Drone as First Responder

Policy Review & Recommendations

Berkeley Police Accountability Board · February 2026

1. Background & Objectives
2. Methodology
3. Empirical Evidence
4. Policy Gaps
5. Constitutional Risk
6. Recommendations

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Background & Objectives

Background

The Berkeley Police Department has proposed acquiring a Drone as First Responder (DFR) program. In response to this proposal, the Police Accountability Board (PAB) requested that the UC Berkeley Criminal Law & Justice Center conduct an independent policy review.

Objectives

This presentation seeks to evaluate the Berkeley Police Department's proposed Drones as First Responder use policies under Policy 611 and assesses the preliminary analytical framework developed by the Office of the Director of Police Accountability and shared with CLJC in an October 2025 memorandum:

- Empirical Verification

- Policy and Civil-Liberties Analysis

- Transparency and Oversight Framework

- Cost and Operational Modeling

- Equity and Community Impact

- Comparative Benchmarking

https://unsplash.com/photos/turned-on-drone-rSFxBGpnluw

Methodology

Empirical Effectiveness Analysis

Empirical Effectiveness Analysis was conducted to examine claims advanced by technology vendors and police departments, including performance assertions and data privacy guarantees, by drawing on publicly available crime statistics, drone deployment data, comparative jurisdictional analysis, and peer-reviewed literature

Policy Analysis

Policy Analysis was undertaken to evaluate BPD's proposed use policies, oversight structures, and documented cost frameworks through a comparative review of peer jurisdictions. The goal was to identify essential safeguards and enforceable provisions that must be in place should the City choose to move forward with approving a Drone as First Responder program.

Legal and Constitutional Review

Legal and Constitutional review focused on Fourth Amendment search limitations, First Amendment protected-activities, California privacy law (Art. I, § 1), AB 481 requirements, and CalECPA electronic surveillance provisions were undertaken to evaluate legal risk, case law, statutory interpretation, and municipal policy precedent. See Appendix A for detailed legal framework.

Limitations: The information in this presentation draws on publicly available data from peer jurisdictions, peer-reviewed scholarship and secondary analyses of department flight logs, and findings should be interpreted accordingly. Clearance rate comparisons are descriptive rather than causal. The observed divergence between high- and low-drone deployment categories may reflect differences in crime type, reporting patterns, prosecutorial standards, or concurrent policy interventions, and cannot be attributed to drone deployment alone without controlled study design and case-level outcome data.

CLJC Recommends Against DFR Procurement

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NO EMPIRICAL BASIS

Claims of staffing efficiencies, de-escalation and safety are not supported by peer-jurisdiction evidence and peer-reviewed literature.

SFPD data shows that crime categories with high drone deployment underperformed compared to the control group.

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CONSTITUTIONAL RISK

Potential for significant 1st and 4th Amendment exposure. Mission creep documented in many peer jurisdictions.

Policy language alone insufficient—restrictions must be built into procurement.

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CRITICAL POLICY GAPS

In December, 2025, the FCC added all foreign-produced drones to its Covered List under the FY2025 NDAA, creating supply chain and lifecycle uncertainty for BPD's proposed DJI fleet.

BPD's Impact Statement contains no reference to the FCC ruling, omits Flock sanctuary law exposure, and fails to project LTE infrastructure, data storage, fleet replacement, or the operational risks the Covered List ruling creates for long-term hardware commitments. Fiscal disclosure is materially incomplete.

BPD Claims: Limits of the Available Evidence Thus Far

BPD / BPA Claim	Evidence Status	Key Finding
Faster Response Times	✓ SUPPORTED	Drones arrive 3-5 min faster. Chula Vista: 74% arrive before ground units.
Enhanced Situational Awareness	⚠ MODERATE	Useful in high-risk scenarios. Limited to specific emergencies; raises routine privacy risk.
Improved Crime Clearance	✗ NO EVIDENCE	SFPD clearance data: High-drone categories +3.9pp post-deployment vs. +7.1pp control (arson-driven volatility). No meaningful clearance signal in treatment group.
Crime/Violence Reduction	✗ NO EVIDENCE	No peer-reviewed study demonstrates causal link between drone use & reduced crime rates.
De-escalation & Use of Force	⚠ ANECDOTAL ONLY	Single-incident examples. No empirical data.
Staffing Efficiencies	⚠ MODERATE	20-30% of calls resolved without ground dispatch in peer jurisdictions (Chula Vista, Elizabeth NJ, Fort Wayne). Chula Vista: 25% return rate, but 66% of flights were officer-initiated. MITRE (2023) flags as agency self-report, not empirically validated.
Cost Effectiveness	⚠ UNVERIFIED	No independent audit. Chula Vista's salary-absorption model collapsed. BPD's model mirrors it.

