

Joint Expeditionary Base Little Creek

National Security Exposure Assessment

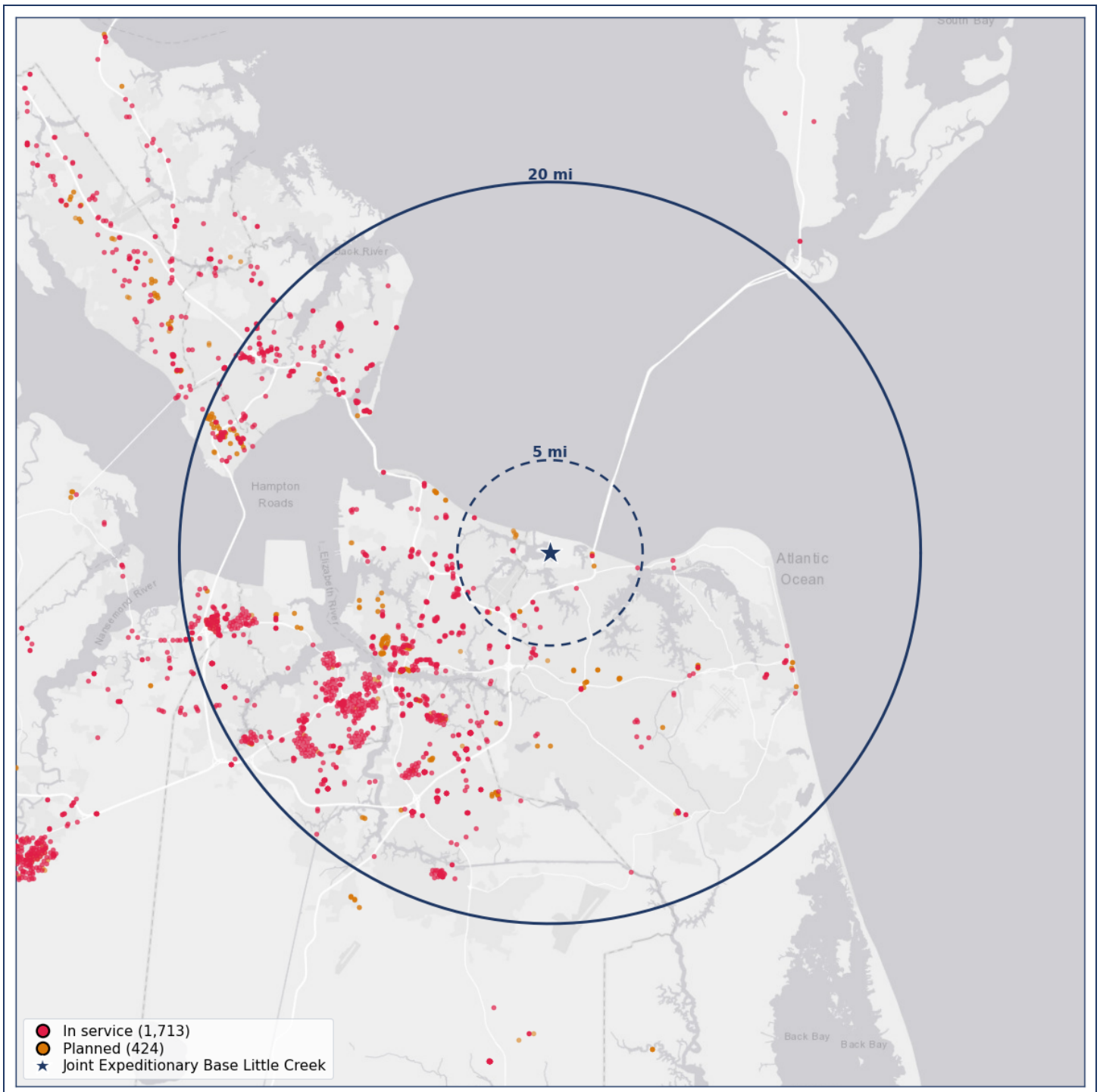
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Executive Assessment

Joint Expeditionary Base Little Creek in Virginia Beach trains and houses Navy expeditionary forces, including Naval Special Warfare Group TWO and explosive-ordnance disposal units. The same small cluster of vehicles preparing, disappearing, and returning together is one way a SEAL or EOD deployment could show up on nearby cameras.

This study asks a simple question: if someone drove from a nearby home to a gate and back, would they pass a Flock camera? The numbers are a model of possible drives, not a count of real people.

At 20 miles, about 89.4% of those modeled trips pass a camera. Another 1.8% might pass one, 2.1% avoid them, and 6.7% could not be determined. Even at 5 miles, about 75.9% of those trips still pass a camera. This is a model of routes, not proof that anyone was watched.

HEADLINE RESULT · MODELED TRIPS TO A GATE

20 MILES OUT



- 89.4%** **Passes a camera**
A confirmed camera sits on every plausible road to a gate.
- 1.8%** **Might pass**
Almost every trip could be called a clear pass or a clear miss.
- 2.1%** **Avoids all cameras**
No confirmed camera on any plausible road.
- 6.7%** **Couldn't determine**
The model could not finish a legal round trip for these draws.

5 MILES OUT



75.9% Passes **4.3%** Might pass **13.4%** Avoids **6.4%** Couldn't determine

Installation Context

Joint Expeditionary Base Little Creek–Fort Story is one command with two physically separate properties. The official installation page describes the joint base as a premier location for housing and training expeditionary forces [E132]. The quantitative assessment in this attachment is titled and scoped to the Little Creek property; it should not be interpreted as a route-exposure measurement for the separate Fort Story property unless the saved gate and boundary records are independently shown to include it.

