



TODAY'S COMMITMENT TO TOMORROW'S CHALLENGES

Quality is a state of mind and our driving force here at Carroll Engineering Corporation is to continuously provide the best level of experience to all of our clients. We strive to exceed expectations, build long-lasting relationships, and utilize our projects to better each of our surrounding communities.

Our departments within the firm act as consultants to each other, thus integrating all our knowledge, skills, and experience to ensure the most practical, efficient, and sophisticated solutions to every challenge. We identify and address potential problems at the earliest planning stage, then employ our innovative design approach for preventing difficulties and bringing our clients' projects to their satisfying completion.

Thank you for entrusting our team with your projects and communities. We sincerely look forward to seeing and sharing in your success for years to come.

Thomas A. Gockowski, P.E., President

Thomas A. Gockowski

integrated knowledge

sophisticated solutions

proactive problem solving

innovative approach

adaptive to changing needs



WASTEWATER ENGINEERING

Carroll Engineering provides a broad spectrum of wastewater engineering services to townships, municipal authorities, and private utility owners. The scope of our services ranges from small sanitary sewer extensions serving a single neighborhood to regional pump stations with capacities up to 60 MGD. Our comprehensive approach to system planning and expansion provides a cost-effective means for system owners to provide service to unserved portions of their service area while integrating new development construction. Innovative designs such as biological nutrient removal wastewater treatment processes help reduce capital and operating costs for new and retrofitted treatment plants.

The firm offers comprehensive engineering services for system expansion and major capital improvements covering conceptual planning and project costing; preparation of drawings and contract documents; bidding services; and construction administration and observation.

Our services extend beyond traditional engineering to include system operation guidance; infrastructure asset management, budgeting and rates; rules and regulations; municipal finance; and inter-municipal agreements.

SERVICES

- **WASTEWATER ENGINEERING REPRESENTATION FOR MUNICIPALITIES AND AUTHORITIES**
- **WASTEWATER COLLECTION, CONVEYANCE AND TREATMENT**
- **SYSTEM CONDITION EVALUATION**
- **INFLOW AND INFILTRATION (I/I) INVESTIGATIONS**
- **SYSTEM REHABILITATION**
- **ON-LOT DISPOSAL SYSTEMS**
- **ACT 537 PLANS**
- **WASTELOAD MANAGEMENT (CHAPTER 94) REPORTS**
- **STATE AND LOCAL PERMITTING**
- **SEWAGE MANAGEMENT PROGRAMS**
- **ASSET MANAGEMENT AND MAPPING**





HARVEY AVENUE WASTEWATER TREATMENT PLANT
Doylestown Township, Bucks County, PA



PARK CREEK WASTEWATER TREATMENT PLANT
Horsham Township, Montgomery County, PA



WHITEMARSH WATER POLLUTION CONTROL CENTER
Whitemarsh Township, Montgomery County, PA

WATER FACILITIES ENGINEERING

With projects ranging from developing new groundwater supply sources to replacement of aging water mains in densely developed commercial corridors, Carroll Engineering's water facilities engineering experience allows us to provide comprehensive services to our clientele. CEC provides service to water system owners large and small in Southeast Pennsylvania, the Poconos, and New Jersey. CEC has experience in planning and designing water facilities from source to endpoint. This includes new groundwater supply wells, transmission mains, booster stations, pressure reducing stations, storage tanks, and distribution systems. Our engineers utilize computerized system modeling to account for "what-if" scenarios when proposing system improvements for cost-effective system upgrades and expansion. We also work with our clients' neighboring water suppliers to create interconnected systems that allow system owners to buy or sell water as necessary to meet each system's needs and provide supplemental water sources in times of emergency.

Our broad technical capabilities allow us to provide in house design of treatment and remediation systems to address volatile organic compounds, heavy metals, dissolved minerals, and PFOA and PFOS. Innovative solutions such as Antenna Corrals allow colocation of cellular phone infrastructure on water storage tanks permitting complete access for tank maintenance and painting. Our system operation and SCADA experience allow for the design of new facilities that are easily integrated into overall system operations.

Our services extend beyond traditional engineering which include: system operation guidance; infrastructure asset management; budgeting and rates; rules and regulations; municipal finance; and inter-municipal agreements.

