# TRANSIT FLEET MAINTENANCE FACILITIES

Shaping the future of mobility with tailored solutions for bus, rail and light rail fleet maintenance

Michael Baker
INTERNATIONAL


*New Haven Bus Maintenance Facility / Connecticut*

# NATIONALLY RECOGNIZED RAIL AND TRANSIT PRACTICE

## Trusted, Proven and Relevant

As a nationally recognized leader and trusted expert in the planning and design of rail and transit systems, Michael Baker International is at the forefront in shaping the future of mobility. Our demonstrated ability to develop and implement integrated bus, rail, and light rail transportation solutions for major transportation agencies throughout the United States gives us the ability to bring innovation and proven design leadership to any project.

## Comprehensive Experience and Specialized Expertise

Our expertise spans a broad spectrum of transit modes, including bus, commuter rail, light rail, bus rapid transit (BRT), and multimodal systems. We lead with vision and value, leveraging deep industry knowledge and collaborative partnerships to develop forward-thinking, cost-effective strategies that maximize project success and advance the industry. Our commitment to quality, safety, and client-focused solutions ensures that we remain at the forefront of rail and transit advancement, making a lasting impact on communities and the transportation landscape.

2025 ENR RANKING –
MASS TRANSIT AND RAIL

#22


# CAPABILITIES

### Planning & Feasibility Studies
- Bus Rapid Transit Planning & Design
- Corridor Studies
- Environmental Planning
- Grant Assistance
- Fare Collection & Forecasting
- Route Design & System Redesign
- Transit Asset Management Planning
- Transit Development Planning (TDP)
- Transit Operations Planning & Analysis

### Architecture & Engineering
- Civil Engineering
- Fire/Life Safety
- Geotechnical Engineering
- Grade Crossings
- LiDAR and Mapping
- MEP Engineering
- Safety & Security
- Structural Engineering
- Track Design & OCS Design
- Urban Design & Landscape Architecture

### Specialized Transit Facilities
- Fleet Maintenance & Storage Facilities
- Fueling & Charging Facilities
- Micro-Transit
- Operations Control Centers
- Parking / Multi-modal
- Station & Facility Architecture
- Transit Centers & Administrative Offices
- Transit-Oriented Development (TOD)
- Value Engineering
- Vehicle Wash Facilities
- Yards & Facilities

### Project Delivery Services
- Asset Management
- Construction Management & Inspection
- Cost Estimating
- Owner's Rep / Program Management
- Staff Augmentation

### Community
- Public Agency Safety Plans
- Public Outreach & Policy Planning

Visit mbakerintl.com for more information.

TRANSIT FACILITIES

# 125+

FLEET MAINTENANCE FACILITIES

# 35+

## NEXT GEN PROJECT DRIVERS

- Future Fleet Technologies
  - Autonomous Fleets
  - Battery Electric Buses
  - Clean Diesel
  - Hybrid Electric Diesel
- Fire Protection for Battery Electric Buses
- Improved Route Efficiency & Reduced Fuel Usage
- Carbon Reduction Targets
- Zero Emissions Bus Technology

*We Make a Difference*

# SPECIALIZED EXPERTISE IN BUS / FLEET MAINTENANCE FACILITIES

## Optimizing Fleet Performance and Future Proofing

We recognize the critical role that transit fleet maintenance facilities play in ensuring the efficiency and reliability of public transportation systems. Our expertise in the planning and design of these facilities is unparalleled, with a strong emphasis on innovation and operational excellence. We understand that well-maintained transit fleets are essential, optimizing operations and enhancing the ridership experience.

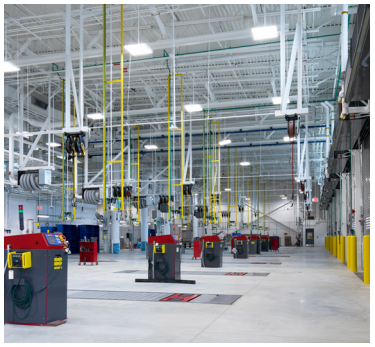
## Client-Centric Solutions

Our approach to maintenance facility design leverages the working knowledge of our subject matter experts, prioritizes state-of-the-art technology and incorporates best practices and our clients' sustainability targets. We integrate advanced diagnostic tools, automated systems, and environmentally informed solutions to create facilities that are not only efficient but also future-ready. With this focus, Michael Baker aims to elevate industry standards and provide transit operators with the tools necessary to maintain their fleets effectively.

