

BUILT FOR CITY MOBILITY MANAGERS & URBAN TECHNOLOGY OFFICERS



The Urban Mobility Operating System

How sensor-agnostic C-V2X infrastructure gives cities a single, future-proof Common Operating Picture for drones, eVTOLs, personal air vehicles, RoboTaxis, UGVs, and humanoid robots — now and as the fleet evolves.

Detroit was first. Other cities are watching.

AeroNet UTM is the only platform built on open C-V2X standards that gives mobility managers a sensor-agnostic Common Operating Picture across all airborne and ground-based autonomous systems — today with cooperative UTM, and tomorrow with every connected vehicle and robot in your city.

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Executive Summary

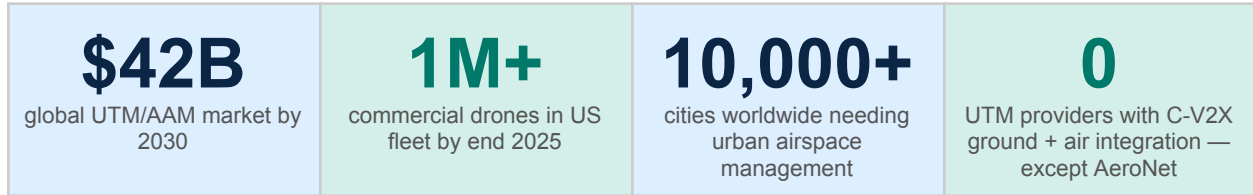
City mobility managers today face a challenge that did not exist five years ago: the simultaneous arrival of multiple new classes of autonomous and semi-autonomous vehicles — commercial drones, eVTOL air taxis, personal air vehicles, autonomous ground vehicles, RoboTaxis, and humanoid service robots — in urban environments that were not designed for any of them. These systems do not share a common operating layer. They do not communicate with each other. They are not visible to city operations centers, emergency services, or the airports and vertiports they increasingly operate near. And the patchwork of single-purpose platforms being offered to cities to manage individual categories of these vehicles is building toward a fragmented, incompatible infrastructure that will become more expensive and less safe the longer it continues.

AeroNet Universal Traffic Management (AeroNet UTM) is the alternative: a single, sensor-agnostic Common Operating Picture built on open 3GPP C-V2X standards that provides city mobility managers with unified, real-time awareness of every connected vehicle in their operating environment — in the air and on the ground. AeroNet is not a drone management tool that can be stretched to cover ground vehicles. It is not a roadway V2X system that has been adapted to handle drones. It is a purpose-built urban mobility infrastructure platform designed from first principles for the commingled, multi-modal, multi-altitude operating environment that is already arriving — and that will define urban mobility for the next thirty years.

This white paper is addressed specifically to city mobility managers and urban technology officers who are evaluating UTM and connected mobility platforms. It provides a frank assessment of the existing UTM market — including the platform that the City of Detroit has engaged — and presents the case for why AeroNet UTM's architecture represents a fundamentally different and more capable approach. It covers AeroNet's current capabilities, its future-proof C-V2X foundation, its integration with airports and vertiports, and its C-UAS partnership pathway — the one capability that, by regulatory design, requires law enforcement and federal agency coordination rather than commercial platform deployment alone.

AeroNet also delivers the governance layer that urban airspace management has been missing: a complete framework to authenticate, license, and monetize access to city-controlled airspace. Every participant on the AeroNet network — every drone, eVTOL, autonomous ground vehicle, and operator account — carries a cryptographically verified identity credential enforced at the protocol level by 3GPP's Security Credential Management System, not through manual permitting or self-reported compliance. Airspace access policies, corridor authorizations, and operator licensing conditions are applied automatically at the pre-flight authorization stage, with unauthorized operations flagged the moment they deviate from approved parameters. AeroNet's frictionless payments layer enables cities to collect airspace access fees, corridor usage charges, and vertiport landing fees at the point of authorization — creating a per-operation revenue stream that scales with the growth of the urban air economy, not a static permit fee that does not. Every AeroNet-managed operation produces a complete, timestamped compliance record available to the city for regulatory reporting, permit auditing, and incident investigation,

eliminating reliance on operator self-reporting. The city does not merely observe who is flying in its airspace: it controls authorization, collects revenue from those who operate, and holds an auditable record of every movement.



THE CORE ARGUMENT

Every current UTM provider — including the platform Detroit has selected — manages drones through cloud-based strategic deconfliction that depends entirely on cellular network connectivity and cooperative operator compliance. None of them provides C-V2X direct vehicle-to-vehicle safety messaging, none integrates ground autonomous vehicles in the same operating picture as airborne systems, and none are architected for the multi-modal autonomous city that is 36 months away. AeroNet does all three — today.

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1. THE URBAN MOBILITY CHALLENGE: WHAT CITIES ACTUALLY FACE

1. The Urban Mobility Challenge: What Cities Actually Face

A city mobility manager's inbox in 2026 looks nothing like it did in 2020. Package delivery operators are requesting drone corridors over residential neighborhoods. A regional medical center wants to run BVLOS drone logistics between hospital campuses. A rideshare company is planning a RoboTaxi service on six downtown routes. A tech firm is piloting autonomous sidewalk delivery bots on the waterfront. An eVTOL operator is evaluating a vertiport on the roof of a downtown parking garage. And somewhere in all of this, the police department wants to run Drone as First Responder on every 911 call — at the same time as commercial operators are flying the same airspace, at the same altitudes.

