

# Behind the Wheel:

## A case study of Mission College and Santa Clara Valley Transportation Authority's Coach Operator Apprenticeship Program

A BRIEFING PAPER FOR THE CALIFORNIA  
APPRENTICESHIP INITIATIVE EVALUATION



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## **About This Case Study**

This case study is part of SPR's evaluation of the California Apprenticeship Initiative. The evaluation includes an additional three case studies, an apprenticeship brief, and a pre-apprenticeship brief, which can be found at: <https://caihub.foundationccc.org/Research-and-Reports>

# TAPCA Program/Coach Operator Apprenticeship

## Exhibit 1. Grantee Program Overview

**Grantee Name:**

Mission College

**Grantee Year:**

2016

**Program Name:**

Coach Operator and Transportation Apprenticeship (part of the Transportation Apprenticeships for Professional Career Advancement [TAPCA] Program)

**Sector:**

Transportation

**Occupation:**

Coach Operator

**Apprentices as of November 2018:<sup>1</sup>**

**388** Enrolled

**140** Completed

**Employer Partner:**

Santa Clara Valley Transportation Authority

**Union Partner:**

Amalgamated Transit Union Local 265



## Introduction

Community colleges are increasingly partnering with employers to offer apprenticeships—a model that combines on-the-job training with classroom instruction—in part because national surveys indicate that employers prefer job candidates with a combination of relevant work experience and education.<sup>2</sup> Approximately 21,000 organizations in the United States rely on apprenticeships to train workers in a range of occupations and sectors.<sup>3</sup> In recent years, firms new to the American apprenticeship model have partnered with community colleges to design programs for young people transitioning to work and adults looking for career opportunities. Siemens (in manufacturing) and Aon (in finance) are two examples.<sup>4</sup>

Apprenticeship is not a common approach to worker preparation and training in all industries, however. In 2016, 70 percent of registered apprenticeships in California were in the construction trades, even though this industry employs only 5 percent of the state's workforce.<sup>5</sup> By contrast, less than 1 percent of apprenticeships were in manufacturing, transportation, and healthcare occupations combined, even though approximately 18 percent of the state's workers are employed in those industries.<sup>6</sup> To help address this imbalance and establish apprenticeships in industries where they are less common—especially those identified as priorities for economic growth—in 2015 the California state legislature and governor created the ongoing California Apprenticeship Initiative (CAI) grant program.

## Exhibit 2. What is a Registered Apprenticeship?

**A California registered apprenticeship is characterized by five main components, each with an associated quality standard:**



Programs provide both on-the-job-training and job-related classroom instruction; the classroom curriculum is critiqued and approved by a local education agency



Participants are paid by the employer during the apprenticeship, and compensation follows wage progression scales



On-the-job training is conducted in a work setting with the guidance of a more senior employee



Programs meet California's minimum hours for registration: 144 hours of classroom instruction and 2,000 hours of on-the-job training.



Participants who complete the program receive an industry-recognized credential.

### Sources:

U.S. DOL (<https://www.dol.gov/featured/apprenticeship/faqs>); California DAS (<https://extranet.cccco.edu/Portals/1/WED/Apprenticeship%20Initiative/RFA1/Frequently-Asked-Questions-Update-2.pdf>).

Between 2016 and 2018, CAI invested a total of \$27.5 million to create new apprenticeships in the state. The California Community Colleges Chancellor's Office (Chancellor's Office) is leading CAI and has awarded 40 grants to community colleges and their partners to create new programs.<sup>7</sup>

One of the grants was awarded to Mission College, in partnership with Santa Clara Valley Transportation Authority (VTA) and Amalgamated Transit Union (ATU) Local 265, to support the creation of apprenticeships in four transportation occupations: Coach Operator, Track Worker, Service Mechanic, and Overhead Line Worker. The four programs are part of a VTA initiative called Transportation Apprenticeships for Professional Career Advancement (TAPCA).<sup>8</sup>

This case study profiles the Coach Operator program because 95 percent of TAPCA apprentices have enrolled in this program.<sup>9</sup> It is also the first program of its kind in the United States and has attracted the interest of other transit authorities within and outside of California.

The case study describes the development of the Coach Operator Apprenticeship program including why the partners chose an apprenticeship model to meet their training needs, how the program was developed and structured, and what apprentices and employers report about their experiences in the program. It concludes with a discussion of the program's sustainability. The methodology for how the study team selected case study sites and gathered data from them is described in Appendix A.

### Exhibit 3.

#### Case Study Highlights

- **Employer Engagement: The Coach Operator Apprenticeship program grew out of a labor-management commitment to professionalize key transit occupations and better support career advancement within VTA's workforce.** A little over a decade ago, VTA faced a number of workforce challenges: pending large-scale retirements, recruiting and retention challenges in key positions, ongoing integration of new technologies, worker health and safety concerns, and the need to help VTA employees better prepare for the public service aspects of their jobs. To address these issues, VTA and ATU Local 265 launched their signature Joint Workforce Investment (JWI) effort in 2007, and a JWI mentoring and professional development program shortly thereafter (see Exhibit 6 What is Joint Workforce Investment?). Over the next decade, Mission College and a partner consultant helped institutionalize JWI's mentoring and training approach. By 2015, VTA and ATU had built a coach operator training program, which served as the foundation of the Coach Operator Apprenticeship. The VTA-ATU program was first registered with the US Department of Labor's (US DOL) Office of Apprenticeship (OA) in 2015 under the American Apprenticeship Initiative, and was subsequently registered with California's Division of Apprenticeship Standards (DAS) in 2016 under CAI. For Mission College, the program represented an opportunity to work with a local employer the college had long known and trusted in order to advance apprenticeship as a strategy for improving family-wage career opportunities in a sector critical to the region's economy. For VTA and ATU, it offered the opportunity to affirm and formally recognize coach operator as a profession and not just a job, boost worker skills, improve retention, and signal a broader commitment to job quality and career advancement at the company.
- **Program Structure: The Coach Operator Apprenticeship is the training program for all new coach operators. It includes 10 weeks of full-time classroom training followed by 15.5 months of on-the-job training,** complemented by mentoring and additional credit-bearing training integrated into the OJT component and provided through JWI. Apprentices require about 18 months to complete the entire program.
- **Apprentice Recruitment, Selection, and Orientation: VTA recruits for coach operator positions through open application periods typically held a few times each year.** Once hired, new recruits participate in a two-and-a-half-day orientation program and begin their apprenticeships. Coach operator apprentices are almost all new VTA employees, with a few exceptions who transfer into these positions from other VTA job classifications. Since participating in the Coach Operator Apprenticeship program is a condition of employment for new coach operators, new hires become both VTA employees and Mission College students immediately following their orientation program.

- **Apprentice Perspectives: Coach operator apprentices expressed considerable enthusiasm about all three program components—classroom training, OJT, and peer mentoring and programming through JWI.** Peer mentoring (and professional growth more generally) is highly valued within VTA’s culture, by management and labor alike. JWI, which provides ongoing peer mentoring and professional development, was continually cited during stakeholder conversations and in surveys as a key asset that amplified the importance of the training and professionalism in the program and helped cultivate strong relationships between colleagues working in occupations that can otherwise be quite solitary.
- **Employer and Union Perspectives: VTA and ATU expressed enthusiasm for the Coach Operator Apprenticeship program as a vehicle for structuring and formalizing the training, mentoring, and development offered through JWI, and for helping to institutionalize coach operator as a profession. Of particular importance to ATU was the accompanying college credit and certification provided to apprentices upon completion of the program.** The Coach Operator Apprenticeship connects and reinforces each learning component (instruction, OJT, peer mentoring, and programming), and prepares new apprentices for their jobs and also for their roles as mentors, learners, public servants, and professionals within the broader public transportation industry.
- **Sustainability: VTA, ATU, and Mission College are all invested in sustaining and expanding the Coach Operator Apprenticeship and other transportation industry programs, and in helping other transit agencies begin to offer them as well.** Recent legislative changes relating to community college reimbursement rates for classroom training provided by colleges for apprentices are making it easier for Mission College and other California community colleges to support and grow existing TAPCA programs. Further, the May 2018 launch of California Transit Works!, a statewide consortium of transit industry partners building worker-centered training programs—and the interest of dozens of other transit agencies in developing their own versions of TAPCA apprenticeships—makes it likely that these programs will be scaled to other locations, establishing an ecosystem of transit agency apprenticeships in California and beyond.

