



Lake Valley Fire Protection District

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Website: <https://www.lakevalleyfire.org/>

County Board of Supervisors,

On behalf of the residents and visitors to Lake Valley Fire Protection District (LVFPD) as well as our personnel, I would like to thank you for your approval of \$1,025,475.17 in TOT funding for FY 2022-2023. Of the total amount granted to LVFPD, \$730,000 was used to purchase a 4x4 Type I Fire Engine that is utilized year-round to access roadways during storms and high traffic. This was a change request from our original request to use the funds to purchase a Quint apparatus. Unfortunately, the fire stations in the District would need to be remodeled to house the Quint and this apparatus cannot be used during heavy snowfall, times of decreased access, or traffic congestion. The District also cannot staff the apparatus safely, thus the change request to the 4x4 Type 1 Engine. The additional \$296,825 in funding received from the County went to reimburse the District for personnel costs incurred responding to visitors in 2021.

We are pleased to present the following proposal and subsequent data to apply for Transient Occupancy Tax (TOT) funding for FY 2023-2024. The following summary of information details an update to the tourism impacts that LVFPD experiences and the subsequent impacts to services for residents and visitors to the District.

LVFPD has identified four (4) funding priorities for consideration by the Board of Supervisors. The District would like to impart on the Board of Supervisors the need to fund these priorities based on the tourism impacts suffered by the District which are compounded by the following facts:

- LVFPD has experienced an increase in calls for service by 45% between 2019 and 2022. Of the 1,457 calls for service in 2022, 387 of those calls, or approximately **27%** were to visitors in the District; and
- Costs for the District to respond to visitor specific emergency services, vehicle accidents and extended calls totaled \$661,410.02 in 2022. The 387 visitor calls, and the subsequent costs associated are a direct burden to District taxpayers; and
- As of February 2023, approximately **679** active Vacation Home Rentals (VHRs) permits were located within the District boundary with a total of 958 active permits Countywide. This equates to **71%** of active VHRs in the County located in the LVFPD area alone. This is an **increase of 17% from 2022** in the District while VHRs increased only 2% Countywide.

More detailed information regarding tourism impacts can be found in the attached report. The high number of tourists to the District as over-night guests and day-trippers exacerbates an already strained system, making it difficult for LVFPD to respond to emergencies during high traffic times and major storms. The District taxpayers are shouldering the burden of emergency and medical responses for visitors. Though the County as enacted VHR buffering requirements, the number of VHRs in the District continue to increase towards the cap. No agency has accurately documented the total number of tourists traveling to the Basin. The impacts are so great that at the end of 2022, Lake Tahoe was listed on the Fodor's "No List" of natural attractions as one of the neediest places on earth for visitors to avoid in 2023. Citing a

pandemic influx of remote workers, second home buyers, traffic gridlock and packed beaches, the guide concluded "Lake Tahoe has a people problem."

Not only does funding our requests help meet apparatus and equipment needs, but it also frees up existing revenue for staffing increases that the District desperately needs. Currently LVFPD only operates with two firefighters on an engine per shift at each station (or a 2-0 staffing model). The national recommendation is four firefighters on an engine (or a 4-0 staffing model). The lack of adequate firefighters puts residents, visitors, and our staff at greater risk; reduces our ability to respond effectively to emergencies; and requires us to wait for backup, delaying necessary action during an emergency. We hope the Board will fund our priorities so that we can redirect revenue towards adding firefighters to shifts. The attached report (Appendix B) gives a summary of the challenges we face operating with only two firefighters on an engine.

LVFPD is thankful to the Board of Supervisor for redirecting TOT funding towards tourism impacts, but there is still much work to do. We hope that the information provided here will highlight the direct impacts tourism has on the District, and specifically the ability for LVFPD to continue to provide timely, safe emergency medical and fire protection services to the residents and visitors of the District.

Sincerely,

A handwritten signature in black ink, appearing to read 'CS', followed by a long horizontal line extending to the right.

