Feasibility and Master Plan for a Metals Workforce Training Center

TOWN OF BEDFORD VA

LIFE. LIBERTY. HAPPINESS.

Sponsored by

GO VIRGINIA

2025

Table of Contents

Executive Summary

The metals manufacturing sector in the Bedford, VA, region is a critical component of the local economy, with high wages, growing and established firms, and a skilled labor base. With average wages nearing $92,000 and a strong location quotient of 2.06 for fabricated metal product manufacturing, the region significantly outpaces national averages in employment concentration. This strategic advantage is supported by strong educational infrastructure.

To capitalize on this opportunity, the Town of Bedford Economic Development Authority (EDA) purchased the 1970's vintage, 60,000 square foot industrial complex which had operated for 50 years as a foundry producing steel abrasives. The facility was closed in 2020 and purchased by the Town of Bedford EDA with the intent of creating a metal fabrication workforce development center. The center's location between Roanoke and Lynchburg on US 460 consisting of multiple high bay areas and rail access make it uniquely suitable for metal fabrication training. The facility is supplied by a 50-megawatt transformer designed for electric foundry furnace operation facilitating the potential for the nation's first metal fabrication training facility with a commercial scale foundry component. The objective of this report is to explore the feasibility of this proposed training center, provide a high-level engineering assessment of the facility and suggest a plan for the development of a first-class regional center for western Virginia having national significance.

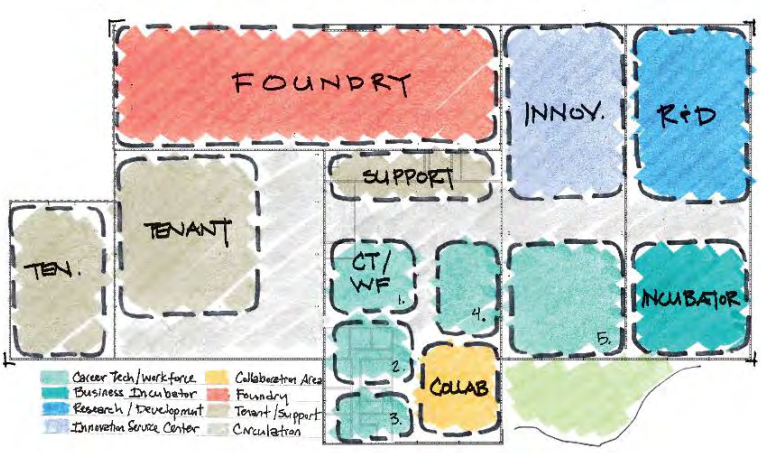
Former Winoa USA Facility

Despite some projected declines in overall employment in the metals sector, the demand for specialized, skilled workers remains high. Employers across the region report persistent challenges in hiring qualified welders, machinists, and metal fabricators. Many companies have indicated that new hires often require extensive on-the-job training, especially when transitioning from educational programs that may not mirror the materials, specific equipment, or fabrication methodology used by industry. Skills in blueprint reading, measuring, materials handling, and heat treatment are also in demand, emphasizing the need for more applied, hands-on training facilities.

In response to these needs, a coordinated effort is underway to establish a Bedford Metals Workforce Training Center at the site of the former Winoa USA steel shot foundry. This 60,000 square-foot industrial facility, located on 16 acres near downtown Bedford, was acquired by the Town of Bedford EDA in 2023. The site includes high-bay spaces, a rail spur, and industrial infrastructure ideal for metals training programs. Cleanup and renovation work has already begun, with funding from the Virginia Brownfields Assistance Fund. The facility's unique characteristics make it well-suited to support high-demand training areas including welding, machining, fabrication, and potentially foundry operations.

The proposed center aligns directly with Region 2 priorities under the GO Virginia initiative, particularly in scaling cluster-based technologies, attracting and retaining talent, and enhancing regional infrastructure. Employers interviewed for this feasibility study expressed strong interest in collaborating on training design and delivery. Several suggested they could contribute instructors, equipment, or proprietary training content. There was widespread support for a shared facility that could host both general workforce training and company-specific programs focused on metal fabrication skills. An industry advisory council is proposed to guide curriculum development and ensure the center remains responsive to evolving industry needs.

Education partners, including Central Virginia Community College (CVCC), Virginia Western Community College, Virginia Tech, and local public schools, have all confirmed the value of a specialized metals training facility in Bedford. Welding and CNC machining programs continue to attract students across central Virginia and student interest in short-term training remains strong. There is increasing interest in non-destructive testing (NDT), additive manufacturing, and materials science. Virginia Tech and its affiliated initiatives, such as the AM2 Tech Hub and METAL apprenticeship program, present significant partnership opportunities.



Design Concept

Bedford County Public Schools, which currently lacks metals-related CTE programs, has expressed interest in participating in dual enrollment and career exploration efforts at the new center. The facility would offer a unique platform for middle and high school engagement, including after-school programs, summer camps, and apprenticeships. Early exposure to manufacturing careers can help cultivate a future workforce pipeline and raise regional awareness of metals manufacturing careers.

In addition to workforce training, the center could include programming for entrepreneurial support, such as incubator space for start-up manufacturers or shared metal fabrication labs for prototyping and innovation. Industry engagement in these areas could be structured through memberships, fee-based services, or partnerships for research and product development.

A new nonprofit 501(c)(3) entity is recommended to administer the center. This organization would manage facility operations, enter into contracts with training providers, and coordinate industry partnerships. The nonprofit status would allow receipt of tax-deductible donations and grant funding, while its board, made up of industry and educational leaders, would provide strategic governance.

A phased development approach is proposed. Early phases will focus on establishing governance, securing renovation funding, launching initial short-term training in welding and machining, and engaging CTE and post-secondary partners. Subsequent phases may include expansion to research and prototyping services, additional education, industry and university partnerships, and potential development into a regional center of excellence.

Key funding sources may include GO Virginia, the Virginia Tobacco Region Revitalization Commission, U.S. Economic Development Administration, and national trade associations, among others. Support from regional employers, both in-kind and financial, is anticipated to play a vital role in long-term sustainability.

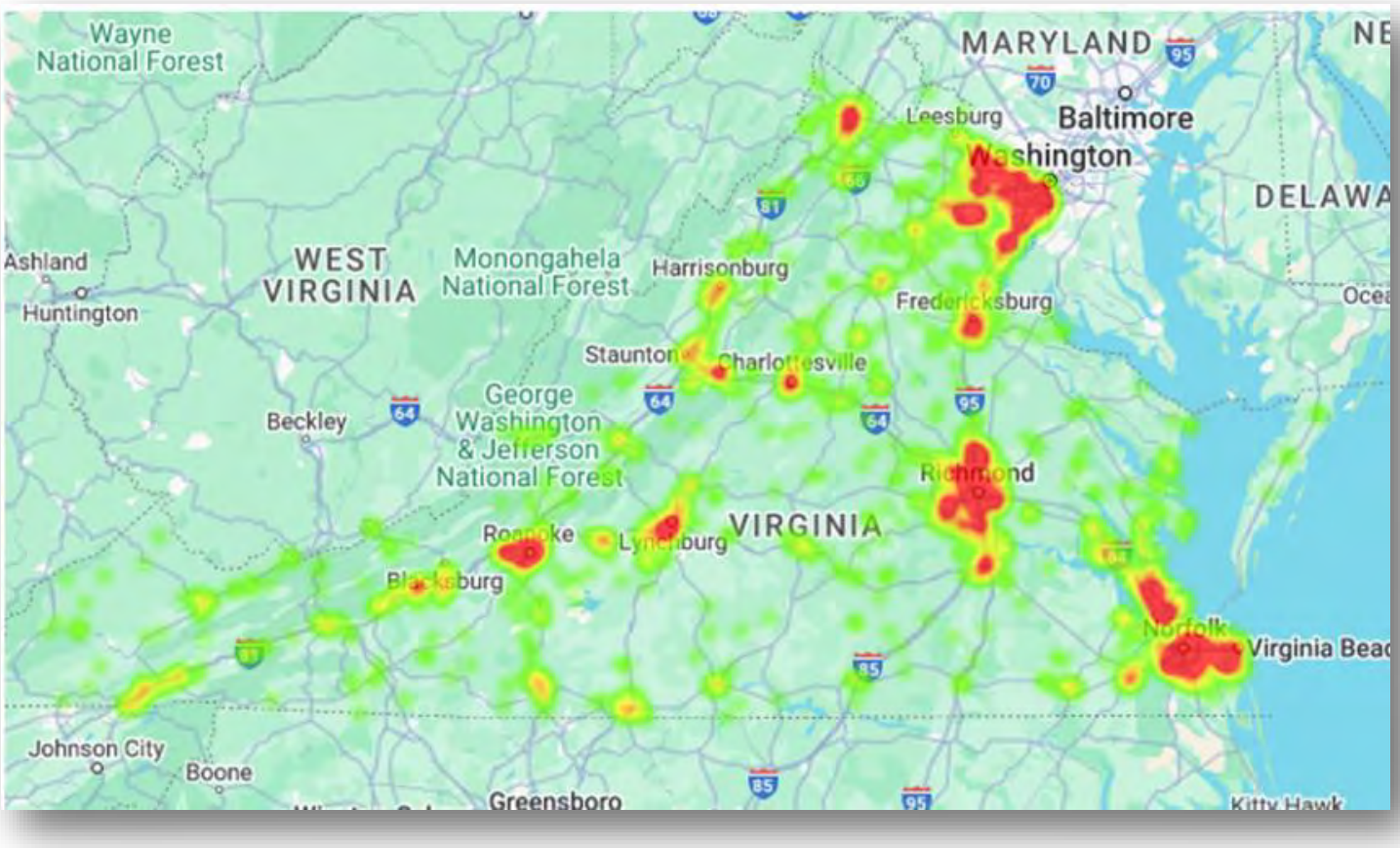
The Bedford Metals Workforce Training Center represents a timely and strategic investment in the region's economic future. It addresses immediate industry needs, capitalizes on unique site and infrastructure assets, and aligns with regional and statewide priorities in workforce development and manufacturing innovation. With strong industry support, committed educational partners, and an operational framework focused on flexibility and alignment, the center is poised to become a transformative hub for talent, technology, and industrial growth in Virginia.

Overview of Metals Industry in the Region

Even as national and global economic trends fluctuate, the need for skilled workers in metals manufacturing remains steady and essential. Core trades like welding, machining, and metal fabrication are not only foundational to local and regional economies, they support critical industries such as aerospace, shipbuilding, energy, and transportation, as well as the broader defense industrial base. Communities that invest in these skills help ensure the stability of domestic supply chains and the readiness of defense and infrastructure sectors that rely on precision-made metal components.

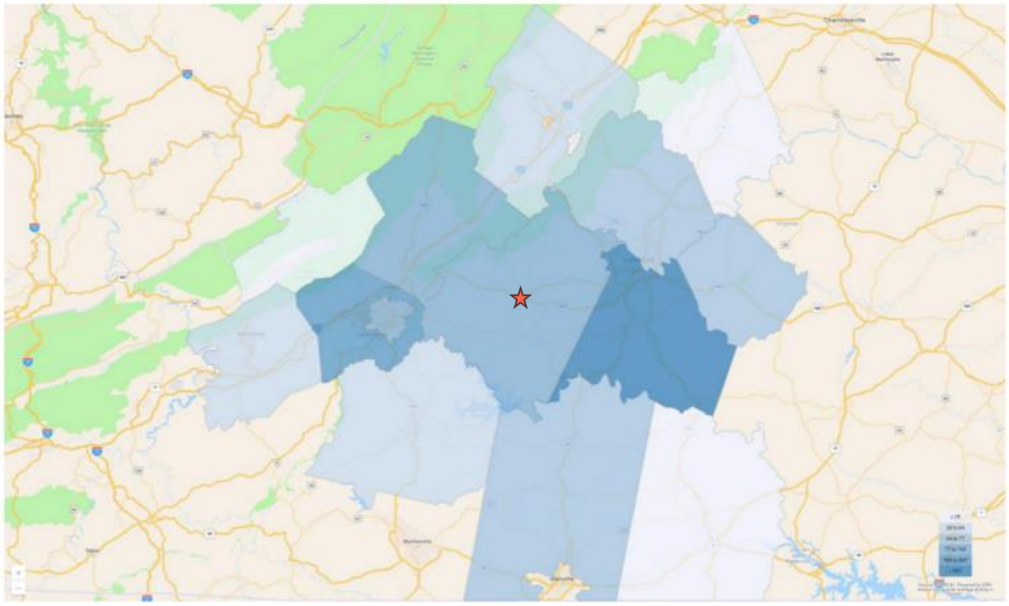
Across Virginia, manufacturers in the metals industry are clustered in urban areas, with considerable location in southern Virginia between Norfolk and Blacksburg. Bedford County's central location in southern Virginia is accessible for employers there. The proposed training center's location in the Town of Bedford strategically places it between the Roanoke and Lynchburg industry clusters and central to the western half of the State.

Heat Map of 2,493 Metals Manufacturing Firms in Virginia in 2024



Source: ReferenceUSA

Metals Manufacturing Jobs Geographic Distribution



Region	Empl
Campbell County, Virginia	2,723
Lynchburg City, Virginia	868
Salem City, Virginia	775
Roanoke County, Virginia	765
Roanoke City, Virginia	228
Bedford County, Virginia	153
Botetourt County, Virginia	77
Amherst County, Virginia	76
Appomattox County, Virginia	73
Pittsylvania County, Virginia	64
All Others	180

Source: JobsEQ

This report focuses on the region around Bedford County of approximately a 60-mile radius. This includes the Lynchburg MSA, of which Bedford County is a member, as well as the Roanoke MSA to the west. This greater "Bedford Region" is a reasonable catchment area for high quality training as well as a labor shed for manufacturers.

Developing the metals industry cluster aligns with three of GO VA's Region 2 Priority Strategies: Scaling up cluster technologies; developing, retaining, and attracting talent; and improving sites and infrastructure. The metals industry in the Bedford, VA, region plays a significant and well-established role in the local economy, marked by high wages, strong employment concentrations, and robust educational support. The metals industry is wide-ranging, and this study engaged with industries involved in various sectors of the broad metals clusters. The main subsectors of research included Primary Metal Manufacturing, Fabricated Metal Manufacturing, and Machinery Manufacturing, and the data were gathered for a 60-mile radius around Bedford.

With an average annual wage of almost $92,000, the Fabricated Metal Product Manufacturing cluster boasts one of the highest earnings among regional industry groups and carries a location quotient (LQ) of 2.06, indicating that employment in this sector is more than twice as concentrated in the region compared to the national average. Although the industry's 10-year employment growth is projected to decline slightly at -0.23% annually, this mild contraction is more stable than other traditional manufacturing sectors such as textiles or wood/paper. Within a 60-minute drive of Bedford, nearly 4,768 individuals work in metal and plastic occupations, with welders, machinists, and machine operators forming the backbone of the workforce. Many of these roles—such as welders (LQ 1.53) and forging machine operators (LQ 2.56)—have significantly higher concentrations than the national average, reinforcing the region's specialization in metals.

Despite modest job declines forecast in some categories, the consistent demand for skilled workers is supported by 177 annual certificate and associate degree completions in welding and precision metalworking from local post-secondary institutions. There are also significant federal policies in 2025 aimed at increasing and strengthening the manufacturing sector in the United States. Together, these data points highlight a regionally competitive and strategically vital industry poised for innovation, especially with potential investments in workforce development and technical training.

A 2016 target sector analysis performed by the Lynchburg Regional Business Alliance identified the following strengths, in addition to the data points above, in the “steel and metals manufacturing” sector.

- A major strength that supports the Steel and Metals Manufacturing target is the region’s ample supply of water.
- Virginia benefits from its right-to-work status and the perception of a favorable labor cost environment that such a distinction affords.
- Central Virginia Community College is a strong asset in the region, offering training programs that support the target.
- Nearly 80 percent of the region’s need for steel and metals materials and products is fulfilled outside of the region.

The following companies are the largest employers in the Primary Metal Manufacturing, Fabricated Metal Manufacturing, and Machinery Manufacturing sectors in the Lynchburg and Roanoke MSAs (*Source: Data Axle, 2024*):

- Aerofin
- Altec Industries
- Automated Conveyor Systems
- Buffalo Air Handling
- BWXT Nuclear Oper Group
- Carter Machinery
- Coca-Cola Bottling
- Framatome
- Greif Riverville
- L3harris
- Lawrence Moving
- Medeco Security Locks
- Parker O-Ring-Engineered Seals
- Plastics One
- Ply Gem-Cornerstone Building Brands
- Sentry Equipment/Erectors
- Steel Dynamics Roanoke Bar
- Tri Tech Labs Office

Recent press releases by Delta Star related to a new 100,000 sq. ft. metal fabrication facility and the BWXT Innovation Campus are strong indicators that the local demand for metal fabrication skills is increasing. This proposed center would serve as a direct talent feeder to these and other employers.

Summary of Industry Input

All of the employers interviewed for this report indicated they have immediate hiring needs for skilled metals manufacturing workers. Large and small companies indicate that hiring continues to be a challenge, and extensive training is needed for new hires, based on their own specialized equipment, materials, and processes. The companies interviewed ranged widely in types of metals used, CNC and manual machining processes, and preferences for the type of welding. Several companies mentioned that training programs tend to teach welding on "lighter materials" when some local companies use heavier materials, and this can be a tough transition for a new welder to make.

Skills

Companies mentioned needing welders, fabricators, and machinists. Certified Welding Inspectors is another certification that is valued. Heat treatment was included in needed skills and processes.

The participants emphasized the importance of hands-on training, basic math skills, and proper material handling experience. They hope the facility can bridge the gap between current educational programs and industry needs while serving as a resource for both companies and training providers.

Companies also cited the need for employees to understand basics like blueprint reading, measuring, converting fractions to decimals, etc. It is more than just "hard welding skills" that are needed.

There was a general consensus that a training facility that focused on a wide range of skills needed for product fabrication was also needed

Companies attending the in-person and virtual focus groups were willing to re-convene and seemed interested in participating in the development of additional metals manufacturing training programs for the region.

Facilities

Several employers indicated that a foundry available in a "service center" environment might be useful to their work, but the types of metals needed varied across companies. The concept of including a commercial scale foundry providing students with exposure to large casting processes was of interest since such a facility currently does not exist in the United States. Some employers offered to provide their employees as trainers if that could help the schools align more closely with the types of welding and materials the company uses.

Companies cited the Institute for Advanced Learning and Research (IALR) in Danville and its Accelerated Training in Defense Manufacturing (ATDM) training program as a best practice. Another training program cited includes Lincoln Tech Institute in Tennessee.

In summary, there was considerable interest from those interviewed in increasing the pipeline for welders and machinists specifically and other metals-related manufacturing occupations that varied by company. Welding and machining are particularly in demand (manual and CNC). They welcomed the idea of a new, specialized industry training center.

Companies were engaged with the prospect of further alignment between local and regional curriculum programs and industry needs and preferences. Many regional companies have in-house training that is needed even after a two-year degree. It is feasible that companies would be interested in access to a specialized facility where they could provide proprietary training, or where they might contract to have that proprietary training delivered. There was only mild interest in permanently occupying space at a shared facility, though moving training from a company's production environment to a dedicated facility could improve manufacturing efficiencies and safety. Companies enjoyed hearing from other manufacturers and took part in some group problem solving. This indicates that an industry council to support the training facility would be successful.