Little Creek publicly hosts Naval Special Warfare Group TWO, which produces, supports, and deploys East Coast maritime special-operations forces, and Explosive Ordnance Disposal Group Two, which mans, trains, and equips subordinate EOD, diving, salvage, training, and support units for worldwide combat operations [E133, E134]. Those are different mission communities, but both depend on relatively small, specialized teams whose coordinated movement can be more informative than ordinary installation traffic.

The study uses these public facts only to construct defensive scenarios. It did not identify a SEAL, EOD technician, diver, vehicle, household, unit roster, or deployment. The route model covers the reviewed Little Creek gate set and does not establish that any specific tenant command uses either modeled gate in the same way as the synthetic routes.

Installation-Specific Intelligence Scenarios

The study demonstrates Tier A deployment and modeled route exposure only. Both scenarios below require Tier B historical time-stamped observations and Tier C identity or organizational enrichment that were not obtained.

Scenario 1: Detecting the Deployment and Return of a Naval Special Warfare Group TWO Element

Assume that a foreign service gains historical access to a sufficiently broad roadway-camera or ALPR network around Little Creek. Analysts begin with vehicles that repeatedly appear on routes serving the property and gradually isolate a smaller cluster whose members co-arrive during training periods, share recurring associations, and disappear from ordinary movement together. The analysts may not initially know which occupants are operators, communications personnel, intelligence support, medical personnel, logisticians, or command staff. Repetition and correlation can reduce that uncertainty.

A preparatory sequence could be more revealing than any single plate. Vehicles associated with support and command personnel may begin appearing outside their baseline hours. A stable operational cluster may then disappear within the same narrow period while some support vehicles remain active. The

later reappearance of the same cluster could provide a probable return window. Compared across acknowledged exercises and real-world events, those patterns could allow an adversary to distinguish routine training from an operational deployment.

The adversary might not learn the mission or destination. It could nevertheless estimate when an East Coast maritime special-operations capability departed, how long it remained absent, and which support communities appeared connected to it. Correlation with international crises, allied exercises, aircraft or ship movement, and public reporting could narrow the likely theater or purpose. Even a probabilistic warning could give a hostile government or proxy time to change travel, communications, protective posture, or the location of a potential target.

Once probable members are identified, the same archive can be worked backward to expose residences, family vehicles, recurring off-base locations, and deployment-related absences. The risk therefore combines operational warning with direct counterintelligence and household exposure.

A documented Russian campaign provides a close precedent. In 2025, the United States, United Kingdom, and partner governments attributed to GRU Unit 26165 a cyber campaign that targeted internet-connected cameras near military installations and border crossings to monitor and track military assistance moving toward Ukraine [E110]. The intelligence objective was not the content of a military order. It was the timing, route, and physical movement of a military capability.

The Little Creek study does not show that NSWG TWO personnel were identified or that a deployment was observed. It establishes modeled exposure around the property. A unit-level inference would require a validated baseline, reliable vehicle-to-organization attribution, and independent corroboration.

Scenario 2: Identifying an EODGRU 2 Mission Package and Inferring Expeditionary or Undersea-Clearance Readiness

EODGRU 2's public mission involves explosive-hazard clearance, access to denied areas, the undersea domain, diving and salvage, and globally deployable combat support [E134]. Those missions depend on combinations of technicians, divers, tactical communications personnel, logistics specialists, and command or evaluation staff. A recurring vehicle cluster associated with that combination could become a persistent signature for a specialized mission package.

Suppose historical records show an unusual period of attendance among EOD and diving personnel, additional support activity, and repeated overlap with a small set of vehicles that normally appear only during major training or evaluation events. If that subset then disappears together, the analyst could infer that a specialized package had deployed or entered a heightened readiness period. The conclusion would remain probabilistic, but it could identify when a capability for port clearance, explosive-hazard response, undersea access, or expeditionary support was unavailable locally and active elsewhere.

That warning could matter during a regional crisis involving mines, damaged ports, sabotaged infrastructure, unexploded ordnance, or an undersea incident. A hostile actor could use the inferred departure to alter hazards, increase deception, disperse equipment, or focus collection on likely destinations. The return pattern could reveal mission completion or rotation and could be correlated with otherwise unattributed overseas events.

The same data could also expose a narrow specialist population for tailored cyber collection, recruitment, device theft, or pressure against families. The more specialized the personnel, the more valuable a probabilistic shortlist becomes.

Ukraine documented a direct camera-compromise precedent in January 2024. The Security Service of Ukraine said Russian intelligence had gained access to civilian web cameras in Kyiv, changed their viewing angles, and used them to observe air-defense forces and critical infrastructure during a major missile and drone attack [E135]. The case demonstrates that privately installed cameras outside a military network can be repurposed to observe specialized military activity and support operational targeting.

This assessment does not show access to live video, an EODGRU 2 roster, or any unit movement. It identifies the risk created if historical roadway observations were combined with reliable organizational attribution. Shared roads, carpools, unrelated tenants, rental vehicles, and ordinary support traffic remain important alternative explanations.

Combined Significance

The NSWG TWO scenario concerns warning of a maritime special-operations deployment. The EODGRU 2 scenario concerns a smaller technical capability whose absence could reveal readiness for explosive-hazard, diving, salvage, or undersea-access missions. Together, they show why the Little Creek roadway environment can expose both an operational force and the specialized enablers that allow a larger joint force to enter or operate in denied areas.

