ORANGE COUNTY FIRE AUTHORITY

BOARD OF DIRECTORS
Regular Meeting
Agenda

Thursday, March 27, 2025
6:00 P.M.

Orange County Fire Authority
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 ACCESS AND PARTICIPATION

This meeting is open to the public. Board members will participate in person. There are several alternative ways to make comments including:

In Person Comments at Meeting: Resolution No. 97-024 established rules of decorum for public meetings held by the Orange County Fire Authority. Resolution No. 97-024 is available from the Clerk of the Authority.

Any member of the public may address the Board on items within their subject matter jurisdiction, but which are not listed on this agenda during PUBLIC COMMENTS. However, no action may be taken on matters that are not part of the posted agenda. We request comments made on the agenda be made at the time the item is considered and that comments be limited to three minutes per person. Please address your comments to the Board and do not engage in dialogue with individual Board Members, Authority staff, or members of the audience.

If you wish to speak, please complete a Speaker Form identifying which item(s) you wish to address. Please return the completed form to the Clerk of the Authority prior to item being considered. Speaker Forms are available at the entryway of meeting location.

E-Comments: Alternatively, you may email your written comments to 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 acts 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.

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

In compliance with the Americans with Disabilities Act and Board of Directors policy, if you need reasonable accommodations to participate in this meeting, please complete the ADA Reasonable Accommodation Form available on the Agency's website and email to COA@ocfa.org, or you may contact the Clerk of the Authority at (714) 573-6040 during regular business hours to submit your request orally. Please notify us at least 48 hours prior to the meeting to enable the Authority to make reasonable arrangements to assure accessibility to the meeting.

CALL TO ORDER by Chair Bacerra

INVOCATION by OCFA Chaplain Kraning

PLEDGE OF ALLEGIANCE by Director Burke

ROLL CALL by Clerk of the Authority

REPORTS

A. Report from the Budget and Finance Committee

B. Report from the Fire Chief
- OCFA Open House
- ECC Dispatcher Excellence
- OCFA 30th Anniversary

PUBLIC COMMENTS

Please refer to instructions on how to submit a public comment on Page 1 of this Agenda.

1. PRESENTATION

A. Recognition of outgoing Director:
- Vince Rossini representing the City of Villa Park

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 Meeting

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

The record will show 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 January 23, 2025, Regular Meeting as submitted.

B. Minutes for the Board of Directors Meeting
Submitted by: Maria D. Huizar, Clerk of the Authority

The record will show 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 February 27, 2024, Special Meeting as submitted.

C. FY 2024/25 Mid-Year Budget Adjustment
Submitted by: Robert C. Cortez, Assistant Chief/Business Services Department, James Slobojan, Treasurer/Treasury & Financial Planning, and Stuart Lam, Budget Manager/Treasury & Financial Planning

Recommended Actions:
1. Authorize the proposed mid-year budget adjustments and transfers as detailed in this report and attachments.
2. Approve changes to the Master Position Control list to add one Fire Captain and three Firefighter positions to support the Air Operations program.

D. 2024 Long Term Liability Study & Accelerated Pension Payment Plan
Submitted by: Robert C. Cortez, Assistant Chief/Business Services Department and James Slobojan, Treasurer/Treasury & Financial Planning

Recommended Action:
Receive and file the report.

E. Fiscal Year 2023/24 Backfill/Overtime and Calendar Year 2024 Total Earnings/Compensation Analysis
Submitted by: Robert C. Cortez, Assistant Chief/Business Services Department and Alicea Caccavo, Finance Division Manager/Business Services Department

Recommended Actions:
1. Direct staff to continue pursuing reductions in overtime by filling vacant positions as quickly as possible after the positions become vacant.
2. Direct staff to continue using overtime to fill shifts which are temporarily vacant, recognizing this as a cost-effective practice for temporary needs.

F. Proclamation for Wildfire Awareness and Prevention Season
Submitted by: Matt Olson, Director/Corporate Communications and Sophia Champieux, Public Relations Manager/Corporate Communications

Recommended Action:
Approve proclamation designating mid-summer through early autumn as "Wildfire Awareness and Prevention Season."

G. Proclamation for Drowning Prevention and Awareness Season
Submitted by: Matt Olson, Director/Corporate Communications and Sophia Champieux, Public Relations Manager/Corporate Communications

Recommended Action:
Approve proclamation designating May and continue through August "Drowning Prevention Awareness" and authorize participation in the "Always Watch the Water" and "Never Swim Alone" 2025 campaigns by encouraging all families, parents, residents, schools, recreational facilities, businesses, and homeowner associations to become partners in preparedness by increasing their knowledge of proper safety measures in drowning prevention.

3. DISCUSSION CALENDAR

A. Prefunding of CIP Projects Policy - B&FC Review Process and Recommendation for Board Consideration
Submitted by: Lori Zeller, Deputy Chief/Administration & Support Bureau and Robert C. Cortez, Assistant Chief/Business Services Department

Recommended Action:
Review and approve the proposed draft policy language changes to the Financial Stability Budget Policy as recommended by the B&FC, to formalize the prefunding of CIP regional assets, specifically for the future replacement of helicopters.

B. Board of Directors Requested Item – Employee Residential Down Payment Assistance Program
Submitted by: Robert C. Cortez, Assistant Chief/Business Services Department, James Slobojan, Treasurer/Treasury & Financial Planning and Traci Lee, Assistant Treasurer/Treasury & Financial Planning

Recommended Action:
Receive report and provide direction to staff.

C. Findings of Citygate Associates, LLC 2025 Field Deployment Standards of Cover (SOC) Plan Update
Submitted by: TJ McGovern, Deputy Chief/Emergency Operations Bureau and Paul Whittaker, Division Chief/Strategic Services

Recommended Action:
Receive and file the 2025 Field Deployment Standards of Cover Plan Update presentation, final reports, and recommended service enhancements.

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 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) Cases

CS2. 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) Cases

CS3. CONFERENCE WITH LABOR NEGOTIATORS pursuant to Government Code Section 54957.6

Negotiators: Peter Brown, Liebert Cassidy Whitmore; Stephanie Holloman, Assistant Chief/Human Resources Director; and TJ McGovern, Deputy Chief/Emergency Operations Bureau

Employee Organization: Orange County Professional Firefighters Association, IAFF - Local 3631

RECONVENE TO OPEN SESSION

CLOSED SESSION REPORT

ADJOURNMENT – The next meeting of the Orange County Fire Authority Board of Directors will be on Thursday, May 22, 2025, at 6:00 p.m.

Adjourn Meeting in Memory of
Robert "Bob" Weir Bell

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.

Maria D. Huizar, CMC

Clerk of the Authority

FUTURE BOARD AGENDA ITEMS – THREE-MONTH OUTLOOK:

- Review of the Fiscal Year 2025/26 Proposed Budget
- ABH Reimbursement Rates
- Updated Community Risk Reduction Fees and Miscellaneous Fee Schedule

UPCOMING MEETINGS:

Budget and Finance Committee	Wednesday, April 9, 2025, 12 noon
Executive Committee	Thursday, April 24, 2025, 5:30 p.m.

REVISED 3/25/2025

AGENDA ITEM NO. 2A

MINUTES
ORANGE COUNTY FIRE AUTHORITY

Board of Directors Regular Meeting
Thursday, January 23, 2025
6:00 P.M.

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

CALL TO ORDER
A regular meeting of the Orange County Fire Authority Board of Directors was called to order on January 23, 2025 p.m. at 6:01 p.m. by Vice Chair Bourne.

INVOCATION
The Invocation was led by Senior Chaplain Dave Keehn.

PLEDGE OF ALLEGIANCE
Director Sweeney led the assembly in the Pledge of Allegiance.

ROLL CALL
Present:

Troy Bourne, San Juan Capistrano, Vice Chair
George Brietigam, Garden Grove
Victor Cabral, San Clemente
Katrina Foley, County of Orange
Kelly Jennings, Laguna Niguel
Austin Lumbard, Tustin
Bradley McGirr, Rancho Santa Margarita
Nitesh Patel, La Palma
Dave Shawver, Stanton
Mark Tettemer, Lake Forest
Donald P. Wagner, County of Orange
Phil Bacerra, Santa Ana
David Burke, Cypress
Tara Campbell, Yorba Linda
Shari L. Horne, Laguna Woods
Joe Kalmick, Seal Beach
Mike Munzing, Aliso Viejo
Chi Charlie Nguyen, Westminster
Bob Ruesch, Mission Viejo
Joshua Sweeney, Laguna Hills
Connor Traut, Buena Park

Absent:

Mike Frost, Dana Point
Shelley Hasselbrink, Los Alamitos

Also present were:

Fire Chief Brian Fennessy
Deputy Chief TJ McGovern
Assistant Chief Stephanie Holloman
Assistant Chief Jim Ruane
Director of Communications Matt Olson
General Counsel David Kendig
Deputy Chief Lori Zeller
Assistant Chief Robert C. Cortez
Assistant Chief Lori Smith
Assistant Chief Rob Capobianco
Interim Assistant Chief Baryic Hunter
Clerk of the Authority Maria D. Huizar

REPORTS

A. Report from the Budget and Finance Committee

Budget and Finance Committee Chair Bourne reported at its January 15, 2025, Special Committee Meeting, the Committee considered the following items, and by a unanimous vote forwarded them to the Board of Directors to approve the recommended actions: Annual Grant Priorities for 2025, Homeland Security Grant Program Award, Revised Personnel Cost Reimbursement Rates, 2024/2025 Mid-Year Financial Report, Contract Amendments and Budget Adjustment for Quick Reaction Force (QRF) 2024 Program.

B. Report from the Legislative and Public Affairs Committee

Legislative and Public Affairs Committee Chair Foley reported at its January 15, 2025, Committee meeting, the Committee reviewed the Proposed 2025/26 Legislative Platform, and voting 4-0, directed staff to place the item on the agenda for the Board of Directors meeting with the recommended action to approve the OCFA's Legislative Platform for 2025-26. Thanking the current and past committee members, Director Foley noted there was consideration of several important issues added to the committee's discussions; fire insurance, battery energy storage systems, and the agency securing the ability to operate the agency helicopters over federal land at night. At Director Wagner's suggestion to collect data from our local water districts and provide an annual report to this Board on water supply readiness in case of wildfires.

C. Report from the Fire Chief

Fire Chief Fennessy welcomed the new Board of Directors. He reported on the loss of Apparatus Engineer Kevin Skinner, with thanks to the firefighters' professional staff, Peer Support, Local 3631, the Benevolent Association, and everyone who continues to support the Skinner family. He presented a video of 2024 year in review, with 184,000 responses to incidents, 5,653 more than 2023; a nearly 15% increase in just three years. The Chief continued to promote Cancer Awareness Month, thanked the many firefighters and professional staff who aided with the Los Angeles Fires; noted promotions and succession planning an integral part of the work performed daily, and introduced the two newest Division Chiefs, Mike Sheehan, promoted to ECC Division Chief in November, and Matt Schuetz, promoted to Division Chief in December. He concluded with thanking the Board of Directors for their leadership and support, looking towards moving forward in collaboration with them in 2025.

Vice Chair Bourne recognized and welcomed the newly appointed Board of Directors; Brad McGirr of Rancho Santa Margarita, Mike Munzing of Aliso Viejo, Shari Horne of Laguna Woods, David Burke of Cypress, Tara Campbell of Yorba Linda, Victor Cabral of San Clemente, and George Brietigam of Garden Grove.

PUBLIC COMMENTS

Dana Butler-Moburg, Chief Executive Officer of the Shea Center, thanked Fire Chief Fennessy and the Orange County Fire Authority for its work in keeping their center secure, the arrest of an arsonist by OCFA investigators Truhill and Stone, the rescue of a horse, as well as participating in training for firefighters in handling large animal rescues.

Duke Steppe, President of the Orange County Fire Authority Managers Association (OCFAMA), introduced himself and welcomed the newly appointed Board of Directors.

PRESENTATIONS

A. Oath of Office for newly appointed Directors (FILE 11.02C)
Clerk of the Authority Maria D. Huizar administered the Oath of Office to the following new Board of Directors: Mike Munzing city of Aliso Viejo, Shari Horne city of Laguna Woods, Bradley J. McGirr city of Rancho Santa Margarita, Tara Campbell city of Yorba Linda, David Burke city of Cypress, George Brietigam city of Garden Grove, and Victor Cabral city of San Clemente.

B. Recognition of outgoing Directors (FILE 11.9)
Fire Chief Fennessy and Vice Chair Bourne recognized the following outgoing Board of Directors: Ross Chun, John O'Neill, Noel Hatch, Carol Gamble and Chris Duncan. Those not in attendance but also recognized included: Anne Mallari, and Tammy Kim.

C. Recognition of Past Chair John O'Neill (FILE 11.9)
Fire Chief Fennessy and Vice Chair Bourne presented a Commemoration to outgoing Director John O'Neill for his service as Board Chair for the year of 2024.

2. CONSENT CALENDAR

On motion of Director Tettemer and second by Director Foley, approved 21-0 (Directors Hasselbrink and Frost absent) Agenda Item Nos. 2A-2H.

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

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

Action: Approve the Minutes for the November 21, 2024, Regular Meeting as submitted.

B. Proposed 2025-26 Legislative Platform (FILE 11.10F)

Action: Approve OCFA's Legislative Platform for 2025-26.

C. Annual Grant Priorities for 2025 (FILE 11.10G)

Action: Approve OCFA's Annual Grant Priorities for 2025.

D. Homeland Security Grant Program Award (FILE 16.02B)

Action: Approve a Budget Adjustment in Fund 121 to increase revenue and expenditures by $180,000.

E. Revised Personnel Cost Reimbursement Rates (FILE 15.12)

Action: Adopt the revised Cost Reimbursement Rates for the personnel to be effective and retroactive to July 1, 2024.

F. FY 2024/2025 Mid-Year Financial Report (FILE 15.04)

Action: Direct staff to return to the Board of Directors on March 27, 2025, for approval of the budget adjustments discussed herein for the FY 2024/25 budget.

G. Proclamation for National Burn Awareness Week (FILE 11.09A)

Action: Approve proclamation designating February 2-8, 2025, as Burn Awareness Week.

H. Contract Amendments and Budget Adjustment for Quick Reaction Force (QRF) 2024 Program (FILE 18.09E)

Action:

1. Approve and authorize an FY 2024/25 General Fund (121) budget adjustment to recognize an additional increase in QRF related reimbursement revenue of $4,932,989 and to increase appropriations by the same amount, due to additional incident activity (bringing the new Total Spending Cap from $21,344,772 to $26,277,761).
2. Approve and authorize the Purchasing Manager to amend the 2024 QRF-related vendor blanket order contracts by the individual amounts needed in support of the QRF Program so long as the aggregate value does not exceed the new program budget total of $26,277,761.

3. DISCUSSION CALENDAR

A. Election of Board Chair and Vice Chair (FILE 11.02B)

On motion of Vice Chair Bourne and second by Director Brietigam, approved 21-0 (Directors Hasselbrink and Frost absent) to move forward with the Election of the Board Chair and Vice Chair as presented.

Vice Chair Bourne opened the nominations for Chair of the Board.

Director Tettemer nominated Vice Chair Bourne for the position of Chair; Director Kalmick seconded the nomination. Vice Chair Bourne accepted the nomination.

Director Wagner nominated Director Bacerra for Chair; Director Traut seconded the nomination. Director Bacerra accepted the nomination.

Vice Chair Bourne nominated Director Kalmick for the position of Chair; Director Shawver seconded the nomination. Director Kalmick accepted the nomination.

Director Bacerra motioned to close the nomination period; Director Tettemer seconded the motion. By unanimous vote, the Board approved to close the nomination for Chair.

Vice Chair Bourne, Directors Bacerra and Kalmick each addressed the Board Members.

Vice Chair Bourne noted of the three nominees the top two vote getters would move on to a second round of votes. The Vice Chair requested the Clerk to conduct a roll call vote.

On the nomination of Director Bacerra as Chair, and following a roll call vote, Director Bacerra received 15 votes as follow: Directors Chi Charlie Nguyen, Traut, Jennings, Lumbard, Burke, Foley, Brietigam, Bacerra, Wagner, Patel, Campbell, Sweeney, Cabral, McGirr, and Munzing.

Director Kalmick received 4 votes as follow: Directors Ruesch, Horne, Kalmick, and Bourne.

Director Bourne received 2 votes as follow: Directors Shawver and Tettemer.

On a substitute motion of Director Brietigam, and second by Director Bacerra, requested to change the procedure; to accept the nominees who received the majority of the votes. By unanimous vote, the Board declared Director Bacerra Chair of the Board for the ensuing year.

Vice Chair Bourne opened the nominations for Vice Chair of the Board for the ensuing year.

Vice Chair Bourne nominated Director Kalmick; seconded by Director Tettemer. Director Kalmick accepted the nomination.

Director Bacerra nominated Director Sweeney; seconded by Director Brietigam. Director Sweeney declined to accept the nomination.

There were no other nominations. Director Bacerra motioned to close the nominations.

Vice Chair Bourne called for the vote. A unanimous vote of 21-0 declared Director Kalmick as Vice Chair for the ensuing year.

Vice Chair Bourne asked newly appointed Chair Bacerra if he would like to preside over the balance of the meeting, he deferred to Vice Chair Bourne.

BOARD MEMBER COMMENTS

Vice Chair Bourne reflected on the life of fallen OCFA Fire Apparatus Engineer Skinner, who passed away in the line of duty on January 5, 2025 and noted that meeting would be adjourned in his memory.

Director Chi Charlie Nguyen noted he adjourned the city of Westminster's Council Meeting on January 8, in memory of Fire Apparatus Engineer Skinner. He expressed appreciation for retiring Division Chief Covey.

Director Shawver reported recently organizing a joint city forum to inform citizens of what fire services OCFA provides to its residents.

Director Bacerra thanked the Board Members for their support for him as Chair. He noted the city of Santa Ana also closed their council meeting recently in memory of Fire Apparatus Engineer Skinner.

Director Sweeney spoke of the honor it is to serve on the Board of Directors of OCFA. He noted prayers are sent to those affected by the fires in Los Angeles, as well as support to our firefighters. He noted that Fire Apparatus Engineer Skinner was a skilled firefighter, leader, and compassionate person; our hearts go out to his family.

Director Foley sent condolences to the Skinner family. She thanked Assistant Chief Ruane for his assistance with the County's collection drive with IKEA for the victims of the Los Angeles fires. She announced another drive being held in the city of Laguna Niguel library, having a diaper donation for those affected by the fires.

Director McGirr stated it was an honor to be appointed to the Orange County Fire Authority Board. He spoke highly of his predecessor former Director Gamble, and noted his Council provided a check raised for the firefighters injured in the 241 Toll Road incident, and also of the those affected because of the fires in Los Angeles.

Director Cabral noted the city of San Clemente opened and closed their council meeting in memory of Fire Apparatus Engineer Skinner, and also noted interest in Director Shawver's joint city forum. He commented the residents are interested in fire protection and have concerns about insurance rates and fire coverage. He thanked Vice Chair Bourne for his service.

Director Foley asked for a progress report for the wildland resource center; asking the update to be provided in an email.

Director Brietigam noted he was retired after serving 34 years on the Los Angeles police department; was a league delegate for his police union, and has great respect for Orange County Fire Authority.

Director Sweeney spoke of Director Kalmick; they both went to the wildland fire training; Director Kalmick who served 33 years as a reserve firefighter was a wealth of knowledge, and happy to have him serve as Vice Chair of the Board.

Director Munzing spoke to having spent 13 years on Aliso Viejo City Council, a number of years' service with Orange County Transportation Agency, and has great appreciation of the firefighters and those of Fire Station 57. He stated he was honored to be serving on the Board.

Director Kalmick, spoke of Fire Apparatus Engineer Skinner; he was reminded of his great personality and willingness to work together with others, his respect and humor, noting OCFA has a lot of staff who exemplify what Kevin had and offered his personal respect for them.

RECESS TO CLOSED SESSION
General Counsel Kendig reported the Board would convene to hear Agenda Item Nos. CS1, CS2, and CS3 as they appear on the Closed Session agenda. The Board recessed to Closed Session at 7:48 p.m.

CS1. 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

CS2. 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 Organization:	Orange County Fire Authority Managers Association (OCFAMA)
Employee Organization:	Orange County Professional Firefighters Association, IAFF - Local 3631

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

Position:	General Counsel

RECONVENE TO OPEN SESSION
The Board reconvened from Closed Session at 8:57 p.m.

CLOSED SESSION REPORT
General Counsel Kendig reported the Board unanimously approved an extension of the Tolling Agreement with Local 3631 to the end of June of this year, otherwise no reportable action.

ADJOURNMENT – Vice Chair Bourne adjourned the meeting at 8:58 p.m. The next meeting of the Orange County Fire Authority Board of Directors will be on Thursday, March 27, 2025, at 6:00 p.m.

ADJOURNED IN MEMORY OF
OCFA FIRE APPARATUS ENGINEER
KEVIN SKINNER

Maria D. Huizar, CMC
Clerk of the Authority

REVISED 3/24/2025

AGENDA ITEM NO. 2B

MINUTES
ORANGE COUNTY FIRE AUTHORITY

Board of Directors Special Meeting
Thursday, February 27, 2025
6:00 P.M.

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

CALL TO ORDER
A special meeting of the Orange County Fire Authority Board of Directors was called to order on February 27, 2025 p.m.at 6:01 p.m. by Chair Bacerra.
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INVOCATION
The Invocation was led by Chaplain Brett Peterson.

PLEDGE OF ALLEGIANCE
Vice Chair Kalmick led the assembly in the Pledge of Allegiance.

ROLL CALL
Present:

Phil Bacerra, Santa Ana, Chair
George Brietigam, III, Garden Grove
Tara Campbell, Yorba Linda
Robert Frackelton, Villa Park
Kelly Jennings, Laguna Niguel
Mike Munzing, Aliso Viejo
Janet Nguyen, County of Orange ~~(6:15 p.m.)~~
Bradley J. McGirr, Rancho Santa Margarita
Joshua Sweeney, Laguna Hills
Connor Traut, Buena Park ~~(6:09 p.m.)~~
Joe Kalmick, Seal Beach, Vice Chair
David Burke, Cypress
Victor Cabral, San Clemente
Shari L. Horne, Laguna Woods
Austin Lumbard, Tustin
Chi Charlie Nguyen, Westminster
Nitesh Patel, La Palma
Bob Ruesch, Mission Viejo
Mark Tettemer, Lake Forest ~~(6:09 p.m.)~~
Donald P. Wagner, County of Orange ~~(6:15 p.m.)~~

Absent:

Troy Bourne, San Juan Capistrano
Shelley Hasselbrink, Los Alamitos
Mike Frost, Dana Point
David Shawver, Stanton

Also present were:

Fire Chief Brian Fennessy
Deputy Chief TJ McGovern
Assistant Chief Stephanie Holloman
Assistant Chief Rob Capobianco
Director of Communications Matt Olson
Interim Assistant Chief Baryic Hunter
Clerk of the Authority Maria D. Huizar
Deputy Chief Lori Zeller
Assistant Chief Tim Perkins
Assistant Chief Lori Smith
Assistant Chief Jim Ruane
Assistant Chief Robert Cortez
General Counsel David Kendig

REPORTS
None.

PUBLIC COMMENTS
None.

1. PRESENTATIONS
None.

2. CONSENT CALENDAR

On motion of Director Kalmick and second by Director Frackelton, approved 20-0 Agenda Item No. 2A (Directors Bourne, Frost, Hasselbrink and Shawver absent).

A. Committee Member Roster for 2025 and Ratification of Appointments to Executive Committee (FILE 12.02A1)

Action:
1. Receive and file the Committee Member Roster for 2025.
2. Confirm the appointments of the Executive Committee and Alternate members, as required in Rule 9(b) of the Board of Directors Rules of Procedure.

3. DISCUSSION CALENDAR

A. Approval of Side Letter Agreement to Memorandum of Understanding Orange County Fire Authority Managers Association and Amendments to the Personnel & Salary Resolution (FILE 17.04F)

On motion of Director Brietigam and second by Director Wagner, approved 20-0 (Directors Bourne, Frost, Hasselbrink and Shawver absent) to:
1. Approve and authorize staff to execute the proposed Side Letter Agreement to the 2023-2027 MOU between the Orange County Fire Authority and the Orange County Fire Authority Managers Association.
2. Review and approve the amendments to the Personnel & Salary Resolution Part 3, Article 1, Section 15 Retiree Medical Insurance Grant.
3. Review and approve the amendments to the Personnel & Salary Resolution Part 3, Article 1, Section 16 Defined Contribution Retiree Medical Plan.

B. Renewal of Health Plan Agreement Orange County Professional Firefighters Association (FILE 17.08)

On motion of Director Frackelton and second by Director Campbell, unanimously approved 20-0 (Directors Bourne, Frost, Hasselbrink and Shawver absent) to approve the Health Plan Agreement between the Orange County Fire Authority and the Orange County Professional Firefighters Association for a term of March 1, 2025 to March 1, 2028.

BOARD MEMBER COMMENTS

Director Traut welcomed newly appointed Director Janet Nguyen, representing the County of Orange. He thanked former Director and County representative Katrina Foley for her services, mentioning the various accomplishments throughout last year; serving as Chair of the OCFA Legislative and Public Affairs Committee, strong advocate for fire insurance laws, worked on the partnership of the Wildland Resource Center, helped with two Helopads funded by the Fifth County District, and her participation on getting a swift contract with the Professional Labor Union Local 3631.

RECESS TO CLOSED SESSION

General Counsel Kendig reported the Board would convene to discuss Agenda Item CS1, and will not be discussing Agenda Item CS2. The Board adjourned to Closed Session at 6:09 p.m.

Directors Traut and Tettemer left at 6:09 p.m.

CS1. 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

CS2. 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 Organization:	Orange County Fire Authority Managers Association (OCFAMA)
Employee Organization:	Orange County Professional Firefighters Association, IAFF - Local 3631

Directors ~~Brietigam,~~ J. Nguyem and Wagner left at 6:15 p.m.

RECONVENE TO OPEN SESSION

The Board reconvened from Closed Session at 6:41 p.m.

CLOSED SESSION REPORT
General Counsel Kendig reported the Board voted unanimously 16-0 (Directors Shawver, Bourne, Hasselbrink, Frost, Tettmer, Traut, Wagner and J. Nguyen absent) to decline a request from Cal Fire and the State Attorney General to joining their claim and litigation against the County of Orange. Otherwise, there was no reportable action.

ADJOURNMENT – Chair Bacerra adjourned the meeting at 6:41 p.m. The next regular meeting of the Orange County Fire Authority Board of Directors will be on Thursday, March 27, 2025, at 6:00 p.m.

Maria D. Huizar, CMC
Clerk of the Authority

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting
March 27, 2025

Agenda Item No. 2C
Consent Calendar

FY 2024/25 Mid-Year Budget Adjustment

Contact(s) for Further Information

Robert C. Cortez, Assistant Chief Business Services Department	robertcortez@ocfa.org	714.573.6012
James Slobojan, Treasurer Treasury & Financial Planning	jamesslobojan@ocfa.org	714.573.6305
Stuart Lam, Budget Manager Treasury & Financial Planning	stuartlam@ocfa.org	714.573.6302

Summary

This item is submitted to request approval to adjust revenues, expenditures and transfers to reflect changes identified after adoption of the FY 2024/25 budget.

Prior Board/Committee Action

A comprehensive mid-year financial review was presented to the Budget and Finance Committee and the Board of Directors in January, highlighting proposed mid-year changes to the FY 2024/25 budget that are needed based on events that have occurred since the budget was adopted last May. The Board directed staff to return in March with the technical budget adjustments required to implement the proposed changes.

On March 12, 2025, 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 6-0 (Directors Hasselbrink, J. Nguyen, and Traut absent).

RECOMMENDED ACTION(S)

1. Authorize the proposed mid-year budget adjustments and transfers as detailed in this report and attachments.
2. Approve changes to the Master Position Control list to add one Fire Captain and three Firefighter positions to support the Air Operations program.

Impact to Cities/County

The proposed mid-year adjustments to the FY 2024/25 budget will have no impact to cash contract city charges in the current FY.

Fiscal Impact

Financial impact is detailed in the report, with an overall increase in revenues (all funds combined) of $43,283,410 and an overall increase in expenditures (all funds combined) of $42,088,012.

Increased Cost Funded by Structural Fire Fund: $0
Increased Cost Funded by Cash Contract Cities: $0

Background

This report is submitted to request approval of the technical budget adjustments following the January mid-year financial review. The following is a summary of budgetary changes needed since the adoption of the FY 2024/25 budget in May 2024 (See Attachment 1 for the total proposed adjustment for each Fund).

Overall, the proposed changes in the General Fund result in an estimated total revenue adjustment of approximately $44.8 million and an estimated total expenditure adjustment of $43.4 million. **Approximately $40.6 million of the expenditure adjustments are related to emergency incidents that are offset by corresponding revenue or are items that are cost neutral**. Expenditures not directly offset by corresponding revenue increases are primarily due to increased general liability insurance costs and higher costs for services and supplies that were not known at the time of budget adoption including increased helicopter maintenance and utilities costs.

FY 2024/25 General Fund Estimated Revenue Adjustments - $44.8 million

Property Taxes: Based on property tax billing data provided by the Auditor/Controller and property tax received to date, preliminary projections indicate an approximate $1.1 million increase over budget. **$1,132,496**

Assistance by Hire (ABH)/Emergency Incident: ABH is the term used when OCFA responds to requests for assistance to incidents outside our area of responsibility, on a reimbursement basis. Current year activity is $36.0 million greater than budget due to various in-county and out-of-county responses. Staff will be monitoring this source of revenue for additional reimbursements. An expenditure adjustment is also proposed to the overtime/backfill category to cover the costs associated with providing the ABH services. **$35,993,777**

CalFire/Grant/Reimbursements: This category CalFire revenue and reimbursements for Grants or other programs where expenditures are reimbursed once incurred. The $2.0 million adjustment is for CalFire Gray Book revenue ($814K), University of California PFAS Research Grant ($504K), CalFire augmentation funding ($355K), Joint Apprenticeship Committee Program ($200K), 2022 UASI Grant amendment ($90K), OCSD SONGS Reimbursement ($40K), combined US&R Grant adjustments ($20K), and FEMA Fire Prevention Safety Grant ($10K). **$2,032,323**

OCPFA Retiree Medical Trust Payment: OCFA's audit firm Lance, Soll & Lunghard issued a final report on the OCPFA Medical Benefit Trust for the period January 1, 2023 through December 31, 2023 showing a $3,484,786 excess fund balance credit due to the OCFA. Per the terms of the OCFA/OCPFA Health Plan Agreement, OCFA will remit these funds to the OCFA Retiree Medical Trust held at OCERS, and future contributions will be adjusted. **$3,484,786**

Miscellaneous: This category of revenue adjustments includes increased interest earnings ($1.6M), planning & development fees ($359K), inspection services revenue ($125K), insurance settlement receipts ($48K), combined adjustments to cash contract city maintenance charges ($38K), and Drone Program training revenue ($28K). **$2,182,399**

FY 2024/25 General Fund Estimated Expenditure Adjustments - $43.4 million

Assistance by Hire/Emergency Incident Costs: As mentioned under Revenue for ABH, an adjustment is needed for in-county and out-of-county responses, primarily in the overtime/backfill category, but also for response-related supplies. This category also comprises US&R activation expenditures. Staff will be monitoring these categories closely as the fiscal year progresses. **$36,263,497[(1)]**

Grant/Reimbursable Programs: These expenditure items include University of California PFAS Research Grant ($504K), Joint Apprenticeship Committee Program ($200K), 2022 UASI Grant amendment ($90K), OCSD SONGS Reimbursement ($40K), combined US&R Grant adjustments ($20K), and FEMA Fire Prevention Safety Grant ($11K). **$863,766[(1)]**

OCPFA Retiree Medical Trust Payment: OCFA's audit firm Lance, Soll & Lunghard issued a final report on the OCPFA Medical Benefit Trust for the period January 1, 2023 through December 31, 2023 showing a $3,484,786 excess fund balance credit due to the OCFA. Per the terms of the OCFA/OCPFA Health Plan Agreement, OCFA will remit these funds to the OCFA Retiree Medical Trust held at OCERS, and future contributions will be adjusted. **$3,484,786[(1)]**

Personnel/Training: When the Board adopted the FY 2024/25 budget in May, staff was directed to fund a Fire Captain lead crew chief position[2] and three Firefighter paramedic rescuer positions for the Air Operations Program at mid-year. This adjustment includes a prorated amount of $526K to fund these positions for a partial year. This cost will be partially offset by a $405K budget decrease for three Firefighter Paramedic Positions that were budgeted to add a 4th firefighter paramedic position to Engine 18 starting January 2025, but are now anticipated to be partially funded by the SAFER Grant beginning in FY 2025/26. This category also includes the impact of the October 2024 Side Letter with the Firefighters ($660K), Pilot Training ($324,558), tuition reimbursement ($235K), and Drone Program Training ($40K). **$1,380,509**

Supplies/Equipment/Professional Services: This category includes one-time adjustments for services and supplies which were unknown or for which costs have increased since budget development. Adjustments include increased general liability insurance ($1.1M), Helicopter 4 maintenance ($500K), utilities costs ($431K), GE helicopter engine maintenance program ($352K), workers' compensation excess insurance ($280K), vehicle maintenance and repair ($250K), 800MHz System cost sharing ($153K), maintenance for surplus vehicles provided to Investigations Section ($49K), development impact fee study ($39K), power equipment fuel ($35K), and junior firefighting helmets ($20K). **$3,158,520**

Workers' Compensation: The OCFA received a new workers' compensation actuarial study dated 7/16/2024 which allows for a $2.0 million decrease in Fund 121 workers' compensation expenditures while still maintaining funding at the 50% confidence level. Fund 121 workers' compensation expenditures are transferred to Workers' Compensation Fund 190 to pay for workers' compensation claims. **($2,000,000)**

[1] Expenditure increase is wholly or partially cost neutral, offset by a corresponding revenue source or dedicated fund balance.

[2] The "Lead" Crew Chief position will require a new bonus pay for the higher skill set. Staff will propose a side letter agreement at a future Board Meeting for Board review and approval.

Interfund Borrowing: When the budget was adopted in May, the Board approved interfund borrowing as a cash flow management mechanism in FY 2024/25. The money is borrowed from the Workers' Compensation Self-Insurance Fund 190 and repaid with interest which is reflected as a cost to the General Fund. The estimated $263K increase in interfund borrowing costs are offset by increased General Fund interest earnings revenue of $1.6M. **$262,500**

Fixed Asset Purchases: OCFA plans to use Cal Fire Grant funds to purchase a gooseneck trailer for the Wildland Operations section estimated at $45K. No budget adjustment is needed as the Board approved the rebudget of $1.0M in remaining Cal Fire Vegetation Management Grant funding in September that will be used for this purchase. OCFA also plans to use US&R Grant funds that were approved by the Board September 2024 to purchase a US&R semi-truck estimated at $242K. **$0**

FY 2024/25 CIP and Other Fund Adjustments

- **Fund 12110 – General Fund CIP:** A decrease in expenditures in the amount of $4,822,066 is needed due to lower than anticipated costs for the SCBA replacement project.
- **Fund 133 – Fire Apparatus:** An increase in expenditures of $4,460,000 is needed for the purchase of two additional ladder trucks and a $1,001,500 budget decrease is needed for rebudgeted dozer and tractor vehicle funding that is not needed.
- **Fund 139 – Settlement Agreement:** An increase in expenditures in the amount of $38,000 is needed to accommodate Trustee and PARS fees for administering the 115 Trust.
- **Fund 190 – Workers' Compensation:** A revenue reduction of $2,000,000 is required to correspond with the $2,000,000 decrease in funding provided by Fund 121 referenced in the General Fund expenditure section above.
- **Interest Earnings:** Interest earning revenue for each of the CIP and Other Funds have been increased based on the latest projections. The net interest earnings adjustment is a $457,629 increase.

FY 2024/25 Fund Balance Transfer Adjustments

- **Unencumbered Fund Balance:** The FY 2023/24 year-end audit identified unencumbered fund balance in the amount of $4,572,224. This fund balance increase resulted primarily from additional revenue received in the fiscal year as well as S&S savings in the General Fund. Per the OCFA's Amended Joint Powers Agreement (JPA), the Board of Directors has the discretion to allocate this year-end unencumbered fund balance to the Structural Fire Fund Entitlement Fund for use by eligible member agencies, pursuant to the equity calculation as defined in the JPA. While that discretionary option is available, staff instead recommends allocating the unencumbered fund balance as follows, due to organizational need:
    - Allocate 100% to remain in the General Fund to maintain the contingency reserve at 10% of expenditures, pursuant to the OCFA's Financial Stability Budget Policy.
- **Fund 121 and CIP Transfers:** The Financial Stability Policy requires a reconciliation of the 10% contingency reserve at mid-year. With FY 2023/24 unencumbered fund balance remaining in the General Fund, the required 10% contingency amount of $49,349,852 will be maintained. With added CIP expenditures, the following fund balance transfers are required to maintain positive fund balance across all funds: $4,500,000 transfer from Fund 12110 to Fund 133.

The proposed revenue and expenditure adjustments are summarized in the table below:

Fund	Revenues	Expenditures
General Fund (121)		
Property Taxes	$1,132,496	-
Assistance by Hire/Emergency Incident	$35,993,777	$36,263,497
CalFire/Grant/Reimbursements	$2,032,323	$863,766
OCPFA Retiree Medical Trust Payment	$3,484,786	$3,484,786
Miscellaneous	$2,182,399	-
Personnel/Training	-	$1,380,509
Supplies/Equipment/Professional Services	-	$3,158,520
Workers' Compensation	-	($2,000,000)
Interfund Borrowing	-	$262,500
Total General Fund (121)	$44,825,781	$43,413,578
GF Capital Improvement Program (12110)	-	($4,822,066)
Fire Stations & Facilities (123)	($432,892)	-
Comm. & Info Systems (124)	($61,319)	-
Vehicle Replacement (133)	$10,534	$3,458,500
Settlement Agreement (139)	$41,773	$38,000
SFF Entitlement Fund (171)	$89,688	-
Workers' Compensation (190)	($1,190,155)	-
Total All Funds	**$43,283,410**	**$42,088,012**

Attachment(s)

1. FY 2024/25 Mid-Year Budget Adjustments
2. Combined Budget Summary

FY 2024/25 Mid-Year Budget Adjustments

The following adjustments to the FY 2024/25 budget are requested:

General Fund (Fund 121)
Revenues: $44,825,781 increase
Expenditures: $43,413,578 increase

General Fund CIP (Fund 12110)
Expenditures: $4,822,066 decrease
Operating Transfer Out to Fund 133: $4,500,000

Fire Stations and Facilities Fund (Fund 123)
Revenues: $432,891 decrease

Communications and Information Systems Fund (Fund 124)
Revenues: $61,319 decrease

Fire Apparatus Fund (Fund 133)
Revenues: $10,534 increase
Expenditures: $3,458,500 increase
Operating Transfer In from Fund 12110: $4,500,000

Irvine Settlement Agreement Fund (Fund 139)
Revenues: $41,773 increase
Expenditures: $38,000 increase

Structural Fire Fund Entitlement Fund (Fund 171)
Revenues: $89,688 increase

Self-Insurance Fund (Fund 190)
Revenues: $1,190,155 decrease

ORANGE COUNTY FIRE AUTHORITY
COMBINED BUDGET SUMMARY
FY 2024/25

		CIP Funds				Other Funds			
	121	12110	123	124	133	139	171	190	
	General Fund	General Fund CIP (1)	Fire Stations & Facilities	Communications & Info. Systems	Fire Apparatus	Settlement Agreement	SFF Entitlement	Self Insurance	Total
FUNDING SOURCES									
Property Taxes	358,765,181	-	-	-	-	-	-	-	358,765,181
Intergovernmental									
State Reimbursements	71,771,415	-	-	-	-	-	-	-	71,771,415
Federal Reimbursements	3,729,553	-	-	-	-	-	-	-	3,729,553
Community Redevelopment Pass-thru	28,532,644	-	-	-	-	-	-	-	28,532,644
Charges for Current Services									
Cash Contract Cities	148,114,007	-	-	-	1,963,179	-	-	-	150,077,186
HMS Revenue	-	-	-	-	-	-	-	-	-
Fees - Community Risk Reduction	8,194,287	-	-	-	-	-	-	-	8,194,287
Other Charges for Services	21,377	-	-	-	-	-	-	-	21,377
ALS Reimbursements, Supplies	4,547,600	-	-	-	-	-	-	-	4,547,600
Charges for Workers' Comp	-	-	-	-	-	-	-	24,400,324	24,400,324
Use of Money and Property									
Interest	3,827,314	-	933,188	243,434	1,557,721	1,130,482	89,688	6,283,071	14,064,898
Other									
Developer contributions	-	-	1,276,550	-	592,000	-	-	-	1,868,550
Miscellaneous	35,885,783	-	-	-	-	-	-	-	35,885,783
Total Revenues & Other Financing Sources	663,389,161	-	2,209,738	243,434	4,112,900	1,130,482	89,688	30,683,395	701,858,798
Operating Transfer In	-	27,000,000	-	400,000	23,237,108	2,668,000	-	-	53,305,108
Beginning Fund Balance	48,524,954	12,525,888	23,090,170	7,394,922	3,524,472	32,497,984	3,423,205	164,780,297	295,761,892
TOTAL AVAILABLE RESOURCES	$711,914,115	$39,525,888	$25,299,908	$8,038,356	$30,874,480	$36,296,466	$3,512,893	$195,463,692	$1,050,925,798
EXPENDITURES									
Salaries & Emp Benefits	$505,032,036	$0	$0	$0	$0	$0	$0	$0	$505,032,036
Services & Supplies	99,929,217	30,140,529	-	126,900	4,933,000	2,206,000	3,413,001	32,235,643	172,984,290
Capital Outlay/Equipment	6,873,879	3,110,864	23,298,955	7,281,154	25,784,740	-	-	-	66,349,592
Total Expenditures	$611,835,132	$33,251,393	$23,298,955	$7,408,054	$30,717,740	$2,206,000	$3,413,001	$32,235,643	$744,365,918
Appropriation for Contingencies	3,000,000		-	-	-	-	-	-	3,000,000
Operating Transfer Out	48,805,108	4,500,000	-	-	-	-	-	-	53,305,108
Ending Fund Balance	$48,273,875	$1,774,495	2,000,953	630,302	156,740	34,090,466	99,892	$163,228,049	250,254,772
TOTAL FUND COMMITMENTS & FUND BALANCE	$711,914,115	$39,525,888	$25,299,908	$8,038,356	$30,874,480	$36,296,466	$3,512,893	$195,463,692	$1,050,925,798

[1] Project related budgets segregated for operational budget clarity purposes. As a sub-fund of the General Fund, revenues and expenditures are accounted for as the General Fund in the ACFR, however for cash-flow purposes the expenditures are tracked outside of the General Fund. Therefore 12110 requires cash-flow transfers in the same manner as the other CIP Funds.

Attachment 2

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting
March 27, 2025

Agenda Item No. 2D
Consent Calendar

2024 Long Term Liability Study & Accelerated Pension Payment Plan

Contact(s) for Further Information

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James Slobojan, Treasurer Treasury & Financial Planning	jamesslobojan@ocfa.org	714.573.6305

Summary

This annual agenda item is submitted to provide information on the Orange County Fire Authority's (OCFA) total long term liabilities and strategies for mitigating and/or funding the liabilities.

Prior Board/Committee Action

As this is an annual report, the last presentation to the Board of Directors was at its April 25, 2024 meeting.

On March 12, 2025, 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 7-0 (Directors Hasselbrink and Traut absent).

RECOMMENDED ACTION(S)

Receive and file the report.

Impact to Cities/County

Strategic planning to reduce liabilities where possible and provide early funding for those liabilities which cannot be reduced, will assist OCFA in sustaining frontline emergency services for our member agencies and the citizens we serve.

Fiscal Impact

During the past eleven years, the OCFA Board of Directors' support of the Accelerated Pension Payment Plan has enabled OCFA to make accelerated payments totaling $124.3 million, resulting in interest savings of $94.8 million on behalf of the Orange County citizens and taxpayers who fund our services.

Background

In order to determine an agency's financial stability, one must look at all of its long-term obligations or liabilities, not just pensions. The Liability Study (Attachment 1) examines all of

OCFA's long-term liabilities, with primary focus on the pension liability and retiree medical liability.

Accelerated Pension Payment Plan

Currently, OCFA's pension liability funding level is 94.7% which exceeds the Board's target of 85%. Therefore, in FY 2024/25, OCFA directed $21.8 million of additional payments towards its Retiree Medical Unfunded Actuarial Accrued Liability (UAAL) to the Orange County Employees' Retirement System (OCERS).

To continue to evaluate progress associated with the accelerated funding of OCFA's pension liability, OCFA requested OCERS' actuary, Segal Consulting, to update the following:

- How much OCFA saved in interest annually since 2013 by making additional payments towards its UAAL?
- When would OCFA achieve 100% funding?

The actuary reported back that OCFA has saved $94.8 million in interest by making additional payments towards its UAAL and has achieved 94.7% funding as of December 31, 2023. The steady performance of OCERS has led to continued improvements in its funded status, with full funding (100%) now projected by December 31, 2029, assuming all other actuarial inputs are held constant.

Irvine Settlement Agreement

As part of the Irvine Settlement Agreement, OCFA agreed to establish a 115 Trust and to make annual deposits of $2 million, dedicated solely for future application to OCFA's pension liability. On May 23, 2019, the OCFA Board approved establishing the 115 Trust with the Public Agency Retirement Services (PARS), and the initial deposit of $2 million was made on July 1, 2019. OCFA is to continue to make annual deposits of $2 million each year. However, if OCFA has not funded 85% of its pension liability as determined by OCERS, then the required 115 Trust payment will be reduced to $1,500,000 per fiscal year until OCFA achieves the targeted 85% funding level and the $500,000 reduction will instead be contributed to OCERS as an additional employer pension contribution. Since OCFA's pension plan is currently 94.7% funded, for FY 2024/25 the full $2 million was deposited into the PARS 115 Trust to reduce the pension liability.

A hypothetical allocation of OCFA's pension liability by member city can be found in Attachment 3, and the allocation of the PARS 115 trust assets by member city can be found in Attachment 4.

The OCFA has already taken many steps to reduce some of its long-term liabilities and accelerate funding of other liabilities. Staff is committed to continue seeking additional ways to mitigate liability impacts, fund the accrued liabilities, and ensure the long-term viability of the organization.

Attachment(s)

1. 2024 Long Term Liability Study
2. Updated Snowball Strategy
3. Hypothetical Allocation of Pension Liability Per City
4. Allocation of PARS 115 Trust Assets by City
5. PowerPoint presentation from B&FC meeting

ORANGE COUNTY FIRE AUTHORITY

2024

LIABILITY STUDY

OCFA'S LONG TERM LIABILITES

MARCH 2025

OCFA'S LONG TERM LIABILITY STUDY

I. OBJECTIVE

One of the key components of fiscal responsibility is prudent management of long-term liabilities. The objective of this annual study is to provide an accurate assessment of the OCFA's ***total*** long-term obligations and to continuously identify strategies to reduce and/or fund the liabilities.

II. BACKGROUND

OCFA's long term liabilities include:

A. Defined Benefit Pension Plan
B. Defined Benefit and Defined Contribution Retiree Medical Plans
C. Workers Compensation Claims
D. Accrued Compensated Absences (accumulated sick and vacation payouts)
E. Leases

The liabilities above, and strategic funding for each, remain a focus for OCFA as discussed in more detail below.

A. DEFINED BENEFIT PENSION PLAN

In a *defined benefit plan,* employees receive *specific benefits* upon retirement, based on a pre-established formula. For example, a pension plan may provide retirees an annual retirement income which is determined in accordance with an agreed-upon formula, such as a predetermined percentage of annual earnings multiplied by the number of years of service.

The OCFA participates in the Orange County Employees' Retirement System (OCERS), a cost sharing multiple-employer, defined benefit pension plan. All OCFA regular, full-time, and part-time employees become members of OCERS upon employment, and the OCFA makes periodic contributions to OCERS as part of the funding process. The contributions submitted to OCERS are divided into employer and employee contributions. The combination of these contributions and investment income from OCERS' investments are structured to fund the employees' retirement benefits by the time the employees retire.

The OCFA's employees are distributed into two employee categories for purposes of retirement benefits, identified as Safety members and General members. Both the Safety and General categories include three tiers of retirement benefit formulas each, depending on date of hire:

	Hired Prior to July 1, 2012	Hired Between July 1, 2012 – Dec. 31, 2012	Hired on or after Jan. 1, 2013 (w/out reciprocity)
Safety	3% @ 50	3% @ 55	2.7% @ 57

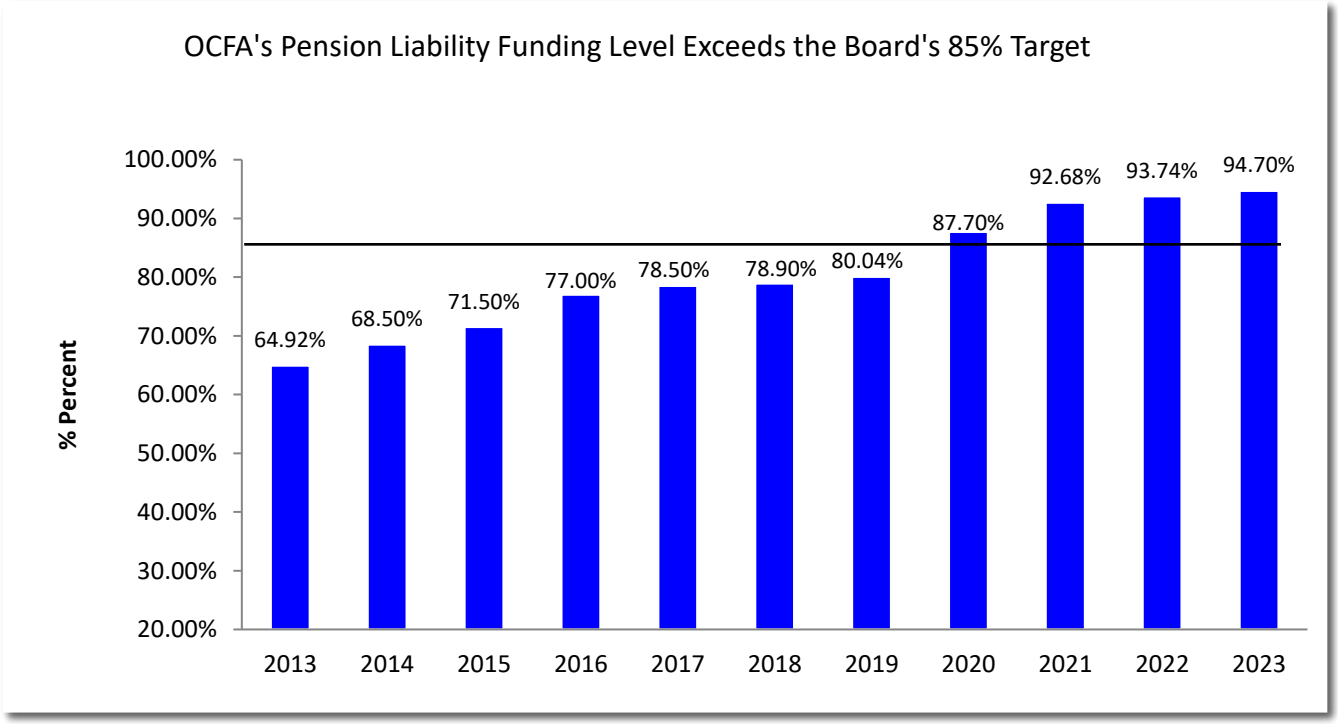
	Hired Prior to July 1, 2011	Hired Between July 1, 2011 – Dec. 31, 2012	Hired on or after Jan. 1, 2013 (w/out reciprocity)
General	2.7% @ 55	2% @ 55	2.5% @ 67

OCFA Retirement Costs, Liabilities and Funding

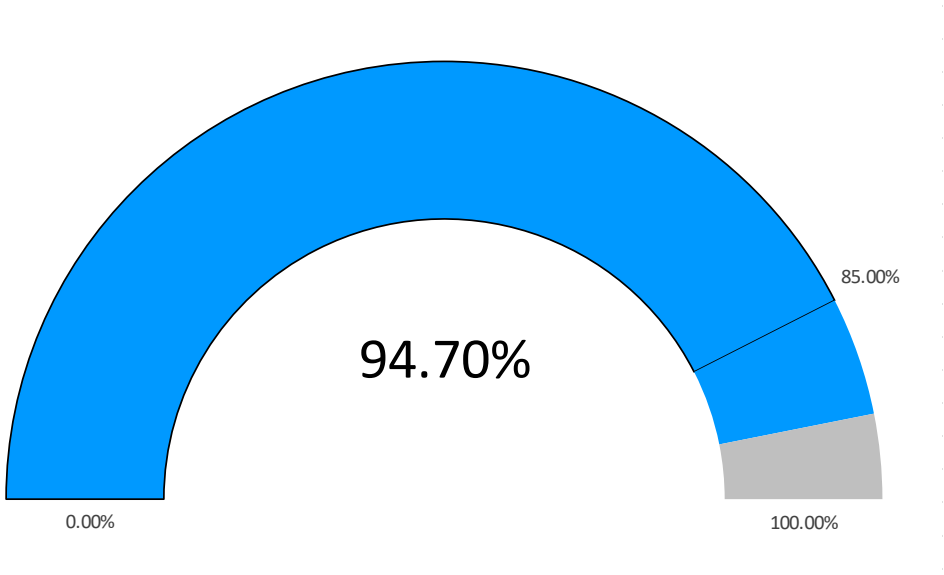
OCFA's annual retirement costs represent approximately $88 million or 17.04% of the Authority's FY 2024/25 General Fund budget. Each year, the Authority receives its retirement rates from OCERS. The total retirement rate has two components: the Normal Cost Component plus the current year's cost for the Unfunded Actuarial Accrued Liability (UAAL). The Normal Cost Component is the cost to pay for the current year's value of retirement benefits as earned. The UAAL Component is the accrued liability for past services which were not funded by prior contributions and investments.

The UAAL is determined by the actuary and is the difference between the present value of accrued liabilities and the value of assets as of a specific date. This amount changes over time as a result of changes in accrued benefits, pay levels, rates of return on investments, changes in actuarial assumptions, and changes in the demographics of the employee base.

Pension Liability Funding Level



Based on the December 31, 2023 valuation by OCERS, the Authority's total UAAL was $142.9 million with $122.0 million or 85% attributed to Safety members and $20.9 million or 15% attributed to General members. As shown below, OCFA's pension plan is 94.7% funded.



The OCFA reduces its UAAL over time as part of the annual required pension contribution to OCERS as shown below:

General Members (2.7% @ 55, 2.0% @ 55, and 2.5% @ 67 combined)

*Employer Rate **	**2023 Valuation** (FY 25/26 rates)	**2022 Valuation** (FY 24/25 rates)
Normal Cost	12.63%	12.63%
UAAL	10.51%	10.50%
Total	23.14%	23.13%

Safety Members (3.0% at 50, 3% @ 55 and 2.7% @ 57 combined)

*Employer Rate **	**2023 Valuation** (FY 25/26 rates)	**2022 Valuation** (FY 24/25 rates)
Normal Cost	21.66%	22.45%
UAAL	12.62%	12.96%
Total	34.28%	35.41%

* Totals do not include *Employee Rates*, which vary based on age of entry and retirement formula. *Employee Normal Costs (excluding UAAL costs)* range from 7.91% - 17.12% for General and 13.03% - 21.24% for Safety. Rates are also after adjustment for additional Employer UAAL contributions made from 2014 to 2023.

Two events have the greatest impact on plan funding: (1) plan changes, namely benefit formula changes and (2) differing actual experience requiring a modification in assumptions to reflect reality such as life expectancy. Other assumptions that impact the funding and UAAL include:

1. The assumed rate of return
2. The rate of increase in salaries
3. Member mortality
4. The age at which members choose to retire
5. How many members become disabled
6. How many members terminate their service earlier than anticipated

The assumed rate of return, also known as the discount rate, is a critical issue impacting OCFA's UAAL. The higher the discount rate, the lower the present value of pension assets needed to meet future pension obligations. A lower discount rate increases the current unfunded pension liabilities.

In 2013, the OCERS Board voted to lower the interest rate assumption from 7.75% to 7.25% which increased OCFA's annual retirement costs by $7.5 million. This increase was phased in over a two-year period starting in FY 2014/15.

In October 2017, the OCERS Board voted to lower the interest rate assumption again from 7.25% to 7.0%. It also voted to update the mortality tables based on generational mortality. The updated mortality tables indicate that people are living longer which means they will collect a pension longer resulting in an increase in retirement costs. These new assumption changes increased OCFA's retirement contribution rates by 3.73% of pay or approximately $5 million per year beginning in July 2019.

In 2018, OCERS investment return was negative 1.67% and less than its assumed rate of return of 7.0%. This resulted in an increase to OCFA's UAAL from $400.6 million in 2017 to $426.7 million in 2018.

In 2019, OCERS investment return was 14.4%. However, despite exceeding its 7.0% assumed rate of return and additional payments made by OCFA towards its UAAL, OCFA's UAAL did increase by $8.0 million from $426.7 million to $434.7 million. Most of the UAAL increase was attributed to prior years' investment losses and higher actual versus expected retiree cost of living adjustment (COLA). In addition, actual experience for mortality, rate of retirement, turnover, and disability came in higher than the actuary projected resulting in an actuarial loss.

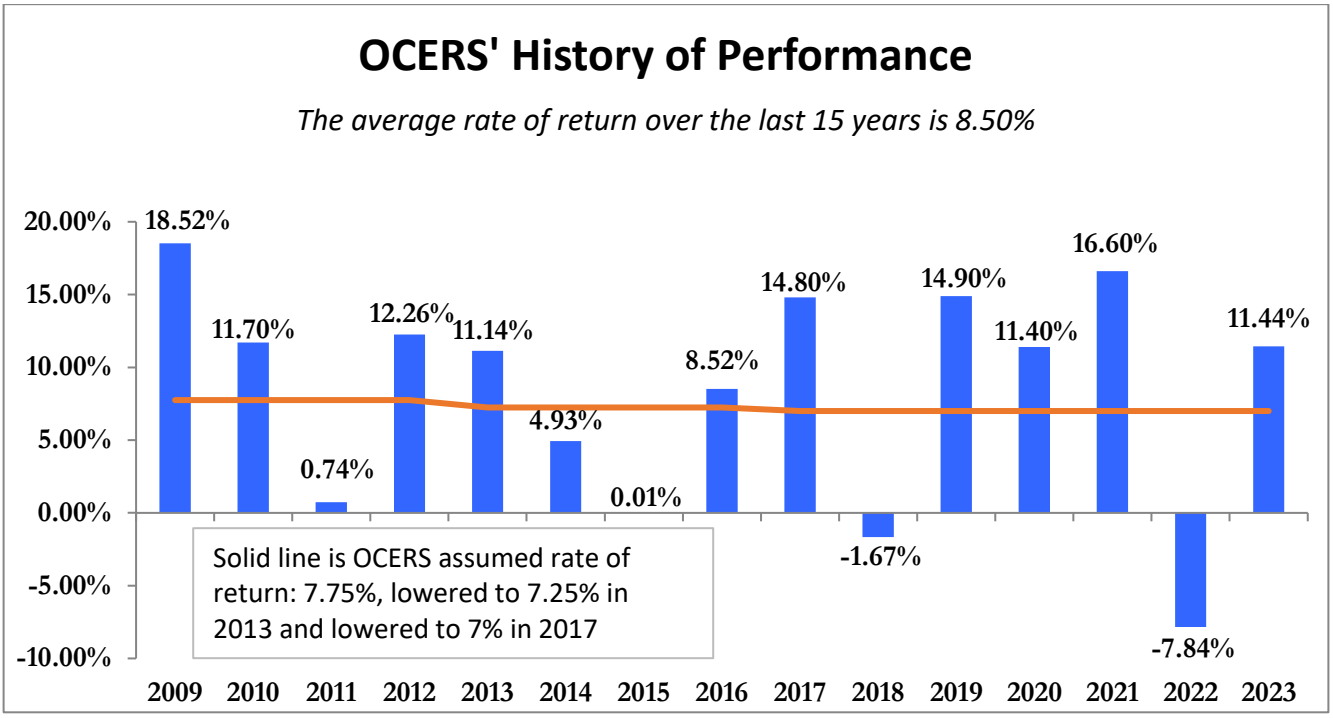
In 2020, OCERS exceeded its 7% assumed rate of return and earned 11.4%. OCERS' strong market performance, along with changes to its long-term actuarial assumptions and additional payments OCFA has made towards its unfunded pension liability, significantly decreased OCFA's UAAL. The UAAL decreased by $159.1 million from $434.7 million in 2019 to $275.6 million in 2020.

In 2021, OCERS exceeded its 7% assumed rate of return and earned 16.6%. OCERS' strong market performance along with additional payments OCFA has made towards its unfunded pension liability, significantly decreased OCFA's UAAL. The UAAL decreased by $101.2 million from $275.6 million in 2020 to $174.4 million in 2021.

In 2022, OCERS investment return was negative 7.84% which is below its assumed rate of return of 7.0%. However, because of strong investment performance in prior years along with additional payments OCFA has made towards its unfunded pension liability, there was actually a decrease in OCFA's UAAL. The UAAL decreased by $16 million from $174.4 million in 2021 to $158.4 million in 2022.

In 2023, OCERS exceeded its 7% assumed rate of return and earned 11.44%. OCERS' strong market performance along with additional payments OCFA has made towards its unfunded pension liability, significantly decreased OCFA's UAAL. The UAAL decreased by $15.5 million from $158.4 million in 2022 to $142.9 million in 2023.

The following chart shows a history of OCERS' investment performance over the past fifteen years. Although there have been years in which OCERS exceeded its assumed rate of return, the years in which OCERS incurred losses, such as the 7.84% loss in 2022, have a negative impact. OCERS' average return for the 15 years reflected below is 8.49%, which is above its assumed rate of return of 7.0%.



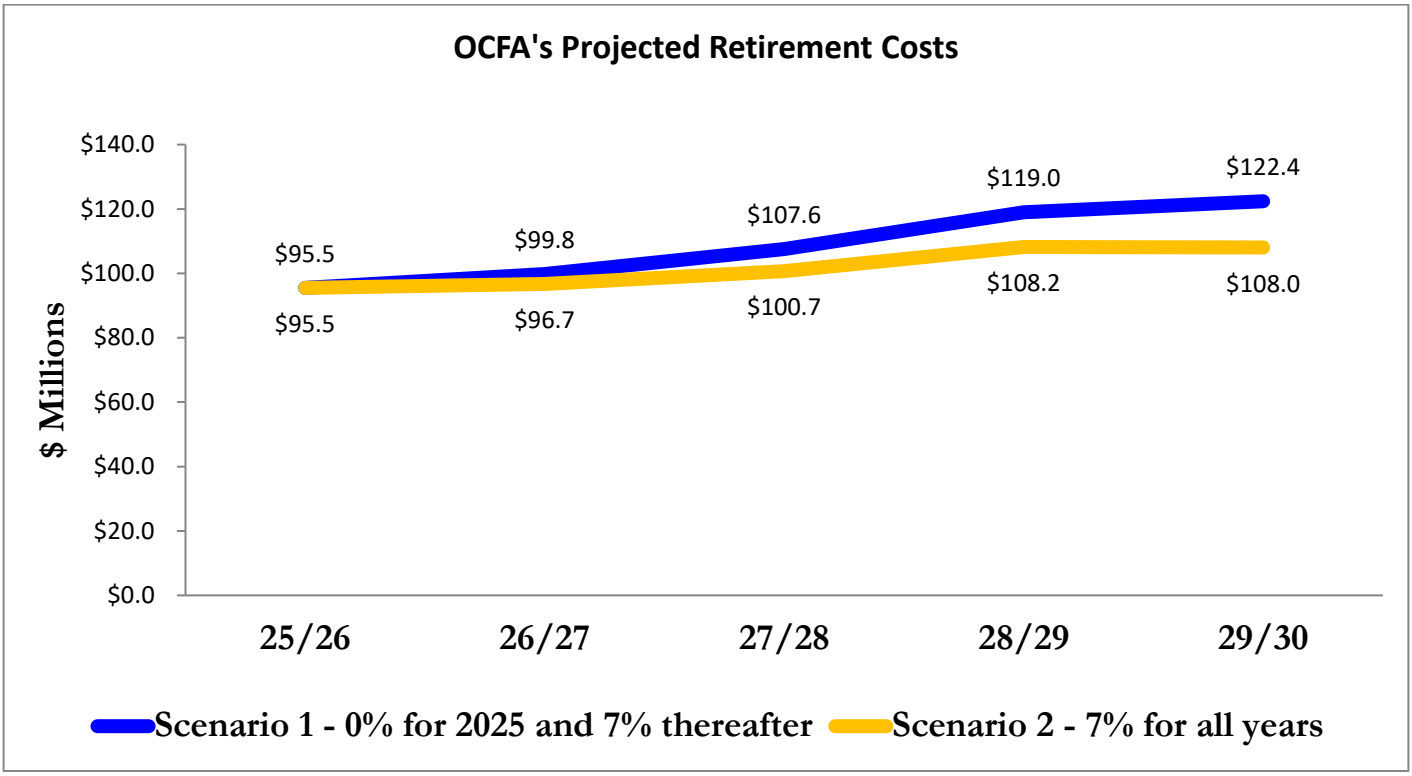
OCERS' investment return also impacts the funding level of the entire system, as demonstrated in the following chart. After a 21% loss in 2008, OCERS UAAL increased, and its funding level began to drop. The funding level started to improve in 2013 when OCERS rate of return exceeded the assumed rate of return. The funding level continued to improve in 2023 and is now at 82.63%.

OCERS' Schedule of Funding Progress

(Dollars in Thousands)

Actuarial Valuation Date December 31	Actuarial Value of Plan Assets (a)	Actuarial Accrued Liability (b)	Total UAAL (b-a=c)	Funded Ratio (a/b)
2001	$4,586,844	$4,843,899	$257,055	94.69%
2002	4,695,675	5,673,754	978,079	82.76%
2003	4,790,099	6,099,433	1,309,334	78.53%
2004	5,245,821	7,403,972	2,158,151	70.85%
2005	5,786,617	8,089,627	2,303,010	71.53%
2006	6,466,085	8,765,045	2,298,960	73.77%
2007	7,288,900	9,838,686	2,549,786	74.08%
2008	7,748,380	10,860,715	3,112,335	71.34%
2009	8,154,687	11,858,578	3,703,891	68.77%
2010	8,672,592	12,425,873	3,753,281	69.79%
2011	9,064,355	13,522,978	4,458,623	67.03%
2012	9,469,208	15,144,888	5,675,680	62.52%
2013	10,417,125	15,785,042	5,367,917	65.99%
2014	11,449,911	16,413,124	4,963,213	69.76%
2015	12,228,009	17,050,357	4,822,348	71.72%
2016	13,102,978	17,933,461	4,830,483	73.06%
2017	14,197,125	19,635,427	5,438,302	72.30%
2018	14,994,420	20,703,349	5,708,929	72.43%
2019	16,036,869	21,916,730	5,879,861	73.17%
2020	17,525,117	22,904,975	5,379,858	76.51%
2021	19,488,761	24,016,073	4,527,312	81.15%
2022	20,691,659	25,386,669	4,695,010	81.51%
2023	22,135,285	26,788,041	4,652,756	82.63%

The chart below provides two OCERS rate of return scenarios. Scenario 1 assumes OCERS will earn its assumed rate of return of 7.0% in 2024 and future years. Scenario 2 assumes that OCERS will not earn its assumed rate of return, and instead will earn 0.0% in 2024 and 7.0% in future years. Scenario 1 contrasts with Scenario 2 and demonstrates the significant increase to retirement contribution rates when OCERS does not earn its assumed rate of return. This data is presented to demonstrate the potential impacts that can (and do) occur from time to time when the system earns less (or more) than assumed. OCERS' year-to-date return as of December 31, 2024 is 9.96%. It has an assumed rate of 7.0% and is on a calendar year basis.



OCFA has taken steps to increase employee contributions, reduce benefits by establishing new tiers, and accelerate the paydown of the UAAL with the long-term goal to ensure adequate pension funding. However, other factors (such as OCERS' investment performance) are beyond the OCFA's control, yet these factors have a significant impact on determining retirement rates and ensuring adequate funding.

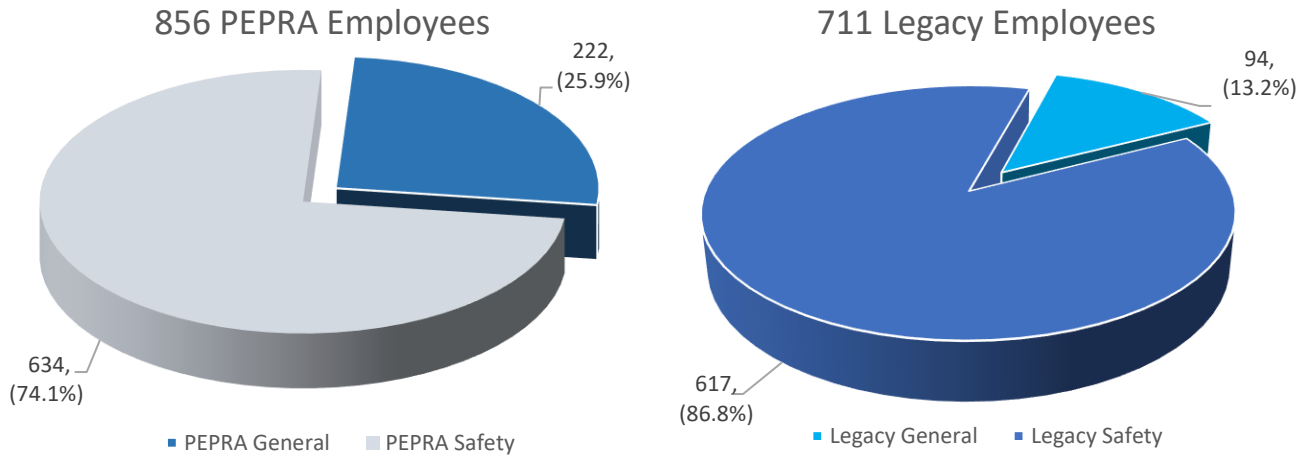
Accelerated Pension UAAL Payment Plan

In September 2013, the OCFA Board of Directors approved an Accelerated Pension UAAL Payment Plan. The accelerated plan has the following benefits:

- Results in OCFA's pension liability being paid off sooner
- Earlier and larger contributions into the pension system result in greater investment income earned
- Greater investment income earned results in less money paid by the employer over the long term

OCFA's accelerated payment plan originally involved three components including (1) use of year-end fund balance available, (2) contributing additional funds each year using savings achieved under PEPRA or other annual actuarial gains, and (3) contributing an additional $1 million per year in budgeted funds, with the annual budget allocation building to $5 million per year by year five.

The number of employees who fall under PEPRA continues to increase as shown in the charts below. Over time, this will lower OCFA's retirement costs since PEPRA employees receive a less costly benefit.



In FY15/16, the plan was modified to include the following:

- Contributing an additional $1 million each year starting in 2016/17 and increasing by $2 million each year until it reaches $15 million and continuing at $15 million thereafter
- Contributing $1 million per year from surplus fund balance available in the Workers' Compensation Self Insurance Fund starting in 2016/17 for five years

In FY16/17, the plan was modified again to include the following:

- Contributing $7,633,021 in FY 2017/18 from General Fund surplus and continuing in different amounts until OCFA's funding goal is achieved
- Reduced the accelerated funding goal from 100% to 85% for OCFA's pension liability with the added policy to redirect expedited payment dollars to OCFA's retiree medical liability after achieving the 85% target for the pension liability.

To date, OCFA has made the following additional payments towards its UAAL:

FY 13/14	$ 5.5 million
FY 14/15	21.3 million
FY 15/16	15.4 million
FY 16/17	13.5 million
FY 17/18	19.9 million
FY 18/19	19.2 million
FY 19/20	13.7 million
FY 20/21	15.8 million
Total	**$124.3 million**

The outcomes from the accelerated payment plan implementation in FY 2013/14 through FY 2020/21 along with OCFA's anticipated future year additional payments were submitted to OCERS' actuary to determine:

1. How much OCFA saved in interest annually since 2013 by making additional payments towards its UAAL?
2. When would OCFA achieve 100% funding if it continued to make additional UAAL payments under its Snowball Plan?

The actuary reported back that OCFA has saved $94.8 million in interest by making additional payments towards its UAAL. The noted $94.8 million in interest savings has accumulated, as shown below, in correlation with our additional payments:

CY 2014	$1,012,937
CY 2015	2,084,402
CY 2016	3,295,068
CY 2017	4,322,897
CY 2018	6,059,497
CY 2019	7,839,455
CY 2020	9,843,583
CY 2021	12,346,336
CY 2022	14,033,430
CY 2023	15,908,889
CY 2024	18,097,247
TOTAL	**$94,843,741**

OCFA is 94.7% funded as of December 31, 2023 and is expected to achieve 100% funding by December 31, 2029, assuming all other actuarial inputs are held constant**.**

All of the above strategies will reduce the OCFA's existing UAAL more rapidly, and effectively shorten the weighted-average amortization period. Shortening the amortization period will have many benefits to OCFA. Although it causes our employer contributions to rise during the expedited payment period, it results in our liability being paid off sooner. Earlier payments of contributions will result in greater investment income earned and less money paid from the employer over the long-term.

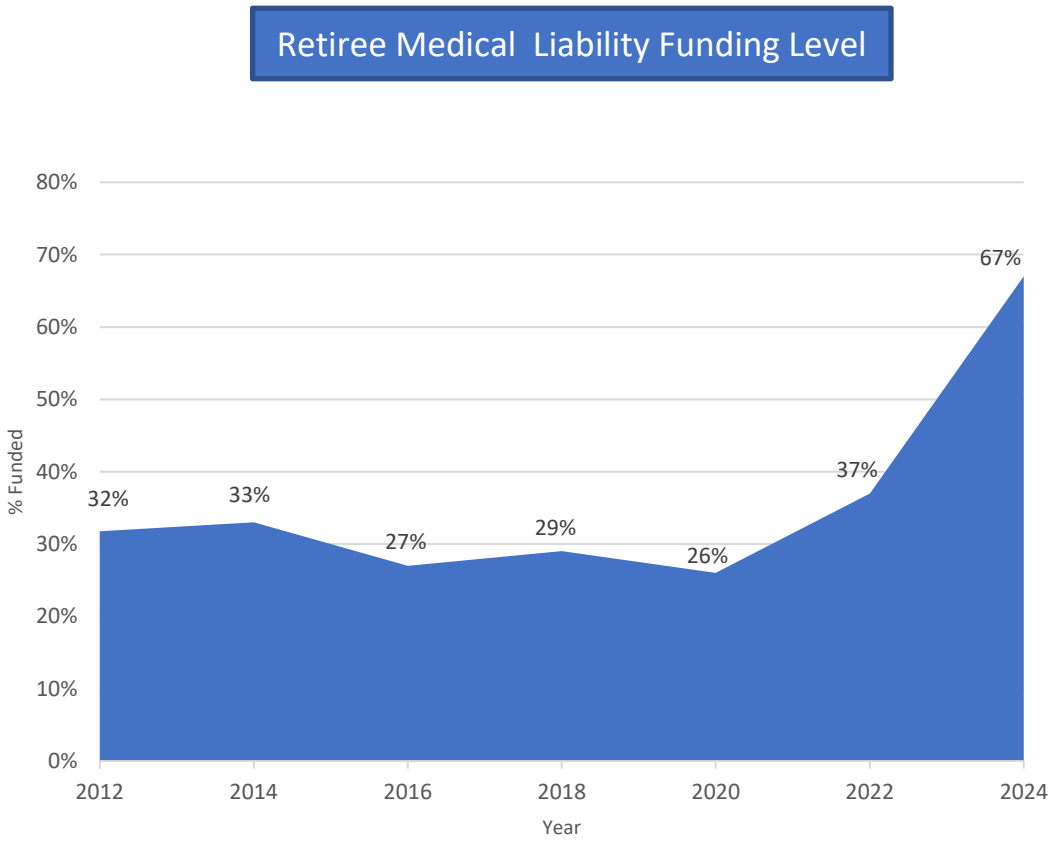
B. DEFINED *BENEFIT* RETIREE MEDICAL PLAN

In addition to the OCFA's retirement plan administered by OCERS, the OCFA provides a post-employment medical retirement plan (Retiree Medical Plan) for certain employees. Employees hired prior to January 1, 2007, are in a *defined benefit plan* that provides a monthly grant toward the cost of retirees' health insurance coverage based on years of service. The Plan's assets are held in an irrevocable trust for the exclusive benefit of Plan participants and are invested by OCERS. As such, if

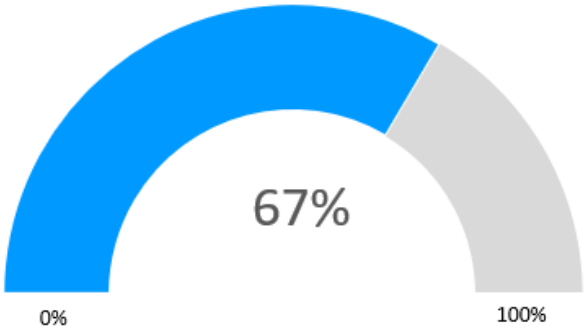
OCERS does not earn its assumed rate of return of 7.0%, the UAAL increases. Current active employees hired prior to January 1, 2007, are required to contribute 4% of their gross pay toward the Retiree Medical Plan.

Based on a Funding Adequacy Analysis prepared by Nyhart, a third-party actuary, as of June 30, 2024, the OCFA's Unfunded Actuarial Accrued Liability (UAAL) for the Retiree Medical defined benefit plan is $53.3 million and it is 67% funded. This is a significant improvement since the 2020 Funding Analysis where the UAAL was $106 million and 26% funded.

Under the Government Accounting Standards Board (GASB) Statement No. 45, OCFA was required to have an actuarial valuation performed on its Retiree Medical Plan every two years. GASB 45 was replaced by GASB 74 and 75, which kept the two year requirement. OCFA, however, will have the actuarial funding analysis performed on an annual basis.



Retiree Medical Funding % and Target



Note: Does not include implicit subsidy and uses OCERS assumed rate of return of 7.75% in 2012, 7.25% up to 2016, and 7.00% thereafter.

The benefit provided under the OCFA's Retiree Medical Plan is a negotiated benefit included in the various Memorandums of Understanding and the Personnel & Salary Resolution for employees hired prior to January 1, 2007.

The OCFA has previously approached funding issues and plan sustainability issues relating to this Plan collaboratively with its labor groups in order to identify options for improving the funding status. Similar to previous approaches, following receipt of the 2012 Actuarial Study for this Plan, management met with representatives of all three labor groups to review the findings. In 2013, we gathered ideas from labor for options that may be considered in the future to improve the funding status of the Plan and had the actuary perform a special actuarial study to evaluate the various options and associated impacts on plan funding. The results of the special study were shared with each of the labor groups.

On November 17, 2016, the OCFA Board directed staff to continue the Accelerated Pension Payment Plan as indicated in the Updated Snowball Strategy, with a modification to alter the funding target from 100% to 85% and redirect expedited payment dollars to Retiree Medical after achieving the 85% target.

- As of December 31, 2020, OCFA's pension liability became 87.7% funded; therefore, snowball payments effective in the FY 2021/22 Adopted Budget (and in years moving forward) are now being directed to the Retiree Medical Liability.
- Projected snowball payments for FY 2024/25 and moving forward (see Attachment 2), when applied to the current $53.3 million UAAL for Retiree Medical, demonstrate that this liability is projected to achieve 100% funding by June 30, 2026.

In addition to the snowball strategy funding for Retiree Medical, in April 2017, the OCFA Board approved a renewed Health Plan Agreement with the Orange County Professional Firefighters Association from January 1, 2017 to December 31, 2024. One of the related provisions is as follows: *"to continue return of "excess fund balance" to OCFA with returned funds to be allocated to OCFA's Retiree Medical Trust Fund."*

2016 Firefighter Medical Trust Review: An excess fund balance in the amount of $2,275,829 was credited to OCFA and used as a payment to the Retiree Medical Trust per the Firefighter Medical Agreement. The payment was approved by the Board as part of the FY 2017/18 Mid-Year Budget Adjustments.

2020 Firefighter Medical Trust Review: An excess fund balance in the amount of $1,954,775 was credited to OCFA and used as a payment to the Retiree Medical Trust per the Firefighter Medical Agreement. The payment was submitted to the Board as part of the FY 2021/22 Mid-Year Budget Adjustments.

2021 Firefighter Medical Trust Review: An excess fund balance in the amount of $6,999,438 will be credited to OCFA and used as a payment to the Retiree Medical Trust per the Firefighter Medical Agreement. The payment was submitted to the Board as part of the FY 2022/23 Mid-Year Budget Adjustments.

2022 Firefighter Medical Trust Review: An excess fund balance in the amount of $7,836,090 will be credited to OCFA and used as a payment to the Retiree Medical Trust per the Firefighter Medical Agreement. The payment was submitted to the Board as part of the FY 2023/24 Mid-Year Budget Adjustments.

2023 Firefighter Medical Trust Review: An excess fund balance in the amount of $3,484,786 will be credited to OCFA and used as a payment to the Retiree Medical Trust per the Firefighter Medical Agreement. The payment will be submitted to the Board as part of the FY 2024/25 Mid-Year Budget Adjustments.

2024 Firefighter Medical Trust Review: Pending the calendar year 2024 audit, any excess fund balance may still be credited to the OCFA and applied as a payment to the retiree medical trust.

In March 2025, the OCFA Board approved a renewed Health Plan Agreement with OCPFA and removed the provision to return "excess fund balance" to OCFA and therefore excess fund balance will remain with the OCPFA going forward.

