

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



September 17, 2021

CA2021-919

Mike Stanley  
Technical Operations Manager  
Wave Broadband - South  
200 Paul Ave., Suite 301  
San Francisco, CA 94124

**SUBJECT:** Communications Infrastructure Provider (CIP) Audit of Wave Broadband – San Francisco and Peninsula

Dear Mr. Stanley:

On behalf of the Electric Safety and Reliability Branch (ESRB) of the California Public Utilities Commission, Raymond Cho and Emiliano Solorio conducted the field inspection of the CIP audit of Wave Broadband (Wave) from June 28 through June 30, 2021. In addition to the field inspections of Wave's facilities in San Francisco and the Peninsula area, the audit included a review of Wave's records for the same areas.

During the audit, ESRB staff identified violations of one or more General Orders. A copy of the audit findings listed in Section II and IV is enclosed. Please provide a response no later than October 15, 2021, by electronic copy of all remedial actions to correct the violations and preventive measures to prevent the recurrence of all deficiencies taken by Wave. The response should indicate the date of the remedial actions and preventive measures completed. For any outstanding items not addressed, please provide the projected completion dates that Wave plans to address them.

If you have any questions concerning this audit, please contact me at (415) 703-2236 or [raymond.cho@cpuc.ca.gov](mailto:raymond.cho@cpuc.ca.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Banu Acimis".

Banu Acimis, P.E.  
Program and Project Supervisor  
Electric Safety and Reliability Branch  
Safety and Enforcement Division  
California Public Utilities Commission

Enclosure: CPUC Audit Findings

Cc: Lee Palmer, Director, Safety and Enforcement Division, CPUC

Nika Kjensli, Program Manager, ESRB, SED, CPUC  
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**CPUC COMMUNICATION INFRASTRUCTURE PROVIDER (CIP)**  
**AUDIT FINDINGS OF WAVE BROADBAND**  
**SAN FRANCISCO AND PENINSULA**

**I. Records Review**

During the audit, ESRB staff reviewed the following records from Wave:

- Fiber Design & Construction (FDC)-CM10 General Order (GO) Plant Inspections
- FDC-FC16 GO Plant Inspection Flow
- Two GO 95 Presentations for Technicians
- FDC CA Pole Relocation Tracker Excel Workbook which included tabs for Bay Pole Relocation, Bay FDC CA Plant Inspection, Customer Complaints, 60 Day Legal Notification and Service Drop.
- GO 95 and 128 Infraction Submittal Form

**II. Records Review Violations**

ESRB staff identified the following violations during the records review portion of the audit:

**1. GO 95, Rule 18B – Maintenance Programs** states in part:

*“Each company (including electric utilities and communications companies) shall establish and implement an auditable maintenance program for its facilities and lines for the purpose of ensuring that they are in good condition so as to conform to these rules. Each company must describe in its auditable maintenance program the required qualifications for the company representatives who perform inspections and/or who schedule corrective actions. Companies that are subject to GO 165 may maintain procedures for conducting inspections and maintenance activities in compliance with this rule and with GO 165.*

*The auditable maintenance program must include, at a minimum, records that show the date of the inspection, type of equipment/facility inspected, findings, and a timeline for corrective actions to be taken following the identification of a potential violation of GO 95 or a Safety Hazard on the company’s facilities.”*

Wave did not provide documentation that demonstrates the existence of an auditable maintenance program.

**2. GO 95, Rule 18-B(1) – Maintenance Programs** states in part:

*“Companies shall undertake corrective actions within the time periods stated for each of the priority levels set forth below.*

*Scheduling of corrective actions within the time periods below may be based on additional factors, including the following factors, as appropriate:*

- *Type of facility or equipment;*
- *Location, including whether the Safety Hazard or potential violation is located in the High Fire-Threat District;*
- *Accessibility;*
- *Climate;*
- *Direct or potential impact on operations, customers, electrical company workers, communications workers, and the general public.”*

Upon review of Wave’s Bay FDC CA Plant Inspection excel spreadsheet, ESRB found that Wave did not assign priority levels for its work orders or RT Tickets. Therefore, Wave did not demonstrate that it prioritizes or schedules corrective actions associated with potential violations of GO 95 and in accordance with GO 95, Rule 18-B(1).