Chad Stephen, Fire Chief
Lake Valley Fire Protection District





(530) 577-3737 | 2211 Keetak Street, South Lake Tahoe | lakevalleyfire.org



Lake Valley Fire Protection District

2023 Transient Occupancy Tax (TOT) Funding Request

Submitted to El Dorado County
March 24, 2023



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Transient Occupancy Tax (TOT) Request Summary

The following information provides an updated summary of tourism impacts to Lake Valley Fire Protection District (LVFPD or Lake Valley FPD) and the request by LVFPD for Transient Occupancy Tax (TOT) revenue allocations for four (4) funding priorities to offset these impacts.

Tourism impact information is divided into “South Short Visitor” impacts related to general information on tourism in the South Shore , “Weather and Visitor Impacts” detailing impacts from a combination of weather and visitors in the District area, “District Visitor” impacts summarizing how the visitors to the District directly impact services, and “District VHRs” describing impacts by Vacation Home Rentals (VHRs) located in the District.

Funding requests for the District are provided in Table 1 below. LVFPD hopes the Board of Supervisors will fund all priorities.

Table 1: Funding Priority Summary

Priority Number	Priority Type	Timeline	Total Amount Requested
1	2022 Direct Visitor Costs	One-time each FY	\$621,410.02
2	Command Vehicle Replacement	One-time	\$285,000.00
3	New Infrastructure for Asset Preservation	Option 1: New Metal Building Station No. 7	\$1,072,500.00
		Option 2: Expand Station No. 6	\$775,000.00
4	Back-up Power/Generators	One-time	\$135,000.00



Tourism Impacts

South Shore Visitor Impacts

- The Tahoe Transportation District (TTD) estimates that roughly 25 million visitors come to the Tahoe Basin each year, of which 42% are day visitors. This is an increase in 1 million visitors since the LVFPD 2020 TOT Funding Study. It is estimated that there will be an increase of 25% in visitation by 2035.¹
- The entrance to the Tahoe Basin through Highway 50, within Lake Valley Fire Protection District's boundary, sees the highest percentage of travelers into the Basin than any other entrance, more than travelers on Interstate 80 through Placer County in both winter and summer months.²
- According to El Dorado County staff, roughly 15,000 vehicles use Highway 50 through Lake Valley FPD on any given day and on holidays it can range between 20,000-25,000 vehicles. The average residential street in the District has around 1,000 vehicles passing through a day and 4,000-6,000 vehicles on holidays.³
- The Tahoe Regional Planning Agency (TRPA) estimates over 1.8 million visitors annually travel through the Emerald Bay, Highway 89 corridor of LVFPD.⁴ Extreme traffic congestion resulting in hours long delays is not uncommon in the winter or summer peaks.
- At the end of 2022, Lake Tahoe was listed on the Fodor's "No List" of natural attractions as one of the neediest places on earth for visitors to avoid in 2023. Citing a pandemic influx of remote workers, second home buyers, traffic gridlock and packed beaches, the guide concluded "Lake Tahoe has a people problem."^{5,6}

Weather & Visitor Impacts

- Weather has a significant impact on tourism in the District. Heat waves in the valley bring tourists to Lake Tahoe to cool off while extreme snow conditions drive tourists to the area for snow

¹ TTD. January 2021. One Tahoe: A transportation funding initiative. Available online at:

<https://www.tahoetransportation.org/wp-content/uploads/2021/02/2020-2-7-Exec-Summary-One-Tahoe-Draft-Final-Project-Report.pdf>

² TTD. September 2017. Linking Tahoe: Corridor Connection Plan. Available online at:

https://www.tahoetransportation.org/wp-content/uploads/2020/05/2017-Sept-Linking_Tahoe_CCP-Adopted.pdf.

³ Tolbert, J. 14 October 2022. "South Lake Tahoe traffic woes: Balancing the needs of locals and tourists." ABC 10 News.

Available online at: <https://www.abc10.com/article/news/local/south-lake-tahoe-traffic-woes/103-dac9c6d9-60b5-4b43-8664-fdc8398cba89>.

⁴ TRPA. September 2020. State Route 89 Recreation Corridor Management Plan. Available online at: <https://www.trpa.gov/wp-content/uploads/documents/archive/Final-State-Route-89-Recreation-Corridor-Management-Plan.pdf>.

⁵ Fodor's Travel. Fodor's No List 2023. <https://www.fodors.com/news/news/fodors-no-list-2023>.

