

Fort Benning

National Security Exposure Assessment

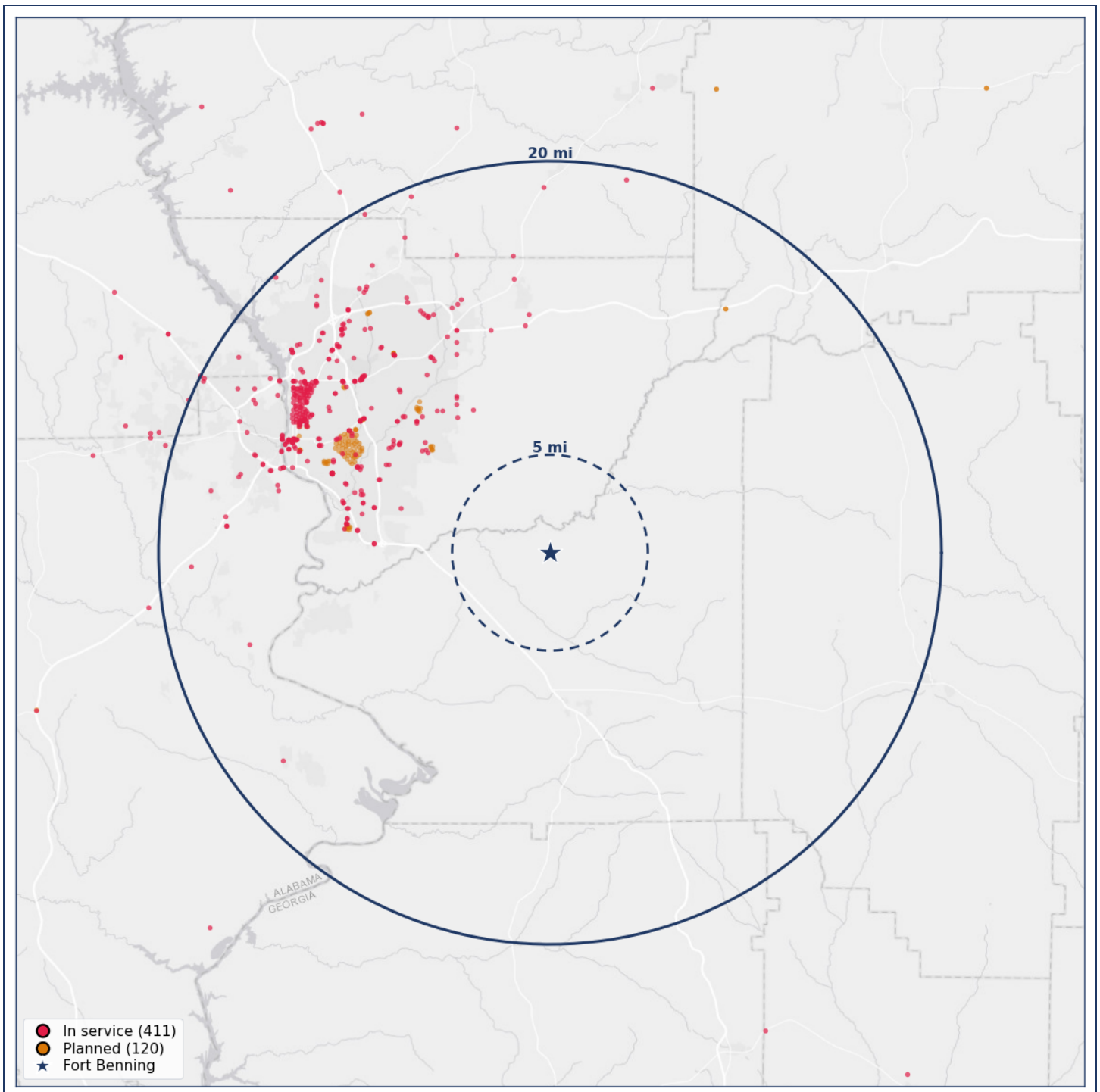
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September 2, 2026



Executive Assessment

Fort Benning is the Army's Maneuver Center of Excellence: Infantry and Armor schools, plus the 75th Ranger Regiment and the 1st Security Force Assistance Brigade. A repeating cluster of the same vehicles disappearing after a short surge and coming back together after an overseas event is one way a Ranger 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 56.9% of those modeled trips pass a camera. Another 18.9% might pass one, 12.9% avoid them, and 11.3% could not be determined. Closer in, at 5 miles, only 24.7% have a confirmed camera on every road — a large share stay in “might pass” because the camera's facing could not be confirmed. This is a model of routes, not proof that anyone was watched.

