



AGENDA

Tuesday, July 26, 2022

6:00 P.M. Open Session

SPECIAL MEETING

**CITY COUNCIL, AIRPORT COMMISSION,
MARINA ABRAMS B NON-PROFIT CORPORATION, PRESTON PARK SUSTAINABLE
COMMUNITY NON-PROFIT CORPORATION, SUCCESSOR AGENCY OF THE FORMER
MARINA REDEVELOPMENT AGENCY AND MARINA GROUNDWATER
SUSTAINABILITY AGENCY**

Council Chambers
211 Hillcrest Avenue
Marina, California

Zoom Meeting URL: <https://zoom.us/j/730251556>

Zoom Meeting Telephone Only Participation: 1-669-900-9128 - Webinar ID: 730 251 556

In accordance with California Government Code §54953(e)(1)(A) and (C) and the Proclamation of a State of Emergency issued by Governor Newsom on March 4, 2020, under the provisions of Government Code §8625 related to the COVID-19 (coronavirus) pandemic, consistent with recommendations by State and local health officials regarding social distancing and in order to prevent an imminent risk to the health and safety of attendees as determined in Resolution 2022-94, public participation in City of Marina City Council public meetings shall be electronic only and without a physical location for public participation until the earlier of March 31, 2022, or such time as the City Council may adopt a resolution in accordance with Government Code §54953(e)(3). This meeting is being broadcast “live” on Access Media Productions (AMP) Community Television Cable 25 and on the City of Marina Channel and on the internet at <https://accessmediaproductions.org/>

PARTICIPATION

You may participate in the City Council meeting in real-time by calling Zoom Meeting via the weblink and phone number provided at the top of this agenda. Instructions on how to access, view and participate in remote meetings are provided by visiting the City’s home page at <https://cityofmarina.org/>. Attendees can make oral comments during the meeting by using the “Raise Your Hand” feature in the webinar or by pressing *9 on your telephone keypad if joining by phone only. If you are unable to participate in real-time, you may email to marina@cityofmarina.org with the subject line “Public Comment Item#___” (insert the item number relevant to your comment) or “Public Comment – Non Agenda Item.” Comments will be reviewed and distributed before the meeting if received by 5:00 p.m. on the day of the meeting. All comments received will become part of the record. Council will have the option to modify their action on items based on comments received.

AGENDA MATERIALS

Agenda materials, staff reports and background information related to regular agenda items are available on the City of Marina’s website www.cityofmarina.org. Materials related to an item on this agenda submitted to the Council after distribution of the agenda packet will be made available on the City of Marina website www.cityofmarina.org subject to City staff’s ability to post the documents before the meeting

VISION STATEMENT

Marina will grow and mature from a small town bedroom community to a small city which is diversified, vibrant and through positive relationships with regional agencies, self-sufficient. The City will develop in a way that insulates it from the negative impacts of urban sprawl to become a desirable residential and business community in a natural setting. **(Resolution No. 2006-112 - May 2, 2006)**

MISSION STATEMENT

The City Council will provide the leadership in protecting Marina's natural setting while developing the City in a way that provides a balance of housing, jobs and business opportunities that will result in a community characterized by a desirable quality of life, including recreation and cultural opportunities, a safe environment and an economic viability that supports a high level of municipal services and infrastructure. **(Resolution No. 2006-112 - May 2, 2006)**

1. CALL TO ORDER 
2. ROLL CALL & ESTABLISHMENT OF QUORUM: (City Council, Airport Commissioners, Marina Abrams B Non-Profit Corporation, Preston Park Sustainable Communities Nonprofit Corporation, Successor Agency of the Former Redevelopment Agency Members and Marina Groundwater Sustainability Agency)

Cristina Medina Dirksen, David Burnett, Lisa Berkley, Mayor Pro-Tem/Vice Chair Kathy Biala, Mayor/Chair Bruce C. Delgado
3. MOMENT OF SILENCE & PLEDGE OF ALLEGIANCE (Please stand)
4. OTHER ACTIONS:
 - a. City Council adopting a Resolution determining that the public interest and necessity demand the acquisition of a ladder truck and construction of certain municipal improvements, and their financing through the issuance of General Obligation Bonds and making findings relating thereto; and

Introduce and hold a first reading of an Ordinance ordering the submission of a proposition incurring bonded indebtedness to the qualified voters of the City of Marina at the general municipal election to be held on November 8, 2022, for the purpose of financing the acquisition of a ladder truck and the construction of certain municipal improvement projects.
5. ADJOURNMENT:

CERTIFICATION

I, Anita Sharp, Deputy City Clerk, of the City of Marina, do hereby certify that a copy of the foregoing agenda was posted at City Hall and Council Chambers Bulletin Board at 211 Hillcrest Avenue, Monterey County Library Marina Branch at 190 Seaside Circle, City Bulletin Board at the corner of Reservation Road and Del Monte Boulevard on or before 6:00 p.m., Friday, July 22, 2022.

ANITA SHARP, DEPUTY CITY CLERK

City Council, Airport Commission and Redevelopment Agency meetings are recorded on tape and available for public review and listening at the Office of the City Clerk and kept for a period of 90 days after the formal approval of MINUTES.

City Council meetings may be viewed live on the meeting night and at 12:30 p.m. and 3:00 p.m. on Cable Channel 25 on the Sunday following the Regular City Council meeting date. In addition, Council meetings can be viewed at 6:30 p.m. every Monday, Tuesday and Wednesday. For more information about viewing the Council Meetings on Channel 25, you may contact Access Monterey Peninsula directly at 831-333-1267.

Agenda items and staff reports are public record and are available for public review on the City's website (www.cityofmarina.org), at the Monterey County Marina Library Branch at 190 Seaside Circle and at the Office of the City Clerk at 211 Hillcrest Avenue, Marina between the hours of 10:00 a.m. 5:00 p.m., on the Monday preceding the meeting.

Supplemental materials received after the close of the final agenda and through noon on the day of the scheduled meeting will be available for public review at the City Clerk's Office during regular office hours and in a 'Supplemental Binder' at the meeting.

Members of the public may receive the City Council, Airport Commission and Successor Agency of the Former Redevelopment Agency Agenda at a cost of \$55 per year or by providing a self-addressed, stamped envelope to the City Clerk. The Agenda is also available at no cost via email by notifying the City Clerk at marina@cityofmarina.org

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Honorable Mayor and Members
of the Marina City Council

City Council Meeting
of July 26, 2022

CITY COUNCIL ADOPT A RESOLUTION DETERMINING THAT THE PUBLIC INTEREST AND NECESSITY DEMAND THE ACQUISITION OF A LADDER TRUCK AND CONSTRUCTION OF CERTAIN MUNICIPAL IMPROVEMENTS, AND THEIR FINANCING THROUGH THE ISSUANCE OF GENERAL OBLIGATION BONDS, AND MAKING FINDINGS RELATING THERETO

CITY COUNCIL INTRODUCE AND HOLD A FIRST READING OF AN ORDINANCE ORDERING THE SUBMISSION OF A PROPOSITION INCURRING BONDED INDEBTEDNESS TO THE QUALIFIED VOTERS OF THE CITY OF MARINA AT THE GENERAL MUNICIPAL ELECTION TO BE HELD ON NOVEMBER 8, 2022, FOR THE PURPOSE OF FINANCING THE ACQUISITION OF A LADDER TRUCK AND THE CONSTRUCTION OF CERTAIN MUNICIPAL IMPROVEMENT PROJECTS

REQUEST:

It is requested that the City Council consider:

1. Adopting a Resolution determining that the public interest and necessity demand the acquisition of a ladder truck and construction of certain municipal improvements, and their financing through the issuance of General Obligation Bonds and making findings relating thereto;
2. Introduce and hold a first reading of an Ordinance ordering the submission of a proposition incurring bonded indebtedness to the qualified voters of the City of Marina at the general municipal election to be held on November 8, 2022, for the purpose of financing the acquisition of a ladder truck and the construction of certain municipal improvement projects.

A 2/3 vote of the City Council is required.

BACKGROUND:

At its July 6, 2022 meeting, the City Council directed staff to bring back to the Council for approval a \$50 million General Obligation bond (“Bonds”) to be placed on the November 8, 2022 ballot. This ballot measure would be to fund construction of a new fire station, acquire a ladder truck and construction of a police station/civic center/city hall community facility. The Council directed that an Oversight Committee be established if the measure passes, and the Bonds are issued, with an equal number of property owners and renters. Additionally, the Council asked staff to explore options for providing financial assistance should there be a need. Staff is continuing to review this request and will come back with a response to Council at another time.

Over the past couple years, the City of Marina (“City”) has held numerous public meetings evaluating unmet community facility, infrastructure, public safety and staffing needs and possible funding options and strategies to address these needs.

In 2019, Emergency Services Consulting International (“ESC”) was hired to conduct a study evaluating the fire and emergency services provided by the City. This study was completed in June 2021 and a presentation was made before the City Council by the consultant. **(EXHIBITS A & B).**

A Community Priorities survey (“Survey”) was conducted in April 2021 prior to a City Council Budget Strategic Priorities Retreat. The Survey identified and ranked priorities in the City. **(EXHIBIT C).**

In October 2021, the budget for fiscal years 2021/22 and 2022/23 was adopted. As part of the budget process, many public meetings and hearings were held including reviewing the Survey. In these meetings, many unmet community needs were discussed. In adopting the budget, the City Council ranked, prioritized and funded some of the most important and urgent identified needs of the community which were able to be funded through existing revenue sources.

However, other community facilities, road and park infrastructure, public safety and new staffing needs were identified and discussed, which were not able to be funded due to insufficient revenue. The City Council gave direction to staff to schedule a special study meeting to discuss these unmet needs and explore possible funding options, which may include a future ballot measure.

On January 25, 2022, a Special City Council study meeting was held to discuss unmet community facilities, infrastructure, public safety and staffing needs and possible funding options and strategies to address these needs and provide direction to City staff. **(EXHIBITS D & E)**

Two priorities identified that are not able to be funded from ongoing revenues or other reserve funds are: 1) a new fire station to serve the Reindollar Avenue neighborhood, Abrams/Preston Park, Sea Haven, Dunes, and new commercial areas in the southern part of the City; and 2) a new police station/civic center/city hall facility.

ANALYSIS:

Police and Fire Facility Needs

The existing police and fire station was built over twenty (20) years ago. It was originally designed to accommodate a combined Public Safety model configuration and not the separate police and fire departments we have today. The current fire and police department staffing and the service demands of the public have exceeded the capacity and capability needs of the current facility. The current building, and its location, will not meet the future public safety needs of the community. This building will require \$3 – 5 million dollars in repairs in the near future just to keep the facility operational.

The fire and emergency services study conducted by ESC analyzed the City’s fire suppression, medical, and rescue operations; assessed the safety needs of the community; and identified hazards, risks, and challenges of the City. The study made key recommendations to address and improve the City’s fire, emergency medical and rescue services. Recommendation G was to relocate both fire stations to improve travel time coverage, as both stations are not well located to serve our growing community.

The National Fire Protection Association establishes standards for the fire service and one of the standards is a five (5) minute response time for medical emergencies and a five (5) minute and twenty (20) second response time for fire structural emergencies. While meeting this standard is not a requirement, it is a goal for a standard level of service. The average response time in Marina for an emergency medical call is 8:02 minutes and for a fire call is 10:03 minutes. The primary factor influencing this high response time is the location of our fire stations. To achieve the five (5) minute standard will require a travel time for a fire engine from the station to the incident of four (4) minutes. Marina’s average travel times are 6:51 minutes for emergency services and 8:42 minutes for fire services.

The proposed new fire station is located at the corner of California Avenue and Imjin Parkway. A fire station at this location will meet the four (4) minute standard travel time needed for today and will be able to meet the four (4) minute response time needed for the future growth needs of all the southern area of the City. This station will also become the headquarter station of the City and will staff the fire chief and administrative staff and will be of sufficient size to house a fire ladder truck, which is also a critical need to be funded in the Bonds.

The Presidio of Monterey Fire Station which is currently located on General Jim Moore and Gigling Avenue will be closing next summer and relocating further away in Seaside or in Monterey. The City currently relies on this station for primary mutual aid back up. When it relocates further away, response times will increase.

The City also in 2021 explored with the City of Seaside the option of jointly building and staffing a fire station on border. A study was conducted by Citygate and it concluded that a fire station located on our border would not allow either City to achieve the desired four minute response time capability and created gaps in areas of both cities that would not achieve the needed response times.

The attached Exhibits show the influence of time on the growth of a fire and the chances for survival with a life threatening medical emergency.

When cities incorporate, a fire station is typically located in the heart or center of the City so that adequate response times can be met. However, as cities develop and spread out, the fire station located in the center of the City, often is no longer able to provide adequate response times to the newly developed areas of the community. This is what is happening to Marina, particularly in the Dunes, Sea Haven and Abrams Park areas.

The plan is for a new headquarter fire station to be built at California and Imjin that is of sufficient size to accommodate a ladder truck. The small fire station out at the Marina Airport, will no longer be utilized and the existing fire station at Palm Avenue will continue to be utilized in the short term and will be able to provide the needed four (4) minute travel time coverage for the central and northern parts of Marina. However, when Marina Station starts to develop, a new fire station will need to be built in the Vince DiMaggio Park area. A station at this location combined with a new station at the California and Imjin location will provide a four (4) minutes travel time to all areas in the City of Marina.

City Hall, Community Center, Council Chambers, Community Development Annex Facility Needs

The current City hall and City council chambers are double-wide trailers hooked together and installed when the City was incorporated in 1975. The original plan was these were temporary facilities while the city moved forward with building a civic center complex for City hall and other community facilities. These buildings are now over 45 years old and need significant maintenance, ADA updates, and repairs over the next five years just to be able to continue to be used. As the City has developed and City staff have grown over the years, the building space is not sufficient to accommodate existing and future staff needs. Additionally, with the new work environment changes that will be required to accommodate current and future Covid conditions, the existing space needs to be reconfigured to address safety needs for employees and the public.

The estimated cost just to address the minimum maintenance, ADA, repair and renovations needed to continue to work in these facilities is estimated at \$7 million. This will leave a building that is still 45 years old that will not meet current and future space and staffing needs.

The City's General Plan which was adopted in 2000. One of the main purposes of this Plan is to guide daily and long-term planning and development decisions by the City in a manner consistent with stated City goals. Section 2.99 of the Plan states, "One of the primary goals of the General Plan is to bring together civic, commercial, cultural and recreational uses to create a center, or centers, to serve as a focus for community life and a source of community identity in Marina." The General Plan identified three potential sites for a future civic center: 1) Locke-Paddon Park/Marina Landing; 2) Expanded City Hall Site; and 3) Salinas Road Site.

The Salinas Road site is not feasible due to environmental issues and endangered species on the site. Expanding City Hall is not feasible because it would require acquiring additional commercial and residential properties adjacent to the site.

The Locke-Paddon site is the most feasible, especially since the library is built there. This site allows for the integration of city facilities and connections to Vince DiMaggio and Locke-Paddon Park. There is sufficient property at this site to accommodate a police station/civic center/city hall facility. Additionally, this property is adjacent to the Walmart commercial development and at the other end is at the entrance to the downtown area at the intersection of Reservation and Del Monte.

Funding Options

The State of California by law gives cities four primary tax revenue sources in order to operate and meet the service demands, infrastructure and facility needs of their community: sales tax, property tax, transient occupancy tax (TOT, hotel tax) and utility users tax (UUT).

After Council consideration of these potential revenue sources, it was determined a General Obligation Bond is the only option to fund \$50 million dollars to build new city facilities. The estimated cost for these facilities are:

1. Fire Station - \$15 – 17 million (\$625 per square foot)
2. Fire ladder truck - \$1.5 million
3. Police Station/Civic Center/ City Hall - \$30 – 35 million

General Obligation Bond Cost

A \$50 million General Obligation bond is expected to levy a tax rate averaging \$61.34 per \$100,000 of assessed value. This bond is estimated to cost the average residential homeowner in Marina approximately \$263 per year or \$22 per month.

The ballot measure requires approval of two-thirds (2/3) of the voters.

Survey

The City hired Fairbank, Maslin, Maulin, Metz & Associates a public opinion research services firm, to conduct a community research survey to gauge community interest in a General Obligation bond measure and to obtain community feedback. Attached are the highlights of this survey. **(EXHIBIT F).**

Next Steps

Should the Council approve the first reading of the Ordinance then a second reading will be scheduled for the Council's regular meeting on August 2, 2022. Assuming the Council approves the second reading, it would then take up a resolution placing the measure on the ballot. The Council may also consider actions related to primary and rebuttal arguments.

CONCLUSION

A General Obligation Bond if approved by two-thirds of the voters, would authorize the City to levy an ad valorem property tax on taxable property in the City to generate funds sufficient to pay the debt service on the \$50 million bonds issued. It is anticipated that not all the \$50 million bond would be issued at once, as the City first would move forward with hiring architects, designing the facilities and hiring the construction team prior to issuing the bond.

The City Council has also directed staff to hire a consultant to help with the education and outreach of facts and information to the citizens regarding the ballot measure.

Respectfully submitted,

Layne Long
City Manager
City of Marina

RESOLUTION NO. 2022-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MARINA DETERMINING THAT THE PUBLIC INTEREST AND NECESSITY DEMAND THE ACQUISITION, IMPROVEMENT AND CONSTRUCTION OF CERTAIN MUNICIPAL IMPROVEMENT PROJECTS, AND THEIR FINANCING THROUGH THE ISSUANCE OF GENERAL OBLIGATION BONDS, AND MAKING FINDINGS RELATING THERETO

WHEREAS, the City of Marina (the “City”) is a municipal corporation and charter city duly organized and existing under the Constitution and laws of the State of California; and

WHEREAS, the City is authorized to call an election for the proposition of incurring a bonded indebtedness and to issue such general obligation bonds to finance municipal improvements pursuant to certain provisions of the California Government Code, including Article 1, commencing with Section 43600, of Chapter 4 of Division 4 of Title 4 and Article 4.5, commencing with Section 53506, of Chapter 3 of Part 1 of Division 2 of Title 5 (collectively, the “Bond Law”); and

WHEREAS, the City intends to issue its general obligation bonds (the “Bonds”) under and pursuant to the Bond Law to finance the cost of the construction of certain municipal improvements of the City to ensure 9-1-1 emergency/medical/fire/disaster response and public safety and improve essential services by constructing a new fire station, acquiring a ladder truck, and constructing an earthquake-safe police station/civic center/city hall (the “Improvements”); and

WHEREAS, in order to initiate proceedings under the Bond Law to provide for the issuance of general obligation bonds, the City Council of the City (the “City Council”) must make certain findings and determinations.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MARINA DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. Recitals. The foregoing recitals are true and correct and are incorporated herein by reference.

Section 2. Declaration of Necessity to Issue Bonds. The public interest and necessity demand, and it is the intention of the City Council to require, the construction of the Improvements and the issuance of the Bonds to finance the cost thereof, subject to completion of the proceedings required by the Bond Law.

Section 3. Findings. The City Council hereby finds and determines that the estimated costs of the Improvements will require an expenditure by the City greater than the amount allowed for it by the annual tax levy of the City. The principal amount of the Bonds will not exceed the estimated cost of the Improvements.

Section 4. Issuance of the Bonds. This Resolution is adopted, and the Bonds, if approved by two-thirds of all qualified voters voting on the issuance of the Bonds, are to be issued pursuant to the Bond Law for the purposes of financing the Improvements. The maximum amount of bonded indebtedness to be incurred is \$50,000,000, and the maximum term of the bonds to be issued shall in no event exceed forty (40) years.

Section 5. Appointment of Consultants. In connection with the proposed issuance of the Bonds and related election matters, the City Council hereby authorizes and ratifies the appointment of KNN Public Finance, LLC, as municipal advisor to the City, and Quint & Thimmig, LLP, as Bond Counsel and Disclosure Counsel to the City, and authorizes the City Manager to engage other consultants as may be necessary. The City Manager is hereby authorized and directed to execute, on behalf of the City, a professional services agreement with each such firm.

Section 6. Effective Date. This Resolution shall take effect upon its adoption by two-thirds of all members of the City Council.

PASSED AND ADOPTED by the City Council of the City of Marina at a special meeting held this 26th day of July 2022, by the following vote:

AYES, COUNCIL MEMBERS:

NOES, COUNCIL MEMBERS:

ABSENT, COUNCIL MEMBERS:

ABSTAIN, COUNCIL MEMBERS:

ATTEST:

Bruce C. Delgado, Mayor

Anita Sharp, Deputy City Clerk

ORDINANCE NO. 2022-

**AN ORDINANCE ORDERING THE SUBMISSION OF A PROPOSITION
INCURRING BONDED INDEBTEDNESS TO THE QUALIFIED VOTERS OF THE
CITY OF MARINA AT THE GENERAL MUNICIPAL ELECTION TO BE HELD ON
NOVEMBER 8, 2022, FOR THE PURPOSE OF FINANCING THE ACQUISITION,
IMPROVEMENT AND CONSTRUCTION OF CERTAIN MUNICIPAL
IMPROVEMENT PROJECTS**

WHEREAS, under Sections 3, 5, and 7 of Article XI of the California Constitution and Section 1.01 of the City of Marina Charter, the City of Marina (“City”) is authorized to make and enforce all laws and regulations concerning municipal affairs and certain other matters. Pursuant to such authority, as well as the authority provided by the California Government Code and California Elections Code, the City Council proposes to order the submission of a proposition authorizing the City to issue general obligation bonds (the “Bonds”) to qualified voters of the City at the general municipal election to be held on November 8, 2022; and

WHEREAS, the City’s existing police and fire station was built over twenty (20) years ago and the current building, and its location, is not sufficient to meet the current and future public safety needs of the community; and

WHEREAS, one of the priority needs of the City’s fire department is the acquisition of a ladder truck; and

WHEREAS, to improve the emergency/medical/fire/disaster response times and public safety, and to accommodate a ladder truck, the City requires a new and larger fire station; and

WHEREAS, the City intends to construct a new fire station, acquire a ladder truck, and construct a new police station/city hall/civic center and related community facilities (together, the “Improvements”); and

WHEREAS, on July 26, 2022, the City Council adopted, by a two-thirds (2/3) vote of all its members, a resolution entitled “Resolution of the City Council of the City of Marina Determining that the Public Interest and Necessity Demand the Acquisition, Improvement, and Construction of Certain Municipal Improvement Projects and Their Financing Through the Issuance of General Obligation Bonds, and Making Findings Relating Thereto,” pursuant to which the City Council has found and determined that the public interest and necessity demand the issuance of general obligation Bonds to finance the cost of construction of the Improvements; and

WHEREAS, to provide for the issuance by the City of general obligation Bonds to provide financing for the Improvements, it is necessary for the City Council to adopt an ordinance ordering the submission of the proposition to incur bonded indebtedness for such purpose to the qualified voters of the City at a municipal election; and

WHEREAS, the City Council desires to submit said ballot measure to the qualified voters of the City at the regular election to be held in the City on November 8, 2022, and to consolidate the bond election with other elections held within the City on that date.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF MARINA HEREBY ORDAINS, FINDS, DECLARES, DETERMINES, AND ORDERS AS FOLLOWS:

Section 1. Recitals. The foregoing recitals are true and correct, and are incorporated herein by reference.

Section 2. Call for Election. The City Council hereby orders that there be submitted to the qualified voters of the City a proposition on incurring bonded indebtedness (the “Bonds”) for the purposes set forth in this Ordinance, at the regular election to be held on November 8, 2022.

Section 3. Ballot Proposition. The City Council hereby submits to the qualified voters of the City, at the regular election to be held on November 8, 2022, a proposition on issuing the Bonds in substantially the following form:

“To ensure 9-1-1 emergency/medical/fire/disaster response and public safety and improve essential services by building a new fire station, acquiring a ladder truck, and constructing an earthquake-safe police station/civic center/city hall, shall the City of Marina’s measure authorizing \$50,000,000 in bonds at legal rates, levying an average of \$61.34 per \$100,000 of assessed value, generating \$2,960,000 annually while bonds are outstanding, requiring public spending disclosure and oversight, be adopted?”

Section 4. Object and Purpose of Bonds. The object and purpose of issuing the Bonds is to finance the costs of the Improvements.

The Improvements shall include, without limitation:

A new and larger fire station that can accommodate a ladder truck;

Acquisition of a ladder truck; and

A new earthquake-safe police station/civic center/city hall.

Each of the Improvements listed above includes all work, facilities, and expenditures necessary and incidental to the projects described above. Examples of such costs for work, facilities, and expenditures include, but are not limited to: costs of design, engineering, architect and other professional services, inspections, site preparation, utilities, landscaping, construction management and other planning and permitting, legal, accounting and similar costs; a customary construction contingency; demolition and disposal of existing structures; rental or construction of storage facilities and other space on an interim basis for materials and other equipment and furnishings displaced during construction; interim facilities for municipal functions, including modular facilities; addressing unforeseen conditions revealed by construction or renovation, and other necessary improvements required to comply with existing building codes; environmental improvements to preserve energy and water; access requirements of the Americans with Disabilities Act; costs of the election; bond issuance costs; and project administration during the duration of such projects, as permitted by law.

The final costs, locations, designs, layouts and other details of the Improvements will be determined as plans are finalized, construction bids are awarded, and projects are completed.

Section 5. Estimated Cost of Improvements. The estimated cost of the Improvements is \$50,000,000. The estimated cost includes legal or other fees, the costs of printing the Bonds, and other costs and expenses incidental to or connected with the authorization, issuance and sale of the Bonds.

Section 6. Principal Amount of Bonds. The amount of the principal of the Bonds shall not exceed \$50,000,000.

Section 7. Maximum Interest Rate. The maximum rate of interest to be paid on the Bonds shall be the statutory maximum of 12% per annum. Said interest shall be payable semiannually, except that interest for the first year after the date of the Bonds may be made payable at the end of said year.

Section 8. Tax Rate Statement. The City Council hereby directs the City Manager or the Finance Director to prepare a Tax Rate Statement to be filed with the Monterey County Elections Department as required by Section 9401 of the California Elections Code.

Section 9. Issuance and Sale of Bonds. The City proposes to issue and sell the Bonds pursuant to Article 1, commencing with Section 43600, of Chapter 4 of Division 4 of Title 4 of the California Government Code, or Article 4.5, commencing with Section 53506, of Chapter 3 of Part 1 of Division 2 of Title 5 of the California Government Code, in one or more series, in the maximum amount and for the objects and purposes set forth above if two-thirds (2/3) of all qualified voters voting on the proposition set forth above vote in favor thereof. The Bonds will be general obligations of the City payable from and secured by ad valorem taxes levied and collected in the manner prescribed by the laws of the State of California. The revenue generated from the ad valorem tax levied and collected will be used for the payment of debt service on the Bonds. All of the Bonds shall be equally and ratably secured, without priority, by the taxing power of the City.

Section 10. Manner of Conducting Election. The election on the Bonds held on November 8, 2022 shall be held and conducted, election officers appointed, voting precincts designated, ballots printed, polls opened and closed, ballots counted and returned, returns canvassed, results declared, and all other proceedings incidental to and connected with the election shall be regulated and done in accordance with the provisions of law regulating the election with which it is consolidated, as specified herein.

Section 11. Procedure for Voting on Proposition. Ballots for the election shall be provided in the form and in the number provided by law. Voters shall be provided an opportunity to vote for or against the proposition on the ballot, in accordance with procedures to be adopted by the authorized officers of Monterey County charged with conducting the election.

Section 12. Accountability Requirements. In accordance with Sections 53410 and 53411 of the California Government Code, the City Council hereby adopts the following accountability requirements relating to the Bonds:

- (a) A separate account shall be created and held by the City, into which the proceeds of the Bonds are deposited and applied solely for the purpose of financing the Improvements.
- (b) The Finance Director of the City shall file a report with the City Council at least annually showing the amount of Bond proceeds collected and expended, and the status of the Improvements.

Section 13. Identification of Tax. The tax imposed by this measure is an ad valorem tax levied upon taxable real property in the City, and will be used to pay the principal and interest on the Bonds.

Section 14. Establishment of Oversight Committee. In the event the ballot proposition is passed by two-thirds (2/3) of all qualified voters voting on the proposition, and the Bonds are issued, the City Council shall establish and appoint members to an oversight committee, which shall have responsibility for reviewing and reporting on the expenditure of the proceeds of the Bonds.

Section 15. Official Actions. The Mayor, the City Manager, the Finance Director, the City Clerk, and any of their designees, are hereby authorized to execute any documents and to perform all acts necessary to place the bond measure on the ballot.

Section 16. Publication of Ordinance. This Ordinance shall be published once a day for at least seven (7) days in a newspaper published at least six (6) days a week in the City, or once a week for two (2) weeks in a newspaper published less than six (6) days a week in the City. The first of said publications shall, in either event, be within fifteen (15) days after the adoption of this Ordinance.

Section 17. Projections. The City Council hereby finds that the estimates and projections contained in the Tax Rate Statement prepared in connection with the measure, and in the measure, have been made based on currently available information, but depend on a number of variables which are subject to variation. Such estimates and projections have been made in good faith, and are not binding or intended to be limitations on the terms of the Bonds.

Section 18. Interpretation. The provisions of this Ordinance, being necessary for the health, welfare, and safety of the City and its residents, are to be liberally interpreted to carry out its purposes. No error, irregularity or informality, and no neglect or omission of any officer, in any proceeding taken related to the submission of the proposition incurring bonded indebtedness to the qualified voters of the City shall void or invalidate any such proceeding, any Bonds issued by the City or any levy of ad valorem taxes to pay principal of and interest on the Bonds.

Section 19. Severability. If any provision of this Ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect any other provisions or applications, and to this end the provisions this Ordinance are declared to be severable.

Section 18. Effective Date. In accord with the Charter and Section 36937(a) of the California Government Code, this Ordinance shall become effective immediately, as an ordinance relating to an election, upon its adoption by two-thirds (2/3) vote of all the members of this City Council.

The foregoing ordinance was introduced at a special meeting of the City Council of the City of Marina duly held on July 26, 2022, and was passed and adopted at a regular meeting duly held on August 2, 2022, by the following vote:

AYES, COUNCIL MEMBERS:

NOES, COUNCIL MEMBERS:

ABSENT, COUNCIL MEMBERS:

ABSTAIN, COUNCIL MEMBERS:

Bruce C. Delgado, Mayor

ATTEST:

Anita Sharp, Deputy City Clerk



City of Marina Fire Department

California

STANDARDS OF COVER: DEPLOYMENT ANALYSIS

FINAL

INTRODUCTION

The following report serves as the Marina Fire Department's Standards of Cover and Deployment Plan. It follows closely the Center for Fire Public Safety Excellence (CPSE) Standards of Cover model that develops written procedures to determine the distribution and concentration of a fire and emergency service agency's fixed and mobile resources. The purpose for completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations.

Creating a Standards of Cover and Deployment Plan document requires that a number of areas be researched, studied, and evaluated. This report will begin with an overview of both the community and the agency. Following this overview, the plan will discuss topics such as community assessment, critical task analysis, agency service level objectives, and distribution and concentration measures. The report will provide analysis of historical performance and will conclude with policy and operational recommendations. ESCI extends its appreciation to the elected officials, business members, and community members of the City of Marina, the Marina Fire Department, and all others who contributed to this plan.

Bruce Carlos Delgado

Mayor

Frank O'Connell

Council Member

Gail Morton

Mayor Pro Tem

Lisa Berkley

Council Member

Adam Urrutia

Council Member

TABLE OF CONTENTS

Introduction.....	i
Table of Figures	v
Executive Summary	1
Description of Community Served	2
Organization Overview	2
Financial Overview.....	3
<i>Organizational Finance.....</i>	<i>3</i>
<i>City of Marina Fire Department</i>	<i>4</i>
Service Area Overview.....	5
Review of Services Provided	6
Staffing Information	6
Resources as Currently Deployed	8
Apparatus	9
Review of Community Expectations	10
Stakeholder Input.....	10
Community Risk Assessment	17
Risk Classification	17
Population Density	19
At-Risk Populations	23
Physical Hazards.....	25
<i>Earthquakes</i>	<i>25</i>
<i>Wildfires.....</i>	<i>26</i>
<i>Severe Weather.....</i>	<i>28</i>
<i>Seasonal Winds</i>	<i>29</i>
<i>Floods</i>	<i>29</i>
<i>Dam Failure.....</i>	<i>30</i>
<i>Extreme Heat</i>	<i>30</i>
<i>Drought.....</i>	<i>31</i>
Technological (Human-Caused) Hazards	33
<i>Transportation</i>	<i>33</i>
Physical Assets Protected.....	35
<i>Public Assembly.....</i>	<i>38</i>
<i>Child Care Facilities.....</i>	<i>39</i>
<i>Schools</i>	<i>39</i>
<i>Hospital and Medical Care Facilities</i>	<i>41</i>
Other Critical Infrastructure	42
<i>Communications.....</i>	<i>42</i>
<i>Energy.....</i>	<i>43</i>
<i>Water Distribution</i>	<i>43</i>

Structural Hazards	46
<i>Hazardous Materials.....</i>	<i>46</i>
<i>Buildings Three or More Stories in Height</i>	<i>48</i>
<i>Large Square Footage Buildings</i>	<i>49</i>
Comparison of Fire Risk in Other Communities	50
<i>Fire Loss</i>	<i>50</i>
<i>Arson</i>	<i>50</i>
<i>ISO Fire Protection Class Rating.....</i>	<i>51</i>
Community Risk Reduction	52
Fire Inspections	53
Historical System Response Workload.....	55
Temporal Analysis	56
Spatial Analysis	58
Unit Workload Analysis	61
Response Unit Workload.....	61
Population and Incident Workload Projection	63
Critical Tasking and Alarm Assignments	64
Critical Task Analysis.....	65
Alarm Assignments.....	70
Review of Historical System Performance	74
Detection	76
Call Processing	76
Turnout Time.....	78
Distribution and Initial Arriving Unit Travel Time.....	80
First Arriving Unit Response Time.....	83
First Arriving Unit Received to Arrival Time.....	84
Concentration and Effective Response Force Capability Analysis.....	85
Second Unit Arrival Time.....	89
Incident Concurrency and Reliability.....	89
Performance Objectives and Performance Measures	91
Dynamics of Fire in Buildings	91
Emergency Medical Event Sequence.....	94
People, Tools, and Time	95
Overview of Compliance Methodology	96
Compliance Model	96
Phase 1—Establish/Review Performance Measures.....	96
Phase 2—Evaluate Performance	97
Phase 3—Develop Compliance Strategies.....	97
Phase 4—Communicate Expectations to Organizations	97
Phase 5—Validate Compliance.....	97
Phase 6—Make Adjustments/Repeat Process	98

Overall Evaluation, Conclusions, and Recommendations	99
Overall Evaluation	99
Recommendations.....	100
<i>Recommendation A: Adopt response performance goals to guide service delivery improvement.....</i>	<i>100</i>
<i>Recommendation B: Reduce the time required to dispatch a fire incident.....</i>	<i>103</i>
<i>Recommendation C: Improve MFD response unit turnout times.....</i>	<i>103</i>
<i>Recommendation D: Improve the efficiency of response to emergency medical incidents.....</i>	<i>103</i>
<i>Recommendation E: Explore cooperative service and consolidation opportunities.....</i>	<i>104</i>
<i>Recommendation F: Add response units during periods of high incident activity.....</i>	<i>104</i>
<i>Recommendation G: Relocate both fire stations to improve travel time coverage.....</i>	<i>106</i>
<i>Recommendation H: Explore opportunities to reduce response workload.....</i>	<i>107</i>
<i>Recommendation I: Implement a quality control process for incident reporting fire loss data.....</i>	<i>112</i>
<i>Recommendation J: Conduct pre-incident plans for commercial buildings and target hazards.....</i>	<i>112</i>
<i>Recommendation K: Develop a fire inspection program for all commercial properties and multi-family occupancies.....</i>	<i>112</i>
Appendix A: Hazard Vulnerability Risk Tables	113
Appendix B: Fire Stations/Capital Assets	119
Capital Assets and Improvements	119
<i>Fixed Facilities</i>	<i>119</i>
<i>Facilities Summary</i>	<i>123</i>

TABLE OF FIGURES

Figure 1: City of Marina General Fund Resources, FY 16/17–18/19 Actual and Budgets for FY 19/20 and 20/21	3
Figure 2: City of Marina Fire Department, FY 16/17–18/19 Actual and Budgets for FY 19/20 and 20/21	4
Figure 3: Fire Department Expenditures by Year, Actual FY 15/16–FY 18/19 and Budget FY 19/20.....	4
Figure 4: Location of Marina, CA	5
Figure 5: Marina Fire Department Organizational Chart	6
Figure 6: Administrative and Support Staff	7
Figure 7: Response Personnel by Rank.....	7
Figure 8: Resource Staffing and Capabilities.....	8
Figure 9: MFD Fire Stations and Apparatus	9
Figure 10: Mutual Aid Resources.....	9
Figure 11: Hazard Risk Summary	18
Figure 12: Relative Community Risk	18
Figure 13: Study Area Population Density.....	19
Figure 14: Population History, 2000–2018.....	20
Figure 15: Demographics for the MFD Service Area, 2018	21
Figure 16: Marina Household Incomes, 2017.....	24
Figure 17: Federally Declared Disasters, Jan. 1965–Mar. 2018.....	25
Figure 18: Earthquakes Measuring 5.5 or Greater Within 50 Miles	26
Figure 19: MFD Study Area Wildland Fire Risk	27
Figure 20: Tornado Intensity, Enhanced Fujita Scale	28
Figure 21: Marina Average Monthly Wind Speeds	29
Figure 22: NWS Heat Index.....	30
Figure 23: Marina Average Monthly Temperatures.....	31
Figure 24: U.S. Drought Conditions, February 2020.....	32
Figure 25: Marina Municipal Airport.....	34
Figure 26: Critical Facilities	36
Figure 27: Buildings Requiring Fire Flow over 3,000 GPM or More	37
Figure 28: Public Assembly Facilities	38
Figure 29: School Locations.....	40
Figure 30: Hospitals and Care Facilities	41
Figure 31: Marina Coast Water District Facilities	44
Figure 32: Fire Hydrants.....	45
Figure 33: Hazardous Materials Locations.....	47
Figure 34: Buildings Three or Four Stories in Height	48
Figure 35: Buildings 25,000 Square Feet and Larger	49
Figure 36: Fire Losses by Region and Size of Community, 2018	50

Figure 37: Arson Rate per 100,000 Population.....	50
Figure 38: Comparison of ISO Class Ratings, California.....	51
Figure 39: The Community Risk Assessment Process	52
Figure 40: IBC Occupancy Classifications.....	54
Figure 41: Response Workload History, 2010–2019	55
Figure 42: Responses by Type of Incident	55
Figure 43: Monthly Response Workload	56
Figure 44: Daily Response Workload	56
Figure 45: Hourly Response Workload	57
Figure 46: Service Demand Density, 2019	58
Figure 47: Fires, 2019	59
Figure 48: Emergency Medical Incidents per Square Mile, 2019.....	60
Figure 49: Response Unit Workload.....	61
Figure 50: Average Time Committed to an Incident by Unit	61
Figure 51: Unit Hour Utilization, Engine 5411.....	62
Figure 52: Staffing Recommendations Based on Risk	65
Figure 53: Low-Rise Structure Fire	65
Figure 54: Moderate-Risk Commercial Structure Fire	66
Figure 55: High-Risk Commercial Structure Fire	66
Figure 56: Wildland Fire—Low Risk.....	66
Figure 57: Wildland Fire—High Risk	66
Figure 58: Aircraft Emergency	67
Figure 59: Hazardous Materials—Low Risk	67
Figure 60: Hazardous Materials—High Risk	67
Figure 61: Emergency Medical Aid (Life Threatening)	67
Figure 62: Major Medical Response (10+ Patients).....	68
Figure 63: Motor Vehicle Accident (Non-Trapped).....	68
Figure 64: Motor Vehicle Accident (Trapped)	68
Figure 65: Technical Rescue—Beach Rescue.....	69
Figure 66: Technical Rescue—Rope	69
Figure 67: Technical Rescue—Confined Space	69
Figure 68: Low-Rise Structure Fire.....	70
Figure 69: Moderate-Risk Commercial Structure Fire	70
Figure 70: High-Risk Commercial Structure Fire	70
Figure 71: Wildland Fire—Low Risk	71
Figure 72: Wildland Fire—High Risk	71
Figure 73: Aircraft Emergency.....	71
Figure 74: Hazardous Materials—Low or High Risk	71
Figure 75: Emergency Medical Service (Life Threatening).....	72

Figure 76: Major Medical Response (10+ Patients)	72
Figure 77: Motor Vehicle Accident (Non-Trapped)	72
Figure 78: Motor Vehicle Accident (Trapped).....	72
Figure 79: Technical Rescue—Beach Rescue	73
Figure 80: Technical Rescue—Rope	73
Figure 81: Technical Rescue—Confined Space	73
Figure 82: Technical Rescue—Trench	73
Figure 83: Summary of MFD Performance Goals	75
Figure 84: MCEC Dispatch Time Performance	77
Figure 85: Call Processing Time by Hour of Day, 2019	77
Figure 86: Turnout Time Performance	78
Figure 87: Turnout Time by Hour of Day, 2019.....	79
Figure 88: Initial Unit Four Minute Travel Time Capability	80
Figure 89: Initial Unit Four Minute Travel Time Capability with Station 2	81
Figure 90: Travel Time Performance—First Arriving Unit.....	82
Figure 91: Overall Travel Time and Incidents by Hour of Day—First Arriving Unit, 2019.....	82
Figure 92: Response Time Performance—First Arriving Unit	83
Figure 93: Hourly Response Time Performance, 2019	84
Figure 94: Received to Arrival Time—First Arriving Unit	84
Figure 95: Hourly Received to Arrival Performance, 2019	85
Figure 96: Effective Response Force Performance.....	86
Figure 97: Effective Response Force—Firefighters	87
Figure 98: Effective Response Force—Apparatus, Low Rise Fire	88
Figure 99: Incident Concurrency	89
Figure 100: Response Unit Concurrency	90
Figure 101: Fire Growth versus Reflex Time	92
Figure 102: Fire Extension in Residential Structures—United States, 2011–2015	93
Figure 103: Cardiac Arrest Event Sequence.....	94
Figure 104: Six-Step Compliance Model	96
Figure 105: Incidents by Period of Day, 2019	105
Figure 106: Probability of Wait—Current Response Units	105
Figure 107: Probability of Wait—Single Response Unit	105
Figure 108: Proposed Station Locations	106
Figure 109: Number of Incidents by Location	108
Figure 110: Facilities With 20 or More Incidents, 2019.....	110
Figure 111: Fire Station Condition Definitions.....	120
Figure 112: Marina Fire Department Station 1 & Administrative Offices	121
Figure 113: Marina Fire Department Station 2	122

EXECUTIVE SUMMARY

This document describes the City of Marina Fire Department's Standards of Cover and Deployment Plan. Community risks, response resources, deployment strategies, and service levels have been evaluated in this study. It establishes response time goals and standards for measuring the effectiveness of fire department services and the deployment of its resources. The document is segregated into components generally based on the format recommended by the Center for Public Safety Excellence.

MFD serves a population of approximately 22,535 residents. It protects an area of approximately 10 square miles. The Department operates two fire stations utilizing seven response apparatus, including reserve apparatus. Emergency (9-1-1) answering is provided by Monterey County's Consolidated Emergency Communications Department (ECD).

The Insurance Services Office (ISO) reviews the fire protection resources within communities and provides a Community Fire Protection Rating system from which insurance rates are often based. The rating system evaluates three primary areas: the emergency communication and dispatch system, the fire department, and the community's pressurized hydrant water supply. The overall rating is then expressed as a number between 1 and 10, with 1 the highest level of protection and 10 unprotected or nearly so. As of the latest survey (2019), ISO gave MFD a rating of Class 3.

The analysis completed during this study revealed a number of important findings. These include:

- There may be funding sources available to upgrade or expand traffic signal preemption.
- There has been a large increase in alarm activations at CSUMB in 2019.
- Inspections of apartment buildings are not occurring in accordance with the California State Fire Code.
- The Department lacks a defined schedule to complete inspections of all commercial occupancies.
- Pre-incident planning is not occurring for all commercial and target hazard properties.
- General Fund revenues have increased over the past few years and have improved significantly with the voter approval of additional sources of revenue.
- An adopted, citywide capital improvement program, including the fire department, exists, however it appears funding is insufficient to accommodate the needs of all of the City's departments.
- The level of administrative support appears to be inadequate for an organization the size and complexity of MFD. The total response workload has increased by 51.4% over the 8 years.
- Overall call processing performance during 2019 exceeded MFD's performance goal.
- During 2019, turnout time for fire incidents exceeds the Department's performance goal.
- Travel time for all incidents during 2019 exceeded the Department's performance goal.
- The minimum complement of 16 firefighters needed for a low-rise residential fire cannot be provided to any part of the city.
- Fire Station 1 is of an inadequate configuration and size for a shared facility.

DESCRIPTION OF COMMUNITY SERVED

Organization Overview

Marina is a city in Monterey County, California, United States. The United States Census Bureau estimated its 2018 population at 22,535. Marina is located along the central coast of California, 8 miles west of Salinas, and 8 miles north of Monterey. Marina is also connected to Monterey, California, by California State Route 1, which also connects it with Santa Cruz, California, after driving for about 35 miles. Marina is at an elevation of 43 feet. Incorporated in 1975, Marina is the newest city on the Monterey Peninsula and home to the Fort Ord National Monument. The city includes part of the California State University, Monterey Bay (CSUMB) campus. In addition to CSUMB, the City has been developing the Dunes on Monterey Bay ("The Dunes"), a mixed-use, diverse, planned community that encompasses 429 acres of former Fort Ord, located just east of Highway 1 and south of Imjin Parkway. The long-term development consists of multiple phases and is actively under construction.

The City Council is responsible for hiring a City Manager to oversee the day-to-day affairs of the City through various departments, including the fire department. A department director manages each City department or, in the case of the police and fire departments, a chief. A five-member City Council governs the City, which includes the Mayor. The Mayor is elected at large with the four other members being elected by district. The City Council is responsible for the enactment of local laws/ordinances, the adoption of the annual City budget and capital improvement program, and other policy-level responsibilities.

Financial Overview

Organizational Finance

The City of Marina has an assessed valuation of \$2,168,132,130 as of June 30, 2019.¹ This represents an increase in taxable value of approximately 46% from 2010. The City prepares a two-year operating budget and related other various capital improvement plans based on a July through June fiscal year. As with most municipalities, the City of Marina operates through numerous funds with the General Fund recording revenues and expenses for most governmental activities. General Fund revenues have increased from \$12,668,923 in FY 14/15 to \$18,859,358 in FY 18/19. General Fund revenues consist of property taxes and assessments (73%), licenses, permits, and fees (9%), charges for services (13%), and other types of revenues (5%). The City anticipates, through its budget adoption, the General Fund revenues will continue to increase. The City's operating expenditures provide for the majority of services provided. These expenditures include general government (23%), public safety (51%), economic development (12%), public works (7%), recreation (5%), capital outlay (1%), and debt service (1%). The voters recently approved additional funding resources for the City that will serve to strengthen the City's financial picture, allow for several items of deferred maintenance to be addressed, and create reserves for future years.

Municipalities, unlike a for-profit business, do not have the ability to immediately respond to changing economic conditions and require reasonable reserves to continue to provide service levels.

**Figure 1: City of Marina General Fund Resources,
FY 16/17–18/19 Actual and Budgets for FY 19/20 and 20/21**

	Actual 16/17	Actual 17/18	Actual 18/19	Budget 19/20	Budget 20/21
Revenues	20,998,269	23,534,750	25,837,621	26,237,667	26,059,667
Operating Expenditures	19,905,925	19,437,06	20,114,520	27,770,387	28,411,407
Transfers In (Out), Net	94,267	(619,209)	(865,047)	2,667,300	3,315,000
Net Change	1,186,611	3,478,135	4,858,054	1,134,580	962,810
Beginning Balance	7,901,437	9,088,048	12,566,183	17,424,237	18,558,817
Ending Balance	9,088,048	12,566,183	17,424,237	18,558,817	19,521,627

¹ City of Marina Comprehensive Annual Financial Report, June 30, 2019.

City of Marina Fire Department

The Marina Fire Department (MFD) provides some funding support to defray the cost of its services to the residents of the City. The Department charges for certain services it provides, receives compensation from the State for responses to wildfire incidents, and continuously seeks grant funding for new or replacement capital resources.

Figure 2: City of Marina Fire Department, FY 16/17–18/19 Actual and Budgets for FY 19/20 and 20/21

	Actual 16/17	Actual 17/18	Actual 18/19	Budget 19/20	Budget 20/21
Revenues, Reimburse., & Grants	273,016	524,997	429,006	160,350	117,350
Operating Expenditures	3,294,504	3,322,853	3,180,336	3,727,210	3,750,810
Required General Fund Tax Revenue Subsidy	3,021,488	2,797,856	2,751,330	3,566,860	3,633,460

The next figure shows the general operating expenditure history for the previous four fiscal years and the current adopted budget. During the five-year period, the Department's overall budget increased by 14%. The most significant operational and financial event in this period is the addition of four additional firefighters in the current (FY 19/20) budget cycle.

Figure 3: Fire Department Expenditures by Year, Actual FY 15/16–FY 18/19 and Budget FY 19/20

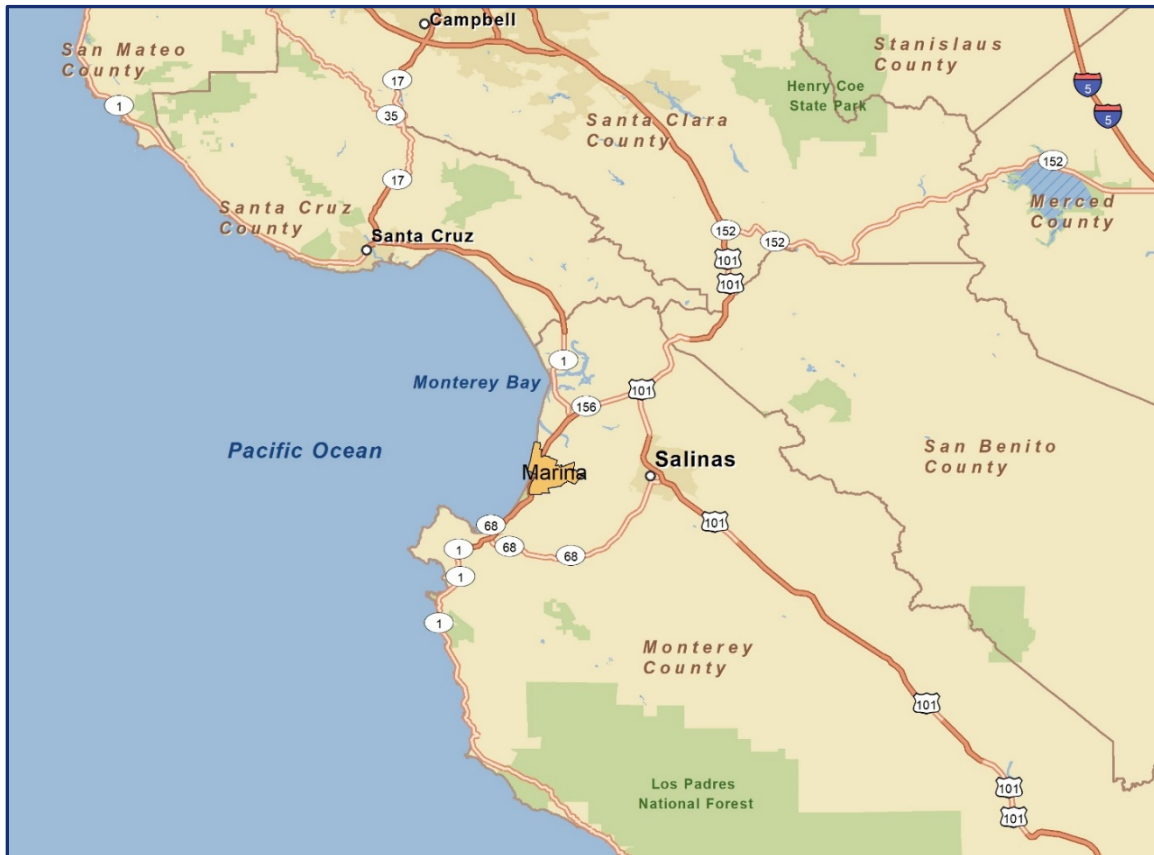
	Actual 15/16	Actual 16/17	Actual 17/18	Actual 18/19	Budget 19/20
Salaries & Wages	1,905,771	1,914,182	1,964,244	1,882,010	2,647,700
Employee Benefits	1,084,494	1,075,340	838,827	873,387	706,460
Services, Supplies, & Other Charges	271,468	304,982	444,782	424,940	373,050
Capital Outlay	-	-	75,000	-	-
Total	3,261,733	3,294,504	3,322,853	3,180,337	3,727,210

A comprehensive capital improvement and replacement program is important to the long-term financial and operational stability of any fire and/or emergency medical service organization. Such programs provide systematic development and renewal of the physical assets and rolling stock of the agency. A capital program must link with the planning process to anticipate and time capital expenditures in a manner that does not adversely influence the operation of the agency or otherwise place the agency in a negative financial position. Items usually included in capital improvement and replacement programs are facilities, apparatus, land acquisition, and other major capital projects. At the time of this writing, the City of Marina has an adopted multi-year capital improvement plan and separate fund (110) with approximately \$6,400,000 set aside for General Fund facilities and major equipment inclusive of fire apparatus. This amount is insufficient to provide for the needs of the City's multiple departments. Additional revenue sources were recently approved by the voters that may allow this to be better funded in the future.

Service Area Overview

Positioned at an elevation of 43 feet, Marina is located along the central coast of California, 8 miles west of Salinas, and 8 miles north of Monterey. Marina was incorporated in 1975, becoming the newest city on the Monterey Peninsula.

Figure 4: Location of Marina, CA



Marina Fire Department's service area population has grown by 15.8% since 2009 after a period when the population dropped from 20,049 in 2000, to 19,449 in 2008. There was a 14.3% increase in population between 2010 and 2018. The 2018 service area population was estimated at 22,535. The city covers approximately 10 square miles. A greater analysis of Marina's population is discussed later in this report. Over the course of the year, the temperature typically varies from 44°F to 70°F and is rarely below 36°F or above 80°F.

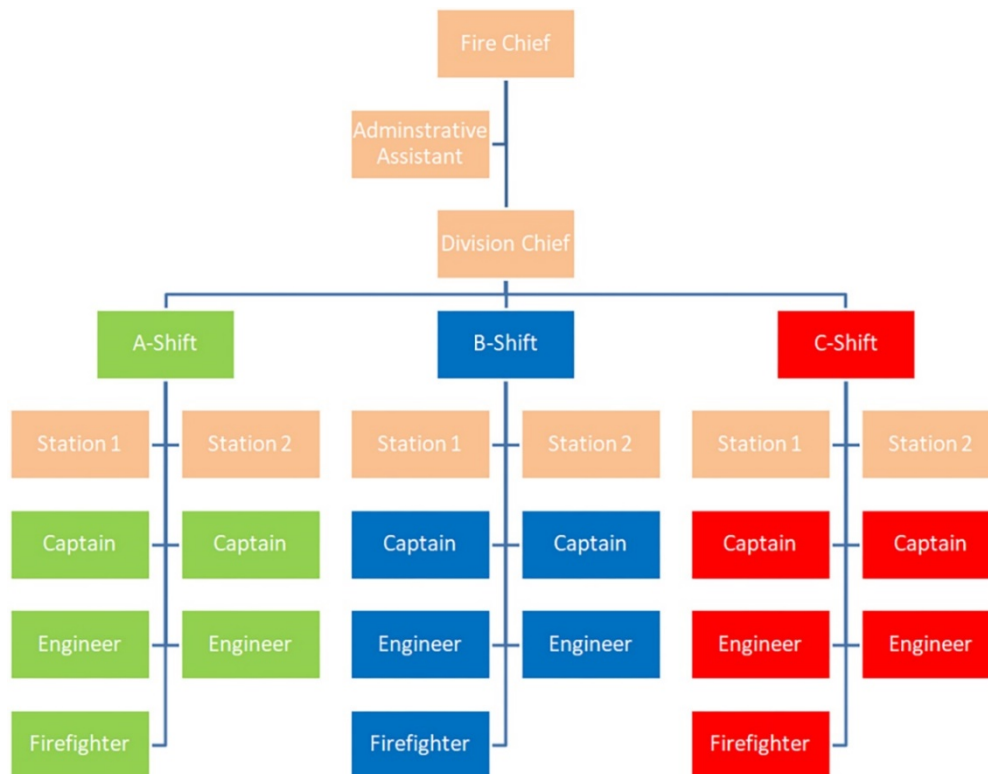
REVIEW OF SERVICES PROVIDED

Marina Fire Department is a combination fire department with both career and reserve members. The department's service area includes all of the City of Marina and shares a common border with the cities of Seaside Monterey County Regional Fire District and North County Fire Protection District. Marina Fire Department is an all-risk fire agency that provides and receives mutual aid to other agencies within the region when requested. The fire department provides a variety of response services, including structural and wildland fire suppression, basic life support (BLS) level emergency medical care, entrapment/extrication, and hazardous materials response at the technician level. Marina Fire Department also provides non-emergent response services, such as public assists, which encompasses the level of risk reduction within the community. Emergency (9-1-1) answering is provided by Monterey County's Consolidated Emergency Communications Department (ECD). Monterey County's Consolidated Emergency Fire Dispatch Center is staffed by full-time dispatchers and supplemented by professional firefighters. The ECD dispatches for 17 agencies (21 fire districts), one paramedic ambulance provider, and coordinates dispatch services for 16 other agencies. At the time of this study, ECD was utilizing Medical Priority Dispatch to prioritize requests for emergency medical services for AMR responses only.

Staffing Information

There are 15 full-time shift personnel involved in delivering services to the jurisdiction augmented by 14 reserves. Staffing coverage for emergency response is through career firefighters on 48-hour shifts. For immediate response, no less than 5 personnel are on-duty at all times.

Figure 5: Marina Fire Department Organizational Chart



MFD currently operates with a limited number of administrative support staff. The positions assigned to administration are one full-time Fire Chief, one full-time Division Chief, and one Administrative Assistant. ESCI noted that the Fire Chief and the Division Chief also provide emergency response and shift coverage. The level of administrative support appears to be inadequate for an organization the size and complexity of MFD.

The following figure illustrates administrative and staffing support for the Marina Fire Department.

Figure 6: Administrative and Support Staff

Position	Number
Fire Chief	1
Division Chief	1
Administrative Assistant	1
Total	3

The following figure illustrates response personnel by rank in the organization.

Figure 7: Response Personnel by Rank

Position	Number
Fire Chief	1
Division Chief	1
Fire Captain	6
Fire Apparatus Operator	6
Firefighter—Career	3
Firefighter Reserve	14
Total	31

Resources as Currently Deployed

The following figure provides basic information on each of the Department's core services, its general resource capability, and information regarding staff resources for each service.

Figure 8: Resource Staffing and Capabilities

Service	General Resource/Asset Capability	Basic Staffing Capability per Shift
Fire Suppression	1 Staffed Engine 1 Staffed Squad 1 Command Response Unit (Additional automatic and mutual aid engines, aerials, and support units available)	5 Suppression-Trained Personnel (Off-duty personnel, reserve firefighters, and additional automatic and mutual aid firefighters available)
Emergency Medical Services	1 Engine, BLS equipped 1 Squad	5 Certified Emergency Medical Technicians
Vehicle Extrication	1 Engine equipped with hydraulic rescue tools, hand tools, air bags, stabilization cribbing, and a cutter and a spreader hydraulic rescue tool 1 Squad	All firefighters are vehicle extrication/rescue trained
High-Angle Rescue	Countywide USAR Team	Department response: Evaluate and request mutual aid as needed
Trench and Collapse Rescue	Countywide USAR Team	Department response: Evaluate and request mutual aid as needed
Swift-Water Rescue	Beach Rescue, Rope Gun, PFDs, and rescue disc	All personnel trained to the awareness level.
Confined Space Rescue	Countywide USAR Team	Department response: Evaluate and request mutual aid as needed
Hazardous Materials Response	Countywide Haz Mat Team via Mutual Aid	Captains trained to IC level All personnel trained to FRO level

Apparatus

Response vehicles are an important resource of the emergency response system. If emergency personnel cannot consistently arrive quickly due to unreliable transport, or if the equipment does not function properly, the delivery of emergency service is likely compromised. Fire apparatus are unique and expensive pieces of equipment, customized to operate efficiently for a specifically defined mission. The following figure lists the apparatus assigned to each of the MFD fire stations.

Figure 9: MFD Fire Stations and Apparatus

Station 1							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
5400	SUV	2015	Ford	Good	4	N/A	N/A
5401	SUV	2017	Ford	Good	4	N/A	N/A
5404/Reserve	SUV	2008	Ford	Fair	4	N/A	N/A
5411	Type I Engine	2019	Rosenbauer	New	4	1500	500
5421/Reserve	Type I Engine	1998	Ferrara	good	4	1250	500
5431	Type III Engine	2004	Pierce/Internat'l	Good	4	500	500
5461	Rescue	1998	Ford	Fair	2	500	500

Station 2							
Apparatus Designation	Type	Year	Make/Model	Condition	Seating Capacity	Pump Capacity	Tank Capacity
5412	Type I Engine	2007	Ferrara	Good	4	1500	500
5422/Reserve	Type I Engine	1994	Pierce	Good	5	1250	500
5452	Engine/Patrol	1996	Becker	Good	2	120	300

Figure 10: Mutual Aid Resources

Department	Engines	Ladders Trucks	Other	Total Available Staffing
Presidio Fire Department	1	1	2	8
Seaside Fire Department	1	1	3	6
North County Fire District	3	1	3	7
Monterey County Regional Fire	7	—	7	19
Monterey Fire Department	6	2	—	22
Salinas Fire Department	6	2	—	26
Totals	26	7	15	87

These are the types of apparatus shown in the preceding figure:

- Engine—Primary response unit from each station for most types of service requests equipped with a pump and ability to carry water.
- Wildland Engine (Type III)—A smaller vehicle with a pump and water tank designed to be used for brush and grass fires in wildland areas.

REVIEW OF COMMUNITY EXPECTATIONS

The ultimate goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective action to minimize the impacts of the emergency. This need applies to fires, medical emergencies, and other emergency situations to which the fire department responds. Obtaining and understanding the desires and expectations of community stakeholders is an important first step. MFD is committed to incorporating the needs and expectations of residents and policymakers in the service delivery planning process.

It is important to note that the information solicited and provided during this process was provided in the form of "individual inputs," some of which are perceptions as reported by stakeholders. All information was accepted at face value without an in-depth investigation of its origination or reliability. The project team reviewed the information for consistency and frequency of comment to identify specific patterns and/or trends. The observations included in this report were confirmed by multiple sources, or the information provided was significant enough to be included. Based on the information review, the team was able to identify a series of observations, recommendations, and needs that are included in this report.

Stakeholder Input

Community attitudes about the Marina Fire Department and its services were gathered by in-person and phone interviews of stakeholders. Eighteen stakeholders were scheduled for interviews that were completed over a multi-day period. The interviewees represented the City Council, City Administration, Community Members, Business Community, MFD Labor, Administrative Staff Members, and Chief Officers.

The stakeholder responses are summarized as follows:

BUSINESS, COMMUNITY GROUPS, AND CITIZENS

Describe your expectations of the Fire Department.

- Residents have high expectations when it comes to the delivery of service by the Fire Department.
- Reasonable response time, accessibility, visible to the public, and competent.

Which of these expectations are not being met to your satisfaction?

- Most comments heard are complementary; the Fire Department does a great job trying to meet service demands.
- The Fire Department responds as quickly as possible.
- If our Fire Engine is committed when another request for its service occurs, we are relying on POM or North County, the response time is affected and longer.
- The current management of funds for the Fire Department is a detriment to the City, its residents, and visitors.
- The Fire Department needs to hire more Firefighters.

