

From: [Lauren Harris](#)
To: [Doraida Arias](#)
Subject: NO to the cell tower in Placitas
Date: Tuesday, March 31, 2026 10:03:38 AM

Doraida Arias
Sandoval County Planning & Zoning Department

Re: Formal Public Comment in Opposition
Project: NM01-148 SPIKE / ABQ Tierra Madre
Address: 221 NM-165 (State Highway 165), Placitas, NM 87043
APN: 102-307-302-8180
Applicant: Pinnacle Consulting / Verizon Wireless / Sun State Towers
Public Hearing: April 14, 2026

Dear Ms. Arias and Members of the Planning & Zoning Commission,

I am a property owner and resident of Placitas, New Mexico. I write to formally oppose the Conditional Use Permit application for a proposed 75-foot wireless monopole at 221 NM-165. Please include this letter, in its entirety, in the official written record for the April 14, 2026 public hearing.

--- GROUND 1: DIRECT CONFLICT WITH THE ADOPTED PLACITAS AREA PLAN ---

The Placitas Area Plan — adopted by the Sandoval County Board of Commissioners — is the controlling land-use policy document for this area. It explicitly requires protection of viewsheds, the semi-rural character of the community, and adequate height and setback standards to preserve views (pp. 38, 44, 54, 64). A 75-foot commercial monopole on NM-165 directly and materially conflicts with these adopted goals. The Commission is legally obligated to honor the Plan it created through a public community process.

--- GROUND 2: THE STEALTH DESIGN IS INADEQUATE — 55 FEET OF BARE POLE ---

The applicant describes this as a "concealed" installation with a "rustic NM architecture" design. The engineering drawings tell a different story. Sheets Z-5 and Z-6 of the application's own plans clearly show the concealment shroud begins at 55 feet above ground level. This means 55 feet of bare, unscreened steel monopole — nearly three-quarters of the entire structure — will be fully visible from surrounding residential properties, from NM-165, and from the broader Placitas landscape. A shroud that covers only the antenna cluster at the very top does not constitute meaningful stealth design for a semi-rural community defined by its natural piñon-juniper landscape.

--- GROUND 3: THE COUNTY'S OWN REVIEWER ALREADY QUESTIONED THIS SITE AND DESIGN ---

Robert Naumann, Sandoval County's designated zoning reviewer, stated the following in writing on May 31, 2024 — a statement that is already part of the application file:

"This site is considerably more visible and I am not sure the stealth design proposed is a good concept."

This assessment came not from a neighbor or opponent, but from the County's own contracted expert reviewer. I urge the Commission to take this professional opinion

seriously.

--- GROUND 4: CO-LOCATION AND ALTERNATIVES REQUIREMENTS NOT SATISFIED ---

The applicant's first candidate for this project was the Sandoval County Fire Station at 463 NM-165 (APN 1025073080120). That site was abandoned — by the applicant's own written admission — solely because "we were not able to finalize a lease agreement." The site was never found to be technically infeasible. An existing tall structure on public land is precisely what the County's co-location preference requirements are designed to protect. Commercial inconvenience is not a substitute for demonstrating technical infeasibility.

Additionally, the applicant's Alternatives Analysis guidelines as submitted reference "Madera County Code" — a county in California's San Joaquin Valley that has no relevance to Sandoval County, New Mexico. This boilerplate template error raises serious questions about whether a genuine, site-specific alternatives analysis was conducted at all. I request the Commission find the application incomplete until a proper Sandoval County-specific analysis is provided.

--- GROUND 5: SETBACK DEFICIENCY REQUIRES SEPARATE APPROVAL NOT YET GRANTED ---

The applicant's own site documents acknowledge that the northwest setback of 46 feet 9 inches requires a separate setback reduction zoning approval. The standard fall-zone requirement for a 75-foot tower is 82.5 feet (110% of tower height). The proposed northwest setback meets only 57% of that standard. This separate approval has not been granted. The CUP process should not proceed until this is resolved.

--- GROUND 6: FULL BUILD-OUT VISUAL IMPACT HAS NOT BEEN DISCLOSED ---

The tower is engineered to accommodate two additional future carriers at 50 and 60 feet AGL, each with pre-designed future concealment shrouds. The photo simulations submitted with this application show only Verizon's initial installation. The public and the Commission have never been shown the full three-carrier build-out that this commercial tower infrastructure is designed to become. I request that the applicant be required to submit photo simulations of the completed, full-capacity tower before any decision is made.

--- GROUND 7: PERMANENT DAMAGE TO PROPERTY VALUES ---

Published, peer-reviewed research in the Journal of Real Estate Finance & Economics and Empirical Economics Letters documents 7–10% reductions in residential property values within the visual impact zone of wireless towers. The U.S. Department of Housing and Urban Development classifies cell towers as "hazards and nuisances" requiring appraisal adjustments. Placitas properties command significant market premiums precisely because of the undisturbed natural landscape. A permanent 75-foot industrial structure on NM-165 would cause lasting, measurable harm to property values throughout the community — directly undermining the Sandoval County Zoning Ordinance's stated purpose of "conserving the value of property."

--- FORMAL REQUEST ---

I respectfully request that the Commission:

(1) DENY the Conditional Use Permit as inconsistent with the adopted Placitas Area Plan;

OR, in the alternative:

(2) Find the application INCOMPLETE and require the applicant to provide: a Sandoval County-specific alternatives analysis (not a Madera County, CA template); corrected

engineering drawings with consistent shroud dimensions; photo simulations of the full three-carrier build-out; and a formal setback reduction application resolving the 46'9" northwest setback deficiency;

AND in any event:

(3) Require the applicant to demonstrate — with technical evidence, not conclusory statements — that the Sandoval County Fire Station site at 463 NM-165 was technically infeasible for this project, not merely commercially inconvenient.

Thank you for including this formal opposition in the official written record.

Respectfully submitted,

Lauren Harris

10 Casa Terrenos

575-519-8139

03/31/2026

This message is originated from an external organization

From: [C. Edwin Garner](#)
To: [Doraida Arias](#)
Cc: [Daniel Beaman](#)
Subject: Re: SUPPLEMENTAL MATERIALS IN OPPOSITION — CU-26-001, Proposed 75' Monopole at 221 NM-165, Placitas (NM01-148 / ABQ Tierra Madre)
Date: Wednesday, April 1, 2026 7:39:03 AM
Attachments: [image001.png](#)
[Tower visual impact V4.pdf](#)

Dear Ms. Arias and Director Beaman,

Thank you for the clarification on the rescheduled hearing date. I understand that the April 14 meeting was cancelled due to lack of quorum and that CU-26-001 will now be heard on April 21, 2026 at 5:00 PM.

On February 26, 2026, I submitted a formal public comment letter in opposition to CU-26-001 to Ms. Arias for inclusion in the official record. That letter addressed seven grounds for denial: conflict with the adopted Placitas Area Plan, inadequate stealth design, the County reviewer's own written concerns, unsatisfied co-location requirements, the unresolved setback deficiency, undisclosed full build-out visual impact, and documented property value harm.

I am now writing to supplement that earlier submission with additional evidentiary materials that have been developed since February. I respectfully request that this letter and all attached materials be appended to my February 26 submission and included in the official record for the April 21 hearing.

Supplemental Materials Enclosed

Attached to this submission is a PDF of the Property Value Impact Analysis developed for the CU-26-001 proceeding. This analysis provides the quantitative foundation for Ground 7 (Property Value Harm) of my February 26 letter. The presentation includes:

Peer-reviewed research foundation. The analysis is grounded in three peer-reviewed academic studies: Affuso, Cummings & Le (2018), published in the *Journal of Real Estate Finance and Economics*, which documented a 9.78% decline in residential property values when a wireless tower is visible, based on 23,309 property transactions; Rajapaksa et al. (2018), published in *Environmental Economics and Policy Studies*, which documented up to 15% decline at close proximity; and Marona, Gaca & Głuszak (2024), published in the *Journal of Housing and the Built Environment*, which found zero property value impact when towers are truly concealed on urban rooftops — the exact opposite of the open-desert conditions in Placitas.

19-viewpoint angular geometry model. Using data drawn entirely from the applicant's own submitted documents (tower coordinates, base elevation, height), I developed a geometric visibility model that calculates the angular size, skyline break percentage, and distance-adjusted impact for 19 residential viewpoints across the Placitas community. The model covers approximately 555 homes within the tower's visual impact zone.

Aggregate community impact estimate. The analysis estimates an aggregate property value impact in the range of \$22–\$24 million across the affected area, based on a median Placitas home value of approximately \$725,000. This estimate was validated through two independent methodological approaches (Voronoi-based and viewshed zone-based allocation), which converged within 1.4% of each other — a strong indicator of methodological robustness.

Sensitivity analysis. The presentation includes sensitivity testing across multiple parameters (distance decay rate, angular span threshold, skyline break factor) demonstrating that the aggregate impact remains substantial across a wide range of reasonable assumptions.

Updated Summary of Principal Grounds for Denial

For the Commission’s convenience and for Director Beaman’s review, I summarize below the principal grounds for denial, incorporating the supplemental analysis.