HEADLINE RESULT · MODELED TRIPS TO A GATE

20 MILES OUT

■ **56.9%****Passes a camera**

A confirmed camera sits on every plausible road to a gate.

■ **18.9%****Might pass**

The inventory's rotationAngle is not a true facing: among 72,971 named in-service cameras it matches the road only about 10% of the time (median error 90°) because it stores housing orientation, not travel. The model therefore does not use it to confirm a hit. Named NB/SB/EB/WB cameras take direction from the road, with the name used only to pick which way they watch. Cameras with no compass name are too noisy to confirm, so a nearby pass stays Might pass. A confirmed hit still needs the vehicle on the same corridor, traveling in that monitored direction within 35°.

■ **12.9%****Avoids all cameras**

No confirmed camera on any plausible road.

■ **11.3%****Couldn't determine**

The router often could not complete a legal round trip to a reviewed gate — typically missing road links, one-way restrictions, or no qualifying return.

5 MILES OUT



■ **24.7%** Passes ■ **44.7%** Might pass ■ **23.1%** Avoids ■ **7.5%** Couldn't determine

Might pass is 44.7% here because rotationAngle is not a reliable facing, so unnamed or poorly oriented cameras stay in this bucket instead of counting as a hit.

Installation Context

Fort Benning is the home of the Maneuver Center of Excellence, the Infantry and Armor schools, and multiple resident operational and training organizations [E60, E61]. Current Army tenant information publicly identifies the 75th Ranger Regiment and the 1st Security Force Assistance Brigade. The Army describes the Ranger Regiment as conducting special missions and the 1st SFAB as deploying in support of combatant commanders and integrating with foreign partner forces [E154].

Those communities create two different movement signatures. A small operational element of the 75th Ranger Regiment can be hidden within a large training population, but coordinated absence among the same vehicles may become informative over time. The 1st SFAB and Fort Benning's international-training environment create a separate association risk involving U.S. advisers, foreign military personnel, rental vehicles, instructors, and support organizations.

The study uses only public mission descriptions. It did not identify a Ranger, adviser, student, foreign partner, household, unit roster, exercise, or deployment. The two reviewed gates represent the saved model, not proof that either named organization uses those access points in the same pattern 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 Departure and Return of a 75th Ranger Regiment Element

Assume that a foreign service gains access to historical plate observations around Fort Benning and gradually identifies a small recurring cluster that appears during the same training periods, shares secondary destinations, and overlaps with specialized support personnel. The service may not initially know that the vehicles are associated with the 75th Ranger Regiment. Repetition and public events could narrow that inference [E154, E155].

The highest-risk pattern would be a short preparatory surge followed by coordinated absence. Vehicles associated with probable operators, communications personnel, intelligence support, medics, logisticians, or leaders may appear outside their ordinary routines and then disappear together. If the same cluster reappears days or weeks later, the service gains a probable departure window, mission-duration estimate, and return date.

The destination and objective could remain unknown. Correlation with overseas crises, public military air activity, diplomatic events, or later reporting could still help attribute an otherwise unexplained U.S. special operation to a Fort Benning-based capability. Repetition across exercises and public deployments would improve the adversary's ability to distinguish training from operational movement.

Once probable personnel are identified, the archive can expose residences, family vehicles, deployment absences, and recurring off-base locations. The operational team may be protected on the installation or while deployed, while spouses and children follow ordinary civilian routines.

The GRU Unit 26165 camera campaign provides a direct precedent. Partner governments reported that Russian military intelligence targeted internet-connected cameras near military installations and border crossings to monitor military aid movement [E148]. The collection objective was physical activity and timing, not communications content.

This study did not identify a Ranger vehicle, unit cluster, deployment, or household. The scenario requires historical observations, identity or unit enrichment, and careful validation of gate use. It illustrates why a small special-operations element can become visible through the repeated public-road movements of the larger support package around it.

Scenario 2: Mapping a 1st Security Force Assistance Brigade and Foreign-Partner Training Cohort

Fort Benning's 1st Security Force Assistance Brigade and international-training environment create a second intelligence opportunity. The 1st SFAB publicly deploys in support of combatant commanders and integrates with foreign partner forces [E154]. Temporary training cohorts may generate rental vehicles, government transportation, interpreters, liaison personnel, and recurring overlaps with a smaller U.S. adviser community.