What do you think the Fire Department is doing particularly well?

- Community relations.
- They provide excellent service.
- The Firefighters are all well-trained.
- They do an amazing job of managing their on-duty time with a limited number of responders.
- The Fire Chief has done a good job leading this Fire Department.

Are there services that you think the Department should be providing that they are not providing now?

- Seriously consider purchasing and staffing a Rescue-Medical Squad primarily assigned to respond to medical aid calls.
- The development review services, i.e., tentative maps, etc., all which includes the Fire Department to participate in the review process.
- Growth stimulates the economy and creates jobs.
- Stand up a City of Marina Community Emergency Response Team.
- Dedicated Fire Marshal.
- Enhance service to the City by adding Paramedics to the Fire Department as First Responders, which strengthens the Fire Department's capabilities and enhances services to the community.

Are there services the Fire Department is providing that you think should be discontinued or done differently?

- The Fire Department needs additional staff and resources in order to meet the demands of upcoming development/s.
- Currently, there is no back-up when the fire engine is committed to a call; cannot always depend on assistance via surrounding resources.
- Due to the size of the Department, they need more staff and equipment.
- Community Outreach is vital, and there isn't enough staffing to do this as often as they should.
- Public Information Officer—there is no staffing to share current information the public may want or need to know. As an example, the Fire Department has a Smoke Detector program, and most of the community doesn't even know what services are offered.

When you dial 9-1-1 to report an emergency, how long should it take for help to arrive?

- Several minutes 3–4. No longer than 5 minutes.
- Most of Marina: 3 to 5 minutes; further out, the response will take longer.
- Within 2 minutes, although the interviewee realizes it can be longer if the engine is in the Station or not.

Does that expectation change depending on where in the community you are located?

- Expectations may need to be managed, but response time shouldn't change.
- No, expectations do not change.
- It does change due to requests for services in areas that have no easy access to some residential developments, traffic, i.e., time of day, type of call, resources available, etc.

Do you believe the first arriving response units should be staffed and equipped to take appropriate actions given the emergency?

- Staff and appropriate equipment are needed in order to meet the contemplated risk at hand.
- Equipment should be properly staffed for that specific type of apparatus.
- Add a Rescue Unit in lieu of responding with an engine company for medical calls.
- Absolutely.

ELECTED OFFICIALS, CITY MANAGEMENT, AND DEPARTMENT HEADS

What strengths contribute to the success of the Fire Department?

- The biggest strength is the Fire Chief, who understands the fire industry and works well with the City's Administrative Team as well as with the community.
- The Firefighters appear to be very close, very much like a family.
- Upward mobility is being experienced, which allows opportunities to promote.
- There exists an extremely positive relationship between the Fire Department and the community.

What do they do well?

- The Fire Department appears to be aware of existing environmental issues and is following the City's General Plan.
- The Fire Department does an outstanding job and has an excellent relationship with neighboring agencies in which they can depend on for mutual aid.
- They do a very good job responding to request(s) for service and successfully accomplishes this with limited staffing.
- Responds to an incident as quickly as they can.
- Do well under stressful situations while experiencing multiple requests for service.

What are some areas in which you think the Department could make improvements?

- Reduced response time.
- Additional support.
- Purchase new equipment.
- Have the capability to protect two-or-more story structures/buildings in the event of a fire.
- Improve disaster management by providing the appropriate training.
- Adopt Equipment Replacement Standards.

What opportunities, in your view, are available to improve the service and capabilities of the fire department?

- When reviewing plans, we need to refer to the policies. Why approve a 5-story building when we do not have the appropriate equipment to protect the building?
- Add a Ladder Truck; however, we do not have a station capable of housing it.
- Increase our focus by providing the equipment that they need so they can do their job.

Please share your thoughts with us regarding staffing utilizing 12-hour shifts and peak hour units.

- Absolutely need to look into things like this.
- An analysis is needed.
- Need to look at things like this for the future.

What do you see as critical issues faced by the fire department today?

- The current budget is adequately funded; however, we are aware that future budgetary issues are going to be difficult.
- Fire and Police Budgets take a very large portion of the City's Budget and it is not sustainable.
- Restructure the existing service model used in responding to medical requests; requests for services will continue to grow.
- To have the capability to retain qualified staffing.
- To have the ability to fully fund additional staffing.
- Decide on the location of the second station.
- Succession planning beginning at the top to the bottom.

If you could change one thing in the fire department, what would it be?

- Review how we allocate our staffing resources in order to see if there is a better way.
- Break down the standard and look at data, demands. Is there a better way?
- Three fully staffed shifts with reasonable overtime.
- Does not see any major issues with the Fire Department.
- The Fire Department is incredible; they do best with what they have.

How would you describe the level of services provided by the fire department?

- There will be improvement due to staffing the second station.
- Has not heard any complaints.
- The community has voiced their support of the Fire Department.

What opportunities, in your view, are available to improve the service and capabilities within the region?

- Sharing stations on borders; Seaside is a prime example; the entire region would be positively affected.
- Emergency Planning that include department heads.
- Emergency Operations Center "EOC" exercises.

CHIEF OFFICERS, LABOR LEADERS, RESERVES, RANK & FILE, ADMINISTRATION***What strengths contribute to the success of the fire department?***

- Versatile in having to change how to respond to requests for our services due to back-to-back calls and keep up with the volume.
- Working out of grade.
- Each individual's participation and enthusiasm.
- The Department's strong suit is the level of care while on EMS calls.
- We try to treat EMS patients with empathy and care that is equal to the care that would be provided to our own family members.
- Ability to focus on Fire since Fire and Police are now separate divisions.

What do you do well?

- Planning and how we will grow into full buildout.
- Connecting with the community and utilizing our Reserve Firefighters events.
- Attending public events and providing education to children.
- Training is going well.
- Interacting with the community.

What are some areas in which you think the Department could make improvements?

- Training: consider using props, identify a dedicated training facility, etc.
- Consider using the station at the Airport as a training facility.
- Communication
- Tactical co-officer training. We lack training in strategy and tactics.
- Staffing is an issue and we are working on it now.
- Reduce the reliance on neighboring agencies.

What opportunities, in your view, are available to improve the service and capabilities of the fire department?

- Hiring additional firefighters.
- Staffing 2nd engine at the other Marina, rather than having POM cover for us.
- Strategies and tactics training at the company officer level.
- Improve existing internal communication.
- Our responses are limited; we are not capable of responding to specialty calls such as Haz Mat, etc.
- Some of our Firefighters have experience, i.e., water rescue as an example, but can't utilize their skills.
- Improve capabilities to respond to specialty calls such as surf rescue, Haz Mat, etc.

What do you see as critical issues faced by the fire department today?

- Staffing is definitely #1 – of 3 at each station.
- Making sure the Firefighters are well trained for the position they're assigned to. Minimum staffing and adequate training for moving up.
- Investing in outreach to the community.
- Investing in the community, disaster preparedness, training to the community.
- Lack of a Public Education staff person.
- Amount of calls for one engine.
- Trained Firefighter Reserves that have a Class B driver's license, and who won't be limited to just covering the fire station.
- Leadership
- Quality training.
- Culture
- Excess amount of collateral duties given our limited staff.

Please share your thoughts/ideas regarding alternative staffing and dynamic deployment.

- Not sure; is a proponent of 3 and 3 staffing for two stations.
- Staff a 2nd engine and it would be an enhancement.
- All for departments trying different things and if it provides better service.
- Open to suggestions.

If you could change one thing in the fire department, what would it be?

- Add staffing.
- A Fire Station separate from the Police Station; two separate entities.
- At least one additional Chief Officer position; with the assumption the Department has adequate engine staffing.
- Culture

How would you describe the level of emergency services provided by the fire department?

- We do a great job; regularly are complimented by the ambulance crews.
- Training could be a lot better.
- Top-notch.
- Work well with other departments.
- Very good for what they have.
- The best.

SURROUNDING AREA CHIEFS

What strengths contribute to the success of the Seaside and Marina Fire Departments? What do the departments do well?

- Auto aid.
- Support one another.
- The level of service both Fire Departments provide is outstanding.
- Enjoys working with both Fire Departments.
- Seaside covers day to day requests for services without heavy reliance on their neighbors.
- Good leadership is in place.
- Work well with surrounding agencies.

What are some areas in which you think the departments could make improvements?

- Training, including high-rise.
- Closest resource dispatch regardless of where the incident is and who's jurisdiction it is in.
- Succession planning.
- Deployment and staffing.
- Reduce reliance on Presidio of Monterey.

What opportunities, in your view, are available to improve the service and capabilities within the region?

- A collaborative approach to addressing the impact of development.
- Enhanced EMS, such as Firefighter Paramedics.
- Standardize training throughout the region.
- Regional training, recruitment academy, etc.
- Enhanced command/Chief Officer response to incidents.
- Good job on communication/shared dispatch.

What are the critical issues facing the region over the next 5 years?

- Community risk reduction.
- Regional Communication is working, however, enhanced staffing.
- Training.
- Response times.
- Availability of firefighters.
- Upcoming development.
- Succession planning.
- Tightening of finances
- Boundary drop.

COMMUNITY RISK ASSESSMENT

Numerous risk factors can influence the types of services a community requires. Hazard identification is the process of recognizing the range of natural or human-caused events that threaten an area. Natural hazards result from uncontrollable, naturally occurring events such as flooding, windstorms, and earthquakes, whereas human-caused hazards result from human activity and technological hazards. An example of a technical hazard is an accidental hazardous materials release.

Community risk is assessed based on several factors; service area population, population density, demographics of the population served, local land use and development, and the geography and natural hazards present within the community. These factors affect the number and type of resources—both personnel and apparatus—necessary to mitigate an emergency.

- Population density is a risk factor, and demographics presents another unique risk. Over 21% of the population is under the age of 18 years of age, and over 37% of the population speak languages other than English at home.
- The physical characteristics of the area and the resultant natural hazards are risk factors. Marina lies in a valley and is at risk of earthquakes and flash floods. Marina lies along the coast near Monterey Bay and is at risk of earthquakes and flash floods. The wildfire risk within Marina is considered moderate in the majority of the city.
- Land use and zoning can also affect risk. Risk can be characterized as low (e.g., agricultural or low-density housing); moderate (e.g., small commercial and office); or high (e.g., large commercial, industrial, and high-density residential).

Risk Classification

Based on the narrative descriptions of the various hazards found throughout the Marina response area, ESCI has developed a numerical ranking of community hazards using historical incident data, as well as an assessment of the community and its vulnerabilities. Community hazards were grouped into broad categories as follows:

- | | |
|-----------------------|-------------------------|
| • Structure Fires | • EMS-Medical Assist |
| • Hazardous Materials | • Technological Hazards |
| • Non-structure Fires | • Rescue |
| • Natural Hazards | • Human Hazards |

Within each category, specific hazards were identified, and a probability (likelihood) score between zero (representing “Not Applicable”) and four (representing “Catastrophic”) was assigned to each of the categories.

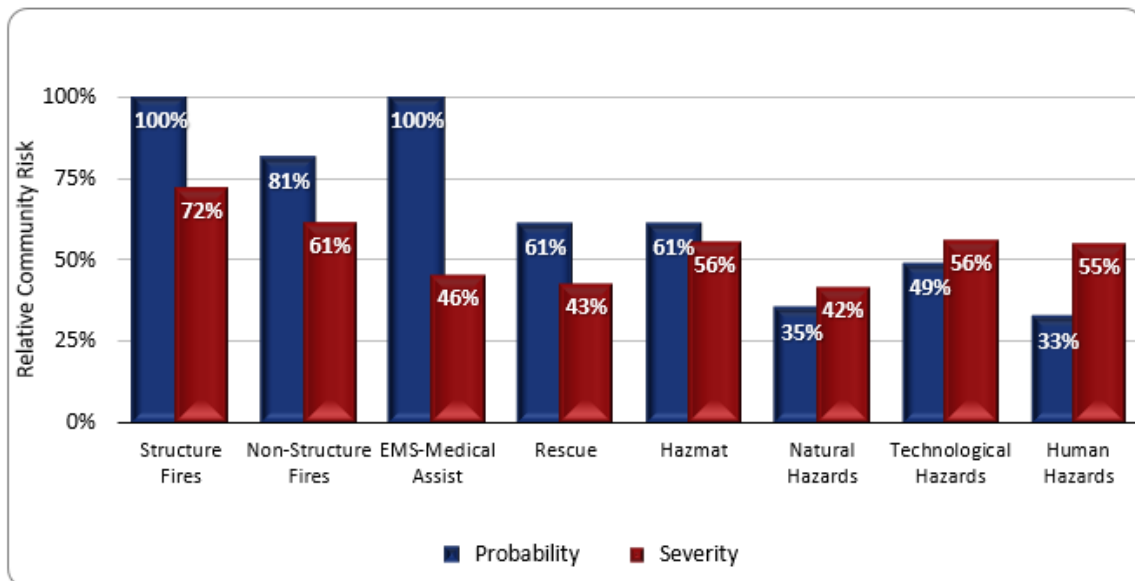
A severity score is developed by reviewing an incident's impact on the community and the ability to mitigate the event. Community Impact scores the effect of an incident on humans, property, and businesses. As the score increases, the impact in the community expands. Mitigation Capacity rates how well a community responds to an event based on preparedness and internal and external response. The lower the mitigation score indicates that the community is prepared for an event.

The overall scores were then used to generate a relative risk score as it applies to the City of Marina. Documentation of categorical scoring can be found in the appendices of this report. The completed hazard vulnerability analysis, including relative community risk, is shown in the following figures.² Details of each risk category are in Appendix A.

Figure 11: Hazard Risk Summary

	Structure Fires	Non-Structure Fires	EMS-Medical Assist	Rescue	Hazmat	Natural Hazards	Technological Hazards	Human Hazards	Total for Community
Probability	100.00%	81.25%	100.00%	61.11%	61.11%	35.00%	48.68%	32.50%	55%
Severity	72.22%	61.46%	45.83%	43.06%	55.56%	41.94%	56.14%	55.00%	54%
Relative Risk	72%	50%	46%	26%	34%	15%	27%	18%	29%

Figure 12: Relative Community Risk



ESCI also identified the following vulnerabilities specific to fire operations. Each is discussed in greater detail on the following pages.

- Population Density
- Physical Hazards
- At-Risk Populations
- Human-Caused Hazards

² Based on reported NFIRS data January 01, 2016, to December 31, 2018, the Monterey Community Wildfire Plan, the Monterey County Multi-Jurisdictional Hazard Mitigation Plan, and others.

Population Density

According to the United States Census Bureau, Marina is classified as an urban city at 8.88 square miles in area. The 2018 estimated population is 22,535, with an estimated population density of about 2,537 per square mile, compared to an average of 239 people per square mile for California.

The population decrease in Marina can be attributed to the closing of Fort Ord in 1994. It has been steadily increasing since 2009 and tends to be concentrated in the northern and central parts of the community, in neighborhoods and planned development communities, surrounded by less densely populated areas near the airport. Much of the population density is defined by areas used for agricultural use or flood plain areas where lower population densities exist. The areas displaying the highest population density correspond to the highest incident response locations, as illustrated in the Service Demand Analysis.

Figure 13: Study Area Population Density

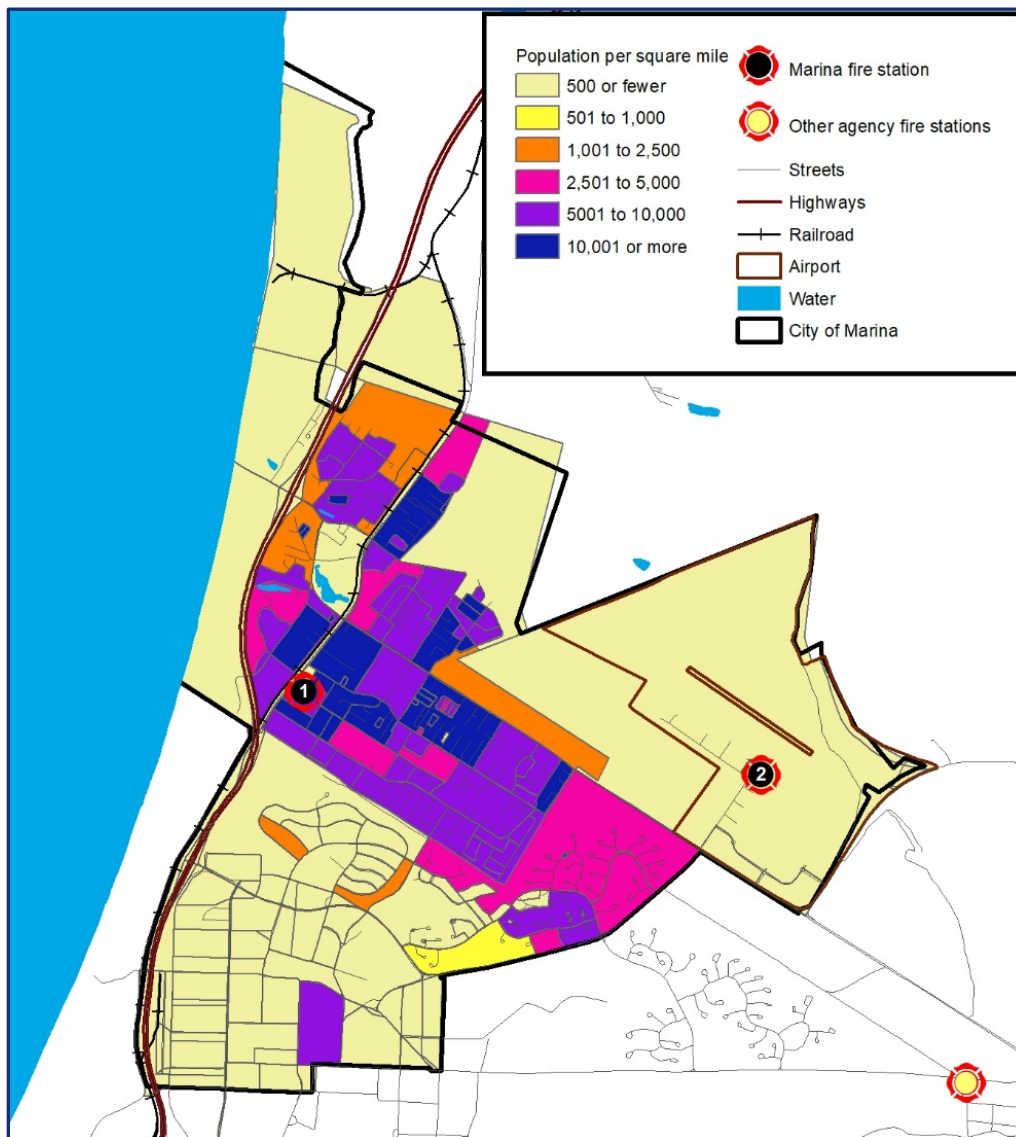
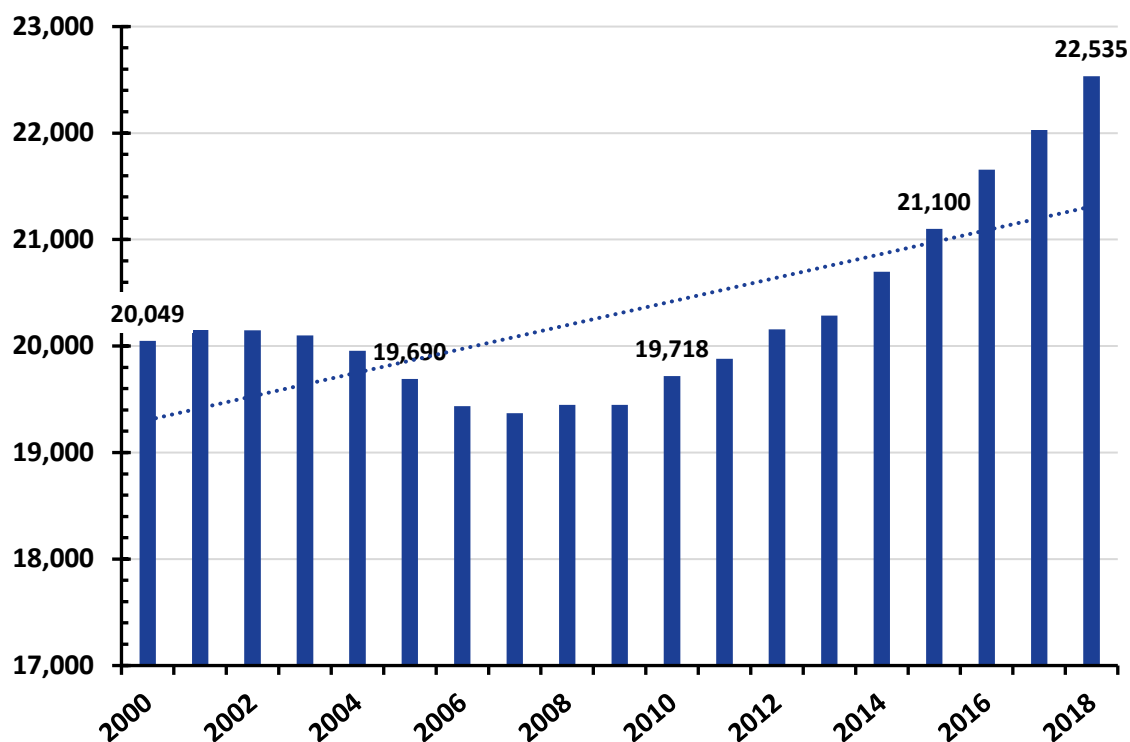


Figure 14: Population History, 2000–2018^{3,4}

³ Retrieved from: <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>.

⁴ Retrieved from: <https://www.census.gov/data/datasets/time-series/demo/popest/intercensal-2000-2010-cities-and-towns.html>.

Figure 15: Demographics for the MFD Service Area, 2018

Category	Number/%
Population	
Population estimates, July 1, 2018	22,535
Population estimates base, April 1, 2010	2,217.7
Population, percent change—April 1, 2010 (estimates base)—July 1, 2017	14.3%
Geography	
Population per square mile, 2017 (estimate)	4,719.2
Population per square mile, 2010	4,374.8
Land area in square miles, 2010	8.88
Age and Sex	
Persons under 5 years, 2017 (estimate)	8.7%
Persons under 18 years, 2017 (estimate)	22.1
Persons 65 years and over, 2017 (estimate)	13.9
Male persons, 2017 (estimate)	48.8%
Female persons, 2017 (estimate)	51.2%
Race	
Hispanic or Latino	29.5%
White alone	50.2%
Other Races or "two or more races"	20.3%
Population Characteristics	
Veterans, 2014–2018	1,519
Foreign born persons, 2014–2018	24.9%
Housing	
Housing units, 2018 ACS estimate	8,066
Owner-occupied housing unit rate, 2018 ACS estimate	44.5%
Median value of owner-occupied housing units, 2018 ACS estimate	\$469,500
Median selected monthly owner costs—with a mortgage, 2018 ACS estimate	\$2,082
Median selected monthly owner costs—without a mortgage, 2018 ACS estimate	\$458
Median gross rent, 2018 ACS estimate	\$1,308
Families and Living Arrangements	
Households, 2014–2018	7,549
Persons per household, 2014–2018	2.74
Living in same house 1 year ago, persons age 1 year+, 2014–2018	85.5%
Language other than English spoken at home, persons age 5 years+, 2014–2018	37.4%
Education	
High school graduate or higher, persons age 25 years+, 2014–2018	83.6%
Bachelor's degree or higher, persons age 25 years+, 2014–2018	27.8%
Health	
With a disability, under age 65 years, 2014–2018	9.7%
Persons without health insurance, under age 65 years	11.1%

Category	Number/%
Economy	
In civilian labor force, total, population age 16 years+, 2014–2018	64.1%
In civilian labor force, female, population age 16 years+, 2014–2018	57.7%
Total accommodation and food services sales, 2012 (\$1,000)	\$41,713
Total health care and social assistance receipts/revenue, 2012 (\$1,000)	\$31,515
Total merchant wholesaler sales, 2012 (\$1,000)	\$45,927
Total retail sales, 2012 (\$1,000)	\$208,952
Total retail sales per capita, 2012	\$10,317
Transportation	
Mean travel time to work (minutes), workers age 16 years+, 2014–2018	24.3
Income and Poverty	
Median household income (in 2017 dollars), 2014–2018	\$62,803
Per capita income in the past 12 months (in 2017 dollars), 2014–2018	\$29,686
Persons in poverty	11.2%
Businesses	
All firms, 2012	1,223
Women-owned firms, 2012	442
Men-owned firms, 2012	597
Minority-owned firms, 2012	671
Nonminority-owned firms, 2012	499
Veteran-owned firms, 2012	154
Nonveteran-owned firms, 2012	1,001

At-Risk Populations

In addition to the distribution of the population, the demographics can affect the amount of service demand and the nature of hazards within a community. In urban cities, several factors that place groups of people at risk have been identified. An NFPA report has identified the groups that face a higher risk of being injured or killed in a fire as follows:⁵

- Children under 5 years of age
- Older adults over 65 years of age
- People with disabilities
- Language barrier
- People in low-income communities

According to the 2017 Census Bureau estimate, a number of the residents of Marina are in one or more at-risk population groups. This segment of the population is more likely to use fire department services, especially EMS, than other population groups.

Age

The percentage of young children in Marina is a factor that increases service demand and hence community risk in the service area. The median age of the population is 31.9 years old. This compares to an average age for the population of California of 36.5 years old and 37.8 years old for the U.S.⁶ Of concern is the number of children under 5 years of age and adults over 65 years of age, representing 22.6% of the population. Adults 75 or older is 6.3% of the population compared to 6% for California.

Disabilities

People under 65 years of age with disabilities make up 9.7% of the population. These people may have difficulty or be incapable of self-preservation during an emergency. Likewise, people under 65 years of age with no health insurance are more prone to chronic illness or exhibit poor physical condition simply because they do not seek treatment promptly. More than 11% of the population is under 65 and has no health insurance, which is higher than the California average of 8.3%; thus, they may require a higher level of fire-rescue response.

⁵ National Fire Protection Association, 2007; Urban Fire Safety Project, Emmitsburg, MD; retrieved from <http://www.nfpa.org/public-education/by-topic/people-at-risk/urban-fire-safety/reports-and-presentations>.

⁶ The U.S. Census Bureau.

Low-Income

Likewise, low-income people are more at risk from fire or medical condition; almost one in five residents (17.3%) of Marina live below the poverty level.⁷ Low income is often combined with other factors such as education, disability, and work status, as shown in the following figure.

Figure 16: Marina Household Incomes, 2017⁸

Subject	Households' Estimate	Families' Estimate	Married-Couple Families' Estimate	Nonfamily Households' Estimate
Total	7,549	4,829	3,226	2,720
Less than \$10,000	5.5%	3.7%	1.0%	9.9%
\$10,000 to \$14,999	3.6%	1.4%	0.2%	8.2%
\$15,000 to \$24,999	8.20%	5.3%	3.8%	14.6%
\$25,000 to \$34,999	6.8%	5.7	4.5%	9.3%
\$35,000 to \$49,999	12.10%	11.7%	9.6%	12.5%
\$50,000 to \$74,999	20.8%	21.6%	19.5%	19.9%
\$75,000 to \$99,999	13.8%	15.0%	17.9%	11.2%
\$100,000 to \$149,999	18.1%	21.0%	24.1%	10.1%
\$150,000 to \$199,999	6.6%	9.4%	13.1%	1.2%
\$200,000 or more	4.5%	5.1%	6.2%	3.1%
Median income	\$62,803	\$76,273	\$87,656	\$45,633
Mean income	\$81,147	\$89,673	*	\$61,537

⁷ "The U.S. Dept of Health and Human Services 2019 poverty threshold is defined as \$12,490 for an individual, \$25,750 for a family of four." Retrieved from <https://aspe.hhs.gov/prior-hhs-poverty-guidelines-and-federal-register-references>.

⁸ U.S. Census <https://data.census.gov/cedsci/table?q=marina%20ca%20income&g=1600000US0645778&lastDisplayedRow=16&table=S1901&tid=ACST5Y2018.S1901&t=Income%20%28Households,%20Families,%20Individuals%29>.

Physical Hazards

Since 1965, the number of federally declared disasters in Monterey County (20) is higher when compared to both the state (19) and national (16) averages.⁹ The cause for each of these declarations is shown in the next figure. Although most of these declarations did not affect Marina directly, they are an indication of the hazards present throughout the County. The figure excludes one declaration related to Hurricane Katrina when evacuees were transported from New Orleans to Monterey County for shelter.

Figure 17: Federally Declared Disasters, Jan. 1965–Mar. 2018

Type	Type, Number	Type, Percent
Fire	3	15%
Flood	5	25%
Severe Storms	5	25%
Coastal Storm	1	5%
Freezing	3	15%
Earthquake	1	5%
Drought	1	5%
Tsunami	1	5%
Total	20	100.0%

Earthquakes

Earthquakes occur throughout California, but certain areas, including Marina, have a slightly lower probability of experiencing damaging ground motions caused by seismic activity compared to California. Marina has an earthquake index of 16.63 compared to California at 21.8. Most of Marina's population is in a high shaking hazard area. Marina is in the Reliz fault zone. A fault from the coast to the Municipal Airport and another just south and travels through California State University Monterey Bay. The Monterey County Draft Environmental Impact Report (2007) stated that there had not been any major activity along this fault in more than 100 years. A high ground shaking hazard area is derived from the U.S. Geological Survey (USGS) seismic hazard map, which shows the distribution of earthquake shaking levels that have a certain probability of occurring.

Soil liquefaction is primarily low in most of Marina but increases to moderate or high along the coast and Salinas River. Soil liquefaction occurs when seismic waves cause the soil to lose its strength and cause buildings to collapse.

According to one source, the risk of an earthquake greater than 5.0 within 50 years is 99.91% in Marina and gradually lower to approximately 28.12% for 7.0 or greater. Thus, the risk of earth movement, or ground shaking, ranges from strong to severe.¹⁰

⁹ FEMA Disaster Declarations Summary—Open Government Dataset, U.S. Department of Homeland Security, last updated December 8, 2019. Retrieved from: <https://www.fema.gov/openfema-dataset-disaster-declarations-summaries-v2>.

¹⁰ <https://www.homefacts.com/earthquakes/California/Monterey-County/Marina.html>.

The Marina area has had a total of 5,182 earthquakes since 1931. The largest earthquake to date was the 1989 Loma Prieta with a magnitude of 6.9 and centered 26 miles from Marina.¹¹

Most losses of life and injuries resulting from an earthquake occur in or near structures. The potential for damage to and the collapse of structures is greatest in the downtown area due to the high number of masonry buildings.

Historical Earthquake Events

A total of 237 historical earthquake events that had recorded magnitudes of 3.5 or above were found in or near Marina, CA. Those measuring 5.6 or greater on the Richter Scale are shown here.¹²

Figure 18: Earthquakes Measuring 5.5 or Greater Within 50 Miles

Distance (miles)	Date	Magnitude	Depth (km)	Latitude	Longitude
43.3	1911-07-01	6.6	N/A	37.25	- 121.75
48.5	1984-04-24	6.2	8	37.32	- 121.7
13.3	1926-10-22	6.1	N/A	36.75	- 122
37.3	1979-08-06	5.9	6	37.1	- 121.5
29.2	1961-04-09	5.6	10	36.68	- 121.3

Wildfires

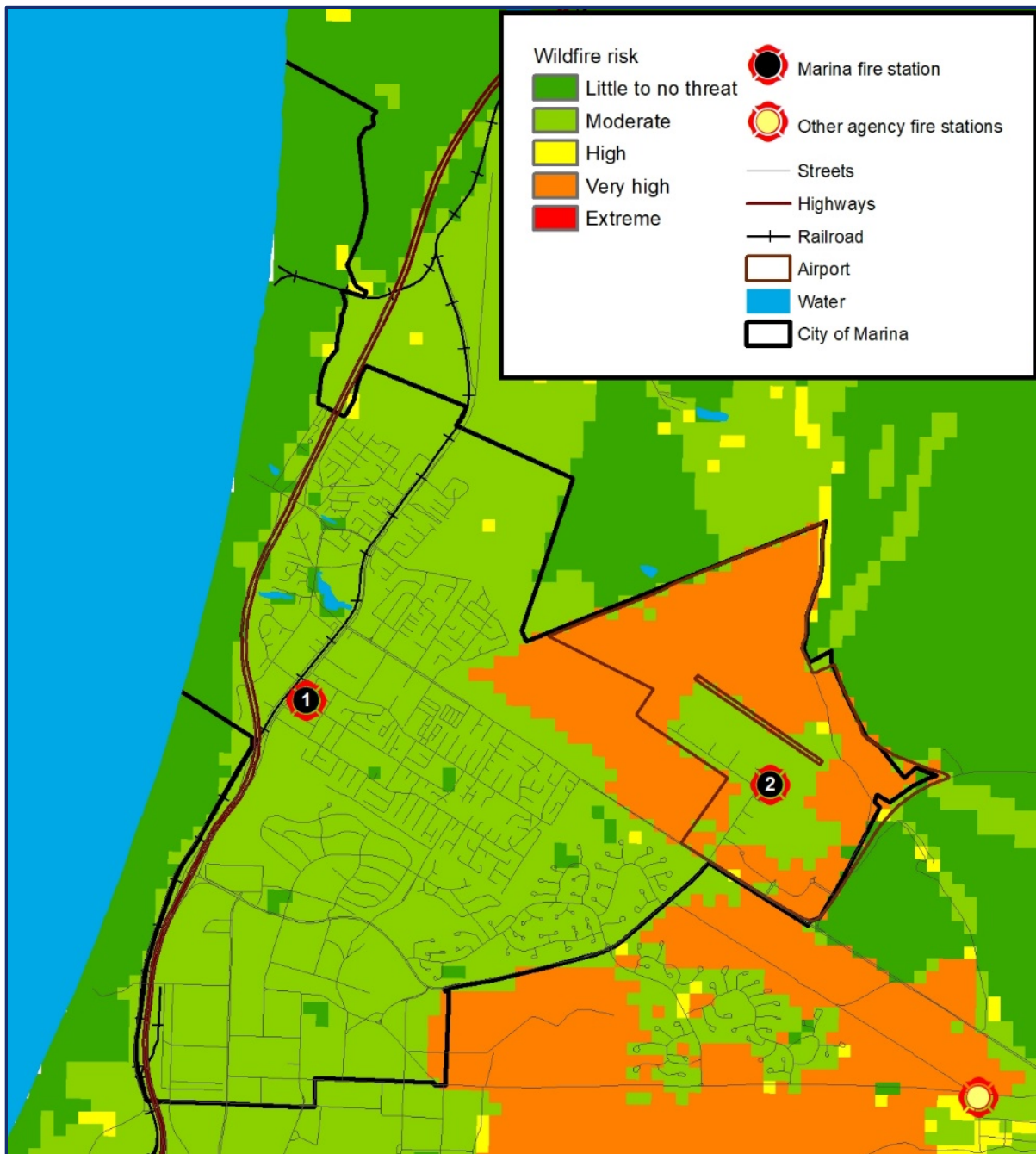
Like many fire jurisdictions in the Western United States, especially California, wildland fire risk is a factor in the MFD service area. The following figure uses CAL FIRE GIS data to examine the wildland fire hazard in and around Marina. This model produced by CAL FIRE considers vegetation, topography, weather, crown fire potential, and ember production and movement to summarize fire hazard zones as moderate, high, or very high. This figure demonstrates that most of the City of Marina has a moderate risk of wildfire due to urbanization, and a small portion north of Reservation Rd. is considered a higher risk.

The vast majority of Marina is an urbanized community with some agricultural lands on the northern portion of the city. The California Fire Resource and Assessment Program (FRAP) considers most of the city in a moderate wildland fire hazard area. This includes more than 25,000 residents, 6,300 residential buildings, 21 critical facilities, and the airport. A small percentage of residents are exposed to a high wildland fire hazard. The risks of wildland fires are greatest in undeveloped areas, primarily on the northeast and southeast sections of the city, and they should be evaluated on a continual basis for wildland-urban interface issues.

The Marina Fire Department participates in State and County-level mutual aid agreements, which provide additional resources for all risk incidents if they occur.

¹¹ <http://www.usa.com/marina-ca-natural-disasters-extremes.htm>.

¹² Earthquakes that measure 6.0–6.9 on the Richter Scale are considered to be strong earthquakes (VIII to X on the Mercalli intensity scale) and are expected to result in damage to a moderate number of well-built structures in populated areas. Earthquake-resistant structures survive with slight to moderate damage. Poorly designed structures receive moderate to severe damage. Strong to violent shaking in the epicenter, felt in wider areas, up to hundreds of miles/kilometers away.

Figure 19: MFD Study Area Wildland Fire Risk

Severe Weather

Tornadoes are created when warm, moist air near the ground interacts with cooler air above and rapidly increasing winds that change direction. Tornadoes are rare in California and even more so in Marina; the expectation of a tornado in Marina is almost 15 times lower than the U.S. average. The tornado index for Marina is 9.13 compared to California at 18.56 and the United States at 136.45.¹³

Since 1965, only 11 tornadoes have been recorded within 30 miles of Marina (interestingly half of these occurred in the month of December).¹⁴ Only one of these events caused injuries when two individuals were injured after 75 mph winds shattered glass near the east/northeast section of Monterey and the adjoining Seaside-area on December 6, 1992.¹⁵

Figure 20: Tornado Intensity, Enhanced Fujita Scale

Designation	Wind Speed, mph	Typical Damage ¹⁶
EF-0	65–85	Minor or no damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.
EF-1	86–110	Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2	111–135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3	136–165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations are badly damaged.
EF-4	166–200	Devastating damage. Well-constructed and whole frame houses completely leveled; cars and other large objects thrown and small missiles generated.
EF-5	> 200	Extreme damage. Strong-framed, well-built houses leveled off foundations are swept away; steel-reinforced concrete structures are critically damaged; tall buildings collapse or have severe structural deformations; some cars, trucks, and train cars can be thrown approximately 1 mile (1.6 km).

¹³ <http://www.usa.com/marina-ca-natural-disasters-extremes.htm#TornadoIndex>.

¹⁴ <https://www.homefacts.com/tornadoes/California/Monterey-County/Marina.html>.

¹⁵ https://met.nps.edu/~ldm/renard_wx/dec92wx.pdf.

¹⁶ Wikipedia. https://en.wikipedia.org/wiki/Enhanced_Fujita_scale.

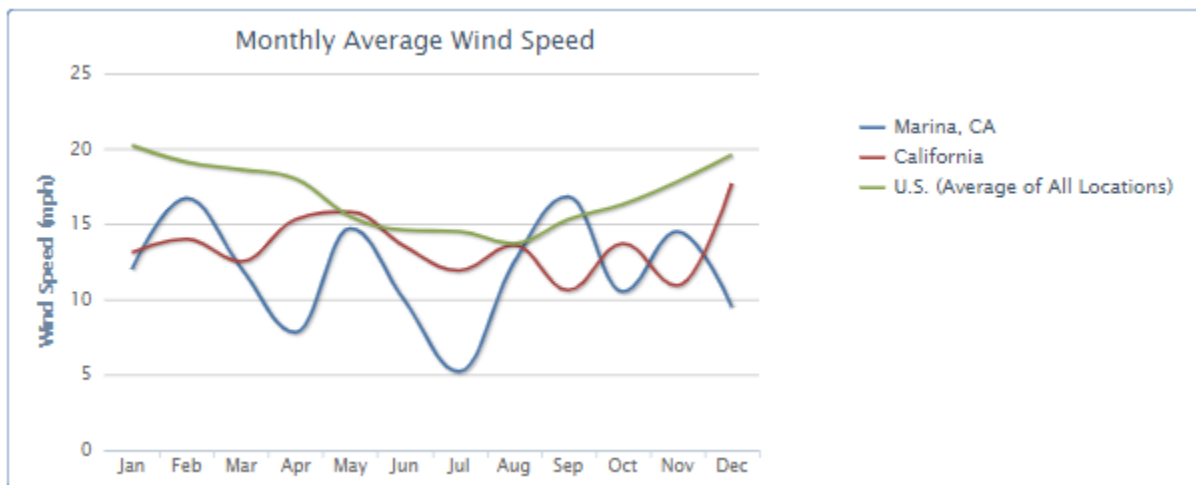
Microbursts can cause devastation similar to that caused by a tornado, but the mechanism is different. A microburst is a strong, small-scale downdraft of wind that hits the ground and spreads out; there is no rotation as there is with a tornado. Microbursts are frequently associated with strong thunderstorms.

A **macroburst** is another form of straight-line wind, similar to a microburst but spread out over a larger area. These damaging downdrafts do not occur very often in and around Marina unless associated with significant and violent thunderstorms.

Seasonal Winds

Marina has mild winds much of the year but spikes in February, May, and September, having a sharp increase in wind speeds (averaging up to 17 mph). The winds drop to less than 15 mph until rising again in November to approximately 20 mph. The annual average wind speed is 11.83 mph in Marina compared to 13.54 mph in California.¹⁷ Prevailing winds are generally out of the west.

Figure 21: Marina Average Monthly Wind Speeds



Floods

Flooding can occur in localized areas during rain events and runoff from agricultural irrigation on the eastern side of the City. The Salinas River traverses the northeastern and eastern city limits and can pose minimal flooding. Other localized flooding can occur during heavy rain events and from wave action directly from the Pacific Ocean.

There are approximately 525 people and 293 buildings valued at more than \$60 million within the 100-year flood zone. None of these buildings are considered critical facilities or infrastructure. The only road that may be impacted by flooding is Blanco Rd. where it crosses the Salinas River.

Even though major flooding within the 100-year flood plain is minimal, MFD should be aware of all locations and develop contingency plans in the event of flooding, whether localized or widespread.

¹⁷ <http://www.usa.com/santa-maria-ca-weather.htm#HistoricalWind%20Speed>.

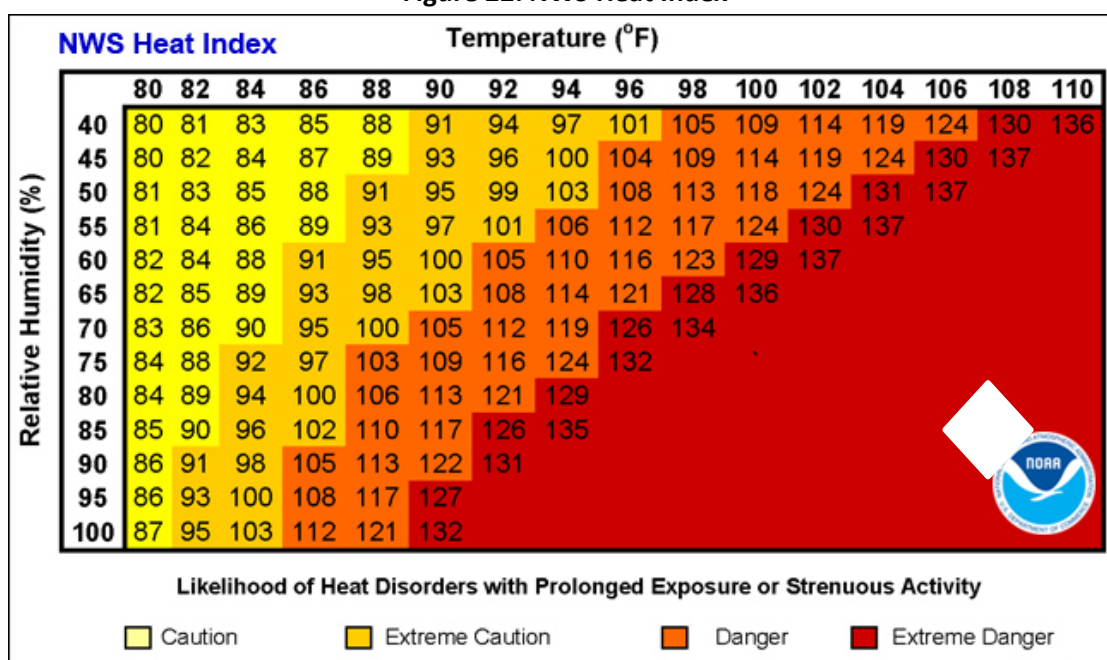
Dam Failure

The San Antonio and Nacimiento dams present a minimal risk along the eastern and northeastern city limits, affecting nine citizens and three residential and two non-residential buildings.

Extreme Heat

Extreme heat is any period when the temperature is high enough that overexposure can cause distress, including injury, heat-related illness, or death to humans and animals. Related to temperature is the heat index—an indicator of how hot it feels based on actual temperature and relative humidity. The higher the humidity, the hotter it feels due to the body's inability to cool itself. The National Weather Service (NWS) publishes a Heat Index, shown in the next figure, to help local planners prepare for and mitigate the effects of extreme temperatures.¹⁸

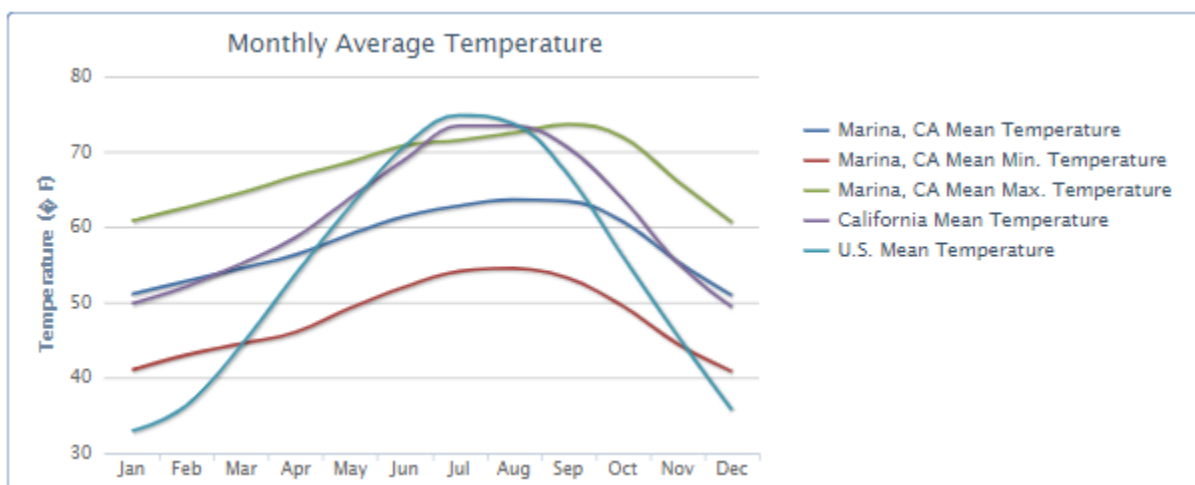
Figure 22: NWS Heat Index



While extreme temperatures are known to occur, prolonged heatwaves in Marina are rare. The hottest recorded temperature at the Monterey Peninsula AP weather station located near the Monterey Regional Airport was 103°F in September 2017. The coldest extremes typically occur during December and January with the coldest temperature recorded is 25°F.¹⁹ Overall, Marina has relatively mild temperatures with a very low seasonal variation.

¹⁸ U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.
<http://www.nws.noaa.gov/om/heat/heat-images/heatindexchart.png>.

¹⁹ <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5796>.

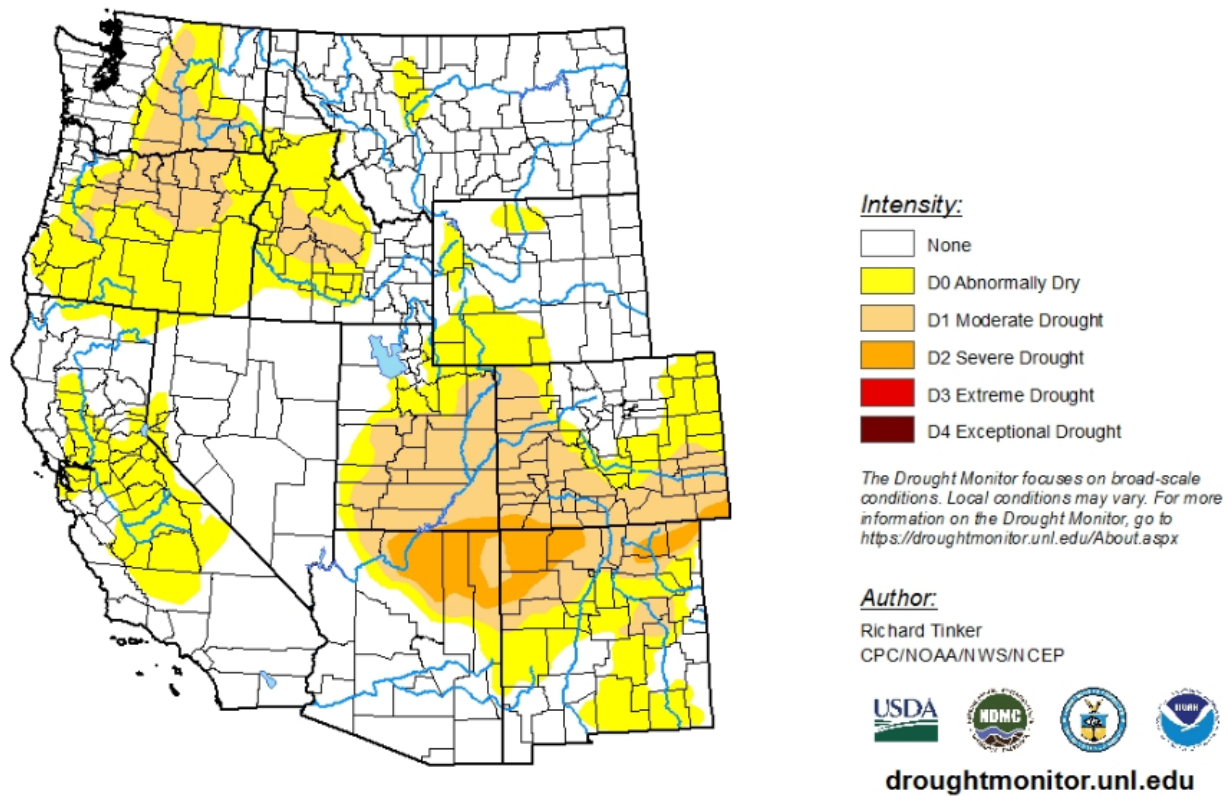
Figure 23: Marina Average Monthly Temperatures²⁰

Drought

Drought is any period of dry weather, characterized by insufficient rain to grow crops or replenish surface water supplies. Droughts are gradual and persistent with secondary impacts on wildfire, crop production, oil and gas production, and socio-economic impact. Currently, portions of the West are reporting moderate and severe drought conditions. Abnormally dry conditions are only observed in Central California. Even though Monterey County is currently not in drought conditions, as little as three years ago, the area was experiencing a moderate to severe drought.²¹

²⁰ <http://www.usa.com/salinas-ca-weather.htm>.

²¹ United States Drought Monitor, <https://droughtmonitor.unl.edu/>.

Figure 24: U.S. Drought Conditions, February 2020²²

²² United States Drought Monitor, <https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?West>.

Technological (Human-Caused) Hazards

The most prominent technological, or human-caused, hazards faced by residents of Marina are transportation emergencies, structural fires, long-time power outage, and hazardous materials releases.

Transportation

Transportation corridors provide necessary access and egress for the Department. The configuration of transportation systems can also affect the response capability of emergency services. Limited access freeways can interrupt street connectivity, forcing apparatus to negotiate a circuitous route to reach an emergency scene.

Roads

Surface streets dominate the MFD service area. California State Route 1 is primarily a north-south highway with controlled access points. The primary hazard is related to over-the-road shipments of combustible and hazardous materials and motor vehicle accidents. The remainder of the Department's service has a mix of relatively well-interconnected street networks and disconnected neighborhoods characterized by some winding streets and cul-de-sacs.

There are some intersections with traffic signal preemption and use the older infrared technology. The signal pre-emption can provide a significant response time performance advantage as well as improved safety to motorists. Funding for additional locations is potentially available from Monterey Bay Air Resources District through the AB2722 program. More information can be provided by Monterey-Salinas Transit for other funding sources.

Airport

The Marina Municipal Airport is operated by the City and provides one runway. The airport utilizes minimal navigation aids for landings. The fire station located on airport property houses one engine and has recently been staffed with a Captain and an Engineer. Other facilities on airport property include hangars and fueling operations. Fueling is available 24 hours per day from a 12,000-gallon tank providing aviation gas and Jet A fuels. There are approximately 50 aircraft based at the airport and 40,000 annual operations, and the control tower is not staffed. The 2018 Marina Airport Master Plan recommended transiting from a recreational facility to one focused on business aviation. This change may affect fire department operations as more aircraft use the facility and additional structures are built on airport property.²³

²³ <https://www.cityofmarina.org/DocumentCenter/View/10126/OAR-Complete-Final-Master-Plan-June-2018>.

Figure 25: Marina Municipal Airport



Physical Assets Protected

The definition of target hazards varies among jurisdictions; thus, every department must determine what is important in their community and must define and identify those special target hazards. For continuity, ESCI uses the FEMA definition of target hazards as “facilities in either the public or private sector that provide essential products and services to the general public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and/or disaster recovery functions.”²⁴

Critical Infrastructure and Key Resources

Critical infrastructure and key resources (CIKR) explain what is crucial for a community to function in a modern economy. Critical infrastructure is defined as a sector “whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof.” There are sixteen defined Critical Infrastructure Sectors (CIS):²⁵

- Chemical Sector
- Commercial Facilities Sector
- Communications Sector
- Critical Manufacturing Sector
- Dams Sector
- Defense Industrial Base Sector
- Emergency Services Sector
- Energy Sector
- Financial Services Sector
- Food and Agriculture Sector
- Government Facilities Sector
- Healthcare and Public Health Sector
- Information Technology Sector
- Nuclear Reactors, Materials, and Waste Sector
- Transportation Systems Sector
- Water and Wastewater Systems Sector

Although these types of sectors may not be in Marina, the goal is for each community to determine where critical infrastructure is located and develop pre-incident plans for responding personnel.

Other buildings to consider listing as target hazards could include occupancies with a potential for a large loss of life such as places of public assembly, schools and childcare centers, medical and residential care facilities, and multifamily dwellings. Other considerations include buildings with substantial value to the community—economic loss, replacement cost, or historic significance—that, if damaged or destroyed, would have a significant negative impact.

²⁴ *Community Risk Assessment: A Guide for Conducting a Community Risk Assessment, Version 1.5, John Stouffer for Vison 20/20, 2016, page 12.*

²⁵ *Infrastructure Security, Department of Homeland Security.*

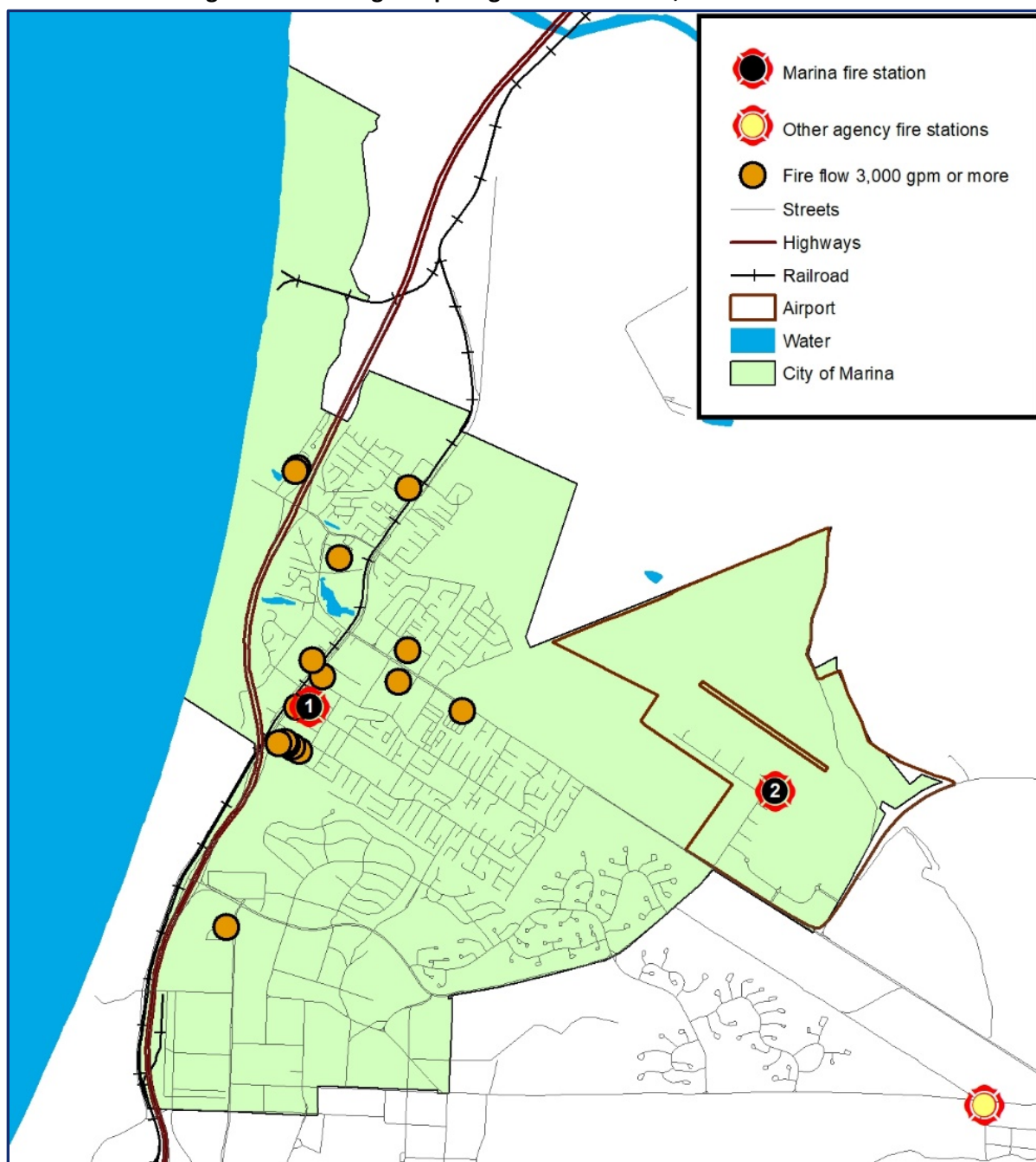
Responses to target hazards are expected to require a significant number of MFD resources and automatic aid during an incident. MFD states that certain target hazards have pre-incident plans. Pre-incident plans completed by MFD should include the resources needed to provide an ERF for each type of incident. The following figure lists the inventory of critical facilities as provided by the City. ESCI purposely did not identify the location of these facilities in the interest of homeland security. MFD should maintain detailed information about critical facilities.

Figure 26: Critical Facilities

Type	Number
Airport	1
Detention Center	1
Fire Department Stations	2
Health Care Facilities	4
Law Enforcement Facilities	3
Maintenance Yards	1
Residential Elderly Facilities	2
Library	1
Schools	6
Public Utilities	1
Total	22

Occupancies can be classified according to the risk level; low, medium, or high-risk. These factors are used to assign a classification to an individual occupancy. They include the size of the building(s), construction type, the presence or absence of fire suppression features such as sprinklers and standpipes, the needed fire flow, the risk to life, the presence of chemicals and/or hazardous processes, and the amount of water available in relation to the needed fire flow. An effective response force can be established based on risk factors associated with the occupancy.

The ISO batch report lists the needed fire flow (the amount of water required to extinguish a fire if the building was fully involved) for every occupancy in Marina. The following figure lists the properties in Marina with needed fire flows of 3,000 gallons per minute or greater.

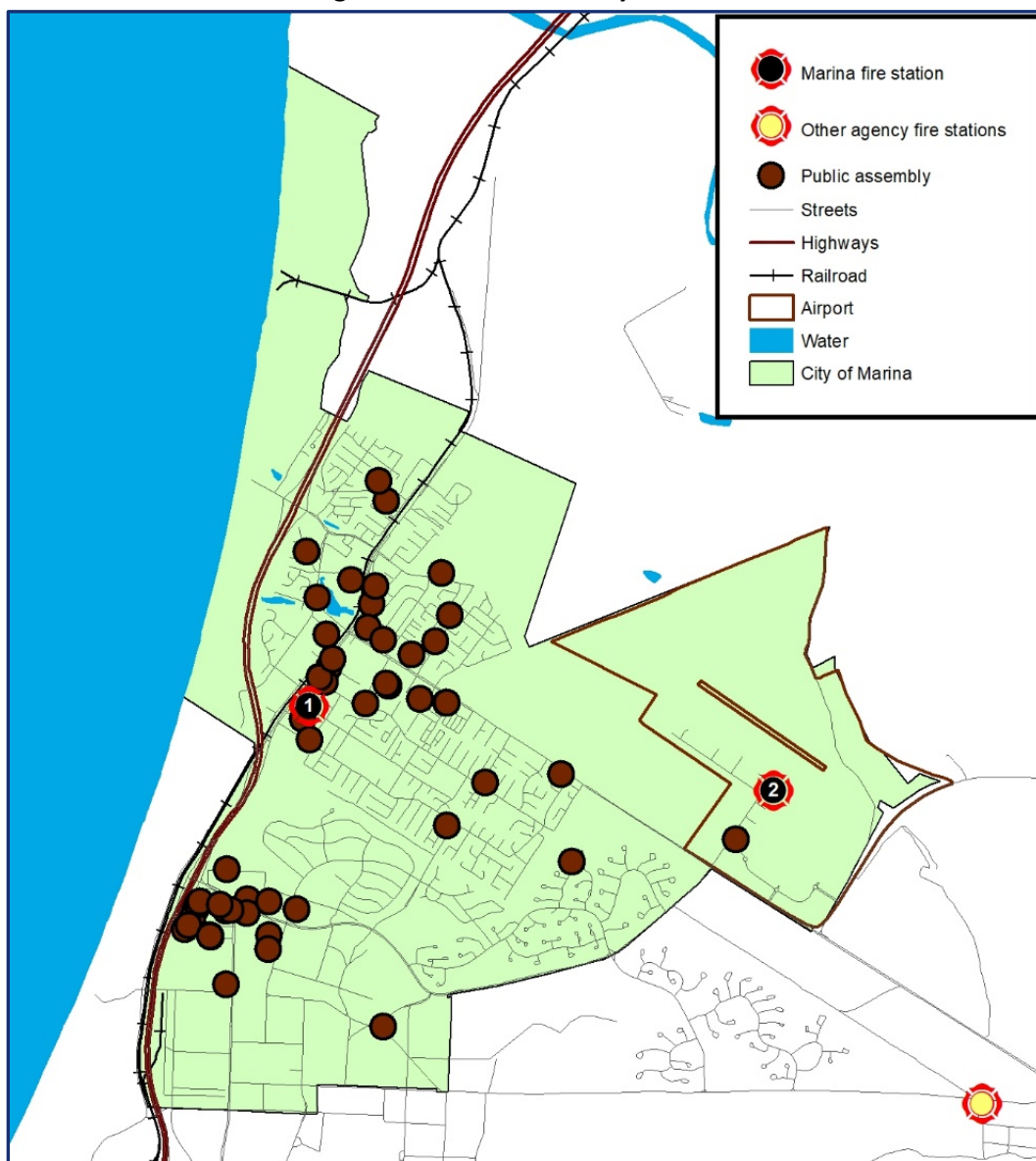
Figure 27: Buildings Requiring Fire Flow over 3,000 GPM or More

Public Assembly

Numerous buildings lie within cities in which large numbers of people gather for entertainment and worship. Venues include nightclubs, theaters, and other entertainment facilities that require pre-incident planning. Other examples include large outside festivals or sporting events and should be considered target hazards that may present issues for responders because of blocked streets or access to the location.

These facilities and locations present additional hazards, primarily for mass casualty incidents. Fire, criminal mischief, and potentially terrorism could cause a major medical emergency requiring significant emergency services resources. The following figure shows the locations of buildings identified as public assembly facilities within the city.

Figure 28: Public Assembly Facilities



Child Care Facilities

Several childcare facilities exist in Marina. Childcare facilities are of special concern due to the hazards associated with very young children during emergencies. Employees of these facilities must be familiar with required evacuation plans if an emergency occurs during operating hours.