### Program and Planning

We work closely with our clients upfront to define and refine requirements that align to budget

- *Alignment of Goals/ Requirements*
- *Conceptual Plans & Estimates*
- *Alternatives & Operational Impact Analysis*
- *Environmental Documentation*
- *Site-selection Studies*



### Design Expertise

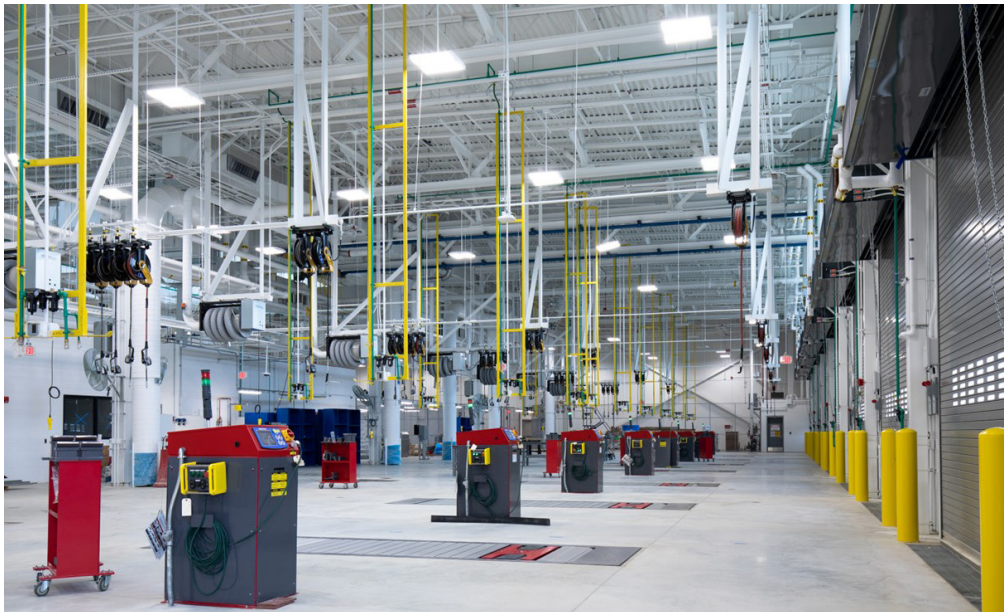
Cost-effective, functional, flexible solutions that optimize fleet performance now and in the future

- *Alignment to Client & Industry Best Practices*
- *Balance Program & Budget*
- *Durability & Maintainability*
- *Adaptable for Future Fleet Configuration / Sizes*

### Delivery Savvy

Depth of experience in the full range of delivery modalities and a partnering mindset

- *Construction Manager-at-Risk*
- *Design-Bid-Build*
- *Design-Build*
- *Program Management*
- *Solutions & Asset Management*



# WMATA Bladensburg Bus Facility

**CLIENT:** Washington Metropolitan Area Transit Authority

**LOCATION:** Washington, D.C.

**ROLE:** Program Management, Architecture, Engineering Design, Industrial Equipment Planning and design, LEED Certification, Design-Build Delivery Process

**TOTAL PROJECT COST:** $350 million

## OVERVIEW

First built in 1962, the Bladensburg Bus Garage sits on 17.59 acres bounded by Bladensburg Road NE, 25th Place NE, Douglas Street NE and the CSX railroad line Today, the facility is one of Metro's oldest assets and home to 260 buses and support vehicles. Nearly 500 employees oversee bus repairs, maintenance, inspections, and more. The reconstruction of the garage modernizes the facility and improves essential bus operations and maintenance. This modernization also provides the continued safe and reliable operation of the bus fleet housed at the Bladensburg Bus Garage, which offers much needed transportation services to Metro customers throughout the District of Columbia and parts of Maryland.