## **The Industry's Need for Public Transit Workers**

Silicon Valley will almost certainly see increased demand for public transit in the coming years as the growing region grapples with the need to move people, not cars.<sup>10</sup> Commute times for Silicon Valley residents have increased 17 percent in the past decade, reaching an average of 58 minutes in 2016.<sup>11</sup> Since 2010, VTA express bus service ridership has increased by 31 percent, reflecting significant demand for alternatives to commuting by car.<sup>12</sup>

The increased need for public transit is particularly urgent for low-income workers, who use public transportation at more than three times the rate of higher-income earners in Santa Clara County.<sup>13</sup> It is also urgent for students, whose access to educational opportunities can be constrained by the cost or accessibility of public transit.

At the same time that demand for more and better service is increasing, the transportation sector across the United States and in Silicon Valley faces a large-scale worker shortage owing to tight labor markets and an aging workforce. At VTA, 40 percent of coach operators are eligible to retire today.

Finally, like other industries, public transit is undergoing significant changes as a result of new technologies. From assisted navigation to alternative fuel technologies and smart sensors, transit agencies are investing in new kinds of vehicles and related infrastructure, changing the mix of skills needed by transit workers with increasing rapidity.

The combination of these challenges has made it imperative for VTA to be able to effectively train and retain good workers. It has prompted the agency to invest in efforts like JWI and TAPCA to support continuous learning and development and to provide pathways for those seeking to advance their careers.

Although this case study focuses on the Coach Operator Apprenticeship, a brief description of all of TAPCA's apprenticeship programs and how they support career advancement across the company is provided in Exhibit 4.

#### EXHIBIT 4.

#### Mission College, VTA, and ATU, and TAPCA: Building Career Ladders Through Apprenticeship

In addition to the Coach Operator Apprenticeship described in the body of this case study, TAPCA includes the following programs:

- **Track Worker Apprenticeship.** Light rail track workers maintain and repair the tracks; they are part of VTA's Way, Power, and Signal Team responsible for maintaining and repairing the switches, signals, crossing arms, overhead lines, and alarm and logistics systems that coordinate and support train movement. To prepare new workers for these critical roles, VTA, ATU, and Mission College developed the Track Worker Apprenticeship program, the first of its kind in California. Four apprentices enrolled in this program during the CAI grant period to enable VTA to be ready to replace current light rail track workers nearing retirement.<sup>14</sup>
- **Overhead Line Worker Apprenticeship.** Overhead line workers are highly specialized light rail workers. There are 12 Overhead Line Worker positions at VTA, and it is the highest paying ATU occupation at VTA. Despite VTA's consistent and ongoing recruitment efforts, only half of these positions are filled, and three of the existing six workers are eligible for retirement. One of the reasons for VTA's inability to recruit workers who are already trained for this work is that the agency has to compete for talent with Pacific Gas & Electric, which offers higher wages, more positions, and more frequent daytime shifts than VTA. However, VTA's Overhead Line Worker Apprenticeship program now provides a clear pathway for VTA to fill these positions by training its existing employees. Seven apprentices enrolled in the program during the CAI grant period.<sup>15</sup>
- **Service Mechanic Apprenticeship.** In recent years, the transportation industry's shift to hybrid electric power and the increasing technological sophistication of new coaches with multiple digital systems has turned transit mechanics into computer diagnostic specialists. These rapid technological changes have raised the skill level needed for journey-level transit mechanics, while making it more challenging to enter the maintenance profession as service mechanics (the entry-level mechanic occupation at VTA). This has made it more difficult for VTA to recruit enough skilled workers for these positions. However, as with the Overhead Line Worker Apprenticeship, the Service Mechanic Apprenticeship provides a new pathway for existing entry-level employees to advance and develop a specific area of expertise. Five apprentices enrolled in this program during the CAI grant period.

The partners who developed the four TAPCA apprenticeships are now working together with California Transit Works to develop a fifth apprenticeship for light rail operators.



## Why Did Partners Choose Apprenticeship?

For Mission College, VTA, and ATU, the Coach Operator Apprenticeship was an outgrowth of a decade-long effort called Joint Workforce Investment, or JWI (see Exhibit 6. What is Joint Workforce Investment?) to professionalize key occupations, including coach operator; improve the pipeline of skilled workers for critical positions; and increase worker engagement, well-being, satisfaction, and retention. The program helped achieve these goals.

## FROM JOB TO PROFESSION: THE EVOLUTION OF THE COACH OPERATOR ROLE

Modern transit systems like VTA are testing and integrating new technologies at a fast clip—VTA maintains an interactive learning lab and innovation center to shape and pilot new technologies in partnership with Silicon Valley innovators and the public.<sup>16</sup> Among the company’s key priorities in the coming years are the rollout of zero-emission vehicles and the charging infrastructure to support them;<sup>17</sup> new smart technologies that connect vehicles to each other, to infrastructure (e.g., transit centers), and to passengers and vehicles;<sup>18</sup> and technology-enabled service enhancements for people with disabilities.<sup>19</sup> Coach operators are key to realizing the positive impacts intended from these changes: They are stewards of the dozens of new technologies and services that make up a modern city bus, intermediaries that ensure interoperability between coach and other technologies and services, and the face-to-face “help desk” for users of these technologies and services.

In addition, coach operators provide public services in a complex social environment. All of the health and social challenges faced by communities, such as poverty, mental illness, and violence, manifest in public transportation systems serving those communities. As a result, coach operators regularly manage, intervene, or facilitate situations involving public safety, health, and other social hazards, while also providing public transportation services that thousands of people rely on every day.

The work is challenging and can be isolating: Coach operators spend many hours without seeing colleagues; they can work split shifts and spend considerable time sitting. Attentiveness to time and stress management as well as physical and mental wellness are essential to enabling coach operators to deliver the high-quality public service VTA’s customers expect.

It is in this context that VTA and ATU worked with Mission College to launch the formal Coach Operator Apprenticeship program in 2015. Prior to federal or state apprenticeship support, VTA and ATU had worked for over a decade (through JWI) to pilot an approach to training, peer mentoring, and support that helped coach operators address key challenges. This resulted in increased employee retention, improved health and wellness, and a boost in employee morale. For VTA and ATU, registering the program as a credit-bearing apprenticeship—requiring 10 weeks of full-time coursework and over 15 months of OJT, coupled with ongoing mentoring and programming—helped structure and formalize their efforts. It also placed the coach operator position squarely in the category of a profession, rather than just a job.

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***Most operators say it takes three to five years to be comfortable in the position. It's not the technical part—driving. It's all the rest: using dozens of computer systems, delivering a quality public service, and managing people. That's what makes it a profession.”***

—Deborah Moy, JWI Consultant

### **A More Predictable Pipeline**

Apprenticeship has helped create new pathways into key VTA occupations. Mirroring trends in the workforce more generally, VTA workers are aging. Five years ago, VTA hired an average of 30 new coach operators a year; today that number is 100. But the current high-growth economy with its low unemployment rate (2.4 percent in November 2018)<sup>20</sup> makes recruiting and hiring at this pace a serious challenge. Applicants have more employment opportunities to choose from, so a smaller percentage follow through to interviews and then to training. In addition, Santa Clara County is the heart of Silicon Valley—the most expensive place to live in the nation for three out of the past five years. This makes recruiting from outside the area difficult for companies, and training without a regular paycheck difficult for workers. In this context, VTA needs an efficient and predictable pipeline for recruiting, training, and retaining new workers. Apprenticeship works as a key strategy for VTA to develop and strengthen this pipeline in two ways.

