



Solano Local Agency Formation Commission

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Staff Report

DATE: October 19, 2020
 TO: Local Agency Formation Commission
 FROM: Rich Seithel
 SUBJECT: (LAFCO 2019-03) Fire Special Study Public Review Draft and Presentation

RECOMMENDATION:

RECEIVE the Fire Special Study Public Review Draft and presentation;
 OPEN the 30-day public review period, and;
 APPROVE the Ad Hoc Committee recommendation and DIRECT staff to establish a Fire District Task Force.

EXECUTIVE SUMMARY:

LAFCO is a state-mandated local agency given the authority and responsibility, by California law, to oversee the boundaries of cities and special districts and to evaluate delivery of the services that special districts provide (Govt. Code §56378).¹ Given this responsibility and authority, Solano Local Agency Formation Commission (LAFCO or Commission) adopted the Workplan in FY 19/20 designating “the evaluation of fire district service efficacy and reorganization possibilities” project as a high priority. The Commission continued this project in the FY 20/21 Workplan. In addition, during the March 2020 LAFCO meeting, the Commission appointed a Fire Ad-Hoc Committee for this project.

Fire district evaluations are multi-faceted and complex. Citygate and Associates (Citygate), a recognized industry expert, performed a deployment and fiscal/governance options analysis (Attachments A and B). At the Commission's request, this special study focuses on the services provided by four (4) fire protection districts: Cordelia, Montezuma, Suisun, and Vacaville.

¹ **56378. (a)** In addition to its other powers, the commission shall initiate and make studies of existing governmental agencies. Those studies shall include, but shall not be limited to, inventorying those agencies and determining their maximum service area and service capacities.

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Rich Seithel, Executive Officer • Michelle McIntyre, Sr. Analyst • Jeffrey Lum, Analyst II • P. Scott Browne, Legal Counsel

LAFCO last evaluated these 4 special fire districts in a multi-district municipal service review in 2014².

The Citygate report provides a snapshot of service and fiscal stability and recommends reorganization alternatives addressing the study's identified challenges. Primary challenges include:

- Fiscal sustainability
 - Service-model sustainability
 - Response times/dispatching
 - Fire prevention
 - Vulnerability to single point failure

Citygate will be presenting their findings in more detail.

While awaiting the Citygate report, in a parallel effort, the LAFCO Ad-Hoc Fire Committee met with the 4 districts to discuss sustainability issues, encourage cross-district discussion, issue identification/resolution, and development of a path forward to an effective and sustainable fire service plan. Particularly noteworthy is an August 10 discussion including all 4 district boards and chiefs.

Pursuant to the August 10 discussion, and follow-up discussions, the Ad-Hoc Committee is recommending that, initially, three (3) districts form a task force. The 3 districts are: Vacaville, Cordelia, and Suisun Fire Protection Districts. The Ad-Hoc Committee suggests that the 4th district, Montezuma, may be included in the future. It is suggested that the fire chief and two board members of each District (including the district chair) comprise the initial task force.

In conclusion, staff recommends the Commission receive the Fire Special Study Public Review Draft and presentation, open the 30-day public review period, and approve the Ad-Hoc committee's recommendation to form a fire district task force.

Attachment A - Fire Special Study Public Review Draft: Fire Districts Deployment and Fiscal/Governance Options Analysis – Volume 1 of 2: Technical Report

Attachment B - Fire Special Study Public Review Draft: Fire Districts Deployment and Fiscal/Governance Options Analysis – Volume 2 of 2: Map Atlas

² Policy Consulting Associates, LLC, "Solano Fire Districts Municipal Service Review," October 3, 2014.



FIRE DISTRICTS DEPLOYMENT
AND FISCAL/GOVERNANCE
OPTIONS ANALYSIS
VOLUME 1 OF 2: TECHNICAL REPORT

SOLANO COUNTY LOCAL AGENCY
FORMATION COMMISSION

OCTOBER 13, 2020



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TABLE OF CONTENTS

VOLUME 1 of 2 – Technical Report (this volume)

<u>Section</u>	<u>Page</u>
Executive Summary.....	1
Fire Service Policy Choices Framework	1
Deployment Summary.....	1
Challenge #1 – Revenue Limits and the Increased Cost of Fire Services	2
Challenge #2 – Maintaining Volunteer and Part-Time Fire Services	2
Challenge #3 – Geography of the Coverage Area in Solano County	4
Improvements Needed / Conclusion	4
Section 1—Introduction and Background.....	5
1.1 Report Organization.....	5
1.1.1 Goals of the Report.....	6
1.1.2 Limitations of Report.....	6
1.2 Project Approach and Scope of Work.....	6
1.2.1 Project Approach and Methodology	6
1.3 Solano County Overview	7
1.4 Fire Services Overview	8
1.4.1 Pressures on Volunteer Fire Departments.....	10
1.4.2 Cordelia Fire Protection District Overview	11
1.4.3 Montezuma Fire Protection District Overview	11
1.4.4 Suisun Fire Protection District Overview	11
1.4.5 Vacaville Fire Protection District Overview.....	12
1.5 Fire District Facilities, Response Resources, Staffing, and Service Capacity.....	12
1.5.1 Facilities.....	12
1.5.2 Staffing	14
1.5.3 Service Capacity	15
1.6 Future Growth and Service Demand.....	16
1.6.1 Future Growth.....	16
1.6.2 Future Service Demand	16
Section 2—Deployment Assessment.....	17
2.1 Deployment Assessment Methodology.....	17
2.2 Current Deployment.....	19
2.2.1 Current Deployment Model	20
2.3 Risk Assessment	22
2.3.1 Risk Assessment Methodology.....	23
2.3.2 Values at Risk to Be Protected	24
2.3.3 Hazard Identification	25
2.3.4 Risk Assessment Summary.....	27
2.4 Distribution and Concentration Studies—How the Location of First-Due and First Alarm Resources Affects Emergency Incident Outcomes	28
2.4.1 Deployment Baselines	29
2.4.2 Road Mile Coverage Measures	31
2.5 Incident Statistical Analysis.....	32
2.5.1 Service Demand.....	32
2.5.2 Mutual Aid Activity.....	37
2.5.3 Response Performance.....	38

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

2.6	Overall Deployment Evaluation.....	40
2.6.1	Deployment Recommendations.....	41
Section 3—Physical Assets Assessment.....		45
3.1	Fire Station Facility Assets	45
3.1.1	Cordelia FPD	46
3.1.2	Montezuma FPD.....	47
3.1.3	Suisun FPD.....	47
3.1.4	Vacaville FPD.....	47
3.1.5	Facility Assessment Summary.....	48
3.2	Physical Response (Apparatus) Assets	49
3.2.1	Cordelia FPD	51
3.2.2	Montezuma FPD.....	52
3.2.3	Suisun FPD	53
3.2.4	Vacaville FPD.....	54
3.2.5	Physical Response Asset Assessment Summary	55
Section 4—Fiscal Assessment		57
4.1	Methodology	57
4.2	Cordelia FPD	57
4.2.1	Revenues.....	57
4.2.2	Expenditures	59
4.2.3	Revenues to Expenditures.....	60
4.2.4	Debt Service	61
4.2.5	Unfunded Liability.....	61
4.2.6	Fiscal Reserves	62
4.3	Montezuma FPD	63
4.3.1	Revenues.....	63
4.3.2	Expenditures	65
4.3.3	Revenues to Expenditures.....	66
4.3.4	Debt Service	67
4.3.5	Unfunded Liability.....	67
4.3.6	Fiscal Reserves	67
4.4	Suisun FPD	69
4.4.1	Revenues.....	69
4.4.2	Expenditures	70
4.4.3	Revenues to Expenditures.....	71
4.4.4	Debt Service	72
4.4.5	Unfunded Liability.....	72
4.4.6	Fiscal Reserves	72
4.5	Vacaville FPD.....	74
4.5.1	Revenues.....	74
4.5.2	Expenditures	75
4.5.3	Revenues to Expenditures.....	76
4.5.4	Debt Service	77
4.5.5	Unfunded Liability.....	77
4.5.6	Fiscal Reserves	77
4.6	Fiscal Assessment Summary.....	79
Section 5—Service Model and Governance Alternatives.....		81
5.1	Fire Service Policy Choice Framework	81
5.2	Rural Fire Service Challenges.....	81
5.3	Service Model Alternatives.....	81
5.3.1	Shared Administrative Personnel/Functions	82



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

5.3.2	Shared Response Staffing	82
5.3.3	Shared Physical Response Resources	82
5.3.4	Shared Support Services	82
5.3.5	Contracted Fire Services	82
5.4	Governance Alternatives	83
5.4.1	Consolidation/Merger	83
5.4.2	Single Countywide Fire Protection District	83
5.4.3	County Service Area	84
5.4.4	Countywide Community Services District	84
5.4.5	Countywide Mello-Roos Community Facilities District	84
5.4.6	Service Model and Governance Alternatives Summary	84
Section 6—Findings and Recommendations		87
6.1	Deployment Findings and Recommendations	87
6.2	Physical Asset Findings	90
6.3	Fiscal Findings	90
6.4	Service Model / Governance Alternatives Findings and Recommendations	91
Appendix A – Risk Assessment		93
A.1	Community Risk Assessment Overview	93
A.2	Risk Assessment Methodology	93
A.2.1	Probability of Occurrence	94
A.2.2	Impact Severity	95
A.2.3	Overall Risk	96
A.3	Values at Risk to Be Protected	96
A.3.1	People	96
A.3.2	Buildings	97
A.4	Hazard Identification	97
A.5	Building Fire Risk	97
A.5.1	Building Fire Risk Assessment	99
A.6	Vegetation/Wildland Fire Risk	99
A.6.1	Vegetative Fuels	99
A.6.2	Weather	99
A.6.3	Topography	100
A.6.4	Wildland Fire Hazard Severity Zones	100
A.6.5	Vegetation/Wildland Fire Risk Assessment	102
A.7	Medical Emergency Risk	102
A.7.1	Medical Emergency Risk Assessment	104
A.8	Risk Assessment Summary	104

Table of Tables

Table 1—Facilities and Response Resources – Cordelia FPD	12
Table 2—Facilities and Response Resources – Montezuma FPD	13
Table 3—Facilities and Response Resources – Suisun FPD	13
Table 4—Facilities and Response Resources – Vacaville FPD	14
Table 5—Total District Staffing Summary	15
Table 6—Recent Annual Service Demand Summary	16
Table 7—Standards of Coverage Process Elements	18
Table 8—Fire Service Deployment Paradigm	19
Table 9—Daily Deployment Staffing Summary	21
Table 10—Overall Risk by Hazard	28
Table 11—12:00-Minute First-Due Travel Time Coverage Summary	32
Table 12—Annual Service Demand by District	33

Table of Contents



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 13—Annual Service Demand by Category – Cordelia FPD.....	34
Table 14—Annual Service Demand by Category – Montezuma FPD	35
Table 15—Annual Service Demand by Category – Suisun FPD	36
Table 16—Annual Service Demand by Category – Vacaville FPD	37
Table 17—Mutual Aid Given by District	38
Table 18—90 th Percentile Call Processing Performance	39
Table 19—80 th Percentile Dispatch to Arrival Performance	40
Table 20—Facility Assessment Criteria	45
Table 21—Fire Districts Facility Assessment Summary	49
Table 22—Physical Response Asset Assessment Criteria.....	50
Table 23—Physical Response Assets Assessment Summary – Cordelia FPD.....	51
Table 24—Physical Response Assets Assessment Summary – Montezuma FPD.....	52
Table 25—Physical Response Assets Assessment Summary – Suisun FPD.....	53
Table 26—Physical Response Asset Assessment Summary – Vacaville FPD	54
Table 27—Recent Historical Revenue – Cordelia FPD (FY 10/11 – FY 18/19).....	58
Table 28—Current and Projected Future Revenue – Cordelia FPD (FY 19/20 – FY 24/25)	59
Table 29—Recent Historical Expenditures – Cordelia FPD (FY 10/11 – FY 18/19).....	60
Table 30—Current and Projected Future Expenditures – Cordelia FPD (FY 19/20 – FY 24/25)	60
Table 31—Recent Historical Revenues to Expenditures – Cordelia FPD (FY 10/11 – FY 18/19)	60
Table 32—Current and Projected Future Revenues to Expenditures – Cordelia FPD (FY 19/20 – FY 24/25).....	61
Table 33—Recent Historical Fund Balance – Cordelia FPD (FY 10/11 – FY 18/19).....	62
Table 34—Projected Future Fund Balance – Cordelia FPD (FY 19/20 – FY 24/25).....	62
Table 35—Recent Historical Revenues – Montezuma FPD (FY 10/11 – FY 18/19).....	64
Table 36—Current and Projected Future Revenue – Montezuma FPD (FY 19/20 – FY 24/25).....	65
Table 37—Recent Historical Expenditures – Montezuma FPD (FY 10/11 – FY 18/19)	65
Table 38—Current and Projected Future Expenditures – Montezuma FPD (FY 19/20 – FY 24/25).....	66
Table 39—Recent Historical Revenues to Expenditures – Montezuma FPD (FY 10/11 – FY 18/19).....	66
Table 40—Current and Projected Future Revenues to Expenditures – Montezuma FPD (FY 19/20 – FY 24/25)	66
Table 41—Recent Historical Fund Balance – Montezuma FPD (FY 10/11 – FY 18/19)	68
Table 42—Current and Projected Future Fund Balance – Montezuma FPD (FY 19/20 – FY 24/25).....	68
Table 43—Recent Historical Revenues – Suisun FPD (FY 10/11 – FY 18/19).....	69
Table 44—Projected Current and Future Revenues – Suisun FPD (FY 19/20 – FY 24/25).....	70
Table 45—Recent Historical Expenditures – Suisun FPD (FY 10/11 – FY 18/19).....	70
Table 46—Projected Current and Future Expenditures – Suisun FPD (FY 19/20 – FY 24/25).....	71
Table 47—Recent Historical Revenues to Expenditures – Suisun FPD (FY 10/11 – FY 18/19).....	71
Table 48—Current and Projected Revenues to Expenditures – Suisun FPD (FY 19/20 – FY 24/25).....	71
Table 49—Recent Historical Fund Balance – Suisun FPD (FY 10/11 – FY 18/19).....	73
Table 50—Current and Projected Future Fund Balance – Suisun FPD (FY 19/20 – FY 24/25)	73
Table 51—Recent Historical Revenues – Vacaville FPD (FY 10/11 – FY 18/19).....	74
Table 52—Projected Current and Future Revenues – Vacaville FPD (FY 19/20 – FY 24/25)	75
Table 53—Recent Historical Expenditures – Vacaville FPD (FY 10/11 – FY 18/19)	75
Table 54—Projected Current and Future Expenditures – Vacaville FPD (FY 19/20 – FY 24/25).....	76
Table 55—Recent Historical Revenues to Expenditures – Vacaville FPD (FY 10/11 – FY 18/19).....	76
Table 56—Current and Projected Revenues to Expenditures – Vacaville FPD (FY 19/20 – FY 24/25)	76
Table 57—Recent Historical Fund Balance – Vacaville FPD (FY 10/11 – FY 18/19)	78
Table 58—Current and Projected Future Fund Balance – Vacaville FPD (FY 19/20 – FY 24/25).....	78
Table 59—Probability of Occurrence Scoring Criteria	94
Table 60—Impact Severity Criteria.....	95
Table 61—Overall Risk Score and Rating.....	96
Table 62—Building Fire Risk Assessment.....	99
Table 63—Vegetation/Wildland Fire Risk Assessment	102
Table 64—Medical Emergency Risk Assessment	104
Table 65—Overall Risk by Hazard	104



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table of Figures

Figure 1—Solano County Fire Districts9
 Figure 2—Overall Risk23
 Figure 3—Building Fire Progression Timeline26
 Figure 4—Survival Rate versus Time of Defibrillation.....27
 Figure 5—Annual Service Demand by District.....33
 Figure 6—Annual Service Demand by Category – Cordelia FPD34
 Figure 7—Annual Service Demand by Category – Montezuma FPD35
 Figure 8—Annual Service Demand by Incident Type – Suisun FPD36
 Figure 9—Annual Service Demand by Incident Type – Vacaville FPD37
 Figure 10—Revenues to Expenditures – Cordelia FPD (FY 10/11 – FY 24/25).....61
 Figure 11—Fund Balance – Cordelia FPD (FY 09/10 – FY 24/25)63
 Figure 12—Revenues to Expenditures – Montezuma FPD (FY 10/11 – FY 24/25)67
 Figure 13—Fund Balance – Montezuma FPD (FY 09/10 – FY 24/25).....68
 Figure 14—Revenues to Expenditures – Suisun FPD (FY 10/11 – FY 24/25)72
 Figure 15—Fund Balance – Suisun FPD (FY 09/10 – FY 24/25).....73
 Figure 16—Revenues to Expenditures – Vacaville FPD (FY 10/11 – FY 24/25).....77
 Figure 17—Fund Balance – Vacaville FPD (FY 09/10 – FY 24/25)78
 Figure 18—Fund Balances80
 Figure 19—Overall Risk94
 Figure 20—Building Fire Progression Timeline98
 Figure 21—SRA Fire Hazard Severity Zones – Solano County101
 Figure 22—Survival Rate versus Time of Defibrillation.....103

VOLUME 2 of 2 – Map Atlas (separately bound)

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EXECUTIVE SUMMARY

The Solano County Local Agency Formation Commission (LAFCO) retained Citygate Associates, LLC (Citygate) to conduct a Fire Districts Deployment and Fiscal/Governance Options Analysis of the Cordelia, Montezuma, Suisun, and Vacaville Fire Protection Districts (Districts) to identify current service levels and response performance, service infrastructure condition and needs, staffing levels and needs, and current and projected near-future fiscal ability to sustain or improve services. The study also identifies and evaluates service model and governance alternatives as appropriate.

This report is presented in seven parts, including this Executive Summary, supported by Appendix A—Risk Assessment and a separate map atlas (**Volume 2**), which contains all the maps referenced throughout this report. Overall, Citygate makes 39 findings and six specific action recommendations.

FIRE SERVICE POLICY CHOICES FRAMEWORK

In the United States, there are no Federal or State regulations requiring a specific minimum level of fire services. Each community, through the public policy process, is expected to understand the local fire and non-fire risks and its desire and ability to pay and then choose its level of fire services. *If* fire services are provided at all, Federal and State regulations specify how they must be safely provided to protect the public and the personnel providing the services. Given this, the overarching challenge in Solano County is to design an unincorporated rural fire service system with the fiscal capacity to provide appropriate staffing, training, and equipment for a safe and effective fire/medical response force. The fiscal challenge is made more severe given the decades of property tax regulations because of Proposition 13 that limit the ability of fire districts to reorganize without unduly changing their property tax rates.

DEPLOYMENT SUMMARY

The four districts serve a suburban to rural population over a predominantly agriculture and rural residential land-use pattern and deploy the appropriate types of response apparatus to protect against the hazards likely to impact their service areas.

Fire service deployment, simple summarized, is about the *speed* and *weight* of response. *Speed* refers to initial response (first unit) of all-risk resources (engines, ladder trucks, rescues, and wildland firefighting units) strategically deployed across a jurisdiction for response to emergencies within a time interval to achieve desired outcomes. *Weight* refers to multiple-unit (Effective Response Force or ERF) responses to more serious emergencies, such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

incidents. In these situations, a sufficient number of firefighters must be assembled within a time interval to safely control the emergency and prevent it from escalating into an even more serious event.

If desired outcomes include limiting building fire damage to only the affected building, minimizing the spread of a wildland fire, and minimizing permanent impairment resulting from a medical emergency, then the Districts will need response coverage consistent with a Citygate- and NFPA-recommended best practice goal in **rural** areas of first-due-unit arrival within 14:00 minutes from crew notification at 80 percent or better reliability, and multiple-unit arrival at serious incidents within 19:00 minutes from dispatch notification at 80 percent or better reliability.

All four districts strive to maintain varying levels of 24-hour, seven-day-per-week emergency response capability and capacity with a fiscally forced combination of paid full-time, paid part-time, and volunteer personnel. All fire districts in Solano County and beyond are fragile in that there are three key challenges to the provision of *reliable and effective* fire services.

Challenge #1 – Revenue Limits and the Increased Cost of Fire Services

The rural districts existing on an old, post-Proposition 13 tax rate cannot provide increased in-station staffing or afford large capital projects, such as station replacements. The safety, equipment, and personnel costs in the fire service have increased by largely double the inflation rate for the last two decades. The older tax rates were not designed for modern fire services, or the increased emergency medical services (EMS) and wildfire demands.

Cordelia Fire Protection District’s (FPD) fiscal health is *poor and deteriorating*, with a projected *increasing structural budget deficit* each fiscal year through FY 24/25, significant capital renewal/replacement needs, and a declining reserve fund balance likely exhausted within the next several years without substantial additional revenue.

Montezuma, Suisun, and Vacaville FPDs are *fiscally viable at the moment but cannot likely afford more in-station staffing*. They can only afford modest capital renewal/replacement as needed; not entire fire station replacements eventually needed.

Challenge #2 – Maintaining Volunteer and Part-Time Fire Services

Table 9, here repeated, summarizes the daily paid and volunteer staffing by district.

Table 9 (Repeated)—Daily Deployment Staffing Summary

Station	Response Staffing		
	Paid		Volunteer
	Number	Hours	
Cordelia FPD			
29	Currently Unstaffed		
31	2–4	24/7	0
Montezuma FPD			
51	4	8:00–5:00 M.–F.	13
	0	Nights/Weekends	
52	0	N/A	5
Suisun FPD			
32	0	N/A	12
33	2	8:00–4:30 M.–F.	20
Vacaville FPD			
64	3	9:00–5:00 M./T./F.	31
	4	9:00–5:00 W./Th.	
	2	5:00–9:00 W./Th.	
	1	Weekends	
65	0	N/A	21
67	0	N/A	16
68	0	N/A	16

A quantity of 134 volunteers sounds like a lot, but is only an average of 13 per company, meaning at some hours of a day a district is fortunate to get two to three volunteers per unit to immediately respond. Volunteer firefighting recruitment and retention is a nationwide strain, if not an outright crisis, due to more two-income families and less time to volunteer.

The fire service has adopted additional missions, including large-scale wildland firefighting, emergency medical services, hazardous materials response, and technical rescue. This dramatically increased the legally mandated training requirements, causing many volunteers to drop out as the time commitment is often unbearable. Under California safety laws, a firefighter is a firefighter, and there is not a lesser standard for training and equipping volunteer, paid-on-call, or part-time firefighters.

Another result of mission expansion impacting volunteerism is the resultant significant increase in emergency incidents. Where smaller or rural jurisdictions previously had one or two calls per week, service demand has increased to an average of more than one call per day in many locations.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

In Citygate’s opinion, all four districts have barely the minimum number of personnel to provide response services from a *staffed* fire station 24 hours per day, seven days per week, as well as adequate command and quality control for training, safety, and fiscal responsibilities.

As separate entities, the Districts are very exposed to single points of failure if they were to lose a few career personnel or highly responsive volunteers. They lack “*strength in numbers*” to be resilient and have redundancy.

Challenge #3 – Geography of the Coverage Area in Solano County

The large size of the rural road network means that when a unit arrives, the problem to solve is much larger and more dangerous to the firefighters and the public they serve. *Boots on the ground* deliver customer service, not fire trucks. The very limited one-, two-, or maybe three-person staffing backed up by volunteers that take longer to respond means the overall system will likely be unable to slow or control serious emergencies.

IMPROVEMENTS NEEDED / CONCLUSION

The Districts must fix their fragile personnel counts and 24-hour-per-day, seven-day-per-week in-station staffing. In the current wildfire and building fire environment, incidents cannot wait for a minimal force to respond from home or business. Operating and commanding a district is more than a one-person job and the Districts are very exposed to failure as stand-alone agencies.

The Districts, working together in a cost-effective merger, must show the taxpayer they have done what they can to gain economies of scale and to share the personnel available. In Citygate’s opinion, the improved provision of unincorporated fire services must include fewer agencies to reduce overhead expense and to share limited numbers of volunteer and part-time personnel.

After this, the Districts can make the case to the taxpayers to provide a minimum of two personnel per unit, 24 hours per day, seven days per week, backed up with volunteers or part-time firefighters. The two personnel would ensure a certified driver-operator for the engine and a company officer for command decisions.

Shared fire services can begin incrementally with contracts for service or a limited Joint Powers Authority (JPA) for collective policy oversight by elected officials and as a committee to work on the next steps. The Board of Supervisors and LAFCO should establish a task force to identify a merged district model to provide *sustainable, long-term funding* for the delivery of adequate rural fire services.

SECTION 1—INTRODUCTION AND BACKGROUND

The Solano County Local Agency Formation Commission (LAFCO) retained Citygate Associates, LLC (Citygate) to conduct a Fire Districts Deployment and Fiscal/Governance Options Analysis of the Cordelia, Montezuma, Suisun, and Vacaville Fire Protection Districts (Districts) to identify current service levels and response performance, service infrastructure condition and needs, staffing levels and needs, and current and projected near-future fiscal ability to sustain or improve services. The study also identifies and evaluates service and governance alternatives as appropriate.

This report is presented in seven parts covering fire service policy choices and deployment, fiscal, service model, and governance observations and challenges facing rural fire service delivery in Solano County (County), including an overall summary. The findings and recommendations can be used to strategically guide the LAFCO's and Districts' efforts to provide sustainable fire services.

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

1.1 REPORT ORGANIZATION

This report is organized into the following sections. **Volume 2** (Map Atlas) is separately bound.

Executive Summary summarizes fire service policy choices, key challenges facing rural fire service delivery in the County, and key findings and recommendations that can be used to strategically guide the LAFCO's and Districts' efforts.

Section 1—Introduction and Background describes Citygate's project approach and methodology, scope of work, and overview of the County and Districts.

Section 2—Deployment Assessment describes in detail our analysis and findings relative to the Districts' current deployment and service delivery.

Section 3—Physical Assets Assessment describes Citygate's assessment of the condition of each district's physical facilities and vehicles.

Section 4—Fiscal Assessment describes in detail our assessment of each district's fiscal health and projected sustainability over the near term.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Section 5—Service Model and Governance Alternatives describes potential alternative service delivery models and governance options to provide long-term sustainable, efficient, and effective rural fire services.

Section 6—Findings and Recommendations lists all the findings and recommendations contained throughout this report in sequential order.

1.1.1 Goals of the Report

This report cites findings and makes recommendations, as appropriate, relative to each finding. Findings and recommendations throughout this report are sequentially numbered. This document provides technical information about how fire services are provided and legally regulated and the way each district currently operates and provides services. This information is presented in the form of recommendations and policy choices for consideration by LAFCO and each district.

The result is a solid technical foundation upon which to understand the advantages and disadvantages of the choices facing County and District leadership regarding current and alternative service models to facilitate an appropriate level of fiscally sustainable fire services.

1.1.2 Limitations of Report

While this report and technical explanations can provide a framework for the discussion of services, neither this report nor the Citygate team can make the final decisions, nor can they cost out every possible alternative in detail. Once final strategic choices are considered and receive appropriate policy approval, County and District staff can conduct any final costing and fiscal analyses as typically completed in their normal operating and capital budget preparation cycle.

1.2 PROJECT APPROACH AND SCOPE OF WORK

1.2.1 Project Approach and Methodology

Citygate utilized multiple sources to gather, understand, and model information about each district, beginning with our request and review of relevant background data and information to better understand current costs, service levels, and history of service level decisions, including any prior studies.

Citygate subsequently reviewed demographic information about each district and the potential for future growth and development. Citygate also obtained map and response data from which to model current deployment expectations. Once an understanding of each district's service area and their fire and non-fire risks was gained, the Citygate team then developed a model of fire services that was tested against the travel time mapping and prior response data to ensure an appropriate fit. Citygate also evaluated future growth and service demand for each district, as well as prior, current, and projected near-future revenues and expenditures to model overall fiscal health and

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

sustainability. Citygate further identified and evaluated potential alternative service and governance models, particularly where we identified a current or near-future fiscal concern, resulting in a proposed approach to both address current and longer-term service needs while meeting reasonable community expectations and fiscal realities.

Citygate’s project approach and scope of work for this study included:

- ◆ Reviewing information provided by LAFCO and each district
- ◆ Interviewing LAFCO and each district’s executive management staff
- ◆ Utilizing FireView™, a geographic mapping software program, to model fire station travel time coverage
- ◆ Reviewing prior service demand and response performance
- ◆ Identifying and evaluating future population and related development growth for each district
- ◆ Projecting future service demand
- ◆ Reviewing historical revenues, expenditures, and fiscal reserves
- ◆ Evaluating service infrastructure condition and needs
- ◆ Evaluating overall service delivery, costs, and projected future fiscal health and sustainability by district
- ◆ Identifying and evaluating potential alternate service delivery models
- ◆ Recommending appropriate risk-specific response performance goals
- ◆ Identifying a long-term strategy, including incremental short- and mid-term goals, to achieve desired service objectives
- ◆ Utilizing NFPA 1201 – Standard for Providing Emergency Services to the Public, and other NFPA, CFAI, and Citygate-recommended goals and recommendations as the basis for evaluating current service delivery.

1.3 SOLANO COUNTY OVERVIEW

Created in 1850, Solano County is one of the original California counties. Located 60 miles northeast of San Francisco along Interstate 80, it is the northernmost county comprising the San Francisco Bay Area region. The County encompasses 910 square miles with a population of

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

446,000.¹ Approximately 95 percent of the population resides in the County’s seven cities, with the remaining 5 percent, or approximately 22,000 people, residing in the unincorporated areas of the County comprising 494,000 acres, or 85 percent of the total land area. County General Plan land use policies have historically required any development water and sewer service to be incorporated within one of the County’s cities. In addition, approximately 9 percent of the County area is water, with marshland comprising an additional 11 percent and watershed an additional 6 percent. Land use within the unincorporated areas of the County is predominantly agriculture (56 percent), followed by residential (1.2 percent) and commercial (0.1 percent).²

1.4 FIRE SERVICES OVERVIEW

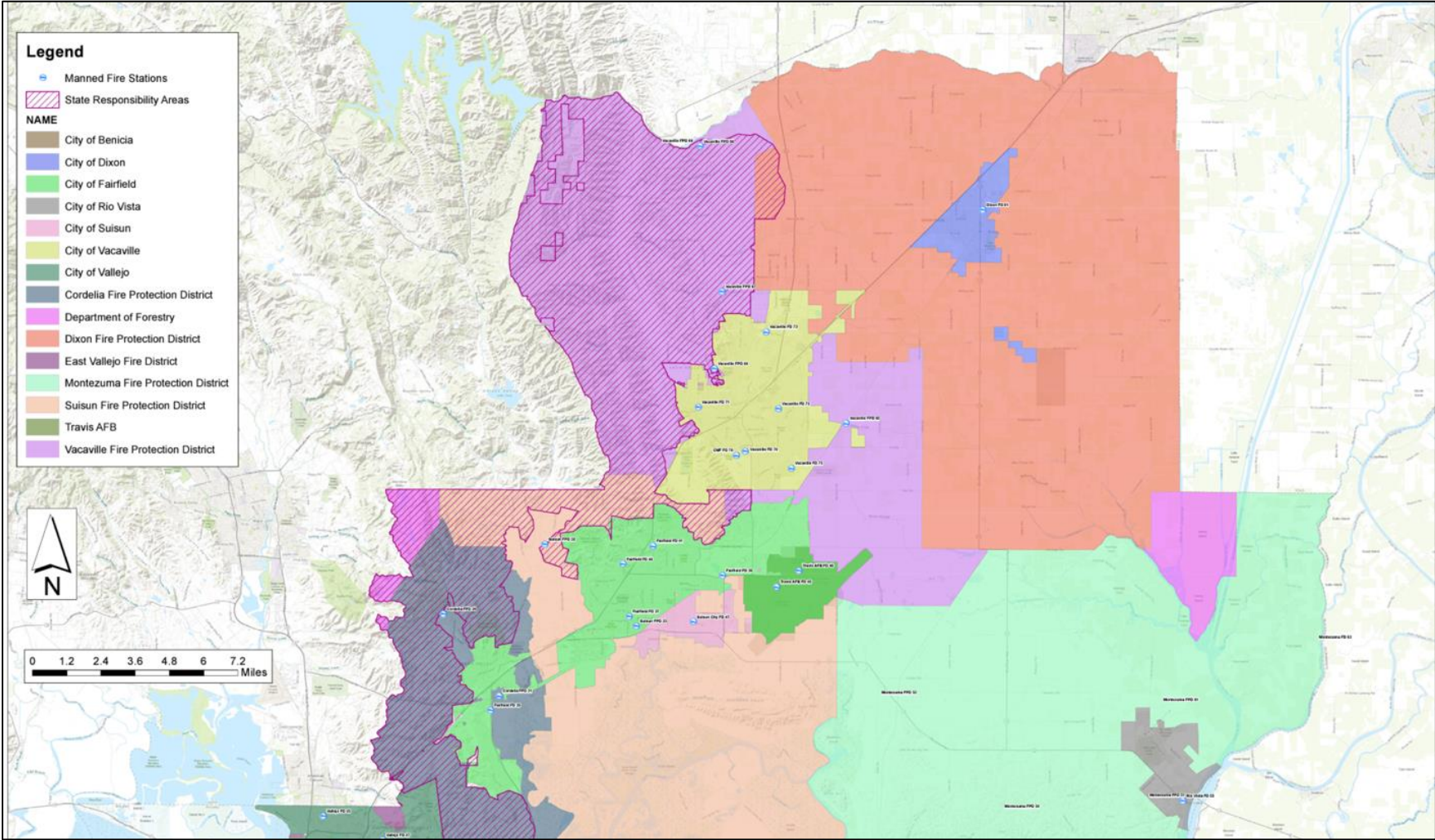
Fire protection and first responder emergency medical services in the unincorporated areas of the County are provided by six FPDs and the California Department of Forestry and Fire Protection (CAL FIRE), as illustrated in the following figure and Map #1 in **Volume 2** (Map Atlas).

¹ Source: U.S. Census Bureau American Community Survey Estimate.

² Reference: Solano County General Plan, Chapter 2, Land Use.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Figure 1—Solano County Fire Districts



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

The scope of this study focuses on the following four fire districts:

- ◆ Cordelia Fire Protection District
- ◆ Montezuma Fire Protection District
- ◆ Suisun Fire Protection District
- ◆ Vacaville Fire Protection District

1.4.1 Pressures on Volunteer Fire Departments

The Districts all use forms of volunteer, paid-on-call, and part-time firefighters. Over the last two decades, there have arisen severe challenges to recruiting, training, retaining, and deploying volunteer firefighters. The solution to the issues faced by the Districts cannot be solved with a simplistic, “find more volunteers” solution.

