



DISTRIBUTED AGENDA MATERIAL for Agenda Item No. 15

CITY COUNCIL REGULAR MEETING

MEETING DATE: August 12, 2025

ITEM NUMBER: 15

ITEM DESCRIPTION: An Application by East Highland Land, LLC for the Development of an 113-unit Single-Family Planned Residential Community Requiring a General Plan Amendment (GPA 24-002) and Zone Change (ZC 24-002) from Low Density/Single-Family Residential (LD/R1-10,000) to Planned Development (PD); Conditional Use Permit (CUP 24-006) for the Adoption of a Planned Development; Design Review Application (DRA 24-009) for a Related Site Plan, Building Elevations, Conceptual Landscaping and Grading Plan; Tentative Tract Map No. 20721 (TTM 24-003) for the Subdivision of Two Parcels into 113 Residential Lots and Common Areas; and Adoption of a Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program (ENV 24-003)

SUBMITTED BY: Kim Stater, Assistant Community Development Director

Supplemental information.



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KCAL(AM) COMMUNITY IMPACT STUDY

**PREPARED FOR
DIVERSIFIED PACIFIC COMMUNITIES
RE: EAST HIGHLAND RANCH**

AUGUST 6, 2025

SUMMIT TECHNOLOGY GROUP

3261 ORCHARD LAKE RD
KEEGO HARBOR, MI 48320

(844) 457-2346



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1. Executive Summary

This report presents a comprehensive technical assessment of the proposed 113-unit residential development located due east of AM radio station KCAL(AM), 1410 kHz, in Highland, California. The purpose of this study is to address concerns related to potential radiofrequency (RF) radiation exposure and electromagnetic interference (EMI) from KCAL(AM), and to demonstrate, through established standards and calculations, that the development poses no health risk and negligible EMI impact on modern residential infrastructure.

Findings confirm that the proposed site meets all federal safety standards for RF exposure, and any minimal interference to household electronics is easily mitigated. There is no technical justification to preclude the development based on proximity to the KCAL(AM) transmitter site.

2. Site Overview and Station Characteristics

- **Station:** KCAL(AM), Highland, CA – 1410 kHz
 - **Power:** 2 kW daytime, 4 kW nighttime
 - **Antenna System:** Four-tower directional array
 - **Lobe Orientation:** As shown in Exhibit “A,” the station’s major lobe is directed southwest (away from development); minor lobes exist to the north and due east (toward the development)
 - **Radiated Power Toward Site:**
 - Daytime (2 kW): Minor lobe <25% = <500 W
 - Nighttime (4 kW): Minor lobe <25% = <1,000 W
 - **Minimum Distance from Tower to Development Property Line:** >250 ft
 - **Ground Radial Length:** Approximately 190 ft (do not cross property line)
 - **FCC Compliance:** Tower fencing and site enclosures are per FCC 47 CFR §73.49
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3. RF Radiation Exposure Assessment

3.1 Applicable Standards

Federal guidelines for human exposure to RF electromagnetic fields are regulated under FCC OET Bulletin 65 and ANSI/IEEE C95.1-2005. For AM broadcast (0.3 – 3.0 MHz), the general public exposure limit is:

- **Electric field strength (E-field):** 614 V/m
(equivalent to a power density of approximately 4.0 mW/cm² at 1 MHz)

3.2 Calculated Field Strength at Property Line

Assuming a worst-case scenario with the closest tower radiating <1,000 W toward the development, and a 250-foot (76.2 m) separation, we use the far-field approximation:

$$E = \sqrt{(30 \times P) / d}$$

Where:

- P = 1,000 watts
- d = 76.2 meters

$$E = \sqrt{(30,000) / 76.2} \approx 173.2 / 76.2 \approx 2.27 \text{ V/m}$$

This value is **well below** the FCC public exposure limit of 614 V/m — less than 0.4% of the allowable threshold.

Even at a distance of 50 ft (15.2 m), field strength would be approximately 7.2 V/m — still less than 1.2% of the limit.



3.3 Real-World Comparison to Consumer RF Devices

Device Type	Typical E-Field Strength (at use distance)	Frequency Band
Cell Phone (at ear)	300–1,000 V/m	800–2,500 MHz
Wi-Fi Router (3 ft)	10–20 V/m	2.4/5 GHz
Baby Monitor (1 ft)	5–15 V/m	49 MHz or 900 MHz
KCAL(AM) @ 250 ft	2.27 V/m	1.41 MHz

As shown, even low-power consumer electronics such as home Wi-Fi routers produce RF field strengths several times greater than what would be experienced at the proposed development.

Moreover, RF exposure from mobile devices occurs at close range (in direct contact with the head or body), whereas exposure from KCAL(AM) is distant and further attenuated by terrain and buildings.

Conclusion: RF exposure levels at the proposed development are not only safe by regulatory standards but are significantly lower than many devices commonly used inside the home.

4. Electromagnetic Interference (EMI) Risk

AM radio stations can, in rare cases, cause interference to unshielded or poorly designed electronics. However, such concerns are minimal for several reasons:

4.1 Modern Electronics Design

Consumer devices are required to meet FCC Part 15 standards for interference immunity, including shielding and filtering.

4.2 Construction Materials

Foil-backed insulation, grounded wiring, and metal window screens all help attenuate RF energy.



4.3 Practical Mitigation

Any residual interference (e.g., in speaker systems) can typically be resolved using inexpensive filters such as ferrite clamps or capacitive bypass devices.

4.4 Supporting Anecdotal Evidence

Homes and communities have been successfully developed in proximity to AM stations with similar or higher power levels, including WBBR (1130 kHz, New York, NY) and WLS (890 kHz, Chicago, IL), with no widespread EMI reports.

5. Regulatory and Engineering Compliance

- **FCC Compliance:** Tower fencing, spacing, and exposure levels meet FCC 47 CFR §1.1310 and §73.49.
- **Radial Containment:** Ground radials remain entirely within the transmitter property and do not cross into the proposed development.
- **Zoning Compatibility:** Exhibit “A” shows the development is situated outside of KCAL(AM)’s major radiation lobe. There is no federal or state regulation that prohibits residential development adjacent to compliant AM transmission sites.

6. Conclusion

- RF emissions from KCAL(AM) pose absolutely no public health hazard.
- Maximum field strength at the edge of the development is far below safety thresholds.
- Modern construction techniques and electronics design reduce potential for interference in consumer electronics.
- Any remaining EMI issues can be easily and inexpensively resolved.
- The development lies outside the primary radiation lobe (see Exhibit “A”).



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Recommendation: There is no technical or regulatory basis to deny the proposed development based on the proximity of KCAL(AM).

7. References

- FCC OET Bulletin 65: Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
 - ANSI/IEEE C95.1-2005: Safety Levels with Respect to Human Exposure to RF Electromagnetic Fields
 - 47 CFR §1.1310 – Radiofrequency radiation exposure limits
 - 47 CFR §73.49 – AM transmission system fencing requirements
 - ARRL RFI Book: Practical Cures for Radio Frequency Interference, 3rd Edition
 - FCC Part 15 – Radio Frequency Devices: General Technical Standards
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Exhibit A: KCAL(AM) Directional Radiation Pattern Diagram (maximum 4-kW power)

