



# ORANGE COUNTY FIRE AUTHORITY

## AGENDA

### BOARD OF DIRECTORS REGULAR MEETING AND CONCURRENT JOINT SPECIAL MEETINGS OF THE BOARD OF DIRECTORS, EXECUTIVE COMMITTEE, BUDGET & FINANCE COMMITTEE, HUMAN RESOURCES COMMITTEE, AND THE LEGISLATIVE & PUBLIC AFFAIRS COMMITTEE

Thursday, July 28, 2022  
6:00 P.M.

Regional Fire Operations and Training Center  
Board Room  
1 Fire Authority Road  
Irvine, CA 92602

Link to:  
[Board of Directors Member Roster](#)

#### **NOTICE REGARDING PUBLIC PARTICIPATION DURING COVID-19 EMERGENCY**

This meeting is open to the public. In addition, there are several alternative ways to view and to make comments during the meeting, including:

**Access Meeting Live (No Public Comments):**

You may access the meeting live electronically at: <https://player.cloud.wowza.com/hosted/xvtncikw/player.html>.  
(Note: you should use one of the other alternatives below if you want to make comments during the meeting.)

**Public Comments Live via Zoom:** You may also view and make real-time verbal comments during the meeting via the Zoom link below during the meeting. You will be audible during your comments, but the board members will not be able to see you. To submit a live comment using Zoom, please be prepared to use the “Raise Your Hand” feature when public comment opportunities are invited by the Chair. (You can raise your hand on your smart phone by pressing \*9.) Also, members of the public must unmute themselves when prompted upon being recognized by the Chair in order to be heard. (To unmute your smartphone in Zoom, press \*6.)

Public Comments via Zoom: <https://zoom.us/j/83264128588#success>  
Meeting ID: 832 6412 8588  
Passcode: 298121  
Raise Your Hand (press \*9) and Unmute (press \*6)

**E-Comments:** Alternatively, you may email your written comments to [coa@ocfa.org](mailto:coa@ocfa.org). E-comments will be provided to the board members upon receipt and will be part of the meeting record as long as they are received during or before the board takes action on an item. Emails related to an item that are received after the item has been acted upon by the board will not be considered.

Further instructions on how to provide comments is available at: <https://ocfa.org/PublicComments>.



In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, you should contact the Clerk of the Authority at (714) 573-6040 and identify the need and the requested modification or accommodation. Please notify us as soon as is feasible, however 48 hours prior to the meeting is appreciated to enable the Authority to make reasonable arrangements to assure accessibility to the meeting.

This Agenda contains a brief general description of each item to be considered. Except as otherwise provided by law, no action or discussion shall be taken on any item not appearing on the following Agenda. Unless legally privileged, all supporting documents, including staff reports, and any writings or documents provided to a majority of the board members after the posting of this agenda are available for review at the Orange County Fire Authority Regional Fire Operations & Training Center, 1 Fire Authority Road, Irvine, CA 92602 or you may contact the Clerk of the Authority at (714) 573-6040 Monday through Thursday, and every other Friday from 8 a.m. to 5 p.m. and available online at <http://www.ocfa.org>

**CALL TO ORDER** by Chair Steggell

**INVOCATION** by OCFA Chaplain Valdez

**PLEDGE OF ALLEGIANCE** by Director Chun

**ROLL CALL** by Clerk of the Authority

## **REPORTS**

### **A. Report from the Budget and Finance Committee Chair**

### **B. Report from the Fire Chief**

- Life Saving Award presented to Jesselle and Cecilia Perez
- Fire Cadet Trainee Academy
- Goals and Objectives FY 2021-22 - 4<sup>th</sup> Quarter Update
- Goals and Objectives FY 2022-23 – Draft 1<sup>st</sup> Quarter Update
- Girls Empowerment Camp

## **PUBLIC COMMENTS**

**Please refer to instructions on how to submit a public comment during COVID-19 Emergency on Page 1 of this Agenda.**

## **1. PRESENTATIONS**

No items.

## **2. CONSENT CALENDAR**

*All matters on the consent calendar are considered routine and are to be approved with one motion unless a director or a member of the public requests separate action on a specific item.*

### **A. Minutes for the Board of Directors**

Submitted by: Maria D. Huizar, Clerk of the Authority

The record will reflect that any Director not in attendance at the meeting of the Minutes will be registered as an abstention, unless otherwise indicated.

Recommended Action:

Approve the Minutes for the June 23, 2022, Regular and Concurrent Joint Special Meeting as submitted.

**B. Proclamation for Fire Prevention Week**

Submitted by: Matt Olson, Director of Communications/Corporate Communications and Sophia Champieux, Public Relations Manager/Corporate Communications

Recommended Action:

Approve proclamation designating October 9-15, 2022, as Fire Prevention Week.

**C. Award of Public Works Contract for Security Cameras and Access Control Systems Upgrade - RFOTC**

Submitted by: Jim Ruane, Assistant Chief/Logistics Department and Joel Brodowski, Information Technology Division Manager/Logistics Department

Recommended Action:

1. Approve the plans and specifications for the installation and upgrade of existing Security Cameras and Access Control Systems at the RFOTC.
2. Accept Convergent Technologies bid dated March 30, 2022.
3. Approve and award the public works contract to Convergent Technologies in the amount of \$549,588.

**3. DISCUSSION ITEMS****A. Firefighter Staffing/Forced Overtime Update**

Submitted by: Kenny Dossey, Deputy Fire Chief/Emergency Operations Bureau, TJ McGovern, Assistant Chief/Field Operations Department, and Mike Contreras, Division Chief/Division 5

Recommended Action:

Receive and file the report.

**B. OCFA Aircraft Replacement Review Process – Review of Remaining Phase 3 through 6 of the Work Plan**

Submitted by: Brian Fennessy, Fire Chief, Kenny Dossey, Deputy Chief/Operations Bureau and Tim Perkins, Division Chief/Special Operations

On July 13, 2022, the Budget and Finance Committee reviewed the proposed agenda item and directed staff to place the item on the Board of Directors agenda by a vote of 7-1 (Director Tettemer dissented and Director O'Neill absent).

Recommended Actions:

1. Receive and file the report documenting the full OCFA Aircraft Replacement Review Process.
2. Direct staff to return the two loaned Federal Excess Property Program (FEPP) UH-1H Super Huey helicopters to the federal government, with CALFIRE serving as the conduit for this FEPP return.
3. Direct staff to initiate administrative actions necessary to facilitate the purchase of two Sikorsky S-70i Type I helicopters, including: (a) procurement process for award of contract, (b) Request for Proposal process for selection of financing consultants, (c) Request for Proposal process for provision of lease-purchase financing, (d) and preparation of draft-proposed budget adjustments.
4. Upon completion of the administrative actions, direct staff to return to the Budget and Finance Committee and the Board of Directors (tentatively in September 2022) for approval to award a purchasing contract, approval of lease financing terms, and authorization of the necessary budget adjustments.

## **RECESS THE REGULAR MEETING OF THE BOARD OF DIRECTORS**

### **CALL TO ORDER THE CONCURRENT JOINT SPECIAL MEETINGS OF THE: BOARD OF DIRECTORS, EXECUTIVE COMMITTEE, BUDGET & FINANCE COMMITTEE, HUMAN RESOURCES COMMITTEE, AND THE LEGISLATIVE & PUBLIC AFFAIRS COMMITTEE**

#### **A. Findings Required by AB 361 for the Continued Use of Teleconferencing for Meetings** Submitted by: David Kendig, General Counsel

##### Recommended Actions by each legislative body:

##### **Option #1:**

Make the following findings by majority votes of the Board of Directors, Executive Committee, Budget & Finance Committee, Human Resources Committee, and the Legislative & Public Affairs Committee:

- a. A state of emergency has been proclaimed by California's Governor due to the COVID-19 pandemic and continues in effect; and
- b. The Board of Directors and each Committee has reconsidered the circumstances of the emergency; and
- c. State and local officials continue to recommend measures to promote social distancing to slow the spread of COVID-19.

##### **Option #2:**

Make the following findings by majority votes of the Board of Directors, Executive Committee, Budget & Finance Committee, Human Resources Committee, and the Legislative & Public Affairs Committee:

- a. Although a state of emergency has been proclaimed by California's Governor due to the COVID-19 pandemic and continues in effect, the OCFA Board of Directors and each Committee has reconsidered the circumstances of the emergency and no longer finds a need for the legislative body to continue the use of teleconferencing for its meetings.

**ADJOURN THE CONCURRENT JOINT MEETINGS AND RECONVENE TO THE REGULAR MEETING OF THE BOARD OF DIRECTORS**

**BOARD MEMBER COMMENTS**

**RECESS TO CLOSED SESSION**

*The Brown Act permits legislative bodies to discuss certain matters without members of the public present. The Board of Directors find, based on advice from the General Counsel, that discussion in open session of the following matter will prejudice the position of the Authority on item listed below:*

**CS1. CONFERENCE WITH LABOR NEGOTIATORS** pursuant to Government Code Section 54957.6

Negotiators:

Peter Brown, Liebert Cassidy Whitmore and Stephanie Holloman, Assistant Chief/Human Resources Director

Employee Organizations:

- Orange County Professional Firefighters Association, IAFF - Local 3631, and
- Orange County Employees Association (OCEA)

**CS2. CONFERENCE WITH LEGAL COUNSEL - PUBLIC EMPLOYEE PERFORMANCE EVALUATION** pursuant to Government Code Section 54954.5

Position:

Fire Chief

**CS3. CONFERENCE WITH LEGAL COUNSEL - SIGNIFICANT EXPOSURE TO LITIGATION** pursuant to paragraph (2) and (3) of subdivision (d) of Section 54956.9 of the Government Code:

One (1) Case

**RECONVENE TO OPEN SESSION**

**CLOSED SESSION REPORT** by General Counsel

**ADJOURNMENT** – The next meeting of the Orange County Fire Authority Board of Directors will be a Concurrent Joint Special Meeting of the Board and all Committees on Thursday, August 25, 2022, at 6:00 p.m.

**AFFIDAVIT OF POSTING**

I hereby certify under penalty of perjury and as required by the State of California, Government Code § 54954.2(a), that the foregoing Agenda was posted in the lobby and front gate public display

case of the Orange County Fire Authority, Regional Fire Operations and Training Center, 1 Fire Authority Road, Irvine, CA, not less than 72 hours prior to the meeting.

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Maria D. Huizar, CMC  
Clerk of the Authority

**FUTURE BOARD AGENDA ITEMS – THREE-MONTH OUTLOOK:**

- Labor Negotiations
- Accept US&R Cooperative Funding
- Accept UASI and SHSGP Grant Funding
- Biennial Conflict of Interest Code
- Carryover of Fiscal Year 2021-22 Uncompleted Projects
- Quarterly Purchasing Report
- OCFA Aircraft Replacement Review
- Response to Grand Jury Report
- Security Guard Services Contract

**UPCOMING MEETINGS:**

Human Resources Committee

Tuesday, August 2, 2022, 12 noon

Operations Committee

Tuesday, August 9, 2022, 12 noon

Board of Directors

Thursday, August 25, 2022, 6:00 p.m.

Concurrent Joint Special Meeting of the

Board of Directors and all Committees

Thursday, August 25, 2022, 6:00 p.m.

Budget and Finance Committee Meeting

Wednesday, September 14, 12 noon

Executive Committee

Thursday, September 22, 2022, 5:30 p.m.

Board of Directors

Thursday, September 22, 2022, 6:00 p.m.

Concurrent Joint Special Meeting of the

Board of Directors and all Committees

Thursday, September 22, 2022, 6:00 p.m.

OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<u>Responsibility</u> Designated department lead	<u>Performance Measures</u> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)
<p>OCFA's Strategic Goals &amp; Objectives function in a waterfall manner, with overarching goals at the top (Fire Chief) flowing down through the Departments, Sections, and ultimately to individual managers/employees. As our goals flow through the organization, they increase in volume, build momentum, become more detailed in definition, gain sequencing as incremental tasks, and are all the more measurable and quantifiable.</p> <ul style="list-style-type: none"> <li>➤ At the highest level, OCFA's <b>Strategic Goals</b> are small in number, broad in scope, designed with a long-term outlook, and relatively static to keep the organization perpetually focused on fulfilling our overarching mission. <b>Strategic Goals are guided by the Fire Chief.</b></li> <li>➤ Strategic goals are further supported by <b>Departmental Objectives</b> which provide greater definition, are designed for annual measurement, and bolster forward progress towards the Strategic Goals. <b>Departmental Objectives are guided by Executive Management/department heads.</b></li> </ul> <p>OCFA's annual goals, objectives, and performance measures guide our priorities and efforts throughout the year to ensure progress on intentional organizational goals.</p>		
<b>OCFA's FY 2021/22 Strategic Goals, led by Fire Chief Brian Fennessy:</b>		
<p>1. <b><u>Our Service Delivery</u></b>  <i>Goal #1: Our service delivery model is centered on continuous improvement. All services are sustainable through a range of economic environments and focused on our mission.</i></p>		
<p>2. <b><u>Our People</u></b>  <i>Goal #2: Promote a highly skilled, accountable, and resilient workforce that is united in our common mission.</i></p>		
<p>3. <b><u>Our Technology</u></b>  <i>Goal #3: Implement and utilize emerging technologies that support the needs of the organization by maximizing operational efficiency and improving quality of service.</i></p>		

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i> GOALS, OBJECTIVES & PERFORMANCE MEASURES	Responsibility Designated department lead	Performance Measures Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
OCFA’s FY 2021/22 Departmental Objectives, led by Executive Management:			
1. <u>Our Service Delivery</u> <i>Goal #1: Our service delivery model is centered on continuous improvement. All services are sustainable through a range of economic environments and focused on our mission.</i>			
<p>a. Explore service delivery improvements that can (1) result from implementation of new technologies or public-private partnerships, (2) improve efficiencies, and (3) assist to keep costs down.</p> <p>Service improvements initiated so far this year include: (1) Quick Reaction Force (QRF) services in collaboration with Southern California Edison and Coulson Aviation (USA), Inc., to enhance regional aerial wildland fire response; and (2) the third year of the Fire Integrated Real-time Intelligence System (FIRIS) 3.0 Program, which is designed to enhance regional wildfire situational awareness for first responders during the wildfire season. These programs increase air operations response capabilities and create a new source of intelligence related to fire behavior not just for OCFA, but all surrounding agencies and the entire state.</p>	Deputy Chief Emergency Operations	TSD: TCD: CB:	7/1/21 6/30/22 OCFA pursues at least one new element of service delivery improvement or service efficiency.
<p>b. Perform strategic planning for the OCFA JPA 2030 renewal, including exploration of long-term solutions to address costing matters relative to cash contract cities.</p> <p>An Ad Hoc Committee for studying cash contract charge provisions met monthly and completed its work during 2021. The Committee determined that managing the pace at which overall OCFA expenses increase is the most appropriate way to manage costs for the cash contract cities. Further, they determined that focus should remain on salary and benefit costs, with that category of expenses representing over 90% of OCFA’s budget. This Committee did not recommend provisions for consideration in the next JPA renewal.</p> <p>Separate from the Ad Hoc Committee deliberations, Board discussions relative to the Fullerton Fire Services proposal resulted in a request to evaluate options in which a pro-rata contribution towards OCFA regional</p>	Deputy Chief Administration & Support	TSD: TCD: CB:	7/1/21 6/30/22 Options are identified and research is initiated for potential inclusion in our future JPA, with a goal to complete a renewed JPA well in advance of the 6/30/28 member agency noticing timeline.

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<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
<p>assets could be funded by cash contract cities through a future JPA amendment.</p> <p>Staff has begun developing a draft plan (or project charter) to outline a potential process for strategic planning relative to an OCFA JPA renewal or JPA amendment. Once drafted, concepts for the project will be reviewed with the Board Chair.</p>			
<p>c. Make responsible decisions internally and guide Board policy actions to move OCFA closer during this fiscal year to achieving pension and retiree medical funding goals, which in turn will improve long-term sustainability of services.</p> <p>OCERS' 2021 Actuarial Study demonstrated that OCFA's pension plan had achieved 92.7% funding, which exceeded our target goal of 85%. Therefore, the \$14.3M in budgeted "snowball" funds for FY 2021/22 were redirected to OCFA's Retiree Medical liability via payment to the Retiree Medical Trust Fund on December 23, 2021. An additional \$500,000 was also deposited in the PARS 115 Trust (per Irvine Settlement Agreement) on April 21, 2022.</p>	Business Services	TSD: TCD: CB:	6/26/13 12/31/22 OCFA's pension plan achieves an 85% funding level, accelerated funds redirect to Retiree Medical, and OCFA's financial forecast is balanced with CIP funds.
<p>d. Pursue OCFA priorities through the board-adopted legislative platform and grant funding opportunities.</p> <p>The legislative platform remains in effect during the second year of the two-year legislative cycle. Bills are under review for possible positions to be adopted.</p> <p>The 2022 Grant Priorities was finalized in the second quarter and was presented to the Budget and Finance Committee and approved by the Board of Directors in January 2022. Grant opportunities for identified projects are under review.</p>	Business Services	TSD: TCD: CB:	7/1/21 6/30/22 Grant and legislative opportunities are pursued in alignment with OCFA priorities, and the Board is kept apprised of activity and outcomes.
<p>e. Continue implementation of no-cost recommendations identified in the Citygate Service Level Assessments. For recommendations with</p>	Deputy Chiefs	TSD: TCD: CB:	7/1/21 6/30/22

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<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
<p>cost impacts, assess financial feasibility, timing, and priority for scheduling future consideration by the Board of Directors.</p> <p>Status reports were provided to the Board of Directors in November 2021 and May 2022 demonstrating progress and percentage of recommendations completed to-date for each of the Service Level Assessments (SLAs) completed by Citygate.</p>			<p>At least 75% of the no-cost recommendations are implemented by the end of FY 21/22.</p>
<p>f. Evaluate options for OCFA's future provision of Air Operations services, in light of the two older helicopters being grounded.</p> <p>An initial report was submitted to the Budget &amp; Finance Committee (B&amp;FC) on November 10, 2021 to begin seeking input for developing a proposed vetting/review process relative to future Air Operations assets. Additional development of the review plan occurred with the B&amp;FC at its meetings in January and March 2022, resulting in Board approval of a six phase OCFA Air Asset Replacement Review Plan on March 24, 2022.</p> <p>The B&amp;FC kicked off its 1<sup>st</sup> phase review meeting at Fire Station #41 on May 18, 2022, which included an Air Asset Orientation and tour of Air Ops equipment and facilities. The B&amp;FC held its 2<sup>nd</sup> phase review meeting on June 8<sup>th</sup> where staff provided a review of current Air Ops services, call volume statistics, and responses to prior Committee member information requests. The next review meeting is scheduled on July 13<sup>th</sup>.</p>	Deputy Chief Emergency Operations	TSD: TCD: CB:	7/1/21 6/30/22 Board direction is provided following discussion of the independent Air Operations analysis for additional follow-up and actions by staff.
<b>2. <u>Our People</u></b> <i>Goal #2: Promote a highly skilled, accountable, and resilient workforce that is united in our common mission.</i>			
<p>a. Take action to foster career progression, encourage professional development, and develop future leaders within OCFA.</p> <p>Training classes, conferences, and learning opportunities offered to personnel so far this year, (and in the upcoming months) include:</p> <ul style="list-style-type: none"> <li>All American Leadership</li> <li>Fireground Survival</li> </ul>	Deputy Chiefs	TSD: TCD: CB:	7/1/21 6/30/22 A variety of personnel identified by Executive Management attend a variety of development opportunities over the course of the FY.

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<ul style="list-style-type: none"> <li>• Fire Service Executive Development Institute</li> <li>• Fire Rescue International</li> <li>• Women in Fire Annual Conference</li> <li>• CalPELRA</li> <li>• First Responder Wellness – PTSD &amp; Suicide in Public Safety</li> <li>• California Society of Municipal Finance Officers</li> <li>• Cal Chiefs Annual Conference</li> <li>• League of Cities Conference</li> <li>• OC Fire Chiefs Monthly Meetings</li> <li>• Career Survival Leadership Class</li> <li>• Emergency Operations Center Training/Mentorship</li> <li>• Liebert Cassidy Whitmore HR &amp; Supervision Classes/Webinars</li> <li>• Gordon Graham, The New Supervisor Seminar</li> <li>• Move-up Fire App. Engineer &amp; Fire Captain (succession planning)</li> <li>• Public Safety Peer Support</li> <li>• Women on Fire Leadership Symposium</li> <li>• CSU Leadership Development Program</li> <li>• IAFC: Embracing Diversity, Equity &amp; Inclusion for Public Safety</li> </ul>			
<p>b. Implement actions to Increase the diversity of OCFA’s workforce and to improve the OCFA’s inclusive environment, including a focus on cultural growth, consistent messaging, and facility accommodations.</p> <p>The Diversity and Inclusion Coordinator presented an Internal Assessment to the Human Resources Committee in November 2021 for their comments and input.</p> <p>OCFA celebrated Black History Month in February, and Women’s History Month in March, through several feature stories posted on OCFA social media to recognize trailblazers within OCFA’s workforce on both fronts. In addition, on March 8<sup>th</sup> in recognition of International Women’s Day, Chief Fennessy issued an open letter to internal and external communities to</p>	Deputy Chiefs	TSD: TCD: CB:	7/1/21 6/30/22 Training, messaging, and actions emphasize the importance of a diverse and inclusive workforce.

<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
<p>underscore OCFA’s commitment to supporting and empowering women in the fire service.</p> <p>For Women’s History Month alone, our Corporate Communications team created and published a total of six social media posts, which is an all-time high and a 500% increase in Women’s History Month content year-over-year. Further, with a combined audience of more than a quarter of a million social media users, these six posts eclipsed last year’s Women’s History Month social media reach by 326% in unique impressions (from 49,971 to 212,833) and 674% (from 2,375 to 18,391) in total engagements. These are also all-time highs for any social media campaign focused on historically underrepresented communities in the history of the OCFA.</p> <p>Also in March, OCFA utilized the services of an external-independent provider for issuance of a Diversity, Equity, and Inclusion (DEI) climate survey which will inform a strategic plan on DEI efforts for the future. The survey was facilitated externally in a manner which protects the anonymity of our employees, to foster ability for candid responses. Once the data compilation is provided back to OCFA, and analytics are completed, a workgroup will be used to further develop DEI initiatives for OCFA.</p> <p>And finally, on June 25 and 26, 2022, OCFA will host its third annual Girls Empowerment Camp (GEC). The GEC is a free two-day camp (open to teens ages 14-18) that introduces them to the fire service. As indicated by the title “Girls” Empowerment Camp, we seek to attract females into the fire service by increasing their awareness of firefighting as a career option at a young age. And while the overwhelming majority of GEC’s participants are female (approximately 97% at our last in-person event in 2019), due to the Unruh Civil Rights Act for public accommodations, we may not exclude teens who identify as male.</p> <p><u>Inclusive Facility Renovations:</u>  In November 2021, OCFA completed inclusive facility restroom renovations at Fire Station 51, 58, and 64 providing a dedicated space for females use of facilities. In January 2022, OCFA completed the inclusive facility restroom</p>			

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<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
renovations of Fire Station 13. February 18 <sup>th</sup> marked the completion of the inclusive facility renovation at Fire Station 8. May 2022 will mark the completion of the dorm privacy renovation at Fire Station 53, as well as the inclusive facility restroom renovations at Fire Station 2, 32, and 53. The inclusive facility restroom renovation at Fire Station 42 is currently out for bid with an anticipated award by June 2022. In addition, contracts are anticipated for award for Fire Stations 14 and 16 inclusive facility restroom renovations in June 2022. Fire Station 4 will begin architectural design July 2022.			
<p>c. Pursue State Fire Training Accreditation for OCFA's Firefighter Academy as the next phase of work to ensure that the Academy's course content and associated testing remains correlated with Firefighter job performance requirements.</p> <p>OCFA completed the final, on-site, assessment with the State Fire Training representatives and on January 14, 2022, received approval to host an Accredited Local Academy (ALA).</p> <p>A report was provided to the Human Resources Committee at the meeting of February 1, 2022, presenting the myriad of benefits and the staffing associated with the transition to, and maintenance of, an ALA format. Additional fiscal implementation needs will be requested with the FY 2022/23 Proposed Budget to enable completion of this transition.</p> <p>Although Accreditation has already been achieved, OCFA anticipates hosting the first formally Accredited Academy in August of 2022 and numerous personnel are taking the required classes and training to become an accredited instructor and skills evaluator through the State Fire Training agency. This involves several required classes and the completion of a task book.</p>	EMS/Ops Training	TSD: TCD: CB:	7/1/21 6/30/22 Accreditation is achieved and processes are implemented for both academies during the FY.
<p>d. Develop policies to keep OCFA proactive with classification and compensation issues.</p>	Human Resources	TSD: TCD: CB:	7/1/21 6/30/22

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<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
<p>The Human Resources Department assigned a Senior Human Resources Analyst to lead the development of a Class &amp; Comp Program for the OCFA. The Department will issue a request for bids to our panel of Classification and Compensation consultants to provide Subject Matter Expertise in the development of Class &amp; Comp standards, forms, and policies. It is expected that this project will begin following MOU negotiations with OCFAMA, OCEA, and OCPFA Local 3631 for successor MOUs.</p>			<p>Guiding policy initiatives are developed and shared in connection with pending decisions relative to classification and compensation.</p>
<p>e. Develop and share consistent organization and public safety information, media coverage, and Board decisions with the workforce, Directors, and city/county members to create well-informed ambassadors for the organization, and targeted in a manner to improve morale.</p> <p>OCFA's Corporate Communications personnel and Public Information Officers seek opportunities to share information of interest with our workforce and the citizens we serve. We not only encourage all Directors and City Managers to follow our Social Media channels, but also provide them with monthly updates that include broad analytics and an insight on specific posts that garnered high levels of interest.</p> <p>OCFA has demonstrated consistent increases in its social media statistics.</p> <p>In February of 2022, Matt Olson, our new Director of Communications was appointed, and since his arrival, the section has enhanced its services in a variety of ways, including: the creation of an ongoing diversity and inclusion social media campaign that celebrates each of the federally-designated history months for historically underrepresented communities; the reinstatement and rejuvenation of the Ask the Chief video series in which each show will be shot at a fire station that went "above and beyond" on a recent call; a regular and more direct line of communication with all employees, including an open letter from the Fire Chief on the two-year anniversary of COVID-19 and on International Women's Day; a proposal and now Executive Management-approved Supplemental Budget Request and position description for a new Multimedia Specialist; and the</p>	<p>Communications</p>	<p>TSD: TCD: CB:</p>	<p>7/1/21 6/30/22 Standard communication tools are developed, implemented, and issued with routine frequency.</p>

<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
<p>enhancement of the Chief's Monthly Bulletin with a more interactive format that will be further distributed to all personnel.</p> <p>In the coming year, Director Olson will continue to elevate, enhance, and innovate communication strategies that align with our mission and keep the Board and the constituents they serve informed and inspired.</p>			
<b>3. <u>Our Technology</u></b> <i>Goal #3: Implement and utilize emerging technologies that support the needs of the organization by maximizing operational efficiency and improving quality of service.</i>			
<p>a. Continue the development of the Community Risk Reduction records management system; known as ORION. This replaces the obsolete Integrated Fire Prevention (IFP) system. The new system will support daily workload, reporting, quality control, billing functions and customer online interaction for Planning and Development, Prevention Field Services, and Wildland Pre Fire Management, thereby improving efficiencies and enhancing quality of service.</p> <p>The project is on schedule at 69% complete and 51% budget expended as of June 7, 2022. The January 1, 2023 kick off date may be delayed to July 1, 2023 to accommodate testing and training.</p>	Logistics & Community Risk Reduction	TSD: TCD: CB:	7/1/21 12/31/22 Development of the system is completed, tested, and ready to go-live by the end of the calendar year 2022.
<p>b. Complete a needs assessment, identify the best technology, and develop the scope for making comprehensive upgrades to the EMS System.</p> <p>The contractor has been selected and the initial kickoff meeting was completed during the Second Quarter. The resurgence of COVID initially caused delays in the meeting schedule. However, with the subsidence of COVID, the contractor is now meeting weekly with OCFA staff to complete the discovery phase of the project.</p> <p>The fact gathering a data mining process for the project is complete and the Agency expects receipt of the finding by the end of this quarter. They will then be reviewed and prioritized by the IT department.</p>	Logistics & EMS/Ops Training	TSD: TCD: CB:	7/1/21 6/30/22 Consultant completes the needs assessment and IT/EMS jointly prepare the project scope in preparation for development during the next fiscal year.

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

<b>OCFA STRATEGIC GOALS – FY 2021/22- <i>Fourth Quarter Update</i></b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
<p>c. Implement the scope and plans developed during FY 2020/21 for targeted cyber-security upgrades, physical-security upgrades, and continuity of operations (data center colocation facility, backup dispatch center, and data center fire protection upgrade).</p> <p>Implementation has been initiated, or is substantially completed, with the following projects:</p> <ul style="list-style-type: none"> <li>• <b>Cyber-security</b> – Physical Access to IT systems 50 complete; Network access/privileges and software precautions 100% complete; 2-factor login authentication in testing 75% complete; server and firewall software patching 90% complete</li> <li>• <b>Physical Security Upgrades</b> – Control Access System and surveillance camera upgrades design/engineering complete; bid/award and full implementation in CY 2022, 35% complete; Updated RFOTC Security vulnerabilities assessment by OCIAC Nov. 2021, 100% complete. Enhanced Security Guard Services contract award deferred pending a Security Ad Hoc Committee review / recommendations of the physical security recommended by OCIAC and security guard services for the RFOTC.</li> <li>• <b>Data Center colocation facility</b> – 20% complete. Location identified (US&amp;R Warehouse). Feasibility study complete, report delivered to Exec Mgmt. 11March2022. Phase two, pre-construction services in-process. Next steps – BOD approval to proceed with construction phase. Alternate dispatch location at FS43 with Dispatch trailer; VESTA modified to extend calls to trailer at FS43, Power and data connections added in Apparatus bay to support live CAD/9-1-1 dispatching. - 90% implemented. Live testing of 911 calls and dispatch complete; Upgrading PCs in existing communications trailer.</li> <li>• <b>Data Center Fire Protection Upgrade</b> –30% complete. Design phase completed; bid award and construction next phase expected to start in May 2022.</li> </ul>	Logistics	TSD: TCD: CB:	7/1/21 6/30/22 Implementation is substantially complete for all three of these important upgrade projects.

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

<b>OCFA STRATEGIC GOALS – FY 2022/23</b> ***DRAFT*** GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)
<p>OCFA’s Strategic Goals &amp; Objectives function in a waterfall manner, with overarching goals at the top (Fire Chief) flowing down through the Departments, Sections, and ultimately to individual managers/employees. As our goals flow through the organization, they increase in volume, build momentum, become more detailed in definition, gain sequencing as incremental tasks, and are all the more measurable and quantifiable.</p> <ul style="list-style-type: none"> <li>➤ At the highest level, OCFA’s <b>Strategic Goals</b> are small in number, broad in scope, designed with a long-term outlook, and relatively static to keep the organization perpetually focused on fulfilling our overarching mission. <b>Strategic Goals are guided by the Fire Chief.</b></li> <li>➤ Strategic goals are further supported by <b>Departmental Objectives</b> which provide greater definition, are designed for annual measurement, and bolster forward progress towards the Strategic Goals. <b>Departmental Objectives are guided by Executive Management/department heads.</b></li> </ul> <p>OCFA’s annual goals, objectives, and performance measures guide our priorities and efforts throughout the year to ensure progress on intentional organizational goals.</p>		
<b>OCFA’s FY 2022/23 Strategic Goals, led by Fire Chief Brian Fennessy:</b>		
1. <b><u>Our Service Delivery</u></b> <i>Goal #1: Our service delivery model is centered on continuous improvement. All services are sustainable through a range of economic environments and focused on our mission.</i>		
2. <b><u>Our People</u></b> <i>Goal #2: Recruit, retain, and promote a diverse and highly skilled workforce that is resilient, accountable, and united in our common mission.</i>		
3. <b><u>Our Technology</u></b> <i>Goal #3: Implement and utilize emerging technologies that support the needs of the organization by maximizing operational efficiency and improving quality of service.</i>		

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = Not Started, In Progress, Complete

OCFA STRATEGIC GOALS – FY 2022/23 GOALS, OBJECTIVES & PERFORMANCE MEASURES	Responsibility Designated department lead	Performance Measures Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
OCFA’s FY 2021/22 Departmental Objectives, led by Executive Management:			
1. <u>Our Service Delivery</u> <i>Goal #1: Our service delivery model is centered on continuous improvement. All services are sustainable through a range of economic environments and focused on our mission.</i>			
a. Utilize the newly formed Operations Committee and Legislative & Public Affairs Committee to facilitate policy actions by the Board of Directors related to service delivery enhancements and legislative/grant priorities.	Deputy Chiefs	TSD: TCD: CB:	7/1/22 6/30/23 Both committees serve in a manner that supports and strengthens the Board of Directors’ role to establish and approve OCFA policy matters.
b. Fulfill the board-approved OCFA Aircraft Replacement Review Process and begin implementation of board-directed actions that result from the analysis.	Deputy Chief Emergency Operations	TSD: TCD: CB:	7/1/22 6/30/23 Formal board direction is provided, budgetary actions are planned, and purchasing/financing processes are initiated by staff.
c. Prioritize and implement security improvements, as approved by the Board of Directors, which are designed to protect the provision of OCFA services and the employees who provide those services.	Logistics	TSD: TCD: CB:	7/1/22 6/30/23 Board direction is provided as a result of recommendations from the Ad Hoc Committee, with implementation actions taken by staff.
d. Collaborate with stakeholders to implement key service delivery improvements authorized in the FY 2022/23 Adopted Budget including new staffing at Fire Station 67, expanded staffing at Fire Station 42, and construction of replacement Fire Station 24.	Field Operations & Logistics	TSD: TCD: CB:	7/1/22 6/30/23 Staffing enhancements are completed and the station construction remains within established budget/timing parameters as of end of fiscal year.  <u>July 2022:</u> E42 from a PAU to PME. <u>September 2022:</u> FS67-(PME 67) / Additional PMT will be in-service, either at FS9 or FS56. Final details TBD.

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

<b>OCFA STRATEGIC GOALS – FY 2022/23 ***DRAFT***</b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
e. Develop a project charter for the OCFA JPA 2030 Renewal to include, but not limited to, exploration of alternatives for cash contract city contributions to regional CIP costs, facility maintenance, and to remove the Snowball Plan provisions if/when those goals are completed.	Deputy Chief Administration & Support	TSD: TCD: CB:	7/1/22 6/30/23 Project charter includes key milestones for achieving JPA renewal, and a deadline for completion no later than 6/30/27.
<b>2. Our People</b> <i>Goal #2: Recruit, retain, and promote a diverse and highly skilled workforce that is resilient, accountable, and united in our common mission.</i>			
a. Pursue additional actions to reduce force hiring and to improve equitable distribution of force hiring for all ranks.	HR, Field Operations, & EMS/Ops Training	TSD: TCD: CB:	7/1/22 6/30/23 The volume of force hiring is reduced as compared to FY 2021/22. June 2022: (Equitable force hire) <ul style="list-style-type: none"> <li>SA/SAR Suspended</li> <li>Suspend FC and FAE from out of county overhead assignments.</li> <li>Staff FC and FAE to assist in the field during their work week with field forces.</li> <li>Evaluating trends. July 30<sup>th</sup>.</li> </ul> Contingency Plan: (Not implemented yet) <ul style="list-style-type: none"> <li>Return of Staff/Admin FC back in the field</li> <li>Follow “Emergency Condition” procedure in SOP.</li> </ul>
b. Take action to foster career progression, encourage professional development, and develop future leaders within OCFA.	Deputy Chiefs	TSD: TCD: CB:	7/1/22 6/30/23 A variety of personnel identified by Executive Management attend a variety of development opportunities over the course of the FY.
c. Implement actions to increase the diversity of OCFA’s workforce and to improve the OCFA’s inclusive environment, including a focus	Deputy Chiefs	TSD: TCD:	7/1/22 6/30/23

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

<b>OCFA STRATEGIC GOALS – FY 2022/23 ***DRAFT***</b> GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
on cultural growth, consistent messaging, and facility accommodations.		CB:	Training, messaging, and actions emphasize the importance of a diverse and inclusive workforce.
d. Enhance the level of Behavioral Health support provided to OCFA's workforce through implementation of a new Behavioral Health Coordinator position designed to oversee, coordinate and expand program services.	Human Resources	TSD: TCD: CB:	7/1/22 6/30/23 Class specification is developed/approved, new position is filled, and incumbent assumes responsibility for coordination of services.
e. Develop policies to keep OCFA proactive with classification and compensation issues.	Human Resources	TSD: TCD: CB:	7/1/22 6/30/23 Guiding policy initiatives are developed and shared in connection with pending decisions relative to classification and compensation.
<b>3. Our Technology</b> <i>Goal #3: Implement and utilize emerging technologies that support the needs of the organization by maximizing operational efficiency and improving quality of service.</i>			
a. Complete the development of the Community Risk Reduction records management system; known as ORION. This replaces the obsolete Integrated Fire Prevention (IFP) system. The new system will support daily workload, reporting, quality control, billing functions and customer online interaction for Planning and Development, Prevention Field Services, and Wildland Pre Fire Management, thereby improving efficiencies and enhancing quality of service.	Logistics & Community Risk Reduction	TSD: TCD: CB:	7/1/22 6/30/23 The system goes live during the fiscal year, with refinement continuing, as needed, post-implementation.
b. Review the EMS System needs assessment, prioritize and identify the best technology, and develop the scope for making comprehensive EMS System upgrades.	Logistics & EMS/Ops Training	TSD: TCD: CB:	7/1/22 6/30/23 Consultant completes the needs assessment and IT/EMS jointly prepare the project scope in preparation for system purchase or development during the next fiscal year.

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

<b>OCFA STRATEGIC GOALS – FY 2022/23</b> ***DRAFT*** GOALS, OBJECTIVES & PERFORMANCE MEASURES	<b>Responsibility</b> Designated department lead	<b>Performance Measures</b> Target start date (TSD), target completion date (TCD), and completion benchmark (CB)	
c. Utilize the results of a competitive solicitation process to award a contract and implement a new technology solution enabling enhanced measurement of operational performance (call processing times, turnout times, various components of overall response time, etc.).	Logistics & Emergency Operations	TSD: TCD: CB:	7/1/22 6/30/23 A new system is implemented during the fiscal year, with refinement continuing, as needed, post-implementation. July 2022: I.T. and Operations have developed a new system to verify/validate “turnout times”, based off GPS / AVL data vs manual MDC operation. Reports will be evaluated monthly and sent to Division Chiefs for discussions with their crews.
d. Continue implementing the scope and plans developed during FY 2020/21 for targeted cyber-security upgrades, physical-security upgrades connected to technology, and continuity of operations supported by technology (data center colocation facility, backup dispatch center, and data center fire protection upgrade).	Logistics	TSD: TCD: CB:	7/1/22 6/30/23 Implementation is substantially complete for all three of these important upgrade projects.

**Performance Measure:** For quarterly updates, the measurement will be shaded to indicate status, as follows = **Not Started**, **In Progress**, **Complete**

# MINUTES ORANGE COUNTY FIRE AUTHORITY

**Board of Directors Regular and Concurrent Joint Special Meetings**  
**Thursday, June 23, 2022**  
**6:00 P.M.**

**Regional Fire Operations and Training Center Board Room**  
1 Fire Authority Road  
Irvine, CA 92602-0125

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## CALL TO ORDER

A regular meeting of the Orange County Fire Authority Board of Directors was called to order on June 23, 2022, at 6:00 p.m. by Chair Steggell.

## INVOCATION

The invocation was led by Chaplain Gerardo Arenado.

## PLEDGE OF ALLEGIANCE

Chair Steggell led the Assembly in the Pledge of Allegiance to the Flag.

## ROLL CALL

Michele Steggell, La Palma, Chair  
Ross Chun, Aliso Viejo\*  
Shelley Hasselbrink, Los Alamitos\*  
Anne Hertz-Mallari, Cypress\*  
Jessie Lopez, Santa Ana\*  
John R. O'Neill, Garden Grove\*  
Sandy Rains, Laguna Niguel\*  
Ed Sachs, Mission Viejo\*  
Dave Shawver, Stanton\*  
Mark Tettemer, Lake Forest  
Donald P. Wagner, County of Orange\*

Anthony Kuo, Irvine, Vice Chair  
Carol Gamble, Rancho Santa Margarita\*  
Noel Hatch, Laguna Woods\*  
Joe Kalmick, Seal Beach  
Austin Lumbard, Tustin\*  
Sunny Park, Buena Park\*  
Vince Rossini, Villa Park  
Don Sedgwick, Laguna Hills  
Tri Ta, Westminster\*  
Richard Viczorek, Dana Point\*  
Kathleen Ward, San Clemente\*

**Absent** Lisa Bartlett, County of Orange  
Gene Hernandez, Yorba Linda

Troy Bourne, San Juan Capistrano

## Also present were:

Fire Chief Brian Fennessy  
Deputy Chief Kenny Dossey  
Assistant Chief Jim Ruane  
Assistant Chief Lori Smith  
Assistant Counsel Barbara Raileanu  
Director of Communications Matt Olson

Deputy Chief Lori Zeller  
Assistant Chief Robert Cortez  
Assistant Chief Stephanie Holloman  
Assistant Chief TJ McGovern  
General Counsel David Kendig  
Clerk of the Authority Maria D. Huizar

*\*Those members attending via Teleconferencing.*

## REPORTS

Director Lumbard arrived at this point (6:04 p.m.).

Director Kalmick arrived at this point (6:06 p.m.).

Director Lopez arrived at this point (6:07 p.m.).

### **A. Report from the Budget and Finance Committee Chair (FILE 11.12)**

Budget and Finance Chair Tri Ta reported at its June 8, 2022, Committee meeting, the Committee reviewed and recommended to forward the Updated Cost Reimbursement Rates; FY 2021/22 Year End Budget Adjustment; and CAL FIRE Grant to OCFA for Vegetation Management to the Board of Directors for approval of the recommended actions. Also, the Committee reviewed and recommended to forward the Fire Integrated Real-time Intelligence System (FIRIS 3.0) Program Extension; the Award of RFP #SK2489b Design-Build Services for OCFA Mission Viejo Fire Station #24 and Approval of Corresponding Budget Adjustments; and the 2022 Quick Reaction Force (QRF) Program, to the Board of Directors for approval of the recommended actions. Lastly, the Committee received and filed the second phase of the OCFA Aircraft Replacement Review Process of Air Ops Services Provided, and recommended modifying the Board approved work plan by combining some of the review phases.

### **B. Report from the Fire Chief (FILE 11.14)**

Fire Chief Brian Fennessy reported on and provided a video of the upcoming Girls Empowerment Camp; an opportunity for youth to learn what it's like to be a firefighter and build self-confidence in a profession they might want for their future. Chief Fennessy also highlighted the recent Fire Captain Academy graduation, thanking Chair Steggell for attending. He noted there were 15 newly promoted Fire Captains.

## **PUBLIC COMMENTS (FILE 11.11)**

Resident with the phone number ending in 1770, commented on a recent survey conducted by the Firefighters Union Local 3631.

Cynthia, no phone number provided, commented on a zero tolerance policy, the recent Captain's Academy and promotions, and compliance of the federal law pertaining to the OCFA.

Resident with the phone number ending in 8403, addressed diversity at OCFA.

Cory Johnson, no phone number provided, spoke of the management of the recent Coastal Fire.

Kris, no phone number provided, addressed the lack of staffing at OCFA.

Resident with the phone number ending in 7575, addressed invocations at the Board meetings, number of women firefighters, survey by Local 3631, adequate facilities for women, and need to hire more minorities.

Minouche Kandel, Senior Staff Lawyer for the ACLU Foundation of Southern California, no phone number provided, spoke to gender laws and Title VII of the Civil Rights Act of 1964.

## **1. PRESENTATIONS**

No items.

Director Sachs arrived at this point (6:31 p.m.).

Director Kuo left at this point (6:32 p.m.).

## **2. CONSENT CALENDAR**

On motion of Director Sachs and second by Director Rossini, and following a roll call vote, approved 21-0 Agenda Items No. 2A-2B and 2D-2G (Directors Bartlett, Bourne, Hernandez, and Kuo absent). Agenda Item 2C was pulled for separate consideration.

Director Lopez left at this point (6:36 p.m.)

### **A. Minutes for the Board of Directors (FILE 11.06)**

Action: Approve the Minutes for the May 26, 2022, Regular and Concurrent Joint Special Meeting as submitted.

### **B. CAL FIRE Grant to OCFA for Vegetation Management (FILE 16.0212)**

Action: Approve a budget adjustment to the FY 2022/23 General Fund (121) budget to increase revenues and expenditures by \$1,225,000 for the OCFA Vegetation Management grant.

### **C. FY 2021/22 Year End Budget Adjustment (FILE 15.04)**

Director Tettemer pulled the item for clarification.

On motion of Director Tettemer and second by Director Ward, and following a roll call vote, approved Agenda Item 2C 20-0 (Directors Bartlett, Bourne, Hernandez, Kuo, and Lopez absent) to approve and authorize FY 2021/22 budget adjustments as detailed in this

report.

Note: The ABH adjustment detail on the staff report was corrected to reflect \$4,542,894 instead of \$4,415,524. However, the Board approved total general fund adjustment remained unchanged.

**D. Updated Cost Reimbursement Rates (FILE 15.12)**

Action: Approve and adopt the proposed Cost Reimbursement Rate schedules to be effective July 1, 2022.

**E. Award of RFP# SK2489b Design-Build Services for OCFA Mission Viejo Fire Station #24 and Approval of Corresponding Budget Adjustments (FILE 19.07C24)**

Actions:

1. Direct staff to increase the FY 2021/22 Fire Stations and Facilities CIP in the amount of \$3,000,000 for one-time additional funding for Fire Station #24 to add station capacity for both an Engine and Truck company.
2. Approve and authorize the Purchasing Manager to execute the proposed Design-Build Services Agreement for OCFA Mission Viejo Station #24 with EC Constructors, Inc. in an amount not to exceed \$14,996,489.

**F. Award of Public Works Contract for Uninterruptible Power Supply System Upgrade – RFOTC (FILE 19.07B10)**

Actions:

1. Approve the plans and specifications for the installation and replacement of the existing Uninterruptible Power Supply System at the RFOTC.
2. Accept Ferreira Coastal Construction Company bid dated April 19, 2022.
3. Approve and award the public works contract to Ferreira Coastal Construction Company in the amount of \$602,311.

**G. Award of Public Works Contract for Installation of Clean Agent Fire Suppression System – RFOTC (FILE 19.07B30)**

Actions:

1. Approve the plans and specifications for the installation of a Clean Agent Fire Suppression System at the RFOTC.
2. Accept Facilities Protection Systems bid dated April 5, 2022.
3. Approve and award the public works contract to Facilities Protection Systems in the amount of \$319,992.

## **RECESS TO CLOSED SESSION (FILE 11.15)**

General Counsel David Kendig reported the Board would recess to Closed Session to consider one item on the Closed Session agenda. He stated the purpose of meeting in closed session for this item is the exposure of liability and potential litigation related to topics where the agency has already experienced some litigation.

## **RECONVENE TO OPEN SESSION**

## **CLOSED SESSION REPORT (FILE 11.15)**

General Counsel David Kendig reported the Board of Directors determined by a vote of 18-0 that a Closed Session discussion pursuant to subdivision (d) of Section 54956.9 of the Government Code was not authorized; no Closed Session occurred with the following Board Members absent, Hernandez, Bartlett, Bourne, Shawver, Lopez, Park, and Kuo.

Director Kuo arrived in person at this point (7:09 p.m.).

## **3. DISCUSSION ITEMS**

### **A. OCFA Diversity, Equity and Inclusion Initiatives from 2019 Collaboration with ACLU to 2022 Climate Survey (FILE 12.02D6)**

Assistant Chief Stephanie Holloman presented the OCFA Diversity, Equity and Inclusion Initiatives from 2019 Collaboration with ACLU to 2022 Climate Survey, along with a PowerPoint presentation.

On motion of Director Ward and second by Director Sedgewick, and following a roll call vote, approved 20-0 (Directors Bartlett, Bourne, Hernandez, Lopez, and Shawver absent) to receive and file the report.

### **B. Approval of Memorandum of Understanding with the Orange County Fire Authority Management Association (FILE 17.18)**

Assistant Chief/Human Resources Director Stephanie Holloman presented the Approval of Memorandum of Understanding with the Orange County Fire Authority Management Association.

On motion of Director Kuo and second by Director Kalmick, and following a roll call vote, approved 20-0 (Directors Bartlett, Bourne, Hernandez, Lopez, and Shawver absent) to approve the proposed Memorandum of Understanding between the Orange County Fire

Authority and the Orange County Fire Authority Management Association, for a term of June 23, 2022, to June 22, 2023.

**C. Fire Integrated Real-time Intelligence System (FIRIS) 3.0 Program Extension (FILE 18.09D)**

Fire Chief Brian Fennessy presented the Fire Integrated Real-time Intelligence System (FIRIS) 3.0 Program Extension.

On motion of Director Sedgwick and second by Director Rossini, and following a roll call vote, approved 20-0 (Directors Bartlett, Bourne, Hernandez, Lopez, and Shawver absent) to:

1. Approve and authorize a budget adjustment to increase revenue and appropriations in the FY 2022-23 General Fund (121) budget by an additional \$9,789,565 for the extension of the FIRIS 3.0 Program up to an additional six months from July 1 through December 31, 2022.
2. Approve and authorize the Purchasing Manager to either amend or enter into new FIRIS-related vendor contracts by the individual amounts needed in support of the FIRIS 3.0 Program extension, so long as the aggregate value of the increase does not exceed the revised program budget (see table).
3. Approve and authorize the Purchasing Manager to issue an amendment to the Professional Services Agreement with AEVEX to modify the scope of services to allow for the installation and utilization of additional sensor technology, as requested by Cal OES.

**D. 2022 Quick Reaction Force (QRF) Program (FILE 18.09D)**

Fire Chief Brian Fennessy presented the 2022 Quick Reaction Force (QRF) Program.

Brief discussion ensued.

On motion of Director Chun and second by Director Kalmick, and following a roll call vote, approved 20-0 (Directors Bartlett, Bourne, Hernandez, Lopez, and Shawver) to:

1. Approve the Funding Agreement with Southern California Edison in a form substantially consistent with the attachment to accept funding in the amount of \$9,018,100 to fund the fixed-cost portion of the 165-day 2022 Quick Reaction Force Program.
2. Approve and authorize the Purchasing Manager to execute the Public Aircraft Lease and Service Agreement with Coulson Aviation (USA), Inc. in a form substantially consistent with the attachment utilizing the sole source procurement provision in the Purchasing Ordinance for the provision of aircraft and other operational related services in an amount not to exceed \$7,974,110 for the 2022 QRF Program term with the option to renew the agreement for two additional program terms, at the sole discretion of OCFA and contingent upon the identification of additional SCE funding.

3. Approve and authorize the Purchasing Manager to enter into a Professional Services Agreement with Perimeter Solutions in a form substantially consistent with the attachment utilizing the sole source procurement provision in the Purchasing Ordinance for the provision of a mobile fire-retardant plant and related services in an amount not to exceed \$1,655,000 for the 2022 QRF Program term.
4. Approve and authorize the Purchasing Manager to enter into new Professional Services Agreements with the Air Tactical Group Supervisors (ATGS') in a form substantially consistent with the attachment at an amount not to exceed \$250,000 each for the 2022 QRF Program term, with an aggregate program spending cap not to exceed \$660,000.
5. Approve and authorize the Purchasing Manager to enter into a new Professional Services Agreement for Program Manager Services with Scott Jones, in a form substantially consistent with the attachment and an aggregate program spending cap not to exceed \$250,000 for the 2022 QRF Program term.
6. Approve and authorize a FY 2022/23 General Fund (121) budget adjustment to recognize funding from SCE for a revenue increase of \$9,018,100 and to increase appropriations by the same amount.
7. Approve the updated Cost Reimbursement Rate schedule to include the CH-47 Very Large Helitanker, S-61 Helitanker, and S-76 Helitanker daily stand-by and hourly flight rates, and mobile fire retardant plant daily stand-by and hourly rates, and hourly rates for Program Manager and Air Tactical Group Supervisors to be effective June 24, 2022.
8. Adopt an exemption from the California Environmental Quality Act (CEQA) pursuant to Title 14, California Code of Regulations, Section 15301 (Existing Facilities) and direct staff to file a Notice of Exemption.
9. Approve and authorize the Fire Chief to enter into an agreement with the Los Alamitos Joint Forces Training base in a form substantially consistent with the attachment for a program spending cap not to exceed \$150,000 for the 2022 QRF Program term.

## **RECESS THE REGULAR MEETING OF THE BOARD OF DIRECTORS**

## **CALL TO ORDER THE CONCURRENT JOINT SPECIAL MEETINGS OF THE: BOARD OF DIRECTORS, EXECUTIVE COMMITTEE, BUDGET & FINANCE COMMITTEE, AND HUMAN RESOURCES COMMITTEE**

### **A. Findings Required by AB 361 for the Continued Use of Teleconferencing for Meetings (FILE 11.03)**

General Counsel David Kendig presented the Findings Required by AB 361 for the Continued Use of Teleconferencing for Meetings.

On motion of Director Wagner and second by Director Chun, and following a roll call vote, approved 14-6 (Directors Hertz-Mallari, Rossini, Sachs, Tettemer, Kuo, and Steggell opposed, Directors Bartlett, Bourne, Hernandez, Lopez, and Shawver absent) to select Option #1 to make the following findings: A state of emergency has been proclaimed by California's Governor due to the COVID-19 pandemic and continues in effect; and

- a. The Board of Directors and each Committee has reconsidered the circumstances of the emergency; and
- b. State and local officials continue to recommend measures to promote social distancing to slow the spread of COVID-19.

**ADJOURN THE CONCURRENT JOINT MEETINGS AND RECONVENE TO THE REGULAR MEETING OF THE BOARD OF DIRECTORS**

**BOARD MEMBER COMMENTS**

The Board Members offered no comments.

**RECESS TO CLOSED SESSION (FILE 11.15)**

General Counsel David Kendig reported the Board would be convening to Closed Session to consider items CS1, CS2, and CS3 as they appear on the agenda including conference with its labor negotiator Peter Brown.

**CS1. CONFERENCE WITH LABOR NEGOTIATORS** pursuant to Government Code Section 54957.6

Negotiators:

Peter Brown, Liebert Cassidy Whitmore  
and Stephanie Holloman, Assistant Chief/Human  
Resources Director

Employee Organizations:

- Orange County Professional Firefighters  
Association, IAFF - Local 3631,
- Orange County Employees Association (OCEA),  
and
- Orange County Fire Authority Management  
Association (OCFAMA)

**CS2. CONFERENCE WITH LEGAL COUNSEL - PUBLIC EMPLOYEE PERFORMANCE EVALUATION** pursuant to Government Code Section 54954.5

Position:

Fire Chief

**CS3. CONFERENCE WITH LEGAL COUNSEL - PUBLIC EMPLOYEE PERFORMANCE EVALUATION** pursuant to Government Code Section 54954.5

Position:

General Counsel

**CS4. CONFERENCE WITH LEGAL COUNSEL - SIGNIFICANT EXPOSURE TO LITIGATION** pursuant to paragraph (2) and (3) of subdivision (d) of Section 54956.9 of the Government Code:

Two (2) Cases

Minutes

OCFA Board of Directors Concurrent Joint Special Meeting

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**CS5. CONFERENCE WITH LEGAL COUNSEL – POSSIBLE INITIATION OF LITIGATION** pursuant to paragraph (4) of subdivision (d) of Section 54956.9 of the Government Code: One (1) Case

**RECONVENE TO OPEN SESSION**

**CLOSED SESSION REPORT (FILE 11.15)**

General Counsel David Kendig stated the Board gave direction to their labor negotiator otherwise, there was no reportable action.

**ADJOURNMENT** – Chair Steggell adjourned the meeting at 10:28 p.m. The next meeting of the Orange County Fire Authority Board of Directors will be a Concurrent Joint Special Meeting of the Board and all Committees on Thursday, July 14, 2022, at 6:00 p.m.

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Maria D. Huizar, CMC  
Clerk of the Authority



Orange County Fire Authority  
**AGENDA STAFF REPORT**

Board of Directors Meeting  
July 28, 2022

Agenda Item No. 2B  
Consent Calendar

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**Proclamation for Fire Prevention Week**

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**Contact(s) for Further Information**

Matt Olson, Director of Communications  
Corporate Communications

[MattOlson@ocfa.org](mailto:MattOlson@ocfa.org)

714.573.6028

Sophia Champieux, Public Relations  
Manager / Corporate Communications

[SophiaChampieux@ocfa.org](mailto:SophiaChampieux@ocfa.org)

714.573.6752

**Summary**

Annually, the Orange County Fire Authority proclaims the week that includes October 9<sup>th</sup> as Fire Prevention Week.

**Prior Board/Committee Action**

Not applicable.

**RECOMMENDED ACTION(S)**

Approve proclamation designating October 9-15, 2022, as Fire Prevention Week.

**Impact to Cities/County**

Not Applicable.

**Fiscal Impact**

There is no fiscal impact associated with this item.

**Background**

Since 1922, there has been a public observance of Fire Prevention Week. In 1925, President Calvin Coolidge proclaimed Fire Prevention Week a national observance, making it the longest-running public health observance in our country. During Fire Prevention Week, children and adults learn how to prevent fires and what safeguards to take if a fire starts. Firefighters and community educators provide lifesaving public education to prevent fires from starting and drastically decrease injuries and casualties caused by fires.

Fire Prevention Week is observed each year during the week of October 9th in commemoration of the Great Chicago Fire, which began on October 8, 1871, and caused devastating loss of life and damage. This horrific blaze killed more than 250 people, left 100,000 homeless, destroyed more than 17,400 structures, and burned more than 2,000 acres of land.

This year, Fire Prevention Week will be observed October 9-15, 2022. This year's campaign, "Fire won't wait. Plan your escape" works to remind us to educate everyone about simple but important actions they can take to keep themselves and those around them safe from home fires like creating a home escape plan. When an alarm makes noises – you must take action. We encourage Orange County residents to check their alarm systems and to support the public safety activities and efforts during Fire Prevention Week 2022.

**Attachment(s)**

Proposed Proclamation

## **PROCLAMATION FIRE PREVENTION WEEK**

**WHEREAS**, fire is a serious public safety concern both locally and nationally, and homes are where people are at greatest risk from fire; and

**WHEREAS**, working smoke alarms in the home can reduce the risk of dying in a fire by more than half. An average of 358,500 homes experience a structural fire each year; and

**WHEREAS**, more than a third of home fire deaths occur in homes with no smoke alarms. The risk of dying in reported home structure fires is 55 percent lower in homes with working smoke alarms; and

**WHEREAS**, in 2021 there was 100 cooking fires across Orange County. In 2019, California was in the top three states in the US with the largest numbers of fire deaths; and

**WHEREAS**, Orange County residents should install working smoke alarms on every level of the home, in the hallway outside the sleeping areas, and in each bedroom, check their smoke alarms monthly, replace batteries regularly, replace smoke alarms every 10 years and create and practice their home escape plans; and

**WHEREAS**, Orange County residents are responsive to public education and outreach measures and can take personal steps to increase their safety from fire, especially in their homes; and

**WHEREAS**, the 2022 Fire Prevention Week theme, “Fire won’t wait. Plan your escape” effectively serves to remind us to educate everyone about simple but important actions they can take to keep themselves and those around them safe from home fires

**NOW, THEREFORE BE IT RESOLVED**, that the Orange County Fire Authority Board of Directors does hereby declare October 9-15, 2022, as “Fire Prevention Week” and urge Orange County residents to plan and practice a home fire escape. Everyone needs to be prepared in advance, so that they know what to do when the smoke alarm sounds and to support the many public safety activities and efforts of Orange County Fire Authority during Fire Prevention Week 2022.



**Orange County Fire Authority**  
**AGENDA STAFF REPORT**

**Board of Directors Meeting**  
**July 28, 2022**

**Agenda Item No. 2C**  
**Consent Calendar**

**Award of Public Works Contract for**  
**Security Cameras and Access Control Systems Upgrade - RFOTC**

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**Contact(s) for Further Information**

Jim Ruane, Assistant Chief  
Logistics Department

[jimruane@ocfa.org](mailto:jimruane@ocfa.org)

714.573.6028

Joel Brodowski, Information Technology  
Division Manager/Logistics Department

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714.573.6421

**Summary**

This agenda item seeks approval of the plans and specifications for the installation and upgrade of existing Security Cameras and Access Control Systems at the RFOTC and award of a public works contract to Convergent Technologies, the lowest responsive and responsible bidder, responding to bid RO2526A.

**Prior Board/Committee Action**

None

**RECOMMENDED ACTION(S)**

1. Approve the plans and specifications for the installation and upgrade of existing Security Cameras and Access Control Systems at the RFOTC.
2. Accept Convergent Technologies bid dated March 30, 2022.
3. Approve and award the public works contract to Convergent Technologies in the amount of \$549,588.

**Impact to Cities/County**

Not Applicable.

**Fiscal Impact**

Funding for this contract is available in the existing Logistics Department Capital Improvement Budget projects Fund 123, Infrastructure Security Enhancements (P247).

Increased Cost Funded by Structural Fire Fund: \$0

Increased Cost Funded by Cash Contract Cities: \$0

**Background**

This project is part of a larger security upgrade effort at the RFOTC. The existing security cameras, door and gate security access card readers were installed during construction of the RFOTC in 2004. The card reader system is outdated, making it unreliable and difficult to maintain, and the video system's low-resolution is inadequate for security monitoring. This project will replace all existing security cameras and increase the quantity to over 40 high-definition cameras for significantly improved surveillance and recording capabilities in the RFOTC parking lots, Fleet

yard, fueling pumps, public spaces, sensitive areas like the Emergency Command Center and Data Center, and all security gate entrances. All existing door security access card readers will also be replaced, and additional specified doors will have security access card readers installed. A new control system will be installed with improved system management and tracking capabilities, allowing detailed reporting of access granted to card holders.

### ***Invitation for Bids (IFB) Process***

On February 24, 2022, staff issued IFB RO2526A to solicit competitive bids for the installation and upgrade of existing Access Control Systems at the RFOTC. A mandatory job-walk was held on March 9, 2022, with bids due on March 30, 2022. Five construction bids were received and reviewed by staff for responsiveness, and then vetted for bidder qualifications. All bidders were deemed responsive and qualified. See Attachment One for a detailed report of the responsive contractors' qualifications.

<b>Bidder</b>	<b>Lump Sum Pricing</b>
Convergent Technologies	\$549,588.00
ADT, LLC	\$572,664.59
AVS Technology Inc.	\$599,795.98
Birdi & Associates, Inc.	\$612,752.78
Securitas Electronics Security, Inc.	\$903,148.40

Additionally, staff and the project engineer reviewed the pricing submitted and confirmed the reasonableness of the apparent lowest bidder's pricing based on the engineer's estimate, individual cost categories, and comparison to other bidders' pricing. See Attachment Two for the Bid Tabulation with cost category comparison.

Subsequent to this review, a discussion was conducted between Convergent Technologies and the OCFA project team to confirm specifications, scope of work, and construction schedule of the project as provided in the bid submittal. As a result of the pre-qualification process, price analysis, and confirmation of the specifications, scope of work, and project schedule, Convergent Technologies is deemed the lowest responsive and responsible bidder.

### ***Recommendation***

Based on the bid results, staff recommends contract award to Convergent Technologies as the lowest responsive responsible bidder based on the base bid in the amount of \$549,588.

### ***Attachment(s)***

1. Executive Summary
2. Bid Tabulation
3. Proposed Public Works Contract (*Contract posted online and hard copy available in the Clerk's Office upon request*)



# **Executive Summary: Formal Public Works Bid** **Bid #RO2526A : Access Control Systems Upgrade - RFOTC**

## **Section 1. Project Information**

IFB Issue Date	2/24/2022	IFB Due Date	3/30/2022
Vendors Notified	897	Bids Received	11
Job Walk	3/9/2022	Job Walk Attendees	21
Addenda Issued	1	Engineer's Estimate	\$528,000
Project Description:	Upgrade of existing Access Control Systems at RFOTC		
Solicitation Method:	Due to the public works nature of this project and the estimated value exceeding \$200,000, this project was solicited through the Formal Invitation for Public Works bid utilizing the one-step pre-qualification process.		

## **Section 2. Pre-Qualification of Responsive Bidders**

<b>Convergent Technologies</b>		<input checked="" type="checkbox"/> <b>Qualified</b> <input type="checkbox"/> <b>Not Qualified</b>
<b>Contractor Reputation:</b> <i>Labor Compliance, Safety Record, Previous Disqualifications, Civil Wage Penalties, Convictions</i>		<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Notes:</b>	No findings.	
<b>Contractor Capability to Perform Work:</b> <i>CSLB Licensing, DIR Registration, Surety Information, Prior Claims, Completion of Similar Work, Ability to Complete Project, Prior Contract Termination</i>		<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Prior &amp; Current Contracts:</b>	<u>Prior:</u> <ul style="list-style-type: none"> <li>- Port of Los Angeles – Surveillance system, video analytics, video wall, access control system.</li> <li>- City of Irvine Police Dept. – City-wide video surveillance, access control, intercom systems.</li> <li>- City of Temecula/ Sheriff – City-wide wired and wireless video, video wall, access control system.</li> </ul> <u>Current:</u> <ul style="list-style-type: none"> <li>- City of Irvine – City-wide video surveillance</li> <li>- Long Beach Airport – Physical security systems</li> <li>- Port of Los Angeles – Video surveillance system</li> <li>- City of Temecula – City-wide video surveillance</li> <li>- Thousands of projects being maintained and operated</li> </ul>	
<b>Disposition of References:</b>		<input checked="" type="checkbox"/> Favorable <input type="checkbox"/> Unfavorable
<b>References Provided:</b>	<ul style="list-style-type: none"> <li>• Irvine Police Department</li> <li>• Long Beach Airport - Scott Korobkin</li> <li>• Port of Los Angeles</li> <li>• City of Temecula</li> </ul>	<b>No. References that Responded:</b>  <div>3</div>
<b>Notes:</b>	Per references contractor performed and completed work as agreed, were easy to reach for communication, project was completed within time and budget. Contractor would be recommended for future projects.	

<b>AVS Technology</b>			<input checked="" type="checkbox"/> <b>Qualified</b> <input type="checkbox"/> <b>Not Qualified</b>
<b>Contractor Reputation:</b> <i>Labor Compliance, Safety Record, Previous Disqualifications, Civil Wage Penalties, Convictions</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Notes:</b>	No findings.		
<b>Contractor Capability to Perform Work:</b> <i>CSLB Licensing, DIR Registration, Surety Information, Prior Claims, Completion of Similar Work, Ability to Complete Project, Prior Contract Termination</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Prior &amp; Current Contracts:</b>	<u>Prior:</u> <ul style="list-style-type: none"> <li>- Garfield Community Housing – CCTV</li> <li>- New Jersey Institute of Technology – Security system</li> <li>- North Bergen Housing Authority – Security system</li> <li>- Woodridge Police Department – Security system</li> </ul> <u>Current:</u> <ul style="list-style-type: none"> <li>- Western Wine – Security equipment install</li> <li>- Digital – Security equipment install</li> </ul>		
<b>Disposition of References:</b>			<input checked="" type="checkbox"/> Favorable <input type="checkbox"/> Unfavorable
<b>References Provided:</b>	New Jersey Institute of Technology Digital Realty Trust A Duie Pyle Panasonic NA Western Wine	<b>No. References that Responded:</b>	3
<b>Notes:</b>	Per references contractor performed and completed work as agreed, were easy to reach for communication, project was completed within time and budget. Contractor would be recommended for future projects.		
<b>ADT Commercial, LLC</b>			<input checked="" type="checkbox"/> <b>Qualified</b> <input type="checkbox"/> <b>Not Qualified</b>
<b>Contractor Reputation:</b> <i>Labor Compliance, Safety Record, Previous Disqualifications, Civil Wage Penalties, Convictions</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Notes:</b>	No findings.		
<b>Contractor Capability to Perform Work:</b> <i>CSLB Licensing, DIR Registration, Surety Information, Prior Claims, Completion of Similar Work, Ability to Complete Project, Prior Contract Termination</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Prior &amp; Current Contracts:</b>	<u>Prior:</u> <ul style="list-style-type: none"> <li>- Centinela Valley USD – Access control system expansion</li> <li>- Fullerton Airport – Airport security upgrade</li> <li>- Santa Ana USD -CCTV camera upgrade</li> </ul> <u>Current:</u> <ul style="list-style-type: none"> <li>- Verizon – multiple</li> <li>- Essedent – multiple</li> <li>- Smart and Final – multiple</li> <li>- Others - multiple</li> </ul>		
<b>Disposition of References:</b>			<input checked="" type="checkbox"/> Favorable <input type="checkbox"/> Unfavorable
<b>References Provided:</b>	Centinela Valley Unified School District Fullerton Airport Santa Ana Unified School District	<b>No. References that Responded:</b>	1
<b>Notes:</b>	Per reference contractor performed and completed work as agreed, within a reasonable amount of time and budget.		

<b>Birdi Systems, Inc.</b>			<input checked="" type="checkbox"/> <b>Qualified</b> <input type="checkbox"/> <b>Not Qualified</b>
<b>Contractor Reputation:</b> <i>Labor Compliance, Safety Record, Previous Disqualifications, Civil Wage Penalties, Convictions</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Notes:</b>	No findings.		
<b>Contractor Capability to Perform Work:</b> <i>CSLB Licensing, DIR Registration, Surety Information, Prior Claims, Completion of Similar Work, Ability to Complete Project, Prior Contract Termination</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Prior &amp; Current Contracts:</b>	<u>Prior:</u> <ul style="list-style-type: none"> <li>- Ontario Airport – Access control system install/support</li> <li>- Los Angeles Airport- Several (Security systems upgrades/installs)</li> </ul> <u>Current:</u> <ul style="list-style-type: none"> <li>- Ontario Airport – Access control system install/support</li> <li>- Los Angeles Airport- Several (Security systems upgrades/installs)</li> <li>- Foothill Transit – Maintenance/ repair of security systems</li> <li>- LA Metro – Engineering support</li> <li>- Stockton Airport – Security system upgrade</li> </ul>		
<b>Disposition of References:</b>			<input checked="" type="checkbox"/> Favorable <input type="checkbox"/> Unfavorable
<b>References Provided:</b>	Ontario Airport LA Airport LA Airport	<b>No. References that Responded:</b>	1
<b>Notes:</b>	Per reference, contractor performed and completed work as agreed, were easy to reach for communication, project was completed within time and budget. Contractor would be recommended for future projects.		
<b>Securitas Electronic Security, Inc.</b>			<input checked="" type="checkbox"/> <b>Qualified</b> <input type="checkbox"/> <b>Not Qualified</b>
<b>Contractor Reputation:</b> <i>Labor Compliance, Safety Record, Previous Disqualifications, Civil Wage Penalties, Convictions</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Notes:</b>	No findings.		
<b>Contractor Capability to Perform Work:</b> <i>CSLB Licensing, DIR Registration, Surety Information, Prior Claims, Completion of Similar Work, Ability to Complete Project, Prior Contract Termination</i>			<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory
<b>Prior &amp; Current Contracts:</b>	<u>Prior:</u> <ul style="list-style-type: none"> <li>- City of Rialto – CCTV, access control, intrusion alarms</li> <li>- US Renal Care – Customized security services (video, security alarms, fire alarms, intercom)</li> <li>- Martin County – Access control, gate protection, CCTV, video intercom, intrusion detection, monitoring</li> </ul> <u>Current:</u> <ul style="list-style-type: none"> <li>- Same as above</li> </ul>		
<b>Disposition of References:</b>			<input checked="" type="checkbox"/> Favorable <input type="checkbox"/> Unfavorable
<b>References Provided:</b>	Martin County US Renal Care City of Rialto	<b>No. References that Responded:</b>	2
<b>Notes:</b>	Per references contacted, contractor performed and completed work as agreed, were easy to reach for communication, project was completed within time and budget. Contractor would be recommended for future projects.		

**Section 3. Bid Pricing** *See attached Bid Tabulation for Detailed Cost Comparison***Lowest Responsive, Responsible Bidder:**

Convergent Technologies

**Comparison to Engineer's Estimate:**

4% Higher

**Pricing Determination:**☒ Reasonable ☐ Not Reasonable**Section 4. Recommendation for Award****Award Documentation:****Payment Bond:**☒ Yes ☐ No**Performance Bond:**☒ Yes ☐ No**Award Certifications:**☒ Yes ☐ No**Insurance Certificates:**☒ Yes ☐ No**Discussion:**

All bids were reviewed by the project engineer and additional research was completed by OCFA staff to confirm responsiveness and responsibility of the bid and qualifications of the apparent low-bidder, Convergent Technologies. A discussion was conducted with the apparent low bidder, engineer of record, and OCFA staff for the project after bid opening to confirm specifications, scope of work, and construction schedule of the project as provided in the bid submittal.

OCFA staff also verified the current California State License Board (CSLB) license statuses and registration with the Department of Industrial Relations (DIR) for Convergent Technologies and all listed subcontractors as follows:

Contractor	CSLB License Number, Classification, and Expiration	DIR Registration Number
Southern California Security Centers, Inc.	533915, C-28, 7/31/2022	1000013405
Federal Technology Solutions	865369, B, C10, C7, 10/31/2023	1000003927

As a result of the additional research, meeting, and verified qualifications of the apparent low bidder, its bid was accepted.

RO2526A - Access Control Systems Upgrade - RFOTC	Convergent Technologies			ADT Commercial, Inc.			AVS Technologies		
	Total Bid	Difference from Lowest Bid	Difference from Engineer's Estimate	Total Bid	Difference from Lowest Bid	Difference from Engineer's Estimate	Total Bid	Difference from Lowest Bid	Difference from Engineer's Estimate
	\$549,588.00	\$0.00	\$21,588.00	\$572,664.59	\$23,076.59	\$44,664.59	\$607,035.98	\$57,447.98	\$79,035.98
Line Item Subtotal	Line Item Subtotal			Line Item Subtotal	Difference from Lowest Bid			Line Item Subtotal	Difference from Lowest Bid
Category I: Labor Classifications (Prevailing Wage)	\$192,791.68			\$221,900.00	\$29,108.32			\$200,975.00	\$8,183.32
Category II: Permanent & Non-Permanent Materials/Supplies	\$0.00			\$19,000.00	\$19,000.00			\$6,240.00	\$6,240.00
Category III: Equipment	\$263,096.32			\$9,000.00	-\$254,096.32			\$338,347.72	\$75,251.40
Category IV: Overhead & Indirect Costs	\$93,700.00			\$99,829.59	\$6,129.59			\$60,473.26	-\$33,226.74
Category V: Profit (% As written)	20.00%			No Response				25.00%	5.00%
Category VI: Permits/Fees	\$0.00			\$8,500.00	-\$8,500.00			\$1,000.00	\$1,000.00
Notes:	Price is 4% higher than engineer's estimate. Bid price deemed reasonable. The cost for permits is incorporated into the Total Bid amount.			Price is 8.5% higher than engineer's estimate. Bidder did not itemize profit, however the difference between all other line items and the lump sum total is \$214,435.			Price is 13.6% higher than engineer's estimate. The figure noted for Category V is for comparison purposes. This amount is blended into the totals listed for the other Categories.		

RO2526A - Access Control Systems Upgrade - RFOTC	Birdi Systems, Inc.			Securitas Electronic Security, Inc.		
	Total Bid	Difference from Lowest Bid	Difference from Engineer's Estimate	Total Bid	Difference from Lowest Bid	Difference from Engineer's Estimate
	\$612,752.78	\$63,164.78	\$84,752.78	\$903,248.40	\$353,660.40	\$375,248.40
Line Item Subtotal	Line Item Subtotal	Difference from Lowest Bid		Line Item Subtotal	Difference from Lowest Bid	
Category I: Labor Classifications (Prevailing Wage)	\$175,872.33	-\$16,919.35		\$378,056.59	\$185,264.91	
Category II: Permanent & Non-Permanent Materials/Supplies	\$375,713.45	\$375,713.45		\$17,353.14	\$17,353.14	
Category III: Equipment	\$0.00	-\$263,096.32		\$412,376.19	\$149,279.87	
Category IV: Overhead & Indirect Costs	\$16,800.00	-\$76,900.00		\$92,962.48	-\$737.52	
Category V: Profit (% As written)	7.50%	-12.50%		20.00%	0.00%	
Category VI: Permits/Fees	\$0.00	\$0.00		\$2,500.00	\$2,500.00	
Notes:	Price is 16% higher than engineer's estimate. The cost for permits is incorporated into the Total Bid amount.			Price is 71% higher than engineer's estimate. The figure noted for Category V is for comparison purposes. This amount is blended into the totals listed for the other Categories.		

**4F: CONTRACT AGREEMENT**

THIS CONTRACT AGREEMENT (hereinafter "Agreement" or "Contract" or "Contract Agreement") is made and entered into for the above identified Project this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, BY AND BETWEEN THE **ORANGE COUNTY FIRE AUTHORITY** (hereinafter "OCFA"), and Convergent Technologies LLC, as CONTRACTOR.

WITNESSETH that OCFA and CONTRACTOR have mutually agreed as follows:

[SECTIONS 1 – 40 are set forth in the Solicitation Information and Instructions to Bidders above.]

**41 – PROJECT MANUAL**

This Contract consists of the Project Manual. The Project Manual includes the following component parts thereof, each of which is a part of this Contract:

- (1) RO2512 - Notice Inviting Bids
- (2) RO2512 - Instructions to Bidders
- (3) RO2512 - Bid Documents
- (4) RO2512 - Contract Documents
- (5) RO2512 - Technical Specifications
- (6) Any and all addenda and other supplemental notices and agreements issued by OCFA clarifying, amending, or extending the work contemplated as may be required to ensure its completion in an acceptable manner

All of the above component documents of the Project Manual are complementary and Work required by one of the above documents shall be done as if required by all. In the event of conflict among the component documents of the Project Manual, the conflict shall be resolved as set forth in Section 52 of the General Conditions.

**42 - CONTRACT PRICE**

OCFA shall pay to Contractor as full consideration for the faithful performance of the Contract, the sum of Five Hundred Forty-Nine Thousand, Five Hundred Eighty-Eight DOLLARS (\$549,588). This sum is the total amount stipulated in the Bid. Payment shall be made as set forth in the General Conditions.

**43 – CONTRACTOR'S COMMITMENT TO FURNISH MATERIALS AND WORK**

For and in consideration of the payments and agreements to be made and performed by OCFA, CONTRACTOR agrees to furnish all materials and perform all work required for the above identified Project, and to fulfill all other obligations as set forth in the aforesaid Contract Documents.

**44 – CONTRACTOR'S COMMITMENT TO PRICES**

CONTRACTOR agrees to receive and accept the prices set forth in the Proposal as full compensation for furnishing all materials, performing all work, and fulfilling all obligations hereunder. Said compensation shall cover all expenses, losses, damages, and consequences arising out of the nature of work during its progress or prior to its acceptance including those for well and faithfully completing the work and the whole thereof in the manner and time specified in the aforesaid Contract Documents; and also including those arising from actions of the elements, unforeseen difficulties or obstructions encountered in the prosecution of the work, suspension or discontinuance of the work, and all other unknowns or risks of any description connected with the work.

44.1 - NO INCREASE IN BID COST DUE TO SUBSTITUTION OF SUBCONTRACTOR. In the event that a subcontractor is substituted in any manner for any reason, any increased cost related to such substitution shall be the sole responsibility of the Contractor. Such substitution shall not cause or result, directly or indirectly, in any increase in the bid price. This subsection shall not be construed to be prior consent to substitution of subcontractors, nor to authorize any substitution that is prohibited by the Subletting and Subcontracting Fair Practices Act.

#### 45 – PAYMENT TO CONTRACTOR

OCFA hereby promises and agrees to employ, and does hereby employ, CONTRACTOR to provide the materials, do the work, and fulfill the obligations according to the terms and conditions herein contained and referred to, for the prices aforesaid, and hereby contracts to pay the same at the time, in the manner, and upon the conditions set forth in the Contract Documents.

#### 46 - WORKER'S COMPENSATION

CONTRACTOR acknowledges the provisions of the Labor Code requiring every employer to be insured against liability for workers' compensation, or to undertake self-insurance in accordance with the provisions of that Code, and certifies compliance with such provisions.

#### 47 – PRINCIPAL INTERESTS

CONTRACTOR affirms that the signatures, titles, and seals set forth hereinafter in execution of this Agreement represent all individuals, firm members, partners, joint ventures, and/or corporate officers having a principal interest herein.

#### 48 – COMPLIANCE WITH FEDERAL IMMIGRATION AND NATIONALITY ACT

CONTRACTOR hereby represents and warrants that it will comply with all of the provisions of the Federal Immigration and Nationality Act, 8 U.S.C. Section 1101, *et seq.*, as amended, and in connection therewith, shall not employ unauthorized aliens as defined therein. Should CONTRACTOR so employ such unauthorized aliens for the performance of any work and/or services under this Agreement, and should any liability or sanctions be imposed against OCFA for such use of unauthorized aliens, CONTRACTOR hereby agrees to defend and indemnify OCFA against any and all liabilities, actions, suits, claims, demands, losses, costs, judgments, arbitration awards, settlements, damages, demands, orders, or penalties which arise out of or are related to such employment, together with any and all costs, including attorneys' fees, incurred by OCFA.

#### 49 – CERTIFICATION RE DEBARMENT

CONTRACTOR confirms that neither CONTRACTOR nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts from United States (U.S.) federal government procurement or nonprocurement programs, or are listed in the List of Parties Excluded from Federal Procurement or Nonprocurement Programs (<http://www.sam.gov/>) issued by the U.S. General Services Administration. "Principals" means officers, directors, owners, partners, and persons having primary management or supervisory responsibilities within a business entity (e.g. general manager, plant manager, head of a subsidiary, division or business segment, and similar positions). CONTRACTOR will provide immediate written notification to OCFA if, at any time prior to award, CONTRACTOR learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances. This certification is a material representation of fact upon which reliance will be placed when OCFA executes this Agreement. If it is later determined that CONTRACTOR knowingly rendered an erroneous certification, in addition to the other remedies available to OCFA, OCFA may terminate this Agreement for default by CONTRACTOR.

**50 - INDEMNIFICATION**

To the fullest extent permitted by law, CONTRACTOR (at CONTRACTOR's sole cost and expense) shall defend (with legal counsel acceptable to OCFA in OCFA's sole discretion), indemnify, protect, and hold harmless the INDEMNIFIED PARTIES and each of them against all CLAIMS which arise out of, pertain to, or are related to CONTRACTOR's performance under, or failure to perform under, the Agreement. Under no circumstances shall the insurance requirements and limits set forth in this Agreement be construed to limit CONTRACTOR's indemnification obligation or other liability hereunder. Notwithstanding the foregoing, such obligation to defend, indemnify, protect, and hold harmless the INDEMNIFIED PARTIES shall not apply to the extent such CLAIMS arise from the sole negligence or willful misconduct of the OCFA.

As used herein, "INDEMNIFIED PARTIES" refers to OCFA and its appointed officials, officers, employees, agents, representatives, attorneys and volunteers.

As used in this Section 50, "CLAIMS" refers to any and all liabilities, actions, suits, claims, demands, losses, costs, judgments, arbitration awards, settlements, damages, demands, orders, penalties, and expenses including legal costs, expert fees and attorney fees, including but not limited to CLAIMS arising from injuries to or death of persons (CONTRACTOR's employees included), or for damage to property, including property owned by OCFA.

**51 – COMPLIANCE WITH WORK RULES**

CONTRACTOR shall be familiar with, observe, and comply at all times during the term of this Agreement with any work rules for contractors as may be established and promulgated by the OCFA Fire Chief, which work rules shall be additional terms and conditions for providing the work and services to the OCFA pursuant to this Agreement, as may be updated and/or amended from time to time at the sole discretion of the Fire Chief.

**[SIGNATURE PAGE FOLLOWS]**

IN WITNESS WHEREOF the parties hereto have caused this Agreement to be executed the day and year first written.

ORANGE COUNTY FIRE AUTHORITY:

\_\_\_\_\_  
MICHELE STEGGELL, CHAIR  
OCFA BOARD OF DIRECTORS

ATTEST:

\_\_\_\_\_  
MARIA D. HUIZAR,  
CLERK OF THE AUTHORITY

APPROVED AS TO FORM:

\_\_\_\_\_  
DAVID E. KENDIG  
GENERAL COUNSEL

CONTRACTOR:

Converajnt Technologies LLC  
(CORPORATION (NAME - TYPE))

BY: Larry Hillman  
(PRINT)

[Signature]  
(SIGNATURE)

Vice President  
(TITLE)

BY: STEVEN SANUEL  
(PRINT)

[Signature]  
(SIGNATURE)

GENERAL MANAGER  
(TITLE)

NOTE:

SIGNATURES OF CORPORATE OFFICIALS MUST BE NOTARIZED, ATTACH JURAT.

# CALIFORNIA JURAT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

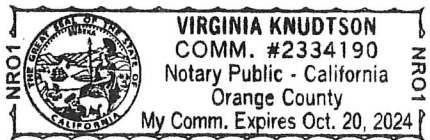
State of California )

County of Orange )

Subscribed and sworn to (or affirmed) before me on this 30 day

of June, 20 22, by Larry Hillman,  
Vice President, Converjint Technologies LLC,

proved to me on the basis of satisfactory evidence to be the person(s)  
who appeared before me.



(Seal)

Signature Virginia Knudtson

## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this jurat to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

This certificate is attached to a document titled/for the purpose of

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_.

### Additional Information

#### Method of Affiant Identification

Proved to me on the basis of satisfactory evidence:

☐ form(s) of identification ☐ credible witness(es)

Notarial event is detailed in notary journal on:

Page # \_\_\_\_\_ Entry # \_\_\_\_\_

Notary contact: \_\_\_\_\_

Other \_\_\_\_\_

☐ Affiant(s) Thumbprint(s) ☐ Describe: \_\_\_\_\_

# CALIFORNIA JURAT

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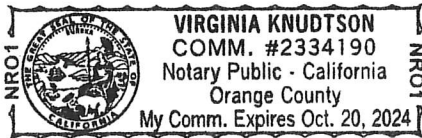
State of California )

County of Orange )

Subscribed and sworn to (or affirmed) before me on this 30 day

of June, 20 22, by Steven Sanchez,  
General Manager, Convergent Technologies LLC,

proved to me on the basis of satisfactory evidence to be the person(s)  
who appeared before me.



(Seal)

Signature Virginia Knuadtson

## Optional Information

Although the information in this section is not required by law, it could prevent fraudulent removal and reattachment of this jurat to an unauthorized document and may prove useful to persons relying on the attached document.

### Description of Attached Document

This certificate is attached to a document titled/for the purpose of

containing \_\_\_\_\_ pages, and dated \_\_\_\_\_.

### Additional Information

#### Method of Affiant Identification

Proved to me on the basis of satisfactory evidence:

☐ form(s) of identification    ☐ credible witness(es)

Notarial event is detailed in notary journal on:

Page # \_\_\_\_\_ Entry # \_\_\_\_\_

Notary contact: \_\_\_\_\_

Other

☐ Affiant(s) Thumbprint(s)    ☐ Describe: \_\_\_\_\_

**SECTION 1: NOTICE INVITING BIDS**

**1A: ORANGE COUNTY FIRE AUTHORITY NOTICE INVITING SEALED BIDS  
FOR UPGRADE OF ACCESS CONTROL SYSTEMS**

=====

**ORANGE COUNTY FIRE AUTHORITY REQUEST FOR QUALIFICATIONS:** SCOPE: Installation and upgrade of Access Control Systems at OCFA Regional Fire Operations and Training Center (RFOTC) located at 1 Fire Authority Rd., Irvine, CA 92602. For official bid documents visit: <https://www.planetbids.com/portal/portal.cfm?CompanyID=14773>. A MANDATORY job walk will be held March 9, 2022 AT 8:30A.M. Bid submittals will be accepted until March 23, 2022 AT 11:00 A.M.

=====

**Published:** Orange County Register  
**FIRST PUBLICATION DATE:** February 28, 2022  
**SECOND PUBLICATION DATE:** March 7, 2022

**1B: SOLICITATION INFORMATION****1. ABBREVIATIONS**

IFB: Invitation for Bids

OCFA: Orange County Fire Authority

DIR: California Department of Industrial Relations

CSLB: California Contractors State License Board

PCC: California Public Contract Code

**2. OBJECTIVE**

The Orange County Fire Authority is requesting bids to establish a construction agreement for the Installation and upgrade of Access Control Systems at OCFA Regional Fire Operations and Training Center (RFOTC) located at 1 Fire Authority Rd., Irvine, CA 92602, as specified herein. Project work will be coordinated by the OCFA Property Management section.

**3. MANDATORY SITE INSPECTION**

A mandatory job walk for prime contractors will be held on **Wednesday, March 9, 2022 at 8:30AM OCFA RFOTC located at 1 Fire Authority Rd. Irvine, CA 92602.**

Contractor's representative must attend the entirety of the job walk. **Late arrivals will not be granted access to the site, nor permitted to attend the job walk.** This informational meeting will be held to allow for site inspection and questions or clarifications concerning OCFA's IFB process and subsequent contract award. Prospective Bidders should be familiar with the IFB prior to attending the job walk.

**DUE TO COVID-19, ATTENDEES WHO ARE NOT FULLY VACCINATED MUST PROVIDE AND ARE REQUIRED TO WEAR A MASK DURING THE JOB WALK. MASKS ARE NOT REQUIRED FOR FULLY VACCINATED ATTENDEES**

**4. CONTRACTOR MINIMUM QUALIFICATIONS**

Bidder must meet the following minimum qualifications in order to have its response considered:

- **Current and valid C-7, C-10 Contractor's License issued by the California Contractor State License Board**
- **Current and valid California Department of Industrial Relations registration**
- **Minimum 10 years' experience providing the same or similar services**

**5. DUE DATE**

Bids will be received no later than **11:00 AM on 3/30/2022**. Late submittals will not be accepted. There will be a public opening of the bids on the specified due date and time in the Purchasing Office at the OCFA's Regional Fire Operations and Training Center located at 1 Fire Authority Road, Irvine, CA 92602. If attending the bid opening, please allow time to check in at the Reception Desk.

**6. SUBMITTAL INSTRUCTIONS**

The Bid Response Forms are available for download on OCFA's online bidding platform, PlanetBids. Bids must be prepared using the response forms included in this IFB document. Bids shall be executed by an authorized signatory. Contractors are to fill in all blank spaces (insert "N/A" where the answer is not applicable). Contractors are to initial all interlineations, annotations, deletions, alterations, erasures and other modifications on the forms. Deviations in the form may result in the bid being deemed non-responsive. **Only paper bids will be accepted for this solicitation.**

Bids may be hand delivered or mailed to Orange County Fire Authority, Purchasing Department, 1 Fire Authority Road, Building C, Irvine, CA 92602 no later than the date and time specified in Section 5 above. One (1) original hard copy and one (1) duplicate hard copy shall be sent to the attention of the Purchasing Section, within said time limit, in a sealed envelope. The envelope should include the Bidder's Business

Name, Solicitation Number, and the Due Date. (Failure to include a duplicate hard copy will not cause an otherwise responsive bid to be deemed non-responsive.)

Any vendor who wishes his or her bid to be considered for award is responsible for ensuring that it is complete and received by the Purchasing Office on or before the due date and time. **Facsimile, electronic or e-mail bids will not be considered.**

## **7. INQUIRIES**

Any questions related to the IFB shall be directed to the Assistant Purchasing Agent, Rothchild Ong. Questions and comments must be submitted via this bid's Q&A module on the PlanetBids website no later than **5:00 P.M. on 3/9/2022**. The inquirer's name, company, address, phone number should be included. Verbal interpretations or clarifications on the part of OCFA will be without legal effect. Only responses submitted in writing via the Q&A module or addendum will be binding.

## **8. SCHEDULE OF IMPORTANT DATES**

Invitation for Bid Issue Date	<b>February 24, 2022</b>
Mandatory Job Walk	<b>March 9, 2022</b>
Final Day to Submit Questions	<b>March 9, 2022</b>
Deadline to Submit Bid Response	<b>March 30, 2022</b>

## **9. CONTRACTOR RESPONSIBILITIES**

### **9.1 MATERIAL AND LABOR**

Contractor shall provide all permits, material, labor, tools and supplies to complete the project as described herein. See Section 5 for detailed information on these requirements and additional components that must be included in Contractor's bid and pricing.

### **9.2 CSLB LICENSE**

Contractor and all subcontractors shall possess a valid California **C-7, C-10** Contractor's license, as required by California law, at the time of bid submission, pursuant to California Public Contract Code Section 3300 and Business and Professions Code Section 7028.15. The successful contractor and all subcontractors must maintain the license throughout the duration of the project.

### **9.3 PREVAILING WAGE AND COMPLIANCE MONITORING**

Contractor and all subcontractors shall conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hour notice, payroll records, and apprentice and trainee employment requirements, for all Services on the above Project, including, without limitation, the State labor compliance monitoring and enforcement by the Compliance Monitoring Unit of the Department of Industrial Relations. The successful contractor and all subcontractors must maintain DIR registration throughout the duration of the project.

### **9.4 STANDARD SPECIFICATIONS**

OCFA relies on the standard specifications, CSI and Greenbook applicable in the jurisdiction where the project is located, as modified by the local jurisdiction.

### **9.5 BUSINESS LICENSE REQUIREMENTS**

Contractor and all subcontractors shall conform to the requirements of the city in which the project is located (or the requirements of the County if the project is located within an unincorporated area) and shall maintain active business license(s) as required by the jurisdiction(s) in which the project is located. The successful contractor and all subcontractors must remain in compliance with these requirements throughout the duration of the project.

**9.6 WARRANTY**

In addition to any warranties specified in the drawings and any manufacturer's warranty, Contractor shall warrant the workmanship and manufacturing for a minimum of one year.

**10. OCFA RESPONSIBILITIES**

OCFA will coordinate with training operations to ensure Contractor has access to necessary areas to perform work. OCFA shall be responsible for the registration of the project with the CA DIR subsequent to contract award.

**11. DELIVERABLES****11.1 PROJECT COMPONENTS**

- 11.1.1 Provide and test a complete low-voltage Security System upgrade to a unified platform comprising an Electronic Access Control System (EACS) and a Video Surveillance System (VSS).
- 11.1.2 Replace end-of-life EACS controllers and replace them with an integrated enclosure with power supply, controllers, and lock power supply.
- 11.1.3 Replace existing analog cameras with IP cameras and install new cameras as identified on the plan drawings.
- 11.1.4 Configure upgraded symmetry system and video system to operate in the existing OCFA VMWare environment.
- 11.1.5 Re-use existing wiring from existing hardware and verify each cable and the device connected to the cable, provide cable ID tags for each cable, and provide cable ID tag information.
- 11.1.6 Replace Mag locks with Electrified Panic Hardware (EPH) or electrified mortise locks.
- 11.1.7 Replace all existing card readers.
- 11.1.8 Remove all cables that are no longer being used.
- 11.1.9 Furnish and install electric security hardware devices, mounting brackets, power supplies, switches, equipment cabinets, controls, consoles and other components of the system as shown and specified.
- 11.1.10 Furnish and install outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation.
- 11.1.11 Provide pre-testing and acceptance testing of equipment, programming, wiring and installation.
- 11.1.12 Migrate existing badge creator software and data to new AMAG environment
- 11.1.13 Configure AMAG lobby visitor management system for guest badges

**11.2 SPECIFICATIONS****11.2.1 MINIMUM SPECIFICATIONS**

The purpose of the information provided herein is to establish the minimum requirements for the supplies, materials, and equipment used for this project. It is not the intention of OCFA to exclude suppliers of similar or equal products of the types specified. Provided specifications, brands, and/or manufacturers describe OCFA expectations for the equipment, supplies and materials to be acquired.

**11.2.2 EQUIVALENT ALTERNATE ITEMS****11.2.2.1 EQUIPMENT SUBMITTALS**

As noted throughout Section 5, deviations from the specifications provided herein are not preferred but in some instances may be accepted. OCFA retains the sole right to determine whether proposed deviations to the specified items are acceptable. Any bidder offering items or equipment as equivalent alternatives to those items specified must submit documentation in accordance with the requirements outlined in Section 5 to substantiate that the item is equal no less than ten (10) business days prior to the bid deadline. Failure to do so may result in

the bid that includes such alternative(s) being deemed non-responsive. As part of the evaluation of proposed alternate items, OCFA may request additional product information or product samples. Such information or samples must be submitted at no expense to OCFA by an agreed-upon due date for inspection and approval prior to contract award. Failure to comply with the request, or failure of the proposed alternate product to meet the required specifications, may be cause for OCFA to deem the bid that includes such alternative(s) to be non-responsive.

#### **11.2.2.1 ADDITIONAL SUBMITTALS**

Contractor shall submit for approval all items and documentation prior to beginning work in accordance with the requirements outlined in Section 5. In addition to the requirements specified in Section 5, any equivalent alternate items offered as a submittal during the course of construction must include documentation to substantiate that the item is equal. As part of the evaluation of proposed alternate items, OCFA may request additional product information or product samples. Such information or samples must be submitted at no expense to OCFA by an agreed-upon due date for inspection and approval prior to installation. Failure to comply with the request, or failure of the proposed alternate product to meet the required specifications, may be cause for OCFA to deem the Contractor to have caused a delay in the project, to be remedied by the assessment of liquidated damages, as described in the Contract Documents (see Section 4).

#### **11.2.3 MATERIALS**

Materials shall be pure, unadulterated, first quality and shall be delivered to the project in original unbroken packages bearing the maker's name and brand number. Materials shall comply with all requirements described in Section 5. Materials shall be submitted for approval prior to use. Contractor must furnish additional stock of materials, as specified in Section 5.

OCFA intends to purchase and keep as inventory commonly replaced items for the purpose of expediting future repairs. Should Contractor or subcontractors utilize this inventory to perform repairs, use of these items will not void or otherwise negatively affect the warranty. Contractor or subcontractors must replace the stock at no cost to OCFA.

### **11.3 PROJECT EXECUTION**

#### **11.3.1 WORKMANSHIP**

Contractor shall:

- a. Perform work under conditions best suited to produce the specified deliverables.
- b. Correct all work that does not comply with the intent of the specification and/or does not meet the approval of OCFA.
- c. Protect all adjacent areas and surfaces from damage from work performed (i.e. automobiles, sidewalks, asphalt, concrete, plants, etc.).
- d. Coordinate with the OCFA before using noisy, motorized equipment.
- e. Take all necessary steps to protect the public and all property concerned.

#### **11.3.2 CLEAN-UP**

Contractor shall, at completion of work each day, remove all debris and rubbish resulting from this project and leave work spaces in a clean condition subject to OCFA approval.

#### **11.3.3 PROTECTION**

Contractor shall protect work of other trades, correct damage by cleaning, repairing or replacing, and repainting, as approved by OCFA.

#### **11.3.4 REPAIR**

At completion of work, Contractor shall repair and/or restore damaged work of other trades.

**11.3.5 ACCEPTANCE DOCUMENTATION**

Upon completion of work, Contractor shall provide the documents specified herein for final review and acceptance by OCFA.

**11.3.6 HEALTH AND SAFETY**

Contractor shall ensure compliance at all times with the Health and Safety requirements in Section 86 of the Contract Agreement.

**11.4 SCHEDULES, TIMELINES, AND MEETINGS****11.4.1 COORDINATION OF WORK**

Prior to beginning work, Contractor shall prepare a schedule and submit to OCFA for approval. Contractor shall coordinate the commencement of all work with OCFA so as not to cause inconvenience to the facility. Contractor parking, along with the placement of all trailers, equipment and materials must be coordinated with OCFA in advance.

All work at the location must be coordinated with OCFA in a manner that shall accommodate the requirements of OCFA personnel. Contractor shall post notices in conspicuous places at least three to five days in advance warning occupants what date work will begin. Work, deliveries or efforts which may impede existing circulation roadways shall be scheduled at least seven (7) days in advance.

**11.4.2 HOURS OF WORK**

Work shall be performed Monday through Friday between the hours of 7:00 AM and 5:00 PM. Overtime and after-hours work is not permitted, unless otherwise coordinated with and approved by the city in which the project is located.

**11.4.3 PROJECT TIMELINE**

OCFA anticipates that

- Project work will begin **15** days after the agreement and all other required award documents are received and approved by OCFA
- Project will be complete within **180** days

**12. MEETINGS**

Meetings between OCFA and Contractor will include, at a minimum, the following:

**12.1 PRE-AWARD MEETING**

This meeting will aid OCFA in determining responsibility of Contractor and to finalize the specifications and services to be provided.

**12.2 PRE-CONSTRUCTION JOB WALKS**

These meetings with OCFA, the staff of the city in which the project is located, and others as necessary and/or required by law will be coordinated by the Contractor.

**12.3 PROJECT STATUS MEETINGS**

Weekly meetings held in person, unless otherwise determined by OCFA.

**12.4 ACCEPTANCE**

Meetings regarding project acceptance and warranty punch list items.

**12.5 ADDITIONAL**

Other meetings deemed necessary by OCFA for contract compliance.

## **SECTION 2: INSTRUCTIONS TO BIDDERS**

### **13.1 AMENDMENT OF INVITATION FOR BID**

Notification via email will be sent to vendors listed as "Prospective Bidders" on PlanetBids in the event that a Q&A set or amendment to the IFB is released. The bidder shall acknowledge receipt of an amendment to this Invitation for Bid on the bid submittal. The OCFA reserves the right to revise the bid documents prior to the bid opening date. Revisions, if any, shall be made by written Addenda.

**13.1.1** Pursuant to Public Contract Code Section 4104.5, if OCFA issues an Addendum later than seventy-two (72) hours prior to the deadline for submission of bids, and the Addendum requires material changes, additions or deletions to the description of the work to be performed or the content, form or manner of submission of bids, OCFA will extend the deadline for submission of bids by at least seventy-two (72) hours. Otherwise, OCFA may determine, at its sole discretion, whether an Addendum requires that the date set for opening bids be postponed. Announcement of a new date, if any, will be made by Addenda. All bidders will be notified by e-mail when an addendum is posted to PlanetBids.

**All Addenda issued before the time bids are due shall form part of the contract documents. It is the bidder's responsibility to be familiar with Addenda issued. OCFA will deem any bid that fails to acknowledge all Addenda to be non-responsive. Bidders must acknowledge the Addenda in writing on the form provided in the bid documents.**

### **13.2 INTERPRETATION OF BID DOCUMENTS**

Discrepancies in, and/or omissions from the Specifications or other bid documents or questions as to their meaning shall be immediately brought to the attention of the Purchasing Manager by submission of a written request for interpretation or correction thereof no later than the deadline specified for questions specified in Section 1 of the Notice Inviting Bids. The person submitting the request will be responsible for its prompt delivery.

Any interpretation of the bid documents will be made only by addendum duly issued electronically to each bidder registered on the prospective bidder's list. The OCFA will not be responsible for any explanations or interpretations provided in any other manner. No person is authorized to make any oral interpretation of any provision in the bid documents to any bidder, and no bidder should rely on any such oral interpretation.

### **14. DISPUTES RELATING TO THIS INVITATION FOR BID**

In the event a dispute arises concerning any aspect of this bid, including specifications and/or process, the party bringing the dispute shall submit a written request for resolution to the Purchasing Department prior to the IFB's due date and time.

In the event a dispute arises regarding this IFB's Recommendation for Award or Denial of Award, the party bringing the dispute must do so in accordance with OCFA's **Purchasing Ordinance, Article IX. Legal and Contractual Remedies**, which can be found online under "Doing Business with OCFA" at <https://www.ocfa.org/Uploads/Purchasing/OCFA%20Purchasing%20Ordinance.pdf>.

### **15. WITHDRAWAL OF BID**

#### **15.1 PRIOR TO BID DUE DATE AND TIME**

At any time prior to the specified due date specified in IFB Section 1, an Offeror may formally withdraw the bid by a written letter, facsimile or electronic mail from the Offeror or an authorized representative to the OCFA Purchasing Manager, provided such letter, facsimile or electronic mail is actually and timely received by the OCFA Purchasing Manager. **Telephonic or oral withdrawals shall not be considered.**

**15.2 AFTER BID DUE DATE AND TIME**

In accordance with California Public Contract Code sections 5100-5110, Bidder shall not be relieved of the obligations of its bid unless by consent of OCFA, nor shall any change be made in the bid because of mistake. Bids may be withdrawn for mistake upon mutual written agreement of Bidder and OCFA, or if all of the following conditions apply:

- A mistake is made in the bid; and
- Written notice is provided to OCFA within five (5) working days from the date of the public opening specifying in the notice in detail how the mistake occurred. Telephonic or oral withdrawals will not be considered; and
- The mistake makes the bid materially different than Bidder intended it to be; and
- The mistake was made in filling out the bid and was not due to error in judgment or to carelessness in inspecting the site of the work, or in reading the plans or specifications.

Any bidder who claims a mistake or who forfeits its bid security (Bidder's Bond) shall be prohibited from participating in further bidding on the project on which the mistake was claimed or bid security was forfeited.

**16. INDEMNIFICATION**

Bidder agrees to protect, defend, indemnify, save and hold harmless the OCFA and its officers, officials, employees and volunteers from any and all claims, liabilities, expenses, or damages of any nature, including attorney fees, for injury to or death of any person (Bidder's employees included), and for injury to any property, including consequential damages of any nature resulting there from, arising out of or in any way connected with the Bidder's submittal.

**17. RESERVATIONS (RIGHTS RESERVED TO OCFA)**

OCFA reserves the right to reject any or all bids or any part thereof; to rebid the solicitation; to reject non-responsive or non-responsible bids; to reject unbalanced bids; to reject bids where the terms, prices, and/or awards are conditioned upon another event; to reject individual bids for failure to meet any requirement; to award by item, part or portion of an item, group of items, or total; to make multiple awards; to investigate the qualifications of any bidder under consideration; to modify or amend this IFB in writing; to waive minor irregularities, defects, omissions, technicalities or form errors in any bid. Waiver of one irregularity does not constitute waiver of any other irregularity. OCFA may seek clarification of the bid from the bidder at any time, and failure to respond is cause for rejection. OCFA is required to make an award that is in the best interest of the OCFA. All decisions on compliance, evaluation, terms and conditions shall be made solely at the OCFA's discretion and made to favor the OCFA. OCFA may cancel this solicitation at any time.

The OCFA may reject any bid which, in its sole opinion, does not accurately reflect the cost to perform the work as compared to other bids received and/or to project estimates. In addition, because the OCFA may elect to include or exclude any of the bid items and alternate bid items (if applicable) at its sole and absolute discretion, each bidder must ensure that each bid items contain a proportionate share of profit, overhead and other costs or expenses which will be incurred by the bidder. The OCFA may deem any bid which unevenly weights or allocates costs, including but not limited to overhead and profit to one or more particular bid items as non-responsive. No contract will be executed unless the bidder is licensed in accordance with the provisions of the State law.

**18. INSPECTION OF SITE/MANDATORY MEETING AND JOB WALK**

Each prospective bidder is responsible for becoming familiar with the conditions of the project site as well as those relating to the construction and labor of the project, to fully understand the facilities, conditions, difficulties and restrictions which may impact the completion of the project. Attendance by a representative of each prospective contractor at the mandatory meeting as stated in the request for

informal bid is required. **Any bid received by a contractor not represented at the mandatory meeting will be rejected and deemed non-responsive.**

#### **19. CONTRACTOR AND SUBCONTRACTOR LICENSING REQUIREMENTS**

Bidder and all listed Subcontractors shall possess valid California Contractor's licenses, as required herein and as appropriate for each specialty subcontracted at the time of bid submission, pursuant to California Public Contract Code Section 3300 and Business and Professions Code Section 7028.15. Licenses must be maintained throughout the duration of the contract resulting from this IFB.

Pursuant to Section 7028.15 of the Business and Professions Code, the OCFA shall consider any bid submitted by a contractor not currently licensed in accordance with California law and pursuant to the requirements found in the bid documents to be nonresponsive, and the OCFA shall reject the bid. The OCFA shall have the right to request evidence of all valid license(s) currently held by the bidder and each of the subcontractors listed in the bid before awarding the contract. In such cases, Bidders shall provide evidence of valid licenses satisfactory to the OCFA within five (5) calendar days. Pursuant to Public Contract Code Section 20676, sellers of "mined material" must be on an approved list of sellers published pursuant to Public Resources Code Section 2717(b) in order to supply mined material for this contract.

#### **20. SB 854 DEPARTMENT OF INDUSTRIAL RELATIONS REGISTRATION**

No contractor or subcontractor may be listed on an offer for a public works project unless registered with the California Department of Industrial Relations pursuant to California Labor Code Section 1725.5, with limited exceptions from this requirement for bid purposes only under California Labor Code Section 1771.1(a). No contractor or subcontractor may be awarded a contract for public work, or engage in the performance of any public works project unless registered with the California Department of Industrial Relations pursuant to California Labor Code Section 1725.5. Pursuant to SB 854, the DIR registration number of each subcontractor must be identified on the bid; **failure to do so may result in the bid being deemed non-responsive.**

**The contract resulting from this solicitation is subject to compliance monitoring and enforcement by the California Department of Industrial Relations. OCFA reports all public works contracts to the DIR subsequent to contract execution.**

The OCFA will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining bid pricing, and will not under any circumstances be considered as the basis of a claim against the OCFA on the contract resulting from this solicitation.

#### **21. PREVAILING WAGE**

This project is a public work in the State of California, funded in whole or in part with public funds. Therefore, the applicable prevailing wage rates will be enforced. The work is subject to the payment of not less than prevailing wages under California Labor Code Section 1770 et seq. Contractor must comply with all related provision of the California Labor Code if awarded the agreement, including but not limited to:

- The provisions of California Labor Code Section 1775 relating to payment of prevailing wages, and
- Section 1777.5 relating to employment of apprentices, and
- Section 1811-1813 relating to the payment of overtime.

Failure to comply with the applicable prevailing wage, overtime, and apprenticeship requirements may result in penalties.

Contractors are hereby notified that the Director of Industrial Relations has ascertained the general prevailing rate of per diem wages and the rates for overtime and holiday work in the locality in which the work is to be performed for each craft, classification or type of worker needed to perform the work under the contract which will be awarded to the successful contractor.

Additional information is available at the Department of Industrial Relations website at:

**<http://www.dir.ca.gov/oprl/DPreWageDetermination.htm>**.

Contractors are further notified that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Additional information on the Compliance Monitoring Unit requirements can be found at:

**<https://www.dir.ca.gov/Public-Works/PublicWorksEnforcement.html>**.

## **22. DEBARMENT OF CONTRACTORS**

In accordance with the provisions of the Labor Code, contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to Section 1777.1 or Section 1777.7 of the Labor Code and Federal "Excluded Parties List System". Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid to a debarred subcontractor by the Contractor for the Project shall be returned to the OCFA. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project. In order to prohibit the procurement of any goods or services ultimately funded by Federal awards from debarred, suspended or otherwise excluded parties, each Contractor will be screened at the time of response to ensure the Contractor, its principal and their named subcontractors are not debarred, suspended or otherwise excluded by the United States Government in compliance with the requirements of 2 Code of Federal Regulations (CFR) 200.12 7 Code of Federal Regulations (CFR) 3016.35, 28 CFR 66.35, 29 CFR 97.35, 34 CFR 80.35, 45 CFR 92.35 and Executive Order 12549.

## **23. CONTRACT**

A response to this IFB is an offer to contract with OCFA based upon the terms, conditions, and specifications contained within this document, all Addenda, and the Construction Services Agreement, attached hereto as Section 4. Submission of a bid confers on the bidder no right to an award or to a subsequent contract. No binding contract will exist between the bidder and the OCFA unless and until the OCFA executes a written contract or purchase order.

## **24. BID DOCUMENTS & FORMS**

Bid submittals are to be prepared using the bid forms which are included in this IFB Document. Bids shall be executed by an authorized signatory. As a condition of bidding and in accordance with the provisions of Section 20101 of the California Public Contract Code, prospective bidders are required to submit all the bid forms listed in the Bidder's Checklist. Failure to do so may result in the rejection of the bid.

## **25. PREPARATION OF BID**

All bids shall incorporate the forms provided in this IFB document. It is permissible to copy these forms as required. Facsimiles or electronic mail bids shall not be considered.

The Bid form and any solicitation amendments must be signed and returned with the bid. The forms submitted shall be signed by a person authorized to submit an offer. Authorized signature on the Bid forms shall constitute an irrevocable offer to provide services specified herein. Offeror shall submit any additional requested documentation, signifying intent to be bound by the terms of the agreement.

- The authorized person signing the bid shall initial all interlineations, annotations, deletions, alterations, erasures and other modifications on the bid.
- Periods of time, stated as days, shall be in calendar days.
- It is the responsibility of all Offerors to examine the entire Request for Bid package and seek clarification of any requirement that may not be clear and to check all responses for accuracy before submitting a bid. Negligence in preparing a bid confers no right of withdrawal after the due date and time.
- OCFA shall not reimburse the cost of developing, presenting, submitting or providing any response to this solicitation.
- Offeror must list any subcontractors to be utilized in the performance of the services specified herein. For each subcontractor, details on respective qualifications must be included.
- Each bidder shall submit its bid in strict conformity with the requirements of the bid documents. Unauthorized additions, modifications, revisions, conditions, limitations, exclusions or provisions attached to a bid may render it non-responsive and may cause its rejection. Bidders shall not delete, modify, supplement printed matter on the bid forms.
- **Verbal, telephonic, facsimile, email or other electronic bids or modifications will not be considered.**

## **26. BID CERTIFICATION**

By signature on the Bid Response Forms, Bidder certifies:

- The Bidder has thoroughly examined and become familiar with the requirements of this IFB;
- Clear understanding of the rules as defined in this IFB and compliance with all terms and conditions specified herein;
- The Bidder is an authorized and/or certified retailer and/or installer of the specified items;
- The submission of the bid did not involve collusion or other anti-competitive practices;
- The bid is compliant with all state and federal laws;
- The Bidder will not discriminate against any employee or applicant for employment in violation of Federal or State law;
- The Bidder has not given, offered to give, and does not intend to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, meal or service to any Director, officer, or employee of OCFA in connection with the submitted offer;
- That the individual signing the submittal is an authorized agent for the Bidder and has the actual authority to legally bind the Bidder to the Contract;
- That its principal and named subcontractors are not debarred, suspended or otherwise excluded by the United States Government, in compliance with the requirements of 7 Code of Federal Regulations (CFR) 3016.35, 28 CFR 66.35, 29 CFR 97.35, 34 CFR 80.35, 45 CFR 92.35 and Executive Order 12549.

## **27. ACCEPTANCE PERIOD**

Unless otherwise specified herein, bids are firm and may be accepted by OCFA at any time within 180 days of bid opening.

## **28. BID OPENING**

All the bids opened by the OCFA will be subject to further evaluation with respect to responsiveness of the bid and for purposes of determining that the bidder is responsible.

## **29. SUBLETTING AND SUBCONTRACTING.**

Pursuant to the Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Public Contract Code), bidders are required to list in their proposal the name, business address, California contractor license number, and public works contractor registration number issued pursuant to Section 1725.5 of the Labor Code of each subcontractor who will perform work or labor or render services in or about the construction of the work or improvement, or a subcontractor who specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the Plans and

Specifications in excess of 1/2 of 1% of the prime Contractor's total bid or \$10,000, whichever is greater. If a subcontractor's California contractor license number or public works contractor registration number are submitted incorrectly in the bid, it will not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the corrected subcontractor's California contractor license number is submitted to OCFA within 24 hours after the bid opening.

If the Bidder fails to list a subcontractor for a portion of work or if the Bidder lists more than one subcontractor of the same portion of work in excess of 1/2 of 1% of the total bid or \$10,000, whichever is greater, the Bidder agrees that it is fully qualified to perform that portion of work itself, and that the Bidder shall perform that portion of work itself. If after award of the contract, the Bidder actually subcontracts that portion of work, except as provided in Public Contract Code Section 4107 or 4109, the Bidder shall be subject to the penalties listed in Section 4111 of the Public Contract Code. It is the OCFA's intent for the Subletting and Subcontracting Fair Practices Act to apply to all phases of the work.

**29.1 NO INCREASE IN BID COST DUE TO SUBSTITUTION OF SUBCONTRACTOR.**

In the event that a subcontractor is substituted in any manner for any reason, any increased cost related to such substitution shall be the sole responsibility of the Contractor. Such substitution shall not cause or result, directly or indirectly, in any increase in the bid price. This subsection shall not be construed to be prior consent to substitution of subcontractors, nor to authorize any substitution that is prohibited by the Subletting and Subcontracting Fair Practices Act.

**30. PRICING**

Contractors shall provide itemized pricing. No aggregate bids will be considered. The bid must state the amount for which the contractor offers to supply all labor, materials, equipment, tools, transportation, services and applicable taxes to perform all work specified. Bids shall not contain any conditions, limitations or provisions for the work to be done. Alternative bids will not be considered unless requested. The contractor shall set forth for each item of work, in clearly legible figures, a unit item price and a total for each item in the respective spaces provided. In case of a variation between the unit price and the totals shown by the contractor, the unit price will take precedence. In case of discrepancy between the numerical lump sum price and the written lump sum price, the written lump sum price shall prevail.

**31. TAXES**

No mention shall be made in the proposal of Sales Tax, Use Tax, or any other tax, as all amounts set forth in the bid will be deemed and held to include any such taxes that may be applicable. Bidder acknowledges and agrees that OCFA shall not be responsible for the payment of any increase in any Sales Tax, Use Tax, or any other tax that takes effect after award.

**32. COMPLIANCE WITH LAWS**

All bids shall comply with current and applicable federal, state, and local laws relative thereto.

**33. CRITERIA FOR EVALUATION AND AWARD**

The OCFA will award the contract to the lowest responsive, responsible bidder as required by law. The OCFA evaluates three categories of information: responsiveness, responsibility, and price. Bids must meet the following responsiveness and responsibility criteria in order to be considered for award:

- a) RESPONSIVENESS: OCFA will determine whether the bid complies with the instructions for submitting bids including completeness of bid which encompasses the inclusion of all required attachments and submissions. The OCFA will reject any bids that are submitted late. Failure to meet the specifications, project timeline, product availability, or other requirements may result in rejection.

- b) **RESPONSIBILITY:** OCFA will determine whether the bidder is one with whom it can or should do business. Factors that OCFA may evaluate to determine whether a contractor is a "responsible bidder" for purposes of the Public Contract Code include, but are not limited to: excessively high or low priced bids, past performance, references (including those found outside the bid), compliance with applicable laws - including tax laws, business standing, bidder's record of performance and integrity - e.g. has the bidder been delinquent or unfaithful to any contract with OCFA, whether the bidder is qualified legally to contract with the OCFA, financial stability and the perceived ability to perform completely as specified. A bidder must at all times have financial resources sufficient, in the opinion of the OCFA, to ensure performance of the contract and must provide proof upon request. OCFA staff may also use Dun & Bradstreet and/or any generally available industry information to assist in making such determinations. The OCFA reserves the right to inspect and review bidder's facilities, equipment and personnel and those of any identified subcontractors, and by submitting a bid, bidder consents thereto. The OCFA will determine whether any failure to supply information, or the quality of the information, will result in rejection.
- c) **PRICE:** OCFA will then evaluate bids that have met the requirements above for price, quality of product, life cycle cost, maintenance, warranty, etc.

#### **34. GROUNDS FOR DISQUALIFICATION**

OCFA may disqualify a submittal for any of the following reasons:

- Contact regarding this procurement is made with any OCFA Director, officer or employee other than those in the Purchasing Department from the time of issuance until the end of the dispute period;
- Evidence of collusion, directly or indirectly, among bidders regarding the amount, terms, or conditions of this solicitation is found;
- Evidence of submitting incorrect information in the response to this solicitation or misrepresenting or failing to disclose material facts during the award process is found;
- Submittal of added terms, conditions, or agreements with the bid document;
- Offering of gifts or souvenirs, even of minimal value, to OCFA Directors, officers or employees;
- The existence of any lawsuit, unresolved contractual claim or dispute between the Bidder and OCFA;
- Evidence of the Bidder's inability to successfully complete the responsibilities and obligations of the bid is found;
- Bidder's default under any OCFA agreement.
- No bidder shall be allowed to make, submit or be interested in more than one bid. No person, firm, corporation, or other entity may submit a sub-proposal to a bidder, or quote prices of materials to a bidder when also submitting as a prime on the same project.

#### **35. PUBLIC RECORD**

All bids submitted in response to this IFB shall become the property of OCFA and shall become a matter of public record available for review when required by law, including but not limited to the California Public Records Act.

#### **36. CLAYTON ACT AND CARTWRIGHT ACT**

In accordance with Section 7103.5 of the Public Contract Code, in entering into a public works contract or a subcontract to supply goods, services or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to OCFA all rights, and interest in and all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

**37. INSURANCE**

The successful bidder shall procure the insurance in the form and in the amount specified in the Contract Documents, including but not limited to the General Conditions. Failure to do so may result in forfeiture of the bid guarantee. No time extensions or extra payments shall be made to contractor for delays it may encounter in obtaining such coverage.

Contractor shall not commence work under the agreement until he/she has obtained all required insurance, including any and all endorsements, and the insurance has been approved by the OCFA as to form, amount, and carrier, nor shall Contractor allow any subcontractor to commence any work until all insurance required of the subcontractor has been obtained and approved.

**38. NOTICE OF INTENT TO AWARD/EXECUTION OF CONTRACT**

A notification of OCFA's intent to award contract ("Notice of Intent to Award") will be sent to the successful Offeror(s). Following receipt of the Notice of Intent to Award, and within fourteen (14) calendar days of the notice, the successful Offeror(s) shall complete and/or submit the items listed in Exhibit 4A: Transmittal Page – Bid Award Documents to the Purchasing & Materials Manager or designee.

**The successful contractor or any designated subcontractors shall not perform any work on the project prior to attending the pre-construction conference and executing the appropriate certification.** In case of failure of the Offeror(s) to execute and return all required documents in a form satisfactory to OCFA and within the time allowed, the OCFA may, at its option, consider that the Offeror(s) has/have abandoned the contract.

**39. SUBSTITUTION OF SECURITIES**

In conformance with Public Contract Code Section 22300, which is incorporated herein by this reference, the Contractor may substitute securities for any monies retained by the OCFA to ensure performance under the Contract or, in the alternative, may request payment of retention earned directly to an escrow agent.

At the request and expense of the Contractor, the Contractor has the option to deposit securities, which have been approved by the OCFA, with a State or Federally chartered bank as the escrow agent or require the OCFA to deposit 5% of each progress payment with the escrow agent. Said securities will be used as a substitute for retention earnings required to be withheld by the OCFA pursuant to the construction contract. Said securities shall have no obligation to any other construction contract for substitution of securities in lieu of retention. When the Contractor deposits the OCFA approved securities with the escrow agent, the escrow agent shall notify the OCFA within 10 calendar days of the deposit. Said securities shall be evaluated quarterly by the escrow agent to verify the current market value. If the current market value of said securities falls below the required amount, the escrow agent shall notify the Contractor and require additional securities and/or cash to be submitted for OCFA approval, and to be held in the escrow account to meet the Contractor's obligations. The escrow agent shall hold said securities until such time as the escrow agent receives written notification from the OCFA that the Contractor has satisfactorily completed his Contract obligations.

The type of securities deposited and the method of release shall be approved by the OCFA's Office of General Counsel.

If the Contractor chooses not to exercise its rights under Public Contract Code Section 22300, the full five percent (5%) retention will be deducted from all payments. The final retention will be authorized for payment thirty-five (35) days after the date of recordation of the Notice of Completion, if no stop notices have been filed. The OCFA may withhold from release of the final retention amounts authorized under Public Contracts Code Section 7107 and/or 125% of the cumulative amounts identified in all stop notices.

**40 AWARD AND EXECUTION OF CONTRACT.** If a bid bond is submitted with a 10% of Bid designation for the amount as noted in the OCFA Approved Bid Bond form, a revised Bid Bond with numerical dollar values, both in words and with digits, shall be submitted to the OCFA within three (3) working days of bid opening.

Within seven (7) calendar days after the date of the Notice of Apparent Low Bidder, the Contractor shall execute and return the following documents to the OCFA:

- All required evidence of insurance
- Two (2) Original Signed Contract Agreements

Within fourteen (14) calendar days after the date of the Notice of Award, the Contractor shall execute and return the following documents to the OCFA:

- |                             |                                     |
|-----------------------------|-------------------------------------|
| • Faithful Performance Bond | • Water Pollution Control Plan      |
| • Material and Labor Bond   | • Form W-9                          |
| • Construction Schedule     | • Encroachment Permit Application   |
| • Traffic Control Plan      | • Construction Materials Submittals |

**FAILURE TO COMPLY WITH ALL OF THE ABOVE WILL RESULT IN ANNULMENT OF THE AWARD AND FORFEITURE OF THE PROPOSAL GUARANTEE AT THE SOLE DISCRETION OF OCFA.**

The Contract Agreement shall not be considered binding upon the OCFA until executed by the authorized OCFA officials.

**3A: TRANSMITTAL PAGE****TO:** Orange County Fire Authority**FROM:** Converjint Technologies

(Legal Name of Contractor)

**PROJECT:** ACCESS CONTROL SYSTEMS UPGRADE - RFOTC

The contractor will accept in full payment for the work specified herein the following total lump sum amount, inclusive of all applicable taxes and markup (transferred from Exhibit 3J: Bid Sheets):

**BID LUMP SUM:****NUMERICAL:** \$ 549,588.00**WRITTEN:** Five hundred and forty nine thousand, five hundred eighty eight**ACKNOWLEDGMENT OF ADDENDA:**

No.: 1	Dated: 3/9/2022	No.:	Dated:
No.: 2	Dated: 3/15/2022	No.:	Dated:

**BIDDER'S CHECKLIST:**

Bidder certifies that the following documents are included in its Bid:

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Transmittal Page (Exhibit 3A)                 | <input checked="" type="checkbox"/> List of Subcontractors (Exhibit 3F)   | <input checked="" type="checkbox"/> Project Approach and Schedule (Exhibit 3K)          |
| <input checked="" type="checkbox"/> Bidder's Bond (Exhibit 3B)                    | <input checked="" type="checkbox"/> Designation of Sureties (Exhibit 3G)  | <input checked="" type="checkbox"/> List of Project References (Exhibit 3L)             |
| <input checked="" type="checkbox"/> Certification of Bid (Exhibit 3C)             | <input checked="" type="checkbox"/> Bidder's Certification of Compliance with Insurance Requirements (Exhibit 3H) | <input checked="" type="checkbox"/> Qualifications Questionnaire (Exhibit 3M)           |
| <input checked="" type="checkbox"/> Contractor's Licensing Statement (Exhibit 3D) | <input checked="" type="checkbox"/> Certification of Site Examination (Exhibit 3I)                                | <input checked="" type="checkbox"/> Party and Participant Disclosure Forms (Exhibit 3N) |
| <input checked="" type="checkbox"/> Non-Collusion Affidavit (Exhibit 3E)          | <input checked="" type="checkbox"/> Bid Sheets (Exhibit 3J)   |   |

**MINIMUM QUALIFICATIONS:**

Bidder Meets the Minimum Qualifications as follows:

**CSLB License #:** C-10 #986407 **Expiration:** 08-31-2023

**DIR Registration #:** 1000002787 **Expiration:** 06-30-2022

**Number of Years of Experience:** 21 Years

**SIGNATURE OF CONTRACTOR:****PRINTED NAME:** Steven Sanchez **TITLE:** General Manager

**3B: BIDDER'S BOND**

(10% of Agreement Price)

**Bidders must use this form, NOT a surety company form**

KNOW ALL PERSONS BY THESE PRESENTS:

That the undersigned, Convergent Technologies LLC as Principal ("Principal"), and United States Fire Insurance Company as Surety ("Surety"), a corporation organized and existing under and by virtue of the laws of the State of Delaware and authorized to do business as a surety in the State of California, are held and bound unto the Orange County Fire Authority ("OCFA") of Orange County, State of California as Obligee, in the sum of Ten Percent of Bid Amount Dollars (\$ 10%) lawful money of the United States of America, for the payment of which sum well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted a bid to the OCFA for all work specifically described in the accompanying bid;

NOW, THEREFORE, if the Principal is awarded the Project and, within the time and manner required under the Bid Documents, after the prescribed forms are presented to Principal for signature, enters into a written contract ("Agreement"), in the prescribed form in accordance with the bid, and files two bonds, one guaranteeing faithful performance and the other guaranteeing payment for labor and materials as required by law, and meets all other conditions to the contract between the Principal and the Obligee becoming effective, or if the Principal shall fully reimburse and save harmless the Obligee from any damage sustained by the Obligee through failure of the Principal to enter into the Agreement and to file the required performance and labor and material bonds, and to meet all other conditions to the Agreement between the Principal and the Obligee becoming effective, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. The full payment of the sum stated above shall be due immediately if Principal fails to submit and execute the Agreement award documents as required in the Invitation for Bid Document within the timeline specified therein.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Agreement or the call for bids, or to the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement or the call for bids, or to the work, or to the specifications.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorneys' fee to be fixed by the Court.

If the OCFA awards the bid, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (180) days after the date of the bid opening.

**[Signature Page Follows]**

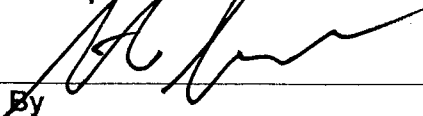
IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the 30th day of March, 2022, accordance with Article 5 - commencing at section 1860, chapter 1, part 7, division 2 of the Labor Code, this certificate must be signed and filed with the awarding body prior to performing any work under this Contract:

**CONTRACTOR:**

(Affix Corporate Seal)

Convergint Technologies LLC

Principal



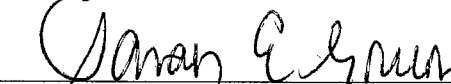
By

STEVEN SANCHEZ, GENERAL MANAGER  
Print Name and Title of Signatory**SURETY:**

(Affix Corporate Seal)

United States Fire Insurance Company

Surety



By Sarah E. Green, Attorney-in-Fact

Amanda Garcia

Name of California Agent of Surety

330 N Brand Blvd Ste 700, Glendale, CA 91203-2336

Address of California Agent of Surety

(973) 490-6600

Telephone Number of California Agent of Surety

Attach Notary acknowledgments for all signatures. Attach Power of Attorney Attach Power of Attorney if executed by Attorney-in-Fact. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

## ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Orange

On March 4, 2022 before me, Virginia Knudtson, Notary Public  
(insert name and title of the officer)

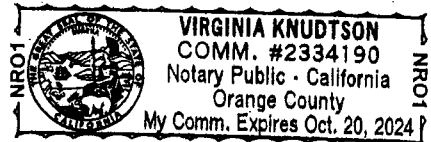
personally appeared Steven Sanchez  
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

Virginia Knudtson (Seal)



# CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of Illinois

County of Cook

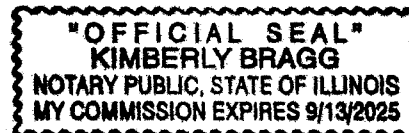
}

On March 30, 2022 before me, Kimberly Bragg, Notary Public  
Date Name and Title of Notary

personally appeared Sarah E. Green  
Name and or Names of Signer(s)

Who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.