1. Conflict with the Adopted Placitas Area Plan. The Placitas Area Plan, adopted by the Board of County Commissioners, explicitly requires protection of viewsheds, preservation of semi-rural character, and adequate height standards to preserve views (pp. 38, 44, 54, 64). The Plan’s Generalized Goals state that the Plan should “protect the existing semi-rural character of the Placitas region” and “establish protection of ridge-top development.” The WPRD Zoning Recommendation (p. 44) calls for the zoning code to “provide adequate setbacks and building height standards to preserve view-sheds.” A 75-foot commercial monopole on NM-165 directly and materially conflicts with these adopted goals.

2. Inadequate Stealth Design — The Shroud Paradox. The applicant’s engineering drawings (Sheets Z-5 and Z-6) show the concealment shroud begins at 55 feet AGL, leaving 55 feet of bare steel monopole — nearly three-quarters of the structure — fully visible. In open high-desert terrain with no vegetative screening and 30+ mile sightlines, the 18-foot diameter shroud does not conceal the tower. It enlarges the visible object: a larger-diameter cylinder is more prominent against the sky, not less. This is a structure with no natural analog in the Placitas landscape. The County’s own contracted reviewer, Robert Naumann, stated in writing on May 31, 2024: “This site is considerably more visible and I am not sure the stealth design proposed is a good concept.”

3. Co-Location and Alternatives Requirements Not Satisfied. The applicant’s first candidate site was the Sandoval County Fire Station at 463 NM-165 (APN 1025073080120), abandoned solely because “we were not able to finalize a lease agreement.” The site was never found technically infeasible. An existing tall structure on public land is precisely what the County’s co-location preference is designed to protect. Additionally, the Alternatives Analysis as submitted references “Madera County Code” — a jurisdiction in California — indicating a boilerplate template rather than a genuine site-specific analysis for Sandoval County.

4. Unresolved Setback Deficiency. The applicant’s own documents acknowledge a northwest setback of 46 feet 9 inches, requiring separate setback reduction approval. The standard fall-zone requirement for a 75-foot tower is 82.5 feet (110% of tower height). The proposed setback meets only 57% of that standard. This separate approval has not been granted. The CUP process should not proceed until this is resolved.

5. Full Build-Out Visual Impact Not Disclosed. The tower is engineered to accommodate two additional future carriers at 50 and 60 feet AGL, each with pre-designed

future concealment shrouds. The photo simulations submitted with the application show only the initial single-carrier installation. The Commission and the public have never been shown the full three-carrier build-out that this commercial infrastructure is designed to become.

6. Documented Property Value Harm. The attached analysis demonstrates an aggregate community impact of \$22–\$24 million, grounded in peer-reviewed research published in the *Journal of Real Estate Finance and Economics and Environmental Economics and Policy Studies*. The Telecommunications Act of 1996 specifically preserves local authority to deny wireless facility permits on documented property value grounds. The evidentiary standard is met when impacts are supported by substantial evidence in the written record – which this analysis provides.

Specific Requests

I respectfully request the following:

(a) That this letter and all attached PDF materials be appended to my February 26, 2026 formal opposition letter and included in the official written record for the April 21, 2026 hearing on CU-26-001.

(b) That the attached Property Value Impact Analysis be made available to the Planning and Zoning Commissioners as part of the staff packet or supplemental materials for their review prior to the hearing.

(c) That the Commission require the applicant to submit photo simulations of the full three-carrier build-out before any decision is rendered.

(d) That the Commission require a Sandoval County-specific alternatives analysis, replacing the boilerplate Madera County, California template currently in the record.

Closing

I appreciate the Department's responsiveness in clarifying the rescheduled hearing date and Ms. Arias' professionalism throughout this process. I understand that all materials provided become part of the public record, and I submit them with that understanding.

I intend to appear at the April 21 hearing and to present the property value impact analysis to the Commission. I am available to answer any questions the Department or the Commissioners may have regarding the methodology or findings in advance of the hearing.

Thank you for your attention to this matter.

Respectfully,

C. Edwin Garner, Ph.D.

46 Camino Barranca

Placitas, NM 87043

ed@mammothpreclinical.com

(505)-252-2311

Enclosure: Property Value Impact Analysis — CU-26-001 (PDF)

From: Doraida Arias <darias@sandovalcountynm.gov>
Date: Monday, March 30, 2026 at 9:41 AM
To: C. Edwin Garner <ed@mammothpreclinical.com>
Cc: Daniel Beaman <dbeaman@sandovalcountynm.gov>
Subject: RE: Location of April 14 Public Hearing re: Placitas Cell Tower

Good morning C Edwin,

Please see links: [PZ-NOTICE-OF-MEETING-APRIL-21-2026.pdf](#) [PZ-NOTICE-OF-CANCELLATION-APRIL-14-2026.pdf](#)

The meeting scheduled for March 14th was cancelled due to a lack of quorum.

Respectfully,



Doraida Arias

Assistant Director of Planning and Zoning

Direct: (505) 867-7651

Office: (505) 867-7628

darias@sandovalcountynm.gov

From: C. Edwin Garner <ed@mammothpreclinical.com>
Sent: Monday, March 30, 2026 6:49 AM
To: Doraida Arias <darias@sandovalcountynm.gov>
Subject: Location of April 14 Public Hearing re: Placitas Cell Tower
Importance: High

Dear Ms Arias,

There has been some confusion regarding the exact date of the public hearing about the Cell Tower at HWY 165 Placitas, NM. There is also a rumor it has moved to the 21st.

The date is April 14, 2026 correct?

Please also send the specific location. Some sources say it is to be held at the Merc on Hwy 165, which seems incorrect.



I will post the actual date time and location that you supply on the appropriate community sites for the public's awareness.

Thank you in advance,

Best,

C Edwin Garner

46 Camino Barranca
Placitas, NM 87043

 This message is originated from an external organization 

This message is originated from an external organization

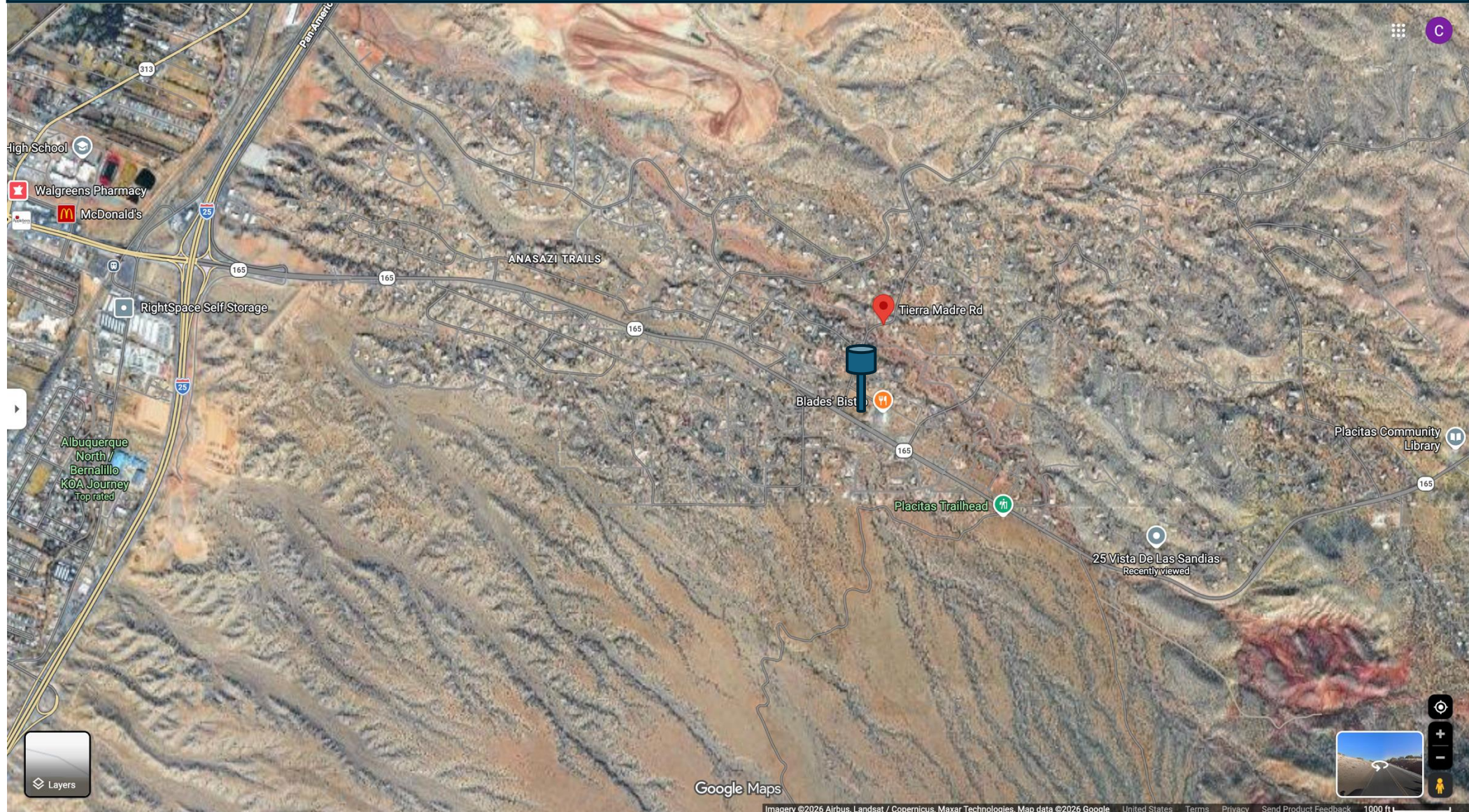
Cell Tower at 221 Hwy 165

Analysis of Tower Potential Impact on Property Valuation

C. Edwin Garner, Ph.D.

March 2026

Location of proposed 75-ft cell tower



The Proposal: What Is Being Considered

Tower Specifications

Location	221 NM-165, Placitas Homesteads Lot 5A-1AW
Structure	75-ft steel monopole
Shroud	18-ft diameter, top 20 ft only
Base Elevation	5,503 ft NAVD88
Top Elevation	5,578 ft
Applicant	Sun State Towers / Pinnacle Consulting
Permit	CU-26-001

