

THE  
**UNIVERSITY**  
OF RHODE ISLAND

# REAL JOBS RHODE ISLAND CASE STUDY:

## Pipeline to Manufacturing Careers in Ship Building Partnership

Prepared for:

### Rhode Island Department of Labor and Training

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# **Pipeline to Manufacturing Careers in Ship Building Partnership**

## **Real Jobs Rhode Island (RJRI)**

In 2015, The Rhode Island Department of Labor and Training (DLT) awarded funding to workforce development collaborations throughout the state. Funding was provided through development grants to create sector-based partnerships and create a plan to provide workforce training aimed at sector needs. Implementation funding was then provided for these partnerships to develop training materials and train workers in Rhode Island in targeted industries including healthcare, technology, marine trades, and the arts. Sector partnerships were developed through public private partnerships that included industry, workforce intermediaries, and educational institutions to address the economic needs of the state.

### **I. Sector Need**

Electric Boat (EB), a division of General Dynamics, is one of the largest defense contractors in the world and is Rhode Island's largest employer. Its long history of shipbuilding experience means that EB manages complex programs and manufacturing projects, including being recently awarded contracts to build Ohio Replacement Class ballistic-missile submarines and two Virginia Class Submarines per year. EB formed the Pipeline to Manufacturing Careers in Ship Building Partnership (PMCSBP) because these contracts posed a projected need of 10,000 jobs over a ten year period. As part of its planning grant, EB held five working group sessions with industry employers to identify sector needs, skills gaps, transportation issues, screening of applicants, and the current and future pipeline to fill positions in the shipbuilding industry. Through this process, the partnership found that:

- High-paying manufacturing jobs in the shipbuilding industry were going unfilled due to a lack of qualified candidates.
- Industry requirements needed to be better aligned with the training offered by career and technical education schools and training institutions.
- Transportation in the Quonset Point Industrial Park was a challenge for over 200 companies and 10,000 workers.
- Pre-employment screening of job candidates posed barriers due to security clearances and work readiness.
- There existed an overall negative perception of shipbuilding and manufacturing careers as dirty and dangerous.
- Ongoing incumbent worker training was not meeting the needs of employers.

To address these barriers for the shipbuilding sector, EB formed PMCSBP.

### **II. Grant History**

EB was founded in 1899 and has a long history of experience as both a ship builder and as the largest employer in Rhode Island. It also has extensive experience with grant programs being offered by the State of Rhode Island, including Incumbent Worker Grant Programs and Innovative Partnership grants offered by the Governor's Workforce Board. However, EB's past programs focused on specific populations, while its RJRI grant program with PMCSBP offers more general industry training. Without having to focus on targeting specific populations with the RJRI Planning and Implementation Grants, PMCSBP was able to develop a strategic plan that covered all of the projected training needs of the industry. As a large employer, EB executes numerous training programs that are funded through a variety of grants, including incumbent worker training, OSHA-required training, and training programs for Massachusetts residents.

### **III. Goals and Objectives**

PMCSBP responded to the anticipated demand of its recently awarded contracts by setting a strategic goal of creating a pipeline of workers into the shipbuilding industry and by training workers to meet projected industry needs in maritime trades. PMCSBP articulated two specific goals to meet this anticipated demand:

1. Expand high school Career and Technical Education (CTE) programs to build a pipeline into careers at EB.
  - PMCSBP worked with the Rhode Island Department of Education and CTE programs to develop a curriculum derived from the National Maritime Education Council.
  - PMCSBP planned to institute a marketing strategy to advertise opportunities in shipbuilding and manufacturing careers.
  - EB expanded its summer internship program.
2. Make training programs available in the maritime trades that will respond to anticipated demand.
  - Partner with New England Institute of Technology's (NEIT) Shipbuilding and Advanced Manufacturing Institute (SAMI) to create workforce training programs in maritime welding, machining, shipfitting, and robotics.
  - Partner with CCRI to create workforce training programs at the Westerly Education Center in maritime sheet metal, maritime pipefitting, and maritime electrical.

### **IV. Partnerships**

As the lead partner in PMCSBP, EB had always maintained relationships with its industry and education partners prior to RJRI funding, but never in a formal way. The partnership between EB and its education partners, however, has grown closer now that EB is able to use its funding to hire workers prior to them participating in the training programs being offered by CCRI and NEIT. Prior to the RJRI funding, NEIT predominately delivered training and produced graduates that were later hired by EB, but now the relationship has grown to

include CCRI, which is able to deliver instruction at the Westerly Education Center. The relationship that has grown between these partners was important because EB lacked the space to deliver the training needed to meet its anticipated demands.