Predominantly volunteer-based fire departments are under great pressure across the nation to maintain an adequate membership roster. The reasons for this are not unique to any one type of community:

- ◆ Economic pressures result in more two-income families and less time to volunteer.
- ◆ In a commuter economy, more jobs are clustered in metropolitan and dense suburban areas. Communities increasingly contain residents who work elsewhere, and many who might consider volunteering are simply too busy.
- ◆ Due to the growth in society of complex systems and technology, the fire service has adopted additional missions, including large-scale wildland firefighting, emergency medical services, hazardous materials response, and technical rescue. This dramatically increased the legally mandated training requirements, causing many volunteers to drop out as the time commitment is often unbearable. Under California safety laws, a firefighter is a firefighter, and there is not a lesser standard for training and equipping volunteer, paid-on-call, or part-time firefighters.
- ◆ Active firefighting (not just driving or supportive roles) requires significant physical fitness and great health. As the populations age in some areas and young adults move away for employment, it becomes difficult to find volunteers of middle age or older whom have the time and ability to maintain *excellent* fitness.
- ◆ Another result of mission expansion impacting volunteerism is the resultant significant increase in emergency incidents. Where smaller or rural jurisdictions previously had one or two calls per week, service demand has increased to an average of more than one call per day in many locations.

These changes, coupled with other factors, have resulted in volunteer firefighter programs drying up or, in many cases, struggling to maintain an adequate number of members. Additional training and response requirements mean a significant time commitment for “true” volunteers that are serving for love of the community and to give something back. Most departments feel that it takes 100–120 hours of training per year to meet minimum safety requirements, and this time is expended before a volunteer responds to a single incident.

As a result, fire service volunteer programs across the country are being challenged to adapt to different service models, including using a combination of paid full-time and part-time staff to provide adequate response capacity when volunteer personnel are unavailable or where there is an insufficient number of volunteers.

1.4.2 Cordelia Fire Protection District Overview

Formed in 1918 as an independent special district, the Cordelia FPD provides fire suppression, pre-hospital emergency medical, initial hazardous materials and technical rescue, fire prevention, and related services under authority of California Health and Safety Code Section 13800 et seq. (Fire Protection District Law of 1987) to a resident population of approximately 6,500 over 56 square miles. Governed by a five-member Board of Directors elected at large to staggered four-year terms, the District provides services from two fire station facilities with a full-time paid Fire Chief, volunteer Assistant Chief, three full-time paid career response personnel, and part-time/intermittent non-resident response personnel paid a daily shift stipend as described in Section 1.5. The District’s Sphere of Influence (SOI) is coterminous with its current boundaries.

1.4.3 Montezuma Fire Protection District Overview

The Montezuma FPD was formed in 1928 and provides fire suppression, pre-hospital emergency medical, initial hazardous materials and technical rescue, fire prevention, and related services under authority of California Health and Safety Code Section 13800 et seq. (Fire Protection District Law of 1987) to a resident population of approximately 1,200 over 325 square miles. Governed by a five-member Board of Directors appointed by Solano County Supervisorial District 5 to staggered four-year terms, the District provides services from two fire station facilities with a combination of paid and volunteer personnel as described in Section 1.5. The SOI is coterminous with its current boundaries.

1.4.4 Suisun Fire Protection District Overview

Formed in 1935 as an independent special district, the Suisun FPD provides fire suppression, pre-hospital emergency medical, initial hazardous materials and technical rescue, fire prevention, and related services under authority of California Health and Safety Code Section 13800 et seq. (Fire Protection District Law of 1987) to a resident population of approximately 2,700 over 140 square miles. Governed by a five-member Board of Directors appointed by Solano County Supervisorial

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Districts 2 and 3 to staggered four-year terms, the District provides services from two fire station facilities with a combination of paid and volunteer personnel as described in Section 1.5. The District’s SOI is coterminous with its current boundaries.

1.4.5 Vacaville Fire Protection District Overview

The Vacaville FPD was formed in 1946 and consolidated with the Elmira FPD in 1986. The District provides fire suppression, pre-hospital emergency medical, initial hazardous materials and technical rescue, fire prevention, and related services under authority of California Health and Safety Code Section 13800 et seq. (Fire Protection District Law of 1987) to a resident population of approximately 6,200 over 135 square miles. Governed by a five-member Board of Directors appointed by Solano County Supervisorial Districts 4 and 5 to staggered four-year terms, the District provides services from four fire station facilities with a combination of paid and volunteer personnel as described in Section 1.5. The District’s SOI is coterminous with its current boundaries.

1.5 FIRE DISTRICT FACILITIES, RESPONSE RESOURCES, STAFFING, AND SERVICE CAPACITY

1.5.1 Facilities

The following four tables summarize fire station locations and assigned response resources by district.

Table 1—Facilities and Response Resources – Cordelia FPD

Station Number	Address	Response Resources
29	1624 Rockville Road Fairfield	Engine 29 Engine 529 Engine 231 (reserve)
31	2155 Cordelia Road Fairfield	Engine 31 Engine 531 Water Tender 31 Air 31 (trailer) Chief 3100 Chief 3101 Utility 29

Table 2—Facilities and Response Resources – Montezuma FPD

Station Number	Address	Response Resources
51	21 N. 4 th Street Rio Vista	Engine 51 Engine 251 Engine 451 Engine 551 Water Tender 51 Utility 51 Utility 53 Utility 54
52	2151 Collinsville Road Birds Landing	Engine 52 Engine 552 Engine 562 Utility 52

Table 3—Facilities and Response Resources – Suisun FPD

Station Number	Address	Response Resources
32	4965 Clayton Road Fairfield	Engine 32 Engine 532 Water Tender 32 Battalion 233
33	445 Jackson Street Fairfield	Engine 33 Engine 333 Engine 533 Engine 534 Rescue 33 Boat 33 Air 33 Water Tender 33 Battalion 33 Battalion 333

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 4—Facilities and Response Resources – Vacaville FPD

Station Number	Address	Response Resources
64	420 Vine Street Vacaville	Engine 64 Engine 264 Water Tender 64 Squad 64 Brush 64 Brush 264 Grass 64 Utility 64 Utility 264 Utility 364 Utility 464 6400 6403 6404 6407 6409
65	6080 A Street Elmira	Engine 65 Engine 265 Brush 65 Water Tender 65 Squad 65
67	4315 Cantelow Road Vacaville	Engine 67 Engine 267 Brush 67 Grass 67
68	4015 Central Lane Winters	Engine 68 Water Tender 68 Brush 68 Grass 68

1.5.2 Staffing

The following table summarizes the total paid and volunteer staffing by district. As discussed in Section 2.6, volunteer agencies typically struggle to get adequate staffing 24 hours per day, seven

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

days per week to all emergencies. A quantity of 134 volunteers sounds like a lot, but is only an average of 13 per company, meaning at some hours of a day a district is fortunate to get two to three volunteers per unit to immediately respond.

Table 5—Total District Staffing Summary

District	Paid Admin.	Volunteer Admin. Support	Full-Time Paid Response	Part-Time Resident Firefighter Response	Volunteer Response	Total Personnel
Cordelia	0	2	4	16	0	22
Montezuma	1	0	4	0	18	23
Suisun	1	4	1	0	32	38
Vacaville	3.5	0	3	0	84	90.5
Total	5.5	6	12	16	134	173.5

1.5.3 Service Capacity

All response personnel are trained to either the First Responder Medical or Emergency Medical Technician (EMT) level, capable of providing Basic Life Support (BLS) pre-hospital emergency medical care, or EMT-Paramedic (Paramedic) level, capable of providing Advanced Life Support (ALS) pre-hospital emergency medical care. Ground Paramedic ambulance service is provided by Medic Ambulance Service, a private-sector ambulance provider operating under an exclusive operating area contract administered by the Solano Emergency Medical Services Cooperative (SEMSC).

Response personnel are further trained to the U.S. Department of Transportation Hazardous Material First Responder Awareness level to provide initial hazardous material incident assessment and hazard isolation and are also trained to the Confined Space Awareness level. Some district personnel may also be trained to provide other specialized services such as low-angle/high/angle rope rescue, swift-water rescue, etc.

Finding #1: Each district provides *basic and limited* advanced emergency response services relative to fire, medical, hazardous materials, and technical rescue risks.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

1.6 FUTURE GROWTH AND SERVICE DEMAND

1.6.1 Future Growth

With County land use strategies and policies promoting city-centered development, future growth within the Districts will be limited to predominantly agriculture and rural residential land uses at a density of one dwelling unit per 2.5 or more acres.³ As such, Citygate projects minimal population growth within the Districts over the next five to ten years.

1.6.2 Future Service Demand

Given minimal projected future population growth, Citygate projects future service demand to increase annually from about 1 percent in Suisun FPD to about 9 percent in Vacaville FPD consistent with recent annual service demand growth as summarized in the following table.

Table 6—Recent Annual Service Demand Summary

Fire District	Calls for Service			Total	Average Annual Change	FY 17/18 Incidents per Day
	FY 15/16	FY 16/17	FY 17/18			
Cordelia	771	773	805	2,349	2.20%	2.2
Montezuma	248	326	355	929	21.57%	.97
Suisun	443	442	449	1,334	0.68%	1.2
Vacaville	534	513	601	1,648	6.27%	1.6
Aggregate Total	1,996	2,054	2,210	6,260	5.36%	6.0

Finding #2: Minimal population growth is projected in the Districts over the next five to ten years.

Finding #3: Future annual service demand is projected to increase from 1 percent to 9 percent by district consistent with recent annual service demand change.

³ 2008 Solano County General Plan, Chapter 2.

SECTION 2—DEPLOYMENT ASSESSMENT

This section provides a detailed analysis of the Districts’ current ability to deploy and mitigate hazards within their service areas. The response analysis uses prior response statistics and geographic mapping to help the Districts and the communities to visualize what the current response systems can and cannot deliver.

2.1 DEPLOYMENT ASSESSMENT METHODOLOGY

The core methodology used by Citygate in the scope of its deployment analysis work is *Standards of Cover (SOC)*, 5th and 6th editions, which is a systems-based approach to fire department deployment published by the CFAI. This approach uses local risk and demographics to determine the level of protection best fitting a community’s needs.

The SOC method evaluates deployment as part of a fire agency’s self-assessment process. This approach uses risk and community expectations on outcomes to help elected officials make informed decisions on fire and emergency medical services deployment levels. Citygate has adopted this multiple-part systems approach as a comprehensive tool to evaluate fire station locations. Depending on the needs of the study, the depth of the components may vary.

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

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

The following table describes the six elements of the SOC process utilized for this study.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 7—Standards of Coverage Process Elements

SOC Element		Description
1	Existing Deployment System	Overview of the community served, authority to provide services, and current deployment model and performance metrics
2	Community Risk Assessment	Description of the values at risk within the community and analysis of risk from natural and human-caused hazards
3	Distribution Analysis	Review of the spacing of initial response (first-due) resources (typically engines) to control routine emergencies to achieve desired outcomes
4	Concentration Analysis	Review of the spacing of fire stations so that larger or more complex emergencies receive sufficient resources in a timely manner (ERF) to achieve desired outcomes
5	Reliability and Historical Response Effectiveness Analysis	Using recent prior response statistics, determining the percentage of conformance to established response performance goals the existing deployment system delivers
6	Overall Evaluation	Proposing Standards of Coverage statements by risk type as appropriate

Source: CFAI “Standards of Cover,” 5th Edition

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

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 8—Fire Service Deployment Paradigm

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

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

2.2 CURRENT DEPLOYMENT

EXISTING DEPLOYMENT MODEL

Nationally recognized standards and best practices suggest using several incremental measurements to define response time. Ideally, the clock start time is when the 9-1-1 dispatcher receives the emergency call. In some cases, the call must then be transferred to a separate fire dispatch

center. In this setting, the response time clock starts when the fire center receives the 9-1-1 call into its computer-aided dispatch (CAD) system. Response time increments include dispatch center call processing, crew alerting and response unit boarding (commonly called turnout time), and actual driving (travel) time.

NFPA Standard 1720, a recommended deployment standard for *substantially* volunteer-staffed fire departments in rural areas, is the appropriate best practice for the Solano County departments in this study. The definition of “rural” in America can of course vary from suburban clusters in unincorporated Solano to rural Iowa with widely spaced large farms. However, the constant factor is that the agencies are substantially staffed by volunteer, paid-on-call, or part-time firefighters.



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

NFPA 1720 recommends initial (first-due) intervention units arrive within 14:00 minutes of receipt of the dispatch notification at 80 percent or better reliability.⁴ Although 9-1-1 dispatch center call processing time is *not* included in this deployment standard, the most recent published NFPA best practices have increased the dispatch processing time to 1:30 minutes and, if there are language barriers, 2:00 minutes. For crew turnout time, Citygate has long recommended 2:00 minutes as a realistic goal for agencies with on-duty staffing, leaving 12:00 minutes travel time to meet the 14:00-minute NFPA 1720 response goal if dispatch processing time is not included, and 10:30 minutes travel time if it is included.

Finding #4: The National Fire Protection Association (NFPA) Standard on Volunteer Fire Departments should be the minimum deployment goal measures for which the Districts should strive.

2.2.1 Current Deployment Model

Resources and Staffing

Cordelia FPD

One engine is staffed daily with two to four on-duty personnel, including one to two full-time paid personnel and one to two part-time resident firefighters. The Fire Chief and Assistant Fire Chief are also available from Station 31 during normal weekday business hours. Part-time resident firefighters are paid a daily stipend of \$25 to work a 24-hour shift. A volunteer chief officer is available on call 24 hours per day for incident command.

Montezuma FPD

One engine is staffed from 8:00 a.m. to 5:00 p.m. Monday through Friday at Station 51 with a Captain and Engineer. The Fire Chief and Assistant Fire Chief are also available from Station 51 during those hours. Station 52 is staffed as needed by on-call volunteer personnel. Additional response staffing, including after hours and weekends, is provided by an on-call duty chief and a cadre of 18 on-call volunteer firefighters.

Suisun FPD

One engine is staffed from 8:00 a.m. to 4:30 p.m. Monday through Friday at Station 33 with the Fire Chief and a full-time paid Firefighter. Station 32 is staffed as needed by on-call volunteer

⁴ NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments (2014 Edition).

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

personnel. Additional response staffing, including after hours and weekends, is provided by an on-call duty chief and a cadre of 32 on-call volunteer firefighters.

Vacaville FPD

One engine is staffed from 8:00 a.m. to 4:00 p.m. daily at Station 64 with one full-time paid Captain or Engineer. In addition, the Fire Chief and full-time Battalion Chief are available from Station 64 from 9:00 a.m. to 5:00 p.m. Monday through Friday. Stations 65, 67, and 68 are staffed as needed by on-call volunteer personnel. Additional response staffing, including after hours and weekends, is provided by an on-call duty chief and a total of 84 on-call volunteer firefighters.

Table 9 summarizes each district’s current deployment and staffing. While paid on-duty staffing is available as shown, volunteer response is available 24 hours per day, seven days per week.

Table 9—Daily Deployment Staffing Summary

Station	Response Staffing		
	Paid		Volunteer
	Number	Hours	
Cordelia FPD			
29	Currently Unstaffed		
31	2–4	24/7	0
Montezuma FPD			
51	4	8:00–5:00 M.–F.	13
	0	Nights/Weekends	
52	0	N/A	5
Suisun FPD			
32	0	N/A	12
33	2	8:00–4:30 M.–F.	20
Vacaville FPD			
64	3	9:00–5:00 M./T./F.	31
	4	9:00–5:00 W./Th.	
	2	5:00–9:00 W./Th.	
	1	Weekends	
65	0	N/A	21
67	0	N/A	16
68	0	N/A	16

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Finding #5: In Citygate’s opinion, all four districts have barely the minimum number of personnel to provide response services from a *staffed* fire station 24 hours per day, seven days per week, as well as adequate command and quality control for training, safety, and fiscal responsibilities.

Finding #6: Cordelia, Montezuma, and Suisun have *insufficient* daily staffing capacity 24 hours per day, seven days per week, for anything other than a single-unit response to a minor emergency without assistance from another agency.

Response Plan

Each district deploys the appropriate types and numbers of resources depending on the type of incident, except for Cordelia FPD, which at the time of this assessment had staffing capacity for only one response unit and one chief officer.

2.3 RISK ASSESSMENT

RISK ASSESSMENT

Another element of the deployment assessment process is a risk assessment. Within the context of a deployment study, the objectives of a risk assessment are to:

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

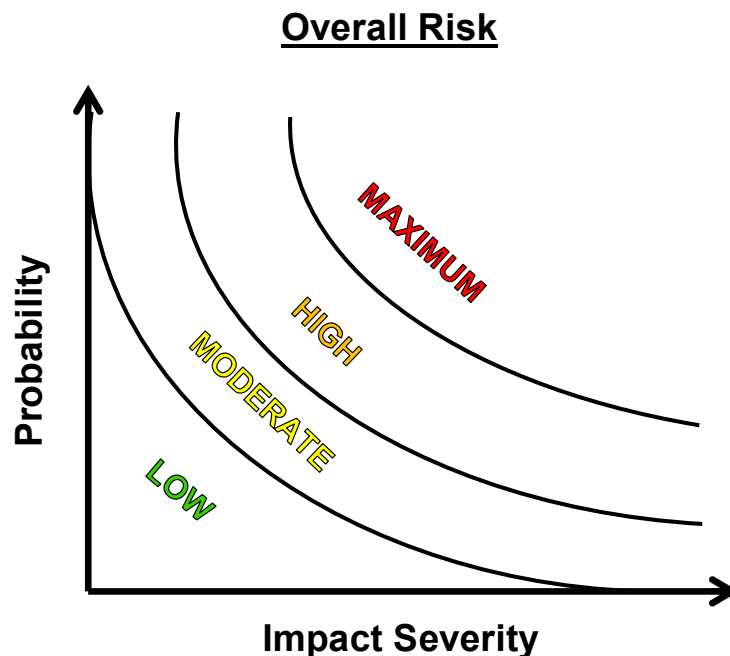
A *hazard* is broadly defined as a situation or condition that can cause or contribute to harm. Examples include fire, medical emergency, vehicle collision, earthquake, flood, etc. *Risk* is broadly defined as the *probability of hazard occurrence* in combination with the *likely severity of resultant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

2.3.1 Risk Assessment Methodology

The methodology employed by Citygate to assess community risk as an integral element of an SOC study incorporates the following elements:

- ◆ Identification of geographic planning sub-zones (risk zones) appropriate to the community or jurisdiction
- ◆ Identification and quantification (to the extent data is available) of the specific values at risk to various hazards within the community or service area
- ◆ Identification of the fire and non-fire hazards to be evaluated
- ◆ Determination of the probability of occurrence for each hazard
- ◆ Identification and evaluation of relevant impact severity factors for each hazard by planning zone using agency/jurisdiction-specific data and information
- ◆ Quantification of overall risk for each hazard based on probability of occurrence in combination with probable impact severity

Figure 2—Overall Risk



2.3.2 Values at Risk to Be Protected

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

People

Residents, employees, visitors, and travelers through a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those unable to care for themselves or self-evacuate in the event of an emergency. At-risk populations typically include children less than 10 years of age, the elderly, and people housed in institutional settings. Key demographic data for Solano County includes the following:⁵

- ◆ Slightly more than 24 percent of the population is under 10 years or over 65 years of age
- ◆ The County’s population is White (37 percent), followed by Hispanic/Latino (27 percent), Asian (15 percent), Black / African American (13 percent), and other ethnicities (8 percent)
- ◆ Of the population over 24 years of age, nearly 89 percent has earned at least a high school diploma or equivalent
- ◆ Of the population over 24 years of age, 27 percent has an undergraduate, graduate, or professional degree
- ◆ Nearly 94 percent of the population 15 years of age or older is in the workforce; of those, 6.1 percent are unemployed⁶
- ◆ The population below the Federal poverty level is 7.3 percent
- ◆ Only 4.4 percent of the population does not have health insurance coverage.

Buildings

Unincorporated Solano County consists of predominantly single-family dwellings and agriculture-related buildings. In addition, Solano Community College is a significant value to be protected in Cordelia FPD.

⁵ Source: ESRI Community Profile – Solano County (2019).

⁶ Prior to the COVID-19 Pandemic.

2.3.3 Hazard Identification

Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and data and information specific to the agency/jurisdiction to identify the hazards to be evaluated for this report.

Following an evaluation of the hazards identified in the 2012 Solano County Local Hazard Mitigation Plan and the fire and non-fire hazards as identified by the CFAI as they relate to services provided by the Districts, Citygate evaluated the following three hazards for this risk assessment:

- ◆ Building Fire
- ◆ Vegetation/Wildland Fire
- ◆ Medical Emergency

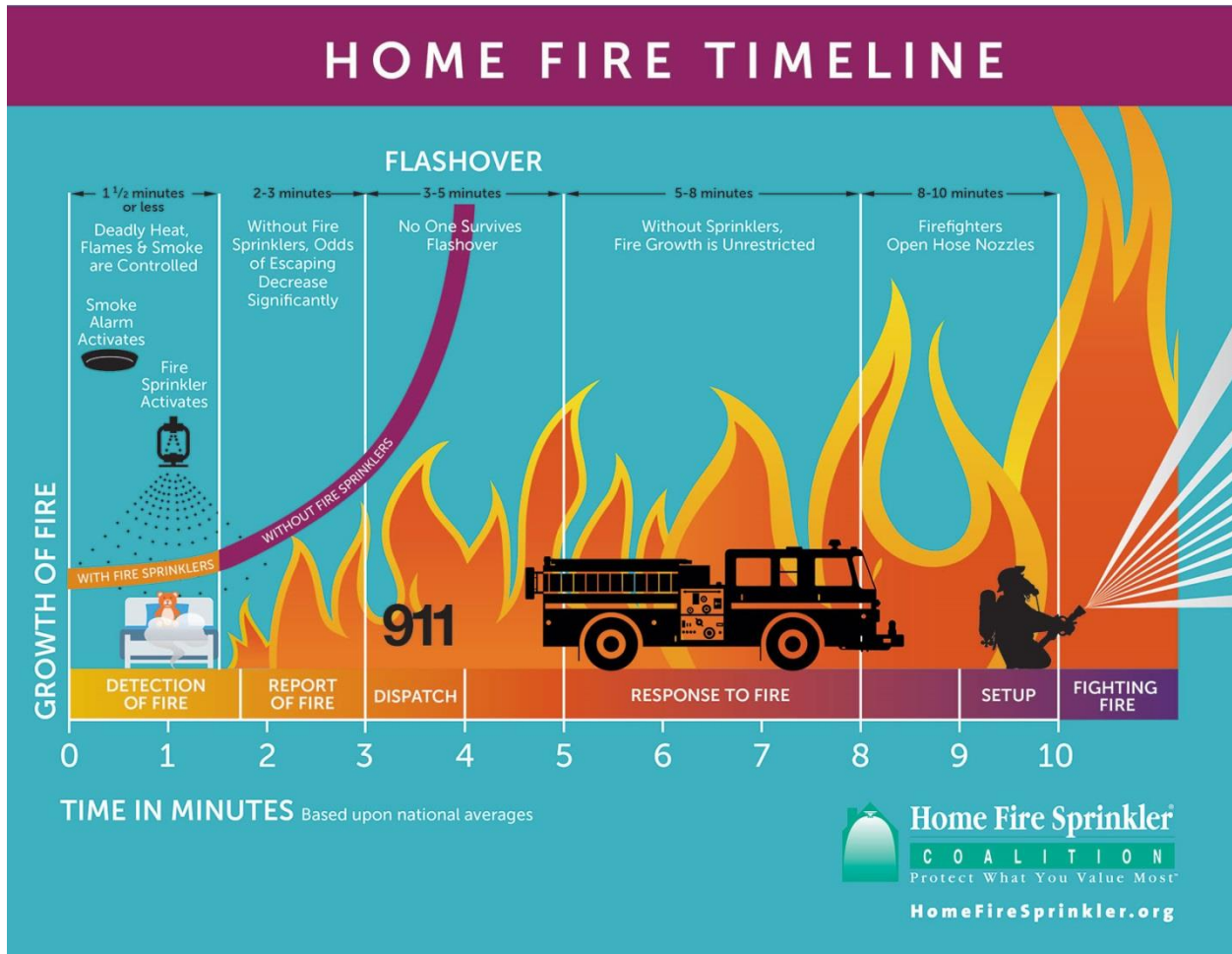
Because building fires and medical emergencies have the most severe time constraints if positive outcomes are to be achieved, the following is a brief overview of building fire and medical emergency risk. **Appendix A** contains the full risk assessment.

Building Fire Risk

One of the primary hazards in any community is building fire. Building fire risk factors include building density, size, age, occupancy, and construction materials and methods, as well as the number of stories, the required fire flow, proximity to other buildings, built-in fire protection/alarm systems, available fire suppression water supply, building fire service capacity, fire suppression resource deployment (distribution/concentration), staffing, and response time.

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

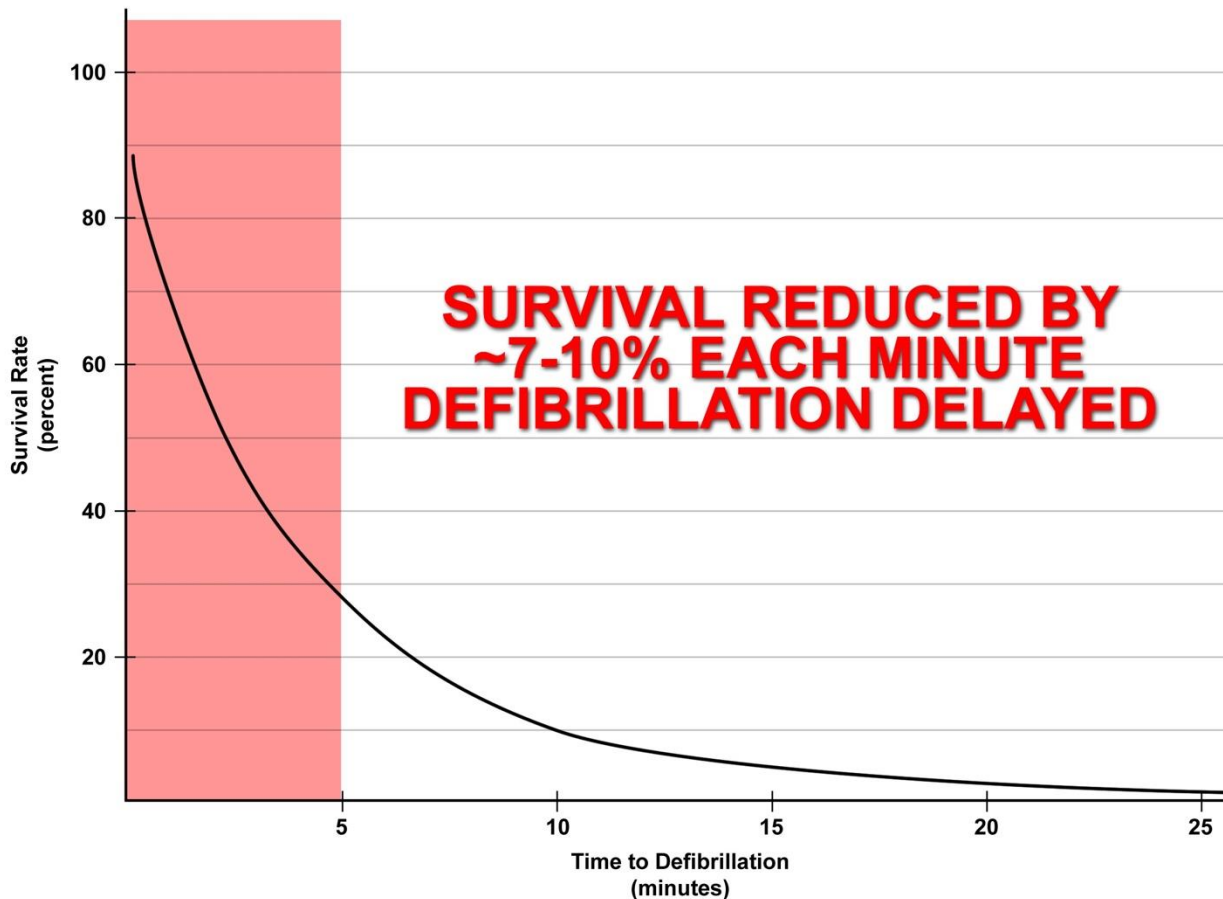
Figure 3—Building Fire Progression Timeline



Medical Emergency Risk

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

Figure 4—Survival Rate versus Time of Defibrillation



Source: www.suddencardiacarrest.org

The Districts provide BLS pre-hospital emergency medical services, with operational personnel trained to the First Responder Medical or EMT level.

2.3.4 Risk Assessment Summary

Citygate’s assessment of the values at risk and hazards likely to impact the four districts yields the following:

- ◆ The Districts serve a predominantly rural population, with densities ranging from mostly less than 500 to nearly 5,000 per square mile in some small district areas
- ◆ The County’s land use goals and policies will result in minimal projected growth in the four districts
- ◆ The Districts’ building inventory is predominantly single-family dwelling units and agriculture-related buildings

- ◆ The Districts’ overall risk for the three hazards evaluated range from **Low** to **High** as summarized in the following table.

Table 10—Overall Risk by Hazard

Hazard	Cordelia 29	Cordelia 31	Suisun 32	Suisun 33	Montezuma 51	Montezuma 52	Vacaville 64	Vacaville 65	Vacaville 67	Vacaville 68
Building Fire	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Vegetation/Wildland Fire	High	High	High	Moderate	Moderate	Moderate	High	Moderate	High	High
Medical Emergency	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Finding #7: Overall building fire, vegetation/wildland fire, and medical emergency risk in the Districts range from *low* to *high*.

2.4 DISTRIBUTION AND CONCENTRATION STUDIES—HOW THE LOCATION OF FIRST-DUE AND FIRST ALARM RESOURCES AFFECTS EMERGENCY INCIDENT OUTCOMES

FIRE STATION DISTRIBUTION AND CONCENTRATION

The four districts are collectively served by ten fire stations with an aggregate of 33 fire engines, seven water tenders, and 25 light-duty or other vehicles/equipment. It is appropriate to understand, using geographic mapping tools, what the existing stations do and do not cover within travel time goals, if there are any coverage gaps needing one or more stations, and what, if anything, to do about them.

In brief, there are two geographic perspectives to fire station deployment:

- ◆ **Distribution** – the spacing of first-due fire units to control routine emergencies before they escalate and require additional resources.
- ◆ **Concentration** – the spacing of fire stations sufficiently close to each other so that more complex emergency incidents can quickly receive sufficient resources from multiple fire stations. As indicated, this is known as the **Effective Response Force (ERF)**, or, more commonly, the First Alarm Assignment—the collection of a sufficient number of firefighters on scene, delivered within the concentration time goal to stop the escalation of the problem. Montezuma, Suisun, and Vacaville send multiple response units, including from multiple stations as needed, to mitigate more serious emergency incidents. At the time of this assessment, Cordelia was able to provide a maximum of one engine and one chief officer.

To analyze first-due fire unit travel time coverage, Citygate used FireView™, a geographic mapping tool to measure travel time over the Districts' road network. For this calculation, Citygate used the base map and street travel speeds calibrated to actual fire apparatus travel times from previous responses to simulate real-world travel time coverage. Using these tools, Citygate modeled 12:00-minute first-due *travel* time coverage from each fire station based on recommended response time goals for rural areas.⁷

2.4.1 Deployment Baselines

All maps referenced can be found in **Volume 2** (Map Atlas).

Map #1 – General County Geography, City and Fire District Boundaries, and District Fire Station Locations

Map #1 provides an overview of Solano County, city, and fire district boundaries, and fire station locations within the four study districts.

Map #2a – Cordelia Fire Protection District

Map #2a shows the boundaries of the Cordelia FPD, as well as the location of the two District fire stations and the two most proximal City of Fairfield fire station locations.

Map #2b – Montezuma Fire Protection District

Map #2b shows the boundaries of the Montezuma FPD and the District's two fire stations. The City of Rio Vista fire station is co-located with Montezuma Station 51 in the City of Rio Vista.

Map #2c – Suisun Fire Protection District

Map #2c shows the boundaries of the Suisun FPD and the location of the two District fire stations.

Map #2d – Vacaville Fire Protection District

Map #2d shows the boundaries of the Vacaville FPD and the location of the District's four fire stations.

Map #3a – Risk Assessment: Population Density

Map #3a displays the population densities within the four study districts, ranging from mostly less than 500 to nearly 5,000 people per square mile in some very small district areas.

⁷ NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.

Map #4a – Distribution: 12:00-Minute First-Due Travel Time Coverage – Cordelia FPD

Map #4a shows in green the road segments within the Cordelia FPD that should be expected to be reached within 12:00-minutes travel time from Stations 29 and 31 without traffic congestion. As the map illustrates, first-due travel time coverage is good, at 97 percent of total public road miles—*if the units are staffed.*

Map #4b – Distribution: 12:00-Minute First-Due Travel Time Coverage – Montezuma FPD

Map #4b shows in green the road segments within the Montezuma FPD that should be expected to be reached within 12:00-minutes travel time from its two fire stations without traffic congestion. As the map illustrates, expected first-due travel time coverage is 62 percent of total public road miles due to each station’s large response area; however, approximately 62 percent of the District is farmland and pasture lands with very sparse building and population density. In addition, responses to the Ryer Island section of the District (northeast) requires a ferry crossing across the Sacramento River, thus extending response times to that area of the District.

Map #4c – Distribution: 12:00-Minute First-Due Travel Time Coverage – Suisun FPD

Map #4c shows in green the road segments within the Suisun FPD that should be expected to be reached within 12:00-minutes travel time from its two fire stations without traffic congestion. As the map illustrates, expected first-due travel time coverage is 78 percent of total public road miles; however, the areas beyond 12:00-minute travel time coverage are marshland with minimal building fire, vegetation fire, or medical emergency risk factors.

Map #4d – Distribution: 12:00-Minute First-Due Travel Time Coverage – Vacaville FPD

Map #4d shows in green the road segments within the Vacaville FPD that should be expected to be reached within 12:00-minutes travel time from its four fire stations without traffic congestion. As the map illustrates, expected first-due travel time coverage is very good, at 97 percent of total public road miles.

Map #5a – All EMS Incident Locations – Cordelia FPD

Map #5a shows the location of all EMS incidents within Cordelia FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4a, nearly all incidents occurred within an expected 12:00-minute travel time from either District station.

Map #5b – All EMS Incident Locations – Montezuma FPD

Map #5b shows the location of all EMS incidents within Montezuma FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4b, most of the incidents occurred within an expected 12:00-minute travel time from one of the District’s two stations.

Map #5c – All EMS Incident Locations – Suisun FPD

Map #5c shows the location of all EMS incidents within the Suisun FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4c, nearly all the incidents occurred within an expected 12:00-minute travel time from one of the District’s two stations.