Witness my hand and official seal

Signature Kimberly Bragg  
Notary Public Signature

Place Notary Public Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to the persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

## Description of Attached Document

Title or Type of Document \_\_\_\_\_

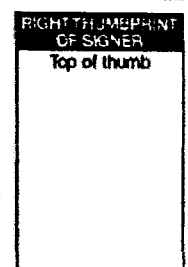
Document Date \_\_\_\_\_ Number of Pages: \_\_\_\_\_

Signer's Name: \_\_\_\_\_

- ☐ Individual
- ☐ Corporate Officer – Title(s): \_\_\_\_\_
- ☐ Partner - ☐ Limited ☐ General
- ☐ Guardian or Conservator
- ☒ Attorney-in-Fact
- ☐ Trustee
- ☐ Other: \_\_\_\_\_
- Signer is representing \_\_\_\_\_
- United States Fire Insurance Company



- ☐ Individual
- ☐ Corporate Officer – Title(s): \_\_\_\_\_
- ☐ Partner - ☐ Limited ☐ General
- ☐ Guardian or Conservator
- ☐ Attorney-in-Fact
- ☐ Trustee
- ☐ Other: \_\_\_\_\_
- Signer is representing \_\_\_\_\_



**POWER OF ATTORNEY  
UNITED STATES FIRE INSURANCE COMPANY  
PRINCIPAL OFFICE - MORRISTOWN, NEW JERSEY**

**KNOW ALL MEN BY THESE PRESENTS:** That United States Fire Insurance Company, a corporation duly organized and existing under the laws of the state of Delaware, has made, constituted and appointed, and does hereby make, constitute and appoint:

Sarah E. Green

each, its true and lawful Attorney(s)-In-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver: Any and all bonds and undertakings of surety and other documents that the ordinary course of surety business may require, and to bind United States Fire Insurance Company thereby as fully and to the same extent as if such bonds or undertakings had been duly executed and acknowledged by the regularly elected officers of United States Fire Insurance Company at its principal office.

This Power of Attorney limits the act of those named therein to the bonds and undertakings specifically named therein, and they have no authority to bind United States Fire Insurance Company except in the manner and to the extent therein stated.

Surety Bond No.: Bid Bond

Principal: Convergent Technologies LLC

Obligee: Orange County Fire Authority (OCFA) of Orange County, State of California

This Power of Attorney revokes all previous Powers of Attorney issued on behalf of the Attorneys-In-Fact named above and expires on March 25<sup>th</sup>, 2024.

This Power of Attorney is granted pursuant to Article IV of the By-Laws of United States Fire Insurance Company as now in full force and effect, and consistent with Article III thereof, which Articles provide, in pertinent part:

Article IV, Execution of Instruments - Except as the Board of Directors may authorize by resolution, the Chairman of the Board, President, any Vice-President, any Assistant Vice President, the Secretary, or any Assistant Secretary shall have power on behalf of the Corporation:

(a) to execute, affix the corporate seal manually or by facsimile to, acknowledge, verify and deliver any contracts, obligations, instruments and documents whatsoever in connection with its business including, without limiting the foregoing, any bonds, guarantees, undertakings, recognizances, powers of attorney or revocations of any powers of attorney, stipulations, policies of insurance, deeds, leases, mortgages, releases, satisfactions and agency agreements;

(b) to appoint, in writing, one or more persons for any or all of the purposes mentioned in the preceding paragraph (a), including affixing the seal of the Corporation.

Article III, Officers, Section 3.11, Facsimile Signatures. The signature of any officer authorized by the Corporation to sign any bonds, guarantees, undertakings, recognizances, stipulations, powers of attorney or revocations of any powers of attorney and policies of insurance issued by the Corporation may be printed, facsimile, lithographed or otherwise produced. In addition, if and as authorized by the Board of Directors, dividend warrants or checks, or other numerous instruments similar to one another in form, may be signed by the facsimile signature or signatures, lithographed or otherwise produced, of such officer or officers of the Corporation as from time to time may be authorized to sign such instruments on behalf of the Corporation. The Corporation may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Corporation, notwithstanding the fact that he may have ceased to be such at the time when such instruments shall be issued.

**IN WITNESS WHEREOF**, United States Fire Insurance Company has caused these presents to be signed and attested by its appropriate officer and its corporate seal hereunto affixed this 25<sup>th</sup> day of March, 2019.

**UNITED STATES FIRE INSURANCE COMPANY**



Anthony R. Slimowicz, Executive Vice President



State of New Jersey }  
County of Morris }

On this 25<sup>th</sup> day of March 2019, before me, a Notary public of the State of New Jersey, came the above named officer of United States Fire Insurance Company, to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seal of United States Fire Insurance Company thereto by the authority of his office.

SONIA SCALA  
NOTARY PUBLIC STATE OF NEW JERSEY  
NO. 2163686

MY COMMISSION EXPIRES 3/25/2024

Sonia Scala

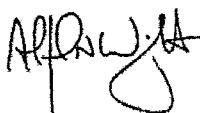
(Notary Public)



I, the undersigned officer of United States Fire Insurance Company, a Delaware corporation, do hereby certify that the original Power of Attorney of which the foregoing is a full, true and correct copy is still in force and effect and has not been revoked.

**IN WITNESS WHEREOF**, I have hereunto set my hand and affixed the corporate seal of United States Fire Insurance Company on the 30<sup>th</sup> day of March, 2022.

**UNITED STATES FIRE INSURANCE COMPANY**



Al Wright, Senior Vice President



### **3C: CERTIFICATION OF BID**

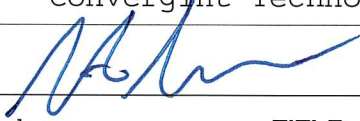
In responding to IFB RO2526A - ACCESS CONTROL SYSTEMS UPGRADE - RFOTC the undersigned Bidder(s) certifies the following:

1. Bidder agrees to provide all necessary labor, materials, equipment, and services to OCFA per the specifications contained herein and that all furnished labor is able to work in harmony with all other elements of labor employed or to be employed on the work.
2. Bidder further agrees to the terms and conditions specified herein, the following terms and conditions that are a part of this IFB, and the resulting Construction Services Agreement. **If there are any exceptions to or deviations from the terms of the Contract Documents (Section 4), they must be stated in an attachment included with the bid.** Where Bidder wishes to propose alternatives to the OCFA's contractual requirements, these should be thoroughly explained. While exceptions will be considered, OCFA reserves the right to determine that an offer is non-responsive based upon any exceptions taken. OCFA's governing body reserves the right to deny any material exceptions to the contract. If no contractual exceptions are noted, Bidder will be deemed to have accepted the form of the contract requirements set forth in Section 4.
3. The Bidder hereby certifies that the individual signing the submittal is an authorized agent for the Bidder and has the OCFA to legally bind the Bidder to the Contract.
4. The undersigned has reviewed the work outlined in the documents and fully understands the scope of work required, understands the construction and project management function(s) as described, and that each contractor who is awarded a contract shall be in fact the prime contractor, not a subcontractor, to the OCFA, and agrees that its offer, if accepted by the OCFA, will be the basis for the contractor to enter into a contract with the OCFA.
5. The undersigned had notified the OCFA in writing any discrepancies or omission or of any doubt, questions, or ambiguities about the meaning of any of the IFB documents.
6. By submitting this Offer Form and signing below, the liquidated damages clause of the Agreement is hereby acknowledged.
7. It is understood that the OCFA reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of one hundred eighty (180) days.
8. Contractor expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Cal. Gov. Code, §12650 et seq.), the OCFA will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the contractor may be subject to criminal prosecution.
9. Labor Code Section 1735 requires that no discrimination be made in the employment of persons upon public works because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status or sex of such persons, except as provided in Government Code Section 12940. Bidder certifies that it does not discriminate in its employment with regard to the factors set forth in Labor Code Section 1735; that it is in compliance with all federal, state and local directives and executive orders regarding non-discrimination in employment; and that it agrees to demonstrate positively and aggressively the principle of equal employment opportunity in employment.
10. The Bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, manager: (1) is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency; (2) has not been suspended, debarred, voluntarily excluded or determined ineligible by

any Federal agency within the past 3 years; (3) does not have a proposed debarment pending; and (4) has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

**To the Orange County Fire Authority:**

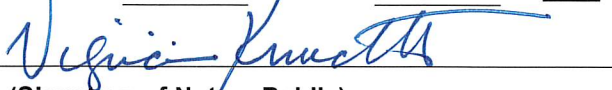
Contractor hereby certifies to the OCFA that all representations, certifications, and statements made by the contractor, as set forth in this offer form, are true and correct and are made under penalty of perjury. The Undersigned hereby offers and shall furnish the services in compliance with all terms, scope of work, conditions, specifications, and amendments in the Request for Proposal which is incorporated by reference as fully set forth herein. The representations herein are made under penalty of perjury.

**LEGAL NAME OF CONTRACTOR:** Convergint Technologies  
**SIGNATURE OF CONTRACTOR:**   
**PRINTED NAME:** Steven Sanchez **TITLE:** General Manager  
**CONTRACTOR ADDRESS:** 1983 S Santa Cruz St.  
**CITY:** Anaheim **STATE:** CA **ZIP CODE:** 92805

**IF CONTRACTOR IS A CORPORATION, AFFIX CORPORATE SEAL AND COMPLETE THE FOLLOWING:**


**NAME OF CORPORATION:** Convergint Technologies  
**DATE OF INCORPORATION:** 2001  
**PRESIDENT:** Jim Boutwell **TREASURER:** Alan Bergschneider  
**SECRETARY:** Kathryn Ingraham **MANAGER:** Steven Sanchez

**SUBSCRIBED AND SWORN TO BEFORE ME**  
**THIS** 28th **DAY OF** Mar **20** 22

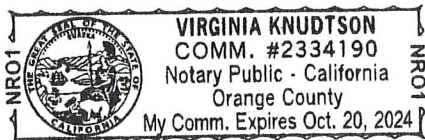
  
 (Signature of Notary Public)

(Attach Jurat)

**BY** Steven Sanchez  
 (Print Name)

  
 (Signature)

**TITLE** General Manager



(SEAL)

(SEAL)

# JURAT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Orange } ss

Subscribed and sworn to (or affirmed) before me on this 28<sup>th</sup> day of March,  
2022, By Steven Sanchez, proved to me on  
the basis of satisfactory evidence to be the person(s) who appeared before me.

Signature

*Virginia Knudtson*

(Notary Seal)



## OPTIONAL

Title or Type of Document: \_\_\_\_\_

Document Date: \_\_\_\_\_ Number of Pages \_\_\_\_\_

Signer(s) other than named above: \_\_\_\_\_

**3D: NON-COLLUSION AFFIDAVIT**

STATE OF CALIFORNIA     )  
   ) SS  
 COUNTY OF                    )

In conformance with Public Contract Code Section 7106, the party making the foregoing bid declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that such bid is genuine and not collusive or sham; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on 3/28/22 [date], at Anaheim [city], CA [state]."

Signed

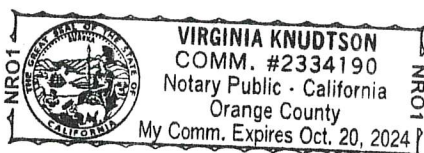
General Manager

Title

Subscribed and sworn to before me  
 this 28th day of Mar, 2022.

Signature of Notary Public

(SEAL)



**3E: CONTRACTOR'S LICENSING CERTIFICATION**

If the contractor is a sole proprietorship or another entity that does business under a fictitious name, the bid shall be in the real name of the respondent with a designation following showing "DBA (the fictitious name)," provided however, that no fictitious name shall be used unless there is a current registration with the Orange County Recorder. If the bid is submitted by a corporation, provide an additional attachment that states the names of the officers who can sign an agreement on behalf of the corporation and whether more than one officer must sign. If the bid is by a partnership or a joint venture, state the names and addresses of all general partners and joint venture parties.

The undersigned certifies that the contractor is licensed in accordance with the laws of the State of California to do the type of work required. Contractor further certifies that it is regularly engaged in the general class and type of work called for in this Request for Informal Bid. The successful contractor and subcontractors are required to hold the State of California Contractor's License(s) and DIR registration as required by SB854. Please complete and/or provide all requested information.

**CONTRACTOR'S  
LICENSE NO:** 986407 **CLASS:** C-10 **EXPIRATION:** 08-31-2023  
**CA DIR REGISTRATION NUMBER:** 1000002787 **EXPIRATION:** 06-30-2022  
**CONTRACTOR TELEPHONE:** 714-546-2780 **CONTRACTOR FAX:** 714-546-2457  
**BUSINESS ADDRESS:** 1983 S Santa Cruz St, Anaheim, CA 92805  
**LENGTH OF TIME IN BUSINESS:** 21 Years  
**LENGTH OF TIME AT CURRENT LOCATION:** 20 Years in Orange County  
**NUMBER OF EMPLOYEES:** 7,500+ **NUMBER OF CURRENT CLIENTS:** 10,000+

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*If the contractor operates as a sole proprietorship:*

**NAME OF INDIVIDUAL CONTRACTOR:** \_\_\_\_\_  
**SIGNATURE OF OWNER:** \_\_\_\_\_  
**BUSINESS ADDRESS:** \_\_\_\_\_

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*If the contractor operates under a partnership:*

**NAME OF FIRM:** \_\_\_\_\_  
**PARTNER NAME:** \_\_\_\_\_ **PARTNER TITLE:** \_\_\_\_\_  
**PARTNER ADDRESS:** \_\_\_\_\_  
**SIGNATURE OF PARTNER:** \_\_\_\_\_  
**PARTNER NAME:** \_\_\_\_\_ **PARTNER TITLE:** \_\_\_\_\_  
**PARTNER ADDRESS:** \_\_\_\_\_  
**SIGNATURE OF PARTNER:** \_\_\_\_\_

*If contractor operates under a corporation:*

**NAME OF CORPORATION:** Convergint Technologies

**CORPORATION ORGANIZED UNDER THE LAWS OF THE STATE OF CALIFORNIA:**

N/A - Convergint is not **SIGNATURE OF CORPORATION PRESIDENT**  
organized under the state of California

**SIGNATURE OF THE CORPORATION SECRETARY**

**DATE**

**Management person responsible for direct contact with OCFA:**

**NAME:** Steven Sanchez **TITLE:** General Manager

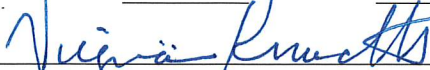
**TELEPHONE:** (714) 546-2780 **E-MAIL:** Steven.Sanchez@convergint.com

**Person responsible for the day-to-day servicing of the account/project.**

**NAME:** Chris Grimes **TITLE:** Service Manager

**TELEPHONE:** (714) 546-2780 **E-MAIL:** Chris.Grimes@convergint.com

**SUBSCRIBED AND SWORN TO BEFORE ME**  
**THIS** 28th **DAY OF** Mar **20** 22

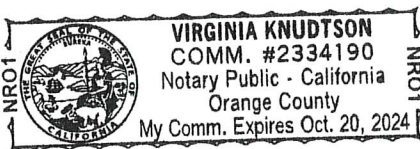
  
(Signature of Notary Public)

(Attach Jurat)

**BY** Steven Sanchez  
(Print Name)

  
(Signature)

**TITLE** General Manager



(SEAL)

(SEAL)

# JURAT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

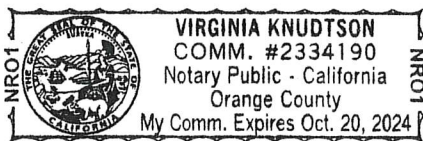
State of California

County of Orange } ss

Subscribed and sworn to (or affirmed) before me on this 28<sup>th</sup> day of March,  
2022, By Steven Sanchez, proved to me on  
the basis of satisfactory evidence to be the person(s) who appeared before me.

Signature Virginia Knudtson

(Notary Seal)



## OPTIONAL

Title or Type of Document: \_\_\_\_\_

Document Date: \_\_\_\_\_ Number of Pages \_\_\_\_\_

Signer(s) other than named above: \_\_\_\_\_

**3F: PROPOSED SUBCONTRACTORS**

Bidder acknowledges and agrees that under Public Contract Code section 4100, et seq., Bidder must clearly set forth the name and location of each subcontractor who will perform work or labor or render service to the bidder in or about the construction of the work in an amount in excess of one-half of one percent (0.5%) of bidder's total bid and the kind of work that each will perform. This is to include any subcontractor that will specially fabricate and install a portion of work according to detailed drawings contained in the plans and specifications in the amount greater than one half of one percent (.05%) of the Contractor's total bid.

Furthermore, Bidder acknowledges and agrees that under Public Contract Code section 4100, et seq., if bidder fails to list as to any portion of work, or if bidder lists more than one subcontractor to perform the same portion of work (i.e. bidder must indicate what portion of the work each subcontractor will perform), bidder must perform that portion itself or be subjected to penalty under applicable law. If alternate bids are called for and Bidder intends to use subcontractors different from or in addition to those subcontractors listed for work under the base bid, Bidder must list subcontractors that will perform work in an amount in excess of one half of one percent (0.5%) of bidder's total bid, including alternates.

In case more than one subcontractor is named for the same kind of work, the Contractor is to state the portion of work that each subcontractor will perform. Bidders or suppliers of materials only do not need to be listed. If further space is required for the list of proposed subcontractors, additional sheets showing the required information, as indicated below, shall be attached hereto and made a part of this document.

<b>Subcontractor Name</b>	Southern California Security Centers, Inc				
<b>Address</b>	16711 Parkside Ave, Cerritos, CA 90703				
<b>DIR Registration No.</b>	1000035405	<b>CSLB No.</b>	533915	<b>Class</b>	C-28
<b>Phone</b>	562-865-4019	<b>Email</b>	jspark@scscincus.com		
<b>Percent of Total Contract</b>	10%				
<b>Specific Scope of Work</b>	Door Hardware				
<b>Subcontractor Name</b>	Federal Technology Solutions, Inc				
<b>Address</b>	1828 Railroad, Corona, CA 92880				
<b>DIR Registration No.</b>	1000003927	<b>CSLB No.</b>	865369	<b>Class</b>	C-10
<b>Phone</b>	951-808-9703	<b>Email</b>	Johnp@federalsales.com		
<b>Percent of Total Contract</b>	20%				
<b>Specific Scope of Work</b>	Cabling				
<b>Subcontractor Name</b>					
<b>Address</b>					
<b>DIR Registration No.</b>		<b>CSLB No.</b>		<b>Class</b>	
<b>Phone</b>		<b>Email</b>			
<b>Percent of Total Contract</b>					
<b>Specific Scope of Work</b>					
<b>Subcontractor Name</b>					
<b>Address</b>					
<b>DIR Registration No.</b>		<b>CSLB No.</b>		<b>Class</b>	
<b>Phone</b>		<b>Email</b>			
<b>Percent of Total Contract</b>					
<b>Specific Scope of Work</b>					
<b>Subcontractor Name</b>					
<b>Address</b>					
<b>DIR Registration No.</b>		<b>CSLB No.</b>		<b>Class</b>	
<b>Phone</b>		<b>Email</b>			
<b>Percent of Total Contract</b>					
<b>Specific Scope of Work</b>					

**3G: DESIGNATION OF SURETIES**

The following are the names, addresses and phone numbers for all brokers and sureties from whom Bidder intends to procure insurance and bonds.

<b>Name</b>	United States Fire Insurance Company
<b>Address</b>	330 N Brand Blvd, Suite 700, Glendale, CA 91203-2336
<b>Phone No.</b>	(973) 490-6600
<b>Name</b>	
<b>Address</b>	
<b>Phone No.</b>	
<b>Name</b>	
<b>Address</b>	
<b>Phone No.</b>	
<b>Name</b>	
<b>Address</b>	
<b>Phone No.</b>	

**3H: BIDDER'S CERTIFICATION OF COMPLIANCE WITH  
INSURANCE REQUIREMENTS FOR PUBLIC WORKS CONSTRUCTION**

BIDDER agrees, acknowledges and is fully aware of the insurance requirements as specified in the INSTRUCTIONS TO BIDDERS FOR RO2526A - ACCESS CONTROL SYSTEMS UPGRADE - RFOTC AND IN THE SPECIAL PROVISIONS FOR RO2526A - ACCESS CONTROL SYSTEMS UPGRADE - RFOTC and accepts all conditions and requirements contained therein.

BIDDER acknowledges that ACORD forms will not be accepted when policy forms or endorsements are required.

BIDDER acknowledges that some insurance companies may be unwilling to issue all of the policy coverage and endorsements required in the conditions and requirements. It is BIDDER's responsibility to ensure that it will be able to provide evidence of all required types and amounts of insurance and all policy endorsements required hereunder.

BIDDER represents and warrants that, prior to signing below, BIDDER has confirmed with BIDDER's insurer(s) or insurance broker(s) that all required evidence of the types and amounts of insurance, and all required endorsements of insurance coverage, will be timely provided to OCFA in accordance with the conditions and requirements. Failure to provide all required evidence of insurance and endorsements when required will constitute a material breach of the agreement.

Convergint Technologies

Bidder



By

3/28/22

Date

**3I: CERTIFICATION OF SITE EXAMINATION**

By signing below, Bidder certifies each of the following:

1. Bidder is fully informed of the conditions relating to the construction of the work and the employment of labor thereon
2. The specifications for the work show conditions as they are believed to exist. The conditions shown do not constitute a representation or warranty express or implied by the OCFA, its officers or agents that such conditions actually exist.
3. Bidder has thoroughly examined the site for the work described herein and attended the mandatory pre- bid inspection of the building(s) and site(s), conducted by the OCFA. Failure to attend the mandatory pre-bid inspection shall be cause for rejection of the bid.
4. Bidder has observed the designated Contractor work areas, material equipment storage areas, access routes, as well as the ability to protect existing surface and subsurface improvements. No claim for allowance of time or money will be allowed for such matters.
5. Bidder is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the work to be performed.
6. Bidder acknowledges that there are certain peculiar and inherent conditions existent in the construction of the work that may create, during the work, unusual or peculiar unsafe conditions hazardous to persons and property and expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the work with respect to such hazards.

**To the Orange County Fire Authority:**

I certify that I have examined the site and the bid is complete and there will be no requests for additional payment for failure to examine the site thoroughly.

**Date of Site Examination:** 3/9/22

**Company Name:** Convergent Technologies

**Signature:**

**Printed Name / Title of Company Representative:**

Steven Sanchez / General Manager

**Date:** 3/28/22

**3J: BID SHEETS**

**Cost Analysis:** The bid information is relevant to a determination of whether the pricing offered is fair and reasonable in light of the Scope of Services to be provided. **Failure to submit the information in the format requested may result in the bid being deemed non-responsive.**

**Instructions:** - Input your information in the blank cells as follows:

- Insert a description for each Line
- Insert the lump sum subtotal for each category
- Add all categories to arrive at the Project Grand Total

CATEGORY I: Labor		
Line	Description	
1	Installation, configuration, CAD, and project management	
<b>SUBTOTAL LABOR:</b>		\$192,791.68
CATEGORY II: Permanent & Non-Permanent Materials/Supplies		
Line	Description	
2		
<b>SUBTOTAL MATERIALS:</b>		\$0.00
CATEGORY III: EQUIPMENT		
Line	Description	
3	Electronic equipment, cables, software, freight, sales tax	
<b>SUBTOTAL EQUIPMENT:</b>		\$263,096.32
CATEGORY IV: OVERHEAD & INDIRECT COSTS		
Line	Description	
4	Three Year Maintenance Contract in Accordance with Technical Specifications 5A – Section 28 0000 Sub-Section 1.13 Price is for 2 Year Maintenance Contract see below for 3 Option year pricing)	
		\$ \$93,700.00
5	Option Year 3: \$58,077.00    Option Year 4: \$64,641.00 Option Year 5: \$65,504	
<b>SUBTOTAL OVERHEAD:</b>		\$93,700.00
Project + 2 Year Maintenance		<b>PROJECT SUBTOTAL</b> \$549,588.00

CATEGORY V: PROFIT		
Line	Description	% Profit
6	Provide the percentage of the project subtotal (above) that will be assessed as profit:	20%
<b>SUBTOTAL PROFIT (IN DOLLARS)</b>		\$109,917.60
CATEGORY VI: PERMITS/FEES		
Line	Description	Estimated Permits/Fees
7	Provide an estimate of the permits and fees for the project. These fees will be reimbursed at actual cost or may be paid directly to the regulating agency by OCFA.	\$0.00
<b>SUBTOTAL PERMITS/FEES</b>		\$0.00
<b>PROJECT GRAND TOTAL</b>		\$549,588.00



Please provide an update to Category IV of your submitted bid as follows:

CATEGORY IV: OVERHEAD & INDIRECT COSTS	
Line	Description
4	<p>Initial Three-Year Maintenance Contract in Accordance with Technical Specifications 5A – Section 28 0000 Sub-Section 1.13.</p> <p>(Initial term includes 1 year of maintenance included in Warranty Period as specified in Technical Specifications 5A – Section 28 0000 Sub-Section 1.12 Sub-Section A and Initial Two (2) year Maintenance Contract) – Total Initial Term: Three-Years</p> <p style="text-align: right;">\$ 93,700.00</p>
5	<p>Three (3) One-Year Options to Extend after completion of the Initial Three-Year Maintenance Contract in Accordance with Technical Specifications 5A – Section 28 0000 Sub-Section 1.13 Sub-Section B.1.</p> <p>Maintenance Option Year 3: \$ 58,077.00</p> <p>Maintenance Option Year 4: \$ 64,641.00</p> <p>Maintenance Option Year 5: \$ 65,504.00</p>
<b>SUBTOTAL OVERHEAD:</b>	
<b>\$281,922.00</b>	

**PARTY DISCLOSURE FORM**Party's Name: N/A

Party's Address: \_\_\_\_\_

Party's Telephone: \_\_\_\_\_

Solicitation Title and Number: \_\_\_\_\_

Based on the party disclosure information provided, are you or your firm subject to party disclosures?  
No ☐ If no, check the box and sign below. Yes ☐ If yes, check the box, sign below and complete the form.

Date: \_\_\_\_\_

**Signature of Party and/or Agent**

---

***To be completed only if campaign contributions have been made in the preceding twelve (12) months. Attach additional copies if needed.***

Board Member(s) to whom you and/or your agent made campaign contributions and dates of contribution(s) in the preceding 12 months:

Name of Member: N/A

Name of Contributor (if other than Party): \_\_\_\_\_

Date(s): \_\_\_\_\_

Amount(s): \_\_\_\_\_

Name of Member: \_\_\_\_\_

Name of Contributor (if other than Party): \_\_\_\_\_

Date(s): \_\_\_\_\_

Amount(s): \_\_\_\_\_

**PARTICIPANT (AGENT) DISCLOSURE FORM**Prime's Firm Name: N/A

Party's Name: \_\_\_\_\_

Party's Address: \_\_\_\_\_

Party's Telephone: \_\_\_\_\_

Solicitation Title and Number:

Based on the participant disclosure information provided, are you or your firm subject to participant disclosures?

No ☐ If no, check the box and sign below. Yes ☐ If yes, check the box, sign below and complete the form.

Date: \_\_\_\_\_

**Signature of Party and/or Agent*****To be completed only if campaign contributions have been made in the preceding twelve (12) months. Attach additional copies if needed.***

Board Member(s) to whom you and/or your agent made campaign contributions and dates of contribution(s) in the preceding 12 months:

**Name of Board****Member:** N/A**Name of Contributor (if other than Party):** \_\_\_\_\_**Date(s):** \_\_\_\_\_**Amount(s):** \_\_\_\_\_**Name of Board****Member:** \_\_\_\_\_**Name of Contributor (if other than Party):** \_\_\_\_\_**Date(s):** \_\_\_\_\_**Amount(s):** \_\_\_\_\_

### 3K: PROJECT APPROACH AND TIMELINE

#### 1. Project Construction Schedule

Convergent's Project Manager will work with the City's point of contact by following a prescriptive Project Flow (illustrated in next section) in guiding the project through identified phases and milestones. This will ensure all project stakeholders share the same expectations with clear communication of all phases. Convergent's Project Manager will work with the City on establishing a clear schedule of activities, milestones, and completion dates. We anticipate the project to being around May 2<sup>nd</sup> and to take approximately 4-6 months to complete.

Project Phase		Duration	Start	End	Team
<b>Kick-off / Inspections / Design Confirmations</b>					
	Kick-Off Meeting	1 Day	5/2/2022	5/2/2022	City/PM
	Site Job Walks	1 Day	5/3/2022	5/3/2022	City/PM
	Confirm IP Scheme/Address for both Sites	2 Days	5/4/2022	5/5/2022	City/PM
	Finalize Designs	1 Day	5/6/2021	5/6/2021	PM/Engr
	Present Plan to Customer	1 Day	5/9/2021	5/9/2021	PM
<b>Procurement/Programming</b>					
	Material Purchasing/Receiving	30 Days	5/10/2022	6/20/2022	PM
	Configure IP addresses	1 Day	6/21/2022	6/21/2022	IT Specialist
	Program Servers, & Load Symmetry Software	1 Day	6/22/2022	6/22/2022	IT Specialist
	Configure and copy existing database	1 Day	6/23/2022	6/23/2022	IT Specialist
<b>Pretest/Labeling</b>					
	Test and label all existing access control cable	2 Days	6/24/2022	6/27/2022	Field Specialist
<b>Field Installations</b>					
	Cable Infrastructure Rough In (include removing old cable)	14 Days	6/28/2022	7/15/2022	Field Specialist
	Install and Terminate Access Control Panels	1 Day	7/18/2022	7/18/2022	Field Specialist
	Install Field Devices including cameras	34 Days	7/19/2022	9/2/2022	Field Specialist
	Configure Client Workstations and Lobby Visitor Management	2 Days	9/5/2022	9/6/2022	Field Specialist
<b>Testing/Commission</b>					
	Test all Field Devices	2 Days	9/7/2022	9/8/2022	IT Specialist
	Ensure Camera Recording and all Functionality	1 Day	9/9/2022	9/9/2022	IT Specialist
	Review Training Curriculum	1 Day	9/12/2022	9/12/2022	IT Specialist
	Conduct Training	2 Days	9/13/2022	9/14/2022	IT Specialist
<b>Close-Out</b>					
	Deliver Final Drawings	2 Days	9/15/2022	9/16/2022	PM
	Obtain User Sign-off	1 Day	9/19/2022	9/19/2022	PM
	Provide Warranty Letter	1 Day	9/20/2022	9/20/2022	PM
	Coordinate Preventative Maintenance Schedule	1 Day	9/21/2022	9/21/2022	PM

## 2. Schedule of Values

Line	Qty	Part	Description	Manufacturer
1	<b>Access Control</b>			
2	12	M2150- 8DBC	Symmetry M2150 8DBC 8 Reader Panel BOARD ONLY - 20K	AMAG
3	7	M2150- 8DC	Symmetry M2150 8DC 8 Reader Panel BOARD ONLY	AMAG
4	12	MN-NIC-4	Symmetry M2150 NIC Module - 10/100Mbps NIC for Ethernet connection of panel to LAN	AMAG
5	18	WIM8	Symmetry Wiegand Interface Module (WIM) 8 - Used with 8 door controllers to enable Wiegand reader connection	AMAG
6	1	M2150- AC24/4	Symmetry M2150 24 Input/4 Output Panel BOARD ONLY	AMAG
7	41	939S	Symmetry Blue 939S (Wiegand OSDP) Wallplate Reader - Black - for Bluetooth / LF HF	AMAG
8	69	929S	Symmetry Blue 929S (Wiegand OSDP) Mullion Reader - Black - for Bluetooth / LF HF	AMAG
9	40	GI- 18012WG W	3/4 REC STL DR LEAD 3/4 WHT	G.R.I.
10	7	GRI- 4463A	SW SET, MINI ALUM CASE W/18	George Risk Industries
11	15	BOS- DS160	PIR REQUEST TO EXIT SENSOR WITH SOUNDER	Bosch
12	6	ALT- TROVE2A M2	TROVE2AM2	Altronix
13	6	ALT- TROVE3A M3	TROVE3 W/TAM3 BACKPLANE	Altronix
14	18	AX- EFL104NB	24VDC 10 AMP BOARD	Altronix
15	18	LINQ8PD CB	8 PTC NETWORKED PWR DIST MOD	Altronix
16	18	LINQ8AC MCB	8 PTC NETWORK ACCESS PWR CONT	Altronix
17	18	VR6	24VDC IN - 5VDC / 12VDC6A OUT	Altronix
18	3	ES411-K1	Door Prop Alarm	DSI
19	<b>Door Hardware</b>			
20	12	VON99EO-662	Rim Exit Only Panic Mechanical Device	Von Duprin
21	12	0L- VLPULKIT	EL MOD KIT FIELD INSTALL	ADI LOCK EXPRESS
22	6	MLRK1- VD	Door Latch Pullback Kit, Motor Driven, 24 to 28 Volt DC, Includes 8 Lead, Motor Mount, Head Screw, Connector, Sticker, Dogging Hole Cap, For Von Duprin Exit Device	Command Access
23	24	0L- VDREXKIT E	RX SWITCH	ADI LOCK EXPRESS
24	4	0L- KDLBLK	18IN DOOR LOOP 1/4IN DIA BLACK	ADI LOCK EXPRESS
25	14	6S- L9090EU0 6	ELECTRIFIED LOCK	SCHLAGE
26	17	0L- ETH4W456 5	4 WIRE POWER TRANSFER HINGE	ADI LOCK EXPRESS
27	23	SDC-PT5	UL LISTED CONCEALED POWER TRANSFER DEVIC	SDC/Security Door Controls

28	<b>Video Surveillance</b>			
29	43	SPCVSW- PRO-IP	Symmetry CompleteView 20/20 Pro - I IP camera license	AMAG
30	43	SCVSW- SMA-PRO	One Year Software Maintenance Agreement for CompleteView Pro - per camera license	AMAG
31	16	P3245-LV	HDTV 1080p video quality Lightfinder 2.0, Forensic WDR and OptimizedIR Zipstream supporting H.264 and H.265 Signed firmware and secure boot For remote surveillance needs, this network camera is best suited Provides night vision of objects at a distance of up to 131.23 ft Features RGB CMOS sensor	Axis Communications
32	9	01596-001	AXIS P3247-LVE is a day/night fixed dome with IK10 vandal-resistant outdoor casing. It has support for Forensic WDR, Lightfinder 2.0, motion-adaptive exposure for minimized motion blur, and OptimizedIR illumination. Varifocal 3-8 mm P-Iris lens with remo	AXIS COMM
33	13	P3727- PLE	P3727-PLE	AXIS
34	<b>Intercom</b>			
35	1	VID-CAM- 008-V9	Symmetry 8 Camera Integration Licenses - For connection of IP Video devices / systems	AMAG
36	1	VID-CAM- 001-V9	Symmetry 1 Camera Integration Licenses - For connection of IP Video devices / systems	AMAG
37	1	INTERCO M-KIT-V9	Symmetry Zenitel Stentofon Intercom Module	AMAG
38	9	1008140010	Surface Back Box-Turbine - TA-1	Vingtor-Stentofon
39	9	1008315030	TCIV-3 Black Single Button	Vingtor-Stentofon
40	5	9783148	Poly Savi 8200 Series W8220 - headset	Plantronics
41	<b>Cable</b>			
42	8	4461030	4 Element Composite Cable Plenum Ylw Jkt	Windy City Wire
43	1	444382	22-04 Unshielded Stranded Plenum Blu Stripe	Windy City Wire
44	5	556609	23-4P Unshielded Solid Plenum Cat6 Blu Jkt	Windy City Wire
45	8	775600-110DB	24-4P Unshielded Solid C6 Blk Jkt Direct-Burial	Windy City Wire
46	<b>Spare Parts</b>			
47	1	939S	Symmetry Blue 939S (Wiegand OSDP) Wallplate Reader - Black - for Bluetooth / LF HF	AMAG
48	1	929S	Symmetry Blue 929S (Wiegand OSDP) Mullion Reader - Black - for Bluetooth / LF HF	AMAG
49	1	GI- 18012WG W	3/4 REC STL DR LEAD 3/4 WHT	G.R.I.
50	1	GRI- 4463A	SW SET, MINI ALUM CASE W/18	George Risk Industries
51	1	BOS- DS160	PIR REQUEST TO EXIT SENSOR WITH SOUNDER	Bosch
52	1	AX- EFL104NB	24VDC 10 AMP BOARD	Altronix
53	1	VON99EO-626-36	Rim Exit Only Panic Mechanical Device	Von Duprin
54	1	0L- VLPULKIT	EL MOD KIT FIELD INSTALL	ADI LOCK EXPRESS

55	1	MLRK1- VD	Door Latch Pullback Kit, Motor Driven, 24 to 28 Volt DC, Includes 8 Lead, Motor Mount, Head Screw, Connector, Sticker, Dogging Hole Cap, For Von Duprin Exit Device	Command Access
56	1	0L- VDREXKIT E	RX SWITCH	ADI LOCK EXPRESS
57	1	6S- L9090EU0 6	ELECTRIFIED LOCK	SCHLAGE
58	1	0L- ETH4W456 5	4 WIRE POWER TRANSFER HINGE	ADI LOCK EXPRESS
59	1	SDC-PT5	UL LISTED CONCEALED POWER TRANSFER DEVIC	SDC/Security Door Controls
60	1	P3245-LV	HDTV 1080p video quality Lightfinder 2.0, Forensic WDR and OptimizedIR Zipstream supporting H.264 and H.265 Signed firmware and secure boot For remote surveillance needs, this network camera is best suited Provides night vision of objects at a distance of up to 131.23 ft	AXIS
61	1	01596-001	AXIS P3247-LVE is a day/night fixed dome with IK10 vandal-resistant outdoor casing. It has support for Forensic WDR, Lightfinder 2.0, motion-adaptive exposure for minimized motion blur, and OptimizedIR illumination. Varifocal 3-8 mm P-Iris lens with remo	AXIS
62	1	P3727- PLE	P3727-PLE	AXIS
63	1	1008315030	TCIV-3 Black Single Button	Vingtor-Stentofon
64	3	ES411-K1	Door Prop Alarm	DSI

### 3. Schedule Narrative

Convergent Technologies recommends taking a detailed approach and sequence of events for the initiation and follow-up services. The following items would be initiated during the first 30 days once under contract for this engagement.

#### **Resource Assignment**

Convergent Technologies will assign the lead Project Manager who will coordinate security related activities as determined by the OCFA. This may include planning, initiating, resourcing, monitoring, tracking, and reporting the progress events to OCFA representatives.

#### **Kick-Off Meeting**

The first engagement will be a kickoff meeting which will serve several purposes. The first item of business will be introductions of the respective team members and understanding their respective roles and responsibilities. The second objective will be to align the teams with regards to the expectations. The third and final item for the kickoff meeting is for Convergent to present our recommend plans and firm up those activities with the team.

#### **15 Day Objectives**

As noted above, the plan will be reviewed with the team and adjusted to achieve the objectives. There is a large number of activities to cover and coordinate. The following is a summary of the primary elements:

- Administrative Items
  - Billing, parking, delivery address, working hours, etc.
  - Submittal of bonds, Certificate of Insurance, material submittal, etc
- Project Management
  - Kick Off Meeting
  - Validate and memorialize project deliverables
  - Communication Plan – Contact List, Roles, Frequency
  - Microsoft Project – Establish MS Project as Scheduling Tool
  - Timelines – validate expected project priorities and timelines
- Site Assessment – Validate expectations, priorities, and high-level plan

At the conclusion of the first 15 days, our teams will be aligned with regards to our roles, responsibilities, project scope, final Bill of Materials, performance expectations and metrics, and how the project will be managed. Project will be mobilized immediately thereafter and will follow a detailed construction schedule set forth via the project management plan.

### **Construction**

Immediately upon mobilization, efforts will focus on system programming before replacement of existing equipment begins. Both the existing and new systems shall run simultaneously until all devices are transitioned to the upgraded system. Convergent to provide testing and labeling of all existing cabling from the controllers to the field devices and install cabling to all new device locations. This will include installing conduit, removing existing cabling, installing new Category 6 and Composite cabling, and labeling all conduit/cables accordingly. After all cabling is completed, our teams will begin mounting the new access control panels and replace all end-of-line EACS controllers at each head end location. Our team will then proceed to the installation of all new field devices and door hardware and replace the existing field devices and cameras as identified on the plan drawings. Once all new devices and equipment are installed, our team will decommission and remove the Pelco analog head end video equipment and end-of-line EACS controllers. A cutover will be performed with both systems in place to ensure minimal downtime.

### **Configuration**

A new copy of the existing database will be loaded onto the new EACS server before replacing any hardware. This process will start with upgrading the Symmetry system and integrating the new video system and configuring the software to operate in the OCFA's VMWare environment. After the database programming has been verified our software specialist will begin converting the hardware to the upgraded controllers one building at a time. Convergent will also load and configure client software on (3) existing workstations.

### **Testing**

Prior to final commissioning, our team will perform a detailed testing of all head end systems and connectivity to each field device. All devices will go through final testing, commissioning, and operational checklist.

### **Commissioning**

As part of final commissioning, our team will work with OCFA personnel to verify complete operation of the system and make necessary adjustments as needed. In addition, Convergent will prepare and turn over all equipment closeout documents and manuals at this time.

### **Training**

Convergent will provide a minimum of 16 hours onsite training comprised of both user and administrator training to cover each of the installed systems. Convergent will proceed by conducting user training and administrator training sessions on the installed application.

### **Warranty and Maintenance**

All equipment provided by Convergent Technologies will include, at no additional cost, one-year

parts and labor warranty including software, hardware, material, installation, and configuration. Convergint is presenting OCFA with optional 3 Year Preventative Maintenance and Warranty Plans that would help extend the life of the OCFA's investment and help control expenses related with future repairs of the system after the first year.

### **Spare Parts**

Convergint to provide a minimum quantity of one for each type of active electronic device including card reader, door contact, request-to-exit, electrified door hardware, and cameras.

### **Project Controls & Implementation Plan**

Effective project implementation is the cornerstone to delivering a successful project. It becomes even more critical as a project is compressed. Our Program Management team will be based locally in our City of Orange, California office. Our Project Manager will be the one source to coordinate all activities and communication between you, Convergint Technologies and our implementation team. Our team has been carefully selected and has worked within the government environment as part of Design/Build Teams. In this area we feel that Convergint offers considerable experience from an environmental and operational perspective.

Our process ensures that Convergint is:

- Managing the schedule, budget, logistics, and project quality
- Leading coordination sessions with you for project plan and schedule development
- Reviewing and approving implementation plans for overall conformance to master plan and schedule
- Acting as communications conduit to all stake holders

All project team members including installation and logistic teams will follow applicable procedures from Convergint Technologies Quality Management System (QMS). Quality procedures will include comprehensive design, installation, and programming standards as well as testing methodologies. A Project Manager will conduct periodic reviews to ensure standards and methodologies are properly implemented.

Convergint Technologies' proven approach to Project Implementation has resulted in successful North American installations and service for major clients. We'll take this proven methodology and further customize it to meet your requirements. We are confident this approach will result in the best overall project for you at the best value.

### **3-Year Software Service Agreement and Preventive Maintenance**

The Preventative Maintenance program will consist of quarterly site visits to perform visual inspection and testing of all card readers, field devices, and cleaning of all camera lenses/housing. This also includes annual software licenses, upgrades and software maintenance. Convergent will provide staff, materials, tools, and bucket trucks as need to perform this service.

### **3-Year Comprehensive Equipment and Labor Warranty**

Any component that fails during the 3-year term will be replaced at no cost with similar product. Any labor required to replace a part will be provided at no cost.

### **Schedule of Values Explanation**

Convergent's approach with this project is to use material as recommended by the bid with little or no substitutions. Please reference above table for material manufacturer, part numbers, product description and quantities anticipated for this project.

### **Alternate Bid #1**

Provide and configure VMWare failover licenses and software for the Symmetry CompleteView VSS.

**Total Sell Price Alternate Bid: \$12,288.00**

### 3L: LIST OF PROJECT REFERENCES

#### **City of Los Angeles / Port of Los Angeles (Port Police)**

Contact: Jill Taylor, Homeland Security Manager  
Phone: (310) 732-7628  
Address: 330 S Centre St, San Pedro, CA 90731  
Email: [jtaylor@portla.org](mailto:jtaylor@portla.org)  
Total Contract: \$15M+ (various contracts)  
Time Period: 2010 - present  
Scope: The City of Los Angeles has contracted with Convergent Technologies since 2010 for a number of different projects at the Port of Los Angeles including the deployment of a large scale video surveillance system used by the Port Police, the implementation of BriefCam video analytics, Vidsys PSIM for video systems integration, a Mitsubishi video wall, the management of the Port's **AMAG** access control system, and the deployment of Department Operations Center (DOC) to enable the Port to manage and respond to local and national emergencies.

#### **City of Irvine Police Department**

Contact: Nick Rycroft, Technology Analyst  
Address: One Civic Center Drive, Irvine, CA 92606  
Phone: (949) 724-7425  
Email: [nrycroft@ci.irvine.ca.us](mailto:nrycroft@ci.irvine.ca.us)  
Total Contract: \$800K (various)  
Time Period: 2015 - present  
Scope: The City of Irvine contracted with Convergent Technologies for the installation, maintenance and support of a City-wide video surveillance, access control, and intercom. This project includes approximately 250 cameras and 100 card readers

#### **City of Temecula (w/Sheriff Department)**

Contact: Michael Heslin, Director of IT and Support Services  
Address: 41000 Main St, Temecula, CA 92590  
Phone: (951) 308-6321  
Email: [michael.heslin@temeculaca.gov](mailto:michael.heslin@temeculaca.gov)  
Total Contract: \$5M (various contracts)  
Time Period: 2018 - present  
Scope: The City of Temecula contracted with Convergent Technologies for the deployment and maintenance of a city-wide wired & wireless-based video surveillance comprised of 456 cameras, a large EOC video wall, and the integration of an access control system.

**Long Beach Airport (Airport Police)**

Contact: Scott Korobkin, Superintendent of Airport Security

Address: 4100 Donald Douglas Dr, Long Beach, CA 90808

Phone: (562) 570-2667

Email: [scott.korobkin@longbeach.gov](mailto:scott.korobkin@longbeach.gov)

Total Contract: \$7M+ (various contracts)

Time Period: 2014 - present

Scope: The City of Long Beach has contracted with Convergent Technologies since 2014 to upgrade, manage and maintain the Long Beach Airport physical security systems including a 220 video surveillance camera system and the integration of an airport-wide access control system. In addition, Convergent Technologies was contracted by the airport for the implementation of an identity management system.

## 3M: QUALIFICATIONS QUESTIONNAIRE

1. *Provide the names, titles, addresses, and phone numbers of all individuals, firm members, partners, joint ventures, and/or corporate officers having a principal interest in this proposal:*

Convergent has an extensive number of officers and principal managers. The list below is a subset of the most relevant officers/principles for this project.

**Ken Lochiatto**

Chief Executive Officer

(847) 585-8705

One Commerce Drive, Schaumburg, IL 60173

**Sean Flint**

Executive Vice President

(847) 585-8705

One Commerce Drive, Schaumburg, IL 60173

**Larry Hillman**

Vice President

(714) 546-2780

1983 S. Santa Cruz St. Anaheim, CA 92805

**Steven Sanchez**

General Manager

(714) 546-2780

1983 S. Santa Cruz St. Anaheim, CA 92805

2. *Provide the dates of any voluntary or involuntary bankruptcy judgments against any principal having an interest in this proposal.*

Convergent Technologies has never sought bankruptcy protection. Convergent is financially capable of completing this project and does not have any pending issues that may prevent it from performing this contract. Convergent Technologies has no known conflicts of interest, nor any failures or refusals to complete awarded contracts.

3. *Provide all current and prior DBA's, aliases, and fictitious business names for any principal having an interest in this proposal.*

None

4. *For each violation of labor law determined by any Federal, State or local agency to have been committed by the Bidder or any principal having an interest in this proposal, identify any measures that have been imposed by, or agreed upon with, the Federal, State or local agency as punishment for past violations or to prevent future violations.*

Convergent Technologies has not had any litigation, including personal and property, involving the company in the last five (5) years.

5. *State the title and date, and attach a copy of, each written threat, bid depository, claim, lawsuit, discipline or other written action by the Contractor State License Board against the Bidder or any principal having an interest in this proposal.*

Convergent Technologies has not had any litigation, including personal and property, involving the company in the last five (5) years.

6. *Identify the following information about each claim asserted against the Bidder or any principal having an interest in this proposal relating to industrial safety within the past eight (8) years: name of the agency/entity asserting the claim; the date of the claim; the date of the alleged violation giving rise to the claim; the claim number, if any. Attach a copy of the claim.*

Not Applicable

7. *Has the Bidder or any principal having an interest in this proposal been disqualified from bidding on, or from finishing, any other public works project in the past 8 years? If so, for each such disqualification, identify: who was disqualified; which public agency disqualified; the date of the disqualification; the alleged basis for the disqualification;*

Convergent Technologies has never been disqualified from bidding on, or from finishing any other public works project in the past 8 years.

8. *Has the Bidder or any principal having an interest in this proposal: (a) filed (voluntarily or involuntarily) for bankruptcy protection; (b) been sued or arbitrated a dispute; been involved in a contract termination involving a public works project; or (c) failed to complete work required by a construction contract? If so, provide detailed information.*

No, none of the above

9. Please submit an attachment detailing the following information about all current projects:

- a) Project Name
- b) Description of Bidder's Work
- c) Completion Date
- d) Project Cost

Convergent as a whole has thousands of projects currently in operation. Our Orange County office alone, has too many projects to list entirely including projects with the Los Angeles World Airport, County of Orange, County of San Bernardino, Port of Long Beach, Port of Los Angeles, Metrolink, City of Tustin, City of Dana Point, City of Huntington Beach, City of Temecula, etc. We are happy to provide information about any specific project upon request. Below is a small listing of a handful of projects for your reference.

**a) City of Irvine Police Department**

b) The City of Irvine contracted with Convergent Technologies for the installation, maintenance, and support of a City-wide video surveillance, access control, and intercom. Project includes approximately 250 cameras and 100 card readers. Convergent was later contracted to provide a second video surveillance system and video analytics systems for 250 traffic intersection cameras.

c) Completion Date: Various over the last 5 years and on-going.

d) Total Contract: \$800K (various)

**a) Long Beach Airport**

b) The City of Long Beach has contracted with Convergent Technologies since 2014 to upgrade, manage and maintain the Long Beach Airport physical security systems including a 220 video surveillance camera system and the integration of an airport-wide access control system. In addition, Convergent Technologies was contracted by the airport for the implementation of an identity management system. In 2020, Long Beach Airport contracted Convergent a second time to continue to service and maintain its security system comprised to 250+ cameras and 80 access control doors. Our service contract includes 2 on-site technicians to perform daily service and repairs.

c) Completion Date: Various over the last 7 years and on-going.

d) Total Contract: \$7M+ (various contracts)

**a) Port of Los Angeles**

- b) The Port of Los Angeles has contracted with Convergent Technologies since 2010 for a number of different projects at the Port including the deployment of a large scale video surveillance system used by the Port Police, the implementation of the Vidsys PSIM for video systems integration, the implementation of a Mitsubishi video wall, the management of the Port's access control system, and the deployment of Department Operations Center (DOC) to enable the Port to manage and respond to local and national emergencies and to integrate its DOC with the City of Los Angeles, the Sheriff, DHS, and the US Coast Guard. Recently, Convergent installed a Milestone system at the Port to support over 500 cameras and also implemented a BriefCam video analytics solution to work with Milestone. The contract also includes on-site technicians to service and repair the existing video and access control systems.

c) Completion Date: Various over the last 11 years and on-going.

d) Total Contract: \$15M+ (various contracts)

**a) City of Temecula**

- b) The City of Temecula contracted with Convergent Technologies for the deployment and maintenance of a city-wide wired & wireless-based Genetec video surveillance comprised of 456 cameras, a large EOC video wall system, and the migration of an existing Lenel access control system to Genetec for a full unified system. The system implementation consisted of the procurement, installation and configuration of HP servers with VMware, a 2PB storage system, 456 Axis cameras, a 6x4 55" monitor video wall, and the configuration of video mapping integrated with the City's ESRI mapping layers. The project was completed in 2020 and Convergent has secured a maintenance contract to support the City's video surveillance, access control, intercom, and Code Blue systems. As part of the maintenance contract, our team performs an annual Genetec upgrade and firmware upgrade on all field devices.

c) Completion Date: Various over the last 5 years and on-going.

d) Total Contract: \$5M (various contracts)

## BUSINESS LICENSES, CERTIFICATIONS AND MANUFACTURER AUTHORIZATIONS

### State Certification

Convergent holds current a C-10 license registered within the State of California. With this certification, Convergent is licensed to perform all low voltage and electrical installations directly for our customers.

Contractor's License No.(s)	Classification	Expires:
986407	C-10	08-31-23



[Home](#) | [Online Services](#) | [License Details](#)

### Contractor's License Detail for License # 986407

**DISCLAIMER:** A license status check provides information taken from the CSLB license database. Before relying on this information, you should be aware of the following limitations.

- ▶ CSLB complaint disclosure is restricted by law ([B&P 7124.6](#)) If this entity is subject to public complaint disclosure click on link that will appear below for more information. Click [here](#) for a definition of disclosable actions.
- ▶ Only construction related civil judgments reported to CSLB are disclosed ([B&P 7071.17](#)).
- ▶ Arbitrations are not listed unless the contractor fails to comply with the terms.
- ▶ Due to workload, there may be relevant information that has not yet been entered into the board's license database.

#### Business Information

CONVERGENT TECHNOLOGIES LLC  
1667 NORTH BATAVIA STREET  
ORANGE, CA 92867  
Business Phone Number:(714) 546-2780

**Entity** Ltd Liability  
**Issue Date** 08/28/2013  
**Expire Date** 08/31/2023

#### License Status

This license is current and active.

All information below should be reviewed.

#### Classifications

C10 - ELECTRICAL

## DIR Registration

Convergint Technologies is registered with the Department of Industrial Relations.

DIR Registration No.(s)	County	Expires:
1000002787	Orange	06-30-22



### Contractor Information

Legal Entity Name  
 CONVERGINT TECHNOLOGIES  
 Legal Entity Type  
 LLC  
 Status  
 Active  
 Registration Number  
 1000056093  
 Registration effective date  
 03/23/21  
 Registration expiration date  
 06/30/22  
 Mailing Address  
 5860 W. LAS POSITAS BLVD., SUITE 7 PLEASANTON 94588 CA United States of America  
 Physical Address  
 5860 W. LAS POSITAS BLVD., SUITE 7 PLEASANTON 94588 CA United States of America  
 Email Address  
 patricia.newell@convergint.com  
 Trade Name/DBA  
 DG INVESTMENT INTERMEDIATE HOLDINGS 2, INC.  
 License Number (s)  
 Other:986407

### Registration History

Effective Date	Expiration Date
03/06/18	06/30/18
07/17/19	06/30/20
03/23/21	06/30/22

### Legal Entity Information

Corporation Entity Number: 986407  
 Federal Employment Identification Number: 900881132

**Member name(s):**  
 Member Legal Name: CONVERGINT TECHNOLOGIES  
 Member Legal Entity Type: LLC

**Agent for service:**  
 Agent of Service Name: CONVERGINT TECHNOLOGIES  
 Agent of Service Mailing Address: ONE COMMERCE DRIVE SCHAUMBURG 60173 IL United States of America

## Convergent's Technology Partner Authorized Reseller Certifications



Securing Your World

March 3, 2018

Convergent Technologies  
1667 N Batavia St  
Orange, Ca 92867

To whom it may concern:

I am writing you to advise that Convergent Technologies is an AMAG Certified Reseller in good standing. They have achieved success installing and servicing our equipment for many years.

The Convergent Technologies has experience in design, installation and maintenance of AMAG Symmetry Security Management systems. They have been certified through the AMAG certification process and have technical and support staff that have successfully completed our AMAG Training program. Our contractual agreement has afforded them the opportunity to procure our products.

If you require further information, please do not hesitate to contact me at 310-347-8625 or [chris.randall@amag.com](mailto:chris.randall@amag.com).

Best regards,

Chris Randal  
Regional Sales Manager, Southwest US



November 11, 2016

To Whom It May Concern:

This letter is to confirm that Convergent Technologies is a current integrator of Axis Communications, Inc. Convergent Technologies is a Multi-Regional Level partner in good standing and is authorized to sell, install and service all Axis video surveillance related products. As of November 11<sup>th</sup>, 2016 Convergent has 43 Axis Certified Professionals on staff. Additionally, the organization is a leading partner in our National Systems Integrator program and winner of Axis' *2015 Enterprise Partner of the Year* award, the *2009-14 National Systems Integrator Partner of the Year* award, along with other numerous project and vertical awards.

If you have any questions or need further information, please contact me at 978-614-2030 or email me at [Larry.Newman@axis.com](mailto:Larry.Newman@axis.com).

Sincerely,

P. Lawrence Newman  
Director of Sales - Americas

Axis Communications, 300 Apollo Drive, Chelmsford, MA 01824, Tel: 1 800 444 AXIS (2947), Fax 978 614 2100, [www.axis.com](http://www.axis.com)

**4A: TRANSMITTAL PAGE TWO – BID AWARD DOCUMENTS****TO:** Orange County Fire Authority**FROM:**Convergent Technologies LLC  
(Legal Name of Contractor)**PROJECT:** ACCESS CONTROL SYSTEMS UPGRADE - RFOTC**AWARDED CONTRACTOR'S CHECKLIST:**

The awarded Contractor is required to provide the following documents:

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Transmittal Page (Exhibit 4A) | <input type="checkbox"/> Award Certifications (Exhibit 4D) | <input type="checkbox"/> Signed Agreement (Exhibit 4F) |
| <input type="checkbox"/> Performance Bond (Exhibit 4B) | <input type="checkbox"/> W9 (Exhibit 4E)                   |  |
| <input type="checkbox"/> Payment Bond (Exhibit 4C)     | <input type="checkbox"/> Insurance Certificates            |  |

**TO THE OCFA:**

Signature below acknowledges that, should the Contractor fail to provide the above documents in a form satisfactory to OCFA within fourteen days of the issuance of the Notice of Award, OCFA may, at its option, consider the Contractor to have abandoned the agreement, upon which the full payment of the sum stated in the Bidder's Bond shall be due immediately.

**SIGNATURE OF CONTRACTOR:****PRINTED NAME:**Larry Hillman**TITLE:**Vice President

**4B: FAITHFUL PERFORMANCE BOND**

(100% of Agreement Price)

**Bidders must use this form, NOT a surety company form**

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Orange County Fire Authority, ("OCFA") and Convergent Technologies LLC ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

**IFB RO2526A - ACCESS CONTROL SYSTEMS UPGRADE - RFOTC**

("Contract") which Contract dated [DATE], and all of the Bid Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, the Principal and United States Fire Insurance Company ("Surety") are held and firmly bound unto the Board of the OCFA in the penal sum of Five Hundred Forty-Nine Thousand, Five Hundred Eighty-Eight DOLLARS (\$549,588), lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents, to:

- Perform all the work required to complete the Project; and
- Pay to the OCFA all damages the OCFA incurs as a result of the Principal's failure to perform all the work required to complete the Project.

The condition of the obligation is such that, if the above bounden Principal, his or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract and any alteration thereof made as therein provided, on his or its part to be kept and performed at the time and in the intent and meaning, including all contractual guarantees and warranties of materials and workmanship, and shall indemnify and save harmless the OCFA, its trustees, officers and agents, as therein stipulated, then this obligation shall become null and void, otherwise it shall be and remain in full force and virtue.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period equal to the warranty and/or guarantee period of the Contract, during which time Surety's obligation shall continue if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the OCFA from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the OCFA's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the specifications.

**[Signature Page Follows]**

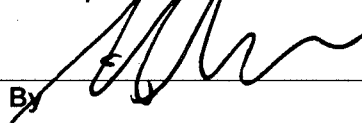
IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the 14th day of June, 20 22 in accordance with Article 5, commencing at section 1860, chapter 1, part 7, division 2 of the Labor Code, this certificate must be signed and filed with the awarding body prior to performing any work under this Contract:

**CONTRACTOR:**

(Affix Corporate Seal)

Convergent Technologies LLC

Principal



By

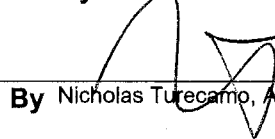
STEVEN SANCHEZ, GENERAL MANAGER  
Print Name and Title of Signatory

**SURETY:**

(Affix Corporate Seal)

United States Fire Insurance Company

Surety



By Nicholas Turecamo, Attorney-in-Fact

Amanda Garcia

Name of California Agent of Surety

330 N Brand Blvd Ste 700, Glendale, CA 91203-2336

Address of California Agent of Surety

(973) 490-6600

Telephone Number of California Agent of Surety

Attach Notary acknowledgments for all signatures. Attach Power of Attorney Attach Power of Attorney if executed by Attorney-in-Fact. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

## ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Orange

On June 15, 2022 before me, Virginia Knudtson, Notary Public  
(insert name and title of the officer)

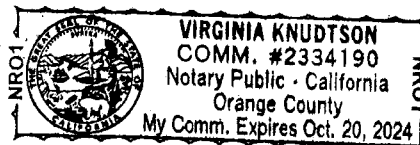
personally appeared Steven Sanchez  
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature

Virginia Knudtson (Seal)



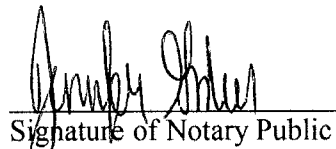
**NOTARY ACKNOWLEDGMENT OF SURETY:**

State of Connecticut

County of Hartford ss.

On this the 14th day of June, 2022, before me, Jennifer Godere, the undersigned officer, personally appeared Nicholas Turecamo, known to me (or satisfactorily proven) to be the person whose name is subscribed as Attorney-In-Fact for United States Fire Insurance Company, and acknowledged that s/he executed the same as the act of his/her principal for the purposes therein contained.

In witness whereof I hereunto set my hand.



Signature of Notary Public  
Date Commission Expires: March 31, 2027  
Jennifer Godere  
Printed Name of Notary

**JENNIFER GODERE**  
**NOTARY PUBLIC - CT 185886**  
My Commission Expires Mar. 31, 2027

**POWER OF ATTORNEY  
UNITED STATES FIRE INSURANCE COMPANY  
PRINCIPAL OFFICE - MORRISTOWN, NEW JERSEY**

**KNOW ALL MEN BY THESE PRESENTS:** That United States Fire Insurance Company, a corporation duly organized and existing under the laws of the state of Delaware, has made, constituted and appointed, and does hereby make, constitute and appoint: **Aimee R. Perondine, Bethany Stevenson, Donna M. Planeta, Joshua Sanford, Samuel E. Begun, Melissa J. Stanton, Nicholas Turecamo, Michelle Anne McMahon, Alexis R. Apostolidis, Bryan M. Caneschi, Phillip M. Knower, Brendan William Fletcher, Cassandra Baez, Jacqueline Rose Susco, Kathryn Pryor;** each, its true and lawful Attorney(s)-In-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver: Any and all bonds and undertakings of surety and other documents that the ordinary course of surety business may require, and to bind United States Fire Insurance Company thereby as fully and to the same extent as if such bonds or undertakings had been duly executed and acknowledged by the regularly elected officers of United States Fire Insurance Company at its principal office, in amounts or penalties not exceeding: **One Hundred Twenty Five Million Eight Hundred Dollars (\$125,800,000)**

This Power of Attorney limits the act of those named therein to the bonds and undertakings specifically named therein, and they have no authority to bind United States Fire Insurance Company except in the manner and to the extent therein stated.

This Power of Attorney revokes all previous Powers of Attorney issued on behalf of the Attorneys-In-Fact named above and expires on January 1, 2023.

This Power of Attorney is granted pursuant to Article IV of the By-Laws of United States Fire Insurance Company as now in full force and effect, and consistent with Article III thereof, which Articles provide, in pertinent part:

Article IV, Execution of Instruments - Except as the Board of Directors may authorize by resolution, the Chairman of the Board, President, any Vice-President, any Assistant Vice President, the Secretary, or any Assistant Secretary shall have power on behalf of the Corporation:

- (a) to execute, affix the corporate seal manually or by facsimile to, acknowledge, verify and deliver any contracts, obligations, instruments and documents whatsoever in connection with its business including, without limiting the foregoing, any bonds, guarantees, undertakings, recognizances, powers of attorney or revocations of any powers of attorney, stipulations, policies of insurance, deeds, leases, mortgages, releases, satisfactions and agency agreements;
- (b) to appoint, in writing, one or more persons for any or all of the purposes mentioned in the preceding paragraph (a), including affixing the seal of the Corporation.

Article III, Officers, Section 3.11, Facsimile Signatures. The signature of any officer authorized by the Corporation to sign any bonds, guarantees, undertakings, recognizances, stipulations, powers of attorney or revocations of any powers of attorney and policies of insurance issued by the Corporation may be printed, facsimile, lithographed or otherwise produced. In addition, if and as authorized by the Board of Directors, dividend warrants or checks, or other numerous instruments similar to one another in form, may be signed by the facsimile signature or signatures, lithographed or otherwise produced, of such officer or officers of the Corporation as from time to time may be authorized to sign such instruments on behalf of the Corporation. The Corporation may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Corporation, notwithstanding the fact that he may have ceased to be such at the time when such instruments shall be issued.

**IN WITNESS WHEREOF,** United States Fire Insurance Company has caused these presents to be signed and attested by its appropriate officer and its corporate seal hereunto affixed this 11<sup>th</sup> day of March, 2021.



**UNITED STATES FIRE INSURANCE COMPANY**

*ARR*

\_\_\_\_\_  
Anthony R. Slimowicz, Executive Vice President

State of New Jersey }  
County of Morris }

On this 11<sup>th</sup> day of March 2021, before me, a Notary public of the State of New Jersey, came the above named officer of United States Fire Insurance Company, to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seal of United States Fire Insurance Company thereto by the authority of his office.

**SONIA SCALA**  
**NOTARY PUBLIC OF NEW JERSEY**  
**MY COMMISSION EXPIRES 3/25/2024**  
**No. 2163686**

*Sonia Scala*  
\_\_\_\_\_  
Sonia Scala, (Notary Public)

I, the undersigned officer of United States Fire Insurance Company, a Delaware corporation, do hereby certify that the original Power of Attorney of which the foregoing is a full, true and correct copy is still in force and effect and has not been revoked.

**IN WITNESS WHEREOF,** I have hereunto set my hand and affixed the corporate seal of United States Fire Insurance Company on the 14<sup>th</sup> day of June 20 22



**UNITED STATES FIRE INSURANCE COMPANY**

*Daniel Sussman*

\_\_\_\_\_  
Daniel Sussman, Senior Vice President

\*For verification of the authenticity of the Power of Attorney, please contact Pat Taber at 860-956-3424 or email: [SuretyInquiries@amyntagroup.com](mailto:SuretyInquiries@amyntagroup.com)

**4C: PAYMENT BOND**  
**Contractor's Labor & Material Bond**  
(100% of Agreement Price)  
**Bidders must use this form, NOT a surety company form**

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Orange County Fire Authority, ("OCFA") and Convergent Technologies LLC, ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

**IFB RO2526A - ACCESS CONTROL SYSTEMS UPGRADE - RFOTC**

("Contract") which Contract dated ~~June 23~~, 2022, and all of the Bid Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, pursuant to law and the Contract, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by which the Contract is awarded in an amount equal to one hundred percent (100%) of the Contract price, to secure the claims to which reference is made in sections 9000 through 9510 and 9550 through 9566 of the Civil Code, and division 2, part 7, of the Labor Code.

NOW, THEREFORE, the Principal and, United States Fire Insurance Company ("Surety") are held and firmly bound unto all laborers, material men, and other persons referred to in said statutes in the sum of Five Hundred Forty-Nine Thousand, Five Hundred Eighty-Eight DOLLARS (\$549,588), lawful money of the United States, being a sum not less than the total amount payable by the terms of Contract, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the Principal or any of his or its subcontractors, of the heirs, executors, administrators, successors, or assigns of any, all, or either of them shall fail to pay for any labor, materials, provisions, provender, or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or any of his or its subcontractors of any tier under Section 13020 of the Unemployment Insurance Code with respect to such work or labor, that the Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay a reasonable attorney's fee to be awarded and fixed by the Court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under section 9100 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and affect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of Contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

**[Signature Page Follows]**

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the 14th day of June, 2022.

**CONTRACTOR:**

(Affix Corporate Seal)

Convergent Technologies LLC

**Principal**

By 

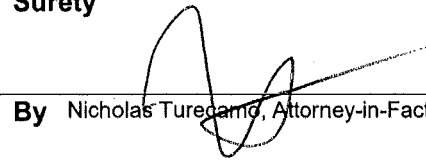
STEVEN SANCHEZ, GENERAL MANAGER  
Print Name and Title of Signatory

**SURETY:**

(Affix Corporate Seal)

United States Fire Insurance Company

**Surety**

By  Nicholas Turecamo, Attorney-in-Fact

Amanda Garcia

**Name of California Agent of Surety**

330 N Brand Blvd Ste 700, Glendale, CA 91203-2336

**Address of California Agent of Surety**

(973) 490-6600

**Telephone Number of California Agent of Surety**

**Attach Notary acknowledgments for all signatures. Attach Power of Attorney Attach Power of Attorney if executed by Attorney-in-Fact. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.**

## ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of Orange

On June 15, 2022 before me, Virginia Knudtson, Notary Public  
(Insert name and title of the officer)

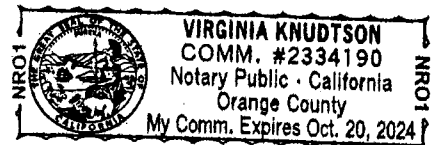
personally appeared Steven Sanchez  
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Virginia Knudtson

(Seal)



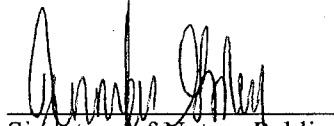
**NOTARY ACKNOWLEDGMENT OF SURETY:**

State of Connecticut

County of Hartford ss.

On this the 14th day of June, 2022, before me, Jennifer Godere, the undersigned officer, personally appeared Nicholas Turecamo, known to me (or satisfactorily proven) to be the person whose name is subscribed as Attorney-In-Fact for United States Fire Insurance Company, and acknowledged that s/he executed the same as the act of his/her principal for the purposes therein contained.

In witness whereof I hereunto set my hand.



Signature of Notary Public

Date Commission Expires: March 31, 2027

Jennifer Godere

Printed Name of Notary

**JENNIFER GODERE**  
**NOTARY PUBLIC - CT 185886**  
My Commission Expires Mar. 31, 2027

**POWER OF ATTORNEY  
UNITED STATES FIRE INSURANCE COMPANY  
PRINCIPAL OFFICE - MORRISTOWN, NEW JERSEY**

**KNOW ALL MEN BY THESE PRESENTS:** That United States Fire Insurance Company, a corporation duly organized and existing under the laws of the state of Delaware, has made, constituted and appointed, and does hereby make, constitute and appoint: **Aimee R. Perondine, Bethany Stevenson, Donna M. Planeta, Joshua Sanford, Samuel E. Begun, Melissa J. Stanton, Nicholas Turecamo, Michelle Anne McMahon, Alexis R. Apostolidis, Bryan M. Caneschi, Phillip M. Knower, Brendan William Fletcher, Cassandra Baez, Jacqueline Rose Susco, Kathryn Pryor;** each, its true and lawful Attorney(s)-In-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver: Any and all bonds and undertakings of surety and other documents that the ordinary course of surety business may require, and to bind United States Fire Insurance Company thereby as fully and to the same extent as if such bonds or undertakings had been duly executed and acknowledged by the regularly elected officers of United States Fire Insurance Company at its principal office, in amounts or penalties not exceeding: **One Hundred Twenty Five Million Eight Hundred Dollars (\$125,800,000)**

This Power of Attorney limits the act of those named therein to the bonds and undertakings specifically named therein, and they have no authority to bind United States Fire Insurance Company except in the manner and to the extent therein stated.

This Power of Attorney revokes all previous Powers of Attorney issued on behalf of the Attorneys-In-Fact named above and expires on January 1, 2023.

This Power of Attorney is granted pursuant to Article IV of the By-Laws of United States Fire Insurance Company as now in full force and effect, and consistent with Article III thereof, which Articles provide, in pertinent part:

Article IV, Execution of Instruments - Except as the Board of Directors may authorize by resolution, the Chairman of the Board, President, any Vice-President, any Assistant Vice President, the Secretary, or any Assistant Secretary shall have power on behalf of the Corporation:

(a) to execute, affix the corporate seal manually or by facsimile to, acknowledge, verify and deliver any contracts, obligations, instruments and documents whatsoever in connection with its business including, without limiting the foregoing, any bonds, guarantees, undertakings, recognizances, powers of attorney or revocations of any powers of attorney, stipulations, policies of insurance, deeds, leases, mortgages, releases, satisfactions and agency agreements;

(b) to appoint, in writing, one or more persons for any or all of the purposes mentioned in the preceding paragraph (a), including affixing the seal of the Corporation.

Article III, Officers, Section 3.11, Facsimile Signatures. The signature of any officer authorized by the Corporation to sign any bonds, guarantees, undertakings, recognizances, stipulations, powers of attorney or revocations of any powers of attorney and policies of insurance issued by the Corporation may be printed, facsimile, lithographed or otherwise produced. In addition, if and as authorized by the Board of Directors, dividend warrants or checks, or other numerous instruments similar to one another in form, may be signed by the facsimile signature or signatures, lithographed or otherwise produced, of such officer or officers of the Corporation as from time to time may be authorized to sign such instruments on behalf of the Corporation. The Corporation may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Corporation, notwithstanding the fact that he may have ceased to be such at the time when such instruments shall be issued.

**IN WITNESS WHEREOF,** United States Fire Insurance Company has caused these presents to be signed and attested by its appropriate officer and its corporate seal hereunto affixed this 11<sup>th</sup> day of March, 2021.

**UNITED STATES FIRE INSURANCE COMPANY**



*Anthony R. Slimowicz*

\_\_\_\_\_  
Anthony R. Slimowicz, Executive Vice President

State of New Jersey }  
County of Morris }

On this 11<sup>th</sup> day of March 2021, before me, a Notary public of the State of New Jersey, came the above named officer of United States Fire Insurance Company, to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seal of United States Fire Insurance Company thereto by the authority of his office.

**SONIA SCALA**  
**NOTARY PUBLIC OF NEW JERSEY**  
**MY COMMISSION EXPIRES 3/25/2024**  
**No. 2163686**

*Sonia Scala*  
\_\_\_\_\_  
Sonia Scala, (Notary Public)

I, the undersigned officer of United States Fire Insurance Company, a Delaware corporation, do hereby certify that the original Power of Attorney of which the foregoing is a full, true and correct copy is still in force and effect and has not been revoked.

**IN WITNESS WHEREOF,** I have hereunto set my hand and affixed the corporate seal of United States Fire Insurance Company on the 14<sup>th</sup> day of June 20 22

**UNITED STATES FIRE INSURANCE COMPANY**



*Daniel Sussman*

\_\_\_\_\_  
Daniel Sussman, Senior Vice President

\*For verification of the authenticity of the Power of Attorney, please contact Pat Taber at 860-956-3424 or email: [SuretyInquiries@amyntagroup.com](mailto:SuretyInquiries@amyntagroup.com)

**4D: AWARD CERTIFICATIONS****Prevailing Wage:**

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hour notice, payroll records, and apprentice and trainee employment requirements, for all Services on the above Project, including, without limitation, the State labor compliance monitoring and enforcement by the Compliance Monitoring Unit of the Department of Industrial Relations, if this Project is subject to a labor compliance.

**Workers' Compensation:**

In accordance with Article 5 - commencing at section 1860, chapter 1, part 7, division 2 of the Labor Code, this certificate must be signed and filed with the awarding body prior to performing any work under this Contract. CA Labor Code section 3700 in relevant part provides that every employer except the State shall secure the payment of compensation in one or more of the following ways: (1) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this state; (2) By securing from the Director of Industrial Relations, a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees. I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of work of this contract.

Date: 06-30-22

Legal Name of

Contractor:

Convergent Technologies LLC

Signature:



Printed Name:

STEVEN SANCHEZ

Title:

GENERAL MANAGER

Form

**W-9**(Rev. October 2018)  
Department of the Treasury  
Internal Revenue Service**Request for Taxpayer  
Identification Number and Certification**► Go to [www.irs.gov/FormW9](http://www.irs.gov/FormW9) for instructions and the latest information.**Give Form to the  
requester. Do not  
send to the IRS.**Print or type.  
See Specific Instructions on page 3.**1** Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.**DG Investment Intermediate Holdings 2, Inc.****2** Business name/disregarded entity name, if different from above**Convergent Technologies LLC (36-4444620)****3** Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.☐ Individual/sole proprietor or single-member LLC ☒ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ►**Note:** Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.☐ Other (see Instructions) ►**4** Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):Exempt payee code (if any) **5**

Exemption from FATCA reporting code (if any)

(Applies to accounts maintained outside the U.S.)

**5** Address (number, street, and apt. or suite no.) See instructions.**One Commerce Drive**

Requester's name and address (optional)

**6** City, state, and ZIP code**Schaumburg, Illinois 60173****7** List account number(s) here (optional)**Part I Taxpayer Identification Number (TIN)**Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.**Note:** If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.**Social security number**

			-			-				
--	--	--	---	--	--	---	--	--	--	--

or

**Employer identification number**

9	0	-	0	8	8	1	1	3	2
---	---	---	---	---	---	---	---	---	---

**Part II Certification**

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.**Sign  
Here**Signature of  
U.S. person ►Date ► **January 3, 2022****General Instructions**

Section references are to the Internal Revenue Code unless otherwise noted.

**Future developments.** For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to [www.irs.gov/FormW9](http://www.irs.gov/FormW9).**Purpose of Form**

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (Interest earned or paid)

- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

**4G: GENERAL CONDITIONS****ORANGE COUNTY FIRE AUTHORITY GENERAL CONDITIONS****51 Definitions**

As used in these General Conditions and in the Project Manual generally, the following terms have the meaning indicated:

Acts of God: An earthquake in excess of a magnitude of 3.5 on the Richter Scale or a tidal wave.

Addendum: A written or graphic instrument issued by Project Manager on behalf of the OCFA prior to the execution of the Contract which sets forth additions, deletions, or other revisions to the Project Manual or clarifications thereof.

Authority: The Orange County Fire Authority, a California Joint Powers Authority.

Board of Directors: The governing body of the Orange County Fire Authority.

Change Order: A written Modification executed by both parties (except in the event of a unilateral Change Order as herein provided) and consisting of additions, deletions or other changes to the Contract. A Change Order may be accompanied by and/or may identify additional or revised Drawings, sketches or other written instructions which become and form a part of the Project Manual by virtue of the executed Change Order. Except as otherwise provided in Subparagraph 1.1.5., a Change in the Work, or a change in the Contract Time or the Contract Sum shall only be approved by written Change Order.

Construction Contract or Contract: The written "Contract Agreement" covering the performance of the Work and the furnishing of labor, materials, tools, and equipment in the construction of the Work. The term "Construction Contract" also includes the Project Manual.

Contract Directive: A written document issued by the Project Manager and consisting of additions, deletions, clarifications, interpretations, or other written instructions issued by the Project Manager with respect to the performance of the Work or the activities of the Contractor on the Job Site or the property of OCFA. A Contract Directive can be a response to a Request for Information; however, all responses to Requests for Information need not be Contract Directives. A Contract Directive may become the subject of a Change Order only if such Directive involves a substantial change in the Work, or a change in the Contract Time or the Contract Amount, approved as a Change Order by the Project Manager.

Contractor's Construction Schedule: The detailed schedules, based on a critical path method ("CPM"), prepared by the Contractor, presenting an orderly and realistic plan for completion of the work required in the Project Manual. The Contractor's Construction Schedule shall also include the completion dates of the Milestones and a final proposal narrative as described in the Project Manual.

Contractor: The person or entity awarded the Contract to perform the work.

Day: All references to days in the Project Manual refer to calendar day unless otherwise specifically indicated.

Design Professional: Officers, employees, and consultants, the architectural and engineering firm, a party to the design-build entity responsible for the overall design of the Project.

Excusable Labor Dispute: Any labor dispute directed against an entire industry, or any labor dispute that is not directed solely against the Project, the Contractor, or any subcontractor or supplier, and which prevents Contractor from obtaining labor or materials necessary for the performance of the Work and that actually delays the performance of the Work; provided, however, that suitable substitute labor or materials are not reasonably obtainable.

Excusable Transportation Delay: Any labor dispute directed at an entire industry, or any labor dispute that is not directed solely against the Project, the Contractor, or any subcontractor or supplier, or other delay not within the reasonable control of the Contractor which prevents the transportation of necessary materials to the Project and actually delays the performance of Work; provided, however, that suitable substitute transportation for such materials is not reasonably available.

Fire Chief: The Fire Chief of the OCFA or the Fire Chief's Designee.

Laws: Each and every Federal, state, and local law, ordinance, code, rule, and regulation, as well as the lawful order or decree of any public or quasi-public authority and each of their respective inspectors or officials, including but not limited to all applicable building codes, bearing on or otherwise applicable to the Project. The term "Laws" also includes any and all conditions of approval of each and every entitlement or permit issued or approved by the Local Jurisdictions.

Local Jurisdictions: Any governmental agency with land use authority over the Project or part of the Project and each regulatory agency or authority with jurisdiction over the project, and their respective inspectors and representatives.

Modification or Contract Modification: (1) a written amendment to this Contract signed by both Parties; (2) a Change Order; or (3) a Contract Directive or other written interpretation or order issued as a response to a Request for Information or otherwise issued by the Project Manager pursuant to the terms of the Project Manual. Contractor acknowledges that the execution on its behalf of any such Modification by any one person with apparent authority shall be binding against the Contractor. A Modification may be made only after execution of the Contract. No Contract Directive or response to a Request for Information shall be construed as a Change Order or other Modification unless it expressly so states.

Non-Conformance Notice: A notice issued by the Project Manager documenting that the work or some portion thereof has not been performed in accordance with the requirements of the Project Manual.

Notice to Proceed: The written notice of the OCFA to the Contractor to commence work under the Contract.

OCFA: The Orange County Fire Authority, a California Joint Powers Authority.

Plans: The drawings, supplemental drawings, or reproductions thereof, the project plans, standard plans, profiles, cross-sections, and all graphic depictions, which show the location, character, dimensions, and details of the work to be performed and contained in the Project Manual.

Project: The Project is the performance, construction, installation, and completion of the entire scope of all work as described in the Contract Documents.

Project Manager: The person or persons designated by the OCFA to serve as the Project Manager of the project.

Project Manual: Defined in Section 41 of the Contract Agreement.

Provide: To furnish, fabricate, complete, deliver, install, and erect including all labor, materials, equipment, apparatus, appurtenances, and expenses, necessary to complete in place, ready for operation or use under the terms of the Project Manual.

Regulatory Agency – A Federal, State or local governmental agency that has regulatory jurisdiction over one or more aspects of the Project. (Examples may include, but are not limited to the Regional Water Quality Control Board, the California Coastal Commission, or the South Coast Air Quality Management Board.)

Related Work: Work performed by the OCFA or by any separate Contractor retained or hired by the OCFA, related to the completion of the Project and which is not required to be performed by the Contractor pursuant to this Contract and the Project Manual.

Requests for Information: A written request from the Contractor or one of the Subcontractors to the Project Manager seeking an interpretation or a clarification of some requirement of the Project Manual. Contractor shall clearly and concisely set forth in writing the issue for which Contractor seeks clarification or interpretation and why a response is needed from the Project Manager. Contractor shall set forth Contractor's interpretation or understanding of the Project Manual's requirements along with reasons why Contractor reached such an understanding. Responses from the Project Manager will not change any requirements of the Project Manual unless so noted in the Request for Information response.

Scheduled Completion Date: The number of days specified in the Construction Schedule for completion of the Project.

Site or Sites: The land on which the Project will be constructed as specifically described in the Project Manual.

Specifications: The directives, provisions, and requirements contained in Project Manual, however such may be labeled or otherwise described.

Subcontractor: A person or organization having a direct contract with the Contractor to perform any of the Work at the Site or to supply any materials, equipment, or supplies to be incorporated in, or utilized in connection with, the Work and as used herein shall include the Subcontractor's authorized representative.

Substantial Completion of the Project: occurs when all of the following are achieved: (1) substantial completion of all Work; and (2) suitable to meet the requirements for the issuance of a certificate of occupancy and receipt of all other required approvals of construction from the Local Jurisdictions; and (3) in strict accordance with the Project Manual; and (4) such that OCFA may fully utilize the Project for the use for which it is intended. Early occupation of the Project by OCFA does not constitute Substantial Completion of the Project if one or more of the four factors above has not yet been achieved. (See Section General Conditions, Section 74.)

Supplemental Agreements: The written agreements covering alterations, amendments, or extensions to the Construction Contract and include contract change orders.

Work: All the work specified, indicated, shown, or contemplated in the Construction Contract to construct the Project, including all alterations, amendments, or extensions thereto made by contract change order or other written orders of the Project Manager, including each activity,

labor, task, service, acquisition, purchase, installation, or action of any kind required to be performed under the terms of this Contract and as specified in the Project Manual.

## **52 The Project Manual**

- 52.1 The Project Manual is defined in **Section 41** of the Contract Agreement. The Contractor has examined carefully the site of the work contemplated, the plans and specifications, and the proposal and contract forms therefor. The submission of a bid shall be conclusive evidence that the Contractor has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of work to be performed, the quantities of materials to be furnished and as to the requirements of the proposal, plans, specifications and the Construction Contract. The Contractor warrants and represents that, in executing the Contract and undertaking the Work, it has not relied upon any oral inducement or representation by OCFA, Project Manager, or any of their officers or agents as to the nature of the Work, the Site, the Project conditions or otherwise.
- 52.2 All parts and provisions of the Project Manual are complementary, and what is required by any one shall be as binding as if required by all. If the Project Manual does not specifically allow the Contractor a choice as to quality or cost of items to be furnished, but could be interpreted to permit such choice, subject to confirmation or approval by Project Manager, they shall be construed to require the Contractor to provide the best quality. Words and abbreviations which have well-known technical or trade meanings are used in the Project Manual in accordance with such recognized meanings.
- 52.3 Where conflict exists within or between parts of the Project Manual, or between the Project Manual and either applicable industry standards or applicable codes, ordinances, or other legal requirements, the more stringent requirements shall apply; otherwise, the following order of precedence shall be used: the Construction Contract; the Special Conditions of the Contract for Construction; these General Conditions of the Construction Contract; the balance of the Project Manual, and the Drawings. If the Contractor is required to perform any extra or corrective Work to comply with the preceding sentence, it shall not be entitled to an increase in the Contract Sum or Contract Time, and no claim shall result from such compliance. Subject to confirmation or approval by OCFA, more detailed Drawings take precedence over less detailed scaled Drawings, figured dimensions on the Drawings take precedence over scaled dimensions, and otherwise noted matters on the drawings take highest precedence.
- 52.4 Drawings take precedence over graphic representations. Contractor shall bring or submit to the Project Manager any such conflicts as soon as Contractor or its Subcontractors discover or learn about such apparent conflicts in the form of an RFI.
- 52.5 The organization of the Specifications into divisions, sections, and articles, and the arrangement of Drawings, are not intended to influence the Contractor in its division of the Work among Subcontractors or its establishment of the extent of the Work to be performed by any trade.
- 52.6 The Contractor shall request in writing that Project Manager provide any interpretations or clarifications necessary for the proper execution, coordination or progress of the Work. Such interpretations shall be issued by Project Manager in writing for implementation by the Contractor. The Contractor shall make all such requests for interpretation or clarification in writing.
- 52.7 The Project Manual reflects conditions as they are believed to exist, but it is not intended or to be inferred that the conditions as shown thereon constitute a representation by or on

behalf of Authority that such conditions actually exist. The Contractor shall inspect the Site and conduct any tests or surveys it deems necessary or desirable prior to the commencement of the Work and shall accept full responsibility for any loss sustained by it as a result of any variances between the conditions as shown on the Project Manual and the actual conditions revealed during the progress of the Work or otherwise. The Contract Sum shall in no event be increased by reason of any such variance unless otherwise specifically provided herein.

52.8 The Contractor shall develop and maintain current "as-built" Plans to be provided to Project Manager in accordance with the Construction Contract and Section 01770 of the Project Manual. Project Manager may inspect and copy such Plans at any time during the course of the Work.

52.9 The intent of the plans and specifications is to prescribe the details for the construction and completion of the work which the Contractor undertakes to perform in accordance with the terms of the Construction Contract. Where the plans or specifications describe portions of the work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall provide all labor, materials, tools, equipment, and incidentals, and do all the work involved in executing the contract in a satisfactory and workmanlike manner.

### **53 Contract Bonds.**

Both the Faithful Performance Bond and the Material and Labor Bond shall each be for not less than one hundred percent (100%) of the total Contract amount. The Material and Labor Bond shall remain in force until thirty-five (35) days after the date of recordation of the Notice of Completion. The Faithful Performance Bond will be held for one year after the date of recordation of the Notice of Completion.

Prior to the acceptance of any bond, the OCFA shall verify that the surety is an admitted surety in the State of California. If requested by the OCFA, the Contractor shall provide other information specified in the Code of Civil Procedure Section 995.660 to enable the OCFA to verify the sufficiency of the bond.

Should any bond become insufficient, the Contractor shall correct the insufficiency within ten (10) calendar days after receiving notice from the OCFA. The Contractor shall provide the OCFA with evidence of the correction within ten (10) calendar days of said correction. Should any surety at any time be unsatisfactory to the OCFA, written notice will be given to the Contractor to that effect. No further payments shall be deemed due or will be payable under the Contract until Contractor submits an acceptable bond from a surety accepted by the OCFA. Changes to the work or extensions of time made pursuant to the Contract Agreement shall in no way release the Contractor or the surety from its obligations. Notice of such changes or extensions shall be waived by the surety.

### **54 OCFA AND OCFA'S REPRESENTATIVES**

54.1 The work will be under the general direction of the Fire Chief. The Project Manager is the authorized representative of the Fire Chief and has complete charge of the work, and shall exercise full control of the work, so far as it affects the interest of the OCFA.

54.2 The provisions in this General Conditions or elsewhere in the Contract Documents regarding approval or direction by the Fire Chief, the OCFA, the Board of Directors, or the Project Manager, or action taken pursuant thereto, are not intended to and shall not relieve the Contractor of responsibility for the accomplishment of the work, either as regards sufficiency or the time of performance, except as expressly otherwise provided herein.

- 54.3 The Project Manager is the OCFA's exclusive representative and agent to the Contractor with respect to this Project during construction and until the completion of the Project. The OCFA's communications with the Contractor shall be exclusively through the Project Manager.
- 54.4 Project Manager shall at all times have access to the work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access.
- 54.5 The OCFA shall not be responsible for or have control or charge of the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.
- 54.6 The OCFA will not be responsible for the failure of the Contractor to plan, schedule, and execute the work in accordance with the approved schedule or the failure of the Contractor to meet the Contract Documents completion dates or the failure of the Contractor to Schedule and coordinate the work of Contractor's own trades and subcontractors or to coordinate with other Separate Contractors.
- 54.7 The OCFA will not be responsible for the acts or omissions of the Contractor, or any subcontractor, or any Contractor's or subcontractor's agents or employees, or any other persons performing any of the work.
- 54.8 The Project Manager has the authority to disapprove or reject work on behalf of the OCFA when, in the Project Manager's opinion, the work does not conform to the Contract Documents. Whenever, in the Project Manager's reasonable opinion, it is considered necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, the Project Manager has the authority to require special inspection or testing of any work in accordance with the provisions of the Contract Documents whether or not such work shall then be fabricated, installed, or completed.
- 54.9 The Project Manager has the authority to require special inspection or testing of the work. However, neither the Project Manager's authority nor any decision made by the Project Manager in good faith whether to exercise or not to exercise such authority shall give rise to any duty or responsibility of the OCFA to the Contractor, or any subcontractor, or any of their agents, or employees, or any other person performing any portion of the work.
- 54.10 The Project Manager has the authority and discretion, but not the obligation, to call, schedule, and conduct job meetings to be attended by the Contractor and representatives of Contractor's subcontractors, to discuss such matters as safety, procedures, progress, problems, and scheduling.
- 54.11 The Project Manager will establish procedures to be followed for processing all submittals, Change Orders, Progress payments, other project reports, documentation, and test reports.
- 54.12 The Project Manager will review all requests for changes and shall implement the processing of Change Orders including application for extensions of time.
- 54.13 The Project Manager will review and process all Progress Payment Requests by the Contractor including Final Progress Payment Requests.
- 54.14 Nothing contained in the Project Manual shall create any contractual relationship between Project Manager and the Contractor.

- 54.15 Except as otherwise provided in the Project Manual, and until the Contractor is notified in writing to the contrary, all actions to be taken by, all approvals, notices, consent, directions and instructions to be given by, all notices and other matters to be delivered to, all determinations and decisions to be made by and, in general, all other action to be taken by, or given to, OCFA shall be taken, given and made by, or delivered or given to, Project Manager in the name of and on behalf of OCFA. Only those so designated are authorized to grant on behalf of OCFA any approval, consent or waiver with respect to the Project Manual or the Work, or to otherwise act for OCFA in any capacity whatsoever.
- 54.16 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Project Manual either by the activities or duties of the Project Manager in its administration of the Contract, including, without limitation, by any inspections or tests required, or by approvals or other similar action with regard to shop drawings or submittals (of any type), or by the activities of persons other than the Contractor with respect to the Project. Further, notwithstanding the fact that a dispute, controversy or other question may have arisen between the parties hereto relating to the execution or progress of the Work, the interpretation of the Project Manual, the payment of any monies, the delivery of any materials or any other matter whatsoever, the Contractor shall not be relieved of its obligations to pursue the Work diligently under the Project Manual pending the determination of such dispute, controversy, or other question.
- 54.17 OCFA reserves the right, but assumes no duty, to establish and enforce standards, and to change the same from time to time, for the safety and protection of persons and property, with which the Contractor shall comply, and to review the efficiency of all protective measures taken by the Contractor. The exercise of or failure to exercise any or all of these acts by OCFA shall not relieve the Contractor of its duties and responsibilities under the Project Manual, and OCFA shall not thereby assume, nor be deemed to have assumed, such duties or responsibilities of the Contractor.

## 55 **CONTRACTOR**

- 55.1 Composition: If the Contractor hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.
- 55.2 Examination of Plans, Specifications, and Site of Project: In addition to the representations and warranties contained in the Contract, the Contractor acknowledges that prior to execution of the Contract it has thoroughly reviewed and inspected the Project Manual, and satisfied itself regarding any error, inconsistency, discrepancy, ambiguity, omission, insufficiency of detail or explanation. OCFA shall not be responsible for any costs, nor liable to the Contractor for any damage, resulting from any such matter that the Contractor reasonably should have discovered. The Contractor shall perform no portion of the Work at any time which is not as provided or specified in the Project Manual or, where required, shop drawings, product data, or samples, for such portions bearing the Design Professional's appropriate action stamp. Work performed in violation of this provision shall be at the Contractor's risk
- 55.3 Contractor Certification: Contractor certifies and agrees that all the terms, conditions, and obligations of the Project Manual, the location and condition of the Site, and the conditions under which the work is to be performed have been thoroughly reviewed and investigated and Contractor enters into this Contract based upon Contractor's review and investigation of all such matters. Contractor certifies and agrees that Contractor is in no way relying upon any opinions or representations of OCFA or the OCFA's officers, employees, agents, and consultants, including but not limited to, the Project Manager and the Design Professional.

- 55.4 **Preparation of Documents:** The Contractor shall carefully review and where appropriate or as may be required in the Scope of Work or at the direction of the Project Manager prepare drawings, specifications, and other instructions and shall at once report to Project Manager any error, inconsistency, or omission which Contractor may discover. Except as otherwise specifically provided hereinafter under warranties, the Contractor shall not be an agent for the OCFA.
- 55.5 **Superintendence:** The Contractor shall maintain on the site, during all construction activity, a competent superintendent and any necessary assistants, all satisfactory to the Project Manager. The superintendent shall not be changed except with the consent of the Project Manager, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ, in which case he/she shall be replaced immediately and in no case more than 24 hours with a superintendent acceptable to the Project Manager. The superintendent shall represent the Contractor and all directions given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall provide Project Manager with complete work history profiles of management staff associated with this Project for Project Manager's review.
- 55.6 **Licenses and Certificates:** The Contractor represents and warrants that it has all necessary licenses and permits required by the laws of the United States, State of California, County of Orange, and any local jurisdiction, and all other appropriate governmental agencies, and agrees to maintain these licenses and permits in effect for the duration of this Contract. Further, Contractor warrants that its employees, agents, and contractors and subcontractors shall conduct themselves in compliance with all applicable laws and licensure requirements now in effect or as subsequently enacted or modified, as promulgated by any local, state, or federal governmental entities, including, without limitation, compliance with laws applicable to non-discrimination, harassment, and ethical behavior. Contractor shall notify the Project Manager immediately and in writing of its inability to obtain or maintain, irrespective of the pendency of any appeal, any such permits, licenses, approvals, certificates, waivers, and exemptions. Such inability shall be cause for termination of this Contract.
- 55.7 **Materials and Equipment:** The Contractor shall cause all materials and equipment to be delivered to the Site in accordance with any schedule or schedules therefore established from time to time and approved by Project Manager and, in any event, in a manner which will assure the timely progress and completion of the Work but will not encumber the Site unreasonably. Materials delivered to the Site for incorporation in the Work shall not be removed from the Site without the consent of Project Manager. The Contractor shall give, or shall require its Subcontractors to give, full and accurate quality, performance and delivery status reports, in a form satisfactory to Project Manager, regarding any materials and equipment, or such other data with respect thereto as may be requested by Project Manager, and shall obtain for Project Manager the written assurances of any manufacturer that its material or equipment is designed, and appropriate, for the use intended. The Contractor warrants to OCFA that all materials and equipment furnished under this Contract shall be new unless otherwise specified in the Project Manual and that all Work shall be of good quality, free from faults and defects and in conformance with the Project Manual. All Work not so conforming to these standards may be considered defective. All warranties and guarantees from Subcontractors (including, without limitation, manufacturers) shall be assignable to OCFA regardless of whether it is so stated therein, and the Contractor agrees to assign all such warranties and guarantees to the OCFA.
- 55.8 **Completion Schedule:** The Contractor shall prepare and submit, for Project Manager's approval, a Construction Schedule for the work which shall provide for expeditious and practicable execution of the work for completion within the Contract Time. This schedule

shall be coordinated with the entire Project Construction Schedule to the extent required by the Contract Documents.

- 55.9 Reports by Contractor: Daily reports of the site and construction activities shall be provided to Project Manager. The reports shall follow the OCFA approved format including, but not limited to, information regarding trades at work, manpower, weather conditions, construction progress, and solutions to problems.
- 55.10 Contractor Responsibility: The Contractor shall supervise and direct the Work, using its best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences, coordination, scheduling and procedures, for all cleanup and for all safety and weather precautions and programs, in connection with the Work. Contractor shall be solely responsible for the work and the Project as described in the Contract Documents. Contractor shall have complete control over the construction methods, techniques, and procedures, except as may be specifically provided in the Contract Documents. Contractor shall, at its sole cost and expense, perform all labor and services and furnish all material, tools, appliances, and equipment necessary and proper for performing and completing the Work of the Project in strict compliance with the terms and conditions of the Project Manual. Contractor shall provide all labor, materials, and equipment in conformity with the Project Manual and other directions as may be provided by the Project Manager. Contractor shall, at its sole cost and expense, prepare and fully comply with all provisions of the Quality Assurance/Quality Control Program as provided in the Project Manual.
- 55.11 Ongoing Oversight: Contractor shall keep itself continuously informed of the progress of the Work and the Related Work and will attend all meetings related to the Work and the Related Work as specified in the Project Manual and as identified in the Contractor's Construction Schedule. Contractor further agrees to work in a prompt, efficient, expert, and diligent manner and to furnish sufficient manpower to complete the Work in accordance with the Contractor's Construction Schedule. Contractor shall prosecute the Work diligently to completion. Contractor shall be responsible for the coordination and scheduling of all Work and the Related Work.
- 55.12 Ongoing Self-Inspection: Contractor shall, at its sole cost and expense, inspect its work to determine strict conformance to the requirements of the Project Manual. (This obligation of the Contractor is in addition to the Contractor's obligations to make repairs or to remedy deficient or unacceptable work as may be required under this Contract or any other provision of the Project Manual.) If some of the work performed on the Project does not comply with the requirements of the Project Manual, Contractor shall repair or replace such defective work at its sole cost and expense. Contractor shall gain no protection or right of reliance on the Project Manager's or Fire Chief's inspection of the work. If it is determined that the Project Manager or Fire Chief inspected work and failed to call defects or non-conforming items to the attention of Contractor, the OCFA shall not be deemed to have waived the requirements of the Project Manual or accepted the work.
- 55.13 Monitoring and Compliance: The Project Manager shall, at all times, have safe access to the Project site and its related work during its construction, and shall be furnished with every reasonable facility for ascertaining that the materials and the workmanship are in accordance with the requirements and intentions of Contract Documents. All work done and all materials furnished shall be subject to Project Manager inspection. In the event the Project Manager finds or determines that the work or material are not in accordance with the requirements and the intentions of the Contract Documents, the Project Manager shall issue a Non-Conformance Notice. Upon receipt of a Non-Conformance Notice the Contractor shall provide a written Response to the Non-Conformance Notice within five (5)

working days after receipt of the Notice. The Contractor's response shall detail either (a) why Contractor believes that the work was performed in accordance with the Project Manual or (b) what corrective action Contractor intends to take, at its sole cost and expense, to correct the non-conforming work. If Contractor disputes issuance of the Notice, the Project Manager has five- (5) working days in which to respond by either (a) withdrawing the Notice of Non-Conformance or (b) directing the Contractor to correct the work. Such determination of the Project Manager shall be final and conclusive of the matter. If directed to correct the work, Contractor shall do so within five (5) working days after receipt of such direction from the Project Manager, or such other time as may be agreed in writing from the Project Manager.

- 55.14 **Inspectors:** In addition to the Project Manager, inspectors of Local Jurisdictions are authorized to enforce strict compliance with the terms and conditions of the Contract and the Project Manual and to determine the acceptability of materials and workmanship. Inspectors are authorized to reject work or materials if they determine that such work or materials do not conform to the requirements of the Contract and the Project Manual. Whenever an inspector determines that some work installed by the Contractor, or any Subcontractor or supplier at any tier does not conform to the requirements of the Contract, a Notice of Non-Conformance will be issued to record this determination. In the event of a dispute between the Contractor and an inspector concerning non-conforming work, the Contractor shall pursue the issue in accordance with the requirements of Subsection M above this Section 55 of this contract, relating to Non-Conforming Work. Inspectors other than the Project Manager are not authorized to issue or direct changes to the requirements of the Contract. In the event that the Contractor believes some direction given by an inspector does constitute a change to the requirements of the Contract, Contractor shall within two (2) days provide written notice to the Project Manager detailing the direction given, by whom, when and under what circumstances, and why the Contractor believes that such direction constitutes a change to the requirements of the Contract. Failure to provide such written notice to the Project Manager within the specified timeframe shall constitute a waiver of claim with respect to the direction received by the Contractor.
- 55.15 **Remedy and Repair of Work:** The inspection of the work or materials shall not relieve the Contractor of any of the Contractor's obligations to fulfill the Construction Contract as prescribed. Work and materials not meeting the requirements shall be made good, and unsuitable work or materials may be rejected, notwithstanding that the work or materials have been previously inspected by the Project Manager or that payment therefor has been included in a progress payment. All work which has been rejected as indicated in a Non-Conformance Notice shall be remedied, or removed and replaced by the Contractor in an acceptable manner, and no compensation will be allowed to the Contractor for the removal, replacement or remedial work. Payment shall not be made on any portion of the work for which a Non-Conformance Notice has been issued and the work not corrected to the satisfaction of the Project Manager.
- 55.16 **Failure to Comply:** Upon failure of the Contractor to comply promptly with any order of the Project Manager made under Paragraphs L, M, N, and O above, the Project Manager, with the approval of the Fire Chief, may cause rejected or unauthorized work to be remedied, removed, or replaced, and to deduct the costs from any moneys due or to become due the Contractor.
- 55.17 **Contractor Liabilities:** The Contractor shall be responsible to OCFA for the acts and omissions of its employees. The Contractor shall be held responsible for all damages resulting from its employees or its subcontractors or agents from all errors, omissions, or negligence in the performance of the work and completion of the Project.

- 55.18 **Deficiencies in Contract Documents:** Contractor covenants and agrees that Contractor, its employees, agents, subcontractors, and suppliers have an affirmative duty and obligation to promptly disclose to the Project Manager any deficiency, error, or inconsistency in the Contract Documents and any of the plans and specifications contained therein, so that Project Manager, the OCFA, and the Design Professional can affect any required or necessary modification or clarification thereof in a timely and cost effective manner. In this regard and in furtherance of the Contractor's obligations, the Contractor agrees not to take advantage of errors or omissions in the Project Manual. It is the duty of the Contractor to promptly notify the Project Manager in writing of any design, materials, or specified method that the Contractor believes may prove defective or insufficient. If the Contractor believes that a defect or insufficiency exists in design, materials, or specified methods and fails to promptly notify the Project Manager in writing of this belief, the Contractor thereby waives any right to assert that defect or insufficiency in design, materials, or specified method at any later date in any legal or equitable proceeding against the OCFA, or in any subsequent arbitration or settlement conference between the OCFA and the Contractor. The Project Manager, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after the Contractor becomes aware that a defect or insufficiency exists in design, materials, or specified method which is directly or indirectly affected by such alleged defect or insufficiency in design, materials, or specified method will be at the Contractor's own risk and the Contractor shall bear all costs arising therefrom.
- 55.19 **Ongoing Duty to Disclose:** If the Contractor, either before commencing work or in the course of the work, finds any discrepancy within the Project Manual, or between the Project Manual and the physical conditions at the Site, or finds an error or omission on the Plans, Specifications, or in any survey, the Contractor shall promptly notify the Project Manager in writing of such discrepancy, error, or omission. If the Contractor observes that the Project Manual is at variance with any applicable law, regulation, order, or decree, the Contractor shall promptly notify the Project Manager in writing of such conflict. The Project Manager, on receipt of such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, work done by the Contractor after the discovery of such error, discrepancy, or conflict which is directly or indirectly affected by such error, discrepancy, omission, or conflict will be at the Contractor's own risk and the Contractor shall bear all costs arising therefrom.
- 55.20 **Duty to Coordinate:** The Contractor shall be responsible for coordinating any work carried on at the Site by other parties or by the OCFA, including the Related Work, simultaneously with the Work. The compensation to be paid to Contractor under this Contract includes any costs which the Contractor may incur as a result of coordinating the Work with such other work, including the Related Work. In no case shall the Contractor be entitled to extra compensation from the OCFA for damages suffered as a result of work being carried on at the Site by other parties or the OCFA simultaneously with the construction work for this Project. Nevertheless, if such work results in a delay to the Contractor's work beyond reasonable time allocations afforded to such work and Related Work identified on the Contractor's Construction Schedule as approved by the Project Manager, the Contractor may be eligible for an extension of time as specified in this Contract.
- 55.21 **Failure to Pay for Labor or Materials:** If Contractor fails to pay for labor or materials when due, OCFA may settle such claims by making demand upon the surety to this Agreement. In the event of the failure or refusal of the surety to satisfy said claims, OCFA may settle any claims directly and deduct the amount of payments from the Contract price and any amounts due to Contractor. In the event OCFA receives a stop notice from any laborer or material supplier alleging non-payment by Contractor, OCFA shall be entitled to deduct all of its costs

and expenses incurred relating thereto, including but not limited to administrative and legal fees.

- 55.22 Compliance with Laws: The Contractor shall, at its cost and expense, comply with all Laws, as any may now exist or be hereafter changed or added. It shall be the responsibility of the Contractor to familiarize itself with all such Laws, and any performance of the Work by or on behalf of the Contractor which is not in compliance with the Laws shall be at the Contractor's sole risk and expense. The Contractor shall notify OCFA prior to execution of the Contract (and, without limiting the continuous duty of the Contractor to advise the OCFA) of any instances where the Contract Documents are, or where the Contractor believes the Contract Documents are, not in compliance with the Laws.
- 55.23 Ongoing Responsibility: Any work or material not specified in the Project Manual but which by fair implication, in the judgment of the Project Manager, should be included therein, shall be accomplished, furnished, or provided by the Contractor as part of the Project Manual.
- 55.24 Taxes, Fees, and Licenses: The Contractor shall pay, or cause to be paid, all import duties and sales, consumer, use, excise, value added and ad valorem taxes required to be paid in connection with the Work or upon materials, tools or equipment brought to the Site or used in the Work. If any of the foregoing taxes are not paid in a timely manner, OCFA may withhold the amount of any such taxes from any amounts owing to the Contractor under the Project Manual, submit the amount so withheld to the appropriate taxing authority on behalf of the Contractor or its Subcontractors or Sub-subcontractors and offset said amount against the Contract Sum. The Contractor shall secure and pay for all governmental fees, permits and licenses which OCFA is not specifically required to provide and pay for under the Project Manual.
- 55.25 Tests: If the Project Manual, or any laws, ordinances, rules, regulations, or any orders or decrees of any public or quasi-public authority having jurisdiction, or common practice in the industry, require or dictate that the Contractor have any portion of the Work inspected, tested or approved, the Contractor shall advise Project Manager in a timely manner (in writing, if practicable) of its readiness and of the date arranged so that Project Manager may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests and approvals except as otherwise specified. Project Manager may require any special inspection, testing or approval of the Work not included under above, or any more stringent inspection, testing or approval thereof, in which event it shall instruct the Contractor to order such inspection, testing or approval, and the Contractor shall advise Project Manager in a timely manner (in writing, if practicable). If such inspection or testing reveals any failure of the Work or the performance thereof to comply with the more stringent of: (a) the requirements of the Project Manual; (b) applicable industry standards; or (c) applicable laws, ordinances, codes, rules, regulations or orders or decrees of any public or quasi-public authority having jurisdiction, or reveals any defect in the Work, the Contractor shall bear the costs of such inspection or testing and all costs to correct the Work to the satisfaction of Project Manager, which, if incurred by OCFA, may be offset by OCFA against any amounts then or thereafter due to the Contractor. If such inspection or testing proves that the Work was performed properly, OCFA shall bear the costs of such inspection or testing. Required certificates of inspection, testing or approval shall be secured by the Contractor and promptly delivered by it to the Project Manager.
- 55.26 General: The duties and responsibilities of the Contractor as set forth in this Section 55 are in addition to, and not in lieu of, other duties and responsibilities of the Contractor enumerated elsewhere in the Project Manual.

## 56 - RESPONSIBILITIES OF THE CONTRACTOR

**56.1 CONTRACTOR'S EQUIPMENT AND FACILITIES.****56.1.1 General.**

**56.1.1.1 Conduct of the Work.** The Contractor shall behave, at all times, in a courteous, professional manner. While on site, or entering or exiting the site, there shall be no extraneous activity that might cause disruption to the Project site, surrounding areas, or residents. Failure to comply may result in the suspension of work, or removal of contractor's staff from the Project.

**56.1.1.2. Noise Levels.** A noise level limit of 86 dbA Max at a distance of fifty feet (50') shall apply to all construction equipment on or related to the job whether owned by the Contractor or not. The use of excessively loud warning signals shall be avoided except in those cases required for the protection of personnel. In addition to those requirements, all work shall comply with all applicable noise ordinances at all times.

**56.2 COOPERATION AND COLLATERAL WORK.**

The Contractor is advised as to the possibility of other construction projects within the proposed construction zone by the OCFA, other governing agencies or private enterprises. In the event of such projects, the Contractor shall coordinate with the applicable parties as to the extent of any time required to complete their work and shall schedule its work and conduct its operations so as to permit access and time as required for the concurrent work. The Contractor shall immediately notify the Engineer in the event of a delay in scheduling caused solely by this concurrent work. Payment for the above, if any, shall be deemed as included in the items of work as shown on the proposal bid sheet and no additional compensation will be allowed.

**56.3 PROJECT SITE MAINTENANCE.****56.3.1. Cleanup and Dust Control.**

The Contractor shall keep adjacent properties clean and free of rubbish and debris in a timely manner as necessary and/or as directed by the Engineer.

The Contractor shall implement effective handling, storage, usage, and disposal practices to control material pollution and manage waste and nonstormwater at the job site before they come in contact with storm drain systems and receiving waters.

**56.3.1.1 Construction Cleaning**

The Contractor shall:

- (a) Initiate and maintain a daily program to prevent accumulation of debris on-site and along access roads and haul routes. Maintain areas under Contractor's control free of waste materials, debris, weeds 6" high, and rubbish. Maintain site in a clean and orderly condition.
- (b) Provide suitable covered containers for deposit of debris and rubbish. Dispose of accumulation of extraneous materials, prohibit overloading of trucks to prevent spillages on access and haul routes and provide daily inspection of haul routes to enforce requirements.
- (c) The Contractor shall supply self-loading motorized street sweepers equipped with a functional water spray system as part of his daily program.

- (d) Schedule at a minimum, weekly collection and disposal of debris. Provide additional collections and disposals of debris whenever the weekly schedule is inadequate to prevent accumulation.

The Contractor shall remove debris from closed or remote spaces prior to closing the space, control cleaning operations to minimize dust and other particulates and immediately remove clay and earth which adhere to the paved surface of the roadway. Remove by hand scraping, washing, sweeping, and/or other method(s) which will leave a clean non-skid surface without impairing, injuring or loosening the surface.

The Contractor is required to control dust throughout the life of the Contract. The control may be required by job conditions or Engineer. In any case, the Contractor shall use water or other effective means to control the dust. No chemical agents may be used without written authorization from the Agency. The Contractor shall be solely responsible for safety problems, accidents or any other complications or claims arising from inadequate dust control.

No separate payment will be made for any work performed or material used to control dust resulting from the Contractor's performance of the work, or by public traffic, either inside or outside the right-of-way. Full compensation for such dust control will be considered as included in the price paid for the various items of work involved.

No separate payment will be made for any work performed or material used in cleaning the Project. Full compensation for such cleaning shall be considered as included in the price paid for the various items of work involved and no additional compensation will be allowed therefore.

## **57 Subcontracts**

57.1 Licensed Subcontractors: The Contractor shall comply with the provisions of the Subletting and Subcontracting Fair Practices Act (the "Act") (Public Contracts Code Section 4100 et seq.). The Contractor shall not terminate the employment of a Subcontractor or Sub-subcontractor engaged in the Work prior to the expiration of that subcontract without complying with the Act. The Contractor shall in all respects select the subcontractors in the manner provided under law. Each subcontractor selected for the work shall be licensed in the State of California in the subcontractor's particular field.

57.2 Transactions: Transactions with subcontractors shall be made through the Contractor. OCFA may assign to the Contractor any contracts or purchase orders entered into between OCFA and any other person or organization in any way related to the Project or the Work, at any time, in which event the Contractor shall assume full responsibility for such person or organization and its portion of the Work as if such person or organization was originally a Subcontractor. Such assignment may occur by Change Order or other Modification to the Contract, and any increase in the Contract Sum shall be governed by Section 01200 of the Project Manual.

57.3 Writing: All subcontracts and sub-subcontracts shall be in writing. Each subcontract and sub-subcontract shall contain a reference to this Contract and shall incorporate the terms and conditions hereof to the full extent applicable to the portion of the Work covered thereby. Each Subcontractor must agree, for the benefit of OCFA, to be bound by, and to require each of its Subcontractors to be bound by, such terms and conditions to the full extent applicable to its portion of the Work.

57.4 Responsibility: The Contractor shall be fully responsible to the OCFA for the acts and omissions of subcontractors and all persons directly or indirectly employed by them as Contractor is for the acts and omissions of Contractor and of persons directly or indirectly employed by

Contractor and shall pay each subcontractor promptly the amount allowed Contractor on account of such subcontractor's work to the extent of such subcontractor's interest therein.

57.5 Incompetent or Disorderly Conduct: If any Subcontractor or person employed by the Contractor shall appear to the Project Manager to be incompetent or to act in a disorderly or improper manner, such person shall be discharged immediately on the request of the Project Manager, and that person shall not again be employed on the work.

57.6 Mandatory Subcontract Terms: Each subcontract shall provide for its termination by the Contractor if, in Project Manager's opinion, the Subcontractor fails to comply with the requirements of the Project Manual insofar as the same may be applicable to its portion of the Work; and each Subcontractor shall be required to insert a similar provision in each of its sub-subcontracts. In the event of any such failure by a Subcontractor or Sub-subcontractor to comply with the requirements of the Project Manual, such Subcontractor or Sub-subcontractor, as the case may be, shall be removed immediately from the Work and shall not again be employed on the Work. The Contractor shall be responsible for all costs and expenses arising out of, and shall indemnify OCFA on account of, any such failure by a Subcontractor or Sub-subcontractor (specifically including, without limitation, a failure to pay for labor (including applicable fringe benefits) or materials).

57.8 Contractual Relations: Nothing contained in this Contract shall create any contractual relationship between OCFA or the Project Manager or the Design Professional on the one hand, and a subcontractor on the other.

## **58 Drawings And Specifications**

58.1 Checking: The Contractor, as part of this Contract, shall agree not to take advantage of errors or omissions in the Contract Documents, including any plans and specifications thereto. It is the duty of the Contractor to promptly notify the Project Manager in writing of any design, materials, or specified method that the Contractor believes may prove defective or insufficient. If the Contractor believes that a defect or insufficiency exists in design, materials, or specified methods and fails to promptly notify the Project Manager in writing of this belief, the Contractor thereby waives any right to assert that defect or insufficiency in design, materials, or specified method at any later date in any legal or equitable proceeding against the OCFA, or in any subsequent arbitration or settlement conference between the OCFA and the Contractor. The Project Manager, on receipt of any such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, any work done by the Contractor after the Contractor becomes aware that a defect or insufficiency exists in design, materials, or specified method which is directly or indirectly affected by such alleged defect or insufficiency in design, materials, or specified method will be at the Contractor's own risk and the Contractor shall bear all costs arising therefrom.

58.2 Discrepancy in Contract Documents: If the Contractor, either before commencing work or in the course of the work, finds any discrepancy within the Contract Documents, or between the Contract Documents and the physical conditions at the Project site, or finds an error or omission on the plans, specifications, or in any survey, the Contractor shall promptly notify the Project Manager in writing of such discrepancy, error, or omission. If the Contractor observes that the Contract Documents is at variance with any applicable law, regulation, order, or decree, the Contractor shall promptly notify the Project Manager in writing of such conflict. The Project Manager, on receipt of such notice, will promptly investigate the circumstances and give appropriate instructions to the Contractor. Until such instructions are given, work done by the Contractor after the discovery of such error, discrepancy, or conflict which is directly or indirectly affected by such error, discrepancy, omission, or conflict will be at the Contractor's own risk and the Contractor shall bear all costs arising therefrom.

58.3 Implication: Any work or material not specified in the Contract Documents but which by fair implication, in the judgment of the Project Manager, should be included therein, shall be accomplished, furnished, or provided by the Contractor as part of the Contract Documents.

58.4 Precedence: Figures marked on drawings shall in general be followed in reference to scale measurements. Large scale drawings shall in general govern small scale drawings. Specifications and schedules shall govern over drawings. The Contractor shall compare all drawings and verify the figures before laying out the work and will be responsible for any errors. When measurements are affected by conditions already established, the Contractor shall take measurements notwithstanding the giving of scale or figure dimensions in the drawings. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of discrepancy in the Plans or Specifications, the matter shall be immediately submitted to the Project Manager, without whose decision Contractor shall not adjust said discrepancy save only at Contractor's own risk and expense. The decision of the Project Manager shall be final.

58.5 Shop Drawings: The Contractor shall establish, implement, and supervise the submission of shop drawings and other submittals (of any type) in accordance with the Schedule and any Milestones. The Contractor shall note any variances between any such shop drawings or other submittals and the Project Manual for the benefit of OCFA at the time of submission. No approval or other similar action regarding any such submission shall be binding in any way upon OCFA.

58.6 Drawings and Specifications at the Site: The Contractor shall keep available at the site for ready reference a complete set of all contract drawings, details, supplementary drawings and approved shop drawings, a complete copy of the specifications with all addenda, bulletins, amendments, and copies of Project correspondence. The Contractor shall maintain on the site a complete "as built" record set of prints. In addition, the Contractor shall keep on the site as required a copy of each manufacturer's current printed recommendations. Contractor shall also submit a copy to the Project Manager.

58.7 Deviations: Deviations from the drawings and the dimensions therein given, whether or not error is believed to exist, shall be made only after written authority is obtained from the Project Manager.

## **59 Divisions Of The Specifications**

59.1 For convenience, the work as described in the Contract Documents are arranged in several divisions and sections, but such separations shall not be considered as the limits of the work required for any subcontract or trade: the terms and conditions of such limitations are wholly between the Contractor and his subcontractors, and the OCFA will not be responsible for any division of work by subcontractors. The Contractor will be solely responsible for all subcontract arrangements of work regardless of the location of provisions in the specifications.

59.2 Schedules of work included in the sections, where listed, are given for convenience only, and shall not be considered as a comprehensive list of items or work necessary to complete the work of any section.

59.3 Where devices or items or parts thereof are referred to in the singular, it is intended that such reference shall apply to as many soon devices, items, or parts as are required to properly complete the work.

59.4 Each section of the specifications is covered by applicable requirements of the Contract Documents and other related sections as if therein written.

## **60 Site Conditions**

60.1 Existing Site Conditions: Information respecting the site of the work given in drawings or specifications has been obtained by OCFA's representatives and is believed to be reasonably correct, but the OCFA does not warrant either the completeness or accuracy of such information, and it is the responsibility of the Contractor to verify all such information.

60.2 Changed Conditions: The Contractor shall promptly, and before such conditions are disturbed, notify the Project Manager in writing of:

60.2.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or

60.2.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents. The Project Manager shall promptly investigate the conditions, and if, as a result, finds that such conditions do so materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for performance an equitable adjustment shall be made and the Contract Documents modified in writing accordingly. Any claim of the Contractor for adjustment hereunder shall not be allowed unless Contractor has given notice as above required.

60.3 Public Utility Facilities on Project Site: Pursuant to Government Code, Section 4215, the Contractor shall be compensated for the costs of locating and repairing damage to public utility facilities on the Project site which was not due to failure of Contractor to exercise reasonable care, and removing or relocating main or trunk line utility facilities located on the Project site, if such work is required in the Contract Documents or the Project Manager. Such compensation shall also cover the cost of Contractor's equipment necessarily idled during such work. This provision shall not be deemed to require compensation when the presence of existing service laterals or appurtenances can be inferred from the presence of visible facilities such as buildings, meter and junction boxes, on or adjacent to the construction site. If the Contractor discovers such unidentified utility facilities during construction, Contractor shall immediately notify the Project Manager and the utility in writing.

60.4 Space at Site: The Contractor shall be allowed reasonable space at the site of the work as available and access thereto and shall confine Contractor operations to the space assigned. The work shall be done without interference with the ordinary use of the fire station. The Contractor shall cooperate with other Contractors of the OCFA and shall not commit or permit any act which will interfere with the performance of work by any other Contractor or employees of the OCFA whether at the site or not.

## **61 Conditions Affecting The Work**

The Contractor shall be responsible for having taken steps reasonably necessary to ascertain the nature and location of the work, and the general and local conditions which can affect the work or the cost thereof. Any failure by the Contractor to do so will not relieve Contractor from responsibility for successfully performing the work without additional expense to the OCFA. The OCFA assumes no responsibility for any understanding or representations concerning conditions made by any of its officers or agents prior to the execution of the Contract Documents, unless such understanding or representations by the OCFA are expressly stated in the Contract Documents.

**62 OCFA's Property On Site**

All fixtures, facilities, equipment, vehicles, furniture, and all other personal property of the OCFA located at the job site which are removed in the course of construction of the Project remain the property of the OCFA unless express provision to the contrary is made in the Contract Documents, and the Contractor shall exercise reasonable care to prevent loss or damage to said property and shall deliver promptly such property to the place designated by the Project Manager.

**63 Protection**

- 63.1 The Contractor shall, throughout the performance of the Work, maintain adequate and continuous protection of all Work, all material and supplies, and temporary facilities against loss or damage from whatever cause, shall protect the property of OCFA and third parties from loss or damage from whatever cause, and shall comply with the requirements of OCFA and its insurers and with all applicable laws, codes, rules and regulations with respect to the prevention of loss or damage to property as a result of fire or other hazards.
- 63.2 The Project Manager may, but shall not be required to, make periodic patrols of the Site as a part of its normal security and safety program. In such event, however, the Contractor shall not be relieved of its aforesaid responsibilities and OCFA shall not assume same, nor shall it be deemed to have assumed, any responsibility otherwise imposed upon the Contractor by the Contract.
- 63.3 Until final acceptance of the Work by OCFA, the Contractor shall have full and complete charge and care of and, except as otherwise provided in this Subparagraph, shall bear all risk of loss of, and injury or damage to, the Work or any portion thereof (specifically including OCFA-furnished supplies, equipment or other items to be utilized in connection with, or incorporated in, the Work), materials, equipment, and supplies, from any cause whatsoever, subject to the limitations set forth below.
- 63.4 The Contractor shall rebuild, repair, restore, replace, and make good all losses of, and injuries or damages to, the Work or any portion thereof (specifically including OCFA-supplied, equipment or other items to be utilized in connection with, or incorporated in, the Work), material, equipment, and supplies before final acceptance of the Work. Such rebuilding, repair, replacement, or restoration shall be at the Contractor's sole cost and expense.
- 63.5 Contractor shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. Contractor shall comply with the provisions of the Construction Safety Orders issued by the State Division of Occupational Safety & Health. Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire construction work, except for any completed unit of construction thereof which theretofore may have been accepted.
- 63.6 The Contractor shall maintain continuously adequate protection of all work from damage and shall protect the OCFA's property from injury or loss arising in connection with the Contract Documents. Contractor shall make good any such damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or representatives of the OCFA. Contractor shall adequately protect adjacent property as provided by law and the Contract Documents, and shall maintain reasonable security of the site at all times, if necessary. Contractor shall limit visitors to the site to those necessary for construction and inspections. Visitors for other purposes shall be referred to the Project Manager. Contractor's and subcontractors' employees shall possess means of identification at all times as required by the Project Manager while on the job site.

- 63.7 In an emergency affecting the safety of life or of the work or of adjoining property the Contractor, without special instruction or authorization from the OCFA, is hereby permitted to act at Contractor's discretion to prevent such threatened loss or injury. Contractor shall so act if directed or instructed by the Project Manager. Any dispute as to compensation claimed by the Contractor on account of emergency work shall be determined by agreement as hereinafter set forth.
- 63.8 The Project Manager may notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately correct such conditions. Such notices, when delivered to the Contractor or Contractor's representative at the site of the work, shall be deemed sufficient for said purpose. Failure of receipt of such notice from the Project Manager shall not relieve the Contractor of responsibility.
- 63.9 If the Contractor fails or refuses to comply promptly, the Project Manager may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop order shall be made the subject of a claim for extension of time or for excess costs or damages to the Contractor. The Contractor will be responsible for ensuring that his subcontractors comply with the provisions of this Section 63.
- 63.10 Surface or Subsurface water or other fluid shall not be permitted to accumulate in excavations or under the structures. Should such conditions develop or be encountered, the water or other fluid shall be controlled and suitably disposed of by means of temporary pumps, piping, drainage lines and ditches, dams or other methods approved in writing by OCFA. The proposed location and coordination of temporary channels and conduits conducting accumulated water from the Site shall be submitted to Project Manager for its prior written approval. All such work shall be done at the sole expense of the Contractor, and in accordance with the Federal National Pollutant Discharge Elimination System (NPDES) and the NPDES General Construction Permit which includes the Contractor's Storm Water Pollution Prevention Plan (SWPPP) pursuant thereto.

## **64 Payments**

The OCFA shall make payments upon the contract price in accordance with the Contract Documents.

## **65 Assignment**

The Contract Documents, and any portion thereof, may not be assigned by the Contractor. Claims for monies due or to become due the Contractor from the OCFA under the Contract Documents may be assigned, with the written consent of the Board of Directors, to a bank, trust company, or other financing institution and may thereafter be further assigned or reassigned to any such institution. To effect such assignments, the Contractor, or Contractor's assignee, shall submit a written request to the Board of Directors enclosing a letter from the proposed assignee indicating that it will accept such assignment. Any attempted assignment contrary to provisions of this paragraph shall be void.

## **66 Other Contracts**

The Board of Directors may undertake or award other contracts for additional work or other work, and the Contractor shall fully cooperate with such other contractors and OCFA employees and carefully fit Contractor's own work to such additional work as may be directed by the Project Manager. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other contractor or by OCFA employees.

**67 Warranty / Warranty Work**

- 67.1 **One-Year Warranty:** The Contractor agrees to maintain and guarantees for a period of twelve (12) months from the date of the issuance of the certificate of acceptance of the Project or the issuance of a temporary certificate of occupancy as requested by the Fire Chief in the Fire Chief's sole discretion, whichever event occurs first, (and for such additional or extended periods for portions of the Work as provided in the Project Manual), that the completed work is free from all defects due to faulty materials, equipment or workmanship and that Contractor shall promptly make whatever adjustments or corrections which may be necessary to cure any defects, including repairs or any damage to the Site, Project, Work, or any system installed therein resulting from such defects. .
- 67.2 **Warranty Work / Normal Response Time:** In the event of failure to comply with the above-mentioned conditions within one (1) week after being notified in writing, the OCFA is hereby authorized to proceed to have the defects remedied and made good at the expense of the Contractor who hereby agrees to pay the cost and charges therefore immediately on demand.
- 67.3 **Warranty Work / Emergency Response Time:** If in the opinion of the OCFA, defective work creates a dangerous condition, affects the OCFA's essential operations / essential use of the facility, affects the safety or preservation of property or personnel, or requires immediate correction or attention to prevent further loss to the OCFA, the Contractor shall be required to take corrective action within 24 hours after personal or telephonic notice by the OCFA's Property Management Section. If the Contractor cannot be contacted or does not comply with the OCFA's request for correction within 24 hours (or a reasonable time as determined by the OCFA), the OCFA may, notwithstanding the provisions of this Section 67, proceed to make such correction, the cost of which shall be charged against the Contractor.
- 67.4 **Failure to Take Corrective Action:** Failure by the Contractor to take corrective action as specified above shall constitute a material breach of this agreement and will result in the OCFA taking whatever corrective action it deems necessary including termination of this agreement. All costs resulting from such action by the OCFA will be claimed against Contractor or, if necessary, the Contractor's Performance Bond. The Contractor's Performance Bond shall remain in full force and effect through the warranty period.
- 67.5 **Alternative Remedy:** In the event that the Contractor fails to make adjustments, repairs, corrections or other work made necessary by such defects, or to properly maintain and service the Project, the OCFA may do so and charge the Contractor the cost incurred. The performance bond shall remain in full force and effect through the guarantee period or, at the option of the Contractor, a warranty bond in the amount of one hundred percent of the Contract price may be substituted for the performance bond. Such warranty bond must be in a form approved by OCFA General Counsel, be issued by a surety authorized by the State Insurance Commissioner to transact business in the State of California as a surety, and must have and maintain, throughout the warranty period, at least an "A-" policyholder's rating, or better, and a financial rating of "Class VII," or better, in accordance with the most current A.M. Best's Rating Guide.
- 67.6 **All Inclusive Remedies:** The Contractor's obligations under this clause are in addition to the Contractor's other express or implied assurances of this Contract, Project Manual, or state law and in no way diminish any other rights that the OCFA may have against the Contractor for faulty materials, equipment, or work.