Primary Reachability Findings

Modeled route-coverage estimate, reported for both scopes with its uncertainty ranges.

Field	5-mile near-base	20-mile primary
Result label	V7 modeled estimate	V7 modeled estimate
Publication status	Modeled estimate (4 caveats)	Modeled estimate (3 caveats)
Headline channel	robust_lattice	robust_lattice
Primary H0 U/C/P/R	14.3%/79.3%/5.0%/1.4%	2.2%/95.0%/2.0%/0.7%
Robust H0/H1/H2 U/C/P/R	13.4%/75.9%/4.3%/6.4%	2.1%/89.4%/1.8%/6.7%

Field	5-mile near-base	20-mile primary
H0 validation	single-reviewer check	single-reviewer check

The complete modeled result record for both scopes - all sensitivity intervals, gate/direction/range sweeps, camera-cluster influence, modeling caveats, seeds, and SHA-256 hashes - is in the V7 Modeled Result Record under Evidence and Reproducibility below.

20-mile minus 5-mile weighted unobserved-rate difference: primary conditional H0 **-12.1** percentage points; separate robust H0/H1/H2 lattice **-11.3** percentage points. These channels answer different questions and are not averaged. [L41]

Legislative Significance

Little Creek illustrates the force-protection consequences of retaining and broadly sharing non-hit vehicle observations around special-operations and expeditionary installations. Longitudinal records can become operational-warning data even when no individual read contains classified information and no camera is located on military property.

Legislators should consider special retention, search, sharing, vendor-security, and breach-notification rules for ALPR coverage surrounding designated special-operations and expeditionary sites. Any implementation should be coordinated with the Department of the Navy and should avoid publicly publishing route gaps, gate vulnerabilities, or the travel patterns of named units.

Four Reported Vulnerabilities

Finding	Observed condition	Evidence boundary	Disclosure and remediation status	Source(s)
1	An active ArcGIS Default API key was hardcoded in a public development/demo asset and repeated key material was found across development assets.	The validation establishes key scope and private item grants; it does not prove that every granted item was read or altered by another party.	Reported 2025-06-11; remediation reported 2025-07-01.	L2, L5, L8, L20

Finding	Observed condition	Evidence boundary	Disclosure and remediation status	Source(s)
2	FlockSafety development application and module-federation bundles were served before the correct authentication boundary.	The bundles expose application logic, routes, models, and permission concepts; frontend visibility does not prove anonymous access to every backend or production record.	Reported 2025-11-13 with follow-ups on 2025-11-14 and 2025-11-19; no closure or remediation detail appears in the disclosure record.	L2, L5, L11-L13
3	Planner/Beefeater endpoints issued ArcGIS and Google mapping credentials before login, including a production-scope path used to obtain the analyzed export.	Wire records prove anonymous HTTP 200 token responses and establish provenance; they do not prove every downstream service permitted every operation.	Reported 2025-11-13 with follow-ups on 2025-11-14 and 2025-11-19; no closure or remediation detail appears in the disclosure record.	L2, L14, L15, L37
4	FlockNova application bundles were served before the correct access boundary and revealed search, pivot, fusion, and client-side permission assumptions.	The exposed code establishes application structure and data-source concepts; it does not establish that every modeled backend endpoint lacked authorization or that every modeled dataset was populated.	Reported 2025-12-05; no reply or remediation detail appears in the disclosure record.	L2, L4, L35

The findings are distinct but composable. Findings 2 and 4 exposed the vocabulary and architecture of search, alerting, mapping, and fusion workflows. Findings 1 and 3 exposed two different credential failures: a static production-scoped ArcGIS key and a pre-login credential-issuance path. Finding 3 supplied the provenance for the production map-point export used here. The combination supports a conclusion about systemic credential and environment-boundary weakness during the research period, while remaining narrower than a claim of universal platform compromise [L2, L8, L37].

The disclosure record also cannot establish a negative. Responsible reporting and a known remediation date for Finding 1 do not prove that no other person accessed the exposed surfaces, just as the absence of a returned closure notice for Findings 2 through 4 does not prove that they remain exploitable today. The reports preserve the observed condition, collection date, and known response status so that legal and technical reviewers can distinguish evidence from present-tense assumptions.

Methodology

Research and Data Basis

This assessment follows four separate disclosures involving credentials, development assets, environment boundaries, and a data-fusion application. A public development artifact contained an active ArcGIS credential; other development bundles exposed application structure before the expected access boundary; a Planner/Beefeater path issued production-scope mapping credentials before login; and FlockNova bundles exposed the structure of a broader fusion and search environment [L2, L4, L5, L8, L37]. None of those findings alone proves universal backend access. Together, they justified examining what sensitive geospatial information became available and what defensive questions it could support.

The production ArcGIS export captured on December 14, 2025 contains 335,701 records spanning multiple device types and statuses; it is not a count of simultaneously active cameras. The status fields record 214,073 `inService`, 83,427 `inPlanning`, 38,190 decommissioned, and 11 unknown records. The route study loads detection-eligible `inService` and `inPlanning` records and preserves a separate `inService`-only floor. The `active` integer is not the study filter [L14, L15].

Exposed application materials model plate and vehicle search, camera selection, hit history, alerts, people-search paths, map layers, CAD and AVL concepts, Raven/audio sensors, device access, and identity-adjacent fusion permissions [L4, L11-L13, L35]. Flock's patent describes a dynamic surveillance and object-query architecture, but a patent describes claimed architecture rather than proving deployment of each patented capability [E37]. The report therefore separates observed code and export fields from product descriptions and hypothetical intelligence use.