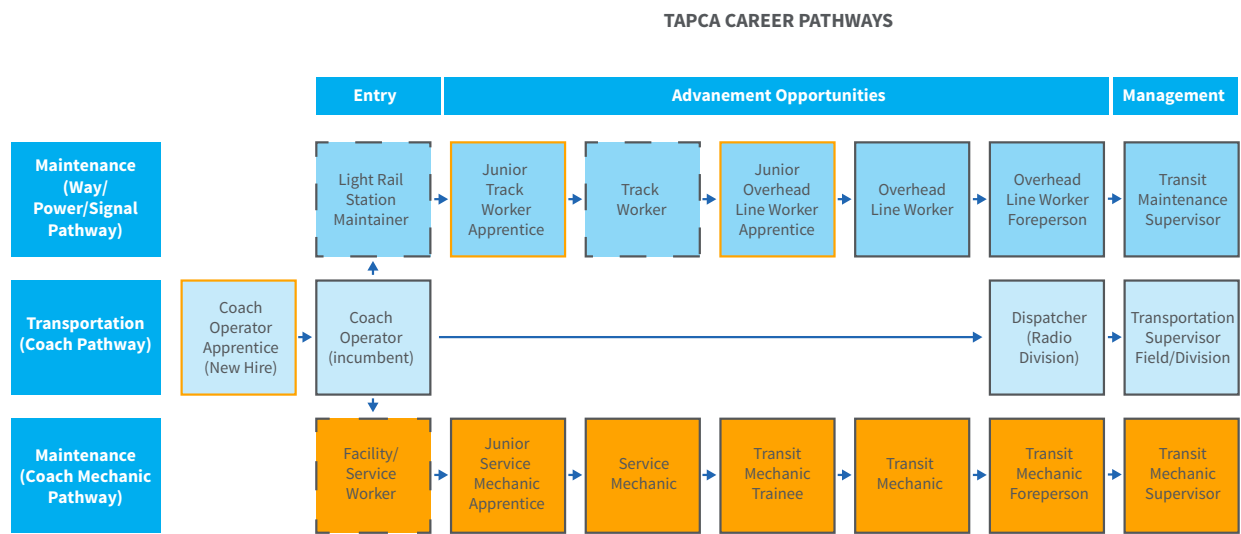
First, apprenticeship combines intensive skill development with paid work. This makes it much more financially feasible for workers to obtain the high-quality training required to successfully transition from jobs with other employers or in other industries or occupations into the occupations that VTA needs to fill.

Second, apprenticeship has enhanced career development and advancement opportunities within VTA. Prior to the launch of VTA’s Coach Operator Apprenticeship and other TAPCA apprenticeships, some entry-level occupations offered little opportunity for training, advancement, or transfer into new occupations. TAPCA emphasized both “career lattice” apprenticeships, which help workers transition laterally to other career paths within VTA, and “career ladder” apprenticeships designed to help workers advance to more senior or better paying roles—even to management positions. For example, as shown in Exhibit 5. A Guide to TAPCA Career Pathways:

- New hires apprentice as coach operators and can then advance into dispatch and supervisory positions within the coach operator career pathway.
- Coach operators can also move laterally into entry-level maintenance positions, supporting the coach fleet or light rail stations, and advance to service mechanic (coach) or track worker (rail) positions through apprenticeship programs.

This enhanced mobility creates additional sources of proven candidates for hard-to-fill VTA positions.

**EXHIBIT 5.  
A Guide to TAPCA Career Pathways**



This diagram is based on the TAPCA Apprentice Career map in *Equity From the Front Line: Workers’ Insight and Leadership Supports a Network of Apprenticeships in Transit*, published by the Center on Wisconsin Strategies (COWS), 2018, p. 11. The document was provided to the study team by program stakeholders and discussed with them in advance of publication here.



## **A Culture of Learning**

Finally, apprenticeship reinforces the culture of ongoing learning and development and shared responsibility for craft that JWI built with the intent of improving jobs and careers for workers (see Exhibit 6. What is Joint Workforce Investment?). Apprenticeship is not a separate training program provided outside of VTA; rather, it is a job in which much of the training is provided by mentors and colleagues. Experienced employees play critical roles in onboarding, training, and supporting their peers. This helps to reinforce what works and reveal new or unmet training and support needs so that VTA and ATU can build strategies to address them in subsequent programs. TAPCA programs were modeled on the approach to training common within the building trades, where apprentices are welcomed into a professional community that takes pride in a shared craft and responsibility for how it is practiced.

For TAPCA partners, apprenticeships evolved in response to a range of needs that their successful collaboration helped them to identify and address. Overall, embracing apprenticeship has paid off for VTA, even though it was not what the company set out to do.

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***The goal was not to build an apprenticeship, it was to build an effective labor-management partnership that improved the workplace and led to good workforce outcomes.”***

—Deborah Moy, JWI Consultant

## EXHIBIT 6. What is Joint Workforce Investment?

Launched in 2006, Joint Workforce Investment reflects a commitment to jointly train and support workers in key positions as professional members of the VTA workforce. It is a joint labor-management agreement and partnership between VTA and ATU that was established to:

- “Meet VTA’s need for delivering enhanced public transportation services to Santa Clara County; and
- Create a work environment that supports the long-term professional development and health and wellness of its employees.”<sup>21</sup>

JWI’s motto is “Workplace Solutions, Career Development, Public Service.” A brief description of each principle (adopted in October 2016) follows.

- “Workplace Solutions: Solve operational problems more effectively; assure high employee performance, job satisfaction and wellbeing through professional development and training.
- Career Development: Equip employees with the skills and support necessary to move up the career ladder; and attract well-qualified recruits to entry level careers in public transportation.
- Public Service: Meet VTA’s need to enhance the responsiveness, reliability and attractiveness of public transit service in Santa Clara County, especially given multiple new modes of transit service coming online over the next three years; address the shortage of skilled workers in an ever-expanding, technology-driven industry.”<sup>22</sup>

By working together on these shared priorities, JWI leaders sought to solve problems more efficiently and enhance the overall performance of public transit in Santa Clara County. At the heart of JWI is the labor-management partnership between VTA and ATU.

Over the more than 10 years since its founding, JWI has run a number of pilot career advancement projects and programs. This includes the Career Ladders Training Project, which began in 2008. This program helped 10 service workers (cleaners and fuelers) move into entry-level mechanic positions through paid credit-based training programs and OJT peer mentoring and support; it also helped existing mechanics advance into full transit mechanic positions at family-sustaining wages. In addition to these career advancement programs, health and wellness, new operator support, training and recruitment programs for low-income youth, and leadership development have also been key areas of focus. JWI partnered with regional training providers in these efforts and eventually forged a partnership with Mission College that resulted in the first-if-its-kind Coach Operator Apprenticeship as well as a growing number of state and federal registered apprenticeship programs under TAPCA. Worker participation has always been a key feature of JWI, which has helped build VTA’s culture of continuous learning and mentorship, focus the company’s attention on workforce development, and strengthen the relationship between Mission College and VTA. Today, JWI is the heart of VTA and ATU’s collaborative training, development, and service improvement efforts.

For more information:

*A Brief Overview of Joint Workforce Investment, Revised 10/16*

(This version was provided by the program, a previous version, also from 2016, is available at <http://jwiworks.org/pdf/JATC.pdf>.)

*JWI: Mentor Voices Overview* (video)

[https://www.youtube.com/watch?v=3uYlgG3pNDY&ab\\_channel=SCVTA](https://www.youtube.com/watch?v=3uYlgG3pNDY&ab_channel=SCVTA)

*VTA Apprenticeship Program from KTVU* (video)

[https://www.youtube.com/watch?v=xHbnnCeCJ84&frags=pl%2Cwn&ab\\_channel=MissionCollege](https://www.youtube.com/watch?v=xHbnnCeCJ84&frags=pl%2Cwn&ab_channel=MissionCollege)

*Mission College President Daniel Peck Addresses VTA* (video):

[https://www.youtube.com/watch?v=7HCX1qbaHpA&frags=pl%2Cwn&ab\\_channel=MissionCollege](https://www.youtube.com/watch?v=7HCX1qbaHpA&frags=pl%2Cwn&ab_channel=MissionCollege)

## How did the Grantee Engage Industry?

Mission College has long championed career and technical education (CTE), which is premised on high-quality industry engagement. Over the years, this work has taken the form of short-term certificated training for licensed occupations, career education programming with public schools and nonprofit organizations, employment of students directly—through the campus’s student-run restaurant, for example—and customized training for firms through contracts with the college’s corporate education division. It was through this division that Mission College initially launched a partnership with VTA to help develop management leadership training and structure the JWI Academy—a set of courses (10 credits) leading to a certificate of achievement with the goal of building field-level leadership for workers.