**68 Extra Work And Changes**

68.1 The Contract price as set forth in the Contract and the Contractor's Bid, includes compensation for all work performed by Contractor, unless Contractor obtains a written change order signed by the Project Manager specifying the exact nature of the extra work and the amount of extra compensation to be paid all as more particularly set forth in this Section 68. OCFA shall extend the time fixed in the Contract Documents for completion of the Project by the number of days reasonably required for Contractor to perform the extra work only if Contractor is actually delayed in the performance of any item of the Project on the critical path by:

68.1.1 Any act or neglect of OCFA, Project Manager, Design Professional, or any employee, agent, or representative of OCFA; or

68.1.2 Combined action of workers, either those employed on the Project or in any industry essential to the conduct of the Work not caused by or resulting from default, negligence, or collusion on the part of Contractor or its Subcontractors of every tier; or

68.1.3 Unusually severe weather conditions not reasonably anticipatable for that portion of the Site is located, based upon U.S. Weather Bureau climatological reports for the months included plus a report indicating average precipitation, temperature, etc. for the last ten (10) years from the nearest reporting station; or

68.1.4 Excusable Transportation Delays; or

68.1.5 Excusable Labor Disputes; or

68.1.6 Acts of God; or

68.1.7 National Emergency, declared by the President of the United States.

In the event one or more of the specific situations described above occurs, the Scheduled Completion Date may be extended by Change Order for a period not to exceed the length of such delay, provided that Contractor presents a written request to Project Manager, with demonstrated justification, for such time extension within five (5) days of the commencement of such delay. Failure to file such request within the time allowed shall be deemed a waiver of the claim by Contractor as determined by Project Manager. The decision of the Project Manager shall be final.

68.2 The Project Manager may, at any time, by written order, and without notice to the sureties, make changes in the drawings or specifications of the Contract Documents if within the general scope thereof. A change order shall also be any other written order (including direction, instruction, interpretation or determination) from the OCFA which causes any change, provided Contractor gives the OCFA written notice stating the date, circumstances and source of the order and that Contractor regards the order as a change order.

68.3 If any change under this Section 68 causes an increase or decrease in Contractor's actual direct cost or the time required to perform any part of the work under this Contract, whether or not changed by any order, the Project Manager shall make an equitable adjustment and modify the Contract in writing. Except for claims based on defective specifications, no claim for any change shall be allowed for any costs incurred more than 20 days before the Contractor gives written notice as required below. In the case of defective specifications for which the OCFA is responsible, the equitable adjustment shall include any increased direct cost Contractor reasonably incurred in attempting to comply with those defective specifications.

68.4 No extension of time shall be given unless the delay for which a request is made is included in those items for which an extension to the Scheduled Completion Date is appropriate pursuant to the provisions of this Section 68 and the Project Manager finds that such reason for the delay actually adversely affected the ability of the Contractor to complete the Project

by the Scheduled Completion Date or to complete a Milestone. Project Manager's decision will be conclusive on the parties to this Contract.

- 68.5 No claims by Contractor for additional compensation or damages for delays will be allowed unless Contractor satisfies the Project Manager that such delays were unavoidable and not the result of any action or inaction of Contractor and that Contractor took all available measures to mitigate such damages. The Project Manager's decision will be conclusive on all parties to this Contract.
- 68.6 No extension of the Scheduled Completion Date or the right on the part of Contractor to secure any such extension pursuant to this Section 68 shall prejudice any right OCFA may have under the Project Manual, or otherwise, to terminate this Contract.
- 68.7 The Contract Price includes compensation for all work performed by Contractor, unless Contractor obtains a written change order signed by the Project Manager specifying the exact nature of the extra work and the amount of extra compensation to be paid all as more particularly set forth in in this Section 68.
- 68.8 Project Manager may extend the Scheduled Completion Date by the number of days reasonably required for Contractor to perform the extra work, but only to the extent such extra work actually adversely affects the Scheduled Completion Date, as determined by Project Manager. The decision of the Project Manager shall be final.
- 68.9 The OCFA or the Fire Chief may order modifications or authorize change orders for any reason. Such modifications shall be reviewed, evaluated, and processed in the manner specified in this Section 68.
- 68.10 Project Manager may at any time, without notice to any surety, by written order designated or indicated to be a Class 1 or Class 2 Change Order, make any change in the work within the general scope of the Contract, including, but not limited to, changes in:
  - 68.10.1 The Project Manual (including drawings and designs);
  - 68.10.2 The time, method, or manner of performance of the work;
  - 68.10.3 The OCFA-furnished facilities, equipment, materials, services, or site; or
  - 68.10.4 Directing acceleration in the performance of the work.
- 68.11 Except as provided in this Section 68, no order, statement or conduct of the OCFA or its representatives, including, but not limited to the Fire Chief, Project Manager, or the Design Professional, shall be treated as a change under this Section 68 or entitle Contractor to an equitable adjustment.
- 68.12 If any change under this Section 68 causes an increase or decrease in Contractor's actual, direct cost or the time required to complete the Project or a Milestone under this Contract and Project Manual, whether or not changed by any order, the Project Manager shall make an equitable adjustment and the OCFA shall modify the Contract in writing. Except for Class 1 claims based on defective provisions of the Project Manual, no claim for any change under Section 1.16 shall be allowed for any costs incurred more than 15 days before the Contractor gives written notice as required in this Section 68. In the case of defective specifications for which the OCFA is responsible, the equitable adjustment shall include any increased direct cost Contractor reasonably incurred in attempting to comply with those defective specifications.

- 68.13 If Contractor intends to assert a claim for an equitable adjustment under this Section 68, it must, within fifteen (15) days after receipt of a written change order under this Section 68 or the furnishing of a written notice hereunder, submit a written statement to the Project Manager setting forth the general nature and monetary extent of such claim. Such claim shall contain the documentation and information as specified herein. The Project Manager may extend the 15-day period so long as the request for the extension is submitted within such 15-day period and only for good and justified cause. Project Manager's decision regarding any request for extension shall be final and binding on all parties.
- 68.14 Claim documentation shall conform to generally accepted accounting principals and all supporting documentation shall be cited by reference, photocopies, or explanation. Supporting documentation may include, but shall not be limited to, general conditions, general requirements, technical specifications, drawings, correspondence, conference notes, shop drawings logs, survey books, inspection reports, delivery schedules, test reports, daily reports, subcontracts, fragmentary schedules or time impact analyses, photographs, technical reports, requests for information, field instructions, and all other related records necessary to support Contractor's claim.
- 68.15 Supporting documentation of damages for each claim shall be cited, photocopied, or explained. Supporting documentation may include, but shall not be limited to, any or all documents related to the preparation and submission of the bid; certified, detailed labor records including labor distribution reports, material and equipment procurement records, construction equipment ownership cost records or rental records, Subcontractor or vendor files and cost records, service cost records, purchase orders, invoices, project as planned and as-built records, general ledger records, variance reports, accounting adjustment records, and any other accounting materials necessary to support Contractor's claim.
- 68.16 Each copy of the claim documentation shall be certified by a responsible office of the Contractor in accordance with the requirements of the Project Manual.
- 68.17 Should Contractor be unable to support any part of the claim and it is determined that such inability is attributable to falsity of such certification or misrepresentation of fact or fraud on the part of Contractor, the Contractor shall be liable to OCFA as provided for under California Government Code Section 12650 et seq.
- 68.18 Disputed work shall be performed as ordered in writing by the Project Manager, so long as the cost of such work is within the OCFA of the Project Manager as described above, so as to minimize the impact on, and delays to, the Work.
- 68.19 Costs which shall not be allowed or paid in Change Orders or claim settlements under this Contract include, but are not limited to, interest cost of any type other than those mandated by statute; claim preparation or filing costs; legal expenses; the costs of preparing or reviewing proposed Change Orders or change order proposals concerning change orders which are not issued by the OCFA; lost revenues; lost profits; lost income or earnings; rescheduling costs; costs of idled equipment when such equipment is not yet at the Site or has not yet been employed on the Work; lost earnings or interest on unpaid retainage; claims consulting costs; the costs of corporate officers or staff visiting the Site or participating in meetings with the OCFA; any compensation due to the fluctuation of foreign currency conversions or exchange rates; loss of other business; or any other cost identified as unallowable cost under the provisions of the Federal Acquisition Regulations.
- 68.20 No claim by Contractor for an equitable adjustment shall be allowed if made after final payment under this Agreement. Contractor hereby agrees to make any and all changes, furnish the materials and perform the work that OCFA or its Project Manager may require without

nullifying this Contract. Contractor shall adhere strictly to the Contract Documents unless a change therefrom is authorized in writing by the Project Manager, subject to the limitations contained herein. Under no condition shall Contractor make any changes to the Project, either in additions or deductions, without the written order of the OCFA or its Project Manager and the OCFA shall not pay for any extra charges made by Contractor that have not been agreed upon in advance in writing by the OCFA. Contractor shall submit immediately to the OCFA written copies of its firm's cost or credit proposal for change in the work. Disputed work shall be performed as ordered in writing by the OCFA or the Project Manager and the proper cost or credit breakdowns therefor shall be submitted without delay by Contractor to the Project Manager.

- 68.21 Project Manager is authorized by the Board of Directors to make, by written order, changes or additions to the work within the scope of the Contract Documents. This authority to approve changes is limited to 10% of the original contract amount. All changes over the amounts specified above shall be subject to the approval of the Board of Directors. Any change or addition of any kind pursuant to any provision of the Contract Documents which exceeds the limits described in this subsection and which have not been approved by the Board of Directors is void and can not be enforced against the OCFA.
- 68.22 Any claim of the Contractor for adjustment under this Section 68 or any other provision of the Project Manual must be asserted in writing within 15 days from the date of receipt by the Contractor of the notification of change unless the Board of Directors or Project Manager grants a further period of time before the date of final payment under the Contract Documents. Nothing provided in this Section 68 shall excuse the Contractor from proceeding with the prosecution of the work as changed. Except as otherwise provided in this Contract, no charge for any extra work or material will be allowed.
- 68.23 Labor wage rates shall not exceed the Prevailing Wage Rates supported by payroll records. Equipment rental rates should be based on latest edition of equipment rental rates published by the State of California Department of Transportation; Division of Construction.
- 68.24 Nothing in this Section shall excuse the Contractor from proceeding with the Contract Documents as changed.

## **69 No Verbal Modifications**

No verbal statement of any person whomsoever shall in any manner or degree modify or otherwise affect the terms of the Contract or the Project Manual.

## **70 Material, Workmanship, And Acceptance**

- 70.1 Where materials are specified by reference to standard specifications of the American Society for Testing Materials (A.S.T.M.), Federal Specifications, or others, all applicable provisions of the designated specifications shall be considered as forming a part of the Contract Documents to the same force and effect as if repeated therein.
- 70.2 All work under this Contract Documents shall be performed in a skillful and workmanlike manner. The Project Manager may, in writing, require the Contractor to remove from the work any employee the Project Manager deems incompetent, careless, or otherwise objectionable.
- 70.3 The Contractor shall, without charge, replace any material or correct any workmanship found by the Project Manager not to conform to the contract requirements, unless in the public interest the Project Manager consents to accept such material or workmanship with an

appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

70.4 If the Contractor does not promptly replace rejected material or correct rejected workmanship, the OCFA (1) may, by contract or otherwise, replace such material or correct such workmanship and charge the cost thereof to the Contractor, or (2) may terminate the Contractor's right to proceed in accordance with these General Conditions.

70.5 Unless otherwise provided in the Contract Documents, acceptance by the OCFA shall be accomplished by recordation of Notice of Completion which shall be made as promptly as practicable after completion and inspection of all work required by the Contract Documents. Acceptance shall be final and conclusive except as regards latent defects, fraud, or such gross mistakes as may amount to fraud, or as regard the OCFA's rights under any warranty or guarantee. Informal procedures such as "punch lists" are not to be deemed final or conditional acceptance.

## **71 Termination For Default & Damages For Delay**

71.1 The Contract may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under this Agreement through no fault of the terminating party, provided that no termination may be effected unless the other party is given: (1) Not less than ten (10) calendar days' written notice (delivered by certified mail, return receipt requested) of intent to terminate; and (2) An opportunity for consultation with the terminating party prior to termination.

71.2 If the Contractor refuses or fails to prosecute the work with such diligence as will ensure its completion within the time specified in the Contract Documents or any extension thereof, or fails to complete said work within such time, the Board of Directors may, by written notice to the Contractor, terminate Contractor's right to proceed with the work or such part of the work as to which there has been delay. In such event, the OCFA may take over the work and prosecute the same to completion, by contract or otherwise, and may take possession of and utilize in completion the work such materials, appliances, and plant as may be on the site of the work and necessary therefor. Whether or not the Contractor's right to proceed with the work is terminated, Contractor and Contractor's sureties shall be liable for any damage to the OCFA resulting from Contractor's refusal or failure to complete the work within the specified time.

71.3 Fixed and agreed liquidated damages are provided in the Contract Documents, these General Conditions, paragraph 1.38 J. If the OCFA so terminates the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the OCFA in completing the work.

71.4 Fixed and agreed liquidated damages are provided in the Contract Documents, these General Condition, paragraph 1.38 J. If the OCFA does not so terminate the Contractor's right to proceed, the resulting damage will consist of such liquidated damages until the work is completed or accepted.

71.5 The Contractor's right to proceed shall not be so terminated nor the Contractor charged with resulting damage if the Contractor is actually delayed in the performance of any item of the Project on the critical path by:

71.5.1 Any act or neglect of OCFA, Project Manager, Design Professional, or any employee, agent, or representative of OCFA; or

- 71.5.2 Combined action of workers, either those employed on the Project or in any industry essential to the conduct of the Work not caused by or resulting from default, negligence, or collusion on the part of Contractor or its Subcontractors of every tier; or
- 71.5.3 Unusually severe weather conditions not reasonably anticipatable for that portion of the County of Orange where the Project site is located, based upon U.S. Weather Bureau climatological reports for the months included plus a report indicating average precipitation, temperature, etc. for the last ten (10) years from the nearest reporting station; or
- 71.5.4 Excusable Transportation Delays; or
- 71.5.5 Excusable Labor Disputes; or
- 71.5.6 Acts of God; or
- 71.5.7 National Emergency, declared by the President of the United States.

The Scheduled Completion Date may be extended by Change Order for a period not to exceed the length of such delay, provided that Contractor presents a written request to Project Manager, with demonstrated justification, for such time extension within five (5) days of the commencement of such delay. Failure to file such request within the time allowed shall be deemed a waiver of the claim by Contractor. No extension of time shall be given unless the delay for which a request is made is included in those items for which an extension to the Scheduled Completion Date is appropriate as provided above and the Project Manager finds that such reason for the delay actually adversely affected the ability of the Contractor to complete the Project by the scheduled completion date. Project Manager's decision will be conclusive on the parties to this Contract. No claims by Contractor for additional compensation or damages for delays will be allowed unless Contractor satisfies the Project Manager that such delays were unavoidable and not the result of any action or inaction of Contractor and that Contractor took all available measures to mitigate such damages. The Project Manager's decision will be conclusive on all parties to this Contract. Project Manager may extend the time indicated for completion of the Project by the number of days reasonably required for Contractor to perform the extra work, but only to the extent such extra work actually adversely affects the Scheduled Completion Date, as determined by Project Manager. The decision of the Project Manager shall be final.

The rights and remedies of the OCFA provided in this Section 71 are in addition to any other rights and remedies provided by law or under the Contract Documents.

## **72 OCFA's Rights Regarding Work**

- 72.1 If the Work or any portion thereof is defective and/or does not conform to the Project Manual, or if Contractor fails to supply sufficient skilled workers and suitable material, services, or equipment, or if Contractor fails to make prompt payments to Subcontractors or for labor, materials, or equipment, or if Contractor fails to supervise or coordinate the Work, or if grounds exist pursuant to any other provision of the Project Manual, Project Manager may order Contractor to stop the Work, or any portion thereof, until cause for the order to stop has been eliminated. Project Manager's exercise of this right to stop the Work shall not give rise to any duty on the part of the Project Manager to exercise this right for the benefit of Contractor or any other party. This right to stop the Work pursuant to this Section is in addition to and not in limitation of OCFA's rights to terminate this Contract in accordance with the Project Manual.

- 72.2 Project Manager may at any time and without cause suspend the Work or any portion thereof by written notice to Contractor and a Change Order shall be issued extending the Scheduled Completion Date by the number of days of such suspension. For suspensions of the Work which are fourteen (14) days or less, Contractor shall recommence the Work at the direction of Project Manager with the Lump Sum Price remaining unchanged. Provided Contractor is not in default of the terms of the Project Manual, if there is a suspension of Work or suspensions which in the aggregate extend beyond fourteen (14) days, Contractor shall recommence the Work at the direction of Project Manager and Contractor and Project Manager shall, at Contractor's written request and through good faith negotiations, equitably adjust the Scheduled Completion Date and any Milestones, and shall equitably adjust the Lump Sum Price, in an amount to be approved by the Fire Chief or the OCFA, which approval shall not be unreasonably withheld, for each day of such suspension exceeding fourteen (14) days. Adjustments to the Scheduled Completion Date or completion of a Milestone shall only be provided to the extent the suspension of Work actually adversely affects the Scheduled Completion Date or completion of a Milestone, as determined by Project Manager. The decision of the Project Manager shall be final.
- 72.3 In the event the Project Manager determines that the progress of the Work is behind the progress set forth in the Contractor's Construction Schedule, Project Manager may require Contractor to take such actions as the Project Manager deems necessary to expedite the progress of the Work in conformance with the progress set forth in the Contractor's Construction Schedule. Such actions may include without limitation, increasing the number of workers performing the Work, utilizing overtime work, and requiring additional work shifts. Such action by Project Manager to place Contractor back on schedule shall not be the subject of a Change Order increasing the Lump Sum Price, nor shall Contractor receive any additional compensation for these activities.
- 72.4 Contractor shall cooperate with OCFA, Project Manager, Design Professional, and all other persons as OCFA may retain or employ for (by way of illustration only) installation of furniture, decoration, and training, and the like at the Project. Contractor acknowledges that it is critical to OCFA that separate Contractors are allowed to perform and coordinate the installation of furnishings, fixtures, and equipment not covered by this Contract but necessary for the Project. Contractor covenants to use its best efforts to prevent OCFA from suffering delay in completion of the Work as a result of Contractor's failure to cooperate and coordinate its work with Related Work as required by the Project Manual.
- 72.5 To the extent that OCFA timely provides to Contractor information relating to the work of its separate Contractors, the interrelationships between the work of separate Contractors and/or third parties such as OCFA's purchasing agent and any other special consultants shall be indicated on the Contractor's Construction Schedule to allow OCFA to provide for proper phasing.

### **73 Contract Price; Method of Payment; Retention Of Funds**

- 73.1 OCFA agrees to pay and the Contractor agrees to accept as full consideration for the faithful performance of this Contract, subject to any subsequent additions or deductions as provided in approved change orders, the sum as itemized in the Exhibit K: Schedule of Values.
- 73.2 Progress payments shall be made to the Contractor per month for each successive month as the work progresses. The Contractor shall be paid such sum as will bring the total payments received since the commencement of the work up to ninety percent (90%) of the value of the work completed, less all previous payments, provided that the Contractor submits the request for payment prior to the end of the day required to meet the payment schedule. The OCFA

will retain ten percent (10%) of the amount of each such progress estimate and material cost until 30 days after the recordation of the Notice of Completion.

- 73.3 The Contractor shall request payment through the preparation and submission to OCFA of an Invoice in accordance with the Project Manual. It shall show in detail all monies properly payable to the Contractor, approved by the Project Manager, in accordance with the previously approved activities as identified on the Contractor's Construction Schedule, including those items of labor, materials, and equipment used or incorporated in the Work (and, if OCFA has agreed in advance in writing, suitably stored at the Site) through and including the Payment Application Date. The Application for Partial Payment shall have, as attachments waivers of mechanics' and materialmen's liens by the Contractor and its Subcontractors and Sub-subcontractors as of the date of submission of the Application for Partial Payment, which waivers shall conform in all material respects with the then current provisions of Section 3262 of the California Civil Code (or any successor thereto), certifications of payrolls (30 days in arrears), and such other evidence of performance of the Work, the costs thereof and payment therefor as OCFA may deem necessary or desirable.
- 73.4 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Partial Payment shall pass to OCFA, free and clear of all liens, claims, security interests or encumbrances, upon the sooner occurrence of: (a) the delivery of any such materials or equipment to the Site; or (b) the tender of payment of the applicable Application for Partial Payment by OCFA to the Contractor; and that no Work, materials, or equipment covered by an Application for Partial Payment shall have been acquired, whether by the Contractor or by any Subcontractor or Sub-subcontractor, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person. The passage of title to OCFA as provided herein shall not alter or limit the obligations and duties of the Contractor with respect to the Work and the materials or equipment incorporated therein or used in connection therewith as set forth in the Project Manual. In this regard, it is specifically noted that neither the OCFA, nor its Directors, officers, employees, or agents shall be held responsible in any manner for any loss that may happen to the Work or any part thereof during the course of construction; for any loss or damage to any of the materials, equipment, supplies, or other things used or employed in performing the Work; for injury to or death of any person, either workers or the public; or for damage to property, from any cause that might have been prevented by the Contractor, Contractor's workers, employees, Subcontractors, suppliers, or agents.
- 73.5 If the Contractor has submitted an Application for Partial Payment in the manner prescribed in the Project Manual, The Project Manager shall, with reasonable promptness, review, approve the same (or such portions thereof covering amounts it determines to be properly due), or shall state in writing its reasons for withholding its approval (whether of all or a part).
- 73.6 The Project Manager's approval of an Application for Partial Payment shall not constitute a representation by OCFA that the conditions precedent to the Contractor's entitlement to payment have been fulfilled, nor shall approval of an Application for Partial Payment by OCFA be deemed a representation by OCFA: (a) that it has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (b) that it has reviewed the construction means, methods, techniques, sequences, coordination or procedures, or the cleanliness of the Site, or the safety precautions and programs, in connection with the Work; (c) that it has made any examination to ascertain how or for what purposes the Contractor has used the monies previously paid on account of the Contract Sum.
- 73.7 No approval of an Application for Partial Payment, progress payment or any beneficial, partial or entire use or occupancy of the Project by OCFA shall constitute an acceptance of any Work which is not in accordance with the Project Manual; and regardless of approval of an

Application for Partial Payment by OCFA, the Contractor shall remain totally obligated and liable for the performance of the Work in strict compliance with the Project Manual.

73.8 Subject to OCFA's rights to offset or withhold as set forth in these General Conditions, after OCFA has approved an Application for Partial Payment, in whole or in part, it shall make payment of the amount approved to the Contractor as provided in the Project Manual.

73.9 Pursuant to California Public Works Contract Code Section 22300, the Contractor will be entitled to post approved securities with the OCFA or an approved financial institution in order to have the OCFA release funds retained by the OCFA to ensure performance of the Contract. Contractor shall be required to execute an addendum to this Contract together with escrow instructions and any other documents in order to effect this substitution.

#### **74 Right To Occupy - Beneficial Use**

74.1 OCFA reserves the right, prior to Substantial Completion of the entire Project, to use a portion or portions of the Work when Project Manager determines that such portion or portions may be safe for such use provided such use will not unreasonably interfere with the Contractor's orderly progress of the Work. Such use ("beneficial use") shall not be construed as an acceptance of any such Work, or a part of the Work, as substantially complete, nor shall it affect the dates and times when payments shall become due from the OCFA to Contractor, nor shall it prejudice OCFA's rights pursuant to the Contract or any bonds guaranteeing the same. Notwithstanding such occupancy or use, Contractor shall continue to provide insurance, security, maintenance, utilities, and protection to the Work, unless otherwise agreed by the parties in writing.

74.2 At the sole discretion of the Fire Chief, any time after beneficial use and prior to issuance of a certificate of occupancy by the Local Jurisdictions, the Fire Chief may request one or more of the local Jurisdictions to issue a temporary certificate of occupancy for a portion or portions of the Project. Upon the issuance of such temporary certificate of occupancy, the OCFA may occupy such portion or portions of the Project, and such portions shall be deemed to be substantially complete.

74.3 Beneficial Occupancy shall not constitute acceptance by OCFA or Project Manager of the completed Work or any portion thereof, shall not relieve the Contractor of its full responsibility for correcting defective Work and repairing the Work, shall not be deemed to be the equivalent of completion of the Work and shall not entitle the Contractor to any increase in the Contract Sum.

74.4 Anything in this Section 74 to the contrary notwithstanding, OCFA may certify any portion of the Work to be occupied or used hereunder to be Substantially Completed and, upon the Contractor's timely completion or correction of the items on the "punch-list" with respect thereto, accept that portion of the Work.

#### **75 Final Completion and Final Payment.**

75.1 When all permits for the Work have been approved, accepted, or otherwise signed off as complete by the inspectors of the Local Jurisdictions, Contractor shall certify to the Project Manager in writing within ten (10) days that the Work is complete in accordance with the Project Manual and is ready for occupancy. Project Manager, Design Professional, and Fire Chief will make an investigation and inspection of all phases of the Work. If all contractual obligations have not been met, Project Manager shall furnish Contractor a detailed list of all remaining work (the "Punchlist") and Contractor shall commence correction of all items on the Punchlist. A letter of acceptance shall be issued upon completion of all Work specified on the

Punchlist to the satisfaction of the Project Manager. In no case will the letter of acceptance relieve Contractor of any obligations of Contractor that may be outstanding. Within five (5) business days after issuance of a letter of acceptance, Project Manager and the Design Professional shall issue a certificate of final completion. Upon receipt of the certificate of final completion, Contractor shall submit its final application for payment ("Final Application for Payment") which shall set forth all amounts due and remaining unpaid to Contractor and upon approval thereof by the Project Manager and the Design Professional, OCFA shall pay to Contractor the amount due under such Final Application for Payment as provided herein.

75.2 Before OCFA makes the Final Payment to Contractor, all requirements of the Project Manual shall have been fulfilled, including the following:

- (1) Receipt by Project Manager of a complete list of Subcontractors and principal vendors, including addresses, telephone numbers, and names of individuals to contact who are familiar with the Project, including Contractor;
- (2) Receipt by Project Manager of all operation and maintenance manuals, approved by the Design Professional;
- (3) Receipt by OCFA of all releases and written guarantees from all Subcontractors and material suppliers for the Project in a form and content satisfactory to the Project Manager, which Contractor hereby agrees to obtain for, and deliver to, Project Manager prior to completion of the Project;
- (4) Receipt by Project Manager of all "As-Built" records, approved by Project Manager and the Design Professional as specified in the Project Manual;
- (5) Copies of any other warranties or guarantees received from manufacturers, suppliers, or Subcontractors of Contractor or any Subcontractor; and
- (6) Evidence satisfactory to the Project Manager showing that the Contractor has promptly and satisfactorily settled all claims, if any, for services performed and materials furnished in connection with the Work.
- (7) Receipt by Project Manager of all documentation necessary to demonstrate compliance with the Leadership and Environmental Design program requirements.

75.3 Final Payment shall not become due until Contractor submits to Project Manager: (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which OCFA or OCFA's property might in any way be responsible, have been paid or otherwise satisfied; (2) the consent of the surety to Final Payment; and (3) if reasonably required by the Project Manager, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Project Manager. Project Manager may require affidavits or certificates of payment and/or releases from any Subcontractor, laborer, or material supplier.

75.4 If any Subcontractor or material supplier refuses to furnish a release or waiver required by Project Manager, Contractor may satisfy its obligation with respect to such Subcontractor or material supplier by furnishing a cash bond, assignment of a certificate of deposit, or other liquid security satisfactory to Project Manager to indemnify OCFA against any lien. If any lien remains unsatisfied after all payments are made, Contractor shall refund to OCFA all monies that the OCFA may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

75.5 The acceptance of Final Payment shall constitute a waiver of all claims by Contractor except those previously made in writing and identified by Contractor as unsettled at the time of the Final Application for Payment.

- 75.6 The making of Final Payment shall constitute a waiver of all claims by OCFA except those arising from (1) unsettled claims; (2) faulty or defective Work appearing after Final Completion of the Work; (3) failure of the Work to comply with the requirements of the Project Manual; (4) terms of any special warranties required by the Project Manual; (5) "Punchlist" items not yet completed by the Contractor; (6) discrepancies noted in subsequent audits performed by OCFA or its agents within one (1) year following Final Payment; or (7) any claims identified by Project Manager as unsettled prior to making of Final Payment.
- 75.7 Final Payment shall not relieve Contractor of its warranty and indemnification obligations pursuant to the Project Manual, which shall survive such payment.
- 75.8 Contractor shall keep and present within fifteen (15) days after request by OCFA or its agents, in a form reasonably approved by the Project Manager, a final itemized accounting of all expenditures made in connection with the Work together with appropriate suplf any Subcontractor or Sub-subcontractor refuses to furnish any release, satisfaction or waiver of lien required at any time by OCFA under Paragraphs 9.1., or files a claim of lien against OCFA's property, the Contractor shall, if requested by Project Manager and at the Contractor's expense, furnish and record a Mechanic's Lien Release Bond (separate and apart from any other bond provided by the Contractor hereunder) that is in full compliance with the requirements of the then current provisions of Section 3143 of the California Civil Code. If any Subcontractor or Sub- subcontractor serves a Stop Notice (bonded or otherwise) on OCFA, Contractor shall, if requested by OCFA and at Contractor's expense, furnish a Stop Notice Release Bond (separate and apart from any other bond provided by the Contractor hereunder) that is in full compliance with the then current provisions of Section 3171 of the California Civil Code. The Contractor authorizes OCFA, and shall cause its Subcontractors and Sub-subcontractors to authorize OCFA, to check directly with any suppliers of labor and material with respect to any item chargeable to OCFA's property, to confirm balances due and to obtain sworn statements and waivers of lien, all if OCFA so elects. If any lien remains unsatisfied after all payments are made to the Contractor, the Contractor shall reimburse OCFA on account of all monies that the latter may be compelled to pay in discharging such lien, including all costs and attorneys' fees.

## **76 Surety Bonds.**

Contractor shall, upon entering into performance of this Agreement, furnish a bond in the amount of one hundred percent (100%) of the Contract price bid, to guarantee the faithful performance of the work, and an additional bond in the amount of one hundred percent (100%) of the Contract price bid to guarantee payment of all claims for labor and materials furnished. The bonds required pursuant to this Section shall be issued by a surety authorized by the State Insurance Commissioner to transact business in the State of California as a surety and shall have and maintain throughout the life of the Project, at least an "A-" policyholder's rating, or better, and a financial rating of "Class VII," or better, in accordance with the most current A.M. Best's Rating Guide. This Contract shall not become effective until such bonds are supplied to and approved by the OCFA.

## **77 Risk And Indemnification**

- 77.1 Indemnification: To the fullest extent permitted by law, Contractor shall indemnify, defend (at Contractor's sole cost and expense and with legal counsel approved by OCFA, which approval shall not be unreasonably withheld), protect and hold harmless OCFA and all of OCFA's officers, directors, employees, consultants, agents, successors and assigns (collectively the "Indemnified Parties"), from and against any and all claims (including, without limitation, claims for bodily injury, death or damage to property), demands, obligations, damages, actions, causes of action, suits, losses, judgments, fines, penalties, liabilities, costs and expenses (including, without limitation, attorneys' fees, disbursements and court costs, and all other

professional, expert or consultants' fees and costs and OCFA's general and administrative expenses) of every kind and nature whatsoever (individually, a "Claim"; collectively, "Claims") which may arise from or in any manner related (directly or indirectly) to any work performed or services provided under this Agreement (including, without limitation, the negligent and/or willful acts, errors and/or omissions of Contractor, its principals, officers, agents, employees, Contractors, suppliers, consultants, subconsultants, subcontractors, anyone employed directly or indirectly by any of them or for whose acts they may be liable or any or all of them) regardless of any active or passive negligence or strict liability of an Indemnified Party. Contractor understands and acknowledges that the indemnification obligation hereunder is intended to constitute a "Type I" indemnity under California law and extends to and includes Claims arising from the active or passive negligence of Indemnified Parties. Notwithstanding the foregoing, nothing herein shall be construed to require Contractor to indemnify the Indemnified Parties from any Claim arising from the sole negligence or willful misconduct of the Indemnified Parties.

- 77.2 **Duty to Defend:** The duty to defend hereunder is wholly independent of and separate from the duty to indemnify and such duty to defend exists regardless of any ultimate liability of Contractor. Such defense obligation shall arise immediately upon presentation of a Claim by any party and written notice of such Claim being provided to Contractor. Payment to Contractor by any Indemnified Party or the payment or advance of defense costs by any Indemnified Party shall not be a condition precedent to enforcing such Indemnified Party's rights to indemnification hereunder. Contractor's indemnification obligation hereunder shall survive the expiration or earlier termination of this Agreement until such time as action against the Indemnified Parties for such matter indemnified hereunder is fully and finally barred by the applicable statute of limitations or statute of repose. Contractor's liability for indemnification hereunder is in addition to any liability Contractor may have to OCFA for a breach by Contractor of any of the provisions of this Agreement. Under no circumstances shall the insurance requirements and limits set forth in this Agreement be construed to limit Contractor's indemnification obligation or other liability hereunder. The terms of this Agreement are contractual and the result of negotiation between the parties hereto. Accordingly, any rule of construction of contracts (including, without limitation, California Civil Code Section 1654) that ambiguities are to be construed against the drafting party shall not be employed in the interpretation of this Agreement.

## **78 Insurance.**

### **78.1 Compliance with Insurance Requirements.**

- 78.1.1 As a condition precedent to the effectiveness of this Agreement, and without limiting the indemnity provisions set forth in this Agreement, Contractor shall obtain, maintain, and keep in full force and effect during the term of this Agreement, at its sole cost and expense, and in a form and content satisfactory to OCFA, all insurance required under this section. Contractor shall not commence any work or services under this Agreement unless and until it has provided evidence satisfactory to OCFA that it has secured all insurance required under this section. If Contractor's existing insurance policies do not meet the insurance requirements set forth herein, Contractor agrees to amend, supplement or endorse the policies to do so.
- 78.1.2 The amount of insurance coverage available to pay claims under each policy required hereunder shall be the higher of (a) the minimum limits required below, or (b) the actual limits established in each policy. Thus, by way of example only, if the minimum policy limit is \$2 million per occurrence but insurance actually carried by the Contractor or subcontractor is \$4 million per occurrence, the coverage required to be available for claims

under that policy would be \$4 million. (Nothing herein requires the Contractor to purchase insurance at limits greater than the minimum limits established below.)

## **78.2 Types of Insurance Required.**

Contractor shall obtain and maintain in full force and effect during the term of this Agreement, including any extension thereof, the following policies of insurance:

**78.2.1 Commercial General Liability Insurance.** Contractor shall obtain and maintain, in full force and effect throughout the term of this Agreement, a policy of Commercial General Liability Insurance (Insurance Services Office form CG 00 01) written on an occurrence basis with limits of at least five million dollars (\$5,000,000.00) per occurrence, five million dollars (\$5,000,000.00) in the general aggregate, and five million dollars (\$5,000,000.00) for completed operations aggregate. Defense costs shall be paid in addition to (and shall not reduce) the limits. The policy shall contain no endorsements or provisions limiting coverage for: (1) contractual liability; (2) cross liability exclusion for claims or suits by one insured against another; or (3) any other exclusion contrary to the Agreement.

**78.2.2 Automobile Liability Insurance.** Contractor shall obtain and maintain, in full force and effect throughout the term of this Agreement, a policy of Automobile Liability Insurance (Insurance Services Office form CA 001) written on a per occurrence basis with limits of at least one million dollars (\$1,000,000.00) combined limit for each occurrence covering bodily injury and property damage. The policy shall specifically include coverage for owned, non-owned, leased, and hired automobiles.

**78.2.3 Workers' Compensation Insurance.** Contractor shall obtain and maintain, in full force and effect throughout the term of this Agreement, a policy of Workers' Compensation Insurance in at least the minimum statutory amounts, and in compliance with all other statutory requirements, as required by the State of California. Contractor hereby waives, and agrees to obtain endorsements from its workers' compensation insurer waiving, all subrogation rights against the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers, and to require each of its subcontractors, if any, to waive the same and to obtain endorsements waiving the same subrogation rights under their workers' compensation insurance policies. Contractor shall obtain and maintain, in full force and effect throughout the term of this Agreement, a policy of Employer's Liability Insurance written on a per occurrence basis with limits of at least one million dollars (\$1,000,000.00) per incident for bodily injury, disease or other covered claim.

## **78.3 Acceptability of Insurers.**

Insurance required by this section 78 shall be issued by a licensed company authorized to transact business in the state by the Department of Insurance for the State of California with a current rating of A:VII or better (if an admitted carrier), or a current rating of A:X or better (if offered by a non-admitted insurer listed on the State of California List of Approved Surplus Line Insurers (LASLI), by the latest edition of A.M. Best's Key Rating Guide, except that the OCFA will accept workers' compensation insurance from the State Compensation Fund. In the event the OCFA determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to the OCFA, the Contractor agrees that the minimum limits of the insurance policies may be changed accordingly upon receipt of written notice from the OCFA. Contractor shall immediately substitute any insurer whose A.M. Best rating drops below the levels specified herein.

**78.4 Insurance Endorsements.**

Required insurance policies shall not be in compliance if they include any limiting provision or endorsement that has not been submitted to the OCFA for written approval. Required insurance policies shall contain the following provisions, or Contractor shall provide endorsements issued by the insurance company on forms approved by the OCFA to add the following provisions to the insurance policies:

- 78.4.1 Additional Insured: The OCFA and its officials, officers, employees, agents, representatives, attorneys and volunteers shall be additional insureds with regard to liability and defense of suits and claims arising out of the performance of the Agreement; and
- 78.4.2 Additional Insured Endorsements: Additional insured endorsements shall not: (1) be restricted to "ongoing operations", (2) exclude "contractual liability", (3) restrict coverage to "sole" liability of Contractor, or (4) contain any other exclusions contrary to the Agreement. The coverage shall contain no special limitations on the scope of protection afforded to additional insureds; and
- 78.4.3 Primary and Non-Contributing Insurance: All policies of Commercial General Liability Insurance and Automobile Liability Insurance shall be primary and any other insurance, deductible, or self-insurance maintained by the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers, shall not contribute with this primary insurance. Policies shall contain, or be endorsed to contain, such provisions.
- 78.4.4 Waiver of Subrogation: All policies of Commercial General Liability, Automobile Liability Insurance and Worker's Compensation shall contain or be endorsed to waive all rights of subrogation against the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers, or shall specifically allow Contractor or others providing insurance evidence in compliance with the requirements set forth in this section to waive their right to recovery prior to a loss. Contractor hereby agrees to waive its own right of recovery against the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers, and Contractor hereby agrees to obtain similar written express waivers and insurance clauses from each of its subcontractors prior to commencement of work by the subcontractor.
- 78.4.5 Notice: Each policy of insurance required by this section 78 shall be endorsed to state that coverage shall not be suspended, voided, cancelled, or modified, or reduced in coverage or in limits, except after thirty (30) days prior written notice by First Class U.S. Mail, postage-prepaid, has been provided to the OCFA. Notwithstanding the foregoing, if coverage is to be suspended, voided, or cancelled because of Contractor's failure to pay the insurance premium, the notice provided to OCFA shall be by ten (10) days prior written notice. (Note: an endorsement that fails to state that the insurance company will provide the notice required by this subsection (e.g., "will endeavor to" or similar non-committal phrases) does not comply with the requirements of this subsection. Similarly, Contractor's offer to provide the required notice in lieu of the insurance company doing so will not comply with this subsection. It is the Contractor's obligation to ensure that its insurance company(ies) will provide all policy endorsements required under this Contract.)
- 78.4.2 For all policies of Commercial General Liability Insurance, Contractor shall provide endorsements for completed operations to effectuate this requirement.

**78.5. Deductibles and Self-Insured Retentions.**

Any deductible or self-insured retention must be approved in writing by the OCFA in advance and shall protect the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers in the same manner and to the same extent as they would have been protected had the policy or policies not contained a deductible or self-insured retention. Contractor shall be solely responsible for the payment, and if required by the insurer the advancement, of any and all deductible amounts and self-insured retentions.

**78.6. Evidence of Coverage.**

Within seven (7) calendar days after the date of the Notice of Apparent Low Bidder, Contractor shall deliver certificates of insurance together with original endorsements affecting each of the insurance policies required by this section. Required insurance policies shall not be in compliance if they include any limiting provision or endorsement that has not been submitted to the OCFA for written approval. The certificates of insurance and endorsements for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. (ACORD form Certificates of insurance will not be accepted in lieu of approved endorsements.) At least fifteen (15) days prior to the expiration of any such policy, evidence of insurance showing that such insurance coverage has been renewed or extended shall be filed with the OCFA. If such coverage is cancelled or reduced and not replaced immediately so as to avoid a lapse in the required coverage, Contractor shall, within ten (10) days after receipt of written notice of such cancellation or reduction of coverage, file with the OCFA evidence of insurance showing that the required insurance has been reinstated or is being provided through another insurance company or companies. Contractor shall promptly furnish, at OCFA's request, copies of actual policies including all declaration pages, endorsements, exclusions and any other policy documents OCFA requires to verify coverage.

**78.7 Requirements Not Limiting.**

Requirement of specific coverage or minimum limits contained in this section are not intended as a limitation on coverage, limits, or other requirements, or a waiver of any coverage normally provided by any insurance. Nothing in this section shall be construed as limiting in any way the indemnification provision contained in this Agreement, or the extent to which Contractor may be held responsible for payments of damages to persons or property.

**78.8 Enforcement of Agreement (Non-Estoppel).**

Contractor acknowledges and agrees that actual or alleged failure on the part of the OCFA to inform Contractor of any non-compliance with any of the insurance requirements set forth in this section imposes no additional obligation on the OCFA nor does it waive any rights hereunder.

**78.9 Insurance for Subcontractors.**

Contractor shall either: (1) include all subcontractors engaged in any work or services for Contractor relating to this Agreement as additional named insureds under the Contractor's insurance policies; or (2) Contractor shall be responsible for causing its subcontractors to procure and maintain the same types and amounts of insurance in compliance with the terms of the insurance requirements set forth in this section), including but not limited to adding the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers, as additional insureds to their respective policies. All policies of Commercial General Liability Insurance and Automobile Liability Insurance provided by Contractor's subcontractors performing any work or services related to this Agreement shall be endorsed to name the OCFA, its officials, officers, employees, agents, representatives, attorneys and volunteers, as additional insureds. Contractor shall not allow any subcontractor to commence any work or services relating to this Agreement unless and until the Contractor has received confirmation that the subcontractor has secured all required insurance. Upon request of OCFA, Contractor shall deliver to OCFA all certificates of insurance and endorsements required from subcontractors. (Note: Contractor's duty to obtain all required insurance for subcontractors required under this Agreement applies whether or not OCFA requests delivery of evidence of such coverage.)

**78.10. Insurance for Large Equipment Suppliers**

Suppliers of large equipment that will be installed as part of the Project must have and maintain General Liability Insurance and Automobile Insurance with all endorsements required hereinabove unless the Contractor or Subcontractor that will install the large equipment maintains General Liability Insurance and Automobile Liability Insurance that is endorsed to name the large equipment supplier as an additional named insured and such endorsement is provided to OCFA prior to delivery of the large equipment.

**78.11 Other Insurance Requirements.**

The following terms and conditions shall apply to the insurance policies required of Contractor pursuant to this Agreement:

- 78.11.1 Contractor shall provide immediate written notice to OCFA if (1) any of the insurance policies required herein are terminated, cancelled or suspended, (2) the limits of any of the insurance coverage types or amounts required herein are reduced by the insurer or depleted by other claims, or (3) the deductible or self-insured retention is increased.
- 78.11.2 All insurance coverage and limits provided by Contractor and available or applicable to this Agreement are intended to apply to each insured, including additional insureds, against whom a claim is made or suit is brought to the full extent of the policies. Nothing contained in this Agreement or any other agreement relating to the OCFA or its operations shall limit the application of such insurance coverage.
- 78.11.3 None of the insurance coverages required herein will be in compliance with the requirements of this section if they include any limiting endorsement which substantially impairs the coverages set forth herein (e.g., elimination of contractual liability or reduction of discovery period), unless the endorsement has first been submitted to the OCFA and approved in writing.
- 78.11.4 Certificates of insurance will not be accepted in lieu of required endorsements, and submittal of certificates without required endorsements may delay commencement of the Project. It is Contractor's obligation to ensure timely compliance with all insurance submittal requirements as provided herein.

78.11.5 Contractor agrees to ensure that subcontractors, if any, and any other parties involved with the Project who are brought onto or involved in the Project by Contractor, have, or are provided by Contractor's insurer, the same minimum insurance coverage required of Contractor. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Contractor agrees that upon request, all agreements with subcontractors and others engaged in the Project will be submitted to the OCFA for review. Claims for which coverage is required but not provided due to Contractor's failure to comply with this section (e.g., allowing subcontractors to proceed with disallowed limitations on their insurance coverage, or failing to require subcontractors to provide required insurance coverage or endorsements) will result in retention of payments in amounts necessary to cover the anticipated costs associated with defending and paying the claims.

78.11.6 Contractor agrees to provide immediate written notice to OCFA of any claim, demand or loss against Contractor arising out of the work or services performed under this Agreement and for any other claim, demand or loss which may reduce the insurance available to pay claims, demands or losses arising out of this Agreement.

#### **79. Contractor's Liability; OCFA Not Liable; Claims Resolution**

79.1 Contractor's liability. The Contractor shall be responsible for any loss or damage that may occur to:

- The work or any part thereof;
- Any of the materials or other things used or employed in performing the work;
- Any injury to any person or persons, either workers or the public;
- Any damage to property resulting from any cause which might have been prevented by the Contractor, including defects or obstructions at any time before completion of the work and its final acceptance.

79.2. OCFA ordered precautions. If, in the opinion of the Engineer, the precautions taken by Contractor are not safe or adequate at any time during the term of the Contract, the Engineer may order the Contractor to take further precautions, and if the Contractor shall fail to do so, the Engineer may order the work done by others and charge the Contractor for the cost thereof, such cost to be deducted from any moneys due or becoming due the Contractor. Failure of the Engineer to order such additional precautions, however, shall not relieve the Contractor from his full responsibility for public safety.

79.3 OCFA not liable. The OCFA shall not be answerable or accountable in any manner, for any loss or damage that may occur to any of the following from any cause which might have been prevented by the Contractor:

- The work or any part thereof;
- Any of the materials or other things used or employed in performing the work;
- Any injury to any person or persons, either workers or the public;
- Any damage to property.

#### 79.4 Claims Resolution.

79.4.1. From time to time during the period of this contract, the OCFA and/or the Contractor may be served with third-party claims, as a result of alleged conduct by Contractor. The following procedures shall be followed by OCFA and Contractor:

For claims received by Contractor:

(1) Contractor shall provide OCFA on a monthly basis details regarding any claim for damages to persons or property, including, date claim made, date of alleged damages, type of damages, alleged cause of damages and, as claims are resolved, details regarding Contractor's denial or payment of such claim and the reasons for denial or payment.

(2) Contractor shall resolve or deny any claim received within thirty (30) days of receipt. If Contractor is unable to resolve a claim within the thirty (30) days set forth above, it shall, prior to the expiration of the thirty (30) days request and extension in writing from the OCFA.

For claims received by OCFA:

(1) OCFA shall process any claims received pursuant to the California Government Claims Act.

(2) If after investigation of the claim, the OCFA determines the Contractor is liable under this Contract, OCFA shall tender the claim to the Contractor for proper handling and resolution.

79.5. Retention of Claimed Damages by OCFA. The OCFA may retain so much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the OCFA until disposition has been made of such suits or claims for damages aforesaid.

#### 80 Termination

80.1 The performance of work under the Contract Documents may be terminated in whole, or from time to time in part, whenever the Board of Directors shall determine that such termination is in the best interest of the OCFA, provided that the Contractor is given (1) Not less than ten (10) calendar days' written notice (delivered by email, followed by overnight delivery with proof of delivery) of intent to terminate; (2) the extent to which performance of work under the Contract Documents is terminated; (3) the date upon which such termination becomes effective; and (4) An opportunity for consultation with the terminating party prior to the effective date of the termination.

80.2 This Contract may be terminated, or the right of the Contractor to complete the Project may be terminated, without liability or damage, when in the OCFA's opinion, the Contractor is not complying with the Contract requirements in good faith, has become insolvent, or has assigned or subcontracted any part of the Work without the OCFA's consent. In the event of such termination, the Contractor will be paid the actual amount due based upon the quantity of work completed at the time of termination, less damages caused to the OCFA by acts of the Contractor causing the termination. The Contractor, in having tendered a bid, shall be deemed to have waived any and all claims for damages because of termination of the Contract or the right of the Contractor to complete the Project for any cause stated in this Section 80.

- 80.3 If termination is effected by the OCFA, an equitable adjustment in the price provided for in this Contract shall be made, but (1) no amount shall be allowed for anticipated profit on unperformed services or other work, and (2) any payment due to the Contractor at the time of termination may be adjusted to cover any additional costs to the OCFA because of the Contractor's default. The equitable adjustment for any termination shall provide for payment to the Contractor for services rendered and expenses incurred in accordance with Section 8 of the California, Department of Transportation Standard Specifications.
- 80.4 After receipt of a Notice of Termination, and except as otherwise directed by the Board of Directors, the Contractor shall:
- (1) Stop work under the Contract Documents on the date and to the extent specified in the Notice of Termination; and
  - (2) Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of such portion of the work under the Contract Documents as is not terminated; and
  - (3) Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination; and
  - (4) Assign to the OCFA, all of the right, title and interests of the Contractor under the orders and subcontracts so terminated, in which case the OCFA shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts; and
  - (5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, subject to the approval of the Board of Directors; and
  - (6) Complete performance of such part of the work as shall not have been terminated by the Notice of Termination; and
  - (7) Deliver or otherwise make available to the OCFA all data, drawings, specifications, reports, estimates, summaries and such other information and materials as may have been accumulated by the Contractor in performing this Contract whether completed or in process; and
  - (8) Take such action as may be necessary, or as the Project Manager may direct, for the protection and preservation of the property related to the Contract Documents which is in the possession of the Contractor and in which the OCFA has, or may acquire, interest.
- 80.5 After receipt of a Notice of Termination, the Contractor shall submit to the Project Manager a verified termination claim. Such claim shall be submitted promptly but in no event later than one year from the effective date of termination, unless one or more extensions in writing are granted by the Board of Directors upon request of the Contractor made in writing within such one-year period or authorized extension thereof.
- 80.6 If any dispute concerning a question of fact arising under the terms of this Contract is not disposed of within a reasonable period of time by Contractor and Project Manager, such matter shall be brought to the attention of the OCFA via written notice of unresolved dispute(s). If agreement cannot be reached after a good faith effort to resolve the dispute, either party may assert its other rights and remedies within this Contract or within a court of competent jurisdiction. The Parties agree that, in the event of a dispute notwithstanding, they will continue without delay to carry out all their responsibilities under this Contract. The Contractor and the OCFA Board of Directors may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this Section 80, which amount or amounts may include a reasonable allowance for profit on work done; provided, that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not

terminated. The Contract Documents shall be amended accordingly, and the Contractor shall be paid the agreed amount.

### **81 Patent Infringement**

81.1 The Contractor shall report to the Project Manager, promptly and in reasonable detail, each notice or claim of patent infringement based on the performance of the Contract Documents of which the Contractor has knowledge.

81.2 In the event of any suit against the OCFA, or any claim against the OCFA made before suit has been instituted, on account of any alleged patent infringement arising out of the performance of the obligations under the Contract Documents, or out of the use of any supplies furnished or work or services performed hereunder, the Contractor shall, at Contractor's own expense, furnish to the OCFA, upon request, all evidence and information in possession of the Contractor pertaining to such suit or claim. The Contractor further agrees to indemnify and hold harmless the OCFA against any and all claims or lawsuits based upon such patent infringement, to defend such suits, and to pay any judgment rendered against OCFA, its employees, or the Board of Directors.

### **82 No Waiver By OCFA**

The failure of the OCFA in any one or more instances to insist upon strict performance of any of the terms of the Contract Documents or to exercise any option herein conferred shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion.

### **83 Disputes**

83.1 In the event of a dispute between the parties as to performance of the work, the interpretation of the Contract Documents, or payment or nonpayment for work performed, the parties shall attempt to resolve the dispute. Pending resolution of the dispute, the Contractor shall continue the work diligently to completion as directed by Project Manager. If the dispute is not resolved, the Contractor agrees Contractor will neither rescind the Contract Documents nor stop the progress of the work.

83.2 With respect to any "claim" as that term is defined in Public Contract Code section 9204, Contractor shall submit such claim in accordance with Section 91 hereinbelow.

### **84 Attorneys' Fees**

If any action at law or in equity is necessary to enforce or interpret the terms of this Contract, each party shall be responsible for their respective costs, including attorneys' fees. The prevailing party shall not be entitled to recover its attorneys' fees or related costs. Nevertheless, if any action is brought against the Contractor or any Subcontractor to enforce a Stop Notice or Notice to Withhold, which names the OCFA as a party to said action, the OCFA shall be entitled to reasonable attorneys' fees, costs and necessary disbursements arising out of the defense of such action by the OCFA. The OCFA shall be entitled to deduct its costs for any Stop Notice filed, whether court action is involved or not.

### **85 Contractor's Employees' Compensation**

85.1 General Prevailing Rate: OCFA has been advised by the State of California Director of Industrial Relations of the Director's of the general prevailing rate of per diem wages and the general prevailing rate for legal holiday and overtime work in the locality in which the work is to be performed for each craft or type of work needed to execute this Contract, and copies of the same are on file in the Office of the Engineer of OCFA. The Contractor agrees that not

less than said prevailing rates shall be paid to workers employed on this public works contract as required by Labor Code Section 1774 of the State of California.

- 85.2 Forfeiture For Violation: Contractor shall, as a penalty to the OCFA, forfeit Fifty Dollars (\$50.00) for each calendar day or portion thereof for each worker paid (either by the Contractor or any subcontractor under it) less than the prevailing rate of per diem wages as set by the Director of Industrial Relations, in accordance with Sections 1770-1780 of the California Labor Code for the work provided for in this Contract, all in accordance with Section 1775 of the Labor Code of the State of California.
- 85.3 Apprentices: Sections 1777.5, 1777.6 and 1777.7 of the Labor Code of the State of California, regarding the employment of apprentices is applicable to this Contract and the contractor shall comply therewith if the prime contract involves Thirty Thousand Dollars [\$30,000.00] or more or twenty (20) working days, or more; or if contracts of specialty contractors not bidding for work through the general or prime contractor are Two Thousand Dollars [\$2,000.00] or more or Five (5) working days or more. Information relative to apprenticeship standards, contributions, wage schedules and other requirements may be obtained from the State Director of Industrial Relations or from the Division of Apprenticeship Standards.
- 85.4 Workday: In the performance of this Contract, not more than eight (8) hours shall constitute a day's work, and Contractor shall not require more than eight (8) hours of labor in a day from any person employed by him hereunder except as provided in Section 11.4.2 above. Contractor shall conform to Article 3, Chapter 1, Part 7 (Sections 1810 et seq.) of the Labor Code of the State of California and shall forfeit to the OCFA as a penalty, the sum of twenty-five Dollars (\$25.00) for each worker employed in the execution of this Contract by Contractor or any Subcontractor for each calendar day during which any worker is required or permitted to labor more than eight (8) hours in any one calendar day and forty (40) hours in any one week in violation of said Article. Contractor shall keep an accurate record showing the name and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the Project.
- 85.5 Record of Wages; Inspection: The Contractor and each subcontractor performing any portion of the work under the Contract Documents shall keep an accurate record, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by Contractor in connection with the work. Said payroll records shall be certified and shall be available for inspection at the principal office of the Contractor on the basis set forth in Labor Code Section 1776. The Contractor shall file a certified copy of said payroll records with the OCFA within ten days after receipt of a written request therefor from Project Manager or otherwise from the OCFA. The Contractor shall inform the OCFA of the location of said payroll records, including the street address, City and State, and shall, within five working days, provide a notice of change of location and address of said payroll records. It shall be the responsibility of the Contractor to ensure the compliance with the provisions of this Section 85 and the provisions of Labor Code Section 1776. In the event of noncompliance with the requirements of this Section or the requirements of Labor Code Section 1776, the Contractor shall have ten days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply. Should noncompliance exist after said ten-day period, the Contractor shall, as a penalty to the OCFA, forfeit Twenty-five Dollars (\$25) for each calendar day, or portion thereof, for each worker to whom the noncompliance pertains until strict compliance is effectuated. The Contractor acknowledges that, without limitation as to other remedies of enforcement available to the OCFA, upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement of the California Department of Industrial Relations, such penalties shall be withheld from progress payments then due the Contractor.

- 85.6 Pursuant to California Labor Code Section 1771.4, Contractor's services are subject to compliance monitoring and enforcement by the Department of Industrial Relations. Contractor shall post job site notices as prescribed by DIR regulations and furnish the records specified in California Labor Code Section 1776 directly to the Labor Commissioner in the manner prescribed by California Labor Code Section 1771.4(a)(3) and (c)(2).

## **86 SAFETY & HEALTH**

- 86.1 The General Contractor (the Contractor) shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all precautions and follow all procedures for the safety of, and shall provide all protection to prevent injury to, all persons involved in any way in the Work and all other persons, including, without limitation, the employees, agents, guests, visitors, invitees and licensees of OCFA who may be involved. These precautions shall include, but in no event be limited to the:

- (1) Provisions of Local, State and Federal Regulations.
- (2) Posting of danger signs and personal notification to all affected persons of the existence of a hazard, of whatever nature.
- (3) Furnishing and maintaining of necessary traffic control barricades and flagman services.
- (4) Use or storage of required explosives or other hazardous materials only under the supervision of qualified personnel.
- (5) Maintenance of adequate quantities of operable fire protection equipment at the Work Site, as required by Local and /or State regulations.

- 86.2 The Contractor shall set forth in writing its site specific safety precautions and programs in connection with the Work, including an Anti-Substance Abuse Program which meets or exceeds any and all applicable laws, ordinances, rules, regulations, and orders of any public, quasi-public, or other authority relating to the safety of persons and their protection against injury, specifically including, but in no event limited to the:

- (1) California Occupational Safety and Health Act of 1973, as amended, and rules and regulations now or hereafter in effect pursuant to said Act.
- (2) California Code of Regulations, Title 8, as amended.
- (3) The Labor Code of the State of California, as amended.
- (4) Federal Occupational Safety and Health Act of 1970, as amended, and all rules and regulations now or hereafter in effect pursuant to said Act.
- (5) Code of Federal Regulations, Title 29, as amended.
- (6) The Drug-Free Workplace Act of 1988.
- (7) In the event of conflicting requirements, the more stringent shall govern and if requested by OCFA, submit the same to OCFA for review. OCFA may, but shall not be obligated to, make suggestions and recommendations to the Contractor. OCFA shall review and approve the Contractor's Site Specific Program.

- 86.3 All work, whether performed by the Contractor or its Subcontractors, of all tiers or anyone directly or indirectly employed by any of them, and all equipment, machinery, materials, tools and like items incorporated or used in the Work, shall be compliance with and conform to:

- (1) All applicable laws, ordinances, rules, regulations, and orders of any public, quasi-public, or other authority relating to the safety of persons and their protection against injury, specifically including, but in no event limited to, the Federal Occupational Safety and Health Act of 1970, as amended, and all rules and regulations now or hereafter in effect pursuant to said Act, and California Code of Regulations, Title 8, as amended; and,

- (2) All codes, rules, regulations and requirements of OCFA and its insurance carriers relating thereto. In the event of conflicting requirements, the more stringent shall govern.
- 86.4 The Contractor shall designate a responsible and qualified member of its organization at the Work Site who has the authority to enforce the Contractor's Safety and Anti-Substance Abuse Programs, to assure compliance with Paragraph 10.1 and to prevent accidents.
- 86.5 The Contractor shall have a safety representative. The Contractor's safety representative will have:
- (1) The authority to stop work when safety problems are identified.
  - (2) The authority to implement corrective actions.
  - (3) Extensive training in safety and loss control practices regarding the Contractor's type of work.
  - (4) Certification in the OSHA Construction Outreach 10/30 Hour Program.
  - (5) Certification in first aid and CPR.
- 86.6 The Contractor shall require its Subcontractors of all tiers to designate a competent and responsible safety representative to assist the Contractor's representative in the performance of his or her duties.
- 86.7 Should the Contractor fail to provide a safe work environment in accordance with the provisions in 10.1.1, OCFA or Project Manager shall have the right, but not the obligation, to suspend Work in the unsafe area, as specified in 10.6. All costs of any nature resulting from the suspension, by whomsoever incurred, shall be paid by the Contractor.
- 86.8 After a Contractor has been awarded the construction contract for the Project, it will be required to attend a pre-construction safety meeting. The purpose of the meeting is to review the Project's Safety Program and requirements. At this time, specific safety concerns related to the Contractor's work will be discussed.
- 86.9 If deemed necessary by the Project Manager or Project Safety Coordinator, or other OCFA representative, a written Job Safety Analysis (JSA) will be required of the Contractor. The JSA will be required for frequency and severity exposures such as steel erection, deep excavations, spray painting, crane handling of large/expensive equipment, etc. This is to ensure that appropriate controls are established prior to work beginning.
- 86.10 Workplace violence (Type III), verbal intimidation or threats to the Project Manager, OCFA or designee will result in immediate removal from the Project. Contractor shall develop and implement a workplace violence policy and procedure.
- 86.11 The Contractor shall provide, or cause to be provided, each worker on the Site the proper safety equipment for the duties being performed by that worker and will not permit any worker on the Site who fails or refuses to use the same. OCFA and/or Project Manager shall have the right, but not the obligation, to order the Contractor to send a worker off the Site for the day or to require the contractor to not allow the worker any further work on OCFA's site for his or her failure to comply with safety practices, with which order the Contractor shall promptly comply.
- 86.12 **Safety Indemnification.** The Contractor shall defend, indemnify, and hold the Project Manager, OCFA, and their respective officers, directors, agents, employees, and assigns harmless from and against any and all liability, public or private, penalties, contractual or otherwise, losses, damages, costs, attorneys' fees, expenses, causes of action, claims or judgments resulting either in whole or in part from any failure of the Contractor, or its

Subcontractors, of all tiers or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, to comply with provisions of the Project Manual, including but not limited to all applicable laws, ordinances, rules, regulations, and orders of any public, quasi-public, or other authority relating to the safety of persons and their protection against injury, specifically including, but in no event limited to, all Cal/OSHA laws and regulations and the Federal Occupational Safety and Health Act of 1970, as amended, and all rules and regulations now or hereafter in effect pursuant to thereto. The Contractor shall not be relieved of its responsibilities under this Subsection should OCFA act or fail to act pursuant to its rights hereunder, nor shall OCFA thereby assume, nor be deemed to have assumed, any responsibilities otherwise imposed on the Contractor by this Contract, by virtue of providing OCFA's Safety Policies & Procedures, or any other manner whatsoever.

86.12.1 The Contractor shall not raise a defense as to its obligation to indemnify under Subsection 86.12 above any contributing negligence of any of those indemnified hereunder, its being understood and agreed that no such contributing negligence shall relieve the Contractor from its liability to so indemnify nor entitle the Contractor to any contribution, either directly or indirectly, by those indemnified hereunder.

86.12.2 In any and all claims against those indemnified hereunder by any employee of the Contractor or its Subcontractors of all tiers, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Section 86.12 shall not be limited in any way to any limit on the amount or type of damage, compensation or benefits payable by or for the Contractor or its Subcontractors of any tiers under any Worker's Compensation Acts, Disability Benefit Acts or other Employee Benefit Acts.

86.13 In connection with the performance of this contract, OCFA shall have the authority to enter the worksite at any time for the purpose of identifying the existence of conditions, either actual or threatened, that may present a danger or hazard to any or all employees. Contractor agrees that OCFA, in its sole authority and discretion, may order the immediate abatement of any and all conditions that may present an actual or threatened danger or hazard to any and all employees at the worksite. Contractor acknowledges that provisions of Section 6400 of the California Labor Code, which requires that employers shall furnish employment and a place of employment that is safe and healthful for all employees working therein. In the event OCFA identifies the existence of any condition that presents an actual or threatened danger or hazard to any or all employees at the worksite, OCFA is hereby authorized to order the immediate abatement of that actual or threatened condition pursuant to this Section. OCFA may also, at its sole authority and discretion, issue an immediate stop work order to Contractor to ensure that no employee working at the worksite is exposed to a dangerous or hazardous condition. Any stop work order issued by OCFA to Contractor in accordance with the provisions of this Section, shall not give rise to any claim or cause of action for delay damages by Contractor or Contractor's agents or subcontractors against OCFA.

## **87 Non-Discrimination**

87.1 Contractor covenants that, by and for itself, successors, and assigns, including its Subcontractors and suppliers, that there shall be no discrimination against or segregation of, any person or group of persons on account of race, color, creed, religion, gender, marital status, national origin, sexual orientation, or ancestry in the performance of this Contract. Contractor shall take steps to ensure that applicants for any job and that employees are treated without regard to their race, color, creed, religion, gender, marital status, national origin, sexual orientation, or ancestry in full compliance with applicable federal, state, and local laws and regulations.

- 87.2 Contractor shall not engage in, nor permit its agents, including its Subcontractors and suppliers, to engage in discrimination in employment of persons or provision of services or supplies, on the grounds of race, color, creed, religion, gender, marital status, national origin, sexual orientation, or ancestry.
- 87.3 Contractor, and Contractor's Subcontractors and suppliers, shall employ fair employment practices with regard to all employees and all applicants for employment and shall act in accordance with all applicable federal, state, and local laws and regulations relating to such fair employment practices. In furtherance of such obligation, Contractor agrees that Contractor, Subcontractors, and suppliers shall not discriminate in employment and/or provision of services under this Contract and all employment practices shall be without regard to a person's race, color, creed, religion, gender, national origin, age, ancestry, physical handicap, medical condition, marital status, all in accordance with applicable federal, state, and local laws or regulations. Fair employment practices shall include, but not be limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rate of pay or other form of compensation and selection for training including apprenticeship.
- 87.4 In the performance of the terms of the Contract Documents, Contractor agrees that Contractor will not engage in nor permit such subcontractors as Contractor may employ to engage in discrimination against any employee or applicant for employment on the basis of race, sex, color, religion, ancestry, national origin, marital status, age or as an otherwise qualified handicapped individual. This prohibition shall pertain to employment, upgrading, demotion, or transfer, recruitment advertising, layoff or termination, rates of pay and other forms of compensation, selection for training, including apprenticeship, and any other action or inaction pertaining to employment matters.

## **88 Assignment of Antitrust Actions**

In accordance with Public Contract Code Section 7103.5, by entering into the Contract Documents or into a subcontract to supply goods, services, or materials pursuant to the Contract Documents, the Contractor, or subcontractor, offers and agrees to assign to the OCFA all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract Documents or the subcontract. This assignment shall be made and become effective at the time the OCFA tenders final payment to the Contractor, without further acknowledgment by the parties. The contractor shall cause to be inserted in any such subcontract stipulations to effectuate this Section 88 and the provision of Public Contract Code Section 7103.5.

## **89 Time of Commencement; Time Is of the Essence**

- 89.1 **Commencement:** Contractor agrees to commence the Project within ten (10) calendar days from the date the OCFA's Board approves this Contract, and Contractor shall diligently prosecute the work to Substantial Completion of the Milestones as identified in the Contractor's Construction Schedule and Substantial Completion of the Project no later than the Scheduled Completion Date, excluding modifications for delays caused or authorized by the OCFA as set forth in Section 71.5.
- 89.2 **Construction Schedule:** Within 30 days of the Award of the Contract, Contractor shall furnish to the Project Manager one reproducible, three prints, and an electronic or digital copy in a format approved by the Project Manager of the Contractor's Construction Schedule. The schedule shall be supported by written statements from each supplier of materials or equipment indicating that all orders have been placed and acknowledged, and setting forth

the dates that each item will be delivered. The schedule shall establish the order of work which minimizes disruption of existing travel lanes. Upon submission by Contractor, and approval by the Project Manager, the Contractor's Construction Schedule shall be attached to Project Manual as an Exhibit and shall be deemed the baseline schedule. The Contractor's Construction Schedule shall identify and specify scheduling for the Work based on the critical path method (or other scheduling method acceptable to the Project Manager) and updating thereof, and shall provide other schedules that would further the efficient completion of the Project, including the Work and the Related Work in the most expeditious and economical manner. The Contractor's Construction Schedule shall depict in detail the sequence and timing of all activities of the Work and Related Work, including, without limitation, commencement and Completion Dates of Milestones and for all other significant portions of the Work and Related Work. The Contractor's Construction Schedule shall be updated at least monthly, except that the Scheduled Completion Date shall not be changed or modified unless otherwise approved by the Project Manager pursuant to the terms of this Contract.

**89.3 Progress Reports:** Concurrently with its submission of Applications for Payment, Contractor shall provide the Project Manager with a report (1) detailing the actual progress of the Work and Related Work as of the date of such report; (2) stating any discrepancies between the actual progress of the Work and Related Work; (3) identifying the progress anticipated by the Contractor's Construction Schedule as of the date of such reports; and (4) stating a recovery schedule to place the Work and Related Work back on schedule, at no cost to the OCFA. The Contractor's Construction Schedule shall include Milestones for each aspect of the Work and the timing for completion of Related Work that could affect completion of the Work by the date listed in the Contractor's Construction Schedule.

**89.4 Acceleration.**

**89.4.1** The OCFA reserves the right to accelerate the work of the Contract at any time during its performance. In the event the OCFA directs acceleration, such directive will be given to the Contractor in writing. The Contractor shall keep cost and other Project records related to the acceleration directive separately from the normal Project cost records and shall provide a written record of acceleration costs to the OCFA on a daily basis.

**89.4.2** In the event the Contractor believes that some action or inaction on the part of the OCFA constitutes an acceleration directive, the Contractor shall immediately notify the OCFA in writing that the Contractor considers the actions or inactions an acceleration directive. The Contractor shall not accelerate their work efforts until the OCFA responds to the written notification. If acceleration is then directed or required by the OCFA, all cost records referred to in the previous paragraph shall be maintained by the Contractor and provided to the OCFA on a daily basis.

**89.4.3** In order to recover additional costs due to acceleration, the Contractor must document that additional expenses were incurred and paid by the Contractor. Labor costs recoverable will only be overtime or shift premium costs or the cost of additional laborers brought to the site to accomplish the accelerated work effort. Equipment costs recoverable will only be the cost of added equipment mobilized to the site to accomplish the accelerated work effort.

**89.5 TIME IS THE ESSENCE OF THIS CONTRACT:** NOTWITHSTANDING OCFA'S APPROVAL OF ANY UPDATED CONTRACTOR'S CONSTRUCTION SCHEDULE, THE SCHEDULED COMPLETION DATE SHALL BE STRICTLY ADHERED TO DURING THE TERM OF THIS CONTRACT. THE SCHEDULED COMPLETION DATE MAY ONLY BE CHANGED AS

PROVIDED IN THE CONSTRUCTION CONTRACT. THE FOREGOING NOTWITHSTANDING, IN THE EVENT OF DELAYS OR EVENTS BEYOND CONTRACTOR'S CONTROL SUCH AS SUPPLY CHAIN ISSUES OR GLOBAL PANDEMICS THAT IMPACT OR DELAY THE CONTRACTOR'S ABILITY TO COMPLETE ITS OBLIGATIONS UNDER THE AGREEMENT WITHIN THE AGREED UPON TIME OR COST, THE CONTRACTOR SHALL SO NOTIFY THE OCFA, AND THE PARTIES SHALL THEREAFTER AGREE UPON AN EQUITABLE AMENDMENT TO THE AGREEMENT.

- 89.6 **Ongoing Responsibility of Contractor:** As required by the Project Manual, Contractor shall prepare and obtain approval of all shop drawings, submittals, details, and samples, and do all other things necessary and incidental to the prosecution of Contractor's work in conformance with the Project Manual and Contractor's Construction Schedule. Contractor shall coordinate the Work with the Related Work through the Project Manager, in a manner that will facilitate the efficient completion of the Project in accordance with the Project Manual.
- 89.7 **Control of the Site and Order of Work:** Contractor shall have control of the Site and shall have the right to decide the time or order in which the various portions of the work shall be constructed or installed consistent with the Contractor's Construction Schedule and shall establish the priority of the work of Subcontractors of the Work and the Related Work, and, in general, all matters representing the timely and orderly completion of the Project.
- 89.8 **Cooperation:** Notwithstanding the Scheduled Completion Date, Contractor will cooperate with the OCFA and the OCFA's separate Contractors, consultants, and employees and Contractor agrees to provide for and coordinate access to the Project prior to the Scheduled Completion Date.
- 89.9 **Contractor's Risk Of Non-Performance:** IT IS SPECIFICALLY AGREED THAT CONTRACTOR ASSUMES THE RISK OF NONPERFORMANCE, LATE PERFORMANCE, AND NONCOMPLIANCE WITH THE REQUIREMENTS OF THE PROJECT MANUAL BY CONTRACTOR, CONTRACTOR'S SUBCONTRACTORS, SUPPLIERS, AND AGENTS. CONTRACTOR SHALL NOT BE ENTITLED TO AN EXTENSION OF ANY COMPLETION DATE OF THE SCHEDULED COMPLETION DATE FOR THE ABOVE STATED REASONS OR ANY OTHER REASONS, EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THE PROJECT MANUAL. THE FOREGOING NOTWITHSTANDING, IN THE EVENT OF DELAYS OR EVENTS BEYOND CONTRACTOR'S CONTROL THAT IMPACT OR DELAY THE CONTRACTOR'S ABILITY TO COMPLETE ITS OBLIGATIONS UNDER THE AGREEMENT WITHIN THE AGREED UPON TIME OR COST, SUCH AS SUPPLY CHAIN ISSUES OR GLOBAL PANDEMICS THE CONTRACTOR SHALL SO NOTIFY THE OCFA, AND THE PARTIES SHALL THEREAFTER AGREE UPON AN EQUITABLE AMENDMENT TO THE AGREEMENT.
- 89.10 **Notification of Inability to Comply:** If the Contractor, at any time, ascertains that for any reason it is unable to complete the phases of the Work by the Milestones, or complete the Project by the Scheduled Completion Date, Contractor shall promptly and without delay notify the Project Manager in writing of this fact. In addition to any other terms in the Agreement, in the event of delays or events beyond Contractor's control that impact or delay the Contractor's ability to complete its obligations under the Agreement within the agreed upon time or cost, the Contractor shall so notify the OCFA, and the parties shall thereafter agree upon an equitable amendment to the Agreement.
- 89.11 **Liquidated Damages:** The Parties acknowledge and agree that if Contractor fails to achieve Substantial Completion of the Project by the Scheduled Completion Date or fails to achieve Substantial Completion of a Milestone, as such dates may be extended in accordance with

the Project Manual, OCFA will suffer, as a result of Contractor's failure, substantial damages which are both extremely difficult and impracticable to ascertain. Therefore the Parties having reasonably endeavored, but failed, to ascertain an amount bearing a reasonable relationship to the actual damage that OCFA will incur if Contractor fails to achieve Substantial Completion of the Project by the Scheduled Completion Date or fails to achieve completion of a Milestone as such dates may be extended in accordance with the Project Manual, agree that in addition to all other damages to which OCFA may be entitled, Contractor agrees to pay to OCFA as liquidated damages, and not as a penalty but as a reasonable estimate of the amount of damages OCFA will suffer, the amount of Five Hundred Dollars (\$500.00) per day for each calendar day occurring after the completion date of a Milestone during which Contractor fails to achieve Substantial Completion for each such Milestone. In addition, the OCFA shall have the right to charge to the Contractor and to deduct from payments for the Work the actual cost to the OCFA of engineering, inspection, superintendence, and other overhead expenses, which are directly chargeable to the Contract and which accrue during the period of such delay. The expenses and damages described above shall be deducted from any money due the Contractor under this contract. The Contractor and its sureties shall be liable for any excess cost.

89.12 **Additional Remedies:** The Parties also acknowledge and agree that OCFA is entitled to any and all legal and equitable remedies OCFA may have that exceed the amount of Liquidated Damages.

## 90 Audit And Access To Records

- 90.1 Contractor shall maintain all books, records, documents, and other evidence directly pertinent to the performance of the work under this Contract in accordance with generally accepted accounting principles and practices consistently applied. Contractor shall also maintain all financial information and data used by the Contractor in the preparation or support of any cost submission, including the Contractor's original bid required for this Contract, or any Change Order, claim, or other request for any adjustment, and a copy of the cost summary or information submitted to the OCFA. The Project Manager or the Fire Chief shall have access upon twenty-four hours advanced written notice, at all times during normal business hours, to all such books, records, documents, financial information, and all other evidence for the purpose of inspection, audit, and copying. The Contractor shall, at no cost to the OCFA, provide proper facilities for such access, inspection, and copying purposes.
- 90.2 The Parties agree that the provisions of this Section 90 are applicable to Project Manual and all Change Orders, claims, and any other request for adjustment affecting the time or price of this Contract. The Contractor agrees to include the provisions of this Section in all Subcontracts and purchase orders, at any tier, and make this Section 90 applicable to all Change Orders, claims, and other requests for adjustment related to Project performance by Contractor's Subcontractors and suppliers.
- 90.3 Audits conducted under this Section shall be in accordance with generally accepted auditing standards and established procedures and guidelines.
- 90.4 The Contractor agrees to the disclosure of all information and reports resulting from access to records under the provisions of this Section to the OCFA, the Fire Chief, the Project Manager, and any affected or interested state or local agency.
- 90.5 Records under the provisions of this Section shall be maintained and made available during the performance of the Work under this Contract until three years past final payment and until final settlement of all disputes, claims, or litigation, whichever occurs later. In addition, those

records which relate to any portion of this Contract to any Change Order, dispute, litigation, settlement of any claim arising out of such performance, or to the cost of items to which an audit exception has been taken, shall be maintained and made available until final payment or final resolution of such dispute, litigation, claim, or exception, whichever occurs later.

- 90.6 These rights to access provisions as provided in this Section apply to all financial records pertaining to this Contract and all Change Orders and claims. In addition, this right to access applies to all records pertaining to all contracts, Change Orders, and any amendments to this Contract: (1) To the extent the records pertain directly to Contract performance; (2) If there is any indication that fraud, gross abuse, or corrupt practices may be involved; or (3) If the Contract is terminated for default or convenience.
- 90.7 Access to records is not limited to the required retention periods. The Fire Chief shall have access to records at any reasonable time for as long as the records are maintained.

## **91 Resolution Of Construction Claims**

- 91.1 California Public Contract Code (PCC) section 9204 as adopted by Assembly Bill 626 prescribes a process to present, confer, and mediate construction claims relating to the OCFA's public works project. Notwithstanding any provisions to the contrary in the Project Manual, this section shall govern all disputes to which section 9204 applies.
- 91.2 For purposes of this Section 91, "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested for (A) a time extension, including, without limitation for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project (B) payment of money or damages arising from work done by or on behalf of the Contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled, or the amount the payment of which is disputed by the local agency. (PCC 9204(c)(1))
- 91.3 For purposes of this Section 91, "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or another public improvement of any kind.
- 91.4 For any Claim subject to this Section 91, California Public Contract Code section 9204 requires the following:
- 91.4.1 The claim shall be submitted by the Contractor in writing, sent by registered mail or certified mail with return receipt requested and must include the documents necessary to substantiate the claim. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims. However, upon receipt of a claim, the OCFA, and the Contractor may, by mutual agreement, extend the time period provided by statute.
- 91.4.2 For claims of all amounts, the OCFA shall respond within 45 days of receipt of the claim, and provide the claimant a written statement identifying which portion of the claim is disputed and which portion of the claim is undisputed. If the OCFA requires approval from the Board of Directors, and the Board of Directors does not meet within the 45-day period to respond, the OCFA shall have up to three days to issue its response following the Board of Directors meeting.
- 91.4.3 For all portions of a claim determined to be undisputed, the OCFA must process payment to the claimant within 60 days of issuing the OCFA's written determination.

- 91.4.4 If the claimant disputes the OCFA's response, or if the OCFA fails to respond within the time limits provided, the claimant may demand an informal conference to meet and confer for settlement of the issues in dispute. The demand must be sent in writing by registered or certified mail, return receipt requested. Upon receipt of a demand, the OCFA must schedule a meet and confer conference within 30 calendar days for settlement of the disputed claim.
- 91.4.5 Within ten (10) business days following the conclusion of the meet and confer conference, if any portion of the claim remains in dispute, the OCFA shall provide the claimant an addition written statement identifying the portion of the claim that is undisputed and the portion that remains in dispute.
- 91.4.6 For all portions of a claim determined to be undisputed, the OCFA must process payment to the claimant within 60 calendar days of issuing the OCFA's written determination.
- 91.4.7 Any remaining undisputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation in which the parties share the cost evenly. The OCFA and the claimant shall mutually agree on a mediator within ten (10) business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree, each party shall select a mediator and those mediators shall jointly select a qualified, neutral third party to mediate the remaining undisputed claim. Each party shall bear the respective costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside of PCC section 9204.
- 91.4.8 Unless otherwise agreed to by the OCFA and the Contractor in writing, the mediation conducted pursuant to this Section 91 shall excuse any further obligation under PCC Section 20104.4 to mediate after litigation has been commenced.
- 91.4.9 Public Contract Code Section 9204 does not preclude the OCFA from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program if mediation under this section does not resolve the parties' dispute.
- 91.4.10 Should the OCFA fail to respond to a claim, or fail to issue written statements as required, the Contractor's claim is deemed denied. A claim denied by reason of the OCFA's failure to respond shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.
- 91.4.11 Amounts not paid in a timely manner as required by PCC 9204 shall bear interest at seven percent per annum.

## **92 Notice Of Third-Party Claims**

When required by PCC Section 9201, the OCFA will provide timely notification to Contractor of the receipt of any third-party claim relating to the Agreement. The Contractor agrees to reimburse the OCFA for its reasonable costs incurred in providing such notice.

## **93 Cleanup**

- 93.1 The Contractor shall at all times keep the Site clean and free from accumulation of waste materials or rubbish (including, without limitation, hazardous waste brought by Contractor), caused by his performance of the Work, and shall continuously throughout performance of the Work remove and dispose of all such materials from the Site and the Project.
- 93.2 Project Manager may require the Contractor to comply with such standards, means and methods of cleanup, removal or disposal as Project Manager may make known to the Contractor. In event the Contractor fails to keep the Site clean and free from such waste or rubbish, or to comply with such standards, means and methods, OCFA may take such action and offset any and all costs or expenses of whatever nature paid or incurred by OCFA in undertaking such action against any sums then or thereafter due to the Contractor.
- 93.3 The Contractor shall notify OCFA in advance of the generation, importation, storage, transportation or disposal, of any hazardous waste, toxic materials or contaminants of any type in connection with the Project. Contractor shall provide Project Manager with Material Safety Data Sheets (MSDS's) and the Uniform Hazardous Waste documents. The Contractor will develop and implement a written and effective Spill Control and Containment Plan.

#### **94 Trenches and Excavations**

- 94.1 The Contractor shall promptly, and before any of the following conditions are disturbed, notify the Project Manager, in writing, of any:
  - (1) Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class 1, Class II, or Class III disposal site in accordance with the provisions of existing law; or
  - (2) Subsurface of latent physical conditions at the Site differing from those indicated; or
  - (3) Unknown physical conditions at the Site of unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract and Project Manual.
- 94.2 The Project Manager shall promptly investigate the conditions, and if the Project Manager finds that the conditions materially so differ, or do involve hazardous waste, and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a change order, subject to the provisions of the Project Manual.
- 94.3 In the event that a dispute arises between the Project Manager and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any Scheduled Completion Date provided for in the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by the Contract or by law which pertain to the resolution of disputes and protests between parties.

#### **95 Uncovering and Correction of Work; OCFA's Right To Carry Out Work**

- 95.1 If any portion of the Work should be covered contrary to the instructions or request of Project Manager or the requirements of the Project Manual, the Contractor shall, if required by Project Manager, uncover such portion of the Work for Project Manager's observation and shall replace such Work all at the Contractor's expense.
- 95.2 If any portion of the Work should be covered prior to a specific request for observation or instruction by Project Manager, Project Manager may request to see such Work, and it shall

be uncovered by the Contractor. If such Work is found to be in accordance with the Project Manual and without defect, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to OCFA. If such Work is found to be defective or not in accordance with the Project Manual, the Contractor shall bear such costs.

- 95.3 Project Manager shall have the authority to reject any portion of the Work which is defective or does not conform to the Project Manual, and the Contractor shall promptly correct all Work so rejected by Project Manager, whether observed before or after the Date of Substantial Completion and whether or not fabricated, installed or completed. In order that such corrective Work shall not interrupt or delay Contractor's Construction Schedule or the completion date of the Project, the Contractor shall perform such Work according to a schedule therefor established by Project Manager (which may provide that the same be performed on overtime, shiftwork, Saturdays, Sundays and/or holidays), utilizing in the performance thereof such manpower as is necessary to complete the corrective Work in accordance with said schedule. The Contractor shall bear all costs of correcting such rejected Work including, without limitation, compensation for any additional architectural and engineering services made necessary thereby.
- 95.4 If, within one (1) year after the Completion of the Work (as determined by OCFA) or within such longer period of time as may be prescribed by law or by the terms of any applicable warranty or guarantee required by the Project Manual, any of the Work is found to be defective or not in accordance with the Project Manual, the Contractor shall correct it promptly after receipt of written instructions to that effect from OCFA unless OCFA has previously given the Contractor a written acceptance of such condition.
- 95.5 The Contractor shall remove from the Site all Work which is defective or non-conforming and not corrected under the provisions of these General Conditions unless removal is waived in writing by OCFA.
- 95.6 If the Contractor does not remove such uncorrected defective or non-conforming Work within a reasonable time fixed by written instructions to that effect from Project Manager, OCFA may remove it and store the materials and equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten (10) days thereafter, OCFA may, upon ten (10) additional days written notification to the Contractor, sell such materials and equipment at public or private sale and account to the Contractor for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for any additional architectural and engineering services and attorneys' fees made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be offset against any amounts then or thereafter due to the Contractor. If the amounts then or thereafter due to the Contractor are not sufficient to cover such difference, the Contractor shall, upon demand, pay the same to OCFA. The obligations of the Contractor under this Subsection shall be in addition to, and not in limitation of, any obligations imposed on it by law, by any other provision of this Contract or by any warranty or guarantee under this Contract.
- 95.7 If the Contractor fails to correct any defective or non-conforming Work, OCFA may correct it with its own forces or by contract with a third party contractor. In the event of a defect found after final acceptance of the Work by OCFA which the Contractor is obligated to correct pursuant to Project Manual, OCFA may, at its option, after giving the Contractor an opportunity to correct such defect, cause such corrective Work to be performed by others and charge the Contractor with the cost thereof. Such charge shall be due and payable by the Contractor upon demand.

- 95.8 If the Contractor defaults or neglects to carry out the Work in accordance with the Project Manual or fails to perform any provision of this Contract, and such default, neglect or non-performance shall continue for a period of 48 hours after written notification thereof from OCFA (or if such default, neglect or non-performance cannot be reasonably remedied within such 48-hour period, and Contractor does not (in the sole determination of OCFA) undertake in good faith the remedy of the same within said period and thereafter proceed diligently to completion), then OCFA may, without prejudice to any other remedy OCFA may have, make good such deficiencies; provided, however, that in the event of an emergency, as determined by OCFA, no notification shall be required. OCFA shall have the right to take possession of such portion of the Site as will enable it to make good such deficiencies and, in connection therewith, to utilize the materials, equipment, tools, construction equipment and machinery of the Contractor located on the Site. If OCFA makes good any such deficiencies, the costs of correcting the same including, without limitation, compensation for additional architectural and engineering services made necessary by such default, neglect or non-performance, shall be offset against any amounts then or thereafter due to the Contractor. If the amounts then or thereafter due to the Contractor are not sufficient to cover such costs, then the Contractor shall, upon demand, pay the difference to OCFA.
- 95.9 If OCFA prefers to accept defective or non-conforming Work, it may do so instead of requiring its removal and correction, in which case an appropriate amount shall be offset against any amounts then or thereafter due to the Contractor; or, if the said appropriate amount of offset is determined after final payment (or if there is not then or thereafter due to the Contractor an amount sufficient to cover the offset available to OCFA), the Contractor shall, upon demand, pay the appropriate amount (or the difference after offset, as applicable) to OCFA.

## **96 Plans, Specifications and Survey**

The Contractor shall maintain a control set of Plans, Specifications and survey on the Project site at all times. All final locations determined in the field by survey, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show the as-constructed conditions. Upon completion of all work, the Contractor shall return the control set to the Engineer. Final payment will not be made until this requirement has been met.

## **97 Permits**

OCFA will reimburse the Contractor for the public agency-charged fee for permits, inspections. No profit amount shall be added to such reimbursement.

## **98 Compliance with Laws; Non-Discrimination**

Contractor shall ensure that its officers, employees, agents, contractors, and subcontractors: (1) conduct themselves in compliance with all applicable laws and licensure requirements including, without limitation, compliance with laws applicable to nondiscrimination, harassment, and ethical behavior, throughout the duration of the Contract; and (2) comply with all OCFA, State, and Federal, Local Agency and Regulatory Agency orders regarding affirmative action to ensure equal employment opportunities and fair employment practices. Failure to file any report due under said orders will result in suspension of periodic progress payments. The Contractor shall ensure unlimited access to the job site for all equal employment opportunity compliance officers.

## **99 Right-Of-Way And Easements**

In the event any required easements have not yet been acquired by the OCFA, the Contractor shall conduct its operation so as to confine its work to the limits of the existing right-of-way.

**100 Disputed Work**

Contractor shall keep all records of disputed work in accordance with the General Conditions. In any case where the Contractor believes extra compensation is due the Contractor for work or materials not clearly covered in the Contract, or not ordered by the OCFA as "extra work", the Contractor shall notify the OCFA in writing of the Contractor's intention to make claim for such extra compensation before the Contractor begins the work on which Contractor bases the claim. All "claims" as that term is defined in Public Contract Code section 9204 shall be submitted and processed in accordance with Section 91 hereinabove. Such notice by the Contractor, and the fact that the OCFA has kept account of the cost as aforesaid, shall not in any way be construed as proving the validity of the claim. The validity of the claim must be determined by the OCFA. If the OCFA determines that all or a portion of the claim is well founded, the valid portion shall be allowed and paid for as "extra work"; if the OCFA determines that all or a portion of the claim is not well founded, the portion that is not well founded shall be disallowed and not paid, subject to Section 91. Nothing herein limits the authority of the OCFA to consider, approve or disapprove of Change Orders in accordance with the Project Manual.

**101 Time of Completion.**

Work will be deemed completed on the same date when the Notice of Completion is recorded with the County of Orange.

**102 Delivered Materials.**

Materials and equipment delivered but not incorporated into the work shall not be included in the estimate for progress payment.

**103 Mobilization.**

103.1 Mobilization shall consist of preparatory work and operations, including but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the Project site; for the establishment of all offices, buildings and other facilities necessary for the work on this Project; and for all other work and operations which must be performed or cost incurred prior to beginning work on the various contract items on the Project site. Mobilization is deemed to include all aspects of mobilization and de-mobilization work occurring during the life of the Project for any reason.

103.2 Full compensation for mobilization shall be included in the Contract lump sum price bid for Mobilization and shall include full compensation for all costs incurred by the Contractor for doing all the work involved in mobilization as specified herein, and no additional compensation will be allowed. Mobilization shall not exceed 5% of the entire bid, excluding mobilization and as shown in the Proposal Bid Sheet.

**104 Facilities For Contract Personnel.****104.1 Extended Field Office Overhead Cost.**

104.1.1 Within fourteen (14) calendar days after receipt of the Notice to Proceed, the Contractor shall submit a written statement to the OCFA detailing its field office overhead costs which are time related. The OCFA will review this first cost submittal and reach a written agreement with the Contractor on a daily field office overhead cost rate which shall be memorialized in a no cost change order. The daily rate agreed to in this change order will be applicable throughout the duration of the Contract. No field office costs will be paid until such an agreement is reached between the OCFA and the

Contractor and the change order concerning this daily rate is executed by both parties. Progress payments will be withheld pending receipt of the above-referenced cost submittal and executed change order.

104.1.2 The individual cost components of the daily field office overhead rate shall represent costs which increase as a direct result of any time extension caused solely and exclusively by an act or omission of the OCFA. This listing may include such cost items as on-site project management, supervision, Engineering and clerical salaries; on-site utilities and rent; on-site company vehicles and their operating expenses; and site maintenance and security expenses. Field office overhead costs which are unaffected by increased time shall not be allowable cost in calculating the daily field office overhead rate. These non-time related costs include, but are not limited to, acquisition and installation of stationary equipment; temporary construction facilities; utilities and office furnishings (unless such items are rented or leased); the preparation of the site including clearing, grubbing, grading, fencing, mobilizations and demobilization costs; and the costs of permits, bonds and insurance coverage for the Project.

104.1.3 The individual wage cost components used to calculate the daily field office rate shall be supported by actual employee payroll records, not salary ranges or estimates. Hourly rates for management, supervisory, engineering, and clerical employees shall be based upon 2080 work hours per year and shall not include allowances for holidays, vacations, or sick time.

104.1.4 When applicable, the daily field office overhead rate shall be multiplied by the number of days the Contract is delayed or extended by change order and shall be added to the agreed upon change order cost. The days of delay shall be those caused solely by the acts or omissions of the OCFA and documented by a time impact analysis prepared and submitted by the Contractor. In the event a deductive change order is issued which reduces time under the Contract, the daily field office overhead rate shall be used to calculate the deductive amount. No allowance for overhead costs and no profit allowance shall be added to the extended field office overhead cost.

#### **105 OCFA Officers And Employees; Non-Discrimination**

105.1 No member, officer, member of the OCFA Board of Directors, or employee of the OCFA shall be personally liable to Contractor, or any successor in interest, in the event of any default or breach by OCFA or for any amount which may become due to Contractor or to its successor, or for breach of any obligation of the terms of this Contract.

105.2 Pursuant to the provisions of the OCFA's conflict of interest code, the Political Reform Act as set forth in Government Code Section 81000 et seq., and/or the prohibition against self-dealing in contracts as set forth in Government Code Section 1090 et seq., the Parties acknowledge that no officer or employee of the OCFA, or any member of the OCFA Board, shall have any personal interest, direct or indirect, in this Contract or any Subcontract under the Contract, nor shall any such officer, employee, or member of the OCFA Board participate in any decision relating to the Contract which effects his or her personal interest or the interest of any corporation, partnership, or association in which he or she is, directly or indirectly, interested. In the furtherance of such acknowledgement, Contractor:

- i. Contractor agrees that no officer, employee, member of the OCFA Board of Directors, agent, or assignee of the OCFA having direct or indirect control of any monies

allocated by OCFA to finance this Project, shall serve as an officer, director, employee, or agent of Contractor, or as a officer, director, employee, or agent of any Subcontractor of supplier of Contractor under this Contract; and

- ii. Any conflict or potential conflict of interest of any officer, director, employee, or agent of Contractor or any Subcontractor or supplier of Contractor has been fully disclosed to the OCFA prior to execution of this Contract and such disclosure shall be deemed a part of this Contract.

105.3 Contractor shall not expend any funds for the purpose of influencing or attempting to influence an officer, member, employee, or member of the OCFA Board in the connection with the awarding and the administration of this Contract or any subcontract in furtherance of the Project.

## 106 Entire Agreement

It is agreed that this Contract (which incorporates the Project Manual) represents the entire agreement. It is further agreed that the Project Manual is incorporated in this Contract by this reference, with the same force and effect as if the same were set forth at length within the Contract, and that Contractor and Contractor's officers, employees, agents, trades, material suppliers, and Subcontractors will be and are bound by any and all of said Project Manual insofar as they relate in any part or in any way, directly or indirectly, to the work covered by this Contract.

## 107 Written Notices

Any written notice required to be given in any part of the Contract Documents shall be performed by dispatching the same via email directed to the email address of the Contractor as set forth in the Contract Documents, and to the OCFA addressed as follows:

- A. Orange County Fire Authority  
Attention: Sara Kennedy, Purchasing Division Manager  
1 Fire Authority Road  
Irvine, CA 92602
- B. Convergent Technologies  
Attention: Fabian Escalante  
1667 N Batavia St.  
Orange, California 92867  
United States

## 108 Miscellaneous Provisions

- 108.1 Assignment: Contractor shall neither delegate its duties or obligations, nor assign its rights with respect to this Contract, either in whole or in part. Any such attempted delegation and/or assignment shall be void and deemed void at such occurrence, if it were to occur.
- 108.2 Computation of Time: When any period of time is referred to in the Project Manual by days, it shall be computed to exclude the first and include the last day of the period, provided, however, that if the last day of the period falls on a Saturday, Sunday, or legal holiday, that day shall be omitted from the computation. "Days" refers to calendar days unless otherwise expressly provided.

- 108.3 Remedies Cumulative: No remedy herein reserved to OCFA is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to any other given in the Project Manual as now or hereafter existing or at law, equity, or by statute.
- 108.4 Nonwaiver: The failure of the OCFA to notify the Contractor of any default under the Project Manual shall not be deemed to be a waiver by OCFA of any continuing default by Contractor of any term, covenant, or condition set forth in this Contract, nor of the OCFA's right to declare a default for any such continuing breach, and the failure of OCFA to insist upon strict performance of any of the terms, covenants, or conditions of the Project Manual, or to exercise any option in the Project Manual in any one or more instances, shall not be construed as a waiver or relinquishment of any such terms, covenants, conditions or options, but the same shall be and remain in full force and effect.
- 108.5 Severability: In case any one or more provisions set forth in the Project Manual shall for any reason be held invalid, illegal, or unenforceable in any respect, any such invalidity, illegality, or unenforceability shall not affect any other provision of the Project Manual, and the Project Manual and this Contract shall be construed as if such invalid, illegal, or unenforceable provision had never been incorporated therein so long as the deletion of such provision does not, in the OCFA's judgment, materially alter this Contract.
- 108.6 No Third Party Beneficiaries: The Project Manual and this Contract are not intended and shall not be deemed or construed, to confer any rights, powers, or privileges on any person, firm, partnership, corporation, or other entity not a party to this Contract except as may be expressly provided in the Contract to the contrary.
- 108.7 No Verbal Agreements: No verbal order, objection, claim, or notice by any party to the other shall affect or modify any of the terms or obligations contained in this Contract or the Project Manual, and none of the provisions of the Project Manual shall be held to be waived or modified by reason of any act whatsoever, other than by a definitely agreed waiver or Modification in writing and executed in the manner required in this Contract by authorized officers or representatives of the Parties. No evidence shall be introduced in any proceeding of any other waiver or modification.
- 108.8 Counterparts: This Contract may be executed in any number of counterparts, and each of such counterparts for all purposes shall be deemed to be an original, and all of such counterparts should constitute one and the same agreement.
- 108.9 Governing Law/Venue: The Contract, including the Project Manual, shall be governed by the laws of the State of California. Venue for all disputes related to the Project, the Contract Agreement and/or the Project Manual shall be in Orange County, California.
- 108.10 Services Prior to Execution: Notwithstanding the fact that this Contract is executed as of the date first set forth above, the Parties recognize that a portion of the Work required under the Project Manual may have been performed prior to such date, all of which Work shall be governed by the terms and conditions of this Contract and shall be deemed to be a part of the Work. Without limiting the foregoing, all of Contractor's liabilities and obligations to OCFA under the Project Manual shall apply to all Work and services provided by the Contractor for the Work prior hereto, notwithstanding the fact that the Work may have been performed prior to the date hereof pursuant to prior negotiations, representations, agreements, understandings, or otherwise.

- 108.11 Survival of Rights: Any indemnity, warranty, guarantee given by the Contractor to the OCFA under this Contract shall survive the expiration or termination of this Contract and shall be binding upon Contractor until any action under this Contract is barred by the applicable statute of limitations.
- 108.12 Notice: All notices (whether or not designated as such herein) which are required under this Contract to be given between the parties pursuant to this Paragraph shall be in writing and deemed given and, unless otherwise provided herein, effective when delivered personally to an officer of the party to be served (including the Contractor's Project Manager, in the case of the Contractor), when deposited in the United States mail, or in a sealed envelope, with postage thereon prepaid, sent by registered or certified mail, return receipt requested, and addressed to the appropriate party at the address set forth in the Contract or such other address as may be designated by either party hereto by notice to the other, or when transmitted by wire or facsimile to the appropriate party at the aforesaid address (a complimentary confirming letter shall also be mailed to the appropriate party on the same date).
- 108.13 Maintenance of Harmonious Relations: The Contractor is hereby advised that any portion of the Project, or other projects in proximity to the Project may be subject to, and governed by, certain union or trade agreements. It is the policy of OCFA to promote and maintain harmonious relationships in connection with the Project. The Contractor and its Subcontractors and Sub-subcontractors shall follow this policy; and shall utilize only qualified persons or organizations in the performance of the Work. A qualified person or organization is one: which is not likely to promote labor unrest on the Project; which shall abide by all local, state and federal labor and employment relation rules, regulations and laws; whose financial stability is reasonably assured throughout the duration of the Contract; and whose commitments to other projects are not likely to interfere with its ability to perform its portion of the Work efficiently and cost effectively. OCFA reserves the right to disapprove, or to require the removal of, any person or organization who is being considered for, or has received, an award to perform all or a portion of the Work but has failed to demonstrate the willingness or ability to follow this policy.
- 108.14 Union Agreements: Regardless of the expiration of any collective bargaining agreement during the term of this Contract which may affect the Contractor in any of its activities including, without limitation, with respect to the Work or the Project, the Contractor is obligated to man the job and properly and timely perform the Work in a diligent manner. Upon notification of expected or actual labor disputes or job disruption arising out of any such collective bargaining negotiations, the expiration of any union or trade agreement or any other cause, the Contractor and its Subcontractors and Sub-subcontractors shall cooperate with OCFA concerning any legal, practical or contractual actions to be taken by OCFA in response thereto and shall perform any actions requested by OCFA to eliminate, neutralize or mitigate the affects of such actions on the progress of the Work and the impact of such actions on the public access to OCFA's facilities. It is the Contractor's obligation, at the Contractor's own cost and expense, to take all steps available to prevent any persons performing the work from engaging in any disruptive activities such as strikes, picketing, slowdowns, job actions or work stoppages of any nature or ceasing to work due to picketing or other such activities, which steps shall include, without limitation, execution of an appropriate project agreement with appropriate unions prohibiting all such activities on or about the Project. Notwithstanding any such occurrences, the Contractor shall not be relieved of its obligation to man the job and properly and timely perform the Work in a diligent manner.
- 108.15 Immigration Reform Control Act: All Contractors, Subcontractors, and Sub-subcontractors must adhere to the Immigration Reform Control Act of 1986 and shall maintain I-9 forms

regarding all employees. It is not OCFA's obligation to insure compliance with this law, however, OCFA reserves the right to inspect and copy the Contractor's records in this regard upon request.

108.16 General: The captions of divisions, sections, articles, Paragraphs, Subparagraphs, clauses and the like in the Project Manual are for convenience only and shall in no way define the content or limit the meaning or construction of the wording of the divisions, sections, articles, Paragraphs, Subparagraphs, clauses and the like. The parties agree that the Project Manual shall not be construed more strictly against any party regardless of the identity of their drafter. Unless otherwise specified, Section and Subsection references appearing in these General Conditions are to Section and Subsections of the Contract Agreement.

108.17 Evidence of Corporate Existence and Good Standing. A corporation to which an award is made may be required, before the Contract Agreement is executed by the OCFA, to furnish evidence of its corporate existence and good standing, of its right to enter into contracts in the State of California, and that the officers signing the Contract and bonds for the corporation have the authority to do so. (Ref: California Corporations Code section 7214.)

END OF DOCUMENT

## **SECTION 5: TECHNICAL SPECIFICATIONS**

**5A: SECTION 28 0000 SECURITY GENERAL REQUIREMENTS**

## **SECTION 28 0000**

### **SECURITY GENERAL REQUIREMENTS**

#### **PART 1 - GENERAL**

##### **1.01 SECURITY CONSULTANT OF RECORD**

- A. The Consultant of Record for this project is:  
Triad Consulting & System Design Group  
2925 Mira Vista Way  
Corona, CA 92881  
(949) 943-9422

##### **1.02 RELATED DOCUMENTS**

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions, Orange County Fire Authority (OCFA) Standard Terms and Special Provisions, apply to this section.

##### **1.03 DESCRIPTION**

- A. General Description: This specification section covers general requirements to provide and test a complete low-voltage Security System upgrade to a unified platform comprising an Electronic Access Control System (EACS) and a Video Surveillance System (VSS). Both systems shall operate on the same platform utilizing a single application with each system operating as a role on the platform. The EACS platform is existing and the VSS shall be configured to be functional on the same platform. The existing EACS is an AMAG Symmetry running Version 8.0.2. The existing VSS utilizes analog camera with encoders connected to a Pelco 6800 Matrix Switcher and Pelco NVR. Following is an outline of the project scope.
- B. This project shall replace end-of-line EACS controllers and replace them with an integrated enclosure with power supply, controllers, and lock power supply. Current controllers communicate over a 20ma current loop protocol between IDF Rooms. The upgraded controllers will be configured with an IP interface and connect to the network in each IDF Room. Refer to Article 1.04 for information on the existing systems.
- C. This project shall replace existing analog cameras with IP cameras and install new cameras as identified on the plan drawings. The existing video headend equipment shall be replaced and a new video system shall be provided that is integrated into the AMAG Symmetry system.
- D. The existing AMAG system is installed and running on OCFA's VMWare environment. The upgraded Symmetry system and the video system shall also be configured to operate in the VMWare environment. OCFA shall provide the VMWare resources required for the system and the contractor shall configure the software to meet the project requirements.

- E. This project shall re-use existing wiring from the existing controllers to security devices at each door. The contractor shall verify each cable and the device connected to the cable and provide cable ID tags for each cable and provide cable ID tag information on the drawings. For doors without existing Door Position Switch (DPS) and Request-to-Exit (REX) devices the contractor shall provide a DPS, REX and associated cable to provide a complete alarm and access control capability at each door. Refer to the Door Schedule for requirements at each door.
- F. Some doors have existing electrified Mag Locks to secure the door. All Mag locks will be replaced with Electrified Panic Hardware (EPH) or electrified mortise locks. Refer to the Door Schedule for requirements.
- G. Replace all existing card readers with new card readers.
- H. Where existing cables are no longer used, such as existing 20ma current loop between IDF rooms and coax cable where analog cameras are replaced with IP cameras, the contractor shall remove all cables that are no longer being used. No cables will be abandoned in place. The contractor shall coordinate with OCFA for site conduit routing and manhole and site pull box locations to remove existing cable and install new cable.
- I. Furnish and install electric security hardware devices, mounting brackets, power supplies, switches, equipment cabinets, controls, consoles and other components of the system as shown and specified.
- J. Furnish and install outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation. Requirements shall be in accordance with Division 26 Electrical.
- K. Provide pre-testing and acceptance testing of equipment, programming, wiring and installation.
- L. Related Sections: Requirements that relate to this section are included in, but not limited to, the following sections {select as appropriate}
  - 1. Division 7 Section 07 8400 for Firestopping requirements
  - 2. Division 28 Section 28 0513 for Security Cable requirements
  - 3. Division 28 Section 28 1000 Electronic Access Control System requirements
  - 4. Division 28 Section 28 2300 for Video Surveillance System requirements.

#### **1.04 EXISTING SYSTEMS**

- A. Electronic Access Control System (EACS)
  - 1. Orange County Fire Authority has an existing AMAG Symmetry EACS. The system is running Version 8.0.2 of the Symmetry software. The existing EACS server is located in the Data Room in building B and is running in a VMWare environment (Refer to

EY111.1 for location).

2. This project shall upgrade the AMAG Symmetry EACS to the most current version of the software at time of installation. The existing end-of-line M2100 controllers shall be replaced with the M2150 series of controllers. The new controllers shall be housed in the Altronix Trove or LifeSafety Power Flexpower integrated system.

**B. Video Surveillance System (VSS)**

1. Orange County Fire Authority has an existing Pelco analog 6800 switch with cameras looped through to a digital video recorder.
2. This project shall include the replacement of all existing cameras with IP cameras. The existing video headend equipment shall be removed and the AMAG system shall be upgraded with Complete View software for management of the video system and integration to the Symmetry EACS for unified control.

**1.05 SCOPE OF WORK**

- A. Provide systems and services as described herein and completed per the approved schedule.
- B. Systems: Provide the following work complete per the contract schedule, and with acceptable engineering and installation practices as described herein.
  1. Electronic Access Control System (EACS) replacement
  2. Video Surveillance System (VSS) additions
- C. Areas or work: The areas of work shall include, but not be limited to, the following buildings on the Orange County Fire Authority Campus
  1. Building A
  2. Building B
  3. Building C
  4. Building D
  5. Site vehicle and pedestrian gates
  6. Site Camera locations
- D. Services: Contractor shall provide the following services complete and as scheduled:
  1. Project Planning and Management
  2. Interdiscipline Coordination

3. Engineering and Material Purchase
  4. Submittals
  5. System Phasing and Installation
  6. System Start-up and Commissioning
  7. Training
  8. Testing
  9. Warranty
  10. Post Acceptance Work
- E. General Conditions: Provide work in accordance with the following general conditions
1. Contract Compliance: Provide the Systems and Services in accordance with the conditions and system descriptions as described in Part 1 of each Specification Section. Provide specified or equivalent approved alternate products as described in Part 2 of each Specification Section. Utilize specified procedures and practices as described in Part 3 of each Specification Section.
  2. Schedule: Conform to the schedule as approved during the submittal process.
  3. All-inclusive work: Provide sufficient time, material, and manpower as necessary and verify, and if necessary, revise or refine, the contract bid drawings and any and all circuitry, including the development of complete shop drawings required by the Specifications in order for this work to realize complete, stable, and safe operation.

## **1.06 RELATED WORK**

- A. General
1. Observe interface procedures to related work as described in PART 3, herein.
  2. Coordinate with Orange County Fire Authority on all aspects of aesthetic interface.
  3. Verify lighting requirements for cameras and displays to ensure adequate lighting is provided for the required performance and functions.
- B. Installation of network equipment, wireless network equipment and provisioning of a complete security system network shall comply with Orange County Fire Authority standards and requirements. Coordinate network equipment and connection with the Orange County Fire Authority Project Manager.
- C. Access Doors: Coordinate with Orange County Fire Authority for the provision of access doors where needed to gain access to wiring, boxes, panels and enclosures in walls or

ceilings.

**D. Conditions**

1. Coordinate with all existing construction, equipment, and field devices
2. Equipment provided under this project shall be installed in a manner consistent with architectural, operational, service, and maintenance considerations.

**1.07 APPLICABLE PUBLICATIONS**

**A. Standards: Perform the work in accordance with the following standards:**

1. UL Underwriters Laboratories, Inc., UL 294, UL 1076, ULC
2. EIA Electrical Industries Association
3. NTSC National Television Standards Committee
4. NEMA National Electrical Manufacturers Association
5. NECA National Electrical Contractors Association  
National Electrical Installation Standards (NEIS)
6. NFPA National Fire Protection Association  
101 Life Safety Code  
70 National Electrical Code (2017)
7. 2018 IBC International Building Code
8. ADA Americans with Disabilities Act
9. FCC Part 15, Part 68

**B. Where one or more code is applicable, the more stringent shall apply**

**C. Cable installation, termination, and identification shall be performed in accordance with the manufacturer's installation manuals in addition to the applicable codes.**

**D. When the manufacturer provides no recommendations on cable applications the Contractor shall ensure the cable selected meets the technical requirements of the equipment installed and shall meet the environmental requirements of the installed location.**

**1.08 QUALITY ASSURANCE**

**A. Contractor Qualifications**

1. **Duration of Business:** The contractor shall have been in the business of installing and servicing security systems of the type described herein for a period of at least five

years. The contractor shall have conducted security system contracting business averaging at least four times the value of this bid for the last three years.

2. **Similar Experience:** The contractor shall have installed a minimum of three projects involving integration of the systems types required on this project. The contractor shall provide references as described below.
3. **Engineering:** The contractor shall have an employed engineering and drafting staff capable of providing the submittals as described herein.
4. **Experience:** Provide personnel with the following minimum experience:
  - a. **Project Management:** The Project Manager shall have at least five years direct experience managing projects of the type specified herein.
  - b. **Field Supervisor:** The Field Supervisor shall have at least three years direct experience supervising projects of the type specified herein.
  - c. **Field Installers:** Field installers shall have at least three years direct experience installing projects of the type specified herein.
5. **Certifications:** The Contractor or its assigned subcontractors shall be certified by the manufacturer for the systems they are working on. Where manufacturers do not have certifications for outside personnel the Contractor shall contract with the manufacturer for Professional Services to complete the work on their system.
  - a. Provide a minimum of two staff personnel with AMAG Symmetry Essential Certification.
  - b. AMAG Complete View certification
6. **References:** Upon request, the contractor shall provide at least three project references of security systems of the size and type of that specified herein. References shall be the operating personnel and Owner's contract administrator for each project. The supplied references shall be generally positive with respect to engineering practices, installation practices, completion timeliness and warranty satisfaction.

**B. Manufacturer Qualifications**

1. This project primarily involves modifications to existing systems and the contractor shall sub-contract with the manufacturer or certified value-added reseller (VAR) for work performed on their system to meet the specified requirements.
2. Where new equipment is being provided it shall meet the following requirements:
  - a. System components shall be furnished by manufacturers of established reputation and experience who shall have produced similar equipment and who shall be able to refer to similar installations rendering satisfactory service.
  - b. The manufacturer's products shall have been in satisfactory operation on at least three similar installations for not less than three years. Contractor shall submit a list of similar installations.
  - c. Components including, but not limited to, cameras, intercoms, computers, and

power supplies shall have been tested and listed by Underwriters Laboratories, Inc., Factory Mutual Systems, or other approved independent testing laboratory.

## **1.09 BID RESPONSE**

### **A. Bidders Responsibility**

1. It shall be Contractor's responsibility to verify actual conditions by visiting the site, reviewing the Drawings and Specifications, and to advise Orange County Fire Authority in writing of any conditions which may adversely affect the work. If any necessary exceptions are discovered, Contractor shall immediately notify Orange County Fire Authority for resolution prior to any change in the design or the scope, and any resultant claim for additional compensation.
2. The Bid Response must fulfill the intent of the Drawings and Specifications to the satisfaction of Orange County Fire Authority and the Consultant of Record to qualify as an acceptable Bid Response.
3. Bid Form: Submit a base bid on the supplied Bid Form in strict accordance with the Bid Instructions and these specifications. If no Bid Form is provided with the Contract Documents, the Contractor shall request one. A base bid is mandatory. No alternate bids will be considered without a corresponding base bid.
4. Pre-Bid Clarifications: Seek clarifications on any perceived ambiguities in the contract documents a minimum of three (3) days prior to bid submittal date.
5. Maintenance Agreement: Provide a Renewable Annual Maintenance Agreement Proposal for the work, commencing upon conclusion of the Warranty, as part of the Bid Proposal.

- B. Base Bid: Base bid shall include upgrade of EACS and VSS systems as described in the Contract Documents. The contractor shall provide all licenses required for the system to perform the functions described in the Contract Documents.

### **C. Alternate Bids:**

1. General: Any alternate bids which are proposed by the contractor and accepted for inclusion in the contract with this work shall be subject to all of the provisions of submittal, coordination, warranty and review as if included herein.
2. Required Alternate Bids:
  - a. Alternate Bid #1: Provide bid to provide VMWare failover software and configuration for the Symmetry CompleteView VSS.

## **1.10 SHOP DRAWING AND EQUIPMENT SUBMITTAL**

- A. General: Provide the submittals as described below.

1. Format: Make each submittal in one complete and contiguous package. Partial or unmarked submittals will be rejected without review.
  2. Schedule: Submit all submittals according to the schedule put forth in the Contract Documents. This Contractor shall be responsible for schedule delays caused by late or incomplete submittals. If no other submittal schedule is provided submittals shall be completed within 30 days from Notice to Proceed (NTP).
  3. The Contractor shall be aware of and identify products that may require long lead times for manufacturing and/or delivery and must prepare the submittal package accordingly for Orange County Fire Authority for review.
  4. The submittal package shall be clearly identified by reference to the Project name, specification section, article, paragraph, drawing number or detail as applicable. Submittals shall be well organized, and shall be clear and legible and of sufficient size for clear presentation of data. Data submitted shall describe the materials, equipment, or other items to be furnished and, where applicable, the system in sufficient detail to indicate full compliance with the requirements of these Contract Documents.
- B. Bid documents, including drawings, details and specifications are generally considered conceptual in nature, and provide direction on products and project requirements. In most cases, the Contractor is given some choice of products and methods that may be incorporated into the system. These choices may affect the overall design, configuration and installation of the proposed system. The contractor shall be responsible for the means and methods of installation of equipment and raceways. Where specifically noted on the plan drawings the contractor shall use existing raceways or provide new raceways as shown.
- C. Requirements: Provide the following information complete, and in the manner described herein:
1. Shop Drawings: Shop Drawings shall be numbered consecutively and shall accurately and distinctly present the following information:
    - a.
    - b. Title Sheet
    - c. Plans: Showing all devices, pull boxes, cabinets, conduits and conductors in their proposed locations
    - d. Riser Diagram: Showing all conduit relationships between devices shown on the Plans Show all power sources including panel identification and circuit number.
    - e. Single-Line/Block Diagrams: Show system architecture and signal relationships of controls, processors and head-end devices within the system.
    - f. Custom Assembly Diagrams: For each custom assembly, provide an assembly drawing illustrating the appearance of the assembled device. Include dimensions, assembly components, and functional attributes (momentary or alternate action switch, lens color, panel finish, color, etc.). "Custom assemblies" include, but are not limited to:

- 1) Security Terminal Cabinets
  - 2) Cover plates and Escutcheons
  - 3) Receptacle Assemblies
  - 4) Console Bezels and Materials
- g. Component Connection Diagrams
- 1) Show the wire designations on all connectors.
  - 2) Show a schedule of the wire colors connected to the pins on each device connector.
- h. Equipment Wiring Diagrams
- 1) Show a pictorial illustration of each equipment enclosure and/or terminal cabinet, including terminals, components and wiring devices.
  - 2) Show the device nomenclature exactly as shown on the single line diagrams.
  - 3) Terminations
    - a) Show every termination and terminating cable, with applicable cable and wire numbers matching the single line diagrams.
    - b) Every termination in the system must be documented.
    - c) Termination information may be rendered as a wiring list(s), if properly coordinated with, and referenced to, typical component and single-line diagrams. Otherwise, the Shop Drawings shall show a pictorial of every component in the system, with its terminations.
    - d) Show wire colors for each terminal.
    - e) For each wire exiting the enclosure, show the destination of the wire by floor, room number and the drawing number of the panel where the wire terminates.
- i. All working dimensions and erection dimensions
- j. Arrangements and sectional views
- k. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
- l. Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.
- m. Each Drawing or page shall include:
- 1) Project name, Project Number and descriptions
  - 2) Submittal date and space for revision dates
  - 3) Identification of equipment, product or material
  - 4) Name of Contractor and Subcontractor
  - 5) Name of Supplier and Manufacturer
  - 6) Relation to adjacent structure of material
  - 7) Physical dimensions, clearly identified
  - 8) ASTM and Specifications references

- 9) Identification of deviations from the Contract Documents
- 10) Contractor's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.
- 11) Location at which the equipment or materials are to be installed. Location shall mean both physical location and location relative to other connected or attached material.

2. Equipment Submittals

- a. General: Equipment submittals shall be organized in the same chronological order as listed in each specification section.
- b. Provide a Title Page, with project name, Contractor's name and address, contact information, date of submission, and submission revision number.
- c. Provide a Parts List, for proposed equipment, materials, components and devices, listing the following information for each line item:
  - 1) The system type,
  - 2) Model number,
  - 3) Project quantity,
  - 4) Specification sheet page reference including Specification Section, Article, Paragraph, and sub-paragraph.
- d. Provide Manufacturers Specification Sheet with descriptive information for equipment, materials, components and devices. Number each page, to correspond with the Parts List.
- e. Clearly delineate (with highlighter, arrow, or underline) on each specification sheet, which model numbers, options and configurations are being proposed for this project.
- f. Include kinds of materials and finishes for all equipment.

3. Acceptance Testing Plan:

- a. Submit a written document detailing the test procedures to be followed by the contractor in evaluating and proving the installed System(s).
- b. Provide a sample of the test forms to be used for each system and for each component of each system.
- c. Include all tests required by the equipment Manufacturer and by this Specification.

4. Training Plan: Refer to Article 1.17 for training requirements.

- D. Orange County Fire Authority will return unchecked any submittal that does not contain complete data on the work and full information on related matters.
- E. Verification: The contractor shall check and acknowledge all shop drawings, and shall place his signature on all shop drawings submitted to Orange County Fire Authority. Contractor's signature shall constitute a representation that all quantities, dimensions, field construction

criteria, materials, catalog numbers, performance criteria and similar data have been verified and that, in his opinion, the submittal fully meets the requirements of the Contract Documents.

- F. **Departure from Contract Requirements:** If the shop drawings show departures from the Contract requirements, the Contractor shall make specific mention thereof in his letter of transmittal, otherwise review of such submittals shall not constitute review of the departure. Review of the drawings shall constitute review of the specific subject matter for which the drawings were submitted and not of any other structure, materials, equipment, or apparatus shown on the drawing.
- G. **Use of Contract Drawings:** The contractor may use the contract "bid" drawings for preparation of shop drawings. When using portions of the contract documents for submittal purposes the contractor shall take full responsibility for the information shown on the drawings. The contractor shall add information as described in the shop drawing submittal requirements herein. The submitted drawings shall include all cable types, conduit fill, cable routing (start and destination), labels for all cables and devices, and IP addresses for network connected devices. Incomplete submittals shall be rejected.

#### **1.11 OPERATING AND MAINTENANCE MANUALS: ("AS-BUILT" RECORD SET)**

- A. **Phase One:** Notwithstanding any requirements specified elsewhere, submit for review the following clearly labeled as the "Operating and Maintenance Manual" within thirty days after Final Acceptance of the Installation and prior to requesting final payment:
  - 1. **Record Drawings:** Submit two copies of revised versions of drawings as submitted in the "Shop and Field" and "Equipment Wiring Diagrams" Submittals showing actual device locations, conduits, wiring and relationships as-built. Include nomenclature showing as-built wire designations and colors.
  - 2. **Manuals:** Submit two copies of each of the following materials in bound manuals with labeled dividers:
    - a. **Equipment Instruction Manuals:** Complete, comprehensive instructions for the operation of all devices and equipment provided as part of this work.
    - b. **Manufacturers Instruction Manuals:** All specification sheets, brochures, Operation Manuals and service sheets published by the manufacturers of the components, devices and equipment provided.
    - c. **A final Bill of Material** for each system
    - d. **Include information** for testing, repair, troubleshooting, assembly, disassembly and recommended maintenance intervals.
    - e. **Provide a replacement parts list** with current prices. Include list of recommended spare parts, tools, and instruments for testing and maintenance purpose.
    - f. **Performance, Test and Adjustment Data:** Comprehensive documentation of all performance verification according to parameters specified herein.
    - g. **Warranties:** Provide an executed copy of the Warranty Agreement and copies of all manufacturers' Warranty Registration papers as described herein.

- B. Phase Two: Within fourteen days of receipt of review comments for the Operating and Maintenance Manual (Phase One), submit the following corrected documents; two copies of the reviewed Record Drawings and two copies of the reviewed Operating and Maintenance Manuals to Orange County Fire Authority. The contractor shall also provide electronic versions of submitted drawings and manuals on CD-ROM.
  - 1. In each equipment enclosure and/or terminal cabinet, the contractor shall place a Single Line drawing of the system(s) and the respective Terminal Cabinet Wiring Diagram in a clear plastic sleeve permanently attached to the cover of the terminal cabinet.
  - 2. The contractor shall provide to Orange County Fire Authority one copy of all executive and user software, including all graphical maps on CD-ROM disks.
  - 3. Sufficient information, (detailed schematics of subsystems, assemblies and subassemblies to component level) clearly presented, shall be included to determine compliance with drawings and specifications.

#### **1.12 WARRANTY**

- A. Warranty Period: The Contractor shall provide labor, equipment, and materials required to maintain the entire system in an operational state as specified, for a period of a minimum of one year after formal written acceptance of the system to include scheduled and nonscheduled adjustments.
- B. The Warranty shall serve two purposes:
  - 1. The Contractor shall repair any system malfunction or installation deficiency discovered by Orange County Fire Authority or their representatives during the warranty period.
  - 2. The contractor shall replace any piece of equipment that ceases to function properly during the warranty period.
- C. The Contractor shall correct any installation deficiencies found against the contract drawings and specifications discovered by Orange County Fire Authority or their representatives during the warranty period
- D. Personnel: Service personnel shall be certified in the maintenance and repair of the specific type of equipment installed and qualified to accomplish work promptly and satisfactorily. Orange County Fire Authority shall be advised in writing of the name of the designated service representative, and of any change in personnel.
- E. Schedule of Work: The Contractor shall perform quarterly inspections to verify operation of equipment.
- F. Inspections shall include visual checks and operational tests of console equipment, peripheral equipment, local processors, sensors, and electrical and mechanical controls.

- G. Inspections shall also include testing of all communication links to verify operation within manufacturer's parameters.
- H. Emergency Response: Orange County Fire Authority will initiate service calls when the system is not functioning properly. Qualified personnel shall be available to provide service to the complete system. Orange County Fire Authority shall be furnished with a telephone number where the service supervisor can be reached at all times. Service personnel shall be at site within 4 hours after receiving a request for service. The system shall be restored to proper operating condition within 8 hours after service personnel arrive onsite and obtain access to the system.
- I. Software Updates: The Contractor shall provide a description of all software updates to Orange County Fire Authority, who will then decide whether or not they are appropriate for implementation. After notification by Orange County Fire Authority, the Contractor shall implement the designated software updates and verify operation in the system. These updates shall be accomplished in a timely manner, fully coordinated with system operators, and shall be incorporated into the operation and maintenance manuals, and software documentation. Contractor shall make a system image file so the system can be restored to its original state if the software update adversely affects system performance.

#### **1.13 MAINTENANCE CONTRACT**

- A. General: The maintenance agreement shall be included in the base bid. Refer to bid form for requirements.
- B. Maintenance Contract Terms
  - 1. The term of this agreement will be for two years, with three (3), one-year options to extend after completion of the warranty period.
  - 2. Payment of prevailing wages is required.
  - 3. A Non-Disclosure Agreement (NDA) will be required from the awarded contractor.
- C. General
  - 1. The Contractor is required to perform all ongoing maintenance, repair, support services, preventive maintenance including "Moves, Adds, and Changes" (MAC) for the Security Systems to ensure that the systems, associated hardware, interfaces and all their subcomponents are fully functional 24-hours per day, 7 days a week, throughout the term of the Contract for the sole purpose of providing proper, safe and reliable operations of the Security System at the OCFA Quarters facility. The Security System operates on the AMAG Symmetry CompleteView platform.
  - 2. The Services consist of furnishing all labor, materials, appliances, tools, equipment, services, and supervision required to perform all maintenance and repair / replacement services, preventive maintenance, programming, configuration, related interfaces, testing, troubleshooting, modifications, or installing new EACS and VSS

components as necessary, updating all documentation to reflect system related component repairs, moves, adds and changes and maintaining an on-site spare parts inventory for all security system equipment at the OCFA Headquarters facilities.

3. Contractor is required to provide repair and preventive maintenance services for security systems and associated hardware, including signaling devices, relays, switches and other ancillary equipment. Contractor is also required to provide repair and preventive maintenance for EACS interfaces to OCFA databases such as human resources software. Contractor shall provide updates to the security programs, servers, desktop clients, and install new clients as needed. Additional equipment, software, and components, referenced throughout this Scope of Services and its attachments are all part of the repair, preventive maintenance, and support services under this Contract.
  4. The Security System is a critical security component required to function in support of OCFA's Security Plan. The Contractor must ensure the scalability and maintainability of OCFA's Security System environment. The Security System consists of multiple systems, subsystems, and respective components that manage/control ingress and egress of persons through numerous points at OCFA facilities.
  5. Due to the sensitivity of the Security System device placement, OCFA will provide detailed location information upon award of the contract. OCFA will negotiate when adding or deleting Security System devices to the contract with the Contractor.
  6. Prior to performing service contractor is required to submit a letter certifying the technician(s) are AMAG certified, and has passed proper background checks. Letter must be submitted to OCFA before technician is assigned to work at any OCFA sites. Contractor shall be responsible for backgrounds checks.
  7. The Contractor shall communicate with the Information Technology Department to coordinate schedule and staffing at each site prior to commencing any maintenance or repair work.
  8. The Contractor shall be required to maintain, at all times, a record of the services provided by type of service including MACs, repairs, and preventive maintenance. The record must include, at a minimum, date, time, employee name, activity or problem descriptions, actions or resolutions, and OCFA personnel referring the service call. The Contractor shall provide this information in a report format approved by OCFA. The Contractor shall submit the report on a monthly basis to OCFA and ensure that real time reports are available to OCFA on an "as needed" basis.
- D. Updating Existing Documentation
1. OCFA will provide the contractor with as-built documentation of the existing system.
  2. The Contractor shall keep as-built documents updated throughout the term of this Service Contract. Every six months, Contractor will submit such updated records/documentation for City of Orange's review.

3. Thirty days prior to the end-date of this Service Contract, Contractor is required to submit for OCFA's final review all currently updated records and documentation that reflect the latest move, adds and changes to date.