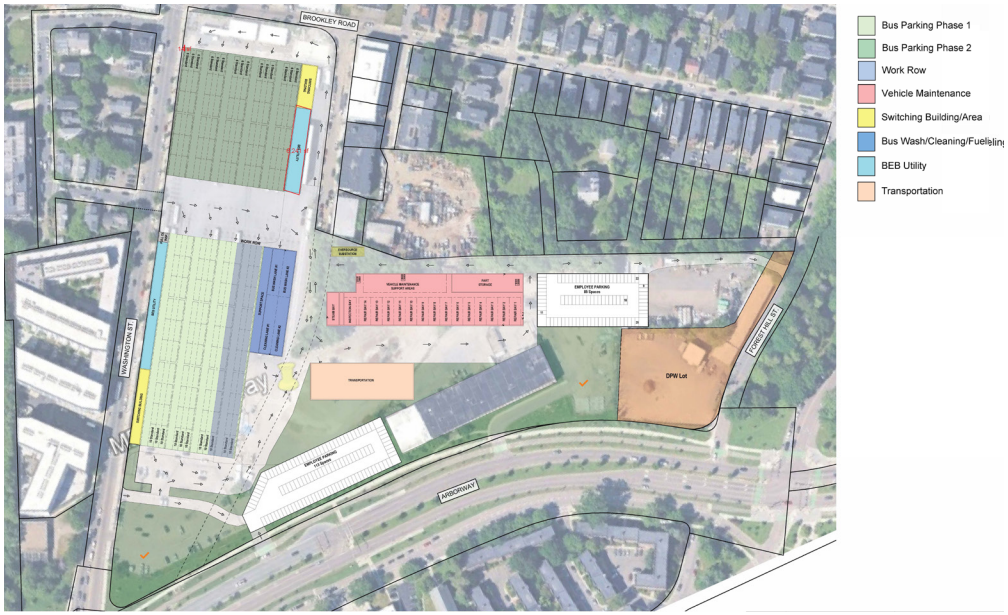
## OUR WORK

Michael Baker provides comprehensive services for this modernization, including project management, architecture, landscape architecture, MEP/FP, structural and civil engineering. The project involves demolishing the existing maintenance facilities and constructing a new operations and maintenance complex designed for a fleet of 300 transit vehicles. Key components include, bus maintenance and body repair facilities, paint shop and operations center, fueling and wash stations and bus parking areas. A future four-story precast parking garage for employees and visitors, connected to the main building by a pedestrian and vehicular bridge. Additionally, the Shepherd Parkway Facility is modified to serve as the compressed natural gas (CNG) fueling station for the new Bladensburg site.

## KEY FEATURES

- Integration of CNG systems and provisions for future clean diesel, hybrid electric, and battery electric buses
- Expanded parking: 200 spaces for 40-foot buses, 100 spaces for articulated buses, and 560 employee spaces
- Environmental and infrastructure upgrades to support additional buses
- Commitment to achieving LEED Platinum Certification, the highest level of sustainable accreditation

Michael Baker INTERNATIONAL | *We Make a Difference*


# Arborway Bus Maintenance Facility Advanced Concept Development Phase

**CLIENT:** Massachusetts Bay Transportation Authority

**LOCATION:** Boston, Massachusetts

**ROLE:** Architecture, Site and Civil, Battery Electric Bus Charging, Cost Estimating and Value Engineering, Schedule and Construction-Phase Design Services

## OVERVIEW

The Arborway Bus Maintenance Facility Modernization Project is a critical step in the MBTA's Bus Facility Modernization Program, aimed at achieving a fully electrified bus fleet by 2040. The Concept Design provides options for a state-of-the -art facility to replace the existing temporary structures with a permanent, sustainable, and resilient bus maintenance facility designed to store and maintain approximately 200 battery-electric buses with multiple phasing options. The project goals are to enhance service reliability, improve workforce conditions, and support MBTA's commitment to environmental sustainability and transportation equity.

## OUR WORK

The Michael Baker team brings a future-focused, cost-effective, and resilient approach to design, ensuring MBTA achieves its goals without compromising quality or sustainability. Through an advanced concept development, we help align design decisions with budgetary objectives, guiding MBTA through strategic options and evaluations that prioritize high-impact features while managing costs and risks. From early stakeholder engagement and phased implementation planning to utility coordination and risk mitigation, Michael Baker serves as a trusted advisor, supporting MBTA's commitment to zero emissions, equity, and long-term resilience.