⁶ Anguiano, D. 12 February 2023. "'Lake Tahoe has a people problem:' how a resort town became unlivable." The Guardian. https://www.theguardian.com/us-news/2023/feb/12/lake-tahoe-resort-housing-crisis?CMP=oth_b-aplnews_d-1.



activities. Blizzard conditions take a toll on the District as crews respond to all types of calls including vehicle accidents, medical aids, and back country rescues.⁷

- Calls doubled and tripled on major storm days in 2022 and into early 2023 with response times increased by 5 to 15 minutes depending on the location from station or resource to the emergency. Backups become ‘apocalyptic’ during winter when there are highway and road closures resulting in several hours of tourists waiting on Highway 50, blocking roadways and access for emergency vehicles.⁸



District Visitor Impacts

- There are approximately 12,660 permanent residents within the District⁹ as of the 2021 Census, a decrease of 0.9% from 2020. There are 7,898 parcels in LVFPD boundaries that provide the main source of funding for the District through property tax and special assessment revenue.
- LVFPD has experienced an increase of 45% in calls for service from 2019 to 2022.¹⁰ Of the 1,457 calls for service in 2022, 387 of those calls, or approximately **27%** were to visitors in the District. Just over one quarter of all calls for LVFPD were to just visitors in 2022.
- Overnight visitors include campgrounds at Fallen Leaf Lake, Tahoe Valley, and Camp Richardson Resort, as well as the Camp Richardson Hotel. The District boundaries include areas such as Pope Beach, Camp Richardson, and Emerald Bay. These areas are premier destinations for visitors in

⁷ LVFPD Staff, personal communication, February 2023.

⁸ Ibid.

⁹ U.S. Census Bureau, 2021 ACS 5-Year Estimates.

<https://data.census.gov/table?t=Populations+and+People&g=1500000US060170302012,060170302022,060170304025,060170305021,060170305022,060170305023,060170305024,060170305041,060170305042,060170305043,060170305061,060170305071,060170305072,060170305073,060170316021,060170319001,060170320021,060170320022&y=2021&tid=ACSDT5Y2021.B01001>

¹⁰ LVFPD Staff, personal communication, February 2023.



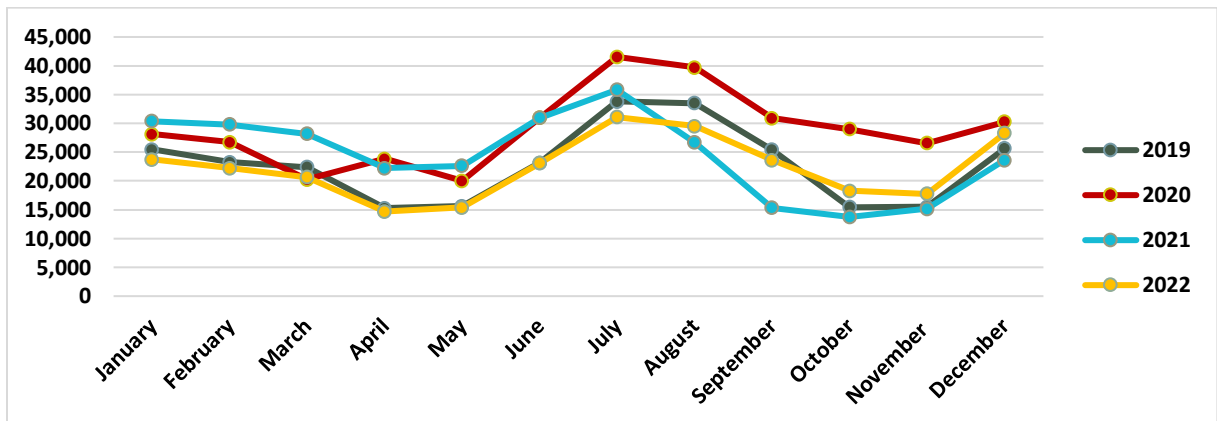
South Lake Tahoe. The District also serves two major ski areas: Sierra-at-Tahoe and Heavenly Ski Resort.

