

Sector Planning Partnership

Manufacturing (Welding) in the Grand Erie Region

A Strategic Plan

September – December 2017



Workforce Planning Board of Grand Erie
Commission de planification de la main-d'oeuvre de Grand Erie

In partnership with:

Funded By:





OUR VISION

A skilled, resilient workforce contributing to dynamic communities and their economies.

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Executive Summary

Manufacturing is the leading source of employment in Grand Erie, providing 14,310 of the jobs in the region. Within the manufacturing industry, 10% of the workers are welders. The demand for welders has trended upward since 2010, doubling the number of jobs in Brant and by a third in Haldimand-Norfolk. However, employers continue to struggle with finding the workers they need. Over the last 3 years, local businesses have reported an ongoing shortage of skilled professional welders.

The Sector Planning Partnership looks into why this is occurring and sets out to strategically recommend long term solutions. This strategic plan is intended to address community concerns and build a sustainable pool of skilled welding professionals who can meet the needs of employers in our growing economy.

Over an 8-week period, the Workforce Planning Board of Grande Erie, Conestoga College and Fanshawe College met with the Sector Planning Partnership Group. This group consisted of: 12 local manufacturing businesses, local employment and training organizations, literacy development services and educational institutions. Four bi-weekly Strategic Planning Sessions were conducted, where representatives from each organization were invited to share their expertise and knowledge of the Welding industry.

Through the natural progression of the meetings, there were several immediate successes that occurred:

- Employers opened up about several COOP opportunities within their businesses open to local employment and training services, high schools and college levels.
- Local high school boards connected with employers and the Canadian Welding Association (CWA) in hopes of developing a partnership to fund ventilation systems within the school and new safety equipment.
- Employers discussed material sharing and/or supplying opportunities with current training programs.

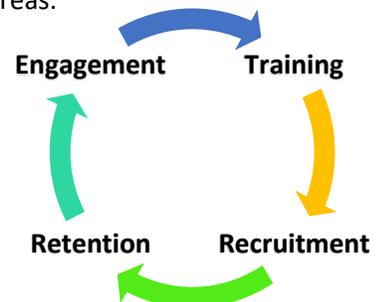
The Sector Planning Partnership Group identified 4 main components to the issues surrounding the shortage of welders:

- | | |
|---|---------------|
| 1. Lack of those pursuing welding as an occupation | (ENGAGEMENT) |
| 2. Lack of qualified applicants | (TRAINING) |
| 3. Lack of locally available candidates and succession planning | (RECRUITMENT) |
| 4. Maintaining employees in a competitive landscape. | (RETENTION) |

The strategic plan takes a full circle approach to addressing each of these four key areas.

Each area outlines recommendations that provide a framework for how we can address these concerns to increase the supply of qualified welders and attend to the growing demand within the Grand Erie region.

- **Engagement** – We need to involve and expose the community into the world and opportunities of the welding industry. The recommendations include:
 - Increasing Community Exposure;





- A Welding Campaign;
- Welding Camps; and
- A Welding Open House.
- **Training** – Soft skills are highlighted as the main missing link with current candidates; we recommend developing a training environment that focuses both on soft skills and technical competencies. The recommendations include:
 - Pre-Employment Program for Basic Welding;
 - Pre-Welding Skills Orientation; and
 - Customizing the Secondary School Welding Curriculum.
- **Recruitment** – Career pathways for welders must be addressed through better local labour market information, skills standards and Employer-Education relationships. The recommendations include:
 - Welding Open House;
 - COOP Placement within each Training Program;
 - Pre-Employment Skills Assessment; and
 - Upgrading Current Recruitment Technology.
- **Retention** – Looking at both an employer and employee level, there is a mismatch between expectations and the reality of the industry. The recommendations will look to strategies to keep employees on board and engaged through:
 - Pre-Employment Program for Basic Welding;
 - Addressing the Corporate Community Culture; and
 - Skills Upgrading.

The full circle approach ensures that we are addressing the need for a long-term sustainable strategy for the industry and not a quick fix. The recommendations represent a staged process that will succeed through each partners continued involvement and commitment to developing the plan and implementing the strategies over the designated time period.

As the leading source of employment in Grand Erie, the Manufacturing sectors needs must be addressed quickly and effectively. We will need to work together to ensure we are building a sustainable pool of skilled and qualified welding professionals who are ready for the workforce. This will in turn support our local businesses in the Manufacturing sector to continue to grow and succeed within the Grand Erie region.


Jill Halyk
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Strategic Plan Endorsement

Brant County Economic Development

“As a significant sector in the local economy, manufacturing continues to thrive and prosper, however the need for qualified welders is urgently needed in order to sustain area companies. This strategic report outlines recommendations and provides a framework on how to address this problem to supply the necessary, qualified workforce to bridge the demand gap.”

Alison Newton,
General Manager, Economic Development and Strategic Investments

City of Brantford Economic Development

“Primary and secondary manufacturing comprise a large portion of the economic base of the City of Brantford, and the skilled welders are the backbone to the sector.”

Kevin Finney,
Director, Economic Development

Haldimand County Economic Development

“The welding sector is vitally important to many of our small and large employers in Haldimand County.”

Lidy Romanuk,
Manager, Economic Development & Tourism

Norfolk County Economic Development

“Norfolk manufacturers have identified the need for skilled and qualified welders to support their businesses. Strategies to support this need are welcome.”

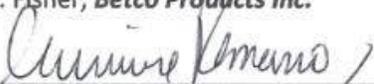
Chris Garwood,
Coordinator, Economic Development

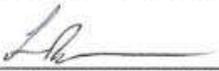


Sector Planning Partnership Group

As members of the Sector Partnership Planning Grant for the Manufacturing (Welding) Sector, we endorse the strategies laid out in this report.

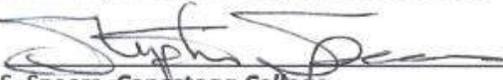

P. Fisher, *Betco Products Inc.*

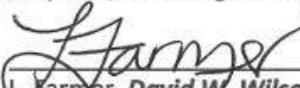

C. Romano, *Brant Haldimand Norfolk Catholic District School Board*


L. Bruner, *Brant Skills Centre*

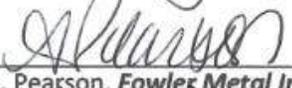

C. Nicholson, *Chamber of Commerce Brantford-Brant*


M. Smith, *CareerLink Employment Services*


S. Speers, *Conestoga College*


L. Farmer, *David W. Wilson Manufacturing Ltd.*

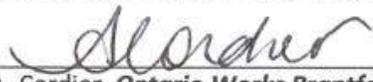

K. Zilkey, *Fanshawe College*


A. Pearson, *Fowler Metal Industries*

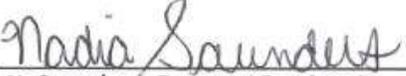

N. Dockree, *Galeforce Welding Inc.*

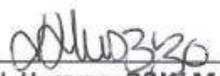

D. Eelkema, *Grand Erie District School Board*


J. Farquhar, *Mott Manufacturing Ltd.*


A. Cordier, *Ontario Works Brantford-Brant*

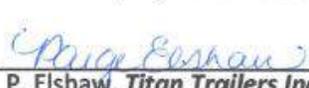

K. Geerts, *Rassaun Services Inc.*


N. Saunders, *Rassaun Services Inc.*


J. Huszczo, *R&W Metal Fabricating & Design Inc.*


M. Kaus, *St. Leonard's Employment Services*


A. Hanson, *Tigercat Industries Inc.*


P. Elshaw, *Titan Trailers Inc.*


F. Sebring, *United Steelworkers Local 8782*


M. Verhey, *Walters Inc.*


J. Halyk, *Workforce Planning Board of Grand Erie*



Purpose

The purpose of the Sector Planning Partnership for the Manufacturing (Welding) Sector is to build a sustainable pool of skilled welding professionals who can meet the current and future needs for welding in our growing economy.

The demand for welders has trended upward since 2010, doubling the number of jobs in Brant and by a third in Haldimand-Norfolk. Continued evidence of this growth occurred in 2016 - Vicinity Jobs, a national job bank, tracked 316 postings for welders in all industries, and 75 in the Manufacturing industry, ranking the occupation as the highest demand job within the area.

Training skilled welding professionals is complex. As a voluntary trade, there are numerous ways for welders to learn their craft, but little standardization on the skill requirements. The present mixture of apprenticeship, college, and on-the-job training contribute to confusion for students and job seekers.

Employers also report challenges in recruiting and training skilled welders. Research findings reported in "Barriers to Attracting Apprentices and Completing Their Apprenticeships" indicate that employers find it difficult to find, attract and retain welders because of a lack of qualified candidates, a mismatch of skills, and their internal/external ability to provide training.

Vision

Our vision is to streamline and standardize the welder training process, in order to increase the supply of qualified welders and address the growing demand within the Grand Erie region.

Value

This sector partnership brought employers, educators, and employment and community organizations together to better understand how we can:

1. Attract and retain new entrants and job seekers into welding occupations,
2. Map all relevant education, training, mentorship and on-the-job training options available to students,
3. Develop a skills standard that will inform all types of welding training,
4. Increase participation by under-represented groups who can help build the talent pool,
5. Help lower skilled individuals develop the essential skills required,
6. Create and maximize access to a skilled talent pool through effective employer-employment networks,
7. Help employers advance the skills of their existing workforce.

The strategic plan will take a full circle approach addressing the four key areas of: Engagement, Training, Recruitment and Retention.



Labour Market Overview

According to the 2011 National Household Survey data, the Grand Erie Region has **117,845** people working in all occupations as defined by the National Occupational Classification (NOC).

Manufacturing is the leading source of employment in Grand Erie, providing 14,310 (16%) of the jobs in the region (Brantford, Brant County, Haldimand County, Norfolk County, Mississaugas of the New Credit & Six Nations of the Grand River). Within the manufacturing industry, welders account for **640 (4.47%)** of all jobs (Stats Canada, National Household Survey 2011). However, a shortage of skilled, professional welders has been documented by local employers for the past three years. Due to an increasing demand for skilled welders, there is a growing concern among local manufacturers in Grand Erie.

