box culverts. In conjunction with these designs, Bowman developed method specifications for compaction and a design for soil cement that utilized the material sourced from the channel excavation. Bowman also provided Construction Quality Assurance.

Confidential Haul Road Culverts

Southeast, AZ

As a result of a new pit being developed at the mine, a haul road was developed from the pit to the existing crushing facility. Bowman designed six (6) culverts that allow stormwater to flow under the new haul road, and provided Construction Quality Assurance and construction management oversight on the culvert construction.



Confidential Early Mine Water

Southeast, AZ

Bowman developed a water distribution plan to provide potable and construction water to the project. This included the design of wells, impoundments, booster stations, overland pipelines and storage facilities. The first stage of this system currently operates at 650 psi and transports water over 2 miles.



Confidential Filter Press

Southeast, AZ

This project expands the Hydromet area to allow the SX/EW facilities to handle increased throughput. Bowman's scope included concrete slabs, foundations, and anchor designs for support of the new infrastructure. In addition to construction drawings, Bowman created a Construction Scope of Work (CSW) with Material Take Offs (MTO's) to be used to support the bidding of the overall construction of the Filter Press Project. This CSW also incorporates the construction documents associated with the mechanical, and electrical disciplines.

Mining



Confidential Substation and Powerline Access Rd.

Southeast, AZ

Bowman provided civil drawings which conveyed roadway and grading models which defined slopes, elevations, and drainage for the substation construction. Also created civil access road drawings for powerline through steep terrain to ensure access and constructability for the construction and maintenance of the powerline as well as the quantities of earthwork that would be needed to complete the construction.



Confidential Building Refurbishment

Southeast, AZ

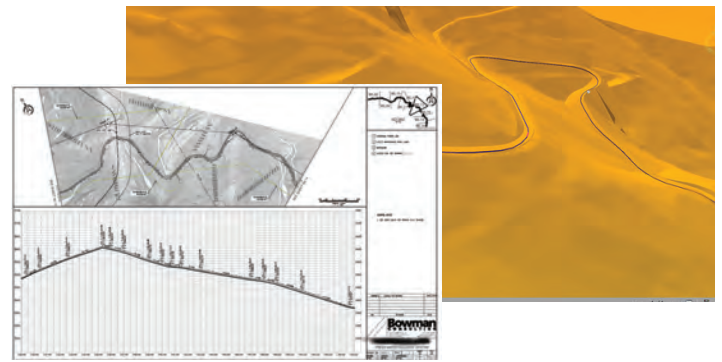
Provided drawings, and scope of work defining all areas of building that required repair and work to allow for it to be used once again for staff offices. Also included new water storage tanks to be used for water supply.



Confidential ILS System

Southeast, AZ

Bowman was retained to provide detailed design of concrete footings and steel pipe supports for this Intermediate Leach System (ILS) which includes two pipelines.



Confidential Well Water Distribution System

Green Valley, AZ

Bowman developed the design for an approximate 2-mile long underground 60-inch welded steel pipeline. Pipeline traversed mountainous terrain and achieved a 1,500-foot increase in elevation at highest point from starting location. Project was postponed during design phase due to Federal regulation issues.

Bowman

