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Alternatives Analysis Report

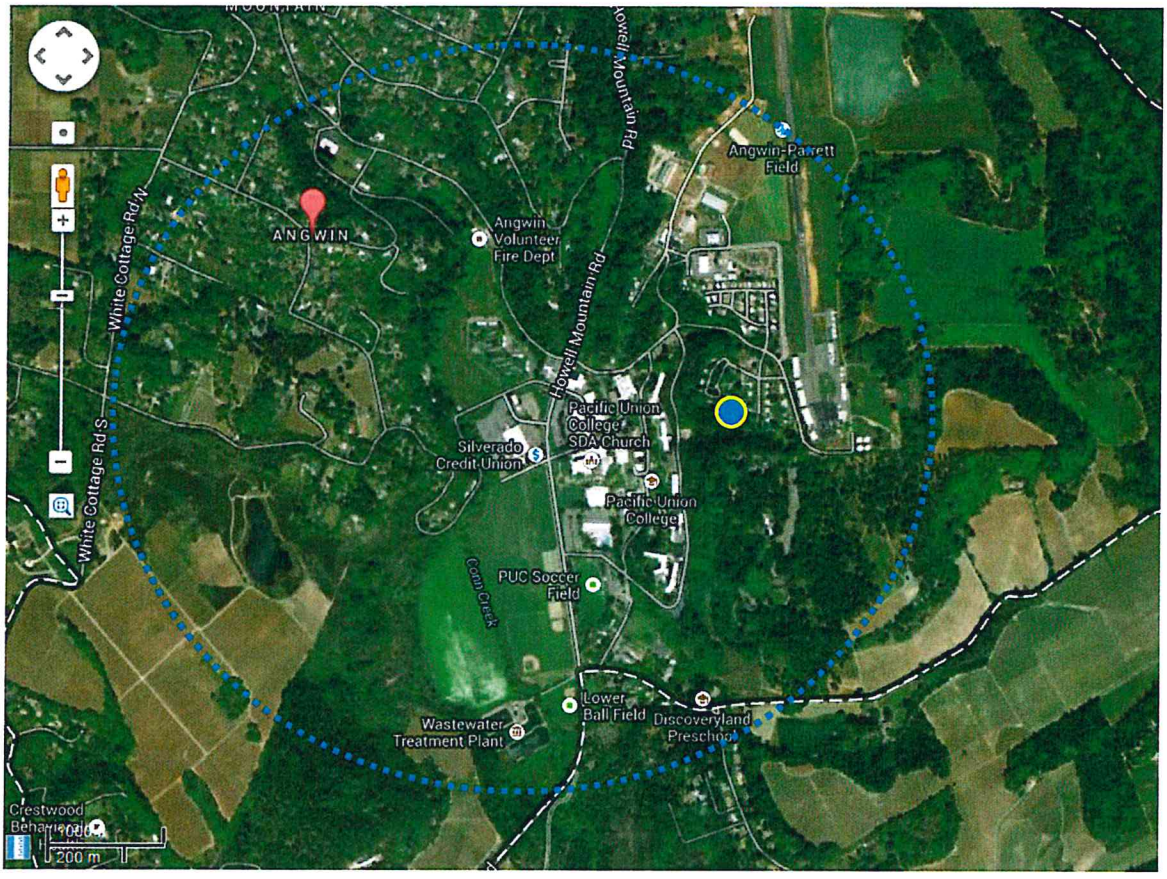
Proposed New AT&T Wireless Telecommunications Facility (CCU0803) at
149 La Jota Drive, Angwin, CA 94508
APN 024-410-014

Prepared is an alternatives analysis report for the proposed facility based on the stringent ordinance requirements of Bay Area cities. Its purpose is to inform the decision maker of the exhaustive process which resulted in the proposed facility. This report identifies the "search ring" for a new facility, defines a "significant gap", outlines the alternatives analysis performed, and finally delineates the before and after coverage objectives.