None of these systems was designed to share a common operating picture. None of them communicates with each other. The drone operator filing an LAANC authorization has no idea the police department's DFR drone is already in that corridor. The RoboTaxi navigating an intersection has no direct awareness of the delivery drone landing on the building above it. The eVTOL on approach to the rooftop vertiport has no visibility into the cargo drone that just departed from a pad two blocks away. They operate in adjacent spaces, at adjacent times, with zero cooperative awareness between them.

City governments are being sold individual solutions to individual pieces of this problem. A UTM portal for drone coordination. A traffic management system for autonomous ground vehicles. A separate platform for public safety UAS. A vertiport management system for the eVTOL operator. Each vendor promises integration with everything else. None of them have it. And the result is what every experienced technology officer has seen before: a portfolio of siloed systems that creates more coordination overhead than it eliminates, locks the city into proprietary data formats, and requires a new system integration project every time a new class of vehicle arrives.

<p>Air domain(arriving now)</p> <ul style="list-style-type: none"> • Commercial delivery drones • Public safety / DFR UAS • Infrastructure inspection UAS • Medical logistics drones • Personal recreational UAS 	<p>Air domain(arriving 2026-28)</p> <ul style="list-style-type: none"> • eVTOL air taxis (Joby, Archer) • Personal air vehicles (PAVs) • Autonomous cargo eVTOL • Military/government UAM • Air ambulance / medical AAM 	<p>Ground domain(arriving now–2028)</p> <ul style="list-style-type: none"> • RoboTaxis (Waymo, Cruise, Zoox) • Autonomous delivery robots • Uncrewed ground vehicles (UGVs) • Humanoid service robots • Autonomous municipal equipment
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**THE
COORDINATION
GAP**

All of these vehicle classes operate in or above the same urban environment. None of the platforms currently managing them were designed for multi-domain, multi-class coordination. The city that builds its mobility infrastructure on single-domain platforms today will spend the next decade trying to stitch them together — at escalating cost and with persistent safety gaps between the seams.

2. THE CURRENT UTM MARKET: WHAT YOU ARE BEING SOLD — AND WHAT'S MISSING

2. The Current UTM Market: What You Are Being Sold — and What's Missing

The UTM market has attracted significant investment and regulatory attention since NASA and the FAA launched the original UTM research program in 2016. Several platforms have achieved FAA USS approval, LAANC authorization, and meaningful operator adoption. Cities evaluating these platforms deserve a frank assessment of what they provide — and what architectural limitations constrain their long-term value.

2.1 AirspaceLink / AirHub Portal — The Detroit Incumbent

AirspaceLink, headquartered in Detroit and founded in 2018, is the incumbent UTM provider for the Advanced Aerial Innovation Region (AAIR) — the 3-mile radius urban drone corridor centered on Michigan Central that has been operating as the Detroit region's primary commercial drone testbed. AirspaceLink received FAA NTAP (Near-Term Approval Process) approval for strategic deconfliction services in September 2025, completing onboarding to the U.S. Shared Airspace UTM network in August 2025. It is an FAA-approved LAANC and B4UFLY provider and an Esri technology partner. Its AirHub Portal serves as a Drone Operations Management System (DOMS) for cities, integrating federal airspace data with local GIS, policies, and geofences.

AirspaceLink's strengths are real and significant for the specific use case it was designed for: municipal drone integration, city GIS overlay, public safety UAS coordination, and LAANC-based airspace authorization. Its FlySafe Program has been meaningfully deployed in Detroit, Las Vegas, Arlington (TX), and other municipalities. Its Esri integration is operationally valuable for cities already invested in GIS infrastructure.

WHAT AIRSPACELINK IS

AirspaceLink is a cloud-based Drone Operations Management System focused on strategic deconfliction, GIS-integrated airspace policy, and LAANC authorization. It is drone-centric, network-dependent, and not architected for ground autonomous vehicles, C-V2X direct communications, eVTOL operations, or multi-domain mobility management. It is a sophisticated and well-executed solution to the 2021 problem of municipal drone integration — not the 2026 problem of multi-modal autonomous urban mobility.

The architectural limitations that matter for a city's long-term mobility platform decision:

- **Network-dependent only:** AirspaceLink's deconfliction is exclusively cloud-mediated strategic coordination — flight intent exchange via API before and during flight. There is no direct V2V safety messaging between aircraft. If two drones converge at low altitude

with cellular latency or network degradation, the platform has no direct communication channel to resolve the conflict in the tactical timeframe. As ASX noted in its FCC filing, tactical V2V is an essential complement to cloud UTM that AirspaceLink does not provide.

- **Drone-only architecture:** AirspaceLink manages drone operations. It does not manage eVTOL operations, personal air vehicles, autonomous ground vehicles, RoboTaxis, or humanoid robots. Its GIS-integrated airspace picture is exclusively aerial. The ground domain is absent from its operating picture, and the vendor has no published roadmap to integrate it.
- **No C-V2X or direct comms standard:** AirspaceLink is built on cellular data exchange and Esri GIS visualization. It does not use or support C-V2X — the open 3GPP standard that enables direct peer-to-peer safety messaging between vehicles, independent of network availability. This is not a minor technical distinction; it is the difference between a coordination platform and a safety communications fabric.
- **ADS-B dependent situational awareness:** AirspaceLink's real-time situational awareness layer relies on ADS-B and radar feeds for crewed aircraft and RF telemetry for drones. As documented in multiple aviation safety investigations — most recently the March 2026 LaGuardia collision — ADS-B-dependent systems cannot track non-transponder-equipped vehicles and are subject to both radar confidence failures and coverage gaps.
- **No airport or vertiport integration:** AirspaceLink has no published integration with airport ATC systems, ASDE-X surface surveillance, SWIM data exchange, or vertiport pad management systems. Drone operations near airports require manual coordination and separate LAANC processes. The eVTOL vertiport environment is entirely outside the platform's current architecture.