Key Concerns

- Shroud covers only ~27% of structure
- In open high-desert terrain, the shroud enlarges rather than conceals the tower
- Conflicts with adopted Placitas Area Plan viewshed protections
- Boilerplate alternatives analysis references "Madera County, California"
- Unresolved northwest setback deficiency (46'9" vs. required 82.5')
- County reviewer questioned site visibility and stealth design in writing

Legal Basis: Property Values Under the TCA

What Is Permitted

- Property value harm is a legally valid basis for denial under the Telecommunications Act of 1996
- Conflict with an adopted comprehensive plan (Placitas Area Plan) is a valid basis
- Inadequate stealth/concealment design is a valid basis

What Is Not Permitted

- RF health/emission arguments are preempted by TCA Section 704
- Blanket prohibition of all wireless facilities is preempted
- Denial must be supported by "substantial evidence" in the written record

This Analysis Provides

- Peer-reviewed quantitative evidence of property value impacts
- 19-viewpoint angular geometry model calibrated to site conditions
- Documented ~\$24M aggregate impact across 555 affected homes

This analysis deliberately excludes RF health arguments — they are preempted and legally counterproductive.

RF Coverage Redundancy Analysis

Proposed 75-ft Monopole at 221 NM-165, Placitas, NM

CU-26-001 | Sandoval County Planning & Zoning Commission

GIS Viewshed Analysis: J. Branum (ArcGIS Pro)
March 2026

Preliminary Analysis — Not for Engineering Use

Methodology

Data Sources

Verizon Coverage Map

Self-reported coverage from [verizon.com/coverage-map](https://www.verizon.com/coverage-map), converted to grayscale for overlay comparison.

ArcGIS Pro Viewshed Tool

Line-of-sight computation from known tower coordinates using USGS elevation data. Identifies all terrain points with unobstructed sightlines to each tower location.

Tower Locations

Two existing Verizon I-25 towers (north and south) plus proposed 221 NM-165 site at 75 ft AGL.

Analytical Approach

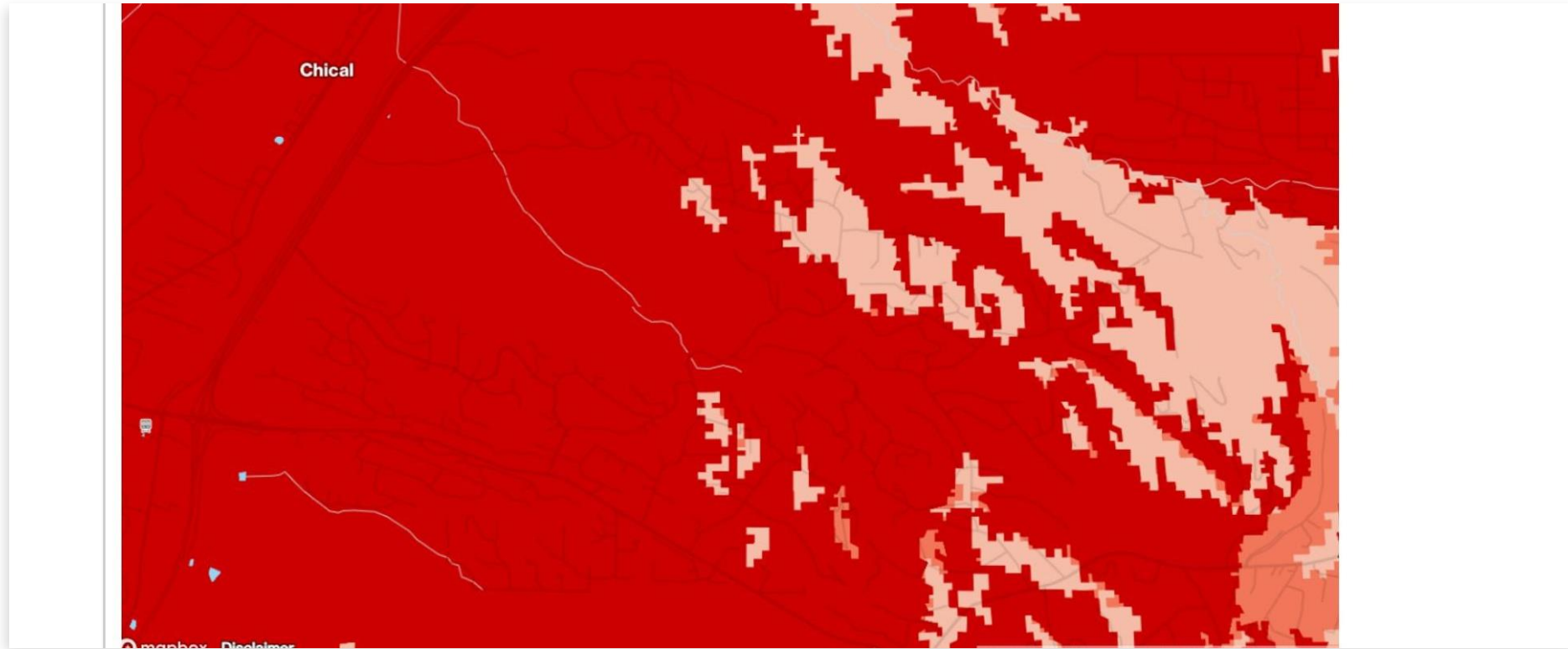
Step 1: Capture Verizon's published coverage for western Placitas (signal strength indicated by color intensity).

Step 2: Compute independent viewshed from Verizon's two existing I-25 towers. Overlay as cross-hatching on grayscale coverage to validate correspondence.

Step 3: Compute viewshed from proposed 221 NM-165 tower. Overlay as yellow beneath existing layers. Assess incremental (non-redundant) coverage gain.

Note: Viewshed analysis computes geometric line-of-sight only; it does not model RF propagation losses, antenna gain patterns, or frequency-dependent attenuation.

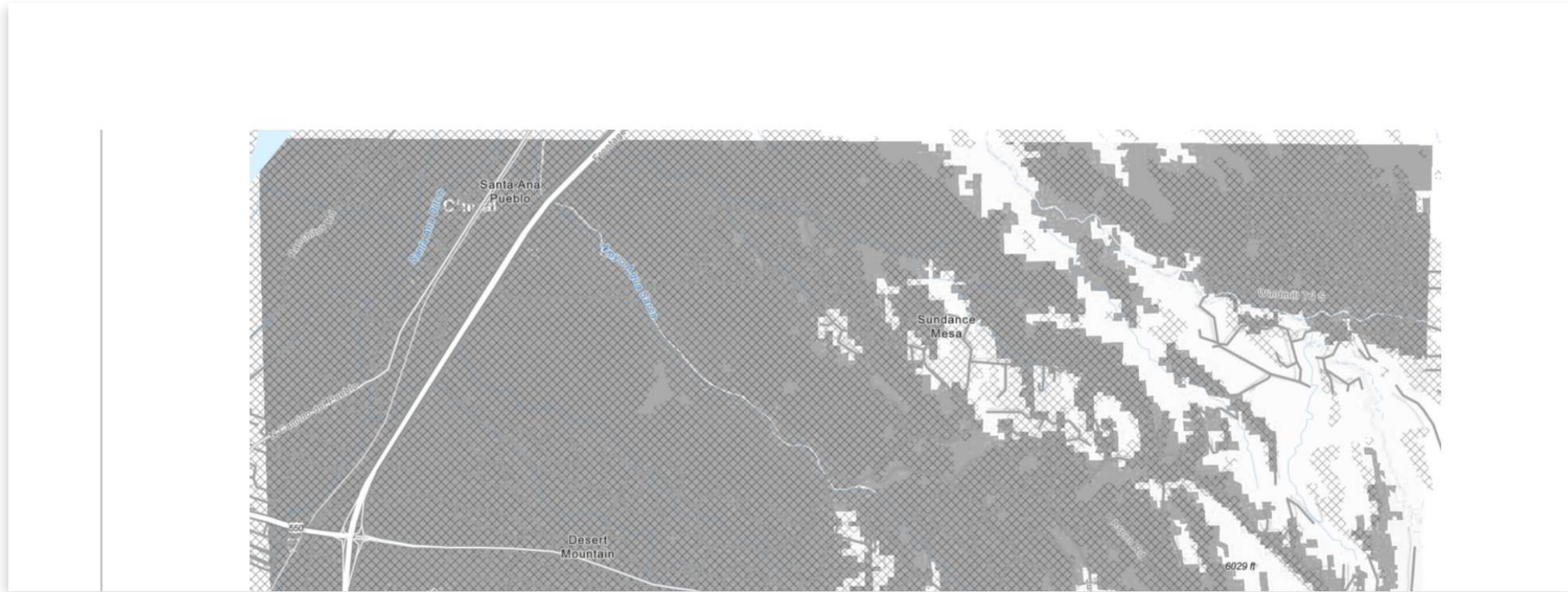
Verizon's CURRENT Published Coverage — Western Placitas



Dark red: Strong signal **Light red/pink:** Weaker signal **White:** No coverage (terrain-shadowed)

Verizon's own coverage tool shows extensive existing service across western Placitas from the two I-25 corridor towers. The white gaps correspond to terrain-shadowed areas behind ridgelines — areas that the proposed 221 NM-165 tower would also be unlikely to reach given similar topographic obstructions.