Map #5d – All EMS Incident Locations – Vacaville FPD

Map #5d shows the location of all EMS incidents within the Vacaville FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4d, all but a few incidents occurred within an expected 12:00-minute travel time from one of the District’s four stations.

Map #6a – All Fire Incident Locations – Cordelia FPD

Map #6a displays the location of all fire incidents within Cordelia FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4a, nearly all incidents occurred within an expected 12:00-minute travel time from either District station.

Map #6b – All Fire Incident Locations – Montezuma FPD

Map #6b displays the location of all fire incidents within Montezuma FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4b, most fire incidents occurred within an expected 12:00-minute travel time from one of the District’s two stations.

Map #6c – All Fire Incident Locations – Suisun FPD

Map #6c displays the location of all fire incidents within Suisun FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4c, most incidents occurred within an expected 12:00-minute travel time from one of the District’s two stations.

Map #6d – All Fire Incident Locations – Vacaville FPD

Map #6d displays the location of all fire incidents within Vacaville FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4d, all fire incidents occurred within an expected 12:00-minute travel time from one of the District’s four stations.

2.4.2 Road Mile Coverage Measures

In addition to the visual displays of coverage that maps provide, the GIS software allows the miles of public streets covered at a specified travel time to be measured. The following table summarizes 12:00-minute, first-due, non-congested travel time coverage by district.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 11—12:00-Minute First-Due Travel Time Coverage Summary

Fire District	Total Public Road Miles	Miles Covered at 12:00-Minutes Travel	Percent of Total Miles Covered
Cordelia	94	91	96.81%
Montezuma	209	129	61.72%
Suisun	105	82	78.10%
Vacaville	194	189	97.42%
Total	602	491	81.56%

Finding #8: While the fire station placements cover most of the public road miles, units do not provide services, firefighters arriving in time do.

2.5 INCIDENT STATISTICAL ANALYSIS

**RELIABILITY &
HISTORICAL RESPONSE
EFFECTIVENESS**

The map sets described in Section 2.4 and presented in **Volume 2** show the ideal situation for response times and the response effectiveness given perfect conditions with no competing calls, traffic congestion, units out of place, or simultaneous calls for service. Examination of the actual response time data provides a picture of actual response performance with simultaneous calls, rush hour traffic congestion, units out of position, and delayed travel time for events such as periods of severe weather.

The following subsections provide summary statistical information for the four districts.

2.5.1 Service Demand

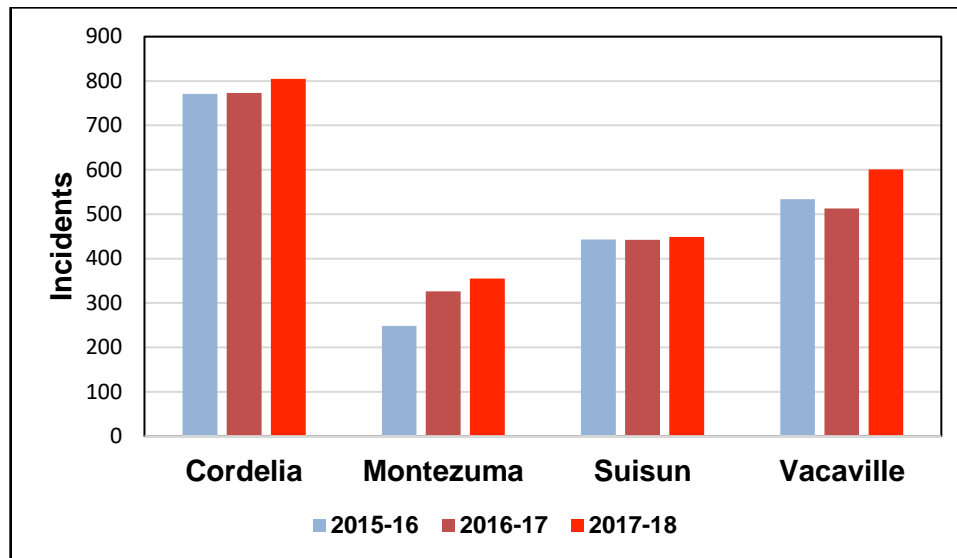
CAD data was provided by the Solano County Sheriff’s Office Communications Center for report years (RY) 7/1/2015 through 6/30/2018 as summarized in the following table and figure. Overall service demand increased from 1.35 percent in Suisun FPD to 43 percent in Montezuma FPD over the three-year study period, with an aggregate increase of nearly 11 percent.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 12—Annual Service Demand by District

Fire District	Calls for Service			3-Year Total	3-Year Change
	RY 15/16	RY 16/17	RY 17/18		
Cordelia	771	773	805	2,349	4.41%
Montezuma	248	326	355	929	43.15%
Suisun	443	442	449	1,334	1.35%
Vacaville	534	513	601	1,648	12.55%
Aggregate Total	1,996	2,054	2,210	6,260	10.72%

Figure 5—Annual Service Demand by District



The following table summarizes, and Figure 6 through Figure 9 illustrate, annual service demand by incident type. As can be seen in both the table and figures, EMS incidents comprise the greatest percentage of annual service demand in each district.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 13—Annual Service Demand by Category – Cordelia FPD

Call Type	Calls for Service			Total	Percent of Total
	RY 15/16	RY 16/17	RY 17/18		
EMS	326	347	400	1,073	45.68%
Fire	79	73	81	233	9.92%
Auto/Mutual Aid	185	178	145	508	21.63%
Other	181	175	179	535	22.78%
Total	771	773	805	2,349	100.00%

Figure 6—Annual Service Demand by Category – Cordelia FPD

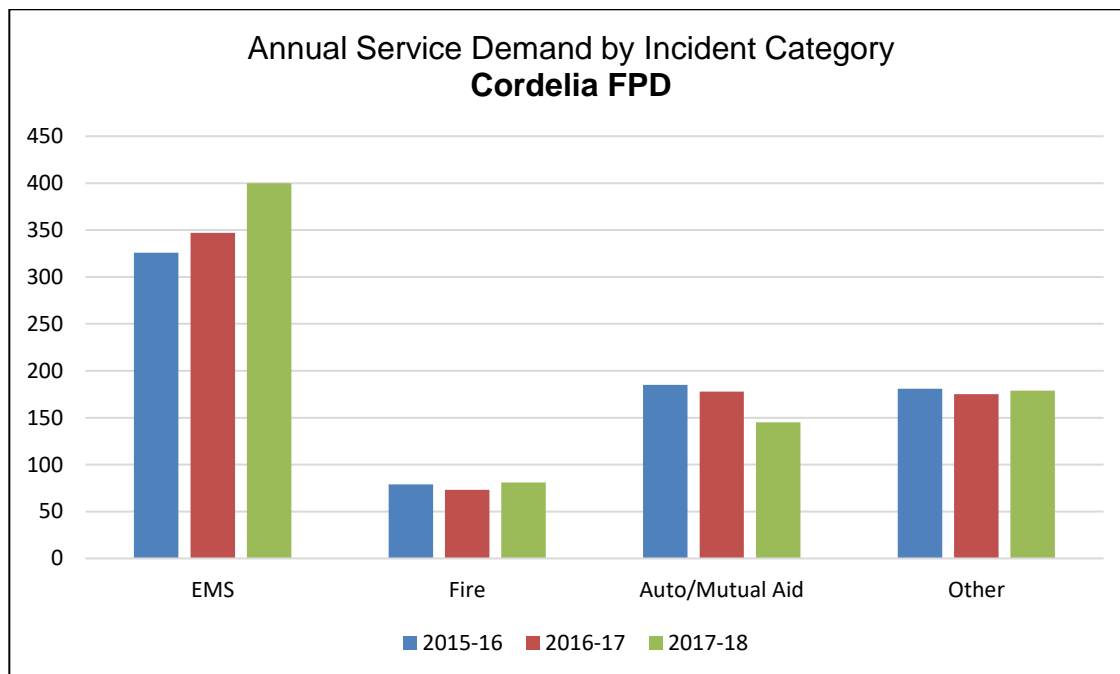
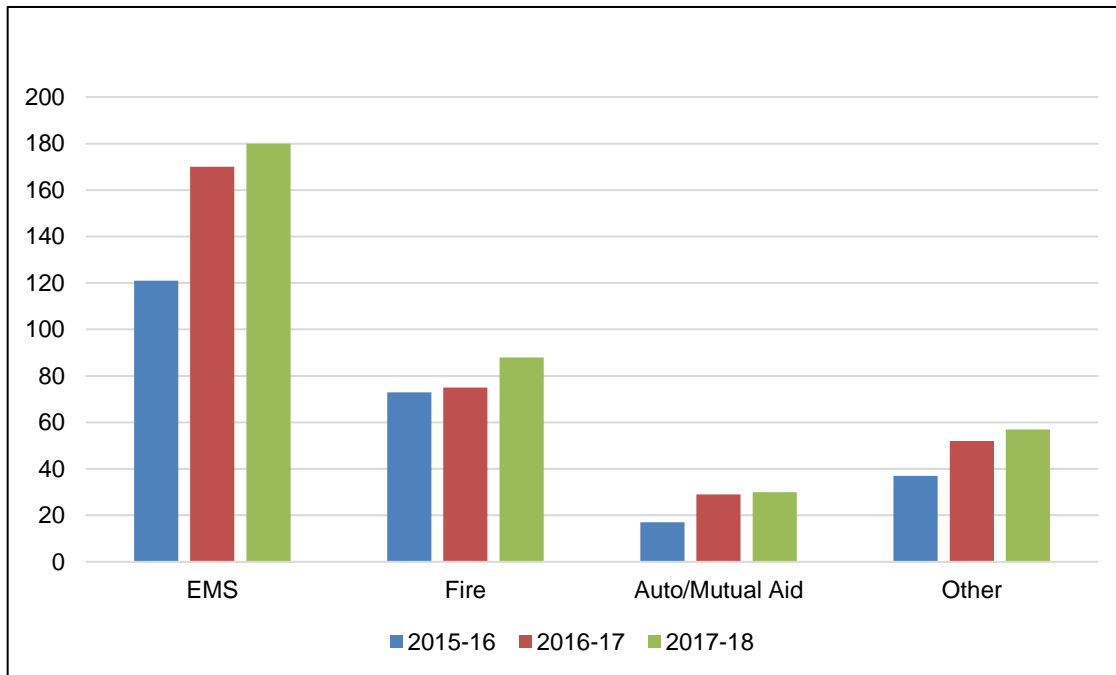


Table 14—Annual Service Demand by Category – Montezuma FPD

Call Type	Calls for Service			Total	Percent of Total
	RY 15/16	RY 16/17	RY 17/18		
EMS	121	170	180	471	50.70%
Fire	73	75	88	236	25.40%
Auto/Mutual Aid	17	29	30	76	8.18%
Other	37	52	57	146	15.72%
Total	248	326	355	929	100.00%

Figure 7—Annual Service Demand by Category – Montezuma FPD



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 15—Annual Service Demand by Category – Suisun FPD

Call Type	Calls for Service			Total	Percent of Total
	RY 15/16	RY 16/17	RY 17/18		
EMS	203	203	225	631	47.30%
Fire	67	61	89	217	16.27%
Auto/Mutual Aid	95	101	73	269	20.16%
Other	78	77	62	217	16.27%
Total	443	442	449	1,334	100.00%

Figure 8—Annual Service Demand by Incident Type – Suisun FPD

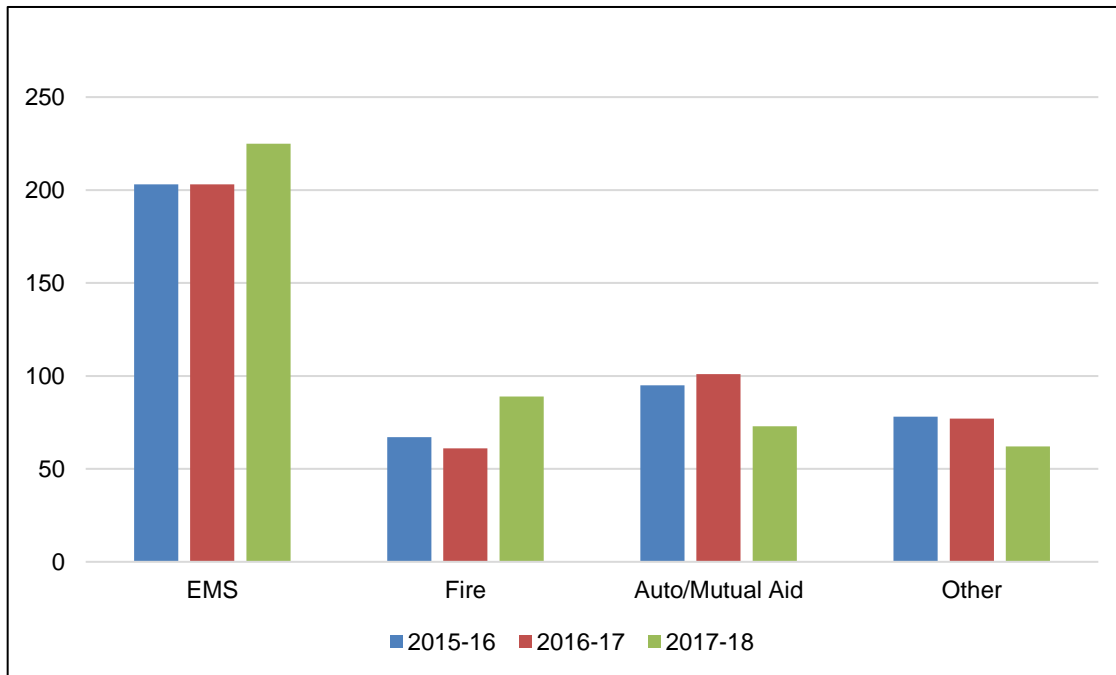
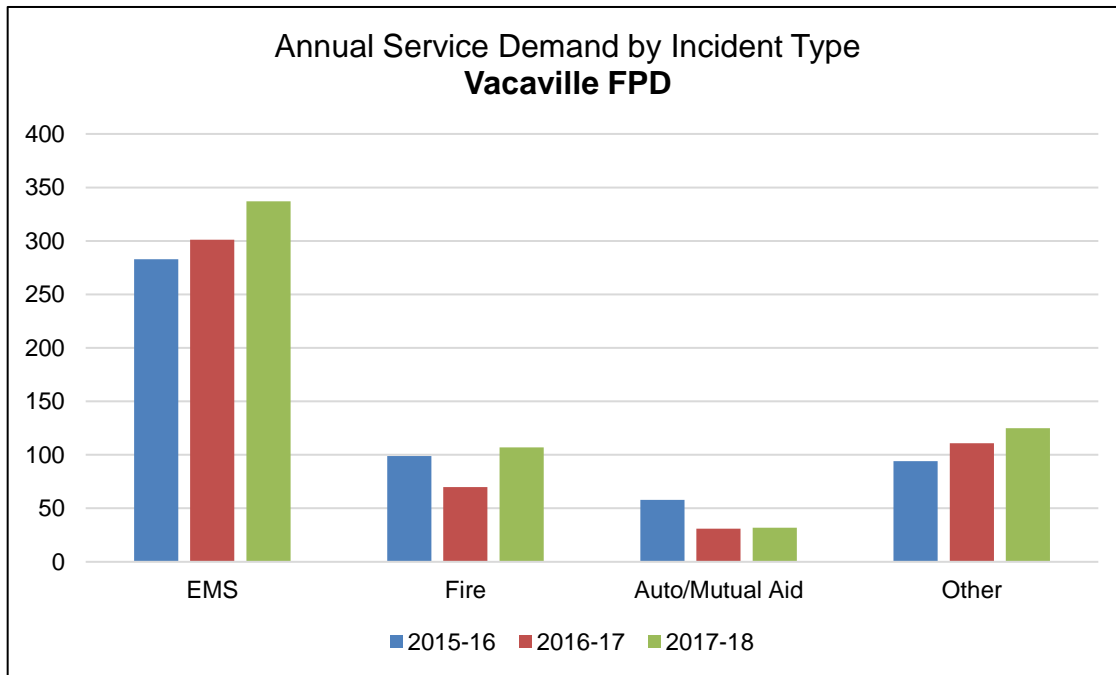


Table 16—Annual Service Demand by Category – Vacaville FPD

Call Type	Calls for Service			Total	Percent of Total
	RY 15/16	RY 16/17	RY 17/18		
EMS	283	301	337	921	55.89%
Fire	99	70	107	276	16.75%
Auto/Mutual Aid	58	31	32	121	7.34%
Other	94	111	125	330	20.02%
Total	534	513	601	1,648	100.00%

Figure 9—Annual Service Demand by Incident Type – Vacaville FPD



2.5.2 Mutual Aid Activity

Table 17 summarizes mutual aid provided by each district to other jurisdictions over the three-year study period. Of note is mutual aid activity in aggregate comprises nearly 16 percent of all calls for service. Of additional note is that each district creates its own mutual aid matrix, which may not be in order of a closest unit response from a neighboring agency. The mutual aid matrices are also not programmed into the County Communications Center’s Computer Aided Dispatch (CAD) system, requiring the dispatcher to manually reference a district’s matrix whenever a request for mutual aid is received.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 17—Mutual Aid Given by District

District	Mutual Aid Provided – Calls for Service			3-Year Total	Percent of All Calls for Service
	2015-16	2016-17	2017-18		
Cordelia	185	178	145	508	21.63%
Montezuma	17	29	30	76	8.18%
Suisun	95	101	73	269	20.16%
Vacaville	58	31	32	121	7.34%
Total	355	339	280	974	15.56%

Finding #9: Nearly 16 percent of the aggregate service demand of the four districts is mutual aid to other jurisdictions, including more than 20 percent of all calls for service for Cordelia and Vacaville FPDs.

Finding #10: The Districts and nearby cities, via their common fire dispatch center, are not using closest available unit response to emergencies. To not do so inappropriately delays response times.

2.5.3 Response Performance

Measurements for the performance of the first apparatus to arrive on the scene of emergency incidents are the number of minutes and seconds necessary for 80 percent completion of dispatch to arrival at the incident. Although *not* an element of this rural response performance standard, other recognized best practices recommend call processing / dispatch performance of 1:30 minutes or less at 90 percent reliability.⁸

Call Processing / Dispatch

Call processing performance measures the time from receipt of the 9-1-1 request for assistance in the Solano County Sheriff’s Office Communications Center until the appropriate response resources are dispatched. As the following table shows, overall call processing for the three-year study period ranged from 107 percent (at 3:06 minutes) to 141 percent (at 3:37 minutes) *slower* than the 1:30-minute recommended best practice.

⁸ NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems.



Table 18—90th Percentile Call Processing Performance

District	3-Year Performance
Cordelia	03:06
Montezuma	03:37
Suisun	03:46
Vacaville	03:47

Source: Solano County Sheriff's Office CAD data

Finding #11: Call processing performance ranges from 107 percent (at 3:06 minutes) to 141 percent (at 3:37 minutes) *slower* than the 1:30-minute recommended best practice goal. This time loss is even more critical when units are not staffed with in-station personnel and the response must wait for volunteers.

Dispatch-to-Arrival

Dispatch-to-arrival performance (excluding dispatch process time) is a recommended best-practice customer service metric that measures the time from receipt of the dispatch by the fire agency until the first responding unit arrives at the emergency incident. The following table shows 80th percentile dispatch to arrival performance meeting or slightly exceeding the recommended 14:00-minute goal, which seems to pass the common-sense test when compared to the 12:00-minute travel time coverage maps, except for Vacaville, where we would expect to see better performance. Deeper analysis of the dispatch system data, however, revealed numerous time stamp irregularities raising concern about the overall accuracy of the data and suggesting that actual dispatch-to-arrival performance may be better than the data indicates, with conformance closer to the 14:00-minute goal than shown for Montezuma and Vacaville.⁹ This concern was also voiced by district Fire Chiefs when we presented our initial results, with anecdotal reports of better response performance than the data suggests.

⁹ Missing time stamps, duplicate time stamps for all responding resources, outlier time stamp intervals based on reasonable expectations from other similar client studies.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 19—80th Percentile Dispatch to Arrival Performance

District	3-Year Performance	Goal Point
Cordelia	11:04	14:00
Montezuma	15:08	14:00
Suisun	13:52	14:00
Vacaville	16:02	14:00

Source: Solano County Sheriff's Office CAD data

Finding #12: First unit response performance appears to meet or be slightly slower than the 14:00-minute goal as recommended by NFPA 1720 and Citygate; however, dispatch system time stamp irregularities, GIS travel time coverage analysis, and anecdotal district information suggest that response performance may be slightly better than the data indicates. Even if true, a 12:00-minute response time is past the point of a positive outcome in a critical emergency.

2.6 OVERALL DEPLOYMENT EVALUATION

**OVERALL DEPLOYMENT
EVALUATION**

The Districts serve a suburban to rural population over a generally agriculture/residential land-use pattern typical of other rural California counties.

If desired outcomes include limiting building fire damage to only the affected building, keeping vegetation fires from spreading to inhabited buildings, and/or minimizing permanent impairment resulting from a medical emergency, then the Districts will need a bare minimum response coverage consistent with a Citygate and NFPA response performance recommendation of first-due arrival within 14:00 minutes from receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or better reliability.¹⁰

While all four districts currently have partial-day or day-of-the-week in-station staffing for response to emergency incidents, the station staffing is not 24 hours per day, seven days per week. The Districts are very dependent on volunteer participation, with volunteer personnel providing

¹⁰ With a minimum of six personnel.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

supplemental daytime response staffing as well as when paid staffing is off duty or in those station areas without paid staffing.

Call processing / dispatch performance is more than double the recommended best practice goal of 1:30 minutes, with numerous dispatch system data irregularities raising concern about the overall accuracy and reliability of the dispatch data used to evaluate response performance. While crew notification to first-unit arrival performance appears to meet the recommended best practice 14:00-minute goal in two districts and slightly exceed it in the other two districts, dispatch system data irregularities and anecdotal reports from District staff suggest that response performance *may* be better than the dispatch data indicates. Another factor makes the response times better than they seem; more calls for service are in the daylight hours during partial in-station staffing. Thus, the good daylight response times mask the slower performance off hours when volunteers must first respond to the station.

Overall, Citygate finds that each district is existing on a very thin combination of career and volunteer firefighters. The loss of one of the few command staff, or a few volunteers that are able to carry much of the response workload, would cripple a district’s capabilities.

Finding #13: As separate entities, the Districts are very exposed to single points of failure if they were to lose a few career personnel or highly responsive volunteers. They lack “*strength in numbers*” to be resilient and have redundancy.

Finding #14: The Districts must fix their fragile personnel counts and 24-hour-per-day, seven-day-per-week in-station staffing. In the current wildfire and building fire environment, incidents cannot wait for a minimal force to respond from home or business.

Finding #15: Operating and commanding a district is more than a one-person job and the Districts are very exposed to failure as stand-alone agencies.

2.6.1 Deployment Recommendations

Although current recommended best practice¹¹ does not include 9-1-1 call processing in the 14:00-minute, first-unit response goal in rural areas, in Citygate’s experience, community and individual customer expectations are based on *total response time* from receipt of the 9-1-1 call to arrival of the first responding unit. Based on the technical analysis and findings contained in this assessment,

¹¹ NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

overall response system performance should reasonably be expected to provide the following deployment goals with recommended dispatch system improvements.

- Recommendation #1:** The Districts should merge their command and volunteer staffs to improve key personnel resiliency and redundancy. This will also improve cost effectiveness of headquarters services and can be done initially via contracts or a Joint Powers Authority (JPA) of elected officials to provide oversight and planning for a longer-term, permanent solution.
- Recommendation #2:** The Districts should work with and insist that the Solano County Sheriff's Office Communications Center improve time stamp accuracy and call processing performance to align with recommended best practices in order to reduce dispatch processing time by at least 1:30 minutes.
- Recommendation #3:** **Adopt Updated Deployment Policies:** The Districts should adopt complete performance measures to communicate to the public what they can and cannot deliver and to monitor performance.
- Recommendation #4:** Updated response time measures should be designed to deliver outcomes that will save patients when possible upon arrival and to keep small and expanding fires from becoming more serious. With this in mind, Citygate recommends the following measures:
- 4.1 Distribution of Fire Stations:** To treat pre-hospital medical emergencies and control small fires, first-due units should arrive within 14:00 minutes of receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

- 4.2** Multiple-Unit Effective Response Force for Serious Emergencies: To confine building fires to only the affected building, keep vegetation fires under five acres in size, and treat multiple medical patients at a single incident, a multiple-unit ERF, including at least one chief officer, should arrive within 19:00 minutes of receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability.
- 4.3** Hazardous Materials Response: To protect residents from the hazards associated with uncontrolled release of hazardous and toxic materials, first-due units should arrive within 14:00 minutes of receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability. The fundamental mission of the Districts' response is to isolate the hazard, deny entry into the hazard zone, and notify appropriate officials/resources to minimize impacts on the community. After an initial evaluation is completed, a determination can be made whether to request additional resources from the regional hazardous materials team.
- 4.4** Technical Rescue: Respond to technical rescue emergencies with a first-due response time of 14:00 minutes or less from receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability to evaluate the situation and/or initiate rescue actions. Following the initial evaluation, request additional resources as needed to safely complete rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

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SECTION 3—PHYSICAL ASSETS ASSESSMENT

In this Section, Citygate provides a macro-level assessment of the Districts’ physical fire station facility and response assets. These assessments were conducted in collaboration with each district Fire Chief.

3.1 FIRE STATION FACILITY ASSETS

The following table summarizes the general criteria used by Citygate to evaluate the condition of the Districts’ fire station facilities.

Table 20—Facility Assessment Criteria

Condition	General Criteria
Excellent	<ul style="list-style-type: none"> Less than 10 years old Design and space meet current and anticipated future operational needs Meets health and safety requirements for human habitation/use Building and/or major systems require only minor routine maintenance to maintain continued operational use No near-term capital improvement/renewal needs anticipated
Good	<ul style="list-style-type: none"> Design and space adequate for current and anticipated near-future operational needs Meets health and safety requirements for human habitation/use Building and/or major systems require regular routine maintenance/repairs to maintain continued operational use May require some capital improvement/renewal over next five years
Fair	<ul style="list-style-type: none"> Design and space may not meet current/anticipated future operational needs May have some health and safety issues relative to human habitation/use Building and/or major systems require more than routine maintenance/repairs to maintain continued operational use Major capital improvement/renewal needed or anticipated in near future
Poor	<ul style="list-style-type: none"> Design and space do not meet current/anticipated future operational needs May have health and safety issues relative to human habitation/use Building and/or major systems require frequent major repairs to maintain continued operational use Major capital improvement/restoration needed for continued operational use

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

3.1.1 Cordelia FPD

Station 29 – 1624 Rockville Road, Fairfield

Fire Station 29 is a 1,600 square-foot, single-story, wood-frame apparatus garage facility constructed in 1974 and located in Green Valley adjacent to the Green Valley Country Club on property owned by the Fairfield-Suisun School District. The Fire District has placed a 500-square-foot mobile/modular trailer adjacent to the garage for use as living/office space by District personnel as needed. This station is currently only utilized as a storage facility for three apparatus.

Citygate’s assessment of this facility rates its condition as **Poor** with the following needs identified to sustain continued operational use:

- ◆ Extensive dry rot
- ◆ Roof needs replacement
- ◆ Building is too close to the street to allow apparatus to park on front driveway apron without encroaching on roadway
- ◆ Portable crew quarters less than ideal for 24-hour shift personnel
- ◆ Fire District does not own or control the property

Station 31 – 2155 Cordelia Road, Fairfield

Fire Station 31 is an 11,939 square-foot, single-story, concrete and wood-frame building originally constructed in 1939 as an automobile dealership. The building has had multiple additions/modifications over the years, and houses seven District vehicles, administrative staff, and two shift response personnel as well as a large meeting hall and outdoor parking/training area. This facility is owned by the District. Citygate’s assessment of this facility rates its condition as **Fair** with the following needs identified to sustain continued operational use:

- ◆ Inadequate indoor apparatus/vehicle space
- ◆ Roof needs replacement; has been a problem for many years
- ◆ Heating / Ventilation / Air Conditioning (HVAC) system needs replacement
- ◆ Ongoing sewer and electrical issues
- ◆ No backup electrical generator
- ◆ Single-pane windows in crew quarters do not provide sufficient noise insulation from adjacent bar

3.1.2 Montezuma FPD

Station 51 – 21 N. 4th Street, Rio Vista

Fire Station 51 is a 5,600 square-foot, single-story facility constructed in 1954 and co-located with the City of Rio Vista Fire Department. This station houses the District’s administrative staff and offices, two on-duty response personnel, and nine apparatus/vehicles. Two apparatus bays, a training room, new roof, new HVAC system, new exhaust removal system, new apparatus doors, and new flooring have been added since 2014. Citygate’s assessment of this facility rates its condition as **Good** with the following needs identified to sustain continued operational use:

- ◆ Insufficient secured parking for all assigned vehicles
- ◆ Insufficient office space

Station 52 – 2151 Collinsville Road, Birds Landing

Fire Station 52 is a 4,000 square-foot facility constructed in 2011 housing three response apparatus staffed by District volunteers. Citygate’s assessment of this facility rates its condition as **Excellent** with no significant needs identified to sustain continued operational use.

3.1.3 Suisun FPD

Station 32 – 4695 Clayton Road, Fairfield

Fire Station 32 is a 4,000 square-foot wood-frame building constructed in 1984 that houses four response apparatus staffed by District volunteers. The District has plans to add a four-bay apparatus storage building at the rear of the property. Citygate’s assessment of this facility rates its condition as **Good** with no specific needs identified to sustain continued operational use.

Station 33 – 445 Jackson Street, Fairfield

Fire Station 33 is a 6,573 square-foot, two-story facility constructed in 1954 that houses the District’s administrative offices, two response personnel during weekday daytime hours, and 10 response apparatus/vehicles. Citygate’s assessment of this facility rates its condition as **Good** with no significant needs identified to sustain continued operational use.

3.1.4 Vacaville FPD

Station 64 – 420 Vine Street, Vacaville

Fire Station 64 is an approximately 10,000 square-foot, two-story building constructed in 1981 that houses the District’s administrative offices, 16 apparatus/vehicles, and one to two shift-based paid response personnel plus volunteer response personnel. Citygate’s assessment of this facility rates its condition as **Good** with no specific needs identified to sustain continued operational use.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Station 65 – 6080 A Street, Elmira

Fire Station 65 is an approximately 4,000 square-foot, single-story concrete block building constructed in 1984 that houses five response apparatus staffed by District volunteer personnel. Citygate’s assessment of this facility rates its condition as ***Good*** with no significant needs identified to sustain continued operational use.

Station 67 – 4135 Cantelow Road, Vacaville

Fire Station 67 is an approximately 4,000 square-foot single-story metal building constructed in 1984 that houses four response apparatus staffed by District volunteer personnel. The District has plans to replace this facility within the next five years. Citygate’s assessment of this facility rates its condition as ***Fair*** with no significant immediate needs identified to sustain continued operational use.

Station 68 – 3866 Canal Lane, Winters

Fire Station 68 is an approximately 5,000 square-foot, single-story metal building constructed in 2010 that houses four response apparatus staffed by District volunteer personnel. The station also has living, sleeping, and office space for up to three on-duty personnel. Citygate’s assessment of this facility rates its condition as ***Excellent*** with no significant immediate needs identified to sustain continued operational use.

3.1.5 Facility Assessment Summary

Citygate’s assessment of the Districts’ fire station facilities is summarized in the following table.

Table 21—Fire Districts Facility Assessment Summary

Facility	Assessed Condition
Cordelia FPD	
Station 29	<i>Poor</i>
Station 31	<i>Fair</i>
Montezuma FPD	
Station 51	<i>Good</i>
Station 52	<i>Excellent</i>
Suisun FPD	
Station 32	<i>Good</i>
Station 33	<i>Good</i>
Vacaville FPD	
Station 64	<i>Good</i>
Station 65	<i>Good</i>
Station 67	<i>Fair</i>
Station 68	<i>Excellent</i>

Finding #16: Except for Cordelia FPD Stations 29 and 31 and Vacaville FPD Station 67, the Districts’ fire station facilities meet current and anticipated future operational needs and have been adequately maintained for continued operational use.

3.2 PHYSICAL RESPONSE (APPARATUS) ASSETS

The following table summarizes the general criteria used by Citygate to evaluate the condition and operational reliability of the Districts’ physical response assets.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 22—Physical Response Asset Assessment Criteria

Condition	General Criteria
Very Good	<ul style="list-style-type: none"> • Less than 10 years old • All vehicle chassis, driveline, and body components are operationally reliable and safe to operate with normal preventive maintenance and minor repairs • All fire suppression components, including fire pump, tank, foam injection systems, aerial ladders, communications systems, etc., are operationally reliable with normal preventive maintenance and minor repairs • Manufacturer-supported service and parts available • Greater than 95 percent in-service reliability
Good	<ul style="list-style-type: none"> • Less than 20 years old • All vehicle chassis, driveline, and body components are operationally reliable and safe to operate with normal preventive maintenance and infrequent repairs • All fire suppression components, including fire pump, tank, foam injection systems, aerial ladders, communications systems, etc., are operationally reliable with normal preventive maintenance and infrequent repairs • Manufacturer-supported service and parts available • Greater than 90 percent in-service reliability
Fair	<ul style="list-style-type: none"> • More than 20 years old • Able to maintain acceptable reliability and safe operation of vehicle chassis, driveline, and body components with normal preventive maintenance and more frequent or major repairs • Able to maintain acceptable reliability and safe operation of fire suppression components, including fire pump, tank, foam injection systems, aerial ladders, communications systems, etc., are operationally reliable with normal preventive maintenance and more frequent or major repairs • Manufacturer may no longer provide service or parts support • Some non-essential parts may not be available • Greater than 80 percent in-service reliability
Poor	<ul style="list-style-type: none"> • More than 20 years old • Vehicle chassis, driveline, and/or body components require frequent or major repair to maintain safe operational status • Fire suppression components require frequent or major repair to maintain safe operational status • Manufacturer no longer provides service or parts support • Some essential parts may not be readily available • Less than 80 percent in-service reliability

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

While Citygate finds the physical response assets appropriate to protect against the hazards likely to impact each district, the aggregate number of resources is *more than* would be reasonably needed in a single agency or shared resource service model.

3.2.1 Cordelia FPD

The following table summarizes Citygate’s assessment of Cordelia FPD’s physical response assets.