The college first began reaching out to industry partners about apprenticeship in 2012, connecting with employers both through existing relationships and then also in response to specific regional challenges, of which transportation was one. Then, in the fall of 2015, Mission College secured one of 46 American Apprenticeship Initiative grants awarded by the US DOL to build apprenticeship programs in key sectors. This federal grant helped Mission College apprenticeship champions get their arms around registered apprenticeship as a concept and a process. It also laid a foundation for the development of TAPCA and prepared the college for CAI. In particular, it familiarized college program staff and VTA with the process of establishing an apprenticeship program—including documenting needs, identifying occupations, building and registering programs, implementing training, and tracking processes.

As the partnership between Mission College and VTA developed, the college realized that because of VTA’s size (2,100 employees) and the extent of its demand for trained workers, there was an opportunity to build multiple apprenticeship programs within a single industry that was a priority for the region (and for the state). As a result, Mission College has a single employer partner for its CAI-supported TAPCA apprenticeship programs: VTA.

## How Was the Program Developed?

As with the other TAPCA apprenticeships, there were two distinct processes involved in creating the Coach Operator Apprenticeship: registering the program as an apprenticeship with both the US DOL and the California DAS, and creating and securing approval for credit-bearing courses leading to a certificate of achievement awarded by Mission College.

### REGISTERING THE COACH OPERATOR APPRENTICESHIP

Mission College engaged an industry consultant who had led and supported career ladder programs in the transportation industry with Mission and other colleges for over a decade prior to developing the new program. Known and trusted by VTA, ATU, and the academic and non-academic divisions of Mission College, she facilitated the process of defining the skills and competencies needed to succeed as a VTA coach operator and designing the apprenticeship program. She was able to build on existing JWI courses and curricula, and especially on the mentoring and support already in place for VTA coach operators. Relative to many other CAI grantees for whom mentoring as a key training activity was new, mentoring and support was a strong feature of the Mission College–VTA apprenticeship programs because of the long-standing VTA–ATU partnership and shared commitment to development that is embodied in JWI.

With the assistance of the same industry consultant, the Coach Operator Apprenticeship program was first registered as a federal apprenticeship with the US DOL's Office of Apprenticeship in 2015. With federal registration under their belts, college staff and the industry consultant then worked with a DAS consultant to submit registration paperwork to the State of California. The program was approved by DAS as a registered apprenticeship in the summer of 2016.

### SECURING COLLEGE CREDIT FOR APPRENTICESHIP TRAINING

To secure college credit for the classroom training component of the apprenticeship program, the industry consultant worked with a three-member Mission College faculty team to develop the curriculum and shepherd it through the college approval process. Key steps included:

- Building the course outline of record;
- Determining the course objectives and student learning outcomes;
- Assigning hours and units;
- Developing the curriculum; and

Completing a (curricular) review process, which included a technical review, a review by the chairperson of the relevant academic department, and reviews by a program-level curriculum committee and the college's Board of Trustees.

As a result of these efforts, the Coach Operator Apprenticeship Certificate of Achievement (18 units of Mission College coursework) was approved by the Chancellor’s Office in June 2017.

Program staff reported a number of implementation hurdles that they had to overcome in launching the Coach Operator Apprenticeship program. One challenge stemmed from the fact that it was among the first CAI-supported programs to register with DAS. As a result, none of the agencies that needed to be involved in this process—Mission College, the Chancellor’s Office, or DAS—was accustomed to working with apprenticeships outside the construction trades. There was a learning curve, including some confusion over how to complete the paperwork and a process that took longer than expected.

There were also logistical and other challenges implementing apprenticeship within the Mission College environment. For example, program partners had to implement a separate paper process in order to enroll apprentices as a cohort in Mission College rather than as individual students. In addition, consistent with other apprenticeship programs, Mission had to adopt new hiring practices to enable VTA employees to serve as college faculty so that the apprentices could receive college credit for the courses those employees taught.

These issues were largely administrative in nature and required time, persistence, and “workarounds.” Although program staff stated that they were able to find short-term solutions to these challenges, they expressed enthusiasm for broader solutions that could be implemented across college campuses.

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***Everyone had to be willing to work in uncharted waters, and they did. [It wasn’t] always smooth the first go-around, but no one backed away...The ability and willingness to just pick up the phone and ask was critical”***

—Rob Gamble, Director of Business  
and Workforce Engagement, Mission College

In both registering the Coach Operator Apprenticeship program with DAS and in securing college credit and the ability to offer a certificate, program staff indicated that support from key leaders—the president of the academic senate at Mission College and the DAS consultant responsible for Santa Clara County—was important in achieving program implementation milestones.

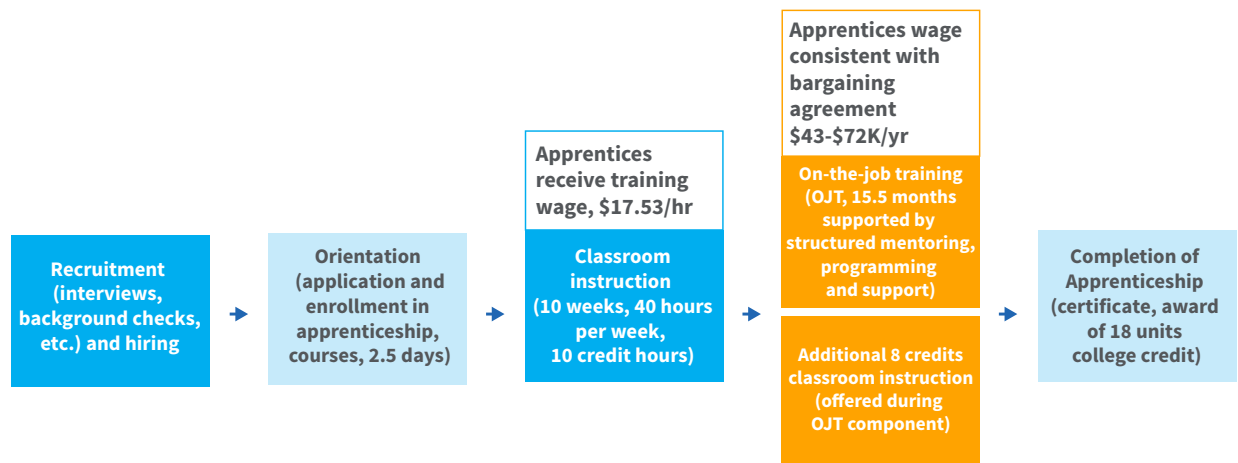


## How is the Program Structured?

The Coach Operator Apprenticeship includes an upfront classroom instruction and hands-on coaching component that requires 10 full-time weeks to complete. This is followed by 15.5 months of OJT, with mentoring provided through JWI concurrently. The mentoring component is supplemented by additional JWI programming that includes credit-bearing classroom instruction aimed at helping coach operators grow as professionals and leaders.

In a further effort to recognize VTA's apprenticeship occupations as professions, and to encourage the pursuit of additional higher education and skills training, in spring of 2018 apprentices who complete the Coach Operator Apprenticeship program began receiving certificates of achievement from Mission College along with their journeyman certificates from DAS and US DOL. These certificates mark the formal completion of the apprenticeship program (akin to graduation) and the Mission College certificates serve as a tangible representation of college credentials earned.

