It’s a win-win.” You hear that a lot when government officials describe projects they helped lead, often with other government entities, the nonprofit world or the private sector. And while the phrase has turned into a cliché, it is apt to characterize many partnerships between military installations and their host communities. The projects chronicled in this report are true partnerships in that they provide benefits — and require commitments — from both the military and community entities involved.

For the community half of these partnerships, the primary benefit is the opportunity to promote economic development, either as the driving force behind the collaboration or as a secondary benefit. In Northwest Florida, the Greater Pensacola Chamber had been eyeing a formerly remote auxiliary Navy landing field as a candidate site for redevelopment after a highway interchange was built nearby and a business park next door began to grow. The chamber’s proposal to find Naval Air Station Whiting Field a replacement outlying landing field unencumbered by encroaching development was intended to benefit the Navy’s training mission, particularly by enhancing its ability to conduct night vision training.

Similarly, the Navy’s decision to grant a 99-year lease for its 15-acre Broadway Complex on San Diego’s waterfront to a developer in return for the construction of a 17-story headquarters building offered the city the chance to revitalize the North Embarcadero area on San Diego Bay that had become blighted in recent decades.

In Dayton, Ohio, a variety of local entities focused on economic development worked with the Air Force Research Laboratory and the Wright Brothers Institute, a nonprofit partner of the Lab, to create a collaborative workspace within the city’s nascent innovation district to open up new avenues for the civilian research community and commercial sector to interact with the Lab’s scientists. The shared research space, which opened in May 2017, already appears to be fulfilling its aim of driving innovation and technology commercialization, creating new applications for the Air Force and advancing regional economic growth.

In northwest Oklahoma, the effort by state and local officials to open up the lines of communications between Vance Air Force Base and wind energy developers was intended to protect the low-level military training routes used by Vance Air Force Base and other nearby installations conducting pilot training throughout the region. But as Oklahoma has become one of the leading states for wind energy generation, the initiative has helped developers avoid committing significant resources to projects that conflict with flight training.

Of course, not every military-community partnership is aimed at boosting the local economy. Often, a problem arises affecting an installation’s operations and its host community strives to find a solution. The real trick in these cases is identifying the problem in the first place. When long-standing congestion issues at Redstone Arsenal’s main gate began to worsen in recent years, the Tennessee Valley BRAC Committee rallied its members to finance and carry out a $12.9 million fix. The solution to the bottleneck was clear but required financial contributions from the state, Madison County, the
developer and a tenant of an enhanced use leasing project located near the entrance, and other local entities.

In other cases, there are no apparent challenges. But that doesn’t mean the effectiveness of a base’s operations or missions can’t be improved. By integrating a number of cutting-edge technologies, Booz Allen Hamilton developed a prototype, 3-D visualization model for a military base which allows public works staff to monitor most installation management functions, including property management, construction execution, energy usage and land use planning. By aggregating data collected from drones outfitted with cameras and other sensors, this “digital twin” facilitates scenario planning for a wide range of applications, such as new construction, facilities sustainment, and energy efficiency and resiliency investments.

Another aspect of installation-community partnering is worth noting — the long timeline for projects to reach fruition. The land swap Escambia County, Fla., carried out with NAS Whiting Field is the realization of a “20-year ambition.” The in-kind lease transaction between Navy Region Southwest and the Manchester Financial Group was originally conceived more than 30 years ago. “We’ve been waiting to see this happen since ’85; we thought it was a really good idea back then,” Eli Sanchez, a senior project manager for Civic San Diego, said as the project moved closer to breaking ground.

Northwest Florida

Navy Enhances Training Capabilities, County Builds Economic Base under Land Swap

As a residential neighborhood and a business park sprouted around a formerly remote auxiliary Navy landing field following the construction of Interstate 10 through Escambia County, Fla., officials at the Greater Pensacola Chamber realized it would be worth looking into the possibility of finding the Navy an unencumbered site for helicopter training and redeveloping the existing facility.