## KEY FEATURES

Featuring phased implementation, advanced utility coordination, and comprehensive maintenance capabilities, the project looks at enhancing service reliability, workforce conditions, and environmental resilience. Michael Baker provides future-focused design and value engineering expertise, aligning strategic decisions with budgetary goals while ensuring quality and sustainability.

Michael Baker INTERNATIONAL | *We Make a Difference*

# Purple Line Facility Transitway Glenridge Operations & Maintenance Facility

**CLIENT:** Maryland Transit Administration

**LOCATION:** Riverdale, Maryland

**ROLE:** Project Management, Architectural / Facility Design, Engineering Design, Construction Administration, Cost Estimating, Maintenance Design, Design / Build, Landscape Architecture

**TOTAL PROJECT COST:** $100 million

## OVERVIEW

The Purple Line includes 16.2 miles of ROW, 21 stations, 28 light rail vehicles and two maintenance yards, including one full-service maintenance/control center facility and one light-duty maintenance/backup control center facility. The Operations and Maintenance Facility (OMF) building is the main operations and maintenance facility for the new Purple Line and is located at the eastern end of the Purple Line. The 155,350-square-foot OMF supports all primary maintenance requirements including wheel truing, major repairs, painting, sanding, interior cleaning and exterior washing, and the primary operations control center. Glenridge OMF includes LRV storage tracks, a loop track, sand tower and mobile sanding equipment, a train wash and paint booth and LRV maintenance bays, a maintenance-of-way bay and support shops in the building.

## OUR WORK

As Architect of Record and project design lead, Michael Baker orchestrated a wide range of general and specialized contractors and consultants to design the most operationally efficient and productive facilities possible. Our services include, architectural, structural, and industrial design services. We collaborated with DBE sub-consultants on interior design, fire protection, communications, mechanical, electric and plumbing engineering, and civil engineering.

## KEY FEATURES

The team designed Glenridge OMF to attain LEED Silver certification. The major energy saving features of the building design include a 30% reduction in the lighting power density, installation of skylights in the maintenance bay for natural lighting, demand control ventilation in all areas that are heated and cooled, and use of heat recovery to condition the outside air.

Michael Baker INTERNATIONAL | *We Make a Difference*


# West Ox Bus Operations and Maintenance Facility

**CLIENT:** Fairfax County Department of Public Works and Environmental Services
**LOCATION:** Fairfax, Virginia
**ROLE:** Planning, Architecture, Engineering
**TOTAL PROJECT COST:** $32.4 million

## OVERVIEW

The West Ox Bus Operations facility is a 134,000-square-foot facility that accommodates operations and maintenance for a combined fleet of up to 300 WMATA and Fairfax County Connector buses. As a joint-use project, a key challenge in the design was to accommodate the unique operational approaches of each transit operator, while realizing the potential cost savings and efficiencies gained through the sharing of facilities.

Michael Baker conducted in-depth user and owner interviews and meetings to develop a program that would incorporate the needs of both transit operators. Three separate buildings, a bus maintenance facility, a bus fuel and wash facility, and an administration and office facility, were designed to allow the most efficient use of the site and provide the highest level of safety. The bus maintenance facility occupies the southern edge of the site, which also acts as a buffer to a nearby residential neighborhood across the adjacent parkway. The maintenance facility includes 26 maintenance bays, fueling bays, and bus wash bays, and incorporates shared spaces for the two transit services to reduce redundant program areas. The fuel and wash facility is immediately adjacent to the bus parking area near the north face of the maintenance building.

## OUR WORK

Michael Baker provided planning, architecture, and structural, mechanical, electrical, and transportation engineering services for the design of the new West Ox Bus Operations facility.

## KEY FEATURES

Sustainable design concepts, including a 1,000-square-foot green roof as a test for sustainable design for future county projects, were used. The project won the client's 2008 Capital Facilities Award of Excellence. The facility was designed to meet LEED Silver certification.

Michael Baker INTERNATIONAL | *We Make a Difference*



# DASH Bus Maintenance Facility

**CLIENT:** City of Alexandria
**LOCATION:** Alexandria, Virginia
**ROLE:** Planning, Architecture, Interior Design, Structural Engineering
**TOTAL PROJECT COST:** $35 million

## OVERVIEW

The New DASH Facility project in Alexandria was the city's first Design-Build RFP initiative, aimed at maximizing the facility within budget. The project included provisions for 96 buses in Phase I, with future expansion for 36 more buses. Requirements emphasized covered and enclosed bus parking, accommodating the entire bus fleet, employee parking, and 100 additional spaces for other city agencies on a constrained site with hazardous materials and stormwater management issues. The project aimed to achieve a USGBC LEED Silver® rating. The design-build team collaborated closely with city agencies to address all concerns, and the project was delivered in a fast-track scenario, with site preparation, underground utilities, and stormwater management facilities installed promptly, followed by the production of structural building elements.