2.2 The Broader UTM Market: Common Architectural Limitations

AirspaceLink is not alone in these limitations — they are characteristic of the current UTM USS generation as a whole. The following assessment applies to the primary competing platforms:

Platform	Core Architecture	What It Does Well	Critical Limitations for Cities
AirspaceLink (Detroit incumbent)	Cloud DOMS + Esri GIS + LAANC + FAA NTAP UTM	Municipal GIS integration; city policy overlay; public safety drone DOMS; well-funded Detroit track record	No C-V2X; no ground domain; no eVTOL/AAM; no airport integration; no direct V2V; network-dependent only
AirMap (DroneUp/acquired)	Cloud USS; global ANSP integrations; API/SDK platform	Global ANSP partnerships; developer ecosystem; international deployments	App shut down 2023; absorbed into DroneUp logistics focus; not a city mobility platform; no V2V, no ground domain
Altitude Angel (UK/EU)	U-space USSP; European ANSPs; GuardianUTM platform	Strong EASA U-space compliance; airport perimeter coverage; European deployments	EU-focused regulatory alignment; no US FAA NTAP; no C-V2X; no ground vehicles; no vertiport pad management

ANRA Technologies	EASA USSP; FAA UTM; enterprise BVLOS	First EASA USSP certificate; enterprise BVLOS; public safety integration	No C-V2X; no ground domain; no direct V2V; tactical deconfliction network-dependent
AiRXOS(GE Aviation/Boeing)	Cloud USS; airline/MRO integration; FAA UTM	Deep airline/MRO connectivity; enterprise aviation relationships	Aviation enterprise focus not city/municipal; no C-V2X; no ground domain; limited public deployment
Skyward(Verizon)	Cellular-first fleet management + USS	Verizon LTE/5G coverage; enterprise fleet management; LAANC	Cellular-dependent; no V2V; no ground domain; Verizon network proprietary dependency; no airport integration

MARKET VERDICT

The current UTM USS generation was built for the 2018–2022 regulatory environment: drone-only, cloud-mediated, network-dependent strategic deconfliction for authorized operators. Every platform in this category shares the same fundamental limitation: it manages drones that comply with the system. It cannot provide direct V2V safety communications, it cannot integrate ground autonomous vehicles, it cannot manage eVTOL or AAM operations natively, and it cannot operate safely when the network is unavailable. These are not minor gaps — they are architectural ceilings on what these platforms can ever become.

3. THE AERONET DIFFERENCE: SENSOR-AGNOSTIC COP ON C-V2X

3. The AeroNet Difference: Sensor-Agnostic COP on C-V2X

AeroNet UTM is built on a fundamentally different architectural premise from every platform described in Section 2. Where USS platforms are application layers built on top of cellular connectivity, AeroNet is a communications fabric built on open C-V2X standards that operates below the application layer — providing direct, low-latency, peer-to-peer safety messaging between every connected participant, independent of network availability, independent of operator compliance, and independent of the specific sensor technology any individual participant uses. The application and management layers are built on top of this communications fabric, not instead of it.

3.1 Sensor-Agnostic Data Fusion

AeroNet's Common Operating Picture is sensor-agnostic by design. It ingests data from every available source simultaneously — ADS-B, Remote ID, C-V2X position broadcasts, cellular C2 links, ground vehicle telemetry, radar feeds, SWIM flight plan data, and AeroNet native protocol messages — and fuses them into a single, continuously updated operational picture. No single sensor modality is required. No single connectivity technology is depended upon. If ADS-B coverage is incomplete, C-V2X fills the gap. If cellular is congested, direct V2V continues. If a vehicle carries no transponder, its C-V2X broadcast is tracked independently.

This sensor agnosticism is strategically critical for cities for a reason that has nothing to do with the current fleet: the vehicles that will be operating in your city in five years do not all exist yet. Personal air vehicles are in prototype. Autonomous delivery robots from a dozen manufacturers use different communication standards. Humanoid service robots will have their own sensor suites. AeroNet's architecture does not require any of them to adopt a specific proprietary standard — it requires only that they support C-V2X, the open 3GPP standard already deployed at automotive scale in millions of vehicles globally. If they speak C-V2X, they are on the AeroNet COP.

3.2 The C-V2X Communications Foundation

Airspace Experience Technologies (ASX), the company behind AeroNet UTM, formally filed comments with the FCC on May 1, 2026 (GN Docket No. 26-74, 'Unleashing American Drone Dominance') urging the Commission to authorize development, testing, and deployment of V2V communications in the 5.9 GHz C-V2X band for UAS operations, with dedicated overflow spectrum in the 5030–5091 MHz band. This FCC engagement is not incidental — it reflects ASX's position as the only UTM company actively engaged in shaping the spectrum policy that will govern connected vehicle communications across both air and ground domains.