Finding a replacement for Naval Air Station Whiting Field's Outlying Landing Field 8 (OLF-8) could provide a clear benefit to the installation's training mission, particularly by enhancing its ability to conduct night vision training. The fact that Whiting Field was located in an adjacent county was irrelevant; NAS Pensacola may be the primary concern for the chamber, but helping a sister Navy training base on Florida’s Gulf Coast isn’t far behind.

At the same time, OLF-8 presented a prime opportunity for economic development. It was adjacent to an interchange of I-10, which ran by its northern boundary, and the first tenant of the business park the county was developing next to the site, Navy Federal Credit Union, was poised to expand.

But initially the Pensacola Chamber put the initiative on the back burner as it was “not an easy lift,” said Craig Dalton, who was the chamber’s vice president of armed services from 2005 to 2015. The project finally emerged from the organization’s list of priorities around 2005 when it formed an ad hoc committee to explore the mechanics of carrying out a land swap with the Navy. Some of the chamber’s members then identified a candidate site to replace OLF-8 within Escambia County, but they were unable to close on the property. The exercise then was placed on hold.

Proposed improvements for the second phase of construction of the replacement outlying landing field in Santa Rosa County, OLF-X.

“It was a sort of dry run [for the subsequent effort],” said Scott Luth, CEO of FloridaWest, the economic development arm for Northwest Florida. Luth had been the chamber’s vice president of economic development prior to 2015 when that mission was spun off from the parent organization.
Still, the initiative remained a priority and the chamber revisited the issue in 2011, partially due to the rapid growth of the Navy Federal Credit Union campus, said Luth. While the credit union facility initially was intended to serve as a call center and provide back office support, it soon expanded into a regional headquarters. The chamber formed a new committee to ascertain the Navy’s level of interest in exchanging OLF-8 for an alternate site that fully met its training needs into the future. Soon after, the Navy replied, informally, that it was interested in participating in such an arrangement, allowing the chamber to move forward on a possible joint effort with the Navy.

A special committee formed by the chamber then began looking for candidates to replace OLF-8 based on the dimensions and other requirements outlined by the Navy.

“There really was no template for this,” Dalton said, referring the lack of precedent for trading parcels with the military. To make up for the lack of any formal agreement with the Navy at that point, the chamber engaged in a series of informal discussions with officials to ensure it was proceeding in line with their wishes. For example, the committee needed to know how close the replacement OLF should be to Whiting Field. OLF-8 was 32 miles away and the committee wanted to know if it could consider closer sites in Santa Rosa County, the home of Whiting Field.

The Navy indicated a closer site would be better, Dalton said. “So it was a partnership all the way through,” he said.

Within a year, the chamber identified a 640-acre tract in central Santa Rosa County that satisfied all of the critical specifications — it was remote, a 1 mile by 1 mile square, free of wetlands and only 16 miles from Whiting Field. The committee believed that reducing the distance aircraft would need to travel to the training field would be a significant advantage for the Navy given the high cost of fuel at the time.

“A lot of work went into it, but also a lot of luck,” Luth said of the effort to find a suitable OLF replacement. It was perfect timing that a timber company had been trying to sell the property, he noted. In retrospect, finding the new OLF site was “the big hurdle” in making the exchange successful, Luth said.

Committee members then secured an option to purchase the site, a transaction which Escambia County completed in December 2013 for about $2 million. The county also spent about $430,000 on administrative fees and environmental surveys.

On a separate track, the chamber worked with its congressional delegation and the Navy to include language in the fiscal 2016 defense authorization bill permitting the contemplated exchange. It wasn't clear the Navy could participate in the land swap without congressional authorization, Dalton said. The language also provided the county confidence the swap would go ahead, he said.

With the new site, OLF-X, now under Escambia County’s control, the county took over responsibility for the effort from the chamber. The county and the Navy then negotiated a transfer agreement that outlined the improvements the county would carry out to transform what had been a stand of pine trees into a fully functioning OLF. The intent was for the Navy to stop training at OLF-8 at a predetermined date, turn it over to the county and start using the new site the next day, said Luth.

As of December 2017, the county had finished clearing and grading the new site, installing fencing and planting grass. The second phase of construction — building an entrance road, runways, helicopter landing areas, an observation tower, a refueling station, firefighting facilities and other infrastructure — is scheduled to be completed in November 2018, at which point the transfer would be completed and the exchange would be official.