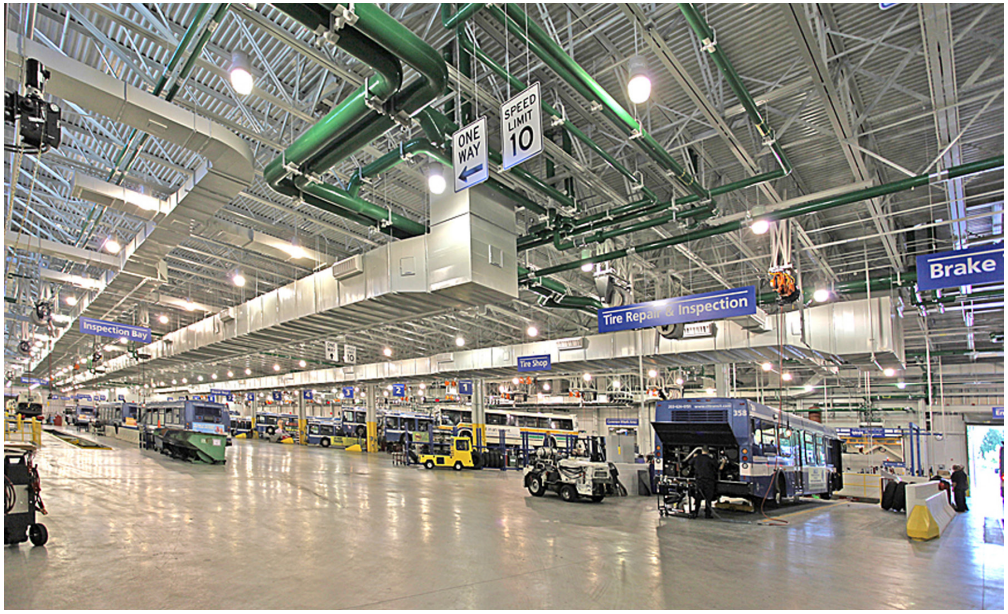
## OUR WORK

The design-build team worked together to develop a list of priorities and strategize construction methodologies that could deliver the most building within budget while still maintaining a high level of quality in materials and systems for long term durability. The client stressed that due to the limited site area, multi-level parking would likely be a necessity and suggested a parking garage. The design team determined that providing a fully precast concrete structure that incorporated rooftop employee parking rather than a separate parking structure could provide the opportunity to enclose and heat all the bus storage and still meet the project budget while freeing up site area required for future expansion and stormwater management facilities.

## KEY FEATURES

The facility ultimately achieved LEED Gold® by including Brownfield site remediation and development, enhanced stormwater management techniques, heat island reduction, proximity to mass transportation, alternative transportation options, energy efficient building envelope and mechanical systems, including heat recovery, exemplary water use reduction, and daylight and views to name a few.

Michael Baker INTERNATIONAL | *We Make a Difference*




# New Haven Bus Maintenance Facility

**CLIENT:** Connecticut Department of Transportation (CTDOT)

**LOCATION:** Connecticut

**ROLE:** Site-Selection Studies, Environmental Documentation, Final Design Documents, Project Management , Architecture, Structural design, HVAC design, Electrical design, Plumbing and fire protection, Industrial equipment, Environmental engineering, Civil engineering, Cost estimating

## OVERVIEW

This 290,000-square-foot bus maintenance, storage, and administrative facility incorporates state-of-the art equipment for the repair and maintenance of CTDOT's local bus fleet accomodating150 buses and 20 support vehicles.

The facility has interior circulation of vehicles for storage and maintenance with separation of bus traffic and employee vehicle access, resulting in an organized site layout. It also has an ethylene propylene diene monome roof, with vents, roof top air handling equipment and more than one mile of roof curbs and cants. Attached to the storage area is a 13,400-square-foot, two-story administration wing, which consists of drivers' and mechanics' support areas, bus dispatch operations, customer service and general operations areas for administrative staff.