C-V2X in the 5.9 GHz band operates on open 3GPP standards — the same standards body that governs global cellular networks. This means three things for cities evaluating long-term infrastructure commitments: open standards prevent vendor lock-in; automotive-scale deployment means a massive supply chain and competitive hardware pricing; and the security architecture — certificate-based authentication via the Security Credential Management System (SCMS) — is already deployed at scale in the transportation sector without requiring cities to build or operate credential infrastructure.

The MDOT-Aero 2024 research, conducted by ASX and WSP Global for the Michigan Department of Transportation, validated C-V2X and DSRC for UAS mesh communications with favorable BVLOS results — the only publicly documented field validation of this approach, conducted in Michigan, the state in which Detroit operates.

3.3 Off-Network Resilience: The Safety Fabric That Never Goes Down

C-V2X's most operationally significant property for city infrastructure is direct peer-to-peer communication without network intermediation. When a drone and a RoboTaxi converge at an intersection, their C-V2X modules exchange position, velocity, and intent data directly — without routing through a cloud server, without requiring cellular coverage, and without depending on any operator to have filed a flight plan in advance. This is the safety fabric that operates during a cellular outage, during a network congestion event, during a cyberattack on cloud infrastructure, and — critically — for non-cooperative vehicles that have not filed any plan but are broadcasting a C-V2X position signal.

Architecture Dimension	Legacy UTM Platforms (AirspaceLink, AirMap, etc.)	AeroNet UTM
Tactical deconfliction method	Cloud API — flight intent exchange via network; latency measured in seconds	Direct C-V2X V2V — peer-to-peer safety message; latency under 50 milliseconds
Network dependency	Fully dependent — no network = no deconfliction	Network enhances capability; direct V2V operates independently of the network
Ground vehicle integration	None — drone-only architecture	Native C-V2X — same protocol for air and ground vehicles in the same COP
Sensor modalities	ADS-B + RF telemetry + cellular C2	Sensor-agnostic: ADS-B + Remote ID + C-V2X + radar + cellular + any cooperative source
Non-cooperative vehicle awareness	Limited to RF telemetry of drone controller signals	C-V2X broadcast tracked independently of operator compliance
eVTOL / AAM support	Not natively supported; no pad management	Full A2X with vertiport pad sequencing, cockpit/FMS integration, and commingled traffic

Airport integration	LAANC coordination only; no ATC SWIM integration	SWIM integration; ASDE-X overlay; approach corridor broadcast; ATC workstation display
Open Standards Foundation	Proprietary platform on cellular APIs	Open 3GPP C-V2X; ASTM UTM standards; FAA NTAP approved; SCMS security
Future vehicle compatibility	Requires new development per vehicle class	C-V2X native — any vehicle supporting the 3GPP standard joins the COP automatically
C-UAS integration pathway	No published C-UAS integration	Sensor-agnostic COP designed for C-UAS sensor data ingestion — see Section 9

4. AIR DOMAIN: DRONES, eVTOLs, AND PERSONAL AIR VEHICLES

4. Air Domain: Drones, eVTOLs, and Personal Air Vehicles

AeroNet's air domain capabilities cover the full spectrum of urban aerial operations — from the sub-55-lb commercial drone conducting a BVLOS package delivery to the eVTOL carrying four passengers between a downtown vertiport and DTW, to the personal air vehicle that will begin appearing in urban airspace within this decade. All three vehicle classes share the same C-V2X communications layer and appear on the same city COP.

4.1 Commercial UAS: BVLOS at City Scale

For commercial UAS operators — delivery networks, infrastructure inspection companies, public safety agencies, agricultural operators — AeroNet provides full UTM services as an FAA-recognized platform: pre-flight conflict checks against crewed traffic and concurrent UAS operations, BVLOS corridor authorization, Remote ID compliance monitoring, strategic and tactical deconfliction, and automatic notification to ATC when operations enter controlled airspace. All of this is available at city scale, without requiring bilateral agreements between operators or manual coordination by city staff.

For the city, AeroNet's drone management layer provides a complete operational picture of all authorized commercial UAS activity — who is flying, where, at what altitude, on what route, for whom — plus alerts for unauthorized operations not matching filed plans or Remote ID signals. This is the foundation of responsible urban airspace governance: the city sees everything that is supposed to be there, and is alerted to everything that is not.

4.2 eVTOL and Advanced Air Mobility

Eight FAA eIPP (Enabling Advanced Air Mobility with Infrastructure and Partnerships) pilot sites are scheduled to begin operations by summer 2026. The Illinois-based program to operate United Express / Archer commercial eVTOL service between O'Hare and a downtown Chicago vertiport represents the first major U.S. urban air taxi commercial deployment. Detroit, as a city with automotive-sector expertise in electric vehicle platforms and a developed drone ecosystem through AAIR, is well-positioned to be an early eVTOL market — if the city's UTM infrastructure is ready to manage it.

AeroNet is the only UTM platform that natively manages eVTOL operations in the same COP as commercial drones. Vertiport pad sequencing, approach corridor protection, cockpit and flight management system integration, and the multi-modal conflict detection required for eVTOL operations in shared airspace are all built into AeroNet's A2X architecture. The city's mobility manager sees the eVTOL on final approach and the BVLOS delivery drone in the adjacent corridor in the same display — because they are on the same network.