**3. GO 95, Rule 18A – Resolution of Potential Violations of General Order 95 and Safety Hazards** states in part:

*“(3) If a company, while performing inspections of its facilities, discovers a Safety Hazard(s) on or near a communications facility or electric facility involving another company, the inspecting company shall notify the other entity of such Safety Hazard(s) no later than ten (10) business days after the discovery.*

*(4) To the extent a company that has a notification requirement under (2) or (3) above cannot determine the facility owner/operator, it shall contact the pole owner(s) within ten (10) business days if the subject of the notification is a Safety Hazard, or otherwise within a reasonable amount of time not to exceed 180 days after discovery. The notified pole owner(s) shall be responsible for promptly (normally not to exceed five business days) notifying the company owning/operating the facility if the subject of the notification is a Safety Hazard, or otherwise within a reasonable amount of time not to exceed 180 days, after being notified of the potential violation of GO 95”*

Wave did not provide records of outgoing Safety Hazard notifications, nor did it state if any exists.

**4. GO 95, Rule 80.1A(1) – Inspection Requirements for Joint-Use Poles in High Fire-Threat District** states in part:

*“In Tiers 2 and 3 of the High Fire-Threat District, inspection intervals for (i) Communication Lines located on Joint Use Poles (see Rule 21.8) that contain Supply Circuits (see Rule 20.6-D), and (ii) Communication Lines attached to a pole that is within three spans of a Joint Use Pole with Supply Circuits, shall not exceed the time specified in the following Table.”*

Inspection	Tier 2	Tier 3
Patrol	2 Years	1 Year
Detailed	10 Years	5 Years

Wave did not provide any records regarding completed inspections in Tiers 2 and 3 High Fire Threat Districts (HFTD). Therefore, Wave failed to meet the patrol and inspection frequency requirements for its facilities in HFTDs.

**5. GO 95, Rule 80.1A(1) – Inspection Requirements for Joint-Use Poles in High Fire-Threat District** states in part:

*“Each company’s procedures shall describe (i) the methodology used to ensure that all Communication Lines are subject to the required inspections, and (ii) the procedures used for specifying what problems should be identified by the inspections. The procedures used for specifying what problems should be identified by the inspections shall include a checklist for patrol inspections.”*

Wave did not provide procedures describing its inspection methodology to ensure that all communication lines are subject to the required inspections, nor did it provide procedures used for specifying what problems should be identified by its inspectors.

**6. GO 95, Rule 80.1A(2) – Statewide Inspection Requirements** states in part:

*“Each company shall prepare, follow, and modify as necessary, procedures for conducting patrol or detailed inspections for all of its Communication Lines throughout the State. Consistent with Rule 31.2, the type, frequency and thoroughness of inspections shall be based upon the following factors:*

- *Fire threat*
- *Proximity to overhead power line facilities*
- *Terrain*
- *Accessibility*
- *Location, including whether the Communications Lines are located in the High Fire-Threat District”*

**Rule 80.1A(2)** also states:

*“Each company’s procedures shall describe (i) the methodology used to ensure that all Communication Lines are subject to the required inspections, and (ii) the procedures used for specifying what problems should be identified by the inspections. The procedures used for specifying what problems should be identified by the inspections shall include a checklist for patrol inspections.”*

Wave did not provide procedures related to conducting patrols or detailed inspections for all of its communication lines throughout the state.

