

Escalon Consolidated Fire
Protection District

1749 Coley Avenue
Escalon, CA 95320
Phone 209-838-7500
Fax 209-838-3926



Board of Directors

Joe Camara, Board Chairperson
Laura Catrina, Vice Chairperson
Mikey Schilber, Secretary
Mark Paulsen, Director
Terry Pinheiro, Director

Rick Mello, Fire Chief

Post Date: February 8, 2021

Board of Directors Meeting
1531 1st Street
February 11, 2021 at 4 P.M.

BEFORE THE BOARD OF DIRECTORS OF ESCALON CONSOLIDATED FIRE
PROTECTION DISTRICT

ROLL CALL:

APPROVAL OF MINUTES:

BILLS: Bills for the month of January in the amount of \$42,777.32.

COMMUNICATIONS:

BOARD AGENDA

Old Business:

- A. Bathroom Remodel / Addition
- B. Mutual Aid (Water Tender)
- C. Station Tower Incident

New Business:

- A. Form 700
- G. Chief's Report.
- H. Public Comment.
- I. Closed Session
 - a. No closed session.

COVID-19 Guidelines

Due to COVID-19 the following guidelines will be utilized

- Social distancing guidelines will be followed during all portions of the meeting
- In the event social distancing cannot be met, the meeting will be moved to a larger location or canceled/postponed
- All in attendance will be required to monitor and record their temperature upon entering the building and upon exiting the building
- Hand sanitizer and face coverings will be provided.
- Board members may attend the meeting virtually if desired.

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ESCALON CONSOLIDATED FIRE
PROTECTION DISTRICT
BOARD OF DIRECTOR'S MINUTES
JANUARY 2021

The monthly Board of Directors meeting of the Escalon Consolidated Fire Protection District was called to order by Director Joe Camara at 4:05 p.m. on January 14, 2021. Directors present Joe Camara, Laura Catrina, Mickey Schilber, Mark Paulsen and Terry Pinheiro. Others present, Chief Rick Mello, Administrative Assistant Katy House, Battalion Chief Joe Pelot, Firefighter Engineer Ryan Burr and Reserve Firefighter Louis Roach. Public in attendance was Steve Reichmuth.

Minutes for the meeting on December 10, 2020 were approved on a motion by Director Catrina and a second by Director Camara.

November bills in the amount of \$54,013.01 were approved to be paid on a motion by Director Schilber and a second by Director Catrina.
5-AYES and 0-NAYES 0-ABSENT

December bills in the amount of \$30,151.66 were approved to be paid on a motion by Director Schilber and a second by Director Catrina.
5-AYES and 0-NAYES 0-ABSENT

OLD BUSINESS:

- A. No old business

NEW BUSINESS:

- A. Election of Officers
- a. The Officers were approved on a motion Director Schilber and a second by Director Paulsen.
 - Joe Camara - Chairperson
 - Laura Catrina - Vice Chairperson
 - Mickey Schilber - Secretary
- B. Schedule Ethics & Sexual Harassment Training
- a. Given by Cal Association Employers
 - b. To be taken 6 months after taking office and every 2 years thereafter.
 - c. Research portal setup for remote access

- C. Active 911 / Emergency Reporting Access – Director Paulsen
 - a. Majority not in favor

- D. Out of County Assistance – Director Camara
 - a. Tabled
 - b. Director Camara requested that a Battalion Chief see if any Reserve or Volunteer's were interested and to obtain a count.

- E. Station 1 Radio Tower – Director Pinheiro
 - a. Director Paulsen will bring information regarding tower assessment to the next meeting.

- F. Chief's Report – December 2020
 - Status of Fire Department
 - 94 calls for the month and 1057 for 2020.

 - Training Division and Reserve/Volunteer Program
 - 11-3-2020 Confined Space Training Review (7 participants)
 - 11-11-2020 Hose Evolutions and 24' Ladder Drills (8 participants)
 - 11-20-2020 Vacuum Splints and Small Motor Review (6 participants)
 - Discussed with Battalion Chiefs needs and wants for 2021 training calendar. Due to COVID-19 there is a lack of fire academies being offered so the discussion of sending out flyers to MJC, Escalon High School and New Jerusalem School (All offer fire science classes). The flyer was sent out to these locations and we are beginning to see some applications.

 - Fire Prevention
 - November marked our Annual Smoke Detector Battery Exchange Program. The program replaces batteries for the elderly and disabled person within the District. This year we had twenty-five residents signed up. We conducted four business inspections; one was change in ownership, one conditional permit was modified to a long-term use permit and two new businesses.

 - Apparatus and Equipment
 - WT 1-1 repairs were completed by Hogan Manufacturing. The water tank was welded and sealed.
 - E 1-1 went to Righetti's in Stockton for a plugged EGR.
 - E1-2 went to Righetti's for a misfire. They replaced on injector and a fuel control module.
 - R 1-1 was having difficulty keeping the batteries charged, a new battery charger was installed and the problem appears to be resolved.

- Buildings and Grounds
 - We are continuing to gather information and bids for the bathroom addition and remodel project.
 - Two new lights have been installed in the breeze way of the station. We purchased the lights and Hogan Manufacturing provided labor and materials.
- San Joaquin County Fire Chief's Association
 - Meeting 12-2-20, meeting cancelled.
- San Joaquin County Radio Users Group
 - Meeting 11-18-20, meeting cancelled.
- Miscellaneous
 - The annual Christmas Toy Drive giveaway will take place on Monday, December 21, at a time to be announced. Due to COVID-19 restrictions the distribution will be a drive through format. This year we have a total of 39 families with 121 kids.
 - Escalon Fire personnel were given the opportunity to volunteer for the "jumpstart" phase of COVID-19 vaccines offered by San Joaquin County EMS/Public Health. One of our personnel volunteered and has received the first of two injections.