E. On-call Service Requirements

1. The Contractor shall perform repair work on an as needed basis, only after obtaining prior approval.
2. The Contractor response time to a call for repair from an authorized OCFA representative shall be as follows:
  - a. The Contractor shall respond by call back or email within one hour of receiving a call for service.
  - b. The Contractor shall have service personnel on-site within four hours for a normal service call from the time the service call is placed.
  - c. The Contractor shall have service personnel on-site within two hours for an emergency service call from the time the service call is placed. OCFA shall determine which types of Security System failures are Emergency related failures and shall notify the Contractor of that designation at the time the call is placed.
3. The Contractor shall provide a quote to the authorized OCFA employee, and receive approval to proceed, prior to the start of repair work.
4. The Contractor shall require verbal approval from an authorized OCFA employee, providing the Contractor with a PO number prior to the start of any emergency work.
5. OCFA personnel must be provided with Contractor work tickets upon completion of work. OCFA will provide the Contractor with information regarding the asset tracking system and asset ID tags upon award of contract. A list of approved OCFA personnel will be provided to the Contractor upon award of the contract.
6. The Contractor shall be responsible for callbacks on all prior work regardless if the work is considered emergency in nature.
7. OCFA will not compensate the Contractor for travel time to or from any job regardless of the nature of the call.
8. The Contractor shall maintain a spare parts inventory on-site. OCFA will provide a list of existing spare parts at the start of the contract to assist the Contractor in determining spare parts they are required to provide. Minimum spare parts requirements are:
  - a. Electrified Locks – 1 of each type
    - 1) Electric Strike
    - 2) Electrified Mortise Lock
    - 3) Electrified Panic Hardware
  - b. Intelligent Controller – 1
  - c. Card Readers – 1 of each type (Wall Switch, Mullion)

- d. Lock Power Supply – 1
- e. Power supply for controllers – 1
- f. Backup batteries – 6 each

**F. Unit Pricing**

1. The Contactor shall provide unit pricing for adding access control to a new portal. The unit price shall include hardware, cable (150' for each device), labor, programming and warranty. Hardware shall include reader, electrified lock, door position switch, request-to-exit motion detector or electrified lock RX option and armored loop to transfer wire to the electrified lock. Provide unit pricing for the following configurations:
  - a. Single door with electrified mortise lock
  - b. Single door with electrified panic hardware, RIM latching
  - c. Double door with electrified mortise lock
  - d. Double door with electrified panic hardware, vertical rod latching and mini-power booster.
  - e. Cost to recertify fire rating of door when door is in a fire rated wall.
2. In addition, the Contractor shall provide unit pricing for replacement of the following items:
  - a. AMAG 8-reader Intelligent Controller Board
  - b. Wall Mount Card Reader
  - c. Mullion Mount Card Reader
  - d. Request-to-Exit (REX) Motion Detector
  - e. Concealed Door Position Switch
  - f. Surface Door Position Switch
  - g. Electrified Mortise Lock
  - h. Electrified Panic Hardware

**G. Preventative Maintenance Requirements**

1. General: The Contractor shall coordinate with OCFA IT department for all Microsoft Windows updates to be completed within OCFA's normal patch update schedule. Any work on Security System servers that will take the server off-line for any period of time shall be coordinated with OCFA. Servers shall not be taken off-line without prior approval from OCFA.
2. Contractor shall have service personnel on the site on a monthly basis. Contractor shall set up a schedule with OCFA for times personnel shall be on-site. Some maintenance items shall be completed on a quarterly, semi-annual or annual basis. For maintenance of those items the contractor shall divide the number of devices by the scheduled maintenance interval and then complete the work on that number of devices every month. The information described above is a guideline. The Contactor shall provide a schedule of monthly maintenance to be conducted based on the information provided herein.
3. Security System

- a. The Contractor shall coordinate with AMAG for any patches or software updates that are recommended to be implemented since the last maintenance visit and implement those updates as required.
- b. The contractor shall coordinate with AMAG to ensure the Service Maintenance Agreement (SMA) is current. The cost of the SMA shall be included in the maintenance cost proposal as a separate line item. The Contractor shall verify with AMAG when the current agreement is set to expire. The Contractor shall include renewal of the SMA to be maintained through the period of the maintenance agreement.
- c. Coordinate with OCFA to confirm application and database files are backed up on a daily basis. Set system alert if there is a problem with the daily backup.
- d. The Contractor shall run system reports on a monthly basis to review system status. At the completion of the upgrade project the Contractor shall run system reports to determine the base-line for system operation. The Contractor shall then run the reports on a monthly basis for the duration of the maintenance contract to identify any system anomalies or system errors. The following reports shall be run at a minimum:
  - 1) System Status
  - 2) Health History
  - 3) Health Statistics
  - 4) Archiver Statistics
  - 5) Archiver Storage Details
  - 6) Access Control Health History
- e. The system shall be configured to provide email alerts when system elements exceed trigger thresholds. The contractor shall coordinate with OCFA to determine which system elements to provide alerts for and where they should be reported.
- f. There are approximately 115 access-controlled portals at OCFA facilities. Each portal shall be checked yearly to ensure proper operation. The Contractor shall check 1/12 of the portals each month such that all portals are checked within a calendar year. Complete the following tasks:
  - 1) the reader to ensure there is no foreign substances on the reader. Check for damage. Report any anomalies included photos to be included in the report log.
  - 2) Check door assembly for any damage.
  - 3) Check operation of door closer, where applicable, to ensure the door latches completely with no assistance. Report any operational issues to OCFA.
  - 4) Check operation of the electric locking hardware.
  - 5) Check operation of the card reader including operation of the LED and beeper for access granted, access denied and door programmed to be locked or unlocked.
  - 6) Verify operation of Request-to-Exit device.
  - 7) Verify operation of Door Position Switch (DPS).
  - 8) Verify operation of DPS tamper circuit.
  - 9) For locations with reader in and reader out verify the functions for both readers.
  - 10) For doors with local alarms verify operation and reset of the local alarm

- device.
- 11) For portal with vehicle gates verify operation of the gate for open/close limits, check and adjust chain tension and note any mechanical or structural deficiencies.
- 12) Verify remote activation of portal from operator workstations.
- g. For alarm points such as doors with only a DPS, motion detectors and duress switches verify operation in both alarm mode and bypass mode on a yearly schedule.
- h. For equipment enclosures verify on a yearly basis the following:
  - 1) Inspect for any debris and make sure the enclosure is clean.
  - 2) Check terminations to ensure they are secure.
  - 3) Ensure all cable management devices are secure. Replace any devices that are damaged or no longer performing their intended purpose.
  - 4) Verify operation of enclosure tamper switch.
  - 5) Replace batteries supporting power supplies and lock power supplies every two years.
- i. There are approximately 40 cameras at OCFA facilities. Each camera shall be checked yearly to ensure proper operation. The Contractor shall check 1/12 of the cameras each month such that all cameras are checked within a calendar year. Complete the following tasks:
  - 1) Clean camera domes and enclosure windows. Inspect the domes/windows for damage, scratches, discoloration or cloudiness that may affect camera performance. Notify OCFA of any deficiencies and recommend replacements if needed.
  - 2) Verify operation and video image for each camera. When camera image does not meet camera image quality as identified by OCFA the service technician shall make adjustments to the camera to bring the video image back into manufacturers specified parameters. If adjustments do not bring camera back to specified requirements the technician shall recommend to OCFA that the camera be replaced. Do not replace any camera without OCFA authorization.
  - 3) Inspect camera connections at the camera and at the network termination point. Where camera cables are terminated at a patch panel also check the patch panel connections.
  - 4) For PTZ cameras verify operation of motors to move as specified for the unit. Verify operation control from all workstations designated by OCFA as video workstations.
  - 5) Check all video monitors for video quality and clean all screens with approved monitor cleaning system.
  - 6) For any non-PoE cameras check the power supply to ensure proper voltage output. Check all cable terminations to ensure they are secure

H. Quality of Work, Cleanliness, Appearance and Decorum

- 1. Contractor and subcontractors shall abide by the highest professional standards within the industry. All work and quality assurance shall be in accordance with current criteria and guidelines established by OCFA and regulatory agencies.

2. Contractor shall, at all times, while providing services, keep the immediate and surrounding service area clean and free of debris, trash, and other hazards that would impair operations of the City properties as determined by the City.
- I. While performing Services, Contractor's personnel shall at all times present a professional appearance wearing neat, clean uniforms with Contractor's company name displayed on uniform shirt, jacket, and safety vest and all required personal protective equipment (PPE). Contractor personnel shall maintain the highest level of professional standards in attire, decorum, and interaction with the public and OCFA personnel. Contractor shall ensure that all personnel providing Services conduct themselves at all times in a professional manner that reflects well on OCFA. OCFA reserves the right to request removal of any Contractor personnel deemed inappropriate for assignment to duty on OCFA properties. In the event OCFA is dissatisfied with Contractor's personnel, Contractor shall replace said personnel within one (1) day of receiving written or verbal notification of such from OCFA.

#### **1.14 SPARE PARTS**

- A. Spare parts levels shall be maintained through the warranty and maintenance periods such that they are at the original quantities at the end of the contractor's involvement.
- B. Unless otherwise noted herein, provide 2%, or a minimum of one, of the Contractor-provided quantity of each type of active electronic device including, but not limited to, card readers, electrified locking hardware, door position switches, request-to-exit (REX) detectors, cameras, power supplies, etc.
- C. The following items shall not require spare parts provision: Connectors, conductors, patch panels, mounting components, batteries, devices for which the system already incorporates redundant components and components or devices whose total quantity is 3 or less and whose failure would not affect any other part of the system.
- D. Submit Spare Parts Material list to the Engineer for approval prior to shipment.

#### **1.15 EQUIPMENT COMPATIBILITY REQUIREMENTS**

- A. While individual items of equipment may meet the equipment specifications and in fact meet the system specifications, the total system shall be designed so that the combination of equipment actually employed does not produce any undesirable effects such as signal distortion, noise pulses, transients, or crosstalk interferences when electrically associated with itself or other equipment.

#### **1.16 OWNER'S RIGHT TO USE EQUIPMENT**

- A. Orange County Fire Authority reserves the right to use equipment, material and services provided as part of this work prior to Acceptance of the Work, without incurring additional charges and without commencement of the Warranty period.

## **1.17 TRAINING**

### **A. On-Site Training**

1. General: Present, review and describe all equipment and materials to Orange County Fire Authority operating personnel and fully demonstrate the operation and maintenance of the systems, equipment and devices specified herein.
2. The training shall cover the overall system, each individual system, each subsystem, and each component. The training shall also cover procedures for database management, normal operations, and failure modes with response procedures for each failure. Each procedural item must be applied to each equipment level.
3. Duration: Provide minimum of 16 hours of on-site training of EACS/VSS system operation to designated representatives of Orange County Fire Authority at a location convenient to Orange County Fire Authority. Provide an additional eight hours of training to Orange County Fire Authority designated IT personnel to describe system configuration to maintain system hardware and software configurations. Training shall be coordinated to ensure Orange County Fire Authority personnel are properly trained before any new systems are brought on line.

## **PART 2 - PRODUCTS**

### **2.01 GENERAL**

- A. Product Acceptability: The Products section contains lists of acceptable products. If product substitutions are proposed, they must be made based upon a comparison of equivalence to the product specified. Considerations may include, but shall not be limited to functional, physical, aesthetic and/or interface aspects. Orange County Fire Authority shall be the sole judge of whether or not a submitted substitution is deemed to be "equivalent" to that specified.
- B. Manufacturers Specification Reference: Where specific material, devices, equipment, or systems are specified directly, the current manufacturers' specification for the same becomes a part of these specifications, as if completely elaborated herein.
- C. Listed Manufacturers: Manufacturers listed in the product section are known to generally meet the specification requirements. Listing of a manufacturer does not automatically mean it meets all requirements listed herein. The contractor is responsible to provide any hardware and/or software modifications for any submitted product to ensure compatibility with the functional performance specified herein.
- D. All equipment shall be new and the current model of a standard product of a manufacturer of record. When a manufacturer provides a newer model than that included in the specifications the contractor shall provide the newer model. A manufacturer of record shall be defined as a company whose main occupation is the manufacture for sale of the items of equipment supplied.

- E. For each item of equipment offered, manufacturer shall maintain:
  - 1. A factory production line
  - 2. A stock of replacement parts
  - 3. Engineering drawings, specifications, operating manuals and maintenance manuals
  - 4. Manufacturer shall have published and distributed descriptive literature and equipment specifications on each item of equipment offered.
- F. Complete System: All auxiliary and incidental equipment necessary for the complete operation and protection of the systems specified herein shall be furnished and installed as if specified in full.
- G. Similar Devices: Similar devices within a system shall be identical.
- H. Safety: Unless otherwise specified, all electronic equipment shall be UL rated. All electronic equipment shall be of the dead front type, having no exposed live electrical connections, terminals or exposures to hands-on operating surfaces or other exposed surfaces during any power-on condition. Every live electrical connection, terminal or exposure shall be covered with durable, removable insulating material.
- I. Rack Mounting: All rack-mounted electronic equipment shall be specifically designed or modified for standard 19-inch rack mounting unless otherwise noted.
- J. Keying: Key all panels identically where provided for similar usage within a system.
- K. Framing: Floor supported units shall be substantially framed and supported. All bolted connections shall be made with self-locking devices.
- L. Aesthetics: Coordinate all console or control panels so that their general appearance is similar. Provide locking panel covers on all recessed, semi-recessed and surface mounted control panels not located in equipment rooms. Control panels shall be contained within or mounted to formed and welded aluminum or steel back boxes. Operating panels shall be recessed within the back box to a depth sufficient to permit a locking hinge panel cover to close completely without affecting any device within the enclosure.
- M. Labeling: Provide intelligible permanent engraved identification on or adjacent to all controls, fuses and/or circuit breakers, patching jacks, connectors, receptacles, terminal blocks, meters, indicators, switches, monitors, and the like.
- N. Engraving, labels, decals or other identification on any device, equipment or miscellaneous component shall be coordinated with the associated Shop and Field and Equipment Wiring Drawings.
- O. No proprietary identification on assemblies will be permitted.
- P. Operational Voltage: Devices connected to the fuse or breaker protected electrical system

and all auxiliary equipment necessary for the operation of the equipment associated with systems specified herein shall be designed to operate from 105 to 130 volt, 60 Hertz, alternating current service, with stable performance, fully in accordance with these specifications, and shall have integral fuse or circuit breaker protection.

- Q. Contractor-fabricated items shall be provided with fuses that indicate when they are blown or defective.
- R. All protection devices shall be located to facilitate replacement, resetting or observation of status without demounting the associated unit and/or de-energizing adjacent equipment.
- S. Manufacturer's Recommendations: Components and devices shall be operated in accordance with recommendations of the manufacturer and shall contain sufficient permanent identification to facilitate replacement.
- T. Wiring Practices: Consistently identified terminal strips shall be provided for all external connections. These designations shall be shown on drawings.

## **2.02 MISCELLANEOUS PRODUCTS**

- A. Cabinets: Hoffman, Rittal, Wiegmann or equal, assembled and wired with all components and as indicated on the drawings. Cabinets shall be equipped with removable back panels, ventilations, fans and filters to maintain acceptable environmental conditions for the components installed within the cabinet. Coordinate color, location, and trim with Orange County Fire Authority.
- B. Connection Devices
  - 1. General Purpose Multi-Pin Panel Mounting Receptacle: Amp, Molex, or equal, or as indicated on the Drawings.
  - 2. General Purpose Multi-Pin Cable Connector: Cannon, Amp, or equal, or as indicated on the Drawings.
- C. Cable Termination Devices
  - 1. Screw-Type Barrier Blocks: Kulka 601 or Kulka 601-3700 Series, TRW-Cinch, 140, 141 and 142 Series, Buchanan, or equal.
- D. Wire and Cable Labels: Provide labels by Brady, Thomas and Betts, or equal.
- E. Wire and Cable Support Racks: Provide Cable Support Racks by Unistrut, Kindorf, B-Line, or equal.
- F. Tamper Proof Screws: Provide tamper proof fasteners as manufactured by Tamper-Pruf, L.H. Dottie, Theft-Pruf, or equal, for installation of security equipment in accessible locations. Provide six tamper proof screwdrivers and transfer to Orange County Fire Authority prior to final acceptance testing.

## **2.03 TEST EQUIPMENT**

- A. The Contractor is responsible for furnishing test equipment required to test the system in accordance with the parameters specified. Unless otherwise stated, the test equipment shall not be considered part of the system. The Contractor shall furnish test equipment of accuracy better than the parameters to be tested.
- B. Readiness: Keep all test equipment at hand and maintain in calibrated condition at the jobsite as required for routine and performance testing of this work.

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. Perform this Work in accordance with acknowledged industry and professional standards and practices, and the procedures specified herein. Minimum installation standards shall meet the requirements of NFPA 731 – Standard for the Installation of Electronic Premises Security Systems 2015 Edition
- B. Aesthetics are an important consideration in this installation. All components shall be installed to have aesthetically pleasing results per Orange County Fire Authority. Actual locations of all visible components shall be coordinated in advance with Orange County Fire Authority.
- C. The Contractor shall insure that all installation personnel understand all the requirements of the Specifications.

### **3.02 COORDINATION**

- A. General: Conform to the standards set forth in Division 1 and additional requirements listed below.
  - 1. This Contract involves functioning systems. Coordination with Orange County Fire Authority is critical. Do not interrupt any functioning system without coordination with Orange County Fire Authority and any phasing requirements to minimize downtime for functioning systems.
  - 2. Coordinate the work with Orange County Fire Authority and all trades to assure that where this work interfaces to other trades, those interfaces are provided, complete and functional.
  - 3. Meet with a representative of the Orange County Fire Authority and each trade. Identify devices needed to complete functional operation of this work that are being provided by Orange County Fire Authority, General Contractor or another trade, and assure that the work being provided by others will be acceptable.
  - 4. Make sure work by others is scheduled in order that this work can be installed in a timely fashion.

5. Verify all dimensions, and work by others that may be necessary to facilitate the work and coordinate with other trades. Assure that related work by others is coordinated with this work.
  6. Verify all field conditions. Regularly examine all construction and the work of others that may affect the work to ensure proper conditions are provided for the equipment and devices before their manufacture, fabrication or installation. Be responsible for the proper fitting of the systems, equipment, materials, and devices provided as part of this work.
  7. Coordinate connections to Orange County Fire Authority network equipment with Orange County Fire Authority Office of Information Technology (OIT). Refer to Division 27 for additional requirements.
- B. Required Resources: Become familiar with the available access and space for equipment and any potential interference requiring coordination. Coordinate with Orange County Fire Authority to assure that adequate electrical and HVAC services are available. Provide the physical space for equipment, and ample access room for installation and maintenance of equipment.
  - C. Positioning Members: Provide additional support or positioning members as required for the proper installation and operation of equipment, materials and devices provided as part of this work as approved by Orange County Fire Authority without additional expense.
  - D. Interface Devices: Provide items necessary to complete this work in conformance with the Contract Documents or the satisfaction of Orange County Fire Authority without any additional expense.
  - E. Equipment shall be mounted with sufficient clearance to meet applicable codes and facilitate observation and testing. Securely hang and/or fasten with appropriate fittings to ensure positive grounding, free of ground loops, throughout the entire system. Units shall be installed parallel and square to building lines.
  - F. Installation shall comply with "Codes and Standards" section of this specification. Where more than one code or regulation is applicable, the more stringent shall apply.
  - G. Where new equipment is replacing old equipment, Contractor is responsible for removing and dispensing the old equipment and doing whatever repair work is necessary to meet standards determined by Orange County Fire Authority.
  - H. Install fire stopping for penetrations in slabs and firewalls to meet code at the completion of work and prior to final testing demonstration to Orange County Fire Authority.
  - I. Project Documentation: Review all project documentation. If the Contractor perceives any conflict or ambiguity in the contract documents, he shall seek interpretation from Orange County Fire Authority prior to proceeding.
  - J. Supervision: Maintain a competent supervisor and supporting technical personnel

acceptable to Orange County Fire Authority during the entire installation. A change of supervisor during the project shall not be acceptable without prior written approval from Orange County Fire Authority.

- K. Work and Manpower Rules: Comply with all applicable jobsite work and labor regulations.
- L. Shop Drawing Redlines: The contractor shall maintain on site the most current shop drawings with redline mark-ups of changes where the installation varies from the shop drawings. The contractor shall review the redline shop drawings with Orange County Fire Authority on a weekly basis. The final redline drawings at completion of the installation shall be used by the contractor to create the final as-built drawings.

### **3.03 INSTALLATION**

- A. Legacy drawings provided may not represent the current conditions. The contractor shall field survey each site to verify equipment locations. Structural modifications or other obstacles may require camera positions to vary to some extent from those shown on the plans. Relocation of devices to provide adequate video coverage of each area shall be approved by Orange County Fire Authority prior to installation. Where there may be a question about device relocation the contractor shall coordinate with Orange County Fire Authority and request guidance.
  - 1. The contractor shall document on the shop drawings the conduit routing for cameras in the parking lot. As part of the removal of the existing coax cable for analog cameras the contractor shall document which cameras are routed to specific IDF Rooms. The as-built documents shall identify where the new cables are routed and identify the network switch port termination for each camera.
- B. Conduit routing on the bid documents of interior building spaces is diagrammatic and alternate conduit routing is acceptable to provide for a more efficient installation. Conduit routing shall be coordinated with Orange County Fire Authority.
- C. Contractor shall conduct detailed site surveys of each site during mobilization and the shop drawing submittal process and provide detailed shop drawings indicating the proposed installation of devices and conduit.
- D. Wiring in finished areas where the wiring will be out of sight may be installed using plenum cabling. Cable shall be supported by individual hangars installed for the purpose of securing the plenum cable. Cables shall not be laid across the ceiling or secured to lighting or ceiling supports.
- E. The contractor shall field verify each cable from the controller to the field device and provide a cable tag for each cable. The cable tags will be documents and added to the drawings to provide an as-built of the current system. The majority of the doors have only a card reader and electrified locking hardware. A few doors have door position switches (DPS) and exit push buttons. The push buttons are typically connected to the Request-to-Exit (RTE) terminal on the existing controller. The contractor shall re-wire these to auxiliary inputs on the controller and program the system to allow the input to activate the lock. This will

provide the option to add a request-to-exit motion detector (REX) to bypass the alarm point during authorized exiting.

**F. Project Installation Phasing**

1. General: The contractor shall install the upgraded EACS software and new VSS software on VMWare servers provided by OCFA. All system programming shall be completed before replacing existing equipment begins.
  - a. Both of the existing and new systems shall run simultaneously until all devices are transitioned to the upgraded system.
2. EACS
  - a. The contractor shall complete the copying of the existing database and load onto the new EACS server before replacing any hardware. The contractor shall set up a test controller with a reader to confirm the system can read the existing card population.
  - b. The contractor shall check that the copied database has all the time zones, access levels and all other program configurations as configured in the existing system. Make any changes to the program required for items that did not get configured properly during the database conversion.
  - c. After the database programming has been verified the contractor shall begin converting the hardware to the upgraded controllers one building at a time. Confirm the following sequence with the Owner:
    - 1) Building D
    - 2) Building C and vehicle and pedestrian gates
    - 3) Building A and vehicle and pedestrian gates
    - 4) Building B and pedestrian gates
    - 5) Site Cameras

**3.04 WORKMANSHIP**

- A. The installation shall be performed in a professional and competent manner.
- B. On a daily basis, clean up and deposit in appropriate containers all debris from work performed under the appropriate Specification sections. Stack and organize all parts, tools and equipment when not being used.
- C. Preparation, handling and installation shall be in accordance with the Manufacturer's written instructions and technical data appropriate to the product specified.
- D. Work shall conform to the National Electrical Contractors Association "Standard of Installation" for general installation practice.
- E. At the conclusion of the installation, work areas, including panel boxes, shall be vacuumed and cleaned to remove debris and grease.

**3.05 EQUIPMENT, RACK AND CONSOLE INSTALLATION**

- A. Construction: Coordinate access openings and wire paths through the cabinets for desk-mounted devices.
- B. Compliance: Comply with powering, conduit entry and grounding practices as described herein and as required by code.
- C. Coordination of Access: Coordinate the installation of access covers, hinged panels or pull-out drawers to ensure complete access to terminals and interior components. Access shall be designed such that demounting or de-energizing of equipment is not required to gain access to any equipment.
- D. Service Loop: Fasten removable covers containing any wired component with a continuous hinge along one side with associated wiring secured and dressed to provide an adequate service loop. Appropriate stop locks shall be provided to hold all hinged panels and drawers in a serviceable position.
- E. Labeling: Provide an engraved lamaroid marker on the front of desk-mounted equipment including its designation as assigned and referenced consistently throughout this project.

### **3.06 GROUNDING PROCEDURES**

- A. Provide grounding of all systems and equipment in accordance with manufacturers' recommendations, local electrical codes and industry standards.
- B. Signal Ground: Signal ground shall be derived from the one main electrical panel that serves all equipment herein.
- C. Grounding procedures for wire, equipment and devices shall be in strict accordance with manufacturers' recommendations and standard installation practices.
- D. All equipment enclosures of an assembly shall be grounded to the single grounding terminal strip of each assembly.
- E. Multiple Powered System Isolation: Where powered devices of the same system exist in two or more locations and a different signal ground exists in each location, the system's communication signal shall be isolated from signal ground at both source and destination ends via modem, fiber optics or other equivalent method.
- F. Contractor shall eliminate or correct all potential ground-loop problems in a manner approved by Orange County Fire Authority.
- G. Enclosure Isolation: Equipment enclosures of this section shall not be permitted to touch each other or any other "grounded device" unless bolted together. Equipment enclosures shall not be permitted to touch metallic conduit at any point. Conduit entry shall be made using flexible non-metallic conduit material only.
- H. Shielding: Shielded cables of this section shall be grounded exclusively to Signal Ground. No shields shall be permitted to carry live currents of any kind. Shields shall be tied to Signal

Ground at the signal source end only, unless otherwise noted or required by the manufacturer.

### **3.07 IDENTIFICATION AND TAGGING**

- A. Cables, wires, wiring forms, terminal blocks and terminals shall be identified by labels, tags or other permanent markings. The markings shall clearly indicate the function, source, or destination of all cabling, wiring and terminals. The wire-marking format contained in the shop drawings shall be utilized for all conductors installed under this Specification. All cables and wires shall be identified, utilizing heat-shrink, machine printed, polyolefin wire markers. Hand written tags are not acceptable.
- B. Should a situation arise where the wire tagging format as shown on the shop drawings cannot be used, a substitute format shall be submitted which complies with the intent to provide documentation that will permit end-to-end tracing of all System wiring.
- C. All terminal points shall be appropriately identified and labeled as shown on shop drawings.
- D. All panels shall be provided with permanently attached engraved lamacoid labels with identifying names and functions. Labels shall be consistent in form, color, and typeface throughout the system and all must contain the name of the system or subsystem as part of the label textual information. Design, color, font and layout shall be coordinated with, and approved by, Orange County Fire Authority.

### **3.08 DATABASE PREPARATION, CHECKING AND ACTIVATION**

- A. Contractor shall provide Orange County Fire Authority with the appropriate forms necessary to organize the system database inputs. Guidance shall also be provided to Orange County Fire Authority personnel in a timely manner to insure their understanding of database format requirements and constraints. It is essential that the above activities be clearly identified on the Project Schedule so database preparation is accomplished in sufficient time to permit orderly and on time system activation. The forms and guidance shall be presented to Orange County Fire Authority not less than 60 days prior to scheduled central system activation.
- B. It shall be the responsibility of Orange County Fire Authority to ensure the accuracy of the database information entered on forms by thoroughly checking all completed data entry forms.
- C. It shall be the responsibility of Contractor to ensure that database formatting is correct prior to entry into the system and system activation.
- D. The Contractor shall be responsible for the initial database entry into the system prior to activation. The database shall consist of hardware and function-related information, i.e., system configuration, cameras, card readers, alarm points, software parameters for system management, graphical maps and user profiles. A printout of the final database shall be provided to Orange County Fire Authority for review and approval prior to system activation.

1. The contractor shall coordinate with OCFA to make sure all the existing time zones and access levels are configured as required. The contractor shall coordinate with OCFA to print out any programming parameters on the existing systems for reference for verifying the database conversion or manual programming of the AMAG system to match current operation.
- E. System activation shall be the responsibility of Contractor. Once the system and database have been demonstrated to be functioning properly according to manufacturer's guidelines and the system design, all further database entries and upgrades shall be the responsibility of Orange County Fire Authority, unless otherwise noted.
- F. If later versions of the operating system or application software are made available to, or requested by Orange County Fire Authority, these updated versions shall be installed and checked out by Contractor. Before installing upgrade software, Contractor shall insure that existing database information is properly "backed-up" prior to any installation action.

### **3.09 START-UP RESPONSIBILITY**

- A. Contractor shall initiate System Operation. Competent start-up personnel shall be provided by Contractor on each consecutive working day until the System is functional and ready to start the acceptance test phase. If in Orange County Fire Authority' judgment Contractor is not demonstrating progress in solving any technical problems, Contractor shall supply Manufacturer's factory technical representation and diagnostic equipment at no cost to Orange County Fire Authority, until resolution of those defined problems.
- B. Use a start-up sequence that incrementally brings each portion of the system on-line in a logical order that incorporates checking individual elements before proceeding to subsequent elements until the entire system is operational.

### **3.10 PRELIMINARY INSPECTION & TESTING**

- A. Perform a Preliminary Inspection and Test to determine the operating status of components and systems prior to Final Acceptance Testing.
- B. Coordination: Coordinate testing of components of the system in cooperation with other trades.
- C. Verification: Prior to performing Preliminary Testing, perform inspection and/or testing procedures to insure the following:
  1. Safe and proper operation of all components, devices or equipment, and the absence of extraneous or interfering signals.
  2. Proper grounding of devices and equipment.
  3. Integrity of signal and electrical system ground connections.
  4. Proper powering of devices and equipment.

5. Integrity of all insulation, shield terminations and connections.
  6. Integrity of soldered connections and absence of solder splatter, solder bridges, and debris of any kind.
  7. Proper dressing of wire and cable.
  8. "Wire-checking" of all circuitry, including phase and continuity.
  9. Preliminary targeting, back focus, and setup of video camera assemblies.
  10. Mechanical integrity of all support and positioning provisions, i.e.: as provided for video cameras, monitors and any other equipment.
  11. Sequencing: If applicable, determine and record the sequence of energizing systems to minimize the risk of damage from improper startup.
  12. Operation of all systems in accordance with specified performance requirements.
- D. Adjustments and Documentation: After successfully energizing the systems, make all preliminary adjustments and document the setting of all controls, parameters of all corrective networks, voltages at key system interconnection points, gains and losses as applicable. Tabulate all data along with an inventory of test equipment, a description of testing conditions and a list of test personnel. Copies of preliminary test data shall accompany copies of performance testing data as part of the Operating and Maintenance submittal.

### **3.11 PREPARATION FOR ACCEPTANCE (PRIOR TO FINAL INSPECTION)**

- A. Temporary facilities and utilities shall be properly disconnected, removed, and disposed of off-site.
- B. Systems, equipment, and devices shall be in full and proper adjustment and operation, and properly labeled and identified.
- C. Materials shall be neat, clean and unmarred, and parts securely attached.
- D. Broken work, including glass, raised flooring and supports, ceiling tiles and supports, walls, doors, etc., shall be replaced or properly repaired, and debris cleaned up and appropriately discarded.
- E. Extra materials as specified shall be delivered and stored at the premises as directed.
- F. The contractor shall have completed a pre-test of the system to confirm all devices and programming parameters are functions as required before requesting an acceptance test date. The contractor shall provide documentation that all device shave been test and shall be signed by the contractor's project manager to attest that all pre-testing has been completed.

- G. Test reports of each system and each system component, and project record documents shall be complete and available for inspection and delivery as directed by Orange County Fire Authority.

### **3.12 ACCEPTANCE TESTING AND ADJUSTING PROCEDURES**

- A. Purpose: Conduct testing and adjusting procedures to realize and verify the performance criteria specified herein. Successfully demonstrate the acceptable performance of each specified system in the presence of the Orange County Fire Authority and Consultant of Record.
- B. Scope: Conduct all performance testing, adjustment and documentation procedures to verify and realize compliance with the performance specifications herein. Make available at least one engineer familiar with this work, additional staff as required to conduct the testing, and all required test equipment for the duration of performance testing verification, at the convenience of Orange County Fire Authority.
- C. Acceptance Testing Readiness: Acceptance testing will be performed after the system is installed and pre-tested completely.
  - 1. The contractor shall have successfully tested the system prior to scheduling formal acceptance testing. Contractor shall correct any and all deficiencies found at that time. The Contractor shall provide pre-test documentation showing the entire system has been tested with signature of the project manager attesting the pre-test work has been completed.
  - 2. Acceptance testing will be conducted in accordance with the approved Acceptance Testing Plan.
  - 3. Deliver all equipment, devices and materials required for the security system(s) work to the site at least fourteen working days prior to the scheduled Completion Date.
  - 4. Install, test and ready all of the security system(s) work for final Acceptance Testing of the Installation to start ten working days prior to the Completion Date.
- D. Acceptance Testing Schedule: Contractor shall confirm in writing to Orange County Fire Authority when the system is ready for acceptance testing. Contractor shall then schedule a complete Acceptance Test at the convenience of Orange County Fire Authority.
- E. Acceptance Testing: Contractor shall test and verify the performance of all equipment, systems, interfaces and peripheral equipment in the presence of the Orange County Fire Authority and the Consultant of Record. Tests shall be performed in accordance with the requirements of individual systems as specified herein and in related specification sections to include sections on Integration.
- F. Correction of Jobsite Observation Report Items: Perform any and all remedial work to correct inadequate performance or unacceptable conditions of, or relating to any of this work, as determined by Orange County Fire Authority prior to the completion date.

Corrective work shall be performed at no additional cost to the Orange County Fire Authority.

- G. Test Documentation: Document all acceptance testing, calibration and correction procedures described herein with the following information:
1. Performance date of the procedure.
  2. The names of personnel conducting the procedure.
  3. The equipment used to conduct the procedure.
  4. Type of procedure and description.
  5. Condition during performance of procedure.
  6. Parameters measured and their values, including values measured prior to calibration or correction as applicable.
  7. Parameters associated with calibration or corrective networks, components or devices.

### **3.13 FINAL PROCEDURES**

- A. Portable Equipment: Furnish portable equipment specified herein to the Orange County Fire Authority, along with complete documentation for the materials furnished. All portable equipment shall be presented in the original manufacturer's packing, complete with manufacturer's instructions, manuals and documents. Testing of all portable equipment shall have been previously conducted by the Contractor.
- B. Post Acceptance Work: Check, inspect and adjust all systems, equipment, devices and components specified, at Orange County Fire Authority' convenience, approximately 60 days after Acceptance of the Installation.

**END OF SECTION**

**5B: SECTION 28 0513 SECURITY CONDUCTORS AND CABLES**

## **SECTION 28 0513**

### **SECURITY CONDUCTORS AND CABLES**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

- A. This specification section covers the furnishing and installation of conductors and cables to interconnect electronic equipment, devices and systems throughout the Mission Rock property.

##### **1.02 GENERAL CONDITIONS**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

##### **1.03 RELATED WORK**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

##### **1.04 SHOP DRAWINGS & EQUIPMENT SUBMITTAL**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

##### **1.05 EQUIPMENT COMPATIBILITY REQUIREMENTS**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

#### **PART 2 - PRODUCTS**

##### **2.01 GENERAL**

- A. The Contractor shall provide wire and cable as specified, or as recommended by the manufacturer. Wiring shall meet NFPA 70 standards. Cable shall be rated and approved for the intended use.

##### **2.02 ELECTRONIC ACCESS CONTROL AND INTRUSION DETECTION CABLE**

- A. Composite Cable (Reader, Lock, Monitor, REX): Provide Belden 658AFS, or equal, with (3) Twisted Shielded Pair 22AWG, 2-Conductor Shielded 22AWG, 4-Conductor Shielded 22AWG, and 4-Conductor 18 AWG. Individual cables may also be used.
- B. Alarm Monitoring Cable
  - 1. In Conduit: Provide Belden 5500FE, or equal, 1 Pair Shielded 22AWG, or equal.
  - 2. Plenum Rated: Provide Belden 6500FE, or equal, 1 Pair Shielded 22AWG, or equal.

3. Below Grade: West Penn AQC292 1 Pair Shielded 20AWG with water block material or equal.

C. Powered Devices (e.g., motion detectors, REX)

1. In Conduit: Provide Belden 5441FE, or equal, 2 Pair Shielded 20AWG, or equal
2. Plenum Rated: Provide Belden 6441FE, or equal, 2 Pair Shielded 20AWG, or equal
3. Below Grade: West Penn AQC359 2 Pair, 1 Pair Shielded 20AWG with water block material or equal.

D. Readers

1. In Conduit: Provide Belden 5542FE, or equal, 3 Pair Shielded 22AWG, or equal.
2. Plenum Rated: Provide Belden 6542FE, or equal, 3 Pair Shielded 22AWG, or equal.
3. Below Grade: West Penn AQC3186 6 Conductor Shielded, 18AWG with water block material or equal.

E. Lock Power

1. General: The Contractor shall calculate the voltage drop for electric locks based on distance between LPS and locks and provide cable gauge as required to maintain proper voltage at each lock.
2. In Conduit:
  - a. Provide Belden 5300UE, or equal, 2-Conductor 18AWG
  - b. Provide Belden 5200UE, or equal, 2-Conductor 16AWG
3. Plenum Rated:
  - a. Provide Belden 6300UE, or equal, 2-Conductor 18AWG
  - b. Provide Belden 6200UE, or equal, 2-Conductor 16AWG
4. Below Grade: Belden 5240U1, West Penn AQC225 1 Pair 16AWG with water block material or equal.

F. Communications (RS-485)

1. In Conduit: Provide Belden 5441FE, 2 Pair Shielded 20AWG, or equal.
2. Plenum Rated: Provide Belden 6441FE, 2 Pair Shielded 20AWG, or equal.
3. Below Grade: West Penn AQC430 2 Pair, Shielded 22AWG with water block material or equal

## **2.03 VIDEO SURVEILLANCE SYSTEM (VSS)**

- A. Data Cable for Cameras: Category 6 cable for standard and POE applications
1. Compliance: Listed as complying with Category 6 specifications and requirements of TIA/EIA-568-B.2-1 Draft 10b Preliminary Performance Requirements. All conductive cabling and associated components must comply with Article 800 of the National Electric Code (NEC).
    - a. UTP 4-pair Cat6: Berk-Tek Model 10032459, or equal. Coordinate color with City of Orange
  2. For Plenum Applications: Listed for use in air-handling spaces. Features are as specified for cables, conductors, and UTP workstation cable. Plenum rated cable shall meet applicable requirements of ANSI/ICEA S-80-576, and shall be Underwriter's Laboratory (UL) certified to conform to UL910, CMP and shall be marked as such.
    - a. Plenum Rated UTP 4-pair Cat6: Berk-Tek Model 10032092, or equal. Coordinate color with City of Orange
  3. Underground Applications: Cables to be installed in underground conduits shall be constructed with a water block material to prevent moisture to penetrate to the core of the cable and shall meet the requirements of ICEA S-99-569.
    - a. OSP, UTP, 4-pair, Cat6: Berk-Tek LANmark model 10139885, or equal. Coordinate color with OCFA.
    - b. Data Cable for extended lengths POE up to 550': Provide Paige Datacom Solution Part Number 258330804.
- B. Camera Power Wiring (Non-POE Applications): Contractor shall ensure power wiring is sufficient to deliver required power to cameras, regardless of distance from the power supply. Provide larger gauge wire where required to compensate for voltage drop.
1. In Conduit: Provide Belden 5300UE, or equal, 2-Conductor 18AWG
  2. Plenum Rated: Provide Belden 6300UE, or equal, 2-Conductor 18AWG
  3. Below Grade: West Penn AQC225 1 Pair 16AWG with water block material or equal.
- C. Exposed Camera Wiring: Wiring between camera enclosures and their respective 'J' Box shall be in "Sealtite" flexible conduit. Sealtite shall be firmly affixed to 'J' Box cover plate and camera enclosure. Refer to camera details.

## **PART 3 - EXECUTION**

### **3.01 INSTALLATION**

- A. General: Refer to Division 26 for additional requirements for cable raceways and support for cables run in conduit or installed in plenum rated areas.
- B. Wires shall be installed in conduit or in another approved raceway, unless otherwise noted

- or excepted. Where a wire run is above a suspended ceiling, its conduit or raceway shall be tied up or clamped to the supports and not left to sit on top of the ceiling panels.
- C. Conduit Verification: Verify that conduit has been installed, de-burred and properly joined, routed and terminated prior to pulling of cables.
- D. Wire Pulling: Apply a chemically inert conduit lubricant to wire and cable prior to pulling. Do not subject wire and cable to tension greater than recommended by the manufacturer.
- E. Wire Routing: Secure wire and cable runs vertically in conduit for continuous distances greater than 30 feet at the vertical run terminations. Non-coaxial cables shall be secured by screw-flange nylon cable ties or similar devices. Symmetrical clamping devices with split, circular or other wire conforming, non-metallic bushings shall be provided for other cables.
- F. All security cabling used throughout this project shall comply with the requirements as outlined in the National Electric Code (NEC) Articles 725, 760, 770, and 800 and the appropriate local codes. All copper cabling shall bear CMP (Plenum Rated), CM/CMR (Riser Rated) and/or appropriate markings for the environment in which they are installed. All fiber optic cabling/ tube cabling shall bear OFNP (Plenum Rated), OFNR (Riser Rated) and/or appropriate markings for the environment in which they are installed. Cable utilized underground shall be outside plant rated. Upon entering a facility, the cable shall be transitioned to the appropriate cable type outlined in the NEC (or CEC) or shall be run to its destination within the facility in conduit.
- G. Cable Pathways
1. In suspended ceiling and raised floor areas where duct, cable trays or conduit are not available, the Contractor shall bundle, in bundles of 50 or less, station wiring with half inch Velcro strips, but not deforming the cable geometry. Cable bundles shall be supported via "J" hooks attached to the existing building structure and framework at a maximum of ten-foot intervals. Plenum rated Velcro will be used in all appropriate areas. In areas where two (2) or more bundles are traveling in close proximity, utilize a Chatsworth Rapidtrak Cable support system. The contractor shall adhere to the manufacturers' requirements for bending radius and pulling tension of all cables.
  2. Cables shall not be attached to lift out ceiling grid supports or laid directly on the ceiling grid.
  3. Cables shall not be attached to or supported by fire sprinkler heads or delivery systems or any environmental sensor located in the ceiling air space
- H. Sealing of openings between floors, through rated fire and smoke walls, existing or created by the contractor for cable pass through shall be the responsibility of the contractor. Sealing material and application of this material shall be accomplished in such a manner that is acceptable to/in compliance with the AHJ requirements, the current edition of National Fire Protection Association (NFPA) or other prevailing code and must be a system listed by Underwriter's Laboratory (U.L.). Creation of such openings as are necessary for cable passage between locations as shown on the drawings shall be the responsibility of the

contractor unless otherwise noted. Any openings created by or for the contractor and left unused shall also be sealed as part of this work.

- I. The contractor shall be responsible for damage to any surfaces or work disrupted as a result of his work. Repair of surfaces, including painting, shall be included as necessary.
- J. Verification of Continuity: After installation, and before termination, wiring shall be checked and tested to insure there are no grounds, opens, or shorts on any conductors or shields. In addition, wiring between buildings or underground and coax cables shall have insulation tested with a megohmmeter and a reading of greater than 20 megohms shall be required to successfully complete the test.
- K. Splicing
  - 1. Run wires continuously from termination to termination without splices.
  - 2. Splices at certain junction box locations may be allowed at the discretion of Mission Rock and the Consultant of Record. Locations which may require spliced wires should first be established with Mission Rock and Consultant of Record. Contractor shall obtain written approval before proceeding with splices.
  - 3. If splices are required and approved by the Consultant of Record, the wire shall be joined with solder, then taped or otherwise protected in an approved manner so as to provide mechanical and electrical integrity. Wire nuts and/or electrical tape connections shall not be acceptable. Final connections shall be made at terminal boards with full tagging, labeling and documentation.
- L. Water Protection
  - 1. Water-resistant protection shall be continuous throughout the cable in surface conduit, poles, in-slab pull-boxes, in-slab conduit, and underground conduit and pull-boxes, and in any areas subject to moisture and/or water infiltration.
  - 2. Splices/Junctions: Provide water-proof protection of splices and junctions in surface conduit and boxes, in-slab conduit and pull-boxes, underground conduit, and underground pull-boxes, to prevent the entry of moisture or water into cables, splices or connections.
  - 3. Cable Entries: Provide water-blocking sealants at conduit entries into pull-boxes, junction boxes, back-boxes, cabinets, etc., to prevent the entry of moisture or water into the conduit and cable system.
- M. Boxes: Provide a box loop for wire and cable routed through pull boxes or distribution panels. Cable loops and bends shall not be at a radius less than that recommended by the manufacturer. Coordinate pull box size with the Division 26 as necessary to accommodate this requirement.
- N. Wire Labeling: Identify wire and cable clearly with permanent labels wrapped around the

full circumference within one-inch of each connection. Locate the label so that it is visible, and so that wire does not need to be undressed or disassembled for clarity. Correlate the label with the number designated on the associated Shop and Field Drawings. Assign wire or cable designations consistently throughout a given system. Each wire or cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations. Cables within pull boxes and underground vaults shall be labeled with the origination and destination of each cable.

- O. Wire Lacing and Dressing: Dress, lace, tie or harness wire and cable vertically, horizontally and at right angles to the enclosure surfaces to prevent mechanical stress on electrical connections as required herein and in accordance with accepted professional practice. No wire or cable shall be supported by a connection point. Use the specified cable management guides within enclosures and cabinets to ensure a neat wiring scheme.
- P. Class Mixing:
  - 1. Class 1 circuits shall not be mixed with Class 2.
  - 2. Wiring in the same conduit or wireway shall not contain wiring of multiple types where voltage differences exceed 20 dbv except where line and microphone levels will not be used at the same time.
- Q. Terminations: Make connections and splices (except microphone or line level) to screw-connection terminal blocks with insulated crimp-type spade lugs or under terminal block pressure plates. Size terminal blocks and lugs properly to assure high electrical integrity. Connect only one wire per spade lug and not more than two lugs per screw terminal.
- R. Shielded Cables: Shielded cables shall be insulated. Do not permit shields to contact conduit, raceway, boxes, terminal cabinets or equipment enclosures. Tin terminated shield drain wires and insulate with heat shrinkable tubing.
- S. Unacceptable Conditions: Correct all unacceptable wiring conditions immediately upon receiving notice to correct.

### **3.02 COORDINATION**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

### **3.03 WORKMANSHIP**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

### **3.04 GROUNDING PROCEDURES**

- A. Provide grounding of all systems and equipment in accordance with Section 26 05 26, Grounding and Bonding and Section 28 0000, Security General Requirements.

**3.05 CONDUIT AND WIRE INSTALLATION PRACTICES**

- A. Provide conduit, wire and cable installation in accordance with Section 28 0000, Security General Requirements.

**3.06 IDENTIFICATION AND TAGGING**

- A. Provide identification of wire, panels, and devices in accordance with Section 28 0000, Security General Requirements.

**3.07 FINAL PROCEDURES**

- A. Perform final procedures in accordance with Section 28 0000, Security General Requirements.

**END OF SECTION**

**5C: SECTION 28 1000 ELECTRONIC ACCESS CONTROL SYSTEM (EACS)**

## **SECTION 28 1000**

### **ELECTRONIC ACCESS CONTROL SYSTEM (EACS)**

#### **PART 1 - GENERAL**

##### **1.01 DESCRIPTION**

- A. General Description: This specification section covers the upgrade of the existing Electronic Access Control System (EACS). Refer to Section 28 0000 for description of existing systems.
- B. The contractor shall furnish new EACS controllers in an integrated enclosure to include electronic and lock power supplies. The contractor shall replace all existing card readers with new card readers. At door locations that do not currently include door position switches (DPS) and request-to-exit (REX) devices the contractor shall install new DPS and REX including installation of new cable. Refer to Door Schedule for requirements.
- C. The contractor shall include installation of new card readers, DPS, REX and electrified locks at new doors to be added to the EACS. Refer to Door Schedule for requirements.
- D. Contractor shall furnish and install security hardware devices, mounting brackets, power supplies, switches, controls, consoles and other components of the system as shown and specified.
- E. Furnish and install special boxes, cable, connectors, wiring, and other accessories necessary to complete the system installation. Requirements shall be in accordance with applicable codes.
- F. Outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation; will be provided by the Contractor, in accordance with CEC and NEC.

##### **1.02 RELATED WORK**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.
- B. Door Hardware
  - 1. Security Door Requirements: The Contractor shall be responsible for surveying each security door shown on the drawings before installation, and reviewing the door hardware configuration and installation conditions with respect to the specified functions. The Contractor shall verify the compatibility and completeness of the proposed hardware and its installation, submit detailed drawings showing the proposed modifications and installation, and provide all equipment and services required to achieve the specified electrical and mechanical performance. Coordinate acceptable door hardware and installation techniques with the Engineer.

2. Doors and Door Hardware:
  - a. Electric door locks, panic hardware, power boosters, power transfer devices, request-to-exit (REX) devices and door position switches (DPS) are existing at designated locations. Where readers as designated as new (N) the contractor shall provide the required hardware as shown on the drawings and specified herein.
  - b. Contractor shall modify locks, doors and doorframes as needed to provide the specified operation. Where modifications are required at fire rated doors the contractor shall coordinate re-certification of the doors with the Authority Having Jurisdiction (AHJ).
  - c. Door hardware and installation shall comply in all respects with the requirements of Public Law 101-336, Americans with Disabilities Act
3. For designated new security doors being added to the security system door position switches, request-to-exit function, electric transfer hinges, and electrified locking hardware shall be furnished and installed by the contractor. Electrical connection for 120 VAC and connection from power booster to electric transfer hinge shall comply with electrical code requirements.
4. Electrified locks shall be mechanically keyed, to permit manual locking/unlocking, in an emergency. Mechanical operation shall not override door monitoring functions.
5. All electrified locks and strikes shall be configured as fail-secure, i.e.: the electrified lock shall unlock only when powered. Coordinate the selected hardware with Engineer to assure its suitability for the purpose intended.
6. Fire Alarm Interface: Electrified locks, strikes and delayed exiting panic hardware, which are part of this work and which are locked in the path of legal exiting, shall be connected to the building Fire Alarm System in accordance with Engineer and AHJ requirements such that they automatically unlock in the event of activation of the Fire Alarm System. This shall occur whether the activation is a result of a manual pull station, smoke detector or sprinkler flow switch.
  - a. A fire alarm "general/common alarm relay" shall be programmed at the fire alarm control panel to activate the EACS interface relays located in each Lock Power Supply cabinet. The Security Contractor shall research and provide all necessary fire alarm system conduit, wire, hardware and programming to perform the required interface.
  - b. This interface shall not depend on the EACS System Server or Remote Controllers for its operation. Locate these interface relays electrically ahead of lock power distribution as shown on the drawings. The Contractor shall supply and install programmed alarm interface relay(s) with sufficient capacity to control the power supplied to all controlled locks

### **1.03 SHOP DRAWINGS & EQUIPMENT SUBMITTAL**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

**1.04 OPERATIONS AND MAINTENANCE MANUALS**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

**1.05 WARRANTY**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements.

**1.06 QUALITY ASSURANCE**

Provide the work in accordance with Section 28 0000, Security General Requirements

**1.07 TRAINING**

Provide the work in accordance with Section 28 0000, Security General Requirements.

**1.08 TECHNICAL REQUIREMENTS, ELECTRONIC ACCESS CONTROL SYSTEM (EACS)**

A. General

1. The Electronic Access Control System (EACS) controllers provided under this scope of work shall be replacing the existing EACS end-of-line controllers. The contractor shall use the existing wiring to existing EACS devices and re-terminate at the new EACS controllers.
2. Contractor shall be responsible for providing equipment to achieve the specified system performance described herein and, by reference, realize absolute and seamless compatibility with the existing door hardware.
3. Contractor shall ensure that modifications provided under this scope of work have no negative effect on the existing systems and operations, and no permanent effect beyond that specified or implied by the scope of work unless otherwise noted herein.
4. The new installation shall include enclosures that contain all power supplies, controllers and new batteries. The contractor shall remove existing cabinets used for power and batteries.

B. Purpose:

1. General: The Electronic Access Control System is designed to monitor and restrict access to specified areas, and to report on the activity and violations of restricted access in those areas.

C. Environment:

1. The system shall be installed in OCFA facilities as outlines in Section 28 0000, Article 1.05, Paragraph C. Refer to the drawings and Bid Instructions to determine the scope limitations for this phase of work.

2. **Monitoring Posts:**
  - a. Primary monitoring will be at the Lobby Desk. Provide a new workstation and client software at this location.
  - b. Administrative and Badging shall be in Room AE204 in the Human Resources (HR) department. There is an existing workstation at this location.
3. **Infrastructure and Connectivity:**
  - a. Existing OCFA network infrastructure shall be utilized for this scope of work. Network connectivity is currently existing at locations where existing network controllers will be replaced for this project. The contractor shall be transitioning from the existing 20ma current loop communications to IP communications in each data room. The contractor shall coordinate with OCFA IT personnel for connections to patch panels for cable connection and IP addressing. Note that three locations currently have network connections. The contractor shall maintain those connections in those locations. All controllers in each data room will communicate to the controller connected to the network and be assigned an address per AMAG standard addressing schemes.

**D. Attributes**

1. **General:** The following attributes describe the existing system capabilities. This information is provided to explain the EACS capabilities. Some, if not all, of these attributes may be utilized to accomplish the functionality required for this project.
  - a. This project is just an upgrade and all attributes and functions of the AMAG Symmetry software shall remain as currently configured.
  - b. The system shall comprise EACS field devices located as shown on the drawings and connected together to provide a complete and operational system.
  - c. The EACS shall be based on a distributed system of fully intelligent, stand-alone controllers, operating in a multi-tasking, multi-user environment.
2. This project will include the integration of the video system and provide Complete View camera control and management through the AMAG workstations.

**PART 2 - PRODUCTS**

**2.01 PRODUCT ACCEPTABILITY**

- A. The Products section contains lists of acceptable products. If product substitutions are proposed, they must be made based upon a comparison of equivalence to the product specified. Considerations may include but shall not be limited to functional, physical, aesthetic and/or interface aspects. the Engineer shall be the sole judge of whether or not a submitted substitution is deemed to be "equivalent" to that specified.

**2.02 ELECTRONIC ACCESS CONTROL EQUIPMENT**

- A. System: AMAG Symmetry platform with Complete View integration for camera control and management

1. Software: OCFA has existing AMAG Version 8.0.2 running on an existing VMWare Server. The contractor shall upgrade and program the system as delineated in the contract documents. The contractor shall upgrade the existing version to the most current version of Symmetry at the time of installation.
  2. Intercom Interface: Provide AMAG INTERCOM-KIT-V9, Symmetry Zenitel Stentofon Intercom Module to allow direct control and communications to Zenitel intercom stations connected to the security network.
  3. Contractor shall provide a minimum of two reprogramming sessions within 12-month warranty period of the final acceptance of the system to modify the user programming as requested by Metropolitan.
- B. Servers and Workstations: Provide Servers and Client Workstations as noted herein and as shown on the plans.
1. EACS Server: The EACS server is existing within the OCFA VMWare environment. The contractor's only responsibility is to upgrade and install new licenses as required for all added hardware and software features.
  2. Monitoring Client Workstations: There are existing client workstation where shown on the Drawings. The Contractor shall be responsible for loading the client software on each existing client workstation(s) to operate.
- C. System Controller Panels: Provide sufficient controllers and input/output boards to meet all requirements of specifications.
1. EACS System Controller: Where new controllers are required provide the following;
    - a. Provide AMAG M2100 series as required to meet the termination requirements. Refer to the STC Details (EY540 series drawings) for termination requirements for existing doors and Floor Plan Drawings and Door Schedule for new door requirements. Provide at least one network controller for connection to the network and connect additional controllers utilizing the Supervised Comm Port as required for the application, compatible with the EACS application software, with a minimum 20,000 card record capacity, power supply, battery standby, and Communications Module, as specified by AMAG. The contractor shall include all ancillary modules required for communications to readers and other controllers in the same IDF Room.
    - b. Contractor shall review drawings and specifications with the Engineer, and may propose changes to the topology of the system based on device layout, where such changes improve performance or functionality of the system. The Engineer has final authority as to the final approach for system topology.
  2. Controller Connectivity
    - a. Controllers shall support connection to the OCFA LAN using TCP/IP protocol, and shall also support connection using standard data communications protocols (RS-232, RS-485, or RS-422).
    - b. TCP/IP-connected controllers may act as a network "gateway", to re-transmit

controller data via the manufacturers standard data communications protocol (RS-232, RS-485, or RS-422), to other EACS controllers located within the same site. Provide controllers which support the manufacturer's standard data communications protocol, RS-232/RS-483, as required.

3. Controller Power Supply: Provide manufacturer recommended power supply based on panel configuration.
  4. Controllers and modules shall be mounted within a Security Terminal Cabinet (STC). Cabinet shall be suitable for the environment in which it is installed, as recommended by the manufacturer and required by the specifications. The Contractor shall use existing STCs where shown on the Drawings.
  5. Contractor may incorporate controller boards, electronic system power supplies and lock power supplies into a single enclosure. Refer to Paragraphs F and G below labeled Security Terminal Cabinets (STC).
- D. Access Control Readers: Provide multiclass 125 KHz Proximity (RFID) / 13.56 MHz smartcard readers with Bluetooth capability as shown on the drawings. Access control readers shall be configured to read the current OCFA standard access credentials. Coordinate with the OCFA to verify the current credential technology. This shall be for replacement of existing readers and where new readers are required. The contractor shall select the optimum communications protocol based on existing wiring and controller capability. Readers shall be "single-package" type, combining controller, electronics and antenna in one package, in the following configurations:
1. Reader, Wall Mounting (Single-Gang Mounting Applications):
    - a. Provide "single-gang" mounting style smart card proximity readers for wall mounting, Vehicle Stanchions and Pedestals, and where shown on plans.
    - b. The reader shall have an approximate read range of 2.5" when used with the compatible access card.
    - c. The reader shall be IP55 rated.
    - d. The reader shall be UL 294 listed, and shall be FCC certified.
    - e. The reader shall have a lifetime warranty.
    - f. The reader shall support OSDP and Bluetooth protocol.
    - g. The reader shall support light bar for feedback of card accepted or rejected and integrated door pre-held warning busser.
    - h. Color shall be black.
    - i. Wall Mounting (Single-Gang Mounting Applications): Provide AMAG 939S (Wiegand) or 939M MCLP) based on selected communication.
    - j. Special Mounting (applications with a minimum of mounting space or mullion locations): Provide AMAG 929S (Wiegand) or 929M MCLP) based on selected communication.
    - k. Reader w/Keypad, Wall Mounting (Single-gang Mounting Applications): Provide AMAG 939S-KP (Wiegand) or 939M-KP (MCLP) based on selected communication.

- E. Credentials (Access Cards): Existing

- F. Security Terminal Cabinet (STC) and Communications Equipment Cabinet (CEC): System controllers, field control boards and communications devices serving a given area shall be installed inside a STC or CEC (Note that STC and CEC have similar requirements. Where STC is referenced in the specifications it also applies to CEC). No controller or control module shall be mounted independently of the cabinet and its power supplies. Refer to the drawings and the following description for details on STC construction. Use existing STCs where shown on the Drawings.
- G. Provide STC's as described below, located as shown on the drawings, or at places convenient to its respective field devices. Each STC shall contain the following equipment to support the current and future alarm initiating and controlled devices to be connected at that STC location:
1. STC Cabinet: NEMA 2, hinged, locking handle cabinet by Hoffman, Wiegmann or Rittal, sized to fit contents.
  2. The contractor may provide a single enclosure containing all power requirements, including lock power supplies, and controller boards in a single enclosure pre-configured by a manufacturer. Acceptable manufacturers for unified power and controller systems:
    - a. Altronix Trove Series w/Linq technology for monitoring power
    - b. LifeSafety Power MClass series
  3. STC Power:
    - a. Derive primary STC 120VAC power from a designated power source in a secure location. The contractor shall use the existing 120V source for the new equipment.
    - b. Power cable shall be protected by conduit.
    - c. Transformers shall be installed in locked cabinets, protected by tamper switches. Plug-in transformers that are not protected by locked cabinets are not acceptable.
    - d. Serve all low voltage powered devices within the STC from the Electronics Power Supply.
    - e. Provide barriers as may be necessary to separate Class I from Class II power
  4. Electronics Power Supply:
    - a. Ratings: Provide UL Listed Class II transformers and power supplies within the STC. Provide barriers as may be necessary to separate Class I from Class II power.
    - b. Capacity: The power supply shall be capable of powering a minimum of 150 percent of the load required at the time of acceptance.
    - c. Power Monitoring: The system shall monitor the loss and restoration of power at the STC. Loss and restoration of power shall be displayed at the Primary and Secondary monitoring locations, but shall not require resetting of the system.
    - d. Battery Back-up: Provide battery back-up to retain functions of all electronics for a period of twenty-four (24) hours upon loss of 120VAC power
  5. EACS Intelligent Controller Board: As required for connection to access readers, locks,

door position switches and egress devices associated with access-controlled doors. Intelligent controllers shall also communicate to the System Controller over the existing network and to downstream controllers over RS-485 or network protocols.

6. EACS Access Control Board: As required for connection to readers, locks, door position switches and egress devices associated with access-controlled doors shown connected at this location
  7. EACS Alarm Input Board: As required for connection to alarm initiating devices shown connected at this location.
  8. EACS Output Control Board: As required for connection to controlled devices shown connected at this location.
  9. STC Tamper Switch: Provide a tamper switch on the STC. Connect to the system as an individual alarm point.
  10. Terminations: Provide all connections to labeled screw barrier terminal blocks.
  11. Secure all devices within the STC. Dress all wiring in a neat and workmanlike manner. Label all conductors to match documentation.
- H. Lock Power Supply (LPS): This project shall re-use existing lock power supplies. This information only provided if required due to failure of existing LPS.
1. General: Lock power supplies are existing for control of existing access-controlled doors.
    - a. Lock power supplies may be installed inside the same enclosure as EACS controllers and electronic power supplies. Refer to Paragraph F and G above labeled Security Terminal Cabinets (STC).
  2. For control of new electrified locking hardware provide Altronix AL400ULACMCB, LifeSafety Power FPO75-C4E1 or equal UL Listed Class II power supplies within a ventilated, locked cabinet as indicated on the contract drawings, or as otherwise required to affect proper system performance. Power supply shall include separate terminals for each door lock. Lock power supplies shall be located adjacent to existing lock power supplies and use the same 120V circuit for power. Low voltage lock power cable shall be routed through the existing conduit riser system for interface with the access control board for switching power to the electric locks located at each door.
  3. Capacity: The power supply shall be capable of powering 200 percent of the load required at the time of acceptance.
  4. Power Monitoring: The system shall monitor the loss and restoration of power at the STC. Restoration of power shall be displayed at the Primary and Secondary monitoring locations, but shall not require resetting of the system.
  5. Battery Back-Up: Provide 4 hours of battery backup for all low-voltage electrified

door hardware. Power supplies shall be equipped with integral battery recharging circuits.

I. Alarm Initiating Devices (required for new doors and doors without existing DPS)

1. Door Position Switch: The Contractor shall align, prepare and fabricate doors and frames to accept specified door position switches. The Contractor shall be responsible for coordinating the installation so systems and hardware operate as specified.
  - a. Surface Mounted Door Switch: United Technologies Interlogix Model 2505-A-06 or Flair Model MSS-100-23 Surface Mounted Magnetic Switch with armored cable. Route armored cable to junction box and permanently secure to box with clamp or set-screws. Use where shown on drawings, and where flush mounted devices cannot be installed.
  - b. Non-fire Rated Doors, Flush Mount:
    - 1) Hollow Metal Doors: United Technologies Interlogix Model 1076C-W or Flair Model MSS200 Concealed Magnetic Door Switch.
    - 2) Storefront Doors: United Technologies Interlogix Model 1076C-W or Flair Model MSS200 Concealed Magnetic Door Switch.
    - 3) Wood Faced Doors: United Technologies Interlogix Model 1275-Wn or Flair Model RMS-94 Concealed Magnetic Door Switch.
  - c. Fire Rated Doors
    - 1) General: Contractor shall coordinate all security hardware equipment and installation so as to maintain the Fire Rating of each specific door to the satisfaction of the local Authority Having Jurisdiction (AHJ).
    - 2) Hollow Metal Doors: United Technologies Interlogix Model 1078CW, or 2750, concealed magnetic door switch, or equal, approved by UL for use on UL classified fire doors with metal faces, rated up to 3-hours.
    - 3) Hollow Metal Doors, Hinge Switch: Stanley Model "CS" Electrical Hinge Switch, or equal by Markar products. Finish and style as directed by the Engineer.
    - 4) Storefront Doors: United Technologies Interlogix Model 1078CW Concealed Magnetic Door Switch, or equal.
    - 5) Wood Door w/Hollow Metal Frame: United Technologies Interlogix Model 1078CW Concealed Magnetic Door Switch, with United Technologies Interlogix Model 1835 Mini-Max Wide Gap Magnet. Magnet shall be made of rare-earth magnetic materials, and shall be of 5/8" x 1/8", cylindrical (washer) shape. Drill 1/8"-deep hole to flush mount magnet to top of door.
  - d. Gates and Roll-Up Doors: United Technologies Interlogix Model 2205A or Flair Model 1000, with armored cable. Route armored cable to junction box and permanently secure to box with clamp or set-screws.

J. Request-to-Exit (REX) Detector (For new doors and doors without existing REX):

1. Integral to door hardware where available.
2. Bosch Security Detection Systems Model DS-150, GE Sensors Model 6179 or Bosch Model A690. Coordinate color with the Engineer.

- K. IP Intercom Unit: Provide Zenitel Model TCIV-3+ video intercom configured for compatibility with AMAG software.
- L. Workstation Headset for Intercom Communications: Provide Poly SAVI 8200 wireless headset or equal for managing intercom calls. Provide 5 headsets.
- M. Wire and Cable
  - 1. General: Refer to Section 28 0513.

## **2.03 ELECTRIFIED LOCKING HARDWARE**

- A. Electrified Mortise Lockset, One-Sided Locking (Where required for doors with scheduled locking located in fire-rated walls or partitions):
  - 1. Sargent 8200 series electrified mortise lock or equal by Schlage or Corbin-Russwin, fail secure, with request to exit monitor, latchbolt monitor, and specified mechanical operation. Coordinate lever handle, escutcheon, and trim types with the Owner. Provide finishes as required by the Owner.
  - 2. Provide 24 VDC version.
  - 3. Latch bolt: 5/8" x 1" x 3/4" Throw stainless steel with anti-friction tongue
  - 4. Contractor shall coordinate key cylinder to match OCFA's keying system. Existing key cylinders may be reused in the new locks, if they are in operable condition.
- B. Electrified Emergency Exit Devices: Where required for emergency exiting operation, use Von Duprin Series EL99 for normal stiles or Von Duprin Series EL33 for narrow stiles, or equivalent, as follows:
  - 1. Single Door: Von Duprin Model ELRLX9947 Series electrified locking hardware assembly, 24VDC, with the following options:
    - a. Cylinder (coordinate keying with the OCFA),
    - b. Exterior trim (coordinate type and finish with the OCFA),
    - c. Exit request signal switch,
    - d. Latch bolt monitor,
    - e. Additional hardware as required to provide a complete electrically controlled emergency exiting system.
    - f. Provide electrified rim, Model 7500 mortise lock, surface or concealed rod type, as required by each specific door and frame.
    - g. Coordinate finish hardware, cylinder, trim, finish, and keying with the OCFA.
  - 2. Double Door: Von Duprin Model 99XX, locking hardware assembly, with the following options:
    - a. Surface or concealed rod,
    - b. Exterior trim (coordinate type and finish with the OCFA),
    - c. Exit request signal switch,

- d. Additional hardware as required to provide a complete emergency exiting system.
  - e. Coordinate finish hardware, trim and finish with the OCFA.
- C. Power Booster: Von Duprin Model PSB873-BK-F, or equivalent, mini-power booster, 24VDC, with battery back-up, key lock, and Fire Alarm input.
- 1. Provide Von Duprin Model 871-2 option to operate emergency exit hardware.
  - 2. Locate as recommended by the manufacturer

### **PART 3 - EXECUTION**

#### **3.01 GENERAL**

- A. The Contractor shall install system components and appurtenances in accordance with the manufacturer's instructions, and as shown. The Contractor shall furnish necessary interconnections, services, and adjustments required for a complete and operable system as specified and shown.
- B. Follow the General Requirements of Section 28 0000, Security General Requirements for equipment and services provided under this section. In addition, provide the following.
- C. Installation: The Contractor shall install the system in accordance with the standards for safety, NFPA 70, UL 681, UL 1037 and UL 1076, and the appropriate installation manual for each equipment type. Flexible cords or cord connections shall not be used to supply power to any components of the system, except where specifically noted. All other electrical work shall be as specified in Division 16, and as shown.

#### **3.02 SYSTEM CONFIGURATION**

- A. General: System configuration shall match existing system configuration based on the database conversion of the existing system. The information provide herein shall be for new doors and used as a guideline should there be any problems related to the database conversion.
- B. Portal Hardware
  - 1. Access Control and Lock Configuration
    - a. Secured Doors: Doors equipped with electric locks shall be individually programmed for locking according to time zones as designated by the Engineer. During programmed secure mode for a portal a valid credential presented at a reader will allow the portal to unlock for a programmed period of time.
    - b. Upon authorization by card reader or manual means, "door force" and "door held open" alarms associated with the portal shall be automatically bypassed (or masked) for a duration of time programmable on an individual door and individual cardholder basis.
    - c. Auto-Relock: The door shall re-lock immediately upon closing, after an

authorized access, and the bypass duration shall be immediately truncated. A magnetic contact will be required at every door for this purpose, and to sense the position of the door for "door forced" and "door held open" sensing.

- d. Free Egress Authorization: Unless otherwise shown on the plans or described herein, such as for anti-passback zones, the system shall detect the normal egress of a user at any individual portal and shall bypass any alarm associated with the portal for a duration of time programmable on an individual door and individual cardholder basis. Request-to-exit timing shall be independently programmed for each cardholder during the initial enrollment process. This function allows extended timing for persons carrying equipment to pass through certain portals. The timing function shall automatically truncate after an adjustable period (0 - 4 seconds) after a portal is closed. This feature allows a subsequent alarm at the portal to be detected, and prevents the portal from being re-opened without an authorized request.

C. Tamper Devices:

1. Terminal cabinets, equipment cabinets, enclosures, power supply cabinets, exposed wireways, and pull and junction boxes with wire connections or splices shall be equipped with tamper switches programmed to report an alarm.
2. Junction boxes requiring tamper switches that are associated with an individual alarmed device (such as a door position switch) may report to the respective device alarm point. Other cabinet and box tamper switches shall report as independent alarm points.
3. Power Supplies and Battery Chargers: Power supplies and battery chargers shall be connected to alarm monitoring points to provide an indication of tamper, power failure, battery disconnection, and charger trouble.

D. Graphical User Interface (GUI) Environment

1. General:
  - a. Contractor shall create maps, icons, menus, text, and other functions of the GUI, as noted herein, to incorporate elements and functionality of the project as specified and required by the Engineer.
  - b. The system monitor shall display color graphic maps, menus and real-time information in graphical image formats, as required by the Engineer and described herein. All viewing, menu and operating activity, including map "browse", "zoom", scrolling, output control, alarm acknowledgment and reset functions shall be operable by point-and-click interface with the mouse and by programmable "function keys" on the system keyboard.
  - c. Alternate Display and Control Techniques: Alternate map control and display techniques that provide the required functionality and information may be considered by the Engineer. Contractor shall submit a clearly delineated description of map display and control operation, demonstrate its use and effectiveness to the Engineer using a working copy of the software, and obtain approval from the Engineer before proceeding with the work.

2. Map Database: Contractor shall research (with the Engineer), design, develop and provide maps described herein in complete operating condition including graphic representations, icons, alarm and control interfaces.
  - a. Individual Site Plans: Individual site plan maps shall include the entire site perimeter showing buildings, vehicle and foot traffic features and street frontage. Individual site plans may contain multiple buildings. Large-scale maps shall have dynamic zoom or designated "hot spot" areas to allow the capability to zoom into an area down to 1/8" scale. Site plans shall have icons for exterior mounted devices and entry/exit portals.
  - b. Building Maps: Building Maps shall include the building footprint and surrounding areas, ground floor plan, a floor stacking plan (elevation) and stairwell risers. Building plans shall have icons for exterior mounted devices and entry/exit portals.
  - c. Floor Plan Maps (Where access control, alarm, or video security measures are deployed): Floor plan maps shall include rooms, corridors, elevators, door and room designations (number and usage), penetrable wall points, column supports, location of security control equipment and any other details necessary to clearly and completely depict the secured environment.
  - d. Individual site plans, building plans, and floor plan maps shall show text and icons for devices monitored and/or controlled by the security system.

### **3.03 INSTALLATION REQUIREMENTS**

- A. Contractor shall install software on a VMWare server provided by OCFA. This shall be a separate server from the existing server.
- B. The contractor shall coordinate installation to maintain the old system until all controllers are updated. The systems shall run in parallel to reduce downtime while existing controllers are updated to new controllers.
- C. The contractor shall copy the existing database and install on new server. The contractor shall update addresses of controllers and doors to match the new addressing scheme so that as the new controllers are installed to replace the existing controllers. Doors shall function the same as on the existing system.
- D. The contractor shall pre-configure and install the controllers, power supplies, and lock power supplies at their offices and pre-test before bringing to the site.
- E. The contractor shall do a site survey to verify which doors and their field devices are terminated at each controller port and/or input. Refer to EY430 series of drawings to identify expected reader/port terminations. The contractor shall provide cable labels for all cables as required in Section 28 0000, Article 3.07.
- F. Once all new controllers are installed and existing communication cable between controllers is no longer required the contractor shall removed the existing cable. No cables shall be abandoned in place. Coordinate with OCFA to identify site conduits and pull boxes where the existing cables are installed.

- G. Existing Data Cable Demo: This project will provide IP addressable controllers at each data room location. The current communications between controller location is via 20ma current loop. After the controllers are migrated to IP communications in all data rooms the contractor shall remove all existing data communications cables that are no longer required. Coordinate with OCFS for site conduit paths to remove the existing cables.
- H. Intercom Cables: The contractor shall remove the existing analog intercom cable to its respective IDF Roo. The contractor shall provide new data cable and coordinate with OCFA for termination of the cables to network termination points. The contractor shall connect the new video IP intercoms to the network and configure to work with the AMAG software. Configure and test the headsets at the workstations for communications to the intercom stations.

### **3.04 EQUIPMENT, RACK AND CONSOLE INSTALLATION**

- A. Mount equipment in rooms, consoles, equipment racks, and desktops in accordance with Section 28 0000, Security General Requirements.

### **3.05 GROUNDING PROCEDURES**

- A. Provide grounding of all systems and equipment in accordance with Section 28 0000, Security General Requirements.

### **3.06 WIRE AND CABLE INSTALLATION PRACTICES**

- A. Provide wire and cable installation in accordance with Section 28 0513, Security Conductors and Cables.

### **3.07 DATABASE PREPARATION, CHECKING AND ACTIVATION**

- A. Provide database preparation, checking and activation for systems and equipment in accordance with Section 28 0000, Security General Requirements.
- B. Research and Documentation
  - 1. The contractor shall print hardware and software reports from the existing system to identify current configuration
    - a. Hardware report should indicate number of panels, panel ID, number of readers connected and any additional connected devices such as door position switches (DPS), request-to-exit devices and any other devices. Note that the majority of doors only have readers and door locks configured.
    - b. User profiles including information related to access levels or similar information indicating which readers each user has permissions to access and time of day restrictions as well.
    - c. Reports including, but not limited to, time zones and reader groups used to create access levels to restrict which doors users are able to access.
    - d. Any other reports that provide configuration information needed to program the AMAG System.

2. Database Programming and/or Conversion
  - a. The contractor shall be responsible to configure the updated server database to provide access through reader-controlled doors consistent with the current configuration.
  - b. The contractor may convert the existing databases from the existing system or manually program the configuration settings. Database conversion shall require the contractor to work with AMAG Pro Services to ensure proper conversion of the database.
- C. In addition, provide the following:
  1. Required Graphical Maps: Contractor shall research (with the OCFA), develop and install property, building, floor plans, and other graphic maps with all icons and details necessary to clearly display all system information and functions, including but not limited to the information described herein. Contractor shall provide a complete and operating graphical environment for all EACS/VSS systems and subsystems.
  2. Required System Programming:
    - a. Contractor shall research with the Engineer, develop and install all executive and user software required for the final acceptance of the system as specified herein and on the drawings.
    - b. Contractor shall provide the Engineer with forms and instructions to facilitate the gathering and entry of user software data. Forms shall include but not be limited to information regarding cardholder data, access privileges, time schedules, portal groups, access groups, alarm points, tenant/elevator authorization, password protection levels, two-man and anti-passback locations.

### **3.08 START-UP RESPONSIBILITY**

- A. Provide start-up services for all systems and equipment in accordance with Section 28 0000, Security General Requirements.

### **3.09 SYSTEM PERFORMANCE TESTING AND ADJUSTING PROCEDURES**

- A. Provide Preliminary Testing, Inspection, Performance Verification Testing, Commissioning and Endurance Testing services for EACS systems and equipment in accordance with Article 3.12, Section 28 0000, Security General Requirements.
- B. Electronic Access Control System Testing
  1. Test and verify the normal operation of every alarm point in all four states at each controller. Test each alarm point for the alarm function by normal operation of the alarm point, i.e.: for a door position switch, open the door and so forth.
  2. Test and verify the operation of the Electronic Access Control System.

3. Test each door during its programmed secure time period to assure that it commands the lock to activate and permits access by valid credential within one second from presentation of the key.
4. Verify all egress systems on access-controlled doors work correctly.
5. Verify system integration schemes function automatically and correctly.
6. Verify all activity at Monitoring Stations functions correctly.

### **3.10 FINAL PROCEDURES**

- A. Perform final procedures in accordance with Section 28 0000, Security General Requirements.

**END OF SECTION**

**5D: SECTION 28 2300 VIDEO SURVEILLANCE SYSTEM**

## **SECTION 28 2300**

### **VIDEO SURVEILLANCE SYSTEM**

#### **PART 1 - GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. General: Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Special Provisions, apply to this section. Also provide the work in accordance with the Section 28 0000, Security General Requirements.

##### **1.02 DESCRIPTION**

- A. General Description: This specification section covers the furnishing and installation of a complete low-voltage Video Surveillance System (VSS).
- B. OCFA has an existing Pelco video system that is a combination of analog and digital components. This project shall replace all existing cameras with new cameras and provide a new VSS software platform that shall integrate t the existing AMAG Symmetry EACS software. All current video headend equipment shall be removed upon completion of the new system. The contractor shall also remove all existing coaxial cable for existing cameras and replace with new data cable.
- C. Contractor shall furnish and install all VSS security hardware devices, mounting brackets, power supplies, switches, controls, consoles and other components of the system as shown and specified.
- D. Furnish and install special boxes, cable, connectors, wiring, and other accessories necessary to complete the system installation. Requirements shall be in accordance with Division 26, Electrical.
- E. Outlets, junction boxes, pull boxes, conduit, connectors, wiring, and other accessories necessary to complete the system installation; will be provided by the Contractor, in accordance with Division 26, Electrical.
- F. General Conditions: Provide the work in accordance with Section 28 0000, Security General Requirements.

##### **1.03 RELATED WORK**

- A. Provide the work in accordance with Section 28 0000, Security General Requirements, "Related Work".

##### **1.04 SHOP DRAWINGS & EQUIPMENT SUBMITTAL**

- A. In accordance with Section 28 0000, Security General Requirements

**1.05 WARRANTY**

- A. In accordance with Section 28 0000, Security General Requirements

**1.06 QUALITY ASSURANCE**

- A. In accordance with Section 28 0000, Security General Requirements

**1.07 TECHNICAL REQUIREMENTS, VIDEO SURVEILLANCE SYSTEM (VSS)**

A. Purpose:

1. The VSS will provide staff with the means to monitor, record, and review activity at strategic areas of the facilities. Refer to section 28 0000 for included facilities.
2. The System will provide the ability to record images received from cameras located throughout the facility in a digital format and retrieve the recorded video information in random access mode based on parameters requested by the user.
3. The system will provide the ability to view cameras locally and provide the ability to view selected cameras in real-time at any workstation with installed software.

B. Environment

1. The system shall be installed in OCFA facilities as outlines in Section 28 0000, Article 1.05, Paragraph C. Refer to the drawings and Bid Instructions to determine the scope limitations for this phase of work.
2. Monitoring Posts:
  - a. Primary monitoring will be at the Lobby Desk. Provide a new workstation and client software at this location.
  - b. Administrative tasks shall be in Room AE204 in the Human Resources (HR) department. There is an existing workstation at this location.
3. Infrastructure and Connectivity:
  - a. Existing OCFA network infrastructure shall be utilized for this scope of work. The contractor shall coordinate with OCFA IT personnel for connections to patch panels for cable connection and IP addressing.
  - b. The video software shall be installed in a VMWare environment provided by OCFA.

C. Attributes

1. The system shall comprise IP video cameras and ancillary equipment assembled into a fully operating system as shown on the plans.
2. Field Components: Field Components shall comprise video cameras, positioning devices, lenses, camera mounts and housings and other video system devices and

wiring as described herein and shown on the drawings.

3. Headend Processing Equipment: The headend processing equipment (NVR) shall be located in the OFCA Data Center. The Contractor shall coordinate with OCFA to implement connection to the OCFA LAN.

D. Functions

1. The cameras signals shall be transmitted to the OCFA Data Center for control, monitoring, and recording.
2. Video Recording Protocols: The system shall be configured to record the cameras for a minimum of 30 days.
  - a. Recording Modes: The information listed below is a guideline for cameras not assigned a specific recording protocol. Cameras assigned specific recording protocols shall supersede the modes listed below. Camera resolution shall be set to highest possible for the camera installed unless otherwise noted.
    - 1) Time Lapse mode: 2 fps (frames per second) at normal compression (50) (CIF for conventional cameras and D1 for megapixel cameras)
    - 2) Normal Mode: 8 fps at high quality compression (70) at camera resolution as noted on the plan drawings.
    - 3) Near Real-Time Mode: 10 fps at high quality compression (70) at camera resolution as noted on the plan drawings.
    - 4) Real-Time Mode: 15 fps at high quality compression (70) at camera resolution as noted on the plan drawings.
    - 5) Alarm/Event Mode: 10 fps at high quality compression (70) at camera resolution as noted on the plan drawings.
    - 6) Critical Alarm Mode: 15 fps at high quality compression (70) at camera resolution as noted on the plan drawings.
    - 7) Motion Detection Mode: 8 fps at high quality compression (70) at camera resolution as noted on the plan drawings.
    - 8) Compression Setting: Compression settings vary by camera manufacturer. For this specification compression settings will be referenced from 10 (low quality) to 90 (high quality). Lower setting means smaller file size with poorer quality image. Higher setting means larger file size with higher quality image.
  - b. Recording Periods:
    - 1) Normal Business Hours: 6:00am to 7:00pm
    - 2) Off Normal Hours: 7:00pm to 6:00am
    - 3) 24-hour Mode
  - c. Initial recording protocol programming for buildings and exterior areas including parking lots:

- 1) Cameras shall be programmed for Normal Mode and shall record in 24-hour mode
3. Views shall be retrieved on a camera-by-camera basis, and the individual frames shall be connected, or “streamed”, to present a seamless series of frames for continuous viewing. When retrieving views recorded in “normal mode”, the system shall “hold” each frame for a sufficient period, to provide a smooth visual presentation to the user. Pictures may also be retrieved on a single-shot basis.
4. Storage Requirements:
  - a. Storage calculations shall be based on information provided in item Video Recording Protocols.
  - b. Storage calculations vary based on parameters including, but not limited to, frame rate, resolution, percent of activity within the scene, and bit rate. Frame rate and resolution are provided in the Video Recording protocol item. For the purpose of calculating storage requirements the following bit rates shall be used:
    - 1) 4 CIF – 512 Kbit/s
    - 2) 720p – 1 Mbit/s
    - 3) 1080p – 2 Mbit/s
    - 4) 1440p/2160p – 4 Mbit/s
  - c. Storage requirements: The NVR shall provide a minimum of 30 days of storage
5. Video Object Processing
  - a. The system shall be capable of advanced video processing to determine alert conditions under a number of scenarios.
  - b. Motion Detection: Motion of a person within a specified area of view and at a specified movement rate shall cause an alarm. The motion detection area shall be user definable as to size, shape and location within the overall image area. The system shall be capable of discrimination to ignore small, fast-moving objects such as birds, and large slow-moving objects such as clouds, cloud shadows and the like in order to focus on objects behaving more like human motion.
    - 1) Coordinate with OCFA to determine motion detection areas for each camera.
6. Video Loss/Video Snow Detection: The system shall detect the loss of image, or loss of usable image, which could comprise snow, a painted lens or any other technical problem. Any video loss shall be reported to the operator workstations, pinpointing the specific camera and appearing as an alarm icon on the graphical alarm map.
7. Camera Identification: Camera identifications shall be in white lettering with black letter borders. All camera displays shall carry an English language description of the camera location. Contractor shall configure the system so that only one camera

identifier appears on recorded and displayed views at any given time.

## **PART 2 - PRODUCTS**

### **2.01 GENERAL**

- A. **Product Acceptability:** The Products section contains lists of products capable of performing the specified functions. The Contractor is responsible to verify the manufacturer of the product they select can perform the specified functions. If product substitutions are proposed, they must be made based upon a comparison of equivalence to the product specified and the functions listed in the specifications. Considerations may include but shall not be limited to functional, physical, aesthetic and/or interface aspects. The Owner shall be the sole judge of whether or not a submitted substitution is deemed to be "equivalent" to that specified. A video comparison under actual conditions may be required for cameras proposed as substitutes as a result of technical specifications for cameras not accurately depicting camera performance.

### **2.02 NETWORK VIDEO SERVER/RECORDER**

- A. Provided by OCFA

### **2.03 SOFTWARE**

- A. **General:** The VSS shall operate on the AMAG Symmetry CompleteView platform and be integrated to the Symmetry EACS software to provide EACS and VSS system management through the same operator interface.
- B. **Management Server Software**
  - 1. **Management Server Software:** Provide AMAG SPCVSW-PRO-IP Symmetry CompleteView Pro. Provide a minimum of 43 camera licenses.
  - 2. **Service Maintenance Agreement (Updates):** Provide AMAG SCVSW-SMA-PRO software update and support for each installed camera (43)
- C. **Alt Bid #1- Failover Management Server Software**
  - 1. **Failover Management Software:** Provide AMAG SPCVSW-ENT-IP Symmetry CompleteView Enterprise IP camera license for 43 cameras.
  - 2. **Service Maintenance Agreement (Updates):** Provide AMAG SCVSW-SMA-ENT software update and support for each installed camera (43)

### **2.04 VIDEO CAMERAS:**

- A. **General Requirements:**
  - 1. The camera shall be of manufacturer's official product line, designed for

commercial/industrial 24/7/365 use.

2. The camera shall be based upon standard components and proven technology using open and published protocols.

**B. Technical Requirements:**

1. Video Standard for Standard Definition (SD), High Definition (HD), Super High Definition (SHD) and Ultra High Definition (UHD)
  - a. SD – 800 x 600 pixels
  - b. HD - SMPTE 296M (HDTV 720p)
  - c. SHD - SMPTE 274M (HDTV 1080p)
  - d. UHD – SMPTE ST 2036 (HDTV 2160p)
2. MPEG-4:
  - a. ISO/IEC 14496-10 AVC (H.264)
3. Networking:
  - a. IEEE 802.3af (Power over Ethernet)
  - b. IEEE 802.1X (Authentication)
  - c. IPv4 (RFC 791)
  - d. IPv6 (RFC 2460)
  - e. QoS – DiffServ (RFC 2475)
4. Network Video:
  - a. ONVIF Profile S or ONVIF Version 1.01 or higher as defined by the ONVIF organization
5. Mechanical:
  - a. IEC 62262 Class IK10 (Impact resistance)

**C. Functions**

1. Be capable of providing video streams at camera rated resolution at 30 frames per second using H.264, MPEG4 or Motion JPEG
  - a. SD – 800 x 600 pixels
  - b. HD – 1280 x 720 pixels (720p)
  - c. SHD – 1920 x 1080 pixels (1080p)
  - d. EHD – 2560 x 1440 pixels (1440p)
  - e. UHD – 3640 x 2160 pixels (2160p)
2. Be equipped with Day/Night functionality and remote zoom and focus capabilities.

3. Operate on an open source; Linux-based platform, and including a built-in web server.
4. Be manufactured with an all-metal vandal resistant body.
5. Use a high-quality IR-sensitive progressive scan megapixel sensor.
6. Be equipped with a removable IR-cut filter, providing so-called day/night functionality.
7. Be equipped with a high-quality varifocal lens with automated iris functionality, providing remote zoom and focus functionality.
8. Provide pictures down to 0.5 lux while in day mode (with IR-filter in use) and down to 0.08 lux while in night mode (with IR-filter removed).
9. Support memory expansion by providing an available SD/SDHC card slot.
10. Support operation between -40 to +55°C (-40 to +131°F) and be both IP66 and NEMA 4X-rated.
11. Video Resolution; Camera shall support at a minimum the following resolutions:
  - a. CIF – 320x240
  - b. 2 CIF – 640x240 or 704x240
  - c. 4 CIF – 640x480 or 704x480
  - d. SD – 800x600
  - e. HD – 1280x720 (not required for SD)
  - f. SHD – 1920x1080 (not required for SD or HD)
  - g. EHD – 2560x1440 (not required for SD, HD, or SHD)
  - h. UHD – 3640x2160 (not required for SD, HD, SHD, or EHD)
12. Encoding
  - a. Support Motion JPEG encoding in a selectable range from 1 up to 30 frames per second in all resolutions up to HDTV 2160p.
  - b. Support H.264 and H.265 encoding in a selectable range from 1 up to 30 frames per second in all resolutions up to HDTV 2160p.
  - c. Be able to provide independently configured simultaneous H.264 and Motion JPEG streams.
  - d. Support both Constant Bit Rate (CBR) and Variable Bit Rate (VBR) in H.264.
  - e. Provide configurable compression levels.
  - f. Support motion estimation in H.264.
  - g. Support standard baseline profile H.264 with motion estimation.
13. Transmission
  - a. HTTP (Unicast)
  - b. HTTPS (Unicast)

- c. RTP (Unicast & Multicast)
- d. RTP over RTSP (Unicast)
- e. RTP over RTSP over HTTP (Unicast)
- f. Camera shall support Quality of Service (QoS) to allow prioritization of traffic

14. Image Control

- a. The camera shall incorporate Automatic and Manual White Balance and an electronic shutter operating in the range 1/6 and 1/35.500 second.
- b. The camera shall provide Wide Dynamic Range and backlight compensation with automatic and definable exposure zones.

15. Web Server

- a. The camera shall contain a built-in web server making video and configuration available to multiple clients in a standard operating system and browser environment using HTTP, without the need for additional software.
- b. Optional components downloaded from the camera for specific tasks, e.g., Active X, shall be signed by an organization providing digital trust services, such as VeriSign, Inc.

16. IP Addressing

- a. The camera shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.
- b. The camera shall allow for automatic detection of the Camera based on UPnP and Bonjour when using a PC with an operating system supporting this feature.
- c. The camera shall provide support for both IPv4 and IPv6.

17. Events

- a. The camera shall be equipped with an integrated event functionality, which can be triggered by:
  - 1) External input
  - 2) Video Motion Detection
  - 3) Audio Detection
  - 4) Schedule
  - 5) Camera tampering
  - 6) Local storage full
- b. Response to triggers shall include:
  - 1) Notification, using TCP, SMTP or HTTP
  - 2) Image upload, using FTP, SMTP or HTTP
  - 3) Activating external output
  - 4) Recording to local storage

- c. The camera shall provide memory for pre & post alarm recordings.
- d. Event functions shall be configurable via the web interface.

18. Protocol Support

- a. The camera shall incorporate support for at least IP, HTTP, HTTPS, SSL/TLS, TCP, ICMP, SNMPv1/v2c/v3 (MIB-II), RTSP, RTP, UDP, IGMP, RTCP, SMTP, FTP, DHCP, UPnP, ARP, DNS, DynDNS, SOCKS, NTP and Bonjour.
- b. The SMTP implementation shall include support for SMTP authentication.

19. Text Overlay

- a. Provide embedded on-screen text with support for date & time, and a customer-specific text, camera name, of at least 45 ASCII characters.
- b. To ensure accuracy, the camera shall accept external time synchronization from an NTP (Network Time Protocol) server.
- c. Provide the ability to apply a privacy mask to the image.
- d. Allow for the overlay of a graphical image, such as a logotype, into the image.

20. Multi-streaming

- a. The camera shall be capable of a minimum of 6 configurable video streams
- b. The camera shall be capable of providing a stream for live viewing of 15 fps at full resolution independent of any stream configuration used for recording.

21. Security

- a. Support the use of HTTPS and SSL/TLS, providing the ability to upload signed certificates to encrypt and secure authentication and communication of both administration data and video streams.
- b. Support IEEE 802.1X authentication.
- c. Provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.
- d. Restrict access to the built-in web server by usernames and passwords at three different levels.

22. API Support

- a. The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.
- b. The camera shall conform to the network video standard as defined by the ONVIF organization.

23. Installation Maintenance

- a. Be supplied with Windows-based management software which allows the assignment of IP addresses, upgrade of firmware and backup of the Cameras'

configuration.

- b. Support the use of SNMP-based management tools according to SNMP v1, 2c & 3 / MIB-II.
- c. Allow updates of the software (firmware) over the network, using FTP or HTTP.
- d. Provide the ability to apply a rectangle of customer-defined number of pixels to the image, which can be used as a pixel counter identifying the size of objects in number of pixels.
- e. All customer-specific settings shall be stored in a non-volatile memory and shall not be lost during power cuts or soft reset.

**24. User Logs**

- a. Provide a log file, containing information about the 250 latest connections and access attempts since the unit's latest restart. The file shall include information about the connecting IP addresses and the time of connecting.
- b. Provide a connection list of all currently connected viewers. The file shall include information about connecting IP address, time of connecting and the type of stream accessed.

**25. Diagnostics**

- a. Be equipped with LEDs, capable of providing visible status information. LEDs shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.
- b. Be monitored by a Watchdog functionality, which shall automatically re-initiate processes or restart the unit if a malfunction is detected.

**26. Connectors**

- a. Input/outputs: The camera shall be equipped with one digital (alarm) input and one digital output, accessible via a removable terminal block. This input shall be configurable to respond to normally open (NO) or normally closed (NC) dry contacts.
- b. Audio: The camera shall be equipped with one 3.5 mm jack for line/microphone input and one 3.5 mm jack for line output.
- c. Network: The camera shall be equipped with one 100BASE-TX Fast Ethernet-port, using a standard RJ-45 socket and shall support auto negotiation of network speed (100 MBit/s and 10 MBit/s) and transfer mode (full and half duplex).

**27. Construction**

- a. Manufactured with an all-metal vandal resistant body providing encapsulated electronics
- b. Clear and smoked transparent cover
- c. IP66-rating
- d. NEMA 4X-rating

- e. Impact resistance of 2200lbs / 1000kg according to IK10
- f. Thermostat, heater and fan inside the enclosure
- g. Fitted with a dehumidifying membrane
- h. Removable weather shield
- i. The camera enclosure shall provide the ability to adjust the camera modules angle with at least  $\pm 180^\circ$  horizontal,  $\pm 85^\circ$  vertical and  $\pm 170^\circ$  rotation while maintaining an image that is not interfered with by the camera housing.

28. Power

- a. Power over Ethernet according to IEEE 802.3af - Class 3
- b. 24 VAC from Camera Power Supply

29. Environmental

- a. Operate in a temperature range of  $-40^\circ\text{C}$  to  $+55^\circ\text{C}$  ( $-40^\circ\text{F}$  to  $+131^\circ\text{F}$ ).
- b. Operate in a humidity range of 15–100% RH (condensing).

D. Camera Types

- 1. Five possible camera types are identified in the specifications and drawings
  - a. SD – Standard Definition comprising 800x600 pixel image
  - b. HD – High Definition comprising 1280x720 pixel image
  - c. SHD – Super High Definition comprising 1920x1080 pixel image
  - d. EHD – Extended High Definition comprising 2560x1440 pixel image
  - e. UHD – Ultra High Definition comprising 3640x2160 pixel image

E. Acceptable Cameras

- 1. SHD Indoor Dome: Axis P3245-LV, Samsung XND-6080RV, or equal
- 2. EHD Outdoor Dome: Axis P3247-LVE, Samsung XNV-8080R or equal
- 3. UHD Outdoor Dome Camera: Axis Model P3248-LVE, Samsung PNV-A9081R, or equal.
- 4. EHD Outdoor Multi-imager Camera: Axis Model P3719-PLE, Samsung Model PNM-9081VQ, or equal.
- 5. EHD Indoor/Outdoor 180° Multi-imager stitched view camera: Axis Model P3807-PVE, Samsung Model PNM-9031RV, or equal

F. Camera Lenses

- 1. Provide varifocal lens compatible with selected camera to cover the field-of-view as indicated on the plan drawings.
- 2. Provision for lens changes: Contractor shall include provision and installation of one

(1) lens change per camera where necessary to provide acceptable viewing performance. Exchanged lenses shall remain the property of the Contractor.

3. Contractor shall field verify each location and coordinate field-of-view requirements with Owner and Consultant of Record before ordering camera/lens combination. Contractor shall be responsible to select proper camera/lens combination to provide the field-of-view as shown on the drawings.
4. Some configuration of dome camera and lens combinations may not meet field-of-view requirements as indicated on the plan drawings. Where this occurs notify the Owner and Consultant of Record to coordinate acceptable alternative.

**G. Camera Enclosure Mounting Hardware**

1. Provision for mounting hardware: The Contractor shall include provision and installation of miscellaneous hardware and mounting extensions at each camera location to provide acceptable viewing performance.
2. Ancillary Hardware shall be provided by the Contractor, if required, and shall be compatible with and comparable in strength to other attached hardware.

**PART 3 - EXECUTION**

**3.01 GENERAL**

- A. In accordance with Section 28 0000, Security General Requirements

**3.02 SYSTEM CONFIGURATION**

- A. Camera recording and display configurations shall be arranged via a combination of the VSS Server, Network Video recorder, Video Monitoring Workstations, and LAN/WAN network.
- B. Contractor shall coordinate with City of Orange to determine the required pre-programmed surveillance and event-initiated configurations.
- C. Contractor shall program the motion detection zones for each camera in coordination with City of Orange and the Consultant of Record.
- D. The Contractor shall coordinate with City of Orange Information Services Department to change the User Name and Password for each camera before final testing of the system.

**3.03 INSTALLATION**

- A. Contractor shall install the software on the OCFA provide VMWare servers prior to starting the replacement of existing cameras.
- B. The contractor shall install all new cameras and make them operation before start replacement of existing cameras.

- C. Existing site cameras and interior cameras are analog cameras utilizing coax cable.
  - 1. For interior camera the contractor shall install new data cable to the existing camera location and terminate the cable. Once the cable is terminated the contractor shall remove the existing camera and install the new camera and make it operational. When the camera is operational the contractor shall remove the existing coax cable and dispose of cable per all county requirements.
  - 2. For exterior cameras the contractor shall remove the existing coax cable and use to install a new pull line for install new data cable. The existing coax cable shall be removed first to the data room it is routed to and the new data cable will be installed and terminated in the data room. Refer to drawing single line diagrams for termination locations. When the new cable is installed and terminated the contractor shall replace the existing camera with a new camera per specified requirements. And make operational. When all exterior cameras are operational the contractor shall remove all remaining coax cable. All coax cable route back to Building B main data room. The contractor shall coordinate with OCFA personnel to identify site pull boxes and cable routes required to remove the existing cable.
- D. System Integration: The contractor shall program the EACS and VSS so that any door within view of a camera shall automatically call up the camera viewing the door and display on the video monitor. The contractor shall coordinate with OCFA for all integration programming requirements.

### **3.04 EQUIPMENT, RACK AND CONSOLE INSTALLATION**

- A. In accordance with Section 28 0000, Security General Requirements

### **3.05 GROUNDING PROCEDURES**

- A. Provide grounding of all systems and equipment in accordance with Section 28 0000, Security General Requirements.

### **3.06 WIRE AND CABLE INSTALLATION PRACTICES**

- A. Provide wire and cable installation in accordance with Section 28 0000, Security General Requirements, Section 28 0513, Security Conductors and Cable and Section 27 1000, Structured Cabling System.

### **3.07 DATABASE PREPARATION, CHECKING, AND ACTIVATION**

- A. Provide database preparation, checking and activation for systems and equipment in accordance with Security General Requirements, Section 28 0000.

### **3.08 START-UP RESPONSIBILITY**

- A. Provide start-up services for all systems and equipment in accordance with Security General Requirements, Section 28 0000.

### **3.09 SYSTEM PERFORMANCE TESTING AND ADJUSTING PROCEDURES**

- A. Provide performance testing and adjusting of all systems and equipment in accordance with Section 28 0000, Security General Requirements.
- B. VSS Performance Testing
  - 1. Demonstrate acceptable picture quality and camera views for each camera.
  - 2. Demonstrate acceptable picture quality on each video monitoring workstation, and display devices accessible over the LAN.
  - 3. Demonstrate switching, recording and playback functions for the video server, network video recorders, and digital video recorders.
  - 4. Ensure primary views are acceptable. Demonstrate the view obtained by each pre-programmed camera position.
  - 5. Demonstrate retrieval and playback of recorded video from each site.
  - 6. Demonstrate camera motion detection function and areas of detection and associated camera recording protocol change upon motion activation.

### **3.10 FINAL PROCEDURES**

- A. Perform final procedures in accordance with Section 28 0000, Security General Requirements.

**END OF SECTION**

**5E: PROJECT DRAWINGS – TRIAD CONSULTING SYSTEM DESIGN GROUP**



TRIAD CONSULTING  
SYSTEM DESIGN GROUP

Issue	Description	Date
	600 000	1/1/2025

[illegible]


[illegible]

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**SENSITIVE  
SECURITY**

## SECURITY INFORMATION

Real Title

**COVER SHEET**

NOTES, SYMBOLS,  
AND ABBREVIATIONSDesigned By \_\_\_\_\_ **DAL**

\_\_\_\_\_  
 Checked by \_\_\_\_\_

Agent number 191916  
 Name JOE MOTTEN

12/6/2019

**EY001**

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\_\_\_\_\_

SYMBOL	DESCRIPTION	REMARKS	ROUGH-IN	MOUNTING
	Surface Mounted Pull Box	-----	As Required	-----
	Flush Mounted Pull Box	-----	As Required	-----
	Surface Mounted STC	Refer To Specifications	As Required	Refer to Details
	Flush Mounted STC	Refer To Specifications	As Required	Refer to Details
	Security Pulbox	8"x8"x4" UGN	As Required	AFC to Plumber Area
	Rear Mounted Equipment Rack	Refer To Specifications	-----	Rear Mounted Earthquake Failure
-----	Consult	-----	As Required	-----
-----	Consult, Concealed	-----	As Required	-----
-----	352 Plenum Cable Run	-----	As Required	As Required
-----	EACS Plenum Cable Run	-----	As Required	As Required
-----	Consult: Hammer, To indicated location	-----	As Required	As Required
	Flexible Conduit Connection	-----	-----	-----
-----	Existing Conduit, to be treated	-----	-----	-----
	Conduit turned up	-----	-----	-----
	Conduit turned down	-----	-----	-----
	Conduit stub-out with finished floor slope	-----	-----	-----
	Patch Point	Refer to Specifications	-----	-----
	Patch Point	-----	-----	-----
	20 VAC Receptacle	Shown for Reference	-----	-----
	Wall or Deck Mounted	Refer To Specifications	See Details	See Details
	Refer to note schedule on sheet as indicated	-----	-----	-----
	Refer to detail as indicated	-----	-----	-----
	Refer to elevation detail on sheet as indicated	-----	-----	-----
	Refer to section detail on sheet as indicated	-----	-----	-----
	Mismatch on drawing matches another point bearing same label(s)	-----	-----	-----
	Multi-Device Camera	-----	Refer to Details	Refer to Details
	Multi-Device Camera, See XXX	-----	Refer to Details	Refer to Details
	Multi-Device, Multi-Device Camera, X-N or Y	-----	As Required	As Required
	Wall/Section Mounted Reader	-----	As Required	As Required

DESIGNATES DIRECTION OF SECURED TRAVEL

SECURE SIDE

PORTAL DESIGNATION NUMBER  
REFER TO TPOD SERIES DRAWINGS  
FOR DETAILS

SPR  
XXXX

PORTAL NUMBER  
DESIGNATION

PUBLIC/UNSECURED  
SIDE

XX	DESCRIPTION	Y	MODE
SHD	SUPER HIGH DEFINITION - 1920X1080 PIXELS	5	SURVEILLANCE MODE - 20 PIXEL/FT
END	EXTENDED HIGH DEFINITION - 2560X1440 PIXELS	7	FORENSIC MODE - 40 PIXEL/FT
UHD	ULTRA HIGH DEFINITION - 3840X2160 PIXELS		
		Z	VIEWING ANGLE
		38	35° VERTICAL VIEWING ANGLE
		90	90° VERTICAL VIEWING ANGLE

AC	ALTERNATING CURRENT POWER CONNECTION	OCFA	ORANGE COUNTY FIRE AUTHORITY
A.F.C.	ABOVE FINISHED CEILING	OPP	OPPOSITE
A.F.F.	ABOVE FINISHED FLOOR	R	READER
A.F.G.	ABOVE FINISHED GRADE	REQ'D	REQUIRED
B.F.C.	BELOW FINISHED CEILING	REQ	REQUEST-TO-EXIT
B.F.G.	BELOW FINISHED GRADE	RK	RENDER/KESTAP
CE	COMMUNICATIONS EQUIPMENT CABINET	RES	RESIDE / RESIDENT
CHTR	CONTROLLER (ACCESS CONTROL SYSTEM)	SH	SHALL
CPU	CAMERA POWER SUPPLY	SP	SESSION INITIATION PROTOCOL
CPU	CENTRAL PROCESSING UNIT	SPB	SECURITY PULLBOX
D	DURABLE (PERSONAL ASSIST) SWITCH	STC	SECURITY TERMINAL CAMERA
DB	DOOR POSITION SWITCH	TBB	TELEPHONE BACKBOARD
EACS	ELECTRONIC ADDRESS CONTROL SYSTEM	TP	TYPE
EC	ELECTRICAL CONTRACTOR	TX	TRANSMIT / TRANSMITTER
ELC	ELEVATOR CONTRACTOR	UN	UNLESS OTHERWISE NOTED
EXT	EXTERNAL	V	VIDEO MONITOR
F.O.	FIBER OPTIC	VAC	VOLTS ALTERNATING CURRENT
GC	GENERAL CONTRACTOR	VC-X	VIDEO CAMERA (X = NUMBER)
GND	GROUNDING	VDC	VOLTS DIRECT CURRENT
GO	GATE OPERATOR	VHE	VIDEO HEADEND
IC	INTERCOM FIELD STATION	VKB	VIDEO KEYBOARD
ICS	INTERCOM SYSTEM	WC	HANDICAP CARD OPERATOR
J	JUNCTION BOX	W	WITH
LAN	LOCAL AREA NETWORK	W/O	WITHOUT
LPS	LOCAL POWER SUPPLY	WP	WEATHER PROOF
M	MOTION DETECTOR	XTMR	TRANSFER
MFG	MANUFACTURER	XLTR	CONTRACTOR TRANSLATOR
N/A	NOT APPLICABLE	[ ]	EXISTING, TO BE REMAIN
NC	NORMALLY CLOSED	[ ]	FUTURE
NO	NORMALLY OPEN	[N]	NEW
NIC	NOT IN CONTRACT	[X]	EXISTING, TO BE REMOVED AND REPLACED, AS SPECIFIED
NLS	NOT TO SCALE	[X]	EXISTING, TO BE REMOVED

[illegible]

- 1. ALL CONDUIT CONNECTIONS SHALL INCLUDE INSULATION, PROTECTIVE BOOTINGS OR CHASE IMPLER.
- 2. ALL CONDUIT FOR FUTURE USE SHALL BE FILLED WITH 200 MESH STRAINING PLAST PLUG. PROVIDE 1/2" MIN. GAP BETWEEN EACH CONDUIT AND THE WALL TO ALLOW FOR FUTURE CONDUIT.
- 3. CONDUITS SHALL BE CONVEALED WHOMEVER POSSIBLE SURFACE MOUNTING SHALL BE PERMISSIBLE WHERE APPROPRIATE. USE ONLY CONCEALED CONDUITS WITH FINISHED SPACES. THE ABOVE REQUIREMENTS APPLY TO ALL CONDUITS. "SEE" ADDITIONAL REQUIREMENTS FROM THE OWNER FOR EACH AREA WHERE SURFACE CONDUIT IS NECESSARY.
- 4. PLUMBING CABLE WITH CABLE SUPPORTS MAY BE USED ABOVE FINISHED CEILING AREA. REFER TO SPECIFICATION SECTION 28 0113 FOR CABLE INSTALLATION REQUIREMENTS.
- 5. ALL J-BOXES SHALL BE MINIMUM 4 INCHES MIGHT DEEP STYLE AND SIZE AS REQUIRED TO ACCOMMODATE CONDUITS UNLESS OTHERWISE NOTED. PROVIDE SIGHTING RINGS AS NOTED ON SYMBOL. PROVIDE SIGHTING RINGS, BUSHINGS, AND PLUGS TO PROTECT CONDUITS FROM DAMAGE. PROVIDE PERMANENT MARKINGS ON CONCEALED J-BOXES, I.E. (SEE SECURITY FIRE ALARM ETC.)
- 6. ALL EXPOSED BOXES AND CABLES SHALL BE ON OR EXTERIOR WALLS SHALL BE WEATHERPROOF AND PAINTED.
- 7. ALL CONDUIT SHALL BE 3/4" ECT UNLESS OTHERWISE NOTED.
- 8. USE EXISTING 120VAC CIRCUITS TO POWER NEW CONTROLLERS, VENTILATORS, LIGHTS ON EXISTING CIRCUITS BEFORE CONNECTING NEW LINES. COORDINATE WITH OWNER IF ADDITIONAL CIRCUITS ARE REQUIRED.

SHEET	DESCRIPTION
EY000	TITLE SHEET - SYMBOLS AND GENERAL NOTES
EY010	DOOR SCHEDULES - 1
EY011	DOOR SCHEDULES - 2
EY012	DOOR SCHEDULES - 3
EY100.1	SITE PLAN SECURITY PLAN
EY100.2	SITE PLAN CAMERA FIELD OF VIEWS
EY101.1	BUILDING A FIRST FLOOR NORTH ENTRY SECURITY PLAN
EY101.2	BUILDING A FIRST FLOOR NORTH ENTRY CAMERA FIELD OF VIEWS
EY102.1	BUILDING A FIRST FLOOR EAST WING NORTH SECURITY PLAN
EY102.2	BUILDING A FIRST FLOOR EAST WING NORTH CAMERA FIELD OF VIEWS
EY103	BUILDING A FIRST FLOOR EAST WING SOUTH SECURITY PLAN
EY104	BUILDING A FIRST FLOOR WEST WING NORTH SECURITY PLAN
EY105	BUILDING A FIRST FLOOR WEST WING SOUTH SECURITY PLAN
EY106.1	BUILDING A SECOND FLOOR NORTH ENTRY SECURITY PLAN
EY106.2	BUILDING A SECOND FLOOR NORTH ENTRY CAMERA FIELD OF VIEWS
EY107.1	BUILDING A SECOND FLOOR EAST WING NORTH SECURITY PLAN
EY107.2	BUILDING A SECOND FLOOR EAST WING NORTH CAMERA FIELD OF VIEWS
EY108	BUILDING A SECOND FLOOR EAST WING SOUTH SECURITY PLAN
EY109.1	BUILDING A SECOND FLOOR WEST WING NORTH SECURITY PLAN
EY109.2	BUILDING A SECOND FLOOR WEST WING NORTH CAMERA FIELD OF VIEWS
EY110	BUILDING A SECOND FLOOR WEST WING SOUTH SECURITY PLAN
EY111.1	BUILDING B FIRST FLOOR SECURITY PLAN
EY111.2	BUILDING B FIRST FLOOR CAMERA FIELD OF VIEWS
EY112.1	BUILDING B SECOND FLOOR SECURITY PLAN
EY112.2	BUILDING B SECOND FLOOR CAMERA FIELD OF VIEWS
EY113.1	BUILDING C FIRST FLOOR SOUTH ENTRY SECURITY PLAN
EY113.2	BUILDING C FIRST FLOOR SOUTH ENTRY CAMERA FIELD OF VIEWS
EY114	BUILDING C FIRST FLOOR EAST WING SOUTH SECURITY PLAN
EY115	BUILDING C FIRST FLOOR EAST WING SOUTH SECURITY PLAN
EY116	BUILDING C FIRST FLOOR WEST WING SOUTH SECURITY PLAN
EY117	NOT USED
EY118	BUILDING A SECOND FLOOR SOUTH ENTRY SECURITY PLAN
EY119	BUILDING D FIRST FLOOR SECURITY PLAN
EY300	GATE EXPANDED VIEWS
EY900	DOOR DETAILS - 1
EY901	DOOR DETAILS - 2
EY910	CAMERA DETAILS - 1
EY911	CAMERA DETAILS - 2
EY920	WIRING DIAGRAMS
EY940	EQUIPMENT RACK ELEVATIONS
EY941	PANEL AND CONTROLLER LAYOUT OF ROOM AC118
EY942	PANEL AND CONTROLLER LAYOUT OF ROOM AC110
EY943	PANEL AND CONTROLLER LAYOUT OF ROOM AC211
EY944	PANEL AND CONTROLLER LAYOUT OF ROOM AC231
EY945	PANEL AND CONTROLLER LAYOUT OF ROOM B127
EY946	PANEL AND CONTROLLER LAYOUT OF ROOM B234
EY947	PANEL AND CONTROLLER LAYOUT OF ROOM C5108
EY948	PANEL AND CONTROLLER LAYOUT OF ROOM CS202
EY949	PANEL AND CONTROLLER LAYOUT OF ROOM C9128
EY950	PANEL AND CONTROLLER LAYOUT OF ROOM D113
EY951	READER CONTROLLER PORT TERMINATIONS OF ROOM AC118
EY952	READER CONTROLLER PORT TERMINATIONS OF ROOM AC110
EY953	READER CONTROLLER PORT TERMINATIONS OF ROOM AC211
EY954	READER CONTROLLER PORT TERMINATIONS OF ROOM AC231
EY955	READER CONTROLLER PORT TERMINATIONS OF ROOM B127
EY956	READER CONTROLLER PORT TERMINATIONS OF ROOM B234
EY957	READER CONTROLLER PORT TERMINATIONS OF ROOM C5108
EY958	READER CONTROLLER PORT TERMINATIONS OF ROOM CS202
EY959	READER CONTROLLER PORT TERMINATIONS OF ROOM C9128
EY960	READER CONTROLLER PORT TERMINATIONS OF ROOM D113
EY900	SINGLE LINE DIAGRAM - 1
EY901	SINGLE LINE DIAGRAM - 2

**EY001**







OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY,  
IRVINE, CA 92602

[illegible]

SENSITIVE  
SECURITY  
INFORMATION

DOOR SCHEDULES-3

Drawn by	DAL
Designed by	DAS
Checked by	DAS
Project number	SPSP6
Scale	AS NOTED
Date	06/24/2011
Sheet / total	

EY012

SECURITY DOOR HARDWARE SCHEDULE																													
PKG	DWG#	BLDG	FLR	SHEET	CHAIN	NODE	IDF RM	ADDRESS	DESCRIPTION (AMAG)	DOOR ID	SP TYPE	FRAME		DOOR		ALARM		READER		MOUNTING		LOCK		WIRE		GATES		EXIT DEV	
												FILLED FRAME	PRE RATED	HOLLOW METAL	WOOD	STEEL CORE	STORE FRONT	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS	GLASS
4	ES-2.01	C	1	EY113	LAN1	9	CS108	306S5033	CS101A BLDG C FRONT DOOR	CS101A				X		X													
4	ES-2.01	C	1	EY113	LAN1	9	CS108	306S5034	CS102 PURCHASING	CS102					X		X												
4	ES-2.04	C	1	EY113	LAN1	8	CS108	306T7103	CS126PREP EVIDENCE ROOM	CS127					X		X												
4	ES-2.01	C	1	EY113	LAN1	10	CS108	3073352	C EAST HALL ENTRY TO MUSEUM	N/A			X				1	E		R	X								
4	ES-2.01	C	1	EY114	LAN1	10	CS108	3073301	1ST FLR NEAR ENTRY	CS117			X				1	E		R	X								
4	ES-2.02	C	1	EY114	LAN1	8	CS108	30571801	CE108 COMM SERVICE STORAGE	CE108B			X				1	E		R	X								
4	ES-2.02	C	1	EY114	LAN1	8	CS108	30571802	CE102 COMM RADIO LAB	CE102				X			1	E		R	X								
4	ES-2.02	C	1	EY114	LAN1	9	CS108	306S5104	CE104B AUTOMOTIVE ENTRY	CE104B			X				E			R	X								
4	ES-2.02	C	1	EY114	LAN1	9	CS108	306S5101	CE142A IT WORKSHOP	CE142A							1	E		R	X								
4	ES-2.02	C	1	EY114	LAN1	9	CS108	306S5102	CE123A AUTO PARTS OFFICE	CE123A			X				X			R	X								
4	ES-2.03	C	1	EY115	LAN1	9	CS108	306S5103	CE127B AUTO ENTWINDING SHOP	CE127B			X				1	E		R	X								
4	ES-2.04	C	1	EY116	LAN1	9	CS108	30571804	CS131 STAIR 2	CS131							X			R	X								
4	ES-2.04	C	1	EY116	LAN1	9	CS108	306S5001	OW103 SERV CENTER ENTRY	OW103B			X				1	E		R	X								
4	ES-2.04	C	1	EY116	LAN1	9	CS108	306S5302	OW153 SERV CENTER SUPPLIES	OW153			X				X			R	X								
4	ES-2.04	C	1	EY116	LAN1	9	CS108	30571803	EVIDENCE ROOM (OUTSIDE)	CS126			X				1	E		R	X								
SECOND FLOOR																													
4	ES-2.06	C	2	EY118	LAN1	10	CS202	30731601	CS221 COMM SERVICES	CS221					X		X			1	E								
4	ES-2.06	C	2	EY118	LAN1	10	CS202	30731602	CS225 PROPERTY MGMT	CS225					X		X			1	E								
4	ES-2.06	C	2	EY118	LAN1	10	CS202	30731603	CS207 FUJET MGMT	CS207				X			X			1	E								
4	ES-2.06	C	2	EY118	LAN1	10	CS202	30731604	CS210A STORAGE ROOM	CS210A				X			X			R	X								
4	ES-2.06	C	2	EY118	LAN1	10	CS202	30731604	CS206 STORAGE ROOM	CS206					X		X			R	X								
BUILDING C SITE																													
1	ES-3.02	C	SITE	EY300	LAN1	9	CS108	306S5001	RECEIVING ENTRY GATE								2			R			X				X		
1	ES-3.02	C	SITE	EY300	LAN1	9	CS108	306S5002	RECEIVING PEDESTRIAN GATE								1			R			X	E				X	
1	ES-1.02	C	SITE	EY100	BLDG C 1ST FLR	1	CS108	500U101	BLDG C WESTSIDE GATE								1			R			X	E				X	
BUILDING C NEW DOORS																													
			C	1	EY113		CS108		LOBBY 101 TO MUSEUM	MUS-1	SP8			X	X	X	2	N			N	X				U		N	
			C	1	EY113		CS108		1ST FLR EAST WING SOUTH MUSEUM ENTRY	MUS-2	SP3			X	X	X	1	N			N	X						N	
			C	1	EY114		CS108		CE103 COMM SERVICE STORAGE	CE103	SP3			X	X	X	1	N			N	X						N	
			C	1	EY114		CS108		CE104 INSTALLATION BAY	CE104	SP4			X	X	X	1	N			N	X						N	
			C	1	EY115		CS108		REPAIR BAY NORTH EXTERIOR DOOR	CE133	SP4	X	X	X	X	X	2	N			N	X						N	
			C	1	EY116		CS108		IDF ROOM CW126	CW126	SP3			X	X	X	1	N			N	X						N	
			C	2	EY118		CS202		IDF ROOM CS202	CS202	SP3			X	X	X	1	N			N	X						N	
			C	32	EY118		CS202		FROM STAIR 2 TO OPEN OFFICE AREA	CS225	SP5			X		X	1	N			N	X				U		N	
BUILDING D																													
5	ES-2.01	D	1	EY119	LAN1	8	D113	30573901	BLDG D FRONT DOOR	D101B			X		X	X	1	E			R	X					E		
			D	1	EY119				IDF ROOM D113	SP3			X			X	1	N			N	X					N		

E = EXISTING DEVICE  
N = NEW DEVICE  
R = REPLACE EXISTING DEVICE  
X = IDENTIFIES STATUS  
U = EXITING EXIT HARDWARE UPGRADED TO ELECTRIFIED



**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**



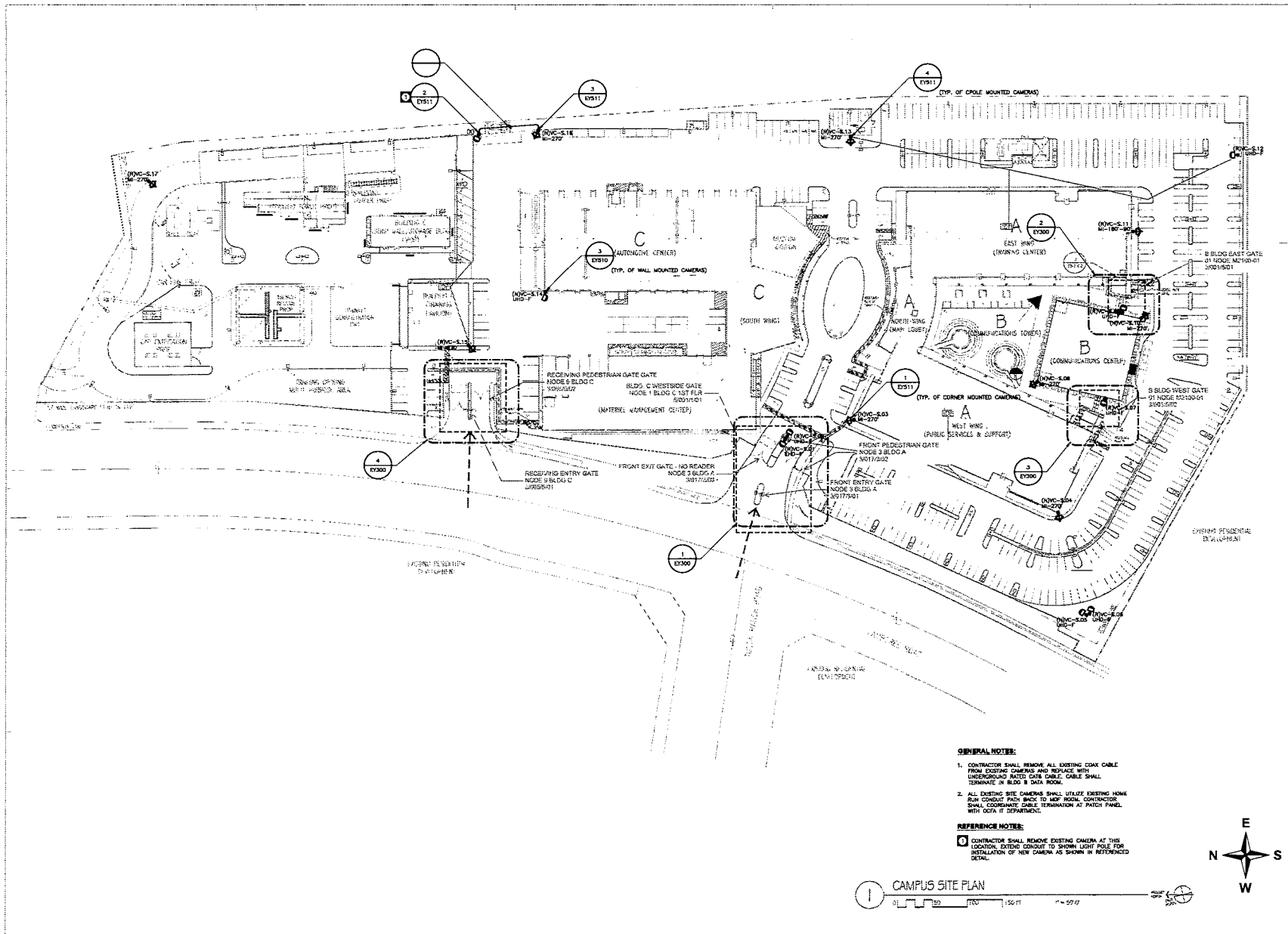
Issue	Description	Date
1987-88	1987-88	1987-88
1988-89	1988-89	1988-89
1989-90	1989-90	1989-90
1990-91	1990-91	1990-91
1991-92	1991-92	1991-92
1992-93	1992-93	1992-93
1993-94	1993-94	1993-94
1994-95	1994-95	1994-95
1995-96	1995-96	1995-96
1996-97	1996-97	1996-97
1997-98	1997-98	1997-98
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2000-01	2000-01	2000-01
2001-02	2001-02	2001-02
2002-03	2002-03	2002-03
2003-04	2003-04	2003-04
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2072-73	2072-73	2072-73
2073-74	2073-74	2073-74
2074-75	2074-75	2074-75
2		

**SENSITIVE  
SECURITY  
INFORMATION**

# SITE PLAN DEVICE LAYOUT

Drawn by	DAL
Designed by	DAL
Checked by	DAL
Project Number	291118
Scale	AS NOTED
Date	04/01/2021

## EY100.1





OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



PROJECT

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

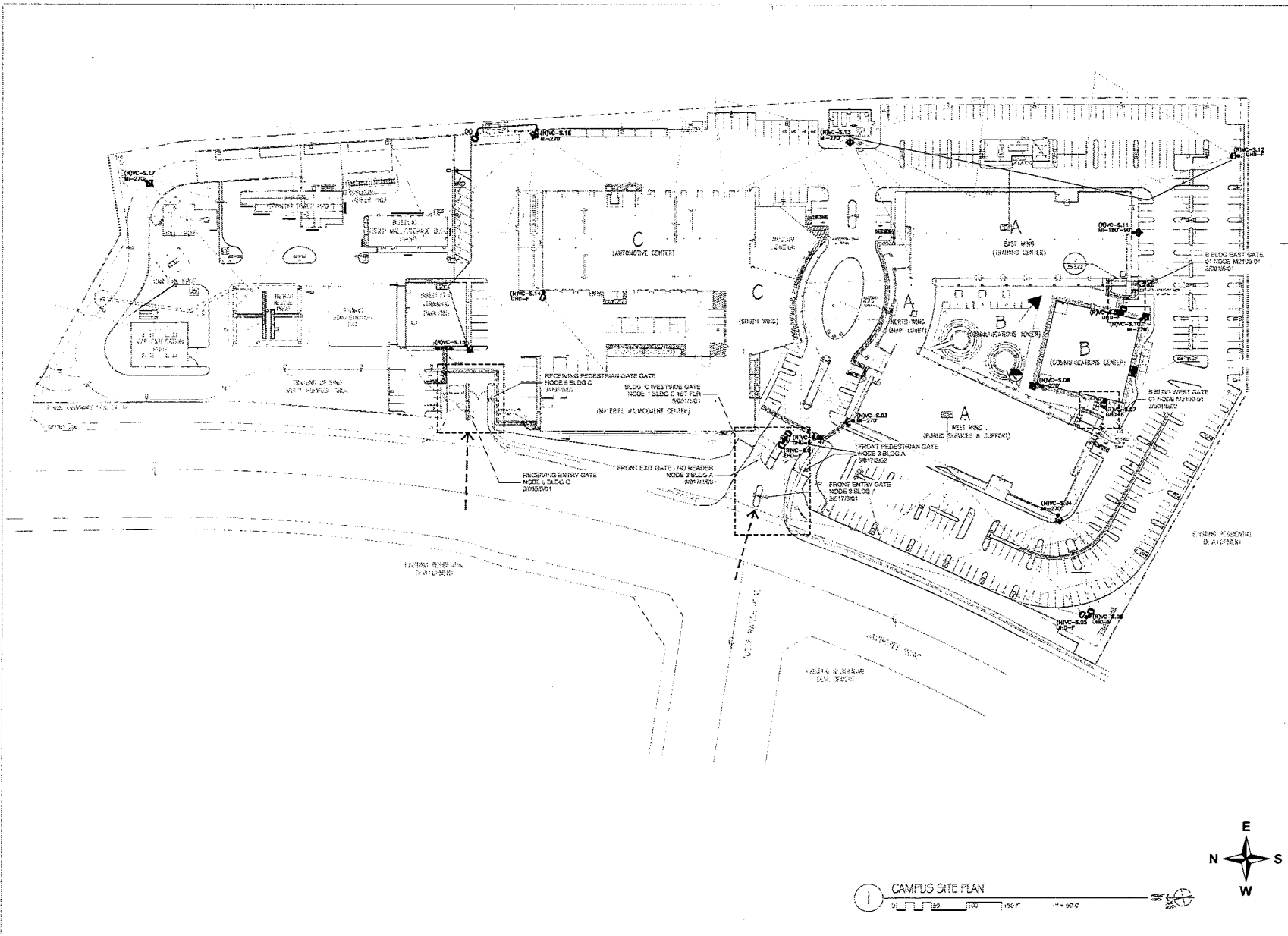
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18	REVISION	1/1/11
19	REVISION	1/1/11
20	REVISION	1/1/11

SENSITIVE  
SECURITY  
INFORMATION

SITE PLAN  
CAMERA FIELD OF VIEWS

Drawn by	DAL
Designed by	DAL
Checked by	DAL
Project number	201111
Scale	AS NOTED
Date	1/1/11
Sheet number	1/1

EY100.2



OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

 KEY PLAN[illegible]

SENSITIVE  
SECURITY  
INFORMATION

Dev. Title

### BUILDING A FIRST FLOOR NORTH ENTRY SECURITY PLAN

Journal Pre-proof

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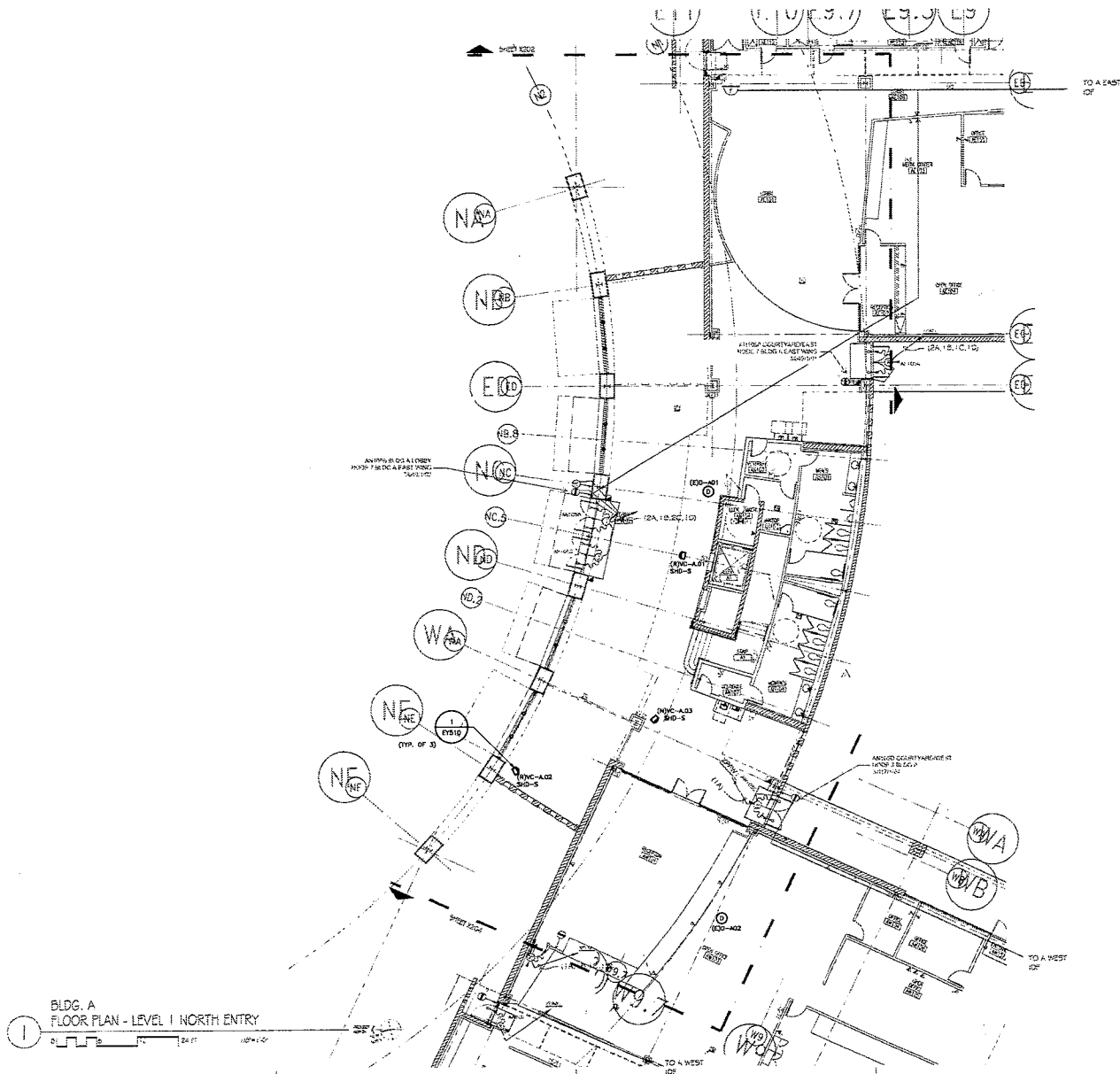
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1994

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15-00174

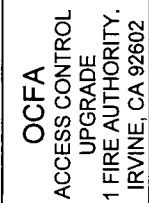
EY101.1



ALL CONDUIT 3/4" U.O.N.