SERVICES

- **WATER ENGINEERING REPRESENTATION FOR AUTHORITIES**
- **SYSTEM PLANNING AND PROJECT COSTING FOR MAJOR CAPITAL IMPROVEMENTS**
- **SOURCE OF SUPPLY, TRANSMISSION, STORAGE, AND DISTRIBUTION**
- **ELEVATED AND GROUND LEVEL STORAGE TANKS**
- **BOOSTER STATIONS AND PRESSURE REDUCING STATIONS**
- **PERMITTING**
- **WATER QUALITY ANALYSIS**
- **ASSET MANAGEMENT AND MAPPING**





LOWER STATE ROAD WATER TANK
Horsham Township, Montgomery County, PA



FOREST PARK TRANSMISSION MAIN
Warrington Township, Bucks County, PA



FEASTERVILLE WATER TANK
Lower Southampton Township,
Bucks County, PA

MUNICIPAL ENGINEERING

Carroll Engineering has a long history of municipal representation in our local communities including Townships, Boroughs, and Counties. Our professional staff provides competent, courteous service to the general public, municipal staff, and public works departments. We provide a broad range of services to meet our municipal clientele's needs including subdivision/land development plan review, zoning, and land use planning, ordinance preparation, capital improvement projects, construction administration, and inspection. We assist municipalities with their annual road paving and reconstruction programs, stormwater compliance goals and requirements, federal accessibility compliance programs, and Township maintenance programs. We have been very successful in procuring grants and low-interest loan funding for our clients' water and wastewater infrastructure needs and stormwater/MS4 compliance requirements.

We provide fundamental support to municipalities for all capital improvement projects from cost estimating, quantity take-off calculations, contract and bid document preparation, and bidding services to construction oversight/inspection and contract administration services. This ensures the township receives competent bids, competitive pricing, and a quality work product that adheres to State procurement requirements.

SERVICES

- **MUNICIPAL REPRESENTATION**
 - **PUBLIC AND REGULATORY MEETING ATTENDANCE**
 - **COMMUNITY RELATIONS**
 - **GRANT PREPARATION**
- **MUNICIPAL REVIEWS**
 - **SUBDIVISION, LAND DEVELOPMENT, AND ZONING**
 - **BUILDING AND GRADING PERMITS**
- **ROADWAYS**
 - **PAVING MAINTENANCE PROGRAMS**
- **STORMWATER MANAGEMENT**
 - **FLOODPLAINS**
 - **MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4) REPORTING AND IMPLEMENTATION**
 - **CULVERT DESIGN**
 - **BEST MANAGEMENT PRACTICES**
- **PARKS AND RECREATION**
 - **ACTIVE AND PASSIVE RECREATIONAL FACILITIES**

