CASE STUDY | RESIDENTIAL COMMUNITY

# Southern California HOA extends 5G coverage across challenging hillside property



Representative image of a Southern California hillside community.

## The challenge

A **687-home master-planned residential community spanning approximately 800 acres in Brea, California** had targeted areas with weak or little usable cellular service.

Reliable connectivity is increasingly important to the community's infrastructure, which includes **27 cloud-connected license plate recognition (LPR) cameras** and water-monitoring systems. Coverage gaps also limited the potential to support remote video, alerts, infrastructure monitoring, and additional connected applications.

| 687 | ~800 | 27 |
|---|---|---|
| HOMES | ACRES | CLOUD-CONNECTED LPR CAMERAS |

## Why Lighthouse

Velos Internet & Tech, a systems integrator working with Airgain, needed a practical way to extend 5G coverage into hard-to-reach areas without building a new cellular site.

Velos selected the **Airgain Lighthouse™ 5G Intelligent Node** to extend an existing cellular signal into targeted coverage gaps.



Lighthouse uses an existing cellular donor signal rather than requiring a new wired cellular backhaul connection for coverage extension, helping reduce infrastructure and deployment complexity in suitable environments.

CHALLENGE
**Targeted 5G coverage gaps**
Large hillside residential community

SOLUTION
**Lighthouse™ 5G Intelligent Node**
Extend an existing cellular donor signal

DEPLOYMENT
**< 1.5 DAYS**
Initial installation + commissioning

RESULTS
**5 / 5 LOCATIONS**
Measured cellular performance improved

RESULTS

# Measured 5G improvement across every test location

**5 / 5**
LOCATIONS
**Measured locations improved**
Cellular performance improved at every measured test location.

**2**
LOCATIONS
**No usable data → measurable 5G**
Two locations that previously had no usable data service gained measurable 5G connectivity.

**~140**
MBPS
**Measured after deployment**
At one location where no usable data connection was available before deployment.

**650–2,600**
FT
**Measured test range**
Approximate distance of measured locations from the Lighthouse installation.

Field results measured at the Brea, California deployment.

## Installation approach

01 Identify targeted areas with weak or little usable cellular service
02 Capture an existing **T-Mobile n41** donor signal
03 Install and align antennas for the hillside environment
04 Deploy Lighthouse at a remote site using a standalone solar power system
05 Commission and optimize coverage across targeted test locations

**<1.5 DAYS**
INITIAL INSTALLATION + COMMISSIONING
At the Brea site, this included vegetation clearing, pole installation, antenna mounting and alignment, and installation of the standalone solar power system.

PARTNER PERSPECTIVE

> "The throughput improvements have been very encouraging, and the deployment gives us confidence that Lighthouse can provide a repeatable approach for other locations facing similar coverage challenges."

**James Lara**
President, Velos Internet & Tech

## Supporting connected operations

Improved cellular coverage provides a stronger connectivity layer for applications such as:

- Cloud-connected security cameras
- Remote video and alerts
- Water and infrastructure monitoring
- Future access-control, environmental-sensor, and IoT applications

## Extend 5G coverage where the network falls short

**Airgain Lighthouse™ 5G Intelligent Node** is designed to extend existing cellular coverage into hard-to-reach indoor and outdoor areas using intelligent RF control and an existing donor signal.

For suitable deployments, Lighthouse can help address targeted coverage gaps without the infrastructure complexity of building a new cellular site.

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