




## STAFF REPORT TO THE CITY COUNCIL

**DATE:** Regular Meeting of June 12, 2018

**TO:** Honorable Mayor and Members of the City Council

**SUBMITTED BY:** Jon Blank, Public Works Director 

**APPROVED BY:** Ron Bernal, City Manager

**SUBJECT:** Brackish Water Desalination Plant - Labor Stability Study

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### **RECOMMENDED ACTION**

It is recommended that the City Council adopt a resolution accepting the Brackish Water Desalination Plant - Labor Stability Study and authorizing the City Manager or his designee to negotiate with the trade unions to execute a Project Stability Agreement.

### **STRATEGIC PURPOSE**

This action supports Strategy K-1 in the Strategic Plan by ensuring well-maintained public facilities and Strategy K-2 by delivering high quality water to our customers. By investigating and pursuing alternative potable water sources that improve treated water reliability, especially in times of severe drought, this project is an important part of maintaining a highly functioning and reliable water system.

### **FISCAL IMPACTS**

The total cost of environmental certification, design and construction of this project is estimated to be \$60,000,000. The City was one of three agencies to be awarded a \$10,000,000 Prop 1 Grant from the State Water Resources Control Board (SWRCB) for this project. The City also obtained a \$1,000,000 low-interest planning loan from the SWRCB Drinking Water State Revolving Fund (DWSRF) Loan program for planning and preliminary design activities.

Although design and construction of this project is currently unfunded, the City continues to seek funding opportunities through various sources including local funds, grants, loans and bonds. Staff has met with SWRCB staff and confirmed the project is eligible for low interest financing up to \$50,000,000.

### **DISCUSSION**

On April 11, 2018, the City Manager executed an agreement with Vlaming and Associates to prepare a Project Stability Study to determine whether a Project Labor Agreement (PLA) or Project Stability Agreement (PSA) with local trade unions would be beneficial. A PSA is a collective bargaining agreement that establishes standard

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provisions applicable to contractors and construction craft workers that references existing labor agreements. A PLA is a stand-alone agreement that contains all of the terms and conditions within the agreement. The purpose of PSAs and PLAs is to ensure the timely completion of large complex projects, ensure an adequate number of skilled construction craft workers are available, and promote local hiring. PSAs and PLAs are being used by many local agencies to leverage unions to participate in local hiring and apprenticeship programs. Vlaming and Associates recommends that the City negotiate with local trade unions to execute a PSA for this project. Staff concur with this recommendation.

**ATTACHMENTS**

- A. Resolution 2018/\*\*
- B. Project Stability Study

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ANTIOCH  
ACCEPTING THE LABOR STABILITY STUDY PREPARED BY VLAMING AND  
ASSOCIATES, AND AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO  
NEGOTIATE A PROJECT STABILITY AGREEMENT WITH LOCAL TRADE UNIONS**

**WHEREAS**, On April 11, 2018, the City Manager executed an agreement with Vlaming and Associates to prepare a Project Stability Study to determine whether a Project Labor Agreement (PLA) or Project Stability Agreement (PSA) with local trade unions would be beneficial.

**WHEREAS**, Vlaming's study recommends the City negotiate with local trade unions to execute a PSA to ensure the timely completion the project, and to promote local hiring.

**THEREFORE, BE IT RESOLVED** that the City Council of the City of Antioch hereby accepts the Project Stability Study prepared by Vlaming and Associates, and authorize the City Manager or his designee to negotiate with the trade unions to execute a Project Stability Agreement.

\* \* \* \* \*

**I HEREBY CERTIFY** that the foregoing resolution was passed and adopted by the City Council of the City of Antioch at a regular meeting thereof, held on the 12<sup>th</sup> day of June, 2018 by the following vote:

**AYES:**

**ABSENT:**

**NOES:**

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**ARNE SIMONSEN, CMC  
CITY CLERK OF THE CITY OF ANTIOCH**

## **LABOR STABILITY STUDY**

## **CITY OF ANTIOCH BRACKISH WATER DESALINATION PROJECT**

**Prepared by:**  
**Michael J. Vlaming, Esq.**



**Vlaming+Associates**  
*a professional corporation*

# City of Antioch Labor Stability Study

## Executive Summary

The City of Antioch ("City") is proposing to construct a six million gallon per day desalination plant with attendant pump station and pipeline infrastructure to support the new plant. In anticipation of the construction of this new desalination plant, the City is considering the use of a project agreement to help achieve the project construction objectives of timely completion, labor efficiency, and employment opportunities for local residents. This Labor Stability Study ("LSS") analyzes the probability of achieving the City's construction objectives with and without a project agreement in the context of the current labor market. The current construction labor market is very tight due to the significant number of large construction projects in the Bay Area. Access to efficient referral procedures to obtain qualified, skilled construction craft workers in sufficient numbers, managing the construction process through uniform work rules, and minimizing the risk of work disruption caused by strikes and/or lockouts are critical to achieving the City's objective of completing the Project in a timely and efficient manner. Based upon the analysis presented, it is recommended that the City utilize a Project Stabilization Agreement as a cost effective means of increasing the likelihood of achieving its Project construction objectives.

### I. Background

#### A. Project

The City of Antioch Brackish Water Desalination Project ("Project") includes the construction of a new desalination plant capable of processing of up to six million gallons per day of finished water. The new desalination plant would be constructed within the fence line of the existing Antioch water treatment plant. Also included in the Project would be: the demolition of the existing and construction of a new intake pump facility; construction of a new raw water pipeline from the intake pump facility to the water treatment plant; construction of a new pipeline from the current water treatment plant to the desalination plant; and construction of a new four-mile long brine disposal pipeline from the desalination plant to the Delta Diablo Wastewater Treatment Plant.

### II. Purpose of Labor Stability Study

The purpose of this Labor Stability Study is to evaluate whether or not the use of a project agreement would enhance the likelihood of achieving the City's construction objectives for the Project within the context of the current construction craft labor market. The City's construction objectives are: (1) Timely completion

of critical public health infrastructure for drinking water supply within the time limit of a competitive state funding grant; (2) Labor efficiency in the construction process; and (3) Provide employment opportunities for local residents during construction of the Project.