Escambia County has not yet begun the master planning process for OLF-8, but the reuse plan likely will call for a mix of retail, commercial, office space and some light manufacturing. “A true mixed-use commerce park. … The exact mix has yet to be determined,” said Luth. “We plan to receive a tremendous ROI [return on investment],” he said.

When the land transfer is completed, “a 20-year ambition” of the Greater Pensacola Chamber will be achieved, said Dalton. “It was a humongous win-win for us as a community,” he said. Beyond offering a huge economic opportunity for Escambia County, the land swap significantly upgrades training capabilities for Whiting Field, especially night vision training. “We feel like that’s a home run.”
Dayton, Ohio

Shared Research Space Promotes Tech Transfer, Economic Development

A newly created collaborative workspace in downtown Dayton, Ohio, is opening up new avenues for the civilian research community and commercial sector to interact with scientists at the Air Force Research Laboratory (AFRL), driving innovation and technology commercialization in the pursuit of new applications by the Air Force and regional economic growth.

The initiative's partners — AFRL, which is headquartered at Wright-Patterson Air Force Base outside of Dayton; the Wright Brothers Institute, a nonprofit partner of the Lab whose primary aim is to promote technology transfer; and the Dayton region's economic development community — established Project 444 within the city's nascent innovation district to leverage the region's research assets and take advantage of non-traditional partners. The research space opened in May 2017 and is named after its street address.

"Project 444 is a place where really important collisions occur," said Scott Koorndyk, president of The Entrepreneurs Center (TEC), an innovation accelerator that leases half of the facility's main floor. Examples of interactions at the workspace that otherwise might not occur include meetings between AFRL researchers from different offices, a small business and an AFRL researcher, or two startups, Koorndyk said. TEC runs the Technology Acceleration Project, which is sponsored by AFRL and designed to foster the transfer of technology from the Lab to commercial markets.

The workspace provides an extension of AFRL into the community, he explained. "It gives us access to the brightest technology minds that exist at AFRL [and] the network they interact with," Koorndyk said. Equally important, Project 444 provides a new way for startups and small businesses to interact with the Lab's scientists and managers, offering better insight into their mission needs. "Those two things are all catalytic from an economic development and innovation perspective," he said.

Much of the promise that Project 444 offers starts with the Wright Brothers Institute (WBI), an organization established by the Dayton region in 2002 to support AFRL's mission by playing an intermediary role with the civilian research community and the entrepreneurial sector in the areas of technology transfer, innovation and workforce development. Since then the Institute has furthered collaboration among AFRL, academia and industry in an effort to spur the commercialization of technologies for new market opportunities.

"WBI is ultimately the front door for us in accessing talent at AFRL and Wright-Patterson Air Force Base. It's very difficult in a community to interact as directly as you need to [with DOD] unless you have that neutral broker," Koorndyk said.

The idea of developing a shared research space for military and civilian researchers, academia and the business community to collaborate grew out of a desire by AFRL's director to try new ways to drive innovation and technology commercialization, said Bill Harrison, the Lab's director of small business. The effort represented the natural outgrowth of the long-standing relationship between the Lab and WBI, added Koorndyk. "The best work you do is in proximity," he said.

Locating the facility within Dayton's innovation district offered an opportunity to operate within a vibrant live/work/play setting with an emerging entrepreneurial culture that would be attractive to a younger workforce, Harrison said. "We wanted to go where the people are," said Harrison, so the decision was made to go downtown. Project 444 occupies the site of a former printing press built after the Great Dayton Flood of 1913.

The Dayton Development Coalition, the region's economic development organization, worked to pool community
support needed to bring the initiative spearheaded by AFRL and WBI to downtown Dayton. The Coalition leveraged support and incentives from JobsOhio, which contributed a $100,000 revitalization grant, along with Montgomery County, the city of Dayton, TEC and the Downtown Dayton partnership. “Seeing everyone work together to bring this project to reality is indicative of the type of public-private partnerships we have come to recognize as a normal way of doing business here,” said Jeff Hoagland, the Coalition’s president and CEO.