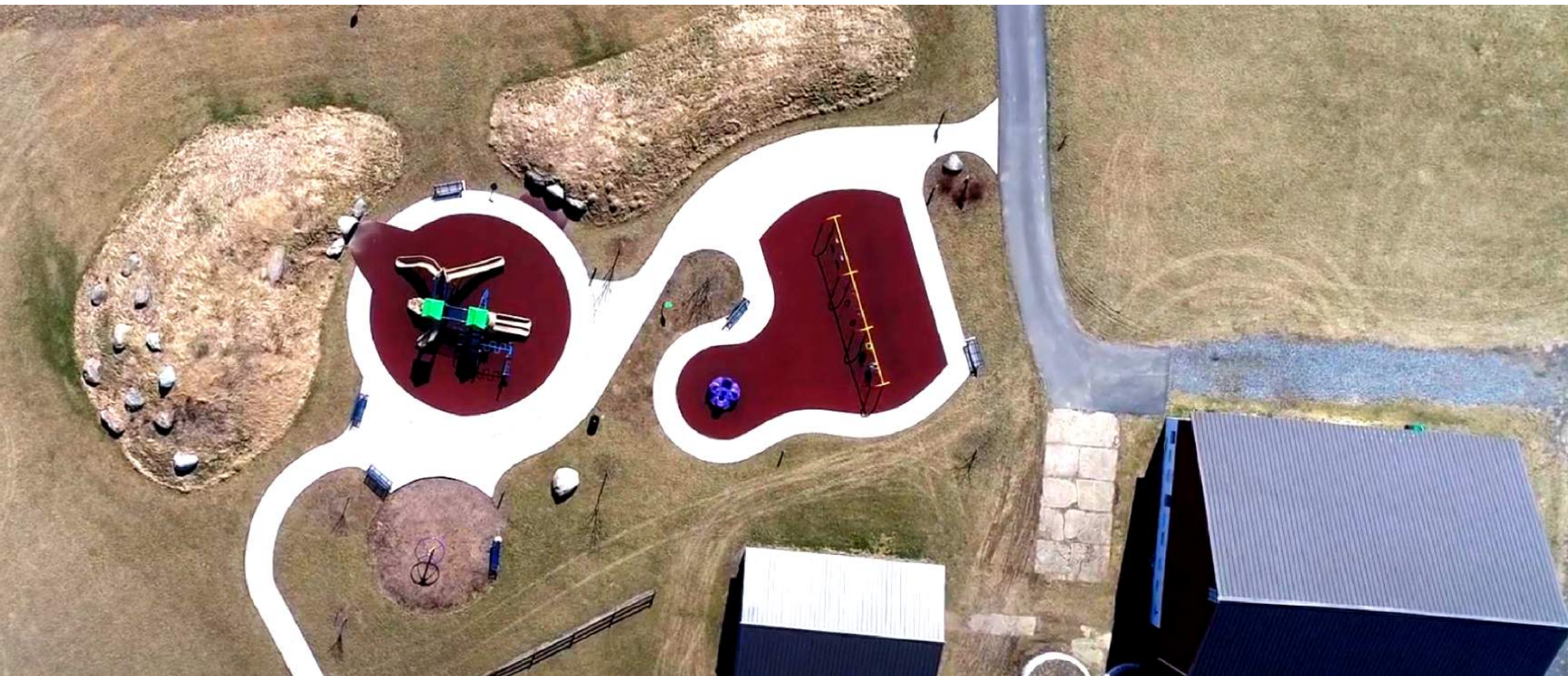




THE WOODLANDS AT GREYSTONE
West Goshen Township, Chester County, PA



KNOLLWOOD DRIVE CULVERT REPLACEMENT
West Goshen Township, Chester County, PA



TOWNSHIP COMMUNITY PARK
Upper Mount Bethel Township, Northampton County, PA

PLANNING & SITE DESIGN

Carroll Engineering provides planning and site design services from initial site investigations, feasibility studies, and conceptual design through final record documents and the construction phase. These services include physical site analyses, ordinance reviews, preparation of land development plans and documents, landscape design, stormwater management, grading and erosion control, utility design, permit applications, and construction support. Projects include municipal, residential, commercial, educational, industrial and institutional subdivision site development projects, as well as land development projects.

SERVICES

- **FEASIBILITY STUDIES/YIELD ANALYSIS**
- **CONCEPTUAL DESIGN**
- **SITE DESIGN**
- **GRADING DESIGN**
- **EROSION AND SEDIMENT CONTROL DESIGNS**
- **UTILITY LAYOUT**
- **LANDSCAPE DESIGN**
- **OUTDOOR LIGHTING DESIGN (EX: SPORTS LIGHTING)**
- **INNOVATIVE STORMWATER MANAGEMENT AND INFILTRATION SYSTEMS**
- **ACTIVE RECREATION (EX: PLAYING FIELDS, RUNNING TRACKS, & STADIUMS)**
- **PARKS AND TRAIL DESIGNS**
- **STREETScape DESIGN**
- **CONSTRUCTION SPECIFICATIONS**





PHOENIXVILLE LUXOR LUXURY APARTMENT COMPLEX
Phoenixville Borough, Chester County, PA



THE WILLOWS AT BURLINGTON MILL
City of Burlington, Burlington County, NJ



BUCKS COUNTY COURTHOUSE PARKING GARAGE
Doylestown Borough, Bucks County, PA

TRAFFIC & TRANSPORTATION ENGINEERING

Carroll Engineering provides comprehensive and innovative multimodal transportation solutions for all of our public and private-sector clients; with each solution strategically designed to be constructible, economical, and sustainable. Our expertise encompasses all project phases from planning, through design, and ultimately with construction management. Our extensive knowledge helps us envision the patterns and needs of existing transportation systems, and execute designs that improve and transform them for maximum efficiency and sustainability. We research and investigate the connection between travelers and the transportation system and design strategies to enhance the experience of operations throughout the region. Clients recognize our capacity for understanding local standards and preferences and consciously integrating them into each design. Our clients include state agencies, municipalities, Fortune 500 firms, as well as residential and commercial developers.

