

FOREFLIGHT MOBILE

Guide

ForeFlight

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GETTING STARTED



ForeFlight Mobile is the essential aviation mobile application that combines preflight, in-flight, and post-flight tools into a single, intuitive mobile application. This guide will help users learn about and take advantage of all the capabilities available in ForeFlight Mobile.

ForeFlight Mobile should be installed on a device with the latest iPad or iOS operating system. For assistance with choosing an iPad, visit the ForeFlight iPad Buying Guide.

To get started, download ForeFlight Mobile from the Apple App Store. For more information, visit the ForeFlight Getting Started Guide.

1.1 About this Guide

This guide provides a detailed overview of ForeFlight Mobile. The first portion of the guide is divided into sections based on when a feature is likely to be used (e.g., Getting Started and Preflight). The remaining portions of the guide provide feature descriptions and are organized according to how the views appear in the toolbar (e.g., Airports, Maps, and Plates).

Additional guides for Filing Flight Plans, using Logbook, Checklist, Weight & Balance, and Search & Rescue are available in ForeFlight Mobile under **Documents → ForeFlight (Drive)**.

> **NOTE:** This guide presumes a basic level of iPad or iPhone proficiency. It is recommended that users new to iOS devices visit the Apple iPad Support website or view the iPad Users Guide.

PLAN COMPARISON

ForeFlight offers three plans for individual pilots and two plans for businesses. Each plan includes charts for one region with additional regions available for purchase. Runway Analysis is available as per tail (business) and per type (individual) add-on license. Visit foreflight.com/buy to purchase a license. Refer to the table below to determine which features are included with a subscription plan.

Features	Starter	Essential	Premium	Business Pro	Business Performance
Aeronautical Map	✓	✓	✓	✓	✓
High-Resolution Base Map	✓	✓	✓	✓	✓
Flight Planning	✓	✓	✓	✓	✓
Flight Plan Filing	✓	✓	✓	✓	✓
Weather	✓	✓	✓	✓	✓
En Route Charts	✓	✓	✓	✓	✓
Airport Data	✓	✓	✓	✓	✓
FBO Information	✓	✓	✓	✓	✓
Global Navigation Data	✓	✓	✓	✓	✓
ForeFlight Airport Diagrams	✓	✓	✓	✓	✓
Jeppesen VFR Procedures	✓	✓	✓	✓	✓
Optional Data Packages	✓	✓	✓	✓	✓
Weight and Balance	✓	✓	✓	✓	✓
Logbook	✓	✓	✓	✓	✓
Checklist	✓	✓	✓	✓	✓
Avionics Connectivity	✓	✓	✓	✓	✓
Printable NavLog	✓	✓	✓	✓	✓
Documents Catalog	✓	✓	✓	✓	✓

Features	Starter	Essential	Premium	Business Pro	Business Performance
Content Packs	✓	✓	✓		✓
Track Logs	✓	✓	✓	✓	✓
Breadcrumbs	✓	✓	✓	✓	✓
Internet Traffic	✓	✓	✓	✓	✓
Plates on Maps		✓	✓	✓	✓
Synthetic Vision		✓	✓	✓	✓
Hazard Advisor		✓	✓	✓	✓
Hazard Alerts		✓	✓	✓	✓
Profile View		✓	✓	✓	✓
Cloud Documents		✓	✓	✓	✓
Traffic Breadcrumbs		✓	✓	✓	✓
Icing, Turbulence Map Layers		✓	✓		✓
Surface Analysis Map Layer		✓	✓	✓	✓
Performance Profiles			✓		✓
3D View			✓		✓
Optimized Routing			✓		✓
Takeoff and Landing Performance			✓		✓
Runway Analysis (Add-on license required)			✓		✓
Pre-Departure Clearance (PDC)			✓		✓
Digital ATIS (D-ATIS)		✓	✓		✓
Transcribed ATIS (T-ATIS)			✓		✓
Fuel Load Planner			✓		✓

Features	Starter	Essential	Premium	Business Pro	Business Performance
Limit Checks			✓		✓
Integrated JetFuel X Prices			✓		✓
FBO Fuel Releases			✓		✓
Files in Flights			✓		✓
Marked Positions			✓		✓
ForeFlight Web	✓	✓	✓	✓	✓

DESIGN

The Design chapter discusses how ForeFlight Mobile is organized and how to navigate the various views. The chapter also discusses how to customize the appearance of ForeFlight Mobile with the App Theme setting.

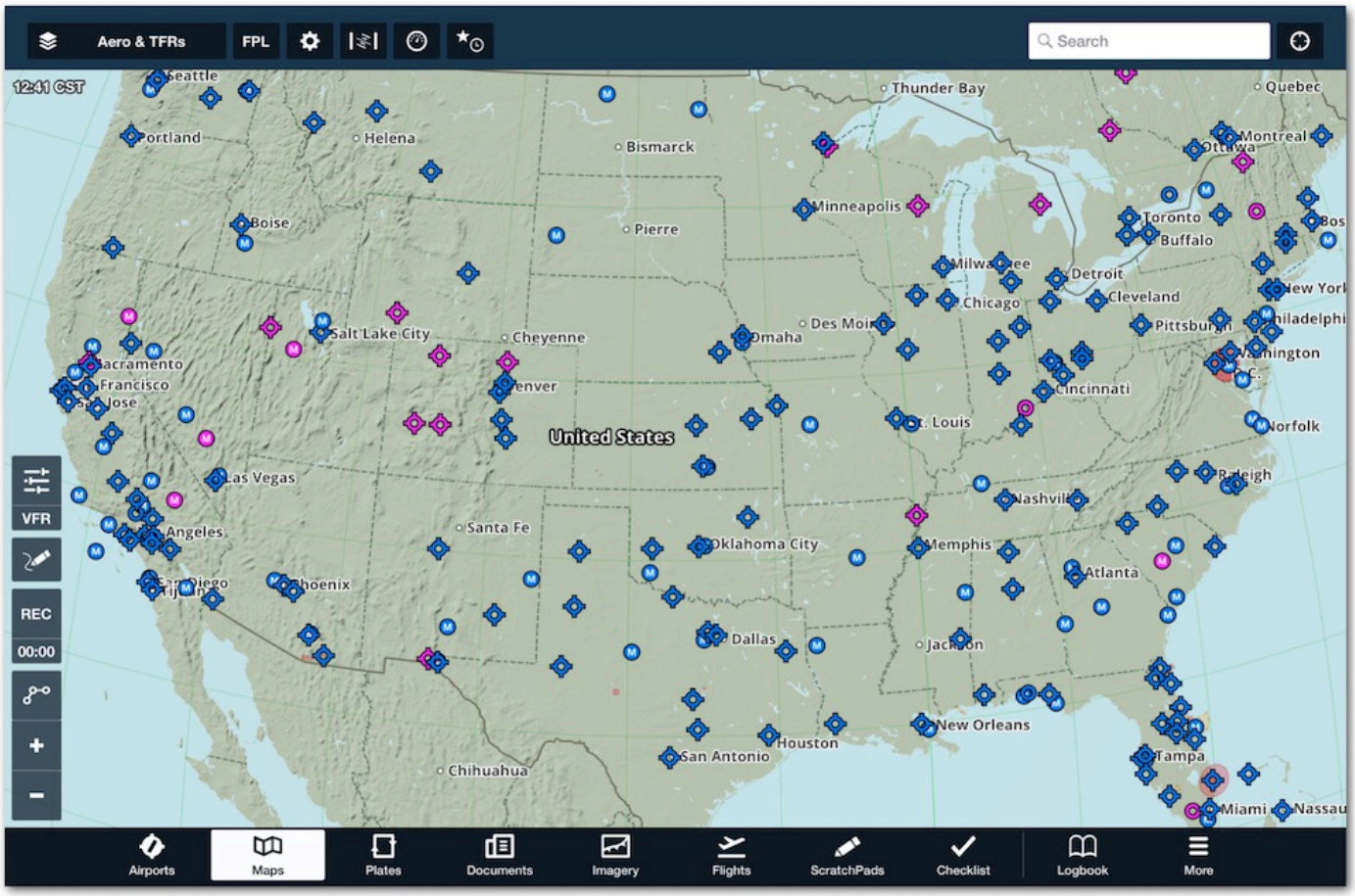
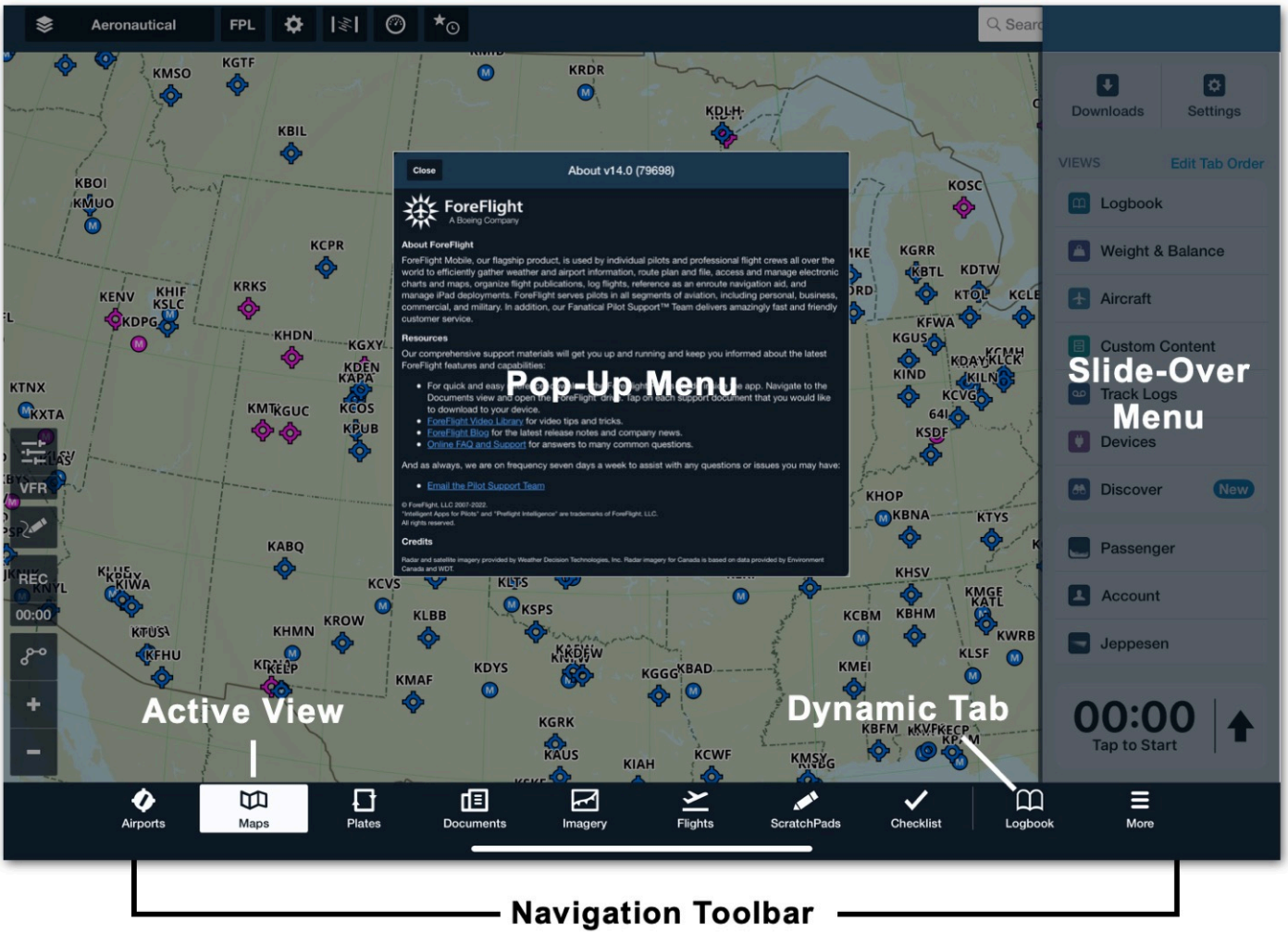


Figure 3-1. ForeFlight Mobile Maps View

3.1 Navigation

ForeFlight Mobile is comprised of various views (also commonly referred to as pages). Each view represents a distinct aspect of ForeFlight Mobile functionality such as **Airports**, **Maps**, and **Plates**. Views either display full-screen or in a pop-up modal over the active view.

Access a view by tapping a tab in the navigation toolbar or the slide-over menu (via the **More** tab). This functionality is described later in this section.



3.1.1 Navigation Toolbar

The navigation toolbar is always located at the bottom of the screen. The order of tabs within the toolbar can be customized. Tab order is device-specific and does not synchronize across devices.

3.1.2 Navigation Toolbar and More Menu

The number of tabs in the navigation toolbar dynamically adjusts between five to ten tabs based on available screen size and device orientation. The order of the More menu determines which tabs are included in the toolbar and how they are ordered.

For example, if a device displays six tabs in portrait mode, the top six items in the More menu are displayed in the navigation toolbar. The view at the top of the More menu is displayed on the left side of the navigation toolbar. Tabs are sorted from left to right according to how they appear in the More menu.

If a tab is not visible in the navigation toolbar, it is available in the **More** slide-over menu.

3.1.2.1 Customizing Tab Order of Navigation Toolbar and More Menu

To edit tab order in the Navigation Toolbar and the More menu:

1. Tap **More**.
2. Tap **Edit Tab Order**.
3. Touch and hold the **Drag Handle** (3-stacked-line icon) next to the tab to be moved.
4. Slide the tab up or down to the desired position.
5. Tap **Save**.

3.1.2.2 Restoring the Default Tab Order of Navigation Toolbar and More Menu

To restore the original default tab order of the Navigation Toolbar and the More menu:

1. Tap **More**.
2. Tap **Edit Tab Order**.
3. Tap **Restore to Default Order**.
4. Tap **Save**.

3.1.2.3 Dynamic Tab

The tab to the left of the More button is dynamic and will change as different items are selected from the More menu. The dynamic tab allows the last selected item, not otherwise displayed in the navigation toolbar, to be displayed for quick access.

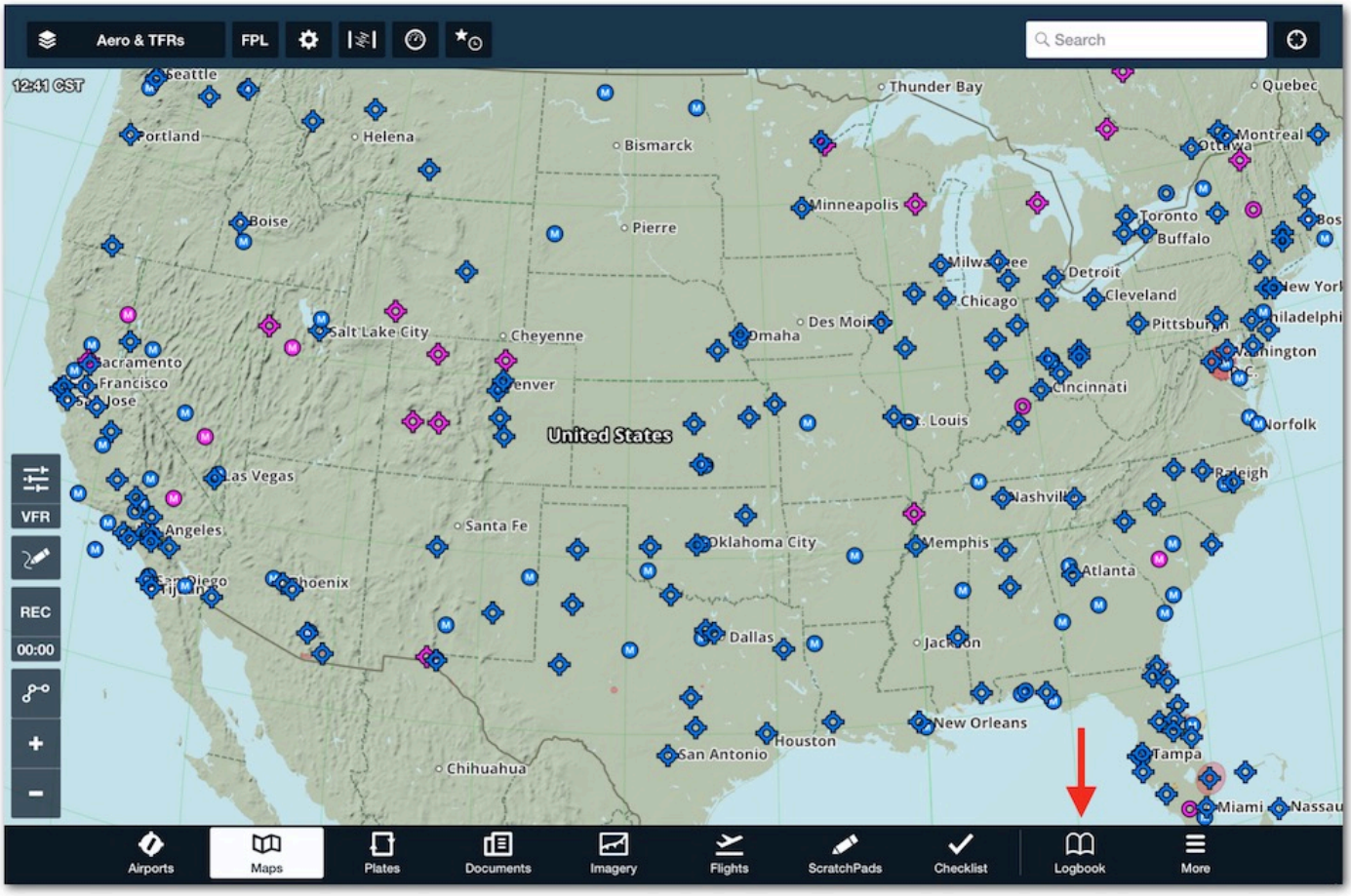


Figure 3-2. Dynamic Tab

3.2 Timer/Stopwatch

The bottom of the More menu includes a countdown timer and a count up stopwatch. Tap the arrow to change between count up or count down mode. Only one timer can run at a time. If the timer or stopwatch is active, tapping the arrow will stop the timer and change to the other style.

Stopwatch (Count Up Mode)

Tap the stopwatch to begin counting up from zero. Tap it again to stop the count. Tap it once more to reset the count to zero.

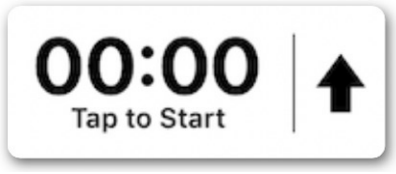


Figure 3-3. Stopwatch

Timer (Countdown Mode)

Tap the timer to set a duration in hours, minutes, and seconds. Select whether the timer will repeat and set the number of repetitions after the initial countdown. Tap the timer to start the countdown, and tap it again to stop and clear the count.

ForeFlight Mobile provides in-app audio and visual alerts when the timer counts down to zero. If ForeFlight Mobile is in the background or closed when the timer expires, the device will display an iOS notification with the same information. Enable ForeFlight Mobile iOS notifications in the iPad or iPhone **Settings App → Notifications**.



Figure 3-4. Timer

3.3 App Theme

ForeFlight Mobile can be displayed in a light or dark theme. The color theme is adjusted under **More ➔ Settings ➔ App Theme**. See Settings for additional information.

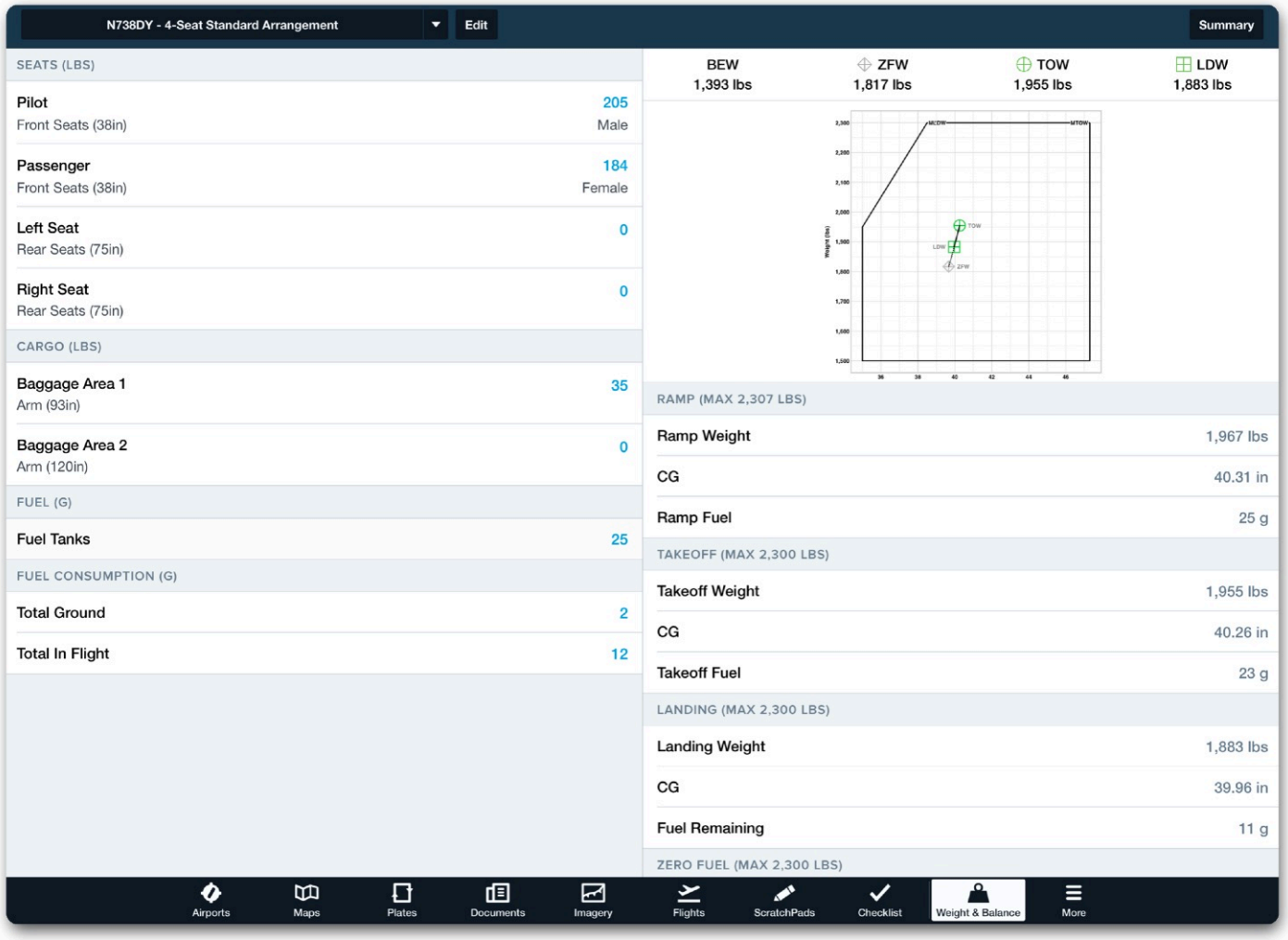


Figure 3-5. Light Theme

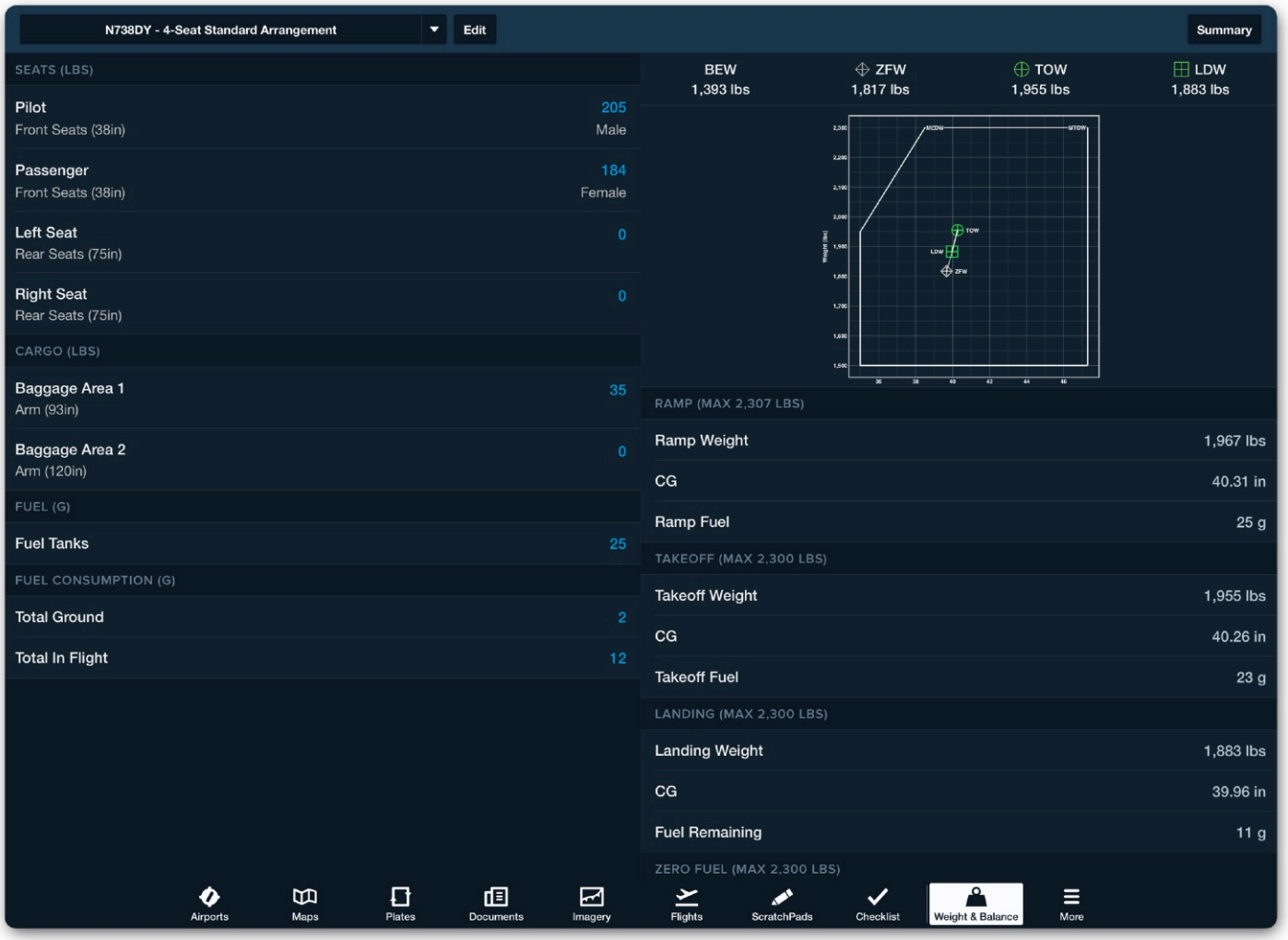


Figure 3-6. Dark Theme

3.4 Keyboard

A keyboard displays when a text field is opened, such as the search bar, flight plan edit window, or Text ScratchPad.

Two keyboard categories are available, System and Aviation. Each category includes QWERTY and numeric styles, for a total of four keyboards.

The Aviation keyboard category can be enabled or disabled by selecting **More → Settings → Show Aviation Keyboard** in the Preferences section.

If the Aviation keyboard is enabled in Settings, the displayed keyboard can be changed to the keyboard shown on the keyboard category button by tapping it.

The last keyboard format displayed before closing will recall when the keyboard is opened again.

System Keyboard

The System QWERTY keyboard is the default setting. To display the numeric/symbol keyboard, tap the **[.?123]** button. To display the QWERTY keyboard, tap the **[ABC]** button.

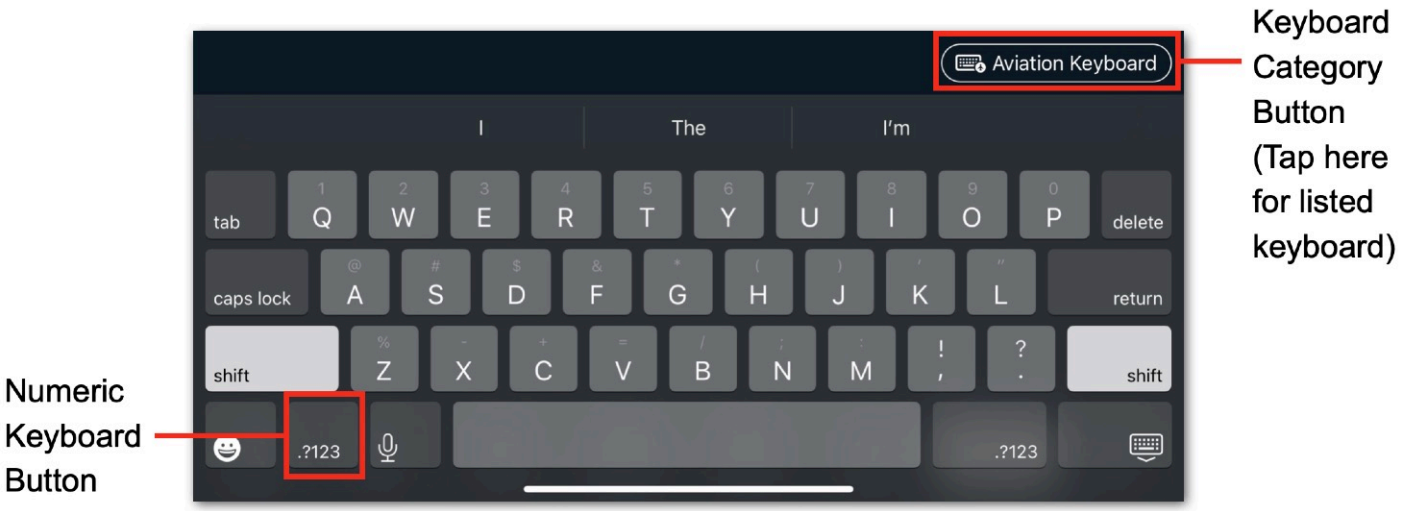


Figure 3-7. System QWERTY Keyboard

Aviation Keyboard

The Aviation keyboard displays an aviation-specific QWERTY layout with numbers and symbology for navigation.

The numeric Aviation keyboard is a condensed version with only numbers and navigation symbology. To display the numeric/symbol keyboard, tap the **[.?123]** button. The numeric keyboard can be left or right justified by tapping the **[Keyboard]** button.

To display the QWERTY keyboard, tap the **[ABC]** button.

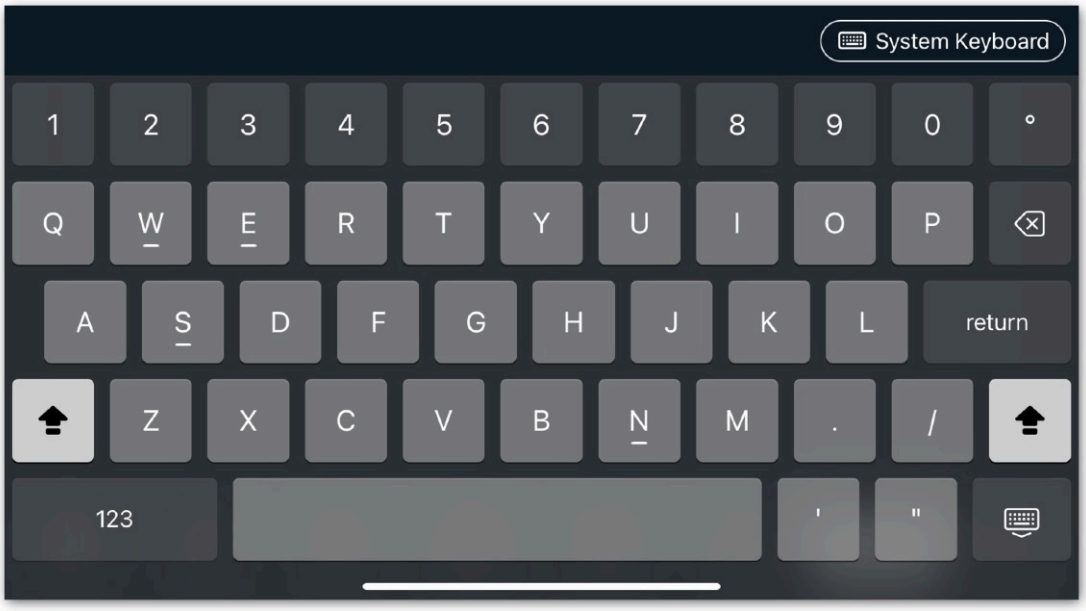


Figure 3-8. Aviation QWERTY Keyboard

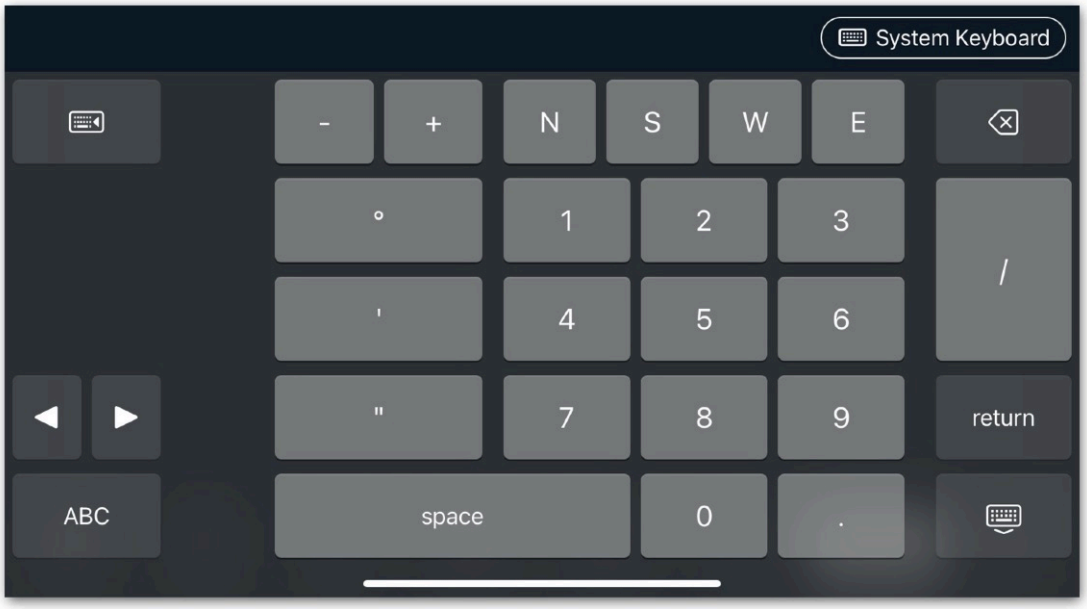


Figure 3-9. Aviation Numeric Keyboard

Floating Keyboard

Any keyboard can be unanchored from the bottom of the screen to float where desired. This is called a floating keyboard. To float the keyboard, ensure the System keyboard is displayed. Touch and hold the **Hide Keyboard** button. When **Floating** appears, slide the finger to **Floating**, then release.

The keyboard will resize and can be moved. Tap and drag the **grab bar** at the bottom of the keyboard, move to desired location and lift the finger. To close the keyboard, tap anywhere outside of a text entry field. When the keyboard is reopened it will appear in the same place that it was closed. To re-anchor, drag the **grab bar** to the bottom of the screen and release.

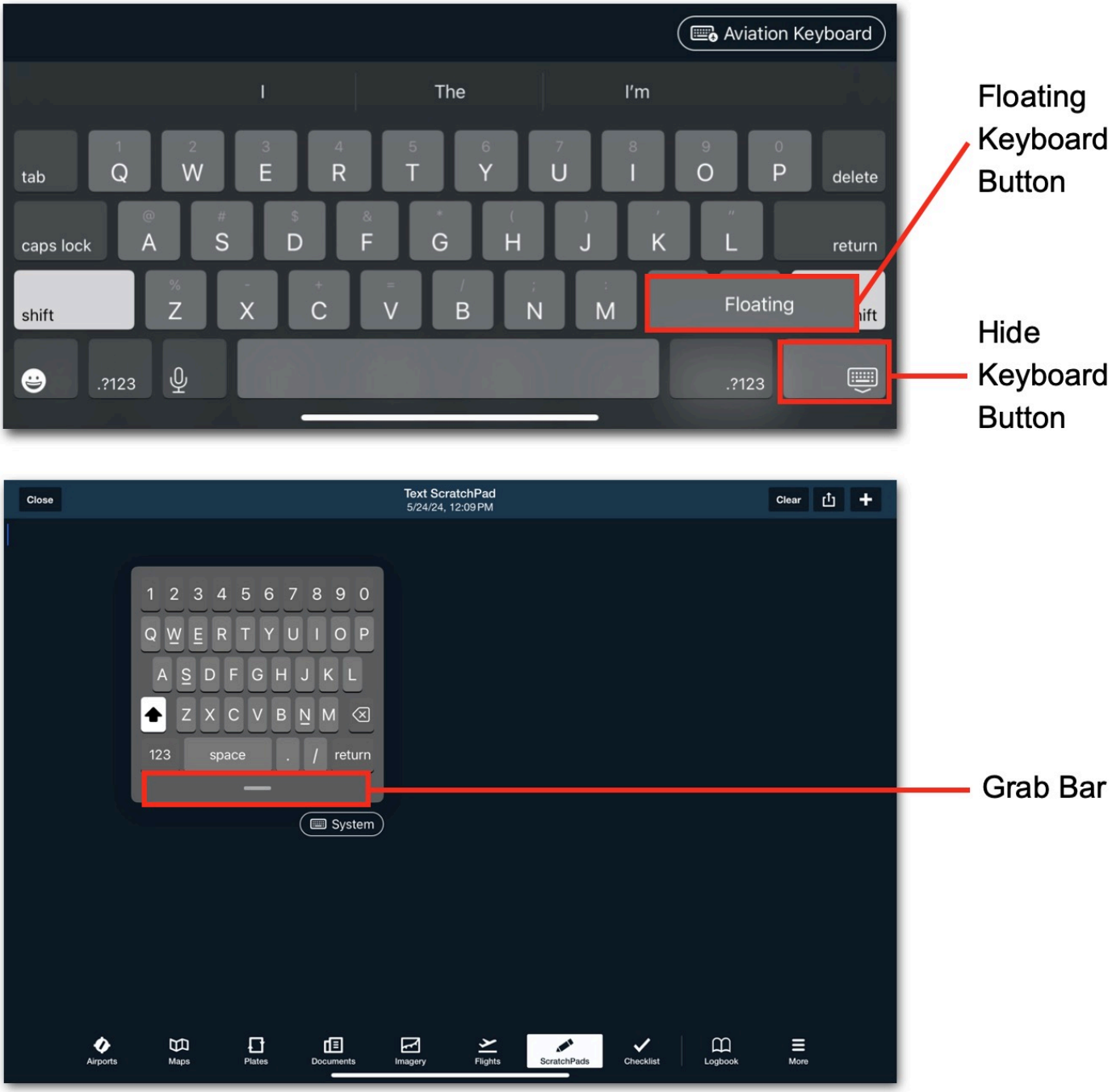


Figure 3-10. Floating Keyboard

ACCOUNTS

The Accounts view displays subscription details and contact information. Select **More ➔ Account** to view or edit the following information.

- Account login
- Subscription
- Pilot name
- Phone number
- Email address
- Password (Reset)
- Device Name
- Notifications
- ForeFlight Mobile Labs

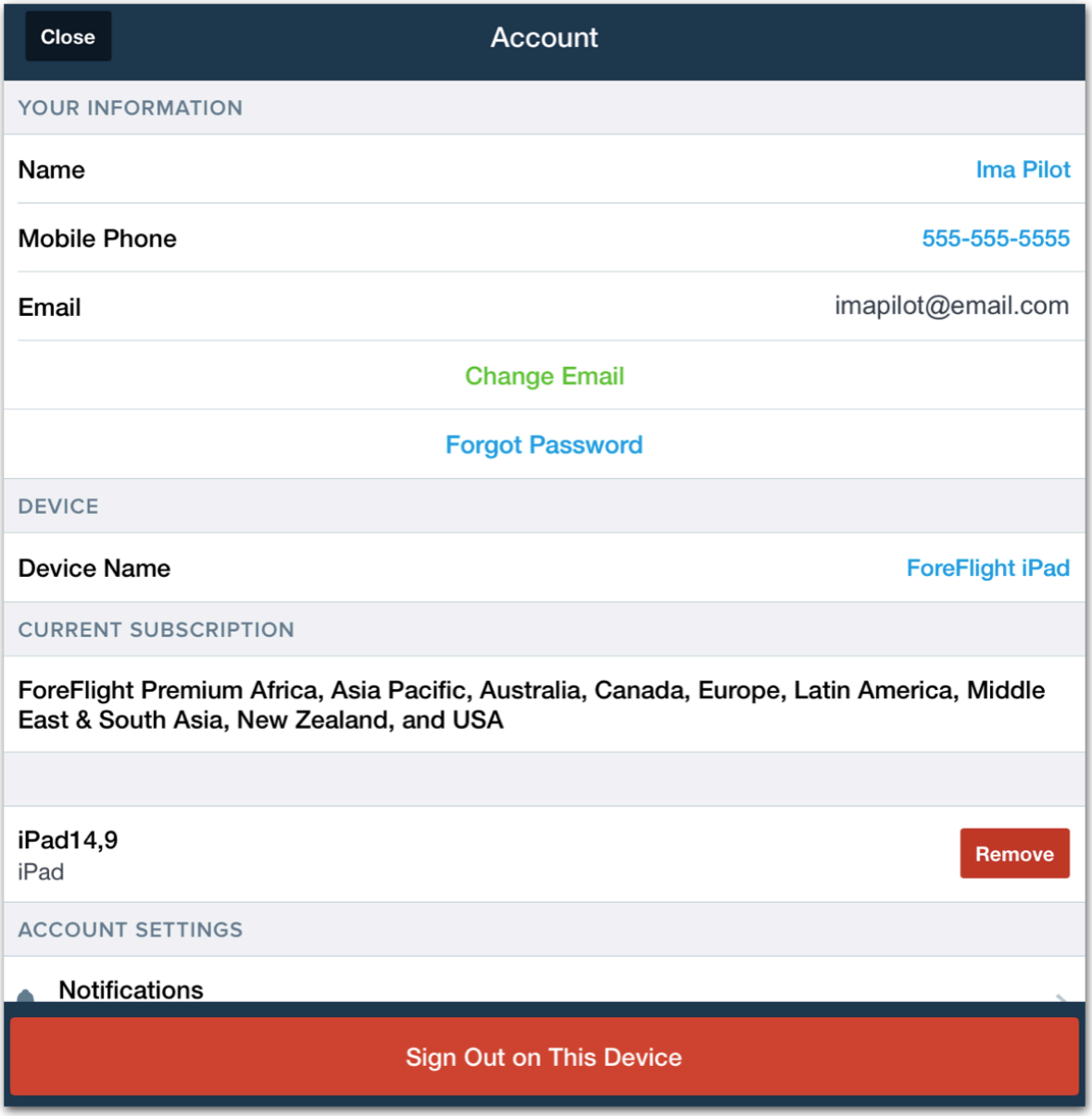


Figure 4-1. ForeFlight Mobile Accounts Menu

4.1 Subscriptions

When downloading ForeFlight Mobile for the first time, a 30-day free trial begins automatically. The free trial includes all Premium features, excluding the items listed below:

- Submitting comments
- Submitting fuel price updates
- Filing flight plans
- Specialized add-ons such as Dispatch or Runway Analysis.

After the free trial, a paid subscription is required. Subscriptions may be purchased at any time, the trial does not have to expire. Unused portions of a trial do not receive credit.

ForeFlight Mobile subscriptions can be purchased at foreflight.com/buy (recommended) or in the app. Purchase additional items, such as Jeppesen charts, Dispatch, or Runway Analysis, at foreflight.com/buy.

> **NOTE:** The trial period will include standard data from all regions. When converting the plan from a trial to one of ForeFlight's user plans, operational regions must be selected.

4.2 Device Names

Device names are displayed on other devices that are signed into ForeFlight Mobile and on the ForeFlight Web Account page. There are two methods for assigning a name to a device. The method depends on the current operating system.

Devices with iOS or iPadOS 16 and later can assign a name within the ForeFlight Mobile app. To specify the device name:

1. Open ForeFlight Mobile and tap **More ➔ Account**.
2. Tap the **Device Name** field and enter the name to be associated with the device.
3. Select **Close** in the upper left corner of the Account view.

Devices that have not yet updated to iOS or iPadOS 16 can be named within the iPad or iPhone Settings app by selecting **General ➔ About ➔ Name**.

4.3 Managing Devices

An internet connection is required to manage devices in ForeFlight Mobile. Signing in to an account enables access to managing devices.

To sign in to an account:

1. Tap **More** ➔ **Account** ➔ **Sign In**.
2. Enter the account email address (username).
3. Tap **Next**.
4. Enter the password.
5. Tap **Sign In**.

If the password has been forgotten, enter the email address associated with the account and tap **Forgot Password**. A password reset email will be sent to the address entered.

4.3.1 Removing Devices

Signed-in devices are depicted on the Accounts page. Remove a device from an account by tapping **More** ➔ **Account** ➔ **Remove** ➔ **Remove Device** and entering the ForeFlight credentials. Devices removed from an account receive a Deactivated Subscription pop-up and are signed out of the account. Removed devices lose access to all synced data. Removing a device is recommended for lost or stolen devices.

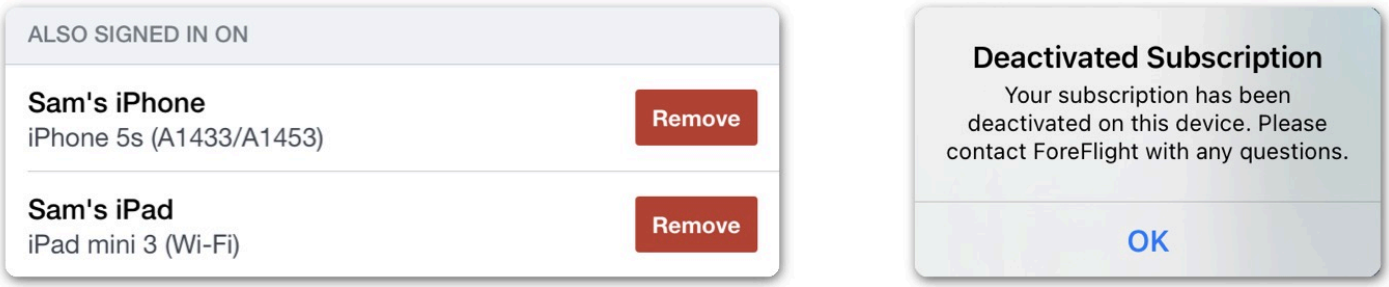


Figure 4-2. Remove Device Button (Left) / Removed Device Message (Right)

Foreflight.com/manage may be used to change an email address, password, and management of devices associated with an account.

4.4 Notifications

Receive new feature releases, special offers, and event push notifications by selecting **More ➔ Account ➔ Notifications** and turning on **Marketing Push Notifications**. This setting affects all devices signed in to an account. A change made on one device is reflected on all other devices.

4.5 ForeFlight Labs

ForeFlight Labs is a collection of beta features for which ForeFlight is requesting feedback. Lab features are disabled by default. Enable features independently in **More ➔ Account ➔ ForeFlight Labs**. ForeFlight Labs features are limited by subscription plan. Only features available within a subscription level are visible in ForeFlight Labs.

4.5.1 Taxi Routes

Taxi Routes is a Premium, ForeFlight Labs feature that provides an interactive and contextually-aware taxi route editor.