To realize the initiative’s aims, the partners host a variety of events to connect government and academic researchers with the private sector. The Small Business Hub — a collaboration between AFRL and WBI to link entrepreneurs, industry and the public sector, and support tech-driven business growth — regularly hosts “colliders” to promote discovery or simply offer resources and information for startups. More recently colliders have grown into full-day events encompassing discussions about new technologies, investor pitches by entrepreneurs and time for co-working, explained Jim Heitner, WBI’s director of commercialization.

Problem forums, which can last up to a week, explore a particular national security or public safety challenge and can focus on early definition and understanding of an issue, or identifying solutions or potential approaches to solving the problem. Innovation and commercialization forums are intended to seek applications for newly developed technologies that will support DOD and create new markets.

The Summer of Innovation 2017 brought 11 teams of professors and graduate students over three months to the project’s collaboration space to study different aspects of cybersecurity for unmanned systems, a challenge identified by AFRL. The resulting “collisions” that occurred among Air Force scientists, academic researchers and startup firms represent the kind of collaboration Project 444 aims to achieve, Heitner said.

It’s still early in the life of Project 444, but indications to date underscore that the initiative is meeting its goal of providing an opportunity for AFRL researchers to come out from behind the fence line and work with local talent. These types of interactions are the precursors to innovation and technology commercialization, Koorndyk said. “Over time, we expect to see firms pop up,” he said. More and more, added Harrison, Project 444 is being recognized as a location for collaboration by researchers and companies who have never worked with the federal government previously.

Northwest Oklahoma
Balancing Energy Development and Military Training

The state of Oklahoma has quickly become one of the leading states for wind energy generation, attracting $12 billion in investment over the past seven years. Much of that growth has occurred in northwest Oklahoma, where the presence of turbines reaching up to 400 feet have the potential to threaten many of the low-level military training routes used by Vance Air Force Base and other nearby installations conducting pilot training throughout the region.

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 installation of a turbine being completed at the Chisholm View wind project in northwest Oklahoma.

But since 2010 state and local officials, who consider airspace Oklahoma’s No. 1 military asset, have worked to open up the lines of communications between Vance
and wind energy developers to address possible conflicts with flight training in the early stages of the development process. The goal of planning officials is simple — to bring both sides to the table before a developer commits significant resources to designing and acquiring land for a new wind farm, explained Mike Cooper, the long-standing military liaison for the city of Enid. By ensuring that level of openness, “we’ve eliminated a lot of the problem,” said Cooper, who also is chairman of the Oklahoma Strategic Military Planning Commission.

One of the primary difficulties for developers is that the location of military training routes is not readily available to the public. Cooper recounted his initial experience bringing together a developer and officials at Vance. After learning from an Air Force official assigned to the Federal Aviation Administration that a proposed wind farm would interfere with low-altitude training corridors used by Vance, Cooper set up a meeting at the installation with its airspace management office and the CEO of the project’s developer. At the meeting, the CEO quickly discovered the proposed wind farm was right in the middle of one of the installation’s low-level training routes. The developer was shocked to learn about the conflict, as the project was located in a rural area 100 miles west of Vance in northwest Oklahoma, Cooper said.

Following a discussion with Vance officials, the developer agreed to move the project outside of the flight corridor. “They were able to develop the whole farm; they just moved it outside of the military training route,” Cooper said.

When a conflict arises, the Air Force typically is willing to make some concessions, he said. For example, although training routes can be up to 10-12 miles wide, the service may allow a wind project to block a portion of a route as long as aircraft still have a pathway that is at least four miles wide, or possibly wider depending on the type of aircraft using the route. The service won’t exclude any more airspace from potential hazards than necessary, Cooper said.

**Reinforcing the Regional Effort to Protect Airspace**

Vance’s flexibility is key to the region’s success in balancing the needs of the wind industry with military operations, emphasized Brent Kisling, executive director of the Enid Regional Development Alliance. “Typically in government it’s easier to say no, but they’ve always been willing to work with developers trying to find a way to say yes,” Kisling said.

