

COMMAND CENTERS FOR PUBLIC SAFETY AND ENTERPRISE MONITORING

PLANNING • DESIGNING • DEPLOYING



STRATEGY + SPECIFICATIONS + TECHNOLOGY

An Introduction to Our Public Safety Services

Increasing Stakeholder and Shareholder Value

Because decreasing risk, increasing safety, preparing for emergencies, and planning for continuity of business disruption is your business, our business must be providing the continuity of management and design services that create an increased value and return-on-investment. We create enterprise wide strategic communications, security, and safety plans that incorporate our responsibility as a partner for you and your organization. Providing highly integrated, visually managed, enterprise wide communication and control centers allows the incorporation of RF systems control, fleet management, SCADA and BMS control, networked CCTV, and GPS coordinated information flow. Centralizing, monitoring, automating, and integrating advanced systems into state of the art technologies has been demonstrated in hundreds of our projects, and reflects successful completion of your future project.

Wireless and Wired Enterprise Solutions

Since 1986, Our firm's principle objective has been to become a partner with agencies and corporations in the development of wireless and wired enterprise level communications, including public safety radio, corporate communications and IP telephone. We integrate broad and varied manufacture platforms into universal systems including security, safety, radio communications, and enterprise based control systems. We develop detailed technology requirements and collaborate on their successful implementation. We provide reports, specifications, and documents for defining enterprise structures that include widely dispersed systems for monitoring, communications, GPS coordinate fixing radio dispatching, secure access, and alarms for environmental, energy, safety, and operations whose activity is critical to sustaining the enterprise and whose loss would impair continued safe operations.

We provide network connectivity using native or conversion systems to provide communications throughout the plant IT universe. We marry the similar systems with particular managed strategy within open framework software, often having dozens or even hundreds of touch screen control systems in the design.

The Cyber-Security Framework

The enterprise system provides graphical, visual, audible, and record management functionality, often including radio, IP, and other wireless unifying software to encourage the streamlining of critical information, management of daily systems activity, and recording of all critical functions. Our systems capture cost savings in unique ways -- accelerating ROI using global strategies.

Today, a cyber-security framework of structured IP-based interconnected appliances and cloud enabled storage permits better control and integration.

Network based command and control centers - whether local NG911, enterprise wide or fusion/operations management - partner and planner.

Public Safety / EOC Consulting



Command Center Experience

Our experience includes dozens of command, control and communications centers, which entail everything from fire and life safety, security to 9-1-1 and emergency management services. The team's capability of completing large enterprise projects are reflected in. Our firm being project manager for a \$7.5 million upgrade for computer-aided dispatch and records management systems for Amtrak throughout the United States. Our firm already had direct responsibility for Homeland Security on the Northeast Corridor and 15 other sites throughout the United States. Amtrak found that Our firm's communications capabilities extended to CAD, computerized GIS, records management systems (RMS), and 9-1-1 dispatch services.

Conceptual Design

Conceptual design may be based on Department of Homeland Security models derived through a questionnaire and objective-based design guide produced for SAFECOM. The SAFECOM protocol was recently employed in Boston, Washington, DC, and Chicago, and is a model for encompassing interoperability needs and complementary levels of service between agencies and support groups in the event of an emergency situation or disaster. This provides command, control, and communications functionality for planning event strategies, tactical missions during the event, maintenance of the site during the event, cleanup and restoration. We are able to employ an Incident Command Structure (ICS) which provides for managed interoperability as the stepping-stone for the full development cycle of the project and its active maintenance and continued improvement.

Because of the breadth of the owner, agencies and stakeholders involved to their respective roles in relation to particular events, a governance model must be established with personnel involved in EMS and emergency planning, along with all stakeholders, including hazmat, search and rescue, and equipment operators that may be involved. The policies and procedures put into place for these different events must be developed into a written or web available document that clarifies stakeholder positions, agency influencer, and ultimate command, control and communications structuring of the situation room as it relates to each possible event.