Viewshed Model Validation – Existing I-25 Towers

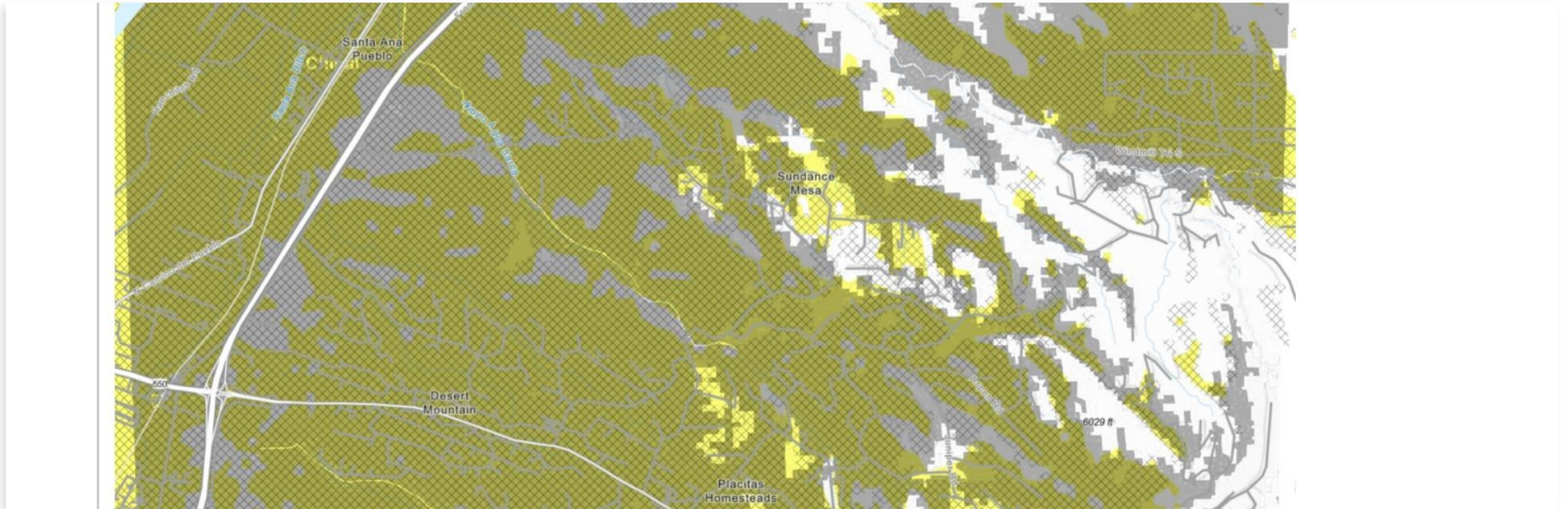


Gray shading: Verizon's published coverage (converted from red)

Cross-hatching: Independent ArcGIS viewshed computed from Verizon's two I-25 tower locations

The computed viewshed closely tracks Verizon's self-reported coverage — hatching drops out where claims are strongest and fills in where they are weakest. This validates the viewshed tool as a reasonable proxy for actual signal footprint in this terrain.

Proposed Tower — Incremental Coverage Increase is NOMINAL



Olive/yellow (background): Viewshed from proposed 221 NM-165 tower

Gray + cross-hatching (overlay): Existing I-25 tower coverage

Bright yellow (visible through gray): Incremental (non-redundant) gain from proposed tower

The proposed tower's viewshed (olive/yellow) is almost entirely obscured by the existing coverage layers. Only scattered bright yellow fragments represent non-redundant gain — areas the proposed tower would serve that the existing I-25 towers do not.

Key Findings

1. Minimal Incremental Coverage

The proposed tower's viewshed overlaps almost entirely with the existing I-25 tower coverage footprint. Areas receiving new line-of-sight coverage that lack existing service are negligible.

2. Viewshed Validated Against Carrier Data

The ArcGIS viewshed from existing I-25 towers closely reproduces Verizon's own published coverage map, confirming the analytical method is a reliable proxy for signal footprint in this terrain.

3. 5G Upgrade Is the Real Driver

The northern I-25 tower is listed as 4G only. The primary service differentiation of the proposed tower is 5G capability — a technology upgrade, not a coverage gap fill. The existing 4G network has served the area for approximately a decade.

This analysis assesses geometric line-of-sight redundancy only. It does not address the applicant's economic justification, RF propagation modeling, or the merits of 4G vs. 5G service for the Placitas community.

Implications for CU-26-001

The applicant's CUP application asserts a significant coverage gap in western Placitas as justification for the proposed 75-ft monopole.

This independent viewshed analysis, validated against Verizon's own published coverage data, indicates that the proposed tower would provide minimal non-redundant coverage beyond what the existing I-25 tower infrastructure already delivers.

The principal service differentiation is a 5G technology upgrade — not the elimination of a coverage gap.

This distinction is material to the Commission's evaluation of whether the visual, property-value, and community-character impacts of a 75-ft monopole are warranted by the claimed public benefit.

Zonal Property Value Impact

Two-Tier Rajapaksa Reanalysis

Proposed 75-ft Monopole at 221 NM-165, Placitas, NM

Conditional Use Permit CU-26-001

19 Viewpoints · 555 Homes · \$24.15M Aggregate Impact

Analysis of Potential Tower Impact on Property Value

- Peer reviewed literature for semi-rural suburban and urban environments indicate that tower placement has negative impact on property resale values.
- These studies may be used for estimates but need to consider high desert environment.
- The semi-arid, high desert environment of Placitas, however, has different visual characteristics than tree and building filled urban and suburban environments.
- Placitas has a highly varied topography with high variation in viewpoint elevation because of hills, arroyos and ridges.
- Buildings are widely separated, single story, and purposely blend into the landscape
- The landscape itself contributes significantly to the value of the community and the properties therein.

The high level of visibility in high desert environments requires modifying the scale of visibility impact.



Urban Warsaw
Marona (2024)

Suburban
Mobile, Ala
Affuso (2018)

Suburban/semi-
rural
Brisbane, Aus
Rajapaksa (2018)

Open high desert
Placitas, NM
No tall trees

Peer-Reviewed Research Foundation

Three Academic Studies on Cell Tower Property Value Impacts (2018-2024)

Affuso et al. (2018)

Alabama, USA

23,309 sales

-9.78%

when VISIBLE

Lack of visibility still reduced values by -2.7% within ~1 km
Visibility = 4× worse impact than non-visible towers

Urban/Semi-Rural Suburban

Rajapaksa et al. (2018)

Brisbane, Australia

411 sales

-15%

within 200m

Tower type (monopole vs. angular) made no statistical difference

Urban/Suburban

Marona et al. (2024)

Warsaw, Poland

1,825 sales

0%

INVISIBLE

Towers on rooftops — buyers unaware of their presence

Dense Urban

Upper limit (peer-reviewed): ~15% • Non-peer-reviewed claims of 30-40% are not supported

The Visibility Threshold

Visibility determines impact — concealment only works when it creates invisibility

Study	Visibility	Impact	Environment
Affuso (2018)	VISIBLE	-9.78%	Suburban coastal
Rajapaksa (2018)	VISIBLE	-15%	Urban/semi-rural
Marona (2024)	INVISIBLE	0%	Dense urban rooftops
PLACITAS	VISIBLE	10-15%	Open high desert

KEY FINDING: The Placitas tower will be **visible for miles** across open desert terrain. It falls into the **VISIBLE** category — not the **INVISIBLE** Warsaw scenario.

The Shroud Paradox

Why the applicant's "concealment shroud" does not conceal

TRUE CONCEALMENT

Warsaw (0% impact)

- ✓ Antennas on rooftops of tall buildings
- ✓ Visual urban clutter hides infrastructure
- ✓ Buyers cannot see towers from dense housing
- ✓ Towers disappear from view entirely
- ✓ Reduces visual impact
- ✓ Reduces or eliminates impact on house value

FAKE CONCEALMENT

Placitas (expected 10-15% max impact)

- ✗ 75-ft pole visible for miles
- ✗ No buildings/trees to hide behind
- ✗ Shroud itself will be still visible for miles
- ✗ Shroud makes object BIGGER

Covering a mountain with a tarp does not conceal that a large object is present — it merely obscures its nature. A shroud in open desert terrain **increases the visual footprint** of the structure.