The region first brought prospective wind energy developers, local officials and the Air Force together for an event in Enid about seven years ago. The event highlighted the availability of wind resources in northwest Oklahoma as well as the importance of clear airspace to Vance, Kisling said. Keeping the military training routes used by Vance free of obstructions is a high priority because the installation is used for initial pilot training. Two other nearby Air Force bases that conduct pilot training — Altus in southwest Oklahoma and Sheppard in Wichita Falls, Texas — share some of Vance’s routes as well.

Despite the high level of collaboration between wind developers and the Air Force in northwest Oklahoma, some wind farms have been built within low-level military training routes that affect pilot training. In some cases, developers have declined Vance’s request to move or terminate a project. But in other cases, the presence of turbines within training corridors is the result of an accommodation the installation made on behalf of a developer. “It doesn’t mean a developer did something wrong,” Cooper said.

To ensure the Air Force’s training corridors can be protected going forward, Cooper has been working with the DOD Siting Clearinghouse, American Wind Energy Association, Wind Coalition and the state Legislature to craft a measure delineating the areas which would be off limits to development — namely, military training routes,
approaches and departures at military airfields, bombing ranges and drop zones. “It’s not really about permitting,” he said. The aim is to let developers know where they can build without creating a conflict with military operations.

“If you continue to degrade the training capabilities, [the Air Force] won’t be able to train,” Cooper said.

Developers Want to Know What’s Up

Still, the simple step of having developers sit down with Vance’s airspace management office early in the planning process clearly is working. Two wind projects in the last quarter of 2017 were abandoned because of conflicts with the installation’s training routes; another was moved to a different location. “That’s why you have the meeting upfront,” Kisling said.

The experience of Tradewind Energy, the first company to develop a wind farm in the region, bears that out. In 2010 during the planning stage for two projects in north central Oklahoma, Tradewind met with Vance officials to find out if the wind farms would pose any adverse impacts on military training, said Heath Herje, the firm’s senior development director. As a result of those discussions, the installation issued “no objection” letters for both projects, which began operating in 2012.

More recently, the company met with Vance about a project near the installation after it filed a plan with the FAA. At that point, Tradewind learned Vance officials were concerned about the potential for the turbines to interfere with the base’s radar. “They were concerned about cumulative radar effects more than anything else,” Herje said, rather than a conflict with their low-level training routes. Tradewind then voluntarily abandoned the project. “In this case, we felt like because they had been so accommodating with us in the past, [it made sense] not to crowd them,” he explained.

“The process that is in place works very well,” Herje said. “We want to deconflict early; we want to know [about prospective issues] before we spend millions of dollars developing these projects,” he said.

There’s no secret to the success state and local officials in northwest Oklahoma have achieved balancing the needs of the wind industry and Vance’s operational requirements. “It’s the trust in communication … letting the other person see your cards,” Kisling said.

Huntsville, Alabama

Region’s Broad-Based Support Relieves Traffic Issues at Arsenal’s Main Gate

When long-standing congestion issues at Redstone Arsenal’s main gate began to worsen in recent years, the regional support group for the post rallied its members, along with the state of Alabama and the developer and a tenant of an enhanced use leasing (EUL) project on the arsenal, to finance and carry out a $12.9 million fix.

Congestion at Gate 9 — which is located on the arsenal’s north side and is used by one-half of the arsenal’s 43,000 workers — had been a problem for almost two decades, causing traffic to back up onto Interstate 565 and presenting a safety concern. The problem stemmed from the short distance, about 2,000 feet, between the I-565 interchange with the entrance road and the gate, said Craig Northridge, chief of the garrison’s master planning division.

Growth at Redstone Arsenal following the 2005 BRAC round significantly increased traffic using Gate 9, especially as many of the newer workers lived west of the post. The problem was exacerbated as the EUL project, located on both sides of the entrance road close to Gate 9, got off the ground in 2008. The Redstone Gateway, which is now home to about 1,700 workers, added to the number of cars heading toward Gate 9 and also required drivers to weave among lanes, Northridge said.
By 2014, the bottleneck at the arsenal's entrance and the resulting backups onto the interstate had emerged as a major issue that needed to be addressed. As had occurred in the past when the installation had an unmet need, the problem fell into the lap of the Tennessee Valley BRAC Committee, a coalition of about 15 communities in northern Alabama and south central Tennessee which aims to promote the arsenal. The committee had similarly spearheaded the local effort to replace the installation's general officer quarters beginning in 1995, said Joe Ritch, who has served as the committee's chairman for the past 23 years.