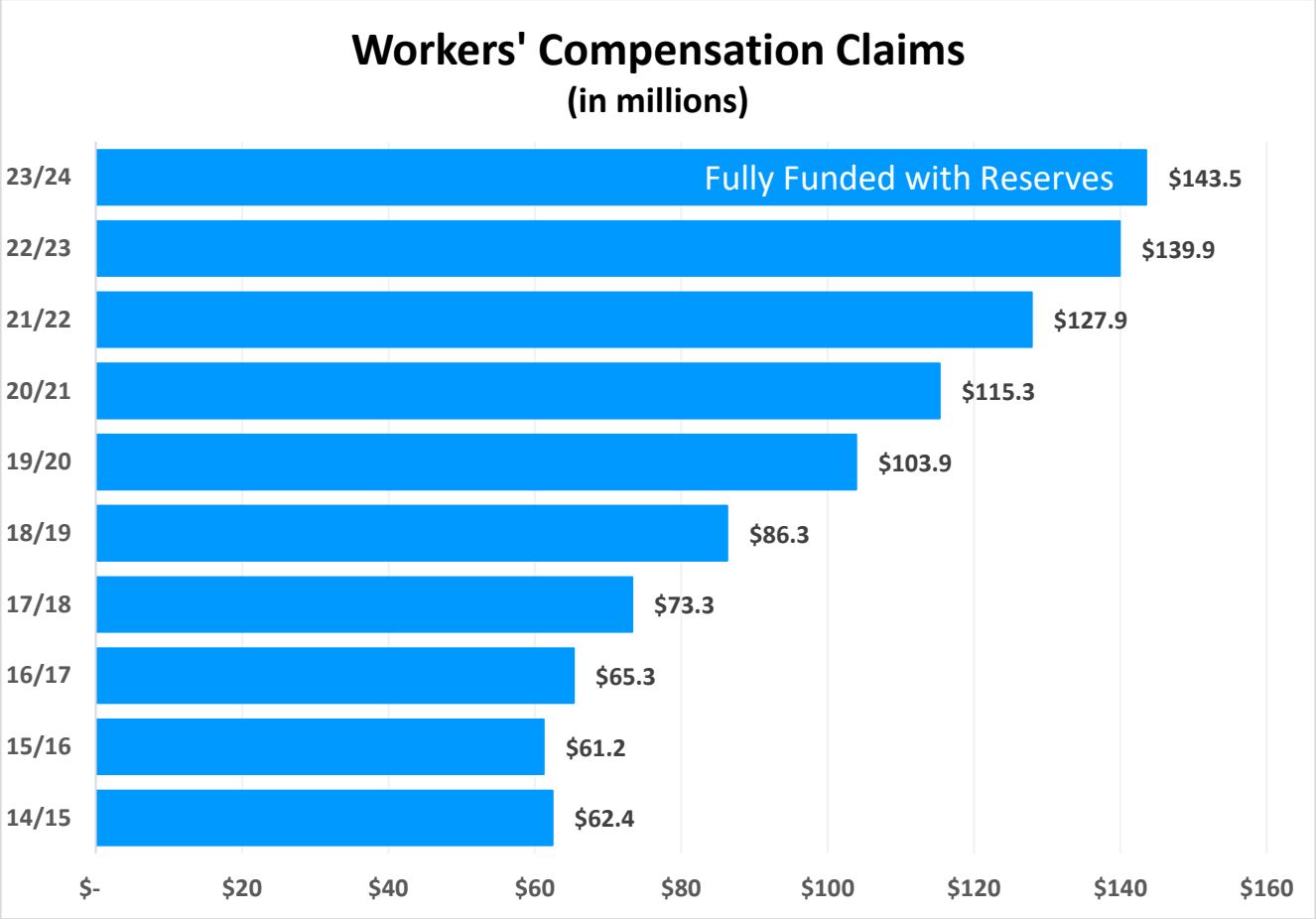
B. DEFINED *CONTRIBUTION* RETIREE MEDICAL PLAN

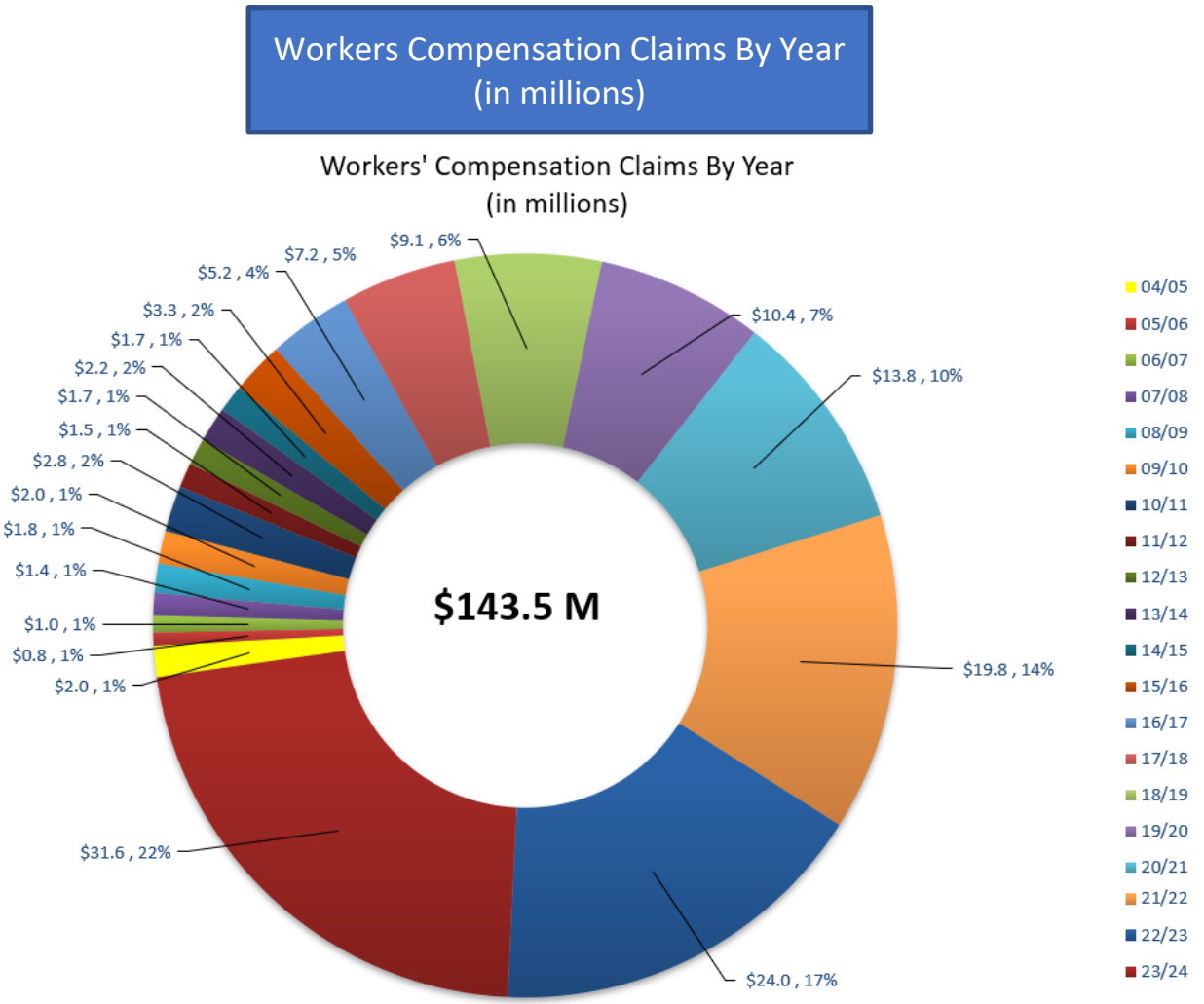
For employees hired on or after January 1, 2007, the OCFA created a *defined contribution plan* that is administered by Keenan & Associates. The Plan provides for the reimbursement of medical, dental, and other healthcare expenses of retirees. Employees are required to contribute 4% of their gross pay. In 2024, labor group Local 3631 received approval to reduce the required contribution to 3%. In 2025, labor group OCFAMA followed suit, also lowering their required contribution to 3%. Account assets are

invested as directed by the participant and all contributions, investment income, realized gains and losses are credited to the individual's account. Under this plan structure, there is no UAAL.

C. WORKERS' COMPENSATION CLAIMS

In March 2002, OCFA implemented a workers' compensation self-insurance program. A separate fund called Fund 190: Self Insurance was established in May 2003 to track funding and expenditures for workers' compensation claims liability. The funding sources include revenue from the General Fund and interest earnings. Based on the Annual Comprehensive Financial Report, as of June 30, 2024, the Workers' Compensation liability is $143.5 million. The Fiscal Year 2023-24 Budget includes reserves to pay this liability as the various medical claims and bills become due.





The outstanding liability reflected in the above charts reflect the fact that although the entire future cost of claims is recorded in the year of injury, the actual payment of that claim does not occur immediately. The cash flow payments for many workers' compensation cases occur slowly over time; therefore, it is a natural occurrence that the unpaid liability for a self-insured system will grow as the unpaid liabilities build upon each other over the years. Continued increases can also be driven by other forces, such as increased medical costs, increased claim activity, legislative changes, and case law.

The workers' compensation liability reflects the present value of estimated outstanding losses at the 50% confidence level. A confidence level is the statistical certainty that an actuary believes funding will be sufficient. For example, a 50% confidence level means that the actuary believes funding will be sufficient (i.e., greater-than or equal to actual costs incurred) in five out of ten years. OCFA's Board-adopted workers' compensation funding policy sets the funding at the 50% confidence level.

The main factors which are increasing the workers' compensation liability include increased medical costs, an increase in the frequency and severity of claims, COVID-19 cases, a growing number of mental health cases, and an aging workforce which contributes to a longer recovery time and higher permanent disability benefits. Additional factors include workers' compensation reform that increased the statute of limitation for cancer from five to ten years, injury presumption for safety personnel, and

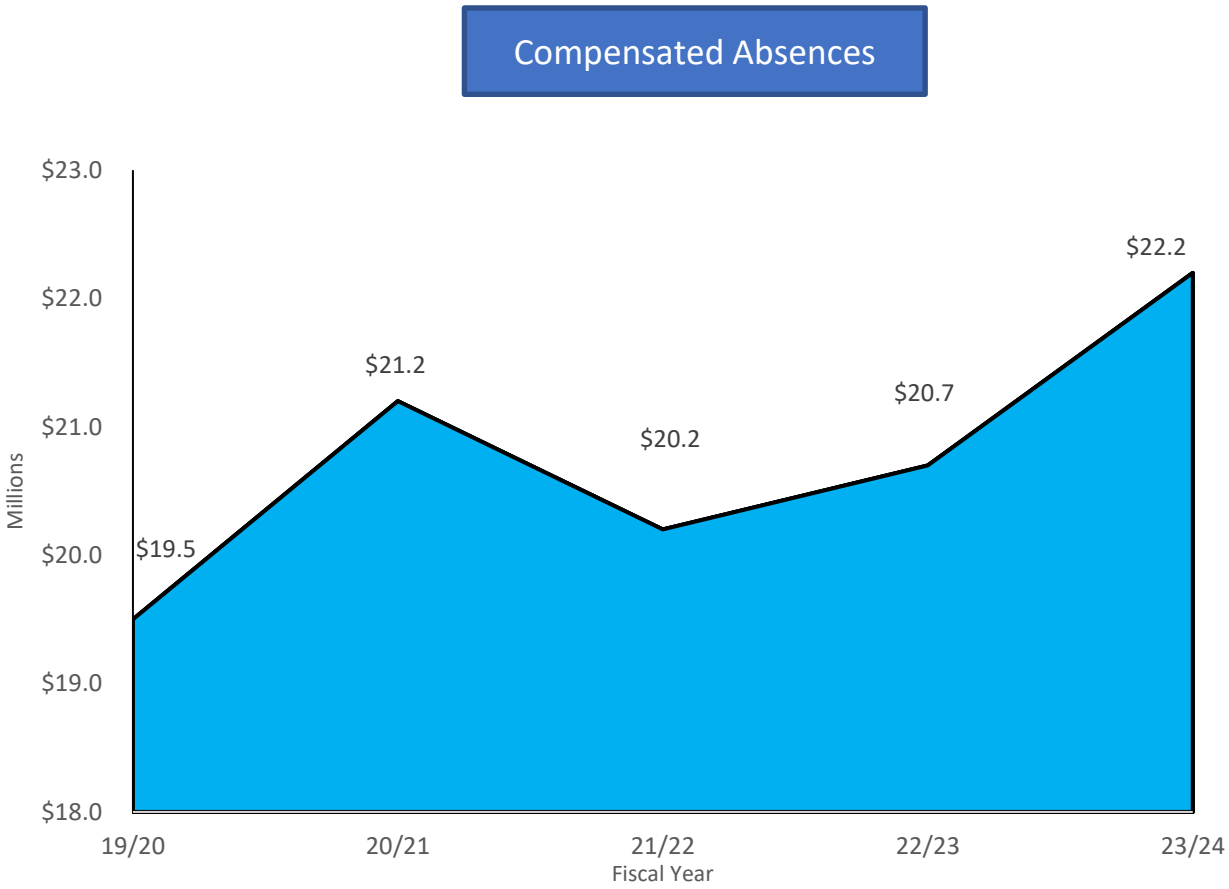
increases to the workforce including April 2012 with the addition of the City of Santa Ana and August 2019 with the addition of the City of Garden Grove. Both cities reimburse OCFA for injuries that initially occurred on or before they joined OCFA.

D. ACCRUED COMPENSATED ABSENCES

Compensated absences are commonly described as paid time off made available to employees in connection with sick and vacation time. If employees do not use all of such compensated absences, a liability is accrued for the unused portion. The OCFA's policy allows employees to accumulate earned but unused sick and vacation pay benefits.

OCFA's labor agreements allow employees to cash out sick and vacation time throughout their career with the exception of the Local 3631 Firefighter unit, which can only cash out vacation time. However, the majority of sick and vacation payouts occur at the time an employee retires.

The OCFA has budgeted $4.1 million for sick and vacation payouts in FY 2024/25 based on historical trends and expected retirements. OCFA's total liability for compensated absences as of June 30, 2024, is $22.2 million. MOU salary increases cause the value of accrued leave to increase. This liability is up 7.2% when compared to last year's $20.7 million, as employees resume using sick and vacation time now that the pandemic has subsided.



E. CAPITAL LEASES

During FY 2020/21, OCFA implemented Government Accounting Standards Board (GASB) Statement No. 87 which requires all leases to be reported as capital leases and eliminates the classification of an operating lease unless the lease is a short-term lease, defined as 12 months or less. Contracts for these leases must appear on the balance sheet as a liability.

In November, 2022 OCFA executed a Lease Purchase Agreement to finance the purchase of two Firehawk helicopters. The term of the lease financing is 15 years with an interest rate of 3.13%. OCFA's long-term lease liabilities as of June 30, 2024 total $59.9 million and are listed in the table below.

	$ Amount
2 Firehawk Helicopters	$55,111,628
Fullerton Airport Land Lease (Stn. 41)	4,673,913
Helicopter Training Tower	173,259
Total	**$59,958,800**

Prior to the capital leases listed above, in December 2008, the OCFA entered into a ten-year Lease Purchase Agreement to purchase two helicopters and related equipment for a purchase price of $21.5 million. The final payment was made in December 2018.

III. SUMMARY

OCFA's total long term, unfunded liabilities as of June 30, 2024,* are as follows:

	$ Amount in Millions	***% of Total***
Defined Benefit Pension Plan *	$142.9	51.3%
Defined Benefit Retiree Medical Plan	53.3	19.2
Accrued Compensated Absences	22.2	8.0
Capital Leases**	59.9	21.5
Total* **	**$278.3**	**100.0%**

* The valuation date for the pension plan is December 31, 2023, instead of June 30, 2024, consistent with OCERS' calendar year basis for financial reporting.

** Capital Leases reflect the November 2022 purchase of two helicopters.

*** Workers' Compensation is fully funded with reserves and therefore not reflected as an unfunded liability.

IV. ACTIONS TAKEN

OCFA has taken several additional steps to manage its long-term obligations:

1. As of December 31, 2023, OCFA's pension liability is 94.7% funded, therefore, snowball payments continue to be directed to the Retiree Medical Liability.
2. As of December 31, 2022, OCFA's pension liability is 93.7% funded, therefore, snowball payments continue to be directed to the Retiree Medical Liability.
3. As of December 31, 2021, OCFA's pension liability is 92.68% funded. Based on Board policy to achieve 85% funding, future snowball payments are now being directed to the Retiree Medical Liability
4. As part of the 2019 Irvine Settlement Agreement, OCFA agreed to establish a 115 Trust and to make annual deposits of $2 million, dedicated solely for future application to OCFA's pension liability. After the initial $2 million payment in July 2019, if OCFA's pension is less than 85% funded, the annual deposit is reduced to $1.5 million and $500,000 is directed towards the UAAL paydown.
5. In 2017, OCFA negotiated a five year Health Plan Agreement with the firefighter labor group which contained a provision to return excess fund balance and allocate those funds to the Retiree Medical Trust Fund.
6. In FY 2015/16 and again in FY 2016/17, OCFA modified its Accelerated Pension Paydown Plan to include additional sources of funding.
7. During 2015 and 2016, OCFA completed negotiations with all four labor groups resulting in increased employee contributions towards retirement.
8. On June 26, 2014, the Board approved an Alternative Dispute Resolution process for disputed workers' compensation cases, also known as a Carve-Out program. The State has approved the program and it was implemented on October 1, 2014.
9. On September 26, 2013, the Board approved a strategy to accelerate the pay down of OCFA's pension liability. Under this Plan, the actuary, the Segal Company, estimated this liability will be paid by December 2025. To date, OCFA has made an additional $124.3 million in payments to OCERS to lower its UAAL.
10. Completed a special actuarial study relating to the OCFA's Retiree Medical Defined Benefit Plan to evaluate options for potential plan amendments which could improve plan funding, subject to future negotiation with OCFA's labor groups. The results of the study were shared with the labor groups.
11. Evaluated the financial feasibility of paying off the outstanding lease financing obligations associated with the OCFA's helicopters, as part of the 2014/15 budget development process.
12. Directed staff to evaluate options for mitigating the budget and liability impacts of payouts for accumulated sick and vacation balances, subject to future negotiation with OCFA's labor groups.
13. Used a trigger formula during down economic cycles to connect pay raises for all OCFA employees to OCFA's financial health.
14. Implemented lower retirement formulas for all labor groups.
15. Refinanced the helicopter lease to lower the interest rate. Last payment made in December 2018.
16. Implemented annual prepayment of retirement contributions to achieve a discount.

17. Provided a study to the Board of Directors regarding the feasibility of Pension Obligation Bonds.
18. Provided a study to the Board of Directors regarding the feasibility of changing automatic Cost of Living Allowance (COLA) increases for pensions; transmitted a copy of the report to the County Board of Supervisors and OCERS Board of Retirement, for their consideration of potential cost-containment actions relating to Pension COLAs under the authority granted by the ’37 Act.

V. RECOMMENDATIONS

Recommended action pending approval of this staff report is to receive and file the report.

VI. CONCLUSION

In order to strategically fund long-term liabilities, OCFA must continue to strategically balance present-day needs with future commitments. The goal is for OCFA’s budget over the long-term to fund all of its long-term liabilities.

Exhibit A

OCFA Member Retirement Contributions

Safety Members' Retirement

Firefighter Safety members:
Effective September 2016, 2017, 2018, and 2019, employees paid an additional 3.50%, 3.49%, 2.00%, and 0.54% in employee retirement contributions, respectively, increasing their employee contributions depending on age of entry. Thereafter, these employees will pay any subsequent increases in the employee retirement contributions. Employee rates from the most recent actuarial valuation are footnoted on Page 3. Employees hired on or after January 1, 2013, when PEPRA was enacted will continue to be subject to PEPRA requirements of 50% of normal cost for employee retirement contributions, which vary based on age of entry.

Chief Officer Safety members:
Effective July 2016, 2017, 2018, and 2019,employees paid an additional 3.50%, 3.49%, 3.30%, and 0.93% in employee retirement contributions, respectively, increasing the employee contributions depending upon their age of entry. Thereafter, these employees will pay any subsequent increases in the employee retirement contributions. Employee rates from the most recent actuarial valuation are footnoted on Page 3. Employees hired on or after January 1, 2013, when PEPRA was enacted will continue to be subject to PEPRA requirements of 50% of normal cost for employee retirement contributions, which vary based on age of entry.

General Members' Retirement

OCEA members:
Effective March 2015, 2016 and 2017, employees hired prior to January 1, 2013, paid an additional 2%, 2.5% and 3% in employee retirement contributions, respectively, increasing the employee contributions depending upon their age of entry. Thereafter, these employees will pay any subsequent increases in the cost for employee retirement contributions. Employee rates from the most recent actuarial valuation are footnoted on Page 3. Employees hired after PEPRA was enacted will continue to be subject to PEPRA requirements of 50% of normal cost for employee retirement contributions, which vary based on age of entry.

Administrative Management members:
Effective July 2015, January 2016, and January 2017, employees hired prior to January 1, 2013, paid an additional 4%, 2%, and 2.25% in employee retirement contributions, respectively, increasing the employee retirement contributions depending upon their age of entry. Thereafter, these employees will pay any subsequent increases in the cost for employee retirement contributions. Employee rates from the most recent actuarial valuation are footnoted on Page 3. Employees hired after PEPRA was enacted will continue to be subject to PEPRA requirements of 50% of normal cost for employee retirement contributions, which vary based on age of entry.

Executive Management:
Some members of Executive Management fall under Safety and others fall under General member categories. Regardless, all Executive Management employees who are not subject to the provisions of PEPRA were paying 9% in employee retirement contributions prior to March 2015. Effective March 2015, they began phased-in increases to their contribution rate with a 2% increase in employee contributions in year one, a 2.5% increase in year two and payment of full member contributions in year three, which vary based on age of entry.

Orange County Fire Authority
Expedited Payment of UAAL **Attachment 2**
Snowball Effect of Multiple Strategies
Updated June 30, 2024

			Estimated Annual UAAL Payments from Various Strategies / Sources							
Years From Start of Plan	Remaining Years to Completion	Fiscal Year	Unencumbered Fund Balance Available	Annual Savings from PEPRA Reductions to Retirement Contribution Rates	Budget Increase of $1M, grows by $2M/year to $15M	Budget Increase of $1M/year Funded by Excess W/C Reserves	50% of General Fund Surplus	Irvine Settlement Agreement	Annual Snowball Amount	Cumulative Expedited UAAL Payment
			Part A	Part B	Part C	Part D	Part E	Part F		
1		13/14	3,000,000	2,500,000	-	-			5,500,000	5,500,000
2		14/15	21,290,238	-	-	-			21,290,238	26,790,238
3		15/16	12,609,380	2,802,122	-	-			15,411,502	42,201,740
4		16/17	9,814,477	1,653,114	1,000,000	1,000,000			13,467,591	55,669,331
5		17/18	13,174,516	1,886,420	3,000,000	1,000,000	870,041		19,930,977	75,600,308
6		18/19	10,000,000	3,167,397	5,000,000	1,000,000			19,167,397	94,767,705
7		19/20	4,030,172	1,648,658	7,000,000	1,000,000			13,678,830	108,446,535
8		20/21	3,000,000	2,368,859	9,000,000	1,000,000		500,000	15,868,859	124,315,394
Pension Plan Contributions			**76,918,783**	**16,026,570**	**25,000,000**	**5,000,000**	**870,041**	**500,000**		
Retiree Medical Plan Contributions										
1		21/22		3,279,280	11,000,000	-			14,279,280	14,279,280
2		22/23		4,787,217	13,000,000	-			17,787,217	32,066,497
3		23/24	-	5,772,547	15,000,000	-			20,772,547	52,839,044
4		24/25	-	6,814,115	15,000,000	-			21,814,115	74,653,159
5		25/26	-	14,242,631	15,000,000	-			29,242,631	103,895,790
Total Snowball Plan Contributions			76,918,783	50,922,360	94,000,000	5,000,000	870,041	500,000		

Orange County Fire Authority **Attachment 3**

Distribution of Liabilities by Member Agency

As of June 30, 2024

				Proportional Share		
Member Agency	**# of EEs**	**2022 Incidents**	**% of Total EEs**	**Pension UAAL**	**Retiree Medical**	**Total**
County Unincorporated (SFF) Station 8, 15, 18, 25, 33, 40, 56, 58, 67	125		14.60%	20,880,841	7,784,516	28,665,357
Aliso Viejo (SFF) Station 57	20		2.34%	3,340,935	1,245,523	4,586,457
					-	
					-	
Buena Park (CCC) Stations 61, 62, 63	50		5.84%	8,352,336	3,113,807	11,466,143
					-	
					-	
Cypress (SFF) Station 17	21		2.45%	3,507,981	1,307,799	4,815,780
					-	
					-	
Dana Point (SFF) Stations 29, 30	26		3.04%	4,343,215	1,619,179	5,962,394
					-	
Irvine (SFF) Stations 4, 6, 20, 26, 27, 28, 36, 38, 47, 51, 55	179		20.91%	29,901,364	11,147,427	41,048,792
					-	
					-	
Laguna Hills (SFF) Station 22 (serving both LGH & LGW)	36	3,990	1.69%	2,421,739	902,840	3,324,580
					-	
					-	
Laguna Woods (SFF) Station 22 (serving both LGH & LGW)		5,918	2.51%	3,591,943	1,339,100	4,931,043
					-	
					-	
Laguna Niguel (SFF) Stations 5, 39, 49	33		3.86%	5,512,542	2,055,112	7,567,654
					-	
					-	
Lake Forest (SFF) Stations 19, 42, 54	34		3.97%	5,679,589	2,117,388	7,796,977
					-	
					-	
La Palma (SFF) Station 13	11		1.29%	1,837,514	685,037	2,522,551
					-	
					-	
Los Alamitos (SFF) Station 2	11		1.29%	1,837,514	685,037	2,522,551
					-	
					-	
Mission Viejo (SFF) Stations 9, 24, 31	47		5.49%	7,851,196	2,926,978	10,778,174
					-	
					-	
Rancho Santa Margarita (SFF) Station 45	30		3.50%	5,011,402	1,868,284	6,879,686
					-	
					-	
San Clemente (CCC) Stations 50, 59, 60	37		4.32%	6,180,729	2,304,217	8,484,946
					-	
					-	

Orange County Fire Authority **Attachment 3**

Distribution of Liabilities by Member Agency

As of June 30, 2024

				Proportional Share		
Member Agency	**# of EEs**	**2022 Incidents**	**% of Total EEs**	**Pension UAAL**	**Retiree Medical**	**Total**
San Juan Capistrano (SFF)	18		2.10%	3,006,841	1,120,970	4,127,811
Station 7					-	
					-	
Seal Beach (CCC)	19		2.22%	3,173,888	1,183,246	4,357,134
Stations 44, 48					-	
					-	
Stanton (CCC)	20		2.34%	3,340,935	1,245,523	4,586,457
Station 46					-	
					-	
Tustin (CCC)	40		4.67%	6,681,869	2,491,045	9,172,914
Stations 21, 37, 43					-	
					-	
Villa Park (SFF)	11		1.29%	1,837,514	685,037	2,522,551
Station 23					-	
					-	
Westminster (CCC)	39		4.56%	6,514,822	2,428,769	8,943,592
Stations 64, 65, 66					-	
					-	
Yorba Linda (SFF)	49		5.72%	8,185,290	3,051,530	11,236,820
Stations 10, 32, 53						
Totals	**856**		**100.00%**	**142,992,000**	**53,308,368**	**196,300,368**

Note: Santa Ana and Garden Grove are excluded since the UAAL being paid down originated prior to their joining OCFA.

Allocation of PARS 115 Trust

Attachment 4

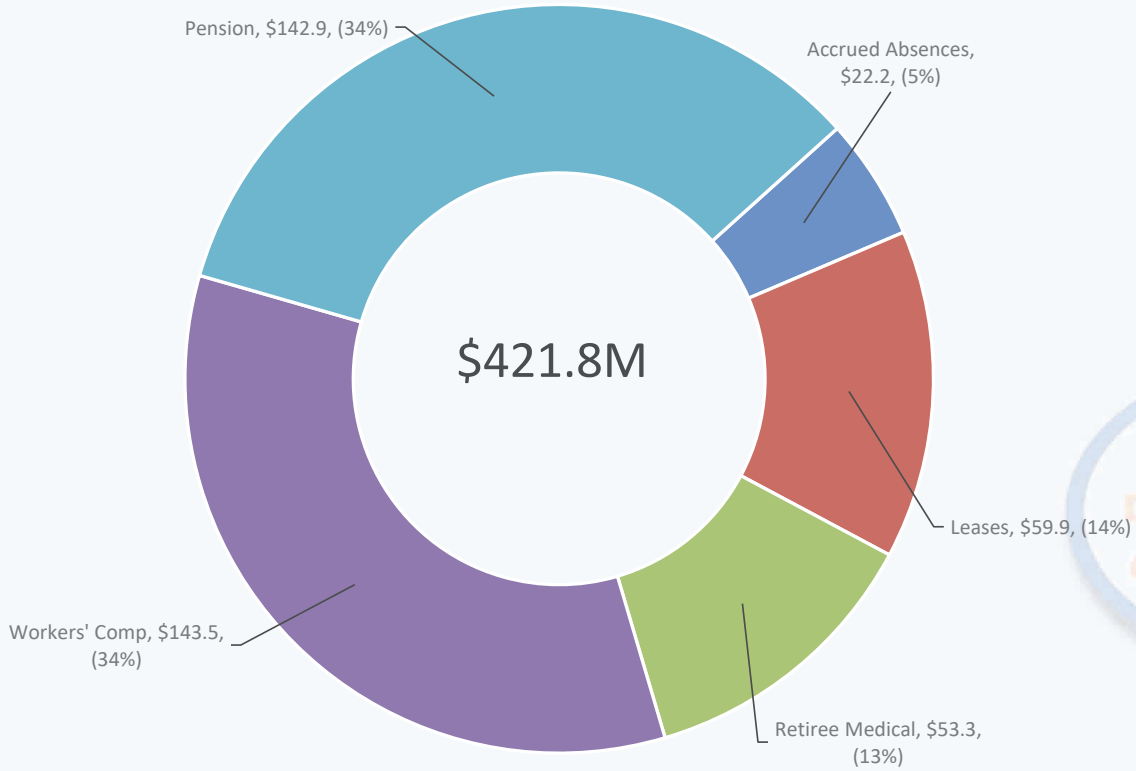
Agency	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Total
Aliso Viejo	$ 33,313	$ 25,075	$ 25,707	$ 6,538	$ 9,208	$ -	$ 99,841
Cypress	-	-	-	-	-	-	-
Dana Point	222,223	183,564	183,452	212,402	291,408	277,401	1,370,450
Irvine	1,143,817	938,075	1,098,374	1,267,502	1,572,011	1,481,725	7,501,504
La Palma	-	-	-	-	-	-	-
Laguna Hills	-	-	42,232	-	-	-	42,232
Laguna Niguel	93,236	81,334	89,472	90,602	118,454	92,788	565,886
Laguna Woods	-	-	-	-	-	-	-
Lake Forest	62,767	54,812	-	36,988	79,633	59,770	293,970
Los Alamitos	-	-	-	-	-	-	-
Mission Viejo	-	-	-	-	-	-	-
Rancho Santa Margarita	27,625	22,504	2,003	3,176	33,346	12,291	100,945
San Juan Capistrano	-	-	-	747	-	37,115	37,862
Villa Park	13,406	9,805	12,019	14,197	16,673	17,594	83,694
Yorba Linda	-	-	-	49,691	68,186	55,914	173,791
Unincorporated	434,898	292,224	216,002	186,249	299,620	375,492	1,804,485
Total	**$ 2,031,285**	**$ 1,607,393**	**$ 1,669,261**	**$ 1,868,092**	**$ 2,488,539**	**$ 2,410,089**	**$ 12,074,660**

Attachment 5

2024 Long Term Liability Study

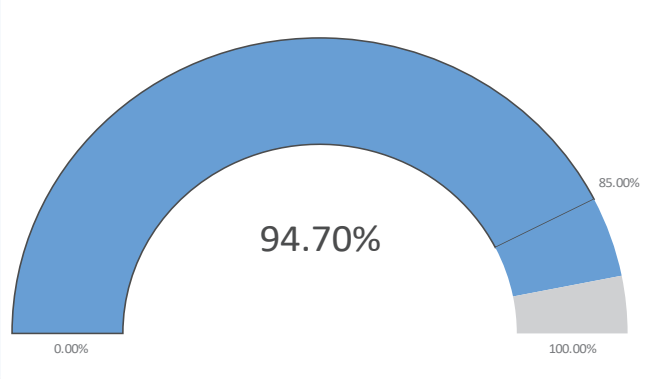
Budget & Finance Committee Meeting
March 12, 2025

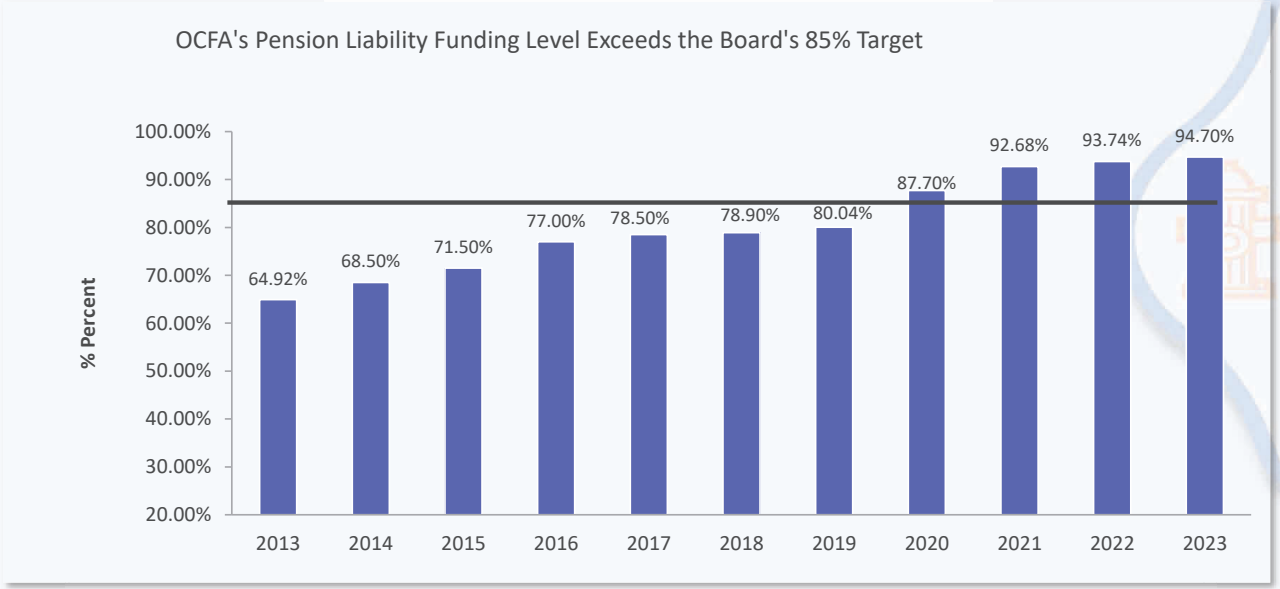
OCFA's Long Term Liabilities



- Total liabilities decreased $50.7M as pension liability, retiree medical, and leases decreased
- Workers' compensation and accrued absences slightly increased.

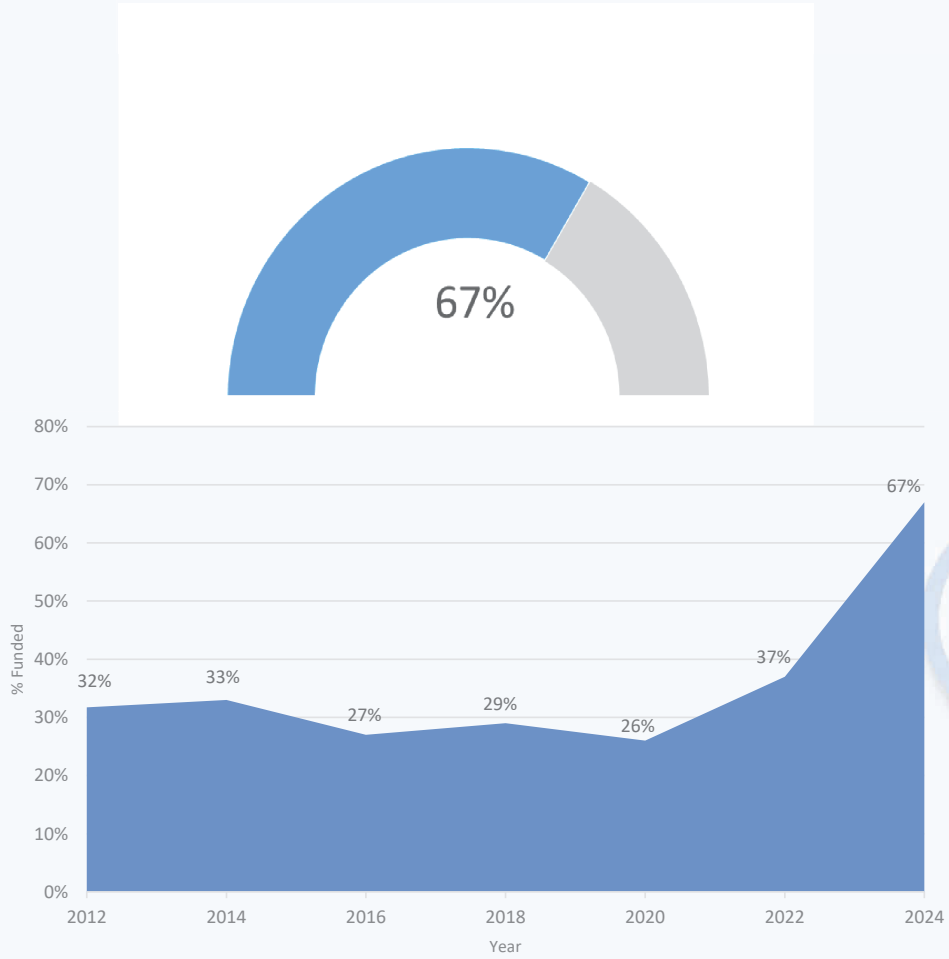
Pension Liability Funding Level





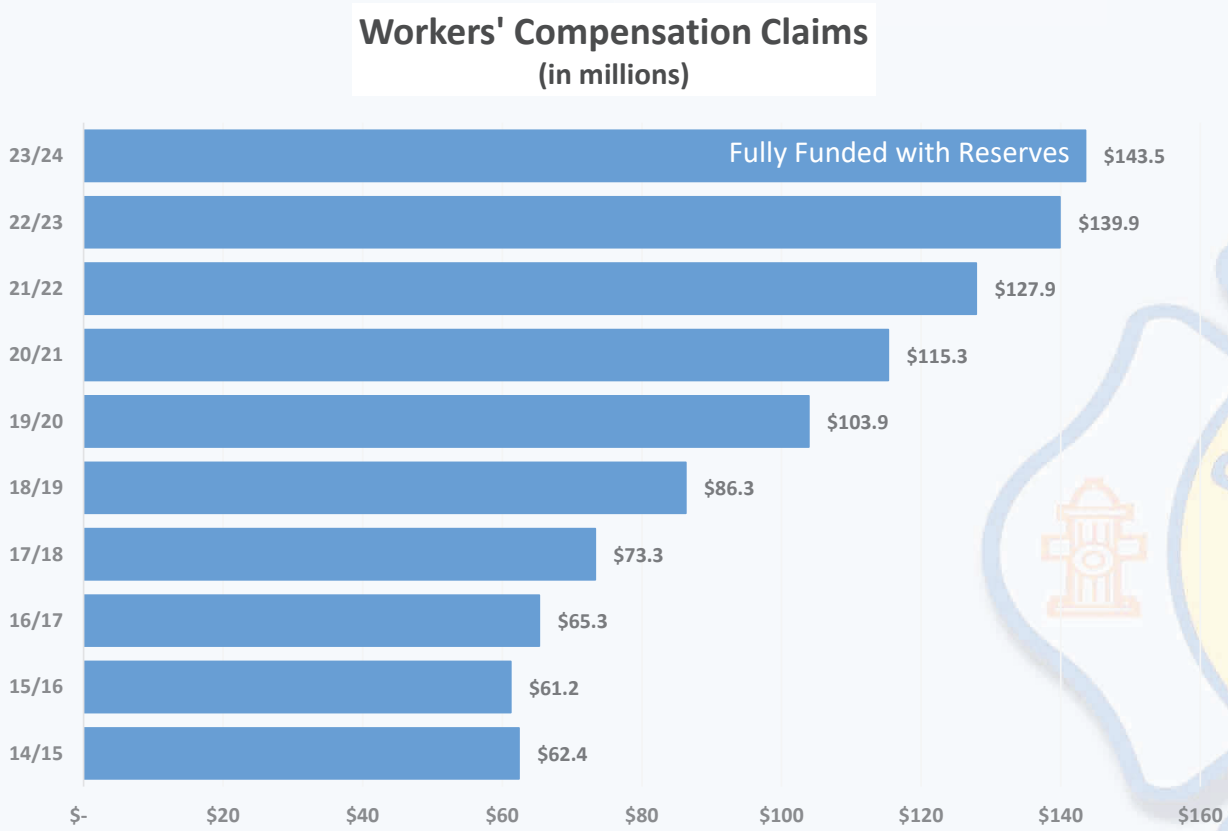
- Funding level of 85% achieved in 2020.
- Saved $94.8M in interest.
- Additional snowball plan payments have been redirected to retiree medical liability fund.

Retiree Medical Liability Funding Level



- The UAL is $53.3M and is 67% funded.
- Pension snowball payments redirected to this fund.
- Additional payments of $53M have been made the past 3 fiscal years.
- Projected 100% funding by 2026.

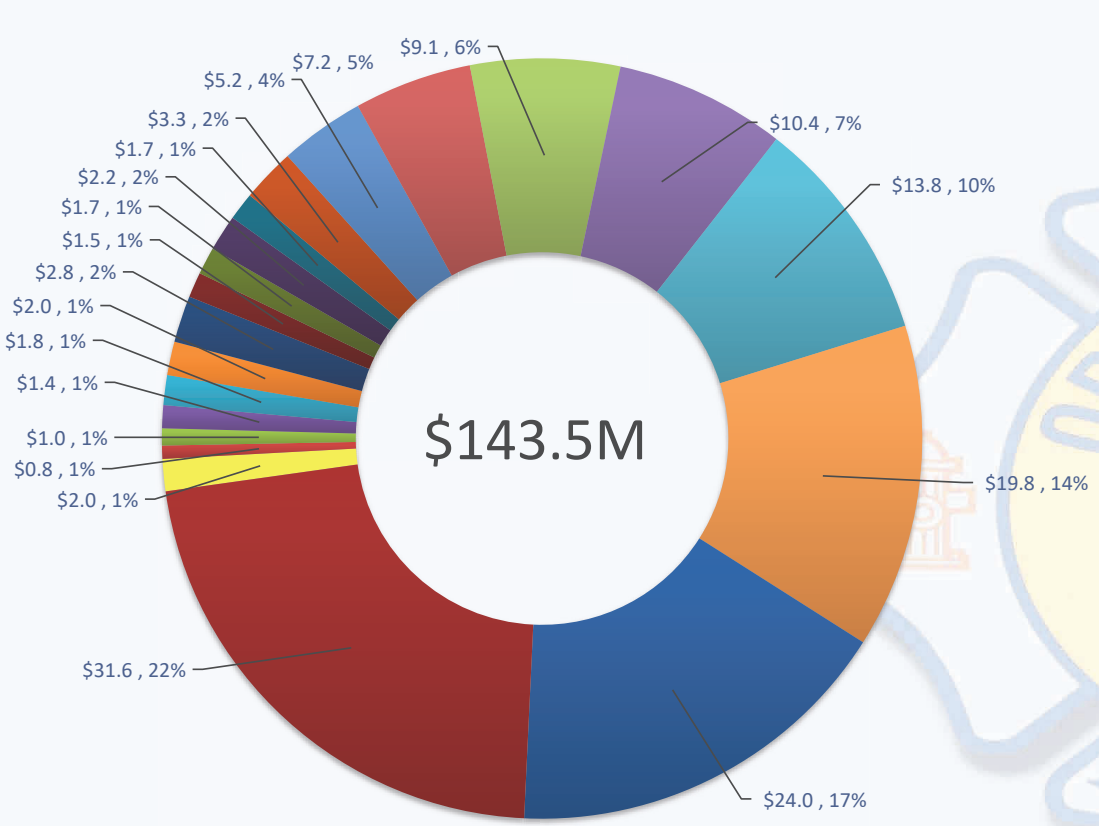
Cumulative Outstanding Workers' Compensation Claims (in millions)



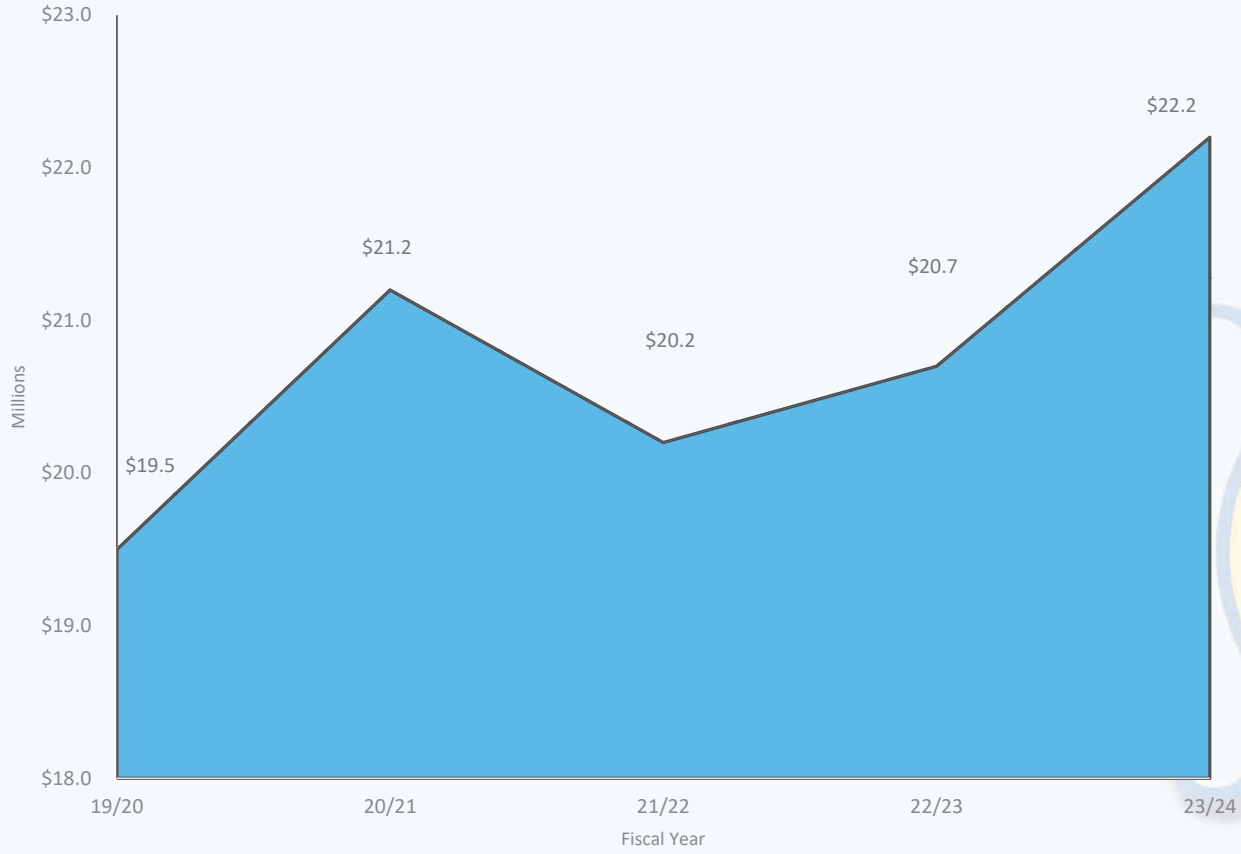
Driving Factors –

- Increase in the number of employees
- Aging workforce
- Increase in the number and frequency of claims
- Covid cases
- Growing mental health cases
- Increase in medical costs

Cumulative Outstanding Workers' Compensation Claims by Year (in millions)



Compensated Absences (in millions)



Driving Factors

- Employees resumed using sick and vacation time.
- MOU salary increases have caused the value of the accrued leave to increase.

Total Unfunded Liabilities Decreased (in millions)

	$ Amount in Millions	% of Total
Defined Benefit Pension Plan	$ 142.9	51.3%
Defined Benefit Retiree Medical Plan	53.3	19.2
Accrued Compensated Absences	22.2	8.0
Capital Leases	59.9	21.5
Total*	**$278.3**	**100.0%**

*Workers Compensation is not reflected in the table as an unfunded liability as it is fully funded with reserves.

- Total unfunded liabilities have decreased $54.3M since last year driven primarily from savings recognized in the Retiree Medical Plan ($37.5M) and pension liability plan ($15.5M).

Recommended Action

- Receive and file the report

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting | **Agenda Item No. 2E**
March 27, 2025 | **Consent Calendar**

Fiscal Year 2023/24 Backfill/Overtime and Calendar Year 2024 Total Earnings/Compensation Analysis

Contact(s) for Further Information

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Summary

This annual agenda item is submitted to provide an overview and analysis of the Fiscal Year 2023/24 backfill and overtime earnings along with employee total compensation for Calendar Year 2024, and to reaffirm current direction regarding filling permanent and temporary vacancies.

Prior Board/Committee Action

On March 12, 2025, 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 7-0 (Directors Hasselbrink and Traut absent).

RECOMMENDED ACTION(S)

1. Direct staff to continue pursuing reductions in overtime by filling vacant positions as quickly as possible after the positions become vacant.
2. Direct staff to continue using overtime to fill shifts which are temporarily vacant, recognizing this as a cost-effective practice for temporary needs.

Impact to Cities/County

Not Applicable.

Fiscal Impact

Backfill/overtime costs are included in the annual budget.

Background

See extended background.

Attachment(s)

1. 2024 Average Overtime Shifts Compared to 2023 (Safety/Firefighter Ranks, 14 Hour Min.)
2. 2024 Average Overtime Shifts Compared to 2023 (Safety/Firefighter Ranks, 4 Hour Min.)
3. 2024 Average Overtime Shifts Compared to 2023 (Non-Safety/Dispatchers)
4. Frequently Asked Questions & Responses
5. Revised PowerPoint presentation from B&FC meeting

Background

The OCFA's General Fund budget (excluding Fund 12110 – CIP) consists primarily of labor costs, with approximately 86.4% of final Fiscal Year (FY) 2023/24 expenditures allocated to salaries and employee benefits. For FY 2023/24, final backfill/overtime expenditures were $70,366,061 or 14.8% of total salary and employee benefit costs. This percentage has consistently trended down for the past four fiscal years, from 17.0% in FY 2019/20 to 16.4% in FY 2020/21, 15.5% in FY 2021/22, 14.8% in FY 2022/23, and 14.8% in FY 2023/24. The primary factors driving OCFA's backfill/overtime costs are:

- OCFA's Constant Staffing Policy - $54.2M
- Major Emergency Incident Response - $4.7M
- Training Requirements - $6.8M
- Discretionary - $4.6M

Backfill and overtime costs can either be non-discretionary or discretionary, as explained in the following paragraphs.

Constant Staffing Backfill/Overtime (Non-Discretionary)

The OCFA maintains constant staffing levels, which means that every day, all authorized Operations post-positions are staffed. Constant staffing enables delivery of emergency services 24-hours per day, 7-days per week. A post-position is a seat on a fire or Emergency Medical Services (EMS) response unit (including engines, trucks, and paramedic vehicles) that must be filled to meet the staffing requirements of that unit.

- Backfill occurs when there is a vacancy in a position that requires constant staffing and another employee works overtime to fill the vacancy. Examples include:
    - Positions temporarily vacant, due to personnel on leave (sick, vacation, jury duty, military leave, bereavement, workers' compensation, etc.)
    - Positions vacant as a result of retirements, promotions, or the addition of new positions to staff a new station or convert Basic Life Support engines to Advance Life Support engines, pending recruitments to fill the positions
    - Positions temporarily vacant, due to personnel responding to major in/out-of-county emergency incidents
- Overtime (as opposed to "backfill" described above) is used for work performed above and beyond the constant staffing requirements. Examples include strike teams, overhead assignments, or emergency incidents, either in- or out-of-county, and mandatory training classes that occur on a day other than the employee's regularly assigned shift.

Major Emergency Incident Response (Non-Discretionary)

Another form of non-discretionary overtime incurred by OCFA is for major emergency incident response. OCFA responds to emergency incidents at the request of surrounding fire agencies (Mutual Aid), California Department of Forestry (CAL FIRE), Cleveland National Forest Service (CNF), and the California Office of Emergency Services (Cal OES). Backfill/overtime costs for responding to major emergency incidents in FY 2023/24 totaled $4.7 million and represented approximately 6.7% of total backfill/overtime expenditures. Historically, 75-100% of emergency related incident response costs are reimbursed.

For FY 2022/23, the total claims submitted for emergency incident costs were $6.2M, which includes personnel time (both regular and overtime), equipment, services, and supplies. Out of 58

Assistance by Hire (ABH) claims, OCFA has received reimbursement on all 58 claims at a reimbursement rate of 100%, amounting to $6.2M. For FEMA Federal Management Assistance Grant (FMAG) claims, FEMA will reimburse up to 75% of the amount claimed. In FY 2021/22, OCFA submitted one FMAG claim for the Coastal Fire in the amount of $1.1M, for which a reimbursement of $770K was received in FY 2023/24. For FEMA Public Assistance claims, FEMA will reimburse up to 90% of the amount claimed. In FY 2022/23, OCFA submitted one PA claim for COVID-19 in the amount of $344K, which is currently progressing through the normal FEMA review process.

Backfill/Overtime costs for constant staffing and major emergency incident response are considered non-discretionary and represent 83.8% of FY 2023/24 Backfill/Overtime costs.

Training Requirements (Discretionary & Non-Discretionary)
OCFA incurs additional backfill/overtime costs related to various training requirements for suppression personnel. Examples include mandatory training requirements for federal, state, and local programs including Urban Search and Rescue (US&R), Airport Rescue Firefighting (ARFF), Weapons of Mass Destruction (WMD), and Incident Command (IC). Additionally, the OCFA historically incurs overtime and backfill costs to provide training academies for new and/or promoted dispatchers, firefighters, engineers, captains, battalion chiefs, and reserve firefighters. Backfill/overtime costs as a result of training activities in FY 2023/24 totaled $6.8 million and represented 9.7% of the total backfill/overtime expenditures.

Backfill/Overtime/Discretionary
For FY 2023/24, total discretionary backfill/overtime was $4.6 million or 6.5% and is attributable to the following:

- Employees staffing special events, participating on project teams, and Fire Cadet Program activities.
- Information Technology, Geographic Information System (GIS), automotive, communications services, and fire prevention personnel requested to work outside their normal work schedule.

Regular vs. Overtime Analysis
When OCFA has a need to fill firefighter shifts that are only vacant on a temporary basis, backfill/overtime continues to be more cost effective than hiring a full-time benefited employee for filling these <u>temporary</u> vacancies such as those that occur when employees are off on sick-leave or when employees are responding to out-of-county incidents. That said, it is **not** OCFA's intent to use overtime as a cost-savings measure when positions are vacant due to retirements/promotions. Instead, OCFA seeks to fill those vacant positions as quickly as possible through new recruitment academies and promotional academies.

Filling Vacant Positions
To help reduce the number of vacancies that are open pending hiring and promotions, OCFA has conducted, and plans to conduct, the following academies:

<u>Academies in FY 2024/25</u>	<u>Academies planned for FY 2025/26</u>
2 Firefighter Academies	2 Firefighter Academies
2 Fire Apparatus Engineer Academies	2 Fire Apparatus Engineer Academies
2 Fire Captain Academies	2 Fire Captain Academies
1 Battalion Chief Academy	1 Battalion Chief Academy

OCFA has maintained full staffing at the firefighter rank[1] due to Firefighter Academy graduations. OCFA recently completed Firefighter Trainee Academy 60 in December 2024 and is currently running Firefighter Trainee Academy 61 which began in February 2025. Firefighter vacancies occur throughout the year as firefighters are promoted into the engineer and captain ranks, and as retirement activity occurs among all ranks. As a result, the Board previously approved ongoing authorization for the hiring of approximately 50 Firefighter Trainees per academy for all academies, due to attrition/promotions that will occur during and following academy graduations. This has resulted in total firefighter positions temporarily exceeding total permanent authorized firefighter positions pending promotions and retirements/other separations. This practice was first authorized by the Board of Directors in FY 2017/18, and it is the key factor which enabled OCFA to match the pace at which we hire new firefighters, to the ongoing pace of promotions and retirements. Our current practice is to strategically promote Fire Captains and Fire Apparatus Engineers from eligibility lists as to minimize impacts at the lower ranks.

Also, we currently have four dispatcher vacancies plus three dispatchers on extended leave. In addition, we currently have six additional "functional" vacancies as the current trainees still require fully certified personnel to fill behind. The vacancies in dispatcher positions have continued to accumulate quickly. The workload and demands on the OCFA Emergency Command Center (ECC) have continued to increase over time, resulting from an increase in incident volume, incident complexity, and the loss of trained personnel. Our last academy started with fourteen trainees, of which, only six remain. The ECC is currently experiencing a 10-year record high forced hiring situation. The staffing situation sometimes necessitates employees working between 4-10 shifts beyond their regularly assigned 15 or 16 twelve-hour shifts per month. This level of forced hiring has a direct impact on morale, family/work balance, and the ability to retain trained and qualified employees.

As with most fire service dispatch centers, the staffing situation is complex. Vacancies from personnel attrition and retirements, accrued leave utilization, and workers' compensation add to the force hiring situation at the ECC. As a result, the Board previously approved ongoing authorization to temporarily exceed the number of authorized dispatchers hired into each academy, pending attrition/retirements/promotions that will occur. This practice is the key factor helping us tackle the staffing situation in the ECC.

Backfill/Overtime Monitoring & Analysis

OCFA finance staff prepares monthly reports to track and monitor backfill/overtime activity. Reports are provided internally to management to show expenditures by section and by cause (reason) so that Operations and support departments can monitor and, if required, adjust activities as needed in their respective areas.

The OCFA also has policies, procedures, and systems in place that monitor and report overtime usage. Due to the significant weather events across California requiring deployments and prepositions, combined with open positions, vacancies, promotions, retirements, and workers' compensation cases during CY 2024, the OCFA was required to utilize backfill and overtime to fulfill these needs. The need to ***force-hire*** employees to work extended hours beyond what they voluntarily desired to work decreased at the engineer rank, and increased at the fire captain and

[1] Although full staffing was reached at the firefighter rank, continued promotional processes were added to make progress in filling vacancies in the ranks of fire apparatus engineer and fire captain.

firefighter rank compared to CY 2023 (Attachments 1, 2, and 3). These numbers are trending up at the end of 2024. As stated earlier, the OCFA has aggressively been conducting various academies to help reduce the distribution of overtime and impact on employees. OCFA staff has also been working with the Orange County Professional Firefighters Association, Local 3631, to enhance existing policies and make modifications to the Staffing System to reduce the amount of forced overtime.

As discussed in this report, the majority of backfill/overtime incurred by OCFA is non-discretionary and emergency response activity is generally 75-100% reimbursable. The small portion of overtime considered discretionary (6.5% of total backfill/overtime expenditures) is carefully managed and closely monitored.

Total Employee Compensation Reporting

OCFA is directed by the California State Controller's Office (SCO) to comply with Government Code 53891 that requires cities, counties, and independent special districts to submit completed financial and compensation reports to the SCO once per year. The SCO provides jurisdictions with a report template that identifies specific compensation pay elements which must be included in the report along with a required report format. Effective in CY 2018, employers were required to only report the normal employer paid retirement costs and not report the Unfunded Actuarial Accrued Liability (UAAL) as part of an individual employee's compensation. Currently, the UAAL comprises 31-49% of the OCERS employer retirement costs. This year's report will be provided to the SCO on or before April 30, 2024, in compliance with the due date.

Compensation Cost Transparency

The Orange County Grand Jury developed their own Compensation Cost Transparency (CCT) model, which has different reporting requirements from the SCO. Annual employee compensation costs are posted and readily available on the OCFA website dating back to CY 2009. Starting with CY 2011, the format of the report follows the CCT model and includes all earnings segregated by base salary, overtime, unused leave payouts, and other/special pay. Employer paid retirement and benefits are also included in the employee compensation report. This year's report will be posted to the OCFA website on or before April 30, 2024, in compliance with the due date.

SAFETY POST POSITIONS - 4-HOUR MINIMUM

OVERTIME MONTHLY UPDATE Dec 2024

AVERAGE OVERTIME SHIFTS - 4-HOUR

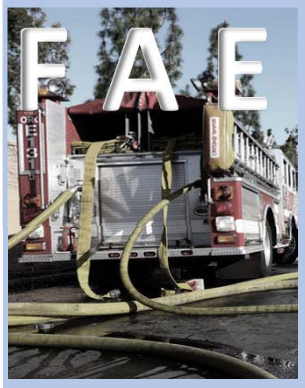
Forced Overtime | Voluntary Overtime | Total Overtime

PM/ FC

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	1.4	3.2	4.6	2.6	2.2	4.8
Feb '24	1.1	2.9	4.0	2.6	2.5	5.1
Mar '24	1.5	3.3	4.8	4.0	2.8	6.8
Apr '24	1.6	2.9	4.5	2.9	2.6	5.5
May '24	1.1	3.1	4.2	1.5	2.9	4.4
Jun '24	2.1	2.5	4.6	2.3	2.6	4.9

FC

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	1.3	3.2	4.5	2.8	2.3	5.1
Feb '24	1.2	3.1	4.3	2.7	2.4	5.1
Mar '24	1.3	3.3	4.6	4.2	2.5	6.7
Apr '24	1.4	2.6	4.0	3.7	2.0	5.7
May '24	1.2	2.7	3.9	1.3	2.5	3.8
Jun '24	2.4	2.4	4.8	2.1	2.4	4.5

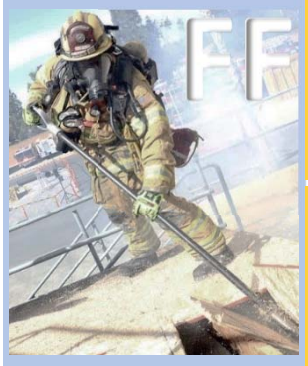


PM/ FAE

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.5	2.8	3.3	1.7	2.0	3.7
Feb '24	1.1	2.6	3.7	0.6	2.1	2.7
Mar '24	0.4	2.4	2.8	1.6	2.5	4.1
Apr '24	0.1	2.3	2.4	0.9	1.9	2.8
May '24	0.3	2.3	2.6	0.6	2.4	3.0
Jun '24	0.8	1.7	2.5	0.8	2.9	3.7

FAE

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.6	3.0	3.6	1.6	2.7	4.3
Feb '24	0.9	3.0	3.9	1.1	2.6	3.7
Mar '24	0.4	2.5	2.9	2.7	2.7	5.4
Apr '24	0.3	2.4	2.7	1.3	2.6	3.9
May '24	0.4	3.1	3.5	0.5	2.5	3.0
Jun '24	0.7	2.8	3.5	0.7	2.5	3.2



PM/ FF

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.6	2.8	3.4	3.7	1.7	5.4
Feb '24	0.8	2.7	3.5	2.7	1.7	4.4
Mar '24	1.2	2.4	3.6	3.4	2.0	5.4
Apr '24	2.0	2.4	4.4	2.1	2.0	4.1
May '24	3.0	1.6	4.6	1.1	2.1	3.2
Jun '24	2.5	1.7	4.2	1.1	2.2	3.3

FF

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.2	1.3	1.5	1.1	1.5	2.6
Feb '24	0.3	1.2	1.5	1.5	1.4	2.9
Mar '24	0.3	1.6	1.9	2.9	1.7	4.6
Apr '24	0.5	1.7	2.2	1.1	1.5	2.6
May '24	0.8	1.6	2.4	0.7	1.5	2.2
Jun '24	1.0	1.8	2.8	0.4	1.5	1.9

Forced and Voluntary Overtime include shifts of 4+ hours worked only.
Averages are calculated using number of Overtime shifts (4+ hours) divided by the number of employees working 3+ shifts in a month.
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.
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OVERTIME QUARTERLY UPDATE Dec 2024

AVERAGE OVERTIME SHIFTS- 4-HOUR

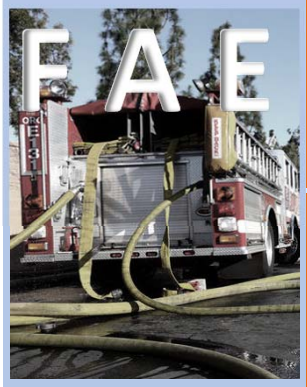
Forced Overtime | Voluntary Overtime | Total Overtime

PM/ FC

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	4.0	9.4	13.4	-	-	
Qtr2	4.8	8.5	13.3	-	-	
Qtr3	9.2	7.5	16.7	4.3	8.4	12.7
Qtr4	6.7	8.1	14.8	3.0	9.2	12.2

FC

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	3.8	9.6	13.4	-	-	
Qtr2	5.0	7.7	12.7	-	-	
Qtr3	9.7	7.2	16.9	4.5	8.0	12.5
Qtr4	7.1	6.9	14.0	2.9	8.8	11.7

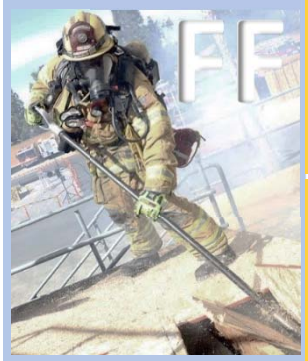


PM/ FAE

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	2.0	7.8	9.8	-	-	
Qtr2	1.2	6.3	7.5	-	-	
Qtr3	3.9	6.6	10.5	4.9	6.9	11.8
Qtr4	2.3	7.2	9.5	2.6	8.6	11.2

FAE

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	1.9	8.5	10.4	-	-	
Qtr2	1.4	8.3	9.7	-	-	
Qtr3	5.4	8.0	13.4	5.1	7.8	12.9
Qtr4	2.5	7.6	10.1	2.5	8.0	10.5



PM/ FF

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	2.6	7.9	10.5	-	-	
Qtr2	7.5	5.7	13.2	-	-	
Qtr3	9.8	5.4	15.2	2.3	7.1	9.4
Qtr4	4.3	6.3	10.6	1.6	6.6	8.2

FF

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	0.8	4.1	4.9	-	-	
Qtr2	2.3	5.1	7.4	-	-	
Qtr3	5.5	4.6	10.1	2.0	5.4	7.4
Qtr4	2.2	4.5	6.7	1.1	5.0	6.1

Forced and Voluntary Overtime include shifts of 4+ hours worked only.
Averages are calculated using number of Overtime shifts (4+ hours) divided by the number of employees working 9+ shifts for the quarter.
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SAFETY POST POSITIONS - 14-HOUR MINIMUM

OVERTIME MONTHLY UPDATE Dec 2024

AVERAGE OVERTIME SHIFTS - 14-Hour

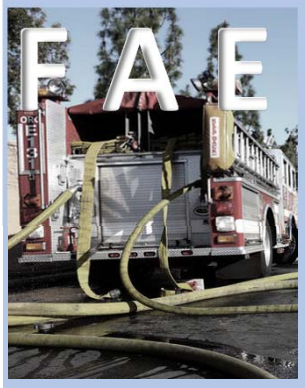
Forced Overtime | Voluntary Overtime | Total Overtime

PM/ FC

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	1.2	3.0	4.2	2.4	2.1	4.5
Feb '24	0.9	2.7	3.6	2.4	2.4	4.8
Mar '24	1.2	3.2	4.4	3.5	2.7	6.2
Apr '24	1.4	2.7	4.1	2.7	2.5	5.2
May '24	0.9	3.0	3.9	1.4	2.8	4.2
Jun '24	1.9	2.4	4.3	2.1	2.5	4.6

FC

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	1.2	3.1	4.3	2.5	2.2	4.7
Feb '24	1.1	2.9	4.0	2.5	2.4	4.9
Mar '24	1.1	3.2	4.3	3.6	2.4	6.0
Apr '24	1.3	2.6	3.9	3.4	1.9	5.3
May '24	1.0	2.6	3.6	1.2	2.4	3.6
Jun '24	2.2	2.3	4.5	2.0	2.3	4.3



PM/ FAE

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.6	3.0	3.6	1.4	1.9	3.3
Feb '24	1.0	2.5	3.5	0.6	2.1	2.7
Mar '24	0.2	2.4	2.6	1.5	2.4	3.9
Apr '24	-	2.2	2.2	0.9	1.9	2.8
May '24	0.3	2.3	2.6	0.5	2.4	2.9
Jun '24	0.5	1.7	2.2	0.7	2.9	3.6

FAE

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.5	3.0	3.5	1.5	2.6	4.1
Feb '24	0.8	3.0	3.8	1.0	2.6	3.6
Mar '24	0.3	2.4	2.7	2.3	2.6	4.9
Apr '24	0.2	2.3	2.5	1.2	2.5	3.7
May '24	0.3	3.1	3.4	0.4	2.4	2.8
Jun '24	0.6	2.7	3.3	0.6	2.4	3.0

PM/ FF

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.4	2.7	3.1	3.5	1.6	5.1
Feb '24	0.7	2.6	3.3	2.5	1.6	4.1
Mar '24	1.1	2.3	3.4	3.0	1.9	4.9
Apr '24	1.9	2.3	4.2	2.0	1.9	3.9
May '24	2.9	1.6	4.5	1.0	2.1	3.1
Jun '24	2.3	1.7	4.0	1.0	2.1	3.1

FF

	2024 Jan-Jun			2024 Jul-Dec		
	Forced	Voluntary	Total	Forced	Voluntary	Total
Jan '24	0.1	1.2	1.3	1.0	1.5	2.5
Feb '24	0.3	1.2	1.5	1.4	1.3	2.7
Mar '24	0.2	1.5	1.7	2.3	1.7	4.0
Apr '24	0.4	1.6	2.0	1.0	1.4	2.4
May '24	0.6	1.5	2.1	0.6	1.5	2.1
Jun '24	0.8	1.8	2.6	0.3	1.5	1.8

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 3+ shifts in a month.
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OVERTIME QUARTERLY UPDATE Dec 2024

AVERAGE OVERTIME SHIFTS - 14-Hour

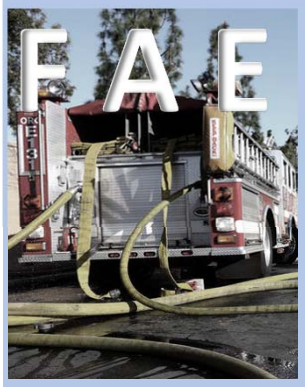
Forced Overtime | Voluntary Overtime | Total Overtime

PM/ FC

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	3.3	8.9	12.2	3.1	9.3	12.4
Qtr2	4.2	8.1	12.3	5.1	7.3	12.4
Qtr3	8.3	7.2	15.5	3.9	8.1	12.0
Qtr4	6.2	7.8	14.0	2.5	9.1	11.6

FC

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	3.4	9.2	12.6	3.4	9.0	12.4
Qtr2	4.5	7.5	12.0	5.2	8.3	13.5
Qtr3	8.6	7.0	15.6	3.9	7.9	11.8
Qtr4	6.6	6.6	13.2	2.6	8.6	11.2

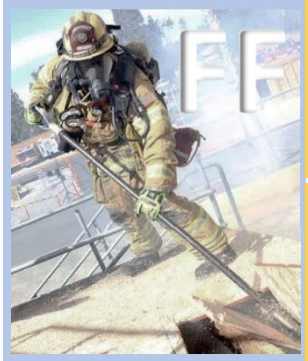


PM/ FAE

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	1.8	7.9	9.7	6.9	7.1	14.0
Qtr2	0.8	6.2	7.0	2.6	7.3	9.9
Qtr3	3.5	6.4	9.9	4.6	6.8	11.4
Qtr4	2.1	7.2	9.3	2.0	8.6	10.6

FAE

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	1.6	8.4	10.0	6.9	6.6	13.5
Qtr2	1.1	8.1	9.2	3.0	8.0	11.0
Qtr3	4.8	7.8	12.6	4.6	7.7	12.3
Qtr4	2.2	7.3	9.5	2.2	8.0	10.2



PM/ FF

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	2.2	7.6	9.8	0.8	7.0	7.8
Qtr2	7.1	5.6	12.7	1.3	6.6	7.9
Qtr3	9.0	5.1	14.1	2.1	6.7	8.8
Qtr4	4.0	6.1	10.1	1.2	6.3	7.5

FF

	2024 Forced	2024 Voluntary	2024 Total	2023 Forced	2023 Voluntary	2023 Total
Qtr1	0.6	3.9	4.5	1.1	6.6	7.7
Qtr2	1.8	4.9	6.7	0.8	6.0	6.8
Qtr3	4.7	4.5	9.2	1.7	5.3	7.0
Qtr4	1.9	4.4	6.3	0.8	4.6	5.4

Forced and Voluntary Overtime include shifts of 14+ hours worked only.
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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).

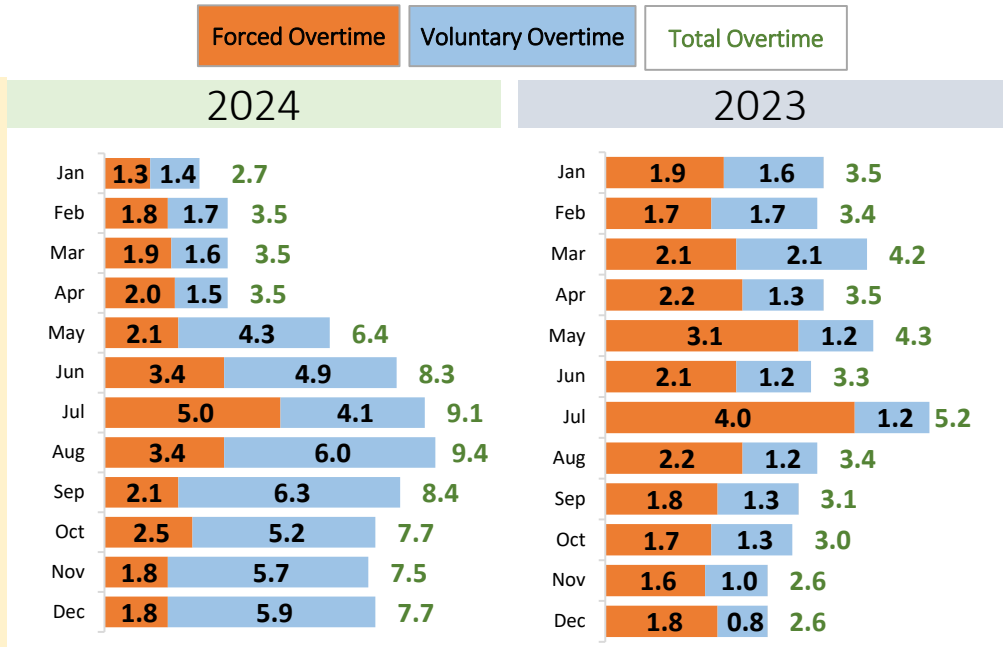
EMERGENCY COMMAND CENTER

OVERTIME UPDATE — Dec 2024

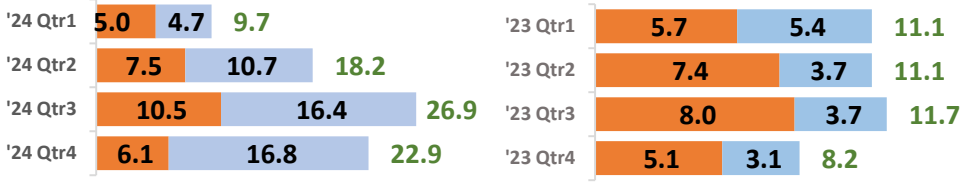
AVERAGE OVERTIME SHIFTS

Fire Communications Dispatcher

MONTHLY

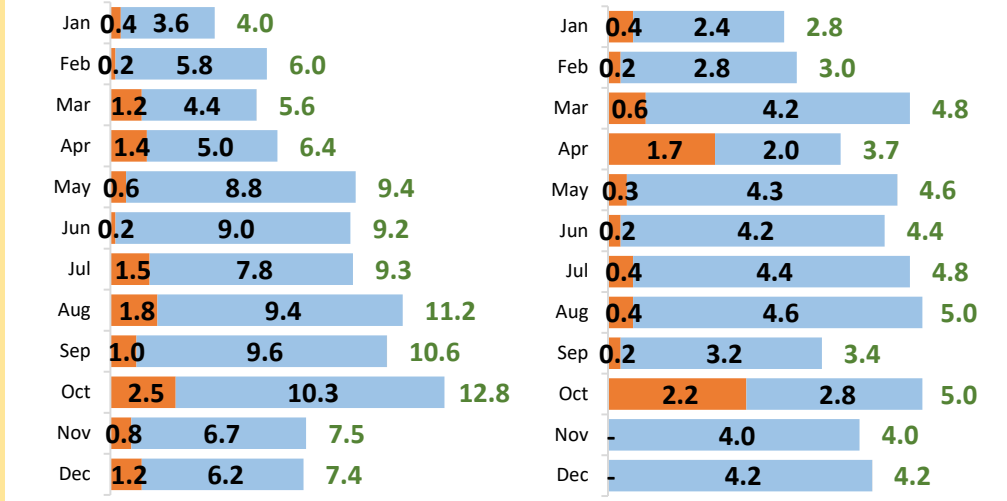


QUARTERLY



Fire Communications Supervisor

MONTHLY



QUARTERLY

Beginning April 2020, the reporting period is realigned to cover actual days of the month (prev. based on rolling 29 day periods).

FY 2023/24 BACKFILL/OVERTIME ANALYSIS FREQUENTLY ASKED QUESTIONS

1. What is a firefighter's standard work schedule?

Firefighters assigned to suppression positions work 24-hour shifts, which equates to a 56-hour average work week or 2,912 hours per year. When firefighters are assigned to staff positions on a 40-hour work week, they average 2,080 regular hours per year.

2. What does "maintaining constant staffing levels" mean? What is the difference between backfill and overtime?

This means that every day, all authorized Operations post-positions are staffed. A post-position is a seat on a fire or Emergency Medical System (EMS) response unit (including engines, trucks and paramedic vehicles) that must be filled to meet the staffing requirement of that unit. Backfill occurs when there is a vacancy in a position that requires constant staffing, and an employee either volunteers or is forced to work to fill the vacancy. Overtime is also used for hours worked above and beyond the constant staffing requirements. Examples of overtime include strike teams, overhead assignments to emergency incidents, either in- or out-of-county, and mandatory training classes that occur on days other than the employee's regularly assigned shift.

3. Because OCFA's backfill/overtime budget is significant, does that mean we are understaffed?

In addition to what is outlined in No. 2 above, there are various other reasons for OCFA's backfill/overtime budget. First, due to retirements and promotions, there are positions that remain temporarily unfilled pending both graduation of new recruits from Firefighter Academies and completion of promotional academies. For FY 2023/24, vacant positions across all ranks reached a high of 196 which required constant staffing on an overtime/backfill basis. Second, this past year, another contributing factor to backfill/overtime was personnel on leave due to Workers' Compensation. Each of these issues is being proactively addressed with current and upcoming academies along with promotional exams that will reduce the number of vacancies and open positions.

4. How many continuous hours may a firefighter work?

Currently, the maximum number of continuous hours (regular and backfill/overtime) an employee may work is 120. The Assistant Chief of Operations (North and South) may suspend the 120-hour rule to ensure sufficient incident response capability and adequate station coverage. Employees enter their availability to work into the OCFA's Staffing System. The system hires employees based upon the premise of an equal distribution of overtime and agreed upon hiring list procedures. Personnel assigned to out-of-county strike teams or to overhead positions are often deployed for periods of 7-21 days. When assigned to these extended incidents, employees work within established work/rest cycles.

5. Is the OCFA concerned about employee fatigue as the result of the continuous work hour rules?

The OCFA recognizes employee fatigue is a factor that impacts employee performance. Severe fatigue may increase the dangers inherent in the performance of emergency operations. The OCFA takes steps to protect employees from these dangers and ensures that firefighters are trained, equipped, and supervised to work as safely as possible. There is an additional emphasis on employee health and wellness provided through the WEFIT (Wellness) Program. Supervisors have the means by which to ensure employees are either adequately rested or relieved of duty where appropriate. Firefighters on extended incidents adhere to specified work/rest cycles.