Summary of Education Partner Input

In order to gauge interest, priorities, and capacity for a new metals workforce training center, education, training, and workforce development partners were interviewed through a focus group. Interviews with specific institutions including public schools, community colleges, university partners, and other training allies were also conducted. There was agreement that additional space for metals-focused manufacturing training is needed in the region. In addition to the training providers' programs, there is a need for career awareness programming and exposure to manufacturing skills and opportunities to students before high school.

Welding and CNC machining are the most popular metals programs in the technical schools. Curriculum programs are usually full and short-term training. One example is FastForward, which is very popular. Some students resist finishing a two-year certificate and are able to gain employment before completion. The region awards approximately 130 certificates in welding annually, and around 50 in machining.

Nondestructive testing (NDT) is another program that has a strong hiring trend regionally. The Naval Welding Institute sees opportunities for expansion of NDT training in the region. Training for the trades, especially those related to metal products like sheet metal fabrication used in HVAC and industrial pipe fitting, are additional in-demand skills that could be candidates for programming at the new center.

There are several hybrid programs underway, some being partnerships between Central Virginia Community College and Virginia Western Community College. These hybrid programs have classroom material delivered online or in classrooms, and the laboratory or clinical part of the program delivered at a specialized training facility. This model could allow the Bedford Metals Training Center to host the practical or "hands on" training for curriculum which is also delivered virtually or in another classroom space.

Virginia Tech's Materials Science program is constrained by space. The university is wary of constructing new space for a variety of reasons and may prefer to lease space or participate in a partnership. Some equipment used in metals, e.g., stamping equipment or specialized 3D printers, may need extremely high ceilings. It is not uncommon for the university to turn down offers of donated equipment due to the lack of space to store and maintain it. While Virginia Tech does have a small foundry for its material science programs, it might consider becoming a partner to explore the re-establishment of the foundry at the Bedford Center.

Another Virginia Tech initiative is the new Virginia's Additive Manufacturing and Advanced Materials Hub – or AM2. This consortium stretches from the Roanoke region through the New River Valley and into southside Virginia. Bedford's vision for metal-focused manufacturing training is aligned with these well-connected and emerging programs.

Bedford County Public Schools sees tremendous opportunity in the metals training arena. Currently, there are no metals training programs available in Bedford's Career and Technical Education (CTE) program. They did have these programs in the recent past, but do not currently have an instructor for them. There are other CTE programs at Bedford Public County Schools that might overlap with a metals workforce center. Manufacturing technologies and some trades programs might use facilities and equipment.

Across the range of education allies, there is a belief that demand for welding and metals programs is growing. There is a general interest in collaboration and agreement that a new metals manufacturing center will provide valuable programming. Bedford is seen as a realistic location for training. Welding training and certifications lead all discussions, with machining and non-destructive testing as the next areas of training. One concern raised was that some completers from advanced manufacturing occupations may leave the region for employment, but this may be the case for any in-demand training or career. The potential for a foundry is a unique and specialized opportunity. The Bedford facility is supplied by a 50-megawatt transformer specifically designed to energize a commercial scale electric arc or induction furnace. This one million dollar asset typically has a three to five year delivery if ordered new, but is currently available for immediate use. Virginia Tech has a recent affiliation with METAL, a metallurgical engineering trades apprenticeship and learning program that includes federal, industry, and university partners.

Extant programs like this are prime targets for partnerships to provide training programs in Bedford. There is also state support for initiatives like this as developing, retaining, and attracting talent is a Region 2 priority for GO VA.

The following organizations provided input and advice for this project:

- Bedford County Public Schools
- Central Virginia Community College
- Institute for Advanced Learning and Research
- Manufacturing Skills Institute/Virginia MEP
- Naval Welding Institute
- Virginia Tech
- Virginia Western Community College

Summary of Building Condition Assessment

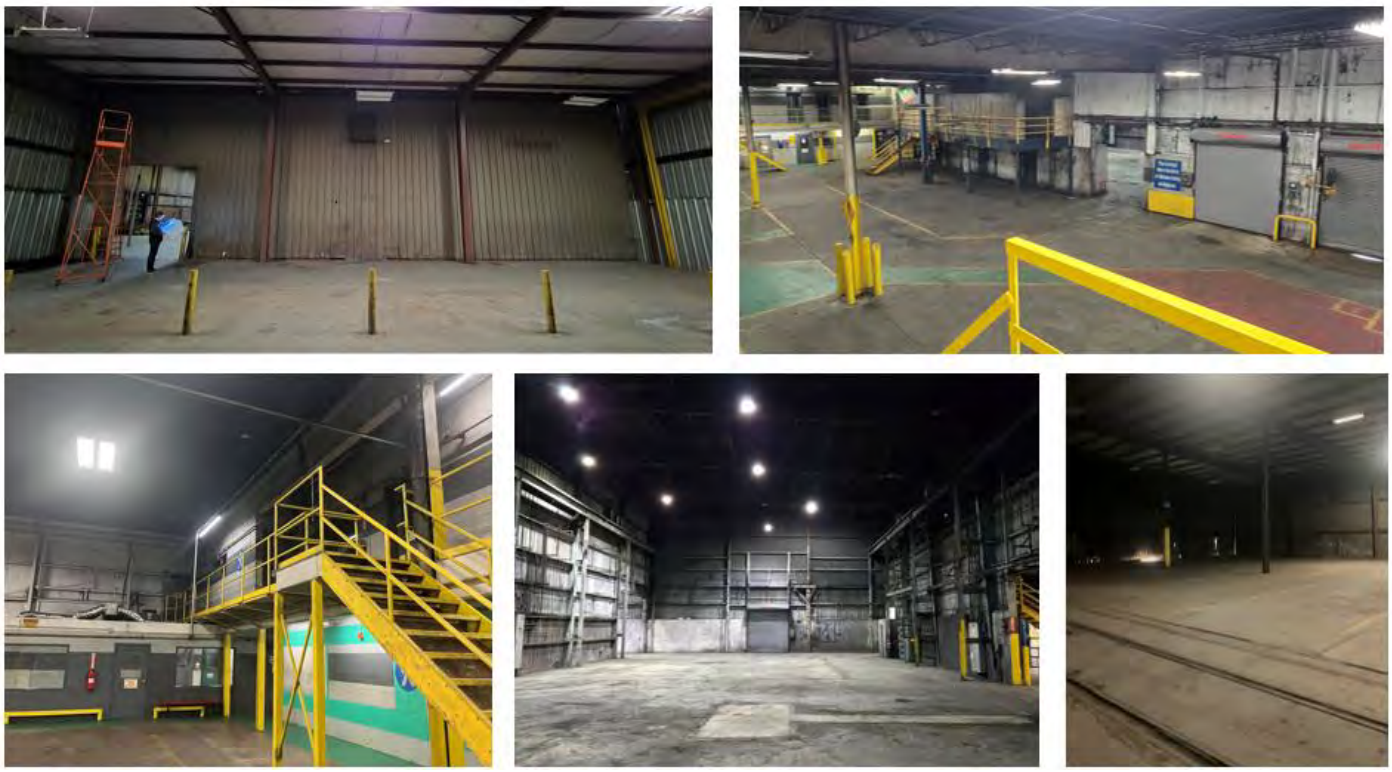
The former Winoa USA facility is a 60,000 square-foot former steel shot foundry on 16 acres. The company closed in 2020. It is located one-quarter mile off US 460 near downtown. The facility is a 1970s-era factory providing a unique combination of laboratory, office, and warehouse space, with three 40-foot high-bay areas, and a Norfolk-Southern rail spur with weigh scale. The facility consists of multiple interconnected sections built using modern steel construction having reinforced concrete floors and bridge crane rails capable of supporting up to 35 tons. The facility was designed with large open spaces with the elevated ceilings needed for safe operation of a wide variety of industrial processes. The site is fully served with utilities, including a 50-megawatt electric transformer designed specially to energize electric arc or induction furnaces used for melting steel.

In 2023, the Town of Bedford EDA purchased the facility. In partnership with the Town of Bedford, the EDA has committed staff time and resources to leading the renovation and redevelopment of the facility. In addition to securing grant funding for this feasibility study, the EDA was awarded funding to begin cleaning up the facility. In early 2025, metal oxide dust from decades of steel shot production was washed from ceilings, walls, and floors in the two main high-bay areas. Dust was removed manually in other areas of the central work area and office. Funding was provided by a Virginia Brownfields Assistance Fund (VBAF) grant to help prepare the space for re-use.

As part of this study, CJMW Architecture, in partnership with Master Engineers and Designers, conducted a building conditions assessment, structural condition assessment, add a mechanical, electrical, and plumbing assessment. The assessments are summarized below and attached to this report.

The industrial building is a complex of interconnected metal structures built between 1973 and the 1990s, featuring CMU and metal panel façades with varying conditions and insufficient insulation throughout. The exterior walls show extensive damage from vehicle impacts, rust, and patchwork repairs, while the wall insulation is largely absent or outdated, failing to meet modern energy codes. Roof systems are aging, inadequately insulated, and exhibit issues such as undersized drainage components and deteriorating skylights, although no active leaks were observed. Windows and doors are mostly uninsulated, and life safety systems—such as exit signage, emergency lighting, and door hardware—require upgrades to comply with current codes. Passive and active fire protection measures are limited, with combustible materials present in some office areas, a lack of fire separations, and a sprinkler system that covers only a portion of the facility. A comprehensive rehabilitation plan is recommended, including re-siding with insulated panels, upgrading roof and wall insulation, replacing fenestration, and updating fire and life safety systems to support future code-compliant reuse of the facility.

It is recommended that the existing plumbing and mechanical systems be largely replaced and electric service modified to meet current codes and support the new building program. Most plumbing systems should be demolished and replaced, except for the six inch main water line if capacity is sufficient. New domestic water systems with backflow prevention and hot water recirculation, updated sanitary and vent piping, overflow roof drainage, and potentially a new fire sprinkler system should be installed. All HVAC systems should be replaced with new systems, likely packaged rooftop units, designed to meet current ventilation requirements and accommodate high bay spaces. The electrical service will require reconfiguration, including new transformers and possibly a new point of service. Existing electrical distribution equipment should be replaced due to poor condition, and all lighting should be upgraded to LED with code-compliant controls. The fire alarm system may be reused with modifications and new devices as needed for the building's new use.



Inside Former Winoa USA Facility

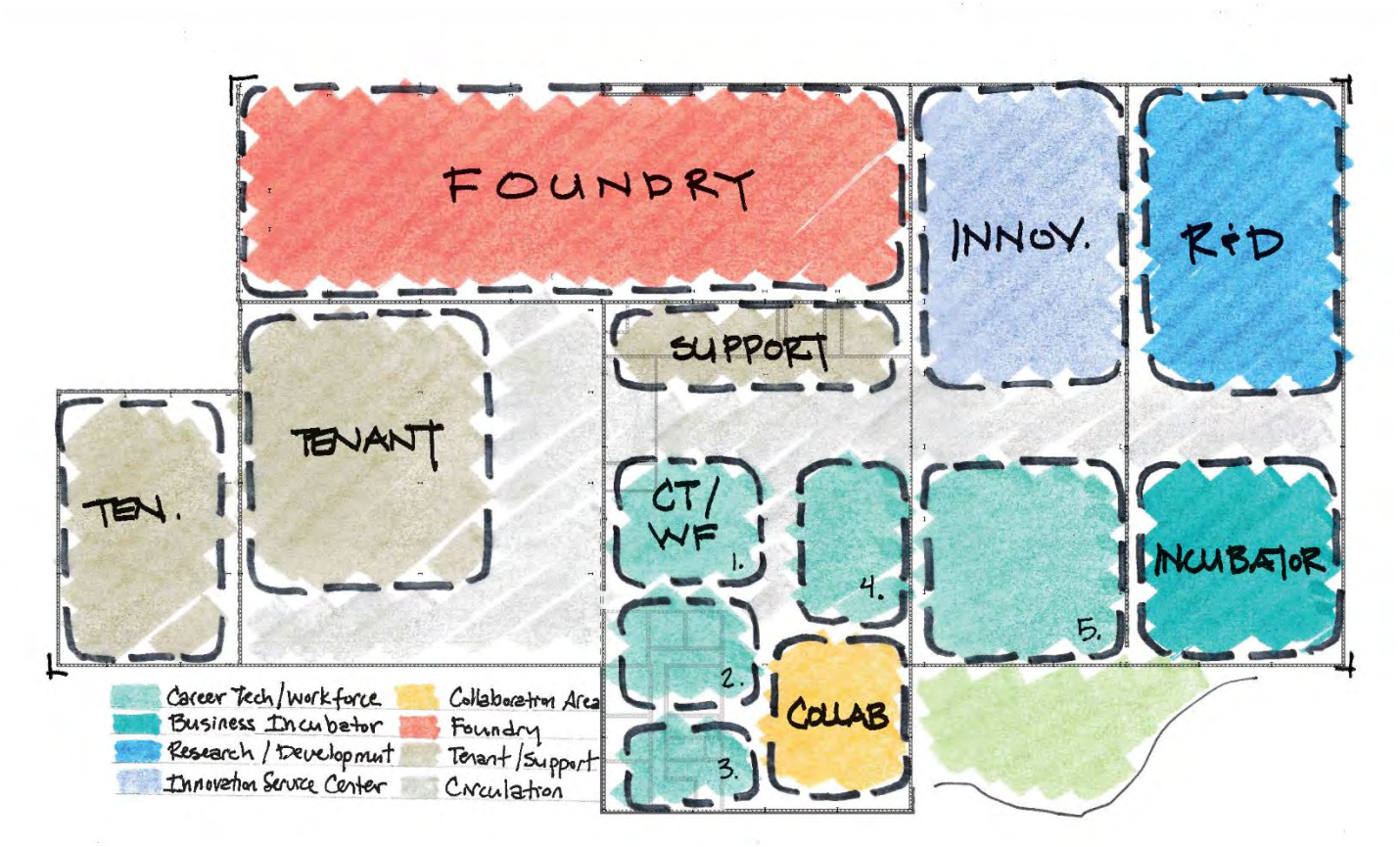
Master Plan

Overview

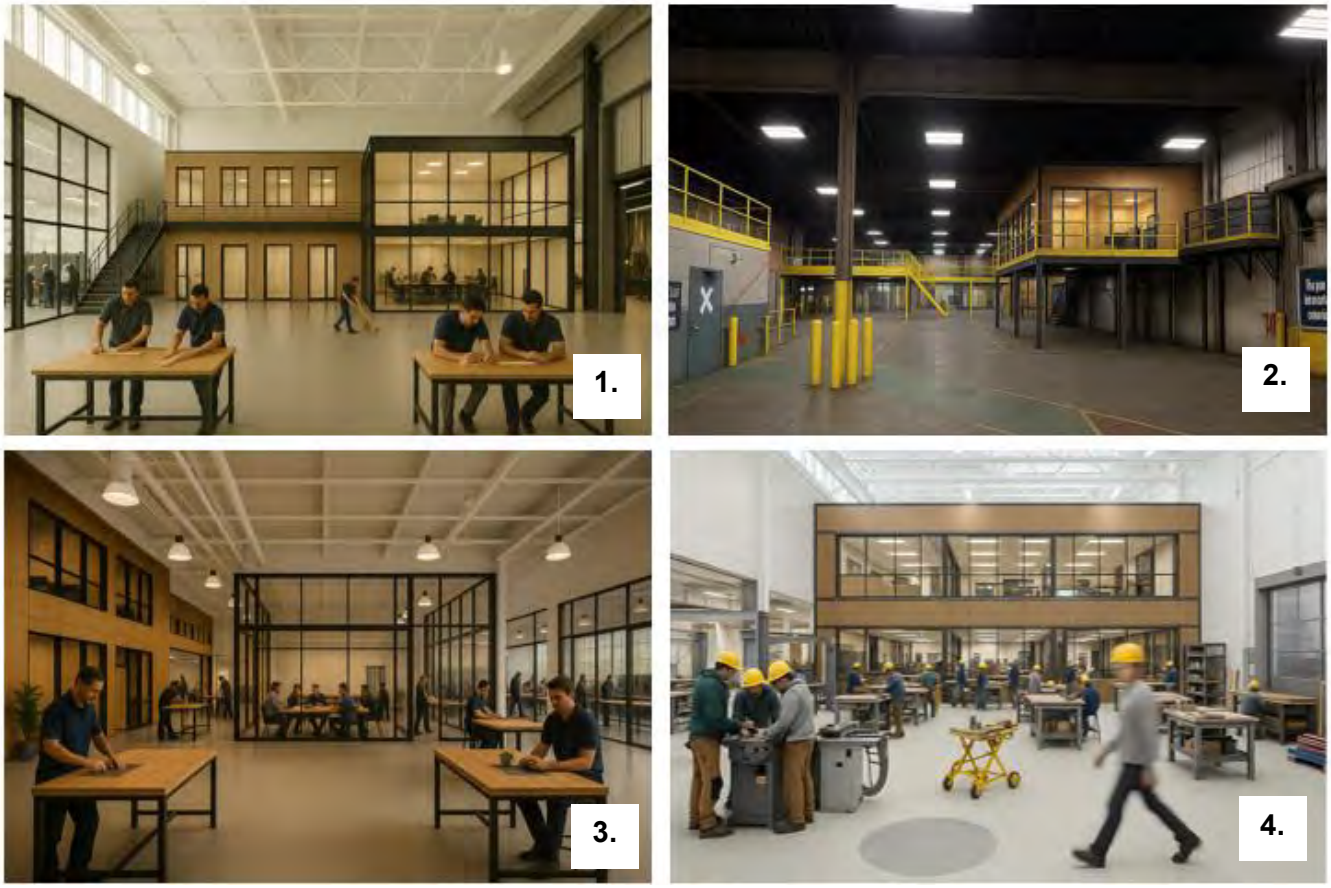
The master plan to develop a metals workforce training center in Bedford includes foundational elements such as organizational structure, programming, and partners, as well as future-forward thinking about how the center can grow and develop over time. The master plan identifies potential partners such as educational institutions and industry associations. Bedford will need a broad range of industry experts, educators, and local and regional leaders to be champions of the initiative.

The design concept includes CTE and training space (labeled 1-4) in the center of the building as Phase 1. Phase 2 is shown on the right and includes research and development, innovation, incubation, and technical training space (labeled 5). Phase 3 could redevelop the foundry and lease space on the left to long-term tenants. The images on the following page show examples of how the CTE and training space could be developed. There are examples of how the exterior could be redeveloped on page 13.

The master plan recommends establishing an Industry Advisory Council as a first step. This group can help guide the organizational tasks to start up and launch the center. The plan also recommends “thinking big” as the center could become a world class training center and catalyst for the metals industry.



Design Concept



Interior Concepts

Images 1, 3 and 4: Conceptual Images for Education, Workforce, Training, and Collaborative Areas

Image 2: Image of Classroom “inserted” onto Existing Mezzanine within the Building

Exterior Concepts

Industry Advisory Council

Foundational to the success of this new and specialized training facility will be a group of regional industries to ensure alignment with a variety of types of industries and their needs. An Industry Advisory Council can serve a variety of roles, from connections to relevant national trade associations to assisting with fundraising and equipment acquisition. The advisory group could meet three or four times a year, once the center is up and running, to review annual programming, comment on current skills gaps or in-demand certifications, and assist with on-going equipment planning.

The connection between regional employers and the new training facility will also increase the employment opportunities for students through access and insights into jobs and career pathways at regional companies, in turn increasing the success and reputation of the programming. The advisory council firms may be more inclined to invest in the operational infrastructure and resources for work-based learning opportunities when they are closely involved in the program. Importantly, the contributions of the industry council and regional employers will make the metals training center more attractive to potential funders and partners, since they know the center benefits from current industry knowledge and feedback.