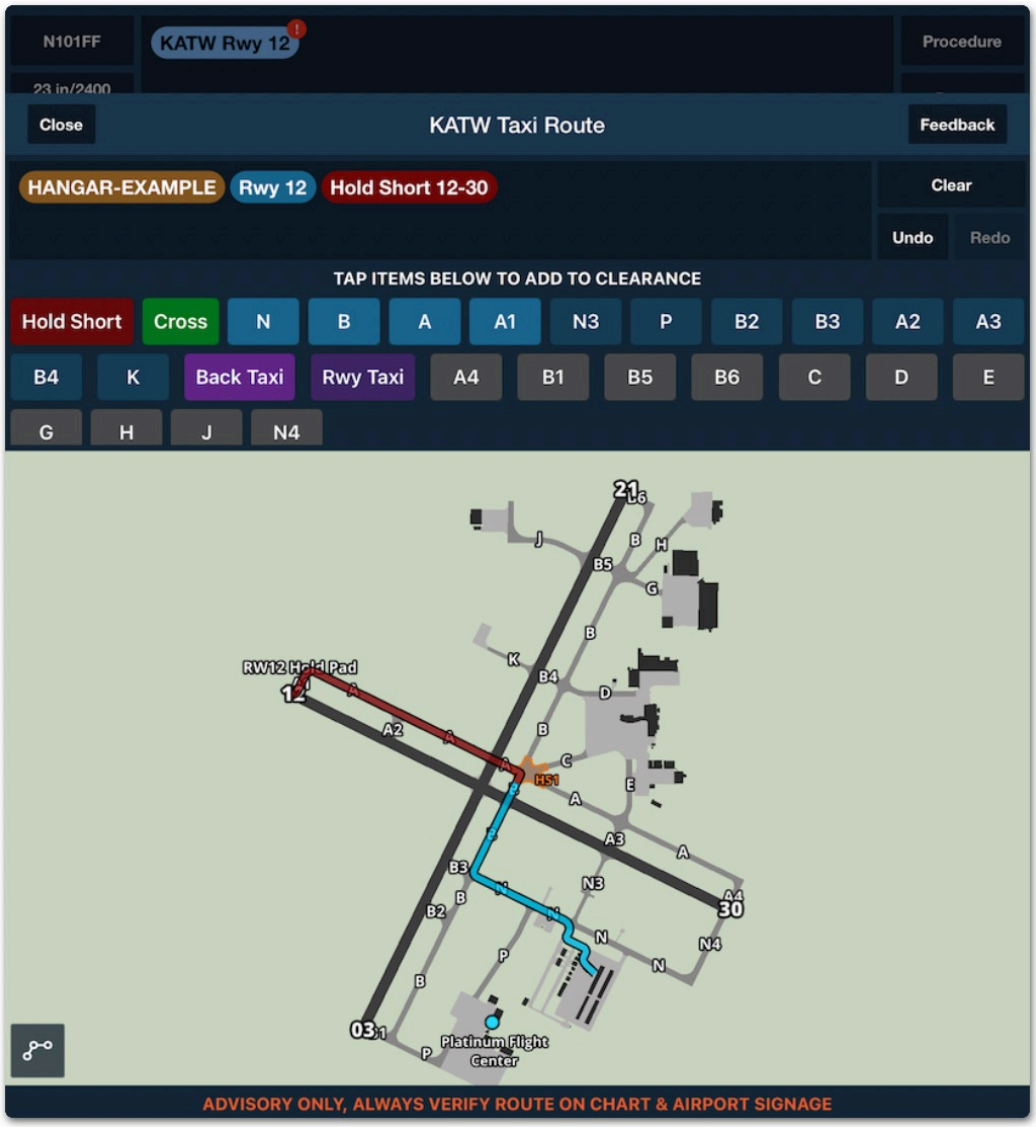


Figure 4-3. Taxi Routes

To access Taxi Routes, tap the Taxi Route button at the bottom of the Maps FPL window or at the top of the Plates view. Alternatively, tap the bubble for any airport in the route and tap **Edit Taxi Route** to open the Taxi Route Editor for that airport.

The current position is the starting point when at an airport. If a User Waypoint is created at a location on the airport, the user waypoint will show as a location option in brown, such as "HANGAR-EXAMPLE".

ForeFlight Mobile automatically creates a taxi route between the two specified points. Edit the route by tapping taxiway names, hold short and crossing locations, back taxi or runway taxi instructions, and other options.

The taxi route is displayed on the moving map and airport diagram in Plates. Tap the route on the map to clear it or to make additional edits. To remove the Taxi Route, tap the route line and choose **Clear**.

Taxi Route is not supported at all airports.

> **WARNING:** The Taxi Route map is not interactive and is for advisory purposes only.

4.5.2 Save Annotations Confirmation

The Save Annotations Confirmation feature, available for ForeFlight Mobile business accounts.

With Save Annotations Confirmation selected, after saving, shared documents with annotations become read-only.

4.5.3 Debrief

Debrief provides a detailed, interactive analysis of a recorded flight. The viewer combines visual, graphical, and data-driven elements to evaluate flight performance. Debrief is available with Essential and Premium subscriptions.

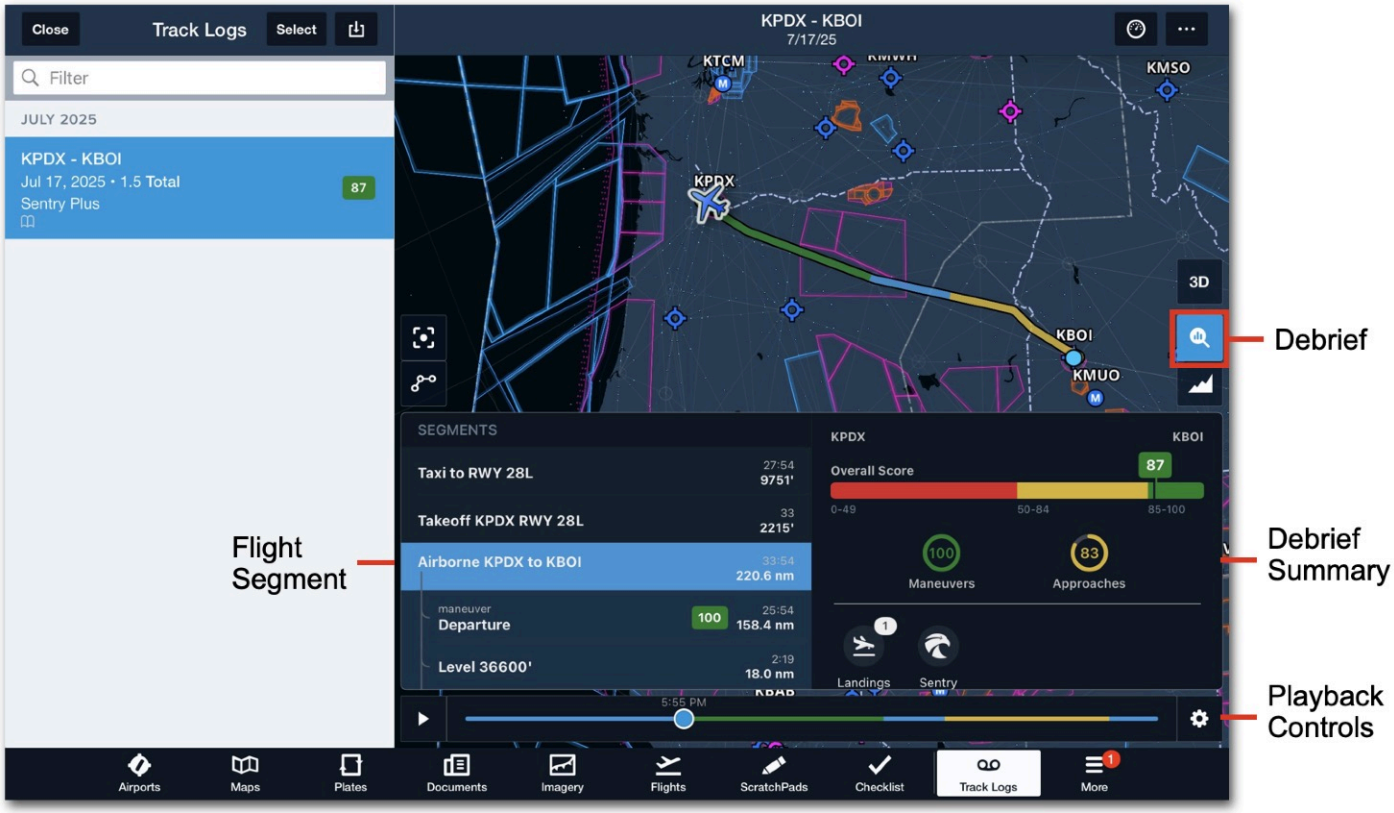


Figure 4-4. Track Log Debrief

4.5.3.1 Opening Debrief

To open the Debrief Viewer:

1. Tap **Track Logs** from the navigation toolbar.
2. Tap a track log from the list.
3. Tap the **Debrief** button in the Track Log Map Panel.

4.5.3.2 Debrief Viewer Layout

The Debrief Viewer includes the following sections:

Debrief Summary

The Debrief Summary presents the following scoring metrics:

- Overall score for the flight
- Average scores for maneuvers and approaches.

Scores are color-coded to indicate performance level:

- **Green (85-100)**: Indicates close adherence to expected parameters.

- **Yellow (50-84)**: Indicates minor deviations.
- **Red (0-49)**: Indicates significant deviations.

Flight Segments List

The Flight Segments section is located on the left side of the Debrief Viewer. It provides a chronological, high-resolution breakdown of the flight by analyzing recorded data to identify phases of flight, maneuvers, and instrument procedures.

Selecting a segment updates the map and associated views to the corresponding point in the flight for detailed review.

Each segment entry includes the following information:

- **Timestamp**: Indicates when the segment begins.
- **Distance**: Displays the distance covered during the segment, in feet or nautical miles (nm).
- **Dynamic Links**: Selecting a segment synchronizes the map view to that moment in the flight.

Scores are assigned to specific segments based on adherence to expected flight parameters, such as altitude, heading, or approach path.

Scores are color-coded as follows:

- **Green (85-100)**: Indicates close adherence to expected parameters.
- **Yellow (50-84)**: Indicates minor deviations.
- **Red (0-49)**: Indicates significant deviations.

Playback Controls

Track logs can be replayed using the playback controls. Tap the gear icon to open expanded playback controls.

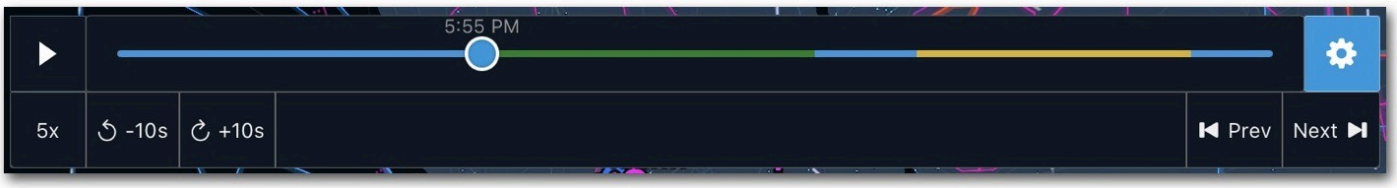


Figure 4-5. Playback Control

Playback options include:

- Play or pause the flight
- Adjust playback speed (1x, 5x, 10x, 20x)
- Skip 10 seconds
- Scrub to a specific point in the flight
- Jump to next or previous segment.

4.6 Electronic Signature

ForeFlight Mobile supports electronic signatures to verify and finalize the weight & balance load summary of a flight. This feature allows pilots to digitally sign the summary using a secure PIN, which locks the data to ensure record-keeping integrity and regulatory compliance.

E-Sign Weight & Balance is available with Business Performance subscription plans with the Active Navlog add-on.

4.6.1 Add a Signature

To adopt an electronic signature:

> **NOTE:** The signature will match the Pilot Name of the Account.

1. Tap **More ➔ Account**.
2. Tap **ADD**.
3. Tap **Adopt This Signature**.
4. Tap **Agree** on the **Adopt & Sign Your Signature** pop-over.
5. Enter and confirm a PIN.

4.6.2 Delete a Signature

To delete an electronic signature:

1. Tap **More ➔ Account**.
2. Tap **VIEW**.
3. Tap **Delete Signature** and then **Delete** on the **Delete Signature** pop-over.

JEPPESEN

Jeppesen terminal and en route charts can be viewed in ForeFlight Mobile by linking an existing electronic Jeppesen chart subscription or by purchasing Jeppesen charts alongside a ForeFlight Mobile subscription.

Jeppesen charts purchased through ForeFlight Mobile are automatically available for download on the mobile devices signed in to an account. Linked Jeppesen charts must be installed on a device from the **More → Jeppesen** view before they can be downloaded. Linked charts require an available seat for each device installing the charts. Up to six unique Jeppesen accounts can be linked to ForeFlight.

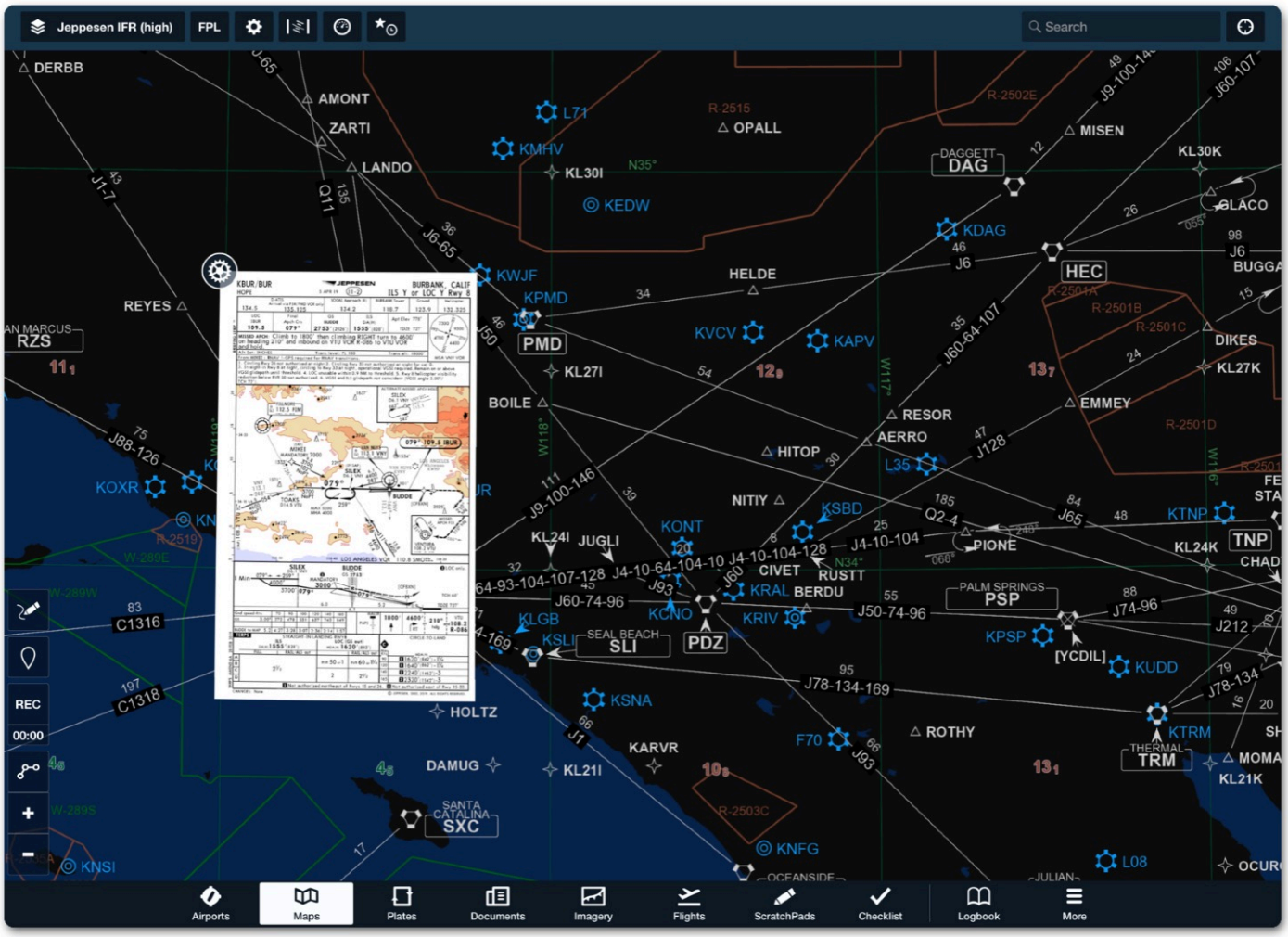


Figure 5-1. Jeppesen Charts in ForeFlight Mobile

5.1 Purchasing Jeppesen Coverage

Jeppesen regions are available for purchase through ForeFlight. Coverage is available for app coverage, web coverage, or both. Customers with individual ForeFlight accounts can purchase coverage exclusively at foreflight.com/buy.

ForeFlight Business customers can add Jeppesen charts to their subscription by contacting sales@foreflight.com.

Jeppesen coverage purchased through ForeFlight includes terminal charts for the selected region and global en route charts. All terminal procedures for the selected region are included except for those that Jeppesen designates as part of a special chart coverage. Special chart coverage is generally reserved for military airfields. Contact team@foreflight.com to inquire about Jeppesen special chart coverage for the airports in a region.

When Jeppesen coverage is purchased for ForeFlight Mobile, the available coverage is depicted in **More ➔ Jeppesen ➔ Jeppesen Downloads**. After purchasing coverage, the charts can be downloaded in **More ➔ Downloads**. When Jeppesen coverage is purchased for ForeFlight Web the charts are available from within the Airport Details popup menus on the Maps View or Flights View, or in Dispatch.

If purchasing additional Jeppesen coverage from ForeFlight, delete and reinstall the currently downloaded Jeppesen terminal procedures to view the new coverage. To delete Jeppesen terminal procedures, select **More ➔ Downloads** and swipe from right to left on the Jeppesen Terminal Procedures download.

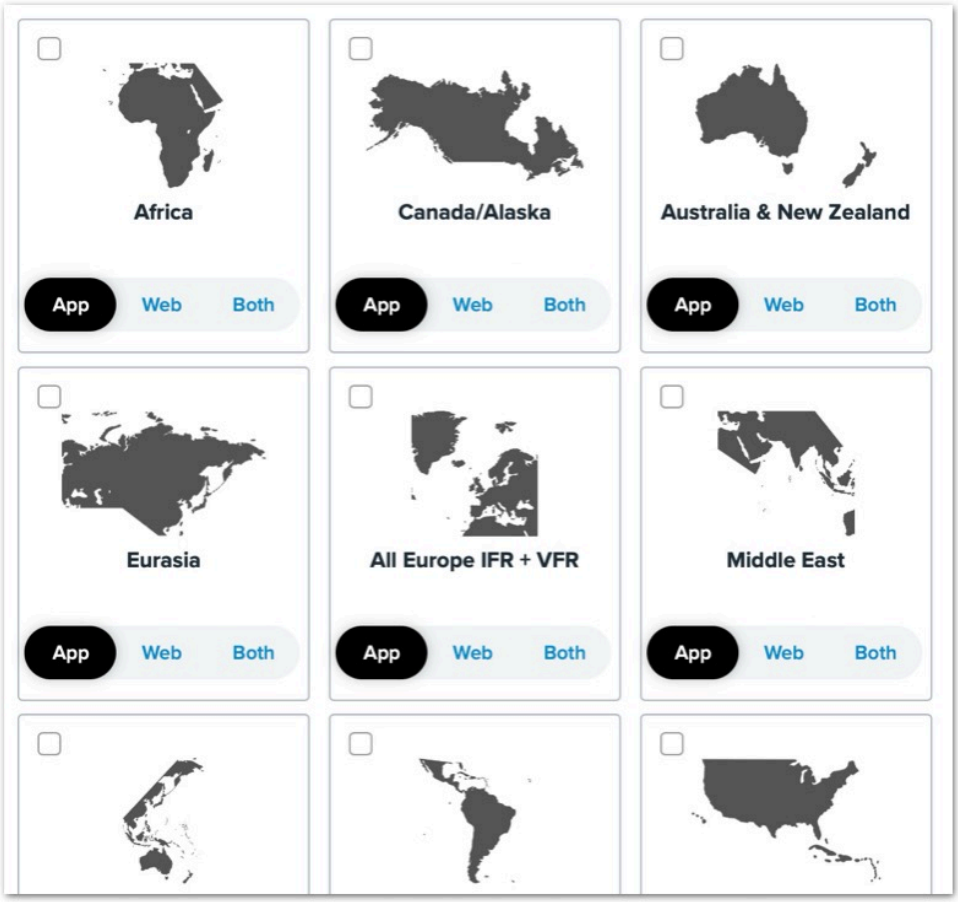


Figure 5-2. Jeppesen Regions

5.2 Linking Jeppesen Accounts

Link up to six Jeppesen accounts using ForeFlight Web or ForeFlight Mobile. Linked Jeppesen account details are visible on all devices and ForeFlight Web.

5.2.1 Linking Jeppesen with ForeFlight Mobile (Individual Accounts)

To link a Jeppesen account with ForeFlight Mobile, select **More → Jeppesen → Sign In** and enter the Jeppesen credentials.

The electronic coverage associated with the Jeppesen account is depicted after establishing the link. Jeppesen charts must be installed (and downloaded) on a device before they can be viewed. Linking a Jeppesen account with ForeFlight Mobile in-app is available exclusively for individual ForeFlight Mobile accounts.

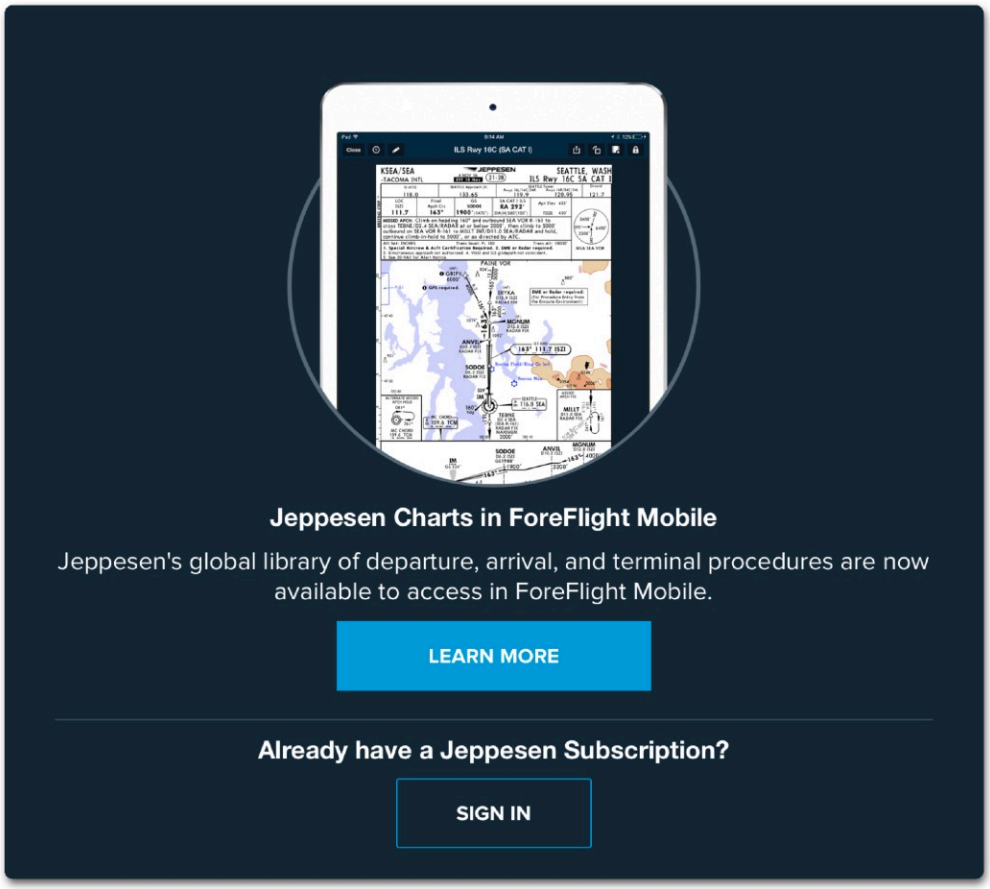


Figure 5-3. Jeppesen Sign In Menu

5.2.2 Linking Jeppesen with ForeFlight Web

To link a Jeppesen account with ForeFlight Web, select **Account ➔ Jeppesen** and sign in with Jeppesen credentials.

Business accounts linking Jeppesen must use an administrator account. Linked Jeppesen coverage is visible to all users on the ForeFlight Mobile account. ForeFlight administrators can remove Jeppesen coverage from any device on the account from the **Account ➔ Jeppesen** view.

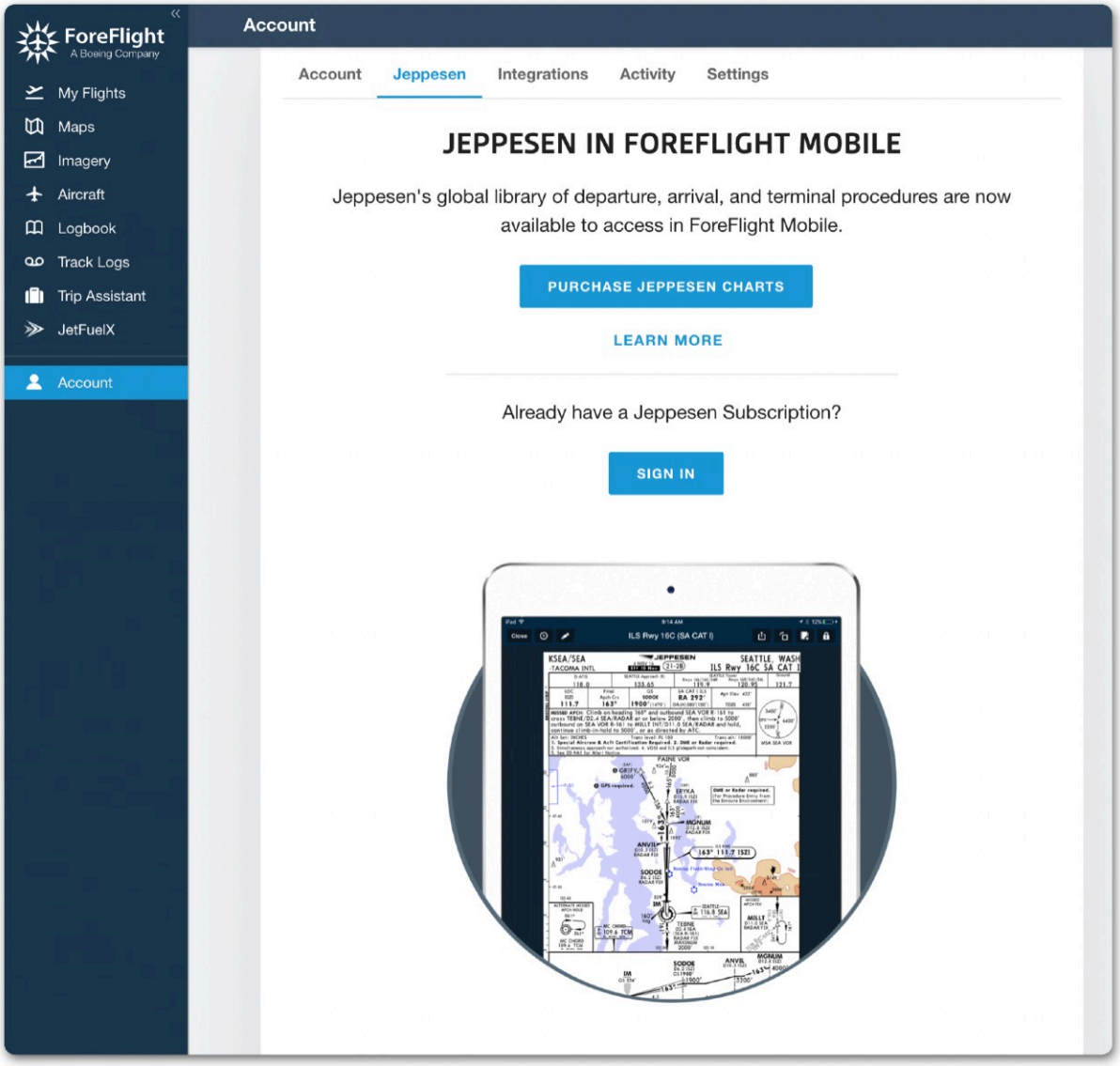


Figure 5-4. Jeppesen Integration Page - ForeFlight Web

5.3 Multiple Jeppesen Accounts

Up to six Jeppesen accounts can be simultaneously linked to ForeFlight. However, only one Jeppesen-linked coverage can be installed on a device at a time. It is not possible to install multiple linked coverages.

The Jeppesen charts available for download combine purchased coverage and linked coverage. For example, if South America coverage is purchased through ForeFlight, and two linked Jeppesen coverages are established (Europe and Africa), the devices can download the purchased (South America) coverage and have the option to install either Europe or Africa, but not both.

Multi-pilot ForeFlight account managers can link Jeppesen accounts using the ForeFlight Web application. All iOS devices on a multi-pilot account automatically sign in to Jeppesen when an administrator links the account. Pilots can install and download any coverage included in the linked Jeppesen account. Account managers can see which users have installed coverages under the Installed section of the Jeppesen tab on the web.

Pilots of a multi-pilot account cannot independently sign in to a Jeppesen account. Account administrators are the only accounts permitted to add or remove Jeppesen accounts. Individual pilots can install and uninstall Jeppesen coverage without administrator approval, provided seats are available.

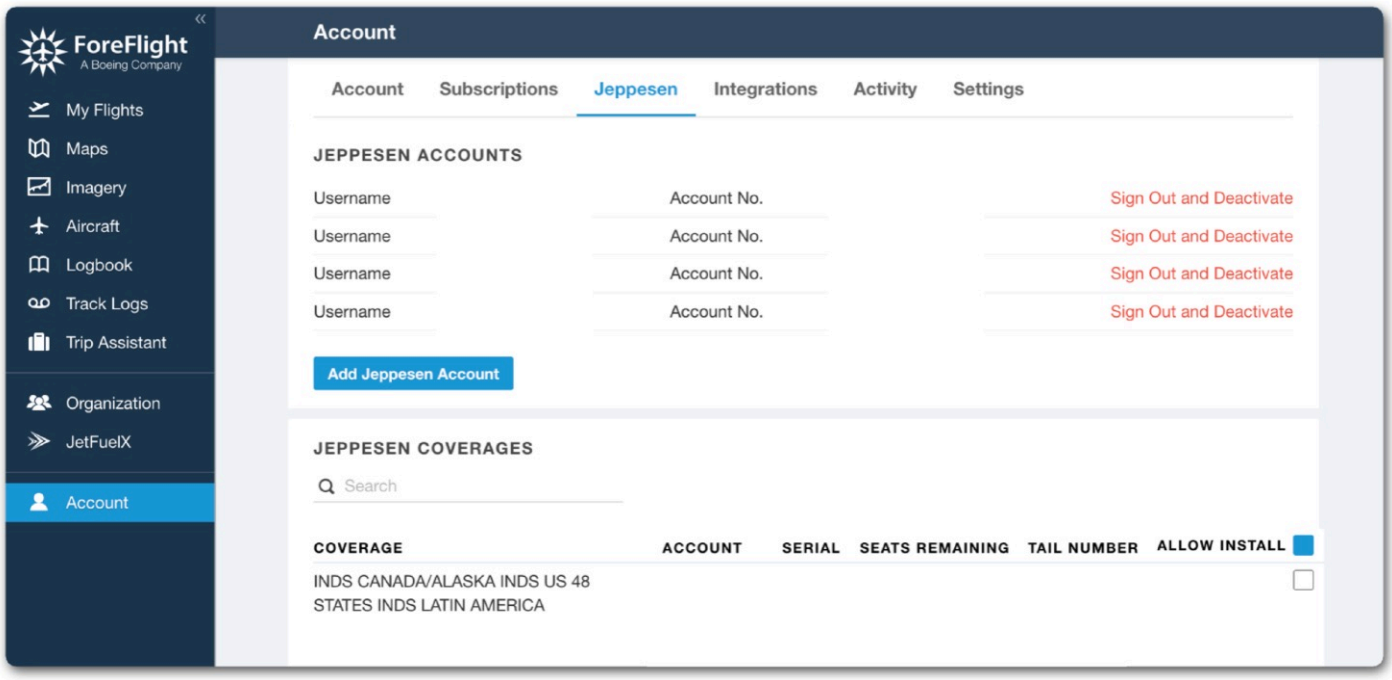


Figure 5-5. Multiple Linked Jeppesen Accounts

5.3.1 Allowing Jeppesen Installs

ForeFlight multi-pilot accounts structured as an organization can enable the ability to install Jeppesen coverage on ForeFlight Mobile. Click **Allow Install** to permit users within the organization to install and download the selected coverage. If the coverage should not be installed on ForeFlight Mobile, deselect **Allow Install** and choose **Save Changes**.

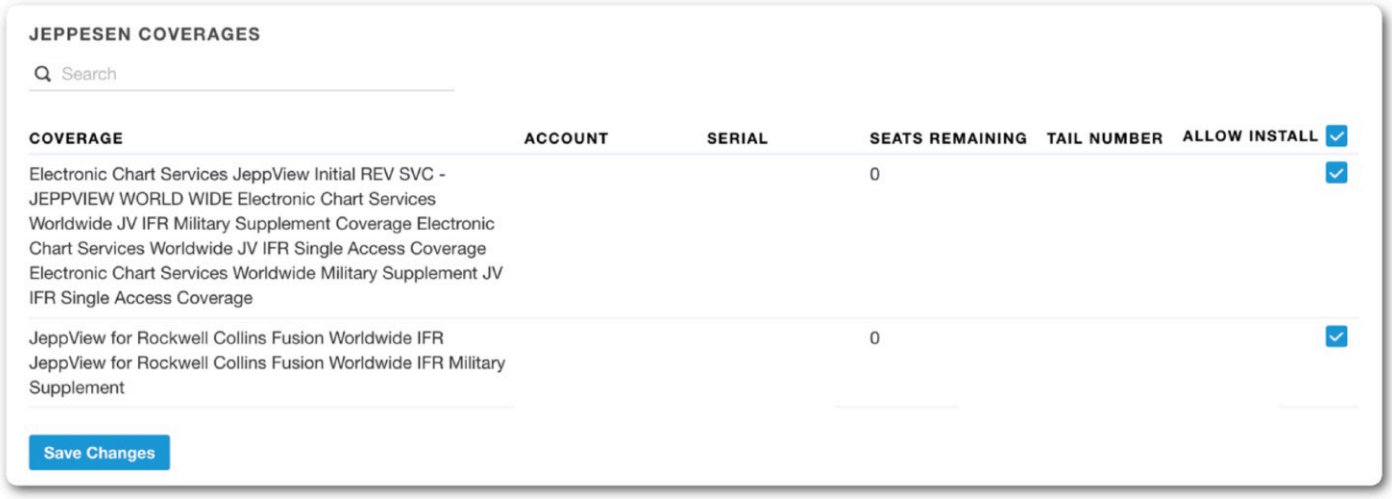


Figure 5-6. Jeppesen Allow Install

5.3.2 Removing Coverage

Remove coverage from a device by clicking **Deactivate** in the Jeppesen Installed section. This will uninstall the coverage and remove the downloaded charts from the device. The user will still be signed into the Jeppesen account. Deactivating Jeppesen coverage immediately frees up a seat for another pilot.

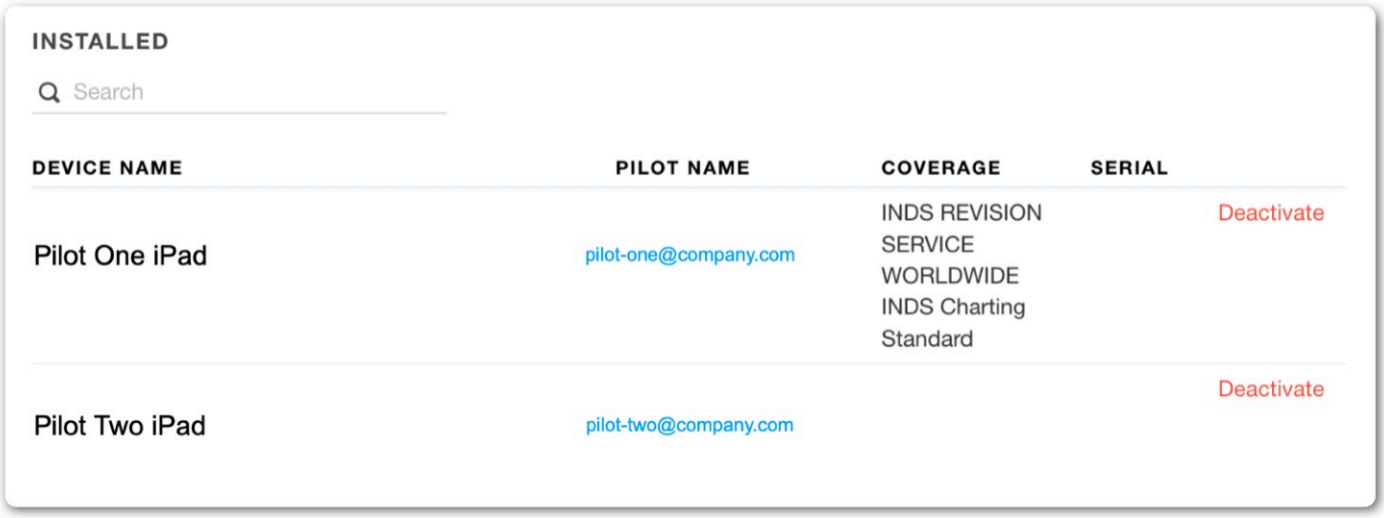


Figure 5-7. Removing Coverage

> **CAUTION:** Removing Jeppesen coverage from a multi-pilot ForeFlight account deletes all associated Jeppesen chart downloads from the pilot's device.

5.4 Installing Linked Charts

Install Jeppesen charts on an iPad or iPhone by tapping **More ➔ Jeppesen ➔ Install Coverage ➔ Install**. Once coverage is installed on a device, it is immediately available for download.

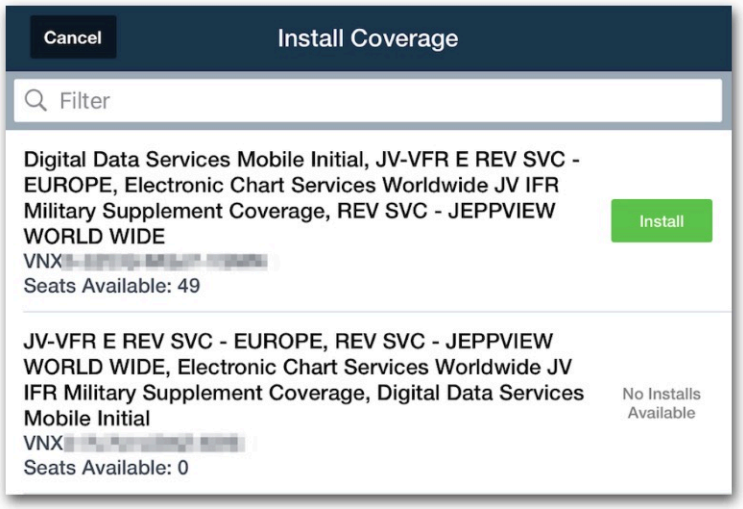


Figure 5-8. Jeppesen Coverage Available to Install

Each time Jeppesen charts are installed on a device, the device uses one of the available Jeppesen seats. The number of seats available is displayed on the **More ➔ Jeppesen** page. If there are no available seats, the charts will not be available for installation. Purchase additional seats or remove the coverage from another device if additional installations are required.

Linked Jeppesen coverage information updates automatically in the app when a device is connected to the Internet. If the information shown is not what is expected (such as, the Seats Available does not change after removing coverage on another device), tap **Reload** one time. If reloading once does not resolve the issue, contact the Pilot Support Team at team@foreflight.com for assistance.

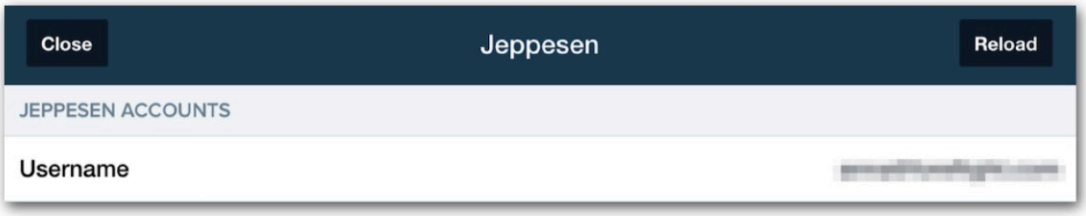


Figure 5-9. Reload Button

> **NOTE:** Only one linked Jeppesen coverage can be installed at a time. It is not possible to install multiple linked coverages.

5.5 Changing Coverage

To uninstall the current coverage and install a different one, select **More ➔ Jeppesen ➔ Change Coverage**. Removing coverage from a device immediately removes the downloaded charts and documents for that coverage.

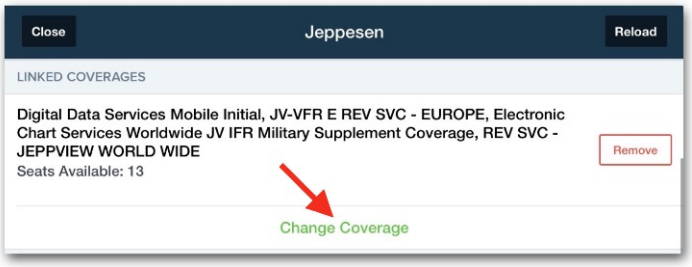


Figure 5-10. Jeppesen Change Coverage button

5.6 Removing Jeppesen Charts

Installed Jeppesen coverage is listed in the Coverage section. Tap **Remove** to uninstall the current coverage from the device. Removing coverage from a device immediately removes the downloaded charts and documents for that coverage and frees up the seat for someone else.

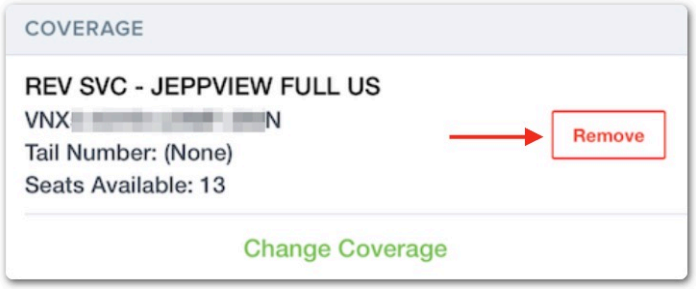


Figure 5-11. Jeppesen Coverage Remove button

5.7 Jeppesen Settings

Jeppesen settings are available in the Jeppesen view. Select **More ➔ Jeppesen** to access the settings.



Figure 5-12. Jeppesen Settings

Display VFR Theme - enables the Jeppesen (VFR) en route chart and VFR terminal procedures (Europe). This setting is disabled by default. When the Display VFR Theme setting is disabled, the Jeppesen (VFR) chart is removed from the Maps drop-down menu, and VFR terminal procedures are removed from the Procedures list.

Show Chart Index Numbers - displays the procedure index number below the procedure name in chart lists. Jeppesen index numbers (at the top of every terminal procedure) are usually three or four digit numbers enclosed in an oval. The index number helps to sort airports within a city and procedures within an airport.

Prioritize Jeppesen Plates - the default setting uses Jeppesen sources when a chart is automatically displayed and lists Jeppesen charts at the top of selection lists. Disable to use non-Jeppesen sources as the default.

5.8 Viewing Jeppesen Charts

Jeppesen charts and terminal procedures are available on the Maps, Airports, and Plates views. Display en route charts by selecting them from the map layer menu.

5.8.1 Jeppesen Terminal Procedures

Jeppesen terminal charts appear at the top of the procedures list. It is not possible to display FAA, NavCanada, or EuroControl charts above Jeppesen terminal charts. Jeppesen Terminal procedures are the default and will display automatically in the following scenarios.

- Tapping **Show Airport Diagram** in the FPL Route Editor
- Adding an approach using Procedure Advisor
- Display the airport taxi diagram automatically upon landing.

> **NOTE:** An Essential or higher subscription is required to overlay plates on the Maps view. If Jeppesen terminal charts are added to a Starter plan, they will only be viewable in the Plates and Airports views.

5.8.2 Jeppesen En Route Charts

All Jeppesen accounts include global VFR and IFR en route charts, no matter what terminal procedure coverage is purchased. Jeppesen en route charts are dynamic and customizable. Additional chart details are displayed while zooming in. Jeppesen en route charts support always-up labels. Jeppesen global en route charts are approximately 1GB in size.

> **NOTE:** Jeppesen en route charts are not available when using the following devices: iPad Mini 1, iPad 2, iPad 3, and iPhone 5 and earlier.

En route charts are available in the Maps view layer selector, at the top just under the Aeronautical layer.

5.9 Jeppesen Map Settings

Selecting any Jeppesen en route chart adds the Jeppesen-related settings to the Map Settings menu.

The selections only apply to the selected layer allowing a mix of map settings for each Jeppesen en route chart type.

The following table lists the map settings available with each Jeppesen en route chart type and what they do.

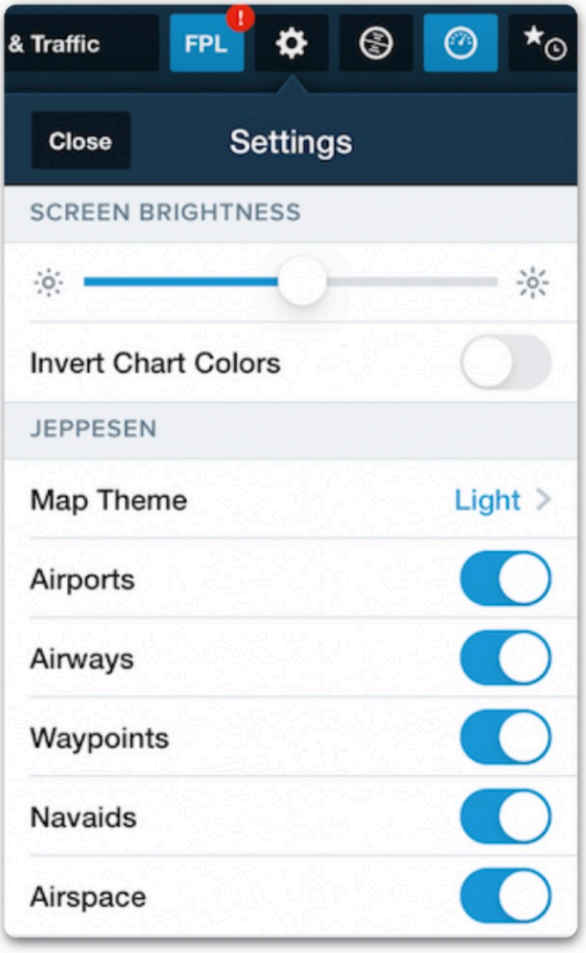


Figure 5-13. Jeppesen Settings

	Jeppesen VFR	Jeppesen IFR (low)	Jeppesen IFR (high)
Map Theme	Choose between a Light and Dark map theme. The Dark Theme inverts black and white while preserving other colors.		

	Jeppesen VFR	Jeppesen IFR (low)	Jeppesen IFR (high)
Airports	Show or hide airport markers and labels, including private airports and helipads. Zooming into large airports will reveal their runway configuration.		
Airways	Show or hide VFR corridors and IFR low airways, including labels, MEAs, MOCAs, and radials from navaids.	Show or hide IFR low airways, including labels, MEAs, MOCAs, and radials from navaids.	Show or hide IFR high airways, including labels, altitudes and radials from navaids.
Waypoints	Show or hide VFR waypoints and IFR low waypoints.	Show or hide IFR low waypoints.	Show or hide IFR high waypoints.
Navaids	Show or hide navigation aids and labels, including NDBs, VOR-TACANs, and VOR-DMEs.		
Airspace	Show or hide airspace boundaries and labels, including controlled airspace, Mode C, MOAs, SUAs, ADIZ, FIRs, and ARTCC radio frequencies.		
Cultural	Show or hide cultural labels, including spot elevations, urban areas, railway lines, parachute jumping areas and magnetic longitude lines.	N/A	N/A
Roads	Show or hide major highways, roads, and streets.	N/A	N/A

5.10 Jeppesen Documents

Purchasing Jeppesen coverage or installing a linked Jeppesen account adds the Jeppesen document catalog to the device. The Jeppesen document catalog adds Jeppesen Airway Manuals for the installed coverage.

Jeppesen documents will remain on the device for as long as the Jeppesen coverage is installed. Jeppesen Airway Manuals can be printed but cannot be shared via email.

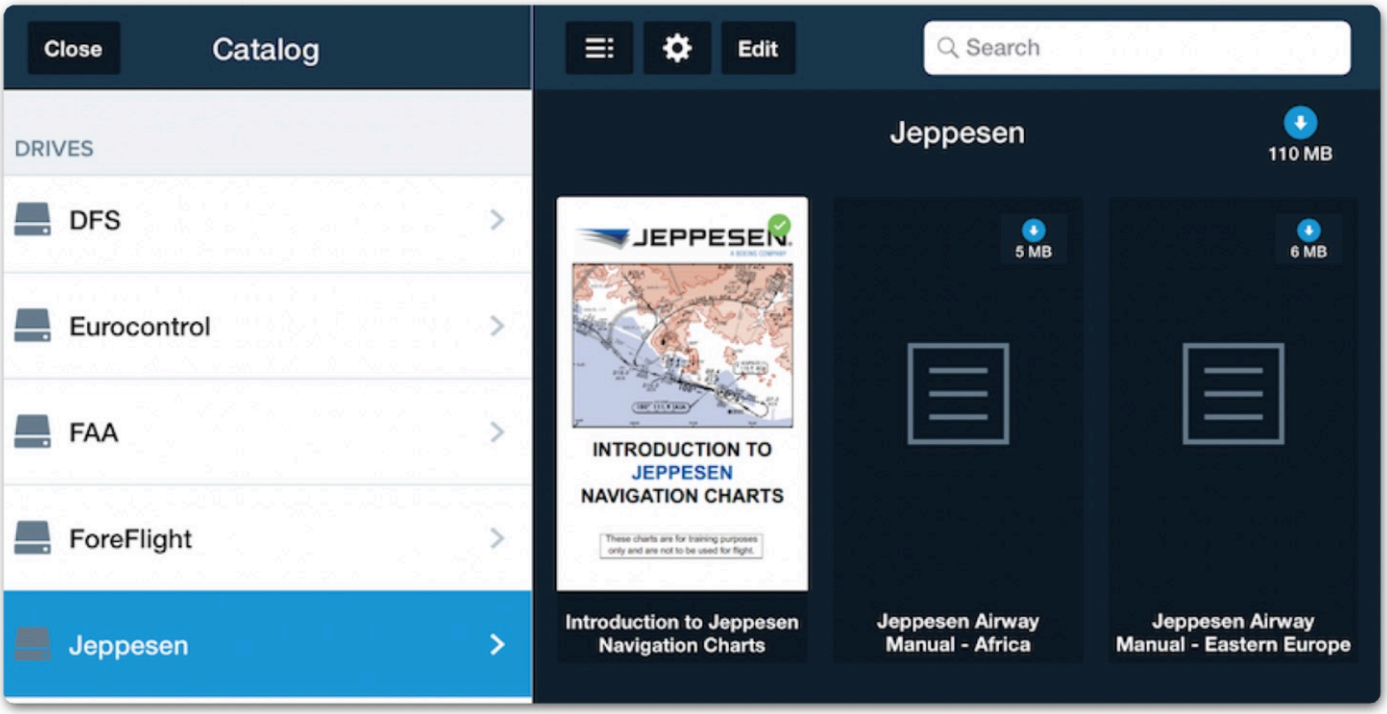


Figure 5-14. Jeppesen Documents

DOWNLOAD

Charts and aeronautical data can be viewed online, but must be downloaded for use when not connected to the Internet. When using ForeFlight Mobile for the first time, required downloads (e.g., airport and navigation databases, obstacles, terrain data, and business directory information) are automatically installed when connected to the Internet.