Schools

The Monterey Peninsula Unified School District (MPUSD) serves more than 10,000 students in 24 schools and eight after school learning programs in several cities, including Marina. There is one early childhood learning center, one charter school (grades 7–12), three elementary, one middle, and one high school in Marina's jurisdiction. Pre-incident planning is necessary to properly prepare for emergencies and allow fire service personnel to become familiar with the building(s).

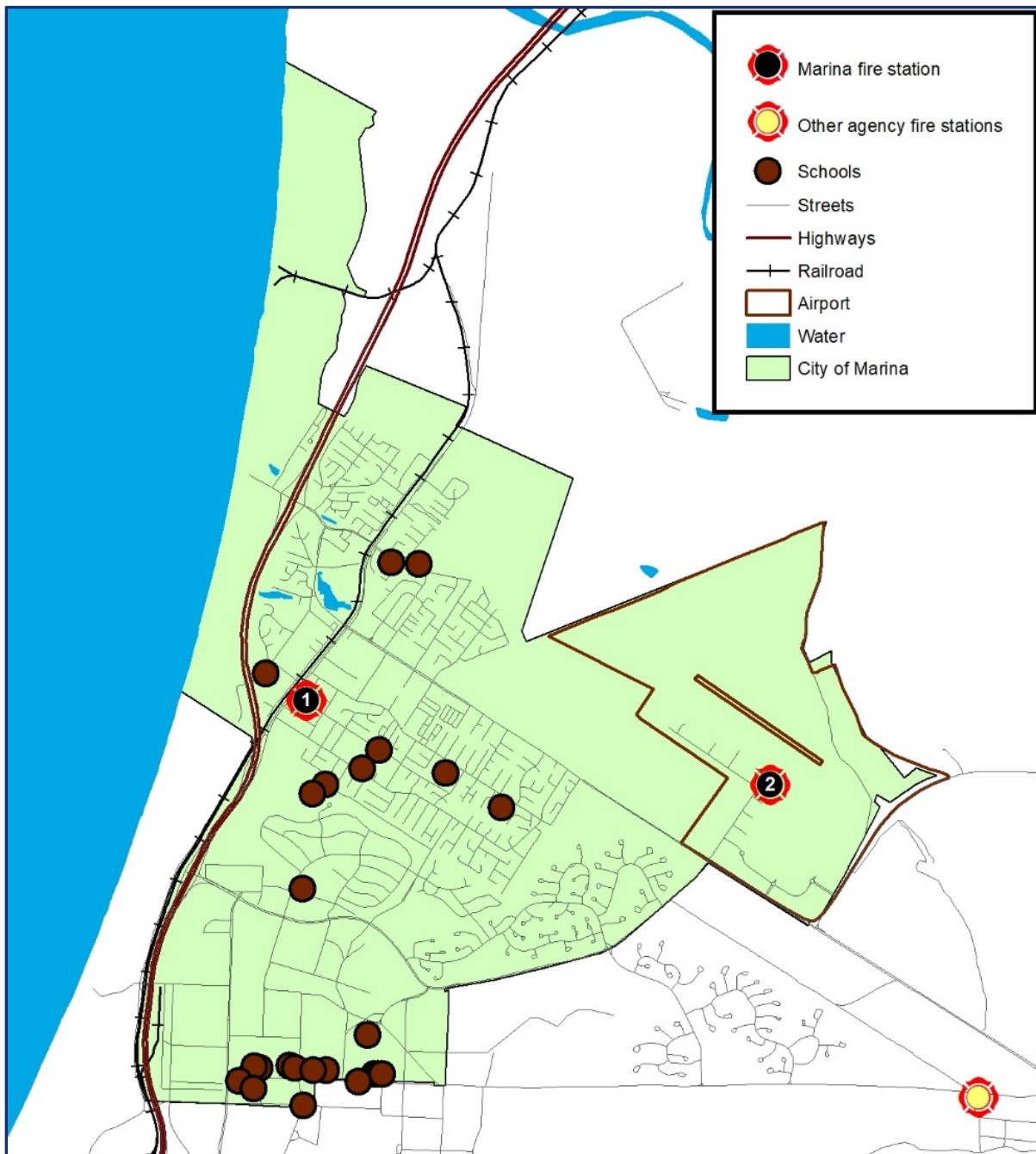
Student demographics from MPUSD includes 66% considered socioeconomically disadvantaged, 28% learning the English language, and 10% special education students.²⁶ These demographics can be considered risk factors because of low-income, which translates to less health care access, thus an increase in medical responses.

California State University Monterey Bay is located along the southern border of the city. While most of the classroom buildings are located in Seaside, several dormitories and apartments for students are in the city. These buildings accounted for 250 false alarms in 2019. MFD should investigate the reason for these false alarms to determine if they are caused by design features or other problems creating the activations.

The following figure shows the locations of public and private school facilities inside or near the city limits of Marina.

²⁶ Monterey Peninsula Unified School District <https://www.mpusd.net/>.

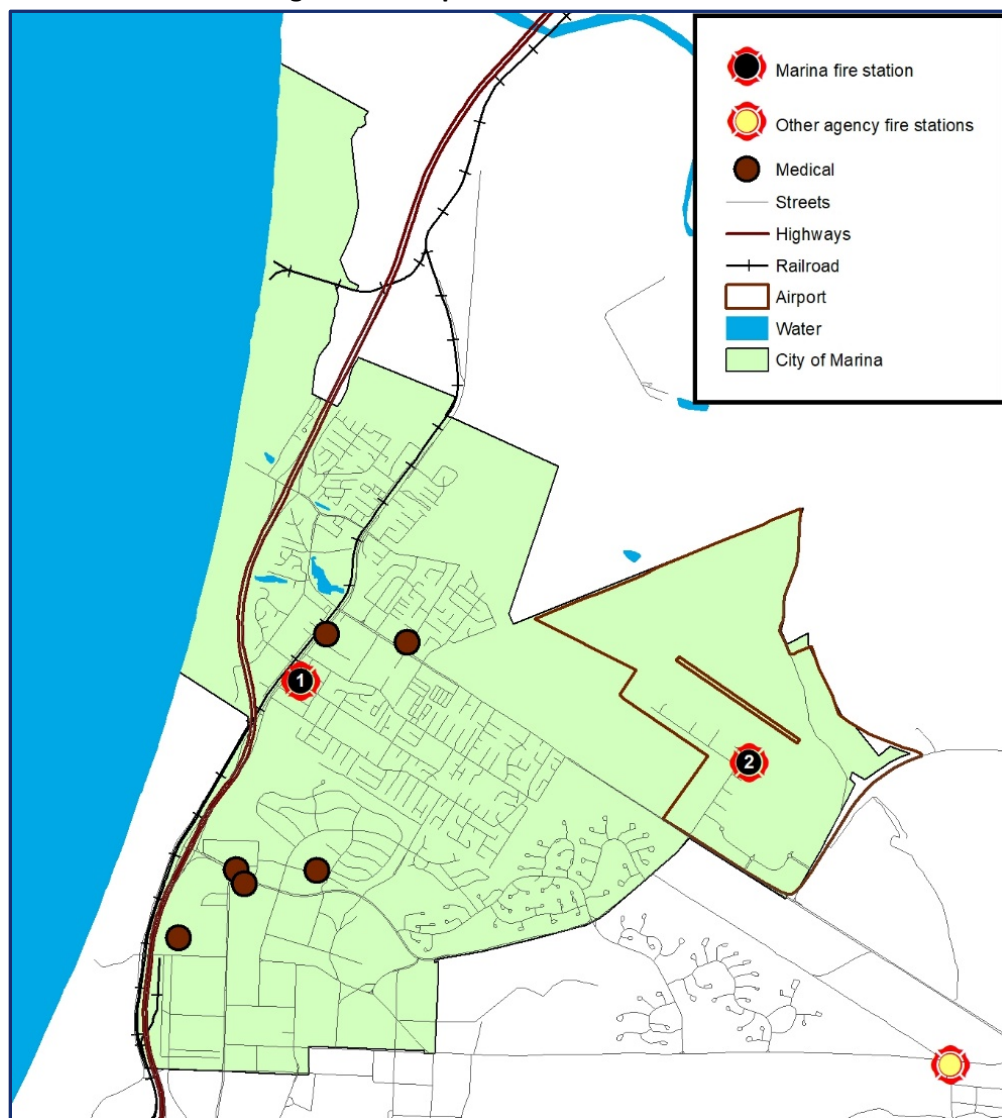
Figure 29: School Locations



Hospital and Medical Care Facilities

Medical care facilities—particularly hospitals—house vulnerable populations. Although there is not a hospital in Marina, the Veteran’s Administration operates the Major General William H. Gourley Outpatient Clinic. This facility provides basic health care services but not an emergency room. These facilities are generally built of fire-resistive construction with built-in fire suppression, but emergencies can occur that require the quick movement of patients away from the hazard. Smaller medical facilities such as urgent care clinics or doctor offices may not have built-in fire protection systems. This information should be collected during a pre-incident survey. The following figure shows the location of medical facilities and offices.

Figure 30: Hospitals and Care Facilities²⁷



²⁷ As reported by MFD, April 2019.

Other Critical Infrastructure

In this section, other types of infrastructure critical to a community are discussed in general terms. It is important the fire department plan for emergencies at any of these facilities.

Communications

Emergency communication centers and the associated transmitting and receiving equipment are essential facilities for emergency response. The Marina Fire Department is dispatched by the Monterey County Consolidated Emergency Fire Dispatch Center and accounts for 5.11% of fire incidents in the County. This communication center is equipped with a state-of-the-art computer-aided-dispatch system and has the primary responsibility to receive and process 9-1-1 calls for service and coordinate the response of emergency equipment and personnel.

The communication center is staffed by full-time telecommunicators and supplemented by professional firefighters. It provides emergency fire and law enforcement dispatch service for the entire County, dispatching for 26 agencies (13 fire and 13 law enforcement).

The communication center is prepared to answer calls from the public who speak various worldwide languages. The State of California provides transfer numbers for translation services for 9-1-1 telephone calls in foreign languages (Spanish, Vietnamese, and Mandarin Chinese) or via telecommunications devices for the deaf. In addition, the Monterey County Dispatch Center subscribes to Voiance Language Line Service, a commercial service providing telephone translation in over 140 languages. EMS incidents are sent to fire telecommunicators and AMR concurrently for dispatch. Emergency Medical Dispatch (EMD), a method used to prioritize responses, is provided by AMR for approximately 60% of their incidents. The remaining incidents not using EMD are received from other public safety agencies such as California Highway Patrol.

There is not a back-up dispatch facility or known back-up plan if Monterey County Emergency Communications Center experiences an incident that disrupts dispatch services. Salinas had a mobile command unit in its fleet that can receive 9-1-1 call diversions and has been transferred to Monterey County Sheriff's Department.

There are other communication facilities and equipment equally important to the community and government operations. Telephone company central offices and transmission lines of local service providers are necessary to support the community. Many businesses and residential customers now use internet providers for telephone services. Wireless cellular communication providers provide essential communication capabilities for the community as well as emergency personnel through their facilities and equipment.

Energy

Previously discussed community services, from communications to traffic signals to normal operations, require the use of energy. Whether it is electricity generation and transmission systems, fuel distribution and storage tanks, or natural gas pipelines and regulator stations, the community is dependent upon energy sources. Electrical power is provided by Pacific Gas and Electrical (PGE). PGE operates two high-voltage transmission lines in Marina and two natural gas transmission pipelines.

Water Distribution

The most obvious concern to the fire department is water availability and mains, and fire hydrant system. Providing sufficient storage, distribution, and access to this valuable firefighting resource through well-distributed fire hydrants is necessary. As shown in the next figure, hydrants are well-distributed through portions of the city.

The Marina Coast Water District (MCWD) provides potable water for drinking and firefighting needs to MFD. The initial system expanded after the closure of Fort Ord in 1997. In 2001, the military transferred the system to MCWD. Combining the two systems has enhanced services and lowered costs for MCWD. In 2017, MCWD adopted a five-year strategic plan that examined water sources, infrastructure, fiscal planning, strategic partners, employees, and administrative management. The District has an adopted Capital Improvement Plan to maintain, expand, and upgrade the system.²⁸ All inspections, maintenance, and repairs of hydrants are completed by MCWD.

²⁸ Marina Coast Water District <https://www.mcwd.org/index.html>.

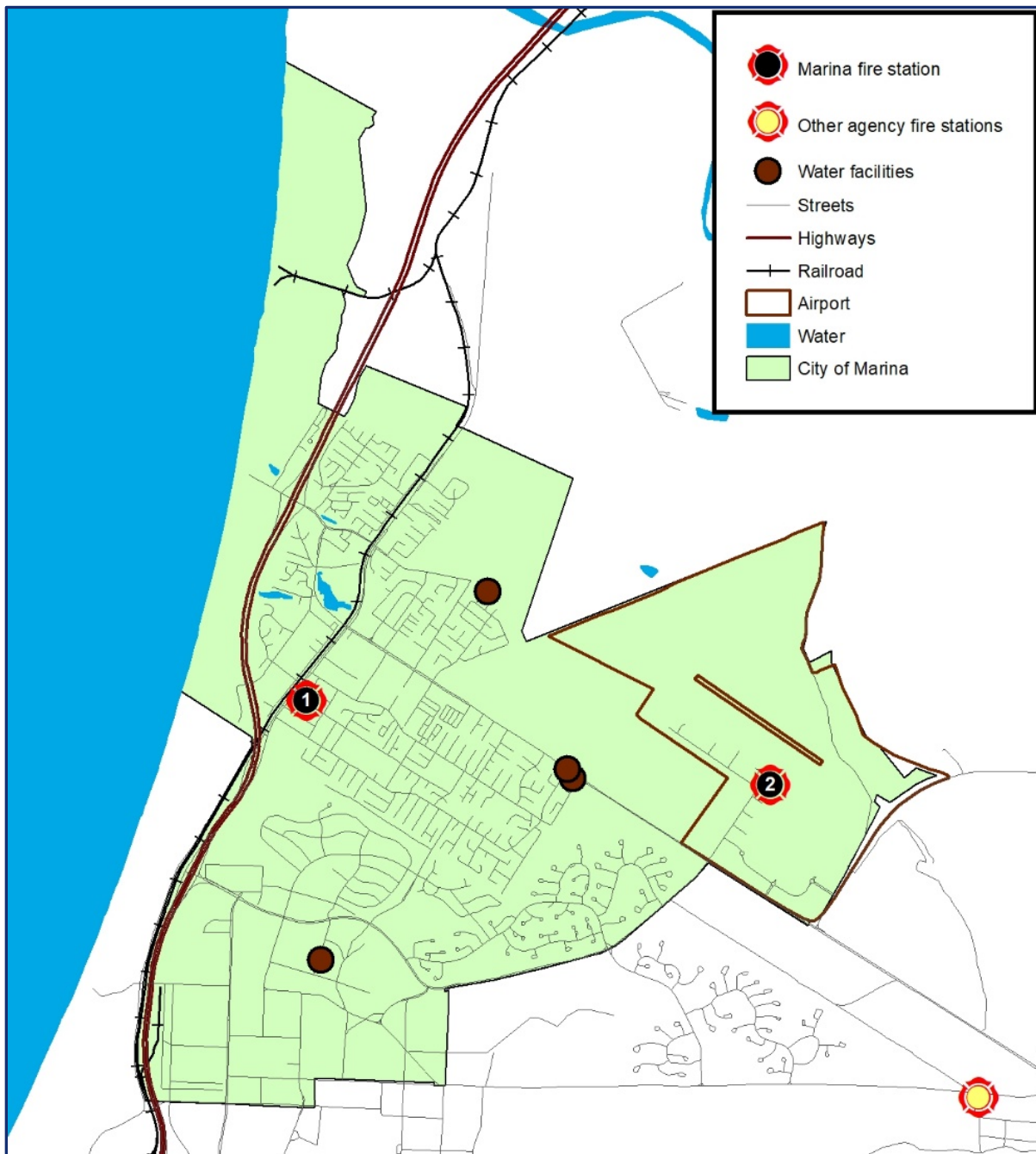
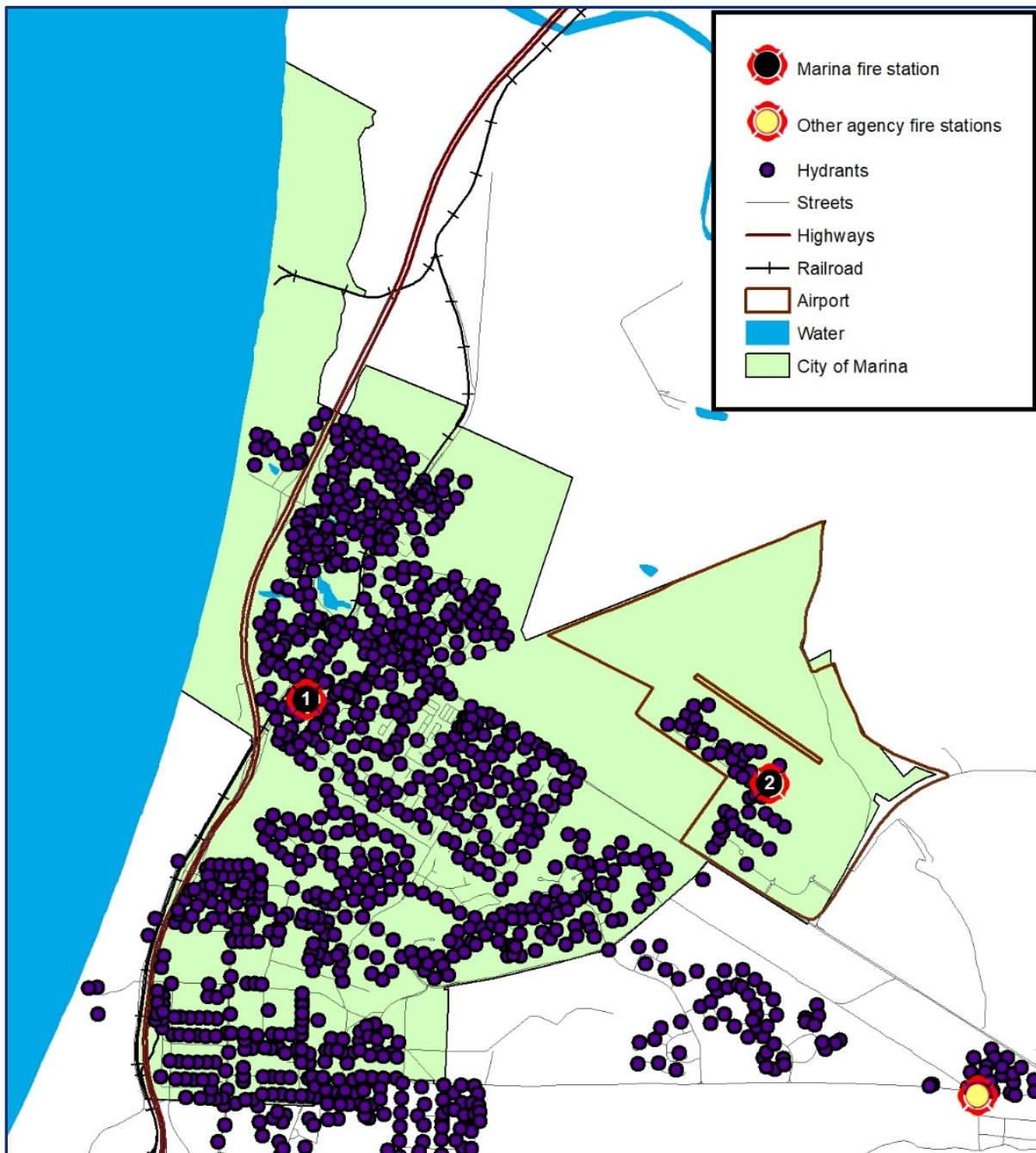
Figure 31: Marina Coast Water District Facilities

Figure 32: Fire Hydrants



Structural Hazards

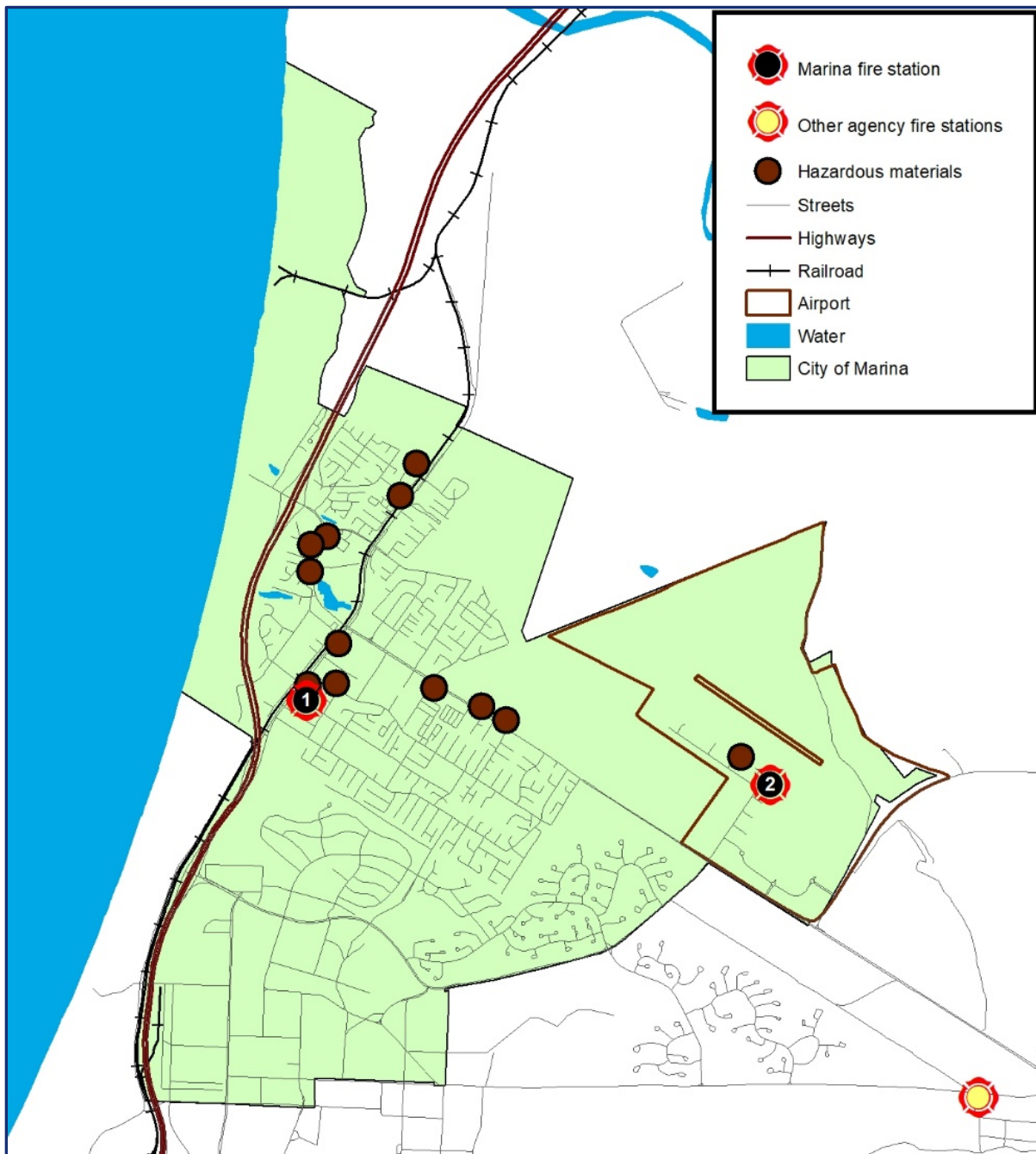
Certain buildings, their contents, functions, and size present a greater firefighting challenge and require special equipment, operations, and training. Information for this section has been drawn from MFD records and the Insurance Services Office (ISO) database.

Hazardous Materials

Buildings that have been identified as containing hazardous materials can create a dangerous environment to the community as well as the firefighters during a spill or fire. Special equipment, such as protective clothing and sensors, along with specialized training, is necessary to mitigate a hazardous materials incident successfully. Any location that has on-site, for any one day in a calendar year, an amount of a hazardous chemical equal to or greater than the following threshold limits established by the EPA must file information, known as Tier II reports, about each material and the on-site amount with local authorities, planning committees, and the State's Emergency Response Commission under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), commonly known as SARA Title III:

- Ten-thousand pounds for hazardous chemicals
- Lesser of 500 pounds or the threshold planning quantity for extremely hazardous substances

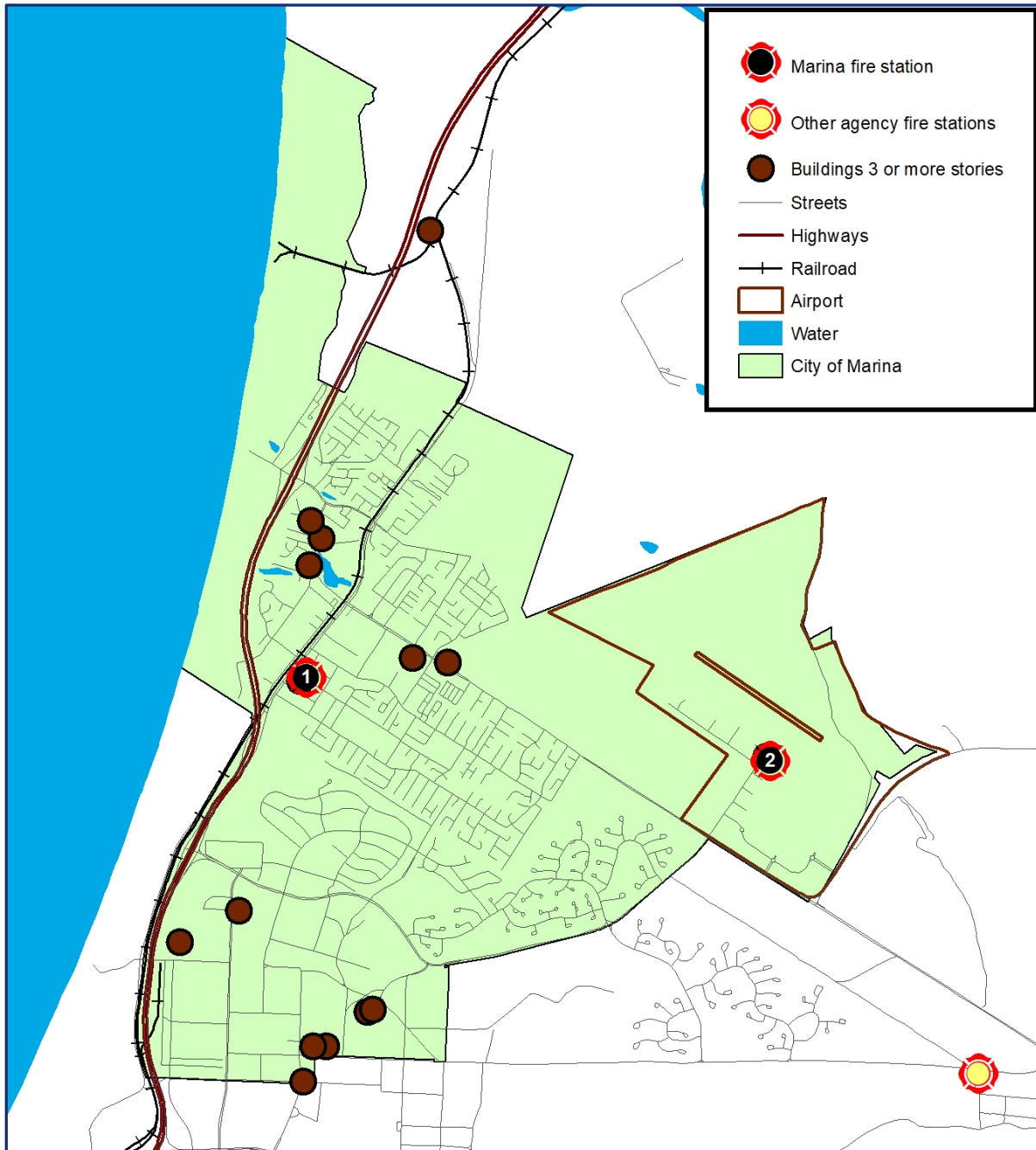
Currently, there are no facilities with Extremely Hazardous Substances (EHS) in Marina. There are other businesses, such as big-box and hardware stores, that sell products considered hazardous materials. Pre-incident plans of these locations should be completed and updated to provide information on types and locations of hazardous substances to responding firefighters.

Figure 33: Hazardous Materials Locations

Buildings Three or More Stories in Height

The Insurance Services Office calls for a ladder truck within 2.5 miles of developed areas containing buildings three or more stories in height. Accessing the upper floors and roof of buildings this tall typically requires ladder truck capability as ground ladders may not provide access. The MFD does not have a ladder truck of its own and must rely on automatic aid for coverage from Monterey County. This discrepancy is noted in the recent ISO classification letter identifying that only 1.56 points were given out of 4.0. The following figure shows the locations of buildings that are three or more stories in height.

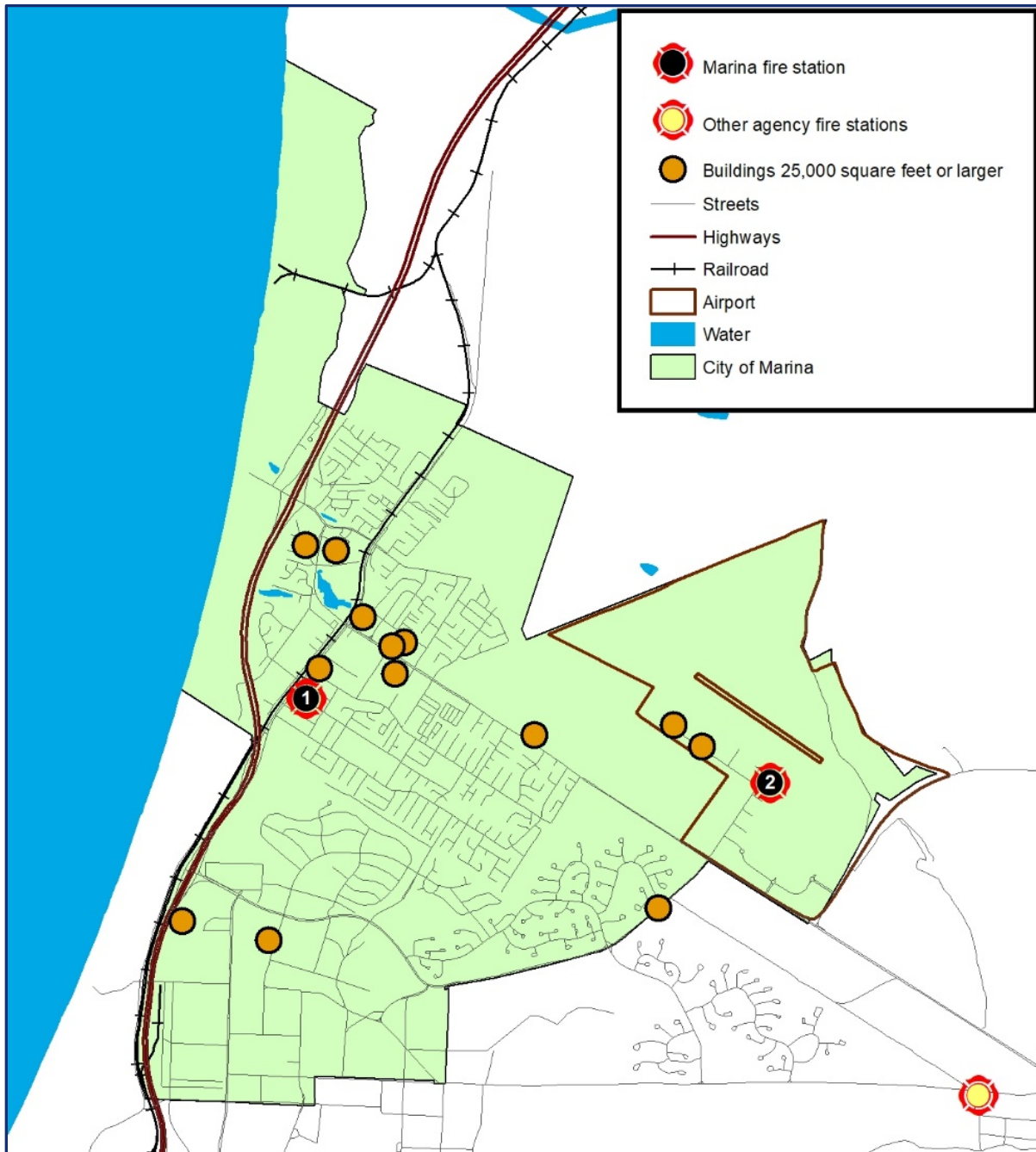
Figure 34: Buildings Three or Four Stories in Height



Large Square Footage Buildings

Large buildings, such as warehouses, malls, and large “box” stores, need greater volumes of water for firefighting and require more firefighters to advance hose lines long distances into the building. The following figure is based on data from ISO and shows the locations for buildings 25,000 square feet and larger.

Figure 35: Buildings 25,000 Square Feet and Larger



Comparison of Fire Risk in Other Communities

Using information provided by MFD, recent NFPA reports, and other sources, ESCI compared fire risk in Marina with communities of comparable population across the U.S. The information contained in this section is based on the latest data reported to the NFPA and other sources. As such, the information **does not reflect recommended rates or defined fire protection standards** and is provided for illustrative, benchmark purposes only.

Fire Loss

For additional context, United States fire departments responded to an estimated 1,318,500 fires in 2018. These fires resulted in 3,655 civilian fire fatalities, 15,200 civilian fire injuries, and an estimated \$25.6 billion in direct property loss (this figure includes a \$12 billion loss in Northern California wildfires). Home fires caused 2,720, or 74%, of the civilian fire deaths.

Figure 36: Fire Losses by Region and Size of Community, 2018

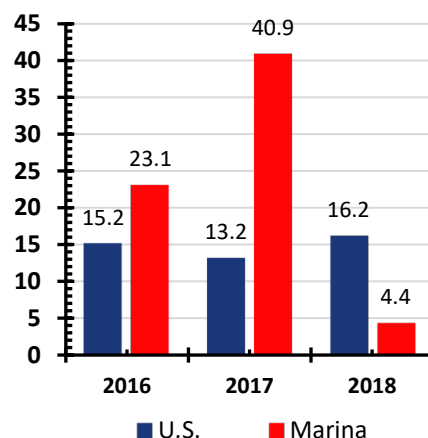
Community Size 150,000–199,999	Number of Fires Per Thousand Population	Property Loss Per Capita
Marina	1.77	\$35.63
The U.S.	3.7	\$78.25

The fire loss for Marina of \$35.63 in 2018 is less than half the United States per capita. This rate can vary from year-to-year based on the number and severity of fires. In 2017, the rate decreased to \$5.33 when the fire loss was \$117,375. In smaller communities such as Marina, even a single fire or death can greatly affect annual statistics. Therefore, these numbers should be considered in that context. It was noted during ESCI's analysis that an incident involving water damage was included in the fire loss values incorrectly. That fire loss was removed for analysis, and it is recommended to begin a quality control process for incident reports.

Arson

Arson is defined as "any willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling house, public building, motor vehicle or aircraft, personal property of another."²⁹ Intentionally set fires should be investigated and tracked to determine if a problem exists. Data from Marina indicates these types of fires were well above the national averages for 2016 and 2017 but decreased substantially in 2018. The increase has been attributed to abandoned houses on the closed Ft. Ord property intentionally set on fire. The City is currently developing a plan to remove "blight" properties for redevelopment. This will decrease the number of abandoned properties within the city.

Figure 37: Arson Rate per 100,000 Population



²⁹ <https://www.ucrdatatool.gov/offenses.cfm>.

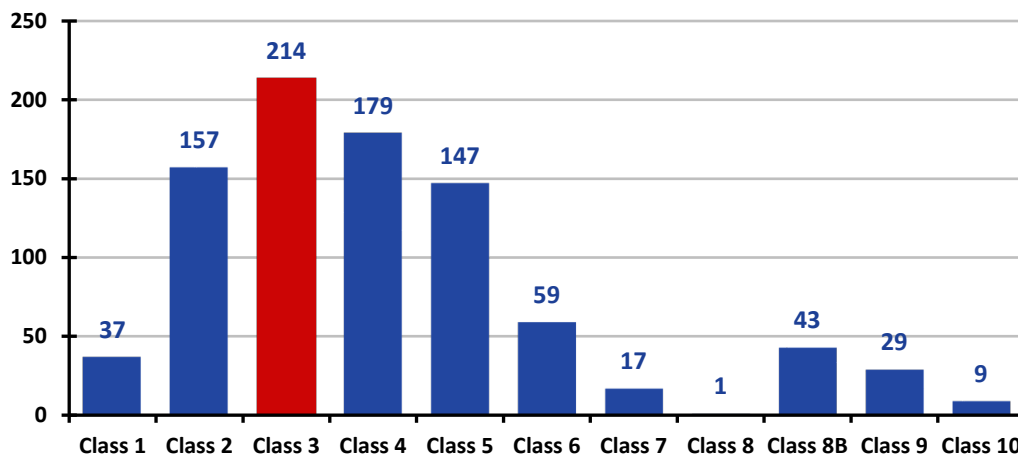
ISO Fire Protection Class Rating

The Insurance Services Office, Inc. (ISO®) is an independent company that collects and analyzes data about municipal fire suppression efforts in communities throughout the United States. According to their report, the ISO's Public Protection Classification program, or PPC, "is a proven and reliable predictor of future fire losses." All other factors being equal, commercial property insurance rates are expected to be lower in areas with lower (better) ISO PPC Class rating.

At the time of the most recent ISO survey, the ISO Fire Suppression Rating Schedule (FSRS) measured four primary elements of a community's fire protection system: *Emergency Communications* (max 10 points); *Fire Department* (max 50 points); *Water Supply* (max 40 points), and *Community Risk Reduction* (max 5.5 points) for a maximum possible total of 105.5 points. ISO then assigns a grade using a scale of 1 to 10, with Class 1 representing the highest degree of fire protection, and Class 10 designating a fire suppression program that does not meet ISO's minimum criteria.

In 2019, the City of Marina was assigned an ISO classification of Group 3/3Y. Marina is one of 214 communities out of 892 communities surveyed across the State to achieve a Class 3 rating, as shown in the following figure.

Figure 38: Comparison of ISO Class Ratings, California



Community Risk Reduction

Developing a community risk reduction (CRR) should be a goal of every organization. The completion of an assessment provides basic information about hazards in a community. Every department should continue to review their data to determine if specific hazards are increasing or decreasing based on incident responses. Risks may change as new development occurs in a community and impacts service delivery.

CRR can be defined as, “The identification and prioritization of risks followed by the integrated application of resources to improve public safety and reduce increasing call volumes.”³⁰ The goal is to begin the integration of emergency operations with prevention efforts at the fire station level, where operations personnel are involved in the process of developing a risk reduction program. The station-level approach is preferred because risks vary from one station to another and can even vary within a station’s district. Simply put, CRR is examining problems and developing prevention or mitigation strategies to reduce the hazards.

Figure 39 is a basic methodology offered by Vision 20/20 to identify and analyze risks within a community.³¹ Vision 20/20’s website (www.strategicfire.org) provides substantial information on how to create a community risk reduction plan.

Figure 39: The Community Risk Assessment Process



³⁰ Vision 20/20.

³¹ Retrieved from <http://strategicfire.org/wp-content/uploads/2016/04/Community-Risk-Assessment-Guide-v1.5.pdf>.

MFD offers several risk reduction programs, and information is available on their website. Programs include weed abatement to reduce wildfire hazards, disaster preparedness, building and fire safety to prevent fires. Marina has a Community Emergency Response Team (CERT) to assist in a natural disaster, but it is currently inactive. The department has a partnership with the American Red Cross to install smoke alarms in homes where they are not present or operating properly. They have an open house at the fire station during Fire Prevention Week each year and promote fire safety during the event. MFD has representation on the City's transportation committee to address pedestrian injuries and deaths.

Each of these risk-reduction programs is intended to improve the health and safety of the citizens of Marina. What is missing is an evaluation to determine if the programs are meeting their intended goal(s). Any CRR program should have goals with clear timelines and milestones. Using the Vision 20/20 model, MFD can enhance these programs through additional partnerships based on the hazards identified in this assessment. This process will allow them to develop risk reduction programs that focus on the problems they face on a day-to-day basis and specific to Marina.

Fire Inspections

Currently, Marina does not have a schedule for inspections of commercial properties, but only follows requirements set forth by the State of California. Apartment inspections are required but are not being completed. The Fire Chief has the ultimate responsibility of conducting inspections along with his administrative duties. The Chief conducts all rough-in inspections for residential fire sprinkler systems and is assisted by the Deputy Chief. All other final inspections for new construction are conducted by a private contractor. MFD reviews site plans for new construction prior to approval by the Community Development department. An outside contractor provides plan reviews for fire sprinklers, alarms, and commercial hood systems. All schools and hotels are inspected by engine company personnel.

Inspections are tracked with different software packages. New commercial construction is entered in Citizen Serve, which is the software utilized by the Community Development department. This software tracks the project from conception until it has been completed for occupancy. The administrative assistant tracks schools, hotels, and weed abatement inspections conducted by an engine company. None of the personnel are certified as an inspector. Business inspections are conducted when a new business license is issued. No periodic inspections of other businesses are completed unless they fall in any of the previous categories.

A component of CRR is the inspection of commercial properties. When a jurisdiction has not adopted a schedule for required or periodic inspections, priority should be based on identified hazards. Occupancy classifications such as assembly, educational, institutional, high-rise, and hazardous should be considered the highest risks when developing an inspection schedule. Figure 40 provides an example of occupancies and their associated risk and can guide the development of an inspection schedule. High-risk occupancies should be performed annually, moderate every two years, and low at a three-year interval. Nothing prevents a jurisdiction from adjusting the schedule to meet the needs of the community.

Figure 40: IBC Occupancy Classifications

PRI Risk	IBC Group	Examples
High	A-1, A-2 A-3, A-4, A-5 H-1, H-2, H-3, H-4, H-5 B E I-1, I-2, I-3, I-4 M R-1, R-2 Special Risk (Target hazard)	Nightclub, restaurant, theater, airport/cruise ship terminal Arenas, museums, religious Hazardous materials sites (Tier II) All government & public buildings, other office buildings over 2 stories Schools, daycare centers Hospitals, assisted living centers, correctional Strip centers, closed-air shopping malls, big box stores Hotels, motels, dormitories, apartments, board & care Railroads, Interstate highways, airports Any building with life safety risk beyond the reach of preconnected hose lines > 200 feet such as a high-rise
Moderate	B F-1 M I-2, R-4 S-1	Outpatient clinics, general business, offices < 3 stories Fabrication or manufacturing of combustible materials Mercantile, free-standing Foster group homes, assisted living homes Storage of combustible materials, car repair, hangars
Low	F-2 R-1 S-2 U	Fabrication or manufacturing of non-combustible materials 1- and 2-family dwellings, foster homes Storage of combustible materials Barns, silos, other unclassified

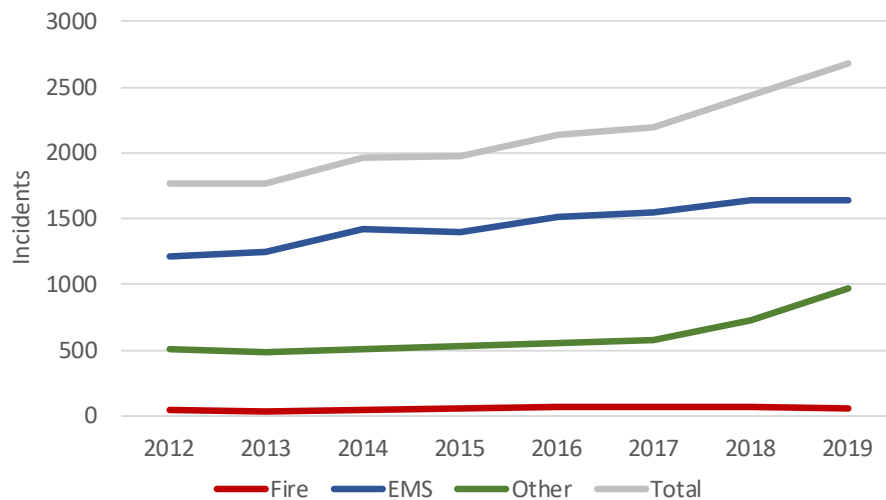
ESCI recommends that the Marina Fire Department establish a schedule to inspect all commercial properties based on the risk associated with the occupancy type. The California State Fire Code requires operational permits for process or storage in an occupancy. Currently, permits are not being issued for these occupancies or are fees assessed. Without the permits being issued, fees are not collected for cost recovery. To properly administer an inspection and operational permitting program, it is recommended that MFD hire a dedicated Fire Inspector. This employee can manage these programs and administer the Department's CRR program.

HISTORICAL SYSTEM RESPONSE WORKLOAD

Before a full response time analysis is conducted, it is important first to examine the level of workload (service demand) that a fire department experiences. Higher service demands can strain the resources of a department and may result in a negative effect on response time performance.

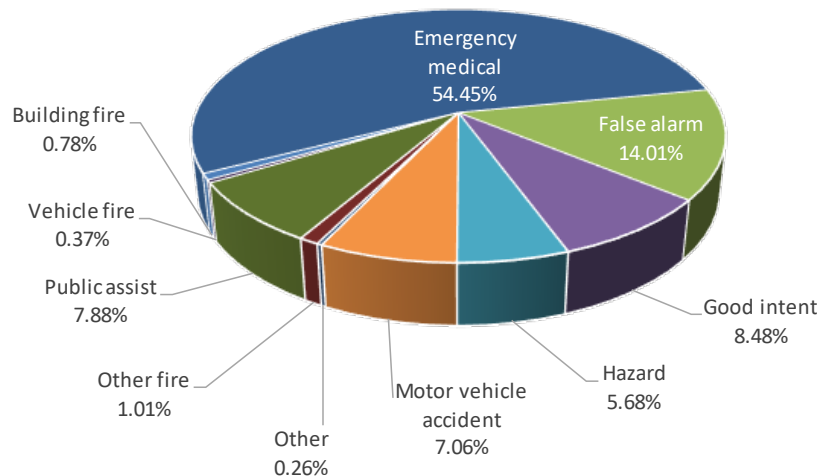
The following figure shows response workload for the past 8 years. The total response workload has increased by 51.4% over the 8 years. The community utilization rate of fire department services was 137.6 incidents per 1,000 population. This is somewhat higher than in other similar urban areas.

Figure 41: Response Workload History, 2010–2019



During 2019, MFD responded to 2,676 incidents. The next figure shows responses by type of incident during 2019. Emergency medical type responses are the most common at 54% of total responses.

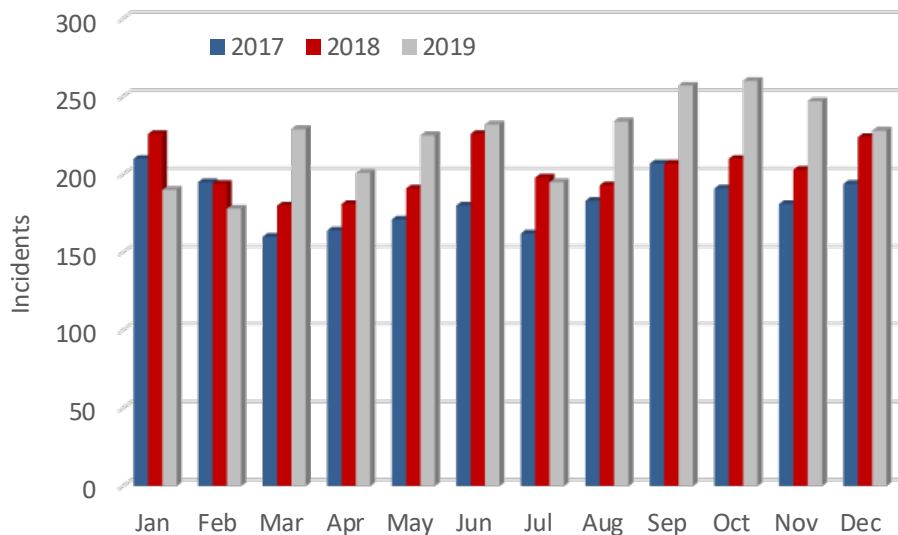
Figure 42: Responses by Type of Incident



Temporal Analysis

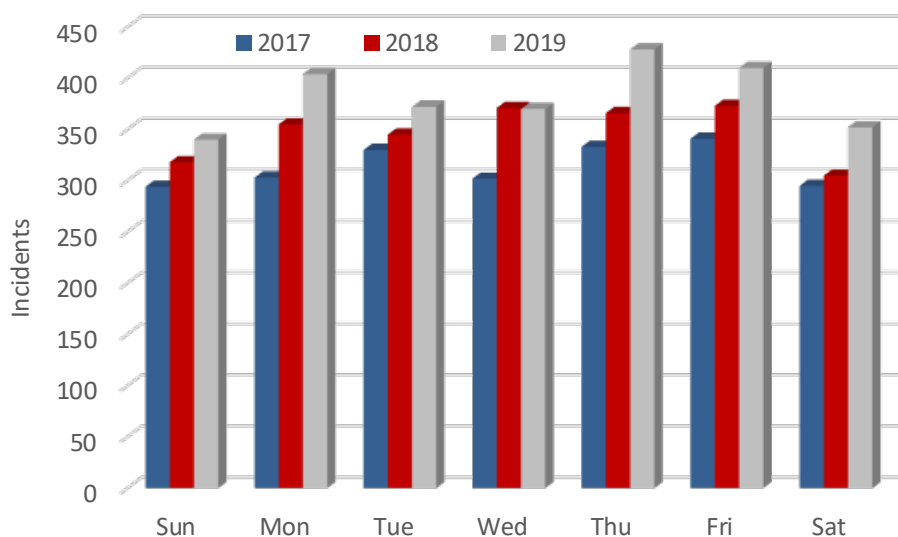
A review of incidents by time of occurrence also reveals when the greatest response demand is occurring. The following figures show how activity and demand change for MFD based on various measures of time. The following figure shows response activity during 2017, 2018, and 2019 (study period) by month. There is some variation by month.

Figure 43: Monthly Response Workload



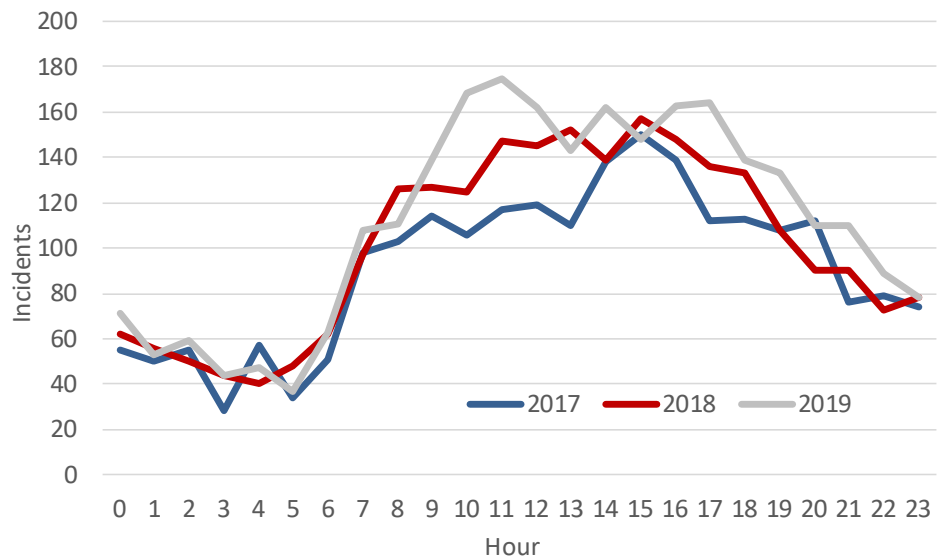
Next, the response workload is compared by the day of the week. Again, there is little variation in response workload by weekday.

Figure 44: Daily Response Workload



The time analysis that always shows significant variation is response activity by the hour of the day. Response workload directly correlates with the activity of people, with workload increasing during daytime hours and decreasing during nighttime hours, as shown in the following figure. Incident activity is at its highest between 9:00 a.m. and 9:00 p.m.

Figure 45: Hourly Response Workload

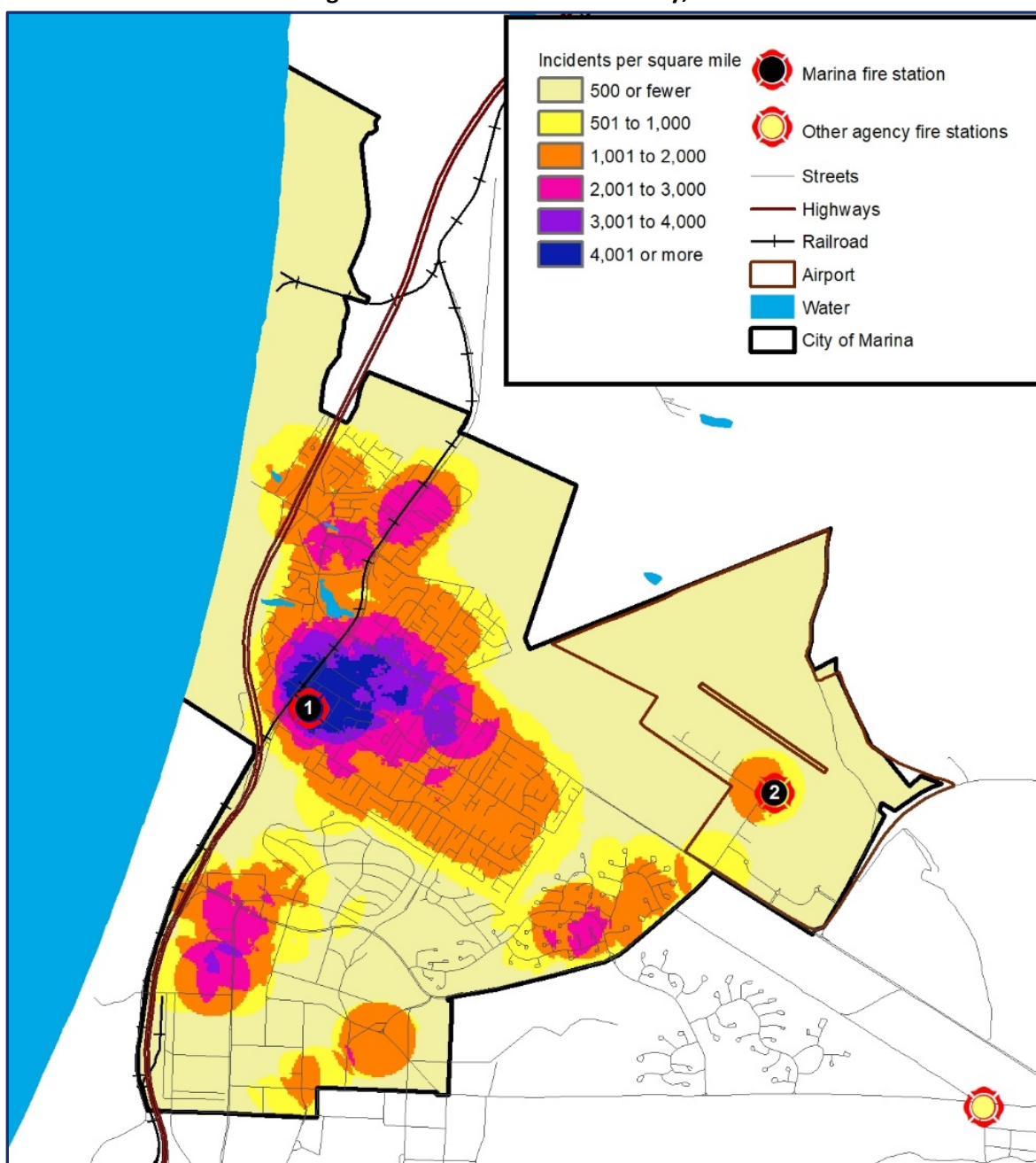


Spatial Analysis

In addition to the temporal analysis, it is useful to examine the geographic distribution of service demand. The following figures indicate the distribution of emergency incidents in MFD during 2019.

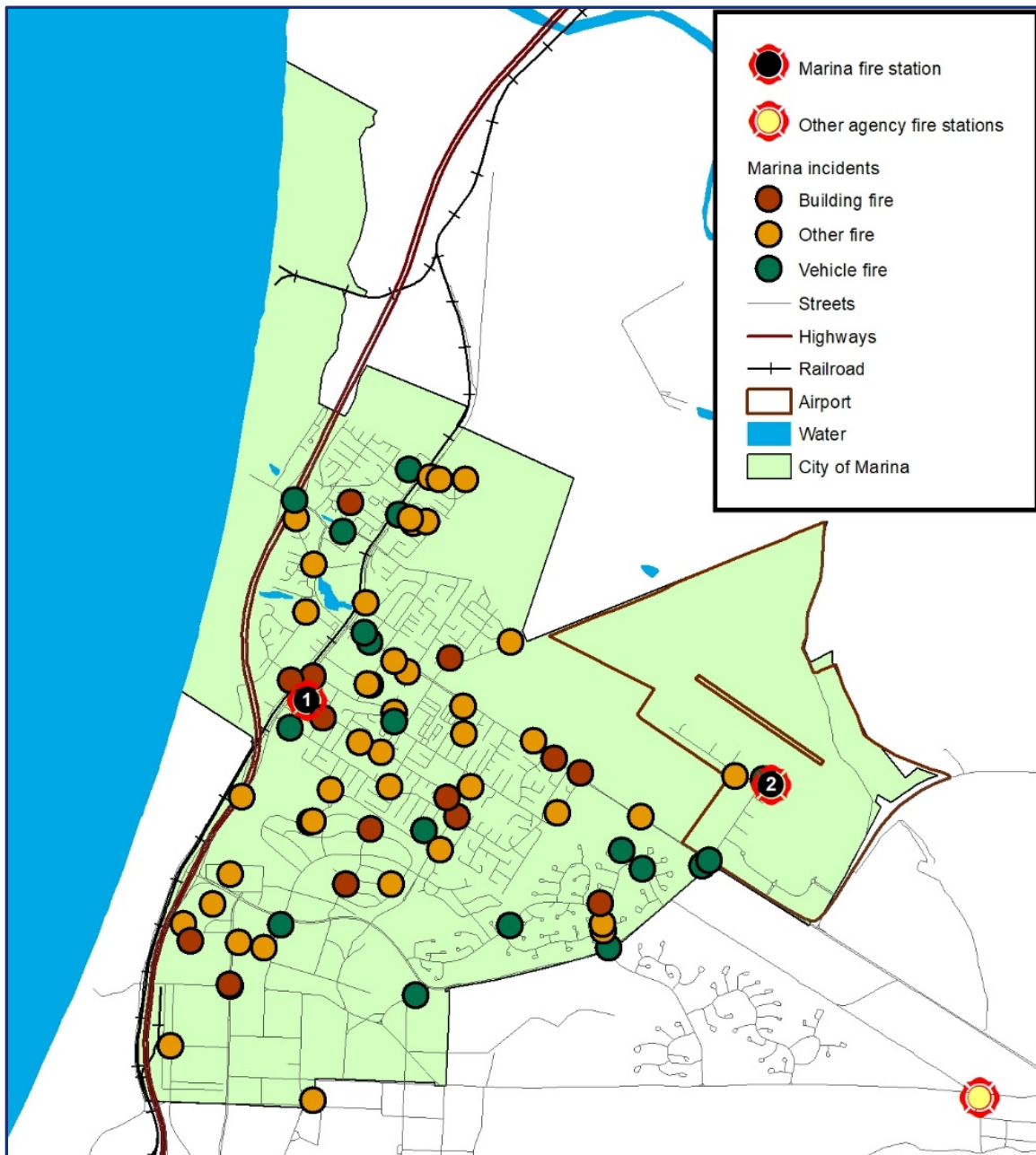
The first figure displays the number of incidents per square mile within various parts of the city. The greatest service demand occurs around Marina Fire Station 1.

Figure 46: Service Demand Density, 2019



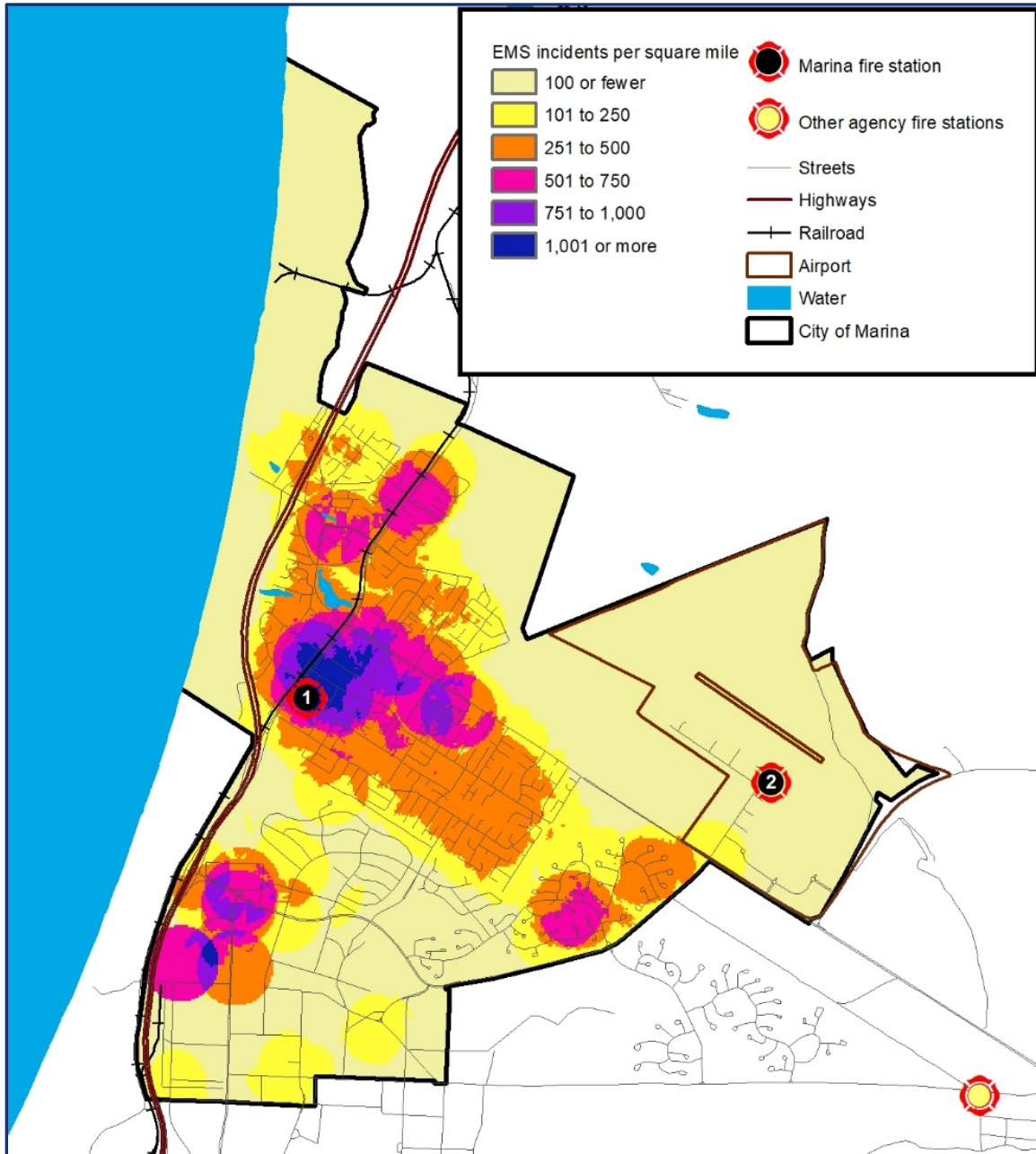
The preceding figure reflects all calls within the city served by MFD. Service demand can vary by area based on incident type. The following figure displays the location of fires occurring within the MFD service area during 2019. This illustrates that fire incidents are distributed throughout the developed area of the city.