### EXHIBIT 7. Coach Operator Apprenticeship Program



|----- VTA Manages -----| |----- VTA + ATU (JWI) and Mission Collaborate -----|

**Coach Operator Apprenticeship:** Approximately 2000 hours (18 months)

## More detailed descriptions of the primary program components follow.

- **Apprentice Recruitment and Hiring.** VTA manages the coach operator recruiting, hiring, and orientation process. To recruit, VTA conducts a heavily advertised open application period at the beginning of each January and again throughout the year as needed. After recruiting potential apprentices, the company conducts interviews, background checks, and other internal testing. Once offers are made—typically to 32 people with the assumption that 30 will accept and fulfill the requirements of training—VTA offers a two-and-half-day orientation program (Wednesday–Friday) for new recruits, during which the apprenticeship program is introduced. This is typically when new recruits first learn they will be participating in an apprenticeship program and complete their Mission College admission applications. They are also introduced to JWJ during the orientation and informed about the mentorship component of their training program, which begins formally after the first 10 weeks. As noted, the Coach Operator Apprenticeship program is the only pathway for becoming a coach operator at VTA.
- **Classroom Instruction.** Classroom instruction is cohort-based, as all new apprentices are enrolled in the same courses full time, 40 hours per week, for 10 weeks. These courses are taught by VTA instructors at VTA facilities; the instructors are college approved and apprentices earn 10 hours of academic credit for completing them. Program staff, apprentices, and VTA all cited this academic credit as an important aspect of the apprenticeship program. VTA’s assistant superintendent (and apprenticeship program coordinator) noted that it signals the level of professionalism expected on the job. Apprentices are paid a training wage of \$17.53 per hour (as of December 2018) during this component of the apprenticeship. After the initial 10 weeks of classroom instruction, apprentices participate, together with their mentors, in three additional one-day classroom trainings through JWJ during the OJT component of the program.
- **On-the-Job Training.** Immediately after apprentices successfully complete their classroom coursework and instruction (typically on a Wednesday), they are paired with mentors during a JWJ credit-bearing class; they then begin the OJT component of the program (typically on a Thursday). On Friday of the same week, they complete the first of three required eight-hour ride-alongs with their mentors. The program is designed this way to avoid what tenured coach operators described as the “moment of terror” when they are first loosed on Silicon Valley traffic with their coaches. Apprentices spend 15.5 months in OJT. In this time, they learn how to become successful coach operators with the support of mentors who participate in the ride-alongs and communicate with them on a regular basis. During the OJT component, in accordance with the collective bargaining agreement, apprentices are paid a standard annual wage of \$43,000–\$72,000.
- **Peer Mentoring.** Program staff at Mission College as well as ATU and VTA representatives all emphasized the important role of peer mentoring in skill-building, especially in the areas of managing public interactions and helping new coach operators adjust to the job. One example of how peer mentors help new coach operators is by advising them about how to best manage split shifts. Mentors also provide new coach operators with advice on how to handle having to be seated for such long stretches and how to manage sleep and family time while working night shifts. To serve as peer mentors, current VTA coach operators must apply and successfully complete training by participating in credit-bearing leadership courses through JWJ (see Exhibit 8. VTA’s Approach to Mentoring).

## EXHIBIT 8. VTA's Approach to Mentoring

As a part of the VTAATU Coach Operator Apprenticeship program, mentors are responsible for:

- Conducting two all-day “ride-alongs” with new coach operators during their first month (the first occurs in the same week that classroom training concludes) and at least one more during the next six months, with additional ride-alongs as needed or upon request;
- Attending three days of for-credit JWI classes with mentees during the 15.5-month OJT portion of the apprenticeship program, beginning the day after mentees complete the classroom training component;
- Attending professional development sessions (for mentors alone) every other month for the duration of the time they serve as mentors; and

Checking in with mentees (by phone or in person) once a week during their first month and once a month thereafter, although many mentors continue the weekly contacts (often in person) throughout the program.

Mentors also make use of existing employee support tools to help new coach operator apprentices. For example, the VTA control center maintains a daily log of requests for assistance; common entries include operators calling in for directions or for help with their coaches, or to report safety issues. Mentors typically track these logs to identify problems their mentees are experiencing so they can intervene at the first sign of difficulty. As another example, mentors provide coach operators with information about social and informational tools that can help them participate in (and learn from) the broader community of coach operators, such as the employee website that engages 85 percent of VTA coach operators each month, and human resource supports that can aid with health and wellness and assist in managing crises. Mentors play important roles in supporting their mentees directly and in connecting them to the full range of supports offered through VTA, JWI, and their peer coach operators as a community.

Mentor–mentee relationships at VTA can run deep; examples of peer mentors guaranteeing their mentees’ mortgages are legend. But the fundamental purpose of VTA’s mentoring program is to cultivate professionalism among coach operators and provide them with a professional support community.

**“The apprenticeship part is really not the technical part—the driving. It’s all the rest. Health and wellness, schedule management, problem-solving, people management. It’s the professional part. And that’s what builds careers.”**

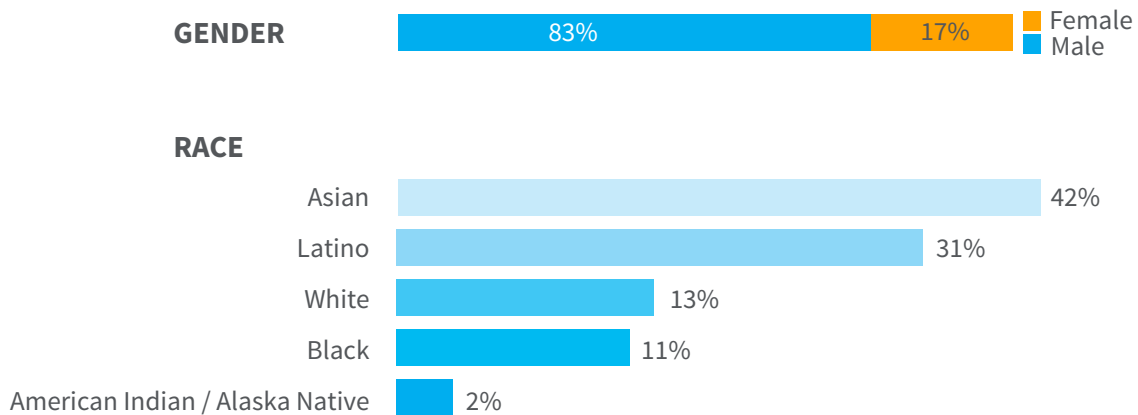
—Coach Operator and Apprentice-turned-Mentor

## What Are the Results So Far?

According to DAS, from January 2016 (the beginning of the CAI grant period) through June 2018, the program has served 419 registered apprentices.<sup>23</sup> As shown in Exhibit 9. Participant Demographics, 42 percent of these were Asian, 11 percent were black, and 13 percent were white. Seventeen percent of apprentices were female. In comparison, 6.3 percent of all California apprentices were female and 5 percent were Asian.

The relatively high percentage of Asians among VTA apprentices (compared to all apprentices in California) reflects the demographic profile of Santa Clara County (37.5 percent Asian), where VTA is located.<sup>24</sup> The large difference in the percentage of women enrolled in TAPCA apprenticeship programs versus in all California apprenticeship programs is likely because the majority of apprentices in California (70 percent) are employed in the construction trades, which tends to employ men in far greater numbers than women; in contrast, in transportation the gender composition of occupations is somewhat more balanced.<sup>25</sup> Consequently, by expanding apprenticeship to new, more gender-balanced industries and occupations—even transportation—CAI is helping to expand the gender diversity of California apprenticeships overall.