Search Ring (CCU0803 "Angwin Napa Valley")

AT&T Mobility has identified a significant gap in its service coverage in the County of Napa covering the City of Angwin and the campus of Pacific Union College. AT&T Radio Frequency (RF) design engineers outlined a search ring area to locate a wireless antenna facility. The facility is necessary to benefit the public with improved communications.

Figure 1. Search Ring map issued by AT&T RF. The blue dashed ring indicates the geographic significant gap in coverage. The requested RAD center of antennas was 50 feet to fully cover this area.



Defining a Significant Gap

The gap area identified by AT&T RF is approximately 0.78 square miles (0.5 mi radius) centered on the Pacific Union College. The area covers steep topography that decreases toward the west. The campus has many multi-story buildings along this hilliside. Large trees toward the west require antennas to be sited well toward the top of the topography.

The definition of a significant gap may vary among other service providers but generally delineates a geographic area in which antenna signal is below user expectations. Whether a device may be phone, tablet, or computer, the user may experience weak reception, inability to make calls and slow or intermittent data.

AT&T has a technological necessity to provide improved wireless cell and data service to the public. A gap means a particular geographic area is below "in-building" or "in-vehicle" service. In the case of Pacific Union College, cell service is actually non-existent, below "outdoor" service levels. AT&T RF engineers provided determination for this area by calculating signal strengths based on nearby AT&T wireless sites. RF issued the attached propagation maps for the jurisdiction, which detail the signal coverage and nearby cell sites.

Service levels are categorized in the following manner:

- In-Building Service: Indicates good cell signal that can be received well within buildings and indicates general proximity to the cell tower. Outdoor and in-transit service is exceptional or well connected. Dropped calls are unlikely.
- In-Transit Service: Indicates moderate cell signal that can be received while moving within vehicles or signals through open thoroughfares not impeded by structures. Dropped calls or poor service may occasional occur.
- Outdoor Service: Indicates lowest cell signal strength that can only be received while outdoors or that reception has degraded given the distance to the nearest antenna. Service at this level can be easily impeded by objects, structures, weather or by the user moving around. Dropped calls or poor service may frequently occur.

Public Benefit for New Facility

By the gap identified, there is a public necessity for the new telecommunications facility. The loss of coverage may pose a public safety risk in this primarily rural and flat area where the distances between people are further and hazards are not easily noticeable.

The Pacific Union College houses over 1,500 students, of the total 3,000 population in Angwin. The campus is a critical area for education and living and cell service is often non-existent given both the topography and the thick stone construction of many campus buildings. In addition, access through the area is limited and cell service provides for both convenience and emergency situations.

Future redevelopment of the college and surrounding lands will locate more people, more visitors and emphasize the need for service.

Least Intrusive Means

AT&T's goal is to pursue the least intrusive means to deliver services to a community and meet the significant gap coverage identified. The proposed roof screenwall on an existing multi-story building on the PUC campus is a least intrusive means by stealthing antennas from public view and integrating within a building's architecture. This is the preferred method of screening antennas by Bay Area jurisdictions and we are pleased to invest in this solution.

Alternative Analysis for Search Ring CCU0803

Modus Inc. on behalf of AT&T Mobility performed an exhaustive search to determine feasible candidate sites in the search ring. Candidates are evaluated through a matrix of conditions:

- Proper topography
- Obstructions and existing structures
- Zoning, City Ordinance
- Available utilities to service site
- General vehicle/construction access
- Space for equipment shelter
- Approval of RF engineer
- Willingness of underlying property owner
- Willingness of collocation leaseholders
- Leasing and contractual negotiations
- Available 24 hour emergency access
- Construction feasibility

Wireless communication is line-of-sight technology that requires antennas to be in relatively close proximity to the wireless handsets to be served. All factors are weighed between the service carrier, property owner, and jurisdiction to produce a site design of the least intrusive means.

The initial search involved analysis of satellite imagery, and discussion with local contacts such as Pacific Union College officials and County of Napa planning. The search ring was initially exhausted in the following manner:

1. A site was sought within the search ring, with antenna RAD center height of 50 feet, and general unimpeded view in north, west, and south directions.