To access the Downloads view, tap **More ➔ Downloads**.

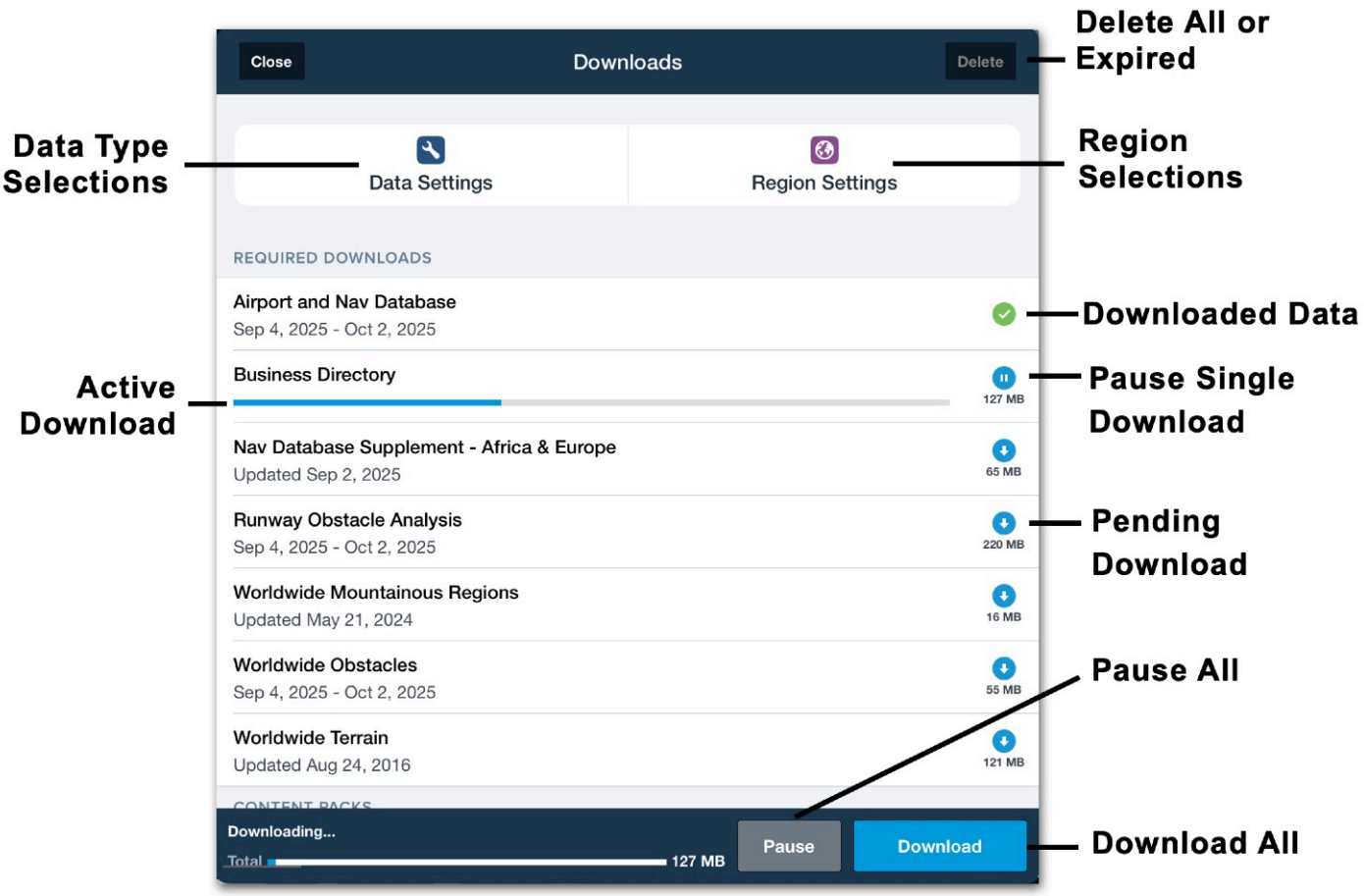


Figure 6-1. Downloads View

6.1 Setting Download Selections

Offline charts, terminal procedures, and high-resolution data are optional and must be chosen per device. Selections are not synchronized across multiple devices. Download options are organized into two sections:

- **Data Settings**: Specify the types of data for offline download.
- **Region Settings**: Choose the geographic areas (states, provinces, or countries) for downloads.

> **NOTE:** Data and region settings in this section do not affect Jeppesen charts.

6.1.1 Data Settings

Data Settings is where the types of data (e.g., charts, diagrams, high-resolution basemaps, terrain) are selected to download for the selected regions. These data settings apply uniformly and cannot be customized individually for each region.

High-resolution basemap and terrain data are not tied to region selections. Choosing one of these options installs the data regardless of subscription type or region settings.

After configuring Data Settings, tap the **Downloads** back button to return to the downloads overview, continue with region selection, or begin the download process.

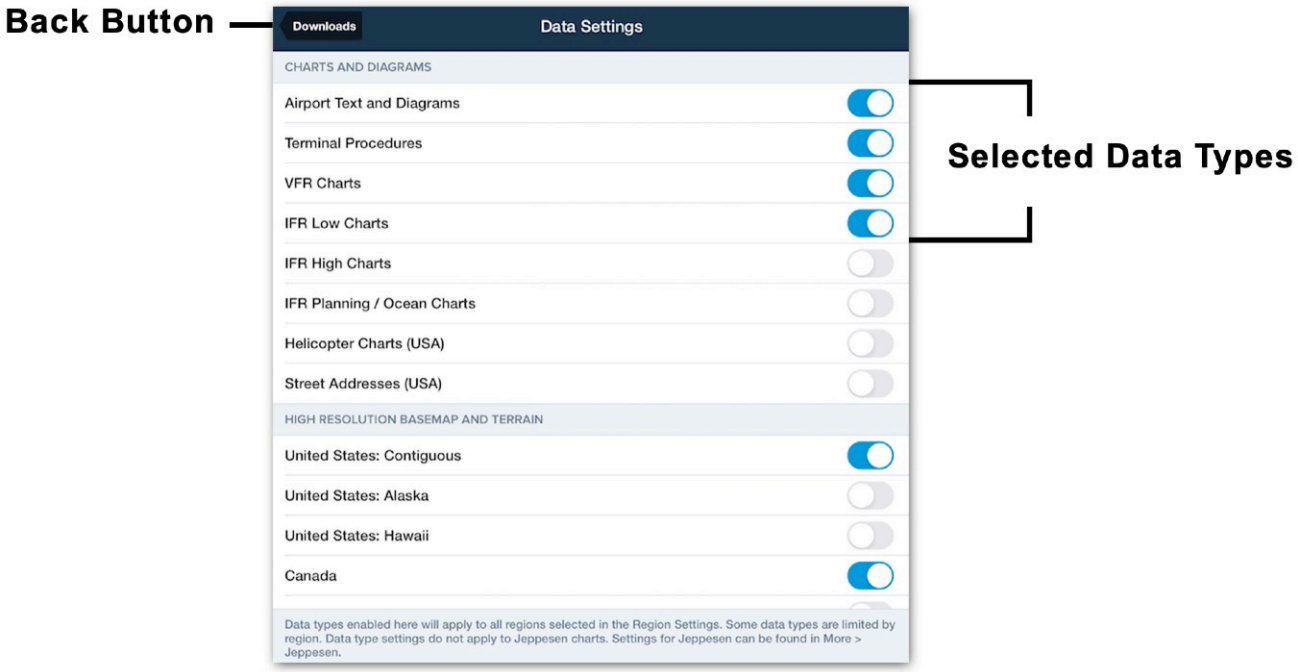


Figure 6-2. Data Settings

6.1.2 Region Settings

Region selections are divided into groups.

> **NOTE:** Regions must be purchased to be selectable. To purchase, visit foreflight.com/buy.

Tap a region to expand it and view available subregions (states, provinces, or countries). Next to each, a dynamic download size (e.g., "924 MB") is displayed. If content is unavailable for the chosen data type, an alert will appear on selection.

Once regions are selected, tap the **Downloads** back button to adjust data settings or begin downloading.

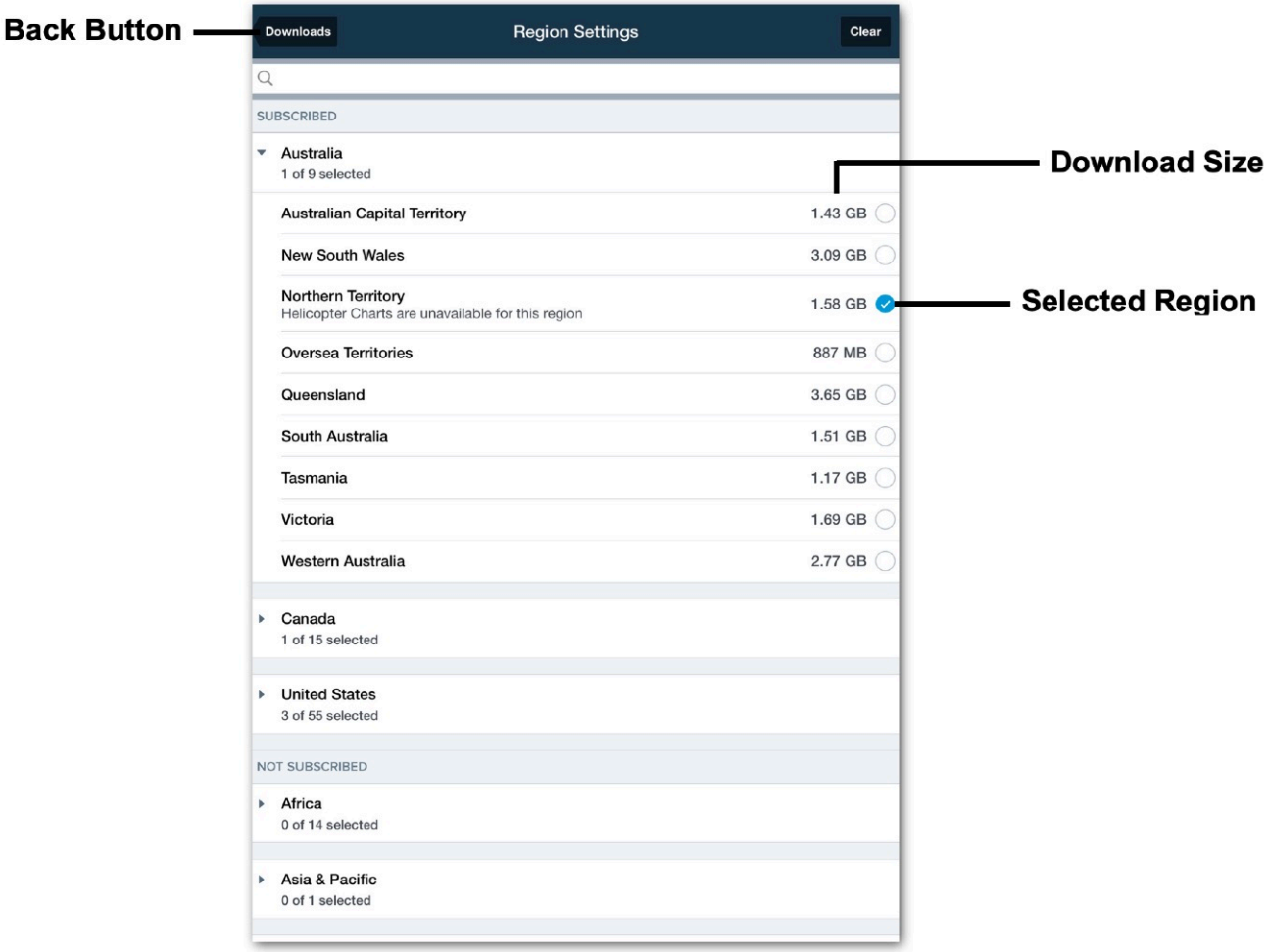


Figure 6-3. Region Settings

6.2 Downloading Data

After selecting data types and regions, any uninstalled data will immediately appear available for download (internet connection required).

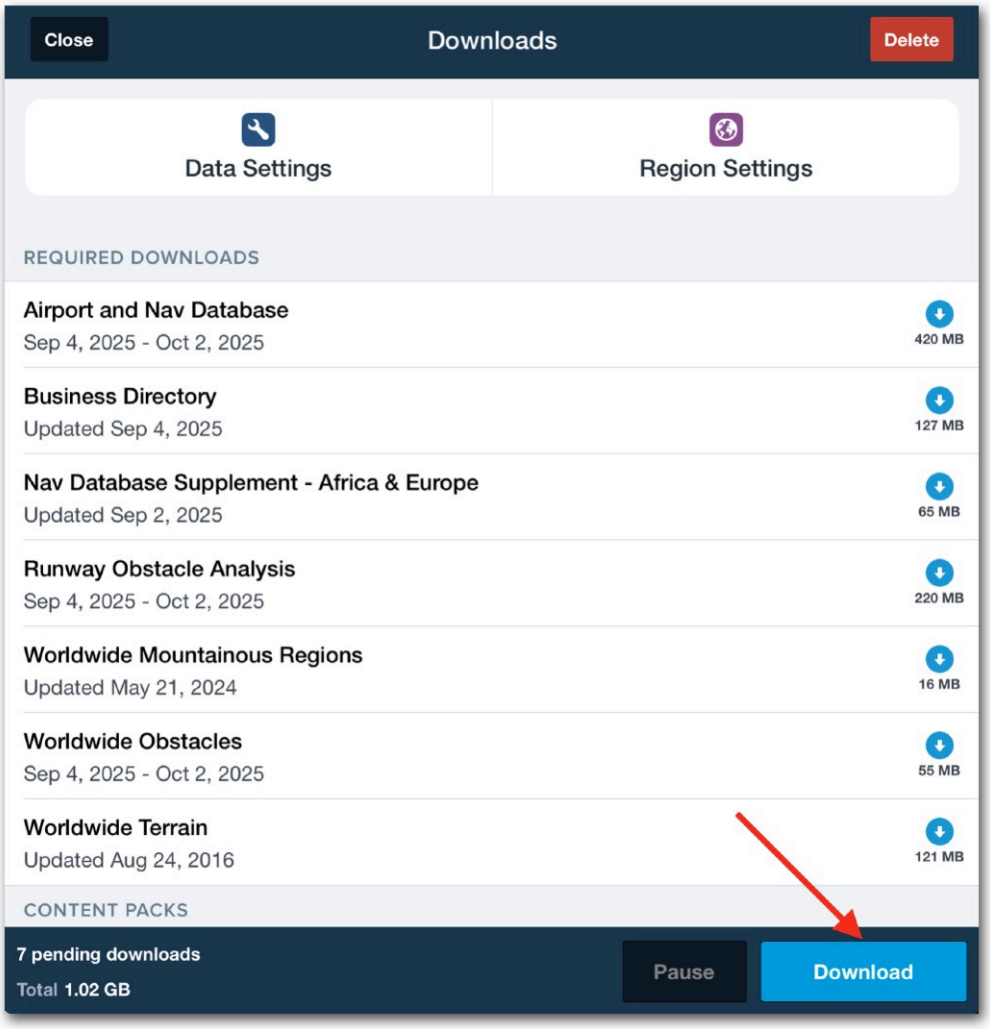
Data can be downloaded or updated manually, automatically, over cellular, and while the app is in the background.

6.2.1 Manually Downloading All Downloads and Updates

To download all available data and updates:

1. Tap the **More** button.
2. Select **Downloads**.

3. Tap the **Download** button to fetch the data.

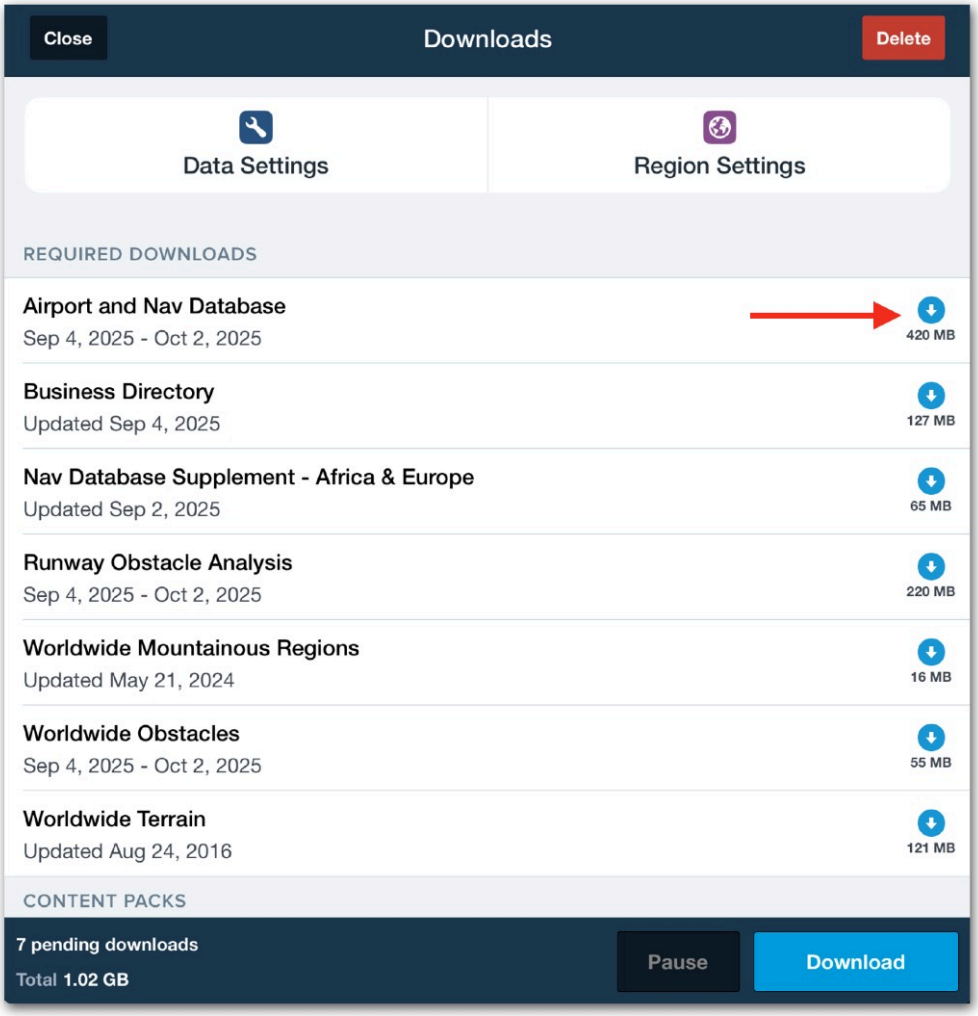


6.2.1.1 Manually Downloading Individual Items

To download individual items:

1. Tap the **More** button.
2. Select **Downloads**.

3 Tap the **Download Circle** (blue circle with a down arrow) next to each.



6.2.2 Automatic Downloading of Updates

ForeFlight Mobile supports automatic downloading of new data to help ensure content is always up to date for offline use.

6.2.2.1 Criteria for Automatic Downloads

Automatic downloads will occur only when all the following conditions are met:

- Automatic Downloads setting is enabled.
- The device has an active internet connection (Wi-Fi or Cellular).
- At least one hour has passed since the last manual download.
- Sufficient storage space is available on the device.

NOTE: Automatic downloads do not function when connected to in-flight Wi-Fi services such as Gogo or Satcom Direct.

6.2.2.2 Enabling Automatic Downloads

To enable Automatic Downloads:

1. Tap the **More** button.
2. Select **Settings**.
3. Enable Automatic Downloads in the Downloads section.

When downloading data for the first time, ForeFlight presents an option to enable automatic downloads.

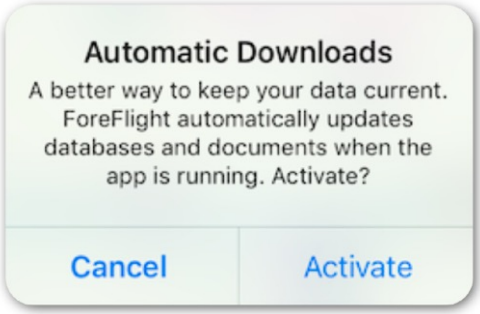


Figure 6-4. Automatic Download Pop-Up

6.2.3 Downloading While the App is in the Background

ForeFlight Mobile supports background downloads, allowing data to download even when the app is running in the background or while the device is asleep.

6.2.3.1 Enable Background Downloads

To enable Background Downloads:

1. Tap the **More** button.
2. Select **Settings**.
3. Enable **Background Downloads** in the Downloads section.

When enabled:

- All pending data is bundled into a single download file.
- Background downloads may take longer than foreground downloads.
- Data is not installed until ForeFlight Mobile is brought back to the foreground.
- The red badge on the ForeFlight Mobile icon disappears once background downloading completes.

6.2.3.2 Network Considerations

When downloading in the background:

- Downloads started on Wi-Fi will pause if Wi-Fi is disconnected.
- Downloads started on cellular will continue using cellular data unless manually paused.

> **IMPORTANT:** Background downloads can pause if battery charge is low. Connect the device to power when battery charge is low. Disable background downloads if using a slow internet connection or when device storage is limited.

6.2.4 Downloading Over Cellular

ForeFlight Mobile supports downloading data over cellular networks. This functionality is disabled by default.

To enable cellular downloads:

1. Tap the **More** button.
2. Select **Settings**.
3. Enable **Allow Downloads over Cellular**.

If a download is initiated while cellular is active but the setting is disabled, a pop-up warning appears. Selecting **Download** in the pop-up automatically enables the cellular download setting, allowing this and future downloads to proceed over the cellular network.

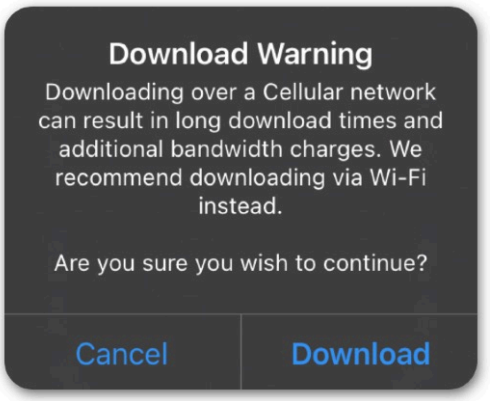


Figure 6-5. Cellular Data Warning

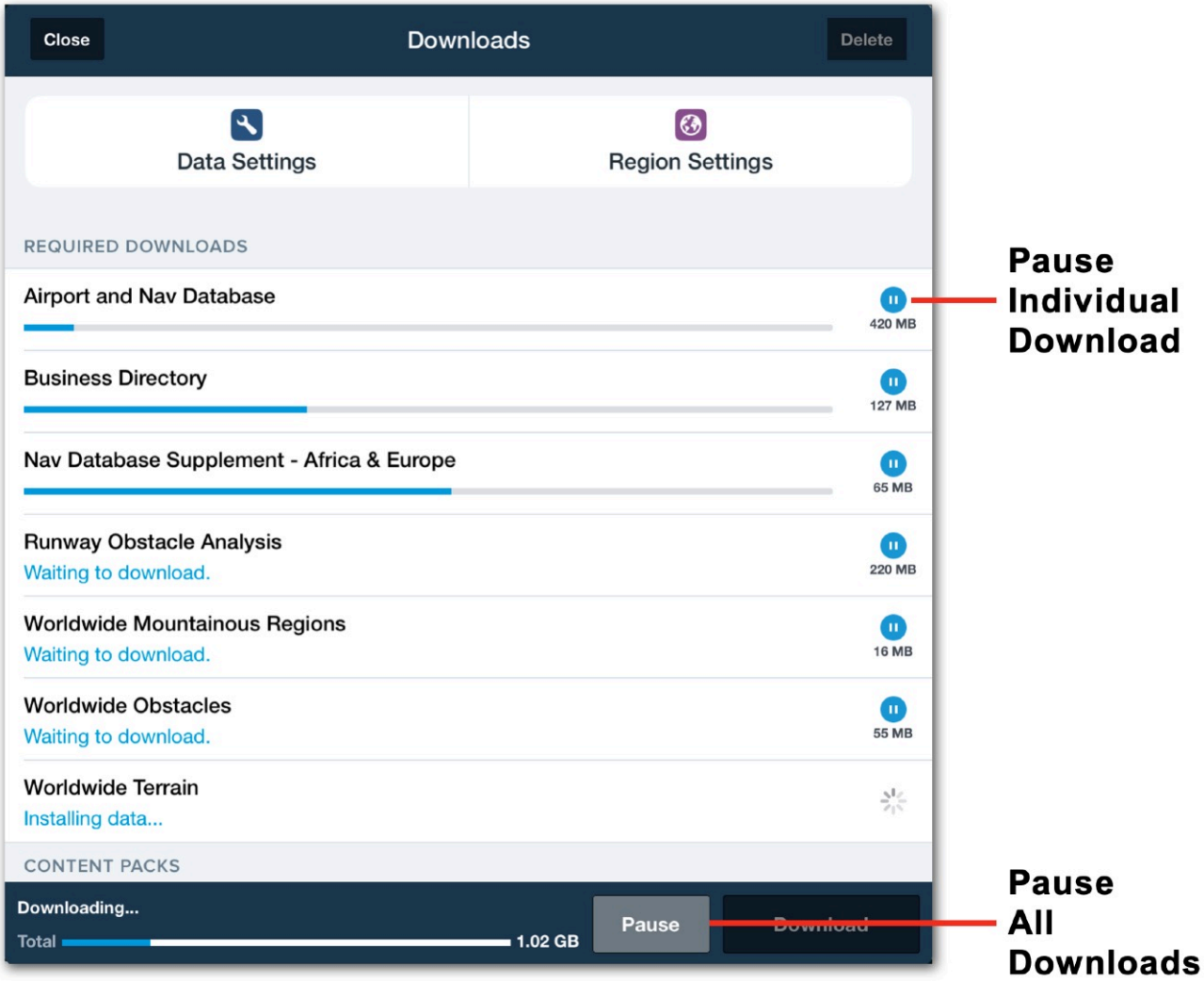
6.3 Managing Download Progress

During active downloads, a progress bar appears at the bottom, showing the size of active downloads.



Figure 6-6. Active Downloads

Tap **Pause** to stop all downloads or use the pause icon next to a specific item to stop it individually. Downloads can be resumed and will pick up where they left off.



When all downloads are complete, the **Download** button becomes disabled. A green checkmark next to individual downloads indicates successful download completion.

IMPORTANT: To ensure access, always download all required data before flight. If data is not downloaded in advance, ForeFlight Mobile will attempt to stream it using an internet connection. However, this does not guarantee availability during flight. In-flight connectivity is often unreliable, which may result in missing or blurry charts.

6.4 Data Updates and Changeover Times

Once data has been downloaded, ForeFlight Mobile maintains data currency by following a fixed update cycle:

- Aeronautical data (flight procedures, nav information): updates every 28 days.
- En route charts: refresh every 56 days.

Updated data becomes available roughly five days prior to expiration, enabling users to prepare ahead of time.

When new data is ready, a red badge appears on the **More** button, indicating how many updates await.

6.4.1 Handling of Future Data Cycles

When upcoming data is downloaded:

- ForeFlight Mobile continues to use the current valid dataset until the changeover date, which is the official expiration time for the previous cycle.
- On the changeover date, ForeFlight Mobile automatically switches to the updated data and removes expired data from the device.
- Changeover timing is location-dependent and occurs at a specific time based on the current geographical location.

6.4.2 Data Changeover Times

Aeronautical data becomes effective and is displayed at a specific time on the changeover date according to published regional standards.

The changeover time for aeronautical data is determined by the device's current geographical location. The data content does not determine the effective time. For example, European data becomes effective at 0901Z when the device is located in the United States.

Table 6-1. Data changeover times by region

Device Location	Changeover Time
Europe, South Africa, Brazil, and Taiwan	0000Z
Australia	1200Z the day before changeover date
New Zealand, South Korea	1600Z the day before changeover date

Device Location	Changeover Time
North American regions, regions not mentioned	0901Z

The International Civil Aviation Organization (ICAO) specifies that aeronautical information should become effective at 00:00 UTC on the designated effective date. However, national and local authorities may adjust this time to better support operational requirements, such as implementation during local night hours. When an effective time other than 00:00 UTC is used, ICAO requires that this be published in the official Aeronautical Information Publication (AIP) for the region.

Check NOTAMs and consult local air traffic control (ATC) for specific implementation times.

> **NOTE:** Changeover time for aeronautical data is determined by precise geo-location. If geo-location is unavailable, the iOS Region setting is used.

6.5 Preflight Download Check

Data must be downloaded and verified before every flight to ensure availability without an internet connection.

To perform a preflight data check, complete the following steps:

1. Disconnect the device from Wi-Fi and enable **Airplane Mode**. This ensures ForeFlight Mobile does not retrieve data from the Internet during the check.
2. Open **ForeFlight Mobile**, navigate to the **Airports** page, and view airports along the planned route. Verify that airport procedures are marked Saved in the **Airports** or **Maps** views.
3. Open the **Maps** view and select any en route charts required during the flight. Zoom in to destination airports and confirm that charts are sharp and not blurry.

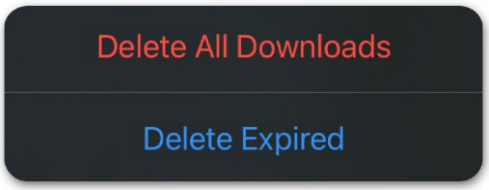
6.6 Deleting Downloads

Expired data is deleted automatically, except when no replacement data is available. In such cases, expired data remains on the device.

To delete individual downloads, swipe from right to left on the desired entry. If the deleted item is still selected in **Download Settings**, it will be queued for re-download.

To delete multiple downloads:

1. Go to **More** ➔ **Downloads**.
2. Tap **Delete**.
3. Select **Delete All Downloads** to remove all installed downloads from the device or **Delete Expired** to remove only expired data still present on the device.



6.6.1 Deleting Packed and Unselected Downloads

Charts downloaded outside of selected regions, such as those added using the Pack feature, are stored under Packed and Unselected Regions.

Deleting these charts is recommended when they are no longer needed or when device storage is limited.

6.7 Download Troubleshooting

Download time varies based on the size of the selected data. For example, downloading all available items for the United States may require approximately 10 GB, which can take significant time even over a fast Wi-Fi connection.

If a download fails, ForeFlight Mobile will automatically attempt to retry. A red error message indicates that retry attempts were unsuccessful. In this case, the download must be manually restarted.

If a download problem cannot be resolved, try the following:

- Reboot the iPad
- Switch to another Wi-Fi network or use cellular data
- Reboot the router
- Temporarily disable or delete Virtual Private Networks
- Temporarily disable or delete anti-virus applications.

SETTINGS

Settings customize the ForeFlight Mobile experience. Select **More ➔ Settings** to access the main settings view, which contains the majority of settings available for ForeFlight Mobile. ForeFlight Mobile settings do not sync between devices.

Settings specific to a feature may also be found within that feature view. For example, map-related settings can be found in the main settings menu and on the Maps view by tapping the Map Settings (gear) button. Logbook settings are exclusively available in **More ➔ Logbook ➔ Settings**.

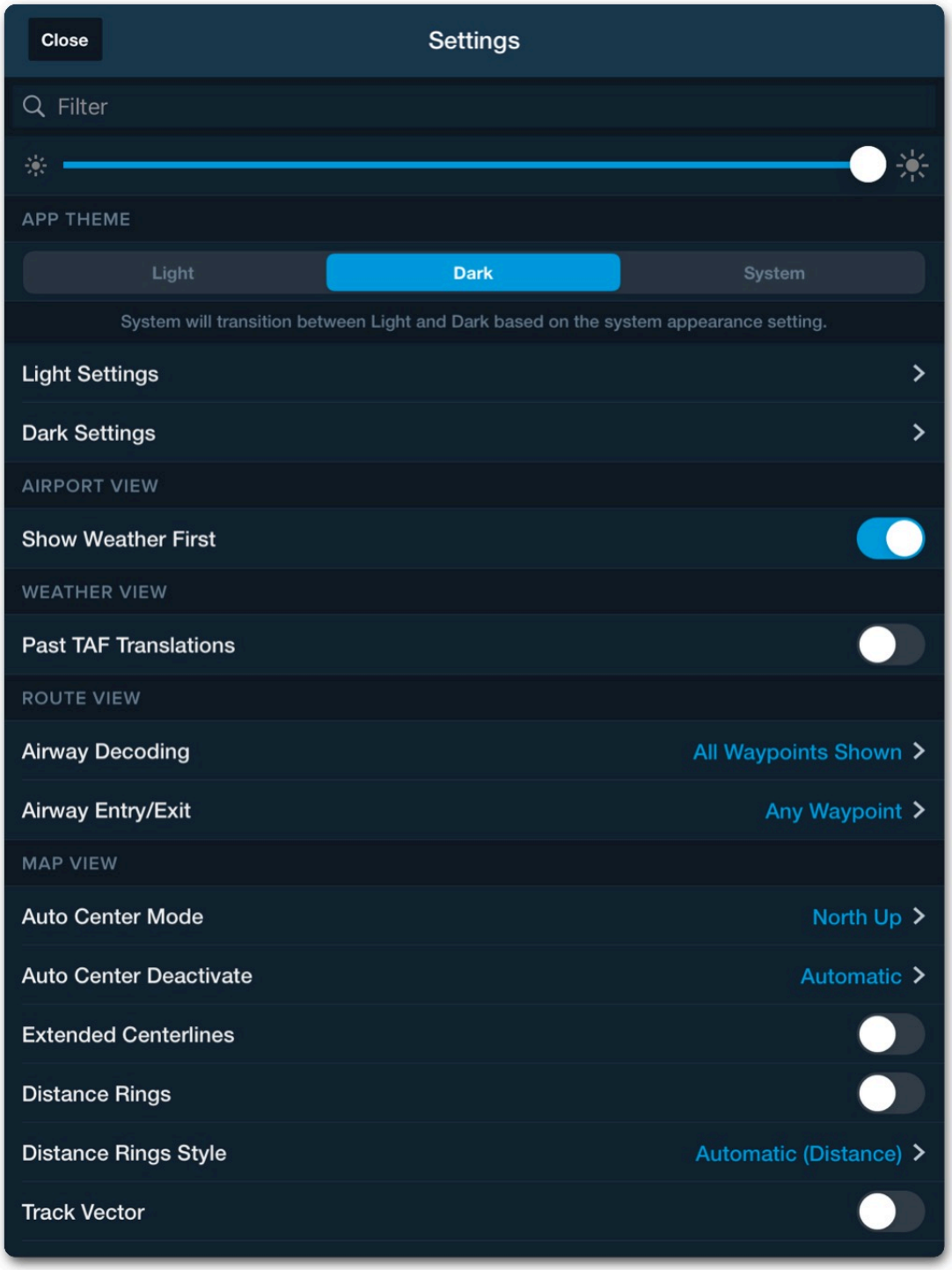


Figure 7-1. Main Settings Menu

7.1 Search Bar

The search bar near the top of the Settings menu filters the settings shown. The search bar is dynamic, and search results are updated as the term is typed. Due to the number of available settings, the use of the search bar is recommended.

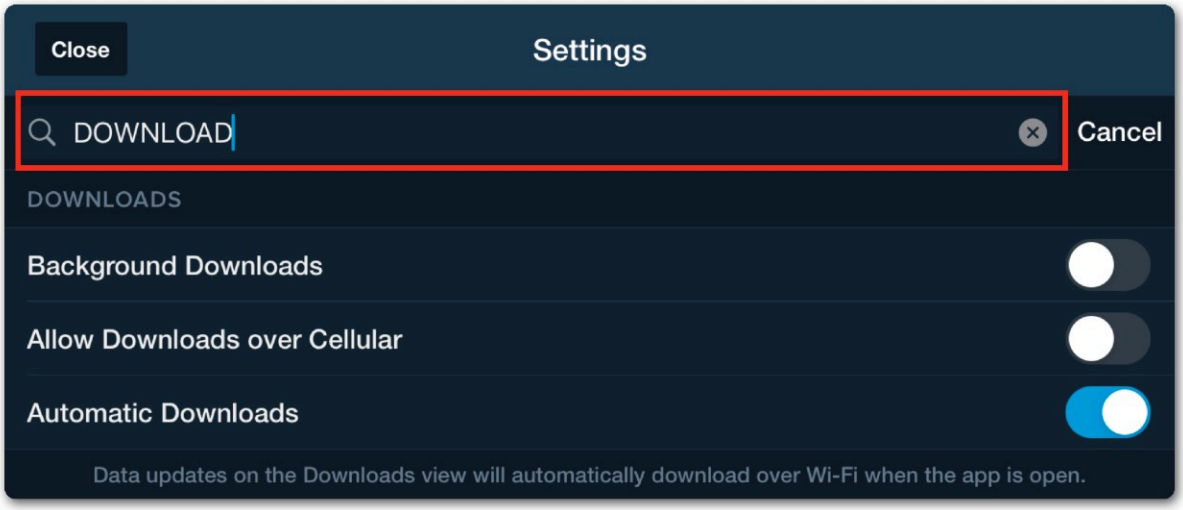


Figure 7-2. Searching for Downloads with the Search Bar

7.2 Brightness Slider

The brightness slider matches the iOS device's brightness setting and can be used instead.

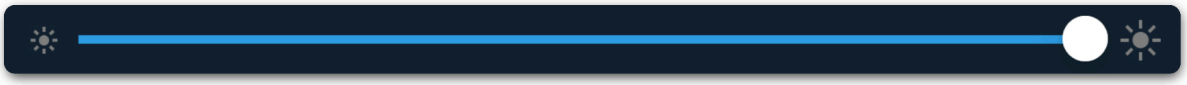


Figure 7-3. Brightness Slider

7.3 App Theme

App Theme allows users to choose between a Light, Dark, or System theme. When System theme is selected, ForeFlight Mobile automatically selects light or dark theme based on the iPad/iPhone iOS settings.

Light and dark themes provide additional settings for adjusting the individual elements within ForeFlight Mobile. For example, when the dark theme is enabled, the color of the plates can be inverted. The individual Light and Dark settings ultimately determine the appearance of ForeFlight Mobile.

7.3.1 Light and Dark Settings

Light and dark settings specify the App Color, Aeronautical Map Theme, and whether to invert the color of Plates, Charts, and Documents.

The **Light** setting results in menus with white backgrounds. The **Dark** setting results in menus with a dark blue background. The **Aeronautical Map Theme** controls whether the ForeFlight Mobile base map should be **Light** (tan), **Dark** (dark blue), or **Classic** (light brown).

Inverted plates and documents use black backgrounds and white text. When inverted colors are enabled, the colors on plates, charts, and documents are also inverted. Plates, charts, and documents can be inverted with the light or dark theme.

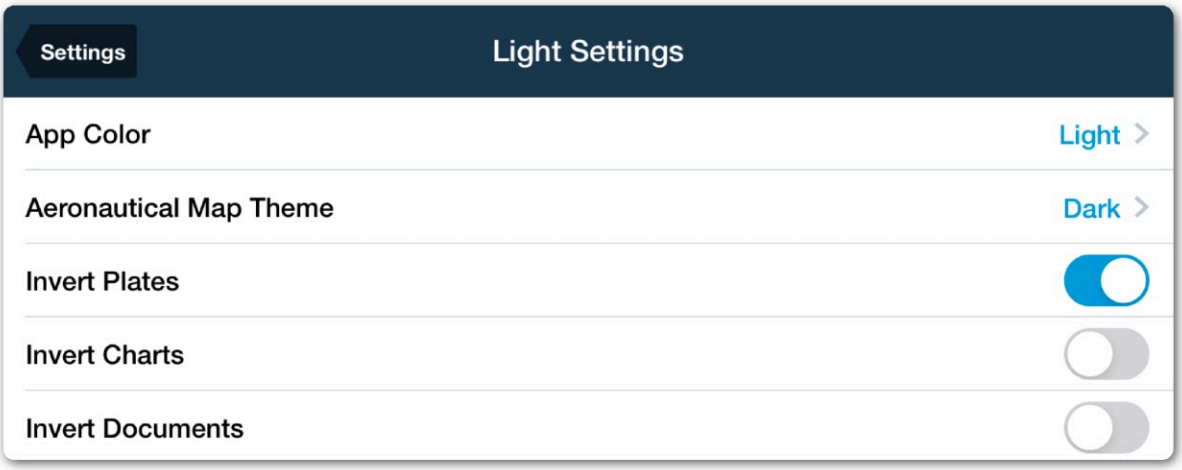


Figure 7-4. Light Settings

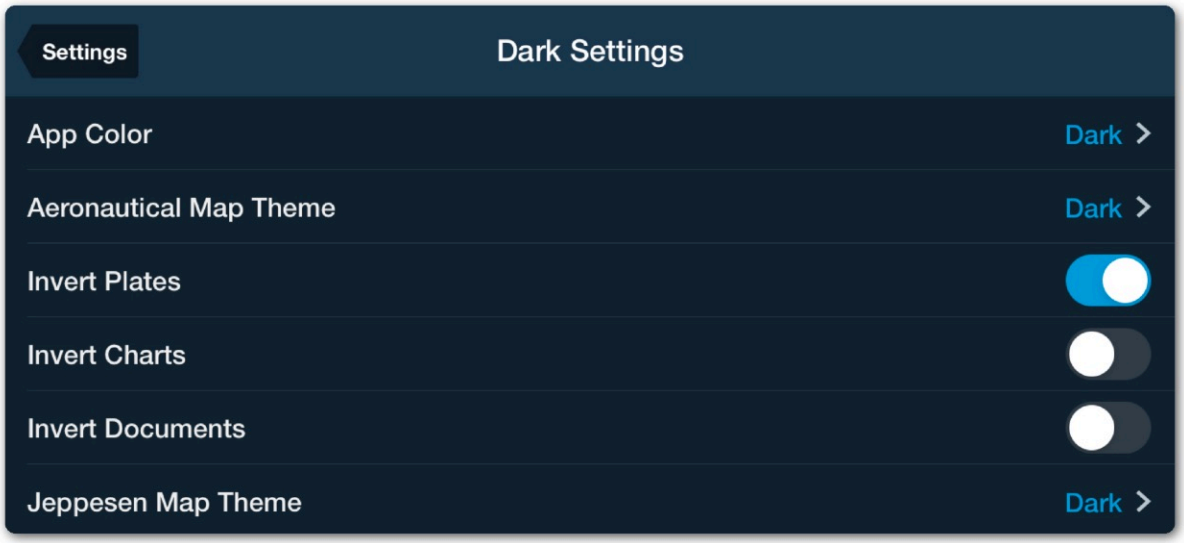


Figure 7-5. Dark Settings

7.4 Airport View

The following Airport View settings are available in the main settings menu.

7.4.1 Show Weather First

Display the airport METAR when the Airports view is selected. This setting also displays the airport METAR first in the sidebar when an Aeronautical map airport icon is tapped.

If this setting is disabled, the Airports view displays the last viewed tab, and the Maps sidebar displays the airport info tab.

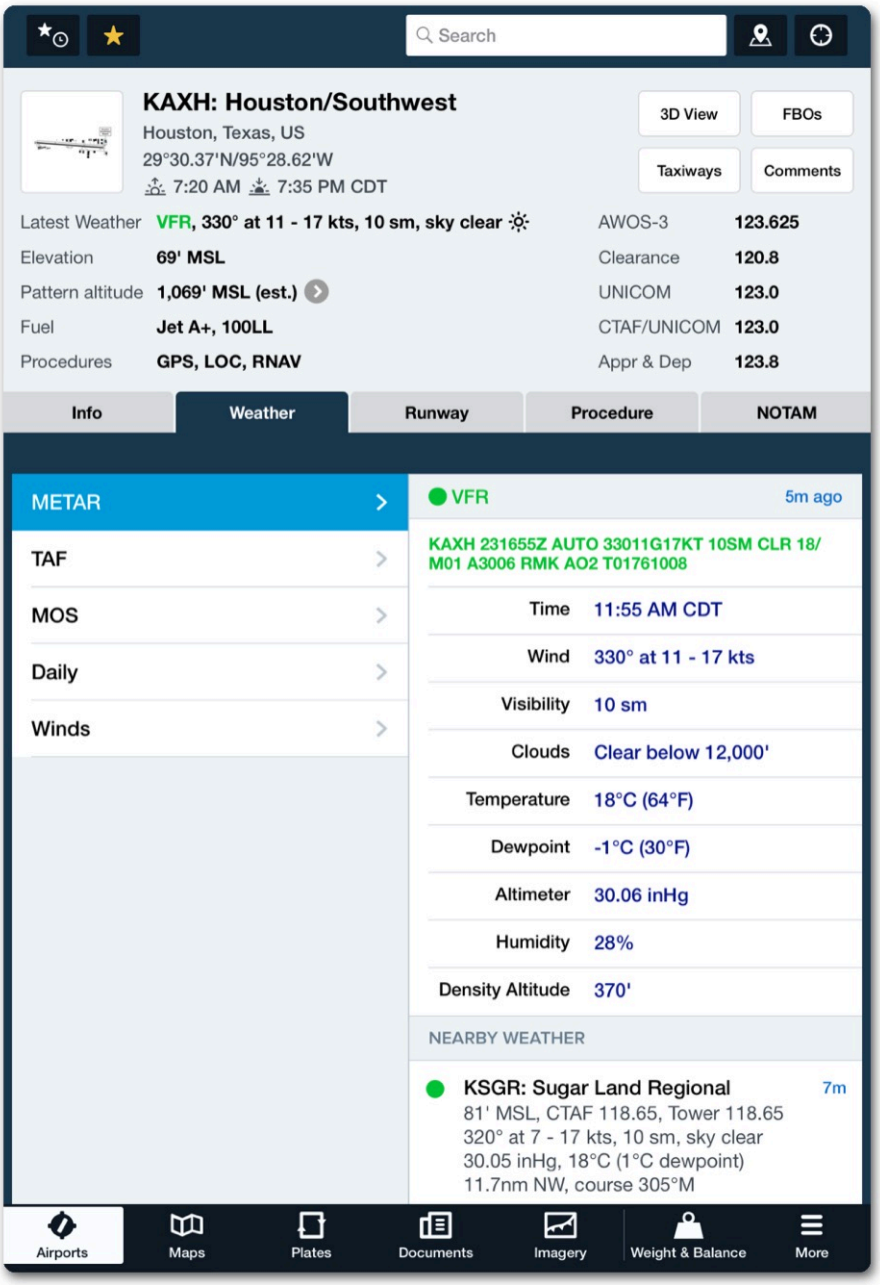


Figure 7-6. Airport View - Show Weather First Enabled

7.5 Weather View

The following Weather View settings are available in the main settings menu.

7.5.1 Past TAF Translations

Displays expired TAF forecast periods in the various weather views when enabled. When disabled, expired TAF forecast periods are hidden from view.

7.6 Route View

The following Route View settings are available in the main settings menu.

7.6.1 Airway Decoding

Select between **All Waypoints Shown** and **Bends Only**. The **Bends Only** setting hides waypoints along an airway that do not cause a course change. VORs and NDBs will always be shown in an airway. When **Bends Only** is enabled, some smart airway labels are not displayed.

7.6.2 Airway Entry/Exit

Specifies if a route should start and end at any waypoint or at a navaid when using the Route Editor.

7.7 Breadcrumbs

Breadcrumbs are a thin green line indicating the path since takeoff. The following breadcrumb-related settings are available in the Breadcrumbs section of the settings menu.

7.7.1 Breadcrumbs

Enable or disable breadcrumbs on the map.

7.7.2 Breadcrumbs Activation Altitude

Breadcrumb activation can be specified to begin displaying at a specified altitude. Altitude selections are:

- 50 feet
- 100 feet
- 250 feet.

7.7.3 Breadcrumbs Activation Groundspeed

Breadcrumb activation can be specified to begin displaying at a specified groundspeed. Groundspeed selections are:

- 0 knots
- 20 knots
- 40 knots.