The force-protection concern arises because personnel assigned to Joint Expeditionary Base Little Creek routinely use civilian roads outside a protected perimeter. National evidence indicates that many service members live in local communities and use civilian housing markets when government quarters are not provided [E44-E46]. Those national facts do not reveal where any person assigned to Joint Expeditionary Base Little Creek lives; they establish only that off-installation movement is a legitimate research surface.

Longitudinal location information can expose associations and patterns that isolated observations do not. Supreme Court decisions concerning long-term GPS tracking and historical location records provide relevant policy and legal context without deciding the legality of this vendor, dataset, or study [E20, E21]. The constitutional and privacy implications belong in legal and policy review, not in unsupported declarations that every collection or search is unlawful.

My analytical judgment is that commercial growth and procurement convenience must not displace United States national-security, counterintelligence, force-protection, constitutional, and public-accountability obligations. That is a normative conclusion, not evidence that profit caused a particular breach or that a specific customer misused data.

Estimand and Synthetic Origins

The V7 primary estimand is the occupied-housing-weighted distribution across unobserved, confirmed exposure, possible exposure, and unresolved model under one predeclared, camera-blind H0 access-and-route policy. H0 defines the pinned origin, eligible unchanged saved gates, 5/20-road-mile frame, final per-leg scope, and primary conditional result. Every in-frame sampled weight remains in the four-class denominator; proven out-of-frame origins are excluded before sampling, while frame-unknown, unresolved-model, and artifact-error states remain explicit.

Each directed outbound and return leg must be no more than the declared radius. A qualifying round trip can therefore approach 10 miles in the 5-mile scope or 40 miles in the 20-mile scope. This is not a total-round-trip cap of 5 or 20 miles.

H1/H2 remain identity-keyed alternative access policies used only for the separate robustness lattice and fixed-H0-gate access sensitivity. H1/H2 cannot rescue a failed H0, set the primary status, change H0 frame membership, or contribute cameras to the H0 result. The two channels are co-located and never averaged [L41].

Reviewed 24/7 Gates

The paired study used Gate 1 and Gate 2 as the reviewed gate set. Only gates treated during setup as continuously open to authorized traffic are eligible. A part-time, visitor-only, commercial-only, or schedule-limited gate would create a modeled route that disappears outside its operating window, so including it as continuously available would overstate practical access. The gate decision concerns availability, not secrecy; coordinates and identifiers remain in the unredacted annexes.

The same gate set was used at both radii. The saved study state also contained 6 analyst-defined road blocks. Gates and blocks are inputs rather than outputs. A high or low unobserved rate does not validate the gate review, so an installation reviewer should read the exact saved identifiers and artifact warnings when judging whether the modeled access assumptions match local practice.

Cameras, Roads, and Routing

The V7 route and gate policy receives no camera coordinates, encounter results, or camera-derived costs. It uses the frozen routing and inventory assumptions bound into the completed cohort (`valhalla-3.6.3-auto-frozen-osm-camera-blind-directed-overlay-v6`). Outbound and return routes are legal directed requests and are evaluated independently against the declared per-leg scope.

Camera encounters remain geometry, corridor, bearing, lifecycle-status, and capture-model inferences rather than observed plate reads. The H0 point channel retains direction and spatial/grade sensitivity separately. Camera influence is computed by physical camera cluster so colocated compute/support records are not counted as independent roadside sensors. Planned-device and in-service-only status variants remain sensitivity evidence rather than claims of confirmed real-world operation [L41].

Why Five and Twenty Miles

DoD Manual 4165.63 permits housing-market boundaries based on a twenty-mile or one-hour peak-traffic commute, with military and public information and installation-command input supporting local adjustment [E49]. The study predeclared the distance limb as a uniform, transparent approximation of the broader off-installation housing and commuting area. It does not assert that most personnel at Joint Expeditionary Base Little Creek live exactly twenty miles away, and it does not model one hour of peak traffic.

Five miles isolates the immediate area where travel converges toward a limited gate set. Twenty miles adds the broader housing-market stratum while retaining every near-base draw unchanged. Reporting both shows whether corridor concentration near the facility differs from the surrounding occupied-housing geography without changing the near-base sample.

Limitations and Non-Claims

This is a model over dated deployment, Census, and road snapshots. Occupied housing is a residential-distribution proxy, not an installation workforce roster; it does not weight origins by military assignment, employer, rank, duty status, shift, or measured traffic. National off-base housing evidence supports the scope choice but cannot identify where personnel assigned to Joint Expeditionary Base Little Creek live [E44-E46].

Camera location and status fields can be incomplete, stale, planned, duplicated, moved, or differently interpreted. OSM roads and address points can omit valid travel or include obsolete topology. Gate availability and cantonment geometry depend on analyst review. The route engine models corridor blocking, accepted alternatives, and a geometric field-of-view capture; it does not model OCR probability, optical obscuration, weather, plate condition, device uptime, data retention, customer sharing, legal process, or whether a backend user queried a record.

A V7 unobserved H0 classification is a conditional modeled-policy result: under the frozen H0 access, gate, routing, inventory-status, and capture rules, the legal directed round trip had no qualifying modeled encounter. It is not a share of people, drivers, commuters, households, actual trips, or empirical camera reads. The separate robust lattice and access, gate-choice, direction, spatial/grade, range, deployment-status, sampling, and camera-cluster sensitivities must remain visible qualifications. Source omissions, device uptime, weather, plate visibility, temporary road conditions, and camera movement can change real-world collection.

