

**CSAC 2019 Challenge Award Nomination
Humboldt County
Using Satellites to Reduce Cannabis Impacts**

**Category:
Housing, Land Use & Infrastructure**

Overview: By using high-resolution satellite data, Humboldt actively identified and monitored permitted and unpermitted cannabis cultivation operations in remote areas, which reduced environmental impacts.

Challenge: With Cannabis legalization came the need to address illegal cultivation in Humboldt County. It is estimated that there were 15,000 cultivation sites on 6,000 parcels at the time of legalization. The challenge for Code Enforcement was to efficiently and effectively transition from a complaint driven system to an active enforcement model identifying and addressing unpermitted cannabis cultivation operations across the 4,000 square miles of Humboldt County. The objectives were to reduce the environmental impacts from unpermitted operations, and to assist in monitoring compliance of those in the permit process. The Humboldt Environmental Impact Reduction (HEIR) was developed to have a meaningful impact on the illicit cannabis industry. The remote, rugged, and densely forested terrain offered considerable challenges with respect to both access and visibility. Additionally, transportation, road conditions, vehicle type, maintenance and personnel costs just from drive times needed to be considered in developing an effective approach. The temporal cadence of operations was also a key factor, as the season progressed, activities in May or June, could be very different than in September or October.

Innovative Solution: It quickly become evident that aerial imagery provided good information to identify violations. Planning & Building discovered what was available from open or subscription sources was insufficient in coverage, frequency, and resolution to reliably address needs. Staff explored industry vendors to determine the viability of obtaining satellite data at the objective and threshold requirements to meet the HEIR goals and determined it was indeed "feasible." The department issued a broad Request for Proposal and received multiple responses from satellite data providers, and ultimately awarded a 1-year pilot program contract to Planet Labs to provide five cloud free data collects across seven months, covering over 7,000 square kilometers of Humboldt county for under \$200,000. Since the County owns the 70 cm data and imagery collected by the Planet Labs satellites, the department was able to digitize and integrate the data into our Geospatial Information System and create detailed overlays for in depth, near real-time analysis with other digital information such as permit status, building permits, zoning etc. to quickly assess the status

and condition of a parcel with a cannabis operation signature. From desk top computers the Department could identify the existence of unpermitted cannabis operations, generate and send Notices to Abate Nuisance and Notices of Violation in a systematic and deliberate way to reduce the environmental impact through remediation of civil code violations.

Originality: Most local jurisdictions have Code Enforcement, and many also permit cannabis cultivation, but we believe Humboldt County is the first in the Country to purchase satellite time to collect data for the specific purpose of identifying and monitoring cannabis cultivation operations on a trans seasonal cadence to determine compliance with existing ordinances. Additionally, using the sensor data and imagery, drastically reduced the time investigators would have spent driving from site to site, while concurrently increasing tenfold the volume of cases that could be processed in the same amount of time and staff. This technology and digital overlay processes from our multiple data sources are also used to monitor the permitted cannabis cultivation operations to facilitate compliance within the parameters of their permits.

Cost Effectiveness: The personnel and equipment cost savings from other options is quite substantial. The cost of the imagery is less than two full time staff and even with two additional staff the department could not accomplish through traditional code enforcement practices what has been achieved through the HEIR program. While not the objective, the civil fines and penalties collected from violations also vastly exceeded the cost of the imagery and staff time used to conduct the HEIR pilot year. The environmental impact reduction from remediation of hundreds of properties previously in violation is difficult to quantify, but arguably invaluable.

Results: In the pilot year, more than 600 unpermitted cannabis cases were identified and noticed. More than half of those properties were abated or are being remediated through compliance agreements with the property. The total impact is hard to quantify because there are stories of many more cultivators who have stopped illegal cultivation to avoid enforcement action. The reliable and timely data, large area coverage at the temporal and spatial resolution provided, at this price enabled the Department to meet or exceed the HEIR pilot objectives, provide a viable deterrent to potential violators.

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