SERVICES

- **TRAFFIC ENGINEERING REPRESENTATION FOR MUNICIPALITIES**
- **TRAFFIC SIGNAL DESIGN**
- **HIGHWAY OCCUPANCY PERMITS (HOP)**
- **TRAFFIC SIGNAL PERMITS (TSP)**
- **TRAFFIC IMPACT STUDIES**
- **SAFETY STUDIES**
- **BICYCLE AND PEDESTRIAN STUDIES**
- **SPEED MANAGEMENT**
- **STREETSCAPE DESIGN**
- **INTERSECTION IMPROVEMENTS**
- **ROADWAY WIDENING**
- **MAINTENANCE AND PROTECTION OF TRAFFIC**
- **SIGNING AND PAVEMENT MARKING**
- **TRAFFIC CALMING**
- **ROUNDBOUT DESIGN**
- **ADA DESIGN**
- **UTILITY RELOCATION**
- **LAND DEVELOPMENT REVIEWS**
- **CONSTRUCTION SERVICES**





WAYNE BUSINESS DISTRICT STREETScape
Radnor Township, Delaware County, PA



STATION ROAD-OLD BETHLEHEM PIKE ROUNDABOUT
Richland Township, Bucks County, PA



ROUTE 13 CONNECTOR FOR INTERSTATE I-95/I-276
Bristol Township, Bucks County, PA

STRUCTURAL ENGINEERING

Carroll Engineering's broad structural engineering capabilities extend to the design and analysis of both existing and proposed structures including bridges, culverts, buildings, industrial plants, parking facilities, and other infrastructures.

Our bridge design expertise ranges from multiple-span steel or concrete bridges on state and local highways to bridges on private property, to single-span pedestrian bridges. CEC's Structural Department also performs National Bridge Inspection Standards (NBIS) structural inspections and load ratings of bridges and culverts.

In addition to NBIS inspections, we have extensive experience in performing damage assessments and detailing emergency repairs. We are highly skilled with the ability to design single-story and multi-story buildings and both underground and above-ground water and wastewater facilities. Our experience includes all major areas of construction: structural steel, reinforced concrete, prestressed concrete, masonry, and timber. We perform condition assessments and floor live-load ratings of existing buildings. Our roofing expertise includes assessing existing roofs and detailing and specifying new roofs for Built-Up Roofing (BUR), Ethylene Propylene Diene Monomer (EPDM), and shingles.

SERVICES

- **BRIDGE DESIGN AND REHABILITATION**
- **DEEP FOUNDATIONS**
- **RETAINING WALLS**
- **PARKING GARAGES**
- **BUILDING AND ROOFING DESIGN AND RENOVATIONS**
- **BRIDGE AND BUILDING CONDITION ASSESSMENTS**
- **PUMP STATION, TREATMENT PLANT, AND STORAGE TANK DESIGN**
- **RECREATIONAL AND PARK STRUCTURES**

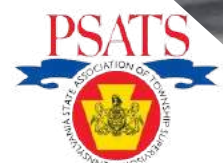




BRIDGE NO.13 REPLACEMENT
Perkasie Borough, Bucks County, PA



911 CALL CENTER HANGAR BUILDING
Upper Nazareth Township, Northampton County, PA



OAKBOURNE ROAD BRIDGE REPLACEMENT-AWARD WINNING
Westtown Township, Chester County, PA

ENVIRONMENTAL ENGINEERING

Whether evaluating planned improvements, designing new facilities, or rehabilitating or maintaining existing ones, Carroll Engineering's environmental experts apply experience and technology with a sensitivity to complying with regulatory requirements while protecting the environment in a cost-effective and practical manner. From planning through remediation, Carroll Engineering works with clients to manage environmental risk and respond appropriately to the concerns of the public, private, and regulatory sectors. Our environmental experience includes designing and managing property demolitions; asbestos and lead-based paint management or abatement; hazardous waste management and cleanup; spill response management, and regulated storage tank design, closure, and remediation. Related services include environmental site assessments and funding-related project due diligence; new well development, well maintenance and wellhead protection; water allocation permitting; soil and groundwater investigation and remediation; facility permits and permit compliance monitoring; facility emergency response and preparedness, prevention and contingency plan development; wetlands and natural diversity inventory investigations.