This is especially important in multi-jurisdictional response to active school shooting and mass casualty events where interoperability is as critical as operational ground awareness and command.

9-1-1 Intergraph and Rail Security

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 covers no less than 15 cities and nearly 150 operators. Our firm's designs allow for adaptation with evolving technology to serve current and future needs.

Professional Systems Engineering, an NV5 Company, was chosen by Amtrak to replace its Emergency 9-1-1 Dispatch Center with a modern system that covers no less than 15 cities and nearly 150 operators. Our firm's designs allow for adaptation with evolving technology to serve current and future needs.

Our firm 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 firm's ability to "prime" a sophisticated, nationally advertised consulting award and bring stakeholders technology support into a modern data and systems managed universe that is deployed in at least 15 cities and covering almost 150 operators.

Delaware Valley Intelligence Center

Consulting & Review Services

Philadelphia, Pennsylvania



The new Delaware Valley Intelligence Center's \$20 million, 47,500 SF facility promotes information-sharing in Homeland Security matters by bringing city, state, and federal law enforcement agencies from 14 counties in four states together under one roof.

The Delaware Valley Intelligence Center (DVIC) is located in South Philadelphia. The DVIC provides a centralized, multi-agency intelligence-sharing network that utilizes a collaborative and preventive approach to regional threats, critical to supporting the health and safety of the public. This supports and strengthens the partnership between the agencies, organizations, and community. It also houses Real Time Crime Center (RTCC) that provides intelligence and investigative approach and support for the Philadelphia Police Department.

Professional Systems Engineering, an NV5 Company, provided security and telecommunication consulting and construction administration services for the Delaware Valley Intelligence Center (DVIC). The new DVIC's \$20 million, 47,500 SF facility promotes information sharing in Homeland Security matters by bringing city, state, and federal law enforcement agencies from 14 counties in four states together under one roof.

Services Provided

Public Safety Systems

- Citywide video surveillance (City Watch)
- Physical Security Information Management (PSIM)
- Access control systems
- Command and control
- Gunshot detection
- LPR systems
- Command center consulting
- Systems integration consulting

Telecommunications

- Communications infrastructure
- Main point of presence coordination
- Wide area network interface
- Distribution backbone design
- Tele/data structured cabling systems
- Audio/video systems
- IDF/MDF tele/data room equipment layout

City of Elizabeth

9-1-1 / Information Systems/Emergency Management Facilities

📍 Elizabeth, New Jersey



Our firm's in-depth knowledge of law enforcement and justice criteria for successful implementation of strategic projects, were called upon to develop wide range planning for the city's communications management needs. Our firm planned and implemented all emergency management and support services facility improvements for this city with a population of more than one hundred twenty five thousand.

This client required the integration of all law enforcement and emergency management services with expert direction to the architect. Professional Systems Engineering, an NV5 Company, in-depth knowledge of law enforcement and justice criteria for successful implementation of strategic projects, were called upon to develop wide range planning for the city's communications management needs. Our firm planned and implemented all emergency management and support services facility improvements for this city with a population of more than one hundred twenty five thousand.

Our firm provided clear and concise assessments, implementation, and construction documentation for what was considered a "national technology standard." The Attorney General, made a formal visit to capitalize efforts achieved in combining a command center/mission critical environment in a major city. The high profile visit was broadcast on major news networks as an example of modern technology's reach into emergency management and police/safety operations.

- Full emergency management assessment
- Answer point call-center design
- Full construction documentation
- All technical specifications
- Communications/radio implementation
- Computerized dispatch
- Information management systems
- Call taker/hand-off design
- Full FF & E management
- RFP preparation
- Construction management services
- Commissioning responsibilities

Emergency Operations Management Services

Professional Consulting and Engineering Services

- Project Management
- Applications Design/Engineering
- Specifications
- RFP Preparation
- Bid Analysis
- Drawings & Bid Documents Preparation
- Site Surveys/Studies
- Compliance Audits
- Planning/Programmatic Development
- Construction Observation
- Certification Testing
- Training
- Operating Policies/Procedures Code Compliance
- Systems Analysis
- Code Review