G. Chief's Report – January 2021

- Status of Fire Department
 - 107 calls for the month and 1164 for 2020.
- Training Division and Reserve/Volunteer Program
 - 12-1-2020 Drill (Annual Year Review and BBQ)
 - 12-9-2020 Drill (Hazmat Review and Meeting)
 - 12-17-2020 Drill (Water Supply and Pumping OPs)
 - With the continued issues the with pandemic most fire academies have been put on hold. Because of this it has been difficult to find qualified people for the reserve/volunteer program. It has been decided to lower the qualifications and to provide the required training. We have received 10 applications and will be interviewing on January 14.
- Fire Prevention
 - Received new business license application for new ownership of Escalon Gold Course. Annual Facility Inspection Checklist has been completed; any deficiencies were addressed and corrected. Driveway access road approval completed for a new construction on Sexton Road. Installation of two smoke detectors for a senior resident.
- Apparatus and Equipment
 - Nothing to report.

- Buildings and Grounds
 - Nothing to report.
- San Joaquin County Fire Chief's Association
 - Meeting 1-6-21, general business (via Web-Ex).
- San Joaquin County Radio Users Group
 - Meeting 12-16-20, meeting cancelled.
 -
- Miscellaneous
 - The annual Christmas Toy Drive giveaway will take place on Monday, December 21, at a time to be announced. Due to COVID-19 restrictions the distribution will be a drive through format. This year we have a total of 39 families with 121 kids.
 - Chief Mello attended a virtual labor law updated conducted by Terpstra-Henderson on Thursday, December 17.
 - The annual Christmas tree pickup on January 9 resulted in 230 trees sent to Lionudakis. BC Moe Silva has overseen this program the last several years.
 - Cal OES has teamed with the state EMS authority to deploy fire service Paramedics and EMT's to assist with the COVID hospital surge. The San Joaquin EMS Agency has authorized hospitals in San Joaquin County to employ and utilize Paramedics and EMT's. (attached)
 - We have begun the process of submitting for the current Assistance to Firefighters Grant (AFG). Once again, we are submitting for twenty-six portable radios at a total cost of \$81,330.35, of which our five-percent match would be \$4,065.52 we are also expectation to join a regional SCBA grant hosted by Lathrop-Manteca Fire District.
 - The District's new website went live in December. The address remains www.escalonfire.com. All the historical information from the old website have been archived.

H. Public Comment

- a. No public comment.

I. Closed Session

- a. Discuss Department Chain of Command
- b. Develop procedure for Employee grievances

DATED: _____

Respectfully submitted,

ATTEST: _____

Escalon Consolidated Fire Protection District
Profit & Loss Detail
 January 2021

1:52 PM
 02/03/21
 Cash Basis

Type	Date	Name	Memo	Original Amount	Paid Amount	Balance
Ordinary Income/Expense						
Income						
Communication						
Deposit	01/26/2021	Ayera Technologies	JAN - DEC 2021 TOWER SPACE RENT (12 MONTHS)	600.00	600.00	600.00
Total Communication						
Fire Facility Fee						
Deposit	01/26/2021	City of Escalon	OCT-DEC	63.04	63.04	63.04
Total Fire Facility Fee						
Fire Recovery Fee						
Deposit	01/06/2021	Fire Recover USA, ...	8/28/2020 STEVENS, DAN	371.25	371.25	371.25
Total Fire Recovery Fee						
Miscellaneous Income						
Deposit	01/06/2021	Dan Morris	1 SHIRT; 1 BEANIE	24.00	24.00	24.00
Deposit	01/29/2021	Misc.	PATCH DONATION	5.00	5.00	29.00
Deposit	01/29/2021	Misc.	PATCH DONATION	12.00	12.00	41.00
Deposit	01/29/2021	Misc.	ADDRESS PLATE	20.00	20.00	61.00
Deposit	01/29/2021	Misc.	ADDRESS PLATE	20.00	20.00	81.00
Deposit	01/29/2021	Joe Camara	UNIFORM HAT	20.00	20.00	101.00
Total Miscellaneous Income						
Property Tax						
Deposit	01/06/2021	County of San Joaq...	DEC 2020 ADV	664,264.53	664,264.53	664,264.53
Deposit	01/26/2021	County of San Joaq...	DEC 2020 BAL	35,554.68	35,554.68	699,819.21
Total Property Tax						
Total Income						
Expense						
Communications						
Bill	01/05/2021	Jive Communicatio...	MONTHLY SERVICE	379.67	379.67	379.67
Bill	01/05/2021	Verizon Wireless	MONTHLY SERVICE	77.09	77.09	456.76
Bill	01/05/2021	Emergency Reporti...	YEARLY SUBSCRIPTION FEE	2,799.79	2,799.79	3,256.55
Bill	01/13/2021	Joint Radio Users ...	DISP.FEE W/EMS;DISP.FEE W/OEMS;MEMBERFEE	2,127.20	2,127.20	5,383.75
Bill	01/25/2021	AT&T	MONTHLY SERVICES	100.75	100.75	5,484.50
Total Income						
Total Expense						
Total Income						
Total Expense						