Using Vicinity Jobs to look at job postings for the Grand Erie region, we can estimate there are 1,600+ welding jobs, with over 800 (50%) of those in the manufacturing industry. From these numbers, we can estimate that there has been a 20% growth in the number of welders compared to 2011. As the industry continues to grow, so do available positions. From January 2016 to September 2017, the demand for welders in the manufacturing industry has increased, with Vicinity Jobs showing 130 job postings for the Grand Erie Region. The table below displays the number of jobs postings by each month:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2016	6	1	4	5	3	12	9	7	7	11	4	6	75
2017	6	7	7	4	9	9	7	3	3	<i>Not applicable</i>			55

Source: Vicinity Jobs.

In addition to an increasing demand for welders, the 2011 National Household Survey indicates that 26.71% of people employed as welders are over 50 years old; indicating a significant portion of the industry is preparing to retire. This may be contributing to the growing skill shortages and increasing numbers of open positions. A full detailed Labour Market Report for the Grand Erie region can be found in Appendix C.

Strategic Planning Sessions

Working with a panel of 12 local manufacturing businesses, local employment & training services, literacy development services and educational institutions, the Workforce Planning Board of Grand Erie, along with Conestoga College and Fanshawe College, have set out to investigate the local labour market needs of the Manufacturing (Welding) Sector.

Four Strategic Planning Sessions were conducted, where representatives from each organization were invited to share their expertise and knowledge of the Welding industry. Through September and October 2017, these meetings took place every 2 weeks focusing on confirming the skill shortage and gap, developing a “Skills, Knowledge and Aptitude” assessment, creating an industry standard for welders, and defining the local education and career pathways – for both Basic and Advanced welding.

Through the natural progression of the meetings, there were several partnerships that developed. Employers opened up about several COOP opportunities within their businesses open to local employment and training services, high schools and college levels. Additionally, the local high school boards connected with employers and the CWA in hopes of developing a partnership to fund ventilation systems within the school, new safety equipment, and a discussion around material sharing opportunities.



Session 1: Understanding the Occupational Supply & Demand

The first Sector Planning Partnership Grant (SPPG) meeting took place on September 14th, and was the introductory meeting to the partnership. The primary focus of the meeting was to establish the labour market overview of the Manufacturing (Welding) sector and the current supply and demand issues employers are experiencing.

Data collected in the National Household Survey, 2011 for NOC 7237 was presented to the group, including information regarding the population of Welders in the Grand Erie region as a whole, and the Brant CD and Haldimand-Norfolk CD individually.

This data acted as a starting point for the businesses and organizations to discuss market trends and future needs. The feedback from the group indicated that the information and current demand signifies there are not enough welders available to meet the job requirements. There is an immediate need for more than 165 welders within the 12 companies in the partnership. In addition to the immediate need, each company indicated future growth was imminent and additional welders would be required to support this growth. Due to retention issues, only 25% of hired welders remain with the organization. Therefore, to meet the need over 600 welders are required.

These are the numbers from just a small sample of the manufacturing industry, indicating that welding is an occupation with great opportunities within the Grand Erie community.

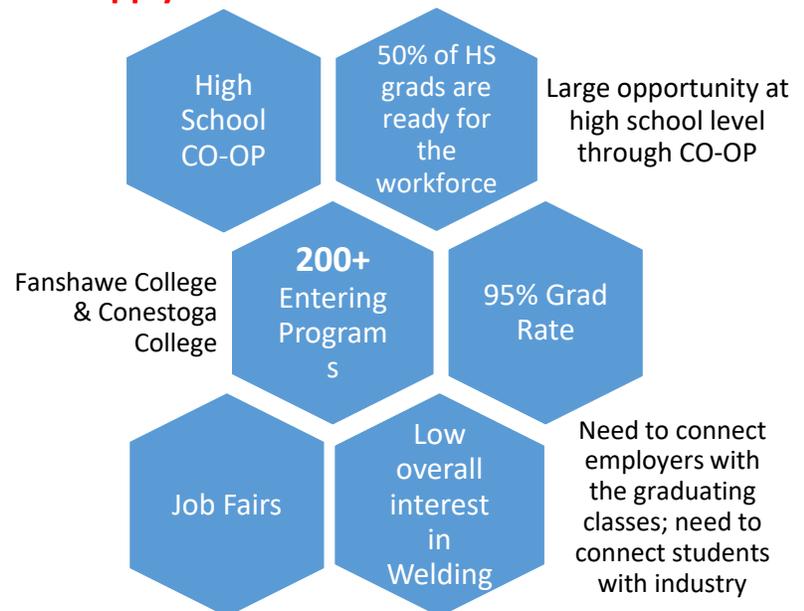
There was also an extensive conversation regarding local talent and the difficulty of hiring locally. With the loss of the local job bank, BrantJobs, companies are concerned as to how they will attract and find local employees. The large job boards attract many applicants from other countries, or distances too far to consider commuting. Without the local job board, companies are concerned they will have a difficult time accessing talent and length of time to hire new staff will increase.

This session resulted in a thorough understanding of the current supply & demand of welders in Grand Erie. This understanding will help to shape all future recommendations. Below is a summary of the findings in session 1:

Demand



Supply





Session 2: Skills, Knowledge & Aptitude of a Qualified Welder

The next session took place on September 23rd and was focused on identifying the skills, knowledge and aptitude a welder must possess in order to be successful within the workplace. A brief introduction to the description of Soft, Technical and Essential Skills provided the group with a basis to work off of.

The feedback from the group indicated that soft skills are where the candidates are lacking. A majority of the businesses within the group are willing to train employees if they show the right attitude and work ethic. Development of soft skills, and educating the public on how to market these skills is the key to getting hired. Regarding the technical skills, feedback indicated that the current program curriculums are not addressing the basic or advanced welding skills thoroughly, specifically: Blue Print Reading, Measuring and Health & Safety.

This session resulted in developing a starting point for the differences between a “Basic Welder” and an “Advanced Welder”, as well as, a thorough understanding of skills employers are looking for in a qualified welder. Below is a summary of the findings in session 2:

Technical Skills	Soft Skills	Essential Skills
<ul style="list-style-type: none"> •Welding Different Metals •CWB Ticket •TSSA Certification •Blueprint Reading •Semi-Auto Flame Cutting •Overhead Crane •Forklift •Teaching Others •On the Job Experience 	<ul style="list-style-type: none"> •Attendance •Eager/Willing/Able to Learn •Confidence •Spatial Awareness •Respect •Open mindedness •Safety •Good Habits •Teamwork 	<ul style="list-style-type: none"> •Gr. 12/ GED •Measuring (Imperial & Metric) •Basic Math •Communication: Oral & Written (Logs, Reports) •Blueprint Reading •Organization •Adaptability •Flexibility

- ★ Soft skills are the main missing link
 - Students/New Entrants are not entering the workplace prepared with the required soft skills (attendance, punctuality and communication)
- ★ There is a lot of opportunity to gain certifications or in-house training once hired
- ★ Need to educate public about the different types of welding
 - Provide “behind the scenes” information to show employees the need to be flexible, adaptable and pitch in where needed.
- ★ Two main welding pathways:

Basic Welding

- Certificate/Tickets Not Mandatory
- In House Training Available
- One or Two Metals Used (MIG, TIG, Spot Welding)

Advanced Welding

- Certificates/Tickets Required
- In House Training Available
- Multiple or Speciality Metals Used



Session 3: Establishing Industry Standards & Developing Pathways

The third SPPG Planning session occurred on October 13th and concentrated on setting the standards for both Basic and Advanced welding. Committee engagement has continued to grow over the sessions, and both businesses and organization provided very valuable feedback. The group identified that in addition to a skills gap there is an inaccurate community perception of what manufacturing roles are. To combat this misperception, apprenticeship information and easily accessed information is required. Community needs to be able to see the positives to working within the Manufacturing (Welding) sector.

This session resulted setting the Industry Standards for both Basic and Advanced Welding. These standards include the key Technical, Soft and Essential Skills required to be successful in the Manufacturing (Welding) sector. The Industry Standards can be found in the Appendix. Below is a summary of session 3:

Basic Welding



Advanced Welding



Basic Welding	<ul style="list-style-type: none"> • One or Two Metals, Processes & Positions • Certificate/Tickets Not Mandatory
Advanced Welding	<ul style="list-style-type: none"> • Multiple or Specialty Metals, Multiple Processes & Positions • Red Seal Preferred; CWB and/or TSSA Tickets Required

Key Skill Set Summary

- Attendance
- Problem Solving
- Communication/ Self-Advocacy
- Gr. 12 / GED
- Grade 12 Math (Multiplication, Fractions, Geometry, Trigonometry)
- Measuring & Layout (Imperial & Metric)
- Blue Print Reading
- Basic Computer Literacy
- Leadership
- Health & Safety / PPE

Next Steps/Recommendations

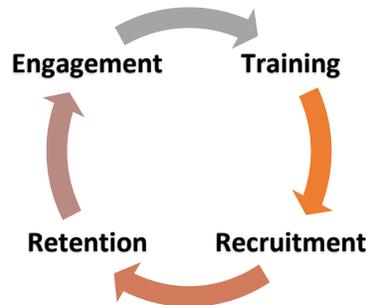
- ★ Market and promote current programs and welding opportunities
- ★ Encourage companies to train existing employees
- ★ Streamline information & ease the access to important details and requirements for the field



Session 4: Developing the Strategic Recommendations

The fourth and final Sector Planning Partnership Grant (SPPG) session focused on determining the activities needed for this strategic plan. The Industry Standards developed in session 3, were confirmed as accurate representations of the skills required for both Basic and Advanced welders; these standards (see Appendix A) will be used throughout the community moving forward.