Emergency Operations Planning

- Migration Plan/Project Schedule (Primavera)
- Procurement Assistance
- Installation and Acceptance testing Oversight
- Computer Premises Equipment (CPE)/ 9-1-1 Telephony
- Computer Aided Dispatch (CAD)
- Records Management System (RMS)
- Cabling and Grounding
- Specifications and User Requirements Review
- Fire/Emergency Safety Manuals
- Fire/Emergency Evacuation Graphics
- Communication Infrastructure

Emergency Operations (cont'd)

- LAN-WAN-RF Combined Media Distribution
- Structured Copper-Fiber-Coax Distribution Networks
- Access Control/Central Station/Homeland Security Center Operation Planning
- Computer-aided dispatch
- 800 MHZ Trunked Radio Design/Management
- Geographic and Jurisdictional Database Mapping Management with Call Dispatch Integration
- Remote RF Mobile Data via Fixed Terminal Equipment and PDA Installs
- Critical Electrical and Environmental Systems Analysis
- Life Safety Analysis
- RFP Procurement, Bid/Negotiation
- Construction Services

Communications Design

- 911 Call Centers
- Data/Telecom
- Computer Networking
- Video Conferencing
- Video Arraignment
- Digital Video Broadcast
- Multi-Media
- Audio/Visual/Video
- Acoustics
- Noise & Vibration Control
- Wide Area Networks
- Fiber Networks

Capital Complex and Five Cities in Commonwealth of PA – Design / Commission

Security Assessments & Capitol Police Command Center

📍 Harrisburg, Pennsylvania



Our firm has provided in-depth survey and security assessments, as well as design and engineering services for physical security, video surveillance, access control, and overall enterprise security monitoring and integration.

Professional Systems Engineering, an NV5 Company, provided statewide security upgrades at the Capitol Police Command Center and state-owned sites around the Commonwealth of Pennsylvania to be monitored by the Capitol Police at the IMCS Command Center. This project includes a total of 32 buildings in various cities across the state, as well as extensive coordination with various government agencies and stakeholders. Our firm has provided in-depth survey and security assessments, as well as design and engineering services for physical security, video surveillance, access control, and overall enterprise security monitoring and integration.

Capital Security Site buildings included the Agriculture Building and Agricultural Vet Lab. The facilities included three (3) Bio Security Level Labs. Assessed access control for personnel with multiple authorized credentials for a secured system to detect and track with an upgraded integrated system with card access, video surveillance system, the IMCS, and integrating all electronic security system technologies. This program consists of a review of the existing equipment, alternatives available for new technology and placement, and recommendations for new system characteristics, which were utilized in preparing an opinion of probable cost.

This project won first place in 2019 as an "Outstanding Engineering Achievement" by the Pennsylvania Society of Professional Engineers. The project included five cities, five million square feet under roof with thousands of cameras, card readers, and access-controlled doors.

Services Provided

Enhance Assessment and Study

- Existing electronic security systems
- Existing physical barriers
- Overall building security
- Statewide command and control center

Command and Control Upgrade

- Real-time viewing
- Complete electronic security system integration
- Redesign of command center
- Physical Security Information Management (PSIM)

Electronic Security Design

- Access control system and monitoring
- Video surveillance systems
- Security Intercom and communications
- Personal duress

Physical Barrier Controls

- Wedge barriers and popup bollards retrofit
- X-ray package screening
- Guard booths
- Vehicle control gates
- Real-time viewing

Niagara Falls Police and Courts

Security, IT & Court Technologies

📍 Niagara Falls, New York



The project consists of the design of a modern court facility for detention holding and police/enforcement. The Niagara Falls Municipal Complex is occupied by various departments including: courts and judicial, police, administration, and detention each having overlapping security and communications needs. The design/build project met strict funding requirements.

Professional Systems Engineering, an NV5 Company, prepared the Design Development Report to establish guidelines and a basis for the design of the integrated security systems; court technologies; communications infrastructure including video conferencing; and acoustics, noise and vibration control systems.