4.3 Personal Air Vehicles: Future-Proofing the City COP

Personal air vehicles — small, single or two-seat autonomous or semi-autonomous aircraft designed for individual urban commuting — are moving from prototype toward market readiness. Companies including Lillium (prior to restructuring), Wisk Aero, and Alef Aeronautics are pursuing civilian PAV certification. The FAA issued its first Special Airworthiness Certificate for a flying car in 2023. These vehicles will operate at low altitudes, at high densities in urban corridors, and without dedicated air traffic control services. They will require the same UTM infrastructure as commercial drones and eVTOLs — but with the additional complexity of potentially thousands of simultaneous operations in a single city's airspace.

AeroNet's C-V2X architecture is specifically designed for this density. The 5.9 GHz C-V2X band has been proven in automotive deployments handling thousands of concurrent vehicles at intersection-level granularity. The same architecture scales to the PAV density scenario without requiring a redesign of the communications layer — every PAV that supports 3GPP C-V2X is automatically visible on the AeroNet COP the moment it enters city airspace.

5. GROUND DOMAIN: UGVs, ROBOTAXIS, AND HUMANOIDS

5. Ground Domain: UGVs, RoboTaxis, and Humanoids

No UTM platform currently operating in Detroit — or anywhere else — has a ground domain. AirspaceLink, AiRXOS, ANRA, Altitude Angel, and every other USS in the FAA ecosystem manage drones. None of them manages the autonomous ground vehicles that are entering city streets on the same timeline as commercial drones, at a greater scale, with greater public visibility, and with more immediate public safety implications. AeroNet UTM is the only platform architected to manage both domains in a single COP — because the C-V2X protocol that connects a drone to the network is the same protocol that connects a RoboTaxi, an autonomous delivery robot, and eventually a humanoid service worker operating in city infrastructure.

5.1 RoboTaxis and Autonomous Passenger Vehicles

Waymo, Cruise (GM), Zoox (Amazon), and Motional are operating or planning to operate fully autonomous passenger vehicle services in U.S. cities. Detroit, as the home of the automotive industry's most significant technology transition, is a natural early deployment market. These vehicles carry C-V2X hardware as a standard safety feature — automotive V2X is mandated or strongly incentivized in both the U.S. and EU automotive safety frameworks. When a Waymo vehicle broadcasts its C-V2X position signal on a Detroit street, it is already speaking AeroNet's language. No additional hardware. No integration project. The vehicle is on the COP.

For the city, the operational value of seeing RoboTaxis on the same display as drones is not merely situational awareness — it is conflict detection. A delivery drone descending to a rooftop pickup point does not know that a RoboTaxi is about to turn below it. An autonomous delivery robot crossing an intersection does not have awareness of the drone departing from the building above. AeroNet's C-V2X layer is the only architecture that gives both vehicles simultaneous awareness of each other and enables cooperative avoidance without human intermediation.

5.2 Uncrewed Ground Vehicles and Autonomous Delivery Robots

Autonomous sidewalk delivery robots (Starship, Serve Robotics, Kiwibot), autonomous industrial UGVs operating in municipal facilities, and autonomous municipal equipment — street sweepers, refuse collection vehicles, inspection platforms — are all entering city operating environments. These vehicles operate at slower speeds and in constrained environments compared to RoboTaxis, but they interact directly with both pedestrian infrastructure and the building-level airspace where drone deliveries terminate. AeroNet's V2X integration for ground vehicles includes in-vehicle audible and visual alerts and CAN bus brake integration — the same architecture proven for airport ground vehicle safety applied to urban autonomous equipment.

5.3 Humanoid Service Robots

Humanoid robots — bipedal autonomous systems designed for human-environment interaction — are entering early municipal and commercial deployment in 2025 and 2026. Boston Dynamics' Atlas, Figure AI's Figure 01, Tesla's Optimus, and Agility Robotics' Digit are all in various stages of commercial or near-commercial readiness. Cities will encounter these platforms in public works, facility management, emergency response support, and eventually public-facing service roles. While humanoids do not yet universally carry C-V2X hardware, the open 3GPP standard is already being discussed as the connectivity layer for autonomous systems in urban environments. AeroNet's sensor-agnostic COP is architected to ingest their position and state data from whatever connectivity standard they adopt — C-V2X natively, or via API bridge for platforms using proprietary protocols.

THE AIR-GROUND CONVERGENCE

A drone delivering a package to a rooftop interacts with the ground vehicle fleet when it descends to street level. A RoboTaxi navigating an intersection interacts with the drone departing from the building above it. A humanoid robot crossing a plaza interacts with the autonomous delivery vehicle approaching it. The COP that serves each of these interactions individually is not a multi-modal COP — it is three separate, siloed displays. AeroNet's C-V2X architecture is the first and only system that gives every vehicle in all three domains simultaneous mutual awareness in a single unified picture.

6. AIRPORT AND VERTIPOINT INTEGRATION

6. Airport and Vertipoint Integration

Detroit Metropolitan Wayne County Airport (DTW) and Detroit City Airport (DET) are not peripheral to the city's UTM picture — they are central to it. Every commercial drone corridor that extends beyond downtown eventually interacts with DTW's Class B or DET's Class D airspace. Every eVTOL air taxi route between the city and the airport shares low-altitude corridors with commercial drones and crewed traffic. And the LaGuardia collision of March 22, 2026 — in which an airport fire truck invisible to ASDE-X radar was struck by a landing regional jet, killing both pilots — made definitively clear that the absence of V2X on ground vehicles at airports has life-safety consequences.

