Alternative Site Analysis

AT&T Telecommunications and Internet Facility "Drytown"

6202 Hout Road
Plymouth, CA 95669

May 12, 2017

Summary of Site Evaluations and Technical Evidence
Conducted by Epic Wireless Group, LLC.

I. Executive Summary

In the summer of 2016, Epic Wireless Group, LLC was contracted by AT&T to identify a site location and design primarily for providing high speed internet for the FCC's Connect America Fund II project. The site would also improve the wireless coverage and capacity in the area. After conducting a thorough research and evaluation of existing properties and structures in the area that would accommodate a collocation, AT&T determined a new tower must be constructed to adequately meet the internet service goals and wireless coverage and capacity goals. Epic Wireless investigated a total of 3 potential alternatives and concluded that the presently proposed 136' monopole located next to a hill on a parcel zoned R1A is the least intrusive site that can offer the required internet service and wireless coverage to this area. This report walks through each alternative and the various obstacles associated with each site.

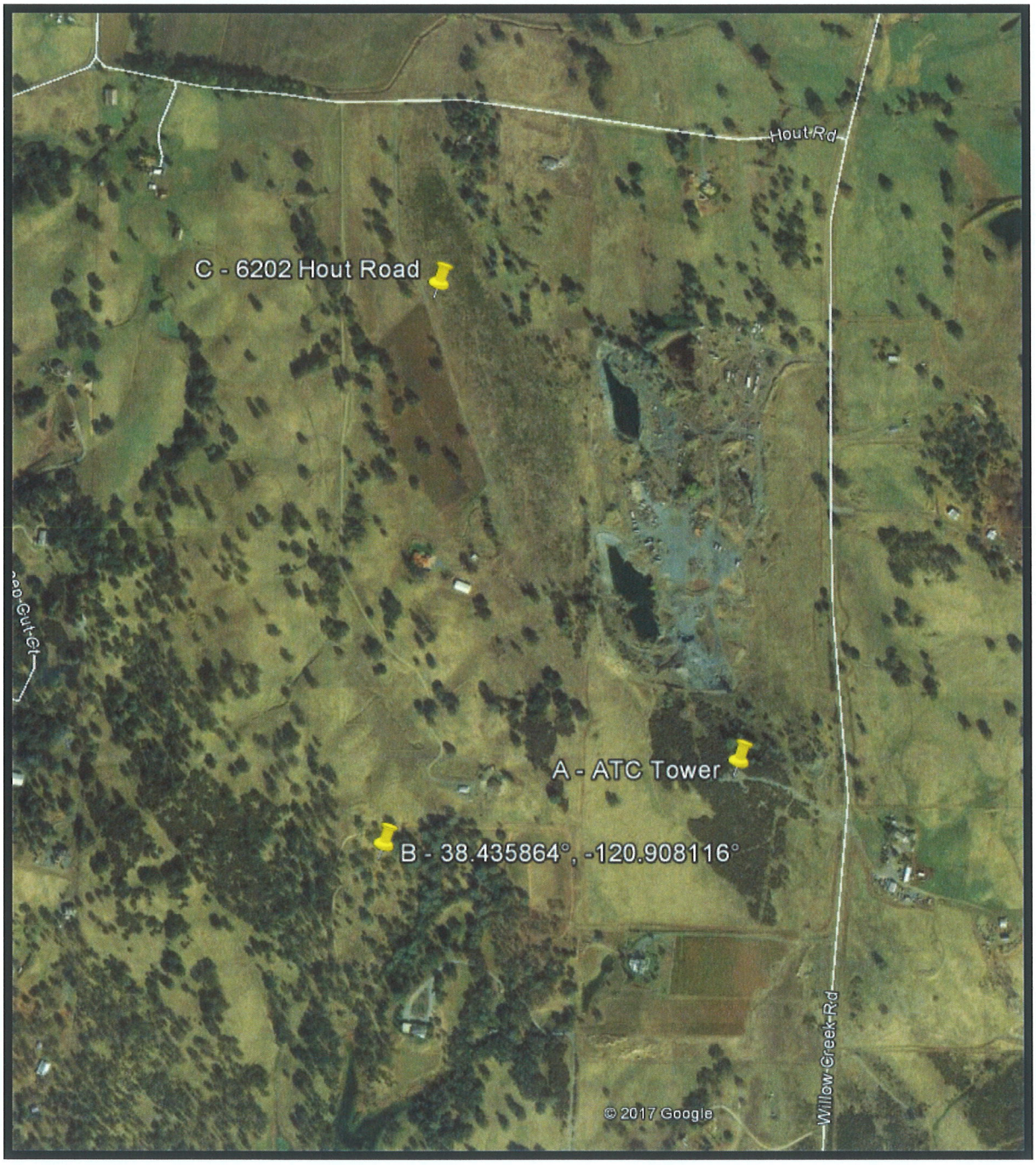
II. Coverage Objective

The FCC has determined that this is an area with insufficient internet service. As a result, this area was included in the FCC's Connect America Fund II project. This purpose of this project is to bring high speed internet to underserved communities. This is measured by the number of living units that will be serviced by the facility. This particular project requires line-of-sight to serve the maximum number of living units. In addition to improving the internet service, AT&T will also provide improved wireless coverage.

III. Methodology

In identifying the least intrusive site location and design, AT&T looks to topography, local code, ordinances, and general plans to identify the values significant to the local community for placement of wireless facilities. In addition, each proposed site must meet minimum requirements of fulfilling living units and coverage objectives, a willing landlord, feasible construction, road access, available telephone and electrical utilities as well as compliance with local zoning requirements.