### **III. Construction Craft Labor Market**

#### **A. Current Construction Craft Employment Levels**

In the greater Bay Area, the building and construction economy has been booming for several years in the infrastructure, industrial, commercial, health care, education, and residential segments of the market. Several of the specific major construction projects currently in progress, or about to start, in the Bay Area include: Central Subway Project in San Francisco; BART TransBay Tube Internal Retrofit Project; Peninsula Corridor Electrification Project; San Francisco Airport Expansion Project; Pacific Gas & Electric Gas Transmission Pipeline replacement and improvement projects; Chase Center Arena; UCSF Weil Neuroscience Building and the Mission Bay East Campus Phase I projects; multiple commercial high rise mixed-use projects in San Francisco, San Jose and Oakland; redevelopment of Pier 70 in San Francisco and Brooklyn Basin in Oakland; Facebook Campus Project in Menlo Park; Marin General Hospital Building Project; and the Solano Community College Science Building Project.

Narrowing the geographic scope to Contra Costa County, there are multiple major new construction and industrial maintenance projects including: the Brentwood Non-Potable Storage Facility Project; modernization and major maintenance projects at the Chevron, Shell, Phillips 66, and Andeavor petroleum refineries; Contra Costa County's new Administration Building and Emergency Operations and Public Safety Building; multiple public and private multi-story vertical mixed commercial/residential building construction in Martinez, Concord, and Walnut Creek; Measure E funded new building and existing building modernization projects at the Los Medanos, Diablo Valley, Brentwood and Contra Costa College campuses; Pinole-Hercules Waste Water Treatment Plant; and the El Cerrito BART station modernization.

The significant number and size of the construction projects in Contra Costa County and the Bay Area has tightened the labor market. In the East Bay, the construction industry has led the major gain in employment over the past year with the addition of 4,900 jobs.<sup>i</sup> According to the most recent statistics, unemployment in Contra Costa County was 3.1% in March 2018 compared to 4.2% for the state.<sup>ii</sup>

A recent survey of the building trades crafts located in Contra Costa County reflects the impact of the significant demand for construction craft workers on the

local labor market. (See Appendix A.) Table 1, below, shows the number of workers available relative to the number of active journeypersons for certain building trade crafts.

Table 1.

Craft Union	# of Active Members	# Apprentices	% of Active Members on Out of Work List
Asbestos, Heat & Frost Insulators Local #16	605	212	5%
Bricklayers & Allied Craft Local #3	2,100	400	<1%
Boilermakers Local #549	300	50	<1%
Carpenters Local #152	4,067	617	3%
IBEW Local #302	1,139	111	7%
Laborers Local #324	3,403	426	4%
Painters & Drywall Finishers Local #741	600	124	<1%
Plumbers Local #159	308	58	7%
Sheet Metal Workers Local #104	10,000	2,000	<1%
Sprinklerfitters Local #483	944	305	1%
Steamfitters Local #342	2,500	470	6%
Teamsters Local #315	4,500	0*	n/a

\*Non-Apprenticeable Craft

The current figures of craft workers available for hire (list of workers signed to the applicable union's out of work list) reflect extremely low unemployment. As shown in the table, none of the crafts reporting have more than 7% of their active members available for dispatch and many have less than 1% available. To meet the demand, these trades have taken in an increased number of apprentices in recent years and increased their construction industry recruitment programs.

#### IV. Project Objectives

##### A. Timely Completion of Construction

Construction of a project is dependent on three elements: capital, materials, and labor. Regarding the labor element, timely completion of a construction project requires an adequate supply of skilled construction craft workers and the ability to execute the work without interruption or delay.

##### 1. **Sufficient Supply of Skilled Craft Workers**

The current and near-term projections indicate a very robust construction market in the Bay Area. As such, there is and will likely continue to be low unemployment in the construction labor market. Contractors will need to supplement their current forces in order to perform the additional work. Since this is a public works project, contractors are required under Labor

Code Section 1777.5(g) to employ apprentices in the ratio of no less than one apprentice hour for every five journeyperson hours worked.

To provide a steady and dependable flow of readily available and appropriately trained craftspeople, the building trades craft unions have many well developed training programs in place. Apprentice programs are craft specific. These training programs provide apprentices and journeypersons the education and skill development of building trades craft workers through the most up to date tools, equipment, and work processes. In California, apprentice programs are approved and monitored by the Division of Apprenticeship Standards within the Department of Industrial Relations.<sup>iii</sup> In Northern California, there are 69 active state approved building trades apprentice programs. (*See Appendix B, Building Trades programs completions in the past 5 years*)<sup>iv</sup> These programs fall into two categories: (1) jointly administered programs managed by both building trades unions and signatory contractors; and (2) unilateral apprentice committees managed by non-union contractors. Based on 2017 published data, there are 57 jointly administered building trades apprentice programs and 12 unilateral programs operating in Northern California.<sup>v</sup> In 2017, the jointly administered programs graduated 2,452 apprentices and the unilateral programs graduated 284 apprentices across all building trades craft apprentice programs.<sup>vi</sup> These results show that the jointly administered training programs supply greater numbers of apprentice graduates than the unilateral programs. Access to such programs is important during periods of high demand for construction craft workers in order to ensure the contractor's ability to secure apprentices in sufficient numbers to satisfy the Labor Code employment requirements for this Project.

How a construction contractor hires workers depends on whether the contractor is a signatory contractor to a building trades union or is a non-signatory contractor. If signatory to a union, the contractor secures additional workers by contacting the applicable craft local union and requesting the number of additional journeypersons or apprentices needed through the established referral procedures. In periods of low unemployment, the local craft union has the ability to reach out to their "sister" locals through established procedures to fill any requests they are unable to fill from their own out of work dispatch list. Because this is an established process of matching trained and skilled craft workers to a contractor's needs, it is timely and efficient. If non-signatory, the contractor would utilize the generally available means of recruiting workers such as the internet, advertising, and informal networks for referrals. The success of this approach is dependent on the resources and time the individual non-signatory contractor is able to commit to the recruitment process.



## 2. Minimization of Risk of Construction Delay Due to Labor Disharmony

In addition to delay of a construction project due to an insufficient number of construction craft workers to execute the work, a project can be interrupted due to a strike by the workers or a lockout by the contractors. These situations typically occur at the expiration of a craft union collective bargaining agreement when negotiations are taking place for a new agreement or because of a jobsite issue between the workers and their employer remains unresolved. Jobsite issues giving rise to work disruptions can include issues over appropriate pay, safety concerns, inconsistent or inappropriate work rules or trade practices.

Construction craft collective bargaining agreements in California typically expire between the months of May and July and are timed to coincide with peak employment during the construction “season”. Table 2, below, shows the collective bargaining agreement expiration dates for various building and construction trades unions in Contra Costa County.

