



Capabilities Review



Overview

- 1. Web based approach** works with any mobile, any AVL equipment
- 2. Everyone sees the same view (COP)**
- 3. Open Geospatial Consortium (OGC) compliant core build** facilitates flexibility and interoperability

Product Review

- Basic Features (Billboard, Admin, and Help)
- Tracking & History Features
 - Base Maps
 - Layers
 - Real Time Location Data Overview
 - SWIM (System Wide Information Management)
 - Automatic Vehicle Location (AVL)
 - Smartphone Tracking
 - Annunciations and Warnings
 - Some Emphasis Items
 - Demo

Basic Features



MSP International Airport



Billboard View



Tracking and
History



Admin



Help

v2.7.4  Feedback

Admin Page – Fleets and Vehicles

All Vehicles

Fleets

No Fleet Assigned

Test Fleet

A Fleet

Fleet 1

Fleet 2

Phone

Groupings

testSub

All Vehicles

	ESN	Asset Name	Year	Make	Model	Asset Class	Asset Type	Fleet	Sub Fleet	Sub 1	Sub 2	Sub 3	Notes	Color	Display
<input checked="" type="checkbox"/>	3668606010	Caitlin												77 175 74	Yes
<input checked="" type="checkbox"/>	3486755531	Mobile												152 78 163	Yes
<input checked="" type="checkbox"/>	2851447106	iPhone testing												128 128 128	Yes
<input checked="" type="checkbox"/>	2026313284	Steve's Car												128 128 128	Yes
<input checked="" type="checkbox"/>	3247411949	blammo						Phone						255 127 0	Yes
<input checked="" type="checkbox"/>	2578391233	JimBob												255 127 0	Yes
<input checked="" type="checkbox"/>	3989385752	Cait												128 128 128	Yes
<input checked="" type="checkbox"/>	393480430	anything												128 128 128	Yes
<input checked="" type="checkbox"/>	4275566248	UMGEOCON						Phone						128 128 128	Yes
<input checked="" type="checkbox"/>	2310457663	something												128 128 128	Yes
<input checked="" type="checkbox"/>	2662442116	Matt												128 128 128	Yes
<input checked="" type="checkbox"/>	982656331	phil												128 128 128	Yes
<input checked="" type="checkbox"/>	65920958	xterr a berg												128 128 128	Yes
<input checked="" type="checkbox"/>	1426374694	Blammo												128 128 128	Yes
<input checked="" type="checkbox"/>	2177926815	test												128 128 128	Yes
<input checked="" type="checkbox"/>	1062502788	Skibba1												128 128	Yes

Admin Page – Overlays

Admin Home Fleets and Vehicles Overlays

Change Layer

- edit existing features
- delete selected feature
- add new features
- save features
- cancel changes
- zoom to default

2000 ft

Calculator

Help Pages

AVL Documentation

□ Back To Apps

Introduction

Main Application

Administration

Mobile App

Viewing a Vehicle's History

Last Updated: 2015-12-11

The screenshot displays the 'Tracking and History' application interface. The sidebar on the left is dark grey with white text, showing 'Tracking and History' as the active section. The main content area is white and features a search bar for 'Currently Tracking' with a magnifying glass icon and a green square icon next to the vehicle ID '463'. Below this is the 'Vehicle History' section, which includes a date picker set to '07/01/2015' and a time input field showing '9:12am'. A date picker popup is overlaid on the time input, showing a grid of dates and times. The main area of the application shows a map with a yellow route and a table of tracking data at the bottom.

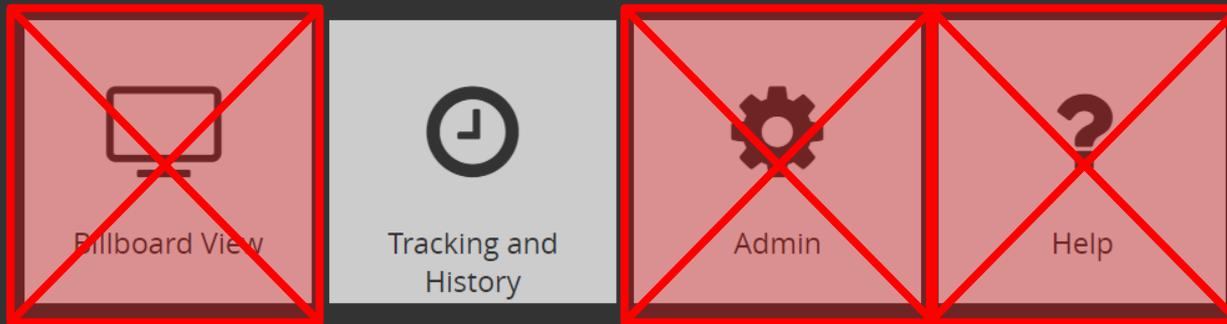
781	13m
175	21m

Once you have added a vehicle to your tracking list, you can select a timeframe in which to view where that vehicle has been. In the History section of the sidebar, select your start date and time, and then your end date and time. This is accomplished by clicking on the inputs. A date picker popup will appear to assist you with selecting dates, but you can also type them in manually. When you are happy with your selection, click "submit" and the application will retrieve the data for that vehicle from your selected timeframe.