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Type	Date	Name	Memo	Original Amount	Paid Amount	Balance
Bill	01/25/2021	Verizon Wireless	MONTHLY SERVICE	79.64	79.64	5,564.14
Total Communications						
Firefighter Safety Gear						
Bill	01/13/2021	Crescent Work & ...	VELCRO NAMETAPES	43.05	43.05	43.05
Bill	01/13/2021	L.N. Curtis and Sons	VELASCO TURNOUTS	2,621.56	2,621.56	2,664.61
Check	01/15/2021	Boot Barn	STEEL TOE WORK BOOTS	177.74	177.74	2,842.35
Total Firefighter Safety Gear						
Fuel						
Credit...	01/04/2021	Flying J	FUEL	34.00	34.00	34.00
Credit...	01/07/2021	Flying J	FUEL	35.00	35.00	69.00
Credit	01/12/2021	O'Reilly Automotiv...	QT FUEL MIX	-12.93	-12.93	56.07
Bill	01/12/2021	O'Reilly Automotiv...	I2X 1 QT 4 CYCL FUEL; 6 QT FUEL MIX	109.71	12.93	69.00
Credit...	01/12/2021	Flying J	FUEL	30.00	30.00	99.00
Bill	01/13/2021	Valley Pacific Petro...	FUEL	343.74	343.74	442.74
Bill	01/13/2021	O'Reilly Automotiv...	I2X 1 QT 4 CYCL FUEL; 6 QT FUEL MIX	109.71	96.78	539.52
Credit...	01/15/2021	Flying J	FUEL	32.00	32.00	571.52
Credit...	01/19/2021	Flying J	FUEL CC SERVICE CHARGE	2.11	2.11	573.63
Credit...	01/21/2021	Flying J	FUEL	37.00	37.00	610.63
Bill	01/25/2021	Valley Pacific Petro...	FUEL	405.57	405.57	1,016.20
Credit...	01/26/2021	Flying J	FUEL	25.00	25.00	1,041.20
Credit...	01/28/2021	Flying J	FUEL	24.00	24.00	1,065.20
Total Fuel						
Health Insurance						
Deposit	01/06/2021	Premier Access	REFUND 1/2 OF MAY	-532.59	-532.59	-532.59
Bill	01/13/2021	CaliforniaChoice B...	FEBRUARY 2021	9,039.13	9,039.13	8,506.54
Bill	01/25/2021	Sun Life Financial	FEBRUARY 2021	151.24	151.24	8,657.78
Total Health Insurance						
Household						
Bill	01/05/2021	Al's Certified Safe a...	ANNUAL MONITORING SERVICE/LONG RANGE RADIO LEASE	396.00	396.00	396.00
Bill	01/05/2021	Sutter Gould Medi...	PHYSICALS	527.00	527.00	923.00
Check	01/06/2021	Cosco	STORAGE TOTES	32.32	32.32	955.32
Check	01/11/2021	Starbucks	TREEPICK UP COFFEE	39.90	39.90	995.22
Bill	01/25/2021	Alhambra	MONTHLY SERVICES	74.28	74.28	1,069.50

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Type	Date	Name	Memo	Original Amount	Paid Amount	Balance
Bill	01/25/2021	Strand Ace Hardwa...	COOKWARE BRUSH; RAIN-X ANTI-FOG; SCRUB PADS; KILLZA...	97.58	97.58	1,167.08
Total Household						
Maintenance						
Bill	01/13/2021	L.N. Curtis and Sons	SCBA FLOW TESTING	2,560.00	2,560.00	2,560.00
Bill	01/13/2021	Les Schwab Tires	ENGINE 1-4 TIRE RADIAL REPAIR	40.25	40.25	2,600.25
Bill	01/13/2021	True Value Hardw...	3 OUTLET HD ADAPTER; NUTS; BOLTS; SCREWS	7.27	7.27	2,607.52
Bill	01/25/2021	O'Reilly Automotiv...	ENGINE 1-1 (CAPSULE)	17.80	17.80	2,625.32
Total Maintenance						
Maintenance Structure & Grounds						
Bill	01/25/2021	Central Sanitary Su...	FLOOR AND CEMENT CLEANER	57.15	57.15	57.15
Total Maintenance Structure & Grounds						
Memberships						
Bill	01/13/2021	California Emplo...	PREMIER MEMBER (2/2021-7/2021)	997.50	997.50	997.50
Total Memberships						
Office Expenses						
Bill	01/13/2021	Ricoh USA, Inc.	COPIER LEASE	202.67	202.67	202.67
Bill	01/13/2021	Ricoh USA, Inc. C...	B&W 305; COLOR 743	42.03	42.03	244.70
Check	01/15/2021	United States Post ...	STAMPS	55.00	55.00	299.70
Total Office Expenses						
Professional Services						
Bill	01/13/2021	Terpsura Henderson	GENERAL BUSINESS MATTERS	150.45	150.45	150.45
Bill	01/13/2021	Mid Valley IT	MONTHLY IT SERVICES	435.00	435.00	585.45
Total Professional Services						
Small Tools & Equipment						
Check	01/06/2021	The Home Depot	PRESSURE WASHER; VELCRO; HANGERS	413.57	413.57	413.57
Check	01/18/2021	Amazon	6PK 3VOLT BATTERIES	12.38	12.38	425.95
Check	01/19/2021	Amazon	6 PK LED ROAD FLARES EMERGENCY LIGHTS	35.55	35.55	461.50
Bill	01/25/2021	Modesto Welding ...	3 OXYGEN TANKS	65.00	65.00	526.50
Bill	01/25/2021	L.N. Curtis and Sons	CHAIN SET WITH CLEVIS LOCK AND HOOK (RECEIVED 1/22/21)	1,032.84	1,032.84	1,559.34
Deposit	01/25/2021	Amazon	6 PK LED ROAD FLARES EMERGENCY LIGHTS	-35.55	-35.55	1,523.79

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Type	Date	Name	Memo	Original Amount	Paid Amount	Balance
Check	01/25/2021	Amazon	6 PK LED ROAD FLARES EMERGENCY LIGHTS	35.55	35.55	1,559.34
		Total Small Tools & Equipment			1,559.34	1,559.34
		Structure Improvements				
Check	01/30/2021	Conexwest	MONTHLY STORAGE CONTAINER LEASE	85.12	85.12	85.12
		Total Structure Improvements			85.12	85.12
		Utilities				
Bill	01/05/2021	City of Escalon	MONTHLY SERVICE	171.32	171.32	171.32
Bill	01/05/2021	Charter Communic...	MONTHLY SERVICE	124.98	124.98	296.30
Bill	01/05/2021	Giltron Solid Waste	MONTHLY SERVICE	74.09	74.09	370.39
Bill	01/13/2021	PG&E 2	STATION 2	46.09	46.09	416.48
Bill	01/25/2021	PG&E 1	STATION 1	834.74	834.74	1,251.22
Bill	01/25/2021	Charter Communic...	MONTHLY SERVICE	124.98	124.98	1,376.20
Bill	01/25/2021	DIRECTV	MONTHLY SERVICE	142.99	142.99	1,519.19
		Total Utilities			1,519.19	1,519.19
		Workers Compensation Insurance				
Bill	01/05/2021	Fire Agencies Self L...	3RD QUARTER	15,752.00	15,752.00	15,752.00
		Total Workers Compensation Insurance			15,752.00	15,752.00
		Total Expense			42,777.32	42,777.32
		Net Ordinary Income			658,177.18	658,177.18
		Other Income/Expense				
		Other Income				
		Interest Credit				
Deposit	01/29/2021		Interest	98.95	98.95	98.95
		Total Interest Credit			98.95	98.95
		Total Other Income			98.95	98.95
		Net Other Income			98.95	98.95
		Net Income			658,276.13	658,276.13

