PSE PROFESSIONAL SYSTEMS ENGINEERING AN NV5 COMPANY

TRANSPORTATION SECURITY

SAFETY • COMMUNICATIONS • SECURITY

STRATEGY + SPECIFICATIONS + TECHNOLOGY

PROFESSIONAL SYSTEMS ENGINEERING, AN NV5 COMPANY 1-800-839-5060 WWW.PROFSYSENG.COM

Firm Profile

Safety | Communications | Security

Advanced Systems

Professional Systems Engineering, an NV5 Company, provides engineering, planning, design, and construction services for security, safety, communications, protection, fire systems, and related infrastructure to meet critical protection requirements. Our consultants, engineers, and designers have provided superior systems for the most state-of-the facilities in their class. These include airports, transportation, hubs, homeland security, portals, ports, justice and correctional facilities, and emergency 9-1-1 centers. Our firm is a nationally recognized firm with many honors and distinctions for innovative design. Showcasing our firm as a world leader in security design.

Comprehensive Airport Capabilities

Working collaboratively with clients, architects, design professionals, and the entire project team, Our firm facilitates project planning with the goal of overall systems' quality. Our comprehensive services range from a single study, report, or schematic design, on through to comprehensive services with complete documentation and construction management.

Our team provides airport planning services such as access systems; analysis of management and airport security activities such passenger processing, baggage handling, parking, and other areas. Our team is prepared to respond to on-call services; landside, airside, and seaside. Our team members are familiar with CFR, Coast Guard, FAA and Transportation Security Administration standards and regulations.

Innovative Leaders

Since 1986, the depth of our resources and engineering capabilities has helped provide technically advanced systems that meet clients' long-term goals and financial objectives. Our firm has successfully completed projects nationwide with total construction costs exceeding $5 billion. Our expertise may be measured by the quantity of system designs in operation, totaling hundreds. We are particularly known for centralized building systems management, monitoring and automation, multi-system integration, and advanced systems featuring state-of-the-art technologies.

Security

Security Solutions

Our team has over three decades of professional experience in providing consulting and engineering services for security and communication systems. We specialize in large-scale projects in a campus setting, primarily corporate business centers, universities, corrections and justice centers, and municipal complexes. Our expertise is in security master plan development, comprehensive security surveys, risk and needs assessments, security operations and procedures evaluation and program development, systems design and engineering, as well as a full complement of services for individual system components.

Balanced Programs

We offer a balanced team approach by combining the expertise of professionals representing physical hardware and systems, operations, policies, and procedures. Our team is comprised of security management specialists, security risk experts and planners, communication specialists, engineers, and CAD designers. Backed with the resources of a multi-disciplined team, our firm provides our clients with well-coordinated security programs that fully integrate physical security hardware components with procedures and operational aspects.

Experience

Our clients' projects have involved protecting facilities and building contents ranging from artifacts to state-of-the-art technologies, proprietary information, systems, and equipment. Currently, our security and communication designs are protecting college students, company executives and employees, government officials, police, judges, inmates, and the public at major building campuses. Our firm's considerable repeat business in airport, corporate, and prison security is a testament to the level of expertise our staff has attained.

Qualified Staff

Led by nationally recognized security, communications, and fire protection experts, our firm employs a uniquely qualified and technically diverse team. Continually meeting the challenges of sensitive projects, we have earned a national reputation for supplying advanced technologies and maintaining strict project cost and schedule requirements.

Philadelphia International Airport - Gate 8

Homeland Security & Airport Perimeter Designs

Philadelphia, Pennsylvania

The goal of this project is to improve security and correct inefficiencies and delays at the high-volume main gate where the majority of vehicles enter the airport.

Professional Systems Engineering, an NV5 Company, provided engineering services for the design of a new Air Side Gate Access Facility for in-flight food service vendors. The goal of this project is to improve security and correct inefficiencies and delays at the high-volume main gate where the majority of vehicles enter the airport. This project represents the application of perimeter and gate access standards developed by our firm for PHL. These standards enforce the remote monitoring of perimeter gates and implement gate and perimeter hardening in order to prevent airfield incursions. The gate systems are automatically controlled and designed to enforce PHL gate access procedures requiring local staff to verify credentials provided by all personnel prior to entering the facility.