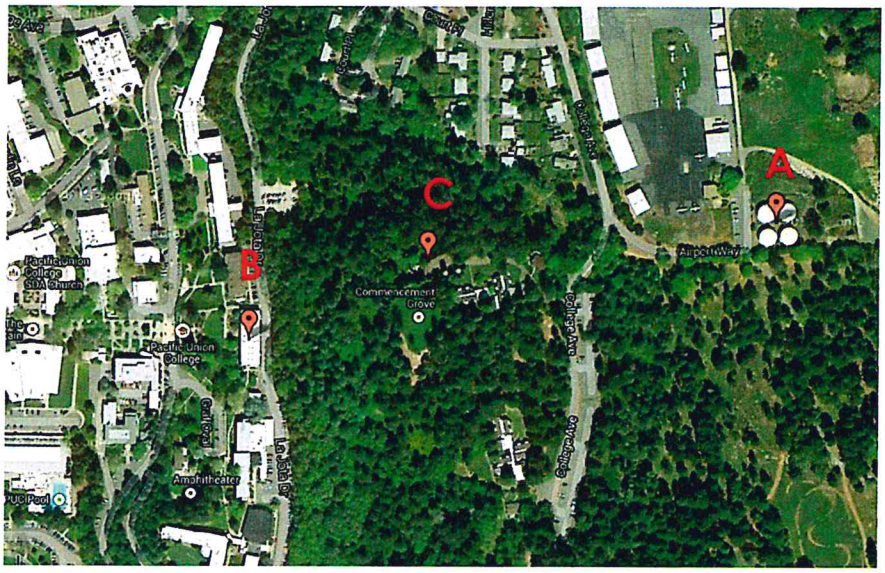
2. All lands in the western part of the ring were exhausted as too low in the topography. Antennas cannot be pointed "upwards" at the campus hillside.

3. No existing PG&E lattice towers or suitable utility structures for collocation were identified in the ring. AT&T's requested build size of 9 antennas also discounts any wood poles or thin poles as not structurally sufficient.

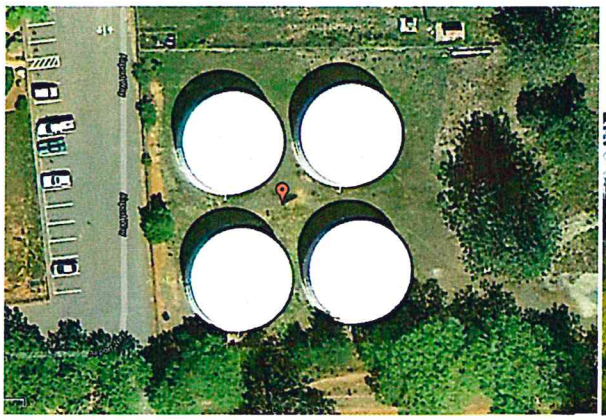
4. Open vacant land and heavily forested areas were avoided, given the uncertain nature of future development. In addition the routing of power and telco is a factor ruling out sites which would have placed the tower too far away from point of contacts.

Review of Final Candidates

Three final candidates were identified. Candidates were given preliminary site walks to assess their architectural design and construction feasibility. Leasing and access considerations were given. These candidates were then ranked and submitted to AT&T Mobility for final radio-frequency review. Map of selected candidates below:

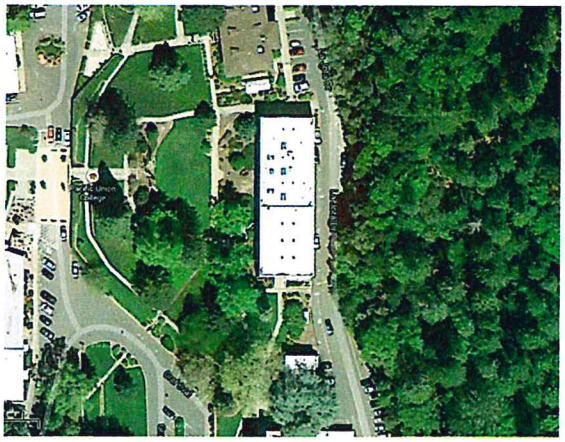


Candidate A – Water Tanks on Angwin-Parrett Field
Airport Way Near College Ave, to the southeast of the airport field. 38.570851, -122.432928
Zoned AV, AC, AW, Airport District
Property Owner: Pacific Union College
AT&T often collocates on utility structures such as water tanks. The tanks near the airport are 30' feet tall and could accommodate open air "stick" antennas or with stealth option. These would give antenna centers of about 36' feet. Leasing and construction indicated there may be some access issues given they are a sensitive resource and currently protected by fencing. In addition zoning noted a FCC filing would need to be made and may delay the process. The candidate was submitted to RF, who rejected the site due to its distance too far east from the coverage gap and search ring in general. In addition there were concerns that the dense trees between the field and the college would scatter or weaken the signal overall.



Candidate B – Verizon Tower near Commencement Grove
1 Hillcrest Drive off College Ave 38.57042, -122.436843
Zoned AV, AC, AW, PD-Airport District
Property Owner: Pacific Union College
An existing Verizon tower was explored for collocation. Though the tower is 128 feet tall, there was only room for AT&T at 50 feet as Verizon and other radio antennas occupy the top. Construction was concerned whether the tower could support AT&T RF's request of 9 or 12 antennas. There did not appear to be suitable paved surrounding at-grade space to locate a typical 12' x 20' equipment shelter. Building upon grass, soil, or removal trees may be required. There are two concrete water towers next to the Verizon lattice tower, about similar height. The college indicated the towers are not allowed for collocation due to their aging condition and unreinforced construction. The candidate was submitted to RF who performed a drive test for this site and for Candidate C. RF selected Candidate C as the superior option and again noted the tree density as well as low height that did not allow signal to go "over" the tree tops.

Candidate C – Irwin Hall
146-168 La Jota Drive 38.569836, -122.438765
Zoned AC, AH, PD-Airport District, Affordable Housing
Property Owner: Pacific Union College
AT&T RF indicated a building on the hill-top along La Jota Drive would be preferable. College officials also indicated it was selective about which buildings were allowed, and offered Irwin Hall for AT&T's consideration. Irwin Hall is a two-story classroom facility about 30 feet tall. As noted in the drive test for Candidate B, RF approved this candidate and a Site Design Meeting was issued on-site with college officials and AT&T agents in zoning, construction, architecture, survey, and radio-frequency. Architecture voiced concern about integrating a design with the flat-roof building, and also that the roof was occupied by multiple utilities, thereby limiting locations of new screenwalls. The RF engineer determined the building was not maximally suitable. Antennas would need to be located on three sides of the building (north, south, west). The reasoning being that antennas at the center of the building would degrade as it passed over the north and south roof areas. Having disparate locations for antenna sectors creates angling issues (instead of a continuous arc, the signal is fanned out).



Selected candidate: Graf Hall – 146 La Jota Drive

During the site walk for Irwin Hall, college officials pointed to Graf Hall as an alternative candidate to consider. They indicated the residence hall contained an empty penthouse which could be fully utilized by AT&T and future carriers. Though it is a residence hall, it is not occupied half the year, and the penthouse level is generally off-limits.

The site walk team assembled at Graf Hall and determined the building would be a superior candidate to Irwin Hall. Graf Hall is a taller building at 49'-6" and has an existing penthouse, subdivided into two rooms, in which AT&T can utilize for equipment space. Architecture indicated the building style was better suited to a roof screenwall in the center of the building. The RF engineer also approved the location, given the ability to locate antennas in a central location, and being higher up, able to avoid signal degradation over the north and south roof areas. Construction found no issues with structural and also favored the installation for its centralizing of all component parts. Irwin Hall would actually require an at-grade separate equipment shelter due to insufficient room within the building.

Preliminary proposal for installation on Graf Hall was sent to Pacific Union College. Representatives confirmed the proposal and authorized moving forward with zoning submittal on this site.

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