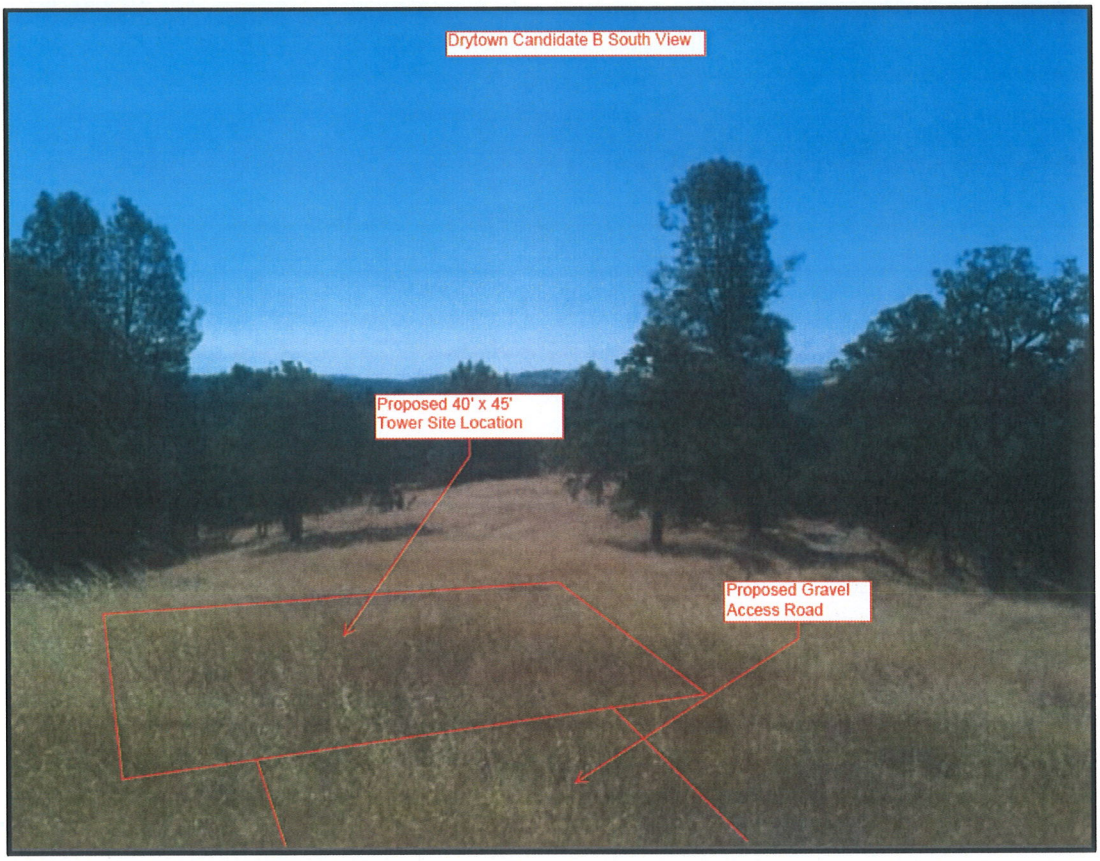
III. Candidates Investigated



1. **American Tower Corporation APN: 008-150-005-000**

This existing monopole is owned by American Tower Corporation (ATC) and is located at an elevation of 823'. According to ATC, there was space for AT&T at the 86' RAD center; however, when the Radio Frequency Engineer ran his models it was determined that this location would not meet the objective living unit target. The chosen site location is able to meet the objective living unit target, which means significantly more homes will have access to high speed internet.

2. APN: 008-150-025-000



This site was located on private property at an elevation of 749'. This location is approximately .59 of a mile south of the chosen site. Locating at this site would not fulfill the objectives of this project because the site would not be able to provide adequate internet service to the objective Living Unit targets.

IV. Conclusion

The identified site location and design of the proposed facility represents a thorough and responsible investigation of alternative site locations. AT&T, with the help of Epic Wireless and AT&T Wireless RF Engineers, has determined the proposed site to be the least intrusive means to service maximum number of living units. This facility is believed to have the least impacts to the community while offering future opportunity for other carriers to collocate.

WATERFORD
COMPLIANCE...FROM START TO SIGNAL

Radio Frequency Emissions Compliance Report For AT&T Mobility

Site Name:	**Drytown**	**Site Structure Type:**	**Monopole**
Address:	**6200 Hout Road**	**Latitude:**	**38.437102**
	Plymouth, California	**Longitude:**	**-120.9065**
Report Date:	**April 10, 2017**	**Project:**	**New Build**

General Summary

AT&T Mobility has contracted Waterford Consultants, LLC to conduct a Radio Frequency Electromagnetic Compliance assessment of the proposed Drytown site located at 6200 Hout Road, Plymouth, California. This report contains information about the radio telecommunications equipment to be installed at this site and the surrounding environment with regard to RF Hazard compliance. This assessment is based on installation designs and operational parameters provided by AT&T Mobility.