- The District responded to 387 calls from visitors in 2022, an increase of 115% from 2021 (180 calls). Costs for the District to respond to visitor specific emergency services, vehicle accidents and extended calls totaled \$661,410.02 in 2022. The 387 visitor calls, and the subsequent costs associated are a direct burden to District taxpayers.¹¹

District Vacation Home Rental Impacts

- As of March 6, 2023, approximately **679** active Vacation Home Rentals (VHRs) permits were located within the District boundary with a total of 958 active permits Countywide.¹² This equates to **71%** of active VHRs in the County located in the LVFPD area alone. This is an **increase of 17%** of VHRs in the District from 2022 while the County total only went up 2% between 2022 and 2023. In addition, there are 3 pending VHR permits within LVFPD’s boundary.
- Occupancy rates for vacation home rentals in the South Shore have increased substantially since the start of the COVID-19 Pandemic according to AirDNA¹³. Total nights booked for all VHRs in the South Shore area increased by 27% from 2019 to 2020 and by another 7% in 2021 as seen in Figure 2. Last year saw a return to pre-pandemic levels of nights booked through the first half of the year, with an uptick higher than 2021 from August through December to almost 2020 levels of total nights in December of 2022.¹⁴

Figure 2: Total Nights Booked (2019-2022)



¹¹ LVFPD Staff, personal communication, February 2023.

¹² El Dorado County VHR Staff, personal communication, March 2023.

¹³ AirDNA is the leading provider of data and analytics for the short-term rental industry. AirDNA collects short-term vacation rental data from thousands of sources, including Airbnb and VRBO/HomeAway, to build a comprehensive view of the short-term rental market. Sources of data also include private hosts (50K) and several strategic API partnerships with several large property management companies. AirDNA provides analytics for the South Lake Tahoe area. A map of the data area can be found in Appendix A.

¹⁴ Ibid.



- There are approximately 6,361 developed single-family residential properties in the District.¹⁵ VHRs make up 11% of all single-family homes, and they accounted for roughly a third of all visitor calls for 2022.¹⁶
- The District conducted 45% less VHR inspections in 2022 than the previous year (441 inspections in 2021 and 244 inspections in 2022). VHRs are inspected by LVFPD staff when new licenses are approved and bi-annually for existing licenses.¹⁷ The decrease in inspections is due to permit processing delays at the County. The District added 97 more vacation home rentals between 2022 and 2023.¹⁸

¹⁵ El Dorado County Staff, personal communication, March 2023.

¹⁶ Ibid.

¹⁷ Lake Valley FPD staff, personal communication, February 2023.

¹⁸ El Dorado County VHR Staff, personal communication, March 2023.



Funding Priorities

In order to equip the District to better address tourism impacts as described above, LVFPD proposes the following four (4) funding priorities using TOT revenue: Priority 1 – 2022 Direct Visitor Costs, Priority 2 – Command Vehicles, Priority 3 – New Infrastructure for Asset Preservation, and Priority 4 – Back up Power/Generators.

Each priority includes a short description, summary statement, and a funding breakdown provided on the following pages. The table provided below shows summary information for the four priorities. LVFPD hopes the Board of Supervisors will fund all priorities.

Priority Number	Priority Type		Timeline	Total Amount Requested
1	2022 Direct Visitor Costs		One-time each FY	\$621,410.02
2	Command Vehicle Replacement		One-time	\$285,000.00
3	New Infrastructure for Asset Preservation	Option 1: New Metal Building at Station No. 7	One-time	\$1,072,500.00
		Option 2: Expand Station No. 6	One-time	\$775,000.00
4	Back-up Power/Generators		One-time	\$135,000.00



Priority 1 – 2022 Direct Visitor Costs

In 2022, the District identified 387 calls where personnel responded to visitors in need of emergency medical or fire protection services. These calls totaled \$661,410.02 with the cost burden placed directly on District taxpayers. LVFPD does utilize a third-party collection agency and has policies in place to attempt to recoup some of these costs. However, the District is not generally able to make up the associated costs for service. This places an unnecessary burden on District taxpayers who provide the main source of revenue for the District. The highest amount the District has been able to recoup from the collection agency is \$40,000. Therefore, the District is requesting the cost burden minus the maximum reimbursement the District has received in the past for a total of \$621,410.02.