Tracking and History Features



MSP International Airport

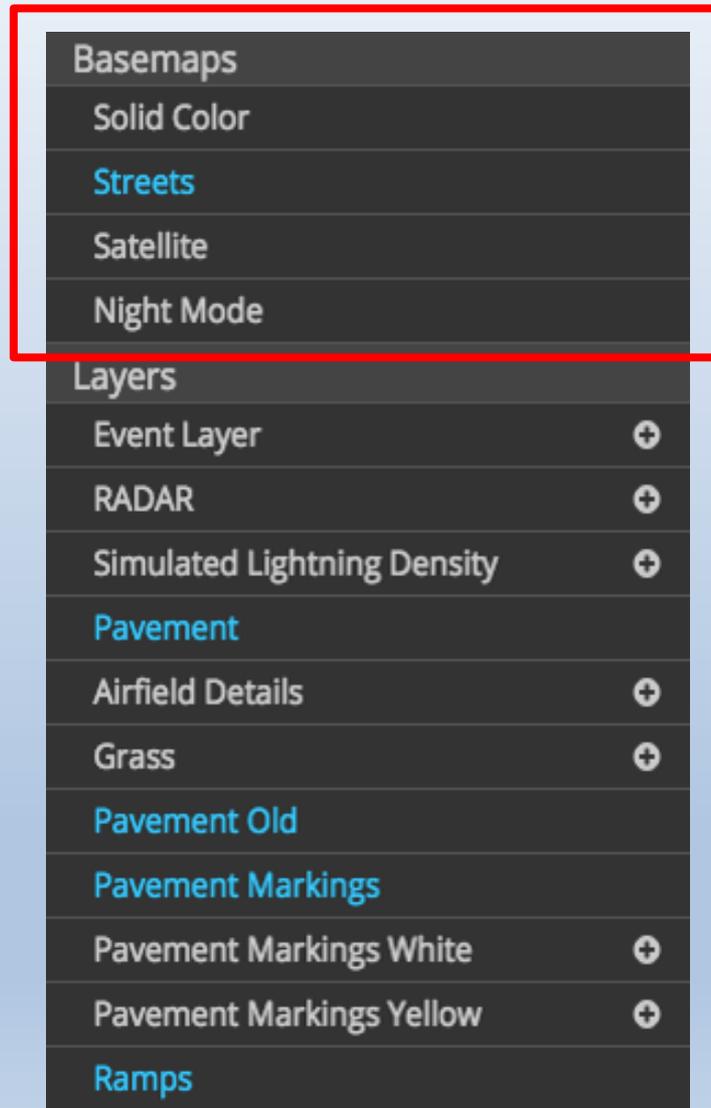


v2.7.4  Feedback

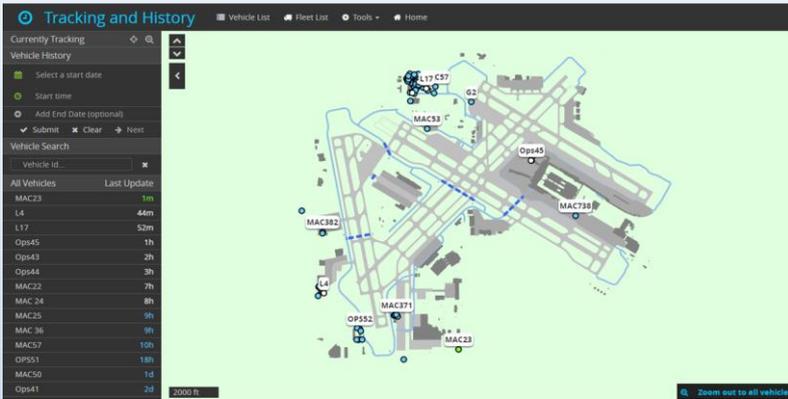
Base Maps

Whatever You Want

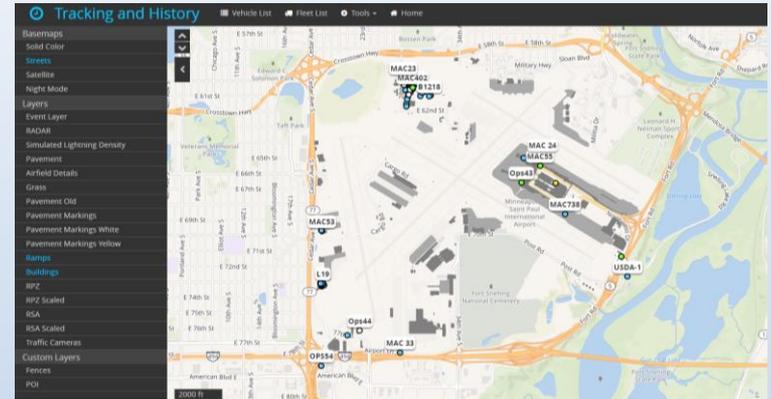
Four Base Maps are Standard



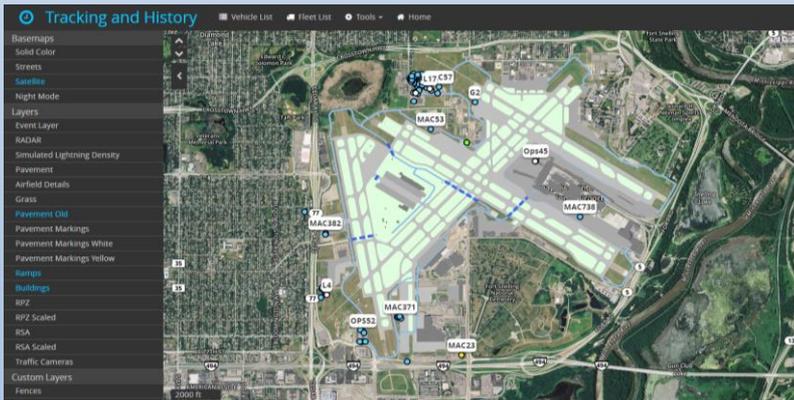
Base Map Examples



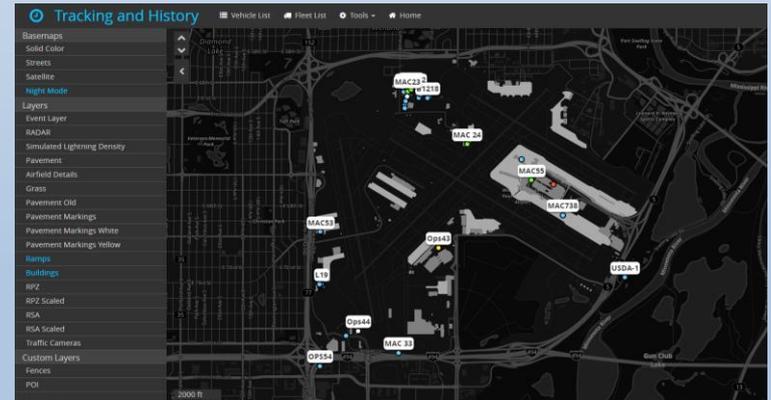
Controller Preferred View – Solid Color
(Airport’s Engineer Drawing – Airport only vehicles)



Traditional View - Streets
(General Situational Awareness)



Asset Manager Preferred View - Satellite
(Imagery – See assets outside airport)

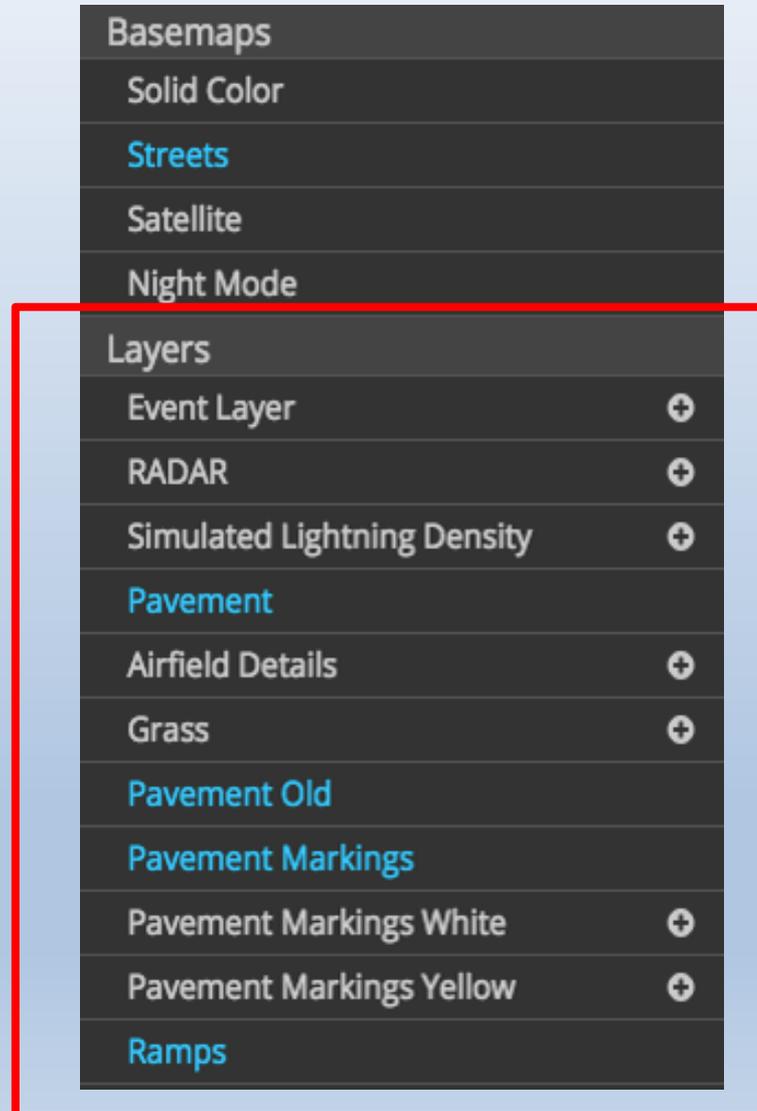


Night Mode
(Background intensity fully adjustable)