Attachment 5

Fiscal Year 2023/24 Backfill/Overtime & Calendar Year 2024 Total Earnings/Compensation Analysis

Budget and Finance Committee Meeting

March 12, 2025

Revised

Agenda

- Backfill and overtime earnings for **Fiscal Year 2023/24**
- Total employee compensation for **Calendar Year 2024**
- Backfill/overtime:
  - Provides for consistent emergency response
  - Provides a cost-effective option for filling firefighter shifts which are temporarily vacant
- Recommendations

Fiscal Year 2023/24 Backfill/Overtime Categories

- *Non-Discretionary Categories:*
  - Constant Staffing Policy
    - Vacant Shifts - vacation, sick, workers' comp
    - Vacant Positions - new positions, promotions, retirements
  - Major emergency incident response
  - Training (mandatory federal/state/local)
- *Discretionary Categories:*
  - Special events/assignments, project teams
  - Department personnel requested to work outside normal work schedules
  - Training (new hire/promotional academies)

Fiscal Year 2023/24
Backfill/Overtime by Category

Categories of Backfill/OT	FY 2021/22		FY 2022/23		FY 2023/24	
	(in millions)	% of Total	(in millions)	% of Total	(in millions)	% of Total
Constant Staffing *(Vacant Shifts)* *Non-Discretionary* - Vacant Shifts (sick, vacation, WC)	$30.0	43.0%	$28.8	43.1%	$32.0	45.5%
Constant Staffing *(Vacant Positions)* *Non-Discretionary* - Vacant Positions (new positions promotions, retirements)	$24.0	34.3%	$22.9	34.3%	$22.2	31.6%
Emergency Response* *Non-Discretionary*	$6.2	8.9%	$2.9	4.4%	$4.7	6.7%
Training *Discretionary & Non-Discretionary*	$5.4	7.8%	$6.6	10%	$6.8	9.7%
Projects *Discretionary*	$4.2	6.0%	$5.4	8.2%	$4.6	6.5%
FY Total	**$69.8**		**$66.6**		**$70.3**	

* Emergency response overtime is generally 75-100% reimbursable

Backfill/Overtime Cost Effectiveness for Filling Temporarily Vacant Shifts

Example Firefighter Position:

Hourly Rate Regular Full-Time	Top Step Regular Rate	Top Step OT Rate
Salaries:		
Base Hourly Rate	$35.49	$53.24
Other Pays (Holiday, Education, Increases, EMT)	$9.79	
Total Salaries	**$45.28**	**$53.24**
Benefits:		
Retirement	$14.20	
Workers' Compensation/Medicare	$2.63	$2.96
Health Insurance	$9.03	
Total Benefits	**$25.86**	**$2.96**
Total Hourly Salaries & Benefits	**$71.14**	**$56.20**

$ Difference	**$14.94**
% Difference	**21.01%**

More cost-effective to use overtime to backfill <u>temporary</u> firefighter vacant shifts compared to hiring a regular full-time firefighter to fill floating temporary vacancies

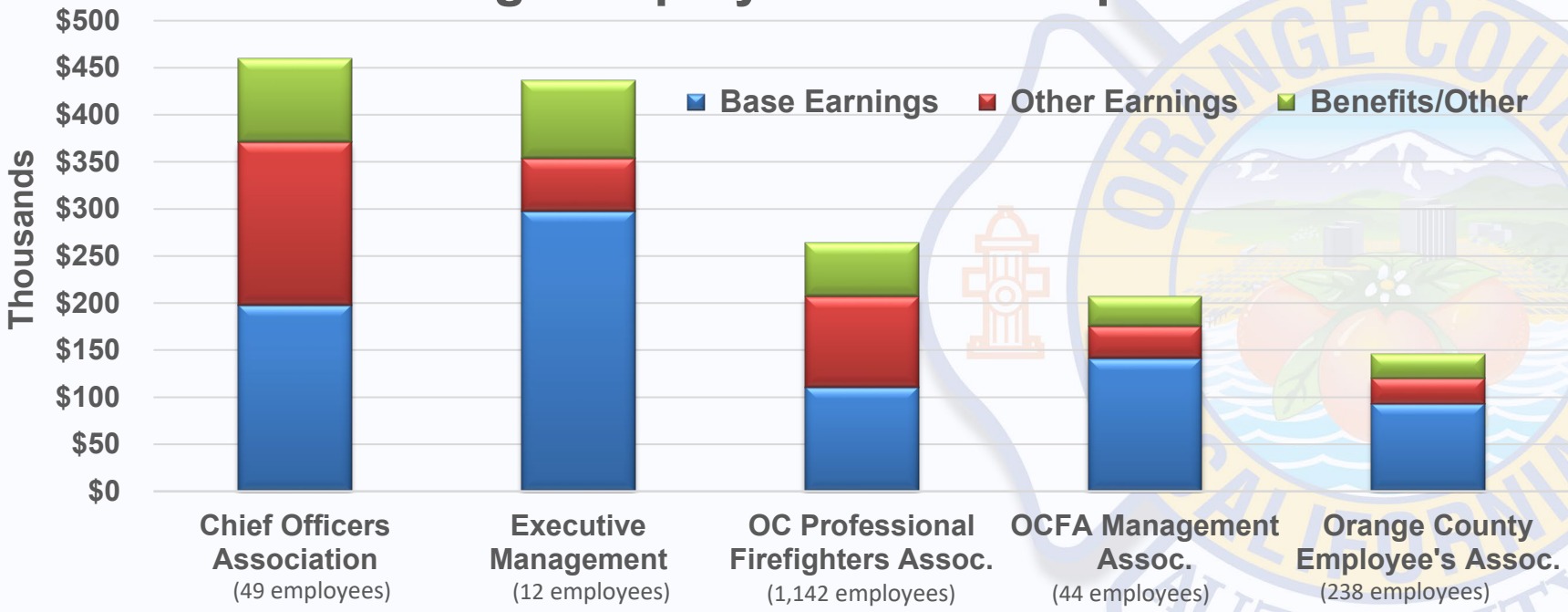
Firefighter Ranks Total Earnings Analysis

* Excludes benefits

Calendar Year 2024 Total Employee Compensation

Bargaining Group	Average Base Earnings	Average Total Earnings	Average Total Compensation
Orange County Fire Authority Chief Officers Association	$197,816	$370,926	$459,598
Executive Management	$297,581	$354,038	$436,656
Orange County Professional Firefighters Association	$110,706	$206,950	$264,168
Orange County Fire Authority Management Association	$141,130	$175,603	$207,154
Orange County Employees Association	$92,780	$120,489	$145,910

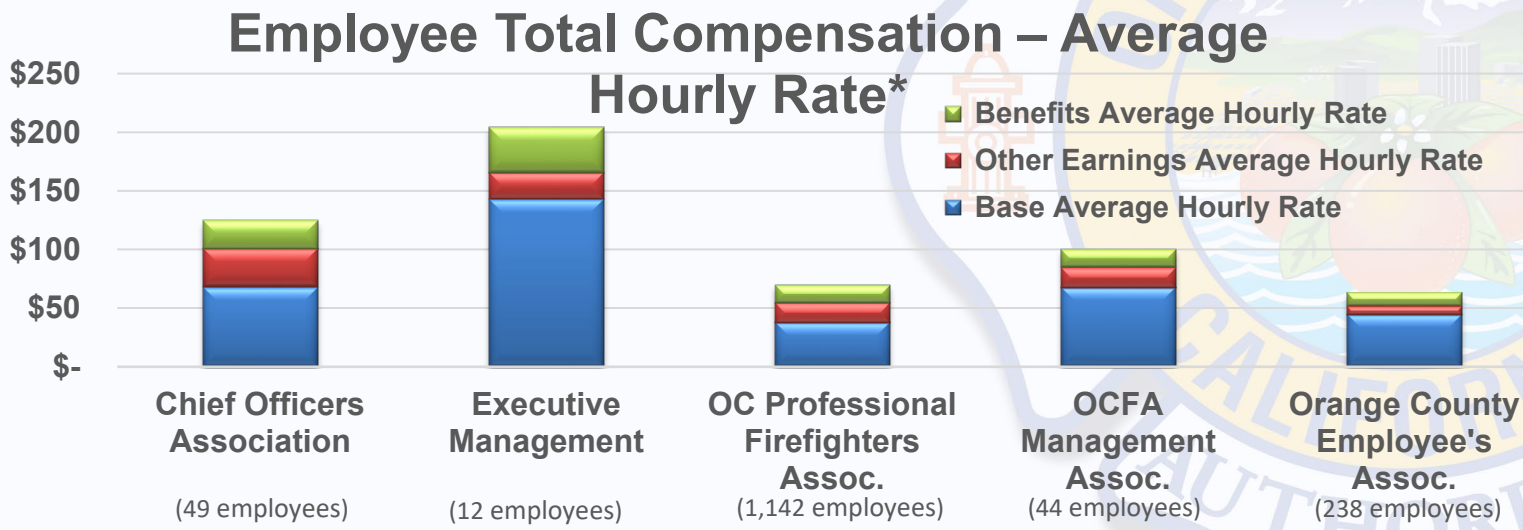
Average Employee Total Compensation*



* Employees working a minimum of 2,000 hours for safety and 1,430 for non-safety (approx. 70% of regularly scheduled hours)

Calendar Year 2024 Total Compensation Average Hourly Rate

Bargaining Group	BASE EARNINGS			TOTAL EARNINGS			TOTAL COMPENSATION		
	Average Base Earnings	Regularly Scheduled Hours	**Average Hourly Rate**	Average Total Earnings	Average Hours Worked	**Average Hourly Rate**	Average Total Compen-sation	Average Hours Worked	**Average Hourly Rate**
OCFA Chief Officers Association	$197,816	2,912	**$67.93**	$370,926	3,683	**$100.71**	$459,598	3,683	**$124.78**
Executive Management	$297,581	2,080	**$143.07**	$354,038	2,137	**$165.70**	$436,656	2,137	**$204.37**
OC Professional Firefighters Association	$110,706	2,912	**$38.02**	$206,950	3,786	**$54.66**	$264,168	3,786	**$69.77**
OCFA Management Association	$141,130	2,080	**$67.85**	$175,603	2,069	**$84.86**	$207,154	2,069	**$100.11**
OC Employees Association	$92,780	2,080	**$44.61**	$120,489	2,317	**$51.99**	$145,910	2,317	**$62.96**



* Exempt employee groups under 2,080 hours reflect new hires/separations during the year. Actual hours worked usually exceeds regularly scheduled hours.

Calendar Year 2024 Top 10 Employees Shifts by Backfill/Overtime+

	Title/ Assignment	Base Shifts Worked	Backfill for Constant Staffing (leave, vacancies, etc.)	Revised Overtime for Emergency Incidents[1]	Overtime to Attend Training	Other[2]	Revised Total Estimated Number of Shifts
1	Fire Division Chief*	208	-	36	-	53	297
2	Fire Battalion Chief**	121	46	32	14	6	219
3	Fire Captain**	121	157	4	4	6	292
4	Fire Division Chief*	208	-	35	-	29	272
5	Fire Battalion Chief*	208	74	27	9	2	319
6	Fire Captain**	121	162	8	1	9	302
7	Fire Battalion Chief*	208	50	28	11	6	303
8	Fire Captain**	121	142	2	9	3	278
9	Fire Battalion Chief*	208	98	15	3	5	329
10	Fire Battalion Chief*	208	111	4	2	6	330

+ Per Cause Code; [1] Potentially Reimbursable; [2] Special Activities, Other Discretionary/ Non-Discretionary, Admin.
* Staff Schedule: 40-hour work week (2,080 regular hours per year)
** Shift Schedule: 24-hour shifts = 56-hour average work week (2,912 average hours per year)

Calendar Year 2024 Top 10 Employees Compensation Pensionable vs. Non-Pensionable

	Title/Assignment	Compensation Pensionable	Compensation Non-Pensionable	Total Compensation Includes Non-Pensionable	Employer Paid Pension (Non-Pensionable)	Employer Paid Health (Non-Pensionable)
1	Fire Division Chief	$269,993.00	$329,888.00	$599,881	$76,019	$25,479
2	Fire Battalion Chief	$214,617.00	$371,600.00	$586,217.00	$62,469	$25,298
3	Fire Captain	$181,483.00	$387,602.00	$569,085.00	$48,189	$26,394
4	Fire Division Chief	$266,452.00	$300,945.00	$567,397	$76,019	$30,724
5	Fire Battalion Chief	$231,253.00	$325,083.00	$556,336	$65,139	$27,598
6	Fire Captain	$156,947.00	$394,364.00	$551,311	$45,486	$26,394
7	Fire Battalion Chief	$244,703.00	$303,466.00	$548,169	$68,384	$25,135
8	Fire Captain	$205,763.00	$340,895.00	$546,658	$28,203	$26,394
9	Fire Battalion Chief	$228,866.00	$309,860.00	$538,726	$64,546	$23,721
10	Fire Battalion Chief	$239,415.00	$293,659.00	$533,074	$67,868	$25,299

*Compensation Non-Pensionable includes overtime, non-pensionable specialty pays, employer paid pension, and employer paid health.

Summary

- Approximately 83.8% of the backfill/overtime costs are non-discretionary (77.1% constant staffing and 6.7% emergency activity)
- OCFA staff has conducted and anticipates the following academies over the next two fiscal years:

FY 2024/25	FY 2025/26
2 Firefighter Academies	2 Firefighter Academies
2 Fire Apparatus Engineer Academies	2 Fire Apparatus Engineer Academies
2 Fire Captain Academies	2 Fire Captain Academies
1 Battalion Chief Academy	1 Battalion Chief Academy

- When backfill is required, it is more cost effective to use overtime to backfill for temporary shift vacancies than hiring a full-time benefited firefighter

Recommended Action

Review the proposed agenda item and direct staff to place the item on the agenda for the Board of Directors meeting of March 27, 2025, with the Budget and Finance Committee's recommendation that the Board of Directors take the following actions:

1. Direct staff to continue pursuing reductions in overtime by filling vacant positions as quickly as possible after the positions become vacant.

2. Direct staff to continue using overtime to fill shifts which are temporarily vacant, recognizing this as a cost-effective practice for temporary needs.

Questions/Comments?

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting | **Agenda Item No. 2F**
March 27, 2025 | **Consent Calendar**

Proclamation for Wildfire Awareness and Prevention Season

Contact(s) for Further Information

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Summary

Annually, the Orange County Fire Authority (OCFA) proclaims mid-summer through early autumn as "Wildfire Awareness and Prevention Season."

Prior Board/Committee Action

Not applicable.

RECOMMENDED ACTION(S)

Approve proclamation designating mid-summer through early autumn as "Wildfire Awareness and Prevention Season."

Impact to Cities/County

Not applicable.

Fiscal Impact

There is no fiscal impact associated with this action.

Background

Persistent drought conditions, rising temperatures, and increasingly severe winds continue to intensify California's wildfire risk. In response, OCFA remains committed to proactive wildfire prevention and community preparedness. By working collaboratively with our communities, we aim to reduce wildfire threats through public education, emergency planning tools, and preemptive mitigation strategies.

As part of the 2025 *Wildfire Awareness and Prevention Season*, OCFA will be sharing vital information across multiple platforms, equipping residents with the knowledge and resources they need to help prevent wildfires and protect their homes. Wildfire preparedness is a shared responsibility, and together, we can make Orange County more resilient.

Attachment(s)

Proposed Proclamation

PROCLAIMING
MID-SUMMER – EARLY AUTUMN 2025 AS
WILDFIRE AWARENESS AND PREVENTION SEASON

WHEREAS, in 2020, California experienced a record-breaking wildfire season, with over 4 million acres burned across the state. In 2024, the state faced 8,024 wildfires that burned approximately 1,050,012 acres, reflecting a significant increase from the previous year.

WHEREAS, the recent wildfires in Los Angeles County, including the Eaton and Palisades fires in early January 2025, resulted in at least 29 fatalities and destroyed over 16,000 structures. The economic impact of these fires is profound, with estimated damages and economic losses reaching up to $250 billion.

WHEREAS, extreme fires are a growing threat to public health and safety, homes, air quality, and climate goals. Approximately 25% of California's population lives in areas identified as high or very high fire hazard severity zones. Sudden and intense wildfires may swiftly emerge, traversing vast distances and penetrating urban zones far from their origin, thereby detrimentally affecting public health and diminishing overall quality of life.

WHEREAS, every citizen has a key role in preventing destructive wildfires from occurring. Public education and up-to-date regional emergency planning are key to making our communities more resilient to the impacts of wildfire and other extreme weather events. Orange County residents can learn about Ready, Set, Go! to prepare for wildfire season and help prevent loss of life and property at www.OCFA.org/RSG.

NOW, THEREFORE BE IT RESOLVED, that the Orange County Fire Authority Board of Directors does hereby proclaim the height of wildfire season, beginning in mid-summer and running through early autumn, as "Wildfire Awareness and Prevention Season" and encourages everyone to do their part to raise public awareness, take steps to protect our homes and businesses, and prevent sparking a wildfire. One less spark means one less wildfire.

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting | **Agenda Item No. 2G**
March 27, 2025 | **Consent Calendar**

Proclamation for Drowning Prevention and Awareness Season

Contact(s) for Further Information

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Sophia Champieux, Public Relations Manager / Corporate Communications	SophiaChampieux@ocfa.org	714.573.6752

Summary

Annually, the Orange County Fire Authority proclaims its participation in drowning prevention campaigns that kick-off in May and continue through August in an effort to increase awareness and preparedness of Orange County residents by increasing their knowledge of proper safety measures in drowning prevention.

Prior Board/Committee Action

Not applicable.

RECOMMENDED ACTION(S)

Approve proclamation designating May and continue through August "Drowning Prevention Awareness" and authorize participation in the "Always Watch the Water" and "Never Swim Alone" 2025 campaigns by encouraging all families, parents, residents, schools, recreational facilities, businesses, and homeowner associations to become partners in preparedness by increasing their knowledge of proper safety measures in drowning prevention.

Impact to Cities/County

Not applicable.

Fiscal Impact

There is no fiscal impact associated with this item.

Background

Persistent high temperatures, increased water activity, and a lack of awareness continue to heighten the risk of drowning incidents in California. At the Orange County Fire Authority (OCFA), our mission is to reduce these tragedies by fostering collaboration, increasing public awareness, and equipping communities with lifesaving knowledge. Through expanded public education efforts, enhanced emergency preparedness resources, and proactive drowning prevention strategies, we empower individuals to recognize and address water-related risks. As we enter Drowning Prevention Season, OCFA remains dedicated to spreading critical information, encouraging active supervision, and ensuring that every community member plays a role in preventing drowning incidents.

Attachment(s)

Proposed Proclamation

PROCLAIMING
MAY - AUGUST, 2025 AS
DROWNING PREVENTION AND AWARENESS SEASON

WHEREAS, n the United States, unintentional drowning has seen a concerning rise, with over 4,500 deaths each year from 2020 to 2022, marking an increase of 500 annual fatalities compared to 2019; and

WHEREAS, drowning remains a leading cause of injury-related deaths among children under five in California, with approximately 60 children in this age group losing their lives to drowning each year

WHEREAS, drowning incidents can occur silently and swiftly, often in as little as 20 to 60 seconds; and

WHEREAS, drowning can occurr in as little as two inches of water. Among infants under 1 year old, two thirds of all drownings occur in bathtubs; and

WHEREAS, for every child who dies from drowning, another seven receive emergency department care for nonfatal submersion injuries, which can result in long-term disabilities; and

WHEREAS, the themes of this year's water safety campaign "Always Watch the Water" and "Never Swim Alone" gives in-depth information that will be provided by staff on what Orange County residents can do to prevent drowning; and

WHEREAS, the initiatives set forth in the "ABCs of Water Safety" program will increase public awareness regarding proper procedures to prevent this needless tragedy; and

WHEREAS, the Orange County Fire Authority will be taking this opportunity to increase public awareness about drowning prevention through a robust community outreach campaign; and

NOW, THEREFORE BE IT RESOLVED, that the Orange County Fire Authority Board of Directors does hereby proclaim its participation in the "Always Watch the Water" and "Never Swim Alone" 2025 campaigns, commencing in May and continuing through August. The Board urges all families, parents, residents, schools, recreational facilities, businesses, and homeowner associations to become proactive partners in preparedness by enhancing their knowledge of water safety measures and drowning prevention strategies.

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting
March 27, 2025

Agenda Item No. 3A
Discussion Calendar

Prefunding of CIP Projects Policy - B&FC Review Process and Recommendation for Board Consideration

Contact(s) for Further Information

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Summary

This agenda item was previously considered at the February 22, 2024, meeting of the Board of Directors. The item is now submitted to the Board of Directors for consideration of the Budget and Finance Committee (B&FC) recommendations for the prefunding of the Capital Improvement Program (CIP) Projects Policy.

Prior Board/Committee Action(s)

At the February 23, 2023, meeting of the Board of Directors, the Board directed staff to work with the B&FC to consider prefunding of capital improvement projects, with a recommendation to direct staff to return the item to the Board of Directors for future discussion.

At the July 12, 2023, meeting of the B&FC, the Committee approved the review process that was utilized to educate and inform our policymakers regarding OCFA's current CIP policies and funding mechanism, best practices, and to develop options and recommendations for the prefunding of future CIP Projects.

At the September 13, 2023, meeting of the B&FC, the Committee received and filed an overview of OCFA's CIP.

At the October 17, 2023, meeting of the B&FC, the Committee received and filed the overview of OCFA Operating and CIP Funding Mechanism.

At the November 8, 2023, meeting of the B&FC, the Committee received and filed the overview of OCFA Review of CIP Sample Policies and Best Practices.

At the January 10, 2024, meeting of the B&FC, the Committee received and filed the overview of OCFA Prefunding CIP Options. Furthermore, the Committee also provided comments on the options to be considered in the drafting of policy recommendations for its February Committee meeting. The Committee's comments concluded with their desire to prefund the replacement of helicopters with the use of available funds once the snowball plan has met its funding target goals for pension (85%) and retiree medical (100%) liabilities.

At the February 14, 2024, meeting of the B&FC, the Committee reviewed the proposed agenda item and recommended staff place the proposed draft policy language changes to the Fiscal Stability Budget Policy on the Board of Directors agenda for consideration at its February 22, 2024, meeting.

At the February 22, 2024, meeting of the Board of Directors, the Board received a report regarding the results of staff analysis for the proposed CIP Prefunding policy and recommendation from the Budget & Finance Committee. Following Board discussion, the Board voted to table the item at the time and directed General Counsel to review OCFA's Joint Powers Authority Agreement related to the Disposition of Assets Upon Termination. The item would then be returned to the Board for further discussion at a future Board meeting for further consideration.

RECOMMENDED ACTION(S)
Review and approve the proposed draft policy language changes to the Financial Stability Budget Policy as recommended by the B&FC, to formalize the prefunding of CIP regional assets, specifically for the future replacement of helicopters.

Impact to Cities/County
Not Applicable.

Fiscal Impact
Future budgets will transition funding to the Helicopter Replacement Prefunding fund once the Snowball funding targets for pension and retiree medical liabilities have been met (estimated to take place starting in FY26/27).

Background
During the January 18, 2023, Board of Directors Meeting, Director Tettemer requested that an item be agenized at the following meeting to seek interest from the Board for the development of a policy to prefund the CIP. At the February 23, 2023, Board of Directors Meeting, Director Tettemer introduced the item titled, "Establish a Policy to Prefund Capital Improvement Program Projects." The Board provided the following comments and guidelines as part of their discussion. The policy should:

- Help smooth out Capital Budgets
- Help to avoid borrowing and minimize interest charges
- Guide long-term planning and not restrict future Boards
- Include specific CIP projects (not to include all CIP projects)
- Ensure Board flexibility in decision-making (memorializing the policy via the JPA may hurt the organization during economic downturns)
- Create a reserve for CIP Project funds

Following Board discussion, on motion by Director Tettemer and second by Director Shawver, and following a roll call vote, the OCFA Board approved 24-0 (Director Bourne absent) to direct staff to work with the B&FC to consider prefunding of capital improvement projects, with a recommendation to direct staff to return the item to the Board of Directors for future discussion.

Review Process: Prefunding of CIP Projects Policy
The OCFA's B&FC was utilized to conduct the Review Process, with delivery of its findings and recommendations to the Board of Directors upon completion. To facilitate the review, staff developed the review process to educate and inform our policymakers regarding OCFA's current

CIP policies and funding mechanism, review sample policies and best practices, and to develop options and recommendations for Board consideration regarding the prefunding of future CIP Projects. The B&FC approved the review process at its July 12, 2023, meeting. The review process was sequenced in a manner to facilitate a thorough education followed by the review of policy options, and recommendations. The review process and work plan included:

1. ***Overview of OCFAs Capital Improvement Program***
   Staff presented an overview of OCFA's Capital Improvement Program including a review of the 5-year CIP as approved by the Board and a summary of formal policies that help guide the development of the CIP. The overview helped educate the Committee members by defining the various expenditure categories included in the CIP (i.e., small equipment purchases, equipment replacement, infrastructure improvements, and new construction), and review how projects are prioritized and funded.

2. ***Review of OCFA Operating and CIP Funding Mechanism***
   Staff presented an overview of the JPA Agreement funding provisions to educate the Committee on the differences between Structural Fire Fund (SFF) and Cash Contract City (CCC) funding structure. The presentation included a review of the Board approved 5-year Financial Forecast and review how the Operating budget provides funding to the CIP. Furthermore, staff provided a summary of current financial policies that provide the framework to ensure financial stability.

3. ***Review of CIP Sample Policies and Best Practices***
   The Committee reviewed the results of a CIP policy survey conducted on OCFA partner cities/County and other surrounding agencies (36 in total). Additionally, staff presented best practices gathered from government/finance professional organizations such as the Government Finance Officers Association (GFOA) and California Society of Municipal Financial Officers (CSMFO). The survey results and best practices guided the development of options to consider for the prefunding of the CIP.

4. ***Prefunding CIP Options***
   Building on the work completed during the prior review segments, staff provided options for the Committee to discuss and consider for the development of a CIP prefunding policy.

   The B&FC discussed options and considered four options:
   1. Prefunding all CIP projects
      - This option could be tailored to prefund all CIP projects for the upcoming two or three years vs. trying to prefund the entire 5-year CIP
   2. Prefunding only large equipment/apparatus, building upgrades and facility constructions projects regardless of dollar value
   3. Prefunding large scale capital purchases and construction based on a certain dollar threshold (e.g., greater than $5M)
   4. Consider prefunding only future helicopter purchases

   The B&FC selected option four; consider prefunding only future helicopter purchases. The committee also recommended to prefund future helicopter purchases with available funds once the snowball plan met its funding targets for OCFA's pension & retiree medical liabilities.

5. ***Development of Recommendations for Board Consideration***
   Staff presented draft policy language changes to the Financial Stability Budget Policy based on the Committee's comments provided during its January B&FC meeting. The Committee reviewed the item and recommended that the draft policy changes be forwarded to the Board for their consideration at its February 22, 2024, meeting.

The above work-plan was completed within the timeline as approved by the B&FC.

Attachment

- Draft Changes to the Financial Stability Budget Policy

FINANCIAL STABILITY BUDGET POLICY

1. PURPOSE

1.1. To guide OCFA budget actions toward maintaining long-term financial stability and to establish contingency fund levels and annual funding targets for the Authority's General Fund and Capital Improvement Program (CIP) Funds.

1.2. To establish CIP fund balances that accumulate and deplete in harmony with the needs and timing of capital projects identified in the five-year CIP.

1.3. To facilitate accelerated payment of OCFA's unfunded liabilities for improved fiscal health. As per the predefined goal of 85% pension liability and 100% Retiree Medical liability funded level.

1.4. To facilitate prefunding the future replacement of OCFA's helicopters for improved fiscal health, for reasons including but not limited to:

- Stabilizing capital budgets
- Avoiding borrowing and minimizing interest charges
- Guiding long--term planning

2. ADOPTION AND REVIEW

2.1. This policy was originally adopted by the Board of Directors on May 23, 2002, and was implemented with the Fiscal Year 2002/03 Budget Update.

2.2. This policy shall be reviewed periodically for recommended revisions in order to maintain the policy in a manner that reflects the ongoing financial goals of the Authority.

2.3. Policy revisions shall be reviewed by the Budget and Finance Committee and approved by the Board of Directors.

3. POLICY

3.1. The Five-Year Financial Forecast shall be used as a budget tool that's updated annually in conjunction with the budget for projected revenues and expenditures. The

Five-Year Forecast will include all OCFA budgetary funds to provide a picture of the Authority's overall fiscal health.

3.1.1 The Five-Year Forecast will also be updated whenever a significant financial event occurs or is anticipated to occur mid-year in order to assess the severity of the impact.

3.1.2 The Five-Year Forecast shall also be evaluated before undertaking any significant financial commitment to ensure the Authority's fiscal health is maintained.

~~3.1.2~~3.1.3 It should be noted that data included in the first two years of the forecast is the most predictable and reliable.

~~3.1.3~~3.1.4 Data contained in the outer years of the forecast is less reliable due to uncertainties regarding items such as future property tax growth, benefit costs, and capital needs. Although less reliable, the information is a useful indicator of trends and the potential need for early corrective intervention.

3.2. The proposed operating budget (General Fund) submitted by Authority staff shall be a balanced budget.

3.3. The Authority shall also strive to achieve a projected operating budget that's balanced for all years included in the Five-Year Financial Forecast.

3.4. The Authority shall maintain a contingency reserve in the General Fund set at 10% of operating expenditures for unplanned emergencies.

3.4.1 The 10% contingency reserve will be calculated and established at budget adoption. Once established, it will remain fixed through the duration of the fiscal year.

~~3.4.1~~3.4.2 Operating expenditures exclude grant-funded expenditures, accelerated payments toward unfunded liabilities, expenditures approved as a one-time expenditure in the given fiscal year, and operating transfers out of the General Fund.

3.5. In the first fiscal year following the achievement of both 85% funding level of the pension liability and 100% funding level of the Retiree Medical liability, the Authority shall (1) create a new CIP fund called "Fund 134 - Helicopter Replacement Prefunding" and (2) on an annual basis going forward, budget an expenditure in Fund 121 and corresponding revenue in the new Fund 134 for the annual replacement value of OCFA's four helicopters. Calculate each helicopter's annual replacement value by

dividing the current replacement cost (e.g. $29M per Firehawk purchased in 2023 growing at an annual inflation factor of 3% per year), by its estimated useful life. This will establish a reserve fund that can transfer accumulated funds to Fund 133 as needed to pay for Helicopter purchases.

~~3.5.~~3.6. Funds available for transfer out of the General Fund after funding annual expenses (net general fund revenue, or "surplus") shall be allocated as follows:

3.6.1 Net General Fund, or surplus general fund revenue, shall be calculated for transfer each year as part of the March mid-year budget adjustments, except in the following circumstance:

3.6.1.1. If needed, operating transfers of surplus general fund revenue shall be made to the CIP fund(s) at the beginning of the fiscal year sufficient to prevent the CIP fund(s) from experiencing a negative fund balance during the fiscal year.

~~3.5.1.1.~~3.6.1.2. The operating transfers of surplus general fund revenue made at the onset of the fiscal year shall be reconciled with the calculation outlined in 3.6~~5~~.2 at the Mid-year Budget Adjustment.

~~3.5.2~~3.6.2 In March of each year, after funding any incremental increase required to maintain the 10% General Fund contingency reserve, 50% of the remaining surplus shall be transferred to the CIP and 50% shall be allocated as accelerated payment of OCFA's unfunded liabilities (first toward pension liability until achieving an 85% funding level, second toward Retiree Medical until reaching a 100% funding level), except in the following circumstances:

~~3.5.2.1.~~3.6.2.1. If the 50% allocation to the CIP, when combined with CIP fund balance and other CIP revenues, is insufficient to fund that year's CIP expenses, then a sufficient percentage of the surplus (up to 100%) may be transferred to the CIP to fund that year's CIP expenses. Any remainder shall be allocated as an accelerated payment of OCFA's unfunded liabilities.

~~3.5.2.2.~~3.6.2.2. If the 50% allocation to the CIP, when combined with CIP fund balance and other CIP revenues, exceeds the cost of projects in OCFA's five-year CIP (including projects identified as deferred) then the amount transferred to the CIP shall be reduced below 50% to only fund the incremental increase needed for funding of the five-year CIP. Any remainder shall be allocated as an accelerated payment of OCFA's unfunded liabilities.

~~3.6.~~3.7. The Authority shall review reserve fund levels annually for the CIP funds and establish annual funding targets as follows:

~~3.6.1~~3.7.1 CIP funds will include:

- Fund 12110 – General Fund CIP
- Fund 123 – Fire Stations and Facilities
- Fund 124 – Communications & Information Systems
- Fund 133 – Fire Apparatus
- Fund 134 – Helicopter Replacement Prefunding

3.7.2 The amount of revenue available for transfer from the General Fund to the CIP shall be allocated based on the existing reserve balance in each CIP fund and based on the future needs identified in the five-year CIP, and conformed with Section 3.6~~5~~.2 above.

Priority #1: Each CIP fund shall be allocated sufficient funds to meet planned expenditures included in the upcoming fiscal year. Sufficient funds can be a combination of existing fund balance plus new revenues and operating transfers in from the General Fund.

Priority #2: After meeting the needs for the upcoming fiscal year in each CIP fund, any additional funding shall be allocated based on planned expenditures included in the second fiscal year of the five-year CIP. This process shall be repeated for future years to the extent that funding is available.

Ultimate Funding Target: Although this status may or may not be achieved, a fully funded five-year CIP would be our ultimate goal and would allow OCFA to be ~~rest~~ assured that all projects identified within our planning horizon have funds earmarked for those projects.

~~3.7.~~3.8. The Authority will analyze the feasibility of paying its annual retirement contributions to the Orange County Employees Retirement System (OCERS) early each year, to take advantage of the discount offered by OCERS.

~~3.7.1~~3.8.1 OCERS reviews and sets the early payment discount rate each year. The employer is given the full discount set by OCERS if payment is made in January, a full year in advance, and one-half the discount if payment is made six months in advance in July.

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting
March 27, 2025

Agenda Item No. 3B
Discussion Calendar

Board of Directors Requested Item – Employee Residential Down Payment Assistance Program

Contact(s) for Further Information

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Traci Lee, Assistant Treasurer Treasury & Financial Planning	tracilee@ocfa.org	714.573.6313

Summary

This item is submitted to provide information in response to Board direction to research the feasibility of establishing an employee residential down payment assistance program through the use of OCFA investment portfolio funds.

Prior Board/Committee Action

At the November 21, 2024, Board of Directors meeting, the Board voted in favor of Director Troy Bourne's request to direct staff to research the feasibility of developing an employee residential down payment assistance program with the use of OCFA's investment portfolio funds, for future Board consideration.

RECOMMENDED ACTION(S)

Receive report and provide direction to staff.

Impact to Cities/County

Not Applicable.

Fiscal Impact

This action does not have a fiscal impact; however, Board direction may result in a future fiscal impact.

Background

At the November 21, 2024, meeting of the Board of Directors, staff was directed to research and respond to the question, *"Is there an opportunity to facilitate an investment vehicle to invest in an employee down payment program inside of our current investment program at no additional cost to the OCFA?"* OCFA is empowered by statute (California Government Code Section 53600 et seq., 53620 et seq., and Section 5922[d]) to invest public funds in specific permissible types of investments. The types of investments allowed by the California Government Code is then further

restricted by OCFA's Investment Policy. Investments in funding programs like an Employee Residential Down Payment Assistance Program are not on the list of allowable investments.

The three main objectives of OCFA's investment program, listed in order of priority, are safety, followed by liquidity, and finally return on investment. Safety of principal is the prime objective of the investment program. The investment program shall be designed and implemented to ensure preservation of capital in the overall portfolio. The investment portfolio shall be structured in a manner which strives to time the maturity of securities with cash requirements. Additionally, since not all possible cash demands can be anticipated, the portfolio should consist of securities with an active secondary or resale market. Last, OCFA shall attempt to obtain a reasonable rate of return provided that the requirements of safety and liquidity are first met. The use of investment portfolio funds to fund an Employee Downpayment Assistance Program do not meet two of the three objectives of OCFA investment policy, which are 1) ensure the safety of the principal invested and 2) the funds would not provide enough liquidity to generate cash in a timely manner should an emergency arise.

Reducing liquidity can be costly. OCFA relies on the timed maturities of investments to ensure on-going expenses are paid on time and if funds are locked into longer term maturities or time frame for returns, there is a possibility there won't be enough funds on hand to cover on-going expenses. In the event of an emergency, the OCFA can sell securities in the portfolio at any time to cover unforeseen or emergency expenses; however, these would be subject to market risk where OCFA could be forced to sell securities at a loss. OCFA's Investment Policy allows securities to have no longer than a 5-year maturity, with the option for the Board to approve a longer term. Further, reduced liquidity can lead to lower credit ratings as ratings agencies use measures of liquidity when determining credit worthiness. Lower credit ratings translate to higher debt service payments and therefore higher expenses on an ongoing basis if the OCFA were to issue any debt in the future.

While the investment portfolio is not a viable option for the Employee Downpayment Assistance Program, there are other options that the Board may consider. The following is a summary of other options that may be considered:

- Staff may be directed to develop program options using OCFA's operating budget through the use of its general funds which may come at a cost to OCFA or the employee(s). The details of the program including loan terms, employee eligibility, the selection process, financing, and additional terms would need to be determined along with the cost to manage such a program.
- Staff may be directed to explore 3rd party employee loan programs that could facilitate employee loans with minimal risk and cost to OCFA; however, initial research shows that there are limited options available.
- Lastly, several down payment assistance programs offering grants of up to $50,000 are currently available to California homebuyers, and where OCFA employees can also be directed to these opportunities. As an example, the OC Register recently published an article on February 13, 2025, which highlighted existing assistance programs; some of which do not require the recipient to be a first-time home buyer. Depending on the applicant's unique situation, parameters including homeowner status, home location, minimum FICO score, maximum loan size, income limitations, down payment requirements, and others should be considered when choosing a program. Additional resources are available, including up to 347 programs available on the Down Payment Resource website, downpaymentresource.com, that could help narrow the search for available programs for specific individual needs.

Staff does not recommend the use of OCFA investment portfolio funds to create an Employee Residential Down Payment Assistance Program.

Attachment(s)
None

Orange County Fire Authority

AGENDA STAFF REPORT

Board of Directors Meeting
March 27, 2025

Agenda Item No. 3C
Discussion Calendar

Findings of Citygate Associates, LLC
2025 Field Deployment Standards of Cover (SOC) Plan Update

Contact(s) for Further Information

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Paul Whittaker, Division Chief Strategic Services	paulwhittaker@ocfa.org	714.573.6047

Summary

This agenda item is submitted for staff and Citygate Associates, LLC to provide a presentation of the findings and recommended service enhancements resulting from OCFA's Field Deployment Standards of Cover (SOC) Plan Update.

Prior Board/Committee Action

At its October 26, 2023 meeting, the Executive Committee approved and authorized the Purchasing Manager to enter into a Sole Source Professional Services Agreement for consulting services with Citygate Associates, LLC, to update OCFA's Field Deployment Standards of Cover (SOC) which was previously completed by Citygate in 2020.

RECOMMENDED ACTION(S)

Receive and file the 2025 Field Deployment Standards of Cover Plan Update presentation, final reports, and recommended service enhancements.

Impact to Cities/County

Not Applicable.

Fiscal Impact

There is no fiscal impact associated with the proposed action to receive and file this SOC Plan Update; however, there will be future fiscal impacts at the time each enhancement is proposed for implementation (as described below). The timing for implementation of each enhancement will depend upon (1) financial affordability in the context of OCFA's Five-Year Financial Forecast, and (2) Board approval of the future budgetary actions necessary for implementation.

Background

Following a 2018 RFQ process, Citygate was awarded an agreement to perform as-needed organizational service level assessment (SLA) consulting services for OCFA. Citygate is a firm that provides management consulting to a full array of local government functions, with particular emphasis on fire protection, law enforcement, community development, public works, animal services, and human resources.

Seven organizational SLA areas were identified (Emergency Command Center, Emergency Medical Services, Fleet Services, Field Deployment SOC, Executive Leadership/Human Resources, Business Services, and Community Risk Reduction) as part of a two-phase process concluding in October 2021. Of the first SLAs to be completed was the Field Deployment SOC in June 2020.

The focus of the 2020 SOC included reviewing the adequacy of the existing deployment system of apparatus and personnel from current OCFA fire station locations, testing deployment scenarios to improve coverage, analyzing the workload per unit, and utilizing consistent methodology. Although the Field Deployment SOC was completed in 2020, the data used to compile the SLA is from calendar years 2016 through 2018. Since that time, there have been numerous impacts to OCFA's service that warranted updating the SOC.

First of the impacts included in this updated 2025 SOC Plan are changes to OCFA's jurisdiction. OCFA began contracting Fire and EMS services to the City of Garden Grove in August of 2019. Garden Grove represents 9 percent of OCFA's total annual call volume and shares city boundaries with 10 OCFA and non-OCFA jurisdictions. Additionally, in 2020 the City of Placentia discontinued contracting services with OCFA.

For these reasons, it was necessary to re-evaluate and update the findings of Citygate's OCFA 2020 SOC. The following are the recommendations and service enhancements which resulted from this 2025 SOC:

- 5 Engine Companies upgraded from 3-person basic life support (BLS) engines to -person advanced life support (ALS) Paramedic Engines (PMEs). These enhancements have already been approved by the Board of Directors, in connection with the Staffing for Adequate Fire and Emergency Response (SAFER) Grant.
  - These Engine enhancements apply E7 (San Juan Capistrano), E18 (Trabuco Canyon), E45 (Rancho Santa Margarita), E46 (Stanton), and E57 (Aliso Viejo).
  - Fiscal Impact: There is no added fiscal impact beyond the costs previously approved.
- Addition of PME12 (Laguna Woods)
  - Fiscal Impact: $137,832 ongoing personnel cost; $300,000 one-time facility cost
- Addition of PMT45 (Rancho Santa Margarita)
  - Fiscal Impact: $161,082 ongoing personnel cost
- Relocating E25 (Midway City) to Paramedic Truck (PMT) 64 (Westminster)
  - Fiscal Impact: $0 ongoing personnel cost
- Reconfigure PMT85 and PME84 (PMT84 and PME85) (all Garden Grove units)
  - Fiscal Impact: $0 ongoing personnel cost; $1 million one-time facility cost (to be coordinated with City of Garden Grove for inclusion in their Capital Budget)
- Enhancing paramedic coverage and decreasing Unit Hour Utilization (UHUs) in the City of Garden Grove
- Enhancing paramedic coverage and decreasing Unit Hour Utilization (UHUs) in the City of Santa Ana
- Enhancement of T22 to PMT22 (Laguna Hills/Laguna Woods)
  - Fiscal Impact: $161,082 ongoing personnel cost
- Future Considerations:
  - Adopt a set of updated response-time policies
  - Adopt unit response demand limitations based on UHUs to guide future added resources based on a 30% UHU trigger
  - Adopt 4-person Staffing on all Fire Engines and Truck Companies

- Enhance resilience in coverage to handle predictable simultaneous incident demand
- Reduce stand-alone truck companies and their coverage gaps and increase availability
- Address risk and establish mitigations
- Enhance firefighter and community preparedness and safety

Attachment(s)

1. Volume 1 2025 OCFA SOC Executive Summary
2. Volume 2 2025 OCFA SOC Technical Report
3. Volume 3 2025 OCFA SOC Map Atlas

CITYGATE
FIRE & EMS

STANDARDS OF RESPONSE COVERAGE UPDATE

VOLUME 1 OF 3: EXECUTIVE SUMMARY

ORANGE COUNTY FIRE AUTHORITY

MARCH 4, 2025

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EXECUTIVE SUMMARY

The Orange County Fire Authority (OCFA) retained Citygate Associates, LLC (Citygate) to perform a Standards of Response Coverage (SOC) update Assessment. This SOC update included reviewing the adequacy of the existing deployment system of apparatus and personnel from the current fire station locations, testing deployment scenarios to improve coverage, and analyzing the workload per unit. This report is presented in three volumes, including this Executive Summary, which summarizes the findings and recommendations, along with a Technical Report (Volume 2) containing the SOC assessment, and a Map Atlas (Volume 3) of deployment coverage measures.

The last SOC assessment was conducted by Citygate covering the years 2016 through 2018. This update uses data from 2019 through 2023. Citygate's evaluation provides recommendations to serve as a foundation for future fire service deployment planning. This report identifies both current services and desired service levels and then describes the Authority's ability to provide them considering ongoing population growth and related development. The recommended enhancements provided in this report cover a one- to three-year deployment plan to maximize operational efficiencies by utilizing existing resources and staffing as much as possible. These short-term deployment enhancements are not in lieu of the Deployment Improvement Plan outlined in the 2020 SOC, but will provide time for OCFA to explore additional operational deployment opportunities as it seeks a possible entry into ambulance transportation services and tiered EMS response dispatching.

Citygate's scope of work and corresponding Work Plan were developed consistent with Citygate's Project Team members' experience in fire administration and deployment. Citygate utilizes various industry-recognized best practice guidelines and criteria in the field of deployment analysis, including National Fire Protection Association (NFPA) standards, the self-assessment criteria of the Commission on Fire Accreditation International (CFAI), Insurance Services Office (ISO) schedules, and federal and state mandates.

POLICY CHOICES FRAMEWORK

There are no mandatory federal or state regulations directing the level of fire service staffing, response times, or outcomes. Thus, the level of fire protection services provided is a local policy decision. Communities have the level of fire services that they can afford, which may not always be the level desired. However, if services are provided at all, local, state, and federal regulations related to firefighter and resident safety must be followed.

The fundamental policy choices are derived from three key questions:

1. What outcome is desired for an emergency? Is the desire to keep a building fire to the room, building, or block of origin and to provide emergency medical care in time to lessen the possibility of preventable death and severe disability?

2. Should equitable response time coverage be provided to all neighborhoods with similar risks to protect? Once the outcomes are stated, the fire and emergency medical services (EMS) first responder deployment must be designed to cover the most geography in the fewest minutes to meet the stated outcome goals. In a large fire and EMS agency with multiple neighborhoods, such as OCFA, it must be considered whether similarly developed areas should all receive the same response time from a fire services unit.

3. What is the optimal response plan balance to ensure non-emergency duties (training, inspections, preplanning, etc.) are completed while ensuring positive firefighter physical and mental health?

CAPSTONE OBSERVATION

Citygate finds that the Authority's deployment is well organized to accomplish its mission. OCFA uses best practices and is data driven in its approach to deployment, as necessary. OCFA serves a diverse urban population with a mixed residential and non-residential land-use pattern typical of Orange County.

Fire service deployment, simply summarized, is about the speed and weight of response. Speed refers to initial (first-due) response of all-risk resources (engines, ladder trucks, squads, and ambulances) strategically deployed across a jurisdiction for response to emergencies within a time interval to achieve desired outcomes. Weight refers to multiple-unit (Effective Response Force or ERF) responses to more serious emergencies such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents. In these situations, enough firefighters and paramedics must be assembled within a time interval to safely control the emergency and prevent it from escalating into a more serious event.

If the Board of Directors desires emergency outcomes in urban population areas that include limiting building fire damage to only part of the inside of an affected building or minimizing permanent impairment resulting from a medical emergency, or both, then OCFA will need to provide both first-due unit and multiple-unit ERF coverage to similar-risk neighborhoods consistent with Citygate's and OCFA's best practices-based response performance measures.

In urban population areas, if desired outcomes include limiting building fire damage to only part of the inside of an affected building and/or minimizing permanent impairment from a medical emergency, then first responder unit should arrive within 8:30 minutes and an initial (minimum) multiple-unit Effective Response Force (ERF) or first alarm should arrive within 11:30 minutes of 9-1-1 answer at OFCA's 9-1-1 dispatch center, all at 90 percent or better reliability. Total response time to emergency incidents includes three separate components:

- 9-1-1 call processing / dispatch time

- Crew turnout time
- Travel time

Citygate's best practice time recommendations for these response components are 1:30 minutes, 2:00 minutes, and 5:00 / 8:00 minutes respectively for first-due and multiple-unit ERF responses in urban areas.

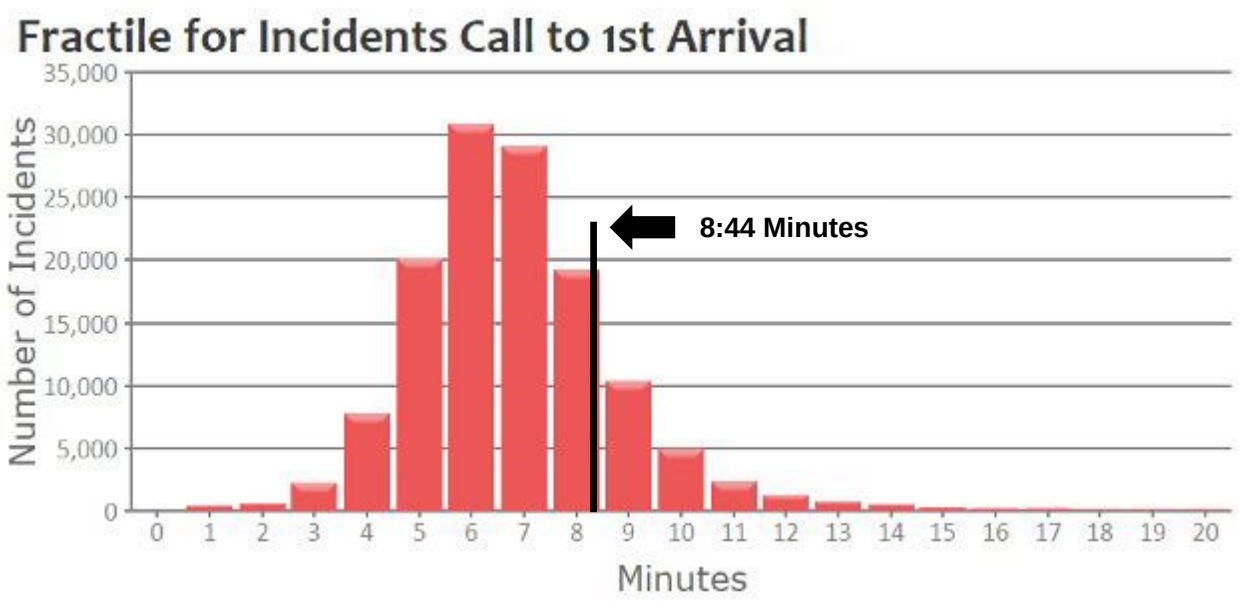
The following table reflects a summary of overall response performance.

Table 1—90th Percentile Response Performance Summary – 2023

Response Component	Best Practice		90th Percentile Performance (2023)	Performance Versus Best Practice Goal
	Time	Reference		
Call Processing / Dispatch	1:30	Citygate	**1:10**	**- 0:20**
Crew Turnout	2:00	Citygate	**3:20**	**+ 1:20**
First-Unit Travel	5:00	Citygate	**5:33**	**+ 0:33**
First-Unit Call to Arrival	8:30	Citygate	**8:44**	**+ 0:14**
ERF Call to Arrival	11:30	Citygate	**13:25**	**+ 1:55**

In summary, the OCFA's total response time for a first-due unit to a fire or EMS emergency at 8:44 minutes is commendable given is size and diversity of risks and topography in its service area.

Figure 1—Call to First Arrival Fractile (2023)



Some areas perform better than others for three principal reasons this study discusses in depth:

- The high workload on many units, including simultaneous calls in the same area requiring cover units from farther away.
- There are not enough fire crews and stations in some growing areas.
- The impact on travel time given a non-grid, curvilinear street network with open spaces between some clusters of development.

Given the road network design and growth areas around still-undeveloped open spaces, as in other urban areas with similar challenges, Citygate is again recommending the Authority use a 5:00-minute travel time measure for future fire station spacing. Thus, a total response time goal would be first-unit arrival within 8:30 minutes and ERF arrival within 11:30 minutes of call receipt at fire dispatch, all at 90 percent or better reliability.

Deployment Improvement Recommendations to Accommodate Growth

The findings in the base case study were combined with OCFA's ongoing strategic planning insights, which then yielded the following issues around which to model improved coverage enhancements. In totality, these enhancements provide one additional truck and eight additional ALS units to OCFA's jurisdiction. The enhancements will be presented in order of priority.

- Some units are exceeding 30 percent hour-over-hour unit utilization

- A grant application to increase staffing on the last five engines to four personnel per crew, to include paramedics, provides the opportunity to redeploy some of the two-firefighter/paramedic squads.
- This study identified that Station/Engine #25 in an unincorporated pocket called Midway City is completely overlapped at 5:00 minutes travel and is not an effective use of that staffing.
- Mitigate as possible the single-ladder-truck-coverage gaps at 8:00 minutes travel.
- Ensure resources are properly located for deployment to ensure equitable neighborhood access to first responder coverage.
- Deploy to provide resilience in coverage to handle predictable simultaneous incident demand.
- Whether to continue to use stand-alone quint truck companies. As part of this review, ensure the availability of stand-alone paramedic truck companies (PMTs) which are being committed as the initial resource on medical emergencies, reducing their availability for truck company responses.

To conduct this work to improve deployment, Citygate and the OCFA Strategic Planning team developed a matrix table of key statistics and GIS measures to look for areas where multiple deployment measures are weak and occur in already high-demand areas. These metrics included:

- Total station and unit annual incident volume.
- Ranking high to low the first responder unit-hour utilization (UHU) measures.
- Ranking high to low the occurrence of simultaneous incidents in a station area.
- Identifying clusters of where units or station areas with high use factors touched one or more *adjoining high use areas*, thus creating a multi-station high-demand pattern.
- Identifying where stations were somewhat isolated, due to geography, from prompt second-due unit coverage if the primary unit was already assigned to an incident.
- Reviewing the deployment demand need at the locations of the four medic squads.

Deployment Enhancements

Enhancement #1 – Increase Staffing to Four Personnel and ALS on Five Engines

At present, there are five engines still staffed with three personnel since the date they were merged into OCFA. The Authority received a FY 22/23 federal grant for increased firefighter staffing. The grant is for 15 personnel to add a fourth firefighter to five engines on each of the three duty platoons—E7, E18, E45, E46, and E57—and to make each a paramedic engine. These additions add to the weight of attack capability of the first-arriving unit *and* the follow-up effective response force, and allows for the redeployment of medic squads providing ALS coverage behind the current 3/0-staffed BLS engines.

Enhancement #2 – Build Station 12 – Add ALS Engine 12

As this study and the 2019 SOC identified, Station 22 and its multiple units are still overworked hour over hour. This area has a very high density of EMS and simultaneous incidents. To balance workload and increase the 5:00-minute travel time coverage west of Station 22, OCFA was planning to add Station 12. A temporary site, station, and future funding are available, and Citygate finds expediting the timeline is a great choice to add an ALS engine in the area west of Station 22, providing an immediate positive impact on service.

The construction of Station 12 is currently identified in the CIP budget to begin in FY 27/28. Activating a temporary Station 12 with an ALS engine and moving up the build timeline for the permanent structure will lesson response times to the community of Laguna Woods, decrease the reliance of the current first- and second-due units to the area (FS22 Laguna Hills, FS51 Irvine, and FS57 Aliso Viejo), and relieve the over-burdened workload in the region by balancing out call volume and UHUs and providing resiliency in coverage, and thus should be the highest priority behind upgrading the remaining 3/0 engines to 4/0 as identified in Enhancement #1.

Enhancement #3 – Upgrade ALS Truck 45

Currently, Truck 45 is not staffed with two paramedics per day. This means either Engines 18, 31, or 40 must also respond when Engine 45 is not available for a paramedic EMS call in its first-due district in the northeast Battalion 7 area. Because the station's location is near the eastern end of the road network in the foothills, secondary ALS response units are not as abundant. Therefore, upgrading T45 to ALS provides the redundancy required to maintain adequate ALS coverage at or near the 8:30-minute response time goal.

Enhancement #4 – Add ALS Truck 64 by Redeploying Engine 25

As can be seen in the following map, Station 25's area is 100 percent covered with a 5:00-minute travel time by nearby units. Its location is an artifact of when the station was sited prior to both the creation of OCFA and OCFA becoming the fire service provider for the City of Westminster, in

which Station 25 is completely encompassed. In 2023, station area 25 had 2,145 incidents, or approximately 5.9 per day. Transferring this amount to four adjoining engines would **not** overburden engines 64, 65, 66, and 80, as they all have annual incident volumes less than 3,000 each. In addition, station area 25 only has a simultaneous incident rate of .8 per day, which is not significant with so many nearby companies and aid from Huntington Beach.

Another ALS truck is needed in this area to improve single and ERF truck coverage in the overall region of Station 25. Thus, the engine staffing of 12 personnel will be reallocated to staff a regional ALS ladder truck (T64) at Station 64 (which can accommodate it) with no other increase in personnel. This regional truck will provide a much-needed immediate impact in truck coverage and depth to Midway City, Seal Beach, Stanton, and Westminster. Additionally, approximately $12 million is currently allocated in the CIP for the replacement of Station 25 in FY 29/30, which will be freed-up.

Figure 2—5:00-Minute Travel without Engine 25

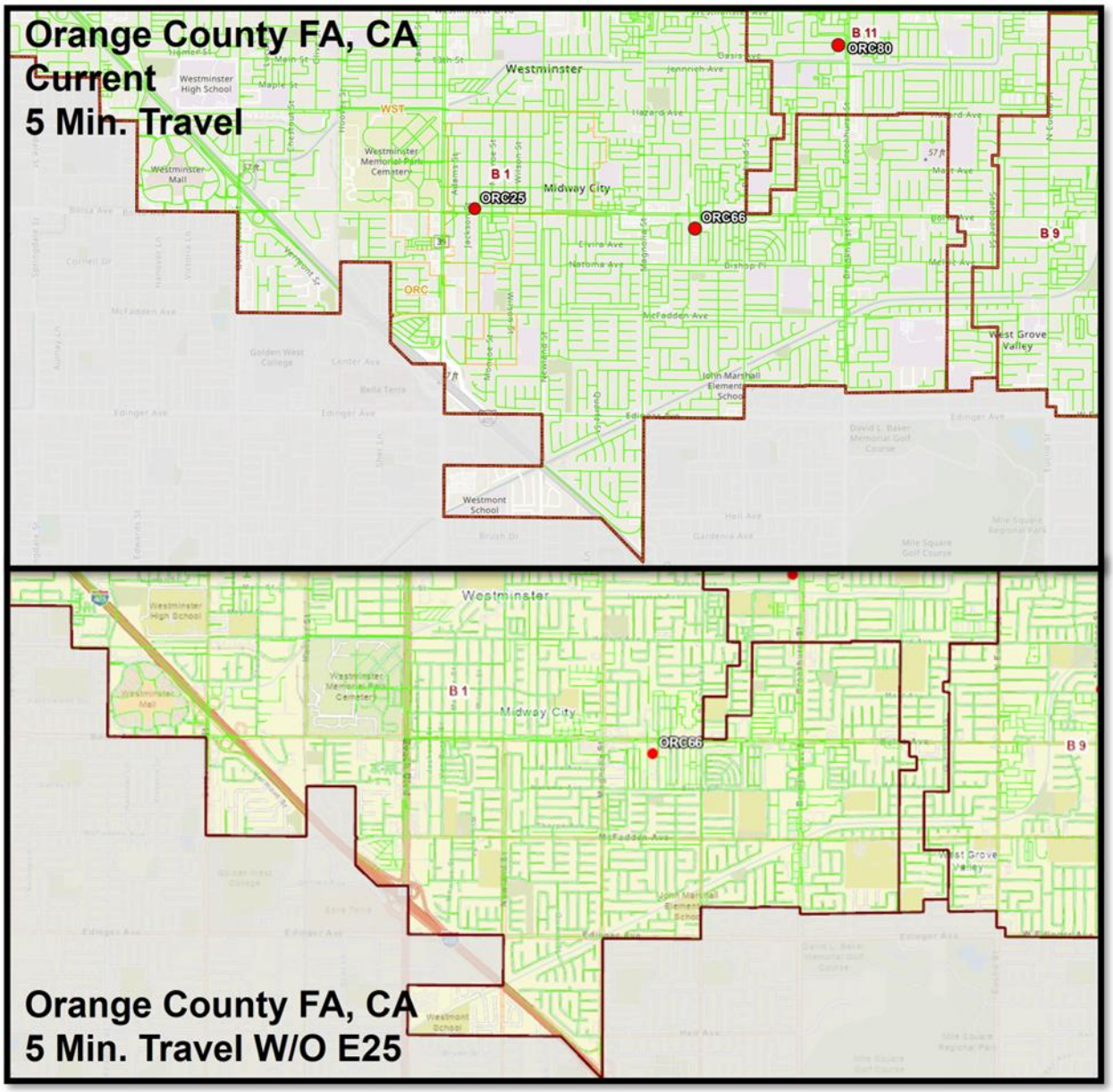
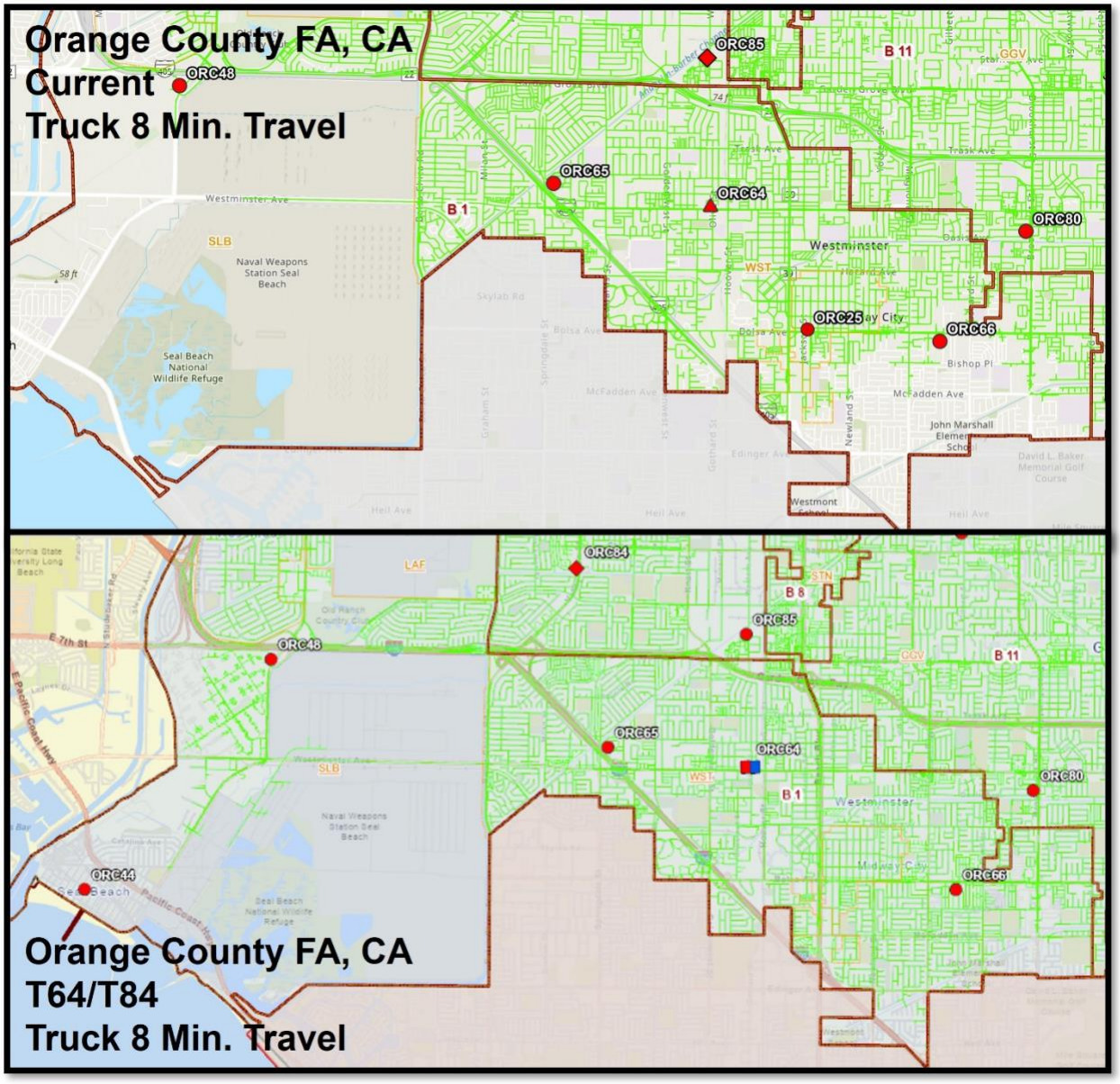


Figure 3—8:00-Minute Truck Coverage with Added Truck 64



Enhancement #5 – Exchange Locations – Truck 84 and Engine 85

This enhancement is the companion step to adding ALS Truck 64. With a new truck at Station 64, an opportunity exists to redeploy OCFA's busiest truck, T85, to a first-due location that has a less demanding EMS call load while at the same time improving regional truck coverage and availability.

This enhancement, with **no** added personnel, moves Engine 84 east to Station 85 and moves ALS Truck 85 west to Station 84. A T84 will realize a significant reduction in responses and UHU while providing increased availability and coverage as intended with a specialty unit. The

complementary enhancements of T64 and T84 significantly improves single and ERF truck coverage to Division 1 and the southern and western edges of Division 7 while also increasing overall truck availability.

Enhancement #6 – Enhance Paramedic Depth and Reduce UHUs in Garden Grove

The City of Garden Grove is home to OCFA's two busiest trucks (T85 and T81) and a top-five busiest engine (E82), serving a city with both high density EMS and fire responses. The response area would be well served by strategically adding paramedic depth via additional resources (engine or squad) to decrease UHUs and significantly enhance truck availability for fires and rescues. The current trucks are both stand-alone ALS trucks that are often committed to medical emergencies, limiting availability for their intended use.

Enhancement #7 – Enhance Paramedic Depth and Reduce UHUs in Santa Ana

The City of Santa Ana is home to four of the busiest engines and three of the busiest trucks in OCFA's jurisdiction, serving a response area with both high density EMS and fire responses. The area would be well served by adding paramedic depth via additional resources (engine or squad) to decrease UHUs and balance workload demand.

Enhancement #8 – Upgrade ALS Truck 22

To further mitigate the very high density of EMS and simultaneous incidents impacting Station 22 and the surrounding response areas, and to increase the effectiveness of adding Station 12, it is recommended that T22 is upgraded to ALS. T22 currently responds to over 1,200 EMS responses annually, each time requiring an ALS unit from an adjacent response area to also commit to the incident in what is already a heavily impacted area. The ALS upgrade to T22 would eliminate the need for a dual response and help balance the workload and maintain OCFA's 8:30 response time goals.

CAPSTONE RECOMMENDATIONS

OCFA serves a diverse urban population with a mixed residential and non-residential land-use pattern typical of Orange County. There are also large open space and wildland areas to protect with specialty resources. There are many significant risks driving the need for technical rescue, hazardous materials, and aviation response capabilities. In short, about the only risks OCFA does not protect are harbors and oil refineries. If the Board of Directors desires emergency outcomes in urban population areas that include limiting building fire damage to only part of the inside of an affected building or minimizing permanent impairment resulting from a medical emergency, or both, then OCFA will need to provide both first-due unit and multiple-unit ERF coverage to similar-risk neighborhoods consistent with Citygate's and OCFA's best practices-based response performance measures.

Citygate finds the Authority response apparatus to be appropriate to protect against the hazards likely to impact OCFA's service areas. Daily staffing per unit is to best practices and provides for multiple ERF response teams sufficient for several emerging or serious fires at the same time, while maintaining engine and ambulance emergency response coverage elsewhere.

The most recent total response time (from fire dispatch center answer to first-unit arrival) of 8:44 minutes to significant fire and EMS emergencies is very close to the existing best-practices-based and Citygate-recommended goal of 8:30 minutes in urban areas. Given the road network design and growth areas around still-undeveloped open spaces, as in other urban areas with similar challenges, Citygate is again recommending the Authority use a 5:00-minute travel time measure for future fire station spacing. Thus, a total response time goal would be first-unit arrival within 8:30 minutes and ERF arrival within 11:30 minutes of call receipt at fire dispatch, all at 90 percent or better reliability.

Considering over the previous ten years OCFA has absorbed a 49 percent call volume increase with only a 12 percent increase in firefighter staffing, improving or even maintaining response times with ongoing growth in the communities served will not be easy or quick due to the economic impacts and the need to hire personnel and acquire apparatus and stations in some cases. There will need to be multiple changes over a multiple-year effort to improve. Current staff and technology resources can be applied to improving turnout times. The eight recommended deployment enhancements will together increase efficiencies, deal with increased workloads in some of the busiest areas and add new resources in growing areas.

OCFA should also focus on *equity of access* to a first responder. In other words, for areas with similar risks to be protected, each neighborhood should receive help in about the same time (and with the same outcome goal) as another across the Authority's service area.

LIST OF FINDINGS AND RECOMMENDATIONS

Findings in Report Sequence

Finding #1: The Department's response unit types are appropriate to protect against the hazards likely to impact the service area.

Finding #2: OCFA's management team uses response performance goals consistent with best practice recommendations as published by the CFAI and NFPA; however, those performance goals have not been formally adopted by the Board of Directors consistent with recommended best practice.

Finding #3: OCFA has a standard response plan that considers types of emergency risks and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engines, trucks, specialty units, and

command officers customarily needed to effectively control that type of incident based on OCFA prior incident experience.

Finding #4: The 5:00-minute travel coverage at 99 percent of the public road miles is excellent in areas with developed lands. Where pockets of under-coverage exist, they are typically at the outer edges of the road network and against natural open spaces.

Finding #5: There are pockets of growth and/or high incident demand that need improved first-due coverage.

Finding #6: The minimum Effective Response Force (ERF) coverage is more limited. It is very challenging to get so many units to all the public streets in only 8:00 minutes of travel.

Finding #7: The more numerously staffed ERF fire coverage is much more limited and only exists in the core, most populated areas. These are the areas where multiple stations can "meet in the middle" at 8:00 minutes travel time. A large ERF is very challenging goal and some of the under-covered areas are large enough to warrant improvement.

Finding #8: The two-ladder-truck coverage for the working fire ERF, at 8:00 minutes travel, only covers the most densely populated areas. There are larger gaps at the outer developed areas.

Finding #9: The most densely populated areas generate significant service demand.

Finding #10: After the COVID-19 pandemic, OCFA experienced 21 percent overall growth in service demand over the three-year period from 2020 through 2023.

Finding #11: One or more simultaneous incidents occur 99.8 percent of the time increasing to 21 or more simultaneous incidents 10 percent of the time. These high rates dilute serious firefighting capacity at peak hours of the day.

Finding #12: Engines 19, 22, and 222 are all near or exceeding 30 percent UHU from 8:00 AM through 6:00 PM.

Finding #13: At **1:10 minutes** over the five-year study period, OCFA's 90th percentile call processing / dispatch performance is 22 percent faster than Citygate's 1:30-minute recommended best practice goal and only slightly slower than the 1:00-minute NFPA standard.

Finding #14: At slightly more than **3:30 minutes** over the five-year period, 90th percentile crew turnout performance is 75 percent slower than Citygate's recommended 2:00-minute goal. This performance can be improved through education and training.

Finding #15: 90th percentile first-unit travel time performance to fire and EMS incidents in 2023 was **5:40 minutes** and ranged from 3:56 (Station 75) to 7:08 minutes (Stations 8 and 40). Overall, first-unit travel performance is only 13 percent slower than OCFA's most recent administrative 5:00-minute goal and very good given the vast and challenging OCFA service area.

Finding #16: At **8:44 minutes**, OCFA's 90th percentile first-unit call-to-arrival performance was only 14 seconds slower than the Citygate-recommended 8:30-minute goal. It should be noted that the 8:30-minute goal could be met by reducing crew turnout performance closer to the Citygate-recommended 2:00-minute goal.

Finding #17: At **18:45 minutes** over the five-year study period, 90th percentile Effective Response Force (ERF or First Alarm) call-to-arrival performance was 7:15 minutes (63 percent) slower than the 11:30-minute Citygate-recommended goal.

Recommendations

Based on the technical analysis and findings contained in this SOC, Citygate offers the following overall deployment recommendations:

Recommendation #1: Adopt Board of Directors Deployment Policies: The Board should adopt complete performance measures to aid deployment expansion and to monitor equity of performance across their diverse service area. Measures should be for both urban areas and areas of emerging growth. The measures of time should be designed to deliver outcomes that will save patients upon arrival when possible and keep small and expanding fires from becoming more serious. Citygate recommends the following measures:

1.1 Urban Areas – Distribution of Fire Stations: To treat pre-hospital medical emergencies and control small fires, the first-due unit should arrive within 8:30 minutes, 90 percent of the time, from receipt of the 9-1-1 call at fire dispatch. This equates to a 90-second dispatch time, a 2:00-minute company turnout time, and a 5:00-minute travel time.

1.2 Urban Areas – Multiple-Unit Effective Response Force (ERF) for Serious Emergencies: To confine building fires near the room of origin, keep vegetation fires under one acre in size, and treat multiple medical patients at a single incident, a *minimum* multiple-unit ERF of three engines, one ladder truck, and one Battalion Chief, totaling at least 17 personnel, should arrive within 11:30 minutes from the time of 9-1-1 call receipt at the fire dispatch center, 90 percent of the time. This equates to a 90-second dispatch time, a 2:00-minute company turnout time, and an 8:00-minute travel time.

1.3 Adopt a Crew Workload Measure unit-hour utilization (UHU) rate saturation point of no more than 30 percent over four consecutive hours or more of peak demand (0800–1800) on an annual basis.

1.4 Urban Areas – Hazardous Materials Response: To protect the Authority's service area from the hazards associated with uncontrolled release of hazardous and toxic materials, the nearest first-response fire unit should arrive in 8:30 minutes of 9-1-1 call receipt to assess the situation, isolate and deny entry, and determine the need for the Hazardous Materials Response Team.

1.5 Urban Areas – Technical Rescue: To provide technical rescue services as needed with enough trained personnel to facilitate a successful rescue, a multiple-unit ERF of at least 17 personnel, including on-duty technical rescue specialists and at least one chief officer, should be capable of responding throughout the District's service area within 11:30 minutes of 9-1-1 call receipt to facilitate safe rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

1.6 New Growth Areas – Adopt tiered deployment measures based on population density and community risks to control building fires from spreading to other buildings or to the wildland, controlling wildland fires from spreading to inhabited buildings, and minimizing permanent impairment from a medical emergency. The response time goals could be as follows:

1.6a When there are more than 10,000 residents in a contiguous area beyond a 5:00-minute travel time from a station, at that point have a fire station and crew operational.

1.6b In commercial-only areas, if there are more than 5,000 employees (or others) in a contiguous area beyond an 8:00-minute travel time from a station, at that point have a fire station and crew operational.

Recommendation #2: Through feedback and training, decrease crew turnout times to 2:00 minutes averaged over a 24-hour day.

Recommendation #3: Direct staff to return with a fiscal impact and implementation plan for the eight deployment enhancements as designed in this 2024 study:

- Enhancement #1 – Increase Staffing to Four Personnel and ALS on Five Engines
- Enhancement #2 – Build Temporary Station 12 – Add ALS Engine 12
- Enhancement #3 – Upgrade ALS Truck 45

- Enhancement #4 – Add ALS Truck 64 by Redeploying Engine 25
- Enhancement #5 – Exchange Locations – Truck 84 and Engine 85
- Enhancement #6 – Enhance Paramedic Depth and Reduce UHUs in Garden Grove
- Enhancement #7 – Enhance Paramedic Depth and Reduce UHUs in Santa Ana
- Enhancement #8 – Upgrade ALS Truck 22

NEXT STEPS

The purpose of this assessment is to compare OCFA's current performance against the local risks to be protected and nationally recognized best practices. This analysis of performance forms the basis from which to make recommendations for changes in fire station locations, equipment types, and staffing.

As a first step, the Board of Directors should adopt updated, clearly measurable response time goals for OCFA based on best practices, with the start time to be the 9-1-1 call receipt in fire dispatch and provide accountability for OCFA personnel to meet those standards. The goals identified in Recommendation #1 are consistent with national best practices and risks to be protected in OCFA's service area. Measurement and planning as OCFA continues to evolve will be necessary for OCFA to meet these goals.

Based on this evaluation, Citygate offers these likely next steps to move OCFA forward:

- Adopt a set of updated response time policies.
- Adopt unit response demand limitations based on UHUs (unit-hour utilization) to guide future trigger points for added units.
- Direct staff to use the deployment enhancement recommendations in this SOC for repositioning and adding resources.
- Continue work to improve crew turnout times.

CITYGATE
FIRE & EMS

STANDARDS OF RESPONSE COVERAGE UPDATE

VOLUME 2 OF 3: TECHNICAL REPORT

ORANGE COUNTY FIRE AUTHORITY

MARCH 4, 2025

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SECTION 1—PROJECT INTRODUCTION AND BACKGROUND

This Standards of Response Coverage (SOC) update assessment evaluates and makes recommendations relative to the organization and deployment of the Orange County Fire Authority's (OCFA) fire suppression and specialty response resources, including Aircraft Rescue Fire Fighting (ARFF), emergency medical service (EMS), hazardous materials, and heavy rescue. The results of this assessment are intended to serve as a foundation for on-going fire service deployment planning. This report identifies current services and desired service levels, as well as the Authority's ability to provide them considering ongoing population growth and related development.

Citygate Associates, LLC (Citygate) scope of work and corresponding Work Plan were developed consistent with Citygate's Project Team members' experience in fire administration and deployment. Citygate utilizes various industry-recognized best practice guidelines and criteria in the field of deployment analysis, including National Fire Protection Association (NFPA) standards, the self-assessment criteria of the Commission on Fire Accreditation International (CFAI), Insurance Services Office (ISO) schedules, and federal and state mandates.

This document provides technical information related to how fire services are provided and legally regulated and the way the Authority currently operates. This information is presented in the form of recommendations and policy choices for consideration by the OCFA Board of Directors and leadership team.

Citygate cites findings and makes recommendations related to each finding as appropriate. Findings and recommendations throughout this report are sequentially numbered. A complete list of the same findings and recommendations is provided in this Executive Summary.

The result is a strong technical foundation upon which to understand the advantages and disadvantages of the choices OCFA faces relative to the provision of fire, EMS, and specialty services, and more specifically, at what level of desired outcome and expense.

1.1 REPORT ORGANIZATION

The Executive Summary is provided in Volume 1. This report volume (**Volume 2**) is structured into two main sections. The Map Atlas is found in **Volume 3**.

Section 1 **Project Introduction and Background:** An introduction to the project, project approach and scope of work summary, and OCFA background information and deployment summary.

Section 2 **Standards of Coverage Analysis:** Citygate's in-depth analysis, including every element of the Standards of Coverage process consisting of, but not

limited to, deployment goals, mapping analysis, statistical analysis, and Citygate's overall evaluation.

Appendix A **Risk Assessment:** An analysis of community risks within the OCFA, including identification of values at risk to be protected, specific hazards likely to impact the service area, and quantification of overall risk associated with each hazard.

1.1.1 Limitations of Report

In the United States, there are no federal or state regulations requiring a specific level of fire services. While this report and technical explanation can provide a framework for the discussion of services, neither this report nor the Citygate team can make the final decisions, nor can they cost out every possible alternative in detail. Once recommendation implementations receive policy approval, OCFA staff can conduct any final costing and fiscal analyses as typically completed in the normal operating and capital budget preparation cycle.

1.2 Project Approach and Scope of Work

Citygate utilized multiple sources to gather, understand, and model information about OCFA's services. Citygate requested and reviewed relevant background data and information to better understand current costs, service levels, and the history of service level decisions, including prior studies.

Citygate subsequently reviewed demographic information about OCFA's service area and the potential for future growth and development. Citygate also obtained map and response data from which to model current and projected fire service and EMS deployment, with the goal to identify the location(s) of stations and crew quantities required to best serve the differing service areas within OCFA as it currently exists and to facilitate future deployment, fleet, and facility planning.

The Citygate team then tested deployment model revisions against the travel time mapping and prior response data to ensure an appropriate fit. Citygate also evaluated future service area growth and service demand by risk type. This resulted in Citygate proposing an approach to address current and longer-range needs with effective and efficient use of OCFA resources, and framework for enhancing services while meeting reasonable community expectations and fiscal realities.

1.2.1 Project Scope of Work

Citygate's approach to this standards of response coverage update involved:

- Reviewing relevant information and data provided by OCFA.
- Interviewing internal study stakeholders.

- Conducting a comprehensive analysis of the fire and non-fire hazards likely to impact the service area.
- OCFA staff modeling fire station travel time coverage utilizing ESRI ArcGIS, a geographic mapping software program.
- Analyzing the statistics of prior incident performance and plotting the results on graphs and geographic mapping exhibits using StatsFD™, an incident response time analysis program.
- Identifying and evaluating future service area population and related development growth.
- Reviewing service demand by risk type.
- Recommending appropriate, risk-specific response performance goals.
- Identifying a long-term strategy, including incremental short- and mid-term goals, to achieve desired response performance objectives.

1.3 AUTHORITY OVERVIEW

OCFA was formed in 1995 as a Joint Powers Authority (JPA) and is an independent government entity like special districts under California statutes. The current service area includes 23 cities and the unincorporated County areas. A 25-member Board of Directors governs OCFA via its appointed Fire Chief. At the end of 2023, OCFA's services were organized across seven divisions, eleven battalions, and 78 fire stations. The primary staffed first-response units include 68 engine companies, 18 truck companies, and another 10 specialty apparatus, including three Aircraft Rescue Fire Fighting (ARFF) units at John Wayne International Airport. OCFA also has additional response units for wildland fires, hazardous material spills/releases, urban search and rescue (USAR), incident support, and other special hazards or uses that can be staffed with on-duty or call-back personnel as needed. The year-round daily emergency unit staffing is 374 personnel, and the 2024/2025 General Fund budget is $516 million.

OCFA protects 586 square miles with a resident population of 1,942,819. In 2023, OCFA responded to 173,344 incidents for a rate of 475 per day or 20 per hour. Its command, control, operations, and business services units are scaled to provide the appropriate response to calls for service within response times to facilitate best practice outcomes. In times of local or wide-area disasters, OCFA has its own disaster plan and Department Operations Center (DOC) that also coordinates with the 23 cities and County emergency operations centers. It sends and receives local and wide-area mutual aid daily with its partnering fire agencies. In the attached Map Atlas, Maps

1–4 show the OCFA jurisdiction, fire station locations, first responder apparatus types, and the resident population densities being protected.

All response personnel are trained to either the Emergency Medical Technician (EMT) level, capable of providing Basic Life Support (BLS) pre-hospital emergency medical care, or EMT-Paramedic (Paramedic) level, capable of providing Advanced Life Support (ALS) pre-hospital emergency medical care. OCFA employs 722 paramedics of all ranks and another 523 Emergency Medical Technicians (EMTs). Ground paramedic ambulance service is provided by either Falck or Emergency Ambulance Service, private-sector ambulance providers operating under an exclusive operating area contracts administered by the Orange County Health Care Agency or the five legacy rights transport contract cities.

Response personnel are also trained to the U.S. Department of Transportation Hazardous Material First Responder Operational (FRO) level to provide initial hazardous material incident assessment, hazard isolation, and support the Department's hazardous material response teams. The Department staffs 12 daily personnel trained to the Hazardous Materials Specialist or Technician level to cross-staff the Department's Type-1 Hazardous Materials Response Units at Station 20 in Irvine and Station 79 in Santa Ana.

All response personnel are further trained to the Confined Space Awareness and Low Angle Rope Rescue Operations levels, with some specialty personnel also trained to the Trench Rescue Technician level, Confined Space / USAR Technician level, high-angle rope rescue, heavy machinery rescue, and heavy vehicle extrication level to staff the heavy rescue at Station 6 in Irvine and the technical rescue trucks at Stations 32, 56, and 61.

1.3.1 Response Organization

OCFA provides response services from 78 fire stations organized into 11 battalions and further organized into seven political divisions as follows:

Table 1—OCFA Divisions and Battalions

Division	Battalion	Communities Served
1	1	Los Alamitos, Midway City, Rossmoor, Seal Beach, Westminster
	11	Garden Grove
2	5	Irvine, UC Irvine, John Wayne Airport, Santa Ana Heights, Unincorporated Costa Mesa
	10	Irvine, Unincorporated Irvine
3	6	Dana Point, Rancho Mission Viejo, San Clemente, San Juan Capistrano
	7	Coto De Caza, Ladera Ranch, Las Flores, Mission Viejo, Rancho Santa Margarita, Trabuco Canyon
4	2	Unincorporated Brea, Orange Olive, Unincorporated Placentia, Yorba Linda
	3	El Modena, Orange Park Acres, Tustin, Unincorporated Canyons, Villa Park
5	4	Aliso Viejo, Emerald Bay, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Newport Coast
6	9	Santa Ana
7	8	Buena Park, Cypress, La Palma, Stanton

The following table lists fire station numbers by division and battalion.