This project also includes designing a control booth which houses both security and vehicle screening personnel. The gate facility is fully hardened and maintains a K-4 rating for all elements. The public street approaching the gate has been modified to prevent all attempts at forced vehicle entry. In addition to providing gate controls, access control, and video surveillance, Our firm also provided a snow melt systems to ensure access the gate is available in all conditions and minimizes the potential of accidental damage to the crash barriers and gates.

Our scope of work includes:

- Surveys of existing gates areas
- Determine legacy infrastructure including fiber, electrical, communications, ductbanks, etc.
- Determine legacy security system (integration requirements including access control, CCTV, alarm monitoring, PLC networks, etc.
- Investigate all existing service infrastructure including sewer, water, power, communications, and storm water
- Review standards and codes
- Generate narrative outlining of all findings and recommendations
- Develop phasing plans for temporary access, construction, and system
- Provide drawings of the proposed designs for gates areas
- Provide narrative specifications
- Screening Building will check for authorized credentials and will also include vehicle and personnel searches using back scatter x-ray technology and undercarriage video detection
- Nuclear Materials will be screened
- Pre-screening building will serve as the credential verifiers and providers for individuals requiring access into the airport operations area

Amtrak's Bergen Portal Tunnel

Homeland Security, Transportation & Consulting Services

Township of North Bergen, New Jersey

The National Railroad Passenger Corporation (Amtrak) has initiated a project to provide an enhanced level of security at Amtrak facilities across the country. Our firm provided Amtrak guidelines and criteria that would result in the design and construction of a fully functional, efficient, stable, easily maintainable state-of-the-art security system that increased the efficiency and effectiveness of Amtrak's security program.

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Professional Systems Engineering, an NV5 Company, provided security consulting services to address the access point to Amtrak's Bergen Portal Tunnel - the railways secure entrance from New Jersey to Manhattan and New England.

The security consulting services performed by our firm for Phase I of the project was to conduct interviews of selected Amtrak personnel, evaluate the Bergen Portal, prepare a report of findings and recommendations, and prepare a Basis of Design and Construction (BDC) for future Phase II Work.

Services Provided

- Preparing draft report presentation and draft BDC presentation
- Conducting a series of interviews with Amtrak NY/NJ personnel
- Conducting a detailed walk down of the sites
- Establishing locations for CCTV cameras and recommend camera type
- Evaluating exterior lighting and establish locations for additional lighting fixtures and poles
- Proposing security equipment (fences/barriers, cameras, light poles, intrusion detection devices)
- Developing a cabling/wiring scheme for the proposed system
- Developing a video switching and recording system to support the proposed CCTV cameras
- Establishing equipment types (make and model) for all proposed security equipment
- Preparing a detailed cost estimate for equipment and installation

Amtrak

Enterprise Safety Assessment/Emergency 9-1-1 Dispatch

New Jersey

Our firm was chosen by Amtrak to replace its Emergency 9-1-1 Dispatch Center with a modern system that will cover no less than 15 cities and nearly 150 operators. Our team's designs allow for adaptation with evolving technology to serve current and future needs.

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Professional Systems Engineering, an NV5 Company, provided consultant services including debriefing, interviews, historical analysis, technology requirements, specification preparation, RFP production, and bid analysis to replace Amtrak's CHIEFS system public safety software. Amtrak's existing system was nearly ten years old and no longer met Amtrak Police Department's business needs. It did not keep pace with up-to-date technological demands and proved labor-intensive to maintain. The existing central monitoring center is a national call center providing coverage for emergency, enforcement, disaster management, hazardous spill/contamination response and rail operations management with far-reaching, and sometimes overlapping jurisdictional-based, automated response call-up.

The new system includes the following components and capabilities:

- Computer-aided dispatch/geo-base sensitive programming
- Records management system
- Internal affairs module for secure review
- Employee communications
- Personnel management module
- GIS mapping with national coverage and integrated/imported response jurisdiction mapping
- Custom reporting relating to train-specific information

The new system allows for effective real time dissemination of information regarding departmental productivity and crime trend analysis, which facilitates effective deployment of resources in conjunction with daily operational requirements as well as emergency deployments. This project demonstrates our team's ability to "prime" a sophisticated, nationally advertised consulting award and bring stakeholders technology support into a modern data and systems managed universe that will be deployed in at least 15 cities and covering almost 150 operators.