SERVICES

- **COMMUNITY AND NONCOMMUNITY WATER SYSTEMS**
- **SANITARY SEWER COLLECTION SYSTEMS, TREATMENT PLANTS, AND ON-LOT DISPOSAL**
- **GEOLOGICAL, HYDROGEOLOGICAL, GEOTECHNICAL AND SOILS**
- **REAL ESTATE DUE DILIGENCE**
- **SITE INVESTIGATION, REMEDIAL DESIGN, AND REMEDIAL ACTION ADMINISTRATION**





LAGOON CLOSURE PLANT
City of Harrington, Kent County, DE



CANAL ROAD CHEMICAL WASTE STORAGE TANK REPLACEMENT
Franklin Township, Somerset County, NJ



HARVEY AVENUE FUEL FACILITY
Doylestown Township, Bucks County, PA

CONSTRUCTION ADMINISTRATION & OBSERVATION

Carroll Engineering provides construction administration and observation services for the wide variety of engineering projects we design, including but not limited to: bridges, sanitary sewer, water main, and municipal projects of diverse scope and complexity. Our field representatives maintain various certifications such as NECEPT (bituminous concrete paving), NICET, ACI (concrete testing), and NASSCO (sanitary sewer pipeline, manhole, and lateral assessment) and maintain comprehensive project documentation for Local and State projects.

SERVICES

- CONSTRUCTION OBSERVATION
- CONSTRUCTION DOCUMENTATION
- SUBMITTAL DATA REVIEW
- PROGRESS REPORTING
- PAYMENT APPLICATION REVIEW
- PROJECT SCHEDULE REVIEW
- PROJECT CLOSEOUT
- AS-CONSTRUCTED DRAWING REVIEW





DARLINGTON ESTATES INFILTRATION BASIN
East Bradford Township, Chester County, PA



PLYMOUTH VALLEY ESTATES SANITARY SEWER
Plymouth Township, Montgomery County, PA



THE WOODLANDS AT GREYSTONE
West Goshen Township, Chester County, PA

SURVEYING

Carroll Engineering's Surveying Department provides an array of professional surveying services including topographic and boundary surveys, ALTA/NSPS (American Land Title Association/National Society of Professional Surveyors) land title surveys, construction stakeout including site improvements; utilities, curb, basins; as well as house-line items such as to permit plans, foundation, and final as-constructed plans. Our services also include site improvement as-built surveys such as utility and basin as-constructed plans, and easement and right-of-way acquisition plans. Consisting of licensed surveyors and experienced field crew technicians, the department utilizes state-of-the-art equipment that includes total station robotic equipment, global positioning systems, 3D Laser Scanning, and an unmanned aerial vehicle (drone) to complete surveying projects with precision.

SERVICES

- TOPOGRAPHIC SURVEYS
- BOUNDARY SURVEYS
- ALTA/NSPS LAND TITLE SURVEYS
- CONSTRUCTION STAKEOUT
- RIGHT-OF-WAY ACQUISITION PLANS
- CONSTRUCTION LAYOUT
- 3D LASER SCANNER SURVEYING
- UTILITY SURVEYS
- ROUTE SURVEYS
- SUBDIVISION & LOT CONSOLIDATION PLANS
- FEMA ELEVATION CERTIFICATES
- WETLAND SURVEYS
- AS-BUILT SURVEYS
- ADA COMPLIANCE SURVEYS
- UAV/DRONE SURVEYING
- AERIAL PHOTOGRAMMETRY