6.1 Airport Integration

AeroNet's A2X platform integrates with airport ATC infrastructure through SWIM (System Wide Information Management) data exchange — the FAA's standard data sharing protocol for the national airspace system. This means AeroNet's city COP includes live awareness of crewed aircraft operations in the terminal areas around DTW and DET, active TFRs, NOTAMs, and approach/departure corridor status — not as a separate data pull that requires a city staff member to monitor, but as a live layer on the unified COP.

For drone operators and eVTOL services operating near Detroit's airports, AeroNet provides automatic airspace status awareness that eliminates the reactive LAANC call or pre-flight phone coordination currently required. Approach corridor conflicts are detected pre-departure and resolved before the aircraft lifts off. And AeroNet's V2X surface management capability — when deployed at DTW or DET — provides the non-transponder ground vehicle tracking that ASDE-X cannot: a C-V2X-equipped ARFF truck is tracked continuously, generates hold-short conflict alerts to the truck cab and the controller simultaneously, and can engage automatic braking via CAN bus integration to prevent a runway incursion before it occurs.

6.2 Vertipoint Integration

As Detroit evaluates vertipoint sites — on rooftop infrastructure, adjacent to DTW, or integrated with the Michigan Central mobility hub — AeroNet provides the operational infrastructure for managing the commingled environment that every urban vertipoint will face: eVTOLs on approach, commercial drones on adjacent corridors, crewed helicopters transiting overhead, and autonomous ground vehicles on the surface below. Every vertipoint registered on AeroNet is visible on the city COP, with pad availability status, active approach and departure corridors, and surface vehicle positions broadcast to all authorized participants.

For the city's mobility manager, this means the decision to approve a vertipoint site includes a complete picture of its airspace interactions — not a developer's traffic study submitted months

in advance, but a live, network-delivered operational picture that shows exactly what aircraft are operating in the proposed vertiport's approach corridor at any given time. This is the data infrastructure that responsible urban vertiport permitting requires.

7. PUBLIC SAFETY, EMERGENCY RESPONSE, AND PRIORITY OPERATIONS

7. Public Safety, Emergency Response, and Priority Operations

Public safety is not a special case for AeroNet — it is a native operating mode. From the network's perspective, a law enforcement DFR drone is a network participant with a specific priority level and an anonymity requirement. An ambulance is a V2X-equipped ground vehicle with a priority corridor reservation. An ARFF truck responding to a declared aircraft emergency is a surface vehicle whose trajectory needs to be tracked, alerted, and, if necessary, physically stopped before it crosses an active runway. All of these are operations that AeroNet manages natively, without requiring a separate public safety layer or a separate public safety coordination call.

7.1 Drone as First Responder

Detroit's public safety agencies have been early adopters of Drone as First Responder programs — deploying UAS ahead of ground units to establish situational awareness, guide response, and reduce the time between 911 call and human arrival at the scene. AeroNet's priority operations framework manages DFR deployments in the full traffic picture: the DFR drone's corridor is reserved automatically at dispatch, commercial operators in the affected airspace receive an advisory to yield, and the drone's position is tracked in real time on the city COP available to incident command.

Critically, DFR operations can be managed anonymously but authenticated — the drone is fully identified to ATC and AeroNet's safety systems for deconfliction, but its identity, call sign, and mission type are not broadcast to commercial operators on the network. This is the operational security requirement that public safety agencies need and that no standard LAANC coordination process provides.

7.2 Multi-Agency Coordination

AeroNet enables multi-agency coordination that no current Detroit UTM platform provides: police, fire, EMS, and municipal operations can each see a shared COP of all authorized aerial and ground autonomous operations in the city — with their own agency's operations highlighted and other agencies' operations visible at the appropriate authorization level. A fire department responding to a structure fire can see the police DFR drone already on scene, the medical

drone inbound from the hospital, and the commercial delivery drone that has been re-routed around the incident perimeter — all in the same display, in real time, without a radio call between agencies.

8. AUTHENTICATION, COMPLIANCE, AND FRICTIONLESS CITY COMMERCE

8. Authentication, Compliance, and Frictionless City Commerce

Cities are beginning to assert legitimate governance interests in the airspace above their infrastructure — and AeroNet provides the technical architecture to make that governance real, auditable, and commercially sustainable without creating bureaucratic overhead that drives operators to competitor cities.

8.1 Authenticated Identity for Every Participant

AeroNet's 3GPP SCMS certificate-based authentication provides cryptographically verified identity for every participant on the network — every drone, every eVTOL, every autonomous ground vehicle, every operator account. The city can define access policies — which operators are authorized for which corridors, at which times, for which vehicle classes — and AeroNet enforces those policies at the pre-flight authorization stage. Unauthorized operations are identified at the moment they deviate from authorized parameters, not after the fact.

8.2 Airspace Access Fees and City Revenue

AeroNet's frictionless payments layer enables cities to establish and collect airspace access fees, corridor usage charges, vertiport landing fees, and other commercial airspace governance instruments without creating billing overhead. An operator filing a BVLOS corridor through a city-designated managed airspace zone pays the city's published access fee automatically at the point of authorization — no invoice, no manual collection, no payment friction. The city receives a per-operation revenue stream tied to the growth of its drone and AAM economy, rather than a one-time permit fee that does not scale with volume.