Evidence and Reproducibility

The V7 drafting packet was built from the complete validated cohort for

`joint_expeditionary_base_little_creek`. It binds cohort `reachability-v7-audit-92bd2e6a45c3a7c6`, pair `joint_expeditionary_base_little_creek-45c6614a41a24fc4`, seed `512103987`, index SHA-256 `3d0755cb6fcc7dd165c6b9dd53ade8bfe5402773231904ea3807d1f17dc3b96b`, five-mile summary SHA-256 `8ab3a120dd753b85346376de149708cbdd126ef0ab2dfd4dc9f3a390f2f9aa0`, and twenty-mile summary SHA-256 `5011d8ed71873ef380a15e8aa498b89f4756855daf6cd13ef045a64c99085573`. [L41].

Both scopes retain the primary H0 and robust-lattice partitions, full frame accounting, per-policy outcomes and failures, directed route geometry, modeled camera encounters, split uncertainty intervals, gate-choice sensitivity, physical-camera-cluster influence, frozen source snapshot, and independent QA. All QA flags and warnings remain unsuppressed in the hash-bound V7 snapshot [L41].

The narrative is subordinate to those structured artifacts. If a sentence, table cell, or later export conflicts with a canonical summary or origin-level record, the validated structured record controls and the narrative must be corrected. Joshua Michael independently reviews each material claim, citation, inference, and numerical value as the accountable author.

V7 Modeled Result Record

Modeled route-coverage estimate [L41].

Field	5-mile near-base	20-mile primary
Result label	V7 modeled estimate	V7 modeled estimate
Publication status	Modeled estimate (4 caveats)	Modeled estimate (3 caveats)
V7 cohort	<code>reachability-v7-audit-92bd2e6a45c3a7c6</code>	<code>reachability-v7-audit-92bd2e6a45c3a7c6</code>
Pair ID	<code>joint_expeditionary_base_little_creek-45c6614a41a24fc4</code>	<code>joint_expeditionary_base_little_creek-45c6614a41a24fc4</code>
Pair seed	<code>512103987</code>	<code>512103987</code>
Generated at	<code>2026-08-12T12:38:39.912603+00:00</code>	<code>2026-08-12T12:38:39.912603+00:00</code>

Field	5-mile near-base	20-mile primary
Summary SHA-256	8ab3a120dd753b85346376de149708cbe dd126ef0ab2dfd4dc9f3a390f2f9aa0	5011d8ed71873ef380a15e8aa498b89f47 56855daf6cd13ef045a64c99085573
Routing engine	valhalla-3.6.3-auto-frozen-osm-camera- blind-directed-overlay-v6	valhalla-3.6.3-auto-frozen-osm-camera- blind-directed-overlay-v6
Synthetic draws	1000	2000
Headline channel	robust_lattice	robust_lattice
Primary H0 U/C/P/R counts	143/793/50/14	144/1771/65/20
Primary H0 U/C/P/R	14.3%/79.3%/5.0%/1.4%	2.2%/95.0%/2.0%/0.7%
Robust H0/H1/H2 U/C/P/R counts	134/759/43/64	135/1677/57/131
Robust H0/H1/H2 U/C/P/R	13.4%/75.9%/4.3%/6.4%	2.1%/89.4%/1.8%/6.7%
Direction H0 interval	14.3% to 20.7%	2.2% to 5.0%
Fixed-gate access interval	13.4% to 20.3%	2.1% to 8.8%
Joint interval	13.4% to 24.1%	2.1% to 10.6%
Spatial H0 interval	13.0% to 15.3%	2.0% to 2.5%
Gate reselection diagnostic	fixed 13.8%; reselected 13.8%; absolute difference 0.0 pp	fixed 2.1%; reselected 2.1%; absolute difference 0.0 pp
H0 gate near-tie sensitivity	60s: 6.4% disagreement weight; 120s: 7.7% disagreement weight; 300s: 7.9% disagreement weight	60s: 1.0% disagreement weight; 120s: 1.2% disagreement weight; 300s: 1.3% disagreement weight
H0 range sensitivity U/C/P/R	75ft: 19.3%/79.3%/0.0%/1.4%; 150ft: 14.3%/79.3%/5.0%/1.4%; 250ft: 14.3%/ 79.4%/4.9%/1.4%	75ft: 4.2%/95.0%/0.0%/0.7%; 150ft: 2.2%/95.0%/2.0%/0.7%; 250ft: 2.2%/ 95.3%/1.8%/0.7%
H0 direction sensitivity U/C/P/R	25deg: 14.3%/79.3%/5.0%/1.4%; 30deg: 14.3%/79.3%/5.0%/1.4%; 35deg: 14.3%/ 79.3%/5.0%/1.4%; 40deg: 14.3%/79.3%/ 5.0%/1.4%; 45deg: 14.3%/79.3%/5.0%/ 1.4%; 60deg: 14.3%/79.3%/5.0%/1.4%	25deg: 2.2%/95.0%/2.0%/0.7%; 30deg: 2.2%/95.0%/2.0%/0.7%; 35deg: 2.2%/ 95.0%/2.0%/0.7%; 40deg: 2.2%/95.0%/ 2.0%/0.7%; 45deg: 2.2%/95.0%/2.0%/ 0.7%; 60deg: 2.2%/95.0%/2.0%/0.7%
Deployment-status sensitivity U/C/P/R	declared_policy: 14.3%/79.3%/5.0%/ 1.4%; in_service_only: 14.5%/79.1%/ 5.0%/1.4%	declared_policy: 2.2%/95.0%/2.0%/0.7%; in_service_only: 2.2%/95.0%/2.0%/0.7%
Physical-camera-cluster influence	maximum removal shift 19.7 pp; 2 material clusters	maximum removal shift 7.9 pp; 1 material cluster
H0 validation	single-reviewer check	single-reviewer check