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits. At any location at this site, the power density resulting from each transmitter may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, the FCC General Population limit is considered to be a level that is safe for continuous exposure time. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

Frequency (MHz)	*Limits for General Population/ Uncontrolled Exposure*		*Limits for Occupational/ Controlled Exposure*	
	Power Density (mW/cm^2)	Averaging Time (minutes)	Power Density (mW/cm^2)	Averaging Time (minutes)
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

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Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any particular location given the spatial orientation and operating parameters of multiple RF sources. These theoretical results represent worst-case predictions as emitters are assumed to be operating at 100% duty cycle.

For any area in excess of 100% General Population MPE, access controls with appropriate RF alerting signage must be put in place and maintained to restrict access to authorized personnel. Signage must be posted to be visible upon approach from any direction to provide notification of potential conditions within these areas. Subject to other site security requirements, occupational personnel should be trained in RF safety and equipped with personal protective equipment (e.g. RF personal monitor) designed for safe work in the vicinity of RF emitters. Controls such as physical barriers to entry imposed by locked doors, hatches and ladders or other access control mechanisms may be supplemented by alarms that alert the individual and notify site management of a breach in access control. Waterford Consultants, LLC recommends that any work activity in these designated areas or in front of any transmitting antennas be coordinated with all wireless tenants.