In establishing the industry council, it is wise to include companies representing diverse segments of the industry sector. To keep the council engaged and active, communications to report on outcomes, give notice of upcoming programming and milestones, and to solicit support and assistance should occur at least monthly. Quarterly in-person meetings should include demonstrations of progress and outcomes of programming and opportunities for members to contribute. Initial interviews showed that some companies would consider loaning their employees as instructors, and several companies indicated that they knew of equipment manufacturers that could donate. The strength and connectivity of the metals-related employers in the region will be the foundational engine for a successful training facility.

Workforce Development Programming

Education partners indicated that the facility will be best used with specialized laboratory space and equipment rather than the traditional classrooms that are available in many regional facilities. Since this is the focus of the mission of the facility, the conceptual diagram includes five areas designated for Career Technical Education and Workforce Training. These spaces are located in the front and center of the building and are expected to be the first areas utilized. These spaces could be utilized for short-term workforce training programs like FastForward, which are pathways to employment and further training and certifications. The facilities could also support traditional curriculum degree and certification programs, K-12 programs, and even host company-specific customized training programs.

Workforce Training

There is a wide range of workforce training that could occur at the facility ranging from blueprint reading and basic math skills to certifications such as Certified Welding Inspector. These programs could be short-term certificates, traditional curriculum programs, Some specifically noted by industry include:

- Welding
- Fabrication
- Machining
- Certified Welding Inspector
- Heat Treatment
- Basic math skills, measuring, conversions
- Material handling experience.
- Blueprint reading
- Quality Assurance
- Testing; Nondestructive Testing

In addition to training programs, the center could also include courses that ‘train the trainer’ so that companies could have their own in-house training programs. “Train the trainer” leverages local experts in manufacturing techniques and provides assistance with instruction.

Even though not specific to the metals industry, training programs such as Manufacturing Skills Certification and Certified Production Technician have components that would benefit students. These programs cover topics including safety, quality control, manufacturing processes, measurements, and equipment maintenance and repair.

Welding

Welding was the most-frequently-cited skill or credential needed by the industry representatives we gathered. Since welding training laboratories are expensive and need a good deal of space, the new training facility could focus on these “hands on” areas where scheduled classes could be taught and flexible, on-demand training could be scheduled. If feasible, 8-12 welding booths and appropriate storage would be a good baseline.

Metal Fabrication

A metal fabrication lab could start with any open floor plan to support heavy machinery along with storage for tool cribs and materials. A variety of equipment including CNC machine tools, cutting and forming machines, and assembly tools will provide entry-level training as well as flexibility to add additional or proprietary equipment to support needed training programs.

Foundry

The potential for a foundry is a unique and compelling possibility for the Bedford Metals Training Facility. The electrical equipment and infrastructure remain from the former user and should be considered assets in the training center’s development. This equipment is expensive and difficult to source at present. The installation of a foundry, for training purposes as well as for potential use by companies for their proprietary production or research, is a significant differentiator for the facility. Identifying an appropriate partner, like a training partner or a manufacturing partner willing to provide exposure to their processes for training purposes should be of high priority. The inclusion of a commercial scale foundry component for training and/or research would gain this center national notoriety since such a capability does not currently exist.

K-12 Programming

In order to build the pipeline from an early age, it is important to incorporate high school – and ideally, younger age programs as well. The Central Virginia Community College Career Technical Education Academy offers a wide range of CTE programs that could be included in the Metals Workforce Training Center. High School students could pursue career certificates through dual enrollment in degree programs. Facilities could also offer after school enrichment programs or summer camp-style offerings to introduce youth to metals and manufacturing careers and education pathways. Currently, Bedford County Public Schools does not offer metals related CTE programs. Developing these programs, including opportunities for apprenticeships or other work-based learning, should be a high priority for a county with the metals and manufacturing assets of Bedford County.

In addition to formal programming with high school students, the new metals training center can have a big impact in raising awareness of careers and opportunities in manufacturing with area youth and their parents. Individual companies, or an advisory industry council for the facility, could establish relationships with specific schools, providing speakers for career day activities, highlighting Manufacturing Day/Week, coordinating field trips, and even sponsoring and supporting after-school clubs or activities and summer camps which expose children to skills and opportunities of manufacturing careers. These activities will strengthen the Bedford and regional economies as well as provide the companies and regional industry with the beginnings of pipelines for future talent.

Ideally, these industry/school interactions will lead to increased opportunities for and participation in work-based learning programs for high school and college students. Depending on the needs and support of the specific companies, work-based learning can be as simple as job shadowing and open houses for field trips all the way to formal apprenticeships, co-op employment, dual enrollment, or summer jobs.

Entrepreneurial Development Programming

The central focus of the Bedford Metals Training facility is workforce development and training. Since strong industry engagement and support is complementary to the success of such an effort, other industry-supported activities can also be accommodated in the new facility. One of the economic activities that the center should support is entrepreneurial startups. A workforce training center can significantly amplify its impact by incorporating business incubator space, creating a dynamic environment where training and entrepreneurship intersect. When the training center is running and fitted out with specialized metal fabrication equipment, some space should be reserved as an "incubator" for startups and small manufacturers to lease. By offering aspiring entrepreneurs access to tools, mentorship, and shared resources, they can transition their newly acquired skills into startup ventures. This model supports not only skill development but also innovation, encouraging participants to turn ideas into products or services.

Industry Engagement and Innovation Programming

One of the foundations of cluster development is innovation. Higher education and industry partnerships that support centers of excellence and innovation can help an industry cluster become more resilient and position the cluster for growth. Economic development organizations (EDOs) are often the catalyst for centers that develop and advance industry clusters. EDOs are sometimes the conduit to identify equipment donations, subject matter experts who are willing to lend their time, and potential private sector funding sources.

One activity the center should include is an area for existing companies to connect with the center. This can be by designing a 'membership' model where industries pay an annual fee for access to the faciality and its assets. Another way to approach this is by offering 'fee-for-service' options for companies to purchase as needed. Another model would be if the center has skilled staff members, companies might pay the center for specific services they could provide such as nondestructive testing. As the center matures and its connections with metals-related companies increase, the opportunity to provide services is important for supporting industry innovation and research and development. There are two areas of the concept design set aside for industry engagement, innovation and research and development.

If the center includes equipment suitable for prototyping or small batch production, the organization could establish a service center where companies could have access to the facilities and equipment on a fee basis, or perhaps as part of a "membership." There are two areas of the concept design set aside for industry engagement, innovation and research and development. Industry innovation centers often attract companies to further their research or innovation efforts. The nonprofit corporation could also consider leasing the facilities to industry for their own proprietary training, when a new piece of equipment is installed, or when a class of new-hires is onboarded.

Partners

Education, industry, research, and association partners play a critical role in the success of a workforce training center by aligning curriculum with industry needs, providing skilled instructors, and ensuring that students are equipped with relevant, up-to-date knowledge and certifications. These partnerships help bridge the gap between classroom learning and real-world application, allowing students to gain hands-on experience and employers to access a pipeline of job-ready talent. Collaboration with schools, colleges, and universities also fosters innovation and creates long-term pathways for career growth within the regional economy.

It is recommended to start with a partnership with CVCC to host existing and expanded courses and training at the center. Other early partnerships to explore are with the Blue Forge Alliance, which has provided significant funding for other foundry training centers, and with Virginia Tech, which is expanding research and development in the metals industry.

- **Central Virginia Community College (CVCC)**
- **Naval Welding Institute**
- American Society for Non Destructive Testing
- ASM International https://www.asminternational.org/

- American Foundry Society
- Steel Founders' Society of America https://www.sfsa.org/
- American Institute of Steel Construction
- Blue Forge Alliance, a third party integrator for the Navy.
- AM2-Virginia's Additive Manufacturing & Advanced Materials Tech HUB
- Manufacturing Skills Institute; Virginia Manufacturers Association
- Virginia Carolinas Fabricators' Association

Organizational Structure

A new corporate entity would be ideal to run the new Bedford Metals Workforce Training Center. There are many considerations for the type of entity, but a 501(c)3 nonprofit corporation operating for educational purposes is a leading candidate. This type of nonprofit is incorporated as a charitable nonprofit. There are many examples in Virginia, and across the country, of economic development organizations starting nonprofit corporations to carry out specific initiatives, and the development and redevelopment of facilities is a common activity.

The new nonprofit corporation could lease the building (or part of the building) from the Town of Bedford EDA and enter into contracts with educational and industry partners for programming. This structure would allow for tax-deductible donations from industry, foundations, grants, and public funding. For example, the nonprofit could accept donations of equipment and apply for grants to upfit the building.

The corporation should be led by a strong executive director who will lead and develop programming for the center, oversee fundraising, and manage the general operations of the center. The Board of Directors of the nonprofit should include representatives of the Town EDA, regional industry leaders, and educational partners.

As an initial launch of the center, the organization could be driven by one primary training provider. This might be a regional community college or could be a college from another region that licenses programming to the Bedford Center.

Funding and Sustainability

The funding needs to make the facility operational will include renovations, equipment, and physical plant space. The building conditions assessment recommends a comprehensive rehabilitation plan, including new siding with insulated panels, upgrading roof and wall insulation, replacing fenestration, and updating fire and life safety systems to support future code-compliant reuse of the facility. There will also be a need to support operations of the facility at least during the initial ramp-up years. GO VA provided funding for this feasibility study and may be a source of future support, as the concept aligns with three out of four of the region's priorities. This project also aligns with the priorities and goals of several other economic, education, workforce, and industry organizations. Bedford can look to several partners and funding agencies for support:

- Virginia Manufacturer's Association (e.g., apprenticeships)
- Virginia Tobacco Region Revitalization Commission
- Virginia Department of Labor (e.g. apprenticeships)
- GO Virginia
- Industry donations
- National Science Foundation
- Blue Forge Alliance
- Trade Associations
- U.S. Department of Labor (e.g., apprenticeships)
- U.S. Economic Development Administration
- Virginia General Assembly

Building Redevelopment

The scope of work of this feasibility study included a conceptual plan for redevelopment. It also included a review of systems and features of the facility. There is also existing information on the facility including floor plans and schematics. This information will be useful in the next steps to redevelop the building. Below are next steps the EDA can take to advance the redevelopment of the facility.

- Information from this feasibility study can be used to apply for additional grant funds to support the development of architectural plans.
- Once the lead training partner is secured, work collaboratively with an architecture firm to develop construction plans that can be used for detailed cost estimation. Collaboration with the training partner will be critical during the design planning phase as the training partner may have specific space requirements. This step provides another opportunity to seek grant funding when the full scope of renovation cost has been determined.
    - The initial focus will be on the training and continuing education space of the facility noted as Phase 1 of the redevelopment.
    - The remaining space in the facility should be designed to be flexible and developed over time as more industry partners are confirmed.

Recommended Phased Development Approach

A phased development approach is recommended to launch and build out the Bedford Metals Workforce Center. The phasing below represents one pathway to establishing and building the center. At the beginning, there is a need for champions, seed funding, and industry support. Depending on the opportunities and resources that are available to leverage, the steps may be taken in a different order. The key is to begin with a strong partnership and to continue to build both industry and education connections. As with any startup venture, what the center is on day one is not what it will be in the future. It is important to get the center launched to generate more momentum and plan for future growth.

Phase I

- Establish the Industry Advisory Council.
- Incorporate the nonprofit, establish Board of Directors, and engage contract staff with support from the town and EDA.
- Complete architectural designs.
- Launch a fundraising initiative (industry donations, grants, etc.) to renovate and upfit the building.
- Start with community college short term training and CTE program offerings for Bedford County Public Schools. This can include hosting some existing classes at the center to activate the space and growing programs at the center over time.

Phase II

- Actively look to add additional educational partners, especially a four-year college or university such as Virginia Tech. There are concepts for program expansion at Virginia Tech that align with the center's goals and could be a good fit to grow the center's programming.
- Actively explore partnerships with industry associations and organizations, such as the BlueForge Alliance and other similar associations.

Phase III

- With an appropriate provider, consider expansion to economic development programs like manufacturing incubator space for startups and small firms, an innovation center for business partners to use labs, and equipment and personnel for prototyping and testing.
- Several contacts urged us to "think big" and expand to additional colleges and a larger geographic area for a true regional center. With the history of metals manufacturing in central Virginia, the growing employers

there, and an array of potential education and training partners, the Bedford metals workforce center can become a world-class asset for manufacturers, driving economic growth and providing clear pathways for Virginians to approach a rewarding career with above average wages.

Conclusion

For Central Virginia and other parts of the Southeast, training programs in metals manufacturing represent a strategic opportunity to align workforce development with long-term economic and national security needs. These programs offer a direct pathway into high-demand, high-wage careers that do not require a four-year degree, while also enhancing the region's attractiveness to industrial employers. By building a pipeline of talent in these essential trades, communities position themselves for sustainable growth and demonstrate a strong commitment to supporting both local industry and the broader national economy.

Appendix A: Case Studies of Best-Practice Centers of Workforce Development and Industry Innovation

Case Study: The Institute for Advanced Learning and Research (IALR), Danville, Virginia

Formation and Strategic Purpose

In 2002, the Institute for Advanced Learning and Research (IALR) was founded in Danville, VA, in response to difficult economic conditions in Southside Virginia. Tobacco and textile industries, once the bedrock of the region, had declined dramatically, leaving behind shuttered factories, high unemployment, and a pressing need for reinvention. In response, leaders from the City of Danville, Pittsylvania County, and Virginia Tech came together to envision an institution that would foster a knowledge-based economy based on innovation, education, and industry collaboration. With enabling legislation from the Virginia General Assembly, IALR was formally established as a political subdivision of the Commonwealth. Virginia Tech, serving as the founding academic partner, played a central role in the planning and program design, while the Virginia Tobacco Region Revitalization Commission provided critical seed funding to support initial construction and operations. This collaboration positioned IALR as a unique public entity, neither solely a college, government agency, nor research center, but an integrated economic development engine with regional governance and impact. Later, the IALR established a 501(c)3 foundation to assist with its mission.

Funding and Collaborative Investment

IALR's success has been enabled by a diverse and strategically structured funding model. Initial capital and operating support came from the Virginia Tobacco Region Revitalization Commission, which contributed substantial funding—millions of dollars over multiple phases—to support both physical infrastructure and programming. The Commonwealth of Virginia has provided ongoing appropriations, while local partners including the City of Danville and Pittsylvania County have contributed land, incentives, and operational support.

The Danville Regional Foundation played a significant philanthropic role, supporting capital expansions and program development, including funding for the Advanced Learning division and GO TEC initiative. In recent years, IALR has also secured competitive federal grants. The U.S. Department of Defense provided major support for the construction of the National Training Center and the launch of the Accelerated Training in Defense Manufacturing (ATDM) program, while the U.S. Department of Labor and Economic Development Administration have funded other workforce and research initiatives. Earned revenue from leased space, conference services, and partnerships adds to IALR's sustainability.

This blended funding model—federal, state, local, philanthropic, and earned—has allowed IALR to remain agile and resilient while scaling its impact significantly over time.

Facility Development and Campus Expansion

The IALR campus began with a single 90,000-square-foot main building, which opened in 2004 and houses core divisions including Advanced Learning, Applied Research, Economic Development, and a 25,000-square-foot Conference Center. Over time, the campus has expanded to include seven buildings totaling more than 340,000 square feet.

Key additions include:

- The **51,250-square-foot Center for Manufacturing Advancement (CMA)**, which opened in 2022 to support advanced manufacturing firms with rapid prototyping, precision metrology, and Industry 4.0 testbed at a cost of $25.5 million.

- The **100,000-square-foot National Training Center**, which opened in January 2025 to house the ATDM program and serve as a national hub for defense manufacturing workforce development.

Each facility was purpose-built to serve strategic economic sectors: manufacturing, defense, biosciences, and controlled environment agriculture, ensuring that space and equipment match employer needs and future trends.

Program Design and Credentials

IALR's Advanced Learning division focuses on career-connected education from middle school through adulthood. The Academy for Engineering and Technology allows high school students to earn college credits in engineering and STEM disciplines. The GO TEC initiative introduces middle schoolers to career pathways in IT, robotics, machining, and mechatronics, building interest and exposure early. GO TEC now operates in dozens of school divisions across Virginia and is recognized as a best practice in scalable, employer-informed career exploration.

At the postsecondary and adult learner level, IALR offers short-term, intensive training aligned with regional and national labor needs. The Accelerated Training in Defense Manufacturing (ATDM) program is a 16-week immersive course that trains students in high-demand trades such as CNC machining, welding, metrology, and additive manufacturing. Developed in partnership with the U.S. Navy and defense contractors, the program has already graduated hundreds of students, with a 90%+ job placement rate and typical starting wages over $50,000.

Credentials granted through IALR programs include certifications in welding (AWS), machining (NIMS), metrology, and additive manufacturing—many completed in less than six months. The rapid credentialing model reflects IALR's commitment to economic mobility and workforce speed-to-market.

Regional Reach and Impact

Collaborative governance and partnerships are central to IALR's success. The organization is structured as a political subdivision of the Commonwealth of Virginia and is guided by a board of trustees including leaders from local governments, state agencies, and higher education. Virginia Tech is a founding academic partner and plays a key role in research and program development. Other education collaborators include Danville Community College and Averett University. The Southern Virginia Regional Alliance, a regional economic development organization, works closely with IALR to recruit and support businesses that rely on the workforce and manufacturing infrastructure the Institute enables.

IALR serves a broad regional footprint encompassing Pittsylvania, Halifax, Mecklenburg, Patrick, Henry, and Franklin counties, as well as the cities of Danville and Martinsville. Through initiatives like GO TEC, its influence also reaches deeper into southern and central Virginia.

IALR's regional scope allows the Institute to draw a wide range of students, aggregate employer demand, and support cross-jurisdictional strategies for business recruitment and retention. Companies often cite IALR's presence as a key factor in location decisions. Firms like AeroFarms (in controlled environment agriculture) and MEP Ltd. (in precision manufacturing) have established operations in the region citing IALR's training capacity and technical assistance.

Industry Collaboration and Employer Alignment

A distinguishing feature of IALR is how deeply the industry is embedded in its operations. Employers are not just the beneficiaries of training programs, they design them. Industry leaders serve on advisory boards, provide input on curriculum and equipment, offer internships and apprenticeships, and, ultimately, hire graduates. The defense manufacturing training program, for example, was developed specifically in response to needs identified by the U.S. Navy and its contractor network. This direct line between employer and learner ensures alignment and relevance and eventually, retention.

IALR represents what's possible when a region makes a long-term bet on innovation, workforce, and place. Through sustained funding, deep partnerships, and a commitment to regional equity, the Institute has grown into a nationally

recognized center of excellence. It is not only rebuilding the economy of Southside Virginia—it is redefining how rural regions across the country think about growth, talent, and resilience.

Case Study: Community College Workforce Alliance (CCWA): A Collaborative Model for Workforce Development in Central Virginia

Formation and Strategic Rationale

Founded in 2003, the Community College Workforce Alliance (CCWA) is a partnership between Brightpoint Community College and Reynolds Community College. At a time when Central Virginia's labor market was evolving rapidly, with expanding demand in manufacturing, healthcare, logistics, IT, and education, the two colleges recognized that uncoordinated efforts across adjacent regions were inefficient. Instead, they united under a single workforce development entity, combining resources, academic rigor, and operational unity. Today, CCWA operates with campuses in Midlothian and Chester, serving Chesterfield, Henrico, Hanover, Richmond, Petersburg, Colonial Heights, and neighboring counties. Its mission is to bridge the gap between education and employment through accessible, industry-aligned training.