Table 2

Craft Union	Collective Bargaining Agreement Expiration Date
Asbestos Workers Local #16	July 31, 2019
Boilermakers Local #549	September 30, 2018
Brick and Tile Layers Local #3	May 1, 2019
Carpenters Local #152	June 30, 2019
Electricians Local #302	May 31, 2018
Iron Workers Local #378	June 30, 2020
Laborers Local #324	June 30, 2019
Laborers Local #67	June 30, 2019
Lathers Local #68L	June 30, 2019
Millwrights Local #102	June 30, 2019
Operating Engineers Local #3	June 30, 2020
Painters Local #741	June 30, 2020
Pile Drivers Local #34	June 30, 2019
Plumbers Local #159	June 30, 2019
Sheet Metal Workers Local #104	June 30, 2018
Sprinklerfitters Local #483	July 31, 2018
Steamfitters Local #342	June 30, 2018
Teamsters Local #315	June 30, 2020

As shown in Table 2, a significant number of collective bargaining agreements will expire in 2019 and 2020 during the anticipated Project construction period. As such, this Project will be exposed to the risk of delay

due to labor interruption caused by a breakdown in negotiations of an expiring collective bargaining agreement.

The risk of construction delays caused by interruptions in the execution of the Project work can be mitigated by a number of actions, including: securing commitments from workers not to strike and from contractors not to lockout the workers; establishing mutually agreeable work rules between the workers and the contractors; establishing a dispute resolution procedure to resolve any pay, safety or other issue or disagreement between workers and contractors; and establishing periodic, regularly scheduled meetings between representatives of the workers and contractors to identify and resolve any issues with the construction process before they mature into a problem. To be effective, such provisions would need to be in place with each contractor and its employees and among all of the contractors on the Project prior to commencement of Project work.

#### **B. Labor Efficiency in the Construction Process**

Labor efficiency in the construction process is determined by a contractor's ability to provide the appropriate number of skilled construction craft workers at the time they are needed. The productivity of each craft worker is determined by their particular knowledge, training, experience, and work ethic. The work rules applicable to a project can also directly impact productivity and labor efficiency. Other important factors that impact labor efficiency on a construction project include proper scheduling of the work processes and the availability of and easy access to the materials needed.

Uniform work rules can improve labor efficiency on large, complex, long term, multi-craft construction projects. Standardizing the work schedule, shifts, holidays, and other structural procedures for project construction can help to ensure coordination among the various contractors and their workers. The use of pre-job conferences prior to the commencement of work identifies the scopes of work to be performed by each contractor, their anticipated start and end dates for their scope of work, and the anticipated number of construction craft workers to be deployed. This information can aid in the efficient scheduling and coordination of work processes. In addition, any craft jurisdictional issues are typically identified at a pre-job meeting and resolution procedures can be implemented to eliminate any interference on the job site.

### **C. Provide Employment Opportunities for Local Residents**

Large construction projects provide work opportunities for not only significant numbers of construction craft workers, but also workers performing support functions. Many public entities use large public works projects as a vehicle to provide employment opportunities for community residents. Interest in local resident hire programs has increased in recent years in Northern California and is part of many individual construction projects, bond funded construction programs and municipal capital construction policies. Examples of such local resident hire policies include the Brentwood Library Building Project, Contra Costa Community College District bond funded construction program, and the City of Concord capital construction policy.

Where the construction work is not performed by the awarding entity's own forces and is contracted out to a third-party contractor, there must be an agreement between the public entity and the prime contractor and subcontractors to implement such an initiative. If union signatory contractors are used, there must be appropriate provisions included in the collective bargaining agreement between the contractor(s) on such a project and applicable unions since such an agreement controls the hiring process in the employer-employee relationship and a local resident hiring preference is inconsistent with normal chronologically based craft union referral procedures. In each example of local hire programs identified above, the awarding entity utilized a project agreement for implementation of their local hire preference program.

## **V. Analysis of Alternatives**

In constructing this Project, the City has the option of utilizing a project agreement or not. Each option is analyzed below relative to its ability to enhance the likelihood of achieving the City's project construction objectives.

### **A. No Project Agreement**

Under this alternative, the construction contract for the Project would be awarded to the lowest responsive, responsible bidder under applicable provisions of the Public Contract Code without preference to signatory or non-signatory status of the contractor. Because of its size, complexity, and location, it is possible this Project would be constructed with a mix of union and non-union contractors working side-by-side with each group adhering to its own work rules and work practices.

The contractors would secure any additional workers needed to complete their scope of work through the process applicable to their signatory/non-signatory status. There would be no uniform referral procedure for construction craft journeypersons or apprentices. To secure such apprentices, the contractors would need to utilize the applicable state approved apprenticeship programs in order to be compliant with the Labor Code requirements.

Without a project agreement, there would be no project wide commitment for workers to refrain from strikes or contractors to refrain from lockouts. Nor would there be uniform project-wide work rules or an established, dispute resolution procedure applicable to the construction craft workers, unions, and contractors working on the Project. With a number of local craft union master labor agreements scheduled to expire during the anticipated Project construction period, there is the possibility of labor disruption if the bargaining parties fail to reach agreement prior to the termination date. Under such circumstances, either side may be compelled to take economic action to achieve its bargaining objectives. Unless there is a prohibition against strikes and/or lockouts, the Project would be exposed to this risk at the termination of each local craft master labor agreement.

Any specific provisions regarding the employment of local area residents would have to be included in the commercial contract between the City and the general contractor with the general contractor ensuring such provisions were included in its contracts with all subcontractors. For signatory contractors, they would have to negotiate individually with each applicable trade union to secure the right to call for workers qualifying as local residents out of order from the normal chronological referral procedures. Unless there is a project agreement applicable to all building trades unions' referral procedures for work on this Project the objective of employing local area residents is subject to separate negotiations with multiple entities and non-uniform enforcement.

In terms of direct economic impact, there would be no additional costs attributed to negotiating or administering a project agreement by proceeding under this alternative. There likely would be an increased risk of work interruption and delay caused by an insufficient number of journeypersons and apprentices, strike and/or lockout or other jobsite dispute.

#### **B. With a Project Agreement**

A project labor agreement is a pre-hire collective bargaining agreement that establishes all of the terms and conditions between a construction employer and its construction craft employees on a particular construction project. Project agreements are negotiated with the building and construction trades unions for large, complex, long-term multi-trade construction projects. The purpose of a

project agreement is to achieve construction efficiency and labor harmony by standardizing work rules applicable to the project, prohibiting work interruption by strikes or lockouts and establishing an efficient mechanism for resolving disputes between employees and employers that may arise during construction.