This session resulted in four (4) components for which we will focus our strategic recommendations on. The strategic plan will take a full circle approach addressing the four key areas of: Engagement, Training, Recruitment and Retention.



Within each of these four components, there were several potential strategies and recommendations that emerged. The summary of these are shown in the chart below. Ultimately, this meeting shaped the Strategic Plan that follows.





Strategic Recommendations

The strategic plan will take a full circle approach addressing the four key areas of: Engagement, Training, Recruitment and Retention. The following recommendations provide a framework for how we can address these areas to increase the supply of qualified welders and address the growing demand within the Grand Erie region. These recommendations represent a staged process to address both the short term (immediate) needs and the long term needs of the industry. The success of this plan lies in creating an environment of collaboration and systemic change between employers, educators, and employment and community organizations.

Engagement

The goal of this component is to engage the community into the world of welding. To increase the overall numbers within the sector, it is necessary to rebrand the image of the sector. By introducing community organizations and Grand Erie residents to the realities of the Manufacturing (welding) industry, they will gain knowledge of the types of occupations, income, and the skills required to be successful – leading to more informed decision making. We recommend the following strategies to aide in engaging the community:

Recommendation #1: Engage Employers in Community Exposure			
Connect employers with current workforce and educational institutions to encourage sponsorship, speaking opportunities, job creation through COOP or OYAP etc.			
Activities	Potential Partners	Timeline	Outcomes
1. EPIC JOBS – include a welding simulation and/or have a welder present to talk about the trade.	BHNCDSB, GEDSB, Conestoga College, Fanshawe	Short Term	Over 1,000 youth are exposed and engaged in the Manufacturing industry.
2. Manufacturing Month – include local welding companies to host welding specific tours (for welding classes).	College, Employers, Employment Ontario, Community Agencies, Literacy Basic Skills, Canadian Welding Association (CWA) & Canadian Welding Bureau (CWB)	Long Term	Students participating in a welding course experience “A Day in the Life” first hand; at no cost to the employer.
3. Strengthen understanding among community & employers the importance of engaging young workers in the workplace and community.		Ongoing	Increased COOP & Experiential Learning opportunities for students & job seekers. <i>E.g. the tours of local welding schools including employers & CWA representatives.</i>

Recommendation #2: Develop a Welding Campaign			
Educating the community about the opportunities within the welding industry			
Activities	Potential Partners	Timeline	Outcomes
1. Partner with the Canadian Welding Association (CWA) & Canadian Welding Bureau (CWB) to promote Welding within the region.	CWA & CWB, Employers, Community Agencies, Community Partners,	Ongoing	Have current & reliable occupational information to share at a local level; ensures a collaborative approach to community engagement, and consistent local messaging.



2. Develop a marketing campaign targeting specific demographics, including: Women, Indigenous Populations and Newcomers to the area.	Local Economic Developers	Short Term/ Ongoing	Increased engagement of under represented demographics.
3. Work with local employers to promote locally manufactured products and occupations. <i>E.g. "We Make it Here" videos</i>		Short Term	Local residents learn from local companies & workers about the skill demand in the sector. Increased understanding of requirements of welding occupation through print & social media campaigns.

Recommendation #3: Welding Camps			
A short (1-2 week) camp for youth (aged 12+) to learn about welding and careers in welding. <i>E.g. Mind Over Metal Camps (CWA Foundation): Mom & Daughter camps, Indigenous Focused camps etc.</i>			
Activities	Potential Partners	Timeline	Outcomes
1. Develop a program curriculum that will be interesting to youth aged 12+ .	CWA & CWB, BHNCD SB, GEDSB, Conestoga College, Fanshawe College, Community Agencies, Literacy Basic Skills	Ongoing	Build confidence and self-esteem to provide youth with a reason for continuing on to secondary and post-secondary education. Welding can capture their attention and provide a focus for their future.
2. Partner with local educators and community agencies to send youth to the program.		Ongoing	
3. Develop relationships with employers to sponsor or partner the program.		Ongoing	Investing in the community will build trust and encourage future applications. <i>CWA: "Industry partnerships are growing as a result of these camps"</i>
4. Identify potential time frames and locations that are suitable for a camp environment.		Short Term	Providing the camps in a convenient location and time of year will encourage participation

Recommendation #4: Welding Open House			
An open house geared to the general public where people can learn about the welding industry, try their hand at welding and connect with training institutions, local employers and see the current local job opportunities.			
Activities	Potential Partners	Timeline	Outcomes
1. Coordinate an open house for the public to learn more about Welding. Include local employers in the presentations, showcase completed projects, simulate welds.	CWA & CWB BHNCD SB, GEDSB, Conestoga College, Fanshawe College, Employers	Short Term	Connect community with local opportunities that welding offers.



Training

This component will focus on both soft skills and technical competencies needed for success as a Welder in Grand Erie. We will work closely with employers to ensure training programs in Grand Erie address both aspects of success in the workplace.

Employers have identified the top three reasons for which their positions were hard to fill:

1. Not enough applicants
2. Lack of qualifications and technical skills
3. Lack of motivation, attitude or interpersonal skills

Based on these three reasons it was determined that a skills training model that addressed these reasons would be a valuable response to employer challenges. We recommend piloting this model to include: in-class training, on-the-job experience and mentoring to help participants be as successful as possible.

The training environment should be conducive to soft skills learning and ensure an interactive, participatory and practical curriculum. Soft skill needs and technical competencies that have been identified by employers in the Manufacturing (Welding) Sector will be used to form the basis of the program the students will undertake.

In addition to the proposed skills training model for pre-employment, we are also recommending implementing an enhanced standardized welding curriculum into the secondary school level. This would boost the current program and standardize the skills youth are entering the workforce and/or post-secondary with.

Recommendation #1: Pre-Employment Program for Basic Welding			
A short (2-3 week) program for potential employees to develop and improve upon many necessary skills prior to entering the workforce as a welder.			
Activities	Potential Partners	Timeline	Outcomes
1. Develop a program curriculum to focus on: workplace expectations, development of key soft skills, and workplace safety.	BHNCD SB, GEDSB, Conestoga College, Fanshawe College, Literacy Basic Skills Providers, Community Employment Agencies	Short Term	Improve upon job readiness for current job seekers; improving the soft skills prior to employment will give employers greater confidence in hiring.
2. Consult with local employers to ensure needs are being addressed within curriculum.		Ongoing	As employer needs change, modifying the curriculum will ensure potential employees are prepared for the workforce.
3. Connect with employers to provide COOP or job shadowing component.		Short Term	Job seekers will benefit from experiential learning, and learning of what a day in life as an employee will look like.
4. Market Program to employers and community agencies as a "Pre-Employment" program for potential new employees..		Ongoing	As more utilize the program, employers will have an increased supply of ready-to-work welders to hire from.



Recommendation #2: Pre-Welding Skills Orientation			
A short (2-3 week) orientation for those entering a Welding Program to introduce and review the essential skills that will be covered throughout the program. Geared towards those pursuing a career in Advanced Welding.			
Activities	Potential Partners	Timeline	Outcomes
1. Develop Curriculum to focus on: development of key soft skills, essential skills upgrading and workplace expectations; include tours of welding facilities.	BHNCD SB, GEDSB, Conestoga College, Fanshawe College, Literacy Basic Skills Providers, Community Employment Agencies	Short Term	Improve upon job readiness for current job seekers; improving the soft skills prior to employment will give employers greater confidence in hiring.
2. Consult with local educators to ensure needs are being addressed within curriculum.		Ongoing	As employer needs change, modifying the curriculum will ensure potential employees are prepared for the workforce (soft skills etc.)
3. Market Program to future students as an orientation into the program to ensure success.		Ongoing	As more utilize the program, there will be an increased success rate from the Welding programs.

Recommendation #3: CWBi Acorn Secondary School Curriculum			
Partner with the Canadian Welding Association to boost the current welding curriculum within the local Secondary Schools			
Activities	Potential Partners	Timeline	Outcomes
1. Apply for access to the CWBi Acorn Curriculum.	CWA Foundation, BHNCD SB, GEDSB	Short Term	By providing this curriculum, all welding programs within the schools will be standardized. This will improve the level of education students receive and better prepare them for their future in welding at a post-secondary or apprenticeship level.
2. Implement the curriculum into local secondary schools to support and enhance current programs.			
3. Provide training to staff through a train-the-trainer format.		Ongoing	Ensure staff is fully trained and able to offer students the best learning environment for welding practices.



Recruitment

The labour force is limited by the availability and interest of potential workers; this component will focus on attracting the best candidates into the Grand Erie workforce. By attracting candidates early in their career and increasing exposure of welding to Women, Aboriginals, Immigrants and Youth, it will “open doors” and increase attraction into the sector and the overall availability of potential workers. Through identifying the core skills needed in these occupations, applicants can identify and match their skills with the industry, ensuring they are pursuing employment and/or a career of their choice.

Throughout the planning sessions there was an extensive conversation regarding local talent and the difficulty of hiring locally. With the loss of the local job bank, BrantJobs, companies are concerned as to how they will attract and find local employees. The large job boards attract many applicants from other countries, or distances too far to consider commuting. Without the local job board, companies are concerned they will have a difficult time accessing talent and length of time to hire new staff will increase. One of the main strategies of this component will be attracting **local** talent.

Recommendation #1: Welding Open House			
An open house geared to the public where people can learn about the welding industry, try their hand at welding, connect with training institutions, local employers, and see the current local job opportunities. <i>NOTE: This is an extension to Recommendation #4 under Engagement (See page 12)</i>			
Activities	Potential Partners	Timeline	Outcomes
1. Coordinate an open house for the public to learn more about Welding. Include local employers in the presentations, highlight completed projects, offer weld simulations.	CWA & CWB BHNCD SB, GEDSB, Conestoga College, Fanshawe College, Employers	Short Term	Connect community with local opportunities that welding offers.
2. Develop a multi week program geared towards general and specific groups of individuals interested in welding. <i>Examples: Women, Aboriginals, Immigrants and Youth at risk aged 18-29.</i>		Long Term	Train individuals interested in welding for a career. Introduce these individuals to local employers, showcasing future employment & networking opportunities. Increase the opportunity to learn in a comfortable and encouraging environment for groups that are underrepresented within the welding industry.