The total number of calls for 2022 is much greater than subsequent requests due to more accurate data collection implemented by the District last year. This has allowed the District to more accurately track instances in which the District responded to visitors as opposed to residence than in past years and has allowed the District to truly capture all visitor calls. The funding breakdown is divided into three different call types and the associated costs for responding to one of each call type. The last row of each table shows the number of visitor calls for 2022 in that call type and the associated costs for the year. The three different call types are: 1) emergency medical service (EMS) call, 2) vehicle accident, and 3) extended call.

Summary

Priority 1 would be one-time TOT funding of \$621,410.02 to cover costs associated with visitor specific calls in 2022.

Call Type	Equipment/ Staff	Number of hours	Number of Visitor Calls in 2022	Total Costs
Emergency Medical	Single Engine/Single Medic	2 hours	201	\$128,697.36
Vehicle Accident	2 Engines and Chief Officer	2.5 hours	112	\$245,902.04
Extended Call	3 Engines and Chief Officer	4 hours	74	\$286,810.62
Total Costs				\$661,410.02
Max Reimbursement from 3 rd party Collection Agency				(\$40,000.00)
Total Requested				\$621,410.02

Funding Breakdown

One EMS Call – Single Engine / Single Medic (2 hours total)		
Engine Company	Hourly Rate	Total (2 hr)
Captain	\$50.27	\$100.54
Engineer	\$45.65	\$91.30
Firefighter/Paramedic	\$42.78	\$85.56
Total Personnel Cost:		\$277.40
Engine Hourly Rate	\$140.00	\$280.00
Personnel & Equip		\$557.40



One EMS Call – Single Engine / Single Medic (2 hours total)		
Admin Rate	14.87%	\$82.89
Total Reimbursement:		\$640.29
201 Visitor Calls x Total Reimbursement		\$128,697.36

One Vehicle Accident - Two Engines & Chief Officer - 2.5 hours		
Engine Company	Hourly Rate	Total (2.5 hr)
Captain	\$50.27	\$125.68
Engineer	\$45.65	\$114.13
Firefighter/Paramedic	\$42.78	\$106.95
Personnel cost per eng.		\$346.75
2 Engines companies		\$693.50
	Hourly Rate	Total (2.5 hrs)
Chief Officer	\$64.35	\$160.88
Engine Hourly Rate	\$140.00	\$350.00
2 Engines @ 2.5 hours		\$700.00
Personnel & Equip		\$1,904.38
Admin Rate	15.29%	\$291.18
Total Reimbursement:		\$2,195.55
112 Visitor Calls x Total Reimbursement		\$245,902.04

One Extended Call - Three engines & Chief Officer - 4 hours		
Engine Company	Hourly Rate	Total (4 hrs)
Captain	\$50.27	\$201.08
Engineer	\$45.65	\$182.60
Firefighter/Paramedic	\$42.78	\$171.12
Personnel cost per eng.		\$554.80
3 Engine Companies		\$1,664.40
	Hourly Rate	Total (4 hrs)
Chief Officer	\$64.35	\$257.40
Engine Hourly Rate	\$120.00	\$480.00
3 Engines @ 4 hours		\$1,440.00
Personnel & Equip		\$3,361.80
Admin Rate	15.29%	\$514.02
Total Reimbursement:		\$3,875.82
74 Visitor Calls x Total Reimbursement		\$286,810.62



Priority 2 – Command Vehicles

The District is requesting funding to replace three existing vehicles not able to be used by battalion chiefs with three command/prevention vehicles that can be used by battalion chiefs. The existing vehicles in use by the District are 14-19 years old and do not meet the current needs of the District.

During heavy impacts of visitors causing traffic and delays, it is difficult for engines to navigate through the District in a timely fashion. Additionally, during heavy snow fall, tree fall impacts to power and access can make traversing difficult to impassable. Smaller equipment is more successful in maneuvering around traffic and hazards to get to emergencies faster.

The District endured 200-300 calls per day during the winter storms of 2022/2023. Access for emergency vehicles was compounded by closures on major highways and visitors essentially parking on the highway, waiting for the roads to re-open for hours. Adding more command/prevention vehicles to the fleet will allow the District to spread out staging areas, mitigating the distances engines would need to travel during emergencies with the command vehicles available to quickly navigate to priority calls through visitor traffic. These vehicles would also allow the District to leave the engines available for higher priority emergencies.