Field	5-mile near-base	20-mile primary
Modeling caveats	1. corridor routing is a single-reviewer accuracy check (~89.5%; see the report's Appendix O)2. primary H0 unresolved weight is 1.400%3. fixed-gate access-policy interval spans 6.900 pp4. one or more physical camera clusters exceed the influence materiality limit	1. corridor routing is a single-reviewer accuracy check (~89.5%; see the report's Appendix O)2. fixed-gate access-policy interval spans 6.730 pp3. one or more physical camera clusters exceed the influence materiality limit
QA and artifact warnings	None	None

20-mile minus 5-mile weighted unobserved-rate difference: primary conditional H0 **-12.1** percentage points; separate robust H0/H1/H2 lattice **-11.3** percentage points. These channels answer different questions and are not averaged. [L41]

Reachability Results

Five-Mile Near-Base Scope

Publication state: Modeled estimate (4 caveats).

The 5-mile primary H0 channel contains 1,000 draws on the full in-frame sampled denominator: 143 unobserved (14.3%), 793 confirmed exposure (79.3%), 50 possible exposure (5.0%), 14 unresolved model (1.4%). The separate robust H0/H1/H2 lattice reports 134 unobserved (13.4%), 759 confirmed exposure (75.9%), 43 possible exposure (4.3%), 64 unresolved model (6.4%). Neither channel drops or renormalizes unresolved-model weight.

H0 uncertainty intervals: direction-H0 14.3% to 20.7%; fixed-H0-gate access 13.4% to 20.3%; joint 13.4% to 24.1%; spatial/grade-H0 13.0% to 15.3%. These are distinct sensitivity results and are not averaged. Candidate-frame accounting: {"all_saved_gates_evaluated": true, "certificate_artifact_path": "frame_classification.json", "certificate_artifact_sha256": "0e2b44dfd6e263d52cc24872ce1798a298234bc9db60a2dd5d544f17701a8626", "classifier_contract": "h0-all-saved-gates-directed-per-leg-frame-v1", "classifier_version": 1, "closure": {"count_matches_source": true, "weight_matches_source": true}, "count_by_status": {"frame_unknown": 2, "near": 6129, "outer": 33927, "proven_out_of_frame": 12161}, "per_leg_scope_rule": "outbound_and_return_each_lte_declared_scope_radius", "source_count": 52219, "source_weight": 565552.0000000001, "weight_by_status": {"frame_unknown": 5.5, "near": 61314.6666666667, "outer": 349746.7500000001, "proven_out_of_frame": 154485.08333333337}, "weight_semantics": "pre_sampling_occupied_housing_candidate_weight"}. Sampled-frame accounting: {"count_by_status": {"artifact_error": 0, "frame_unknown": 0, "in_frame": 1000, "proven_out_of_frame": 0}, "rate_by_status": {"artifact_error": 0.0, "frame_unknown": 0.0,

```
"in_frame": 100.0, "proven_out_of_frame": 0.0}, "source_count": 1000, "source_weight":
61314.66666666575, "weight_by_status": {"artifact_error": 0.0, "frame_unknown": 0.0, "in_frame":
61314.66666666575, "proven_out_of_frame": 0.0}}.
```

Modeling caveats: 1. corridor routing is a single-reviewer accuracy check (~89.5%; see the report's Appendix O) 2. primary H0 unresolved weight is 1.400% 3. fixed-gate access-policy interval spans 6.900 pp 4. one or more physical camera clusters exceed the influence materiality limit **QA and artifact warnings:** None [L41]

Twenty-Mile Primary Scope

Publication state: Modeled estimate (3 caveats).

The 20-mile primary H0 channel contains 2,000 draws on the full in-frame sampled denominator: 144 unobserved (2.2%), 1,771 confirmed exposure (95.0%), 65 possible exposure (2.0%), 20 unresolved model (0.7%). The separate robust H0/H1/H2 lattice reports 135 unobserved (2.1%), 1,677 confirmed exposure (89.4%), 57 possible exposure (1.8%), 131 unresolved model (6.7%). Neither channel drops or renormalizes unresolved-model weight.

H0 uncertainty intervals: direction-H0 2.2% to 5.0%; fixed-H0-gate access 2.1% to 8.8%; joint 2.1% to 10.6%; spatial/grade-H0 2.0% to 2.5%. These are distinct sensitivity results and are not averaged.

Candidate-frame accounting: {"all_saved_gates_evaluated": true, "certificate_artifact_path": "frame_classification.json", "certificate_artifact_sha256": "0e2b44dfd6e263d52cc24872ce1798a298234bc9db60a2dd5d544f17701a8626", "classifier_contract": "h0-all-saved-gates-directed-per-leg-frame-v1", "classifier_version": 1, "closure": {"count_matches_source": true, "weight_matches_source": true}, "count_by_status": {"frame_unknown": 2, "near": 6129, "outer": 33927, "proven_out_of_frame": 12161}, "per_leg_scope_rule": "outbound_and_return_each_lte_declared_scope_radius", "source_count": 52219, "source_weight": 565552.0000000001, "weight_by_status": {"frame_unknown": 5.5, "near": 61314.66666666667, "outer": 349746.7500000001, "proven_out_of_frame": 154485.08333333337}, "weight_semantics": "pre_sampling_occupied_housing_candidate_weight"}. Sampled-frame accounting: {"count_by_status": {"artifact_error": 0, "frame_unknown": 0, "in_frame": 2000, "proven_out_of_frame": 0}, "rate_by_status": {"artifact_error": 0.0, "frame_unknown": 0.0, "in_frame": 100.0, "proven_out_of_frame": 0.0}, "source_count": 2000, "source_weight": 411061.4166666597, "weight_by_status": {"artifact_error": 0.0, "frame_unknown": 0.0, "in_frame": 411061.4166666597, "proven_out_of_frame": 0.0}}.