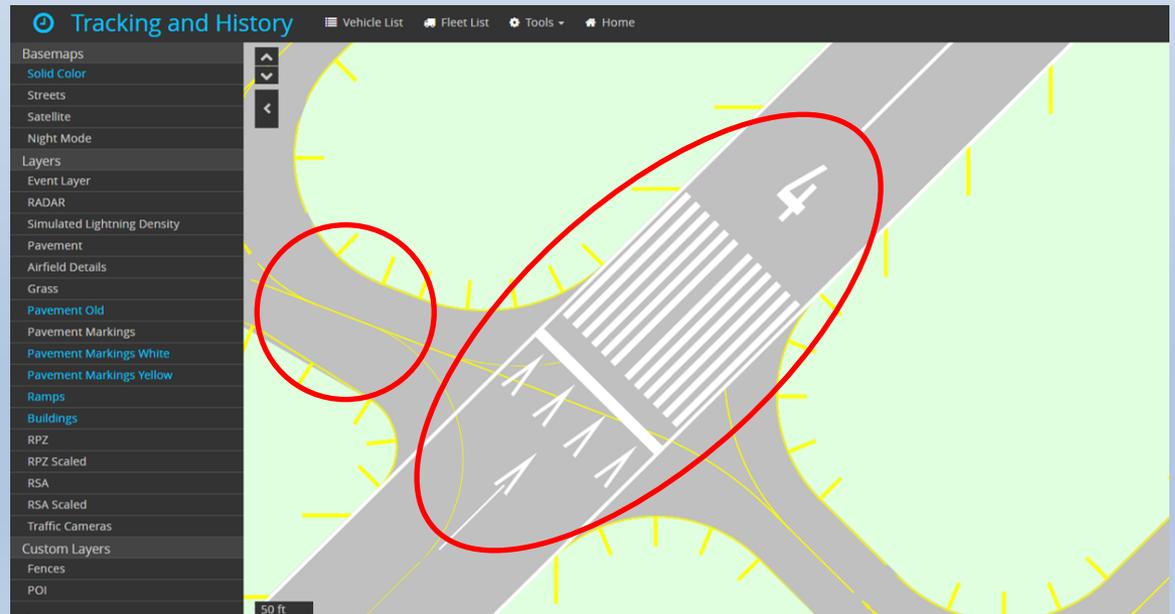
Layers

Whatever You Want

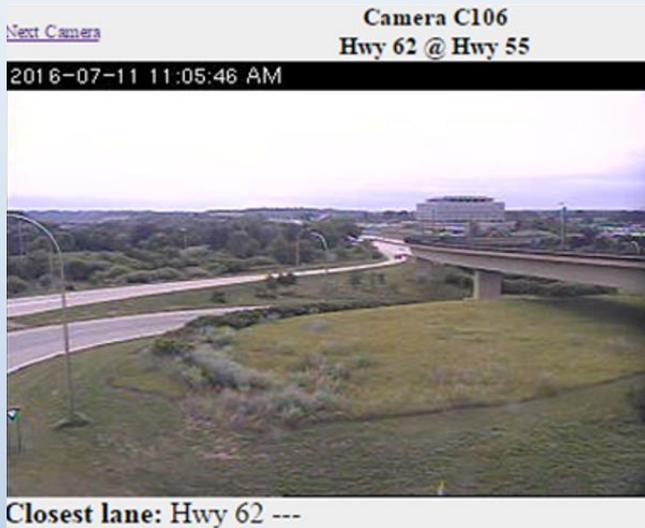
Individual Selects Desired Layers



Down to the Lowest Level of Detail



Can Bring In Web Services

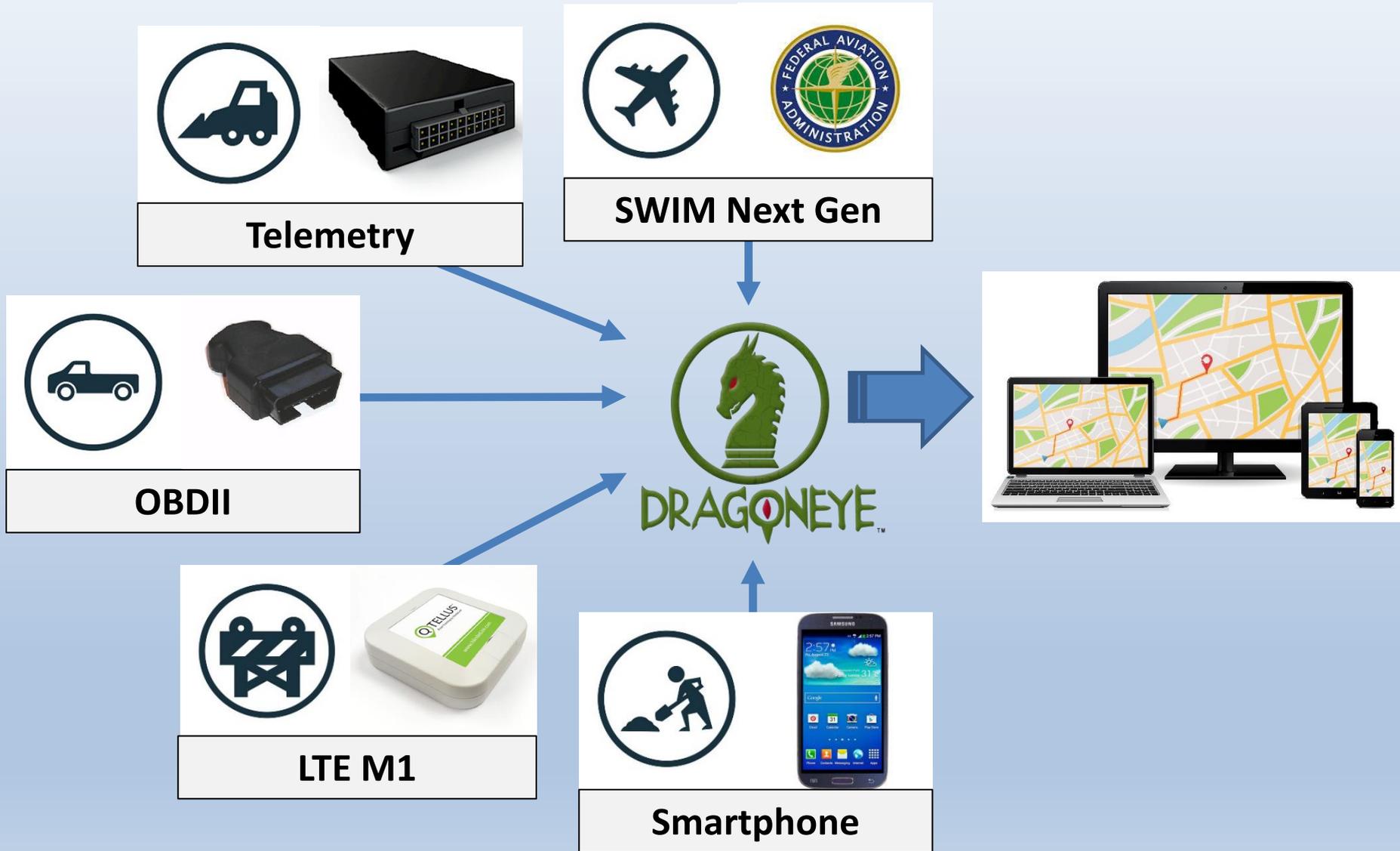


From Live Web Cameras to Real Time Weather

Real-Time Location Data Overview

Whatever You Want

How DragonEye Works



DragonEye Tracking Hardware Resources

- **Support for all network options** to send location signal
 - Cellular,
 - radio, and
 - LoRa options
- Low power **low cost self contained battery options** for tracking baggage carts etc.
- **Annunciation capabilities** to meet any imaginable client needs
- Configurations available for **all international carrier networks**
- Source for cellular plans geared for IoT applications
- FCC Certified
- Built to Industrial temperature tolerance -40 to 85 °C
- Ability to White Label
- **Rapid prototype** to production process for new configurations

SWIM

(System Wide Information Management)

Overlay FAA Systems Data...

What is SWIM?

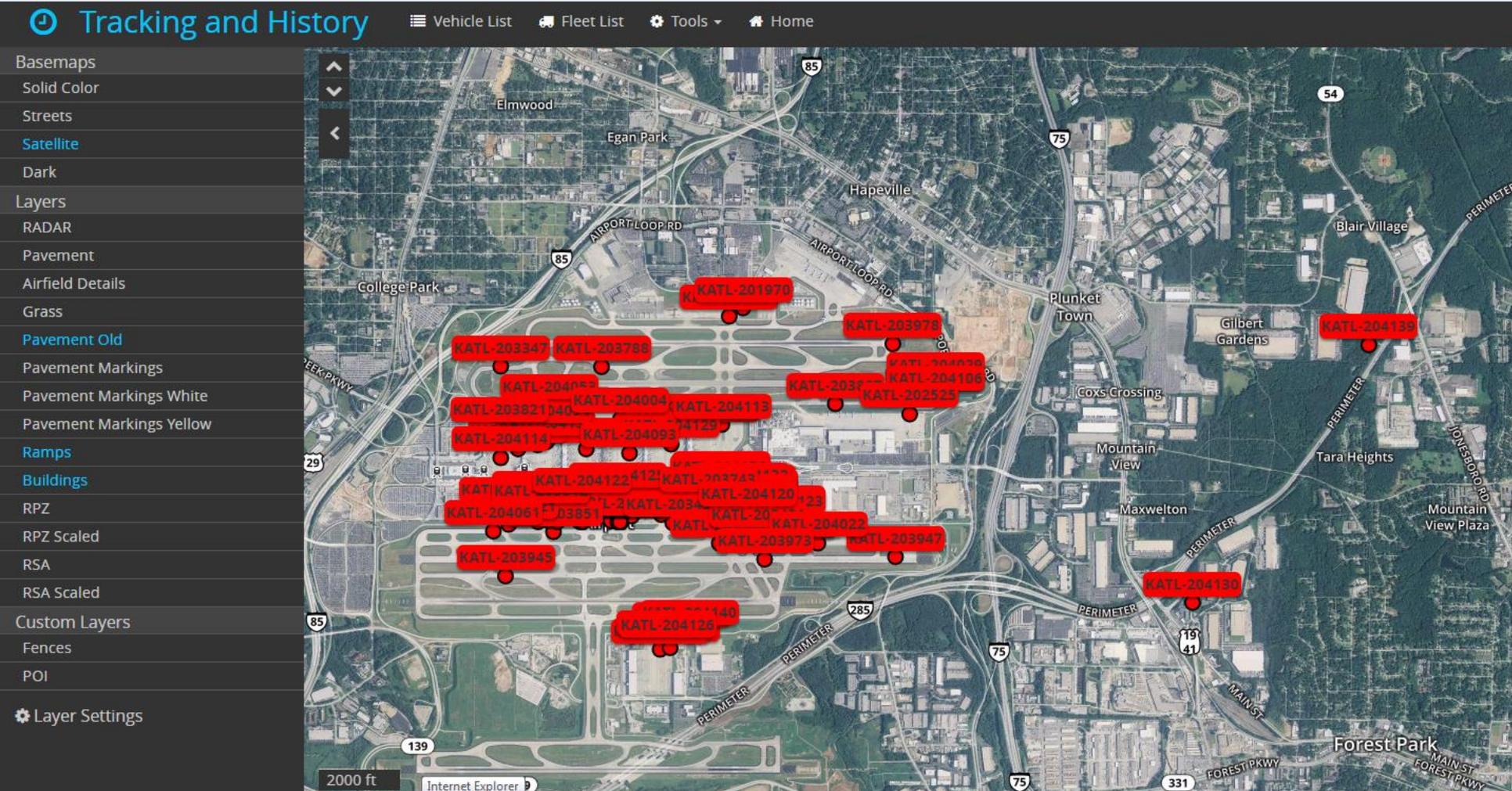


The System Wide Information Management (SWIM) Program is a National Airspace System (NAS)-wide information system that supports Next Generation Air Transportation System (NextGen) goals.