Recommendation #2: Implement COOP Opportunities into Training Programs			
Include an Experiential Learning component to each training program, whether at a high school, college or independent environment.			
Activities	Potential Partners	Timeline	Outcomes
1. Develop a “Key Contacts” resource, for employers and	Employers & BHNCD SB, GEDSB,	Ongoing	Students gain on-the-job experience for their resumes and



educational institutions to connect through.	Conestoga College, Fanshawe College,		build connections within the workforce. Employers are introduced to potential employees and can assist in their skill development at a reduced cost.
2. Develop “Successful COOP” guidelines for Employers to utilize, including standard skills.		Short Term	Employers have a standard guideline to work from.
3. Identify current barriers students/new employees are facing.	Employment Ontario & Employers	Short Term	Eliminating and/or addressing barriers will lead to increased student success in the program.
4. Promote work placement opportunities for those not pursuing post-secondary education.	BHNCDSB, GEDSB, Conestoga College, Fanshawe College, Employers	Ongoing	Employers will have access to an untapped market of potential employees. Students are exposed to the potential opportunities available to them.

Recommendation #3: Pre-Employment Skills Assessment			
A simple 1-page referral document for service providers and/or employers to identify any potential barriers to success within the workplace. The individual can then be referred to the “Pre-Employment Program for Basic Welding” and/or other programs to enhance their skills prior to employment.			
Activities	Potential Partners	Timeline	Outcomes
1. Identify barriers to employment (Skills, Criminal Record Checks etc.)	Employers, Employment Ontario	Short Term	Eliminating and/or addressing will lead to increased employment success.
2. Develop the assessment tool that will determine occupational fit (including Skills and Experience required, Criminal record checks, etc.)	Employment Ontario, Employers, BHNCDSB, GEDSB, Conestoga College, Fanshawe College,	Ongoing	Applicants will be better suited for workforce and understand the requirements of the field. Employers will have better suited applicants, and be able to focus on skills required and development opportunities.

Recommendation #4: Upgrading Recruitment Technology			
Technology is a key part of everyday life, employers can take advantage of technology to make recruitment more efficient and effective.			
Activities	Potential Partners	Timeline	Outcomes
1. Develop local partnerships to introduce and utilize new recruiting technology to the industry.	BHNCDSB, GEDSB, Conestoga College, Fanshawe College, Employers, Employment Ontario	Long Term	Employers and Job Seekers are able to access each other through one centralized hub.



Retention

During the planning sessions, employers expressed concern around maintaining employees and attracting local employees to their organization. Due to retention issues, only 25% of hired welders remain with the organization. Half of these retention issues (50%) are due to quits resulting from a mismatch between employee expectations and the actual duties required. As a result of the current retention issues, some employers are building in a 5-8% shortage into production schedules, while others have made overtime a mandatory part of the contract.

These retention issues are concerning as employees are the single most important and the largest investment any business makes. Employee turnover takes a bigger toll on the entire company. It becomes a systemic issue, affecting employee morale and performance to the company's bottom line. It is important companies recognize the essential factors that help maximize employee potential and impact the overall work experience—professional and career development, learning opportunities, support networks and ongoing feedback. When discussing retention, it is not always about the wage & benefits provided. There are three main components employees are looking for:

1. Maintaining Quality of Life
2. Flexibility
3. Overall cost of education & transportation required

This component will look at improving retention at both an employer level and an employee level. Including addressing job readiness, workplace preparation and satisfaction, skills upgrading, as well as developing a community within the workplace.

Recommendation #1: Pre-Employment Program for Basic Welding

A short (2-3 week) program for potential employees to develop and improve upon necessary skills prior to entering the workforce as a welder. This will ensure new employees are equipped with the necessary skills to succeed within the workplace. **NOTE: Same as Recommendation #1 under Training (See page 13)**

Recommendation #2: Corporate Community Culture

Build and develop a sense of community within the workplace, where employees feel value as a member of the company and recognition for their attributes.

Activities	Potential Partners	Timeline	Outcomes
1. Develop a "Employee Well-Being" Package for employers to utilize for best practices on how to support employees through recognition, entrepreneurial approach etc.	Employers	Ongoing	Enhanced work-life balance for employees, increasing overall retention and job satisfaction.
2. Mentorship Program – utilize current experienced welders or bring in mentors through the CWA/CWB to mentor new and/or younger employees.	Employers CWB & CWB	Ongoing	New employees are able to gain and learn from experienced welders; Experienced welders are recognized for their talent & feel acknowledged for their skills. Also works as a built in succession planning for the employer.



Recommendation #3: Skills Upgrading			
Providing current employees with an opportunity to upgrade their current skills and/or learn new skills.			
Activities	Potential Partners	Timeline	Outcomes
1. Share information and documents on the Canada Job Grant with local businesses and employment services; Identify opportunities for group applications for training and/or funding.	Employers, Employment Ontario	Short Term	As businesses are aware of current programs they are better suited to offer employees incentives and support for ongoing education. Employees gain additional skills and increased job satisfaction.
2. Partner Employers with EO agencies for subsidized employment during skills upgrading.	Employers, Employment Ontario	Ongoing	Job seekers gain current job experience; Employers access talent at a reduced cost.
3. Customize programs for group needs within an organization.	Literacy Basic Skills	Ongoing	Employer needs are addressed in a customized and as-needed basis.

Next Steps

To successfully build a sustainable and prosperous workforce, it is important to look at all aspects of how to attract, hire, integrate, retain and develop employees. This plan has outlined many different steps and opportunities to streamline and standardize the welder training process. The full circle approach ensures that we are addressing the need for a long-term sustainable strategy for the industry and not a quick fix. The strength of the plan lies within the partnerships that have been developed. This is a staged process, where partners will continue to develop the plan and implement the strategies over the designated time period. As the plan develops, there may be an opportunity to bring on additional partners who are best suited to deliver programs, market the industry or aide with other activities outlined in this strategic plan.

To transition this strategic plan into an action plan, the following next steps must follow:

1. Confirmed partnership on activities
2. Creation of realistic time-line for all activities
3. Detailed budget for each activity
4. Development of evaluation metrics

Continued collaboration with the Sector Planning Partnership Group will ensure that, as this project moves forward we are establishing a labour market of skilled welding professionals who can meet the current and future needs for welding in our growing economy.



Methodology

To effectively develop a strategic plan, produce recommendations and determine next steps to increase the supply of qualified welders and address the growing demand within the Grand Erie region, we have conducted the following research activities:

Literature Review: Examined existing research and information to identify industry trends, occupational profiles and requirements. Multiple sources were used including: Government of Canada, Government of Ontario, Ontario College of Trades, Red Seal Program, and the Canadian Welding Bureau.

Labour Market Analysis: Relied on statistical data sources such as 2011 National Household Survey (NHS), Canada Business Counts, Economic Modeling Specialists Intl. (EMSI) Analytics 2016 and CEB TalentNeuron.

Community Consultation

- **Sector Partnership Meetings:** Hosted a series of round table planning sessions, including local employers, employment & training services, literacy development services and educational institutions. Explored factors relating to the attraction, retention, and training of skilled Welders within the Grand Erie region.
- **Employer Interviews:** one-to-one business interviews provided detailed information about skill requirements, industry standards, recruitment and retention challenges.
- **Survey:** Local employers provided input on their labour supply and demand conditions both from a short term and long term perspective.

Tool Development

- **Industry Standards:** As identified through the planning sessions, industry standards were developed for Basic and Advanced Welders. A compilation of resources was used to develop profiles showcasing the required skills (Technical, Soft and Essential), and employment qualifications. (See Appendix A)
- **Training Inventory:** Inventory of formal and informal welding training within a 25-kilometer radius of Grand Erie region. This is inclusive of on-the-job training, CO-OP experience and formal training within an institution. (See Appendix B)

The Manufacturing (Welding) sector strategic plan combines both quantitative (data driven) and qualitative (community based) data to identify the sectors' priority areas and to develop the recommended strategic actions.

The Strategic Plan is designed to address the growing skills gap of qualified welders and the shortage of applicants.



Acknowledgements

We would like to thank the following businesses & organizations for volunteering their time and expertise to this Sector Planning Partnership. Without their knowledge, this Strategic Plan for the Manufacturing – Welding Sector would be incomplete.

Betco Products Inc.

Brant Haldimand Norfolk Catholic District School Board

Brant Skills Centre

Chamber of Commerce, Brantford-Brant

CareerLink

David W. Wilson Manufacturing Ltd.

Fowler Metal Industries

Galeforce Welding Inc.

Grand Erie District School Board

Mott Manufacturing Ltd.

Norfolk County Economic Development

Ontario Works Brantford-Brant

Rassaun Services Inc.

R&W Metal Fabricating & Design Inc.

St. Leonard's Employment Services

Tigercat Industries Inc.

Titan Trailers Inc.

United Steelworkers Local 8782

Walters Inc.