**Table 1: Partnership Members and Responsibilities**

Electric Boat	Lead Applicant: Responsible for the day-to-day grant management and reporting; development of a comprehensive plan; development of a timeline for executing the grant; budgeting; participant and partnership management; execution of the internship program.
Guill Tool, Toray, Applied Radar, Polaris MEP, and VR Industries.	Responsible for helping to develop feasible transportation plans and designing curricula.
New England Institute of Technology	Responsible for training participants in maritime welding, machining, maritime shipfitting, and maritime sheet metal.
Community College of Rhode Island	Responsible for training participants in pipefitting and maritime electrical.
Rhode Island Department of Education and Career and Technical High Schools in Coventry, Cranston, Providence, Woonsocket, and Lincoln	Responsible for developing a robust training plan to be instituted in CTE schools based on National Maritime Education Council curriculum.
Rhode Island College	Responsible for developing a marketing and outreach plan to expand awareness of Rhode Island's ship building careers.

## **V. Implementation Activities and Processes**

### **Phase 1: The Pilot Program**

Prior to instituting a large-scale training program that promised the employment of hundreds of workers trained, PMCSBP began by instituting a small-scale training program that aimed to train a cohort of 57 workers through a summer internship program and through training programs instituted by NEIT in the areas of maritime welding, machining, and robotic welding.

### **Phase 2: Large-Scale Training Program**

#### **Goal #1: Expand high school CTE programs to build a pipeline to careers at Electric Boat.**

PMCSBP worked with the Rhode Island Department of Education to expand training opportunities at CTE schools to introduce Rhode Island's youth to the opportunities related to shipbuilding and the manufacturing trades. This meant bringing its education partners together to develop and deliver to students a curriculum modeled on the National Marine Education Council's national marine curriculum. After designing the curriculum, PMCSBP planned to purchase textbooks to aid in the delivery of the customized curriculum.

Still, PMCSBP expected the success of the CTE programs to hinge on the ability to fill seats in CTE classrooms and to change perceptions of the industry among parents, educators, and students, so it envisioned a comprehensive marketing strategy to generate interest in shipbuilding and manufacturing careers. The partners agreed that shipbuilding and manufacturing careers are negatively perceived by students and parents, so PMCSBP partnered with Rhode Island College to develop a strategic marketing and outreach effort to generate more interest in these career opportunities. PMCSBP's chief interest for this endeavor was to educate students and their parents about major career paths in shipbuilding and manufacturing, stress the safety and cleanliness of modern manufacturing work, and emphasize that workers can make a comfortable income working in manufacturing and shipbuilding careers.

Another key part of PMCSBP's strategy in creating a pipeline of careers was to institute a six week summer internship program with EB to allow fifteen high school student interns to receive exposure to careers in shipbuilding and manufacturing. These interns were to be paid \$14.14 per hour.

#### **Goal #2: Make training programs available in the maritime trades that will respond to anticipated demand.**

The delivery of training programs to meet industry demands occurred through EB's partnership with NEIT at its East Greenwich campus and with CCRI at the recently built Westerly Education Center. PMCSBP sought to recruit students, the under- or unemployed, veterans, and skilled workers. PMCSBP recruited through its own veterans' network, through help from the RI DLT, and by its partnership with Skills for Rhode Island's Future, a public-private partnership between the Providence Chamber of Commerce and the RI DLT. Training modules were designed to correspond with anticipated industry demands.

PMCSBP also knew that the success of the training program depended on the ability of participants to arrive at their training destinations. This was especially crucial for the summer internship program delivered by EB at Quonset Point. Transportation posed longstanding problems for employees and business in the Quonset Point Business Park because no viable public transportation routes exist to service the area. PMCSBP wanted to engage employers and employees to develop a proposal for addressing these challenges, but later did not, because the Quonset Point Development Corporation was said to be close to completing a study on the transportation issue. As a consequence, PMCSBP chose not to use its funding to duplicate what was already being done by Quonset Point Development Corporation and chose, instead, to pull back its funding for this part of the grant.