**7. GO 95, Rule 80.1.A.(4) – Record Keeping** states:

*“Each company shall maintain records for at least ten (10) years that provide the following information for each facility subject to this rule: The location of the facility, the date of each inspection of the facility, the results of each inspection, the personnel who performed each inspection, the date and description of each corrective action, and the personnel who performed each correction action. Commission staff shall be permitted to inspect records consistent with Public Utilities Code Section 314 (a).”*

Wave’s documented inspection spreadsheet contained blank values in the “Issued By” column and was missing information regarding the personnel who performed each corrective action. Therefore, Wave failed to maintain complete patrol and inspection records.

**8. GO 95, Rule 80.1B – Intrusive Inspections in the High Fire-Threat District** states in part:

*“Wood poles in Tier 3 of the High Fire-Threat District that support only Communication Lines or equipment shall be intrusively inspected in accordance with the schedule established in General Order 165 if they are:*

- Interset between joint-use poles supporting supply lines in Southern California.*
- Within three spans of a joint-use pole supporting supply lines in Southern California.*
- Within one span of a joint-use pole supporting supply lines in Northern California.*

*For the purpose of this rule, ‘Southern California’ is defined as the following: Imperial, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura Counties. ‘Northern California’ is defined as all other counties in California.”*

**GO 95 Rule 80.B** also states:

*“CIPs shall maintain records for the life of the pole that provide the following information for each wood pole subject to this rule: The location of the pole, the date of each intrusive inspection, the results of each inspection, the personnel who performed*

*each intrusive inspection, the date and description of each corrective action, and the personnel who performed each correction action. Commission staff may inspect records consistent with Public Utilities Code Section 314(a).”*

Wave did not provide intrusive inspection records for poles in HFTDs pursuant to Rule 80.1B.

### III. Field Inspection

From June 28 through June 30, 2021, ESRB staff inspected the following facilities:

<b>Location</b>	<b>Facility Number</b>	<b>Facility Type</b>	<b>Address, City</b>
1	110067282	Pole	1100 Rosedale Ave, Burlingame
2	110067281	Pole	Burlingame
3	110067279	Pole	1101 Clovelly Ln, Burlingame
4	120179491	Pole	California Dr and Mills Ave, Burlingame
5	110502526	Pole	1201 Mills Ave, Burlingame
6	NA	Pole	1201 Oak Grove Ave, Burlingame
7	119071116	Pole	Bellevue Ave and El Camino Real, Burlingame
8	110071106	Pole	NA
9	NA	Pole	1469 Bellevue Ave, Burlingame
10	NA	Pole	1456 Bellevue Ave, Burlingame
11	110071107	Pole	1435 Bellevue Ave, Burlingame
12	110071109	Pole	1441 Bellevue Ave, Burlingame
13	NA	Pole	500 El Camino Real, Burlingame
14	110074692	Pole	Howard Ave and El Camino Real, Burlingame
15	NA	Pole	150 and 120 El Camino Real, Burlingame
16	NA	Pole	1501 Cypress Ave, Burlingame
17	120135371	Pole	101 Lorton Ave, Burlingame
18	NA	Pole	125 Park Rd, Burlingame
19	120929736	Pole	Across from 125 Park Rd, Burlingame
20	110065746	Pole	809 Rollins Rd, Burlingame
21	110074456	Pole	1135 Amphlett Blvd, San Mateo
22	110074457	Pole	1145 North Humboldt St, San Mateo
23	110074458	Pole	1130 North Humboldt St, San Mateo
24	110074459	Pole	Howard Ave and North Humboldt St, San Mateo