Appendix

A. Industry Standards

BASIC WELDING STANDARDS

NOC 7237

Key Technical Skills

- Knowledge of Basic Welding in 1 or 2 of the below, in light or thick gauge metals:

Arc Welding (Stick Welding)	The welding stick uses electric current to form an electric arc between the stick and the metals to be joined. Also known as SMAW.
MIG Welding	Metal Inert Gas (MIG) combines two pieces of metal together with a wire that is connected to an electrode current. Also known as GMAW.
TIG Welding	Tungsten Inert Gas (TIG) uses a non-consumable tungsten electrode to heat the base metal and create a molten weld puddle. By melting two pieces of metal together, an autogenous weld can be created. Also known as GTAW.
Flux Core Welding	Similar to MIG, except a special tubular wire filled with flux is used and shielding gas is not always needed, depending on the filler. Also known as FCAW.
Metal Core Welding	Uses heat generated by a DC electric arc to fuse metal in the joint area, melting both the filler wire and the work piece in the immediate vicinity. The entire arc area is covered by a shielding gas. Also known as MCAW.
Spot Welding	Resistance Spot Welding (RSW) joins metal surfaces through heat obtained from resistance to an electric current.
Metals	
Steel	An alloy that contains iron and 2% of other elements. Carbon/steel alloy is common and can be found in high, low and medium varieties. Higher carbon content means stronger steel. Steel is versatile and can be used with any welding process.
Stainless Steel	Stainless is made to resist corrosion and is hygienic. This is achieved by adding 10-30% chromium to other elements such as iron. There is also a nickel alloy available. Stainless is welded using arc welding (TIG, MIG, Stick).
Aluminum	Not as corrosive as other metals, and lighter than stainless steel. In welding, pure aluminum and alloys are used. Alloys include: copper/aluminum alloy, manganese alloy, zinc alloy. TIG welding is the process of choice for aluminum. Other welding methods that are used include MIG, or Stick (for smaller projects).
Copper	Popular due to its electrical conductivity, heat conductivity, corrosion resistance, appearance and wear resistance. Copper is welded using TIG and MIG Welding.

- CWB Tickets in 1 or 2 types and positions preferred

1. Flat	The weld is performed along largely a horizontal axis & from above the joint. (1F or 1G)
2. Horizontal	The weld's axis is the horizontal plane. (2F or 2G)
3. Vertical	The weld's axis is largely in a vertical or upright position. (3F or 3G)
4. Overhead	Overhead welding is performed from the underside of a joint. (4F or 4G)

- Basic Blue Print Reading, including Knowledge of Weld Symbols

Fillet	Plug or Slot	Spot or Projection	Seam	Back or Backing	Surfacing	FLANGE	
						Edge	Corner
							
GROOVE							
Square	V	Bevel	U	J	Flare - V	Flare-Bevel	
							

Key Technical Skills (Cont'd)

- Measuring & Layout Skills
 - Knowledge of both Imperial & Metric measurements

- Machine Operation & Mechanical Skills
 - Operate manual or semi-automatic welding equipment, flame cutting equipment, brazing, and soldering equipment.
 - Start up, shut down, adjust and monitor equipment
 - Assist with the maintenance and repair of welding, brazing and soldering equipment
 - Adjust tools according to work specifications

- Personal Protective Equipment (PPE) and Personal Safety
 - Understanding of risks involved with welding
 - For example: Electric Shock, Eye Injury, Inhalation of Toxic Fumes or Skin Burns
 - Using the correct Protective Gear (PPE)
 - Clean Working Environment
 - Respirator/Welders Mask
 - Eye protection
 - Protective Clothing



Physical Components

Working as a welder may include the following physical aspects:

- Standing for long periods of time
- Working in multiple positions
- Lifting up to 50lbs
- Working in extreme temperatures (Hot and/or cold)
- Ability to lift and work with arms above your head
- Working at heights

Key Soft Skills

Time Management <ul style="list-style-type: none"> • Planning & Scheduling Skills • Arriving on time & prepared to work • Ability to schedule and prioritize work 	Problem Solving <ul style="list-style-type: none"> • The ability to take initiative • Analytical and logical thinking • Crisis management
Flexibility & Adaptability <ul style="list-style-type: none"> • Self-Management skills • Ability to deal with changing priorities and workloads • Keep calm in the face of difficulties 	Leadership <ul style="list-style-type: none"> • Proactive • Ability to motivate and inspire coworkers • Conflict Resolution • Coaching and Mentoring
Self-Management <ul style="list-style-type: none"> • Self-confidence, Self-Advocacy • Self-motivation • Understand the importance of PPE and Health & Safety procedures 	Conflict Resolution <ul style="list-style-type: none"> • Recognize and respond to important matters • Ability to seek compromise • Be aware and respectful of differences between colleagues

Essential Skills

Reading	<ul style="list-style-type: none"> • Read and interpret blueprints, codes and specifications to prepare for welding projects. • Equipment and safety manuals describing safe operating procedures. • Detailed welding procedures, regulations and codes developed by governing bodies, such as the Canadian Welding Bureau. • Company policies to understand procedures.
Numeracy	<ul style="list-style-type: none"> • Math at a Grade 11-12 level, including: Multiplication, Fractions, Trigonometry, Geometry • Measure degrees of angles by using a level with a digital readout. • Estimate the weight of a load for rigging by considering its size and density. • Calculate the volume, diameter and circumference of tanks when fabricating pieces for them. • Use trigonometric constants to calculate diagonal distances.
Document Use	<ul style="list-style-type: none"> • Complete timesheets, reports, and/or invoice forms, showing tasks completed, materials used, hours worked and how much to charge customers. • Review notes on blueprints about materials and procedures. • Interpret diagrams and tables on blueprints to determine engineering requirements. • Use checklists to learn and follow proper work procedures and safety guidelines, such as how to properly rig a load.
Writing	<ul style="list-style-type: none"> • Write a daily log. • Complete accident and incident reports for the Workers' Compensation Board. • Write invoices or reports for employers with tasks completed, materials used, the hours worked and how much to charge customers. • Write safety guidelines to demonstrate how to properly operate company equipment.
Oral Communication	<ul style="list-style-type: none"> • Discuss work assignments with a supervisor to understand expectations. • Compare measurements and calculations with a partner when building a structure. • Share ideas about tasks and safety issues at production meetings. • Talk to tool room staff to ask for tools, supplies and PPE
Working with Others	<ul style="list-style-type: none"> • Ability to work independently and within a team. • Work with fitters, other welders and supervisors to coordinate tasks on a project. • Inform and demonstrate how to perform tasks to other workers. • Participate in formal discussions about work processes or product improvement.
Thinking	<ul style="list-style-type: none"> • Look up specifications for welding procedures on data sheets. • Find and report problems with blueprints, such as measurements that do not add up. • Decide on the most efficient use of materials during construction to minimize waste. • Change the weld sequence to minimize distortion, considering factors such as heat input and the type of material being used. • Decide when and how to control the temperature during the welding process to avoid cracking.
Computer Literacy	<ul style="list-style-type: none"> • Ability to read instructions and job details and documents projects using the computer • Utilize internal systems on the computer • Operate plasma cutting machines, orbital welders and other computer-controlled equipment. • Use basic features of word and data processing applications (Microsoft Word/Excel) to prepare quotes, work orders, track inventory, job progress etc.
Continuous Learning	<ul style="list-style-type: none"> • Complete in-house company training. • Retake practical tests periodically. • Attend information sessions to learn about new products. • Pursue learning on own time.

ADVANCED WELDING STANDARDS

NOC 7237

Key Technical Skills

- Knowledge of Welding in 3 or 4 of the below, in light or thick gauge metals:

Arc Welding (Stick Welding)	The welding stick uses electric current to form an electric arc between the stick and the metals to be joined. Also known as SMAW.
MIG Welding	Metal Inert Gas (MIG) combines two pieces of metal together with a wire that is connected to an electrode current. Also known as GMAW.
TIG Welding	Tungsten Inert Gas (TIG) uses a non-consumable tungsten electrode to heat the base metal and create a molten weld puddle. By melting two pieces of metal together, an autogenous weld can be created. Also known as GTAW.
Flux Core Welding	Similar to MIG, except a special tubular wire filled with flux is used and shielding gas is not always needed, depending on the filler. Also known as FCAW.
Metal Core Welding	Uses heat generated by a DC electric arc to fuse metal in the joint area, melting both the filler wire and the work piece in the immediate vicinity. The entire arc area is covered by a shielding gas. Also known as MCAW.
Spot Welding	Resistance Spot Welding (RSW) joins metal surfaces through heat obtained from resistance to an electric current.
Metals	
Steel	An alloy that contains iron and 2% of other elements. Carbon/steel alloy is common and can be found in high, low and medium varieties. Higher carbon content means stronger steel. Steel is versatile and can be used with any welding process.
Stainless Steel	Stainless is made to resist corrosion and is hygienic. This is achieved by adding 10-30% chromium to other elements such as iron. There is also a nickel alloy available. Stainless is welded using arc welding (tig, mig, stick).
Aluminum	Not as corrosive as other metals, and lighter than stainless steel. In welding, pure aluminum and alloys are used. Alloys include: copper/aluminum alloy, manganese alloy, zinc alloy. TIG welding is the process of choice for aluminum. Other welding methods that are used include MIG, or Stick (for smaller projects).
Copper	Popular due to its electrical conductivity, heat conductivity, corrosion resistance, appearance and wear resistance. Copper is welded using TIG and MIG Welding.
Cast Iron	Cast iron has higher carbon and silicon content, and is not as ductile. Surface needs to be cleaned to remove any ingrained grease and oil. All cracks need to be grinded or filed. Welded with oxyacetylene welding.
Magnesium	Magnesium alloys are light weight (2/3 of aluminum), absorbs vibration and is easy to cast. It has a melting temperature similar to aluminum and is welded via TIG.