Escalon Consolidated Fire Protection District
Profit & Loss Budget vs. Actual 2020
July 2020 through January 2021

	<u>Jul '20 - Jan 21</u>	<u>Budget</u>	<u>\$ Over Budget</u>	<u>% of Budget</u>
Ordinary Income/Expense				
Expense				
Auditor Direct Assessment	0.00	0.00	0.00	0.0%
Cafeteria Plan Medical	0.00	3,600.00	-3,600.00	0.0%
Capital Expense	3,128.09	152,242.70	-149,114.61	2.1%
Communications	25,551.37	36,000.00	-10,448.63	71.0%
Contingencies	0.00	65,000.00	-65,000.00	0.0%
Employee Expenses	0.00	854,750.00	-854,750.00	0.0%
Fire Prevention	1,316.22	2,500.00	-1,183.78	52.6%
Firefighter Safety Gear	8,361.36	13,500.00	-5,138.64	61.9%
Fuel	7,252.62	15,000.00	-7,747.38	48.4%
Health Insurance	68,974.38	122,000.00	-53,025.62	56.5%
Household	8,945.54	22,000.00	-13,054.46	40.7%
Insurance Casualty	23,775.00	25,000.00	-1,225.00	95.1%
Maintenance	22,470.90	25,000.00	-2,529.10	89.9%
Maintenance Structure & Groun...	2,994.45	8,000.00	-5,005.55	37.4%
Medi-Care	0.00	8,900.00	-8,900.00	0.0%
Memberships	2,145.00	2,200.00	-55.00	97.5%
Miscellaneous Expense	5.00	2,000.00	-1,995.00	0.3%
New Equipment	641.78	7,500.00	-6,858.22	8.6%
Office Expenses	5,122.59	10,000.00	-4,877.41	51.2%
Overtime	0.00	55,000.00	-55,000.00	0.0%
Professional Services	15,111.08	20,000.00	-4,888.92	75.6%
Publications and Legal Notices	0.00	500.00	-500.00	0.0%
Retirement	50,169.10	58,700.00	-8,530.90	85.5%
Salaries	423,459.74	558,500.00	-135,040.26	75.8%
Small Tools & Equipment	5,895.74	7,000.00	-1,104.26	84.2%
Social Security (FICA)	0.00	38,050.00	-38,050.00	0.0%
Special Accounting Reports	3,324.18	2,000.00	1,324.18	166.2%
Special Departmental Expenses	1,352.26	6,000.00	-4,647.74	22.5%
Structure Improvements	2,399.97	5,000.00	-2,600.03	48.0%
Tax Administration Charges	0.00	17,000.00	-17,000.00	0.0%
Taxes & Assessments	0.00	1,000.00	-1,000.00	0.0%
Training & Transportation	0.00	12,000.00	-12,000.00	0.0%
Unemployment Comp EDD	0.00	10,000.00	-10,000.00	0.0%
Utilites	12,283.09	14,000.00	-1,716.91	87.7%
Workers Compensation Insuran...	47,256.00	68,000.00	-20,744.00	69.5%
Total Expense	741,935.46	2,247,942.70	-1,506,007.24	33.0%
Net Ordinary Income	-741,935.46	-2,247,942.70	1,506,007.24	33.0%
Net Income	-741,935.46	-2,247,942.70	1,506,007.24	33.0%

Analysis of Escalon Consolidated Fire Department Jan 26, 2021 Tower Collapse

Background

Escalon Consolidated Fire Department's rooftop tower, estimated to be over 30 years old and of undetermined origin, fell over in the severe windstorm on the late evening of Tuesday, January 26, 2021. Per the Stockton, CA weather station¹, sustained winds in Stanislaus area at midnight were 44-mph with gusts of 54-mph.

Ayera Technologies, Inc. is a Modesto-based Wireless Internet Service Provider and was a tenant on the Tower, with a lease agreement effective June 2015. Ayera has a staff of 22 employees, including 8 technicians. The CEO and all technicians are Comtrain Competent or Authorized Climber/Rescuer Certified and follow stringent safety and best practices when working at heights. Ayera also has one Comtrain Tower Safety and Rescuer Certified Instructor on staff.

Author of this document, Mathew Ford, is the founder and CEO of Ayera Technologies, Inc. He has a B.S. in Mechanical Engineering from U.C. Davis, and has been CEO since the company founding in 2001.

Please note that Ayera Technologies is not an Engineering firm, and that conclusions and recommendations derived in this report are its own opinions based on observations. Ayera, if Escalon Consolidated Fire Department deems it necessary, encourages it to engage a licensed Engineering firm for further full inspection and analysis.

Tower Details

Tower appeared to be of type Rohn 25G style and had a height of 100' above rooftop (see photo set A). Age of tower is unclear, but from conversations with Department staff appears to have been over 30 years old. Tower sat atop a steel, 18" square base plate located on the center of the garage bay rooftop and held in place with four sealed anchor screws. Tower had four guy anchor points (90 degrees offset) from one another, anchored into the ~12" thick concrete parapet walls at each corner of the bay garage, each ~40' from Tower base. Each anchor point used a single shared guy anchor plate (see photo set B). Four 3/16" galvanized guy wires were attached to each guy anchor point and attached to the tower at the 25', 50', 75', and 100' levels (16 total guy wires).

Analysis of a baseline Rohn pre-engineered, 100' guyed tower with three anchor points (120 degree offset) 80' feet from base, and three guy wires located at 31', 63', and 95' (9 total guy wires). 90mph Rev G, 70-mph Rev F, Rohn specifications² under this configuration, allowed EPA is 18.4 sqft at 100' level. The additional set of guy wires on the Tower and four vs. three guy anchor points typically add additional load-bearing strength and thus additional EPA capacity.