There are two types of project agreements: (1) Project Labor Agreement (PLA); and (2) Project Stabilization Agreement (PSA). A PLA is a stand-alone pre-hire collective bargaining agreement that contains all of the terms and conditions within the agreement and does not refer to nor incorporate within it any other agreement. A PSA is a pre-hire collective bargaining agreement that sets forth certain standardized provisions applicable to all contractors and construction craft workers on the project and then incorporates by reference the individual construction craft union master labor agreements for specific work rules applicable to that particular craft union. While PLAs and PSAs are substantially similar agreements, a PSA can be more efficiently negotiated because it doesn't seek to standardized all work rules for the project across every construction trade.

Project agreements have been used by public and private entities in California since 1938 when the Shasta Dam was constructed under such an agreement. The legality of a public entity's use of a project agreement on a major construction project was settled almost twenty years ago in Associated Builders and Contractors, Inc. v. San Francisco Airport Commission.<sup>vii</sup> In that case, the California Supreme Court upheld the public entity's use of a project agreement for the modernization of the San Francisco Airport as consistent with state's competitive bidding laws also finding its use did not improperly discriminate against the rights of non-union contractors since the project agreement was open to both union and non-union bidders. Since the court's decision in 1999, there has been a significant increase in the use of PLAs and PSAs by public entities.<sup>viii</sup>

To further solidify the use of project agreements in the public sector, Public Contract Code ("PCC") section 2500 went into effect on January 1, 2012. PCC Section 2500 enables public entities in California to enter into Project Labor Agreements provided such an agreement includes provisions that: prohibit discrimination; permit all qualified contractors to bid on the project regardless of signatory status to a collective bargaining agreement; guarantee against work stoppages; require testing of workers for prohibited substances; and provide a method for resolving labor disputes by a neutral arbitrator.

The use of project agreements by public entities has generated controversy and many studies regarding their impact on project costs have been prepared by supporters and opponents.<sup>ix</sup> Opponents of project agreements claim that they limit the bidders to only union signatory contractors thereby driving up bid values and, further, that they discriminate against non-union contractor's rights. Proponents claim that the use of project agreement levels the playing field among contractors,

enhances compliance with prevailing wage laws and enables projects to be completed on time and on budget due to common work rules applicable to all contractors and all employees on the project. The conclusions of the studies are cited by both sides depending on which side of the of the debate they support. Because there are many factors that contribute to the final cost and completion date of a particular construction project, it is extremely difficult—if not impossible—to cite the presence or absence of a project agreement as the “but for” cause of the result.

This Project is a large, complex, long-term project that will require the use of multiple building and construction trades crafts to construct. On that basis, it is worthwhile to consider the use of a project stabilization agreement for construction. The PSA would be negotiated with the Contra Costa Building and Construction Trades Council and its affiliated local unions and would apply to all contractors performing construction craft work on the Project. The PSA would need to contain provisions that meet the requirements of Labor Code section 2500 and those necessary to achieve the City’s construction objectives.

As presented above, the current construction market in Contra Costa County and the Bay Area is robust. As such, this Project will be competing with many other large projects for contractors and construction craft workers during a period of very low unemployment. Access to an established referral procedure and pool of qualified and skilled workers will be essential to ensure the project is adequately staffed to achieve timely completion. With a PSA, all contractors working on the Project will have access to these referral procedures regardless of signatory status. Given the need to employ apprentices in the numbers compliant with the Labor Code requirements, access to the jointly administered apprentice programs is also critical since they have the largest number of building trades craft programs and participants.

A PSA would establish common work rules applicable to every contractor and construction craft worker on the Project. As such, there would be standard craft workday, shift, and holidays to facilitate construction. In addition, there would be an established grievance and jurisdictional dispute resolution procedure in the event a dispute arises. Further, there could be put in place provisions for administrative procedures, such as pre-job meetings, to communicate information in advance of construction work commencing and periodic labor-management meetings to identify and address issues that may arise during construction to avoid any jobsite issues. All of these provisions taken together would help to minimize the risk of a work disruption on the Project.

Regarding the employment of local residents during the construction of the Project, PSA provisions defining the local area from which residents would have hiring preference would be identified and priority referral from the applicable craft union

obtained. These provisions within the PSA would establish the legal basis for the preferential hiring without violating the existing chronological referral procedures of the craft unions. All contractors on the Project would have this right of preferential referral available to them without having to negotiate such a provision individually. As such, the use of a PSA is the most efficient manner by which to accomplish this objective.

With respect to direct economic costs attributable to selecting this alternative, there would be the cost to negotiate the PSA and the cost of administration of the agreement if this activity were performed by a third party entity. While this alternative has a direct cost, it provides measures to mitigate the risk of construction delay and resulting economic costs to the Project.

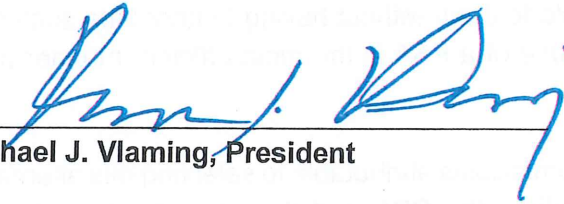
## **VI. Conclusion/Recommendation**

Based on the analysis presented above, we recommend the City authorize the negotiation to tentative agreement of a Project Stabilization Agreement for the construction of the Project in order to enhance its ability to achieve its construction objectives in the most economically efficient manner. A PSA would increase the likelihood of timely completion without delays due to an insufficient supply of skilled construction craftpersons or work disruption due to labor disharmony. The PSA would promote greater construction efficiency by providing uniform work rules and proactive labor relations. Finally, the PSA would enhance the employment opportunities of local residents for Project construction related jobs.

The PSA should include, at a minimum, all of the provisions required by Public Contract Code Section 2500 and additional provisions for the priority hiring of local residents, conducting pre-job meetings, and holding periodic labor-management meetings. By implementing a PSA instead of a full PLA, the City can put in place an agreement that covers all of the essential elements necessary to achieve its Project construction objectives and avoid the additional time and resource expenditure necessary to obtain the full agreement by all construction trades on important, but non-critical provisions. Further, incorporating by reference the craft master labor agreements for work rules not covered by the PSA would enable those contractors already signatory to and familiar with such agreements to maintain their established work practices not inconsistent with the PSA.

While this recommendation requires the expenditure of resources to negotiate and administer the PSA, the cost is outweighed by the value of risk mitigation and increased costs related to construction delays due labor shortages or work disruption and provides a benefit to the community by enhancing the opportunity for local residents to be employed during construction of the Project.