7.7.4 Breadcrumbs Clear After

The Breadcrumbs Clear After setting controls the time that Breadcrumbs remain on the map after landing. If a takeoff is not detected after the last landing within the selected time, Breadcrumbs are automatically cleared from the map. Default time is 15 minutes. Time selections are:

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 4 hours.

7.8 Ownship

The Ownship section in the Settings menu provides options for customizing the aircraft icon on various ForeFlight Mobile views.

7.8.1 Ownship Marker

The **Ownship Marker** setting controls the color and shape of the aircraft position icon displayed in the Maps, Track Logs, and Plates views. If the aircraft icon is not visible, ensure that Ownship display is enabled as described in Enable Ownship.

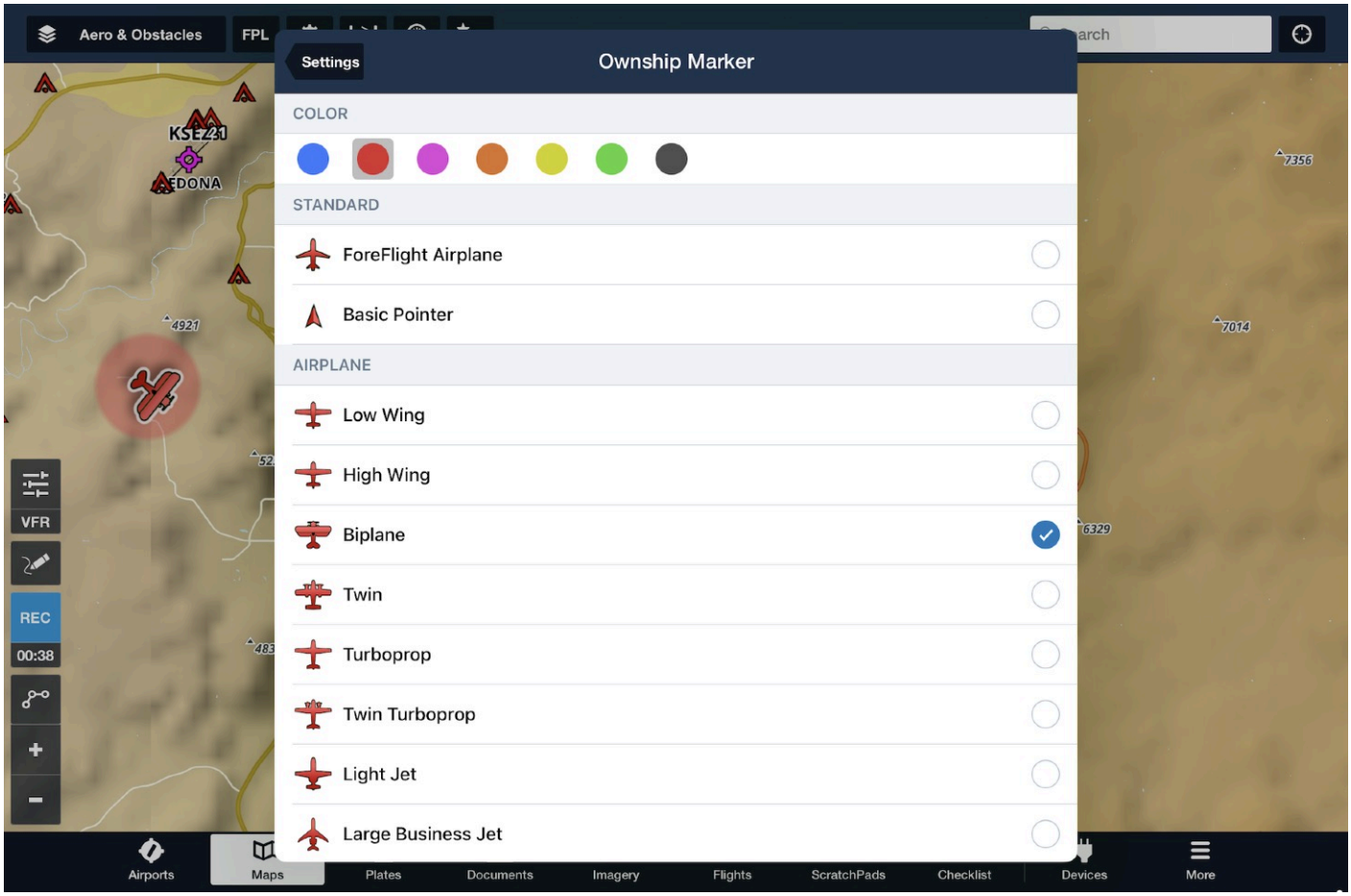


Figure 7-7. Aircraft Position Icon: Setting Color and Shape

7.8.1.1 Color

The Color section sets the color of the aircraft icon and its animated position pulse. The default color is **blue**. Changes apply to the icon in the Maps and Plates views.

7.8.1.2 Standard, Airplane, Rotorcraft, Other

Selecting an option in the STANDARD, AIRPLANE, ROTORCRAFT, or OTHER sections sets the shape of the aircraft icon. The default shape is the ForeFlight Airplane. Additional shape options may be selected to match different aircraft profiles.

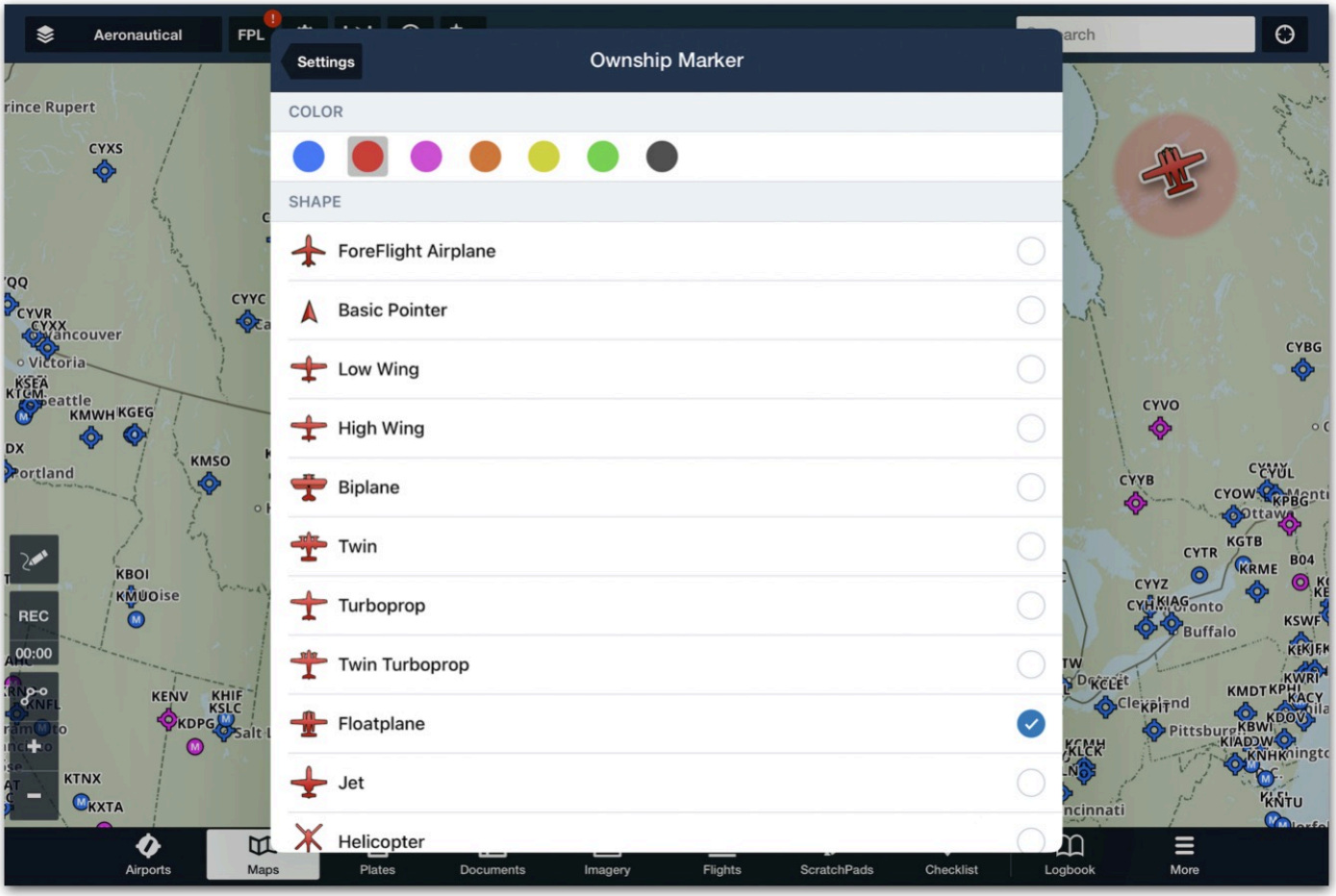


Figure 7-8. Aircraft Position Icon: Setting Color and Shape

7.8.2 Ownship Distance Rings

The Ownship Distance Rings setting displays concentric rings around the position on the map representing distance or time from the aircraft. If a time-based distance ring has been selected, the aircraft must be moving greater than 10 knots to display the rings.

Green triangles on the rings indicate the current ground track. Black labels on each ring display the distance or time from the aircraft. These labels always display to the right of the aircraft between the two and three o'clock positions.

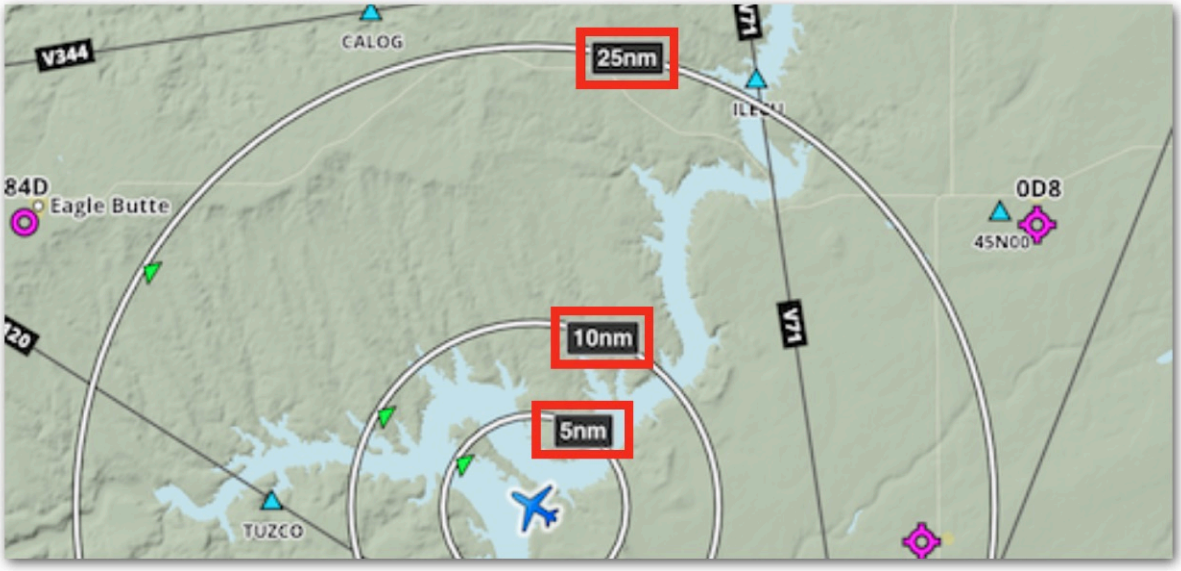


Figure 7-9. Distance labels are displayed off the starboard wing.

7.8.3 Ownship Distance Rings Style

Ownship Distance Rings can display distance by time (minutes) or length (NM or km). To set the preferred style, with Ownship Distance Rings showing on the map, tap a ring label to reveal the sidebar. Select the preferred type from the list. Alternatively, go to **More ➔ Settings ➔ Ownship Distance Ring Styles**. When any Automatic style is selected, ring scales adjust automatically as the map is zoomed in or out.

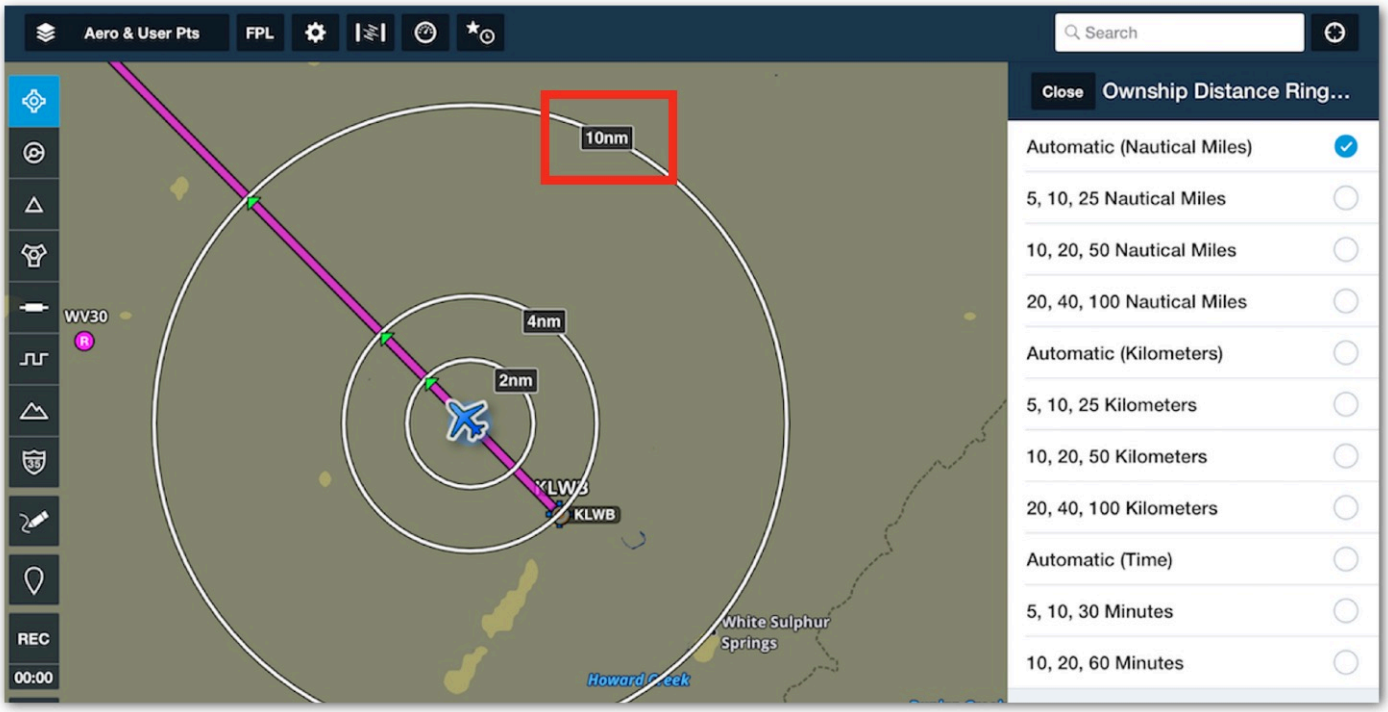


Figure 7-10. Tap a ring label to reveal the style slide-over.

7.8.4 Enable Ownship

Enable Ownship specifies when the GPS location is displayed.

> **Always**
>
> Displays the location on the map when GPS accuracy is 100 meters or better. The location marker is hidden if GPS accuracy is worse than 100 meters.
>
> ForeFlight displays a dot with a pulsing halo when no motion is detected. When motion is detected, ForeFlight displays the selected current location marker oriented in the direction of the ground track with the pulsing halo.
>
> Aircraft position is also displayed on approach plates and airport diagrams with an Essential or higher subscription.
>
> When Always is selected, location is displayed on plates with a pulsing halo if GPS accuracy is 25 meters or better. If GPS accuracy exceeds 25 meters, the pulsing halo is hidden from plates. If GPS accuracy exceeds 100 meters, the location marker and pulsing halo are hidden.
>
> The location marker is hidden if GPS data is not received for 20 seconds.

> **Never**
>
> Hides the location marker on maps and plates at all times.

> **Limited**
>
> Hides the location marker when GPS location accuracy degrades below 50 meters on the ground, 200 meters in the air, or if GPS data has not been received within the past 5 seconds.
>
> - In Flight, the location marker is displayed when the speed is more than 80 knots.
> - The Airport Map displays the location marker when the speed is less than 80 knots.

> **NOTE:** When ownship is disabled, ownship-related settings (auto-center, breadcrumbs, distance rings, track vector, etc.) are also automatically disabled.

7.8.5 Ownship Not For Navigation

When enabled, this setting adds an **Ownship not for navigation** label to the top right corner of the Maps view and top left corner of the Plates view.

7.9 Map View

Map-related settings are available in the Map View section of the main settings menu.

7.9.1 Auto Center

Auto Center Mode determines map orientation. The map can be oriented north up or track up. **Track Up Centered** and **Track Up Forward** require the map to be centered on ownship location with detectable motion.

With Ownship enabled, tap the auto-center (crosshairs) button in the upper toolbar to center the map on the current location. When auto-center is enabled, the button is highlighted. If the map is not centered on the current location, the map will orient north up.

7.9.2 Auto Center Deactivate

Auto Center Deactivate controls if the map can be panned without first manually disabling auto center. The **Automatic** setting disables auto-center when the map is panned. The **Manual** setting requires deactivation of auto-centering by first tapping on the auto center button, enabling panning.

7.9.3 Extended Centerlines

Extended Centerlines control whether extended runway centerlines are displayed on the map. Extended centerlines are proportional to the runway length. For every 1000 feet of runway, ForeFlight Mobile shows a 1 NM extended centerline. For example, a 5000-foot runway displays a 5 NM extended centerline.

Extended centerlines are only depicted for the runways at the airports in the route.

An extended centerline runway label can be tapped to display information about the runway, including winds, length, surface type, lighting, elevation, and associated procedures.

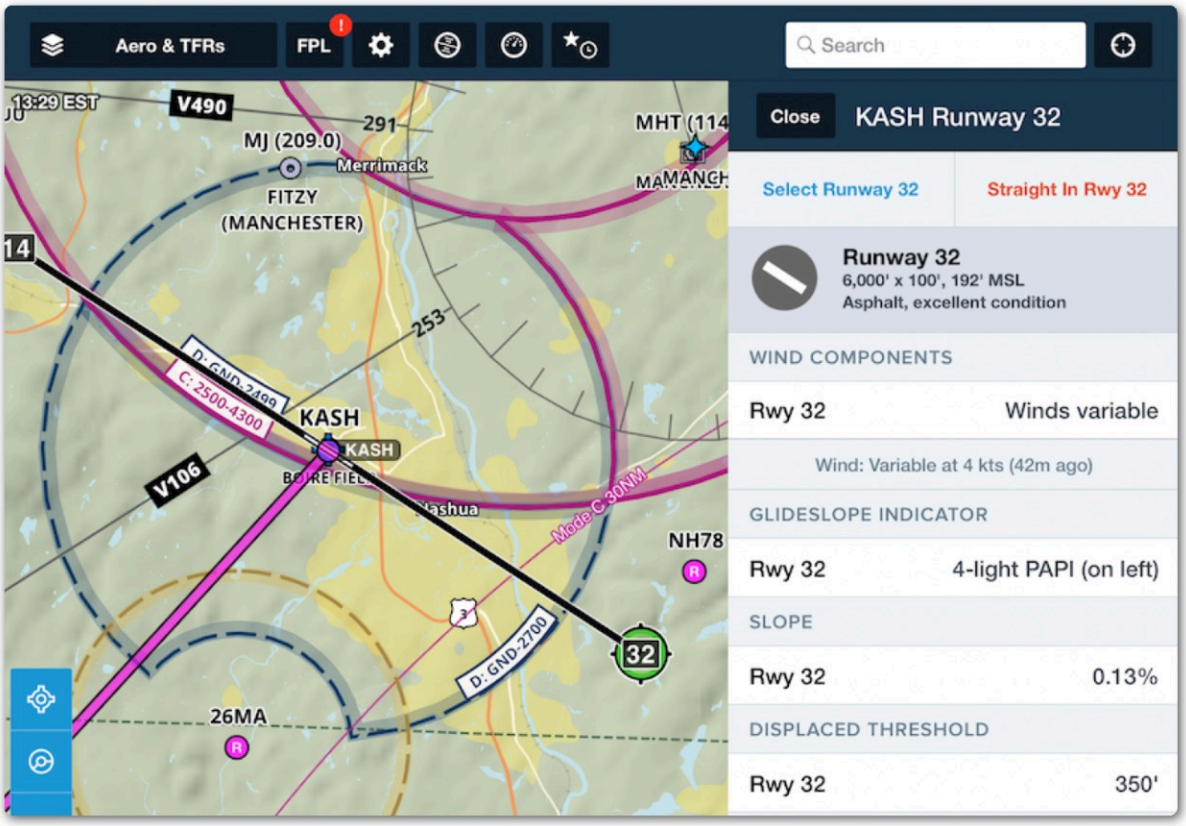


Figure 7-11. Extended Centerlines

7.9.4 Track Vector

Track Vector displays a vector (line) in front of the aircraft icon. The track vector length is set in the main settings menu.

7.9.5 Track Vector Length

The Track Vector Length setting controls the length of the track vector based on a specified distance (in nautical miles) or the distance that will be covered given the current speed and specified amount of time (in seconds or minutes).

While the track direction is changing at more than two degrees-per-second (i.e., the aircraft is turning), the track vector changes to a curve in the direction of the turn.



Figure 7-12. Track Vector in a Turn

7.9.6 Route Labels

Route Labels control whether the waypoints in the route have labels on the map. Labels are dynamic and will adjust to prevent overlapping. Route labels must be enabled to display approach procedure waypoints and minimum descent altitudes.

7.9.7 Hazard Settings

The Hazard Settings menu controls the behavior of the Hazard Advisor, Profile View, and Profile Corridor, all of which require an Essential or higher subscription. There are four hazard-related settings: Activation Speed, Hazard Altitudes, Corridor Activation, and Corridor Width.

7.9.7.1 Displaying Hazard Settings

The Hazard Settings menu can be displayed in one of the following ways:

- **Navigation Toolbar**: In the Navigation Toolbar, tap **More ➔ Settings**. Scroll down to the Map View list and tap **Hazards**.
- **Map Layer Selector**: On the **Maps** view, tap the **Map Layer Selector**. Select the **Hazard Advisor** layer, and tap the **settings (gear) button** to the right of the Map Legend at the bottom of the screen.
- **Map Profile View**: On the **Maps** view, tap **FPL** to open the Route Editor. Tap **Profile** to open the Profile view, and tap the **settings (gear) button** on the bottom edge of the Profile view drawer.

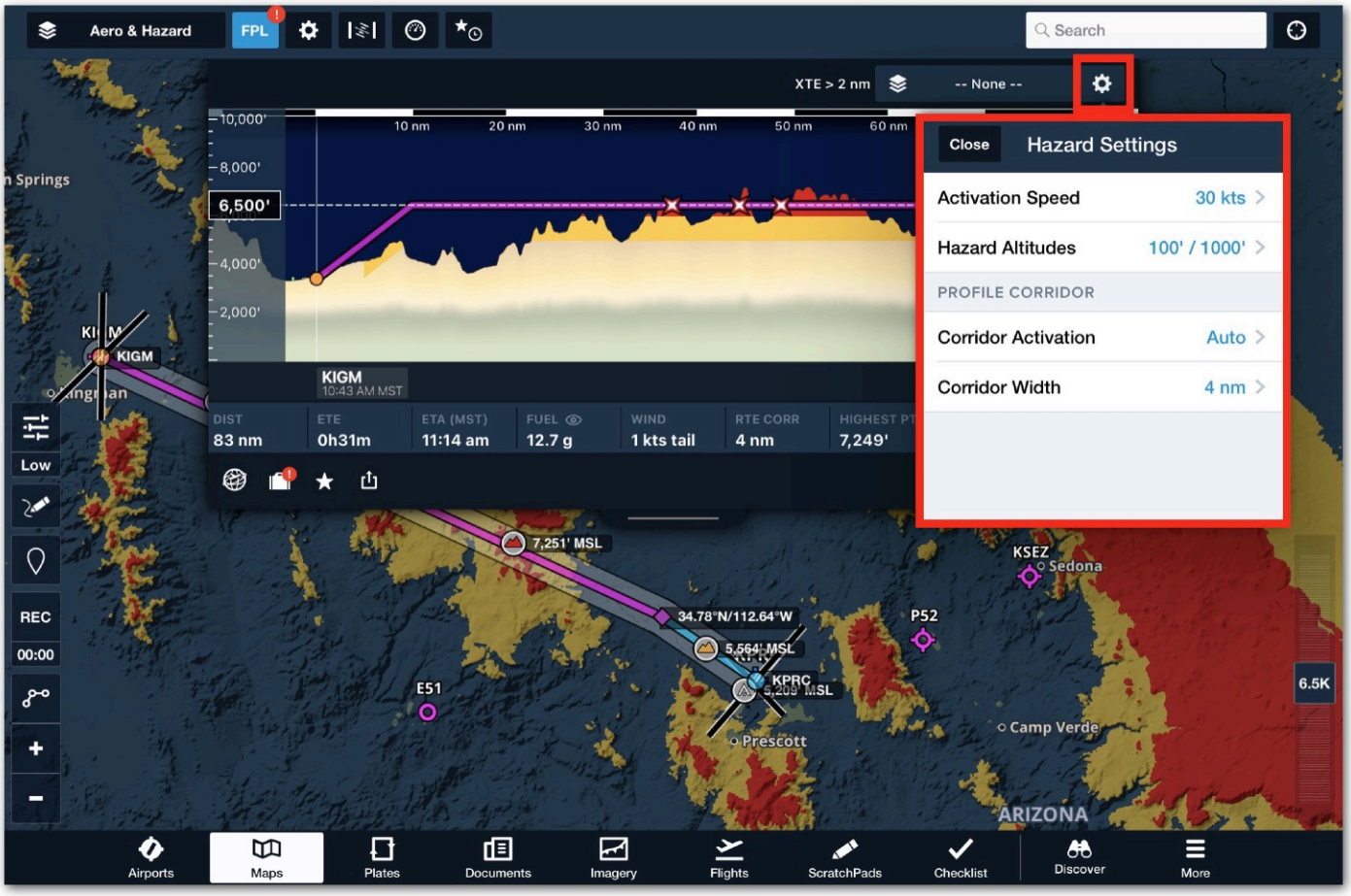


Figure 7-13. Hazard Settings - Map View

7.9.7.2 Activation Speed

This setting controls when the selected Hazard Advisor altitude automatically changes to the current GPS altitude of the device.

7.9.7.3 Hazard Altitudes

This setting controls the red and yellow coloration given to hazardous terrain and obstacles on the Hazard Advisor map layer and Profile View. By default, the **Normal** configuration colors terrain and obstacles yellow if they are within 1,000 ft below the aircraft and red if they are within 100 ft below the aircraft. However, there are three additional configurations for different helicopter operations.

7.9.7.4 Corridor Activation

This setting controls when the Profile Corridor appears around the route line: **Show** (always), **Hide** (never), or **Automatic** (whenever the Profile View or Hazard View is displayed).

7.9.7.5 Corridor Width

This setting controls the area around the aircraft or the entire route inside which obstacles presenting a collision risk are displayed. Changing this setting has the following effects:

- The Profile Corridor, if enabled, expands or contracts around the route line according to the Corridor Width. This may change the highest-point markers displayed along each leg.
- On the Hazard Advisor map layer, when the Profile Corridor is active, Corridor Width determines how far from the route centerline hazardous obstacles are displayed on the map.
- On the Profile View, terrain and obstacles within half the distance of the selected Corridor Width are shown. For example, when the width is 8 NM, obstacles and terrain 4 NM on either side of the route centerline are depicted in the Profile View.
- On the Profile View, the current Corridor Width is displayed as the "Route Corridor” value in the top right corner.

7.9.8 Map Touch Action

Map Touch Action controls the behavior of IFR and VFR charts. This setting is only available when an IFR or VFR en route chart is selected.

> **No Action**
>
> Results in no map overlap changes when tapping on the map.

> **Bring chart to front**
>
> Moves the chart to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.

> **Bring chart to front with legends**
>
> Moves the chart, chart legend, and chart border to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.

7.9.9 Cockpit Sharing

Cockpit Sharing allows sharing routes between devices running ForeFlight Mobile when connected to the same Wi-Fi network.

7.9.10 Show Annotations on Map

Show Annotations on Map determines if terminal procedure plate or airport diagram annotations are displayed on a plate when sent to Maps. This setting is also available on the Maps view. Tap the plate when depicted on the map to enable/disable **Show Annotations**.

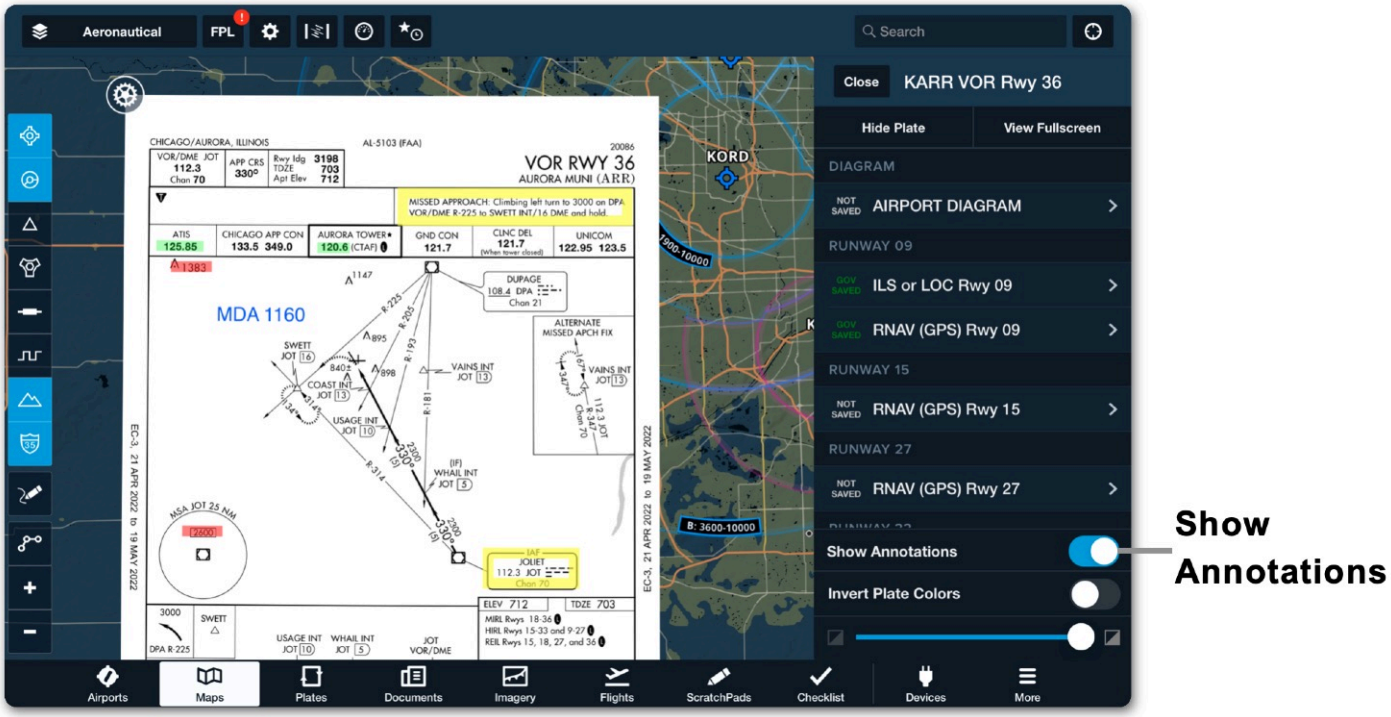


Figure 7-14. Approach Plate with Annotations

7.9.11 Auto-Receive Panel Flight Plans

Auto-Receive Panel Flight Plans loads new routes from connected Garmin navigators without user input. When disabled, new routes generate a pop-up notification with an option to load into ForeFlight Mobile.

7.9.12 Four-color Radar

Four-color Radar enables radar in a low-resolution, four-color scheme that complies with dBZ-to-color mapping standards defined by the Radio Technical Commission for Aeronautics.

7.9.13 Reported Turbulence Max Age

Limits the maximum age of reported turbulence to 2, 4, or 6 hours.

7.9.14 Internet Radar Coverage

Internet Radar Coverage displays the area of available radar coverage while connected to the Internet. Areas without coverage display a transparent mask with hash marks and “Radar not available” labels.

7.9.15 Show Map Legend

The Show Map Legend setting displays a legend at the bottom of the Maps view when any of the following layers are selected.

- Radar
- Enhanced Satellite
- Hazard Advisor
- Color IR Satellite
- Icing and Turbulence
- Clouds
- Winds (Temps/Speeds)

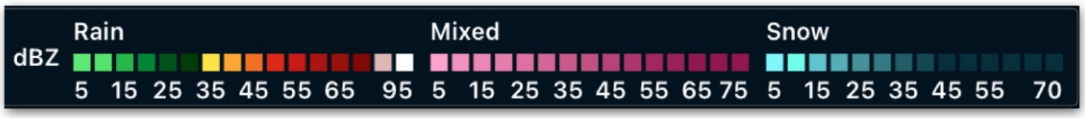


Figure 7-15. Map Legend (Radar)

7.9.16 Marked Positions

Marked Positions display a button on the left side of the Maps view. Tap the button to drop a green position marker at the current location. See Marked Positions for additional information.

7.9.17 NOTAMs Settings

The NOTAMs Settings control filtering options based on time of activation and Notice to Air Missions (NOTAMs) type. These settings are available only when the NOTAMs map layer is enabled.

The **Show NOTAMs Within** setting controls the display of upcoming NOTAMs. Available time intervals range from 2 hours to 48 hours, in 1-hour increments.

The options in the CUSTOMIZE NOTAMS section allow filtering of specific NOTAM types for display.

For additional details, refer to the NOTAMs section.

7.9.18 LSALT Calculator

Enables LSALT calculations in the FPL NavLog and in Route Leg Details.

7.10 Layer Selector

The LAYER SELECTOR section provides configuration options for the **Maps** view layer selector.

7.10.1 Multiple Selections

Multiple Selections keeps the map's layer selector open while selecting various map layers. Tap outside the layer selector to close it.

7.10.2 Auto Zoom to Custom Content

Auto Zoom to Custom Content adjusts the map's zoom level and positioning to display the entire custom content map layer when selected.

7.11 Annotations

Annotations settings in the main settings menu control how annotation tools appear and behave across supported views.

7.11.1 Show Control

Show Control enables the display of the annotation button on the left side of the **Maps** view.

7.11.2 Auto Apple Pencil Drawing

Auto Apple Pencil Drawing automatically activates annotations on the Maps, Documents, and Plates views when touching the screen with an Apple Pencil.

7.11.3 Annotations Timeout

Annotations Timeout specifies the amount of time before annotation mode is automatically disabled. Screen touches with an Apple Pencil, stylus, or finger reset the annotation timeout countdown.

7.12 Checklist

Checklist settings in the main settings menu configure audio playback for checklist items.

7.12.1 Speak

Speak reads the Challenge or Challenge & Response portion of a checklist aloud.

7.13 Traffic

Traffic settings in the main settings menu control the display of ADS-B and FLARM traffic on the map.

7.13.1 Hide Distant Traffic (ADS-B/FLARM)

Hide Distant Traffic (ADS-B/FLARM) hides traffic that is more than 15 nautical miles away or 3,500 ft above or below the current GPS position when connected to an ADS-B or FLARM receiver.

7.13.2 Traffic Breadcrumbs (ADS-B/FLARM)

Traffic Breadcrumbs (ADS-B/FLARM) displays breadcrumbs for traffic targets that have been tapped. Requires an Essential or higher subscription and a connected ADS-B or FLARM receiver. See Traffic Breadcrumbs for more information.

7.14 Search and Rescue

Search and Rescue (SAR) settings in the main settings menu control the display and labeling of SAR features. For additional information, see the ForeFlight Search and Rescue Guide in **Documents ➔ ForeFlight**.

7.14.1 SAR Features

SAR Features enables the SAR grid layers and SAR patterns.

7.14.2 SAR Waypoints as Lat/Lon

SAR Waypoints as Lat/Lon displays SAR pattern waypoint labels as latitude/longitude instead of SAR-01, SAR-02.

7.15 Downloads

Downloads settings in the main settings menu control how ForeFlight Mobile manages data updates and connectivity. For additional details, refer to the Downloads chapter.

7.15.1 Background Downloads

Background Downloads allows downloads to continue while ForeFlight Mobile is running in the background. When enabled, all pending downloads proceed simultaneously. When disabled, ForeFlight Mobile must remain open, and downloads are limited to four at a time.

7.15.2 Automatic Downloads over Cellular

Automatic Downloads over Cellular allows downloads to be completed using cellular data. Recommended only for devices with unlimited data plans.

7.15.3 Automatic Downloads

Automatic Downloads allows ForeFlight Mobile to automatically download updates when available and when the device is connected to the Internet.

7.16 Pack

Pack settings in the main settings menu control how ForeFlight Mobile checks for missing data along a planned route. See the Pack section for more information.

7.16.1 Enable Auto-Check

Enable Auto-Check automatically evaluates whether downloads are needed based on the planned route. When enabled, Pack displays a red exclamation badge when a new route is planned. When disabled, Pack evaluates the route only when the **Pack (suitcase) button** is tapped. This setting does not automatically download data. Auto-check only determines whether new data is available for the planned route.

7.17 Track Log

Track Log settings control how flight recordings are initiated and managed. For more information, see the Track Logs chapter.

7.17.1 Enable Start/Stop Control

Enable Start/Stop Control displays the Track Log record (REC) button and timer in the bottom-left corner of the Maps view. Tapping the REC button starts or stops a track log recording.

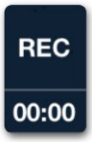


Figure 7-16. Track Log Record Button

7.17.2 Enable Auto Start/Stop

Enable Auto Start/Stop automatically records Track Logs. A Track Log begins when ForeFlight Mobile is open and detects a takeoff, which is defined as an accelerating climb at a groundspeed greater than 40 kts. The Track Log ends when a landing is detected.

7.18 Flights

Flights settings in the main settings menu configure briefing formats and fuel order options.

7.18.1 Briefing Format

Briefing Format specifies the type of briefing generated for the device: Graphical HTML (U.S. only) or Graphical PDF (International). Flights outside the United States default to the Graphical PDF format.

7.18.2 Enable Fuel Orders

Enable Fuel Orders displays the Fuel Order field on the Flights view. This field is used to create and send fuel orders to the destination FBO before the flight. Requires a Performance tier subscription.

7.19 Taxi Diagram

Taxi Diagram settings in the main settings menu control how airport diagrams are displayed upon landing.

7.19.1 Auto Show Taxi

Auto Show Taxi displays the landing airport taxi diagram automatically after landing.

7.19.2 Show Taxi on Map

Show Taxi on Map displays the landing airport taxi diagram on the Maps view. When disabled, the diagram is displayed in the Plates view instead. Requires an Essential plan or higher.

7.20 Preferences

The Preferences section in the main settings menu includes general configuration options for alerts, units, data syncing, and display behavior.

7.20.1 Alerts

Alert settings control the display and audio behavior of in-app alerts. All alerts appear visually and may also be played audibly. For detailed information regarding Alerts, see the Alerts chapter.

> **Speak All Alerts**
>
> Plays alerts audibly via the device speaker or a connected headset. A confirmation message is played when toggled. Use the device volume buttons to adjust volume.

GENERAL (Alerts)

> **500' AGL Alerts**
>
> Activated when descending through 500 ft above ground level (AGL) after previously being above 1,000 ft AGL.

> **Cabin Altitude Alerts**
>
> Triggered when cabin pressure altitude reaches supplemental oxygen thresholds, including 12,000 ft and 25,000 ft mean sea level (MSL).

> **Transition Altitude Alerts**
>
> Triggered when climbing or descending through 18,000 ft MSL in the United States or Canada, or through the local transition altitude in Europe.

> **Runway Proximity Alerts**
>
> Uses GPS position and defined runway safety areas to alert when approaching or entering a runway environment.

> **Runway Final Approach Alerts**
>
> Triggered when descending toward a runway on final approach.

Sink Rate Alerts

Triggered when the descent rate exceeds a predefined limit based on altitude above ground level (AGL). The threshold for alerting decreases with altitude, triggering sooner at lower altitudes.

- Above 2,500 ft AGL, or when AGL is not known, the alert is triggered if the descent rate exceeds 3,500 feet per minute (FPM).
- Between 2,500 ft AGL and 500 ft AGL, the trigger threshold decreases linearly from 3,500 FPM to 1,500 FPM.
- At or below 500 ft AGL, the alert is triggered if the descent rate exceeds 1,500 FPM.

GPS Interference Alerts

Notifies of detected GPS signal interference or degradation, which may affect positional accuracy. See GPS Cross-Check for details on verifying signal quality.

Terrain/Obstacle Alerts

Triggers an app-wide pop-up alert when hazardous terrain or obstacles are detected along the flight path. These alerts are disabled by default.

Device Temperature Alerts

Indicates that the device is at risk of overheating and may shut down if temperature continues to rise.

Unusual Attitude Alerts

Alerts when aircraft pitch or bank angles exceed selected thresholds, indicating a potential upset or abnormal attitude.

AIRSPACE & NOTAMS (Alerts)

Airspace Alerts

Provides app-wide airspace-related alerts when approaching, entering, and exiting airspace when above 1,000 ft AGL. This setting is enabled by default,

Include Radio Frequencies

Shows ATC frequencies with the Airspace Alert.

> **Altitude Buffers**
>
> Specifies the altitude proximity above or below the airspace required to trigger an alert. The default buffer is 500'.

> **Airspace Alert Range**
>
> Specifies how far in advance an Approaching Airspace Alert is triggered. The default Alert Range setting is 3 NM. Additional distance (in NM) and time-based options exist.

> **Airspace Alert Types**
>
> Specifies the type of airspace which will trigger alerts. All airspace types are enabled by default. An alert will not be issued if an airspace type is not listed.

DEVICES (Alerts)

> **Device Disconnect**
>
> Triggers an alert if the Bluetooth or Wi-Fi connection to a supported portable or panel-mounted device is lost.

> **Flight Plan Auto Update**
>
> Triggers when ForeFlight receives a flight plan from a supported avionics Navigator.

> **Connected Portable Device Low Battery**
>
> Displays a low-battery alert when a connected portable device reaches 20% remaining battery.

ROUTE BASED (Alerts)

> **Destination WX Frequency Alerts**
>
> Provides the destination airport's weather frequency (ATIS, AWOS, or ASOS) while approaching the airport.

TRAFFIC (Alerts)

> **Airborne Traffic Alerts**
>
> Notifies when airborne traffic is detected that may cross the flight path or enter close proximity.

Traffic on Runway Alerts

Notifies when another aircraft is detected on the runway that is in use for landing.

Traffic On Short Final Alerts

Notifies when traffic is on short final approach to the same runway that is being used or approached.

Wake Turbulence Alerts

Calculates and alerts to possible wake turbulence conditions based on the position and class of nearby traffic. Displays the estimated wake hazard area when applicable.

7.20.2 Units/Time

The Units/Time menu in the main settings menu defines how time, distance, speed, temperature, and other values are displayed throughout ForeFlight.

Times

Sets the timezone format for displayed time values:

- **Local Time**. Uses the device's current timezone.
- **Station Time**. Uses the timezone of the referenced weather station or airport.
- **Zulu Time**. Displays time in Coordinated Universal Time (UTC/GMT).

Wind Speed

Selects wind speed units: Knots, Miles per hour, or Meters per second.

Pressure

Selects pressure units: Inches of mercury or hPa/millibars.

Temperature

Sets the temperature unit: Celsius, Fahrenheit, or Automatic.

- In Automatic, temperatures from official aviation sources (e.g., METARs, TAFs) are displayed in Celsius.
- Non-aviation sources (e.g., daily forecasts) follow the iOS device's temperature format setting.

Visibility

Selects visibility units: Statute miles or Kilometers.

Coordinates

Specifies how geographic coordinates are formatted:

- DD.ddº. Degrees and hundredths of degrees.
- DDºMM.mm. Degrees and minutes with hundredths of minutes.
- DDºMM'SS". Degrees, minutes, and seconds.
- MGRS 6-/8-/10-digit. Military Grid Reference System with selectable precision.

Aircraft Speed

Sets airspeed and groundspeed units: Knots, Miles per hour, or Kilometers per hour.

Distance

Sets distance units: Nautical miles, Statute miles, or Kilometers.

Decimal Precision

Controls how distance values are displayed in the Instrument Panel and to the XTRK (Cross-Track Error) value displayed in Synthetic Vision.

- **Standard**: Distances 10 or greater are displayed as whole numbers. Distances less than 10 are displayed with one decimal place.
- **Extended**: Distances 10 or greater are displayed with one decimal place. Distances less than 10 are displayed with two decimal places.

Altitude Instruments

Sets the unit of measurement for instruments displaying GPS altitude, climb gradient, and other altitude-related data.

Bearing and Track Instruments

Specifies whether instruments such as the Ruler, Synthetic Vision, and Map Instruments reference magnetic north or true north.

Runway Length

Selects the unit for runway lengths: Feet or Meters.

Precip Amount.

Sets the precipitation unit for daily weather reports. The Automatic setting uses the iOS region format.

7.20.3 Allow Device to Sleep

When enabled, the iPad or iPhone is allowed to sleep after a period of inactivity. The auto-lock duration is determined by the device's iOS settings. Disable this setting to prevent the device from entering sleep mode while ForeFlight Mobile is active in the foreground.

7.20.4 Automatic Clock Check

Verifies that the system time on the device is accurate. If the time is incorrect, an alert is displayed. Accurate system time is required for many features in ForeFlight Mobile. Enabling this setting is recommended.

7.20.5 Show Heliports

Displays heliports on the map when the Aeronautical Map layer is enabled. Also determines whether heliports appear in the nearby airports list.

7.20.6 Show Private Airports

Displays private airports on the map when the Aeronautical Map layer is enabled. Also determines whether private airports appear in the nearby airports list.

7.20.7 Show Aviation Keyboard

Enables the aviation-optimized keyboard for use in applicable fields. See Aviation Keyboard for additional details.

7.20.8 Start on Last Screen

When enabled, ForeFlight Mobile opens to the last view used when the app was closed. If disabled, ForeFlight Mobile defaults to opening on the Airports view.

7.20.9 Enable Diagnostic Logs

Records diagnostic information used by the ForeFlight Pilot Support Team for troubleshooting. This setting is enabled by default and should remain enabled unless otherwise directed. Disabling this feature may limit support capabilities.

7.20.10 Performance Logging Level

Used to diagnose performance issues in the app. Do not change this setting from zero unless specifically instructed by the ForeFlight Pilot Support Team. Non-default values may impact app performance.

7.20.11 Sync Data To/From Device

Controls synchronization of supported data types across devices signed in to the same ForeFlight account. This setting is unique to each device.

- Aircraft Profiles
- Favorite / Recent Routes
- Favorite Airports
- Documents (including document annotations)
- ScratchPads
- Briefings
- Navlogs
- Track Logs
- User Waypoints
- Logbook
- Weight & Balance
- Flights (including messages and attached files)
- Checklists

> **NOTE:** Custom content (such as custom map layers and Content Packs) and plate annotations are not synced across devices.

7.20.12 Sync Large Files on Expensive Wi-Fi

Allows large files, such as documents, to sync when connected to Wi-Fi networks marked as expensive (e.g., metered or captive networks).

7.21 Weight and Balance

Weight and Balance settings in the main settings menu configure default values used in weight and balance calculations.

7.21.1 Standard Weights

The Standard Weights (lbs) setting defines the default weights used for passenger and crew entries. These values are applied when using standard weight inputs for weight and balance calculations.

> **lbs or kg**
>
> Determines the weight unit used for Standard Weights.

> **Male Average Weight**
>
> Sets the default weight for a male passenger or crew member.

> **Female Average Weight**
>
> Sets the default weight for a female passenger or crew member.

> **Children Average Weight**
>
> Sets the default weight for a child.

> **Standard Deviation**
>
> Defines the expected variance from the standard weights. This value is applied only when using the standard weights curtailment option, which requires a Business or Military Flight Bag (MFB) subscription.



Figure 7-17. Standard Weight Settings

MAP SETTINGS

Settings that are specific to the **Maps** view are accessed through the map settings menu. Tap the **settings (gear) button** in the upper toolbar of the Maps view to open map settings.

Adjustments made in the Maps view are automatically reflected in the main settings menu on the same device. However, map settings do not sync between devices.