- CWB Tickets in 1 or 2 types and positions **required**; Positions include:

1. Flat	In a flat position, a weld is performed along largely a horizontal access and from above the joint. (1F or 1G)
2. Horizontal	In the horizontal position, the weld's axis is the horizontal plane. (2F or 2G)
3. Vertical	With a vertical position, the weld's axis is largely in a vertical or upright position. (3F or 3G)
4. Overhead	Overhead welding is performed from the underside of a joint. (4F or 4G)

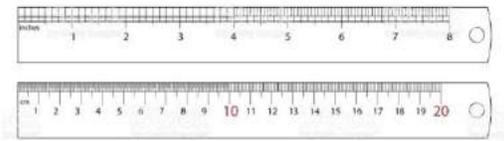
- TSSA Certification preferred
- Red Seal Certification may be required
 - ★ The Red Seal provides recognition that your certificate meets an interprovincial standard that is recognized in many provinces & territories throughout Canada.
 - ★ www.red-seal.ca

Key Technical Skills (Cont'd)

- Thorough understanding of Blue Prints and Welding Symbols

Fillet	Plug or Slot	Spot or Projection	Seam	Back or Backing	Surfacing	FLANGE		
						Edge	Corner	
GROOVE								
Square	V	Bevel	U	J	Flare – V	Flare-Bevel		
								

- Measuring & Layout Skills
 - Knowledge of both Imperial & Metric measurements
- Machine Operation & Mechanical Skills
 - Operate manual or semi-automatic welding equipment, flame cutting equipment, brazing, and soldering equipment.
 - Start up, shut down, adjust and monitor equipment
 - Assist with the maintenance and repair of welding, brazing and soldering equipment
 - Adjust tools according to work specifications
- Personal Protective Equipment (PPE) and Personal Safety
 - Understanding of risks involved with welding
 - For example: Electric Shock, Eye Injury, Inhalation of Toxic Fumes or Skin Burns
 - Using the correct Protective Gear (PPE)
 - Clean Working Environment
 - Respirator/Welders Mask
 - Eye protection
 - Protective Clothing
 - Safety while working at heights



Physical Components

Working as a welder may include the following physical aspects:

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Self-Management <ul style="list-style-type: none"> • Self-confidence, Self-Advocacy • Self-motivation • Understand the importance of PPE and Health & Safety procedures 	Conflict Resolution <ul style="list-style-type: none"> • Recognize and respond to important matters • Ability to seek compromise • Be aware and respectful of differences between colleagues

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Essential Skills (Cont'd)

Thinking	<ul style="list-style-type: none">• Look up specifications for welding procedures on data sheets.• Find and report problems with blueprints, such as measurements that do not add up.• Decide on the most efficient use of materials during construction to minimize waste.• Change the weld sequence to minimize distortion, considering factors such as heat input and the type of material being used.• Decide when and how to control the temperature during the welding process to avoid cracking.
Computer Literacy	<ul style="list-style-type: none">• Ability to read instructions and job details and documents projects using the computer• Utilize internal systems on the computer• Operate plasma cutting machines, orbital welders and other computer-controlled equipment.• Use basic features of word and data processing applications (Microsoft Word/Excel) to prepare quotes, work orders, track inventory, job progress etc.
Continuous Learning	<ul style="list-style-type: none">• Complete in-house company training.• Retake practical tests periodically.• Attend information sessions to learn about new products.• Pursue learning on own time.



Appendix

B. Training Inventory

Educational Programs

Ontario Secondary Schools

- OYAP – Welder
- SHSM – Manufacturing
 - * Brantford Collegiate Institute, Valley Heights, Cayuga

Fanshawe College

- Welding Techniques Certificate
- Welding Technology
- Aluminum Welding

Conestoga College

- Production GMAW Welder (FAST Program) – partnered with SNP
- Welding Techniques
- Welding and Fabrication Technician
- Welding Engineering Technology – Inspection
- Manufacturing Engineering Technology – Welding and Robotics

Mohawk College

- Welder – 456A
- Mechanical Techniques (Welding and Fabrication) – 574

Ogwehoweh Skills and Trades Training Centre

- Welding Techniques (15 Weeks)
- Practical Pipe Welding (2 Weeks)

Advanced Welding Techniques Inc. (Hamilton) – Private

- 8-Weeks Welder Operator Manufacturing Program
- 12-Weeks Structural Welder Training Program
- 16-Weeks Welder Trade Certification Program
- Blueprint Reading
- Oxy-Fuel Cutting & Safety
- Flux Cored Arc Welding (F.C.A.W.) (Manufacturing) - Level 1; (Structural) - Level 2
- Gas Metal Arc Welding (G.M.A.W.) (Manufacturing) - Level 1; (Structural) - Level 2
- Basic Gas Tungsten Arc Welding (G.T.A.W.)
- Advanced Gas Tungsten Arc Welding (G.T.A.W.)
- Shielded Metal Arc Welding (S.M.A.W.) (Plate) - Level 1; 2; 3; 4
- Shielded Metal Arc Welding (S.M.A.W.) (Pipe)



Pre-Apprenticeship Training Institute (Cambridge) – Private

SAFETY TRAINING PROGRAMS

- Confined Space Hazard Awareness for Construction
- Elevating Work Platforms
- Lockout and Tagout (Introduction)
- Ozone Depletion Card (ODP)
- Propane in Construction Awareness
- Scaffold Users' Hazard Awareness
- WHMIS in Construction
- Working at Heights

In-House Training

- Health & Safety
- WHMIS
- Fall Arrest / Working at Heights
- Fork Lift Training

Titan Trailers

- Welding School (*Coming Soon 2018)

Promotional Programs

Brant Skills Centre

- Pre-Production Welder Preparation Program
- Apprenticeship Pathway Information



Appendix

C. Welding in Grand Erie – A Labour Market Report



Sector Planning Partnership

Manufacturing (Welding) in the Grand Erie Region

A Labour Market Review

September 2017



Workforce Planning Board of Grand Erie
Commission de planification de la main-d'oeuvre de Grand Erie

In partnership with:

Funded By:





OUR VISION

A skilled, resilient workforce contributing to dynamic communities and their economies.

Project Coordination: Chelsea Verbeek

Labour Market Analysis: Jose Rodriguez

Executive Director: Jill Halyk



This project is funded by the Government of Ontario.

The views expressed in this document do not necessarily reflect those of the Government of Ontario.

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Acknowledgement

We would like to thank the following businesses & organizations for volunteering their time and expertise to this Sector Planning Partnership. Without their knowledge, the following Labour Market Overview of the Manufacturing – Welding Sector would be incomplete.

Betco Products Inc.
Brant Haldimand Norfolk Catholic District
School Board
Brant Skills Centre
Chamber of Commerce, Brantford-Brant
CareerLink
David W. Wilson Manufacturing Ltd.
Fowler Metal Industries
Galeforce Welding Inc.
Grand Erie District School Board

Mott Manufacturing Ltd.
Norfolk County Economic Development
Ontario Works Brantford-Brant
Rassaun Services Inc.
R&W Metal Fabricating & Design Inc.
St. Leonard's Employment Services
Tigercat Industries Inc.
Titan Trailers Inc.
United Steelworkers Local 8782
Walters Inc.



Introduction

Manufacturing is the leading source of employment in Grand Erie, providing 14,310 (16%) of the jobs in the region (Brantford, Brant County, Haldimand County, Norfolk County, Mississauga of the New Credit & Six Nations of the Grand River). Within the manufacturing industry, welders account for **640 (4.47%)** of all jobs (Stats Canada, National Household Survey 2011). However, a shortage of skilled, professional welders has been documented by local employers for the past three years. Due to an increasing demand for skilled welders, there is a growing concern among local manufacturers in Grand Erie.

Working with a panel of 12 local manufacturing businesses, the Workforce Planning Board of Grand Erie, along with Conestoga College and Fanshawe College, have set out to investigate the local labour market needs of the Welding Sector.

Using Vicinity Jobs* to look at job postings for the Grand Erie region, we can estimate there are 1,600+ welding jobs, with over 800 (50%) of those in the manufacturing industry. From these numbers, we can estimate that there has been a 20% growth in the number of welders compared to 2011. As the industry continues to grow, so do available positions.



The 12 businesses indicated that they currently employ more than 1,000 welders, which makes up 43% of their current workforce. They are currently looking for an additional 165 welders to fill immediate vacancies. In addition to the immediate need, each company indicated future growth was imminent and additional welders would be required to support this growth. These are the numbers from just a small sample of the manufacturing industry, indicating that welding is an occupation with great opportunities within the Grand Erie community.

*Vicinity Jobs: an analytical tool that collects information from current job postings in Canada, to deliver a detailed real-time insight into the latest regional trends in the demand for labour.



Data Analysis

General Overview

According to the 2011 National Household Survey data, the Grand Erie Region has **117,845** people working in all occupations as defined by the National Occupational Classification (NOC). Welders represent **1,310** of all workers (NOC 7237), with **930** of those welders employed in manufacturing.

Industries by Welder Occupations

The manufacturing sector (identified by the North American Industry Classification System, 31-33) employs 71% of the regions welders; followed by other services (NAIC 81) with 10%, construction (NAIC 23) with 7% and wholesale trade (NAIC 41) with 6%. Since a large portion of the welders work within the manufacturing sector, we will focus the remainder of the analysis on this sector.

Table 1. Industries (2-Digits NAICS) by Welder Occupation

Industry	Total employed	%
31-33 Manufacturing	930	71%
81 Other services (except public administration)	130	10%
23 Constructions	95	7%
41 Wholesale trade	75	6%
Other industries	50	4%

Source: Stats Canada, NHS 2011.

Looking at the manufacturing sector, we see that four subsectors stand out for the number of welders employed. Transportation equipment manufacturing employs 31% of the welders, machinery manufacturing employs 29%, furniture and related product manufacturing employs 11%, and fabricated metal product employs 10%.

Table 2. Manufacturing Industries (3-Digits NAICS) by Welder Occupation

Industry	Total employed	%
336 Transportation equipment manufacturing	290	31%
333 Machinery manufacturing	270	29%
337 Furniture and related product manufacturing	100	11%
332 Fabricated metal product manufacturing	95	10%
Other industries	160	17%

Source: Stats Canada, NHS 2011.



A more detailed industry breakdown (4-digits NAICS) shows that there are many sub-sectors that are employing welders. Other general-purpose machinery manufacturing (NAIC 3339) employs the largest share of welders at 16%, followed by motor vehicle parts manufacturing (NAIC 3363) with 10%, and railroad rolling stock manufacturing (NAIC 3365) with 9%.