Funding and Collaborative Investment

CCWA's financial backbone is a multi-channel investment in workforce development. Most notably, CCWA benefits from Virginia's FastForward initiative, providing training grants covering up to two-thirds of tuition for eligible career-readiness programs. For low-income residents, CCWA's financial assistance programs (G3/FANTIC) often cover the remaining balance, making short-term credentials essentially tuition-free. In FY2022, CCWA awarded more than 1,500 industry credentials, including AWS, CompTIA, NHA, OSHA, and CDL certifications, at minimal out-of-pocket cost to students.

Federal funding under Workforce Innovation and Opportunity Act (WIOA), administered locally through the Capital Region and Crater workforce boards, further supports customized training for more than 6,000 students annually, including many displaced workers and adults seeking career change. GO VA and Virginia Career Works grants have also supported curriculum development and business partnerships, especially in advanced manufacturing and pharmaceutical pathways.

Philanthropic contributions are critical as well. Brightpoint's foundation raised $1.44 million in FY2022, including $545,000 earmarked for healthcare pathways and $800,000 for pharmaceutical manufacturing training, as part of a broader $3.94 million federal grant from a Build Back Better Regional Challenge.

Program Integration and Credentials

CCWA offers a broad portfolio of career-focused programs, delivering more than 30 FastForward credentials across sectors such as healthcare, skilled trades, logistics, IT, and construction. Significant credentials include AWS welding certifications, NIMS machining, CompTIA IT fundamentals, NHA healthcare certifications, OSHA safety, and CDL licensing. CCWA's Skilled Trades division alone has issued over 400 credentials in construction, HVAC, electrical, plumbing, and heavy equipment in recent years.

In 2022, CCWA served 6,000+ students and awarded 1,500+ credentials, underscoring its scale and responsiveness. The EducateVA pathway has also begun delivering teaching credentials to address K–12 shortages.

Employer Engagement and Regional Impact

CCWA's employer engagement includes more than 1,100 employers that partner with CCWA annually for customized training in leadership, lean manufacturing, safety, and technical skills. Notable collaborations include the Capital Region's Advanced Pharmaceutical Manufacturing Workforce Initiative, supported by Reynolds and Brightpoint, which received federal funding to scale biotech and pharmaceutical workforce pipelines.

Geographically, CCWA serves urban centers like Richmond, Petersburg, and Colonial Heights, as well as suburban and rural counties, Chesterfield, Henrico, Hanover, Goochland, Powhatan, Prince George, and Dinwiddie. This footprint ensures that training reaches a diverse mix of communities, bringing job-ready talent into the regional economy.

CCWA proves that educational collaboration, when fueled by targeted investment and driven by employer alignment, can transform economies. For communities across Virginia and the Southeast, CCWA offers a tested blueprint of strategic funding, clear governance, and scalable impact.

Case Study: The Wilson Workforce Development Center, Buena Vista, Virginia

In Buena Vista, Virginia, the transformation of a century-old downtown car dealership into a cutting-edge workforce training hub created a pathway for preparing people for the jobs of today and tomorrow. The Wilson Workforce Development Center, operated by Mountain Gateway Community College (MGCC), is not just a facility, it is an investment in the economic resilience of the greater Rockbridge region. The story of its formation, funding, and development offers a powerful model for other communities facing workforce challenges across the Commonwealth.

The Center opened its doors in 2024, the result of a multi-year planning effort led by MGCC in close partnership with the City of Buena Vista and the MGCC Real Estate Foundation. The project centered on the adaptive reuse of the former Courtesy Ford building, a 1916 structure listed on both the Virginia and National Registers of Historic Places. Rather than let this space languish, community leaders envisioned a new future: one in which a downtown anchor could be revived to serve students and employers.

Formation, Funding, and Leadership

The funding strategy behind the Wilson Center reflects diverse sources advancing regional priorities. The project's total development cost reached approximately $6.8 million. A federal grant of $3 million from the U.S. Economic Development Administration (EDA) provided the foundation for construction, with local partners stepping up to match that investment with $750,000. Virginia's Department of Housing and Community Development awarded an additional $650,000 through the Industrial Revitalization Fund (IRF), targeted specifically to transform blighted or underused structures into engines of economic activity. Philanthropy also played a meaningful role: Buena Vista native Joe Wilson, known for his family's legacy in the region and support for education, contributed significant private funds. In recognition of that generosity, the center bears his name.

Mountain Gateway Community College remains the primary operator of the facility. Through its real estate foundation, MGCC coordinated the renovation and oversees the ongoing programming, staffing, and partnerships required to keep the facility aligned with local industry needs. The city provided additional support through planning and permitting, while local employers were engaged throughout the process to inform the design and curriculum of the programs.

Facility Design and Program Implementation

The renovated Wilson Workforce Development Center is in 18,750 square feet of purpose-built space for hands-on, high-skill technical training. Labs and classrooms are outfitted with modern equipment tailored to the specific requirements of today's employers in the skilled trades and advanced manufacturing sectors. From precision machining tools to diesel mechanics workstations and electrical training panels, the facility provides students with a real-world environment to develop practical competencies.

Programs offered at the Wilson Center are designed to meet regional workforce demand and include welding, precision machining, building trades, diesel mechanics, electrical and plumbing, industrial technology, and commercial driver's license (CDL) training. These offerings reflect ongoing collaboration with industry partners such as Modine Manufacturing and Everbrite, who helped MGCC shape a curriculum that meets their hiring needs.

Notably, the Wilson Center's programs are structured within Virginia's FastForward initiative, which provides tuition assistance for residents pursuing short-term, high-demand credentials. This ensures that access is not limited by financial barriers and that local residents, including recent high school graduates, displaced workers, and incumbent employees, can take advantage of training that leads to strong wages and in-demand occupations.

Credentials and Student Impact

The Wilson Workforce Development Center opened with a goal of enrolling 125 students in its first year of operation. The vision over the next five years is to expand that enrollment to 300 students annually, a target that reflects both the strength of employer partnerships and the ongoing demand for skilled workers.

Students enrolled in programs at the Wilson Center are earning industry-recognized credentials, including those from the American Welding Society (AWS), National Institute for Metalworking Skills (NIMS), and the Virginia Department of Motor Vehicles for CDL certification. These credentials are designed to be portable and employer-validated, giving graduates a competitive edge in hiring across a wide range of sectors.

The center serves a broad geographic area, with students coming from Buena Vista, Lexington, and Rockbridge County, and extending to neighboring counties such as Alleghany, Botetourt, and Augusta. The accessibility of the center, both in its downtown location and in its scheduling flexibility, has made it a draw for both traditional students and adult learners balancing work and family responsibilities.

Community and Economic Impact

The Wilson Workforce Development Center is expected to directly create or retain over 100 jobs in the region, while generating more than $2 million in private investment through employer engagement, student spending, and downtown revitalization. The adaptive reuse of the historic dealership building has also contributed to the visual and economic resurgence of downtown Buena Vista.

The Wilson Center stands not only as a physical investment in training infrastructure, but as a symbol of what’s possible when educational institutions, local government, private philanthropy, and employers come together around a shared vision. It’s an example that other communities can look to as they chart their own course for workforce and economic resilience.

Case Study: Rappahannock Community College (RCC), in partnership with New Kent County

Formation and Strategic Rationale

The welding training initiative launched in New Kent County, Virginia, is an example of how strategic collaboration and targeted investment can build sustainable workforce capacity. In response to growing demand for skilled welders across multiple industries, especially shipbuilding and defense manufacturing, Rappahannock Community College (RCC), in partnership with New Kent County, GO Virginia Region 4, the American Welding Society (AWS), and the RCC Educational Foundation, came together to create a dedicated training center tailored to meet the needs of both industry and residents.

The idea took shape as workforce gaps in metals manufacturing became increasingly evident, particularly within Virginia's Hampton Roads and Central Virginia corridors. Major projects like the construction of Virginia-class submarines at Newport News Shipbuilding were stretching the capacity of the regional labor market. Welders were in short supply, and existing training infrastructure was not sufficient to meet the projected demand. RCC and its partners pursued a solution that could equip students with industry-recognized credentials while expanding access to training for youth and adults in New Kent and surrounding counties.

Funding and Program Collaboration

The initiative was supported by a variety of partners. GO Virginia Region 4 provided $300,000 in grant support, which was matched by $150,000 in local funding from New Kent County. In addition to financial support, the County contributed a critical asset, the former New Kent High School cafeteria, located at 11825 New Kent Highway. The space was renovated and outfitted to serve as a modern welding lab. RCC and the RCC Educational Foundation provided further support in staffing, program development, and operations.

This collaboration extended beyond funding. RCC brought educational leadership and a strong understanding of workforce credentialing, while New Kent County provided local insight, resources, and logistical support. GO Virginia's participation demonstrated a strong regional and state commitment to building long-term economic capacity in Central Virginia. The American Welding Society's involvement ensured that all credentials conferred through the program met nationally recognized standards—adding portability and credibility to each student's achievement.

Facility Development and Program Design

The welding training program in New Kent County, Virginia, officially launched in early 2024. Renovation of the facility and program planning began in 2023, and the newly outfitted welding lab opened to students for instruction in January 2024, according to Rappahannock Community College.

The welding training center was designed with both quality and adaptability in mind. The renovated space includes 11 individual welding booths equipped with industry-standard equipment such as Lincoln 300C multi-process welders, Lincoln Prism fume extractors, and Miller Dynasty 400 water-cooled TIG machines. The program covers core processes including Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), and ASME IX pressure pipe welding.

Courses are offered in flexible formats that serve both high school students and adult learners. Through a dual-enrollment program, high school juniors and seniors from surrounding school divisions attend classes during the school day, while evening and weekend cohorts are tailored to working adults and career changers. This blended delivery model allows the program to serve a broad range of students with different schedules and career needs.

Impact, Reach, and Credentials

Since the facility's opening in early 2024, the program has operated at full capacity. In its first full academic year, the welding center awarded more than 20 industry-recognized certifications. Approximately 40 students were served across high school and adult learner tracks, reflecting both the quality of the facility and the strong demand for welding instruction in the region.

The geographic reach of the program extends across six school divisions: New Kent, Charles City, King William, King and Queen, Middlesex, and Mathews Counties. Adult students also come from the broader Middle Peninsula and parts of Central Virginia. This wide catchment area ensures that the program supports workforce development not just in New Kent County, but in a regional context—one that includes many rural and economically distressed communities.

The New Kent welding program is a clear success. It represents a low-cost, high-impact model that leverages underused public infrastructure, draws on regional and state funding mechanisms, and aligns closely with employer demand. Just as important, it has created a local pipeline for high-wage, high-demand jobs that support not only individual mobility but also regional industrial competitiveness.

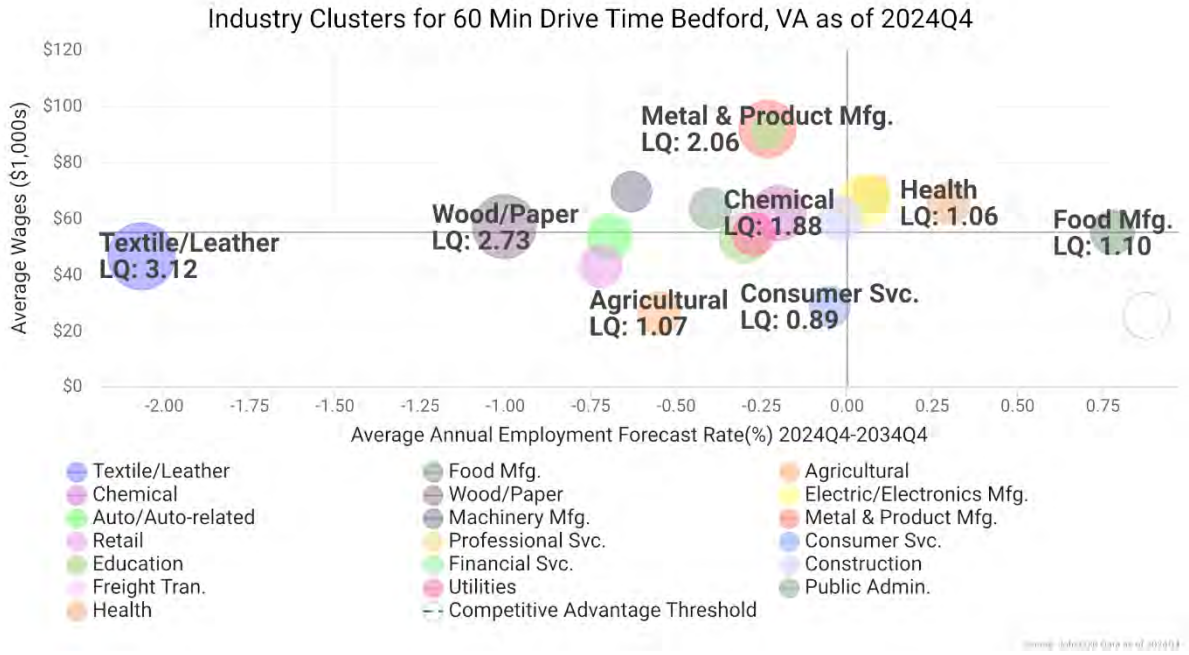
This initiative has already shown measurable returns in terms of credential attainment and regional engagement, and it has positioned New Kent County as a proactive partner in Virginia's broader workforce strategy. For other communities across the Commonwealth, this case offers a replicable framework: strategic collaboration, a modest capital investment, and a clear tie to high-demand industry sectors can result in a durable workforce asset that creates long-term value for both people and employers.

Appendix B: Overview of Metals Industry in the Region

See also the attached Fabricated Metal Product Manufacturing Industry Spotlight.

Industry Clusters for 60 Min Drive Time Bedford, VA as of 2024Q4			
Industry Group	**Average Annual Employment Forecast Rate(%) 2024Q4-2034Q4**	**Average Wages**	**LQ**
Textile/Leather	-2.07	$46,350	3.12
Wood/Paper	-1	$56,889	2.73
Metal & Product Mfg.	-0.23	$91,749	2.06
Chemical	-0.2	$61,756	1.88
Electric/Electronics Mfg.	0.05	$66,210	1.67
Education	-0.3	$52,795	1.45
Auto/Auto-related	-0.69	$53,181	1.16
Food Mfg.	0.78	$54,841	1.1
Construction	-0.02	$59,788	1.09
Agricultural	-0.55	$26,164	1.07
Health	0.3	$65,321	1.06
Utilities	-0.27	$54,281	1.05
Retail	-0.72	$42,922	1.02
Freight Tran.	-0.27	$59,206	1.02
Public Admin.	-0.4	$63,422	0.98
Machinery Mfg.	-0.63	$69,409	0.89
Consumer Svc.	-0.05	$28,441	0.89
Professional Svc.	0.07	$68,986	0.72
Financial Svc.	-0.23	$90,628	0.58

Source: JobsEQ



Source: JobsEQ

Metal Workers and Plastic Workers in 60 Min Drive Time Bedford, VA, 2024Q4[1]								
		Current					5-Yr History	1-Yr Forecast
SOC	Occupation	Empl	Mean Ann Wages[2]	LQ	Unempl	Unempl Rate	Ann %	Ann % Growth
51-4121	Welders, Cutters, Solderers, and Brazers	1,501	$54,500	1.53	46	3.00%	1.80%	-0.20%
51-4041	Machinists	954	$58,000	1.5	24	2.40%	-2.40%	-0.40%
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	566	$47,800	1.47	5	0.90%	-1.60%	-1.50%
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	369	$41,000	1.1	46	10.50%	-0.60%	-0.70%
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	312	$48,900	1.14	6	1.80%	1.50%	-0.30%
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	207	$45,400	1.54	4	1.70%	-3.10%	-0.40%
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	135	$43,000	0.83	8	5.90%	-1.30%	-1.60%
51-4111	Tool and Die Makers	121	$53,900	1	2	1.70%	-2.20%	-1.50%
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	115	$45,600	1.53	3	2.90%	-1.50%	-1.30%
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	80	$46,400	1.45	1	1.60%	-0.80%	-1.40%
51-4051	Metal-Refining Furnace Operators and Tenders	57	$54,200	1.21	3	5.10%	1.00%	-1.40%
51-4193	Plating Machine Setters, Operators, and Tenders, Metal and Plastic	57	$41,000	0.83	3	4.20%	0.10%	-1.50%
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	55	$49,800	2.56	1	1.60%	-10.00%	-1.90%
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	48	$39,900	1.14	1	1.70%	-8.60%	-1.50%
51-4071	Foundry Mold and Coremakers	40	$53,000	1.6	5	11.60%	-3.30%	-3.40%
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	28	$52,000	0.91	1	1.80%	-5.30%	-1.80%
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	26	$48,100	0.8	1	4.20%	-2.50%	-1.40%
51-4194	Tool Grinders, Filers, and Sharpeners	23	$38,700	1.49	1	4.20%	-6.00%	-1.40%
51-4199	Metal Workers and Plastic Workers, All Other	23	$57,000	0.55	1	4.30%	-7.30%	-1.10%
51-4052	Pourers and Casters, Metal	16	$50,800	1.32	1	5.40%	-9.10%	-1.60%

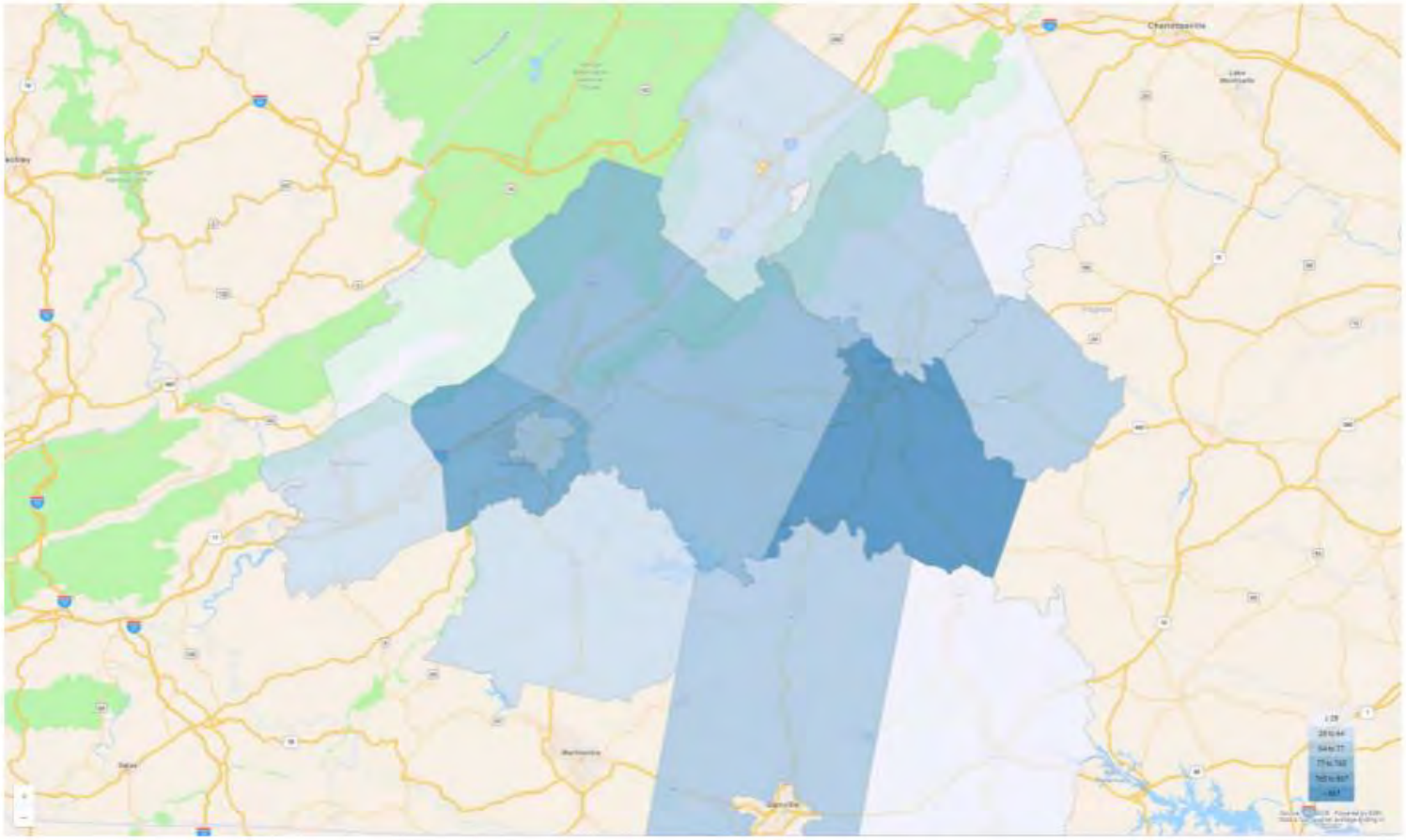
51-4192	Layout Workers, Metal and Plastic	14	$62,300	0.93	1	4.70%	3.10%	-1.00%
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	8	$46,300	0.56	0	n/a	-16.00%	-2.30%
51-4061	Model Makers, Metal and Plastic	7	$66,000	1.04	2	18.80%	-11.70%	-2.20%
51-4062	Patternmakers, Metal and Plastic	7	$56,700	1.49	2	20.70%	-8.90%	-2.40%
51-4000	Metal Workers and Plastic Workers	4,768	$51,400	1.35	168	3.40%	-1.00%	-0.70%
00-0000	Total - All Occupations	361,150	$59,800	1	12,326	3.10%	0.00%	-0.20%