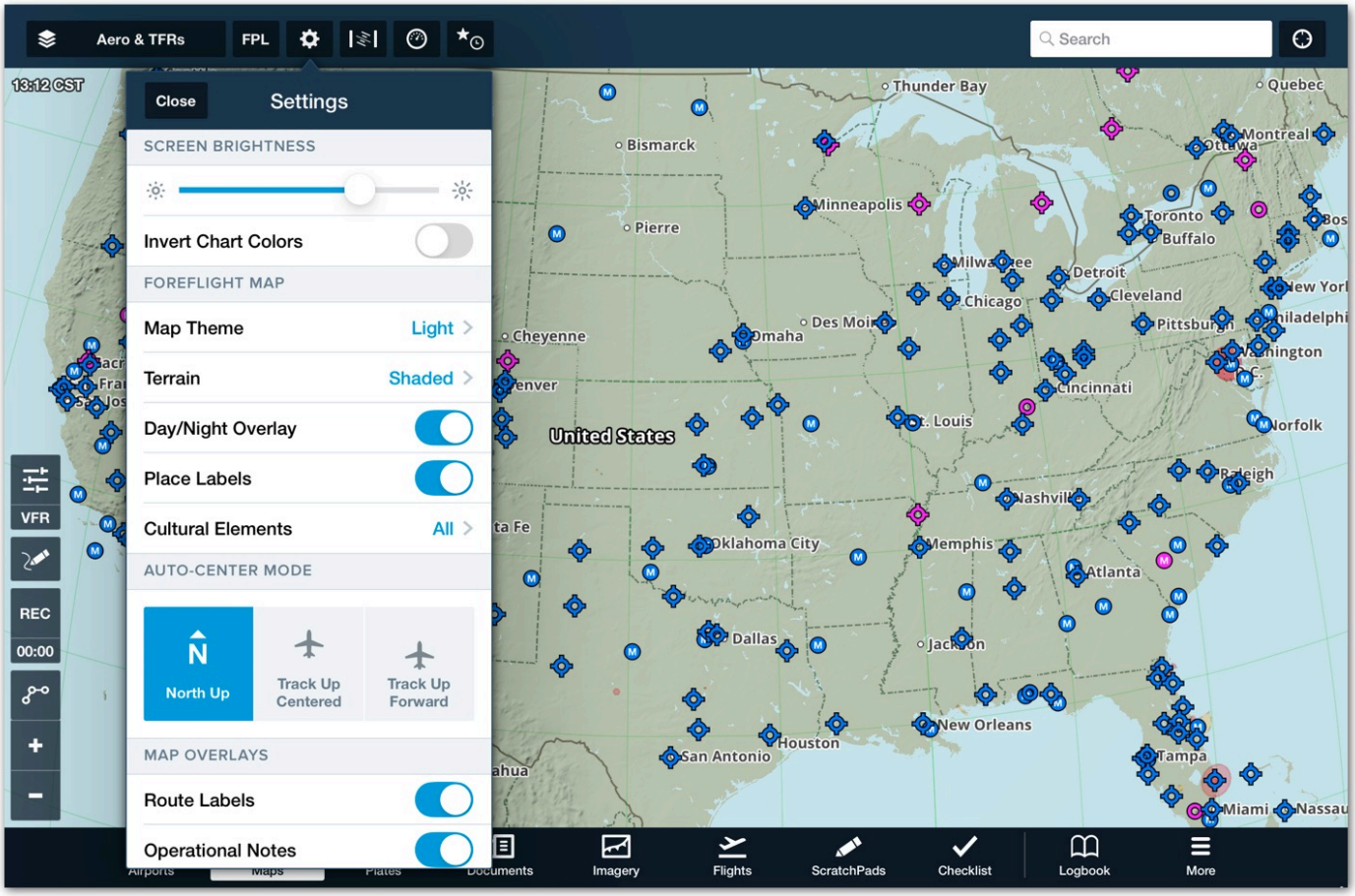


Figure 8-1. Map Settings on Maps View

8.1 Screen Brightness

The SCREEN BRIGHTNESS section provides options for adjusting screen brightness and visual appearance of charts in the Maps view.

8.1.1 Screen Brightness Slider

A brightness slider allows dimming below the device's minimum system brightness. At the highest level, brightness matches the current device setting.

8.1.2 Invert Chart Colors

Invert Chart Colors Inverts the color scheme of charts for improved night viewing. This setting does not affect terrain, satellite imagery, or weather overlays.

8.2 ForeFlight Map

The FOREFLIGHT MAP section controls the appearance and content of the base map, including theme, terrain depiction, overlays, and cultural elements.

8.2.1 Map Theme

Specifies the color scheme of the ForeFlight Mobile base map. Available options include:

> **Light**
>
> A lighter theme resembling traditional aeronautical charts suitable for daylight operations.

> **Dark**
>
> A dark theme designed for night use.

> **Classic**
>
> A mid-color theme offered in original ForeFlight Mobile.

8.2.2 Terrain

Controls how terrain is displayed on the base map. Available options include:

> **Off**
>
> Disables terrain depiction.

> **Shaded Terrain**
>
> Depicts terrain using grayscale shading.

> **Color Terrain**
>
> Uses color to indicate terrain elevation.

> **Peaks, Passes, and Cables**
>
> When the high-resolution terrain layer is downloaded, displays prominent mountain peaks, mountain passes, and cable lines.

8.2.3 Day/Night Overlay

Applies a real-time sunlight overlay to the map, showing the illuminated and shaded regions of the Earth. On the shaded (night) side of the Earth, zooming in removes the overlay to maintain visibility of map content.

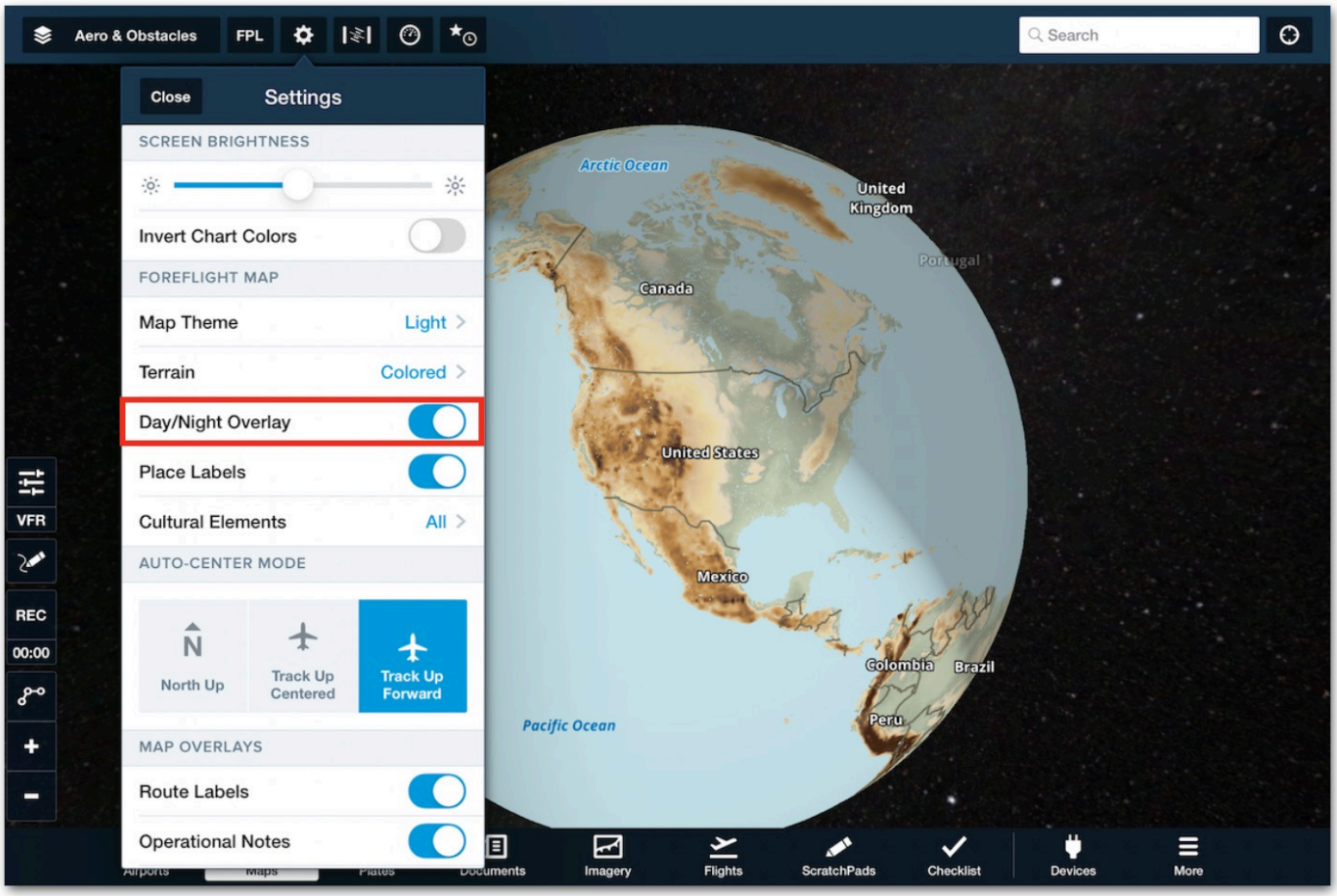


Figure 8-2. Day/Night Overlay Setting

8.2.4 Place Labels

Displays text labels for political and geographic features. Labels scale dynamically based on zoom level and text size settings.

8.2.5 Cultural Elements

Allows customization of map features such as roads, railroads, power lines, urban areas, forests, national parks, and points of interest. Each element can be shown or hidden independently to suit operational preferences.

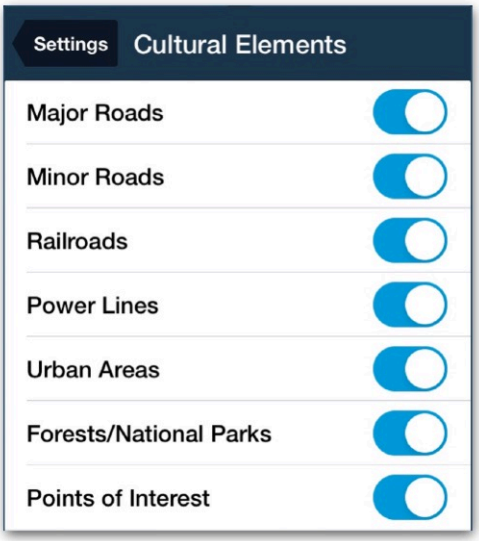


Figure 8-3. Cultural Elements

8.3 Auto-Center Mode

The AUTO-CENTER MODE section determines the orientation of the map display. The map may be oriented in one of the following modes:

> **North Up**
>
> Keeps the top of the map pointing north.

> **Track Up**
>
> Rotates the map so the aircraft's current track is oriented upward and in the middle of the screen.

> **Track Up Forward**
>
> Similar to Track Up, but shifts the aircraft icon downward to show more forward view on the map.

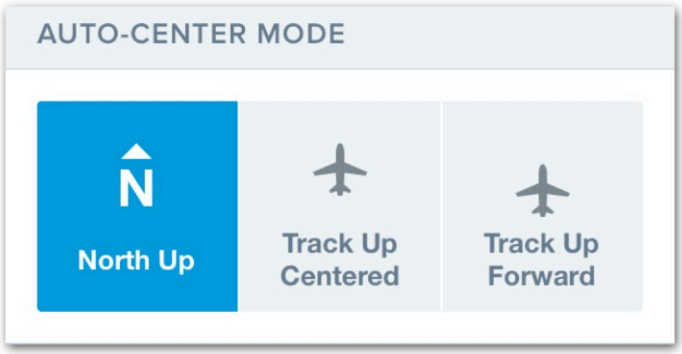


Figure 8-4. Auto-Center Mode Settings

Track Up and Track Up Forward require the map to be centered on the current location and require motion to be detected. Tap the **auto-center** button in the upper toolbar to re-center the map. When auto-center is active, the button appears highlighted.

If the map is not centered on the current location or if no motion is detected, the map automatically reverts to North Up orientation.

8.4 Map Overlays

The MAP OVERLAY section controls the appearance and behavior of features displayed on the map. These settings are dynamic and only appear when the corresponding map layer is active. For example, the Four-color Radar setting is available only when the Radar layer is selected.

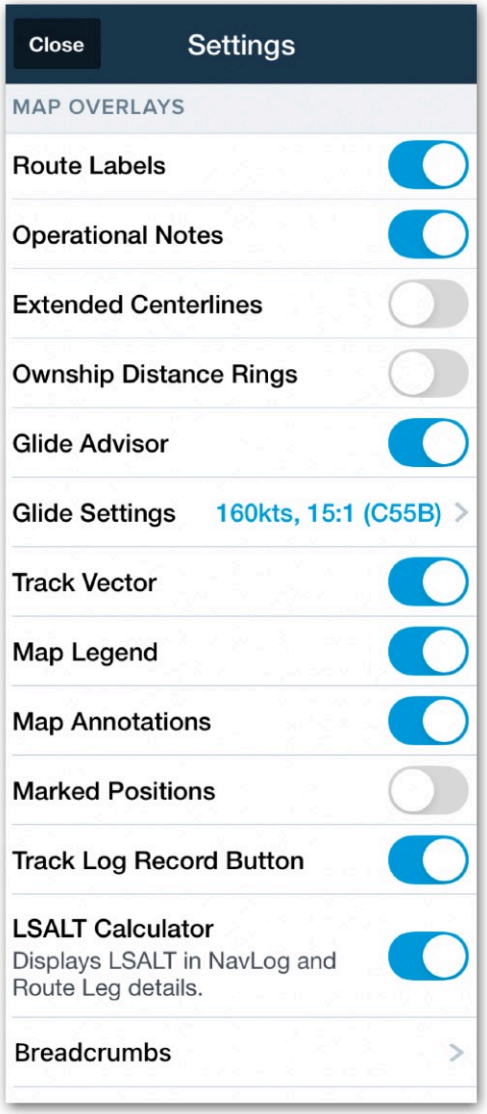


Figure 8-5. Map Overlays Settings

8.4.1 Hide Distant Traffic (ADS-B/FLARM)

Hides traffic targets more than 15 nm away or 3,500 ft above or below the current GPS position. Requires a connected ADS-B or FLARM receiver.

8.4.2 Traffic Breadcrumbs (ADS-B/FLARM)

Displays breadcrumbs for tapped traffic targets. Requires an Essential or higher subscription and a connected ADS-B or FLARM receiver. See Traffic Breadcrumbs for more information.

8.4.3 Route Labels

Route Labels control whether the waypoints in the route have labels on the map. Labels are dynamic and will adjust to prevent overlapping. Route labels must be enabled to display approach procedure waypoints and minimum descent altitudes.

8.4.4 Operational Notes

Displays Operational Note Flags on the map for planned routes. Requires a Performance tier subscription.

8.4.5 Extended Centerlines

Extended Centerlines control whether extended runway centerlines are displayed on the map. Extended centerlines are proportional to the runway length. For every 1000 feet of runway, ForeFlight Mobile shows a 1 NM extended centerline. For example, a 5000-foot runway displays a 5 NM extended centerline.

Extended centerlines are only depicted for the runways at the airports in the route.

An extended centerline runway label can be tapped to display information about the runway, including winds, length, surface type, lighting, elevation, and associated procedures.

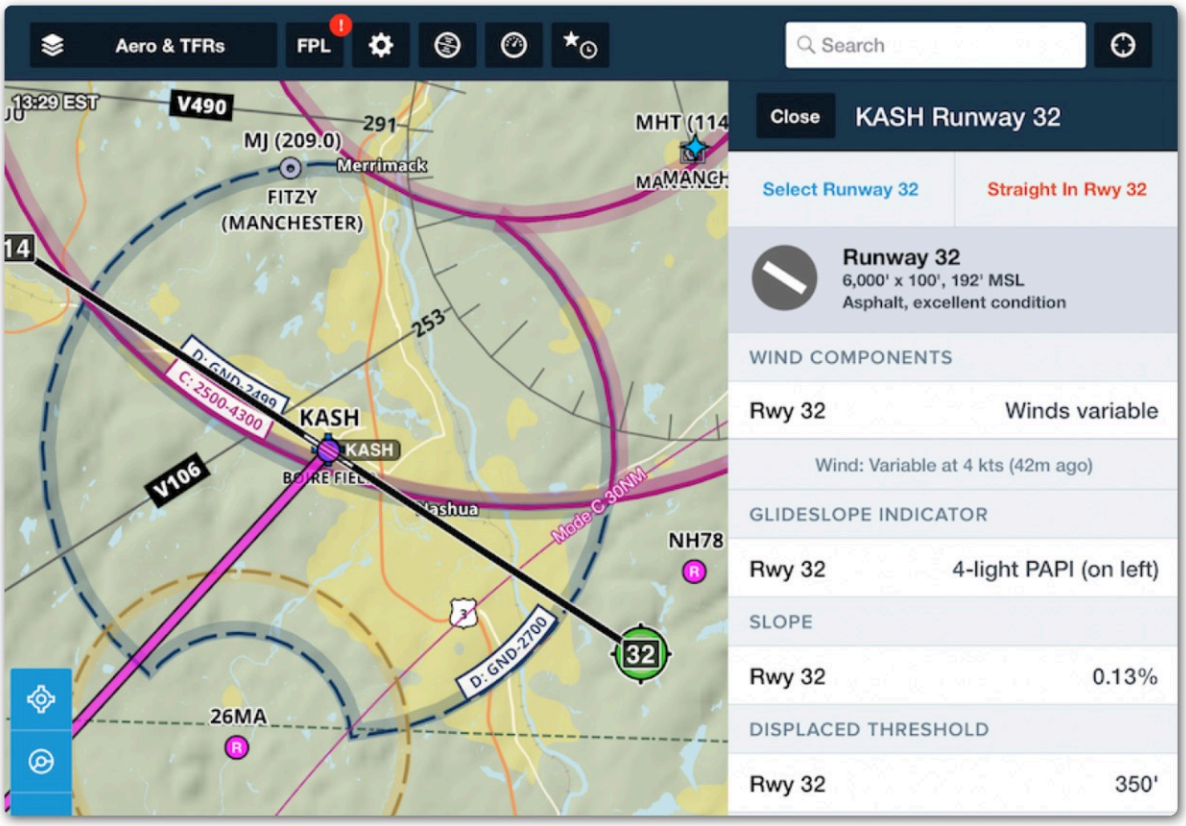


Figure 8-6. Extended Centerlines

8.4.6 Ownship Distance Rings

The Ownship Distance Rings setting displays concentric rings around the position on the map representing distance or time from the aircraft. If a time-based distance ring has been selected, the aircraft must be moving greater than 10 knots to display the rings.

Green triangles on the rings indicate the current ground track. Black labels on each ring display the distance or time from the aircraft. These labels always display to the right of the aircraft between the two and three o'clock positions.

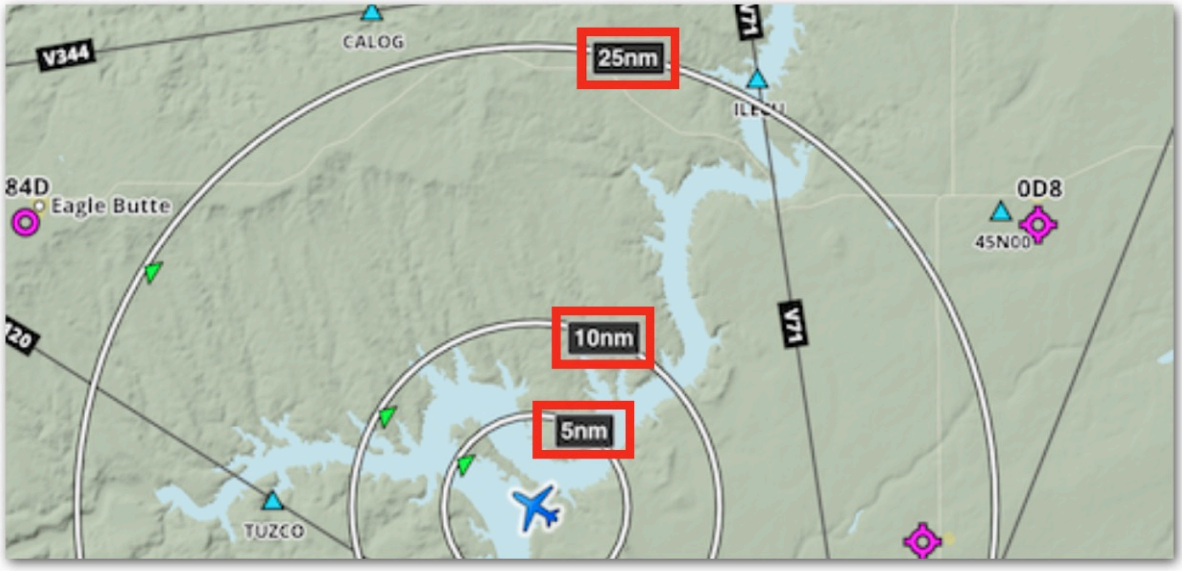


Figure 8-7. Distance labels are displayed off the starboard wing.

8.4.7 Glide Advisor

Displays a ring showing estimated glide range based on glide ratio, GPS altitude, terrain, and winds aloft. Requires configuration of glide speed and ratio in the aircraft profile or map settings. The ring appears when GPS altitude is more than 200 ft AGL. Tap **Settings → Glide Settings** to modify the glide.

> **NOTE:** To enable Emergency Glide Mode, Glide Advisor must be enabled.

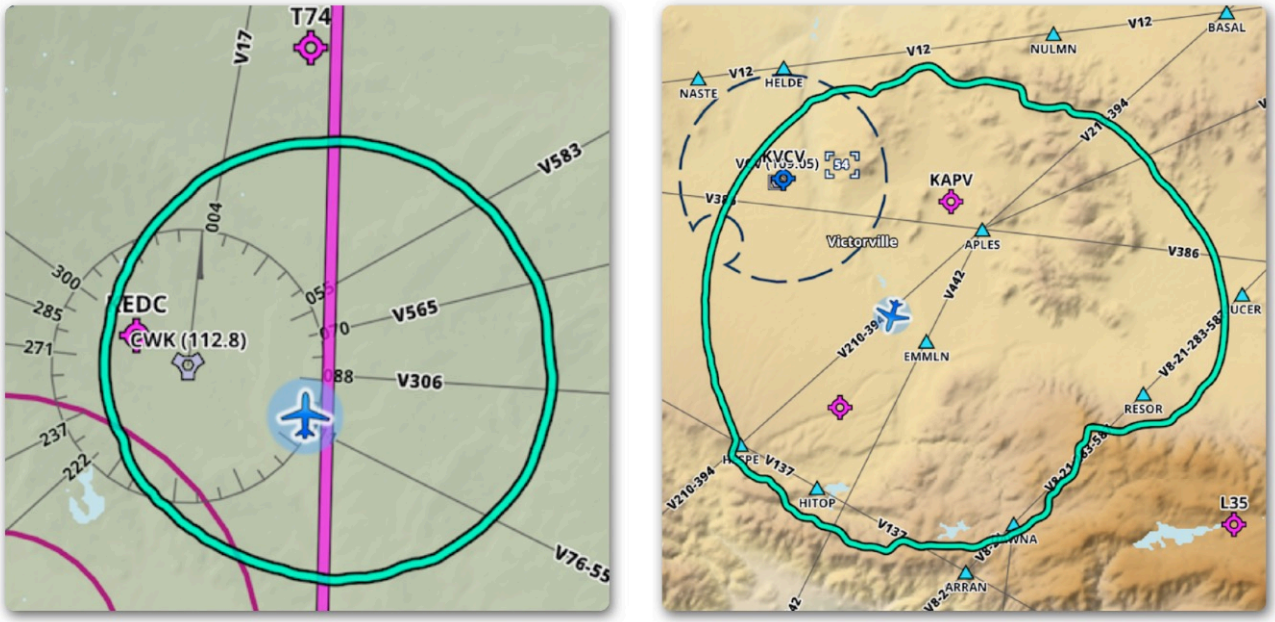


Figure 8-8. Flat Terrain (Left), Mountainous Terrain (Right)

8.4.7.1 Glide Settings

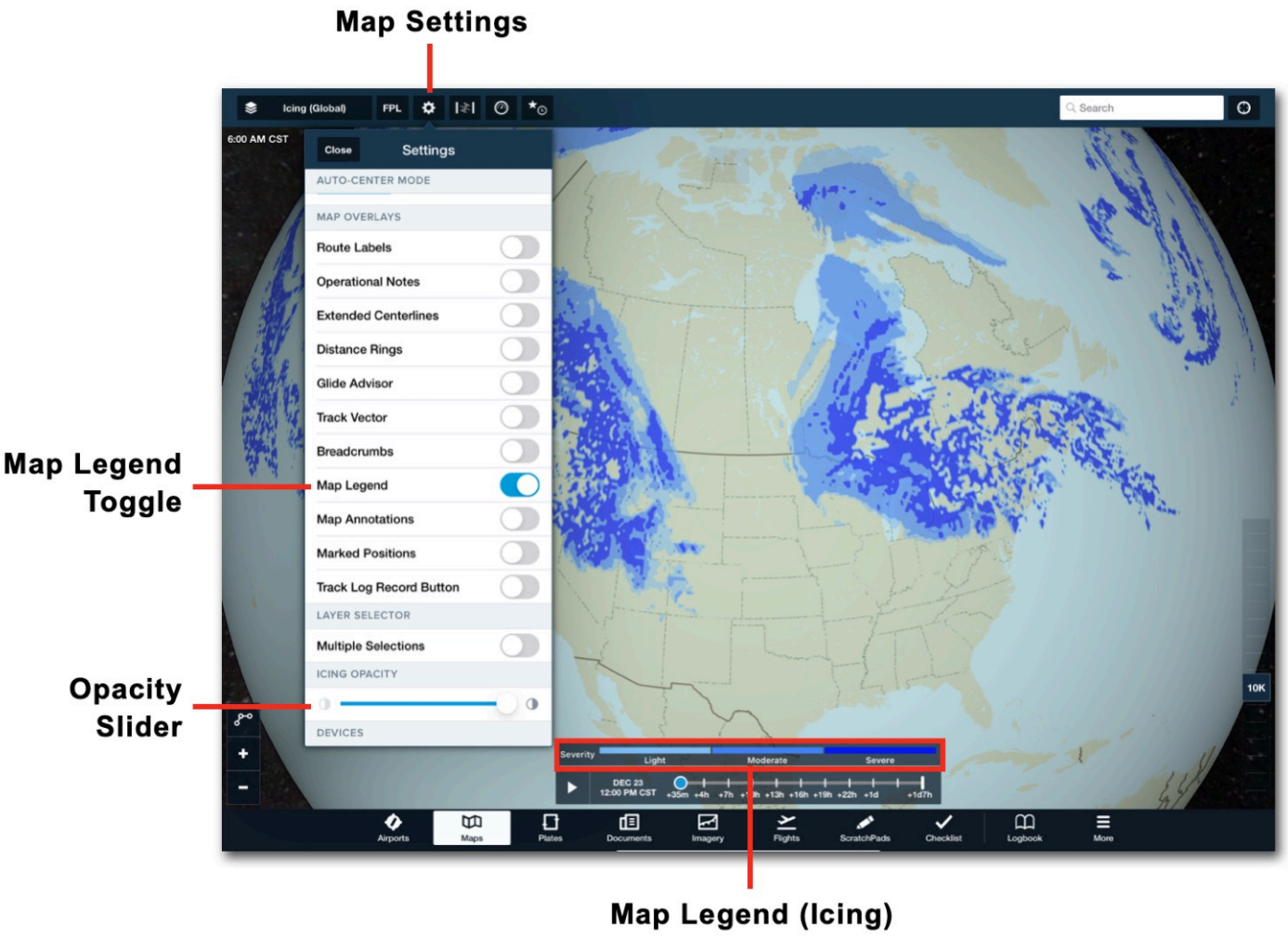
Glide settings define the glide speed and glide ratio used by the Glide Advisor. The glide ratio specifies how far the aircraft can travel horizontally for each unit of altitude lost when flying at the best glide speed. Refer to the Aircraft Flight Manual to determine the appropriate glide speed and glide ratio. For example, if the glide ratio is eight to one, enter 8 in the Glide Ratio field.

8.4.8 Track Vector

Track Vector displays a vector (line) in front of the aircraft icon. The track vector length is set in the main settings menu.

8.4.9 Map Legend

Displays a legend at the bottom of the map when specific layers are selected (e.g., Radar, Satellite, Icing, Winds).



> **IMPORTANT:** The legend reflects weather data at 100% opacity; adjusting layer opacity may cause the map to appear different than the legend.

8.4.10 Map Annotations

Displays the annotation button on the left side of the map view. Tap to enter annotation mode. The mode remains active based on the Annotations Timeout setting selected in **More ➔ Settings ➔ Annotations Timeout**.

8.4.11 Marked Positions

Marked Positions display a button on the left side of the Maps view. Tap the button to drop a green position marker at the current location. See Marked Positions for additional information.

8.4.12 Track Log Record Button

Displays a REC button for manually starting and stopping Track Logs. When enabled, a timer appears below the button to indicate active recording.

8.4.13 LSALT Calculator

Enables LSALT calculations in the FPL NavLog and in Route Leg Details.

8.4.14 Breadcrumbs

Breadcrumbs are a thin green line indicating the path since takeoff. The following breadcrumb-related settings are available in the Breadcrumbs section of the settings menu.

8.4.14.1 Breadcrumbs

Enable or disable breadcrumbs on the map.

8.4.14.2 Breadcrumbs Activation Altitude

Breadcrumb activation can be specified to begin displaying at a specified altitude. Altitude selections are:

- 50 feet
- 100 feet
- 250 feet.

8.4.14.3 Breadcrumbs Activation Groundspeed

Breadcrumb activation can be specified to begin displaying at a specified groundspeed. Groundspeed selections are:

- 0 knots
- 20 knots
- 40 knots.

8.4.14.4 Breadcrumbs Clear After

The Breadcrumbs Clear After setting controls the time that Breadcrumbs remain on the map after landing. If a takeoff is not detected after the last landing within the selected time, Breadcrumbs are automatically cleared from the map. Default time is 15 minutes. Time selections are:

- 15 minutes
- 30 minutes
- 1 hour
- 2 hours
- 4 hours.

8.4.15 Reported Turbulence Max Age

Limits the maximum age of reported turbulence to 2, 4, or 6 hours.

8.4.16 Four-color Radar

Four-color Radar enables radar in a low-resolution, four-color scheme that complies with dBZ-to-color mapping standards defined by the Radio Technical Commission for Aeronautics.

8.4.17 Internet Radar Coverage

Internet Radar Coverage displays the area of available radar coverage while connected to the Internet. Areas without coverage display a transparent mask with hash marks and “Radar not available” labels.

8.4.18 NOTAMs Settings

The NOTAMs Settings control filtering options based on time of activation and Notice to Air Missions (NOTAMs) type. These settings are available only when the NOTAMs map layer is enabled.

The **Show NOTAMs Within** setting controls the display of upcoming NOTAMs. Available time intervals range from 2 hours to 48 hours, in 1-hour increments.

The options in the CUSTOMIZE NOTAMS section allow filtering of specific NOTAM types for display.

For additional details, refer to the NOTAMs section.

8.4.19 Map Touch Action

Map Touch Action controls the behavior of IFR and VFR charts. This setting is only available when an IFR or VFR en route chart is selected.

> **No Action**
>
> Results in no map overlap changes when tapping on the map.

> **Bring chart to front**
>
> Moves the chart to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.

> **Bring chart to front with legends**
>
> Moves the chart, chart legend, and chart border to the top layer with a single tap. When a chart is on the top layer, it overlaps adjacent charts.

8.4.20 Hazard Settings

The Hazard Settings menu controls the behavior of the Hazard Advisor, Profile View, and Profile Corridor, all of which require an Essential or higher subscription. There are four hazard-related settings: Activation Speed, Hazard Altitudes, Corridor Activation, and Corridor Width.

8.4.21 Alerts

Alert settings control the display and audio behavior of in-app alerts. All alerts appear visually and may also be played audibly. For detailed information regarding Alerts, see the Alerts chapter.

> **Speak All Alerts**
>
> Plays alerts audibly via the device speaker or a connected headset. A confirmation message is played when toggled. Use the device volume buttons to adjust volume.

GENERAL (Alerts)

> **500' AGL Alerts**
>
> Activated when descending through 500 ft above ground level (AGL) after previously being above 1,000 ft AGL.

> **Cabin Altitude Alerts**
>
> Triggered when cabin pressure altitude reaches supplemental oxygen thresholds, including 12,000 ft and 25,000 ft mean sea level (MSL).

> **Transition Altitude Alerts**
>
> Triggered when climbing or descending through 18,000 ft MSL in the United States or Canada, or through the local transition altitude in Europe.

> **Runway Proximity Alerts**
>
> Uses GPS position and defined runway safety areas to alert when approaching or entering a runway environment.

> **Runway Final Approach Alerts**
>
> Triggered when descending toward a runway on final approach.

> **Sink Rate Alerts**
>
> Triggered when the descent rate exceeds a predefined limit based on altitude above ground level (AGL). The threshold for alerting decreases with altitude, triggering sooner at lower altitudes.
>
> - Above 2,500 ft AGL, or when AGL is not known, the alert is triggered if the descent rate exceeds 3,500 feet per minute (FPM).
> - Between 2,500 ft AGL and 500 ft AGL, the trigger threshold decreases linearly from 3,500 FPM to 1,500 FPM.
> - At or below 500 ft AGL, the alert is triggered if the descent rate exceeds 1,500 FPM.

> **GPS Interference Alerts**
>
> Notifies of detected GPS signal interference or degradation, which may affect positional accuracy. See GPS Cross-Check for details on verifying signal quality.

> **Terrain/Obstacle Alerts**
>
> Triggers an app-wide pop-up alert when hazardous terrain or obstacles are detected along the flight path. These alerts are disabled by default.

> **Device Temperature Alerts**
>
> Indicates that the device is at risk of overheating and may shut down if temperature continues to rise.

> **Unusual Attitude Alerts**
>
> Alerts when aircraft pitch or bank angles exceed selected thresholds, indicating a potential upset or abnormal attitude.

AIRSPACE & NOTAMS (Alerts)

> **Airspace Alerts**
>
> Provides app-wide airspace-related alerts when approaching, entering, and exiting airspace when above 1,000 ft AGL. This setting is enabled by default,

> **Include Radio Frequencies**
>
> Shows ATC frequencies with the Airspace Alert.

> **Altitude Buffers**
>
> Specifies the altitude proximity above or below the airspace required to trigger an alert. The default buffer is 500'.

> **Airspace Alert Range**
>
> Specifies how far in advance an Approaching Airspace Alert is triggered. The default Alert Range setting is 3 NM. Additional distance (in NM) and time-based options exist.

> **Airspace Alert Types**
>
> Specifies the type of airspace which will trigger alerts. All airspace types are enabled by default. An alert will not be issued if an airspace type is not listed.

DEVICES (Alerts)

> **Device Disconnect**
>
> Triggers an alert if the Bluetooth or Wi-Fi connection to a supported portable or panel-mounted device is lost.

> **Flight Plan Auto Update**
>
> Triggers when ForeFlight receives a flight plan from a supported avionics Navigator.

> **Connected Portable Device Low Battery**
>
> Displays a low-battery alert when a connected portable device reaches 20% remaining battery.

ROUTE BASED (Alerts)

> **Destination WX Frequency Alerts**
>
> Provides the destination airport's weather frequency (ATIS, AWOS, or ASOS) while approaching the airport.

TRAFFIC (Alerts)

> **Airborne Traffic Alerts**
>
> Notifies when airborne traffic is detected that may cross the flight path or enter close proximity.

> **Traffic on Runway Alerts**
>
> Notifies when another aircraft is detected on the runway that is in use for landing.

> **Traffic On Short Final Alerts**
>
> Notifies when traffic is on short final approach to the same runway that is being used or approached.

> **Wake Turbulence Alerts**
>
> Calculates and alerts to possible wake turbulence conditions based on the position and class of nearby traffic. Displays the estimated wake hazard area when applicable.

8.5 Layer Selector

The LAYER SELECTOR section provides configuration options for the **Maps** view layer selector.

8.5.1 Multiple Selections

Multiple Selections keeps the map's layer selector open while selecting various map layers. Tap outside the layer selector to close it.

8.6 Radar, TFRs Opacity

When a weather map layer or Hazard Advisor is selected, an Opacity Slider appears below the LAYER SELECTOR section in the map settings menu. The slider adjusts the opacity of the active map layer, allowing for improved visibility of underlying map data.

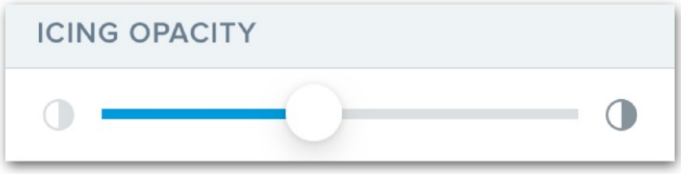


Figure 8-9. Opacity Slider (Icing)

8.7 Devices

When an external device is connected, it appears at the bottom of the map settings menu. Tap the connected device entry to view device status and information; identical to the details available in **More ➔ Devices**.

For additional information on supported external devices, refer to the ForeFlight Connect chapter.

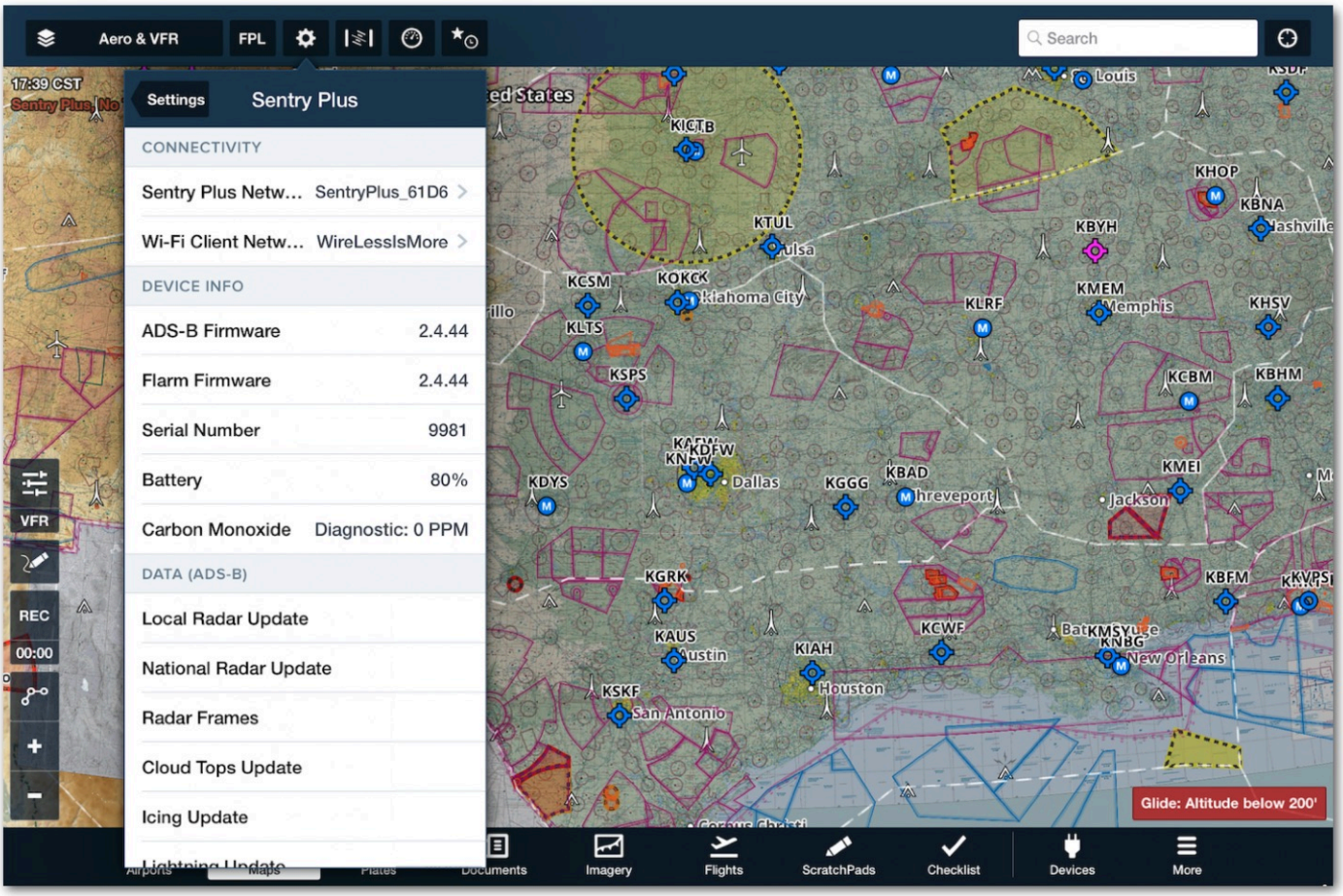


Figure 8-10. Map Settings - Device View

8.8 Aeronautical Settings

Settings to customize the Aeronautical map are available when the Aeronautical map layer is selected. When Aeronautical is not selected in the map layer menu, the slider button is hidden. To access the Aeronautical settings and quick filters press the slider button on the left side of the map screen. After the slider button is pressed the left side buttons will display the Quick Filters, Aero Map Modes, Settings button, and the menu timer.

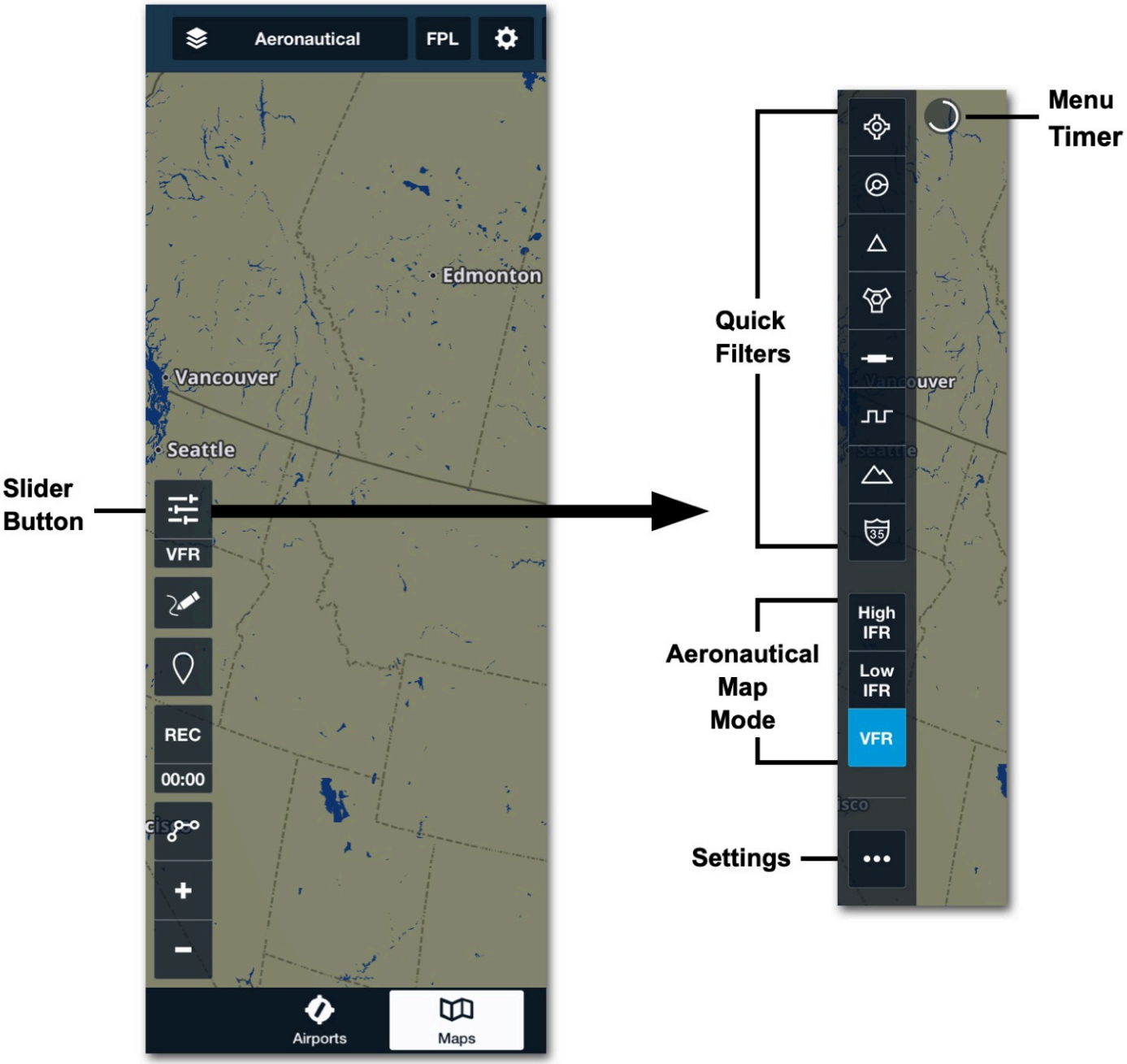


Figure 8-11. Aeronautical Settings

8.8.1 Menu Timer

The menu timer is a graphic representation of the time remaining for Aeronautical Settings menu displays. The menu timer can be set to 5 seconds through 30 seconds in 5-second increments.

8.8.2 Quick Filters

Quick Filters toggles the Aeronautical Map Layer quick filter buttons for Airports, Airspace, Waypoints, Navaids, Airways, ARTCC/FIR, Terrain, and Roads.

Quick filter buttons are located on the left side of the map and appear when Quick Filters are enabled and the Aeronautical Map is selected.

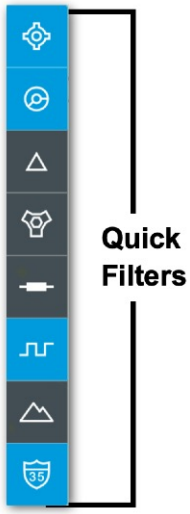


Figure 8-12. Quick Filters

8.8.3 Aeronautical Map Mode Selector

The Aeronautical Map mode selector buttons switch between customizable map modes: VFR, LOW IFR, or HIGH IFR. For customization details see Aeronautical Map Mode Indicator.

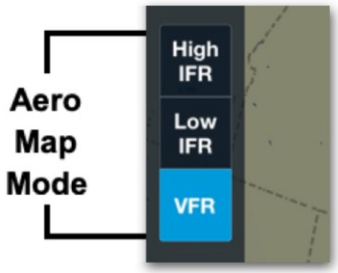


Figure 8-13. Aeronautical Map Mode Selector

8.8.4 Aeronautical Settings

Aeronautical Settings apply across all aeronautical map modes. To open the Aeronautical Settings menu, tap the **Aeronautical Settings** button (button with sliders), then tap the **Settings** button (three-dots).

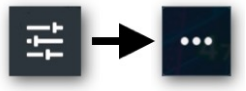


Figure 8-14. Aeronautical Settings > Settings

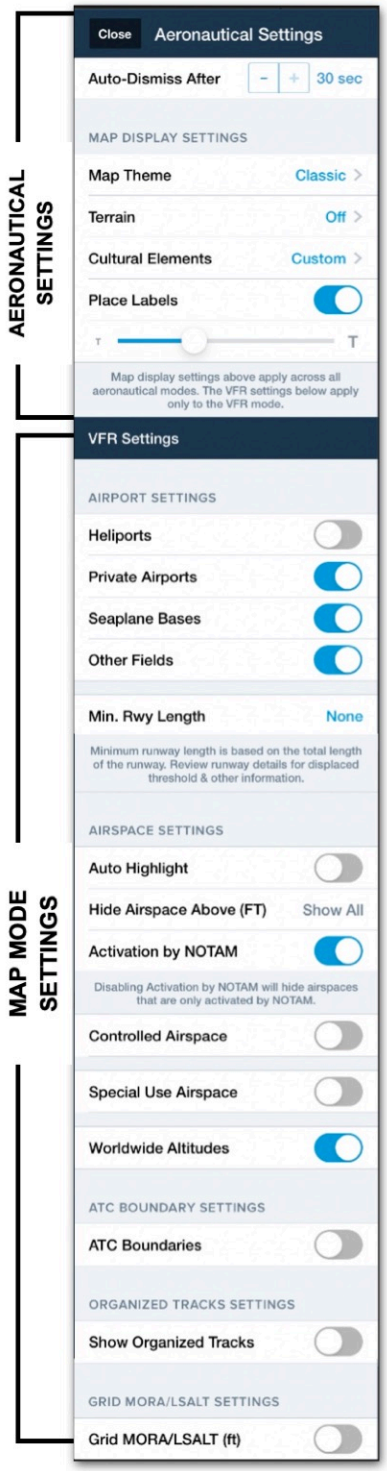


Figure 8-15. Aeronautical Settings Menu

8.8.4.1 Auto-Dismiss After

Auto-Dismiss After sets the menu to auto-dismiss (close the menu). The timer may be set from 5 to 30 seconds in 5-second increments.

8.8.4.2 Map Display Settings

The MAP DISPLAY SETTINGS section in Aeronautical Settings allow customization of the map appearance, visible elements, and text size.

Map Theme

Specifies the color scheme of the ForeFlight Mobile base map. Available options include:

> **Light**
>
> A lighter theme resembling traditional aeronautical charts suitable for daylight operations.

> **Dark**
>
> A dark theme designed for night use.

> **Classic**
>
> A mid-color theme offered in original ForeFlight Mobile.

Terrain

Controls how terrain is displayed on the base map. Available options include:

> **Off**
>
> Disables terrain depiction.

> **Shaded Terrain**
>
> Depicts terrain using grayscale shading.

> **Color Terrain**
>
> Uses color to indicate terrain elevation.