Cumulative Impact Methodology Overview

Peer-Reviewed Foundation

Affuso et al. (2018)

J. Real Estate Finance & Economics

- 9.78% impact when tower visible
- 2.46% when not visible

Rajapaksa et al. (2018)

Environmental Economics & Policy Studies

- Up to 15% at close proximity (<200m)
- Visibility difference factor of desert vs suburban 1.5x $r < 300$ m

V2 Model Components

- Distance decay function
- Angular size calculation
- Skyline break modifier
- Visibility factor (Affuso-derived)

Calibrated for high-desert visibility
(3x suburban study distances)

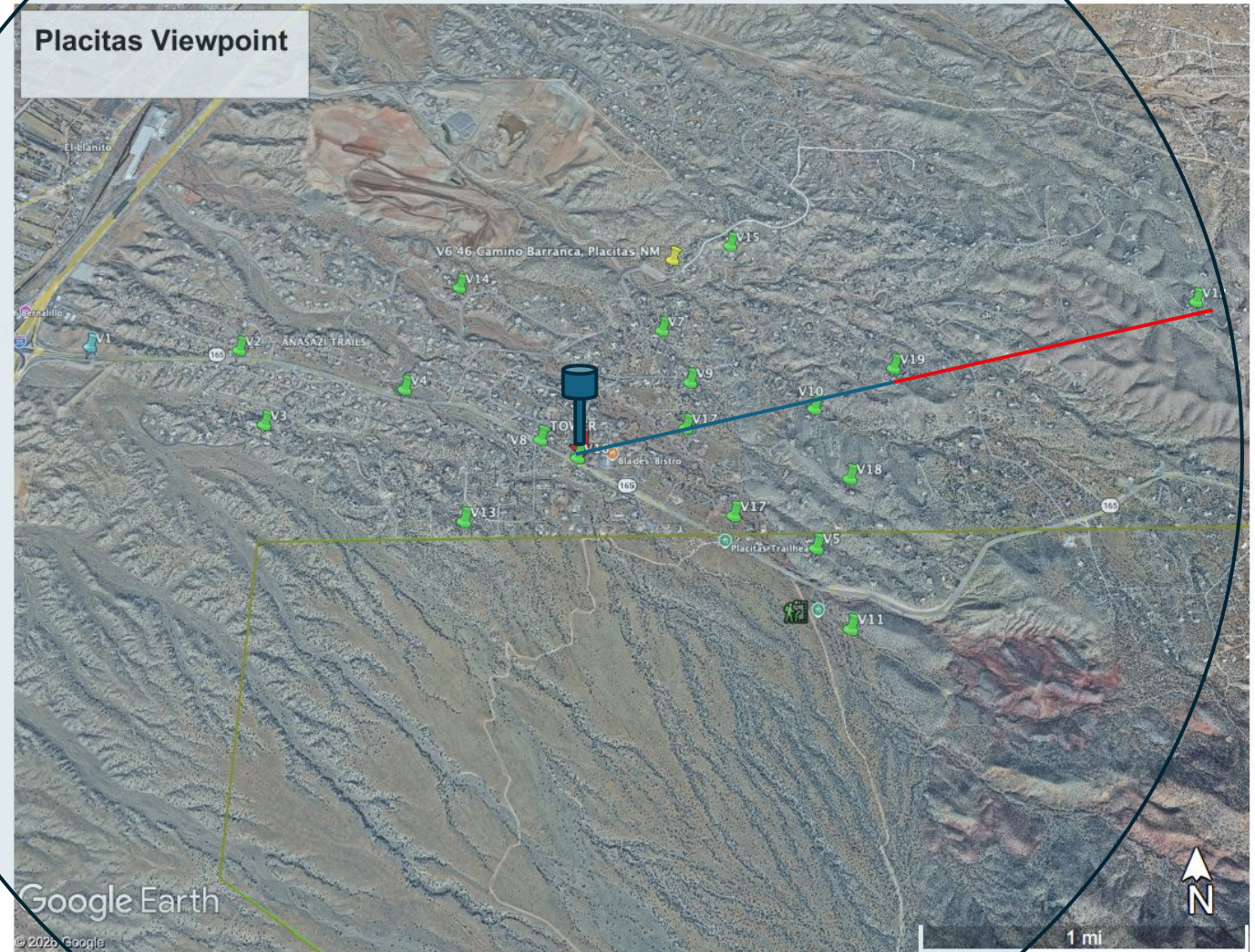
Data Collection

19 viewpoints surveyed with GPS coordinates and elevations

555 houses counted from satellite imagery using Voronoi assignment to nearest viewpoint

Median home price: \$725,000 (Placitas market data, Feb 2026)

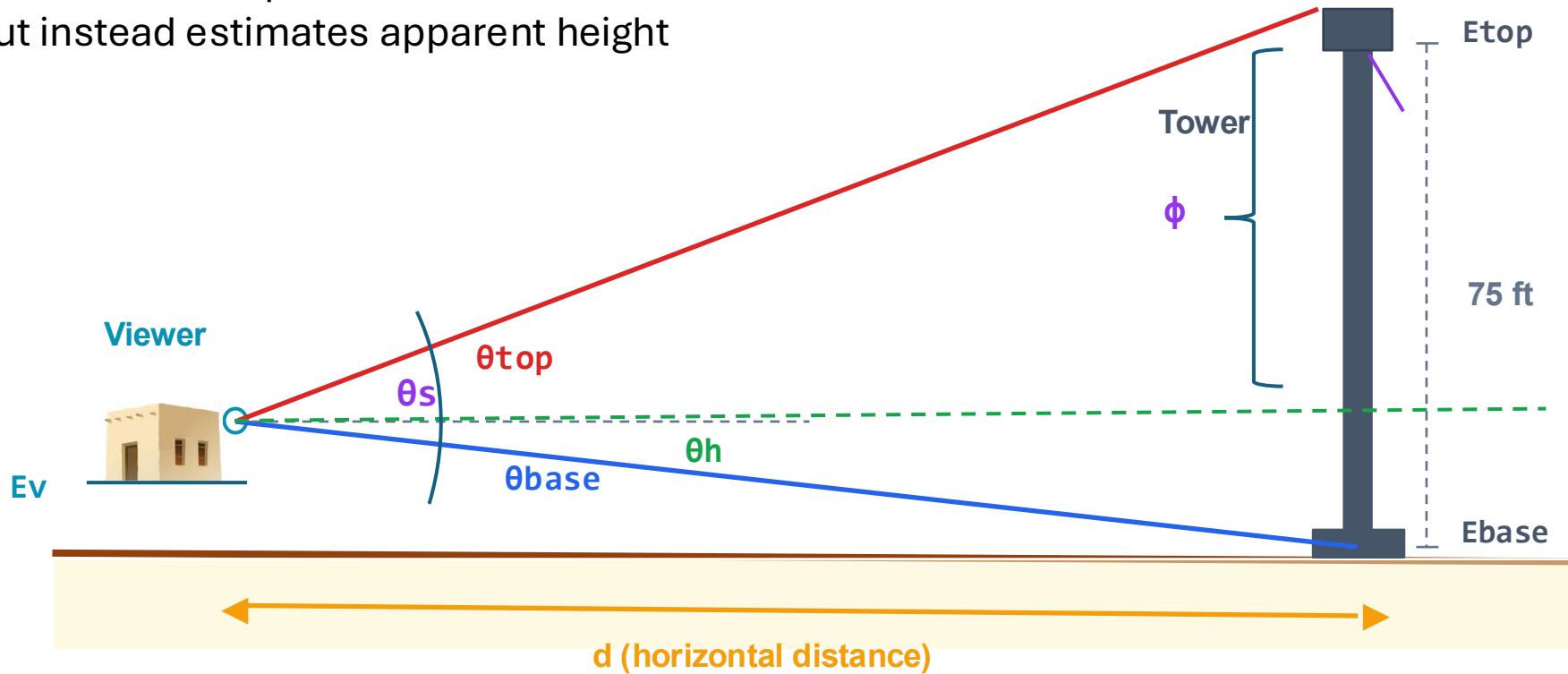
The elevations of 19 viewpoint locations within a 2 mile radius of the tower were selected to assess visibility of a 75' tower placed at 221 NM-165.