Table 23—Physical Response Assets Assessment Summary – Cordelia FPD

Response Asset	Age (Years)	ICS Type	Assessed Condition
Engine 29	26	1	Poor
Engine 31	11	1	Fair
Engine 231	19	2	Fair
Engine 529	11	6	Good
Engine 531	11	6	Good
Water Tender 31	26	N/A	Good
Air 31	17	N/A	Good
Chief 3100	6	N/A	Good
Chief 3101	6	N/A	Good
Utility 29	13	N/A	Good

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

3.2.2 Montezuma FPD

The following table summarizes Citygate’s assessment of Montezuma FPD’s physical response assets.

Table 24—Physical Response Assets Assessment Summary – Montezuma FPD

Response Asset	Age (Years)	ICS Type	Assessed Condition
Engine 51	13	1	Very Good
Engine 251	10	1	Very Good
Engine 451	4	4	Very Good
Engine 551	11	5	Very Good
Water Tender 51	12	N/A	Very Good
Engine 52	3	1	Very Good
Engine 552	5	5	Very Good
Engine 562	12	5	Very Good
Utility 51	5	N/A	Very Good
Utility 52	10	N/A	Very Good
Utility 53	12	N/A	Very Good
Utility 54	15	N/A	Very Good

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

3.2.3 Suisun FPD

The following table summarizes Citygate’s assessment of Suisun FPD’s physical response assets.

Table 25—Physical Response Assets Assessment Summary – Suisun FPD

Response Asset	Age (Years)	ICS Type	Assessed Condition
Engine 32	20	1	Good
Engine 33	11	1	Good
Engine 333	21	3	Good
Engine 532	9	5	Good
Engine 533	12	5	Good
Engine 534	23	5	Good
Water Tender 32	9	1	Good
Water Tender 33	3	1	Very Good
Air 33	39	N/A	Good
Rescue 33	4	N/A	Very Good
Boat 33	16	N/A	Good
Battalion 33	8	N/A	Good
Battalion 233	2	N/A	Very Good
Battalion 333	4	N/A	Good

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

3.2.4 Vacaville FPD

The following table summarizes Citygate’s assessment of Vacaville FPD’s physical response assets.

Table 26—Physical Response Asset Assessment Summary – Vacaville FPD

Response Asset	Age (Years)	ICS Type	Assessed Condition
Engine 64	30	1	<i>Good</i>
Engine 264	25	1	<i>Good</i>
Water Tender 64	38	N/A	<i>Good</i>
Squad 64	14	N/A	<i>Good</i>
Brush 64	16	5	<i>Good</i>
Brush 264	35	3	<i>Good</i>
Grass 64	30	6	<i>Good</i>
Utility 64	14	N/A	<i>Good</i>
Utility 264	29	N/A	<i>Good</i>
Utility 364	24	N/A	<i>Poor</i>
Utility 464	22	N/A	<i>Good</i>
6400	13	N/A	<i>Very Good</i>
6403	1	N/A	<i>Very Good</i>
6404	4	N/A	<i>Good</i>
6407	24	N/A	<i>Good</i>
6409	12	N/A	<i>Good</i>
Engine 65	14	1	<i>Good</i>
Engine 265	30	1	<i>Good</i>
Brush 65	34	6	<i>Good</i>
Water Tender 65	45	N/A	<i>Good</i>
Squad 65	40	N/A	<i>Good</i>
Engine 67	38	1	<i>Good</i>
Engine 267	20	1	<i>Poor</i>
Brush 67	16	5	<i>Good</i>
Grass 267	46	6	<i>Good</i>
Engine 68	45	1	<i>Good</i>
Brush 68	16	6	<i>Good</i>
Grass 68	28	9	<i>Good</i>
Water Tender 68	32	N/A	<i>Good</i>

3.2.5 Physical Response Asset Assessment Summary

Citygate’s assessment of the Districts’ physical response assets finds them to be of the appropriate types and configuration to protect against the hazards likely to impact each district. Citygate also finds the aggregate fleet size to be *larger than would be reasonably needed* in a single jurisdiction or shared resource service model.

Finding #17: The Districts’ physical response resources are of the appropriate types and configuration to protect against the risks likely to impact each district.

Finding #18: The aggregate number of physical response resources is more than would be reasonably needed in a single agency or shared resource service model.

Finding #19: Except for three Cordelia FPD engines and one Vacaville FPD engine and utility, the Districts’ physical response apparatus meet current and anticipated future operational needs and are appropriately maintained for safe operational use.

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SECTION 4—FISCAL ASSESSMENT

This section provides a comprehensive assessment of each district’s current and projected future fiscal health and sustainability.

4.1 METHODOLOGY

For this assessment, Citygate used recent historical fiscal data provided by the Solano County Auditor-Controller’s Office for each district. Future revenue and expenditure assumptions were made by budget line item using historical change, Citygate consultant fiscal experience, and collaboration with district staff as offered by Citygate. Fund balances include all district reserve funds, including restricted funds, such as development impact fees.

4.2 CORDELIA FPD

4.2.1 Revenues

Table 27 summarizes actual revenues from fiscal year (FY) 10/11 through FY 18/19, and Table 28 projects revenues through FY 24/25.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 27—Recent Historical Revenue – Cordelia FPD (FY 10/11 – FY 18/19)

Revenue Source	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Property Tax	217,696	209,309	204,685	221,278	236,205	246,660	261,581	272,791	288,229
Special Assessment	341,523	346,674	353,609	361,405	368,299	374,479	385,266	394,285	403,315
Unitary	21,464	23,117	22,656	22,811	22,951	23,666	24,163	24,901	25,574
Interest	2,693	2,007	1,821	1,379	1,733	2,224	2,639	4,808	8,510
Rental Income	8,662	8,327	10,376	10,548	7,626	0	0	0	0
Capital Facility Fees	25,778	34,161	39,302	27,166	70,993	19,440	39,484	15,852	23,109
Other Government Agencies	-647	7,148	156,581	69,573	184,267	155,023	31,405	176,942	76
Grants	7,878	20,916	9,000	32,167	10,852	3,333	0	187,634	16,881
Other Professional Services	9,575	17,912	20,142	13,145	11,204	6,905	11,153	9,715	4,066
Other Charges for Services	0	4,822	46,757	0	0	6,599	20,492	34,810	29,097
Donations/Contributions	16,219	18,601	11,501	1,893	6,458	6,665	1,301	15,006	3,513
Sale of Fixed Assets	0	0	800	2,500	0	4,200	752	0	0
Other Revenue	0	0	0	0	0	0	0	0	0
Total Revenue	650,840	692,994	877,230	763,863	920,587	849,195	778,236	1,136,744	802,372

Table 28—Current and Projected Future Revenue – Cordelia FPD (FY 19/20 – FY 24/25)

Revenue Source	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Property Tax	298,365	308,807	319,616	330,802	342,380	354,364
Special Assessment	410,464	418,673	427,046	435,587	444,299	453,185
Unitary	25,353	25,606	25,862	26,121	26,382	26,646
Interest	8,755	8,931	9,109	9,291	9,477	9,667
Rental Income	2	2	2	2	2	2
Capital Facility Fees	40,410	42,430	44,552	46,779	49,118	51,574
Other Government Agencies	2,395	2,635	2,898	3,188	3,507	3,857
Grants	0	0	0	0	0	0
Other Professional Services	7,558	7,558	7,558	7,558	7,558	7,558
Other Charges for Services	7,472	7,472	7,472	7,472	7,472	7,472
Donations/Contributions	750	750	750	750	750	750
Sale of Fixed Assets	0	0	0	0	0	0
Other Revenue	0	0	0	0	0	0
Total Revenue	801,523	822,864	844,865	867,551	890,945	915,075

4.2.2 Expenditures

Table 29 summarizes actual expenditures from FY 10/11 through FY 18/19, and Table 30 projects current and near-term future expenditures through FY 24/25. Of note is the 31 percent increase in expenditures from FY 18/19 to FY 19/20 due to hiring of one additional full-time employee, increases in employee salary, benefits, and operating costs, and planned capital expense.

Table 29—Recent Historical Expenditures – Cordelia FPD (FY 10/11 – FY 18/19)

Expenditure Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Personnel	340,859	392,750	415,728	427,256	424,464	506,907	455,170	466,354	410,721
Operating & Maintenance	318,211	296,851	416,664	351,384	464,790	385,876	265,391	495,695	260,014
Capital Expense	0	0	8,995	0	0	49,153	11,433	175,100	0
Reserves	0	0	0	0	0	0	0	0	0
Total Expenditures	659,070	689,600	841,386	778,639	889,254	941,937	731,994	1,137,149	670,735

Table 30—Current and Projected Future Expenditures – Cordelia FPD (FY 19/20 – FY 24/25)

Expenditure Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Personnel	567,334	588,547	603,261	618,342	633,801	649,646
Operating & Maintenance	309,992	322,011	327,759	335,953	344,352	352,961
Capital Expense	0	25,000	25,000	25,000	25,000	25,000
Reserves	0	0	0	0	0	0
Total Expenditures	877,327	935,558	956,020	979,295	1,003,152	1,027,606

4.2.3 Revenues to Expenditures

Table 31, Table 32, and Figure 10 summarize revenues to expenditures for Cordelia FPD. Of particular note and concern is the *negative* revenues to expenditures beginning in FY 19/20 and projected to increase each ensuing fiscal year through FY 24/25.

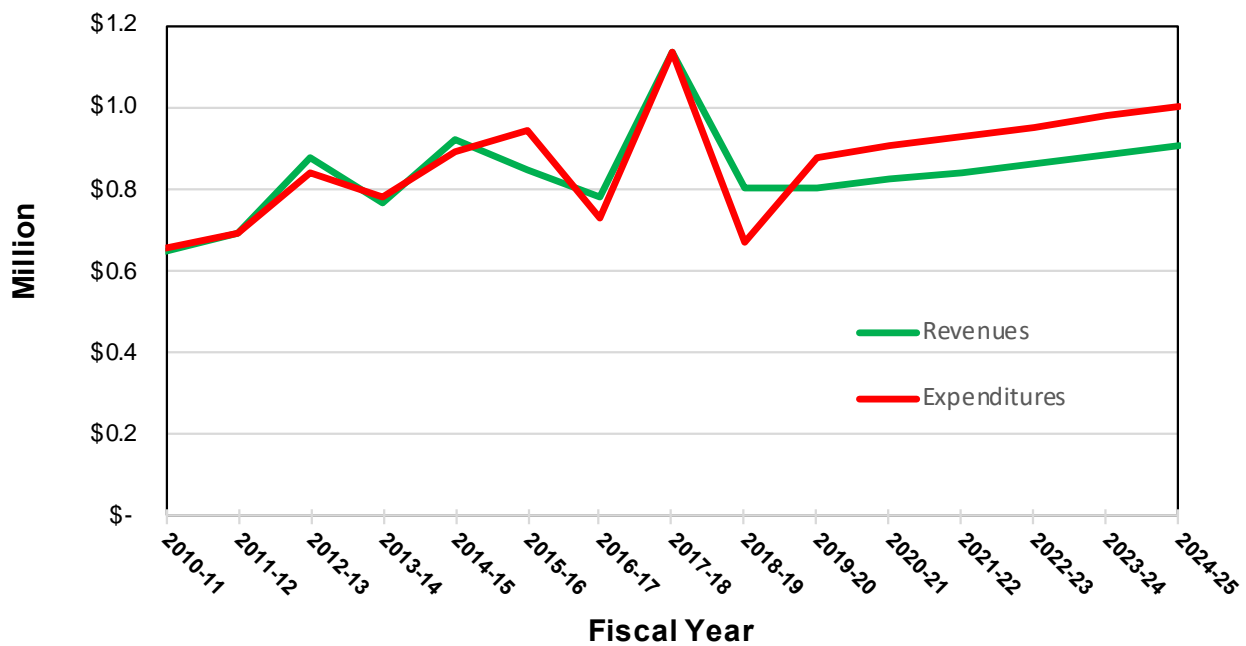
Table 31—Recent Historical Revenues to Expenditures – Cordelia FPD (FY 10/11 – FY 18/19)

Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Revenues	650,840	692,994	877,230	763,863	920,587	849,195	778,236	1,136,744	802,372
Expenditures	659,070	689,600	841,386	778,639	889,254	941,937	731,994	1,137,149	670,735
Revenue to Expenditures	-8,230	3,394	35,843	-14,776	31,333	-92,742	46,242	-405	131,638

Table 32—Current and Projected Future Revenues to Expenditures – Cordelia FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Revenues	801,523	822,864	844,865	867,551	890,945	915,075
Expenditures	877,327	935,558	956,020	979,295	1,003,152	1,027,606
Revenues to Expenditures	-75,803	-112,694	-111,154	-111,744	-112,207	-112,532

Figure 10—Revenues to Expenditures – Cordelia FPD (FY 10/11 – FY 24/25)



Finding #20: Cordelia FPD has a *structural budget deficit* beginning in FY 19/20 and increasing each ensuing year through FY 24/25.

4.2.4 Debt Service

Cordelia FPD has no debt service.

4.2.5 Unfunded Liability

Although not researched for this assessment, Cordelia may have an unfunded CalPERS employer retirement contribution liability.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

4.2.6 Fiscal Reserves

Table 33, Table 34, and Figure 11 summarize Cordelia FPD’s recent historical and projected near-future fiscal reserve fund balance. Of note is that the District’s fund balance is approximately 65 percent of the current budget and is projected to *decline* to approximately 1 percent of annual budget by FY 24/25 given projected revenues and expenditures. This declining fund balance is of *significant concern* relative to the District’s continued fiscal viability.

Table 33—Recent Historical Fund Balance – Cordelia FPD (FY 10/11 – FY 18/19)

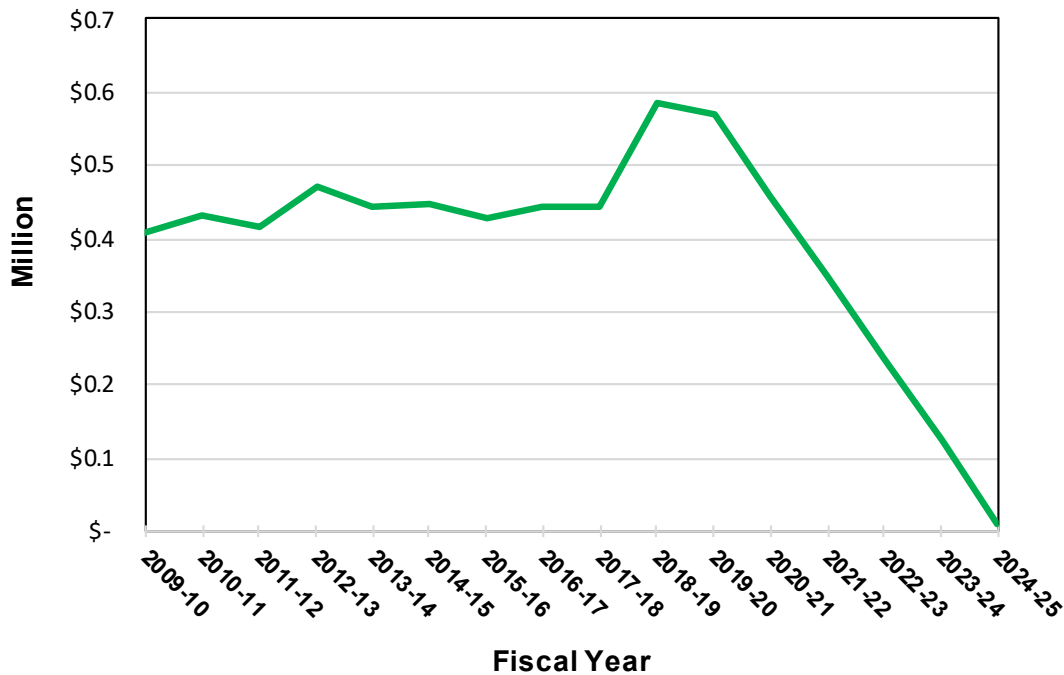
Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Ending Fund Balance	430,616	417,310	472,687	442,323	448,908	426,647	442,127	444,786	584,060

Table 34—Projected Future Fund Balance – Cordelia FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Beginning Fund Balance	584,060	571,072	458,378	347,224	235,479	123,273
Revenue	801,523	822,864	844,865	867,551	890,945	915,075
Expenditures	877,327	935,558	956,020	979,295	1,003,152	1,027,606
Ending Fund Balance	571,072	458,378	347,224	235,479	123,273	10,741

Note: Projected ending fund balances from FY 20/21 forward reflect the beginning fund balance from the prior fiscal year plus projected revenues less projected expenditures.

Figure 11—Fund Balance – Cordelia FPD (FY 09/10 – FY 24/25)



Finding #21: Given a structural budget *deficit* beginning in FY 19/20 and projected to increase each ensuing fiscal year, the Cordelia FPD fund balance is projected to *decline* from approximately 65 percent of annual budget in the current year to approximately 1 percent of annual budget by FY 24/25.

Finding #22: Absent additional revenues, reduced expenditures, or a combination of both, Cordelia FPD’s fiscal reserves could be *exhausted* within the next several years.

4.3 MONTEZUMA FPD

4.3.1 Revenues

Table 35 summarizes actual Montezuma FPD revenues from FY 10/11 through FY 18/19, and Table 36 projects current and near-term future district revenues through FY 24/25. Of note is the 24 percent reduction in revenue from FY 18/19 to FY 19/20 due to assessed valuation depreciation of wind turbines and reduction in interest, grant, mutual aid reimbursement, and sale of fixed asset revenues.

Table 35—Recent Historical Revenues – Montezuma FPD (FY 10/11 – FY 18/19)

Revenue Source	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Property Tax	616,279	597,298	723,993	950,325	914,836	871,019	858,793	831,540	794,614
Unitary	11,388	12,313	12,061	12,184	12,245	13,719	14,405	15,816	16,427
Interest	3,996	2,915	6,084	3,493	5,561	9,327	15,813	27,120	44,372
Rental Income	9,006	4	3,604	7,204	7,203	7,205	7,202	7,203	7,203
Capital Facility Fees	0	0	0	0	0	0	0	0	0
Other Government Agencies	0	3,657	204,214	72,551	330,186	63	59	53	3,482
Grants	0	0	0	0	0	0	0	0	120,822
Other Professional Services	0	0	0	0	0	351,308	214,243	19,060	0
Other Charges for Services	0	0	0	0	0	0	0	0	52,029
Donations/Contributions	0	500	0	0	1,000	0	0	0	0
Sale of Fixed Assets	320	4,499	6,551	0	18,944	8,769	0	0	37,803
Other Revenue	83,609	6,744	11,023	2,351	2,162	4,001	28,742	3,321	9,608
Total Revenue	724,598	627,930	967,529	1,048,108	1,292,137	1,265,411	1,139,257	904,112	1,086,359

Table 36—Current and Projected Future Revenue – Montezuma FPD (FY 19/20 – FY 24/25)

Revenue Source	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Property Tax	715,479	698,693	681,945	665,736	650,051	634,874
Unitary	16,260	16,910	17,587	18,290	19,022	19,783
Interest	44,648	45,317	45,997	46,687	47,387	48,098
Rental Income	7,202	7,200	7,200	7,200	7,200	7,200
Capital Facility Fees	0	0	0	0	0	0
Other Government Agencies	65	0	0	0	0	0
Grants	0	0	0	0	0	0
Other Professional Services	14,768	0	0	0	0	0
Other Charges for Services	0	0	0	0	0	0
Donations/Contributions	0	0	0	0	0	0
Sale of Fixed Assets	0	0	0	0	0	0
Other Revenue	22,384	0	0	0	0	0
Total Revenue	820,806	768,121	752,729	737,914	723,660	709,955

4.3.2 Expenditures

The following table summarizes actual Montezuma FPD expenditures from FY 10/11 through FY 18/19, and Table 38 projects current and near-term future district expenditures through FY 24/25.

Table 37—Recent Historical Expenditures – Montezuma FPD (FY 10/11 – FY 18/19)

Expenditure Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Personnel	241,681	270,503	329,595	329,669	390,879	441,808	502,444	403,601	468,222
Operating & Maintenance	161,338	193,083	224,003	187,256	249,087	230,242	233,070	209,815	314,904
Capital Expense	505,699	43,517	327,306	194,967	354,010	22,357	97,860	389,605	153,520
Total Expenditures	908,718	507,103	880,904	711,892	993,976	694,406	833,374	1,003,020	936,646

Table 38—Current and Projected Future Expenditures – Montezuma FPD (FY 19/20 – FY 24/25)

Expenditure Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Personnel	455,119	475,461	488,338	501,690	515,541	529,917
Operating & Maintenance	255,975	244,945	256,955	269,749	283,387	297,936
Capital Expense	8,888	15,000	15,000	15,000	15,000	15,000
Total Expenditures	719,982	735,406	760,293	786,439	813,928	842,854

4.3.3 Revenues to Expenditures

Table 39, Table 40, and Figure 12 summarize revenues to expenditures for Montezuma. Of note are projected structural budget *deficits* beginning in FY 21/22 and beyond given current revenue and expenditure assumptions.

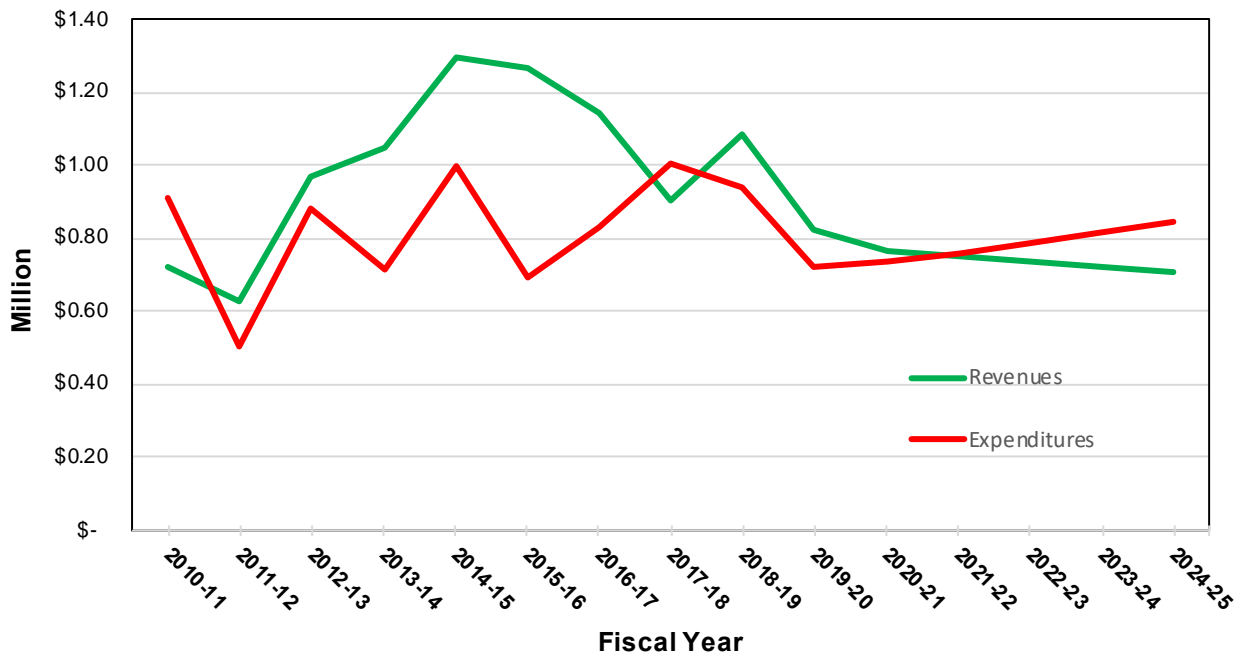
Table 39—Recent Historical Revenues to Expenditures – Montezuma FPD (FY 10/11 – FY 18/19)

Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Revenues	724,598	627,930	967,529	1,048,108	1,292,137	1,265,411	1,139,257	904,112	1,086,359
Expenditures	908,718	507,103	880,904	711,891	993,976	694,406	833,374	1,003,020	936,646
Revenue to Expenditures	-184,120	120,827	86,625	336,217	298,161	571,005	305,883	-98,908	149,713

Table 40—Current and Projected Future Revenues to Expenditures – Montezuma FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Revenues	820,806	768,121	752,729	737,914	723,660	709,955
Expenditures	719,982	735,406	760,293	786,439	813,928	842,854
Revenue to Expenditures	100,824	32,714	-7,564	-48,526	-90,269	-132,899

Figure 12—Revenues to Expenditures – Montezuma FPD (FY 10/11 – FY 24/25)



Finding #23: Montezuma FPD has projected structural budget *deficits* beginning in FY 21/22 and beyond given current revenue and expenditure assumptions.

4.3.4 Debt Service

Montezuma FPD has no debt service.

4.3.5 Unfunded Liability

Although not researched for this assessment, Montezuma may have an unfunded CalPERS employer retirement contribution liability.

4.3.6 Fiscal Reserves

Table 41, Table 42, and Figure 13 summarize Montezuma FPD’s recent historical and projected near-future fiscal reserve fund balance. Of note is that the District’s reserve fund balance is more than triple the FY 19/20 budget and is projected to *decrease* approximately 10 percent over the next five years given projected revenue and expenditure assumptions. In Citygate’s opinion, the slight deficit spending will eventually decrease reserves to the point to limit ongoing capital renewal/replacement and unanticipated contingencies.

Table 41—Recent Historical Fund Balance – Montezuma FPD (FY 10/11 – FY 18/19)

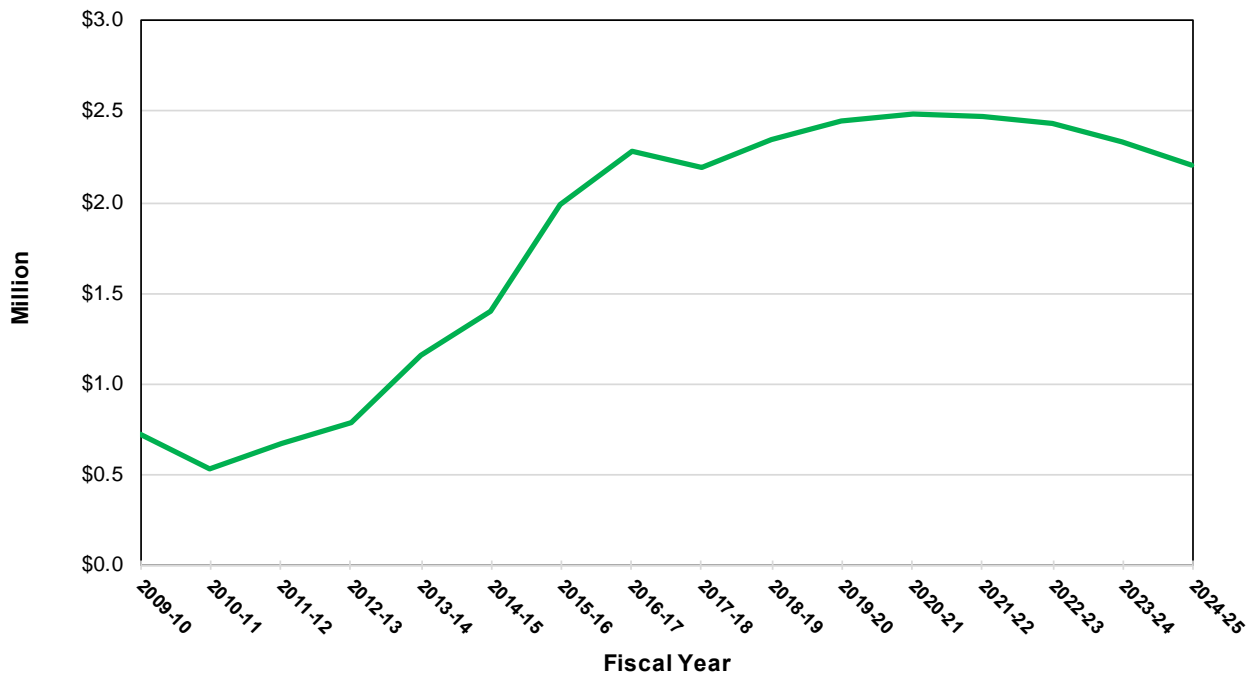
Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Ending Fund Balance	537,273	675,250	784,519	1,154,628	1,400,085	1,994,421	2,288,185	2,195,599	2,347,522

Table 42—Current and Projected Future Fund Balance – Montezuma FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Beginning Fund Balance	2,347,522	2,453,203	2,485,917	2,478,353	2,429,827	2,339,559
Revenue	820,806	768,121	752,729	737,914	723,660	709,955
Expenditures	719,982	735,406	760,293	786,439	813,928	842,854
Ending Fund Balance	2,453,203	2,485,917	2,478,353	2,429,827	2,339,559	2,206,660

Note: Projected ending fund balances from FY 20/21 forward reflect the beginning fund balance from the prior fiscal year plus projected revenues less projected expenditures.

Figure 13—Fund Balance – Montezuma FPD (FY 09/10 – FY 24/25)



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Finding #24: Montezuma FPD’s fund balance is *more than triple* the FY 19/20 budget and is projected to *decrease* approximately 10 percent over the next five years given projected revenue and expenditure assumptions.

Finding #25: Montezuma FPD’s fund balance will eventually decrease to the point to limit ongoing capital renewal/replacement and unanticipated contingencies.

4.4 SUISUN FPD

4.4.1 Revenues

The following table summarizes actual Suisun FPD revenues from FY 10/11 through FY 18/19, and Table 44 projects current and near-term future district revenues through FY 24/25.

Table 43—Recent Historical Revenues – Suisun FPD (FY 10/11 – FY 18/19)

Revenue Source	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Property Tax	252,530	238,812	226,084	244,683	259,847	274,934	290,662	305,217	338,003
Unitary	9,471	10,201	9,965	10,048	10,107	10,638	10,918	11,490	11,853
Interest	2,794	2,052	3,532	1,737	2,581	3,816	5,657	10,759	20,738
Rental Income	1,152	2	1	1	1	1	1	1	1
Capital Facility Fees	20,487	2,996	7,477	4,463	16,588	75,147	210,447	96,668	29,197
Other Government Agencies	0	0	0	0	0	20	20	20	86
Grants	190,000	0	0	128,314	0	7,726	0	0	7,565
Other Professional Services	267	3,455	0	95	0	0	0	0	0
Other Charges for Services	16,167	18,057	144,753	113,858	87,636	32,082	9,030	101,142	10,904
Donations/Contributions	2,296	135	714	2,125	190	615	1,450	2,200	8,435
Sale of Fixed Assets	0	800	3,615	0	0	4,500	1,000	0	3,895
Other Revenue	1,265	800	400	0	407	3,839	9,661	6,741	740
Total Revenue	496,428	277,310	396,542	505,323	377,356	413,319	538,845	534,239	431,418

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 44—Projected Current and Future Revenues – Suisun FPD (FY 19/20 – FY 24/25)

Revenue Source	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Property Tax	364,237	376,966	390,155	397,958	405,917	414,036
Unitary	11,730	12,023	12,324	12,570	12,822	13,078
Interest	21,091	21,408	21,729	22,163	22,607	23,059
Rental Income	1	1	1	1	1	1
Capital Facility Fees	36,283	36,283	36,283	37,008	37,748	38,503
Other Government Agencies	31	31	31	32	32	33
Grants	0	0	0	0	0	0
Other Professional Services	0	0	0	0	0	0
Other Charges for Services	12,364	12,657	12,956	13,215	13,480	13,749
Donations/Contributions	14,124	14,477	14,839	15,136	15,439	15,748
Sale of Fixed Assets	0	0	0	0	0	0
Other Revenue	686	700	714	728	743	757
Total Revenue	460,548	474,546	489,031	498,812	508,788	518,964

4.4.2 Expenditures

The following table summarizes actual Suisun FPD expenditures from FY 10/11 through FY 18/19, and Table 46 projects current and near-term future district expenditures through FY 24/25.

Table 45—Recent Historical Expenditures – Suisun FPD (FY 10/11 – FY 18/19)

Expenditure Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Personnel	100,872	124,190	155,412	202,501	131,638	117,785	119,695	161,157	148,982
Operating & Maintenance	103,818	259,355	96,033	132,664	133,768	100,147	105,067	121,011	161,865
Capital Expense	338,266	36,895	77,965	8,275	0	89,715	248,585	0	70,632
Total Expenditures	542,955	420,440	329,409	343,441	265,407	307,647	473,346	282,168	381,479

Table 46—Projected Current and Future Expenditures – Suisun FPD (FY 19/20 – FY 24/25)

Expenditure Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Personnel	255,748	263,468	271,503	276,933	282,471	288,121
Operating & Maintenance	131,186	135,273	139,535	142,326	145,172	148,076
Capital	11,490	30,000	30,000	30,000	30,000	30,000
Total Expenditures	398,424	428,741	441,038	449,259	457,643	466,197

4.4.3 Revenues to Expenditures

Table 47, Table 48, and Figure 14 summarize revenues to expenditures for Suisun. Of note is a *positive* structural budget (revenues to expenditures) since FY 12/13, which is projected to continue through FY 24/25.

Table 47—Recent Historical Revenues to Expenditures – Suisun FPD (FY 10/11 – FY 18/19)

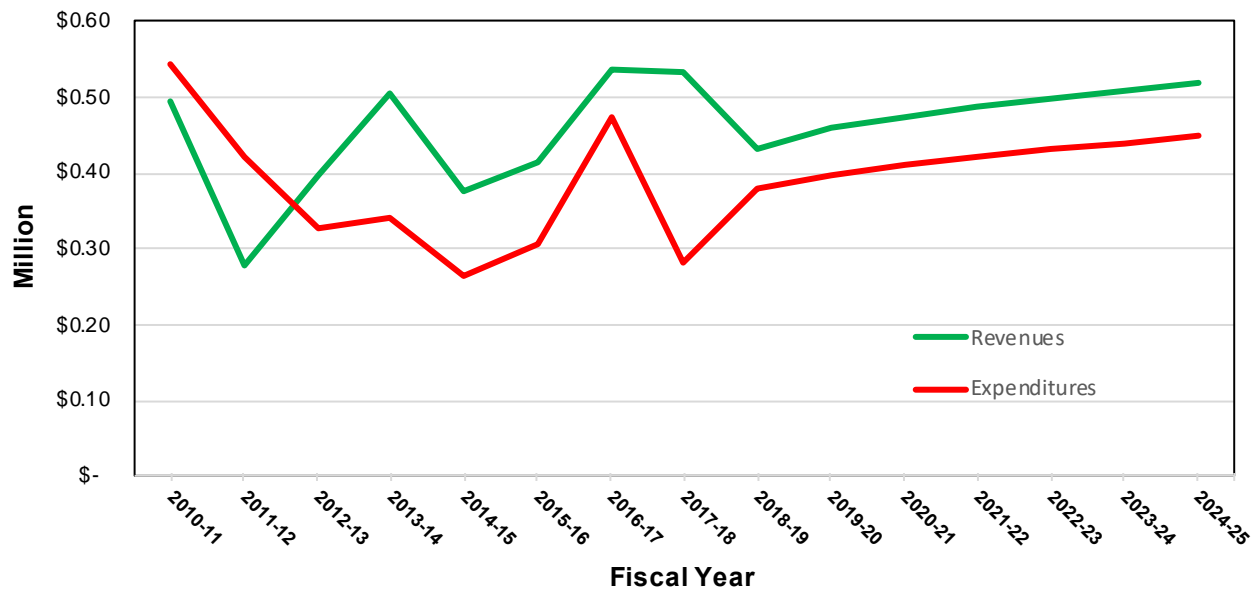
Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Revenues	496,428	277,310	396,542	505,323	377,356	413,319	538,845	534,239	431,418
Expenditures	542,955	420,440	329,409	343,441	265,407	307,647	473,346	282,168	381,479
Revenue to Expenditures	(46,527)	(143,130)	67,132	161,883	111,949	105,672	65,499	252,071	49,939

Table 48—Current and Projected Revenues to Expenditures – Suisun FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Revenues	460,548	474,546	489,031	498,812	508,788	518,964
Expenditures	398,424	428,740	441,037	449,258	457,643	466,196
Revenues to Expenditures	62,124	45,805	47,994	49,554	51,145	52,768

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Figure 14—Revenues to Expenditures – Suisun FPD (FY 10/11 – FY 24/25)



Finding #26: Suisun FPD has a projected *positive structural budget* through FY 24/25.