Inspection after Failure

Ayera was called by the Escalon Fire Department on the night of Jan 27, 2021, and performed the emergency demolition and removal of fallen tower. We also located the apparent source of the failure: the southern most guy anchor point (see photo C). Specifically, there appeared to be a torsional stress

fracture of the 5/8" threaded rod that connected to the guy plate to the wall at approximately 1/2" inside the concrete parapet wall. Fracture was clean with no apparent necking or other longitudinal damage visible, which indicated that a sudden and catastrophic torsional fracture occurred. There was sealant around all the guy plates' threaded rods at the wall entry which, while keeping water off the rod and out of the wall penetration, would have prevented observation or inspection of that fracture point location.

Ayera cut up and preserved the tower sections on-site as well as the failed guy plate for future analysis if needed. The remaining portion of the fractured 5/8" anchor rod was left in the wall.

Preliminary Conclusion

Several notable points can be inferred:

1. Given the failure was a clean torsional stress fracture of the 5/8" rod holding the guy anchor plate, this indicates that the metal in the rod must have been subject to long-term cyclical stresses which hardened and made the material more brittle and weakened.
2. Guy plates are designed to channel the guy wire loads linearly into the connecting rod, and thus are typically placed in line with the direction of the guy wires. This ensures the tensile force in the connecting rod are spread along the length of the rod and minimize twisting forces.

The rod that failed was connected perpendicular through the Southwest parapet wall which resulted in a 33 degree angle from the rod to the tower:



$$\sin(a) = 22' / 40' = 0.55; a = 33.3 \text{ degrees}$$

This results in some perpendicular (left/bending) forces placed on the rod.

3. Due to building dimensions, guy anchor points were located 40' from tower instead of the recommended 80' away for a 100' tall tower (per Rohn specifications²). This results in a steeper guy wire angle of 32°, 51°, 62°, and 68° (versus 17°, 32°, 43°, and 51°) at the four tower connection points. This results in perpendicular (up/bending) forces on the rod between 19% and 82% greater depending on tower anchor point location.

These up-and-over forces on the rod caused at least some torsional stresses within the rod. Over many years, we suspect this slight twisting action likely hardened and weakened the strength of the rod. When subjected to the severe, 54+ mph Southeast winds on Tuesday evening, the stress became too much for the rod metal, resulting in the sudden fracture failure.

Also, in our opinion for future Tower rebuild consideration, having a multiple distributed anchor points at each corner (for example one anchor rod for 25' and 75' levels, and another for the 50' and 100' levels) would have likely saved the Tower, even if one of the anchor rods did fail.

Photos

Photo Set A – Original Tower (photos taken December 2020) Top and Bottom

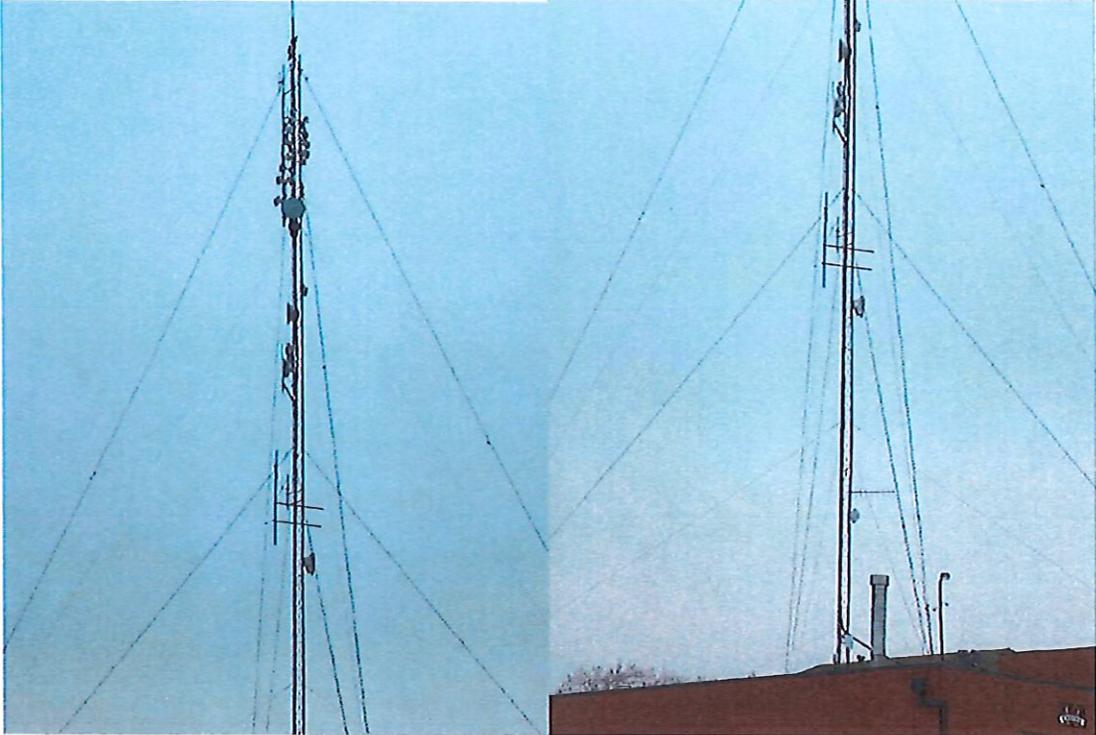
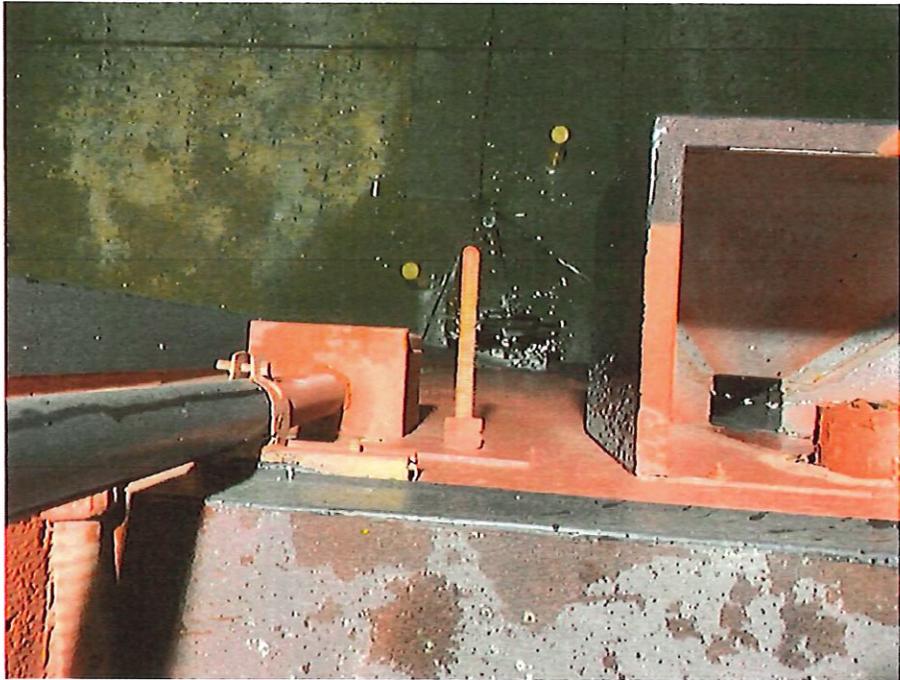