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Services Provided

Police and 9-1-1 Technologies

- 9-1-1 dispatch system consulting
- Police technologies integration
- Lighting controls

Security/Enforcement

- Screening area design
- Use of IP CCTV, access control, and Intercom allow for the sharing of communication backbones

Acoustics, Noise and Vibration Control

- Acoustical evaluation of proposed finishes
- Acoustics for courtrooms, offices and public areas
- Noise transmission evaluation of proposed wall construction
- Acoustical, noise transmission, and speech privacy evaluation performed

Court Technologies

- Touch screen A/V control system designed to simplify the operation of courtroom technologies
- Digital Matrix Audio Mixing
- Courtroom local A/V network supports the use of video streaming technology for evidence presentation
- Electronic verbatim technology

Data/Telecommunication and Video Networks

- VoIP Telephones allows reduction in back bone cabling requirements
- Fiber backbones provide high capacity connection
- Digital docket displays
- Jury Pool presentation system

Philadelphia Public Safety Services Buildings

Security, Tele/Data and Police Technologies

Philadelphia, Pennsylvania



Our firm has significant experience and understanding of current practices of law enforcement/public health in the designing public safety and public health facilities that provide specialize functions.

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Our firm provided security, tele/data, and police technologies engineering and design services for the City of Philadelphia's the new Philadelphia Police Headquarters (PPD), Department Public Health (DPH), and Medical Examiner's Office and Morgue (PMEO). Our firm has significant experience and understanding of current practices of law enforcement/public health in the designing public safety and public health facilities that provide specialize functions. The intent of this project was adaptive reuse of an existing of building into a state-of-the-art public safety campus that services the City's police and public health departments needs.

Services Provided

Security

- Access control Vehicle gates
- Video surveillance
- Intercom
- Visitor screening
- Vehicle gates
- Physical assessment ballistic rating windows

Police Technologies

- Evidence management
- Interrogation recording
- Integrations with GIS, PSIM, City Watch, and 911/CAD
- Physical Security Information Management (PSIM)

Tele/Data

- Structure cable system
- Analog & VoIP Infrastructure
- Data network
- Data center
- In building radio/distribution antenna system

Detention Control System

- Cell locking
- Sallyport controls
- Lighting control

Command Center

- Video wall
- Briefing room audio
- A/V Matrix switching
- Wireless presentation gateway

Radio

- In building City of Philadelphia 800 MHz radio coverage

Incident Command & Deployment Process



Incident Command Structure Design

The Incident Command System (ICS) has been the center of many activities regarding interoperability with the Department of Homeland Security. ICS is designed to be highly integrated, redundant, flexible and expandable so that a synergistic relationship occurs with all agencies and stakeholders responding during an incident. An Incident Command System includes a communications plan, an incident action plan, and all stakeholders responsive to the governance agreement through a cooperative effort.

An Incident Action Plan (IAP) is developed through the governance committee to identify jurisdiction in hierarchical order and stakeholders in response order. The communications plan uses the inventory of communications assets available that are visual, historical (surveillance), real-time (alarms), and verbal through wireless, radio, LAN, or landline communication.

The 12-Step Deployment Process

Communications equipment, infrastructure, and all their related support require phased implementation for satisfactory deployment of all communications equipment. Our firm employs a 12-step process that provides a thorough and complete solution set from inception through purchase and continuous validated operation.



Donald C. Cook Nuclear Power Plant

Security Threat Assessment & Critical Infrastructure

📍 Bridgman, Michigan



Under a tight timetable established by the Nuclear Regulatory Commission (NRC), Our firm adapted a 30-year-old nuclear security infrastructure to accommodate new technologies. This enhancement, in response to recent terrorist threats and attacks, established a higher level of ability to neutralize many threats perceived by the plant operators and security staff.