4.4.4 Debt Service

Suisun FPD has no debt service.

4.4.5 Unfunded Liability

Although not researched for this assessment, Suisun may have an unfunded CalPERS employer retirement contribution liability

4.4.6 Fiscal Reserves

Table 49, Table 50, and Figure 15 summarize Suisun FPD’s recent historical and projected near-future fiscal reserve fund balance. Of note is that the District’s fiscal reserves are approximately 300 percent of the FY 19/20 budget and are projected to increase approximately 21 percent over the next five years given projected revenue and expenditure assumptions. In Citygate’s experience and opinion, this reflects prudent fiscal management and fiscal reserves sufficient to fund conservative ongoing capital renewal/replacement, as well as nearly any unanticipated contingency.

Table 49—Recent Historical Fund Balance – Suisun FPD (FY 10/11 – FY 18/19)

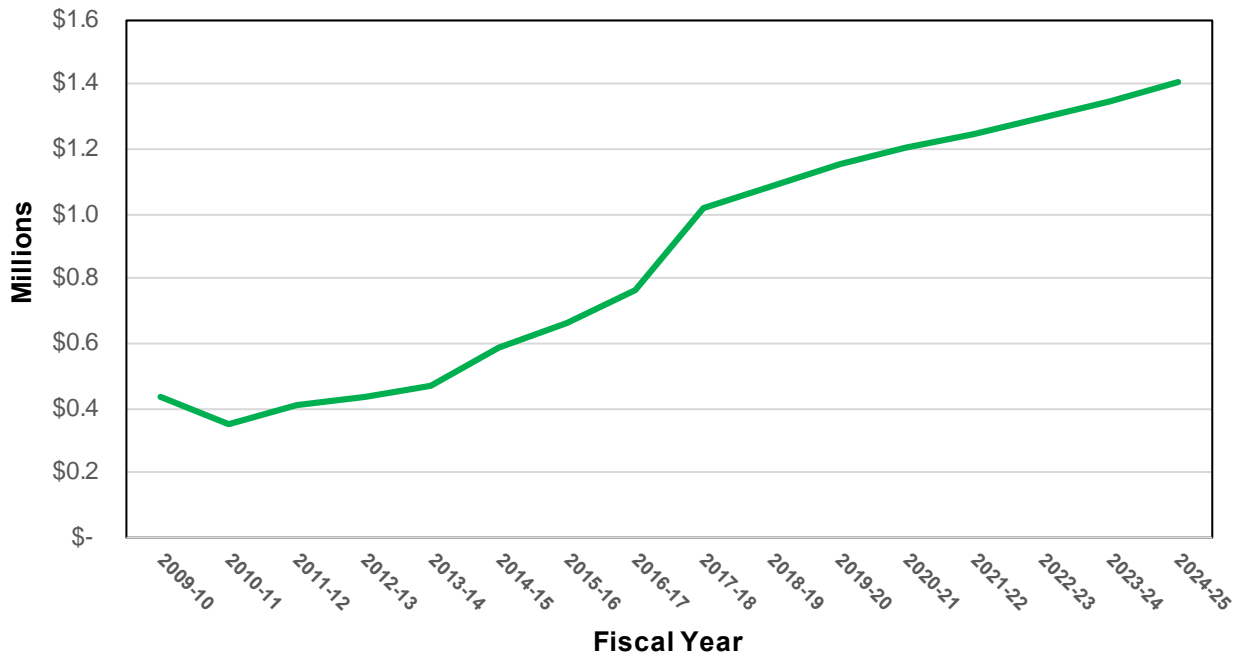
Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Ending Fund Balance	347,117	409,395	437,196	467,627	584,893	665,244	766,691	1,018,800	1,082,197

Table 50—Current and Projected Future Fund Balance – Suisun FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Beginning Fund Balance	1,082,197	1,156,849	1,202,655	1,250,649	1,300,203	1,351,348
Revenue	460,548	474,546	489,031	498,812	508,788	518,964
Expenditures	398,424	428,740	441,037	449,258	457,643	466,196
Ending Fund Balance	1,156,849	1,202,655	1,250,649	1,300,203	1,351,348	1,404,116

Note: Projected ending fund balances from FY 20/21 forward reflect the beginning fund balance from the prior fiscal year plus projected revenues less projected expenditures.

Figure 15—Fund Balance – Suisun FPD (FY 09/10 – FY 24/25)



Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Finding #27: Suisun FPD’s fund balance is *more than 300 percent* of the FY 19/20 budget and is projected to *increase* approximately 21 percent over the next five years given projected revenue and expenditure assumptions.

Finding #28: Suisun FPD’s fund balance reflects prudent fiscal management and fiscal reserves sufficient to fund conservative ongoing capital renewal/replacement and unanticipated contingencies.

4.5 VACAVILLE FPD

4.5.1 Revenues

The following table summarizes Vacaville FPD revenues from FY 10/11 through FY 18/19, and Table 52 projects current and near-term future district revenues through FY 24/25. Of note is the more than \$650,000 reduction in FY 19/20 revenues from FY 18/19 due to significantly lower capital facility fees, revenue from other governmental agencies, other professional services, and other revenue.

Table 51—Recent Historical Revenues – Vacaville FPD (FY 10/11 – FY 18/19)

Revenue Source	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Property Tax	977,070	948,744	931,797	1,010,072	1,095,472	1,172,507	1,230,170	1,283,221	1,353,543
Unitary	27,136	29,248	28,561	28,829	28,980	30,989	31,998	34,198	35,395
Interest	4,885	2,658	6,624	1,190	2,948	4,988	8,846	16,593	32,447
Rental Income	10,585	15,612	10,416	11,755	11,323	14,336	10,553	14,530	11,835
Capital Facility Fees	50,408	66,038	99,118	65,863	77,284	73,241	57,273	109,831	74,350
Other Government Agencies	0	0	0	0	93,000	0	120,364	79,744	79,744
Grants	0	0	0	0	0	0	0	286,432	0
Other Professional Services	43,151	2,695	144,995	156,604	124,006	75,898	99,649	55,602	79,401
Other Charges for Services	21	42	51	14	43	28	35	21	7
Donations/Contributions	50	100	100	50	1,955	100	100	1,250	100
Sale of Fixed Assets	0	11,514	0	0	0	0	15,527	0	47,023
Other Revenue	15,427	6,644	17,750	14,861	15,233	36,436	58,116	37,079	534,685
Total Revenue	1,128,732	1,083,294	1,239,413	1,289,238	1,450,243	1,408,522	1,632,631	1,918,501	2,248,530

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Table 52—Projected Current and Future Revenues – Vacaville FPD (FY 19/20 – FY 24/25)

Revenue Source	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Property Tax	1,408,628	1,457,493	1,508,071	1,560,424	1,614,616	1,670,710
Unitary	34,999	35,874	36,771	37,691	38,633	39,599
Interest	30,664	31,431	32,217	33,022	33,848	34,694
Rental Income	12,164	12,407	12,655	12,909	13,167	13,430
Capital Facility Fees	55,726	55,726	55,726	55,726	55,726	55,726
Other Government Agencies	3,782	3,858	3,858	3,858	3,858	3,858
Grants	0	0	0	0	0	0
Other Professional Services	4,984	5,084	5,084	5,084	5,084	5,084
Other Charges for Services	7	7	8	8	9	9
Donations/Contributions	100	105	110	116	122	128
Sale of Fixed Assets	0	0	0	0	0	0
Other Revenue	44,943	26,686	27,018	27,357	27,702	28,054
Total Revenue	1,595,998	1,628,670	1,681,517	1,736,193	1,792,762	1,851,290

4.5.2 Expenditures

The following table summarizes actual Vacaville FPD expenditures from FY 10/11 through FY 18/19, and Table 54 projects current and near-term future district expenditures through FY 24/25.

Table 53—Recent Historical Expenditures – Vacaville FPD (FY 10/11 – FY 18/19)

Expenditure Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Personnel	825,547	851,507	862,647	640,333	717,480	645,987	758,815	792,153	851,691
Operating & Maintenance	456,180	500,410	497,926	401,085	395,686	418,246	451,445	510,433	684,136
Capital Expense	20,333	71,854	18,540	0	72,914	133,926	82,960	326,224	20,003
Total Expenditures	1,302,060	1,423,772	1,379,114	1,041,418	1,186,080	1,198,159	1,293,220	1,628,810	1,555,830

Table 54—Projected Current and Future Expenditures – Vacaville FPD (FY 19/20 – FY 24/25)

Expenditure Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Personnel	843,579	876,938	912,150	949,354	988,703	1,030,362
Operating & Maintenance	533,150	544,384	554,577	565,597	576,923	588,567
Capital Expense	195,797	205,000	210,500	216,550	223,205	230,526
Total Expenditures	1,572,526	1,626,322	1,677,227	1,731,501	1,788,831	1,849,454

4.5.3 Revenues to Expenditures

Table 55, Table 56, and Figure 16 summarize revenues to expenditures for Vacaville. Of note is a *positive* structural budget (revenues to expenditures) since FY 13/14, which is projected to continue through FY 24/25.

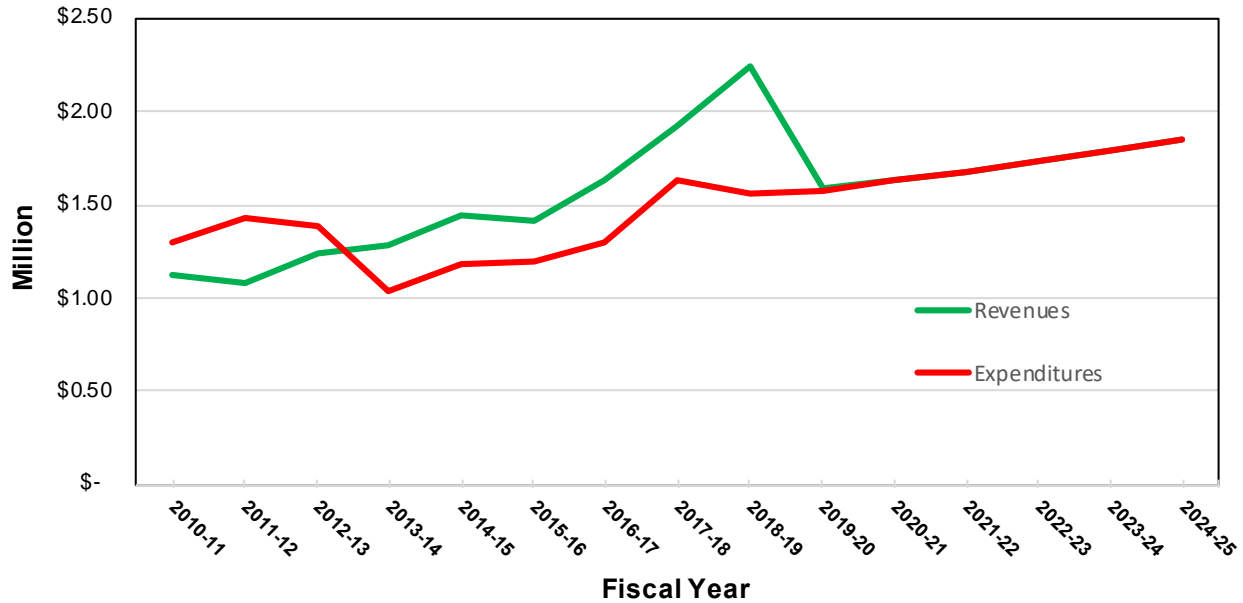
Table 55—Recent Historical Revenues to Expenditures – Vacaville FPD (FY 10/11 – FY 18/19)

Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Revenues	1,128,732	1,083,294	1,239,413	1,289,238	1,450,243	1,408,522	1,632,631	1,918,501	2,248,530
Expenditures	1,302,060	1,423,772	1,379,114	1,041,418	1,186,080	1,198,159	1,293,220	1,628,810	1,555,830
Revenue to Expenditures	-173,328	-340,478	-139,700	247,820	264,163	210,363	339,412	289,691	692,700

Table 56—Current and Projected Revenues to Expenditures – Vacaville FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Revenues	1,595,998	1,628,670	1,681,517	1,736,193	1,792,762	1,851,290
Expenditures	1,572,526	1,626,322	1,677,227	1,731,501	1,788,831	1,849,454
Revenue to Expenditures	23,472	2,348	4,290	4,692	3,931	1,836

Figure 16—Revenues to Expenditures – Vacaville FPD (FY 10/11 – FY 24/25)



Finding #29: Vacaville FPD has a projected *positive structural budget* through FY 24/25.

4.5.4 Debt Service

Vacaville FPD has approximately \$425,000 in debt service to finance two Type-5 wildland engines. The debt service will be retired in FY 22/23.

4.5.5 Unfunded Liability

Although not researched for this assessment, Vacaville may have an unfunded CalPERS employer retirement contribution liability.

4.5.6 Fiscal Reserves

Table 57, Table 58, and Figure 17 summarize Vacaville FPD’s recent historical and projected near-future fiscal reserve fund balance. Of note is that the District’s reserve fund balance is approximately 12 percent more than its FY 19/20 budget and is projected to increase by approximately 1 percent over the next five years given projected revenue and expenditure assumptions. In Citygate’s opinion, this reflects prudent fiscal management and fiscal reserves sufficient to fund conservative ongoing capital renewal/replacement, as well as nearly any unanticipated contingency.

Table 57—Recent Historical Fund Balance – Vacaville FPD (FY 10/11 – FY 18/19)

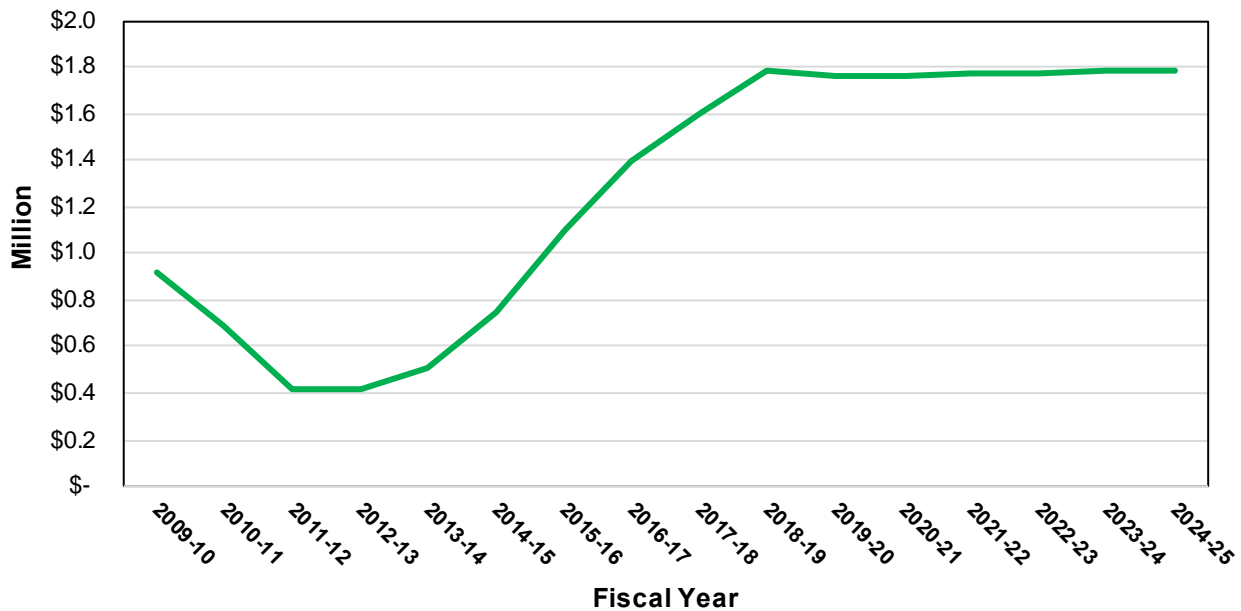
Category	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19
Ending Fund Balance	693,492	420,934	418,729	507,376	747,577	1,101,563	1,395,799	1,603,248	1,788,528

Table 58—Current and Projected Future Fund Balance – Vacaville FPD (FY 19/20 – FY 24/25)

Category	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25
Beginning Fund Balance	1,788,528	1,765,978	1,768,326	1,772,616	1,777,308	1,781,239
Revenue	1,595,998	1,628,670	1,681,517	1,736,193	1,792,762	1,851,290
Expenditures	1,572,526	1,626,322	1,677,227	1,731,501	1,788,831	1,849,454
Ending Fund Balance	1,765,978	1,768,326	1,772,616	1,777,308	1,781,239	1,783,075

Note: Projected ending fund balances from FY 20/21 forward reflect the beginning fund balance from the prior fiscal year plus projected revenues less projected expenditures.

Figure 17—Fund Balance – Vacaville FPD (FY 09/10 – FY 24/25)



Finding #30: Vacaville FPD’s fund balance is approximately *12 percent more* than its FY 19/20 budget and is projected to *increase* approximately 1 percent over the next five years given projected revenue and expenditure assumptions.

Finding #31: Vacaville FPD’s fund balance reflects prudent fiscal management and fiscal reserves sufficient to fund conservative ongoing capital renewal/replacement and unanticipated contingencies.

4.6 FISCAL ASSESSMENT SUMMARY

As the analysis in Sections 4.2 through 4.5 shows, Suisun and Vacaville have projected *positive* structural budgets and *stable-to-increasing* projected fiscal reserves over the next five years to FY 24/25 with modest capital renewal/replacement. In Citygate’s opinion, these two districts are fiscally viable and sustainable over the near term, with sufficient fiscal reserves to sustain their current service delivery model and provide capital renewal/replacement as needed.

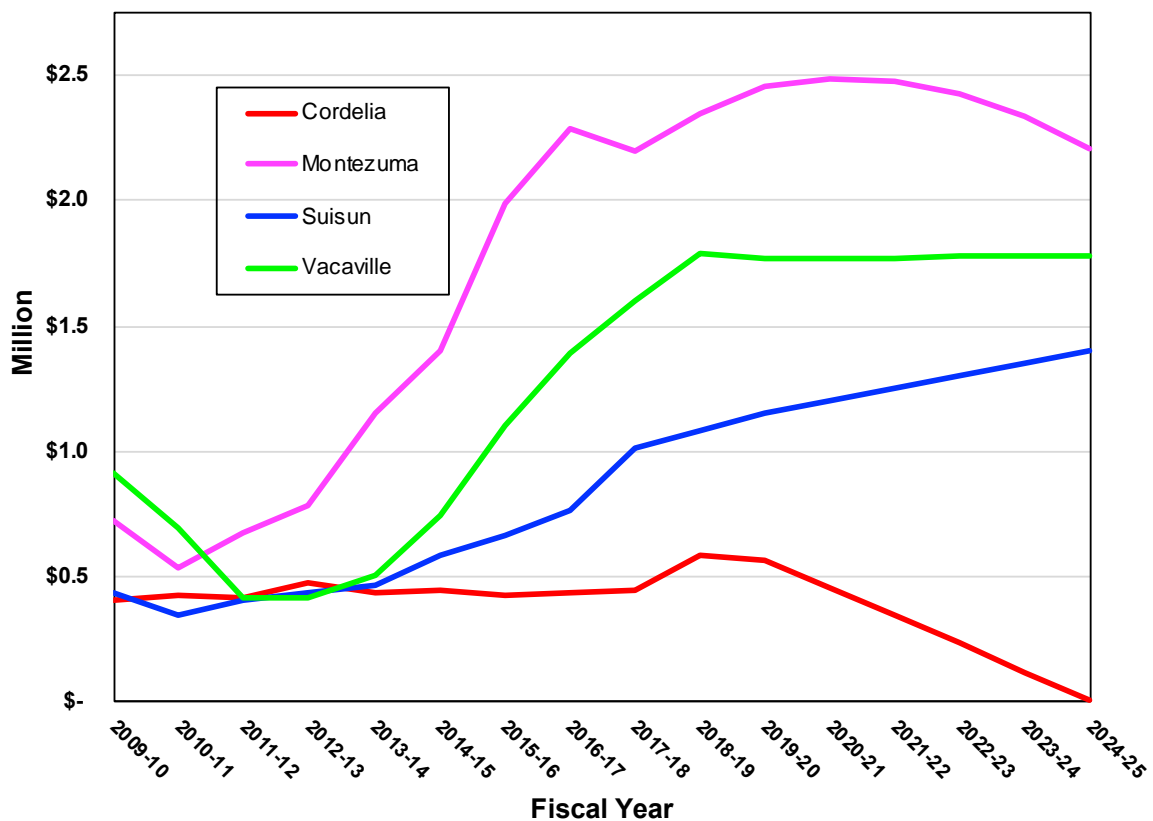
Montezuma’s reserve fund balance is more than triple the FY 19/20 budget and is projected to *decrease* approximately 10 percent over the next five years given projected revenue and expenditure assumptions. In Citygate’s opinion, the slight deficit spending will eventually decrease reserves to the point to limit ongoing capital renewal/replacement and unanticipated contingencies.

Cordelia FPD, however, has a *structural budget deficit* beginning in FY 19/20 and projected to increase each ensuing year to FY 24/25. This, combined with a fund balance projected to *decline* each year to less than \$11,000 by FY 24/25 and the District’s significant capital renewal/replacement needs and current service model, results in a significantly deteriorating fiscal situation to the point where the District’s fiscal reserves will likely be exhausted within the next several years absent additional revenues, reduced expenditures, or a combination of both.

Each district has current fiscal reserves ranging from 65 percent of its FY 19/20 budget (Cordelia) to 341 percent (Montezuma), as summarized in Figure 18.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Figure 18—Fund Balances



Finding #32: Montezuma, Suisun, and Vacaville FPDs are *fiscally viable at the moment but cannot likely afford more in-station staffing*. They can only afford modest capital renewal/replacement as needed; not entire fire station replacements eventually needed.

Finding #33: Cordelia FPD’s fiscal health is *poor and deteriorating*, with a projected *increasing structural budget deficit* each fiscal year through FY 24/25, significant capital renewal/replacement needs, and a declining reserve fund balance likely exhausted within the next several years without substantial additional revenue.

SECTION 5—SERVICE MODEL AND GOVERNANCE ALTERNATIVES

This section identifies and evaluates prospective alternative service delivery and current governance models.

5.1 FIRE SERVICE POLICY CHOICE FRAMEWORK

In the United States, there are no Federal or State regulations requiring a specific minimum level of fire services. Each community, through the public policy process, is expected to understand the local fire and non-fire risks and its desire and ability to pay and then choose its level of fire services. *If* fire services are provided at all, Federal and State regulations specify how they must be safely provided to protect the public and the personnel providing the services.

5.2 RURAL FIRE SERVICE CHALLENGES

Increasing migration from urban cities to more rural areas, increasing service demand, a general downward trend in volunteer firefighters, limited fiscal resources, increasing operating costs, and general property owner and voter aversion to additional taxes and fees are some of the issues challenging many rural fire agencies throughout the United States in providing a level of fire services adequate to mitigate the risks in their community or service area.

While three of the four districts have volunteer firefighter participation, Cordelia FPD has had no volunteer firefighters since 2013 and has needed to resort to part-time firefighters paid a small daily stipend to maintain a minimal daily response capacity, with significant recruitment and retention challenges associated with that staffing model.

5.3 SERVICE MODEL ALTERNATIVES

In Citygate’s opinion, alternative service models should be considered to ensure an adequate level of fire protection services in all unincorporated areas of the County given current and potential or likely future staffing, fiscal, and capital infrastructure challenges. Potentially viable alternatives include the following:

- ◆ Shared administrative personnel/functions
- ◆ Shared response staffing
- ◆ Shared physical response resources
- ◆ Shared support services
- ◆ Contracted fire services

5.3.1 Shared Administrative Personnel/Functions

In this service model, two or more fire agencies share administrative personnel or functions (e.g., Fire Chief, Assistant Chief, clerical, fiscal, human resources, etc.) via contract, JPA, or merger.

5.3.2 Shared Response Staffing

In this model, two or more fire agencies share response staffing, including full-time, part-time, and volunteer firefighters as appropriate. Response personnel could be assigned to specific stations or respond from home or their work location as determined by the agencies.

5.3.3 Shared Physical Response Resources

In this service model, two or more fire agencies share physical response apparatus and equipment, including fire engines, water tenders, light-duty vehicles, boats, and other emergency response and support vehicles and equipment. This service model would likely require a smaller overall fleet than is currently in place with the separate agencies.

5.3.4 Shared Support Services

This model involves two or more fire agencies sharing support services, such as fire prevention, training, vehicle and fire station maintenance and repair, EMS equipment and supplies, fire station supplies, personal protective clothing and supplies, etc.

5.3.5 Contracted Fire Services

In this model, an existing fire agency would contract for full or partial fire protection services from another agency, including another fire district, city, or State agency, such as CAL FIRE. This model offers prospective enhanced service level and overall efficiency if another fire agency has or plans to have a fire station near a fire district service area.

While this report finds no *immediately* imminent inability to sustain current service levels in the four districts, Cordelia FPD faces the potential exhaustion of its fiscal reserves over the next several years absent significant additional revenue. This pending crisis is an opportunity not only for Cordelia FPD but also for the other fire districts to thoughtfully consider how adequate and sustainable fire services can best be provided in rural Solano County over the long term. In Citygate's experience and opinion, multiple smaller agencies providing similar services are not as efficient or cost-effective as a larger unified agency with a single, appropriately sized administrative and support organization with shared staffing and physical resources. As such, Citygate strongly encourages the Districts to engage in a constructive dialogue relative to the long-term future delivery of rural fire services in the County and the potential advantages of one or more service model alternatives.

Finding #34: The fiscal crisis in Cordelia FPD and the limited staffing funds in all the Districts presents an opportunity for all four districts to thoughtfully consider merging to create a platform for sustainable fire services over the long term.

Finding #35: Potentially viable alternative service models include shared administration staff/functions, support services, response staffing, and/or physical response resources, or contracting with another agency or jurisdiction for full or partial fire services.

Recommendation #5: The Districts and LAFCO should immediately engage in a collaborative dialogue relative to the long-term future delivery of rural fire services in Solano County and the potential advantages of one or more forms of merger.

5.4 GOVERNANCE ALTERNATIVES

In addition to the current existing dependent and independent districts, potential fire service governance alternatives include the following:

- ◆ Consolidation/merger
- ◆ Single Countywide fire protection district
- ◆ County service area
- ◆ Countywide community services district
- ◆ Countywide Mello-Roos Community Facilities District

5.4.1 Consolidation/Merger

This alternative involves two or more existing fire districts merging or consolidating under a single elected or appointed governing body, which could also be the County Board of Supervisors. Under California law, any consolidation or merger would require approval by the LAFCO.

5.4.2 Single Countywide Fire Protection District

This alternative envisions a single Countywide FPD governed by an elected or appointed governing body, which could also be the County Board of Supervisors. This alternative would also require approval by the LAFCO, as well as prospective district voter approval.

5.4.3 County Service Area

Under this alternative, the County Board of Supervisors would establish a County service area (CSA) with authority to provide fire protection services in the unincorporated areas of the County and would serve as the governing body as authorized by California Government Code Section 25210 et seq. Formation of a new CSA, or expansion of an existing CSA, requires approval by the LAFCO. Voter approval would also be required for any new tax or fee required to fund the CSA.

5.4.4 Countywide Community Services District

The County Board of Supervisors could also initiate establishing a Countywide community services district (CSD) with authority to provide fire protection services pursuant to California Government Code Section 56036 et seq. Formation of a new CSD also requires approval by the LAFCO and voter election of the governing Board of Directors. Voter approval would also be required for any new tax or fee required to fund the CSD.

5.4.5 Countywide Mello-Roos Community Facilities District

A Countywide Mello-Roos community facilities district (CFD) could also be formed pursuant to California Government Code Section 53321 et seq., with specific authority to provide fire protection services and a specified annual special parcel tax to fund those services. The County Board of Supervisors can serve as the legislative governing body of a Countywide CFD, which would also require property owner or registered voter approval.

While each of these alternatives offer unique governance and funding opportunities, Citygate encourages that any alternative governance model considered include supplemental or special taxing authority to ensure adequate long-term funding.

5.4.6 Service Model and Governance Alternatives Summary

While multiple rural service delivery and governance alternatives are available for consideration by the Districts and LAFCO, any alternative considered should provide equitable services to the greatest population feasible, with funding structure(s) to sustain or enhance current service levels over the long term.

In Citygate’s experience and opinion, sharing of resources and/or services is a logical first step to achieve enhanced operational efficiency and cost-effectiveness, and is often a first step toward a more comprehensive, longer-term solution to improve services and ensure fiscal sustainability. While there are pros and cons to all the governance alternatives, the consolidation/merger alternative is, in our opinion, the least challenging of the alternatives to successfully implement, and provides a foundation for other districts to join in the future. As the most viable governance alternative for successful implementation, Citygate suggests a consolidated/merged FPD with one of the existing districts as the parent district, with a future goal of establishing a Countywide FPD.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

A Countywide CSD, CSA, or CFD, in that order, are other viable governance alternatives of increasing implementation complexity.

Finding #36: Shared resources via a contract or JPA is a logical first step to achieve enhanced operational efficiency and cost-effectiveness.

Finding #37: Any service model alternative considered should provide equitable services to the greatest population feasible, with funding structure(s) to sustain or enhance current service levels over the long term.

Finding #38: The most viable governance alternative for successful implementation is a consolidated/merged FPD, with the goal of a future Countywide FPD.

Finding #39: Any alternative service delivery or governance model should include supplemental taxing authority to ensure adequate long-term funding.

Recommendation #6: Include supplemental special taxing authority with any alternative fire service delivery and/or governance model to ensure long-term fiscal sustainability.

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SECTION 6—FINDINGS AND RECOMMENDATIONS

This section contains a sequential list of all findings and recommendations contained in this report by theme.

6.1 DEPLOYMENT FINDINGS AND RECOMMENDATIONS

- Finding #1:** Each district provides *basic and limited* advanced emergency response services relative to fire, medical, hazardous materials, and technical rescue risks.
- Finding #2:** Minimal population growth is projected in the Districts over the next five to ten years.
- Finding #3:** Future annual service demand is projected to increase from 1 percent to 9 percent by district consistent with recent annual service demand change.
- Finding #4:** The National Fire Protection Association (NFPA) Standard on Volunteer Fire Departments should be the minimum deployment goal measures for which the Districts should strive.
- Finding #5:** In Citygate’s opinion, all four districts have barely the minimum number of personnel to provide response services from a *staffed* fire station 24 hours per day, seven days per week, as well as adequate command and quality control for training, safety, and fiscal responsibilities.
- Finding #6:** Cordelia, Montezuma, and Suisun have *insufficient* daily staffing capacity 24 hours per day, seven days per week, for anything other than a single-unit response to a minor emergency without assistance from another agency.
- Finding #7:** Overall building fire, vegetation/wildland fire, and medical emergency risk in the Districts range from *low* to *high*.
- Finding #8:** While the fire station placements cover most of the public road miles, units do not provide services, firefighters arriving in time do.
- Finding #9:** Nearly 16 percent of the aggregate service demand of the four districts is mutual aid to other jurisdictions, including more than 20 percent of all calls for service for Cordelia and Vacaville FPDs.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Finding #10: The Districts and nearby cities, via their common fire dispatch center, are not using closest available unit response to emergencies. To not do so inappropriately delays response times.

Finding #11: Call processing performance ranges from 107 percent (at 3:06 minutes) to 141 percent (at 3:37 minutes) *slower* than the 1:30-minute recommended best practice goal. This time loss is even more critical when units are not staffed with in-station personnel and the response must wait for volunteers.

Finding #12: First unit response performance appears to meet or be slightly slower than the 14:00-minute goal as a recommended by NFPA 1720 and Citygate; however, dispatch system time stamp irregularities, GIS travel time coverage analysis, and anecdotal district information suggest that response performance may be slightly better than the data indicates. Even if true, a 12:00-minute response time is past the point of a positive outcome in a critical emergency.

Finding #13: As separate entities, the Districts are very exposed to single points of failure if they were to lose a few career personnel or highly responsive volunteers. They lack “*strength in numbers*” to be resilient and have redundancy.

Finding #14: The Districts must fix their fragile personnel counts and 24-hour-per-day, seven-day-per-week in-station staffing. In the current wildfire and building fire environment, incidents cannot wait for a minimal force to respond from home or business.

Finding #15: Operating and commanding a district is more than a one-person job and the Districts are very exposed to failure as stand-alone agencies.

Recommendation #1: The Districts should merge their command and volunteer staffs to improve key personnel resiliency and redundancy. This will also improve cost effectiveness of headquarters services and can be done initially via contracts or a Joint Powers Authority (JPA) of elected officials to provide oversight and planning for a longer-term, permanent solution.

Recommendation #2: The Districts should work with and insist that the Solano County Sheriff’s Office Communications Center improve time stamp accuracy and call processing performance to align with recommended best practices in order to reduce dispatch processing time by at least 1:30 minutes.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Recommendation #3: **Adopt Updated Deployment Policies:** The Districts should adopt complete performance measures to communicate to the public what they can and cannot deliver and to monitor performance.

Recommendation #4: Updated response time measures should be designed to deliver outcomes that will save patients when possible upon arrival and to keep small and expanding fires from becoming more serious. With this in mind, Citygate recommends the following measures:

4.1 **Distribution of Fire Stations:** To treat pre-hospital medical emergencies and control small fires, first-due units should arrive within 14:00 minutes of receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability.