Photo Set B – Guy Anchor and rod pic.

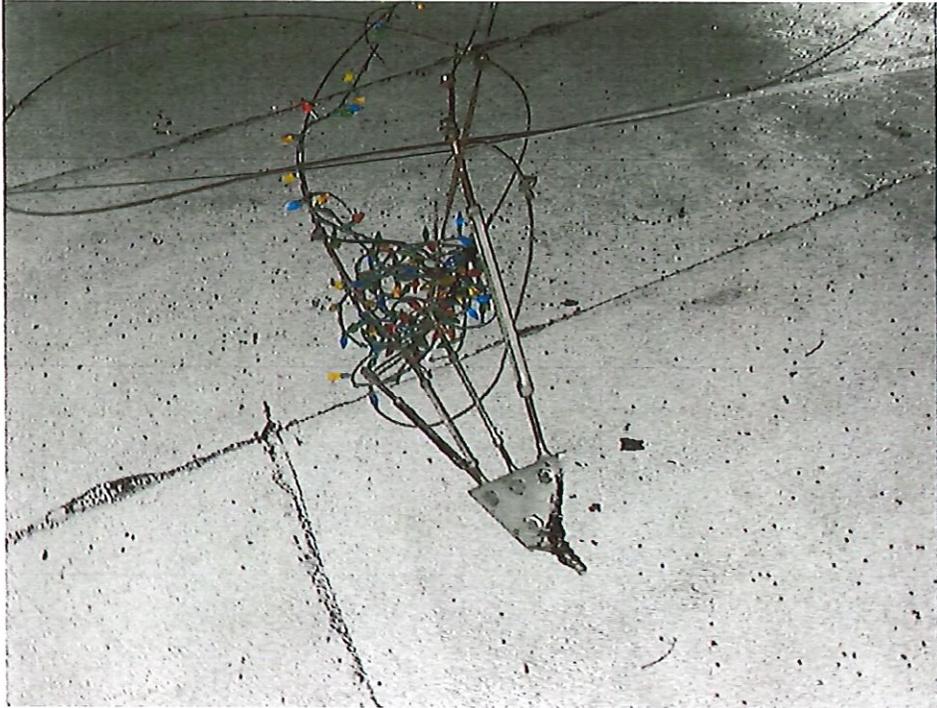


One of the remaining attached guy anchor plates



Threaded 5/8" anchor rod (other side of wall)

Photo Set C – Failed Guy Anchor/Wall pics.



Failed Guy Anchor plate



Wall location of failed Guy anchor plate



Close up of failed 5/8" anchor rod attached to guy anchor plate

Footnotes:

1. Stockton Weather Station, <https://www.wunderground.com/history>
2. Rohn Guyed Tower Specifications Guide, http://www.rohnet.com/files/2015_Rohn_Full_Catalog.pdf#page=26

Escalon Fire Department Tower Replacement (1/30/2021)

Background

Following the catastrophic loss of the 30+ year old 100' tall rooftop tower in high winds on Tuesday, January 26, 2021, Ayera worked several 16 hour days to erect a replacement tower to resume broadband, VoIP (including e911), and other critical services back to its Escalon area customers.

Ayera Technologies, Inc. is a Modesto-based Wireless Internet Service Provider and was a tenant on the Tower, with a lease agreement effective June 2015. Ayera has a staff of 22 employees, including 8 technicians. The CEO and all technicians are Comtrain Competent or Authorized Climber/Rescuer Certified and follow stringent safety and best practices when working at heights. Ayera also has one Comtrain Tower Safety and Rescuer Certified Instructor on staff.

Author of this document, Mathew Ford, is the founder and CEO of Ayera Technologies, Inc. He has a B.S. in Mechanical Engineering from U.C. Davis, and has been CEO since the company founding in 2001.

Please note that Ayera Technologies is not an Engineering firm, and that calculations and analysis in this report are based on fundamental data collected and vendor specifications. Escalon Consolidated Fire Department is encouraged to engage a licensed Engineering firm for further full inspection and analysis if it deems it necessary.

Replacement Tower

Structural portion of tower rebuild was performed on Thursday, January 28, 2021 and Friday, January 29, 2021, and mounting of the replacement antennas and cabling was completed on Saturday, January 30, 2021. Ayera had all parts and materials in stock. Tower may be considered temporary (if Escalon Fire Department elects to erect a different replacement tower in the future) or permanent (in which case Ayera would consider donating new tower to the Department). The following are the specifications of the tower that was rebuilt:

Type:	Rohn 25G
Height:	80'
Base:	Rohn 25GBRM non-penetrating
Guy wires:	3/16" Stainless Steel 7x19, 3,565 lbs breaking strength, 713 lbs working load limit
Total Weight:	~2,200 lbs (includes base, ballasts, tower, guy wire, and all antennas)

Base/Foundation

Ayera elected to use a pre-engineered Rohn 25GBRM non-penetrating base as the foundation base for the tower to:

1. Avoid making any roof penetrations,
2. Allow the tower, if deemed temporary, to be easily disassembled without any structural remnants
3. Give additional lateral and torque stability, including increasing additional Antenna Effective Projected Area (EPA) capacity. It also spreads the weight of the base and tower evenly across a much wider area of the roof.