Table 3. Manufacturing Industries (4-Digits NAICS) by Welder Occupation

Industry (NAICS)	Total employed	%
3339 Other general-purpose machinery manufacturing	150	16%
3363 Motor vehicle parts manufacturing	90	10%
3365 Railroad rolling stock manufacturing	80	9%
3372 Office furniture (including fixtures) manufacturing	75	8%
3362 Motor vehicle body and trailer manufacturing	65	7%
3311 Iron and steel mills and ferro-alloy manufacturing	45	5%
3323 Architectural and structural manufacturing	35	4%
3331 Agricultural, construction and mining machinery manufacturing	35	4%
3334 Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	35	4%
3399 Other miscellaneous manufacturing	35	4%
3361 Motor vehicle manufacturing	30	3%
3327 Machine shops, turned product, and screw, nut and bolt manufacturing	25	3%
3336 Engine, turbine and power transmission equipment manufacturing	25	3%
3329 Other fabricated metal product manufacturing	20	2%
3371 Household and institutional furniture and kitchen cabinet manufacturing	20	2%
3335 Metalworking machinery manufacturing	15	2%

Source: Stats Canada, NHS 2011.

This overview and breakdown shows that while Manufacturing Welding is one sector of welding employment, there is a variety of opportunities within that sector for welders to explore. Many of the industries employ welders for both basic welding and more advanced, specialized welding.

Demand for Welders

In the last 21 months, the demand for welders in the manufacturing industry has increased, with Vicinity Jobs showing 130 job postings for the Grand Erie Region. Table 4 displays the number of jobs postings for each month from January 2016 until September 2017. Of the total job postings for welders listed on Vicinity Jobs, 25.5% were for welders in the manufacturing sector.

**Table 4. Total number of job postings by Occupation (NOC 7237) – Jan 2016 –Aug 2017**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2016	6	1	4	5	3	12	9	7	7	11	4	6	75
2017	6	7	7	4	9	9	7	3	3	Not applicable			55

Source: Vicinity Jobs.

Characteristics of People in Welding Occupations

In order to understand future demand, it is important to understand the characteristics of the existing workforce.

Place of Residence and Place of Work

Using information from the 2011 National Household Survey, we are able to look at the number of welders working in Grand Erie and the number of welders living in Grand Erie. These numbers show the majority (69%) of those employed in the Grand Erie welding sector are local residents, indicating a demand for local welders. The remaining 28% of the Grand Erie welders commute to other areas for employment and 3% do not work at a fixed Grand Erie address – but may at times work in the Grand Erie region. Based on feedback from the 11 employers participating, there are not enough local welders to support the demand indicating these numbers may have shifted.

Table 5. Labour Force Employed by Place of Work & Residence in Grand Erie

Place of Work	Total by Place of Residence	Total by Place of Work	%	Total with No Fixed Work Address	%
Grand Erie Region	930	640	69%	30	3%

Source: Stats Canada, NHS 2011.

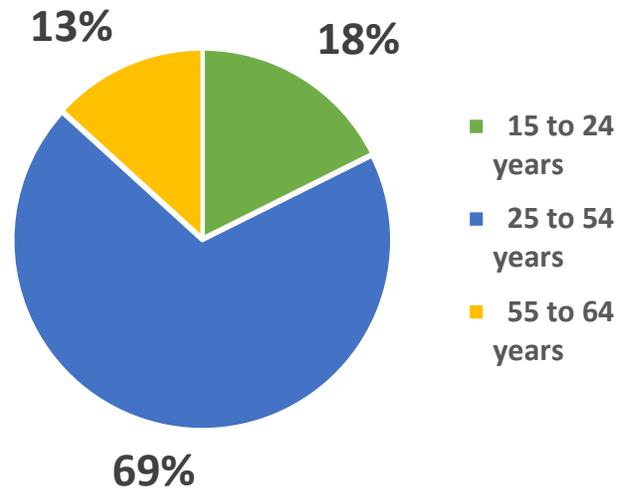
Age Groups

The 2011 National Household Survey indicates that the majority of welders (69%) are within the age range of 25 to 54 years old, followed by welders aged 15 to 24 years old with 18%, and people 55 years and older with the remaining 13%. Based on this data, we can see that the aging population of welders is a concern. By 2011, 26.71% of people employed as welders are over 50 years old, indicating a significant portion of the industry is preparing to retire. This may be contributing to the growing skill shortages and increasing numbers of open positions.



Figure 2. Age Groups by Occupation (NOC 7237) In Grand Erie 2011

Age Groups	Total	%
15 to 24 years	220	17%
15 to 19 years	70	5%
20 to 24 years	145	11%
25 to 54 years	900	69%
25 to 29 years	140	11%
30 to 34 years	190	15%
35 to 39 years	130	10%
40 to 44 years	145	11%
45 to 49 years	115	9%
50 to 54 years	175	13%
55 to 64 years	175	13%
55 to 59 years	135	10%
60 to 64 years	40	3%
65 years and over	0	0%



Source: Stats Canada, NHS 2011.

Educational Attainment

According to the 2011 National Household Survey, 77% of the people working in welding occupations possess a certificate, diploma or degree. Of that group, 49% of welder’s report holding an Apprenticeship or Trades Certificate or Diploma, making up the largest share. The remaining 33.8% report holding a High School Diploma or equivalent and 12.4% report holding a College Certificate, CEGEP or Other Non-University Certificate or Diploma. From this data, we can see that having a certificate, diploma or degree is increasing in importance for employment within the welding sector.

Table 6. Educational Attainment of Welders in Grand Erie Region

Education	Total	%
No Certificate, diploma or degree	300	23%
Certificate, diploma or degree	1005	77%
High school diploma or equivalency certificate	340	33.8%
Apprenticeship or trades certificate or diploma	490	48.8%
College, CEGEP or other non-university certificate or diploma	125	12.4%
University certificate, diploma or degree	45	4.5%
University certificate or diploma below bachelor level	35	3.5%

Source: Stats Canada, NHS 2011.



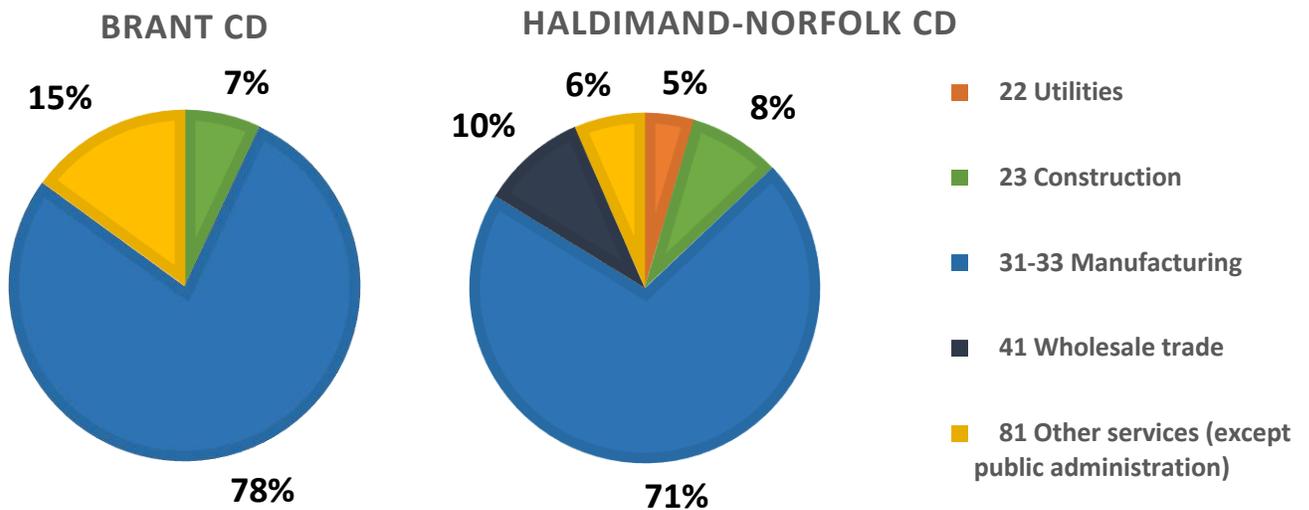
A Deeper Look into Our Census Divisions

The previous data analysis represents the combined information for the Brant and Haldimand-Norfolk Census Divisions. The following information identifies the differences between the two areas.

Industry Share (2-Digit NAICS) by Welder Occupation (NOC 7237)

Within each census division, over 70% of welders work for manufacturing industries. The second largest industry in terms of welders employed in the Brant (CD) is Other Services (15%), while Haldimand-Norfolk (CD) indicates Wholesale Trade as the second largest employer of welders with 10%. As shown in Figure 3, Haldimand-Norfolk has a more diverse group of industries employing welders.

Figure 3. Industries (2-Digits NAICS) by Welder Occupation. Brant and Haldimand-Norfolk



Industry	Brant CD	Haldimand-Norfolk CD
22 Utilities	0	35
23 Construction	35	65
31-33 Manufacturing	390	545
41 Wholesale trade	0	75
81 Other services (except public administration)	75	50

Source: Stats Canada, NHS 2011



Manufacturing Industries (3-Digit NAICS) by Welder Occupation (NOC 7237)

The two census divisions share similarities and differences. The two main employers of welders in both Census Divisions are Machinery Manufacturing and Transportation Equipment Manufacturing. The remaining manufacturing sectors differ. Fabricated Metal Product Manufacturing and Furniture and Related Product-Manufacturing rank equally as the 3rd largest in Brant CD, while Primary Metal Manufacturing ranks 3rd in Haldimand-Norfolk.