Source: JobsEQ

Roanoke and Lynchburg MSA, Metal Workers and Plastic Workers (51-4000) (2022-2023)					
CIP Code	**Title**	**Certificates and 2yr Awards**	**4yr Awards**	**Postgraduate Awards**	**Total Awards**
48.0508	Welding Technology/Welder	107	0	0	107
48.0599	Precision Metal Working, Other	70	0	0	70
	Total	177	0	0	177

Source: JobsEQ

Geographic Distribution of Metals Industry



Region	Empl
Campbell County, Virginia	2,723
Lynchburg City, Virginia	868
Salem City, Virginia	775
Roanoke County, Virginia	765
Roanoke City, Virginia	228

Region	Empl
Bedford County, Virginia	153
Botetourt County, Virginia	77
Amherst County, Virginia	76
Appomattox County, Virginia	73
Pittsylvania County, Virginia	64
All Others	180

Source: JobsEQ

Study Sponsor and Consultants

GO Virginia is a bipartisan, business-led economic development initiative that is changing the way Virginia's diverse regions collaborate on economic and workforce development activities. GO Virginia supports programs to create more high-paying jobs through incentivized collaboration between business, education, and government to diversify and strengthen the economy in every region of the Commonwealth.

The Economic Development Authority (EDA) of the Town of Bedford is a seven-member board appointed by the Bedford Town Council to promote industry, develop trade, and support the attraction and retention of businesses within the town limits. Operating under the authority granted by Title 15.2, Chapter 49 of the Code of Virginia, the EDA works to fulfill the economic development goals set by the Town Council. The EDA meets monthly to guide strategic initiatives, including the implementation of a Strategic Plan adopted in 2021, which outlines a five-year vision for economic growth and community development.

Creative Economic Development Consulting, LLC, provides strategic planning, product development, organizational development, and economic impact analysis services to communities. Creative EDC is an innovative firm that owns three proprietary programs: Certified Entrepreneurial Community®, CreativeSiteAssessment.com, and Creative Back Office Suite of Services (CBOSS).

CJMW Architecture is a 50-person firm, and one of the Southeast's oldest architecture and interior design practices. Our work takes us throughout the southeast from offices in Winston-Salem and Raleigh, North Carolina and Lynchburg, Virginia. We excel at making local and long-distance owner relationships seamless, meeting face to face frequently and implementing user-friendly technologies to meet and communicate as often as the project might require. Interior design is an integral part of the firm's practice. Our award-winning work runs the gamut from restaurants, hotels and public venues to museums, theatres, and corporate offices.

Founded in 1982, Master Engineers and Designers, Inc. has been successfully serving clients for over 40 years. As 100% Employee-Owned, all of our associates are personally invested in the success of Master Engineers and the success and satisfaction of our clients. Our professionals are skilled in providing engineering leadership through each step of a project from planning and scheduling, design, construction, startup, and operations.

CJMW ARCHITECTURE

Planning • Interior Design

April 23, 2025

Ms. Mary Zirkle, Economic Development Coordinator
Town of Bedford
215 East Main Street
Bedford, VA 24523

On April 17, 2025, CJMW Architecture visited the former Winoa USA facility, located at 1 Abrasive Avenue, Bedford VA.

The following report is a record of visual observations and evaluations of the current building conditions, with a focus on building envelope and life safety components.

1. Overall Description
    a. Facility consists of a series of interconnected metal buildings constructed between 1973 and the 1990s.

2. Building Façade
    a. System General Description
        i. The base of the façade is painted CMU in a stack bond coursing, approximately 8 feet above finish floor. CMU typically limited to the original 1973 building, with brick veneer at the office entrance to the Office Block. It is unclear as to the status of reinforcing or core fill.
        ii. The remainder of the façade consists of vertical corrugated siding spanning between horizontal girts, approximately 4 to 6 feet on center depending on location in the facility. Girts span between structural steel columns.
            1. 1973 building: Siding profile is similar to a typical "reverse rib" type, with the ribs turned inward toward the girts. Office Block also includes a projecting "A-panel" accent for the top 2-1/2 feet of the wall.
            2. The remainder of the complex is a typical "rib panel."
    b. Deficiencies Observed
        i. Multiple locations observed where the CMU and siding have been damaged due to vehicular collisions inside the facility.
        ii. The base of the siding above CMU has rusted through, typically extending approximately 8 inches above the CMU and opening flashings. While not observed on-site due to access limitations and slag / dust accumulation, it can be safely assumed this damage extends to the wall girts in these locations as well.
        iii. Wall insulation does not meet current code requirements for a conditioned (heated and cooled) facility:

1. Insulation within the CMU cores could not be observed without destructive methods. However, it can be assumed the cores are not insulated since insulation was not observed at damaged portions of CMU, and a majority of the facility was not originally designed to be conditioned. Additionally, the original documents do not mention the inclusion of block fill.
2. Above the CMU in the Office Block, there is a traditional metal building insulation system, comprised of 3 to 4 inch thick faced batt insulation (R-10 to R-13) compressed between the wall girts and siding. Thermal spacer blocks were not observed. This is significantly lower than the requirements for a new-construction building: R-13 batt plus R-13 continuous insulation within the siding.
3. The remainder of the facility has no insulation in the walls: corrugated siding is installed directly to the wall girts.

iv. A significant number of holes have been cut in the siding, particularly at the rear of the facility. The larger holes have been patched with dissimilar materials, typically flat sheet metal. There does not appear to be flashing, counter-flashing, or sealant along the edges of the patches, which will result in ingress of bulk water over time.

v. At the Foundry Building, 4 bays were left open to facilitate removal of heat and smoke from the kiln. This effectively makes that portion of the facility exposed to the elements.

c. Proposed Improvements

i. Due to the lack of insulation in a majority of the facility; insufficient amounts of insulation to meet current energy code requirements throughout the full facility; and the level of damage to siding materials, we would recommend the removal of existing siding back to the wall girts. New siding could then be provided in one of the following forms:

1. Provide an R-13 batt insulation system similar to the original, with the addition of thermal break strips and insulated metal wall panel siding (R-13 minimum).
2. Provide Insulated metal wall panels capable of providing a maximum U-0.052 value for the full assembly. This would take the form of an R-20 wall panel, approximately 2-1/2" thick. This would result in a smooth sheet metal surface on the inside of the building and would protect the insulation.

ii. Due to the localized CMU damage, wholesale removal of the CMU would not be deemed necessary. Exposed CMU should be repaired in-kind and skinned with an exterior insulation finish system (EIFS) to provide energy code minimum required insulation while maintaining the durable, fire-resistant CMU on the inside of the facility.

1. A potential alternative to an EIFS system would be to fill the CMU cores with foam insulation. However, "foaming the cores" will not yield a fully-code-

compliant assembly on its own and will have to be evaluated against proposed usage of the Facility, including whether the portions of the Facility will remain unconditioned.

3. Roof System

a. System General Description
   i. The Office Block roof consists of a corrugated metal deck on sloping structural steel joists. Per the 1973 drawings, the corrugated deck is covered by a nominal 3/4" thick rigid foam insulation, with crickets to divert roof water to two roof drains in the center of the building. The original built-up roof membrane appears to have been replaced by a modern white membrane roof, material and age unknown.
   ii. The Foundry, West High Bay, and East High Bay consist of a corrugated metal deck spanning across roof purlins on sloping structural steel. Per the 1973 drawings, the corrugated deck is covered by a nominal 3/4" thick rigid foam insulation. It is unclear if the current roof membrane is the original built-up roof membrane or has been replaced at some point. Roof drainage is via gutters and downspouts on the edges of the roof.
   iii. The Material Warehouse and Maintenance Warehouse consist of a typical metal building lined batt insulation system compressed between the spanning corrugated roof panels and roof purlins. Overall insulation thickness could not be observed due to access limitations but appears to be in the 3 inch range based on damaged sections observed. Roof drainage is via gutters and downspouts on the West edge of the Maintenance Warehouse.

b. Deficiencies Observed
   i. General
      1. Roof systems appear to be keeping water out of the building – no signs of water infiltration were observed.
      2. Insulation thickness does not meet current energy code requirements for conditioned spaces: see individual building observations for estimated R-values. Current code requires either an R-30 continuous (5.3" thick) or a mixture of R-19 batts sandwiched between the roof deck and purlins, with R-11 between purlins in a "liner system" installation.
      3. Gutters and downspouts typically showing evidence of leakage and decay. Additionally, gutters and downspouts do not appear to be adequately sized for their tributary area.

   ii. Office Block
      1. Drainage is only by primary drains – there are no secondary / emergency drains. Therefore, a clog would result in significant weight being added to the roof.

2. 3/4" of continuous urethane insulation would yield an R-4.5 at best, which does not meet the R-30 minimum required by code.

iii. Foundry, West High Bay, and East High Bay
1. 3/4" of continuous urethane insulation would yield an R-4.5 at best, which does not meet the R-30 minimum required by code.
2. Flashing has become disconnected, particularly at the ridgeline of the High Bay building. However, as noted, water does not appear to be coming into the space.

iv. Material Warehouse & Maintenance Warehouse
1. 3" fiberglass batt provides approximately R-10, which does not meet the R-19 plus R-11 minimum required by code.
2. Translucent roof panels are showing signs of decay, and do not provide edge protection to prevent people from falling through the roof.

c. Proposed Improvements
i. In order to provide conditioned spaces beyond those currently conditioned, the building envelope will need to be improved to meet current energy code requirements. There are 2 options available:
1. Provide continuous rigid insulation above the roof deck. Based on the type of roof deck, this may also require providing some sort of sheathing to span across the flutes of the roof panels. This would also require the installation of a new roof membrane.
2. Provide insulation between existing structural members below the roof. This would allow the existing roof membranes to remain but would require more insulation to be installed to account for the thermal bridging of structural members – R-30 continuous insulation would modify to a maximum assembly U-value of U-0.035.

ii. As part of the re-siding of the Facility, new flashing, trim, and gutters should be installed for a uniform appearance, and to correct any deficiencies for a weather-tight condition. Gutter sizing should be evaluated and resized accordingly, based on new code standard sizing.

4. Fenestration

a. System General Description
i. Large overhead coiling doors and overhead paneled doors are located around the perimeter of the facility. Typically, these doors are uninsulated and are power operated. Operation of doors was not observed during the visit.
ii. A series of narrow aluminum storefront windows and an aluminum storefront entrance are located in the finished office spaces in the Office Block. 2 additional wood-framed windows appear to have been cut in at the office area at a later date. Glazing appears to be single-glazed throughout.

b. Deficiencies Observed

i. Water infiltration was not observed at the office fenestration openings – aluminum storefront windows and doors appear to be functioning properly.
ii. Wood window trim at the office windows show signs of decay.
iii. Minor water infiltration typically observed around the fenestration openings of the unconditioned portions of the Facility. This could be attributed to the deficiencies in the exterior envelope.

c. Proposed Improvements
i. Exterior wood window trim should be replaced with more durable materials, such as aluminum-clad wood or fiber cement.
ii. Depending on the extent of conditioning, uninsulated doors and windows should be replaced with insulated products. This would include insulated glazing units, overhead doors (paneled and coiling) and pedestrian doors.

5. Life Safety

a. System General Description
i. Exit signs appear to be located appropriately along designated exit paths. Additionally, doors labeled "Not An Exit" where appropriate.
ii. Exit doors appear to operate properly and do not appear to prevent free egress.
iii. Typical hardware is a knob latchsets. Limited lever latchets and panic bars are present.

b. Deficiencies Observed
i. Multiple doors have non-illuminated, printed "Exit" signs, which do not meet current code requirements.
ii. <<100 foot rule for exit signs – are we in compliance?>>
iii. A handful of exit signs with battery backup and lighting were observed, but do not appear to provide sufficient lighting levels on their own.
iv. Additionally, there did not appear to be dedicated emergency lighting fixtures, as all light fixtures are either "on" or "off" in several portions of the Building.

c. Proposed Improvements
i. Non-illuminated exit signs will need to be replaced with illuminated types as required by code.
ii. Exit signs and egress lighting will need to be reviewed wholistically as part of the reuse of the Building, as modifications to use and layout will impact required lighting levels and sign placement.
iii. Door hardware must be evaluated with the proposed uses and occupant loads – panic bars are required where occupant loads for a space exceed 50. Additionally, knob latchsets do not meet current code requirements for accessibility.

6. Passive Fire Protection

- a. System General Description
  - i. Most of the Facility consists of non-combustible construction, most closely related to VCC Type IIB: non-combustible, not protected.
    1. Interior floors are typically precast tees
    2. Interior walls are typically CMU, with a mixture of nominal 8" and 6" thicknesses.
  - ii. Limited interior construction was observed utilizing combustible materials, typically 2x lumber, and only within the Office Block:
    1. Ceiling over the 1-story office space in the south-west corner.
    2. Partitions within the 1-story office space in the south-west corner.
    3. Partitions in the mezzanine of the south-west corner office space.
    4. Ceiling over the 1-story break room in the north-west corner.
    5. Ceilings over the mezzanine spaces along the North end of the space – framing added to install a GWB ceiling over these spaces.
  - iii. Due to existing construction, there are no effective fire separations in the facility. Therefore, the fire area of the Facility would be the full facility footprint, plus mezzanines where applicable by code.
- b. Deficiencies Observed
  - i. Question whether to analyze compliance if no modifications to occupancy are made.
- c. Proposed Improvements
  - i. Depending on the future use of the Facility, wood construction may not be allowed for the proposed occupancies without removal of combustible construction, or without the creation of fire walls to separate combustible from non-combustible construction types.
  - ii. Allowable fire area will need to be reviewed against proposed future uses, which will determine if additional sprinkler coverage is required, if the construction of fire separations (Fire Walls, Fire Barriers, or Horizontal Fire Separations) is required, or both.

7. Active Fire Protection

- a. System General Description
  - i. Building is served with a limited area sprinkler system, confined to the office spaces and break room in the Office Block.
  - ii. Fire alarm devices are present but were not reviewed as to type by the Architect.
  - iii. Horn / strobe devices are present.
  - iv. Fire alarm manual pull stations are typically located at exterior exit discharge doors.
- b. Deficiencies Observed
  - i. On the day of the Site Visit, fire alarm system was in fault mode. Exact type of fault could not be determined.

ii. Compressor for the dry pipe system was kicking on every several minutes, which may indicate leaks in the system.

c. Proposed Improvements
   i. Fire alarm devices, including detectors, horn/strobes, and manual pull stations should be reviewed for appropriate placement and type as part of the reuse of the Facility.

May 26, 2025

Mr. Mike Griffin
CJMW Architecture
1225 Main Street, Suite 304
Lynchburg, Virginia 24504

Reference: Structural Condition Assessment
Metal Workforce Training Facility
Bedford, Virginia
MEAD Project No. 538-038

Dear Mr. Griffin:

As requested, the following is our structural condition assessment letter/report for the referenced project. It is based on our site visit on Thursday, April 17, 2025. Photographs taken at this site visit can be seen in Attachment A. We are also familiar with this facility from projects completed for the previous owners (Winoa and Wheelabrator).

Project Scope

We understand the Town would like to develop a Master Plan for the proposed Regional Metal Workforce Retention Center, which is a 60,000 square foot former foundry. The Master Plan is to serve as the basis to bring in end users, to outline operations for the EDA as the Owner, and to be used to seek further funding. The structural condition assessment was performed in accordance with ASCE 11, Guideline for Structural Condition Assessment of Existing Buildings. This consisted of a visual inspection of accessible major structural components identifying deterioration and/or distress in these members. No existing construction was disturbed to provide access.

Facility Description

The structure is a series of pre-engineered metal buildings (PEMB) supported by individual column footings. The initial buildings were installed in 1973 with the latest addition in 1984. The floor consists of an 8” thick concrete slab-on-grade. Figure 1 provides a floor plan with overall dimensions with designated areas. These areas consist of offices, loading dock for shipping and receiving, manufacturing areas, melt area and pit, scrap yard, and warehouses for maintenance and storage. Most of the equipment has been removed and the shoting pit has been filled in. The only equipment remaining are motor control centers.

There are architectural and structural drawings for the entire facility. Architectural drawings include floor plans, elevations, and cross sections through the building. Structural drawings

include foundation plans, framing plans, column reactions, and sections. Since the structures are PEMB the framing plans for the steel superstructure are limited in information provided for framing members.

Site Observations

Figure 1 shows the location of the photos and Attachment A includes photos of the damaged areas. The following are our observations:

- The metal siding is damaged from rust along the bottom, pushed in by storing pallets, and numerous penetrations that are no longer used. See Photos 1, 2, 3, 5, 10, and 23.
- There is damage to selected areas of the masonry. See Photos 4, 8, 9, 18,19, 20, 22, and 25.
- The floor has anchor bolts and rough areas from removing equipment. This occurs mostly in Bays 2 and 3. All equipment, including cranes, have been removed. There are MCCs that will be removed. See Photo 7.
- There is wood framing in the office area and the roof of the Mechanical Equipment Shelter.
- There are damaged columns from forklift hits. Most have been repaired by adding steel plates and concrete to protect from future hits. See Photos 6, 12, 15, 17, and 21.
- In the Maintenance Warehouse and Material Warehouse there are damaged girts. See Photo 24.
- There are missing or damaged X-bracing. See Photos 9, 11, and 24.
- There were crane upgrades in the Scrap Yard and Bay 1 for the overhead bridge crane. Columns and cross bracing were added for a possible larger crane. See Photos 13 and 14.
- There is spalling concrete in the wall of the Scrap Yard. See Photo 16.
- There is no indication of settlement in the building foundations and slabs.