Table 2—OCFA Stations by Division and Battalion

Battalion 1	Battalion 5	Battalion 6	Battalion 2	Battalion 4	Battalion 9	Battalion 8
Station 2 Station 25 Station 44 Station 48 **Station 64** Station 65 Station 66	Station 4 **Station 6** Station 28 Station 33 Station 36 Station 47	Station 7 **Station 29** Station 30 Station 50 Station 56 Station 59 Station 60 Station 67	**Station 10** Station 23 Station 32 Station 53	Station 5 Station 11 Station 19 **Station 22** Station 39 Station 42 Station 49 Station 54 Station 57	Station 70 Station 71 Station 72 Station 73 **Station 74** Station 75 Station 76 Station 77 Station 78 Station 79	Station 13 Station 17 Station 41 Station 46 **Station 61** Station 62 Station 63
Battalion 11	**Battalion 10**	**Battalion 7**	**Battalion 3**			
Station 80 **Station 81** Station 82 Station 83 Station 84 Station 85 Station 86	**Station 20** Station 26 Station 27 Station 38 Station 51 Station 55	Station 9 Station 18 (C&E) Station 24 Station 31 Station 40 **Station 45** Station 58	Station 8 Station 14 Station 15 Station 16 **Station 21** Station 37 Station 43			

The following table summarizes total daily response staffing by resource type.

Table 2—Daily Minimum Response Staffing by Unit Type

Primary Response Resource Types	Number	Minimum Staffing	Total Minimum Staffing
Engines	68	3 or 4[1]	267
Aerial Ladder Trucks	18	4	72
Paramedic Squads	4	2	8
Specialty Response Units (ARFF, Heavy Rescue, Hazmat)	7	2-8	22[2]
Battalion Chiefs	12	1	12
Total Minimum Daily Response Staffing			**369**

[1] Five engines are staffed with three personnel; all the others are staffed with four personnel

[2] 12 hazmat positions are cross-staffed

OCFA's total daily response staffing is adequate for the immediate response needs and risks presented in the most built-up, urban areas of OCFA—without requiring automatic or mutual aid resources for all but the largest serious incidents.

Finding #1: The Department's response unit types are appropriate to protect against the hazards likely to impact the service area.

SECTION 2—STANDARDS OF COVERAGE ANALYSIS

This section provides a detailed analysis of OCFA's current ability to deploy and mitigate hazards within its service area. The response analysis uses prior response statistics and geographic mapping to help the Department and stakeholders visualize what the current response system can and cannot deliver.

2.1 STANDARDS OF COVERAGE PROCESS OVERVIEW

The core methodology used by Citygate in the scope of its deployment analysis work is *Standards of Cover*, fifth and sixth editions, which is a systems-based approach to fire department deployment published by the Commission on Fire Accreditation International (CFAI). The SOC method evaluates deployment as part of a fire agency's self-assessment process using local risks, demographics, and community expectations regarding outcomes to determine the level of protection best fitting the community's needs and to help elected officials make informed decisions regarding fire and EMS deployment levels.

Citygate has adopted this multiple-part systems approach as a comprehensive tool for deployment evaluation. The SOC approach uses multiple factors such as response capacity related to staffing, types of needed apparatus, design challenges/benefits of the road network, and station locations and area coverage. Depending on the needs of the study, the depth of the components may vary.

In contrast to a one-size-fits-all, prescriptive formula, such a systems approach to deployment allows for local determination. In this comprehensive approach, an agency can match local needs (risks and expectations) with the costs of various levels of service. In an informed public policy discussion, a governing board "purchases" the fire and emergency medical service levels the community needs and can afford.

While evaluating multiple components to conduct a deployment analysis is admittedly more work, it yields a much better result than using only a singular component. For instance, if only travel time is considered and frequency of multiple calls is not, the analysis could miss over-worked crews. If a risk assessment for deployment is not considered and deployment is based only on travel time, a community could under-deploy to incidents.

The following table describes the eight elements of the SOC process.

Table 3—Standards of Coverage Process Elements

SOC Element		Description
1	Existing Deployment System	Overview of the community served, authority to provide services, and current deployment model and performance metrics
2	Community Outcome Expectations	Review of the community's expectations relative to response services provided by the agency
3	Community Risk Assessment	Description of the values to be protected within the service area, and analysis of the fire and non-fire risks likely to impact the community served
4	Critical Task Analysis	Review of the essential tasks that must be performed and the personnel required to deliver a stated outcome for an Effective Response Force (ERF)
5	Distribution Analysis	Review of the spacing of initial response (first due) resources (typically engines and trucks) to control routine emergencies to achieve desired outcomes
6	Concentration Analysis	Review of the spacing of fire stations so that larger or more complex emergencies receive sufficient resources in a timely manner (ERF) to achieve desired outcomes
7	Reliability and Historical Response Effectiveness Analysis	Using recent prior response statistics, determining the percentage of conformance to established response performance goals the existing deployment system delivers
8	Overall Evaluation	Proposing Standards of Coverage statements by risk type as appropriate

Source: CFAI "Standards of Cover," Fifth Edition

Fire service deployment, simply summarized, is about the ***speed*** and ***weight*** of response. *Speed* refers to initial (first-due) response of all-risk intervention resources (engines, ladder trucks, squads, and ambulances) strategically deployed across a jurisdiction for response to emergencies within a travel time interval sufficient to control routine to moderate emergencies without the incident escalating to greater size or severity. *Weight* refers to multiple-unit responses for more serious emergencies such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents where enough firefighters must be assembled within a time interval to safely control the emergency and prevent it from escalating into an even more serious event.

The following table illustrates this deployment paradigm.

Table 4—Fire Service Deployment Paradigm

Element	Description	Purpose
Speed *of Response*	Response time of initial all-risk intervention units strategically located across a jurisdiction	Controlling routine to moderate emergencies without the incident escalating in size or complexity
Weight *of Response*	Number of firefighters in a multiple-unit response for serious emergencies	Assembling enough firefighters within a reasonable time frame to safely control a more complex emergency without escalation

Thus, smaller fires and less complex emergencies require a single- or two-unit response (engine and/or specialty resource) within a relatively short response time. Larger or more complex incidents require more units and personnel to control. In either case, if the crews arrive too late or the total number of personnel is too few for the emergency, they are drawn into an escalating and more dangerous situation. The science of fire crew deployment is to spread crews out across a community or jurisdiction for quick response to keep emergencies small with positive outcomes without spreading resources so far apart that they cannot assemble quickly enough to effectively stabilize more serious emergencies.

2.2 Current Deployment Performance Measures

SOC Element 1 of 8
Existing Deployment Policies

Nationally recognized standards and best practices suggest using several incremental measurements to define response time. Ideally, the clock starts when the Department's communications center dispatcher receives the emergency call. Response time increments include 9-1-1 call processing / dispatch, crew response unit boarding (commonly called crew turnout), and actual driving (travel) time. Response performance best practices include specific time goals for each of these three increments, which combined equal total response time, or call-to-arrival time, which is a fire agency's true customer service metric. Response performance goals should also address response performance to other risks within the service area, such as hazardous materials and technical rescue, as recommended by the CFAI.

OCFA management has adopted performance measures from its prior SOC and reports performance to the Board of Directors and community partners in conformance with recommended best practice, as summarized in the following table.

Table 5—Response Performance Measures (Minutes:Seconds)

Response Component	Prior OCFA Goals*	Citygate-Recommended Goal**	NFPA #1710 Goal
Call Processing / Dispatch	1:00	1:30	1:00
Crew Turnout	1:30	2:00	1:20
First-Unit Travel – All Fire & EMS Incidents	5:00	5:00	4:00
First-Unit Call-to-Arrival	**7:30**	**8:30**	**6:20**
ERF Travel	10:00	8:00	8:00
ERF Call-to-Arrival	12:30	11:30	10:20

* Not Board adopted and in use informally since 2014

** Citygate SOC recommendation June 2020 and for 2025

Currently, National Fire Protection Association (NFPA) Standard 1710—a recommended deployment standard for career fire departments in urban/suburban areas—recommends initial (first-due) intervention unit arrival within a 4:00-minute travel time and arrival of all resources comprising a multiple-unit First Alarm within an 8:00-minute travel time, all at 90 percent or better reliability.[1]

The most recently published NFPA best practices have *decreased* recommended dispatch / call processing time to 1:00 minute for events with an imminent threat to life or significant property damage and 1:30 minutes for hazardous materials or technical rescue incidents, joint response with law enforcement involving weapons, or for incidents involving language barriers;[2] however, the prior edition of NFPA Standard 1221—and Citygate's experience across many systems—finds 1:30 minutes for dispatch to be a safe and effective goal to all serious events that are not identified as having life or death implications within the first few seconds of a dispatcher listening to the call.

If the travel time measures recommended by the NFPA and Citygate are added to the dispatch processing and crew turnout times recommended by Citygate and best practices, then a realistic 90 percent first-due-unit total response performance goal *for an urban* area is 7:30–8:30 minutes from the time of OCFA's Emergency Command Center receiving the call. This includes 1:30 minutes call processing / dispatch, 2:00 minutes crew turnout, and 4:00 to 5:00 minutes travel time.

[1] Source: NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020 Edition).

[2] NFPA 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2019 Edition).

Finding #2: OCFA's management team uses response performance goals consistent with best practice recommendations as published by the CFAI and NFPA; however, those performance goals have not been formally adopted by the Board of Directors consistent with recommended best practice.

2.2.1 Current Response Plan

The Department is an all-risk fire agency providing the population it protects with services that include fire suppression and pre-hospital ALS paramedic emergency medical services, rescue, and initial hazardous material response. Given these risks, the Department utilizes a tiered response plan calling for different types and numbers of resources depending on incident/risk type. OCFA's dispatch center computer-aided-dispatch (CAD) system selects and dispatches the closest and most appropriate resource(s) pursuant to the Department's response plan as summarized in the following table.

Table 6—Response Plan by Type of Emergency

Incident Type	Response	Minimum Total Staffing
Building Fire – Residential	4 Engines, 2 Trucks, 2 BCs	**24–26**
Building Fire – Commercial	4 Engines, 3 Trucks, 1 Squad, 2 BCs	**28–32**
Medical Emergency	1 Engine/Truck, 1 Squad, 1 Ambulance	**6–8**
Vegetation/Watershed Fire		
Low Dispatch	3 Engines, 1 Copter, 1 HT, 1 BC	**13–16**
Medium Dispatch	6 Engines,[1] 1 Crew, 3 Copters, 1 HT, 1 Squad, 1 Dozer, 2 BCs	**51–56**
High Dispatch	6 Engines,[1] 2 Crews, 4 Copters, 1 HT, 1 Squad, 2 Dozers, 2 BCs	**74–79**
Vehicle Fire	1 Engine/Truck	**3–4**
Vehicle Collision	2 Engines/Truck, 1 Squad, 1 BC	**10–11**
Hazardous Materials	3 Engines, 1 Truck, 1 Squad, 2 Hazmat, 1 BC	**23–27**
Technical Rescue	1 Engine, 2 Trucks, Heavy Rescue, 1 Squad, 1 BC	**18–19**

[1] Four Type-1 Engines, Two Type-3 Engines

Finding #3: OCFA has a standard response plan that considers types of emergency risks and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engines, trucks, specialty units, and command officers customarily needed to effectively control that type of incident based on OCFA prior incident experience.

2.3 Outcome Expectations

SOC Element 2 of 8
Community Outcome Expectations

The Standards of Coverage process begins by reviewing existing emergency services outcome expectations. This includes determining for what purpose the response system exists and whether the governing body has adopted any response performance measures. If it has, the time measures used must be understood and accurate data must be available to evaluate performance.

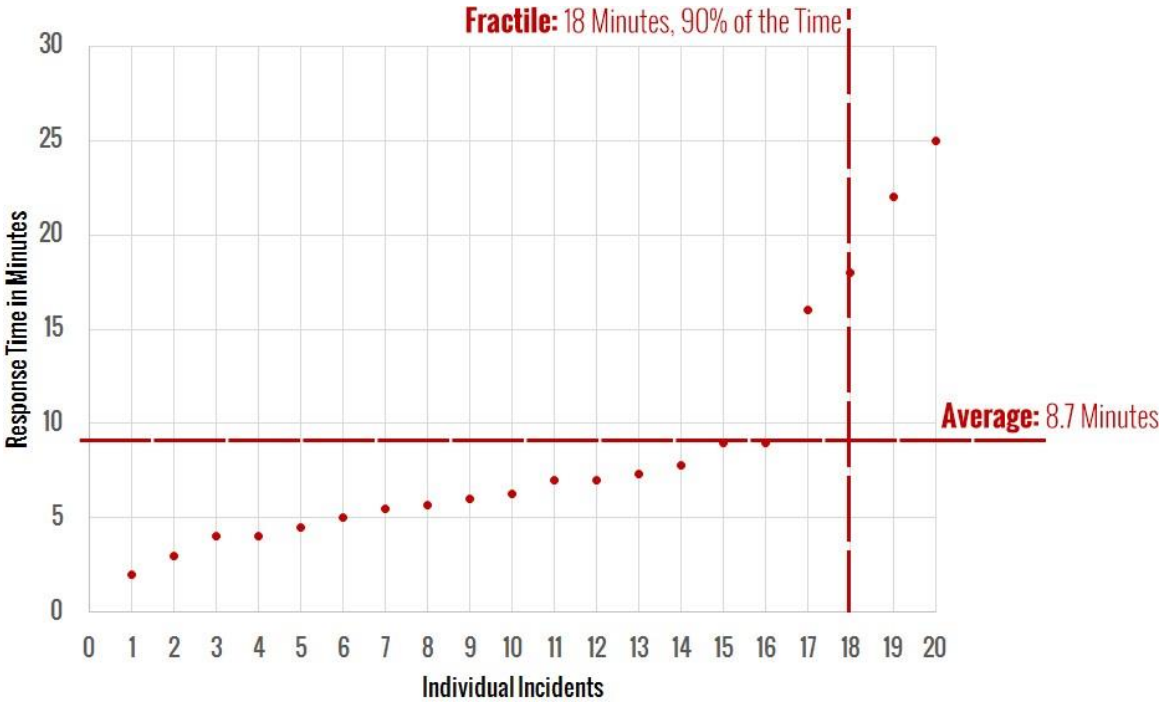
Current national best practice is to measure percent completion of a goal (e.g., 90 percent of responses) instead of an average measure. Mathematically, this is called a fractile measure.[3] This is because measuring the average only identifies the central or middle point of response time performance for all calls for service in the data set. Using an average makes it impossible to know how many incidents had response times that were far above the average or just above.

For example, the following figure shows response times for a **fictitious** small fire department that receives 20 calls for service each month. Each response time has been plotted on the graph from shortest response time to longest response time. The figure shows a *sample average* response time of 8.7 minutes. However, the *average* response time fails to properly account for four calls for service with response times far exceeding a threshold in which positive outcomes could be expected. In fact, it is evident in the figure that 20 percent of responses are far too slow, and that this hypothetical jurisdiction has a potential life-threatening service delivery problem. *Average* response time as a fire service delivery measurement is simply not sufficient. This is a significant issue in larger cities if hundreds or thousands of calls are answered far beyond the average point.

By using the fractile measurement with 90 percent of responses in mind, this small jurisdiction has a response time of 18:00 minutes, 90 percent of the time. Stated another way, 90 percent of all responses are 18:00 minutes or less. This fractile measurement is far more accurate at reflecting the service delivery situation of this small, fictitious agency.

[3] A *fractile* is that point below which a stated fraction of the values lie. The fraction is often given in percent; the term percentile may then be used.

Figure 1—Fractile versus Average Response Time Measurements



More importantly, within the SOC process, positive outcomes are the goal. From that, crew size and response time can be calculated to provide appropriate fire station spacing (distribution and concentration) to achieve the desired goal. Emergency medical incidents include situations with the most severe time constraints. The brain can only survive 4:00 to 6:00 minutes without oxygen. Cardiac arrest and other events can cause oxygen deprivation to the brain. Cardiac arrests make up a small percentage, with drowning, choking, trauma constrictions, or other similar events having the same effect. In a building fire, a small incipient fire can grow to involve the entire room in a 6:00- to 8:00-minute time frame. If fire service response is to achieve positive outcomes in severe emergency medical situations and incipient fire situations, *all* responding crews must arrive, assess the situation, and deploy effective measures before brain death occurs or the fire spreads beyond the room of origin.

Thus, from the time of 9-1-1 receiving the call, an effective deployment system is *beginning* to manage the problem within a 7:30- to 8:30-minute total response time. This is right at the point that brain death is becoming irreversible, and the fire has grown to the point of spreading beyond the room of origin and becoming very serious. Thus, OCFA needs a first-due response goal that is within a range to give the situation hope for a positive outcome. It is important to note that the fire or medical emergency continues to deteriorate from the time of inception, not from the time the fire engine starts to drive the response route. Ideally, the emergency is noticed immediately, and the 9-1-1 system is activated promptly. This step of awareness—calling 9-1-1 and giving the dispatcher accurate information—takes, in the best of circumstances, 1:00 minute. Crew

notification and travel time take additional minutes. Upon arrival, the crew must approach the patient or emergency, assess the situation, and appropriately deploy its skills and tools. Even in easy-to-access situations, this step can take 2:00 minutes or more. This time frame may be increased considerably due to long driveways, apartment buildings with limited access, multiple-story buildings or office complexes, shopping centers, rural highways, or recreation areas.

Unfortunately, there are times when the emergency has become too severe, even before the 9-1-1 notification and/or fire department response, for the responding crew to reverse; however, when an appropriate response time policy is combined with a well-designed deployment system, then only anomalies like bad weather, poor traffic conditions, or multiple emergencies slow down the response system. Consequently, a properly designed system will give citizens the hope of a positive outcome for their tax dollar expenditure.

For this report, total response time is the sum of call processing / dispatch, crew turnout, and travel times, which is consistent with NFPA and CFAI best practice recommendations.

2.4 COMMUNITY RISK ASSESSMENT

SOC ELEMENT 3 OF 8
COMMUNITY RISK ASSESSMENT

The third element of the SOC process is a community risk assessment. Within the context of an SOC study, the objectives of a community risk assessment are to:

- Identify the values at risk to be protected within the community or service area.
- Identify the specific hazards with the potential to adversely impact the community or service area.
- Quantify the overall risk associated with each hazard.
- Establish a foundation for current/future deployment decisions and risk-reduction/hazard mitigation planning and evaluation.

A *hazard* is broadly defined as a situation or condition that can cause or contribute to harm. Examples include fire, medical emergency, vehicle collision, earthquake, flood, etc. *Risk* is broadly defined as the *probability of hazard occurrence* in combination with the *likely severity* of *resultant impacts* to people, property, and the whole community.

2.4.1 Risk Assessment Methodology

Citygate utilizes a three-axis model incorporating *probability of occurrence*, *impact extent*, and *consequence severity* parameters to assess community risks relative to specific hazard services provided by the fire agency. The process starts with identifying geographic planning sub-zones (risk planning zones) appropriate to the jurisdiction or service area. Citygate then identifies and

quantifies, to the extent data is available, the specific values at risk. We then assign a risk score from 1 (lowest risk) to 6 (highest risk) to each hazard parameter using historical agency data or subjective analysis of local factors. The total risk score for each hazard is then calculated using a modification of Heron's Formula for calculating the area of a triangle, and a descriptive risk rating is then assigned based on the total risk score. This methodology conforms as applicable to this community/jurisdiction with the principles of NFPA 1300[4] and the Commission on Fire Accreditation International (CFAI).

2.4.2 Values to Be Protected

Broadly defined, *values* are those tangibles of significant importance or value to the community or jurisdiction that are potentially at risk of harm or damage from a hazard occurrence. Values at risk typically include people, critical facilities/infrastructure, buildings, and key economic, cultural, historic, and/or natural resources.

People

Residents, employees, visitors, and travelers in a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those unable to care for themselves or self-evacuate in the event of an emergency. At-risk populations typically include children younger than 10 years, the elderly, and people housed in institutional settings, and households below the federal poverty level. Key demographic data for OCFA's service area includes:

- Nearly 27.5 percent of the population is under 10 years or over 65 years of age.
- Of the population over 24 years of age, nearly 88 percent have completed high school or equivalency.
- Of the population over 24 years of age, more than 16 percent have a graduate or professional degree.
- Of the population 15 years of age or older, 96 percent are in the workforce; of those, 4 percent are unemployed.
- Median household income is slightly more than $107,000.
- The population below the federal poverty level is slightly more than 3 percent.

[4] NFPA 1300 – Standard on Community Risk Assessment and Community Risk Reduction Plan Development (2020 Edition)

- Nearly 8 percent of the population under age 65 do not have health insurance coverage.
- Nearly 7 percent of the population have one or more disabilities.

The Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Final Growth Forecast projects Orange County's total population will increase slightly more than 10 percent above the 2023 population.

Buildings

OCFA's service area includes nearly 660,000 residential housing units and a large inventory of non-residential buildings housing manufacturing, research, technology, office, professional services, wholesale/retail sales, restaurants/bars, motels, churches, schools, storage, government facilities, healthcare facilities, and other occupancy types.

Critical Facilities/Infrastructure

The U.S. Department of Homeland Security defines critical infrastructure and key resources as those physical assets essential to the public health and safety, economic vitality, and resilience of a community, such as lifeline utilities infrastructure, telecommunications infrastructure, essential government services facilities, public safety facilities, schools, hospitals, airports, etc. The Orange County and OCFA Local Hazard Mitigation Plan identifies 249 critical facilities/infrastructure within the OCFA service area. A hazard occurrence with significant consequence severity affecting one or more of these facilities would likely adversely impact critical public or community services.

2.4.3 Hazard Identification

Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and agency/jurisdiction-specific data and information to identify the hazards to be evaluated for this study. After review of the hazards identified in the 2021 County of Orange and orange County Fire Authority Local Hazard Mitigation Plan and the fire and non-fire hazards as identified by the CFAI as they relate to services provided by OCFA, Citygate evaluated the following seven hazards for this risk assessment:

1. Building fire
2. Vegetation/wildland fire
3. Medical emergency
4. Hazardous material release/spill

5. Technical rescue
6. Marine incident
7. Aviation incident

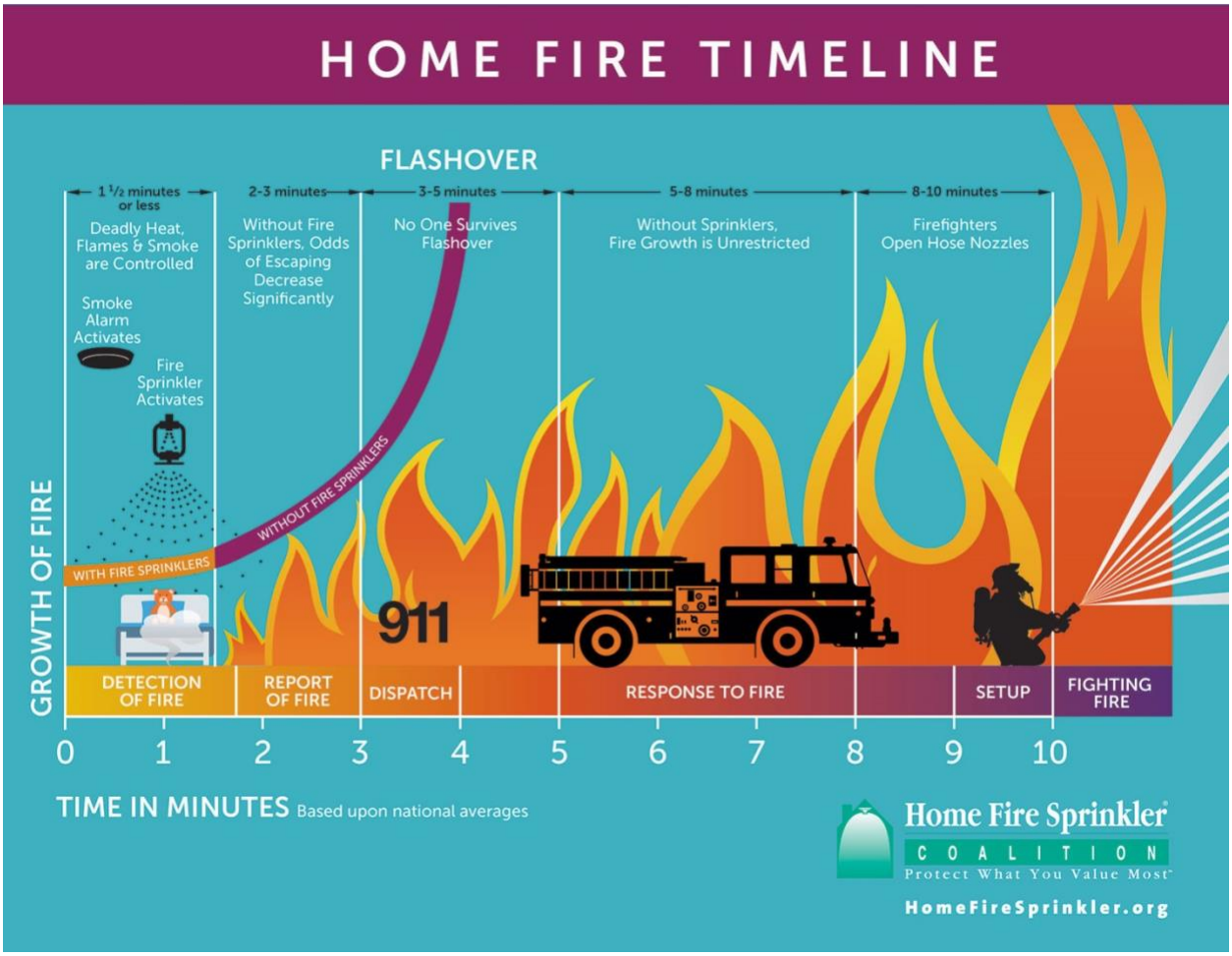
Because building fires and medical emergencies have the most severe time constraints if positive outcomes are to be achieved, the following is a brief overview of building fire and medical emergency risk. **Appendix A** contains the full risk assessment for all seven hazards.

Building Fire Risk

One of the primary hazards in any community is building fire. Building fire risk factors include building size, age, construction type, density, occupancy, number of stories above ground level, required fire flow, proximity to other buildings, built-in fire protection/alarm systems, available fire suppression water supply, building fire service capacity, fire suppression resource deployment (distribution/concentration), staffing, and response time. Citygate used available data from OCFA in determining its building fire risk.

The following figure illustrates the building fire progression timeline and shows that flashover, which is the point at which the entire room erupts into fire after all the combustible objects in that room reach their ignition temperature, can occur as early as 3:00 to 5:00 minutes from the initial ignition. Human survival in a room after flashover is extremely improbable.

Figure 2—Building Fire Progression Timeline

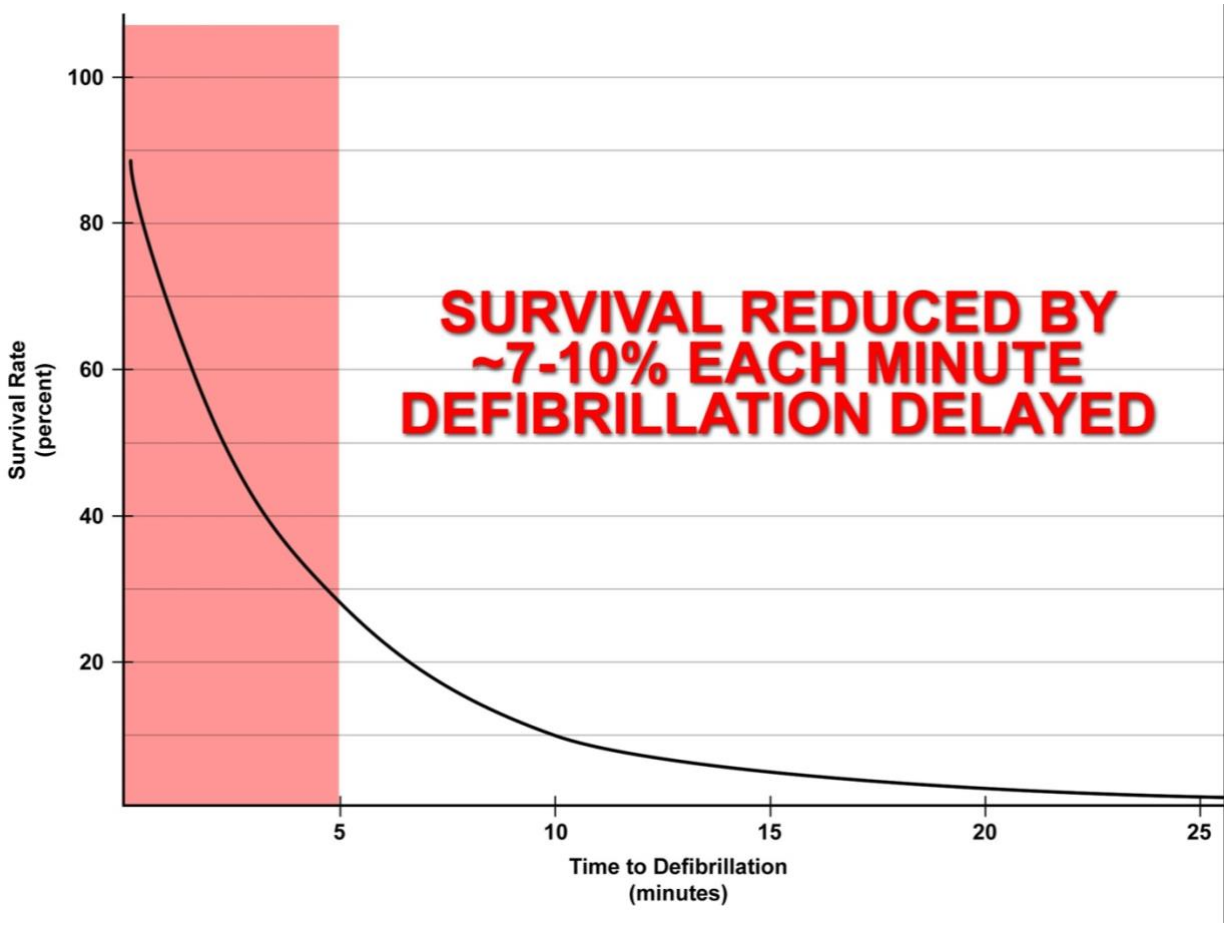


Source: http://www.firesprinklerassoc.org

Medical Emergency Risk

Fire agency service demand in most jurisdictions is predominantly for medical emergencies. The following figure illustrates the reduced survivability of a cardiac arrest victim as time to defibrillation increases.

Figure 3—Survival Rate versus Time of Defibrillation



OCFA provides both BLS and ALS pre-hospital emergency medical services, with suppression personnel trained to the EMT or Paramedic level.

2.4.4 Risk Assessment Summary

Citygate's assessment of the values at risk and hazards likely to impact OCFA's service area yields the following. See **Appendix A** for the full risk assessment.

- The Department serves a very diverse urban population with densities ranging from less than 3,000 to more than 24,000 people per square mile over a varied urban land use pattern.
- The Department's service area population is projected to increase approximately 10 percent by 2040.
- The service area has a large inventory of residential and non-residential buildings to protect.

- The service area has significant economic and other resource values to be protected, as identified in this assessment.
- The Department has multiple mass emergency notification options available to effectively communicate emergency information to the public in a timely manner.
- The service area's risk for seven hazards related to emergency services provided by the Department range from **Low** to **Maximum** as summarized in the following table.

Table 7—Overall Risk by Planning Zone

Hazard	Planning Zone					
	Battalion 1	Battalion 2	Battalion 3	Battalion 4	Battalion 5	Battalion 6
Building Fire	High	Moderate	Moderate	High	Moderate	Moderate
Vegetation/Wildland Fire	Low	Maximum	Maximum	Maximum	Maximum	Maximum
Medical Emergency	High	High	High	High	High	High
Hazardous Material	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Technical Rescue	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Marine Incident	Moderate	Low	Low	Low	Moderate	Moderate
Aviation Incident	Low	Low	Low	Low	Moderate	Low

Hazard	Planning Zone				
	Battalion 7	Battalion 8	Battalion 9	Battalion 10	Battalion 11
Building Fire	Moderate	High	High	Moderate	High
Vegetation/Wildland Fire	High	Moderate	Moderate	High	Moderate
Medical Emergency	High	High	High	High	High
Hazardous Material	Moderate	Moderate	High	Moderate	Moderate
Technical Rescue	Moderate	Moderate	High	Moderate	Moderate
Marine Incident	Low	Moderate	Moderate	Low	Low
Aviation Incident	Low	Low	Low	Low	Low

2.5 Critical Task Time Measures—What Must Be Done over What Time Frame to Achieve the Stated Outcome Expectation?

SOC Element 4 of 8
Critical Task Time Study

SOC studies use critical task information to determine the number of firefighters needed within a time frame to achieve desired objectives on fire and emergency medical incidents. Table 8 and Table 9 illustrate critical tasks typical of building fire and medical emergency incidents, including the minimum number of personnel required to complete each task. These tables are composites from Citygate clients in urban/suburban communities with similar risks to OCFA with units staffed with three to four personnel per engine, rescue, or aerial apparatus. It is important to understand the following relative to these tables:

- It can take considerable time after a task is ordered by command to complete the task and achieve the desired outcome.
- Task completion time is usually a function of the number of personnel that are simultaneously available. The fewer firefighters available, the longer some tasks will take to complete. Conversely, with more firefighters available, some tasks are completed concurrently.
- Some tasks must be conducted by a minimum of two firefighters to comply with safety regulations. For example, two firefighters are required to search a smoke-filled room for a victim.

2.5.1 Critical Firefighting Tasks

The following table illustrates the critical tasks required to control a typical single-family dwelling fire with nine response units for a total ERF of four engines, two trucks, and two Battalion Chiefs with a total of 24–26 personnel depending on unit staffing. These tasks are taken from similarly staffed career fire departments' operational procedures, which are consistent with the customary findings of other agencies using the SOC process. No conditions exist to override the Occupational Safety and Health Administration (OSHA) two-in/two-out safety policy, which requires that firefighters enter atmospheres that are immediately dangerous to life and health, such as building fires, in teams of two while two more firefighters are outside and immediately ready to rescue them should trouble arise.

Scenario: *Simulated approximately 2,000-square-foot, two-story, residential fire with unknown rescue situation. Responding companies receive dispatch information typical for a witnessed fire. Upon arrival, they find approximately 50 percent of the second floor involved in fire.*

Table 8—First Alarm Residential Fire Critical Tasks – 24–26 Personnel

	Critical Task Description	Personnel Required
First-Due Engine		
1	Conditions report	1
2	Establish supply line to hydrant	2
3	Deploy initial fire attack line to point of building access	1–2
4	Operate pump and charge attack line	1
5	Or skip the above and establish incident command	1
6	Conduct primary search within OSHA regulations	2-3
Second-Due Engine		
1	If necessary, establish supply line to hydrant	1–2
2	Secure utilities	1–2
3	Deploy backup attack line	1–2
4	Establish Initial Rapid Intervention Crew	2-3
First-Due Battalion Chief		
1	Transfer of incident command from first- or second-in Officer	1
2	Establish exterior command and safety	1
First-Due Truck		
1	Deploy ladders to roof	2–4
2	Establish horizontal or vertical building ventilation	2–4
3	Open concealed spaces as required	2–4
4	Support suppression effort as directed	2–4
Third-Due Engine		
1	Conduct initial or secondary search and rescue, if not already completed	2–4
2	Secure utilities if not already completed	1–2
3	Establish full Rapid Intervention Crew	4
Paramedic Squad		
1	Establish incident rehabilitation station	1-2
2	Monitor FFs assigned to rehab for fitness for work	1-2
3	Assessment and treatment of any injuries	1-2
Fourth-Due Engine		
1	Support incident operations as directed	3–4
Second-Due Battalion Chief		
1	Monitor/enforce incident safety procedures	1
Second-Due Truck		
1	Support incident operations as directed	4

Grouped together, the duties in the previous table form an effective response force (ERF), or First Alarm Assignment. These distinct tasks must be performed to effectively achieve the desired outcome; arriving on scene does not stop the emergency from escalating. While firefighters accomplish these tasks, the incident progression clock keeps running.

Studies have shown that a small fire can spread to engulf an entire room in fewer than 3:00 to 5:00 minutes after free burning has started. Once the room is completely superheated and involved in fire (known as flashover), the fire will spread quickly both vertically and horizontally throughout the building. For this reason, it is imperative that fire suppression and search/rescue operations commence before the flashover point occurs if the outcome goal is to keep the fire damage in or near the room of origin and to rescue persons unable to self-evacuate. In addition, flashover presents a life-threatening situation to both firefighters and any occupants of the building. Fire fatalities typically include persons under 10 and over 65 years of age and those unable to self-evacuate, and nearly 27.5 percent of the service area population falls within those age groups.

2.5.2 Critical Medical Emergency Tasks

OCFA responded to more than 135,000 EMS incidents in 2024 including vehicle accidents, strokes, heart attacks, difficulty breathing, falls, childbirths, and other medical emergencies. For comparison, the following table summarizes the critical tasks required for a cardiac arrest patient.

Table 9—Cardiac Arrest Critical Tasks – 7-8 Personnel

Critical Task		Personnel Required	Critical Task Description
1	Chest compressions	1–2	Compression of chest to circulate blood
2	Ventilate/oxygenate	1–2	Mouth-to-mouth, bag-valve-mask, apply O_2
3	Airway control	1–2	Manual techniques/intubation/cricothyroidotomy
4	Defibrillate	1–2	Electrical defibrillation of dysrhythmia
5	Establish I.V.	1–2	Peripheral or central intravenous access
6	Control hemorrhage	1–2	Direct pressure, pressure bandage, tourniquet
7	Splint fractures	2–3	Manual, board splint, traction, spine
8	Interpret ECG	2	Identify type and treat dysrhythmia
9	Administer drugs	2	Administer appropriate pharmacological agents
10	Spinal immobilization	2–5	Prevent or limit paralysis to extremities
11	Extricate patient	3–4	Remove patient from vehicle, entrapment
12	Patient charting	1–2	Record vitals, treatments administered, etc.
13	Hospital communication	1–2	Receive treatment orders from physician
14	Treat en route to hospital	2–3	Continue to treat/monitor/transport patient

2.5.3 Critical Task Analysis and Effective Response Force Size

What does a deployment study derive from a critical task analysis? The time required to complete the critical tasks necessary to stop the escalation of an emergency as shown in Table 8 and Table 9 must be compared to outcomes. As stated, after approximately 3:00 to 5:00 minutes of free burning in an enclosed room, a fire will escalate to the point of flashover. At this point, the entire room is engulfed in fire, the entire building becomes threatened, and human survival near or in the room of the fire's origin becomes impossible. Additionally, brain death begins to occur within 4:00 to 6:00 minutes of the heart stopping. Thus, the ERF must arrive in time to prevent these emergency events from becoming worse.

OCFA's daily on-duty response staffing can deliver a minimum ERF of four engines, two trucks, and two Battalion Chiefs totaling 24–26 personnel to a low- or medium-hazard building fire, which significantly exceeds the NFPA recommended minimum of 16-17 personnel[5] and which the statistical analysis included with this report will discuss in detail. Mitigating an emergency event is a team effort once the units have arrived. This refers to the *weight* of response analogy: if too few personnel arrive too slowly, the emergency will escalate instead of improving. The outcome times, of course, will be longer and yield less desirable results if the arriving force is later or smaller.

The number of personnel and the arrival timeframe can be critical in a serious fire. Fires in older or multiple-story buildings could require the initial firefighters to rescue trapped or immobile occupants. If the ERF is too small, rescue and fire suppression tasks *cannot* be conducted simultaneously. Thus, achieving good performance requires *adequate staffing* (and training).

Fires and complex medical incidents require additional units to arrive in time to complete an effective intervention. Time is one factor that comes from *proper station placement and the staffing model used*. When fire stations are spaced too far apart and one unit must cover another unit's area or multiple units are needed, the units can be too far away, and the emergency will escalate and result in a less-than-desirable outcome. Thus, some overlapping coverage between fire stations is desirable.

Previous critical task studies conducted by Citygate and NFPA Standard 1710 identify that all units need to arrive at a building fire with a minimum of 16-17 firefighters within 11:30 minutes (from the time of a 9-1-1 call) to *simultaneously and effectively* perform the tasks of rescue, fire suppression, and ventilation.

If fewer firefighters arrive, all tasks may not be completed. Most likely, the search team would be delayed, as would ventilation. The attack lines would only consist of two firefighters, which does not allow for rapid movement of the hose line above the first floor in a multiple-story building.

[5] NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments (2020 Edition).

Because rescue is conducted with at least two two-person teams, when rescue is essential, other tasks are not completed in a simultaneous, timely manner. Therefore, effective deployment is about the **speed** *(travel time)* and the **weight** *(number of firefighters)* of the response.

2.6 Distribution and Concentration Studies—How the Location of First-Due and First Alarm Resources Affects Emergency Incident Outcomes

SOC Element 5 of 8
Distribution Study

SOC Element 6 of 8
Concentration Study

The Department's service area is currently served by 78 fire stations. When using geographic mapping tools, it is appropriate to understand what the existing station spacing does and does not cover within travel time goals; if there are any coverage gaps needing one or more additional stations; and what, if anything, to do about them. In brief, there are two geographic perspectives to fire station deployment:

- **Distribution** – the spacing of first-due units to control routine emergencies and achieve desired outcomes before they escalate and require additional resources.

- **Concentration** – the spacing of fire stations sufficiently close to each other so that more complex emergency incidents can quickly receive sufficient resources from multiple fire stations. As indicated, this is known as the Effective Response Force (ERF) or, more commonly, the First Alarm Assignment—the collection of a sufficient number of firefighters on scene, delivered within the concentration time goal to stop the escalation of the problem and achieve desired outcomes.

To analyze first-due fire unit travel time coverage, Citygate coached OFCA Strategic Planning staff in using an OCFA-built geographic mapping tool that measures theoretical travel time over a road network. For this calculation, the SOC project used the base map and street travel speeds calibrated to actual fire apparatus travel times from previous responses to simulate real-world travel time coverage. Using these tools, the Department ran several deployment tests and measured their impact on various parts of the service area. A 5:00-minute first-due and 8:00-minute ERF *travel* time were used for the joint service area, consistent with best practice response performance goals for positive outcomes in urban/suburban areas.

2.6.1 Deployment Baseline Coverage

All maps referenced can be found in **Volume 3—Map Atlas**. The maps are numbered in a sequence and each number uses at least two maps, north and south, to provide sufficient coverage detail given the large OCFA service area.

Map #1 – General Geography, Station Locations, and Response Resource Types

Maps #1 show OCFA's service area boundary, fire station locations, and apparatus types. The fire station symbols identify the type of primary response apparatus. This is a reference map set for other maps that follow.

Map #2 – Risk Assessment – Population Density and Wildfire Threat Areas

Maps #2 shows the varying population densities in the OCFA service area. The populations vary widely from less than 3,000 *residents* per square mile to over 25,000, given the large size of the service area. Population drives EMS incident demand, so the areas with higher population density are typically the areas with higher EMS demand. As the map shows, OCFA protects multiple areas with high population density that are not all adjacent to each other.

Map #2a shows the Wildfire Hazard Severity Zones per the Authority's agreement with CAL FIRE that identifies these sections as Local Responsibility Areas, or the LRA. These areas are the primary wildland threats that are the Authority's to protect with crews and specialized wildland apparatus to include hand crews, dozers, and helicopters.

Map #3 – Distribution of First Responder Travel Time Coverage – 5:00 Minutes

Map #3 shows total public road miles in OCFA's service area that a fire engine should be expected to reach within a 5:00-minute *travel time* assuming the respective engine is in station and encounters no traffic congestion. The purpose of response time modeling is to determine response time coverage across a jurisdiction's geography and station locations. This geo-mapping design is then validated against dispatch time data to reflect actual response times.

As can be seen, the 5:00-minute travel coverage is very good across the areas with developed lands. Where pockets exist, they are typically at the outer edges of the road network and against natural open spaces. It is not a realistic or cost-effective goal to place stations to cover 100 percent of the public road network.

There are other reasons to add stations or staffed units, such as high incident demands, infill growth, and the need for specialty units such as ladder trucks. These gaps are addressed in the improved coverage enhancements section to follow.

Map #4 – 8:00-Minute Travel Time for an Initial Effective Response Force (First Alarm)

Map #4 shows the Department's current response plan delivery for a *minimum* ERF of three engines, one ladder truck, and one Battalion Chief to unconfirmed building fires within a travel time of 8:00 minutes.

The coverage is more limited away from the edges of the service area. It is very challenging to get so many units to all of the public streets in only 8:00 minutes of travel. Some of the edge areas are

large enough to warrant improvement and are studied further in the improved coverage enhancements section to follow.

Map #5 – 8:00-Minute Travel time for an Effective Response Force (First Alarm)

Map #5 shows the Department's working building fire response plan delivery for an ERF of four engines, two ladder trucks, and two Battalion Chiefs to serious building fires within a travel time of 8:00 minutes.

The coverage is much more limited and only exists in the core, more populated areas. These are the only areas where multiple stations can "meet in the middle" at 8:00 minutes travel time. This is very challenging goal, and some of the edge areas are large enough to warrant improvement and are studied further in the improved coverage enhancements section to follow. This eight-unit goal is not one to space fire stations for; it is to understand where, on the most serious fires, a stronger force can arrive *quickly*.

Map #6 – 8:00-Minute Four-Engine Travel Time Coverage

Map #6 shows the four-engine coverage as a subset of the full ERF. It is easily seen that four engines do reach almost all of the road network. Thus, the limiting factor to the ERF coverage in Map #5 is the limitations of having fewer ladder trucks and chief officers.

Map #7A – Single Ladder Truck Coverage at 8:00-Minute Travel Time

This map shows just the minimum ERF coverage of one ladder truck at 8:00 minutes travel. The spacing of single ladder trucks is very good across all of the service area, with only a few edge pockets.

Map #7B – Two Ladder Trucks Coverage at 8:00-Minute Travel Time

This map shows just the full ERF coverage of two ladder trucks at 8:00 minutes travel. The spacing of two ladder trucks only covers the highest density population areas. There are larger gaps at the edges with this coverage.

Map #8A – Single Battalion Chiefs Coverage at 8:00-Minute Travel

The last segment of the ERF coverage to understand is that of the Battalion Chief for incident command and safety. This map shows the coverage for one Battalion Chief at 8:00 minutes. Since there are even fewer Battalion Chiefs than ladder trucks, there are pockets of under-coverage in a few inner areas as well as at the edges.

Map #8B – Two Battalion Chiefs Coverage at 8:00-Minute Travel

This map shows the more aggressive coverage for two Battalion Chiefs at 8:00 minutes. Since there are even fewer Battalion Chiefs than ladder trucks, there are pockets of under coverage in a few inner areas as well as at the edges. This coverage is very limited to the core, densest areas.

Map #9 – All Incident Locations

Map #9 shows the location of all incidents across five years from January 2019 through December 2023. As can be seen, incidents occur on nearly all road segments throughout the entire service area. Also shown are where OCFA units respond elsewhere in the County on automatic aid agreements.

Map #10 – Emergency Medical Services and Rescue Incident Locations

Map #10 shows the emergency medical and rescue incident locations over the five-year study period. With 74.6 percent of all calls for service in 2023 being EMS related, this map illustrates the need for pre-hospital emergency medical services throughout the service area.

Map #11 – All Fire Locations

Map #11 shows the location of all fires within the service area over the five-year study period. All fires include any type of fire call—from vehicle, to dumpster, to vegetation, to building. While there are obviously fewer fires than medical or rescue calls, this map illustrates that fires occur throughout the entire service area.

Map #12 – Building Fire Locations

Map #12 displays the location of all building fire incidents over the five-year study period. While the number of building fires is a smaller subset of all fires, building fires occurred in every station area over the five-year period.

Map #13 – Emergency Medical Services and Rescue Incident Location Densities

Map #13 shows, by mathematical density, where clusters of EMS and rescue incident activity occurred over the five data years. The darker density color plots the highest concentration of EMS/rescue incidents, which in most cases tracks with the greatest population densities. This type of map makes the location of frequent workload more meaningful than simply mapping the locations of all EMS/rescue incidents, as were shown in Map #10.

Map #14 – All Fire Location Densities

Map #14 is similar to Map #11 but shows the hot spots of activity for all types of fires. The density of these incidents is greater within the older, more densely populated areas.

Map #15 – Structure Fire Location Densities

Map #15 is similar to Map #12 but shows the hot spots of activity for building fires only.

Map #16 – Wildfire Fire Location Densities

There are far fewer locations of wildfires, but the importance is where they occur – in the eastern and southern hillside areas, where seasonal winds can drive them into nearby subdivisions.

2.6.2 Travel Time Road Mile Coverage Measures

In addition to the visual displays of coverage that maps provide, the following table summarizes road-mile coverage for the OCFA's current deployment as well as improved deployment scenarios.

Table 10—First-Due Road-Mile Coverage at 5:00 Minutes Travel

Division	First-Due Coverage at 5:00 Minutes				Cumulative Scenario First-Due Coverage at 5:00 Minutes			
	Total Road Miles	5:00-Minute Coverage Miles	Total Miles vs. 5:00-Minute Miles Delta	Percent of Total Road Miles Covered	Cumulative Scenario 5:00- Minute Coverage Miles	5:00-Minute Coverage Delta	Percent of Total Road Miles Covered	Percent of Total Road Miles Covered Delta
Division 1	910	910	0	100%	910	0	100%	0%
Division 2	1,289	1,278	11	99%	1,289	11	100%	1%
Division 3	1,517	1,517	0	100%	1,517	0	100%	0%
Division 4	842	829	14	98%	829	0	98%	0%
Division 5	986	965	21	98%	984	19	100%	2%
Division 6	667	667	0	100%	667	0	100%	0%
Division 7	550	549	1	100%	550	1	100%	0%
Agency-Wide	**6,761**	**6,715**	**46**	**99%**	**6,745**	**30**	**100%**	**0%**

As the table shows, 99 percent of the public road network can be reached by a first-responding unit within a 5:00-minute best practice travel time goal. This is *outstanding* coverage for an urban road network over varying geography between the coastline and eastern hills.

This level of coverage is sufficient to achieve desired outcomes – if the units are available to respond and not on another active incident. Station spacing based on 5:00-minute travel time coverage should be used where new growth or high-volume incident demands require infill units to maintain coverage.

Table 11—ERF Road-Mile Coverage

Division	First-Due ERF Coverage			Cumulative Scenario First-Due ERF Coverage					
	Total Road Miles	NFPA 1710 ERF (3 Eng., 1 Truck)	OCFA ERF (4 Eng., 2 Truck)	NFPA 1710 ERF (3 Eng., 1 Truck)	OCFA ERF (4 Eng., 2 Truck)	NFPA 1710 ERF (3 Eng., 1 Truck) Coverage Delta	OCFA ERF (4 Eng., 2 Truck) Coverage Delta	NFPA ERF Percent of Change Total Road Miles Covered	OCFA ERF Percent of Change Total Road Miles Covered
Division 1	910	754	291	825	413	71	122	9%	42%
Division 2	1,289	1,143	448	1,143	448	0	0	0%	0%
Division 3	1,517	1,197	573	1,197	573	0	0	0%	0%
Division 4	842	307	108	307	108	0	0	0%	0%
Division 5	986	732	222	732	222	0	0	0%	0%
Division 6	667	635	459	635	459	0	0	0%	0%
Division 7	550	487	226	487	260	0	34	0%	15%
Agency-Wide	**6,761**	**5,255**	**2,328**	**5,326**	**2,483**	**71**	**155**	**1%**	**7%**

The current road mile coverage for a minimum ERF of three engines and one truck is 77.7 percent. This is strong coverage but is mostly in the easier-to-serve, core areas. If all the recommended deployment changes in this study are made, the cumulative effect is to raise the ERF coverage of three engines and one truck to 78.8 percent. For the higher-resource effort of four engines and two trucks, the improved coverage increases by 2 percent. The improvements work, and the small numerical increases show how difficult it is for any agency to cover large areas with a total effective response force in 8:00 minutes travel time. This is also why staffing all units with four personnel is so important. The minimum ERF of three engines and one truck delivers 16 personnel meeting the initial needs of a modest house fire per NFPA 1710.

Finding #4:	The 5:00-minute travel coverage at 99 percent of the public road miles is excellent in areas with developed lands. Where pockets of under-coverage exist, they are typically at the outer edges of the road network and against natural open spaces.
Finding #5:	There are pockets of growth and/or high incident demand that need improved first-due coverage.
Finding #6:	The minimum Effective Response Force (ERF) coverage is more limited. It is very challenging to get so many units to all the public streets in only 8:00 minutes of travel.
Finding #7:	The more numerously staffed ERF fire coverage is much more limited and only exists in the core, most populated areas. These are the areas where multiple stations can "meet in the middle" at 8:00 minutes travel time. A large ERF is very challenging goal and some of the under-covered areas are large enough to warrant improvement.
Finding #8:	The two-ladder-truck coverage for the working fire ERF, at 8:00 minutes travel, only covers the most densely populated areas. There are larger gaps at the outer developed areas.
Finding #9:	The most densely populated areas generate significant service demand.

2.7 STATISTICAL ANALYSIS

SOC ELEMENT 7 OF 8
RELIABILITY & HISTORICAL RESPONSE EFFECTIVENESS STUDIES

The maps described in **Section 2.6** and presented in **Volume 3—Map Atlas** show the ideal situation for response times and response effectiveness given no competing calls, units out of place, or simultaneous calls for service. Examination of the response time data provides a picture of actual response performance with simultaneous calls, rush hour traffic congestion, units out of position, and delayed travel time for events such as periods of severe weather. The following subsections provide summary statistical information regarding OCFA's fire and first responder ALS EMS services.

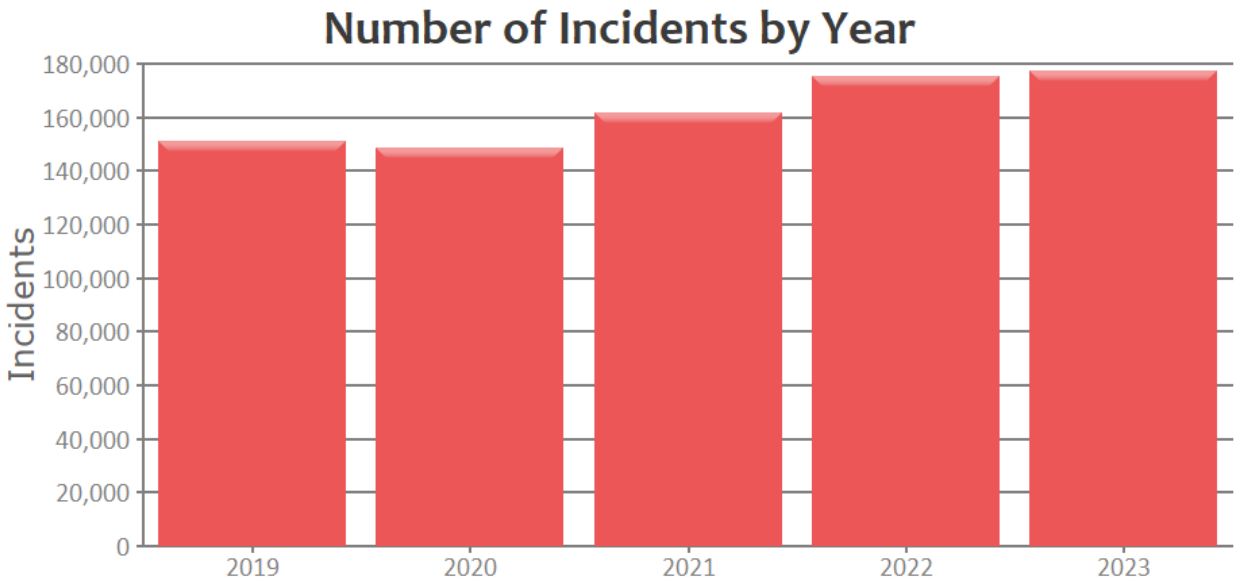
OCFA provided National Fire Information Report System (NFIRS-5) and computer-aided-dispatch (CAD) data for the period January 1, 2019, through December 31, 2023. Over the five-

year period being studied, there were 814,538 incidents and 1,140,369 individual apparatus responses analyzed *excluding third-party EMS ambulances*.

The OCFA responded to 177,517 incidents in 2023 for an average daily demand of 486.35 calls for service of which 1.32 percent were fire incidents, 74.66 percent were EMS incidents, and 24.02 percent were to "other" incident types. In addition, there were 248,270 apparatus responses to incidents by OCFA and other agencies in 2023 for an average of 1.4 fire apparatus responses per incident.

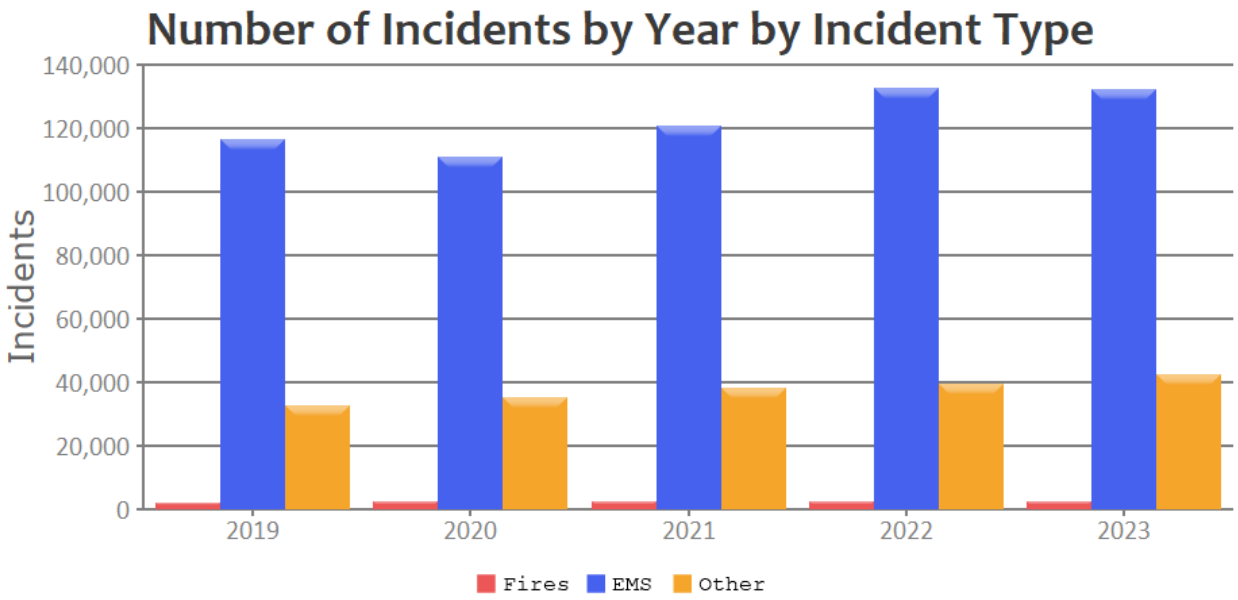
After the COVID-19 pandemic, OCFA experienced 21 percent overall growth in service demand over the three-year period from 2020 through 2023 as shown in the following figure.

Figure 4—Total Service Demand by Year



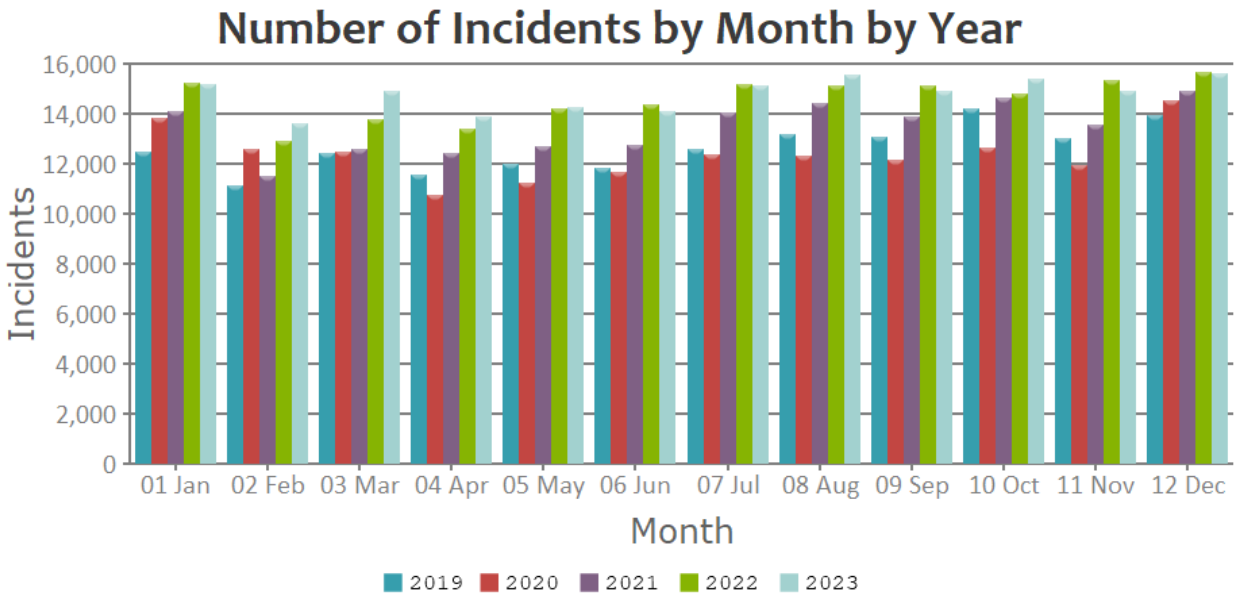
The following figure illustrates the number of incidents by incident type. As the following figure illustrates, EMS incidents decreased slightly in 2020 and again in 2023 while "Other" incident types steadily increased. While it is difficult to see in the graph, the number of fire incidents increased in every year except in 2023.

Figure 5—Annual Service Demand by Incident Type



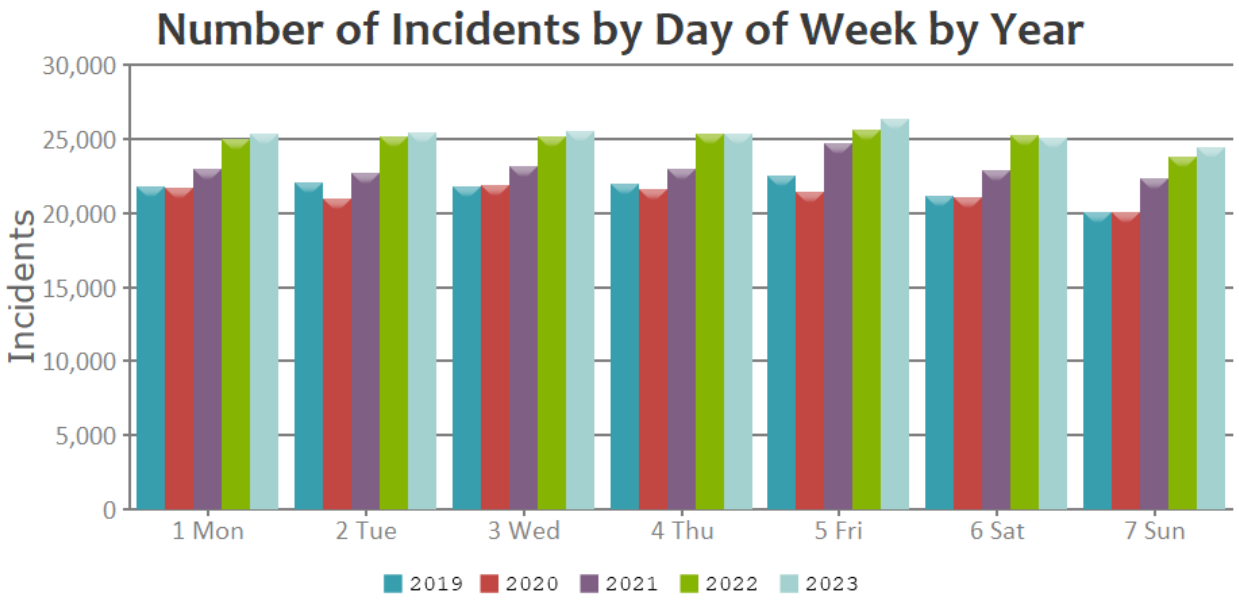
As shown in the following graph, monthly service demand tends to be generally consistent throughout the year except for a slight increase in December and slight decrease in February.

Figure 6—Service Demand by Month and Year



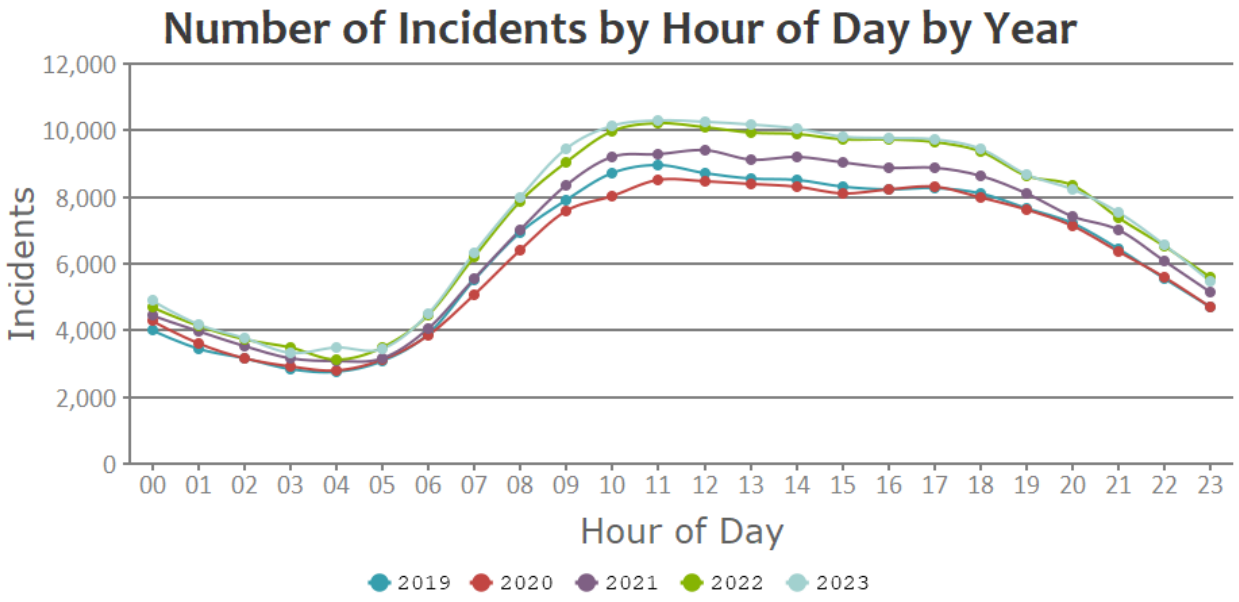
As the following figure illustrates, the number of incidents by day of week tends to be steady with a slight increase on Friday and a slight decrease on Sunday.

Figure 7—Service Demand by Day of Week by Year



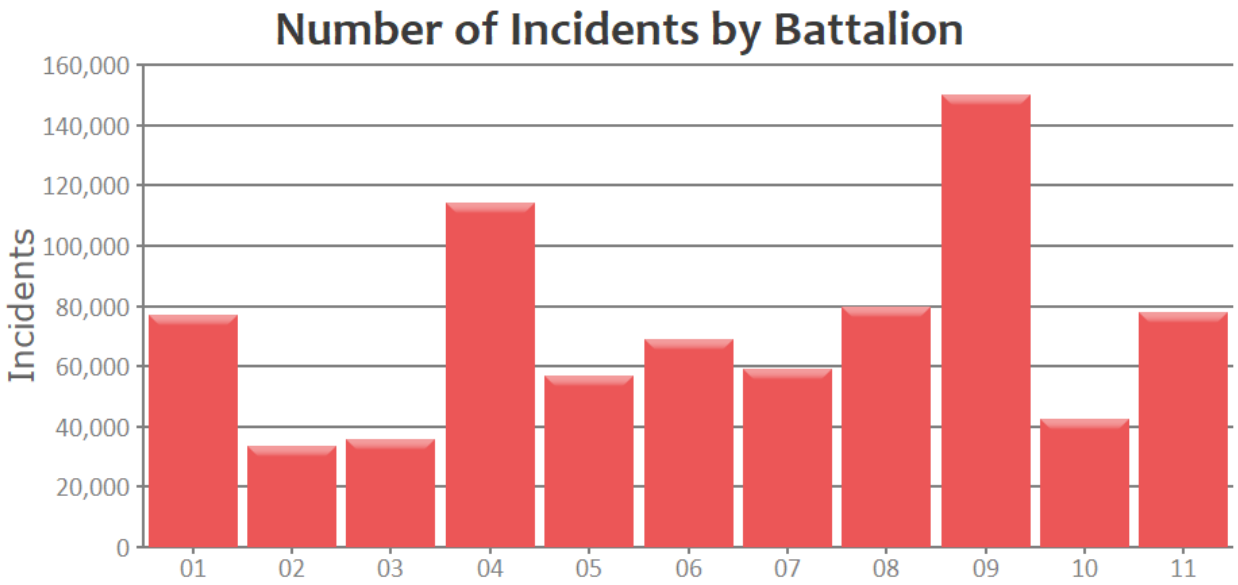
The following figure shows service demand by hour of day by year, illustrating minimal annual variance in hourly volume with peak activity spanning mid-morning through early evening hours.

Figure 8—Service Demand by Hour of Day and Year



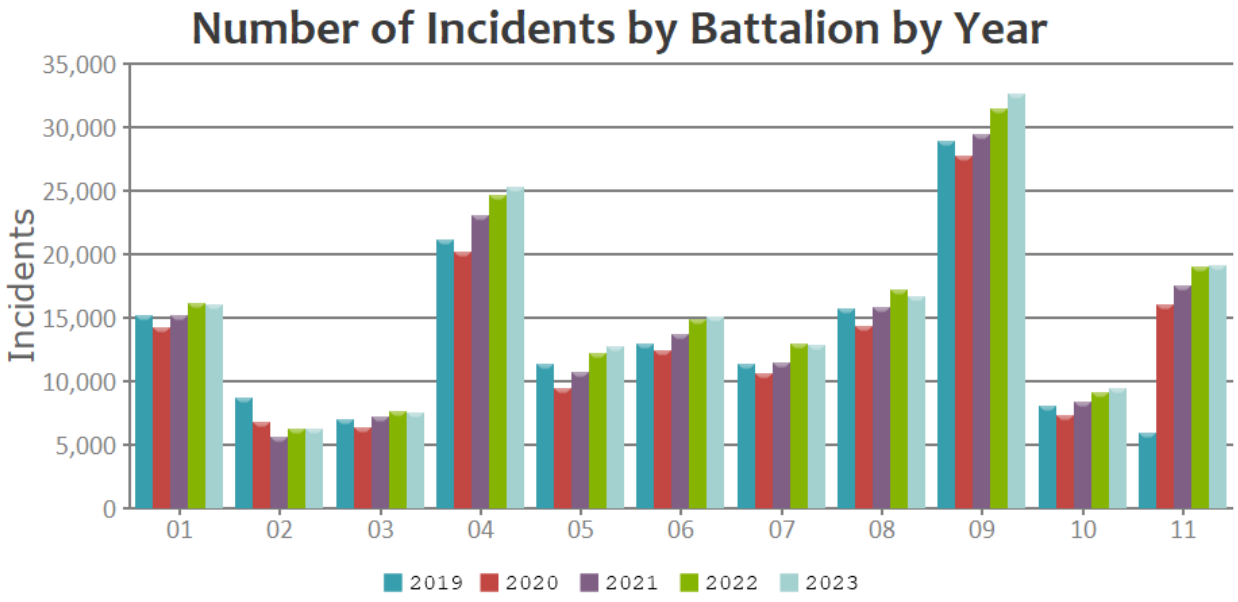
The following figure illustrates total five-year service demand by battalion, with Battalion 9 having the highest and Battalions 2, 3, and 10 having the lowest.

Figure 9—Service Demand by Battalion (All Five Years)



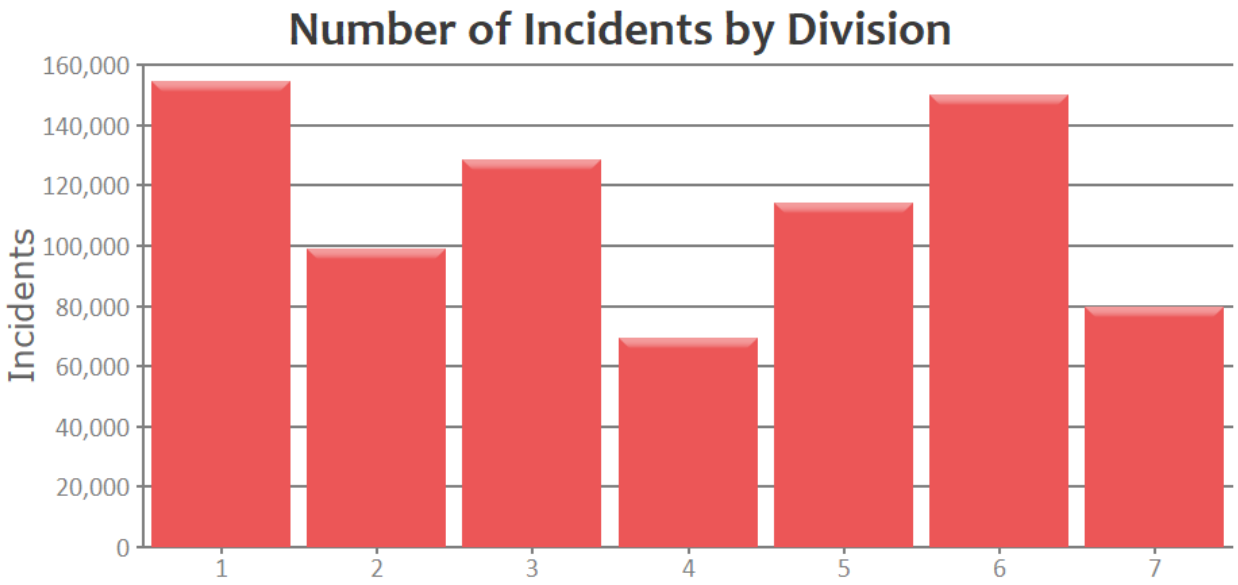
The following figure shows annual service demand volume trends by battalion by year. In general, there were annual increases in each battalion, with the greatest growth in Battalion 9.

Figure 10—Service Demand by Battalion by Year



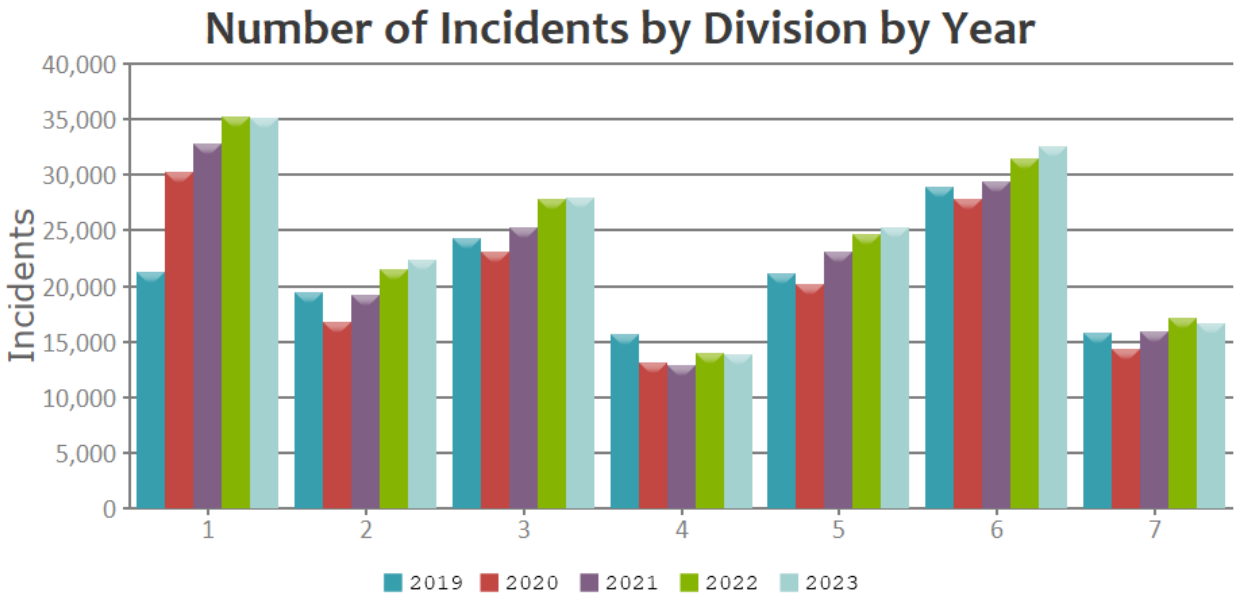
The following graph illustrates total service demand by division for the five-year study period with Division 1 having the highest activity and Division 4 having the lowest.

Figure 11—Service Demand by Division (All Years)



The following graph shows total service demand by division by year. While Divisions 4 and 7 did not show significant growth, the other divisions had substantial growth.

Figure 12—Service Demand by Division by Year



The following table illustrates service demand by station. Only non-aid-given incidents occurring within defined OCFA station areas are counted in this table. This table contains partial data for

2019 due to the City of Garden Grove being added to the OCFA (B11) on August 16, 2019. In addition, the City of Placentia withdrew from OCFA on 7/1/20. The station areas are ordered with the most active stations listed first.

Table 12—Service Demand by Station by Year

Station	2019	2020	2021	2022	2023	Total
FS22	8,685	7,985	9,088	9,442	9,674	44,874
FS75	4,947	4,434	4,183	4,160	4,440	22,164
FS19	3,664	3,384	4,028	4,241	4,277	19,594
FS72	3,401	3,299	4,017	4,413	4,446	19,576
FS48	3,745	3,468	3,704	4,030	3,883	18,830
FS21	3,737	3,348	3,683	3,987	3,799	18,554
FS46	3,719	3,276	3,489	3,802	3,573	17,859
FS61	3,167	2,821	3,337	3,755	3,537	16,617
FS07	3,142	2,816	3,133	3,386	3,682	16,159
FS04	3,158	2,727	3,013	3,492	3,749	16,139
FS77	3,141	2,862	3,032	3,447	3,640	16,122
FS78	2,960	2,923	3,055	3,258	3,437	15,633
FS82	2,640	2,935	3,056	3,276	3,499	15,406
FS71	3,116	2,734	2,999	3,221	3,250	15,320
FS31	2,758	2,704	2,985	3,391	3,353	15,191
FS73	2,721	2,963	2,972	3,072	3,183	14,911
FS28	3,081	2,266	2,751	3,120	3,152	14,370
FS24	2,844	2,572	2,700	3,000	2,989	14,105
FS57	2,360	2,341	2,861	3,053	3,407	14,022
FS62	2,550	2,553	2,913	2,907	3,054	13,977
FS81	2,436	2,449	2,708	2,984	2,952	13,529
FS80	2,547	2,477	2,774	2,838	2,891	13,527
FS85	2,261	2,280	2,670	3,007	2,827	13,045
FS64	2,656	2,213	2,489	2,787	2,783	12,928
FS60	2,339	2,323	2,603	2,668	2,528	12,461
FS36	2,435	2,087	2,334	2,730	2,782	12,368
FS26	2,334	2,167	2,516	2,660	2,663	12,340
FS70	2,311	2,057	2,511	2,629	2,767	12,275
FS13	2,261	2,291	2,299	2,609	2,486	11,946

Station	2019	2020	2021	2022	2023	Total
FS76	2,110	2,227	2,345	2,604	2,645	11,931
FS86	2,079	2,138	2,471	2,638	2,565	11,891
FS10	2,046	1,968	2,304	2,661	2,713	11,692
FS79	2,293	2,233	2,168	2,375	2,476	11,545
FS83	1,981	2,138	2,207	2,542	2,494	11,362
FS25	2,191	2,209	2,370	2,236	2,145	11,151
FS74	1,966	2,055	2,157	2,359	2,326	10,863
FS39	2,004	1,891	2,071	2,293	2,455	10,714
FS66	2,307	1,896	2,050	2,218	2,196	10,667
FS09	1,974	1,678	1,963	2,349	2,134	10,098
FS17	2,065	1,765	1,956	2,177	2,121	10,084
FS50	1,829	1,805	1,904	2,186	2,133	9,857
FS30	1,899	1,800	1,796	2,167	2,127	9,789
FS45	1,814	1,782	1,871	1,918	2,165	9,550
FS63	2,020	1,652	1,876	1,946	1,921	9,415
FS37	1,814	1,551	1,842	2,026	2,107	9,340
FS05	1,605	1,707	1,796	2,035	2,185	9,328
FS65	1,774	1,773	1,893	1,886	1,878	9,204
FS06	1,811	1,548	1,695	1,875	2,016	8,945
FS02	1,689	1,644	1,711	1,910	1,976	8,930
FS84	1,896	1,594	1,674	1,791	1,913	8,868
FS29	1,693	1,574	1,819	1,866	1,847	8,799
FS32	1,526	1,515	1,767	1,927	1,894	8,629
FS54	1,431	1,374	1,623	1,792	1,701	7,921
FS51	1,624	1,294	1,457	1,704	1,765	7,844
FS38	1,492	1,308	1,429	1,547	1,671	7,447
FS59	1,257	1,227	1,372	1,465	1,456	6,777
FS20	1,211	1,113	1,402	1,457	1,582	6,765
FS55	984	977	1,087	1,237	1,204	5,489
FS49	1,014	1,013	1,066	1,244	1,126	5,463
FS56	832	899	1,085	1,186	1,272	5,274
FS44	900	1,010	1,036	1,128	1,155	5,229
FS47	901	861	982	1,046	1,105	4,895
FS23	909	951	909	1,036	1,074	4,879

Station	2019	2020	2021	2022	2023	Total
FS58	928	870	921	1,115	980	4,814
FS08	795	758	881	868	803	4,105
FS53	549	523	650	681	638	3,041
FS40	614	583	555	614	644	3,010
FS43	485	520	591	598	601	2,795
FS27	433	451	526	597	627	2,634
FS18	441	477	532	577	576	2,603
FS42	302	334	378	395	367	1,776
FS67				6	50	56
Total	**152,604**	**143,441**	**158,091**	**171,643**	**173,532**	**799,311**

* Garden Grove station demand numbers were partially projected for 2019 to provide a full year of data. Additionally, Placentia fire stations (FS34 and FS35) were removed.

Finding #10: After the COVID-19 pandemic, OCFA experienced 21 percent overall growth in service demand over the three-year period from 2020 through 2023.

2.7.1 Service Demand by Incident Type

The following table ranks service demand by incident type *for those categories with more than 1,000 total occurrences*. EMS incidents rank strongly, with incidents *cancelled en route* also ranking high at 7 percent of the five-year total. Building fires ranked 16th by volume.