Submitted by:  
**VLAMING & ASSOCIATES, APC**

By:   
**Michael J. Vlaming, President**



## Endnotes:

<sup>i</sup> State of California Employment Development Dept. Labor Market report for the Oakland-Hayward-Berkeley Metropolitan Division, April 20, 2018; [http://www.labormarketinfo.edd.ca.gov/file/lfmonth/oak\\$pbs.pdf](http://www.labormarketinfo.edd.ca.gov/file/lfmonth/oak$pbs.pdf)

<sup>ii</sup> Id.

<sup>iii</sup> California Labor Code Section 3070 et seq.

<sup>iv</sup> California Division of Apprenticeship Standards published report can be found at:

<http://www.dir.ca.gov/DAS/reports/CompPast5yr.pdf>

<sup>v</sup> Id.

<sup>vi</sup> Id.

<sup>vii</sup> *Associated Builders and Contractors, Inc. v. San Francisco Airports Commission* (1999) 21. Cal.4<sup>th</sup> 352.

<sup>viii</sup> Johnson-Dodds, Kimberly, *Constructing California: A Review of Project Labor Agreements*, California Research Bureau, 2001.

<sup>ix</sup> See Cockshaw, Peter, *Do PLA Projects Raise Costs?*, Cockshaw's Construction Labor News + Opinion, Vol.33, No.5, May 2003; Bachman, Paul, Chisholm, Darlene C., Houghton, Johnathan, Tuerck, David G., *Project Labor Agreement and the Cost of School Construction in Massachusetts*, Beacon Hill Institute Policy Study, 2003; Belman, Dale, Ormiston, Russell, Schriver, William, and Kelso, Richard, *The Effect of Project Labor Agreements on the Cost of School Construction in New England*, Michigan State University School of Labor and Industrial Relations, 2005; Philips, Peter, *A Case Study of the East Side Union High School District 2004 Project Labor Agreement in San Jose, California*, 2005; Waitzman, Emma and Philips, Peter, *Project Labor Agreements and Bidding Outcomes, The Case of Community College Construction in California*, 2017.

**Appendix A  
Construction Craft Survey**

<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Sheet Metal Workers #104 1720 Marina Blvd. San Leandro, CA 94577	Refineries and Chemical Plant (DOW) Water Treatment Plants Schools, City Buildings, County Buildings, Private Schools, etc.	10,000	0	Over 2,000	06/30/18
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
UA Plumbers Local #159 1308 Roman Way Martinez, CA 94553	Pinole/Hercules Waste Water Treatment Plant; Brentwood Water Treatment Plant; City Center San Ramon; Pinole Valley High School; Contra Costa Jail Expansion; 2 County Buildings in downtown Martinez; Several school projects; Concord Naval Weapons Station.	308	23	58	06/30/19
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Teamsters Local #315 2727 Alhambra Avenue Martinez, CA 94553	Multiple projects, too many to list.	4,500	Varies daily	Not an apprentice- able craft.	06/30/20

<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Boilermakers Local #549 2191 Piedmont Way Pittsburg, CA 94565	Work in all the refineries and Calpine power plants.	300	0	50	9/30/2018
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Carpenters Local #152 3780 Alhambra Ave. Martinez, CA 94553	4 Refineries; Dow Chemical; Ongoing work at all water treatment facilities. Pinole/Hercules water treatment plant; Phillip 66 & Shell Upgrades; Ongoing maintenance at all refineries; Los Vaqueros Dam Project; City Center Bishop Ranch; Apple Store; Pinole Valley High School; BART Parking Garage; SRVSD High School; Pinole Hercules Water Treatment Plant; Brentwood Library; Coast Guard land development; Concord Naval Weapon Station, 4C Brentwood Campus Expansion.	4067	122	617	6/30/2019

Craft	Work Picture (Current & Future)	Active Members	Out-of-Work List	Apprentices	Expiration
IBEW Local #3021875 Arnold DriveMartinez, CA 94553	Chevron Modernization project; Pinole Wastewater Treatment Plant; El Cerrito BART Facilities Upgrades; Chevron Turnaround ; Chevron Shop Building; Andeavor Refinery Turnaround; Shell Refinery Turnaround; Phillips 66 Turnaround; Los Medanos College; Contra Costa College Classroom Upgrades; 4 Tilt-up Warehouse in Richmond; Contra Costa College Administration Building; Diablo Valley College Main Electrical Switchgear Replacement; San Ramon Valley Montevideo Elementary Modernization; San Ramon Valley Rancho Romero Elementary Modernization; Brentwood Community	1139	76	111	5/31/2018

	College Campus; Google and Facebook Campuses in South bay and the Peninsula and the BART Electrical System Upgrades throughout the Bay Area; BART's system-wide Train Control and Switching Upgrades.				
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Painters Local #741 742 Arnold Drive Martinez, CA 94553	Chevron; Shel Refinery; Shel Chem; Tesoro; East Bay Mudd Tanks; Refineries and Bridges.	600	3	124	Painters 06/30/2020 ; Drywall 06/30/2018
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Bricklayers & Allied Craftworkers Local #3 8400 Enterprise Way #103 Oakland, CA 94621	Many current projects.	2100	15	400	5/1/2019

<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Heat & Frost Insul. Local #161320 Harbor Bay Parkway #220 Alameda, CA 94502	Chevron modernization project; Ongoing maintenance at four refineries; Ongoing maintenance at area power plants; Maintenance & Turnaround in Refineries & Power Plants; Contra Costa College Administrative Building; Apple; Google; Trans Bay Terminal Project.	605	34	212	7/31/2019
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Sprinkler Fitters Local #483 2525 Barrington Court Hayward, CA 94545	Chevron Refinery; Shell Refinery; Brackish Water Desalination Plant; CC Community College District Buildings; El Cerrito BART; Pinole Valley High School; Wilson Elementary School; Martinez Unified School District; Concord Naval Weapons Station.	944	10	305	7/31/2018

<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Laborers Local #324 611 Berrellesa Street Martinez, CA 94553		3,403	140	426	6/30/2019
<b>Craft</b>	<b>Work Picture (Current &amp; Future)</b>	<b>Active Members</b>	<b>Out-of-Work List</b>	<b>Apprentices</b>	<b>Expiration</b>
Plumbers & Steamfitters Local #342 935 Detroit Avenue Concord, CA 94518	Chevron Modernization Project; Andeavor Flare Project; Endeavor Coker Unit; Multiple Refinery Turn- around and Maintenance Project.	2500	140	470	7/1/2018