SFPD Drone Deployment vs. Crime Clearance Rates (2023–2025)

HIGH DRONE DEPLOYMENT (Treatment Group)

Crime	Pre-Drone 23→24	Post-Drone 24→25	Acceleration
Robbery	+3.4pp	+7.11pp	+3.77pp
Assault	+4.33pp	+0.6pp	-3.7pp
Burglary	+2.2pp	+3.9pp	+1.7pp
Mean	+3.3pp	+3.9pp	+0.6pp

LOW/NO DRONE DEPLOYMENT (Control Group)

Crime	Pre-Drone 23→24	Post-Drone 24→25	Acceleration
Rape	+0.8pp	+2.5pp	+1.7pp
HIT-Inv Srv	-	-	excl.
Arson	-1.6pp	+17.9pp	+19.5pp*
Larceny	+4.3pp	+0.8pp	-3.5pp
Mean	+1.2pp	+7.1pp	+5.9pp

KEY FINDING: High-drone categories showed +3.9pp mean clearance rate change post-drone vs. +3.3pp pre-drone (+0.6pp net). Control group: +7.1pp post vs. +1.2pp pre (+5.9pp net), driven by arson volatility (9.2%→27.1%). No meaningful clearance signal in treatment group. Descriptive, not causal.

What BPD's Impact Statement Omits

✓ DISCLOSED COSTS	
Initial Hardware (Avata 2 + Matrice 4T)	**$44,500**
DFR Lease — Year 1	**$100,000**
Dock Installation	**$15,000**
Training (12 pilots)	**$72,000**
Annual DFR Lease + Radar (ongoing)	**$277,000/yr**

✗ NOT DISCLOSED / OMITTED	
Connectivity / LTE Infrastructure	**Not quantified**
Axon Evidence.com Data Storage	**Not accounted/omitted**
Fleet Replacement (Year 3–4)	**Not projected**
NDAA/FCC Compliance Transition (3 of 4 DJI models added to FCC Covered List Dec 2025)	**Not quantified**
Sanctuary Law Exposure via Flock Platform	**Not assessed**

NDAA Compliance Changes: Three of BPD's four proposed drone models (DJI Avata 2, Matrice 4T, Matrice 4TD) were added to the FCC Covered List in December 2025. BPD's Impact Statement fails to reference this ruling. Within the disclosed 3-year hardware lifespan, these units may face operational and fiscal restrictions requiring premature NDAA-compliant replacement at significantly higher cost.

Sanctuary Law Risk: ACLU investigations document Flock's default agreements may permit data sharing even when agencies opt out. Oakland PD — prohibited by CA law from sharing with federal agencies — allowed federal-marked data access through Flock in 2025. BPD's proposal does not address vendor data access, third-party access, footage storage location, or warrant-compelled disclosure protocols.

Comparable Program: Chula Vista's salary-absorption model failed — City Council approved $1.5M annual investment. BPD's proposed model mirrors the same structure which may prove to be unsustainable in the long-term.

Policy 611 Strengths & Critical Remaining Gaps

✓ POLICY 611 STRENGTHS (Exceeds Peer Jurisdictions)

Narrow Scope

13 enumerated emergency uses only; BPD personnel operate drones

City Manager Approval Chain

Watch Commander → Chief → City Manager required for each use

60-Day Data Purge

Non-evidentiary footage deleted within 60 days

14-Day Transparency Portal

Each deployment published within 14 days

Explicit Prohibitions

Race, religion, sex, gender identity, economic status, disability targeting banned

✗ CRITICAL GAPS — Must Be Addressed Before Council Vote

No Outcome Metrics

Policy 611 does not contain effectiveness benchmarks. No success thresholds or pilot evaluation protocol.

No Vendor Data Controls

Policy 709 does not specify vendor data access restrictions, Flock API sharing rules, or federal agency prohibitions.

No Audio Prohibition

No explicit ban on microphone or audio activation. Could expose the department to suppression risk and potential civil liability under PC §637.2

No Sanctuary Compliance

BMC 13.90 protections not embedded in vendor contract requirements.