A hostile analyst could identify unfamiliar vehicles that begin appearing beside a stable cluster of probable advisers and instructors. Observations at hotels, airports, training-support locations, government facilities, or social destinations could reveal the cohort's approximate size, duration, and association with a particular partner country.

Even without learning the curriculum, the presence of a specific partner force can disclose U.S. security priorities, future advisory relationships, regional preparation, or a planned deployment. Identifying the U.S. advisers who repeatedly work with that cohort also creates a smaller target list for cyber collection, recruitment, or surveillance.

A long history could further separate permanent cadre from rotating students and visitors. Vehicles that bridge several foreign cohorts may belong to key liaison personnel, interpreters, or senior advisers with unusually broad regional knowledge. Their homes and personal routines would then become accessible through retrospective plate searches.

Royal Concierge is a direct precedent for the intelligence value of routine travel systems. Reporting based on Snowden documents described GCHQ monitoring hotel reservations to identify diplomats' travel timing and location and cue additional collection [E147]. The relevance is not that every hotel guest is a target; it is that rare overlaps between officials, partners, and host organizations reveal relationships.

The study did not obtain hotel data, visitor logs, foreign registration information, or plate histories. It cannot identify a partner country or advisory team. The scenario shows how ALPR records could become an association layer when combined with the travel and identity systems intelligence services have historically targeted.

Combined Significance

The Ranger scenario concerns operational warning from coordinated absence. The SFAB scenario concerns relationship intelligence derived from temporary foreign-partner convergence. Together they show why Fort Benning's mix of special operations, advisers, schools, and international training cannot be reduced to generic student traffic.

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 (5 caveats)	Modeled estimate (4 caveats)
Headline channel	robust_lattice	robust_lattice
Primary H0 U/C/P/R	23.1%/29.5%/39.9%/7.5%	13.4%/59.0%/17.5%/10.0%
Robust H0/H1/H2 U/C/P/R	23.1%/24.7%/44.7%/7.5%	12.9%/56.9%/18.9%/11.3%
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 **-9.7** percentage points; separate robust H0/H1/H2 lattice **-10.2** percentage points. These channels answer different questions and are not averaged. [L41]

Legislative Significance

Fort Benning supports both large training populations and small, high-value operational or advisory communities. Legislators should require sensitive-site safeguards that limit historical retention, reverse-location searches, and external sharing; mandate independent vendor-security testing; and trigger rapid notification to Army counterintelligence when camera or plate repositories covering the installation are compromised. Controls should protect partner-nation participation without publishing route gaps or gate-specific findings.

Neither recommendation depends on a claim that a current operator acted improperly. The policy issue is whether a longitudinal commercial movement archive surrounding a sensitive national-security site should be retained, broadly shared, or exposed through vendor and subcontractor systems without controls proportionate to the intelligence value of the aggregate record.

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
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

Finding	Observed condition	Evidence boundary	Disclosure and remediation status	Source(s)
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 Fort Benning 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 a person assigned to Fort Benning 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 3 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 Fort Benning 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 Fort Benning 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 `fort_benning`. It binds cohort `reachability-v7-audit-92bd2e6a45c3a7c6`, pair `fort_benning-0c2b944132b23f2f`, seed `4246976367`, index SHA-256 `3d0755cb6fcc7dd165c6b9dd53ade8bfe5402773231904ea3807d1f17dc3b96b`, five-mile summary SHA-256 `1b186ed5a8715a136f32bc8a7adc6c7ca1427ae78e6f4528ca724499f5f5020f`, and twenty-mile summary SHA-256 `0e08d4ab5081ec987b92e78d95ee775a0e7fdf61751d1779cc1477474ec474ff`. [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 (5 caveats)	Modeled estimate (4 caveats)
V7 cohort	reachability-v7-audit-92bd2e6a45c3a7c6	reachability-v7-audit-92bd2e6a45c3a7c6
Pair ID	fort_benning-0c2b944132b23f2f	fort_benning-0c2b944132b23f2f
Pair seed	4246976367	4246976367
Generated at	2026-08-12T09:57:16.674380+00:00	2026-08-12T09:57:16.674380+00:00
Summary SHA-256	1b186ed5a8715a136f32bc8a7adc6c7ca1427ae78e6f4528ca724499f5f5020f	0e08d4ab5081ec987b92e78d95ee775a0e7fdf61751d1779cc1477474ec474ff
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	231/295/399/75	363/891/570/176
Primary H0 U/C/P/R	23.1%/29.5%/39.9%/7.5%	13.4%/59.0%/17.5%/10.0%
Robust H0/H1/H2 U/C/P/R counts	231/247/447/75	358/822/631/189
Robust H0/H1/H2 U/C/P/R	23.1%/24.7%/44.7%/7.5%	12.9%/56.9%/18.9%/11.3%
Direction H0 interval	23.1% to 70.5%	13.4% to 41.0%
Fixed-gate access interval	23.1% to 30.6%	12.9% to 25.8%
Joint interval	23.1% to 75.3%	12.9% to 43.1%
Spatial H0 interval	23.1% to 30.6%	13.2% to 23.2%
Gate reselection diagnostic	fixed 23.1%; reselected 23.1%; absolute difference 0.0 pp	fixed 12.9%; reselected 12.9%; absolute difference 0.0 pp
H0 gate near-tie sensitivity	60s: 0.0% disagreement weight; 120s: 0.0% disagreement weight; 300s: 0.0% disagreement weight	60s: 0.0% disagreement weight; 120s: 0.0% disagreement weight; 300s: 0.0% disagreement weight