SWIM facilitates the data sharing requirements for NextGen, providing the digital data-sharing backbone of NextGen. SWIM enables increased common situational awareness and improved NAS agility to deliver the right information to the right people at the right time. This information-sharing platform offers a single point of access for aviation data, with producers of data publishing it once and users accessing the information they need through a single connection.

ADS-B, ASDE, ASDE-X, A-SMGS

Passed FAA Integration Test



Automatic Vehicle Location (AVL)

Actively Track Vehicle Real-Time Location

Tracking and History | Vehicle List | Fleet List | Tools | Home

- Basemaps
- Solid Color
- Streets
- Satellite
- Night Mode
- Layers
 - Event Layer
 - RADAR
 - Simulated Lightning Density
 - Pavement
 - Airfield Details
 - Grass
 - Pavement Old
 - Pavement Markings
 - Pavement Markings White
 - Pavement Markings Yellow
 - Ramps
 - Buildings
 - RPZ
 - RPZ Scaled
 - RSA
 - RSA Scaled
 - Traffic Cameras
 - Custom Layers
 - Fences
 - POI

2000 ft

Click, Click, to Track

The screenshot displays a web-based tracking application. On the left, a sidebar menu lists various map layers and tools, including 'Tracking and History', 'Vehicle List', 'Fleet List', 'Tools', and 'Home'. The main area shows a map with several vehicle icons labeled with IDs like 'MAC402', 'MAC738', 'Ops43', 'Ops44', 'MAC 33', 'OPS54', and 'USDA-1'. A white popup window titled 'Vehicle MAC23' is centered over the map, displaying the following data:

- gid: 63
- recid: 10142138
- can: 1470
- esn: 13020118
- vname: MAC23
- acqtime: 2016-11-17 00:59:34 -0600
- latitude: 44°53.401'N
- longitude: 93°14.685'W
- usng: 15TVK80677076
- quality: 1
- class_desc: FOREMAN
- major: Building 8
- color: 128 128 128
- display: true

At the bottom of the popup, there is a button labeled 'Track This Vehicle' with a location pin icon, and a 'Close' button in the bottom right corner of the popup.

Dedicated Real-Time View Opens

The screenshot displays a web-based mapping application interface. At the top, a dark navigation bar contains the text "Tracking and History" in blue, followed by icons and labels for "Vehicle List", "Fleet List", "Tools", and "Home". On the left side, a vertical sidebar lists various map layers and basemaps, including "Basemaps", "Solid Color", "Streets", "Satellite", "Night Mode", "Layers", "Event Layer", "RADAR", "Simulated Lightning Density", "Pavement", "Airfield Details", "Grass", "Pavement Old", "Pavement Markings", "Pavement Markings White", "Pavement Markings Yellow", "Ramps", "Buildings", "RPZ", "RPZ Scaled", "RSA", "RSA Scaled", "Traffic Cameras", "Custom Layers", "Fences", and "POI". The main map area shows a street view of a location with a blue dot labeled "MAC23". The map includes labels for "ft Lake", "Taft Park", "Old Cedar Ave S", "E 63rd St", and "Cedar Ave S". A scale bar at the bottom left indicates "200 ft". The map features a blue line representing a route or boundary, and a road labeled "77".

Personalize the Symbols & Tracks

The screenshot displays the 'Tracking and History' interface. The top navigation bar includes 'Vehicle List', 'Fleet List', 'Tools', and 'Home'. The main area shows a satellite map of the Gerald R. Ford International Airport with various streets labeled, including 40th St SE, Patterson Ave SE, Danvers Dr SE, 44th St SE, John J Oostema Blvd SE, and Ross Dr SE. A sidebar on the left contains the following settings:

- Default Mode
 - Show Vehicle Labels
- Vehicle Point Colors
 - Color by time (selected)
 - Color by time
 - Color by fleet
 - Color by vehicle specification
- Vehicle Info Type
 - Show last location
- History
 - Show history labels
 - Position labels away from trail
 - Show vehicle pause labels
 - Show direction arrows
- History Trail Style
 - Line
- History Label Content
 - Sequence ID
- History Label Quantity
 - Add with zoom (faster)

Time, Fleet, Type, Color or Shape

Select History Replay

Tracking and History | Vehicle List | Fleet List | Tools | Home

Currently Tracking

- MAC23

Vehicle History

- Select a start date
- Start time
- Add End Date (optional)
- Submit | Clear | Next

Vehicle Search

Vehicle Id...

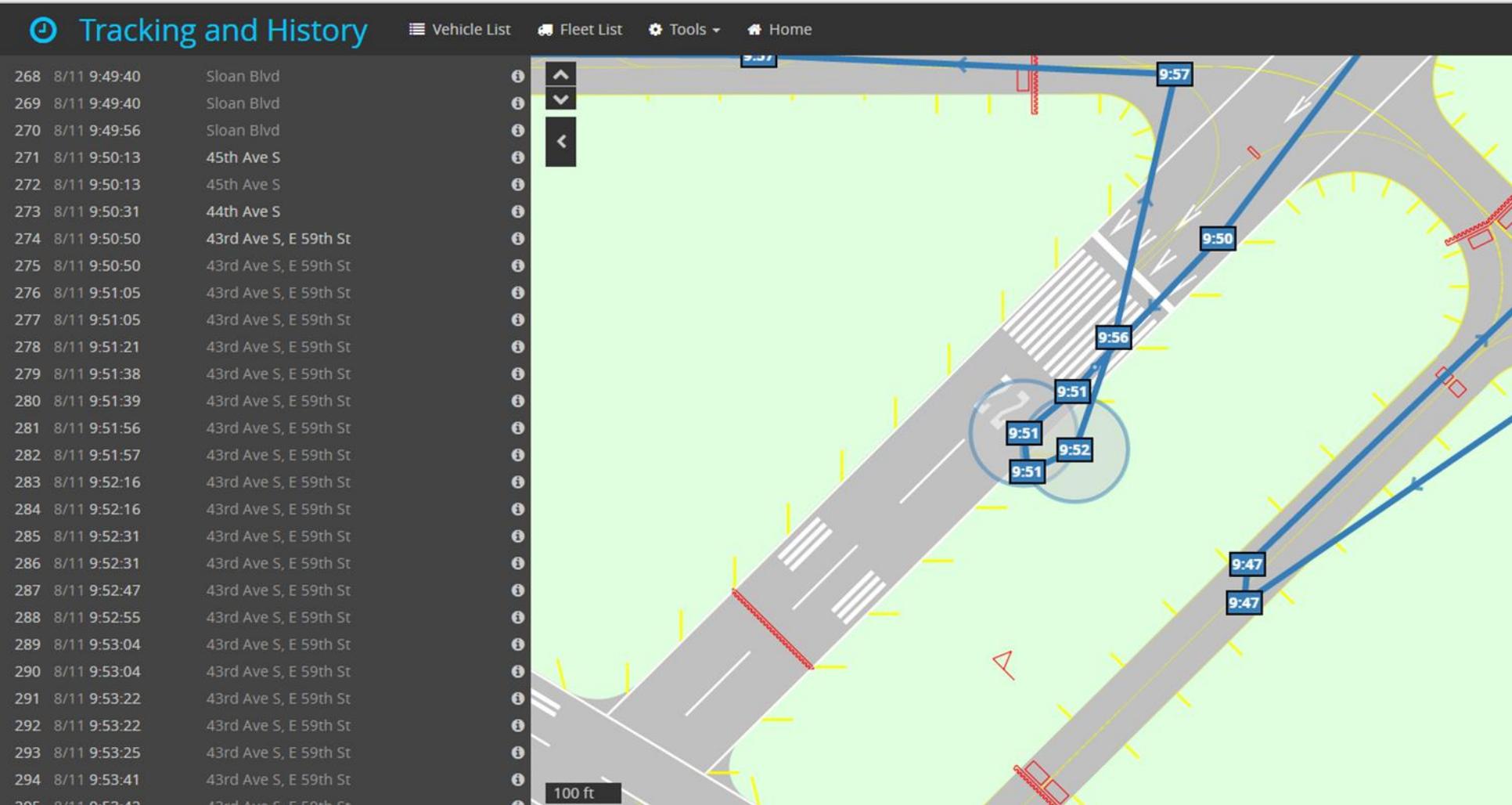
All Vehicles | Last Update

Vehicle ID	Last Update
MAC 24	0s
MAC25	0s
Unknown Loc	0s
MAC55	0s

Map Context Menu:

- Zoom to Default
- Options
- Address Search
- Layers
- Legend
- Weather

Playback Vehicle Location as Time



Playback Vehicle Location as Sequence

The screenshot displays a software interface for vehicle tracking. At the top, a navigation bar includes a 'Tracking and History' button, and links for 'Vehicle List', 'Fleet List', 'Tools', and 'Home'. On the left, a sidebar contains several configuration sections: 'Default Mode' with a checked 'Show Vehicle Labels' option; 'History' with checked options for 'Show History Labels', 'Position labels away from trail', 'Show Vehicle Pause Labels', and 'Show Direction Arrows'; 'History Trail Style' with a dropdown menu set to 'Points'; 'History Label Content' with a dropdown menu set to 'Sequence ID'; 'History Label Quantity' with a dropdown menu set to 'Add with zoom (faster)'; and 'Tooltips' with a checked 'Show Tooltips' option. The main map area shows a road network with several vehicles represented by blue square labels with white numbers: 319, 318, 273, 316, 276, 280, 282, 285, 253, 250, and 248. A blue circle highlights a cluster of vehicles (280, 282, 285) on a road. A red dashed line indicates a specific path or boundary. A scale bar at the bottom left shows '100 ft', and a date stamp at the bottom right reads 'Thursday, August 11, 2016'.