No Equity Safeguards

No per-census-tract deployment caps, no demographic flight logging, no disparate impact review.

Mission Creep Precedent: SF flew 78% of drone missions for property crimes (not emergencies) and flew drones at public events (Pride, Dolores Hill Bomb skateboarding event). Las Vegas plans to expand to 24/7 operations in 2026. Policy language alone has proven insufficient.

Why These Risks Are Not Hypothetical

1ST 1st AMENDMENT

2017: Alameda & Contra Costa Sheriff's flew drones over peaceful protests in Berkeley and Richmond

Departments have classified protest surveillance as 'public safety' to circumvent warrant requirements and public record requests

Berkeley must categorically prohibit deployment at assemblies, not merely restrict it

4TH 4th AMENDMENT

Kyllo v. United States: advanced sensors (thermal) into homes = search requiring warrant

Carpenter v. United States: sustained tracking of movements = unconstitutional without warrant

Policy 611's vague authorization language may create litigation risk

EQ RACIAL EQUITY

SFPD: Drone flights concentrated in Tenderloin, Mission, SoMa, Bayview — highest minority & low-income areas

Strong spatial overlap between racialized neighborhoods and drone deployments

Berkeley lacks any equity monitoring or per-tract deployment cap in proposed policy

Bottom Line: Berkeley faces potential legal exposure.

Addressing the PAB's Five Key Focus Areas

1 **Empirical Verification** — Unsubstantiated

Clearance improvement, safety and staffing efficiency claims lack peer-reviewed support. SFPD quasi-experiment trends negative for high-deployment crime categories.

2 **Policy & Civil Liberties** — Major Gaps

No audio prohibition, no Flock vendor controls, no sanctuary protections embedded in Policy 709. Protections must be codified in policy.

3 **Transparency & Oversight** — Partially Addressed

Policy 611 14-day portal and 60-day purge exceed peer standards. But no case-level data reporting framework, no demographic logging, no independent audit mechanism.

4 **Cost & Operational Modeling** — Materially Incomplete

BPD discloses ~$277K/yr but omits cellular/LTE infrastructure, Axon storage, fleet replacement, and NDAA compliance costs. Independent CBA required before Council vote.

5 **Equity & Community Impact** — Not Addressed

No per-census-tract deployment caps. No demographic flight logging. SFPD data shows predictable disparate impact pattern Berkeley should anticipate and prevent.

CLJC's Staged Recommendation for Council Consideration

PRIMARY: Recommend the City Council REJECT BPD's DFR proposal in its current form. The primary public safety justification is not supported by evidence. Constitutional and fiscal risks are unmitigated. Current and projected fiscal models remain incomplete.

CATEGORICAL PROHIBITION (regardless of any other decision): Categorically prohibit interior drone procurement (drones capable of entering enclosed structures) under any circumstances.

IF COUNCIL DECLINES TO REJECT — Condition Authorization on 3 Mandatory Pre-Deployment Stages:

STAGE 1	STAGE 2	STAGE 3
Mandatory Risk Assessment	**Bounded 12-Month Pilot**	**Pre-Defined Success Metrics**
• Independent (non-vendor) constitutional exposure analysis	• Tier 1 emergencies ONLY (violent crime, fires, SAR) — no property crime	• Council must adopt binding thresholds BY ORDINANCE before pilot launches
• Disparate impact modeling using SFPD deployment patterns	• City-controlled data storage; zero vendor access; third-party access controls; automatic sunset	• Metrics: response time, warrant compliance, equity distribution, cost vs. alternatives
• Full lifecycle cost disclosure including NDAA/FCC compliance costs	• Per-tract deployment caps + demographic logging required	• Data architecture built into procurement requirements from day one

Summary: What the PAB Should Request From BPD

01 Independent cost-benefit analysis accounting for NDAA/FCC compliance costs, LTE infrastructure, and Flock sanctuary law exposure

02 Supplemental disclosure on FCC Covered List ruling for DJI Avata 2, Matrice 4T, and Matrice 4TD — with replacement cost estimates for NDAA-compliant alternatives

03 Vendor contract provisions explicitly prohibiting data access by Flock/Axon, with termination clauses tied to sanctuary law violations

04 Binding success metrics adopted by ordinance BEFORE any pilot authorization, with data architecture requirements built into procurement specs

05 Per-census-tract deployment caps and mandatory demographic flight logging to enable disparate impact monitoring under Berkeley's anti-discrimination policies

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