GENERAL NOTES:

1. CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO IDF ROOM AET11L. COORDINATE TERMINATION AT PATCH PANEL WITH OCCA IT DEPARTMENT.
2. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AET11L.

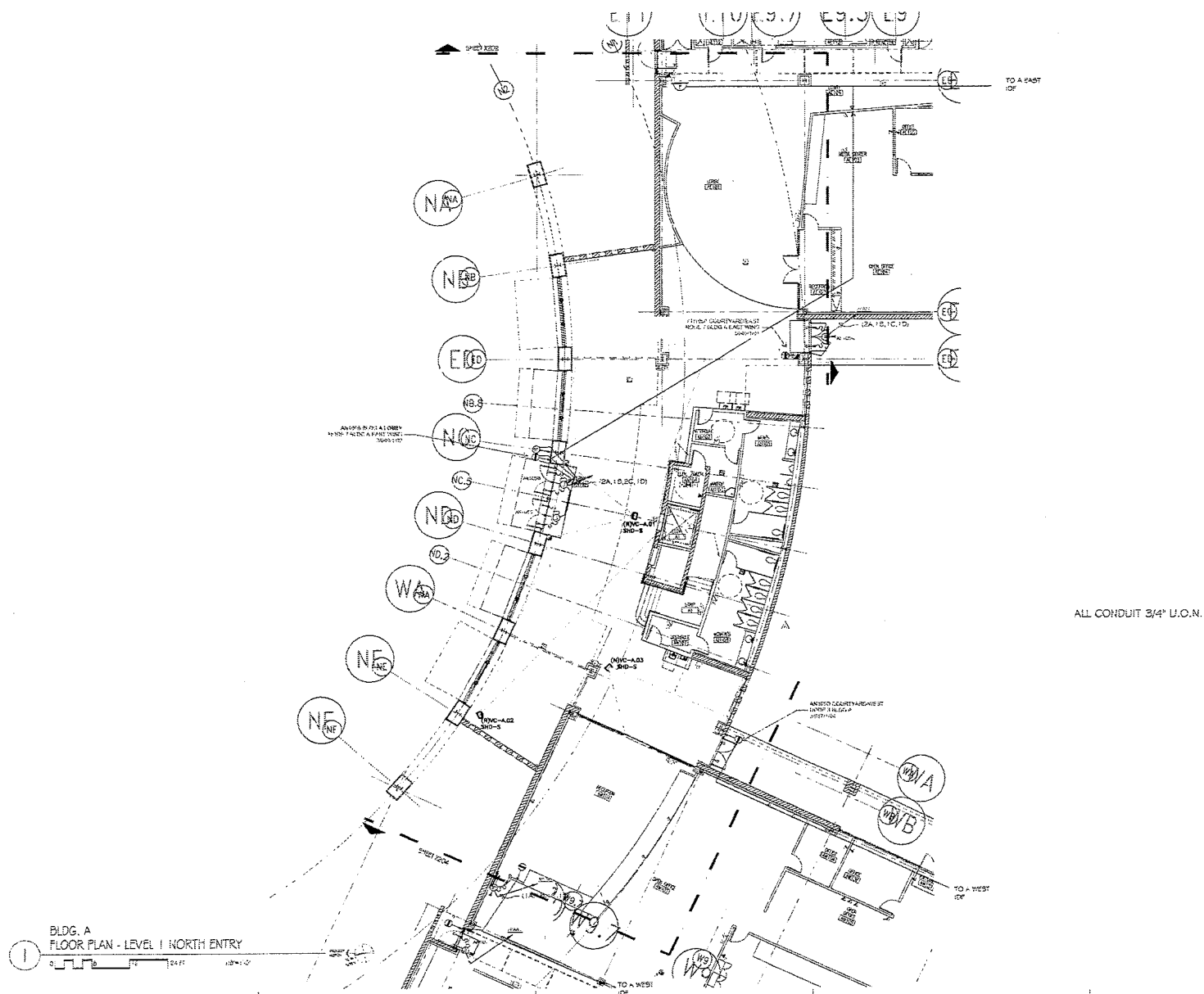
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**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING A  
FIRST FLOOR  
NORTH ENTRY  
CAMERA FIELD OF VIEWS**

Drawn by	DAL
Designed by	DAS
Checked by	DAS
Project Number	28118
Scale	AS NOTED
Date	8/21/2021

**EY101.2**





OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

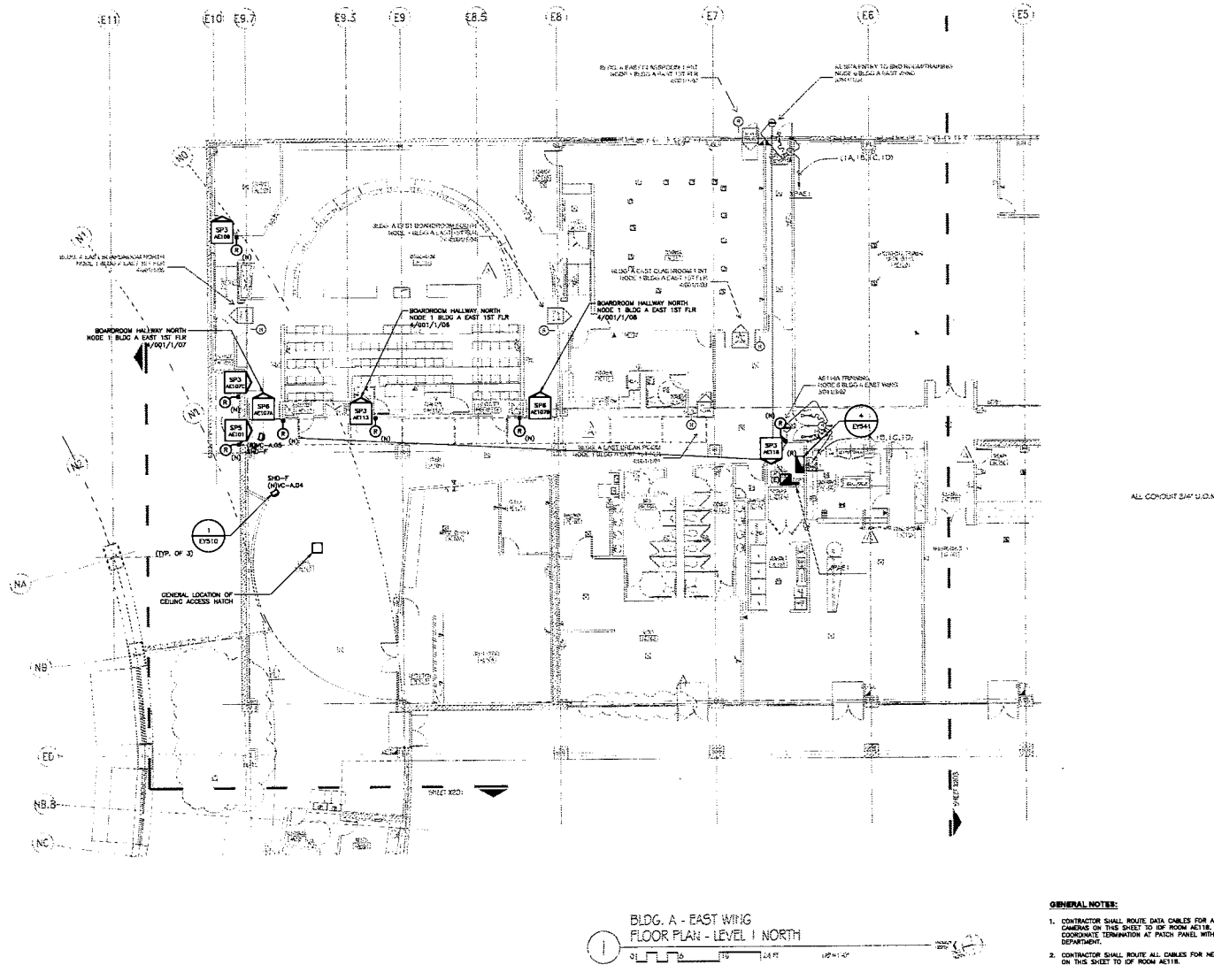

**KEY PLAN**[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

# BUILDING A FIRST FLOOR EAST WING NORTH SECURITY PLAN

Drawn by	DAL
Designed by	DAB
Checked by	DAB
Project number	281118
Scale	AS NOTED
Date	04/01/2021

### EY102.1





Prepared by:



**TRIAD CONSULTING**  
SYSTEM DESIGN GROUP

Decatur, GA  
tel: 903-943-9422  
web: [www.triadenvy.com](http://www.triadenvy.com)

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

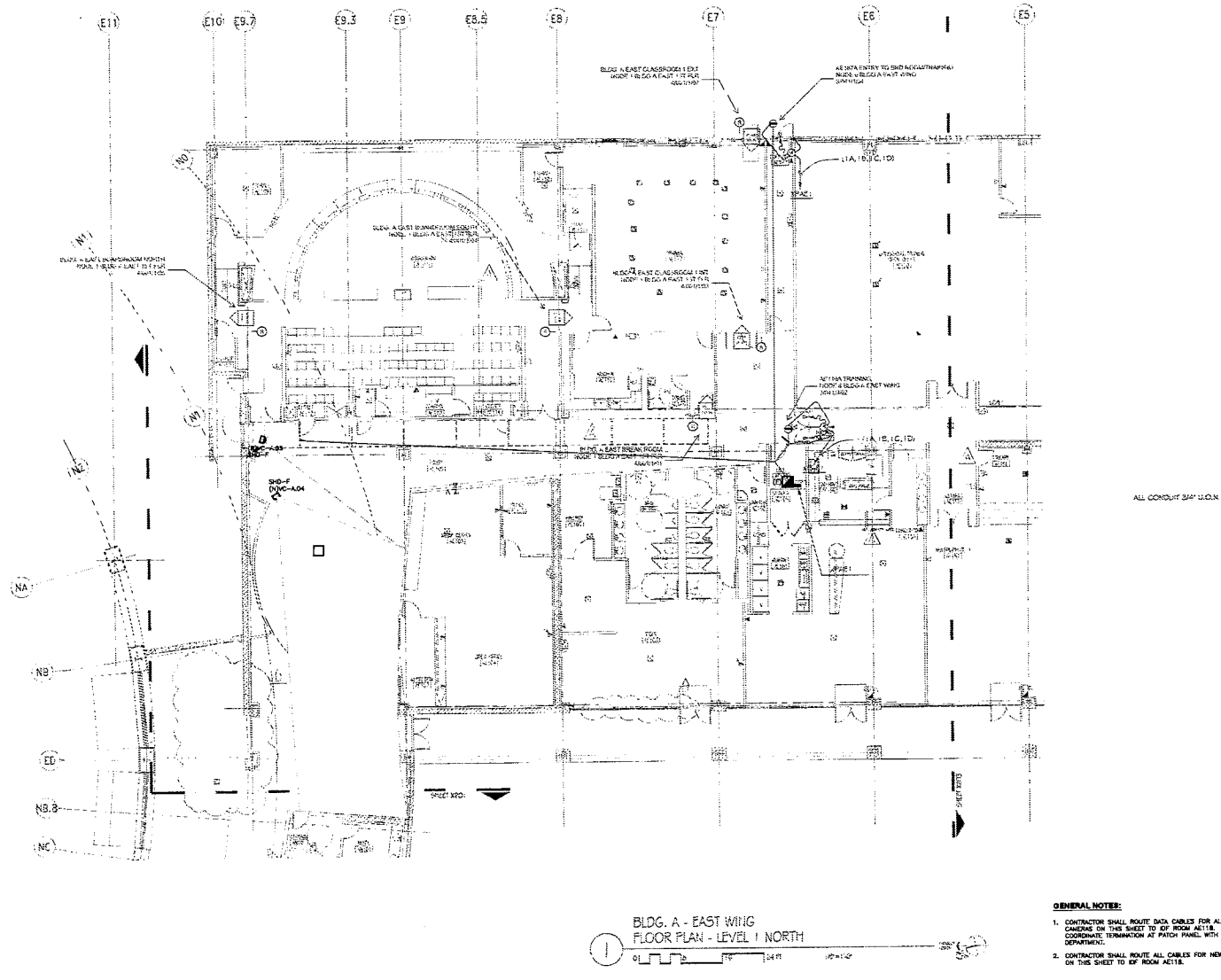


**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING A  
FIRST FLOOR  
EAST WING NORTH  
CAMERA FIELD OF VIEWS**

Drawn by	DAL
Designed by	DAL
Checked by	DAL
Project number	291118
Scale	AS NOTED
Date	04/15/2021
Sheet Number	

## EY102.2



GENERAL NOTES:

1. CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO IDF ROOM AE11B. COORDINATE TERMINATION AT PATCH PANEL WITH OCCF IT DEPARTMENT.
2. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AE11B.



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

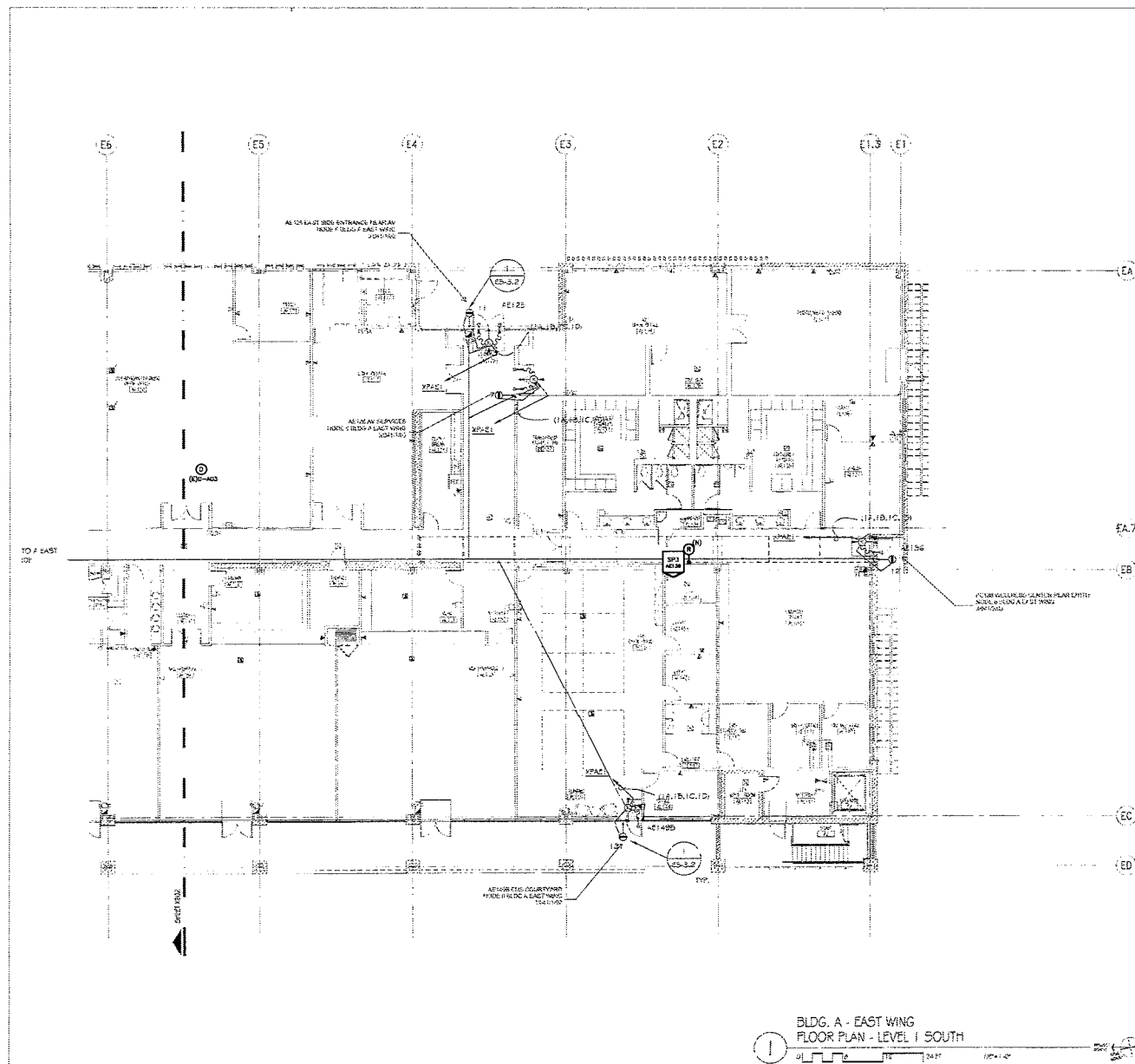
OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING A  
FIRST FLOOR  
EAST WING SOUTH  
SECURITY PLAN**

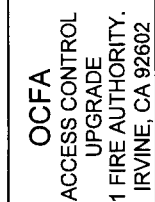
Drawn by	DAL
Designed by	DAS
Checked by	DAS
Project number	281118
Scale	AS NOTED
Date	04/01/2021

**EY103**

**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AE11B.





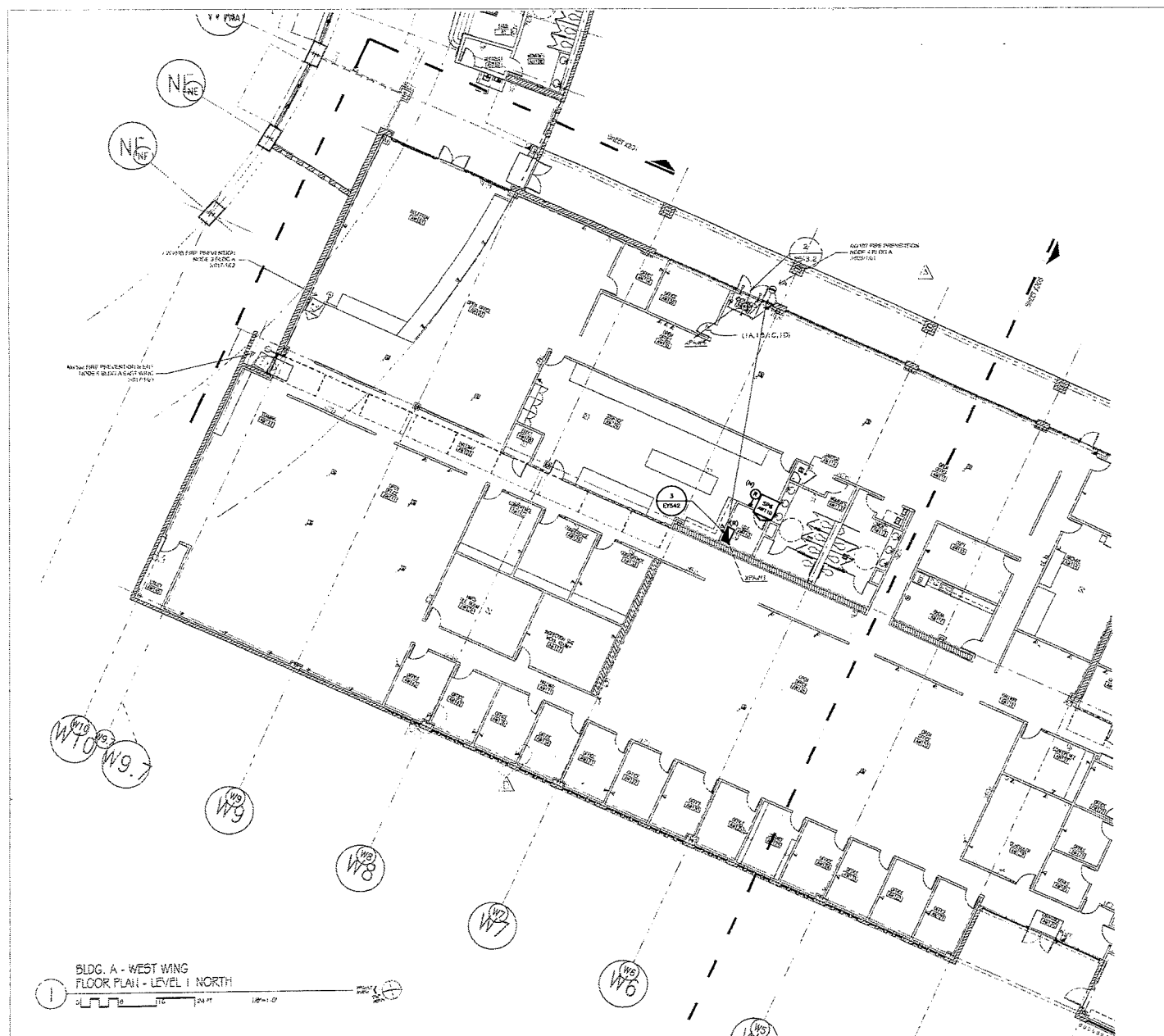
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	200-188	200-188

SENSITIVE  
SECURITY  
INFORMATION

## BUILDING A FIRST FLOOR WEST WING NORTH SECURITY PLAN

Drawn by	DA
Designed by	DA
Checked by	DA
Project number	28515
Scale	AS NOTED
Date	6/6/12

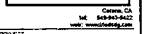
EY104



**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AW110.

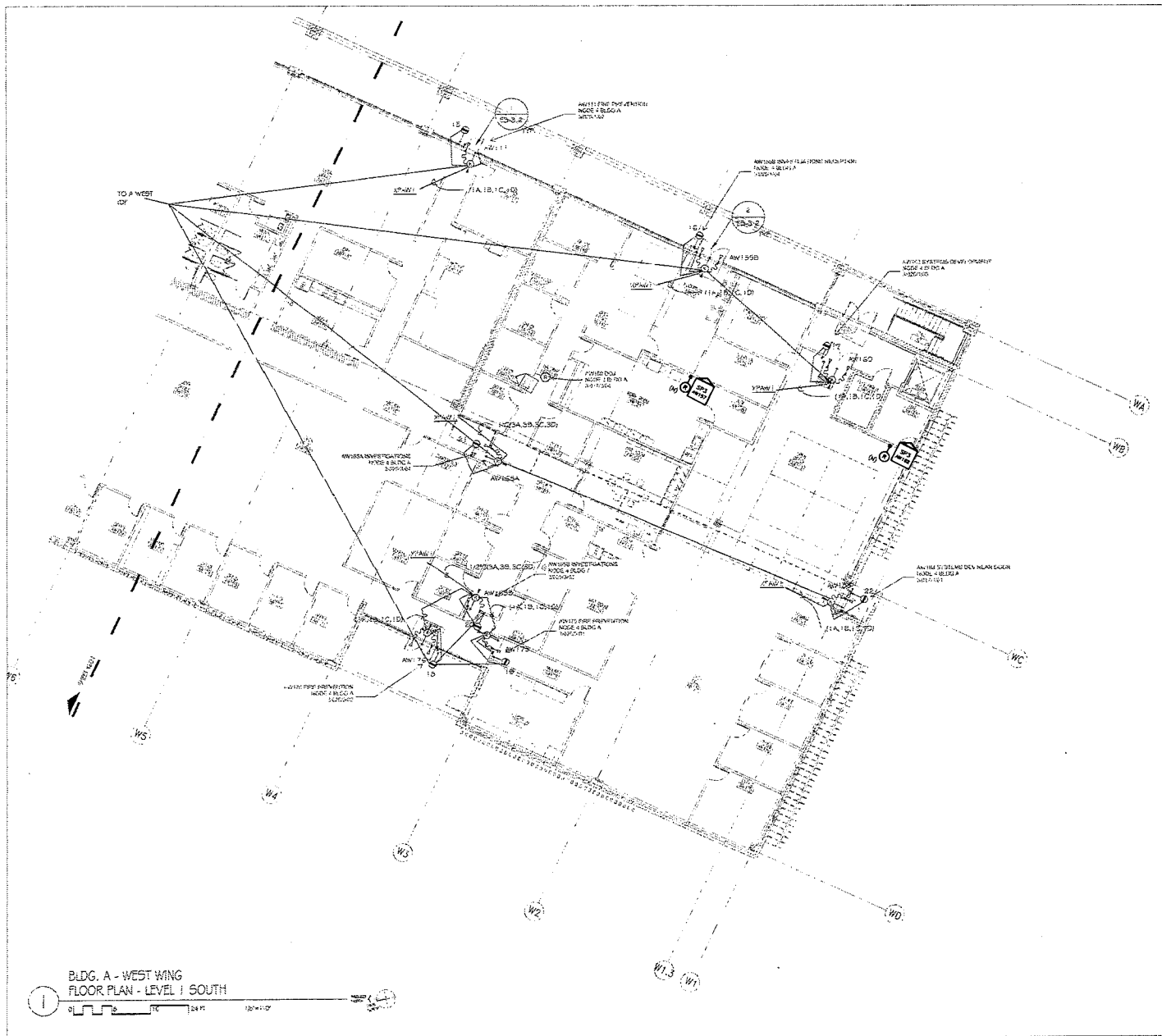


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# BUILDING A FIRST FLOOR WEST WING SOUTH SECURITY PLAN

Drawn by	DAL
Drawn by	DAS
Check ref by	DAN
Project number	201116
Grade	AS NOTED
Date	04/01/2021
Sheet Number	

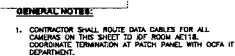
EY105



GENERAL NOTES:

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO LOF ROOM AW110.





**EY106.1**

**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**



KEY PLAN

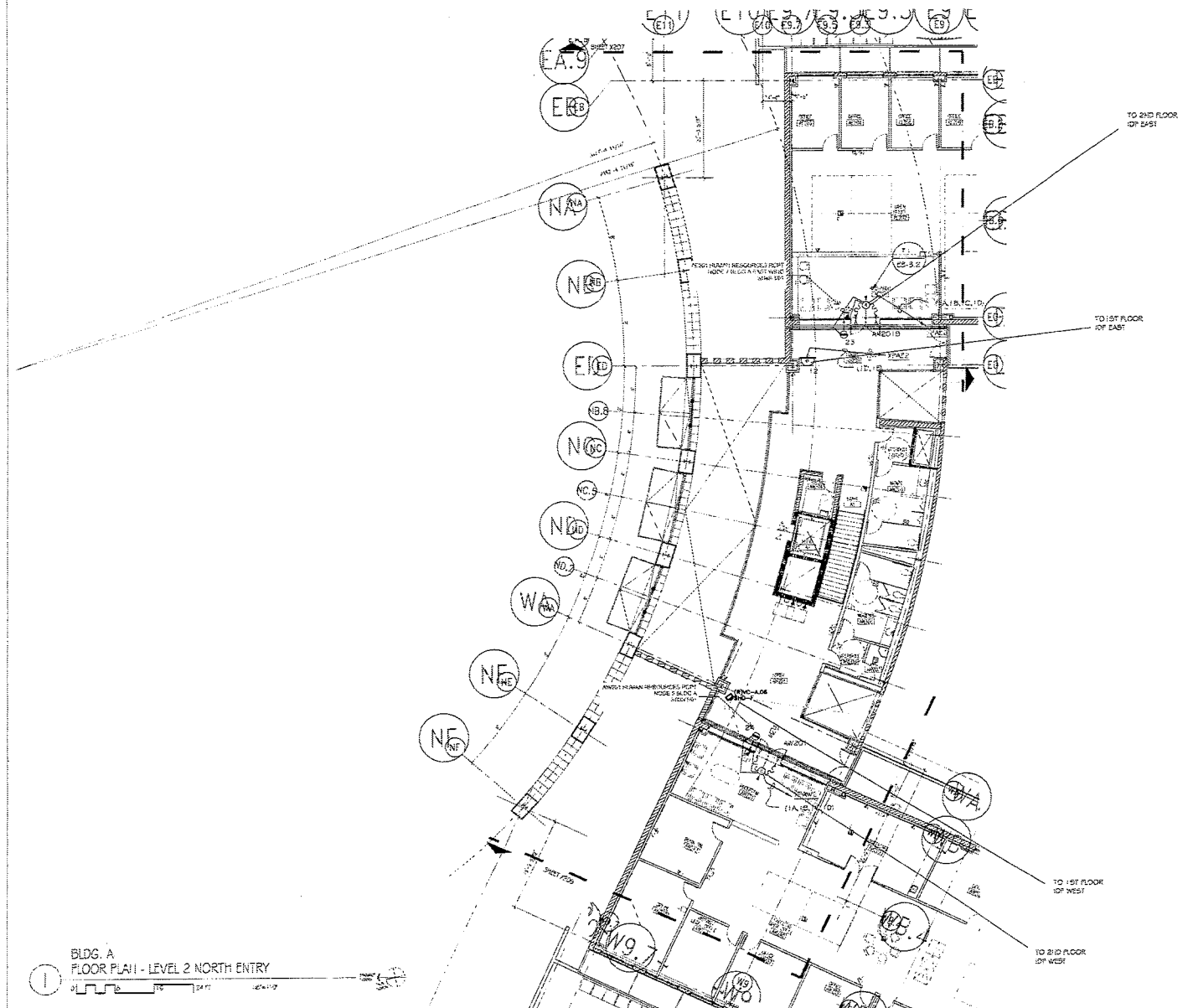
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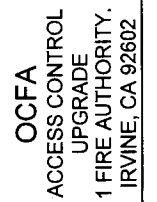
**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING A  
SECOND FLOOR  
NORTH ENTRY  
CAMERA FIELD OF VIEWS**

Drawn by	DAL
Designed by	DAS
Checked by	DAS
Project number	2P1118
Scale	AS NOTED
Date	8/6/1982
Sheet Number	

**EY106.2**

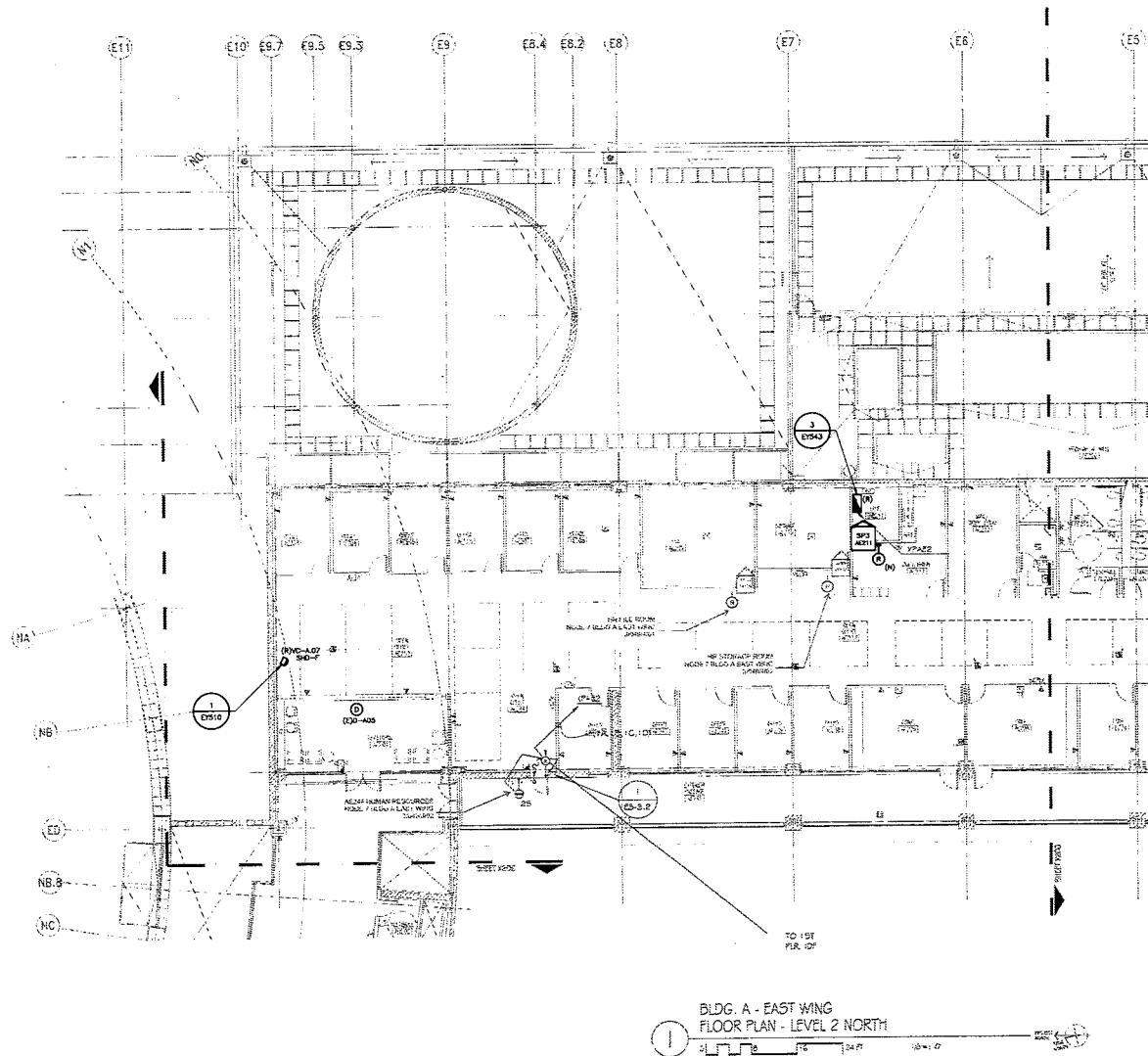




## BUILDING A SECOND FLOOR EAST WING NORTH SECURITY PLAN

Drawn by	DAL
Designed by	DAS
Checked by	DAS
Project number	291118
Scale	AS NOTED
Date	8-8/91/2621
Sheet Number	

**EY107.1**



**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO IDF ROOM AE11B. COORDINATE TERMINATION AT PATCH PANEL WITH OCCA IT DEPARTMENT.
2. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AE211.





OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



**OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602**

[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

## BUILDING A SECOND FLOOR EAST WING NORTH CAMERA FIELD OF VIEWS

Drawn by	DAL
Designed by	DAS
Checked by	DAS
Project number	2P1118
Scale	AS NOTED
Date	6/6/1921
Sheet Number	

**EY107.2**





**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

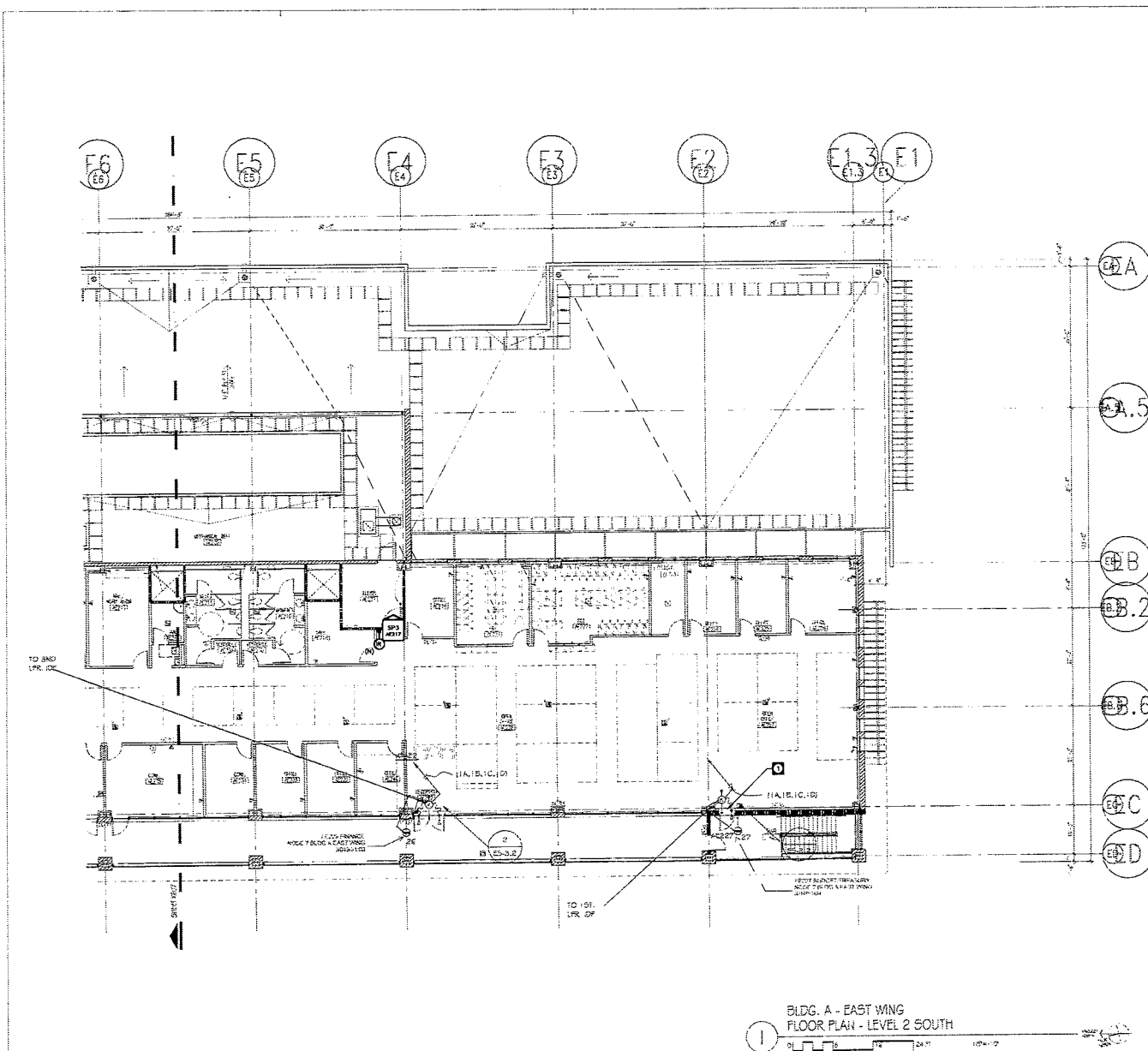

**KEY PLAN**[illegible]

SENSITIVE  
SECURITY  
INFORMATION

### BUILDING A SECOND FLOOR EAST WING SOUTH SECURITY PLAN

Drawn by \_\_\_\_\_  
Designed by \_\_\_\_\_  
Checked by \_\_\_\_\_  
Project number \_\_\_\_\_ 281  
Scale \_\_\_\_\_ AS NOT  
Date \_\_\_\_\_ 8/6/12

EY108



GENERAL NOTES:

1. CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO IDF ROOM AE218. COORDINATE TERMINATION AT PATCH PANEL WITH OCSA IT DEPARTMENT.
2. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AE211.

#### REFERENCE NOTES:

- 1 DOOR AE227 SHALL TERMINATE AT FIRST FLOOR OF ROOM  
AET118.





OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



tel: 949-943-9422  
web: [www.c2iweb.org](http://www.c2iweb.org)

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

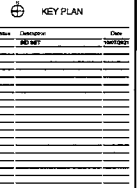
 KEY PLAN[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

## BUILDING A SECOND FLOOR WEST WING NORTH SECURITY PLAN

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## EY109.1

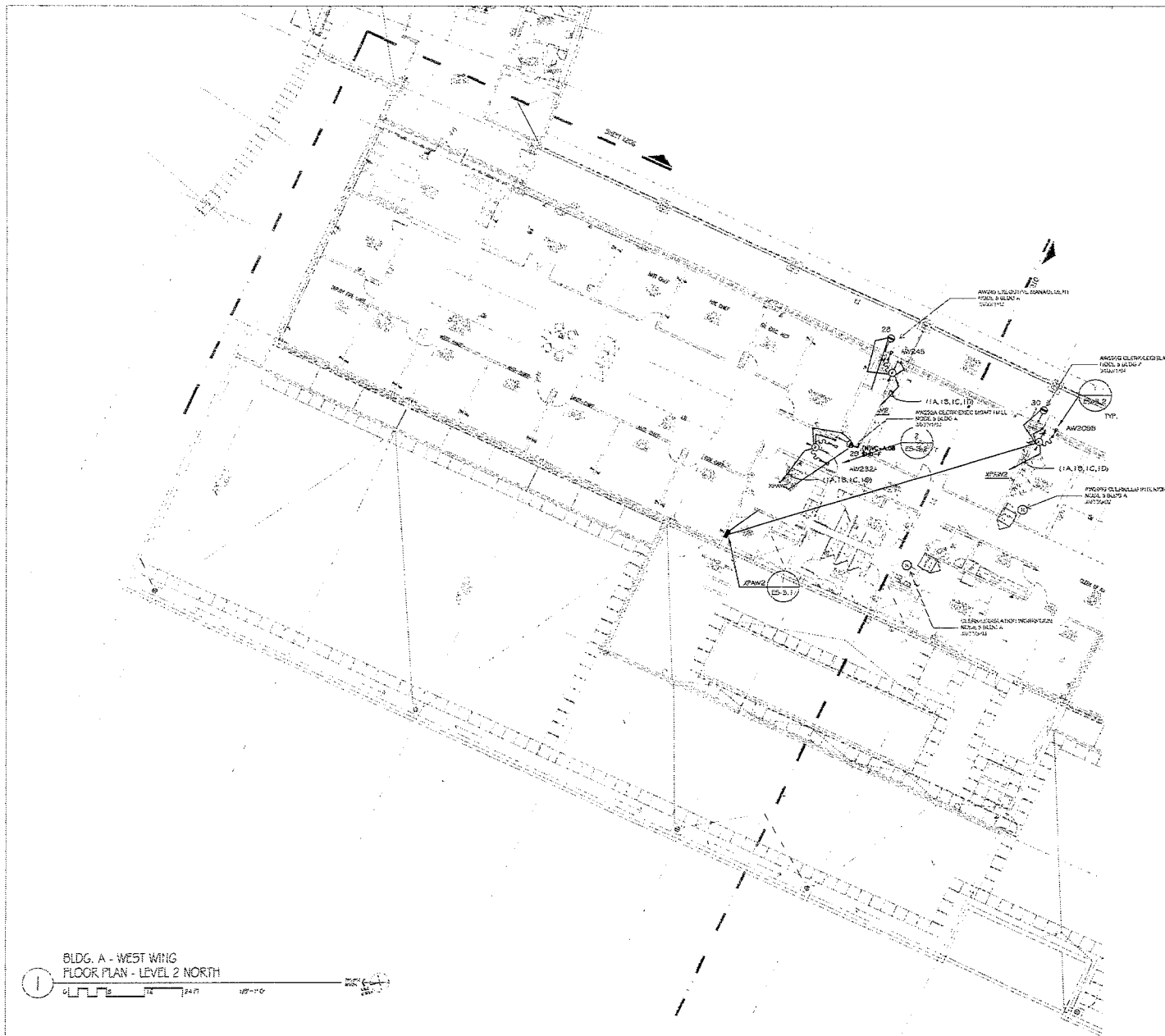


**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING A  
SECOND FLOOR  
WEST WING SOUTH  
CAMERA FIELD OF VIEWS**

Drawn by	BAL
Guaranteed by	DAS
Checked by	DAS
Project number	287518
Scale	AS NOTED
Date	84/01/2871
Sheet Number	

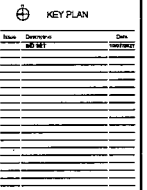
**EY109.2**





Triad Consulting  
  
 Carriere, CA  
 tel 949-943-9422  
 web: [www.triadeng.com](http://www.triadeng.com)

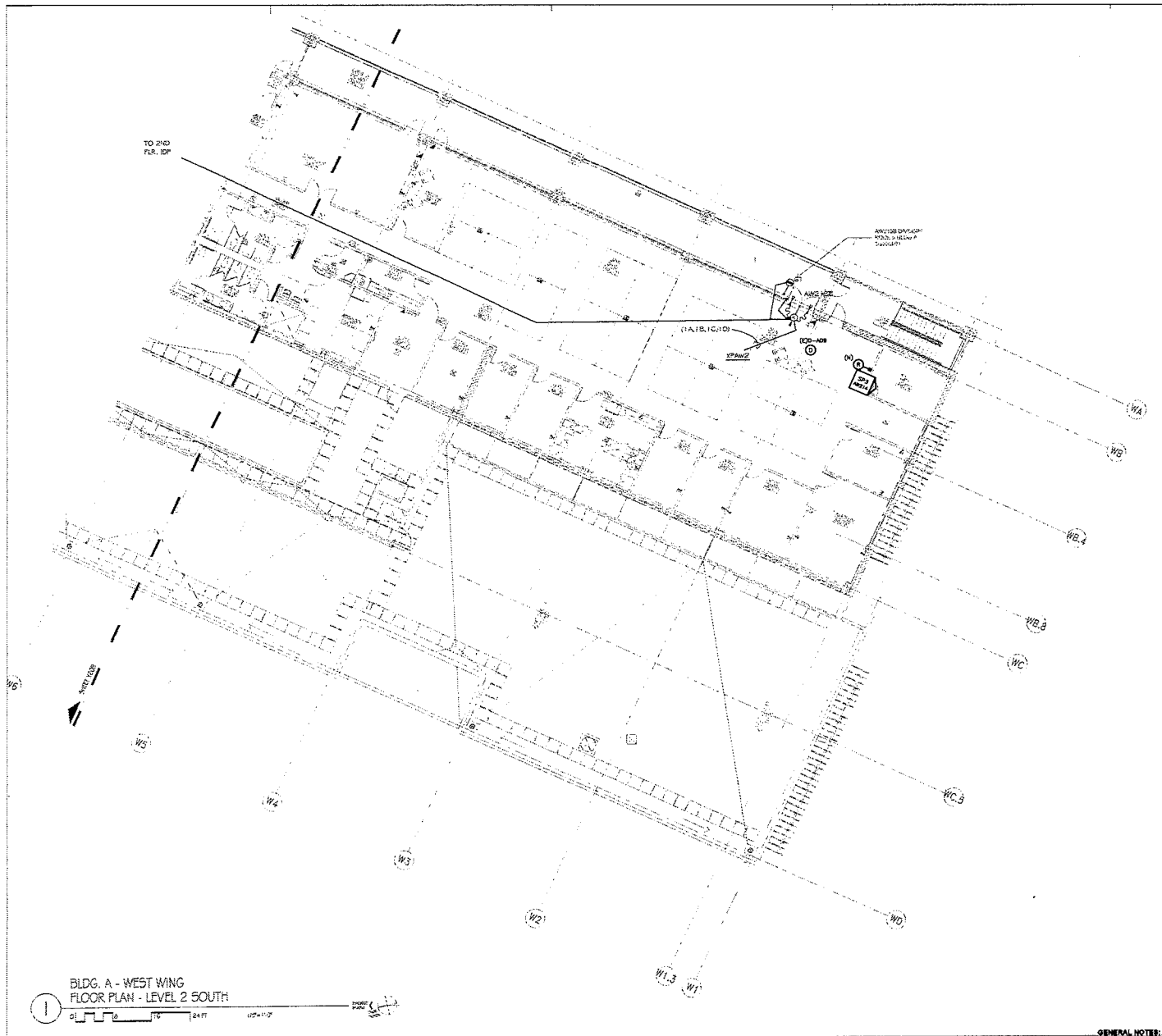
OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



SENSITIVE  
SECURITY  
INFORMATION

**BUILDING A  
SECOND FLOOR  
WEST WING SOUTH  
SECURITY PLAN**

Drawn by	DAL
Designed by	DAB
Checked by	DAB
Project Number	295158
Scale	AS NOTED
Date	8/8/82

**EY110**

**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM AE231.





OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



Triad Consulting  
Irvine, CA 92618  
Tel: 949.261.1111  
Fax: 949.261.1112

PROJECT

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

1/1



KEY PLAN

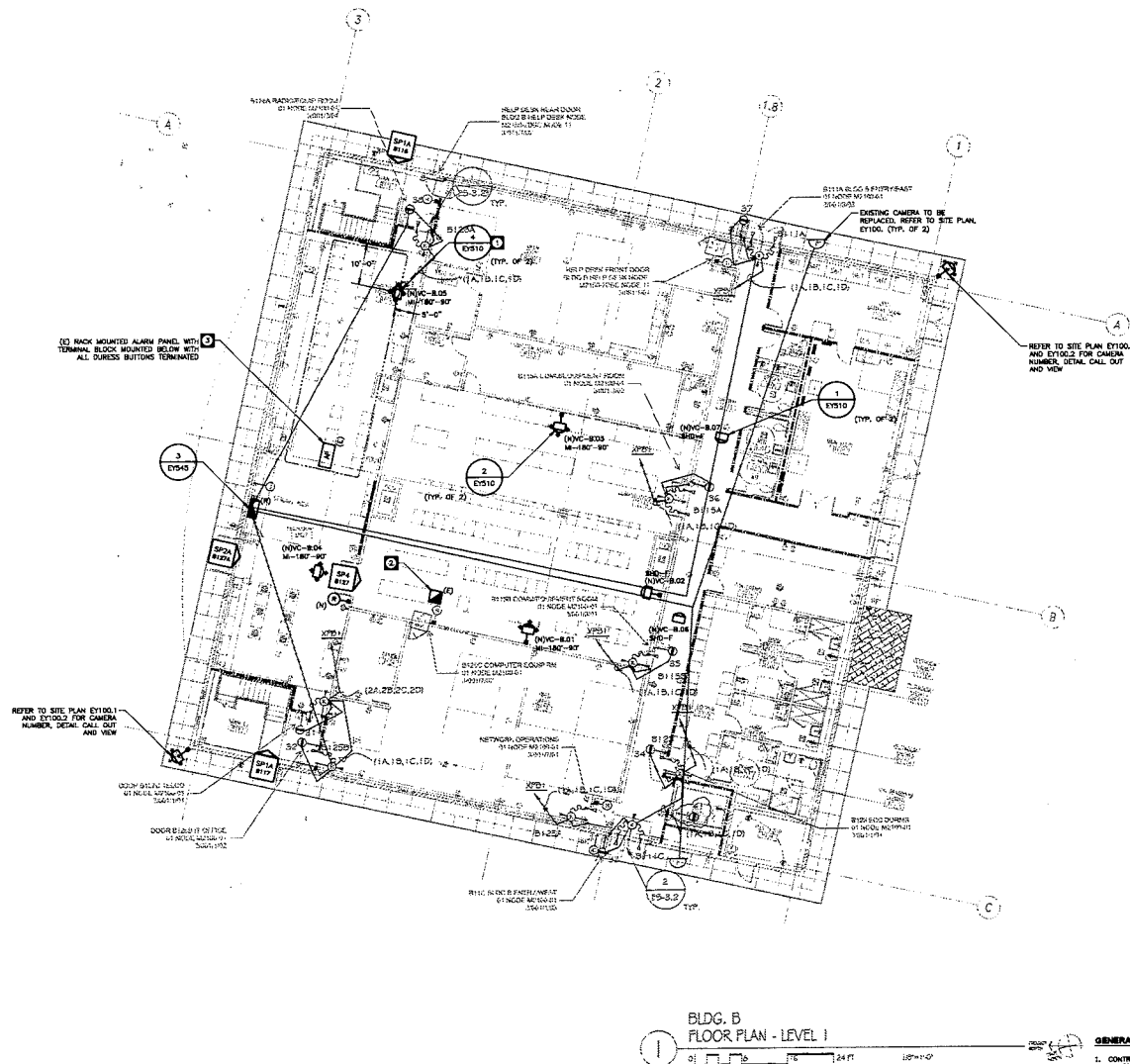
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SENSITIVE  
SECURITY  
INFORMATION

Building B  
FIRST FLOOR  
SECURITY PLAN

Drawn by	DAL
Checked by	DAL
Contractor	DAL
Project number	201118
Scale	AS NOTED
Date	10/1/01
Sheet number	10/1/01

EY111.1



#### GENERAL NOTES:

- CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO DATA ROOM. COORDINATE TERMINATION AT PATCH PANEL WITH OCFA IT DEPARTMENT.
- CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO TELL/EQUIP ROOM B127.

#### REFERENCE NOTES:

- CAMERA SHALL BE INSTALLED ON PENDENT MOUNT FROM CEILING. EXISTING BUSHY OVERHEADS ARE ESTIMATED TO CLEAR SPACE FOR LOCATION OF PENDENT TO BE INSTALLED. REFER TO REFERENCED DETAIL FOR MOUNTING HEIGHT.
- EXISTING FIELD VISION HATCHES LOCATION IN THIS EQUIPMENT RACK. EXISTING EQUIPMENT AND RACK TO BE REMOVED. OCFA IT DEPARTMENT SHALL VERIFY LOCATION OF NEW OR EXISTING EQUIPMENT RACK FOR LOCATION OF NEW SECURITY VIDEO MANAGEMENT SYSTEM AND INTEGRATE WITH THE EXISTING AVAIL EACS FOR INTEGRATED CONTROL. REFER TO EY101, DETAIL 1 FOR CONCEPTUAL EQUIPMENT RACK DETAIL.
- EXISTING ALARM PANEL AND TERMINATION POINT FOR CABLES BETWEEN BUILDINGS A AND C. CONTRACTOR SHALL EXISTING CABLES FROM TERMINAL BLOCK TO NEWEST DETAIL SHOWN ON PLANS AND TERMINATE AT INPUT POINTS FOR MONITORING ON THE ACCESS CONTROL SYSTEM.



SENSITIVE  
SECURITY  
INFORMATION

**BUILDING B  
FIRST FLOOR  
CAMERA FIELD OF VIEWS**

Drawn by	DAL
Designed by	DAL
Checked by	DAL
Project number	2P1148
Scale	AS NOTED
Date	8-8-76

**EY111.2**





OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

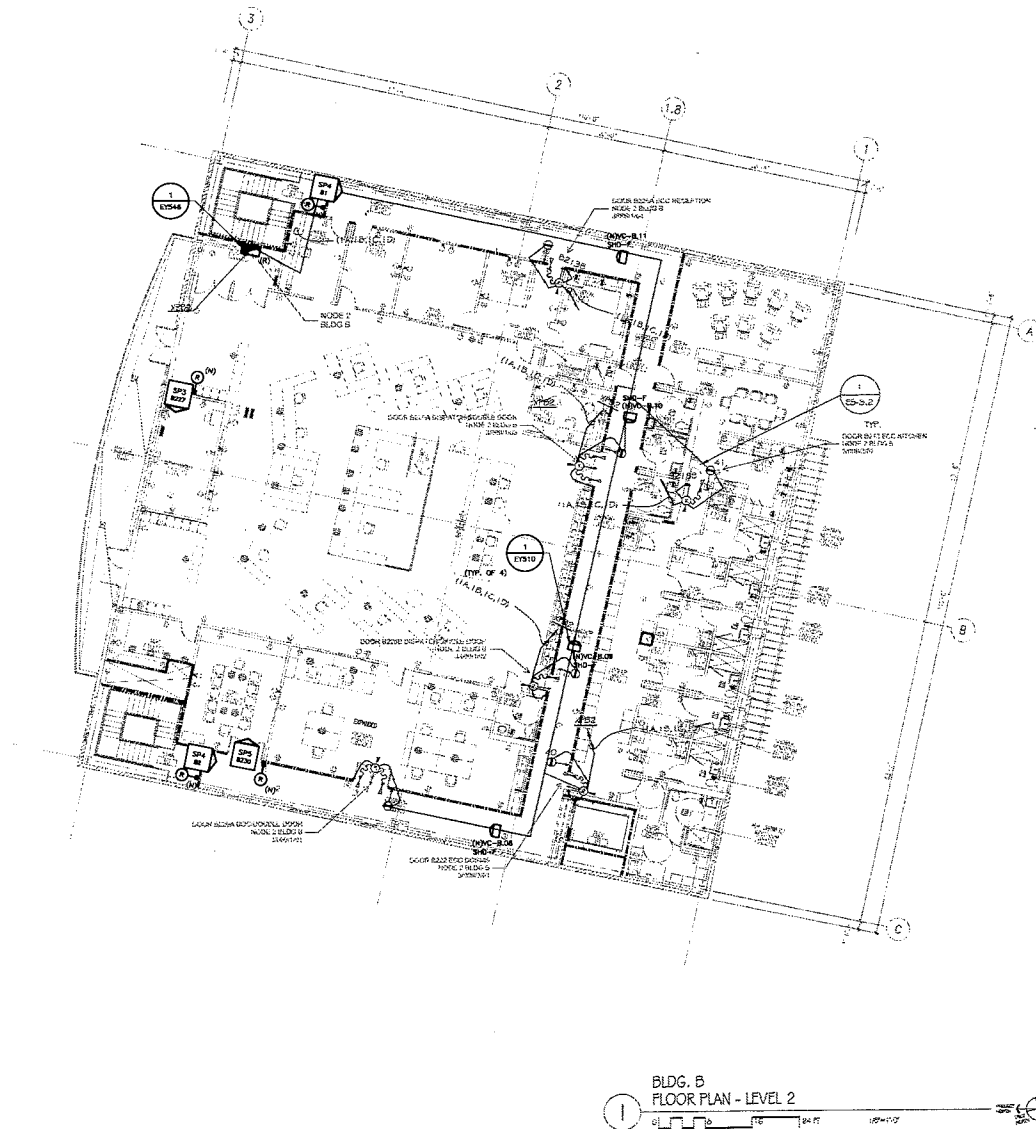
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**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING B  
SECOND FLOOR  
SECURITY PLAN**

Drawn by	DAL
Designed by	DAL
Cheeked by	DAL
Project number	291118
Scale	AS NOTED
Date	8-6-91/28-21

## EY112.1



**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO DATA ROOM. COORDINATE TERMINATION AT PATCH PANEL WITH OCPA IT DEPARTMENT.
2. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO STORAGE ROOM B226.





**TRIAD CONSULTING**  
SYSTEM DESIGN GROUP

Carroll, CA  
tel 949-943-9422  
web: [www.triadingroup.com](http://www.triadingroup.com)

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

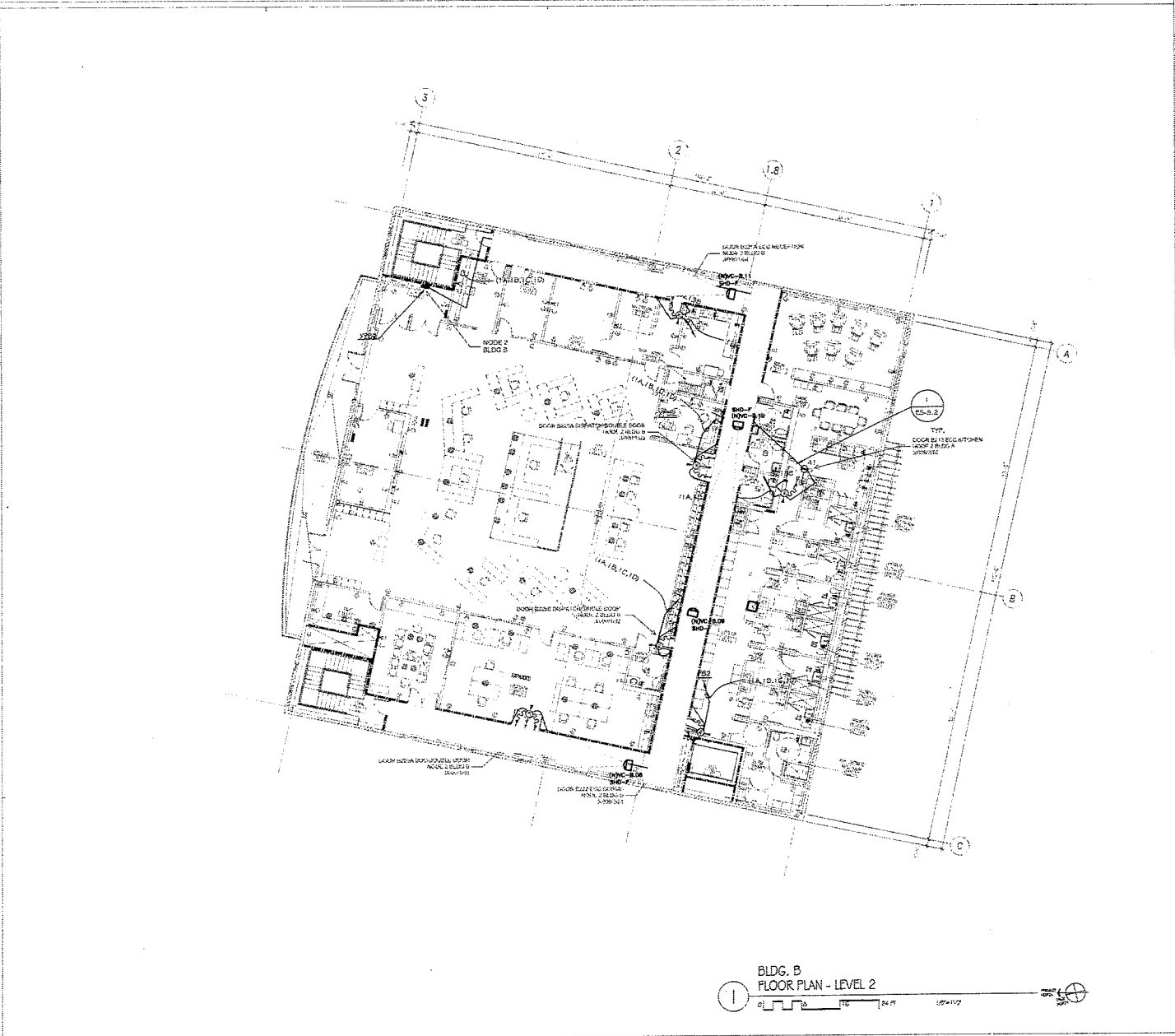
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**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING 8  
SECOND FLOOR  
CAMERA FIELD OF VIEWS**

Q2020 by	DAL
Drawn by	DAS
Checked by	DAS
Project Number	2011E
Scale	AS NOTED
Date	04/01/2021

## EY112.2






**TRIAD CONSULTING**  
 SYSTEM DESIGN GROUP  
 Contact: 943-943-9433  
 Email: [www@triadbg.com](mailto:www@triadbg.com)

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

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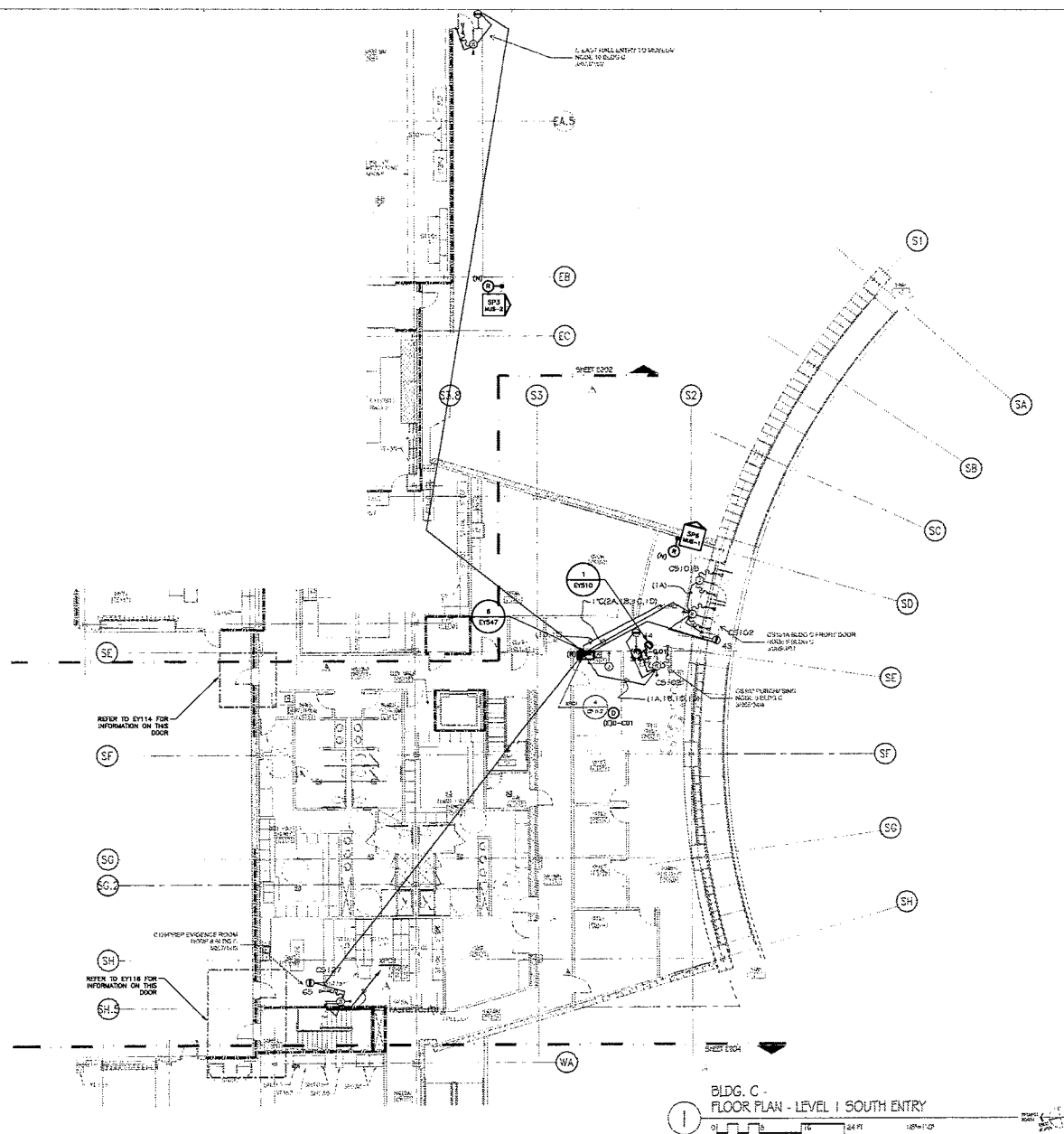
SENSITIVE  
SECURITY  
INFORMATION

**BUILDING C  
FIRST FLOOR  
SOUTH ENTRY  
SECURITY PLAN**

Dislike by	
Dislike by	

Scale

### EY113.1



**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE DATA CABLES FOR ALL CAMERAS ON THIS SHEET TO IDF ROOM C5108. COORDINATE TERMINATION AT PATCH PANEL WITH OCEA IT DEPARTMENT.
2. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM C5108.



Phased by



**TRIAD CONSULTING**  
SYSTEM DESIGN GROUP

Carroll, C.  
tel: 943-963-9421  
web: [www.triadsg.com](http://www.triadsg.com)

PHOTO: J. CT

**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

[illegible]

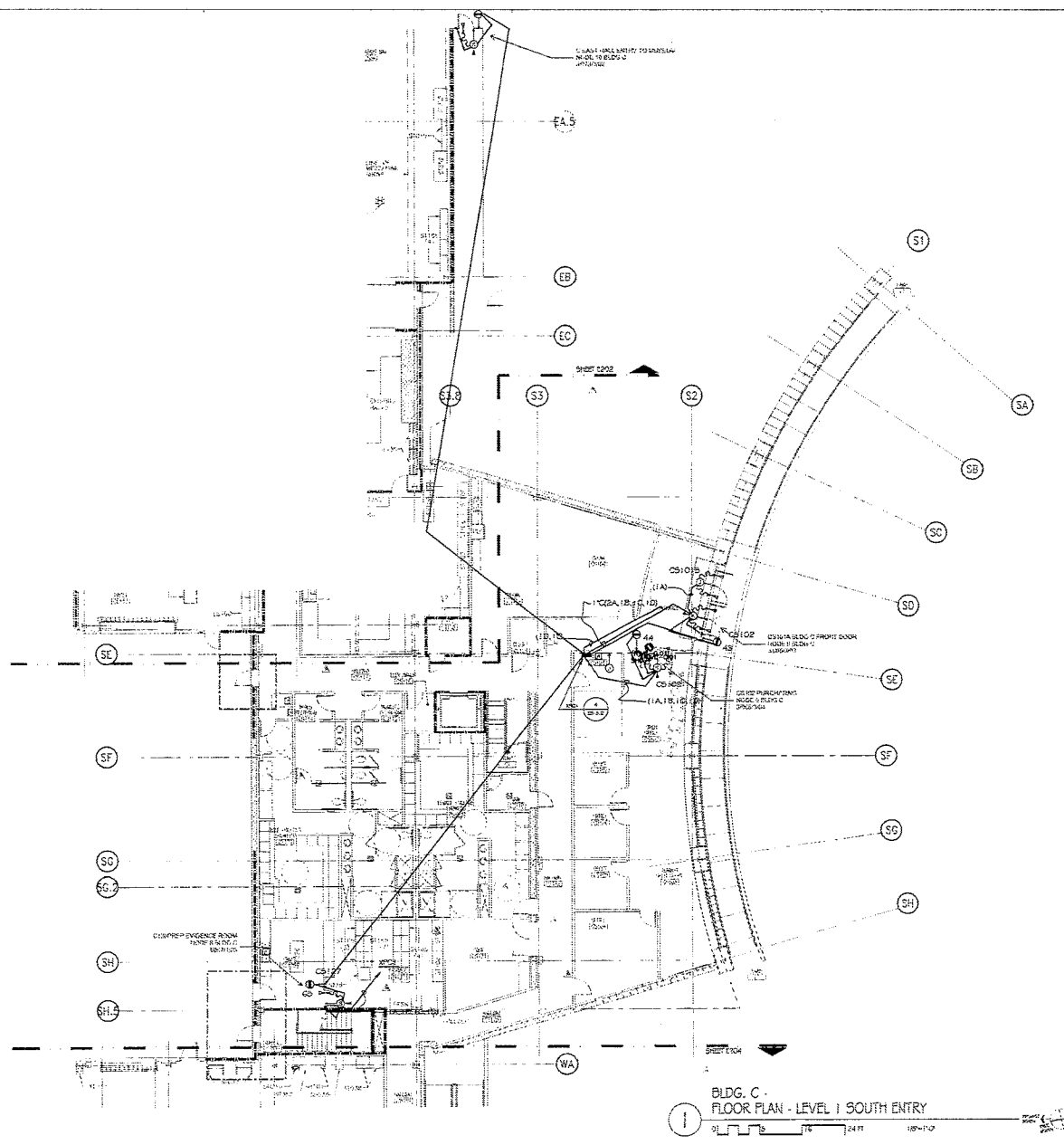
**SENSITIVE  
SECURITY  
INFORMATION**

Street Title

**BUILDING C  
FIRST FLOOR  
SOUTH ENTRY  
CAMERA FIELD OF VIEWS**

Drawn by	DAL
Designed by	DAL
Checked by	DAL
Project number	291118
Scale	AS NOTED
Date	04/01/2021
Revised by/checked	

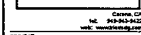
**EY113.2**





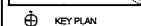


OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



Casco, CT  
Tel: 943-943-9422  
Web: [www.3feetdy.com](http://www.3feetdy.com)

**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING C  
FIRST FLOOR  
EAST WING - NORTH  
SECURITY PLAN**

Drone (iv)

Grouped by \_\_\_\_\_

Checked by \_\_\_\_\_ DAS

Project Number 201118

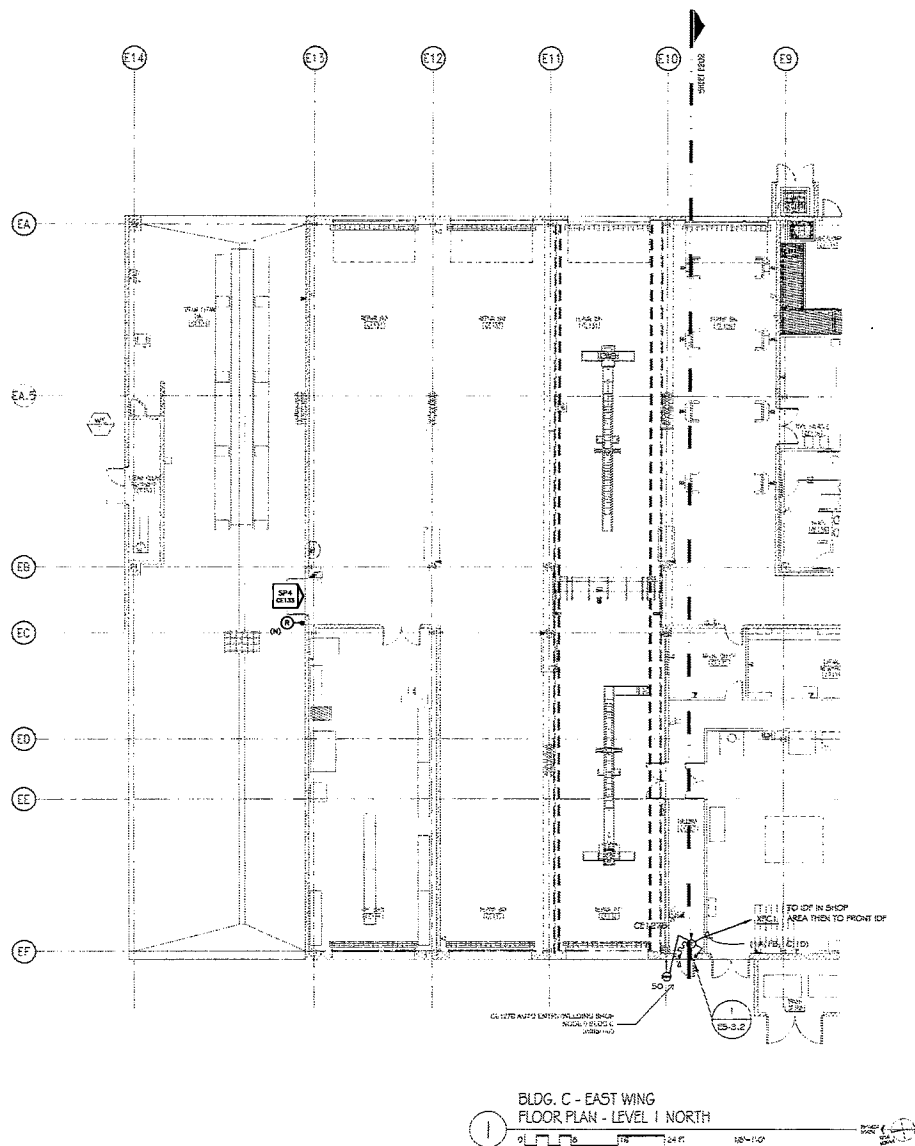
AS NOTED

Date 8/21/2021

---

Sheet Number

EY115



GENERAL NOTES:

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM 6310B.





OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



 KEY PLAN

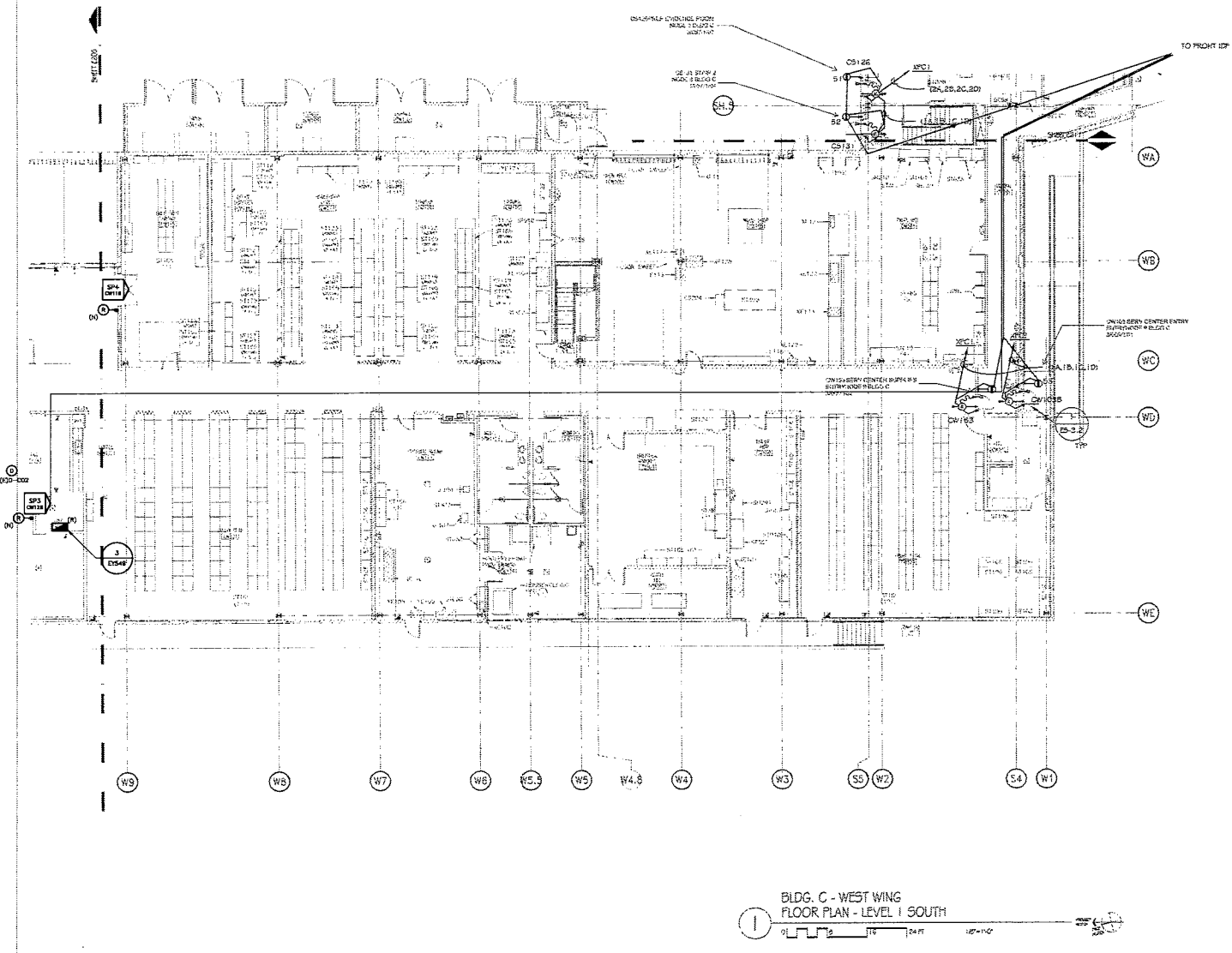
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SENSITIVE  
SECURITY  
INFORMATION

**BUILDING C  
FIRST FLOOR  
WEST WING - SOUTH  
SECURITY PLAN**

Client for	DAL
Designed by	DAS
Checked by	DAS
Project number	201119
Scale	AS NOTED
Date	04/10/2011

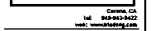
**EY116**



**GENERAL NOTES:**

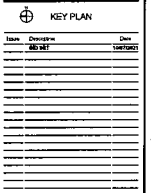
1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO THE ROOM CS10A.





---

248



Start Time

Printed in \_\_\_\_\_

Designed by \_\_\_\_\_

Checked by \_\_\_\_\_ DAB

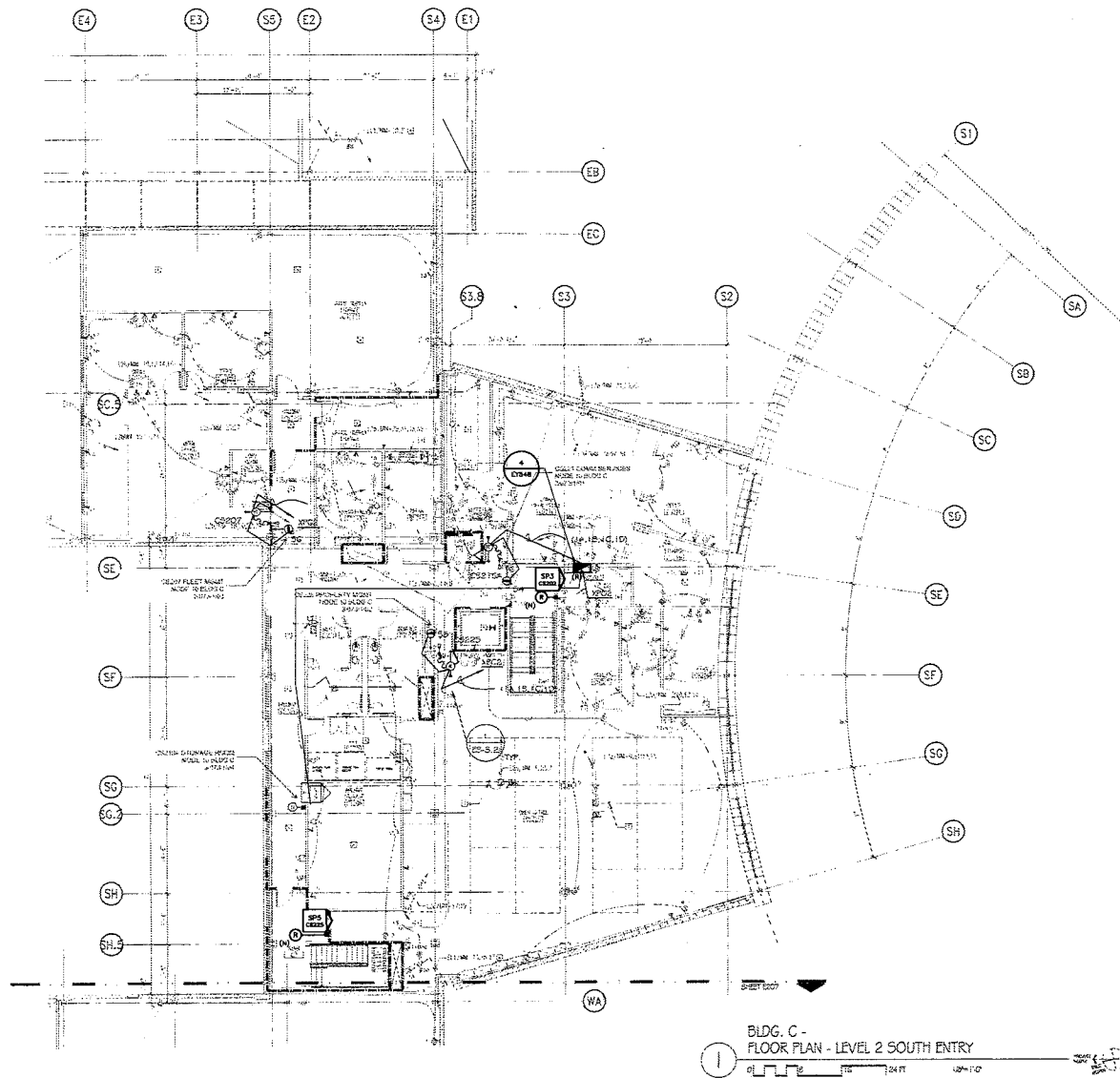
Print number: \_\_\_\_\_ DA 5

201912

AS NOTED

Date 6-6-12

EY118



**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM CS202.





**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

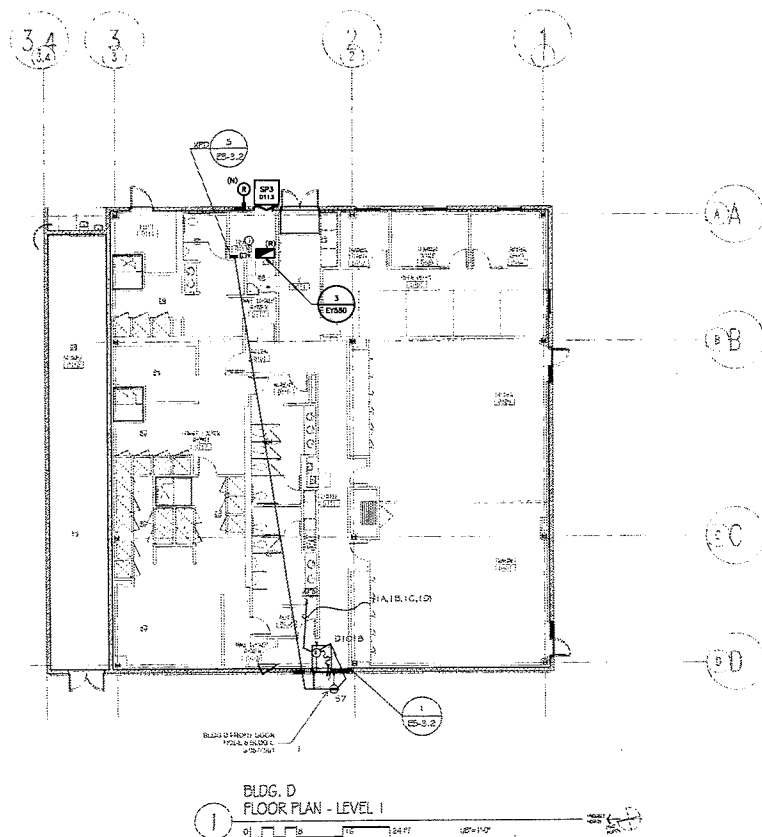
[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

**BUILDING D  
FIRST FLOOR  
SECURITY PLAN**

Drawn by	DAL
Designed by	DAB
Checked by	DAB
Project number	29113
Scale	AS NOTED
Date	6-6-91/2921
Client/Address	

EY119



**GENERAL NOTES:**

1. CONTRACTOR SHALL ROUTE ALL CABLES FOR NEW DOORS ON THIS SHEET TO IDF ROOM D113.





**BLDG B WEST GATE ENLARGED AREA VIEW**

SCALE:	4
NTS	



**BLDG B EAST GATE ENLARGED AREA VIEW**

SCALE:	2
NTS	



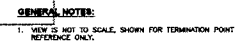
**REFERENCE NOTES:**

1 TO CONTROLLER IN IDF ROOM CW126, REFER TO SHEET DY116 FOR LOCATION.

2 THERE ARE (2) READERS AND (2) INTERCOMS AT THIS LOCATION ON A DUAL HIGH STANCHION.

RECEIVING GATES ENLARGED AREA VIEW

SCALE:	3
NOTES:	

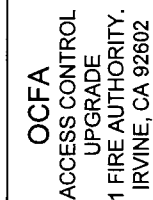


**REFERENCE NOTES:**

**1** THERE ARE (2) READERS AND (2) INTERCOMS AT THIS LOCATION ON A DUAL HIGH STATION.

**FRONT ENTRY GATES ENLARGED AREA VIEW**

SCALE:	1
MTS	

[illegible]

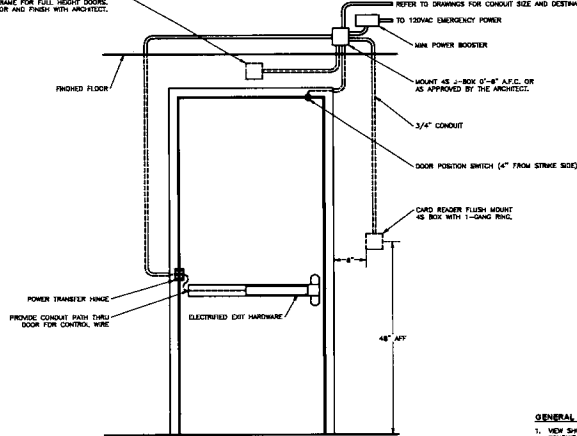
**SENSITIVE  
SECURITY  
INFORMATION**

**ENLARGED AREA VIEWS**

Drawn by \_\_\_\_\_  
Designed by \_\_\_\_\_  
Checked by \_\_\_\_\_  
Project Number \_\_\_\_\_  
State \_\_\_\_\_  
Date \_\_\_\_\_

**EY300**

EXIT DETECTOR FLUSH MOUNT 4S J-BOX WITH SINGLE GANG RING (HORIZONTAL) 0'-8" ABOVE DOOR FRAME. MOUNT ON FRAME FOR FULL HEIGHT DOORS. COORDINATE COLOR AND FINISH WITH ARCHITECT.

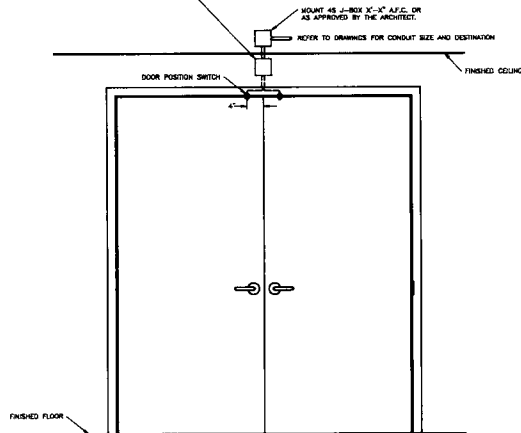


- GENERAL NOTES:**
1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
  2. CONDUITS MAY BE COMBINED. IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
  3. COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
  4. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
  5. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

SP4 - TYPICAL CONDUIT REQUIREMENTS FOR SINGLE DOOR W/ELECTRIFIED EXIT HARDWARE, READER AND REX, DPS

SCALE: NTS 4

LOCAL ALARM - FLUSH MOUNT J-BOX WITH SINGLE GANG RING ADJACENT TO EXIT DETECTOR

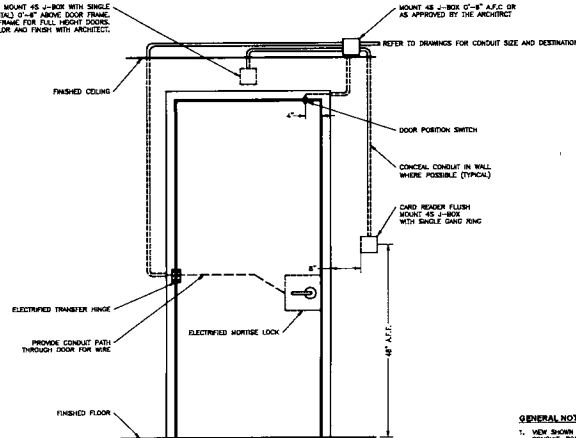


- GENERAL NOTES:**
1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
  2. CONDUITS MAY BE COMBINED. IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
  3. COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
  4. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
  5. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

SP2A - TYPICAL CONDUIT REQUIREMENTS FOR DOUBLE DOOR W/ SURFACE MOUNTED DPS AND LOCAL ALARM

SCALE: NTS 2

EXIT DETECTOR FLUSH MOUNT 4S J-BOX WITH SINGLE GANG RING (HORIZONTAL) 0'-8" ABOVE DOOR FRAME. MOUNT ON FRAME FOR FULL HEIGHT DOORS. COORDINATE COLOR AND FINISH WITH ARCHITECT.

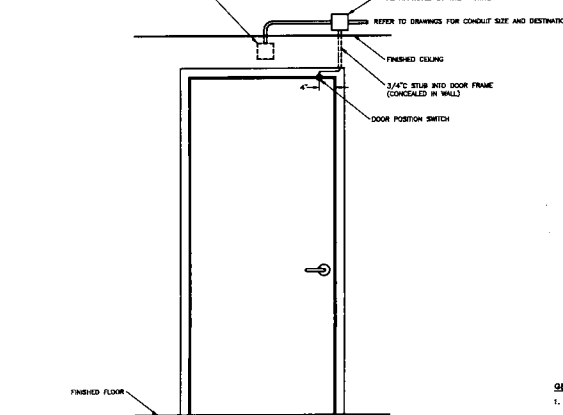


- GENERAL NOTES:**
1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
  2. CONDUITS MAY BE COMBINED. IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
  3. COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
  4. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
  5. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

SP3 - TYPICAL CONDUIT REQUIREMENTS FOR SINGLE DOOR W/ ELECTRIFIED MORTISE LOCK, READER, DPS, AND REX

SCALE: NTS 3

LOCAL ALARM - FLUSH MOUNT J-BOX WITH SINGLE GANG RING ADJACENT TO EXIT DETECTOR



- GENERAL NOTES:**
1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
  2. CONDUITS MAY BE COMBINED. IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
  3. COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
  4. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
  5. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

SP1A - TYPICAL CONDUIT REQUIREMENTS FOR SINGLE DOOR W/SURFACE MOUNTED DPS AND LOCAL ALARM

SCALE: NTS 1



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

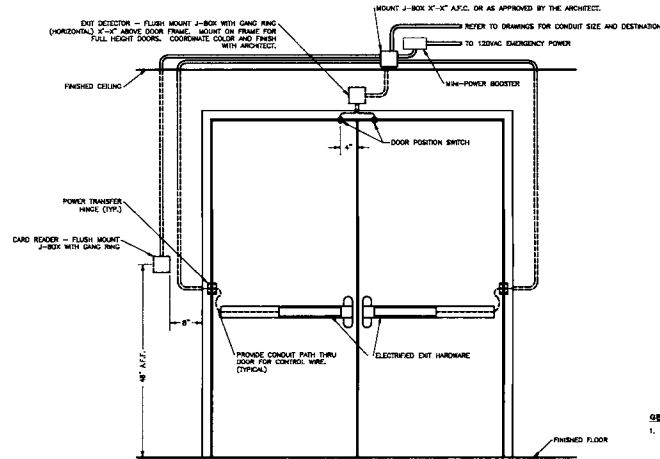
Item	Description	Qty
1	DOOR DETAIL	1

SENSITIVE  
SECURITY  
INFORMATION

DOOR DETAILS - 1

Drawn by	DBL
Checked by	DBL
Designed by	DBL
Project number	281116
Date	AS NOTED
Drawn/Date	04/05/2015

EY500



#### GENERAL NOTES:

1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
2. CONDUITS MAY BE COMBINED, IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
3. REFER TO SHEET SCHEMATIC DETAIL X FOR SCHEMATIC WIRING DETAILS, INCLUDE ONLY THOSE DEVICES SPECIFIED ON THIS DETAIL.
4. COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
5. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
6. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

NOT USED

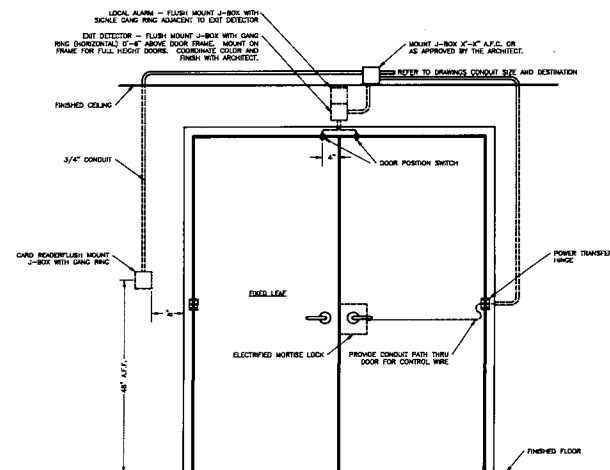
SCALE: 1/8\"/>

4

#### SP6 - TYPICAL CONDUIT REQUIREMENTS FOR DOUBLE DOOR W/ ELECTRIFIED EXIT HARDWARE, READER, DPS, AND REX

SCALE: 1/8\"/>

2



#### GENERAL NOTES:

1. VIEW SHOWN IS FROM SECURED SIDE OF PORTAL. CONDUIT, BOXES AND EQUIPMENT SHALL BE MOUNTED ON SECURED SIDE OF PORTAL, UNLESS OTHERWISE NOTED.
2. CONDUITS MAY BE COMBINED, IF COMBINED, CONTRACTOR SHALL ENSURE CONDUIT IS SIZED TO ACCEPT REQUIRED CONDUCTORS.
3. COORDINATE ALL MOUNTING LOCATIONS, ROUGH-IN AND FINISHES.
4. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
5. DOOR HARDWARE SHOWN FOR REFERENCE ONLY. TYPE OF HARDWARE MAY VARY.

NOT USED

SCALE: 1/8\"/>

3

#### SP5 - TYPICAL CONDUIT REQUIREMENTS FOR DOUBLE DOOR W/ ELECTRIFIED MORTISE LOCK, READER, DPS, AND REX

SCALE: 1/8\"/>

1



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



Triad Consulting  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



#### KEY PLAN

Issue	Description	Date
1	ISSUED	08/15/2021

#### SENSITIVE SECURITY INFORMATION

Door Title  
DOOR DETAILS - 2

Drawn by: BAA  
Designed by: BAA  
Checked by: BAA  
Project Number: 391118  
Scale: AS NOTED  
Date: 08/15/2021  
Sheet Number: 001/02021

EY501





OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



Triad Consulting  
10000 Irvine Blvd, Suite 200  
Irvine, CA 92618  
Tel: 949.261.1111  
Fax: 949.261.1112  
Web: www.triadconsulting.com

OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

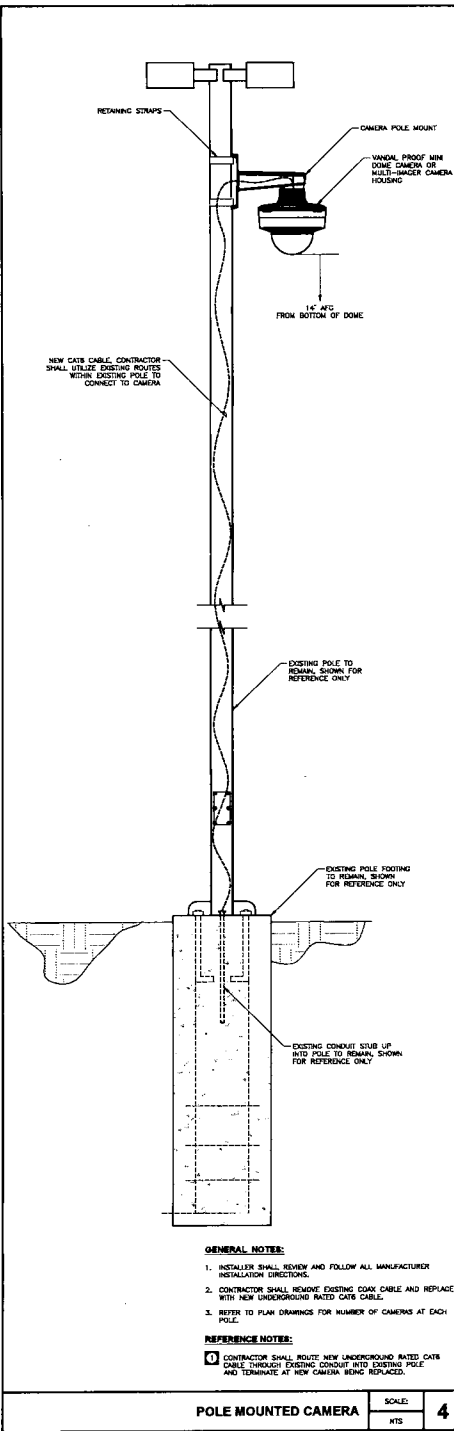
Item	Description	Date
1	08/18/18	08/18/18
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

SENSITIVE  
SECURITY  
INFORMATION

CAMERA DETAILS - 2

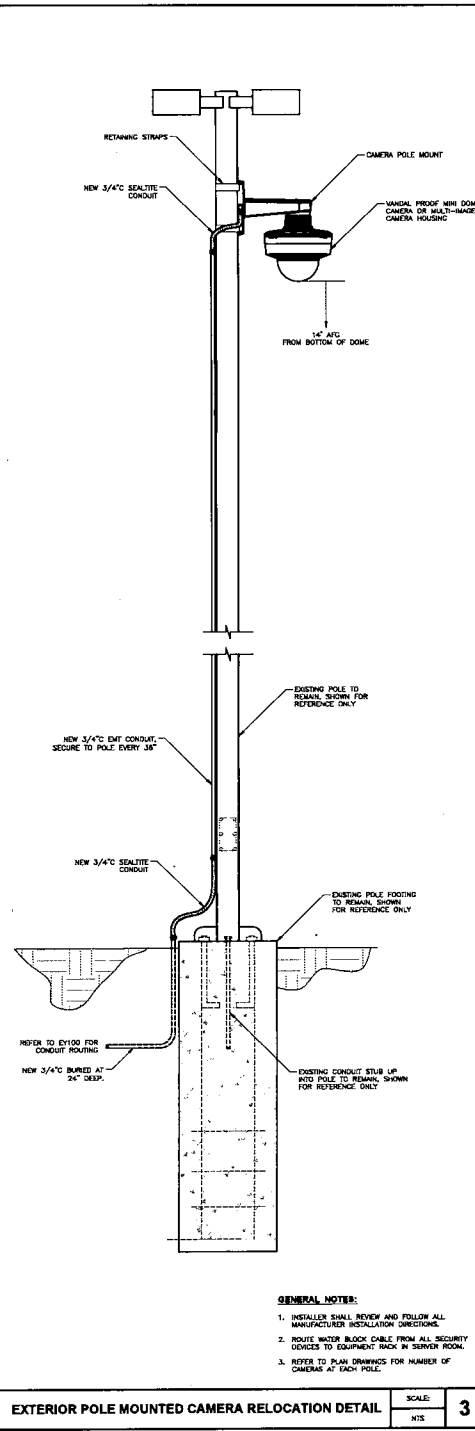
Drawn by	BAE
Designed by	BAE
Checked by	BAE
Project number	281118
Date	08/18/18
Drawn by	BAE/0818

EY511



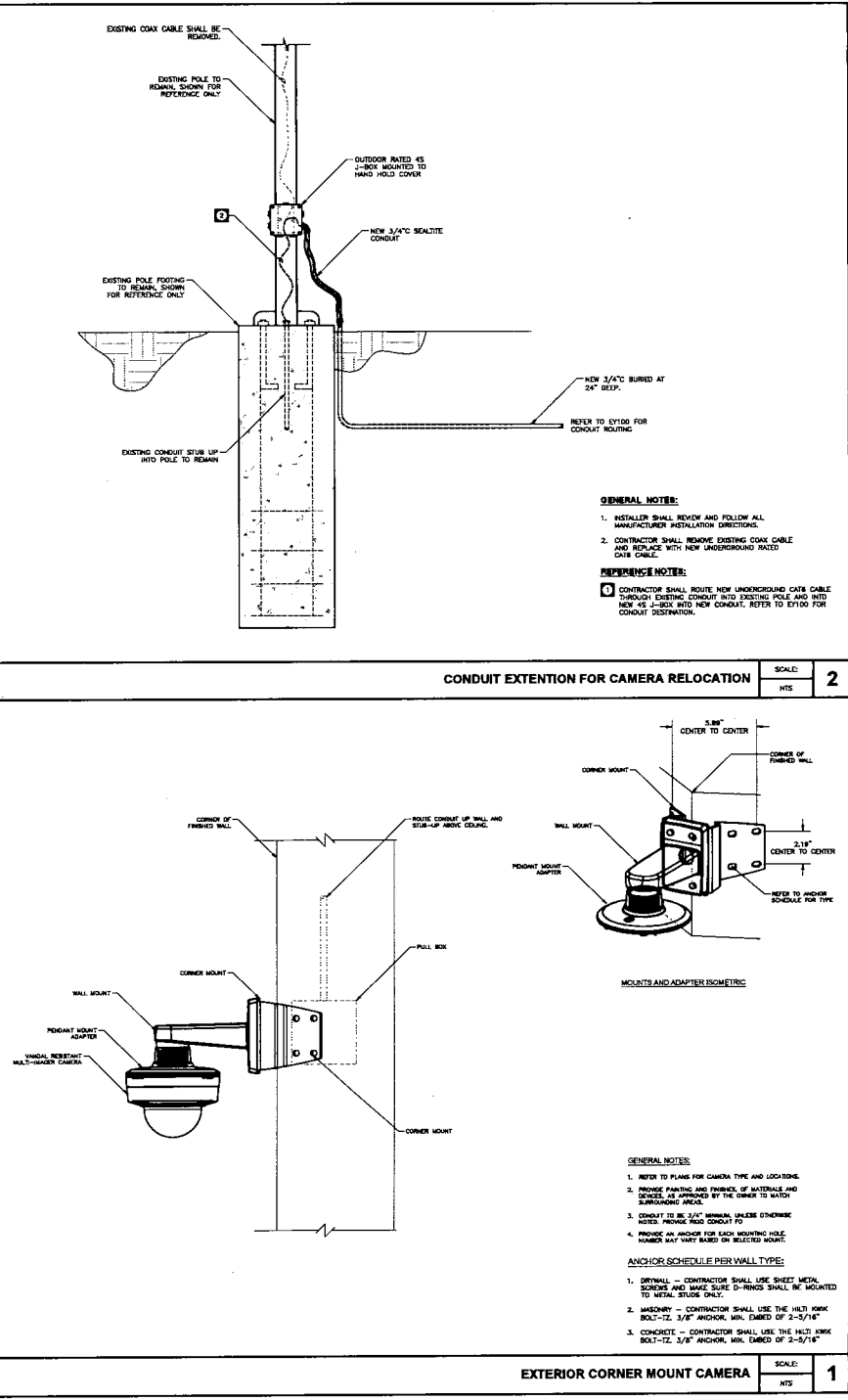
POLE MOUNTED CAMERA

SCALE: 4  
N.T.S.



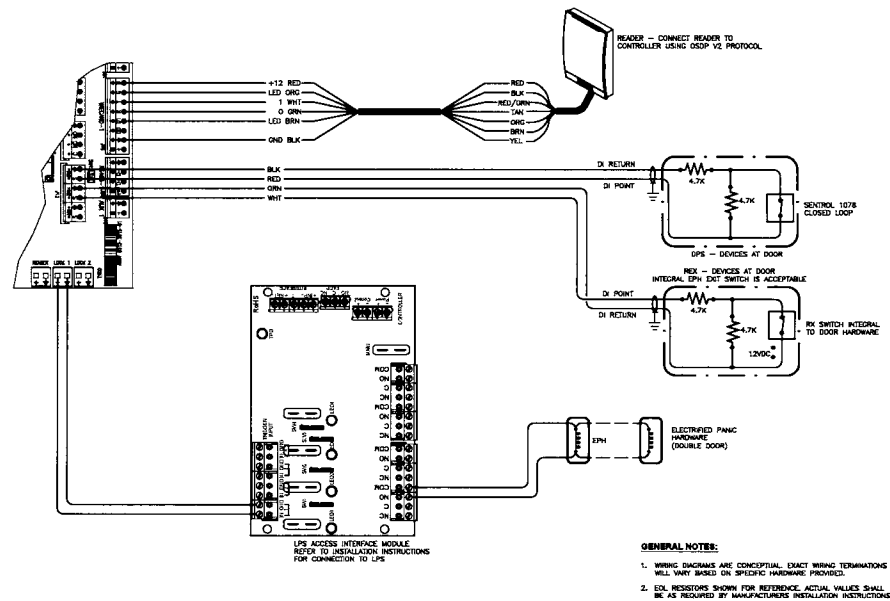
EXTERIOR POLE MOUNTED CAMERA RELOCATION DETAIL

SCALE: 3  
N.T.S.

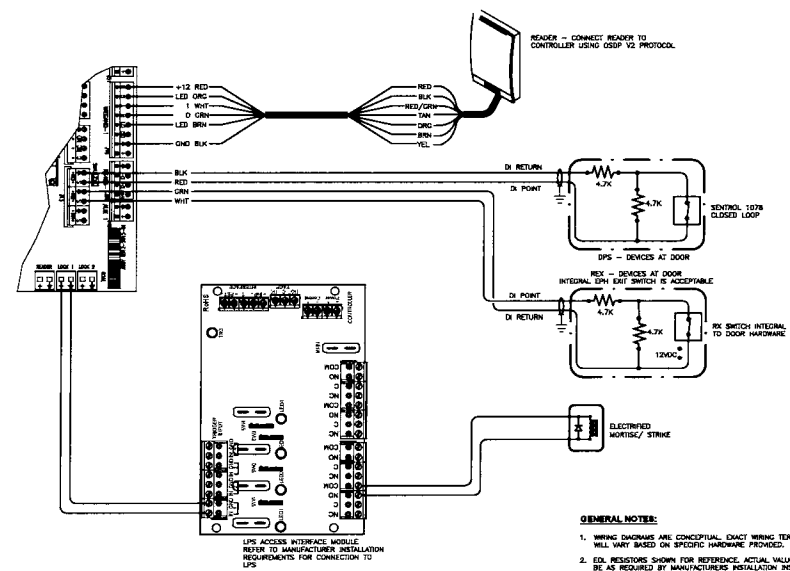


EXTERIOR CORNER MOUNT CAMERA

SCALE: 1  
N.T.S.



**TYPICAL WIRING TO ACCESS CONTROL PORT WITH  
READER/KEYPAD, DPS, REX, AND ELECTRIFIED PANIC HARDWARE**



**TYPICAL WIRING TO ACCESS CONTROL PORT WITH  
READER/KEYPAD, DPS, REX, AND ELECTRIFIED MORTISE/STRIKE**



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



Central CA  
Tel: 949-943-9422  
web: [www.3rdparty.com](http://www.3rdparty.com)

**PROJECT**

**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

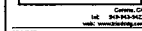

**KEY PLAN**[illegible]

SENSITIVE  
SECURITY  
INFORMATION

## WIRING DIAGRAMS

Checked by	DAE
Discovered by	DAE
Checked by	DAE
Project number	ZP111E
Scale	AS NOTED
Date	8/19/2021

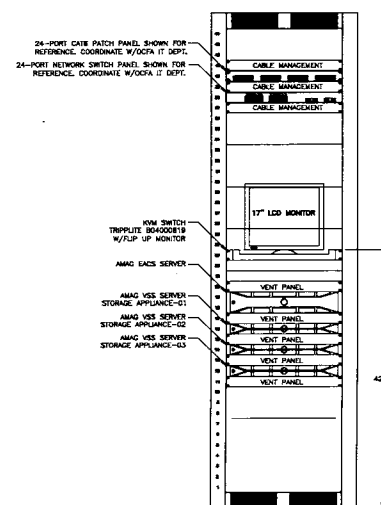
**EY520**



**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

NOT USED	SCALE:	4
	NTS	

NOT USED	SCALE:	2
	NTS	



GENERAL NOTES:


1. EXISTING OCFA EQUIPMENT. CONTRACTOR TO COORDINATE WITH OCFA TO IDENTIFY RACK TO BE USED FOR THE SECURITY EQUIPMENT AND LAYOUT OF RACK MOUNTED DEVICES.

NOT USED	SCALE:	3
	MTS	

**SECURITY EQUIPMENT RACK ELEVATION  
BUILDING B COMPUTER ROOM B115**

SCALE:	1
NTS	

EY540


**KEY PLAN**[illegible]

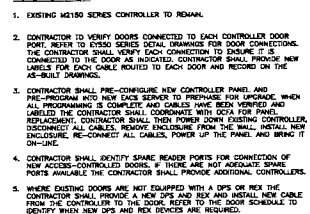
**SENSITIVE  
SECURITY  
INFORMATION**

## EQUIPMENT RACK ELEVATIONS

Drawn by	DAI
Designed by	DAI
Checked by	DAI
Project number	285115
Scale	AS NOTED
Date	5/6/91/202



1. EXISTING M2150 CONTROLLER CONFIGURATION. CONTRACTOR SHALL PROVIDE A PRE-CONFIGURED ENCLOSURE USING THE ALTRONIX TROOP OR LIFT SATELLITE CONTROLLER. POWER SHOULD BE SUPPLIED TO THE M2150 FROM THE READERS INCLUDING ONE M2150 B0065 AND ONE M2150 B00.
2. CONTRACTOR TO VERIFY BIDDERS CONNECTED TO CONTRACTOR DOOR AND TO VERIFY BIDDERS CONNECTED TO CONTRACTOR DOOR. CONTRACTOR SHALL VERIFY EACH WIRE CONNECTION TO ENSURE IT IS CORRECT. THE DOOR SHOULD BE OPENED TO VERIFY THE NEW LABELS FOR EACH CABLE. NOTIFY TO EACH DOOR AND RECORD ON THE DRAWING.
3. CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND WIRE INTO THE DOOR. CONTRACTOR SHALL VERIFY THE WIRE WITH ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND THE DOOR IS OPENED TO VERIFY THE NEW LABELS FOR EACH CABLE. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER AND RE-CONNECT ALL CABLES. POWER UP THE PANEL AND BRING IT ON LINE.
4. CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS CONTROLLERS. CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
5. WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DIPS OR ARE NOT EQUIPPED WITH A NEW DIPS, CONTRACTOR SHALL PROVIDE A NEW DIPS. THE NEW DIPS TO THE DOOR. REFER TO THE DOOR SCHEDULE TO VERIFY THE NEW DIPS.



1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO IDF ROOM A2118: THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.
  - A2101
  - A2107A
  - A2107B
  - A2107C
  - A2113
  - A2118
  - A2138



EY541



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



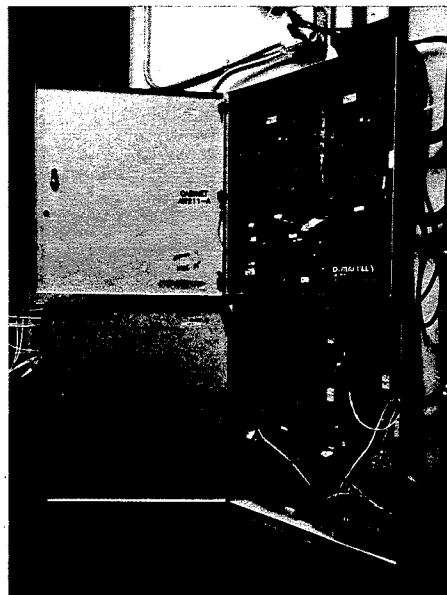
**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

[illegible]

SENSITIVE  
SECURITY  
INFORMATION

### PANEL AND CONTROLLER LAYOUT IDF ROOM AW110

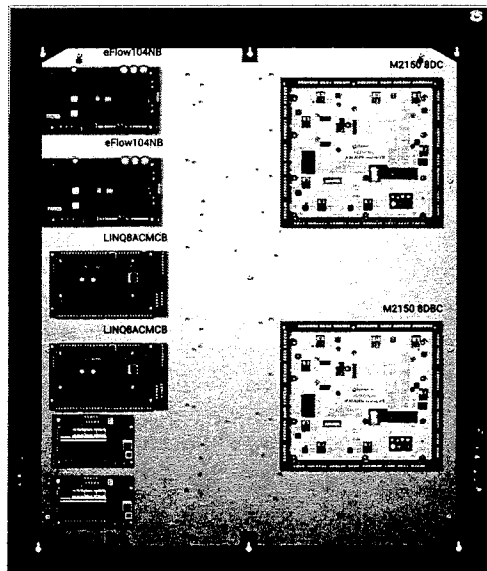
Obtain by	DAC
Designed by	DAS
Checked by	DAS
Project Number	291118
Scale	AS NOTED
Date	8-6-91/2821



**GENERAL NOTES:**

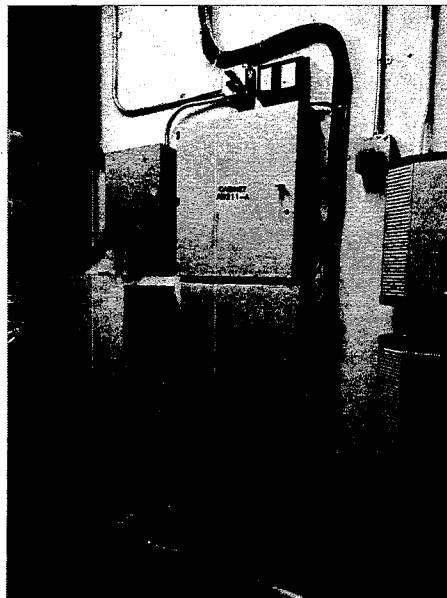
- [illegible]

### EXISTING CABINET A AND B PANEL LAYOUT



### TROVE 3 - 16 DOOR CABINET EQUIPMENT CONFIGURATION

SCALE:	3
NTS	



**GENERAL NOTES:**

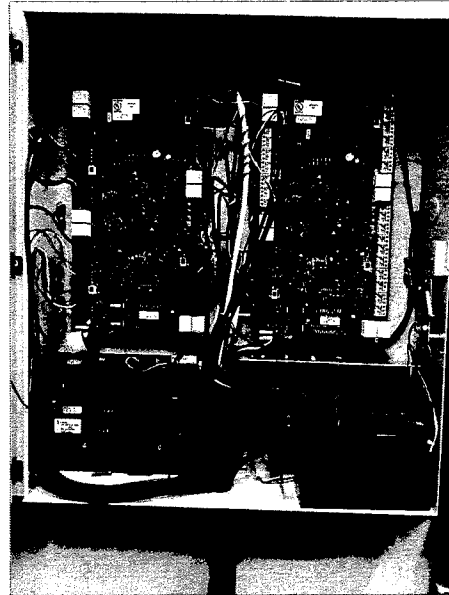
1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO THE ROOM AWT10. THE CONTRACTOR SHALL CONTACT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.
  - AWT10
  - AWT17
  - AWT182

### EXISTING EACS CABINET CONFIGURATION

SCALE:	1
NTS	

EY542





#### GENERAL NOTES:

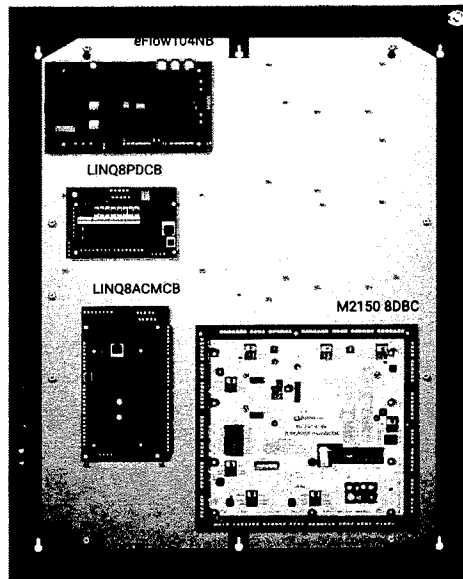
1. EXISTING M2150 CONTROLLER CONFIGURATION. CONTRACTOR SHALL PROVIDE A PRE-CONFIGURED ENCLOSURE USING THE ALTRONIX TRONIX OR LIFE-SAFETY POWER UNIFIED POWER SYSTEM. CONFIGURE THE ENCLOSURE FOR 8 READERS INCLUDING ONE M2150 RING.
2. CONTRACTOR TO VERIFY DOORS CONNECTED TO EACH CONTROLLER DOOR PORT. REFER TO ETS50 SERIES DETAIL DRAWINGS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO ENSURE IT IS CONNECTED TO THE DOOR AS INDICATED. CONTRACTOR SHALL PROVIDE NEW LABELS FOR EACH CABLE ROUTED TO EACH DOOR AND RECORD ON THE AS-BUILT DRAWINGS.
3. CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND PRE-PROGRAM INTO NEW EACS SERVER TO PREPARE FOR UPGRADE WHEN ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND LABELED. THE CONTRACTOR SHALL COORDINATE WITH OCFA FOR PANEL REPLACEMENT. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER, DISCONNECT ALL CABLES, REMOVE ENCLOSURE FROM THE WALL, INSTALL NEW ENCLOSURE, RE-CONNECT ALL CABLES, POWER UP THE PANEL AND BRING IT ON-LINE.
4. CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS-CONTROLLED DOORS. IF THERE ARE NOT SUFFICIENT SPARE PORTS AVAILABLE THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
5. WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DIP OR REDX THE CONTRACTOR SHALL PROVIDE A NEW DIP AND REDX AND INSTALL NEW CABLE FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY WHICH NEW DIP AND REDX DEVICES ARE REQUIRED.

NOT USED

SCALE: NTS 4

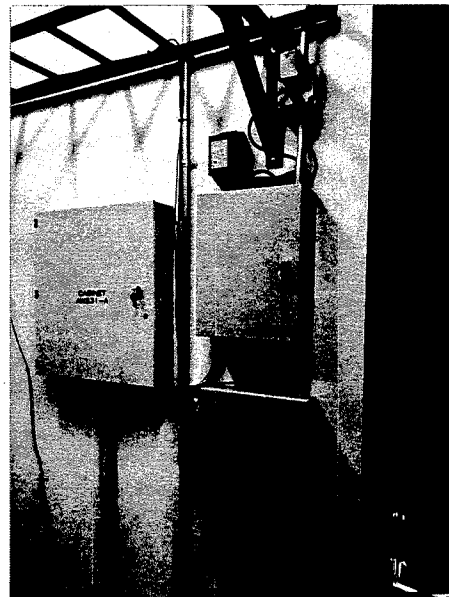
EXISTING CABINET A PANEL LAYOUT

SCALE: NTS 2



TROVE 2 - 8 DOOR CABINET EQUIPMENT CONFIGURATION

SCALE: NTS 3



#### GENERAL NOTES:

1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO IDF ROOM AND THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.  
- AW331  
- AW314

EXISTING EACS CABINET CONFIGURATION

SCALE: NTS 1



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



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San Jose, CA 95128  
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OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

Item	Description	Qty
1	AW331	1
2		
3		
4		
5		
6		
7		
8		
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11		
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20		

SENSITIVE  
SECURITY  
INFORMATION

PANEL AND  
CONTROLLER LAYOUT  
IDF ROOM AW331

Drawn by: BAC  
Checked by: DAB  
Project Number: 29118  
Scale: AS NOTED  
Date: 04/01/2011  
Sheet Number: 04/01/2011

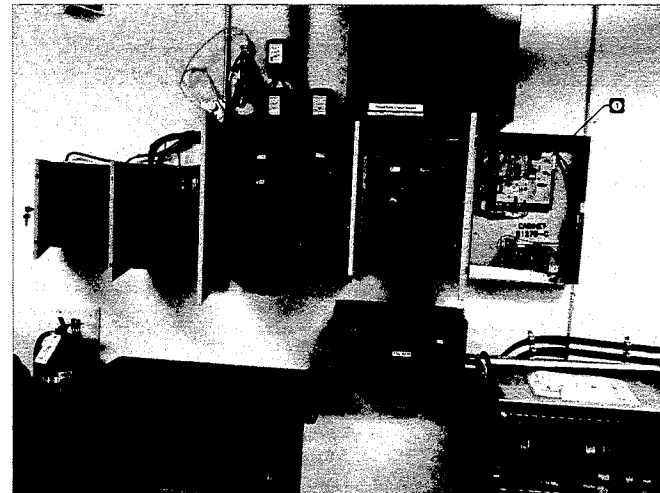
EY544



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



OCFA  
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UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



#### REFERENCE NOTES:

- 1** EXISTING M2150 SERIES CONTROLLER TO REMAIN.

GENERAL NOTES:

- [illegible]

**NOT USED**

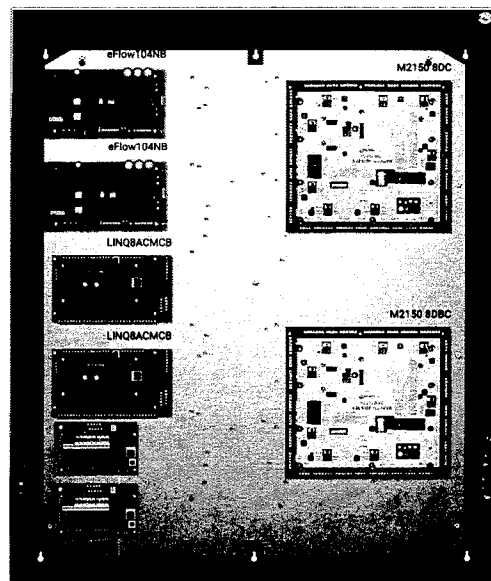
SCN

4

### EXISTING CABINETS A, B, AND C PANEL LAYOUTS

SCALE:

**2**

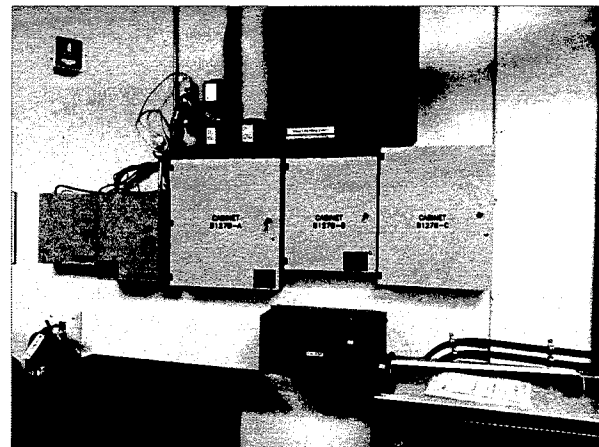


### TROVE 3 - 16 DOOR CABINET EQUIPMENT CONFIGURATION

SCALE

MTS

3



**GENERAL NOTES:**

1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO IDF ROOM 8127A; THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.
  - 8116
  - 8117
  - 8127
  - 8127A

### EXISTING EACS CABINET CONFIGURATION

SCALE:

NTS

1



Issue	Description	Date
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100	1000	10/1/10

**SENSITIVE  
SECURITY  
INFORMATION**

### PANEL AND CONTROLLER LAYOUT IDF ROOM B127B

Drawn by BAC

Designed by

Checked by \_\_\_\_\_

Project number: \_\_\_\_\_

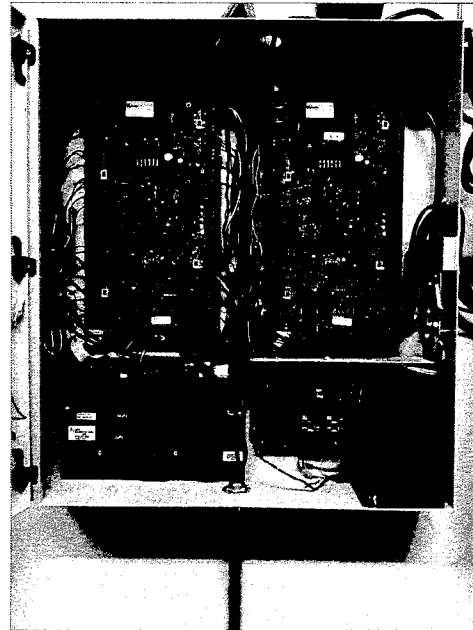
Scale

AS NOTED

Date \_\_\_\_\_

Street Number \_\_\_\_\_

**EY545**



# **GENERAL NOTES:**

1. EXISTING M2150 CONTROLLER CONFIGURATION. CONTRACTOR SHALL PROVIDE A PRE-CONFIGURED ENCLOSURE USING THE ALTRONIX TROVE OR LIFE SAFETY POWER LIMITED POWER SYSTEM. CONFIGURE THE ENCLOSURE FOR 8 READERS INCLUDING ONE M2150 808C.
2. CONTRACTOR TO VERIFY DOORS CONNECTED TO EACH CONTROLLER DOOR PORT. REFER TO DSSD SERIES DETAIL DRAWINGS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO ENSURE IT IS CONNECTED TO THE DOOR AS INDICATED. CONTRACTOR SHALL PROVIDE NEW LABELS FOR EACH CABLE ROUTED TO EACH DOOR AND RECORD ON THE AS-BUILT DRAWINGS.
3. CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND PRE-PROGRAM INTO NEW EACS SENSOR TO PREPARE FOR UPGRADE. WHEN ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND LABELED, THE CONTRACTOR SHALL CONSIDER THE DOOR FOR PANEL INSTALLATION. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER. DISCONNECT ALL CABLES. REMOVE ENCLOSURE FROM THE WALL. INSTALL NEW ENCLOSURE. RE-CONNECT ALL CABLES. POWER UP THE PANEL AND BRING IT ON-LINE.
4. CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS-CONTROLLED DOORS. IF THERE ARE NOT ADEQUATE SPARE PORTS AVAILABLE THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
5. WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DIP OR RED, THE CONTRACTOR SHALL PROVIDE A NEW DIP AND RED AND INSTALL NEW CABLE FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY WHEN NEW DIP AND RED DEVICES ARE REQUIRED.



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



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OCFA  
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UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602

NOT USED

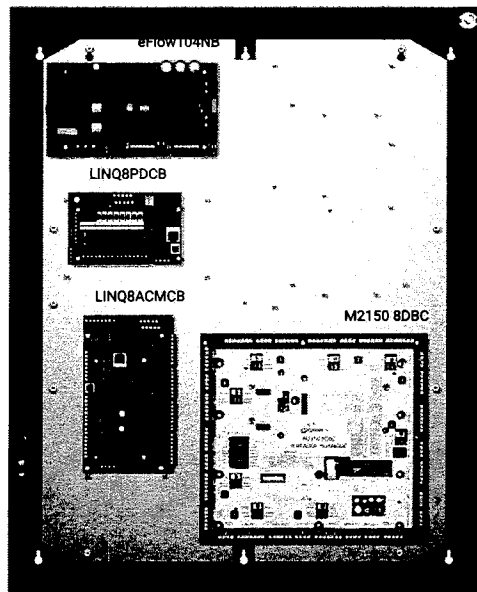
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4

EXISTING CABINET A PANEL LAYOUT

SCALE:  
N.T.S.

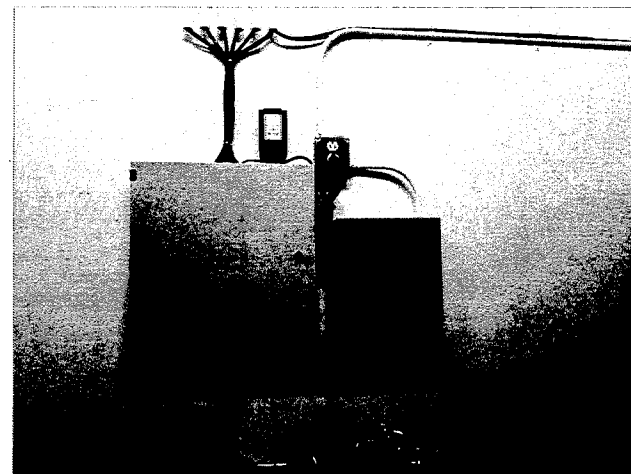
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TROVE 2 - 8 DOOR CABINET EQUIPMENT CONFIGURATION

SCALE:  
N.T.S.

3



# **GENERAL NOTES:**

1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO THE NEW DOOR. THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.  
- R237  
- R230  
- R1  
- R2

EXISTING EACS CABINET CONFIGURATION

SCALE:  
N.T.S.

1



KEY PLAN

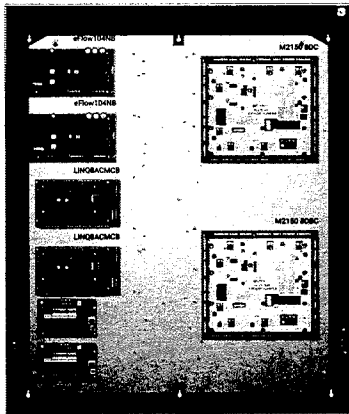
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SENSITIVE  
SECURITY  
INFORMATION

PANEL AND  
CONTROLLER LAYOUT  
IDF ROOM B228B

Drawn by: DAC  
Designed by: DAB  
Checked by: DAB  
Project number: 391118  
Date: AS NOTED  
Sheet number: 84812821

EY546



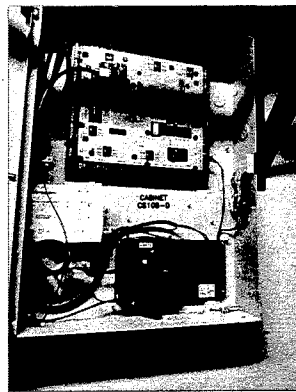
TROVE 3 - 16 DOOR CABINET EQUIPMENT CONFIGURATION

SCALE: 6  
NTS



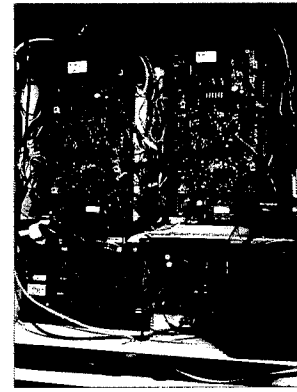
EXISTING CABINET B PANEL CONFIGURATION

SCALE: 3  
NTS



EXISTING CABINET C PANEL CONFIGURATION

SCALE: 5  
NTS



EXISTING CABINET A PANEL CONFIGURATION

SCALE: 2  
NTS



EXISTING CABINET C PANEL CONFIGURATION

SCALE: 4  
NTS



EXISTING EACS CABINET CONFIGURATION

SCALE: 1  
NTS

**GENERAL NOTES:**

- EXISTING M2100 CONTROLLER CONFIGURATION. CONTRACTOR SHALL PROVIDE A PRE-CONFIGURED ENCLOSURE USING THE ALTRONIX TROVE OR LIFE SAFETY POWER UNIFIED POWER SYSTEM. CONFIGURE THE ENCLOSURE FOR 16 READERS INCLUDING ONE M2150 B00C AND ONE M2150 B0C.
- CONTRACTOR TO VERIFY DOORS CONNECTED TO EACH CONTROLLER DOOR PORT. REFER TO TROVE SERIES DETAIL DRAWINGS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO ENSURE IT IS CONNECTED TO THE DOOR AS INDICATED. CONTRACTOR SHALL PROVIDE NEW LABELS FOR EACH CABLE ROUTED TO EACH DOOR AND RECORD ON THE AS-BUILT DRAWINGS.
- CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND PRE-PROGRAM INTO NEW EACS SERVER TO PREPARE FOR UPGRADE. WHEN ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND LABELED THE CONTRACTOR SHALL COORDINATE WITH OCA FOR PANEL REPLACEMENT. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER, DISCONNECT ALL CABLES, REMOVE ENCLOSURE FROM THE WALL, INSTALL NEW ENCLOSURE, RE-CONNECT ALL CABLES, POWER UP THE PANEL AND BRING IT ON-LINE.
- CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS-CONTROLLED DOORS. IF THERE ARE NOT ADEQUATE SPARE PORTS AVAILABLE THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
- WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DPS OR REX THE CONTRACTOR SHALL PROVIDE A NEW DPS AND REX AND INSTALL NEW CABLE FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY WHEN NEW DPS AND REX DEVICES ARE REQUIRED.