Conclusions

Overall, the steel structural frames, floor slab, and foundations are in good condition. There is damage to the metal siding and a few of the girts and cross bracing. There is damage to the CMU walls in selected areas. The drawings that are available will be useful in renovating the facility.

Recommendations

At this time our recommendations are as follows:

- Replace the metal siding on the entire building.
- Replace damaged girts.
- Replace damaged and/or missing cross bracing.
- Remove duct supports from the rear of the building.

Closing

Mr. Griffin, we appreciate this opportunity to provide our services. We are available to answer any questions you may have or provide additional information as desired.

Sincerely,

MASTER ENGINEERS AND DESIGNERS, INC.

Gary W. Loomis, P.E.
Senior Structural Engineer

gloomis@MasterEngineersInc.com

PHOTO 1	Location: South Wall of Bay 3
	Description:

PHOTO 2	Location: North Wall of Bay 2
	Description: Duct Supports Penetrating Siding

PHOTO 3	Location:	North Wall of Bay 2
	Description:	Duct Supports Penetrating Siding

PHOTO 4	Location:	South Wall Bay 2
	Description:	Damage to CMU Wall

PHOTO 5	Location:	West Wall of Material Warehouse
	Description:	Damaged Siding

PHOTO 6	Location:	Shipping/Receiving
	Description:	Column Flange Removed for Piping

PHOTO 7	Location:	Bay 3 Floor
	Description:	Holes and Uneven Floor Due to Equipment Removal

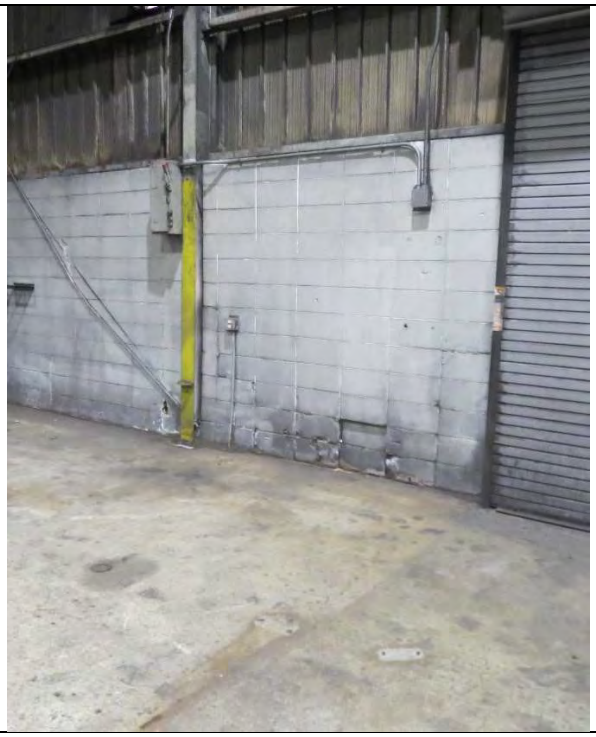


PHOTO 8	Location:	Bay 2 South Wall
	Description:	Damaged CMU Wall

PHOTO 9	Location:	Bay 3 South Wall
	Description:	Missing and Damaged Cross Bracing

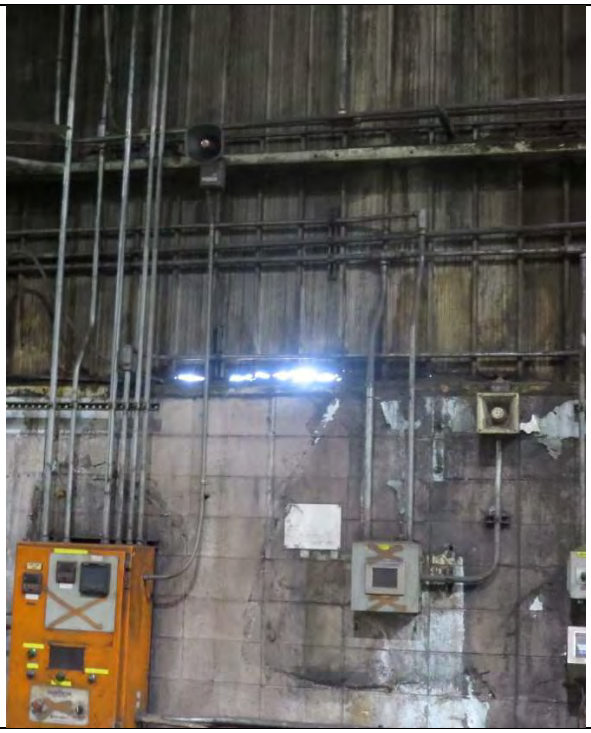


PHOTO 10	Location:	Bay 3 East Wall
	Description:	Damage to Metal Siding From Corrosion

PHOTO 11	Location:	Bay 2 East Wall
	Description:	Missing Cross Bracing on Crane Columns

PHOTO 12	Location:	Bay 2 East Wall
	Description:	Damaged Column to Flanges

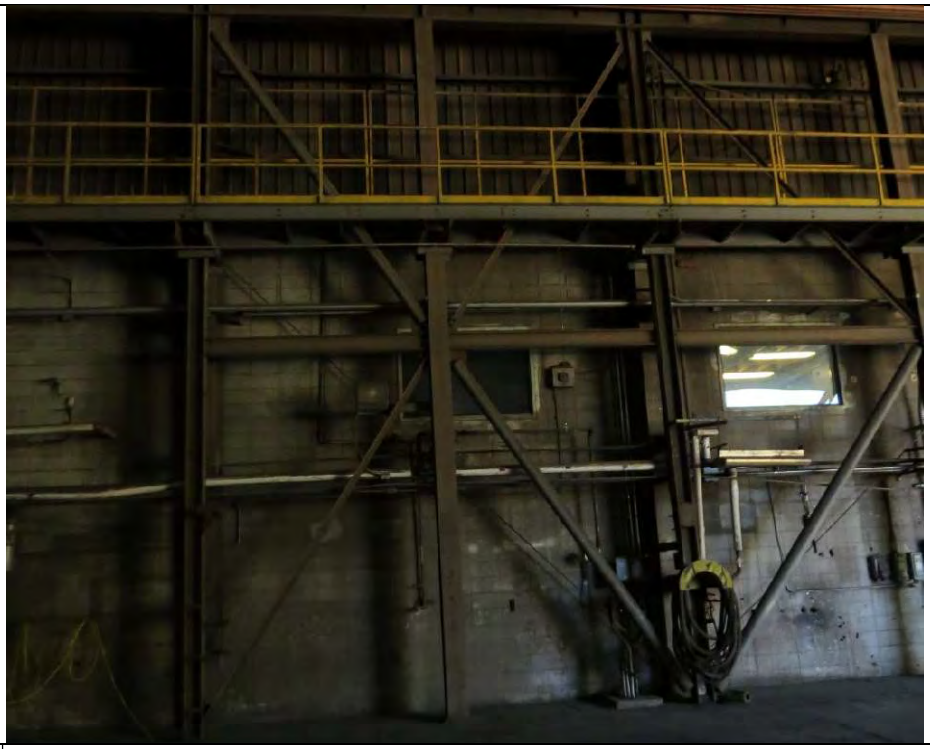


PHOTO 13	Location:	Bay 1 Wall at Laboratory and Supervisors Office
	Description:	Columns and Cross Bracing Added to Crane Runway

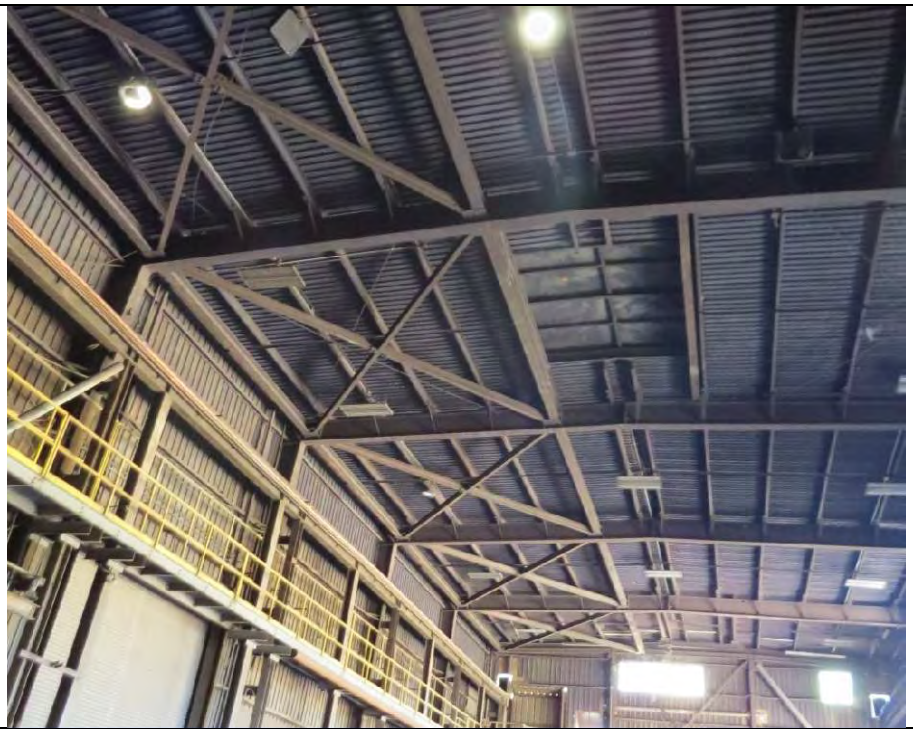


PHOTO 14	Location:	Bay 1 and Scrap Yard Roof
	Description:	Added Cross Bracing for Crane Upgrade

PHOTO 15	Location:	Scrap Yard
	Description:	Columns with Concrete for Protection

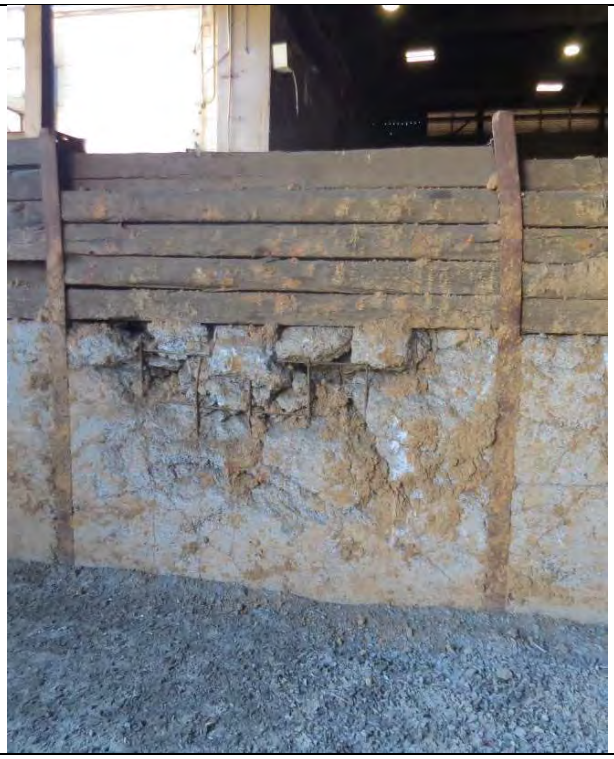


PHOTO 16	Location:	Scrap Yard Interior Wall
	Description:	Concrete Wall Spalling

PHOTO 17	Location:	Scrap Yard North Column
	Description:	Damaged Column with Bent Flanges

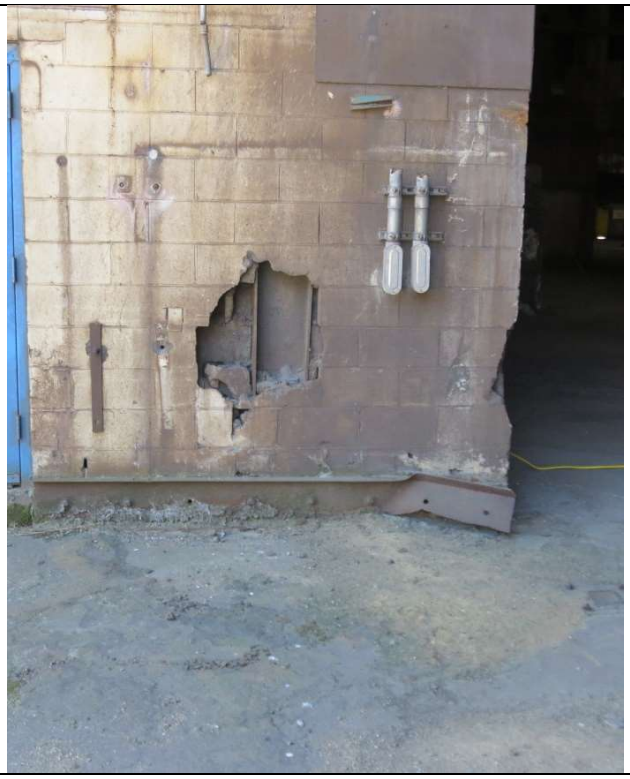


PHOTO 18	Location:	Hydraulic Room West Wall
	Description:	Damage to Block Wall

PHOTO 19	Location:	Transformer Room North Wall
	Description:	Vertical Crack in CMU and Numerous Holes from Anchors

PHOTO 20	Location:	Scrap Yard West Wall
	Description:	Damaged/Missing CMU

PHOTO 21	Location:	Material Warehouse Interior Column
	Description:	Columns Damaged and Steel Plates Added for Repairs

PHOTO 22	Location:	Material Warehouse east Wall
	Description:	Damage to CMU wall from Forklift Trucks

PHOTO 23	Location:	Maintenance Warehouse South Wall
	Description:	Damage to Siding From Forklift Trucks

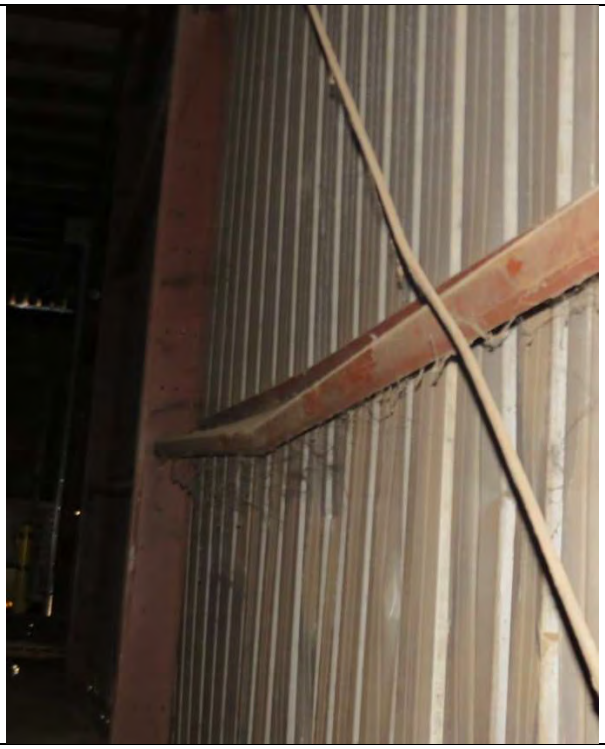


PHOTO 24	Location:	Maintenance Warehouse South Wall
	Description:	Damaged Girt and Cross Bracing

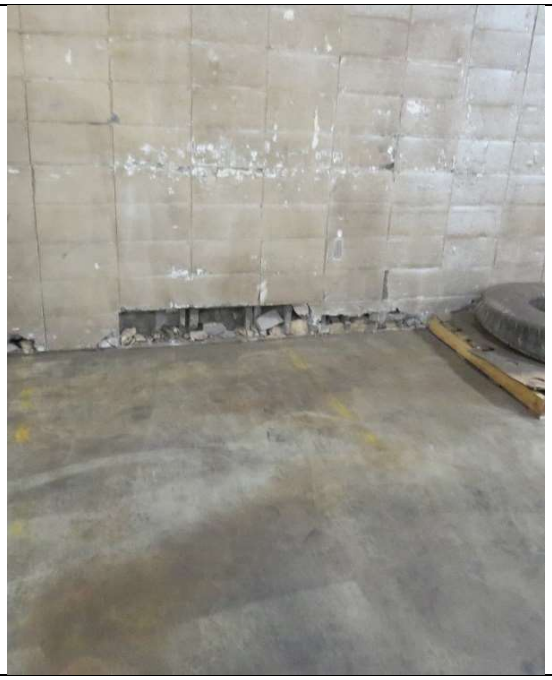
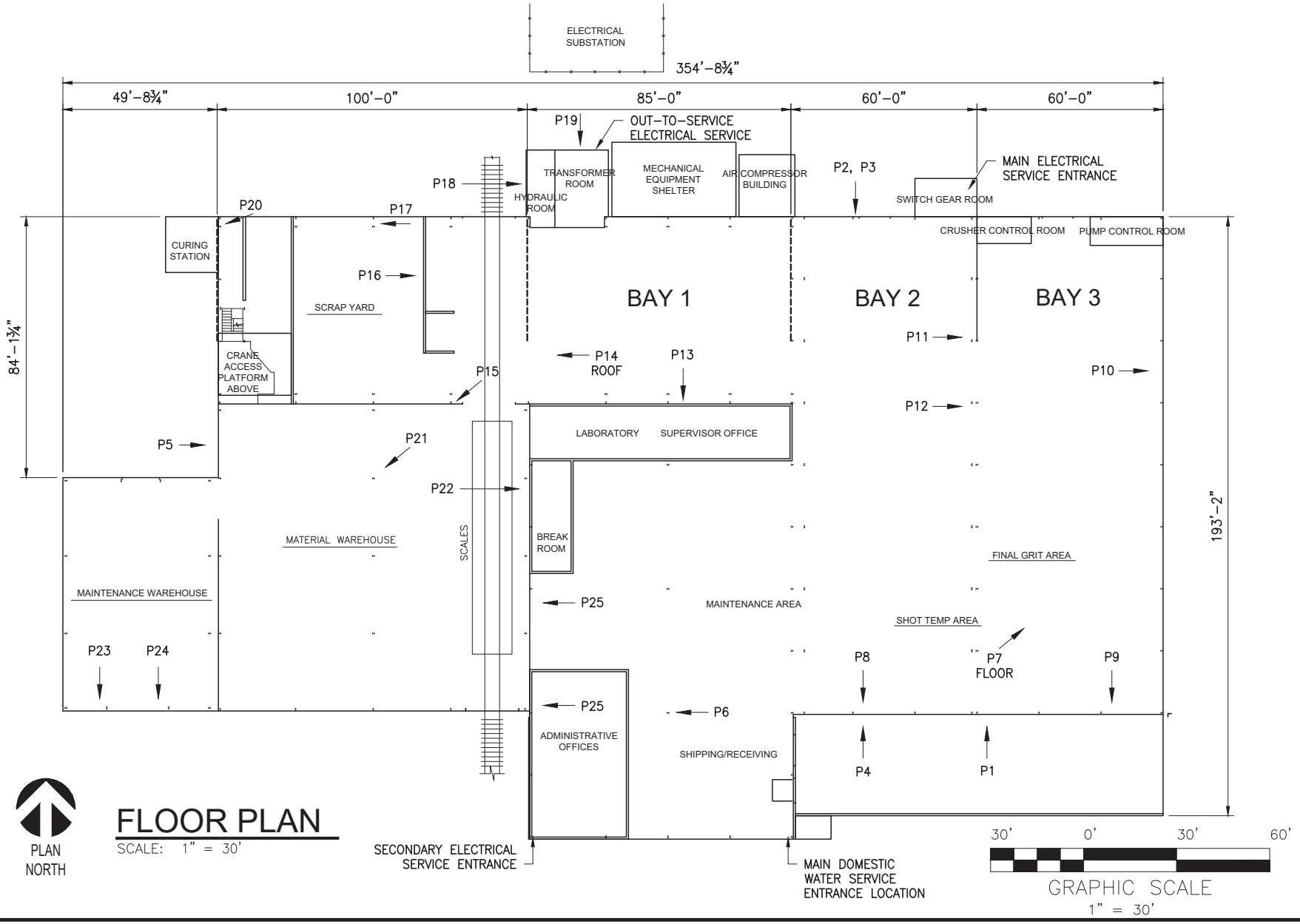


PHOTO 25	Location:	Maintenance Area West Wall
	Description:	Damage to CMU



FLOOR PLAN

SCALE: 1" = 30'

REVISIONS:

MASTER ENGINEERS & DESIGNERS
904 Lakeside Drive, Lynchburg, VA 24501
434-846-1350 Fax: 434-846-1351

METAL WORKFORCE TRAINING CENTER

BEDFORD, VIRGINIA

PLANT LAYOUT

DATE:	5–19–25
DESIGN:	GWL
DRAWN:	ATE
APPR'D:	GWL
SCALE:	AS NOTED
COMM NO:	538–038
DWG NO:	FIG 1

June 6, 2025

Mr. Mike Griffin
CJMW Architecture
1225 Main Street, Suite 304
Lynchburg, Virginia 24504

Reference: MEP Condition Assessment and Recommendations
Metal Workforce Training Facility
Bedford, Virginia
MEAD Project No. 538-038

Dear Mr. Griffin:

As requested, the following is our MEP condition assessment letter/report for the referenced project. It is based on our site visit on Thursday, April 17, 2025

Observations and Discussions

Plumbing

Domestic Water and Water Heaters

A 6" domestic water line enters the front of the building from below the slab. A shutoff valve was observed at the entrance. Two tank type water heaters were observed, serving the front office areas and central restroom/shower areas, respectively. Pipe material was observed to be a combination of copper and PEX piping. No expansion tanks or recirculation pumps were apparent. Backflow prevention was observed in the furnace cooling piping, but nowhere else on the domestic water lines. Miscellaneous plumbing fixtures include several electric water coolers, and an eyewash station in the shower room.