Table 7. Manufacturing Industries (3-Digits NAICS) by Welder Occupation

Industry	Brant CD	%	Haldimand-Norfolk CD	%
326 Plastics and rubber products manufacturing	25	6%	0	0%
331 Primary metal manufacturing	0	0%	55	10%
332 Fabricated metal product manufacturing	55	14%	45	8%
333 Machinery manufacturing	105	27%	170	31%
336 Transportation equipment manufacturing	100	26%	190	35%
337 Furniture and related product manufacturing	55	14%	40	7%
339 Miscellaneous manufacturing	25	6%	0	0%

Source: Stats Canada, NHS 2011

Place of Work and Place of Residence

Using information from the 2011 National Household Survey, we are able to look at the number of welders working in each Census Division and the number of welders living in each area. Based on the numbers shown in Table 8, there is a large difference between each census division. In the Brant CD, 103% of the welders work within the Brant CD. From this, we can estimate that 3% of the welders employed in Brant CD are imported from surrounding areas. However, in the Haldimand-Norfolk CD the opposite is occurring; half (50%) of those employed in the Haldimand-Norfolk welding sector are not local residents. The remaining 44% of the Haldimand-Norfolk welders are local residents and 6% do not work at a fixed Haldimand-Norfolk address – but may at times work within the region.

Table 8. Labour Force Employed by Place of Work & Residence

Place of Work	Total by Place of Residence	Total by Place of Work	Total with No Fixed Work Address
Brant Census Division	390	400 103%	0 0%
Haldimand-Norfolk Census Division	545	240 34%	30 6%

Source: Stats Canada, NHS 2011



Age Characteristics of Welders (NOC 7237) in Grand Erie Census Divisions

Although the largest share of welders in both areas (65% in Brant; 71% in Haldimand-Norfolk) are between the ages of 25 – 54 years old, there are differences between the two areas. Brant CD has a larger portion of employed welders aged 55 to 64 years old (24%) compared to Haldimand-Norfolk. As this population of welders continues to age, retirements may contribute to the growing skill shortages and gaps within Brant CD. In Haldimand-Norfolk there is a larger percentage of employed welders aged 15 to 24 years old (22%), indicating retirement is less of a concern. For both census divisions, to meet the needs of the employers, we will require more people to enter the sector as welders.

Table 9. Age Groups by Occupation (NOC 7237) in Brant and Haldimand-Norfolk CD

Age Groups	Brant CD	%	Haldimand-Norfolk CD	%
15 to 24 years	45	9%	175	22%
15 to 19 years	0	0%	70	9%
20 to 24 years	40	8%	105	13%
25 to 54 years	340	65%	560	71%
25 to 29 years	65	13%	75	9%
30 to 34 years	65	13%	125	16%
35 to 39 years	50	10%	80	10%
40 to 44 years	40	8%	105	13%
45 to 49 years	35	7%	80	10%
50 to 54 years	80	15%	95	12%
55 to 64 years	130	25%	45	6%
55 to 59 years	105	20%	30	4%
60 to 64 years	25	5%	15	2%

Source: Stats Canada, NHS 2011

Educational Attainment

In both census divisions, the majority of the people in welding occupations have a certificate, diploma or degree, 89% in Brant CD and 69% in Haldimand-Norfolk CD. Haldimand-Norfolk (CD) has a larger share of welders under Grade 12 with 31%. From this data, we can see that having a certificate, diploma or degree is increasing in importance among the welding sector. From the panel of 11 local businesses, it was noted that there are not enough applicants with the required skills, experience or qualifications. The minimum education required for entry level welding was a high school diploma or equivalency certificate and preferred qualifications were an Apprenticeship or Trades Certificate (CWB¹, TSSA² and/or Red Seal³) from these companies.

¹**CWB:** The Canadian Welding Bureau certifies welders through a review and qualification process to ensure that they meet the requirements for a variety of product and safety codes as well as welding standards.

²**TSSA:** The Technical Standards & Safety Authority certify welders to operate on pressure equipment.

³**Red Seal:** The Red Seal represents the interprovincial standard of excellence. The Red Seal endorsement provides recognition that your certificate meets an interprovincial standard that is recognized in each province and territory.



It is also important to note that the lower percentages for College, CEGEP and other non-university certificate or diploma and University Certificate, diploma or degree suggest that while not required for employment in the Manufacturing – Welding sector, they may be attained for professional development or to assist in movement within a company.

Table 10. Educational Attainment. Brant and Haldimand-Norfolk CD

Educational Attainment	Brant CD	%	Haldimand-Norfolk CD	%
No certificate, diploma or degree	55	11%	250	31%
Certificate, diploma or degree	465	89%	545	69%
High school diploma or equivalency certificate	145	31%	195	36%
Apprenticeship or trades certificate or diploma	240	52%	250	46%
College, CEGEP or other non-university certificate or diploma	55	12%	75	14%
University certificate, diploma or degree	30	6%	25	5%

Source: Stats Canada, NHS 2011

References

- Statistics Canada. 2011 National Household Survey
- Statistics Canada. 2016 Census
- Talent Neuron, Number of Job Postings. 2017
- Canadian Business Patterns. Business Counts. June 2017
- Canadian Business Patterns. Business Counts. December 2016
- Image Welder: <https://pixabay.com/en/weld-welding-fire-2378668/>



Appendix

D. Labour Market Infographics



Manufacturing Welding in Grand Erie



Workforce
Planning Board
of Grand Erie

Definition (National Occupational Classification)

7237 - Welders and related machine operators

Welders operate welding equipment to weld ferrous and non-ferrous metals. This unit group also includes machine operators who operate previously set up production welding, brazing and soldering equipment. They are employed by companies that manufacture structural steel and platework, boilers, heavy machinery, aircraft and ships and other metal products, and by welding contractors and welding shops, or they may be self-employed.

General Information



Population (Total):
244,595



People in all occupations:
117,515*



People in welding
occupations: 1,310*

70% of welders worked in manufacturing industries in 2011: 930* in total

**Data based on place of residence of employed labour force 15 years and over*

Industries (2-Digits NAICS) by Welder Occupation 2011

Industry	Total employed	%
31-33 Manufacturing	930	71%
81 Other services (except public administration)	130	10%
23 Constructions	95	7%
41 Wholesale trade	75	6%
Other industries	50	4%



Manufacturing Industries Subsectors (3-Digits NAICS) by Welder Occupation 2011

Industry	Total employed	%
336 Transportation equipment manufacturing	290	31%
333 Machinery manufacturing	270	29%
337 Furniture and related product manufacturing	100	11%
332 Fabricated metal product manufacturing	95	10%
Other industries	160	17%

Welders Employed in Manufacturing Industries (4-digits NAICS)

Industry (NAICS)	Total employed	%
3339 Other general-purpose machinery manufacturing	150	16%
3363 Motor vehicle parts manufacturing	90	10%
3365 Railroad rolling stock manufacturing	80	9%
3372 Office furniture (including fixtures) manufacturing	75	8%
3362 Motor vehicle body and trailer manufacturing	65	7%
3311 Iron and steel mills and ferro-alloy manufacturing	45	5%
3323 Architectural and structural manufacturing	35	4%
3331 Agricultural, construction and mining machinery manufacturing	35	4%
3334 Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	35	4%
3399 Other miscellaneous manufacturing	35	4%
3361 Motor vehicle manufacturing	30	3%
3327 Machine shops, turned product, and screw, nut and bolt manufacturing	25	3%
3336 Engine, turbine and power transmission equipment manufacturing	25	3%
3329 Other fabricated metal product manufacturing	20	2%
3371 Household and institutional furniture and kitchen cabinet manufacturing	20	2%
3335 Metalworking machinery manufacturing	15	2%



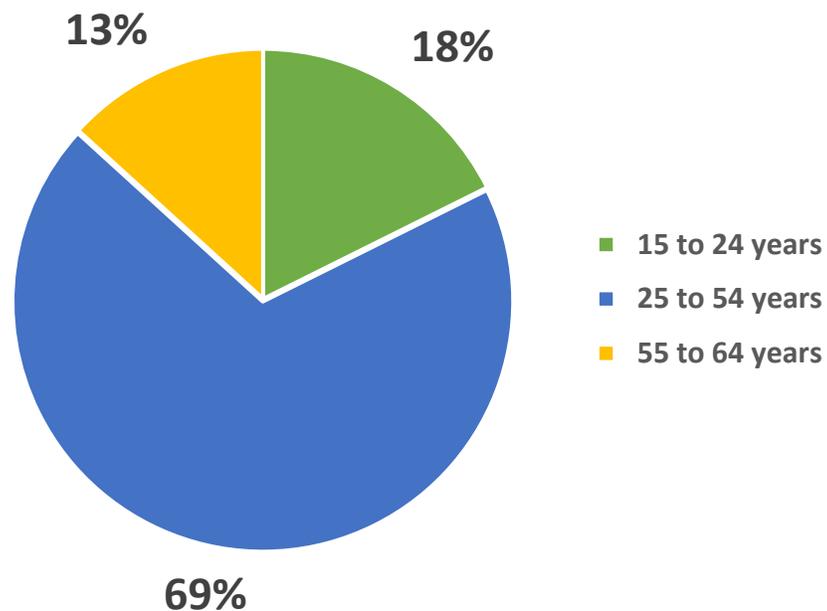
Total Job Postings for Welders (NOC 7237) in Manufacturing Industries (NAICS 31-33) Jan 2016 – Aug 2017

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2016	6	1	4	5	3	12	9	7	7	11	4	6	75
2017	6	7	7	4	9	9	7	3	3	Not applicable			55

Characteristics of People in Welding Occupations (NOC 7237) 2011

Place of Work	Total by Place of Residence	Total by Place of Work	%	Total with No Fixed Work Address	%
Grand Erie Region	930	640	69%	30	3%

Age Characteristics of People in Welding Occupations (NOC 7237) 2011





Educational Attainment in Grand Erie by Occupation (NOC 7237) 2011

Education	Total	%
No Certificate, diploma or degree	300	23%
Certificate, diploma or degree	1005	77%
<i>High school diploma or equivalency certificate</i>	340	33.8%
<i>Apprenticeship or trades certificate or diploma</i>	490	48.8%
<i>College, CEGEP or other non-university certificate or diploma</i>	125	12.4%
<i>University certificate, diploma or degree</i>	45	4.5%
<i>University certificate or diploma below bachelor level</i>	35	3.5%

Source:

Stats Canada, 2011 National Household Survey

Vicinity Jobs



For questions regarding the data represented in this presentation, please contact:

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