Planners at the installation had already come up with the solution to the bottleneck at the entrance — moving the gate back farther onto the post — as they had included such a requirement in the lease agreement with the developer of the Redstone Gateway, Corporate Office Properties Trust (COPT). Around the time the garrison was negotiating the lease with COPT, however, the Army issued new standards for access control points. As a result, the estimated cost of the project jumped from about $3 million to a minimum of $20 million, Northridge said. Garrison officials realized it would be almost impossible to obtain congressional appropriations to cover the difference and designed a new entrance that satisfied more than 90 percent of the new requirements but would cost much less than $20 million. Ultimately, the garrison designed a new entrance 4,000 feet farther back at a cost of $12.9 million.

With the garrison's original cost estimate in hand, Ritch had a good idea of how much money the community would need to raise. And then he went to work. COPT contributed $2.5 million and Madison County, the home of the arsenal, contributed $1 million. A fortuitous encounter with the chief of staff for then-Alabama Gov. Robert Bentley (R) unlocked $2.3 million in state funding, Ritch said. The Poarch Band of Creek Indians, who owned a hotel at Redstone Gateway, offered $1 million. “They surprised us,” he said. Smaller contributions came from other local entities, including some from those on the other side of Alabama-Tennessee border. The Army provided in-kind contributions, beyond designing the new gate, to the effort as well.

In talking to potential donors, Ritch said he emphasized that Redstone Arsenal is a region-wide asset and a critical economic engine that depends on community support to succeed and grow.

A key supporter of the Gate 9 initiative was the Huntsville/Madison County Chamber of Commerce. Most of the meetings to organize the project were held at the chamber's offices, as the Tennessee Valley BRAC Committee can best be described as “virtual” organization without any dedicated facilities. While the Huntsville Chamber and the BRAC Committee both consider the arsenal "the center of our universe," the committee was better suited to lead the initiative because of the need to appeal to the broader region surrounding the arsenal rather than just one or two communities, Ritch explained.

By 2017, the BRAC Committee had raised most of the required funding but it was still short by $1.3 million. But Gov. Kay Ivey (R), who succeeded Bentley following his resignation in April 2017, provided the last tranche. The new gate, with six lanes, opened in July 2017. Construction of two additional lanes is scheduled to begin in the spring of 2018.

From the time it was first conceived, the project took almost three years to complete, considerably longer than had been anticipated, Ritch said. One factor explaining the protracted timeline was that local entities and the Alabama government had not included the necessary funds in their spending plans.

On the other hand, the project had a leg up because of the region’s initiative to replace the arsenal’s general officer quarters two decades earlier. That effort led Huntsville to create a special entity in 2002 that the BRAC Committee relied on to carry out the Gate 9 project, simplifying the process this time around, said Mike Ward, the Huntsville Chamber's senior vice president for government and public affairs. Huntsville's Federal Building Authority, which required state law to be changed, provided an administrative mechanism to manage the funds that were raised and hire a construction company.

Beyond providing a conduit to control the funds contributed by the project's donors, the Federal Building Authority provided other advantages that helped save money. For example, the authority is exempt from regulations requiring contracts to be publicly solicited, Ritch said. After four months, the new gate has alleviated congestion and cars waiting to enter the arsenal no longer back up onto I-565. One way to measure the impact is the sharp drop in negative comments the arsenal has received since the new gate opened, Northridge said. “[That’s] because there’s more room to breathe [now],” said Joe Davis, the garrison’s director of public works.
Colorado Springs, Colorado; Oklahoma City, Oklahoma

3-D Visualization Enhances Decision-Making for Asset, Energy Management

By integrating a number of cutting-edge technologies, Booz Allen Hamilton has developed a prototype, 3-D visualization model for a military base which allows public works staff to monitor most installation management functions, including property management, construction execution, energy usage and land use planning.