Summary

Priority 2 would fund the purchase of three (3) new command/prevention vehicles. The District has budgeted for replacement of these vehicles, however meeting this funding request would allow the District to reallocate funding for badly needed staffing as described in Appendix B.

Funding Breakdown

Command/Prevention Vehicles	
Estimated Cost for one (1) vehicle	\$95,000.00
Total for three (3) vehicles:	\$285,000.00



Priority 3 – New Infrastructure for Asset Preservation

For the last two TOT funding requests, the District has asked for funding to purchase apparatus and equipment. The El Dorado County Board of Supervisors has generously funded some of those equipment purchases for LVFPD. The District would ask for another piece of equipment for FY 2023/2024, however due to the increased sizes of apparatus over the years, existing District stations are no longer able to accommodate 4 pieces of equipment in a station. Currently two pieces of apparatus live outside year-round. This causes significant wear and tear, as the apparatus are continually exposed to the variability of weather in the Tahoe region.

The District continues to explore alternative funding and partnerships with neighboring agencies. LVFPD is exploring development of a new fire station in the Black Bart and Al Tahoe residential areas. The South Tahoe Public Utility District (STPUD) has offered land to build a joint facility with LVFPD and the City of South Lake Tahoe Fire Rescue at Al Tahoe Blvd. LVFPD has been researching grants and talking to lobbyists for state funding. Both LVFPD and the City are looking at identifying one project that would benefit the entire south shore community, as both agencies are in need of new infrastructure for Station No. 2 in the City and Station No. 6 in LVFPD. Station No. 6 was built in 1976 and the City's Station No. 2 was built in 1960.



Summary

Priority 3 presents two options for the Board to consider. The difference in cost between the two funding options is \$297,500. The District hopes the Board will consider funding Option 1 to provide a more permanent solution as opposed to the stopgap measure proposed under Option 2.

- **Option 1:** This option would fund the development of a pre-fabricated metal building to be placed on land owned by the District at Station No. 7 in Meyers. This new metal building would accomplish more than a re-configuring of Station No. 6 (Option 2) as it would allow for storage of 3-4 apparatus and allow for an area for District staff to perform apparatus maintenance. As it



currently stands, District staff must move apparatus out of the Station to perform maintenance. This new building would provide more flexibility for the District and be utilized over the long-term.

- **Option 2:** This option involves expanding the garage space of Station No. 6 at Golden Bear to allow the station to fit four engines. As of now, the station can only fit two. This would be a stopgap measure until the District is able to capture enough funding through grants, loans, and available funds through the State to build a new Station No. 6. The District anticipates funding for a new station and station development would be 5-10 years in the future.

Funding Breakdown

Two Options	
Option 1: Station No. 7 New Metal Building	\$1,072,500.00
Option 2: Station No. 6 Garage Expansion	\$775,000.00



Priority 4 – Backup Power/Generators

The District has identified generators for Station No.'s 6 and 7 are past their useful lives and in need of replacement. Both generators were purchased in 1997 and have served the needs of the District for 25 years. Due to the expectation of more frequent Public Safety Power Shutoffs (PSPS) and power outages occurring more frequently during intense winter storms, the District cannot depend on the existing generators to run continually for multiple days.

Visitors as well as residents depend on the District to be self-sufficient and continue to operate even during power outages. Without power, the District cannot function effectively or efficiently.

Summary

The District requests that the Board consider allocating \$135,000 in TOT revenue to cover the purchase of two new generators for Station No. 6 and Station No. 7. The District has budgeted for replacement of these generators, however meeting this funding request would allow the District to reallocate funding for badly needed staffing as described in Appendix B.