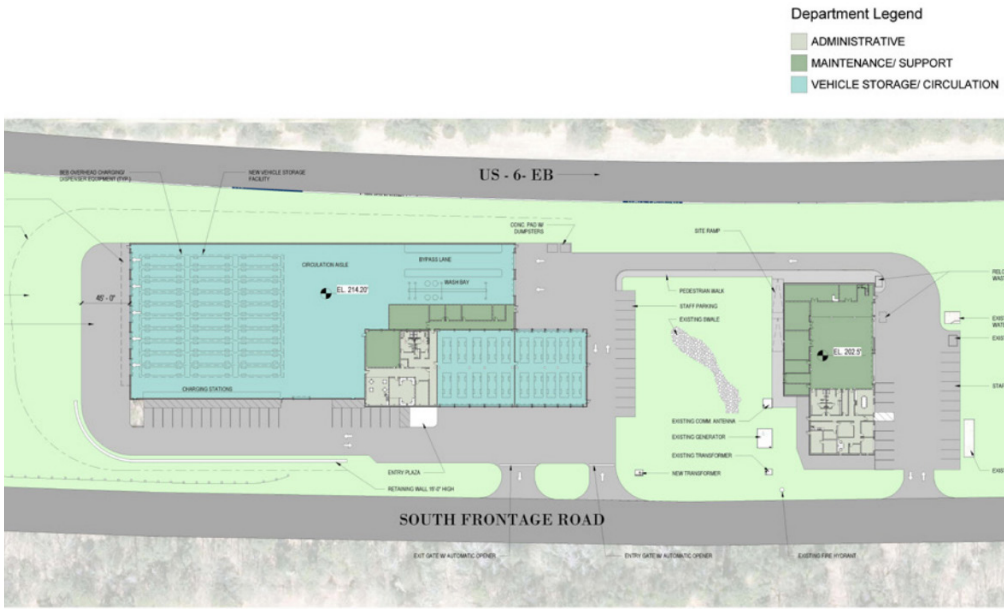
## OUR WORK

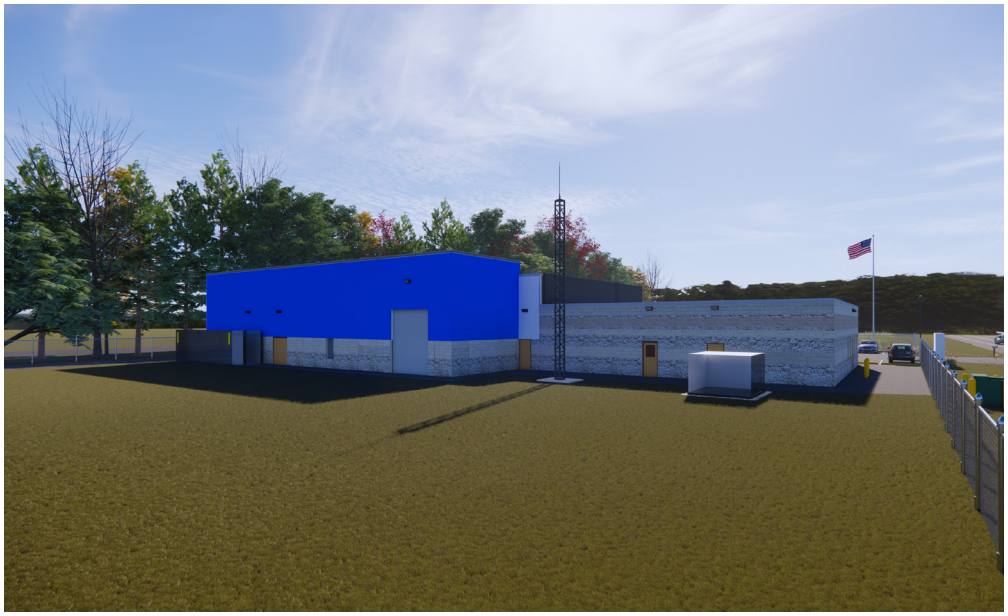
Michael Baker successfully relocated the bus maintenance facility from James Street to Hamden, improving bus-route efficiency and reducing fuel usage. The project involved addressing challenges such as constructing on an abandoned steel mill site, performing bus route analysis, preliminary engineering studies, environmental documentation, and remediation design for contaminants like PCP and asbestos. Cost savings were achieved by encapsulating contaminated slabs with engineered gravel fill. Michael Baker provided comprehensive design services, including architectural, structural, HVAC, electrical, plumbing, fire protection, and more. The facility was designed to accommodate future CNG buses, ensure uninterrupted power during emergencies, and incorporate advanced fuel and maintenance tracking systems. Additionally, stormwater management practices were implemented to protect nearby tidal wetlands.