**Table 2. Training Module Overview**

Name of Module	Training Provided
Ship Building Internships	Designed to attract and expose students to careers in the shipbuilding industry; interns, identified through CTE schools and participating in this six week summer internship, were paid at an average rate of \$14.14 per hour.
Maritime Welding	Provided through the New England Institute of Technology's (NEIT) Shipbuilding/Marine Trades Advanced Manufacturing Institute (SAMI) program; participants received training in maritime welding; participants were paid at an average rate of \$14.14 per hour.
Machining	Provided through NEIT's SAMI program; participants received training in machining; participants were paid at an average rate of \$14.14 per hour.
Maritime Shipfitting	Provided through NEIT's SAMI program; participants received training in maritime shipfitting; participants were paid at an average rate of \$14.14 per hour.
Maritime Pipefitting	Provided by CCRI at the Westerly Education Center; participants received training in maritime pipefitting; participants were paid at an average rate of \$14.14 per hour.
Maritime Electrical	Created in partnership with CCRI's Westerly Education Center; participants received training in maritime electrical; participants were paid at an average rate of \$14.14 per hour.
Robotic Welding	Provided through NEIT's SAMI program; participants received training in Robotic welding; participants were paid at an average rate of \$14.14 per hour.
Maritime Sheet Metal	Created in partnership with CCRI's Westerly Education Center; participants received training in maritime sheet metal technique; participants were paid at an average rate of \$14.14 per hour.
CTE Maritime Training	Training program customized and delivered by CTEs and modeled on the National Marine Education Council's (NMEC) national maritime curriculum; PMCSBP planned using Real Jobs funding to purchase textbooks for CTE schools.



## **VI. Achievements**

### Partnerships

PMCSBP did not discuss any achievements with partnerships.

### Recruitment

#### *Cost-saving outreach strategies*

PMCSBP originally proposed to conduct a marketing campaign to attract potential employees to the training program. However, the CTE schools in Coventry, Cranston, Providence, Woonsocket, and Lincoln executed an outreach campaign to students that filled the programs without having to use the funding that was allocated toward marketing. PMCSBP was then able to roll the funding that had been earmarked for the marketing strategy into training funds by requesting a modification of the grant. This modification of funding helped PMCSBP train the unexpectedly large number of program participants it recruited in 2016.

#### *Utilizing prior networks and relationships*

PMCSBP has a dense network of veterans, and has formed a relationship with another public-private partnership called Skills for Rhode Island's Future which refers under- or unemployed participants to it. These prior connections helped PMCSBP receive robust referrals to its programs from multiple sources.

#### *A lead organization with a positive reputation*

EB is a very well-known employer with a good reputation in Rhode Island and received widespread media attention due to the signing of new defense contracts. As such, there has been no shortage of workers referred to PMCSBP's programs, although some of the most recent referrals have fewer skills than earlier referrals.

### Trainee Barriers

#### *Offering targeted remediation in math competencies to overcome barriers to success*

PMCSBP found that many program participants lacked the skills and competency in mathematics needed to be successful in the industry. PMCSBP knew that such deficiencies were common in its targeted populations, and addressed the issue through classroom remediation.

### Training

#### *Exceeded participation goals*

One of the most important successes was EB's hiring of 390-400 employees who began training with NEIT and CCRI. Due to this collaboration, PMCSBP exceeded its participation goals at the time of this interview.

#### *Hiring before training*

EB, the lead partner of PMCSBP, hired 75 percent of trainees before the start of training.

This ensured that the majority of program participants received training-related employment after training completion. In the initial phases of grant implementation, PMCSBP was working with NEIT's SAMI Program and the RJRI Program, and fifteen percent of trainees that EB would have hired from PMCSBP training were hired through that partnership. After this program ended, however, EB increased the percentage of trainees hired before the start of training to 90 percent.

#### *Fulfillment of enrollment goals*

The first phase of the training program proved to be a success. PMCSBP enrolled 54 out of the 57 participants it initially set to enroll. Of those 54 participants enrolled in the training program, 53 completed the training program. Of the 35 job seekers PMCSBP expected to complete the training, 34 successfully gained training-related employment in the program by the end the program. All seven of the incumbent workers participating in the training completed it, while all twelve of the summer interns completed their internship.

#### *Providing financial support to training participants*

All training participants were financially supported throughout the training program. EB, the lead applicant, hired 75 percent of trainees before the start of training, and provided them with wages and benefits as part of their employment. The remaining 25 percent of trainees received similar funds and benefits through other funding sources.

#### Transition from Training to Employment

The transition from training to employment was made seamless by hiring workers prior to training them. For instance, the 34 workers successfully finding employment did so easily because they were first hired by an industry partner and then paid while completing their training.

## **VII. Challenges**

### Partnerships

#### *Working with untested partners*

One challenge was working with partners who were new to the training program. One of the partners that was responsible for delivering training was not prepared for the number of participants who would be involved in the training program, but that problem was resolved after the Office of Postsecondary Education hired additional support.

#### *Working with a new curriculum*

PMCSBP faced some challenges instituting the new National Marine Education Council's (NMEC) national maritime curriculum at CTE schools. The CTE schools that the partnership worked with were accustomed to working with the NCCER-based (The National Center for Construction Education and Research) curriculum, and were unfamiliar with the new

curriculum.