Modeling caveats: 1. corridor routing is a single-reviewer accuracy check (~89.5%; see the report's Appendix O) 2. fixed-gate access-policy interval spans 6.730 pp 3. one or more physical camera clusters exceed the influence materiality limit **QA and artifact warnings:** None [L41]

Relationship Between the Two Scopes

20-mile minus 5-mile weighted unobserved-rate difference: primary conditional H0 **-12.1** percentage points; separate robust H0/H1/H2 lattice **-11.3** percentage points. These channels answer different questions and are not averaged. Each directed outbound and return leg must independently satisfy its declared 5/20-road-mile scope; the total round trip may approach 10/40 miles. An origin with no unchanged saved gate qualifying under H0 is outside that scope before sampling [L41].

References

ID	Source and use in this report
E20	U.S. Supreme Court, <i>Carpenter v. United States</i> opinion, https://www.supremecourt.gov/opinions/17pdf/16-402_h315.pdf - Digital location privacy policy/legal context.
E21	Library of Congress, <i>United States v. Jones</i> , 565 U.S. 400, https://www.loc.gov/item/usrep565400/ - GPS tracking/location surveillance policy/legal context.
E37	Flock Group Inc., U.S. Patent No. 11,416,545 B1, "System and Method for Object-Based Query of Video Content Captured by a Dynamic Surveillance Network," issued Aug. 16, 2022, https://patents.google.com/patent/US11416545B1/en - Flock's own patent. Confirmed language: a "dynamic surveillance network" that is device-agnostic and ingests video from "unrelated surveillance devices" (neighborhood, residential, business, traffic, portable/mobile cameras); a "dynamic surveillance and object-based query" (DSOQ) server/system; object-based query of video "based on content of the video footage and not just time and location"; attribute profiling of people ("male, female, race," height/weight/clothing) and vehicles (make/model/color/plate); and "face recognition data points"/facial-similarity feature-vector matching. Used only for the vendor's own described architecture and intended capability; the report does not claim Flock has deployed any specific patented function, including facial recognition. Accessed 2026-07-13.

ID	Source and use in this report
E44	U.S. Government Accountability Office, <i>Military Housing: DOD Should Address Critical Supply Shortages</i> (GAO-25-106208), product page, https://www.gao.gov/products/gao-25-106208 - GAO summary states that about two-thirds of service members in the U.S. live off base in local communities. Used for national off-base housing share context for force-protection commute exposure. Not an installation-level census. Accessed 2026-07-16.
E45	Congressional Research Service, <i>Military Housing</i> (CRS Report R47728), https://www.congress.gov/crs-product/R47728 - CRS reports that about 58% of servicemembers receive a tax-free housing allowance (BAH) and obtain housing from the local housing market outside their installation. Complements E44 (slightly different metric: BAH recipients vs live-off-base). Used for off-base housing / civilian-market commute framing. Accessed 2026-07-16.
E46	DoD Travel Management Office / Defense Travel Management Office, Basic Allowance for Housing overview, https://www.travel.dod.mil/Allowances/Basic-allowance-for-Housing/ - Official BAH framing: compensation based on local civilian housing markets when government quarters are not provided; members choose off-base housing in the civilian market. Used only for policy mechanism (BAH → civilian infrastructure), not for a percentage. Accessed 2026-07-16.
E49	U.S. Department of Defense, DoD Manual 4165.63, <i>DoD Housing Management</i>, incorporating Change 3, April 1, 2025, Enclosure 3, section 1.c.(2), https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodm/416563m.pdf - Official housing-market-analysis guidance: market-area boundaries may use a 20-mile or one-hour peak-traffic commute, with military/public information and installation-command recommendations supporting local adjustment. Used to justify a predeclared 20-road-mile primary reachability scope, not to claim that most personnel at a particular installation live within that distance. Accessed 2026-07-20.
E132	Commander, Navy Region Mid-Atlantic, "Joint Expeditionary Base Little Creek-Fort Story," https://cnrma.cnmc.navy.mil/jeb_little_creek_fort_story/ - Official installation description, two-property scope, expeditionary mission, and public gate context. Accessed 2026-08-08.