Figure 47: Fires, 2019



Similarly, emergency medical incidents also occur in greater concentration in areas of higher population density. The following figure displays emergency medical incidents per square mile during 2019. Incident concentration follows population density.

Figure 48: Emergency Medical Incidents per Square Mile, 2019



Unit Workload Analysis

A review of workload by response unit can reveal much about response time performance. Although fire stations and response units may be distributed in a manner to provide quick response, that level of performance can only be obtained when the response unit is available in its primary service area. If a response unit is already on an incident and a concurrent request for service is received, a more distant response unit will need to be dispatched. This will increase response times.

Response Unit Workload

The workload on individual response units during the study period is shown in the following figure. The individual response unit workload can be greater than the workload in its home station area. Many incidents, such as structure fires, require more than one response unit. Engine 5431 is cross-staffed by the on-duty crew. Engine 5412 is staffed only by call-back personnel.

Figure 49: Response Unit Workload

Unit	2017	2018	2019
Engine 5411	1,937	2,255	2,157
Engine 5412	39	28	12
Engine 5431	29	8	11

The amount of time a given unit is committed to an incident is also an important workload factor. The following figure illustrates the average time in minutes each unit was committed to an incident, from initial dispatch until it was available for another incident.

Figure 50: Average Time Committed to an Incident by Unit

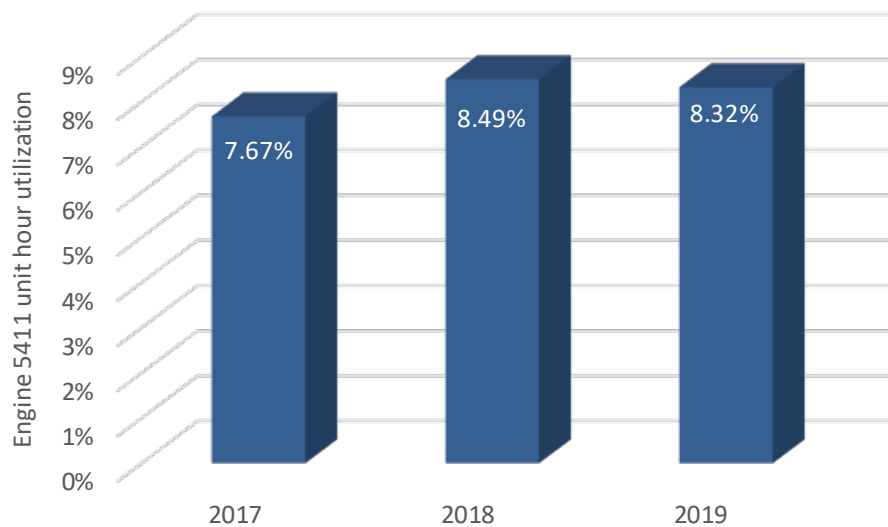
Unit	2017	2018	2019
Engine 5411	20.82	19.80	20.26
Engine 5412	22.13	20.90	15.52
Engine 5431	25.93	19.39	113.08

Unit hour utilization is an important workload indicator. It is calculated by dividing the total time a unit is committed to all incidents during a year divided by the total time in a year. Expressed as a percentage, it describes the amount of time a unit is not available for response since it is already committed to an incident. The larger the percentage, the greater a unit's utilization and the less available it is for assignment to an incident.

Unit hour utilization is an important statistic to monitor for those fire agencies using percentile-based performance standards, as does MFD. In MFD's case, where performance is measured at the 90th percentile, a response unit with greater than 10% utilization will not be able to provide an on-time response to its 90% target even if response is its only activity.

The only unit with enough workload to evaluate unit hour utilization is Engine 5411. It remains below 10% utilization.

Figure 51: Unit Hour Utilization, Engine 5411



Population and Incident Workload Projection

The most significant predictor of future incident workload is population; 100% of requests for emergency medical services are people-driven. The National Fire Protection Association reports that approximately 70% of all fires are the result of people either doing something they should not have (i.e., misuse of ignition source) or not doing something they should have (i.e., failure to maintain equipment). It is reasonable to use forecast population growth to predict future fire department response workload.

The current population of the City of Marina is 22,535. The City provided a population forecast. Marina's population is forecast to grow to 30,510 by 2040.

The current fire department services utilization rate is 137.6 incidents per 1,000 population. The total utilization rate has increased by 51.4% over the last 8 years.

If the utilization growth rate of the past eight years continues, the total utilization rate could reach 189.4 incidents per 1,000 population. The increased utilization rate, plus expected population growth, will increase the MFD's workload to as many as 5,700 incidents by the year 2040, driven primarily by requests for emergency medical services.

Several new developments within the city may increase the future population even more. Each is in various levels of completion.

- Sea Haven – 1,050 dwelling units
- The Dunes – 1,237 dwelling units
- Marina Station – 1,360 dwelling units

MFD will need to monitor these and future developments to track the impact on emergency services.

CRITICAL TASKING AND ALARM ASSIGNMENTS

The MFD service area is a highly populated urban environment and, as such, contains an elevated number, density, and distribution of risk. As the actual or potential risk increases, the need for higher numbers of personnel and apparatus also increases. With each type of incident and corresponding risk, specific critical tasks need to be accomplished, and certain numbers and types of apparatus should be dispatched.

Tasks that must be performed at a fire can be broken down into two key components: life safety and fire flow. Life safety tasks are based on the number of building occupants, and their location, status, and ability to take self-preservation action. Life safety-related tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the commanding officer must prioritize the tasks and complete some in chronological order, rather than concurrently. These tasks include the following:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Backup/rapid intervention

Critical task analyses also apply to non-fire-type emergencies, including medical, technical rescue, and hazardous materials emergencies. Numerous simultaneous tasks must be completed to control an emergency effectively. The department's ability to muster needed numbers of trained personnel quickly enough to make a difference is critical to successful incident outcomes.

The following figure illustrates the minimum emergency incident staffing recommendations of the Commission on Fire Accreditation, International. The following definitions apply to the figure:

- **Low-Risk:** Minor incidents involving small fires (fire flow less than 250 gallons per minute), single patient non-life-threatening medical incidents, minor rescues, small fuel spills, and small wildland fires without unusual weather or fire behavior.
- **Moderate-Risk:** Moderate-risk incidents involving fires in single-family dwellings and equivalently sized commercial office properties (fire flow between 250 gallons per minute to 1,000 gallons per minute), life-threatening medical emergencies, hazardous materials emergencies requiring specialized skills and equipment, rescues involving specialized skills and equipment, and larger wildland fires.
- **High-Risk:** High-risk incidents involving fires in larger commercial properties with a sustained attack (fire flows more than 1,000 gallons per minute), multiple patient medical incidents, major releases of hazardous materials, high-risk rescues, and wildland fires with extreme weather or fire behavior.

Figure 52: Staffing Recommendations Based on Risk

Incident Type	High Risk	Moderate Risk	Low Risk
Structure Fire	29	15	6
Emergency Medical Service	12	4	2
Rescue	15	8	3
Hazardous Materials	39	20	3

The MFD has developed the following Critical Task Analysis for various incident types. Further, it has defined, based on current unit staffing levels, the number and type of apparatus needed to deliver sufficient numbers of personnel to meet the critical tasking identified. ESCI's review of the Critical Task Analysis concludes that all are generally in keeping with industry standards and provide the minimum number of personnel needed for effective incident operations.

Establishing resource levels needed for various types of emergencies is a uniquely local decision. Factors influencing local decisions for incident staffing include the type of equipment operated, training levels of responders, operating procedures, geography, traffic, and the nature of buildings and other hazards protected.

Critical Task Analysis

Critical tasks are those activities that must be conducted early on and in a timely manner by firefighters at emergency incidents in order to control the situation, to stop loss, and to perform necessary tasks required for a medical emergency. MFD is responsible for ensuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner. These are the minimum number of personnel needed by incident type. More personnel will be needed for incidents of increased complexity or size.

Figure 53: Low-Rise Structure Fire

Task	Number of Personnel
Command/Safety	1
Pump Operations	3
Attack Line	2
Search and Rescue/Back up Line	2
Ventilation	3
IRIC	2
Non-Suppression Medic Amb	2
Total	15

Figure 54: Moderate-Risk Commercial Structure Fire

Task	Number of Personnel
Command/Safety	2
Pump Operations	3
Attack Line	4
Search and Rescue/Back-up Line	4
Ventilation	3
RIC	4
Non-Suppression Medic Amb	2
Total	22

Figure 55: High-Risk Commercial Structure Fire

Task	Number of Personnel
Command/Safety	2
Pump Operations	4
Attack Line	9
Search and Rescue/Back-up Line	3
Ventilation	3
RIC	4
Non-Suppression Medic Amb	2
Total	27

Figure 56: Wildland Fire—Low Risk

Task	Number of Personnel
Command/Safety	1
Pump Operations	1
Attack Line	2
Total	4

Figure 57: Wildland Fire—High Risk

Task	Number of Personnel
Command/Safety	1
Pump Operations	2
Attack Line	4
Structure Protection	3
Water Supply	2
Total	12

Figure 58: Aircraft Emergency

Task	Number of Personnel
Command/Safety	1
Aircraft Fire Suppression	4
Pump Operations	6
Backup Line	4
Rescue	3
Emergency Medical Care	2
Water Supply	2
Total	22

Figure 59: Hazardous Materials—Low Risk

Task	Number of Personnel
Pump and Attack Line	3
Total	3

Figure 60: Hazardous Materials—High Risk

Mutual aid will be requested from the County Haz-Mat Team and the County Health Department Hazardous Materials Technician. Marina Fire would respond as initial responder and FRO activities as needed per Haz-Mat Team.

Task	Number of Personnel
Command	1
Safety	1
Decontamination	3
Research Support/Tech Spec	2
Team Leader, Safety, Entry Team, and Backup Team	7
Total	14

Figure 61: Emergency Medical Aid (Life Threatening)

Task	Number of Personnel
Patient Management (AMR)	2
Patient Care	2
Documentation	1
Total	5

Figure 62: Major Medical Response (10+ Patients)

Task	Number of Personnel
Incident Command/Safety	1
Triage Manager	1
Treatment Manager	1
Patient Care	20
Transportation Manager	1
AMR Supervisor	1
Medic Units	10
Total	35

Figure 63: Motor Vehicle Accident (Non-Trapped)

Task	Number of Personnel
Scene Management/Documentation	1
Patient Care/Extrication	2
Non-Suppression Medic Unit	2
Total	5

Figure 64: Motor Vehicle Accident (Trapped)

Task	Number of Personnel
Command/Safety	1
Patient Care	2
Extrication/Vehicle Stabilization	3
Pump Operator/Suppression Line	1
Non-Suppression Medic Amb	2
Total	9

Figure 65: Technical Rescue—Beach Rescue

Task	Number of Personnel
Command/Safety	1
Rescue Team / Life Guard	3
Backup Team	2
Patient Care	2
Rescue Boat	2
Total: MFD is Awareness Level. Operations requires Mutual Aid.	10

Figure 66: Technical Rescue—Rope

Task	Number of Personnel
Command/Safety	1
Rescue Team	2
Backup/Support Team	2
Patient Care	2
Rigger	1
Attendant	1
Ground Support	4
Edge Person	1
Total	14

Figure 67: Technical Rescue—Confined Space

Task	Number of Personnel
Command/Safety	1
Rescue Team	2
Backup/Support Team	2
Patient Care	2
Attendant	1
Rigger	1
Ground Support	4
Total: MFD is Awareness Level. Operations requires Mutual Aid	13

Alarm Assignments

To ensure sufficient personnel and apparatus are dispatched to an emergency event, the following first alarm response assignments have been established. "Total Staffing Needed" is the number identified in the previous Critical Tasking Analysis. The number of personnel and apparatus required to mitigate an active and complex working incident will require additional resources above and beyond the numbers listed next. With currently available resources, MFD is able to staff a number of incident types in accordance with its Critical Tasking Analysis.

Figure 68: Low-Rise Structure Fire

Unit Type	Number of Units	Total Personnel
Engine	3	10
Truck	1	3
Squad	1	2
Duty Chief	1	1
Non-Suppression Medic Ambulance	1	2
Total Staffing Provided		18
Total Staffing Needed		15

Figure 69: Moderate-Risk Commercial Structure Fire

Unit Type	Number of Units	Total Personnel
Engine	3	10
Truck	2	7
Squad	1	2
Duty Chief	2	2
Non-Suppression Medic Amb	1	2
Total Staffing Provided		23
Total Staffing Needed		22

Figure 70: High-Risk Commercial Structure Fire

Unit Type	Number of Units	Total Personnel
Engine	4	13
Truck	2	7
Squad	1	2
Duty Chief	2	2
Non Suppression Medic Amb	1	2
Total Staffing Provided		26
Total Staffing Needed		27

Figure 71: Wildland Fire—Low Risk

Unit Type	Number of Units	Total Personnel
Engine	1	3
Duty Chief	0	0
Total Staffing Provided		3
Total Staffing Needed		3

Figure 72: Wildland Fire—High Risk

Unit Type	Number of Units	Total Personnel
Brush Engine Type 3	1	3
Type 1 Engine	2	6
Water Tender	1	2
Duty Chief	1	1
Total Staffing Provided		12
Total Staffing Needed		12

Figure 73: Aircraft Emergency

Unit Type	Number of Units	Total Personnel
Engine	4	13
Truck	1	3
Squad	1	2
Non-Suppression Medic Amb	1	2
Duty Chief	1	1
Total Staffing Provided		21
Total Staffing Needed		22

Figure 74: Hazardous Materials—Low or High Risk

Unit Type	Number of Units	Total Personnel
Engine	1	3
Truck		
Duty Chief		
Total Staffing Provided		3
Total Staffing Needed		3

Figure 75: Emergency Medical Service (Life Threatening)

Unit Type	Number of Units	Total Personnel
Engine or Truck	1	3
Total Staffing Provided		3
Total Staffing Needed		3

Figure 76: Major Medical Response (10+ Patients)

Unit Type	Number of Units	Total Personnel
Engine	6	18
Squad	1	2
Truck or Engine	0	0
Non-Suppression Medic Unit	6	12
Non-Suppression EMS Supervisor	1	1
Total Staffing Provided		33
Total Staffing Needed		35

Figure 77: Motor Vehicle Accident (Non-Trapped)

Unit Type	Number of Units	Total Personnel
Engine or Truck	1	3
Non-Suppression Medic Unit	1	2
Total Staffing Provided		5
Total Staffing Needed		5

Figure 78: Motor Vehicle Accident (Trapped)

Unit Type	Number of Units	Total Personnel
Engine	1	3
Squad	1	2
Non-Suppression Medic Unit	1	2
Duty Chief	1	1
Total Staffing Provided		8
Total Staffing Needed		9

Figure 79: Technical Rescue—Beach Rescue

Unit Type	Number of Units	Total Personnel
Engine	1	3
Duty Chief	1	1
Mutual Aid, if Warranted	3	5
Non-Suppression Medic Unit	1	2
Total Staffing Provided		11
Total Staffing Needed		10

Figure 80: Technical Rescue—Rope

Unit Type	Number of Units	Total Personnel
Engine	1	3
USAR Team	1	8
Duty Chief	1	1
Non-Suppression Medic Unit	1	2
Total Staffing Provided		14
Total Staffing Needed		14

Figure 81: Technical Rescue—Confined Space

Unit Type	Number of Units	Total Personnel
Engine	1	3
US&R	1	8
Duty Chief	1	1
Non-Suppression Medic Unit	1	2
Total Staffing Provided		14
Total Staffing Needed		13

Figure 82: Technical Rescue—Trench

Unit Type	Number of Units	Total Personnel
Engine	1	3
US&R Team	1	8
Duty Chief	1	1
Non-Suppression Medic Unit	1	2
Total Staffing Provided		14
Total Staffing Needed		13

REVIEW OF HISTORICAL SYSTEM PERFORMANCE

Incident data for the period between January 1, 2017, and December 31, 2019 (study period), was evaluated in detail to determine MFD's current performance. Data was obtained from MFD incident reports and the dispatch center's computer-aided dispatch system.

Only priority incidents occurring within the MFD service area are included in the analysis. Priority incidents involve emergencies to which the fire department initiated a "code 3" (using warning lights and sirens) response (1,720 incidents during 2017, 1,819 during 2018, and 2,156 during 2019). Non-emergency public assistance requests were excluded. Performance is reported based on the initial type of incident as dispatched. Three categories are used to report performance:

- Fire—Responses to a report of fire or other hazardous incident.
- Emergency medical—All emergency medical incidents.
- Other—Any other incident to which the fire department responded with lights and sirens.

Each phase of the incident response sequence was evaluated to determine the current performance. This allows an analysis of each individual phase to determine where opportunities might exist for improvement.

The total incident response time continuum consists of several steps, beginning with the initiation of the incident and concluding with the appropriate mitigation of the incident. The time required for each of the components varies. The policies and practices of the fire department directly influence some of the steps.

MFD's response performance was compared to its own adopted goals. These goals match those found in the national consensus standard for response performance; the *National Fire Protection Association Standard 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2016 Edition. The dispatch center's performance was compared to the MFD's goals as well as standards found in the *National Fire Protection Association Standard 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, 2019 Edition.

The following figure summarizes the performance standards found in the National Fire Protection Association (NFPA) documents.

Figure 83: Summary of MFD Performance Goals

Incident Interval	Performance Goal
9-1-1 call answer time (time from first ring to answer).	Within 15 seconds, 90% of the time
Call process time (time from acceptance at the dispatch center until notification of response units).	Within 60 seconds, 90% of the time
Turnout time (time from notification of response personnel until the initiation of movement towards the incident).	
Fire incidents and special operations incidents	Within 80 seconds, 90% of the time
All other emergency incidents	Within 60 seconds, 90% of the time
First unit travel time (time from initiation of response until arrival of the first unit at the incident).	Within 4 minutes, 90% of the time
First unit response time (time from dispatch until arrival of the first unit at the incident).	
Fire incidents and special operations incidents	Within 5 minutes, 20 seconds, 90% of the time
All other emergency incidents	Within 5 minutes, 90% of the time
Full effective response force travel time (time from dispatch until all units initially dispatched arrive at the incident. Response resources needed for a low-rise building fire are used for the evaluation.)	Within 9 minutes, 20 seconds, 90% of the time

In keeping with *NFPA Standards 1710* and *1221* and MFD's performance goals, all response time elements are reported at a given percentile. Percentile reporting is a methodology by which response times are sorted from least to greatest, and a "line" is drawn at a certain percentage of the calls to determine the percentile. The point at which the "line" crosses the 90th percentile, for example, is the percentile time performance. Thus, 90% of the times were at or less than the result. Only 10% were longer.

Percentile differs greatly from average. Averaging calculates response times by adding all response times together and then dividing the total number of minutes by the total number of responses (mean average). Measuring and reporting average response times is not recommended. Using averages does not give a clear picture of response performance because it does not clearly identify the number and extent of events with times beyond the stated performance goal.

What follows is a detailed description and review of each phase of the response time continuum. All phases will be compared to MFD's performance goals.

Detection

The detection of a fire (or medical incident) may occur immediately if someone happens to be present or if an automatic system is functioning. Otherwise, detection may be delayed, sometimes for a considerable period. The time period for this phase begins with the inception of the emergency and ends when the emergency is detected. It is largely outside the control of the fire department and not a part of the event sequence that is reliably measurable.

Call Processing

Most emergency incidents are reported by telephone to the 9-1-1 center. Call takers must quickly elicit accurate information about the nature and location of the incident from persons who are apt to be excited. A citizen well-trained in how to report emergencies can reduce the time required for this phase. The dispatcher must identify the correct units based on incident type and location, dispatch them to the emergency, and continue to update information about the emergency while the units respond. This phase begins when the 9-1-1 call is answered at the primary public safety answer point (PSAP) and ends when response personnel are notified of the emergency. This phase, which has two parts, is labeled "call processing time."

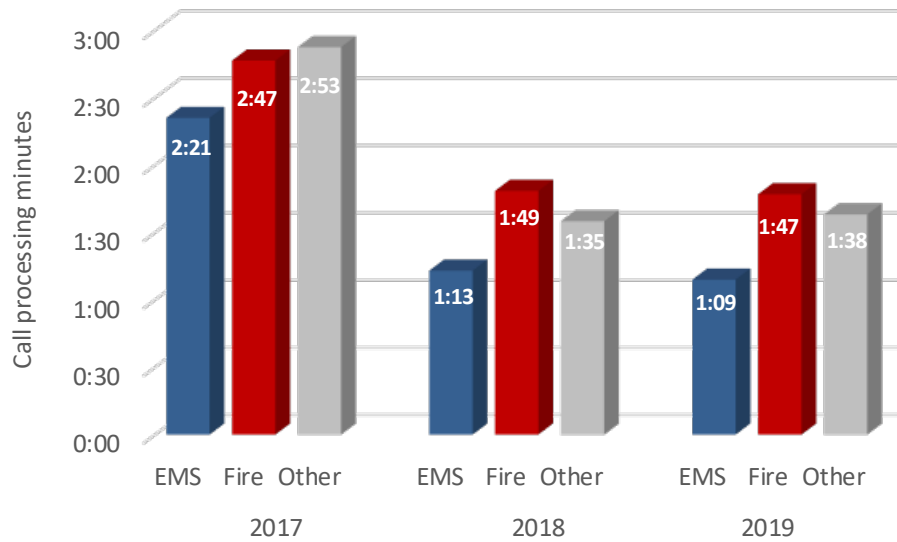
Monterey County Emergency Communications (MCEC), is the PSAP and dispatch service provider for the Marina. It answers the call, processes the information, and dispatches MFD response units.

National Fire Protection Association Standard 1221 recommends that 9-1-1 calls be answered within 15 seconds, 90% of the time (within 20 seconds, 95% of the time). MCEC reports that during 2019 they answered calls within 15 seconds 95.5% of the time.

The second part of call processing time, dispatch time, begins when the call is received at the dispatch center (MCEC) and ends when response units are notified of the incident. MFD standards prescribe that this phase should occur within 60 seconds, 90% of the time.

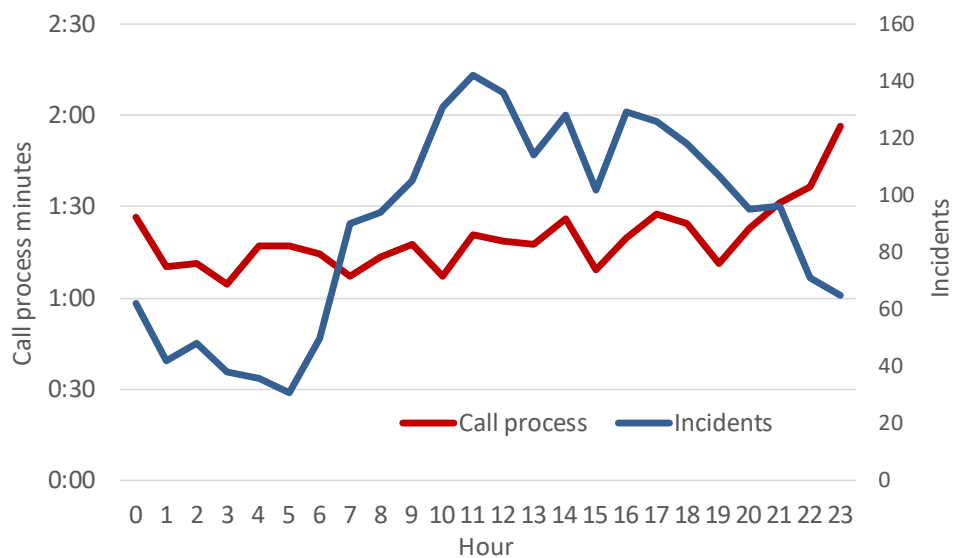
The following figure illustrates performance by MCEC from the time it receives the call until it notifies response units. Overall performance during 2019 was within 1 minute, 17 seconds, 90% of the time, more than MFD's goal.

Figure 84: MCEC Dispatch Time Performance



The workload at the dispatch center can influence call processing performance. The following figure illustrates performance at different times of the day compared to the fire department's response workload. It does not appear that workload is impacting dispatch center performance.

Figure 85: Call Processing Time by Hour of Day, 2019

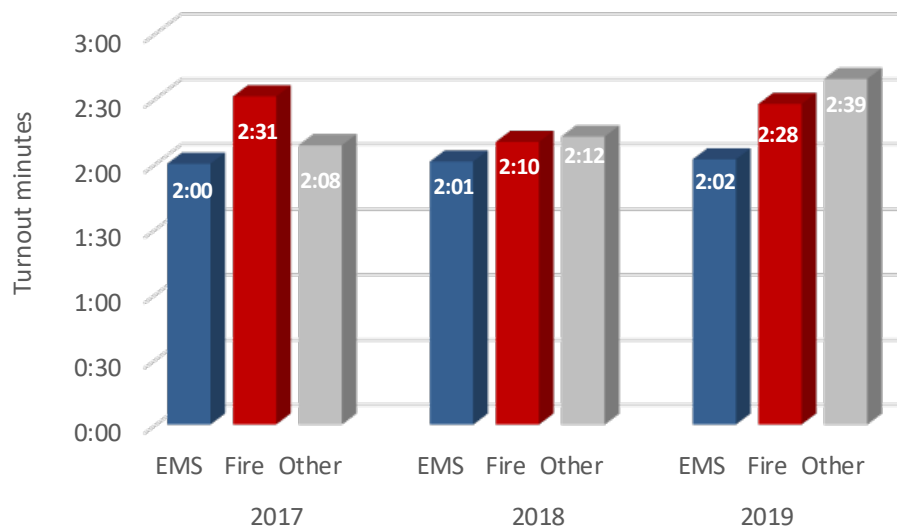


Turnout Time

Turnout time is a response phase controllable by the fire department. This phase begins at the notification of an emergency in progress by the dispatch center and ends when personnel and apparatus begin movement towards the incident location. Personnel must don appropriate personal protective equipment (PPE), assemble on the response vehicle, and begin travel to the incident. Good training and proper fire station design can minimize the time required for this step.

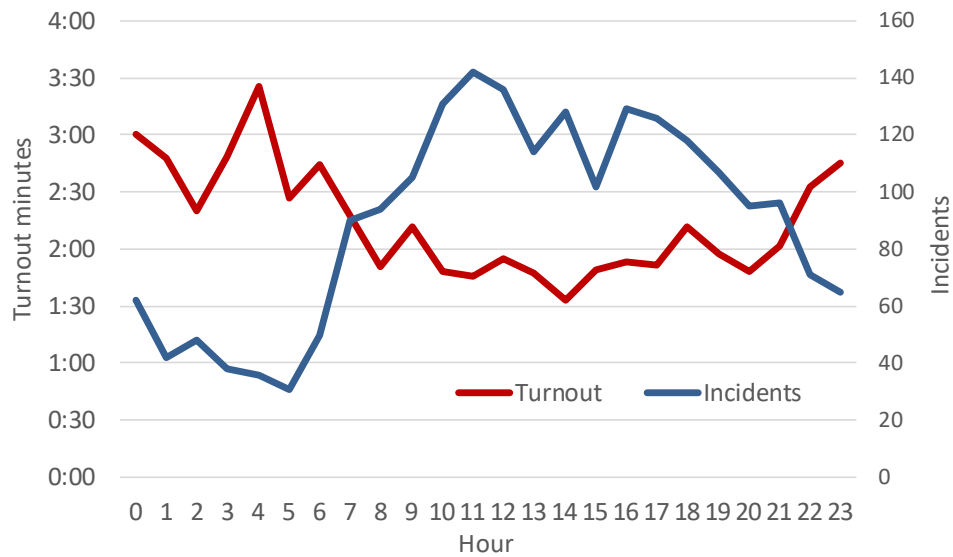
The performance goal for turnout time is within 80 seconds, 90% of the time for fire and special operations incidents, within 60 seconds, 90% of the time for all other priority emergency incidents. The following figure lists turnout time for all incidents as well as specific incident types. Turnout times for all incident types exceed standards. During 2019, turnout time for fire incidents was within 2 minutes, 28 seconds, 90% of the time, within 2 minutes, 2 seconds, 90% of the time for EMS incidents, and within 2 minutes, 39 seconds, 90% of the time for other incidents.

Figure 86: Turnout Time Performance



Turnout time can vary by the hour of the day. In this case, turnout time varied by 78 seconds between the early morning hours and daytime hours.

Figure 87: Turnout Time by Hour of Day, 2019

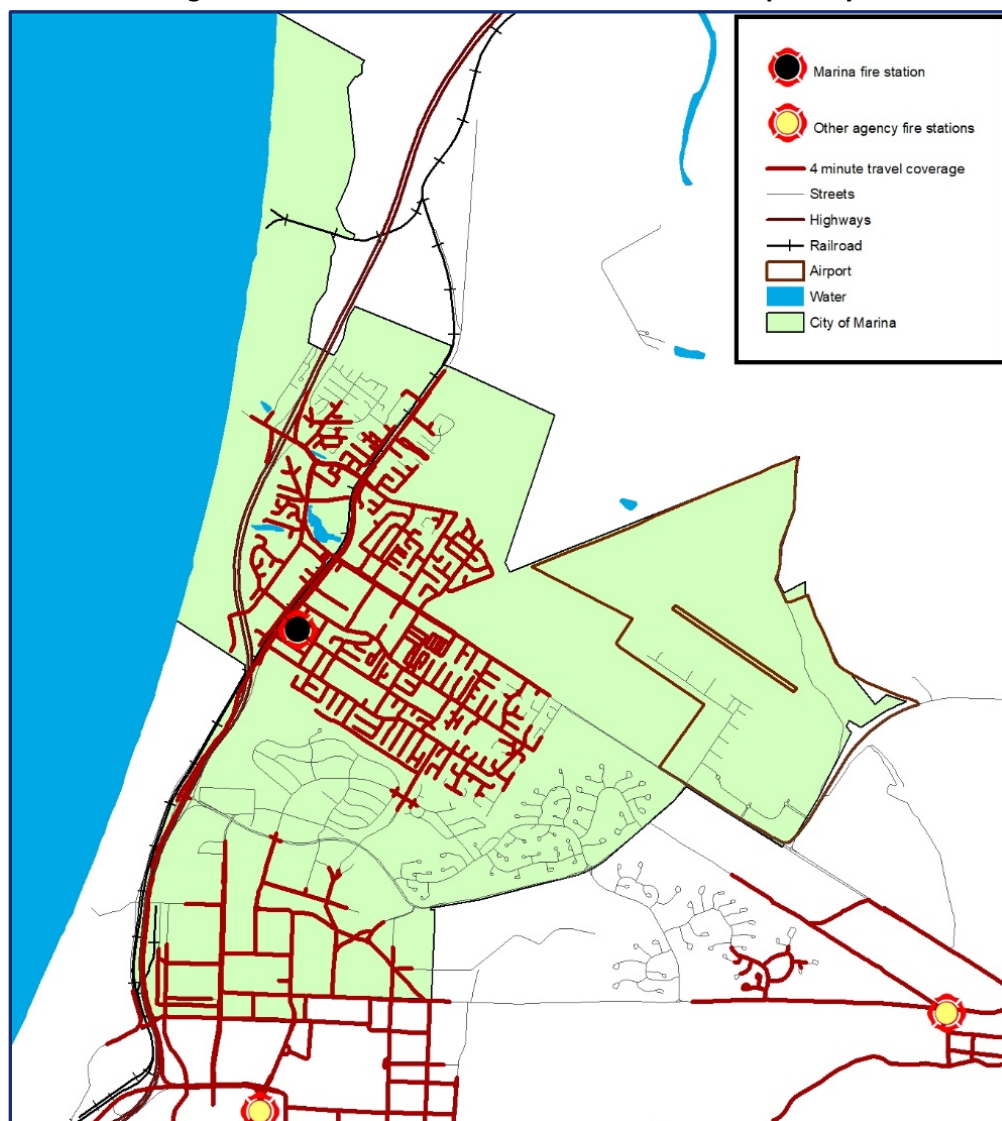


Distribution and Initial Arriving Unit Travel Time

Travel time is potentially the longest of the response phases. The distance between the fire station and the location of the emergency influences response time the most. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions are also factors. This phase begins with the initial apparatus movement towards the incident location and ends when response personnel and apparatus arrive at the emergency's location. Within the performance goal, four minutes is allowed for the first response unit to arrive at an incident.

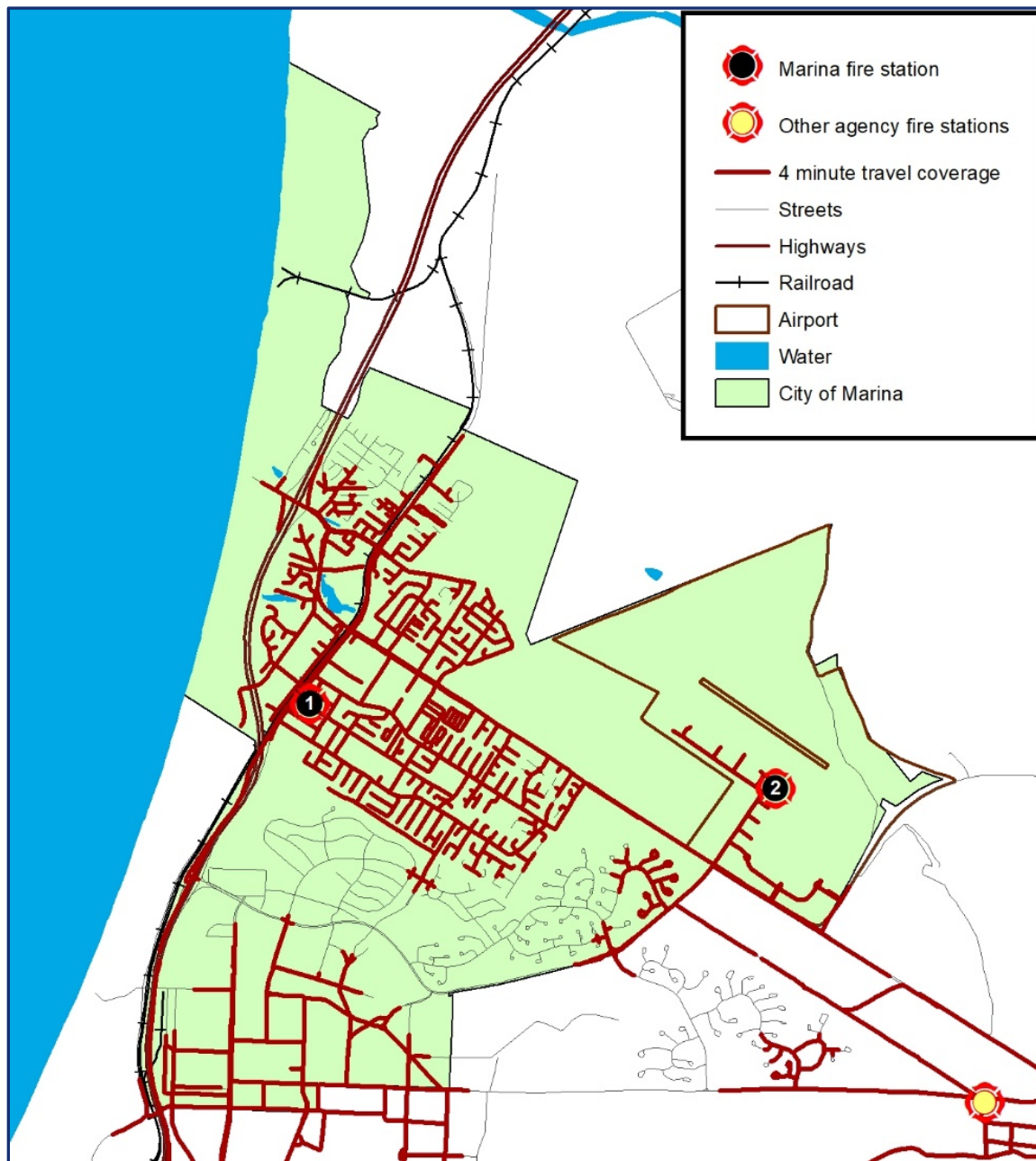
The following figure illustrates the street sections that can be reached from the MFD fire station and neighboring stations in four minutes of travel time. It is based on posted road speeds modified to account for turning, stops, and acceleration.

Figure 88: Initial Unit Four Minute Travel Time Capability



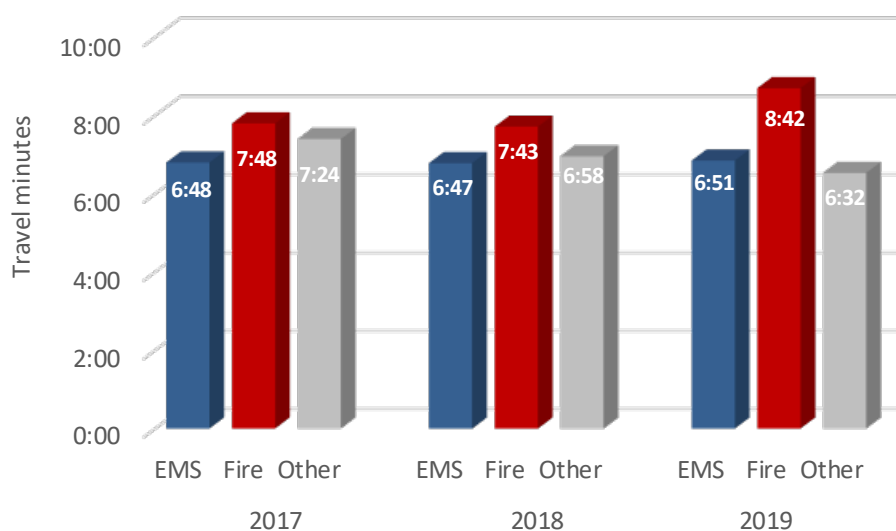
MFD recently staffed Station 2 with a two-person rescue. The following figure shows the area served when its four-minute travel coverage is included. Note that this did not improve coverage for the first due fire engine, only the first unit of any type.

Figure 89: Initial Unit Four Minute Travel Time Capability with Station 2



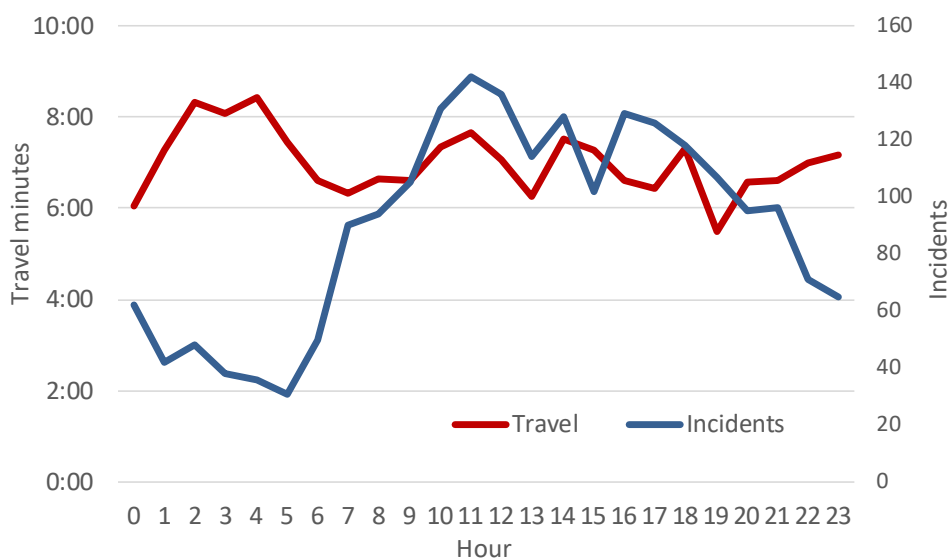
The following figure lists travel time for all priority incidents as well as specific incident types. MFD's travel times exceed its goal in all incident types. Travel time for all incidents during 2019 was within 6 minutes, 52 seconds, 90% of the time.

Figure 90: Travel Time Performance—First Arriving Unit



Travel time can vary considerably by the time of the day. Heavy traffic during morning and evening rush hours can slow fire department response. Concurrent incidents can also increase travel time since units from more distant stations would need to respond. Traffic does not appear to be a factor here as daytime travel was shorter than nighttime.

Figure 91: Overall Travel Time and Incidents by Hour of Day—First Arriving Unit, 2019



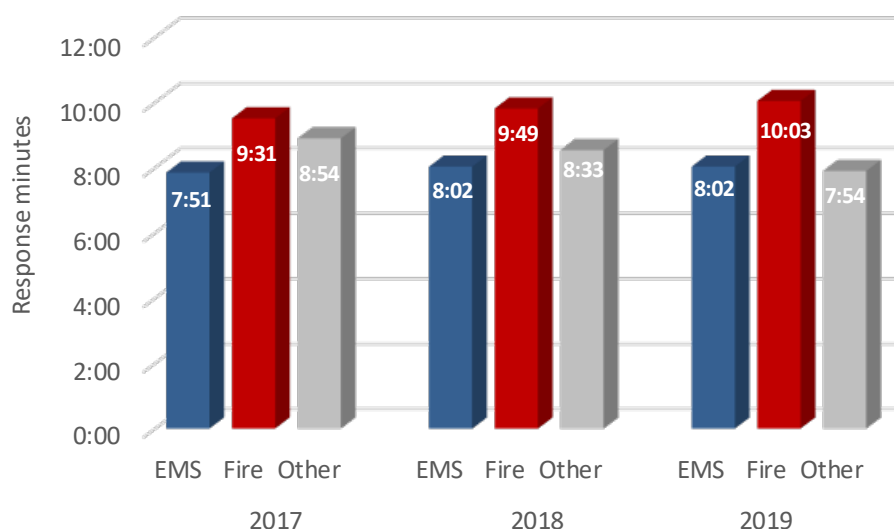
To provide an on-time response, a response unit must be within four travel minutes of the incident. Incidents were reviewed to identify how many occurred within four travel minutes of a fire station. During 2019, 2,027 of the 2,553 incidents within the MFD service area (79.4%) occurred within four travel minutes of a fire station. With Station 2 now added, 2,202 of 2,553 incidents (86.2%) would have been within four travel minutes of a fire station.

First Arriving Unit Response Time

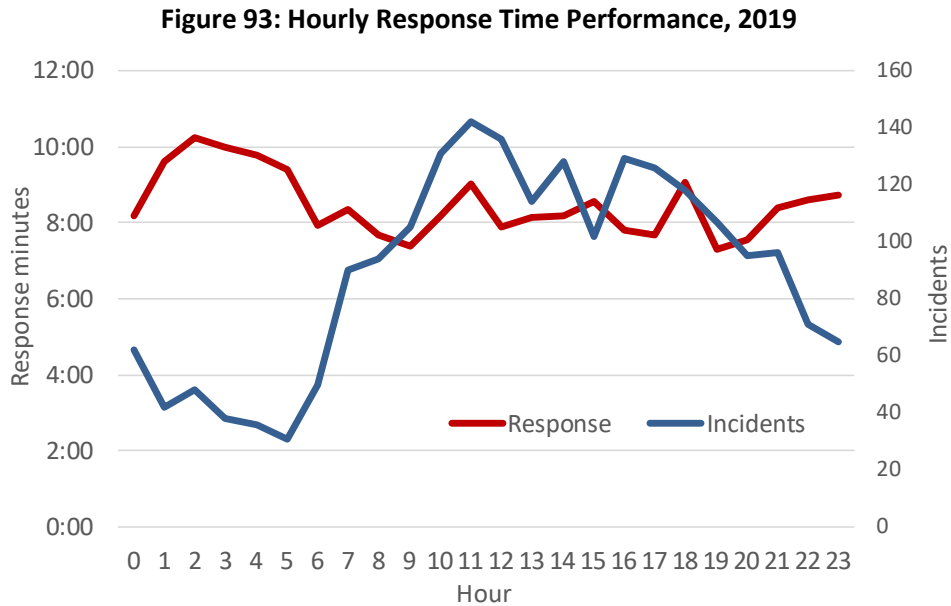
Response time is defined as that period between the notification of response personnel by the dispatch center that an emergency is in progress until the arrival of the first fire department response unit at the emergency. When turnout time and travel time are combined, the performance goal for response time is within 5 minutes, 20 seconds, 90% of the time for fire and special operations incidents, and within 5 minutes, 90% of the time for all other priority incidents.

The following figure illustrates the response time for all priority incidents as well as specific incident types. Overall, response time for all priority incidents was within 8 minutes, 10 seconds, 90% of the time during 2019.

Figure 92: Response Time Performance—First Arriving Unit



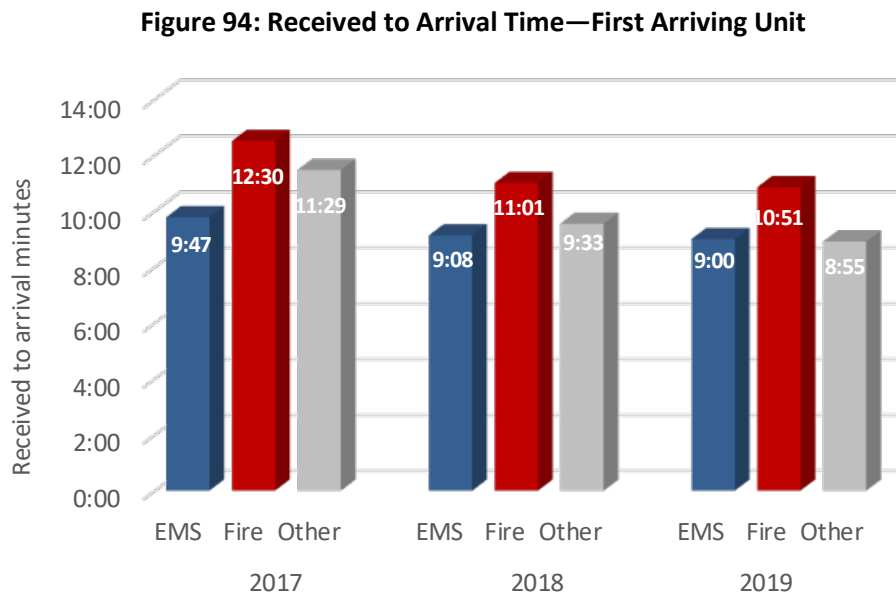
The next figure shows response time and the number of incidents by the hour of the day for all incidents. Response time is slowest during the nighttime hours and fastest during the day. Generally, MFD's best response times occur during the period of the day when response activity is at its highest.



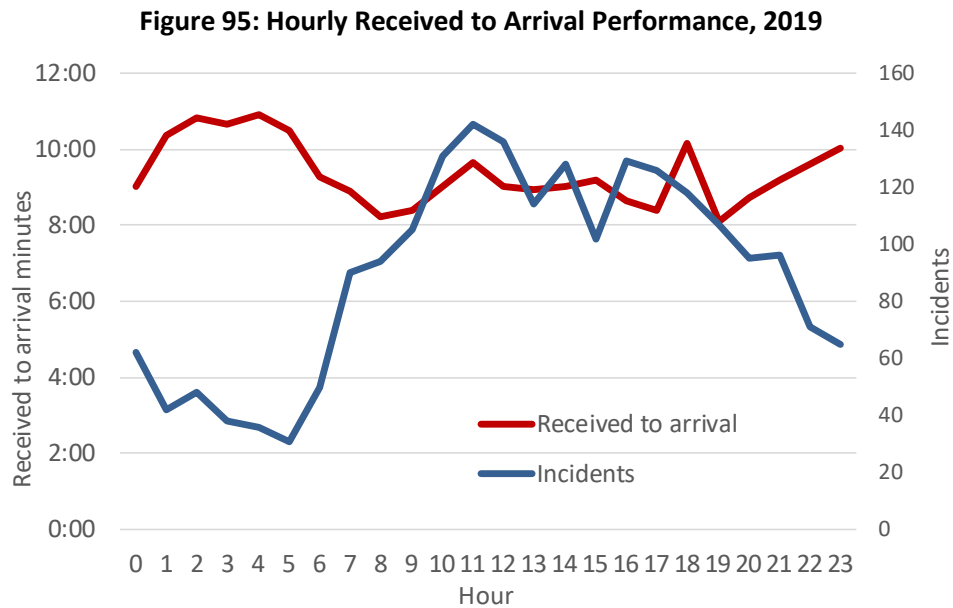
First Arriving Unit Received to Arrival Time

From the customer's standpoint, response time begins when the emergency occurs. Their first contact with emergency services is when they call for help, usually by dialing 9-1-1. Received to arrival time combines call processing, turnout, and travel time. When the performance goals are combined, received to arrival time should be within 6 minutes, 20 seconds, 90% of the time for fire and special operations incidents, and within 6 minutes, 90% of the time for all other priority incidents.

The next figure shows received to arrival performance for priority incidents within the MFD service area. Overall, received to arrival time was within 9 minutes, 4 seconds, 90% of the time during 2019.



The next figure shows received to arrival performance by time of day also compared to incident activity by time of day. Received to arrival, from the customer's standpoint, is quickest during the day and slowest during the early morning hours.



Concentration and Effective Response Force Capability Analysis

Effective Response Force (ERF) is the number of personnel and apparatus required to be present on the scene of an emergency incident to perform the critical tasks in such a manner to effectively mitigate the incident without unnecessary loss of life and/or property. The ERF is specific to each individual type of incident and is based on the critical tasks that must be performed.

The response time goal for the delivery of the full ERF to a building fire is within 9 minutes, 20 seconds, 90% of the time. MFD has defined the minimum full effective response force for low rise building fires as three fire engines, one truck, and one Division Chief and a total of 16 firefighters. Higher risk fires require additional apparatus and personnel.

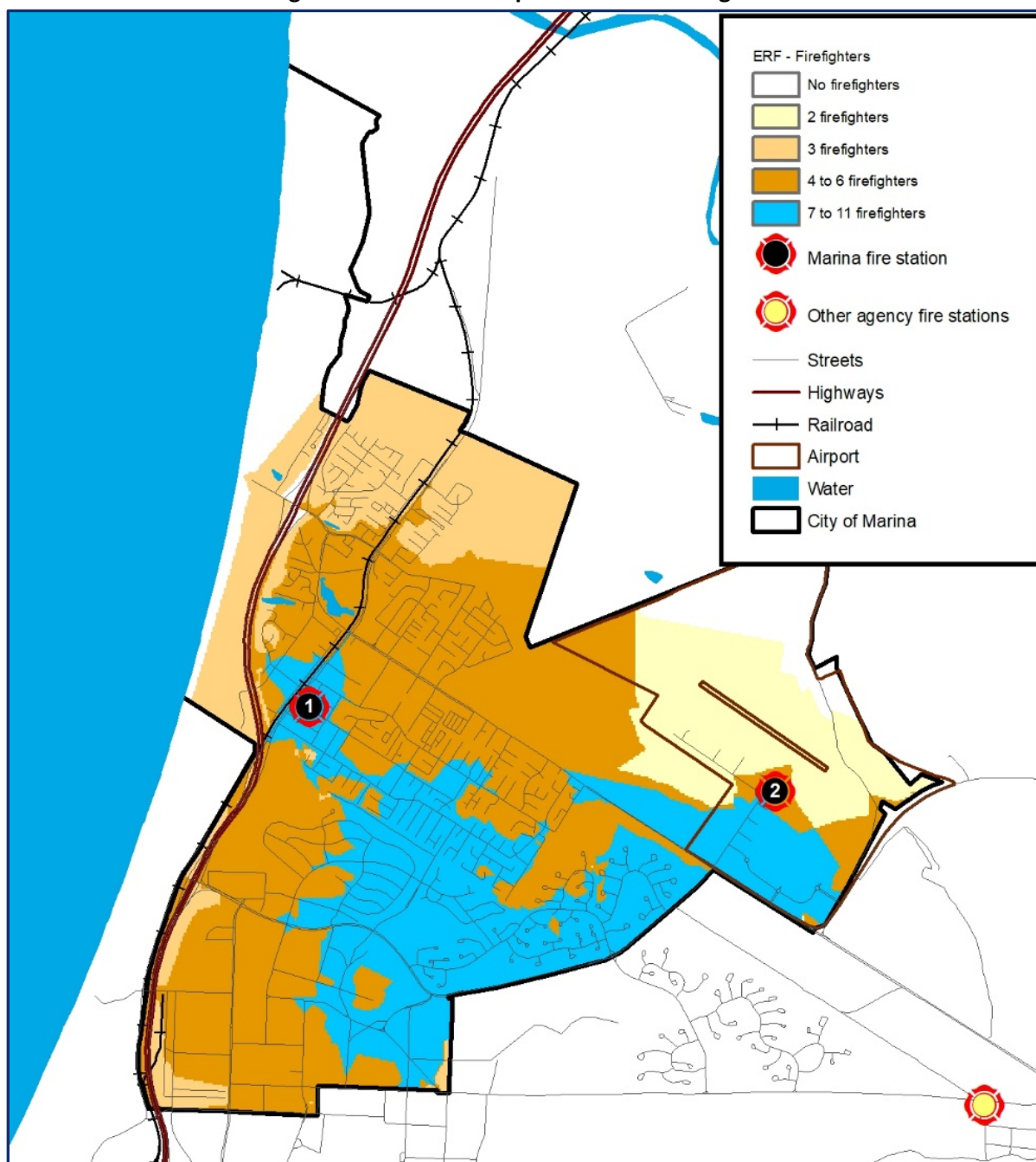
No data is available to identify if building fires by type of risk (low-rise, high-risk commercial, etc.). All building fires have been evaluated using the low-rise effective response force criteria. The following figure illustrates effective response performance during the study period. The effective response force was delivered to 11 building fires during the study period. The following figure illustrates the time required to deliver the effective response force of apparatus to each of these fires.

Figure 96: Effective Response Force Performance

Year	Time to Effective Response Force Arrival
2017	26:59
2017	10:58
2017	13:05
2017	08:46
2017	11:37
2017	25:12
2017	21:33
2018	18:12
2019	19:29
2019	17:03
2019	14:58

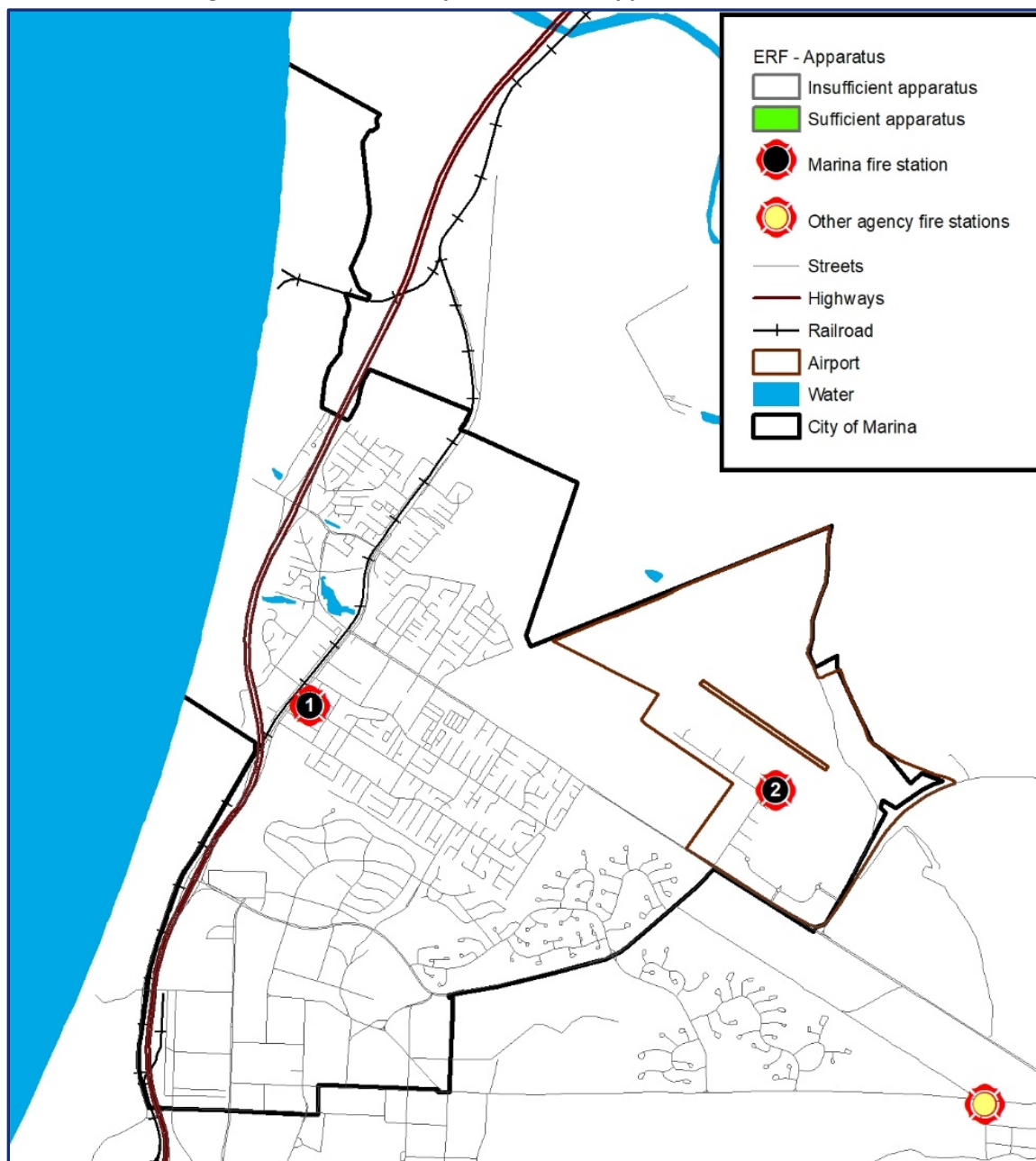
Concentration analysis reviews the physical capability of MFD's resources to achieve its target ERF travel time to its service area. The following figures depict the physical capability of MFD to assemble apparatus and firefighters by area within an eight-minute travel time. The modeled analysis shown assumes that all response units are available. Included is the Marina airport station recently staffed with a rescue and two firefighters.

The first figure shows the area that can be reached by the various numbers of firefighters. Eight minutes of travel time is allowed to assemble the defined full effective response force on-scene. Since automatic aid resources are required to deliver an effective response force, this figure includes the resources of adjacent agency stations. The minimum complement of 16 firefighters needed for a low-rise residential fire cannot be provided to any part of the city.

Figure 97: Effective Response Force—Firefighters

The next figure shows the area to which three fire engines, one truck, and a Division Chief can respond within eight minutes of travel time. The model indicates these resources cannot be delivered within eight minutes of travel to any portion of the city.

Figure 98: Effective Response Force—Apparatus, Low Rise Fire



Second Unit Arrival Time

MFD fire engines are staffed with three personnel. Safety regulations require that at least four firefighters be on-scene before firefighters can enter a burning building. The only exception is if it is known that a person is inside the building and needs rescue. Current staffing levels on engines require the arrival of a second response unit before non-rescue interior firefighting activities can be initiated.

Incident data for building fires during the study period were reviewed to determine the time the second response unit arrived on the scene. According to the data, the second unit arrived on-scene of a structure fire within 5 minutes, 44 seconds, 90% of the time after the arrival of the first unit (3 minutes, 24 seconds on average).

Incident Concurrency and Reliability

When evaluating the effectiveness of any resource deployment plan, it is necessary to evaluate the workload of the individual response units to determine to what extent their availability for dispatch is affecting the response time performance. In simplest terms, a response unit cannot make it to an incident across the street from its own station in four minutes if it is unavailable to be dispatched to that incident because it is committed to another call.

Concurrency

One way to look at resource workload is to examine the number of times multiple incidents happen within the same time frame. Incidents during the study period were examined to determine the frequency of concurrent incidents. This is important because concurrent incidents can stretch available resources and delay response to other emergencies. This factor significantly impacts total response times to emergencies in the jurisdiction.

The following figure shows the number of times that one or more incidents occurred concurrently. This shows that 2,376 times during 2019, only one incident was in progress at a time. However, 284 times there were two incidents in progress at the same time; 15 times there were three incidents in progress at the same time; and once there were four incidents in progress at the same time.

Figure 99: Incident Concurrency

No. of Incidents	2019
1	2,376
2	284
3	15
4	1

It is also useful to review the number of times one or more response units are committed to incidents at the same time. Since MFD only operated one response unit during the study period, response units from other agencies were included. The following figure shows the number of times one or more MFD and other agency response units were committed to incidents within Marina. It is common for multiple response units to be simultaneously committed to incidents, with two and three concurrent responses occurring regularly.

Figure 100: Response Unit Concurrency

Concurrent Unit Responses	2019
1	2,444
2	453
3	95
4	33
5	10
6	9
7	5
8	1

PERFORMANCE OBJECTIVES AND PERFORMANCE MEASURES

Dynamics of Fire in Buildings

Most fires within buildings develop predictably unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take several minutes or even hours from the time of ignition until a flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, because large amounts of highly toxic smoke may be generated during this phase.

Once flames do appear, the sequence continues rapidly. Combustible material adjacent to the flame heat and ignite, which, in turn, heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and highly toxic.

The spread of the fire from this point continues quickly. Soon, the flammable gases at the ceiling, as well as other combustible material in the room of origin, reach ignition temperature. At that point, an event termed “flashover” occurs; the gases and other material ignite, which, in turn, ignites everything in the room. Once flashover occurs, damage caused by the fire is significant, and the environment within the room can no longer support human life. Flashover usually occurs about five to eight minutes from the appearance of flame in typically furnished and ventilated buildings. Because flashover has such a dramatic influence on the outcome of a fire event, the goal of any fire agency is to apply water to a fire before flashover occurs.

Although modern codes tend to make fires in newer structures more infrequent, today’s energy-efficient construction (designed to hold heat during the winter) also tends to confine the heat of a hostile fire. In addition, research has shown that modern furnishings generally ignite more quickly and burn hotter (due to synthetics). In the 1970s, scientists at the National Institute of Standards and Technology found that after a fire broke out, building occupants had about 17 minutes to escape before being overcome by heat and smoke. Today, that estimate is as short as three minutes.³² The necessity of effective early warning (smoke alarms), early suppression (fire sprinklers), and firefighters arriving on the scene of a fire in the shortest span of time is more critical now than ever.

The prompt arrival of at least four personnel is critical for structure fires. Federal regulations (CFR 1910.120) require that personnel entering a building involved in fire must be in groups of two. Further, before personnel can enter a building to extinguish a fire, at least two personnel must be on scene and assigned to conduct search and rescue in case the fire attack crew becomes trapped. This is referred to as the two-in, two-out rule.

³² National Institute of Standards and Technology, *Performance of Home Smoke Alarms, Analysis of the Response of Several Available Technologies in Residential Fire Settings*, Bukowski, Richard, et al.

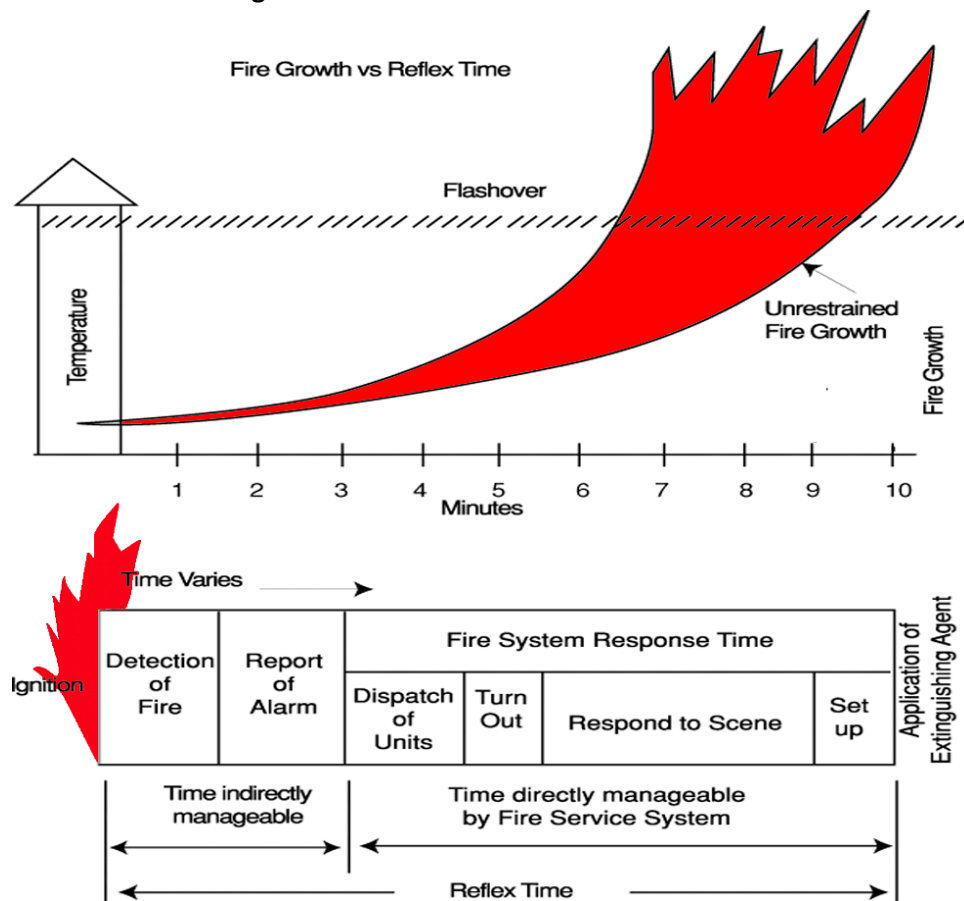
However, if it is *known* that victims are trapped inside the building, a rescue attempt can be performed without additional personnel ready to intervene outside the structure. Further, there is no requirement that all four arrive on the same response vehicle. Many fire departments rely on more than one unit arriving to initiate an interior fire attack.

Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are often less fire-resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials that are more easily weakened by the effects of fire. “Lightweight” roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. This creates a dangerous environment for firefighters.

In addition, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerates fire spread and increases the amount of water needed to control a fire effectively. All of these factors make the need for early application of water essential to a successful fire outcome.

The following figure illustrates the sequence of events during the growth of a structure fire over time.

Figure 101: Fire Growth versus Reflex Time



As is apparent by this description of the sequence of events, the application of water in time to prevent flashover is a serious challenge for any fire department. It is critical, though, as studies of historical fire losses can demonstrate.

The National Fire Protection Association found that fires contained to the room of origin (typically extinguished prior to or immediately following flashover) had significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). As evidenced in the following figure, fire losses, casualties, and deaths rise significantly as the extent of fire damage increases.

Figure 102: Fire Extension in Residential Structures—United States, 2011–2015

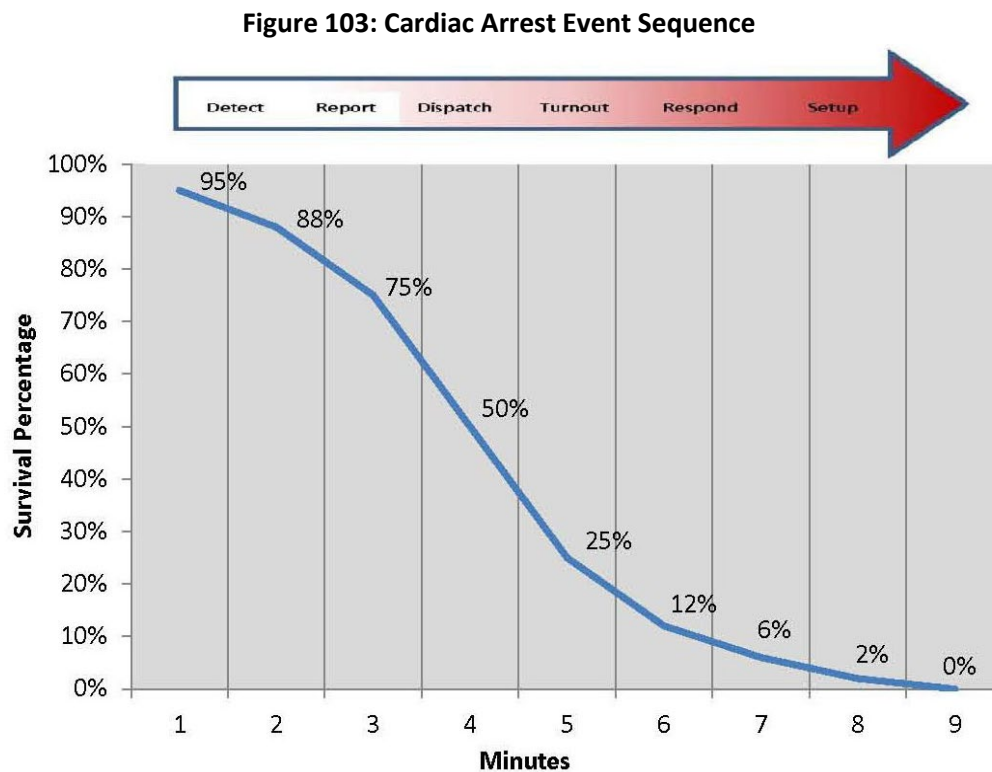
Extension	Rates per 1,000 Fires		
	Civilian Deaths	Civilian Injuries	Average Dollar Loss Per Fire
Confined to room of origin or smaller	1.8	24.8	\$4,200
Confined to floor of origin	15.8	81.4	\$36,300
Confined to building of origin or larger	24.0	57.6	\$67,600

Source: National Fire Protection Association

Emergency Medical Event Sequence

Cardiac arrest is the most significant life-threatening medical event in emergency medicine today. A victim of cardiac arrest has mere minutes in which to receive lifesaving care if there is to be any hope for resuscitation. The American Heart Association (AHA) issued a set of cardiopulmonary resuscitation guidelines designed to streamline emergency procedures for heart attack victims and to increase the likelihood of survival. The AHA guidelines include goals for the application of cardiac defibrillation to cardiac arrest victims. Cardiac arrest survival chances fall by 7 to 10% for every minute between collapse and defibrillation. Consequently, the AHA recommends cardiac defibrillation within five minutes of cardiac arrest.

As with fires, the sequence of events that lead to emergency cardiac care can be graphically illustrated, as in the following figure.



The percentage of opportunity for recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for a fire response. Recent research stresses the importance of rapid cardiac defibrillation and administration of certain medications as a means of improving the opportunity for successful resuscitation and survival.

People, Tools, and Time

Time matters a great deal in the achievement of an effective outcome to an emergency event. Time, however, is not the only factor. Delivering sufficient numbers of properly trained, appropriately equipped personnel within the critical time period completes the equation.

For medical emergencies, this can vary based on the nature of the emergency. Many medical emergencies are not time-critical. However, for serious trauma, cardiac arrest, or conditions that may lead to cardiac arrest, a rapid response is essential.

Equally critical is delivering enough personnel to the scene to perform all of the concurrent tasks required to deliver quality emergency care. For a cardiac arrest, this can be up to six personnel; two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct patient care.

Thus, for a medical emergency, the real test of performance is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not necessarily the time it takes for the first person to arrive.

Fire emergencies are even more resource critical. Again, the true test of performance is the time it takes to deliver sufficient personnel to initiate the application of water to a fire. This is the only practical method to reverse the continuing internal temperature increases and ultimately prevent flashover. The arrival of one person with a portable radio does not provide fire intervention capability and should not be counted as "arrival" by the fire department.

OVERVIEW OF COMPLIANCE METHODOLOGY

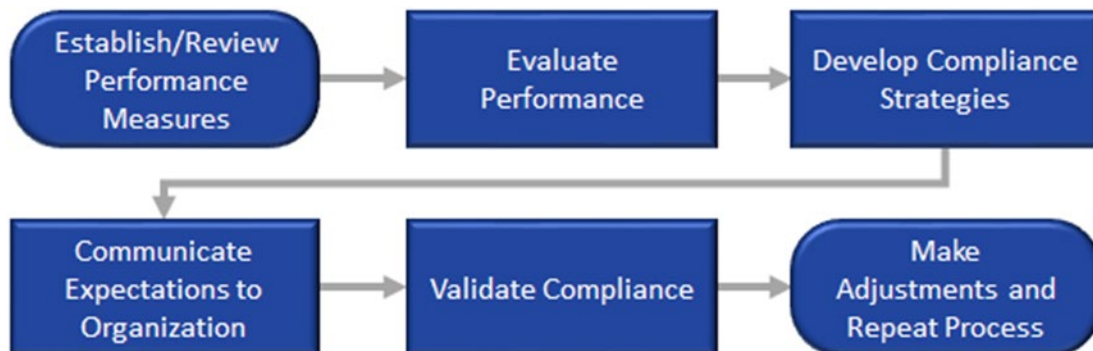
The preceding sections of this report provide a detailed analysis of the historical performance of the Marina Fire Department. For this analysis to prove beneficial to the Department and City policymakers, the continued analysis should be performed on a routine basis. The data provided to the project team for analysis proved to be difficult to analyze from the standpoint of consistency and completeness. These issues will also hinder future efforts to measure performance without significant improvement in the data collection process.

MFD is committed to a continual process of analyzing and evaluating actual performance against the adopted Standards of Cover and will enhance the data collection procedures of field operations personnel. A periodic review of the Department's records management system reports will be necessary to ensure compliance and reliability of data.

Compliance Model

Compliance is best achieved through a systematic approach. Marina Fire Department has identified the following six-step compliance model.

Figure 104: Six-Step Compliance Model



Phase 1—Establish/Review Performance Measures

Complete the initial Standards of Cover process. Conduct a full review of the performance measures every five years:

- Identify services provided.
- Define levels of service.
- Categorize levels of risk.
- Develop performance objectives and measures:
 - By incident type
 - By geographic demand zone
 - Distribution (first on scene)
 - Concentration (arrival of full first alarm)

Phase 2—Evaluate Performance

Performance measures are applied to actual services provided:

- System level
- First due area level
- Unit level
- Full effective response force (ERF)

Phase 3—Develop Compliance Strategies

Determine issues and opportunities:

- Determine what needs to be done to close the gaps.
- Determine if resources can/should be reallocated.
- Seek alternative methods to provide service at the desired level.
- Develop budget estimates as necessary.
- Seek additional funding commitment as necessary.

Phase 4—Communicate Expectations to Organizations

Communicate expectations:

- Explain the method of measuring compliance to personnel who are expected to perform services.
- Provide feedback mechanisms.
- Define the consequences of noncompliance.

Train personnel:

- Provide appropriate levels of training/direction for all affected personnel.
- Communicate the consequences of noncompliance.
- Modify (remediate) business processes, business application systems, and technical infrastructure as necessary to comply.

Phase 5—Validate Compliance

Develop and deploy verification tools and/or techniques that can be used by subsections of the organization on an ongoing basis to verify that they are meeting the requirements:

- Monthly evaluation:
 - Performance by unit
 - Overall performance
 - Review of performance by division/section management
- Quarterly evaluation:
 - Performance by unit
 - Performance by first due
 - Overall performance
 - Review of performance by executive management

Phase 6—Make Adjustments/Repeat Process

Review changes to ensure that service levels have been maintained or improved. Develop and implement a review program to ensure ongoing compliance:

- Annual review and evaluation:
 - Performance by unit
 - Performance by first due
 - Overall performance
 - Review of performance by governing body
 - Adjustment of performance standards by governing body as necessary
- Five-year update of Standards of Cover:
 - Performance by unit
 - Performance by first due
 - Full effective response force
 - Overall performance
 - Adoption of performance measures by the governing body
- Establish management processes to deal with future changes in the MFD service area.

OVERALL EVALUATION, CONCLUSIONS, AND RECOMMENDATIONS

Overall Evaluation

This Community Assessment: Standards of Cover is based on the *CFAI Standards of Cover, 6th Edition*. It required the completion of an intensive analysis of all aspects of the MFD deployment policies. The analysis used various tools to review historical performance, evaluate risk, validate response coverage, and define critical tasking and alarm assignments. The analysis relied on the experience of staff officers and their historical perspective combined with historical incident data captured by both the dispatch center and MFD's in-house records management system.

The Description of Community Served section provided a general overview of the organization, including governance, lines of authority, finance, and capital and human resources, as well as an overview of the service area, including population and geography served. The Review of Services Provided section detailed the core services the organization provides based on general resource/asset capability and basic staffing complements.

An overview of the community was provided to identify the risks and challenges faced by the fire department. Geospatial characteristics, topographic and weather hazards, transportation network risks, physical assets, and critical infrastructure were reviewed and then identified as medical incidents, structure fires, and rescues as the primary risks within the community. As a factor of risk, community populations and demographics were evaluated against historical and projected service demand. Population and service demand has increased over the past decade and will continue to increase in the future.

Evaluating risk using advanced geographic information systems (GIS) provided an increased understanding of community risk factors and led to an improved deployment policy.

During the analysis of service level goals, critical tasking assignments were completed for incident types ranging from a basic medical emergency to a high-rise structure fire. Critical tasking required a review of on-scene staffing requirements to mitigate the effects of an emergency. These tasks ultimately determine the resource allocation necessary to achieve a successful operation. The results of the analysis indicate that a low-rise building fire required a minimum of 17 personnel.

The review of historical system performance evaluated each component of the emergency incident sequence. These included call processing, turnout, and travel time. Beyond the response time of the initial arriving units, the additional components of concentration and effective response force, reliability, and call concurrency were evaluated.

The analysis completed during this study revealed a number of important findings. These include the following:

- There may be funding sources available to upgrade or expand traffic signal preemption.
- There has been a large increase in alarm activations at CSU-MB in 2019.
- Inspections of apartment buildings are not occurring in accordance with the California State Fire Code.
- The Department lacks a defined schedule to complete inspections of all commercial occupancies.
- Pre-incident planning is not occurring for all commercial and target hazard properties.
- General Fund revenues have increased over the past few years and have improved significantly with the voter approval of additional sources of revenue.
- An adopted, citywide capital improvement program, including the fire department, exists, however it appears funding is insufficient to accommodate the needs of all of the City's departments.
- The level of administrative support appears to be inadequate for an organization the size and complexity of MFD. The total response workload has increased by 51.4% over the 8 years.
- Overall call processing performance during 2019 exceeded MFD's performance goal.
- During 2019, turnout time for fire incidents exceeds the Department's performance goal.
- Travel time for all incidents during 2019 exceeded the Department's performance goal.
- The minimum complement of 16 firefighters needed for a low-rise residential fire cannot be provided to any part of the city.
- Fire Station 1 is of an inadequate configuration and size for a shared facility.

Based on the analysis and considering community expectations, recommendations are offered to improve the delivery of fire and emergency services to the community by MFD. It is not expected that all will be implemented in the short term. Some may wait until economic conditions allow their implementation. However, all of the recommendations offered to chart a course to improved capability and service.

Recommendations

Recommendation A: Adopt response performance goals to guide service delivery improvement.

A community's desired level of service is a uniquely individual decision. No two communities are exactly alike. Performance goals must be tailored to match community expectations, community conditions, and the ability to pay for the resources necessary to attain the desired level of service.

Levels of service and resource allocation decisions are the responsibility of the community's elected officials, in this case, the Marina City Council. The policy-making body must carefully balance the needs and expectations of its citizenry when deciding how to allocate money to all the services it provides.

MFD's current response performance goals will be difficult to achieve without the addition of many new resources, including response personnel and vehicles. The cost will be significant.

The following are recommended as MFD's fire and life safety response performance goals. They align directly with nationally recommended standards. These are not levels of service that must be achieved immediately but, instead, are targets for achievement when resources are available to do so. Further, the adoption of goals allows MFD management to regularly report progress on the achievement of these goals, conditions that are impeding progress, and resources needed to improve service.

Call-Processing Performance Goal

The first phase of overall response time is call processing time. This phase begins when the call is received at the PSAP center and ends when response resources are notified of an emergency. There are two components: answer time and dispatch time.

Recommended Call Processing Goal

- 9-1-1 calls will be answered at the primary PSAP within 15 seconds, 90 percent of the time.
- Response resources shall be notified of a priority incident within 60 seconds from receipt of the call at the dispatch center, 90 percent of the time.
 - **Exceptions:** These call types shall be processed and dispatched within 90 seconds, 90 percent of the time:
 - Calls requiring emergency medical dispatch questioning
 - Calls requiring language translation
 - Calls requiring the use of TTY/TTD devices
 - Calls of criminal activity
 - Hazardous materials and technical rescue incidents

Current performance: Answer time is within 15 seconds, 99.5 percent of the time. Dispatch time currently is within 77 seconds, 90 percent of the time.

Turnout Time Performance Goal

Turnout time is one area over which the fire department has total control and is not affected by outside influences. Turnout time, or the time between when the call is received by the response units (dispatched) and when the unit is en route to the incident location (responding), affects overall response times. Reducing this time component reduces total response time.

The National Fire Protection Association Standard 1710 recommends turnout time performance of 80 seconds or less for fire and special operations response, and 60 seconds or less for all other priority responses.

Recommended Turnout Goal

- Response personnel shall initiate the response of a unit capable of mitigating an incident to a priority fire and special operations incident 80 seconds from notification, 90 percent of the time.

Current performance: Within 2 minutes, 28 seconds, 90 percent of the time.

- Response personnel shall initiate a response to all other priority incidents within 60 seconds from notification 90 percent of the time.

Current performance: Within 2 minutes, 2 seconds, 90 percent of the time.

Response Time for the First-Due Unit Goal

The time required to deliver the first response unit capable of intervening in the emergency includes both turnout time and travel time, but not call processing time. When the recommended standards for turnout time and travel time are combined, response time should be within 5 minutes, 20 seconds, 90 percent of the time for fire and special operations incidents, and within 5 minutes, 90 percent of the time for all other priority incidents.

Recommended First-Due Response Time Goal

- The first response unit capable of initiating effective incident intervention shall arrive at a priority fire or special operations incident within 5 minutes, 20 seconds from notification of response personnel, 90 percent of the time.

Current performance: Within 8 minutes, 2 seconds, 90 percent of the time.

- The first response unit capable of initiating effective incident intervention shall arrive at all other priority incidents within 5 minutes from notification of response personnel, 90 percent of the time.

Current performance: Within 10 minutes, 3 seconds, 90 percent of the time.

Effective Response Force Performance Goal

A fire department's resource *concentration* is the spacing of multiple resources close enough together so that an initial "Effective Response Force" (ERF) can be assembled on the scene of an emergency within the specific time frame identified in the community's performance goals for that risk type. An initial effective response force is defined as that which will be most likely to stop the escalation of the emergency.

The minimum ERF for low-rise structure fires is identified as the arrival of at least three fire engines, one ladder truck, and one Battalion Chief (15 personnel total). This initial ERF does not necessarily represent the entire alarm assignment, as additional units may be assigned based on long-term incident needs and risks. Additional engines, ladders, or other specialty companies are assigned to higher risk responses to accomplish additional critical tasks that are necessary beyond the initial attack and containment.

Recommended Effective Response Force Goal

- The full effective response force shall arrive at a moderate-risk structure fire within 9 minutes, 20 seconds of notification of response personnel, 90 percent of the time.

Current performance: Within 19 minutes, 90 percent of the time.

Cost to Implement: No cost to establish the goals.

Recommendation B: Reduce the time required to dispatch a fire incident.

Currently, it takes 1 minute, 47 seconds, 90 percent of the time for MCEC to dispatch a fire incident. Performance for other incident types is at or near national recommendations.

MFD and MCEC should explore this to determine what is taking so much time during the dispatch sequence. Changes in procedures or other actions should be accomplished to shorten this time.

Cost to Implement: Dependent on solutions selected.

Recommendation C: Improve MFD response unit turnout times.

National guidance suggests turnout time should be within 80 seconds, 90 percent of the time for fire and special operations incidents, and within 60 seconds, 90 percent of the time for all other priority incidents. MFD response crew turnout times currently are longer.

A review of station configuration, alerting systems, and other factors should be conducted to identify and remove any obstacles to prompt initiation of response.

Crew performance must also be addressed. Personnel should be provided regular reports of turnout time performance. Performance standards should be adopted and enforced.

Cost to Implement: Dependent on changes needed.

Recommendation D: Improve the efficiency of response to emergency medical incidents.

MFD's current practice is to send a fire engine to all emergency medical incidents regardless of severity. Some responses are undoubtedly non-emergent but are not recognized as such until the ambulance response has been downgraded or the arrival of the MFD responding unit.

Many dispatch centers will query the caller with a standardized list of questions that can quickly differentiate between a life-threatening incident and a non-life-threatening incident, or between emergent and non-emergent. The response (or other alternative) to a medical incident is based on the results of this query.

MCEC does not currently offer this service for fire unit dispatch but should. Serious attention should be given to this because the resulting reduction in unit utilization and improvement in system reliability would be valuable. Further, it better matches resource to need, keeping critical resources available for other, higher priority calls, thus, potentially reducing response time.

ESCI recommends MFD coordinate with County EMS to implement Emergency Medical Dispatch protocols for fire unit dispatch. The final decision as to the number and type of apparatus and staff dispatched should be determined by MFD consistent with the department's and City's 201 rights.

Cost to Implement: Minimal as EMD is currently being provided for ambulance response.

Recommendation E: Explore cooperative service and consolidation opportunities.

MFD is highly dependent on neighboring fire agencies for the delivery of effective response services to the City of Marina. Although many incidents can be handled with one or both of the MFD response units, all building fires and other large incidents require support from outside agencies.

Although MFD is dependent on outside resources, it has no direct control over them. Support is provided by the other agencies at their discretion. Personnel qualifications and training are also at the discretion of the other agencies.

MFD should work with neighboring communities and the Department of Defense to develop a more integrated system. This could include agreements for shared training services, fire prevention services, joint purchasing, and the like.

Ideally, the communities in the region consolidate through a joint-powers authority (JPA) or similar structure. Orange County Fire Authority is a California example.

Each partner would designate a representative to the JPA Board of Directors, which would be the JPA's governing body. The JPA Board of Directors would select its Fire Chief, who would then have the authority to build a fully integrated fire services system.

The resulting system will provide a more effective response system. Cost reductions from current are likely since the number of administrative personnel may be reduced.

Cost to Implement: Dependent on the model selected.

Recommendation F: Add response units during periods of high incident activity.

Fire stations should be located, staffed, and equipped to provide response resources using two primary considerations:

1. Provide response times that ensure unit(s) arrive in time to mitigate an emergency effectively.
2. Provide sufficient resources to ensure a reliable response to predictable emergency service requests.

The first consideration suggests that stations and response units should be located to minimize travel time to emergencies. The second consideration suggests that during periods of higher incident activity, additional resources should be available to respond. The additional resources should be of the type necessary for predictable requests for service. Emergency medical incidents are the most common.

The second consideration is a dynamic approach to deployment and provides two benefits. First, additional response resources can be made available during times each is predictably needed. Second, because these resources are not needed or assigned during slower workload periods, the organization is maximizing its ability to match resources with system demand.

Peak workload periods occur every day of the week. The following figure illustrates the workload by the time of day during the study period.

Figure 105: Incidents by Period of Day, 2019

Incidents 9:00 a.m.–8:59 p.m.	Incidents 9:00 p.m.–8:59 a.m.	Incidents per hour 9:00 a.m.–8:59 p.m.	Incidents per hour 9:00 p.m.–8:59 a.m.
1,806	870	0.41	0.20

A process called “queuing analysis” has been used to determine the number of units needed in each station area by the time of day. This process utilizes probability analysis to determine the number of units needed in each station area to reduce the likelihood that a response unit would not be available to serve an incident to 10 percent or less. It uses the variables incidents per hour, number of available response units, and the average time committed per incident.

Though very useful to this effort, queuing analysis has some limitations. It assumes that customers (incidents) arrive at a constant rate. This is not always true in emergency services. It also assumes that each customer requires an equal amount of time from servers (response units). While the average time committed to an incident was used for service time, some incidents require less or substantially more than the average.

The following figure illustrates the current deployment for both daytime (9:00 a.m. to 8:59 p.m.) and nighttime (9:00 p.m. to 8:59 a.m.). The figure includes the current probability of wait analysis based on the current number of response units.

Figure 106: Probability of Wait—Current Response Units

Current Units Day	Current Units Night	Current Probability of Wait—Day	Current Probability of Wait—Night
2	2	1.0%	.02%

The next figure shows what the probability of wait would be with only a single unit available. This demonstrates that, at least during daytime hours, two units are necessary to maintain a reliable response capability.

Figure 107: Probability of Wait—Single Response Unit

Units Day	Units Night	Current Probability of Wait—Day	Current Probability of Wait—Night
1	1	14.4%	7.0%

MFD is currently operating two response units 24 hours per day. It should continue to do so, at least during daytime hours.

Cost to Implement: No additional expense above the current cost.

Recommendation G: Relocate both fire stations to improve travel time coverage.

MFD's Station 1 and 2 are not well located to serve the growing community. Travel coverage from Station 1 does not extend north far enough. Travel coverage from Station 2 is very limited by the airport.

Each station should be relocated to improve service. The following figure illustrates locations suggested for each. These are not exact points. A suitable site within a few blocks of each will suffice. Also shown on the map is the four-minute travel time coverage that would be provided from the new locations and from adjacent agency stations. The coverage is nearly 100 percent.

Figure 108: Proposed Station Locations



Each station should have a staffed fire engine. This will improve effective response force coverage.

Cost to implement: Total cost is dependent on size and configuration. The average square foot cost for fire station construction in the area as of 2019 was \$625 per square foot.

Recommendation H: Explore opportunities to reduce response workload.

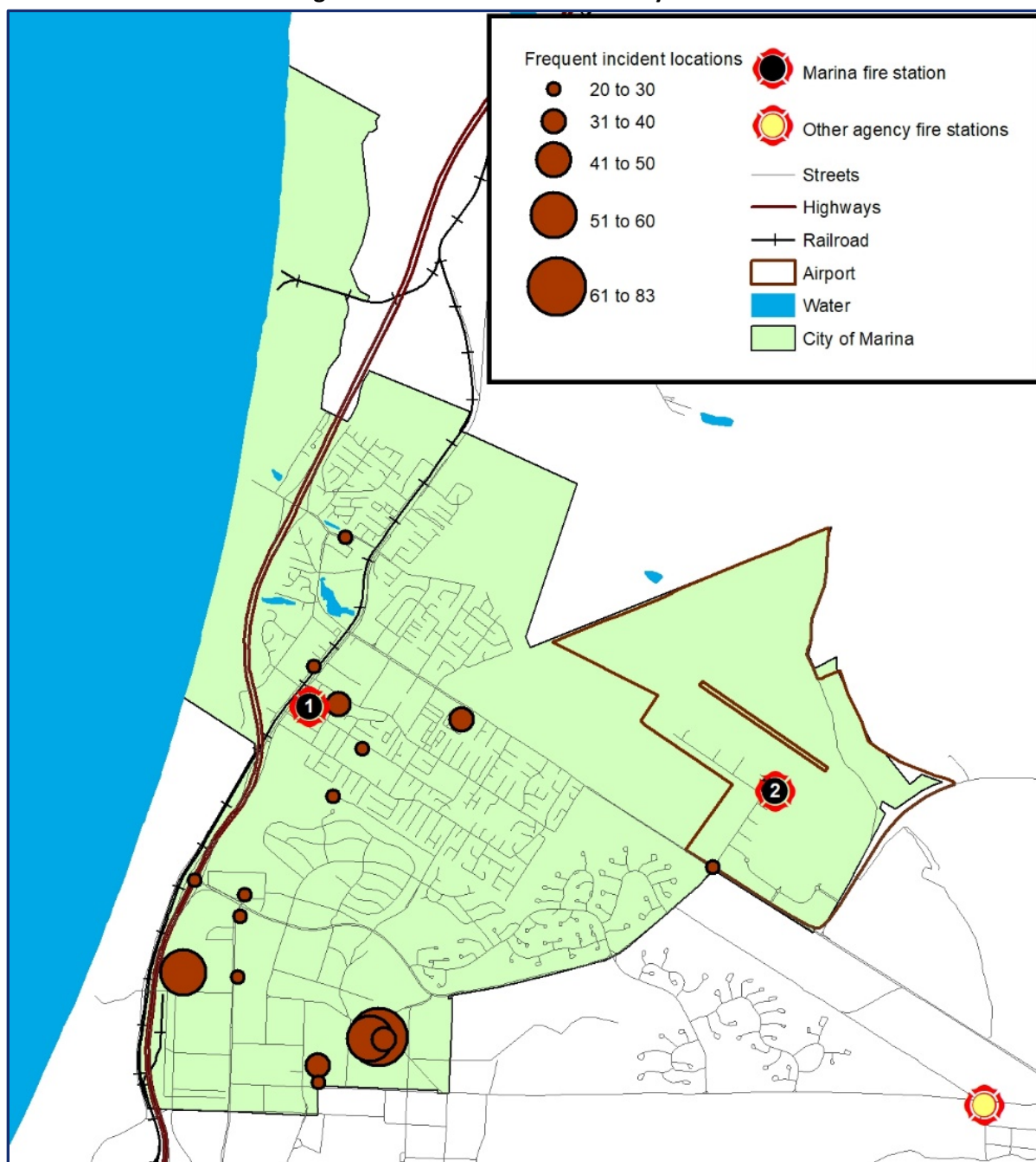
Response workload has grown by 51% over the past 8 years. At this rate of growth, MFD will be unable to maintain service levels without new resources. Response workload is expected to increase to over 5,700 incidents per year by 2040. The City's ability to fund new resources to maintain service levels is limited.

Work with Frequent Users of EMS Services to Reduce Utilization

Most fire service agencies have patients and facilities who routinely call multiple times for a response from the local fire department. While some of these patients undoubtedly have acute medical challenges that require a response and assessment, many others have chronic illnesses and have become reliant upon first responders as their primary care provider. Still others are living alone but struggling to live independently, relying instead on first responders to address their routine challenges. A smaller subset may be relying upon first responders for social needs or may have mental health challenges that cause them to call inappropriately for first responders.

Fire agencies can also have significant response workload at single facilities such as nursing homes, assisted living, and mobility-impaired resident facilities. Many calls for service are legitimate medical emergencies, while some are lift-assists that occur when a mobility-impaired resident falls from bed and needs assistance getting back into bed. First responders in these cases perform a quick assessment of the latter group and place them back into bed. While this may seem to be an appropriate service to provide to the residents of such facilities, in many cases it is a liability shift and/or a staffing shift from a fee-for-service facility to the taxpayer-provided emergency responders. Further, it misuses critical emergency response resources to address decidedly non-emergent problems.

The following figure illustrates the locations that used fire department services 20 or more times during 2019.

Figure 109: Number of Incidents by Location

There are different approaches available to fire departments that experience the high-frequency individual and the high-frequency facility. These approaches are explained more fully in the two following subsections.

Responses to High-Frequency Patients

A growing concept nationally is the community paramedicine program. The concept of this approach is to better support high-frequency EMS system users. Community paramedicine is intended to decrease 9-1-1 over-users or abusers, decrease the on-scene time for response units, and provide a higher level of service to customers.

There are a variety of models in use throughout the country. Some employ a single paramedic in a vehicle who conducts follow-up visits of patients recently released from the hospital. The purpose is to ensure the patient is taking appropriate medications, following up with their primary care physician, and to check the patient's overall well-being. These single paramedic units can also be dispatched to incidents known to be non-life threatening.

Other models team a paramedic with community social service workers who can also address other needs such as food, housing, mental health care, and the like.

Agencies that have successfully implemented a community paramedicine type program include Mesa, Arizona, which developed the concept; Spokane, Washington, Tualatin Valley Fire and Rescue, Oregon, and Bellevue, Washington.

This is a shared service opportunity. This type of resource could easily be shared between the cities of Marina and Seaside.

Responses to High-Frequency Facilities

There are a number of facilities within Marina that generate frequent requests for emergency medical assistance. Some of these facilities have medical professionals on-site; others may not. Of the top 15 addresses with repeat service requests for 2019, three are medical facilities. They are listed in order of response frequency.

Figure 110: Facilities With 20 or More Incidents, 2019

Incidents	Location
87	201 9th St – VA Clinic
83	400 8th St Bldg B – CSUMB Promontory
56	400 8th St Bldg C – CSUMB Promontory
39	400 8th St Bldg A – CSUMB Promontory
38	356 Reservation Rd – El Rancho Mobile Home Park
34	3082 Sunset Ave – an Apartment Complex Low Income
32	6015 Gen. Jim Moore Blvd – CSUMB Vineyard Suites
26	3095 Marina Dr – a Condominium Complex
23	Marina Airport
22	294 Hillcrest Ave – Los Arboles School
21	6011 Gen. Jim Moore Blvd – CSUMB Pinnacles Suites
21	Reservation Rd & Imjin Rd
21	298 Patton Parkway – Marina High School
21	2920/2930 2nd Ave Montage Medical/Urgent Care Same Building
20	930 2nd Ave Davita Dialysis Center

For facilities with qualified medical professionals, the dispatch center currently should have the ability to send only an ambulance when all that is needed is the transportation of the patient to a medical facility. MFD should review this practice and revise procedures as necessary to allow for this.

For facilities without qualified medical professionals, a full response is typically sent to a request for emergency medical assistance. However, many of these requests can turn out to be lift-assists, or other minor problems.

MFD should work with managers of high-frequency facilities to ensure fire department resources are not overused. This may involve providing training to facility staff, modifying EMS system regulations to allow alternative response practices, or other creative solutions.

Cost to Implement a single paramedic in a vehicle: The following figure identifies the cost to implement the community paramedicine program, plus vehicle and equipment. It is expected that community health partners would likely provide subsidies for a program of this type.

Description	Factor	Amount
Base Compensation		26.2520
Paramedic Incentive (Est.)		1.0000
Hourly Compensation		27.2520
Contract Equity Pay (7-1-2020)	2.00%	0.5450
COLA (7-1-2020)	3.50%	0.9538
Education/Certification Pay	2.50%	0.6813
Hourly Rate		29.4322
Annual Hours		2,080
Annual Compensation		61,219
CalPERS	7.7320%	4,733
UAL		5,149
CalPERS Pension		9,882
Medical Insurance		541
Uniforms		600
Benefits Cost		11,023
Total Salary & Benefits Cost		72,242
Vehicle Operations		5,000
Medical Supplies		5,000
Total Annual Program Costs		82,242
Capital Start-up Costs		
Assume Full-size 4-door PU		40,000
Emergency Equipment Upfit		20,000
Medical Equipment		50,000
Total Capital Costs		110,000

Recommendation I: Implement a quality control process for incident reporting fire loss data.

Proper coding of incident reports provides accurate data to make operational decisions and assists in strategic planning. It is recommended that all incident reports be reviewed for accurate fire loss data as part of a quality control process.

Cost to Implement: The estimated cost relates to staff time to review each incident report.

Recommendation J: Conduct pre-incident plans for commercial buildings and target hazards.

Pre-incident planning is designed to provide information for responding personnel to assist with strategies and tactics during an event and provides building familiarization to operations staff. It allows responding personnel to conduct a site visit to gather information on built-in fire protection features, building construction, floor plans, or hazards in a building.

Cost to Implement: Staff time, the department's record management system provides a method for tracking building information for use during an emergency.

Recommendation K: Develop a fire inspection program for all commercial properties and multi-family occupancies.

Currently, there is not a defined schedule to inspect all commercial properties in Marina. Inspections of occupancies are designed to meet the enforcement and educational components of a community's risk reduction program. ESCI recommends Marina develop a schedule to inspect all commercial buildings for fire code compliance.

Inspections of Multi-family Housing: Inspections of the common areas for multi-family housing should be implemented immediately to ensure compliance with California State Fire Code requirements that all residential apartments be inspected annually.

Cost to Implement: *The cost would include salary and benefits for a Fire Marshal comparable to the Department's current Chief Officer pay schedule. This position would be responsible for the development and management of a fire safety inspection program, manage code compliance, and issuance of permits. There could be some cost recovery through the collection of new permit fees.*

APPENDIX A: HAZARD VULNERABILITY RISK TABLES

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
STRUCTURE FIRES								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 - 100%
High Risk Urban	4	4	4	4	2	2	2	75%
Moderate Risk Urban	4	3	4	4	2	2	2	71%
Low Risk Urban	4	3	4	4	2	2	2	71%
High Risk Suburban	4	4	4	4	2	2	2	75%
Moderate Risk Suburban	4	3	4	4	2	2	2	71%
Low Risk Suburban	4	3	4	4	2	2	2	71%
AVERAGE SCORE	4.00	3.33	4.00	4.00	2.00	2.00	2.00	72%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
NON-STRUCTURE FIRES								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 - 100%
High Risk Urban	4	3	3	3	2	2	2	63%
Moderate Risk Urban	4	3	3	3	2	2	2	63%
Low Risk Urban	3	3	3	3	2	2	2	47%
Urban/Wildland Interface	2	2	3	3	2	2	2	29%
AVERAGE SCORE	3.25	2.75	3.00	3.00	2.00	2.00	2.00	50%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
EMS-MEDICAL ASSISTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED- NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 - 100%
High Risk	4	3	3	2	2	2	2	58%
Moderate Risk	4	2	2	2	1	2	2	46%
Low Risk	4	1	1	1	1	2	2	33%
AVERAGE SCORE	4.00	2.00	2.00	1.67	1.33	2.00	2.00	46%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
RESCUE								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED- NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1= Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1= Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1= Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1= Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1= High 2 = Moderate 3 = Low 4 = None	0 = Very High 1= High 2 = Moderate 3 = Low 4 = None	0 = Very High 1= High 2 = Moderate 3 = Low 4 = None	0 - 100%
Rescue - MVA	4	2	2	1	2	2	1	42%
Rescue - Structural Collapse	2	3	3	2	1	2	1	25%
Rescue - Trench	2	2	2	1	2	2	1	21%
Rescue - Low/High Angle	2	1	1	1	2	2	1	17%
Rescue - Confined Space	2	1	4	1	2	2	1	23%
Rescue - Swiftwater	2	1	4	1	2	2	1	23%
Rescue - Stillwater	2	2	4	1	2	2	1	25%
Rescue - Beach Rescue	4	3	0	0	2	1	1	29%
Rescue - Other	2	1	4	2	2	2	1	25%
AVERAGE SCORE	2.44	1.78	2.67	1.11	1.89	1.89	1.00	26%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
HAZARDOUS MATERIALS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED- NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 - 100%
High Risk Hazmat - Urban	3	3	3	3	3	2	2	50%
Moderate Risk Hazmat - Urban	3	3	3	3	3	2	2	50%
Low Risk Hazmat - Urban	2	2	2	2	3	2	2	27%
High Risk Hazmat - Suburban	2	3	3	3	3	2	2	33%
Moderate Risk Hazmat - Suburban	2	2	2	2	3	2	2	27%
Low Risk Hazmat - Suburban	2	1	1	1	3	2	2	21%
High Risk Hazmat - Rural	3	2	2	3	3	2	2	44%
Moderate Risk Hazmat - Rural	3	1	2	2	3	2	2	38%
Low Risk Hazmat - Rural	2	1	1	1	3	2	2	21%
AVERAGE SCORE	2.44	2.00	2.11	2.22	3.00	2.00	2.00	34%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
NATURALLY OCCURRING EVENTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED- NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 - 100%
Tornado	1	1	1	1	2	2	2	9%
Severe Thunderstorm	2	2	2	2	2	2	2	25%
Snow Fall	0	0	0	0	2	2	2	0%
Blizzard	0	0	0	0	0	0	0	0%
Ice Storm	0	0	0	0	3	3	3	0%
Earthquake	4	4	4	4	1	1	1	63%
Tidal Wave	1	1	1	1	2	2	2	9%
Temperature Extremes	2	3	3	2	2	2	2	29%
Drought	3	3	3	3	2	2	2	47%
Flood, External	2	2	2	3	2	2	2	27%
Wild Fire	2	2	2	2	2	1	1	21%
Landslide	2	2	2	1	2	2	2	23%
Dam Inundation	0	0	0	0	0	0	0	0%
Volcano	0	0	0	0	2	4	4	0%
Epidemic	2	4	4	4	2	2	2	38%
AVERAGE SCORE	1.40	1.60	1.60	1.53	1.73	1.80	1.80	15%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
TECHNOLOGIC EVENTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
		COMMUNITY IMPACT			MITIGATION CAPACITY			
	Likelihood this will occur	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED- NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	Relative threat*
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Very High	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = N/A 1 = Low 2 = Moderate 3 = High 4 = Catastrophic	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 = Very High 1 = High 2 = Moderate 3 = Low 4 = None	0 - 100%
Electrical Failure	3	3	2	3	2	3	3	50%
Generator Failure	2	2	2	2	2	3	3	29%
Transportation Failure	2	2	2	2	2	3	2	27%
Fuel Shortage	2	2	1	3	3	3	2	29%
Natural Gas Failure	2	2	2	3	3	3	2	31%
Water Failure	2	3	2	3	2	3	3	33%
Sewer Failure	2	3	2	3	2	3	3	33%
Steam Failure	0	0	0	0	0	0	0	0%
Fire Alarm Failure	2	2	1	2	2	2	2	23%
Communications Failure	2	3	2	2	2	2	2	27%
Medical Gas Failure	2	4	1	1	2	3	3	29%
Medical Vacuum Failure	2	4	1	1	2	3	3	29%
HVAC Failure	2	2	1	2	2	3	3	27%
Information Systems Failure	2	3	2	4	2	3	3	35%
Fire, Internal	2	2	3	4	2	2	2	31%
Flood, Internal	2	2	3	3	2	2	2	29%
Hazmat Exposure	2	2	3	4	3	2	2	33%
Supply Shortage	2	1	1	2	2	2	2	21%
Structural Damage	2	2	3	4	2	2	2	31%
AVERAGE SCORE	1.95	2.32	1.79	2.53	2.05	2.47	2.32	27%

ESCI HAZARD AND VULNERABILITY ASSESSMENT TOOL								
HUMAN RELATED EVENTS								
EVENT	PROBABILITY	SEVERITY = IMPACT - MITIGATION)						RISK
	Likelihood this will occur	COMMUNITY IMPACT			MITIGATION CAPACITY			Relative threat*
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED- NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
SCORE	0 = N/A 1= Low 2= Moderate 3= High 4= Very High	0= N/A 1= Low 2= Moderate 3= High 4= Catastrophic	0= N/A 1= Low 2= Moderate 3= High 4= Catastrophic	0= N/A 1= Low 2= Moderate 3= High 4= Catastrophic	0= Very High 1= High 2= Moderate 3= Low 4= None	0= Very High 1= High 2= Moderate 3= Low 4= None	0= Very High 1= High 2= Moderate 3= Low 4= None	0 - 100%
Mass Casualty Incident (trauma)	2	2	1	1	2	2	2	21%
Mass Casualty Incident (medical/infectious)	2	2	1	1	2	2	2	21%
Terrorism	1	2	2	2	2	2	2	13%
VIP Situation	2	1	3	2	2	2	2	25%
Infant Abduction	1	2	2	1	3	3	3	15%
Hostage Situation	1	2	3	2	3	3	3	17%
Civil Disturbance	1	2	3	2	3	3	3	17%
Labor Action	1	2	3	2	3	3	3	17%
Forensic Admission	1	1	2	1	2	3	3	13%
Bomb Threat	1	2	2	2	2	3	3	15%
AVERAGE SCORE	1.30	1.80	2.20	1.60	2.40	2.60	2.60	18%

APPENDIX B: FIRE STATIONS/CAPITAL ASSETS

Capital Assets and Improvements

Three basic resources are required to successfully carry out the mission of a fire department—trained personnel, firefighting equipment, and fire stations. No matter how competent or numerous the firefighters, if appropriate capital equipment is not available for use by responders, it is impossible for a fire department to deliver services effectively. The capital assets that are the most essential to the provision of emergency response are facilities and apparatus (response vehicles). The following figures summarize the fire stations and fire and EMS apparatus operated by the Marina Fire Department.

Fixed Facilities

Fire stations play an integral role in the delivery of emergency services for several reasons. A station's location will dictate, to a large degree, response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure. Fire stations also need to be designed to adequately house equipment and apparatus, as well as meet the needs of the organization, its workers, and/or its members.

Consideration should be given to a fire station's ability to support the jurisdiction's mission as it exists today and into the future. The activities that take place within the fire station should be closely examined to ensure the structure is adequate in both size and function.

ESCI associates conducted walk-through inspections of the Marina Fire Department's Administrative Headquarters and fire stations utilizing a standard checklist at each facility.

Special attention was made to the building's location, future use viability in terms of serving the community, and the capability of accommodating an increase in staffing levels and emergency response apparatuses in the future.

Figure 111: Fire Station Condition Definitions

Excellent	Like new condition. No visible structural defects. The facility is clean and well maintained. Interior layout is conducive to function with no unnecessary impediments to the apparatus bays or offices. No significant defect history. Building design and construction match the building's purposes.
Good	The exterior has a good appearance with minor or no defects. Clean lines, good workflow design, and only minor wear of the building interior. Roof and apparatus apron are in good working order, absent any significant full-thickness cracks or crumbling of apron surface or visible roof patches or leaks. Building design and construction match the building's purposes.
Fair	The building appears to be structurally sound with weathered appearance and minor to moderate nonstructural defects. The interior condition shows normal wear and tear but flows effectively to the apparatus bay or offices. Mechanical systems are in working order. Building design and construction may not match the building's purposes well. Showing increasing age-related maintenance, but with no critical defects.
Poor	The building appears to be cosmetically weathered and worn with potentially structural defects, although not imminently dangerous or unsafe. Large, multiple full-thickness cracks and crumbling of concrete on apron may exist. The roof has evidence of leaking and/or multiple repairs. The interior is poorly maintained or showing signs of advanced deterioration with moderate to significant nonstructural defects. Problematic age-related maintenance and/or major defects are evident. May not be well suited to its intended purpose.

The following figures depict the results of ESCI's inspections:

Figure 112: Marina Fire Department Station 1 & Administrative Offices

Station Name/Number:	Station #1				
Address/Physical Location:	211 Hillcrest, Marina, CA 93933				
		This station was originally designed to accommodate a Public Safety Model configuration. The department has exceeded the administrative and crew capability needs of the current facility. As currently configured, the area occupied by the fire department is inadequate and presents safety concerns.			
Structure					
Construction Type	Type 2				
Date of Construction	2000				
Seismic Protection	Yes				
Auxiliary Power	Yes				
General Condition	Good				
Number of Apparatus Bays		Drive-through bays	4	Back-in bays	
Special Considerations (ADA, etc.)	No				
Square Footage	3,300				
Facilities Available					
Separate Rooms/Dormitory/Other	4	Bedrooms	4	Beds	Dormitory Beds
Maximum Station Staffing Capability					
Exercise/Workout Facilities	No				
Kitchen Facilities	Yes				
Individual Lockers/Storage Assigned	Yes				
Shower Facilities	Yes				
Training/Meeting Rooms	Yes				
Washer/Dryer	No				
Safety & Security					
Sprinklers	Yes				
Smoke Detection	Yes				
Decontamination/Biohazard Disposal	No				
Security	Yes				
Apparatus Exhaust System	Ward No Smoke				

Figure 113: Marina Fire Department Station 2

Station Name/Number:	Station #2				
Address/Physical Location:	3260 Injim Road				
			The Department has plans to staff this station in the near future with a full-time crew. While the station has recently undergone some remodeling, it will need additional work to meet safety and OSHA mandates.		
Structure					
Construction Type	Type 3				
Date of Construction					
Seismic Protection	No				
Auxiliary Power	Yes				
General Condition	Good				
Number of Apparatus Bays		Drive-through bays	2	Back-in bays	
Special Considerations (ADA, etc.)					
Square Footage					
Facilities Available					
Separate Rooms/Dormitory/Other	3	Bedrooms	3	Beds	Dormitory Beds
Maximum Station Staffing Capability					
Exercise/Workout Facilities	No				
Kitchen Facilities	Yes				
Individual Lockers/Storage Assigned	No				
Shower Facilities	Yes				
Training/Meeting Rooms	No				
Washer/Dryer	Yes				
Safety & Security					
Sprinklers	Yes				
Smoke Detection	Yes				
Decontamination/Biohazard Disposal	No				
Security	Alarm				
Apparatus Exhaust System	Ward No Smoke				

Facilities Summary

The facilities range in age from 20 to in excess of 40 years old. Fire Station 2 has recently undergone a remodel/upgrades in an effort to prepare it to be staffed full-time.

Fire Station 1 is of an inadequate configuration and size for a shared facility. Firefighter protective clothing is stored in an area that results in direct contact with contaminants generated by apparatus exhaust. The efficiency of the HVAC system is questionable given the increased call loads and design of the original building. Firefighters do not have locker space due to the needs of the police department; the design of the station is an impediment to effective turnout times as the only way from the crews quarters is via a stairwell, which creates a safety concern for crews attempting to quickly travel to the apparatus bay.

Fire Station 2 has previously been an unstaffed facility used mostly for storage and has recently undergone some upgrades to prepare it to be staffed full time. Prior to assigning full-time staff, the doors leading into the apparatus bay should be updated to fire-resistive rated doors, with smoke seals and self-closers. Accommodations need to be considered that will permit the storage of all firefighter protective gear to be stored in such a location and manner that will minimize contamination. Given the size of this station, crew size should be considered prior to activation.



EXHIBIT B

City of Marina Fire Department

Community Risk Assessment:

Standards of Cover

June 15,2021



Emergency Services
Consulting International

Prepared in 2019/20 for MFD

Done in accordance with the guidelines of the Commission on Fire Accreditation, International, Standards of Cover, 6th edition and industry standards of best practice

- Description of Community Served
- Services Provided
- Community Expectations and Performance Goals
- Community Risk Assessment
- Critical Tasking and Alarm Assignments
- Historic System Performance
- Overall Evaluation, Conclusions, and Recommendations



This document is:

- A thorough review and assessment of community risk, emergency response capability, apparatus, and facilities
- An analysis of the level of service currently provided to the community
- Identification of issues impeding performance
- Recommendations for service delivery improvement

This document is **NOT**:

- A mandate requiring system changes or the expenditure of money on new fire department resources



Description of Community Served

The Community

- Urban community
- Resident population – 22,535
- Roughly 10 square miles

MFD

- Full-service fire department
- 2 staffed fire stations, 15 full-time employees and 14 reserve firefighters
- Minimum 5 firefighters on duty



Services Provided

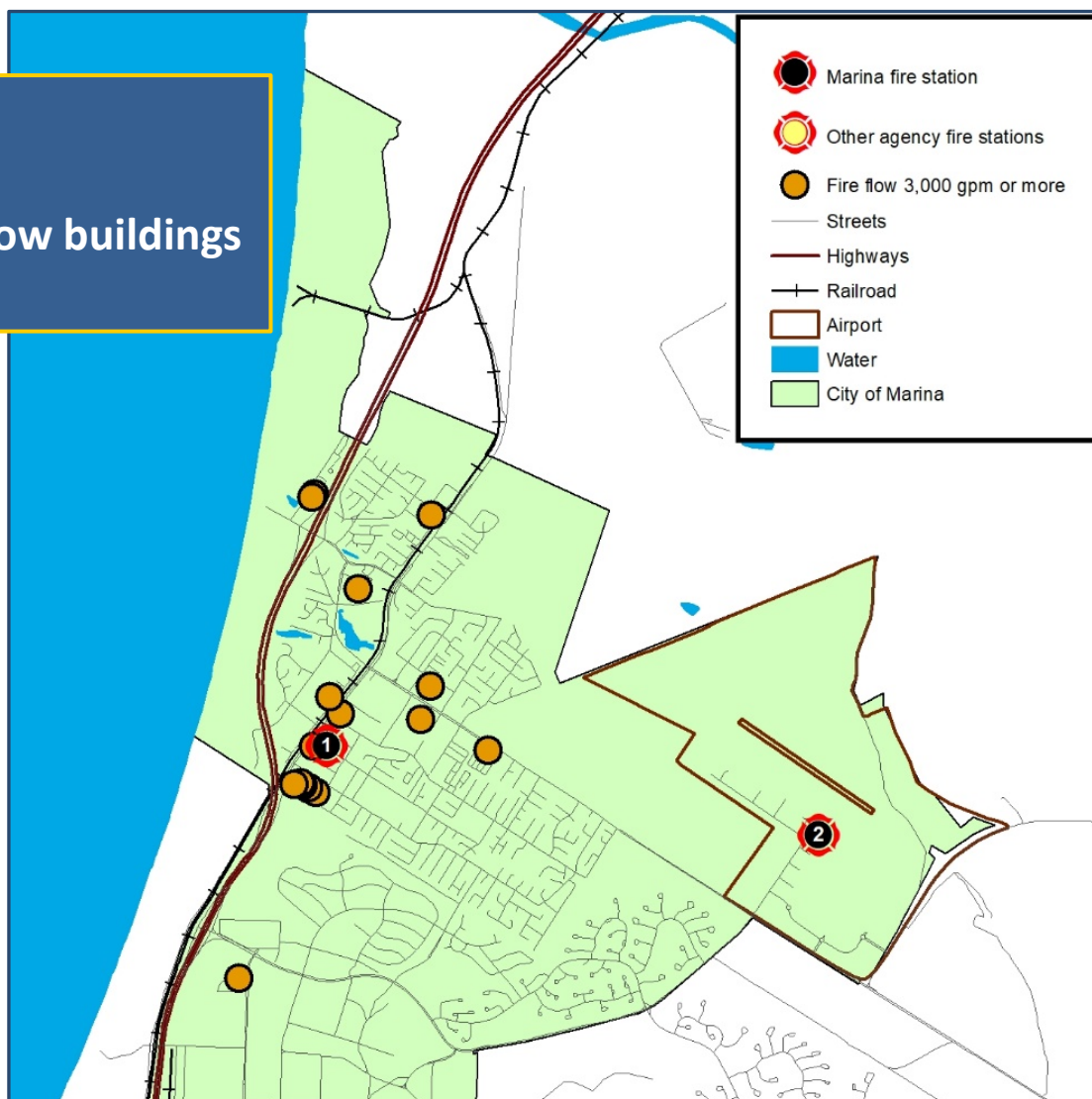
- Fire suppression (structural, wildland, other)
- Emergency medical services (Basic life support)
- Technical rescue
 - Entrapment extrication
 - Confined space rescue
 - High angle
 - Swift water
- Hazardous materials emergency response



Community Risk Assessment - Environment

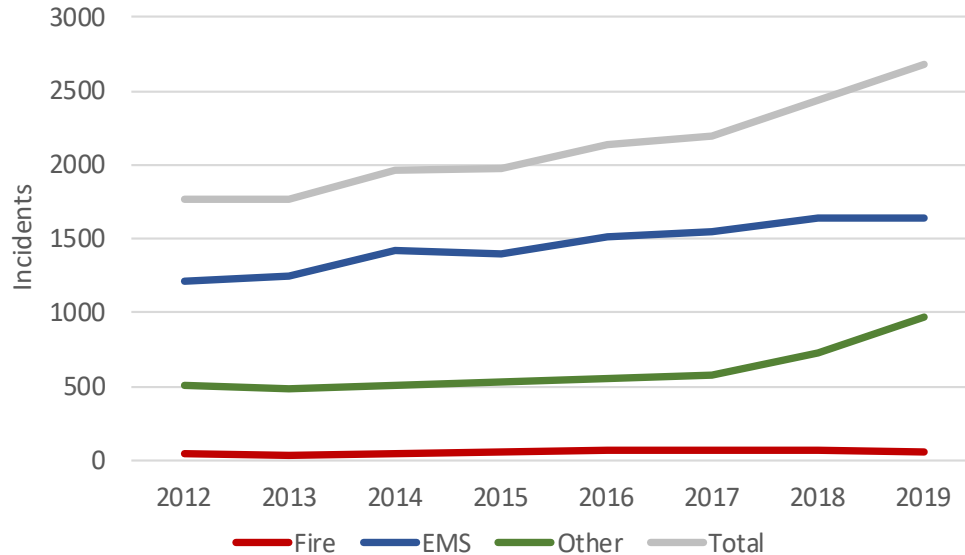
Risks of Note:

- Earthquake
- Numerous high fire-flow buildings
- Hazardous materials

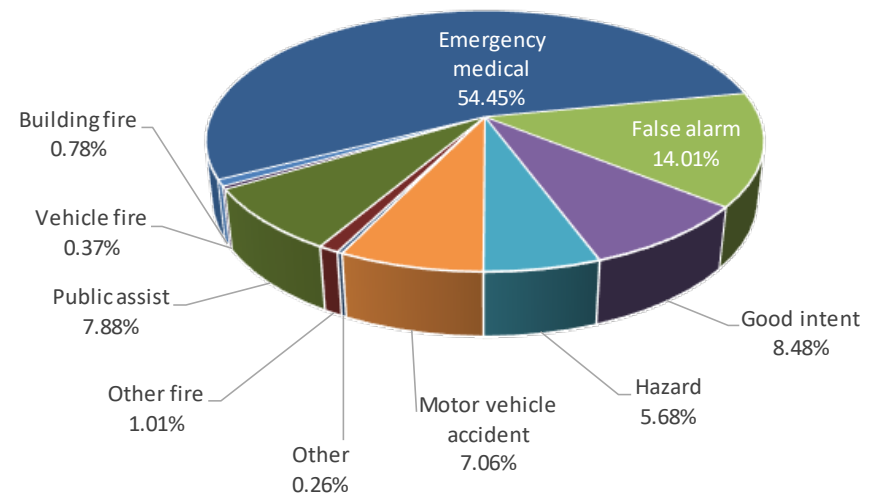


Community Risk Assessment: Response Workload

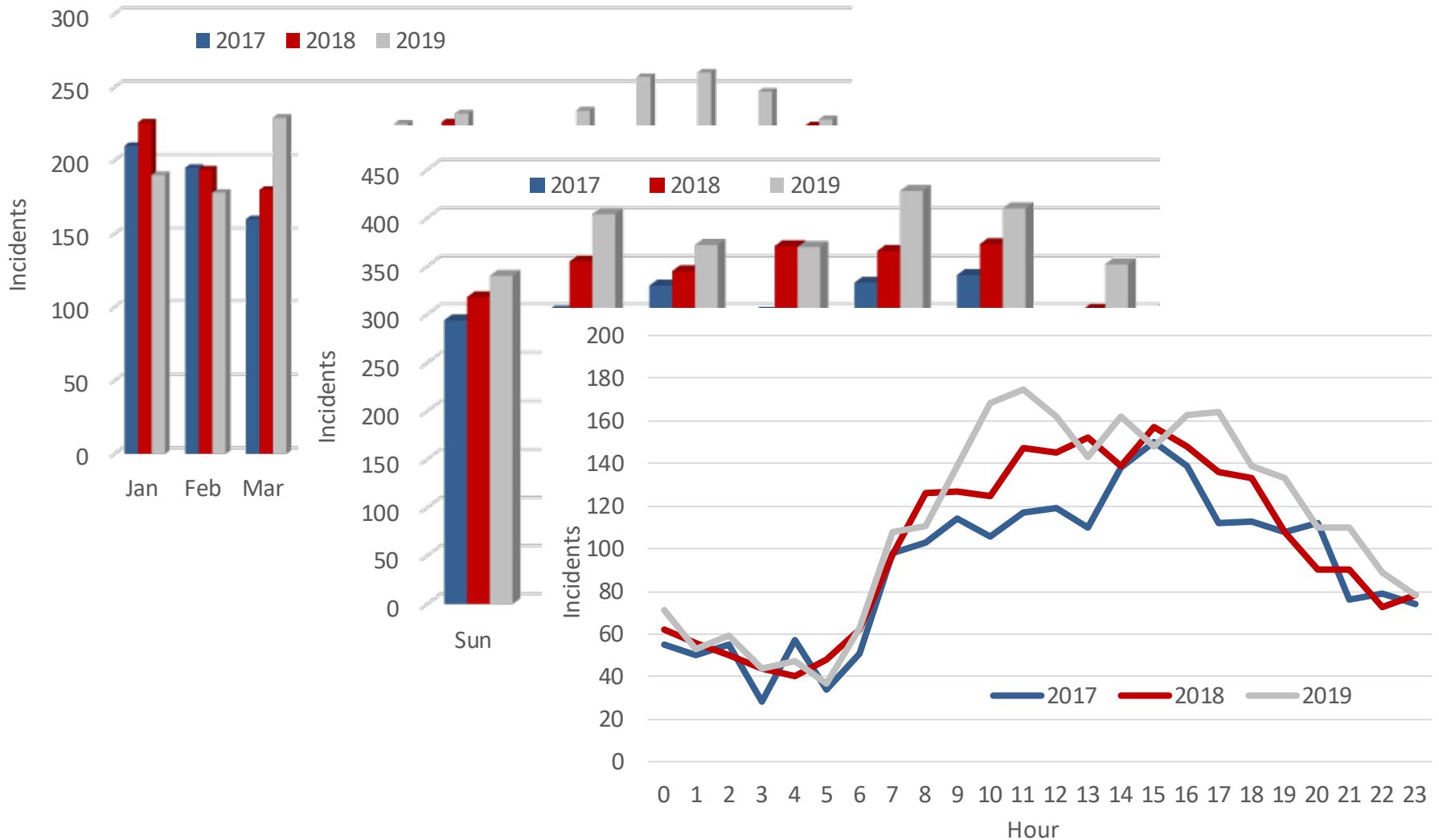
51% increase over past 8 years



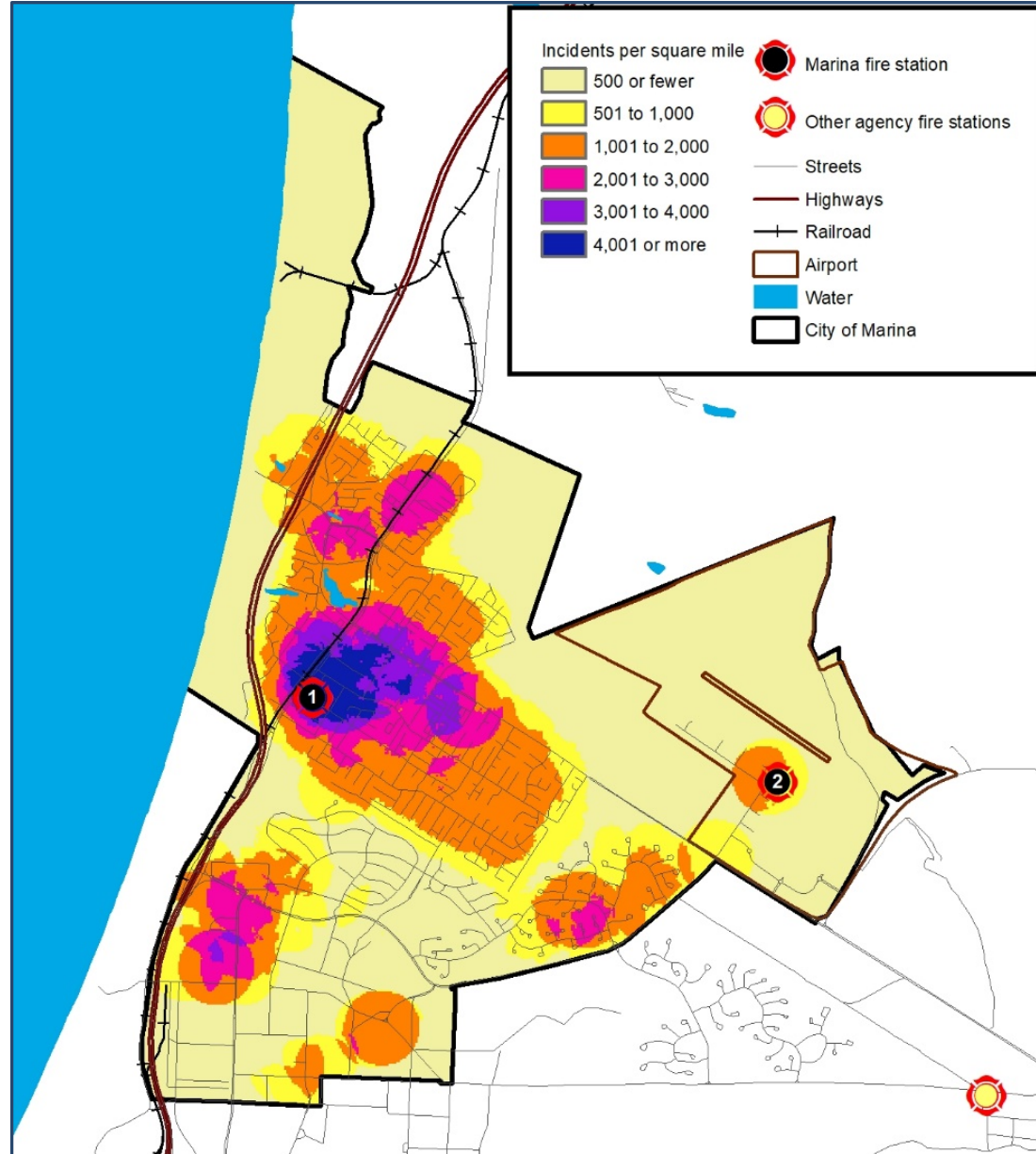
2,676 incidents during 2019: 54.45% EMS



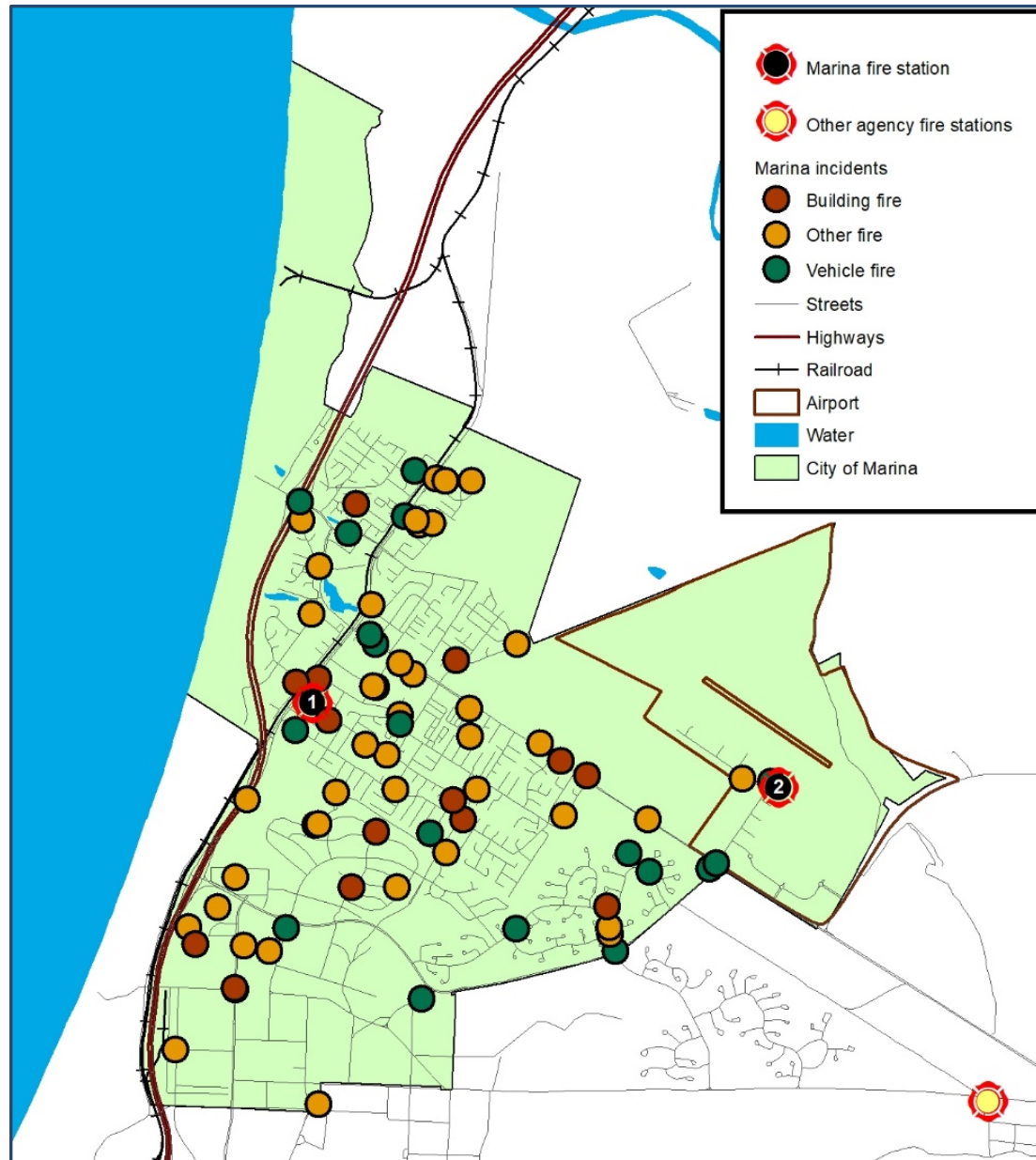
Community Risk Assessment: Response Workload