Amtrak Homeland Security Protection Programs

Enterprise Security & Communications Consulting

Various Cities, throughout United States

The size of the project was unique from a national perspective and required a our firm's evaluation specialists to complete and document all projects over the 2-year period.

Security (8th Street Heavy Maintenance Yard, New York):

This entails homeland security and communications requirements for Amtrak in regarding protection of assets through counter-crime and counter-terrorism measures. Projects included maintenance and Owner's areas in Los Angeles, Washington, D.C., Baltimore, Wilmington, Philadelphia, and Queens. Owner area security included responsibility for review of CCTV, gates, and other physical items. Los Angeles required maintenance and storage yards to be physically secured, as well as electronically monitored with an extensive barrier system that was completed with specialized fencing.

Northeast Corridor:

Another set of projects allocated to these task order arrangements included the Northeast Corridor tunnels and bridges including Bergen and Newark. Tunnel projects included counter-terrorism assessments and actions to electronically monitor and provide sensors for the surround upon intrusion into the tunnel by "warm body" objects. Networked CCTV surveillance was also provided. Study and assessments of all card access assets were provided for 15 cities including Chicago, Wilmington Penn Station, Philadelphia 30th Street Station, New York City Penn Station, Boston, Washington, Los Angeles, and Riverside, California.

The study and assessments included a complete inventory of all card access systems, panels, connectivity, locations of the items, integration diagrams to show existing layouts, and all pertinent data bound into 15 separate binders to create as-record documentation along with all pertinent data.

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Amtrak's Baltimore/ Washington Area Tunnels

Homeland Security & Transportation & Consulting Services

Baltimore/Washington Area

The National Railroad Passenger Corporation (Amtrak) upgraded their security system at Baltimore/ Washington area tunnels. Our firm provided security consulting services for the existing security systems protecting their critical operations, and to make recommendations for upgrading the security posture of the sites. In addition, our team reviewed, evaluated and provided recommendations regarding current Emergency Response Plans for these tunnels.

The National Railroad Passenger Corporation (Amtrak) upgraded their security system at Baltimore/ Washington area tunnels. Our firm provided security consulting services for the existing security systems protecting their critical operations, and to make recommendations for upgrading the security posture of the sites. In addition, our team reviewed, evaluated and provided recommendations regarding current Emergency Response Plans for these tunnels.

Professional Systems Engineering, an NV5 Company, provided security consulting services addressing the entrances to three Amtrak tunnel sites (a total of six tunnels) located in the Baltimore/Washington area. The three tunnel sites consist of the BP tunnels in Baltimore (John Street, Wilson Street, and the Gilmore tunnel all located south of the Baltimore Station), the Union tunnels in Baltimore (1871 and 1934 tunnels both located north of the Baltimore Station), and the 1st Street tunnel located south of Union Station in Washington, DC. In addition, our team reviewed, evaluated and provided recommendations regarding the current Emergency Response Plans for these tunnels.

- Security consulting services performed for Phase I
- Conducted interviews with Amtrak personnel
- Evaluated the entrances to six tunnels, exterior fences, gates and barriers, and existing exterior lighting
- Reviewed, evaluated and provided recommendations regarding current Emergency Response Plans
- Established locations for additional lighting fixtures, CCTV cameras and intrusion detection alarm-monitored points
- Developed a cabling/wiring scheme for the proposed system and a video switching and recording system
- Provided recommendations for locations of digital video recorders, monitors, etc, and for software to control recording, to control access to video images and to track any changes within the camera viewing area
- Established equipment types for all proposed security equipment
- Prepared a report of findings and recommendations and detailed cost estimate for equipment and installation
- Prepared a Basis of Design and Construction (BDC) for Phase II

Philadelphia International Airport

Enterprise for SCADA, Building Management & Lighting Control Systems

Philadelphia, Pennsylvania

This project aimed to provide a more efficient and effective solution for monitoring the airport's various HVAC, lighting, and power systems. Working with various members of the airport staff, our firm proposed a solution which will provide monitoring of all systems from a single workstation while increasing efficiency and reducing the Airport's maintenance costs.