### EXHIBIT 9. Participant Demographics



## APPRENTICE FEEDBACK

“

***With apprenticeship, it's like your job was created just for you. That's why there's hardly any turnover. You're invested.”***

—Coach Operator and Apprentice-turned-Mentor

The majority of coach operator apprentices reported that the apprenticeship program was very helpful in preparing them for their jobs and careers with VTA. Nearly all of them would recommend the program to co-workers or family members.<sup>26</sup>

Apprentices reported that the combination of classroom-based instruction, OJT, and mentoring and support was well suited to their needs and prepared them for their jobs (and careers) in the following ways:

- **Enhancing technical and problem-solving skills, and in, particular, communication and collaboration skills.**<sup>27</sup> Apprentices indicated that learning to manage public interactions in highly stressful situations is one of the most significant challenges they face as coach operators. By participating in OJT and building close relationships with their mentors, apprentices reported developing successful public engagement strategies that have helped build their confidence and develop their skills and professional expertise.
- **Connecting them to career paths, a professional community, and ongoing development opportunities.** Although VTA prides itself on hiring from within, paths to advancement are not always clear to employees. Apprentices noted that TAPCA programs have made it possible for employees to change career paths while putting their existing knowledge of VTA to effective use.<sup>28</sup>
- **Providing them with a new understanding of their own potential.** Although apprentices indicated that they enrolled in the Coach Operator Apprenticeship program primarily for employment—to learn new skills or advance on the job—those we spoke with noted that their interest in earning a college credential or degree increased once they had successfully earned college credit through the program; at that point, completing a college program seemed more achievable. A former apprentice and current coach operator said that college credit helped him and other apprentices begin to “see themselves as professionals” capable of learning and advancing their careers.

There was no indication that apprentices had trouble understanding what an apprenticeship was or that they were surprised to become apprentices. Program managers and one former apprentice (now a peer mentor) reported that since apprenticeship is the only route to becoming a coach operator at VTA, there was no need to market, explain, or otherwise engage applicants in understanding apprenticeship as a training approach. In VTA's Coach Operator Apprenticeship program, apprenticeship is simply the training required to accept the position.

Finally, when asked about challenges they faced in completing their programs, apprentices cited the lengthy time commitment, low pay, and, for parents, child care. Scheduling—including managing unpredictable routes and shifts, split shifts, and overnight shifts, especially early in their tenure—was reported as a challenge that apprentices were prepared for but still found difficult to manage. All of these challenges are embedded in the occupation of coach operator rather than in the apprenticeship program itself.

## EMPLOYER AND UNION FEEDBACK

VTA continues to support the program (across all four TAPCA occupations) and, as noted, has made it the sole route to employment as a coach operator. VTA's assistant superintendent indicated that the apprenticeship was well suited to the company's circumstances. He noted that the program:

- Effectively, predictably, and efficiently trains the coach operators that the company needs, and connects them to a career path (which aids in retention);
- Strengthens and adds value to the labor-management partnership embodied in JWI by integrating the pre-existing mentorship approach that VTA and ATU are well known for into formal credit-bearing training and professional development programs; and
- Structures and makes transparent what had been disparate processes for recruiting, training, and internal promotion and advancement, so that job seekers and employees can more easily understand how to build satisfying careers at VTA.

One participant—who is a current coach operator, former apprentice, and ATU's JWI coordinator—expressed a similar perspective, emphasizing the program's structured approach to learning and access to college credit. He noted that earning college credit through the Coach Operator Apprenticeship program had inspired him to complete his degree, helping him to advance on the job. He also reported that earning college credit has won over otherwise skeptical spouses and parents of aspiring apprentices because it adds legitimacy to the training—especially for younger workers—because it allows them to learn skills and a trade while also earning a living, rather than forcing a choice between the two. It also aids in retention because it signals a clear commitment to training and development that benefits the employee and not the company alone.

## What's Next?

The focus of partner efforts to date has been launching the Coach Operator Apprenticeship and other TAPCA programs with VTA. The success of the programs, coupled with an overall increase in apprenticeship from private and public sectors in and outside of California, has resulted in stakeholders working on transit apprenticeship on many fronts.

### IMPROVING ACCESS TO APPRENTICESHIP PROGRAMS AND PROGRAM SERVICES

VTA seeks a workforce that represents the community it serves. The VTA TAPCA programs have recruited ethnically diverse candidates largely reflective of the community and region of which they are a part but has not achieved as much in the way of gender parity. Although nearly one in five TAPCA apprentices is a woman<sup>29</sup>—more than twice the rate of California's apprentices as a whole—VTA and its partners are working toward a better balance. They recognize that the challenge is industry-wide and not exclusive to TAPCA or VTA.

Program staff want to ensure that all apprentices can access the full range of services and supports they need, and that none fall through administrative gaps while the programs remain in their infancy. As a result, program staff are working to address key communications challenges. Some of these are unique to coach operators and other transportation industry professionals: Coach operators, in particular, can be difficult to reach as a group because they operate coaches independently and are not allowed to respond to texts or phone calls while on the job. This makes basic communications challenging. Even when they assemble for JWI meetings or classes, the logistics are challenging because other operators must fill in those shifts. As a result, program staff find it difficult to engage apprentices as a cohort once they begin the OJT component of the program.

### IMPROVING ADMINISTRATIVE INFRASTRUCTURE FOR TAPCA APPRENTICESHIPS

Mission College has identified a number of administrative and programmatic hurdles during the implementation of the Coach Operator Apprenticeship and other TAPCA apprenticeship programs. These challenges fall into three general categories, and all offer opportunities for improvement:

- **The Mission College application and course registration processes.** In particular, individuals are subject to registration fees, but apprenticeships are not, per state regulation. Moreover, the application is better suited to individuals familiar with the college application process, yet most VTA apprentices are first-time college-goers. Mission and VTA developed paper registration processes that allowed them to provide the hands-on help apprentices need and also avoid inadvertent registration charges that are difficult to remove from students' records.

- **Hiring VTA employees as faculty.** As noted, Coach Operator Apprenticeship classroom instructors are VTA employees, but they must be approved and hired as instructors by Mission College so that apprentices can earn credit for that instruction. When the program was being established in 2016, the program found it challenging to secure college approval for even VTA's most experience employees because instructors did not have the needed college credit or because colleges did not offer the courses in their area of expertise. However, the criteria for becoming an approved instructor has since been revised to include more options. For example, an apprenticeship instructor can now earn the required college credit during their first two years of employment as an apprenticeship instructor. It is expected that these changes will make it easier for colleges to find apprenticeship instructors.<sup>30, 31</sup>
- **Student tracking and data management.** For employers in particular, reporting can be burdensome; DAS, CAI, and Mission College all require separate reporting on student activities and achievements (time in training, time on the job, skills gained, etc.). In VTA's case, the US DOL also requires reporting for the American Apprenticeship Initiative grant. Most of the information these agencies require is similar but not identical, and/or it is not formatted similarly, requiring multiple data entry and reporting processes. This makes it difficult to scale programs beyond large employers who can manage the administrative burden, and it leaves Mission College in a difficult position relative to its client and partner, VTA.

Although Mission College and its partners have created workarounds and short-term processes for addressing these challenges, they also recognize the need for more systemic solutions.

## SUSTAINING AND EXPANDING THE APPRENTICESHIP ECOSYSTEM

VTA's Coach Operator Apprenticeship program has continued beyond the completion of the original CAI grant with support from the US DOL's American Apprenticeship Initiative, the California Workforce Development Board's High Road Training Partnerships initiative, the California Energy Commission (via the California Employment Training Panel), and continued support from Mission College, VTA, and ATU. In addition to this support from the key partners and additional grant funding, two legislative changes and the Chancellor's Office's Vision for Success may have helped with sustainability (See **Appendix B**).

One of the legislative changes in particular (**AB 235**), which will help with registering new employers with DAS, is expected to facilitate the expansion of the TAPCA model to three other California transit authorities. These agencies are working with the new California Transit Works!<sup>32</sup> partnership to launch apprenticeship programs similar to those developed by VTA, ATU, and Mission College. The California Labor Federation's Workforce and Economic Development program and California Workforce Development Board are also partnering in this effort. VTA, ATU, Mission College, and key transit leaders from across the state have embraced apprenticeship as a strategy for developing talent in the industry and attracted the attention of their peers from major transit agencies across the county.