Sanitary

Sanitary piping was observed to be PVC. Vent piping was assumed to exist but not observable. One instance of pumped sanitary was observed in the central restroom area. A small sanitary reservoir/tank is installed underneath the lavatory; a pumped sanitary line with a check valve, vent piping, and electric wiring connected to the reservoir. The pumped line connects to another sanitary pipe near the 1st floor ceiling. Floor drains were observed in the restrooms.

Roof Drains

The flat low roof area is served by two roof drains. The connecting storm pipes route down through the building adjacent to a column, and through the slab. The high bay roofs drain via downspouts and gutters, and where adjacent to the low roof, drain onto the low roof. Roof overflow for the low roof is believed to be accomplished by means of overspilling roof edges

Compressed Air

Compressed air piping was observed in the high bay spaces. The piping did not appear to be in good condition. No compressed air production equipment (compressors, dryers, etc.) was observed.

Fire Suppression

The front 1st and 2nd floor office areas and the central 1st and 2nd floor restrooms and offices appear to be fully sprinkled. No sprinklers were observed in any of the high bay spaces. The sprinkler system is a dry zone sprinkler system. The sprinkler system is served by means of a water line tapped from the main domestic water line inside the building. Backflow prevention was observed on the water supply line before the dry valve. The existing fire riser is 4". The sprinkler piping is steel piping, and was observed to be in good condition.

Mechanical (HVAC)

The entire building is not conditioned. The 1st and 2nd floor front office area is served by two packaged rooftop units. Two packaged rooftop units were observed above the central 2nd story restroom/office block, although ductwork was not observable connecting to one of them. The 1st floor restroom/locker room is served by an air handling unit installed in the shower space, and connected to a condensing unit on the roof. The breakroom is served by a small split system. A method of introducing outside air was not observed on several units. There is one packaged rooftop unit installed on the roof above the eastern high bay space. Several fans are mounted on the walls and ceiling of the two high bay spaces. The two warehouse spaces on the west side of the building have no means of mechanical ventilation. The pump and crusher control rooms and the room currently acting as a server room are served by several window units. Baseboard heating was observed in several of the 1st floor offices. Ductwork appeared in several places to be over the maximum recommended length of 5 ft. of flex duct.

The following table lists the age and condition of the different mechanical equipment found in the building. The second table lists the air handling equipment and useful life remaining for each piece of equipment, per ASHRAE recommendations.

Equipment type	Expected service life (yrs)	Current age (yrs)	Condition
Ductwork	30	Unknown	Fair-Poor
Heat pumps	15	5-26	Fair-Poor
Radiant Heaters	25	Unknown	Fair
Fans	25	Unknown	Fair-Poor

HVAC Unit	Area Served	Capacity	Useful Life Remaining
Carrier 50KCQA04 RTU	Front Office	3 tons	9 years
Trane RTU	Front Office	-	-
Trane YSC120A RTU	Central Office	12 tons	None – 4 years over
Trane RTU	Central Office	-	-
Trane AHU/CU	Breakroom	-	-
Trane TWE036 AHU	Shower Room	-	None – 12 years over
Trane XB 1000 CU	Trane TWE036	-	None – 12 years over
Trane 4WCC30 RTU	High Bay	-	4 years

Electrical

Power

There are three points of power service entrance to the building, although one is currently not in service. One is a medium voltage service derived from a substation on site. The owner reports that this service is derived from a 50 MVA transformer within the substation. The engineer could not get into the substation to verify this rating. From the substation, power is routed through a gang-operated air-break switch located inside a room in the rear of the building. This service was associated with the process equipment and facilities have been demolished downstream of the switch. The other service consists of three transformers that step voltage down from 13,800 Volts to 480/277V, 3-phase, 4-wire. These transformers are of unknown capacity, but distribute power to two, 1200-amp bolted-pressure contact switches that serve as service disconnects. These switches are located in Square D switchboards in an electrical room in the rear of the building. These switchboards distribute power to the rest of the building, except for the front office area. This area is served by a small single-phase, 120/240V service.

Power distribution throughout the building consists of Power-class panelboards, lighting and power-class panelboards, and motor control centers throughout the facility. Panelboards are Square D, commercial panelboards and MCCs are Allen Bradley and contain mostly motor starters that were used to control process loads within the facility. All equipment in manufacturing areas is very dirty and does not appear to be rated to protect against dust ingress.

Lighting

Interior lighting consists of high bay fixtures in manufacturing areas and lay-in troffers in office areas with ceiling grids. Some fixtures have been converted to LED sources, but

most are fluorescent or HID. Lighting is not adequate in some of the high bay spaces for activities which require attention-to-detail. Control of interior fixtures is via light switches.

Exterior lighting is accomplished by building-mounted wall packs and floodlights mounted all the way around the building. These light fixtures have HID lamps. There are also pole-mounted, cobra-head style fixtures in the front parking lot. These fixtures appear to have been re-lamped to utilize LED sources.

Fire Detection and Alarm and Security Systems

The building has a Fire Detection and Alarm system. The fire alarm control panel is a Honeywell/Firelite ES-200X. There is smoke/heat detection throughout most of the facility and notification devices throughout the entire facility.

There is a simple security system in the office area that appears to only monitor that area of the building.

Recommendations

Plumbing

Due to expected change in building layout and usage, it is recommended that the plumbing systems be demolished, and new systems be installed. The main water line appears to be in good condition, and if total building water demand does not exceed current capacity, could be left as is. The rest of the domestic water systems should be replaced with appropriate backflow prevention and hot water recirculation systems added. New sanitary and vent piping, which matches the expected new fixtures and floorplan, should be installed. A means of overflow roof drainage should be added. If compressed air is desired for the new building, the existing piping should be removed and new piping installed. The installation of a new fire sprinkler system is dependent on the new use of the building, but is recommended wherever required by the building code.

Mechanical (HVAC)

Due to the age of the mechanical systems, it is recommended that the existing systems be replaced in their entirety. New systems based on the new floorplan/building layout should be installed that meet ventilation requirements of the current Virginia Mechanical Code. It is assumed that the new systems would still be packaged rooftop units. It is recommended that a means of heating, cooling, and ventilating the two high bay spaces be provided.

Electrical

The electrical service will need to be modified to suit the new use of the building. While on site, the owner discussed plans for the power company to bring a new 12 kV line around the building to the back to establish a new point of service. New transformers would need to be installed of adequate capacity to support the new use. The service-entrance bolted-pressure contact switches could be serviced and re-used, provided that they have adequate capacity to support the new use. The total capacity of 2,400 amps at 480V would likely not be adequate to support a large amount of welding or process load, but it depends on the building program.

It is recommended that all electrical distribution equipment be replaced due to its dirty condition. New equipment can be designed and laid out to suit the new use.

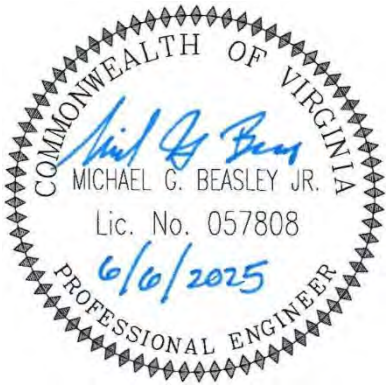
It is recommended that all interior and lighting be replaced with LED light fixtures. Lighting can be added in areas where lighting is currently poor. During this replacement, occupancy-sensing or timeclock-based lighting controls would be required to bring the lighting to current code.

The existing Fire Detection and Alarm System can likely be modified to suit the new use. It is serviceable and new devices could be added per the new building program.

This concludes our report.

Sincerely,

MASTER ENGINEERS AND DESIGNERS, INC



Grant Beasley, PE
Electrical Project Engineer

Chris Snyder, P.E.
Senior Mechanical Engineer

JOBSEQ

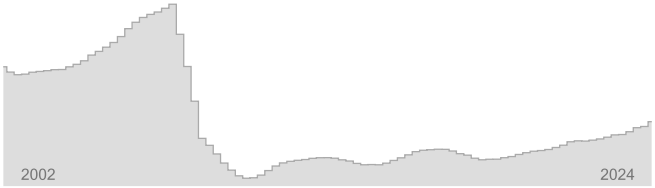
Industry Spotlight

Fabricated Metal Product Manufacturing

60 Min Drive Time Bedford, VA

Fabricated Metal Product Manufacturing
60 Min Drive Time Bedford, VA – 2024Q1

EMPLOYMENT



5,982

Regional employment / **1,476,192** in the nation

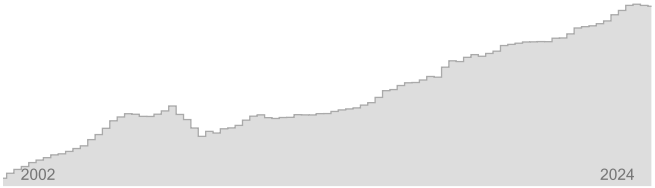
1.0% ↑

Avg Ann % Change Last 10 Years / **+0.1%** in the US

1.7%

% of Total Employment / **0.9%** in the US

WAGES



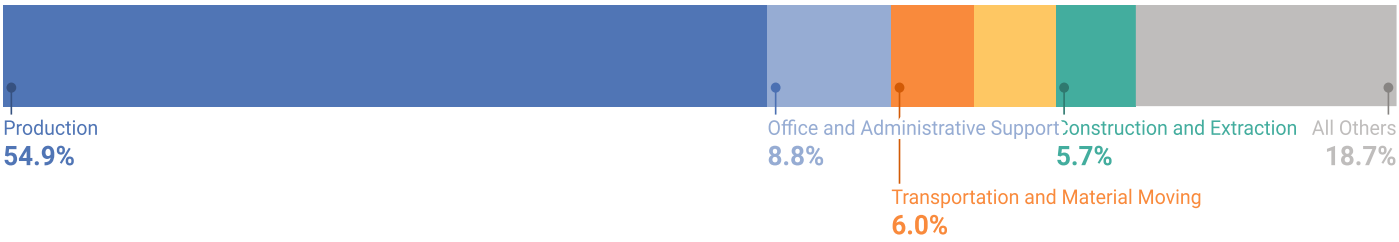
$84,178

Avg Wages per Worker / **$70,843** in the nation

3.0% ↑

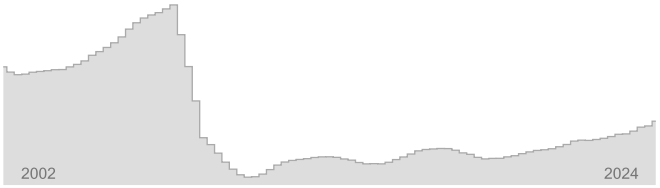
Avg Ann % Change Last 10 Years / **+3.2%** in the US

TOP OCCUPATION GROUPS

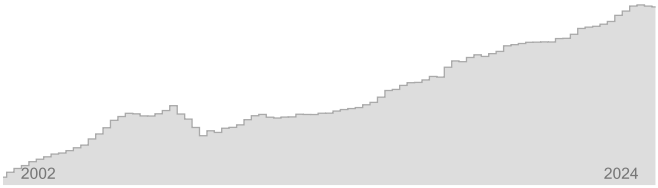


Industry Snapshot

EMPLOYMENT



WAGES



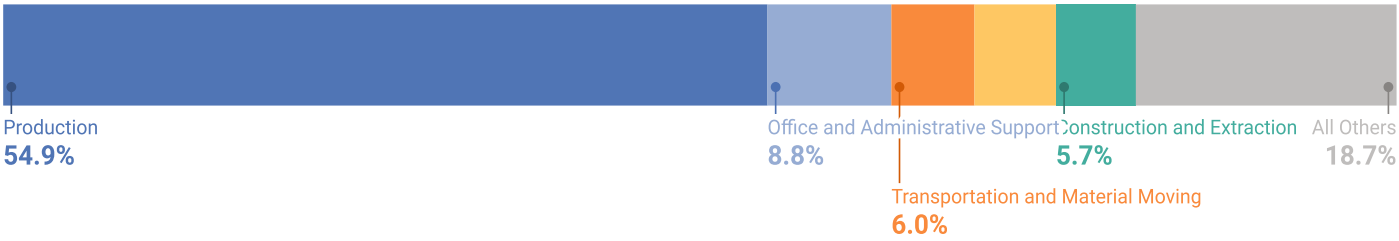
3-Digit Industry	Empl	Avg Ann Wages	LQ	5yr History	Annual Demand	Forecast Ann Growth
Fabricated Metal Product Manufacturing	**5,982**	**$84,178**	**1.85**		**576**	**-0.2%**

Employment is one of the broadest and most timely measures of a region's economy. Fluctuations in the number of jobs shed light on the health of an industry. A growing employment base creates more opportunities for regional residents and helps a region grow its population.

Since wages and salaries generally compose the majority of a household's income, the annual average wages of a region affect its average household income, housing market, quality of life, and other socioeconomic indicators.

Source: JobsEQ®, http://www.chmuraecon.com/jobseq

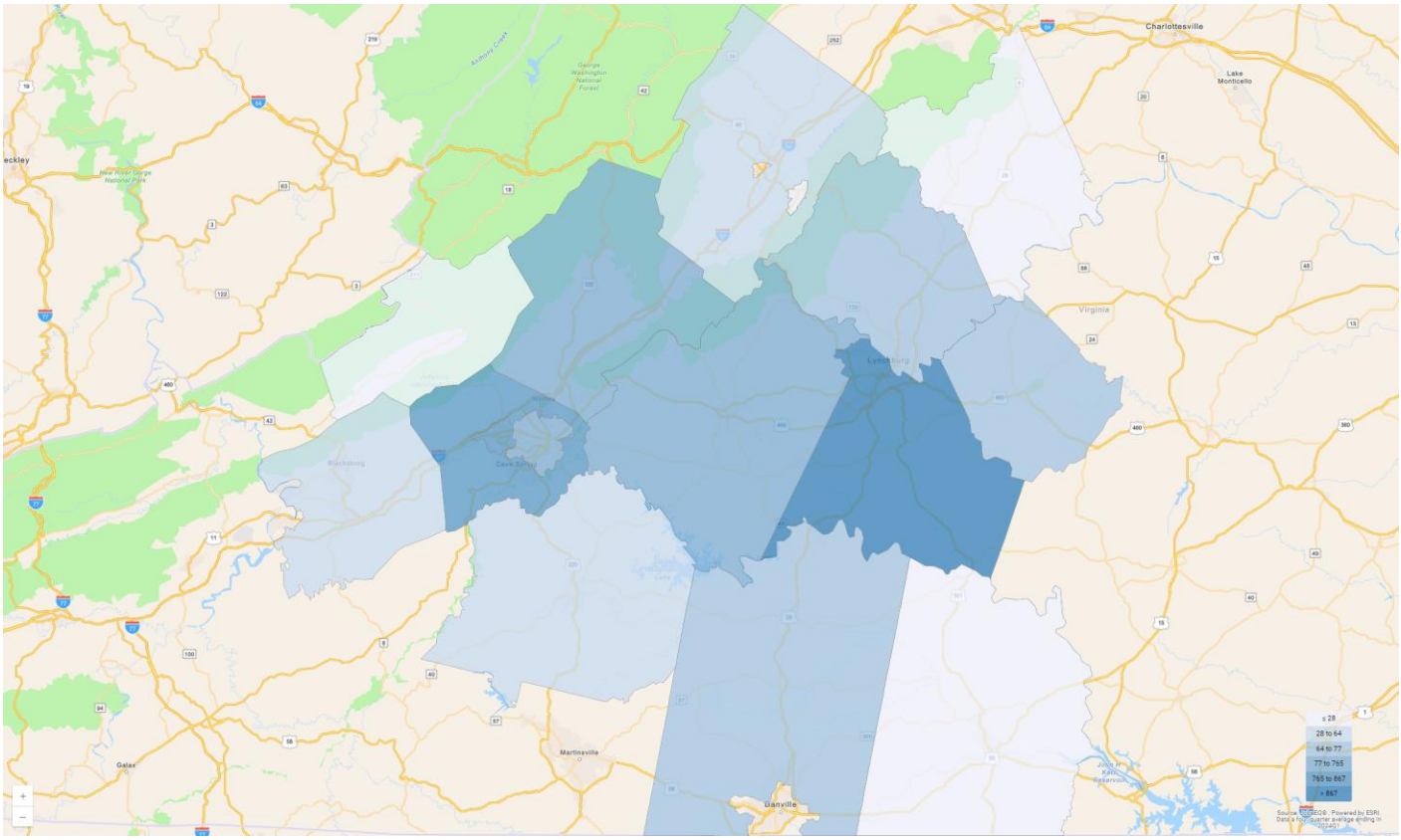
Staffing Pattern



6-digit Occupation	Empl	Avg Ann Wages	Annual Demand
Welders, Cutters, Solderers, and Brazers	634	$54,000	62
Team Assemblers	513	$44,300	57
Machinists	381	$57,200	37
First-Line Supervisors of Production and Operating Workers	286	$71,200	26
Computer Numerically Controlled Tool Operators	183	$44,600	14
Sheet Metal Workers	182	$52,000	17
Structural Metal Fabricators and Fitters	177	$51,200	14
General and Operations Managers	176	$117,200	14
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	173	$47,000	15
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	144	$72,800	13
Remaining Component Occupations	3,117	$63,900	298
Total	**5,965**		

The mix of occupations points to the ability of a region to support an industry and its flexibility to adapt to future demand. Industry wages are a component of the cost of labor for regional employers.