> **Peaks, Passes, and Cables**
>
> When the high-resolution terrain layer is downloaded, displays prominent mountain peaks, mountain passes, and cable lines.

Cultural Elements

Allows customization of map features such as roads, railroads, power lines, urban areas, forests, national parks, and points of interest. Each element can be shown or hidden independently to suit operational preferences.

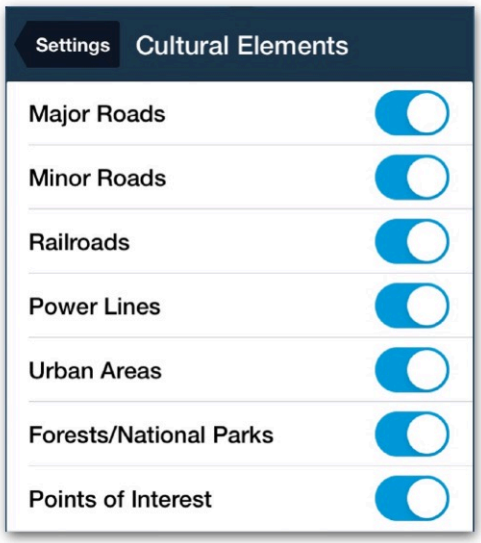


Figure 8-16. Cultural Elements

Place Labels

Displays text labels for political and geographic features. Labels scale dynamically based on zoom level and text size settings.

Text Size Adjustment

Below Place Labels is a slider for adjusting the map text size of aeronautical map elements. The full range of the slider is from 75% to 150%. The slider does not affect place labels or text on other maps or charts.

8.8.5 Aeronautical Map Mode Indicator

The Aeronautical Map Mode header bar (e.g., VFR Settings) indicates the selected map mode: VFR, LOW IFR, or HIGH IFR. The settings below the bar allow configuration of the Aeronautical Map layer with different options for each mode independently. The settings are retained through mode changes, which offers the ability to maintain independent setting defaults for each map mode.

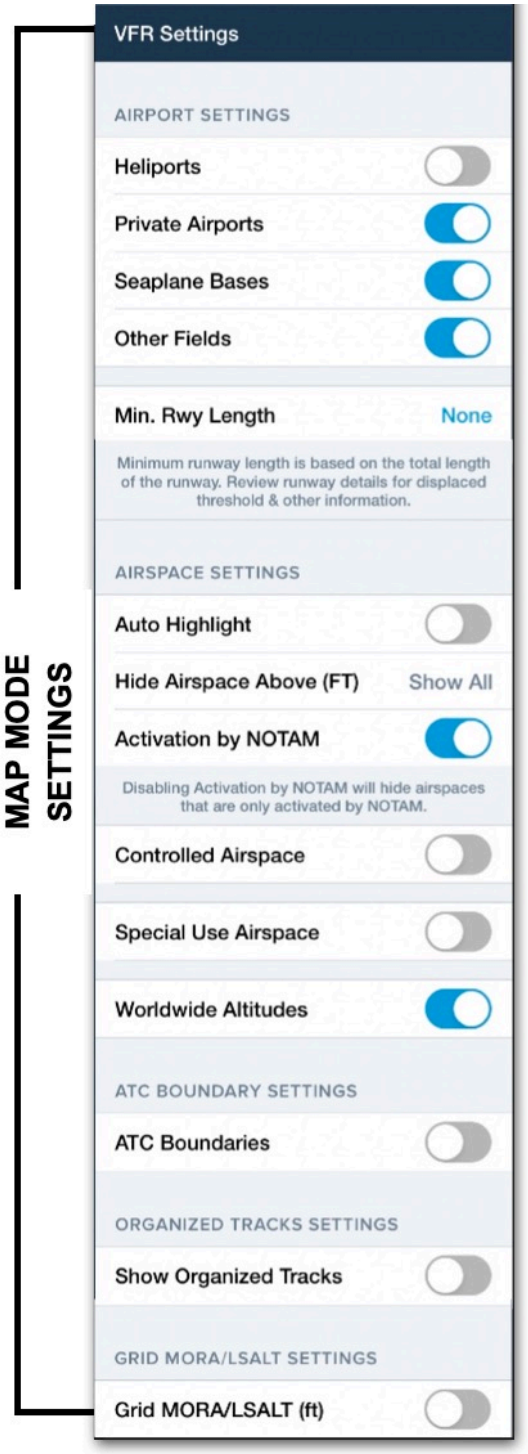


Figure 8-17. Map Mode Settings

8.8.5.1 Airport Settings

The AIRPORT SETTINGS section determines the types of airports displayed when the Aeronautical layer is selected.

> **Heliports**
>
> Displays or hides heliports on the Aeronautical Map. When enabled, heliports also appear in the nearby airport list.

> **Private Airports**
>
> Displays or hides private airports on the Aeronautical Map. When enabled, private airports also appear in the nearby airport list.

> **Seaplane Bases**
>
> Displays or hides seaplane bases on the Aeronautical Map. When enabled, seaplane bases also appear in the nearby airport list.

> **Other Fields**
>
> Displays or hides any airport types not classified as an airport, heliport, private heliport, or seaplane base, other fields also appear in the nearby airport list.

> **Min. Rwy Length**
>
> displays or hides airports based on the total length of their longest runway. By default, this field is set to **None**, and airports are displayed regardless of runway length. When changed to a number between 1,000 ft (304 m) and 10,000 ft (3,047 m), airports that do not meet the minimum runway length are hidden from the map. Heliports are also filtered when this setting is used.

Setting a minimum runway length also displays a blue quick-access button on the lower portion of the map that can be used to view and change this setting. The quick-access button disappears when Min. Rwy Length is set back to **None**.

> **CAUTION:** The Min. Rwy Length represents the total length of the runway including the displaced threshold. Review the relevant airport listings to determine the usable portion of each runway.

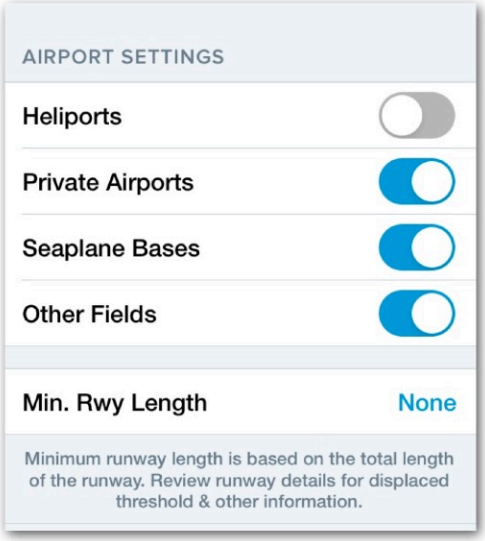


Figure 8-18. Airport Settings

8.8.5.2 Airspace Settings

The AIRSPACE SETTINGS section controls the display of Aeronautical Map airspace.

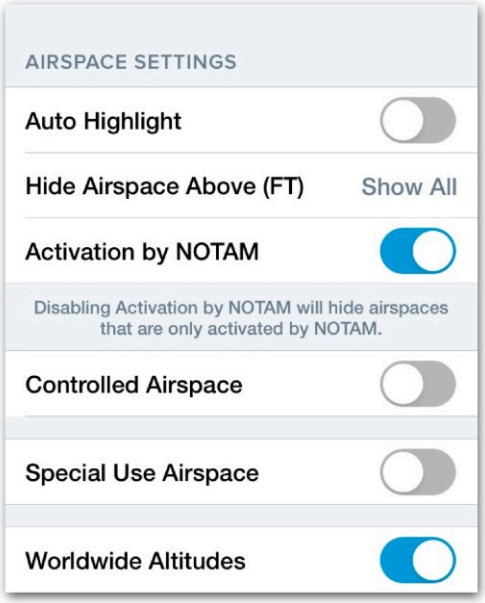


Figure 8-19. Airspace Settings Section

Auto-Highlight

Auto Highlight evaluates the planned route and highlights airspace the planned route will intersect based on the selected climb, cruise, and descent profile or current in-flight track.

Airspace within 1,000 feet of the planned altitude and one nautical mile laterally of the route is highlighted. Airspace outside 1,000 feet and one nautical mile is visible but dimmed.

In-flight, airspace up to 50 NM ahead of the current track (also within +/- 1,000 feet of current altitude and within a one-nautical mile corridor) is highlighted.

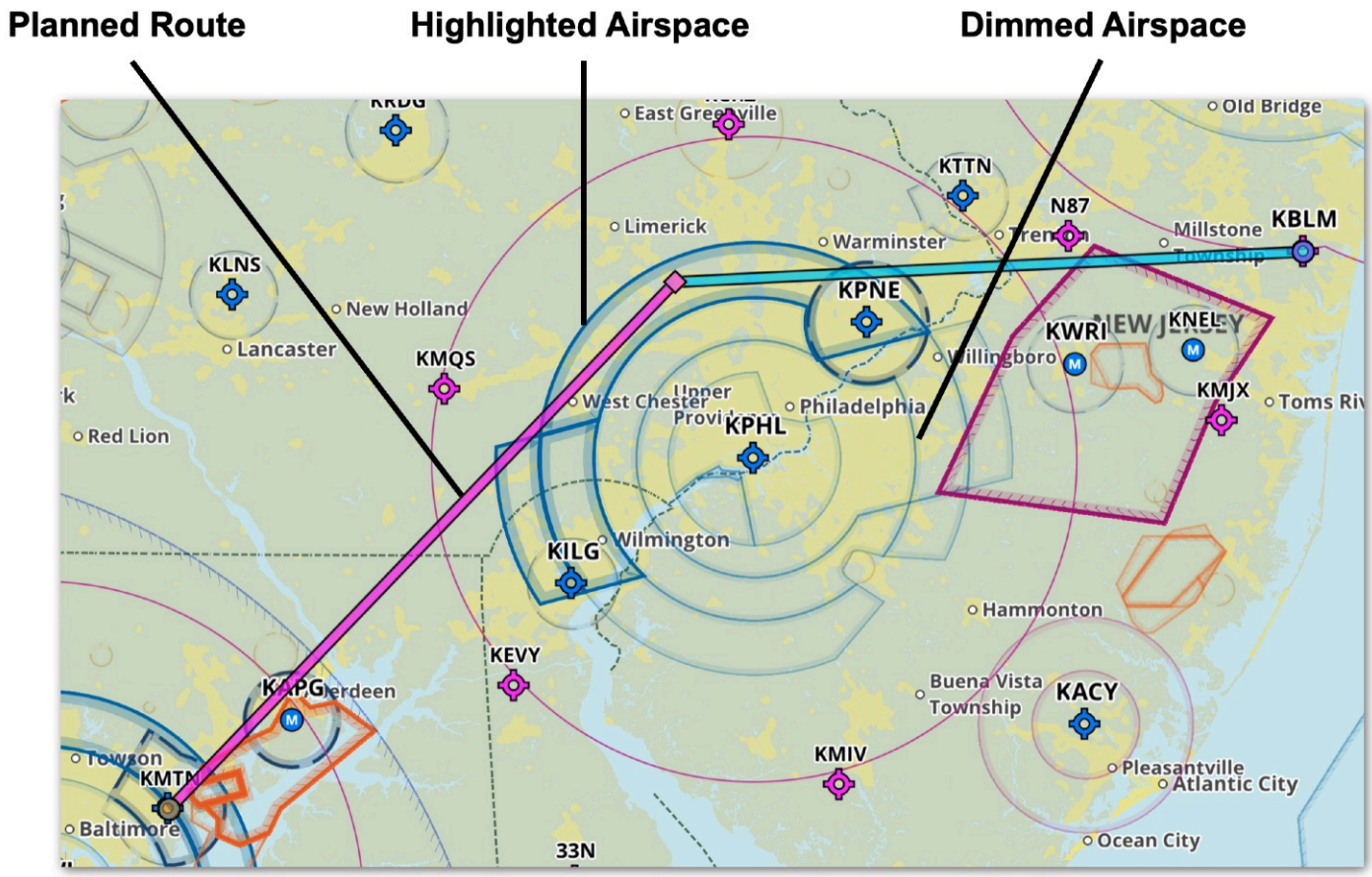


Figure 8-20. Airspace Auto Highlighting

Hide Airspace Above

Hide Airspace Above: filters airspace based on a user-specified altitude. Entering zero allows all airspace to show. Values from 5-499 are treated as flight levels. Altitude values of 500 or more are treated as feet. For example, 65 is treated as 6,500 ft. 320 is treated as 32,000 ft. 1000 is treated at 1000 ft.

When planning a flight or climbing within 1,000 ft of hidden airspace along the route, the hidden airspace is automatically displayed. The Hide Airspace Above value is displayed as a label in the lower-portion of the map.

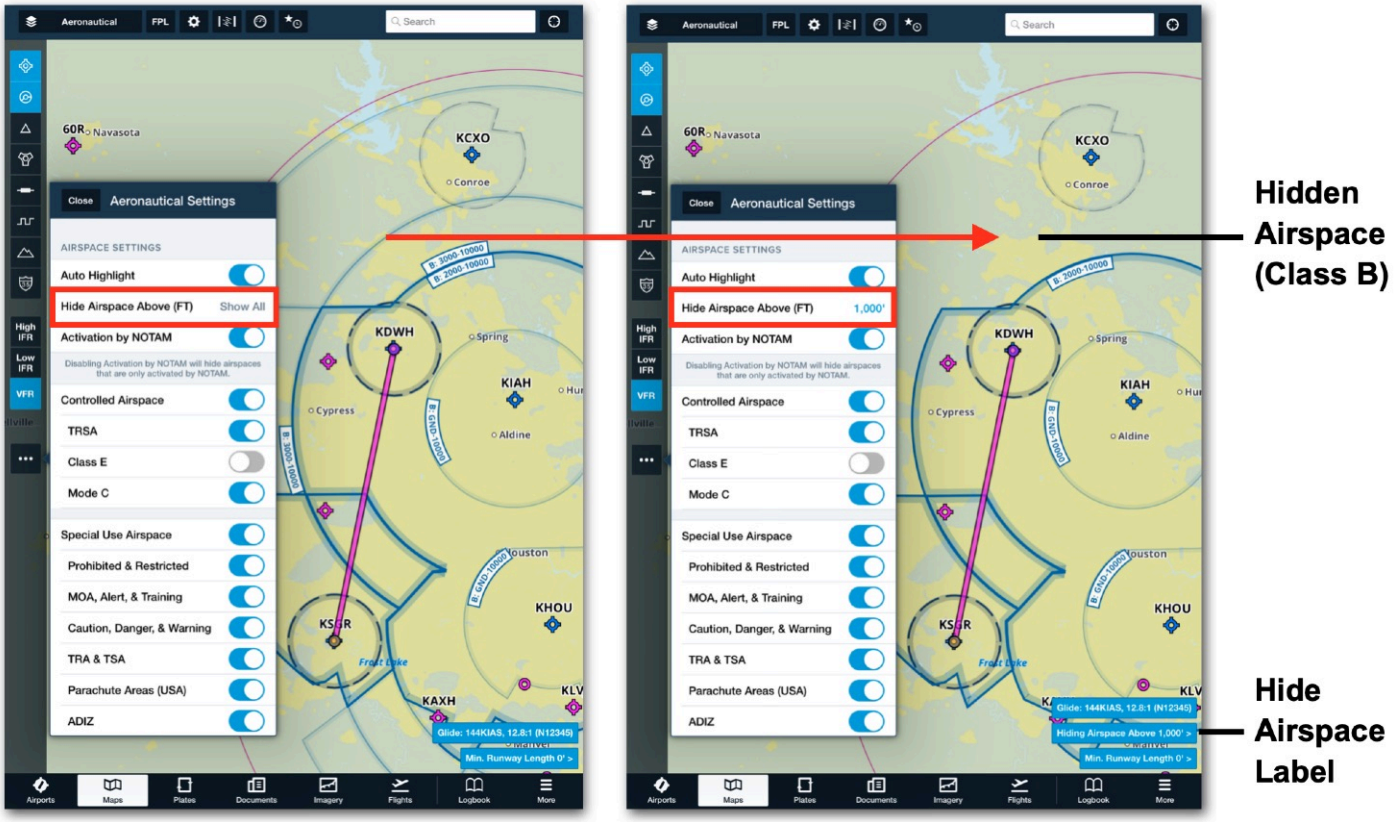


Figure 8-21. Not Hidden vs Hidden Airspace Using Hide Airspace Above

Activation by NOTAM

Activation by NOTAM can display or hide controlled and special use airspace that is activated by NOTAMs. By default, the switch is toggled on and the Aeronautical Map shows all airspace regardless of its source. Toggle the switch off to hide any airspace that is activated by a NOTAM. This can be useful for decluttering the map in particularly dense airspace regions.

> **CAUTION:** Pilots are responsible for ensuring compliance with all active airspace, regardless of the Activation by NOTAM setting.

Controlled Airspace

The Controlled Airspace section allows for specific types of airspace to be filtered from the aeronautical map. When **Controlled Airspace** is toggled on, settings to hide or show specific airspace will be displayed.

> **TRSA**
>
> Enable to display Terminal Radar Surveillance Areas.

> **Class E**
>
> Enable to display surface class E airspace.

> **Mode C**
>
> Enable to display airspace requiring a mode C transponder around class B airspace.

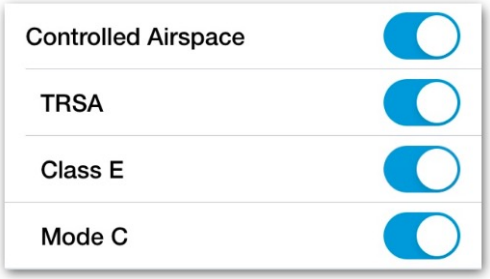


Figure 8-22. Controlled Airspace

Special Use Airspace

The Special Use Airspace (SUA) section allows for specific types of airspace to be filtered from the Aeronautical Map.

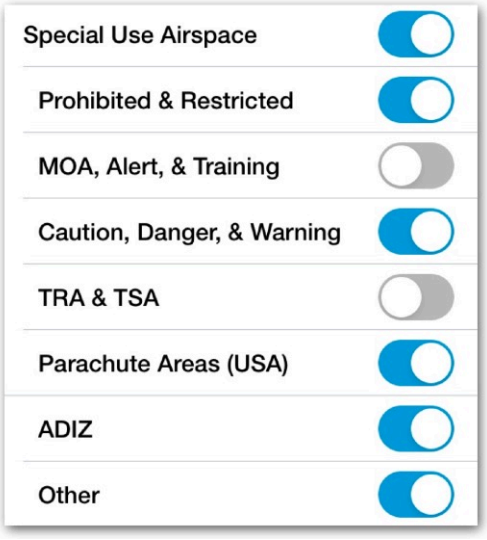


Figure 8-23. Special Use Airspace

Toggle **Special Use Airspace** on to view options for viewing or hiding specific SUA types.

> **Prohibited & Restricted**
>
> Enable to view prohibited and restricted areas.

> **MOA, Alert & Training**
>
> Enable to view alert areas, and training areas.

> **Caution, Danger, & Warning**
>
> Enable to view caution, danger and warning areas.

> **TRA & TSA**
>
> Enable to view Temporary Reserved Areas and Temporary Segmented Areas.

> **Parachute Areas (USA)**
>
> Enable to view designated parachute jump areas (USA only).

> **ADIZ**
>
> Enable to view Air Defense Identification Zone

> **Other**
>
> Enable to view other special use airspace types.

Worldwide Altitudes

The labels depict the airspace class and vertical limits. When Worldwide Altitudes is off, indication of airspace class is not presented and altitude labels will not be shown on the map, except in the United States.

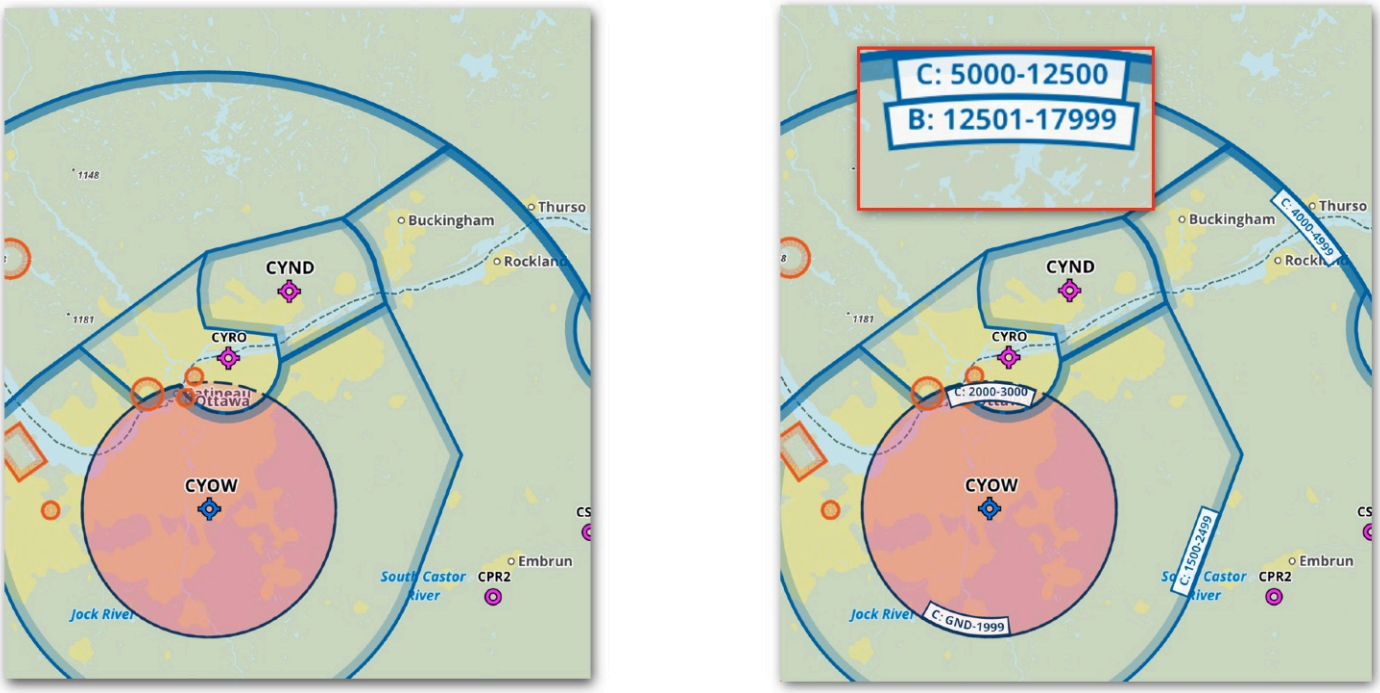


Figure 8-24. Worldwide Altitudes Disabled (Left), Worldwide Altitudes Enabled (Right)

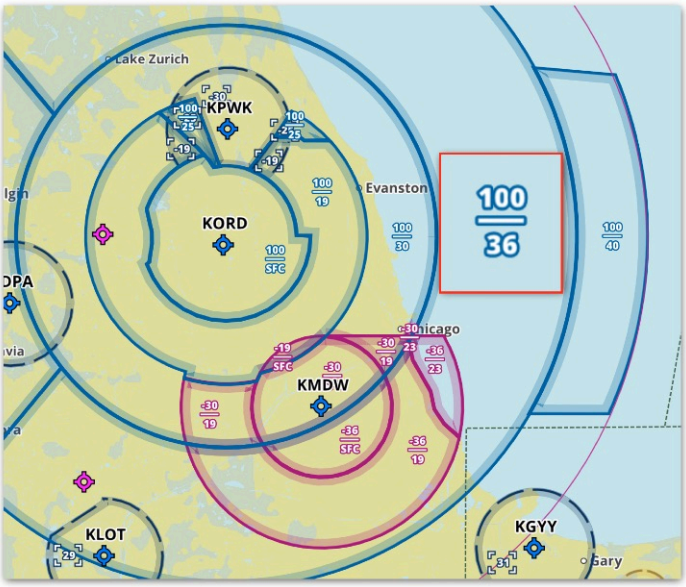


Figure 8-25. Altitude Labels with Worldwide Altitudes Disabled in USA

8.8.5.3 Airway Settings

The Airway Settings section allows low altitude and helicopter airways to be filtered from the aeronautical map. Enable **Airways** to view Airway Settings options. The Airways toggle in the Airways Settings section will mirror the Airways toggle on the Quick Filter.

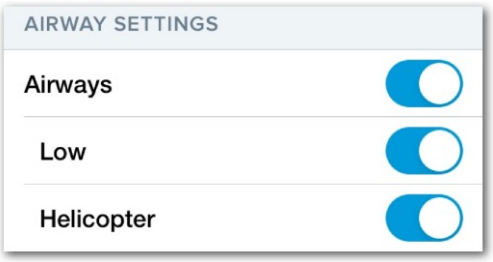


Figure 8-26. Airway Settings

> **Low**
>
> Enable to view low altitude airways on the Aeronautical Map.

> **Helicopter**
>
> Enable to view helicopter airways on the Aeronautical Map.

> **NOTE:** The Airway Settings options are only displayed when VFR or Low IFR aero map modes are selected.

8.8.5.4 Waypoint Settings

The WAYPOINT SETTINGS section allows VFR, IFR, and RNAV waypoints to be filtered from the Aeronautical Map. Enable **Waypoints** to view Waypoint Settings options. The Waypoints toggle in the Waypoint Settings section will mirror the Waypoints toggle on the Quick Filter.

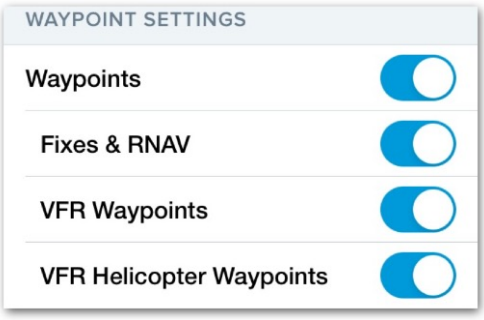


Figure 8-27. Waypoint Settings

> **Fixes & RNAV**
>
> Enable to view IFR and RNAV waypoints.

> **VFR Waypoints**
>
> Enable to view VFR waypoints.

> **VFR Helicopter Waypoints**
>
> Enable to view VFR helicopter waypoints.

> **NOTE:** The **Waypoint Settings** options are only displayed when VFR aeronautical map mode is selected.

8.8.5.5 ATC Boundary Settings

The Aeronautical Map can display Air Route Traffic Control Center (ARTCC), Flight Information Region (FIR), and ATC Sector Boundaries. Enable **ATC Boundaries** to view ATC Boundaries options.

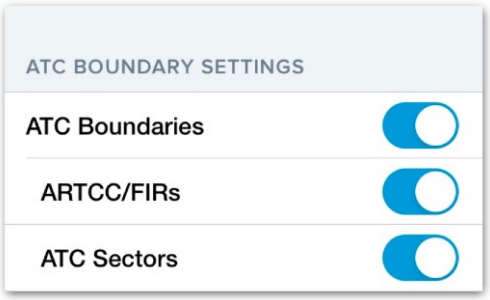


Figure 8-28. ARTCC/FIR Settings

> **ARTCC/FIRs**
>
> Enable to view global ARTCC and FIR boundaries.

> **ATC Sectors**
>
> Enable to view European ATC Sectors.

8.8.5.6 Organized Track Settings

Display Organized Tracks described in Organized Track Systems section. Organized tracks require a Premium subscription. Enable **Show Organized Tracks** to view organized track options.

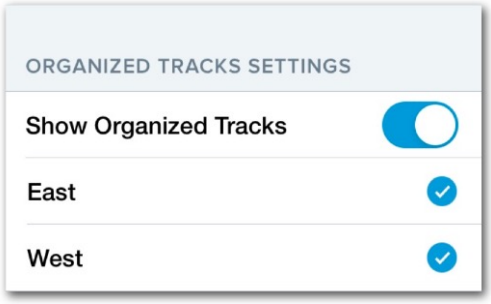


Figure 8-29. Organized Track Settings

> **East**
>
> Enable to view east-bound organized tracks

> **West**
>
> Enable to view west-bound organized tracks

8.8.5.7 Grid MORA/LSALT Settings

Grid Minimum Off-Route Altitude (MORA)/Lowest Safe Altitude (LSALT) (ft) is a world-wide 1° x 1° grid which provides an obstruction clearance altitude, in feet, within the grid square. Elevations 5,000 feet or lower have a minimum obstacle clearance of 1,000 feet. Elevations 5,001 feet or greater have a minimum obstacle clearance of 2,000 feet. Altitudes below 10,000 feet are displayed in green, while altitudes greater than or equal to 10,000 feet are red. In Australia "LSALT" is displayed below the altitude.

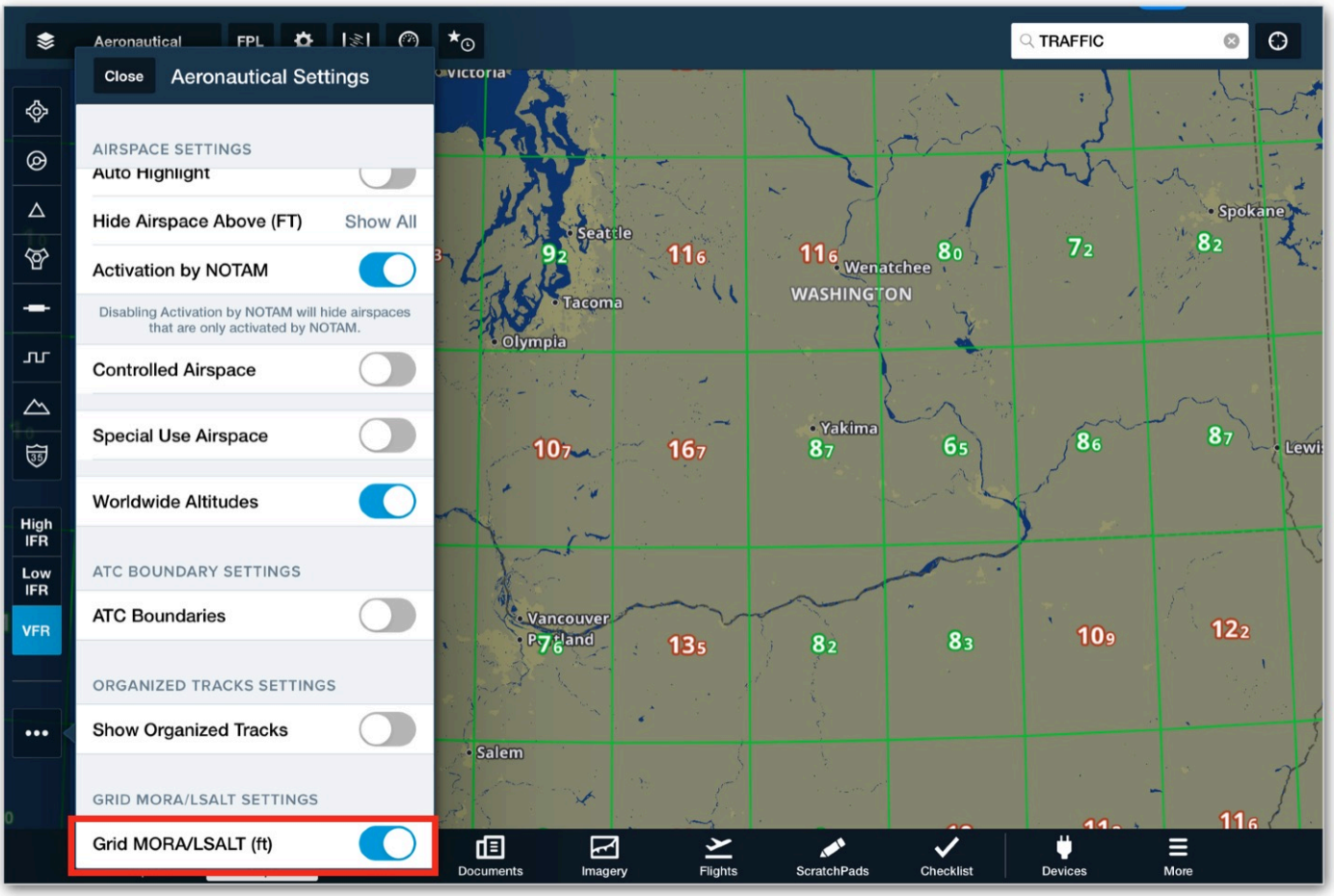


Figure 8-30. Grid MORA/LSALT Setting

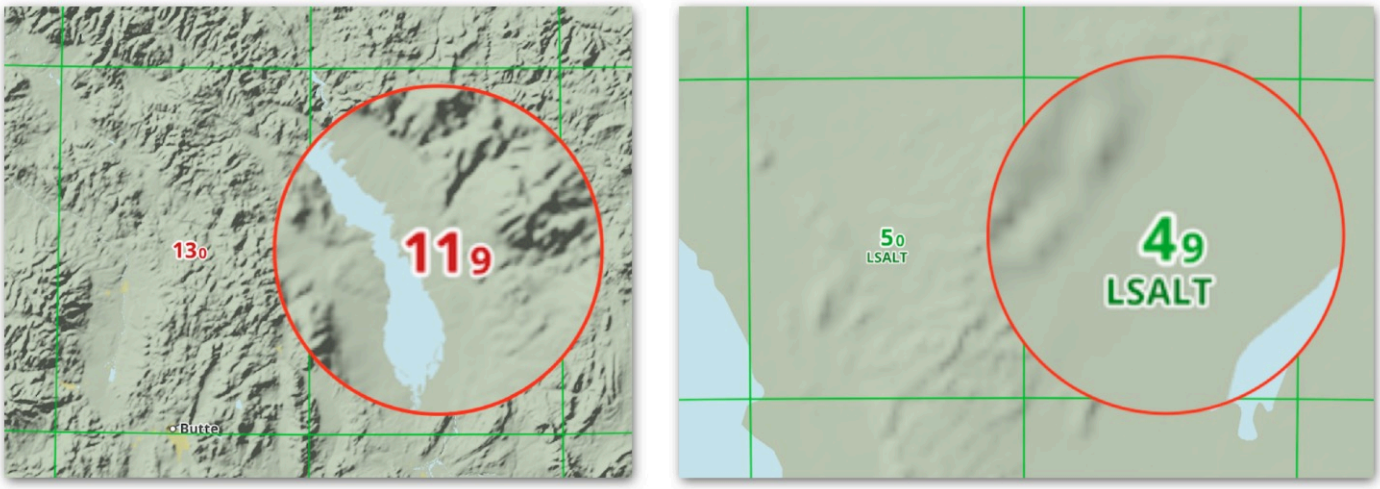


Figure 8-31. Grid MORA (Left), Grid LSALT (Right)

IOS FEATURES AND SETTINGS

Several built-in iPad features enhance the performance and usability of ForeFlight Mobile. Understanding how these iOS functions interact with ForeFlight Mobile ensures smoother operation and more efficient in-flight and ground-based workflows.

This section describes key iOS features relevant to ForeFlight Mobile, including multitasking support, screen orientation and rotation controls, device settings management, and brightness adjustments. Additional system-level settings, such as local network access and precise location permissions, are also covered to support optimal app performance.

9.1 iOS Feature to Use with ForeFlight Mobile

iOS has the following features relevant to ForeFlight Mobile:

iOS Multitasking

iOS Multitasking enables two applications to run simultaneously. ForeFlight Mobile supports Multitasking, Split Screen, and Slide Over on compatible iPads.

For more information on how multitasking works in ForeFlight Mobile, refer to the following resources:

- **Video**: Multitasking Support & Major Design Improvements.
- **Apple Support Article**: Use multitasking on an iPad.

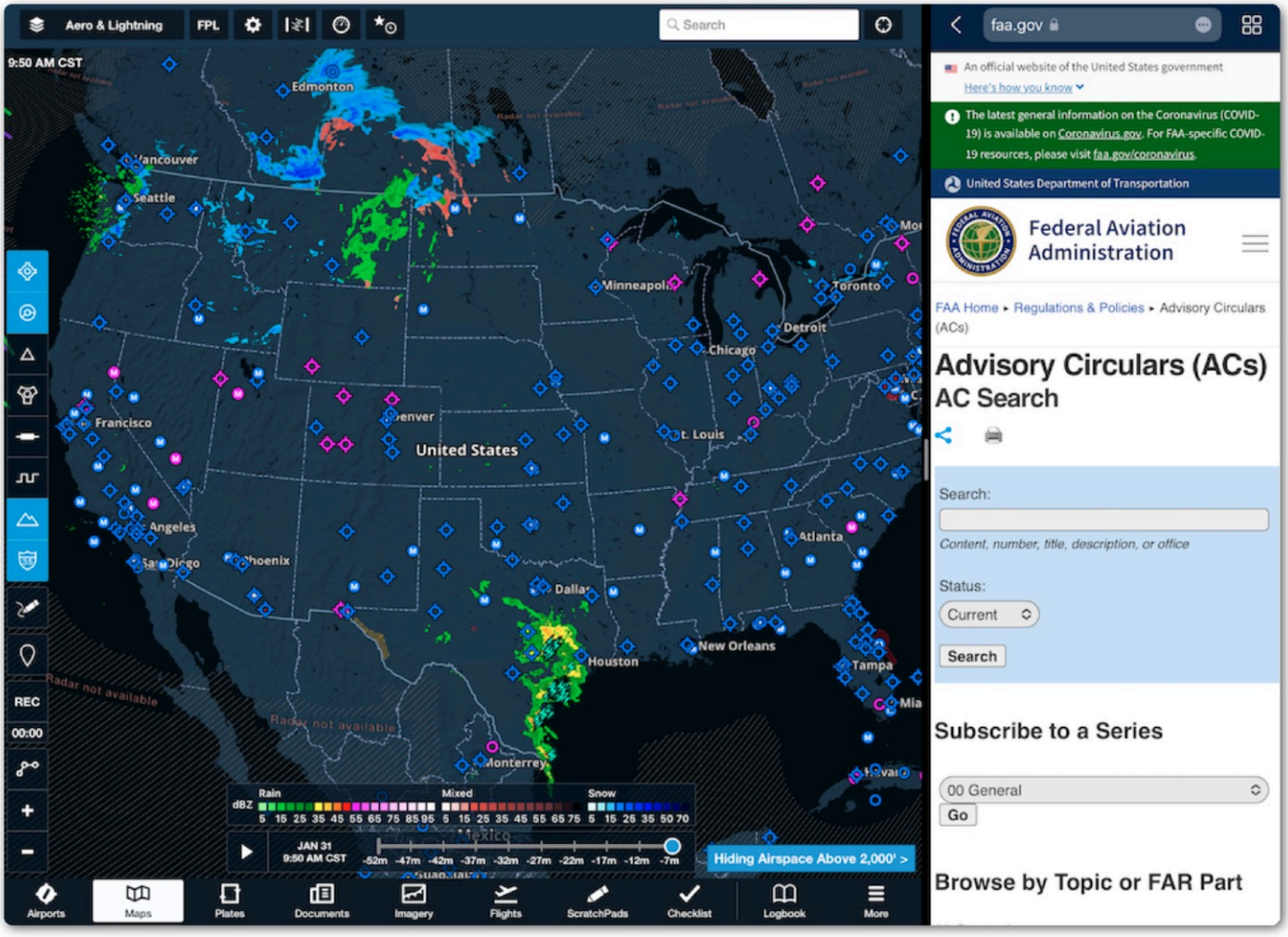


Figure 9-1. Multitasking with ForeFlight Mobile

Multiple Orientations

The iPad supports portrait and landscape orientation. When an iPad is rotated from one orientation to another, an application typically alters its user interface to better take advantage of the space supplied.

Rotation Lock

Having the screen rotate is not always desired. Rotation lock is helpful for preventing accidental rotation in turbulence. Swipe down from the upper-right corner of the screen to open the Control Center and find the rotation lock soft-button.

Brightness Control

There is a brightness control accessible in iPad Settings app. It is also available for quick access in the Control Center by swiping-down from the top of the screen. This control is helpful for reducing brightness at night, or for dimming the screen during the day to preserve battery life. For night use, if the iPad brightness control is set to full dim (slider all the way to the bottom) doesn't dim the screen enough, use the brightness slider in ForeFlight Mobile in the More view or at the top of the Maps Settings menu to dim the screen further. The ForeFlight Mobile brightness slider integrates with the iPad brightness slider, but allows for additional dimming beyond the lowest setting of the iPad slider.

Settings App

The iPad includes a special application called Settings. Within Settings, the way the iPad and its applications behave can be modified. ForeFlight Mobile-specific settings are addressed in the Settings section of this guide. All ForeFlight Mobile settings are available in the More view of ForeFlight Mobile as well.

9.2 iOS Setting to use with ForeFlight Mobile

Certain iOS settings must be properly configured to ensure full functionality and optimal performance of ForeFlight Mobile. These settings control access to key system services, including local network communication and precise location data.

This section outlines how to enable the necessary permissions for:

- **Local Network Access** - Required for connecting to supported external devices.
- **Precise Location** - Ensures accurate GPS positioning within ForeFlight Mobile.

Step-by-step instructions are provided for adjusting these settings using the iPad **Settings** application.

9.2.1 iOS Network Settings

When ForeFlight Mobile is first opened, a prompt appears requesting permission to find and connect to devices on the local network. To allow access, tap **OK**.

If **Don't Allow** is tapped and local network access must be enabled later, use one of the following methods in the Apple Settings app:

OPTION 1: Privacy & Security

To give ForeFlight Mobile access to the local network through Privacy & Security, select **Privacy & Security → Local Network**, then enable ForeFlight.

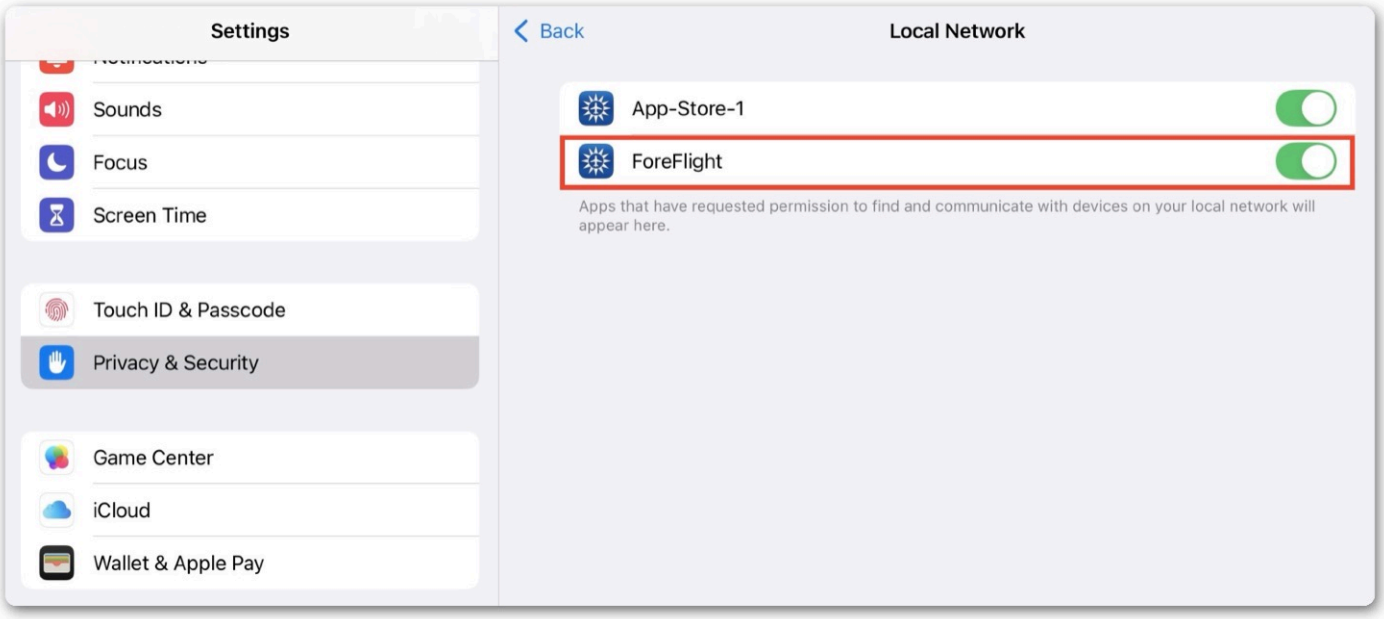


Figure 9-2. Network Setting under Privacy & Security

OPTION 2: Apps

To give ForeFlight Mobile access to the local network through Apps, select **Apps → ForeFlight**, then enable ForeFlight.

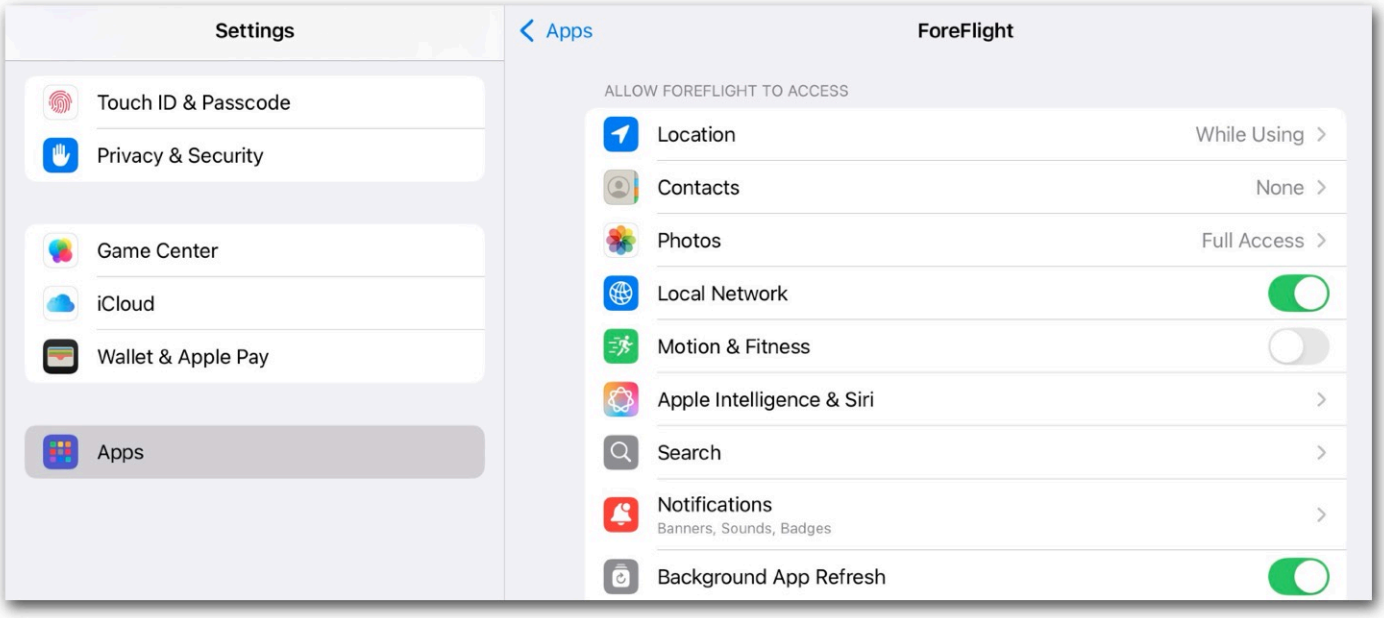


Figure 9-3. Network Setting under Apps

9.2.2 iOS Location Settings

For best position accuracy, enable Precise Location for ForeFlight Mobile (iOS14 and later). Open the Settings app and follow one of the two options:

- **Privacy ➔ Location Services ➔ ForeFlight ➔ Precise Location**: Set to ON.
- **ForeFlight ➔ Location ➔ Precise Location**: Set to ON.

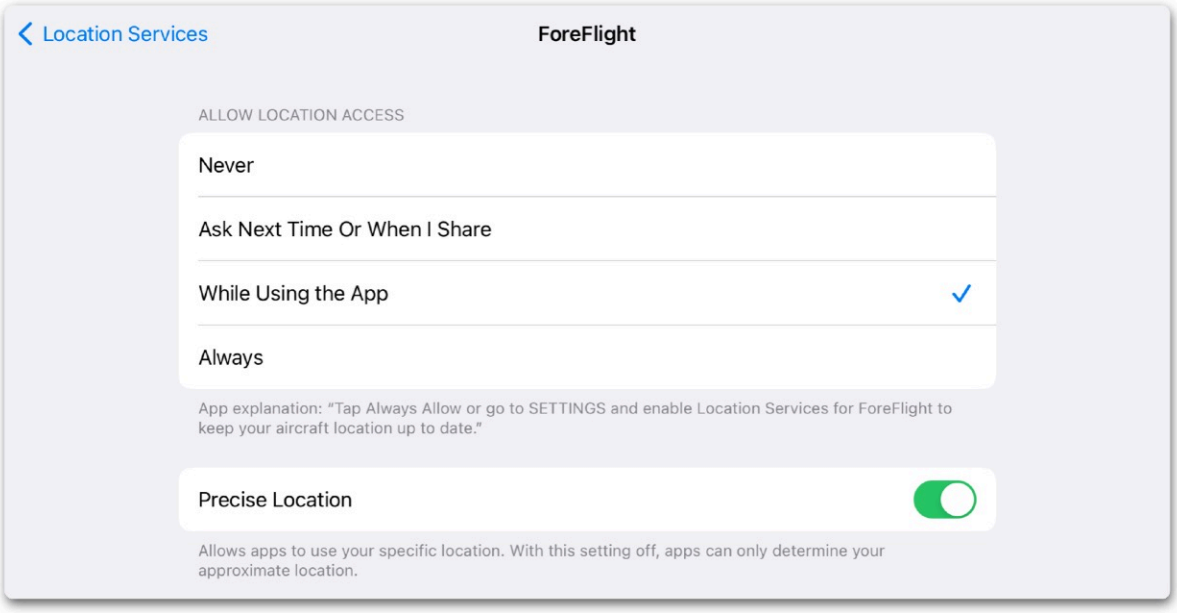


Figure 9-4. Location Services iOS 14 and later

AIRCRAFT

Successful flight planning begins with a complete aircraft profile. The Aircraft view is where aircraft profiles associated with an account are managed. When sync is enabled, aircraft profiles sync between the devices signed in to the account.