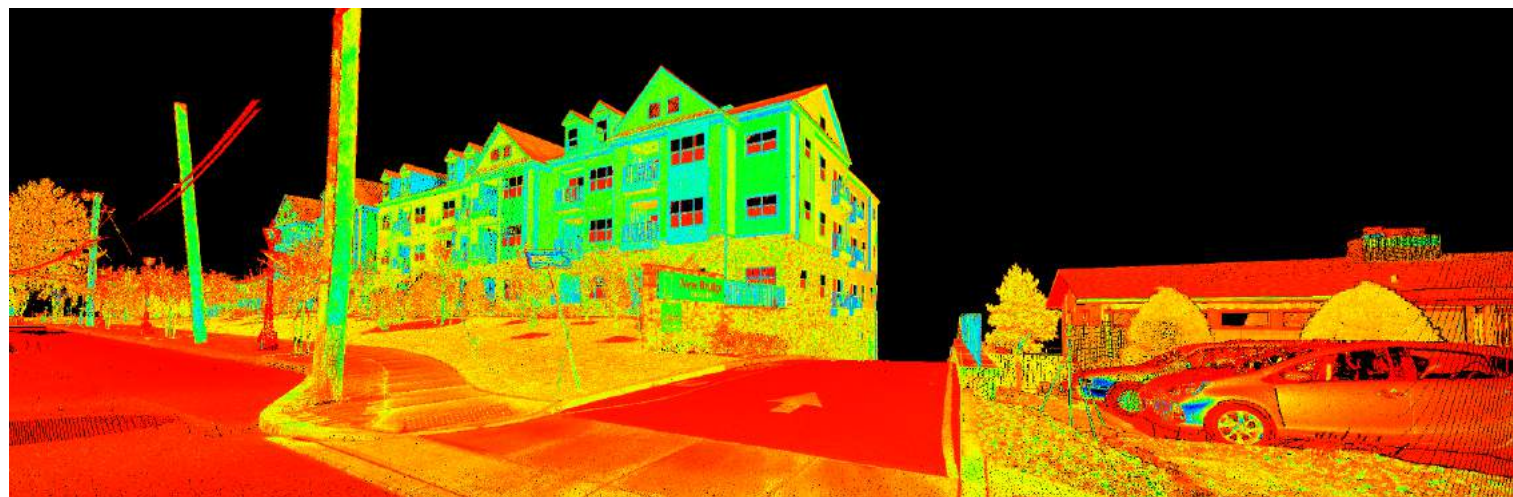




HEARTIS SENIOR LIVING
Warminster Township, Bucks County, PA



GROVE VALLEY FARM DEVELOPMENT
Warrington Township, Bucks County, PA



RIVERVIEW AT NEW BRIDGE LANDING
Borough of River Edge, Bergen County, NJ

GEOGRAPHIC INFORMATION SYSTEM & INFORMATION TECHNOLOGY SERVICES (GIS & IT)

Carroll Engineering's Geographic Information System department provides services for a wide range of spatial applications. Geographic cartography creation, database management, custom application development, and data analysis all support better planning by providing the knowledge necessary to make more informed decisions. GIS, with its interactive mapping and databases, also lends itself to enhanced data storage for improved asset management. As an ESRI Business Partner, Carroll Engineering can implement many solutions to help solve problems, manage data, fulfill citizen requests, and analyze complex scenarios within your organization.

With Information Technology at the foundation of almost every organization today, Carroll Engineering recognizes how critical it is that these systems operate efficiently and effectively in order to gain the most from their IT investment. Carroll Engineering's IT professionals maintain and manage clients' entire IT infrastructure, from servers to printers, to ensure that systems are secure and operating at peak efficiency.