<b>Location</b>	<b>Facility Number</b>	<b>Facility Type</b>	<b>Address, City</b>
25	110074435	Pole	937 Amphlett Blvd, San Mateo
26	110074432	Pole	917 Amphlett Blvd, San Mateo
27	110413555	Pole	850 El Camino Real, San Mateo
28	110074645	Pole	150 Warren Rd, San Mateo
29	110074640	Pole	186 Warren Rd, San Mateo
30	NA	Pole	170 Warren Rd, San Mateo
31	110075923	Pole	316 North El Camino Real, San Mateo
32	110075924	Pole	316 North El Camino Real, San Mateo
33	NA	Pole	600 San Mateo Dr, San Mateo
34	NA	Pole	532 San Mateo Dr, San Mateo
35	NA	Pole	1 pole East of 532 San Mateo Dr, San Mateo
36	NA	Pole	318 Grand Blvd, San Mateo
37	NA	Pole	340 Grand Blvd, San Mateo
38	NA	Pole	401 Los Gatos Way, San Mateo
39	NA	Conductors	Between 3817 and 3821 Pasadena Dr, San Mateo
40	NA	Pole	3613 Pasadena Dr, San Mateo
41	120146242	Pole	Rear of 165 Constitution Dr, Menlo Park
42	NA	Pole	1614 Hudson St, Redwood City
43	NA	Conductors	Between 1566 and 1568 Hudson St, Redwood City
44	NA	Pole	599 Edgewood Dr, Redwood City
45	NA	Pole	Rear of 3001 Los Prados, Redwood City
46	NA	Pole	1776 Rex St, San Mateo
47	110068583	Pole	1145 South Humboldt St, San Mateo
48	110068584	Pole	Corner of 1145 South Humboldt St, San Mateo
49	110068585	Pole	943 South Humboldt St, San Mateo
50	NA	Pole	949 East Grant Place, San Mateo
51	120180323	Pole	384 Chester St, Daly City
52	110014035	Pole	354 Chester St, Daly City
53	110024680	Pole	330 Chester St, Daly City
54	110017493	Pole	24 Kempton Ave, San Francisco
55	NA	Pole	36 Kempton Ave, San Francisco
56	110017491	Pole	72 Kempton Ave, San Francisco



Location	Facility Number	Facility Type	Address, City
57	110040444	Pole	414 Lakeview Ave, San Francisco
58	110040426	Pole	444 Lakeview Ave, San Francisco
59	811233	Pole	Lakeview Ave and Lee Ave, San Francisco
60	110025666	Pole	1343 Geneva Ave to Prague St, San Francisco
61	110011291	Pole	1542 Geneva Ave, San Francisco
62	110467343	Pole	Geneva Ave, San Francisco
63	110534191	Pole	1629 Geneva Ave, San Francisco
64	110033721	Pole	Vallejo St and Leavenworth St, San Francisco
65	110033720	Pole	1243 Vallejo St, San Francisco
66	110033719	Pole	1269 Vallejo St, San Francisco
67	110031048	Pole	375 Brannan St, San Francisco
68	NA	Pole	3403 26 <sup>th</sup> St, San Francisco
69	NA	Pole	26 <sup>th</sup> St and Osage St, San Francisco
70	NA	Pole	3443 26 <sup>th</sup> St, San Francisco
71	110041657	Pole	1669 Church St, San Francisco
72	110041659	Pole	1700 Church St, San Francisco
73	110041678	Pole	1747 Church St, San Francisco
74	110061788	Pole	652 Commercial Ave, South San Francisco
75	120772951	Pole	217 Orange Ave, South San Francisco
76	NA	Pole	673 Grand Ave, South San Francisco
77	NA	Pole	655 Grand Ave, South San Francisco
78	NA	Pole	NW Corner of Locust and Grand Ave, South San Francisco
79	110061247	Pole	NE Corner of Magnolia Ave and Grand Ave, South San Francisco
80	110061246	Pole	570 Grand Ave, South San Francisco
81	10965907	Pole	201 Orange Ave, South San Francisco
82	NA	Pole	203 A St, South San Francisco
83	NA	Pole	242 Lamonte , South San Francisco
84	NA	Pole	783 Newman Dr, South San Francisco

#### IV. Field Inspection Violations

During ESRB's field inspections, staff identified the following violations:

##### 1. GO 95, Rule 21.3, Ground Connection states:

*“Ground Connection means the equipment used in establishing a conducting path between an electric circuit or equipment and earth. A ground connection consists of a ground conductor, a ground electrode and the earth (soil, rock, etc.) which surrounds the electrode.”*

ESRB staff identified a missing ground conductor or disconnected ground (open point) at the following locations:

- Location 80
- Location 83

**2. GO 95, Rule 31.6, Abandoned Lines** states:

*“Lines or portions of lines permanently abandoned shall be removed by their owners so that such lines shall not become a public nuisance or a hazard to life or property. For the purposes of this rule, lines that are permanently abandoned shall be defined as those lines that are determined by their owner to have no foreseeable future use.”*

ESRB staff identified abandoned service drops at the following locations:

- Location 12
- Location 36
- Location 37
- Location 45
- Location 49
- Location 52
- Location 53
- Location 65

**3. GO 95, Rule 35, Vegetation Management** states in part:

*“Communication and electric supply circuits, energized at 750 volts or less, including their service drops, should be kept clear of vegetation in new construction and when circuits are reconstructed or repaired, whenever practicable. When a supply or communication company has actual knowledge, obtained either through normal operating practices or notification to the company, that its circuit energized at 750 volts or less shows strain or evidences abrasion from vegetation contact, the condition shall be corrected by reducing conductor tension, rearranging or replacing the conductor, pruning the vegetation, or placing mechanical protection on the conductor(s). For the purpose of this rule, abrasion is defined as damage to the insulation resulting from the friction between the vegetation and conductor.”*

*Scuffing or polishing of the insulation or covering is not considered abrasion. Strain on a conductor is present when vegetation contact significantly compromises the structural integrity of supply or communication facilities. Contact between vegetation and conductors, in and of itself, does not constitute a nonconformance with the rule.”*

ESRB staff identified vegetation strain on the Wave conductor at Location 30.

**4. GO 95, Rule 38 – Minimum Clearances of Wires from Other Wires** states in part:

*“The minimum vertical, horizontal or radial clearances of wires from other wires shall not be less than the values given in Table 2 and are based on a temperature of 60° F. and no wind. Conductors may be deadended at the crossarm or have reduced clearances at points of transposition, and shall not be held in violation of Table 2, Cases 8–15 , inclusive.”*

GO 95, Table 2, Case 8-C requires a minimum of 12 inches between a communication service drop and communication conductors owned by another entity. ESRB staff identified a Wave service drop in contact with another entity’s communication conductor at the following locations:

- Location 1
- Location 5
- Location 6
- Location 8
- Location 18
- Location 34
- Location 35
- Location 37
- Location 43
- Location 45
- Location 64
- Location 82

**5. GO 95, Rule 44.3 – Replacement** states:

*“Lines or parts thereof shall be replaced or reinforced before safety factors have been reduced (due to factors such as deterioration and/or installation of additional facilities) in Grades “A” and “B” construction to less than two-thirds of the safety factors specified in Rule 44.1 and in Grade “C” construction to less than one-half of the safety*

*factors specified in Rule 44.1. Poles in Grade “C” construction that only support communication lines shall also conform to the requirements of Rule 81.3–A.. In no case shall the application of this rule be held to permit the use of structures or any member of any structure with a safety factor less than one.”*

ESRB staff identified broken lashing wire at the following locations:

- Location 6
- Location 25
- Location 39
- Location 43
- Location 60
- Location 71

ESRB staff identified a damaged ground wire at Location 79.