Select **More ➔ Aircraft** to access the Aircraft view. Aircraft profiles can be managed with ForeFlight Web or ForeFlight Mobile. This guide primarily covers managing aircraft profiles with ForeFlight Mobile.

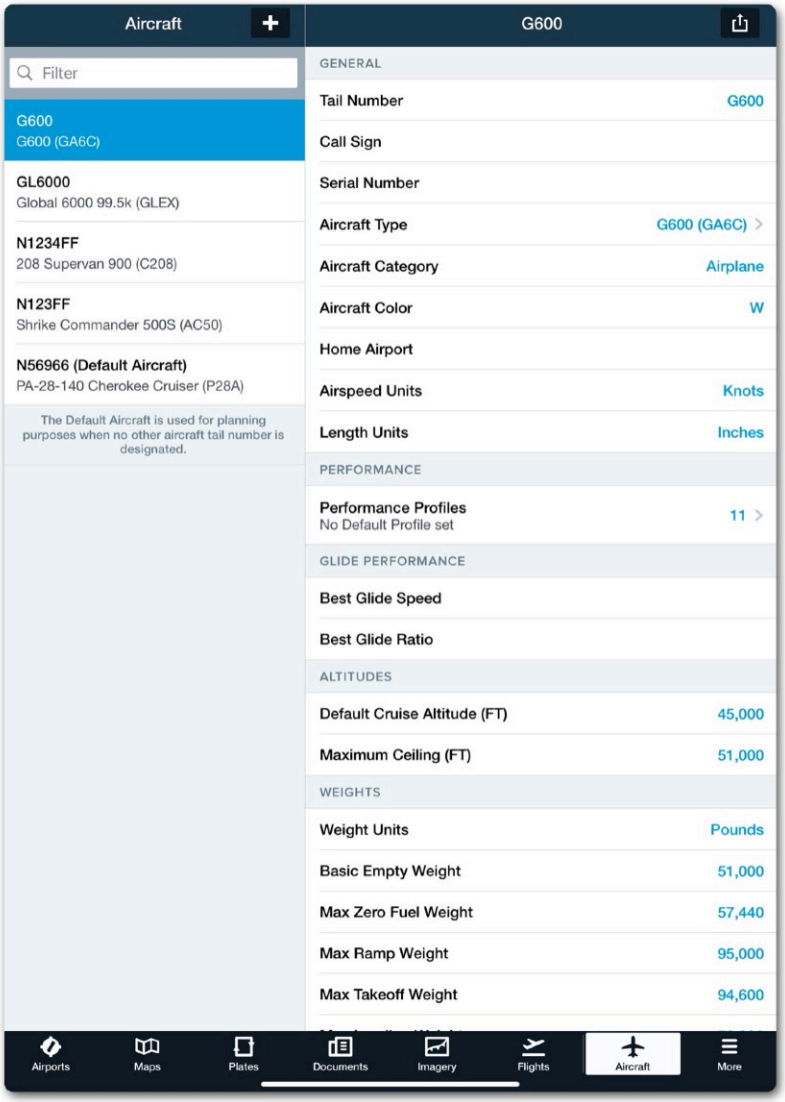


Figure 10-1. Aircraft View

10.1 Design

The Aircraft View is divided into two columns. The left column lists the aircraft associated with the account. Aircraft recently used for flight planning are listed at the top.

When the Aircraft view is displayed, tap any aircraft to make it the active aircraft. The selected aircraft is highlighted in blue, and its details are shown in the right column. Accounts with many aircraft profiles can use the search bar at the top of the list to filter the number of aircraft displayed. Filter aircraft by type or tail number. There are no practical limits to the number of aircraft profiles associated with an account. When using an iPhone, navigate between the aircraft list and detail view by tapping the **Aircraft** back button in the upper toolbar.

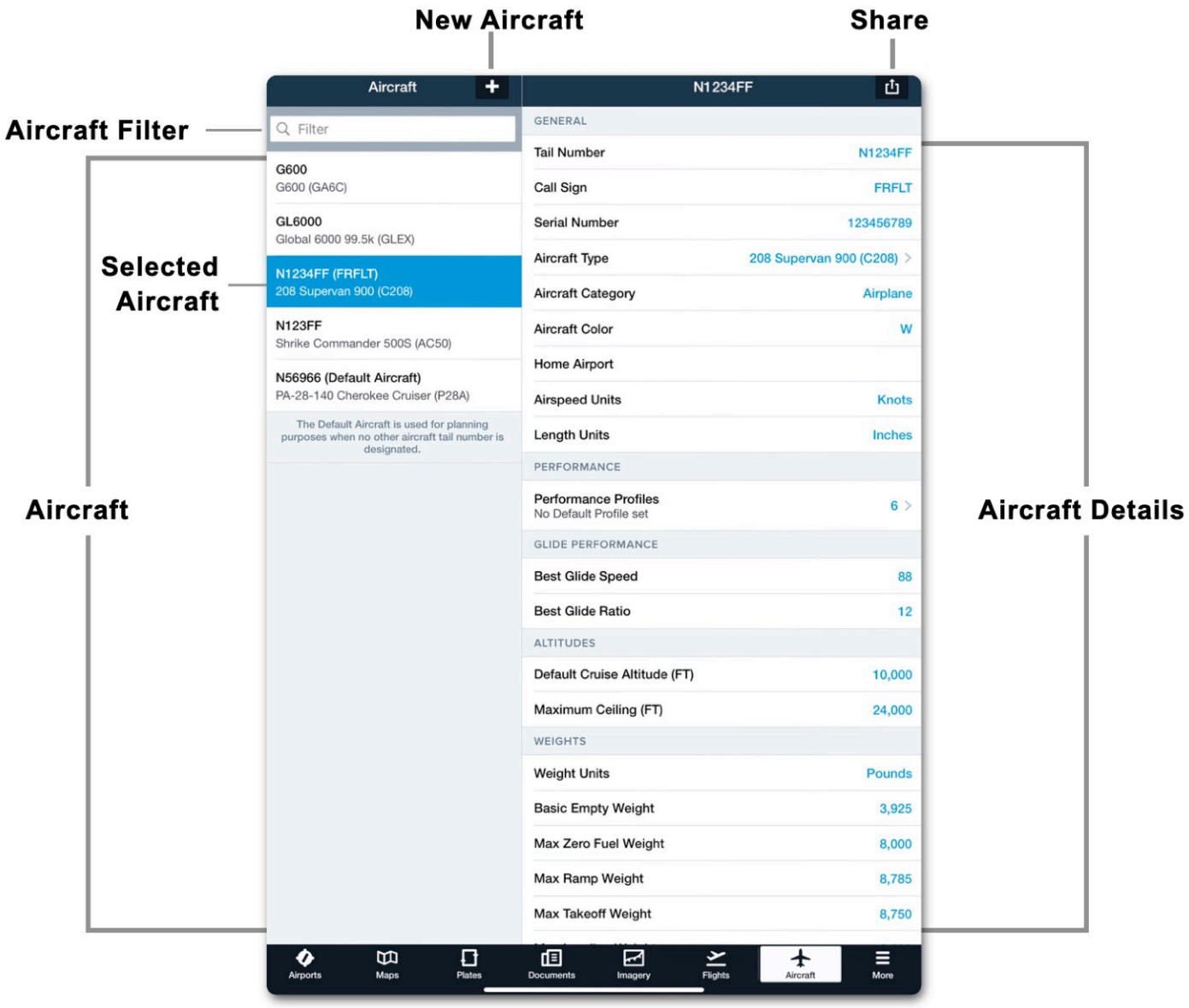


Figure 10-2. Aircraft View Design

10.2 Creating an Aircraft Profile

To create a new aircraft profile, tap the **[+]** button in the upper toolbar and complete the aircraft details. Aircraft details are grouped into various sections. Some sections, such as the Weights section, may be automatically completed when an aircraft type is selected. If the automatically populated details are not correct, verify that the aircraft type is accurate, including any applicable supplemental type certificates (STC).

10.2.1 General

The GENERAL section is where basic information about the aircraft is specified. Manually enter or use the drop-down menus to complete the General section. Descriptions for each field are listed below.

> **Tail Number**
>
> Used for specifying the registration number, including the country code for the aircraft. Use only letters and numbers in the Tail Number field. The Tail Number field is copied to the filing form when filing a flight plan.

> **Call Sign**
>
> An optional field consisting of up to 7 alphanumeric characters (no special characters). It will show in the aircraft list after the tail number in parenthesis. The Call Sign field is copied to the filing form when filing a flight plan.

> **Serial Number**
>
> An optional field consisting of only letters and numbers.

> **Aircraft Type**
>
> This field includes a built-in type code search engine. Enter the aircraft make or model in the search box. Scroll through the list to find the aircraft and select the appropriate type code.
>
> > **NOTE:** Ensure the aircraft type includes any applicable supplemental type certificates.

> **Aircraft Category**
>
> Offers a menu to select **Airplane**, **Rotorcraft**, or **Other**.

> **Aircraft Color**
>
> Used to enter the colors of the aircraft. Use the color wheels to select the colors of the aircraft. The leftmost color is the base aircraft color.

> **Home Airport**
>
> Allows for the entry of the ICAO code for the airport where the aircraft is based.

> **Airspeed Units**
>
> Specifies whether ForeFlight uses **Knots** or **MPH** for the aircraft.

> **Length Units**
>
> Used to specify if the aircraft uses **Inches**, **Feet**, **Meters**, **Millimeters**, or **Centimeters** to calculate weight and balance.

> **Ownership Status**
>
> Used to specify **sole owner**, **co-owner**, **renter** or **none of the above**.

> **Enable Virtual Waypoints**
>
> Enable or disable route legs longer than 100 NM subdividing into 100 NM increments. See Routes with legs greater than 100 NM for more detail.

10.2.2 Performance

The PERFORMANCE section lists the aircraft performance profiles, Takeoff & Landing Performance, and Runway Analysis settings. Performance profiles contain climb, cruise, and descent values for flight planning purposes.

There are three types of performance profiles. Aircraft can have multiple performance profiles of each type.

- Basic Performance Profiles
- By-Altitude Performance Profiles (Premium Required)
- ForeFlight Performance Profiles (Premium Required).

10.2.2.1 Basic Performance Profiles

The Basic Performance Profile is included with all plans. When creating a new aircraft, the basic profile must be manually completed. Basic profiles contain an individual set of climb, cruise, and descent values. Only the cruise values are required to generate flight planning results. However, completing the climb and descent fields is recommended. There are no limits to the number of basic profiles an aircraft can have.

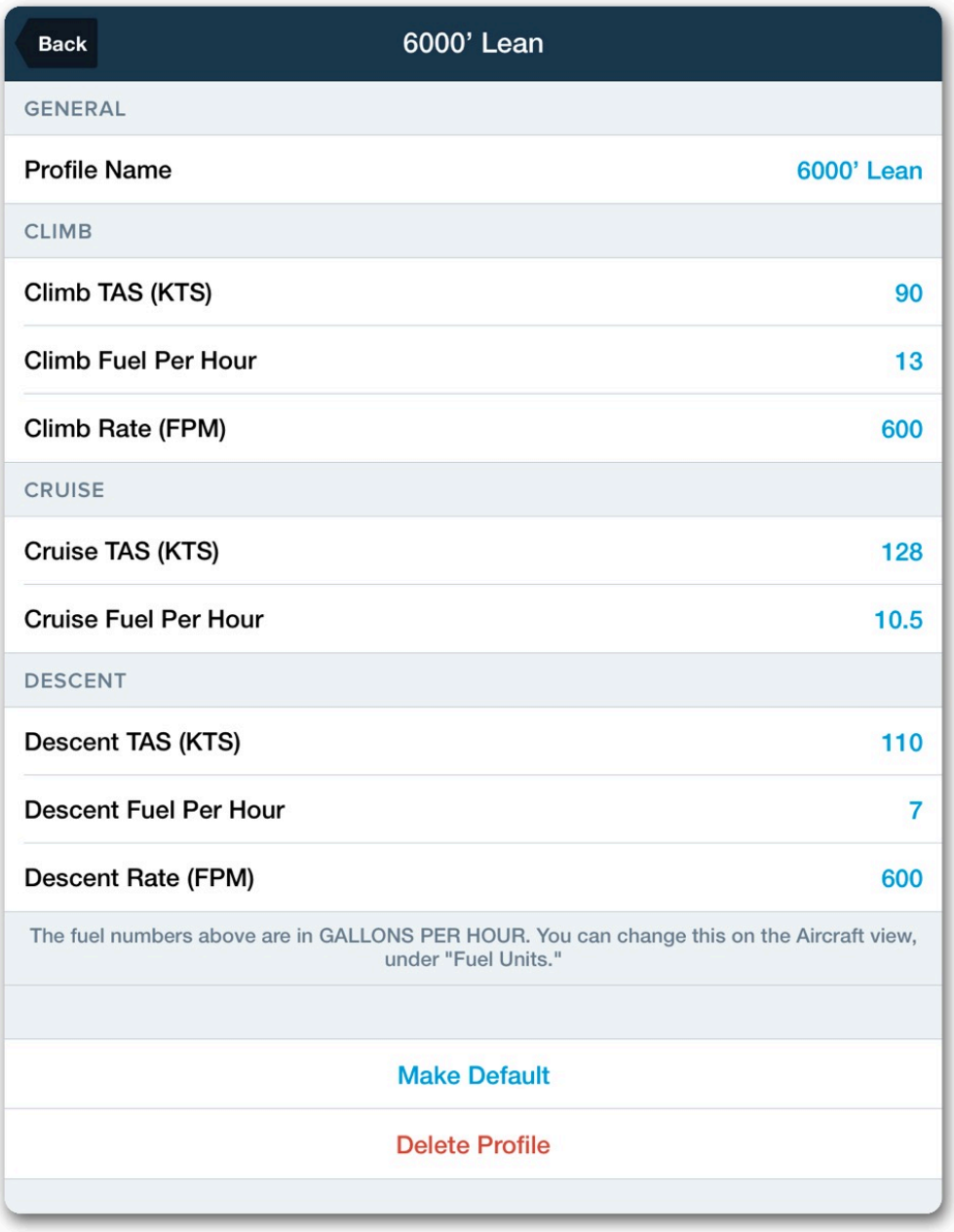


Figure 10-3. Basic Performance Profile

10.2.2.2 By-Altitude Profiles

By-Altitude performance profiles are only available with Premium and Business Performance plans. The by-altitude profile is a custom, user-generated performance profile that specifies aircraft performance by altitude.

By-Altitude profiles can only be created with ForeFlight Web. To create a custom by-altitude profile, sign in to ForeFlight Web and select **Aircraft** from the sidebar. Select an aircraft and then select **+ Add Basic Performance Profile** ➔ **By-Altitude Profile** in the performance section.

Enter climb and descent information for the aircraft. Include climb and descent fuel flow at low and high ends of the operating range. ForeFlight Mobile will interpolate climb and descent performance based on the entries.

> **CAUTION:** Interpolation applies only to rows where all data fields are blank. Partially populated rows may generate incorrect fuel burn calculations.

Provide a name for the en route performance profile (e.g., Economy Cruise) and define the Max Ceiling. Enter aircraft performance for every row up to the max ceiling using the aircraft performance charts/tables. When the table is complete, select **Save** at the bottom of the screen.

Multiple custom profiles can be created if necessary. The custom profile can be set as the aircraft default by selecting **Make Default** near the top of the screen. Custom performance profiles can be selected in ForeFlight Mobile once complete.

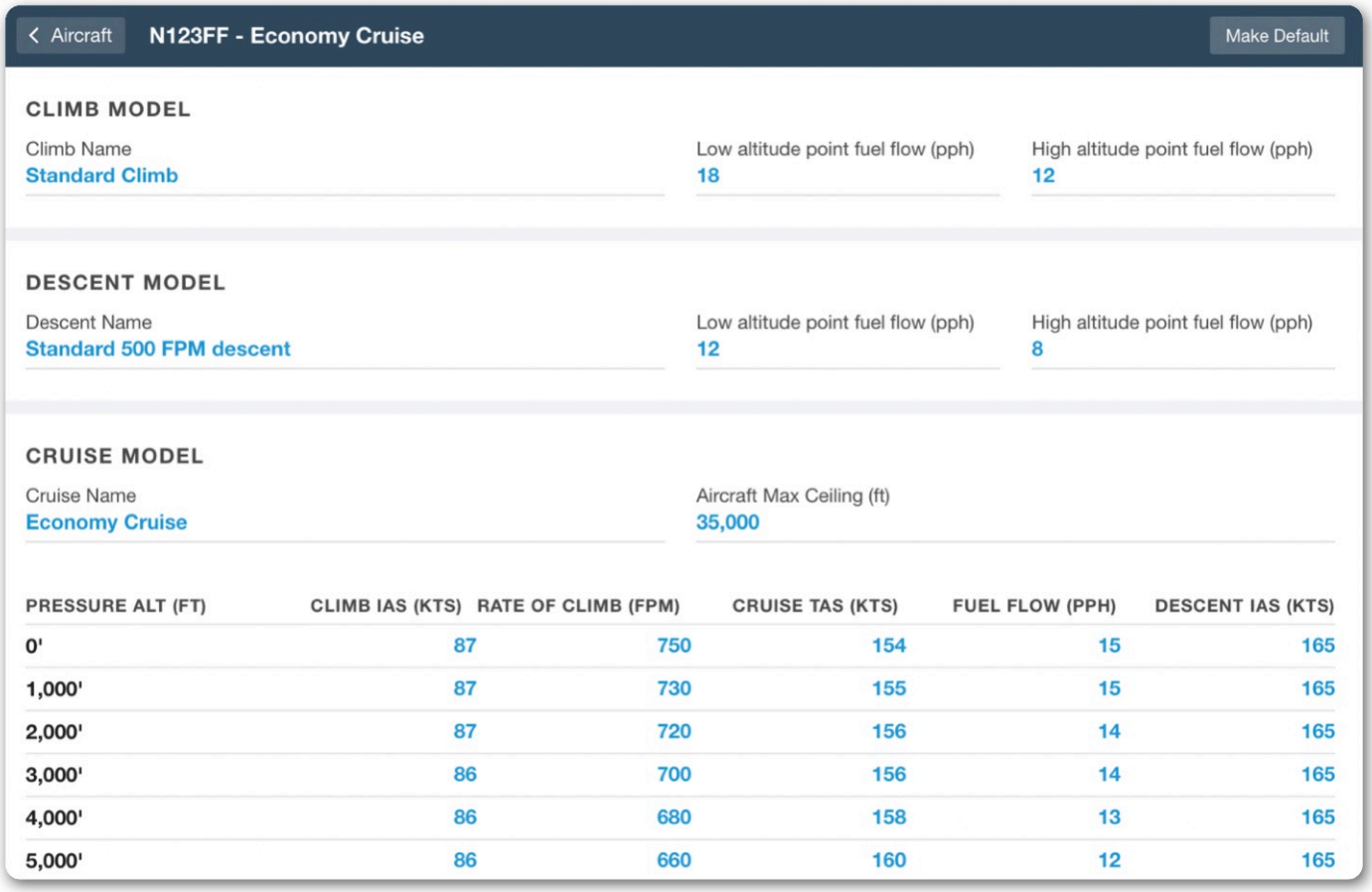


Figure 10-4. By-Altitude Performance Profile

10.2.2.3 ForeFlight Mobile Performance Profiles

ForeFlight Mobile performance profiles are only available with Premium or Business Performance plans. ForeFlight performance profiles are created using aircraft manufacturer performance data.

ForeFlight performance profiles are comprised of detailed by-altitude climb, cruise, and descent models for highly accurate flight planning results. When selecting an aircraft type, the number of en route cruise performance models is depicted in blue.

Available manufacturer data determines the number of profiles. The number of available profiles should match the number of performance profiles in the Aircraft Flight Manual (AFM).

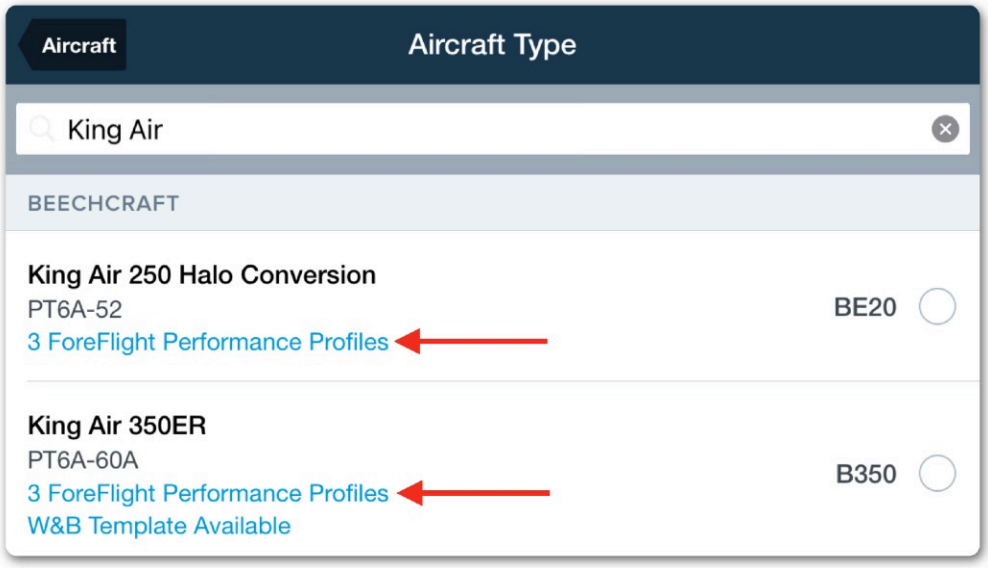


Figure 10-5. Available ForeFlight Performance Profiles (Cruise)

IMPORTANT: Ensure the correct aircraft type is selected including serial number, Supplemental Type Certificate (STC), Gross Weight Increase (GWI), and power plant conversion.

When an aircraft with a ForeFlight Performance Profile is selected, the Performance section lists the available climb, cruise, and descent models. The profile names and values are derived from manufacturer data.

It is not possible to review specific performance values associated with a profile. For example, if the true airspeed for the Max Cruise Power 1700 RPM profile at FL180 and 4ºC is needed, ForeFlight is not able to do that. To determine specific values, refer to the performance section of the AFM.

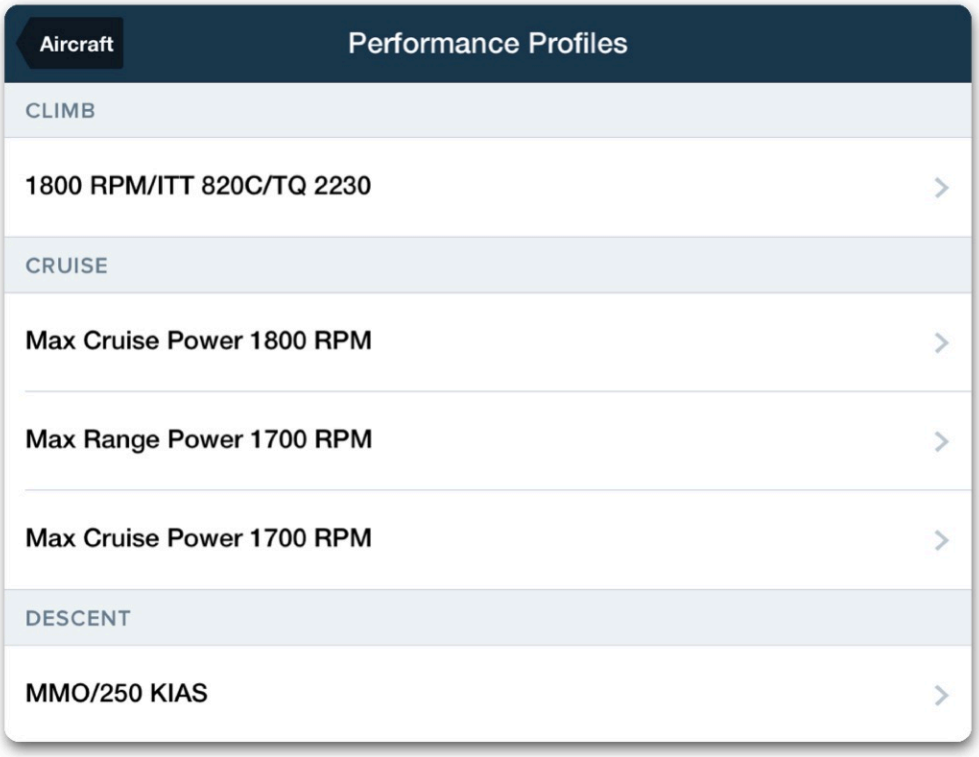


Figure 10-6. Three Available Cruise Models

10.2.2.4 Performance Model Adjustments

If the aircraft does not achieve the same performance specified by manufacturer data, use the performance model adjustments to get more accurate flight planning results. Performance model adjustments are synced to the aircraft profile.

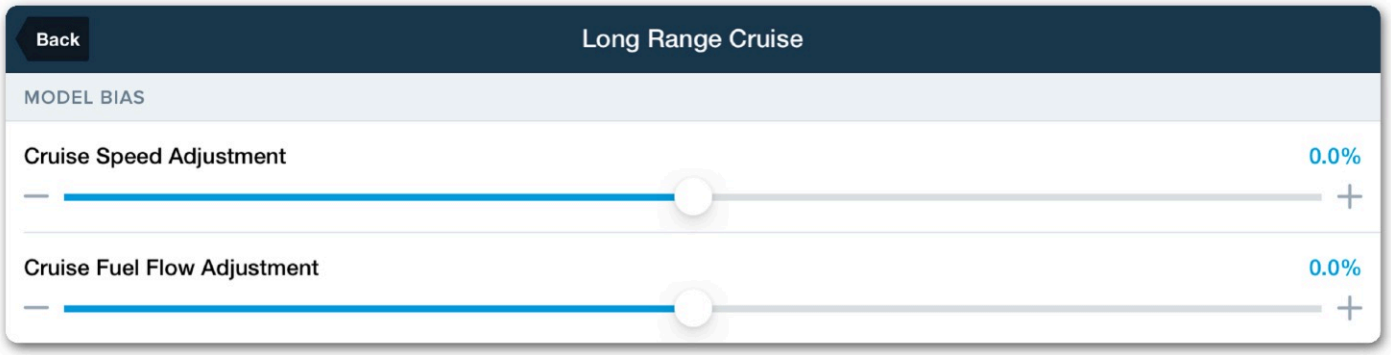


Figure 10-7. Cruise Model Adjustments

10.2.2.5 Model Adjustments (Climb and Descent)

Climb and descent performance models can be adjusted by a fixed time or fuel amount.

Climb biases are applied from the departure airport to the top of climb (TOC). Descent biases are applied from the top of descent (TOD) to the destination airport.

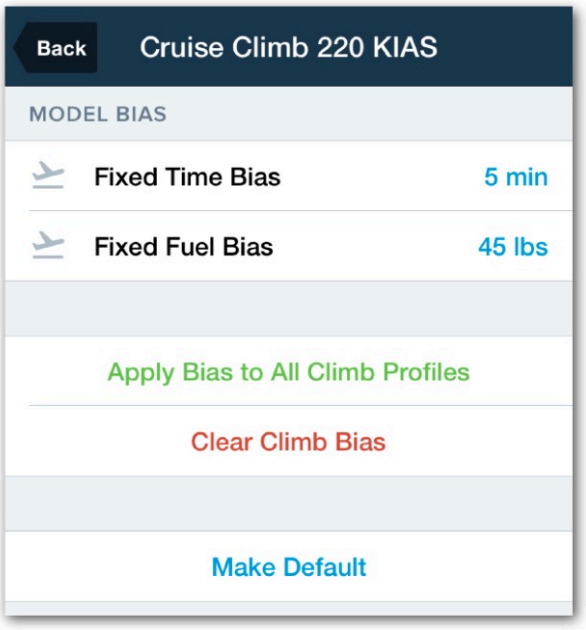


Figure 10-8. Climb Model Bias

To determine how much bias to apply:

1. Plan a flight and generate a Navlog.
2. Conduct the flight and record actual time and fuel burn.
3. Compare the actual results to the Navlog.

For optimal results, multiple flights should be conducted to discover if a trend exists. For example, if the aircraft consistently burns 45 more pounds of fuel before reaching TOC, add a 45 pound fuel bias to the climb model. Similarly, if the aircraft burn less fuel during descent, enter a negative descent bias.

10.2.2.6 Model Adjustments (Cruise)

Cruise model adjustments are specified with a percentage. For example, if ForeFlight Mobile consistently calculates an estimated time en route that is 10% more than the actual results, tap the cruise model being planned with and slide the **Cruise Speed Adjustment** to +10%.

A positive bias increases the planned true airspeed or fuel burn by the specific percentage. A negative bias reduces the planned true airspeed or fuel burn by the percentage specified.

10.2.2.7 Apply Bias to All

If the aircraft has more than one climb, cruise, or descent profile, tap **Apply Bias to All** to apply the bias to all the models. **Clear Bias** restores the profile to its original settings (zero bias). To make a performance profile the default for the aircraft, tap **Make Default**. The default profile calculates planning results when no other profile is selected.

> **NOTE:** Mach-based performance profiles do not offer cruise bias sliders.

10.2.3 Ownship

The OWNSHIP section allows for the specification of the ownship marker.

Ownship marker color and type can be selected. If no marker is selected the aircraft will default to the marker identified in Ownship Marker.

10.2.4 Glide Performance

The GLIDE PERFORMANCE section allows for the specification of the all-engines off glide characteristics. Entering a value in this section will affect the display of the Glide Advisor on the map.

To enter the glide information, enter a whole or decimal number in the Best Glide Ratio field. For example, aircraft with an 8.5:1 glide ratio should enter 8.5. Similarly, aircraft with a 9:1 glide ratio should enter 9. This field may be auto-populated with manufacturer data.

10.2.5 Altitudes

The ALTITUDES section sets a default cruise and maximum altitude for the aircraft. The Maximum Ceiling field sets the upper cut-off for the Altitude Advisor. Not entering a value for Maximum Ceiling will result in the Altitude Advisor returning results up to FL570.

The default cruise altitude is used when planning with ForeFlight Mobile and ForeFlight Web. When planning with ForeFlight Dispatch, an optimal altitude for the route is determined, and the default cruise altitude is ignored.

10.2.6 Weights

The WEIGHTS section specifies the various aircraft weight limits. Auto-populated values should be verified.

> **Weight Units**
>
> Select if planning with the aircraft will use **pounds** or **kilograms** for flight planning.

> **Basic Empty Weight**
>
> Enter the actual basic empty weight of the aircraft (Auto-populated with a target value).

> **Max Zero Fuel Weight**
>
> The maximum weight the aircraft can weigh with zero fuel onboard (Auto-populated).

> **Max Ramp Weight**
>
> The maximum weight prior to engine start and taxi (Auto-populated).

> **Max Takeoff Weight**
>
> The maximum allowable weight at the start of the takeoff roll (Auto-populated).

> **Max Landing Weight**
>
> The maximum allowable weight at touchdown (Auto-populated).

10.2.7 Weight and Balance

The WEIGHT AND BALANCE (W&B) section is used to create W&B profiles. W&B profiles are configured by defining the following variables for the aircraft:

- W&B Profile Name
- Aircraft Basic Empty Weight (BEW)
- Aircraft Basic Empty CG
- Station Descriptions
- Station Locations (arm)
- Station Weight Limits (if applicable)
- Aircraft Forward and Aft CG Limits
- Gear Retraction Moment Change (if applicable).

W&B Templates

Some aircraft types have prebuilt W&B templates which only require the entry of basic operating weight, CG, and station verification to complete. Aircraft with prebuilt templates have a **W&B Template Available** label when selecting an aircraft type.

If a prebuilt template does not exist for the aircraft, a custom W&B profile can be created using the **Blank Template**. For detailed instructions on creating and using ForeFlight Weight & Balance, refer to the Weight & Balance guide available in **Documents ➔ ForeFlight**.

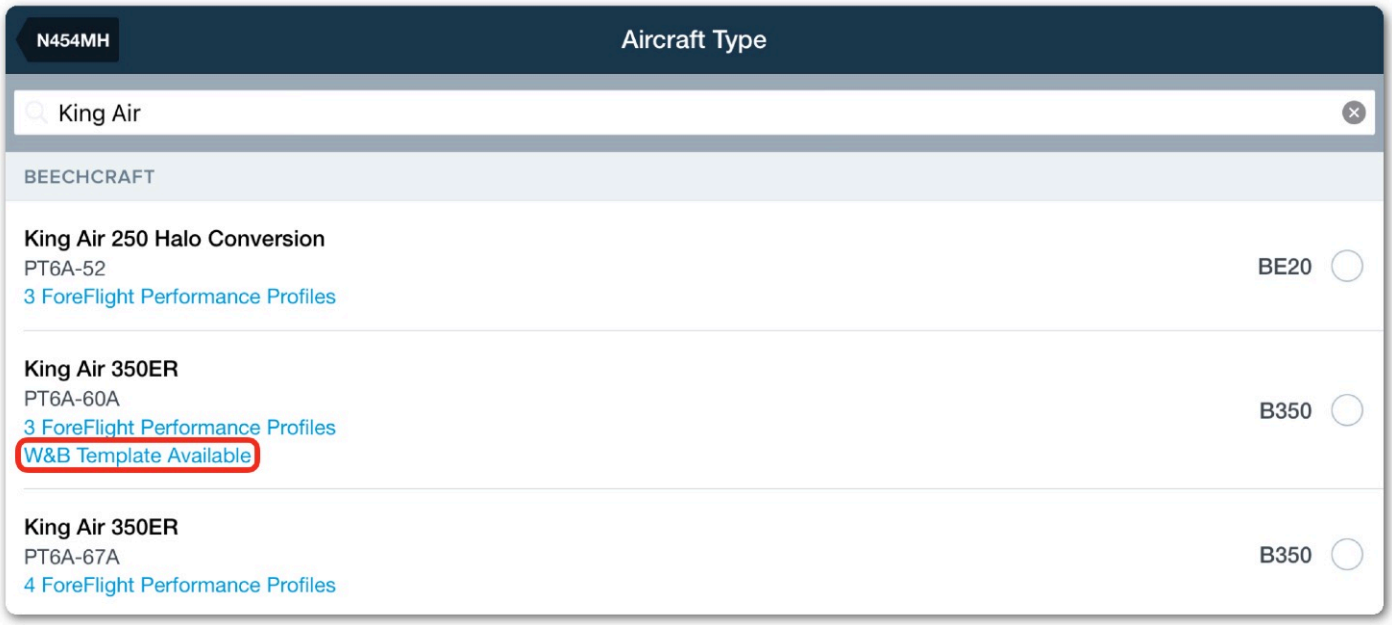


Figure 10-9. Aircraft with W&B Template Available

> **NOTE:** For detailed instructions on creating and using ForeFlight Weight & Balance, refer to the ForeFlight Weight and Balance Guide available in **Documents ➔ ForeFlight**.

10.2.8 Fuel

The FUEL section defines parameters related to the aircraft's fuel system. Settings include fuel type, units, and fuel amounts used during different phases of flight. Performance-tier accounts include additional fields for reserve fuel configuration and total usable fuel. Auto-populated values should be verified.

> **Fuel Type**
>
> Determines fuel weight based on the selected fuel density.
>
> - **100LL** and **Other** : 6.0 pounds per gallon.
> - **Jet-A** and **Jet-A Prist** : 6.75 pounds per gallon.

Fuel Units

Used to specify the format for fuel measurement. Options include **Gallons** , **Liters** , **Pounds**, or **Kilograms**.

Start/Taxi/Takeoff Fuel

Used to specify the amount of fuel consumed during Start, Taxi, and Takeoff.

Total Usable Fuel

Use to define the total usable fuel (Auto-populated). This value should match the value in the AFM.

Reserve Policy

The reserve fuel based on regulatory requirements. See Reserve Policy.

Default Reserve Fuel

Used to specify the reserve amount applied when the Manual reserve policy is selected by default.

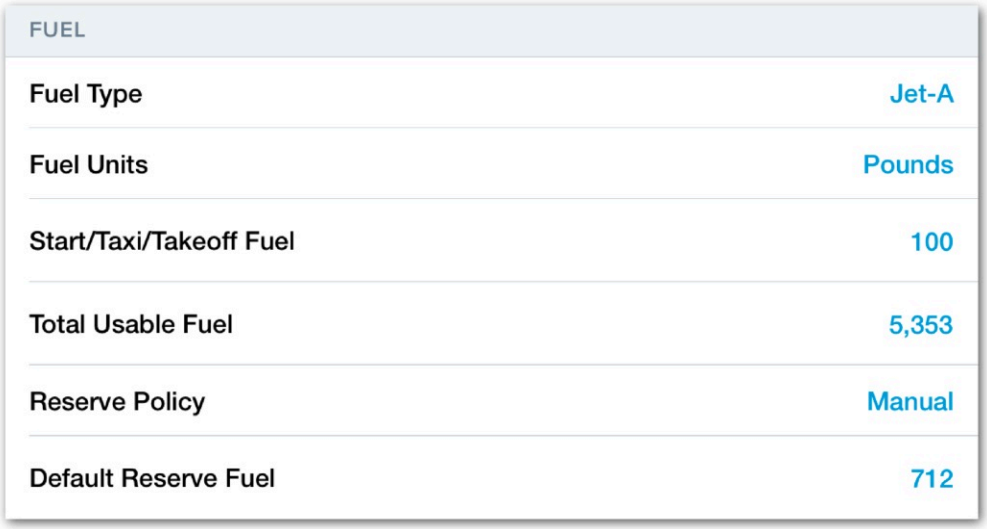


Figure 10-10. Premium Fuel Section

10.2.8.1 Reserve Policy

A reserve policy is a method for calculating reserve fuel based on regulatory requirements. New flights are automatically planned using the default reserve policy specified on the aircraft profile unless edited on a per-flight basis.

Depending on the ForeFlight subscription region, there are up to twelve reserve policies to choose from. The table below describes which policies are available per region.

For an explanation of how reserve fuel amounts are calculated, see Reserve Fuel.

Table 10-1. Reserve Fuel Policies per Subscription Region.

Reserve Policy	USA	Europe	Canada	Australia
Manual	✓	✓	✓	✓
Manual (Minutes)	✓	✓	✓	✓
FAA Part 91/135	✓			
FAA Part 121	✓			
FAA Part 121 International	✓			
EASA Part NCC		✓		
EASA NCO		✓		
EASA CAT		✓		
ICAO	✓	✓	✓	✓
CASA Part 91				✓
CASA Part 135				✓
CASA Part 121				✓

NOTE: Reserve Policy availability is based on the subscription's region, not the region of the planned flight. ForeFlight Dispatch customers have access to all Reserve Policies.

10.2.9 Filing

The FILING section is where aircraft equipment, wake category, and special considerations for filing purposes are specified. For detailed information on choosing the correct codes, reference the ForeFlight Filing Guide available in-app at **Documents → ForeFlight → ForeFlight Filing Guide** or online at foreflight.com/filing-guide.

10.2.9.1 FAA and ICAO Equipment

Equipment codes specify the communication and navigation equipment installed on the aircraft. Select the appropriate equipment installed, serviceable, and that the flight crew is qualified to operate. ForeFlight files all flight plans using the ICAO filing form. As a result, it is not necessary to enter FAA Equipment.

10.2.9.2 ICAO Equipment

ICO equipment codes specify the communication and navigation equipment installed on the aircraft. Select the appropriate equipment installed, serviceable, and that the flight crew is qualified to operate. ForeFlight files all flight plans using the ICAO filing form.

10.2.9.3 ICAO Surveillance Codes

ICAO Surveillance codes specify the transponder and ADS-B equipment types.

10.2.9.4 ICAO Wake Category

ICAO Wake Category is automatically selected based on manufacturer data and should be verified. The following table should be used to verify the ICAO wake category.

Light	7,000 kg (15,500 lbs.) or less
Medium	7,001 kg up to 135,999 kg (15,501 lbs. to 299,999 lbs.)
Heavy	136,000 kg (300,000 lbs.) or more

Figure 10-11. Aircraft - ICAO Wake Categories

10.2.9.5 ICAO Perf-Based Nav (PBN)

ICAO Performance Based Navigation (PBN) codes specify aircraft Area Navigation (RNAV) and Required Navigation Performance (RNP) capabilities. As many as 8 RNAV + RNP options can be selected.

Other Information includes ICAO flight plan optional fields. Some entries may be required depending on the information included in the flight plan.

Other Information Definitions	
CODE	Aircraft Mode S hex address (e.g., A519D9)(Recommended).
COM	Communication capabilities not otherwise specified in the ICAO Equipment field.

Other Information Definitions	
DAT	Other data applications (See AC 90-117).
DLE	Delay or holding (at a fix). Insert the point(s) where the delay is to occur followed by the length of the delay in hours and minutes (hhmm) (e.g., KZLA0120).
EET	Estimated Elapsed Time within an FIR boundary (e.g., KZNY0124). EET is automatically calculated and entered by ForeFlight.
NAV	Navigation capabilities not otherwise specified in the ICAO Equipment field.
OPR	Operator/Company Name
ORGN	Flight Plan Originator AFTN address or other appropriate contact details (e.g., KHOUARCW)(Not required by FAA).
PER	Performance Category (e.g. A)(Not required by FAA).
RALT	Four letter ICAO identifier for En route Alternates (e.g., EINN CYYR KDTW).
REG	Registration (ex. N123AB, CJABC, DABC). Must be entered to receive CPDLC messages. May be entered if different from aircraft identification entered on flight plan. If a Tail Number is entered in the aircraft profile and a flight is filed with a call sign (optional), the tail number from the aircraft profile is automatically copied to this field.
RIF	Route to revised destination (e.g., DTA HEC KLAX).
RVR	Runway Visual Range Requirement in Metres (EuroControl support).
SEL	SELCAL is a signaling method for HF equipment which alerts aircraft that a ground station wishes to communicate with it. Codes are assigned to aircraft operators and not to individual aircraft.
STAY INFO	Additional information for delays at a waypoint. Utilized in EuroControl airspace.
SUR	Surveillance capability. For example, enter "260B" for 2020 ADS-B compliant 1090Mhz transceivers, "282B" for compliant 978UAT transceivers, or RSP180 for equipment meeting RSP performance standards.

Other Information Definitions	
TALT	Take-off Alternates (e.g., KTEB).
TYP	Non-standard aircraft type (e.g., homebuilt). Must provide type information if aircraft type is ZZZZ.

STS Special Handling specifies the default handling status for the aircraft.

Flight Status	Definition
Altitude reservation (ALTRV)	A flight operated in accordance with an altitude reservation.
ATFM exempt (ATFMX)	A flight approved for exemption from ATFM measures by the appropriate ATS authority.
Firefighting (FFR)	Fire-fighting.
Flight check (FLTCK)	Flight check for calibration of navaids.
Hazardous material (HAZMAT)	A flight carrying hazardous material.
Head of States (HEAD)	A flight with Head of State status.
Medical flight (HOSP)	A medical flight declared by medical authorities.
Humanitarian (HUM)	A flight operating on a humanitarian mission.
Military separation (MARSA)	A flight for which a military entity assumes responsibility for separation of military aircraft.
Medical Evacuation (MEDEVAC)	A life-critical medical emergency evacuation.
Non-RVSM in RVSM (NONRVSM)	A non-RVSM capable flight intending to operate in RVSM airspace.
Search and rescue (SAR)	A flight engaged in a search and rescue mission.
Military/police (STATE)	A flight engaged in military, customs or police services.

10.2.9.6 Aircraft Filing Remarks

The aircraft Remarks field is used to enter filing remarks that apply specifically to an aircraft. This field is useful for remarks that should be included in all or most flight plans filed for the aircraft.

Aircraft Remarks appear on the flight plan form under the Remarks/Other Information section and can be edited on a per-flight basis if needed. When a flight plan is filed, the Aircraft Remarks are copied to the ICAO Flight Plan form under field 18 (Other Information) preceded by RMK/.

10.2.10 Dinghy

The DINGHY section specifies the type, capacity, and color of any dinghies carried onboard the aircraft. If more than one dinghy is carried, enter the count, total capacity (i.e., 2, 10-person dinghies = 20 Persons), and color.

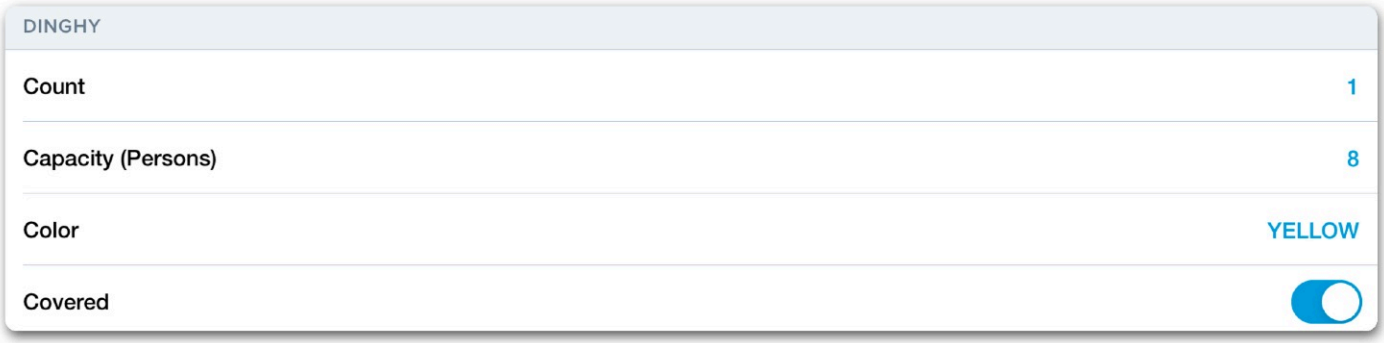


Figure 10-12. Aircraft - Dinghy

10.2.11 Emergency

The EMERGENCY section specifies the type of emergency equipment on board the aircraft. Choose the appropriate equipment from the drop-down menus if the aircraft carries Life Jackets, Radios, or Survival gear.

Life Jackets

> **Fluorescein**
>
> Powder used to dye water (Sea dye).

> **Light**
>
> Life preserver mounted light.

> **UHF**
>
> Ultra-high frequency portable radio.

> **VHF**
>
> Very-high frequency portable radio.

Radios

> **ELT**
>
> Emergency Locator Transmitter equipped

> **UHF**
>
> Ultra-high frequency portable radio

> **VHF**
>
> Very-high frequency portable radio.

Survival

> **Desert**
>
> Survival kit equipped for desert environments.

> **Jungle**
>
> Survival kit equipped for jungle environments.

> **Maritime**
>
> Survival kit equipped for maritime environments.

> **Polar**
>
> Survival kit equipped for polar environments.

10.2.12 Nav Canada

The NAV CANADA section depicts options for specifying Undercarriage and ELT type. This section is only visible to ForeFlight Mobile Canada subscribers. Nav Canada information is transmitted to the appropriate FIC when filing VFR flight plans in Canada.

ForeFlight Mobile subscribers without Canada coverage can specify the information on the filing form when planning VFR flights in Canada. If an ELT is set in the Emergency section, the ELT Type should be specified in the Nav Canada section.

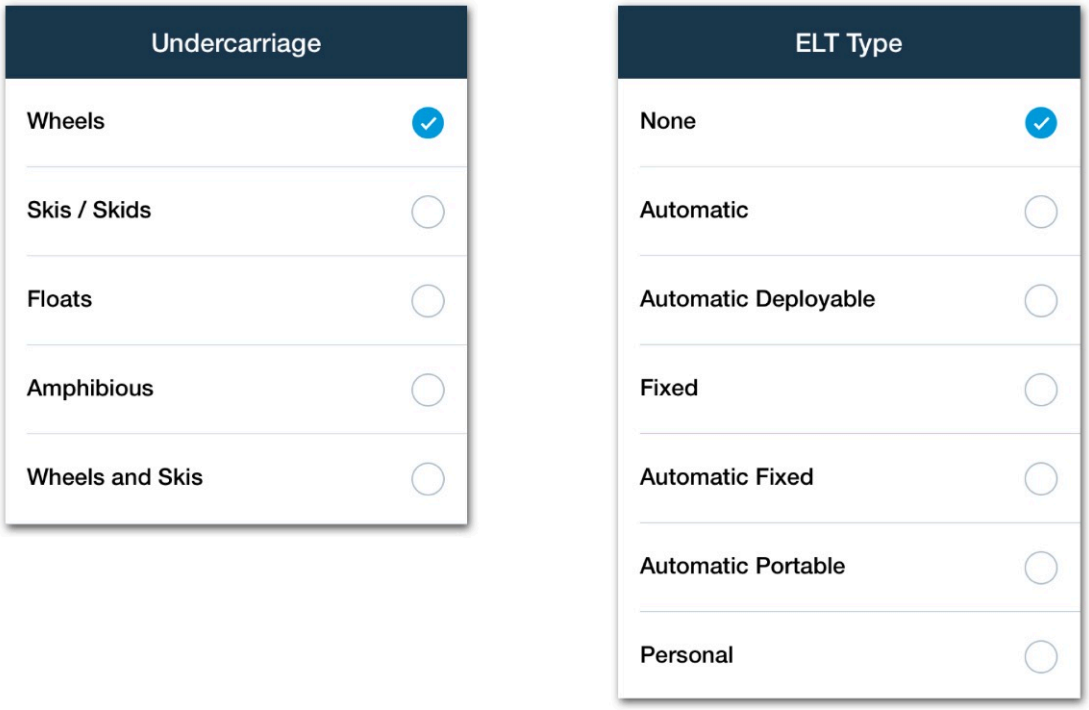


Figure 10-13. Nav Canada Section

10.3 Sharing Aircraft

Aircraft profiles can be shared via AirDrop, message, or email.