**Appendix B**  
**Building Trades program completions past 5 years**

	Completion Count				
	2013	2014	2015	2016	2017
<b>ASBESTOS WORKERS</b>					
09449 Southern California Heat & Frost Insulators & Firestoppers Allied Work	18	10	36	30	4
16427 Northern California Heat & Frost Insulators And Allied Workers J.A.C.	20	6	13	1	24
<b>BOILERMAKER</b>					
09502 Boilermakers Western States J.A.C.	12	6	11	14	8
<b>BRICKLAYER</b>					
07055 San Diego & Imperial Counties Bricklayers & Stone Masons J.A.T.C.	0	0	1	0	1
10121 Bricklayers & Allied Crafts Local 3 J.A.T.E.C.	11	7	19	14	13
10629 Masonry Industry Training Association Of Southern California Bricklaye	0	1	9	5	11
11526 Bricklayers & Allied Craftworkers Local #4 California J.A.C.	8	7	11	24	24
<b>CARPENTRY</b>					
00008 Southern California Carpenter J.A.T.C.	275	220	218	285	368
00038 Carpenters Training Committee For Northern California	229	153	194	242	294
05137 Southern California Modular Furnishings Installer Joint Apprenticeship	2	7	21	4	8
05151 Southern California Insulator & Weatherization Joint Apprenticeship A	7	2	7	3	7
05219 Southern California Scaffold Erectors J.A.T.C.	51	68	70	83	75
14150 Southwest Hardwood, Carpet And Synthetic Floor Layers J.A.T.C.	1	2	1	1	4
19161 San Diego Associated General Contractors J.A.C.	28	17	12	13	49
19718 Inncercity Community Unilateral Apprenticeship Committee	0	1	3	2	0
19719 Southern California Acoustical Installer J.A.T.C.	19	28	28	15	27
19950 Associated Builders & Contractor Northern California Chapter Carpent	4	11	3	24	26
<b>CARPET, LINOLEUM - SOFT TILE</b>					
03262 San Diego Carpet, Linoleum & Floor Covering Industries J.A.C.	0	1	4	1	2
04789 Northern California Floor Covering J.A.T.C.	37	28	19	14	30
08280 Southern California Resilient Floor & Decorative Covering Crafts J.A.T.C.	22	12	5	8	9
<b>CEMENT MASONS</b>					
00824 Southern California Cement Masons J.A.C.	19	30	32	40	79
05139 Southern California Laborers Cement Mason Joint Apprenticeship Com	0	0	0	2	1
07257 San Diego County Cement Masons J.A.C.	5	3	6	4	1
18496 Northern California Cement Masons J.A.T.C.	19	19	40	43	97
19161 San Diego Associated General Contractors J.A.C.	17	10	6	11	11
<b>DRYWALL / LATHER</b>					
00038 Carpenters Training Committee For Northern California	79	73	49	84	122
17444 Southern California Drywall/Lather Joint Apprenticeship And Training	185	179	196	228	226
19161 San Diego Associated General Contractors J.A.C.	13	10	2	2	5
19718 Inncercity Community Unilateral Apprenticeship Committee	0	1	1	0	0
<b>DRYWALL FINISHING (TAPING)</b>					
00076 District Council 16 Drywall Finisher Joint Apprenticeship Training Com	17	29	21	27	30
14612 Southern California Drywall Finishers Joint Apprenticeship Training Co	23	29	26	17	19
19161 San Diego Associated General Contractors J.A.C.	1	3	0	1	1



## Building Trades program completions past 5 years

	Completion Count				
	2013	2014	2015	2016	2017
<b>ELECTRICAL - ELECTRONIC</b>					
00004 Los Angeles Electrical J.A.& E.T.C.	102	93	58	154	260
00030 San Francisco J.A.T.C. For The Electrical Industry - Inside Wireman	60	23	6	29	48
00058 San Diego Electrical J.A.T.C.	45	15	38	54	63
00065 San Joaquin & Calaveras Counties Electrical J.A.T.C.	14	1	7	13	10
00081 Santa Barbara County Electrical J.A.C.	10	9	7	5	4
00098 San Mateo County J.A.T.C. For The Electrical Construction Industry	34	20	25	23	40
00113 Contra Costa County Electrical J.A.C.	23	13	8	21	17
00119 Tri-County Electrical J.A.T.C.	7	6	0	2	5
00137 Santa Clara County Electrical Trades J.A.T.C.	35	28	41	67	101
00139 Fresno, Madera, Kings & Tulare Counties Electrical Industries J.A.T.C.	27	6	12	2	16
00146 Alameda County J.A.T.C. For The Electrical Inside Wireman Trade	29	4	24	33	48
00152 Solano & Napa Counties Electricians J.A.T.C.	32	4	5	16	7
00169 Redwood Empire Electrical J.A.T.C.	28	12	7	10	11
00374 Ventura County Electrical J.A.T.C.	9	9	12	15	17
00375 San Bernardino, Mono And Inyo Counties Electrical J. A. C.	16	12	43	14	27
00425 Central Valley Electrical J.A.T.C.	4	7	7	15	15
00494 Orange County Electrical J.A.C.	5	49	27	26	33
02012 Riverside Area Electrical J. A. C.	15	20	15	10	41
05089 Los Angeles Electrical J.A.& E.T.C.	1	0	0	0	0
05102 Crater Lake Electrical J A T C	6	3	5	5	5
05129 Orange County Electrical J.A.C.	4	2	4	8	4
08685 Kern County Electrical Joint Apprenticeship & Training Committee	15	10	6	18	7
08805 San Luis Obispo Electrical Workers J.A.C.	4	3	9	7	7
09333 Northern Nevada Electrical J.A.T.C.	7	3	0	11	8
10243 La County Intelligent Transportation Systems Electrical Joint Apprentic	8	9	30	18	5
10552 Los Angeles/Ventura Chapter Of A.B.C. Inc. E.U.A.C.	31	22	26	45	31
10607 I.B.E.W. Local Union No. 40 Los Angeles County Chapter Neca J.A.C.	2	6	4	4	3
16435 Sacramento Area Electrical Apprenticeship	55	22	18	15	14
19224 Associated Builders & Contractors Of San Diego, Inc. Electrical U.A.C.	32	17	22	65	51
19327 Southern California Chapter Of The Associated Builders And Contracto	49	24	12	17	38
19602 Western Electrical Contractors Assoc., Inc. (W.E.C.A.) Apprenticeship A	76	45	65	56	62
19885 Associated Builders & Contractors Northern California Chapter Electric	22	17	18	35	47
<b>ELEVATOR</b>					
05040 Southern California Elevator Constructor Joint Apprenticeship And Tra	27	27	5	23	41
10835 Northern California Elevator Industry Joint Apprenticeship And Trainin	1	108	2	16	57
<b>ENGINEER</b>					
09431 Joint Apprenticeship Committee For Operating Engineers For The 46 N	57	57	95	102	121
09554 Southern California Operating Engineers J. A. C.	33	48	91	88	60
10112 Associated General Contractors Of San Diego, Inc. Construction Equipr	6	12	9	6	20