ID	Source and use in this report
E133	U.S. Department of Defense, Defense Visual Information Distribution Service, "U.S. Navy SEALs, HSC-7, HSC-28 Conduct Cast and Recovery and Helo Familiarization Training," July 16, 2025, https://www.dvidshub.net/image/9182889/us-navy-seals-hsc-7-hsc-28-conduct-cast-and-recovery-and-helo-familiarization-training - Official placement and public mission description for Naval Special Warfare Group TWO at JEB Little Creek-Fort Story. Accessed 2026-08-08.
E134	U.S. Navy, Navy Expeditionary Combat Command, "Explosive Ordnance Disposal Group Two," https://www.necc.usff.navy.mil/organization/operational-forces/eod/eod-group-two/ - Official EODGRU 2 location, organization, and worldwide combat mission. Accessed 2026-08-08.
E110	United Kingdom National Cyber Security Centre, "UK and allies expose Russian intelligence campaign targeting western logistics and technology organisations," May 21, 2025, https://www.ncsc.gov.uk/news/uk-partners-expose-russian-intelligence-campaign - Joint-government attribution that GRU Unit 26165 targeted internet-connected cameras near military installations and border crossings to monitor military movement. Accessed 2026-08-08.
E135	The Record, "Ukraine says Russia hacked web cameras to spy on targets in Kyiv," January 2, 2024, https://therecord.media/ukraine-says-russia-hacked-web-cameras-to-spy-on-kyiv-targets - Reporting on Ukraine's statement that compromised civilian cameras were redirected to observe air defenses and critical infrastructure. Accessed 2026-08-08.
L2	Supporting Tools and Docs/ supporting_memoranda/ FlockSafety_Four_Vulnerability_Chain.md ; Supporting Tools and Docs/ supporting_documents/finding_cards/ Finding_01_... - Finding_04_... ; source-evidence: Raw Evidence/Documentation/ My_Four_Vulnerabilities.md - Vulnerability timeline, Cure53-style finding cards, chain framing, remediation status.

ID	Source and use in this report
L4	Supporting Tools and Docs/ supporting_documents/analyses/ FlockNova_Application_Capability_Enumeration. md - Nova search, access-control, and client-side enforcement-gap findings.
L5	Supporting Tools and Docs/ supporting_documents/analyses/ FlockSafety_Dev_Subdomain_Bundle_Enumeration. md - 370-host headline footprint, dev bundle families, and repeated-key evidence.
L8	Raw Evidence/FlockSafety/ flock_hardcoded_api_check.json - Primary validation artifact for key scope and 50 item grants.
L11	Supporting Tools and Docs/ supporting_documents/analyses/ ArcGIS_Search_App_Data.md - Search app data model, people-search device pool, plate/vehicle/search workflows.
L12	Supporting Tools and Docs/ supporting_documents/analyses/ ArcGIS_Hotlist_App_Data.md - Hotlist, alerts, hit history, and alerting data model.
L13	Supporting Tools and Docs/ supporting_documents/analyses/ ArcGIS_Mapped_Attributes.md - FlockOS/map layers and attributes; CAD/AVL, patrol/mobile, body-camera, drone, Raven/audio, and Flock911 surfaces; Flock911 incident-layer state, audio/transcript token classes, per- word start/end timing, selected-event state, and playback/ scrub controls.
L14	Raw Evidence/ArcGIS/ flocksafety_prod_arcgis_data/ analysis_summary.json ; source dump: Raw Evidence/ArcGIS/flocksafety_prod_arcgis_data/ features_*.json - 2025-12-14 ArcGIS export summary: 335,701 records, status/device-family counts from the package feature dump.

ID	Source and use in this report
L15	Raw Evidence/ArcGIS/flocksafety_prod_arcgis_data/count_verification.json - Field verification: total/status breakdown; active=1 (214,233) vs status=inService (214,073) split; confirms scale claims use status, not active.
L20	Raw Evidence/Documentation/My_Four_Vulnerabilities.md; P1 - Repository disclosure record and published article for my 53-exposure research, Finding 1 scope analysis, and public ArcGIS corroboration method.
L35	Raw Evidence/Screenshots/permissions_dronetoo.png; Raw Evidence/FlockNova/nova_flockdemo_com/js/nova_flockdemo_com_App.js - Permission vocabulary including canCaravanSearch, Aerodome access, device tunnels, AVL sharing, nationwide lookup, and ArcGIS sign-in.
L37	Raw Evidence/FlockSafety/dev_app_flocksafety_com/dev-beefeater; Raw Evidence/FlockSafety/dev_app_flocksafety_com/prod-beefeater - Burp XML wire records for Finding 3: anonymous GETs to Beefeater /api/v1/token/esri and /token/google returning HTTP 200 with tokens; no cookie/authorization.
L40	Superseded earlier detailed run; the full per-origin paired study records are retained by the researcher offline for authorized review and are not shipped in this package. - The granular per-origin records (synthetic origins, gates, blocks, selected and attempted routes, blocked-camera observations, outcome records, seeds, and summary hashes) come from an earlier method run. They were removed from the shipped package because they were superseded by the V7 run and contain exact per-origin routes near the installations. The canonical V7 route-coverage estimates and their SHA-256 summary bindings are in L41 and control any transcription conflict.

ID	Source and use in this report
L41	Complete V7 snapshot and staged cohort reachability-v7-audit-92bd2e6a45c3a7c6 (index SHA-256 3d0755cb6fcc7dd165c6b9dd53ade8bfe5402773231904ea3807d1f17dc3b96b); primary conditional H0 and robust H0/H1/H2 results, methodology, frame accounting, split uncertainty, QA flags and warnings, hashes, and annexes. Canonical source: the hash-bound V7 snapshot at ../Supporting Tools and Docs/project_support/planning_and_qa/reachability_v7_audit_development_snapshot.json .

Per-site records

The V7 result for this installation - primary conditional H0 and robust H0/H1/H2 outcomes, frame accounting, uncertainty intervals, QA flags, seeds, and SHA-256 summary bindings - is recorded in the hash-bound V7 snapshot [L41]. The large per-origin staging artifacts (route geometry, frame classification, review packets) are not shipped in this package; the full records are retained by the researcher offline for authorized review [L40].