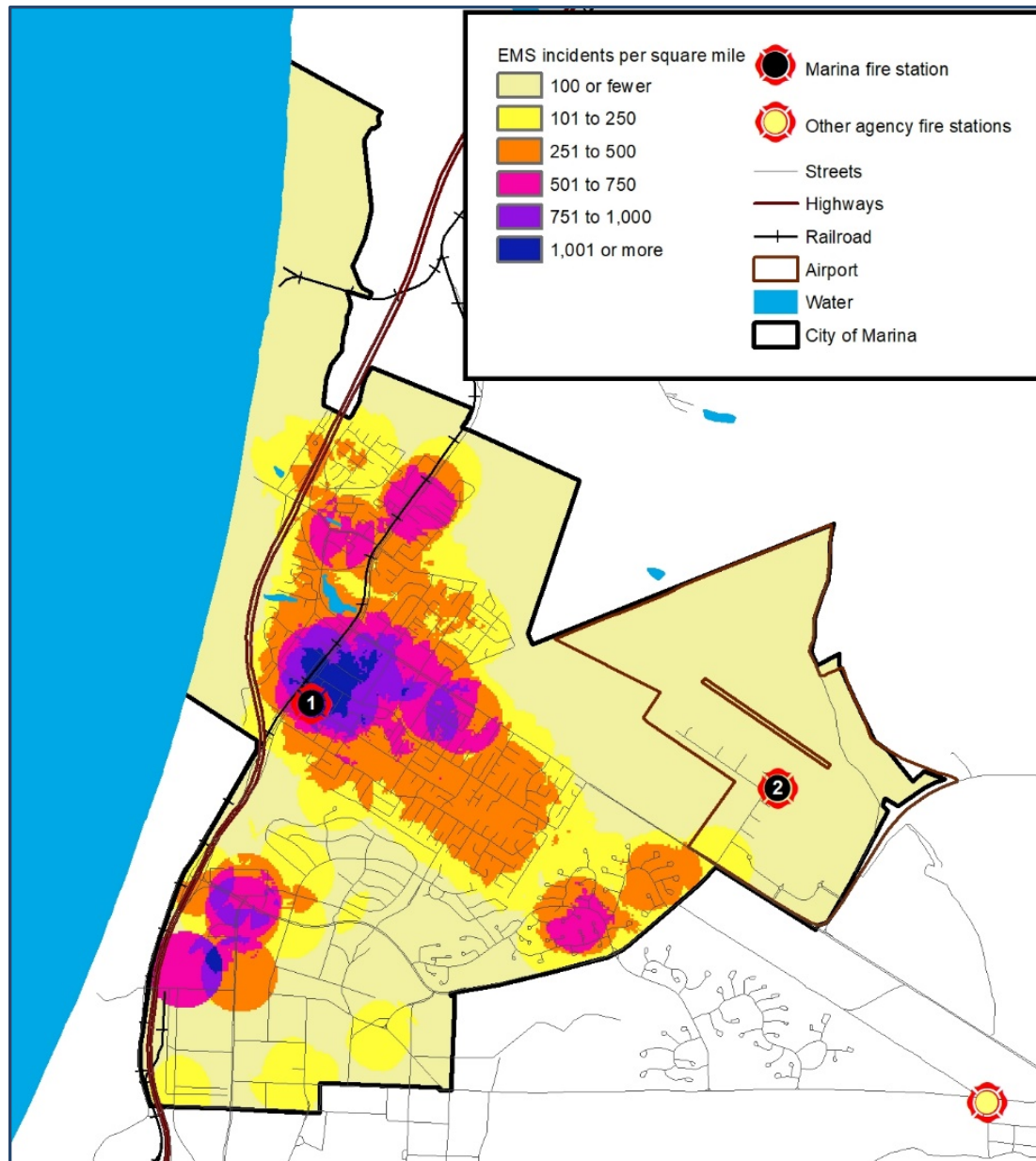
Community Risk Assessment: **Response Concentration**



Community Risk Assessment: Response Concentration



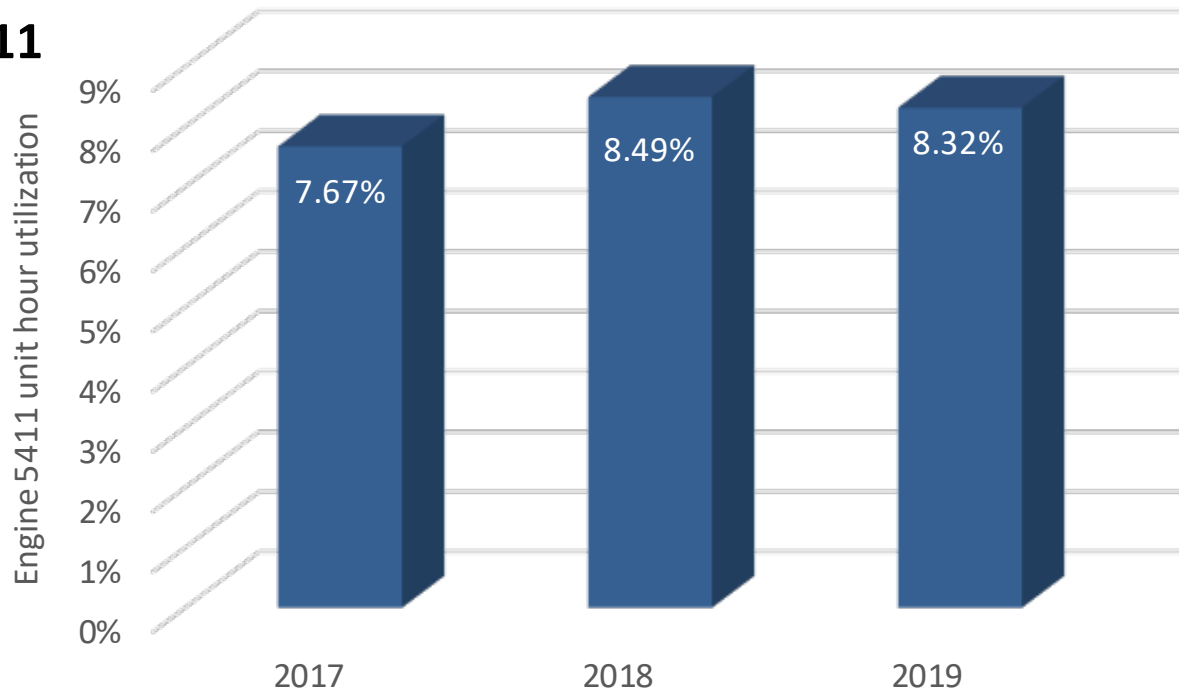
Community Risk Assessment: EMS Concentration



Community Risk Assessment: **Response Unit Workload**

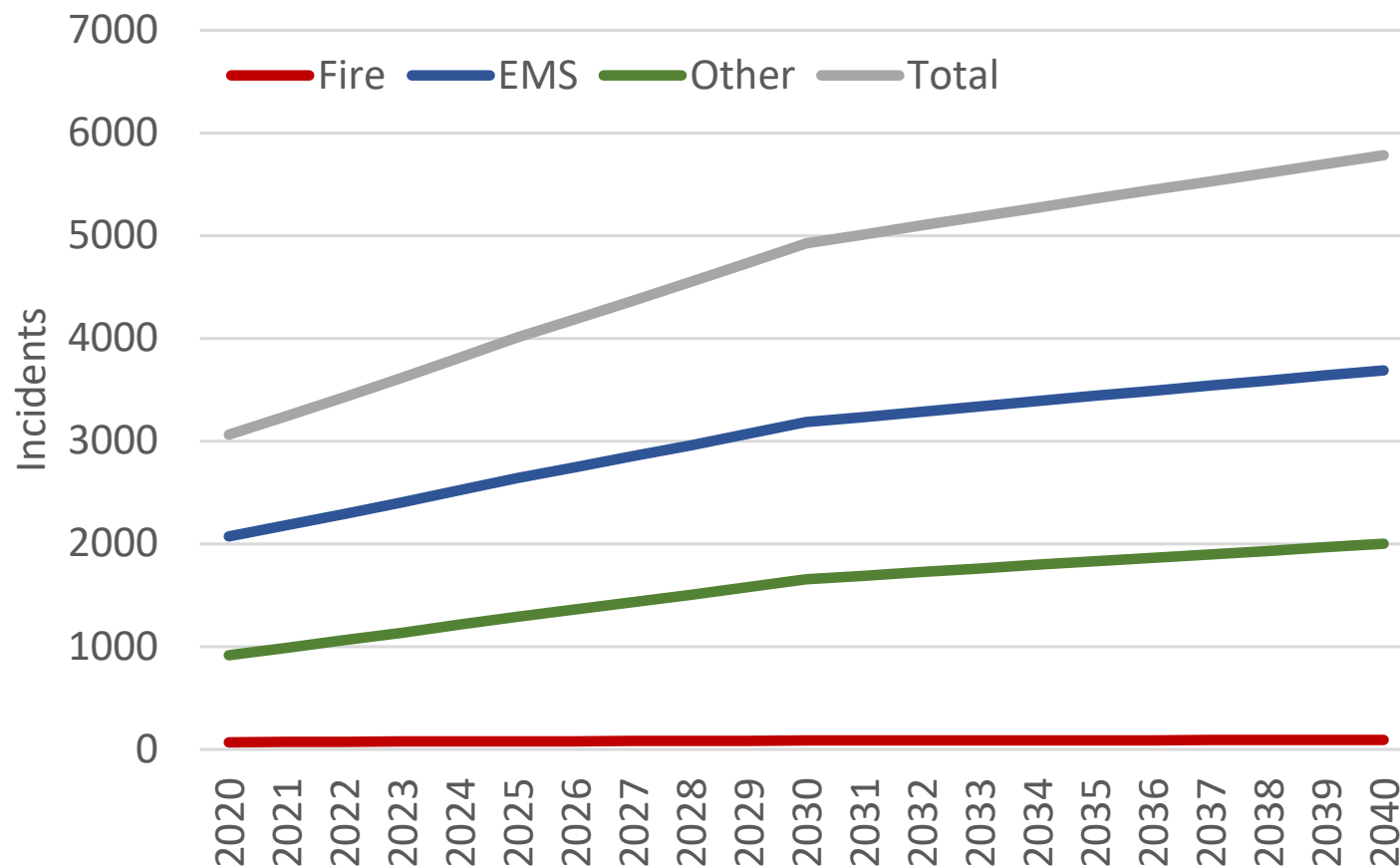
Unit	2017	2018	2019
Engine 5411	1,937	2,255	2,157
Engine 5412	39	28	12
Engine 5431	29	8	11

Engine 5411



Community Risk Assessment: **Response Workload Forecast**

5,780 incidents by 2040



Community Expectations

Community attitudes about the Marina Fire Department and its services were gathered by in-person and phone interviews of stakeholders. Eighteen stakeholders were scheduled for interviews that were completed over a multi-day period. The interviewees represented the City Council, City Administration, Community Members, Business Community, MFD Labor, Administrative Staff Members, and Chief Officers.



Citizen and Business Community Expectations

- Residents have high expectations when it comes to the delivery of service by the Fire Department.
- Reasonable response time, accessibility, visible to the public, and competent.



City Council–City Administration: Department Strengths

- The biggest strength is the Fire Chief, who understands the fire industry and works well with the City's Administrative Team as well as with the community.
- The Firefighters appear to be very close, very much like a family.
- Upward mobility is being experienced, which allows opportunities to promote.
- There exists an extremely positive relationship between the Fire Department and the community.



Chief Officers, Labor Leaders & Rank and File Opinions

- Versatile in having to change how to respond to requests for our services due to back-to-back calls and keep up with the volume.
- Each individual's participation and enthusiasm.
- The Department's strong suit is the level of care while on EMS calls.
- We try to treat EMS patients with empathy and care that is equal to the care that would be provided to our own family members.
- Ability to focus on Fire since Fire and Police are now separate divisions.



People + Tools + Time = Effectiveness

- People – Trained emergency responders
- Tools – Apparatus, equipment
- Time – Duration between event start and intervention
- Effectiveness – Degree to which harm caused by the event is limited

Critical Tasking and Alarm Assignments

Low-Rise Structure Fire

People

Task	Number of Personnel
Command/Safety	1
Pump Operations	3
Attack Line	2
Search and Rescue/Back up Line	2
Ventilation	3
IRIC	2
Non-Suppression Medic Amb	2
Total	15

Tools

Unit Type	Number of Units	Total Personnel
Engine	3	10
Truck	1	3
Squad	1	2
Duty Chief	1	1
Non-Suppression Medic Ambulance	1	2
Total Staffing Provided		18
Total Staffing Needed		15

Phases of an Emergency Event

1. Detection
2. Contact with emergency dispatch center
3. Dispatch incident processing
4. Response crew notification
5. Turnout time
6. Travel time
7. Set-up time
8. Incident control time

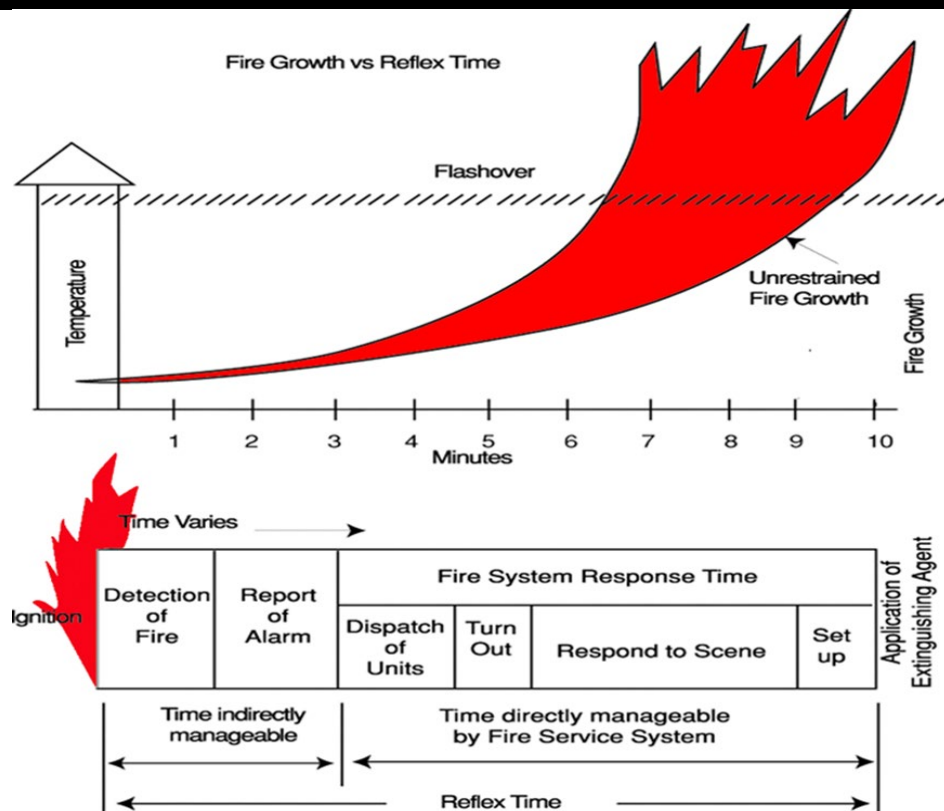


Phases of an Emergency Event

1. Detection
2. Contact with emergency dispatch center
3. Dispatch incident processing
4. Response crew notification
5. Turnout time
6. Travel time
7. Set-up time
8. Incident control time



Influence of Time



Consequence of Fire Extension in Residential Structures 2011–2015

Rates per 1,000 Fires

Extension

Civilian Deaths

Civilian Injuries

Average Dollar Loss Per Fire

Confined to room of origin or smaller

1.8

24.8

\$4,200

Confined to floor of origin

15.8

81.4

\$36,300

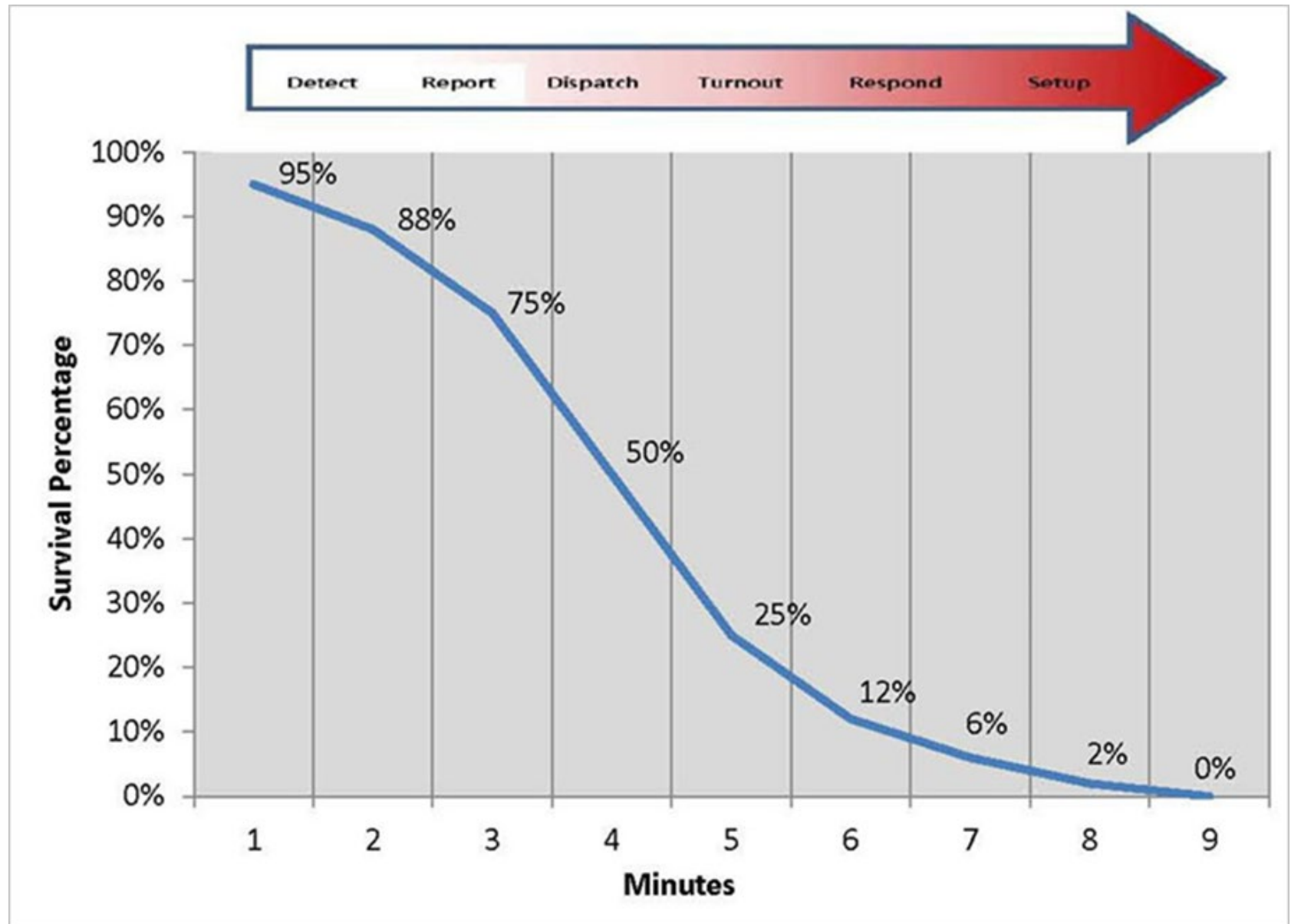
Confined to building of origin or larger

24.0

57.6

\$67,600

Influence of Time



Influence of Time

- Trauma – “Golden hour”
- STEMI – Onset to recognition to treatment in cath lab
- Respiratory compromise during entrapment
- Physical and environmental harm from hazardous materials release

Response Performance Goals Used for Evaluation

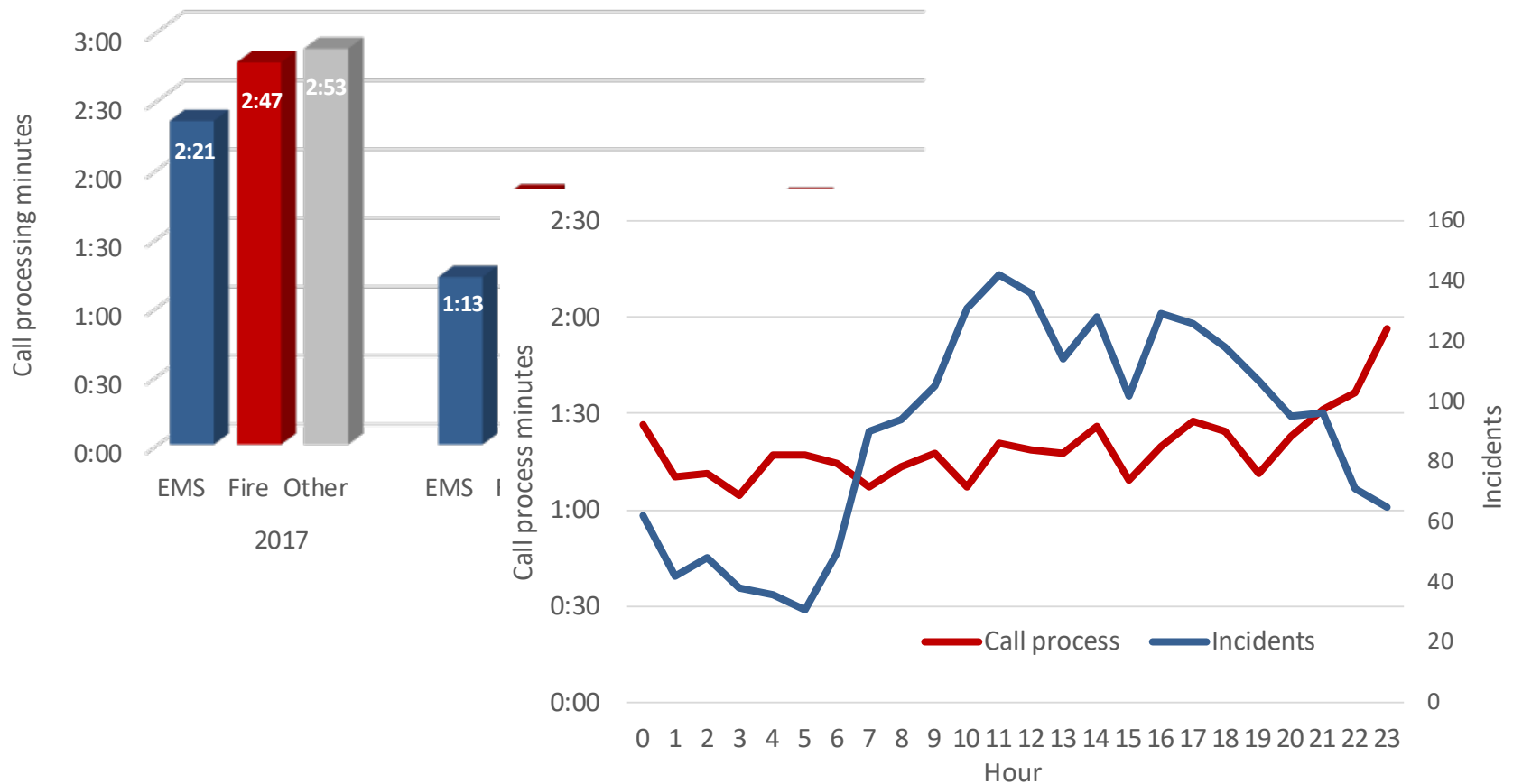
Incident Interval	Performance Goal
9-1-1 call answer time (time from first ring to answer).	Within 15 seconds, 90% of the time
Call process time (time from acceptance at the dispatch center until notification of response units).	Within 60 seconds, 90% of the time
Turnout time (time from notification of response personnel until the initiation of movement towards the incident). Fire incidents and special operations incidents All other emergency incidents	Within 80 seconds, 90% of the time Within 60 seconds, 90% of the time
First unit travel time (time from initiation of response until arrival of the first unit at the incident).	Within 4 minutes, 90% of the time
First unit response time (time from dispatch until arrival of the first unit at the incident). Fire incidents and special operations incidents All other emergency incidents	Within 5 minutes, 20 seconds, 90% of the time Within 5 minutes, 90% of the time
Full effective response force travel time (time from dispatch until all units initially dispatched arrive at the incident. Response resources needed for a low rise building fire are used for the evaluation.)	Within 9 minutes, 20 seconds, 90% of the time



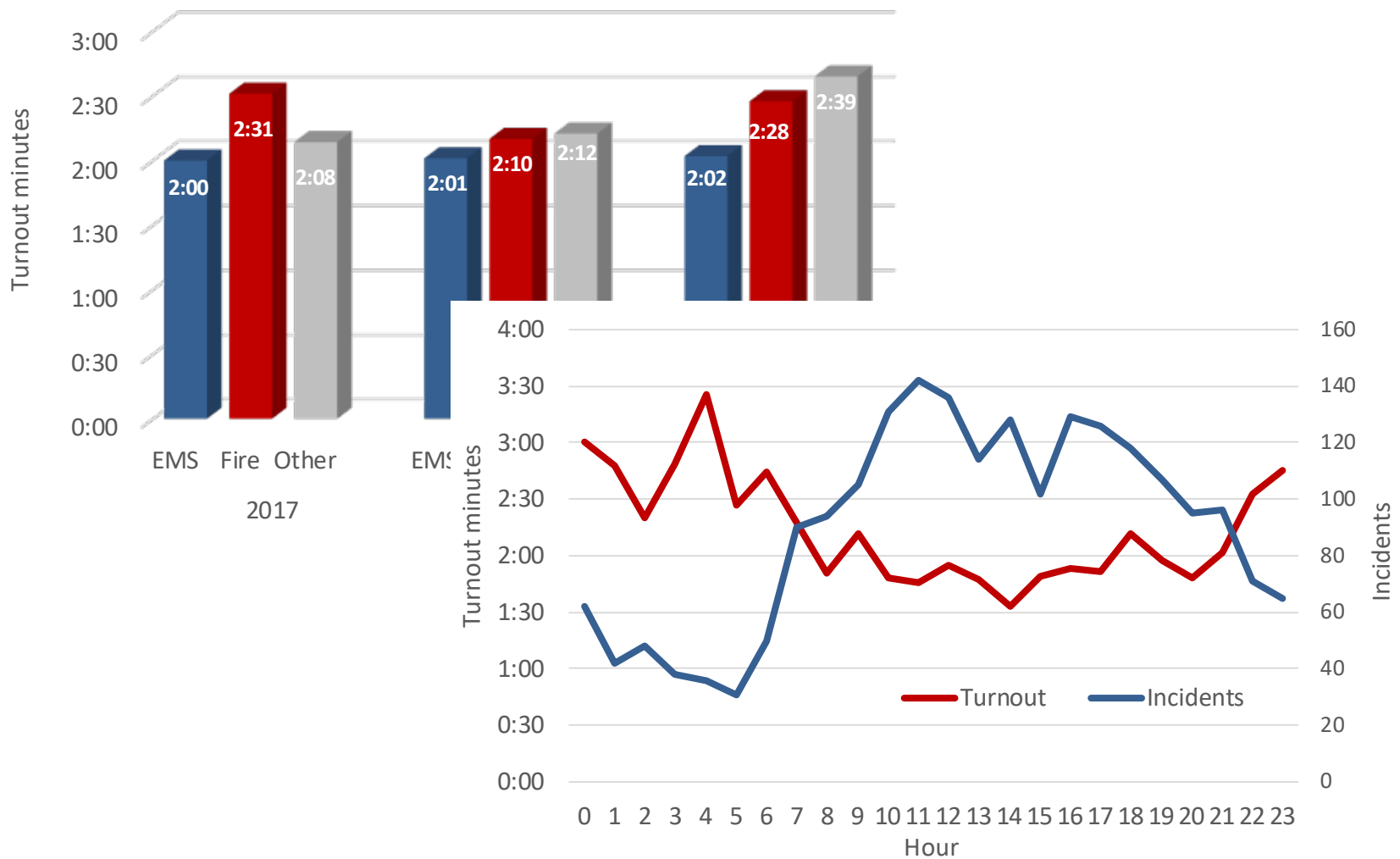
Historic System Performance: Call Processing Time

Call answer time

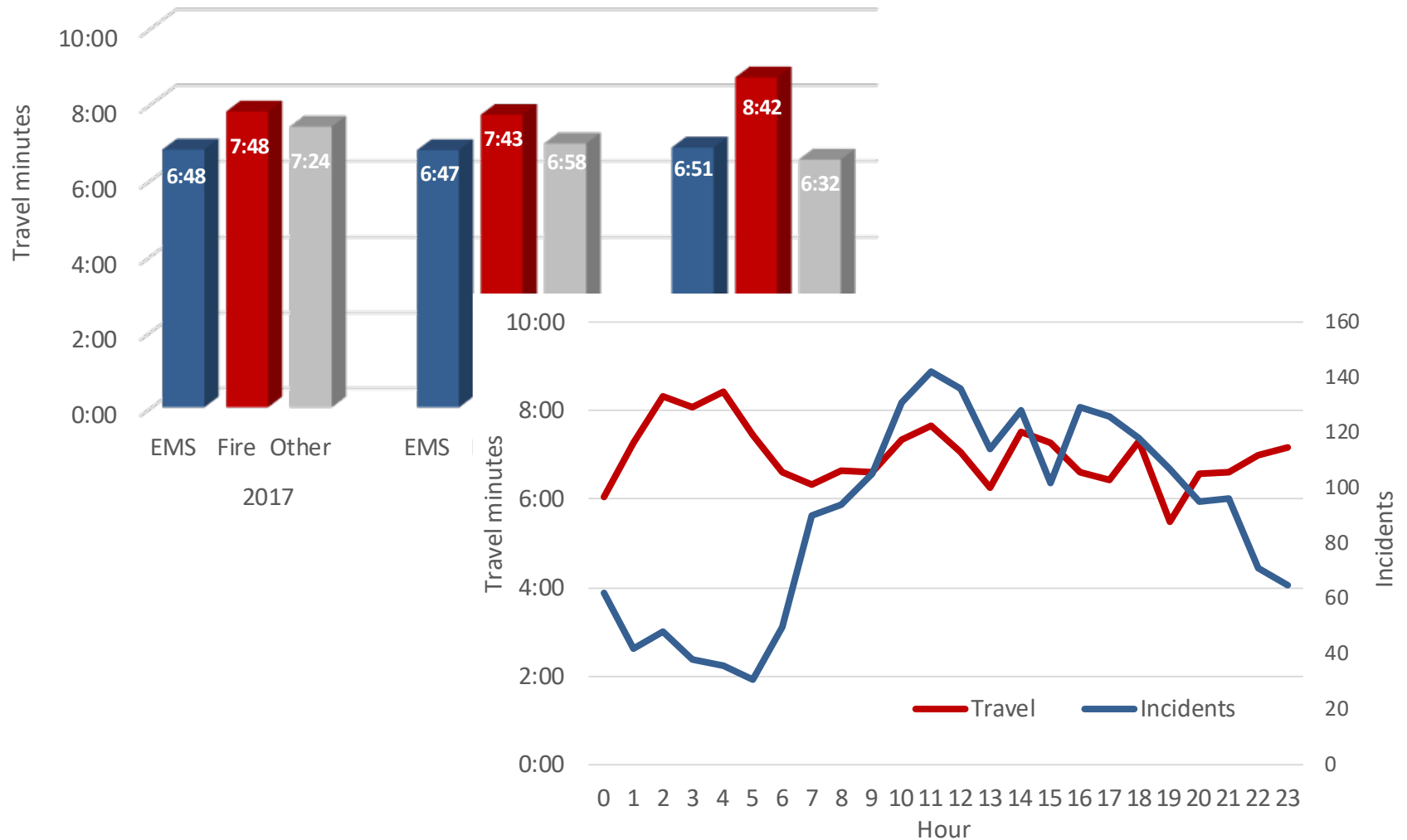
- Within 15 seconds, 95.5% of the time



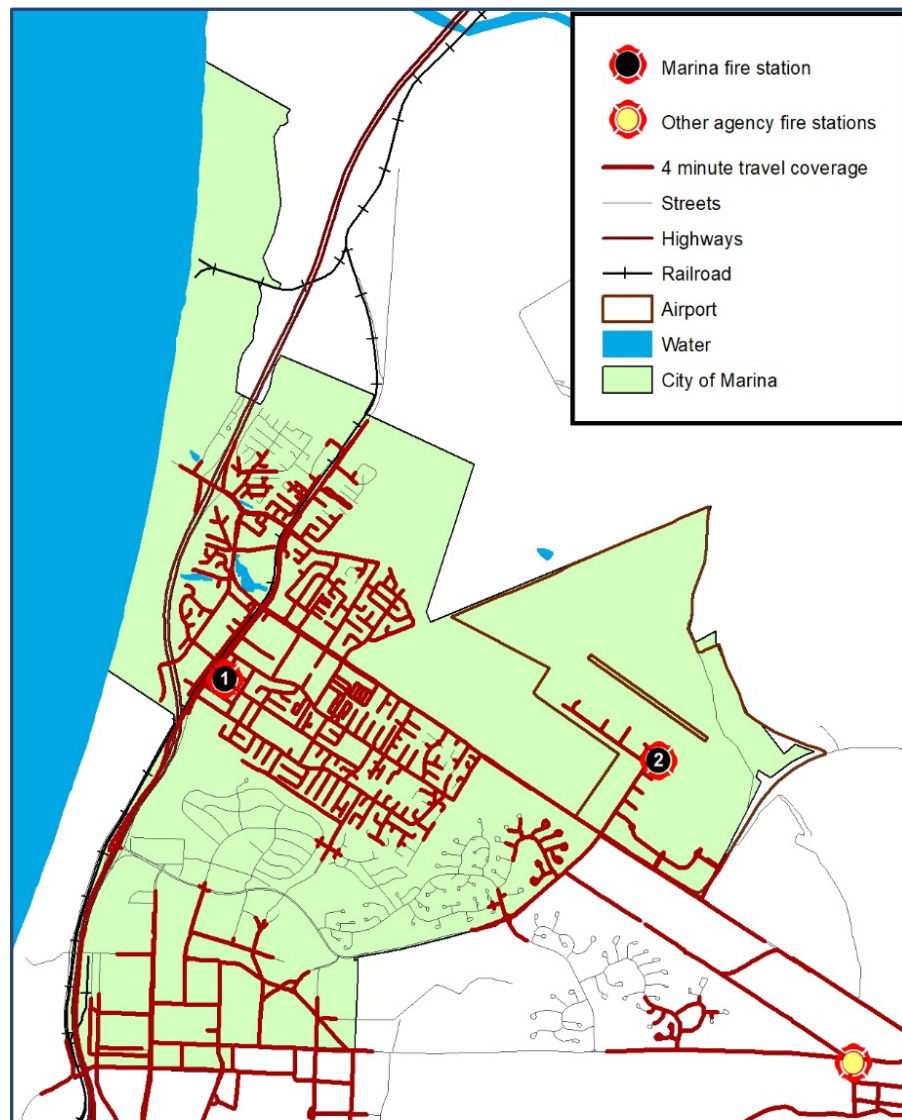
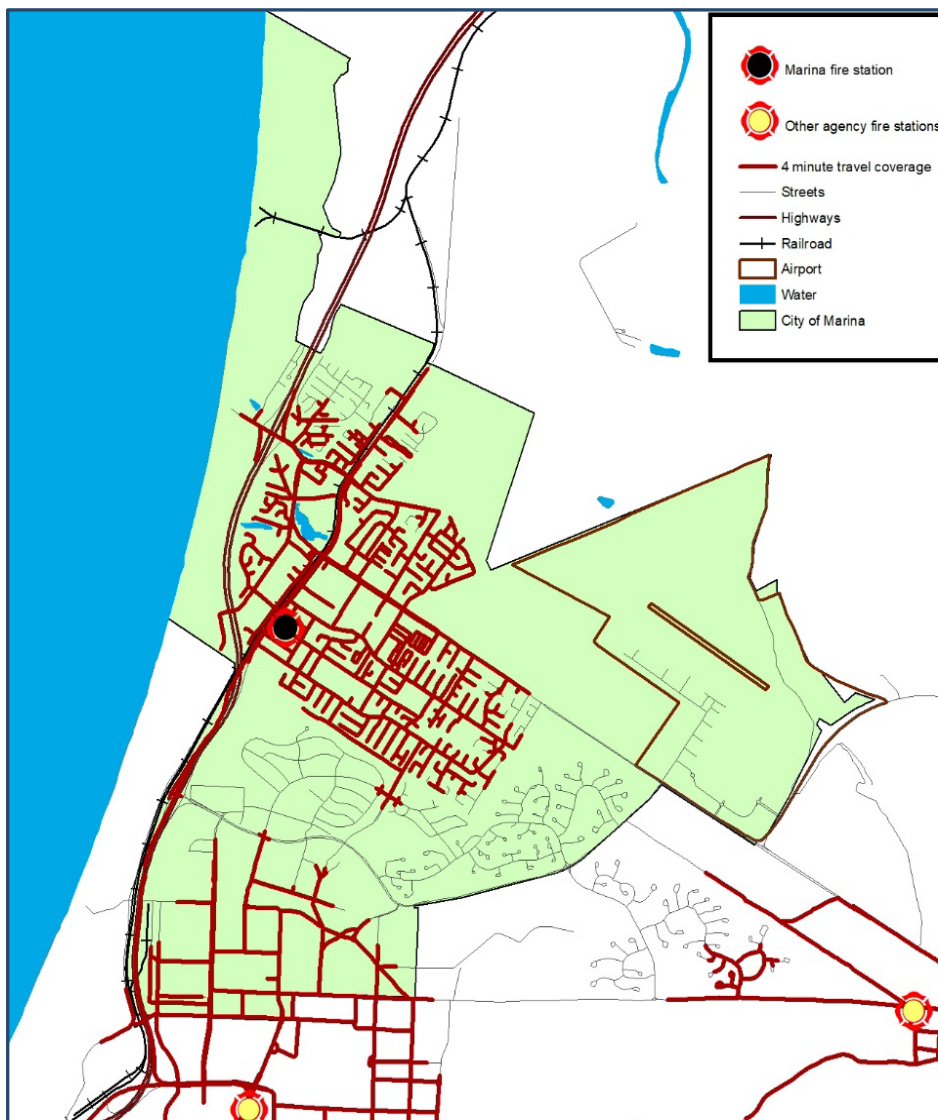
Historic System Performance: Turnout Time



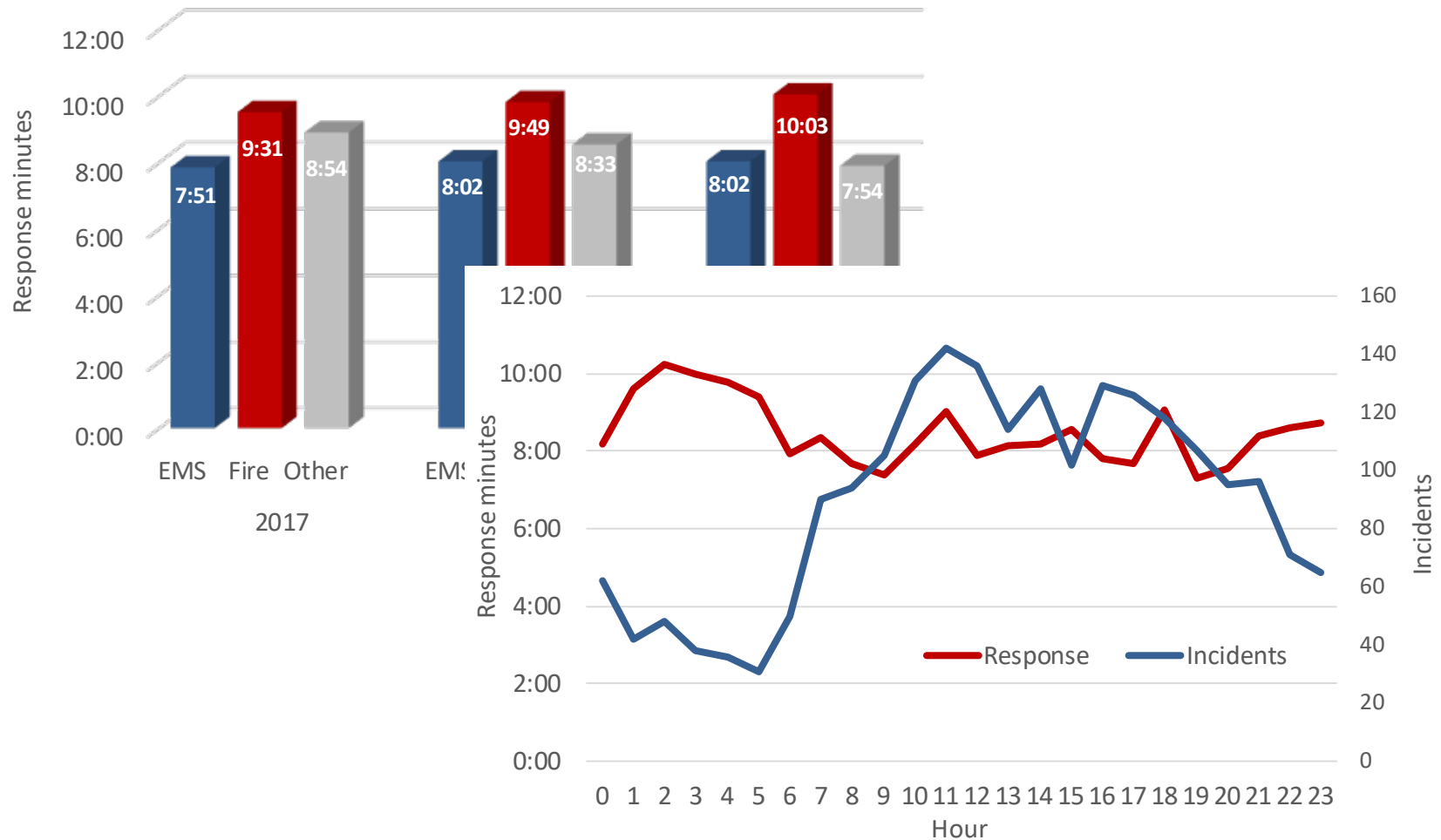
Historic System Performance: Travel Time



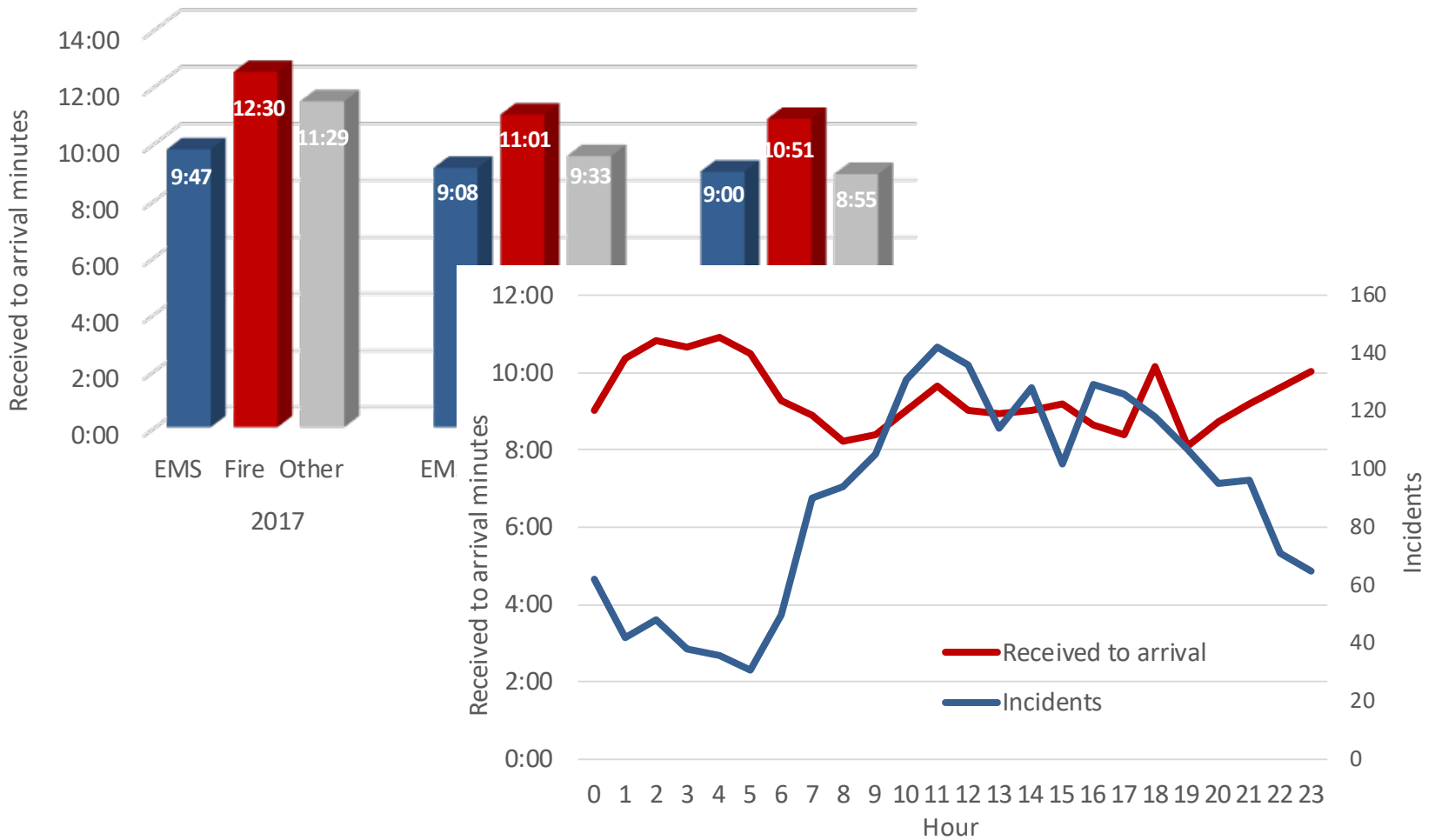
Historic System Performance: **Travel Time** *continued...*



Historic System Performance: **Response Time**



Historic System Performance: Received to Arrival Time



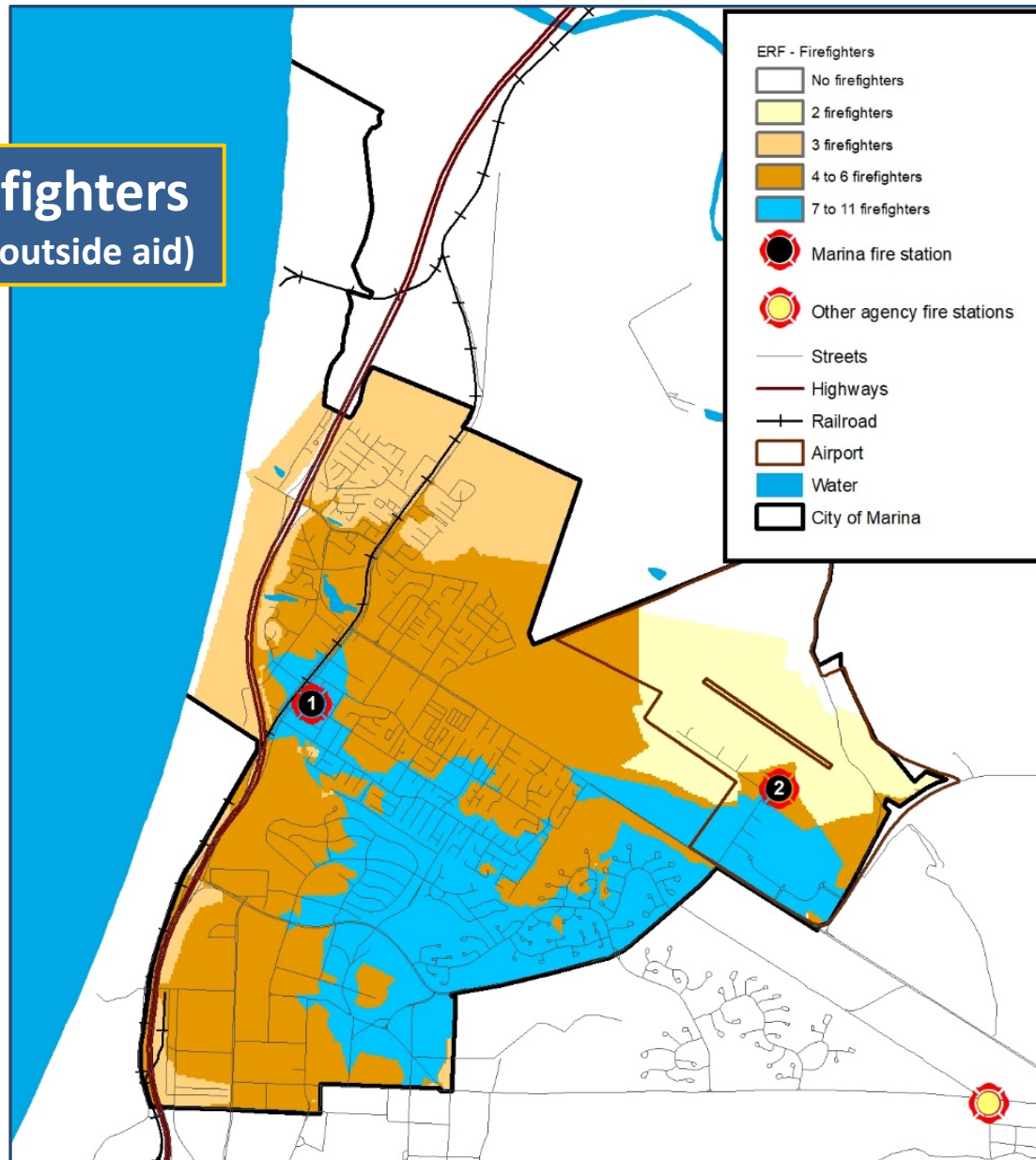
Historic System Performance - Effective Response Force

Year	Time to Effective Response Force Arrival
2017	26:59
2017	10:58
2017	13:05
2017	08:46
2017	11:37
2017	25:12
2017	21:33
2018	18:12
2019	19:29
2019	17:03
2019	14:58



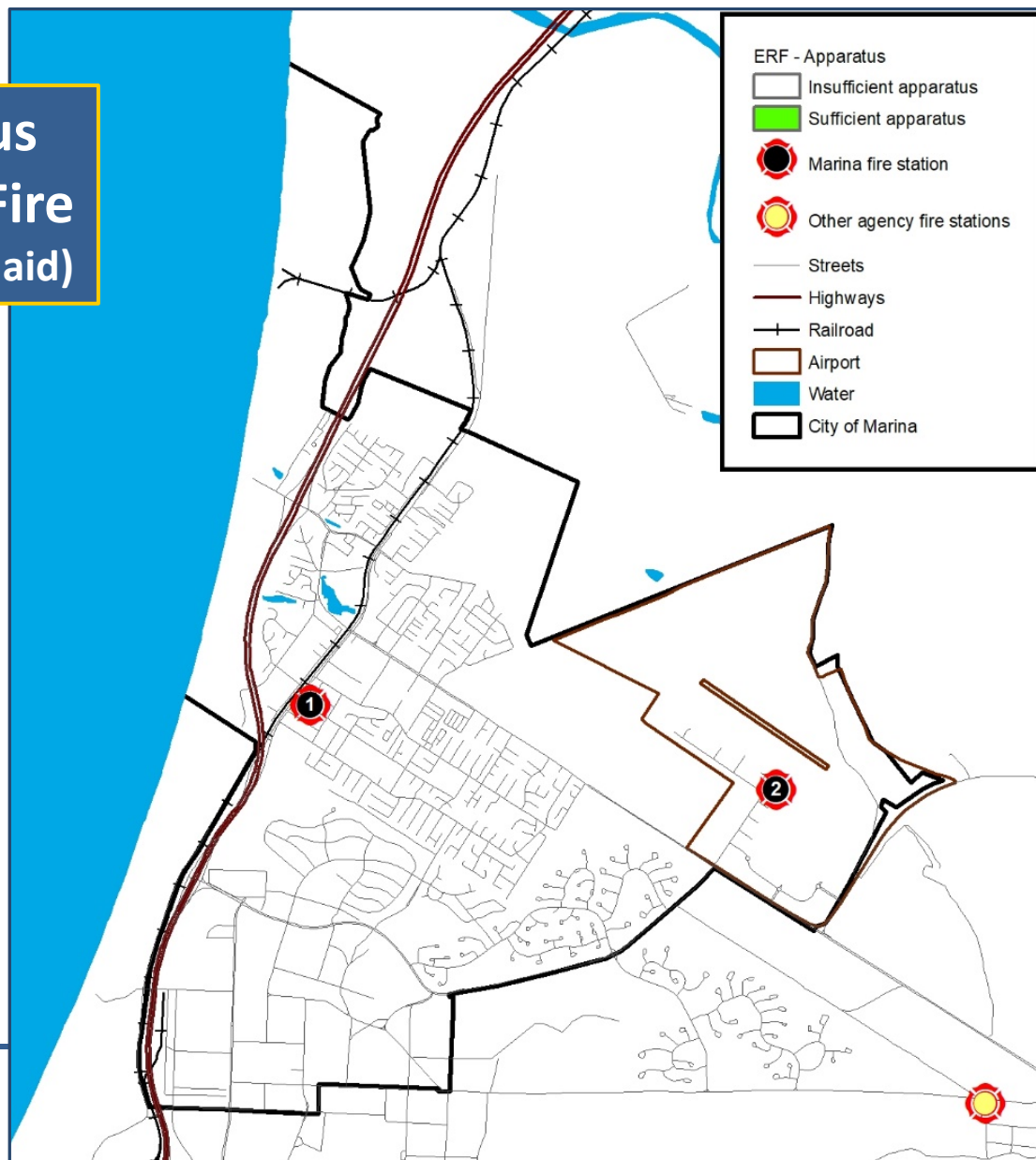
Historic System Performance: **Effective Response Force**

Firefighters (with outside aid)



Historic System Performance: **Effective Response Force**

**Apparatus
Low-Rise Fire
(with outside aid)**



Concurrency

No. of Incidents	2019
1	2,376
2	284
3	15
4	1

Concurrent Unit Responses	2019
1	2,444
2	453
3	95
4	33
5	10
6	9
7	5
8	1

Recommendations

The following represent overviews of recommendations contained in the study

Recommendations – Improvement Goal A

Adopt response performance goals to guide service delivery improvements

Incident Interval	Performance Goal
9-1-1 call answer time (time from first ring to answer).	Within 15 seconds, 90% of the time
Call process time (time from acceptance at the dispatch center until notification of response units).	Within 60 seconds, 90% of the time
Turnout time (time from notification of response personnel until the initiation of movement towards the incident). Fire incidents and special operations incidents All other emergency incidents	Within 80 seconds, 90% of the time Within 60 seconds, 90% of the time
First unit travel time (time from initiation of response until arrival of the first unit at the incident).	Within 4 minutes, 90% of the time
First unit response time (time from dispatch until arrival of the first unit at the incident). Fire incidents and special operations incidents All other emergency incidents	Within 5 minutes, 20 seconds, 90% of the time Within 5 minutes, 90% of the time
Full effective response force travel time (time from dispatch until all units initially dispatched arrive at the incident. Response resources needed for a low rise building fire are used for the evaluation.)	Within 9 minutes, 20 seconds, 90% of the time

Recommendations – Improvement Goal B

Reduce the time required to dispatch a fire incident.

Currently, it takes 1 minute, 47 seconds, 90 percent of the time for MCEC to dispatch a fire incident. Performance for other incident types is at or near national recommendations.

MFD and MCEC should explore this to determine what is taking so much time during the dispatch sequence. Changes in procedures or other actions should be accomplished to shorten this time.



Recommendations – Improvement Goal C

Improve MFD response unit turnout times

National guidance suggests turnout time should be within 80 seconds, 90 percent of the time for fire and special operations incidents, and within 60 seconds, 90 percent of the time for all other priority incidents. MFD response crew turnout times currently are longer.

A review of station configuration, alerting systems, and other factors should be conducted to identify and remove any obstacles to prompt initiation of response.



Recommendations – Improvement Goal D

Improve the efficiency of response to emergency medical incidents.

MFD's current practice is to send a fire engine to all emergency medical incidents regardless of severity. Some responses are undoubtedly non-emergent but are not recognized as such until the ambulance response has been downgraded or the arrival of the MFD responding unit.

MFD should coordinate with County EMS to implement Emergency Medical Dispatch protocols for fire unit dispatch.



Recommendations – Improvement Goal E

Explore cooperative service and consolidation opportunities.

MFD is dependent on neighboring fire agencies for the delivery of effective response services to the city.

Although many incidents can be handled with one or both of the MFD response units, all building fires and other large incidents require support from outside agencies.

MFD should work with neighboring agencies and the Department of Defense to develop a more integrated system. This could also include agreements for shared training services, fire prevention services, joint purchasing, and the like.



Recommendations – Improvement Goal F

Add response units during periods of high incident activity

Analysis proved that operating two units during daytime hours improved system reliability. MFD should continue to do so.



Recommendations – Improvement Goal G

Relocate both fire stations to improve travel time coverage

Each station should be relocated to improve service. The following figure illustrates locations suggested for each. These are not exact points. A suitable site within a few blocks of each will suffice. Also shown on the map is the four-minute travel time coverage that would be provided from the new locations and from adjacent agency stations. The coverage is nearly 100 percent.

Recommendations – Improvement Goal G



Recommendations – Improvement Goal H

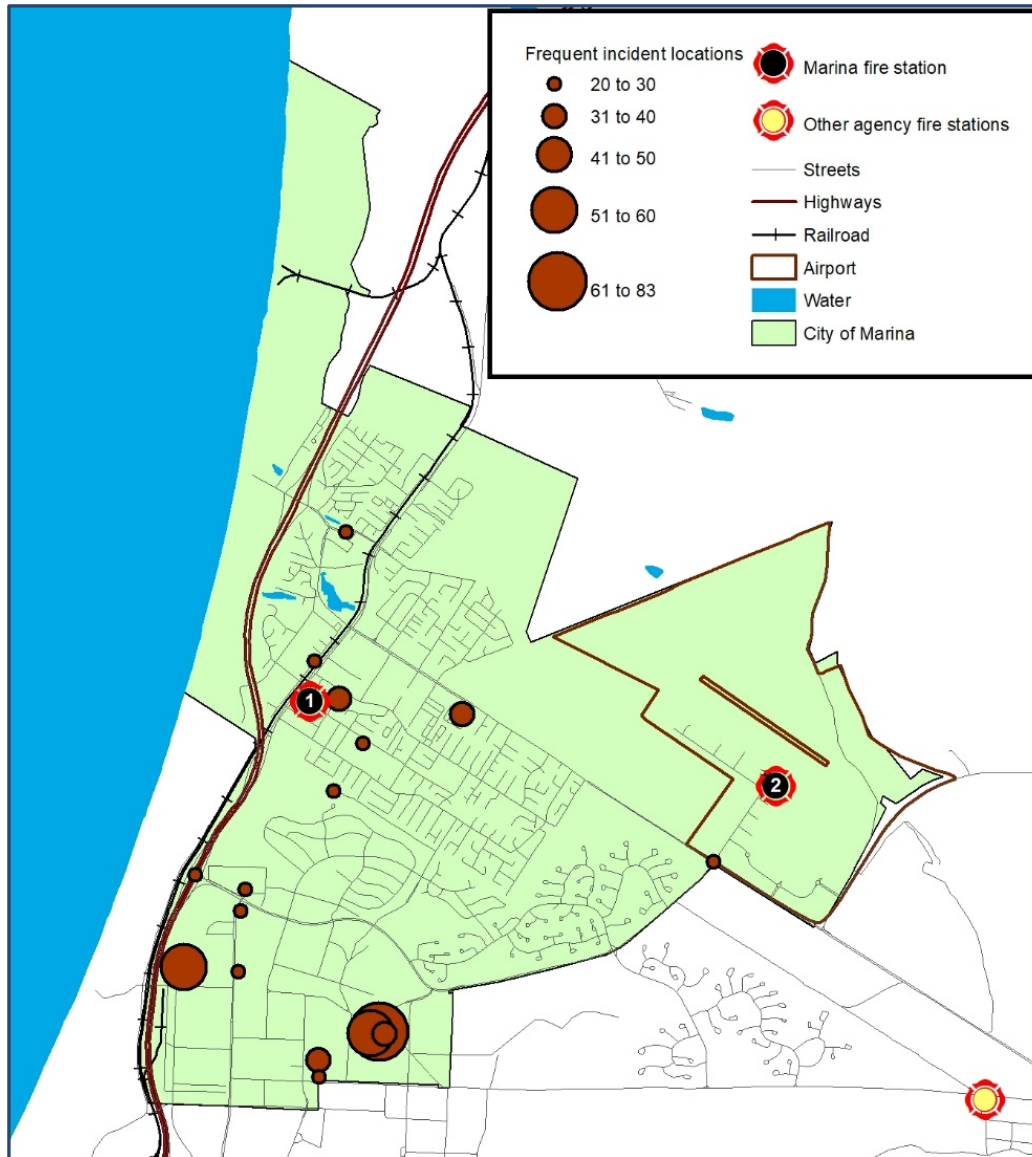
Explore opportunities to reduce response workload

Response workload has grown by 51% over the past 8 years. At this rate of growth, MFD will be unable to maintain service levels without new resources. Response workload is expected to increase to over 5,700 incidents per year by 2040. The City's ability to fund new resources to maintain service levels is limited.