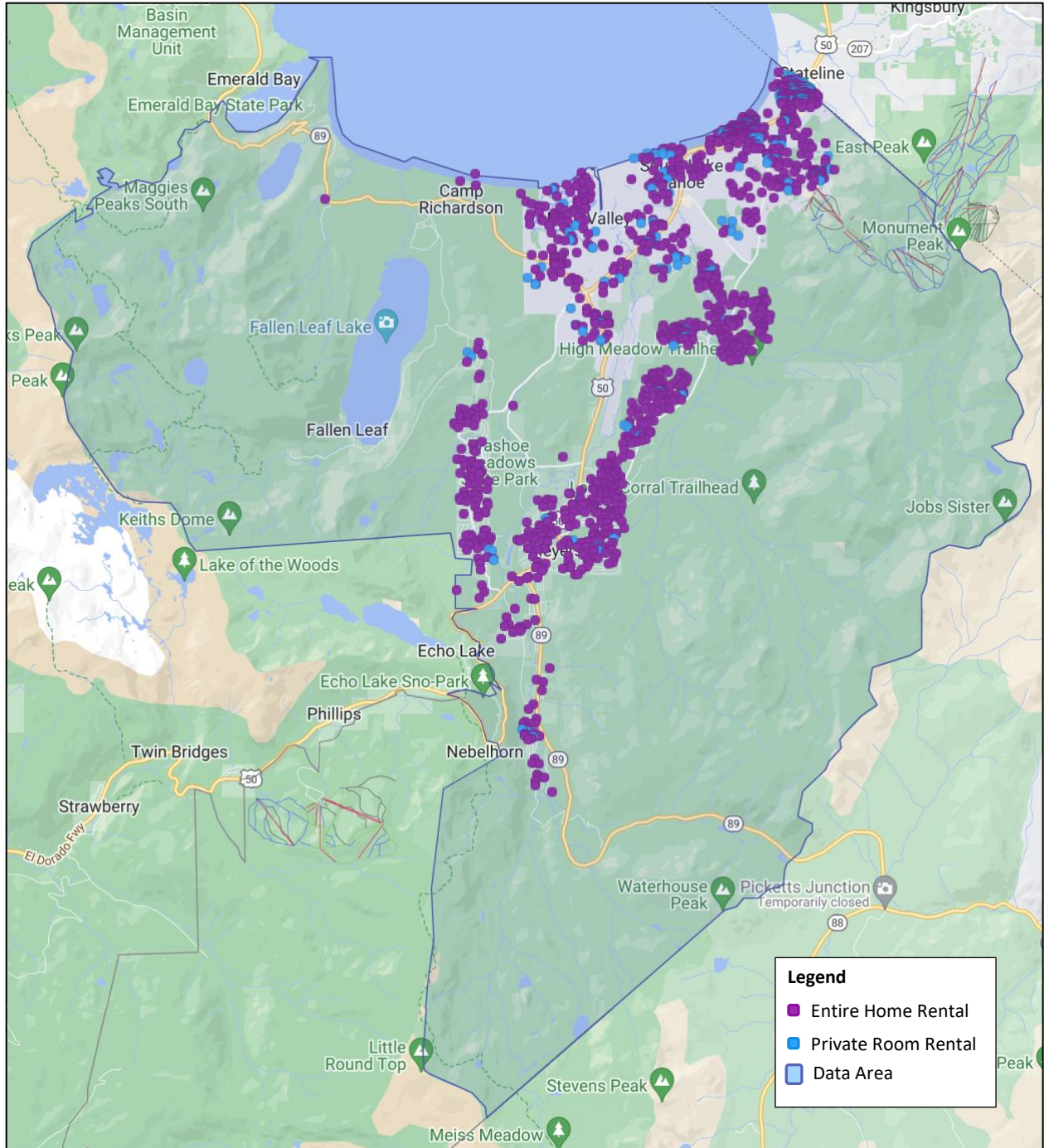
Funding Breakdown

Backup Power/Generators	
Station No. 6	\$35,000.00
Station No. 7	\$100,000.00
Total:	\$135,000.00



Appendix A: AirDNA Data Area





Appendix B: District Staffing Shortage Information



District Staffing Shortages

Lake Valley Fire Protection District currently operates with (2-0) staffing, or two firefighting personnel to an engine on shift for all stations.¹⁹ The National Fire Protection Association (NFPA) sets staffing standard recommendations nationwide. The NFPA Standard 1710 recommends career fire departments operate under a (4-0) staffing model, meaning four firefighters on an engine.²⁰ The District operates as a career department; therefore, the District does not meet recommended staffing standards according to the NFPA. In general, most rural agencies are not able to meet (4-0) staffing, thus (3-0) staffing has become the minimum acceptable level of staff for many fire service providers throughout the State of California.²¹ As of the most recent Countywide Fire Protection and Emergency Medical Services MSR/SOI Study for El Dorado County LAFCO, ten (or 77 percent) of fire agencies in the County are not meeting the minimum standard of (3-0) staffing some or all of the time.²²