The model, developed for the Air Force Civil Engineer Center, tracks current conditions using unmanned aerial vehicles (UAVs) and other autonomous data collection platforms outfitted with cameras and other sensors, and employs data analytics to quickly detect anomalies. By aggregating data from a multitude of sources, this “digital twin” facilitates scenario planning for a wide range of applications, such as new construction, facilities sustainment, and energy efficiency and resiliency investments.

“We are infusing technology to support installation management,” said Troy Gonzalez, a chief engineer for Booz Allen.

On one level, the building information model can be viewed as a way to automate many tasks associated with portfolio management, including facility inspections and other types of data collection, that currently are carried out manually. The model relies on UAVs and other autonomous platforms — such as ground vehicles and submersibles — equipped with sensors to collect the data. Sensors can capture imaging in multiple ways — video and photographic, thermal, spectral and through LIDAR. While DOD now must send out an inspection team to physically evaluate structures, these technologies allow an installation’s infrastructure to be assessed in a single UAV flight.

But the model is not just a labor-saving tool, Gonzalez said. Cloud computing and advanced data analytics offer DOD the ability to identify anomalies and trends needed to support decision-making. The military collects a lot of data about the current use of facilities, but doesn’t have a clear picture of how its facilities are performing. The combination of rapid data collection, analysis — including modeling, simulation and machine learning — and visualization provide the tools for an alternatives analysis needed to make decisions about efficiency, productivity and investments.

For example, officials can consider how various investments would influence a facility’s life-cycle costs, Gonzalez said.

While much of the model’s analytical power could have been provided through “highly visual spreadsheets,” the model’s 3-D visualization of an installation provides added benefits and capabilities. “It’s helpful to get stakeholder buy-in,” Gonzalez said. Executives, including generals, favor visual presentations, he added.

The most significant advantage of 3-D visualization, though, is it provides the ability to quickly move from the planning stage for a project to the design stage. Architectural drawings can be dropped in to the model, allowing the user to better understand how a new building would interact with its surroundings. It helps with sequencing during a construction project, especially with multiple contractors, Gonzalez said. Visualization provides a seamless platform for managing a project as it moves from the planning phase to design, and then to construction.

“It allows you do all that in one place and visualize all of that,” Gonzalez said.

To date, Booz Allen has developed digital twins for Peterson Air Force Base, Colo., and Tinker AFB, Okla., which focus on infrastructure management, including energy performance. The model is particularly useful for comparing investment scenarios. A user can select any building and compare potential retrofit scenarios — for example, roof replacement, adding insulation, reducing bulb counts, replacing fluorescent bulbs and installing LED bulbs — by their impact on the building’s energy intensity, along with capital costs and energy savings. A feature in the Tinker model allows the user to study the
installation's energy resilience by simulating how long critical facilities will have power following an interruption in the commercial grid.

The model has other applications as well. It can run traffic simulations to demonstrate the impact of building a new road, or a flood simulation during a rain event, covering both the base and surrounding community. Booz Allen has built a separate digital twin that uses virtual reality to demonstrate encroachment impacts, including noise generated at a firing range and light pollution from nearby development.

Building out the model for another installation is not an expensive undertaking. “These are rapid prototypes. … You don't need to spend millions and millions of dollars to prove a concept,” said Gonzalez. “You can turn rapid prototypes around in six to eight weeks,” he said.

San Diego
Public-Private Venture Provides Navy with New Headquarters

The developer of a $1.4 billion, once-in-a-lifetime project to transform eight blocks of San Diego's waterfront expects to break ground this fall, starting with a new state-of-the-art headquarters for Navy Region Southwest and other Navy tenants being built through a public-private venture originally conceived more than 30 years ago.

In return for a 373,000-square-foot headquarters at no out-of-pocket cost, the Navy granted the Manchester Financial Group a 99-year lease for the remaining seven parcels of the 15-acre Navy Broadway Complex, a site it has occupied since the 1920s. The developer’s master plan totals 2.9 million square feet and, in addition to the Navy’s 17-story office building, includes a five-star boutique hotel, a 1,140-room convention hotel and 1.1 million square feet of Class A office space, along with retail and other amenities.