Field	5-mile near-base	20-mile primary
H0 range sensitivity U/C/P/R	75ft: 23.1%/24.7%/44.7%/7.5%; 150ft: 23.1%/29.5%/39.9%/7.5%; 250ft: 23.1%/29.5%/39.9%/7.5%	75ft: 16.3%/57.3%/16.3%/10.0%; 150ft: 13.4%/59.0%/17.5%/10.0%; 250ft: 4.6%/59.3%/26.1%/10.0%
H0 direction sensitivity U/C/P/R	25deg: 63.0%/29.5%/0.0%/7.5%; 30deg: 23.1%/29.5%/39.9%/7.5%; 35deg: 23.1%/29.5%/39.9%/7.5%; 40deg: 23.1%/29.5%/39.9%/7.5%; 45deg: 23.1%/29.5%/39.9%/7.5%; 60deg: 23.1%/29.5%/39.9%/7.5%	25deg: 18.7%/59.0%/12.3%/10.0%; 30deg: 15.6%/59.0%/15.4%/10.0%; 35deg: 13.4%/59.0%/17.5%/10.0%; 40deg: 13.4%/59.0%/17.5%/10.0%; 45deg: 12.6%/59.0%/18.3%/10.0%; 60deg: 12.6%/59.0%/18.3%/10.0%
Deployment-status sensitivity U/C/P/R	declared_policy: 23.1%/29.5%/39.9%/7.5%; in_service_only: 23.1%/29.5%/39.9%/7.5%	declared_policy: 13.4%/59.0%/17.5%/10.0%; in_service_only: 13.4%/59.0%/17.5%/10.0%
Physical-camera-cluster influence	maximum removal shift 39.9 pp; 1 material cluster	maximum removal shift 2.8 pp; 0 material clusters
H0 validation	single-reviewer check	single-reviewer check
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 7.500%3. fixed-gate access-policy interval spans 7.500 pp4. direction-tolerance sensitivity exceeds materiality limit5. 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. primary H0 unresolved weight is 10.049%3. fixed-gate access-policy interval spans 12.892 pp4. direction-tolerance sensitivity exceeds materiality limit
QA and artifact warnings	None	None

20-mile minus 5-mile weighted unobserved-rate difference: primary conditional H0 **-9.7** percentage points; separate robust H0/H1/H2 lattice **-10.2** percentage points. These channels answer different questions and are not averaged. [L41]

Reachability Results

Five-Mile Near-Base Scope

Publication state: Modeled estimate (5 caveats).

The 5-mile primary H0 channel contains 1,000 draws on the full in-frame sampled denominator: 231 unobserved (23.1%), 295 confirmed exposure (29.5%), 399 possible exposure (39.9%), 75 unresolved model (7.5%). The separate robust H0/H1/H2 lattice reports 231 unobserved (23.1%), 247 confirmed exposure (24.7%), 447 possible exposure (44.7%), 75 unresolved model (7.5%). Neither channel drops or renormalizes unresolved-model weight.