Professional Systems Engineering, an NV5 Company, provided engineering services for the survey and analysis of the Airport's building management, facility lighting, airfield lighting, and power substation monitoring and control systems. This project aimed to provide a more efficient and effective solution for monitoring the airport's various HVAC, lighting, and power systems. Working with various members of the airport staff, our firm proposed a solution which will provide monitoring of all systems from a single workstation while increasing efficiency and reducing the Airport's maintenance costs.

Our firm investigated the current methods for monitoring and controlling these systems and devices in order to develop a new, streamlined solution for unified monitoring. Our team also surveyed the existing airport's job control center and made recommendations and conceptual designs to improve room layout, console design, and monitoring systems. A solution was recommended that would increase efficiency while providing significant cost savings to the airport. Additional functionality was recommended including automatic maintenance ticketing, notification of staff using smart phones and other devices, and preventative maintenance (PM) scheduling and tracking.

Our firm's recommended solution will allow for the addition of energy-saving functionality such as energy management, lighting control, and load shedding.

Our scope of work Included:

- On-site survey of the following systems:
  - Wonderware SCADA interface for power substations
  - Siemens Apogee Insight building management systems
  - TAC I/A building management system
  - Cooper/Crouse-Hinds airfield lighting control systems
  - Lutron Grafik 6000/7000 interior lighting systems
- Interviews/meetings with airport maintenance staff
- Interviews/meetings with various hardware and software vendors
- Development of unified monitoring solution
- Preparation of an needs assessment with our findings and solutions
- IT recommendations for hi-capacity, secure networks upgrades

East Coast Ports of New York & New Jersey

Security Consulting, Design & Engineering Services

East Coast, U.S.

Our firm provided a design to secure Marine Terminal locations on the East Coast of the U.S., while adhering to the high standards for documentation and quality control procedures.

Professional Systems Engineering provided security consulting, design, and engineering services for East Coast ports for biometric-all-weather access control project. The project's goal was to enhance security at marine terminal locations by the implementation of an enterprise-wide access control system that will utilize the biometric data on the Transportation Worker Identification Credential (TWIC) cards issued to staff with access to secure areas.

The project included securing vehicle gates, pedestrian turnstiles, guard booths, and buildings at more than 100 terminal locations. Our firm's design utilized the existing fiber optic network infrastructure, and modified existing gates and doors as necessary to implement the access control solution. We provided enhanced bid documents that included single line diagrams, point to point wiring diagrams, equipment mounting details, and equipment enclosure layouts. Also provided were specifications and cost estimate.

Services Provided

Network Infrastructure

- Fiber optic transceivers
- Ethernet switches
- Patch panels
- Enclosures

Access Control Design

- TWIC access cards
- Biometric card readers
- System controllers
- Reader interface board
- Power supplies

Door Hardware

- Electric strike locks
- Electromagnetic locks
- Door position switches
- Request to exit devices

Gate Hardware

- Safety infrared beams
- Gate safety edges
- Safety edge transmitters
- Gate position switches
- Safety strobe lights

Philadelphia International Airport

Aircraft Rescue and Fire Fighting Building / Fire Training Area

Philadelphia, Pennsylvania

The project goal was to improve security between the Airport Operations Area (AOA) and the Fire Training Area while maintaining quick access to the AOA for the Philadelphia fire equipment.

As part of our On-call Security and Special Services Contract with the City of Philadelphia, Professional Systems Engineering, an NV5 Company, provided Security Upgrades to the Maintenance Services Building (MSB), Aircraft Rescue and Fire Fighting Building (ARFF), Central Utilities Building (CUB). These upgrades included Access Control, Video Surveillance, Security network switches, Door replacement and Hardware replacements.

Two existing AOA access gates located at the ARFF and Fire Training Area will be upgraded from slider gates to high-speed Bifold gates. These upgrades include Bifold Gates, Access Control, Video Surveillance, Vehicle Detection Loops, IR Safety Devices and Signage.

Manual Crash Rated Swing Arm Gates are provided to further increase the security posture of the critical sites by allowing PHL to restrict or prohibit access to South Commercial Vehicle Road.