## KEY FEATURES

Major features of the new facility included indoor bus storage; bus service bays and inspection pits; bus cleaning lanes; interior fueling; vehicle wash bays; part storage room; tire storage; body repair, alignment, and chassis repair equipment bays; and a full administrative area as well as lockers, restrooms, and fitness center for drivers, mechanics and administrative staff.

Michael Baker INTERNATIONAL | *We Make a Difference*



# Windham Regional Transit District Expansion

**CLIENT:** Connecticut Department of Transportation

**LOCATION:** Connecticut

**ROLE:** Architecture, Maintenance Equipment, ADA Upgrades, Final Design, Cost Estimating, Construction Scheduling, Site Civil

**TOTAL PROJECT COST:** $17.3 million

## OVERVIEW

Michael Baker provided design and engineering services to evaluate facility expansion options for the Windham Regional Transit District (WRTD). As part of this effort, our team prepared expansion plans based on a preferred alternative and developed cost estimates to guide decision-making. Following the evaluation, we are implementing a phased approach to expand the Mansfield Center site.

## OUR WORK

Michael Baker's study evaluated two options to combine WRTD and UConn bus fleets at one site, detailing necessary facility changes and structural requirements. The team assessed energy needs, modeled electrical loads, and created an expansion plan with phased implementation and cost estimates. The plan ensures ongoing operations, provides temporary fleet storage, expands maintenance and administrative areas, and supports a transition to full electric vehicles.

Building on the study, Michael Baker is providing design services for the expansion of the WRTD facility site, maintenance building, and cold storage facility in Mansfield Center, Connecticut. Phase 1 addresses immediate needs for expanded operations, vehicle charging, maintenance, and bus storage, setting the foundation for future growth and electrification.

## KEY FEATURES

The WRTD project upgrades two buildings to improve transit operations and prepare for future needs. The Maintenance Building gains more service bays and support areas, while a new battery-electric bus facility provides charging for both WRTD and UConn fleets overnight. Bus operations move to the current storage facility, streamlining workflows. The phased plan minimizes disruptions and supports expanded maintenance, temporary fleet storage, and full electrification.

Michael Baker INTERNATIONAL | *We Make a Difference*

# Stamford Commuter Rail Maintenance of Equipment Facility Improvements

**CLIENT:** Connecticut Department of Transportation

**LOCATION:** Stamford, Connecticut

**ROLE:** Field Inspection, Repair and Improvements Program Development, Construction Phasing, ADA Compliance, Preliminary Engineering Report Preparation

## OVERVIEW

Michael Baker provided architectural design services to supplement final contract documents prepared for State Project 0301-0509, Improvements to the Stamford Maintenance of Equipment (MOE) and Car Wash Facility. Michael Baker's architectural design services supplemented the client's engineering services for the Connecticut Department of Transportation Preliminary Engineering Report prepared in 2018, which was used as a basis for preparing the design documents along with field survey and investigations of the facility's current condition. The project, located in Stamford, Connecticut, on the Metro-North New Haven Rail Line, was part of the Stamford Shop and Yard Complex.

## OUR WORK

Michael Baker provided evaluation, inspection, recommendations, and cost estimating services for the Connecticut Commuter Rail Maintenance of Equipment Facility in Stamford. Tasks included data collection and review; field assessment and reviews; repair and improvements program development; preliminary engineering report preparation; cost estimating for potential repairs and meeting coordination.

## KEY FEATURES

Upgrades to the MOE facility included roof replacement; heating, ventilation, air conditioning replacement, improvements to bathrooms, lockers, lunch rooms, offices, and support space; safety and code upgrades; new overhead door on Track 44; new air compressors; a fall protection system along Track 44; upgrades to facility security; information technology upgrades; bug and stinger systems upgrade; new service consoles on Track 9; parking lot improvements; and electrical and boiler room improvements.