**GENERAL NOTES:**

- EXISTING M2100 CONTROLLER CONFIGURATION. CONTRACTOR SHALL PROVIDE A PRE-CONFIGURED ENCLOSURE USING THE ALTRONIX TROVE OR LIFE SAFETY POWER UNIFIED POWER SYSTEM. CONFIGURE THE ENCLOSURE FOR 16 READERS INCLUDING ONE M2150 B00C AND ONE M2150 B0C.
- CONTRACTOR TO VERIFY DOORS CONNECTED TO EACH CONTROLLER DOOR PORT. REFER TO TROVE SERIES DETAIL DRAWINGS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO ENSURE IT IS CONNECTED TO THE DOOR AS INDICATED. CONTRACTOR SHALL PROVIDE NEW LABELS FOR EACH CABLE ROUTED TO EACH DOOR AND RECORD ON THE AS-BUILT DRAWINGS.
- CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND PRE-PROGRAM INTO NEW EACS SERVER TO PREPARE FOR UPGRADE. WHEN ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND LABELED THE CONTRACTOR SHALL COORDINATE WITH OCA FOR PANEL REPLACEMENT. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER, DISCONNECT ALL CABLES, REMOVE ENCLOSURE FROM THE WALL, INSTALL NEW ENCLOSURE, RE-CONNECT ALL CABLES, POWER UP THE PANEL AND BRING IT ON-LINE.
- CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS-CONTROLLED DOORS. IF THERE ARE NOT ADEQUATE SPARE PORTS AVAILABLE THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
- WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DPS OR REX THE CONTRACTOR SHALL PROVIDE A NEW DPS AND REX AND INSTALL NEW CABLE FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY WHEN NEW DPS AND REX DEVICES ARE REQUIRED.



OCFA  
1 FIRE AUTHORITY.  
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OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

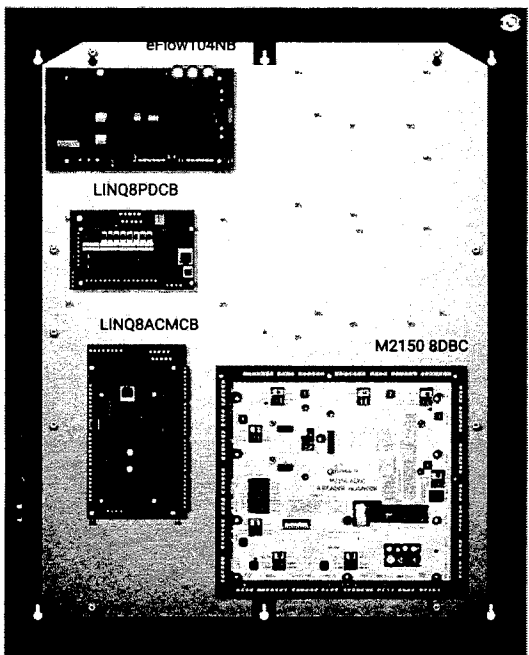
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SENSITIVE  
SECURITY  
INFORMATION

PANEL AND  
CONTROLLER LAYOUT  
IDP ROOM C3108

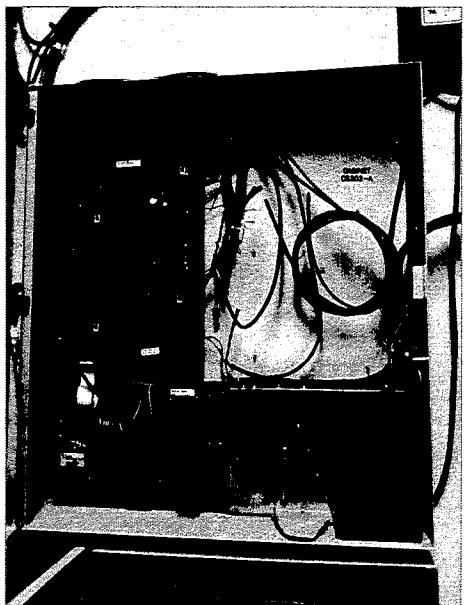
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Checked by	DAB
Project Number	201116
Scale	AS NOTED
Date	04/01/2011
Sheet Number	04/01/2011

EY547



TROVE 2 - 8 DOOR CABINET EQUIPMENT CONFIGURATION

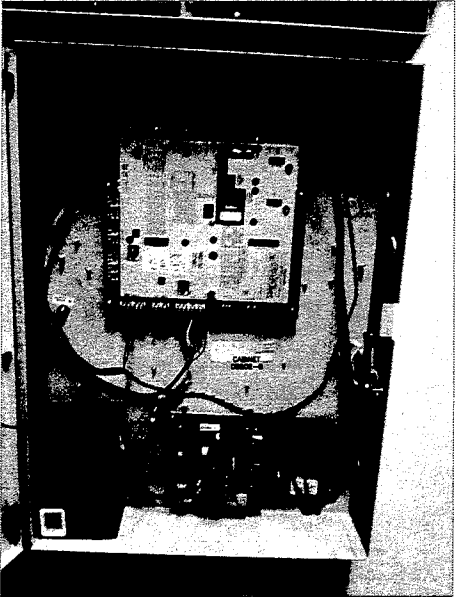
SCALE: NTS 4



EXISTING CABINET A PANEL LAYOUT

SCALE: NTS 2

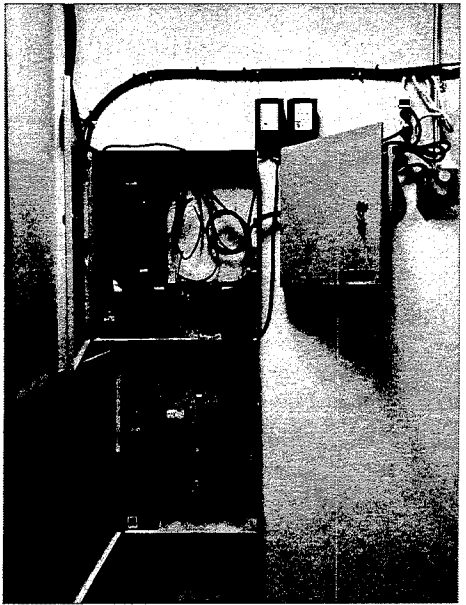
- GENERAL NOTES:**
- EXISTING M2150 CONTROLLER CONFIGURATION. CONTRACTOR SHALL PROVIDE A PRE-CONFIGURED ENCLOSURE USING THE ALTHOUGH TRONIC OR LIFE SAFETY POWER UNIFIED POWER SYSTEM. CONFIGURE THE ENCLOSURE FOR 8 READERS INCLUDING ONE M2150 RING.
  - CONTRACTOR TO VERIFY DOORS CONNECTED TO EACH CONTROLLER DOOR POST. REFER TO EXISTING SERIAL DRAWINGS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO ENSURE IT IS CONNECTED TO THE DOOR AS INDICATED. CONTRACTOR SHALL PROVIDE NEW LABELS FOR EACH CABLE ROUTED TO EACH DOOR AND RECORD ON THE AS-BUILT DRAWINGS.
  - CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND PRE-PROGRAM INTO NEW EACS SERVER TO PREPARE FOR UPGRADE. WHEN ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND LABELED THE CONTRACTOR SHALL COORDINATE WITH OCFA FOR PANEL REPLACEMENT. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER, DISCONNECT ALL CABLES, REMOVE ENCLOSURE FROM THE WALL, INSTALL NEW ENCLOSURE, RE-CONNECT ALL CABLES, POWER UP THE PANEL AND BRING IT ON-LINE.
  - CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS-CONTROLLED DOORS. IF THERE ARE NOT ADEQUATE SPARE PORTS AVAILABLE THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
  - WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DPS OR REX THE CONTRACTOR SHALL PROVIDE A NEW DPS AND REX AND INSTALL NEW CABLE FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY WHEN NEW DPS AND REX DEVICES ARE REQUIRED.



- GENERAL NOTES:**
- EXISTING M2150 SERIES CONTROLLER TO REMAIN.
  - CONTRACTOR TO VERIFY DOORS CONNECTED TO EACH CONTROLLER DOOR POST. REFER TO EXISTING SERIAL DRAWINGS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO ENSURE IT IS CONNECTED TO THE DOOR AS INDICATED. CONTRACTOR SHALL PROVIDE NEW LABELS FOR EACH CABLE ROUTED TO EACH DOOR AND RECORD ON THE AS-BUILT DRAWINGS.
  - CONTRACTOR SHALL PRE-CONFIGURE NEW CONTROLLER PANEL AND PRE-PROGRAM INTO NEW EACS SERVER TO PREPARE FOR UPGRADE. WHEN ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND LABELED THE CONTRACTOR SHALL COORDINATE WITH OCFA FOR PANEL REPLACEMENT. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER, DISCONNECT ALL CABLES, REMOVE ENCLOSURE FROM THE WALL, INSTALL NEW ENCLOSURE, RE-CONNECT ALL CABLES, POWER UP THE PANEL AND BRING IT ON-LINE.
  - CONTRACTOR SHALL IDENTIFY SPARE READER PORTS FOR CONNECTION OF NEW ACCESS-CONTROLLED DOORS. IF THERE ARE NOT ADEQUATE SPARE PORTS AVAILABLE THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
  - WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DPS OR REX THE CONTRACTOR SHALL PROVIDE A NEW DPS AND REX AND INSTALL NEW CABLE FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY WHEN NEW DPS AND REX DEVICES ARE REQUIRED.

EXISTING CABINET B PANEL LAYOUT

SCALE: NTS 3



EXISTING EACS CABINET CONFIGURATION

SCALE: NTS 1

- GENERAL NOTES:**
- EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
  - CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO NEW ROOM (3202). THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.
    - CS202
    - CS223



OCFA  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



KEY PLAN

Room	Description	Date
3202	NEW	06/05/2021

SENSITIVE  
SECURITY  
INFORMATION

PANEL AND  
CONTROLLER LAYOUT  
ID# ROOM CS202

Drawn by	DAC
Designed by	DAB
Checked by	DAB
Printed by	3PT115
Date	06/05/2021
Drawn by	06/05/2021

EY548



OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY.  
IRVINE, CA 92602



- [illegible]

**NOT USED**

**SCALE:**

4

### EXISTING CABINET A PANEL LAYOUT

SCALE:

4



SCALE:

2



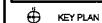
1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO IDF ROOM D113: THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.  
 a. D113.

### EXISTING EACS CABINET CONFIGURATION

SCALE:

1

EY549

[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

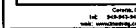
Street View

**PANEL AND  
CONTROLLER LAYOUT  
IDE ROOM CW128**

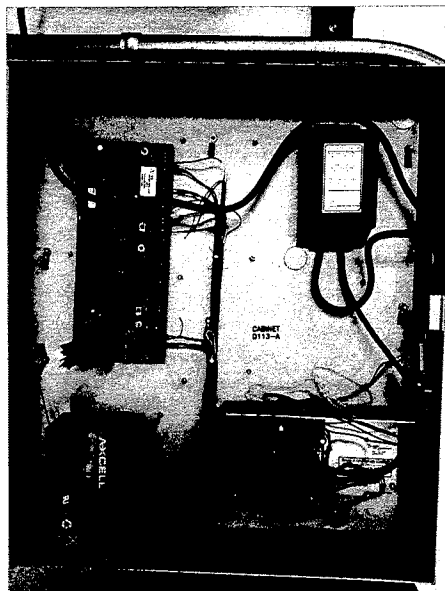
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Drawn by	DAI
Designed by	DAI
Checked by	DAI
Project number	29111
Scale	AS NOTED
Date	4/9/72

EY549

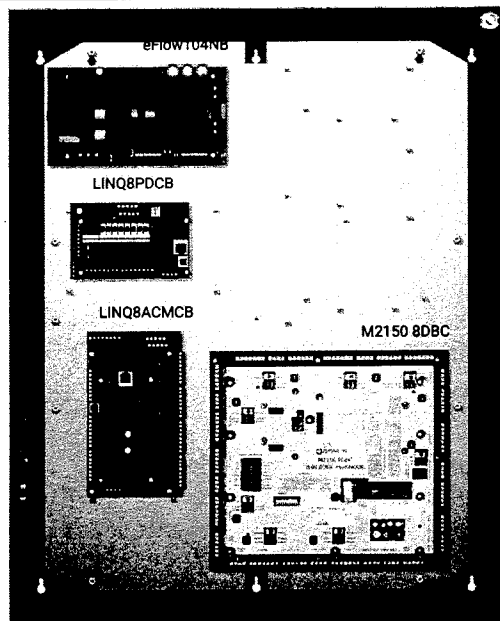


OCFA  
ACCESS CONTROL  
UPGRADE  
1 FIRE AUTHORITY,  
IRVINE, CA 92602

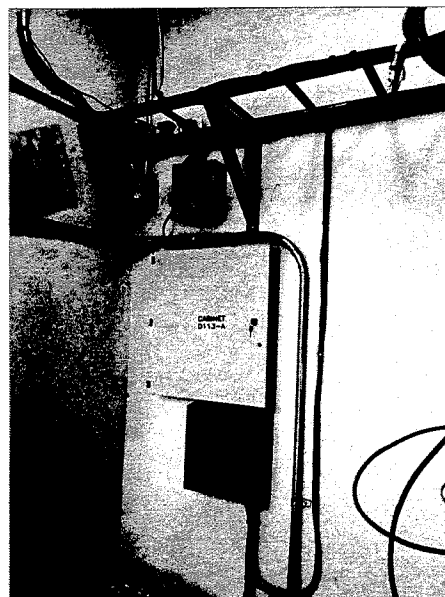


1. EXISTING DMEC2 CONTROLLER CONFIGURATION, CONTRACTOR SHALL PROVIDE A PRE-PROGRAMMED CONTROLLER, PREPARED TO BE INSTALLED IN THE EXISTING DMEC2 CONTROLLER. CONTRACTOR SHALL REPROGRAM THE EXISTING DMEC2 FOR 8 READERS INCLUDING ONE KEYFID BISS.
2. CONTRACTOR TO VERIFY BISS CONNECTED TO EACH CONTROLLER DOOR. CONTRACTOR SHALL VERIFY BISS CABLES, JAMMERS FOR DOOR CONNECTIONS. THE CONTRACTOR SHALL VERIFY EACH CONNECTION TO INSURE IT IS CORRECT. CONTRACTOR SHALL REPROGRAM EACH CONTROLLER TO READ NEW LABELS FOR EACH CABLE VERIFY TO EACH DOOR AND RECORD ON THE AS-BUILT.
3. CONTRACTOR SHALL PRE-PROGRAM NEW CONTROLLER PANEL AND VERIFY WITH THE DMEC2 CONTROLLER. CONTRACTOR SHALL VERIFY WHICH ALL PROGRAMMING IS COMPLETE AND CABLES HAVE BEEN VERIFIED AND CORRECT. CONTRACTOR SHALL VERIFY EACH CONNECTION TO INSURE NEW REPLACEMENT. CONTRACTOR SHALL THEN POWER DOWN EXISTING CONTROLLER. CONTRACTOR SHALL REPROGRAM EACH CONTROLLER TO READ NEW LABELS, RE-CONNECT ALL CABLES, POWER UP THE PANEL, AND BRING IT ON.
4. CONTRACTOR SHALL IDENTIFY SPARE READERS POINTS FOR CONNECTION OF NEW ACCESSORIES. CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS.
5. WHERE EXISTING DOORS ARE NOT EQUIPPED WITH A DIPS OR BICD TO BE USED FOR THE NEW ACCESSORIES, CONTRACTOR SHALL PROVIDE THE NECESSARY WIRING FROM THE CONTROLLER TO THE DOOR. REFER TO THE DOOR SCHEDULE TO IDENTIFY THE NEW DIPS OR BICD TO BE USED.

SCALE:	4
NOTE	



SCALE:	3
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SCALE:	2
NTS	

[illegible]

SENSITIVE  
SECURITY  
INFORMATION

### PANEL AND CONTROLLER LAYOUT IDF ROOM D113

Designed by	D
Designed by	D
Checked by	D
Project number	2P11
Scale	AS NOTED
Date	8-6-91/2

1. EXISTING PANEL LAYOUT PROVIDED TO INDICATE EXISTING EQUIPMENT LAYOUT AND SPACE AVAILABILITY.
2. CABLE FOR THE FOLLOWING NEW DOORS SHALL BE ROUTED TO IDF ROOM D113: THE CONTRACTOR SHALL CONNECT TO SPARE PORTS OR PROVIDE NEW HARDWARE AS REQUIRED.

SCALE:	1
NTS	

**EY550**





OCFA  
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IRVINE, CA 92602



CHINA, CA  
TEL: 949-444-4444  
WWW: WWW.TRIADCONSULTING.COM

PROJECT

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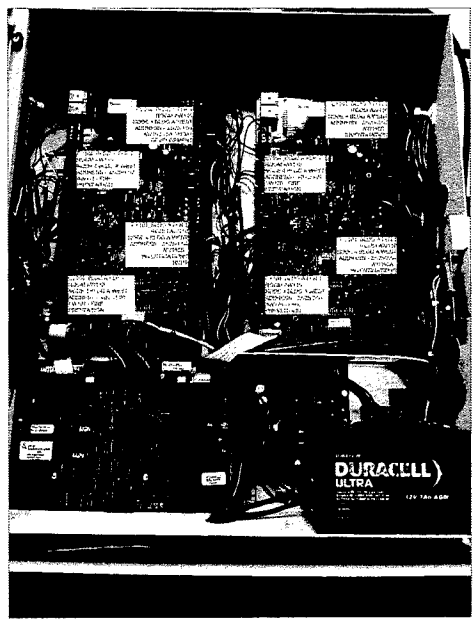
⊕ KEY PLAN

Rev	Description	Date
1	ISSUED	08/08/01

SENSITIVE  
SECURITY  
INFORMATION

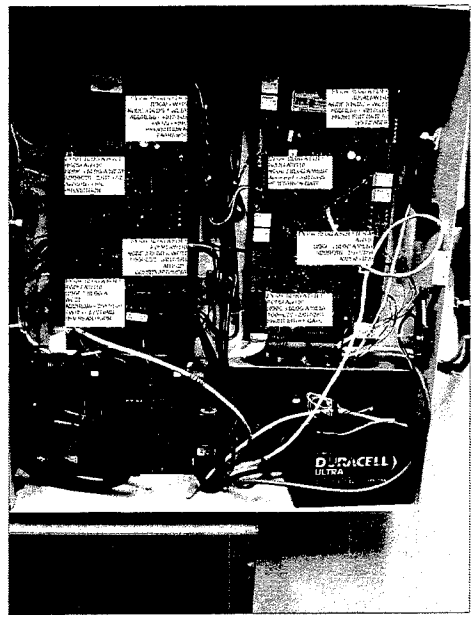
Reader Title  
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PORT TERMINATIONS  
IDF ROOM AW110

Drawn by: SAC  
Designed by: SAC  
Checked by: SAC  
Project number: 341118  
Scale: AS NOTED  
Date: 04/01/01  
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SCALE: 4

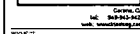
NODE 4-3-026-1-3 TERMINATION DIAGRAM  
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NTS



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SCALE: 3

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SCALE: 1  
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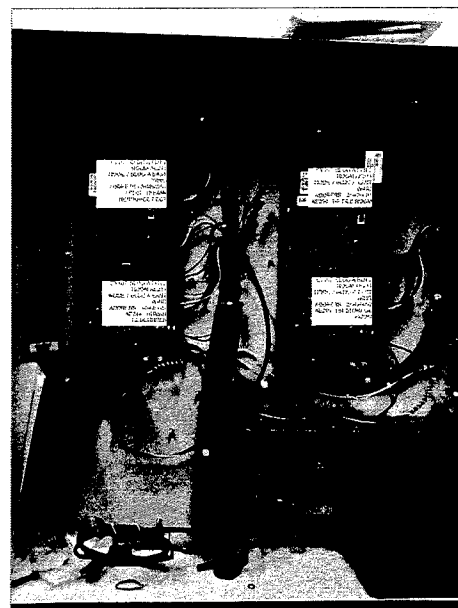
EY552



**OCFA**  
**ACCESS CONTROL**  
**UPGRADE**  
**1 FIRE AUTHORITY.**  
**IRVINE, CA 92602**

NOT USED	SCALE:	4
	NTS	

NOT USED	SCALE:	2
	NTS	



NOT USED	SCALE:	3
	NTS	

**NODE 7-3-049-3-4 TERMINATION DIAGRAM**

SCALE:	1
NTS	



KEY PLAN

**SENSITIVE  
SECURITY  
INFORMATION**

**READER CONTROLLER  
PORT TERMINATIONS  
IDF ROOM AE211**

Drawn by	DA
Designed by	DA
Checked by	DA
Project number	28111
Scale	AS NOTED
Date	6-6/81/282

**EY553**



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1 FIRE AUTHORITY.  
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Corona, CA  
Tel: 949-440-9422  
www.computertriad.com

PROJECT

OCFA  
ACCESS CONTROL  
UPGRADE  
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IRVINE, CA 92602

Case



KEY PLAN

Room	Description	Date
101	101	10/1/01
102	102	10/1/01
103	103	10/1/01
104	104	10/1/01
105	105	10/1/01
106	106	10/1/01
107	107	10/1/01
108	108	10/1/01
109	109	10/1/01
110	110	10/1/01
111	111	10/1/01
112	112	10/1/01
113	113	10/1/01
114	114	10/1/01
115	115	10/1/01
116	116	10/1/01
117	117	10/1/01
118	118	10/1/01
119	119	10/1/01
120	120	10/1/01

SENSITIVE  
SECURITY  
INFORMATION

Reader Title  
READER CONTROLLER  
PORT TERMINATIONS  
IDF ROOM AW231

Drawn by: SAC  
Designed by: DAB  
Checked by: DAB  
Project number: 281518  
Scale: AS NOTED  
Date: 10/1/01  
Sheet Number: 10/1/01

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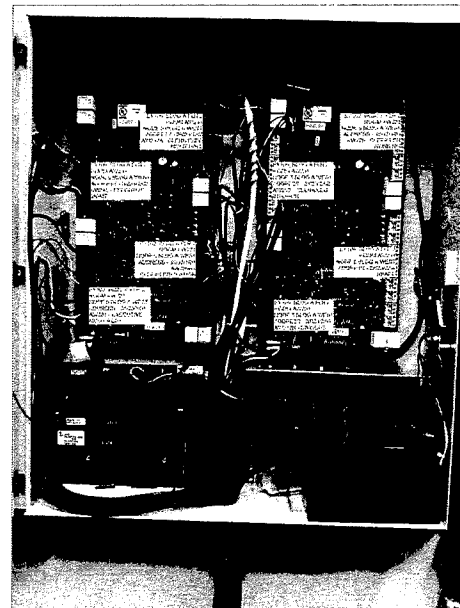
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NTS

4

NOT USED

SCALE:  
NTS

2



NOT USED

SCALE:  
NTS

3

NODE 5-3-033-1-3 TERMINATION DIAGRAM

SCALE:  
NTS

1

EY554





1st 543-943

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**NOT USED**

**SOLD**

NTS

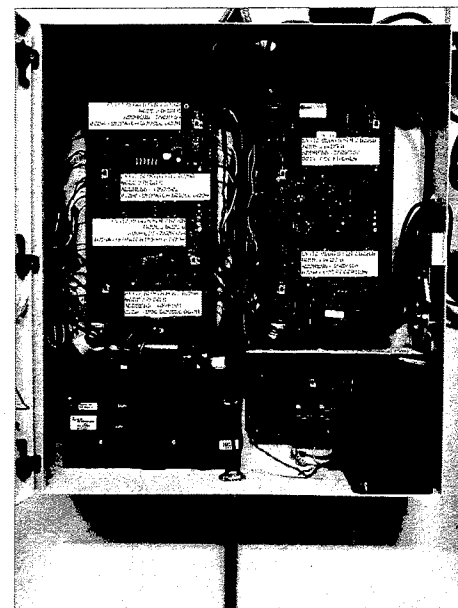
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**NOT USED**

SCALE

MTS

13



KEY PLAN

[illegible]

NO NET 1540

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**SENSITIVE  
SECURITY  
INFORMATION**

**READER CONTROLLER  
PORT TERMINATIONS  
IDE ROOM B226B**

Draw IV

Designed by \_\_\_\_\_

Quantity

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Page 20 of 20

Scale AS NC

Date: 04/01/11

**NOT USED**

SCALE:

NTS

3

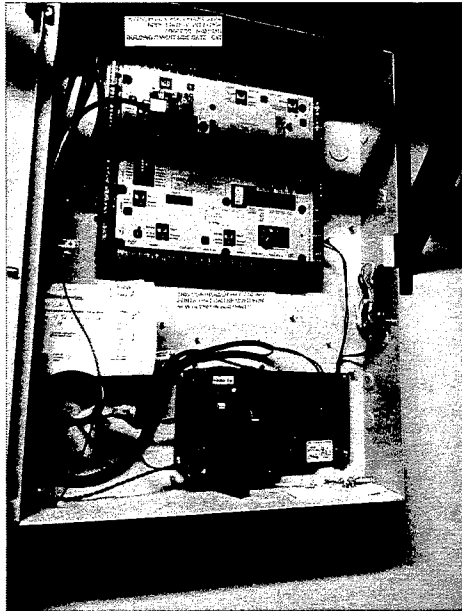
**BLDG B NODE 2 TERMINATION DIAGRAM**

SCALE

NTS

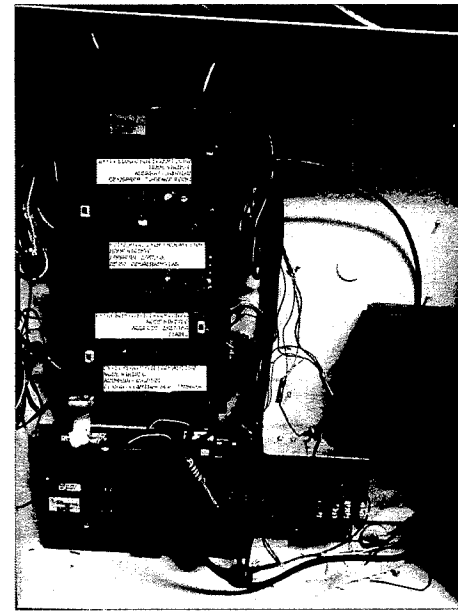
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**EY556**



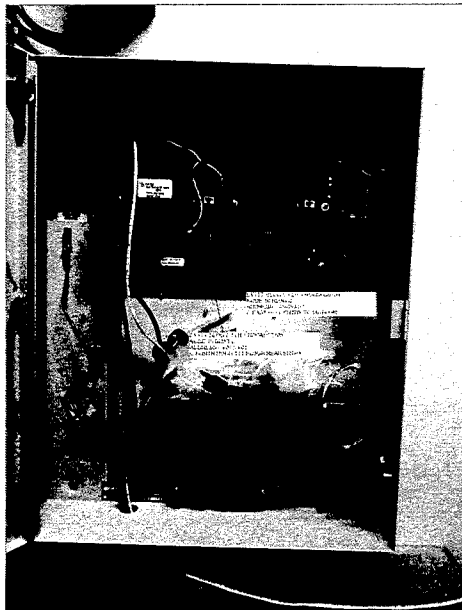
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NTS	



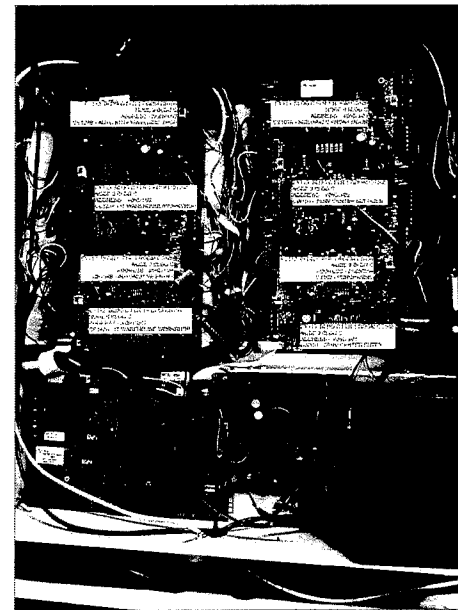
**NODE 8 BLDG C-3\_057-1 TERMINATION DIAGRAM**

SCALE:	2
MTS	



**NODE 10 BLDG C 3\_073\_3 TERMINATION DIAGRAM**

SCALE	3
NTS	



**NODE 9 BLDG C-3\_065\_1\_3 TERMINATION DIAGRAM**

SCALE:	1
NTS	



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tel: 949-963-9477  
web: [www.17ad.com](http://www.17ad.com)

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**IRVINE, CA 92602**

 KEY PLAN[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

Reader Controller  
Port Terminations  
IDF Room CS108

Drawn by	DAC
Designed by	DAS
Checked by	DAS
Project number	281118
Scale	AS NOTED
Date	6/4/12/21

**EY557**



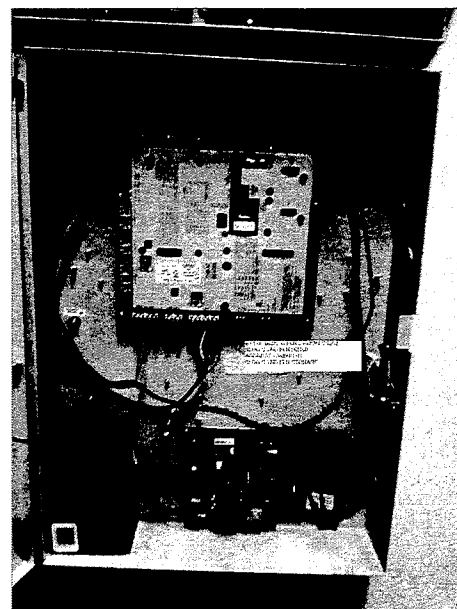
Prepared by

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SYSTEM DESIGN GROUP

Call 949-963-3333

850

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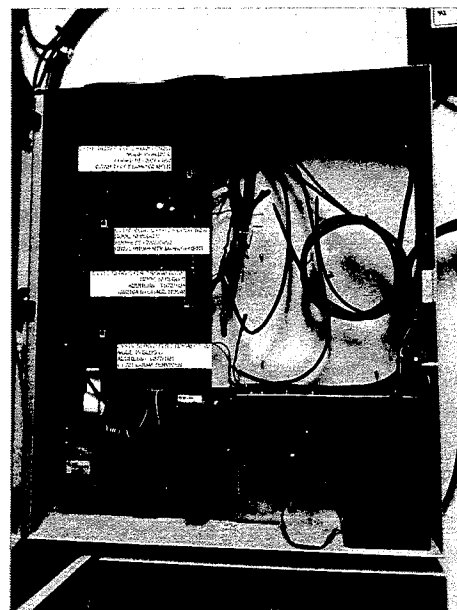


**NOT USED**

SCALE:	4
1000	

**BLDG C 2ND FLOOR M2150 TERMINATION DIAGRAM**

SCALE:	2
MTE	



KEY PLAN

[illegible]

SENSITIVE  
SECURITY  
INFORMATION

Street Title

READER CONTROLLER  
PANEL TERMINATIONS  
IDE ROOM CS202

Dispatch by	DAI
Delivered by	DAI
Classified by	DAI
Project number	29111
Scale	AS NOTED
Date	04/01/2022

**NOT USED**

SCALE:	3
ACTE	

**BLDG C NODE 10 TERMINATION DIAGRAM**

SCALE:	1
NTS	

**EY558**



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Caltrans, CA  
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**NOT USED**

SCALE
NTS

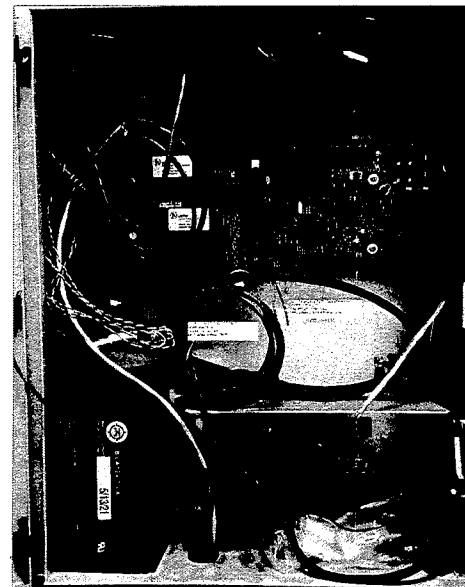
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SCALE:

NTS

2



 KEY PLAN

[illegible]

**SENSITIVE  
SECURITY  
INFORMATION**

Sheet Title

READER CONTROLLER  
PORT TERMINATIONS  
IDF ROOM CW126

Drawn by \_\_\_\_\_

DAC

\_\_\_\_\_  
Dated: \_\_\_\_\_

Downloaded by [ ] at [ ] on [ ]

DATE \_\_\_\_\_

201118

Scale ARE NOTED

04/01/2021

**NOT USED**

**SCALE:**

3

BLDG C WEST WING NODE 9 BLDG C-3\_065\_5 TERMINATION DIAGRAM

SCALE:

1

**EY559**



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Web: [www.2150.org](http://www.2150.org)

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**NOT USED**

SCALE

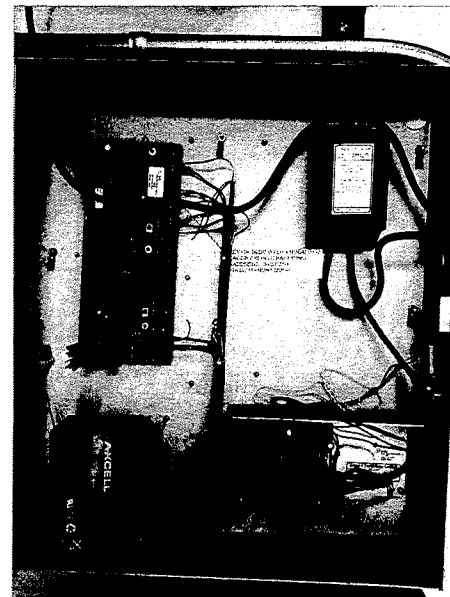
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4

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**SCALE:**

NTS



**NOT USED**

SCALE:

NTS

3

**BLDG C EAST WING NODE 8 TERMINATION DIAGRAM**

**SCALE:**

NTS

**1**

**SENSITIVE  
SECURITY  
INFORMATION**

Reader Controller  
Port Terminations  
IDF Room D113

Drawn by \_\_\_\_\_

Designed by D.A.N.

Checked by DAB

Project Number: 201118

AS NOTED

64012921

### Steak Fancier

**EY560**



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UPGRADE  
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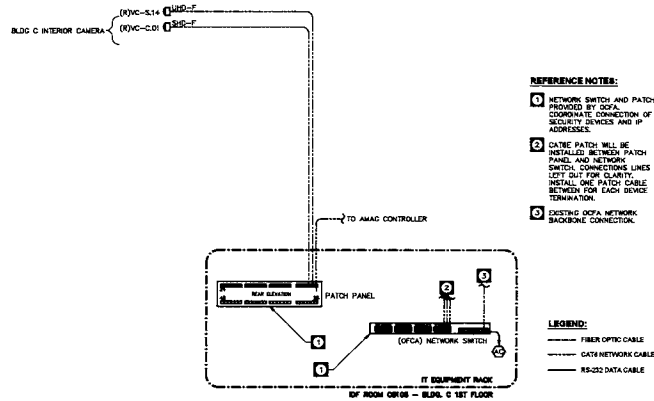
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107	107	10/1/00
108	108	10/1/00
109	109	10/1/00
110	110	10/1/00
111	111	10/1/00
112	112	10/1/00
113	113	10/1/00
114	114	10/1/00
115	115	10/1/00
116	116	10/1/00
117	117	10/1/00
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### SENSITIVE SECURITY INFORMATION

#### SINGLE LINE DIAGRAMS - 1

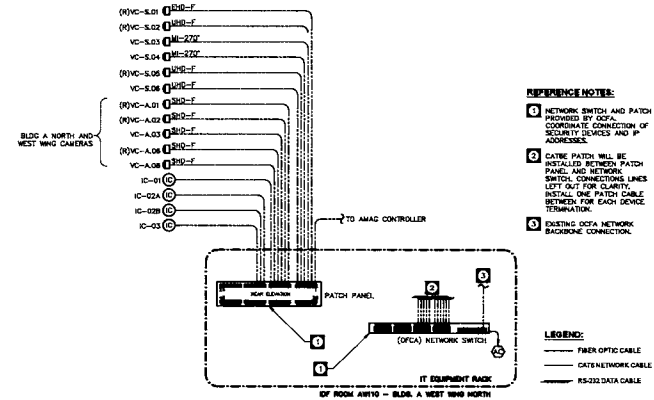
Drawn by: DAL  
Designed by: DAL  
Checked by: DAL  
Project Number: 091115  
Date: 08/10/00  
Sheet Number: 0001/0001

EY600



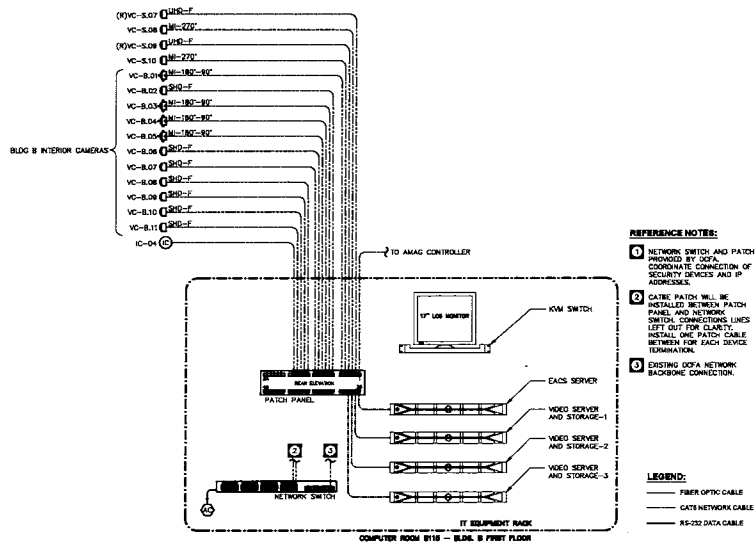
BLDG C IDF ROOM CS108 SINGLE LINE DIAGRAM

SCALE: 4  
NTS



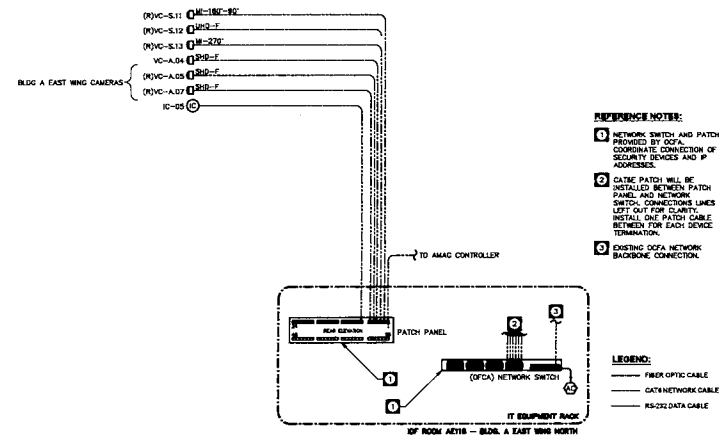
BLDG A IDF ROOM AW110 SINGLE LINE DIAGRAM

SCALE: 2  
NTS



BLDG B COMPUTER ROOM B115 SINGLE LINE DIAGRAM

SCALE: 3  
NTS



BLDG A IDF ROOM AE118 SINGLE LINE DIAGRAM

SCALE: 1  
NTS



Prepared By



**TRIAD CONSULTING**  
SYSTEM GROUP

Carana, I  
tel: 945-943-94  
web: www.945-943-94

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UPGRADE  
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IRVINE, CA 92602

 KEY PLAN

Issue	Discussion	Comments
1. The first set of data shows a significant increase in the number of cases over the last year.		
2. The second set of data shows a significant decrease in the number of cases over the last year.		
3. The third set of data shows a significant increase in the number of cases over the last year.		
4. The fourth set of data shows a significant decrease in the number of cases over the last year.		
5. The fifth set of data shows a significant increase in the number of cases over the last year.		
6. The sixth set of data shows a significant decrease in the number of cases over the last year.		
7. The seventh set of data shows a significant increase in the number of cases over the last year.		
8. The eighth set of data shows a significant decrease in the number of cases over the last year.		
9. The ninth set of data shows a significant increase in the number of cases over the last year.		
10. The tenth set of data shows a significant decrease in the number of cases over the last year.		

**SENSITIVE  
SECURITY  
INFORMATION**

## SINGLE LINE DIAGRAMS-2

Drawn by	Dr
Delivered by	Dr
Checked by	Dr
Project number	2911
Scale	AS NOTE
Date	04/01/20
Good morning	

**EY601**

NOT USED

SCALE:

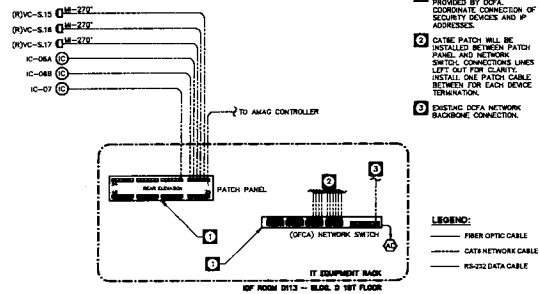
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NOT USED

SCALE:

NTS

2



NOT USED

SCALE:

NTS

3

BLDG D IDF ROOM D113 SINGLE LINE DIAGRAM

SCALE:  
NTS

1



**Orange County Fire Authority**  
**AGENDA STAFF REPORT**

**Board of Directors Meeting**  
**July 28, 2022**

**Agenda Item No. 3A**  
**Discussion Calendar**

**Firefighter Staffing/Forced Overtime Update**

---

**Contact(s) for Further Information**

Kenny Dossey, Deputy Fire Chief Emergency Operations Bureau	<a href="mailto:kennydossey@ocfa.org">kennydossey@ocfa.org</a>	714.573.6006
TJ McGovern, Assistant Chief Field Operations Department	<a href="mailto:TJMcGovern@ocfa.org">TJMcGovern@ocfa.org</a>	949.217.4892
Mike Contreras, Division Chief Division 5	<a href="mailto:mikecontreras@ocfa.org">mikecontreras@ocfa.org</a>	949.389.0055

**Summary**

This agenda item is submitted to provide an executive summary of Firefighter staffing and forced overtime at the OCFA.

**Prior Board/Committee Action(s)**

At the May 26, 2022, regular meeting of the Board of Directors, Chair Steggell requested a Staff Report and presentation on the overtime/forcing within OCFA.

**RECOMMENDED ACTION(S)**

Receive and file the report.

**Impact to Cities/County**

Not applicable

**Fiscal Impact**

Not applicable

**Background**

The attached PowerPoint presentation provides a summary of the Firefighter forced overtime topic. This PowerPoint presentation is intended to educate the Board on the history, top five reasons causing Firefighter forced overtime, and to elaborate on the plan to help reduce the number of forces.

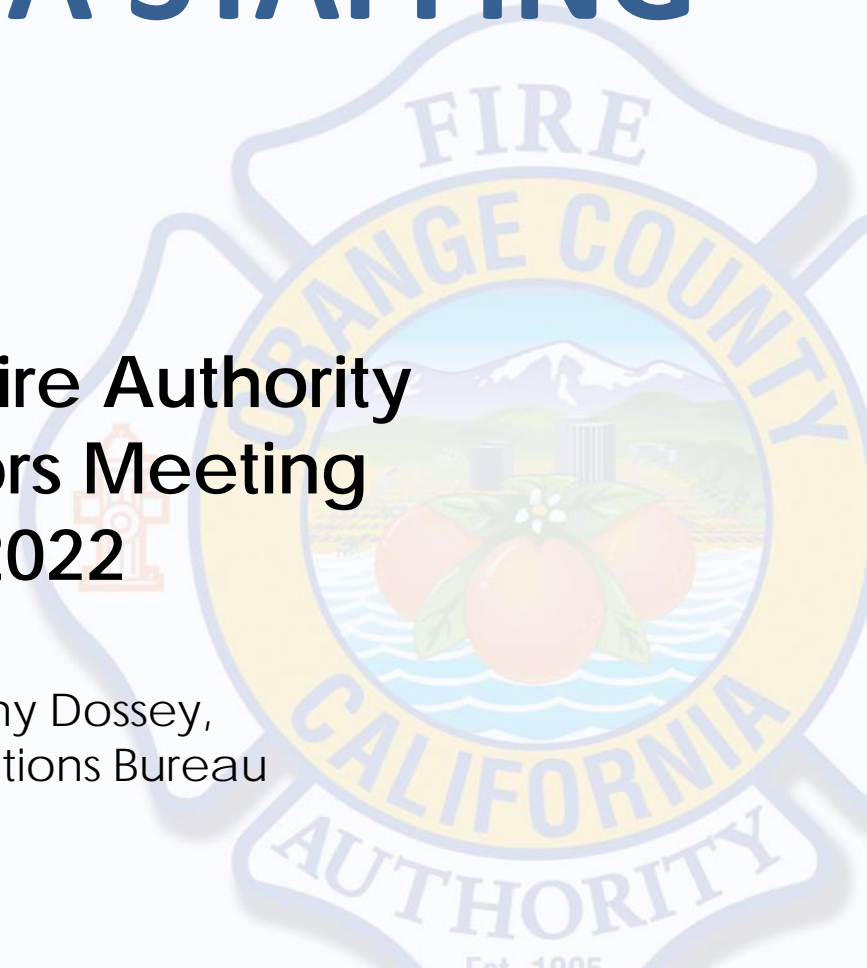
**Attachment(s)**

1. PowerPoint Presentation
2. Staffing Committee Matrix
3. Forcing Charts from 2018-2022
4. Academy Training Schedule for 2022-2027

# Update on OCFA STAFFING

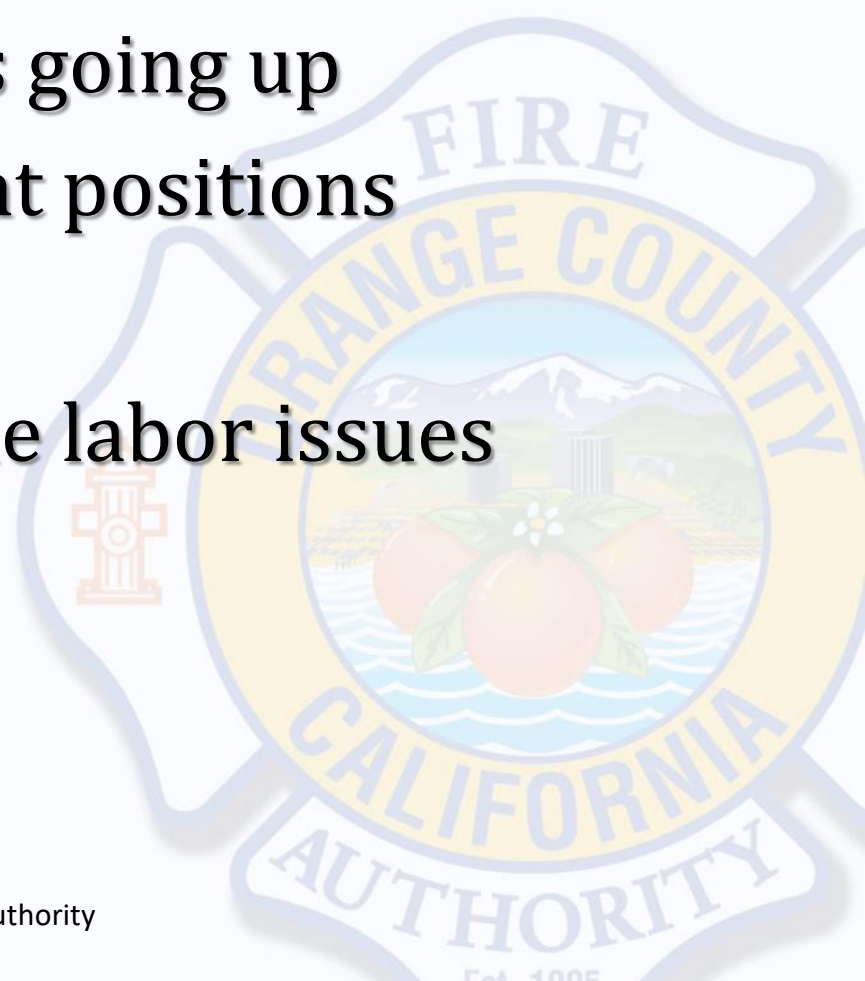
**Orange County Fire Authority  
Board of Directors Meeting  
July 28, 2022**

Presented by Kenny Dossey,  
Deputy Chief/Operations Bureau



# Staffing Continues to be a Challenge

- Difficult with Covid- numbers going up
- Workers comp numbers going up
- Staffing openings/vacant positions
- Promotion process
- Not just OCFA- Statewide labor issues
- Constant change



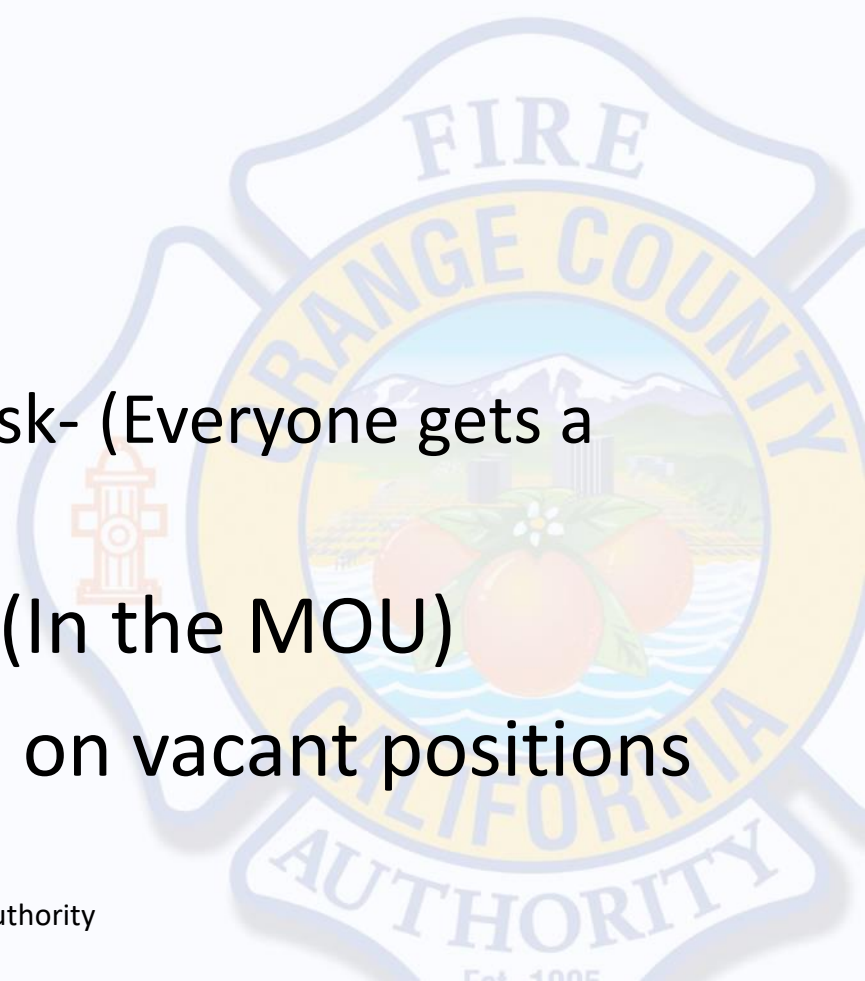
# History

## Top five reasons for forces:

1. Worker's comp
2. Vacant positions
3. Vacations
4. Sick days
5. Out of County Fires/all risk- (Everyone gets a force everyday off)

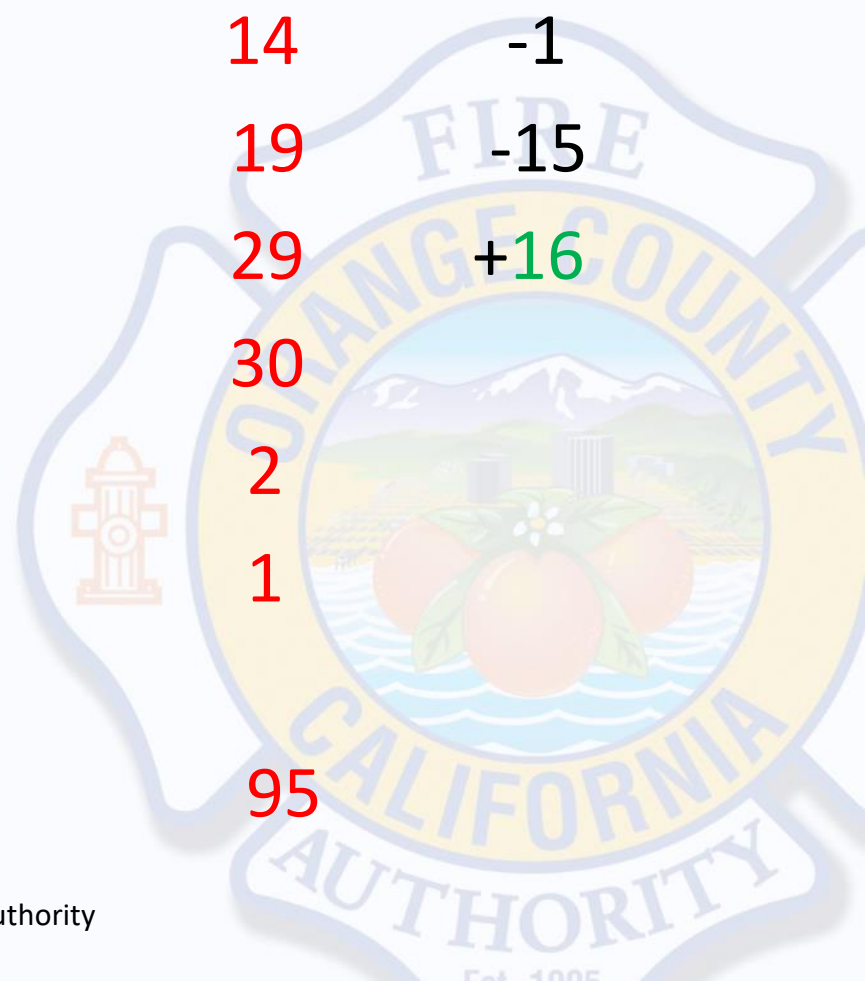
OCFA has constant staffing (In the MOU)

This presentation will focus on vacant positions

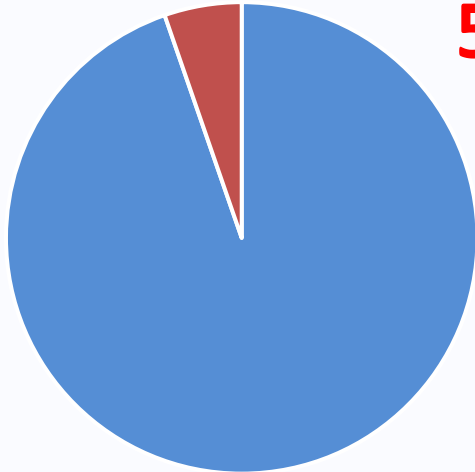


# Ranks-Vacant Positions 7/22

<u>Position</u>	<u>Vacant</u>	<u>W/C</u>	<u>8/11/22</u>
Firefighter (BLS)	+13	14	-1
Firefighter/Paramedic	+26	19	-15
Engineer	11	29	+16
Captain	14	30	
Battalion Chief	6	2	
Division Chief	0	1	
Total	31	95	



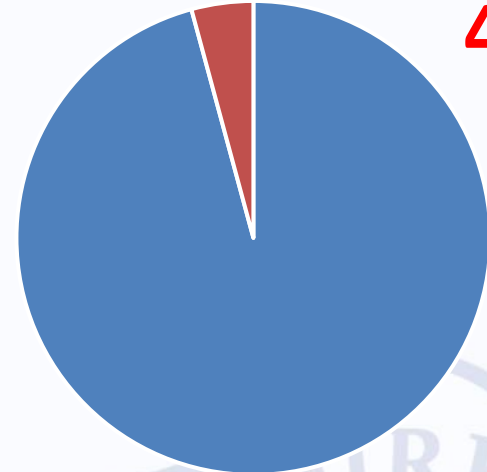
## Captain



**5.3%**

■ Filled- 250 ■ Openings- 14

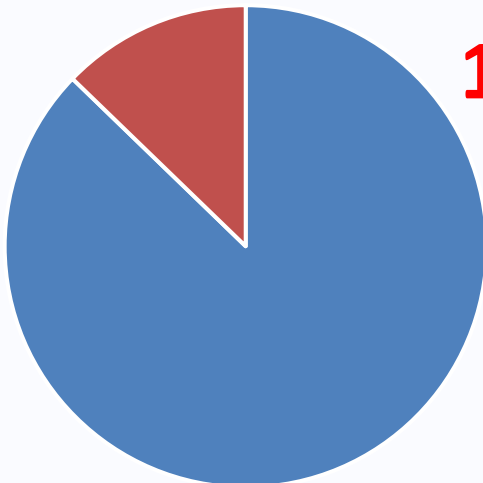
## Engineer



**4.2%**

■ Filled- 250 ■ Openings- 11

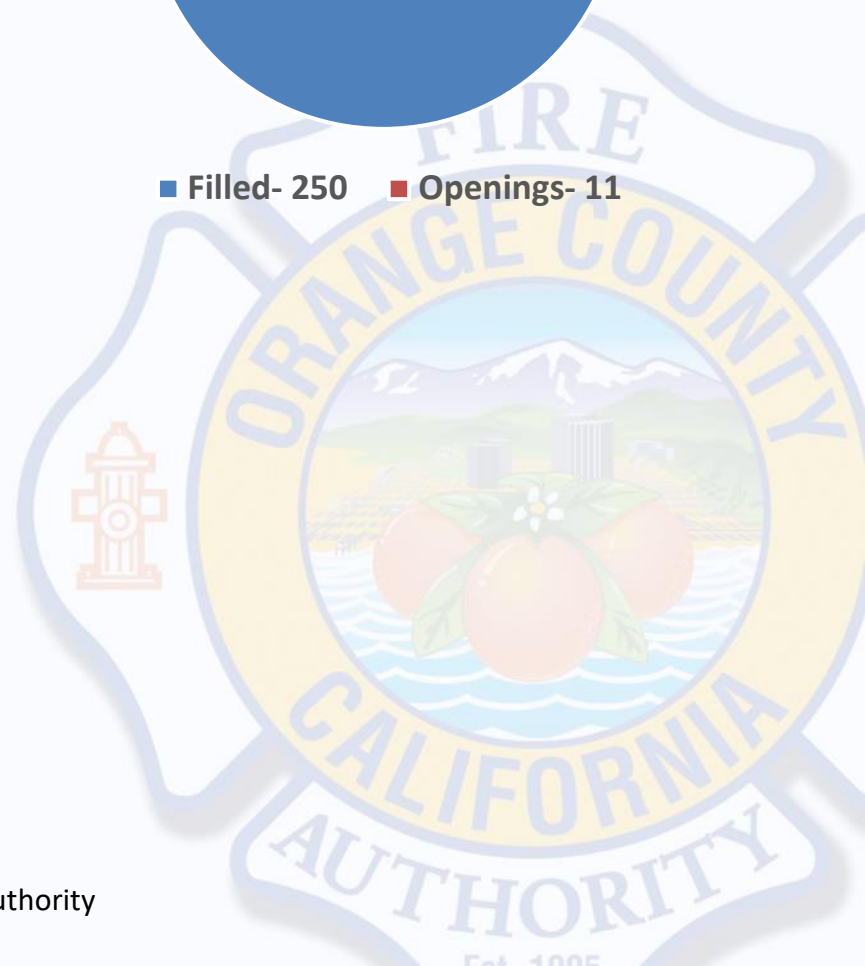
## BC



**12.7%**

■ Filled- 41 ■ Openings- 6

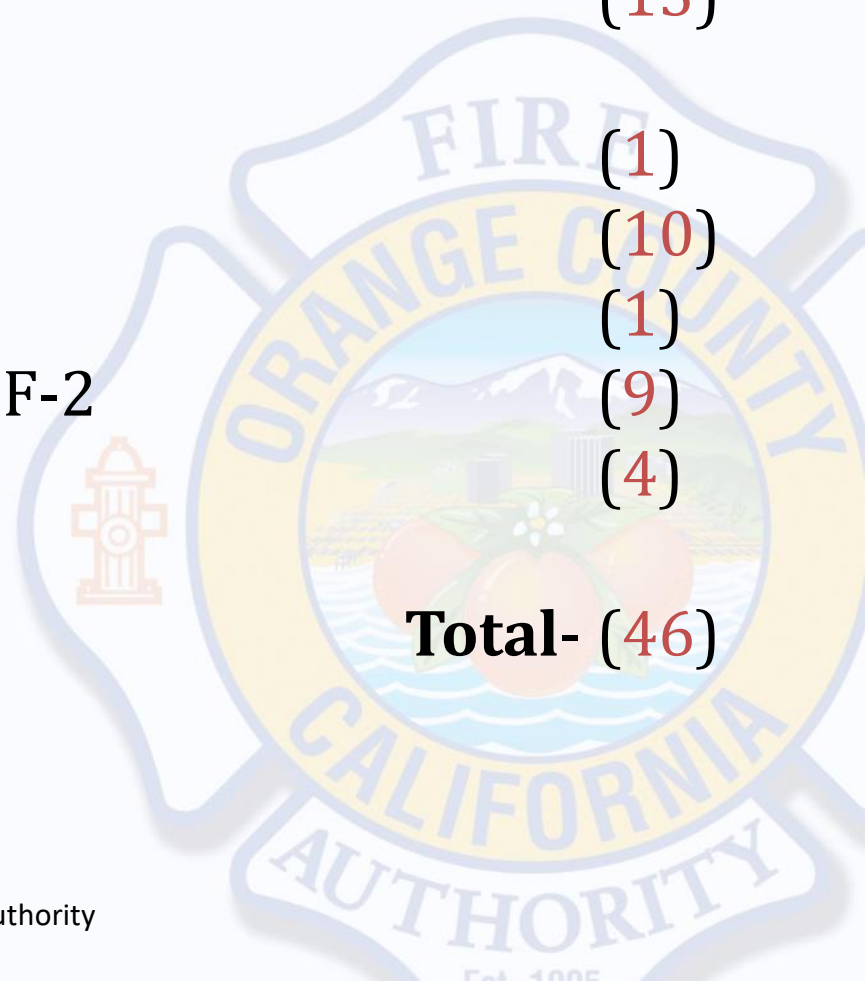
Orange County Fire Authority



# Firefighters Positions/Special Assignment

- Engineer Academy- FC-2/ FAE-6 (8)
- Firefighter Academy Cadre- (13)  
BC-1/FC-2/FAE-4/FF-6
- WEFIT- FF-1 (1)
- Medic School- FF-10 (10)
- EMS- FC-1 (1)
- Training AFTO- FC-2/FAE-5/FF-2 (9)
- Leave Without Pay- (4)

**Total- (46)**



# What Are We Doing To Fill Vacant Seats

**Firefighter BLS-** Hire academies- this positions is easiest to fill

**Firefighter/Paramedic-** (Two ways) Hire laterals FF/PM (3 academies, 53, 54, 55) Also send our own to school- every school including UCLA/Private OC EMT school/Palomar/Saddleback/Mount San Antonio

**Engineer-** Written, oral interview, academy=List

**Captain-** written, oral interview, academy=List

**Battalion Chief-** written, oral interview, test, academy= List

**Each academy takes time, planning and field personnel to teach**

# 2022

- Three Firefighter Academies- 54, 55, 56(BLS)
- Two Engineer Academies
- Three Captain Academies- (never been done in same year)
- Two BC Academies
- **Everything takes time- not overnight to fill any position**



# Five Year Training Academy Plan

- 5-year forecast- Flexibility in each year

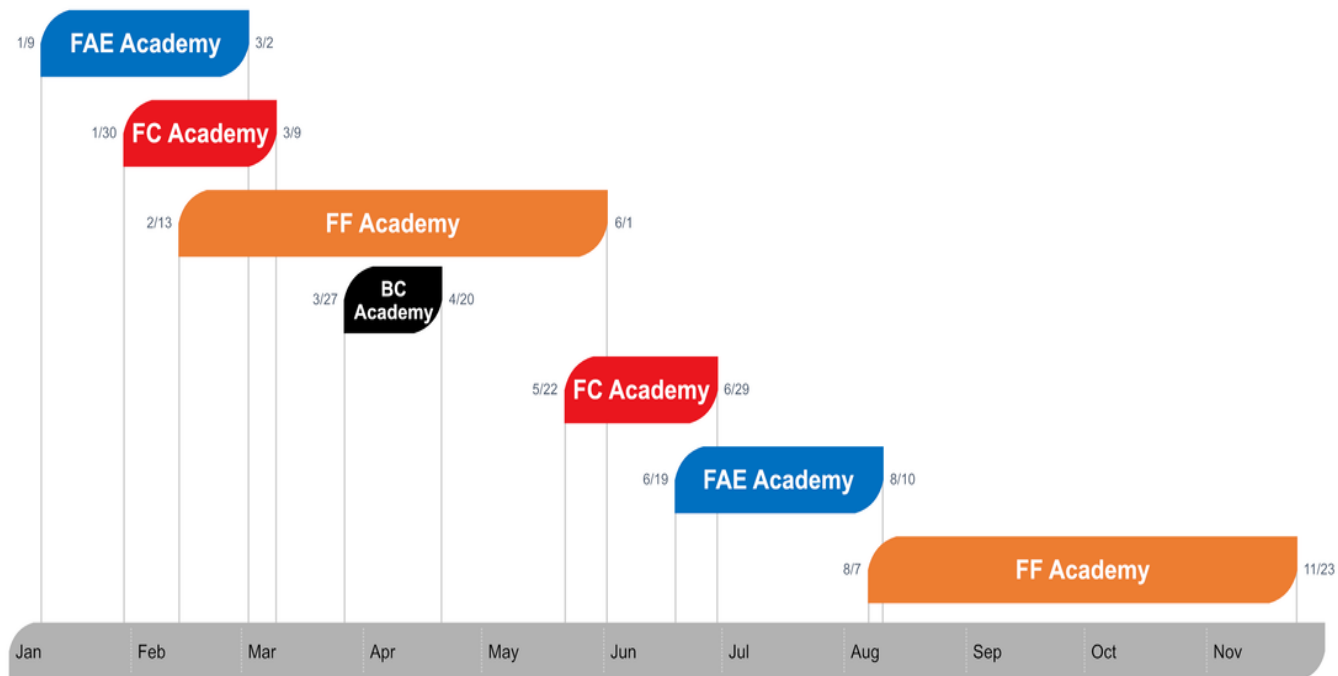




## 2022 Academies

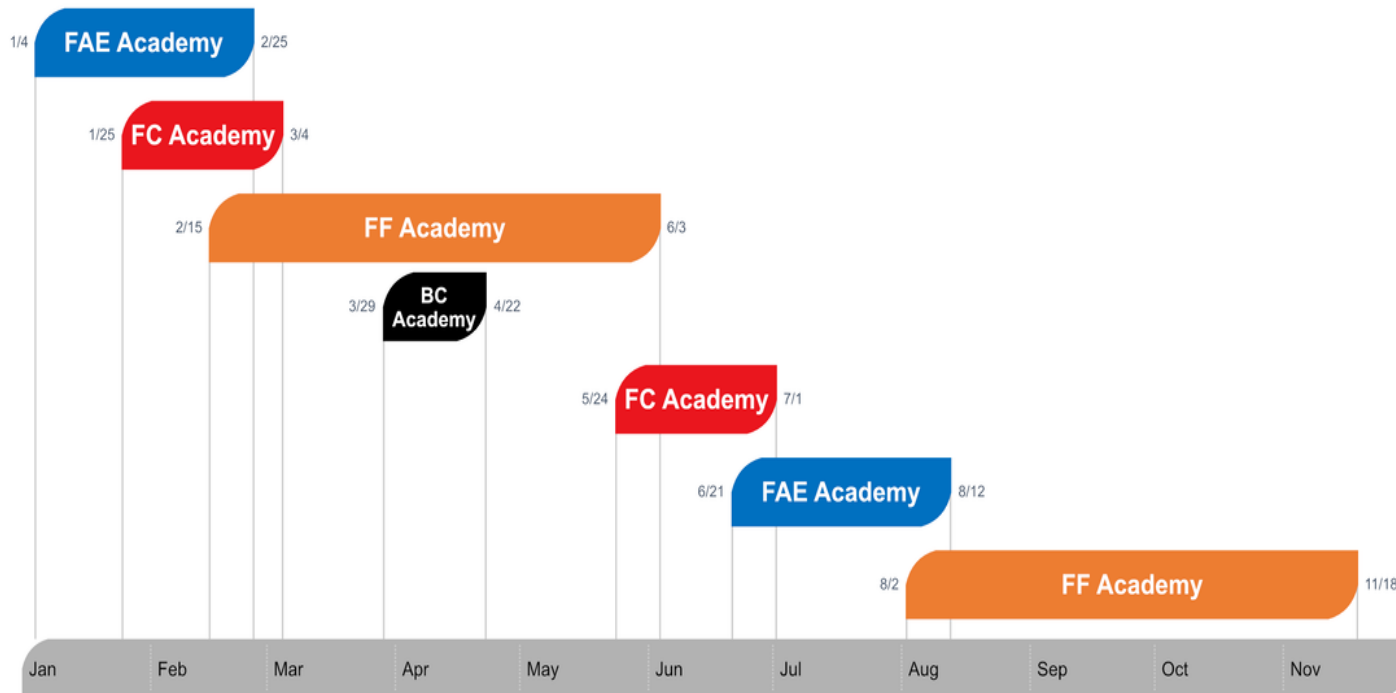


# 2023 Projected Academies



Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*

# 2027 Projected Academies



Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*

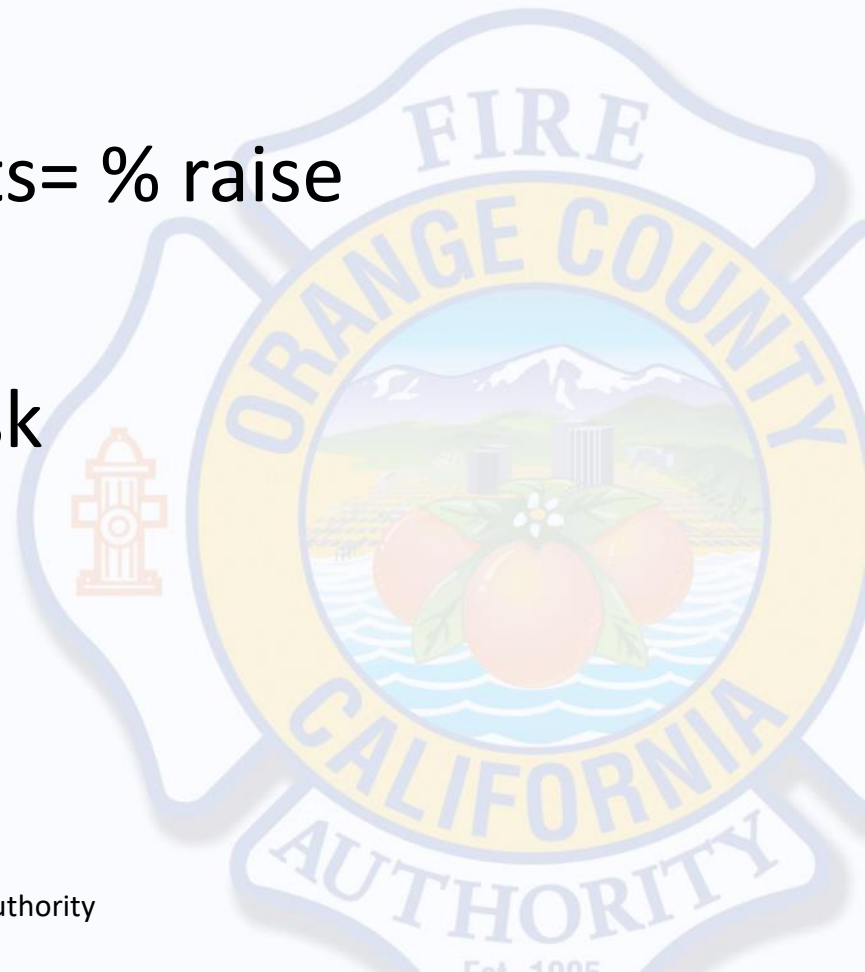
# New Positions In 2022

- E67- October- 12 positions
- T56- December 12 positions
- 24 new positions



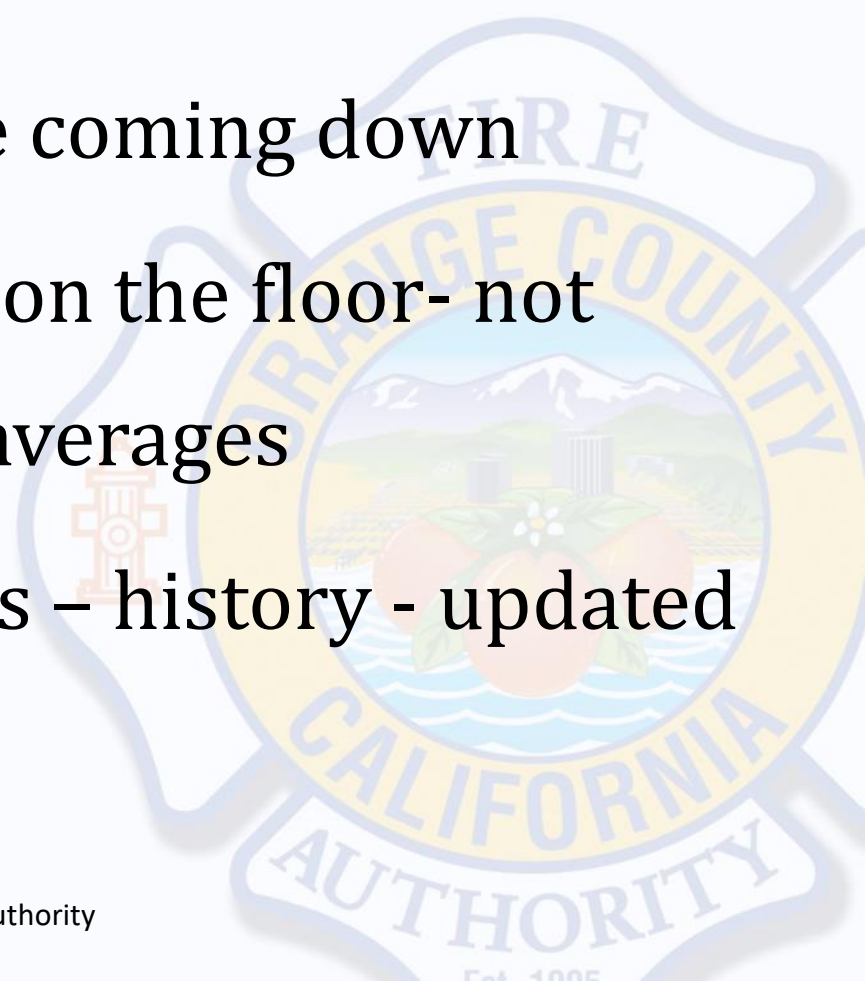
# Current Unknowns

- Covid Surge
- Santa Ana 10 year
- March Retirements= % raise
- Fullerton
- Fire Season/All Risk



# Charts for Documenting OTs

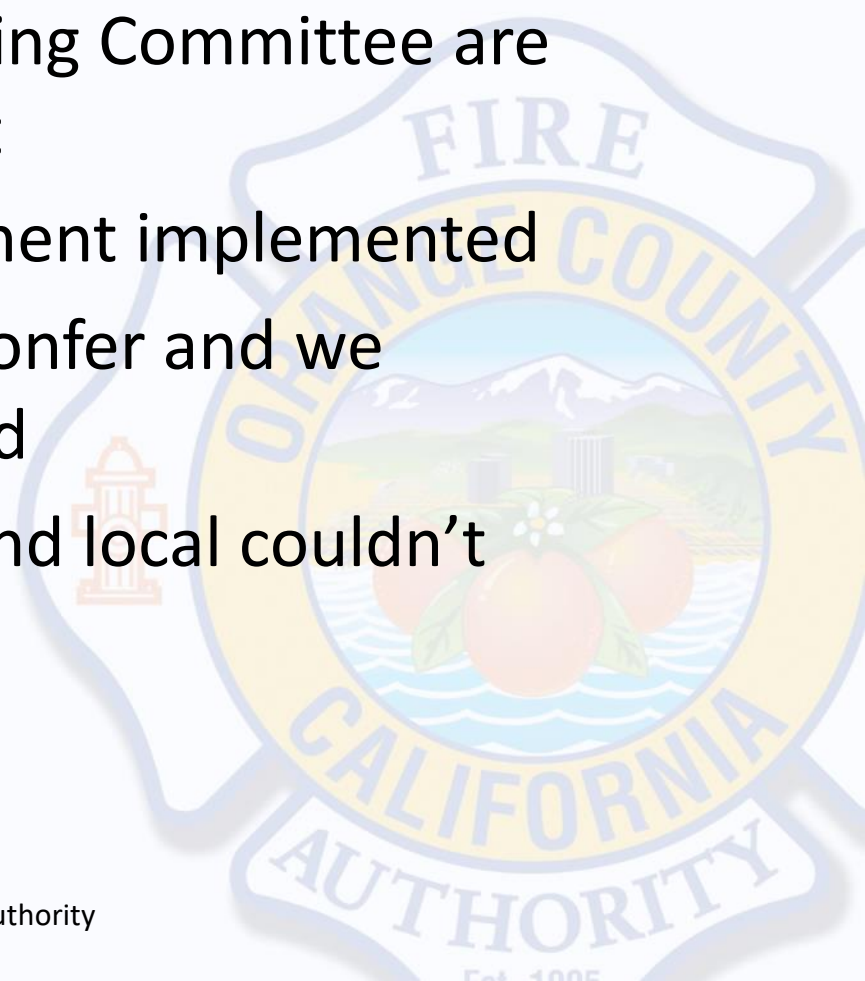
- Same matrix used since 2017
- The vacant numbers are coming down
- We are counting bodies on the floor- not anyone on W/C to give averages
- Less than 14-hour forces – history - updated chart



# The Open Staffing Committee-Success

Notes from the Matrix-Staffing Committee are available in your staff report

- Some items management implemented
- Some are meet and confer and we together implemented
- Some management and local couldn't agree



**We are constantly making small  
adjustments to our staffing  
policy to help with forces**

**Questions ???**



**Orange County Fire Authority**  
*Executive Management*

# M E M O

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DATE: November 24, 2021

TO: Operations Department

FROM: Phil Johnson, Assistant Chief of Field Operations

SUBJECT: **Staffing Ad Hoc Committee Update to Operations #3**

On November 16, the Staffing Working Group (Executive Management & Local 3631 Executive Board) met to discuss the areas listed on pages 5-8 of the attached. These are the items that require meet and confer process to execute.

At this meeting, Local 3631 President Baldrige reported that the 3631 Executive Board did not support the majority of system adjustments or policy amendments listed in the attached matrix at this time, subject to further consideration after the firefighter/paramedic lateral academies are completed and promotions have been made. Those processes are estimated to be completed late spring and/or early summer 2022. President Baldrige indicated a desire to first see what relief is achieved in our daily staffing as a result of these hiring and promotional processes, prior to pursuing other policy changes.

The anticipated injection of new firefighter/paramedics will provide some needed relief. However, Executive Management believes that additional solutions currently exist that would provide both short- and long-term relief to ongoing staffing challenges, such as some options listed on pages 5-8 of the attachment. Therefore, Executive Management remains ready to work collaboratively with the Local 3631 Executive Board to continue to meet and address in good faith those items that require mutual agreement. At this time, no future meetings are scheduled, pending completion of the hiring/promotional processes outlined above.

This does not mean the Executive Management Team has given up on identifying and proposing solutions that represent relief to staff assigned to Field Operations. Those items listed on pages 5-8 of the attached matrix, which were tentatively supported by Local 3631, will be pursued for final agreement and implementation. Also, there are additional solutions on the attached list that have merit and will be proposed and/or pursued by Executive Management. However, in the end, many options affect working conditions and are subject to the meet and confer process.

Questions and requests for information should be submitted via email to [Adhocstaffing@ocfa.org](mailto:Adhocstaffing@ocfa.org).

**Orange County Fire Authority  
Staffing Steering Committee Working Group  
Concepts to Reduce Force Hires & Improve Firefighter Staffing  
November 24, 2021**

*(Updates made to this matrix since the last October 27<sup>th</sup> memo have been reflected below in **red font**.)*

## Management Rights – No Meet & Confer Necessary

*The following concepts fall within the scope of “management rights” to effectively manage Fire Authority’s operations, without a requirement to meet and confer prior to implementing these actions. OCFA Executive Management desires to collaborate with its labor groups for input, and to consider concerns about these concepts, if any, and therefore, all of these concepts were reviewed during our Staffing Working Group (JLM) meeting.*

	Concepts	Updates	Refer to Staffing Working Group?	Completion Date
1.	Don't let people protect staff/SAR days from a force. Take away SAR days blocking forces. This will add SAR people back to force list daily.  <i>(prior #1 and #5 now grouped together)</i>	<b>10/6/21 JLM:</b> The group discussed providing a list of SA/SAR priorities for BC use in approving requests.  <b>10/13/21:</b> Executive Management decided to suspend SA/SAR until a future date, yet to be determined. Exceptions will be subject to approval by Chief Johnson.	No	Ongoing
2.	If someone really needs to be off, have them use a protection day or take a VT day to protect.	<b>10/6/21 JLM:</b> The group discussed that this is already the case, no action is needed.	No	10/6/21
3.	Utilize retired OCFA fire personnel to help staff folks with extras and projects	<b>10/6/21 JLM:</b> The group discussed that this is already the case, no action is needed.	No	10/6/21
4.	Decrease the minimum requirements for a FF/PM to 1 year. This would create a larger list so we could hire back-to-back FF/PM Academies.  <i>(this item was previously listed under meet/confer; however, it is a management right and therefore, the item was moved to this grouping)</i>	<b>10/6/21 JLM:</b> Management explained a vision of two back-to-back 8-week academies filled by 50 FF/PM recruits each (must also possess FF1 certificate or a Fire Academy Graduate or work as a municipal Fire department for 1 year). These academies would take place in late 2022 in place of one 16-week academy and produce 100 FF/PMs rather than 50 during the same 16-week period. 3631 inquired if it would be possible to implement this concept as early as the February 2022 academy rather than August, and they provided additional questions for management to research about options for how this might work.  <b>10/12/21:</b> Executive Management (EM) prepared tentative plans for how this concept could move forward ASAP, pending	No	10/19/21

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		<p>additional input from 3631, and provided responses to 3631's questions for their use in providing additional input.</p> <p><u>10/15/21:</u> Correspondence was provided by 3631 offering input to EM's tentative plans for modified FF/PM recruitments and shortened FF/PM academies.</p> <p><u>10/19/21:</u> EM informed 3631 as to final plans for modified FF/PM recruitments and shortened academies, with intent to proceed. These plans include two back-to-back 8-week FF/PM academies, filled with 50 FF/PMs each, expedited to start at the earliest date possible. In addition, another modified open FF/PM recruitment will open ASAP with decreased minimum experience requirements to establish a larger eligibility list.</p> <p><u>11/5/21:</u> A new FF/PM recruitment was opened, which required 1-year of experience. This recruitment closed on 11/21/21 and aims to place successful candidates into an 8-week academy beginning in May 2022.</p>		
5.	Shorten duration of FF/PM Academy.	See #4 above.	No	10/19/21
6.	Paper Paramedic/FF1 Academy list.	<p><u>10/6/21 JLM:</u> The group discussed modified MQ's for FF/PM to increase our candidate pool, including a reduction to the experience requirement.</p> <p><u>10/12/21:</u> Executive Management prepared tentative plans to close the current FF/PM recruitment (which requires 2-years of experience) and to reopen a new recruitment that will require 1-year of experience.</p> <p><u>11/5/21:</u> A new FF/PM recruitment was opened, which required 1-year of experience. This recruitment closed on 11/21/21 and aims to place successful candidates into an 8-week academy beginning in May 2022.</p>	No	11/5/21

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7.	Have more lateral FF/PM academies.	<b>10/6/21 JLM:</b> The JLM indicated agreement for more lateral FF/PM academies. Management is already proceeding to shorten the academy.  <b>11/5/21:</b> See updates provided for #4 and #6.	No	11/5/21
8.	Make academy cadre post positions as to not affect the field staffing. There is a year-round need.  <i>(this item was previously listed under meet/confer; however, it is a management right and therefore, the item was moved to this grouping)</i>	<b>10/6/21 JLM:</b> Management informed the group that this item is something that is already intended to be moved forward as part of the budget request and Board approval process.	No	Pending Board and Budget Review/ Approval Process
9.	Hire more FFs and FF/PMs – at least two academies a year.	This is already occurring now. See #4 through #7 above.	No	10/6/21
10.	Continue to send OCFA Firefighters to various paramedic schools each year.	This is already occurring now.	No	10/6/21
11.	Continue to promote FAEs, FCs and BCs each year.	This is already occurring now.	No	10/6/21

### Not Supported by Management

*Note 1: During our 10-6-21 Staffing Working Group (JLM) meeting, management reported that they were not in support of the following items; however, management further explained that the JLM forum is a good time for the association to inform us if they wish to pursue any of these items and explain to management if they believe management should change its position. 3631 indicated interest in concept #15 below, as noted.*

	Concepts	Updates	Refer to Staffing Working Group?	Completion Date
12.	Increase the number of VP days to ten (currently at six).	<b>10/6/21 JLM:</b> See Note 1 above. No action	No	N/A

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13.	If you come in from home in the middle of a shift, give that person a VP as a bonus.	<u>10/6/21 JLM:</u> See Note 1 above. No action.	No	N/A
14.	Personnel that work staff OTs, give them protection days.	<u>10/6/21 JLM:</u> See Note 1 above. No action.	No	N/A
15.	Implement a third list that sits between the voluntary and force list.	<u>10/6/21 JLM:</u> 3631 expressed interest in this concept. The group discussed that there are similar concepts listed in the following section under "Requires Labor/Management Meet & Confer."	No	N/A
16.	Change over to tele-staff.	<u>10/6/21 JLM:</u> See Note 1 above. No action.	No	N/A
17.	Shorten FC academy from 6 to 3 weeks and provide prep classes/ include fluff presentations to the passing candidates	<u>10/6/21 JLM:</u> See Note 1 above. No action.	No	N/A
18.	Add 1 VP day for every 2 overhead SA assignment days to assist in not being forced immediately when returning from an overhead/STEN assignment	<u>10/6/21 JLM:</u> See Note 1 above. No action.	No	N/A

### MOU Negotiations Required

*Note 2: The following concepts would be required to be negotiated and approved by the Board of Directors in order to be added into the MOU.*

	Concepts	Updates	Refer to Staffing Working Group?	Completion Date
19.	Add an economic incentive bonus of 25% for any employee who is voluntarily hired for a vacancy 21 days out or more.	<u>10/6/21 JLM:</u> See Note 2 above. No action.	No	N/A
20.	Offer the same 25% premium overtime bonus to employees who respond for voluntary hire to last minute need call backs (OC Alerts).	<u>10/6/21 JLM:</u> See Note 2 above. No action.	No	N/A

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**Requires Labor Management Meet & Confer**

*Management is open to considering all of the following concepts; however, these concepts would result in changes to practices previously agreed upon with labor and documented into existing SOPs, etc. As a result, management and labor are required to meet and confer over the proposed concepts prior to implementing such changes.*

	Concepts	Updates	Refer to Staffing Working Group?	Completion Date
21.	Don't do total hours worked- Total hours created unequal distribution of force OT.	<p><u>10/6/21 JLM:</u> 3631 representatives advised that they would be discussing these concepts with their Board and will have additional input at a later date after their Board meeting.</p> <p><u>11/16/21 JLM:</u> At this meeting, Local 3631 President Baldrige reported that the 3631 Executive Board did not support the majority of system adjustments or policy amendments listed herein at this time, subject to further consideration after the firefighter/paramedic lateral academies are completed and promotions have been made. Those processes are estimated to be completed late spring and/or early summer 2022. President Baldrige indicated a desire to first see what relief is achieved in our daily staffing as a result of these hiring and promotional processes, prior to pursuing other policy changes.</p>	Yes	
22.	Go to total hours worked- It equals out distribution of OT.	<p><u>10/6/21 JLM:</u> Same as #21.</p> <p><u>11/16/21 JLM:</u> Same as #21.</p>	Yes	
23.	Go to a jury duty system requiring you to answer the phone on the day you are up.	<p><u>10/6/21 JLM:</u> Same as #21.</p> <p><u>11/16/21 JLM:</u> Same as #21.</p>	Yes	
24.	1-page Staffing SOP like others- Your OT you own. Your job to cover or work it.	<p><u>10/6/21 JLM:</u> Same as #21.</p> <p><u>11/16/21 JLM:</u> Same as #21.</p>	Yes	

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25.	Create a forcing list with is a point system. 1 credit – Any regular Monday through Friday 2 credits – Any regular Saturday or Sunday 3 credits – Any smaller holiday like New Year’s Day, Valentine’s day, President’s day, Easter, Mother’s Day, Memorial Day, Father’s Day, Labor Day, Halloween, Veterans day, and New Year’s Eve 5 credits – 4th of July, Thanksgiving, Christmas Eve, and Christmas	<u>10/6/21 JLM:</u> Same as #21. <u>11/16/21 JLM:</u> Same as #21.	Yes	
26.	Staffing needs 3 different list/parts- Midweek, weekends, and holidays/see above	<u>10/6/21 JLM:</u> Same as #21. <u>11/16/21 JLM:</u> Same as #21.	Yes	
27.	Start doing temporary promotions.	<u>10/6/21 JLM:</u> Same as #21. <u>11/16/21 JLM:</u> Same as #21.	Yes	
28.	Go to outside staffing person desk.	<u>10/6/21 JLM:</u> Same as #21. <u>11/16/21 JLM:</u> Same as #21.	Yes	
29.	Promote behind personnel (WC) when they have been off for a while.	<u>10/6/21 JLM:</u> Same as #21. <u>11/16/21 JLM:</u> 3631 prefers to revisit after all open spots have been filled.	Yes	
30.	Let the willing work as many days in a row they want/compared to 14 days on a Strike Team	<u>10/6/21 JLM:</u> Same as #21. <u>11/16/21 JLM:</u> 3631 is tentatively agreeable to working for 10 days/240 hours if experiencing Emergency Staffing Conditions. As a result, Executive Management is working to gain final agreement to implement this change on a temporary basis during the upcoming holiday season. <u>11/23/21:</u> As management was preparing to implement, 3631 reported that the 3631 Executive Board does not support this measure to increase the threshold for continuous hours worked; not even on a temporary basis during the holiday season.	Yes	In Process

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31.	Allow FCs who have been FAEs during the last 3-5 years to work down as FAEs instead of forcing a FAE.	<u>10/6/21 JLM:</u> Same as #21.  <u>11/16/21 JLM:</u> 3631 is not interested right now due to the fire captain rank currently having the most vacancies.	Yes	
32.	Force BLS Firefighters to go to medic school until we are full.	<u>10/6/21 JLM:</u> Same as #21.  <u>11/16/21 JLM:</u> 3631 has declined this proposal.	Yes	
33.	48/96 has caused more forces.	<u>10/6/21 JLM:</u> Same as #21.  <u>11/16/21 JLM:</u> Same as #21.	Yes	
34.	Revisit SOP for medics holding 2-year positions-	<u>10/6/21 JLM:</u> Same as #21.  <u>10/15/21:</u> Received correspondence from 3631 indicating support to move this concept forward. We are now in process to revise the SOP for labor review/concurrence, prior to implementation.  <u>11/16/21 JLM:</u> In process to revise the SOP for final approval by 3631 prior to implementation.	Yes	In Process
35.	Decrease or eliminate the VP days.	<u>10/6/21 JLM:</u> Same as #21.  <u>11/16/21 JLM:</u> This action item was supported by both Executive Management and 3631, and therefore was implemented, as stated in the memo issued on November 5.	Yes	11/5/21
36.	Vacations and trades used together to extend time off indefinitely/ utilize the 33% rule to encompass number of personnel allowed off, to include VP's	<u>10/6/21 JLM:</u> Same as #21.  <u>11/16/21 JLM:</u> This action item is tentatively supported by 3631, subject to further review with a redlined SOP to reflect the precise changes, prior to implementation.	Yes	In Process
37.	Non-binding contract with new recruits that they will attend medic school in 2 years	<u>10/6/21 JLM:</u> Same as #21.  <u>11/16/21 JLM:</u> Not applicable as the firefighter/paramedic rank is near full. 3631 members have declined this proposal.	Yes	

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38.	Hiring is now at 21 days in advance of the shift, we need to extend to farther out. Shift trades must be put in before the 24-day FLSA pay cycle. They can't be put in more than 24 days out.	<p><b>10/6/21 JLM:</b> Same as #21. Consider 30 days hiring, consider 24 days for trades, start to prepare a redlined staffing policy to assist with considering modifications.</p> <p><b>11/16/21 JLM:</b> Same as #21.</p>	Yes	
39.	On paramedic engine/truck companies, allow the FC, FAE or FF to work as a paramedic before a FF/PM, FAE/PM or FC/PM is forced. Include this in the auto hire process.	<p><b>10/6/21 JLM:</b> Same as #21.</p> <p><b>11/16/21 JLM:</b> This measure is already being used on a temporary basis, coordinated manually as needed (not automated through the Staffing System). Executive Management would like continued discussion of the possibility of implementing this measure through automated changes to the Staffing System for further consideration at some point in the future.</p>	Yes	Pending Further Research
40.	If you come in from home in the middle of a shift, give that person a VP as a bonus.	<p><b>10/6/21 JLM:</b> Same as #21.</p> <p><b>11/16/21 JLM:</b> 3631 doesn't support.</p>	Yes	
41.	Work 4 OTs and get a force exemption	<p><b>10/6/21 JLM:</b> Same as #21.</p> <p><b>11/16/21 JLM:</b> 3631 doesn't support.</p>	Yes	
42.	Staffing of Specialty Positions	<p><b>10/6/21 JLM:</b> No action: TRT and Hazmat Pilot ended Oct 18.</p> <p><b>11/16/21 JLM:</b> Completed, as described in the memo issued on November 5. No further action necessary.</p>	Yes	11/5/21
43.	Limit the number of times in a given period (to be defined) that an employee can use a vacation day and shift trade(s) to qualify as a vacation period and not be eligible to be forced during that vacation period.	<p><b>11/16/21 JLM:</b> This action item is tentatively supported by 3631, subject to further review with a redlined SOP to reflect the precise changes, prior to implementation.</p>	Yes	In Process
44.	Do not allow shift trades for Voluntary Overtime days.	<p><b>11/16/21 JLM:</b> 3631 doesn't support.</p>	Yes	

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Chronology of Events				
	DATE	SUBJECT	PURPOSE	
1.	7/12/21	Staffing Steering Committee announcement	Request for individuals to participate on staffing steering committee	
2.	8/11/21	First Staffing Steering Committee meeting	To provide information to and receive input from 3631 members	
3.	8/12/21	Second Staffing Steering Committee meeting	To provide information to and receive input from 3631 members	
4.	9/29/21	Distributed memo and attachment on concepts to reduce force hires	Provide an update to the organization on the progress	
5.	10/6/21	Management and Local 3631 Board members held a Joint-Labor Management (JLM) meeting	To present potential solutions based on Staffing Steering Committee member input as well as input from other employees.	
6.	10/14/21	Local 3631 Board Meeting	Discuss the proposed concepts	
7.	10/26/21	Distributed memo and attachment on concepts to reduce force hires and improving firefighter safety	Provide an update to the organization on the progress	
8.	11/16/21	Management and Local 3631 Board members held a Staffing Working Group/Joint-Labor Management (JLM) meeting	Follow up meeting to review proposed solutions and make changes as mutually agreeable	
9.				

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10.				
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**Orange County Fire Authority  
JLM Working Group  
Reduce Force Hires & Improve Firefighter Staffing  
September 24, 2018**

Below are the concepts that the JLM Working Group previously identified aimed at reducing force hires and improving firefighter staffing in 2018. These are included for historical reference, as we again work on staffing in 2021.

	3631 List	Concepts	Updates	Date Completed
1	#2	Implement earlier start dates for academies (run additional academies based on the department needs; we would like academies to run closer together)	Agreement was reached and dates established for the next two academies: <ul style="list-style-type: none"> <li>Academy 45 – starts 9/5, graduates 12/21</li> <li>Academy 46 – starts 2/5, graduates 5/24</li> </ul>	6/28/17 & ongoing
2	#2	Increase number of recruits per academy (run additional and larger academies based on the department needs)	Agreement was reached to hire 50 recruits into each of the next two academies.	7/6/17 & ongoing
			EM obtained Board authorization on 7/27 for a series of actions to facilitate the hiring of 50 per academy.	7/27/17
			EM obtained Board authorization on 3/22 to hire another 50 per academy for two additional academies in FY 2018/19, including authorization to temporarily overfill pending attrition.	3/22/18
3		Length of academies (lateral)	Further discussion will be required.	
4	#2	Prepare a forecast of workforce attrition for use in planning future academies and promotional processes (run additional and larger academies based on the department needs)	An initial Attrition Planning worksheet was completed 7/6/17. An updated worksheet was provided, dated 11/16/17. These worksheets are now being updated on a routine basis for use in planning academies, planning promotional processes, and timing promotions in order to balance the number of vacancies per rank.	7/6/17 & ongoing
			HR prepared a Vacancy Planning Survey with input from 3631 and distributed it to Operations personnel on 7/29/17. A memo summarizing the survey results was sent to all personnel on 9/6/17. HR plans to repeat this survey annually.	9/6/17 & will be repeated annually

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5	#1	Continuous open recruitments (increase the time for the application period instead of limiting the number of applicants)	<p>HR staff determined that continuous recruitments are not a viable option since we only hold one or two academies per year. A typical selection process takes 9 months and allowing candidates to apply all year long would leave some candidates hanging for quite a while.</p> <p>At our 11/28/17 meeting, 3631 requested and HR agreed that for the next open recruitment, we will not place a cap on the number of applicants.</p>	11/28/17
6		Mailed paper notices vs. email	EM agreed to implement a text-messaging option. 3631 wanted paper notifications as back-up to email/texts. To address duplication of notifications, recent candidates were asked to self-schedule their interviews. Those who didn't self-schedule received a follow-up phone call. HR is pilot-testing text messaging with a current non-safety recruitment.	7/18/17 & ongoing
7	#14	Out-of-County strike teams (reevaluate the number of resources we send out of county)	<p>EM agreed to continue the current monitoring and existing practices for now. At our 2/26/18 JLM, Jeff Adams and Tim Steging agreed to work with Brian Norton to develop a proposal related to thresholds for use in guiding decisions related to sending personnel out-of-county. Once the proposal is developed, this item will return to the JLM for further discussion.</p> <p>At our 5/2 meeting, Brian Norton prepared a planning tool for discussion. The JLM requested a change to the "total remaining available for OOC" calculation. A revised OOC Availability Guideline was distributed to the group on 5/17, for use as a guiding tool moving forward. Chief Norton will be moving the OOC Availability Guideline to the daily report and begin educating the ECC/Duty Chiefs. In addition, he'll continue working with Tim Steging and Tim Perkins to evaluate the percentages, which are adjustable per these discussions/ongoing evaluations.</p>	5/17/18 & Ongoing

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8		Open positions (15) per rank	EM has suggested that <u>no changes need to be made</u> to the timing for phase-out of 15 open positions per rank, but instead EM is working within this framework.	n/a
9	#1	Change the recruiting, testing, and hiring processes; actively get out in the community to recruit good FF candidates	EM agrees. This item is a FY 2017/18 HR Domain Objective. BC Summers and HR Manager Tamaryn Boston are developing an outreach plan to recruit females and minorities. Changes in selection processes implemented thus far include: allowing candidates to complete physical agility testing after interview (vs. at time of application), providing duplication of notifications regarding the process (phone calls to candidates who didn't self-schedule), Fire Chief and HR Director spoke to interview panelists encouraging open-mindedness regarding candidates of different backgrounds, and when candidates withdrew from interview, HR contacted the next candidates on the list to have them fill the interview slot.	7/18/17 & ongoing
10	#1	The department should send people to the Biddle post interview	<p>Per 3631's desire, Academy 46 applicants were not required to apply with a current Biddle certificate. OCFA sponsored several dates of Biddle exams for candidates in the process. This increased the selection timeline and required additional staff resources for what appeared to be little pay off. HR's desire was to require Biddle at time of application again but coordinate Biddle dates with colleges and advertise well in advance of opening recruitment.</p> <p>11/28: 3631 discussed timeline concern=Biddle 6 mos. before app + 9 mos. to get through OCFA process = Biddle too dated by the time the EE starts and is no longer physically fit. Brigitte agreed to re-evaluate.</p> <p>5/2/18: For the next FF Trainee recruitment, HR will conduct the Biddle after interviews.</p>	5/2/18

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11	#3	Have a balanced approach to promotions. Promote systematically based on how many are graduating the academy and positions that need to be filled	<p>EM agrees. The Vacancy Planning worksheet will be used as a tool to facilitate the timing of planned promotions. At our 2/26/18 JLM, we agreed to:</p> <ol style="list-style-type: none"> <li>1) Discontinue announcing promotional assignments at graduation ceremonies. Focus on celebrating the graduation of all candidates at the ceremony, with specific promotion details to follow at a later date.</li> <li>2) Communicate with 3631 in advance (text message is sufficient) regarding specific number of personnel being promoted and the effective date of promos.</li> <li>3) Facilitate "handing of the badge" to occur at fire stations, where the candidate can be surrounded by his/her peers and the badge can be presented by one of his/her mentors along with members of Exec Mgmt.</li> </ol>	2/26/18 & Ongoing
12	#4	Develop multiple entry portals for new OCFA firefighters (entry-level FF, entry-level FF/PM, and lateral FF/PM)	EM agrees. The current recruitment targeted entry-level and FF/PM. Future recruitments will be continuous and target entry-level, FF/PM, and lateral FF/PM simultaneously. Due to the need for paramedics, Academy 47 will likely be lateral FF/PM and FF trainee/PM. Lateral FF/PMs will be offered a higher starting pay than FF trainee/PM, as appropriate due to their experience.	7/18/17 & ongoing
13	#5A	All staffing will be handled with two staffing stations, (Truck 22/DMPC and Truck 64) to provide a north and south staffing station and improve consistency	<p>EM agrees. At our 8/29 meeting, we agreed to proceed following Board approval on 9/28. Jeff Adams took the lead to ensure that FS 64 has/obtains all computer equipment needed for implementation.</p> <p>On 9/27, 3631 requested EM to remove the Staffing item from the 9/28 Board agenda, pending further discussion on 10/2.</p> <p>A revised proposal to maintain Truck 22 as the DMPC was suggested by Ryan and agreed to by EM at our 10/2 meeting, along with a revised bonus pay side letter, effective 10/27/17.</p>	10/27/17
14	#5B	Provide both staffing units with a 15% bonus pay	Finance calculated the annual cost of a 15% bonus pay for 24 impacted personnel at \$575,026. At our 8/2 meeting, EM proposed a 5% bonus pay for one year only. 3631 countered with a 7.5% bonus pay through the end of the MOU, which would be August 2020.	10/27/17

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			<p>Leading up to the 8/29 JLM, EM accepted the above counterproposal from 3631 at 7.5% through the end of the MOU, subject to Board approval, and provided a draft side letter.</p> <p>At our 8/29 meeting, 3631 agreed to the concepts of the draft side letter, indicating that minor modifications would be provided by 3631 in the coming days. The JLM agreed to move the bonus pay concept forward to the B&amp;FC and Board in September for approval and implementation, with an effective date of Sept. 29.</p> <p>On 9/3, EM received 3631's proposed edits to the side letter. Additional edits were exchanged, and agreement was reached to the side letter content on 9/21.</p> <p>On 9/27, 3631 requested EM to remove the bonus pay from the Board of Directors 9/28 agenda, pending further discussion on 10/2.</p> <p>On 10/26, the Board of Directors approved a modified bonus pay structure, providing 7.5% bonus pay to T22 personnel only.</p>	
15	#6	Any employee that puts in for partial time off (less than 12 hours) must find his/her own coverage. If the employee is unable to find his or her own coverage, the shift will not be filled from the availability list and the employee will be responsible for working that day. Exclusions will include, but are not limited to, OCFA mandated classes, jury duty, time off to vote and local 3631-time codes for meetings.	<p>EM agrees. This behavioral/procedural change was addressed in the August 16 "Actions to Reduce Force Hires" memo to all personnel.</p> <p>On 9/18, we were notified of a situation where an employee entered partial time off for less than 12 hours in the Staffing System and the System automatically hired to fill the partial. Per our prior JLM direction, the Staffing System had not been programmed to block the entry.</p> <p>As of our 10/2 JLM, programming was underway regarding partial time off in 12-hour increments, and we will ensure this feature precludes entry of anything other than 12-hour partials. (See programming list #2/priority #3)</p>	8/16/17 Behavior change

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			This feature was completed, and programming went live on 3/6/18.	3/6/18
16	#10	Once an employee has been hired for a voluntary overtime, it is the employee's responsibility to either work the shift, trade the shift off (XO), or use their "right of refusal" should they have one. The ability for an employee to call in sick for an overtime continues to create problems with staffing units on a daily basis and allows people to manipulate the staffing system.	<p>A memo was distributed on June 29 to all Operations personnel informing employees that the staffing code "OCS" (overtime called in sick) was removed and explaining the options available to employees in this circumstance.</p> <p>HR's concern regarding options when an employee has proof of legitimate illness was addressed in the August 16 "Actions to Reduce Force Hires" memo to all personnel.</p>	<p>6/29/17</p> <p>8/16/17</p>
17	#12	Employees may no longer attend workers' compensation appointments when time is needed off of their regular shift. Employees will be compensated for appointments while off duty and must provide written documentation from the doctor that was seen and then forwarded to their Battalion Chief for approval.	<p>Per the email summary from Jonathan Wilby on July 17, neither the Labor Code nor 3631 MOU provisions grant employees paid time off from their shift, or compensation while off duty to attend follow-up doctor appointments after they have returned back to work following a workers' comp case.</p> <p>At our 8/29 meeting, the JLM agreed that the current practice should be modified to align with the MOU. HR agreed to draft a side letter, and Ryan agreed to work with HR in finalizing the side letter to make the change in practice effective January 1.</p> <p>A side letter was drafted by HR for review with 3631 based on prior JLM discussions, but at our 11/28/17 meeting, 3631 indicated a preference to leave current practice unchanged.</p> <p>At our 3/27/18 JLM, we agreed to pursue a new resolution. Brigitte drafted a side letter to provide a flat rate reimbursement for attendance</p>	

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			<p>off duty. Approval by the HRC and Board was required; but the HRC rejected the concept, preferring not to compensate employees for this.</p> <p>To be discussed during 3631 MOU negotiations.</p>	
18	#15	Consider Telestaff program to assist with staffing. Trial the program and run in the background to see if it meets our needs. This may help with any additional enhancements that need to be made in a timely manner in the future.	At our June 28 meeting, the JLM group agreed to check-in on progress with the “Enhanced Support and Development of the Staffing/Timekeeping System” in the future.	
19		Change procedures for staff employees returning to field & force pool. Currently, employees assigned to staff positions, etc. are considered unavailable for forces. When these employees return to their shift assignments, they are brought back at zero forces, which means they are immediately battered by numerous forces, creating a difficult situation for the returning employee.	<p>Effective 8/16, employees assigned to staff positions for more than 60 days (or other categories as approved by the Division Chief responsible for the Staffing System) will be brought back into the force pool at a level equal to the lowest number of forces (not zero hours).</p> <p>At our 8/29 meeting, Jeff Adams agreed to work on documenting the process to refine and ensure consistent implementation.</p> <p>At our 1/8/18 meeting, the JLM agreed to modify the force blending rules, reducing the “more than 60 days” to “more than 45 days”, along with other procedural changes. A memo was distributed on 1/24/18 formalizing the change in rules.</p> <p>At our 2/26/18 JLM a desire to further amend the rules, was discussed and agreed upon. A memo was distributed on 3/13/18 formalizing the change in rules.</p>	8/16/17
20		If either the FC or FAE working on a unit are a medic, consider allowing the FC or FAE to serve as the medic in lieu of forcing a FF/PM.	This action was requested by Chief Bowman. 3631 requested to hold, pending further discussion.	
21		Revise the standard template language used for email announcements of “Staffing MOU Modifications”.	At our 2/26/18 JLM, Jeff Adams agreed to modify the template. During our 3/27/18 JLM, Jeff reviewed a draft template with 3631, and received	3/28/18

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			their input. A final version of the template was provided via email on 3/28/18.	
22		Prepare an organizational update summarizing all of the actions the JLM has taken to date and actions in process.	At our 2/26/18 JLM, Lori Zeller agreed to prepare a memo summarizing the JLM actions. A memo was distributed on 3/13/18.	3/13/18
23		Amend the FF/PM pay side letter.	<p>At our 2/26/18 JLM, 3631 provided feedback regarding amendments desired to the FF/PM pay side letter. Brigitte Gibb agreed to prepare a draft of the amendments.</p> <p>At our 3/27/18 JLM, two draft side letters were reviewed and agreed-upon. Final letters were produced and signed by all parties, completing this item.</p>	3/27/18
24		Amend the Staffing SOP to ensure the SOP is aligned with all programming changes / rule changes that have been agreed upon and implemented by the JLM.	<p>At our 3/27/18 JLM, Jeff Adams indicated he is working with several staff to produce a redlined-edit of the SOP. Goal is to provide a draft for discussion at our 5/2/18 JLM.</p> <p>For our 6/25/18 JLM meeting, Jim Ruane will review and discuss a redlined draft SOP. A draft SOP was provided in June, but we have not received any feedback. Another copy will be handed out on 7/31/18 for review. We are targeting issuance of the revised SOP on 8/9/18.</p> <p>The revised SOP was completed, distributed, and posted to the HIVE on 8/23/18.</p>	8/23/18

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	3631 List	Concepts with Programming Required in Staffing System	Updates	Date Completed
1	#13	<p>Employees who put in an “A” and voluntarily work an overtime shift may pick a day in the following month to be protected from a force (weekday for a weekday, weekend for a weekend).</p> <p>[Note: The JLM Group reviewed the original 3631 concept #13 and revised it to reflect as stated above. The original concept was “Employees that voluntarily work 96 hours of OT per month, 48 of which must be on a weekend (Friday, Saturday, Sunday) will be exempt the following month from the force list.]</p>	<p>The JLM identified this as <b>Priority #2</b> out of the 6 programming features requested/agreed to. This was viewed as high priority since it incentivizes employees to voluntarily work OT, which goes direct to the goal of reducing force hires.</p> <p>Detailed specifications were completed; programming began on Aug 3; testing began on Aug 15.</p> <p>An initial demo and testing were performed as planned on August 15 and additional changes were requested by the MPCs. The programming changes were completed on August 24, with new written testing plans sent to the MPCs for additional testing. This round of testing is to be completed by August 31, and we anticipate going live by September 15.</p> <p>This feature went live on 9/11. As of 9/28, the Staffing System reflected approximately 245 VP days selected to use. Of those 245 selected VP dates, there are 171 different employees.</p>	9/11/17
2	#7	<p>Design and establish a partial availability list that allows individuals to be available for a full shift, partial daytime shift, partial nighttime shift, or any partial shift.</p> <p>[It was discussed with, and clarified by Ryan, that the Partial Availability List shall only be created for partial availabilities in 12-hour increments (1<sup>st</sup> 12-hour and 2<sup>nd</sup> 12-hour portion of 24-hour shift).]</p>	<p>The JLM identified this as <b>Priority #3</b> out of the 6 programming features requested/agreed to.</p> <p>As of Jan. 8<sup>th</sup>: Testing for this feature had been completed in November. Further action was pending direction from MPCs and Chief Adams (delayed by December incident activity and holidays).</p> <p>This feature was completed and went live on 3/6/18.</p>	3/6/18
3	#11	Every employee will receive 2 ROFs (rights of refusals) per overtime cycle. (4 per year)	Prioritization is pending further feedback from Baryic. This item was placed on hold, to be revisited if requested by 3631	n/a

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4	#9	Design and establish a “protected holiday” force list in the staffing system that will allow individuals to recognize when they will potentially be forced and will allow them to plan ahead. This list will ensure fair and equitable distribution of protected holiday forces	<p>The JLM identified this as <b>Priority #5</b> out of the 6 programming features requested/agreed to.</p> <p>Draft specs and a timeline have been drafted and are ready for review at the 6/25/18 JLM.</p> <p>Feature is targeted for go-live on 10/1/18</p>	
5	#8	Design and establish a strike team availability list to be used when back filling behind a strike team, either in county or out of county	<p>The JLM identified this as <b>Priority #4</b> out of the 6 programming features requested/agreed to. (Lower priority since it won’t reduce force hires) Programming estimate of 23 hours targeted for completion immediately after Priority #3.</p> <p>As of Jan. 8<sup>th</sup>: Testing for this feature had been completed in November. Further action was pending direction from MPCs and Chief Adams (delayed by December incident activity and holidays).</p> <p>This feature was completed and went live on 3/6/18.</p>	3/6/18
6		Employees will receive full credit after working 4 hours of a forced overtime shift to allow the employee the ability to refuse a future forced overtime shift.	<p>This item was not on the original 3631 list but believed to have been verbally discussed. Per follow-up between Jim Ruane, Jeff Adams, and Ryan Bishop, this item was agreed to be an appropriate change, and indicated as the highest priority.</p> <p>As of July 24, this item was identified as Priority #1. Programming was completed and went live August 2.</p>	8/2/17
7		Force Rules – Change the force rules so that forces will be based on “total hours worked” rather than “total number of forces.”	<p>At our 3/27/18 JLM, it was agreed that the programming for this feature will be bundled with the amendment to the VP feature below. 4 hours programming time.</p> <p>This feature went live on 4/30/18, initially as a 6-month trial. On 6/8/18, the trial period was shortened to 3-months and terminated effective 7/29/18.</p>	4/30/18 -7/29/18 Trial Period

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8		Voluntary Protection Feature - Amend the Voluntary Protection Feature to remove the current limitation of 4 VP days that can be banked per employee at a time and to remove the 45-day limit.	In reviewing the request, we recommend setting the VP bank at 10 days rather than the current 4, and to replace the 45-day limit with a new 6-month limit. 4 hours programming time estimate.  Completed 4/30/18	4/30/18
9		Continuous Hours Worked – Revert the rule for continuous hours worked from the current 120 hours back to the former 96 hours.	Reversion to the former rule can be easily done, 1 hour of programming time.  At our 3/27/18 JLM, we were informed that the programming change should be made for 3631 only, excluding COA.  Completed 4/2/18	4/2/18
10		Change 6-month corridor to 3-months.	3631 requested to modify the 6-month corridor to 3-months. As of 9/20/18, programming has been completed and testing is underway. Change is targeted for go-live on 10/1/18	

## OVERTIME QUARTERLY 2018 &amp; 2019

## AVERAGE OVERTIME SHIFTS

Forced Overtime

Voluntary  
Overtime

Total Overtime



Forced and Voluntary Overtime include shifts of 14+ hours worked only.

Averages are calculated using number of Overtime shifts (14+ hours) divided by the number of employees working 9+ shifts for the quarter.

Rank indicates the individual working the overtime; does not indicate the position worked.

In work-down situations, the OT is counted to the individual in rank.

# OVERTIME QUARTERLY 2020 & 2021

## AVERAGE OVERTIME SHIFTS

Forced Overtime

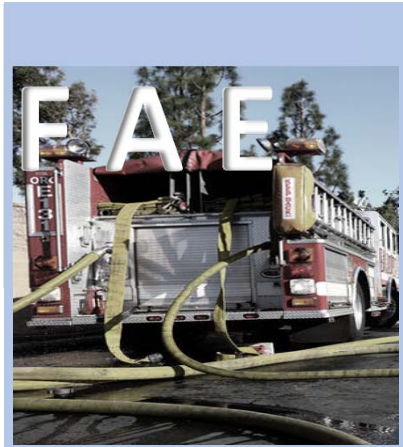
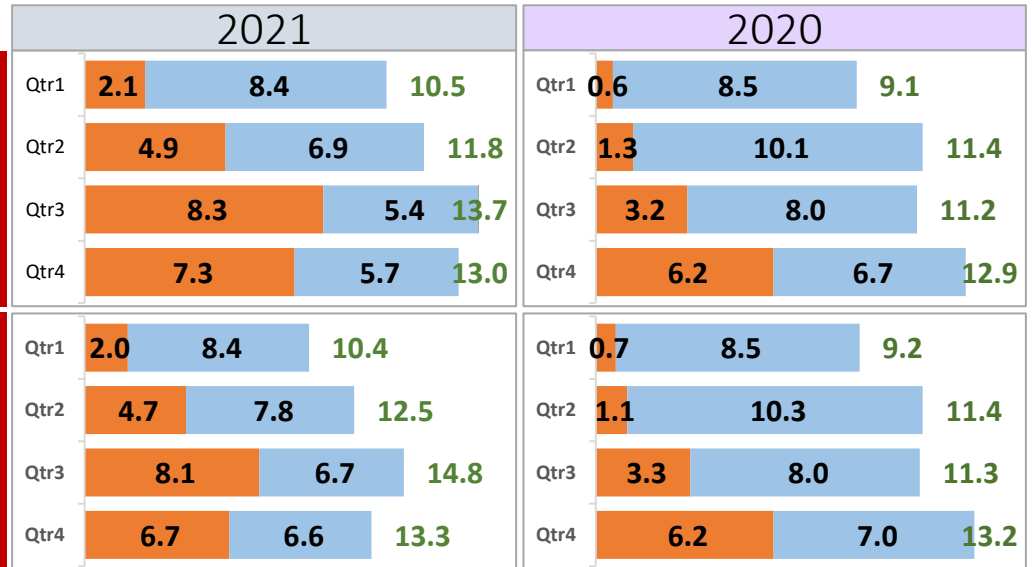
Voluntary  
Overtime

Total Overtime



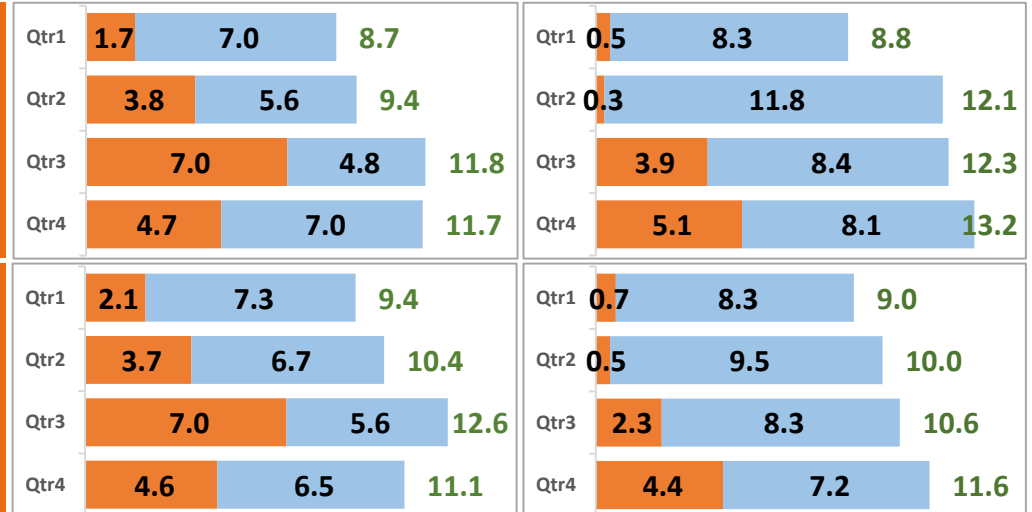
PM/FC

FC



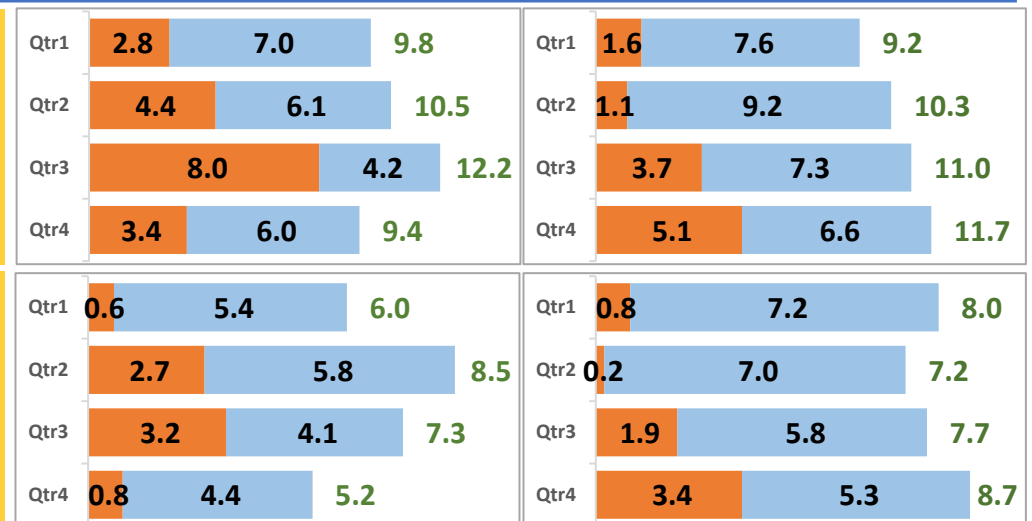
PM/FAE

FAE



PM/FF

FF



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# OVERTIME QUARTERLY 2021 & 2022 (year-to-date)

## AVERAGE OVERTIME SHIFTS

Forced Overtime

Voluntary Overtime

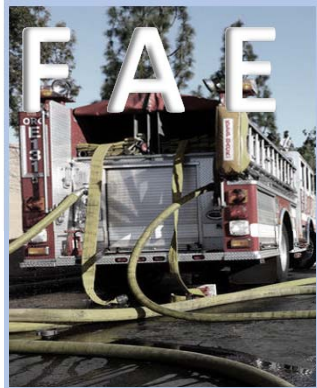
Total Overtime



PM/FC

FC

2022				2021			
Qtr1	8.6	5.3	13.9	Qtr1	2.1	8.4	10.5
Qtr2	8.1	6.1	14.2	Qtr2	4.9	6.9	11.8
Qtr3	-	-	-	Qtr3	8.3	5.4	13.7
Qtr4	-	-	-	Qtr4	7.3	5.7	13.0



PM/FAE

FAE

Qtr1	6.3	6.3	12.6	Qtr1	1.7	7.0	8.7
Qtr2	6.0	5.4	11.4	Qtr2	3.8	5.6	9.4
Qtr3	-	-	-	Qtr3	7.0	4.8	11.8
Qtr4	-	-	-	Qtr4	4.7	7.0	11.7



PM/FF

FF

Qtr1	2.2	6.7	8.9	Qtr1	2.8	7.0	9.8
Qtr2	2.2	6.9	9.1	Qtr2	4.4	6.1	10.5
Qtr3	-	-	-	Qtr3	8.0	4.2	12.2
Qtr4	-	-	-	Qtr4	3.4	6.0	9.4

Forced and Voluntary Overtime include shifts of 14+ hours worked only.

Averages are calculated using number of Overtime shifts (14+ hours) divided by the number of employees working 9+ shifts for the quarter.

Rank indicates the individual working the overtime; does not indicate the position worked.

In work-down situations, the OT is counted to the individual in rank.

Beginning April 2020, the reporting period is realigned to cover actual days of the month (previously based on rolling 29 day periods).

## OVERTIME MONTHLY UPDATE

APR 2022

Comparison Data - 4/hrs min/shift v. 14

AVERAGE OVERTIME SHIFTS

Forced Overtime

Voluntary Overtime

Total Overtime



PM/FC

FC

## 2022 Jan-Jun 14 Hr Min.

Jan '22	3.3	1.7	5.0
Feb '22	2.9	1.7	4.6
Mar '22	2.4	1.9	4.3
Apr '22	1.9	2.2	4.1
May '22	-	-	-
Jun '22	-	-	-

## 2022 Jan-Jun 4 Hr Min.

Jan '22	3.1	2.1	5.2
Feb '22	2.6	2.1	4.7
Mar '22	2.3	2.0	4.3
Apr '22	1.6	2.6	4.2
May '22	-	-	-
Jun '22	-	-	-

## 2022 Jan-Jun 4 Hr Min.

Jan '22	3.6	1.8	5.4
Feb '22	3.2	1.8	5.0
Mar '22	2.7	2.0	4.7
Apr '22	2.1	2.3	4.4
May '22	-	-	-
Jun '22	-	-	-



PM/FAE

FAE

Jan '22	2.3	1.8	4.1
Feb '22	2.6	2.4	5.0
Mar '22	1.2	2.0	3.2
Apr '22	1.2	2.1	3.3
May '22	-	-	-
Jun '22	-	-	-

Jan '22	2.4	1.9	4.3
Feb '22	2.2	1.8	4.0
Mar '22	1.3	2.2	3.5
Apr '22	0.9	2.1	3.0
May '22	-	-	-
Jun '22	-	-	-

Jan '22	2.6	1.8	4.4
Feb '22	2.8	2.4	5.2
Mar '22	1.4	2.0	3.4
Apr '22	1.3	2.1	3.4
May '22	-	-	-
Jun '22	-	-	-

Jan '22	2.7	1.9	4.6
Feb '22	2.5	1.9	4.4
Mar '22	1.4	2.2	3.6
Apr '22	1.1	2.2	3.3
May '22	-	-	-
Jun '22	-	-	-



PM/FF

FF

Jan '22	1.2	2.1	3.3
Feb '22	0.5	2.2	2.7
Mar '22	0.5	2.4	2.9
Apr '22	0.5	2.4	2.9
May '22	-	-	-
Jun '22	-	-	-

Jan '22	0.6	1.9	2.5
Feb '22	0.2	1.4	1.6
Mar '22	0.2	1.5	1.7
Apr '22	0.2	1.5	1.7
May '22	-	-	-
Jun '22	-	-	-

Jan '22	1.5	2.1	3.6
Feb '22	0.7	2.2	2.9
Mar '22	0.6	2.4	3.0
Apr '22	0.5	2.4	2.9
May '22	-	-	-
Jun '22	-	-	-

Jan '22	1.0	2.0	3.0
Feb '22	0.5	1.5	2.0
Mar '22	0.2	1.5	1.7
Apr '22	0.2	1.6	1.8
May '22	-	-	-
Jun '22	-	-	-

Forced and Voluntary Overtime include shifts of 14+ hours (left column) or 4+ hours (right column) worked only.

Averages are calculated using number of Overtime shifts (14+ or 4+ hours) divided by the number of employees working 9+ shifts for the quarter.