8.3 Regulatory Reporting and Compliance Audit

Every AeroNet-managed operation generates a complete, timestamped operational record: operator identity, vehicle registration, route flown, altitude profile, departure and arrival times, and any compliance flags generated during the operation. These records are available to the city for regulatory reporting, permit compliance auditing, incident investigation, and annual mobility reporting — eliminating the reliance on operator self-reporting that currently characterizes municipal drone governance.

9. C-UAS: THE LAYER CITIES NEED AND HOW AERONET ENABLES IT

9. C-UAS: The Layer Cities Need and How AeroNet Enables It

This section addresses the one capability that AeroNet does not provide as a native platform feature — and explains why that is a design decision, not a product gap. It then describes how AeroNet's sensor-agnostic COP creates the ideal integration environment for Counter-UAS systems from specialized providers, and what the C-UAS option landscape looks like for cities.

9.1 Why C-UAS Is Not a UTM Feature

Counter-UAS — the detection, tracking, identification, and potential mitigation of rogue or unauthorized uncrewed aircraft — is a distinct regulatory and operational domain from UTM. In the United States, the legal authority to actively mitigate a drone threat (jamming, spoofing, physical interdiction) is reserved exclusively to specific federal agencies under 6 U.S.C. § 124n and related authorities: the Department of Defense, Department of Homeland Security, Department of Justice, and Department of Energy. State and local governments, airport operators, and private entities have no independent interdiction authority regardless of the threat posed by the drone.

This legal reality is not a temporary gap — it reflects a deliberate congressional judgment that drone mitigation involves risks of interference with communications infrastructure, GPS systems, and other aircraft that require federal-level authorization and oversight. UTM platforms that offer C-UAS as a native feature are either overstating their capability (offering detection and alerting, not mitigation) or operating in a legal gray area that exposes cities and platform operators to significant liability.

AeroNet's design decision is explicit: the platform provides the detection, identification, tracking, and alerting functions that constitute the intelligence layer for C-UAS response. The interdiction decision and execution remain with authorized federal and law enforcement agencies. This is the architecture that is legally defensible, operationally appropriate, and compatible with the City of Detroit's existing public safety agency relationships.

9.2 The C-UAS Sensor Landscape: What Cities Can Deploy

While mitigation authority is federally restricted, the detection and tracking layer of C-UAS is available to cities, airports, and critical infrastructure operators as a monitoring and alerting capability. The leading sensor technologies in the commercial C-UAS market:

C-UAS Sensor Type	Capability and Deployment Profile
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RF / Radio Frequency detection(Dedrone RF-360, DroneShield RFAI™)	Detects drone-to-controller communication signals in 2.4 GHz / 5.8 GHz bands; identifies 150+ drone models; locates both drone and operator; 1.6 km average detection range; passive — no emissions. Dedrone DedroneTracker.AI deployed at Super Bowl LIX, 250+ networked sensors in Ukraine. DroneShield SentryCiv launched in August 2025 for civilian airports and utilities at subscription pricing. Best for: urban environments; crowded RF; operator location requirements.
Radar (micro-Doppler)(Robin Radar IRIS, RADA RPS-82)	Detects rotor signature via micro-Doppler velocity modulation; effective against RF-silent drones (fiber-optic controlled, no radio); all-weather; multiple simultaneous tracks. Effective range 5-10 km for DJI-class drones. Best for: perimeter protection; high-value infrastructure; adverse weather environments.
Electro-Optical / Infrared(Dedrone cameras, DroneShield optical)	AI-driven visual classification; positive ID confirmation; day/night with IR; complements RF and radar. Weight and weather limitations. Best for: secondary confirmation layer; identity classification after RF/radar detection.
Acoustic detection	Detects motor/propeller signatures; short range (100-300m); effective in low-noise environments; complements RF as a secondary layer. Not suitable as primary sensor in urban noise environments.
ADS-B monitoring (passive)	Correlates cooperative transponder signals against the authorized operations database; flags unauthorized squawks or route deviations. No detection of non-transponder drones. Used by AeroNet natively as a COP layer.

9.3 How AeroNet's COP Integrates C-UAS Sensors

AeroNet's sensor-agnostic COP architecture is designed to ingest C-UAS sensor data as additional input layers in exactly the same way it ingests ADS-B, Remote ID, and C-V2X position broadcasts. A city that deploys Dedrone RF sensors at critical infrastructure locations — the water treatment plant, the power substation, the airport perimeter, the stadium — can feed those sensor tracks directly into the AeroNet COP, where they are correlated against the authorized operations database and displayed as flagged unknown tracks to the appropriate operations personnel.

The integration architecture is straightforward: C-UAS sensor platforms expose their track data via standard API (ASTERIX CAT 048/062, JSON, or vendor SDK). AeroNet's sensor ingestion layer normalizes these tracks into the COP's unified track format and applies the same authorization correlation logic used for ADS-B and Remote ID data. An RF-detected drone with no matching Remote ID signal and no filed flight plan is flagged as an unauthorized track — displayed on the COP with its position, altitude estimate (where radar is available), and signal profile — and the appropriate alert is generated to the city's operations center and authorized law enforcement contacts.