H0 uncertainty intervals: direction-H0 23.1% to 70.5%; fixed-H0-gate access 23.1% to 30.6%; joint 23.1% to 75.3%; spatial/grade-H0 23.1% to 30.6%. 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":
  "989ea03515130c4b1b0b697035a5dae4dae8eb7947ec862ed56846ee8ee238e", "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": 20, "near": 68, "outer": 3734, "proven_out_of_frame": 1537 },
  "per_leg_scope_rule": "outbound_and_return_each_lte_declared_scope_radius", "source_count":
  5359, "source_weight": 131567.000000000003, "weight_by_status": { "frame_unknown": 624.0, "near":
  2073.0, "outer": 103084.250000000004, "proven_out_of_frame": 25785.749999999996 },
  "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":
  2073.0000000000037, "weight_by_status": { "artifact_error": 0.0, "frame_unknown": 0.0, "in_frame":
  2073.0000000000037, "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 7.500% 3. fixed-gate access-policy interval spans 7.500 pp 4. direction-tolerance sensitivity exceeds materiality limit 5. 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 (4 caveats).

The 20-mile primary H0 channel contains 2,000 draws on the full in-frame sampled denominator: 363 unobserved (13.4%), 891 confirmed exposure (59.0%), 570 possible exposure (17.5%), 176 unresolved model (10.0%). The separate robust H0/H1/H2 lattice reports 358 unobserved (12.9%), 822 confirmed exposure (56.9%), 631 possible exposure (18.9%), 189 unresolved model (11.3%). Neither channel drops or renormalizes unresolved-model weight.

H0 uncertainty intervals: direction-H0 13.4% to 41.0%; fixed-H0-gate access 12.9% to 25.8%; joint 12.9% to 43.1%; spatial/grade-H0 13.2% to 23.2%. 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": "989ea03515130c4b1b0b697035a5dae4daae8eb7947ec862ed56846ee8ee238e", "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": 20, "near": 68, "outer": 3734, "proven_out_of_frame": 1537}, "per_leg_scope_rule": "outbound_and_return_each_lte_declared_scope_radius", "source_count": 5359, "source_weight": 131567.000000000003, "weight_by_status": {"frame_unknown": 624.0, "near": 2073.0, "outer": 103084.250000000004, "proven_out_of_frame": 25785.749999999996}, "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": 105157.249999999993, "weight_by_status": {"artifact_error": 0.0, "frame_unknown": 0.0, "in_frame": 105157.249999999993, "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 10.049%3. fixed-gate access-policy interval spans 12.892 pp4. direction-tolerance sensitivity exceeds 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 **-9.7** percentage points; separate robust H0/H1/H2 lattice **-10.2** 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, Carpenter v. United States opinion, https://www.supremecourt.gov/opinions/17pdf/16-402_h315.pdf - Digital location privacy policy/legal context.

ID	Source and use in this report
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.
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.

ID	Source and use in this report
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.
E60	U.S. Army, "Fort Benning," https://www.army.mil/Benning - Official mission statement for the Maneuver Center of Excellence and Fort Benning: training combat-ready Soldiers and leaders and developing maneuver doctrine and capabilities. Accessed 2026-07-21.
E61	U.S. Army Garrison Fort Benning, "About," https://home.army.mil/benning/About - Official installation description identifying the Maneuver Center of Excellence, Armor and Infantry schools, Ranger and other resident organizations, installation geography, and published community scale. Accessed 2026-07-21.
E148	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 logistics and transportation organizations and internet-connected cameras near military installations and border crossings to monitor and track aid shipments. Accessed 2026-08-08.

ID	Source and use in this report
E147	The Guardian, "Snowden cache reveals diplomats' hotel bookings being tracked by GCHQ," November 17, 2013, https://www.theguardian.com/world/2013/nov/17/edward-snowden-diplomats-hotel-bookings-documents - Reported Royal Concierge precedent for monitoring diplomats' hotel reservations to identify travel timing and location and cue additional technical or human intelligence collection. Accessed 2026-08-08.
E154	U.S. Army Garrison Fort Benning, "Tenant Units," https://home.army.mil/benning/units/tenant - Official public mission summaries for the 75th Ranger Regiment and 1st Security Force Assistance Brigade at Fort Benning. Accessed 2026-08-08.
E155	U.S. Army, "Best Ranger," https://www.army.mil/ranger/ - Official Army description of the 75th Ranger Regiment as a force capable of complex joint special operations missions. 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.
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.

ID	Source and use in this report
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.
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.

ID	Source and use in this report
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.
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].