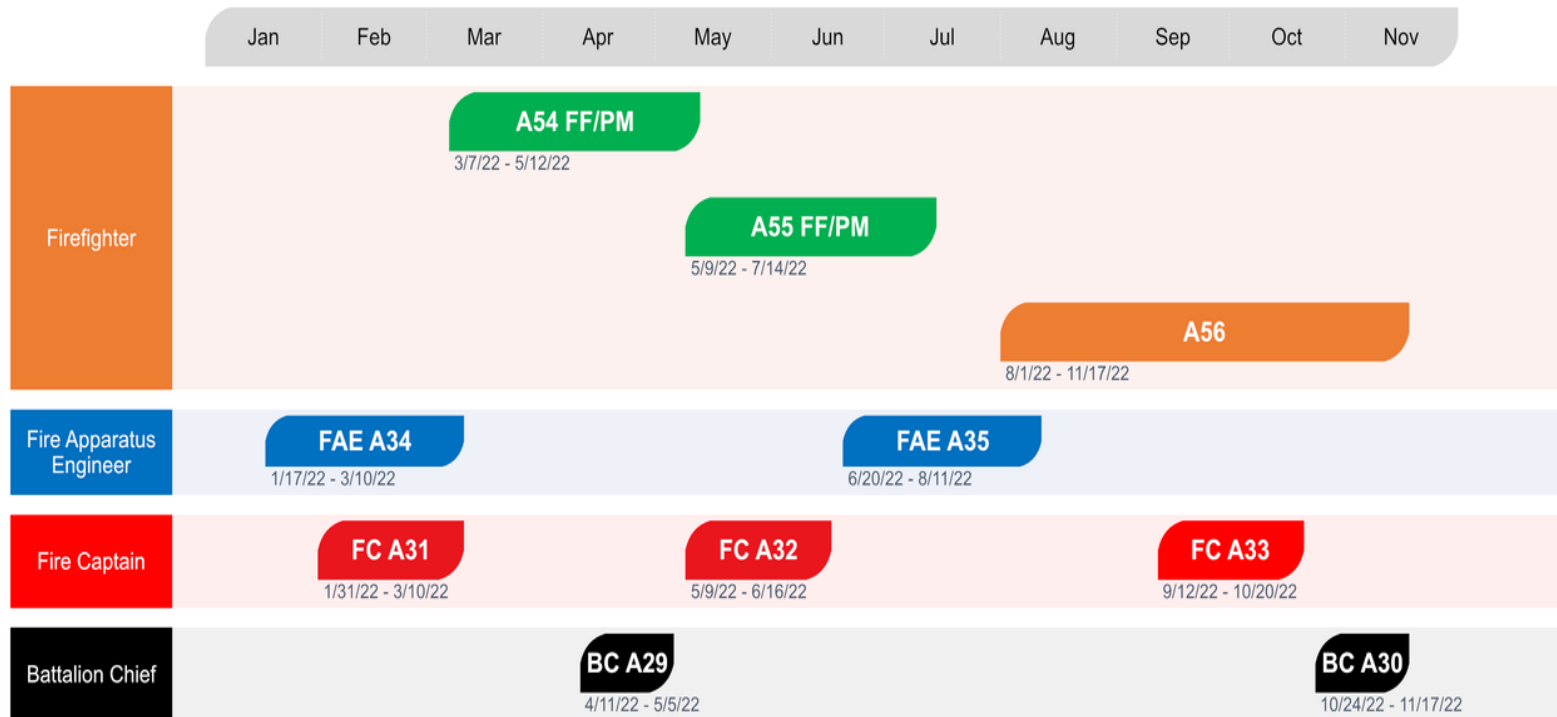
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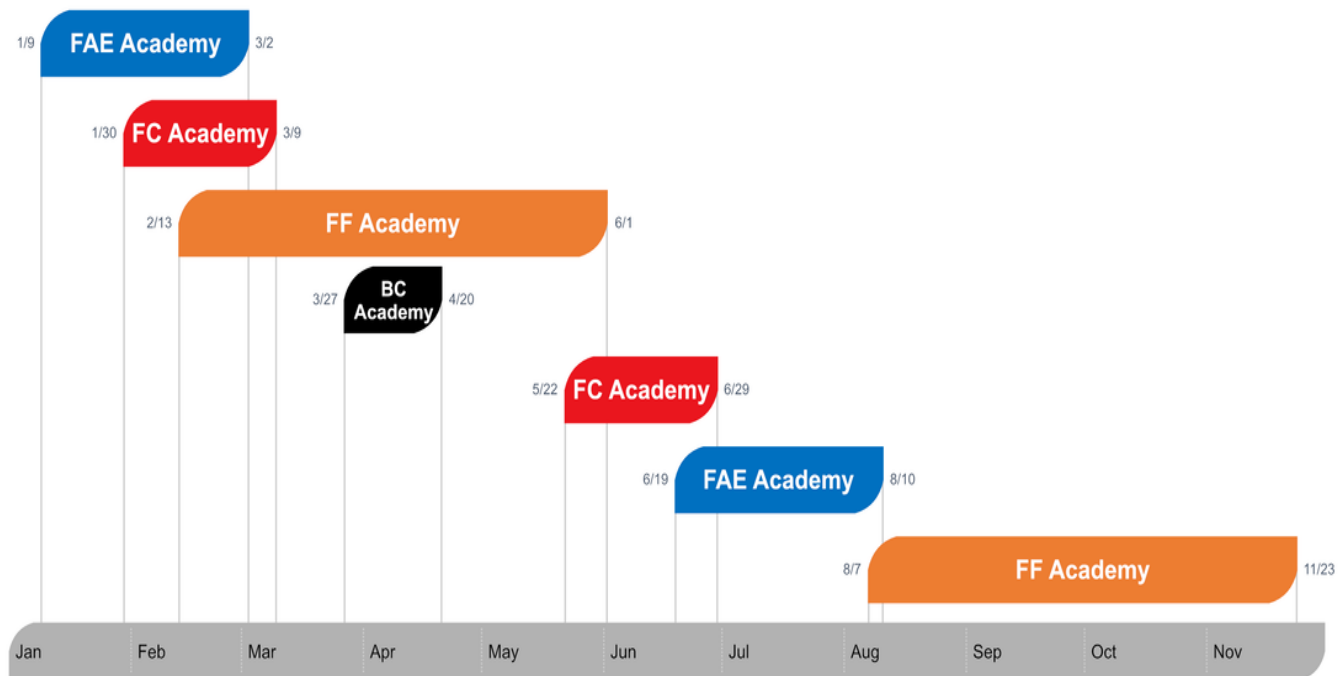
Beginning April 2020, the reporting period is realigned to cover actual days of the month (previously based on rolling 29 day periods).



## 2022 Academies

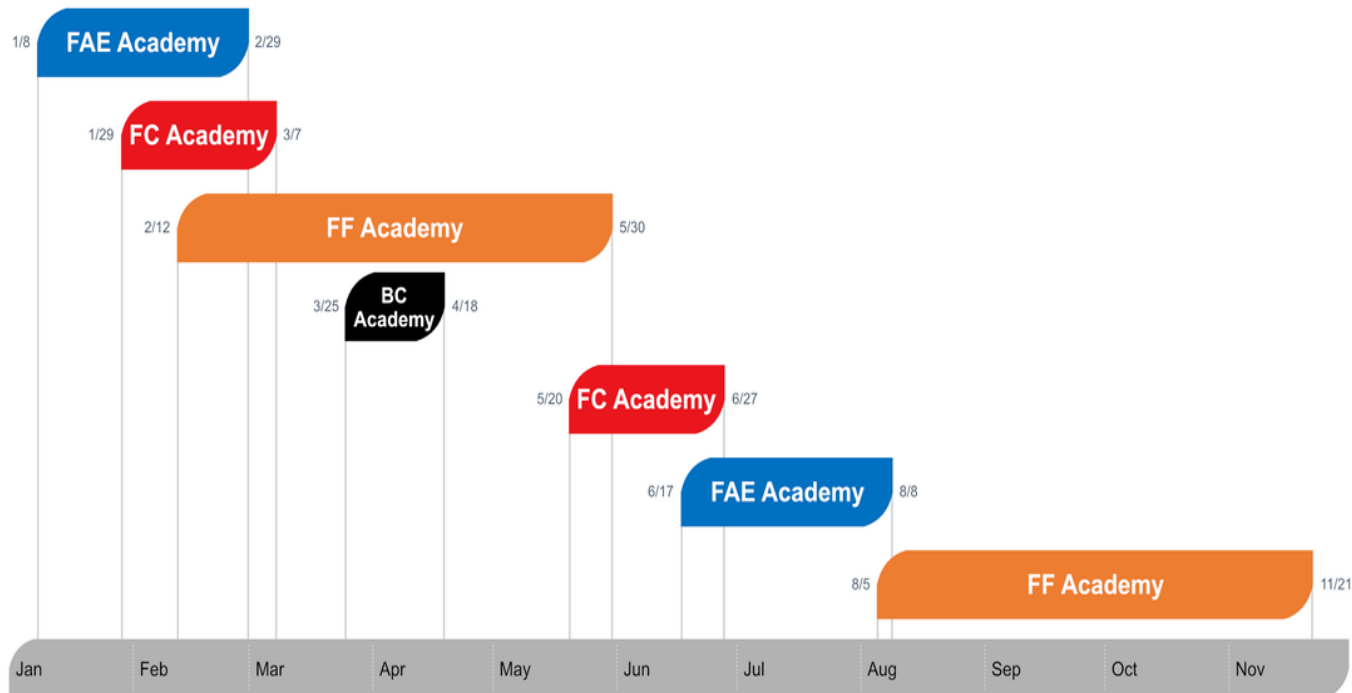


# 2023 Projected Academies



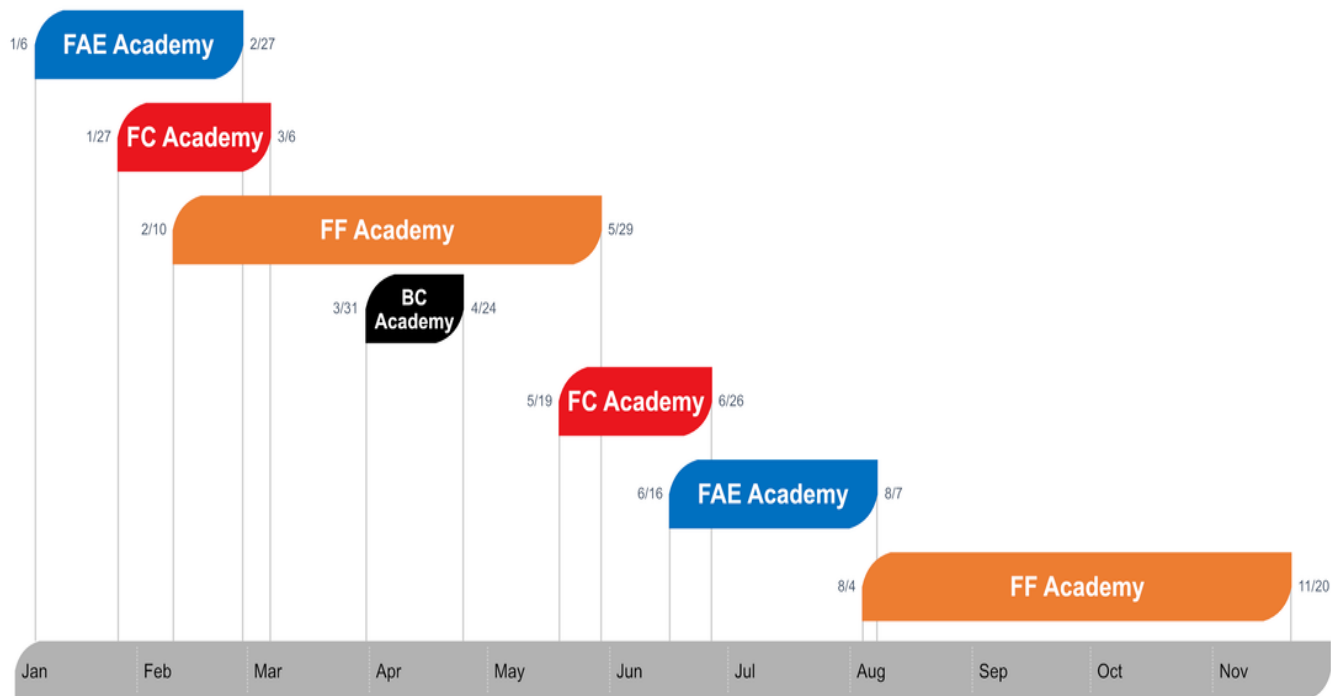
Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*

# 2024 Projected Academies



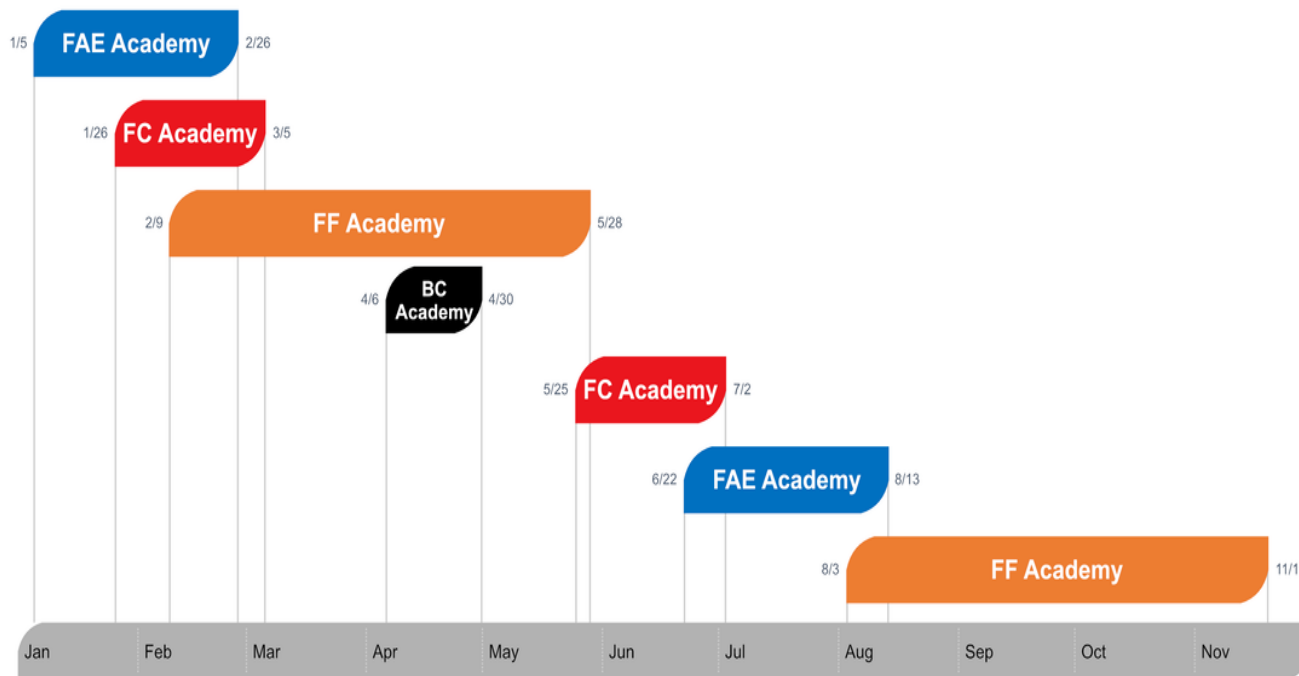
Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*

# 2025 Projected Academies



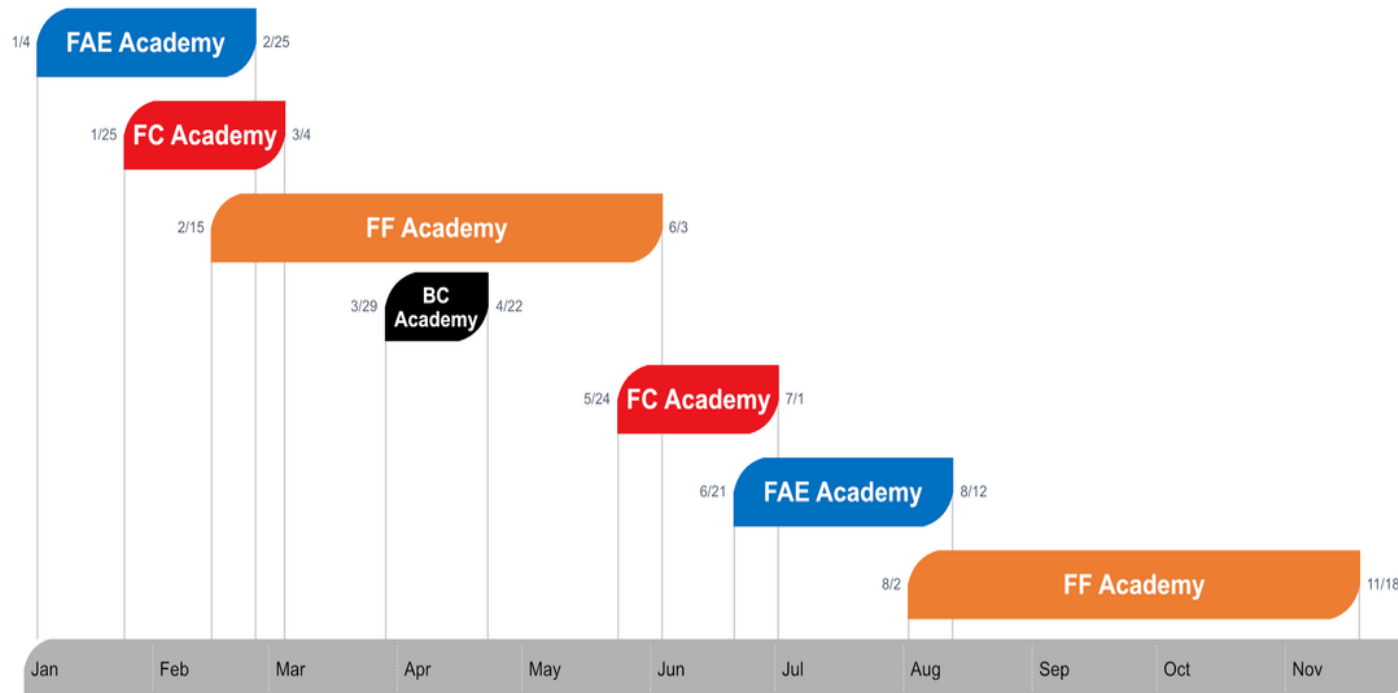
Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*

# 2026 Projected Academies



Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*

# 2027 Projected Academies



Produced: 6/2022 \*\*Dates are subject to change, dependent upon organizational needs\*\*



**Orange County Fire Authority**  
**AGENDA STAFF REPORT**

**Board of Directors Meeting**  
**July 28, 2022**

**Agenda Item No. 3B**  
**Discussion Calendar**

**OCFA Aircraft Replacement Review Process –**  
**Review of Remaining Phase 3 through 6 of the Work Plan**

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**Contact(s) for Further Information**

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Kenny Dossey, Deputy Chief Operations Bureau	<a href="mailto:kennydossey@ocfa.org">kennydossey@ocfa.org</a>	714.573.6006
Tim Perkins, Division Chief Special Operations	<a href="mailto:timperkins@ocfa.org">timperkins@ocfa.org</a>	714.573.6761

**Summary**

This agenda item is provided to address the remaining phases of the OCFA Aircraft Replacement Review Process. At this meeting, staff will provide the aircraft needs and disposition of obsolete aircraft, options and associated costs in the provision of Air Operations Services, the affordability analysis with potential financing solutions and aircraft replacement recommendations.

**Prior Board/Committee Action(s)**

At the July 22, 2021 meeting of the Board of Directors, a presentation was provided by Division Chief/Special Operations, Vince Carpino, as an update on OCFA Air Operations. The Board was informed that staff would return at a later date to initiate more dialogue and to begin to explore next steps related to the replacement of OCFA's Air Assets.

At the November 10, 2021 meeting of the Budget and Finance Committee, discussion was initiated regarding the OCFA Aviation Unit Fleet Plan Analysis and proposed review process. However, quorum was lost prior to completing any action.

At the January 12, 2022 meeting of the Budget and Finance Committee, dialogue continued, and direction was provided to staff to finalize the proposed review structure, and to return to the Committee for an additional and final review prior to submittal to the Board of Directors for input and approval.

On March 9, 2022, the Budget and Finance Committee reviewed the proposed OCFA Aircraft Replacement Review Process item and directed staff to place on the Board of Directors agenda for approval.

At the May 18, 2022 special meeting of the Budget and Finance Committee, staff reviewed phase one of the six phase review process. The topic of the first phase review was Asset Orientation. A meeting quorum was not possible, and the meeting continued as informational only to the members in attendance. Staff provided an Asset Orientation presentation and conducted a tour of the Air Ops Fire Station 41 facilities, equipment and aircraft.

On June 8, 2022, the Budget and Finance Committee reviewed phase 2 of the OCFA Aircraft Replacement Review Process. The topic covered a review of Air Operations services provided which included call volume statistics, types of calls, etc. The information needs that the B&FC previously requested staff to include in the formal vetting process was provided during this meeting, including:

- Breakdown of helicopter call types by month within OCFA service area
- Assessment of necessity and improved outcomes from having a helicopter
- Assess OCFA & OCSD helicopter programs overlap and operational relationship
- How many aircraft we require and to do what function?
- How does the growth of county population factor into the needs of the agency?

In addition, at this meeting, the Budget & Finance Committee directed staff to combine and expedite the review phases.

On July 13, 2022, the Budget and Finance Committee reviewed the proposed agenda item and directed staff to place the item on the Board of Directors agenda by a vote of 7-1 (Director Tettemer dissented and Director O'Neill absent). Furthermore, the Committee requested that staff provide the following information as part of the July 28, 2022, Board of Directors meeting staff report:

- Address B&FC member questions related to Orange County Hospital Landing Zones.
- Include the OCFA 5-Year Financial Forecast scenarios for all three financing options for 7, 10, and 15-year lease financing with 0%, 1% and 2% salary increases after MOU's expire.

#### **RECOMMENDED ACTION(S)**

1. Receive and file the report documenting the full OCFA Aircraft Replacement Review Process.
2. Direct staff to return the two loaned Federal Excess Property Program (FEPP) UH-1H Super Huey helicopters to the federal government, with CALFIRE serving as the conduit for this FEPP return.
3. Direct staff to initiate administrative actions necessary to facilitate the purchase of two Sikorsky S-70i Type I helicopters, including: (a) procurement process for award of contract, (b) Request for Proposal process for selection of financing consultants, (c) Request for Proposal process for provision of lease-purchase financing, (d) and preparation of draft-proposed budget adjustments.
4. Upon completion of the administrative actions, direct staff to return to the Budget and Finance Committee and the Board of Directors (tentatively in September 2022) for approval to award a purchasing contract, approval of lease financing terms, and authorization of the necessary budget adjustments.

#### **Impact to Cities/County**

Not Applicable.

#### **Fiscal Impact**

The fiscal impact includes \$52 million in capital costs, financed with \$52 million in lease-purchase financing proceeds, with a total cost of borrowing at \$18.6 million spread over 15 years. Additional details regarding financing terms and ongoing operating costs are provided in the staff report and attachments.

Increased Cost Funded by Structural Fire Fund (Capital): \$4.7 million/year for 15 years

Increased Cost Funded by Structural Fire Fund (Add'l Annual Operating cost): \$1.8M

Increased Cost Funded by Cash Contract Cities: \$0

## Background

At their respective March 2022 Budget & Finance Committee (B&FC) and Board of Directors Meetings, the B&FC and the Board reviewed and approved the OCFA's Aircraft Replacement Review Process and Work Plan. The review process and work plan incorporate prior input provided by the B&FC, and developed to educate and inform our policy-makers on needs, options, costs, financing solutions, and ultimately to prepare recommendations for consideration by the Board of Directors pertaining to disposition of obsolete aircraft and acquisition of replacement aircraft.

The B&FC will conduct the Aircraft Replacement Review Process, with delivery of its findings and recommendations to the Board of Directors upon completion. In delegating this responsibility to the B&FC, the Board will rely upon the B&FC to conduct a thorough review of the services provided by OCFA's Air Operations in order to gain an understanding of needs for aircraft replacement, disposition of obsolete aircraft, as well as the costs for replacement, affordability, and options for financing these important assets.

The review process and work plan organized the review into feasible phases and sequenced in a manner to facilitate a thorough education. The review process and work plan included:

1. Asset Orientation - OCFA Air Operations Station 41
2. Review of Air Operations Services Provided
3. Aircraft Replacement Needs & Disposition of Obsolete Aircraft
4. Aircraft Options & Associated Costs
5. Affordability Analysis with Potential Financing Solutions
6. Development of Recommendations

Staff anticipated a B&FC work plan process that would extend approximately six-months to complete. However, upon conclusion of the first two phases, the B&FC directed staff that the remaining phases of the work plan be expedited. Based on the limited availability of the replacement aircraft best suited for the OCFA multi-mission profile, the need to expedite the work plan review has become more time sensitive.

The OCFA provides a variety of services to the unincorporated area of the county as well as 23 cities in the county. The primary missions for the OCFA aviation unit include firefighting and rescue. The aviation unit averages 1,250 operations per year and has flown an average of 530 hours annually beginning in 2016. The aviation unit flew just over 600 hours in 2020.

In addition to firefighting, the aviation unit uses its aircraft to do fire mapping, transport wildland crews, transport patients, and insert and extract equipment. When performing rescue missions with a 250-foot hoist cable, the unit can do various procedures including short-haul air rescue on land or water, swift-water rescue, patient transfer on litter, and large animal rescues. Other capabilities involve night vision goggle operations, infrared detection, and disaster assessment.

Of the four aircraft, the aviation unit staffs two of them 365 days each year. One of the two aircraft is staffed for 24 hours and is prepared for the firefighting and rescue missions. The crew consists of a pilot, fire captain or crew chief, and one or two paramedics. The second helicopter is a fire response helicopter and is available for 10 hours each day. The helicopter is staffed with a pilot and fire captain or crew chief. A third and fourth helicopter are necessary so that reserve aircraft are available due to FAA scheduled maintenance requirements and initial pilot training.

**Current Month's Topic - Review of Remaining Phase 3 through 6 of the Work Plan:**

The OCFA sought the assistance of Conklin & de Decker to provide a thorough assessment of the OCFA's current helicopter fleet to make more informed decisions on the purchase, operation, maintenance, and disposition of aircraft by providing objective and impartial information.

Staff determined that certain performance and specifications were important to evaluate the candidate helicopters. The parameters included:

- Useful Load
- Mission Endurance
- Aircraft Speed
- Hovering Capability
- Water Drop Capacity
- Cabin Volume and Seating
- Purchase Price
- Maintenance and Fuel Costs (Section 2 of the report)

Staff used the current helicopters to explain the importance of these parameters and to serve as a baseline when comparing to the candidate helicopters. The final step was to create a table that compares the current capabilities of the existing helicopters to the candidate helicopters.

More specifically, the OCFA requested that Conklin & de Decker focus on the following areas to accomplish the intent of the overview:

- Based on the OCFA's historical usage, identify the preliminary specifications of the helicopter required. Preliminary specifications could include item such as aircraft weight range, size, number of engines, and useful load.
- Estimate the cost of the acquisition and operation of helicopter alternatives. The operating cost estimates will include maintenance options and fuel costs, and other operating or overhead costs.
- Establish a defined framework for an OCFA helicopter replacement plan including the anticipated useful life of the equipment, as well as a comparison of phasing of aircraft purchases versus purchasing all replacement aircraft all at once.
- Thoroughly research the resale value of the current fleet and explore the primary and secondary markets for helicopters to determine the feasibility of replacement within specified timeframes, such as lead times in acquiring helicopters and expected duration in selling the current fleet.
- Provide a comprehensive summary of:
  - Maintenance requirements based on usage parameters such as flight hours, calendar times, or flight cycles. Compare/contrast to current maintenance schedules deployed by the OCFA.
  - Present preliminary analysis and findings to OCFA staff and receive feedback.
  - Prepare a Fleet Plan Analysis report for all involved parties with input from OCFA staff.

The following sections summarizes the results to Conklin & de Decker's analysis and research. In addition, the full report issued by Conklin & de Decker is provided as Attachment 1.

### Phase 3: Aircraft Needs & Disposition of Obsolete Aircraft

#### Section 1: Fleet Review

OCFA does not see its primary missions changing; however, the organization does believe it needs to increase its water delivery capabilities during the firefighting mission. The current fleet of OCFA helicopters have the capacity to deliver up to 350 to 375 gallons per drop. A more acceptable volume would be Type 1 helicopters, which drop up to 1,000 gallons.

Helicopter specifications and performance requirements are identified based on OCFA current and future missions.

OCFA is seeing an annual increase in wildland fires, which occur and spread more rapidly than experienced in the past, the Fire Chief and Emergency Operations Bureau leadership believe it needs to increase its water delivery capabilities during the firefighting mission. The current fleet of helicopters have the capacity to deliver up to 350 to 375 gallons per drop. A more acceptable volume would be Type 1 helicopters, which drop up to 1,000 gallons. Comparing the Bell 412EPX to the Sikorsky S-70i illustrates the increase in water delivered during the typical mission scenario. The S-70i will carry 256 percent more water per tank load. It may be more important to note that in comparison, the S-70i performance is far superior to that of the Bell 412EPX and will provide a significantly enhanced level of safety for our aircrews. The S-70i has true fly away capability in the case of a one-engine inoperable (OEI) event while hovering at maximum gross weight.

OCFA selected two helicopter types that have the capacity to deliver more water per drop, while also providing more cabin volume and seating than the current fleet. Those aircraft were the Sikorsky S-70i and Coulson-Unical CH-47D. Important to note that although the CH-47D has the capability to drop a larger volume of water, it does not meet the needs of OCFA's primary missions, and therefore not included as a candidate helicopter in Table 1 below. OCFA also requested information on the newest version of the Bell 412 series, the Bell/Subaru 412EPX, due to its improved performance.

The table below provides information about the selected performance and specifications for the current fleet and the candidate helicopters.

<b>Table 1</b>				
<b>Firefighting Mission</b>				
	<b>Current Helicopters</b>		<b>Candidate Helicopters</b>	
Airframe Manufacturer /Type	Bell / Super Huey	Bell / 412EP	Subaru/Bell 412EPX	Sikorsky S-70i
Engine Manufacturer /Type	Honeywell / T53-L-703	Pratt & Whitney / PT6T-3D	Pratt & Whitney / PT6T-9	General Electric / T700 GE 701D
<b>Useful Load (lbs.)</b>				
Maximum Take-Off Gross Weight (Internal)	10,500	11,900	12,200	22,000
Maximum Take-Off Gross Weight (External)	11,200	11,900	13,000	23,500
Mission Configured – Fire	6,700	8,300	8,300	14,200
Flight Crew (Firefighting)	450	450	450	650

Useful Load Available for Mission	4,050	3,150	4,250	8,650
Fuel (lbs.) 1.5-Hour Mission w/ 20 Min. Reserve	1,275	1,385	1,385	1,986
Remaining Useful Load	2,775	1,765	2,865	6,664
<b>Mission Endurance (Hours)</b>	<b>2.0</b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>
<b>Hover Capabilities (Altitude)</b>				
In-Ground Effect (ISA, Sea Level)	6,800	6,200	11,100	10,270
Out-of-Ground-Effect (ISA, Sea Level)	10,800 lbs.	11,890 lbs.	8,000	6,200
In-Ground Effect (ISA +20 C, Sea Level)	6,800	6,200	8,200	7,400
Out-of-Ground-Effect (ISA +20 C, Sea Level)	10,800 lbs.	11,890 lbs.	4,000	4,400
<b>Helicopter Speed (kts)</b>				
Cruise Speed - Max (knots)	106	125	130	145
Cruise Speed - Long Range (knots)	106	122	124	128
Calculated Speed (knots)	90	106	110	122-140
<b>Water Drop Capabilities (gallons)</b>				
Water Tank Size (gallons)	350	375	375	1,000
1.5-Hour Mission+ 20-Min Fuel Reserve	332	211	343	797
End of Mission (20-minute reserve)	457	347	478	992
<b>Cabin</b>				
Volume (cubic feet)	208	208	208	396
Crew/Passengers	2/14	2/14	2/14	2/12
<b>Pricing/Value</b>				
Basic Price (x1M)	N/A	N/A	\$11.5	\$17.0
Firefighting Completion (x 1M)	N/A	N/A	\$14-\$15	\$20-\$23 (1)
Resale Value	\$1.6-\$2.0	\$3.5-\$4.3	N/A	N/A

(1) Recent pricing estimate as of June 30, 2022 is \$26,070,934 per aircraft

## **Section 2: Life Cycle Cost Projection**

OCFA requested that Conklin & de Decker estimate the cost of the acquisition and operation of helicopter alternatives. The operating cost estimates include maintenance options and fuel costs, and other operating or overhead costs.

Conklin & de Decker estimated the maintenance and fuel costs over a ten-year period for each of the current helicopter fleet and for the selected replacement candidate helicopters. While the chart highlights the increase in costs for the candidate helicopters, it does not represent the significant increase in water dropping capacity.

It is important to mention the effect that a helicopter's age can have on the maintenance costs in a life cycle. Three of the helicopter types, UH-1H Super Huey, Bell 412EP, and CH-47D, have been in operation for many years. The 412EPX and S-70i are considered newer helicopters. Due to their age and the number of flight hours, older aircraft will have higher maintenance costs as they encounter significant maintenance events. Based on the assumption of 200 flight hours per year per helicopter, the 412EP helicopters will encounter several of these maintenance events, which drives up the total costs during the next ten-year period. The new helicopters will not encounter the significant events in their first ten years based upon the 200 hours per year and therefore their cost may be similar to or less than the older helicopters.

New vs Used Aircraft –Two of the candidate helicopters are new, the 412EPX and S-70i. Why is this important to understand? The 412EPX and S-70i are just starting their life cycle as it relates to maintenance. The current helicopters are in a different older segment of their life cycles and have encountered certain scheduled maintenance events that a new helicopter has not. Due to the difference in the life cycles, the current Bell 412EP helicopters will more than likely cost more to maintain and not only due to scheduled maintenance, but also unscheduled maintenance associated with an aging helicopter.

### **Section 3: Resale Value and Lead Time**

Using two industry resources, Conklin & de Decker and HeliValue\$, the range of costs for a used Bell 412EP is \$3.50 to \$4.30 million. The UH-1H Super Huey's do not have a resale value. They were acquired through the Federal Excess Property Program (FEPP) program, the opportunity for receiving resale value is eliminated. Technically, the helicopters are still owned by the federal government with CAL FIRE serving as the conduit to OCFA.

An industry source reemphasized that estimated helicopter values are only applicable if there are available buyers. As of the end of 2020, the lack of buyers at the current estimated values indicates the actual value is somewhere lower than the estimated values. Another resource, AMSTAT, estimated that 412 helicopters are staying on the market for a year or more.

OCFA is currently not exploring resale of the Bell 412's. It is the intent of the OCFA to utilize these aircraft as reserves when the front-line aircraft are down for maintenance.

### **Section 4: Fleet Replacement Plan**

The recommendation is to return the loaned Federal Excess Property Program (FEPP) UH-1H helicopters to CAL FIRE. There are three primary reasons for retiring these helicopters, age (over 50 years), increased costs due to limited military spares, and reduced availability. An additional factor to consider is the level of risk comparison between single-engine and multi-engine helicopters while hovering. Both Super Hueys were grounded due to safety concerns raised by the Chief Pilot and the Chief of Maintenance.

The recommendation is to acquire two (2) Type 1 helicopters. The candidate helicopters will meet the OCFA objective to increase the amount of water delivered during the firefighting mission and will directly and positively affect the life safety of our aircrews.

Significant scheduled maintenance events affect a helicopter's availability. Delivering larger amounts of water is a priority and there will be times when OCFA will not have a Type 1 helicopter available to perform the mission, therefore a second Type 1 helicopter is required for adequate coverage.

### **Section 5: Other Information**

Guaranteed maintenance programs (GMP) or Total Assurance Programs (TAP) provide certainty for the erratic and often hard-to-predict behavior of maintenance costs. The program serves as a maintenance support program covering the cost of parts and replacement. These programs minimize maintenance cost variability and optimizes predictable financial planning by level loading the scheduled and unscheduled maintenance costs at a fixed rate per flight hour. The following are items that are included:

1. Preventive and Corrective Maintenance
2. Airframe line replaceable Units

3. Avionics
4. Navigation
5. Communications Systems
6. Fuselage and Structural Parts & Assemblies

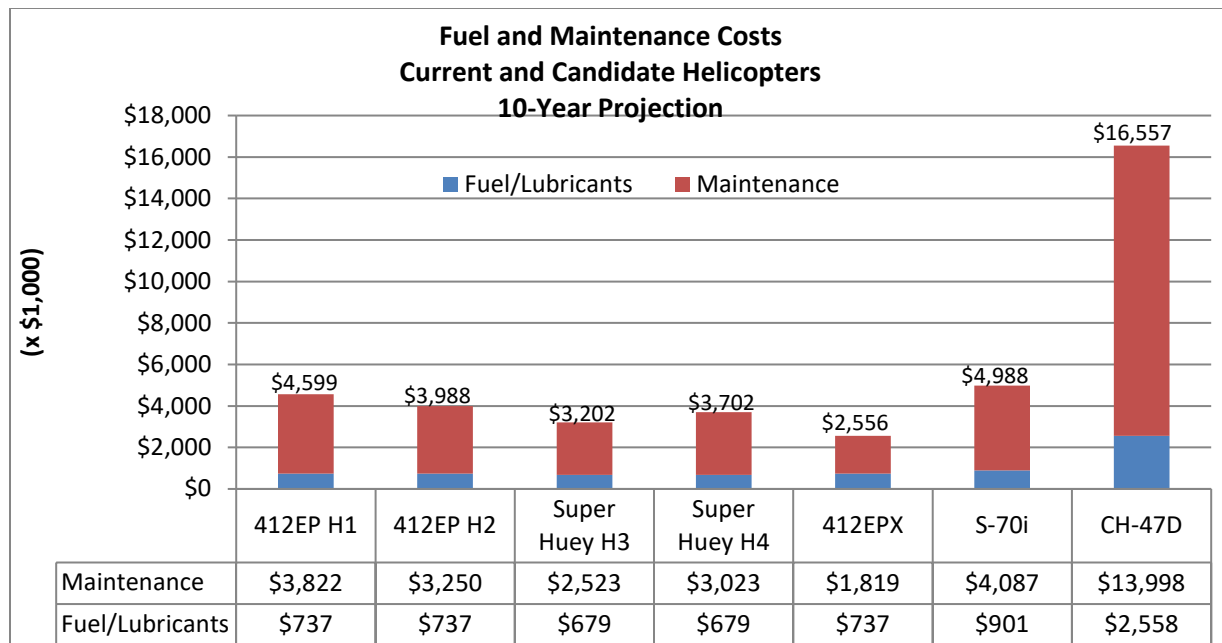
As it relates to cost predictability, there are three other important benefits to consider.

- For governmental agencies, a GMP makes even more sense since few of them have budgeting mechanisms that efficiently handle the wide variation in maintenance costs from year-to-year. As a result, in low-cost years, there is a budget surplus that, more than likely, will be consumed on inventory. In high-cost years, the finance department may have to scramble to find the necessary funds. Regardless of the costs that are actually incurred each year, the effects of the typical maintenance costs are magnified if funding for future maintenance needs is not prioritized.
- A GMP will serve as an insurance policy when premature maintenance events occur. If the main transmission requires an overhaul prior to the scheduled 3,000 hours, the GMP will cover the event. In essence, the risk has shifted from the operator to the entity that provides the GMP.
- A GMP offers even more certainty in a changing maintenance environment. Historically most of the drive train system, flight controls, hydraulics, and engines had scheduled maintenance intervals (i.e., main transmission example). However, continued product improvements have created trends to move these schedule maintenance intervals to maintenance based on the item's condition, also referred to as on-condition maintenance. By its nature, the predictability of this type of maintenance becomes more difficult, not only its timing but also the cost.

#### **Phase 4: Aircraft Options & Associated Costs**

Conklin & de Decker's Life Cycle Cost 20.1 software was used to project maintenance and fuel costs over a ten-year period for each of the current fire and rescue helicopters and for selected candidate helicopters. The beginning point for the ten-year life cycle estimate was January 2021.

The chart below summarizes the estimated fuel and maintenance costs over the next ten-year period. Each of the OCFA helicopters are summarized individually, while the candidate helicopters are based on helicopters that are new in the life cycle. These numbers are made up of fuel, lubricants, airframe maintenance, and engine restoral.



The analysis used for the fuel and maintenance cost used the following life cycle assumptions:

1. Life cycle start Month – January 2021
2. Program Length – 10 Years
3. Hours flown per year – 200 each aircraft
4. Fuel Costs - \$2.90 per gallon
5. Fuel Consumption
6. Labor - labor costs associated with maintenance are based upon an estimate referred to as “hands-on-time”
7. Inflation Rates – The life cycle cost model uses two inflation factors. The first affects the increasing cost of parts in aviation and the second is more general and is applied to such categories as fuel and labor. The assumed annual inflation factors affecting parts is 2.7 percent and the general inflation rate is 1.95 percent.

To acquire helicopters with Type 1 capability, the costs to operate them will also increase. The above chart highlights the increase. The Conklin de Decker report also itemized the estimated ongoing operating costs associated with these helicopters in Attachment 1. While the increase in maintenance and fuel costs are higher, the increase in performance that directly and positively affects the life safety of our aircrews must also be considered.

### **Phase 5: Affordability Analysis with Potential Financing Solutions**

Staff has completed an affordability analysis associated with purchasing two Type 1 helicopters by reviewing the acquisition costs, financing/borrowing costs, and ongoing operating costs. In completing this analysis, staff also considered existing operating costs that were already funded in the base budget for operation of the former Super Huey helicopters that are recommended for disposition. These costs and cost offsets are outlined in Attachment 2.

#### ***Financing Options***

Since the formation of OCFA, we have successfully used debt financing at various intervals, and in a manner that smoothed out the use of financial resources over periods of time aligned with the useful lives of the capital assets. Examples of prior financings have included:

**Bond Financing:** Bond financing of 50% of the cost to construct the Regional Fire Operations & Training Center (RFOTC), with the remaining 50% of the cost funded by cash reserves. For OCFA, a bond financing requires approval by two-thirds of the governing bodies of OCFA member agencies per the JPA Agreement.

**Lease-Purchase Financing:** Lease-purchase financing of helicopters, emergency apparatus/vehicles, and high-cost information technology equipment. OCFA is able to enter into lease-purchase financing agreements by approval of the OCFA Board of Directors, without requiring approval by the individual member agencies of the OCFA.

Lease-purchase financing is the method that was used by OCFA to finance the past purchase of the two Bell helicopters in 2008. A lease-purchase program is a tool used by government entities to finance small to mid-sized capital projects, equipment, replacements, and acquisitions. Unlike a traditional lease, with a lease-purchase the lessee selects, purchases, and owns the assets. The lessor is listed on the title document as the lien-holder. As such, a lease-purchase agreement is not considered an indebtedness for Amended JPA purposes, but rather a lease subject to annual appropriation of lease payments as part of the annual budget process. By spreading out lease payments over time, rather than paying for a large amount of equipment all at once, a lease-purchase agreement is an effective cashflow tool.

To implement a lease-purchase financing transaction, staff would first complete a Request for Proposal (RFP) to hire the financing team, which would include a financial consultant, known as a municipal advisor, that specializes in the government sector and bond counsel.

The municipal advisor provides independent financial advice and serves solely the interests of the OCFA. Services provided by the municipal advisor include developing the Lease-Purchase structure, documents and bid package, conducting the competitive bidding process among banks and financial institutions to obtain the best financing terms at the lowest cost of borrowing and assisting with the formation and completion of all documents.

Bond Counsel services include reviewing all of the financing documents and providing a legal opinion that OCFA is authorized to execute a lease-purchase transaction and has met all legal and procedural requirements necessary.

Upon completion of these steps, staff would return to the B&FC and the Board of Directors for approval of the financing documents.

In order to complete an Affordability Analysis, staff obtained preliminary estimates from US Bank for multiple financing scenarios to include financing over 7-years, 10-years, and 15-years. Estimates are as follows:

Financing Term	Estimated Interest Rate*	Estimated Annual Installment Payment	Estimated Total Interest Cost of Borrowing
7-Years	3.95%	\$8,647,698.44	\$8,533,889.06
10-Years	3.95%	\$6,395,181.32	\$11,951,813.24
15-Years	4.10%	\$4,709,699.08	\$18,645,486.22

\*As of 7/6/22

### ***Affordability Analysis***

Using the cost analysis provided in Attachment 2, and the financing options described above, staff prepared multiple scenarios of the OCFA's Five-Year Financial Forecast, including:

- Baseline assumption with no new Type 1 helicopter costs
- 7-year, 10-year and 15-year financing terms for 2 new Type 1 helicopters assuming 0%, 1% and 2% cost of living salary increases for all labor associations upon expiration of labor agreements

All of the forecast scenarios were built on the forecast scenario that was presented when the FY 2022/23 Budget was adopted. The affordability analysis presented to the B&FC on July 13, 2022 demonstrated that the 15-year lease-financing term with the assumption of 0% or 1% cost of living adjustment upon expiration of agreements may be accommodated within OCFA's financial outlook. For the scenarios in which the assumption included a 2% cost of living adjustment, the timing for other CIP projects would need to be re-prioritized and adjusted accordingly in order to accommodate the lease-financing and additional operational costs of the 2 new Type 1 helicopters.

Most recently at the July 18, 2022 OCERS Board meeting, the OCERS Board approved updated projected pension information presented by their actuary Segal. The presentation included updated projected retirement costs, projected unfunded liability, and funding ratios based on alternative investment return scenarios. Segal's presentation also included adjusted pension contribution rate projections which OCFA staff utilized to update the 5-Year Financial Forecast and provide a more current financial projection. Thus, the 5-Year Financial Forecast has changed compared to what was presented to the B&FC at its July 13<sup>th</sup> meeting.

The financial forecast scenarios for the 7-year, 10-year and 15-year lease-financing terms are provided in Attachment 3.

### **Phase 6: Development of Recommendations**

OCFA fire/aviation subject matter experts are recommending the acquisition of two (2) Sikorsky S-70i Type 1 helicopters. There is a demonstrated need to drop larger quantities of water and due to the significant increase in aircraft performance that directly and positively affects the life safety of our aircrews, this is the only candidate aircraft capable of both.

Other agencies that have recently acquired Sikorsky S-70i helicopters are the Los Angeles County Fire Department, the City of San Diego Fire-Rescue Department and CAL FIRE. These agencies are in the process of procuring additional Sikorsky S-70i helicopters.

United Rotorcraft (UR) is the only company authorized to build new Sikorsky S-70i helicopters to the standard fire/rescue/EMS Firehawk configuration that OCFA requires. UR is uniquely qualified and licensed by Sikorsky to provide these services after successfully developing and supporting multi-mission helicopter modifications and operators for over 25 years. The evidence of this includes the S-70i Firehawk helicopter and equipment in operation at Los Angeles County Fire Department, CAL FIRE, and San Diego Fire-Rescue, along with their own fleet and several third-party EMS operators.

Per Attachment 4, United Rotorcraft has indicated that there remains three 2022 Sikorsky S-70i helicopters available for purchase. If OCFA is unable to secure approval by the end of August 2022, the three helicopters will be sold to other buyers that have indicated their interest in the

aircraft. Further, due to heavy demand by international customers and CAL FIRE approved for four (4) more Sikorsky S-70i's, it is likely that the soonest OCFA could secure a position would be 2024, with delivery in 2025 or 2026. Hence the need to expedite the work plan review process.

### **Sikorsky S-70i**

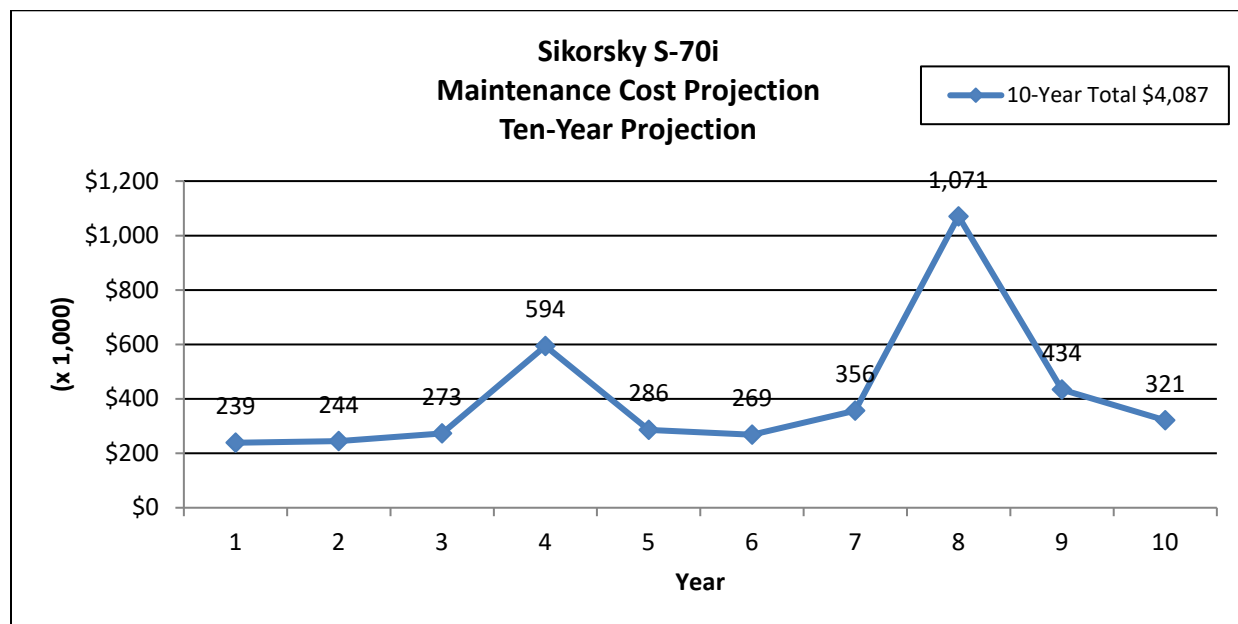
Known as Sikorsky Manufacturing Corporation in 1925, the company expanded quickly, relocated to Stratford, Connecticut, and reorganized as the Sikorsky Aviation Company in 1929. It became part of the United Aircraft and Transport Corporation, which would be reorganized as the United Technologies Corporation (UTC) in 1975. Lockheed Martin, its current parent company, purchased Sikorsky in 2015.

Certificated as the S-70, the helicopter was first built for the US military. The UH-60 was designed in response to a US Army competition in the early 1970's for a replacement of the UH-1 "Huey". Sikorsky has built versions of this helicopter for every branch of the US Armed Forces, the US Coast Guard, and numerous foreign armed forces. To date well over 3,300 have been delivered.

The current non-US military designation is the Sikorsky S-70i. Los Angeles County Fire Department has historically operated the S-70A version, which is the equivalent to the UH-60L military designation but has also received the S-70i version recently.

The primary improvements for the Sikorsky S-70i are more powerful engines, T700 GE 701D, and a modern avionics glass cockpit. The fuselage provides one large compartment with two seats for the flight crew and additional flexible seating for 11 to 20 individuals depending on configuration. For the firefighting mission, the Sikorsky S-70i can carry a water tank with 1,000-gallon capacity. This places the Sikorsky S-70i, and UH-60 models, in the Type I category; a capability which has become the helicopter of choice for aerial firefighting.

The below chart is Conklin & de Decker's Sikorsky S-70i ten-year maintenance cost projection. It is important to note that this projection does not factor Sikorsky's Total Assurance Plan (TAP) Guaranteed Maintenance Plan (GMP). A GMP offers even more certainty in a changing maintenance environment which would reduce the spikes in cost represented in the chart below.



## Additional Board Member Follow Up Questions

### 1. What should OCFA anticipate for operational cost increases that will need to be built into the General Fund budget:

- See Attachment 2 for Net Operating Cost Needs
- Initial Training (one-time cost):

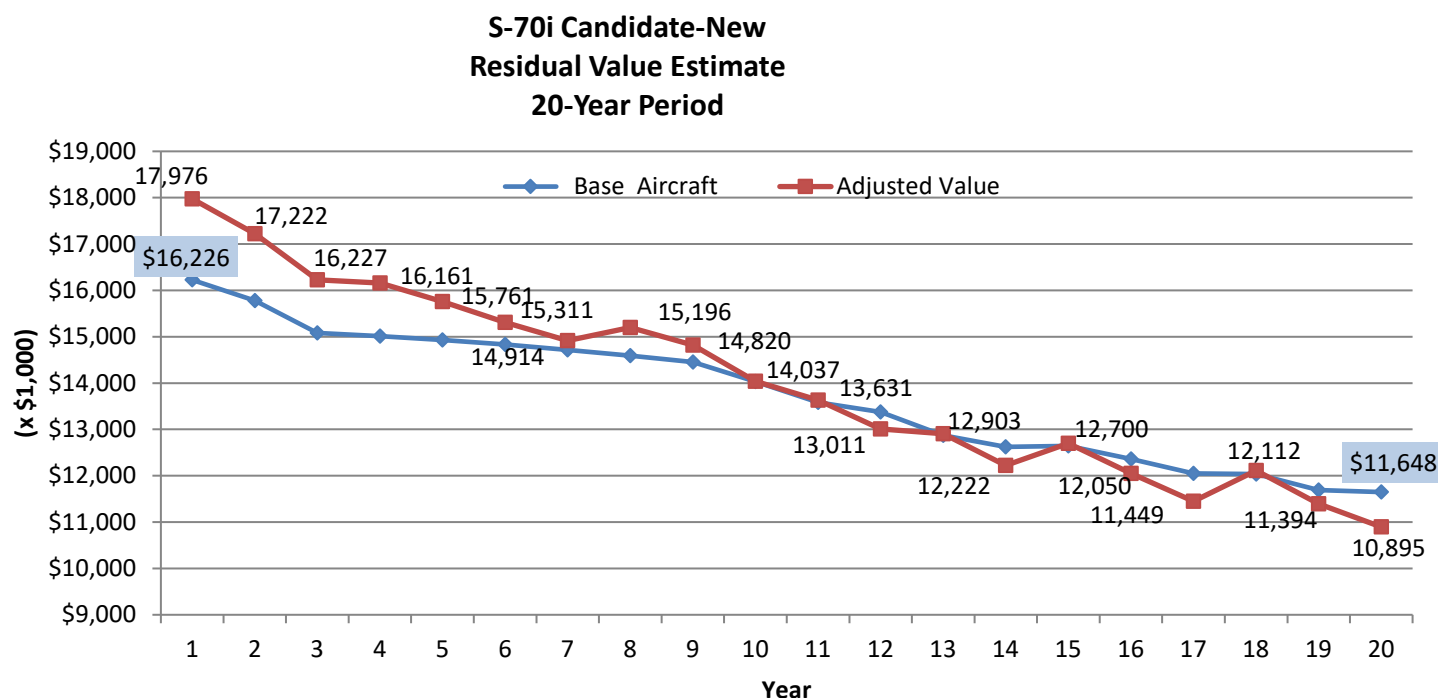
<b>S-70i FIREHAWK TRAINING</b>	<b>QTY</b>	<b>Price</b>	<b>Extended Price</b>
S-70i Pilot Initial	6	\$77,525.77	\$465,154.64
S70M Maintenance Initial Theory	4	\$13,415.81	\$53,663.23
S70M Maintenance Initial Practical	4	\$13,415.81	\$53,663.23
S70M Maintenance Familiarization	4	\$7,422.68	\$29,690.72
S70M Avionics Initial Theory	4	\$13,415.81	\$53,663.23
S70M Avionics Initial Practical	4	\$13,415.81	\$53,663.23
<b>Total Training Cost</b>			<b>\$709,498.28</b>

### 2. What is the cost differential between purchasing two new S-70i Firehawks vs. purchasing two new Bell 412EPX?

- Bell 412EPX quote (Jan. 2021) = \$14,232,300
- The Sikorsky S-70i quote (June 2022) = \$26,070,934

### 3. What can we expect in terms of useful life for the new helicopters?

- Twenty (20) years



The Adjusted Value estimate for the Sikorsky S-70i follows the Basic Aircraft estimate throughout the 20-year period. The years when the Adjusted Value are more than the Base Aircraft value are not much higher than the Base Aircraft value. The exception to that are the early years, one through six, when the difference between the values is more significant. Also, when the Adjusted Value drops below the Base Aircraft, the difference is not significant, except for year 20 when there is an almost a \$1.0 million difference.

**4. Do we have adequate space in our hangar to accommodate two S-70i Firehawks?**

- Yes

**5. Can the landing pads at trauma centers accommodate S-70i Firehawks?**

Snapshot of all three LZs are provided in Attachment 5.

- **UCI-** The S-70i Firehawk Helicopter can land at the Landing Zone (LZ) without any problem.
- **OC Global-** The S-70i Firehawk Helicopter can land no problem with weight, but a small improvement for space is needed at the LZ in the parking lot.
- **Mission-** As reported, the hospital would need to add width and seismic strength to the LZ. (It was reported to staff that the hospital is interested in the upgrades, so they don't lose the ability to receive trauma patients)

**6. Additional Questions from the 7/13/22 B&FC Meeting Regarding Hospital LZs:**

- a. How many patients did OCFA transport to all 3 Hospitals (UCI, OC Global and Mission)? How many of those transports were critical?**

Hospital Landing Zone	2021	2022 YTD
Mission Hospital Transports	25	5
OC Global Hospital	1	5
UCI	0	0

- b. Are there any modifications or purchases needed to allow for the S-70i Firehawk to land at the Hospital LZ?**

Chief Perkins met with leadership from both Mission Hospital and OC Global to discuss their respective heliports accommodating a Type 1 aircraft.

Mission Hospital is a roof top heliport. Chief of Maintenance is reviewing the roof engineering that supports the heliport.

OC Global heliport is ground level. The Director of Facilities is reviewing what upgrades would be needed to retrofit from a Type II heliport to a Type 1.

- c. Are we able to secure MOU's with the Hospitals for the use of their LZ?**

We do not need MOU's to land at the hospitals, however we are working towards the feasibility of heliport retrofits.

**Attachment(s)**

1. Conklin & de Decker Report
2. Operating Cost Summary – Additional funding Needs
3. Five-Year Financial Forecasts
4. United Rotorcraft Letter Dated June 30, 2022
5. OC Hospital Landing Zones

# **Orange County Fire Authority Aviation Unit Fleet Plan Analysis**

**Prepared for**

Orange County Fire Authority

May 19, 2021



**Prepared by**

Conklin & de Decker Associates, Inc.  
A JSSI Company

## **Introduction**

The Orange County Fire Authority (OCFA) seeks the assistance of Conklin & de Decker with a thorough assessment of the Authority's current helicopter fleet to make more informed decisions on the purchase, operation, maintenance, and disposition of aircraft by providing objective and impartial information. More specifically, the Exhibit requested that Conklin & de Decker focus on the following areas to accomplish the intent of the Overview.

- Based on the OCFA's historical usage, identify the preliminary specifications of the helicopter(s) required. Preliminary specifications could include such items as aircraft weight range, size, number of engines, and useful load.
- Estimate the cost of the acquisition and operation of helicopter alternatives. The operating cost estimates will include maintenance options and fuel costs, and other operating or overhead costs.
- Establish a defined framework for an OCFA helicopter replacement plan including the anticipated useful life of the equipment, as well as a comparison of phasing of aircraft purchases versus purchasing all replacement aircraft all at once.
- Thoroughly research the resale value of the current fleet and explore the primary and secondary markets for helicopters to determine the feasibility of replacement within specified timeframes, such as lead times in acquiring helicopters and expected duration in selling the current fleet.
- Provide a comprehensive summary of
  - Maintenance requirements based on usage parameters such as flight hours, calendar times, or flight cycles. Compare/contrast to current maintenance schedules deployed by the OCFA.
  - Present preliminary analysis and findings to OCFA staff and receive feedback.
  - Prepare a Fleet Plan Analysis report for all involved parties with input from OCFA staff.

To address the specific areas, Conklin & de Decker created five sections, with each section containing the following categories.

- A restatement of the OCFA's original issue, concern, or question.
- Conklin & de Decker's proposed approach.
- A summary of the analysis and research.
- Conklin & de Decker's analysis explaining the process and research to support the summary.

Listed below are the sections with the respective page numbering.

- |   |                      |
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| ➤ Section 1 – Fleet Review                | Pages: 1-1 thru 1-26 |
| ➤ Section 2 – Life Cycle Cost Projections | Pages: 2-1 thru 2-24 |
| ➤ Section 3 – Resale Value and Lead Time  | Pages: 3-1 thru 3-3  |
| ➤ Section 4 – Fleet Replacement Plan      | Pages: 4-1 thru 4-9  |
| ➤ Section 5 – Other                       | Pages: 5-1 thru 5-7  |

## **Executive Summary**

The Orange County Fire Authority contacted Conklin & de Decker seeking assistance with a thorough assessment of the current helicopter fleet to make more informed decisions on the purchase, operation, maintenance, and disposition of aircraft by providing objective and impartial information.

Orange County Fire Authority has four helicopters that perform primarily fire and rescue operations and a variety of services to the unincorporated area of the county as well as 23 cities in the county. The following summarizes the results to Conklin & de Decker's analysis and research.

### **Orange County Fire Authority (OCFA)**

➤ Section 1, Fleet Review:

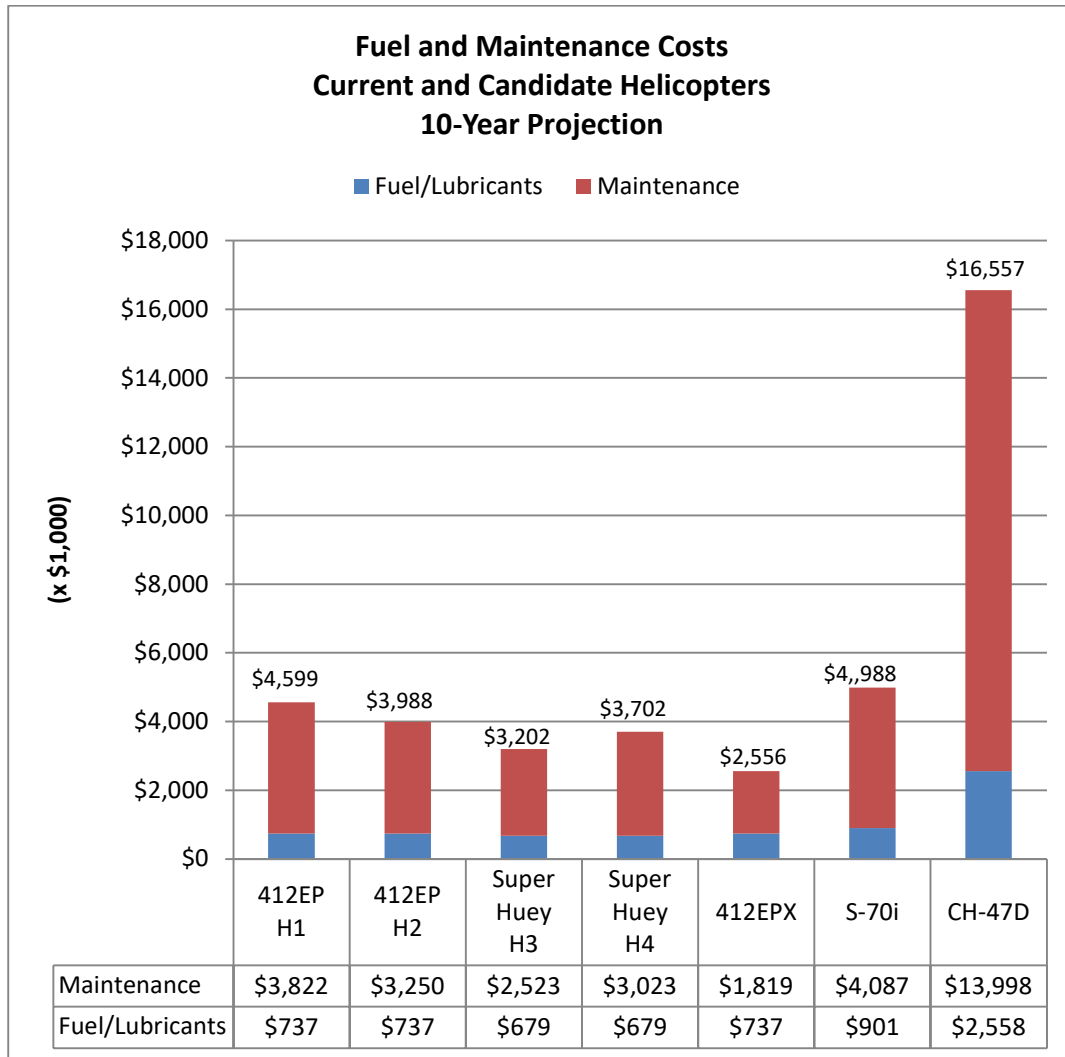
- OCFA initial request. Identify the helicopter specifications and performance requirements based on OCFA current and future missions.
- OCFA does not see its primary missions changing; however, based on the risk to the communities the OCFA serves and the current and expected annual increase in wildland fires, which occur and spread more rapidly than experienced in the past, the Fire Chief and Emergency Operations Bureau leadership believe it needs to increase its water delivery capabilities during the firefighting mission. The current fleet of helicopters have the capacity to deliver up to 350 to 375 gallons per drop. A more acceptable volume would be in the range of Type I helicopters, which would begin around 700 or more gallons.
- OCFA selected two helicopter types that have the capacity to deliver more water per drop, while also providing more cabin volume and seating than the current fleet. Those aircraft were the Sikorsky S-70i and Coulson-Unical CU-47D.
- OCFA also requested information on the newest version of the Bell 412 series, the Bell/Subaru 412EPX, due to its improved performance.
- Table 1 provides information about the selected performance and specifications for the current fleet and the candidate helicopters.

Table 1					
Current and Candidate Helicopters					
Firefighting Mission					
Airframe Manufacturer /Type	Bell / Super Huey	Bell / 412EP	Subaru/Bell 412EPX	Sikorsky S-70i	Coulson CH-47D
Engine Manufacturer /Type	Honeywell / T53-L-703	Pratt & Whitney / PT6T-3D	Pratt & Whitney / PT6T-9	General Electric / T700 GE 701D	Honeywell / T5-GA-L714A
<b>Useful Load (lbs.)</b>					
Maximum Take-Off Gross Weight (Internal)	10,500	11,900	12,200	22,000	50,000
Maximum Take-Off Gross Weight (External)	11,200	11,900	13,000	23,500	50,000
Mission Configured - Fire	6,700	8,300	8,300	14,200	26,500
Flight Crew (Firefighting)	450	450	450	650	650
Useful Load Available for Mission	4,050	3,150	4,250	8,650	22,850
Fuel (lbs.) 1.5-Hour Mission w/ 20 Min. Reserve	1,275	1,385	1,385	1,986	4,966
Remaining Useful Load	2,775	1,765	2,865	6,664	17,884
<b>Mission Endurance (Hours)</b>	<b>2.0</b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>	<b>2.6</b>
<b>Hover Capabilities (Altitude)</b>					
In-Ground Effect (ISA, Sea Level)	6,800	6,200	11,100	10,270	7,750
Out-of-Ground-Effect (ISA, Sea Level)	10,800 lbs.	11,890 lbs.	8,000	6,200	6,100
In-Ground Effect (ISA +20 C, Sea Level)	6,800	6,200	8,200	7,400	5,250
Out-of-Ground-Effect (ISA +20 C, Sea Level)	10,800 lbs.	11,890 lbs.	4,000	4,400	3,900
<b>Helicopter Speed (kts)</b>					
Cruise Speed - Max (knots)	106	125	130	145	157
Cruise Speed - Long Range (knots)	106	122	124	128	130
Calculated Speed (knots)	90	106	110	122-140	131-157
<b>Water Drop Capabilities (gallons)</b>					
Water Tank Size (gallons)	350	375	375	1,000	3,000
1.5-Hour Mission+ 20-Min Fuel Reserve	332	211	343	797	2,498
End of Mission (20-minute reserve)	457	347	478	992	2,985
<b>Cabin</b>					
Volume (cubic feet)	208	208	208	396	1,629
Crew/Passengers	2/14	2/14	2/14	2/12	2/>30
<b>Pricing/Value</b>					
Basic Price (x1M)	N/A	N/A	\$11.5	\$17.0	\$16.5
Firefighting Completion (x 1M)	N/A	N/A	\$14-\$15	\$20-\$23	\$5.8*
Resale Value	\$1.6-\$2.0	\$3.5-\$4.3	N/A	N/A	N/A

➤ Section 2, Life Cycle Cost Projection:

- OCFA initial request. Estimate the cost of the acquisition and operation of helicopter alternatives. The operating cost estimates will include maintenance options and fuel costs, and other operating or overhead costs.
- We estimated the maintenance and fuel costs over a ten-year period for each of the current helicopter fleet and for the selected replacement candidate helicopters. While the chart highlights the increase in costs for the candidate helicopters, it does not represent the significant increase in water dropping capacity.
- It is important to mention the effect that a helicopter's age can have on the maintenance costs in a life cycle. Three of the helicopter types, UH-1H Super Huey, Bell 412EP, and CH-47D, have been in operation for many years. The 412EPX and S-70i are considered newer helicopters. Due to their age and the number of flight hours, older aircraft will have higher maintenance costs as they encounter significant maintenance events. Based on the assumption of 200 flight hours per year per helicopter, the 412EP helicopters will encounter several of these maintenance events, which drives up the total costs during the next ten-year period. The new helicopters will not encounter the significant events in their first ten years based upon the 200 hours per year and therefore their cost may be similar to or less than the older helicopters.
- Chart 1 summarizes the estimated fuel and maintenance costs over the next ten-year period. Each of the OCFA helicopters are summarized individually, while the candidate helicopters are based on helicopters that are new in the life cycle.

Chart 1



- To acquire helicopters with Type 1 capability, the costs to operate them will also increase. Chart 1 highlights the increase. While the increase in maintenance and fuel cost may seem excessive, the increase in performance must also be considered. Comparing the Bell 412EP to the Sikorsky S-70i illustrates the increase in water delivered during the typical mission scenario. The S-70i will carry 256 percent more water per tank load. The CU-47D water drop capability is ten times the 412EP. The 412EPX also increases the water dropped by 58 percent when compared to the 412EP.
- The time remaining for significant scheduled maintenance items and events influence an aircraft's value during its life cycle. Table 2 reflects that effect for the current (10 years) and candidate helicopters (20 years) and highlights the years that OCFA may want to consider when selling a particular helicopter. The years marked with yellow represent periods in the life cycle when the remaining lives of significant scheduled maintenance have a positive effect on value when compared to an assumption of 50 percent

remaining life. The single red block for each helicopter represents the lowest value. The letters in the yellow blocks identify the years with the highest estimated values. "A" identifies the highest value. Yellow blocks without letters represent estimated aircraft values that are less than the third/fifth highest years ("C" or "E"). The white blocks are the years when the helicopter's value is below the average baseline.

Table 2																				
OCFA Helicopters - Annual Summary of Adjusted Values																				
Registration Number	Year 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
N141FA H1		A		C				B			X	X	X	X	X	X	X	X	X	X
N241FA H2	A	B					C				X	X	X	X	X	X	X	X	X	X
N441FA H3	C								A	B	X	X	X	X	X	X	X	X	X	X
N541FA H4	C					B				A	X	X	X	X	X	X	X	X	X	X
Candidate Helicopters - Annual Summary of Adjusted Values																				
412EPX	A	B											C	D	E					
S-70i	A	B	C	D	E															
CU-47D	Not Available																			

➤ **Section 3, Resale Value and Lead Time:**

- OCFA initial request. Research the resale value of the current fleet and lead time for the new helicopters.
- Table 3 summarizes the resale values for the current fleet and the lead time for the candidate helicopters.

Table 3					
Resale, Acquisition Cost, and Lead Time					
Helicopter Type	Resale Value (x 1 million)	Disposition Time	Acquisition Cost (x 1 million)	Basic Aircraft Delivery	Completion Estimate
UH-1H Super Huey	N/A	Immediate	N/A	N/A	N/A
412EP	\$3.5 - \$4.3	Year or more	N/A	N/A	N/A
412EPX	N/A	N/A	\$14 - \$15	1-6 months	6 months
S-70i	N/A	N/A	\$20 - \$23	24 months	6-8 months
CH-47D	N/A	N/A	\$16.5	Jun-2021	Jun-2021

- Using two industry resources, Conklin & de Decker and HeliValue\$, the range of costs for a used Bell 412EP is \$3.50 to \$4.30 million. The UH-1H Super Hueys do not have a resale value. They were acquired through the Federal Excess Personal Property (FEPP) program, the opportunity for receiving resale value is eliminated. Technically, the

helicopters are still owned by the federal government with CAL FIRE serving as the conduit to OCFA.

- An industry source reemphasized that estimated helicopter values are only applicable if there are available buyers. As of the end of 2020, the lack of buyers at the current estimated values indicates the actual value is somewhere lower than the estimated values. Another resource, AMSTAT, estimated that 412 helicopters are staying on the market for a year or more.
- The CU-47D has the shortest lead time 3 months. The Bell 412EPX has a range of 7 to 12 months. The S-70i based on the standard lead time would be 24 months plus completion of 6-8 months. However, Sikorsky also has spec helicopters that could reduce the standard 24-month lead time significantly.

➤ **Section 4, Fleet Replacement Plan:**

- OCFA initial request. Suggest replacement plan for existing fleet. The suggested plan is one approach to consider, however the plan can vary based upon OCFA discussions and changes to our current assumptions.
- Retain the Current Fleet - Although retaining the current fleet is not likely, it serves as a benchmark when compared to the changes that may occur as suggested by the four steps. Based upon the life cycle cost assumptions stated in Section 2 Life Cycle Cost Projections, we projected the estimated fuel and maintenance costs for the next ten years for an unchanged fleet.
- Step 1: Retire the UH-1H helicopters. There are three primary reasons for retiring these helicopters, age (over 50 years), increased costs due to limited military spares and aging, and reduced availability. An additional factor to consider is the level of risk comparison between single-engine and dual-engine helicopters while hovering.
- Step 2: Acquire Bell 412EPX. If the OCFA desires to continue having two helicopters available for each day of the year, a third helicopter is required. Acquiring a 412EPX, also improves the amount of water dropped for firefighting when compared to the 412EP helicopters.
- Step 3: Acquire a Type I helicopter. The candidate helicopters will meet the OCFA objective to increase the amount of water delivered during the firefighting mission.
- Step 4: Consider acquiring a second Type I helicopter and if so, retire a 412EP. Significant scheduled maintenance events will affect a helicopter's availability. If delivering larger amounts of water is a priority, there will be times when OCFA will not have a Type I helicopter available to perform the mission. OCFA needs to determine the significance of this risk and if a second Type I helicopter is required for adequate coverage.
- If OCFA does acquire a second Type I helicopter, the opportunity exists to retire one of the 412EP helicopters.

Table 4 summarizes the various options to change the current fleet.

<b>Table 4</b>					
<b>OCFA - Summary of Fleet Options</b>					
<b>Dollar amounts x 1 Million</b>					
<b>Option</b>	<b>Operating Cost</b>	<b>Disposition Amount</b>	<b>Purchase</b>	<b>Total</b>	<b>Management Service</b>
Retain Current Fleet	\$15.5	Not Applicable	Not Applicable	\$15.5	Not Applicable
<b>Steps 1 and 2: Retire UH-1Hs/Acquire 412EPX</b>					
Two 412EP/One 412EPX	\$11.1	\$0.0	\$14.0-\$15.0	\$25.1-\$27.1	Not Applicable
<b>Step 3: Acquire Type I Helicopter</b>					
S-70i	\$7.0	Not Applicable	\$20.0-\$23.0	\$27.0-\$30.0	Not Applicable
CU-47D	\$16.6	Not Applicable	\$16.5	\$33.1	\$65.6
<b>Step 4: Acquire second Type I Helicopter/ Retire one 412EP</b>					
One 412EP/One 412EPX	\$5.8	(\$3.7-\$4.3)	Not Applicable	\$9.5-\$10.1	Not Applicable
S-70i	\$7.0	Not Applicable	\$20.0-\$23.0	\$27.0-\$30.0	Not Applicable
CU-47D	\$16.6	Not Applicable	\$16.5	\$33.1	\$65.6

➤ Section 5, Other Information:

- Guaranteed maintenance programs (GMP) provide certainty for the erratic and often hard-to-predict behavior of maintenance costs. Often overlooked but just as important, GMP will improve helicopter availability. A strong understanding of the many variables and factors that influence what a program potentially covers is important. Negotiate with the vendors for better value.
- The dimensions at OCFA maintenance hangar bay at Fullerton Municipal Airport and the S-70i dimensions could create some problems. OCFA needs to check the dimensions for the other hangar bays.

Table 5		
OCFA Hangar and S-70i Dimensions		
Measurement - Feet		
Description	S-70i	OCFA Hangar
Door Width	53.67	55.00
Length/Depth	64.80	63.83
Height	17.20	16.50
Door Height	---	17.42

## **Section 1 – Fleet Review**

### **Orange County Fire Authority Original Request**

Identify the helicopter specifications and performance requirements based on Orange County Fire Authority (OCFA) current and future missions.

### **Conklin & de Decker Approach**

In interviews with the fire aviation unit personnel, there was no indication that its primary missions, firefighting and rescue, would be changing in future years. However, it was apparent OCFA was interested in increasing the amount of water that could be dropped during firefighting missions. Based on the request, the primary objective was to identify and then compare alternative helicopter types with the current fleet to determine if there might be better-suited helicopters to perform the firefighting mission. OCFA also requested information on the newest version of the Bell 412 series, the Bell/Subaru 412EPX, due to its improved performance. We determined that certain performance and specifications were important to evaluate the candidate helicopters. The parameters included:

- Useful Load
- Mission Endurance,
- Aircraft Speed,
- Hovering Capability,
- Water Drop Capacity,
- Cabin Volume and Seating
- Purchase Price
- Maintenance and Fuel Costs (Section 2 of the report)

We used the current helicopters to explain the importance of these parameters and to serve as a baseline when comparing to the candidate helicopters. The final step was to create a table that compares the current capabilities of the existing helicopters to the candidate helicopters.

Section 1 also provides a brief background about the OCFA aviation unit history and the current and candidate helicopters.

### **Summary**

Table 1-1 provides a comparison of the current and candidate helicopters and the parameters we selected for performance, specifications, and costs.

Table 1-1					
Current and Candidate Helicopters					
Firefighting Mission					
Airframe Manufacturer /Type	Bell / Super Huey	Bell / 412EP	Subaru/Bell / 412EPX	Sikorsky / S-70i	Coulson CH-47D
Engine Manufacturer /Type	Honeywell / T53-L-703	Pratt & Whitney / PT6T-3D	Pratt & Whitney / PT6T-9	General Electric / T700 GE 701D	Honeywell / T5-GA-L714A
<b>Useful Load (lbs.)</b>					
Maximum Take-Off Gross Weight (Internal)	10,500	11,900	12,200	22,000	50,000
Maximum Take-Off Gross Weight (External)	11,200	11,900	13,000	23,500	50,000
Mission Configured - Fire	6,700	8,300	8,300	14,200	26,500
Flight Crew (Firefighting)	450	450	450	650	650
Useful Load Available for Mission	4,050	3,150	4,250	8,650	22,850
Fuel (lbs.) 1.5-Hour Mission w/ 20 Min. Reserve	1,275	1,385	1,385	1,986	4,966
Remaining Useful Load	2,775	1,765	2,865	6,664	17,884
<b>Mission Endurance (Hours)</b>	<b>2.0</b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>	<b>2.6</b>
<b>Hover Capabilities (Altitude)</b>					
In-Ground Effect (ISA, Sea Level)	10,630	10,200	9,000	10,270	7,750
Out-of-Ground-Effect (ISA, Sea Level)	11,000 lbs.	5,200	6,000	6,200	6,100
In-Ground Effect (ISA +20 C, Sea Level)	6,800	6,200	5,600	7,400	5,250
Out-of-Ground-Effect (ISA +20 C, Sea Level)	10,800 lbs.	11,890 lbs.	1,500	4,400	3,900
<b>Helicopter Speed (kts)</b>					
Cruise Speed - Max (knots)	106	125	130	145	157
Cruise Speed - Long Range (knots)	106	122	124	128	130
Calculated Speed (knots)	90	106	110	122-140	131-157
<b>Water Drop Capabilities (gallons)</b>					
Water Tank Size (gallons)	350	375	375	1,000	3,000
1.5-Hour Mission+ 20-Min Fuel Reserve	332	211	343	797	2,498
End of Mission (20-minute reserve)	457	347	478	992	2,985
<b>Cabin</b>					
Volume (cubic feet)	208	208	208	396	1,629
Crew/Passengers	2/14	2/14	2/14	2/12	2/>30
<b>Pricing/Value</b>					
Basic Price (x1M)	N/A	N/A	\$11.5	\$17.0	\$16.5
Firefighting Completion (x 1M)	N/A	N/A	\$14-\$15	\$20-\$23	\$5.8*
Resale Value	\$1.6-\$2.0	\$3.5-\$4.3	N/A	N/A	N/A

## **Conklin & de Decker Analysis**

### **Current Fleet**

#### **Background:**

The OCFA aviation unit started flying in 1994 by contracting with Evergreen Helicopters for one year. Since then, the OCFA fleet has grown to four helicopters. The fleet consists of two types of medium Bell helicopters, two modified military UH-1H, referred to as Super Huey, and two 412EP helicopters.

Both of the OCFA type helicopters come from the same development lineage, a military helicopter designed for the US Army, the Bell UH-1 Iroquois. The stretched version of this model became the most popular version of the UH-1 series and had various designations based on performance improvements. The UH-1D was the first stretched version with its production beginning in 1961. The UH-1H, also known as the Huey, was produced for 20 years beginning in 1967. Over 3,500 were built.

The OCFA UH-1H helicopters are referred to as Super Hueys, which is due to a performance enhancement program. The program, conducted by San Joaquin Helicopters, replaced the original engine (T53-L-13) with a more robust Lycoming engine, the T53-L-703. Additional performance improvements included the conversion of the UH-1H tail boom, tail rotor, and main rotors to Bell 212 components. The tail rotor and intermediate gearboxes were also 212 components. The improvements were also available to the commercial Bell 205 helicopter, which was designated as the 205A-1++.

The single-engine turbine military helicopter served as the basis for Bell's commercial 204 and 205 series helicopters, which were also single-engine turbines. The lineage continued with the addition of two twin-engine commercial series, the Bell 212 and 412. The Bell 212 was the first to be produced in 1971. During its 27 years of production approximately 900 were built. Production ended in 1998.

The Bell 412 model is almost identical to the Bell 212. The primary difference between the models is the main rotor blades. The 412 has four main rotor blades versus the 212's two and the blades are made with composite material rather than aluminum, which extends the life-limit of the blades.

The Bell 412 cabin features two pilot seats up front. The passenger/cargo cabin has a flat floor, and two large sliding doors provide ready access to the cabin. When used for passenger transport, the 412 can seat up to 13 passengers. It is also certified for single-pilot Instrument Flight Rules (IFR) and Category A operations (i.e. operate with one engine inoperative).

Introduced in 1981, the Bell 412 has experienced several updates involving its fuel capacity, take-off weight, transmission capabilities, and fuel control system. The 412EP was introduced in 1994 and remained in production until 2013 when Bell introduced the 412EPI. The 412EPI has just been replaced

by the 412EPX, a joint effort between Bell and Subaru. Approximately 500 Bell 412 helicopters have been built since 1981.

### **Basic Fleet Information:**

Table 1-2 offers more basic information about the current fleet of the OCFA.

The UH-1H helicopters were manufactured in 1967. Once retired, the Department of Defense released former Army helicopters through the Federal Excess Personal Property (FEPP) program to the U.S. Forest Service. The Forest Service distributed the helicopters to states with the intention of being used for wildland firefighting. OCFA procured three UH-1H helicopters from CAL FIRE. The helicopters operate as restricted category, due to their military background, which means they can only perform special purpose operations. Firefighting is one of those operations. Should OCFA want more information on restricted category, the following link will take you to a relevant resource.

[14 CFR § 91.313 - Restricted category civil aircraft: Operating limitations. | CFR | US Law | LII / Legal Information Institute \(cornell.edu\)](#)

The Bell 412EP helicopters were purchased in 2008 and began operations shortly thereafter. The helicopters have commercial certificates from the FAA and do not have the same operation restrictions as the UH-1H Super Hueys.

Table 1-2					
Basic Information - OCFA Helicopters					
Aircraft Type	OCFA Designation	Serial Number	Registration Number	Total Time (Flight Hours)	Average Flight Hours per Year 2016-2020
412EP	H1	36484	N141FA	2,329	244
412EP	H2	36487	N241FA	2,188	176
UH-1H	H3	5610	N441FA	6,811	42
UH-1H	H4	8529	N451FA	9,196	70

**Notes:**

- **Aircraft Type:** Manufacturer's designation for the model type.
- **Serial Number:** Unique identification for each aircraft as assigned by the manufacturer.
- **Registration Number:** Civil aircraft must be registered with the Federal Aviation Administration. The registration number is frequently referred to as the aircraft's N Number because all registered aircraft have a number starting with the letter N.
- **Total Time (Flight Hours):** The total airframe hours as reflected on January 29, 2021.
- **Average Flight Hours per Year (2016-2020):** The average annual flight hours during the most recent 5-year period. Data provided by the aviation unit.

**Mission:**

The OCFA provides a variety of services to the unincorporated area of the county as well as 23 cities in the county. The primary missions for the OCFA aviation unit include firefighting and rescue. The aviation unit averages 1,250 operations per year and has flown an average of 530 hours annually beginning in 2016. The aviation unit flew just over 600 hours in 2020.

In addition to firefighting, the aviation unit uses its aircraft to do fire mapping, transport wildland crews, transport patients, and insert and extract equipment. When performing rescue missions with a 250-foot hoist cable, the unit can do various procedures including short-haul air rescue on land or water, swift-water rescue, patient transfer on litter, and large animal rescues. Other capabilities involve night vision goggle operations, infrared detection, and disaster assessment.

Of the four aircraft, the aviation unit staffs two of them 365 days each year. One of the two aircraft is staffed for 24 hours and is prepared for the firefighting and rescue missions. The crew consists of a pilot, fire captain or crew chief, and one or two paramedics. The second helicopter is a fire response helicopter and is available for 10 hours each day. The helicopter is staffed with a pilot and fire captain or crew chief. The third and fourth helicopters are used for back-up and initial pilot training.

To perform its various missions, both of the OCFA helicopters are equipped with the following mission equipment (Table 1-3). Each type of helicopter has the same equipment. For example, each of the Bell 412EPs are identical. The same is true of the UH-1H Super Hueys. When comparing the two types of helicopters to each other, the mission equipment is very similar.

Table 1-3		
Mission Equipment		
412S OUTFITTED IDENTICAL	412EP	UH-1H Super Huey
CARGO HOOK ASSEMBLY	X	X
600LB GOODRICH RESCUE HOIST	X	X
SIMPLEX MODEL 304 FIRE ATTACK SYSTEM	X	
ISOLAIR ELIMINATOR II FIRE ATTACK SYSTEM		X
KAWAK AUX HYDRAULIC SYSTEM	X	
SPECTRO-LAB SX-5 SEARCHLIGHT W/ PILOT CYCLIC CONTROLS	X	X
NVG STEERABLE SEARCHLIGHT	X	
AERODYNAMIX NVG COCKPIT	X	X
KAWAK TECHNOLOGIES HYDRAULIC HOVER PUMP W/9FT SNORKEL	X	X
SKID TUBE CABLE GUARD	X	X
DART CABIN FLOOR PROTECTIVE KIT	X	X
NAT P.A. SPEAKERS	X	X
(2) TDFM-136NV FM	X	X
(2) TDFM-680NV 800MHZ	X	X
GPS 500W/GPS 530	X	X
SKYCONNECT FLIGHT TRACKER W/ SATCOM PHONE	X	X
FORWARD RECOGNITION LIGHTS		X
DART LED PULSE LIGHTS AND CARGO MIRRORS	X	
AVIDYNE TAS TRAFFIC AVOIDANCE SYSTEM	X	
AVALEX DVR AND DATA RECORDER	X	

**Notes:**

- An "x" indicates the item is present on the aircraft type.

The following images show the OCFA Bell UH-1H (Super Huey) and 412EP helicopters.



**Bell UH-1H Super Huey**



**Bell 412EP**

**Flight Activity:**

Chart 1-1 summarizes the flight activity for each helicopter during a five-year period beginning in 2016.

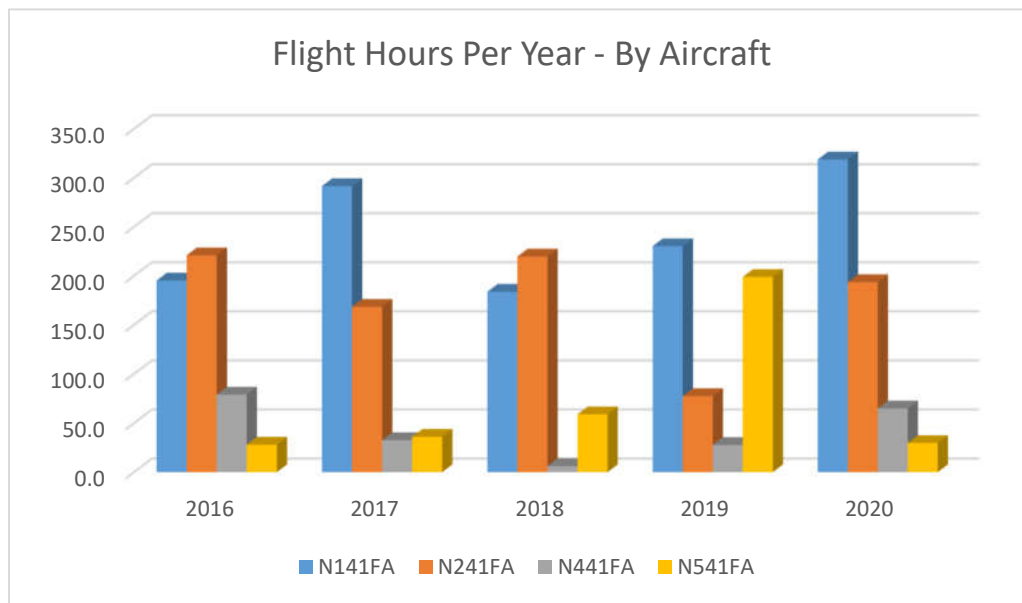
The OCFA aviation unit's fleet averaged 532 flight hours, or totaled 2,661 flight hours, during the five-year period beginning in 2016 through 2020. The hours for each year when compared to the overall average do not vary significantly. In three of the years, 2016, 2017, and 2019, the total flight hours are within nine hours of the average. Two of the years, 2018 and 2020, are approximately 12 percent from the overall average. In 2018, the aviation unit's fleet flew only 468 hours, while in 2020 the fleet flew 610 hours.

The Bell 412EP helicopters have flown the most hours during the five-year period. N141FA H1 flew a total of 1,219 hours during that period, which is the most hours when compared to the rest of the fleet. The average flight hours per year was 244. The flight hours for this helicopter varied more each year than the fleet totals. N141FA flew the fewest hours in 2018 at 184, while in 2020, it flew the most hours at 319 hours, which is a difference of 135 hours.

Bell 412EP N241FA, flew the second most hours in the fleet. During the five-year period, the helicopter flew 880 hours, which is 72 percent of N141FA. The range of flight hours during this period varied from 77 hours in 2019 to 221 hours in 2016, which is a difference of 144 hours.

The two UH-1H Super Hueys, N441FA and N541FA, combined to fly only 21 percent of the total hours flown by the fleet. Of the 561 hours flown during the five-year period by these helicopters, N441FA H3 flew 210 hours and N541FA H4 flew 351. The reason for having the fewer hours is the aviation unit uses these helicopters as back up to the Bell 412EPs when they are not available and for initial pilot training. Maintenance on the Bell 412EP is a common event that would remove a helicopter from an availability status.

Chart 1-1

**Notes:**

- **N141FA and N241FA are Bell 412EP helicopters.**
- **N441FA and N541Fa are the UH-1H Super Huey helicopters.**

Chart 1-2 summarizes the flight hour activity by the type of missions that are performed by the aviation unit's fleet.

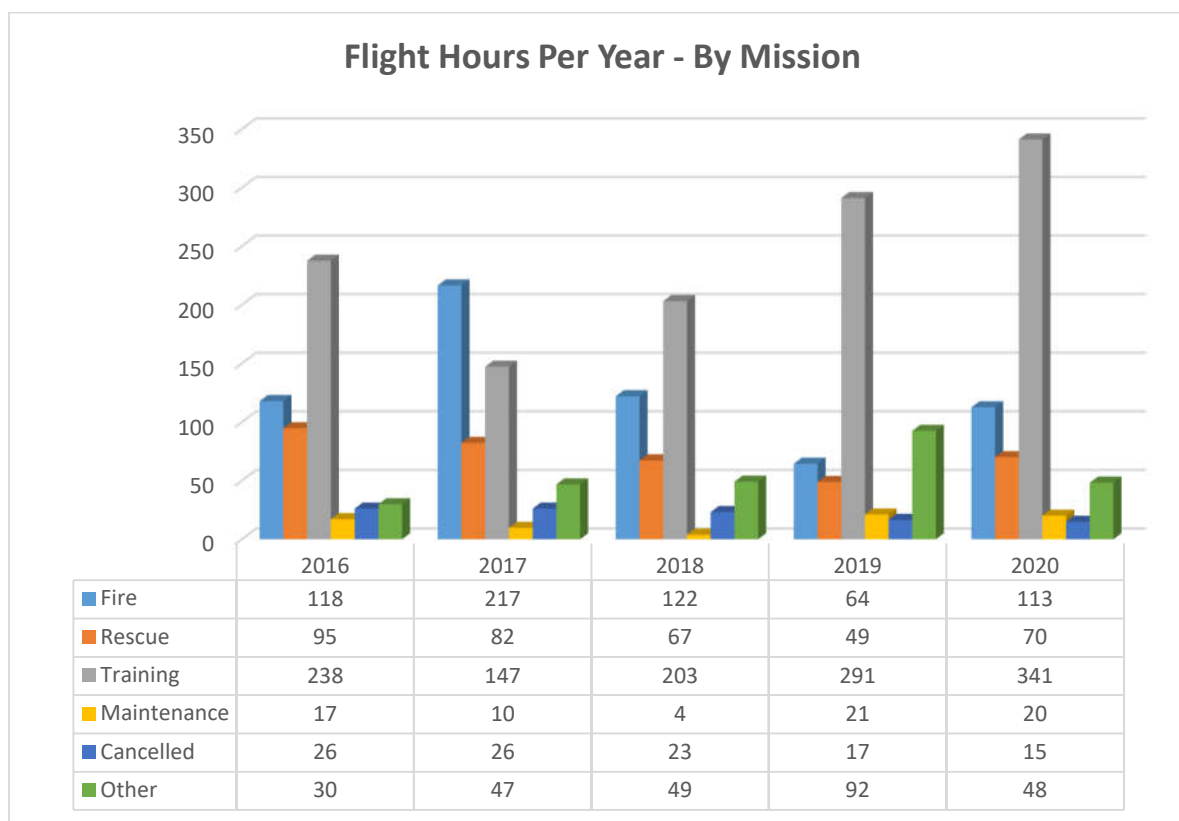
Training consumed 1,220 hours or 46 percent of the total flight hours during the five-year period. In 2019 and 2020, the flight hours increased to 291 and 341 hours respectively, which is almost 50 to 100 hours more than the five-year average of 244 flight hours.

Two factors contribute to the training mission being the highest number of flight hours. First, the primary missions, firefighting and rescue, are call-when-needed activities. These missions are not scheduled or necessarily predictable. Therefore, the number of flight hours in any given year are dependent on the frequency of the fires and rescue operations. Second, training supports, not only regulatory requirements, but also safety programs and the quality of performing firefighting and rescue missions.

The firefighting mission illustrates how much variation exists from year to year when the occurrence of fires is difficult to predict. Comparing 2016 to 2017, the flight hours increased by 84 percent, 2017 to 2018, flight hours decreased 44 percent, 2018 to 2019 decreased again by 48 percent, and 2019 to 2020 flight hours increased by 77 percent. For the five-year period, the total flight hours were 633 and an annual average of 127.

The flight hours associated with the Rescue missions are the third highest of the aviation unit's missions. Rescue flight hours totaled 363 during the five-year period. The annual average was 73 flight hours. The difference between the least annual flight hours of 49 in 2019 and the highest of 95 in 2016 was 46 hours.

Chart 1-2



### Candidate Helicopters

OCFA does not foresee that its types of missions will change in the foreseeable future. However, OCFA does see the need to improve its effectiveness when fighting fires. For example, a commonly accepted premise when fighting fires is that more water delivered per drop improves the odds of extinguishing or controlling a fire more quickly. Los Angeles County Fire Department has supported this concept with its introduction of Type 1 helicopters almost 20 years ago. OCFA believes a helicopter that delivers at least an average of 600 to 800 gallons would be a significant improvement over the current fleet's capabilities.

The industry has categories for helicopter types and their relative water dropping capabilities. The National Wildfire Coordinating Group (NWCG) establishes the standards by which helicopters are to

operate when working with various agencies for fire suppression. One of NWCG's publications, Standards for Helicopter Operations, defines the categories as shown in Table 1-4.

<b>Table 1-4</b>			
<b>Type Specifications for Helicopters</b>			
<b>Attributes</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>
Useful load at 59°F at sea level	5,000 pounds	2,500 pounds	1,200 pounds
Passenger seats	15 or more	9-14	4-8
Retardant or water carrying capability	700 gallons	300 gallons	100 gallons
Maximum gross takeoff/landing weight	12,501+ pounds	6,000-12,500 pounds	Up to 6,000 pounds

Based upon the four attributes mentioned in Table 1-4, the OCFA's UH-1H Super Huey and Bell 412EP are considered Type 2 helicopters. Subsequent information in this section will further illustrate the capabilities of the current helicopters.

Table 1-4 also outlines the requirements for helicopters to be classified as Type 1, which are significantly larger and capable of delivering greater amounts of water for the firefighting mission. A Type 1 helicopter would also increase the cabin volume, which would have a positive effect on OCFA's other primary mission, the rescue mission. A larger cabin would also allow OCFA to carry certain mission equipment and personnel.

We were asked to consider two helicopter types that can deliver more water per drop than currently happens with the current fleet and are considered Type I helicopters.

- Sikorsky S-70i
- Coulson-Unical CU-47D

In addition to the desire to improve the firefighting efficiency, OCFA also requested a review of its current Type 2 helicopters, which are used primarily for firefighting missions but also can perform the rescue mission. The request was primarily based on identifying an appropriate time to replace the current fleet based upon their age. OCFA requested that we review Bell's most recent version of the 412, which is the 412EPX.

Following is a general review of the candidate helicopters.

**Sikorsky S-70i** – Known as Sikorsky Manufacturing Corporation in 1925, the company expanded quickly, relocated to Stratford, Connecticut, and reorganized as the Sikorsky Aviation Company in 1929. It became part of the United Aircraft and Transport Corporation, which would be reorganized as the United Technologies Corporation (UTC) in 1975. Lockheed Martin, its current parent company, purchased Sikorsky in 2015.

Certificated as the S-70, the helicopter was first built for the US military. The UH-60 was designed in response to a US Army competition in the early 1970's for a replacement of the UH-1 "Huey". Sikorsky has built versions of this helicopter for every branch of the US Armed Forces, the US Coast Guard, and numerous foreign armed forces. To date well over 3,300 have been delivered.

The current non-US military designation is the S-70i. Los Angeles County Fire Department has historically operated the S-70A version, which is the equivalent to the UH-60L military designation but has also received the S-70i version recently. Other agencies that have recently acquired S-70i helicopters are the City of San Diego Fire, which purchased one in 2018, CAL FIRE received the first of twelve in 2019, Ventura County purchased three UH-60L helicopters, and Santa Barbara received a UH-60A in 2021. Additionally, the California Army National Guard also operate the UH-60 for water drop operations.

The primary improvements for the S-70i are more powerful engines, T700 GE 701D, and a modern avionics glass cockpit. The fuselage provides one large compartment with two seats for the flight crew and flexible seating for between 11 to 20 individuals. For the firefighting mission, the S-70i can carry a water tank with 1,000-gallon capacity. This places the S-70i, and UH-60 models, in the Type I category; a capability which has become the helicopter of choice for aerial firefighting.



**Sikorsky S-70**

**Coulson-Unical CU-47D** – The CH-47 has a long lineage that began in the 1957/58 timeframe when Vertol, a rotorcraft company, decided it would develop a twin-engine, tandem-rotor helicopter. At the same time, the US Army announced its intention to replace its piston twin-engine heavy-lift helicopter. The initial production aircraft, known as the HC-1B, was produced by Boeing Vertol in 1961. The CH-47 designation appeared in 1962 and is also referred to as the Chinook. The CH-47 was designed to, not only carry passengers, but also heavy cargo and equipment.

The US Army placed the CH-47D into service in 1982. Improvements to its predecessor, the CH-47C, included upgraded engines (Lycoming T55-L-712) for improved performance, composite rotor blades, a redesigned cockpit to reduce workload, improved and redundant electrical systems and avionics, and the adoption of an advanced flight control system. Production of the CH-47D ended in 2002. The CH-47 is one of the few aircraft designed and built in the 1960s that is still in production and serves as an essential tool for the US Army and other military organizations.

The Coulson-Unical CU-47D has an internal water tank capacity of 3,000 gallons and a maximum passenger load of 33 plus three crew members.

Boeing Vertol also produced a commercial version of the CH-47 series. Its designation is the Model 234 and was also produced by Boeing Vertol. However, in 1996, Columbia Helicopters acquired the type certificate and is recognized now as the Columbia Model 234.



**Coulson-Unical CU-47D**

**Bell-Subaru 412EPX** – This helicopter is the latest version of the 412 series. Japan's government, looking to replace its UH-1Js operated by the Japan Air Self-Defence Force, selected a joint Bell-Subaru bid to upgrade the model 412EPI. Japan received the first prototype of the EPX in February 2019 and Subaru assembled the first customer aircraft, which is destined for Japan's national police service.

Production of the 412EPI ceased in 2020 and building of the 412EPX helicopters is at the Bell facility in Mirabel, Canada. The partners continue to promote the 412EPX to the civilian market, following its certification of the prototype in July 2018. The Japan Civil Aviation Bureau approved certification in January 2020.

Improvements to the 412EPX focused on the transmission and rotor mast. Subaru's laser-peening processes enhanced main rotor gearbox performance, allowing it to withstand higher torque loads. The commercial version of the 412EPX have higher internal and external maximum gross weights, an increase in external payload, and an update to the BasiX Pro avionics suite. The twin engines are Pratt & Whitney Canada PT6-9, which have improved ship-horsepower compared to the 412EP.



**Bell-Subaru 412EPX**

### **Parameters/Specifications**

The primary missions for the OCFA helicopters are firefighting and rescue. Secondary missions include various types of pre-fire planning, rescue operations, fire department assistance, and emergency assistance. To perform those missions, helicopters must have certain capabilities. For example, how much payload is available, what is the potential mission endurance, how fast can the helicopter fly, what is the passenger capacity, and how well does it perform in certain environmental conditions? In addition to performance and specifications, costs to acquire and operate the helicopter are important?

Based on prior discussions with OCFA personnel and the nature of the OCFA missions, with an emphasis on firefighting, we selected the following parameters to compare the current Bell UH-1H Super Huey and 412EP helicopters to the candidate helicopters.

- Useful Load
- Mission Endurance
- Speed
- Hover Capabilities
- Water Drop Capabilities

- Cabin Volume and Seating
- Purchase Price
- Maintenance and Fuel Costs (Discussed in Section 2, Life Cycle Costs)

The following information explains the importance of each of the parameters, while using the existing Bell UH-1H Super Huey and 412EP helicopters as a benchmark to further illustrate each parameter. Following the explanation of the parameters, Table 1-12 compares the existing fleet to the candidate helicopters.

### **Current Fleet**

**Useful Load** –The amount of available weight an aircraft can carry for fuel, supplies/cargo, and personnel is a premium. Therefore, it is one of the more important factors in the selection process. A limited amount of useful load is one of the more common reasons for an operator to change aircraft as its mission and related equipment changes.

The useful load or payload of an aircraft is calculated using the maximum take-off weight minus the basic or empty weight.

The aircraft's maximum take-off gross weight (MTOGW) is just what the name implies, the maximum weight at which the aircraft can take-off. This weight is part of the regulatory certification process. Occasionally, maximum gross weight can exceed MTOGW while in flight performing its operations. For our purposes we will use MTOGW as our parameter.

With some helicopter types, there are two limits regarding MTOGW, internal and external. Internal weight refers to the weight within the helicopter structure. External MTOW refers to the weight of the helicopter with an external load. If there is a difference, the external weight is frequently a higher amount than the internal weight. Firefighting tanks are considered external weight because the tank is attached to substantial structural elements capable of handling higher loads than an aircraft's cabin floor.

Generally, there are two points of empty weight. The first point is the weight of the aircraft as delivered by the manufacturer (also known as a green or basic aircraft). The second point is what the aircraft weighs when ready to perform its mission.

A manufacturer's empty weight can vary based upon the items each manufacturer considers as part of the basic aircraft. An example will illustrate how the empty weight can vary. When a manufacturer completes an aircraft, the weight of the aircraft will include the obvious, airframe and engines and their related mounting structures. However, where manufacturers may differ involves items such as the basic interior, seating, other furnishings, and other basic systems (e.g. avionics). Referred to as the

manufacturer's empty weight, it does not include equipment installed by the operator to perform its missions.

The mission-ready weight is the most relevant to the operator. Subtracting this weight from the MTOGW lets the operator know what the payload is. Primarily, this would include the mission equipment, basic fluids for operation (e.g., oil), and equipment required for flight (e.g. enhanced avionics package). It would not include such weights as fuel, passengers, and crew equipment.

Table 1-5 illustrates the useful load for the OCFA helicopters. The internal and external MTOGWs for the Super Huey are 10,500 and 11,200 pounds, respectively. The 412EP MTOW for internal and external is 11,900 pounds. We used the external weights for each helicopter type because the relevant weight for the firefighting mission is external MTOGW.

Table 1-5		
Useful Load Calculation		
	Bell Helicopter	
	Super Huey	412EP
Maximum Take-Off Gross Weight (external)	11,200	11,900
Less: Mfr's Basic Weight + Mission Equipment	6,700	8,300
Mission-Ready Useful Load	4,500	3,600
Less: Flight Crew/Equipment	450	450
Available Useful Load	4,050	3,150

**Notes:**

- **Maximum Take-Off Gross Weight (external):** Source of weight was Conklin & de Decker's *Conklin & de Decker Report 21.1*.
- **Manufacturer's Basic Weight plus Mission Equipment:** The mission-ready weight of each helicopter was obtained from the OCFA aviation unit.
- **Mission-Ready Useful Load:** The payload that is available for fuel, crew, passengers, and cargo.
- **Flight Crew:** Used the average weight as provided by the OCFA aviation unit. The average assumed weight for each crew member was 200 pounds. For the firefighting mission, OCFA requires a pilot and crew chief and 50 pounds of additional equipment. For the rescue mission, OCFA requires a pilot, crew chief, and paramedic and the 50 pounds of equipment. We used the firefighting crew and equipment.
- **Available Useful Load:** The useful load available prior to considering the weight of fuel, passengers, and equipment/cargo.

**Mission Endurance** – An aircraft's mission endurance or the time the aircraft can fly without refueling is determined by two primary factors, the fuel capacity and the rate at which the aircraft burns fuel. The fuel capacity, like the maximum take-off gross weight, is a fixed amount and is measured in volume (e.g. gallons, liters) or weight (e.g. pounds, kilograms). Fuel consumption will vary based upon several factors including the aircraft's speed, weight, and environmental conditions (e.g. temperature, altitude, wind).

The amount of fuel carried for a mission, which is not always the capacity, will reduce the amount of Available Useful Load displayed in Table 1-5.

Table 1-6 displays the relevant information for the OCFA helicopters regarding fuel capacity, consumption, and mission length based on certain assumptions.

Table 1-6		
Mission Endurance		
	Bell Helicopter	
	Super Huey	412EP
Fuel Capacity (gal.)	211	330
Fuel Capacity (lbs.)	1,414	2,211
Average Fuel Burn (gal.)/ Hour	104	113
Average Fuel Burn (lbs.)/ Hour	697	757
Endurance (hrs.) (Full Fuel)	2.0	2.9
Remaining Useful Load with Full Fuel (lbs.)	2,636	939

**Notes:**

- **Fuel Capacity (gallons):** Obtained from Bell Helicopter's Technical Data brochure and the FAA's Type Certificate Data Sheet (TCDS).
- **Fuel Capacity (pounds):** Assumed weight per gallon 6.7 pounds. Multiplied gallons times 6.7 pounds.
- **Average Fuel Burn (gal.)/ Hour:** Super Huey based upon the average consumption by the OCFA helicopters. 412EP based upon *The Conklin & de Decker Report v21.1*.
- **Average Fuel Burn (lbs.)/ Hour:** Used the same assumption of 6.7 pounds per gallon.
- **Endurance (hrs.) (Full Fuel):** If the OCFA UH-1H Super Huey departed on a mission with a full load of fuel (211 gallons/1,414 pounds), it would be able to fly for an estimated 2.0 hours based upon the average fuel burn rate of 104 gallons per hour. Based on the same assumptions, the 412EP would be able to fly for 2.9 hours.

Based upon the available useful load in Table 1-5 and the full-fuel weight in Table 1-6, the UH-1H Super Huey helicopters would have 2,636 pounds of remaining payload (4,050 – 1,414) and the 412EP would have 939 pounds (3,150 – 2,211).

**Speed** – During the typical firefighting mission, speed of the helicopter is one of the important variables in determining the amount of water that can be delivered during a given period. Simply stated, a faster speed means more trips in a given amount of time, which leads to more water dropped on the fire.

Table 1-7 summarizes the relevant information for the OCFA helicopters regarding speed.

Table 1-7		
Speed		
	Bell Helicopter	
	Super Huey	412EP
Cruise Speed - Max (knots)	106	125
Cruise Speed - Long Range (knots)	106	122
Calculated Speed (knots)	90	106

**Notes:**

- **Cruise Speed - Max (knots):** Source was *The Conklin & de Decker Report 21.1*.
- **Cruise Speed - Long Range (knots):** Source was *The Conklin & de Decker Report 21.1*.
- **Calculated Speed (knots):** Represents a more likely speed utilized during the firefighting mission and is based on discussions with other firefighting organizations. This speed does not imply that the cruise speeds provided in the table would not be obtained as well in certain circumstances.

**Hover Capabilities** – Unlike fixed-wing aircraft, helicopters have a unique capability, hovering, which makes them invaluable in a variety of missions. Helicopters can hover because their rotating blades provide lift, which allows them to remain airborne without any forward flight. Fixed-wing aircraft must have a certain amount of forward movement for its wings to provide enough lift to keep the aircraft airborne.

When hovering, the helicopter requires a great deal of power since forward motion is not contributing to the lift effect. If the helicopter is hovering just several feet above the ground, it is said to be hovering in-ground-effect (HIGE). Due to the downwash of the blades reflecting off the ground, the helicopter is receiving a lifting effect. Helicopters that are hovering without the benefits of the ground effect are said to be hovering out-of-ground effect (HOGE). At a given set of factors, an aircraft can HIGE at a higher weight than HOGE.

Three primary factors will affect a helicopter's ability to hover – aircraft weight, altitude, and temperature. If any of the three factors increase, the blades' lift becomes less effective, which means the ability to hover is reduced. For example, as the altitude or temperature increase, the helicopter's ability to hover with a certain weight decline. Orange County's highest point is Santiago Peak at just less than 5,700 feet. Most of Orange County's population reside in two lower altitudes coastal valleys that lie in the basin, the Santa Ana Valley and the Saddleback Valley.

For the OCFA missions, the helicopters are required to hover frequently (e.g. filling water tanks, hoist rescues). For example, when a helicopter fills its water tank, the helicopter will HIGE above the water resource. Also, while performing hoist rescues, a helicopter is required to HOGE above the rescue area.

Table 1-8 illustrates the altitude limitations when the OCFA helicopters are required to hover at maximum gross weight at a standard temperature used in aviation. It is important to remember that as the helicopters reduce their weight due to fuel consumption, the ability to hover at higher altitudes is possible.

Table 1-8		
Hover Capabilities		
	Bell Helicopter	
	Super Huey	412EP
Maximum Take-Off Gross Weight (external)	11,200	11,900
Scenario 1: Assumptions	ISA, Sea Level, MGW	
Hover-in-ground-effect (HIGE) (feet)	10,630	10,200
Hover-out-of-ground-effect (HOGE) (feet)	11,000 lbs.	5,200
Scenario 2: Assumptions	ISA +20 C, Sea Level	
Hover-in-ground-effect (HIGE) (feet)	6,800	6,200
Hover-out-of-ground-effect (HOGE) (feet)	10,800 lbs.	11,890 lbs.

**Notes:**

- **Maximum Take-Off Gross Weight:** Source of weight was *The Conklin & de Decker Report 21.1*.
- **Scenario 1 Assumptions:** ISA stands for International Standard Atmosphere and serves as a common reference for temperature and pressure. At sea level the standard temperature is 15° Centigrade or 59° Fahrenheit. MGW is the Maximum Gross Weight.
  - **Hover-in-ground-effect (HIGE) (feet):** Obtained from the respective Technical Data brochures from Bell. Provides the altitude at which the helicopters can hover, while in ground effect, based upon the assumptions.
  - **Hover-out-of-ground-effect (HOGE) (feet):** Obtained from the respective Technical Data brochures from Bell. Provides the altitude at which the helicopters can hover, while out of ground effect, based upon the assumptions.
    - **UH-1H Super Huey:** The helicopter cannot hover OGE at the MGW of 11,200 pounds. It can hover OGE at sea level if the helicopter is 200 pounds less than the MGW.
    - **412EP:** The maximum altitude at which the helicopter can hover OGE based on the assumptions is 5,200 feet.
- **Scenario 2 Assumption:** Altitude remains at sea level, the temperature increases by 20° C to 35° C or 95° F, and the helicopter weight remains at MGW.
  - **Hover-in-ground-effect (HIGE) (feet):** Obtained from the respective Technical Data brochures from Bell. Based on Scenario2 assumptions, both helicopters can hover IGE, the Super Huey at 6,800 feet and the 412EP at 6,200 feet.
  - **Hover-out-of-ground-effect (HOGE) (feet):** Obtained from the respective Technical Data brochures from Bell.
    - **UH-1H Super Huey:** The helicopter cannot hover OGE at the MGW of 11,200 pounds. It can hover OGE if the helicopter is 400 pounds less than the MGW.

- **412EP: The helicopter cannot hover OGE at the MGW of 11,900 pounds. It can hover OGE if the helicopter is 110 pounds less than the MGW.**

**Water Drop Capabilities** – In addition to a helicopter’s speed, the quantity of water delivered per drop is another important variable in determining the amount of water that can be delivered during a given period. A helicopter’s tank or bucket size represents the maximum amount that a particular helicopter can deliver with each drop.

However, the tank capacity does not necessarily represent what the helicopter delivers. Available useful load or payload for all helicopter types is often a parameter that limits the actual amount of water delivered to something less than the tank’s capacity.

Table 1-9 illustrates this point. The UH-1H Super Huey has a 350-gallon water tank, while the 412EP’s tank is 375 gallons. However, when the available useful loads for both types are considered, the amount of water that can be carried is reduced. If the Super Huey carries a full load of fuel, the amount of water it can carry is 315 gallons. If the amount of fuel carried is for a 1.5-hour mission, a common OCFA firefighting mission duration before refueling, the amount of water carried is 332 gallons. The 412EP is affected similarly but with even less water capacity. Several factors will affect water drop amounts.

- Water drop amounts increase as a helicopter consumes fuel during the mission.
- The amount of water dropped declines as a helicopter performs in higher altitudes than sea level and temperatures higher than 15°C.
- The amount of water would decrease when 20-minute reserves are allocated to the amount of fuel required.

Table 1-9		
Water Drop Capabilities (gallons)		
	Bell Helicopter	
	Super Huey	412EP
Water Tank Size (gallons)	350	375
Water Drop Amounts		
With Full Fuel (gal.)	315	112
1.5 -Hour Mission+ 20-Min Fuel Reserve	332	211

**Notes:**

- **Water Tank Size:**
  - **UH-1H Super Huey: The water tank for the Super Huey is manufactured by Isolair Helicopter Systems. The water tank capacity is 350 gallons and a capacity of 27.2 gallons for chemicals. The empty tank weighs 416 pounds and the gross weight of the tank and 350 gallons of water is 3,342 pounds.**

- **412EP:** Water tank is manufactured by Simplex Aerospace, a provider of fire attack systems. The tank capacity is 375 gallons and capacity of 30 gallons for foam. The empty tank weighs 395 pounds. A tank with full water weighs 3,530 pounds.
- **Water Drop Amounts with Full Fuel:** Calculated using the useful load in Table 1-5 and added the weight of full fuel in Table 1-6. Also included is the weight of 450 lbs. for two crew members and equipment. The payload available for water is 315 gallons for the Super Huey and 112 gallons for the 412EP.
- **Water Drop Amounts, 1.5-Hour Mission + 20-Min Fuel Reserve:** Calculated using the useful load in Table 1-5 and added the weight of 1.5 hours of fuel in Table 1-6 plus 20-minutes of fuel reserve. Also included is the weight of 450 lbs. for two crew members and equipment. The available Super Huey payload for water is 332 gallons. The 412EP can carry 211 gallons.

**Cabin Volume and Seating** – Despite their difference as to when they were manufactured, the airframes are almost identical, which means the cabin dimensions and volume are the same. During the firefighting mission, OCFA uses two crew members, a pilot and crew chief. When transporting fire ground crews or equipment and personnel for other OCFA missions, the passenger cabin can seat up to 14, carry stretchers for rescued individuals, or be configured for the transport of equipment rather than passengers.

Table 1-10 displays the cabin volume and seating capacity for the OCFA helicopters.

Table 1-10		
Cabin Information		
	Bell Helicopter	
	Super Huey	412EP
Volume (cubic feet)	208	208
Crew/Passengers	2/14	2/14

**Notes:**

- **Volume:** Obtained from *The Conklin & de Decker Report 21.1*. The calculated volume considers the curvature of the airframe and any unusable space due to obstructions. Conklin's cabin volume will not equal the product of the dimensions provided by the manufacturer (length x width x height).
- **Seating (Crew/Passengers):** The crew number was obtained from discussions with OCFA personnel. The passenger seating was obtained from *The Conklin & de Decker Report 21.1*.

**Purchase/Disposition Price** – If the prior specifications and parameters are the only parameters analyzed in the acquisition process, then an important variable is missing, the acquisition or disposition amount. Analyzing purchase price introduces the concept of value, not only what an aircraft provides but also what it costs to obtain the asset. If an aircraft is at the end of their journey, then the remaining value becomes important. The disposition value can be affected by several factors including the age of the aircraft, status of the significant maintenance events and items, and conditions in the economy.

In the case of the current OCFA helicopters, the resale value is more important than the acquisition price. Table 1-11 provides the estimated range for the resale of the Super Huey and 412EP. Due to how the Super Huey helicopters were obtained, the Federal Excess Property Program, OCFA does not own the helicopters, therefore it will not receive any value when the helicopters are returned to CAL FIRE. Section 2 of this report covers the resale value in greater detail.

Table 1-11		
Purchase Price		
	Bell Helicopter	
	Super Huey	412EP
Basic Price (x1M)	N/A	N/A
Firefighting Completion (x 1M)	N/A	N/A
Resale Value	\$1.6-\$2.0	\$3.5-\$4.3

**Notes:**

- **Basic Price:** N/A represents Not Applicable.
- **Firefighting Completion Price:** N/A represents Not Applicable.
- **Resale Value:** Represents a range of potential value for the respective helicopter types.

### **Candidate Helicopters**

Table 1-12 offers a comparison between the current OCFA helicopters (highlighted in grey) and the candidate helicopters. The comparisons are based on the parameters provided in this section for the current OCFA helicopters.

**Useful Load/Payload** - The MTOGWs highlight the significant difference between Type II and Type I helicopters. The current helicopters, UH-1H Super Huey and 412EP, are referred to as medium twin- or single-engine helicopters and in US firefighting terms are classified as Type II helicopters. Type II helicopters have a MTOGW of 6,000 to 12,500 pounds as summarized in Table 1-4. Helicopters classified as Type I weigh over 12,500 pounds, which is the classification for the S-70i and CU-47D helicopters. Generally, increased MTOGW translates to an increase in payload.

**Mission Endurance** – Each of the candidate helicopters has enough fuel to, at the least, perform a two-hour mission with 20 minutes of fuel reserve.

**Hover Capabilities** – Note: Each of the candidate helicopters can hover in and out of ground effect based on the given parameters. The Bell 412EPX has also improved its hovering performance when compared to the current 412EP. The altitudes for the CU-47D reflect the performance limitations for hovering, however, the helicopter has an additional structural limitation. The altitudes limits based on the structural limitations are 5,250 feet for ISA at sea level and 3,500 feet for ISA plus 20°C at sea level.

**Helicopter Speed** – The speed of the helicopter is an important factor in the formula as to how much a helicopter can drop during a certain period. Speed becomes more of a factor as the distance to the water source increases. Normally, there are different speeds when a helicopter is flying to the water source and back to the fire drop area. When flying to the water source, the helicopter is lighter, therefore can fly faster than when flying with a full water tank. The S-70i and CH-47D are cable of flying faster speeds than the current helicopters and the 412EPX.

**Water Drop Capabilities** - While the maximum take-off weight is important, it does not directly reflect a more important parameter as it relates to the firefighting mission, water drop capabilities. As Table 1-9 shows the current helicopters have a tank capacity of 350 to 375 gallons but deliver less than those amounts due to payload limitations when prepared for the typical firefighting mission (1.5 hours plus 20-minute fuel reserve).

The Type I candidate helicopters have significantly more capabilities. The tank capacity ranges from 1,000 gallons for the S-70i to 3,000 gallons for the CU-47D. The 412EPX, while still a Type II helicopter, also exceeds the current fleet's capacity due to its increased external gross weight of 1,100 pounds. Based on the assumptions, the 412EPX would have a potential water drop, 478 gallons, that is greater than the 375-gallon tank capacity.

Table 1-12 provides two data points for the amount of water that can be dropped, the start and end of a 90-minute mission with the 20-minute fuel reserve. Using the S-70i as an example, the helicopter is dropping about 25 percent more water than at the start of the mission. The range for the other candidate helicopters is 19 to 39 percent increases.

**Cabin Volume** - In addition to increased payload, the S-70i and CU-47D offer larger cabins, which translate into the potential to carry more passengers and equipment. The CU-47D's cabin volume is almost eight times larger than the current helicopters. The 412EPX remains the same as the current helicopters.

**Pricing/Value** - Obtaining the benefits that come with the candidate helicopters means an increase in costs, both to purchase and operate the helicopters. Table 1-12 offers an estimated purchase price of a basic-configured aircraft for the candidate helicopters. Also provided is an estimate for the cost to complete the respective candidate helicopters for the various missions, including firefighting. Both the basic and completion prices can vary based upon the specific requirements, the completion vendor, and contract negotiations.

The Resale Value information is relevant to the current helicopters operated by OCFA. These are the helicopters that have the possibility of being removed from the current fleet at some point. The factors that can affect a resale value include an aircraft's condition, age (e.g. years, flight hours), accuracy of tracking information, configuration, availability, and level of support (e.g. spares,

engineering). In the case of the Super Huey helicopters, asset ownership is an additional factor that will affect the resale value. OCFA will not receive compensation for returning the asset to CAL FIRE.

Table 1-12					
Current and Candidate Helicopters					
Firefighting Mission					
Airframe Manufacturer /Type	Bell / Super Huey	Bell / 412EP	Subaru/Bell / 412EPX	Sikorsky / S-70i	Coulson CH-47D
Engine Manufacturer /Type	Honeywell / T53-L-703	Pratt & Whitney / PT6T-3D	Pratt & Whitney / PT6T-9	General Electric / T700 GE 701D	Honeywell / T5-GA-L714A
<b>Useful Load</b>					
Maximum Take-Off Gross Weight (Internal)	10,500	11,900	12,200	22,000	50,000
Maximum Take-Off Gross Weight (External)	11,200	11,900	13,000	23,500	50,000
Mission Configured - Fire	6,700	8,300	8,300	14,200	26,500
Flight Crew (Firefighting)	450	450	450	650	650
Useful Load Available for Mission	4,050	3,150	4,250	8,650	22,850
Fuel (lbs.) 1.5-Hour Mission w/ 20 Min. Reserve	1,275	1,385	1,385	1,986	4,966
Remaining Useful Load	2,775	1,765	2,865	6,664	17,884
<b>Mission Endurance</b>	<b>2.0</b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>	<b>2.6</b>
<b>Hover Capabilities</b>					
In-Ground Effect (ISA, Sea Level)	10,630	10,200	9,000	10,270	7,750
Out-of-Ground-Effect (ISA, Sea Level)	11,000 lbs.	5,200	6,000	6,200	6,100
In-Ground Effect (ISA +20 C, Sea Level)	6,800	6,200	5,600	7,400	5,250
Out-of-Ground-Effect (ISA +20 C, Sea Level)	10,800 lbs.	11,890 lbs.	1,500	4,400	3,900
<b>Helicopter Speed</b>					
Cruise Speed - Max (knots)	106	125	130	145	157
Cruise Speed - Long Range (knots)	106	122	124	128	130
Calculated Speed (knots)	90	106	110	122-140	131-157
<b>Water Drop Capabilities (gallons)</b>					
Water Tank Size (gallons)	350	375	375	1,000	3,000
1.5-Hour Mission+ 20-Min Fuel Reserve	332	211	343	797	2,498
End of Mission (20-minute reserve)	457	347	478	992	2,985
<b>Cabin</b>					
Volume (cubic feet)	208	208	208	396	1,629
Crew/Passengers	2/14	2/14	2/14	2/12	2/>30
<b>Pricing/Value</b>					
Basic Price (x1M)	N/A	N/A	\$11.5	\$17.0	\$16.5
Firefighting Completion (x 1M)	N/A	N/A	\$14-\$15	\$20-\$23	\$5.8*
Resale Value	\$1.6-\$2.0	\$3.5-\$4.3	N/A	N/A	N/A

**Notes:**

- **Useful Load:**
  - **Fuel Consumed (lbs.):** Based upon the typical firefighting mission duration of ninety minutes plus a 20-minute reserve.
- **Mission Endurance:** Based upon the assumptions the helicopter started with a full load of fuel.
- **Hover Capabilities:** There are two conditions for the hovering capability, ISA (15°C) at sea level and ISA +20° C at sea level. Both conditions are maximum gross weight.
- **Helicopter Speed:**
  - **Calculated Speed:** During the firefighting mission, the speed will vary when carrying a full load of water versus flying to pick-up water. The range of speed reflects the speed differences and was obtained from operators and the manufacturers. For example, the Sikorsky S-70i will have a speed of 140 to the water pick up and 120-130 with a full load.
- **Water Drop Capabilities:**
  - **Tank Size:** Based upon discussions with OCFA personnel for the tank capacity on the current fleet.
  - **1.5-Hour Mission:** The amount of water that could be carried at the start of a ninety-minute mission plus a twenty-minute fuel reserve. The water amount would increase with each drop as fuel was consumed.
  - **End of Mission (20-minute reserve):**
    - **Bell Super Huey:** If the water tank had the capacity, the helicopter, based on the conditions, would be able to drop 457 gallons. Obviously, the limit would be 350 gallons.
- **Cabin:**
  - **Crew/Passengers:** Seating in the passenger cabin is flexible in each helicopter type. The number for passengers represents the maximum seating capacity.
- **Pricing/Value:**
  - **Basic Price:** Applies only to the candidate helicopters. The current helicopters are not being purchased. The amounts represent an estimated price for the basic, non-mission-configured helicopter.
    - **CU-47D** - The \$16.5 million is the proposed purchase price for a mission-ready helicopter. We placed the completed value in this category due to the additional fees for management services (See Firefighting Completion).
  - **Firefighting Completion:** Represents the estimated basic price and completion costs for the candidate helicopters. The range of costs is dependent on the specific mission equipment that is requested by OCFA.
    - **CU-47D** - The \$5.8 million for the CU-47D does not represent the completion costs as provided for the 412EPX and S-70i. Those costs are part of the Basic Price. The \$5.8 million represents an annual cost provided by Coulson-Unical for a turnkey service to operate, maintain, and support the CU-47D.
  - **Resale Value:** This applies to the current OCFA helicopters. The range of resale values was obtained from Conklin & de Decker's, *The Conklin & de Decker Report v21.1*. The values shown for the Super Huey helicopters are representative of assets not in the Federal Excess Property Program.

## Section 2 – Life Cycle Cost Projections

### Orange County Fire Authority Original Request

Estimate the cost of the acquisition and operation of helicopter alternatives. The operating cost estimates will include maintenance options and fuel costs, and other operating or overhead costs.

### Conklin & de Decker Approach

Conklin & de Decker used the concept of life cycle cost analysis to examine the current and candidate helicopters. In general, and as it relates to aircraft operators, a life cycle cost analysis has three main elements – acquisition, operating costs, and disposition of the aircraft. This section deals with the costs of operating aircraft with a primary focus on maintenance and fuel costs. Subsequent sections of this report deal with the acquisition and disposition of an aircraft.

More specifically, this section contains ten-year estimates, with a beginning point of January 2021, for the current and candidate helicopters. The estimates provide totals for maintenance and fuel costs, while also highlighting the annual and sometimes significant cost variations (“peaks” and “valleys”) associated with maintenance costs. The ultimate objective for summarizing the costs is to identify key potential times in the life cycle to dispose of a helicopter. Conklin & de Decker used its *Life Cycle Cost, 20.1* software version to calculate the respective projections.

This section of the report, like Section 1, consists of a summary of Conklin & de Decker’s analysis and the analysis. Life cycle cost projections are provided for the current fleet and candidate aircraft. The projections for each of the current aircraft include an overall summary table, an annual maintenance cost chart for ten years, a table highlighting the significant maintenance events in the respective years, and a residual value chart for the ten-year period. The projections for the S-70i candidate aircraft include the overall summary table, an annual maintenance cost chart, and the ten-year residual value chart. The CU-47D is presented differently due to the Colson-Unical proposal. There is the overall summary for ten years of operation and then explanations about maintenance cost behavior and the resale value of the helicopter.

### Summary

Using Conklin & de Decker’s *Life Cycle Cost 20.1* software, we projected maintenance and fuel costs over a ten-year period for each of the current fire and rescue helicopters and for selected candidate helicopters should the OCFA decide to change to a different type of helicopter. The beginning point for the ten-year life cycle estimate was January 2021. Chart 2-1 summarizes the results to the analysis.

It is important to mention the effect that a helicopter's age can have on the maintenance costs in a life cycle. Three of the helicopter types, UH-1H Super Huey, Bell 412EP, and CU-47D, have been in operation for many years. The 412EPX and S-70i are new helicopters. Due to their age and the number of flight hours, older aircraft will have higher maintenance costs as they encounter significant maintenance events. Based on the assumption of 200 flight hours per year per helicopter, the 412EP helicopters will encounter several of these maintenance events, which drives up the total costs during the ten-year period. The new helicopters will not encounter the significant events in their first ten years based upon the 200 hours per year and therefore their cost may be similar to or less than the older helicopters. Good examples of that relationship are the 412EPX, which is less than the existing 412EP helicopters, and the S-70i, which is 8 to 25 percent depending upon the 412EP to which it is compared.

The current 412EP helicopters are similar in age and flight hours. Based on age, these helicopters are in their 13<sup>th</sup> year of operation for OCFA. Due to their similarity, the 412EP helicopters have estimated maintenance and fuel costs that is only a \$600,000 difference. In essence, each helicopter will encounter the same scheduled maintenance events during the next ten years.

The UH-1H Super Huey helicopters are 54-years old. Despite their lower estimated maintenance and fuel costs over the next ten years, when compared to the 412EP helicopters, their costs could exceed the estimates significantly due to their age. Generally, as helicopters age, unscheduled maintenance costs will increase in the airframe structure, electronic system, and avionics. An example of the aging factor is the most recent ten-year inspection on N441FA H3. The almost-\$500,000-inspection had several issues with the airframe structure. Also, the source of spares has changed in the last several years as military auctions of UH-1H parts have declined. Generally, parts acquired from the government as surplus are less expensive than purchasing from other sources.

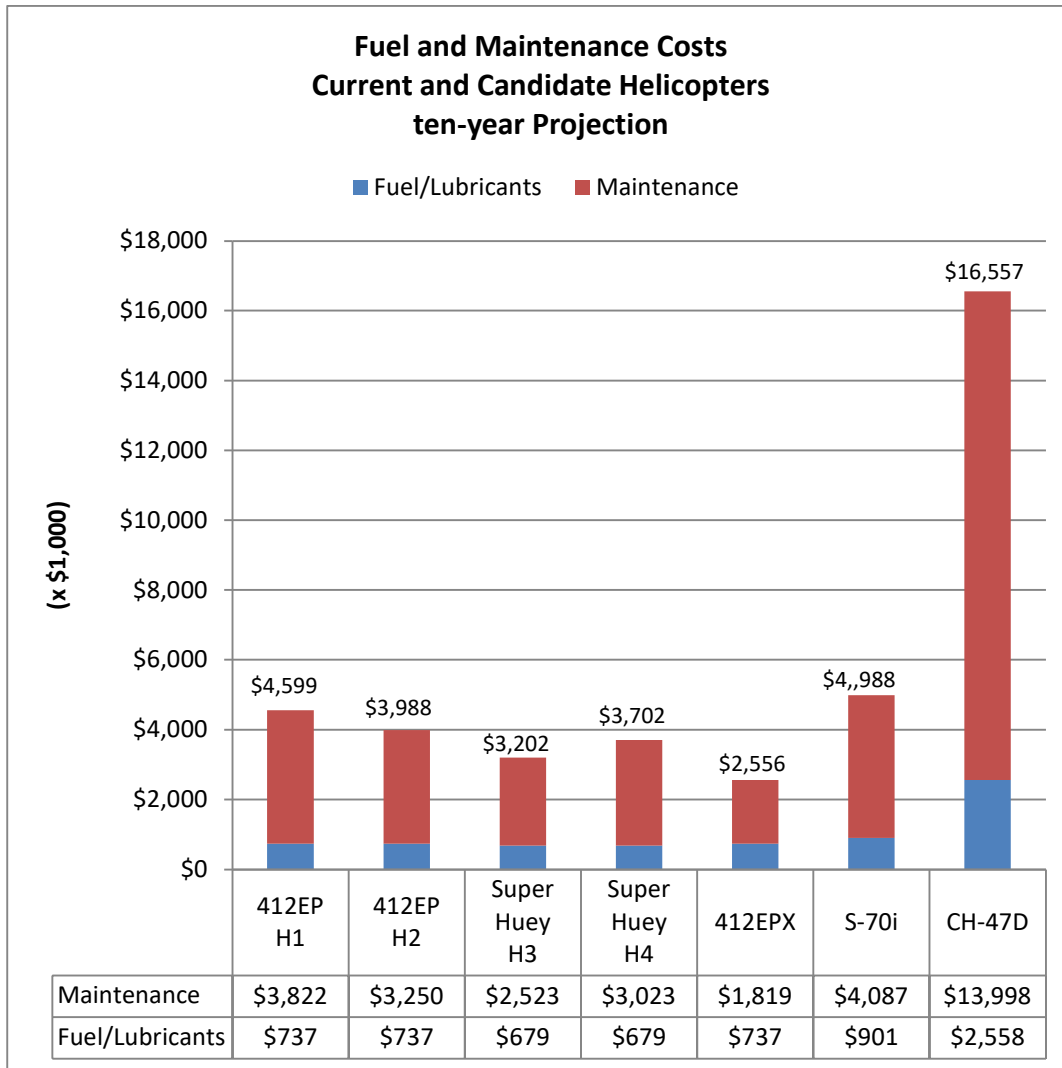
Due to OCFA's desire to improve its capabilities in primarily the firefighting mission, each of the candidate helicopters represent an increase in performance when compared to the current helicopters. The S-70i and CU-47D are Type I helicopters that can easily double the water drop capabilities of the current helicopters. The 412EPX has improved water drop performance even though it is in the same category as the current helicopters.