A city with Dedrone or DroneShield sensors and AeroNet UTM has more than two separate systems. It has a unified operational picture where authorized drones appear as green tracks, unmatched Remote ID signals appear as amber tracks,

and RF-detected unauthorized drones with no cooperative signal appear as red tracks — all on the same display, all correlated against the same authorization database, all generating the same alert workflow to the same operations center. The C-UAS sensors provide the detection; AeroNet provides the context that tells the operator whether the detected object is a delivery drone that forgot to file a plan, a rogue hobbyist, or a deliberate threat.

9.4 The C-UAS Ecosystem for Cities: Recommended Partners

C-UAS Provider	What They Bring to an AeroNet-Integrated City COP
Dedrone (Axon) DedroneTracker.AI	RF + radar + optical multi-sensor fusion; 150+ drone models; AI behavior modeling; near-zero false positives; deployed at Super Bowl LIX, major airports, and Ukraine. DedroneTracker.AI API integrates directly into the AeroNet COP ingestion layer. Recommended for: city-wide fixed-site detection network.
DroneShieldDroneSentry + SentryCiv	Modular RF + radar + optical + AI; RFAI™ engine with quarterly threat updates; SentryCiv launched 2025 for civilian airports/utilities at subscription pricing; SAPIENT protocol for multi-site integration. Recommended for: airport perimeter; vertiport security; critical infrastructure.
D-Fend Solutions EnforceAir	GPS takeover / spoofing capability for authorized federal agencies; cyber-takeover rather than jamming — minimal collateral interference. Requires federal authorization. Recommended for: federal partnership in Detroit; DHS/DOJ coordination for major event security.
Anduril Industries Lattice / Sentry Tower	AI-driven autonomous detection + classification; Lattice OS multi-sensor fusion; modular tower deployment. Pentagon and border patrol deployments. Recommended for: high-security perimeter applications; federal co-deployment scenarios.

10. WHY AERONET, WHY NOW — AND WHY DETROIT SHOULD LEAD AGAIN

10. Why AeroNet, Why Now — and Why Detroit Should Lead Again

Detroit became the first American city to build serious urban drone infrastructure because of a convergence of institutional commitment, industry partnership, and geographic advantage: the AAIR corridor, Michigan Central, MDOT's aviation research program, and a municipal government willing to engage the regulatory frontier rather than wait for federal permission. That first-mover position created real advantages — for the city's technology reputation, for its ability to attract mobility companies, and for the quality of the drone ecosystem its residents and businesses can access.

The second-mover disadvantage is now visible. The platform Detroit engaged — AirspaceLink — was the right tool for 2021. It is a drone management system built for the regulatory environment and vehicle fleet of five years ago. As eVTOLs begin commercial service in 2026, as autonomous ground vehicles scale past pilot programs, as personal air vehicles move toward market, and as the city's airspace density grows by an order of magnitude, the architectural ceiling of a cloud-only, drone-only UTM platform will become operationally constraining rather than merely limiting.

The decision to build on AeroNet UTM is not a decision to discard the investment made in AirspaceLink. It is a decision to build the infrastructure layer that makes Detroit's existing drone program one component of something larger — a multi-modal, multi-domain, C-V2X-connected city operating picture that positions Detroit to lead the second wave of urban mobility innovation with the same authority it led the first.

10.1 The Detroit-Specific Case

Detroit Advantage	How AeroNet Amplifies It
AAIR corridor — operational drone infrastructure in a 3-mile urban radius	AeroNet integrates AAIR operations into a citywide COP that extends beyond the corridor, connecting AAIR's drone traffic with DTW airspace, the Michigan Central vertiport pipeline, and the broader metropolitan ground vehicle ecosystem
MDOT-Aero C-V2X validation research (2024)	ASX/WSP Global conducted the MDOT-Aero research in Michigan — the only publicly documented field validation of C-V2X for UAS mesh communications was done here. The Detroit deployment of AeroNet would be the operational implementation of research already paid for by Michigan taxpayers

Automotive industry V2X investment	Detroit's automotive cluster — Ford, GM, Stellantis — is deploying C-V2X in production vehicles. AeroNet's use of the same 3GPP C-V2X standard means the city's UTM infrastructure speaks the same language as the automotive fleet on its streets. No other city has this convergence of air and ground V2X deployment
Michigan Central mobility hub	The MC mobility campus is the natural site for a Detroit vertiport. AeroNet's vertiport integration provides the operational infrastructure that makes MC a functioning multi-modal hub rather than a demonstration space
Public safety DFR program	AeroNet's anonymously-authenticated priority operations framework provides the city's DFR program with the airspace management infrastructure that LAANC coordination cannot supply at DFR dispatch speed

10.2 The Ask: A Parallel Engagement

AeroNet UTM is not asking Detroit to terminate its AirspaceLink engagement. It is proposing a parallel demonstration: a defined geographic area — the Michigan Central corridor or a comparable Detroit mobility zone — where AeroNet's sensor-agnostic COP, C-V2X ground vehicle integration, vertiport management, and airport coordination operate alongside the existing DOMS infrastructure. The demonstration would produce a direct, documented comparison of the two architectures' capabilities in Detroit's specific operating environment — and give the city's mobility managers the empirical basis to make the infrastructure decision that will govern urban mobility in Detroit for the next decade.

Detroit led once. AeroNet UTM is how it leads again.

Connect with the AeroNet city mobility team to discuss a Detroit parallel demonstration engagement.

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