**6. GO 95, Rule 84.6-B, Vertical and Lateral Conductors, Ground Wires** states:

*“Ground wires, other than lightning protection wires not attached to equipment or ground wires on grounded structures, shall be covered by metal pipe or suitable covering of wood or metal, or of plastic conduit material as specified in Rule 22.8–A , for a distance above ground sufficient to protect against mechanical injury, but in no case shall such distance be less than 7 feet. Such covering may be omitted providing the ground wire in this 7 foot section has a mechanical strength at least equal to the strength of No. 6 AWG medium–hard–drawn copper.*

*Portions of ground wires which are on the surface of wood poles and within 6 feet vertically of unprotected supply conductors supported on the same pole, shall be covered with a suitable protective covering (see Rule 22.8 ).”*

ESRB staff identified damaged or missing ground guards at the following locations:

- Location 20
- Location 29
- Location 57
- Location 68
- Location 72
- Location 76
- Location 79
- Location 80
- Location 83

ESRB staff also found ground wire that goes over metal straps that have the possibility of conducting at Location 58.

**7. GO 95, Rule 84.7A – Climbing Space** states:

*“Climbing space shall be maintained on one side or quadrant of all poles or structures supporting communications conductors excepting at the level of the one pair of conductors attached to the pole below the lowest crossarm (Rules 84.4–C1c , 84.4–D1 and 87.4–C3) and the top 3 feet of poles carrying communication conductors only which are attached directly to pole in accordance with the provisions of Rule 84.4–C1c.*

*The climbing space shall be maintained in the same position on the pole for minimum vertical distance of 4 feet above and below each conductor level through which it passes, excepting that where a cable is attached to a crossarm or a pole with the cable less than 9 or 15 inches from the center line of the pole supporting conductors on line arms (no buck arm construction involved) in accordance with the provisions of Rules 84.4–D1 or 87.4–C3 , the 4 foot vertical distance may be reduced to not less than 3 feet.*

*The position of the climbing space shall not be shifted more than 90 degrees around the pole within a vertical distance of less than 8 feet. Climbing space shall be maintained from the ground level.*

*The climbing space shall be kept free from obstructions excepting those obstructions permitted by Rule 84.7–E.”*

ESRB staff identified climbing space obstructions at the following locations:

- Vegetation at location 2
- Vegetation at location 3
- Vegetation and street light at location 16
- Vegetation at location 48
- Vegetation at location 62
- Service drops at location 69

**8. GO 95, Rule 84.8-C3(b), Service Drops, Clearances Above Ground and Buildings** states:

*“The vertical clearances shall not be less than the minimum clearances specified in Rule 37, Table 1, Column B, with the following modifications:*

***Residential Premises:*** *Over areas accessible to pedestrians only, the vertical clearance shall not be less than 10 feet.”*

ESRB staff identified a service drop lower than the minimum allowable height at the following locations:

- Location 20
- Location 39
- Location 84

**9. GO 95, Rule 86.2, Guys Use** states in part:

*“Guys shall be attached to structures, as nearly as practicable, at the center of load. They shall be maintained taut and of such strength as to meet the safety factors of Rule 44.”*

ESRB staff identified a slacked guy wire at the following locations:

- Location 63
- Location 69

**10. GO 95, Rule 86.9, Guy Marker (Guy Guard)** states:

*“A substantial marker of suitable material, including but not limited to metal or plastic, not less than 8 feet in length, shall be securely attached to all anchor guys. Where more than one guy is attached to an anchor rod, only the outermost guy is required to have a marker.”*

ESRB staff identified a damaged guy marker at Location 47.

**11. GO 95, Rule 91.5 – Marking** states in part:

*“Each communication cable and conductors as defined by Rules 20.4, 20.6(A), 20.9, 84.1, 87.4(C), and 89.1 that is attached to a joint-use pole shall be marked as to ownership. The marker shall (1) identify the owner of the cable and/or conductor; (2) provide a 24 hour contact number for emergencies or information; (3) be made of weather and corrosion resistant material; and (4) be clearly visible to workers who climb the pole or ascend by mechanical means. This marking requirement applies only to (A) new construction, (B) of facilities, and (C) existing aerial communication cables and conductors that a technician works on when the technician ascends the joint-use pole for regular maintenance.”*

Wave did not mark its communication cables attached to a joint-use pole at Location 78.