4.2 **Multiple-Unit Effective Response Force for Serious Emergencies:** To confine building fires to only the affected building, keep vegetation fires under five acres in size, and treat multiple medical patients at a single incident, a multiple-unit ERF, including at least one chief officer, should arrive within 19:00 minutes of receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability.

4.3 **Hazardous Materials Response:** To protect residents from the hazards associated with uncontrolled release of hazardous and toxic materials, first-due units should arrive within 14:00 minutes of receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability. The fundamental mission of the Districts' response is to isolate the hazard, deny entry into the hazard zone, and notify appropriate officials/resources to minimize impacts on the community. After an initial evaluation is completed, a determination can be made whether to request additional resources from the regional hazardous materials team.

4.4 **Technical Rescue:** Respond to technical rescue emergencies with a first-due response time of 14:00 minutes or less from receipt of the 9-1-1 call at the Solano County Sheriff's Office Communications Center at 80 percent or greater reliability to evaluate the situation and/or initiate rescue actions. Following the initial evaluation, request additional resources as needed to safely complete rescue/extrication

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

and delivery of the victim to the appropriate emergency medical care facility.

6.2 PHYSICAL ASSET FINDINGS

Finding #16: Except for Cordelia FPD Stations 29 and 31 and Vacaville FPD Station 67, the Districts' fire station facilities meet current and anticipated future operational needs and have been adequately maintained for continued operational use.

Finding #17: The Districts' physical response resources are of the appropriate types and configuration to protect against the risks likely to impact each district.

Finding #18: The aggregate number of physical response resources is more than would be reasonably needed in a single agency or shared resource service model.

Finding #19: Except for three Cordelia FPD engines and one Vacaville FPD engine and utility, the Districts' physical response apparatus meet current and anticipated future operational needs and are appropriately maintained for safe operational use.

6.3 FISCAL FINDINGS

Finding #20: Cordelia FPD has a *structural budget deficit* beginning in FY 19/20 and increasing each ensuing year through FY 24/25.

Finding #21: Given a structural budget *deficit* beginning in FY 19/20 and projected to increase each ensuing fiscal year, the Cordelia FPD fund balance is projected to *decline* from approximately 65 percent of annual budget in the current year to approximately one percent of annual budget by FY 24/25.

Finding #22: Absent additional revenues, reduced expenditures, or a combination of both, Cordelia FPD's fiscal reserves could be *exhausted* within the next several years.

Finding #23: Montezuma FPD has projected structural budget *deficits* beginning in FY 21/22 and beyond given current revenue and expenditure assumptions.

Finding #24: Montezuma FPD's fund balance is *more than triple* the FY 19/20 budget and is projected to *decrease* approximately 10 percent over the next five years given projected revenue and expenditure assumptions.

Finding #25: Montezuma FPD's fund balance will eventually decrease to the point to limit ongoing capital renewal/replacement and unanticipated contingencies.

Finding #26: Suisun FPD has a projected *positive structural budget* through FY 24/25.

Finding #27: Suisun FPD's fund balance is *more than 300 percent* of the FY 19/20 budget and is projected to *increase* approximately 21 percent over the next five years given projected revenue and expenditure assumptions.

Finding #28: Suisun FPD's fund balance reflects prudent fiscal management and fiscal reserves sufficient to fund conservative ongoing capital renewal/replacement and unanticipated contingencies.

Finding #29: Vacaville FPD has a projected *positive structural budget* through FY 24/25.

Finding #30: Vacaville FPD's fund balance is approximately *12 percent more* than its FY 19/20 budget and is projected to *increase* approximately one percent over the next five years given projected revenue and expenditure assumptions.

Finding #31: Vacaville FPD's fund balance reflects prudent fiscal management and fiscal reserves sufficient to fund conservative ongoing capital renewal/replacement and unanticipated contingencies.

Finding #32: Montezuma, Suisun, and Vacaville FPDs are *fiscally viable at the moment but cannot likely afford more in-station staffing*. They can only afford modest capital renewal/replacement as needed; not entire fire station replacements eventually needed.

Finding #33: Cordelia FPD's fiscal health is *poor and deteriorating*, with a projected *increasing structural budget deficit* each fiscal year through FY 24/25, significant capital renewal/replacement needs, and a declining reserve fund balance likely exhausted within the next several years without substantial additional revenue.

6.4 SERVICE MODEL / GOVERNANCE ALTERNATIVES FINDINGS AND RECOMMENDATIONS

Finding #34: The fiscal crisis in Cordelia FPD and the limited staffing funds in all the Districts presents an opportunity for all four districts to thoughtfully consider merging to create a platform for sustainable fire services over the long term.

Finding #35: Potentially viable alternative service models include shared administration staff/functions, support services, response staffing, and/or physical response resources, or contracting with another agency or jurisdiction for full or partial fire services.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Finding #36: Shared resources via a contract or JPA is a logical first step to achieve enhanced operational efficiency and cost-effectiveness.

Finding #37: Any service model alternative considered should provide equitable services to the greatest population feasible, with funding structure(s) to sustain or enhance current service levels over the long term.

Finding #38: The most viable governance alternative for successful implementation is a consolidated/merged FPD, with the goal of a future Countywide FPD.

Finding #39: Any alternative service delivery or governance model should include supplemental taxing authority to ensure adequate long-term funding.

Recommendation #5: The Districts and LAFCO should immediately engage in a collaborative dialogue relative to the long-term future delivery of rural fire services in Solano County and the potential advantages of one or more forms of merger.

Recommendation #6: Include supplemental special taxing authority with any alternative fire service delivery and/or governance model to ensure long-term fiscal sustainability.

APPENDIX A – RISK ASSESSMENT

A.1 COMMUNITY RISK ASSESSMENT OVERVIEW

Another element of the deployment assessment process is a risk assessment. Within the context of a deployment study, the objectives of a risk assessment are to:

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

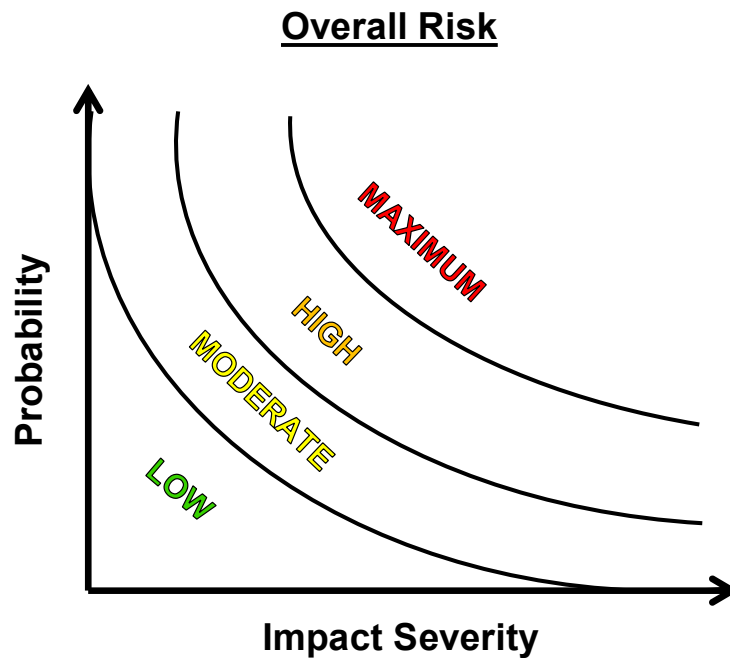
A *hazard* is broadly defined as a situation or condition that can cause or contribute to harm. Examples include fire, medical emergency, vehicle collision, earthquake, flood, etc. *Risk* is broadly defined as the *probability of hazard occurrence* in combination with the *likely severity of resultant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

A.2 RISK ASSESSMENT METHODOLOGY

The methodology employed by Citygate to assess community risk as an integral element of an SOC study incorporates the following elements:

- ◆ Identification of geographic planning sub-zones (risk zones) appropriate to the community or jurisdiction
- ◆ Identification and quantification (to the extent data is available) of the specific values at risk to various hazards within the community or service area
- ◆ Identification of the fire and non-fire hazards to be evaluated
- ◆ Determination of the probability of occurrence for each hazard
- ◆ Identification and evaluation of relevant impact severity factors for each hazard by planning zone using agency/jurisdiction-specific data and information
- ◆ Quantification of overall risk for each hazard based on probability of occurrence in combination with probable impact severity as shown in the following figure

Figure 19—Overall Risk



A.2.1 Probability of Occurrence

Probability of occurrence refers to the probability of a future hazard occurrence during a specific period. Because the CFAI agency accreditation process requires annual review of an agency’s risk assessment and baseline performance measures, Citygate recommends using the 12 months following completion of an SOC study as an appropriate period for the probability of occurrence evaluation. The following table describes the five probability of occurrence categories and related scoring criteria used for this analysis.

Table 59—Probability of Occurrence Scoring Criteria

Score	Probable Occurrence	Description	General Criteria
0–1.0	Very Low	Improbable	Hazard occurrence is <i>unlikely</i>
1.25–2.0	Low	Rare	Hazard <i>could occur</i>
2.25–3.0	Moderate	Infrequent	Hazard <i>should occur</i> infrequently
3.25–4.0	High	Likely	Hazard <i>likely to occur</i> regularly
4.25–5.0	Very High	Frequent	Hazard is <i>expected to occur</i> frequently

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

Citygate’s SOC assessments use recent multiple-year hazard response data to determine the probability of hazard occurrence for the ensuing 12-month period.

A.2.2 Impact Severity

Impact severity refers to the extent a hazard occurrence impacts people, buildings, lifeline services, the environment, and the community as a whole. The following table describes the five impact severity categories and related scoring criteria used for this analysis.

Table 60—Impact Severity Criteria

Score	Impact Severity	Example Factors
0–1.0	Insignificant	<ul style="list-style-type: none"> • No serious injuries or fatalities expected • None to a few persons displaced for only a short duration • None or inconsequential damage expected • None to very minimal disruption to community expected • No measurable environmental impacts expected • None to minimal financial loss expected • No wildland FHSZs • No history of significant hazard impacts
1.25–2.0	Minor	<ul style="list-style-type: none"> • Some injuries but no fatalities expected • Some persons may be displaced for less than 24 hours • Minor damage expected • Minor community disruption possible with no loss of lifeline services • Minimal environmental impacts possible with no lasting effects • Minor financial loss expected • No wildland FHSZs • No recent history of hazard occurrence with more than minor impacts
2.25–3.0	Moderate	<ul style="list-style-type: none"> • Some hospitalizations and fatalities expected • Localized displacement of persons for up to 48 hours possible • Not more than moderate localized damage expected • Normal community functioning expected with some inconvenience • Minor loss of critical lifeline services possible • Some environmental impacts possible with no lasting effects or minor environmental impact with longer-term effects • Moderate financial loss expected • Less than 25% in <i>Moderate</i> or <i>High</i> wildland FHSZ • Some history of recent moderate-impact hazard occurrences
3.25–4.0	Major	<ul style="list-style-type: none"> • Numerous serious injuries, hospitalizations, and fatalities expected • Significant displacement of people for more than 48 hours possible • Significant damage expected requiring external resources • Community services disrupted with some lifeline services potentially unavailable • Moderate environmental impacts with long-term effects possible • Major financial loss expected • More than 25% in <i>Moderate</i> or <i>High</i> wildland FHSZ; less than 25% in <i>Very High</i> FHSZ
4.25–5.0	Catastrophic	<ul style="list-style-type: none"> • Large-scale serious injuries and fatalities expected • Local/regional hospitals significantly impacted • Large number of people displaced for an extended duration • Extensive serious damage expected • Widespread loss of critical lifeline services • Community unable to function without significant support • Significant environmental impacts and/or permanent environmental damage possible • Catastrophic financial loss • More than 50% in <i>High</i> wildland FHSZ; more than 25% in <i>Very High</i> wildland FHSZ



A.2.3 Overall Risk

Overall hazard risk is determined by multiplying the *probability of occurrence score* by the *impact severity score*. The resultant total determines the overall *risk ranking*, as described in the following table.

Table 61—Overall Risk Score and Rating

Overall Risk Score	Overall Risk Rating
0–5.99	LOW
6.0–11.99	MODERATE
12.0–19.99	HIGH
20.0–25.0	MAXIMUM

A.3 VALUES AT RISK TO BE PROTECTED

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

A.3.1 People

Residents, employees, visitors, and travelers through a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those unable to care for themselves or self-evacuate in the event of an emergency. At-risk populations typically include children less than 10 years of age, the elderly, and people housed in institutional settings. Key demographic data for Solano County includes the following:¹²

- ◆ Slightly more than 24 percent of the population is under 10 years or over 65 years of age
- ◆ The County’s population is White (37 percent), followed by Hispanic/Latino (27 percent), Asian (15 percent), Black / African American (13 percent), and other ethnicities (8 percent)
- ◆ Of the population over 24 years of age, nearly 89 percent has earned at least a high school diploma or equivalent

¹² Source: ESRI Community Profile – Solano County (2019).

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

- ◆ Of the population over 24 years of age, 27 percent has an undergraduate, graduate, or professional degree
- ◆ Nearly 94 percent of the population 15 years of age or older is in the workforce; of those, 6.1 percent are unemployed¹³
- ◆ The population below the Federal poverty level is 7.3 percent
- ◆ Only 4.4 percent of the population does not have health insurance coverage.

A.3.2 Buildings

Unincorporated Solano County consists of predominantly single-family dwellings and agriculture-related buildings. In addition, Solano Community College is a significant value to be protected in Cordelia FPD.

A.4 HAZARD IDENTIFICATION

Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and data and information specific to the agency/jurisdiction to identify the hazards to be evaluated for this report.

Following an evaluation of the hazards identified in the 2012 Solano County Local Hazard Mitigation Plan and the fire and non-fire hazards as identified by the CFAI as they relate to services provided by the Districts, Citygate evaluated the following three hazards for this risk assessment:

- ◆ Building Fire
- ◆ Vegetation/Wildland Fire
- ◆ Medical Emergency

A.5 BUILDING FIRE RISK

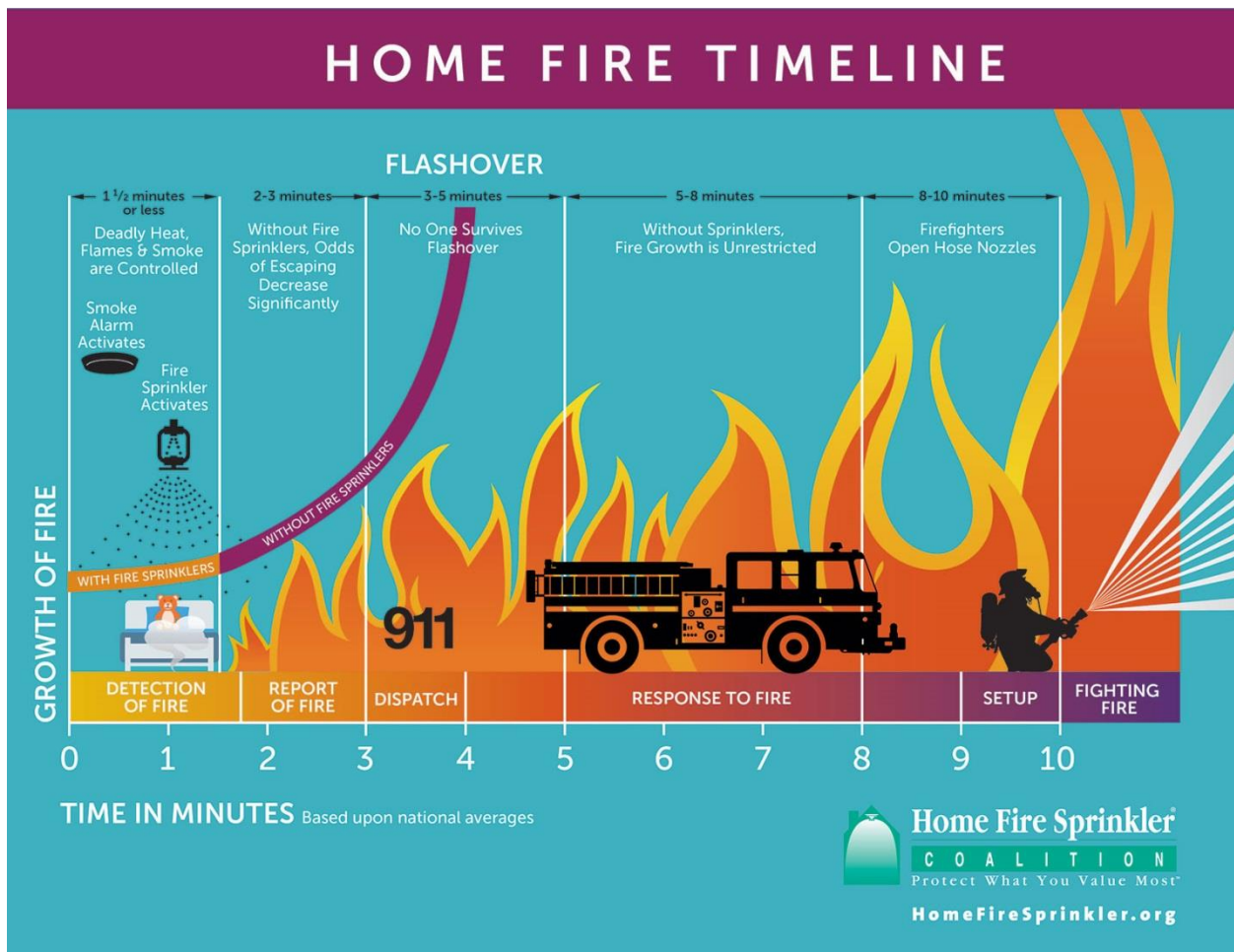
One of the primary hazards in any community is building fire. Building fire risk factors include building density, size, age, occupancy, and construction materials and methods, as well as the number of stories, the required fire flow, proximity to other buildings, built-in fire protection/alarm systems, available fire suppression water supply, building fire service capacity, fire suppression resource deployment (distribution/concentration), staffing, and response time.

¹³ Prior to the COVID-19 Pandemic.

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

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

Figure 20—Building Fire Progression Timeline



A.5.1 Building Fire Risk Assessment

Table 62—Building Fire Risk Assessment

Risk Factor	Cordelia 29	Cordelia 31	Suisun 32	Suisun 33	Montezuma 51	Montezuma 52	Vacaville 64	Vacaville 65	Vacaville 67	Vacaville 68
Annual Incidents	4	4	8	8	7	7	6	6	6	6
Probability	1.25	1.25	1.75	1.75	1.50	1.50	1.50	1.50	1.50	1.50
Impact Severity	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
Total Risk Score	3.44	3.44	4.81	4.81	4.13	4.13	4.13	4.13	4.13	4.13
Risk Rating	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low

A.6 VEGETATION/WILDLAND FIRE RISK

Much of unincorporated Solano County is vulnerable to a vegetation/wildland fire, particularly in wildland-urban interface (WUI) areas where human population and related development exist within a predominantly wildland vegetation fuel environment. Vegetation/wildland fire risk factors include vegetative fuel features, weather, topography, fire history, service capacity, water supply, wildland risk mitigation measures, and vegetation/wildland fire service demand.

A.6.1 Vegetative Fuels

Vegetative fuel factors influencing fire intensity and spread include fuel type (vegetation species), height, arrangement, density, and moisture. Vegetative fuels within the Districts consist predominantly of annual weeds/grasses, brush, and oak woodlands. Once ignited, vegetation/wildland fires can burn intensely and contribute to rapid fire spread under the right fuel, weather, and topographic conditions.

A.6.2 Weather

Weather elements, including temperature, relative humidity, wind, and lightning, also affect vegetation/wildland fire potential and behavior. High temperatures and low relative humidity dry out vegetative fuels, creating a situation where fuels will ignite more readily and burn more intensely. Wind is the most significant weather factor influencing vegetation/wildland fire behavior. Summer weather in Solano County includes temperatures averaging in the 90s with northwesterly winds that can significantly influence wildland fire behavior and spread.

A.6.3 Topography

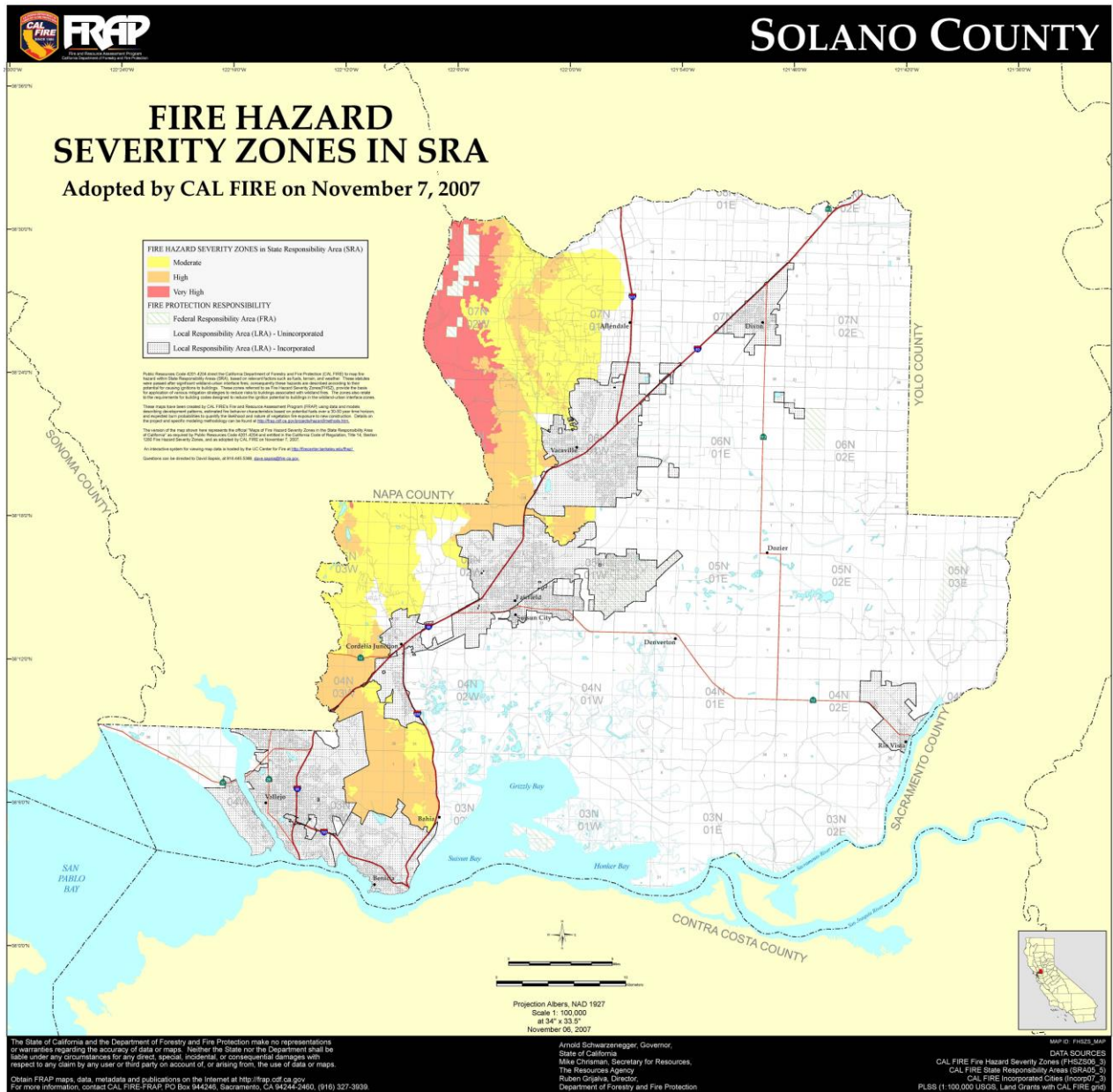
The Districts' topography can significantly influence vegetation/wildland fire behavior and spread, as fires tend to burn more intensely and spread faster when burning uphill and up-canyon, except for a wind-driven downhill or down-canyon fire.

A.6.4 Wildland Fire Hazard Severity Zones

CAL FIRE designates wildland Fire Hazard Severity Zones (FHSZ) throughout the state based on analysis of multiple wildland fire hazard factors and modeling of potential wildland fire behavior. For State Responsibility Areas (SRAs) where CAL FIRE has fiscal responsibility for wildland fire protection, CAL FIRE designates *Moderate*, *High*, and *Very High* FHSZs by county, as shown in the following figure for Solano County. Note the large areas of Cordelia, Suisun, and Vacaville FPDs within designated FHSZs.

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Fire Districts Deployment and Fiscal/Governance Options Analysis

Figure 21—SRA Fire Hazard Severity Zones – Solano County



A.6.5 Vegetation/Wildland Fire Risk Assessment

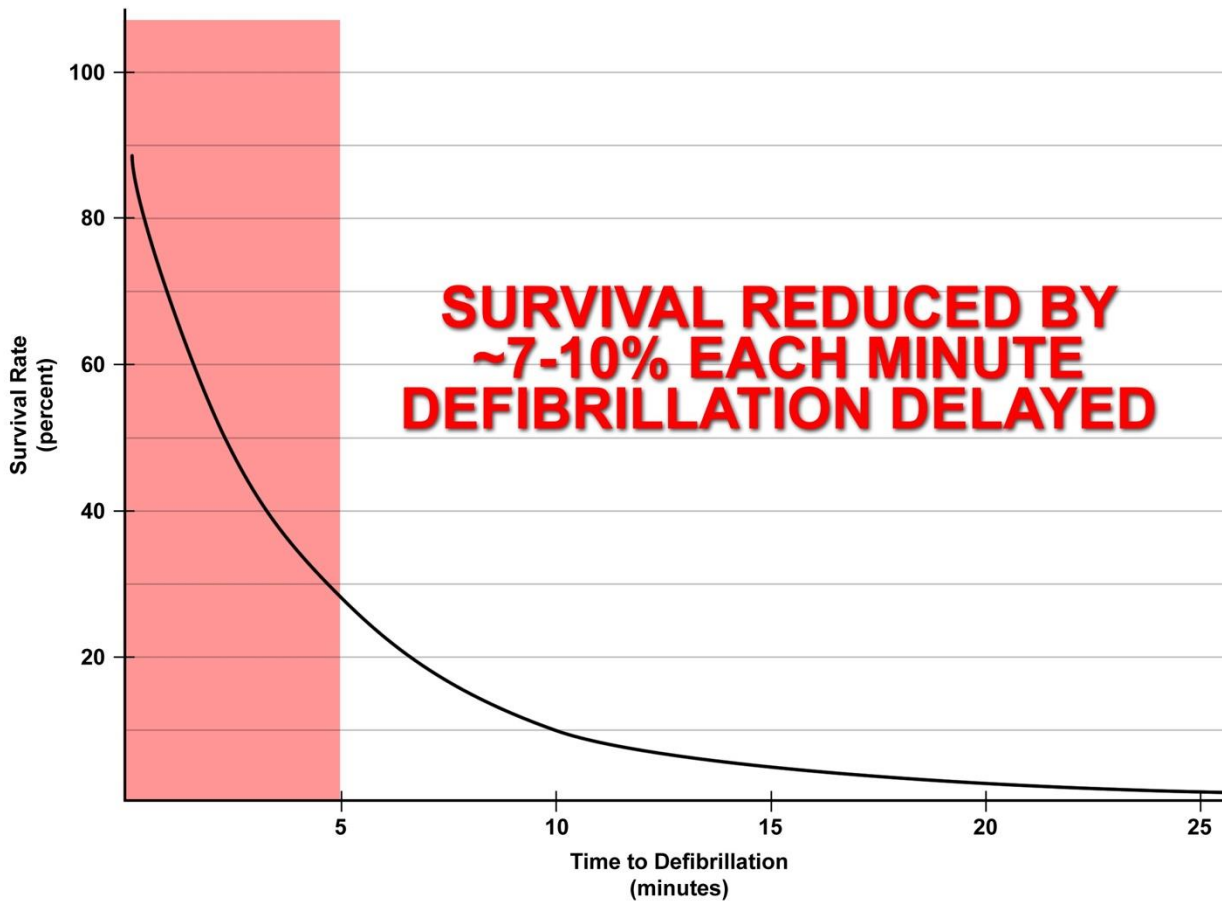
Table 63—Vegetation/Wildland Fire Risk Assessment

Risk Factor	Cordelia 29	Cordelia 31	Suisun 32	Suisun 33	Montezuma 51	Montezuma 52	Vacaville 64	Vacaville 65	Vacaville 67	Vacaville 68
Annual Incidents	44	44	61	61	32	32	24	24	24	24
Probability	3.00	3.00	3.25	3.25	2.75	2.75	3.00	2.50	3.00	3.00
Impact Severity	4.00	4.00	3.75	2.75	2.75	2.75	4.00	2.75	4.00	4.00
Total Risk Score	12.00	12.00	12.19	8.94	7.56	7.56	12.00	6.88	12.00	12.00
Risk Rating	High	High	High	Moderate	Moderate	Moderate	High	Moderate	High	High

A.7 MEDICAL EMERGENCY RISK

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

Figure 22—Survival Rate versus Time of Defibrillation



Source: www.suddencardiacarrest.org

The Districts provide BLS pre-hospital emergency medical services, with operational personnel trained to the First Responder Medical or EMT level.

A.7.1 Medical Emergency Risk Assessment

Table 64—Medical Emergency Risk Assessment

Risk Factor	Cordelia 29	Cordelia 31	Suisun 32	Suisun 33	Montezuma 51	Montezuma 52	Vacaville 64	Vacaville 65	Vacaville 67	Vacaville 68
Annual Incidents	262	131	121	121	82	82	122	92	122	73
Probability	3.75	3.75	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
Impact Severity	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Total Risk Score	9.38	9.38	8.13	8.13	8.13	8.13	8.13	8.13	8.13	8.13
Risk Rating	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

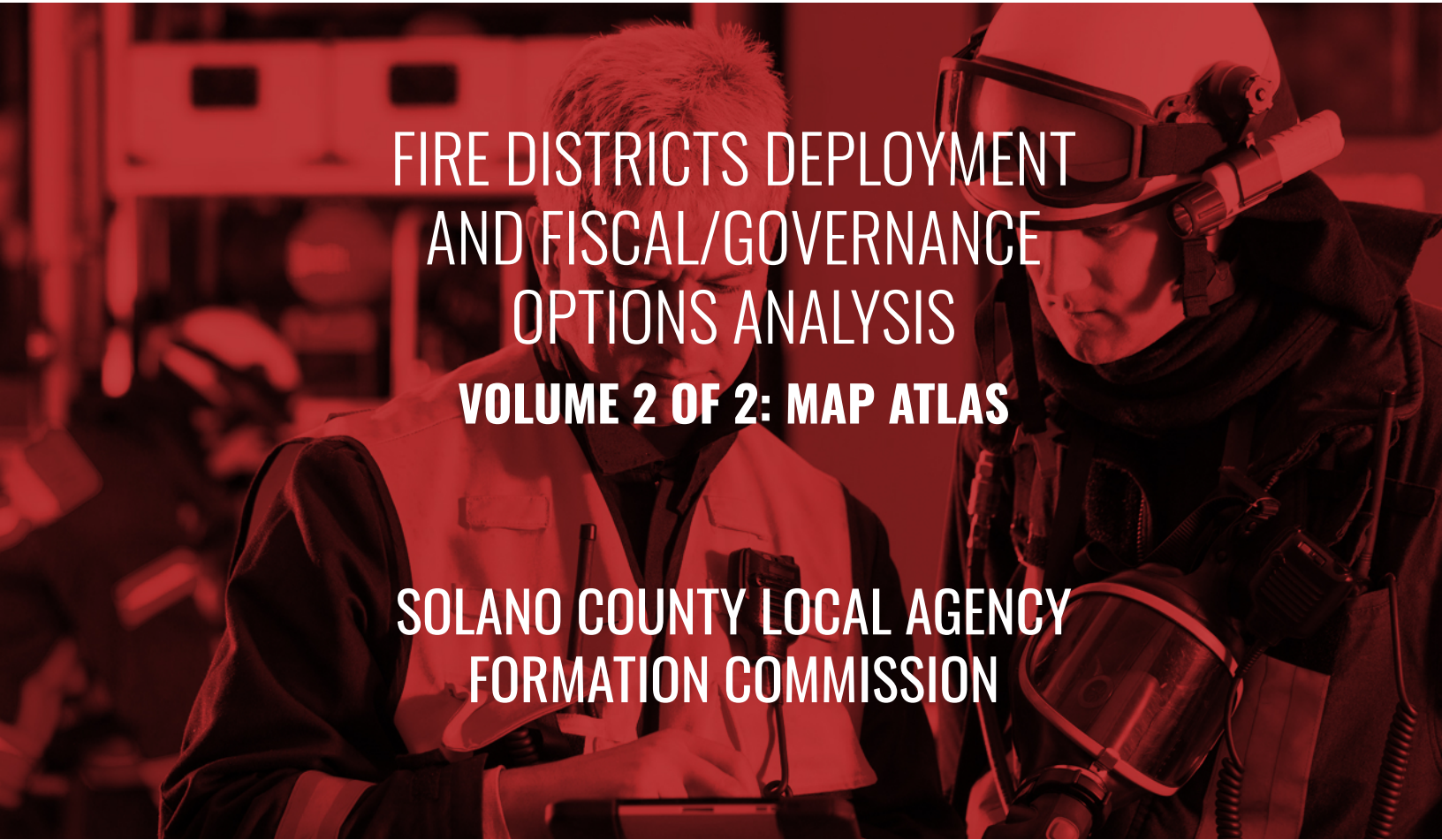
A.8 RISK ASSESSMENT SUMMARY

Citygate’s assessment of the values at risk and hazards likely to impact the four districts yields the following.

- ◆ The Districts serve a predominantly rural population, with densities ranging from mostly less than 500 to nearly 5,000 per square mile in some small district areas
- ◆ The County’s land use goals and policies will result in minimal projected growth in the four districts
- ◆ The Districts’ building inventory is predominantly single-family dwelling units and agriculture-related buildings
- ◆ The Districts’ overall risk for the three hazards evaluated range from **Low** to **High** as summarized in the following table.

Table 65—Overall Risk by Hazard

Hazard	Cordelia 29	Cordelia 31	Suisun 32	Suisun 33	Montezuma 51	Montezuma 52	Vacaville 64	Vacaville 65	Vacaville 67	Vacaville 68
Building Fire	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Vegetation/Wildland Fire	High	High	High	Moderate	Moderate	Moderate	High	Moderate	High	High
Medical Emergency	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate



**FIRE DISTRICTS DEPLOYMENT
AND FISCAL/GOVERNANCE
OPTIONS ANALYSIS
VOLUME 2 OF 2: MAP ATLAS**

**SOLANO COUNTY LOCAL AGENCY
FORMATION COMMISSION**

OCTOBER 13, 2020



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VOLUME 2—MAP ATLAS

The following map descriptions are from Section 2.4 of the accompanying **Volume 1—Technical Report**. Full-page maps immediately follow.