According to California Division of Occupational Health and Safety (Cal OSHA) requirements, the U.S. Department of Commerce: National Institute of Standards and Technology (NIST), the California Governor's Office of Emergency Services (Cal OES), and research conducted at San Diego State University, lower staffing levels are dangerous for firefighting personnel as well as residents and visitors. Having fewer firefighters on an engine reduces the ability for the unit to respond and requires waiting for mutual or automatic aid to meet Cal OSHA standards. In general, research and studies found that (2-0) staffing models are seriously deficient in keeping ahead of wildfire and slower for key activities in relation to fire suppression than (3-0) and (4-0) staffing models. For example, a (4-0) staffing model operating on a low-hazard structure fire completed laddering and ventilation (for life safety and rescue) 30 percent faster than the (2-0) staffing model and 25 percent faster than the (3-0) staffing model. The (3-0) staffing model started and completed a primary search and rescue 25 percent faster than the (2-0) model. The (4-0) and (5-0) model started and completed a primary search six percent faster than the (3-0) model and 30 percent faster than the (2-0) model. For this research, a 10 percent difference was equivalent to just over one minute of time for primary search and rescue operations. The (2-0) staffing took 57 seconds longer than

¹⁹ LVFPD staff, personal communication, February 2023

²⁰ National Fire Protection Association (NFPA). 2020. NFPA 1720: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments. Available online at: <https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1710>.

²¹ NFPA. December 2021. Staffing & Operations as part of the Fifth Needs Assessment of the US Fire Service. Available online at: <https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Emergency-responders/Needs-Assessment/osfifthneedsassessmentStaffingOperations.ashx>

²² El Dorado Local Agency Formation Commission (LAFCO). April 2022. Final Countywide Fire Protection and Emergency Medical Services Municipal Service Review and Sphere of Influence Update Main Report Volume I of II. Available online at: <https://www.edlafco.us/files/a9242b5d4/VolumeI+-+Main+Report+-+Final+Countywide+Fire+Protection+and+Emergency+Medical+Services+MSR+and+SOI+Update.pdf>



(3-0) staffing models to stretch hose line and took 87 seconds longer than (4-0) staffing models.^{23,24,25} These studies and research demonstrate that, though (3-0) staffing is less efficient and less safe for firefighters than (4-0) or (5-0) staffing models, it is more efficient and safer for firefighters than a (2-0) staffing model.

According to research conducted by the California Office of Emergency Service Firefighting Resources of Southern California Organized for Potential Emergencies (Cal OES FIRESCOPE), agencies of medium to smaller size can be challenged to maintain geographical coverage at times of increased emergency activity. Even under normal threat levels, a fairly routine call for service can deplete the availability of their resources and result in a degree of drawdown. If an incident becomes prolonged or requires the commitment of resources beyond the initial response, the agencies capabilities can be affected. In the case of some smaller agencies, a single resource committed to an incident can result in extreme drawdown and challenge their ability to meet their basic jurisdictional coverage responsibilities.²⁶

²³ NIST. April 2010. Report on Residential Fireground Field Experiments. Available online at:

https://www.nist.gov/system/files/documents/el/fire_research/Report-on-Residential-Fireground-Field-Experiments.pdf

²⁴ Rahn, Matt, Ph.D. (2010). 2010 California Wildfire Staffing Study - Wildfire Research Report No. 2. San

Diego State University. Montezuma Publishing. Available online at: <https://wildfirescience.org/wp-content/uploads/2018/04/6-2010-StaffingStudy1.pdf>

²⁵ Occupational Safety and Health Administration (OSHA). <https://www.osha.gov/laws-regs/standardinterpretations/1998-04-29#:~:text=This%20provision%20requires%20that%20at,two%20in%2Ftwo%20out%22>

²⁶ California Governor's Office of Emergency Services (Cal OES) FIRESCOPE. April 2020. Drawdown Consideration for Fire Agencies. Incident Command System Publication - MACS 408. Available online at: <https://firescope.caloes.ca.gov/ICS%20Documents/MACS%20408.pdf>