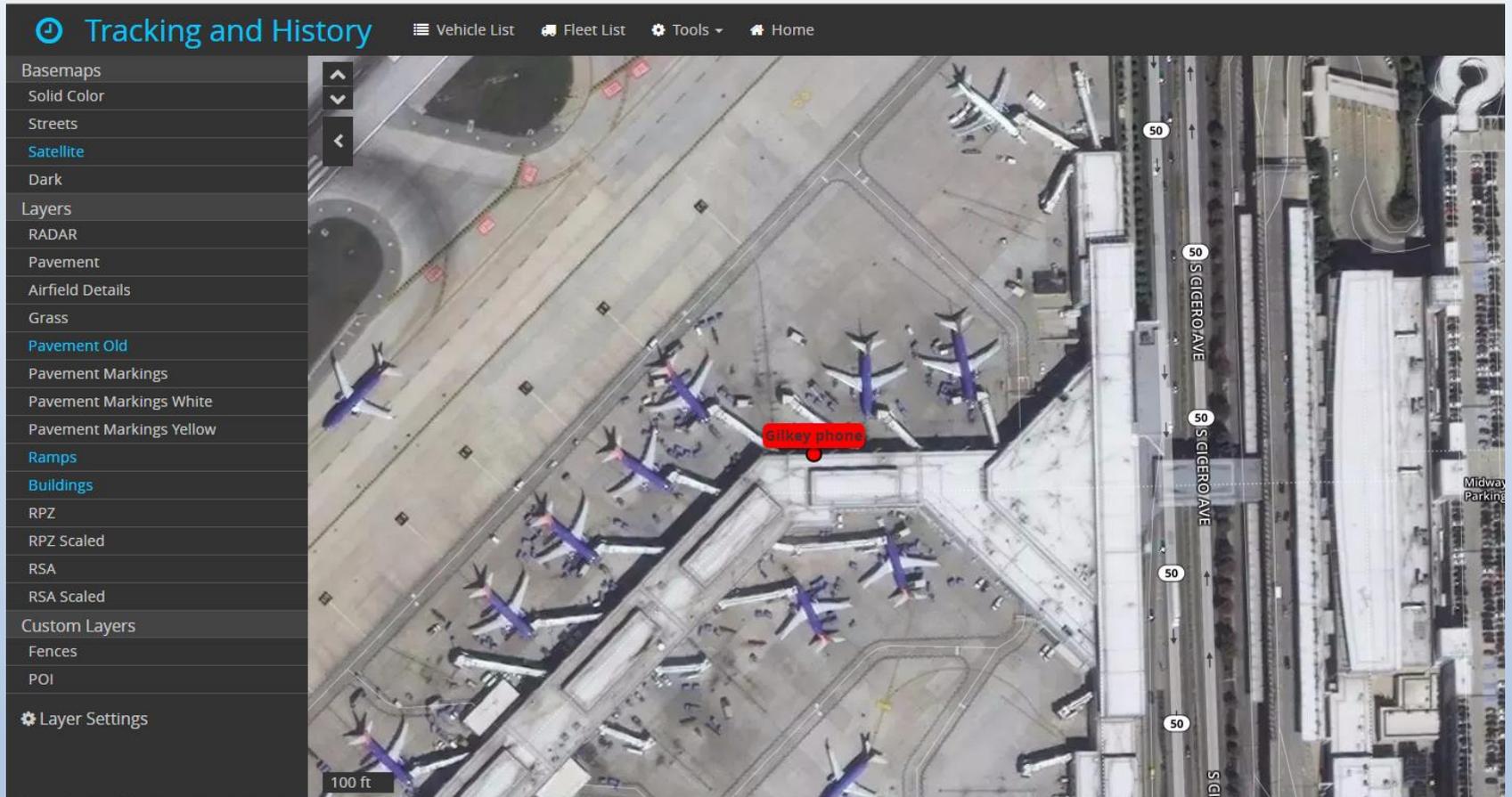
Smartphone Tracking

Mobile Can Join System

AVL Mobile

In an Emergency – Asset Awareness Added to View

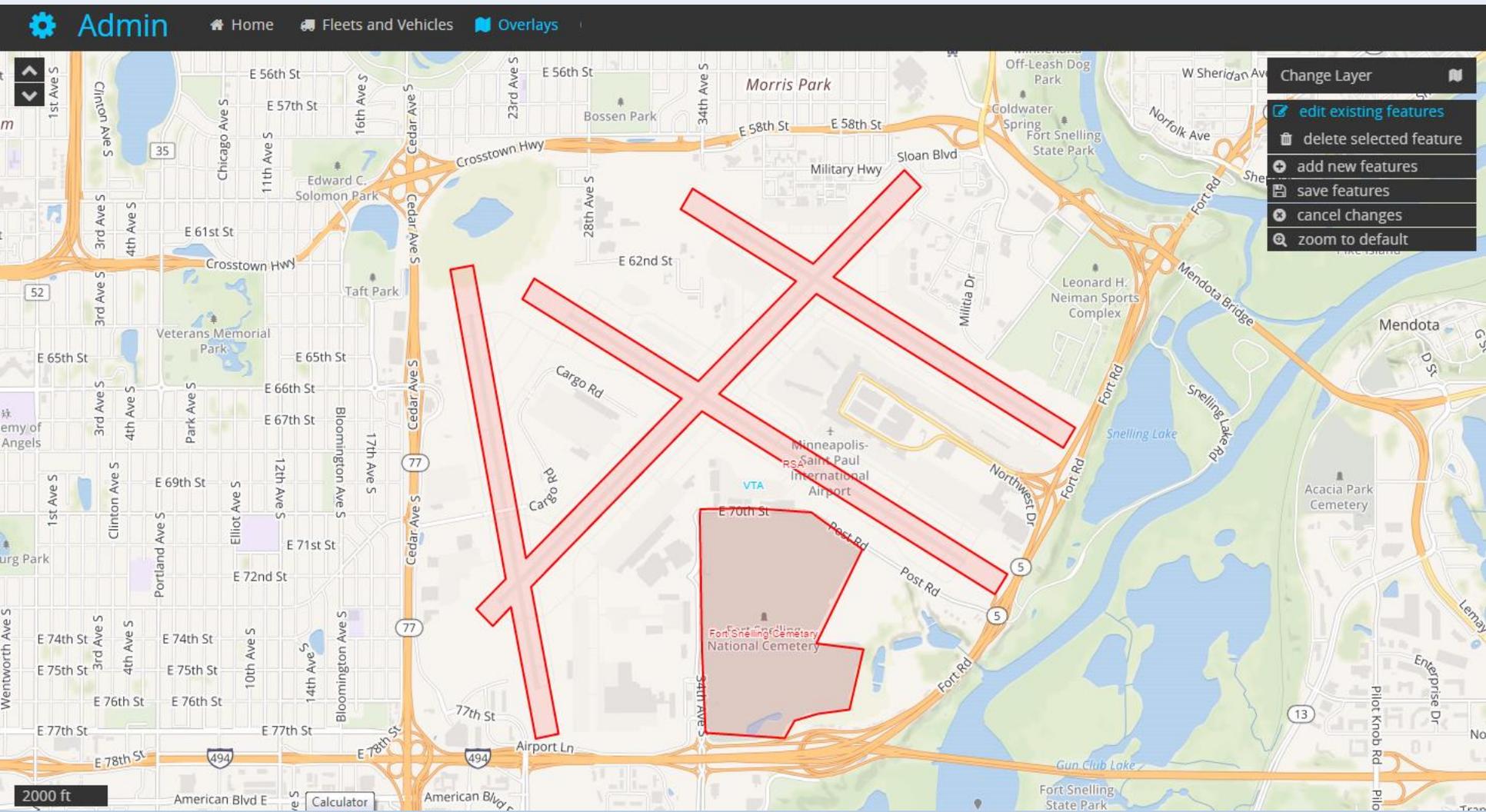
Tracked Anywhere



Even enroute at an Airport

Annunciations and Warnings

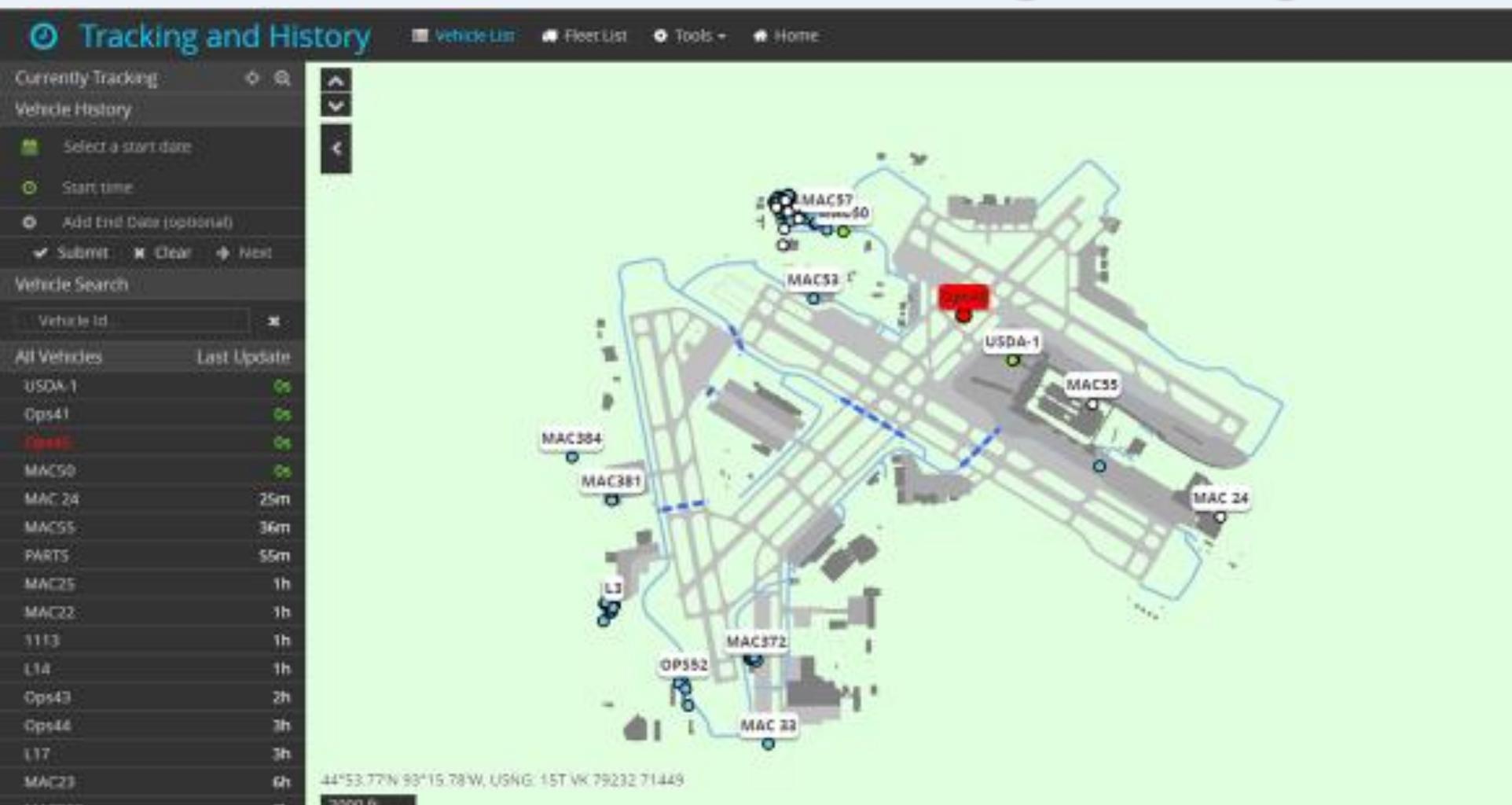
Inclusive/Exclusive Geofences



Create Unlimited Geo-fencing

The screenshot displays a software interface for drone tracking and history. The top navigation bar includes a clock icon, the text "Tracking and History", and menu items for "Vehicle List", "Fleet List", "Tools", and "Home". On the left, a vertical sidebar lists various map layers, with "Fences" highlighted in blue. The main map area shows a light green background with a red polygon representing a geo-fence. A red dot labeled "Ops44" is positioned within the polygon. A scale bar at the bottom left indicates "200 ft", and a date stamp at the bottom right shows "Thursday, August 11, 2016".

Basic RIWS Visual Warning – **Danger!**



The screenshot displays a tracking software interface. On the left is a sidebar with the following sections:

- Tracking and History** (header)
- Currently Tracking:** Includes search and refresh icons.
- Vehicle History:** Includes "Select a start date", "Start time", and "Add End Date (optional)" options, along with "Submit", "Clear", and "Next" buttons.
- Vehicle Search:** Includes a "Vehicle Id" search field.
- Vehicle List:** A table with columns "All Vehicles" and "Last Update".

All Vehicles	Last Update
USDA-1	0s
Ops41	0s
Ops42	0s
MAC50	0s
MAC 24	25m
MAC55	36m
PARTS	55m
MAC25	1h
MAC22	1h
1113	1h
L14	1h
Ops43	2h
Ops44	3h
L17	3h
MAC23	6h

The main map area shows a facility layout with several vehicle locations marked by dots and labels: MAC57, MAC50, MAC53, USDA-1, MAC35, MAC24, MAC384, MAC381, L3, MAC372, OPS52, MAC 33, and L14. A red dot and label for "USDA-1" are highlighted, indicating a warning. The map includes a coordinate display at the bottom: 44°53.77'N 93°15.78'W, UTM: 15T VK 79232 71449.