SERVICES

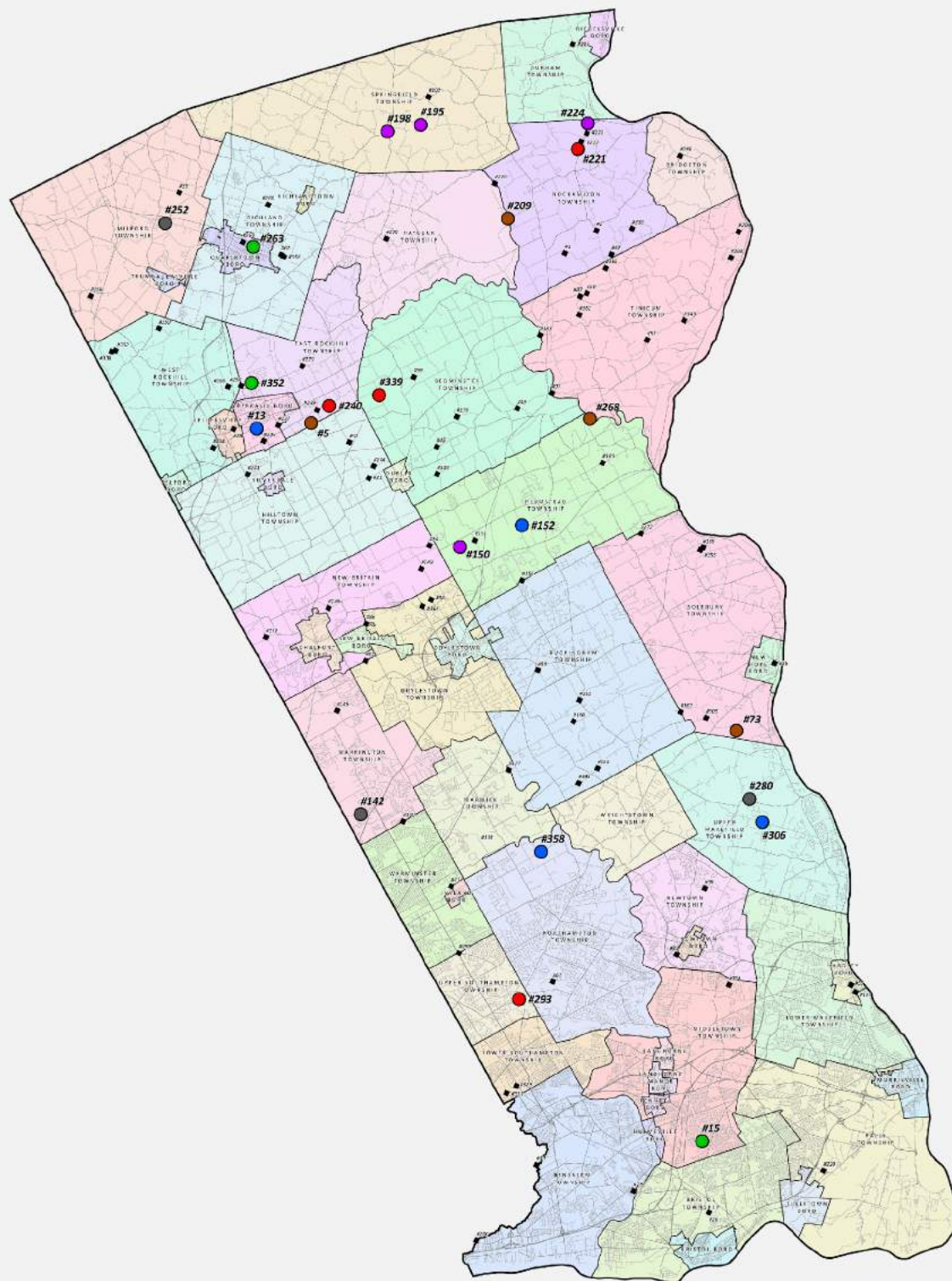
• GIS SERVICES

- FIELD DATA COLLECTION
- DATA CONVERSION/BASE MAPPING
- DATA ANALYSIS/CUSTOM CARTOGRAPHY
- NEEDS ANALYSIS/IMPLEMENTATION PLANNING
- SOFTWARE TRAINING AND SUPPORT SERVICES
- ASSET MANAGEMENT SERVICES
- CUSTOM PRODUCT DEVELOPMENT
- ESRI SOLUTION IMPLEMENTATION

• IT SERVICES

- NETWORK AND SYSTEMS ADMINISTRATION
- SECURITY EVALUATIONS AND UPGRADES
- PERFORMANCE TUNING
- APPLICATION DEVELOPMENT
- NETWORK DESIGN AND DEPLOYMENT
- REQUIREMENTS ANALYSIS
- PC/HELP DESK SUPPORT





BRIDGE CONSTRUCTION / REHABILITATION MAPPING
Bucks County, PA



HAVERFORD TOWNSHIP MAPPING
Haverford Township, Delaware County, PA



WILLISTOWN TOWNSHIP SEPTIC-SEWER SURVEY
Willistown Township, Chester County, PA

TECHNOLOGY

DRONE/UAV IMAGING



We have been utilizing the drone's ability to capture aerial views of clients' projects from start to finish, pre-planning initiatives, site mapping and offer real-time video captures for hard to see areas using accuracy and speed. Our licensed drone pilots use their experience to remotely navigate the unmanned aerial vehicle (UAV), as it collects aerial data through its pivotal imagery sensors. For instance, when used in a drone survey, a client can request measurements at certain distances and in other specified volumetric distances. Project managers can inherently benefit from utilizing the drone information for day-to-day project updates and staying informed to make quicker reaction times to any project delays that can arise.