Michael Baker INTERNATIONAL | *We Make a Difference*

# ADDITIONAL PROJECTS

## COMMUNITY COLLEGE OF RHODE ISLAND WARWICK TRANSIT CENTER

**CLIENT:** Rhode Island Public Transit Authority

**LOCATION:** Warwick, Rhode Island

**ROLE:** Designer of Record, Project Management, ADA Compliance, Engineering and Design Plans

## MBTA INFRASTRUCTURE AND MODERNIZATION PROJECTS

**CLIENT:** Massachusetts Bay Transportation Authority

**LOCATION:** Boston, Massachusetts

**ROLE:** Design, Construction-Phase Services, Facility Improvements, Fiber-Reinforced Polymer Research

## FLEET MAINTENANCE BUILDING FOR BWI AIRPORT RENTAL CAR FACILITY BUS FLEET

**CLIENT:** Maryland Aviation Authority

**LOCATION:** Hanover, Maryland

**ROLE:** Planning and Final Design Services

## BERLIN HISTORIC TRAIN STATION RESTORATION

**CLIENT:** Town of Berlin, Connecticut

**LOCATION:** Berlin, Connecticut

**ROLE:** Full Architecture and Engineering Services, Planning, Condition Assessment, Cost Estimating, Public Involvement

## CTA BUS GARAGE AND MAINTENANCE FACILITY

**CLIENT:** Chicago Transit Authority (CTA)

**LOCATION:** Chicago, Illinois

**ROLE:** Planning / Full Architecture and Engineering Services

## HARTFORD LINE RAILROAD STATIONS

**CLIENT:** Connecticut Department of Transportation

**LOCATION:** Multiple Locations, Connecticut

**ROLE:** Full Architecture and Engineering Services, Planning, Historic Preservation, Cost Estimating, Public Involvement,

## UNIVERSITY OF ARKANSAS FLEET FACILITY AND TRANSIT SYSTEM STUDY

**CLIENT:** Alliance Transportation Group, Inc.

**LOCATION:** Fayetteville, Arkansas

**ROLE:** Strategic Planning, Design, Programming, Feasibility

## TRANSIT FACILITY CONSTRUCTION MANAGEMENT AND INSPECTIONS

**CLIENT:** SEPTA

**LOCATION:** Greater Philadelphia Area

**ROLE:** Consulting Services, Management and Inspection of station rehabs, bus and rail maintenance facility renovations

## BUS MAINTENANCE FACILITY FEASIBILITY STUDY

**CLIENT:** Greenline Transit Authority

**LOCATION:** Greenville, South Carolina

**ROLE:** Feasibility Study

## SHORE LINE EAST RAILROAD STATIONS

**CLIENT:** Connecticut Department of Transportation

**LOCATION:** Multiple Locations, Connecticut

**ROLE:** Planning / Full Architecture and Engineering Services, Cost Estimating, Public Involvement

## TRANSIT SYSTEM PROGRAM MANAGEMENT SERVICES

**CLIENT:** PennDOT, Central Office

**LOCATION:** Pennsylvania

**ROLE:** Program Management, Environmental, Programming, Agency Coordination, Cost Estimating

## GREATER NEW HAVEN TRANSIT DISTRICT SITE SELECTION STUDY

**CLIENT:** Connecticut Department of Transportation

**LOCATION:** Hamden, Connecticut

**ROLE:** Conceptual Design, Parking, Administration, Maintenance, Fueling Facilities, Storage and Charging Design

## SEPTA NORTH BROAD STREET STATIONS RENOVATIONS

**CLIENT:** SEPTA

**LOCATION:** Philadelphia, Pennsylvania

**ROLE:** Planning / Full Architecture and Engineering Services, Condition Assessment, Elevator and Escalator Design, Cost Estimating, wayfinding design

## NEW RIVER VALLEY STATION

**CLIENT:** Norfolk Southern Corporation

**LOCATION:** Chistiansburg, Virginia

**ROLE:** Full architectural and engineering including new platform, civil and structural engineering, hydraulics, stormwater permitting, environmental documentation, retaining walls, electrical/lighting, digital technologies, traffic study, stakeholder and agency coordination and construction management/inspection