Vehicle location dot and side bar tracking number turn red and vehicle number flashes

No Matter Which View Selected

Tracking and History Vehicle List Fleet List Tools Home

Basemaps
Solid Color
Streets
Satellite
Night Mode
Layers
Event Layer
RADAR
Simulated Lightning Density
Pavement
Airfield Details
Grass
Pavement Old
Pavement Markings
Pavement Markings White
Pavement Markings Yellow
Ramps
Buildings
RPZ
RPZ Scaled
RSA
RSA Scaled
Traffic Cameras
Custom Layers
Fences
POI
Layer Settings

2000 ft

Or Zoom Level Selected

Tracking and History Vehicle List Fleet List Tools Home

- Basemaps
- Solid Color
- Streets
- Satellite
- Night Mode
- Layers
- Event Layer
- RADAR
- Simulated Lightning Density
- Pavement
- Airfield Details
- Grass
- Pavement Old
- Pavement Markings
- Pavement Markings White
- Pavement Markings Yellow
- Ramps
- Buildings
- RPZ
- RPZ Scaled
- RSA
- RSA Scaled
- Traffic Cameras
- Custom Layers
- Fences
- POI
- Layer Settings

200 ft

Back to Normal

Tracking and History

Vehicle List Fleet List Tools Home

- Solid Color
- Streets
- Satellite
- Night Mode
- Layers
 - Event Layer
 - RADAR
 - Simulated Lightning Density
 - Pavement
 - Airfield Details
 - Grass
 - Pavement Old
 - Pavement Markings
 - Pavement Markings White
 - Pavement Markings Yellow
 - Ramps
 - Buildings
 - RPZ
 - RPZ Scaled
 - RSA
 - RSA Scaled
 - Traffic Cameras
 - Custom Layers
 - Fences
 - POI
- Layer Settings

500 ft

OPS51

Next Generation RIWS In Development



In Cab Audio and Visual Warning
FAA AC 150/5210-25 compliant

Some Emphasis Items

Turn Layers On/Off or Track on Any Base Map



Simplest Pilot View

(FAA Airport Diagram – No layers added)



Pilot Precision View

(FAA Airport Diagram – Multiple layers added)

Incredible Flexibility For Vehicle Info Selections

Point colors:

- Color by time
- Color by vehicle type

Vehicle Info Type (sidebar display)

- Show last location (named polygon)
- Show last time (signal report)