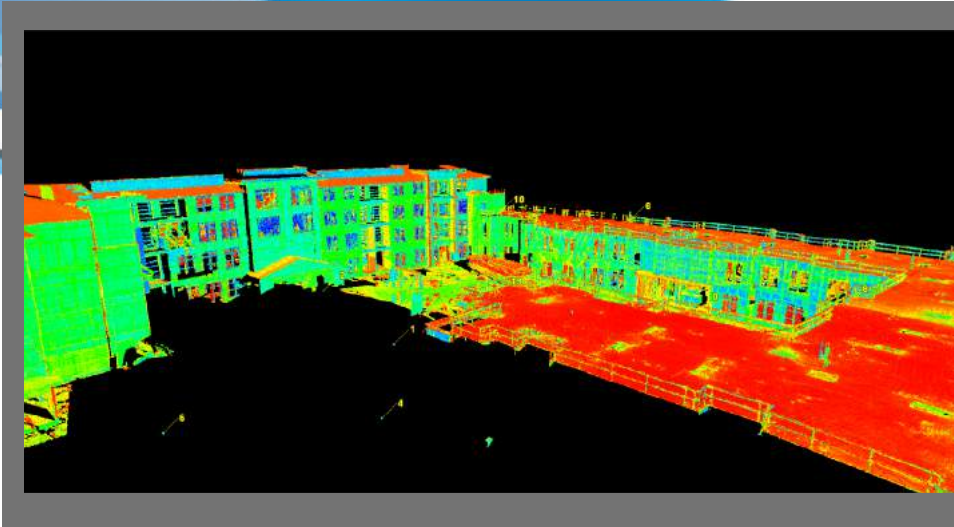
Here are applications benefiting from the accuracy and detail of our Drone Technology:

- **SITE RECONNAISSANCE**
- **ROADWAY ASSESSMENT**
- **CULVERT/BRIDGE INSPECTIONS**
- **STREAMBANK/STEEP SLOPE ACCESS**
- **PARK AND OPEN SPACE AERIAL IMAGERY**
- **WATER TANK/STANDPIPE INSPECTION**
- **BUILDING/ROOF INSPECTION**
- **TREATMENT PLANTS**
- **ORTHOPHOTOGRAPHY**
- **TERRAIN MODELING**
- **3D MAPPING**



TECHNOLOGY

3D Laser Scanning



Carroll Engineering has bridged the gap between conventional survey methodology and the future, by utilizing 3D High Definition Laser Scanning. The ScanStation and compatible software tools offer some of the highest precision to our expert technicians when collecting geospatial data, to ensure we deliver outstanding range, speed, accuracy, and quality of information collected on each project. Clients are able to use the renderings to capture real-time data to assess existing conditions, construction verification, conduct off-site visualization, and support estimates for upcoming projects.

Here are applications benefiting from the accuracy and detail of our 3D Laser Scanning Technology:

- **UTILITY SUBSTATION AS-BUILT SURVEYS**
- **ROADWAY MAPPING**
- **ROAD INTERSECTIONS**
- **OVERHEAD WIRE CLEARANCES**
- **STRUCTURE MONITORING**
- **BRIDGE LOCATIONS AND CLEARANCES**
- **STORMWATER /WASTEWATER MANAGEMENT**
- **BUILDING FACADES/INTERIORS**
- **ADA COMPLIANCE SURVEYS**



Testimonials

"Carroll Engineering has provided outstanding and comprehensive engineering services to West Goshen Township for the last several years. Overall, Carroll Engineering has provided excellent client services to West Goshen Township."

-Casey Lalonde, Township Manager, West Goshen Township

"They consistently deliver excellent work in a very cost-effective way and continue to provide good customer service. We are pleased to be partnering with a talented company in the industry."

-Michael Wolan, DBIA, Engineering Manager, Project Delivery North, New Jersey American Water

"They have consistently been receptive to the County's needs, with prompt service and excellent communication throughout each project."

-Michael Emili, P.E., Director of Public Works, County of Northampton

Your good work has allowed us to maintain both our water and sewer systems in good working order, using the most up to date technologies, and always within our limited construction schedules and budgetary constraints. We are pleased to have selected Carroll Engineering Corporation to serve as our Professional Consulting Engineers, and we look forward to working with the firm for many years."

- Robert C. Bender, Executive Director, North Wales Water Authority



why carroll engineering?

Experienced.

Leveraging our knowledge, experience, and professionalism, we deliver exceptional results to our clients every time.

Dedicated.

CEC is one of the largest consulting civil engineering and surveying firms in the Greater Philadelphia region and across New Jersey, offering highly regarded professional services to a wide range of clients. We pride ourselves on being responsive and reliable while gaining the trust of our clients in order to develop long-term relationships. We adapt to the changing needs of our clients and the industry with a focus on exceeding our client's expectations. Our wide range of services provides our clients with diversity for all projects, from the initial planning phase to full project completion.

Professional.

As a Carroll Engineering client, you are guaranteed the benefits of working closely with an experienced staff of experts, and their ability to incorporate the latest technology and techniques to achieve integrated solutions on every project.



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