Geographic Distribution



Region	Empl
Campbell County, Virginia	2,723
Lynchburg City, Virginia	868
Salem City, Virginia	775
Roanoke County, Virginia	765
Roanoke City, Virginia	228

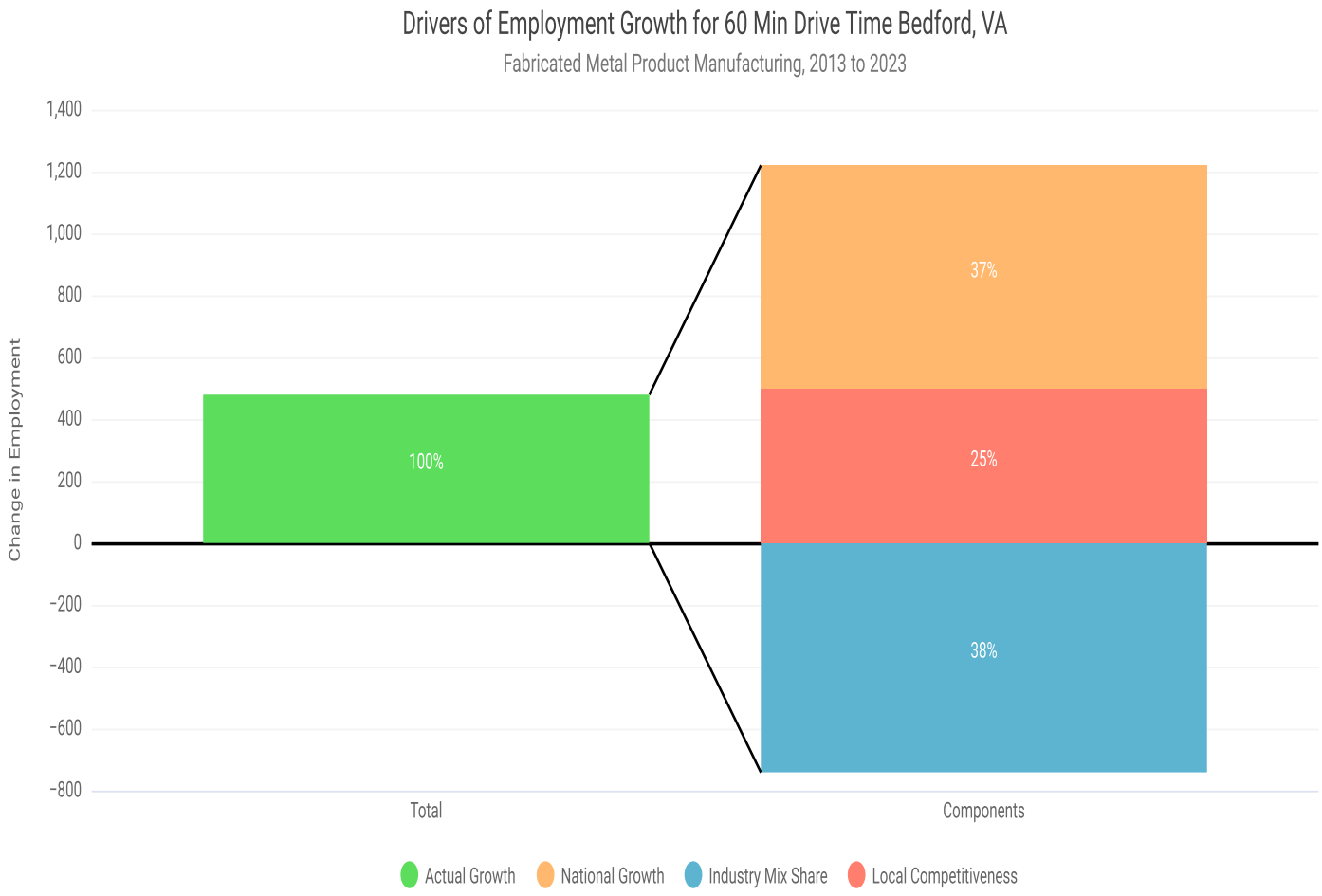
Region	Empl
Bedford County, Virginia	153
Botetourt County, Virginia	77
Amherst County, Virginia	76
Appomattox County, Virginia	73
Pittsylvania County, Virginia	64
All Others	180

Source: JobsEQ®

The geographic distribution of industry employment by place of work illustrates the impact on labor force demand and commuting patterns.

Drivers of Employment Growth

Over the ten years ending 2023, employment in Fabricated Metal Product Manufacturing for the 60 Min Drive Time Bedford, VA added 479 jobs. After adjusting for national growth during this period and industry mix share, the part of this employment change due to local competitiveness was a gain of 497 jobs—meaning this industry was more competitive than its national counterpart during this period.



Source: JobsEQ®
Data as of 2023Q4

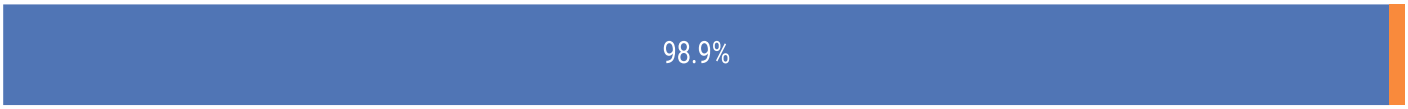
Shift-share analysis sheds light on the factors that drive regional employment growth in an industry. A positive change in local competitiveness indicates advantages that may be due to factors such as superior technology, management, and labor pool, etc.

National growth is due to the overall growth or contraction in the national economy. Industry mix share is the growth attributable to the specific industries examined (based on national industry growth patterns and the industry mix of the region).

Employment Distribution by Type

The table below shows the employment mix by ownership type for Fabricated Metal Product Manufacturing for the 60 Min Drive Time Bedford, VA. Four of these ownership types — federal, state, and local government and the private sector — together constitute “Covered Employment” (employment covered by the Unemployment Insurance programs of the United States and reported via the Quarterly Census of Employment and Wages).

“Self-Employment” refers to unincorporated self-employment and represents workers whose primary job is self-employment (that is, these data do not include workers whose primary job is a wage-and-salary position that is supplemented with self-employment).



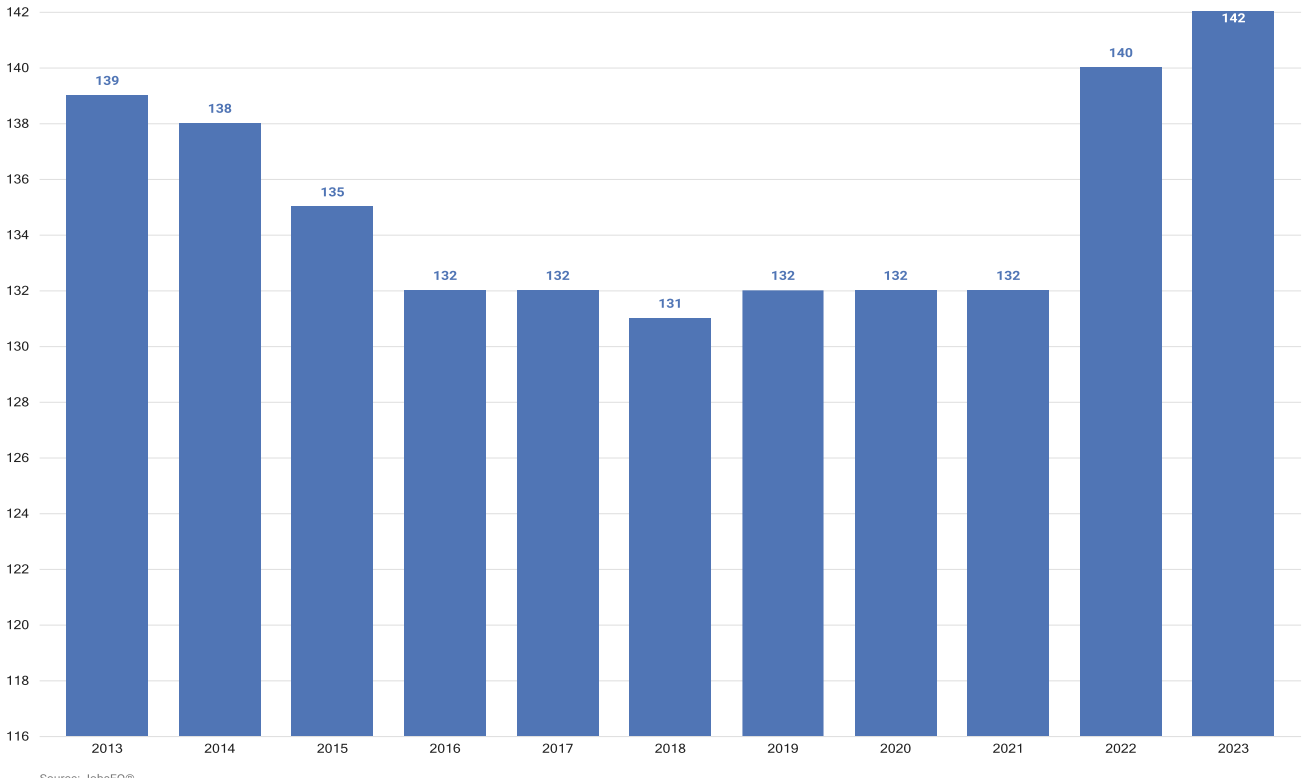
	Empl	%
Private	5,918	98.9%
Self-Employment	64	1.1%

Source: JobsEQ®

Strong entrepreneurial activity is indicative of growing industries. Using self-employment as a proxy for entrepreneurs, a higher share of self-employed individuals within a regional industry points to future growth.

Establishments

In 2023, there were 142 Fabricated Metal Product Manufacturing establishments in the 60 Min Drive Time Bedford, VA (per covered employment establishment counts), an increase from 139 establishments ten years earlier in 2013.

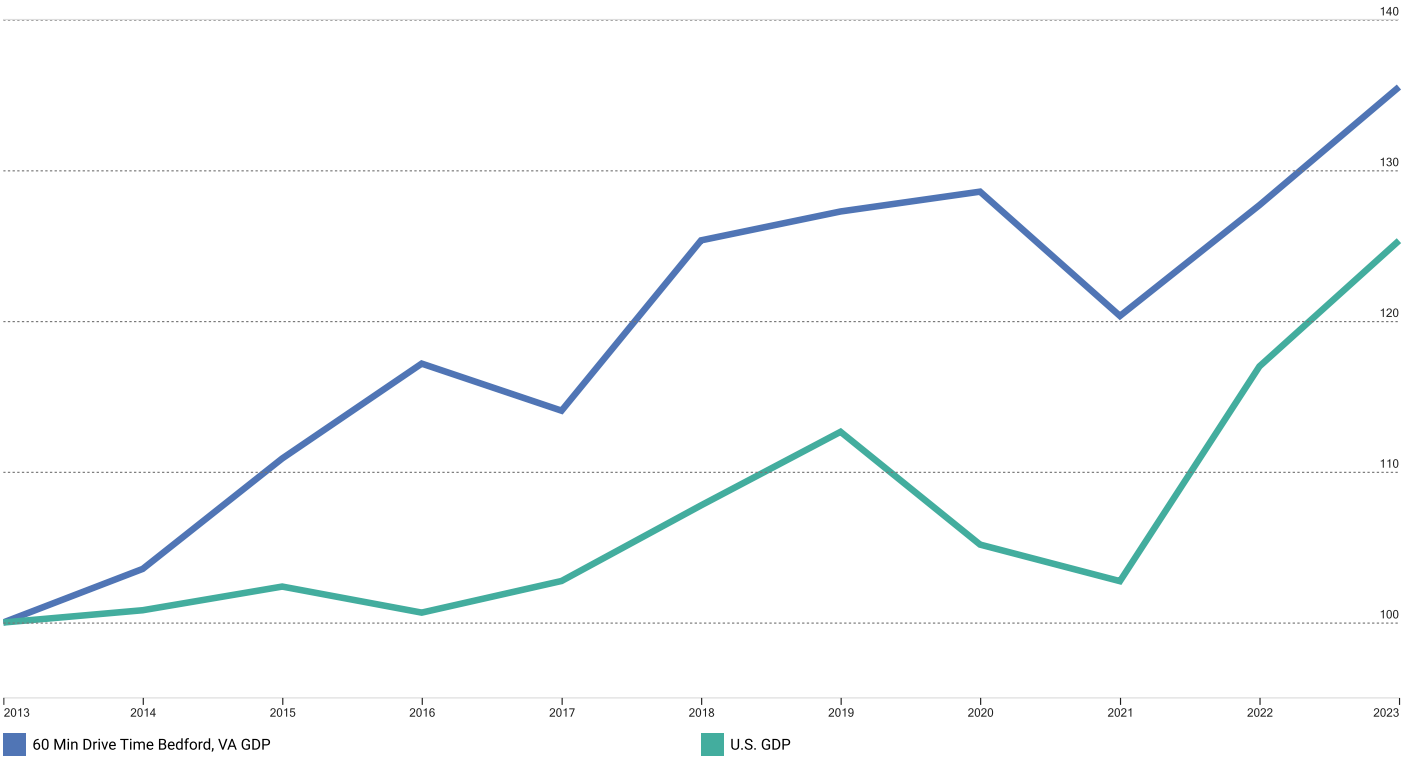


New business formations are an important source of job creation in a regional economy, spurring innovation and competition, and driving productivity growth. Establishment data can provide an indicator of growth in businesses by counting each single location (such as a factory or a store) where business activity takes place, and with at least one employee.

GDP & Productivity

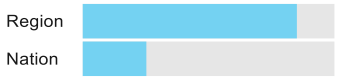
In 2023, Fabricated Metal Product Manufacturing produced $0.9 billion in GDP for the 60 Min Drive Time Bedford, VA.

GDP: Indexed 2013 = 100



2.2 %

Industry Share of Total GDP / **0.6 %** in the nation



3.1 %

Avg Ann % Change Last 10 Yrs / **2.3 %** in the nation

$375k

Output per Worker / **$328k** in the nation

Gross domestic product (GDP) is the most comprehensive measure of regional economic activity, and an industry's contribution to GDP is an important indicator of regional industry strength. It is a measure of total value-added to a regional economy in the form of labor income, proprietor's income, and business profits, among others. GDP values shown on this page are nominal GDP data.

Growth in productivity (output per worker) leads to increases in wealth and higher average standards of living in a region.

Supply Chain: Top Suppliers

As of 2024Q1, Fabricated Metal Product Manufacturing in the 60 Min Drive Time Bedford, VA are estimated to make $1.0 billion in annual purchases from suppliers in the United States with about 34% or $0.3 billion of these purchases being made from businesses located in the 60 Min Drive Time Bedford, VA.

3-digit Supplier Industries	Purchases from In-Region ($M)	Purchases from Out-of-Region ($M)
Primary Metal Manufacturing	$97.8	$81.7
Fabricated Metal Product Manufacturing	$93.6	$55.4
Professional, Scientific, and Technical Services	$26.2	$80.1
Administrative and Support Services	$14.0	$52.9
Real Estate	$7.7	$35.6
Remaining Supplier Industries	$102.2	$366.8
Total	$341.5	$672.4

Supplier-buyer networks can indicate local linkages between industries, regional capacity to support growth in an industry, and potential leakage of sales out of the region.

Postsecondary Programs Linked to Fabricated Metal Product Manufacturing

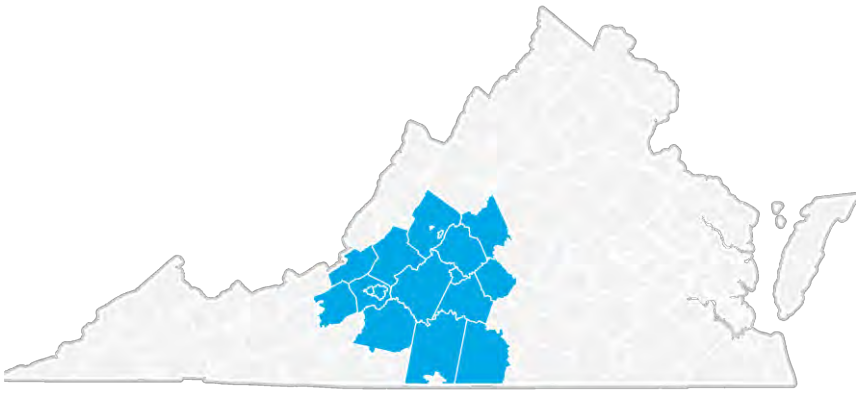
Program	Awards
Central Virginia Community College	
Precision Metal Working, Other	70
Welding Technology/Welder	82
Liberty University	
Accounting	462
Business Administration and Management, General	3,108
Virginia Polytechnic Institute and State University	
Architectural and Building Sciences/Technology	168
Civil Engineering, General	358
Industrial Engineering	298
Management Science	486
Mechanical Engineering	420
Virginia Western Community College	
Welding Technology/Welder	25

Source: JobsEQ®

The number of graduates from postsecondary programs in the region identifies the pipeline of future workers as well as the training capacity to support industry demand.

Among postsecondary programs at schools located in the 60 Min Drive Time Bedford, VA, the sampling above identifies those most linked to occupations relevant to Fabricated Metal Product Manufacturing. For a complete list see JobsEQ®, http://www.chmuraecon.com/jobseq

60 Min Drive Time Bedford, VA Regional Map



Source: JobsEQ®, http://www.chmuraecon.com/jobseq

Data Notes

- Industry employment and wages (including total regional employment and wages) are as of 2024Q1 and are based upon BLS QCEW data, imputed by Chmura where necessary, and supplemented by additional sources including Census ZBP data. Employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts.
- Occupation employment is as of 2024Q1 and is based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OEWS data. Wages by occupation are as of 2024, utilizing BLS OEWS data and imputed by Chmura.
- GDP is derived from BEA data and imputations by Chmura. Productivity (output per worker) is calculated by Chmura using industry employment and wages as well as GDP and BLS output data. Supply chain modeling including purchases by industry are developed by Chmura.
- Postsecondary awards are per the NCES and are for the 2022-2023 academic year.
- Establishment counts are per the BLS QCEW data.
- Figures may not sum due to rounding.

Region Definition

60 Min Drive Time Bedford, VA is defined as the following counties:

Amherst County, Virginia	Nelson County, Virginia
Appomattox County, Virginia	Pittsylvania County, Virginia
Bedford County, Virginia	Roanoke County, Virginia
Botetourt County, Virginia	Rockbridge County, Virginia
Campbell County, Virginia	Buena Vista City, Virginia
Craig County, Virginia	Lynchburg City, Virginia
Franklin County, Virginia	Roanoke City, Virginia
Halifax County, Virginia	Salem City, Virginia
Montgomery County, Virginia	

FAQ

What is (LQ) location quotient?

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is annual demand?

Annual demand is a of the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.

What is the difference between industry wages and occupation wages?

Industry wages and occupation wages are estimated via separate data sets, often the time periods being reported do not align, and wages are defined slightly differently in the two systems (for example, certain bonuses are included in the industry wages but not the occupation wages). It is therefore common that estimates of the average industry wages and average occupation wages in a region do not match exactly.