## Building Trades program completions past 5 years

	Completion Count				
	2013	2014	2015	2016	2017
<b>FIRE SPRINKLER FITTER</b>					
04391 Sprinkler Fitters U. A. Local 483 Joint Apprenticeship Committee	54	1	20	23	54
04501 Sprinkler Fitters U.A. Local 709 J.A.C.	21	17	12	18	35
19570 California American Fire Sprinkler Association, U.A.C.	17	27	18	4	25
99100 Road Sprinkler Fitters U. A. Local 669 J.A.T.C.	19	10	5	6	11
<b>GLAZIER - GLASS WORKERS</b>					
00370 Northern California District Council 16 Glaziers, Architectural Metal Ar	85	45	30	28	58
01403 Southern California Glaziers & Glassworkers Industry J.A.C.	41	27	16	24	31
14700 San Diego & Imperial Counties Glaziers J.A.C.	3	5	2	9	10
<b>INSPECTOR/TESTER</b>					
05073 Northern California Construction Inspector Joint Apprenticeship Comn	2	10	5	9	12
09554 Southern California Operating Engineers J. A. C.	9	16	10	10	10
<b>IRON - STEEL WORKERS</b>					
00667 International Association Of Bridge, Structural, Ornamental & Reinforc	49	41	81	46	62
01501 Int'L Association Of Bridge, Structural, Ornamental And Reinforcing Iro	17	16	25	11	16
07205 Intl. Assoc. Of Bridge, Structural, Ornamental & Reinforcing Ironworke	59	56	46	16	0
07646 Intl.Assc.Of Bridge, Structural,Ornamental & Reinforcing Ironworkers l	25	23	36	18	0
07813 International Assoc. Of Bridge,Structural,Ornamental&Reinforcing Iron	17	11	41	50	46
08885 International Association Of Bridge, Structural, Ornamental & Reinforc	14	31	83	16	54
09076 International Assoc. Of Bridge, Structural,Ornamental & Reinforcing Ir	10	0	5	10	3
09271 Intl.Assoc. Of Bridge,Structural,Ornamental & Reinforcing Ironworkers	15	11	14	6	0
<b>LABORERS</b>					
05043 Associated General Contractors Of America, San Diego Chapter	41	54	63	53	122
05087 Northern California District Council Of Laborers Hod Carrier J.A.C.	4	1	1	5	5
05096 Northern California District Council Of Laborer Parking & Highway Imp	6	7	9	16	22
05146 Laborers Southern California Landscape And Irrigation Fitter Joint App	7	7	10	10	3
10060 Associated Builders & Contractors Northern California Chapter Constr	5	6	7	17	35
10061 Northern California District Council Of Laborers Construction Craft Lab	135	243	188	186	504
10679 Southern California Brick Tenders J.A.C	1	0	0	0	0
10710 Laborers Southern California Joint Apprenticeship Committee	270	337	401	356	125
10748 Southern California Plaster Tenders J.A.C.	4	9	13	1	16
10789 Southern California Pavement Striper, Road Slurry, Seal Coat & Highwa	9	6	10	18	19
<b>LINEMAN</b>					
99120 Cal-Nev Power Lineman J.A.T.C.	32	56	92	68	69
<b>MILWRIGHT</b>					
00038 Carpenters Training Committee For Northern California	29	18	37	22	20
09565 Southern California Millwrights & Machinery Erectors J.A.T.C.	33	38	31	17	24

## Building Trades program completions past 5 years

	Completion Count				
	2013	2014	2015	2016	2017
<b>PAINTING - DECORATION</b>					
00016 Painter, Paperhanger And Decorator J.A.T.C.	30	24	46	44	59
00040 Painters & Decorating J.A.T.C. Of The Bay Area Inc.	45	39	43	55	36
05115 Traffic Control Painter Automotive Marine & Specialty Painters Local #	4	2	1	0	0
05142 District Council #36 Industrial Painter Joint Apprenticeship Training Co	8	8	11	9	14
05185 District Council #16 Industrial Painters Joint Apprenticeship And Traini	0	0	0	10	11
19161 San Diego Associated General Contractors J.A.C.	13	7	3	6	5
19657 Apply-A-Line	0	1	1	0	0
19731 Southern California Painting And Decorating Contractors Of America, U	8	5	9	8	8
19912 Associated Builders & Contractors Northern California Chapter Paintin	3	7	4	6	9
<b>PILE DRIVER</b>					
00038 Carpenters Training Committee For Northern California	11	8	18	23	17
16129 Southern California Pile Drivers J.A.T.C.	14	18	15	12	14
<b>PLASTERERS</b>					
00014 Southern California Plastering Institute Apprenticeship Trust & Joint A	11	14	3	8	3
00018 Northern California Plasterer'S Joint Apprenticeship And Training Com	8	9	7	10	3
05090 Southern California Plasterer Joint Apprenticeship And Training Comm	1	7	4	3	0
<b>PLUMBING</b>					
00002 San Diego & Imperial Counties Pipe Trades J.A.C.	21	29	25	34	33
00011 Los Angeles Metropolitan Plumbers J.A.T.C.	32	35	21	26	28
00012 J. A. & T. C. , Plumbing, Pipe Fitting & Refrigeration Industry Of San Ma	36	17	24	2	25
00015 Napa/Solano Counties Plumbers And Steamfitters J.A.T.C.	6	4	2	6	2
00021 Glendale, Burbank, San Fernando Valley & Antelope Valley Plumbers &	27	13	13	16	25
00023 U.A. Local 38 Joint Apprenticeship & Training Committee Of The Plum	69	32	15	51	72
00037 Joint Apprenticeship Committee For The Plumbing & Pipefitting Indust	35	33	17	15	23
00042 Contra Costa County Plumbing & Pipefitting Industry J A T C	4	4	1	4	4
00061 Pipe Trades Dc #36 Trust Funds J.A. & T. C.	41	26	18	31	30
00122 Los Angeles & Orange Counties Air-Conditioning & Refrigeration J.A.T.	29	15	16	22	19
00125 Pipe Trades J.A.T.C. Of Santa Clara And San Benito Counties	62	30	35	25	71
00156 United Association Local Union 342 J.A.T.C.	65	34	27	50	57
00163 San Bernardino & Riverside Counties Plumbing & Steamfitter Trade J.A	18	19	19	17	20
00238 Kern, Inyo & Mono Counties Plumbing, Pipefitter & Refrigeration/Air C	4	6	3	4	8
00277 Santa Barbara County Pipe Trades J.A.C.	4	3	7	1	4
00280 Los Angeles & Vicinity Steamfitters And Industrial Pipefitters J.A.T.C.	35	23	18	43	28
00656 Orange County Plumbers & Steamfitters Joint Apprenticeship & Traini	19	18	26	23	19
03029 Pomona And San Gabriel Valleys Plumbers & Steamfitters J.A.C.	24	22	16	15	6
04088 Ventura County Plumbing & Pipefitting J.A.C.	2	1	4	2	7
05150 San Diego & Imperial Counties Pipe Trades Service Refrigeration & Air	0	0	9	4	5
08378 San Luis Obispo County Plumbing J.A.C.	0	2	3	1	7
08902 Oregon/S.W. Washington/N.W. California Plumbers And Steamfitters.	0	0	1	0	10
09307 Inland Refrigeration J.J. & A.T.C.	5	2	1	2	3
09334 Reno Plumbers & Fitters J.A.T.C.	0	2	3	4	5
10043 Associated Builders & Contractors Northern California Chapter Plumbi	4	2	7	11	20