### *Convincing small businesses to use the training program*

PMCSBP believed that industry employers, especially small businesses, may have been deterred from participating because they were intimidated by the size of the partnership's other members. PMCSBP also worried that if small businesses only needed one or two employees trained then training programs would not meet the enrollment criteria to allow the training program to be offered.

### Recruitment

#### *Recruitment of under-skilled workers*

Many of the employees who were referred to PMCSBP were semi-skilled, and did not possess all the skills needed for participation in the training program. PMCSBP anticipated this issue, however, and knew that additional training challenges would emerge with its newer recruits who were shown to have fewer skills. PMCSBP is incorporating strategies to address this issue into its future training programs.

### Trainee Barriers

#### *Transportation*

Many employees faced transportation issues and struggled to arrive at the Quonset Point Business Park. The Quonset Development Corporation (QDC) received funding to conduct a study about transportation to the area, so PMCSBP pulled back its request for funding and diverted it elsewhere. For EB, a transportation plan is critical because it struggles to bring interns and new hires to company facilities and so the company does not always have its internship program at capacity. Transportation for employees to attend NEIT does not present a major barrier, although transportation to the Westerly Education Center remains an obstacle.

#### *Childcare*

Some employees faced issues with arranging childcare during the period of the training.

### Training

#### *Strict starting and ending dates for training*

PMCSBP found being tied to a starting and ending date for the training programs challenging. If an immediate demand arises for a training program, the start of that training program may have already begun or may have already ended (however, one of the programs - machining - was open enrollment).

#### *Rushed implementation timeline*

PMCSBP felt rushed during the process of getting everything up and running to execute the grant. Having all of the instructors lined up prior to grant implementation would have made

everything run smoother, and this could have only been accomplished with more time for the implementation process.

#### *Ability to deliver CTE curriculum*

Despite the fact that CTE schools were adept at keeping their classrooms at capacity, PMCSBP learned during the course of program implementation that these programs lacked the infrastructure and equipment to appropriately deliver the curriculum.

#### Transition from Training to Employment

PMCSBP did not discuss any challenges with the transition from training to employment.

#### Other

#### *Planning for unknowns*

Writing a plan for grant implementation was a challenge in light of the fact that there are some parts of the implementation process that are impossible to learn until the grant is being executed. PMCSBP, for instance, had spent a lot of time developing a marketing plan when it became evident that one was not needed after the CTE schools so successfully signed up students for their programs.

**Table 3: Performance Metrics for All Training Programs**

<b>IG-11 Pipeline to Manufacturing Careers in Ship Building (EB)</b>	<b>Start Date of First Cohort</b>	<b>Proposed End Date for All Cohorts</b>	<b>Target Enrollment</b>	<b>Enrolled</b>	<b>Target Completed</b>	<b>Completed</b>
<b>Recruitment, Training, and Employment</b>						
Maritime Welding NEIT - (4 cohorts) (Job Seekers)	5/23/16	10/21/16	33	33	33	32
EB Summer Internships - 2016	6/27/16	8/26/16	15	12	15	12
Machining NEIT (2016) (Job Seekers)	9/26/16	11/18/16	2	2	2	2
Robotic Welding NEIT (2016) (Incumbents)	10/31/16	11/18/16	7	7	7	7
Total Participants Placed in related employment (maritime welding training)					32	31
Total Participants Placed in related employment (machine training)					2	2
<b>Other Objectives</b>						
Total Participants receiving certificates (maritime welding training)					28	32
Total Participants receiving certificates (machine training)					2	2
Total Student Enrollment in specified CTE programs			TBD	TBD		Insufficient Data
New CTE Programs						8

## **VIII. Sustainability**

It is hard to say whether or not the program will be sustainable without RI DLT funding. The decision to continue with such a capital-intensive training program will require a company like EB to take a hard look at this investment if the state chooses to end funding.

## **IX. Lessons Learned**

The following lessons were learned by PMCSBP in executing their training program:

- There is an industry-wide need for leadership development and supervisory management training, and PMCSBP plans to make these types of trainings available in the future.

## **X. Best Practices**

These best practices were utilized by PMCSBP:

- Hire training participants prior to their training and provide them with sustainable wages and benefits.
- Use the statewide publication of new contracts and labor demand as a marketing tool for training programs.

## **XI. Recommendations**

Based on the successes and challenges of PMCSBP, the following recommendations are suggested:

- Create and utilize a formal recruitment and marketing strategy that is directed at changing the perceptions of careers in the industry.
- Work with the Department of Transportation to facilitate and ensure a transportation solution for the Quonset Point Business Park to make the employer accessible for workers without private transportation.