To acquire helicopters with that capability, the costs to operate them will also increase. Chart 2-1 highlights the increase. During a ten-year period, the candidate helicopters will increase fuel and maintenance costs anywhere from 25 percent, comparing the Bell 412EP to the Sikorsky S-70i, and 260 percent when the CU-47D is compared to the 412EP.

While the increase in maintenance and fuel cost may seem excessive, the increase in performance must also be considered. Using the Bell 412EP to the Sikorsky S-70i comparison, the increase in water delivered during the typical mission scenario, the S-70i will carry 256 percent more water per tank load (224 gallons for the 412EP versus 797 gallons for the Sikorsky S-70i). The CU-47D water drop capability

is ten times 412EP (2,498 gallons for the CU-47D). The 412EPX also increases the water dropped by 58 percent (355 gallons for the 412EPX).

Chart 2-1



While performance capabilities of the helicopters are important, so too is the value of the aircraft. Table 2-1 identifies the years when the helicopters have positive Adjusted Values, which represents when OCFA could expect to receive a higher amount when selling the asset than a helicopter around the Base Value. It is important to mention that the actual amount received in the sale of a used helicopter can differ from the adjusted values in this model due to current market activity. The model is highlighting the relationship between the Base and Adjusted Values.

For Table 2-1, we used a ten-year summary since the UH-1H Super Huey helicopters are quite old and the 412EP helicopters will be approximately 23 years old in another ten years. We extended the number of years for the candidate helicopters to 20 since they are new helicopters, and their resale

value would be more informative with a longer period. We did not have the appropriate information to generate a residual value for the CU-47D.

Table 2-1																				
OCFA Helicopters - Annual Summary of Adjusted Values																				
Registration Number	Year 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
N141FA H1		A		C				B			X	X	X	X	X	X	X	X	X	X
N241FA H2	A	B					C				X	X	X	X	X	X	X	X	X	X
N441FA H3	C								A	B	X	X	X	X	X	X	X	X	X	X
N541FA H4	C					B				A	X	X	X	X	X	X	X	X	X	X
Candidate Helicopters - Annual Summary of Adjusted Values																				
412EPX	A	B											C	D	E					
S-70i	A	B	C	D	E															
CU-47D	Not Available																			

In Table 2-1, the years that are marked with yellow represent when the Adjusted Value is the same as or greater than the Base Value of the helicopter. The single red block for each helicopter represents the lowest value during the 10 and 20-year period. The letters in the yellow blocks identify the years with the highest Adjusted Values. "A" identifies the highest value and "C" is the third highest. The white blocks are the years when the Adjusted Value is below the Base Value.

Registration number N141FA H1 can serve as an example to explain the table. In years 1 through 5 and 8 and 9, the helicopter's adjusted value is higher than its base value, when all the significant scheduled maintenance events are assumed to have remaining lives of 50 percent. In years 6 and 7, the adjusted value is less than the base value because enough of the significant scheduled maintenance events have less than 50 percent remaining lives. Year 7 has the lowest adjusted value. Year 2 has the highest adjusted value.

### Conklin & de Decker Analysis

#### Current Fleet

Life Cycle Assumptions: Life cycle cost estimates are based on several assumptions. Listed below are the assumptions that support the ten-year estimates for the current helicopters in the OCFA fleets as well as the candidate helicopters. Despite the grounding of the Super Huey helicopters in September 2020, we built an estimate for these helicopters should they become active again.

- Life Cycle Start Month – January 2021. The OCFA aviation unit provided the maintenance tracking information. The reports contain the remaining times for significant scheduled events such as major inspections, overhaul components, life-limited items, and engine restorations. Based on the start date, Year 1 covers from January through December 2021.

The total flight hours as of January 2021 were:

- 412EP N141FA H1: 2,329
  - 412EP N241FA H2: 2,188
  - Super Huey N441FA H3: 6,811
  - Super Huey N541FA H4: 9,196
- Program Length – 10 years.
- Hours per Year – OCFA requested that we use 200 flight hours per helicopter per year. In most recent years, the UH-1H Super Huey helicopters have been used primarily as back-up to the 412EP helicopters when they are not available. As a result, the Super Huey helicopters have not flown 200 hours annually.

Estimating the annual hours accurately is important as they have an important effect on the timing of certain significant maintenance events (e.g. 2,500-hour major inspection, engine overhauls, life-limited items).

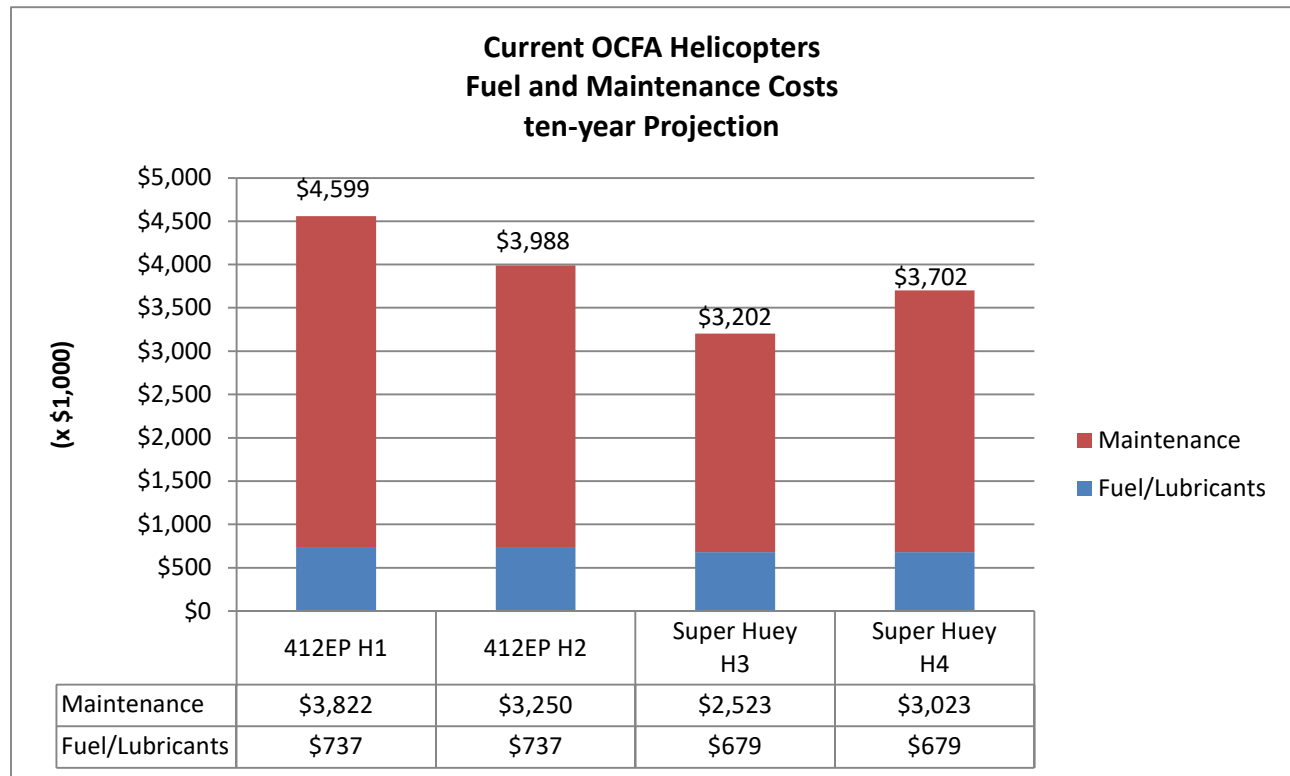
Despite the September 2020 grounding, we have included the UH-1H Super Huey helicopters. If the helicopter should resume flying, the timing of the scheduled events in the next ten years may occur at later dates than the estimates in the report, especially hourly items. Calendar scheduled maintenance (e.g. ten-year inspection) will occur as estimated.

- Fuel Cost – Assumed \$2.90 cost per gallon.
- Fuel Consumption – The average amount of fuel consumed in an hour is based upon the Conklin & de Decker *Life Cycle Cost 20.1* software. The assumed hourly fuel consumption for each of the helicopter types is:
- 412EP: 113 gallons.
  - Super Huey: 104 gallons.
- Labor – The labor costs associated with maintenance are based upon the estimated hours to work on the aircraft, also referred to as “hands-on-time”. Not included as “hands-on-time” would be activities such as time-off, meetings, hangar cleaning, and other activities that are not involved with maintaining the helicopter. We used a labor rate of \$106 per hour.
- Inflation Rates – The life cycle cost model uses two inflation factors. The first affects the increasing cost of parts in aviation and the second is more general and is applied to such categories as fuel and labor. The assumed annual inflation factors affecting parts is 2.7 percent and the general inflation rate is 1.95 percent.

Chart 2-2 summarizes the projected fuel and maintenance costs for each of the OCFA helicopters over a ten-year period. During the next ten years, the 412EP helicopters will have the most expenditures. N141FA H1 will consume almost \$4.6 million and N241FA H2 is \$600,000 less at \$4.0 million. If the Super Huey helicopters become active again, their estimated costs range from \$3.2 (N441FA H3) to \$3.7 million (N541FA H4). The primary cause for the \$500,000 difference is that N541FA H4 was just starting

its ten-year inspection when it was grounded. The ten-year inspection is a significant cost at almost \$500,000.

**Chart 2-2**



The following part of the report contains a combination of tables and charts summarizing the information generated by the life cycle cost software. The information provided for each helicopter consists of

- A summary table showing the maintenance and fuel costs for a ten-year estimate.
- A line chart showing the estimated annual maintenance costs for a ten-year period.
- A table highlighting the significant maintenance events occurring in specific years.
- A line chart displaying the estimated annual residual value based on the aircraft's age and status of significant maintenance events for a ten-year period.

We have provided an explanation for each chart and its significance for the OCFA helicopter serial number 36484, registration number N141FA H1. To avoid redundancy with the explanations, we did not repeat them for each helicopter. We provided only the tables and charts for the remaining Bell 412EP and both UH-1H Super Hueys. However, and for all helicopters, we have identified when OCFA might consider disposing of each helicopter based upon their respective estimated residual values. Our suggestion for disposition in this section of the report considers each helicopter individually and does not represent the fleet plan as there will be other factors that may affect the fleet plan.

**Helicopter: Bell 412EP****Serial Number: 36484****Registration Number: N141FA H1**

Table 2-2 summarizes the estimated fuel and airframe and engine maintenance costs over a ten-year period. The estimate was based upon Conklin & de Decker's *Life Cycle Cost v20.1* software while using relevant OCFA department information (e.g. remaining lives on scheduled components and items). The ten-year estimated costs for this helicopter are almost \$4.6 million with 16 percent of the costs associated with fuel and lubricants, 60 percent with airframe maintenance, and 23 percent with engine restoral.

Table 2-2		
ten-year Projection - N141FA H1		
Fuel	\$716,006	16%
Lubricants	\$21,480	0%
Subtotal	\$737,487	16%
Airframe Maintenance		
Labor	\$495,990	11%
Parts	\$771,821	17%
Inspections	\$785,285	17%
Component Overhaul	\$686,454	15%
Life Limited Items	\$16,555	0%
Subtotal	\$2,756,106	60%
Engine Maintenance		
Engine Restoral	\$1,065,614	23%
Total	\$4,559,206	100%

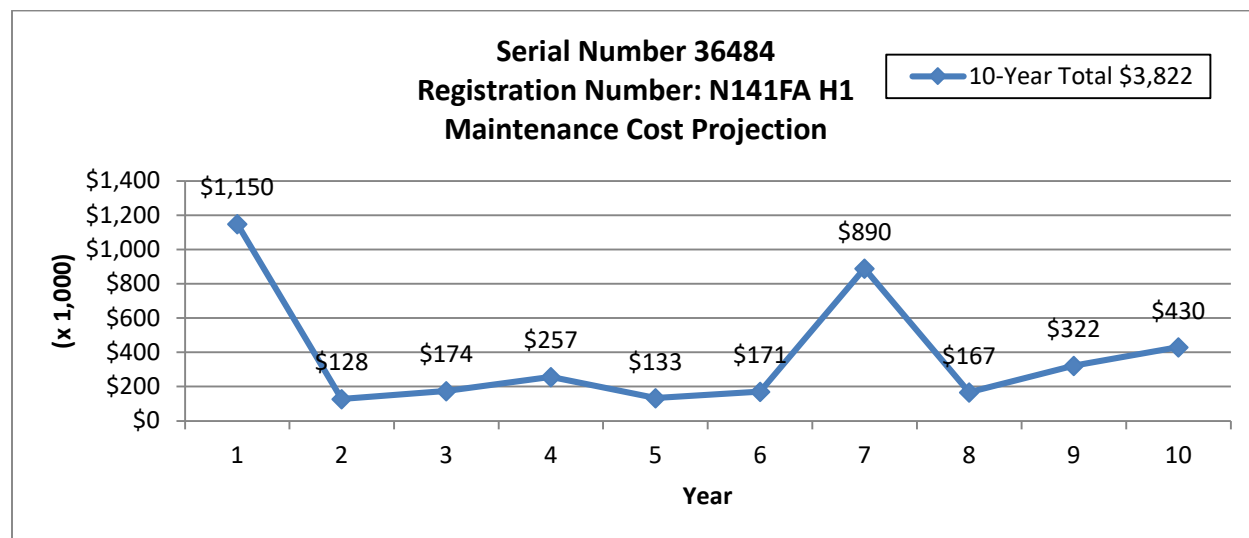
Chart 2-3 displays the estimated annual maintenance costs (fuel not included) during the ten-year period. The average annual cost is \$382,000.

Due to the nature of helicopter maintenance requirements certain significant costs will occur at scheduled intervals. For example, in the next 12 months, helicopter N141FA H1 will encounter its highest maintenance costs. Thirty percent of the ten-year \$3.822 million maintenance expense is related to scheduled maintenance for an engine hot section, main rotor hub and combining gearbox clutch inspections, and various component overhauls that occur at 2,500 hours. This helicopter in January 2021 had accumulated a total of 2,329 flight hours. (This detail is provided in Table 2-3.)

To use this helicopter as an example, selling the helicopter in Year 6 would not be the ideal time to dispose of the aircraft. Generally, upcoming significant maintenance due in Year 7 will subtract substantially from the resale value of the helicopter. Ideally, disposing of an aircraft should occur two or three years from significant maintenance events. Chart 2-4 illustrates this statement.

Also, it is important to remember one of the assumptions underlying the ten-year estimate; it is based on 200 flight hours per year. If the actual accumulation of flight hours differs from the projection, then the year in which the significant maintenance costs occur could change.

Chart 2-3



The information in Table 2-3 supplements Chart 2-3. The table highlights the more significant maintenance categories that are driving the costs in the peak years. For example, in Year 7 the N141FA H1 helicopter will need both of its engines overhauled. The overhauls are estimated to cost almost \$728,000, which is 82 percent of the maintenance costs for the year. Other years with significant scheduled maintenance are 1, 4, 7, 9, and 10.

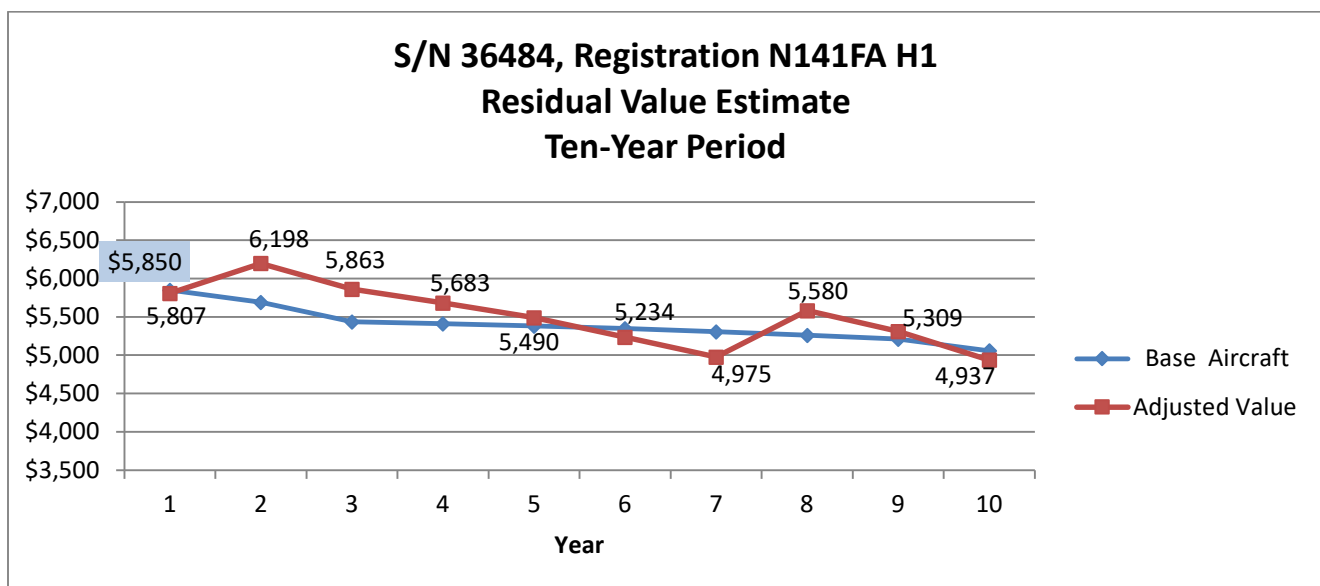
Table 2-3						
Summary of Annual Significant Scheduled Events – N141FA H1						
Year	Category	Significant Maintenance	Estimated Cost (x1,000)	Significant Maint. Subtotal (x1,000)	Annual Maint. Total (x1,000)	Significant Maint. / Annual Total (%)
1	Inspections	Main Rotor Hub, Combining G'box	\$417			
	Engine Inspection	Hot Section	\$206			
	Component Overhaul	Several Items	\$410	\$1,033	\$1,150	90%
4	Inspections	5000-Hr/ 5-Year	\$113	\$113	\$257	44%

7	Engine Restoration	Engines Overhauled	\$728	\$728	\$890	82%
9	Inspections	5000-Hr/5-Year	\$138	\$138	\$322	43%
10	Component Overhaul	Several Items	\$238	\$238	\$430	55%

Chart 2-4 offers another perspective for N141FA H1, the estimated residual value during the ten-year period. The chart shows two perspectives for the residual value. The first perspective (Base Aircraft, blue line) involves the steady declining value of the helicopter as it ages in years. In this life cycle cost estimate, N141FA H1 31147, manufactured in 2008, begins as a 12- to 13-year-old helicopter. At the end of the ten-year period, the 22- to 23-year-old helicopter will have an estimated market value of \$5.1 million. The average annual 1.5 percent rate of depreciation during the ten-year period is a general rate in the life cycle cost tool that applies to all 412EP helicopters with the same year of manufacture.

The second line (Adjusted Value, red line) in Chart 2-4 reflects the estimated residual value based upon the status of the helicopter's significant scheduled maintenance events (e.g. component overhauls, life-limited items, engine restoration, major inspections). Due to the high costs associated with these maintenance events such as a transmission overhaul, main rotor blade retirement, engine overhaul, and/or significant inspections, a helicopter's market value will be increased or decreased depending upon how much time remains before the occurrence of the event. And because the various maintenance events occur during different times in the helicopter's life cycle, the market value is affected differently by each significant maintenance event. For example, an engine overhaul that just occurred will add (betterment) to the helicopter's base market value, while a set of blades to be retired in the coming year will decrease the base market value (detriment).

Chart 2-4



If we combine the information in Chart 2-4, which reflects the estimated maintenance costs, with the maintenance details provided in Table 2-3, we will better understand why Years 2 and 8 in Chart 2-4 show a peak in values of \$6,198K and \$5,580 respectively. In Year 2, the helicopter will have had significant maintenance in a variety of areas and Year 7 is when engine overhauls occur.

Based on the relationship between the Base and Adjusted Value lines, the recommended period to dispose of N141FA H1 is between years 3 and 5. This is the period when the Adjusted Value is higher than the Base Aircraft line. During this period, the helicopter will be around 15 years old. Year 9 represents another opportunity.

A more complete explanation about the current market is provided in Section 3, Aircraft Acquisition and Timing. The Base Aircraft values displayed in Chart 2-4 are based upon long-term depreciation values and do not necessarily reflect current market values.

**Helicopter: Bell 412EP**

**Serial Number: 36487**

**Registration Number: N241FA H2**

Table 2-4		
ten-year Projection - N241FA H2		
Fuel	\$716,006	18%
Lubricants	\$21,480	1%
Subtotal	\$737,487	18%
Airframe Maintenance		
Labor	\$495,990	12%
Parts	\$771,821	19%
Inspections	\$758,712	19%
Component Overhaul	\$139,415	3%
Life Limited Items	\$17,387	0%
Subtotal	\$2,183,325	55%
Engine Maintenance		
Engine Restoral	\$1,066,931	27%
Total	\$3,987,743	100%

Chart 2-5

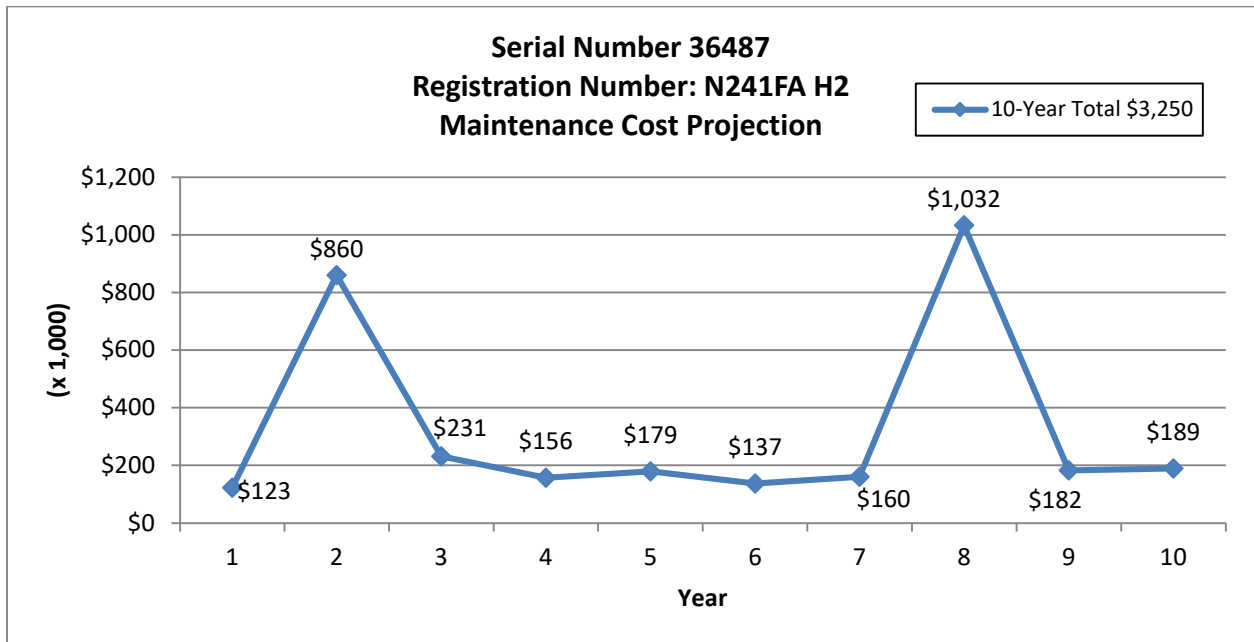
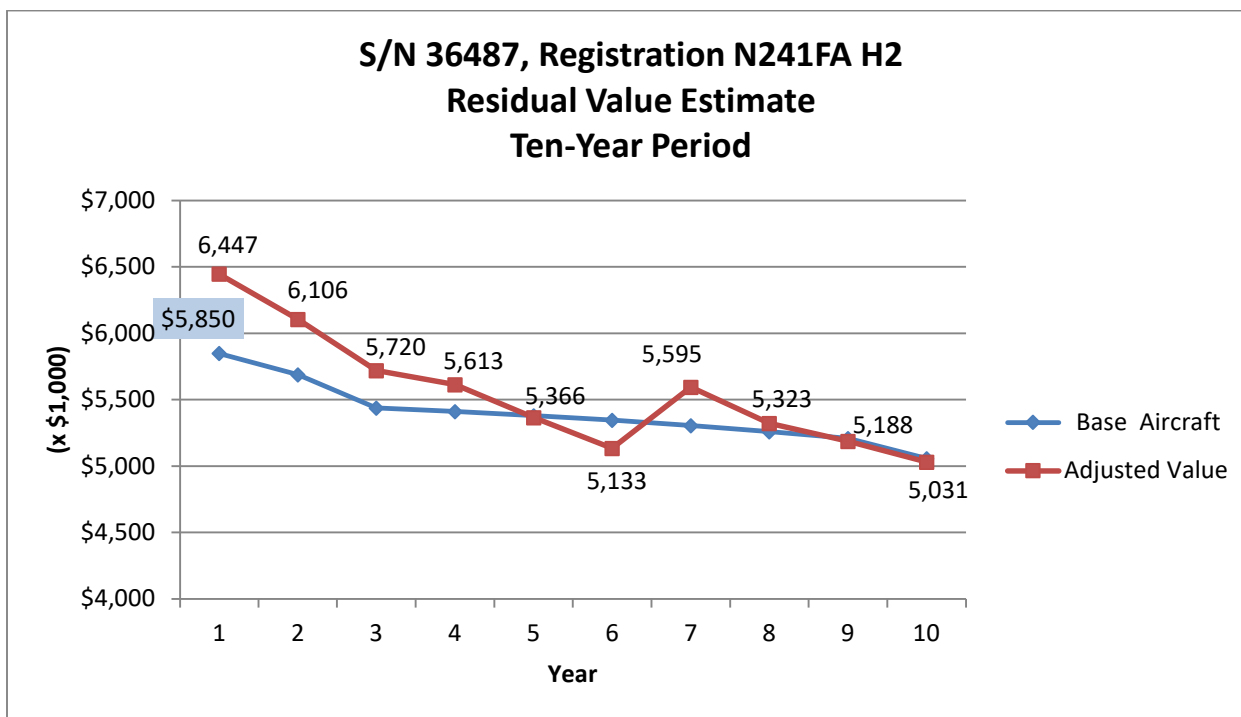


Table 2-5						
Summary of Annual Significant Scheduled Events – N807JS						
Year	Category	Significant Maintenance	Estimated Cost (x1,000)	Significant Maint. Subtotal (x1,000)	Annual Maint. Total (x1,000)	Significant Maint. / Annual Total (%)
2	Inspections	Main Rotor Hub, Combining G'box	\$443			
	Engine Restoration	Hot Section	\$264			
	Component Overhaul	Several Items	\$85	\$792	\$860	92%
3	Inspections	5000-Hr/5-Year	\$107	\$107	\$231	46%
8	Engine Restoration	C'Box Overhaul	\$757			
	Inspections	5000-Hr/5-Year	\$134	\$891	\$1,032	86%

The 412EP has a 5-year/5000-hour inspection. The flat rate is \$85,000, which covers the cost to perform the inspection tasks only. During the major inspection process, discrepancies are found. The costs associated with discrepancies can increase the cost of the inspection by significant

amounts. For example, a prior 412EP 5-year/5000-hour inspection of this nature cost OCFA more than \$400,000. In our life cycle cost program, we use the flat rate as the cost for this inspection. If we used the total costs to complete the inspection, the current level in year-three would be much higher.

Chart 2-6



The maintenance work performed in year 2 keeps the Adjusted Value in a positive position through Year 5. However, this changes with significant engine maintenance due in Year 8. Year 6 dips below the line because the engines do not have many flight hours prior to hitting the maintenance event.

**Helicopter: Bell UH-1H Super Huey**

**Serial Number: 5610**

**Registration Number: N441FA H3**

Table 2-6		
ten-year Projection - N441FA H3		
Fuel	\$658,979	21%
Lubricants	\$19,769	1%
Subtotal	\$678,749	21%
Airframe Maintenance		
Labor	\$221,147	7%
Parts	\$212,567	7%

Inspections	\$687,840	21%
Component Overhaul	\$276,668	9%
Life Limited Items	\$406,555	13%
Subtotal	\$1,804,777	56%
Engine Maintenance		
Engine Restoral	\$718,662	22%
Total	\$3,202,188	100%

Chart 2-7

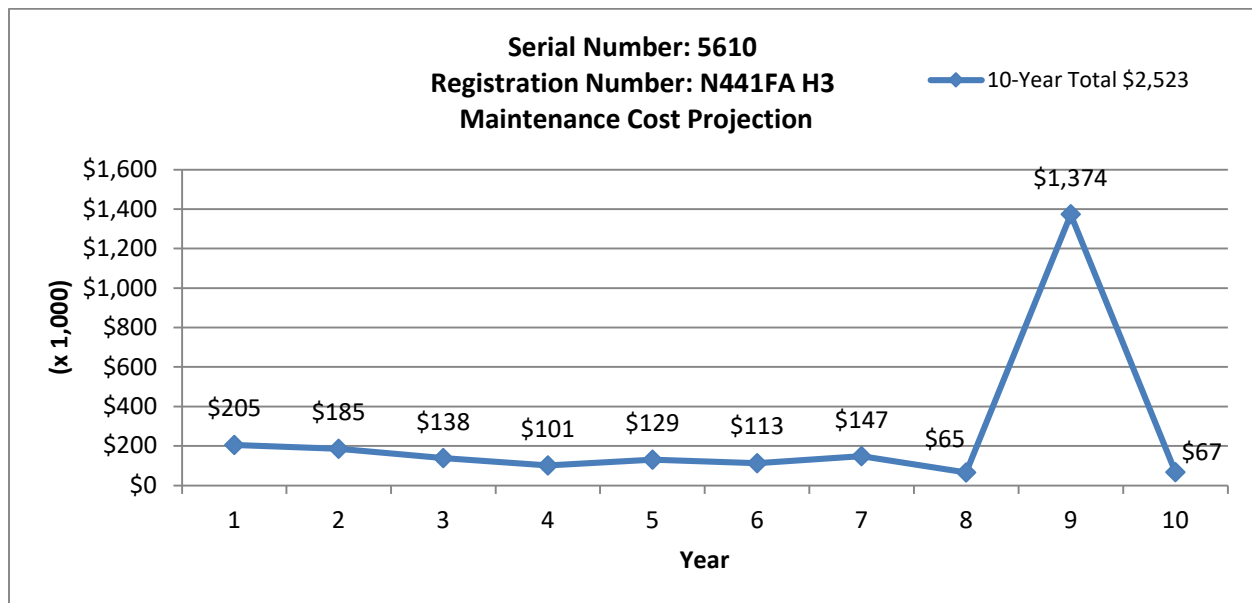
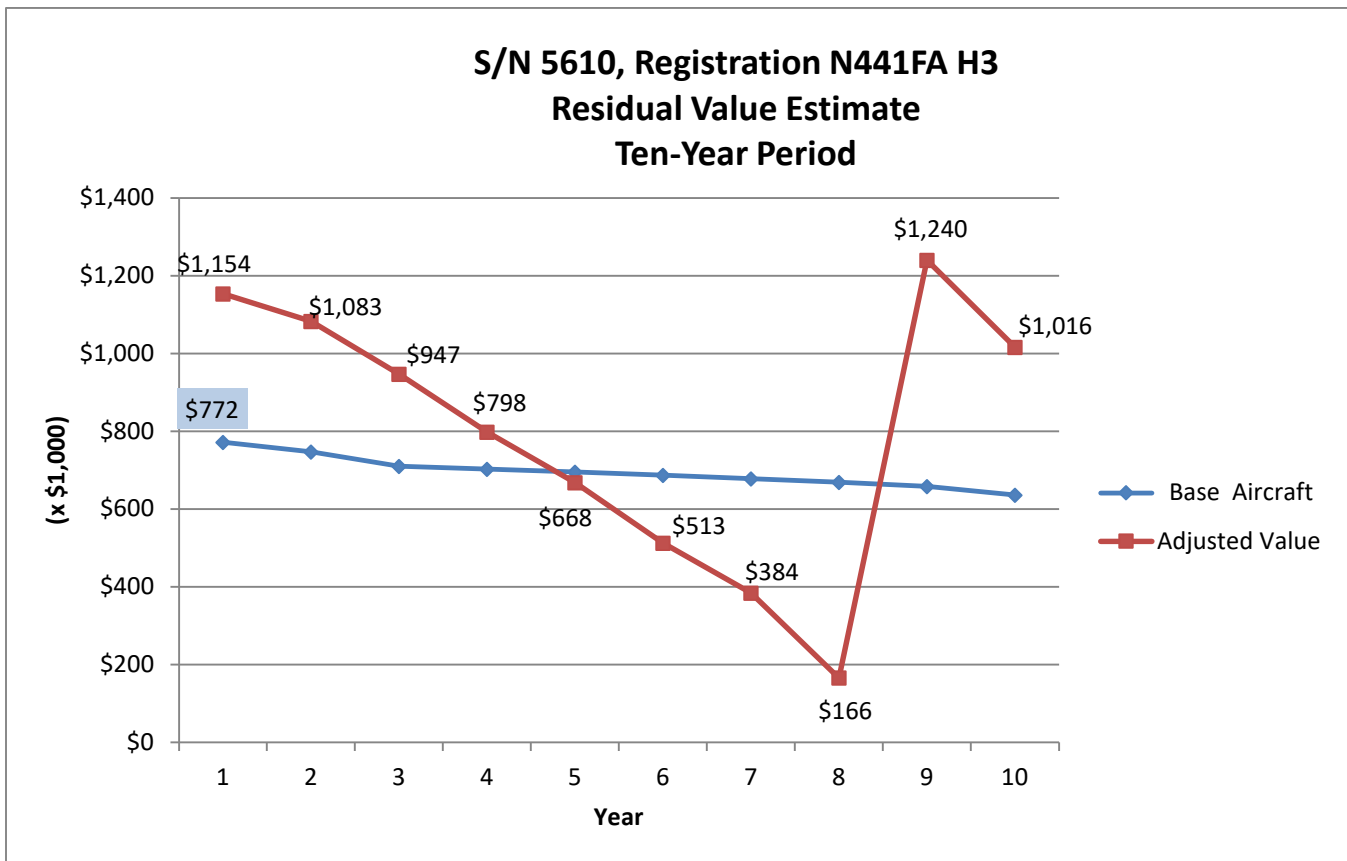


Table 2-7						
Summary of Annual Significant Scheduled Events – N800DM						
Year	Category	Significant Maintenance	Estimated Cost (x1,000)	Significant Maint. Subtotal (x1,000)	Annual Maint. Total (x1,000)	Significant Maint. / Annual Total (%)
9	Inspections	3000-Hr/ten-year	\$595			
	Engine Restoration	Engine Overhaul	\$621			
	Airframe Life Limited	Several Items	\$108	\$1,324	\$1,374	96%

Chart 2-8



Due to the recent completion of the ten-year inspection, the Adjusted Value remains above the Base Aircraft value through Year 4. The low value in Year 8 is due to the next ten-year inspection and engine overhaul that are due in Year 9. Both maintenance events are significant.

If this Super Huey was brought back into service, then years 1 through 4 would be the best time from a betterment/detriment perspective to dispose of the aircraft. However, there is an additional factor associated with the Super Huey helicopters. These aircraft were acquired through the Federal Excess Property Program by way of CalFire. Ownership remains with these entities. Therefore, a sale value is irrelevant.

**Helicopter: Bell UH-1H Super Huey****Serial Number: 8529****Registration Number: N541FA H4**

<b>Table 2-8</b>		
<b>ten-year Projection - N541FA H4</b>		
Fuel	\$658,979	18%
Lubricants	\$19,769	1%
Subtotal	\$678,749	18%
<b>Airframe Maintenance</b>		
Labor	\$221,147	6%
Parts	\$212,567	6%
Inspections	\$1,144,473	31%
Component Overhaul	\$287,863	8%
Life Limited Items	\$465,054	13%
Subtotal	\$2,331,103	63%
<b>Engine Maintenance</b>		
Engine Restoral	\$691,807	19%
Total	\$3,701,659	100%

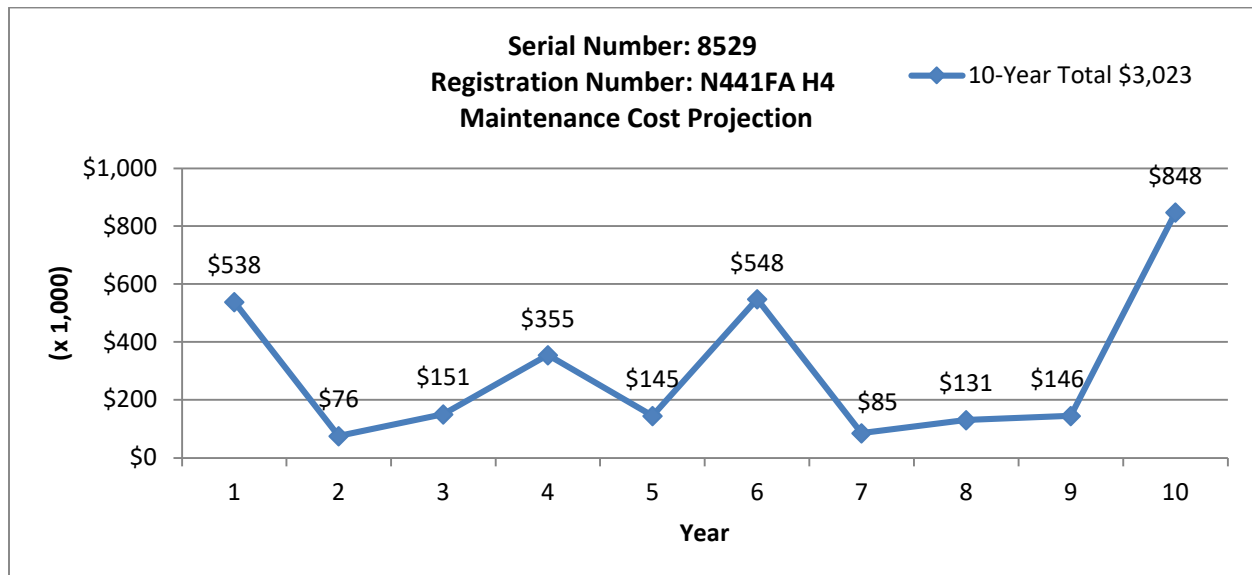
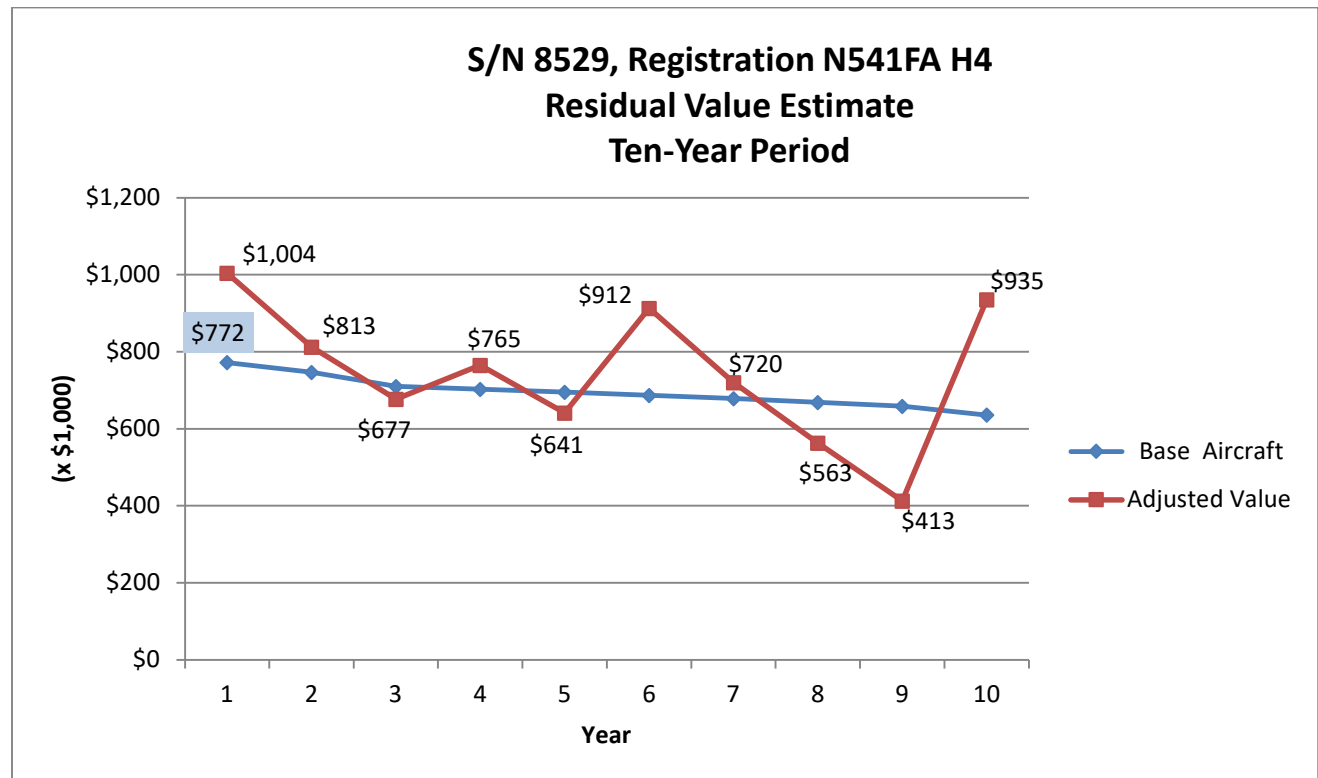
**Chart 2-9**

Table 2-9						
Summary of Annual Significant Scheduled Events – N800DM						
Year	Category	Significant Maintenance	Estimated Cost (x1,000)	Significant Maint. Subtotal (x1,000)	Annual Maint. Total (x1,000)	Significant Maint. / Annual Total (%)
1	Inspections	2500-Hr/ten-year	\$485	\$485	\$538	90%
4	Component Overhaul	Mast, Main Rotor Hub, Xmsn, T/R Hub	\$150			
	Airframe Life Limited	Several Items	\$142	\$292	\$355	82%
6	Engine Restoration	Overhaul	\$468	\$468	\$548	85%
10	Inspections	2,500-Hr/5-Year	\$573			
	Airframe Life Limited	Several Items	\$142	\$715	\$848	84%

Chart 2-10



This helicopter's ten-year inspection is currently due and had been sent to the vendor to perform the maintenance. The September 2020 grounding of the Super Huey helicopters stopped the inspection maintenance. As mentioned with N441FA H3, the program with which OCFA purchased the helicopters, Federal Excess Property Program, makes the proceeds from the disposition of this helicopter irrelevant.

## **Candidate Helicopters**

The purpose of this section is to apply the same life cycle cost analysis that was applied to the OCFA current helicopters, which allows an apples-to-apples comparison between the varying types of helicopters. The candidate helicopters, Bell 412EPX, Sikorsky S-70i, and Coulson-Unical CU-47D, were introduced in Section 1, Fleet Review. For the candidate helicopters, we used the life cycle cost software and based it on the same assumptions as described on Pages 4-5. However, there are some assumptions that will differ and are identified with the respective helicopters.

- Hours per Year – As mentioned, OCFA requested an average of 200 annual flight hours per helicopter. We used the same assumption of 200 flight hours per year per helicopter.
- Fuel Cost – Assumed \$2.90 cost per gallon.
- Fuel Consumption – The rate of consumption for each candidate helicopter were the default values in the Life Cycle Cost software. The amount consumed per hour for the:
  - 412EPX: 113 gallons.
  - S-70i: 138 gallons.
  - CU-47D: 392 gallons: The consumption rate represents an average of the different missions the helicopter can perform.
- Labor – The labor costs associated with maintenance are based upon the estimated hours to work on the aircraft, also referred to as “hands-on-time”. Not included as “hands-on-time” would be activities such as time-off, meetings, hangar cleaning, and other activities that are not involved with maintaining the helicopter. We used a labor rate of \$106 per hour.

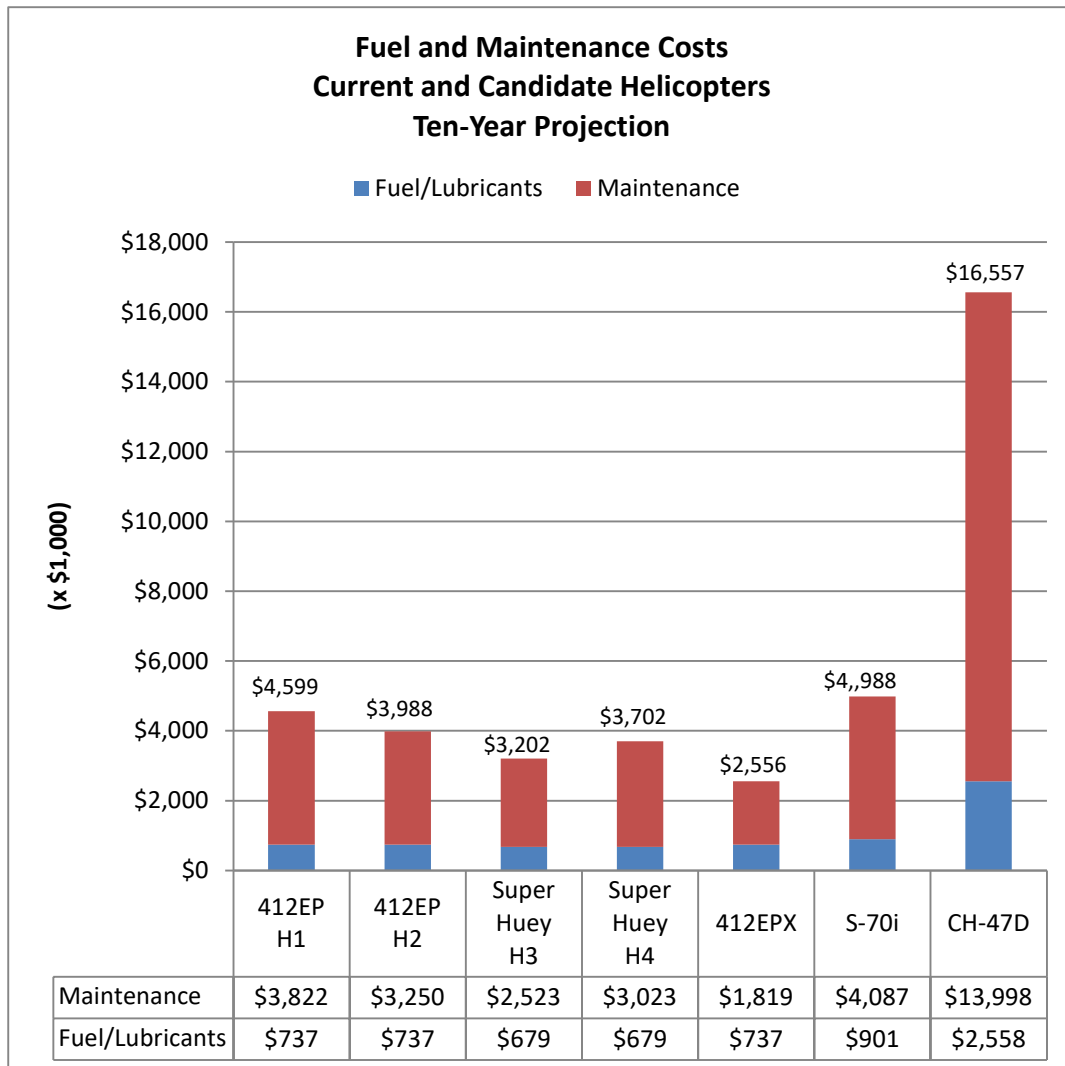
The information provided for each candidate helicopter is the same as the current OCFA helicopters except for one table, which identified the significant scheduled maintenance categories by year. The table and charts provided are:

- A summary table showing the maintenance and fuel costs for the ten-year estimate.
- A line chart showing the estimated annual maintenance costs for the ten-year period.
- A line chart displaying the estimated annual residual value based on the aircraft's age and status of significant maintenance events for the twenty-year period.

Because the table and charts convey the same type of information that was shown for the current helicopters, we did not restate the explanation and meaning as was provided with the 412EP N141FA H1.

Chart 2-11 summarizes the projected fuel and maintenance costs for the current and candidate helicopters over a ten-year period. The chart requires some comments that will provide a more complete picture of the comparisons.

Chart 2-11



New vs Used Aircraft – Each of the current helicopters have been operating for several years and in the case of the UH-1H Super Huey helicopters, more than several. Two of the candidate helicopters are new, the 412EPX and S-70i. Why is this important to understand? The 412EPX and S-70i are just starting their life cycle as it relates to maintenance. The current helicopters are in a different older segment of their life cycles and have encountered certain scheduled maintenance events that a new helicopter has not. Due to the difference in the life cycles, the current helicopters will more than likely cost more to maintain and not only due to scheduled maintenance, but also unscheduled maintenance associated with an aging helicopter.

Using the 412 helicopters as an example in Chart 2-11. The 412EP helicopters cost more to operate than the proposed 412EPX. After ten years, the 412EPX will have only flown 2,000 hours, based upon the 200-flight-hour-per-year assumption. The 412EPX will not have encountered most of the scheduled events that are measured by flight-hour activity. The difference is more than \$2 million.

Helicopter Types – Historically, OCFA has used Type II helicopters for firefighting. OCFA is now analyzing Type I helicopters, the S-70i and CU-47D. It is important to realize that with the ability to drop more water, maintenance cost will also increase due to the use of a larger helicopter. While costs, acquisition and operation, are certainly important, other measurements are important to bridge the difference between Type I and II helicopters.

### **Bell Flight** **412EPX**

The EPX is very similar to the EPI, the predecessor to the EPX. The significant changes between the helicopters involved performance. The technology Subaru brought to the project improved the main gearboxes, which allowed an increase in mast torque, which led to an increase for internal and external maximum weights. However, what is not known as clear is the effects the performance changes will have on maintenance costs. While there will be a change, it will more than likely not be significant. Therefore, we chose to use a new EPI for the cost information in Table 2-10.

<b>Table 2-10</b>		
<b>Ten-Year Projection - 412EPX</b>		
Fuel	\$716,006	28%
Lubricants	\$21,480	1%
Subtotal	\$737,487	29%
<b>Airframe Maintenance</b>		
Labor	\$641,544	25%
Parts	\$690,813	27%
Inspections	\$463,398	18%
Component Overhaul	\$23,155	1%
Life Limited Items	\$0	0%
Subtotal	\$1,818,910	71%
<b>Engine Maintenance</b>		
Engine Restoral	\$0	0%
Total	\$2,556,396	100%

Chart 2-12

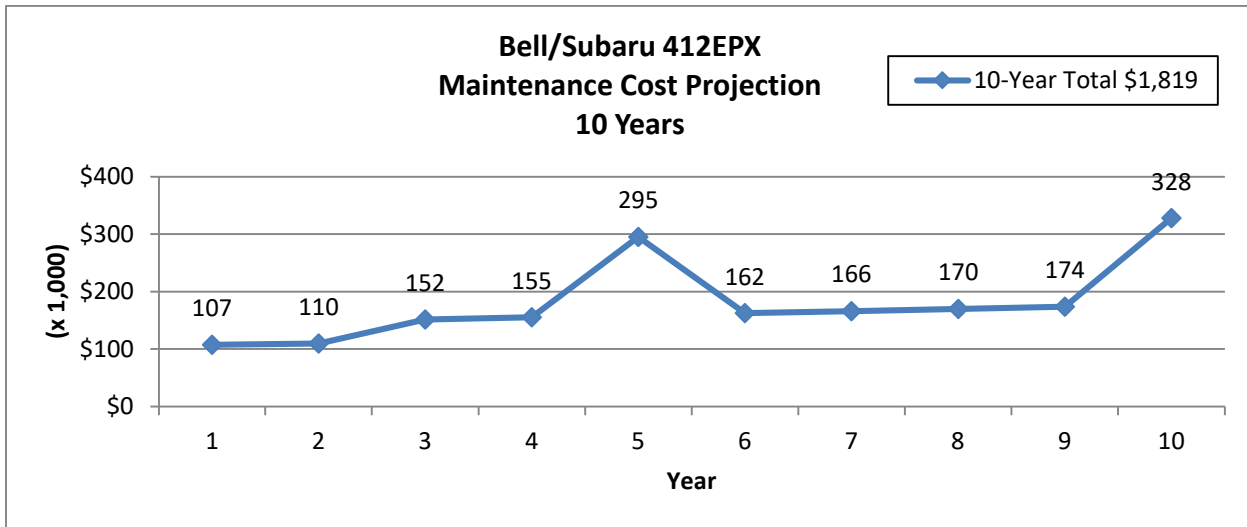
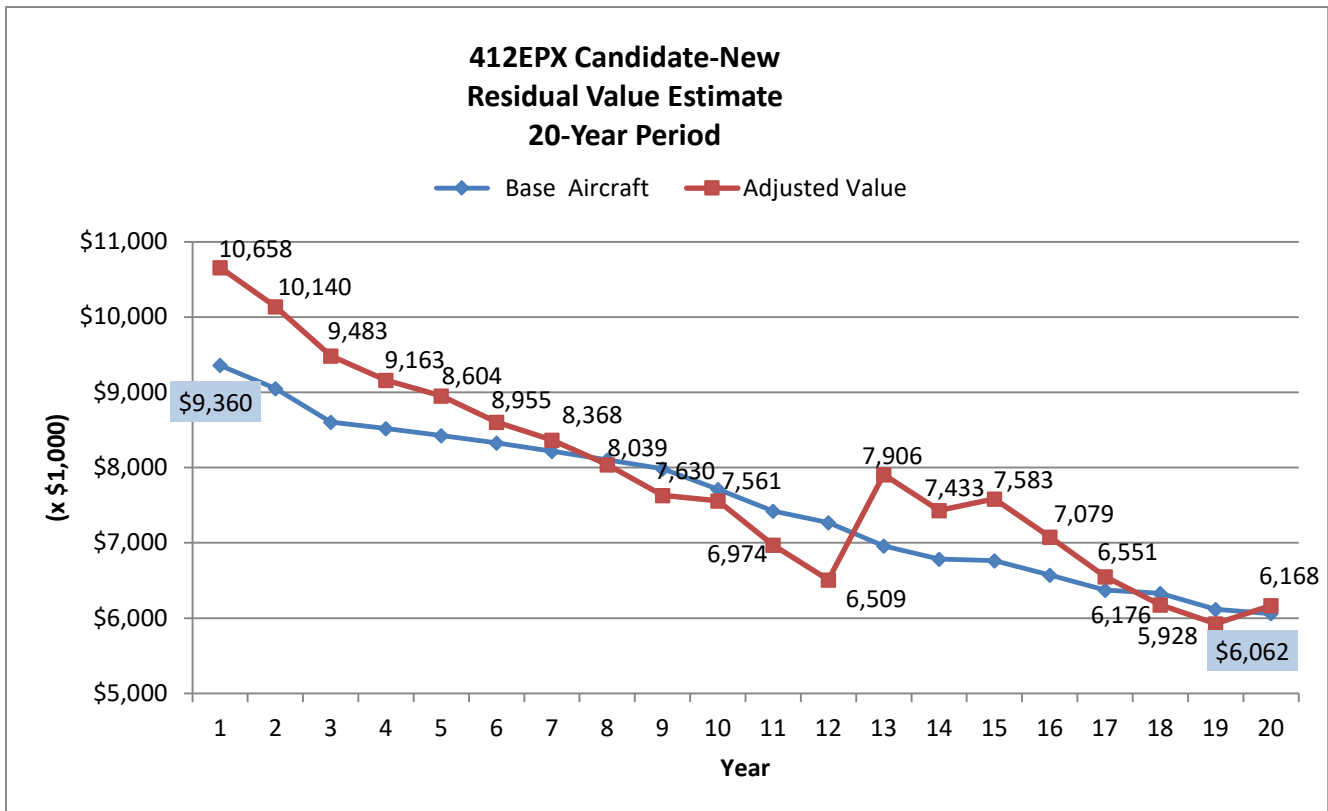


Chart 2-13



For the candidate helicopters, 412EPX and S-70i, we showed a 20-year projection for the residual value estimate. We did so because these helicopters are at the beginning of their life cycle and OCFA is likely to operate these helicopters longer than a ten-year period, which was for the current OCFA helicopters. The CU-47D residual value estimate is discussed with that helicopter's table and other information (see pages 23 and 24).

The residual value for the 412EPX is based upon an estimate for a helicopter without mission equipment, a basic configured helicopter. If we had used a mission-ready version of the 412EPX, the Base Aircraft Value would be higher as well as the Adjusted Value. During the 20 years of operation and based upon the annual flight hours of 200, years 8 through 12 and 18 through 20 are the periods when the Adjusted Value drops below the Base Aircraft values.

### **Sikorsky Helicopters**

#### **S-70i**

<b>Table 2-11</b>		
<b>Ten-Year Projection - S-70i</b>		
Fuel	\$874,415	18%
Lubricants	\$26,232	1%
Subtotal	\$900,647	18%
<b>Airframe Maintenance</b>		
Labor	\$1,076,959	22%
Parts	\$1,585,206	32%
Inspections	\$700,999	14%
Component Overhaul	\$76,266	2%
Life Limited Items	\$1,500	0%
Subtotal	\$3,440,931	69%
<b>Engine Maintenance</b>		
Engine Restoral	\$646,548	13%
Total	\$4,988,126	100%

Chart 2-14

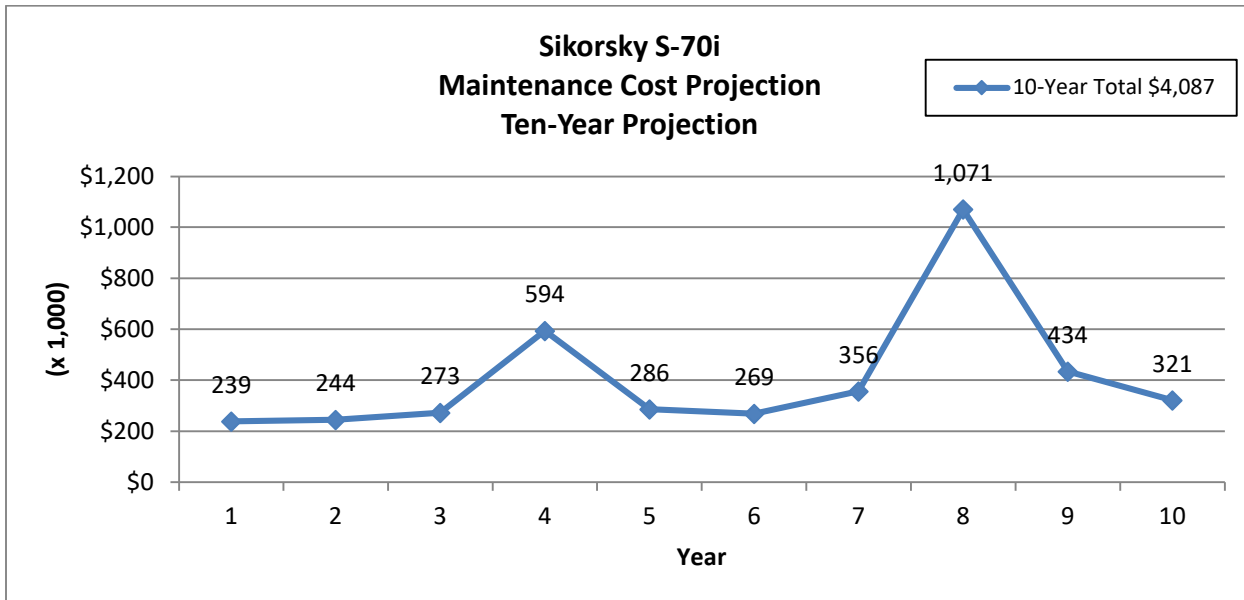
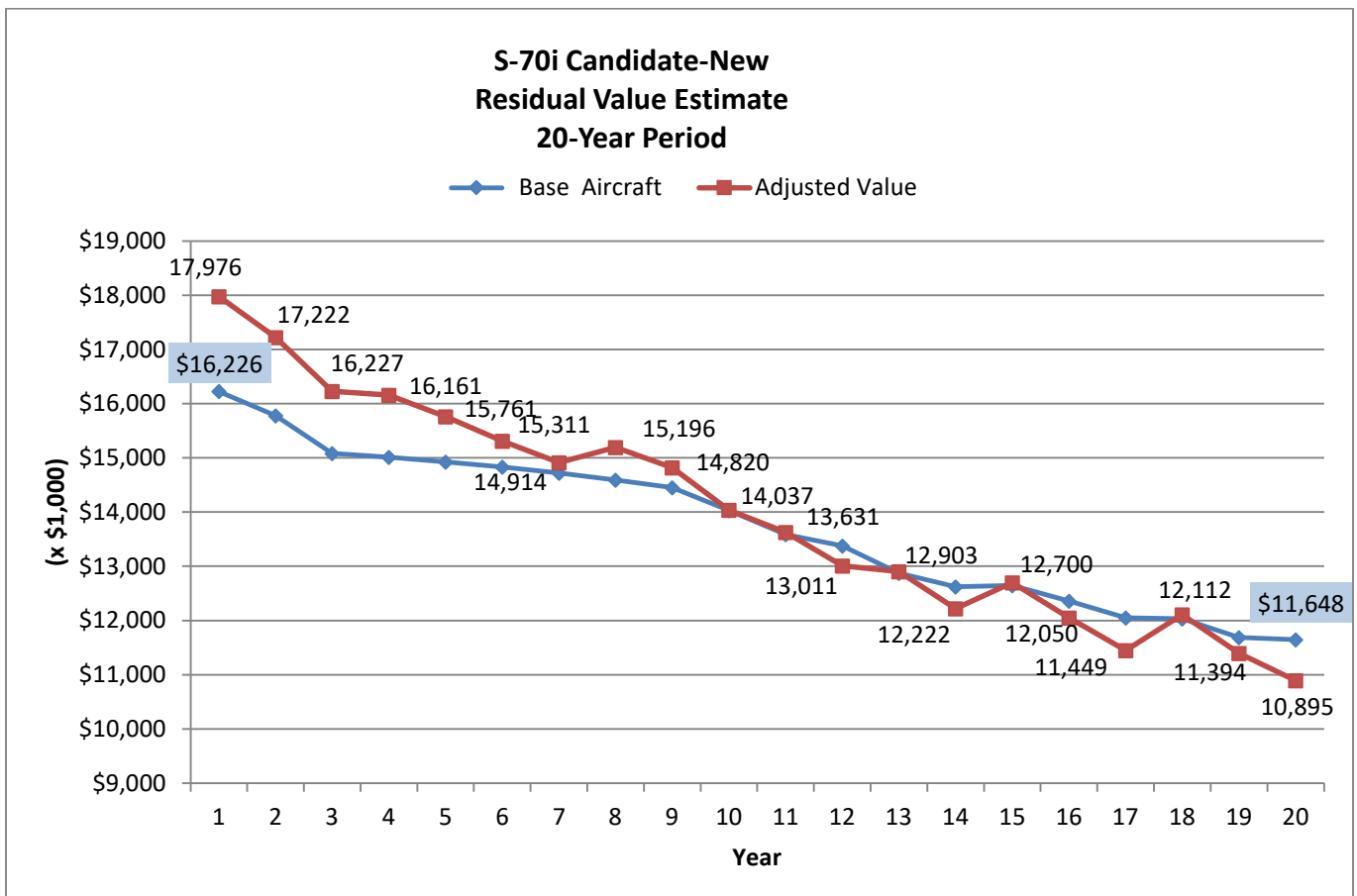


Chart 2-15



The Adjusted Value estimate for the S-70i follows the Basic Aircraft estimate throughout the 20-year period. The years when the Adjusted Value are more than the Base Aircraft value are not much higher than the Base Aircraft value. The exception to that are the early years, one through six, when the difference between the values is more significant. Also, when the Adjusted Value drops below the Base Aircraft, the difference is not significant, except for year 20 when there is an almost a \$1.0 million difference.

**Coulson/Unical**  
**CH-47D**

The Coulson-Unical proposal to OCFA is different in scope than what Bell and Sikorsky are proposing, which causes the cost information to be presented differently. In short, Coulson-Unical is not only offering to sell the CU-47D helicopter, but the organization is also offering a “turnkey” solution for operating and maintaining the helicopter. Based on the different approach, we are not able to show the Maintenance Cost Projection and Residual Value Estimate charts. However, the following information should provide OCFA with information that will allow comparisons to the current and other candidate helicopters.

<b>Table 2-12</b>		
<b>Ten-Year Projection - CU-47D</b>		
Fuel	\$2,483,845	3%
Lubricants	\$74,515	0%
Subtotal	\$2,558,361	3%
<b>Airframe Maintenance</b>		
Hourly Maintenance Program	\$13,206,718	16%
Parts not Covered by Program	\$791,473	1%
Management Services	\$65,579,152	80%
Component Overhaul	N/A	---
Life Limited Items	N/A	---
Subtotal	\$79,577,343	97%
<b>Engine Maintenance</b>		
Engine Restoral	\$0	0%
Total	\$82,135,703	100%

Table 2-12 is similar to the prior tables for the current and candidate helicopters. The following information will explain the categories with an emphasis on the ones that are different.

- **Fuel and Lubricants** – The process to calculate the fuel and lubricants is the same as what was used for the other current and candidate helicopters. Fuel is calculated based on an

- average fuel consumption rate per hour times a fuel cost of \$2.90 per gallon. Lubricants (e.g. oil, hydraulic fluids) are calculated based upon the hourly fuel cost times three percent.
- Hourly Maintenance Program – For the current and candidate helicopters, we used Conklin & de Decker's *Life Cycle Cost v20.1* program to estimate the maintenance costs. Using the program, shows the behavior of the maintenance costs on an annual basis. An alternative to incurring maintenance expenses as they occur is an hourly maintenance program. Referred to with several terms (e.g. guaranteed maintenance program, power-by-the-hour), Coulson-Unical offered an hourly maintenance program.

The cost-per-hour offered was \$5,500. The systems that would be covered by the program would be major dynamic components, which includes main rotor blades, engines, transmissions, and drive shafts. The hourly cost would increase by four percent annually during the ten-year period.

- Parts not covered by Maintenance Program – The hourly maintenance program covers just the type of systems mentioned. The program will not cover parts and components such as small parts, rotatable components, oils, and instruments. These items will be paid for as incurred.

The cost per hour for these parts is estimated to be \$350 in the first year. We applied an annual inflation rate of 2.7 for subsequent years. This is the same inflation rate used in the *Life Cycle Cost v.20.1* program.

- Management Services – Coulson-Unical also proposed providing all services to operate the CU-47D helicopter. The management program would include:
- Personnel such as pilots, maintenance technicians, and mission crews.
  - Services to cover 24 hours a day, seven days a week.
  - Support employees for operational equipment such as fuel tank and support truck.

The annual cost for the operating services would be \$5.8 million. We applied an annual inflation rate of 2.7 percent for the management fees during the ten-year period.

The \$65.6 million for the ten-year period is included since part of the costs included relate to maintenance labor. However, other categories such as salaries for personnel other than maintenance, insurance, management charge, and ground support are also included in this amount.

- Component Overhaul, Life Limited Items and Engine Restoral – These categories of cost are not applicable based upon the hourly maintenance program and the estimates for the parts that are not covered by the program.

### Section 3 – Resale Value and Lead Time

#### Orange County Fire Authority Original Request

Research the resale value of the current fleet and lead time for the new helicopters.

#### Conklin & de Decker Approach

Conklin & de Decker gathered information in the following areas to better understand the current market.

- New helicopter availability.
- Estimated completion time for mission-ready helicopters.
- Acquisition costs.
- Resale value for current OCFA helicopters.
- Market activity for used helicopters.

Due to the nature of the information of interest, the summary section will also serve as the Conklin & de Decker Analysis section.

#### Summary

Table 3-1 summarizes the requested information for the current and candidate helicopters. Additional explanations support the table information.

Table 3-1					
Resale, Acquisition Cost, and Lead Time					
Helicopter Type	Resale Value (x 1 million)	Disposition Time	Acquisition Cost (x 1 million)	Basic Aircraft Delivery	Completion Estimate
UH-1H Super Huey	N/A	Immediate	N/A	N/A	N/A
412EP	\$3.5 - \$4.3	Year or more	N/A	N/A	N/A
412EPX	N/A	N/A	\$14 - \$15	1-6 months	6 months
S-70i	N/A	N/A	\$20 - \$23	24 months	6-8 months
CH-47D	N/A	N/A	\$16.5	Jun-2021	Jun-2021

#### UH-1H Super Huey:

- Resale Value: There are two important elements that are relevant for both Super Hueys. The first is related to the resale value of the helicopters. Based on how the helicopters were obtained, through the Federal Excess Personal Property (FEPP) program, the opportunity for

receiving resale value is eliminated. Technically, the helicopters are still owned by the federal government with CAL FIRE serving as the conduit to OCFA.

- Disposition Time: The second important element, should OCFA decide to retire the Super Huey helicopters, is OCFA can remove them from its fleet quickly. CAL FIRE has reached out to OCFA indicating that other government agencies have expressed an interest in operating them.
- Acquisition Cost, Purchase Availability, Time to Complete: These items are not applicable to the Super Huey helicopters as these aircraft will be departing from the aviation unit.

**Bell 412EP:**

- Resale Value: Unlike the Super Hueys, the Bell 412EP helicopters do have resale values. There are several factors that can influence a helicopter's resale value. The most influential factors include the age of the helicopter, both in years and flight hours, status of the economy, time-remaining status on significant scheduled components and parts, available inventory in the market, and the presence of buyers. Several sources in the industry agree that the current resale market is a difficult market due to the factors already mentioned and a few more. The effect of these factors means that aircraft values will likely be lower than estimated and will take longer to sell.

Based on HeliValue's, *The Official Helicopter Blue Book*, the estimated resale value for OCFA's 412EP helicopters range from \$3.5 to \$4.3 million. HeliValue's estimates are based primarily on the time remaining for significant airframe and engine overhauled components, life-limited items, and major inspections. Simply stated, resale values decrease as remaining times on the assets decrease. As mentioned previously, other current factors will likely reduce the range of the resale values.

- Disposition Time: The length of time to sell a 412EP in the market as reported by AMSTAT, an industry research company, is a year or more. Manufacturers are another source for selling the helicopter when the used helicopter is part of the purchase of a new helicopter. Currently, and based on Section 2 of this report, OCFA has a current five-year period where the adjusted value of the helicopters is higher than the basic value.

**Bell 412EPX:**

- Acquisition Cost: The estimated purchase price to obtain a mission-ready helicopter can vary based upon the requirements of OCFA such as actual mission equipment, avionics, and the interior arrangement. The acquisition price can also be affected if there is competition as to which helicopters OCFA is considering. The purchase price for A 412EPX that meets OCFA's requirements will range from \$14.0 to \$15.0 million.
- Basic Aircraft Delivery: When is the next basic helicopter available for acquisition from the provider of the helicopter (e.g. manufacturer)? This timeline does not include the completion process. As of January 2021, Bell can deliver a 412EPX in one to six months.

- Completion Estimate: Once the acquisition of the basic aircraft has occurred, how long will it take to complete the helicopter for its intended missions? As of January 2021, Bell estimated the time to complete the helicopter was six months.

**Sikorsky S-70i:**

- Acquisition Cost: The estimated purchase price for a mission-ready S-70i is \$20.0 to \$23.0 million due to different installations of mission equipment and systems not on the basic-configured aircraft.
- Basic Aircraft Delivery: Sikorsky's standard lead time is 24 months. However, the manufacturer has flexibility as it also produces spec aircraft. As of January 2021, Sikorsky had two spec aircraft that would be ready for delivery before the end of 2021. Additional spec aircraft will be available in 2022. All of these aircraft would be delivered as a basic configured aircraft.
- Completion Estimate: Sikorsky uses United Rotorcraft to complete its S-70i helicopters. As of January 2021, the estimated completion period was six to eight months.

**Coulson-Unical CU-47D:**

- Acquisition Cost: The acquisition price for the CU-47D as a mission-ready helicopter is \$16.5 million.
- Basic Aircraft Delivery: OCFA is currently leasing a CU-47D from Coulson-Unical. The lease will end in June 2021. The same CU-47D will be available for acquisition on June 15, 2021.
- Completion Estimate: The completion date is the same as the basic aircraft delivery date.

## Section 4 – Fleet Replacement Plan

### Orange County Fire Authority Original Request

Suggest replacement plan for existing fleet.

### Conklin & de Decker Approach

Conklin & de Decker created a fleet replacement plan for OCFA and its aviation department. First, we produced a ten-year benchmark estimate based upon retention of the current fleet. Next, we considered changes to the fleet by incorporating new aircraft. The emphasis of the aviation unit and OCFA was the firefighting mission and the desire to increase its water drop capacity. Therefore, its analysis incorporated the possibility of helicopter type changes.

The structure of this section is the same as prior sections and contains a summary of the analysis and the analysis by Conklin & de Decker.

### Summary

Conklin & de Decker has outlined an approach that OCFA may want to consider as it updates its fleet of helicopters. Table 4-1 offers a summary of the steps that would update the OCFA fleet and address the primary objective of improving the volume of water dropped while fighting fires. In addition to providing the future costs of the existing fleet, should OCFA not make any changes, we have suggested four steps to consider.

- Retain the Current Fleet - Although retaining the current fleet is not likely, it serves as a benchmark when compared to the changes that may occur as suggested by the four steps. Based upon the life cycle cost assumptions stated in Section 2 Life Cycle Cost Projections, we projected the estimated fuel and maintenance costs for the next ten years for an unchanged fleet.
- Change the Current Fleet –
  - Step 1: Retire the UH-1H helicopters. There are three primary reasons for retiring these helicopters.
    - Age (over 50 years),
    - Increased costs due to limited military spares, and
    - Reduced availability.

An additional factor to consider is the level of risk between single-engine and dual-engine helicopters while hovering.

- Step 2: Acquire Bell 412EPX. If the OCFA desires to continue having two helicopters available for each day of the year, a third helicopter is required. Acquiring a 412EPX, also improves the amount of water dropped for firefighting when compared to the 412EP helicopters.
- Step 3: Acquire a Type I helicopter. The candidate helicopters will meet the OCFA objective to increase the amount of water delivered during the firefighting mission. Based on our research and comparing the two Type I helicopters,
  - An S-70i will cost less to operate, which is expected since the CU-47D can deliver more water to the fire.
  - The acquisition price for the CU-47D is less than the S-70i.
  - Delivery of a mission-ready helicopter ranges from 14 to 32 months for the S70i and June 2021 for the CU-47D. Section 3 of the report provides more information on the S-70i and the options that reduce the delivery range.
  - Coulson-Unical is offering a turnkey service to operate and support the CU-47D. The estimated price for over a ten-year period is \$65.6 million.
- Step 4: Consider acquiring a second Type I helicopter and if so, retire a 412EP.
  - Significant scheduled maintenance events will affect a helicopter's availability. If delivering larger amounts of water is a priority, there will be times when OCFA will not have a Type I helicopter available to perform the mission. OCFA needs to determine the significance of this risk and if a second Type I helicopter is required for adequate coverage.
  - If OCFA does acquire a second Type I helicopter, the opportunity exists to retire one of the 412EP helicopters.

Table 4-1 summarizes the steps slightly differently.

- If the current fleet is retained, then the only relevant costs are the operating costs. The amount shown represents the estimated maintenance and fuel costs during a ten-year period for the four helicopters.
- Steps 1 and 2 involve transactions rather than retaining the current fleet. The total for these steps is what the operating costs would be for two 412EP helicopters and one 412EPX during the same period. The estimated purchase price of the 412EPX is provided.
- Step 3 is the acquisition of a Type I helicopter. In addition to the ten-year period for operating costs, each candidate helicopter has the acquisition cost. Management services is unique to the CU-47D and represents the costs associated with operational and support services. The operational costs of the remaining 412EP and EPX helicopters are not included.
- Step 4 is the same as Step 3 except for the suggested retirement of one of the 412EP helicopters. In Step, 4 we included the operational costs of the two remaining 412 helicopters. The disposition amount relates to the 412EP that would be retired and is the range of resale amount.

Table 4-1					
OCFA - Summary of Fleet Options					
Dollar amounts x 1 Million					
Option	Operating Cost	Disposition Amount	Purchase	Total	Management Service
Retain Current Fleet	\$15.5	Not Applicable	Not Applicable	\$15.5	Not Applicable
Steps 1 and 2: Retire UH-1Hs/Acquire 412EPX					
Two 412EP/One 412EPX	\$11.1	\$0.0	\$14.0-\$15.0	\$25.1-\$27.1	Not Applicable
Step 3: Acquire Type I Helicopter					
S-70i	\$7.0	Not Applicable	\$20.0-\$23.0	\$27.0-\$30.0	Not Applicable
CU-47D	\$16.6	Not Applicable	\$16.5	\$33.1	\$65.6
Step 4: Acquire second Type I Helicopter/ Retire one 412EP					
One 412EP/One 412EPX	\$5.8	(\$3.5-\$4.3)	Not Applicable	\$9.5-\$10.1	Not Applicable
S-70i	\$7.0	Not Applicable	\$20.0-\$23.0	\$27.0-\$30.0	Not Applicable
CU-47D	\$16.6	Not Applicable	\$16.5	\$33.1	\$65.6

### Conklin & de Decker Analysis

OCFA currently has four aircraft in its fleet, two UH-1H Super Huey and two 412EP helicopters. The variety of missions the department is equipped and trained to perform include wild land firefighting, which includes ground crew and supply transportation and water dropping capabilities; assistance during structure and wild land fires with command and control, and exposure protection; rescues that include vehicles, animals, and humans in a wide variety of settings such as water, rough terrain, and limited light.

The wide variety of missions requires that the current helicopters carry a variety of specialized equipment, including rescue hoist, fixed tank for dispensing fire retardant, Spectro-Lab searchlight, rescue harness, cargo hook, and paramedic equipment. In addition to the equipment, the helicopters carry personnel on certain missions, which also require additional cabin space and useful load.

The current OCFA fleet can perform its various missions. However, when it performs its primary mission of firefighting, the overall objective is to deliver more water over a given period of time. OCFA would like to move into a category of helicopter that will allow it to deliver more water per drop than it can

currently. While performing its rescue mission, it is important to use a helicopter that can perform the mission efficiently from a cost perspective.

The scope of the analysis limits our effort to summarizing the costs associated with adding a larger category helicopter to the OCFA, rather than justifying its need.

### Retain Current Fleet

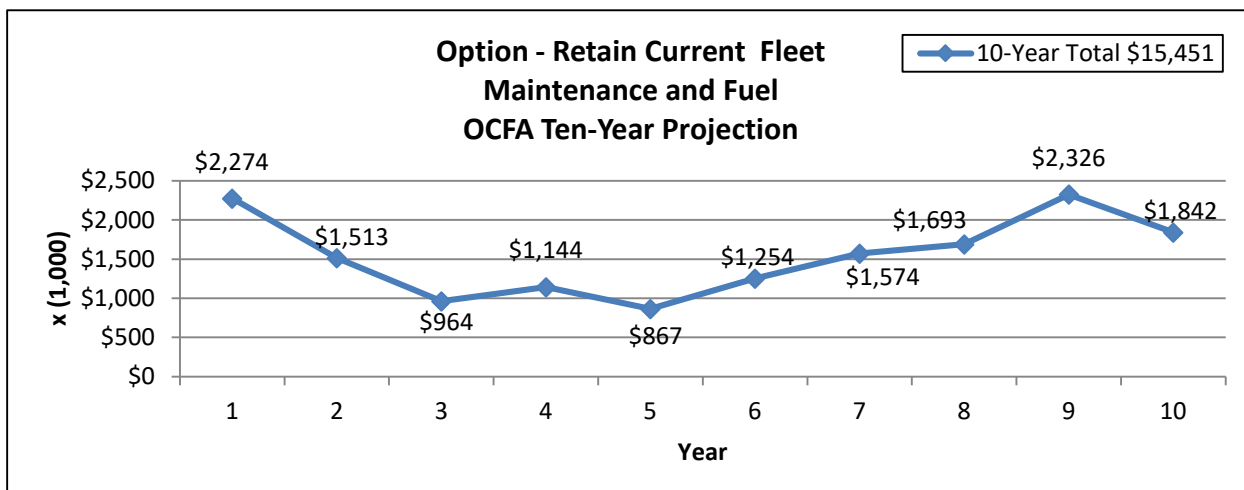
Although retaining the current fleet is not likely, due to the September 2020 grounding, it serves as a benchmark when compared to the other possible alternatives. Based upon the life cycle cost assumptions stated in Section 2 Life Cycle Cost Estimates (pages 4 and 5), we projected the estimated fuel and maintenance costs for the next ten years for the Super Huey and 412EP helicopters.

Key assumptions included the annual flight hours at 200 per helicopter, which is based on the projected hours for the current year, fuel rate per gallon of \$2.90, annual inflation between 1.95 and 2.7 percent, labor that includes technicians' hands-on time, and the remaining lives for the significant scheduled maintenance events and items for the respective helicopters.

Chart 4-1 combines the annual estimated fuel and maintenance costs for the four helicopters. For example, the fleet's cost in Year 1 is an estimated \$2.274 million. The helicopters contributing to high costs are H1 and H4, both are encountering significant inspections and other scheduled maintenance. Refer to Section 2 for the individual helicopter's maintenance events. The most expensive year for the current fleet is Year 9.

During the ten-year period, the total costs expended on fuel and maintenance would be \$15.5 million. Under this scenario, there would not be any acquisition costs for new helicopters or receipts for the retirement of the exiting helicopters.

Chart 4-1



## Change the Current Fleet?

This section of the report is our recommendations as to how and when OCFA can update its fleet to accomplish two primary objectives.

- Improve its firefighting effectiveness by increasing the volume of water dropped and
- Continue its rescue missions.

Our recommendation is based upon our analysis in this report. However, we emphasize this is just a recommendation that OCFA can adjust.

- **Step 1:** Retire the UH-1H Super Hueys.
  - These helicopters are over 50 years old. While it is true that with the proper maintenance, helicopters have an infinite life, they do so with increasing costs, both labor and parts. Less obvious is the aging effect on a helicopter's availability for operations. The recent experience with N451FA H3 and its 10-year inspection illustrates these effects of an aging helicopter. The inspection cost over \$400,000, the length of time to complete the inspection was over a year (16 months), and when placed back into service, the helicopter was still not available for operations due to its questionable performance.
  - The availability of UH-1H spare parts directly from the military is no longer available. The federal logistic program that released military spares for this type of helicopter no longer has that inventory. While spares can be obtained from other sources in the industry, the pricing is higher. When the federal logistics program was active with these spares, OCFA paid a lower price because the transactions were directly with the military. What used to be full shelves in the aviation unit's inventory are now empty.
  - The UH-1H helicopters are single-engine, which raises a concern about safety. The issue of safety is not that single-engine helicopters experience engine failures more frequently than twin-engine helicopters. The issue is when and if an engine failure occurs in a single-engine helicopter, the situation involves more risk. For example, a helicopter will hover over water when it is filling up the water tank. If engine failure occurs during this phase of flight with a single-engine helicopter, then landing in the water is imminent. A helicopter with a second engine reduces this risk. Single-engine helicopters are still used broadly in the firefighting missions. The impediment from making the transition to a dual-engine helicopter is frequently the more expensive acquisition and operating costs.
  - Before disposing of the UH-1Hs, it is important to acknowledge that the UH-1H helicopters are used for pilot training. Referring to Chart 1-2 in Section 1 of the report, the highest amount of flight hours between the years of 2016 and 2020 were training

hours for pilots. Training consumed 46 percent of the total flight hours. Initial pilot training will now be performed by the 412 helicopters.

- **Step 2:** Acquire a Bell 412EPX.
  - OCFA provides services 365 days in the year. Each day, there are two helicopters available for call. One is staffed to be available 24 hours a day for fire and rescue calls. The second helicopter is staffed for 10-hours a day, primarily for fire calls. Based on these requirements, both 412EP helicopters will be required to be available. Due to scheduled inspections (e.g. 5-year inspection) and unpredictable unscheduled maintenance, it is necessary to have a third helicopter to ensure the required availability.
  - The 412EPX can also contribute to a firefighting mission. Despite its Type II category, the 412EPX, due to Subaru and Bell efforts, can drop more water than the 412EP helicopters. At the start of a 1.5-hour mission with 20-minute reserves, the 412EPX can carry 62 percent, or 130 gallons, more than the 412EP.
  - Placing a 412EPX in service will take 7 to 12 months. Receiving the basic helicopter is an estimated 1 to 6 months, while the completion process is another 6 months.
  - Retain the existing 412EP helicopters. These helicopters are 12 years old. They are relatively young, in age and flight hours, but both will encounter 2,500-hour inspections as well as 2,500-hour components for overhaul and life limited items in the next two to three years. According to the residual value analysis in Section 2, years three through five and seven through nine are better periods of time to retire the helicopters if that is OCFA's desire.
  - Based on the historical annual flight hours for the aviation unit (500 to 600), three helicopters should provide adequate availability for OCFA to perform its missions. The addition of a Type I helicopter to the fleet would reduce the annual flight hours of the 412 helicopters, which could accelerate the retirement of one of the 412EP helicopters sooner than planned.

Steps 1 and 2 address the retirement of the two Super Huey helicopters and place the aviation unit in position to perform the missions that it has performed in the last several years by acquiring a 412EPX. Table 4-2 summarizes the costs associated with these steps.

Table 4-2				
Summary of Program costs (Ten-Year Period)				
Retire UH-1H Super Hueys, Purchase 412EPX				
Aircraft	Operating Cost	Disposition Amount	Purchase	Total
(x 1 Million)				
UH-1H	\$0	\$0	N/A	\$0
412EP	\$8.5	N/A	N/A	\$8.5
412EPX	\$2.6	N/A	\$14.0-\$15.0	\$16.6-\$17.6
Total	\$11.1	\$0	\$14.0-\$15.0	\$25.1-\$27.1

**Notes:**

- **Operating Cost:** Consists of fuel and maintenance. Based on Conklin & de Decker's Life Cycle Cost program and 200 flight hours per year per helicopter.
  - **Disposition Amount:** Retirement of UH-1H does not have resale value due to the FEPP program.
  - **Purchase:** Estimated range of completed helicopter.
- **Step 3:** Acquire Type I helicopter to meet increased water drop objective.
- OCFA has expressed its desire to increase the amount of water that its helicopters can drop to fight fires more effectively. To meet the intended increase, OCFA will have to move from a Type II to Type I helicopter. The two candidate helicopters that we analyzed, S-70i and CU-47D, have water tank capacities of 1,000 and 3,000 gallons, respectively.
  - The S-70i and its earlier version, the UH-60A have become the helicopter of choice for aerial firefighting. The acquisition price for a mission-ready S-70i helicopter can range from \$20 to \$23 million. The maintenance and fuel costs are provided in Table 4-3 and summarize two options. The standard availability to acquire is 24 months, but there are spec helicopters available that can reduce the period to 9 to 15 months. Completion is an additional 6 to 8 months. Its average water drop is estimated to be 890 gallons at sea level and ISA. This average amount will decline based on hotter temperatures and higher altitude.
  - Coulson-Unical offers a different approach to OCFA. While the purchase price is straightforward at \$16.5 million, the operational proposal is a turnkey operation. At an annual rate of \$5.8 million, Coulson-Unical will provide the pilots, technicians, and ground support. With inflation, the ten-year total cost is \$65.6 million. The ten-year fuel and maintenance costs are estimated to be \$16.6 million. The availability for purchase and operation is June 2021. The average water drop is estimated to be 2,740 gallons at sea level and ISA. This average amount will decline based on hotter temperatures and higher altitude.

Table 4-3 summarizes the additional cost that would be involved with acquiring one of the Type I helicopters.

Table 4-3					
Summary of Program Costs (Ten-Year Period)					
Purchase Type I Helicopter - S-70i or CU-47D					
	(x 1 Million)				
Aircraft	Operating Cost	Disposition Amount	Purchase	Total	Management Service
S-70i (w/o hrly. programs)	\$5.0	N/A	\$20.0-\$23.0	\$25.0-\$28.0	N/A
S-70i (with hrly. programs)	\$7.0	N/A	\$20.0-\$23.0	\$27.0-\$30.0	N/A
CU-47D	\$16.6	N/A	\$16.5	\$33.1	\$65.6

**Notes:**

- **Operating Costs:**
  - **S-70i:** \$5.0 million is based upon Conklin & de Decker *Life Cycle Cost* program over a 10-year period with 200 flight-hours per year. The costs include fuel and maintenance. The maintenance costs are based upon the estimated scheduled and unscheduled costs that would occur during the 10-year period. If OCFA chose to enroll in Sikorsky's Total Assurance Plan (TAP) and the GE program, the estimated cost during the ten-year period and assuming four percent increase each year is \$7.0 million. The first-year cost would be an estimated \$2,900 per flight hour.
  - **CU-47D:** Coulson-Unical provided a hybrid for its maintenance costs. The major dynamic components are covered by a flight hour program, whose first rate is \$5,500 with four percent annual increase. Items not covered by the program are the responsibility of OCFA. Both types of costs are represented in the Operating Cost category.
- **Total:**
  - We placed the Total column in its position, so we could have an apples-to-apples comparison regarding the maintenance and fuel costs, during the ten-year period, and the acquisition costs.
- **Management Services:**
  - **CU-47D:** Coulson-Unical offered turnkey operation, which is described in Section 2 of the report. Basically, they are offering to take care of the operation of the helicopter and the support material that is needed during firefighting missions. We placed this category of cost in the last column since it is a relevant but unique cost associated with the CU-47D.
- **Step 4:** Acquire second Type 1 helicopter for availability.
  - The primary desire of OCFA is to increase its water dropping capabilities while fighting fires. The Type I candidates certainly provide that increase. But as is the case with all helicopters, they require maintenance frequently due to scheduled and unscheduled events. Maintenance affects a helicopter and its availability for flight operations. By combining the primary objective regarding firefighting and the reality of frequent maintenance affecting availability, OCFA may want to consider having two Type I

helicopters. Two helicopters will reduce the risk of having a fire and not having a Type I helicopter available.

- If OCFA chose to have two Type I helicopters, the possibility exists that the 412 series of helicopters could be reduced to two helicopters. The Type I helicopters could assist when or if a 412 is not available to perform the daily on-call missions.
- We do not suggest making this move until the effects of Step 1 and 2 have been in place for a period. OCFA can make a more informed decision at that time.

## Section 5 - Other Information

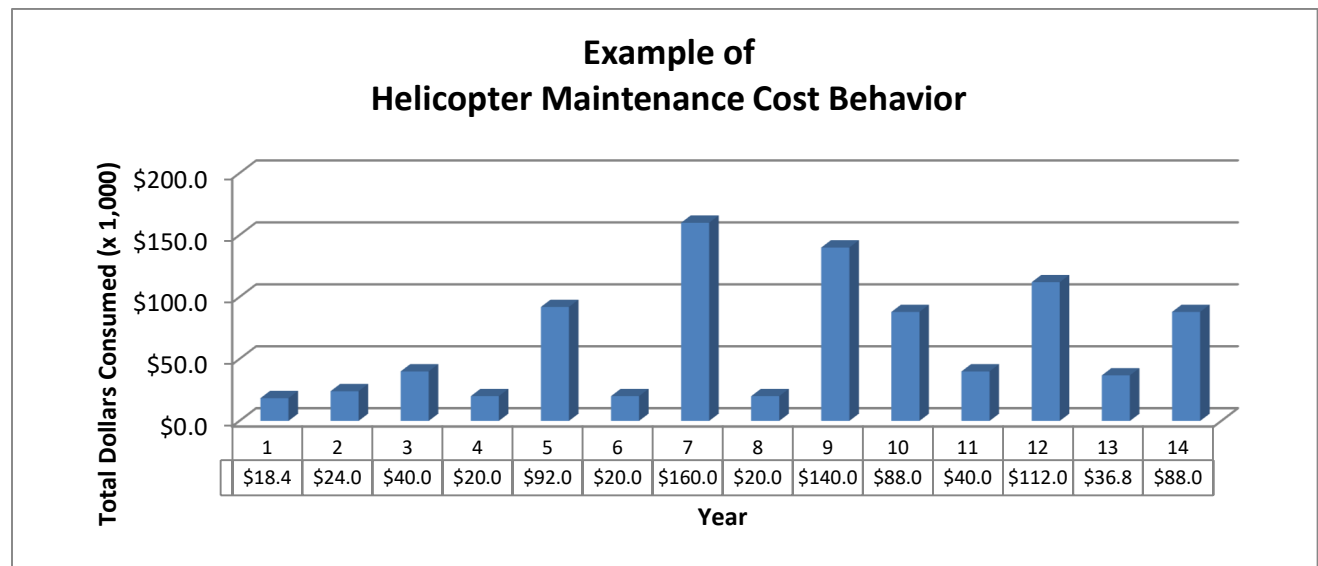
Section 5 contains information that fell outside of the scope of the Request for Proposal but caught our attention during our research and analysis.

### Guaranteed Maintenance Programs

The term Guaranteed Maintenance Program (GMP) is a generic term to represent a concept that has become very popular in aviation in the last several years. Each entity that offers a program of this nature has their unique name. The most used trademarked name representing this concept was Rolls Royce's Power-by-the-Hour program (PBH). Another common reference is Pay-by-the-Hour. For clarity, we use GMP in this report to reference the concept.

What was the primary reason that pushed vendors to offer GMPs? The most obvious answer is their effect on the behavior of maintenance costs over a period of time. Chart 5-1 represents the maintenance costs of an actual helicopter whose costs we tracked over an extended period of time. The chart illustrates the erratic behavior of, mostly caused by scheduled events, maintenance costs. Using Year 7 as an example, how does an organization prepare for expenditures of this magnitude (\$160 K) when they have been experiencing significantly less costs in the prior years?

**Chart 5-1**



The more astute operators would estimate the costs of the future significant maintenance events and then set aside or reserve funds until the events occurred. The amount reserved would accumulate based on a calculated cost per hour for the future events. In essence, the operator would be reserving cash for future maintenance at a steady rate of hours flown.

For example, if the estimated cost to overhaul a main transmission gearbox was \$45,000 and its overhaul interval was 3,000 hours, the amount reserved for each hour flown would be \$15. If the assumptions, \$45,000 and 3,000 hours, turned out to be accurate, then the operator would have enough funds available to pay for the overhaul. Working through the exercise to build estimates for all of the scheduled maintenance as well as maintenance not scheduled (e.g. on-condition) would produce a total cost-per-hour to maintain the aircraft.

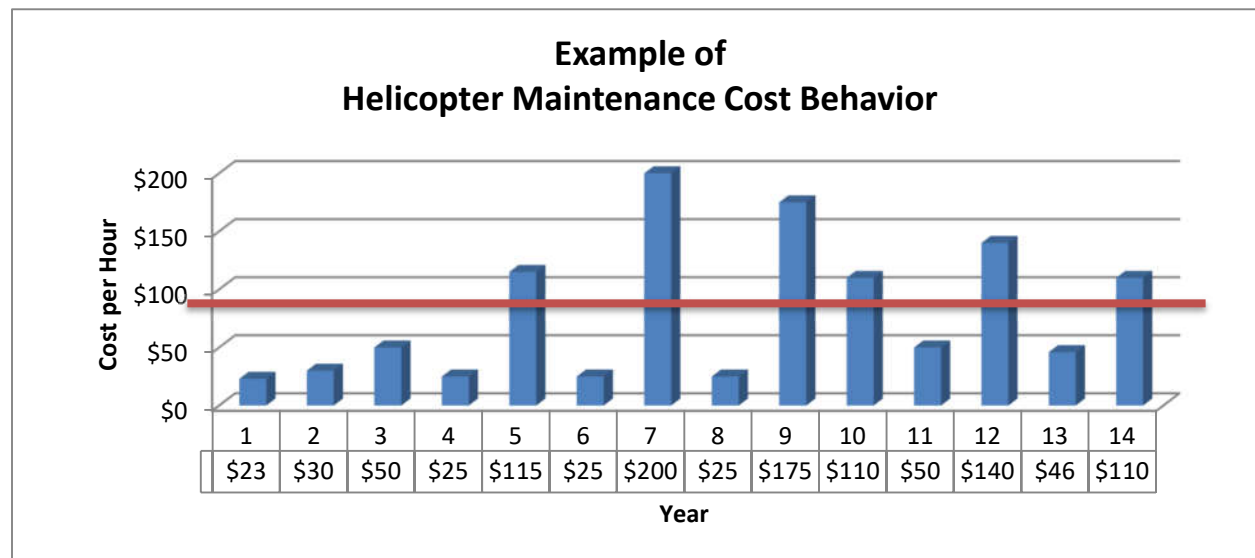
However, accurately estimating costs and avoiding premature component removals can be difficult and therefore risky from a cash flow perspective. If the transmission overhaul actually cost \$100,000 and occurred at 2,000 hours, the operator would not have enough funds to pay for the event. Multiplying the effects of missing estimates related to many of the overhaul components, life-limited items, and engine(s) could have a devastating effect on the organization's long-term viability. Compounding the issue of developing accurate estimates is the lack of reliable industry information regarding costs. An organization's experience is the best source but one that is not always available.

It is also tempting to spend a growing fund of cash for purposes other than future maintenance, especially when cash is tight for the organization. Additionally, reserving funds in a for-profit organization cannot be recognized as an expense until the maintenance event occurs; therefore, the hourly reserve is not tax deductible.

To answer the initial question more directly. What was the primary reason that pushed vendors to offer GMPs? GMPs offer predictability for maintenance costs, while shifting risk from the operator.

The variability of maintenance costs over time is eliminated. Chart 5-2 illustrates the smoothing effect (red line) a GMP would have for the helicopter in Chart 5-1. The operator, minus the effects of inflation, would pay a guaranteed rate for the duration of the contract, in this example \$80 per every hour flown.

**Chart 5-2**



As it relates to cost predictability, there are three other important benefits to consider.

- For governmental agencies, a GMP makes even more sense since few of them have budgeting mechanisms that efficiently handle the wide variation in maintenance costs from year-to-year. As a result, in low-cost years, there is a budget surplus that, more than likely, will be consumed on inventory. In high-cost years, the finance department may have to scramble to find the necessary funds. Regardless of the costs that are actually incurred each year, the effects of the typical maintenance costs are magnified if communication between operations and finance are poor.
- A GMP will serve as an insurance policy when premature maintenance events occur. If the main transmission requires an overhaul prior to the scheduled 3,000 hours, the GMP will cover the event. In essence, the risk has shifted from the operator to the entity that provides the GMP.
- A GMP offers even more certainty in a changing maintenance environment. Historically most of the drive train system, flight controls, hydraulics, and engines had scheduled maintenance intervals (i.e. main transmission example). However, continued product improvements have created trends to move these schedule maintenance intervals to maintenance based on the item's condition, also referred to as on-condition maintenance. By its nature, the predictability of this type of maintenance becomes more difficult, not only its timing but also the cost.

In addition to cost predictability, there is another significant attribute of GMPs that has become more prominent over the last several years. In fact, an aircraft's availability is viewed by for-profit operators as more important. An aircraft that is not available cannot generate revenue and revenue is what keeps the business running. However, the importance of availability is important for all types of operations if viewed from another perspective. If an aircraft is unavailable for extended periods of time, the organization is incurring additional costs that are more difficult to measure, costs that are not as obvious as maintenance costs.

For example, if an organization has one aircraft to perform its regular missions, there will be times due to maintenance that the aircraft will not be available. When it is not available for an extended period, the operation has several choices. It can

- Choose not to perform the mission, but if the mission is important, this is not a practical choice.
- Obtain temporarily (i.e. rent/lease) the use of another similar aircraft, which is not practiced much in our industry.
- Ask another organization to perform the mission, which is doable but not for a long period of time.
- Acquire another aircraft. This is not necessarily a bad solution, but it is expensive because of the acquisition costs for the second aircraft. Helicopters especially are an expensive asset.

Given the nature of aircraft and their maintenance, how does a GMP improve an aircraft's availability?

- **Consigned Inventory:** Often times the GMP provider will place inventory at the location of the operator. This is not normally part of the general contract, but if requested by the operator, certain key parts or components can be “stored” at the operator’s location. A replacement part that resides at the operator’s location will reduce the downtime due to maintenance, which in turns improves the availability rate.
- **Rotable Exchange or Rental Inventory:** The GMP provider will maintain a pool of rotable items. When requested, the provider will send the item to the operator to replace the existing item on the aircraft. In this scenario, the aircraft is unavailable only as long as it takes to remove and replace the item. In an exchange, the operator will operate the item until its replacement is required again. A rental will stay on the aircraft until the operator’s repaired item is ready for install. Using a rental doubles the unavailability rate since the remove/replace cycle is performed twice, once to install the rental and once to install the repaired part. Regardless, if it is an exchange or rental, the aircraft’s availability will improve significantly when compared to removing and waiting for the return of the same item. In many cases, the turnaround time for overhaul or repair can be several months.
- **Technical Service:** Initially, providers offered GMPs that covered basically the same thing, parts and repair costs for significant maintenance events and on-condition parts. As the programs have become more popular, operators have requested that GMPs be designed to meet their specific needs. As a result, providers now offer more variations in their GMPs and have expanded the scope of the coverage to include technical services. What technical services entails can vary by the program but could include technical engineering assistance, spare part priority, and even labor coverage. Each of these services has the potential to improve an aircraft’s availability by shortening the downtime due to maintenance.

What is important to evaluate when considering a GMP? Due to the recent ongoing expansion of offerings by the GMP providers and the fact that a GMP is very helpful in the marketing aspect of selling an aircraft, an operator should understand the many variables and factors that influence what a GMP potentially covers and what an operator will eventually pay to participate in a GMP. The following information highlights some of the more important factors to consider when deciding whether a GMP is appropriate for the organization.

- **Scope of Coverage:** As already mentioned, the range of offerings is broad. For example, within its HCare customer service programs, Airbus Helicopters offers several GMPs through its HSmart Material Management -- Repair by-the-Hour, Exchange by-the-Hour, Parts by-the-Hour, and Full by-the-Hour. In a more general view, operators should know if the GMP covers such things as unscheduled maintenance, labor, bulletins (mandatory or optional), troubleshooting, mission equipment, and shipping. Scope of coverage is also affected by whether the operator wants airframe only, engine only, or both airframe and engine coverage. Unless there is a special arrangement, the airframe and engine manufacturers offer separate programs.

- **Pricing:** Obviously, the scope of coverage will influence pricing, but there are three other important factors to consider. Due to the potential effect of the factors, it is very important for the operator to 1) understand what the pricing represents, and 2) negotiate with the provider for a rate that best represents the operator's situation.
  - First, what is the perspective of the provider when it offers a GMP contract? Is the hourly cost, which is the most common method for expressing the GMP pricing, based on a long-term or short-term perspective? Chart 5-2 illustrates this point. For the aircraft in the chart, we know after 14 years, the average cost per hour for maintenance was \$80 per hour. For simplicity, let us assume this represents a long-term perspective. From the same chart, we can also calculate that the actual cost experienced after five years was \$39 per hour. When the operator signs the contract will the GMP's hourly rate represent the short or long-term perspective? This becomes important when the perspective is short-term, and the operator plans to own the aircraft longer than the initial contract. How much will the hourly rate have to increase to "make-up" for the short-term rate that does not reserve for maintenance items and events that occur after five years?
  - The second factor to consider is how many annual flight hours will the operator accumulate during the period of aircraft ownership? For example, if the total flight hours were 200 annual hours over a ten-year period, the expected flight-hour rate should be lower than an operator accumulating 1,000 hours per year. The low-time operator would encounter fewer scheduled maintenance events in its 2,000 hours of ownership than 10,000 hours for the high-time operator. (A maintenance event that is based on calendar time has the potential to occur prior to the flight-hour limit.) If the provider's rate was the same regardless of flight activity, then the operator will want to pay special attention to the contract clauses at the time of sale.
  - A third factor to consider is the basis for pricing of parts when a GMP is not involved. Does the operator receive some level of discount pricing when purchasing spares or receiving services from the provider (e.g. government entity)? If so, does that basis also apply to the hourly rate of a GMP? Most GMP rates are based on list or "full" price.
- **Minimum Hour Requirement:** Is the GMP contract based upon a minimum number of annual flight hours? Because some maintenance events are based on calendar time (e.g. 12-year inspection), the GMP rate is based upon an assumption of minimum flight hours over a certain period of time. For example, if an aircraft has a ten-year inspection that is estimated to cost \$400,000, the measurement rate is time rather than activity. The GMP rate must reserve enough for the maintenance event causing the need for a certain level of flight hours in the ten-year period. For OCFA, this factor probably would become relevant.

- **Exiting the GMP:** What happens when an operator exits the program? Several factors may be relevant.
  - Is the contract transferable to the buyer? The GMP provider may not allow this to occur, which could affect the buyer's decision. If the contract does transfer, what portion of the accumulated reserve transfers back to the operator? Does the buyer have to pay a "buy-in" fee?
  - If the operator exits the contract, what happens to the accumulated reserve? Is there a penalty taken from the reserve for exiting or not renewing the contract? Most providers have a penalty.
  
- Who offers GMP programs? Historically, the manufacturers of their respective products offered these programs. Also, airframe manufacturers offer programs separately from engine manufacturers. As mentioned previously, GMPs' growing popularity are an important part of the marketing effort by the manufacturers, which means there can be flexibility in how the program is structured and what the program rate will be. Negotiations in both areas are important. Each of the manufacturers with candidate helicopters mentioned in Section 1 offer GMPs. The airframe manufacturers refer to their GMPs as:
  - Leonardo – Service Plans
  - Airbus Helicopters – Hcare, Smart and Easy
  - Bell Helicopter - Customer Advantage Plan (CAP)
  - Sikorsky – Total Assurance Plan (TAP) and Power Assurance Plan (PAP)

Jet Support Services, Inc., an independent provider of GMPs, has recently entered the helicopter market. Like the manufacturers, it offers many different types of coverage. Unlike the manufacturers, they will cover both the airframe and engines. JSSI will also set up independent trust accounts to retain the reserve funds.

### **Hangar Capacity**

During our research, we wanted to check the dimensions of the OCFA's hangars at Fullerton Municipal Airport, since they are considering the Type I aircraft, which are significantly larger than the UH-1H Super Huey and 412EP helicopters. The aviation unit provided dimensions for the hangar bay where maintenance occurs, which is the facility's most restrictive space. The OCFA facility has two other hangar bays, for which we do not have the dimensions. We then checked the dimensions for the Type I helicopters.

In talking with Coulson-Unical, the CU-47D has been operating out of Los Alamitos airport and unless the base location changes, the hangar capacity is not relevant.

We obtained the S-70i helicopter dimensions from its information brochure for the helicopter. Table 5-1 Shows the dimensions for the OCFA hangar and the S-70i. This could be an issue, but the other two hangar bays' dimensions need to be checked.

Table 5-1		
OCFA Hangar and S-70i Dimensions		
Measurement - Feet		
Description	S-70i	OCFA Hangar
Door Width	53.67	55.00
Length/Depth	64.80	63.83
Height	17.20	16.50
Door Height	---	17.42

**ORANGE COUNTY FIRE AUTHORITY**  
**Projected Helicopter Program Annual Operating Cost Summary**  
**FY 2022/23**

**Bell 412 Projected Annual Operating Cost**

Maintenance	1,200
Fuel (\$2.90 per Gallon)	35,844
Insurance	TBD
Warranty	N/A

**Firehawk Projected Annual Operating Cost**

Maintenance	817,400
Fuel (\$2.90 per Gallon)	180,200
Insurance	TBD
Total Assurance Plan (\$2,700/hr @ 250 hrs each)	1,350,000
General Electric Warranty (\$600/hr @ 250 hrs each)	300,000

<b>Total Annual Helicopter Projected Operating Cost</b>	<b><u>\$ 2,684,644</u></b>
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Less: Existing Air Ops Repair/Maintenance Base Budget	(830,236)
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Less: Existing Air Ops Insurance Cost	TBD
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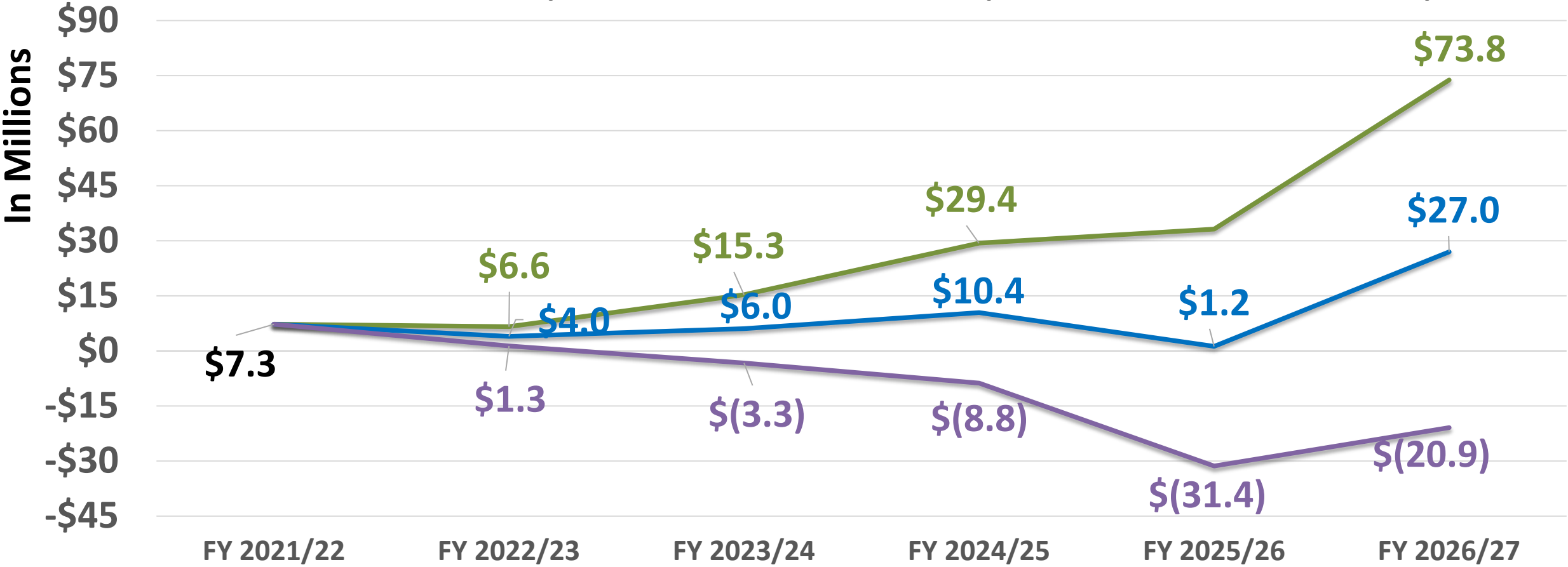
<b>Net Additional Funding Needed</b>	<b><u>\$ 1,854,408</u></b>
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# 15-Year Lease Financing

## CIP Surplus/(Deficit) – Orange Line

(Helicopter lease financing would be paid out of the CIP)

— 0% Increase after MOU Exp.    — 1% Increase after MOU Exp.    — 2% Increase after MOU Exp.

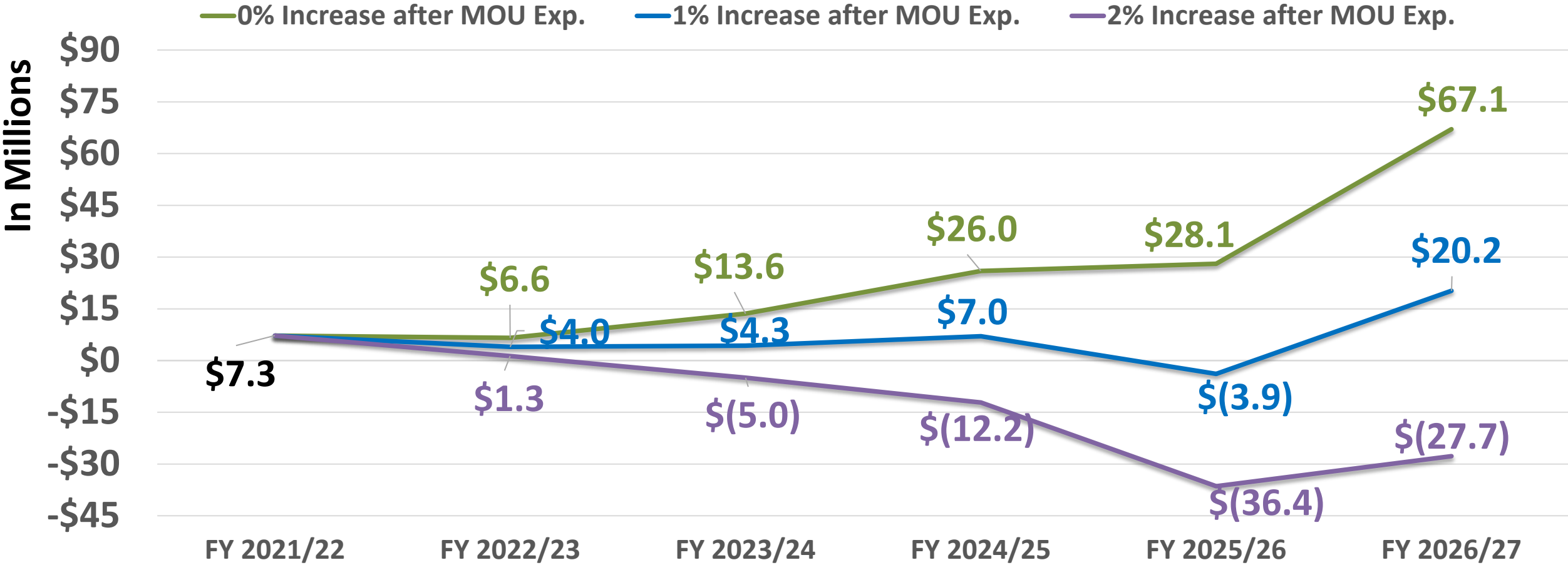


Note: Updated forecast scenarios include most current retirement rate projections presented to the OCERS Board on 7/18/2022. The UAAL portion of retirement rates and the effect of gains from accelerated UAAL payments are removed from the projections beginning in FY 2026/27, assuming OCFA achieves 100% funded status.

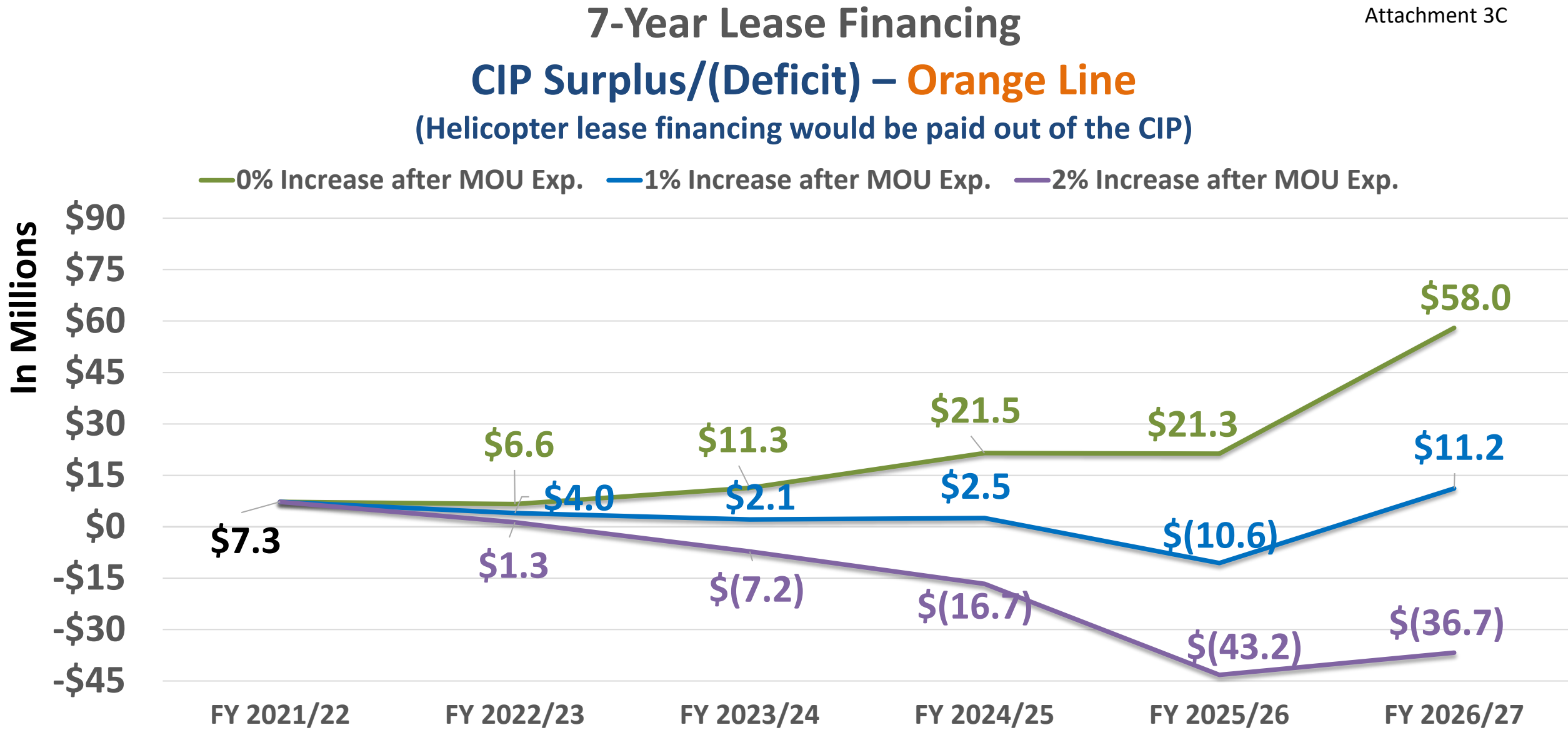
# 10-Year Lease Financing

## CIP Surplus/(Deficit) – Orange Line

(Helicopter lease financing would be paid out of the CIP)



Note: Updated forecast scenarios include most current retirement rate projections presented to the OCERS Board on 7/18/2022. The UAAL portion of retirement rates and the effect of gains from accelerated UAAL payments are removed from the projections beginning in FY 2026/27, assuming OCFA achieves 100% funded status.



Note: Updated forecast scenarios include most current retirement rate projections presented to the OCERS Board on 7/18/2022. The UAAL portion of retirement rates and the effect of gains from accelerated UAAL payments are removed from the projections beginning in FY 2026/27, assuming OCFA achieves 100% funded status.

30 JUNE 2022

ORANGE COUNTY FIRE AUTHORITY

Attn: Brian Fennessey  
Fire Chief  
1 Fire Authority Road  
Irvine, CA 92603

Dear Chief Fennessey,

The United Rotorcraft team continues to strive to provide the best aerial firefighting solutions for the state and people of California and hopes to soon support Orange County Fire Authority operating the Sikorsky S70 FIREHAWK.

We currently have three S-70M helicopters scheduled to be delivered to us in 2022 that can be modified and delivered as S70M FIREHAWKs in time for the start of the 2023 fire season. All three helicopters are built at the Lockheed PZL facility in Poland and converted by United Rotorcraft in Colorado for public use in the USA.

The demand for the S70M FIREHAWK remains strong, and we expect orders to be placed by CalFire and foreign agencies in 2022. Since we operate on a first come first serve basis, we feel it is important to point out that once the three aircraft mentioned above are placed on contract, Lockheed PZL's next available production slots will not be until 2024 at the earliest, but most likely 2025.

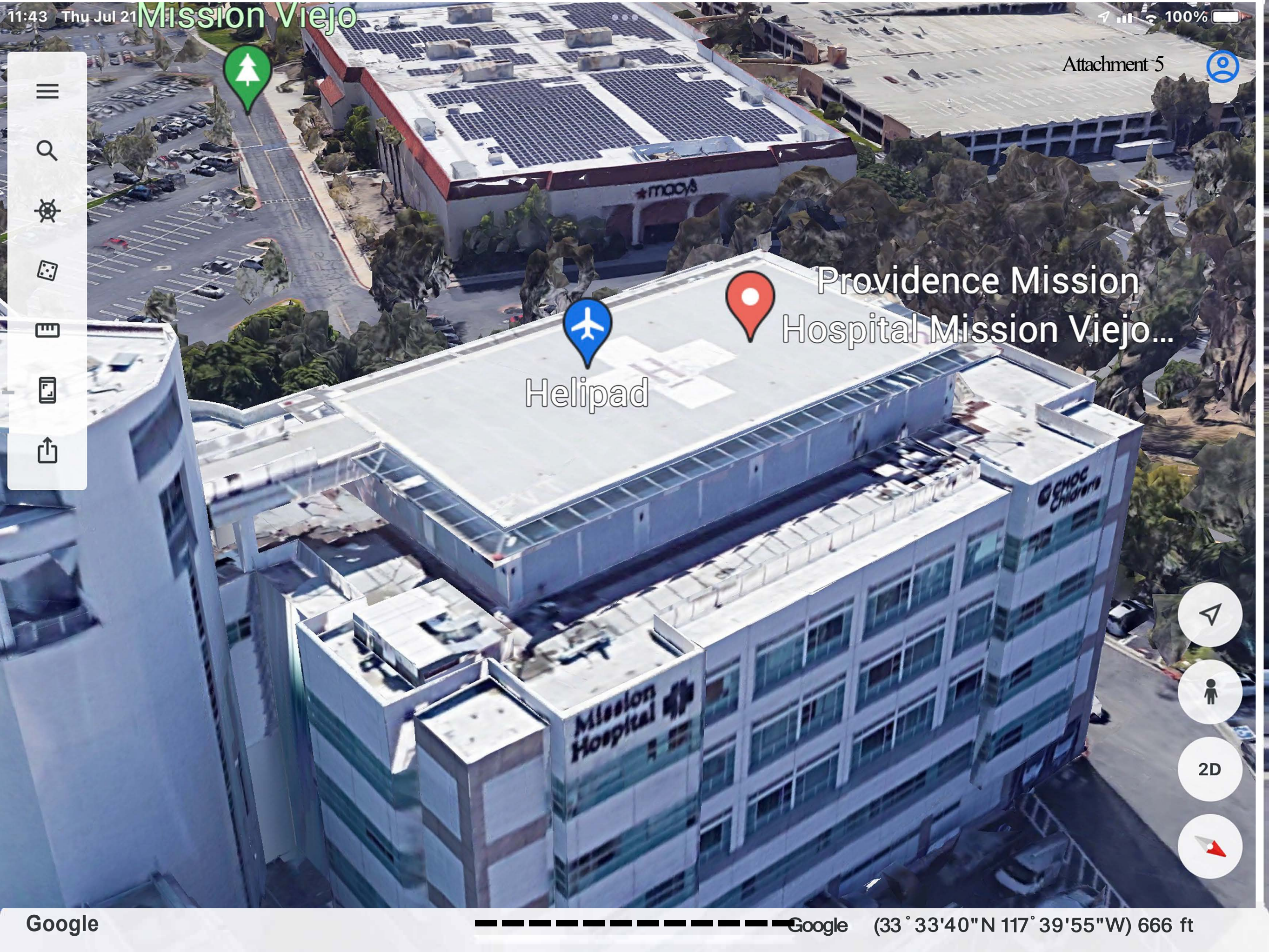
Furthermore, global inflation trends and supply chain constraints, along with the specific Black Hawk supplier base seeing volumes decreasing year over year, all lead to significant price increases for the S70M in the coming years. While we are still waiting for firm pricing from Lockheed PZL, we expect an aircraft price that could easily increase by \$2.5-3M between now and 2025.

We understand and respect the process put in place by Orange County and recognize that some of the steps cannot be compressed, but we felt it was important to be transparent about the risk of delay and inflation you might face should our first three aircraft be purchased soon.

We are at your disposal to work towards a contract that will bring the FIREHAWK to Orange County as quickly as possible and look forward to supporting your mission.

Thank you,

Larry Alexandre  
President



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Helipad

Providence Mission  
Hospital Mission Viejo...

- 📍
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- 2D
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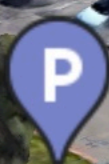
Orange County  
al Medical Center

West Coast  
Radiology Breast

OC Global Hospital

Navigation sidebar with icons for menu, search, street view, layers, 3D/2D toggle, and sharing.

Carolyn Lem, Pha



UCI Hospital



The City Dr S

Navigation controls including a compass, a person icon for street view, a '2D' button, and a red arrow icon.



**Orange County Fire Authority**  
**AGENDA STAFF REPORT**

**Concurrent Joint Special Meetings**  
**July 28, 2022**

**Agenda Item No. 5A**  
**Discussion Calendar**

**Findings Required by AB 361 for the Continued Use of  
Teleconferencing for Meetings**

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**Contact(s) for Further Information**

David E. Kendig, General Counsel

[Dkendig@wss-law.com](mailto:Dkendig@wss-law.com)

714.415.1083

**Summary**

In order for the Board of Directors and Committees to continue meeting via teleconference during the pandemic, AB 361 requires the local legislative bodies to make specified findings at least every thirty (30) days.

**Prior Board/Committee Action**

At the October 28, 2021 meeting, the Board of Directors approved the legally required findings and directed staff to schedule concurrent Special Joint Meetings of the Board of Directors, Executive Committee, Budget and Finance Committee, and Human Resources Committee with regular or special meetings of the Board of Directors whenever necessary to address the requirement to make the required findings at least every thirty (30) days, and to minimize the need for separate Board or committee meetings to address this new requirement of the Brown Act.

On July 20, 2022, the Legislative and Public Affairs Committee held its first meeting and is therefore being added to the agenda of concurrent Special Joint Meetings to consider approving the required findings by AB 361.

**RECOMMENDED ACTION(S)**

**Option #1:**

Make the following findings by majority votes of the Board of Directors, Executive Committee, Budget & Finance Committee, Human Resources Committee, and the Legislative & Public Affairs Committee:

- a. A state of emergency has been proclaimed by California's Governor due to the COVID-19 pandemic and continues in effect; and
- b. The Board of Directors and each Committee has reconsidered the circumstances of the emergency; and
- c. State and local officials continue to recommend measures to promote social distancing to slow the spread of COVID-19.

**Option #2:**

Make the following findings by majority votes of the Board of Directors, Executive Committee, Budget & Finance Committee, Human Resources Committee, and the Legislative & Public Affairs Committee:

- a. Although a state of emergency has been proclaimed by California's Governor due to the COVID-19 pandemic and continues in effect, the OCFA Board of Directors and each Committee has reconsidered the circumstances of the emergency and no longer finds a need for the legislative body to continue the use of teleconferencing for its meetings.

## Impact to Cities/County

Not Applicable.

## Fiscal Impact

Nominal software licensing costs to continue to use Zoom Webinar to stream meetings in a manner that allows online public comments.

## Background

Assembly Bill 361 was signed into law by the Governor on September 16, 2021. A portion of AB 361 enacted amendments to California Government Code section 54953 regarding teleconference meetings.

Those amendments authorize local agencies like the Fire Authority to continue to conduct meetings by teleconference during a Governor-proclaimed state of emergency<sup>1</sup> provided that certain findings are made by the legislative body, and provided that certain procedural requirements are met regarding public access to the meetings.

A new requirement in AB 361 requires particular findings be made by the Board of Directors and each of the OCFA's legislative bodies and requires that the new findings must be reaffirmed at least every thirty (30) days thereafter in order for the legislative body to continue to use teleconferencing.

### **The Required Findings**

The teleconference provisions in AB 361 may only be utilized as long as a Governor-proclaimed state of emergency remains active, and while state or local officials have recommended measures to promote social distancing.

To continue to teleconference using the new provisions of AB 361, each legislative body must make the following findings by majority vote at least every 30 days:

- (A) The legislative body has reconsidered the circumstances of the state of emergency; and
- (B) Either of the following circumstances exist:
  - (i) The state of emergency continues to directly impact the ability of the members to meet safely in person; or
  - (ii) State or local officials continue to impose or recommend measures to promote social distancing.<sup>2</sup>

To comply with that requirement, the recommended action would have the Board of Directors and each Committee find each of the following:

- a. A state of emergency has been proclaimed by California's Governor due to the COVID-19 pandemic and continues in effect; and

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<sup>1</sup> For purposes of AB 361 "...state of emergency" means a state of emergency proclaimed pursuant to Section 8625 of the California Emergency Services Act..." Cal. Gov't Code sec. 54953(e)(4). Section 8625 of CESA in turn refers to a state of emergency proclaimed by the Governor.

<sup>2</sup> Cal. Gov't Code sec. 54953(e)(3).

- b. The Board of Directors and each Committee has reconsidered the circumstances of the emergency; and
- c. State and local officials continue to recommend measures to promote social distancing to slow the spread of COVID-19.

Although there are fewer “social distancing” recommendations in effect today than there have been in the recent past, it remains the case that State and County officials continue to recommend measures to promote social distancing, including but not limited to the following:

- The County of Orange Health Officer continues to “strongly recommend” that “the older a person is, the more health conditions a person has, and the more severe the conditions, the more important it is to take preventive measures for COVID-19 such as getting vaccinated, including boosters, social distancing and wearing a mask when around people who don’t live in the same household, and practicing hand hygiene.”

### **Potential Consequence of Not Making the Findings Every 30 Days**

AB 361 does not expressly state what happens if a legislative body fails to make the required findings “every 30 days.” However, it expressly requires the timely reapproval of the findings “in order to continue to teleconference” in the manner that AB 361 authorizes.

As a result, if a legislative body does not adopt the required findings every 30 days, then it may be precluded from continuing to teleconference thereafter, perhaps even if it were later willing to adopt the findings at a later date. For this reason, if the Board of Directors and Committees wish to continue having the option to teleconference, then General Counsel recommends that the Board of Directors and Committees adopt the required findings at this time and at least every 30 days thereafter, as provided with Option #1 under the Recommended Actions. Alternatively, in consultation with Chair Steggell, this agenda staff report offers an Option #2 under the Recommended Actions which includes findings that the Board of Directors and Committees may adopt if they wish to decide as a *permanent* matter that it will no longer permit teleconferencing at all (e.g., regardless of whether the state of emergency worsens).

### **Attachment(s)**

None.