## Building Trades program completions past 5 years

	Completion Count				
	2013	2014	2015	2016	2017
10556 Landscape & Irrigation Fitter Of Southern California J.A.T.C.	12	7	7	12	11
19699 Northern California Local 355 J.A.T.C.	4	4	2	5	5
19810 P.H.C.C. Of The Greater Sacramento Area Plumbers U.A.C.	9	1	9	6	6
19814 Associated Builders & Contractors Of San Diego, Inc. Plumbing / Pipefit	18	22	20	20	20
19837 Southern California Chapter Of The Associated Builders & Contractors,	8	10	11	8	8
<b>ROOFERS</b>					
00109 West Bay Counties Roofers And Waterproofers J.A.T.C.	27	10	15	15	12
00177 Southern California Roofers Waterproofers J.A.C.	50	38	37	39	25
02898 East Bay And North Bay Counties Roofers/Waterproofers J.A.T.C.	28	18	16	17	19
07293 San Diego & Imperial Counties Roofers & Waterproofers, J.A.C.	0	0	1	3	2
07294 Central Valley Roofers, Waterproofers & Allied Workers J.A.T.C.	0	8	3	2	13
09028 Valley Roofers & Waterproofers J.A.T.C.	7	3	15	11	17
09069 Santa Clara Valley Area Roofers And Waterproofer J.A.T.C.	15	8	9	17	12
19704 Independent Roofing Contractors Of California, U.A.C.	8	27	17	12	13
<b>SHEET METAL</b>					
00010 Bay Area Sheet Metal J A C	96	21	23	69	56
00020 Southern California Sheet Metal J.A.&T.C.	136	76	71	28	76
00045 Kern & Northern Los Angeles Counties Air Conditioning & Sheet Metal	5	2	4	0	4
00052 Fresno Sheet Metal Workers J.A.T.C.	12	5	1	1	4
00123 Northern California Valley Sheet Metal Industry J.A.T.C.	35	18	18	13	13
00131 San Diego Sheet Metal J.A.C.	25	22	10	21	30
03275 Modesto Area Sheet Metal Workers J.A.T.C.	0	1	4	5	2
04489 Tri Counties Sheet Metal & Air Conditioning Industry J.A.C.	1	4	0	0	0
05110 So. Calif. Chapter Of A.B.C., Inc. Heating, Ventilation & Air Cond. U. A	0	0	0	0	1
05111 South. Calif. Chapter Of Associated Builders And Contractors, Inc. Shee	0	4	7	2	3
19421 Air Conditioning Trades Association U.A.C.	3	6	6	15	12
19821 Associated Builders & Contractors Of San Diego, Inc. Sheet Metal U.A.	11	25	7	10	18
<b>SOUND / COMMUNICATION</b>					
00374 Ventura County Electrical J.A.T.C.	0	0	0	0	1
05041 Associated Builders & Contractors Of San Diego, Inc., Electronic System	2	3	1	1	2
05112 So. Ca. Chapter Of A B C., Inc. Electronic Systems Technician /Voice Da	5	9	11	6	11
08685 Kern County Electrical Joint Apprenticeship & Training Committee	0	0	0	2	0
08819 Los Angeles County Intercommunication & Sound J.A.C.	19	8	7	27	27
08912 San Diego County Sound Technicians J.A.C.	7	12	5	7	7
10837 Western Burglar & Fire Alarm Association U A T C	9	17	12	17	17
19167 Northern California Sound And Communication J.A.T.C.	26	33	53	33	68
19602 Western Electrical Contractors Assoc., Inc. (W.E.C.A.) Apprenticeship A	6	15	5	12	15
19790 Communication Workers Of America/American Communication Contr	1	2	3	7	7
19791 Orange County Sound Technician Joint Apprenticeship Committee	4	18	13	18	9
19924 Riverside, San Bernardino, Mono & Inyo Counties Sound Technician J.	0	1	1	2	0

## Building Trades program completions past 5 years

	Completion Count				
	2013	2014	2015	2016	2017
<b>SURVEYOR</b>					
09442 Northern California Surveyors Joint Apprenticeship Committee	12	21	20	24	26
17293 Southern California Surveyors J.A.C.	18	22	21	21	26
<b>TEAMSTER</b>					
05147 Construction Teamsters Apprenticeship Fund Of So California J A C	0	5	3	0	1
<b>TILE LAYER/SETTER</b>					
00029 Joint Apprenticeship Committee Tile & Terrazzo Industry	21	25	18	32	42
00088 Northern California Tile Industry Joint Apprenticeship Training Commi	8	9	26	17	14
10121 Bricklayers & Allied Crafts Local 3 J.A.T.E.C.	2	6	11	7	6
10999 Sacramento Area Tile, Terrazzo & Marble Trades J.A.T.C.	1	2	3	5	6
11526 Bricklayers & Allied Craftworkers Local #4 California J.A.C.	1	0	1	1	9
19760 Southwest Terrazzo Installers And Finishers J.A.T.C.	4	10	5	9	5