Table 13—Service Demand by Incident Type by Year (at Least 1,000 Total Incidents)

Incident Type	2019	2020	2021	2022	2023	Total
321 EMS call, excluding vehicle accident with injury	107,660	102,973	112,006	123,413	122,889	568,941
611 Dispatched & canceled en route	9,852	10,665	11,807	12,618	12,525	57,467
622 No incident found on arrival of incident address	4,139	4,654	5,635	5,758	6,784	26,970
554 Assist invalid	3,800	4,603	5,519	5,294	5,698	24,914
322 Vehicle accident with injuries	5,146	3,822	4,702	4,811	4,922	23,403
700 False alarm or false call, other	1,298	1,863	2,223	2,965	3,610	11,959
324 Motor vehicle accident no injuries	2,043	1,690	2,158	2,185	2,319	10,395
600 Good intent call, other	1,261	1,662	1,851	1,961	2,724	9,459
745 Alarm system sounded, no fire - unintentional	2,193	1,371	1,250	1,300	1,296	7,410
735 Alarm system sounded due to malfunction	2,073	1,600	1,271	1,190	1,251	7,385
651 Smoke scare, odor of smoke	715	802	856	970	955	4,298
320 Emergency Medical Service, other	158	1,123	533	897	577	3,288
323 Motor vehicle/pedestrian accident (MV Ped)	542	499	582	668	774	3,065
500 Service Call, other	498	549	549	596	679	2,871
531 Smoke or odor removal	473	546	589	545	649	2,802
111 Building fire	**502**	**499**	**520**	**481**	**400**	**2,402**
743 Smoke detector activation, no fire - unintentional	380	550	481	426	435	2,272
522 Water or steam leak	407	429	460	494	447	2,237
151 Outside rubbish, trash or waste fire	271	357	500	615	490	2,233
131 Passenger vehicle fire	374	445	417	405	396	2,037
510 Person in distress, other	280	418	380	406	481	1,965
550 Public service assistance, other	332	265	322	501	449	1,869
553 Public service	384	360	369	347	395	1,855
733 Smoke detector activation due to malfunction	313	506	356	351	315	1,841
311 Medical assist, assist EMS crew	351	343	358	382	346	1,780
561 Unauthorized burning	166	324	309	423	449	1,671
520 Water problem, other	284	266	333	361	329	1,573
744 Detector activation, no fire - unintentional	211	295	385	257	272	1,420
154 Dumpster or other outside trash receptacle fire	213	289	293	336	257	1,388
440 Electrical wiring/equipment problem, other	207	300	315	240	196	1,258

2.7.2 Service Demand by Property Use

The following table shows service demand activity ranked by property use, with residential dwellings the most frequent property use.

Table 14—Service Demand by Property Use (at Least 1,000 Total)

Property Use	2019	2020	2021	2022	2023	Total
419 1 or 2 family dwelling	57,887	61,470	65,973	68,830	67,075	321,235
429 Multifamily dwellings	21,526	22,720	22,621	24,665	25,312	116,844
Not Identified	6,770	11,729	13,148	14,051	14,280	59,978
960 Street, other	7,101	6,760	8,005	8,723	9,017	39,606
965 Vehicle parking area	6,518	6,909	7,876	7,999	8,472	37,774
311 24-hour care Nursing homes, 4 or more persons	5,722	5,282	5,977	7,397	8,160	32,538
963 Street or road in commercial area	4,043	3,847	4,430	4,722	4,806	21,848
962 Residential street, road or residential driveway	3,096	3,559	3,433	3,474	3,401	16,963
340 Clinics, Doctors offices, hemodialysis centers	3,327	2,140	2,466	2,919	2,722	13,574
961 Highway or divided highway	2,616	2,028	2,513	2,513	2,359	12,029
Not listed	935	1,522	1,602	3,305	4,064	11,428
449 Hotel/motel, commercial	1,663	1,987	2,280	2,142	2,055	10,127
459 Residential board and care	1,342	1,425	1,308	1,310	1,652	7,037
500 Mercantile, business, other	1,385	1,095	1,144	1,423	1,457	6,504
UUU Undetermined	5,721	107	85	142	142	6,197
519 Food and beverage sales, grocery store	1,436	1,065	1,162	1,289	1,214	6,166
599 Business office	1,444	980	1,090	1,059	1,040	5,613
Error, not specific code selected	1,220	928	1,113	950	941	5,152
511 Convenience store	1,191	774	902	1,036	971	4,874
938 Graded and cared-for plots of land	712	782	877	932	957	4,260
161 Restaurant or cafeteria	983	520	734	960	888	4,085
215 High school/junior high school/middle school	862	390	612	848	988	3,700
331 Hospital - medical or psychiatric	604	570	672	850	964	3,660
361 Jail, prison (not juvenile)	631	525	653	845	909	3,563
439 Boarding/rooming house, residential hotels	684	602	605	524	689	3,104
322 Alcohol or substance abuse recovery center	449	546	476	594	658	2,723
900 Outside or special property, other	332	424	476	528	593	2,353
131 Church, mosque, synagogue, temple, chapel	643	284	386	452	518	2,283
213 Elementary school, including kindergarten	500	252	357	525	585	2,219

Property Use	2019	2020	2021	2022	2023	Total
400 Residential, other	749	418	322	294	184	1,967
342 Doctor, dentist or oral surgeon's office	305	278	339	439	548	1,909
931 Open land or field	351	392	379	428	345	1,895
571 Service station, gas station	274	333	379	373	372	1,731
171 Airport passenger terminal	343	106	281	438	410	1,578
700 Manufacturing, processing	291	278	311	310	290	1,480
241 Adult education center, college classroom	396	170	239	242	297	1,344
150 Public or government, other	376	257	174	219	261	1,287
460 Dormitory type residence, other	226	170	235	300	339	1,270
936 Vacant lot	177	242	281	270	257	1,227
300 Health care, detention, & correction, other	239	193	154	269	219	1,074
341 Clinic, clinic-type infirmary	144	140	208	281	292	1,065
937 Beach	181	218	206	233	225	1,063
210 Schools, non-adult	257	102	163	246	293	1,061
141 Athletic/health club	264	118	144	224	276	1,026
549 Specialty shop	221	153	201	234	211	1,020

2.7.3 Simultaneous Incident Activity

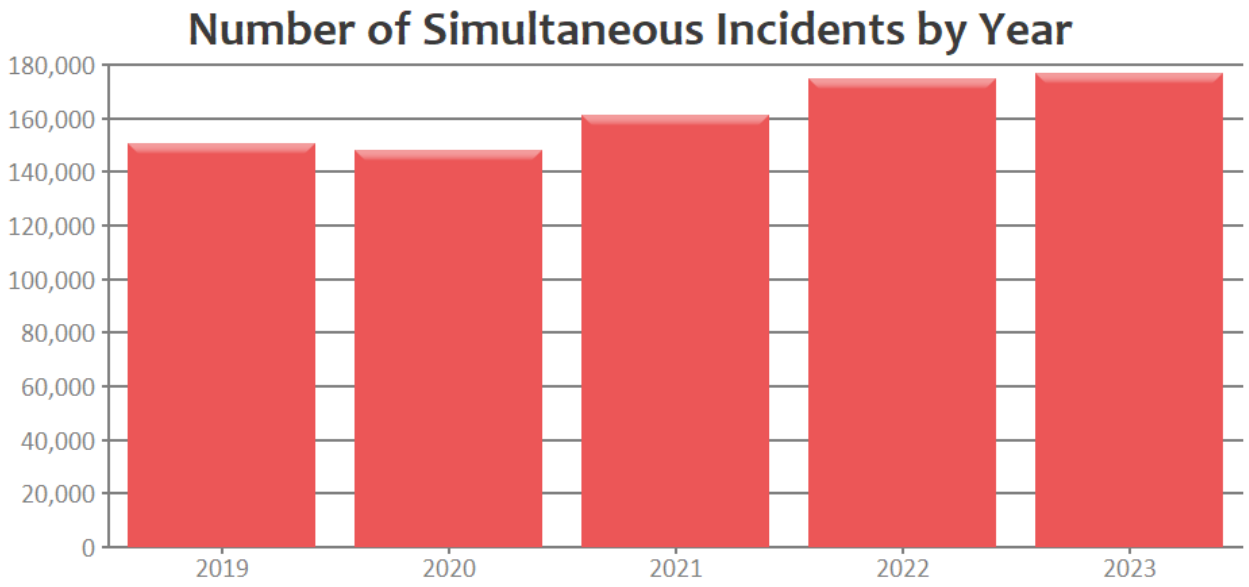
Simultaneous incidents occur when other incidents are underway at the time a new incident begins. During 2023, there were one or more incidents underway continuously except for less than one-half of one percent of the time.

Table 15—Simultaneous Incident Activity (2023)

Number of Simultaneous Incidents	Percentage
1 or more	99.83%
2 or more	99.05%
3 or more	97.18%
4 or more	94.02%
5 or more	89.64%
6 or more	84.13%
7 or more	77.75%
8 or more	70.63%
9 or more	62.69%
10 or more	53.99%
11 or more	45.03%
12 or more	36.27%
13 or more	28.11%
14 or more	21.01%
15 or more	15.21%
16 or more	10.54%
17 or more	7.15%
18 or more	4.64%
19 or more	2.91%
20 or more	1.74%
21 or more	09.99%

The following graph shows the number of simultaneous incidents *increased* each year except for 2020.

Figure 13—Simultaneous Incidents by Year



In a large regional fire department, simultaneous incidents in different station areas have very little operational consequence; however, when simultaneous incidents occur within a single station area, there can be significant response time delays. The following table illustrates the occurrences of simultaneous incidents within single station areas by year, with Station 22 having the highest occurrence by a wide margin.

Table 16—Single-Station Simultaneous Incidents by Station by Year

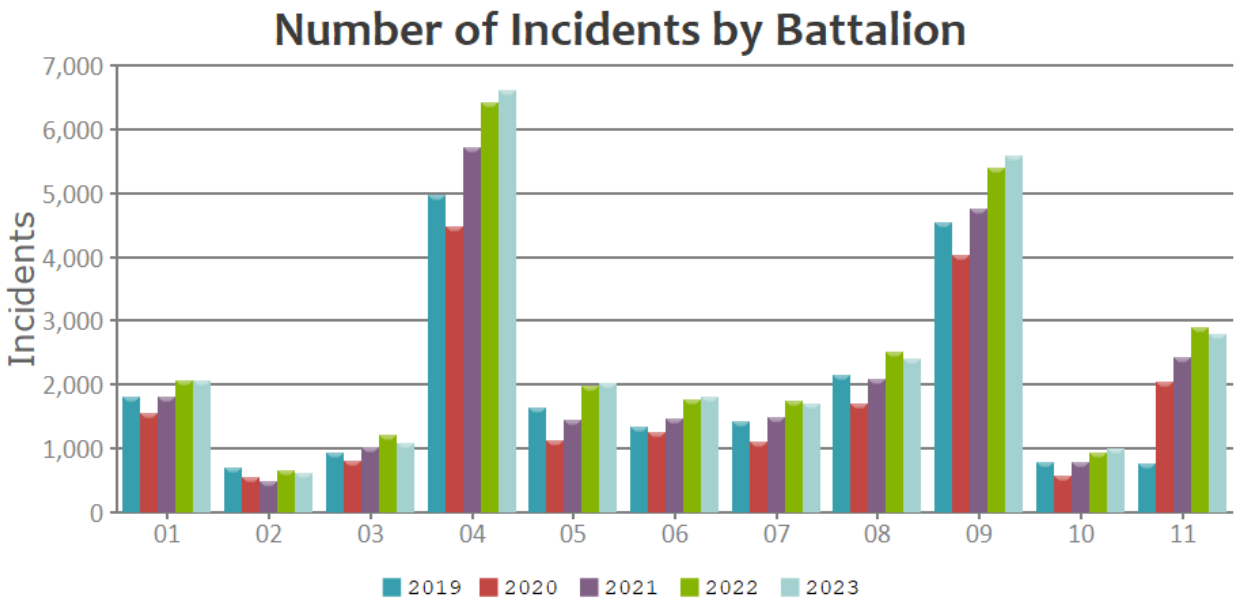
Station	2019	2020	2021	2022	2023	Total
FS22	3,396	2,969	3,673	4,054	4,253	18,345
FS75	1,157	841	836	905	1,022	4,761
FS19	790	739	983	1,055	1,027	4,594
FS72	563	556	810	961	850	3,740
FS21	675	606	719	861	779	3,640
FS48	640	547	659	741	702	3,289
FS77	528	433	509	672	675	2,817
FS46	597	484	516	649	564	2,810
FS07	519	404	516	606	663	2,708
FS04	480	387	454	637	715	2,673
FS78	434	448	500	549	605	2,536
FS73	407	500	514	559	521	2,501

Station	2019	2020	2021	2022	2023	Total
FS61	426	310	501	640	584	2,461
FS28	588	282	433	574	560	2,437
FS24	486	383	461	534	501	2,365
FS31	423	334	486	550	568	2,361
FS71	485	340	436	510	559	2,330
FS82	153	447	489	585	592	2,266
FS57	286	252	435	479	569	2,021
FS62	374	333	398	410	446	1,961
FS81	131	346	418	482	514	1,891
FS36	337	260	327	468	445	1,837
FS80	151	358	426	457	441	1,833
FS26	304	234	301	404	401	1,644
FS70	247	222	326	357	432	1,584
FS64	327	224	301	340	381	1,573
FS85	98	274	345	440	366	1,523
FS13	278	279	252	341	343	1,493
FS79	283	279	285	280	327	1,454
FS86	96	224	360	396	375	1,451
FS76	223	219	277	290	325	1,334
FS39	219	194	260	310	349	1,332
FS60	208	245	277	294	292	1,316
FS10	188	179	239	363	346	1,315
FS09	250	158	264	348	278	1,298
FS74	216	204	258	315	269	1,262
FS25	247	222	258	248	287	1,262
FS83	76	261	236	364	297	1,234
FS66	271	197	225	266	246	1,205
FS37	200	136	218	285	255	1,094
FS63	250	148	221	236	230	1,085
FS17	225	150	211	242	248	1,076
FS30	176	167	169	236	244	992
FS50	158	179	167	222	215	941
FS45	170	170	183	182	234	939
FS06	168	155	166	211	230	930

Station	2019	2020	2021	2022	2023	Total
FS05	119	164	157	248	220	908
FS02	148	131	139	214	215	847
FS29	142	139	172	204	180	837
FS65	133	168	170	177	165	813
FS32	122	118	178	203	181	802
FS84	67	146	149	188	210	760
FS51	172	89	150	147	168	726
FS38	150	103	129	151	176	709
FS54	107	113	157	182	133	692
FS20	73	74	124	111	151	533
FS59	91	65	86	112	97	451
FS56	57	57	88	107	127	436
FS55	72	55	77	98	77	379
FS47	61	46	66	89	72	334
FS44	46	61	57	82	79	325
FS58	62	29	54	97	60	302
FS49	42	36	49	94	58	279
FS23	34	42	52	77	71	276
FS08	38	42	57	55	35	227
FS53	19	39	26	22	26	132
FS40	17	21	22	21	32	113
FS43	15	17	24	22	27	105
FS27	13	16	18	29	27	103
FS18	16	11	15	24	25	91
FS42	3	4	8	10	8	33
Total	**21,149**	**19,267**	**23,525**	**27,677**	**27,749**	**119,367**

The following figure illustrates the number of single-station simultaneous incidents by battalion by year with Battalions 4 and 9 having the highest and both battalions showing an upward trend except for 2020.

Figure 14—Single-Station Simultaneous Incidents by Battalion by Year



Finding #11: One or more simultaneous incidents occur 99.8 percent of the time increasing to 21 or more simultaneous incidents 10 percent of the time. These high rates dilute serious firefighting capacity at peak hours of the day.

2.7.4 Station Area Demand

The following table summarizes 2023 response activity percentage by station area. The percentage listed is the percentage likelihood a particular station is involved in an incident at any given hour. This metric can include any units assigned to incidents in that hour, in that area, over a year's time. The percentage listed is the percentage of likelihood a particular station area has incidents at any given hour. This number considers not only the number of incidents, but also the duration of incidents. The busiest stations are listed first. Only the **10 busiest** stations are listed in the following table.

Table 17—Station Demand by Hour (2023)

Hour	FS22	FS19	FS75	FS72	FS21	FS04	FS82	FS77	FS07	FS78
00:00	30.51%	13.13%	17.70%	16.90%	10.68%	12.82%	15.43%	9.80%	9.02%	11.10%
01:00	30.91%	10.71%	11.00%	12.38%	7.40%	11.57%	9.66%	10.40%	7.51%	10.27%
02:00	28.97%	12.22%	13.94%	12.18%	7.05%	9.28%	9.58%	8.35%	7.62%	8.15%
03:00	20.53%	10.93%	9.48%	10.46%	7.82%	6.46%	8.47%	6.14%	6.36%	6.89%
04:00	26.82%	10.08%	9.31%	8.62%	8.63%	9.50%	9.34%	6.32%	7.18%	7.59%
05:00	28.78%	13.35%	10.64%	11.10%	7.26%	7.33%	8.70%	12.86%	7.39%	7.17%
06:00	34.39%	12.97%	10.01%	13.01%	8.58%	10.93%	10.51%	9.38%	10.09%	8.99%
07:00	45.22%	23.23%	17.42%	17.54%	19.24%	14.76%	15.56%	11.90%	16.48%	15.59%
08:00	61.82%	25.04%	20.23%	19.06%	20.13%	19.00%	18.02%	17.85%	17.27%	14.53%
09:00	72.19%	34.88%	31.58%	23.06%	21.54%	24.22%	22.28%	23.95%	23.88%	18.86%
10:00	77.08%	33.65%	29.81%	25.29%	26.81%	31.48%	22.15%	25.54%	27.71%	20.39%
11:00	70.94%	34.45%	31.03%	26.72%	28.28%	26.07%	27.23%	23.65%	31.12%	27.26%
12:00	65.67%	34.05%	30.77%	25.56%	27.92%	27.40%	22.41%	28.28%	24.88%	23.93%
13:00	78.37%	38.44%	31.42%	25.81%	26.92%	23.73%	22.16%	27.23%	27.02%	21.57%
14:00	67.71%	34.40%	29.79%	28.61%	22.63%	21.60%	26.68%	21.83%	23.96%	21.26%
15:00	65.83%	29.74%	30.43%	24.99%	25.23%	20.54%	22.69%	27.75%	23.90%	20.83%
16:00	61.42%	33.40%	29.01%	21.22%	29.74%	23.97%	22.75%	23.94%	24.91%	23.33%
17:00	61.99%	32.66%	29.50%	26.32%	27.03%	29.15%	25.36%	21.27%	21.73%	26.56%
18:00	64.18%	27.32%	28.34%	20.38%	26.79%	21.80%	22.80%	22.03%	18.47%	21.87%
19:00	52.13%	24.66%	24.42%	23.91%	27.64%	18.50%	20.74%	19.91%	20.63%	21.45%
20:00	53.55%	27.10%	26.93%	22.25%	19.94%	20.90%	17.16%	20.50%	17.00%	20.52%
21:00	43.93%	19.26%	20.02%	19.30%	17.89%	19.62%	16.71%	18.09%	14.12%	20.48%
22:00	40.22%	17.78%	22.52%	21.57%	18.79%	19.10%	16.53%	15.16%	12.89%	16.52%
23:00	34.61%	14.12%	17.62%	15.13%	9.57%	13.82%	13.66%	13.98%	10.78%	16.38%

2.7.5 Unit-Hour Utilization – Engines

The unit-hour utilization (UHU) percentage for apparatus is calculated by two primary factors: the number of responses and duration of responses.

The unit-hour utilization (UHU) percentage for apparatus is calculated using the number of responses and the duration of those responses to show the percentage of time a unit is committed to an active incident during a given hour of the day. In Citygate's experience, a UHU of 30 percent or higher over *multiple consecutive hours*, such as five to eight hours, becomes the point at which other responsibilities, such as required daily training, do not get completed.

Table 18—Unit-Hour Utilization – Engines (2023)

Hour	E22	E222	E19	E82	E72	E21	E77	E78	E73	E24
00:00	13.66%	13.88%	13.04%	18.69%	14.88%	12.94%	8.45%	11.42%	13.56%	10.92%
01:00	18.26%	15.14%	13.15%	11.73%	9.49%	9.24%	11.49%	9.75%	8.35%	7.54%
02:00	13.72%	12.81%	10.89%	11.98%	10.82%	6.91%	7.23%	8.67%	9.75%	7.45%
03:00	9.72%	10.26%	11.64%	10.62%	9.56%	7.75%	6.50%	6.87%	8.25%	6.90%
04:00	14.15%	12.06%	9.44%	10.38%	9.03%	9.94%	7.46%	8.16%	7.10%	6.85%
05:00	13.32%	13.76%	12.15%	9.75%	10.45%	7.78%	12.83%	9.88%	10.91%	8.56%
06:00	15.58%	19.03%	11.69%	14.72%	11.55%	9.13%	10.94%	8.99%	9.70%	11.72%
07:00	26.03%	20.21%	21.24%	16.68%	14.75%	17.90%	12.14%	15.55%	12.34%	15.95%
08:00	30.68%	28.88%	23.79%	19.58%	17.18%	18.93%	17.00%	15.29%	13.92%	18.94%
09:00	31.15%	32.53%	31.16%	20.83%	23.05%	18.31%	20.21%	16.95%	16.88%	21.72%
10:00	32.54%	34.24%	30.90%	23.05%	21.03%	22.27%	20.74%	22.17%	21.53%	20.92%
11:00	34.30%	29.51%	31.42%	25.49%	22.99%	22.56%	21.23%	22.52%	21.16%	25.10%
12:00	31.49%	31.41%	29.08%	23.26%	23.04%	23.92%	23.76%	20.16%	20.21%	19.55%
13:00	37.10%	33.10%	33.57%	21.99%	27.31%	22.93%	22.33%	18.89%	18.34%	23.57%
14:00	29.55%	33.30%	29.63%	24.26%	22.85%	21.11%	22.71%	20.71%	18.80%	21.32%
15:00	33.80%	29.43%	28.67%	20.77%	19.67%	21.77%	21.82%	19.46%	25.69%	20.20%
16:00	30.45%	30.16%	31.04%	25.44%	21.93%	24.23%	21.12%	23.40%	19.01%	21.61%
17:00	31.22%	31.37%	28.76%	24.31%	24.00%	23.80%	20.32%	22.02%	21.86%	16.91%
18:00	31.72%	30.34%	25.10%	24.17%	20.50%	20.64%	21.91%	22.18%	22.35%	19.81%
19:00	25.36%	23.67%	24.53%	21.55%	20.47%	24.25%	18.81%	19.91%	18.05%	20.42%
20:00	27.29%	26.93%	25.06%	20.89%	20.35%	17.12%	27.68%	22.38%	24.84%	14.93%
21:00	21.88%	18.59%	17.48%	18.89%	16.76%	16.76%	19.30%	19.56%	21.99%	16.46%
22:00	17.79%	20.66%	18.56%	17.49%	20.45%	18.23%	14.97%	15.55%	14.07%	13.73%
23:00	17.93%	15.86%	12.47%	16.89%	12.51%	11.40%	13.30%	15.29%	12.70%	8.51%

The following table summarizes UHU for the 10 busiest truck companies for 2023.

Table 19—Unit-Hour Utilization – Trucks (2023)

Hour	T85	T81	T76	T71	T75	T4	T28	T22	T59	T49
00:00	11.51%	11.13%	9.82%	5.94%	6.49%	4.21%	2.94%	3.17%	4.64%	1.95%
01:00	9.34%	5.59%	7.21%	4.96%	2.48%	4.60%	2.25%	4.97%	2.75%	3.30%
02:00	10.03%	6.96%	7.69%	5.85%	2.53%	2.68%	1.63%	3.78%	4.02%	2.77%
03:00	6.72%	4.89%	8.01%	3.78%	3.69%	1.47%	2.67%	2.05%	2.77%	2.71%
04:00	7.31%	5.92%	8.70%	4.04%	4.52%	4.55%	4.53%	2.45%	2.61%	2.26%
05:00	7.95%	3.67%	9.56%	2.31%	3.41%	4.81%	4.76%	3.04%	2.76%	2.67%
06:00	8.49%	6.65%	6.90%	4.75%	3.36%	4.72%	2.66%	3.62%	3.95%	3.78%
07:00	13.65%	9.28%	8.76%	5.88%	5.97%	4.16%	3.85%	3.84%	4.31%	4.74%
08:00	13.63%	13.36%	11.00%	8.66%	10.12%	5.45%	7.19%	8.77%	5.27%	6.96%
09:00	20.95%	16.30%	14.52%	11.89%	11.36%	9.76%	8.00%	9.22%	10.61%	7.21%
10:00	20.18%	20.98%	15.18%	14.79%	13.39%	14.07%	10.95%	10.57%	8.80%	9.41%
11:00	23.37%	19.45%	13.89%	14.85%	16.24%	10.85%	12.03%	10.77%	9.19%	8.30%
12:00	22.68%	16.24%	18.32%	12.92%	13.21%	8.91%	9.77%	7.89%	8.37%	8.63%
13:00	17.81%	19.98%	15.68%	14.23%	13.45%	9.14%	9.01%	10.12%	8.57%	9.49%
14:00	17.64%	20.83%	15.95%	15.98%	15.76%	7.80%	11.33%	10.70%	8.98%	10.19%
15:00	21.15%	18.89%	17.15%	14.66%	13.88%	10.11%	12.27%	9.40%	8.12%	8.77%
16:00	21.40%	19.34%	14.95%	15.94%	12.63%	9.65%	11.43%	8.91%	11.14%	8.78%
17:00	18.61%	17.26%	16.86%	16.30%	15.95%	14.45%	12.47%	9.30%	8.00%	8.38%
18:00	22.83%	16.42%	15.20%	12.07%	11.61%	9.94%	7.27%	10.47%	7.38%	6.59%
19:00	16.56%	14.22%	16.49%	7.15%	10.78%	7.93%	7.63%	7.03%	9.62%	7.23%
20:00	18.02%	22.79%	14.84%	12.59%	10.79%	7.53%	9.62%	6.45%	7.58%	7.45%
21:00	16.59%	14.25%	14.05%	6.00%	7.35%	7.55%	5.70%	5.27%	6.16%	6.84%
22:00	12.80%	11.30%	12.87%	6.72%	7.80%	7.54%	5.55%	8.77%	6.34%	5.08%
23:00	11.04%	7.22%	9.49%	4.20%	4.21%	4.73%	3.46%	3.62%	4.23%	4.24%

The following table summarizes UHU for OCFA medic squads and heavy rescue companies for 2023 with the busiest medic units listed first.

Table 20—Unit-Hour Utilization – Medic and Heavy Rescue (2023)

Hour	M57	M45	M7	M46	HR6
00:00	9.20%	10.52%	8.93%	10.71%	4.66%
01:00	8.23%	8.09%	7.50%	8.43%	3.54%
02:00	7.94%	7.70%	6.18%	10.69%	1.17%
03:00	8.11%	7.99%	7.38%	8.34%	2.45%
04:00	11.18%	8.51%	7.38%	9.51%	2.68%
05:00	6.57%	6.73%	6.30%	7.30%	4.58%
06:00	9.06%	12.49%	11.18%	8.77%	3.71%
07:00	14.85%	12.30%	17.54%	9.88%	4.19%
08:00	18.22%	18.34%	14.77%	11.05%	5.50%
09:00	25.05%	24.62%	21.60%	17.08%	7.68%
10:00	27.21%	23.27%	25.95%	20.26%	9.34%
11:00	22.07%	23.59%	21.47%	18.43%	8.03%
12:00	22.54%	22.89%	21.90%	16.36%	5.49%
13:00	21.53%	22.38%	26.38%	20.08%	6.08%
14:00	20.87%	19.08%	20.18%	17.32%	7.74%
15:00	24.44%	22.66%	23.30%	20.40%	8.55%
16:00	25.84%	20.46%	22.17%	19.45%	7.96%
17:00	22.39%	21.82%	17.88%	14.88%	10.00%
18:00	17.03%	21.41%	17.44%	13.75%	5.89%
19:00	21.72%	19.24%	20.11%	16.57%	4.73%
20:00	20.11%	18.43%	15.53%	16.82%	8.59%
21:00	16.11%	17.37%	12.62%	12.67%	6.19%
22:00	13.03%	11.03%	12.75%	9.09%	5.14%
23:00	11.02%	10.47%	10.86%	12.36%	2.77%

Finding #12: Engines 19, 22, and 222 are all near or exceeding 30 percent UHU from 8:00 AM through 6:00 PM.

2.7.6 Aid Activity

The following table shows aid activity by year. For 2023, slightly more than 3.6 percent of all incidents involved aid of some type. When aid occurs, OCFA provides aid to other agencies about 33 percent of the time compared to receiving aid from other agencies about 67 percent of the time. In 2024, dispatch process changes resulted in unit time commitment for aid from OCFA increasing

to 47 percent; OCFA received aid reduced to 53 percent, thus resulting in more balance while still utilizing closest-unit response.

Table 21—Aid Activity by Year

Aid Type	2019	2020	2021	2022	2023	Total
Received	4,393	2,767	2,870	3,533	4,409	17,972
Provided	4,017	1,339	1,645	1,773	2,137	10,911

2.7.7 Fire Station Distribution Performance

This section includes response performance for the first response apparatus to arrive at emergency incidents. Records selected for this analysis include NFIRS-coded fire and EMS incidents occurring within OCFA boundaries only. Arrival of apparatus from outside agencies stop the travel time clock. Measurements are the number of minutes and seconds necessary for 90 percent completion of:

- Call processing / dispatch
- Crew turnout
- First-Unit travel
- Call to arrival

Call Processing / Dispatch

Call processing measures the time from the first incident timestamp until apparatus are notified of the request for assistance. Call processing performance depends on what is being measured. If the first incident timestamp takes place at the time the public safety answering point (PSAP) physically answers a 9-1-1 call, then call processing includes PSAP time as well as dispatch handling time. If a later time stamp is used well into the dispatcher listening to the caller, such as *Alarm Time* (typically when information has been entered into the computer and the *Enter* key is pressed), the processing time segment only represents a portion of the entire call processing operation.

In addition, not all requests for assistance are received via 9-1-1. Generally, there will be a mix of "channels" for receiving requests for assistance. Each "channel" will have a timestamp at a different point in the call processing operation. This may not be as much of a factor if most requests are received via 9-1-1 PSAP.

The current national best practice standard for call processing / dispatch performance is 1:00 minute 90 percent of the time for incidents with an imminent threat to life or significant

loss/damage to property.[6] However, over more than 15 years of conducting such studies, Citygate has found *very few* dispatch centers able to achieve that level of performance and has thus long recommended 1:30 minutes as an achievable best-practice goal for call processing / dispatch performance.

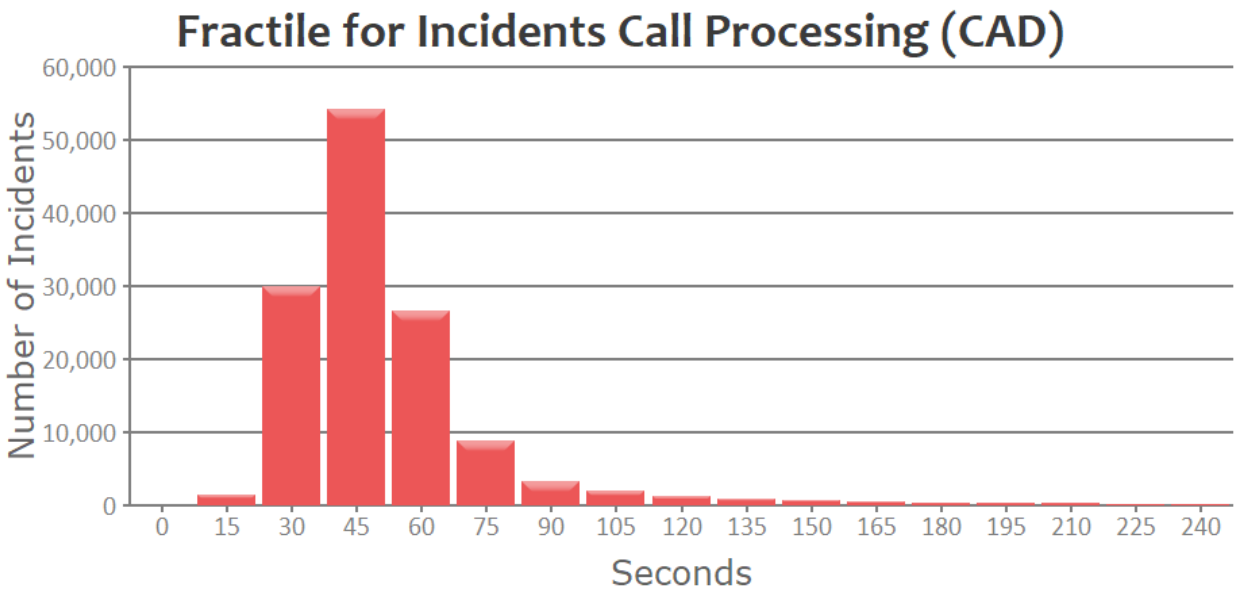
The following table summarizes OCFA's Emergency Communications Center (ECC) call processing / dispatch performance over the five-year study period. Times are shown in minutes:seconds to 90 percent of fire and EMS incidents. As the table shows, the OCFA ECC's 90th percentile call processing / dispatch performance is 22 percent *faster* than Citygate's 1:30-minute recommended best practice goal, and only slightly slower than the NFPA 1:00-minute goal.

Table 22—90th Percentile Call Processing / Dispatch Performance

Station	Overall	2019	2020	2021	2022	2023
Department-Wide	1:10	1:20	1:13	1:04	1:03	1:10

The following graph shows that most calls for service in 2023 were processed within 45 seconds, and nearly all within 1:30 minutes.

Figure 15—Call Processing Fractile (2023)



[6] NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2019 Edition)

Finding #13: At **1:10 minutes** over the five-year study period, OCFA's 90th percentile call processing / dispatch performance is 22 percent faster than Citygate's 1:30-minute recommended best practice goal and only slightly slower than the 1:00-minute NFPA standard.

Crew Turnout

Crew turnout performance measures the time from completion of the dispatch notification until the start of response apparatus travel. While the NFPA recommends 1:00 to 1:20 minutes for crew turnout depending on the type of protective clothing that must be donned, over several hundred deployment studies, Citygate has found very few agencies that can meet that performance standard and thus has long recommended 2:00 minutes averaged across a 24-hour day as an achievable goal for on-duty station personnel.

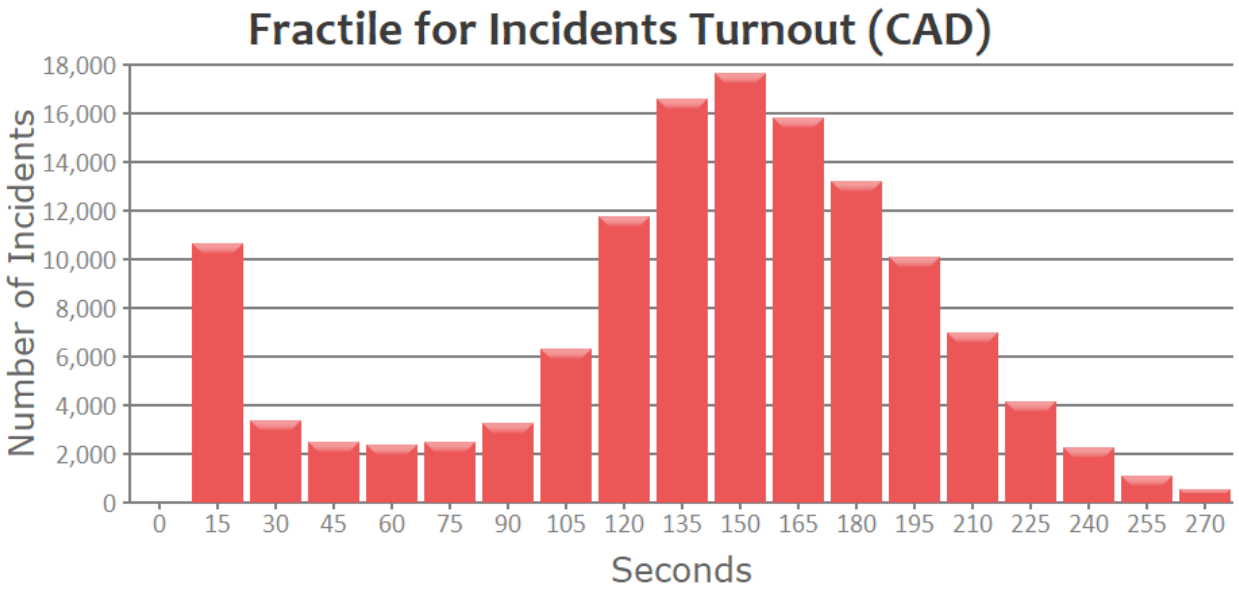
The following table summarizes 90th percentile crew turnout performance utilizing Automatic Vehicle Location (AVL) data. As the following table reveals, although a slight performance gain was achieved in 2023, turnout performance is consistently longer than the most recent 2:00-minute OCFA administrative goal and Citygate recommendation.

Table 23—90th Percentile Crew Turnout Performance

Station	Overall	2019	2020	2021	2022	2023
Department-Wide	3:32	3:21	3:34	3:39	3:32	3:20

The following figure illustrates fractile turnout performance. The large number of incidents at 15 seconds likely represents dispatches for which the apparatus is already on the road. While performance peaks at 2:30 minutes (150 seconds), there are still many incidents that take longer than 3:00 minutes to initiate travel.

Figure 16—Crew Turnout Fractile (2023)



Finding #14: At slightly more than **3:30 minutes** over the five-year period, 90th percentile crew turnout performance is 75 percent slower than Citygate's recommended 2:00-minute goal. This performance can be improved through education and training.

First-Unit Travel

Travel performance measures the interval from start of first-due apparatus movement to arrival at the emergency incident. NFPA 1710[7] has long recommended a 4:00-minute first-unit travel time goal, but decades of experience has now shown that delivering on that goal at 90 percent requires a grid road network on flat terrain in a very urban setting. Where there is varying topography and curvilinear street networks, a 5:00-minute travel time goal allows some flexibility in station spacing. For this analysis, we used the most recent 5:00-minute OCFA Administrative goal.

As the following table shows, OCFA's 90th percentile first-unit travel time performance over the five-year period was 40 seconds (13 percent) slower than the most recent 5:00-minute OCFA Administrative goal.

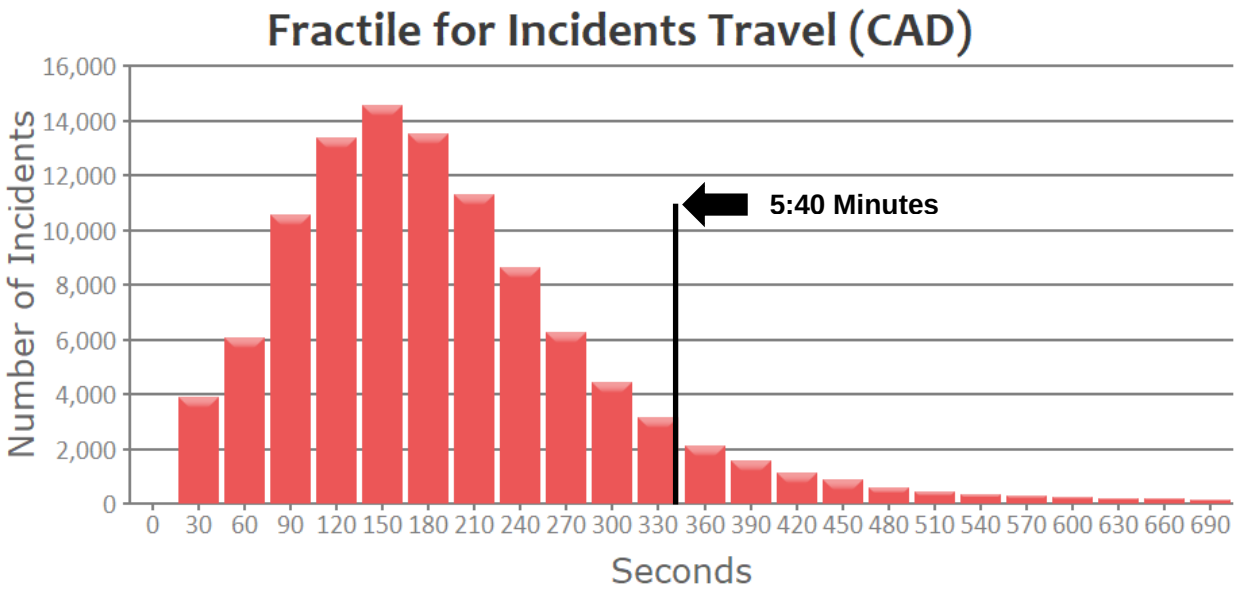
[7] NFPA 1717 – Standard for the Organization and deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020 Edition).

Table 24—90th Percentile First-Unit Travel Performance

Station	Overall	2019	2020	2021	2022	2023
Department-Wide	5:40	6:19	5:20	5:23	5:33	5:33

The following figure illustrates fractile travel time performance, with 150 seconds (2:30 minutes) representing the peak segment. There is, however, a very slow decrease in volume after this time stamp—which indicates that, while many incidents can be reached at or under 5:00 minutes, there are still a significant number of incidents that require much longer travel times.

Figure 17—Travel Fractile (2023)



Finding #15: 90th percentile first-unit travel time performance to fire and EMS incidents in 2023 was **5:40 minutes** and ranged from 3:56 (Station 75) to 7:08 minutes (Stations 8 and 40). Overall, first-unit travel performance is only 13 percent slower than OCFA's most recent administrative 5:00-minute goal and very good given the vast and challenging OCFA service area.

Call to Arrival

Call to arrival measures time from receipt of the 9-1-1 call until the first apparatus arrives at the incident and is a fire agency's true customer service measure. OCFA's most recent administrative goals are 1:30 minutes for call processing/dispatch, 2:00 minutes for turnout, and 5:00 minutes for travel, for a total call-to-arrival response time of 8:30 minutes.

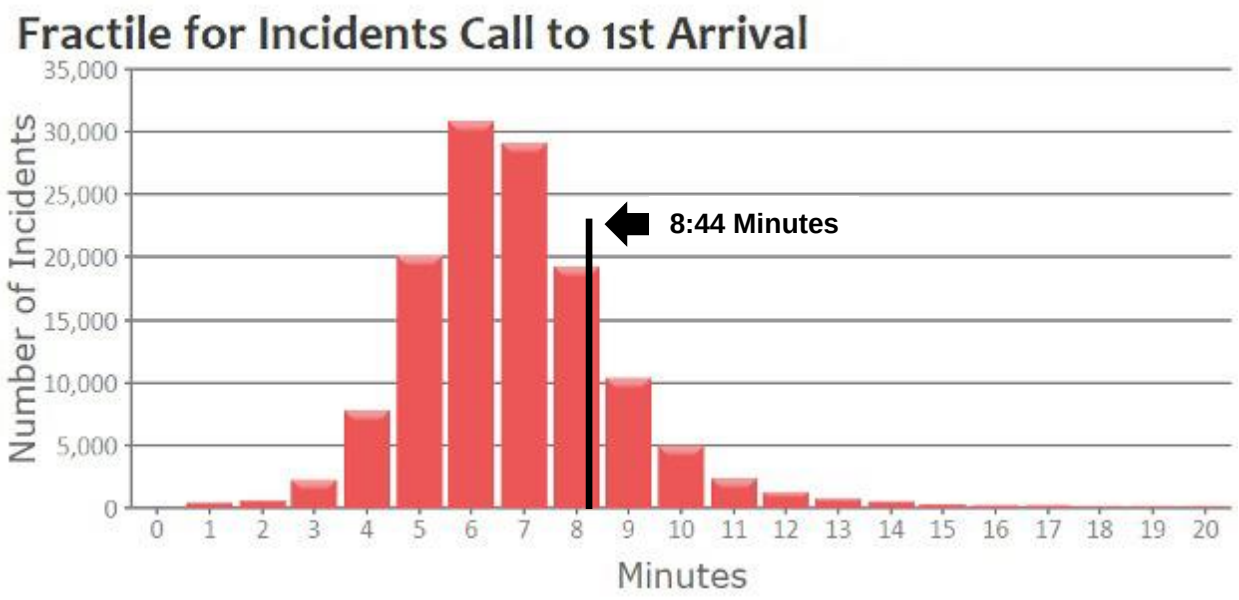
The following table shows that 90th percentile first unit call-to-arrival performance over the five-year study period was 14 seconds slower than OCFA's most recent and Citygate's current 8:30-minute goal. It should be noted that the 8:30-minute goal could be met by reducing crew turnout performance closer to the recommended 2:00-minute goal.

Table 25—90th Percentile First-Unit Call-to-Arrival Performance

Station	Overall	2019	2020	2021	2022	2023
Department-Wide	8:54	9:02	8:59	8:55	8:53	8:44

The following figure illustrates fractile call-to-arrival performance, with 6:00 minutes representing the peak segment and most responses in 9:00 minutes.

Figure 18—Call to First Arrival Fractile (2023)



Finding #16: At **8:44 minutes**, OCFA's 90th percentile first-unit call-to-arrival performance was only 14 seconds slower than the Citygate-recommended 8:30-minute goal. It should be noted that the 8:30-minute goal could be met by reducing crew turnout performance closer to the Citygate-recommended 2:00-minute goal.

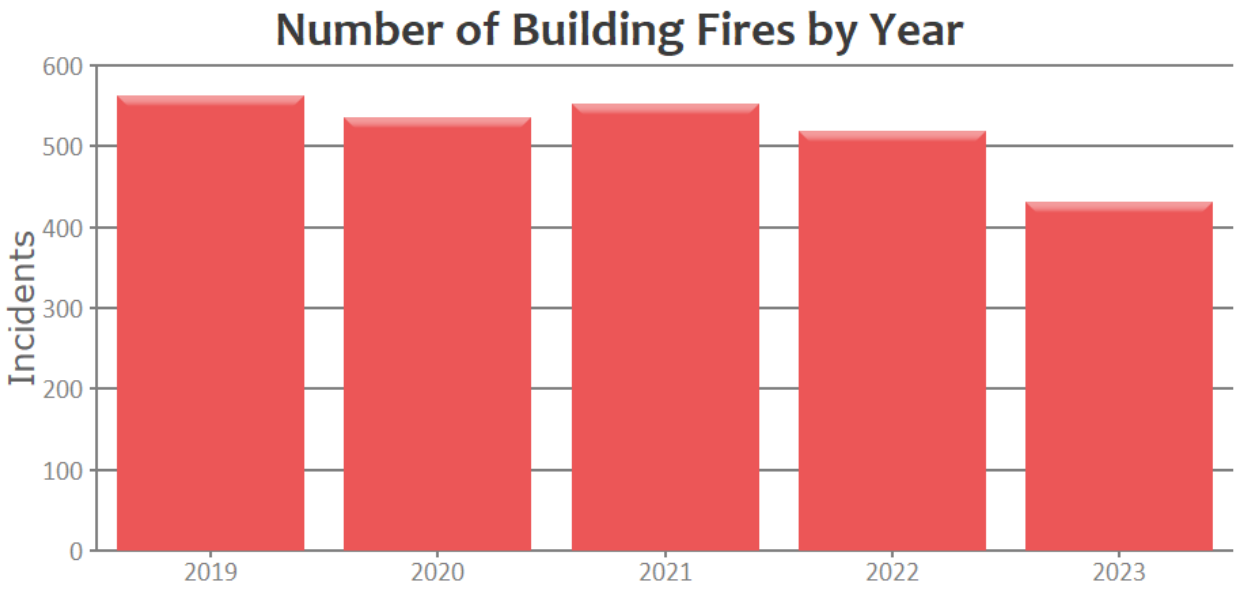
2.7.8 Fire Station Concentration Performance

This section includes response performance for the multiple-unit Effective Response Force (ERF) needed to resolve more serious fire emergencies. As shown in Table 6, OCFA's ERF for a

residential building fire is four engines, two trucks, and two Battalion Chiefs for a total of 24–26 personnel depending on apparatus staffing.

As the following figure illustrates, the number of building fires within OCFA's service area over the five-year study period has decreased since 2019 except for a slight increase in 2022.

Figure 19—Building Fires by Year



For urban building fire risks, NFPA 1710 and Citygate recommend that, to facilitate a positive outcome of confining the fire to the room(s) or compartments of origin and safely rescuing any inhabitants unable to self-evacuate, the full ERF should arrive within 11:30 minutes—measured when the last unit arrives on-scene. OCFA's most recent administrative ERF response performance goal is 11:30 minutes, including 1:30 minutes for call processing/dispatch, 2:00 minutes for crew turnout, and 8:00 minutes travel.

Over the five years of data analyzed, there were 866 building fires where an ERF of four engines and two trucks arrived at the incident within outlier time limits; however, if the arrival of Battalion Chiefs and/or medic squads is included, this number of qualifying incidents decreases by about 75 percent, thus the following calculations are based on four engines and two trucks only arriving at the incident.

As the following table shows, at 16:27 minutes, 90th percentile ERF *travel* performance over the five-year study period was *more than double* the 8:00-minute NFPA, Citygate, and most recent OCFA administrative goal.

Table 26—90th Percentile ERF Response Group Travel Performance

Station	Overall	2019	2020	2021	2022	2023
Department-Wide	16:27	17:10	15:11	16:35	15:42	16:50

The following table shows 90th percentile OCFA ERF call-to-arrival performance over the same period was 18:45 minutes, which is 7:15 minutes (63 percent) slower than OCFA's most recent administrative goal and Citygate-recommended 11:30 minutes.

Table 27—90th Percentile ERF Call-to-Arrival Performance

Station	Overall	2019	2020	2021	2022	2023
Department-Wide	18:45	19:32	18:10	19:08	18:36	19:47

However, if only the first three engines and first truck arrival are evaluated, 90th percentile ERF call-to-arrival performance improves to **13:25** minutes over the five-year period, which is much closer to the most recent OCFA administrative and Citygate-recommended goal.

Finding #17: At **18:45 minutes** over the five-year study period, 90th percentile Effective Response Force (ERF or First Alarm) call-to-arrival performance was 7:15 minutes (63 percent) slower than the 11:30-minute Citygate-recommended goal.

2.8 Overall Evaluation

SOC Element 8 of 8
Overall Evaluation

The next step for this assessment is to compare the current GIS coverage measures with the historical incident measures. Given the challenges to serve the OCFA service area road network efficiently as some areas continue to evolve or grow, Citygate evaluated all underserved or new-growth neighborhoods with the geographic travel time and incident statistics computer models. The goal was to estimate the quantity, type, and location of best-fit and cost-effective fire apparatus and station changes or additions. Some changes were already being planned in the Authority's Capital Improvement Plan and new development agreements.

2.8.1 Improved Coverage Enhancements

The findings in the base case study were combined with OCFA's ongoing strategic planning insights, which then yielded the following issues around which to model improved coverage enhancements. In totality, these enhancements provide one additional truck and eight additional ALS units to OCFA's jurisdiction. The enhancements will be presented in order of priority.

- Some units are exceeding 30 percent hour-over-hour unit utilization
- A grant application to increase staffing on the last five engines to four personnel per crew, to include paramedics, provides the opportunity to redeploy some of the two-firefighter/paramedic squads.
- This study identified that Station/Engine #25 in an unincorporated pocket called Midway City is completely overlapped at 5:00 minutes travel and is not an effective use of that staffing.
- Mitigate as possible the single-ladder-truck-coverage gaps at 8:00 minutes travel.
- Ensure resources are properly located for deployment to ensure equitable neighborhood access to first responder coverage.
- Deploy to provide resilience in coverage to handle predictable simultaneous incident demand.
- Whether to continue to use stand-alone quint truck companies. As part of this review, ensure the availability of stand-alone paramedic truck companies (PMTs) which are being committed as the initial resource on medical emergencies, reducing their availability for truck company responses.

To conduct this work to improve deployment, Citygate and the OCFA Strategic Planning team developed a matrix table of key statistics and GIS measures to look for areas where multiple deployment measures are weak and occur in already high-demand areas. These metrics included:

- Total station and unit annual incident volume.
- Ranking high to low the first responder unit-hour utilization (UHU) measures.
- Ranking high to low the occurrence of simultaneous incidents in a station area.
- Identifying clusters of where units or station areas with high use factors touched one or more *adjoining high use areas,* thus creating a multi-station high-demand pattern.
- Identifying where stations were somewhat isolated, due to geography, from prompt second-due unit coverage if the primary unit was already assigned to an incident.
- Reviewing the deployment demand need at the locations of the four medic squads.

Deployment Enhancements

Enhancement #1 – Increase Staffing to Four Personnel and ALS on Five Engines

At present, there are five engines still staffed with three personnel since the date they were merged into OCFA. The Authority received a FY 22/23 federal grant for increased firefighter staffing. The grant is for 15 personnel to add a fourth firefighter to five engines on each of the three duty platoons—E7, E18, E45, E46, and E57—and to make each a paramedic engine. These additions add to the weight of attack capability of the first-arriving unit *and* the follow-up effective response force, and allows for the redeployment of medic squads providing ALS coverage behind the current 3/0-staffed BLS engines.

Enhancement #2 – Build Station 12 – Add ALS Engine 12

As this study and the 2019 SOC identified, Station 22 and its multiple units are still overworked hour over hour. This area has a very high density of EMS and simultaneous incidents. To balance workload and increase the 5:00-minute travel time coverage west of Station 22, OCFA was planning to add Station 12. A temporary site, station, and future funding are available, and Citygate finds expediting the timeline is a great choice to add an ALS engine in the area west of Station 22, providing an immediate positive impact on service.

The construction of Station 12 is currently identified in the CIP budget to begin in FY 27/28. Activating a temporary Station 12 with an ALS engine and moving up the build timeline for the permanent structure will lesson response times to the community of Laguna Woods, decrease the reliance of the current first- and second-due units to the area (FS22 Laguna Hills, FS51 Irvine, and FS57 Aliso Viejo), and relieve the over-burdened workload in the region by balancing out call volume and UHUs and providing resiliency in coverage, and thus should be the highest priority behind upgrading the remaining 3/0 engines to 4/0 as identified in Enhancement #1.

Enhancement #3 – Upgrade ALS Truck 45

Currently, Truck 45 is not staffed with two paramedics per day. This means either Engines 18, 31, or 40 must also respond when Engine 45 is not available for a paramedic EMS call in its first-due district in the northeast Battalion 7 area. Because the station's location is near the eastern end of the road network in the foothills, secondary ALS response units are not as abundant. Therefore, upgrading T45 to ALS provides the redundancy required to maintain adequate ALS coverage at or near the 8:30-minute response time goal.

Enhancement #4 – Add ALS Truck 64 by Redeploying Engine 25

As can be seen in the following map, Station 25's area is 100 percent covered with a 5:00-minute travel time by nearby units. Its location is an artifact of when the station was sited prior to both the creation of OCFA and OCFA becoming the fire service provider for the City of Westminster, in

which Station 25 is completely encompassed. In 2023, station area 25 had 2,145 incidents, or approximately 5.9 per day. Transferring this amount to four adjoining engines would **not** overburden engines 64, 65, 66, and 80, as they all have annual incident volumes less than 3,000 each. In addition, station area 25 only has a simultaneous incident rate of .8 per day, which is not significant with so many nearby companies and aid from Huntington Beach.

Another ALS truck is needed in this area to improve single and ERF truck coverage in the overall region of Station 25. Thus, the engine staffing of 12 personnel will be reallocated to staff a regional ALS ladder truck (T64) at Station 64 (which can accommodate it) with no other increase in personnel. This regional truck will provide a much-needed immediate impact in truck coverage and depth to Midway City, Seal Beach, Stanton, and Westminster. Additionally, approximately $12 million is currently allocated in the CIP for the replacement of Station 25 in FY 29/30, which will be freed-up.

Figure 20—5:00-Minute Travel without Engine 25

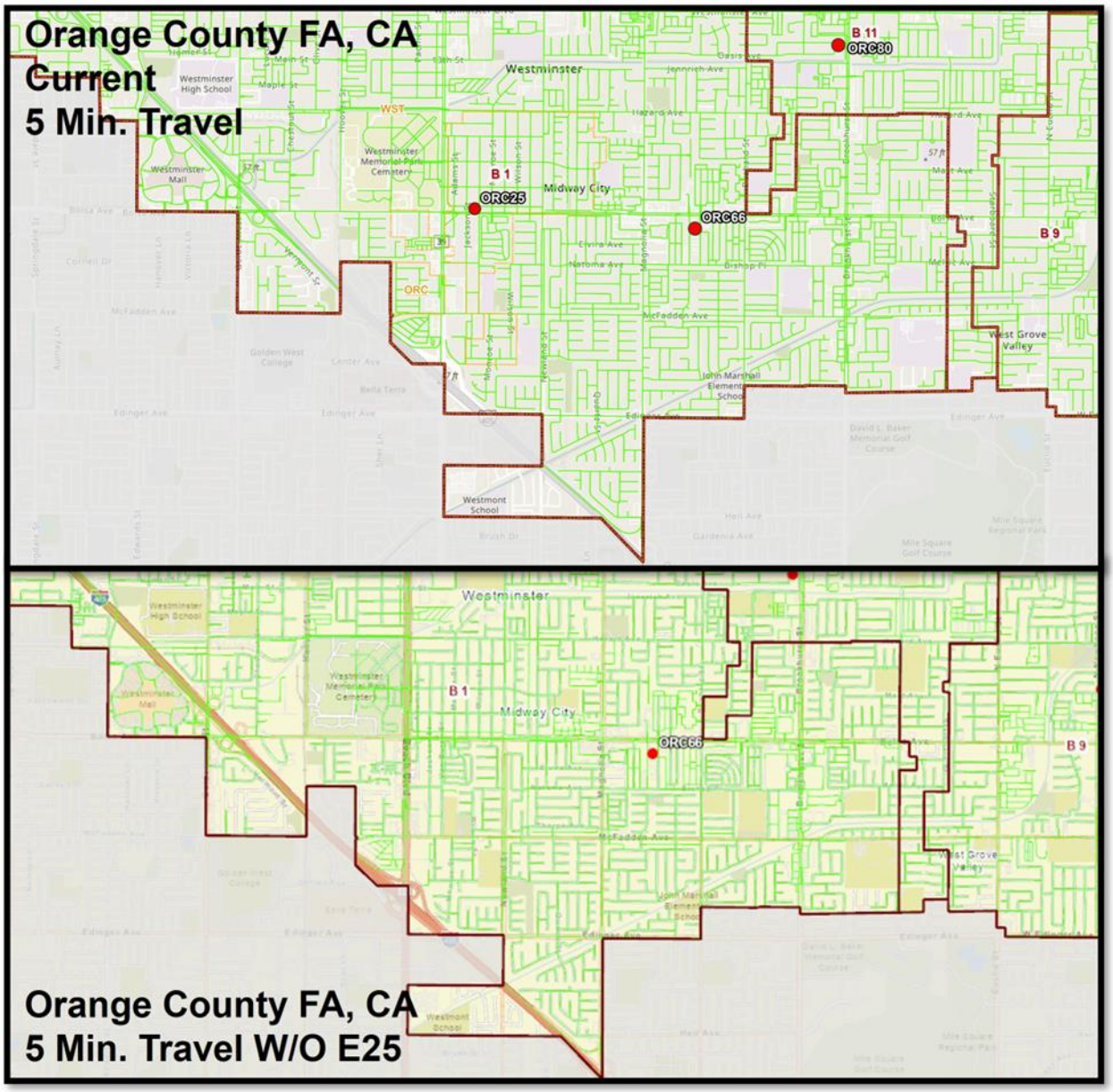
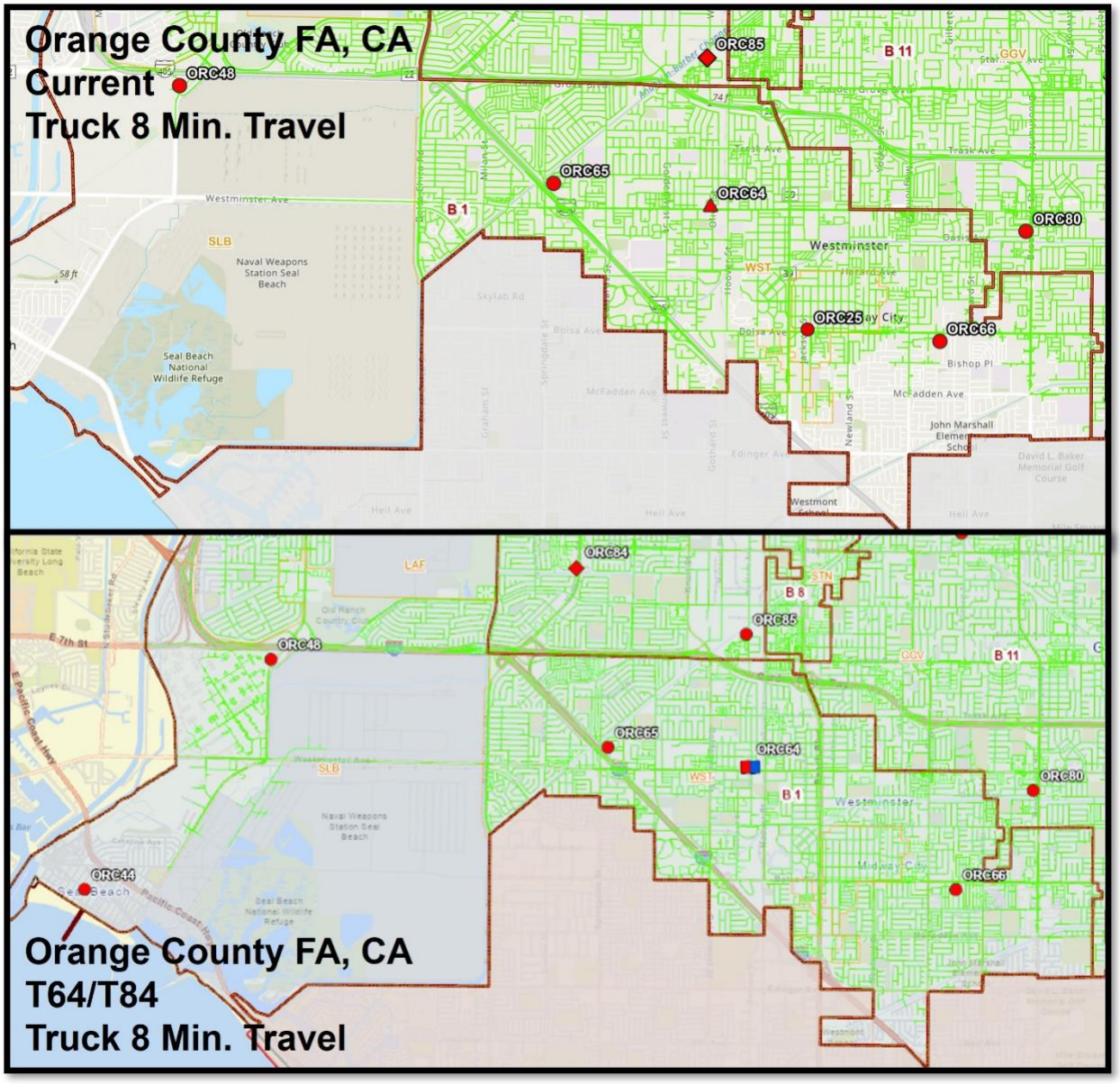


Figure 21—8:00-Minute Truck Coverage with Added Truck 64



Enhancement #5 – Exchange Locations – Truck 84 and Engine 85

This enhancement is the companion step to adding ALS Truck 64. With a new truck at Station 64, an opportunity exists to redeploy OCFA's busiest truck, T85, to a first-due location that has a less demanding EMS call load while at the same time improving regional truck coverage and availability.

This enhancement, with **no** added personnel, moves Engine 84 east to Station 85 and moves ALS Truck 85 west to Station 84. A T84 will realize a significant reduction in responses and UHU while providing increased availability and coverage as intended with a specialty unit. The

complementary enhancements of T64 and T84 significantly improves single and ERF truck coverage to Division 1 and the southern and western edges of Division 7 while also increasing overall truck availability.

Enhancement #6 – Enhance Paramedic Depth and Reduce UHUs in Garden Grove

The City of Garden Grove is home to OCFA's two busiest trucks (T85 and T81) and a top-five busiest engine (E82), serving a city with both high density EMS and fire responses. The response area would be well served by strategically adding paramedic depth via additional resources (engine or squad) to decrease UHUs and significantly enhance truck availability for fires and rescues. The current trucks are both stand-alone ALS trucks that are often committed to medical emergencies, limiting availability for their intended use.

Enhancement #7 – Enhance Paramedic Depth and Reduce UHUs in Santa Ana

The City of Santa Ana is home to four of the busiest engines and three of the busiest trucks in OCFA's jurisdiction, serving a response area with both high density EMS and fire responses. The area would be well served by adding paramedic depth via additional resources (engine or squad) to decrease UHUs and balance workload demand.

Enhancement #8 – Upgrade ALS Truck 22

To further mitigate the very high density of EMS and simultaneous incidents impacting Station 22 and the surrounding response areas, and to increase the effectiveness of adding Station 12, it is recommended that T22 is upgraded to ALS. T22 currently responds to over 1,200 EMS responses annually, each time requiring an ALS unit from an adjacent response area to also commit to the incident in what is already a heavily impacted area. The ALS upgrade to T22 would eliminate the need for a dual response and help balance the workload and maintain OCFA's 8:30 response time goals.

2.8.2 Capstone Recommendations

OCFA serves a diverse urban population with a mixed residential and non-residential land-use pattern typical of Orange County. There are also large open space and wildland areas to protect with specialty resources. There are many significant risks driving the need for technical rescue, hazardous materials, and aviation response capabilities. In short, about the only risks OCFA does not protect are harbors and oil refineries. If the Board of Directors desires emergency outcomes in urban population areas that include limiting building fire damage to only part of the inside of an affected building or minimizing permanent impairment resulting from a medical emergency, or both, then OCFA will need to provide both first-due unit and multiple-unit ERF coverage to similar-risk neighborhoods consistent with Citygate's and OCFA's best practices-based response performance measures.

Citygate finds the Authority response apparatus to be appropriate to protect against the hazards likely to impact OCFA's service areas. Daily staffing per unit is to best practices and provides for multiple ERF response teams sufficient for several emerging or serious fires at the same time, while maintaining engine and ambulance emergency response coverage elsewhere.

The most recent total response time (from fire dispatch center answer to first-unit arrival) of 8:44 minutes to significant fire and EMS emergencies is very close to the existing best-practices-based and Citygate-recommended goal of 8:30 minutes in urban areas. Given the road network design and growth areas around still-undeveloped open spaces, as in other urban areas with similar challenges, Citygate is again recommending the Authority use a 5:00-minute travel time measure for future fire station spacing. Thus, a total response time goal would be first-unit arrival within 8:30 minutes and ERF arrival within 11:30 minutes of call receipt at fire dispatch, all at 90 percent or better reliability.

Considering over the previous ten years OCFA has absorbed a 49 percent call volume increase with only a 12 percent increase in firefighter staffing, improving or even maintaining response times with ongoing growth in the communities served will not be easy or quick due to the economic impacts and the need to hire personnel and acquire apparatus and stations in some cases. There will need to be multiple changes over a multiple-year effort to improve. Current staff and technology resources can be applied to improving turnout times. The eight recommended deployment enhancements will together increase efficiencies, deal with increased workloads in some of the busiest areas, and add new resources in growing areas.

OCFA should also focus on *equity of access* to a first responder. In other words, for areas with similar risks to be protected, each neighborhood should receive help in about the same time (and with the same outcome goal) as another across the Authority's service area.

2.8.3 List of All Findings in Report Sequence

Finding #1: The Department's response unit types are appropriate to protect against the hazards likely to impact the service area.

Finding #2: OCFA's management team uses response performance goals consistent with best practice recommendations as published by the CFAI and NFPA; however, those performance goals have not been formally adopted by the Board of Directors consistent with recommended best practice.

Finding #3: OCFA has a standard response plan that considers types of emergency risks and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engines, trucks, specialty units, and command officers customarily needed to effectively control that type of incident based on OCFA prior incident experience.

Finding #4: The 5:00-minute travel coverage at 99 percent of the public road miles is excellent in areas with developed lands. Where pockets of under-coverage exist, they are typically at the outer edges of the road network and against natural open spaces.

Finding #5: There are pockets of growth and/or high incident demand that need improved first-due coverage.

Finding #6: The minimum Effective Response Force (ERF) coverage is more limited. It is very challenging to get so many units to all the public streets in only 8:00 minutes of travel.

Finding #7: The more numerously staffed ERF fire coverage is much more limited and only exists in the core, most populated areas. These are the areas where multiple stations can "meet in the middle" at 8:00 minutes travel time. A large ERF is very challenging goal and some of the under-covered areas are large enough to warrant improvement.

Finding #8: The two-ladder-truck coverage for the working fire ERF, at 8:00 minutes travel, only covers the most densely populated areas. There are larger gaps at the outer developed areas.

Finding #9: The most densely populated areas generate significant service demand.

Finding #10: After the COVID-19 pandemic, OCFA experienced 21 percent overall growth in service demand over the three-year period from 2020 through 2023.

Finding #11: One or more simultaneous incidents occur 99.8 percent of the time increasing to 21 or more simultaneous incidents 10 percent of the time. These high rates dilute serious firefighting capacity at peak hours of the day.

Finding #12: Engines 19, 22, and 222 are all near or exceeding 30 percent UHU from 8:00 AM through 6:00 PM.

Finding #13: At **1:10 minutes** over the five-year study period, OCFA's 90th percentile call processing / dispatch performance is 22 percent faster than Citygate's 1:30-minute recommended best practice goal and only slightly slower than the 1:00-minute NFPA standard.

Finding #14: At slightly more than **3:30 minutes** over the five-year period, 90th percentile crew turnout performance is 75 percent slower than Citygate's recommended 2:00-minute goal. This performance can be improved through education and training.

Finding #15: 90th percentile first-unit travel time performance to fire and EMS incidents in 2023 was **5:40 minutes** and ranged from 3:56 (Station 75) to 7:08 minutes (Stations 8 and 40). Overall, first-unit travel performance is only 13 percent slower than OCFA's most recent administrative 5:00-minute goal and very good given the vast and challenging OCFA service area.

Finding #16: At **8:44 minutes**, OCFA's 90th percentile first-unit call-to-arrival performance was only 14 seconds slower than the Citygate-recommended 8:30-minute goal. It should be noted that the 8:30-minute goal could be met by reducing crew turnout performance closer to the Citygate-recommended 2:00-minute goal.

Finding #17: At **18:45 minutes** over the five-year study period, 90th percentile Effective Response Force (ERF or First Alarm) call-to-arrival performance was 7:15 minutes (63 percent) slower than the 11:30-minute Citygate-recommended goal.

2.8.3 Overall Deployment Recommendations

Based on the technical analysis and findings contained in this SOC, Citygate offers the following overall deployment recommendations:

Recommendation #1: Adopt Board of Directors Deployment Policies: The Board should adopt complete performance measures to aid deployment expansion and to monitor equity of performance across their diverse service area. Measures should be for both urban areas and areas of emerging growth. The measures of time should be designed to deliver outcomes that will save patients upon arrival when possible and keep small and expanding fires from becoming more serious. Citygate recommends the following measures:

1.1 Urban Areas – Distribution of Fire Stations: To treat pre-hospital medical emergencies and control small fires, the first-due unit should arrive within 8:30 minutes, 90 percent of the time, from receipt of the 9-1-1 call at fire dispatch. This equates to a 90-second dispatch time, a 2:00-minute company turnout time, and a 5:00-minute travel time.

1.2 Urban Areas – Multiple-Unit Effective Response Force (ERF) for Serious Emergencies: To confine building fires near the room of origin, keep vegetation fires under one acre in size, and treat multiple medical patients at a single incident, a *minimum* multiple-unit ERF of three engines, one ladder truck, and one Battalion Chief, totaling at least 17 personnel, should arrive within 11:30 minutes from the time of 9-1-1 call receipt at the fire dispatch center, 90 percent of the time. This equates to a 90-second dispatch time, a 2:00-minute company turnout time, and an 8:00-minute travel time.

1.3 Adopt a Crew Workload Measure unit-hour utilization (UHU) rate saturation point of no more than 30 percent over four consecutive hours or more of peak demand (0800–1800) on an annual basis.

1.4 Urban Areas – Hazardous Materials Response: To protect the Authority's service area from the hazards associated with uncontrolled release of hazardous and toxic materials, the nearest first-response fire unit should arrive in 8:30 minutes of 9-1-1 call receipt to assess the situation, isolate and deny entry, and determine the need for the Hazardous Materials Response Team.

1.5 Urban Areas – Technical Rescue: To provide technical rescue services as needed with enough trained personnel to facilitate a successful rescue, a multiple-unit ERF of at least 17 personnel, including on-duty technical rescue specialists and at least one chief officer, should be capable of responding throughout the District's service area within 11:30 minutes of 9-1-1 call receipt to facilitate safe rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

1.6 New Growth Areas – Adopt tiered deployment measures based on population density and community risks to control building fires from spreading to other buildings or to the wildland, controlling wildland fires from spreading to inhabited buildings, and minimizing permanent impairment from a medical emergency. The response time goals could be as follows:

1.6a When there are more than 10,000 residents in a contiguous area beyond a 5:00-minute travel time from a station, at that point have a fire station and crew operational.

1.6b In commercial-only areas, if there are more than 5,000 employees (or others) in a contiguous area beyond an 8:00-minute travel time from a station, at that point have a fire station and crew operational.

Recommendation #2: Through feedback and training, decrease crew turnout times to 2:00 minutes averaged over a 24-hour day.

Recommendation #3: Direct staff to return with a fiscal impact and implementation plan for the eight deployment enhancements as designed in this 2024 study:

- Enhancement #1 – Increase Staffing to Four Personnel and ALS on Five Engines
- Enhancement #2 – Build Temporary Station 12 – Add ALS Engine 12
- Enhancement #3 – Upgrade ALS Truck 45

- Enhancement #4 – Add ALS Truck 64 by Redeploying Engine 25
- Enhancement #5 – Exchange Locations – Truck 84 and Engine 85
- Enhancement #6 – Enhance Paramedic Depth and Reduce UHUs in Garden Grove
- Enhancement #7 – Enhance Paramedic Depth and Reduce UHUs in Santa Ana
- Enhancement #8 – Upgrade ALS Truck 22

APPENDIX A—RISK ASSESSMENT

A.1 COMMUNITY RISK ASSESSMENT

SOC ELEMENT 3 OF 8
COMMUNITY RISK ASSESSMENT

The third element of the Standards of Coverage (SOC) process is a community risk assessment. Within the context of an SOC study, the objectives of a community risk assessment are to:

- Identify the values at risk to be protected within the community or service area.
- Identify the specific hazards with the potential to adversely impact the community or service area.
- Quantify the overall risk associated with each hazard.
- Establish a foundation for current/future deployment decisions and risk-reduction/hazard-mitigation planning and evaluation.

A hazard is broadly defined as a situation or condition that can cause or contribute to harm. Examples include fire, medical emergency, vehicle collision, earthquake, flood, etc. Risk is broadly defined as the *probability of hazard occurrence* in combination with the *likely severity of resultant impacts* to people, property, and the community as a whole.

A.1.1 Risk Assessment Methodology

Citygate utilizes a three-axis model incorporating *probability of occurrence*, *impact extent*, and *consequence severity* parameters to assess community risks relative to specific hazard services provided by the fire agency. The process starts with identifying geographic planning sub-zones (risk planning zones) appropriate to the jurisdiction or service area. Citygate then identifies and quantifies, to the extent data is available, the specific values at risk. We then assign a risk score from 1 (lowest risk) to 6 (highest risk) to each hazard parameter using historical agency data or subjective analysis of local factors. The total risk score for each hazard is then calculated using a modification of Heron's Formula for calculating the area of a triangle, and a descriptive risk rating is then assigned based on the total risk score. This methodology conforms as applicable to this community/jurisdiction with the principles of NFPA 1300[8] and the Commission on Fire Accreditation International (CFAI).

[8] NFPA 1300 – Standard on Community Risk Assessment and Community Risk Reduction Plan Development (2020 Edition)

For this assessment, Citygate used the following data sources to understand the hazards and values to be protected within the OCFA service area:

- Esri and U. S. Census Bureau population and demographic data
- OCFA Geographical Information Systems (GIS) data
- General Plan and Zoning information
- County and OCFA Local Hazard Mitigation Plan
- Other OCFA/Cities data and information.

A.1.2 Risk Assessment Summary

Citygate's evaluation of the values at risk and hazards likely to impact the service area yields the following:

1. The Department serves a very diverse urban population with densities ranging from less than 3,000 to more than 24,000 people per square mile over a varied urban land use pattern.
2. The Department's service area population is projected to increase approximately 10 percent by 2040.
3. The service area has a large inventory of residential and non-residential buildings to protect.
4. The service area has significant economic and other resource values to be protected, as identified in this assessment.
5. The Department has multiple mass emergency notification options available to effectively communicate emergency information to the public in a timely manner.
6. The service area's risk for seven hazards related to emergency services provided by the Department range from **Low** to **Maximum** as summarized in the following table.

Table 28—Overall Risk by Planning Zone

Hazard	Planning Zone					
	Battalion 1	Battalion 2	Battalion 3	Battalion 4	Battalion 5	Battalion 6
Building Fire	*High*	*Moderate*	*Moderate*	*High*	*Moderate*	*Moderate*
Vegetation/Wildland Fire	Low	Maximum	Maximum	Maximum	Maximum	Maximum
Medical Emergency	*High*	*High*	*High*	*High*	*High*	*High*
Hazardous Material	*Moderate*	*Moderate*	*Moderate*	*Moderate*	*Moderate*	*Moderate*
Technical Rescue	*Moderate*	*Moderate*	*Moderate*	*Moderate*	*Moderate*	*Moderate*
Marine Incident	Moderate	Low	Low	Low	Moderate	Moderate
Aviation Incident	Low	Low	Low	Low	Moderate	Low

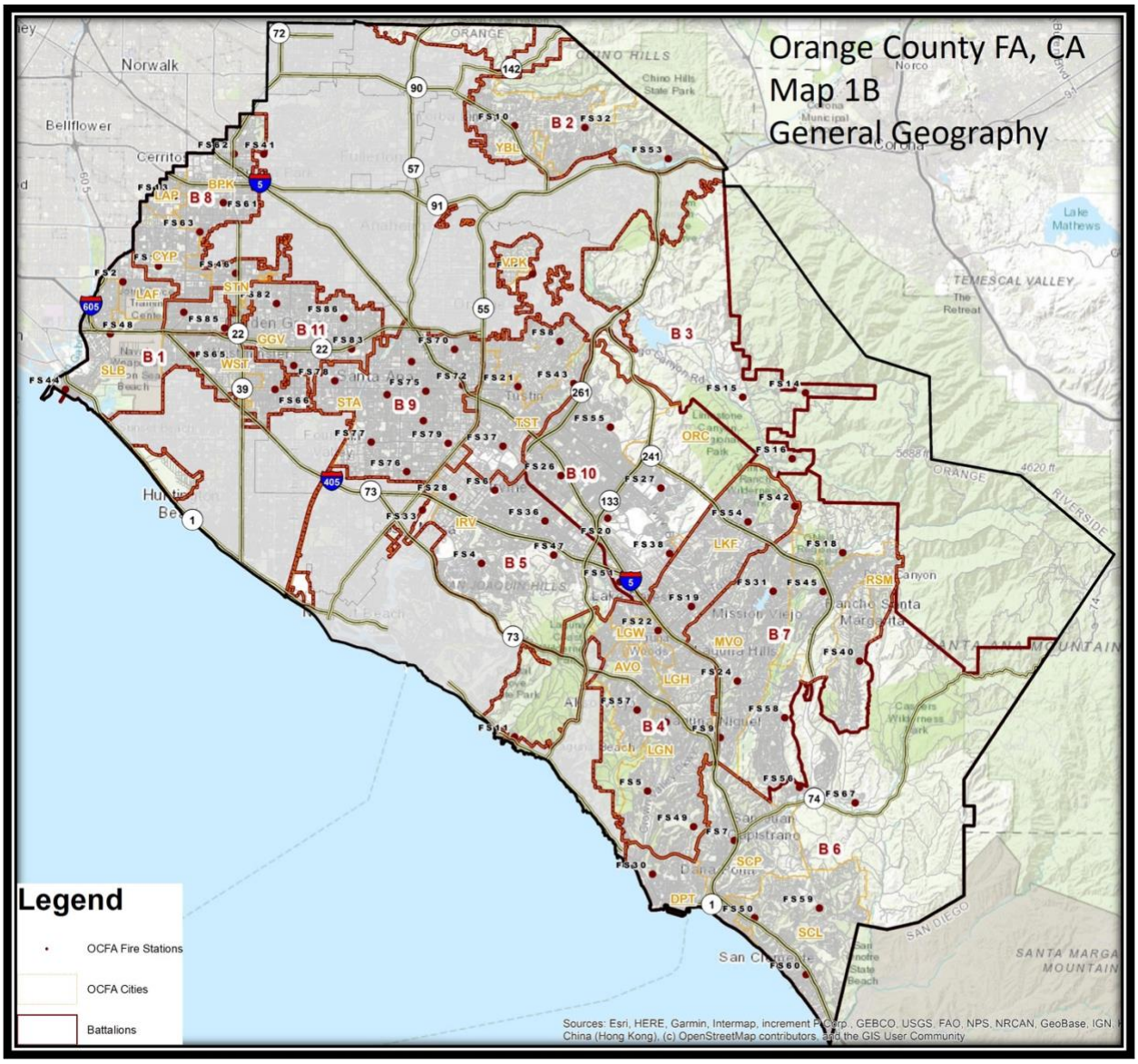
Hazard	Planning Zone				
	Battalion 7	Battalion 8	Battalion 9	Battalion 10	Battalion 11
Building Fire	*Moderate*	*High*	*High*	*Moderate*	*High*
Vegetation/Wildland Fire	High	Moderate	Moderate	High	Moderate
Medical Emergency	*High*	*High*	*High*	*High*	*High*
Hazardous Material	*Moderate*	*Moderate*	*High*	*Moderate*	*Moderate*
Technical Rescue	*Moderate*	*Moderate*	*High*	*Moderate*	*Moderate*
Marine Incident	Low	Moderate	Moderate	Low	Low
Aviation Incident	*Low*	*Low*	*Low*	*Low*	*Low*

A.1.3 Planning Zones

The Commission on Fire Accreditation International (CFAI) recommends jurisdictions establish geographic planning zones to better understand risk at a sub-jurisdictional level. For example, portions of a jurisdiction may contain predominantly moderate risk building occupancies, such as detached single-family residences, while other areas contain high- or maximum-risk occupancies, such as commercial and industrial buildings with a high hazard fire load. If risk were to be evaluated on a jurisdiction-wide basis, the predominant moderate risk could outweigh the high or maximum risk and may not be a significant factor in an overall assessment of risk. If, however, high- or maximum-risk occupancies are a larger percentage of the risk in a smaller planning zone, then they become a more significant risk factor. Another consideration in establishing planning zones is that the jurisdiction's record management system must also track the specific zone for each incident to appropriately evaluate service demand and response performance relative to each

specific zone. For this assessment, Citygate utilized 11 planning zones corresponding with OCFA operational battalions as shown on the following map.