Services Provided

- Card Readers/Access Control System interface.
- Video Surveillance
- Control and communications electronics
- Door and Door Hardware
- Secure Network
- High speed bi-fold gates
- Gate control System
- Traffic lights, Vehicle Detection loops, safety sensors
- Bollards
- Crash Rated Swing Arm Gates
- Jersey Barriers
- Security Hardening

Port Authority of New York & New Jersey

EWR and LGA – AOA Access Doors Security Improvement

New Jersey and New York

This project is the first phase of a multi-phase project to upgrade AOA access doors controlled by the PANYNJ. Our firm surveyed doors to compile a data base of locations, classifications, configurations, conditions, and recommendations for security improvement.

Professional Systems Engineering, an NV5 Company, provided a security assessment for AOA access areas at La Guardia Airport (LGA). This project is the first phase of a multi-phase project to upgrade AOA access doors controlled by the PANYNJ. Our team surveyed doors to compile a database of locations, classifications, configurations, conditions, and recommendations for access control security improvement. This project involved 165 doors and included documenting the existing security measures at each door and all maintenance conditions. The project's goal was to recommend security improvements required to reduce false alarm rates and improve the security of authorized employees and personnel with proper credentials to access AOA secured areas.

Our scope of work included survey and evaluation of:

- Doors, frames, lites, and miscellaneous trim
- Locks, keyways, and latches
- Mechanical door hardware
- Electronic door hardware
- Door security effectiveness
- Door life safety and emergency effectiveness
- Access controller location and type
- Video surveillance coverage
- Existing security networks

Documentation provided by our firm included:

- Summary and recommendations report detailing findings
- List of doors requiring immediate attention due to security, policy, or life safety concerns
- Schematic level access control, video surveillance, and network improvement design
- Bid documentation for recommended design projects

Philadelphia International Airport

TSA CCTV System Expansion Phase I, II & III

Philadelphia & Tinicum Township, Pennsylvania

This project served to protect passengers, Airport officials and Transportation Safety Officers by providing live and recorded video of passenger and baggage screening areas. The addition of these cameras as part of the CCTV system expansion provides a "video audit trail," documenting TSA's possession of a piece of luggage from the time it is taken from the ticket counter to the point where it is transferred to the airlines loading onto the aircraft.

Professional Systems Engineering, an NV5 Company, provided engineering services for the expansion of the Airport's video surveillance/CCTV system. The total project value was $6 million and funded through AIP grants. This multi-phase project included two key parallel goals: provide a major expansion of the video coverage of all TSA baggage and passenger screening areas in order to enhance security and reduce passenger claims against the TSA and migrate the airport's video surveillance from the existing analog Pelco matrix switched based system to a full Pelco Endura network base system. This project served to protect passengers, Airport officials and Transportation Safety Officers by providing live and recorded video of passenger and baggage screening areas. The addition of these cameras as part of the CCTV system expansion provides a "video audit trail," documenting TSA's possession of a piece of luggage from the time it is taken from the ticket counter to the point where it is transferred to the airlines loading onto the aircraft.

Our firm designed the expansion to minimize video surveillance outages during construction, seamlessly integrate into the airport's existing CCTV system and set up the airport for future expansion projects. Our CCTV and network designs has become the standard for all new Video Surveillance work at the Airport.

This project also highlights our firm's ability to:

- Evaluation of existing CCTV system
- On-site survey of areas to be covered by new cameras
- Survey of existing fiber optic and network infrastructure
- Evaluation of head-end equipment, installed cameras, and monitoring locations
- Design coordination with DOA Engineering, Airport IT, Airport Security, and TSA staff
- Coordination with Pelco to seamlessly integrate Endura IP video with existing analog matrix system
- Encoding of all existing analog cameras
- Conversion of all existing CCTV viewing station to Endura Workstations
- Expansion and reconfiguration of existing Security network
- Expansion of Recording storage and realignment of recording pools
- In-depth study of optimal camera positions to provide desired detail and coverage
- Creation of detailed, color screenshot booklet showing snapshots of camera views and dimensioned locations on Airport floor plans
- Creation of detailed point-to-point equipment connection diagram
- Drafting of narrative specifications to ensure a fully-functional system and contractor compliance with Airport standards and good installation/documentation practices
- Access control of new security closets created under this project