# Appendix A:

## Methodology

### THE CASE STUDY SELECTION PROCESS

SPR's evaluation team selected four grantees from the 2016 CAI cohort to feature in case studies—three apprenticeship grantees and one pre-apprenticeship grantee. The general goal of the three apprenticeship case studies was to illustrate how grantees identified employers interested in the apprenticeship model and worked with them to create new registered apprenticeship programs. The goal of the pre-apprenticeship case study was to illustrate the role of pre-apprenticeship programs in the apprenticeship landscape. The study team selected the four grantees from among the 24 in the 2016 CAI cohort using the following criteria:

- **Type of grantee.** We selected at least one grantee from each of the three types of CAI grants (New & Innovative, Accelerator, and Pre-Apprenticeship). New & Innovative grants are intended to support the creation of sustainable apprenticeship programs approved by DAS. Accelerator grants are intended to help grantees who are further along in the process and who already have employer partners interested in apprenticeship and/or have begun the DAS registration process to create sustainable apprenticeship programs. Pre-Apprenticeship grants are intended to create programs that prepare individuals for careers in occupations that utilize an apprenticeship training model, as well as to help diversify the pool of applicants for apprenticeship programs.
- **Successful implementation.** We selected grantees that were successful in implementing their programs. We considered an Accelerator or a New & Innovative grantee successful if it had employer partners secured early in the grant period. This enabled the grantee to begin implementing the programs sooner and allowed the study team to conduct a site visit to learn about the program during the grant period. We also considered the level of employer involvement and selected grantees where employers played an active role in the program design phase (e.g., curriculum development). For Pre-Apprenticeship (PA) grantees, we considered a grantee successful if it demonstrated a strong connection to a registered apprenticeship program. We also considered the extent to which PA programs were serving underrepresented populations. Data about the success of grantee implementation was collected through intake interviews conducted during the sixth month of the grant period.
- **Geographic variation.** We considered the geographic location of grantees to ensure representation from both rural and urban areas of California. This was a secondary selection criterion as compared to the type of grantee and grantee “success.”
- **College partner role.** We considered the extent and variety of partners involved in each program to ensure that some of the case studies would feature programs where a community college was conducting employer outreach and delivering the classroom training component. This criterion was intended to help us learn about the role of community colleges in program implementation.

## DATA COLLECTION

Data for each case study was collected through site visits and a survey of program participants. A member of the CAI evaluation study team conducted a one-day site visit to each of the selected grantees. Each site visit included:

- Interviews with the program manager and program staff to learn about the program’s creation, structure, and implementation process, and
- Interviews with staff from partner organizations, including employer partners, apprenticeship mentors, and RA partners (in the case of PA grantees), to learn about their roles in the program and the implementation process.

In addition, focus groups or participant interviews were conducted during the case study site visits. The focus groups included all apprentices who attended the classroom training component on the day of the site visit. We also reviewed program documents (e.g., OJT checklists and the participant handbook) collected during the site visits.

The participant survey was distributed in person and by email. The response rate for each of the four surveys is provided in the table below. Because of the low response rate to the State College Community College District survey, results from the survey were not included in the pre-apprenticeship case study.

<b>Grantee</b>	<b>Response Rate</b>	<b>Distributed</b>
WERC & LA Trade Technical College	86% (=6/7)	in person
Columbia College	64% (=18/28)	in person
Mission College	35% (=14/40)	in person
State Center Community College District	6% (=3/53)	E-mail

## **Appendix B:**

### **Policy and System Changes Affecting Sustainability**

Three recent changes at the state level should also help grantees with sustaining their apprenticeships (Exhibit B-1). First, a recent change to state law, brought about in part by the leaders of CAI, should help grantees sustain at least the classroom training component of their programs. Second, another change to state law amends the process for registering non-construction apprenticeships. The new process makes the DAS approval process more flexible and is expected to make it easier for grantees to register new programs and customize existing programs for new employers.

Third, at the community college system level, the recent development of the Chancellor's Office's Vision for Success<sup>33</sup>, a strategic planning document for California's community college system, should also assist grantee programs with sustainability. This Vision for Success emphasizes the importance of student learning, curricular pathway options, preparing for in-demand jobs, and cross-sector partnerships, all of which provide a strategic planning framework that is complimentary to apprenticeship programs and so should make it more likely that the leadership of grantee colleges will be willing to continue their support of the programs developed under CAI.

## Exhibit B-1. Key Changes in California’s Apprenticeship Policy

Two recent state-level legislative and policy changes aim to support the sustainability of apprenticeship programs. In June 2018, **AB 1809** increased the reimbursement rate to colleges for courses that provide related supplemental instruction (RSI) to apprentices as a part of a registered apprenticeship program.<sup>34</sup> Prior to the change, students in RSI were reimbursed at a lower rate than traditional college students for exactly the same instruction. The new legislation establishes parity and removes the financial disincentive for colleges to enroll apprentices in credit-bearing courses.

In September 2018, **AB 235** amended the Labor Code to authorize a separate process for approval of non-construction apprenticeship programs. The change is designed to create flexibility for DAS to support the development of new programs that have struggled with the rules, registration procedures, and standards associated with the current process. For example, non-construction apprenticeship programs can now be time based, competency based, or a combination. Prior to the change completion of non-construction programs was time based (i.e. 2,000 hours of on-the-job learning and 144 hours of related classroom instruction). In addition, under the new legislation, DAS is authorized to create standards to register pre-apprenticeship programs that are connected to state-registered apprenticeship programs.

### Chancellor’s Office’s *Vision for Success* and Apprenticeship

The *Vision for Success* document outlines several goals and commitments for the California community college system. These goals and commitments are aligned with apprenticeship programs in important ways:

Several *Vision for Success* goals compliment the goals of apprenticeships. For example, the first *Vision for Success* goal (increasing the percent of students who annually “acquire associates degrees, credentials, certificates, or specific skill sets that prepare them for an in-demand job.”) is defined broadly enough to capture apprenticeship certificates. Similarly, another *Vision for Success* goal<sup>35</sup> that aims to increase the number of students who are employed in jobs related to their community college field of study, is well-aligned with apprenticeship programs.

The *Vision for Success* commitment to partnering across systems is achievable through community college apprenticeship programs. Apprenticeship programs where a public community college system and an employer and/or union collaborate to create an apprenticeship program exemplifies partnering across systems.

The *Vision for Success* commitment to focus on students’ end goals relies on guided pathways as an organizing framework, and apprenticeships enhance one of the key pillars of the framework--clear pathway options to employment. Apprenticeships diversity the curricular pathway options available to the students and apprenticeship pathways are designed with clear end goals (e.g. 2,000 hours of on-the-job training and 144 hours of related classroom instruction).