Professional Systems Engineering, an NV5 Company, performed threat assessment and risk mitigation studies and developed a conceptual design to upgrade the perimeter security systems and procedures for the Donald C. Cook Nuclear Power Station. The plant has the capacity to produce 1020 megawatts through the pressurized water reactors. The project included a site assessment and preparation of a report and conceptual design. Recommendations were made to modify protected area barriers, establish bullet-resistant defensive positions, replace the soil for stabilization, and upgrade intrusion detection system, CCTV system, and lighting. Our firm also prepared a detailed cost estimate.

Our firm developed a conceptual design to upgrade the vital area security system. The design included enhancement of vital area barriers, addition and replacement of CCTV surveillance equipment, and enhancement of the interior intrusion detection system. The design also included new conduit and cable, seismic supports, and interface to the existing security system and the existing CAS and SAS consoles.

Under a tight timetable established by the Nuclear Regulatory Commission (NRC), Our firm adapted a 20-year-old nuclear security infrastructure to accommodate new technologies. This enhancement, in response to recent terrorist threats and attacks, established a higher level of ability to neutralize many threats perceived by the plant operators and security staff.

Services Provided

Threat Assessment and Concepts

- Protected area barrier design
- New defensive position recommendations
- Vital area barrier design
- Upgrades to central and secondary alarm system consoles

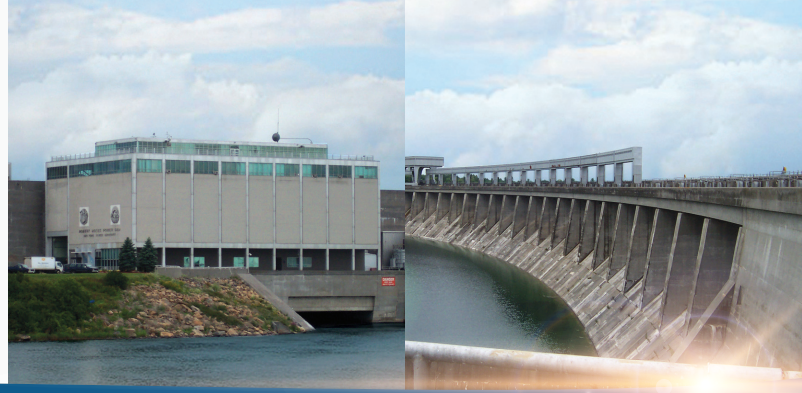
Critical Enhancements

- New CCTV surveillance systems
- Perimeter intrusion detection systems (PIDS) enhancement
- New critical infrastructure
- New entrance gate barriers and controls

NY State Hydro Power Dams & Clark Energy Center

Switchyard, Control Center & Intake Security Study & Design

📍 Massena, New York



Our firm provided a security study, reports, and design services to upgrade physical security at this critical power plant location.

Professional Systems Engineering, an NV5 Company, conducted a security study and implemented counter terrorist security deterrents for two dams, the 345kV/765kV high tension distribution Massena switchyard, and the water supply intake for the town of Massena, NY. A component of the study included cyber security for SCADA and telemetry systems.

The R.E. Moses Power Dam (FDR Power Project) is a critical power generation dam spanning the St. Lawrence River, and is shared with Canada. The Long Sault Dam is a critical water control dam on the St. Lawrence River, which is associated with the Moses Dam. The Massena switchyard is a critical feed to the NYPA electrical power distribution system. The study assessed the vulnerabilities of the facilities, documented the existing security measures, provided recommendations with alternatives, and provided a detailed construction cost estimate.

The Clark Energy Center is a major control center for electrical power distribution for NYPA and is manned 24 hours per day. The 345kV switchyard is a critical feed to the NYPA electrical power distribution system. The study assessed the vulnerabilities of the facilities, documented the existing security measures, provided alternatives and recommendations, and provided a detailed construction cost estimate. The CEC system interfaces with the existing NYPA system-wide security control center located approximately 125 miles away, which have remote control and monitoring capabilities of the CEC system.