History Trail Style

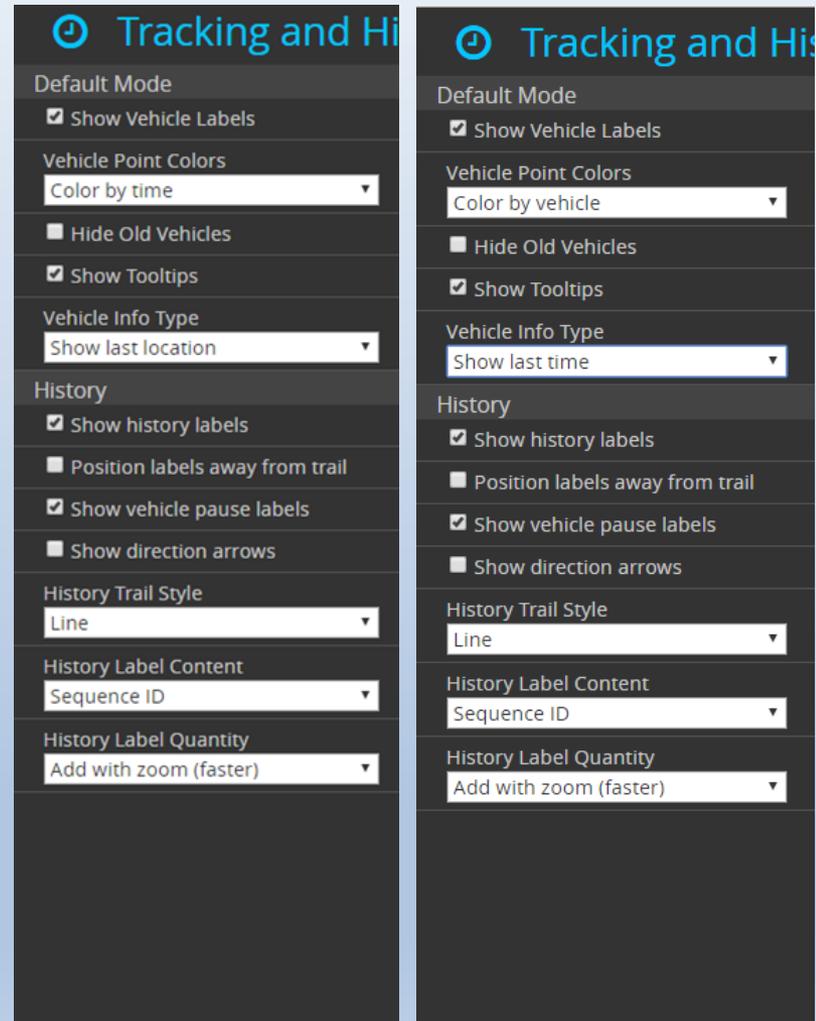
- Line
- Dots
- None

History Label Content

- Time
- Sequence ID

History Label Quality

- Add with zoom
- Show all



Easy Track Delete

The screenshot displays the 'Tracking and History' web application interface. The top navigation bar includes a home icon, 'Tracking and History' title, and menu items for 'Vehicle List', 'Fleet List', 'Tools', and 'Home'. The left sidebar contains sections for 'Currently Tracking', 'Vehicle History', 'Vehicle Search', and 'All Vehicles'. The 'All Vehicles' section lists 'Steve's iPhone' with a red location pin on the map. The main map area shows an aerial view of Schiphol Airport with various landmarks labeled, including 'Schiphol Airport', 'D-pier', 'C-pier', 'P1 Parkeren Schiphol Centrum', 'KLM Catering Services', 'Luchthaven Schiphol', 'The Base', 'Vrachtgebouw 2', and 'Vrachtgebouw 3'. Major roads like 'SCHIPHOL-BLVD', 'RETOURBAAN', 'ENERGIESTRAAT', 'HAVENMEESTERWEG', and 'CENTUURBAAN ZUID' are also visible. A scale bar at the bottom left indicates 500 feet.

Easy Track Delete

The screenshot displays a web-based tracking application interface. The top navigation bar includes a 'Tracking and History' logo, a 'Vehicle List' menu, and links for 'Fleet List', 'Tools', and 'Home'. On the left, a sidebar contains sections for 'Currently Tracking', 'Vehicle History', 'Select a start date', 'Start time', 'Add End Date (optional)', 'Submit', 'Clear', and 'Next' buttons. Below this is a 'Vehicle Search' section with a text input field for 'Vehicle Id...'. At the bottom of the sidebar, there are 'All Vehicles' and 'Last Location' buttons. The main area is a satellite map of Schiphol Airport, showing various buildings and roads. Labels on the map include 'Schiphol Airport', 'D-pier', 'Schiphol', 'P1 Parkeren Schiphol Centrum', 'CENTUURBAAN ZUID', 'Luchthaven Schiphol', 'KLM Catering Services', 'Vrachtgebouw 2', 'Vrachtgebouw 3', 'Schipholspoorwiel - bus 1', 'The Base', 'ENERGIESTRAAT', 'RETOURBAAN', 'HAVENMEESTERWEG', 'SCHIPHOLBLVD', 'SCHIPHOLBLVD', 'SCHIPHOLBLVD', 'C-pier', and 'Brandweer Post Schiphol Rijk'. A scale bar at the bottom left indicates '500 ft'.

Extended Pause Feature

The screenshot displays the 'Tracking and History' interface. On the left, there are panels for 'Currently Tracking' (listing L27 and Ops45), 'Vehicle History' (with a date of 02/25/2017 and a time of 12:00pm), and 'Vehicle Search' (with a search bar and a table of vehicles). The main map area shows orange tracks for two vehicles. A red arrow points to the 'Compare Multiple Tracks' button in the 'Vehicle History' panel. Another red arrow points to a green location pin on the map, labeled 'Track Start Indicator'. A third red arrow points to a '23 minutes' delay display at a location, labeled 'Length of Delay Display at Location'. The map also shows a '12:14' time marker and a '50 ft' distance marker. The bottom of the map displays coordinates: 44°53.08'N 93°12.78'W, USNG: 15T VK 831853 701739.

Tracking and History

Vehicle List Fleet List Tools Home

Currently Tracking

- L27
- Ops45

Vehicle History

02/25/2017

12:00pm

Add End Date (opt)

Submit Clear Next

Vehicle Search

Vehicle Id...

All Vehicles	Last Update
1083T	1s
2115	2s
L11	2s
L1	2s
L7	3s
1221	3s
L18	3s
MAC122	3s
MAC392	3s
L19	4s
R3	5s
L4	5s
L29	5s
OP552	5s

44°53.08'N 93°12.78'W, USNG: 15T VK 831853 701739

50 ft

Track Start Indicator

Compare Multiple Tracks

Length of Delay Display at Location

23 minutes

14:22

12:14

Replay Onscreen Track Following

Tracking and History Vehicle List Fleet List Tools Home

14	2/25 12:11:26	Glumack Dr, Green Ln	i
15	2/25 12:11:45	Glumack Dr, Green Ln	i
16	2/25 12:12:00	Glumack Dr, Green Ln	i
17	2/25 12:12:16	Glumack Dr, Green Ln	i
18	2/25 12:12:33	Glumack Dr, Green Ln	i
19	2/25 12:12:47	Glumack Dr, Green Ln	i
20	2/25 12:12:50	Glumack Dr, Green Ln	i
21	2/25 12:13:06	Glumack Dr, Green Ln	i
22	2/25 12:13:21	Glumack Dr, Green Ln	i
23	2/25 12:13:38	Glumack Dr, Green Ln	i
24	2/25 12:13:54	Glumack Dr, Green Ln	i
25	2/25 12:14:12	Glumack Dr, Green Ln	i
26	2/25 12:14:31	Glumack Dr, Green Ln	i
27	2/25 12:14:45	4343 Glumack Dr	i
28	2/25 12:15:01	4341 Glumack Dr	i
29	2/25 12:15:18	34th Ave S	i
30	2/25 12:15:35	42nd Ave S, E 59th St	i
31	2/25 12:15:53	Glumack Dr, Green Ln	i
32	2/25 12:16:05	Glumack Dr, Green Ln	i
33	2/25 12:16:21	Glumack Dr, Green Ln	i
34	2/25 12:16:36	Glumack Dr, Green Ln	i
35	2/25 12:17:09	Glumack Dr, Green Ln	i
36	2/25 12:17:23	Glumack Dr, Green Ln	i
37	2/25 12:17:39	Green Ln	i
38	2/25 12:17:53	Green Ln	i
39	2/25 12:18:11	5398 Green Cir	i
40	2/25 12:18:30	5527 Green Cir	i

The map displays an orange track with several time markers: 12:07, 12:09, 14:22, 14:22, 14:45, 12:14, and 12:14. A red arrow points to a location on the track. The track starts at 12:07, moves to 12:09, then to 14:22, then to 14:45, then to 12:14, and finally to 12:14. The track is overlaid on a map with a large orange circle and a red arrow pointing to a location on the track.