## Endnotes

- 1 Enrollment numbers were provided by VTA and ATU—that is, the program itself—because the Division of Apprenticeship services (DAS) does not disaggregate TAPCA apprenticeships by occupation (e.g., coach operator). Elsewhere we employ DAS data because aggregate numbers are better suited to those analyses.
- 2 See Chronicle of Higher Education (2012), “The role of higher education in career development: Employer perceptions” (retrieved from [http://www.chronicle.com/items/biz/pdf/Employers\\_Survey.pdf](http://www.chronicle.com/items/biz/pdf/Employers_Survey.pdf)) and National Association of Colleges and Employers (2017, April 5), “Employers prefer candidates with work experience” (retrieved from <http://www.naceweb.org/talent-acquisition/candidate-selection/employers-prefer-candidates-with-work-experience/>).
- 3 According to Robert Lerman, Lauren Eyster, and Kate Chambers (2009), in *The Benefits and Challenges of Registered Apprenticeship: The Sponsors’ Perspective*, in 2006 there were 21,324 apprenticeship program sponsors across 38 states.
- 4 See Siemens (2015, August 12), “Siemens’ first class of U.S. apprentices graduates, national model for skills-based learning” (retrieved from <http://news.usa.siemens.biz/press-release/siemens-usa/siemens-first-class-us-apprentices-graduates-national-model-skills-based-l>) and Alexia Elejalde-Ruiz (2017, April 24), “Apprenticeship programs increasingly put workers on track for jobs in finance,” *Chicago Tribune* (retrieved from <http://www.chicagotribune.com/business/ct-aon-finance-apprenticeship-0425-biz-20170424-story.html>).
- 5 Registered apprenticeships are programs that have been approved by the US DOL or a state-level agency. In California, that state agency is the Department of Industrial Standards’ Division of Apprenticeship Standards. The federal and state approval process ensures that programs meet industry-level standards for OJT and corresponding classroom instruction.
- 6 See California Department of Industrial Relations (2016), *State of California Department of Industrial Relations Division of Apprenticeship Standards 2016 legislative report* (retrieved from <https://www.dir.ca.gov/DAS/reports/2016LegReport.pdf>), as well as internal statistics from DAS. In December 2016, 4.6 percent of California’s workforce was employed in construction and 11 percent was employed in manufacturing and transportation and utilities combined (see [https://www.labormarketinfo.edd.ca.gov/file/indhist/cal\\$shws.xls](https://www.labormarketinfo.edd.ca.gov/file/indhist/cal$shws.xls)). In 2013, 7 percent of California’s workforce was employed in health care. See State of California Employment Development Department (2013), *Health Care in California* (retrieved from [https://www.labormarketinfo.edd.ca.gov/SpecialReports/Health\\_Care\\_in\\_CA.pdf](https://www.labormarketinfo.edd.ca.gov/SpecialReports/Health_Care_in_CA.pdf)).
- 7 Among these 40 grants, 16 were awarded in 2016, 13 were awarded in 2017, and 11 were awarded in 2018.
- 8 A fifth TAPCA apprenticeship for light rail operators is currently under development.
- 9 Not all TAPCA apprentices were supported by the CAI program, but among those who enrolled during the CAI grant period, an estimated three quarters were coach operators.
- 10 See San Francisco Chronicle (2015, October 31) “Transit project changes: What it means for your Bay Area commute,” citing Michael Cunningham, Bay Area Council (retrieved from <https://www.sfchronicle.com/bayarea/article/Bay-Area-transit-projects-shift-What-it-means-6597101.php>).
- 11 Joint Venture Silicon Valley (2018), *2018 Silicon Valley Index* (San Jose, CA), pp. 64–65.
- 12 Joint Venture Silicon Valley (2018), p. 67. Interestingly, despite a substantial increase in express bus ridership, VTA ridership overall is down slightly since 2010.
- 13 Overall, the majority of Bay Area transit riders are low income or very low income. Approximately half are very low income (household incomes under \$25,000), and three quarters are low income (household incomes under \$50,000). Three quarters of disabled passengers are very low income, as are half of senior citizens. For all of the largest Bay Area operators (AC Transit, SamTrans, and VTA), low-income transit riders account for three quarters of riders. See Metropolitan Transportation Commission (2016, December), *Regional Means Based Transit Fare Pricing Study* (pp. 41, 69). San Francisco, CA: Author (retrieved from [https://mtc.ca.gov/sites/default/files/1\\_MTC\\_Means\\_Based\\_TM\\_1\\_DRAFT\\_FINAL.pdf](https://mtc.ca.gov/sites/default/files/1_MTC_Means_Based_TM_1_DRAFT_FINAL.pdf)).
- 14 The numbers presented here were provided by the program. For the purposes of this pilot project, DAS did not distinguish between the types of apprenticeships under the Mission College/VTA/TAPCA program. Therefore, enrollment numbers in occupational categories could not be independently verified.

- 15 According to the program, six graduated in November 2018.
- 16 For more information, see <http://www.vta.org/projects-and-programs/programs/innovation-center>
- 17 For more information, see [http://www.vta.org/News-and-Media/Connect-with-VTA/VTAs-New-Electric-Buses-Roll-Out-for-Passenger-Service#.XB\\_Eifx7lZo](http://www.vta.org/News-and-Media/Connect-with-VTA/VTAs-New-Electric-Buses-Roll-Out-for-Passenger-Service#.XB_Eifx7lZo)
- 18 For more information, see [http://www.vta.org/News-and-Media/Connect-with-VTA/VTA-Demonstrates-Innovative-Smart-Stop-Technology#.XB\\_Ao\\_x7lZo](http://www.vta.org/News-and-Media/Connect-with-VTA/VTA-Demonstrates-Innovative-Smart-Stop-Technology#.XB_Ao_x7lZo)
- 19 For more information, see <https://www.bizjournals.com/sanjose/news/2017/07/12/santa-clara-county-vta-transit-disabled-access-ibm.html>
- 20 State of California Employment Development Department (2018, December), “Leisure and hospitality dominated month-over payroll growth” (retrieved from [https://www.labormarketinfo.edd.ca.gov/file/lfmonth/sjos\\$pds.pdf](https://www.labormarketinfo.edd.ca.gov/file/lfmonth/sjos$pds.pdf)).
- 21 From VTW-JWI (2016, October), A brief overview of Joint Workforce Investment (Mountain View, CA), which was provided to the study team by key respondents. A previous version is available at <http://jwiworks.org/pdf/JATC.pdf>
- 22 See VTW-JWI (2016, October).
- 23 The program reports serving 405 participants, but the discrepancy is small enough not to change the analysis in percentage terms. We employed DAS numbers in our analysis because we used them to analyze demographics across all of the sites. In addition, the demographics reflect only aggregate program apprenticeship numbers; they do not distinguish between coach operator apprentices and other TAPCA apprentices.
- 24 See <https://www.census.gov/quickfacts/santaclaracountycalifornia>
- 25 The statistics concerning female and Asian apprentices come from California Department of Industrial Relations (2016), State of California Department of Industrial Relations Division of Apprenticeship Standards 2016 Legislative Report (retrieved from <https://www.dir.ca.gov/DAS/reports/2016LegReport.pdf>). The construction apprentices finding comes from internal DAS statistics. 2017 Current Population Survey data from the Bureau of Labor Statistics indicate that women make up 47.8 percent of bus drivers, compared to 3 percent of construction and extraction occupations (see <https://www.bls.gov/cps/cpsaat11.htm>).
- 26 We spoke with three apprentices and received survey results from 14 others. This finding is from the survey.
- 27 Eleven of 14 apprentices who completed surveys indicated that the classroom instruction, OJT, and mentoring portions of the program were “helpful” or “very helpful” in preparing them for their current jobs. Of the three program elements, OJT was rated most helpful. Twelve of 14 apprentices reported that the program helped improve their technical, problem-solving, and communication and collaboration skills—the last of these, in particular.
- 28 Although VTA does recruit from outside as well, the apprentices we spoke with and the majority of survey respondents were recruited from within VTA’s ranks.
- 29 This statistic is based on information for the 182 active apprentices as of June 29, 2018.
- 30 The 2018 requirements are specified in section 53413. Minimum Qualifications for Apprenticeship Instructors (page 76) of the Minimum Qualifications for Faculty and Administrators in California Community Colleges (retrieved from [https://californiacommunitycolleges.cccco.edu/Portals/0/Reports/2019/CCCCO\\_Report\\_Min\\_Qualifications-ADA-Final.pdf](https://californiacommunitycolleges.cccco.edu/Portals/0/Reports/2019/CCCCO_Report_Min_Qualifications-ADA-Final.pdf)
- 31 In 2016, the requirements to teach credit-bearing apprenticeship courses were changed by the State of California to 18 units of college coursework plus a journeyman’s certificate (or an associate degree plus four years of occupational experience). This still poses challenges for instructors who lack such credit, often because there were no for-credit courses or apprenticeships available in their area of expertise when they learned their trade. This was the case for VTA’s Coach Operator Apprenticeship instructors.
- 32 Additional information and resources (videos, additional profiles, etc.) about the Coach Operator Apprenticeship and other TAPCA programs are available on the California Transit Works! website (<http://catransitworks.org/resources-links/>).

- 33 Vision for Success: Strengthening the California Community Colleges to meet California's needs. Retrieved from: <http://californiacommunitycolleges.cccco.edu/portals/0/reports/vision-for-success.pdf>
- 34 See [http://www.dof.ca.gov/budget/Trailer\\_Bill\\_Language/documents/ApprenticeshipPrograms-ClaimingFTES.pdf](http://www.dof.ca.gov/budget/Trailer_Bill_Language/documents/ApprenticeshipPrograms-ClaimingFTES.pdf)
- 35 Goal 4 summary: Increase the percent of exiting CTE students who report being employed in their field of study.