Our consulting and specifications included:

- Perimeter barriers
- Intrusion detection
- Digital CCTV cameras
- Digital CCTV switching and recording
- Security lighting
- Interfacing with existing security power supplies
- Computer systems
- Security control center
- Cyber security analysis

Clifton T. Perkins Hospital Center (CTPHC)

Data Center Design, Electronic Security and Communications

📍 Jessup, Maryland



Clifton T. Perkins Hospital Center (CTPHC), a maximum security facility, is referred to as Maryland's forensic psychiatric hospital, housing one of the most violent populations of any state. The phased implementation of security renovations offers the ability to conduct business as usual while upgrades are completed.

Clifton T. Perkins Hospital Center (CTPHC), a maximum security facility, is referred to as Maryland's forensic psychiatric hospital, housing one of the most violent populations of any state. Professional Systems Engineering, an NV5 Company, provided design and consulting services for renovations and a new housing unit addition to the hospital. Complete digital data center redesign and deployment of all equipment including servers, telecommunications, and monitoring systems were required. Also included were upgrades to the security electronics, control system, master control center, perimeter security, and communications infrastructure.

Our firm was asked to continue extended construction services and include acting as commissioning review agent for the State of Maryland's Department of General Services (DGS) and the Department of Health and Mental Hygiene. The phased implementation of security renovations offers the ability to conduct business as usual while upgrades are completed.

Services Provided

Security Commissioning

- Security Touchscreens
- System servers/UPS
- PLC controls/interface
- Systems integration
- Card access implementation
- Master control center
- Housing control center

Control and Monitoring

- Multiple touchscreen workstations
- Master control center
- Nurse control center workstations
- Sallyport and gate controls

CCTV

- Digital CCTV
- Networked video control and monitoring
- Secure digital video archive storage
- Virtual monitoring throughout the facility

Integrated Systems

- PLC control system
- Access control system
- IP-based CCTV
- Intercom/paging system
- Intrusion detection
- Wireless staff duress

Communications

- New data center designs for a "Digital Control Center"
- Fiber optic network
- Structured cabling system
- CATV, data, and telephone interfaces

Communications Commissioning

- Digital security intercom
- Automated security integration
- Digital video storage networks
- Migration to new server room
- Paging/emergency call
- Wireless duress integration

NG911/EOC/Fusion Command Control and Dispatch Center Planning



Project Goals – Addressing Needs of Stakeholders

- **Business Process Modeling** – the first step is establishing agency and stakeholder hierarchy and developing strategies for various emergency responses and scenarios, as well as distribution of tactical command and operation posts within the “situation room.” Included must be preliminary evaluation of needs for policies and procedures and the technical resources available for full implementation.
- **Master Planning** – The second step is developing concept designs for primary and secondary/fallback areas with a tactical analysis of all available communications, infrastructure and management/control systems in place or expected.
- **Final Program Development** – After Master Planning, a conceptual budgetary estimate can be established along with the different alternatives. The program will identify the particular choice made by the owner/authority and designated for operation at opening. The program will identify the specific needs, identify all infrastructure requirements and room accommodations through a space program, and finalize concepts, goals and strategies for documentation and design of the planned changes and modifications. This is the first phase of consulting services and is ultimately the most important.

Command/Control/Communications/Dispatch Centers Our firm Identifies Specific Needs of the Facility and its Roles After Finalizing Concepts, Goals, and Strategies for Documentation and Design of Planned Changes and Modifications Including:

- NG911/311/811 centers
- Integration of geolocations, radio, call logging, and hazard
- Incident command centers
- Situation, press, and composure rooms
- Crisis command and communications
- Command/control requirements
- Emergency management
- Integrated wireless mesh
- Hardened operations centers
- VoIP/cellular/trunked radio dispatch
- Unified command/fusion center
- SCADA/PLC/Mesh-IP integration
- Remote incident command
- Security/surveillance control rooms
- Cyber security framework
- Structured cabling
- Outside fiber/copper plant

CITGO Petroleum - North American Headquarters

Physical Security Risk Assessment & Engineering

 Houston, Texas



This report provided a high level, management oriented discussion and analysis of existing security program. The end result was a detailed analysis of threats, vulnerabilities, mitigation alternatives and estimates of offsetting risks.