Search Using the Built in Geocoder

Address Search

5500 44th St SE

Grand Rapids

Michigan

Submit

USNG

16t fn 20077 48998

Submit

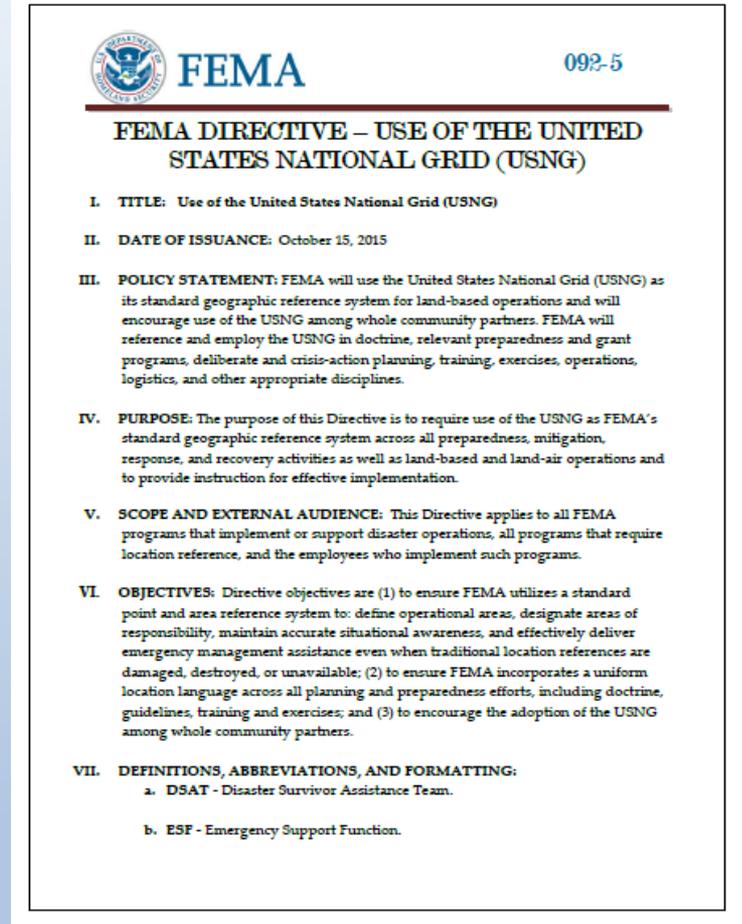
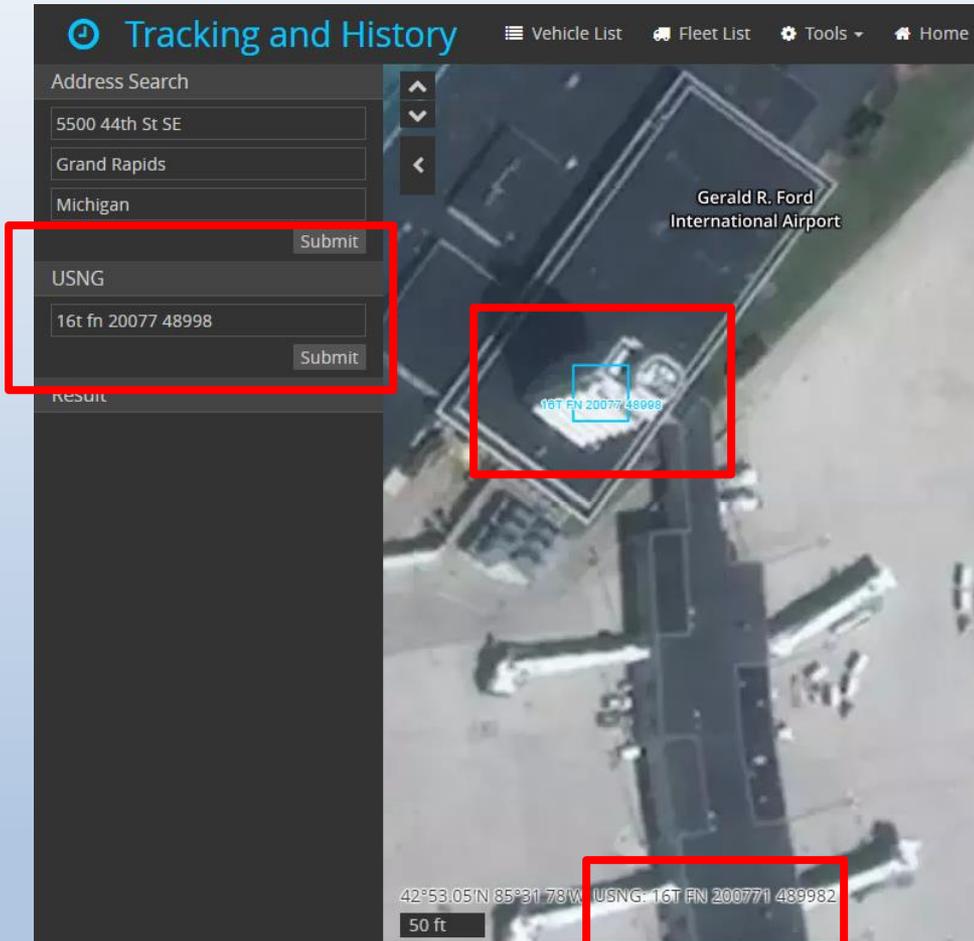
Result

Military Grid Reference System (MGRS) search outside the U.S

Accuracy



Granularity



New U.S. National Emergency Response Geo-location Standard

SharedGeo & USNG



USNG U.S. National Grid
Information Center

Home About Apps & GPS Data, Software, Tools Library Maps & Readers Markers Training Viewers

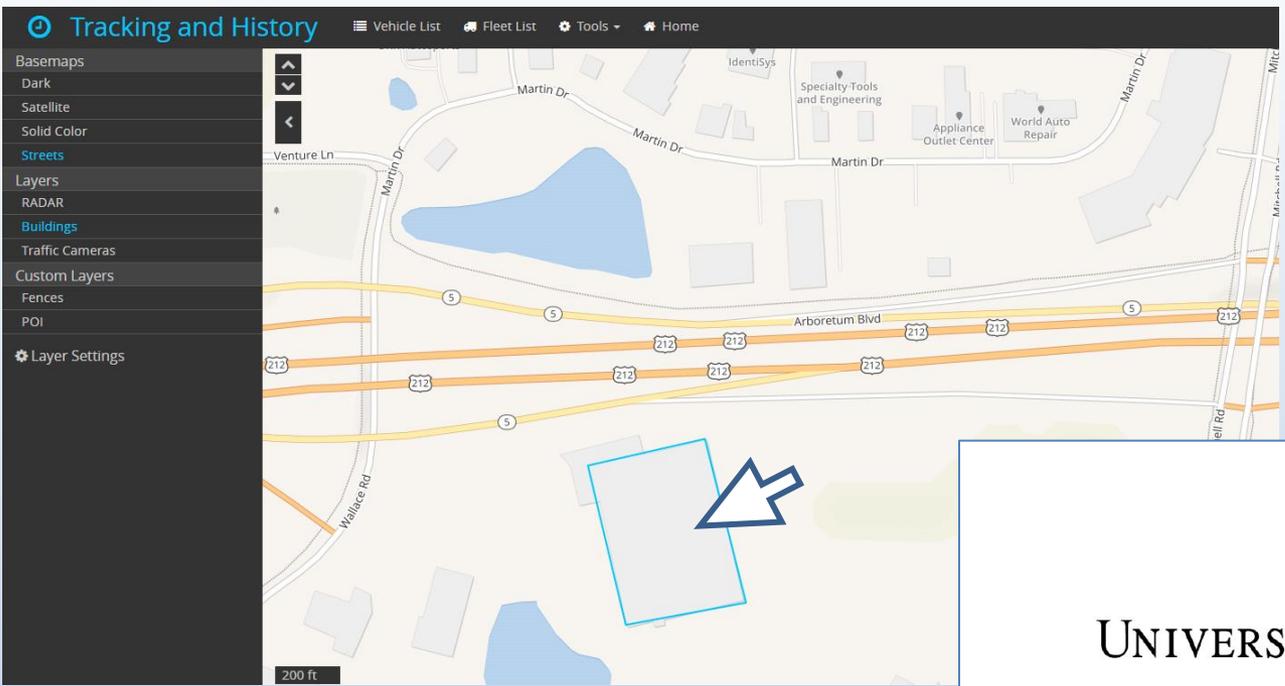
After a disaster, when the “normal” means to describe locations, such as street signs, are gone, the U.S. National Grid provide a standardized grid reference system that is seamless across jurisdictional boundaries and allows for pinpointing exact locations.

Since USNG is standardized, it can be understood and used as a common geographic framework for response. [Learn more about how it works in USNG Overview articles.](#)

[Image Credit](#)

The USNG Information Center is dedicated to providing educational items and resources to support use of the U. S. National Grid.

- SharedGeo runs the Nation’s USNG Information Center
- SharedGeo has developed the majority of the related USNG coding and tools



**Point,
Click,
View**



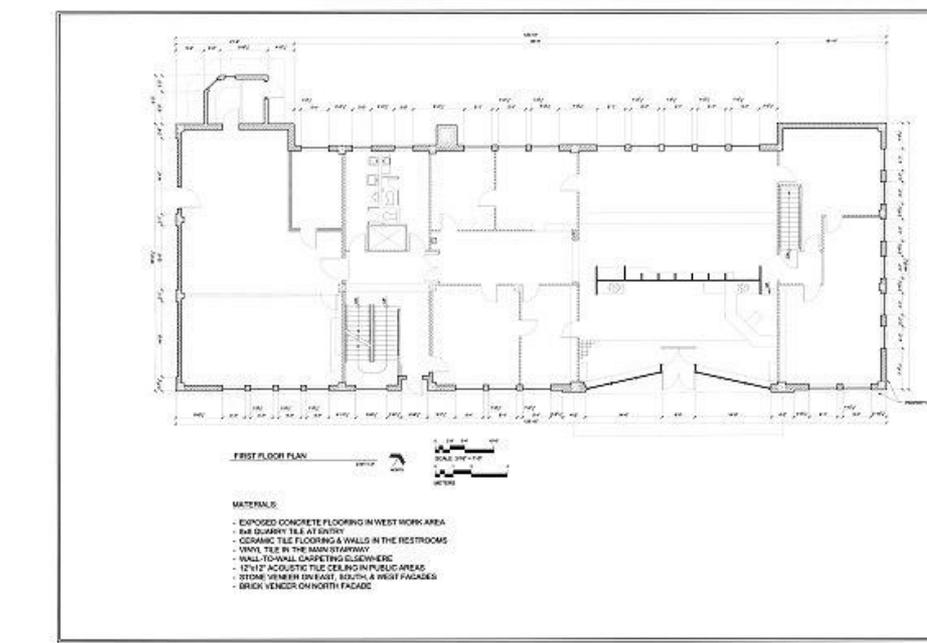
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Demo