Figure 22—Risk Planning Zones



A.1.4 Values at Risk to Be Protected

Values at risk, broadly defined, are tangibles of significant importance or value to the community or jurisdiction potentially at risk of harm or damage from a hazard occurrence. Values at risk typically include people, critical facilities/infrastructure, buildings, and key economic, cultural, historic, or natural resources.

People

Residents, employees, visitors, and travelers in a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those unable to care for themselves or self-evacuate in the event of an emergency. At-risk populations typically include children under the age of 10, the elderly, people housed in institutional settings, and households below the federal poverty level. The following table summarizes key demographic data for the OCFA service area.

Table 29—Key Demographic Data – OCFA Service Area

Demographic	2023
Population	**1,940,708**
Under 10 Years	11.70%
10–14 Years	6.51%
15–64 Years	66.00%
65–74 Years	9.19%
75 Years and Older	6.60%
Median Age	37.9
Daytime Population	1,915,688
Housing Units	**659,756**
Owner-Occupied	56.13%
Renter-Occupied	38.41%
Vacant	5.46%
Median Household Size	2.98
Median Home Value	$893,191
Ethnicity	
White Alone	39.66%
Black / African American Alone	1.61%
Asian Alone	26.59%
Other / Two or More Races	32.14%
Hispanic / Latino Origin	33.10%
Diversity Index	85
Education (Population over 24 Years of Age)	**1,288,385**
High School Graduate or Equivalent	43.64%
Undergraduate Degree	27.44%
Graduate/Professional Degree	16.51%
Employment (Population over 15 Years of Age)	**1,020,227**
In Labor Force	95.86%
Unemployed	4.14%
Median Household Income	$107,385
Population below Poverty Level	3.11%
Population with Disabilities	6.57%
Population Under Age 65 without Health Insurance	7.67%

Source: OCFA

Of note from the previous table is the following:

- Nearly 27.5 percent of the population is under 10 years or over 65 years of age.
- Of the population over 24 years of age, nearly 88 percent have completed high school or equivalency.
- Of the population over 24 years of age, more than 16 percent have a graduate or professional degree.
- Of the population 15 years of age or older, 96 percent are in the workforce; of those, 4 percent are unemployed.
- Median household income is slightly more than $107,000.
- The population below the federal poverty level is slightly more than 3 percent.
- Nearly 8 percent of the population under age 65 do not have health insurance coverage.
- Nearly 7 percent of the population have one or more disabilities.

Projected Growth

The Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Final Growth Forecast projects Orange County's total population will increase slightly more than 10 percent above the 2023 population.

Buildings

The service area includes nearly 660,000 residential housing units and a large inventory of non-residential buildings housing manufacturing, research, technology, office, professional services, wholesale/retail sales, restaurants/bars, motels, churches, schools, storage, government facilities, healthcare facilities, and other occupancy types.

Building Occupancy Risk Categories

The CFAI identifies the following four risk categories that relate to building occupancy:

Low Risk – includes detached garages, storage sheds, outbuildings, and similar building occupancies that pose a relatively low risk of harm to humans or the community if damaged or destroyed by fire.

Moderate Risk – includes detached single-family or two-family dwellings; mobile homes; commercial and industrial buildings smaller than 10,000 square feet without a high hazard fire load; aircraft; railroad facilities; and similar building occupancies where loss of life or property damage is limited to the single building.

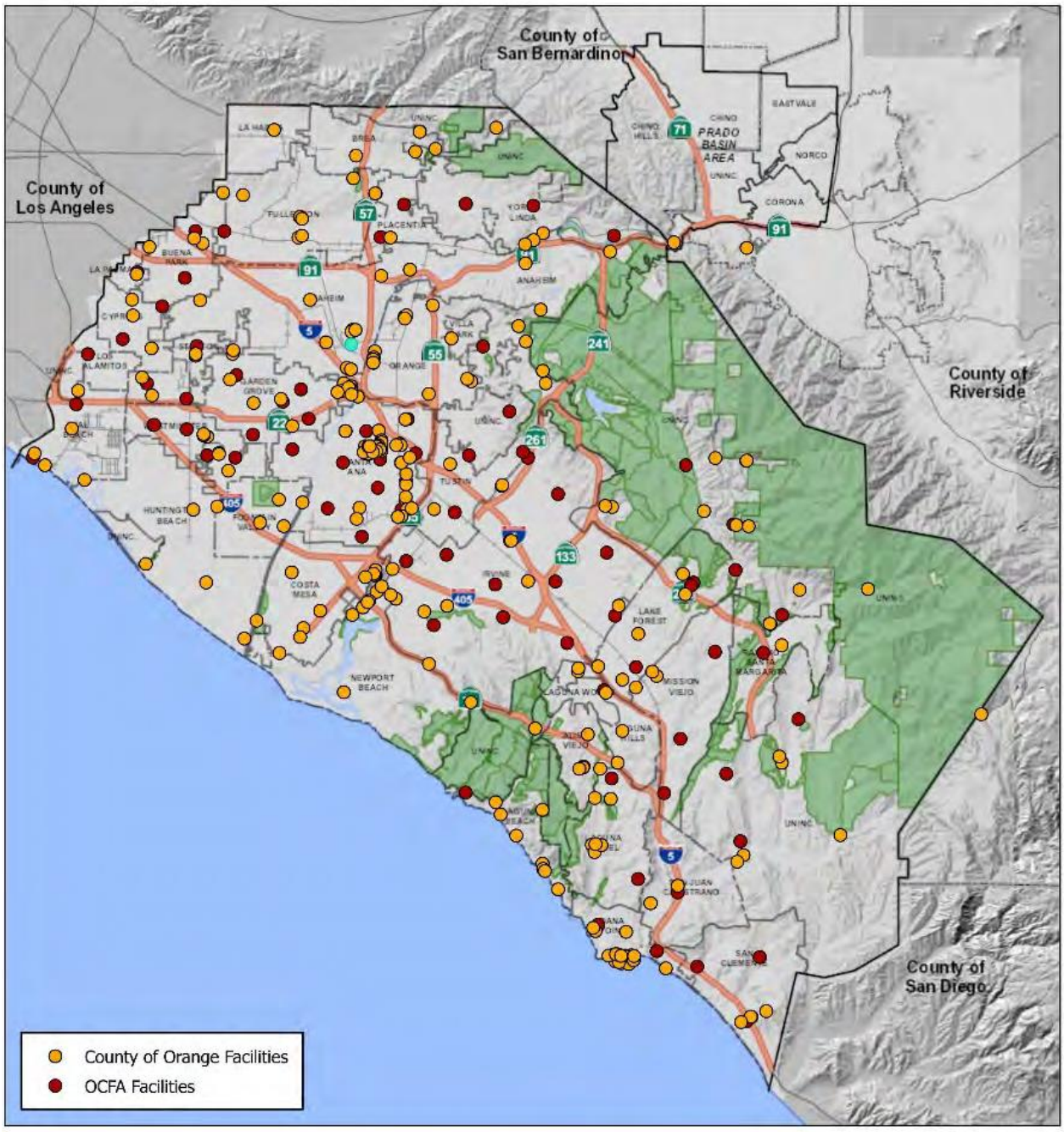
High Risk – includes apartment/condominium buildings; commercial and industrial buildings larger than 10,000 square feet without a high hazard fire load; low-occupant load buildings with high fuel loading or hazardous materials; and similar occupancies with potential for substantial loss of life or unusual property damage or financial impact.

Maximum Risk – includes buildings or facilities with unusually high risk requiring an Effective Response Force (ERF) involving a significant augmentation of resources and personnel and where a fire would pose the potential for a catastrophic event involving large loss of life or significant economic impact to the community.

Critical Facilities

The U.S. Department of Homeland Security defines critical infrastructure and key resources as those physical assets essential to the public health and safety, economic vitality, and resilience of a community, such as lifeline utilities infrastructure, telecommunications infrastructure, essential government services facilities, public safety facilities, schools, hospitals, airports, etc. The Orange County and OCFA Local Hazard Mitigation Plan identifies 249 critical facilities/infrastructure within the OCFA service area as shown on the following map. A hazard occurrence with significant consequence severity affecting one or more of these facilities would likely adversely impact critical public or community services.

Figure 23—Critical Facilities/Infrastructure



Economic Resources

Key economic sectors include entertainment, education, government, healthcare, retail sales, and tourism.[9] Key employers include:

[9] Source: 2022/23 County of Orange Annual Comprehensive Financial Report

- The Walt Disney Company
- University of California, Irvine
- County of Orange
- Providence of Southern California
- Kaiser Permanente
- Hoag Memorial Hospital Presbyterian
- Albertsons
- Target Corp.
- Allied Universal
- Walmart, Inc.

Natural Resources

Key natural resources within the service area include:

- Limestone Canyon Nature Preserve
- Crystal Cove State Park
- Niguel Botanical Preserve
- Ronald W. Caspers Wilderness Park
- Santa Ana Mountains
- More than 40 miles of Pacific Ocean coastline
- Santa Ana River
- Seal Beach Wildlife Refuge
- Irvine Ranch

Cultural/Historic Resources

Key cultural/historic resources within the service area include:

- Richard Nixon Presidential Library and Museum

- Mission San Juan Capistrano
- City libraries
- The Modjeska House
- Ronald Reagan Federal Building and Courthouse
- The Balboa Pavilion
- The Huntington Beach Pier
- Segerstrom Center for the Arts
- Yost Theater
- Bowers Museum
- Crystal Cove Historic District

Special/Unique Resources

The following facilities are special or unique resources to be protected:

- John Wayne International Airport
- University of California, Irvine
- Chapman University
- Disneyland
- Knott's Berry Farm
- Angel Stadium
- Beaches

A.1.5 Hazard Identification

Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and agency/jurisdiction-specific data and information to identify the hazards to be evaluated for this study. The 2021 County of Orange and Orange County Fire Authority Local Hazard Mitigation Plan (LHMP) identifies the following nine hazards likely to impact the service area:

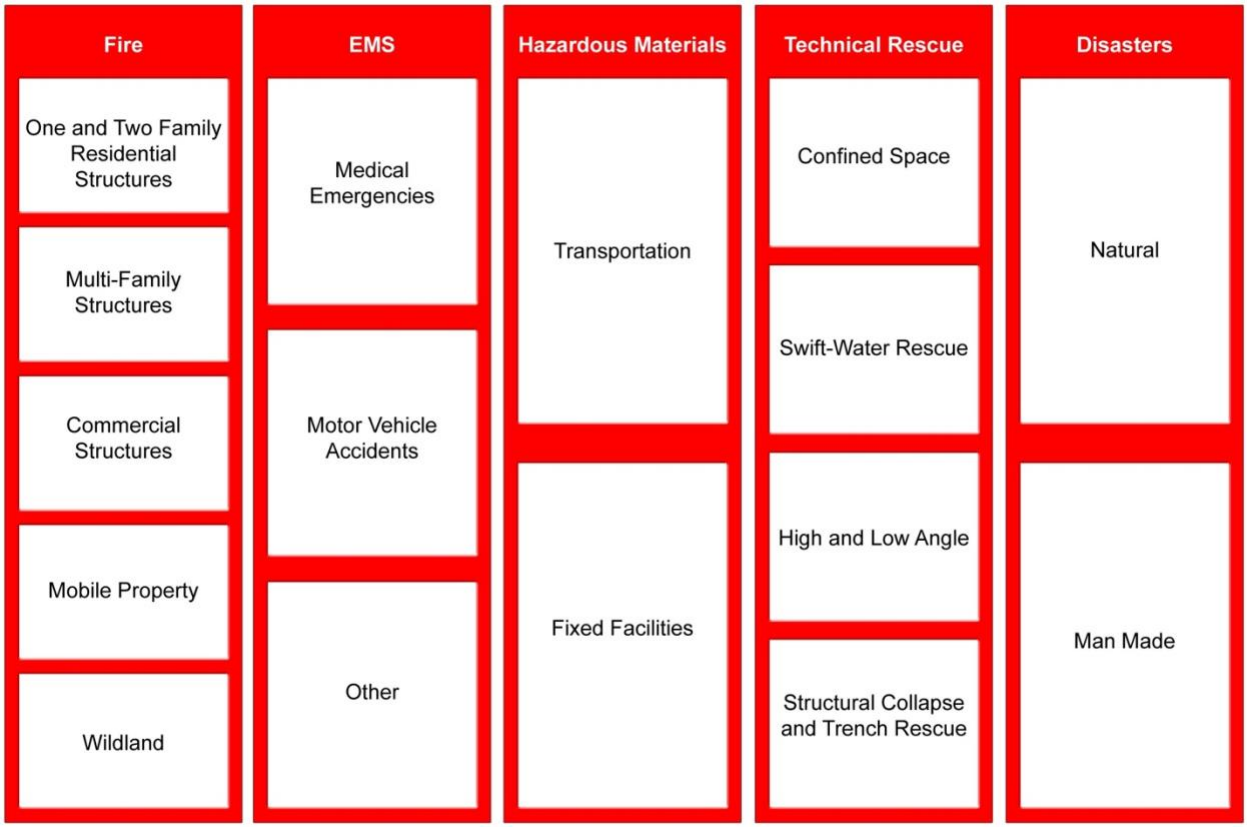
1. Earthquake

2. Flood-Storm
3. Wildland and Urban Fire
4. Climate Change
5. Dam/Levee/Reservoir Failure
6. Epidemic
7. Drought
8. Tsunami
9. Landslide/Mudslide/Debris Flow

Although OCFA has no legal authority or responsibility to mitigate any hazards other than possibly for wildfire, it does provide services related to many of the identified hazards, including fire suppression, emergency medical services, technical rescue, and hazardous materials response.

The CFAI groups hazards into fire and non-fire categories, as shown in the following figure. Identification, qualification, and quantification of the various fire and non-fire hazards are important factors in evaluating how resources are or can be deployed to mitigate those risks.

Figure 24—Commission on Fire Accreditation International Hazard Categories



Source: CFAI *Standards of Cover* (Fifth Edition).

Subsequent to review and evaluation of the hazards identified in the 2021 LHMP and the fire and non-fire hazards as identified by the CFAI as they relate to services provided by OCFA, Citygate evaluated the following seven hazards for this risk assessment:

1. Building fire
2. Vegetation/wildland fire
3. Medical emergency
4. Hazardous material release/spill
5. Technical rescue
6. Marine incident
7. Aviation incident

A.1.6 Service Capacity

Service capacity refers to an agency's available response force; the size, types, and condition of its response fleet and any specialized equipment; core and specialized performance capabilities and competencies; resource distribution and concentration; availability of automatic or mutual aid; and any other agency-specific factors influencing its ability to meet current and prospective future service demand and response performance relative to the risks to be protected.

OCFA's operational response services are organized into seven divisions and 11 subordinate battalions with a total of 78 fire stations. The primary staffed first-response units include 68 engine companies, 18 truck companies, and another 10 specialty apparatus, including three Aircraft Rescue Fire Fighting (ARFF) units at John Wayne International Airport. OCFA also has additional response units for wildland fires, hazardous material spills/releases, urban search and rescue (USAR), incident support, and other special hazards or uses that can be staffed with on-duty or call-back personnel as needed.

All response personnel are trained to either the Emergency Medical Technician (EMT) level, capable of providing Basic Life Support (BLS) pre-hospital emergency medical care, or EMT-Paramedic (Paramedic) level, capable of providing Advanced Life Support (ALS) pre-hospital emergency medical care. OCFA employs 722 paramedics of all ranks and another 523 Emergency Medical Technicians (EMTs). Ground paramedic ambulance service is provided by either Falck or Emergency Ambulance Service, private-sector ambulance providers operating under an exclusive operating area contracts administered by the Orange County Health Care Agency or the five legacy rights transport contract cities.

Response personnel are also trained to the U.S. Department of Transportation Hazardous Material First Responder Operational (FRO) level to provide initial hazardous material incident assessment, hazard isolation, and support the Department's hazardous material response teams. The Department staffs 12 daily personnel trained to the Hazardous Materials Specialist or Technician level to cross-staff the Department's Type-1 Hazardous Materials Response Units at Station 20 in Irvine and Station 79 in Santa Ana.

All response personnel are further trained to the Confined Space Awareness and Low Angle Rope Rescue Operations levels, with some specialty personnel also trained to the Trench Rescue Technician level, Confined Space / USAR Technician level, high-angle rope rescue, heavy machinery rescue, and heavy vehicle extrication level to staff the heavy rescue at Station 6 in Irvine and the technical rescue trucks at Stations 32, 56, and 61.

A.1.7 Probability of Occurrence

Probability of occurrence refers to the probability of a future hazard occurrence over a specific time. Because the CFAI agency accreditation process requires annual review of an agency's risk assessment and baseline performance measures, Citygate recommends using the 12 months

following the completion of an SOC study as an appropriate period for the probability of occurrence evaluation. The following table describes the six probability of occurrence categories and related characteristics used for this analysis.

Table 30—Probability of Occurrence Categories

Probability	Characteristics	Expected Occurrence Interval	Approximate Annual Occurrences	Risk Score
Rare	• Hazard ***may occur*** rarely under unusual conditions.	> 10 years	0	**1**
Unlikely	• Hazard **could *occur*** infrequently. • No recorded or anecdotal evidence of occurrence. • Little opportunity, reason, or means for hazard to occur.	2–10 years	0–1	**2**
Possible	• Hazard ***might occur*** occasionally. • Infrequent, random recorded or anecdotal evidence of occurrence. • Some opportunity, reason, or means for hazard to occur.	3–23 months	1–11	**3**
Probable	• Hazard ***should occur.*** • Recorded or anecdotal evidence of occurrence. • Reasonable opportunity, reason, or means for hazard to occur.	2–8 weeks	12–51	**4**
Regular	• Hazard ***will occur*** regularly. • Regular recorded or strong anecdotal evidence of occurrence. • Considerable opportunity, reason, or means for hazard to occur.	Daily to weekly	52–350	**5**
Frequent	• Hazard ***does occur*** frequently. • High level of recorded or anecdotal evidence of regular occurrence. • Strong opportunity, reason, or means for hazard to occur. • Frequent hazard recurrence.	Multiple Times Daily	>350	**6**

Citygate's SOC assessments use recent multiple-year hazard response data to determine the probability of hazard occurrence for the ensuing 12-month period.

A.1.8 Impact Extent

Impact extent refers to the probable geographic area and/or number of persons likely to be impacted by a specific hazard occurrence. The following table describes the five impact extent categories and general characteristics used for this analysis.

Table 31—Impact Extent Categories

Category	General Characteristics	Risk Score
Negligible	• Less than five acres and/or no persons likely impacted	**1**
Limited	• Less than one percent of planning area or planning area population likely impacted	**2**
Moderate	• One to five percent of planning area or planning area population likely impacted	**3**
Significant	• 5–25 percent of planning area or planning area population likely impacted	**4**
Extensive	• More than 25 percent of planning area or planning area population likely impacted	**5**

A.1.9 Consequence Severity

Consequence severity refers to the probable magnitude or reasonably expected loss of a hazard occurrence on people, buildings, lifeline services, the environment, and the community as a whole. The following table describes the five consequence severity categories and general characteristics used for this analysis.

Table 32—Impact Severity Categories

Category	General Characteristics	Risk Score
Insignificant	• No injuries or fatalities • None to few persons displaced for short duration • Little or no personal support required • None to inconsequential damage • None to minimal community disruption • No measurable environmental impacts • None to minimal financial loss • No wildland Fire Hazard Severity Zones	**1**
Minor	• Few injuries; no fatalities; minor medical treatment only • Some displacement of persons for less than 24 hours • Some personal support required • Some minor damage • Minor community disruption of short duration • Small environmental impacts with no lasting effects • Minor financial loss • No wildland Fire Hazard Severity Zones	**2**
Moderate	• Medical treatment may be required with some hospitalizations and/or fatalities • Localized displaced of persons for less than 24 hours • Personal support satisfied with local resources • Localized damage • Normal community functioning with some inconvenience • No measurable environmental impacts with no long-term effects, or small impacts with long-term effect • Moderate financial loss • Less than 25% of area in *Moderate* or *High* wildland FHSZ	**3**
Major	• Many injuries, hospitalizations, and fatalities expected • Large number of persons displaced for more than 24 hours • External resources required for personal support • Significant damage • Significant community disruption; some services not available • Some impact to environment with long-term effects • Major financial loss with some financial assistance required • More than 25% of area in *Moderate* or *High* wildland FHSZ; less than 25% in *Very High* wildland FHSZ	**4**
Extreme	• Extensive casualties and/or fatalities impacting local medical care system • General displacement for extended duration • Extensive support required • Extensive damage • Significant impact to environment and/or permanent damage • Catastrophic financial loss; unable to function without significant fiscal support • More than 50% of area in *High* wildland FHSZ; more than 25% of area in *Very High* wildland FHSZ	**5**

A.1.10 Overall Risk

Overall risk considers *probability of occurrence*, likely *impact extent*, and typically expected *consequence severity* as follows.

Total Risk Score

A total risk score is computed using the following modification of Heron's Formula.

$$\text{Total Risk Score} = \sqrt{\frac{(\text{Probability x Consequence Severity})^2 + (\text{Consequence Severity x Impact Extent})^2 + (\text{Impact Extent x Probability})^2}{2}}$$

Risk Category

A descriptive risk category is then assigned using the total risk score according to the following table.

Table 33—Overall Risk Categories

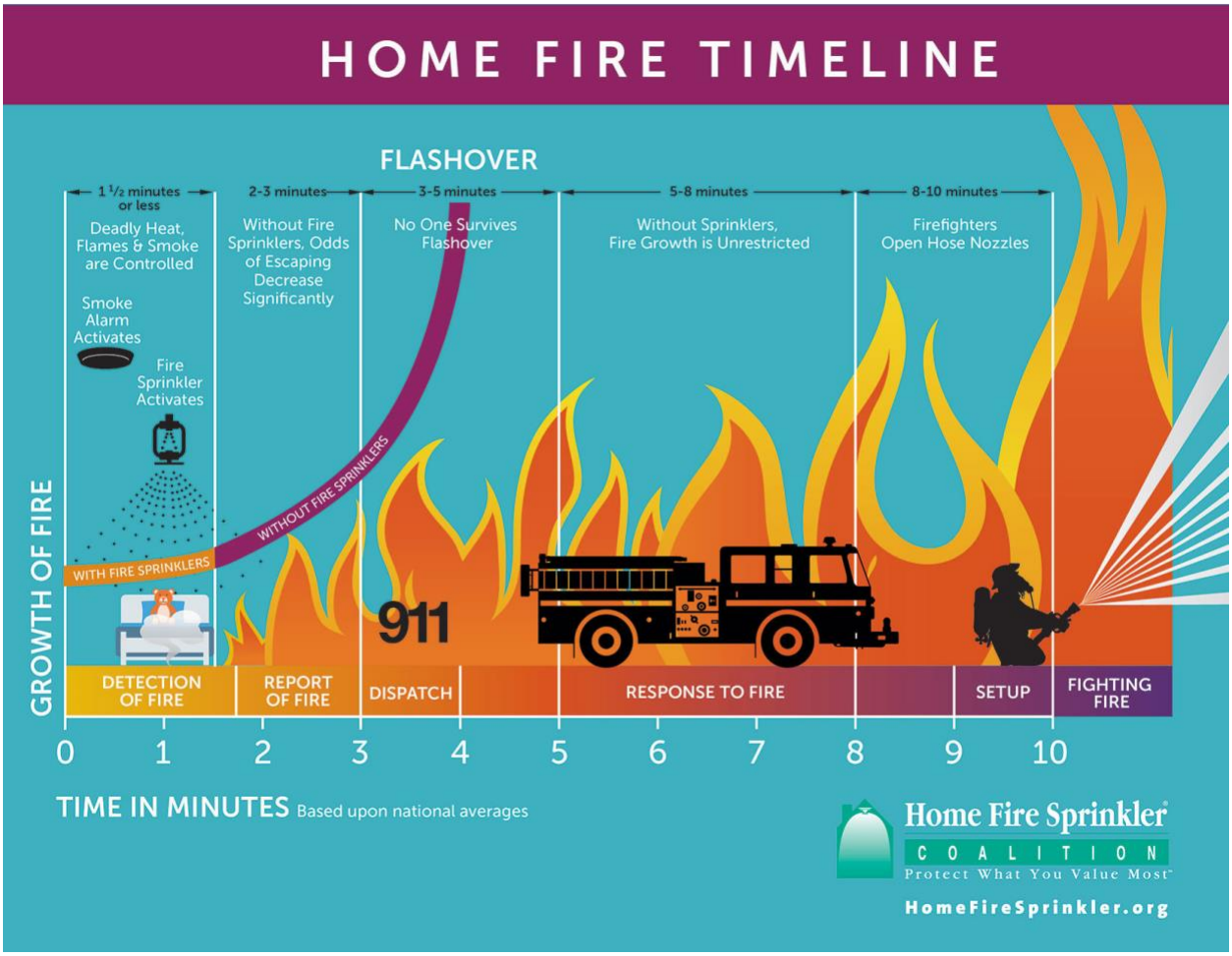
Total Risk Score	Risk Category
< 8.0	Low
8.0–12.99	Moderate
13.0–18.99	High
> 19.0	Maximum

A.1.11 Building Fire Risk

One of the primary hazards in any community is building fire. Building fire risk factors include building size, age, construction type, density, occupancy, and height above ground level; required fire flow; proximity to other buildings; built-in fire protection/alarm systems; available fire suppression water supply; building fire service capacity; and fire suppression resource deployment (distribution/concentration), staffing, and response time. Citygate used available data from OCFA and the U.S. Census Bureau to assist in determining the service area's building fire risk.

The following figure illustrates the building fire progression timeline and shows that flashover, which is the point at which the entire room erupts into fire after all the combustible objects in that room reach their ignition temperature, can occur as early as three to five minutes from the initial ignition. Human survival in a room after flashover is extremely improbable.

Figure 25—Building Fire Progression Timeline



Source: http://www.firesprinklerassoc.org.

Population Density

Population density within the service area ranges from less than 3,000 to more than 24,000 people per square mile.[10] Although risk analysis across a wide spectrum of other Citygate clients shows no direct correlation between population density and building fire *occurrence*, it is reasonable to conclude that building fire *risk* relative to potential impact on human life is greater as population density increases, particularly in areas with high density, multiple-story buildings.

Water Supply

A reliable public water system providing adequate volume, pressure, and flow duration in close proximity to all buildings is a critical factor in mitigating the potential consequence severity of a community's building fire risk. Potable water for the service area is provided by 40 water

[10] Source: OCFA GIS Section

purveyors including cities, water districts, and private water companies. According to OCFA staff, available fire flow volume and pressure are adequate throughout the service area except for areas without fire hydrants.

Building Fire Service Demand

For the five-year period from January 1, 2019, through December 31, 2023, OCFA experienced 3,335 building fire incidents throughout its service area comprising 0.41 percent of total service demand over the same period, as summarized in the following table.

Table 34—Building Fire Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Building Fire	2019	76	36	32	74	64	35	19
	2020	52	30	28	67	39	36	13
	2021	45	24	15	60	39	38	17
	2022	53	27	22	47	41	30	25
	2023	42	17	27	52	43	26	12
	Total	**268**	**134**	**124**	**300**	**226**	**165**	**86**
Percent Total Battalion Demand		0.35%	0.47%	0.35%	0.26%	0.40%	0.24%	0.14%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Building Fire	2019	54	111	35	21	160	**717**	0.47%
	2020	57	110	25	68	136	**661**	0.44%
	2021	58	143	31	72	145	**687**	0.42%
	2022	53	132	32	67	142	**671**	0.38%
	2023	50	111	27	81	111	**599**	0.34%
	Total	**272**	**607**	**150**	**309**	**694**	**3,335**	**0.41%**
Percent Total Battalion Demand		0.34%	0.40%	0.35%	0.40%	2.97%		

As the table shows, annual building fire service demand fluctuated by up to nearly 13 percent annually; however, overall building fire service demand decreased 16.5 percent over the five-year period.

Building Fire Risk Analysis

The following table summarizes Citygate's analysis of OCFA's building fire risk by battalion.

Table 35—Building Fire Risk Analysis

Building Fire Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	6	4	4	6	4	4
Impact Extent	2	2	2	2	2	2
Consequence Severity	3	3	3	3	3	3
Total Risk Score	15.87	11.05	11.05	15.87	11.05	11.05
Risk Rating	High	Moderate	Moderate	High	Moderate	Moderate

Building Fire Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	4	6	6	4	6
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	11.05	15.87	15.87	11.05	15.87
Risk Rating	Moderate	High	High	Moderate	High

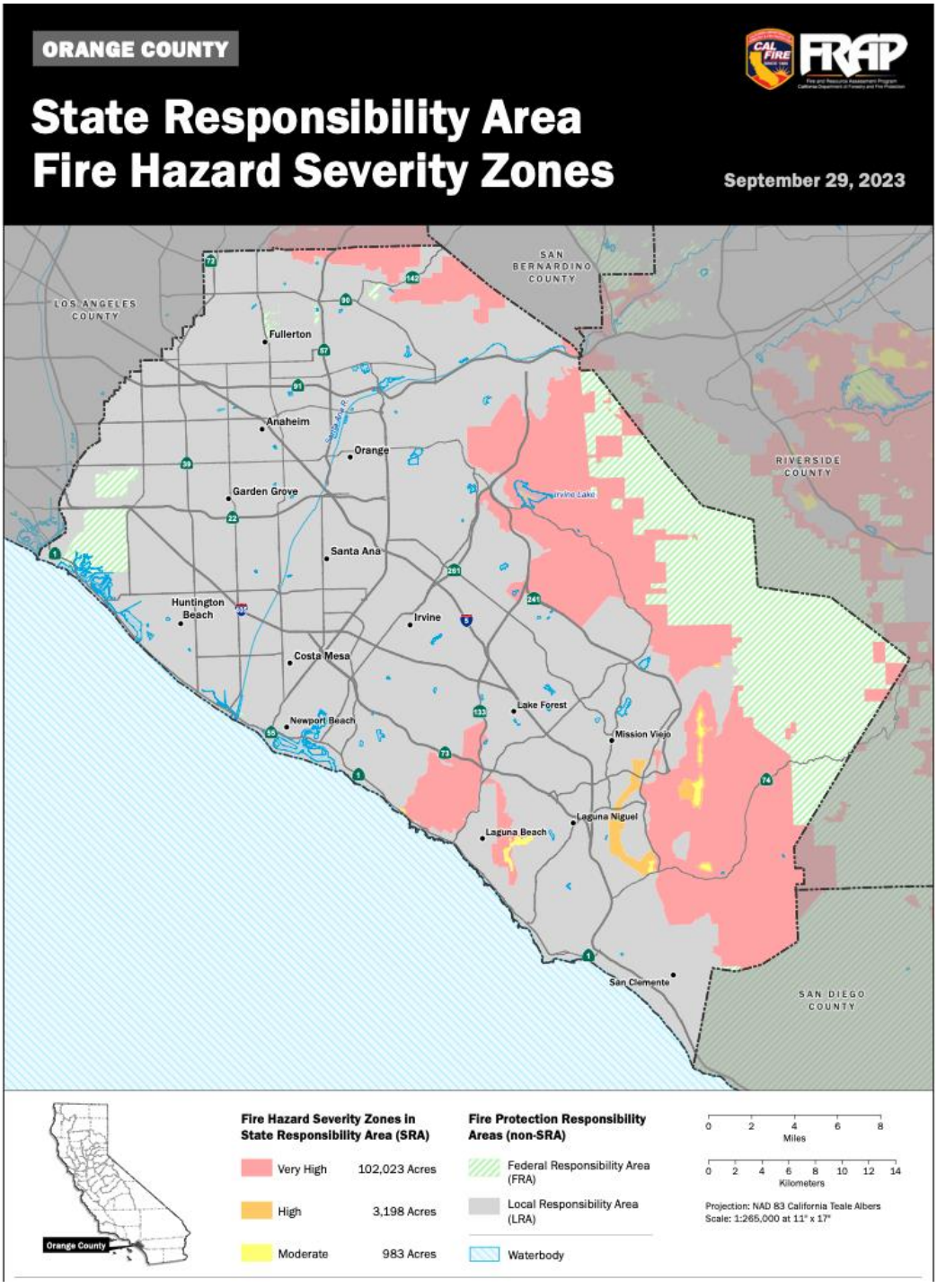
A.1.12 Vegetation/Wildland Fire Risk

Many areas within and adjacent to OCFA's service area are susceptible to a vegetation/wildland fire. Vegetation/wildland fire risk factors include vegetative fuel types and configuration, weather, topography, prior fires, water supply, mitigation measures, and vegetation/wildland fire service capacity.

Wildland Fire Hazard Severity Zones

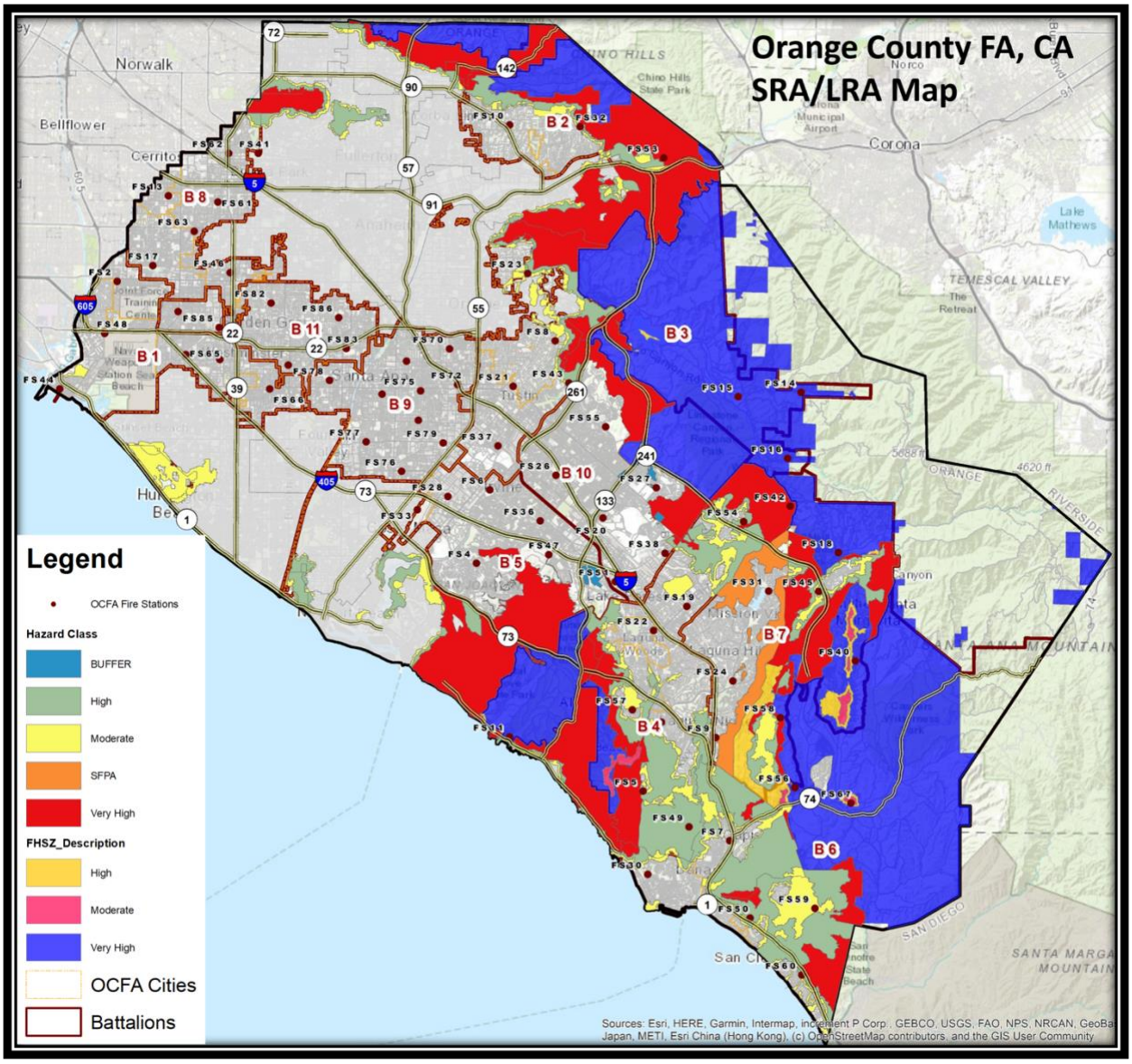
The California Department of Forestry and Fire Protection (CAL FIRE) designates wildland Fire Hazard Severity Zones (FHSZ) throughout the state based on analysis of multiple wildland fire hazard factors and modeling of potential wildland fire behavior. For State Responsibility Areas (SRAs) where CAL FIRE has fiscal responsibility for wildland fire protection, CAL FIRE designates Moderate, High, and Very High FHSZs by county, as shown in yellow, orange, and red, respectively, in the following map for Orange County.

Figure 26—SRA Wildland Fire Hazard Severity Zones – Orange County



CAL FIRE also identifies recommended ***Very High*** FHSZs for Local Responsibility Areas (LRAs) where the local jurisdiction is responsible for wildland fire protection, including incorporated cities. The following map shows both SRA and LRA FHSZs for Orange County.

Figure 27—LRA and SRA Wildland Fire Hazard Severity Zones – Orange County



Vegetative Fuels

Vegetative fuel factors influencing fire intensity and spread include fuel type (vegetation species), height, arrangement, density, and moisture. In addition to decorative landscape species, vegetative fuels within the service area consist of a mix of annual grasses and weeds, brush, chaparral, scrub, and mixed deciduous and conifer tree species. Once ignited, vegetation fires can burn intensely and contribute to rapid fire spread under the right fuel, weather, and topographic conditions.

Weather

Weather elements, including temperature, relative humidity, wind, and lightning, also affect vegetation/wildland fire potential and behavior. High temperatures and low relative humidity dry out vegetative fuels, creating a situation where fuels will more readily ignite and burn more intensely. Wind is the most significant weather factor influencing vegetation/wildland fire behavior, with higher wind speeds increasing fire spread and intensity. Orange County is known for its generally mild weather and Mediterranean climate characterized by relatively small changes in seasonal temperatures and dry summers with rainy winters; however, temperatures can vary significantly from the coast to inland areas, and annual rainfall can also have wide variation. Santa Ana Winds, also called foehn winds, are strong, extremely dry winds that blow down the lee side of a mountain range, becoming stronger and drier further downslope. These winds generally occur from September to May in Orange County but can also occur at other times of the year as well, fueling extreme wildland fire behavior.

Topography

Vegetation/wildland fires tend to burn more intensely and spread faster when burning uphill and up-canyon, except for a wind-driven downhill or down-canyon fire. The topography of OCFA's service area ranges from sea level to more than 4,000 feet. The Santa Ana Mountains, which extend along the eastern and southeastern sides of the service area, have steep peaks and deep canyons supporting an abundance of plant species that, under the right weather conditions, contribute to extreme fire behavior.

Water Supply

Another significant vegetation fire consequence severity factor is water supply immediately available for fire suppression. According to OCFA staff, available fire flow volume and pressure are adequate throughout the service area except for areas without fire hydrants.

Wildland Fire History

Wildland fires are a significant risk in Orange County with its warm, dry summer weather and high fall winds creating prime conditions for extreme fire behavior. While the traditional wildland fire season ran from May through September, the County has experienced some of its most devastating wildland fires over the past 15 years between October and April. According to the 2016 OCFA Unit Plan, 60 percent of the wildland vegetation has experienced at least one catastrophic fire within the previous decade, and the following table summarizes large wildland fires that have occurred since 2000.

Table 36—Recent Large Wildland Fire History[11]

Year	Fire Name	Acres Burned
2002	Green	2,234
2002	Antonio	1,480
2006	Sierra Peak	10,515
2007	241	1,618
2008	Freeway Complex	30,305
2014	Silverado	968
2017	Canyon I	2,661
2017	Canyon II	9,217
2018	Aliso	176
2018	Holy	23,116
2020	Silverado	12,465
2020	Blue Ridge	13,694
2020	Bond	6,680

Vegetation/Wildland Fire Hazard Mitigation

Hazard mitigation refers to specific actions or measures taken to prevent a hazard from occurring or to minimize the severity of impacts resulting from a hazard occurrence. While none of the hazards subject to this study can be entirely prevented, measures *can* be taken to minimize the impacts when those hazards do occur. In addition to requiring fire-resistive construction materials and methods in High Fire Hazard Areas, the OCFA's Wildland Pre-Fire Management Section of its Community Risk Reduction Division developed a Community Wildfire Protection Plan (CWPP) Update in 2021 in conformance with the Healthy Forest Restoration Act guidelines to provide stakeholders with an overview of the wildland fire risks, hazards, and values within the planning area; recommend strategies to reduce the impacts of wildland fires; and develop and implement an action plan. The 2021 CWPP Update is a multi-year plan that identifies six strategies and a detailed Action Plan to achieve those strategies to reduce the incidence and impacts of a wildland fire within its service area.

Vegetation/Wildland Fire Service Demand

Over the five-year study period, OCFA experienced 1,002 vegetation/wildfires comprising 0.12 percent of total service demand over the same period, as summarized in the following table.

[11] Source: County of Orange and Orange County 2021 Local Hazard Mitigation Plan, Table 7

Table 37—Vegetation/Wildland Fire Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Vegetation/Wildland Fire	2019	6	8	4	7	1	10	3
	2020	10	9	10	14	8	11	6
	2021	10	6	18	24	13	18	2
	2022	11	7	7	20	10	16	7
	2023	11	9	7	13	9	11	5
	Total	**48**	**39**	**46**	**78**	**41**	**66**	**23**
Percent Total Battalion Demand		0.06%	0.14%	0.13%	0.07%	0.07%	0.10%	0.04%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Vegetation/Wildland Fire	2019	5	18	3	2	40	**107**	0.07%
	2020	28	60	9	27	43	**235**	0.16%
	2021	30	64	16	31	46	**278**	0.17%
	2022	30	62	8	35	21	**234**	0.13%
	2023	14	28	6	20	15	**148**	0.08%
	Total	**107**	**232**	**42**	**115**	**165**	**1,002**	**0.12%**
Percent Total Battalion Demand		0.13%	0.15%	0.10%	0.15%	0.71%		

As the table shows, annual vegetation/wildland fire service demand fluctuates from year to year; however, overall demand increased slightly more than 38 percent over the five-year period.

Vegetation/Wildland Fire Risk Analysis

The following table summarizes Citygate's analysis of OCFA's vegetation/wildland fire risk by battalion.

Table 38—Vegetation/Wildland Fire Risk Analysis

Vegetation/Wildland Fire Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	3	3	3	4	3	4
Impact Extent	2	4	4	4	4	4
Consequence Severity	2	5	5	5	5	5
Total Risk Score	6.63	19.61	19.61	22.98	19.61	22.98
Overall Risk Rating	Low	Maximum	Maximum	Maximum	Maximum	Maximum

Vegetation/Wildland Fire Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	3	4	4	3	4
Impact Extent	3	2	2	3	2
Consequence Severity	5	3	2	4	2
Total Risk Score	16.29	11.05	8.49	13.58	8.49
Overall Risk Rating	High	Moderate	Moderate	High	Moderate

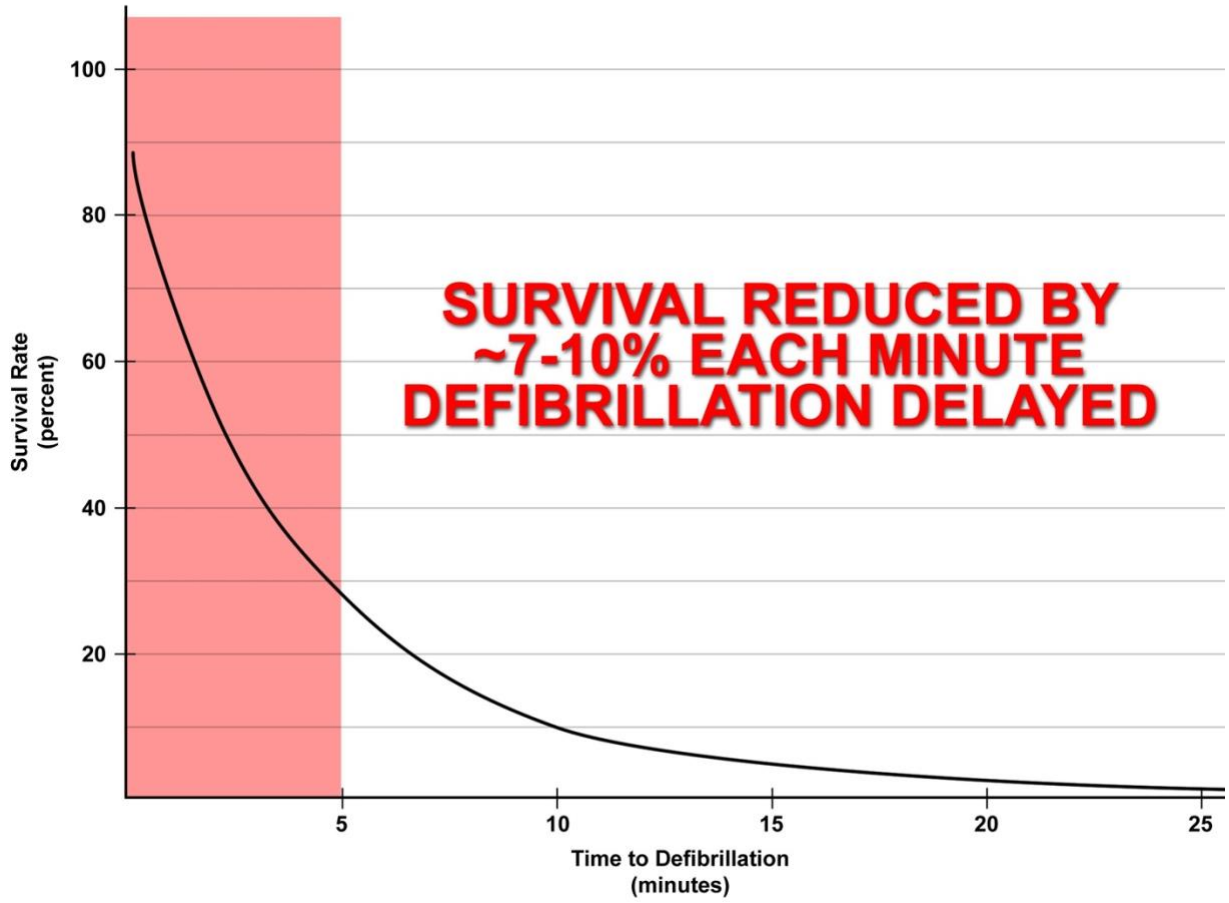
A.1.13 Medical Emergency Risk

Medical emergency risk in most communities is predominantly a function of population density, demographics, violence, health insurance coverage, and vehicle traffic.

Medical emergency risk can also be categorized as either a medical emergency resulting from a traumatic injury or a health-related condition or event. Cardiac arrest is one serious medical emergency among many where there is an interruption or blockage of oxygen to the brain.

The following figure illustrates the reduced survivability of a cardiac arrest victim as time to defibrillation increases. While early defibrillation is one factor in cardiac arrest survivability, other factors can influence survivability as well, such as early CPR and pre-hospital advanced life support interventions.

Figure 28—Survival Rate versus Time to Defibrillation



Source: www.suddencardiacarrest.org.

Population Density

Population density in the service area ranges from less than 3,000 to more than 24,000 people per square mile, as shown in Map #2 (**Volume 2—Map Atlas**). Risk analysis across a wide spectrum of other Citygate clients shows a direct correlation between population density and the *occurrence* of medical emergencies, particularly in high urban population density zones.

Demographics

Medical emergency risk tends to be higher among older, poorer, less educated, and uninsured populations. As shown in Table 29, nearly 16 percent of the service area population is 65 and older; slightly more than 12 percent of the population over 24 years of age has less than a high school education or equivalent; just over 3 percent of the population is at or below poverty level;

and slightly more than 7.5 percent of the population under age 65 does not have health insurance coverage.[12]

Vehicle Traffic

Medical emergency risk tends to be higher in areas of a community with high daily vehicle traffic volume, particularly areas with high traffic volume traveling at high speeds. OCFA's transportation network includes Highways 1, 5, 22, 39, 55, 57, 73, 74, 90, 91, 133, 142, 241, 261, and 405 carrying an aggregate annual average daily traffic volume of more than 2.48 million vehicles.[13]

Medical Emergency Service Demand

Medical emergency service demand over the five-year study period includes more than 600,000 calls for service comprising nearly 75 percent of total service demand over the same period, as summarized in the following table.

[12] Source: OCFA
[13] Source: California Department of Transportation (2021 data)

Table 39—Medical Emergency Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Medical Emergency	2019	12,064	3,614	5,352	16,508	7,896	9,813	8,826
	2020	10,833	3,511	4,623	14,534	6,230	9,219	7,979
	2021	11,454	4,053	5,361	17,438	7,180	10,119	8,851
	2022	12,638	4,594	5,796	19,237	8,302	11,138	10,050
	2023	12,378	4,704	5,651	19,315	8,426	11,234	9,445
	Total	**59,367**	**20,476**	**26,783**	**87,032**	**38,034**	**51,523**	**45,151**
Percent Total Battalion Demand		77.16%	72.50%	74.86%	76.07%	67.06%	74.49%	76.05%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Medical Emergency	2019	12,598	23,193	5,881	4,795	5,419	**115,959**	76.57%
	2020	10,945	21,151	5,076	12,736	2,660	**109,497**	73.70%
	2021	12,082	21,961	5,983	14,121	1,341	**119,944**	74.18%
	2022	13,328	23,154	6,558	15,321	1,498	**131,614**	75.07%
	2023	12,944	23,517	6,855	15,304	1,773	**131,546**	74.10%
	Total	**61,897**	**112,976**	**30,353**	**62,277**	**12,691**	**608,560**	**74.71%**
Percent Total Battalion Demand		77.47%	75.15%	71.39%	80.07%	54.28%		

As the table shows, medical emergency service demand varies substantially by planning zone; however, overall medical emergency service demand increased 13.4 percent over the five-year study period.

Medical Emergency Risk Analysis

The following table summarizes Citygate's analysis of OCFA's medical emergency risk by battalion.

Table 40—Medical Emergency Risk Analysis

Medical Emergency Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	6	6	6	6	6	6
Impact Extent	2	2	2	2	2	2
Consequence Severity	3	3	3	3	3	3
Total Risk Score	15.87	15.87	15.87	15.87	15.87	15.87
Overall Risk Rating	High	High	High	High	High	High

Medical Emergency Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	6	6	6	6	6
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	15.87	15.87	15.87	15.87	15.87
Overall Risk Rating	High	High	High	High	High

A.1.14 Hazardous Material Risk

Hazardous material risk factors include fixed facilities that store, use, or produce hazardous chemicals or waste; underground pipelines conveying hazardous materials; aviation, railroad, maritime, and vehicle transportation of hazardous commodities into or through a jurisdiction; vulnerable populations; emergency evacuation planning and related training; and specialized hazardous material service capacity.

Fixed Hazardous Material Facilities

The Orange County Environmental Health Division identified 83 sites requiring a state hazardous material operating permit, and 8,500 sites with a Hazardous Materials Business Plan. In addition, high-pressure natural gas distribution pipelines are located throughout the service area.

Transportation-Related Hazardous Material

OCFA has transportation-related hazardous material risk because of its road transportation network, including Highways 1, 5, 22, 39, 55, 57, 73, 74, 90, 91, 133, 142, 241, and 405 carrying

an aggregate annual average daily truck traffic volume of more than 150,000 vehicles, as summarized in the following table,[14] some of which transport hazardous commodities.

Table 41—Average Annual Daily Truck Traffic Volume

Highway	Crossing	AADT[1]	Truck AADT by Axles				Percentage of Truck AADT by Axles			
			2	3	4	5+	2	3	4	5+
1	Jct. Rte. 5	2,395	813	1,133	321	128	33.95%	47.31%	13.40%	5.34%
5	Lincoln Ave.	25,650	15,826	2,103	1,539	6,182	61.70%	8.20%	6.00%	24.10%
22	Jct. Rtes. 5 & 57	10,530	7,129	1,400	537	1,464	67.70%	13.30%	5.10%	13.90%
39	Lincoln Ave.	2,057	1,322	222	101	412	64.27%	10.79%	4.91%	20.03%
55	Jct. Rte. 22	15,751	8,710	1,670	1,181	4,190	55.30%	10.60%	7.50%	26.60%
57	Jct. Rte. 91	25,112	8,482	2,046	633	13,951	33.78%	8.15%	2.52%	55.56%
73	Jct. Rte. 405	4,440	2,997	599	266	578	67.50%	13.49%	5.99%	13.02%
74	Jct. Rte. 5	14,555	6,957	1,063	204	6,331	47.80%	7.30%	1.40%	43.50%
90	Brea Blvd.	4,422	2,675	447	168	1,132	60.49%	10.11%	3.80%	25.60%
91	State College	25,830	12,218	3,668	1,911	8,033	47.30%	14.20%	7.40%	31.10%
133	Irvine Blvd.	2,042	1,118	447	268	209	54.75%	21.89%	13.12%	10.24%
142	Jct. Rte. 71	3,600	2,988	252	68	292	83.00%	7.00%	1.89%	8.11%
241	Windy Ridge	2,070	1,035	414	310	311	50.00%	20.00%	14.98%	15.02%
405	Jct. Rte. 605	11,577	4,716	1,059	412	5,390	40.74%	9.15%	3.56%	46.56%
Total		**150,031**	**76,986**	**16,523**	**7,919**	**48,603**	**51.31%**	**11.01%**	**5.28%**	**32.40%**

[1] Average Annual Daily Trips
Source: California Department of Transportation (2021 data)

OCFA's service area also has transportation-related hazardous material risk due to hundreds of train movements into and through the service area daily, many of which are transporting hazardous commodities. In addition, underground pipelines transporting hazardous liquids and gases are located in many sections of the service area.

Population Density

Because hazardous material emergencies have the potential to adversely impact human health, it is logical that the higher the population density, the greater the potential population exposed to a hazardous material release or spill. As shown in Map #2 (**Volume 2 – Map Atlas**), OCFA's service area population density ranges from less than 3,000 to more than 24,000 people per square mile.

[14] Source: California Department of Transportation (2021 data).

Vulnerable Populations

Persons vulnerable to a hazardous material release/spill include individuals or groups unable to self-evacuate, generally including children under the age of 10, the elderly, and persons confined to an institution or other setting where they are unable to leave voluntarily. As shown in Table 29, more than 27 percent of the service area population is under age 10 or is 65 years and older.

Emergency Evacuation Planning, Training, Implementation, and Effectiveness

Another significant hazardous material consequence severity factor is a jurisdiction's shelter-in-place / emergency evacuation planning and training. In the event of a hazardous material release or spill, time can be a critical factor in notifying potentially affected persons, particularly at-risk populations, to either shelter-in-place or evacuate to a safe location. Essential to this process is an effective emergency plan that incorporates one or more mass emergency notification capabilities, as well as pre-established evacuation procedures. It is also essential to conduct regular, periodic exercises involving these two emergency plan elements to evaluate readiness and to identify and remediate any planning or training gaps to ensure ongoing emergency incident readiness and effectiveness.

Orange County utilizes a free subscription and reverse 9-1-1-based mass emergency notification system (AlertOC) to provide emergency alerts, notifications, and other emergency information to email accounts, cell phones, smartphones, tablets, and landline telephones. Federal Communications Commission Wireless Emergency Alerts and social media (Facebook, Twitter) are also used to provide emergency notifications and information to the public. The Orange County Sheriff's Department Emergency Management Division conducts Emergency Operations Center training at least quarterly with at least two exercises annually.

Hazardous Material Service Demand

OCFA experienced 1,889 hazardous material incidents over the five-year study period, comprising 0.23 percent of total service demand over the same period, as summarized in the following table.

Table 42—Hazardous Material Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Hazardous Material	2019	39	12	18	50	38	36	31
	2020	26	13	18	52	47	41	32
	2021	29	10	16	38	36	29	32
	2022	23	17	21	45	42	33	23
	2023	32	10	21	45	59	26	38
	Total	**149**	**62**	**94**	**230**	**222**	**165**	**156**
Percent Total Battalion Demand		0.19%	0.22%	0.26%	0.20%	0.39%	0.24%	0.26%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Hazardous Material	2019	40	69	30	10	29	**402**	0.27%
	2020	28	73	28	35	12	**405**	0.27%
	2021	24	66	17	27	16	**340**	0.21%
	2022	35	67	20	26	15	**367**	0.21%
	2023	29	45	25	37	8	**375**	0.21%
	Total	**156**	**320**	**120**	**135**	**80**	**1,889**	**0.23%**
Percent Total Battalion Demand		0.20%	0.21%	0.28%	0.17%	0.34%		

As the table shows, hazardous material service demand was generally consistent from year to year, with overall service demand decreasing nearly 7 percent over the five-year period.

Hazardous Material Risk Analysis

The following table summarizes Citygate's analysis of OCFA's hazardous materials risk by battalion.

Table 43—Hazardous Material Risk Analysis

Hazardous Material Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	4	4	4	4	4	4
Impact Extent	2	2	2	2	2	2
Consequence Severity	3	3	3	3	3	3
Total Risk Score	11.05	11.05	11.05	11.05	11.05	11.05
Overall Risk Rating	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Hazardous Material Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	4	4	5	4	4
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	11.05	11.05	13.44	11.05	11.05
Overall Risk Rating	Moderate	Moderate	High	Moderate	Moderate

A.1.15 Technical Rescue Risk

Technical rescue risk factors include active construction projects; structural collapse potential; confined spaces, such as tanks and underground vaults; bodies of water, including rivers and streams; industrial machinery use; transportation volume; and earthquake, flood, and landslide potential.

Construction Activity

There is ongoing residential, commercial, industrial, and infrastructure construction activity within OCFA's service area.

Confined Spaces

There are numerous confined spaces within OCFA's service area, including tanks, vaults, and open trenches.

Bodies of Water

The service area includes more than 40 miles of Pacific Ocean coastline as well as multiple rivers and open stream channels and smaller lakes and ponds.

Transportation Volume

Another technical rescue risk factor is transportation-related incidents requiring technical rescue. This risk factor is primarily a function of vehicle, railway, maritime, and aviation traffic. Vehicle traffic volume is the greatest of these factors within the service area, with Highways 1, 5, 22, 39, 55, 57, 73, 74, 90, 91, 133, 142, 241, 261, and 405 carrying an aggregate annual average daily traffic volume of more than 2.48 million vehicles.

Earthquake Risk[15]

According to the 2021 County of Orange and Orange County Fire Authority 2021 Local Hazard Mitigation Plan, four large and three smaller seismic faults, as well as newly studied thrust faults have the potential to significantly impact the OCFA service area. Although the most recent event with resultant damage was the La Habra earthquake in 2014, a 2015 study by the U.S. Geological Service California Geological Survey, and the Southern California Earthquake Center calculated a 96 percent probability of a 6.0 or greater event over the next 30 years, and a 60 percent probability of an earthquake at least as strong as the 1994 Northridge event.

Flood Risk[16]

While the Santa Ana River has caused much of the historic flooding within the County, many other areas are also subject to flooding during severe storms. Although there is a Countywide system of flood control facilities, the majority are inadequate for conveying runoff from major storms, resulting in major floods in five of the past 34 years including the most severe storm ever measured in 1997.

The Federal Emergency Management Agency's National Flood Insurance Program maps show that approximately 20 percent of the County land area is within a 100-year or 500-year floodplain.

Tsunami Risk[17]

Due to its location on the Pacific Coast, many harbor and low-lying coastal areas of the service area are at risk from a tsunami. Although recent historic tsunami events have caused only minor damage, California statewide tsunami planning predicts a low probability of a significant or mega tsunami in Orange County.

Technical Rescue Service Demand

OCFA experienced 1,902 technical rescue incidents over the five-year study period, comprising 0.23 percent of total service demand for the same period, as summarized in the following table.

[15] Source: County of Orange and Orange County Fire Authority 2021 Local Hazard Mitigation Plan, Section 3.1
[16] Source: County of Orange and Orange County Fire Authority 2021 Local Hazard Mitigation Plan, Section 3.2
[17] Source: County of Orange and Orange County Fire Authority 2021 Local Hazard Mitigation Plan, Section 3.8

Table 44—Technical Rescue Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Technical Rescue	2019	17	5	14	52	43	36	23
	2020	19	10	9	33	31	28	27
	2021	24	8	17	49	41	45	35
	2022	21	7	16	50	59	37	23
	2023	29	8	9	39	82	37	16
	Total	**110**	**38**	**65**	**223**	**256**	**183**	**124**
Percent Total Battalion Demand		0.14%	0.13%	0.18%	0.19%	0.45%	0.26%	0.21%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Technical Rescue	2019	35	99	40	15	19	**398**	0.26%
	2020	21	80	10	23	11	**302**	0.20%
	2021	33	93	20	38	18	**421**	0.26%
	2022	32	57	30	29	18	**379**	0.22%
	2023	30	85	42	18	7	**402**	0.23%
	Total	**151**	**414**	**142**	**123**	**73**	**1,902**	**0.23%**
Percent Total Battalion Demand		0.19%	0.28%	0.33%	0.16%	0.31%		

As the table shows, technical rescue service demand was relatively consistent from year to year with a slight 1 percent increase over the five-year study period.

Technical Rescue Risk Analysis

The following table summarizes Citygate's analysis of OCFA's technical rescue risk by battalion.

Table 45—Technical Rescue Risk Analysis

Technical Rescue Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	4	3	4	4	4	4
Impact Extent	2	2	2	2	2	2
Consequence Severity	3	3	3	3	3	3
Total Risk Score	11.05	8.75	11.05	11.05	11.05	11.05
Overall Risk Rating	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Technical Rescue Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	4	4	5	4	4
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	11.05	11.05	13.44	11.05	11.05
Overall Risk Rating	Moderate	Moderate	High	Moderate	Moderate

A.1.16 Marine Incident Risk

Marine incident risk factors include waterway and near-shore recreational activities and watercraft storage and use in or on waterways within the service area.

Waterways

Major bodies of water and waterways within the service area includes the Pacific Ocean, Newport Bay, Dana Cove, the Santa Ana River, and San Diego Creek. The service area also includes numerous smaller bodies of water and waterways.

Newport Harbor

Newport Harbor is the largest recreational harbor on the west coast. In addition to a nature preserve and ecological reserve, the harbor area offers numerous hiking, cycling, dining, shopping, recreation, and hotel opportunities. Surrounded by upscale residential communities, the Harbor is more than three miles long with approximately 9,000 docks.

Dana Point Harbor

The Dana Point Harbor offers a variety of recreational amenities, boating facilities and services, dining, and shopping experiences, and the marinas can accommodate more than 2,000 recreational vessels.

Recreational Activity

The Pacific Ocean shoreline and harbor areas are popular for all types of water recreation activities, including swimming, snorkeling, fishing, paddle boarding, kayaking, etc.

Marine Incident Service Capacity

The Department's marine incident service capacity includes Swift Water Rescue Teams at Stations 6 (Irvine), 9 (Mission Viejo), 32 (Yorba Linda), and 61 (Buena Park).

Marine Incident Service Demand

Over the five-year study period, OCFA experienced 152 marine incidents, comprising 0.02 percent of total service demand for the same period, as summarized in the following table.

Table 46—Marine Incident Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Marine Incident	2019	1	0	1	0	15	1	0
	2020	3	0	0	0	11	1	0
	2021	1	0	0	1	21	2	0
	2022	2	0	1	0	19	2	1
	2023	3	0	0	1	19	1	0
	Total	**10**	**0**	**2**	**2**	**85**	**7**	**1**
Percent Total Battalion Demand		0.01%	0.00%	0.01%	0.00%	0.15%	0.01%	0.00%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Marine Incident	2019	0	1	0	0	4	**23**	0.02%
	2020	2	3	0	0	0	**20**	0.01%
	2021	1	0	0	1	15	**42**	0.03%
	2022	1	2	2	1	8	**39**	0.02%
	2023	2	0	0	0	2	**28**	0.02%
	Total	**6**	**6**	**2**	**2**	**29**	**152**	**0.02%**
Percent Total Battalion Demand		0.01%	0.00%	0.00%	0.00%	0.12%		

As the table shows, annual marine incident service demand was relatively consistent from year to year, with a nearly 22 percent increase in overall demand over the same period although the total annual incident count was small.

Marine Incident Risk Analysis

The following table summarizes Citygate's analysis of OCFA's marine risk by battalion.

Table 47—Marine Incident Risk Analysis

Marine Incident Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	3	2	2	2	4	3
Impact Extent	2	2	2	2	2	2
Consequence Severity	3	3	3	3	3	3
Total Risk Score	8.75	6.63	6.63	6.63	11.05	8.75
Overall Risk Rating	Moderate	Low	Low	Low	Moderate	Moderate

Marine Incident Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	2	3	3	2	2
Impact Extent	2	2	2	2	2
Consequence Severity	3	3	3	3	3
Total Risk Score	6.63	8.75	8.75	6.63	6.63
Overall Risk Rating	Low	Moderate	Moderate	Low	Low

A.1.17 Aviation Incident Risk

Aviation Risk Factors

Aviation risk factors include commercial airline passenger and commercial air cargo activity or commercial airship and general aviation activity into, from, and over a community or jurisdiction.

John Wayne Airport

The John Wayne Airport is a County-owned public airport located approximately 35 miles south Los Angeles between the cities of Costa Mesa, Irvine, and Newport Beach. Encompassing 501 acres with one commercial and one general aviation runway, the airport has approximately 304,000 aircraft operations annually, including commercial, general aviation, commuter, and military aircraft. Served by 11 commercial and two cargo airlines, the airport serves approximately 11.7 million annual passengers and is home to nearly 500 general aviation aircraft. The airport is the only commercial passenger and air cargo airport in Orange County and is the primary provider of general aviation services and law enforcement and medical flights.

Aviation Risk Service Capacity

OCFA's aviation risk service capacity includes three Aircraft Rescue Fire Fighting (ARFF) apparatus staffed with a minimum of two personnel each at Station 33 immediately adjacent to both runways on the west side, and an engine and quint ladder truck staffed with a minimum of four personnel each at Station 28 approximately 1.5 miles northeast of the main terminal building.

Aviation Risk Service Demand

Over the five-year study period, OCFA experienced 96 aviation incidents comprising 0.01 percent of total service demand for the same period, as summarized in the following table.

Table 48—Aviation Incident Service Demand

Hazard	Year	Battalion						
		1	2	3	4	5	6	7
Aviation Incident	2019	0	1	0	0	25	0	0
	2020	0	0	0	0	12	0	0
	2021	0	0	0	0	18	0	0
	2022	0	0	0	0	19	0	0
	2023	0	0	0	0	17	0	0
	Total	**0**	**1**	**0**	**0**	**91**	**0**	**0**
Percent Total Battalion Demand		0.00%	0.00%	0.00%	0.00%	0.16%	0.00%	0.00%

Hazard	Year	Battalion					Total	Percent Total Annual Demand
		8	9	10	11	Blank		
Aviation Incident	2019	0	0	0	0	1	**27**	0.02%
	2020	0	0	0	0	2	**14**	0.01%
	2021	0	0	0	0	0	**18**	0.01%
	2022	0	0	0	0	0	**19**	0.01%
	2023	0	0	0	0	1	**18**	0.01%
	Total	**0**	**0**	**0**	**0**	**4**	**96**	**0.01%**
Percent Total Battalion Demand		0.00%	0.00%	0.00%	0.00%	0.02%		

As the table shows, annual aviation incident service demand was consistent from year to year with a 33 percent decrease in overall demand over the same period.

Aviation Incident Risk Analysis

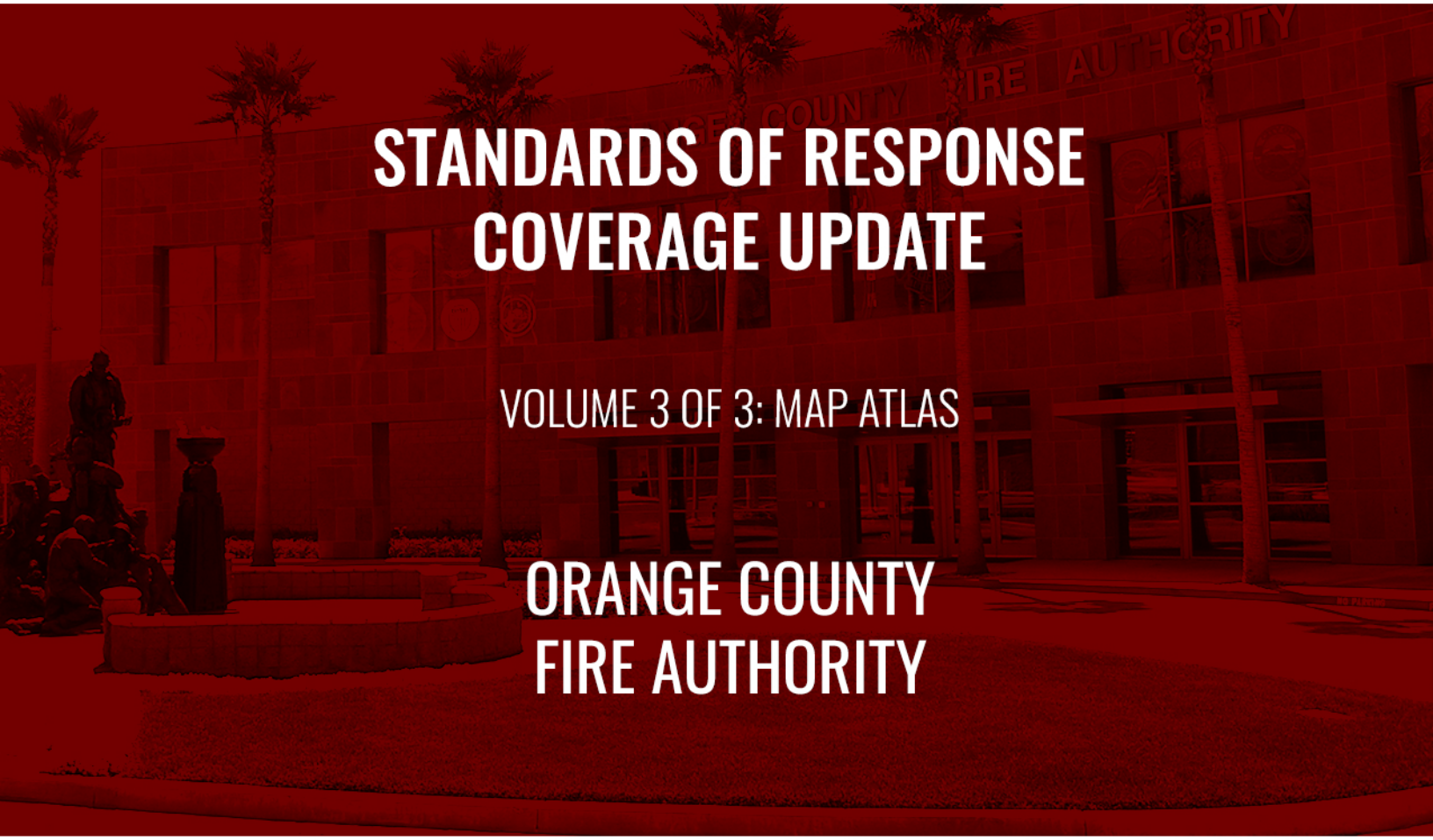
The following table summarizes Citygate's analysis of OCFA's aviation risk by battalion.