Professional Systems Engineering, an NV5 Company, provided a physical security risk assessment for the North American Headquarters Building located in the City of Houston, Texas. The major objectives of the assessment were to determine the current risk to CITGO, evaluate the existing security program, and recommendations for improvements.

This report provided a high level, management oriented discussion and analysis of existing security program. The end result was a detailed analysis of threats, vulnerabilities, mitigation alternatives and estimates of offsetting risks.

The objectives of the study:

- Analyze the security requirements and present a standard for security
- Assess the adequacy of existing security systems
- Provide recommendations for improvements
- Provide a cost and benefit analysis of alternative

The engineering designs included:

- Integrated enterprise level card access
- Smart card implementation
- Hydraulic barriers
- Iris reader for high security with independent biometric access
- Secure man-trap revolving entrances

Delaware County Emergency Services

Emergency Operations Center Consulting & Design Coordination

📍 Delaware County, Pennsylvania



An Emergency Operations Center (EOC) is a complex facility that serves as a nerve center during both small emergencies and large disasters. Our firm's EOC designs employ the latest state-of-the-art technology, to provide flexibility and technological resources to manage an incident effectively while keeping the operation simple and easy to manage.

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Our firm provided consulting and design coordination services through the Pennsylvania Emergency Management Agency (PEMA) providing an Emergency Operations Center fit out to meet the needs of Delaware County, Pennsylvania in the event of a local, state, or federal emergency. The goal was to provide the capability of a scalable response to incidents ranging from small-scale fires and accidents to a countywide disaster response. By using the latest state of the art design, the Our firm design allowed for the phased sequential escalation of response based on the requirements of the incident. This approach followed the Delaware County (DelCo) EOC Renovation Theory in that it separated the Unified Command group from the Operations and Planning group and the Logistics and Finance group. Senior elected officials are sequestered from the Command group. News media and some liaison groups are separated from the remainder by keeping them in a briefing area thus allowing for better management of the incident.

The following rooms were utilized for the deployment of multimedia and communications technology: Privacy and Sequestering Room, EOC First Stage Activation Room, Unified Command/Joint Command Group Room and the EOC Full Activation Room. A multimedia control and feed was also provided to the DelCo 9-1-1 Emergency Response Center within the facility.

Services Provided

Multimedia Management System

- Multiple touch screen A/V controllers
- Live broadcast feeds
- Internet broadcast beeds
- Multimedia switching capability
- Voice and data distribution
- Large flat LCD screen and multimedia projection displays
- Fixed and mobile video conferencing system

Tele/Data Infrastructure

- Equipment rack layouts
- Structured cabling and conduit
- Ethernet and Wi-Fi switch deployment
- Wireless laptop cart system
- UPS system
- Systems integration

County of Delaware: Government-wide Facilities

Enterprise Security Planning & Design/
Construction Services

 Delaware County, Pennsylvania



After a complete facility review with the sheriff and the Administrative Office of the Courts Division, Our firm implemented a multi-phase, government-wide, restructuring of access and security for many of the County's facilities.

One-by-one, each site became better equipped to function operationally while securing public, staff, law enforcement, and those held in a diversity of custody/detention situations. The County remains an active client after more than 35 years.

The County of Delaware, in 1986, was one of the first counties in the country to pursue "government-wide" security vulnerability and threat defense implementation of security operational and access requirements for its buildings. This increased alignment of departments, improved public access in secure environments, and even today meets the requirements of homeland security since the events of 2001.