“It’s a great opportunity for the Navy,” said Joe Stuyvesant, executive director of Navy Region Southwest. Navy Region Southwest’s existing space within the Broadway Complex is obsolete; Stuyvesant described it as “essentially, a 1920s converted warehouse.” And with the difficulty in securing military construction funding from Congress, an exchange was the best solution.

“This is an opportunity to leverage real estate holdings and turn that into facilities we may otherwise not be able to afford,” Stuyvesant said. Military construction funding is best reserved for piers, runways, ammunition handling facilities and other requirements that directly support the Navy’s mission. “An administrative facility for Navy personnel is down the list [of those priorities],” he said.

The redevelopment project, since named Manchester Pacific Gateway, is much more than an in-kind lease transaction, though. For the city, it represents a chance to revitalize the North Embarcadero area on San Diego Bay that had become blighted as the Navy ceased using much of the site. Warehouses originally used when the site served as a supply and logistics point for ships have been torn down, leaving sprawling parking lots.

By 1985 the city had starting talking to the Navy about the site’s potential to provide a greater benefit to both parties, said Eli Sanchez, a senior project manager for Civic San Diego, the city’s redevelopment arm. “We were encouraging the Navy that the property had value and they weren’t using it for its highest and best use,” Sanchez said.

“[The redevelopment] will add to the vibrancy on the Embarcadero as well as provide an economic stimulus to the area,” he said.

The project’s first concrete step took place in 1986 when the region’s congressional delegation succeeded in inserting language in the defense authorization bill allowing Navy Region Southwest to offer a long-term lease of the Broadway Complex to a developer in exchange for building it a new headquarters. The provision also required the Navy to reach a development agreement with the city prescribing land uses, density, building heights, design guidelines, public amenities and other
requirements. The two parties completed that agreement in 1992. Civic San Diego has been responsible for ensuring the project’s master plan is consistent with the development agreement.

For a variety of reasons, the Navy did not solicit bids from developers until 2006. The competition was held under a tight deadline after the 2005 BRAC Commission voted to close the Broadway Complex unless the Navy signed a lease for redeveloping the site by Dec. 31, 2006. The Navy ultimately selected Manchester Financial Group, a San Diego-based firm with an extensive portfolio of development along the city’s waterfront and downtown.

Manchester viewed the project as a prime opportunity to connect San Diego’s central business district to the waterfront and create a destination for locals and tourists from around the world. “It’s probably the best eight blocks of undeveloped waterfront in the Western U.S.,” said Perry Dealy, the project’s development manager. “It’s ground zero for office, retail, hotels [and] a lot of tourism,” explained Dealy, president and CEO of Dealy Development.

The project also will provide Manchester the rare opportunity to develop Class A office space along San Diego Bay, which normally isn’t allowed unless it is marine-related.

For the developer’s part, undertaking a public-private partnership with the Navy hasn’t complicated its task. “Instead of giving them a check for the land, we’re giving them the building,” Dealy said. And in one sense, it’s actually made it easier. Because of the close connection between the city and the Navy, the project has received strong support from the region. “We’re uniquely blessed,” he said.

Despite the area’s long-standing support for the military, the project has faced a string of legal challenges over the past decade, all of which it overcame. The most recent lawsuit claimed the Navy did not adequately consider the project’s vulnerability to terrorism under the National Environmental Policy Act, but a federal appeals court last year upheld the lower court’s ruling rejecting the claim. The project’s opponents generally wanted the development to include more public uses and argued that the master plan was too dense with four office buildings and two hotels.

With the litigation finally out of the way, workers began demolition of the Broadway Complex in April 2017. The developer plans to break ground on the Navy headquarters building, which it is required to complete ahead of the rest of the project, by fall of 2018.

“We’ve been waiting to see this happen since ’85; we thought it was a really good idea back then,” said Sanchez.

About the Author

Dan Cohen is managing editor for the Association of Defense Communities’ extensive roster of print and online publications. He has 20 years of reporting, writing, layout and copyediting experience with national periodicals dealing with complex topics such as defense, community development and public-private partnerships.

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