Recommendations – Improvement Goal H

Explore opportunities to reduce response workload



Recommendations – Improvement Goal I

Implement a quality control process for incident reporting fire loss data

Proper coding of incident reports provides accurate data to make operational decisions and assists in strategic planning. It is recommended that all incident reports be reviewed for accurate fire loss data as part of a quality control process.



Recommendations – Improvement Goal J

Conduct pre-incident plans for commercial buildings and target hazards

Pre-incident planning is designed to provide information for responding personnel to assist with strategies and tactics during an event and provides building familiarization to operations staff. It allows responding personnel to conduct a site visit to gather information on built-in fire protection features, building construction, floor plans, or hazards in a building.



Recommendations – Improvement Goal K

Develop a fire inspection program for all commercial properties and multi-family occupancies.

Currently, there is not a defined schedule to inspect all commercial properties in Marina. Inspections of occupancies are designed to meet the enforcement and educational components of a community's risk reduction program. ESCI recommends Marina develop a schedule to inspect all commercial buildings for fire code compliance.



Questions/Discussion

City of Marina Community Priorities Survey: Updated Results

Marina City Council Meeting
May 18, 2021

EXHIBIT C

Complete our Short Survey or Join us on Zoom.



HELP US CREATE MARINA'S FUTURE. WHAT ARE YOUR PRIORITIES?

The Marina City Council is setting its priorities and developing its two-year budget. **We want to hear from YOU.**

- Please answer our **SHORT SURVEY** by April 13
Visit our website for survey: cityofmarina.org
- Join our **COMMUNITY LISTENING SESSION**
Thursday, April 15, 6 to 9pm
Use Zoom link on your browser: <https://tinyurl.com/vk2jrj4>
TRANSLATION SERVICES AVAILABLE



STREETS & SIDEWALKS
PARKS
DIVERSITY
SENIORS
HOUSING
YOUTH OPPORTUNITIES
BUSINESSES
JOBS
CITY PLANNING
STAFFING
GROWTH
RECREATION
TRANSPARENCY
BLIGHT
THOSE W/OUT SHELTER
BUILDING COMMUNITY



Updated Results

- Draft Results Presented to City Council on April 16, 2021
 - Prepared in the 24 Hours After Survey Closed
 - With More Time, Have Examined Data Quality & Excluded Some Responses
 - Identified a More Recent Census Estimate for Sample Comparison (2019 vs. 2010)
 - City Council Requested Additional Analyses
 - This Report Addresses Council's Questions



Data Quality

- Initial Sample: $N = 748$
 - If 4+ Responses Received from Same Household, The First Response Was Retained but Subsequent Excluded
 - 46 Responses from 6 Households Were Excluded Before Mean Scores Were Calculated
 - Qualitative Results Retained from All Respondents for Examination of Priority Themes
- Final Sample: $N = 702$
 - Only Very Slight Changes to Demographic Characteristics



Sample Size

- 2019 U.S. Census Bureau American Community Survey:
 - Estimated Population: 21,981
 - Estimated Adult Population: 16,991
- Final Sample ($N = 702$):
 - 3% of estimated 2019 Marina population
 - 4% of estimated 2019 Marina *adult* population

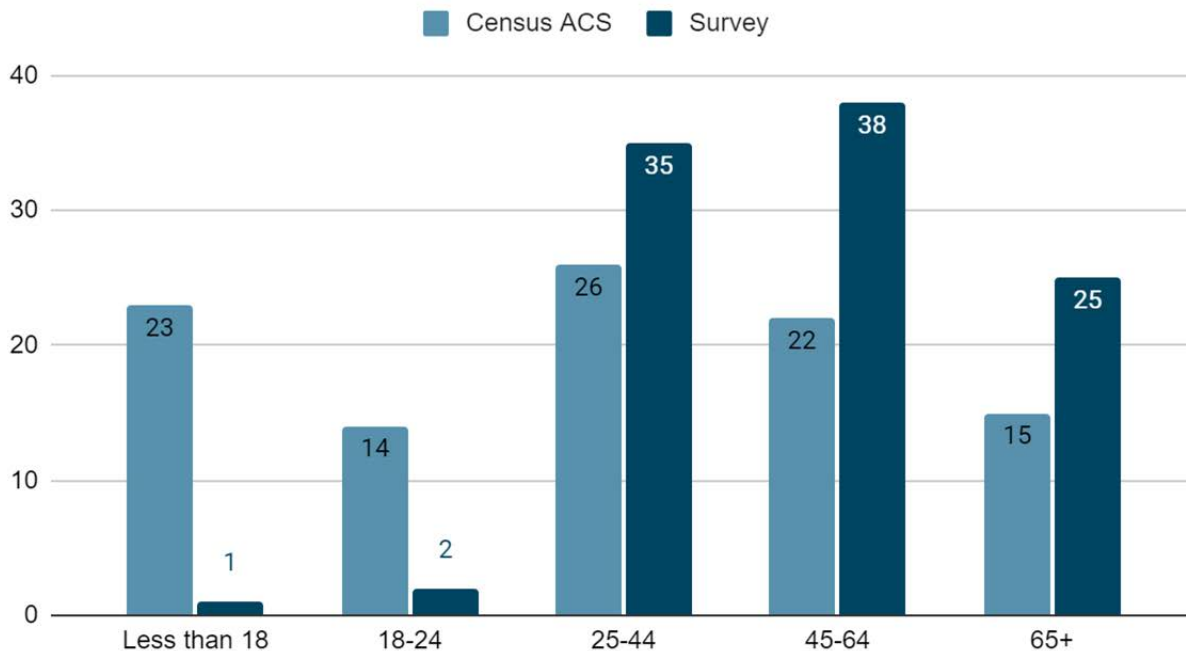
Is the sample representative of Marina?



Respondent vs. Census Ages

- 652 (93%) provided codable age information

Age (Sample vs. 2019 Census ACS)

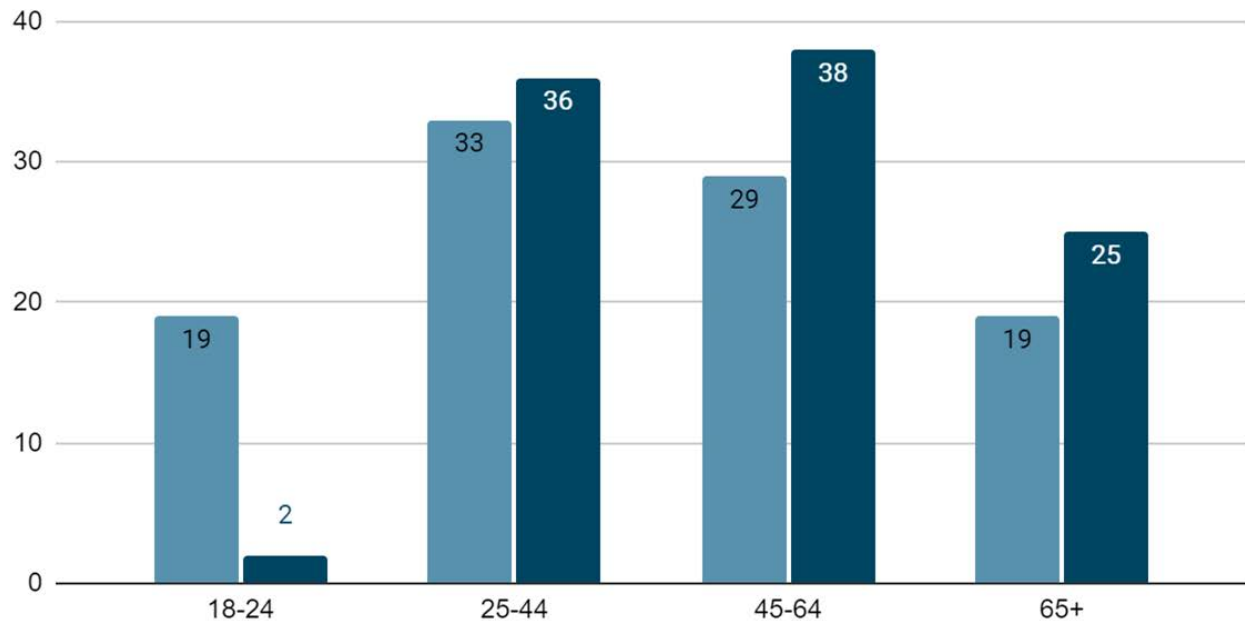




Respondent vs. Census Ages - Adults Only

Age (Sample vs. 2019 Census ACS)

Census ACS Survey



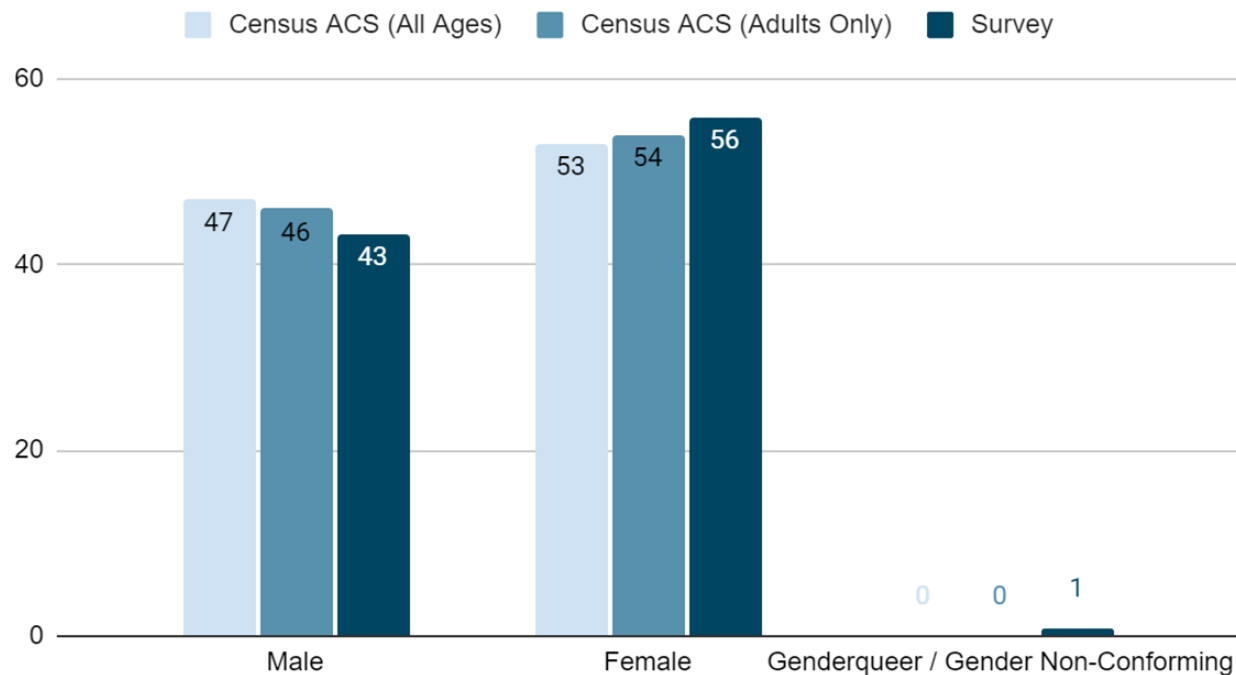
**Adults-Only
Census Data is
Likely a Better
Comparison
Group than Full
Census Data**



Respondent Gender

- 668 (95%) provided codable gender information

Gender

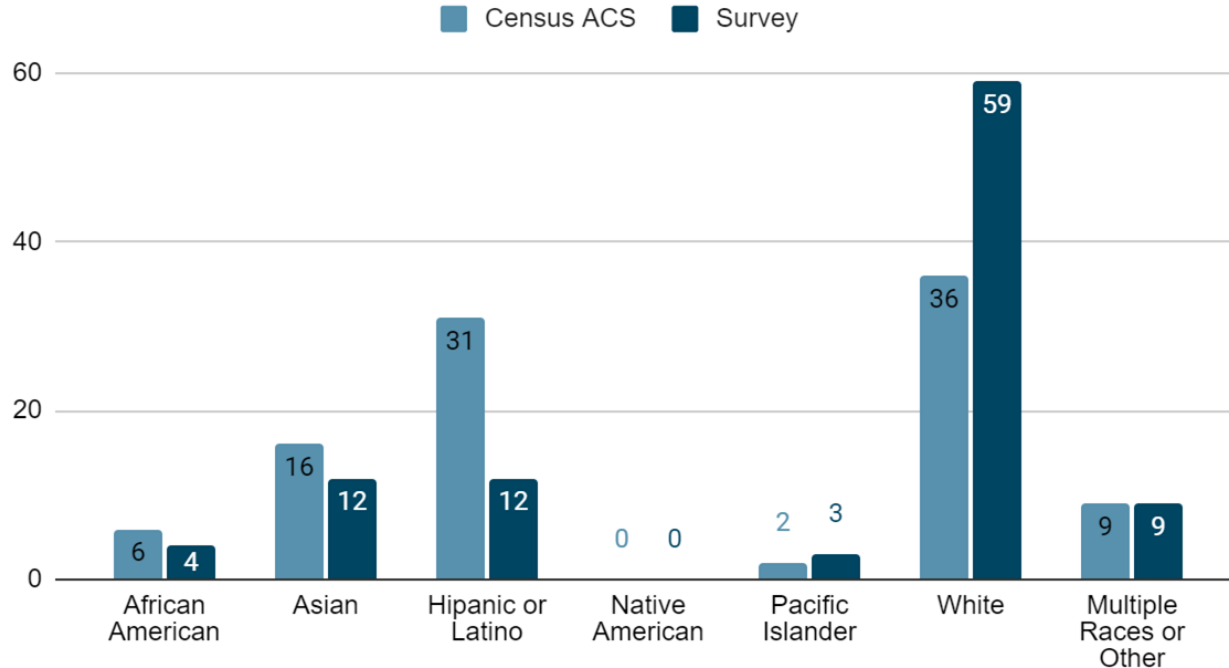


**Adults-Only
Census Data
(Center Bar) is
Likely a Better
Comparison
Group than Full
Census Data
(Left Bar)**

Respondent Race / Ethnicity

- 647 (92%) provided codable race/ethnicity information

Race & Ethnicity (Collapsed)

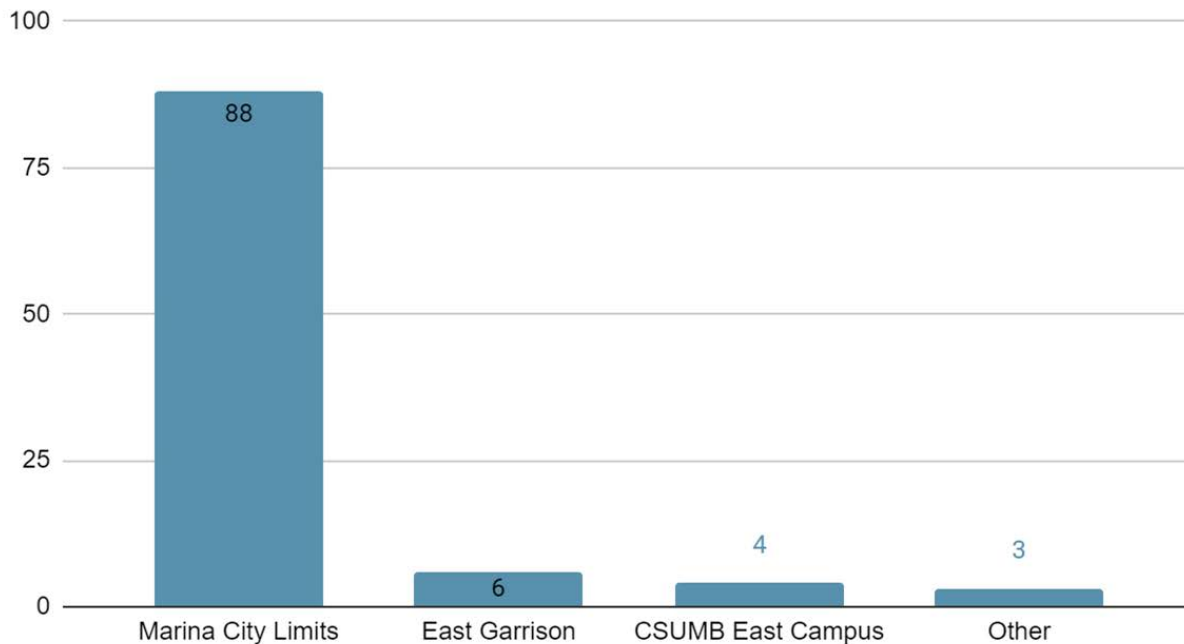




Respondent Residency

- 695 (99%) provided codable residency information

"Where Do You Live?"



Summary of Quantitative Results

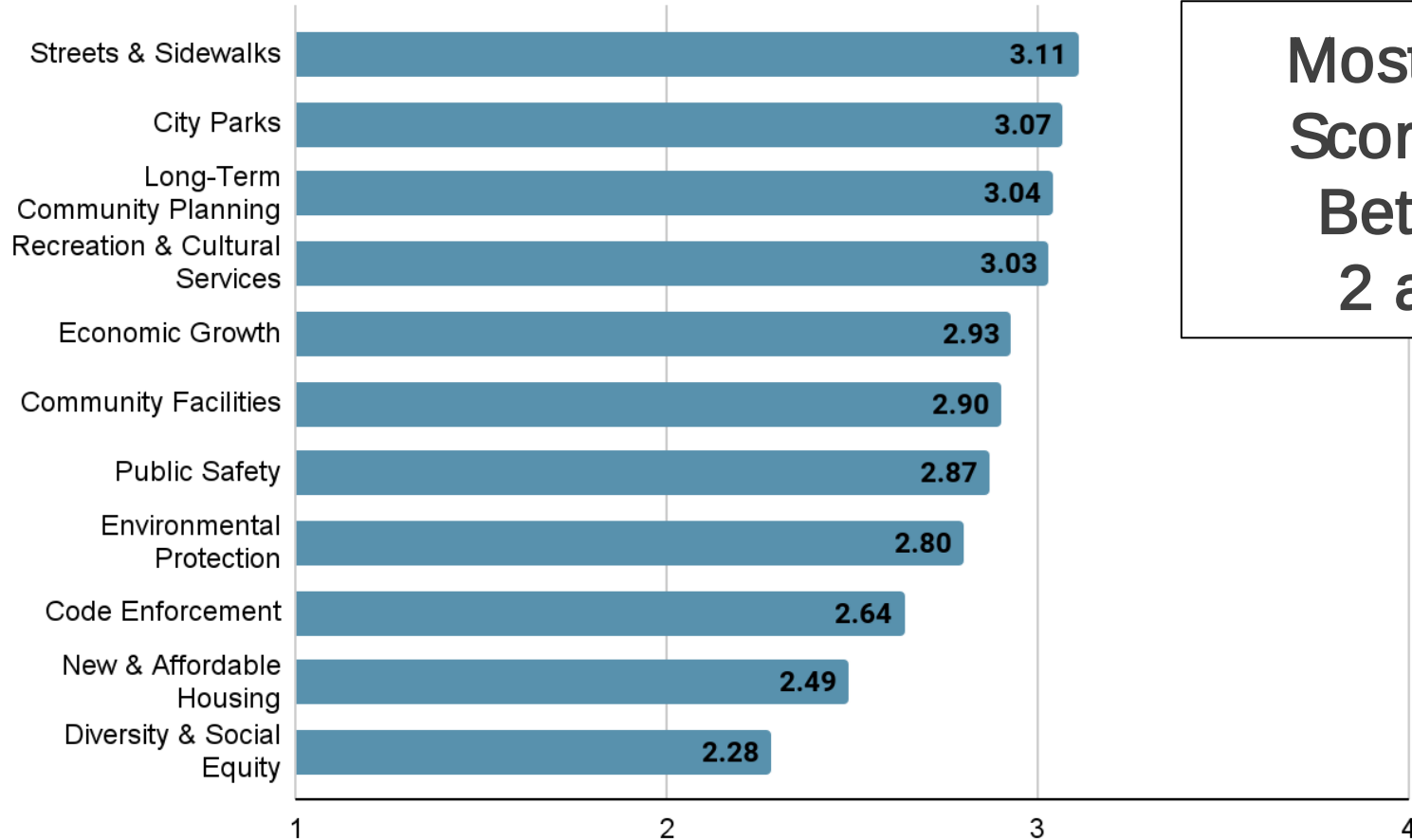
Based on Limited Resources:

1 = Low Priority

4 = High Priority

Results presented as mean scores
(ordered from highest to lowest)

Broad Areas of City Services

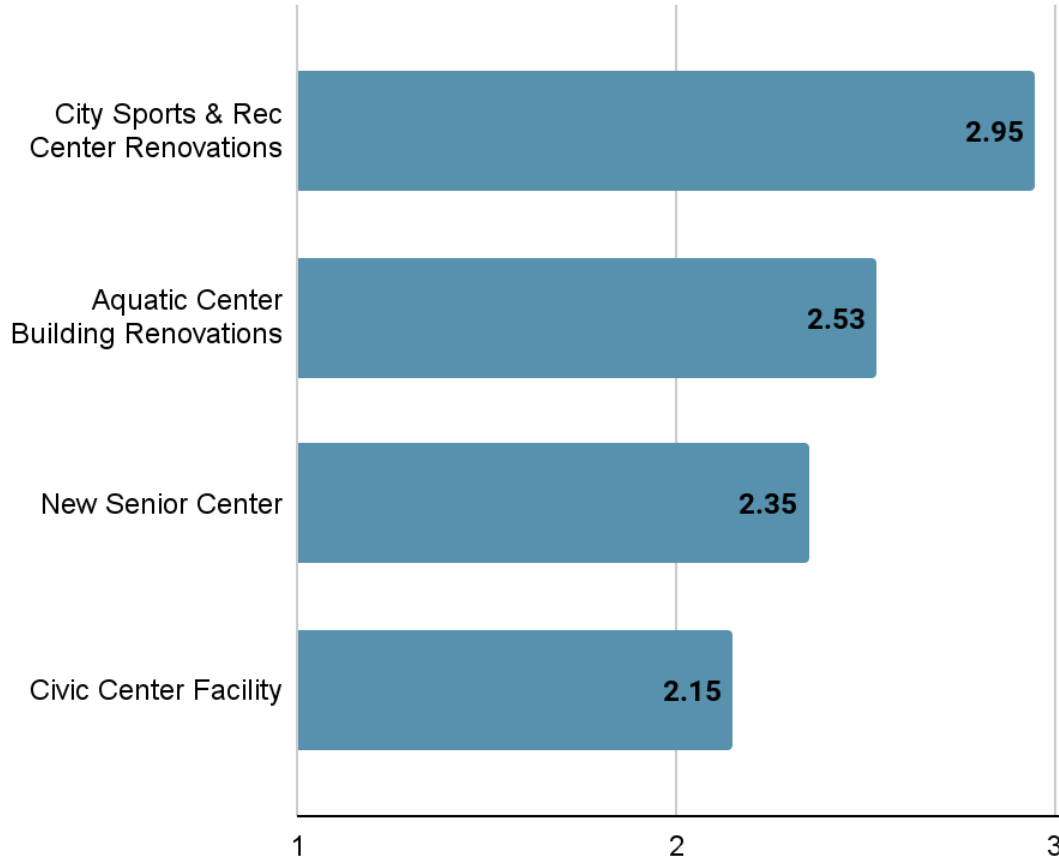


**Most Mean
Scores Fell
Between
2 and 3**

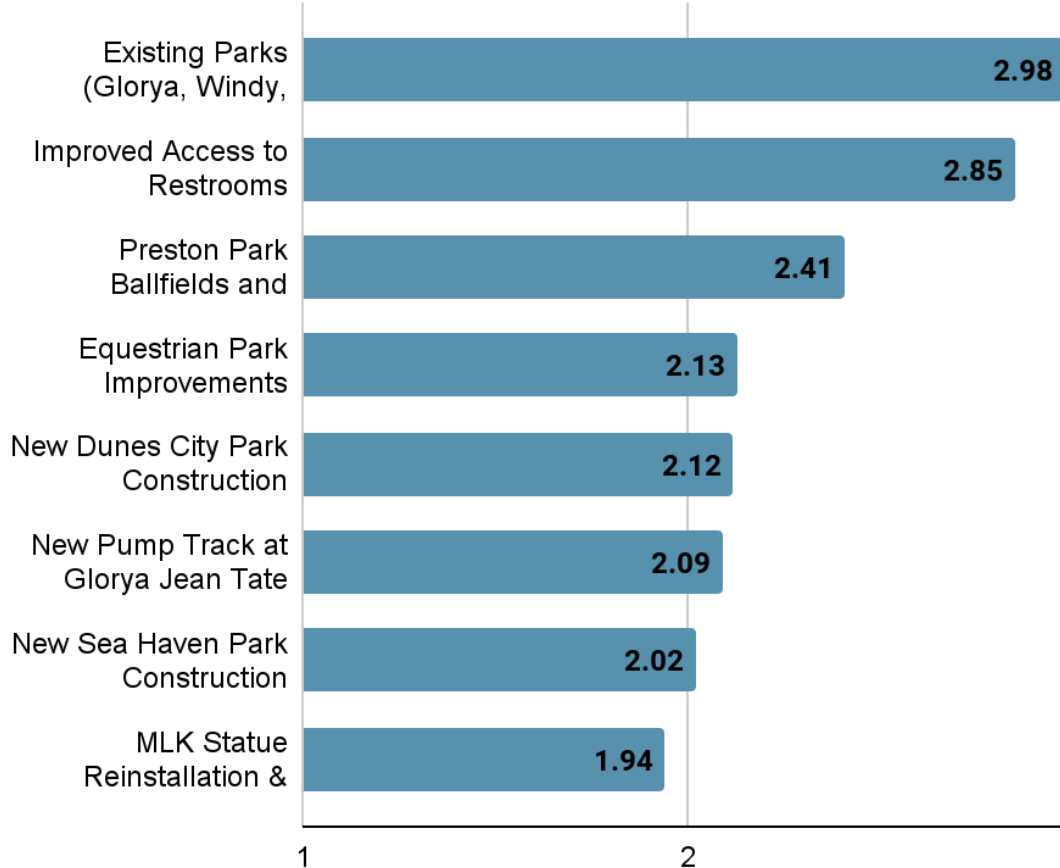
Sidewalk/ Street Improvements



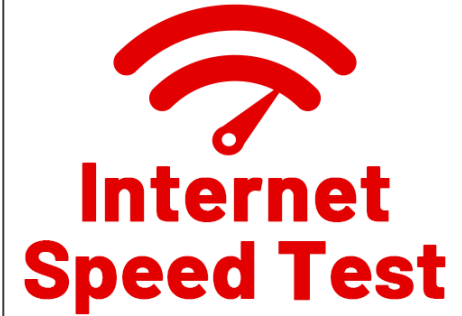
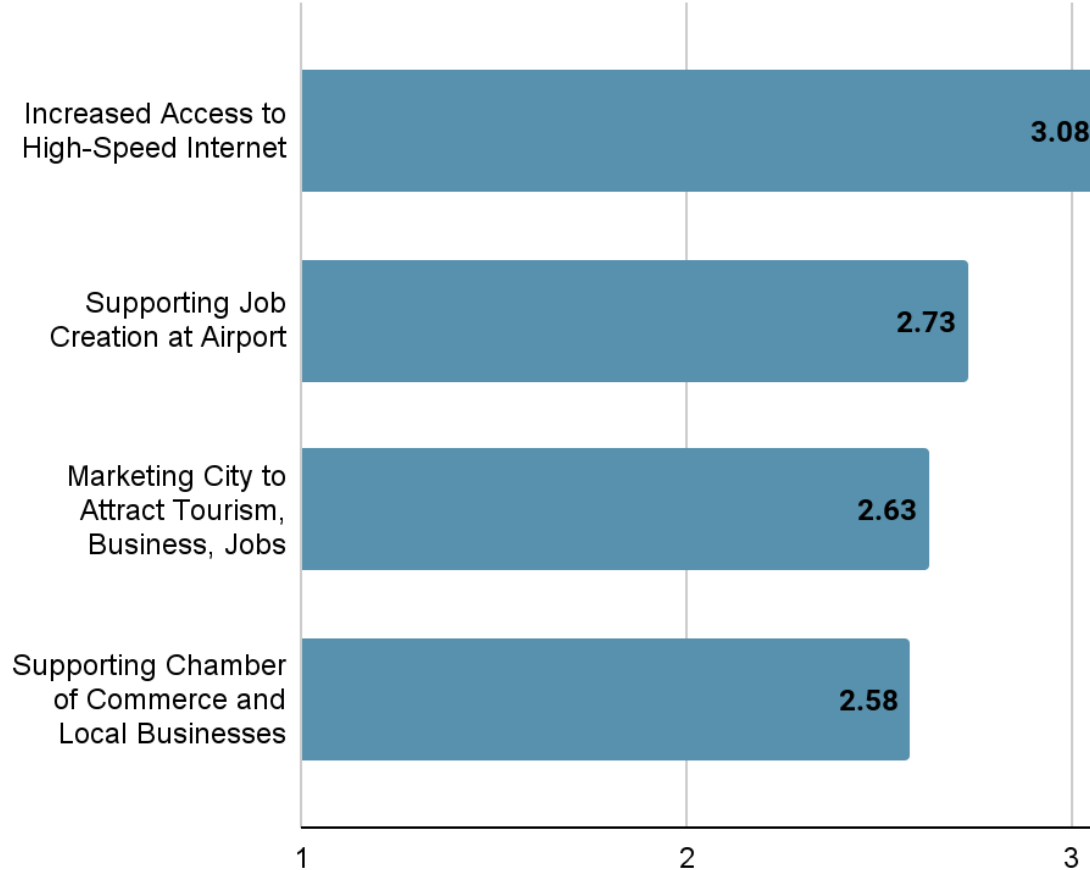
Facility Improvements



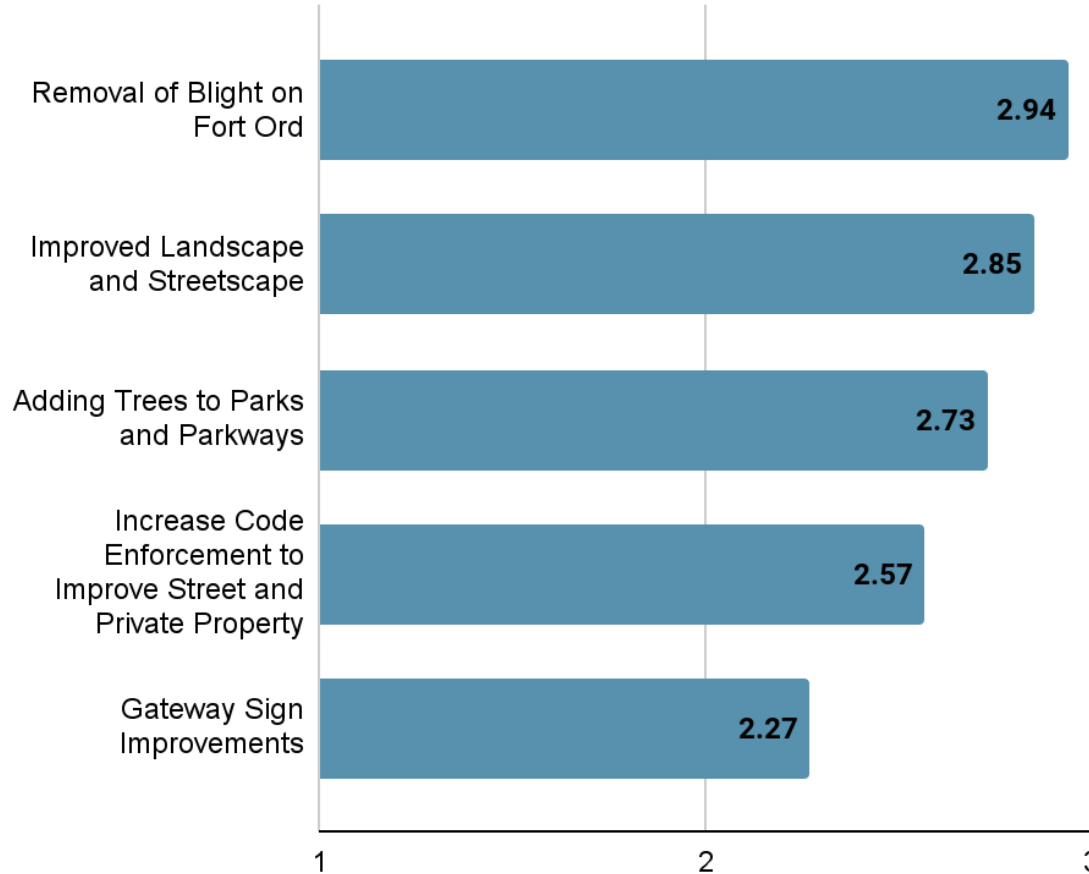
Park Improvements



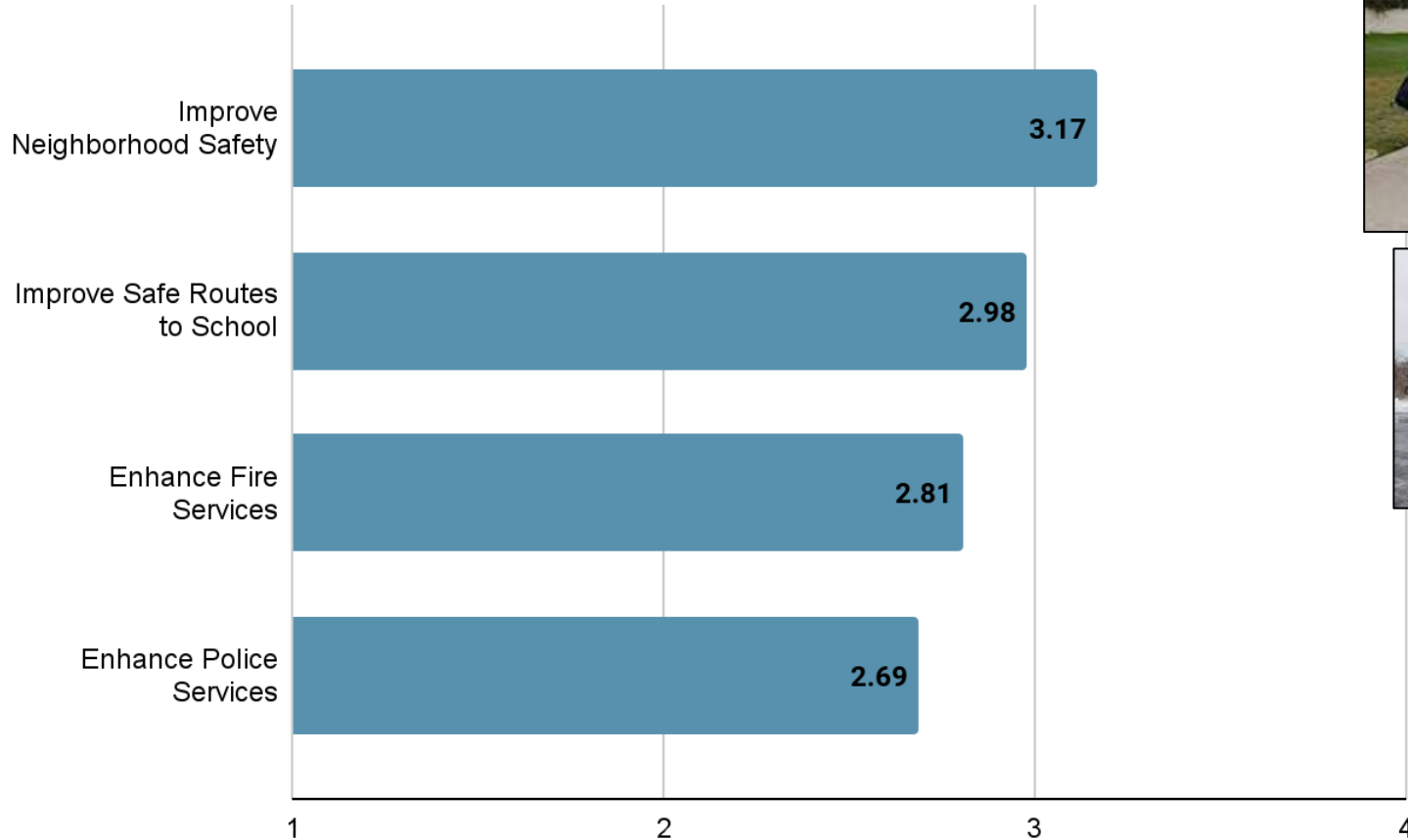
Economic Growth Opportunities



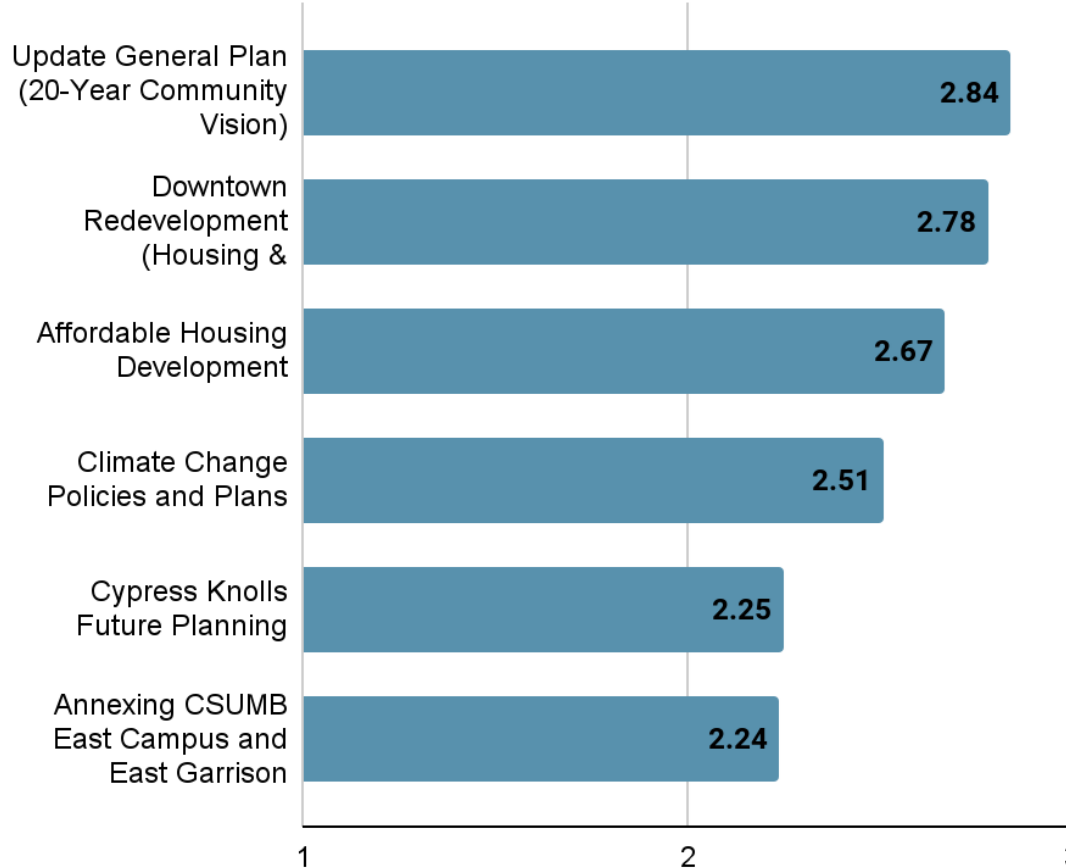
Aesthetic Improvements



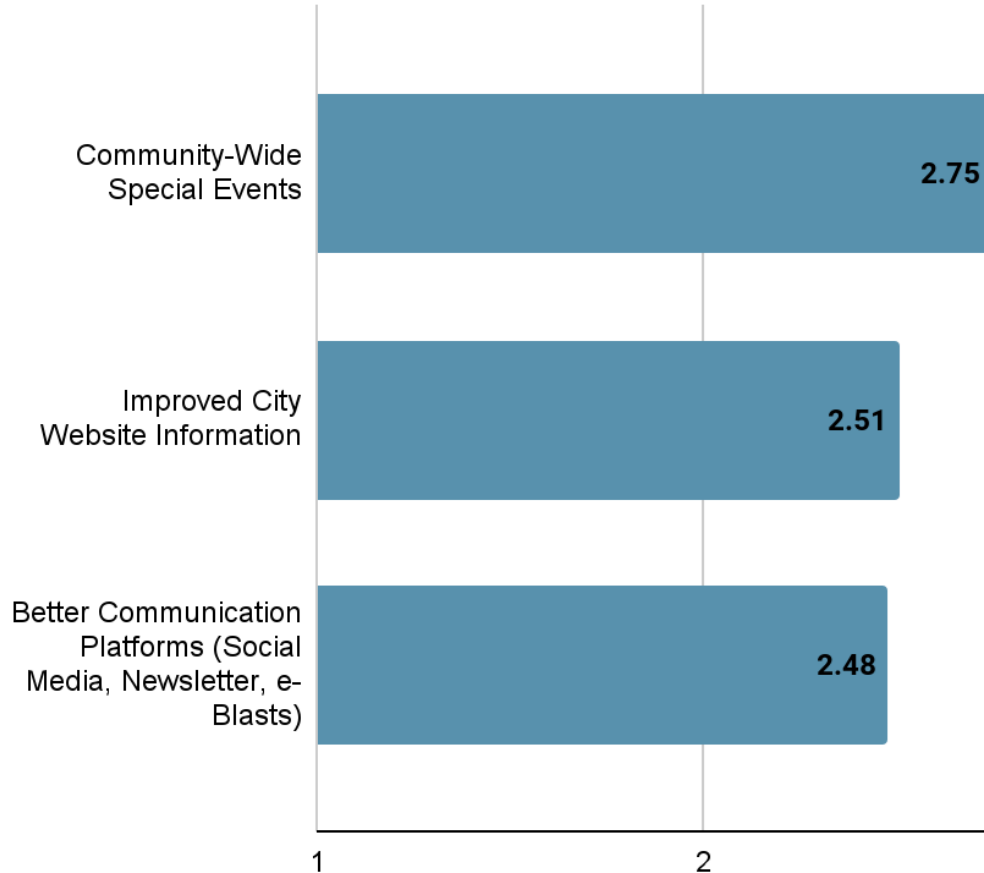
Public Safety Improvements

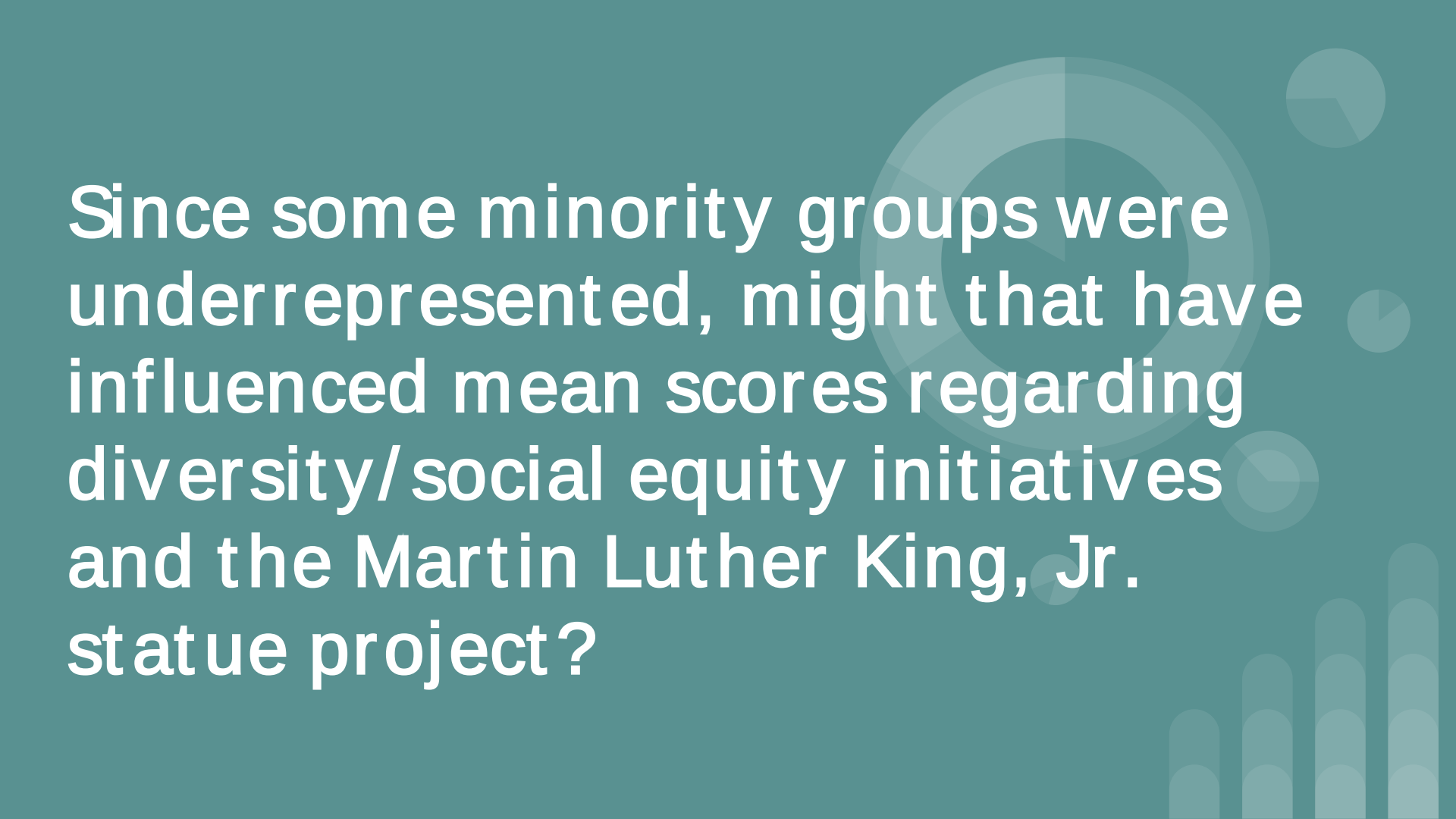


Community Planning Efforts



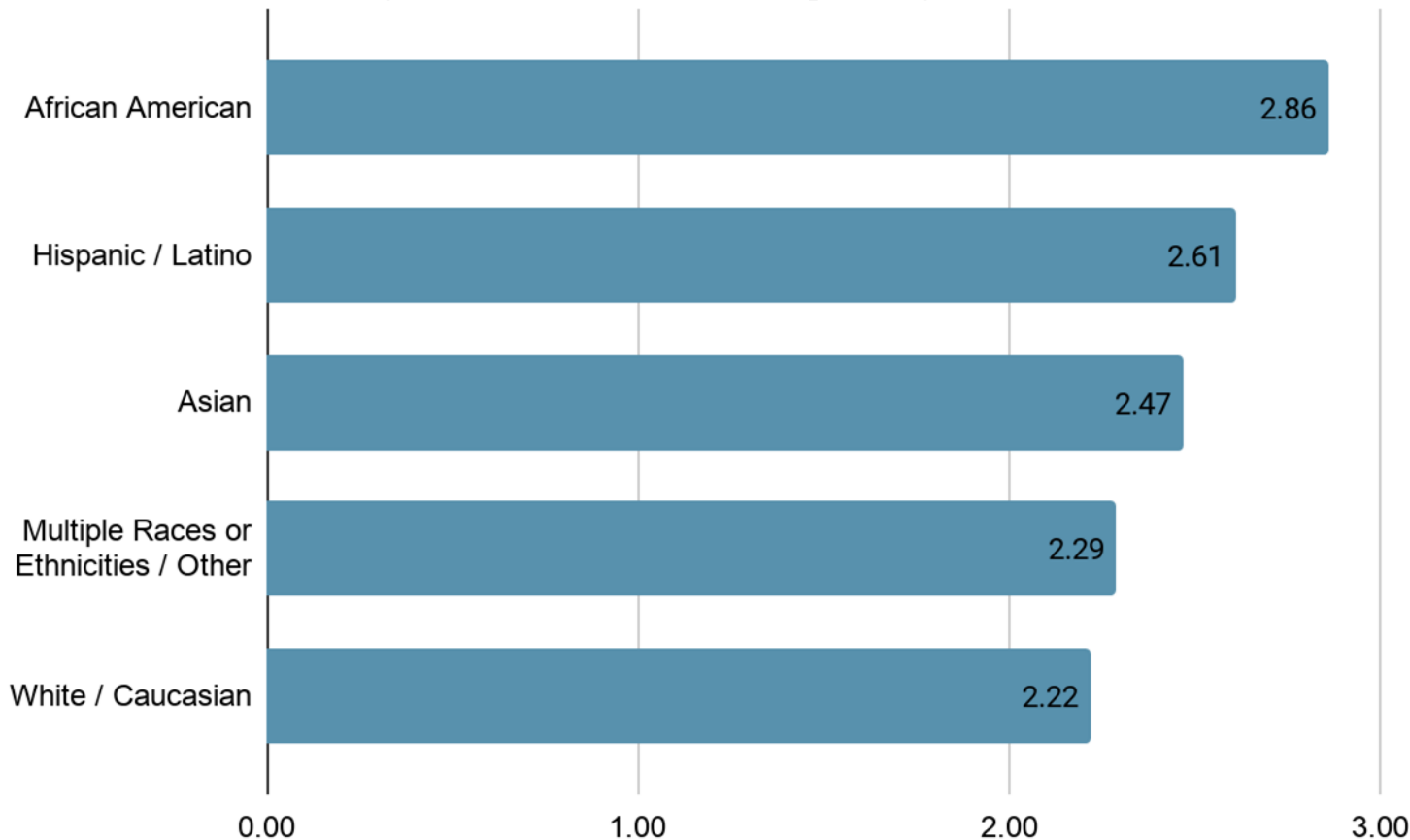
Community Engagement Activities & Programs





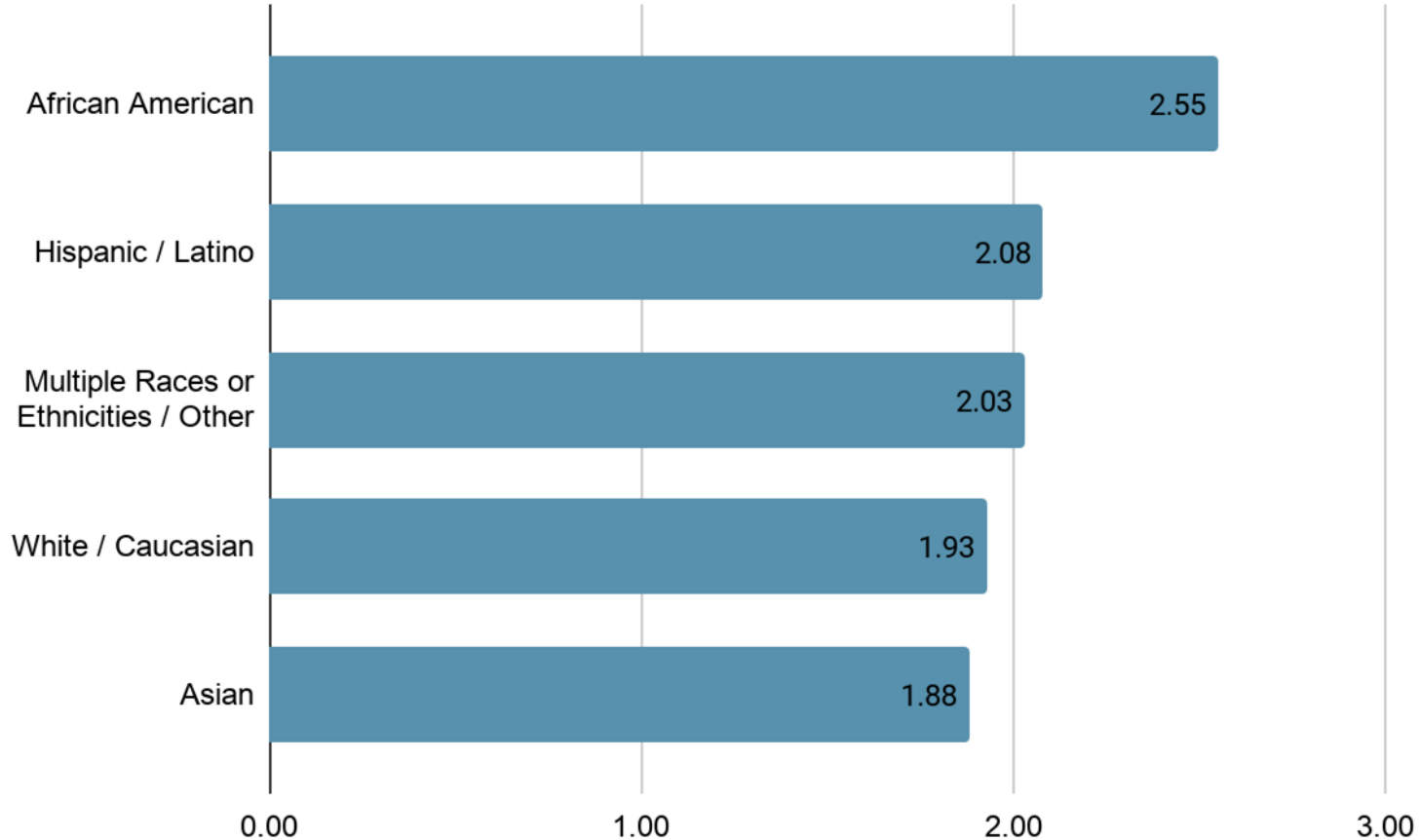
Since some minority groups were underrepresented, might that have influenced mean scores regarding diversity/social equity initiatives and the Martin Luther King, Jr. statue project?

Diversity & Social Equity Efforts



Sample sizes for American Indian/Alaskan Native and Native Hawaiian/Pacific Islander were too small for mean scores to be reliable.

Martin Luther King Jr. Statue & Landscaping



Sample sizes for American Indian/Alaskan Native and Native Hawaiian/Pacific Islander were too small for mean scores to be reliable.



Potential Implications

- These additional analyses focused solely on the Diversity & Social Equity and MLK, Jr. Statue Project, as requested
 - It is possible that more complex patterns would emerge if all variables were examined across demographic groups
 - Future studies could implement strategies such as oversampling or survey weighting to ensure respondents are representative of the community

Lessons for Future Survey Efforts





Lessons for Future Survey Implementation

- This pilot demonstrated that a flier can engage hundreds of community members to communicate in a structured manner
- Cost: Approximately \$4,500
- In the future, consider:
 - Start Process Earlier - More Time for Each Step
 - Send to CSUMB / East Campus
 - Survey Sent Directly via Mail
 - Supermarket Sampling
 - Make Paper Surveys Available at City Hall
 - Ensuring Survey is Easy to Locate Online (e.g., use tinyurl)
 - Consider Social Media Presence (multiple platforms)
 - Pros (outreach) & Cons (representativeness)
 - Add Where People Learned About Survey

Questions?





Analysis Notes & Disclosures



California State University
MONTEREY BAY
College of Arts, Humanities and
Social Sciences

- **Summary prepared by Matt Mogensen in collaboration with Danielle Burchett, PhD**
 - Associate Professor of Clinical Psychology
 - California State University, Monterey Bay
 - Email: dburchett@csumb.edu
- This is not a systematic investigation and is not intended to develop or contribute to generalizable knowledge. It summarizes information for organizational use. It is not considered to be human subjects research and was therefore not reviewed by the CSUMB Committee for the Protection of Human Subjects.
- Dr. Burchett has no relevant financial disclosures.