Analysis

AT&T Mobility proposes the following installation at this location:

- Install twelve (12) new antennas
- Install twenty-one (21) new RRUS

The antennas will be mounted on a new 136-foot monopole erected for this purpose with centerlines at 133 feet above ground level. The antennas will be oriented toward 60, 300 and 180 degrees. The Effective Radiated Power (ERP) in any direction from all AT&T Mobility operations will not exceed 25,517 Watts. Other appurtenances such as GPS antennas, RRUs and hybrid cable are not sources of RF emissions. From this site, AT&T Mobility will enhance voice and data services to surrounding areas in licensed 700, 850, 1900, 2100 and 2300 MHz bands. No other antennas are known to be operating in the vicinity of this site.

Power density decreases significantly with distance from any antenna. The panel-type antennas to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serve to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level resulting from all AT&T Mobility operations is 0.3430% of the FCC General Population limits. Incident at adjacent buildings depicted in Figure 1, the maximum predicted power density level resulting from all AT&T Mobility operations is 0.2095% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy and will not contribute to existing cumulative MPE levels on walkable surfaces at ground or at adjacent buildings by 5% of the General Population limits.

Waterford Consultants, LLC recommends posting contact information signage at the compound gate. RF alerting signage (Caution) should be posted at the base of the proposed tower to inform authorized climbers of potential conditions near the antennas. These recommendations are depicted in Figure 2.

Figure 1: Antenna Locations

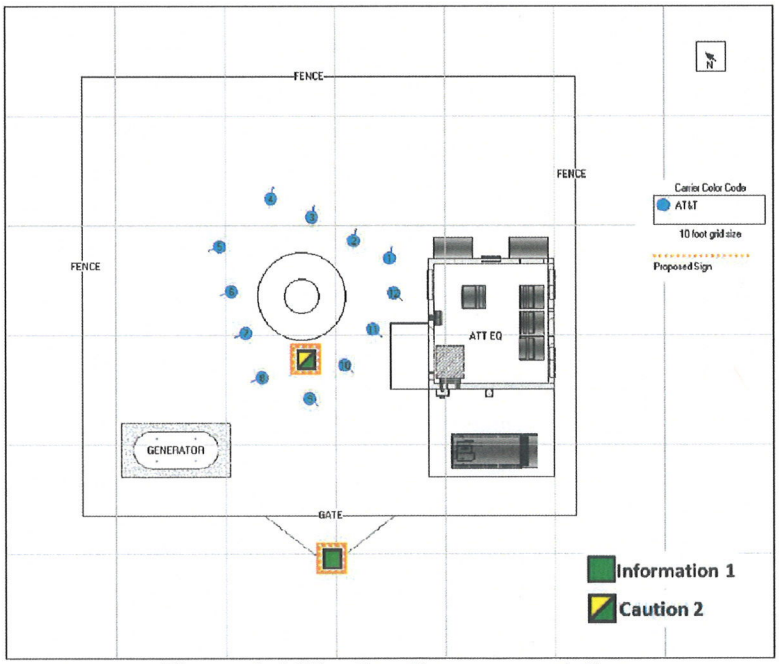

Figure 2: Mitigation Recommendations

Compliance Statement

Based on information provided by AT&T Mobility and predictive modeling, the installation proposed by AT&T Mobility at 6200 Hout Road, Plymouth, California will be compliant with Radiofrequency Radiation Exposure Limits of 47 C.F.R. § 1.1307(b)(3) and 1.1310. RF alerting signage and restricting access to the monopole to authorized climbers that have completed RF safety training is required for Occupational environment compliance.

Certification

I, Steven N. Baier-Anderson, am the reviewer and approver of this report and am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation, specifically in accordance with FCC's OET Bulletin 65. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

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