Map #1 – General County Geography, City and Fire District Boundaries, and District Fire Station Locations

Map #1 provides an overview of Solano County, city, and fire district boundaries, and fire station locations within the four study districts.

Map #2a – Cordelia Fire Protection District

Map #2a shows the boundaries of the Cordelia FPD, as well as the location of the two District fire stations and the two most proximal City of Fairfield fire station locations.

Map #2b – Montezuma Fire Protection District

Map #2b shows the boundaries of the Montezuma FPD and the District’s two fire stations. The City of Rio Vista fire station is co-located with Montezuma Station 51 in the City of Rio Vista.

Map #2c – Suisun Fire Protection District

Map #2c shows the boundaries of the Suisun FPD and the location of the two District fire stations.

Map #2d – Vacaville Fire Protection District

Map #2d shows the boundaries of the Vacaville FPD and the location of the District’s four fire stations.

Map #3a – Risk Assessment: Population Density

Map #3a displays the population densities within the four study districts, ranging from mostly less than 500 to nearly 5,000 people per square mile in some very small district areas.

Map #4a – Distribution: 12:00-Minute First-Due Travel Time Coverage – Cordelia FPD

Map #4a shows in green the road segments within the Cordelia FPD that should be expected to be reached within 12:00-minutes travel time from Stations 29 and 31 without traffic congestion. As the map illustrates, first-due travel time coverage is good, at 97 percent of total public road miles—*if the units are staffed*.

Map #4b – Distribution: 12:00-Minute First-Due Travel Time Coverage – Montezuma FPD

Map #4b shows in green the road segments within the Montezuma FPD that should be expected to be reached within 12:00-minutes travel time from its two fire stations without traffic congestion. As the map illustrates, expected first-due travel time coverage is 62 percent of total public road

Solano County Local Agency Formation Commission
Fire Districts Deployment and Fiscal/Governance Options Analysis

miles due to each station’s large response area; however, approximately 62 percent of the District is farmland and pasture lands with very sparse building and population density. In addition, responses to the Ryer Island section of the District (northeast) requires a ferry crossing across the Sacramento River, thus extending response times to that area of the District.

Map #4c – Distribution: 12:00-Minute First-Due Travel Time Coverage – Suisun FPD

Map #4c shows in green the road segments within the Suisun FPD that should be expected to be reached within 12:00-minutes travel time from its two fire stations without traffic congestion. As the map illustrates, expected first-due travel time coverage is 78 percent of total public road miles; however, the areas beyond 12:00-minute travel time coverage are marshland with minimal building fire, vegetation fire, or medical emergency risk factors.

Map #4d – Distribution: 12:00-Minute First-Due Travel Time Coverage – Vacaville FPD

Map #4d shows in green the road segments within the Vacaville FPD that should be expected to be reached within 12:00-minutes travel time from its four fire stations without traffic congestion. As the map illustrates, expected first-due travel time coverage is very good, at 97 percent of total public road miles.

Map #5a – All EMS Incident Locations – Cordelia FPD

Map #5a shows the location of all EMS incidents within Cordelia FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4a, nearly all incidents occurred within an expected 12:00-minute travel time from either District station.

Map #5b – All EMS Incident Locations – Montezuma FPD

Map #5b shows the location of all EMS incidents within Montezuma FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4b, most of the incidents occurred within an expected 12:00-minute travel time from one of the District’s two stations.

Map #5c – All EMS Incident Locations – Suisun FPD

Map #5c shows the location of all EMS incidents within the Suisun FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4c, nearly all the incidents occurred within an expected 12:00-minute travel time from one of the District’s two stations.

Map #5d – All EMS Incident Locations – Vacaville FPD

Map #5d shows the location of all EMS incidents within the Vacaville FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4d, all but a few incidents occurred within an expected 12:00-minute travel time from one of the District’s four stations.

Map #6a – All Fire Incident Locations – Cordelia FPD

Map #6a displays the location of all fire incidents within Cordelia FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4a, nearly all incidents occurred within an expected 12:00-minute travel time from either District station.

Map #6b – All Fire Incident Locations – Montezuma FPD

Map #6b displays the location of all fire incidents within Montezuma FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4b, most fire incidents occurred within an expected 12:00-minute travel time from one of the District's two stations.

Map #6c – All Fire Incident Locations – Suisun FPD

Map #6c displays the location of all fire incidents within Suisun FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4c, most incidents occurred within an expected 12:00-minute travel time from one of the District's two stations.

Map #6d – All Fire Incident Locations – Vacaville FPD

Map #6d displays the location of all fire incidents within Vacaville FPD from July 1, 2017 through June 30, 2018. As can be seen when compared to Map #4d, all fire incidents occurred within an expected 12:00-minute travel time from one of the District's four stations.

Solano County Fire Districts

Map 1

General Geography

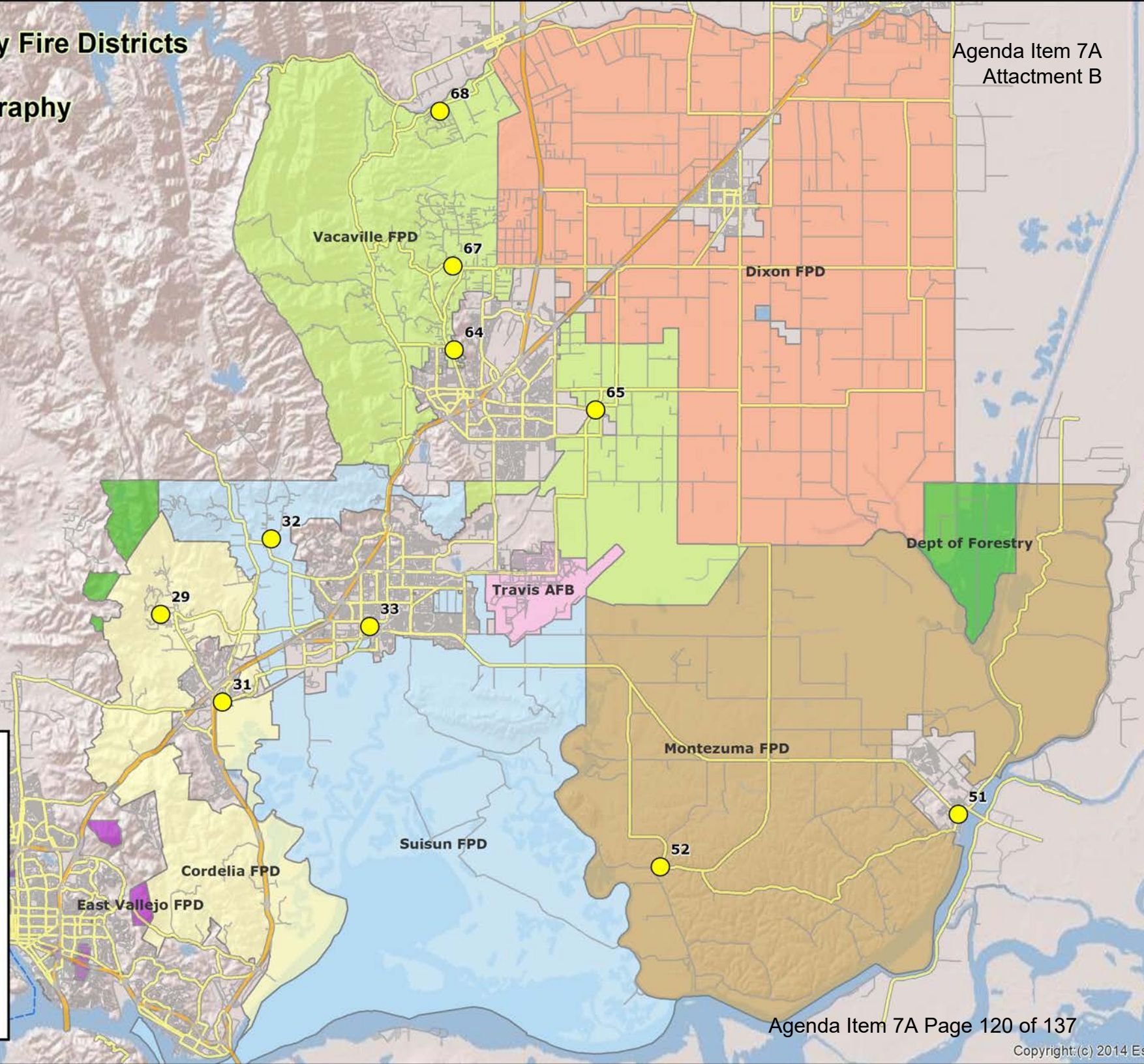
Agenda Item 7A
Attachment B

Legend

- Fire Stations

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD



Solano County Fire Districts

Map 2a

Cordelia Fire Protection District

Dept of Forestry

Agenda Item 7A
Attachment B
Vacaville FPD

Travis AFB

Montezuma FPD

Suisun FPD

Cordelia FPD

East Vallejo FPD

Legend

- Fairfield Stations
- CFPD Stations

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD

29

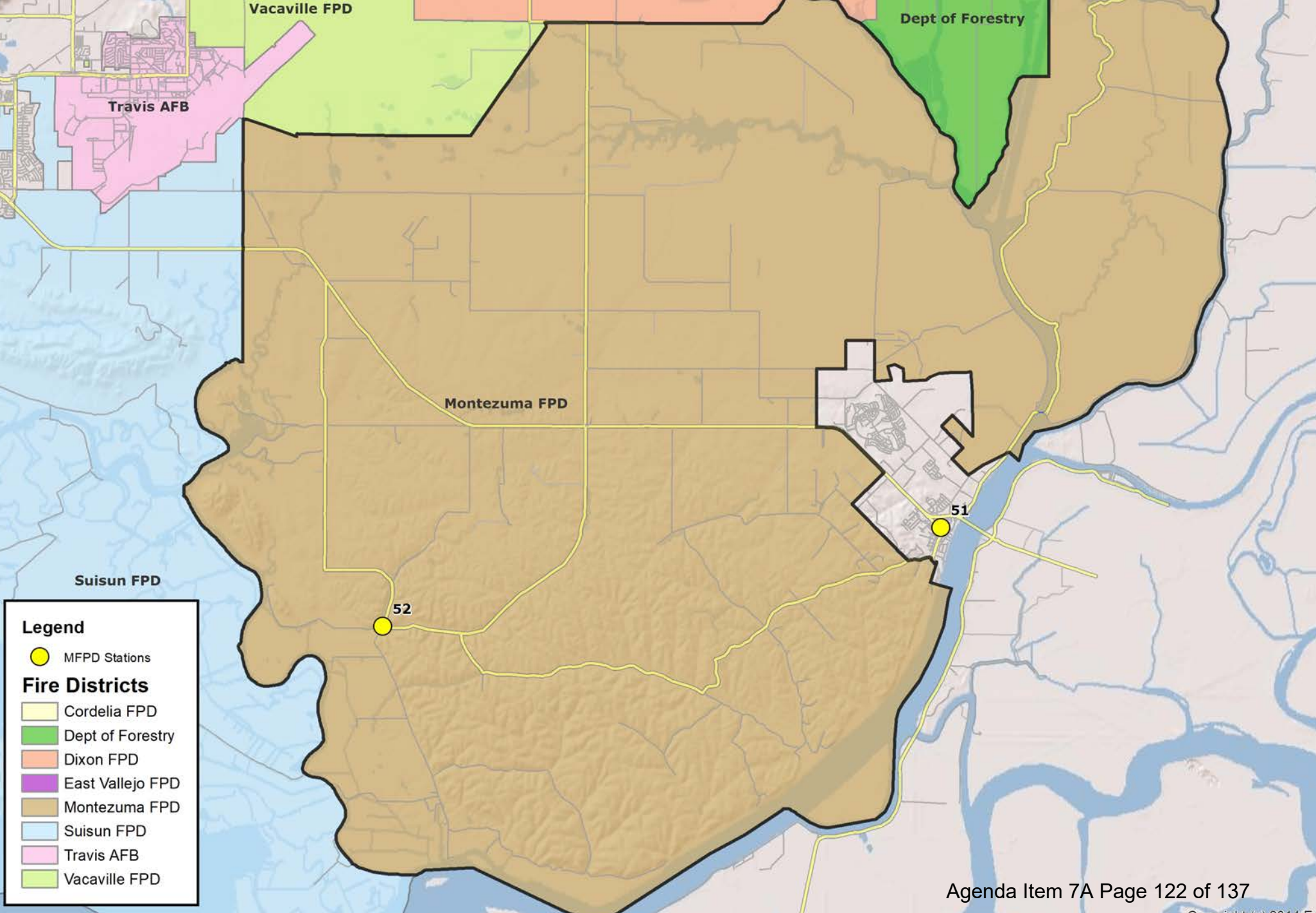
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38

Solano County Fire Districts Map 2b Montezuma Fire Protection District

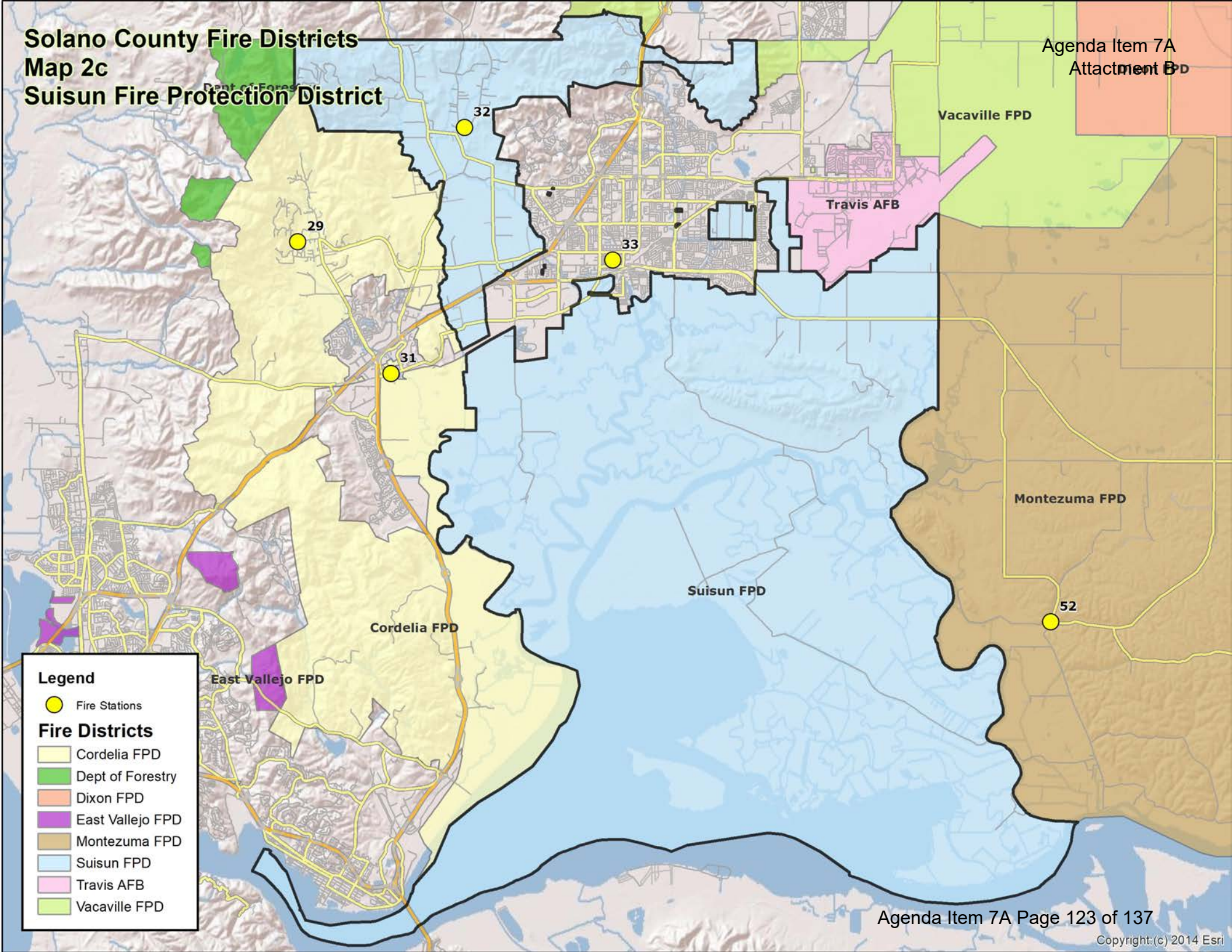
Agenda Item 7A
Attachment B



Legend

- MFPD Stations
- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD

Solano County Fire Districts
Map 2c
Suisun Fire Protection District

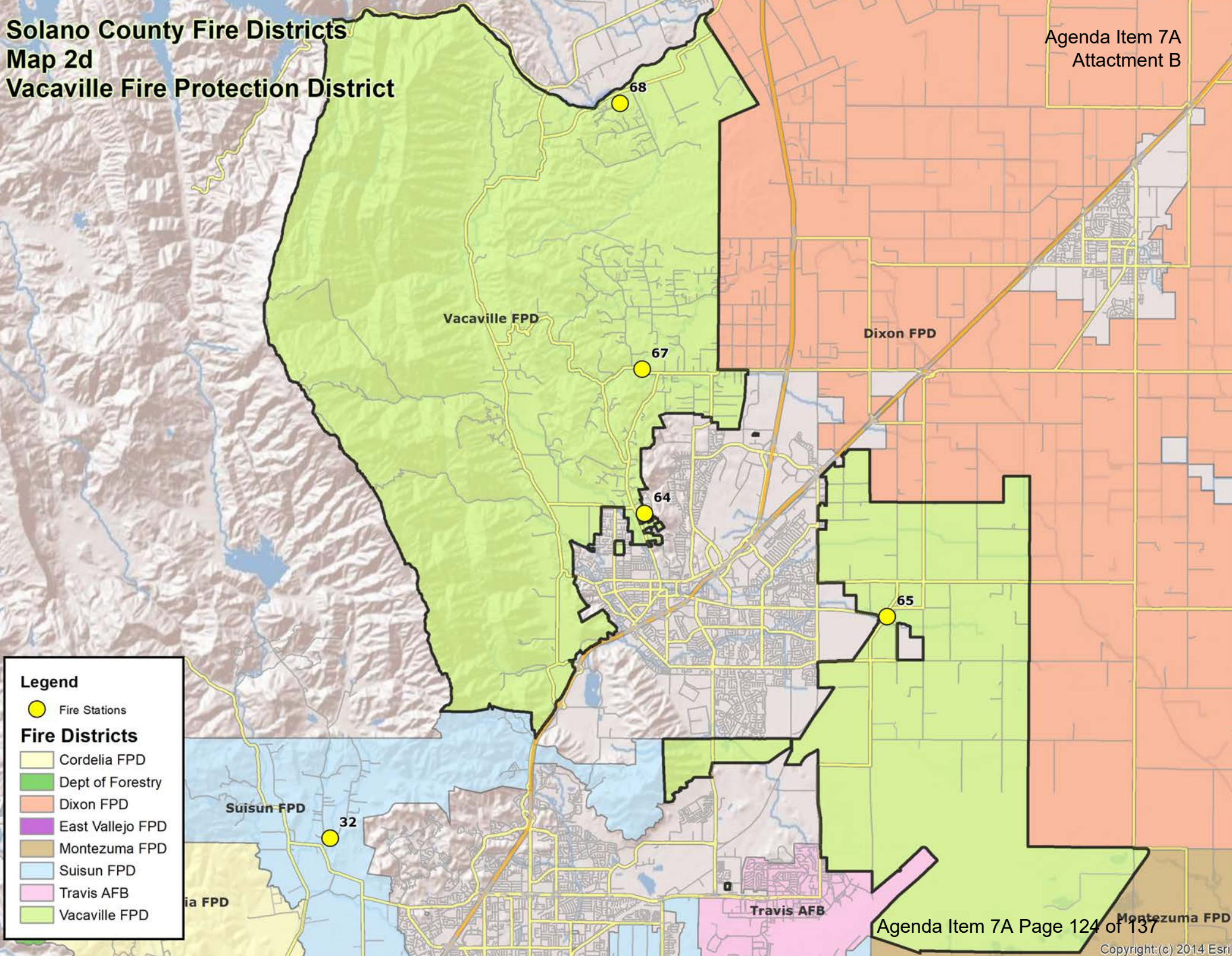


- Legend**
- Fire Stations
- Fire Districts**
- Cordelia FPD
 - Dept of Forestry
 - Dixon FPD
 - East Vallejo FPD
 - Montezuma FPD
 - Suisun FPD
 - Travis AFB
 - Vacaville FPD

Solano County Fire Districts

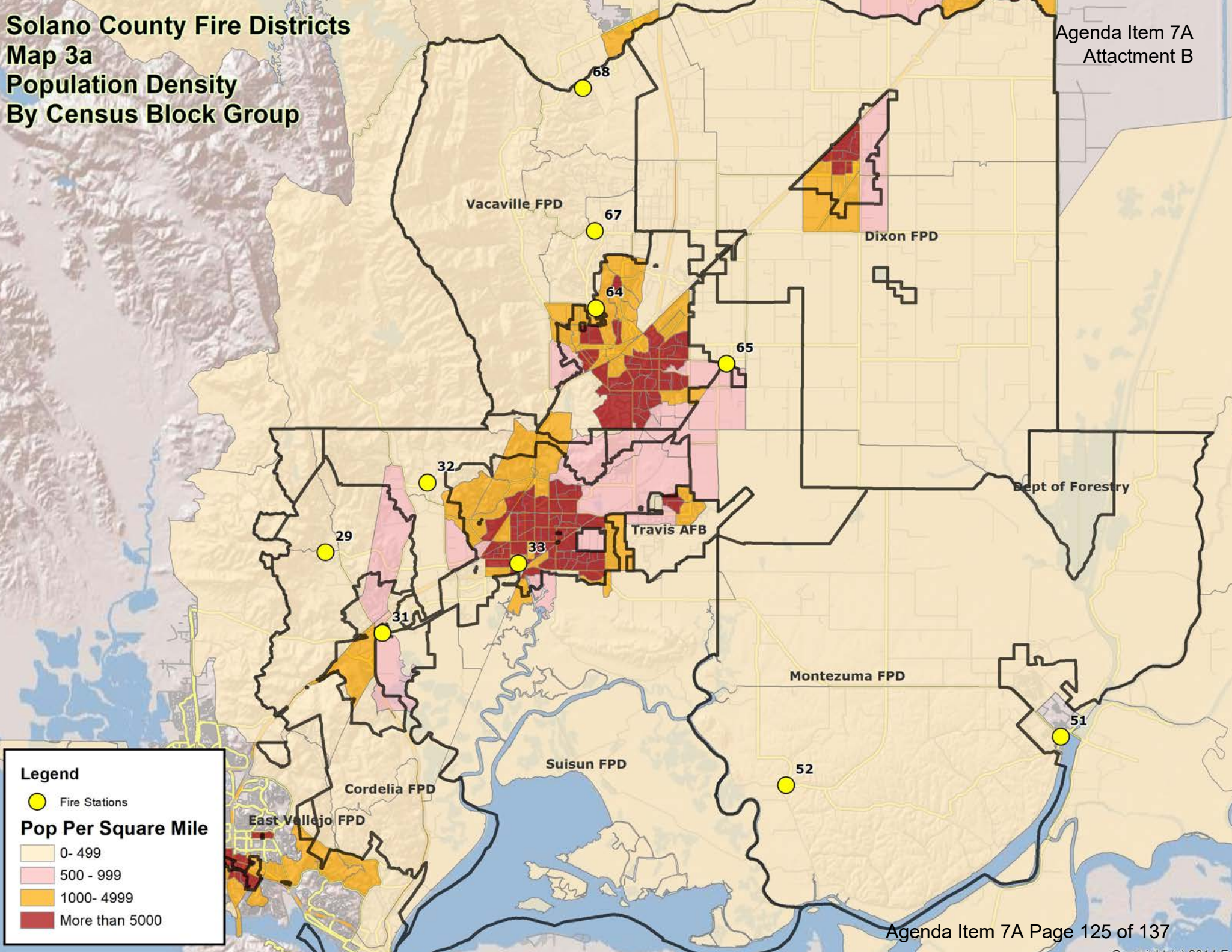
Map 2d

Vacaville Fire Protection District



- Legend**
- Fire Stations
- Fire Districts**
- Cordelia FPD
 - Dept of Forestry
 - Dixon FPD
 - East Vallejo FPD
 - Montezuma FPD
 - Suisun FPD
 - Travis AFB
 - Vacaville FPD

Solano County Fire Districts Map 3a Population Density By Census Block Group



Legend

- Fire Stations
- Pop Per Square Mile
- 0- 499
- 500 - 999
- 1000- 4999
- More than 5000

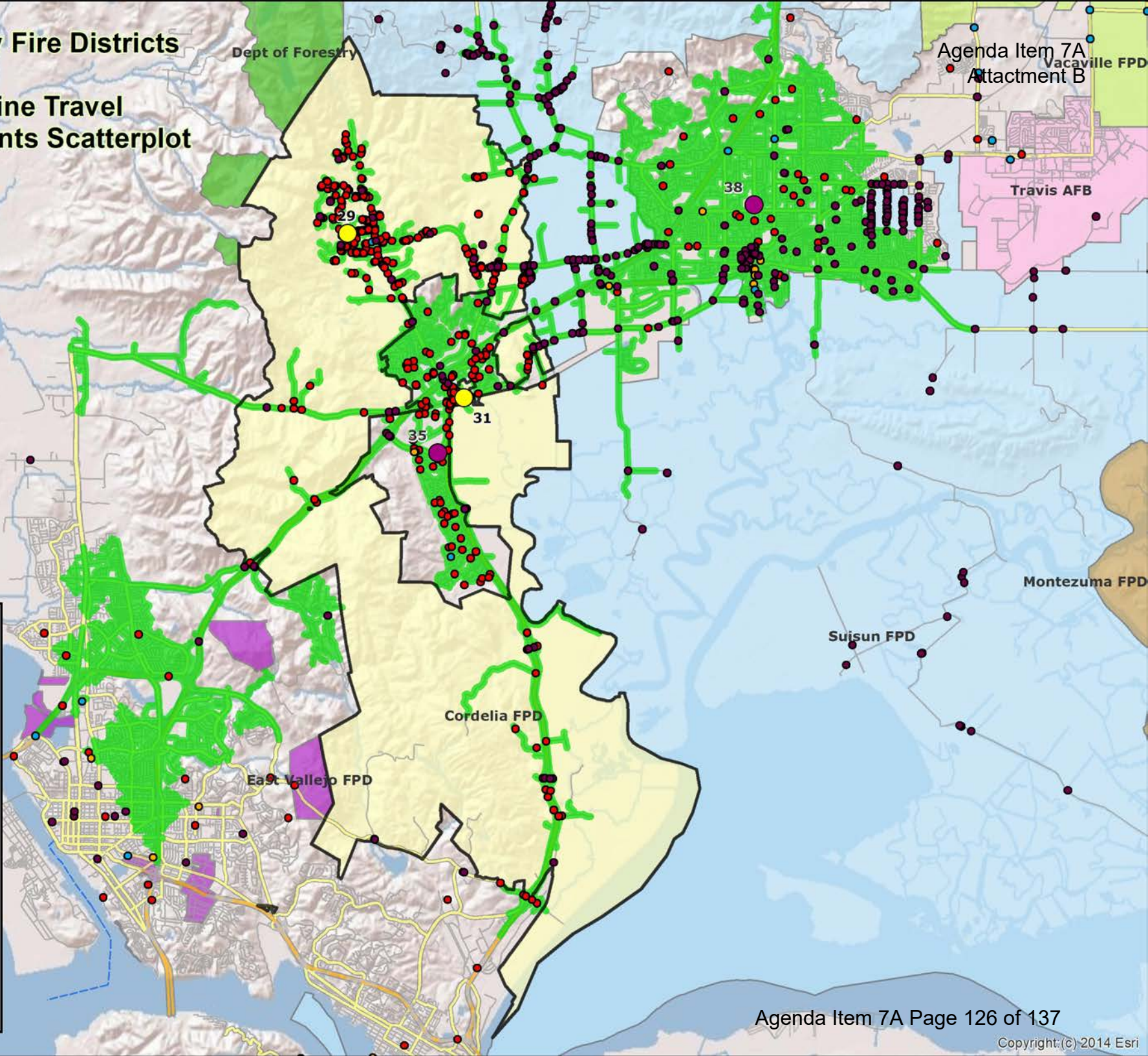
Solano County Fire Districts
Map 4a
12 Minute Engine Travel
With All Incidents Scatterplot
Cordelia FPD

Legend

- Fairfield Stations
- CFPD Stations
- SFPD Incidents
- VFPD Incidents
- MFPD Incidents
- CFPD Incidents

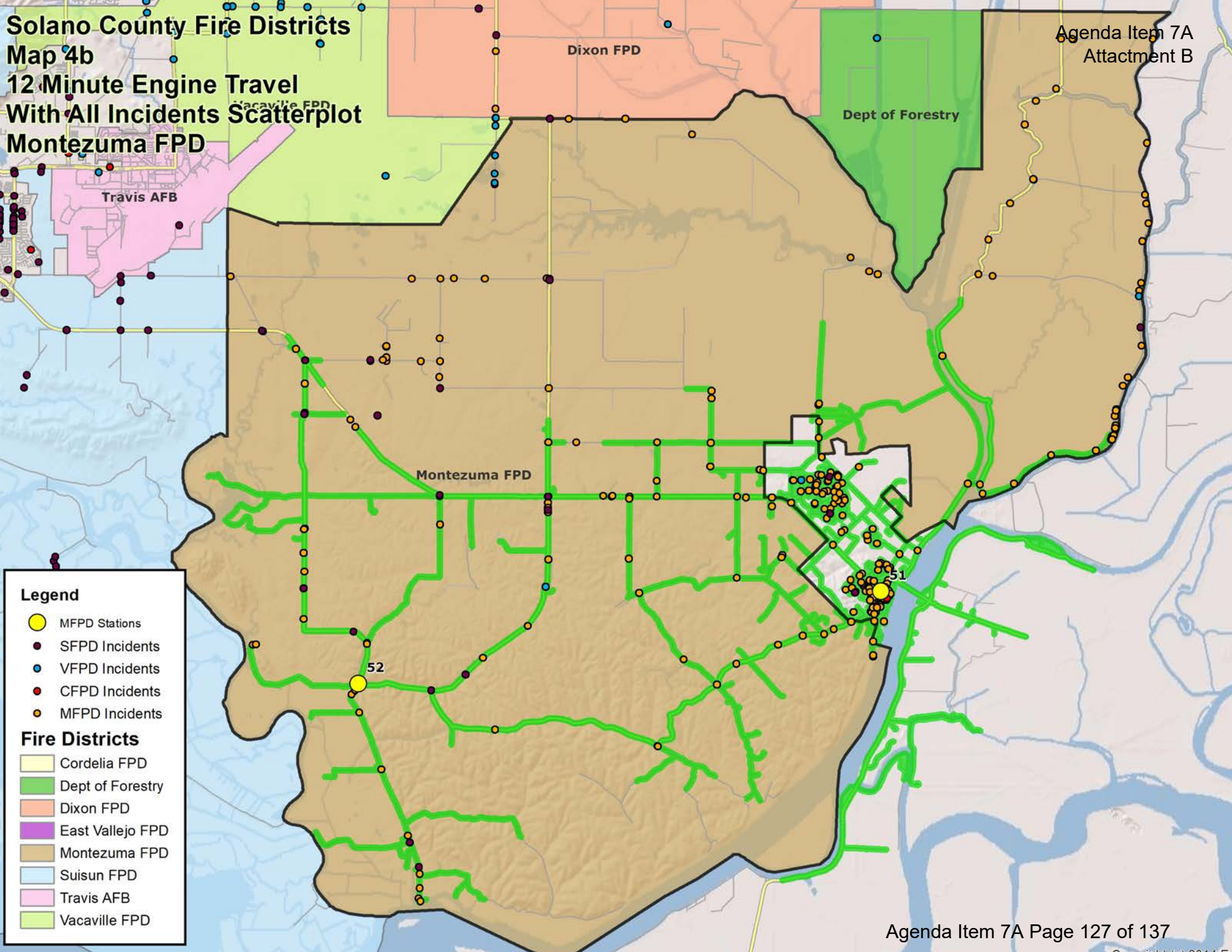
Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD



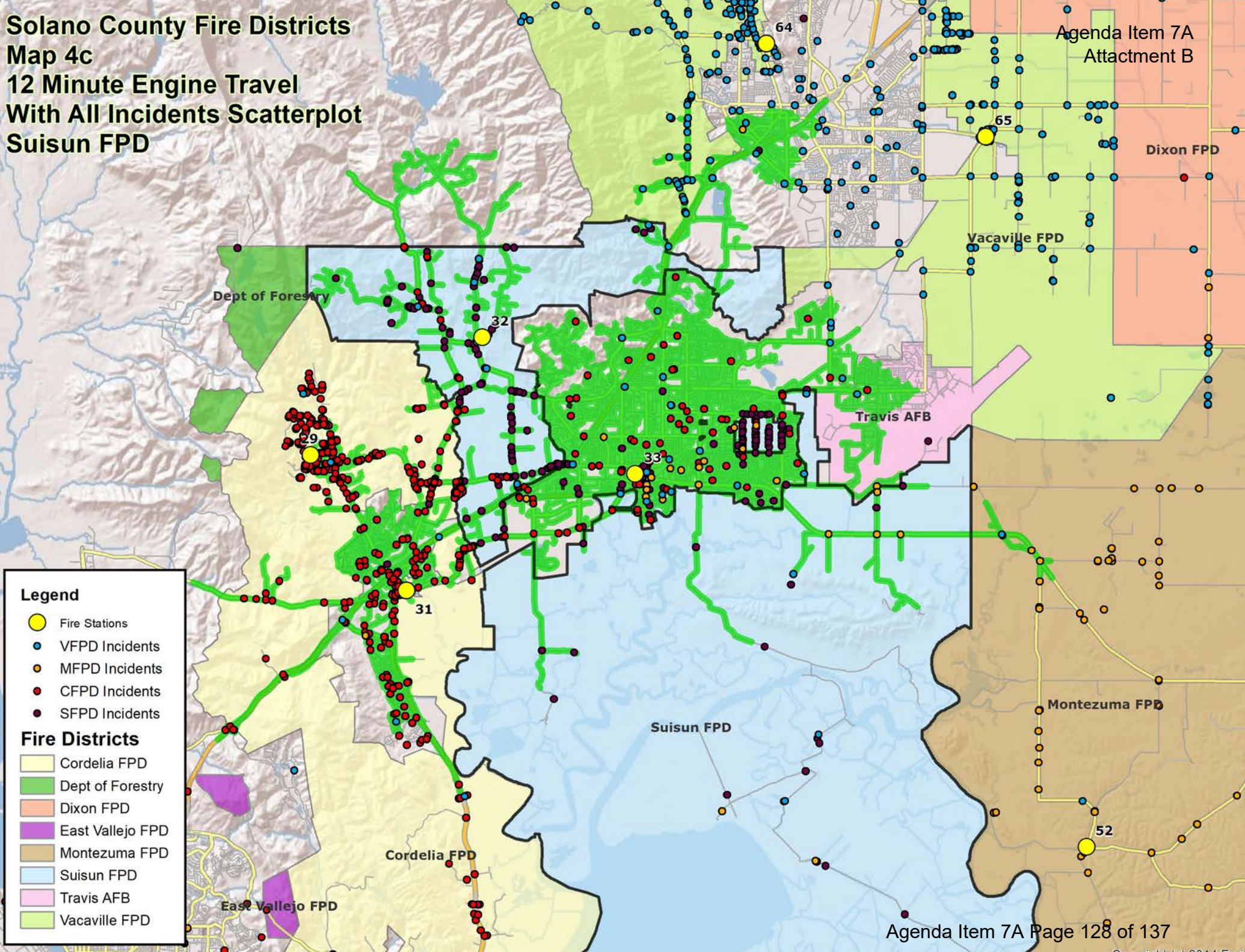
Solano County Fire Districts Map 4b 12 Minute Engine Travel With All Incidents Scatterplot Montezuma FPD