City of Marina Unfunded Essential Services – Public Discussion

JANUARY 25, 2022

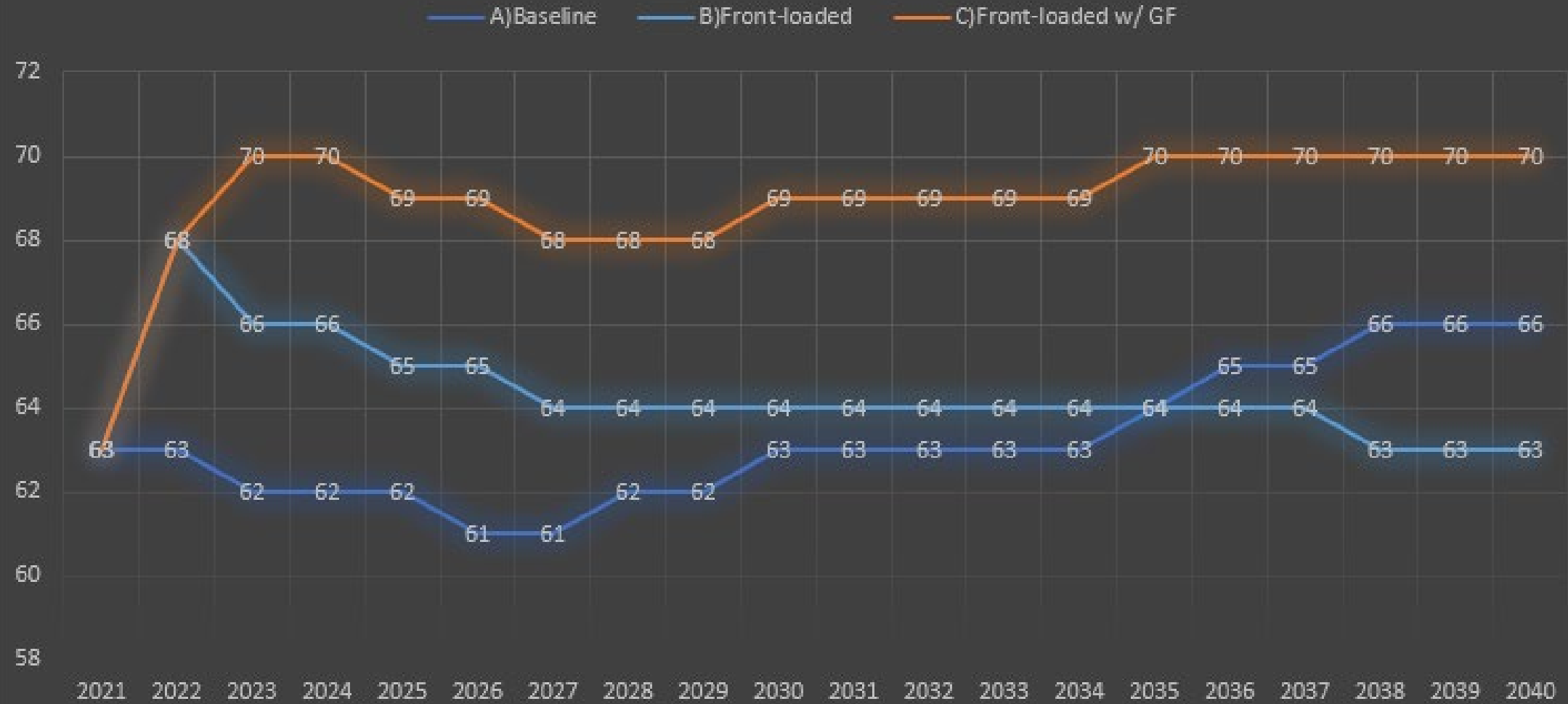
Major Unfunded Needs

- Street Infrastructure
- Facilities
- Staffing
- Vehicles

Road Repairs and Maintenance

- Instituted a Pavement Management Program in 2015-2016
- Goal: All City streets should achieve a PCI of 70 (good condition)

PCI Comparison



Road Repairs and Maintenance

- To achieve this goal:
 - Requires \$2.3 million annually in pavement management repairs (\$2.6 million funded in budget)
 - \$11.6 million in one-time funds for street reconstruction
 - \$8.2 million Measure X bond
 - \$3.4 million one-time General Fund (consider ARPA funds)

City Facilities - Critical

Project	Est. Cost
New Fire Station - CA/Imjin	\$17,000,000
Police Station/Council Chambers/City Hall	\$35,000,000
Ladder Truck	\$1,500,000
	\$53,500,000

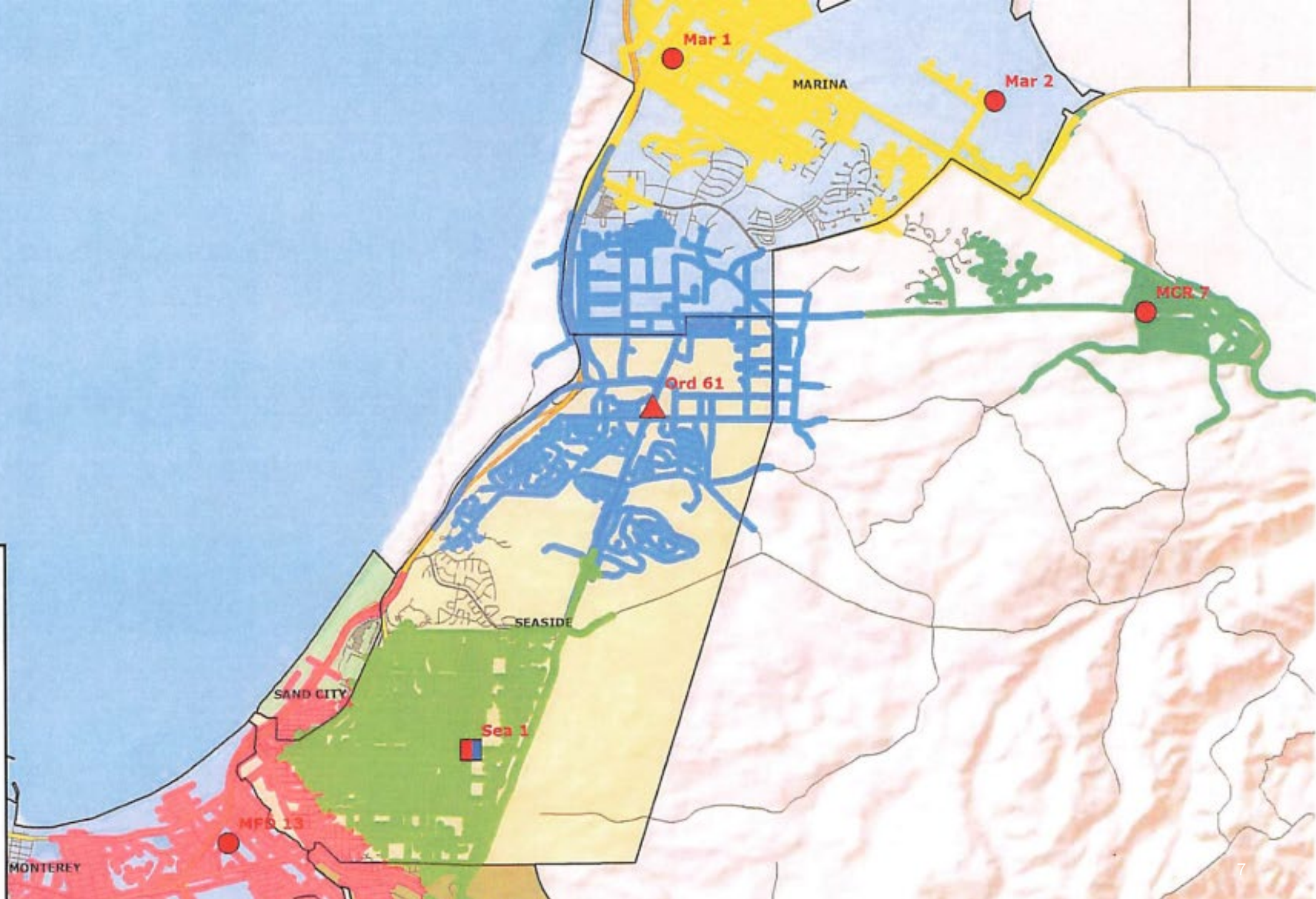
Legend

- Seaside 1
- Marina 1 & 2
- Ord 61
- MFD 13
- MCR 7

Fire Stations



E



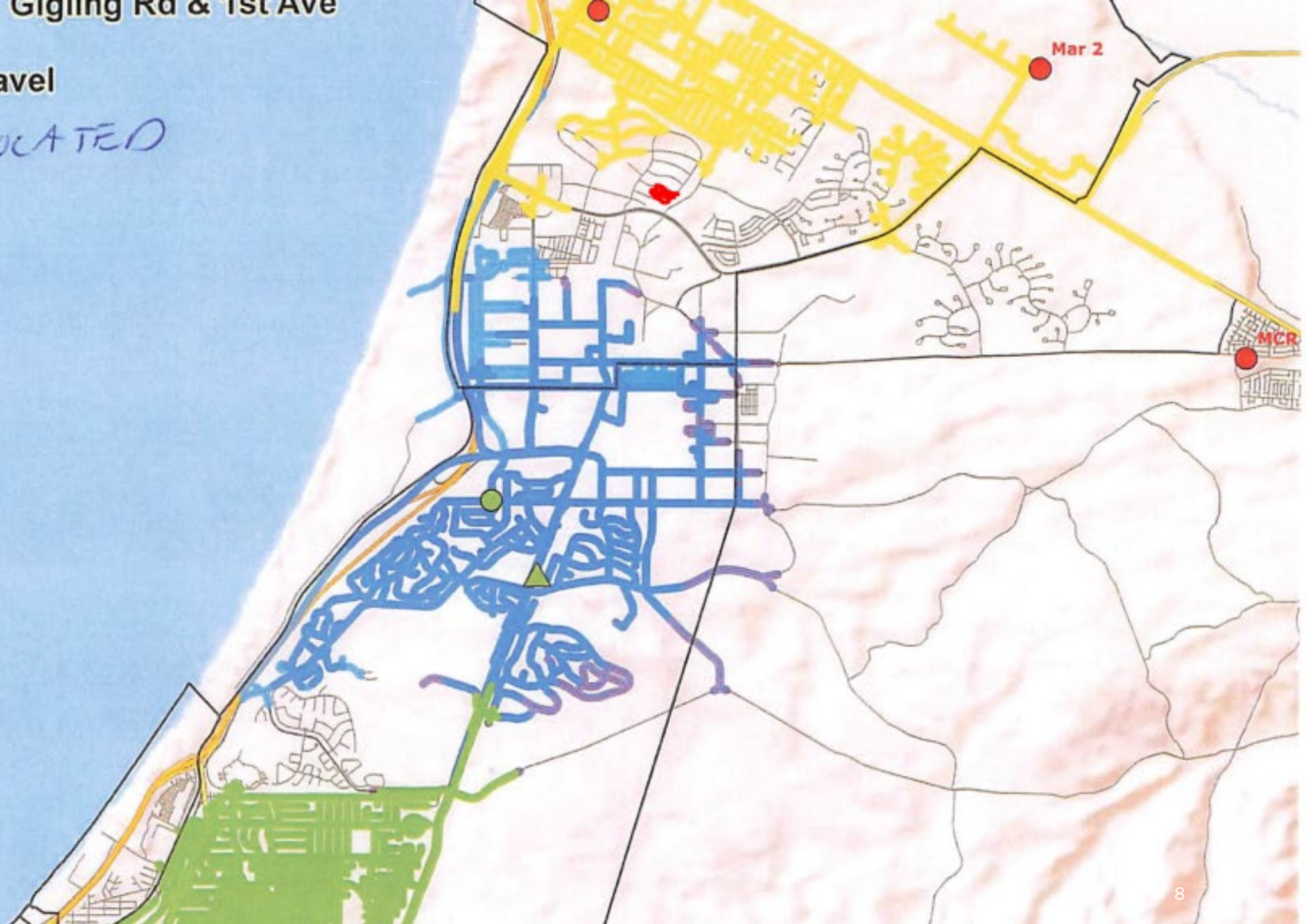
Proposed SEA 2 at Gigling Rd & 1st Ave
Ord 61 Relocated
4 Minute Engine Travel

POM RELOCATED

Legend

- Seaside 1
- Marina 1 & 2
- Relocated Ord 61
- Proposed Seaside 2

Fire Stations



City Facilities - Other

Project	Est. Cost
New Fire Station - North	\$11,000,000
Aquatic Center	\$10,000,000
Arts Village	\$5,000,000
Senior Center	\$5,000,000
Hockey Pavilion	\$3,000,000
Comm Center, Teen Center, Skate Park	\$1,000,000
Total	\$35,000,000

Unmet Current Staffing Needs

Department	Staffing Description/Title	# of Positions	Total Annual Cost
Fire	Firefighters	3	\$500,000
Fire	Deputy Chief/Fire Marshall	1	\$125,000
Admin	Affordable Housing/Lease/Grants Mgr	1	\$150,000
Admin	HR/Risk Manager/Director	1	\$200,000
Public Works	Maintenance Staff	4	\$400,000
Public Works	Associate Engineer	1	\$155,000
Community Development	Code Enforcement Officer - Organics	1	\$100,000
Totals		12	\$1,630,000

Future Revenues - Ongoing

- Hotel TOT - \$2.3 million annually in 2-5 years
- Property Tax Revenue growth from Sea Haven - \$800k annually, once fully built out in 5-7 years

Future Revenues – One-time

- Dunes Phase 3 - \$13.5 million, one-time in 2-3 years
- FORA Blight removal funds can be allocated for Sports and Aquatic Center renovations - \$3.4 million, one-time, in 2 years
- ARPA – can be used to replenish General Fund for lost revenues - \$5.1 million, one-time

Estimate of Potential Utility User Tax (UUT) Revenue
City of Marina, CA

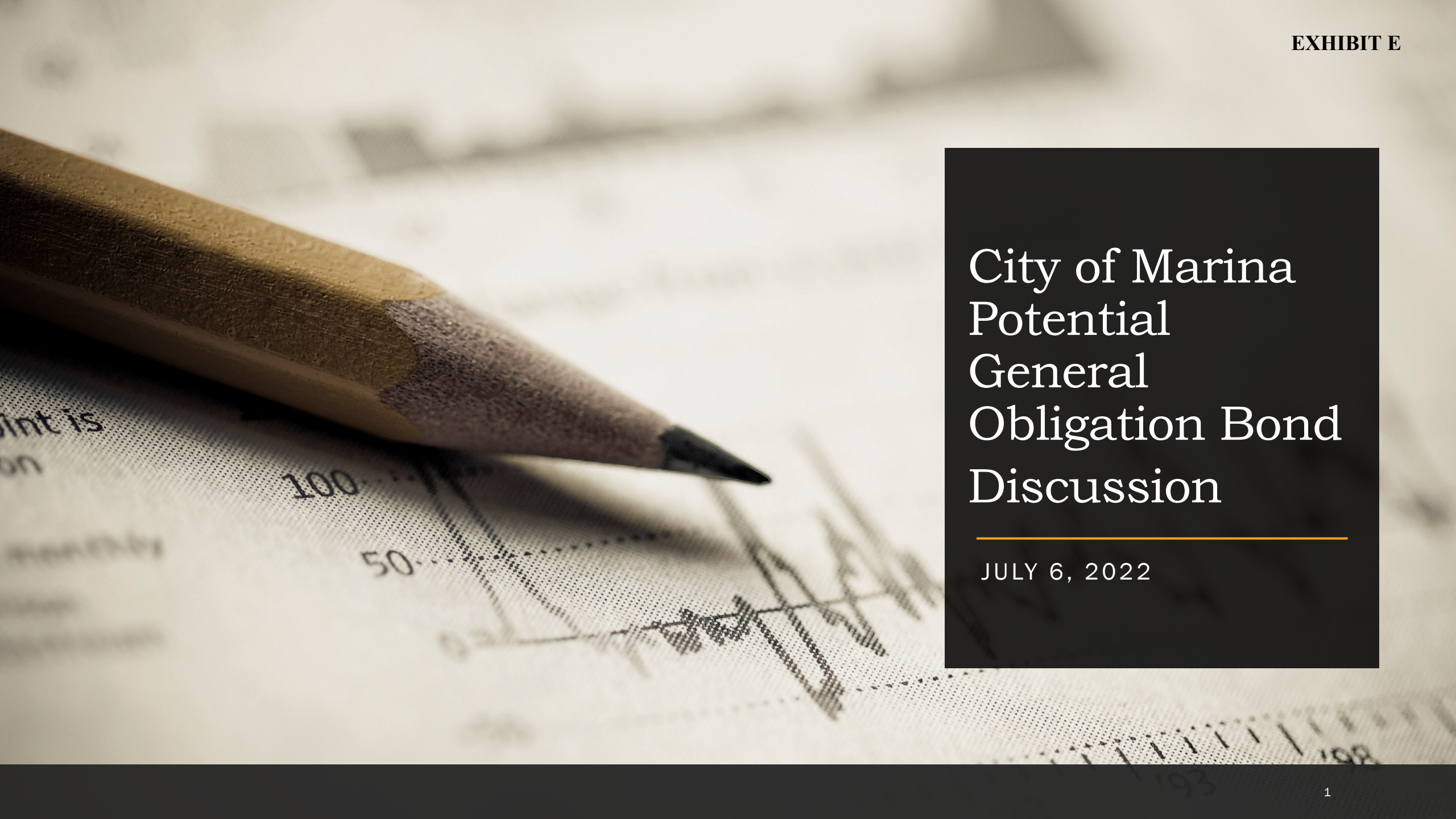
Potential UUT Rate	Annual Revenue Estimate ⁽¹⁾	Preliminary Estimate of Bond Capacity from KNN Public Finance ⁽³⁾	Estimated Cost Per Household ⁽²⁾	
			Per Month	Per Year
1%	\$280,000	\$5,000,000	\$2.50	\$30
2%	\$560,000	\$10,000,000	\$5.00	\$59
3%	\$840,000	\$14,000,000	\$7.40	\$89
4%	\$1,120,000	\$19,000,000	\$9.90	\$119
5%	\$1,400,000	\$24,000,000	\$12.40	\$149
6%	\$1,680,000	\$29,000,000	\$14.90	\$178

Potential Future
Revenue Source

Monthly Amount	Annual Amount	Bond Capacity
\$5.25	\$63	\$30,000,000
\$7.00	\$84	\$40,000,000
\$8.75	\$105	\$50,000,000

- Monthly/Annual Amounts shown per \$100,000 of assessed property value
- A property valued at \$600,000 would pay \$31.50, \$42, or \$52.50 per month

Potential General Obligation Bond



City of Marina Potential General Obligation Bond Discussion

JULY 6, 2022

City Facilities to Replace

- Fire Station - \$17 million
- Community Center (council chambers, city hall, senior center) - \$23 million
- Police Station (part of community center) - \$12 million
- Total Estimated Cost \$52 million

Estimated Cost to Property Owner

- \$30 million bond
 - \$5.25 per month (\$63 annually) per \$100,000 assessed value. Average homeowner cost \$24 per month, \$290 annually
- \$50 million bond
 - \$8.75 per month (\$105 annually) per \$100,000 assessed value. Average homeowner cost \$40 per month, \$483 annually

Why are new facilities needed?

- Fire Station
 - 2nd fire station needed to service new growth areas and meet critical response times
 - Fire ladder truck
 - Commercial structures
- Community Center
 - Existing facility 47 years old
 - Deteriorating, ADA non-compliant
 - Safety and security issues
 - Over \$ 7 million needed in next few years just to keep open
- Police Station
 - Existing facility over 20 years old
 - Does not meet growing public safety needs of community
 - Over \$ 5 million needed in next few years just to keep open

Why General Obligation Bond

- Mechanism that provides a way for local governments to raise money for facility and infrastructure projects
- Typically local governments do not have sufficient revenues to fund these types of projects
- Paying for public assets over time provides for “intergenerational equity”. The users of a facility will pay their fair share over time.

Public Opinion Survey

- Survey responses continuing – about 75% completed
- Results will be ready for the July 19th city council meeting
- Assessing quality of life; need for additional city facilities; support for additional funds to provide services; support for a GO bond at different levels.
- Public outreach, education and engagement is critical

Next Steps

- Need to adopt a Resolution of Necessity, Ordinance, and Resolution with ballot language.
- August 12 – last day to file a local measure with the County
- August 13 – 18 – period to file primary arguments in favor/against measure
- August 18 – last day to file impartial analysis
- August 19 – 25 – period to file rebuttal arguments



Opinions on Local Funding Options for the City of Marina

Highlights of a Survey of Likely Voters



OPINION
RESEARCH
& STRATEGY

Survey Specifics and Methodology ^{EXHIBIT F}

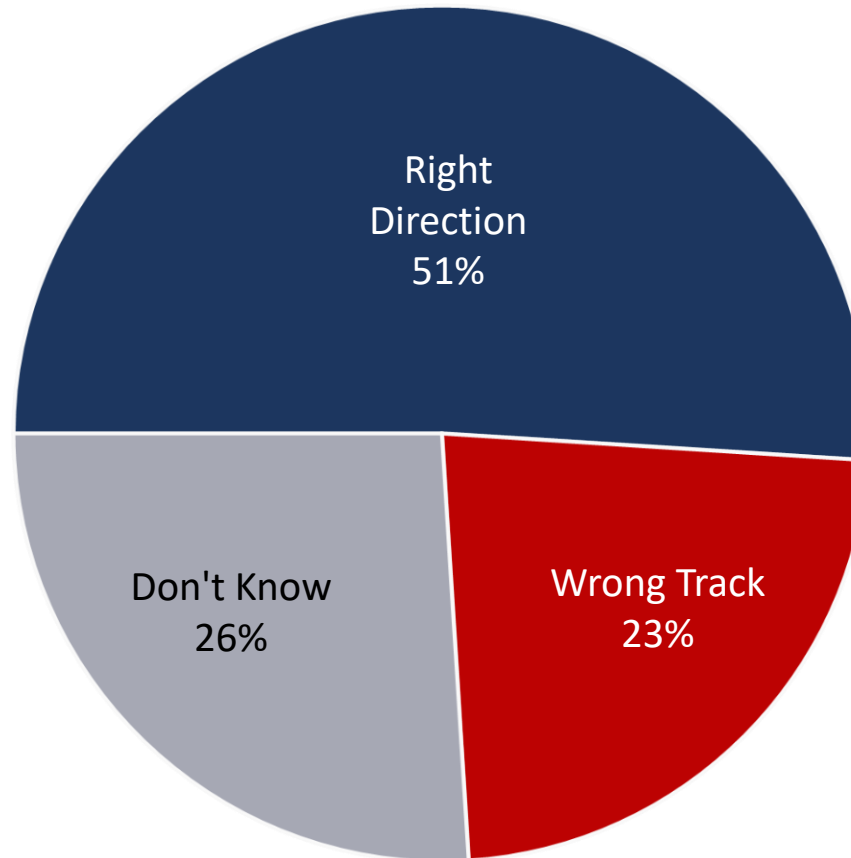
Dates	June 22 - July 7, 2022
Research Population	Likely November 2022 voters in the City of Marina
Total Interviews	301
Margin of Sampling Error	(Full Sample) $\pm 5.7\%$ at the 95% Confidence Level
Contact Method(s)	 Telephone Calls  Email Invitations  Text Invitations
Data Collection Mode(s)	 Telephone Interviews  Online Interviews
Survey Tracking	July 2016

(Note: Not All Results Will Sum to 100% Due to Rounding)

General Community Attitudes

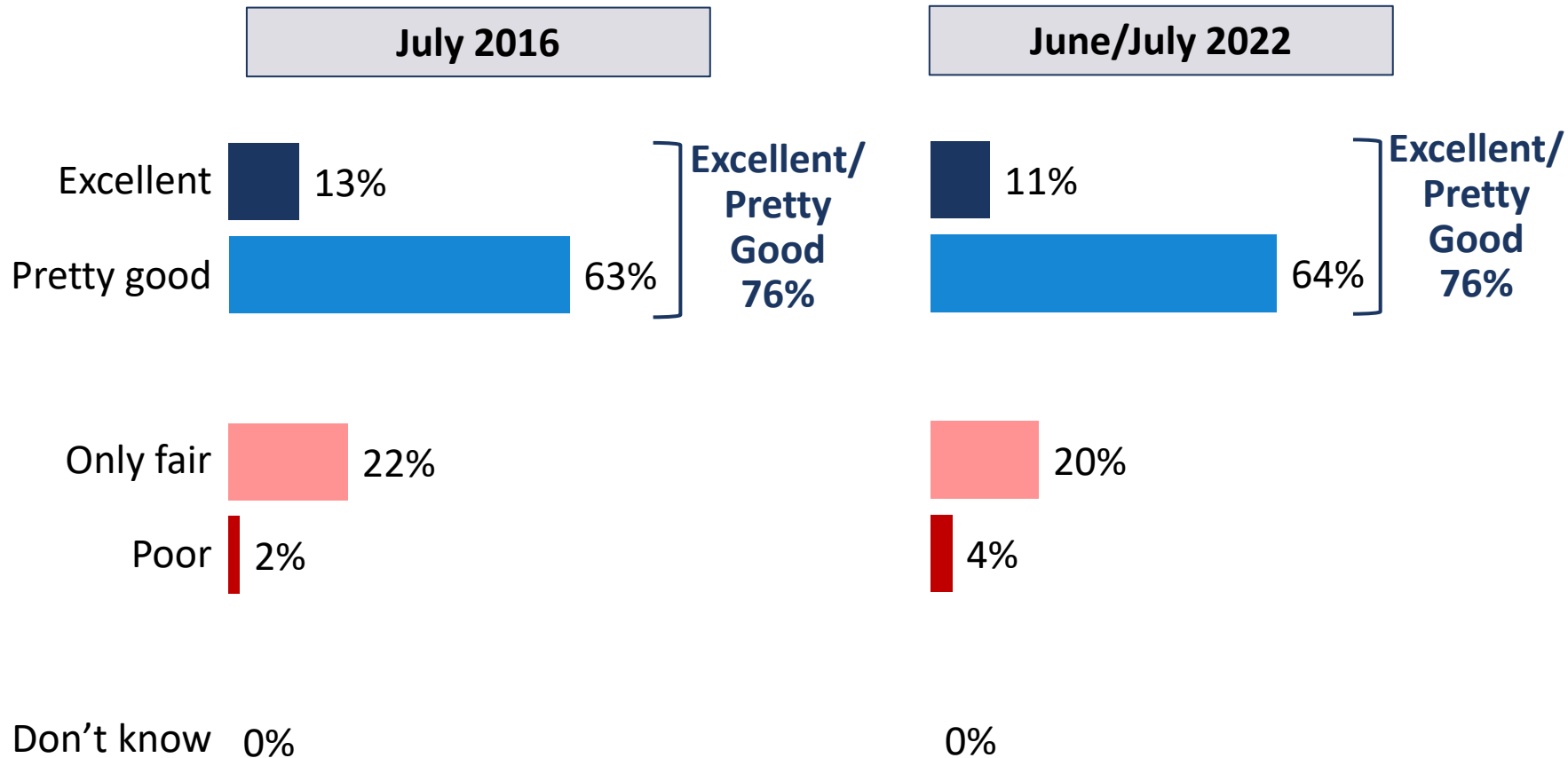
Half of likely voters in the City of Marina think things in the City of Marina are headed in the right direction, a high rating for a California city, and which is backed up by the results of other questions.

Do you think things in the City of Marina are headed in the right direction or are they off on the wrong track?

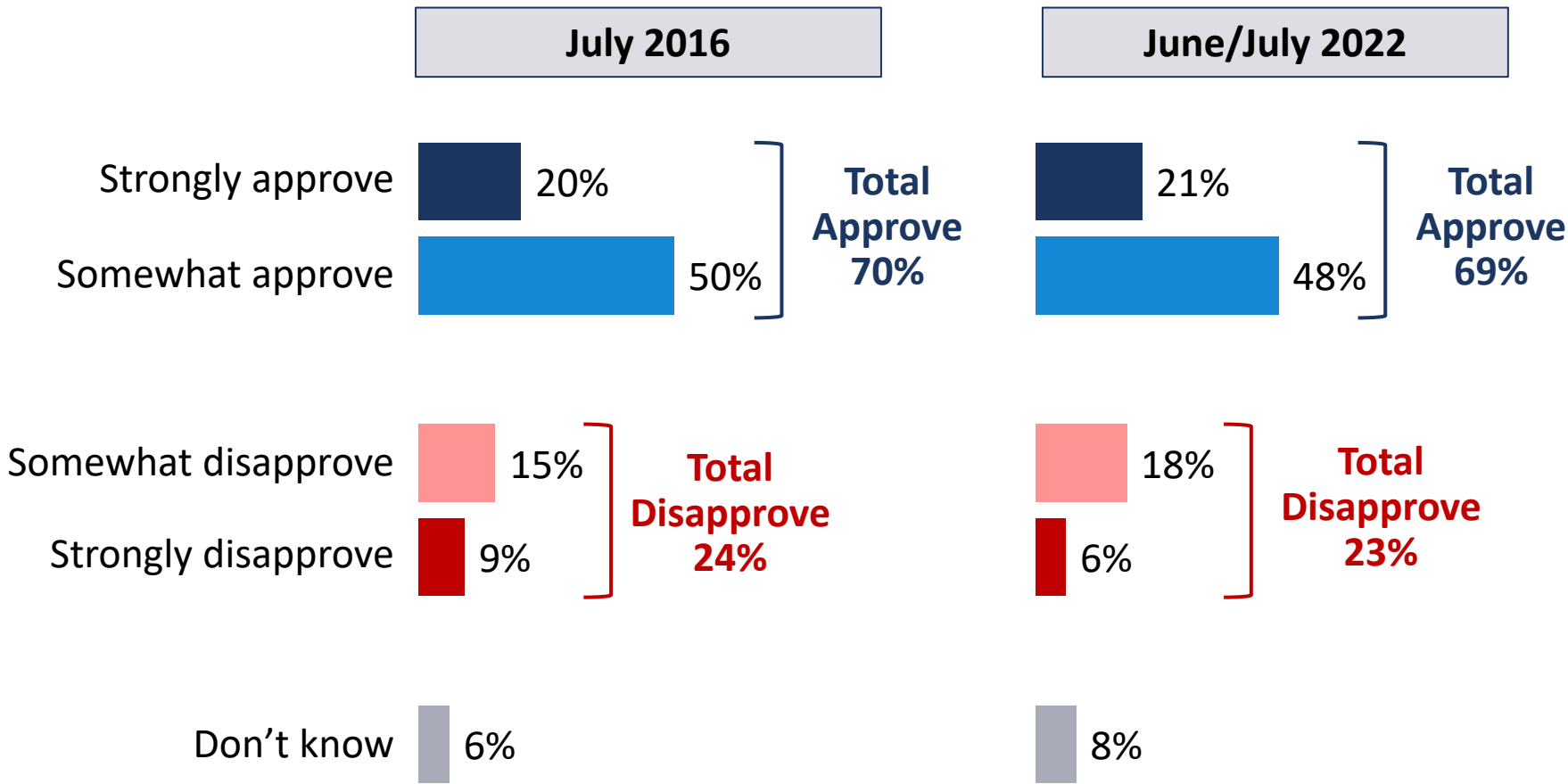


More than three-quarters describe the quality of life in Marina as excellent or pretty good, similar to the 2016 survey.

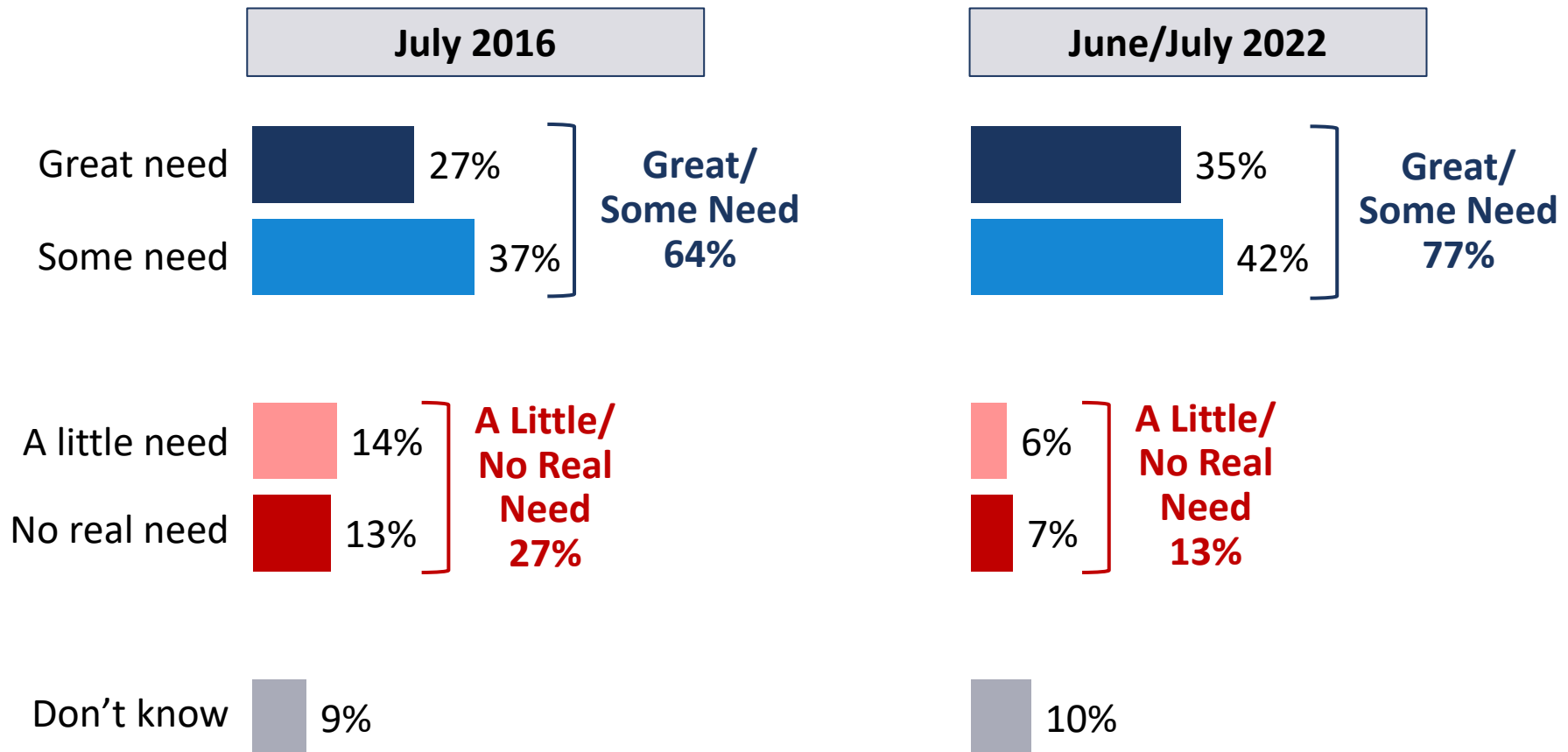
EXHIBIT F



Seven-in-ten voters continue to approve of the job being done by the City of Marina. EXHIBIT F



More than seven-in-ten voters perceive that the City has at least some need for additional funding, which is up notably from the 2016 survey.



Initial Ballot Measure Opinions

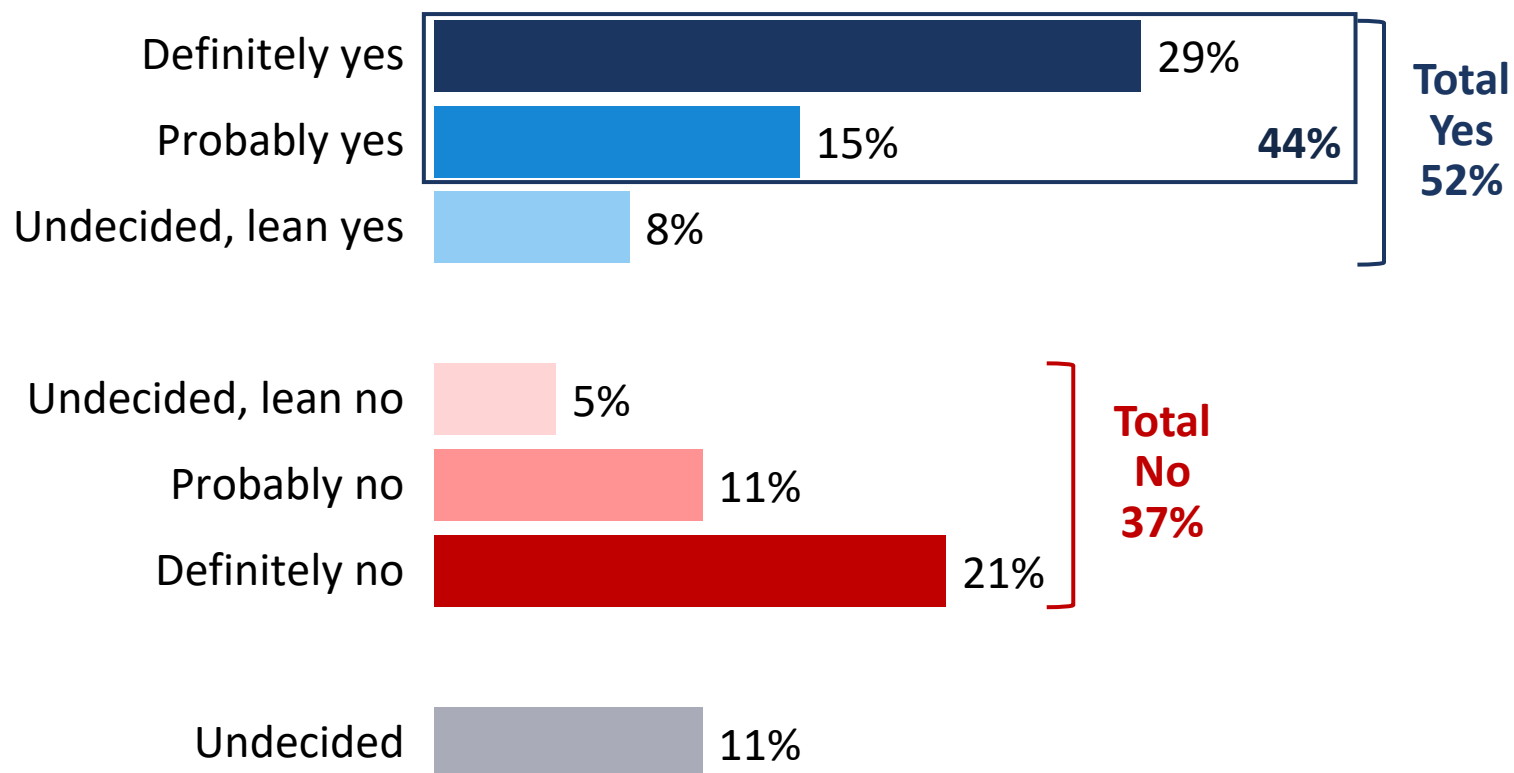
Hypothetical Ballot Question Tested in Survey

EXHIBIT F

MARINA EMERGENCY RESPONSE, PUBLIC SAFETY, ESSENTIAL CITY SERVICES MEASURE

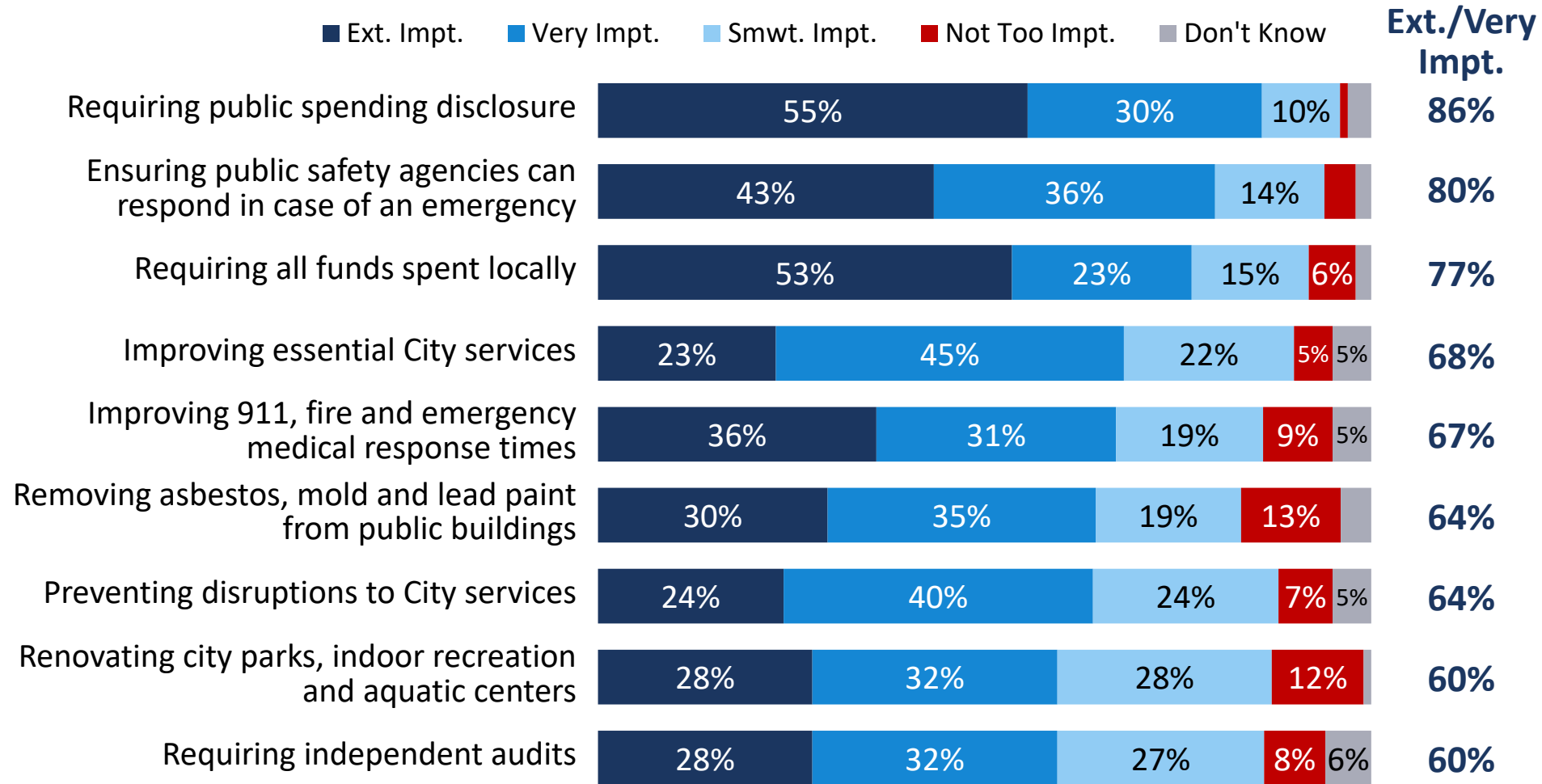
To improve 911 emergency/natural disaster response, public safety by building a fire station, upgrading police station; improve local essential services/senior services by establishing an earthquake-safe Community Center, shall the City of Marina issue \$50,000,000 in bonds at legal rates, levy \$105 per \$100,000 of assessed value, providing \$3,000,000 annually while bonds are outstanding, requiring public spending disclosure, independent oversight, all bond measure funds for Marina?

A majority of voters initially support the measure, but it falls well short of the two-thirds threshold necessary for passage.



The top priorities for the measure include emergency response, improving essential City services, and removing hazardous materials from public buildings, along with fiscal accountability.

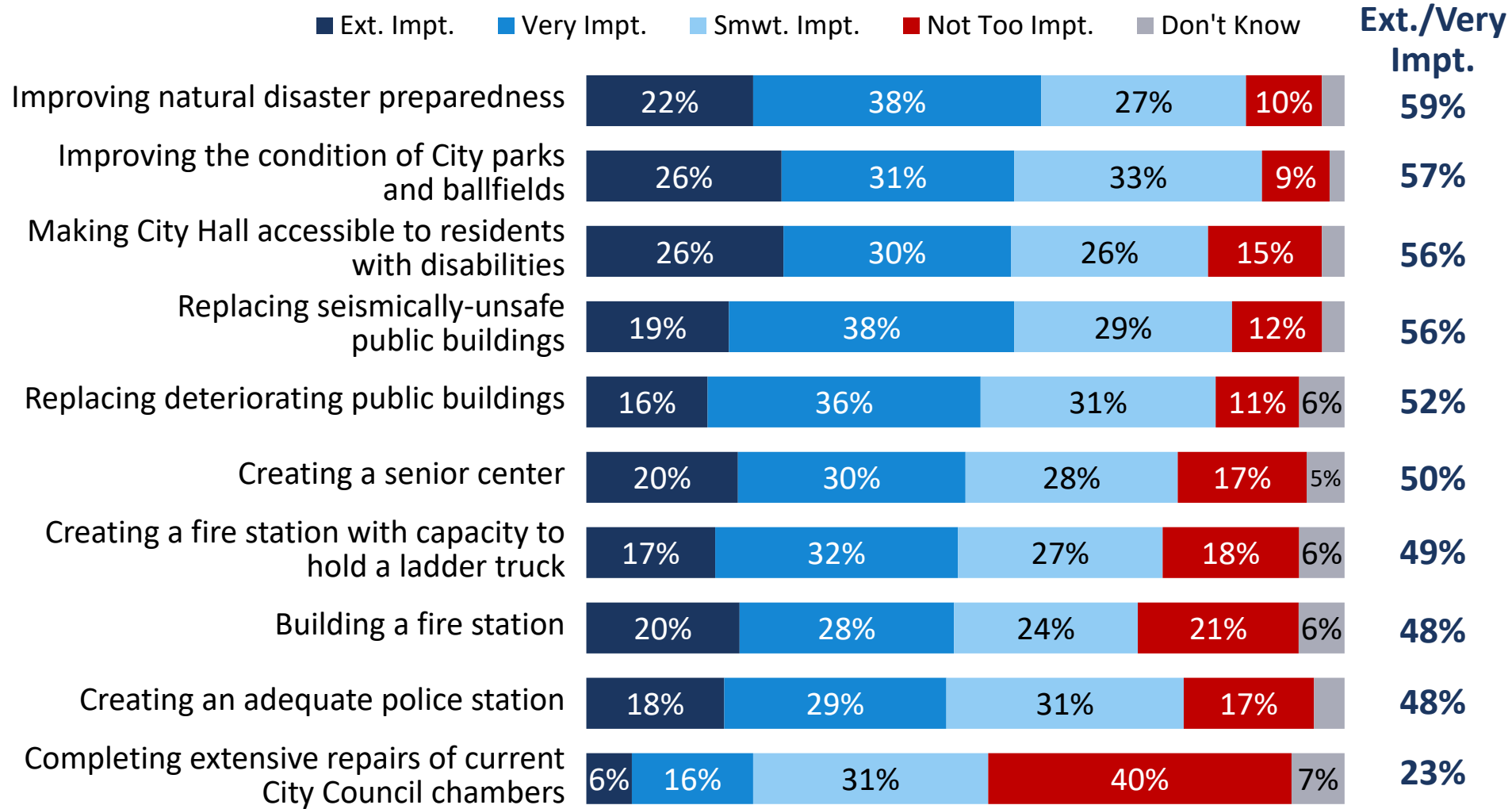
EXHIBIT F



Q6. I am going to read you a list of specific City projects and services that could be funded by, or provisions included in, the measure you just considered. Recognizing that there will not be enough funding for all of these projects, please tell me how important each one is to you: extremely important, very important, somewhat important, or not important.

Voter Priorities, Continued

EXHIBIT F



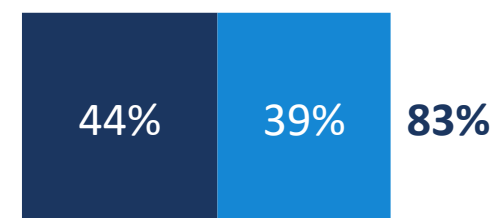
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Impact of Information

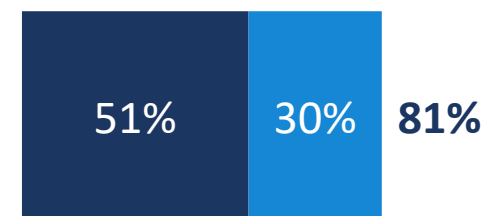
The most compelling themes about the measure include fiscal accountability, the condition of the City Hall offices, and inadequacy of the fire station.

■ Very Conv. ■ Smwt. Conv.

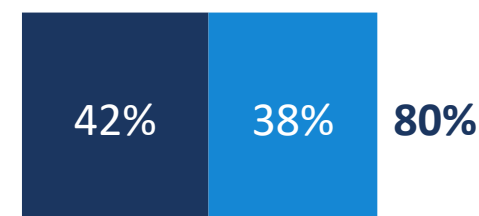
(ACCOUNTABILITY) This measure includes strict accountability provisions to ensure funds are used as promised, such as requiring public disclosure of all spending, independent audits, and a fiscal oversight committee of local residents. And by law, all funds must be used to benefit Marina residents and cannot be taken by the County, State or federal government.



(COMMUNITY CENTER) When Marina first became a city in 1975, a few temporary, portable buildings were set up to operate as the City Hall offices. The plan was to replace them in about six months. But, 47 years later those temporary portable buildings are still being used to house our city services, despite the fact that they are deteriorating, are not accessible for residents with disabilities, have mold, asbestos, leaky roofs, are not earthquake safe, and do not provide adequate space to host our local services. It is beyond time to create a real City Hall to serve all Marina residents.



(FIRE) Over the last eight years the fire service workload has increased by more than 50%. But our City relies on two old, inadequate fire stations with safety concerns, that are in the wrong location to meet response times needed for fire and medical emergencies. What's more the fire station in Seaside which provides backup support in our city is being moved farther away. This measure would help maintain and improve our public safety as Marina grows.



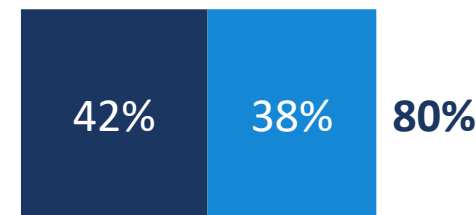
Q7. I am going to read you some statements from both supporters and opponents of the **MARINA EMERGENCY RESPONSE, PUBLIC SAFETY, ESSENTIAL CITY SERVICES MEASURE**. First, I am going to read some statements from people who support the measure. Please tell me whether you find it very convincing, somewhat convincing, or not convincing as a reason to support this measure on a future ballot.

The importance of the measure for emergency medical response times resonates strongly as well.

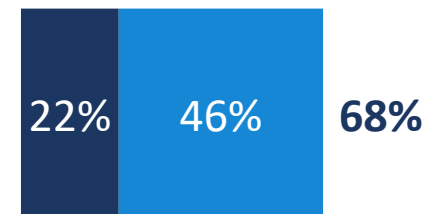
EXHIBIT F

■ Very Conv. ■ Smwt. Conv.

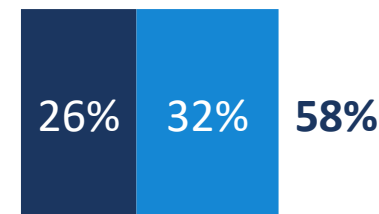
(RESPONSE TIMES - MEDICAL) When you have an emergency, seconds count. In 2021, 80 percent of calls to the Marina Fire Department were related to medical emergencies. But response times for some areas of the city are close to 8 minutes. This measure provides funding to build a much-needed, additional fire station in Marina, so all residents can get the timely 911 response they need.



(QUALITY OF LIFE) Marina is a place where people desire to work, live and raise families. However, we need to invest in our fire and police protection, and community center to be able to provide high-quality essential City services. This measure will help protect residents and maintain our community as a safe, clean place to live.

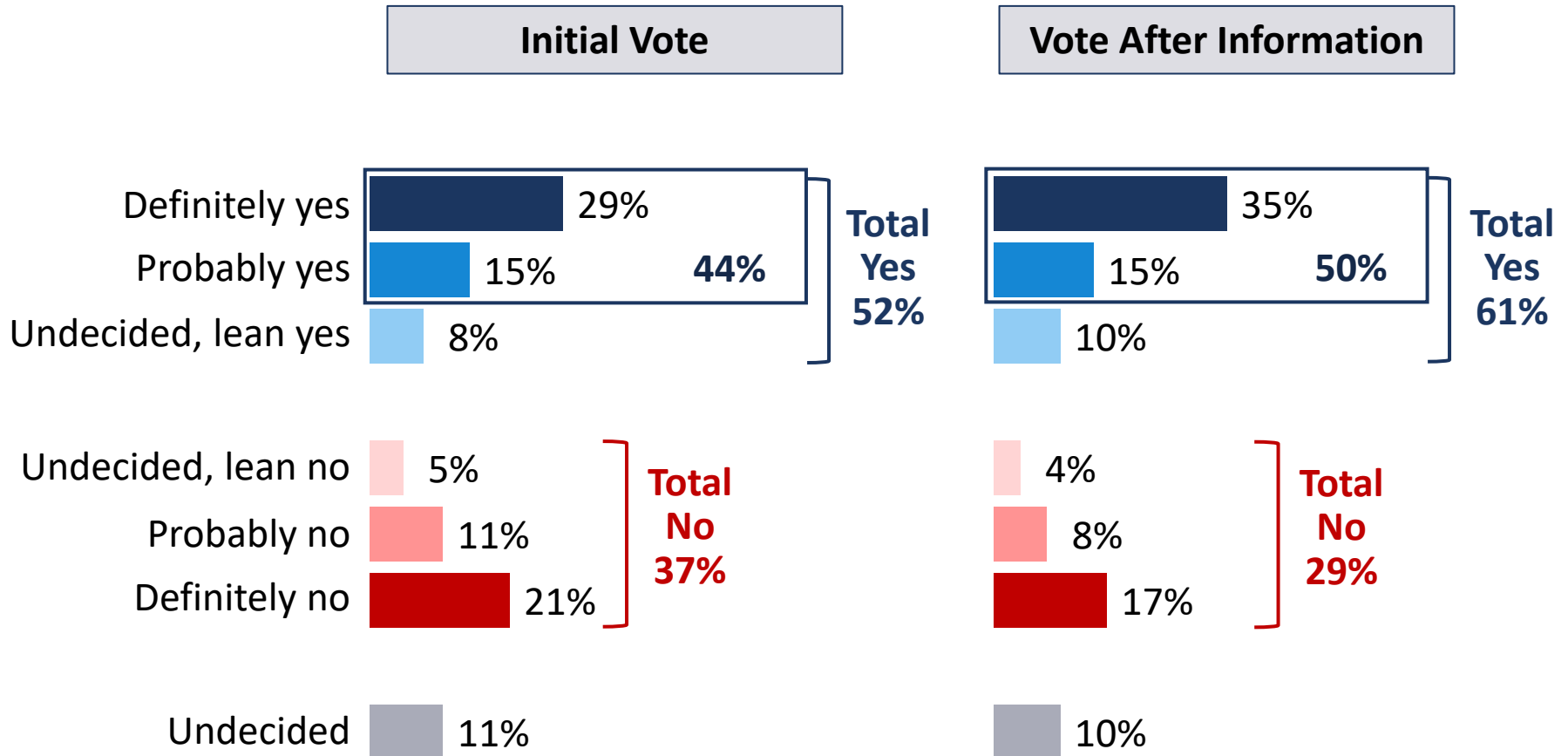


(PROPERTY VALUE) By improving 911 emergency response, fire and public safety capabilities, this measure will help to protect property values for Marina homeowners.



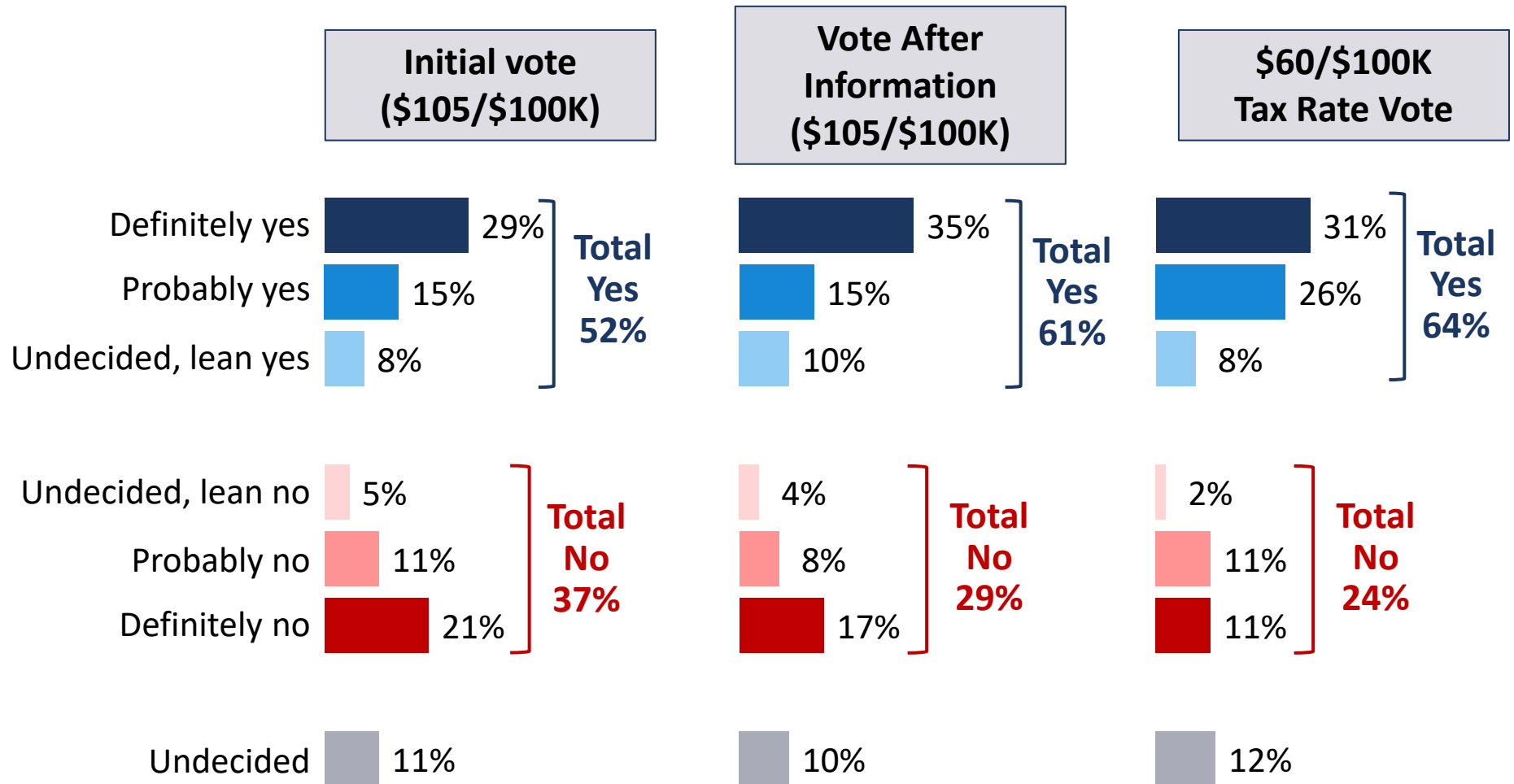
Q7. I am going to read you some statements from both supporters and opponents of the **MARINA EMERGENCY RESPONSE, PUBLIC SAFETY, ESSENTIAL CITY SERVICES MEASURE**. First, I am going to read some statements from people who support the measure. Please tell me whether you find it very convincing, somewhat convincing, or not convincing as a reason to support this measure on a future ballot.

Support for the measure increases substantially after information. ^{EXHIBIT F}



Support also increases when voters consider a lower tax rate for the bond measure.

EXHIBIT F

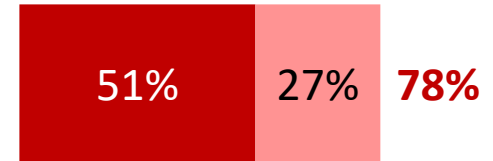


Several opposition statements resonate strongly

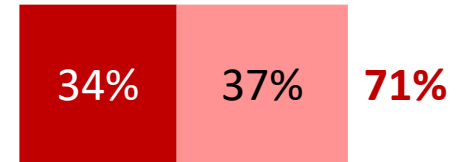
EXHIBIT F

■ Very Conv. ■ Smwt. Conv.

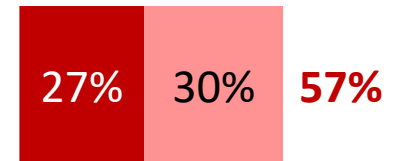
(TAXES) We are being overwhelmed by higher taxes and rising prices for gas, food, healthcare, housing, and other everyday essentials. Passing this bond measure would raise local property taxes by more than \$450 for the average homeowner, hurting those who can least afford it, like working families and seniors on fixed incomes.



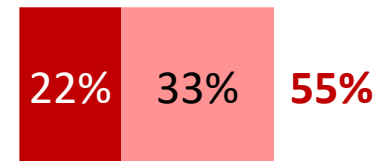
(NO NEED) With all the money the City has raised from land sales, past bond measures, sales taxes, hotel taxes and millions of dollars in new funding from the state and federal government, it should have enough funding without raising even more taxes.



(WASTE) Instead of raising taxes, the City should just cut unnecessary spending. We don't need to raise taxes again and allow bureaucrats and politicians to waste our tax dollars.

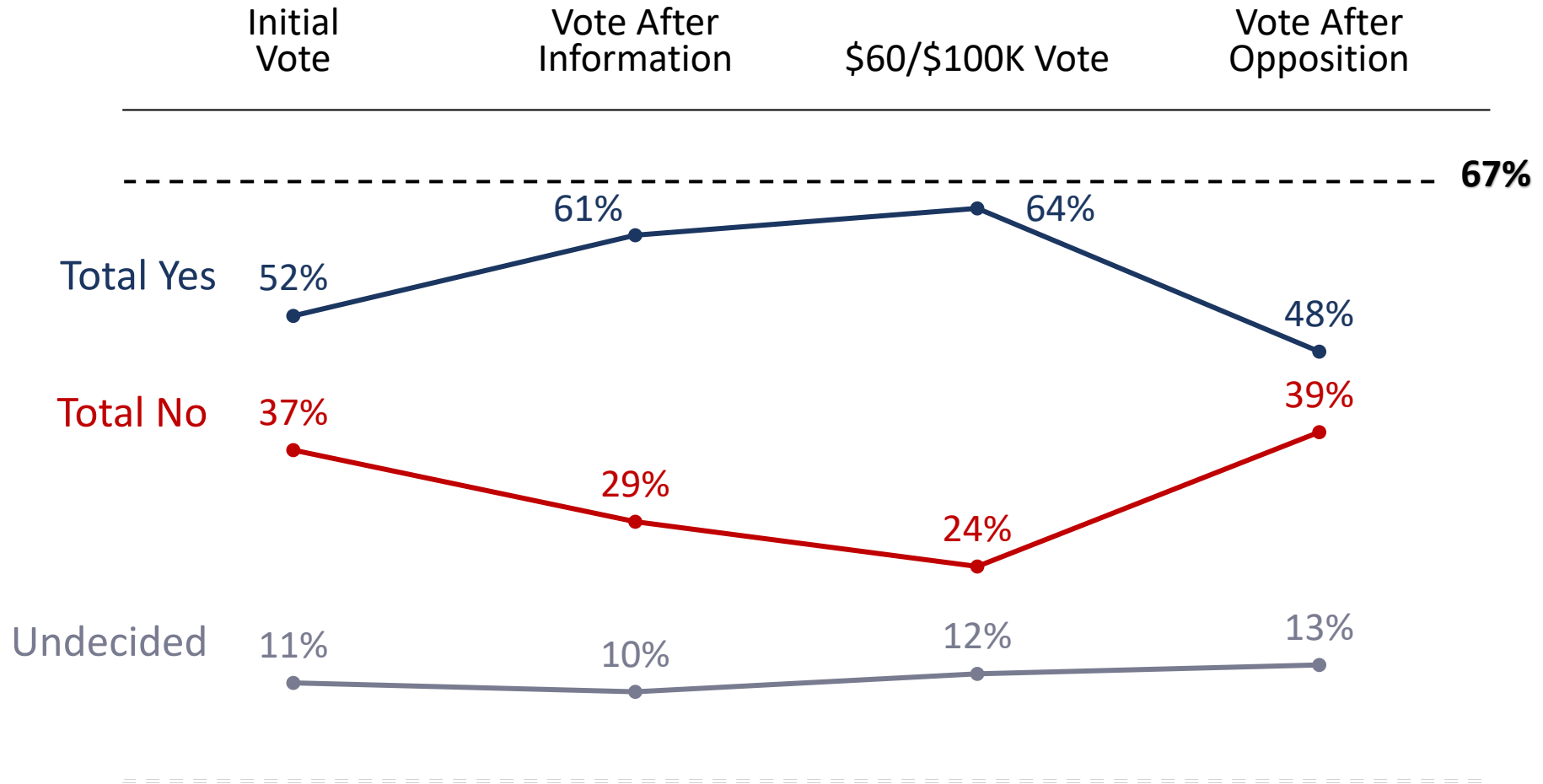


(CITY HALL) Most of the money from this measure is going to build fancy new offices for City employees. This is not a good use of our tax dollars, especially when so many employees can be working from home.



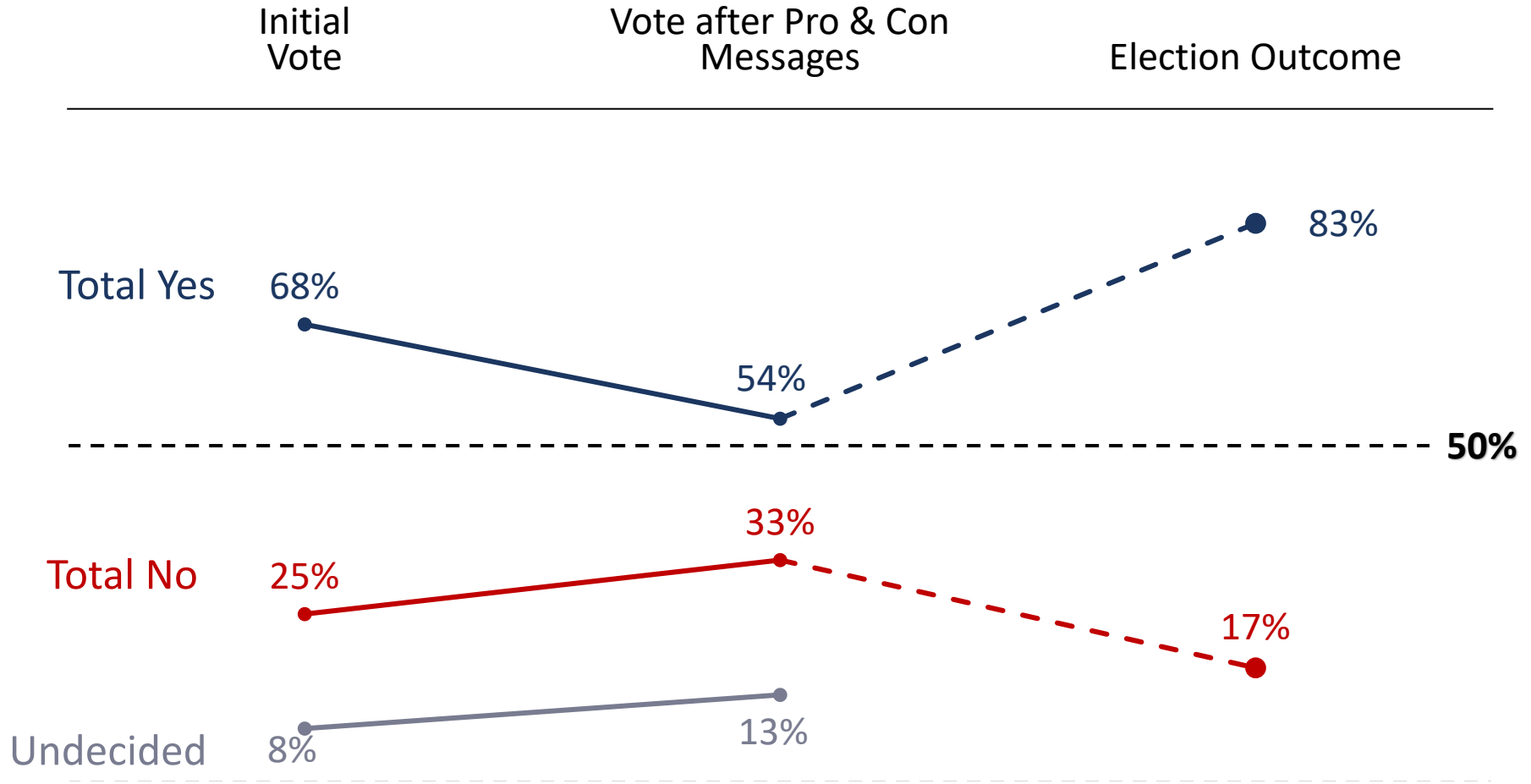
Simulating a robust opposition campaign drops support for the measure very considerably.

EXHIBIT E



In 2016, support for Marina's business license tax measure exceeded survey results which simulated an equal amount of pro and con messaging; however there was no organized opposition to the measure.

Measure U - Business License Tax (2016)



Conclusions

Conclusions

EXHIBIT F

- Survey results show that approximately half of Marina voters support a \$50 million bond measure for the development of a Community Center and fire station. After information about the reasons the City could pursue the measure, support grows to 61% but remains below the two-thirds threshold necessary for passage of the measure.
- Compared to 2016, there is a lot of consistency on attitudes on the quality of life in Marina and approval of the City's job performance.
- More than three-quarters of voters think the City has a need for additional funding, which is up from the 2016 survey.

Conclusions; Continued

EXHIBIT F

- Voters top priorities for the measure include:
 - Ensuring public safety agencies can respond in case of an emergency
 - Improving essential City services
 - Improving 911, fire and emergency medical response times
 - Removing asbestos, mold and lead paint from public buildings
 - Preventing disruptions to City services
- Voters also value fiscal accountability provisions such as requiring public disclosure of spending and that all funds would be spent locally.

Conclusions; Continued

EXHIBIT F

- Several informational themes resonate with voters including that the current City Hall was set up to be temporary 40 years ago and does not meet current safety/accessibility needs, the need for improved fire station capacity to meet current needs for fire and medical emergencies.
- Support for a smaller bond measure with a lower tax rate (\$60/\$100,000 of assessed value) is somewhat stronger, but still does not quite reach the two-thirds level.
- Simulating a robust opposition campaign knocks down the level of support for the measure below its initial level.



Opinions on Local Funding Options for the City of Marina

Highlights of a Survey of Likely Voters



OPINION
RESEARCH
& STRATEGY