The center of the base was located approximately 10 feet further South West on the rooftop than the original tower was located. This allows the wall guy anchor distances to be more in line with Rohn recommendations and increases the horizontal support capability to the guy anchor points.

A 3/8" thick rubber mat was placed on the rooftop to protect roof surface from the non-penetrating mount, and thirty-two cinder blocks (~40 lbs each) were used as ballast weight for the base. Weight of base and tower should be fairly evenly distributed across the 100 sqft base area.

Rohn 25GBRM engineering specifications may be found as follows:

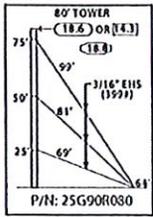
http://www.rohnnet.com/files/2015_Rohn_Full_Catalog.pdf#page=273

- Adds 10 sqft EPA at 20' (200 sqft-ft)

Tower

Rohn minimum build specifications for an 80' guyed tower under 90mph Exp B, Rev G (see: http://www.rohnnet.com/files/2015_Rohn_Full_Catalog.pdf#page=26) are:

- Three guy anchor points, 120 degrees apart, 64' from base, each with three 3/16" guy wires back to tower at 25', 50' and 75'.
- Guy tensioning to 399 lbf (initial)
- EPA of 18.6 sqft at 80' (1,488 sqft-ft);



TOWER PARTS INCLUDED	25G	25AG2	BPC25G	GA25GD	FDNS	
					BASE	ANCHOR
	7	1	1	3	CB1G	AB2
GUYS & CONNECTIONS INCLUDED	3/16EHS	BG2142	5/16THH	1/2TBE&J	TBSAFETY	
	800'	18	18	9	3	
ANCHORS & GROUNDING INCLUDED	GAC315GTOP	AGK1GGX	BGK3GGX	CPC.5/1.75	3/4x12PP	
	3	1	3	3	1	

80' ROHN 25G
 All parts shown in table
 are included when ordering
 Part No: 25G90R080

Photos of new tower:



Guy wire and Guy Anchor Points

Ayera used 3/16" stainless steel 7x19 guy wire instead of galvanized wire for extra corrosion resistance. 5/8" galvanized anchor rods/eye bolts were used, fastened completely through the 1 foot thick concrete parapet walls.

Ayera elected to use four instead of three anchor locations (90 degrees apart) for additional load bearing stability, and add a Rohn 25G torque arm stabilizer assembly at the 50' level to cross-guy the tower to minimize twisting and torsional stresses. This doubles the guy wires at the 50' level from three to six, providing even more stability and strength to the tower.

In addition, Ayera installed a total of eight independent guy anchor points (two for each 90 degree set of guy wires), with one set tying back to the 30' and 75' tower anchor connections, and the second securing the 50' level torque arm anchor connection. This should provide tower support in the case of a catastrophic failure of any single anchor point or guy wire.



Antennas

Ayera installed the following replacement antennas on the tower:

1. Siklu 2' Dish (and EH5500 radio) to S2700 – Lone Tree Grain (main site feed),
 - a. Antenna (https://ayera.com/files/DS_EH-ANT-2ft-DL5_Rev_B0.pdf)
 - i. Round, 26.7" Dia, EPA: 3.9-sqft
 - ii. Weight: 24-lbs (includes radio)
 - iii. Tower Position: 60'
 - iv. Azimuth: 357 degrees (North), 2.2 miles
 - b. Radio: EtherHaul 5500FD (https://ayera.com/files/DataSheet5500FD_08.pdf)
2. Ubiquiti AF24 dish/radio to S2600 – GoldRiver Orchards
 - a. Antenna/Integrated Radio (https://dl.ubnt.com/datasheets/airfiber/airFiber_DS.pdf):
 - i. Round 25.6" Dia, EPA: 3.6-sqft,
 - ii. Weight: 23-lbs
 - iii. Tower position: 70'
 - iv. Azimuth: 91 degrees (East), 3.3 miles
3. Ubiquiti AF24 dish/radio to S2300 – Rocha Bros
 - a. Antenna (https://dl.ubnt.com/datasheets/airfiber/airFiber_DS.pdf):
 - i. Round 25.6" Dia, EPA: 3.6-sqft,
 - ii. Weight: 23-lbs
 - iii. Tower position: 47'
 - iv. Azimuth: 158 degrees (SouthEast), 1.6 miles
4. Ubiquiti AF24 dish/radio to S2650 – Valley Home Fire Dept
 - a. Antenna (https://dl.ubnt.com/datasheets/airfiber/airFiber_DS.pdf):
 - i. Round 25.6" Dia, EPA: 3.6-sqft,
 - ii. Weight: 23-lbs
 - iii. Tower position: 65'
 - iv. Azimuth: 61 degrees (NorthEast), 5.0 miles
5. North RF Elements 30deg Horn Cluster
 - a. 4 x Antenna (<https://rfelements.com/assets/Uploads/Datasheet-HG3-CC-A30.pdf>)
 - i. Oval 11.3"x 8.6", EPA: 0.5-sqft ea
 - ii. Weight: 10-lbs (11-lbs with Ubiquiti AC Prism radio)
 - iii. Tower Position: 75' (N Leg of tower)
6. South-West RF Elements 30deg Horn Cluster (specs same as #5, SW Leg of tower)
7. South-East RF Elements 30deg Horn Cluster (specs same as #5, SE Leg of tower)
8. Ubiquiti Omni (low)
 - a. Antenna (https://dl.ubnt.com/datasheets/airmaxomni/amo_ds_web.pdf)
 - i. Whip 2.5" wide, 31.5" long, EPA: 0.5 sqft,
 - ii. Weight: < 2-lbs
 - iii. Tower position: 28'
 - b. Radio: Prism AC
(https://dl.ubnt.com/datasheets/RocketAC/Rocket_Prism_AC_Gen2_DS.pdf), Wt: < 1-lb
9. Ubiquiti AF60 (https://dl.ubnt.com/ds/af60-lr_ds)
 - a. Antenna/Radio
 - i. Round 16", EPA: 1.4 sqft,
 - ii. Weight: 6-lbs
 - iii. Tower position: 45'