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Services Provided

Justice Center/Government Buildings, Court House, 9-1-1 Center, and Sheriff

- Facilities assessment
- Complete electronic renovations to courthouse and government agency buildings (renovation of an existing 48,690 sq. ft., 4-story building with the construction of an additional 28,776 sq. ft. building)
- Audio, CCTV surveillance, security intercoms, duress alarms, master control center, card access, and parking control
- Judges' chamber protection system for 120,000 sq. ft. facility

Tele/Data Infrastructure

- Equipment rack layouts
- Structured cabling and conduit
- Ethernet and Wi-Fi switch deployment
- Wireless laptop cart system
- UPS system
- Systems integration

Orphans (Domestic) Courts

- Full assessment of department alignment
- Policy and security project implementation

County of Delaware: Government-wide Facilities

Enterprise Security Planning & Design/
Construction Services

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(continued)

All Magistrate Buildings/Offices

- County-wide security/panic systems

Juvenile Detention Center

- Facilities assessment
- Needs/space analysis
- Facility expansion planning
- Development of department policies, procedures, and post orders
- Master planning, design, and engineering
- Fencing, central control, and communications
- Site security, central control, and emergency procedures
- Transition team – policies and procedures
- Life Safety improvements

Secured Parking

- Judges secured parking for additional privacy and control with direct courts card access
- Administration and staff underground parking in totally secured 80,000 sq. ft. automatically controlled facility

Security/Network Technology

Our firm has extensive experience providing complete Tele/Datacom infrastructure and information technology assessments, systems planning, design and engineering services.

Wireless Data/Voice Systems

- Wi-Fi
- WiMAX
- Cellular Data
- Microwave Systems
- 700/800/900 MHz

Wireless Network Applications

- Mesh Networks
- Point-to-Point
- Wireless Backhaul
- Wireless LAN/WAN
- Hot Spots
- Wireless Network Infrastructure

Wireless Network Security

- Autonomous Access Points
- Lightweight Access Points
- Wireless Network Switching
- Wireless Network Management
- Rogue Access Point Client Detection

Data Network Types

- LAN
- WAN/MAN
- High-rise Fiber Networks
- Multi-Building Campus Nodes

Network Communication Security

- VoIP
- Unified Messaging
- Video Conferencing
- Video Delivery and Storage

Data Center Security

- Storage Networking
- Data Back-up Systems
- Critical Power Systems
- Network Monitoring
- Server Consolidation
- VLAN Coordination
- Legacy Systems Migration
- Visualization of Servers

Infrastructure Security

- Cable Monitoring
- Structured Cabling
- Campus Wide Infrastructure
- City/County Wide Infrastructure
- Microwave Links
- Aerial Cabling Systems
- Ductbank Systems

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 provides 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 provides 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 firm 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 allows for the addition of energy-saving functionality such as energy management, lighting control, and load shedding.

Our firm's 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

Philadelphia Naval Business Center

Telecommunication System Assessment Study & Master Plan

 Philadelphia, Pennsylvania



PNBC continues to be developed into a modern business campus with facilities for shipbuilding, industrial manufacturing, warehouse/ distribution, intermodal yard, and office tenant spaces. With 2,000 acres, the client required data and tele-communications infrastructure to replaced aging copper pairs buried in marine environment manholes pressured with nitrogen and built in 1942.

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Professional Systems Engineering, an NV5 Company, developed a Master Plan for a campus-wide Tele/ Data Communications Service Distribution System at Philadelphia Naval Business Center (PNBC), site of the former Philadelphia Naval Ship Yard.

The purpose of the Master Plan was to provide guidelines for continued improvements and reconstruction of the campus-wide Tele/Data Communications Service Distribution system. The Plan details existing services, infrastructure and cable, proposed new infrastructure and cabling, and alternative solutions to meet both short- and long-term telecommunications service distribution needs at PNBC.

Services Provided

- Assessment of the existing telecom system
- Assessment of the duct bank system
- Survey of abandoned utility systems for modernization of the telecom cabling pathways
- Prepare an RFP for telecom testing
- Develop solutions for various telecom services outage issues
- Design of new fiber infrastructure
- Rodding of all maritime environment duct banks
- Utility mapping services
- As-built configuration
- Coordination with Verizon outside plant engineering
- Model design for fiber services
- Outside fiber plant design for tenants

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 team of Our firm 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.

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