Table 49—Aviation Incident Risk Analysis

Aviation Incident Risk Analysis	Battalion					
	1	2	3	4	5	6
Probability of Occurrence	1	1	1	1	4	1
Impact Extent	2	2	2	2	2	2
Impact Severity	3	3	3	3	3	3
Total Risk Score	4.95	4.95	4.95	4.95	11.05	4.95
Overall Risk Rating	Low	Low	Low	Low	Moderate	Low

Aviation Incident Risk Analysis	Battalion				
	7	8	9	10	11
Probability of Occurrence	1	1	1	1	1
Impact Extent	2	2	2	2	2
Impact Severity	3	3	3	3	3
Total Risk Score	4.95	4.95	4.95	4.95	4.95
Overall Risk Rating	Low	Low	Low	Low	Low

CITYGATE
FIRE & EMS



STANDARDS OF RESPONSE COVERAGE UPDATE

VOLUME 3 OF 3: MAP ATLAS

ORANGE COUNTY FIRE AUTHORITY

MARCH 4, 2025

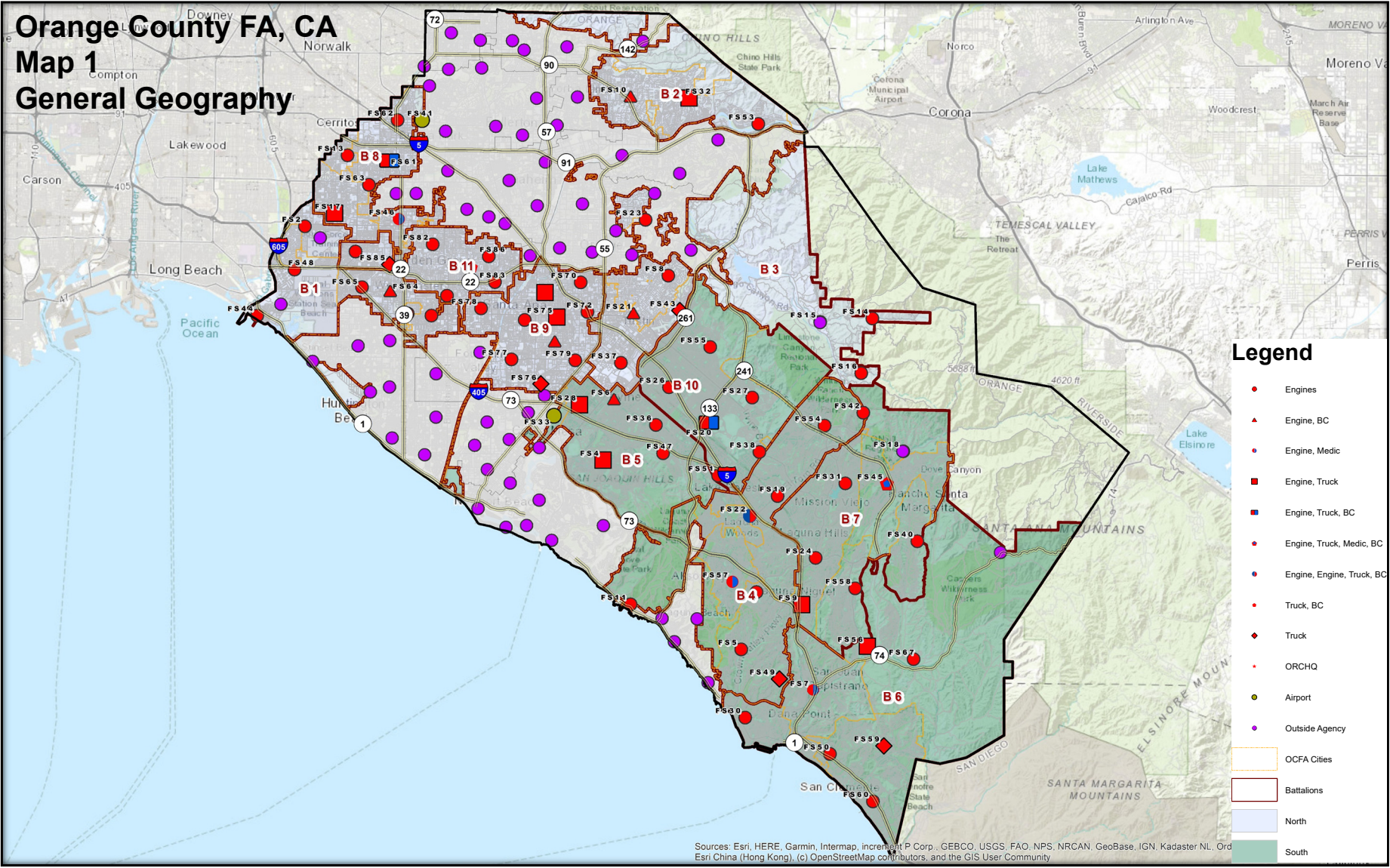
CITYGATE
FIRE & EMS

WWW.CITYGATEASSOCIATES.COM

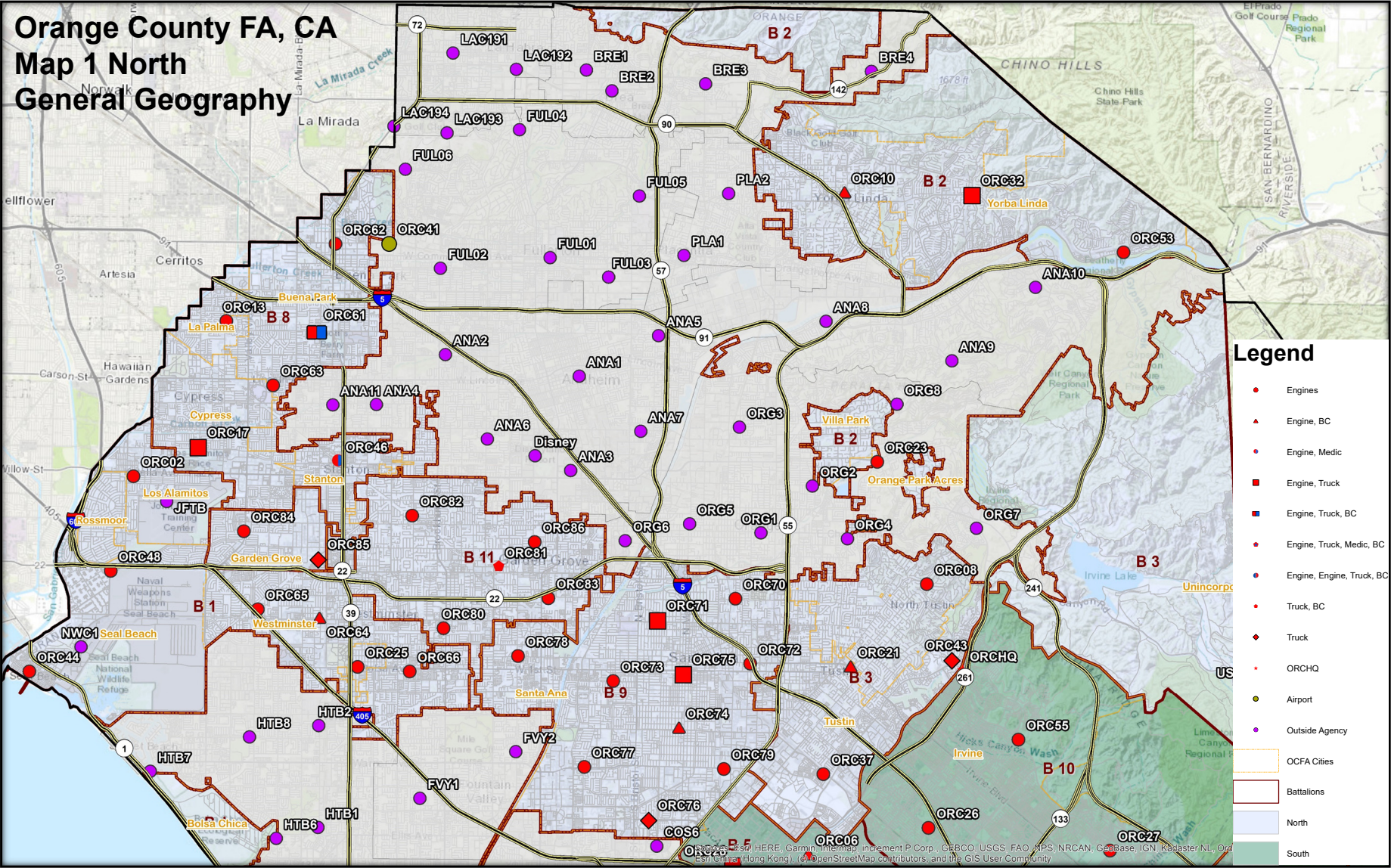
600 COOLIDGE DRIVE, SUITE 150
FOLSOM, CA 95630

PHONE: (916) 458-5100
FAX: (916) 983-2090

Orange County FA, CA
Map 1
General Geography

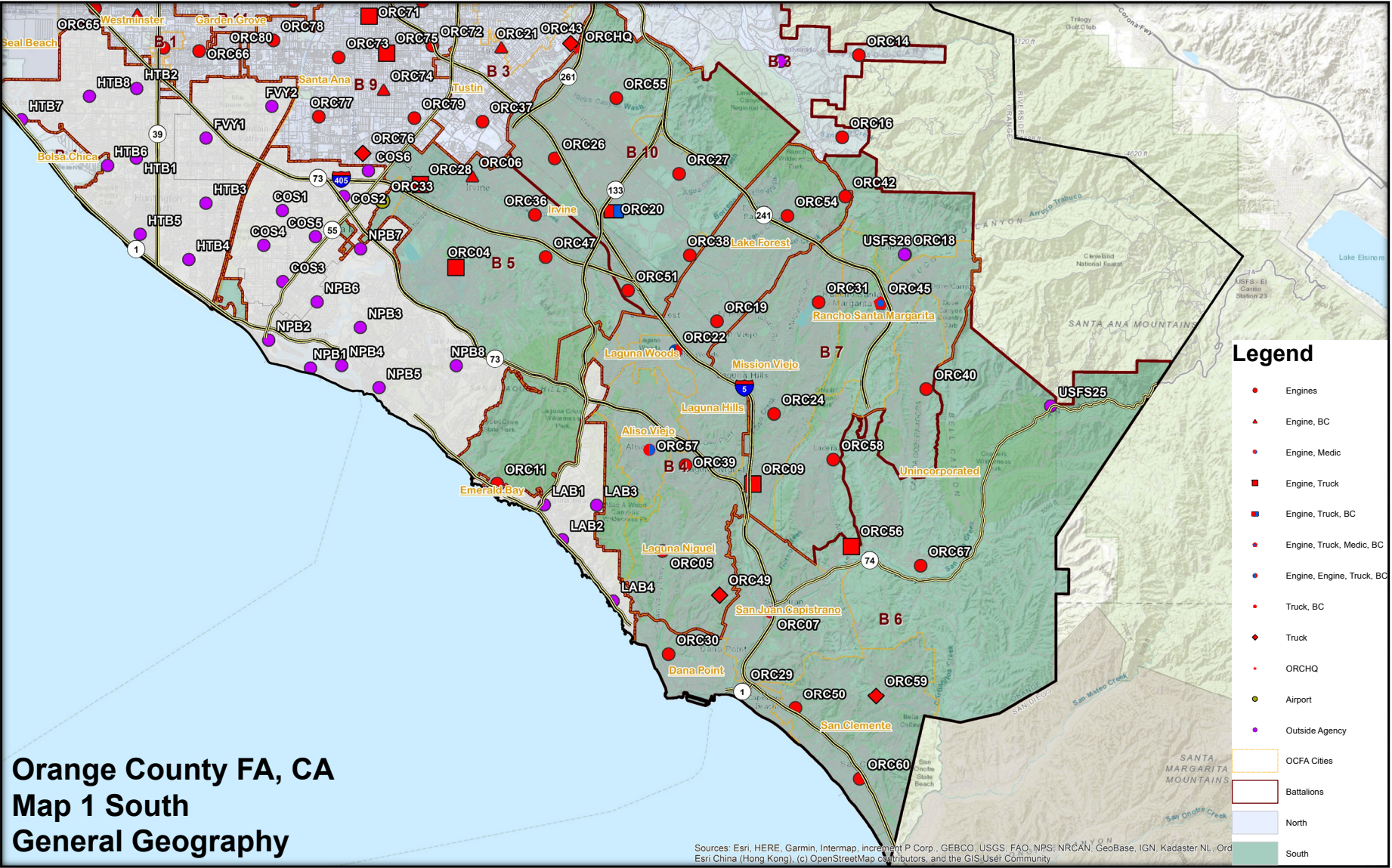


Orange County FA, CA
Map 1 North
General Geography

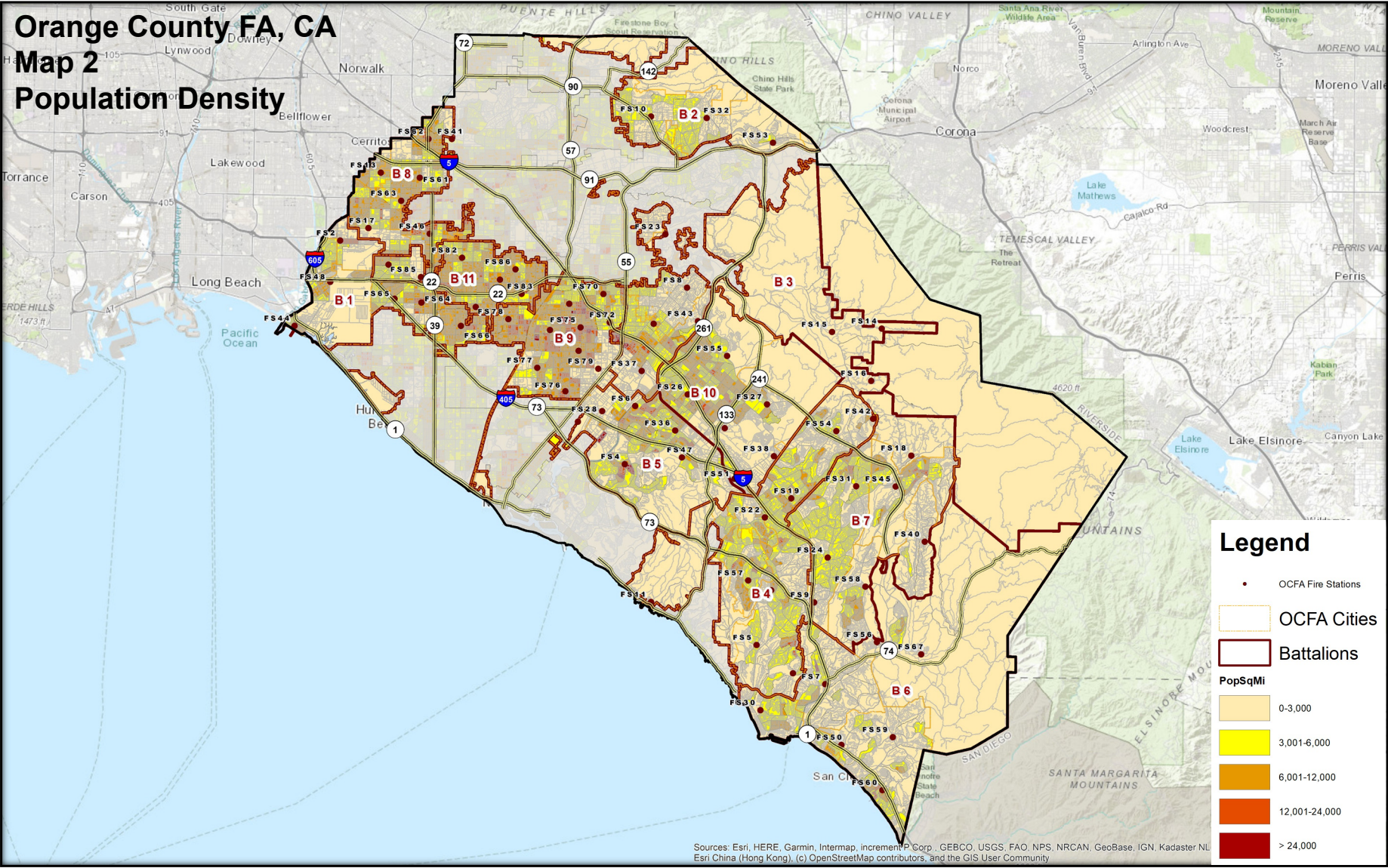


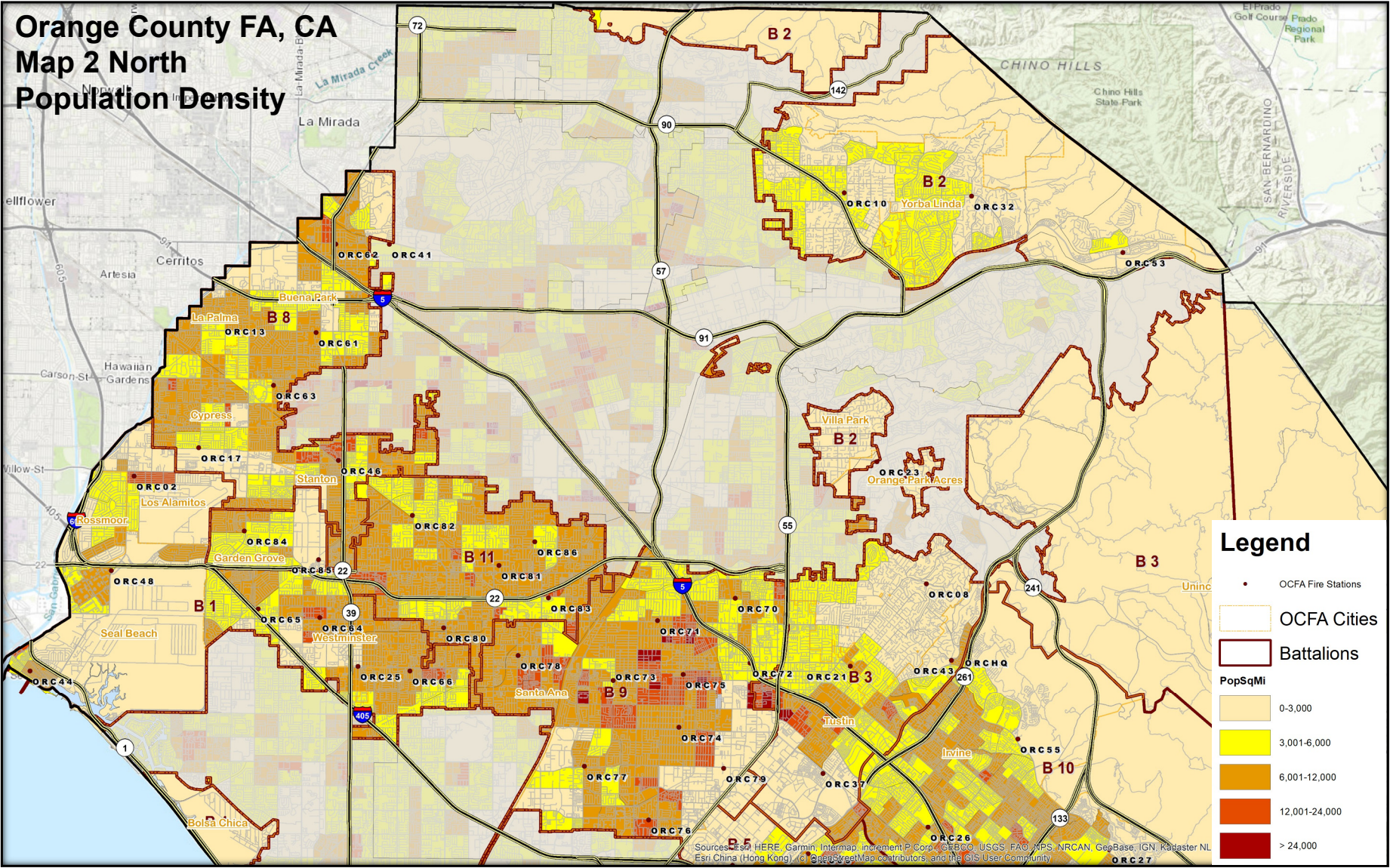
Legend

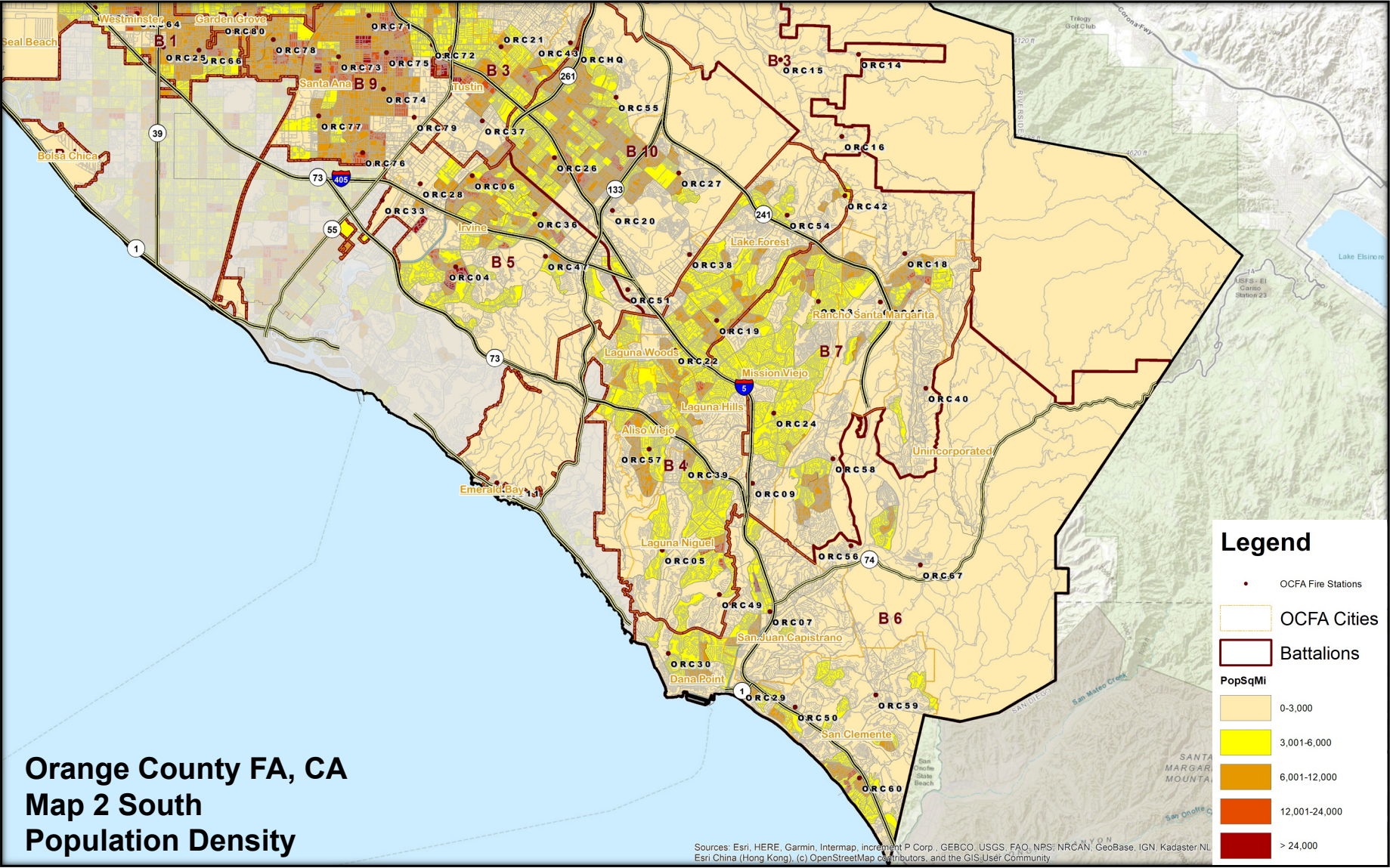
- Engines
- Engine, BC
- Engine, Medic
- Engine, Truck
- Engine, Truck, BC
- Engine, Truck, Medic, BC
- Engine, Engine, Truck, BC
- Truck, BC
- Truck
- ORCHQ
- Airport
- Outside Agency
- OCFA Cities
- Battalions
- North
- South


Orange County FA, CA
Map 1 South
General Geography
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 4
B 5
B 6
B 7
B 9
B 10
ORC65
Westminster
Garden Grove
ORC78
ORC71
ORC80
ORC66
ORC73
ORC75
ORC72
ORC21
ORC43
ORCHQ
ORC14
HTB8
HTB2
Santa Ana
ORC74
Tustin
FVY2
ORC77
ORC79
ORC37
ORC55
HTB7
FVY1
ORC16
ORC76
COS6
ORC26
ORC27
Bolsa Chica
HTB6
HTB1
ORC28
ORC06
ORC42
HTB3
COS1
ORC33
COS2
ORC36
Irvine
ORC20
ORC54
HTB5
COS5
COS4
NPB7
ORC38
Lake Forest
USFS26
ORC18
HTB4
ORC04
ORC47
ORC51
COS3
NPB6
ORC31
ORC45
Rancho Santa Margarita
NPB3
ORC19
NPB2
ORC22
NPB1
NPB4
NPB8
Laguna Woods
Mission Viejo
ORC40
NPB5
Laguna Hills
ORC24
USFS25
Aliso Viejo
ORC57
ORC58
ORC11
ORC39
ORC09
Unincorporated
Emerald Bay
LAB1
LAB3
LAB2
ORC56
Laguna Niguel
ORC67
ORC05
ORC49
LAB4
San Juan Capistrano
ORC07
ORC30
Dana Point
ORC29
ORC59
ORC50
San Clemente
ORC60
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ord
Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

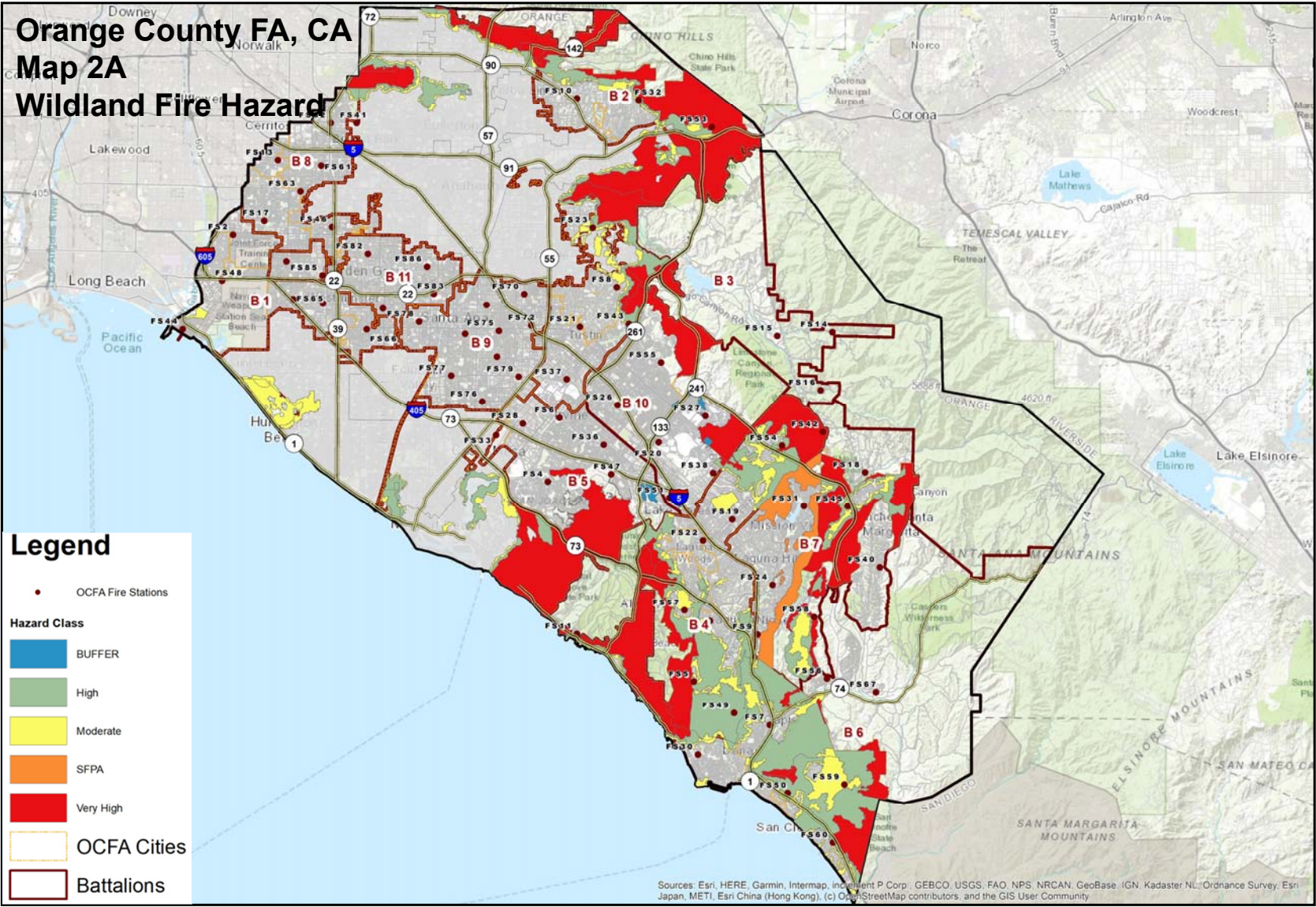
Orange County FA, CA
Map 2
Population Density



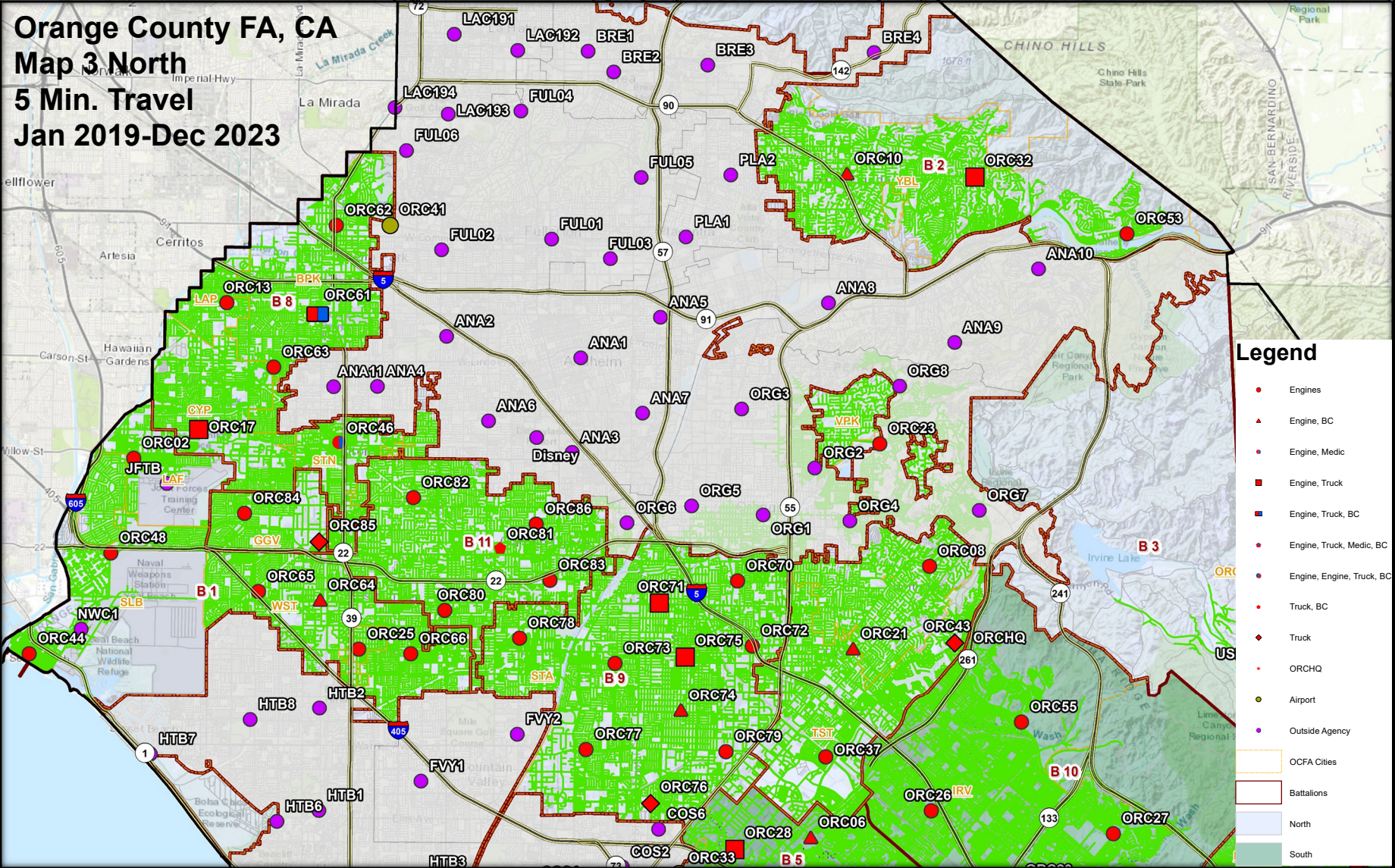

Orange County FA, CA
Map 2 North
Population Density
B 2
B 8
B 11
B 1
B 9
B 3
B 10
B 5
ORC10
Yorba Linda
ORC32
ORC53
ORC62
ORC41
ORC13
ORC61
ORC63
ORC17
ORC02
ORC46
ORC82
ORC84
ORC85
ORC86
ORC81
ORC48
ORC65
ORC64
ORC80
ORC25
ORC66
ORC78
ORC73
ORC75
ORC74
ORC77
ORC79
ORC76
ORC70
ORC72
ORC21
ORC08
ORC43
ORCHQ
ORC55
ORC37
ORC26
ORC27
ORC44
Villa Park
ORC23
Orange Park Acres
Buena Park
La Palma
Cypress
Stanton
Los Alamitos
Rossmoor
Garden Grove
Seal Beach
Westminster
Santa Ana
Tustin
Irvine
Bolsa Chica
Cerritos
Artesia
Hawaiian Gardens
La Mirada
CHINO HILLS
Chino Hills State Park
Legend
OCFA Fire Stations
OCFA Cities
Battalions
PopSqMi
0-3,000
3,001-6,000
6,001-12,000
12,001-24,000
> 24,000
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

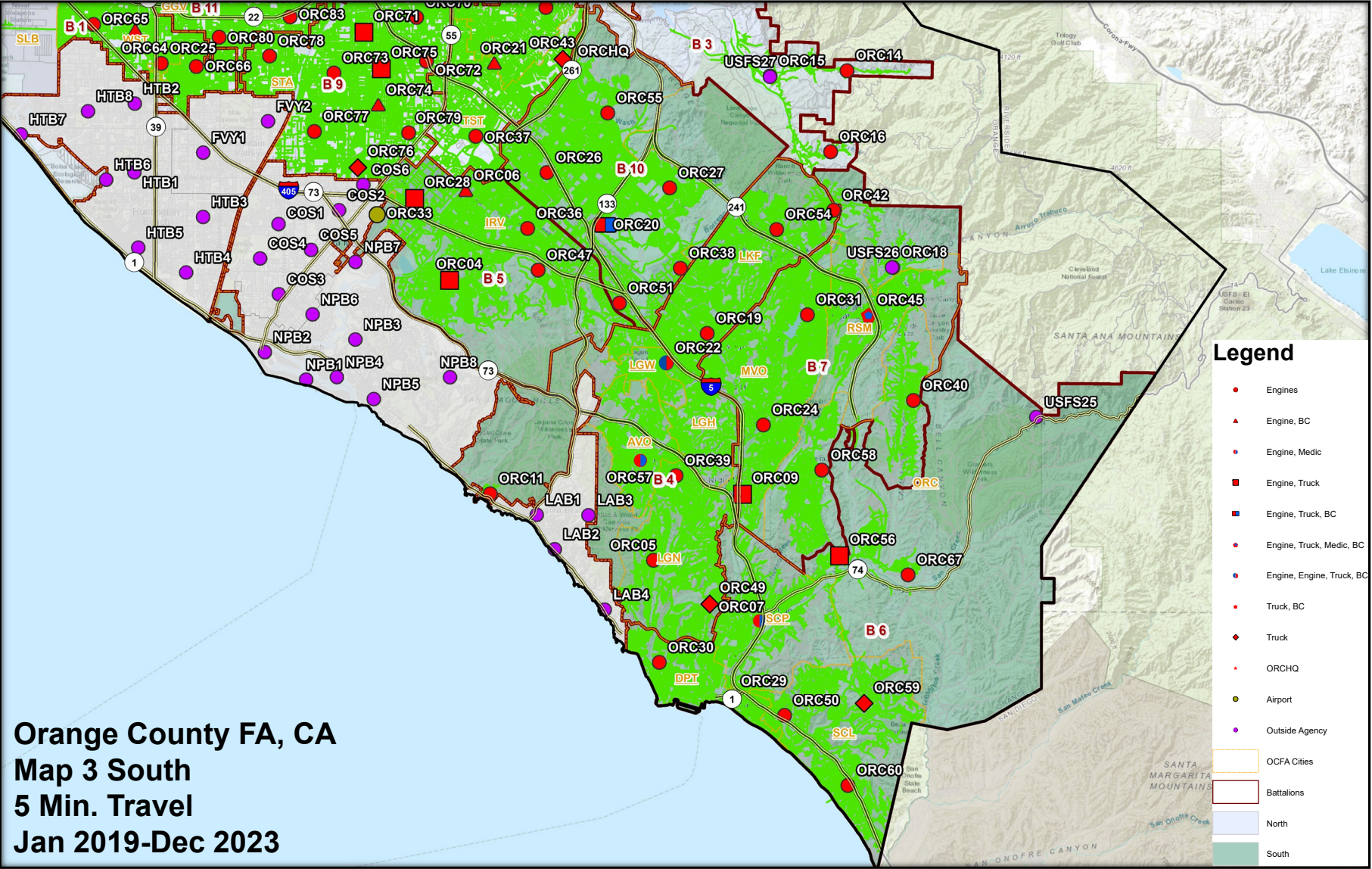

Orange County FA, CA
Map 2 South
Population Density
Legend
OCFA Fire Stations
OCFA Cities
Battalions
PopSqMi
0-3,000
3,001-6,000
6,001-12,000
12,001-24,000
> 24,000
B1
B3
B4
B5
B6
B7
B9
B10
Westminster
Garden Grove
Seal Beach
Santa Ana
Tustin
Irvine
Lake Forest
Rancho Santa Margarita
Laguna Woods
Mission Viejo
Laguna Hills
Aliso Viejo
Unincorporated
Emerald Bay
Laguna Niguel
San Juan Capistrano
Dana Point
San Clemente
Bolsa Chica
Trilogy Golf Club
Lake Elsinore
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

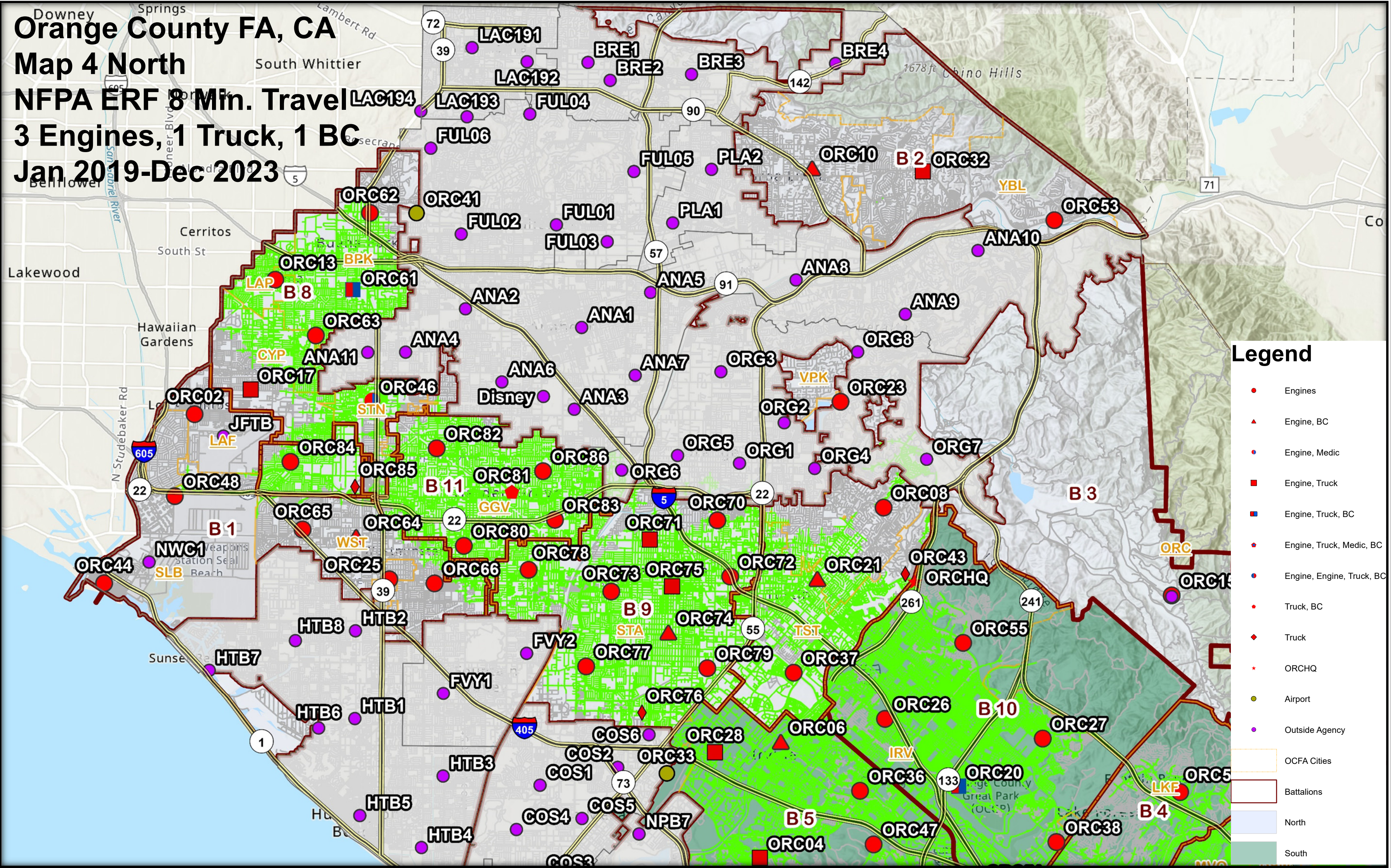
Orange County FA, CA
Map 2A
Wildland Fire Hazard



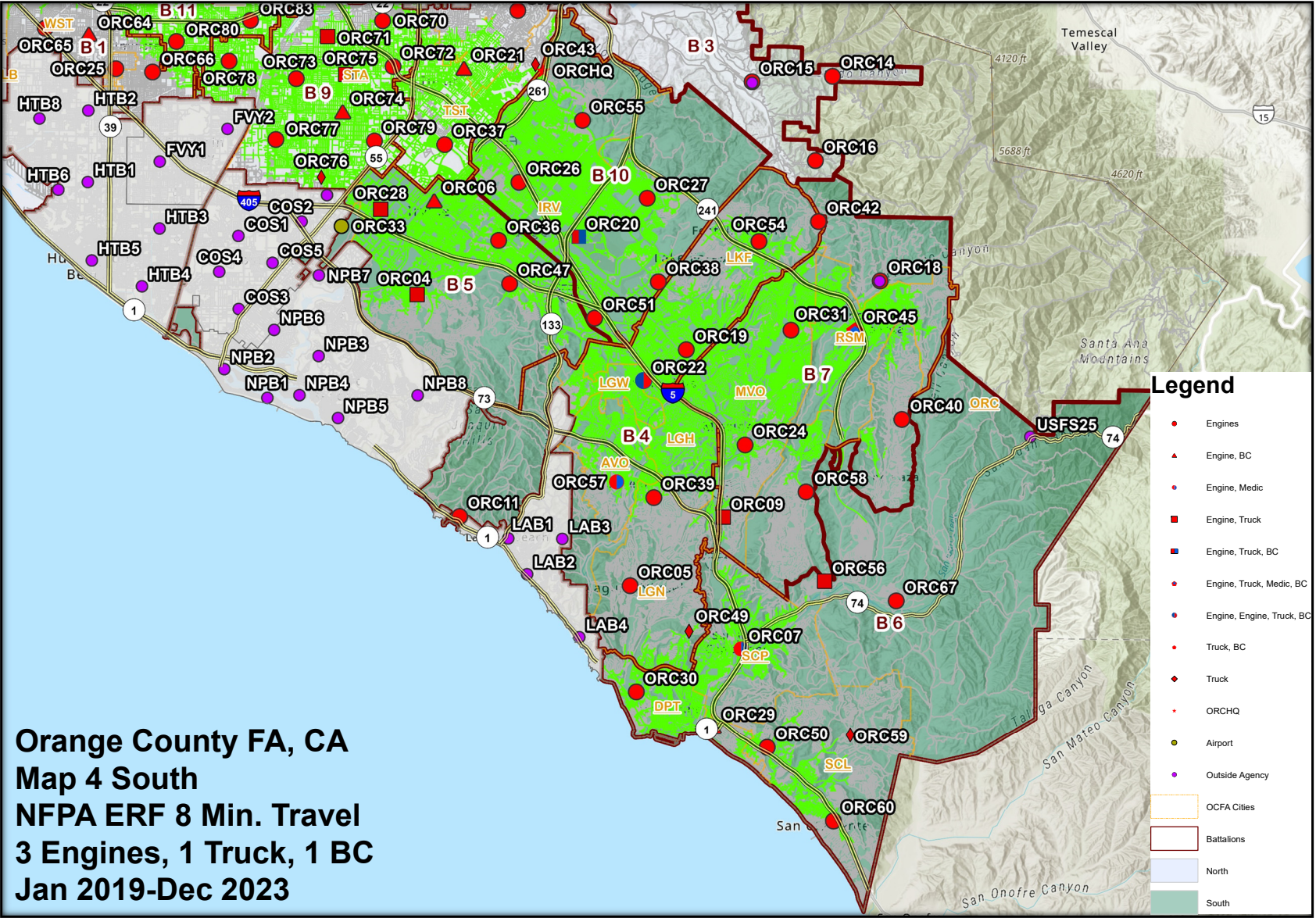
Orange County FA, CA
Map 3 North
5 Min. Travel
Jan 2019-Dec 2023

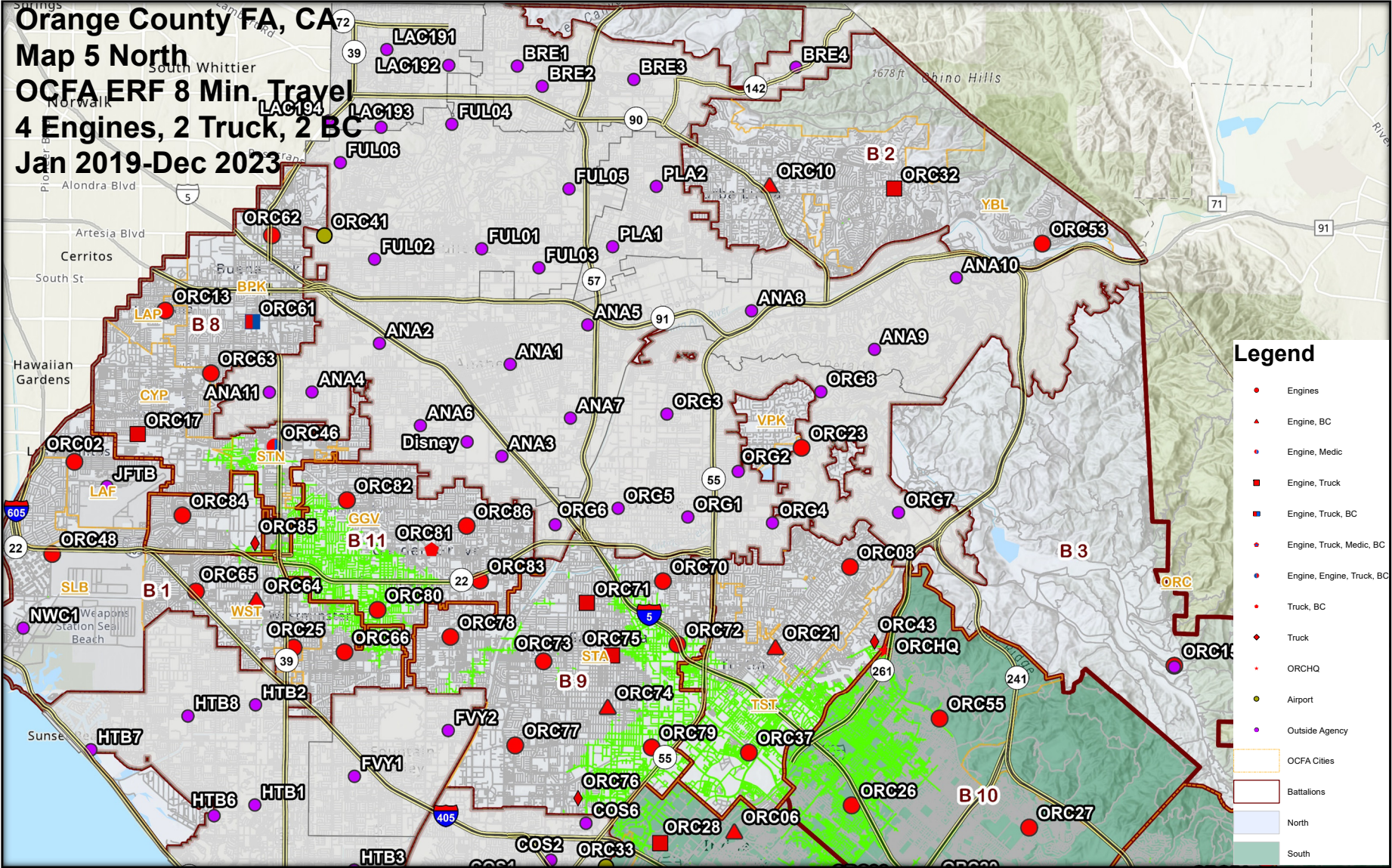


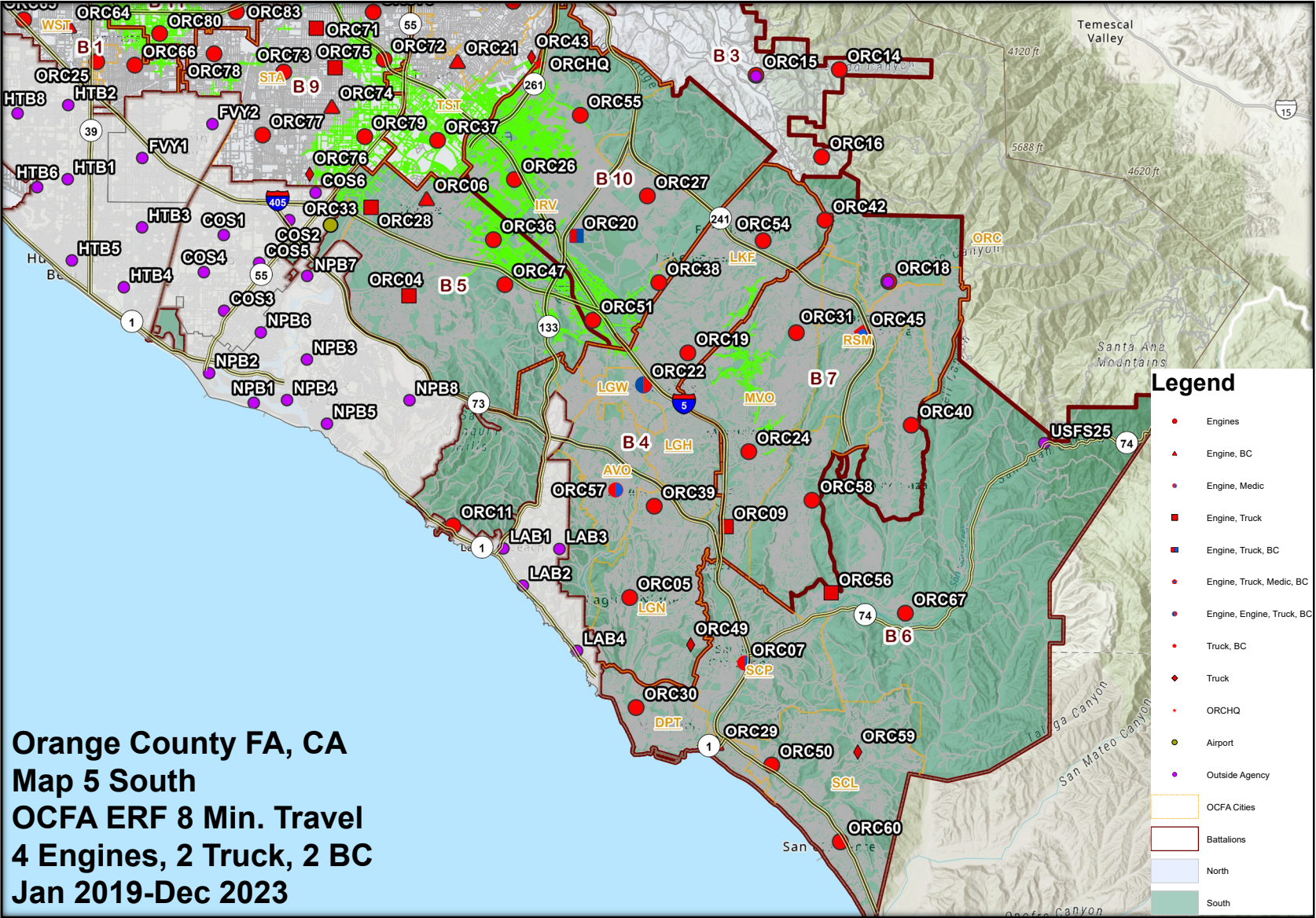

Orange County FA, CA
Map 3 South
5 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
ORC65
ORC64
ORC25
ORC80
ORC78
ORC83
ORC71
ORC73
ORC75
ORC72
ORC21
ORC43
ORCHQ
ORC66
ORC74
ORC77
ORC79
ORC37
ORC76
ORC26
ORC55
ORC27
ORC28
ORC06
ORC33
ORC36
ORC20
ORC47
ORC04
ORC38
ORC51
ORC54
ORC42
ORC16
ORC14
ORC15
USFS27
ORC18
USFS26
ORC31
ORC45
ORC19
ORC22
ORC24
ORC40
USFS25
ORC58
ORC39
ORC57
ORC09
ORC11
ORC56
ORC67
ORC05
ORC49
ORC07
ORC30
ORC29
ORC50
ORC59
ORC60
B 1
B 2
B 3
B 4
B 5
B 6
B 7
B 9
B 10
B 11
HTB1
HTB2
HTB3
HTB4
HTB5
HTB6
HTB7
HTB8
FVY1
FVY2
COS1
COS2
COS3
COS4
COS5
COS6
NPB1
NPB2
NPB3
NPB4
NPB5
NPB6
NPB7
NPB8
LAB1
LAB2
LAB3
LAB4
SLB
STA
TST
IRV
LKF
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
RSM
ORC
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
SAN ONOFRE CANYON

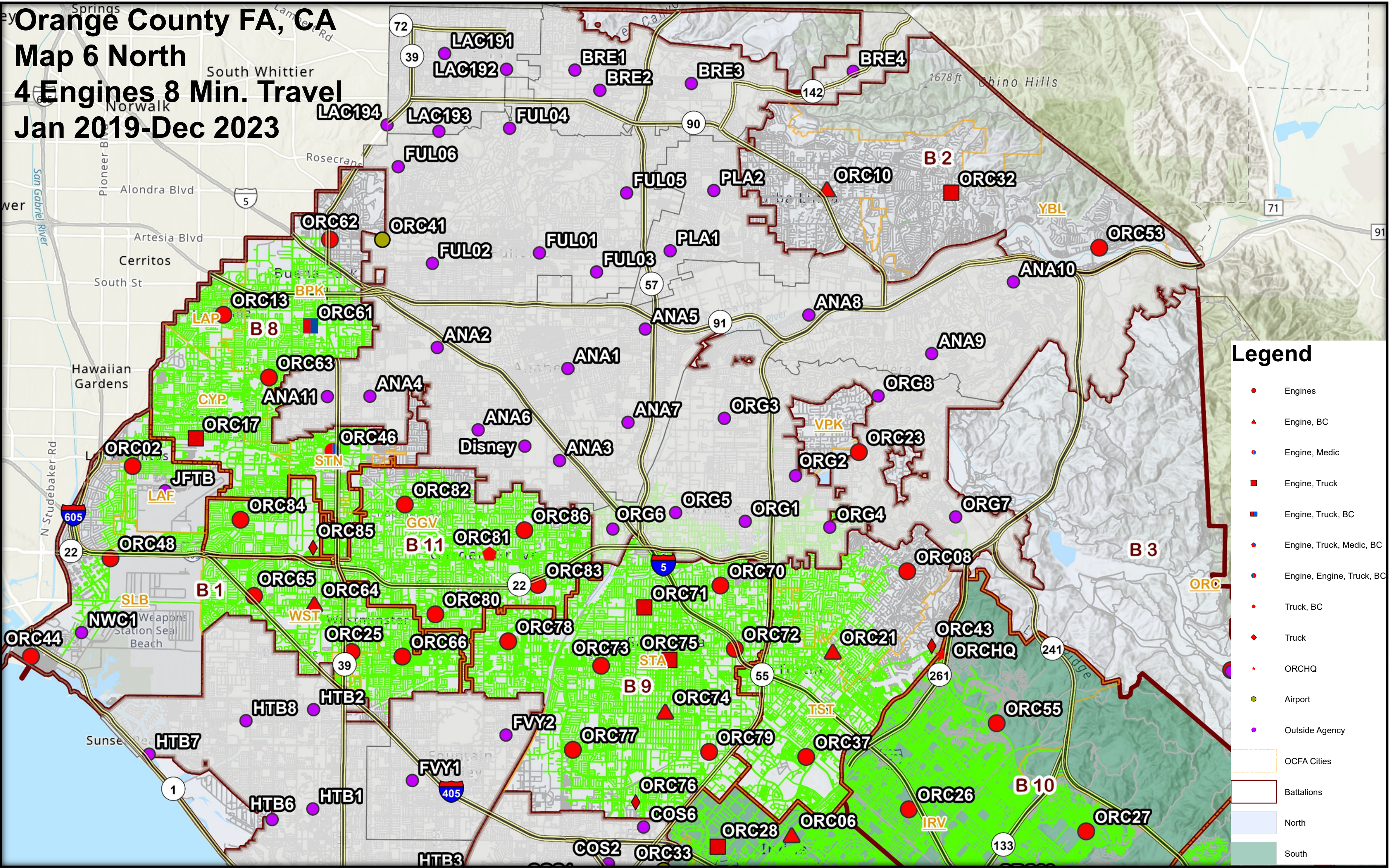


Orange County FA, CA
Map 4 North
NFPA ERF 8 Min. Travel
3 Engines, 1 Truck, 1 BC
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 4
B 5
B 8
B 9
B 10
B 11

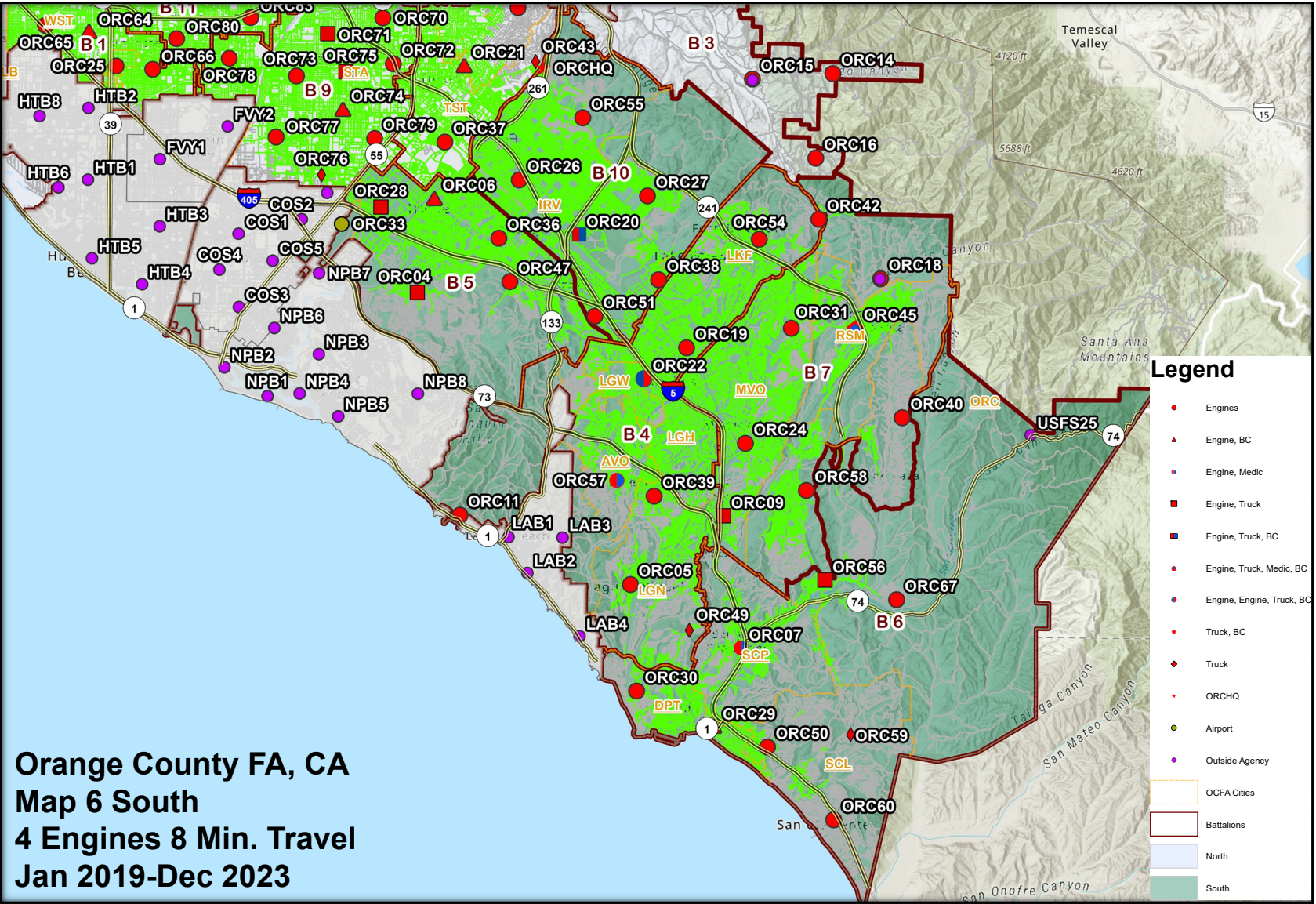

Orange County FA, CA
Map 4 South
NFPA ERF 8 Min. Travel
3 Engines, 1 Truck, 1 BC
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 3
B 4
B 5
B 6
B 7
B 9
B 10
B 11
ORC64
ORC80
ORC83
ORC70
ORC71
ORC72
ORC21
ORC43
ORCHQ
ORC65
ORC66
ORC73
ORC75
ORC78
ORC25
ORC74
ORC55
ORC15
ORC14
ORC16
HTB8
HTB2
FVY2
ORC77
ORC79
ORC37
FVY1
ORC76
ORC26
ORC27
HTB6
HTB1
ORC28
ORC06
ORC42
HTB3
COS2
COS1
ORC33
ORC36
ORC20
ORC54
HTB5
COS4
COS5
ORC38
ORC18
HTB4
NPB7
ORC04
ORC47
COS3
ORC51
ORC31
ORC45
NPB6
ORC19
NPB3
NPB2
ORC22
NPB1
NPB4
NPB8
NPB5
ORC40
ORC
USFS25
ORC24
ORC57
ORC39
ORC58
ORC11
ORC09
LAB1
LAB3
LAB2
ORC05
ORC56
ORC67
ORC49
LAB4
ORC07
ORC30
ORC29
ORC50
ORC59
ORC60
WST
STA
TST
IRV
LKF
RSM
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
Temescal Valley
Santa Ana Mountains
Trabuco Canyon
Tenaja Canyon
San Mateo Canyon
San Onofre Canyon
4120 ft
5688 ft
4620 ft

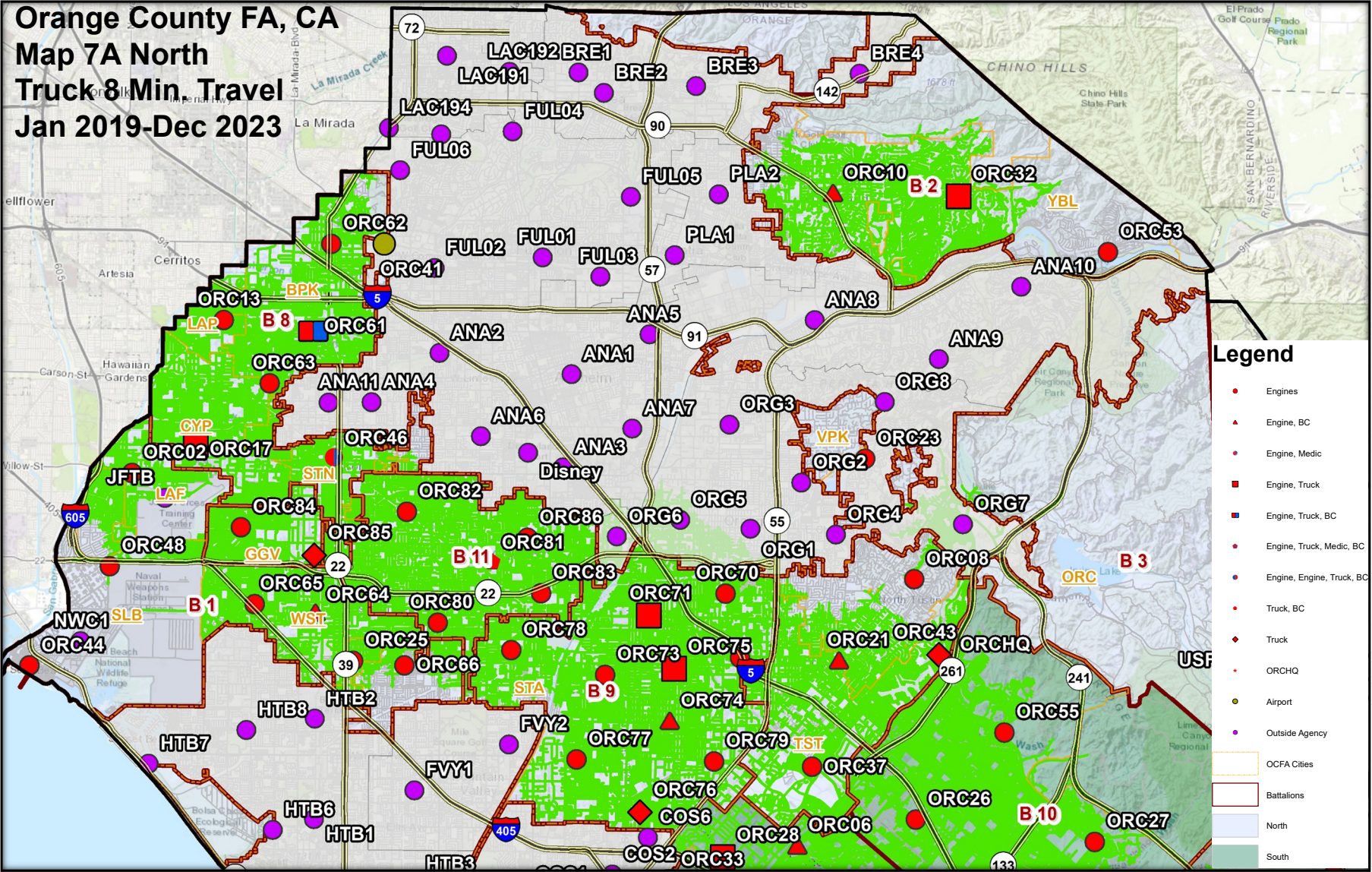

Orange County FA, CA
Map 5 North
OCFA ERF 8 Min. Travel
4 Engines, 2 Truck, 2 BC
Jan 2019-Dec 2023
LAC191
LAC192
LAC194
LAC193
BRE1
BRE2
BRE3
BRE4
FUL04
FUL06
FUL05
PLA2
ORC10
ORC32
B 2
YBL
ORC53
ANA10
ORC62
ORC41
FUL02
FUL01
FUL03
PLA1
ORC13
ORC61
B 8
LAP
BPK
ANA2
ANA1
ANA5
ANA8
ANA9
ORC63
ANA4
ANA11
CYP
ANA6
ANA7
ORG3
ORG8
ORC17
ORC46
Disney
ANA3
VPK
ORC23
ORG2
ORC02
JFTB
LAF
STN
ORC82
ORC84
ORC86
ORG6
ORG5
ORG1
ORG4
ORG7
ORC85
GGV
ORC81
B 11
ORC48
ORC83
ORC70
ORC08
B 3
ORC65
ORC64
ORC80
ORC71
SLB
B 1
WST
NWC1
ORC25
ORC66
ORC78
ORC73
ORC75
ORC72
ORC21
ORC43
ORCHQ
STA
B 9
ORC74
TST
ORC55
HTB8
HTB2
FVY2
HTB7
ORC77
ORC79
ORC37
FVY1
ORC76
ORC26
B 10
ORC27
HTB6
HTB1
COS6
ORC28
ORC06
COS2
ORC33
HTB3
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South

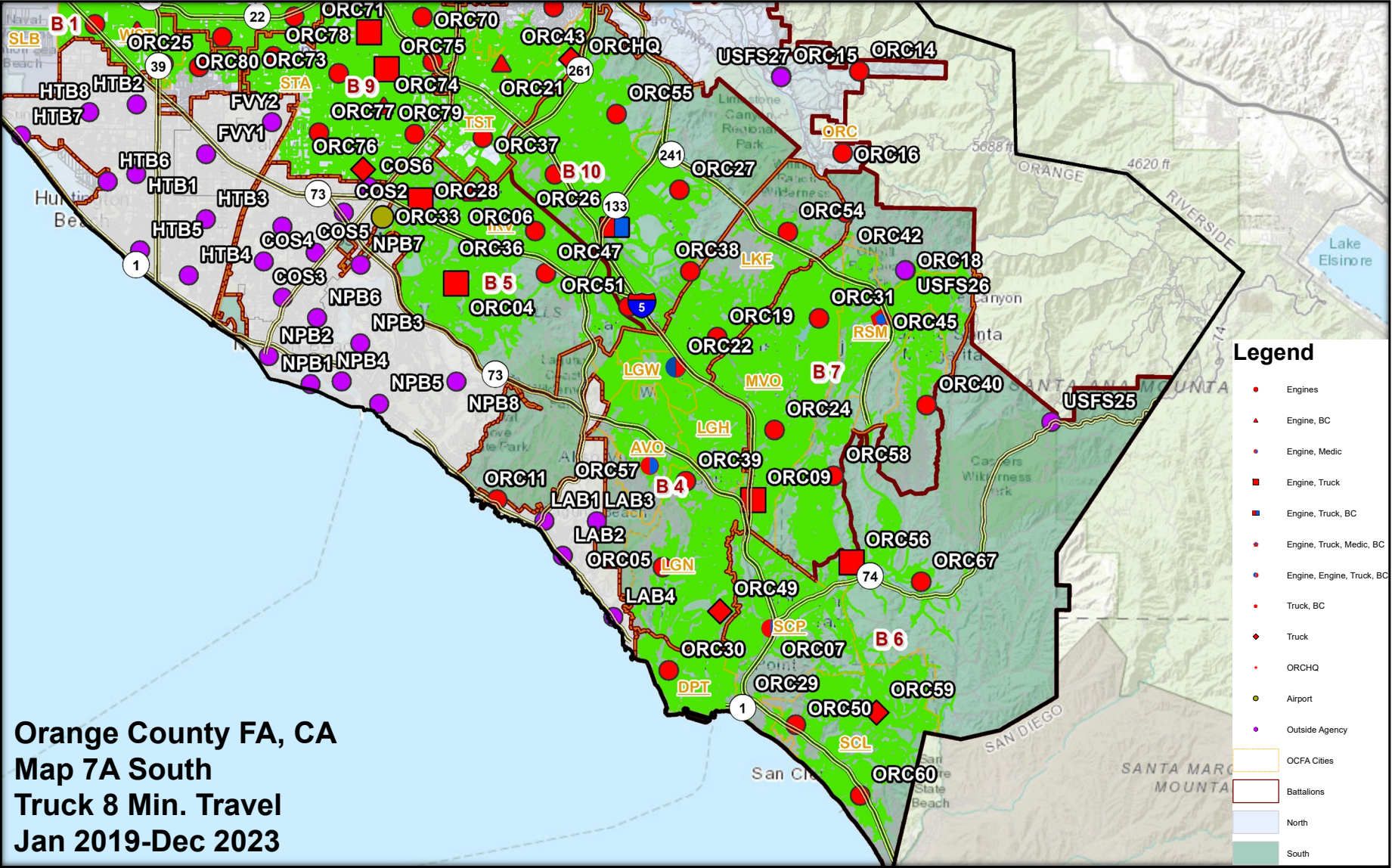

Orange County FA, CA
Map 5 South
OCFA ERF 8 Min. Travel
4 Engines, 2 Truck, 2 BC
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 3
B 4
B 5
B 6
B 7
B 9
B 10
ORC64
ORC80
ORC83
ORC71
ORC72
ORC21
ORC43
ORCHQ
ORC66
ORC73
ORC75
ORC78
ORC25
ORC74
ORC55
ORC77
ORC79
ORC37
ORC76
ORC26
ORC06
ORC33
ORC28
ORC36
ORC20
ORC27
ORC54
ORC42
ORC16
ORC14
ORC15
ORC18
ORC38
ORC47
ORC04
ORC51
ORC31
ORC45
ORC19
ORC22
ORC40
ORC24
ORC58
ORC39
ORC57
ORC09
ORC11
ORC56
ORC67
ORC05
ORC49
ORC07
ORC30
ORC29
ORC50
ORC59
ORC60
HTB8
HTB2
HTB6
HTB1
HTB3
HTB5
HTB4
FVY2
FVY1
COS1
COS2
COS5
COS4
COS3
COS6
NPB7
NPB6
NPB3
NPB2
NPB1
NPB4
NPB8
NPB5
LAB1
LAB3
LAB2
LAB4
WSJT
STA
TST
IRV
LKF
LGW
LGH
MVO
AVO
LGN
SCP
DPT
SCL
RSM
USFS25
Temescal Valley
Santa Ana Mountains
San Mateo Canyon
Trabuco Canyon
4120 ft
5688 ft
4620 ft



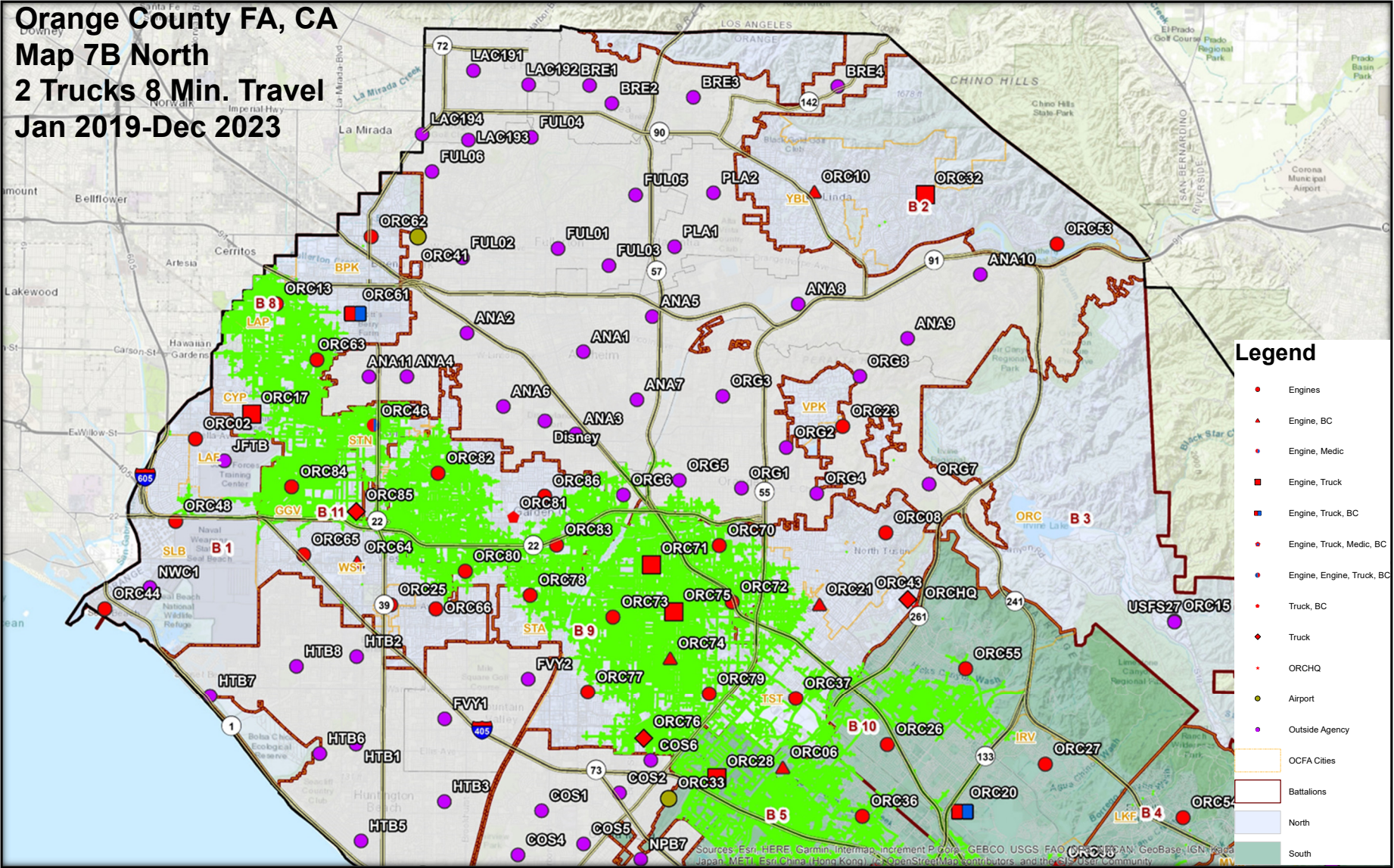
Orange County FA, CA
Map 6 North
4 Engines 8 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 8
B 9
B 10
B 11
LAC191
LAC192
LAC193
LAC194
BRE1
BRE2
BRE3
BRE4
FUL01
FUL02
FUL03
FUL04
FUL05
FUL06
PLA1
PLA2
ORC10
ORC32
ORC53
ORC62
ORC41
ANA10
ANA8
ANA5
ANA9
ORC13
ORC61
ANA2
ANA1
ORC63
ANA11
ANA4
ORG8
ORG3
ANA7
ANA6
ORC17
ORC46
Disney
ANA3
ORC23
ORG2
ORC02
JFTB
ORC82
ORG5
ORG1
ORG7
ORC84
ORC86
ORG6
ORG4
ORC85
ORC81
ORC48
ORC08
ORC83
ORC70
ORC65
ORC64
ORC71
ORC80
NWC1
ORC78
ORC43
ORCHQ
ORC44
ORC25
ORC66
ORC73
ORC75
ORC72
ORC21
HTB2
HTB8
ORC74
ORC55
FVY2
HTB7
ORC77
ORC79
ORC37
FVY1
ORC76
ORC26
HTB6
HTB1
COS6
ORC06
ORC28
ORC27
COS2
ORC33
HTB3
LAP
BPK
CYP
STN
LAF
GGV
SLB
WST
STA
TST
IRV
VPK
YBL
ORC
South Whittier
Norwalk
Cerritos
Hawaiian Gardens
Alondra Blvd
Artesia Blvd
South St
Rosecrans
N Studebaker Rd
Pioneer Blvd
San Gabriel River
Chino Hills
1678 ft
Weapons Station Seal Beach


Orange County FA, CA
Map 6 South
4 Engines 8 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 4
B 5
B 6
B 7
B 9
B 10
ORC64
ORC80
ORC70
ORC71
ORC65
ORC66
ORC73
ORC75
ORC72
ORC21
ORC43
ORCHQ
ORC25
ORC78
ORC74
ORC55
ORC15
ORC14
HTB8
HTB2
FVY2
ORC77
ORC79
ORC37
ORC16
FVY1
ORC76
ORC26
ORC27
HTB6
HTB1
ORC28
ORC06
ORC42
HTB3
COS2
COS1
ORC33
ORC36
ORC20
ORC54
HTB5
COS4
COS5
ORC38
ORC18
HTB4
NPB7
ORC04
ORC47
COS3
ORC51
ORC31
ORC45
NPB6
ORC19
NPB3
NPB2
ORC22
NPB1
NPB4
NPB8
NPB5
ORC40
ORC
USFS25
ORC24
ORC57
ORC39
ORC58
ORC11
ORC09
LAB1
LAB3
LAB2
ORC56
ORC05
ORC67
ORC49
LAB4
ORC07
ORC30
ORC29
ORC50
ORC59
ORC60
WST
TST
IRV
LKF
RSM
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
Temescal Valley
Santa Ana Mountains
Talega Canyon
San Mateo Canyon
San Onofre Canyon


Orange County FA, CA
Map 7A North
Truck 8 Min. Travel
Jan 2019-Dec 2023
LAC192
BRE1
LAC191
BRE2
BRE3
BRE4
LAC194
FUL04
FUL06
FUL05
PLA2
ORC10
B 2
ORC32
YBL
ORC53
ORC62
FUL02
FUL01
FUL03
PLA1
ORC41
ANA10
ORC13
BPK
LAP
B 8
ORC61
ANA5
ANA8
ANA2
ANA1
ANA9
ORC63
ANA11
ANA4
ORG8
ANA6
ANA7
ORG3
CYP
ORC02
ORC17
ORC46
ANA3
VPK
ORC23
ORG2
JFTB
LAF
STN
Disney
ORC82
ORG5
ORG7
ORC84
ORC86
ORG6
ORG4
ORC48
ORC85
GGV
B 11
ORC81
ORG1
ORC08
B 3
ORC
ORC65
ORC64
ORC80
ORC83
ORC70
ORC71
NWC1
SLB
B 1
WST
ORC78
ORC21
ORC43
ORCHQ
ORC44
ORC25
ORC66
ORC73
ORC75
USF
STA
B 9
ORC74
HTB2
HTB8
FVY2
ORC55
HTB7
ORC77
ORC79
TST
ORC37
FVY1
ORC76
ORC26
HTB6
COS6
B 10
ORC27
HTB1
ORC28
ORC06
COS2
ORC33
HTB3
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South

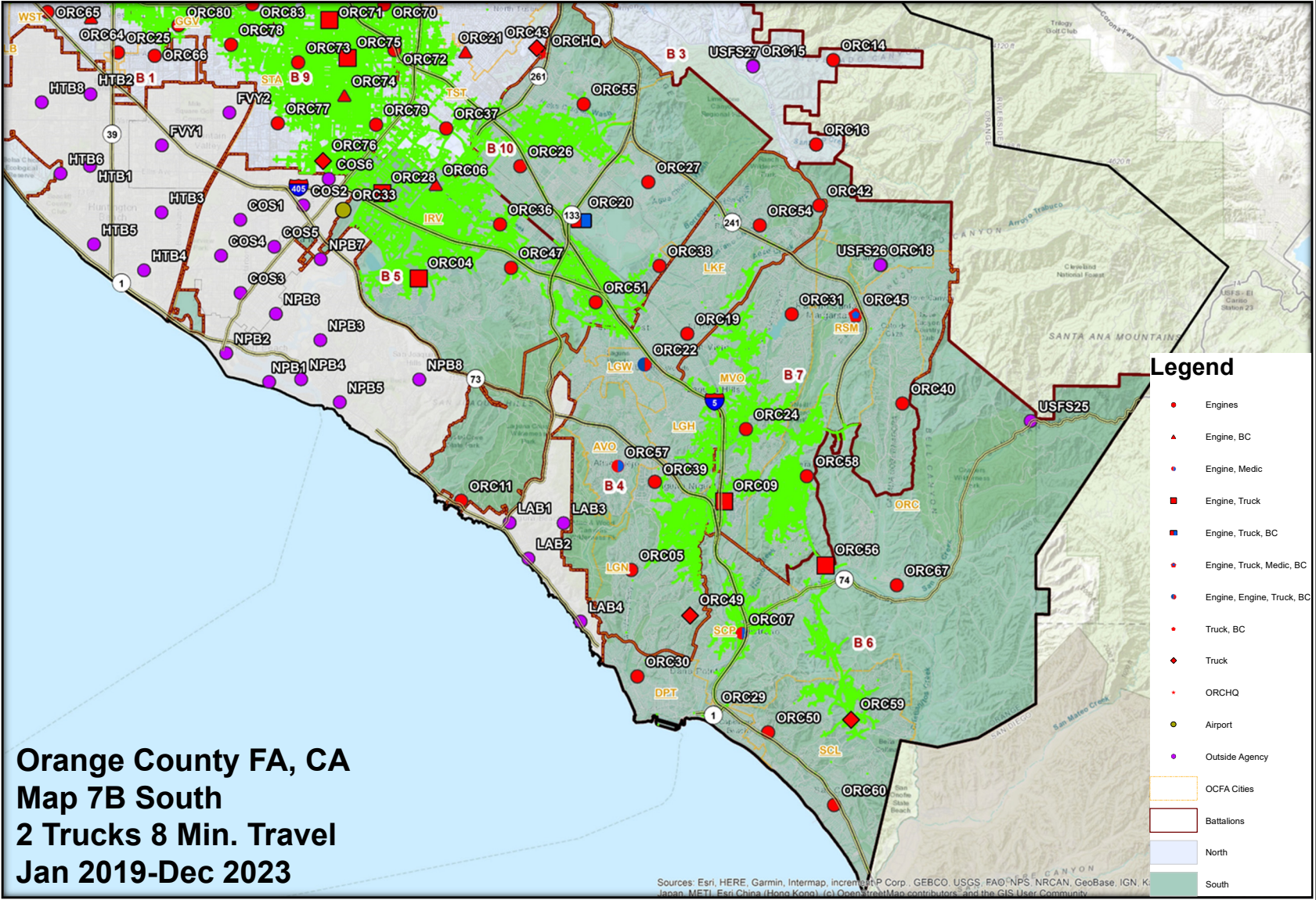

Orange County FA, CA
Map 7A South
Truck 8 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 4
B 5
B 6
B 7
B 9
B 10
ORC71
ORC70
ORC78
ORC75
ORC43
ORCHQ
ORC25
ORC80
ORC73
ORC74
ORC21
ORC55
ORC77
ORC79
ORC76
ORC37
ORC27
COS6
COS2
ORC28
ORC26
ORC33
ORC06
ORC36
ORC47
ORC38
ORC51
ORC04
NPB7
COS4
COS5
COS3
NPB6
NPB3
NPB2
NPB1
NPB4
NPB5
NPB8
ORC11
ORC57
LAB1
LAB3
LAB2
ORC05
LAB4
ORC49
ORC30
ORC07
ORC29
ORC50
ORC60
ORC39
ORC09
ORC56
ORC67
ORC58
ORC24
ORC40
USFS25
ORC54
ORC42
ORC18
USFS26
ORC31
ORC45
ORC19
ORC22
ORC16
ORC14
USFS27
ORC15
HTB8
HTB2
HTB7
FVY2
FVY1
HTB6
HTB1
HTB3
HTB5
HTB4
SLB
STA
TST
LKF
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
RSM
ORC
22
39
73
261
241
133
1
5
74
ORANGE
RIVERSIDE
SAN DIEGO
Lake Elsinore
4620 ft
5688 ft

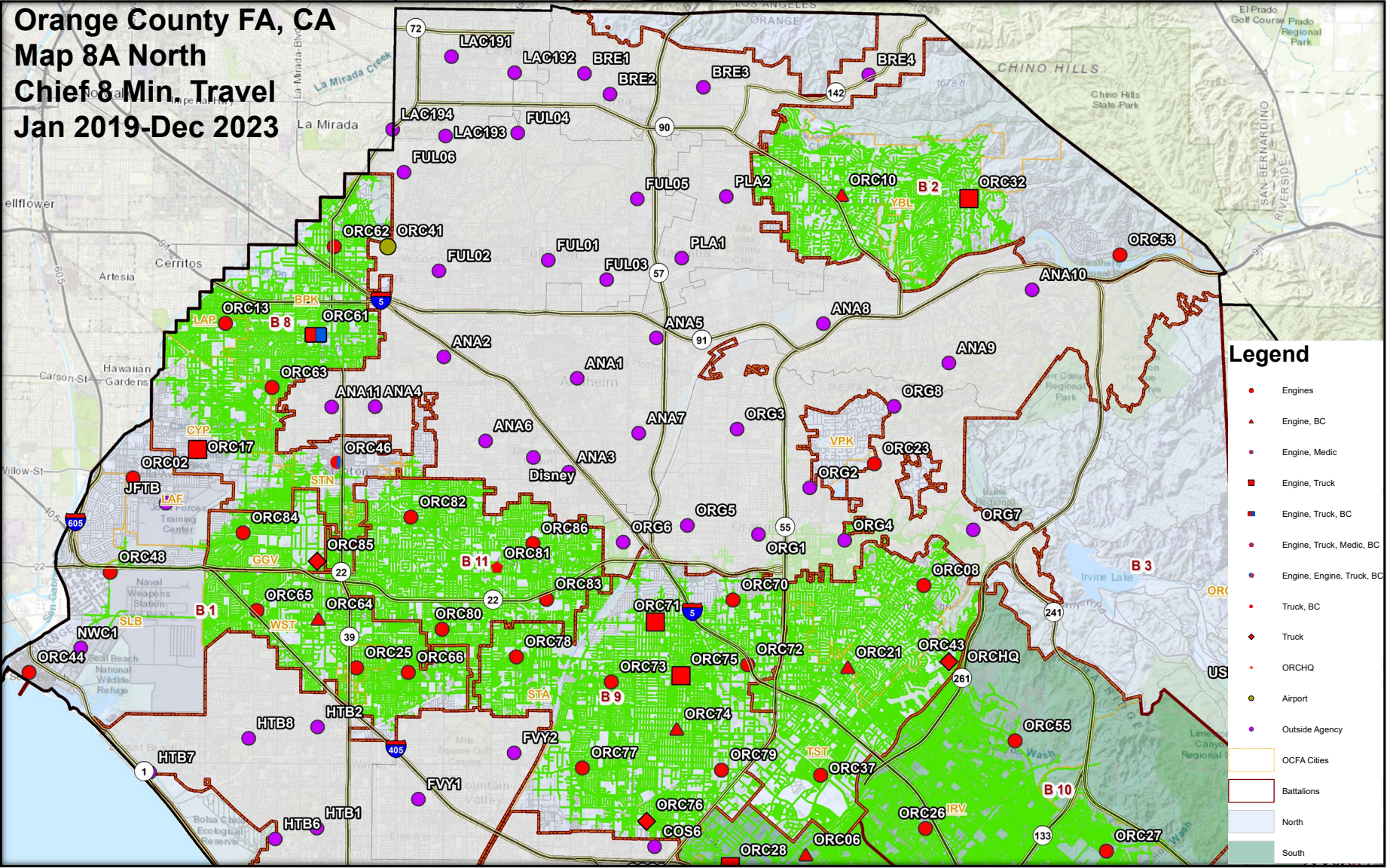
Orange County FA, CA
Map 7B North
2 Trucks 8 Min. Travel
Jan 2019-Dec 2023