Load Calculations:

Available		
1. Base Tower 3guy Spec 80'	18.6-sqft x 80' =	1,488-sqft-ft
2. 4/3 guy anchor sets + 2x points	+33% =	496-sqft-ft
3. 50' Torque bar	+10% (estimate)	149-sqft-ft
4. Rohn 25GBRM Base Spec	10-sqft x 20' =	200-sqft-ft
	TOTAL:	2,333-sqft-ft

Used		
1. Siklu 2' S1700	3.9-sqft x 60' =	234-sqft-ft
2. AF24 S2600	3.6-sqft x 70' =	252-sqft-ft
3. AF24 S2300	3.6-sqft x 47' =	169-sqft-ft
4. AF24 S2650	3.6-sqft x 65' =	234-sqft-ft
5. RFE Cluster 1	4.0-sqft x 75' =	300-sqft-ft
6. RFE Cluster 2	4.0-sqft x 75' =	300-sqft-ft
7. RFE Cluster 3	(same level as 5, 6 no add'l EPA for a given wind direction)	
8. Omni 1	0.5-sqft x 28' =	14-sqft-ft
9. AF60 A	1.4-sqft x 45' =	46-sqft-ft
	TOTAL:	1,549-sqft-ft

Weight

• 26GBRM Base + Ballasts:	332-lbs + 1,280-lbs
• 25G Tower (80'), 37-lbs ea:	296-lbs
• Guy wire (~1000' @ 0.065-lbs/ft):	65-lbs
• Antennas:	233-lbs
	TOTAL 2,206-lbs

Chief's Report

February 2021

Emergency Responses

January 2021

- Medical Aid 34
- Public Service Assist 5
- Vehicle Accidents 4
- Vegetation Fires 5
- Structure Fires 6
- Vehicle Fires 1
- Other Incidents 21

○ Total For Month: 76

Total Jan 20: 83

○ Total for 2021: 76

Total for 2020: 83

Prevention

- Received two variance requests for existing projects. One is a temporary security fence on the existing Roosevelt project, the second a building expansion on Ullrey. Paddack Mobile Manor is under new ownership.

Apparatus and Equipment

- The 2021 Ford Expedition was received by Tom Hillier Ford and it has been transferred to Emergency Vehicle Outfitters (EVO) in Elk Grove for emergency equipment installation and lettering.

Buildings and Grounds

- We are working with Cromwell & Ney, VFIS and Gladfetter Insurance on claims from the radio tower.

San Joaquin County Fire Chief's Association

- Meeting 2-3-21, general business (via Web-Ex).

San Joaquin County Radio Users Group

- Meeting 1-20-21, general business.

Miscellaneous

- We have submitted for the current Assistance to Firefighters Grant (AFG) for portable radios. We have also joined a regional SCBA grant hosted by Lathrop-Manteca Fire District.
- We will be receiving \$ 7,709.65 from San Joaquin County to offset expenses for COVID-19. Thanks to Supervisor Chuck Winn and Chief of Staff Denise Warmerdam for their assistance.

- We currently have eight reserve/volunteer firefighters in the beginning stages of background investigations.

2020 INCIDENT BREAKDOWN

Month	Total	Medical	MVA	Fires	Misc.
Jan.	83	51	6	9	17
Feb.	109	61	9	6	33
Mar.	88	62	6	6	14
Apr.	79	52	3	6	18
May	70	38	7	7	18
Jun.	106	62	6	14	24
Jul.	98	53	11	20	14
Aug.	123	65	16	14	28
Sep.	105	70	12	7	16
Oct.	104	63	14	3	24
Nov.	97	58	10	8	21
Dec.	107	70	5	9	23
Total	1,169	705	105	109	250

Busiest Month: August (123)

Slowest Month: May (70)

Percentage of Medical Aids: 60.3%

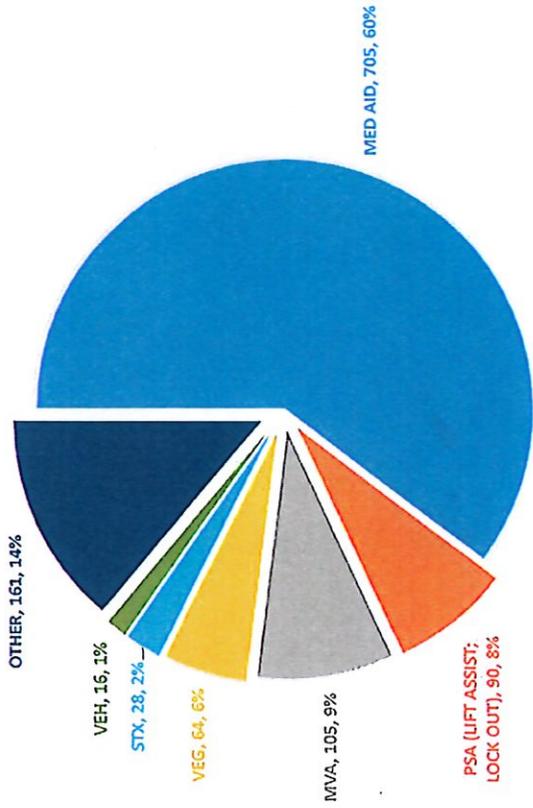
Busiest Month for Fires: July (20)

Busiest Month for MVA's: August (16)

Busiest Month for Medical Aids: September/December (70)

Total Incidents for 2019: 1,308*Record

2020 CALL TYPES



2020 Monthly Call Totals