Model Geometry

Angular Relationships for Visual Impact Calculation

Initial model steps assume no blockade but instead estimates apparent height



KEY ANGLES

	θ_{top}	To tower top
	θ_{base}	To tower base
	θ_h	Horizon
	θ_s	Angular span
	ϕ	Skyline break

FORMULAS

$$\theta_s = \theta_{top} - \theta_{base}$$

$$\phi = \theta_{top} - \theta_h$$

SCENARIOS

$\phi > 0$: Skyline break

$\phi \leq 0$: Looking down

Maximum visibility was estimated using impact distances scaled from Affuso (2018)

The analysis accounted for differing relative altitudes not experienced in Affuso or Rajapaksa

V2 Property Value Impact Model

Mathematical Specification

CORE IMPACT EQUATION

Skyline Break Scenario:

$$I = I_{\max} \times D(d) \times A(\theta_s) \times S(\phi) \times H$$

Looking Down Scenario:

$$I = I_{\max} \times D(d) \times A(\theta_s) \times 0.50$$

COMPONENT FUNCTIONS

$$D(d) = \max(e^{-\lambda d}, 0.10)$$

$$A(\theta_s) = \min(\theta_s \div \theta_{\text{ref}}, 1.0)$$

$$S(\phi) = \max(\min(\phi \div \phi_{\text{ref}}, 1.0), 0.30)$$

VARIABLE DEFINITIONS

I Property value impact (%)

I_{max} Maximum impact = 9.78% (Affuso 2018)

d Horizontal distance to tower (feet)

θ_s Tower angular span (degrees)

φ Skyline break angle (degrees)

H Horizon factor (fraction 0-1)

MODEL CONSTANTS

$$\lambda = 0.00012 \text{ ft}^{-1}$$

$$\theta_{\text{ref}} = 1.0^\circ$$

$$\phi_{\text{ref}} = 0.5^\circ$$

$$\text{Tower} = 75 \text{ ft}$$

Placitas Visibility Adjustment: 3× Distance Multiplier

Extending Affuso impact zones for high-desert visual conditions

THE RESEARCH BASELINE

Affuso et al. (2018) — Alabama

Impact zone: 0.72 km (2,362 ft)

- Flat coastal, humid climate
- Dense vegetation screening
- Typical suburban obstructions

THE PLACITAS REALITY

High Desert — Sandoval County, NM

Adjusted zone: 2.16 km (~7,100 ft)

- Open valleys, 30+ mile visibility
- Sparse piñon-juniper, no screening
- Clear dry air, minimal obstructions

THE MATHEMATICS

Distance Factor: $D(d) = \max(e^{-\lambda d}, 0.10)$

λ (suburban) = 0.00036 ft^{-1}

λ (Placitas) = 0.00012 ft^{-1} ($\div 3$)

Visibility Multiplier (Affuso):

Visible: **-9.78%** vs Non-visible: **-2.46%**

Visibility = **4× worse impact**

ADJUSTED IMPACT ZONES

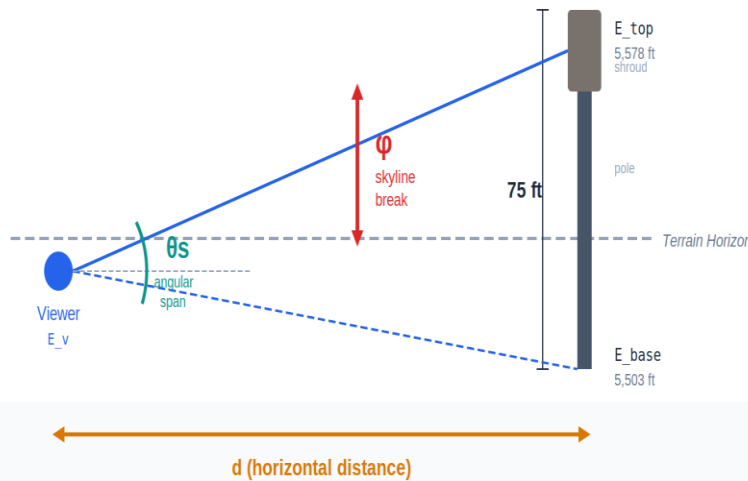
Impact Zone	Suburban Studies	Placitas (3× adjusted)
Severe (10-15%)	0 – 656 ft (0-200m)	0 – 2,000 ft
Significant (5-10%)	656 – 2,362 ft	2,000 – 7,100 ft
Minimal (<5%)	Beyond 2,362 ft	Beyond 7,100 ft (~1.3 mi)

Visual Perception Geometry

V2 Model Geometry

Model V2: Viewing Geometry

How elevation and distance determine visual impact



KEY VARIABLES

- d = distance (ft)
- θ_s = angular span
- θ_h = horizon angle
- ϕ = skyline break
- E_v = viewer elev.

CALCULATIONS

$$\theta_s = \text{atan}((E_{top} - E_v)/d) - \text{atan}((E_{base} - E_v)/d)$$

$$\phi = \theta_{top} - \theta_h$$

$\phi > 0$... skyline break

IMPACT EQUATION

$$I = I_{max} \cdot D(d) \cdot A(\theta_s) \cdot S(\phi) \cdot H$$

$I_{max} = 9.78\%$ (Affuso)

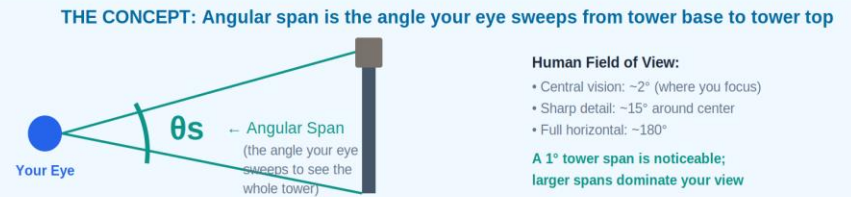
TWO SCENARIOS

- Looking Up ($\phi > 0$): above horizon = maximum impact
- Looking Down ($\phi < 0$): above tower top = reduced impact ($\times 0.5$)

Angular Span (theta_s) Explained

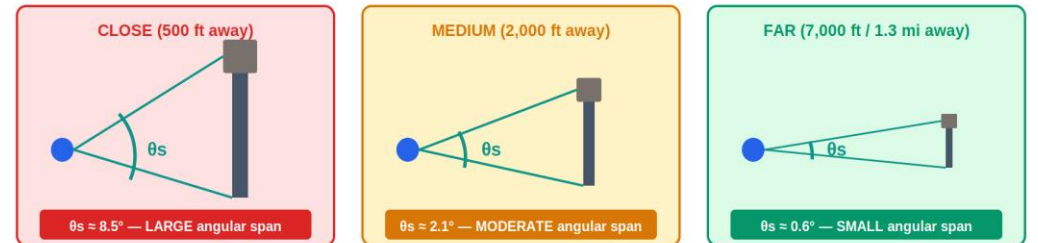
What is Angular Span (θ_s)?

How much of your field of view the tower occupies (in degrees)



HOW DISTANCE AFFECTS ANGULAR SPAN

Same 75-foot tower — different distances — different apparent sizes



THE FORMULA

$$\theta_s = \text{atan}((E_{top} - E_v)/d) - \text{atan}((E_{base} - E_v)/d)$$

Where:

- E_{top} = tower top elevation (5,578 ft)
- E_v = viewer elevation
- E_{base} = tower base elevation (5,503 ft)
- d = horizontal distance

HOW THE MODEL USES ANGULAR SPAN

The **Angular Factor $A(\theta_s)$** scales impact by apparent size:

$$A(\theta_s) = \min(\theta_s / 1.0^\circ, 1.0)$$

- $\theta_s \geq 1.0^\circ$ → $A = 1.0$ (full impact) — tower fills significant view
- $\theta_s = 0.5^\circ$ → $A = 0.5$ (half impact) — tower appears smaller
- $\theta_s = 0.2^\circ$ → $A = 0.2$ (minimal impact) — tower is a small speck

The tower's perceived size depends on angular span, not physical height alone. Distance and elevation determine what the viewer actually sees.

Two-Tier Impact Structure

TIER 1: Rajapaksa Proximity Zone

Distance: $d \leq 300\text{m}$ (984 ft)

Applied rate: 15.00% (flat)

Rajapaksa et al. (2018) documented 15% property value decline within 200m of visible towers in Brisbane. The 300m threshold applies a 1.5× multiplier for high-desert perceptual equivalence.

Affected viewpoints: V16 (500 ft), V8 (800 ft)

TIER 2: V2 Angular Geometry Model

Distance: $d > 300\text{m}$ (984 ft)