Agenda Item 7A
Attachment B



- Legend**
- MFPD Stations
 - SFPD Incidents
 - VFPD Incidents
 - CFPD Incidents
 - MFPD Incidents
- Fire Districts**
- Cordelia FPD
 - Dept of Forestry
 - Dixon FPD
 - East Vallejo FPD
 - Montezuma FPD
 - Suisun FPD
 - Travis AFB
 - Vacaville FPD

**Solano County Fire Districts
Map 4c
12 Minute Engine Travel
With All Incidents Scatterplot
Suisun FPD**



Legend

- Fire Stations
- VFPD Incidents
- MFPD Incidents
- CFPD Incidents
- SFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD

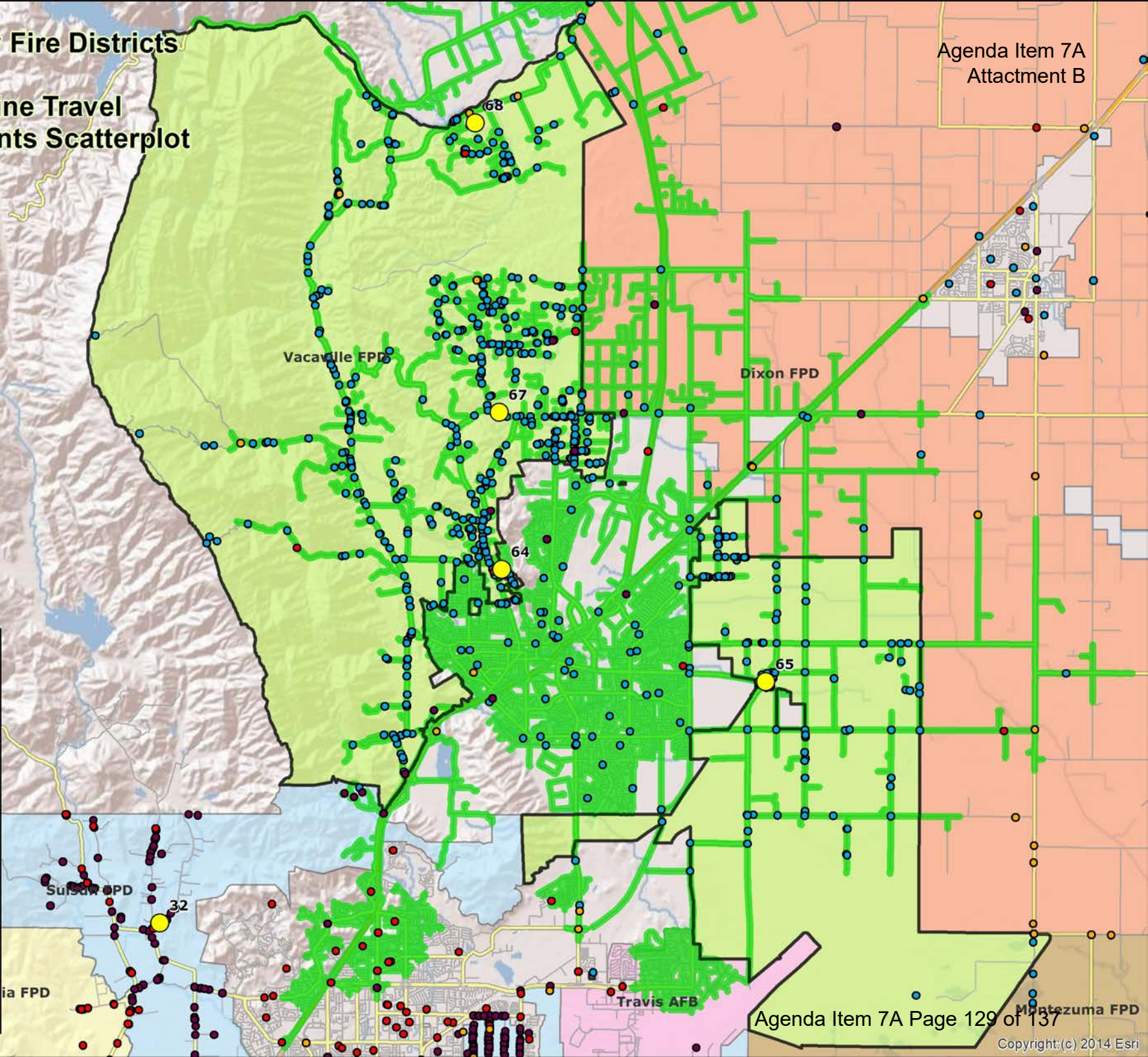
Solano County Fire Districts
Map 4d
12 Minute Engine Travel
With All Incidents Scatterplot
Vacaville FPD

Legend

- Fire Stations
- MFPD Incidents
- CFPD Incidents
- SFPD Incidents
- VFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD



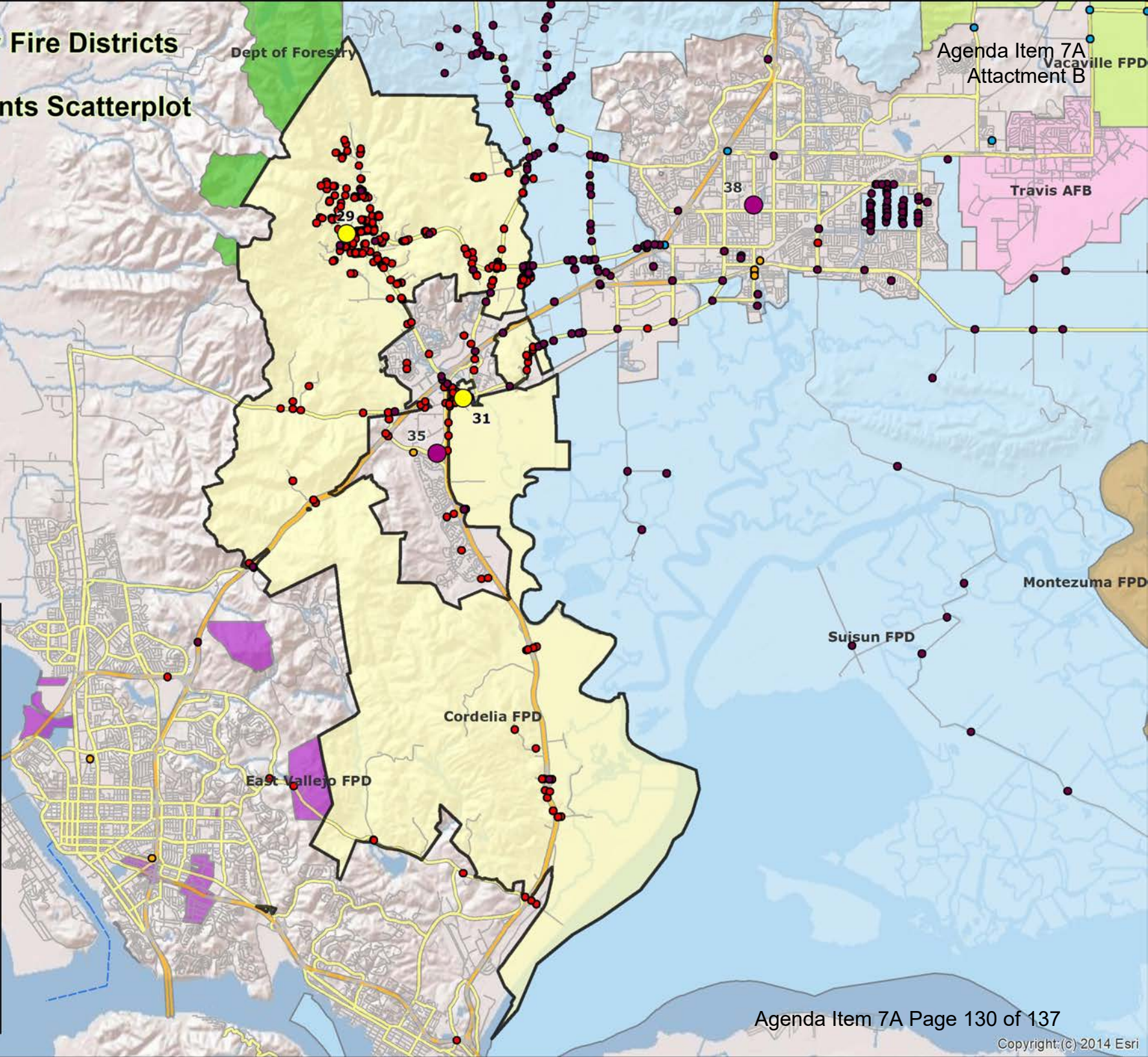
Solano County Fire Districts
Map 5a
All EMS Incidents Scatterplot
Cordelia FPD

Legend

- Fairfield Stations
- CFPD Stations
- SFPD Incidents
- VFPD Incidents
- MFPD Incidents
- CFPD Incidents

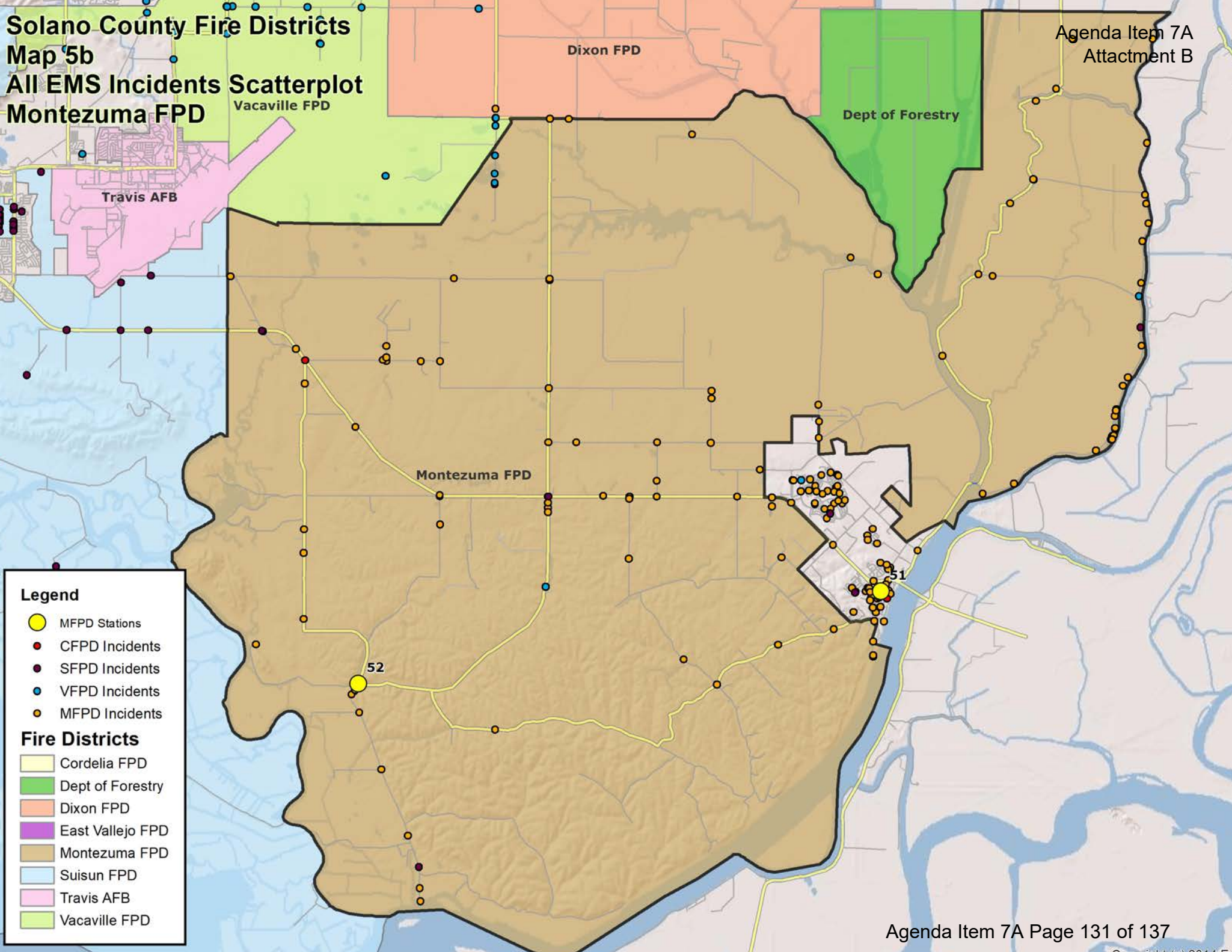
Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD



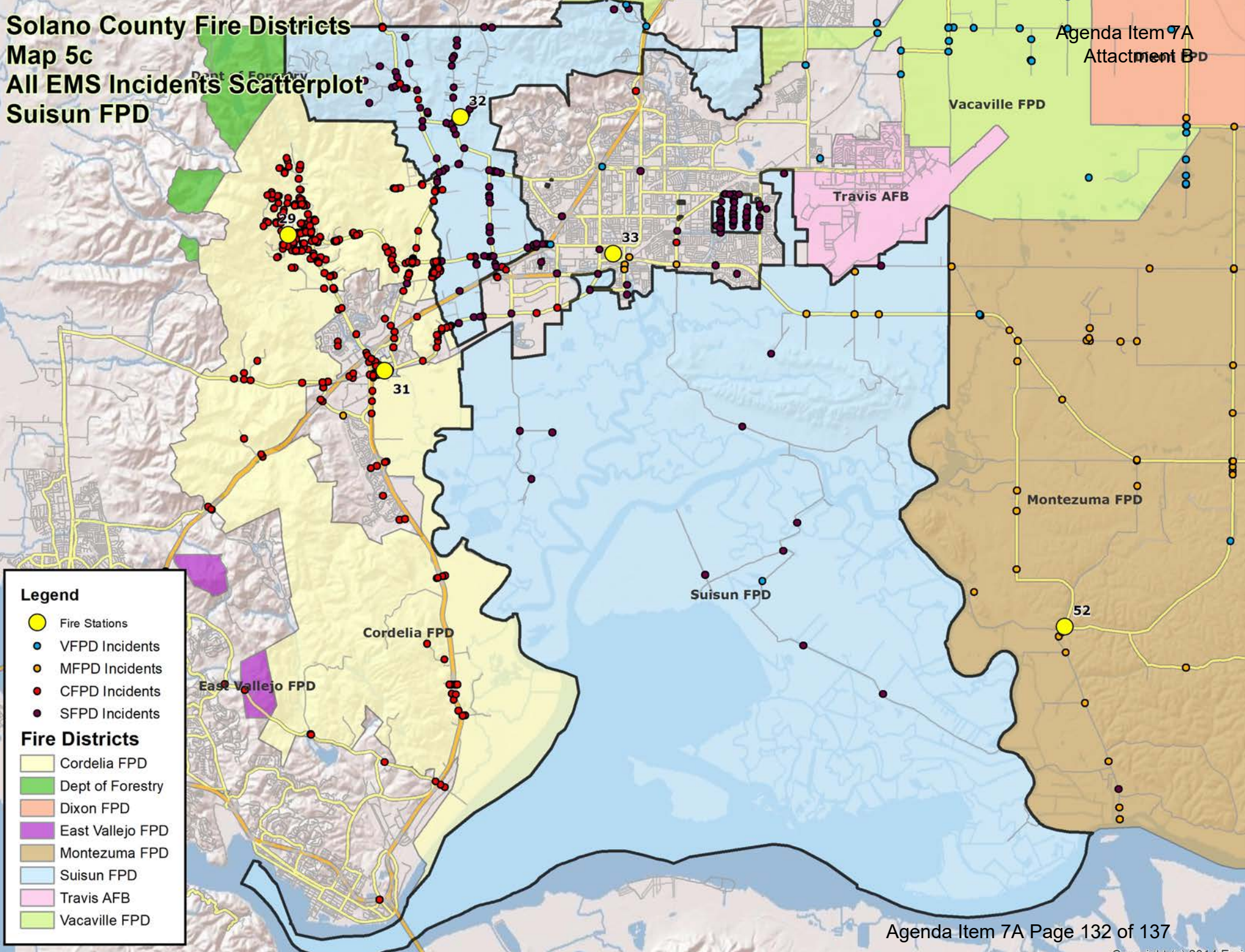
**Solano County Fire Districts
Map 5b
All EMS Incidents Scatterplot
Montezuma FPD**

Agenda Item 7A
Attachment B



- Legend**
- MFPD Stations
 - CFPD Incidents
 - SFPD Incidents
 - VFPD Incidents
 - MFPD Incidents
- Fire Districts**
- Cordelia FPD
 - Dept of Forestry
 - Dixon FPD
 - East Vallejo FPD
 - Montezuma FPD
 - Suisun FPD
 - Travis AFB
 - Vacaville FPD

Solano County Fire Districts
Map 5c
All EMS Incidents Scatterplot
Suisun FPD



Legend

- Fire Stations
- VFPD Incidents
- MFPD Incidents
- CFPD Incidents
- SFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD

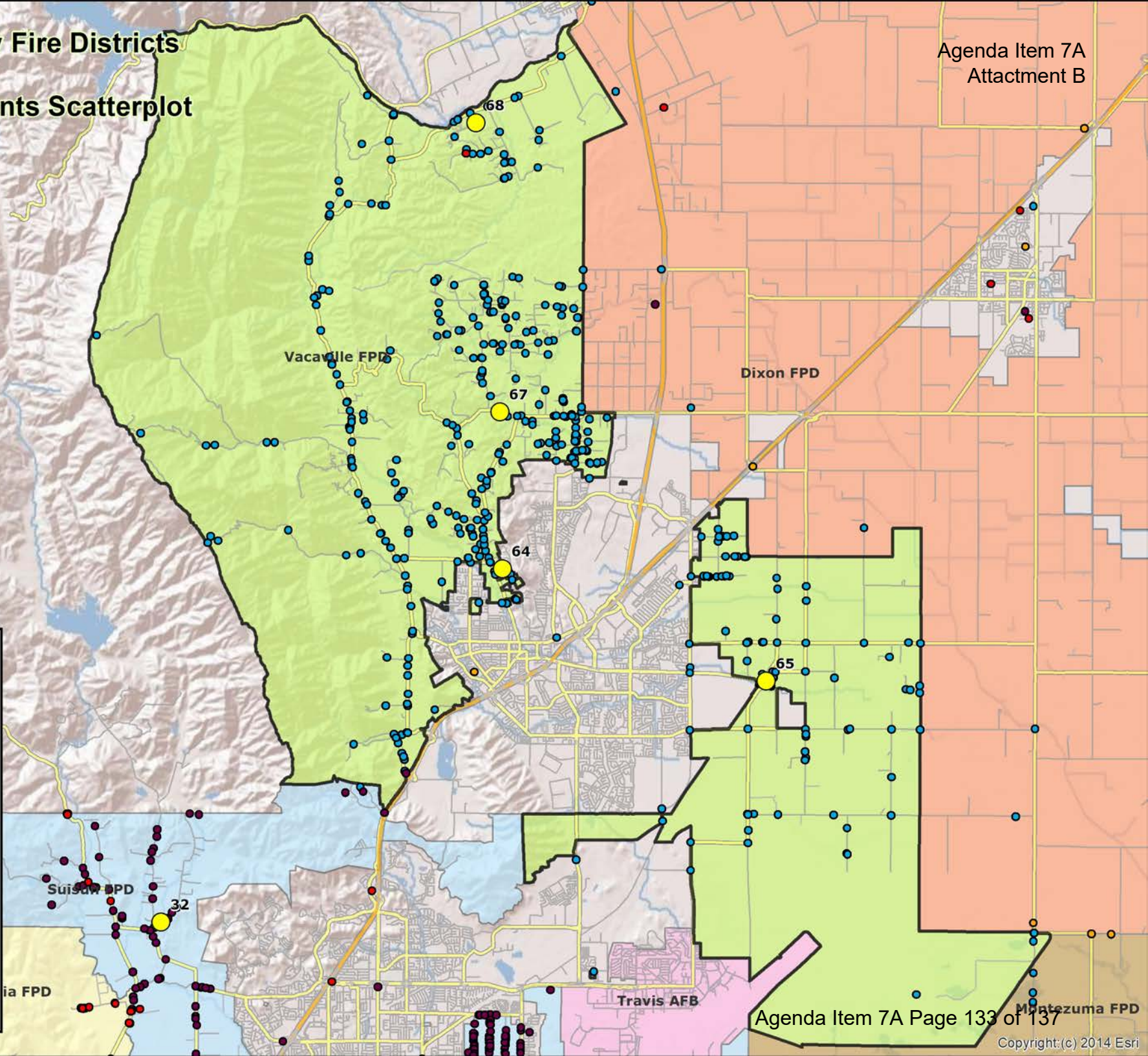
Solano County Fire Districts
Map 5d
All EMS Incidents Scatterplot
Vacaville FPD

Legend

- Fire Stations
- MFPD Incidents
- CFPD Incidents
- SFPD Incidents
- VFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD



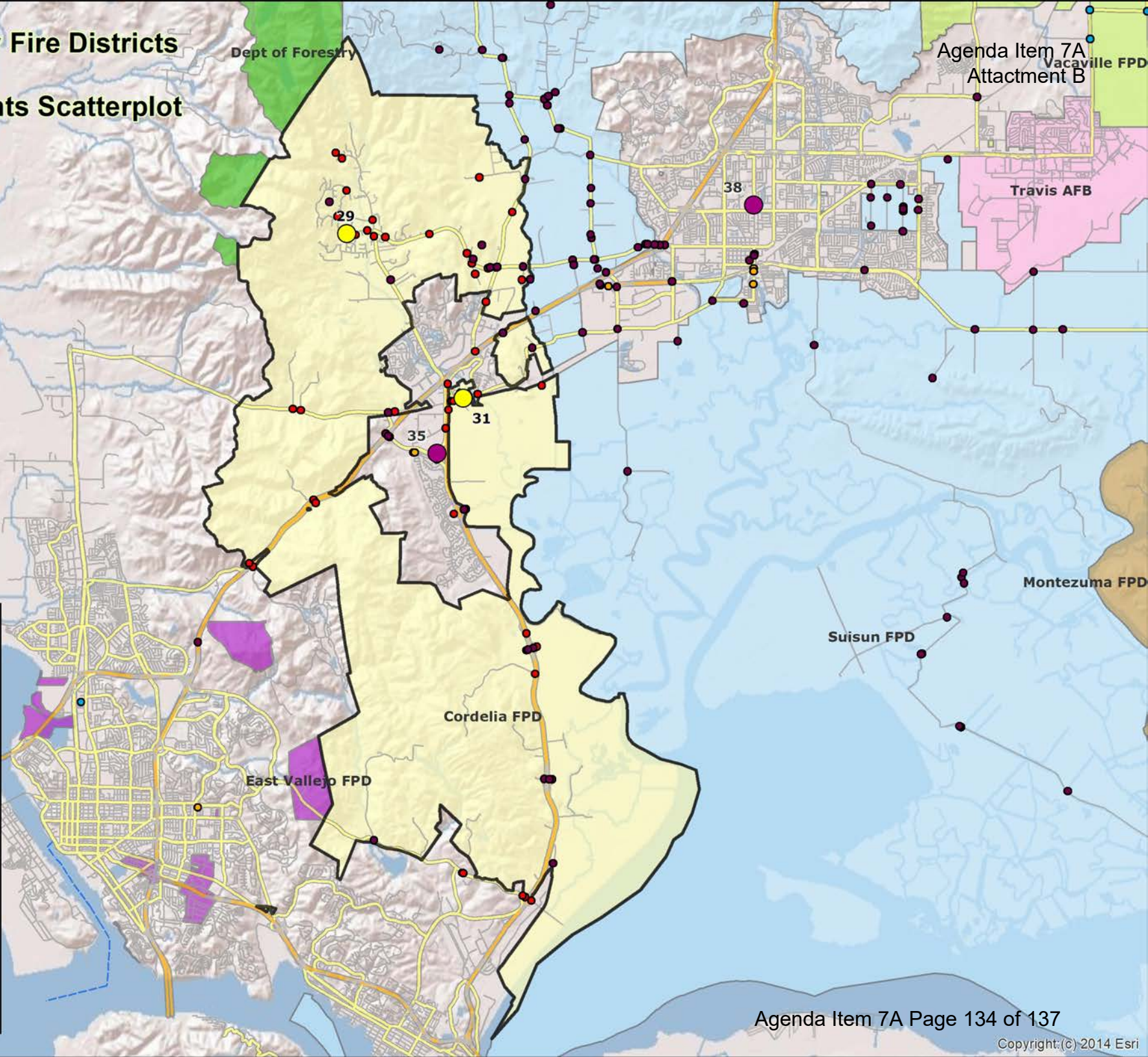
**Solano County Fire Districts
Map 6a
All Fire Incidents Scatterplot
Cordelia FPD**

Legend

- Fairfield Stations
- CFPD Stations
- SFPD Incidents
- VFPD Incidents
- MFPD Incidents
- CFPD Incidents

Fire Districts

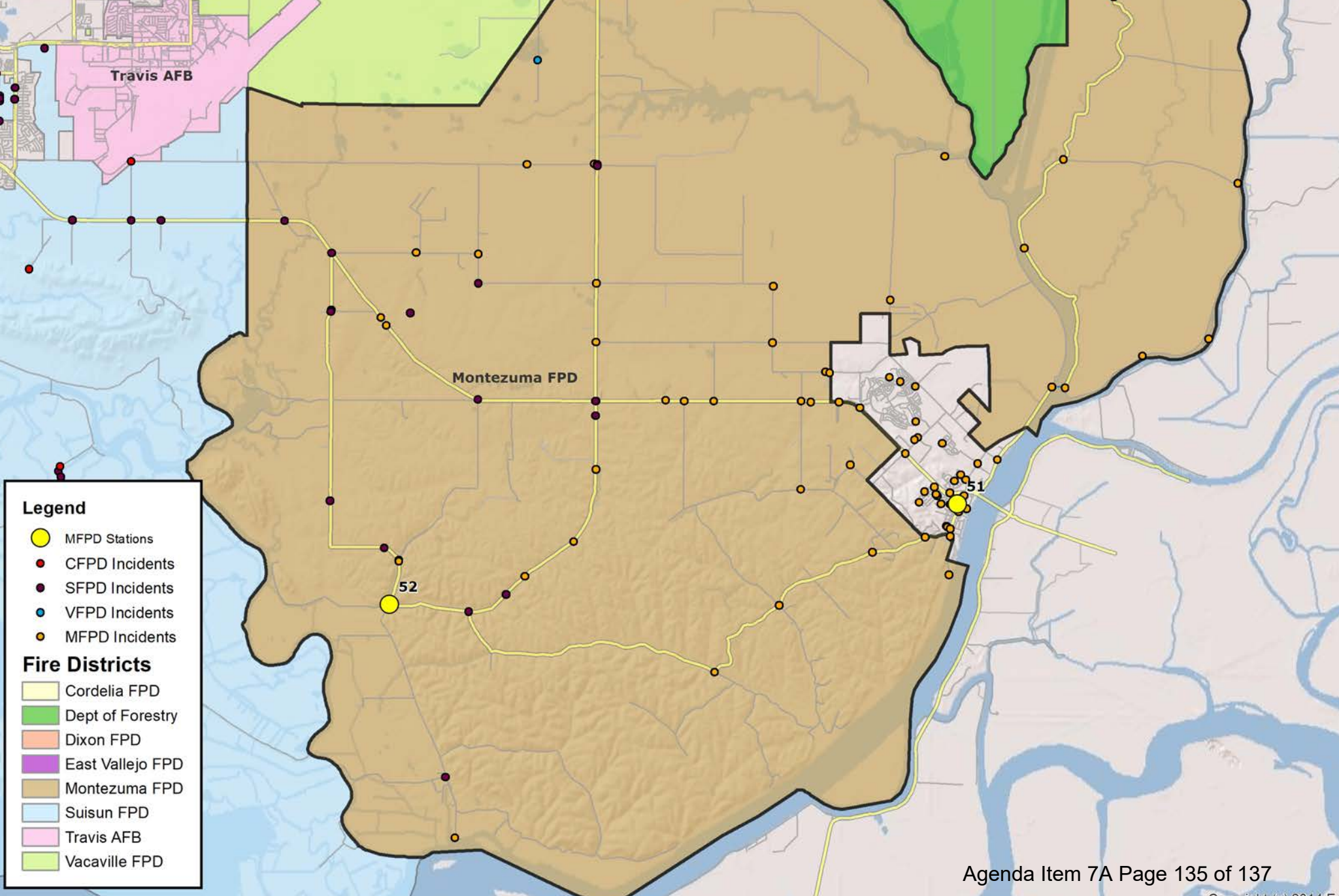
- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD



Agenda Item 7A
Attachment B

Solano County Fire Districts Map 6b All Fire Incidents Scatterplot Montezuma FPD

Agenda Item 7A
Attachment B



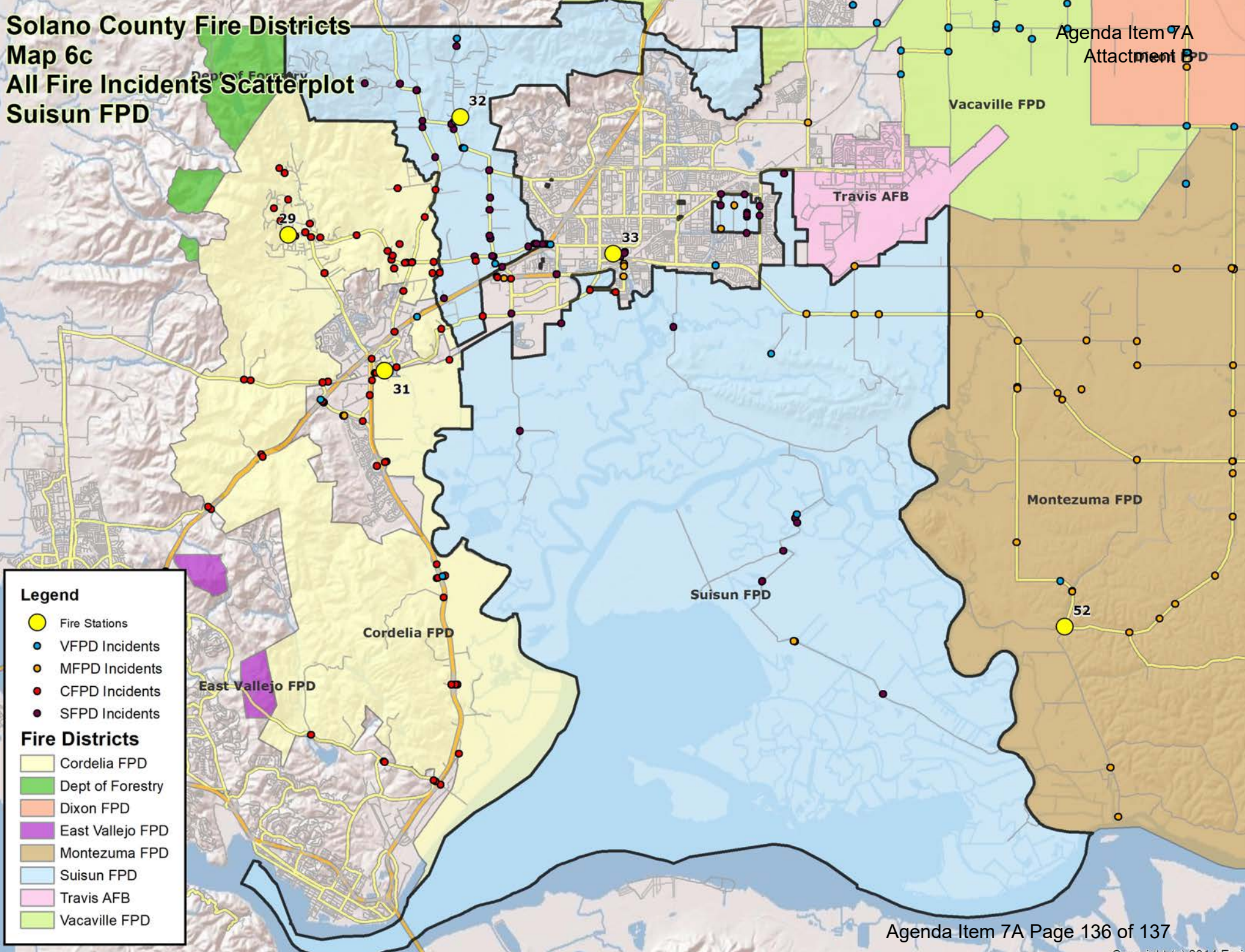
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- MFPD Stations
- CFPD Incidents
- SFPD Incidents
- VFPD Incidents
- MFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
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- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD

Solano County Fire Districts
Map 6c
All Fire Incidents Scatterplot
Suisun FPD



Legend

- Fire Stations
- VFPD Incidents
- MFPD Incidents
- CFPD Incidents
- SFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
- East Vallejo FPD
- Montezuma FPD
- Suisun FPD
- Travis AFB
- Vacaville FPD

Solano County Fire Districts

Map 6d

All Fire Incidents Scatterplot

Vacaville FPD

Legend

- Fire Stations
- MFPD Incidents
- CFPD Incidents
- SFPD Incidents
- VFPD Incidents

Fire Districts

- Cordelia FPD
- Dept of Forestry
- Dixon FPD
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- Travis AFB
- Vacaville FPD