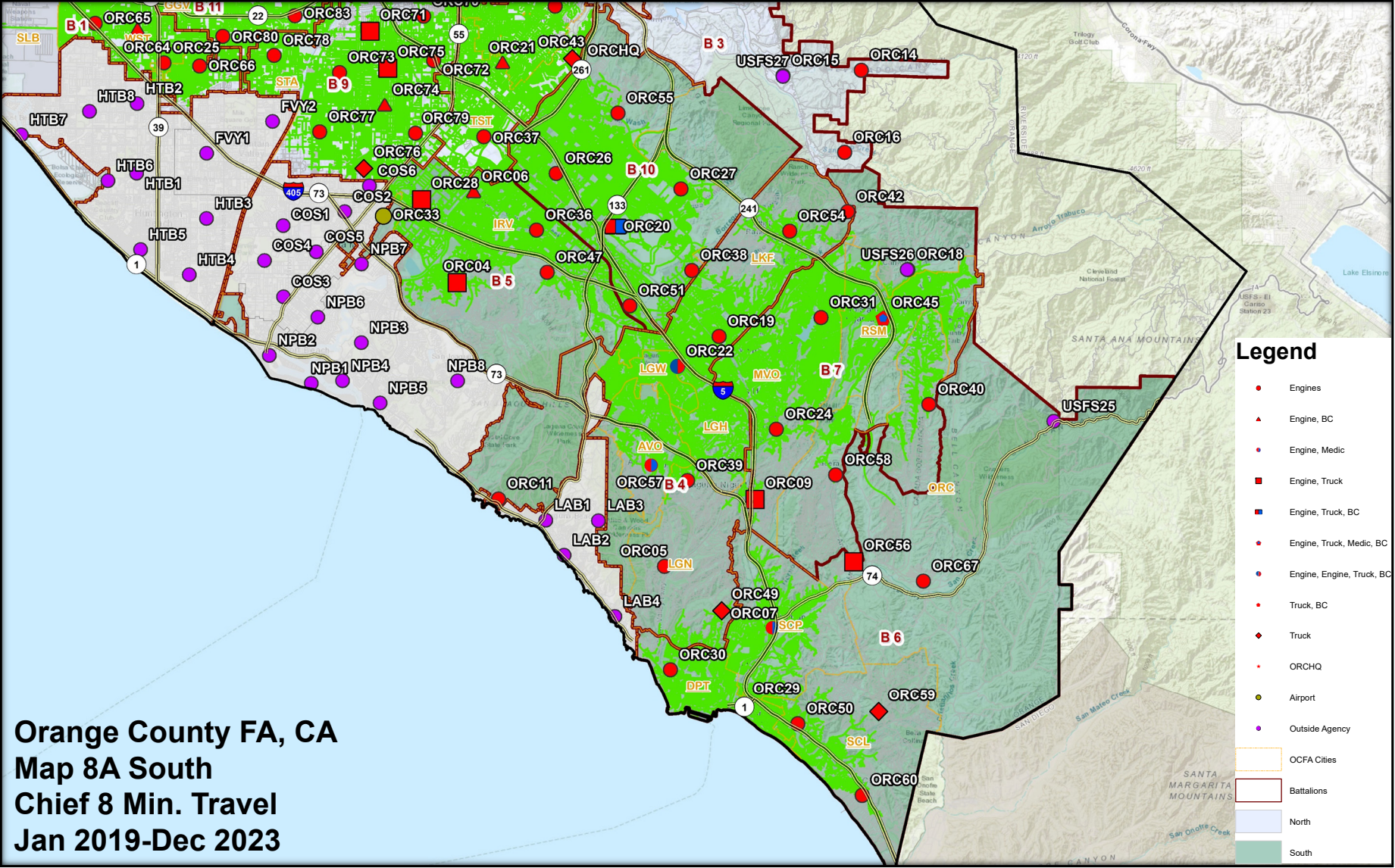


Legend

- Engines
- Engine, BC
- Engine, Medic
- Engine, Truck
- Engine, Truck, BC
- Engine, Truck, Medic, BC
- Engine, Engine, Truck, BC
- Truck, BC
- Truck
- ORCHQ
- Airport
- Outside Agency
- OCFA Cities
- Battalions
- North
- South


Orange County FA, CA
Map 7B South
2 Trucks 8 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
ORC65
ORC64
ORC25
ORC66
ORC80
ORC83
ORC71
ORC70
ORC78
ORC73
ORC75
ORC72
ORC21
ORC43
ORCHQ
ORC74
ORC77
ORC79
ORC37
ORC55
ORC76
ORC26
ORC06
ORC28
ORC33
ORC36
ORC20
ORC27
ORC47
ORC04
ORC51
ORC38
ORC54
ORC42
ORC14
ORC15
ORC16
ORC18
ORC31
ORC45
ORC19
ORC22
ORC24
ORC40
ORC57
ORC39
ORC58
ORC09
ORC11
ORC05
ORC56
ORC67
ORC49
ORC07
ORC30
ORC29
ORC50
ORC59
ORC60
B 1
B 3
B 4
B 5
B 6
B 7
B 9
B 10
HTB1
HTB2
HTB3
HTB4
HTB5
HTB6
HTB8
FVY1
FVY2
COS1
COS2
COS3
COS4
COS5
COS6
NPB1
NPB2
NPB3
NPB4
NPB5
NPB6
NPB7
NPB8
LAB1
LAB2
LAB3
LAB4
USFS25
USFS26
USFS27
IRV
LKF
LGW
LGH
MVO
RSM
AVO
LGN
SCP
DPT
SCL
SANTA ANA MOUNTAINS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, K... Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community


Orange County FA, CA
Map 8A North
Chief 8 Min. Travel
Jan 2019-Dec 2023
LAC191
LAC192
BRE1
BRE2
BRE3
BRE4
LAC194
LAC193
FUL04
FUL06
FUL05
PLA2
ORC10
B 2
ORC32
ORC62
ORC41
FUL02
FUL01
FUL03
PLA1
ORC53
ANA10
ORC13
BPK
LAP
B 8
ORC61
ANA2
ANA1
ANA5
ANA8
ANA9
ORC63
ANA11
ANA4
ANA6
ANA7
ANA3
Disney
ORG8
ORG3
CYP
ORC17
ORC46
ORC02
JFTB
STN
VPK
ORC23
ORG2
ORC32
ORC84
ORC86
ORG6
ORG5
ORG4
ORG7
ORC48
ORC85
GGV
B 11
ORC81
ORG1
ORC08
B 3
ORC83
ORC70
ORC65
ORC64
B 1
SLB
WST
ORC80
ORC71
NWC1
ORC78
ORC72
ORC21
ORC43
ORCHQ
ORC44
ORC25
ORC66
ORC73
ORC75
STA
B 9
ORC74
HTB2
HTB8
ORC55
FVY2
HTB7
ORC77
ORC79
TST
ORC37
FVY1
B 10
ORC26
IRV
HTB1
ORC76
COS6
HTB6
ORC06
ORC28
ORC27
La Mirada
Cerritos
Artesia
Hawaiian Gardens
Anaheim
Disney
CHINO HILLS
Chino Hills State Park
Irvine Lake
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South


Orange County FA, CA
Map 8A South
Chief 8 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 3
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USFS27
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USFS25
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ORC60
HTB8
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HTB4
FVY1
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COS6
COS2
COS1
COS5
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COS3
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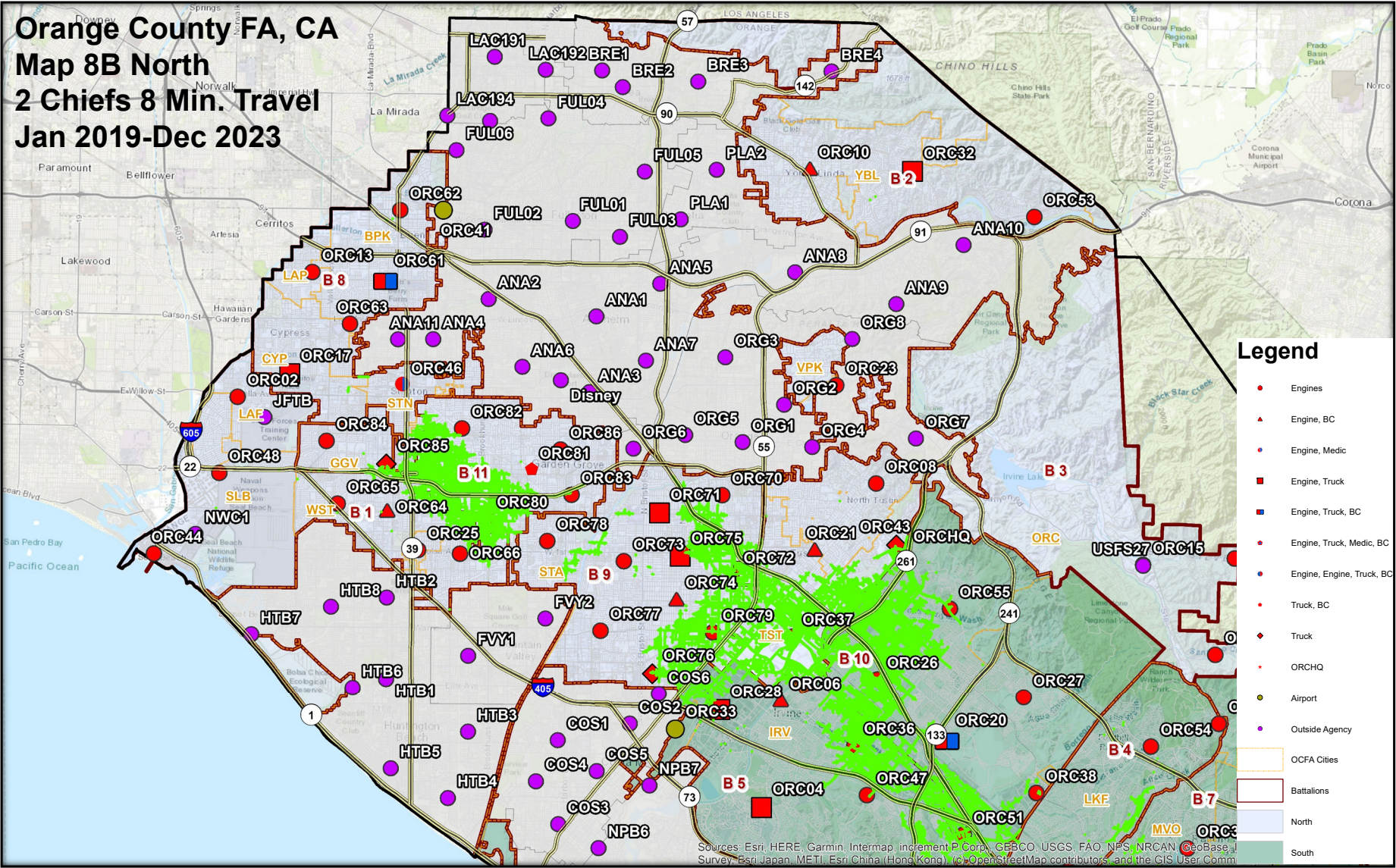
NPB8
NPB5
LAB1
LAB3
LAB2
LAB4
SLB
STA
TSt
IRV
LKF
RSM
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
ORC
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
CANYON
Trilogy Golf Club
Cleveland National Forest
Lake Elsinore
Arroyo Trabuco
San Mateo Creek
San Onofre Creek
Corona Fwy
USFS - El Cariso Station 23


Orange County FA, CA
Map 8B North
2 Chiefs 8 Min. Travel
Jan 2019-Dec 2023
LAC191
LAC192
BRE1
BRE2
BRE3
BRE4
LAC194
FUL04
FUL06
FUL05
PLA2
ORC10
ORC32
ORC62
FUL02
FUL01
FUL03
PLA1
ORC53
ORC41
ANA10
ORC13
ORC61
ANA5
ANA8
ANA2
ANA1
ANA9
ORC63
ANA11
ANA4
ORG8
ANA6
ANA7
ORG3
ORC17
ORC46
ANA3
VPK
ORC23
ORC02
ORG2
JFTB
STN
ORC82
ORG5
ORG1
ORG4
ORG7
ORC84
ORC86
ORG6
ORC85
ORC81
ORC48
GGV
B 11
ORC08
B 3
ORC65
ORC83
ORC70
SLB
ORC64
ORC80
ORC71
WST
B 1
NWC1
ORC78
ORC44
ORC25
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ORC75
ORC21
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ORCHQ
ORC
USFS27
ORC15
ORC72
STA
B 9
HTB2
ORC74
HTB8
FVY2
ORC55
HTB7
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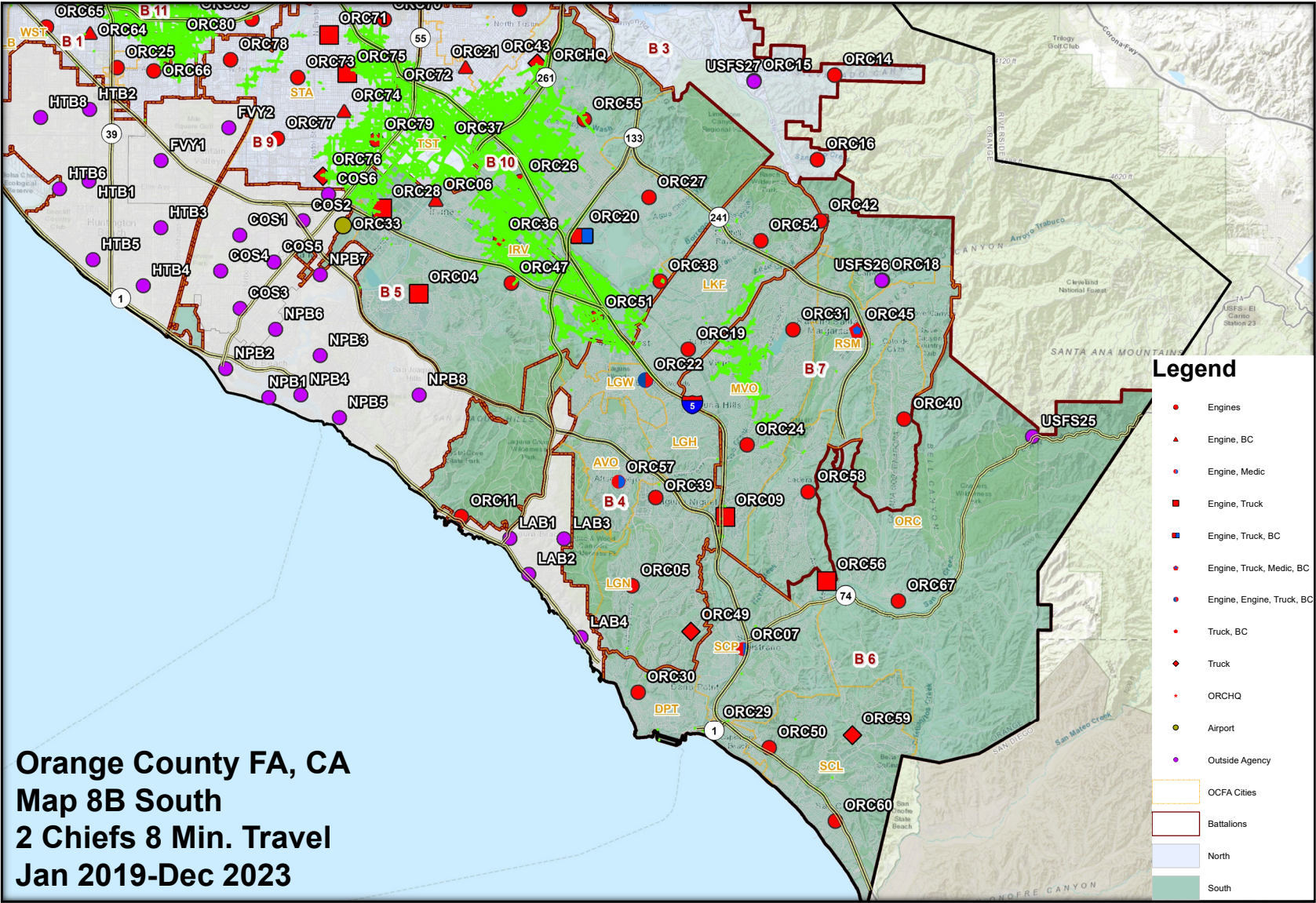
ORC79
ORC37
FVY1
TST
ORC76
B 10
ORC26
HTB6
COS6
ORC06
ORC27
HTB1
ORC28
COS2
ORC33
HTB3
COS1
IRV
ORC36
ORC20
ORC54
HTB5
COS4
COS5
NPB7
B 4
ORC38
HTB4
B 5
ORC04
ORC47
LKF
B 7
COS3
ORC51
NPB6
MVO
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Comm


Orange County FA, CA
Map 8B South
2 Chiefs 8 Min. Travel
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
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ORCHQ
USFS25
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HTB6
HTB8
FVY1
FVY2
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COS5
COS6
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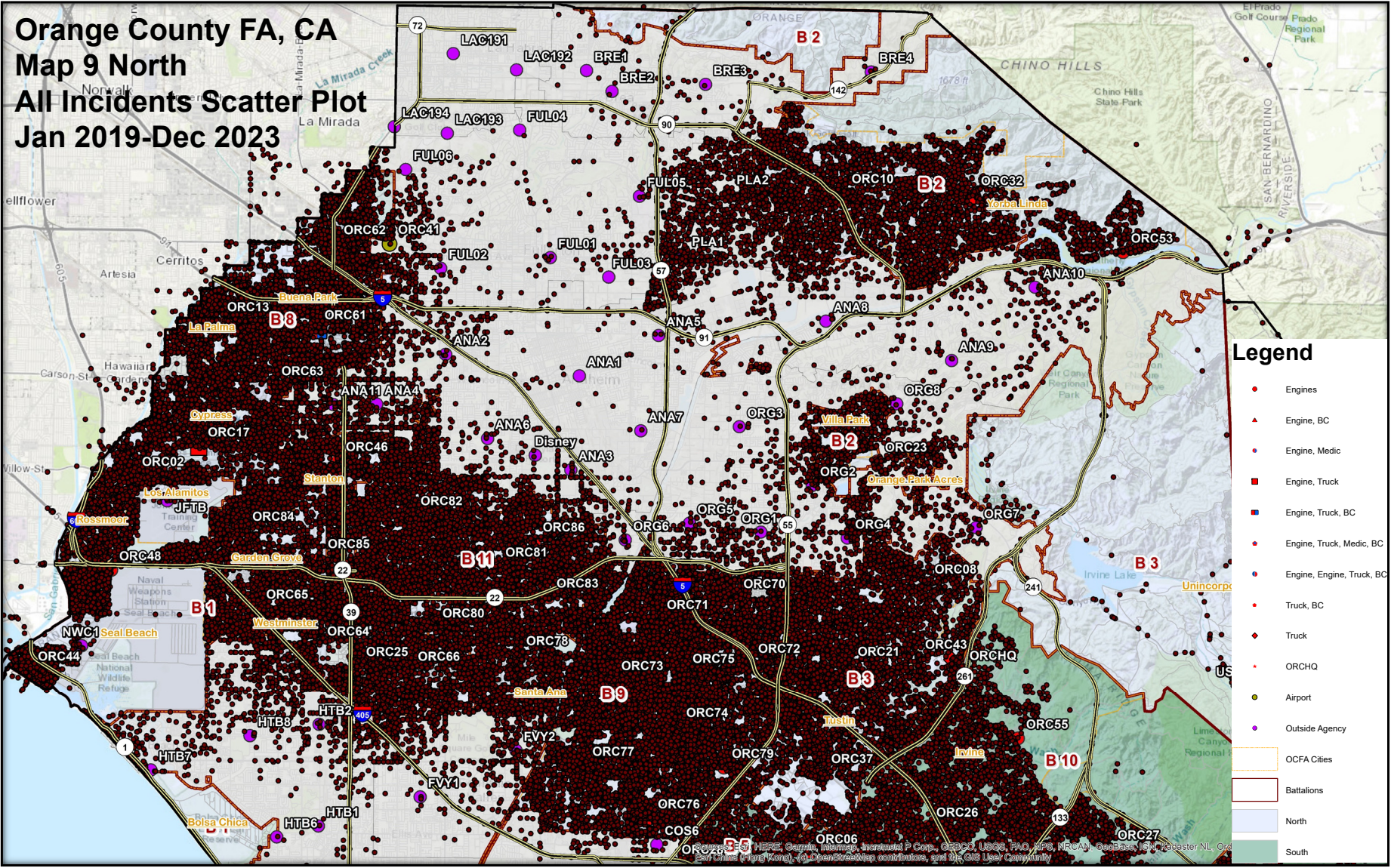
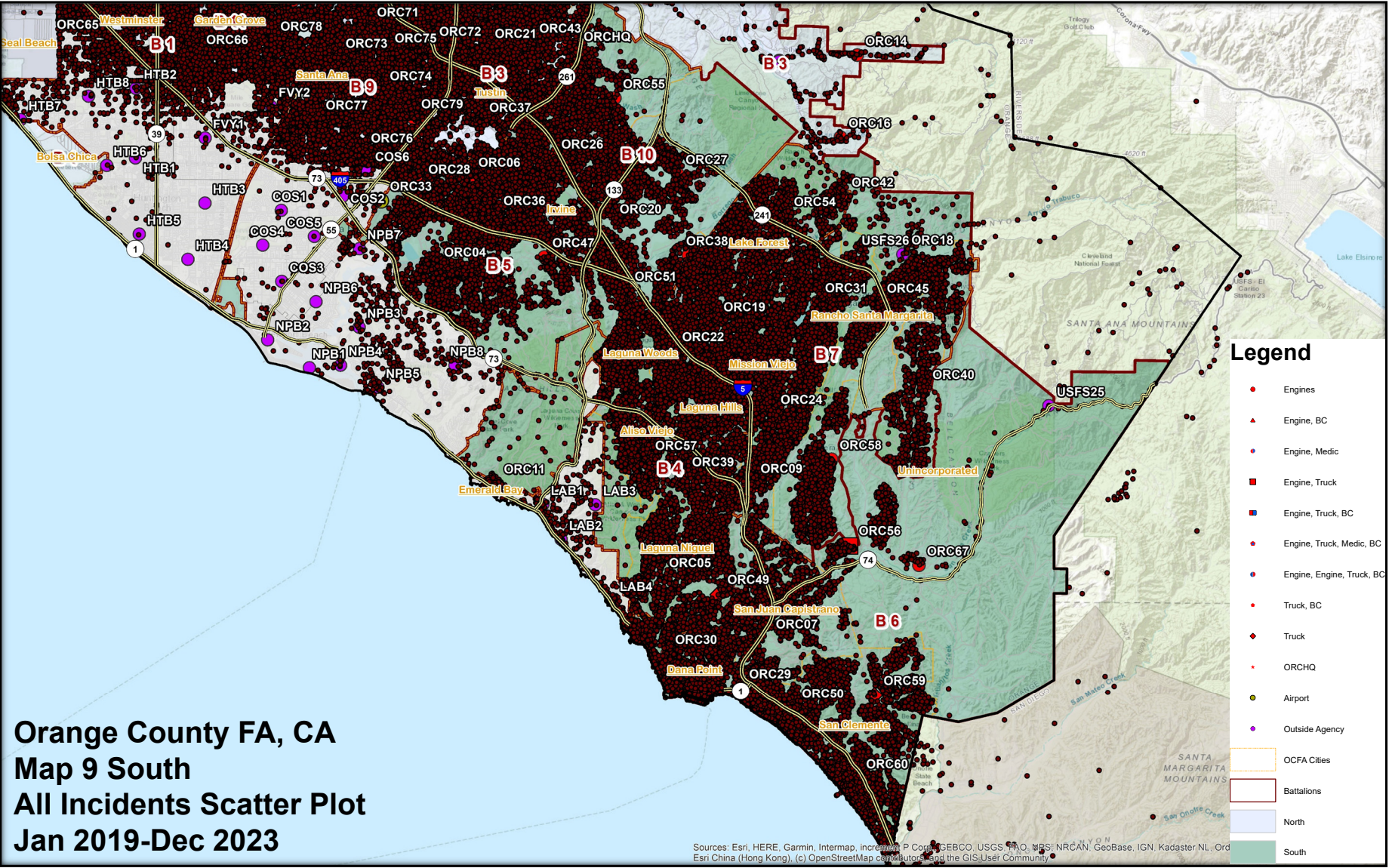
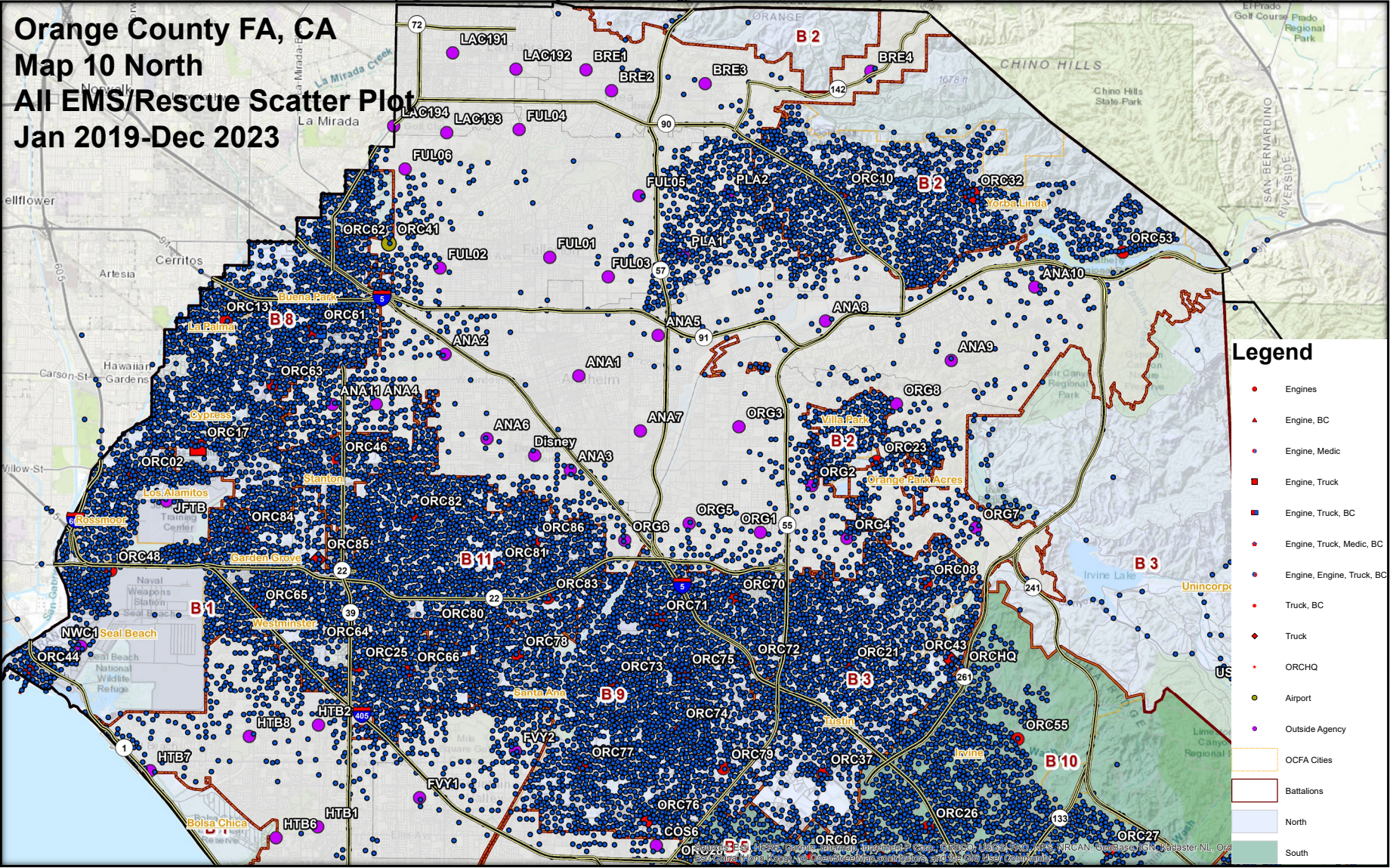
LAB3
LAB4
LGH
LGN
LGW
LKF
MVO
AVO
IRV
RSM
SCP
SCL
DPT
TST
STA
WST
SANTA ANA MOUNTAINS
Trilogy Golf Club
Cleveland National Forest
San Mateo Creek

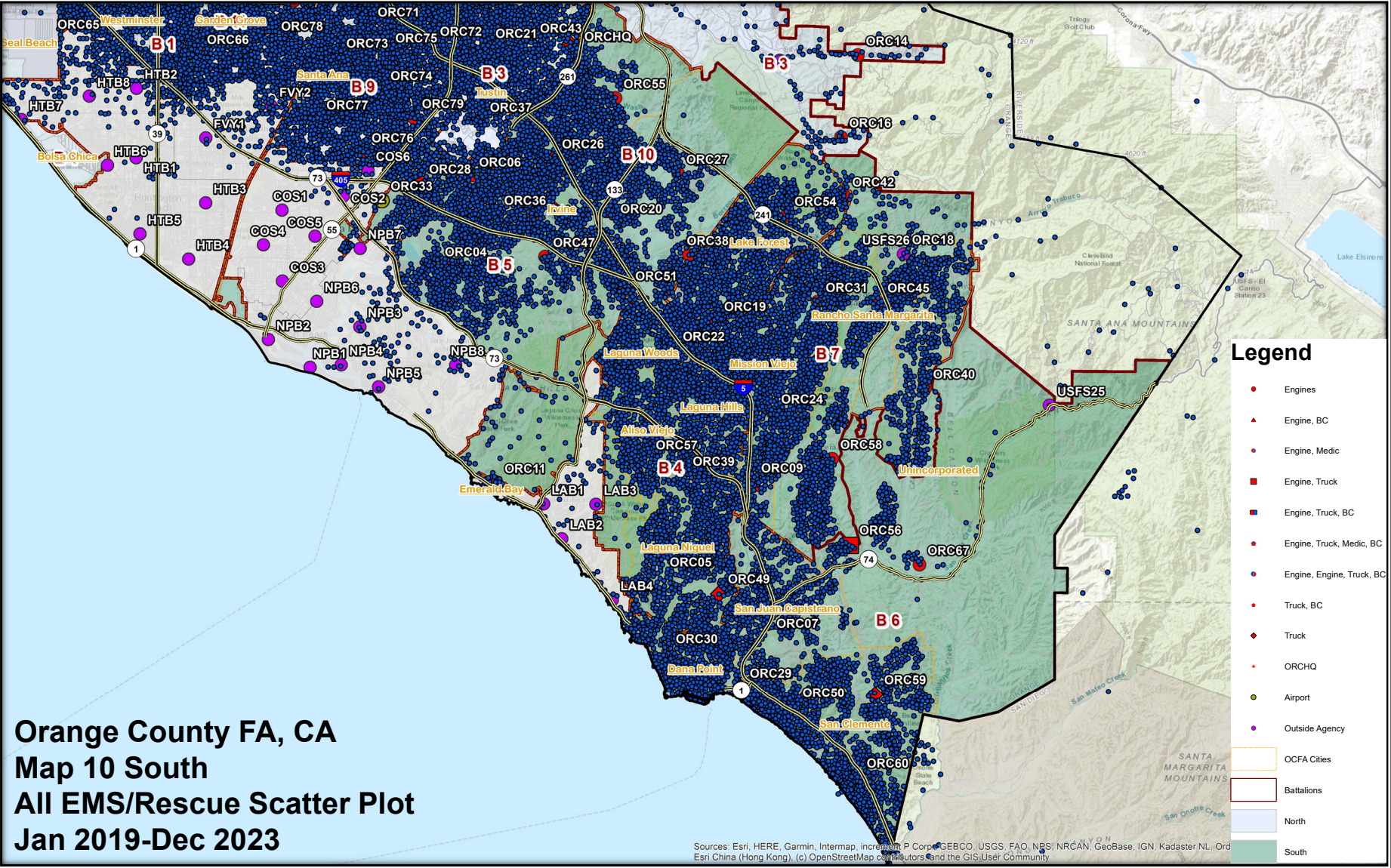
Orange County FA, CA
Map 9 North
All Incidents Scatter Plot
Jan 2019-Dec 2023



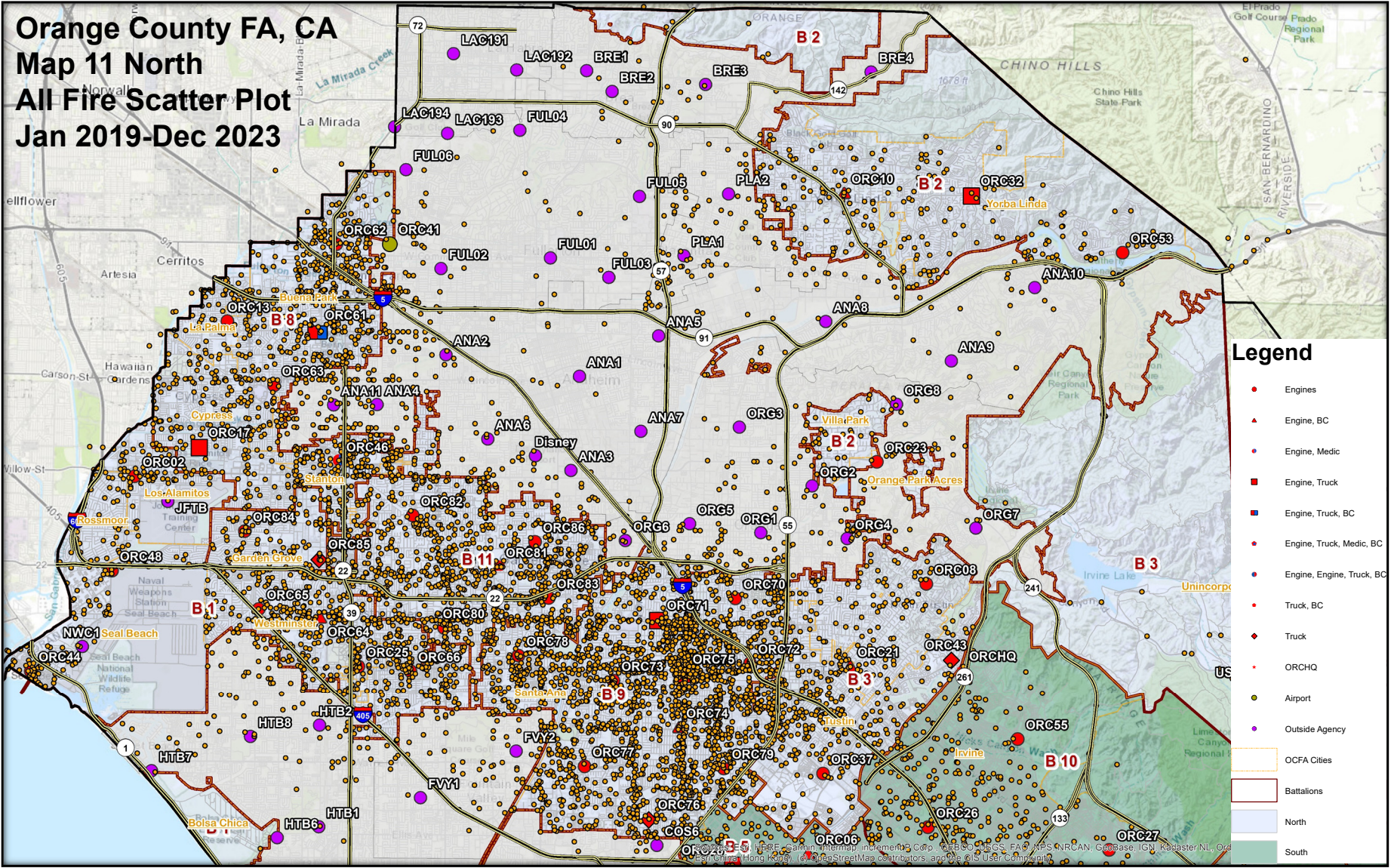

Orange County FA, CA
Map 9 South
All Incidents Scatter Plot
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B1
B3
B4
B5
B6
B7
B9
B10
Westminster
Garden Grove
Seal Beach
Santa Ana
Tustin
Bolsa Chica
Irvine
Lake Forest
Rancho Santa Margarita
Laguna Woods
Mission Viejo
Laguna Hills
Aliso Viejo
Emerald Bay
Laguna Niguel
San Juan Capistrano
Dana Point
San Clemente
Unincorporated
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

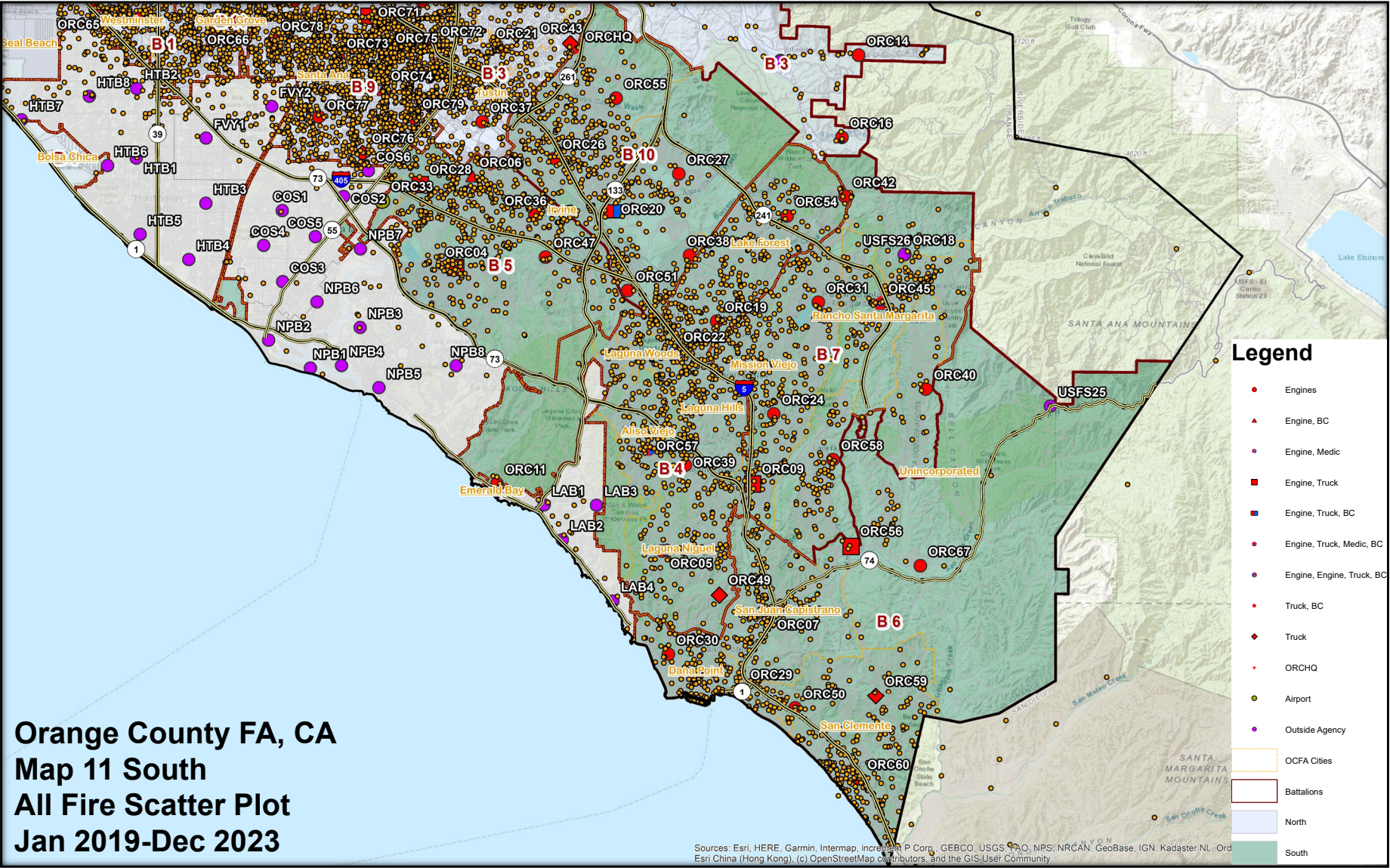
Orange County FA, CA
Map 10 North
All EMS/Rescue Scatter Plot
Jan 2019-Dec 2023




Orange County FA, CA
Map 10 South
All EMS/Rescue Scatter Plot
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 3
B 4
B 5
B 6
B 7
B 9
B 10
Westminster
Garden Grove
Seal Beach
Santa Ana
Tustin
Bolsa Chica
Irvine
Lake Forest
Rancho Santa Margarita
Laguna Woods
Mission Viejo
Laguna Hills
Aliso Viejo
Emerald Bay
Laguna Niguel
San Juan Capistrano
Dana Point
San Clemente
Unincorporated
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Orange County FA, CA
Map 11 North
All Fire Scatter Plot
Jan 2019-Dec 2023




Orange County FA, CA
Map 11 South
All Fire Scatter Plot
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 4
B 5
B 6
B 7
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ORC65
ORC66
ORC78
ORC73
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ORC21
ORC43
ORCHQ
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ORC50
ORC60
USFS26
USFS25
HTB8
HTB2
HTB7
FVY2
FVY1
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HTB1
HTB3
HTB5
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COS6
COS1
COS2
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COS4
COS3
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NPB8
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LAB1
LAB3
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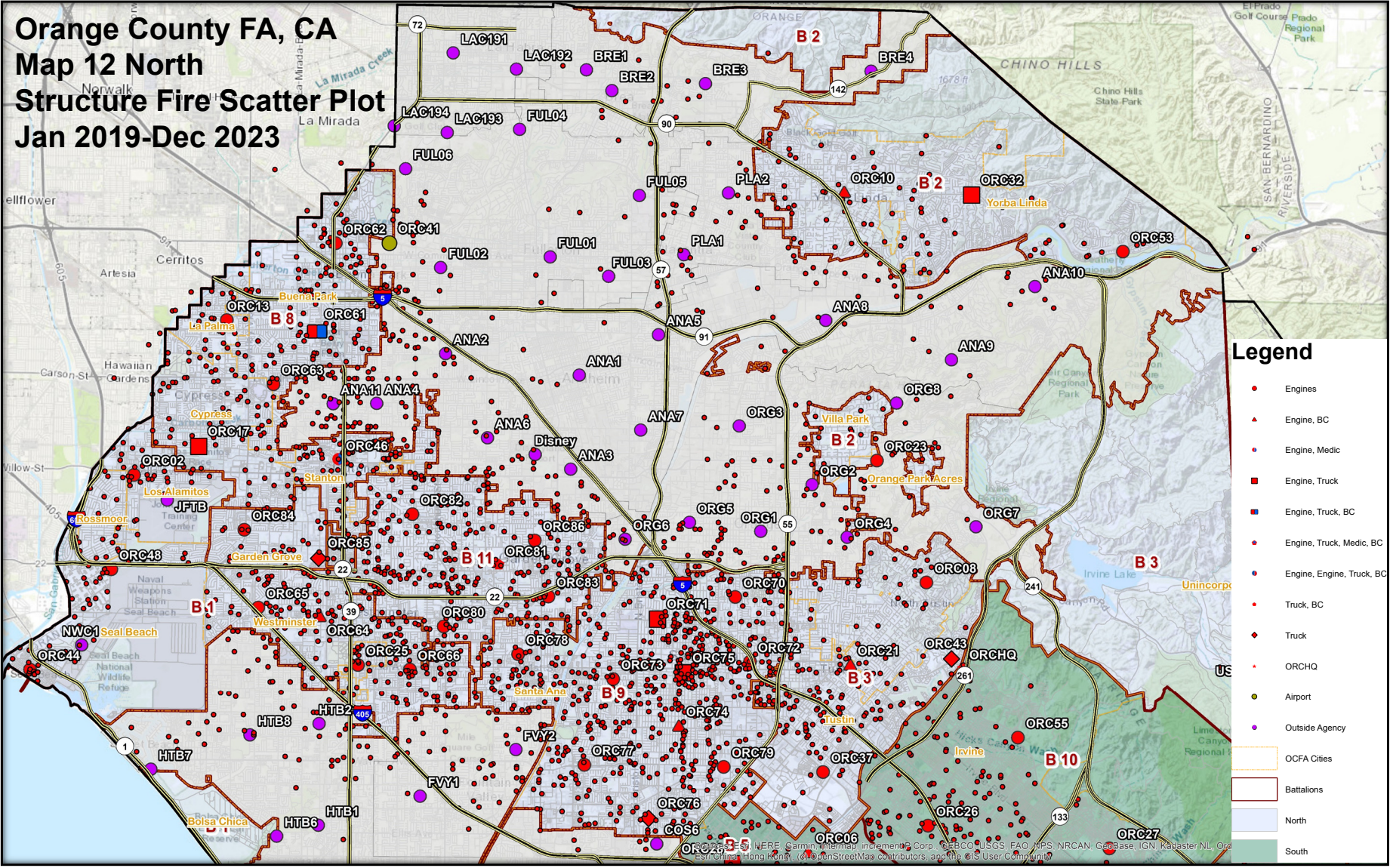
LAB4
Seal Beach
Westminster
Garden Grove
Santa Ana
Tustin
Bolsa Chica
Irvine
Lake Forest
Rancho Santa Margarita
Laguna Woods
Mission Viejo
Laguna Hills
Aliso Viejo
Emerald Bay
Laguna Niguel
San Juan Capistrano
Dana Point
San Clemente
Unincorporated
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community


Orange County FA, CA
Map 12 North
Structure Fire Scatter Plot
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 4
B 5
B 6
B 7
B 8
B 9
B 10
B 11
ORANGE
CHINO HILLS
Norwalk
La Mirada
Cerritos
Artesia
Buena Park
La Palma
Cypress
Hawaiian Gardens
Stanton
Los Alamitos
Rossmoor
Garden Grove
Westminster
Seal Beach
Naval Weapons Station Seal Beach
Seal Beach National Wildlife Refuge
Bolsa Chica
Anaheim
Disney
Villa Park
Orange Park Acres
Yorba Linda
Chino Hills State Park
Irvine
Irvine Lake
Santa Ana
Tustin
Unincorporated
LAC191
LAC192
BRE1
BRE2
BRE3
BRE4
LAC194
LAC193
FUL04
FUL06
FUL05
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ORC10
ORC32
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ORC41
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FUL03
PLA1
ORC53
ANA10
ORC13
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HTB2
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ORC74
FVY2
ORC55
HTB7
ORC77
ORC79
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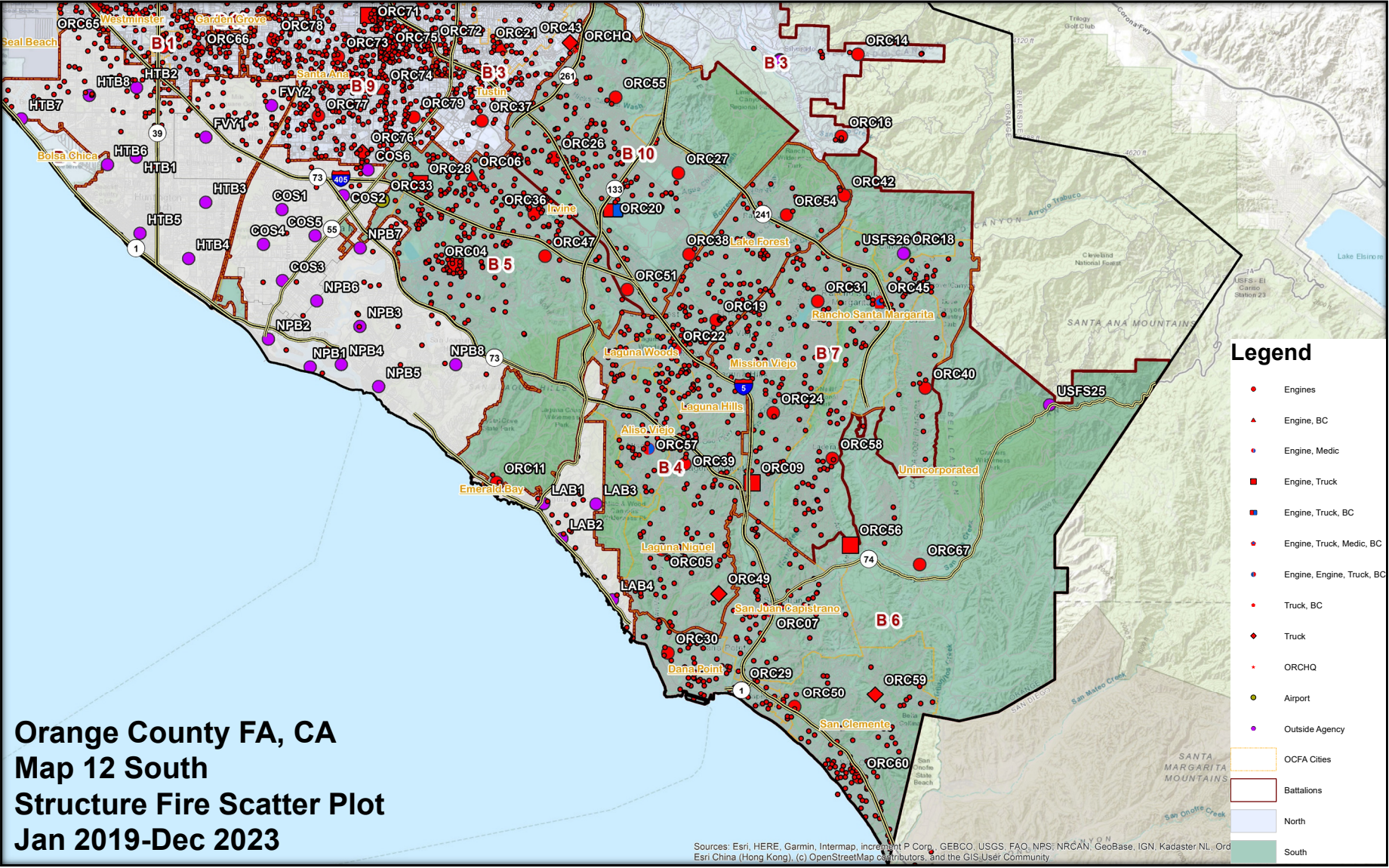
FVY1
HTB1
ORC76
ORC26
HTB6
COS6
ORC06
ORC27
ORC54
Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ord
Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community


Orange County FA, CA
Map 12 South
Structure Fire Scatter Plot
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
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LAB1
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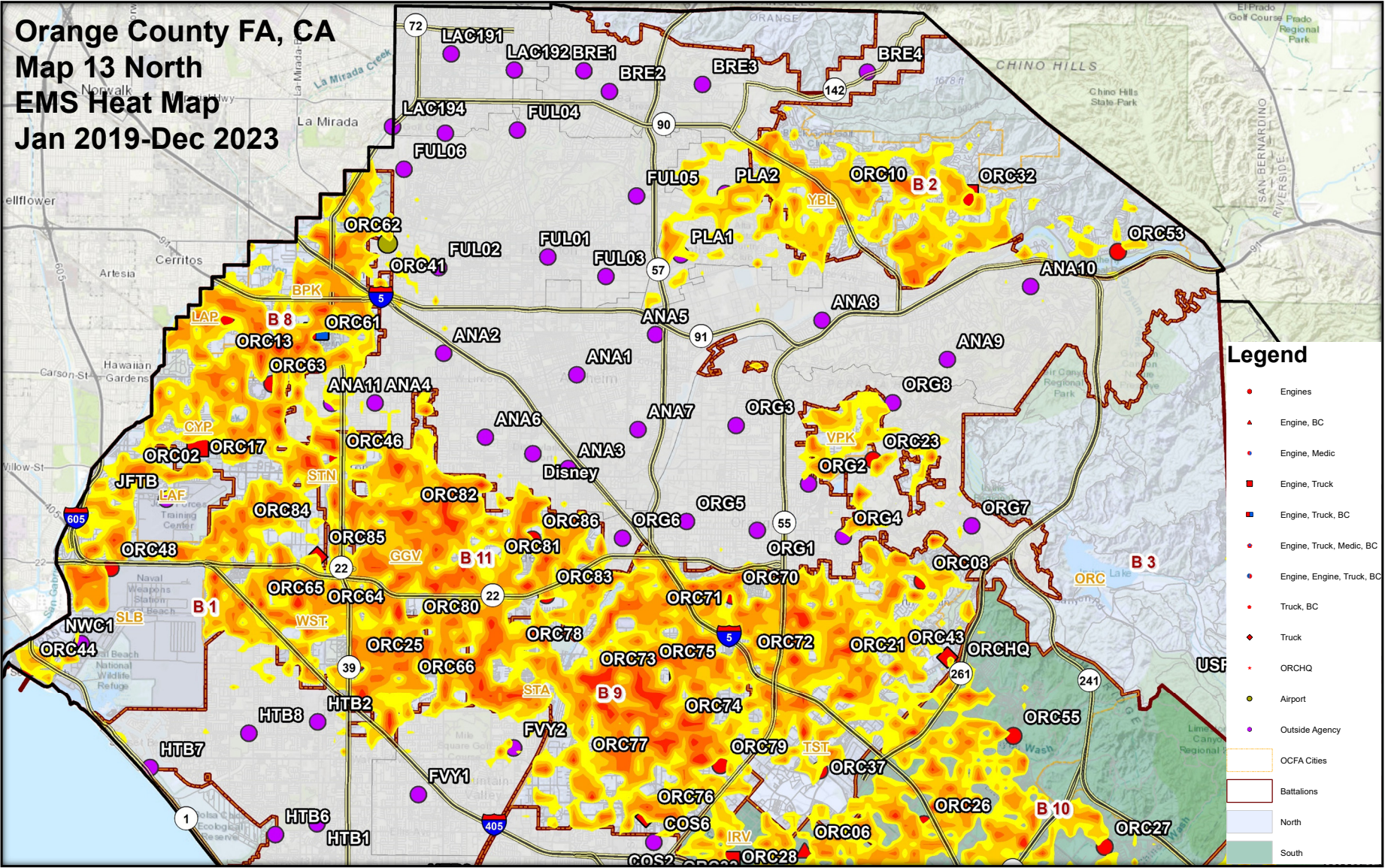
USFS26
USFS25
Westminster
Garden Grove
Seal Beach
Santa Ana
Tustin
Irvine
Lake Forest
Rancho Santa Margarita
Laguna Woods
Mission Viejo
Laguna Hills
Aliso Viejo
Unincorporated
Emerald Bay
Laguna Niguel
San Juan Capistrano
Dana Point
San Clemente
Bolsa Chica
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community


Orange County FA, CA
Map 13 North
EMS Heat Map
Jan 2019-Dec 2023
LAC191
LAC192
BRE1
BRE2
BRE3
BRE4
LAC194
FUL04
FUL06
FUL05
PLA2
ORC10
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ORC62
FUL02
FUL01
FUL03
PLA1
ORC53
ORC41
ANA10
BPK
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ORG2
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ORC81
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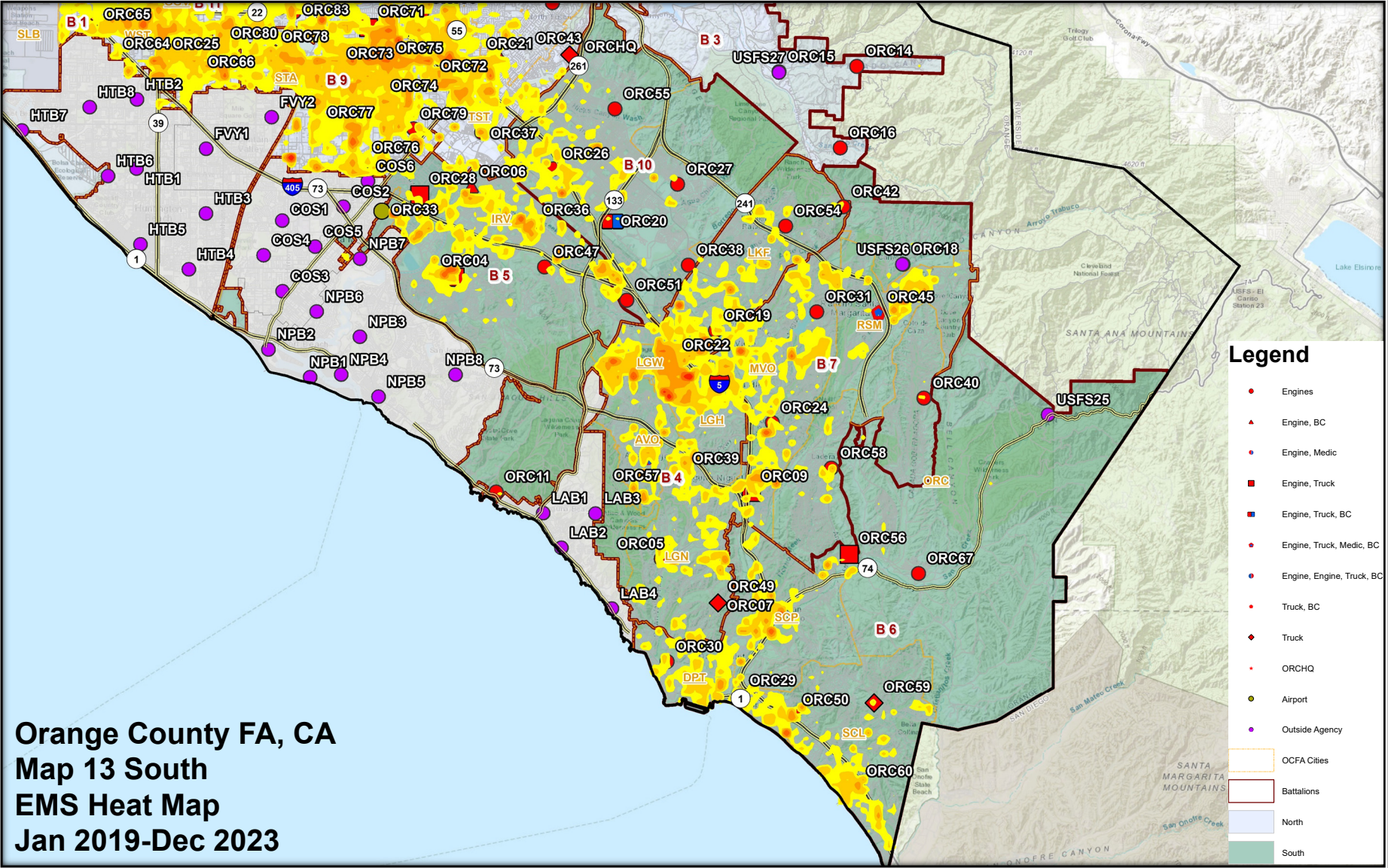
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South


Orange County FA, CA
Map 13 South
EMS Heat Map
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
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NPB7
NPB8
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COS2
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COS4
COS5
COS6
HTB1
HTB2
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HTB6
HTB7
HTB8
FVY1
FVY2
LAB1
LAB2
LAB3
LAB4
USFS25
USFS26
USFS27
SLB
STA
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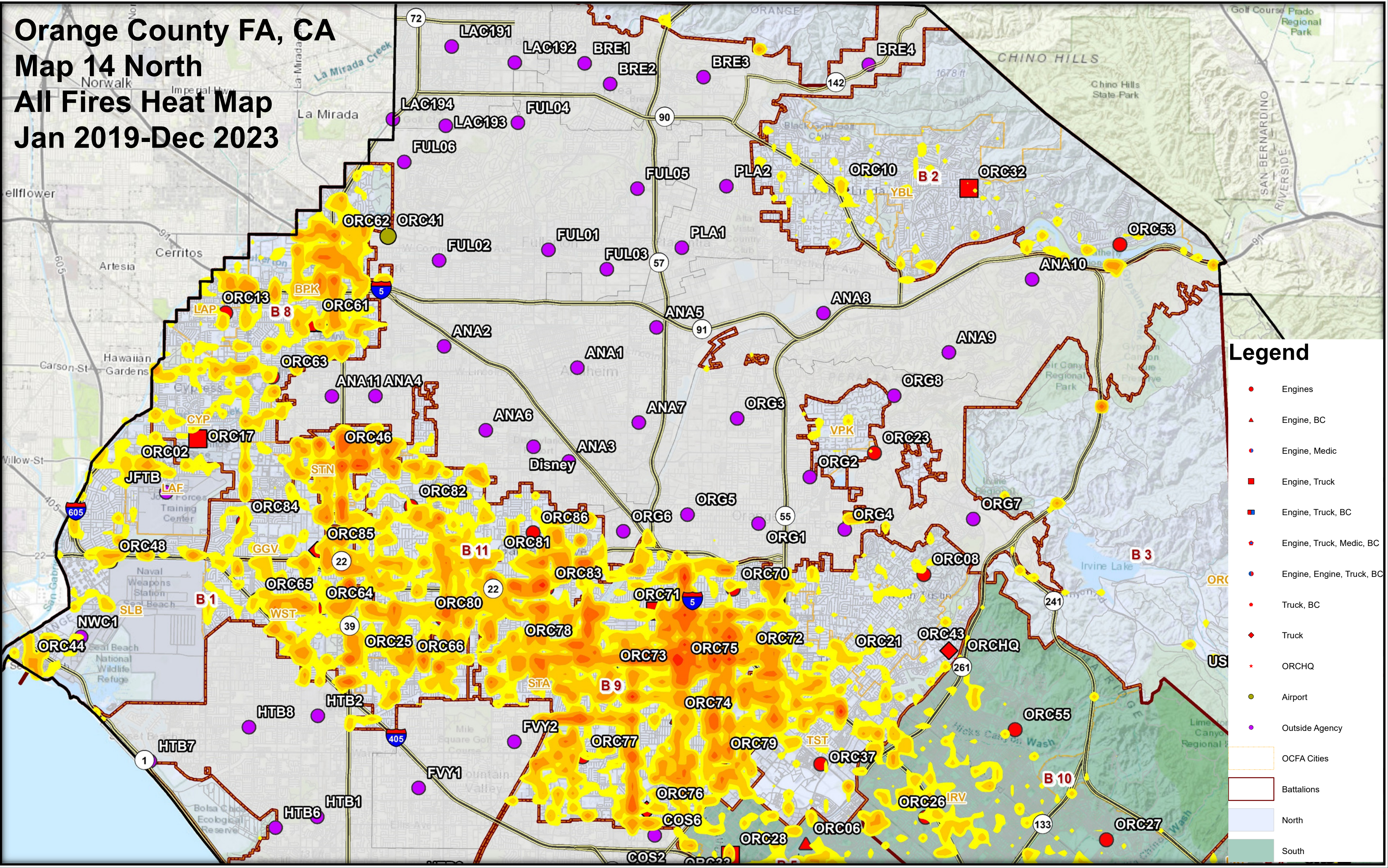
IRV
LKF
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
RSM
ORC
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
SAN ONOFRE CANYON


Orange County FA, CA
Map 14 North
All Fires Heat Map
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
B 2
B 3
B 8
B 9
B 10
B 11
LAC191
LAC192
LAC193
LAC194
BRE1
BRE2
BRE3
BRE4
FUL01
FUL02
FUL03
FUL04
FUL05
FUL06
PLA1
PLA2
ORC10
ORC32
ORC53
ANA10
ORC62
ORC41
ORC13
ORC61
ORC63
ANA1
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Disney
ORC17
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JFTB
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ORC08
NWC1
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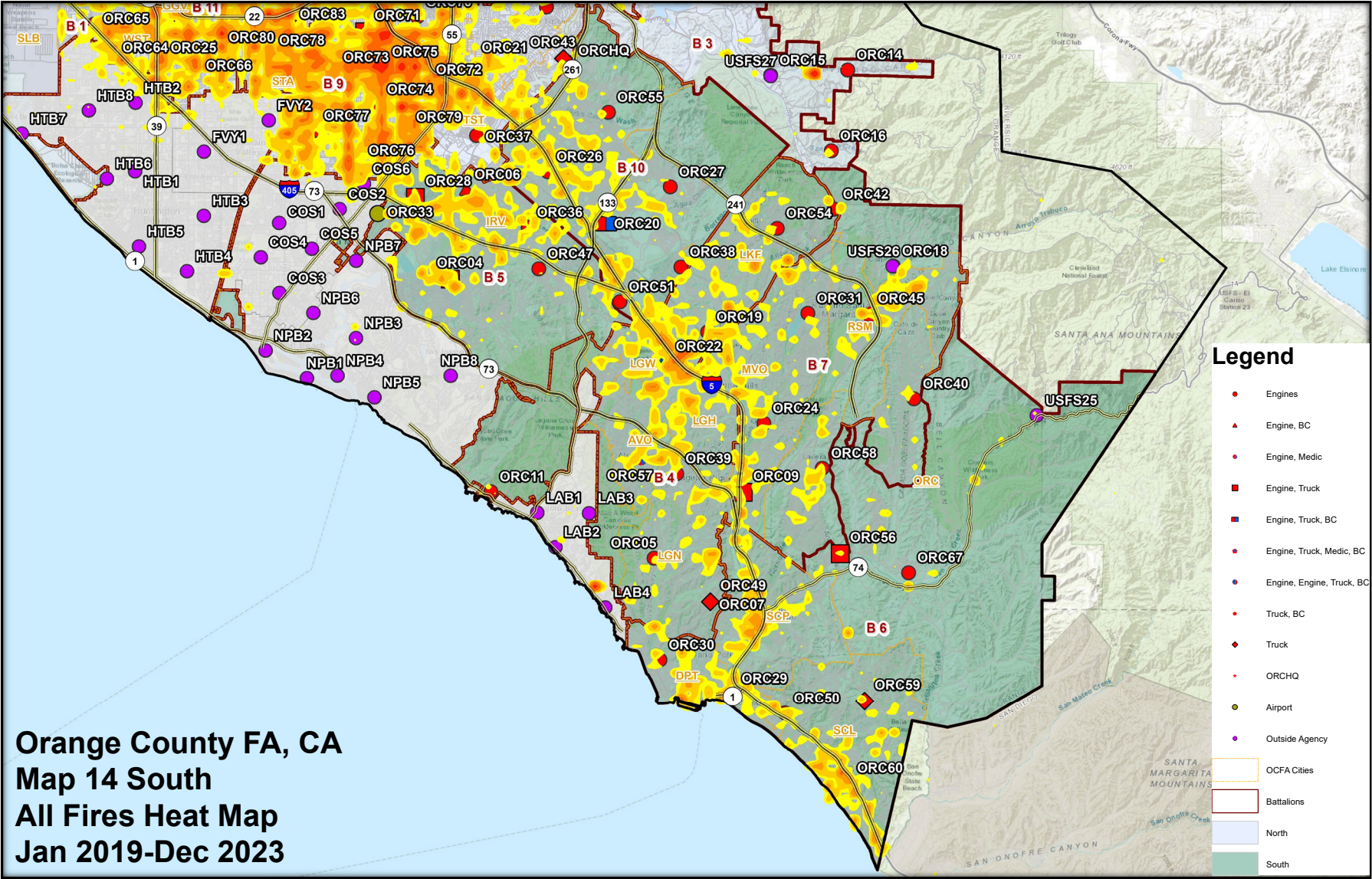
ORC43
ORCHQ
ORC74
ORC55
HTB1
HTB2
HTB6
HTB7
HTB8
FVY1
FVY2
ORC77
ORC79
ORC37
ORC76
ORC26
ORC27
COS2
COS6
ORC28
ORC06
LAP
BPK
CYP
STN
LAF
GGV
WST
SLB
STA
TST
IRV
YBL
VPK
Chino Hills
Chino Hills State Park
Irvine Lake
Cerritos
Artesia
La Mirada
Norwalk
Hawaiian Gardens
Cypress
Anaheim
Naval Weapons Station Seal Beach
Seal Beach National Wildlife Refuge
Joint Forces Training Center


Orange County FA, CA
Map 14 South
All Fires Heat Map
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
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USFS27
USFS26
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HTB1
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HTB6
HTB7
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FVY1
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COS1
COS2
COS3
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COS5
COS6
NPB1
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NPB7
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LAB1
LAB2
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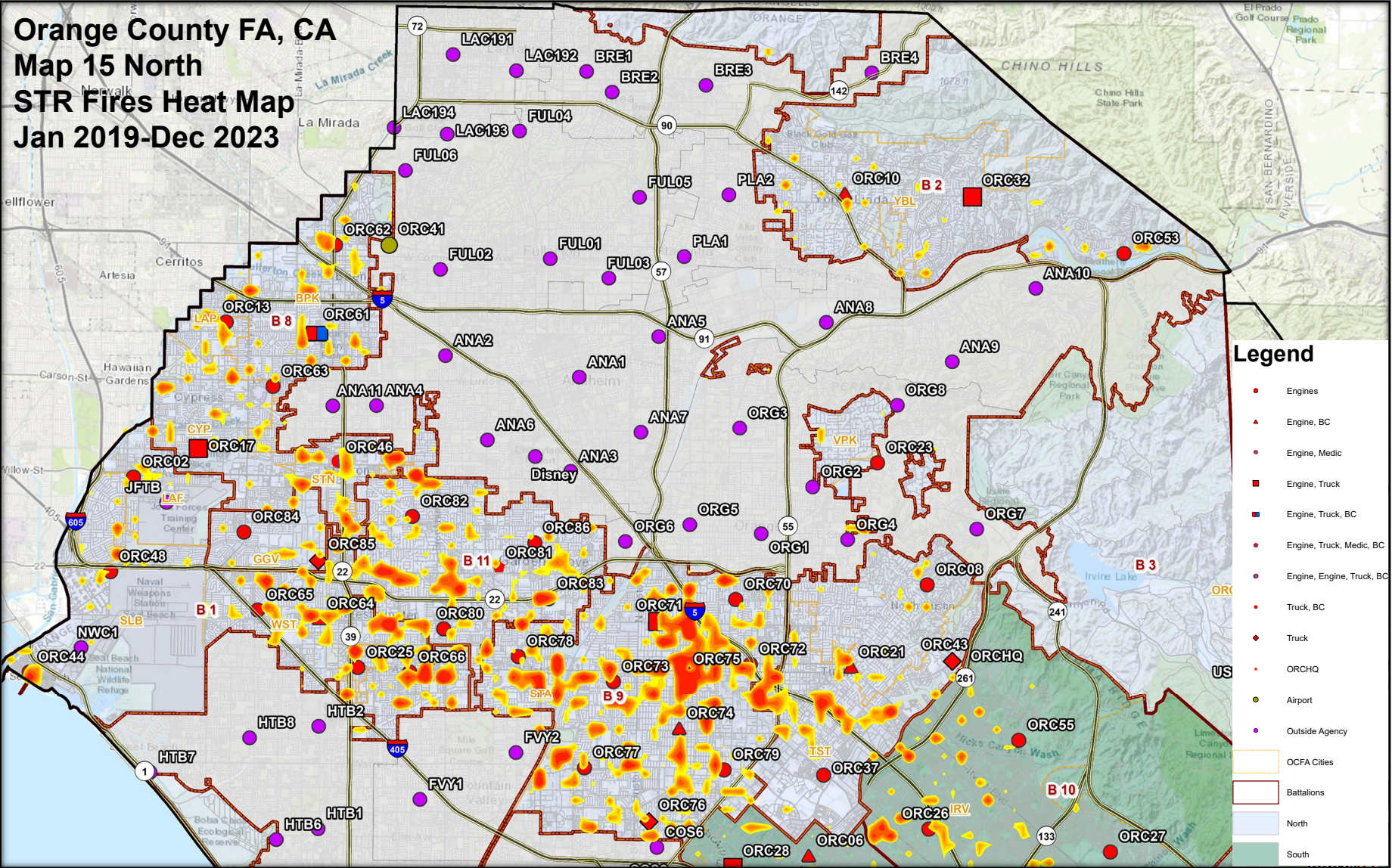
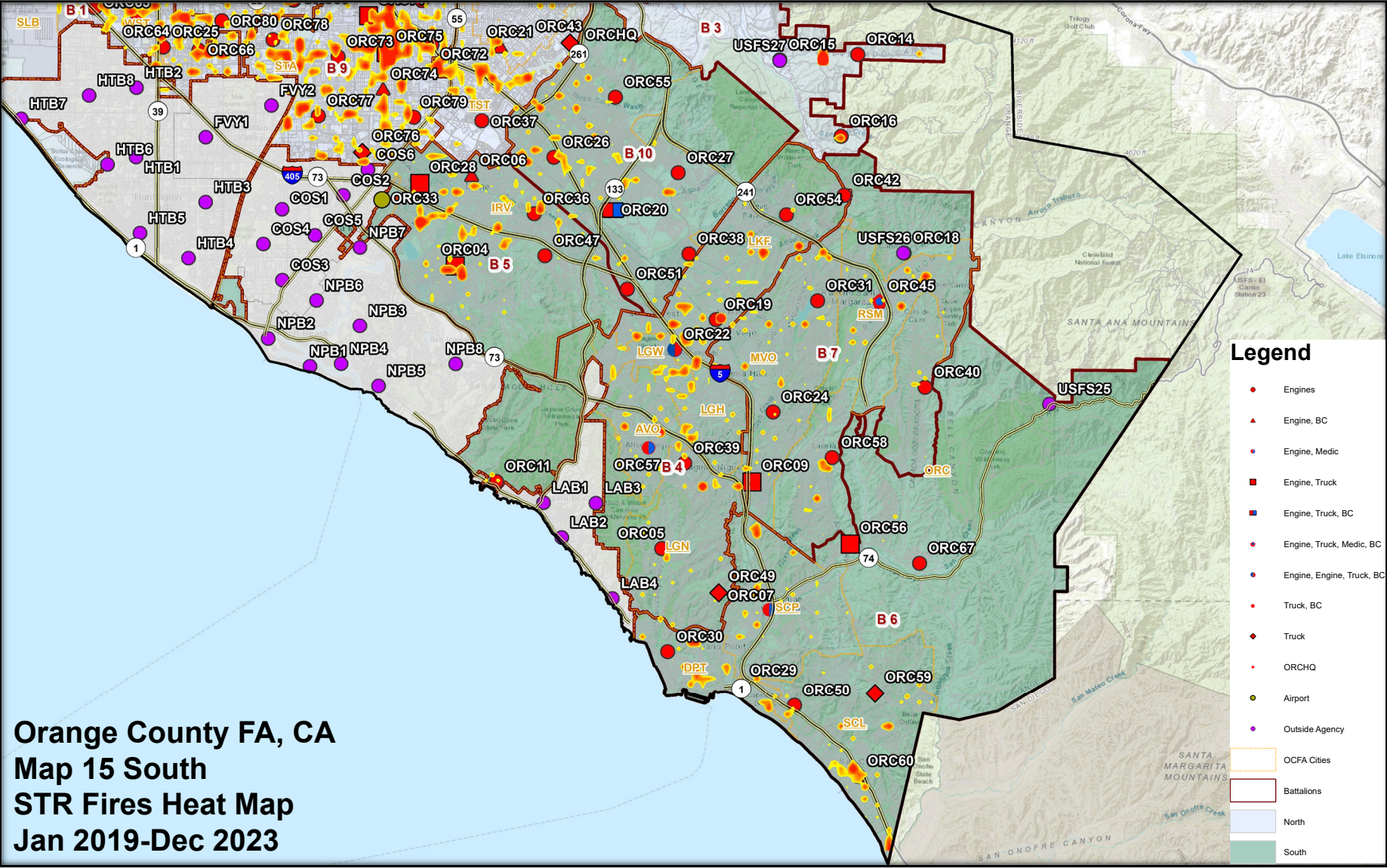
LAB4
SLB
STA
WST
TST
IRV
LKF
LGW
MVO
LGH
AVO
LGN
SCP
DPT
SCL
RSM
ORC
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
SAN ONOFRE CANYON

Orange County FA, CA
Map 15 North
STR Fires Heat Map
Jan 2019-Dec 2023




Orange County FA, CA
Map 15 South
STR Fires Heat Map
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
Engine, Medic
Engine, Truck
Engine, Truck, BC
Engine, Truck, Medic, BC
Engine, Engine, Truck, BC
Truck, BC
Truck
ORCHQ
Airport
Outside Agency
OCFA Cities
Battalions
North
South
B 1
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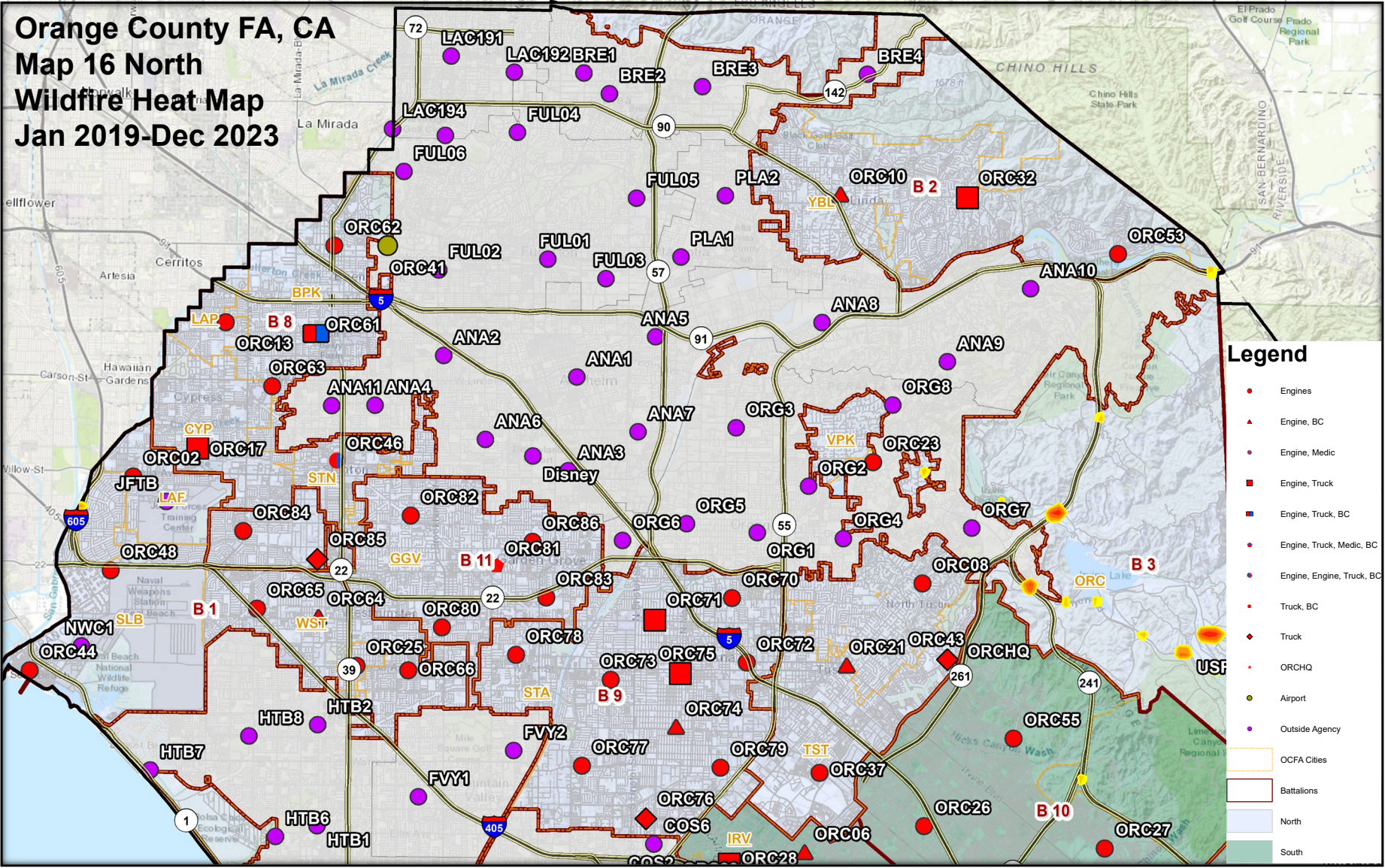
AVO
LGN
SCP
DPT
SCL
RSM
ORC
SANTA ANA MOUNTAINS
SANTA MARGARITA MOUNTAINS
SAN ONOFRE CANYON
Arroyo Trabuco
San Mateo Creek
San Onofre Creek
Lake Elsinore
Cleveland National Forest
Trilogy Golf Club
Corona Fwy
RIVERSIDE
ORANGE
SAN DIEGO


Orange County FA, CA
Map 16 North
Wildfire Heat Map
Jan 2019-Dec 2023
LAC191
LAC192
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ORC63
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ANA4
ORG8
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ORG3
ANA6
ANA3
Disney
VPK
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ORC28
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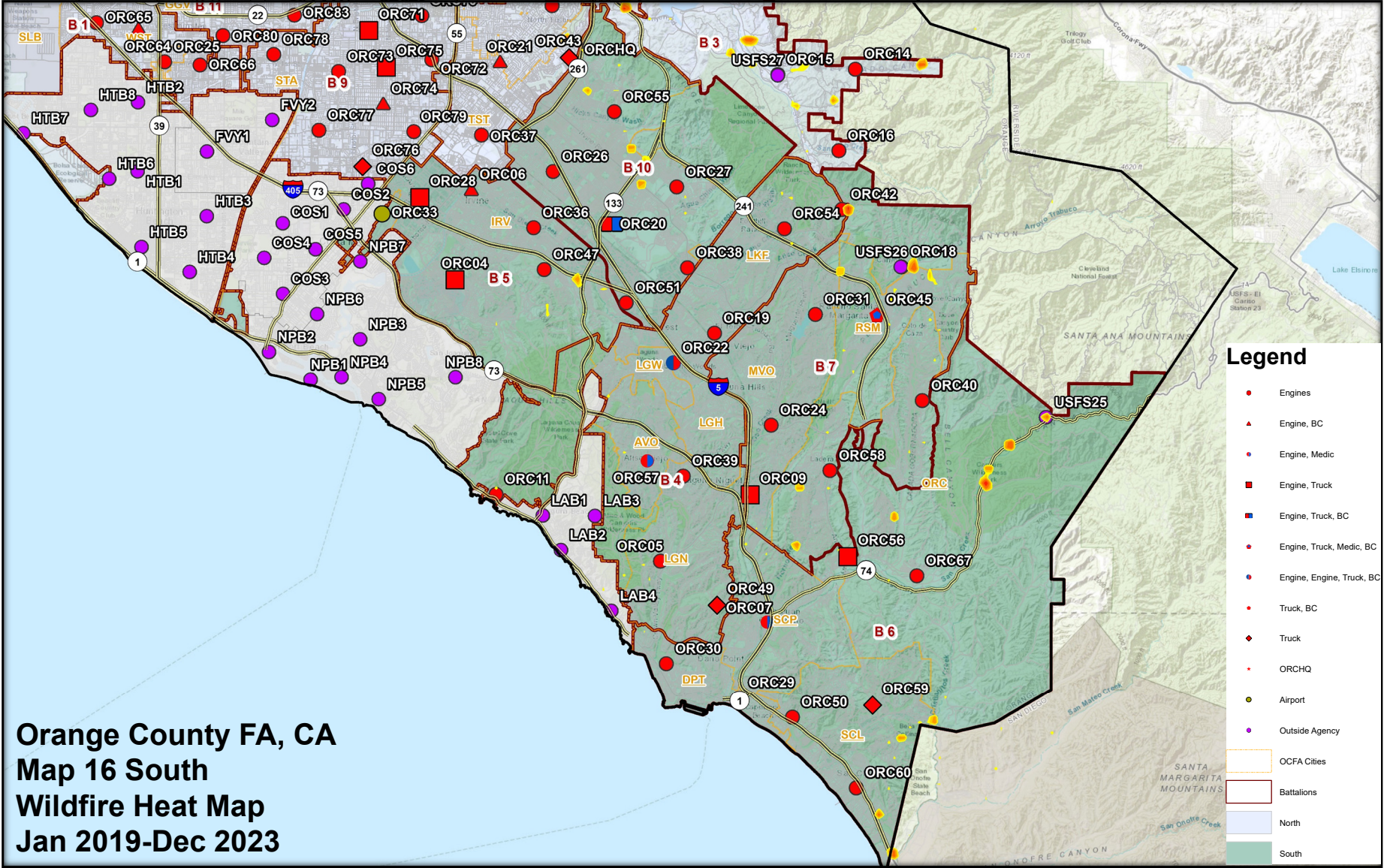
Orange County FA, CA
Map 16 South
Wildfire Heat Map
Jan 2019-Dec 2023
Legend
Engines
Engine, BC
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Engine, Truck, Medic, BC
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San Mateo Creek
San Onofre Creek