Applied rate: V2 model output, capped at 9.78%

$$I = I_{\max} \times D(d) \times A(\theta_s) \times S(\phi) \times H$$

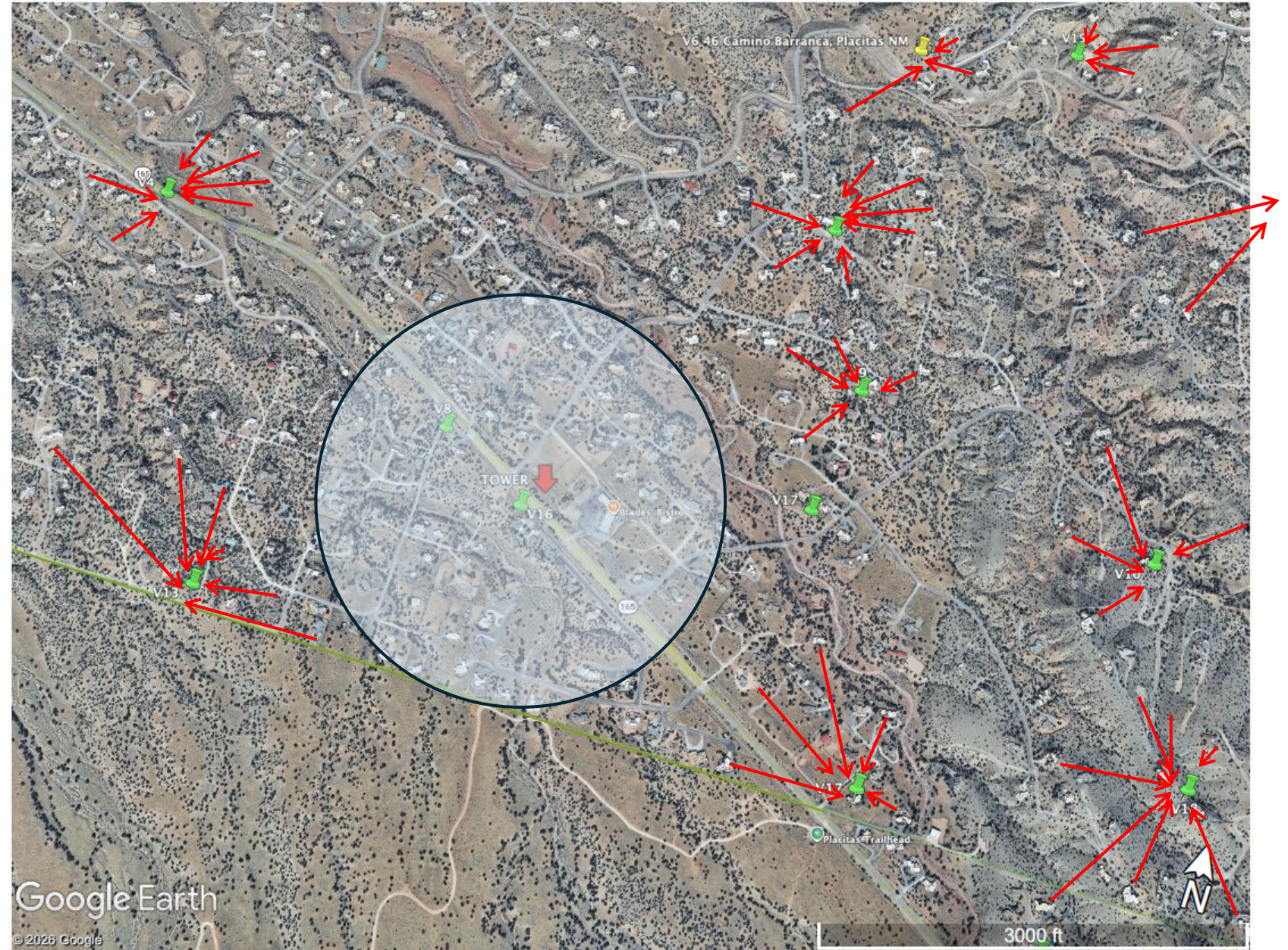
$I_{\max} = 9.78\%$ (Affuso et al. 2018). Distance decay $\lambda = 0.00012 \text{ ft}^{-1}$, calibrated for high-desert 3× visibility multiplier. No viewpoint beyond 984 ft exceeds the Affuso cap.

Boundary discontinuity (15% → 9.00% at 300m) is consistent with Rajapaksa's empirically observed sharp decline gradient. The step function reflects observed behavior, not a modeling artifact.

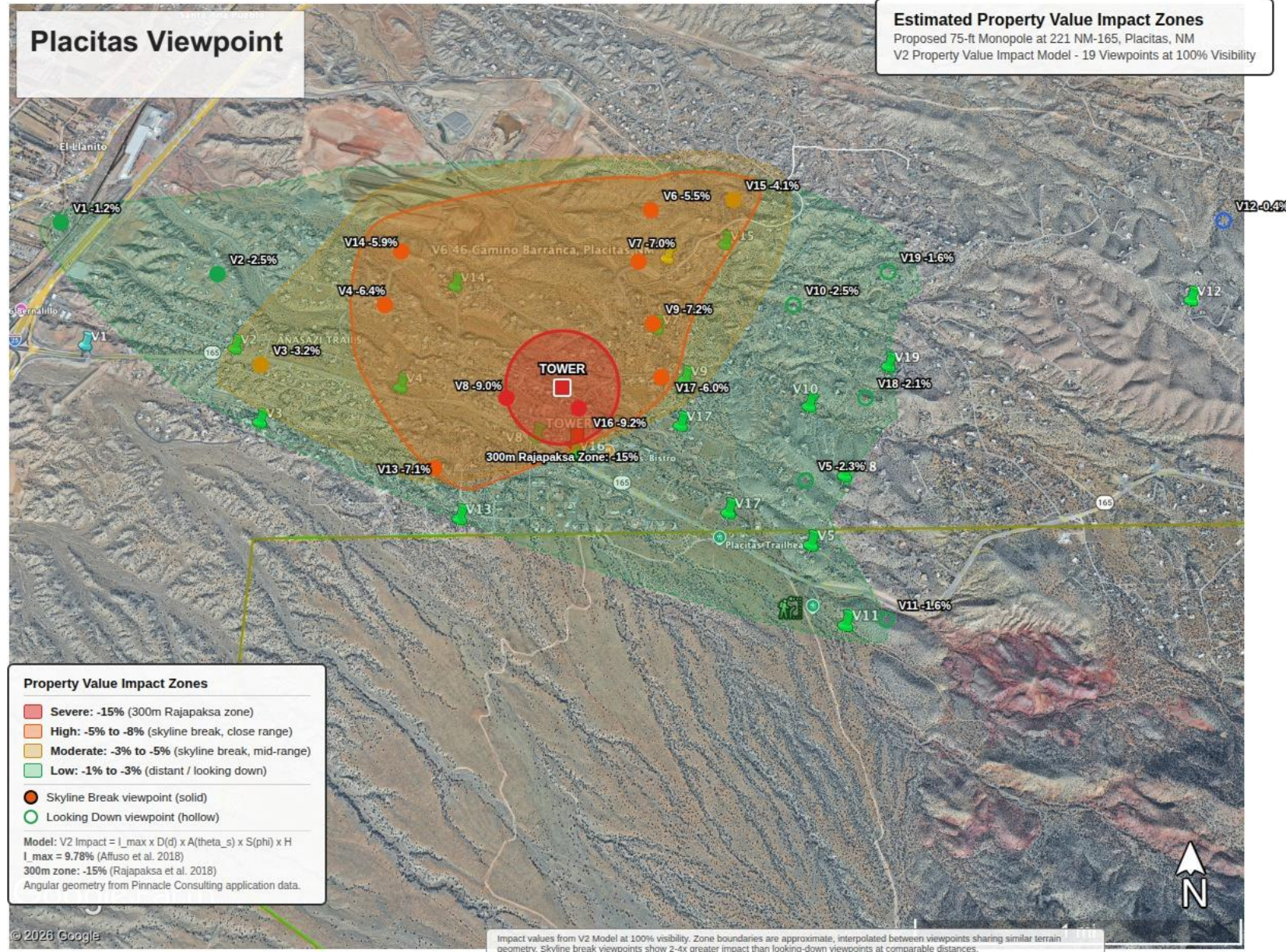
Voronoi assignment method was used to attach each house to its nearest viewpoint's value.

The sum of each viewpoint's neighboring homes to assess aggregate resale value impact.

House approximately within 300 m of the tower were assigned -15% according to Rajapaksa with a visibility modifier for high desert.



Estimated Property Value Impact Zones



19-Viewpoint Impact Analysis

Sorted by distance · Shaded = Rajapaksa zone (d ≤ 300m) · Page 1 of 2

VP	Dist (ft)	Type	V2 Rate	Raj?	Applied	Houses	Source	Zone Impact
V16	500	Skyline	9.25%	YES	15.00%	30	Rajapaksa	\$3,262,500
V8	800	Skyline	9.00%	YES	15.00%	50	Rajapaksa	\$5,437,500
V17	2,000	Skyline	6.05%	No	6.05%	40	V2 Model	\$1,754,500
V9	2,500	Skyline	7.20%	No	7.20%	35	V2 Model	\$1,827,000
V13	2,700	Skyline	7.10%	No	7.10%	20	V2 Model	\$1,029,500
V7	2,900	Skyline	6.95%	No	6.95%	40	V2 Model	\$2,015,500
V4	3,500	Skyline	6.40%	No	6.40%	25	V2 Model	\$1,160,000
V14	4,000	Skyline	5.90%	No	5.90%	50	V2 Model	\$2,138,750
V6	4,500	Skyline	5.45%	No	5.45%	35	V2 Model	\$1,382,938
V10	4,600	Look Down	2.55%	No	2.55%	25	V2 Model	\$462,188

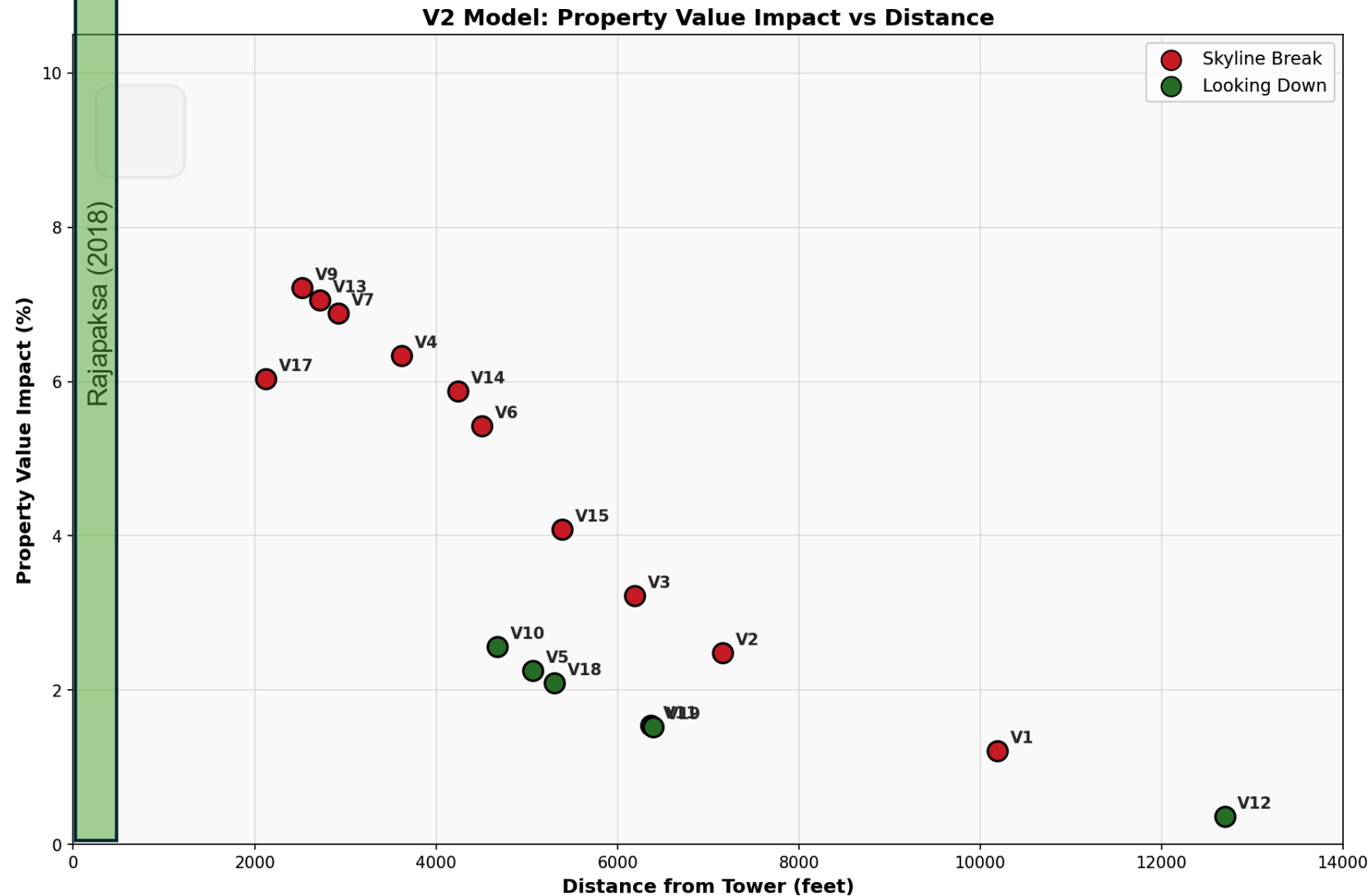
19-Viewpoint Impact Analysis

Sorted by distance · Page 2 of 2

VP	Dist (ft)	Type	V2 Rate	Raj?	Applied	Houses	Source	Zone Impact
V5	5,000	Look Down	2.30%	No	2.30%	15	<i>V2 Model</i>	\$250,125
V18	5,200	Look Down	2.10%	No	2.10%	20	<i>V2 Model</i>	\$304,500
V15	5,500	Skyline	4.10%	No	4.10%	30	<i>V2 Model</i>	\$891,750
V3	6,500	Skyline	3.20%	No	3.20%	30	<i>V2 Model</i>	\$696,000
V19	6,500	Look Down	1.55%	No	1.55%	20	<i>V2 Model</i>	\$224,750
V11	6,600	Look Down	1.55%	No	1.55%	12	<i>V2 Model</i>	\$134,850
V2	7,500	Skyline	2.45%	No	2.45%	60	<i>V2 Model</i>	\$1,065,750
V1	10,500	Skyline	1.25%	No	1.25%	10	<i>V2 Model</i>	\$90,625
V12	13,000	Look Down	0.40%	No	0.40%	8	<i>V2 Model</i>	\$23,200
AGGREGATE TOTAL						555		\$24,151,925

Impact vs. Distance: Skyline Break Dominates

15% V16,V8



At comparable distances, skyline-break viewpoints show 2-4x greater impact than looking-down viewpoints. This validates the V2 model's emphasis on viewing geometry over simple distance.

Any viewpoint (and nearby properties) within 300m was assigned a value of 15% Rajapaksa (2018)

Key Findings

\$24.15M

Aggregate Community Impact
555 homes affected

15.0%

Rajapaksa zone rate
(V8, V16 — $d \leq 300\text{m}$)

9.78%

Affuso cap
(V2 model maximum)

80

Homes in Rajapaksa
proximity zone

Rajapaksa proximity override: V8 (800 ft) moves from V2 model rate of 9.00% to 15.00%, joining V16 (500 ft) in the Rajapaksa zone. Both viewpoints fall within the 300m/984 ft boundary where peer-reviewed empirical data supersedes the angular model.

Impact increase: The reclassification of V8 adds ~\$2.18M to the aggregate impact (from ~\$21.98M to \$24.15M). The 80 homes nearest the tower now face a documented 15% property value decline.

Methodological robustness: Both tiers are grounded in peer-reviewed literature. The two-tier structure eliminates the internal discrepancy between slide 26 and slide 36 of the prior presentation by applying a single, consistent rule at each distance threshold.

Sensitivity Analysis

Impact varies with median home price assumptions

Median Price	\$600,000	\$725,000	\$850,000
Total Impact	\$19,987,800	\$24,151,925	\$28,316,050
Avg per House	\$36,014	\$43,517	\$51,020

Key Observations

- Skyline Break viewpoints account for 94% of total impact
- 13 skyline viewpoints: \$22.8M | 6 looking-down viewpoints: \$1.4M
- Closest 80 houses (within 800 ft) account for \$8.7M in impact
- 555 houses represent ~25% of Placitas total housing stock (~2,181 units)

Conclusions

The proposed tower would cause an aggregate property value losses across 555 homes in the Placitas community.

Model Strengths

- Based entirely on peer-reviewed academic research
- Uses conservative assumptions (not inflated non-peer-reviewed claims)
- Calibrated for Placitas high-desert visibility conditions
- House counts derived from actual satellite imagery analysis

Implications for CUP Review

- Contradicts applicant claim of minimal community impact
- Demonstrates tower conflicts with Placitas Area Plan viewshed protection goals
- Provides quantitative basis for denial under local zoning criteria

Key Findings

1

The proposed tower would reduce property values by 0.4% to 15% across 19 measured viewpoints, with 13 of 19 experiencing skyline break (the dominant impact driver).

2

Within 300 meters (the Rajapaksa severe-impact zone), peer-reviewed research supports a 15% decline regardless of viewing angle.

3

The high-impact zone extends asymmetrically along the NM-165 corridor and lower-elevation residential areas where the tower breaks the skyline, reaching 4,500+ feet from the site.

4

The aggregate community impact is approximately \$24 million across ~555 homes, confirmed by two independent methodologies converging within 1.4%.

5

The 18-ft shroud covering only 27% of the structure does not mitigate these impacts. In open desert terrain, the shroud creates a larger visual target, not a smaller one.

This analysis constitutes substantial evidence of documented property value harm for the written record under the Telecommunications Act of 1996.

Community Response

73

Group Members
Placitas homeowners

68

Weekly active members
(93% engagement rate)

84

Reactions in 7 days
(45 comments, 21 posts)

24

Going + Interested
April 21 hearing event

Organized local opposition: The Tower Defense Facebook group comprises 73 verified Placitas homeowners in neighborhoods directly affected by the proposed tower. This is not a single-complainant objection but broad-based, informed community opposition from property owners with documented financial exposure.

Active engagement: 68 of 73 members (93%) were active in the past week, generating 21 posts, 45 comments (4,400% increase), and 84 reactions. Media coverage of the opposition appeared on NewsBreak. The April 21 hearing event shows 7 confirmed attending and 17 interested.

Relevance to the record: Community opposition documented through an organized homeowner group strengthens the substantial evidence record for denial under the TCA. These are property owners in the affected impact zones whose home values are directly at risk from the proposed installation.

Recommendation to the Commission

Deny CU-26-001

- Nominal change in coverage. Only network type changes.
- Documented property value harm of ~\$24M across 555 homes
- Direct conflict with adopted Placitas Area Plan
- Inadequate stealth design (27% coverage, shroud paradox)
- Deficient application (boilerplate analysis, setback violation)

CU-26-001: Conditional Use Permit

Sandoval County Planning & Zoning Commission · April 21, 2026

Peer-reviewed evidence demonstrates property value impacts of \$24.15M across 555 homes from the proposed 75-ft monopole at 221 NM-165.

Affuso et al. (2018), Journal of Real Estate Finance and Economics

Rajapaksa et al. (2018), Environmental Economics and Policy Studies

C. Edwin Garner, Ph.D.