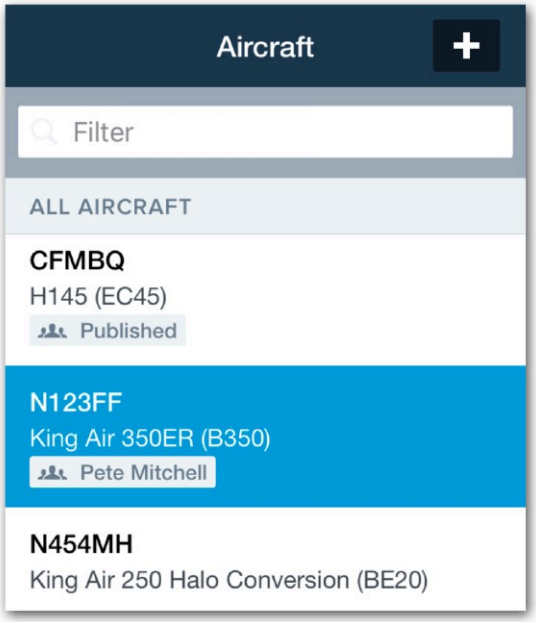


Figure 10-14. Shared Aircraft Profile

To share an aircraft, select the aircraft profile and tap the share button in the right corner of the upper toolbar. Choose how to share the profile: **AirDrop**, **Message**, or **Mail**.

If an aircraft is shared via email or message, the recipient must tap the link in the email or message to open ForeFlight Mobile. If shared via AirDrop, ForeFlight Mobile opens automatically. Once ForeFlight Mobile has opened on the recipient's device, tap **Accept** to add the shared aircraft.

Shared aircraft appear in the Aircraft list with a gray icon and the name of the pilot who shared the aircraft.

If an aircraft is shared by a Premium account to a Starter or Essential account, the recipient will not have access to ForeFlight Performance profiles or by-altitude profiles. Basic Performance Profiles are accessible by the recipient.

Aircraft are shared as read-only profiles. Shared aircraft are locked and cannot be edited by the recipient. Modifications to a shared aircraft by the profile owner are reflected on the recipients device.

To modify a shared aircraft as the recipient, the profile must be copied. Once a shared aircraft is copied, duplicate profiles will exist on the device.

The editable duplicate profile will not have the shared profile icon. Once a shared aircraft profile has been copied, the original locked (read-only) shared profile can be deleted if desired.

10.4 Copying Aircraft

Published, shared, and user-created aircraft profiles can be copied from the Aircraft view. Copying aircraft creates editable versions of read-only published or shared aircraft profiles. Copying is also helpful if multiple aircraft of the same type are flown. To copy an aircraft, open the profile and select **Copy Aircraft** from the bottom of the aircraft details view. Copied profiles are exact replicas of the original profile. There are no indications that a profile was copied.

10.5 Deleting Aircraft

To delete an aircraft,

1. Swipe from right to left across the entry in the list view.
2. Tap **Delete**.

Alternatively, open to profile and select **Delete Aircraft** from the bottom of the details view.

Published aircraft can not be deleted using ForeFlight Mobile. Read-only shared aircraft can only be deleted with the swipe/delete technique.

10.6 Published Aircraft

Multi-pilot accounts can publish company aircraft profiles. When an aircraft profile is published, all devices signed in to the account can access the published profiles. Published aircraft profiles can not be edited in ForeFlight Mobile. Only account administrators can manage published aircraft profiles.

To set up company-managed aircraft profiles as the administrator of a multi-pilot account, sign in to plan.foreflight.com and select **Aircraft** from the sidebar.

Select an aircraft to publish or create a new profile. Once the aircraft profile is complete, click **Publish** in the lower-right corner of the screen. Published aircraft are available in ForeFlight Mobile once they're published. When an aircraft is published, a Published tag appears below the aircraft registration and type in the list view.

Published aircraft can only be edited by account administrators. Published aircraft changes are immediately reflected in ForeFlight Mobile.

Clicking **Unpublish** revokes access to the aircraft for all users other than the administrator. Unpublished aircraft do not appear in ForeFlight Mobile and cannot be selected for flight planning. Published aircraft cannot be deleted. To delete a published aircraft, the aircraft must first be unpublished.

FLIGHT PLANNING

Flight planning with ForeFlight Mobile is done with the Maps or Flights view. The views do not sync with one another, however, it is possible to send routes between them.

For most pilots, planning can start with the Maps view. Start by specifying a departure and destination using the route editor or touch-planning. With departure and destination points specified, use Route Advisor, Procedure Advisor, and Altitude Advisor to finish planning. As each leg of the route is planned, the Route Line is generated dynamically.

Once complete, send the route to Flights to brief and file the flight plan (if applicable). New customers are encouraged to watch the Basics of Flight Plan Filing Webinar. For additional webinars, visit foreflight.com/support/webinars.

11.1 Planning with Search

The Maps and Airports views provide a search bar in the upper toolbar. The search bar can be used to plan a route. Create a route with search by typing identifiers, separated by a space, in the correct order. Tap the route in the search results to add it to the route editor (FPL Editor).

> **NOTE:** Only airports with ICAO, IATA, FAA, or other short-code identifiers can be entered in the search bar as part of a route. Airports without codes must be searched using their full names (e.g., “Garbenheimer Weisen”), and these often have more than one word. But the search bar cannot recognize names with spaces as part of the same route element. To plan flights to or from these airports, use the Touch-Planning or Route Rubber-Banding methods.

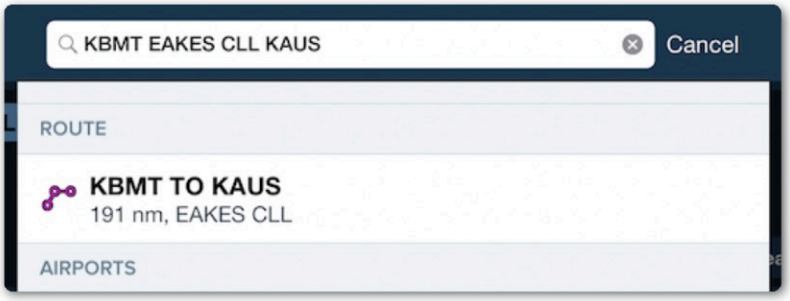


Figure 11-1. Planning with Search

Airways, arrivals, departures, and custom waypoints are supported with search. If the current location can be determined, it can be used as the origin for the route. Enter “D” followed by an identifier to plan directly to a location. ForeFlight Mobile replaces the “D” with the current position. For example, entering `D KLAX`, plans a route from the current location direct to Los Angeles International Airport.

Entire airways can be viewed on the map by searching for the airway identifier. For example, `V16`. Airways can also be used in a route. For example, `NIKOL V244 ILC`. ARINC 424 coordinates (5275N) can also be entered in the search box or route editor.

Terminal procedures, as well as associated transitions, are supported in a route. If the procedure requires a runway, ForeFlight Mobile will prompt for one and provide an example. When briefing and flying terminal procedures, it is critical to always refer to the published arrival/departure plate, as the Maps view is not able to show heading vectors and all altitude info.

Basic performance information about the aircraft can also be provided when building a route in the search box. These can be in any order, but must come after the route waypoints.

Example searches:

- **KJFK KSFO** - this is a simple direct route from NY to San Francisco.
- **D KSFO** - this is a direct route from the current position to San Francisco.
- **KJFK FLW 32.3N/99W** - this is a route from NY to the FLW VOR to a lat/lon waypoint.
- **KSFO FLW/320/15** - this is a route from KSFO to a point on the 320 radial 15nm from FLW VOR. If a VOR is not given as the reference waypoint, then the directional information is assumed to indicate a bearing from, not a radial. Enter “M” or “T" after the bearing to position the point on the magnetic or true bearing.
- **KCLT RDU J209 ORF J121 SIE.CAMRN4 KJFK** - this route includes multiple jet airways and an arrival.
- **KUZA KOSH 8000ft** - this is a route from Rock Hill to Oshkosh at an altitude of 8,000’. The selected aircraft performance profile is used because fuel burn and true airspeed *cannot* be entered in the search box.
- **KJFK YQM V311 YQX 5050N 5330N 5315N EGLL** - This hypothetical route from JFK to London Heathrow uses ARINC 424 coordinates between Gander and Heathrow.

A route search can also include a tail number of an aircraft that has been set up in the **More ➔ Aircraft** view. When that aircraft has performance data it will be automatically used. Departure time can also be indicated in a route search. ForeFlight Mobile will use this time to incorporate the proper winds aloft forecasts into the time and fuel usage calculations. If a time is not provided, an immediate departure is assumed.

The departure time can be included as a specific time or as a time relative to now, as a local time or Zulu time.

- **KUZA KOSH 8000 1315Z** - The route details will be calculated for conditions starting at 1315Z. The time can be designated in Zulu time, as in the example, or local time, such as: 13:15, 1:15p, 1:15pm, 1:15a, 1:15am, or 1:15 (with no am/pm given, ForeFlight will assume the next upcoming 1:15 was intended).
- **KUZA KOSH 8000 +60** - The route details will be calculated for conditions starting 60 minutes from now. This relative time *must* begin with a + and may be specified in minutes, hours, or a combination; +60 or +60m for minutes, +2h for hours, +2:30 for 2 hours 30 minutes.

A route entered in the search box will automatically be transferred to the route editor. If a new route is entered in the search box it will replace the route in the route editor. To clear the current route from the search box, tap the "**X**" in the search bar. To clear the route from the route editor, change to the **Edit** view and tap the **Clear** button, then tap **Clear All**.



Figure 11-2. Clearing a Route

11.1.1 Scheduled Flight Search

The search bar is used to find scheduled (upcoming) flights for an aircraft and load them into the route editor. Search by tail number (e.g., N12345), call sign (e.g., NGF345), or commercial flight number (e.g., SWA44).

ForeFlight Mobile searches for any flights that are en route or set to depart in the next 24 hours and displays those flights in a list. Each flight listed includes:

- The departure airport
- The destination airport
- The filed altitude
- The departure time

- The filed route.

Tap on a flight to load the route and altitude into ForeFlight Mobile's flight plan editor.

If ForeFlight Mobile is receiving ADS-B data while in flight, a search can be made for an N-number or callsign (full or partial) to locate that target on the Map.

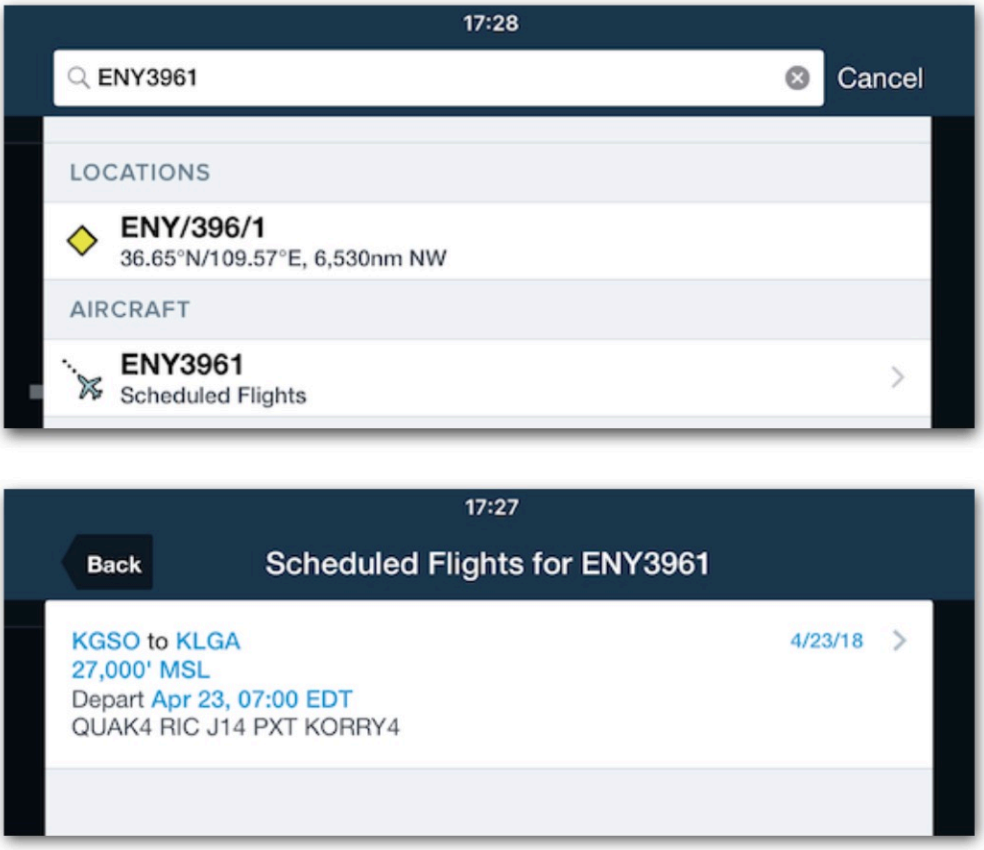
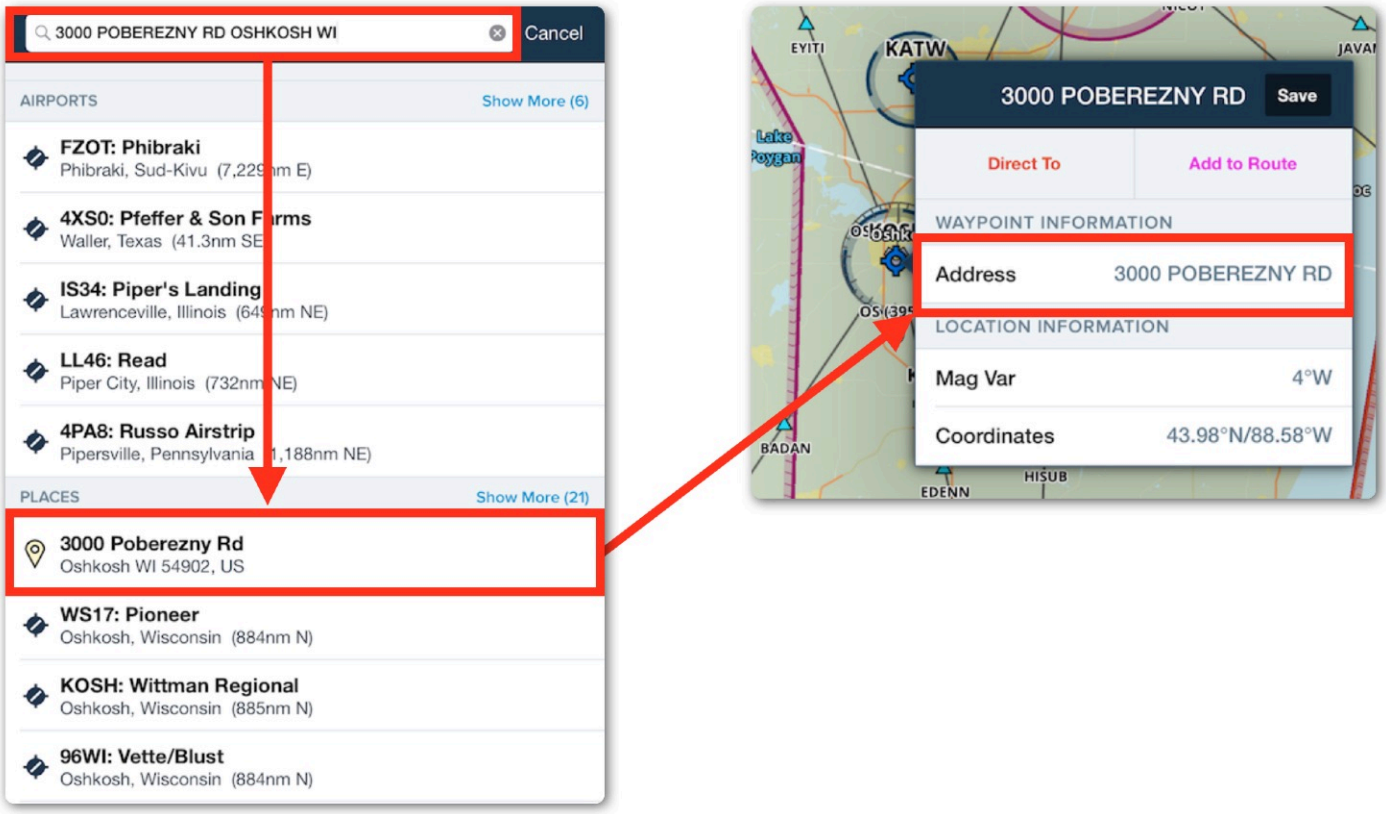


Figure 11-3. Scheduled Flight

11.1.2 Street Address Search

Searching for a street address can be performed only when connected to the internet. Tap on an address in the search results to locate it on the map and add it to a route (either "Direct To" or "Add to Route"). A street address can also be saved as a user waypoint by tapping **Save**.



Users subscribed to a Premium plan with U.S. coverage have access to an offline street address database that allows for searching U.S. state and territory street addresses when not connected to the internet.

To download the offline street address databases, tap **More → Downloads → Data Settings** and enable **Street Addresses**.

Offline search supports the standard format for U.S. street addresses:

- Address number, street name, street suffix (including contractions)
- town/city name, two-letter state identifier, and zip code.

ForeFlight Mobile only requires the first two terms to begin searching and returning matches. Matches closer to current position are prioritized. Finding more distant addresses (i.e., those in other states) requires additional terms like the state and zip code.

11.2 Planning with Maps

Planning a flight with the Maps view is accomplished using search, the route editor (FPL edit mode), touch-planning, or a combination of the three. Procedure Advisor, Route Advisor, and Altitude Advisor are used for planning cruise altitudes, routes, and arrival, departure, or approach procedures.

When planning with touch, enabling the Aeronautical Map layer is recommended. Aeronautical map elements respond to a single tap, reducing the number of taps necessary to plan a flight.

11.2.1 Touch Planning

To plan a flight with touch planning, tap an Aeronautical Map element (airport, waypoint, navaid) and use the **Direct To** or **Add to Route** options at the top of the sidebar. Selecting **Add to Route** appends the element to the end of the existing route. Selecting **Direct To** creates a route from the present position direct to the element.

When the Aeronautical map is not enabled, touch and hold the map to reveal the Add to Route menu. Tap an element in the **Nearby** list to add it to the route. Tap **More → Details** in the Add to Route menu to reveal the Hold Advisor.

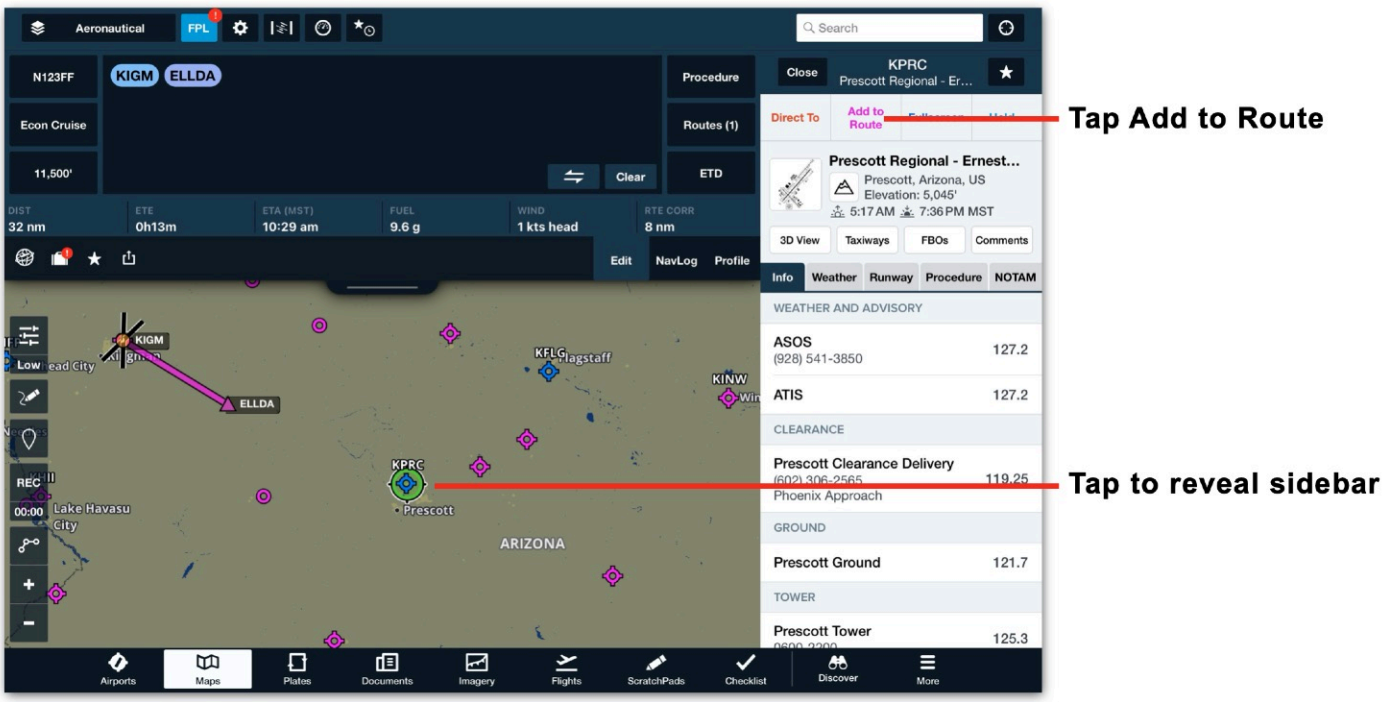


Figure 11-4. Touch Planning

11.2.2 Route Rubber Banding

The Maps view supports rubber-banding. Rubber banding a route is useful for planning around terrain, inclement weather, and airspace. To use route rubber banding, add two or more points to the route. Tap and hold the route line until a blue circle appears. Without lifting the finger, drag the route line on the map. When the finger is lifted from the screen, the **Insert into Route** menu appears in the sidebar.

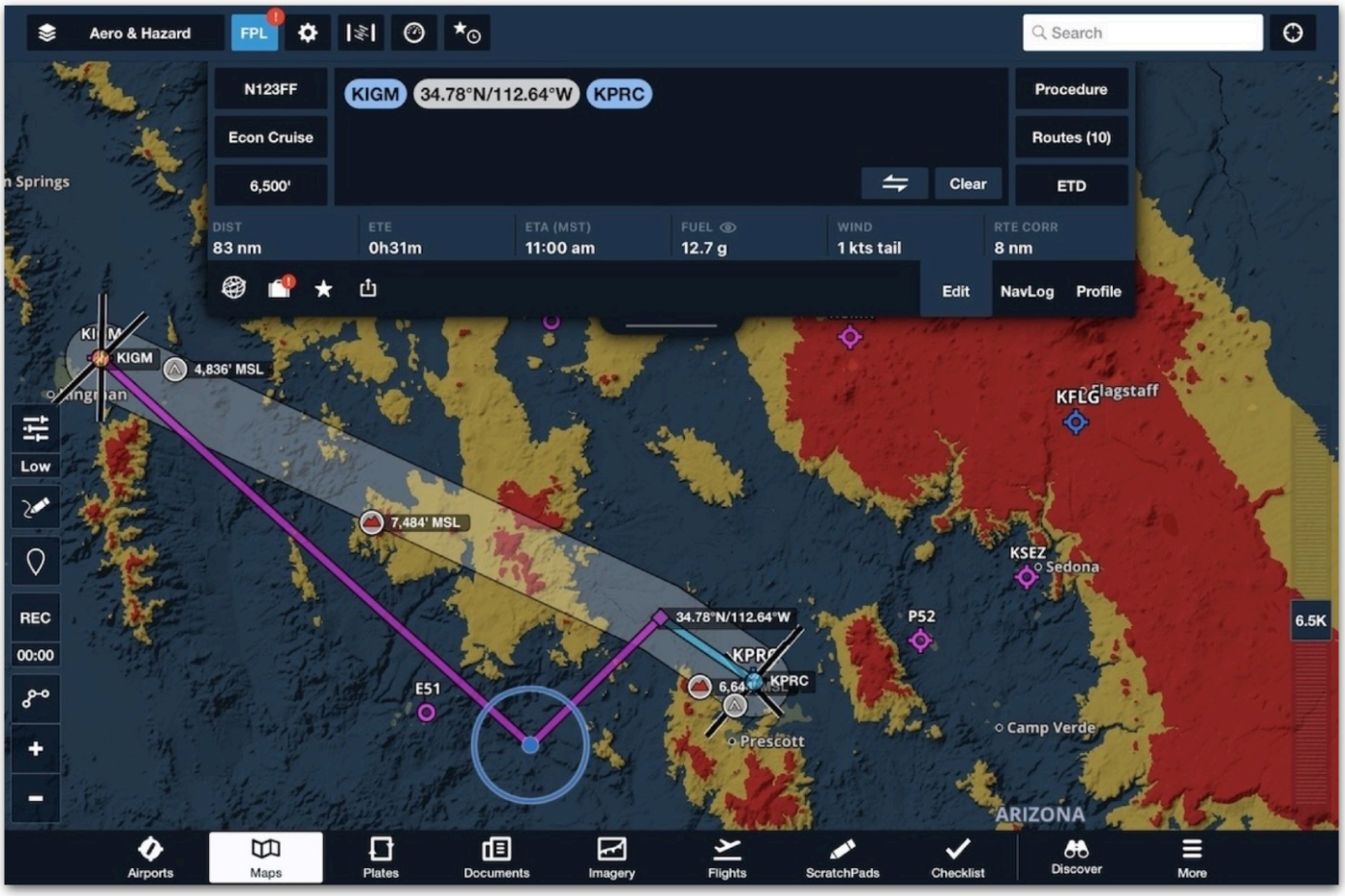


Figure 11-5. Route Rubber Banding

The **Insert into Route** menu lists the coordinates where the finger was lifted and nearby airports, navaids, and waypoints. Use the buttons near the bottom of the menu to filter the nearby list. Tap the coordinates or a nearby element to insert it into the route.

11.2.3 Route Editor

Planning with the route editor is accomplished with the keyboard. Tap the **FPL** button and select **Edit** to display the route editor. With the route editor displayed, tap in a dark blue blank space to reveal the keyboard.

Buttons on the left side of the route editor specify the aircraft, performance profile, and cruise altitude. The right-side buttons open Route Advisor, Procedure Advisor, and set the Estimated Time of Departure (ETD).



Manually enter airport, waypoint, and navaid identifiers to plan a route. Route elements are color-coded based on type.

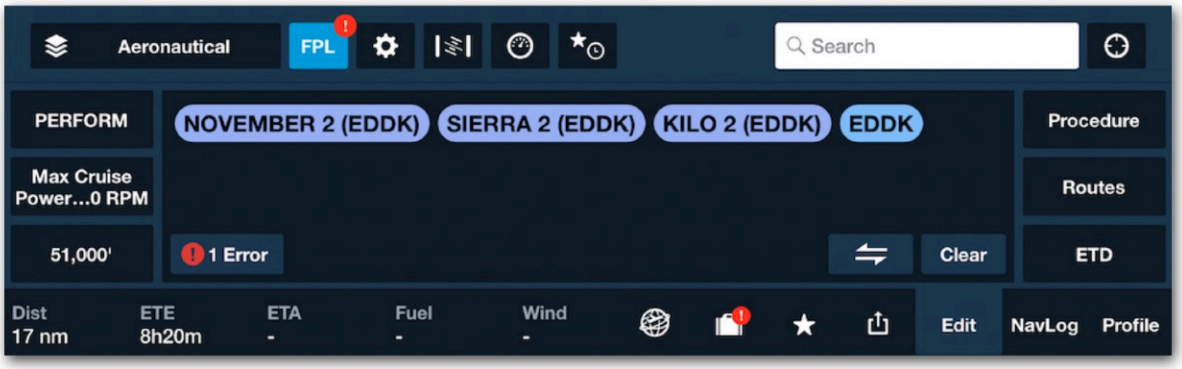


Figure 11-6. Route Editor - Element Icon Colors

> **NOTE:** Only airports with ICAO, IATA, FAA, or other short-code identifiers can be entered in the route editor. Airports without codes are identified in ForeFlight Mobile using their full names, e.g., “Garbenheimer Weisen,” and these often have more than one word. The route editor cannot accept names with spaces as part of the same route element. To plan flights to or from these airports, use the Touch Planning or Route Rubber Banding methods.

11.2.3.1 Waypoints with Associated Airports

If map elements such as VFR waypoints are associated with a nearby airport, they will appear in the route editor with their name, followed by the associated airport code in parentheses (e.g., NOVEMBER 2 (EDDK) for the “November 2” waypoint associated with the Cologne-Bonn (EDDK) airport in Germany). These elements follow the same labeling convention in the navlog, profile, and 3D views.



11.2.3.2 Route Element Menus

The route element bubbles respond to touch. Tap an element to reveal the menu.

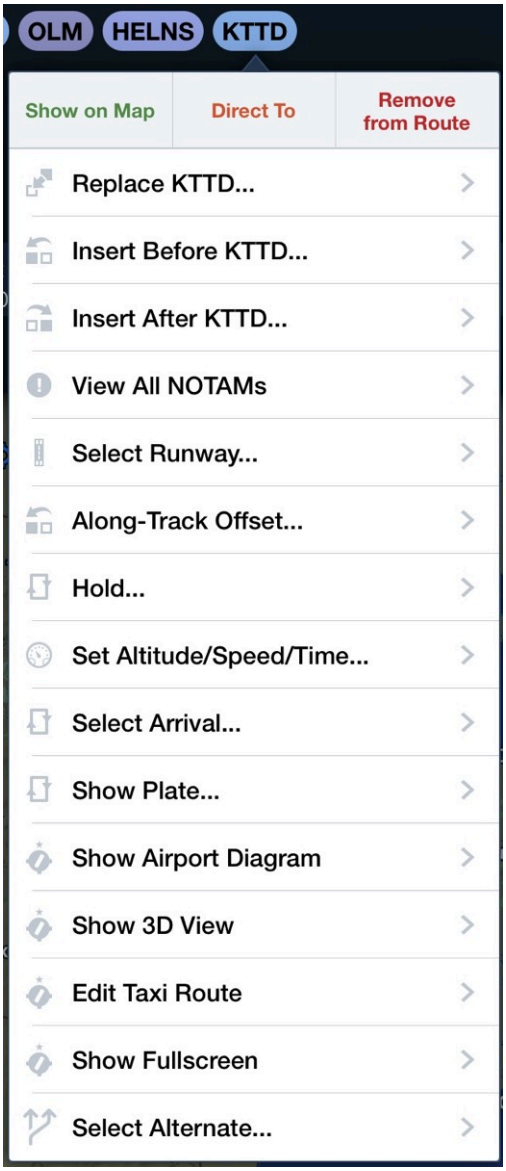


Figure 11-7. Route Editor Airport Menu

To pan the map to a point in the route, tap the entry and select **Show on Map**.

To plan a direct route to an entry, tap the route element and select **Direct To**.

To remove an entry, tap it and select **Remove from Route**. Alternatively, tap and hold a finger on an entry to pick it up and drag it out of the route editor. Release the finger from the screen to delete it.

To move an entry, touch-hold on it to pick it up, then move it to the new location and lift the finger to let go.

To add a route item in the middle of the route, tap any existing item to display the action menu for that item. Tap either of the “**Insert...**” buttons to show the ID entry field. Type in the new entry to add and press **Insert** or tap the return key on the keyboard.

Tap on the departure or destination bubble and choose **Select Runway...** to open the runway selection pop-up. The pop-up shows a list of available runways along with the most recent wind data.

When a runway is selected, it is visually highlighted on the **Maps** page. At the departure airport, the selected runway displays blue chevrons on the runway surface and white chevrons extending from the runway centerline. At the destination airport, an extended blue line with white chevrons points toward the runway centerline. If a runway and traffic pattern are selected using Procedure Advisor, the blue chevrons update to reflect that selection.

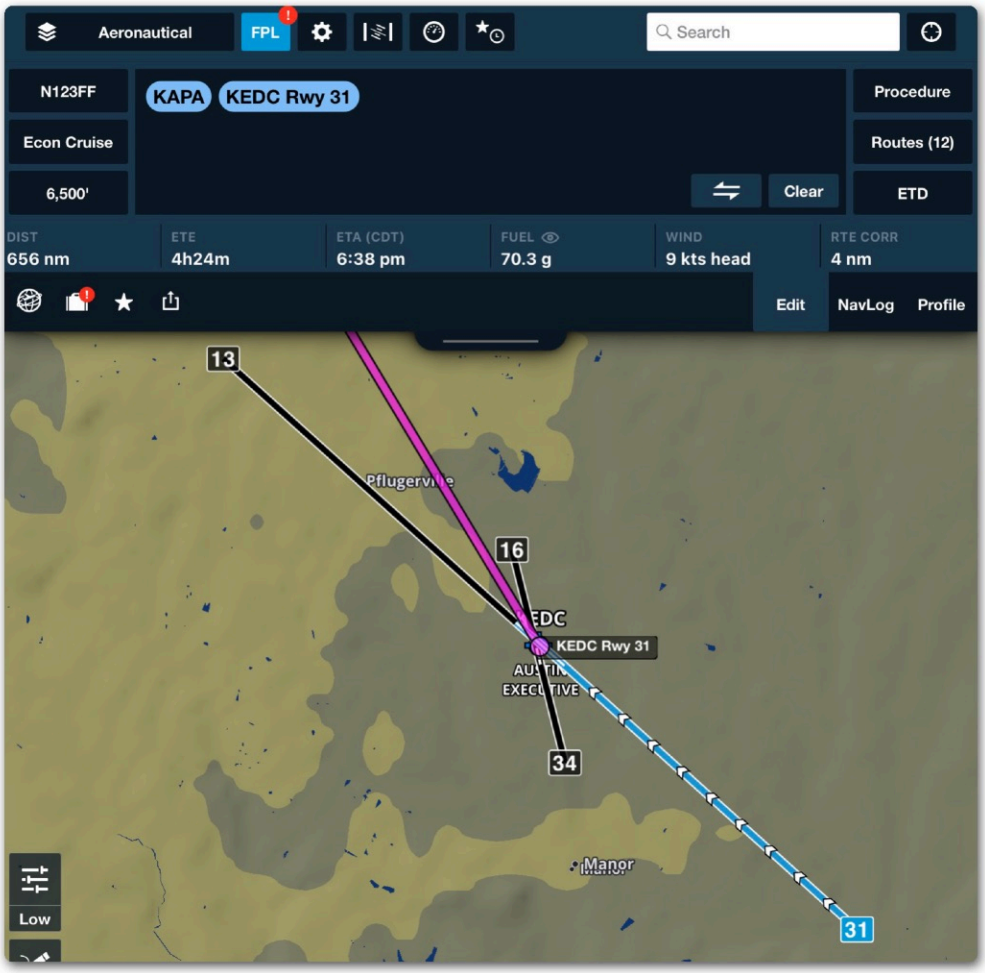


Figure 11-8. Arrival: blue line and white chevrons leading to runway

The **Along-Track Offset Before...** option allows the addition of a point at an arbitrary distance before the end of the leg. Multiple along-track offsets can be added to a route and to an individual leg.

When **Along-Track Offset Before...** is tapped, the pop-up shows the total distance of that current leg. Enter the distance in nautical miles before the ending point (e.g., a distance less than the total distance) that the point is to be added.

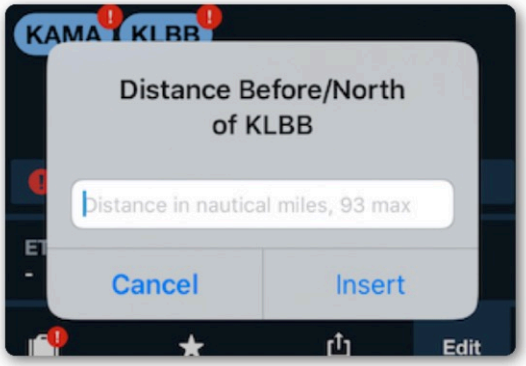


Figure 11-9. "Along-Track Offset Before..." Pop-up

The point is then shown as in the example above “15 Before KLBB.” If the route is sent to Flights, that point is then converted into a latitude/longitude coordinate.

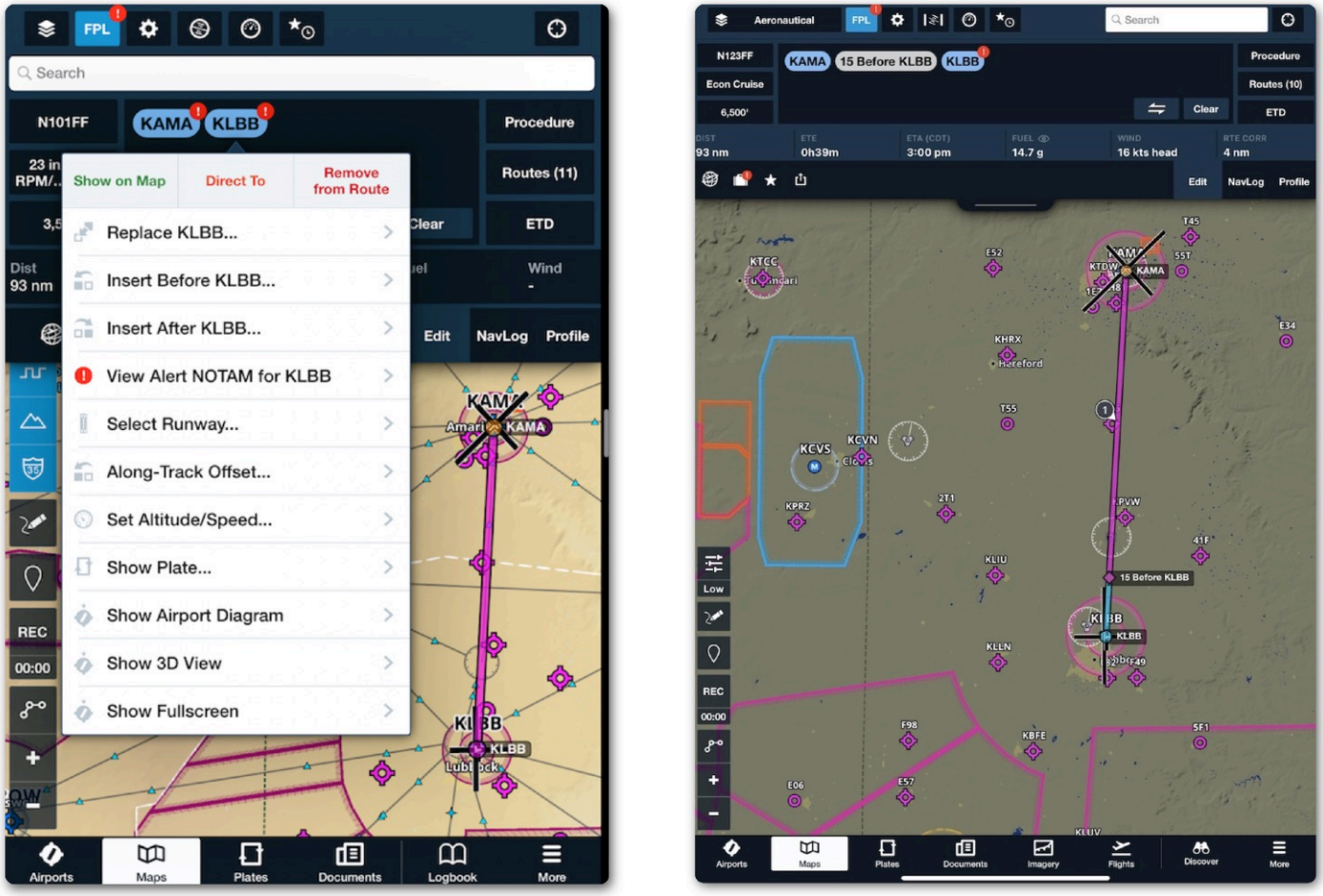


Figure 11-10. Along Track Offset

The **Set Altitude/Speed** feature allows pilots to specify an altitude, speed, or flight rule change at a waypoint.

Set Altitude/Speed/Time adds the ability to include a delay or stay at a waypoint. **Set Altitude/Speed/Time** is only available for Premium and Business Performance subscribers.

When **Set Altitude/Speed/Time** is selected, a waypoint menu appears with options for entering a specific altitude, speed, delay duration, and flight rule change.

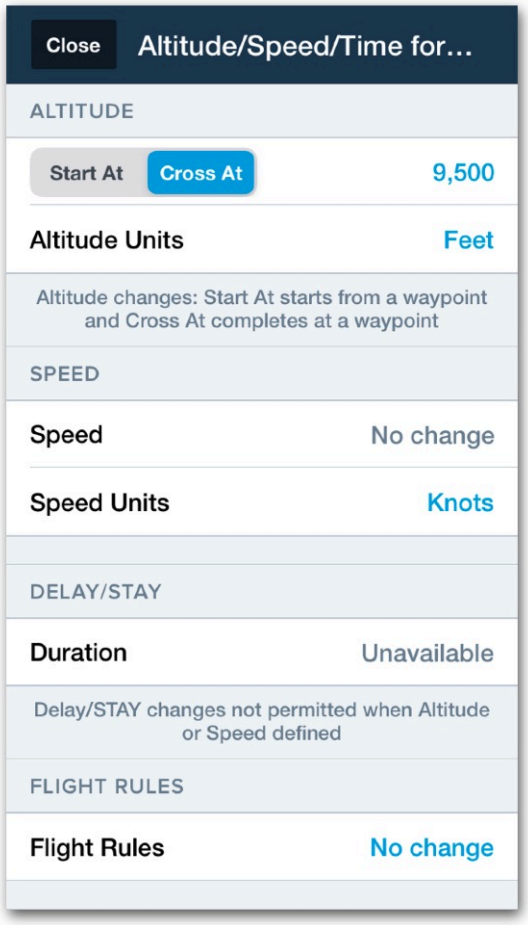


Figure 11-11. Waypoint Menu

The waypoint menu can be accessed in three ways.

- Tap a waypoint in the FPL editor and select **Set Altitude/Speed/Time**.
- Tap a route element on the map and select **More → Set Altitude/Speed/Time**.
- Tap a waypoint in the Profile View.

The **Select Alternate...** feature opens the Alternate selection popover. See Alternate Airport.

11.2.3.3 Altitude Changes

The set altitude option allows pilots to plan routes with changing cruise altitudes. This may be useful when planning around airspace or terrain. En route altitude changes are reflected in the following locations:

- FPL editor in parenthesis next to the associated waypoint
- Maps view next to the waypoint when the **Route Labels** map setting is enabled
- Profile view route line.

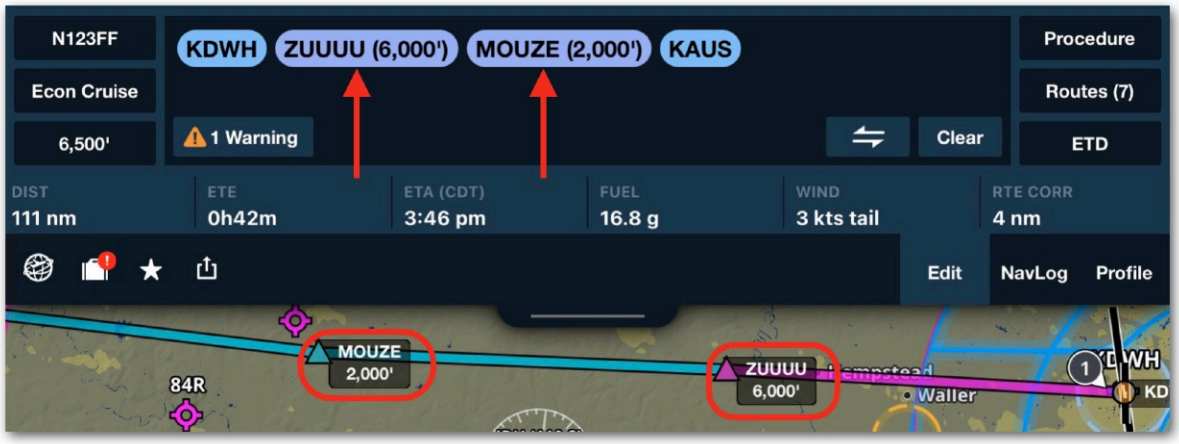


Figure 11-12. FPL Editor and Map Altitude Changes

When determining flight planning results, ForeFlight Mobile factors the selected aircraft performance policy, forecast weather, and cruise altitude. Altitude changes are displayed in the navlog. Altitude changes are also included in the route section of the filing form and are transmitted when filing.

> **NOTE:** Altitude changes are displayed in the navlog for all waypoints except latitude/longitude waypoints.

To add an altitude change to the route, select a waypoint from the profile view, map, or FPL editor. Select **Set Altitude/Speed/Time** (if necessary), and enter the new cruise altitude for the waypoint.

Select **Start At** to begin an altitude change at a waypoint. Select **Cross At** if a climb or descent is to be started before a waypoint to reach the required altitude at the waypoint. Multiple altitude changes can be added to a route provided:

- The altitude change required does not exceed the selected aircraft performance policy climb or descent parameters
- The altitude change does not occur during the initial climb or final descent phase of flight. If an altitude change is entered during the climb or descent phase, the altitude change will not be reflected in the profile view or navlog.

> **NOTE:** If crossing restrictions are unable to be honored due to limitations in the selected performance policy, the profile view cannot depict a path that meets the restrictions defined for a waypoint.

Using Profile view to add an altitude change is recommended to aid in evaluating airspace and hazards when making changes.

11.2.3.4 Speed Changes

Speed change allows pilots to file flight plans with changes to the planned true airspeed. Speed changes are included in the route section of the filing form and are transmitted when filing. Speed changes are generally not required for flight plans outside of EuroControl airspace.

To add a speed change, select the waypoint where the change is to occur from the profile view, map, or FPL editor. Select **Set Altitude/Speed/Time** and enter the new cruise speed.

Speed changes are displayed in the FPL editor next to the waypoint in parentheses and on the map when **Route Labels** are enabled. ForeFlight does not factor in speed changes when determining flight planning results. Thus, the navlog does not reflect manual changes to speed.

11.2.3.5 Delays/Stays

ForeFlight Mobile supports delays (FAA/NavCanada) and stays (Eurocontrol) for flight planning and filing purposes. Add a delay to the flight plan with the **Set Altitude/Speed/Time** option (Premium, Business Performance, or MFB Performance account required).

Starter and Essential customers can manually enter delays and stays using the formatting: `identifier/Dh+mm`. Below is an example of a 15-minute stay at the waypoint VENAR: VENAR /D0+15 using a Premium account.



Figure 11-13. VENAR 15-Minute Delay

Delays and stays can be added to en route waypoints, latitude-longitude, fix-radial-distance, intersections, and navaids.

A maximum of nine delays/stays are supported per flight. Stays are not supported for flights outside of Eurocontrol airspace. Delays (US) are not supported for international flights. Delays/Stays cannot be added to terminal arrival or departure procedures.

When a route containing a delay/stay is sent to Flights for filing purposes, the delay/stay is included in the flight's route section. When filing a flight plan with a stay, Eurocontrol requires remarks (STAYINFO).

Adding a Delay or Stay Using Set Altitude/Speed/Time

To add a delay or stay using the **Set Altitude/Speed/Time** option:

1. Plan a route using the Maps flight plan editor
2. Tap the route element where the delay/stay is to take place
3. Tap **Set Altitude/Speed/Time**
4. Enter a duration using the time picker
5. Add remarks (EuroControl required)
6. Tap anywhere outside the pop-up window to save the changes.

Remarks added with the flight plan editor pop-up are copied to field 18 (Other Information/ STAYINFO) of the ICAO filing form.

11.2.3.6 Flight Rule Changes

The Flight Rule change option allows pilots to plan and file composite flight plans. Composite flight plans are generally only filed in Europe. To plan a composite flight:

1. Enter the route in the flight plan editor
2. Tap the waypoint where the flight rule transition is to occur
3. In the options menu, tap **Set Altitude/Speed**
4. Tap **Flight Rules**
5. Select **VFR** or **IFR**.



Figure 11-14. Manually Changing Flight Rules

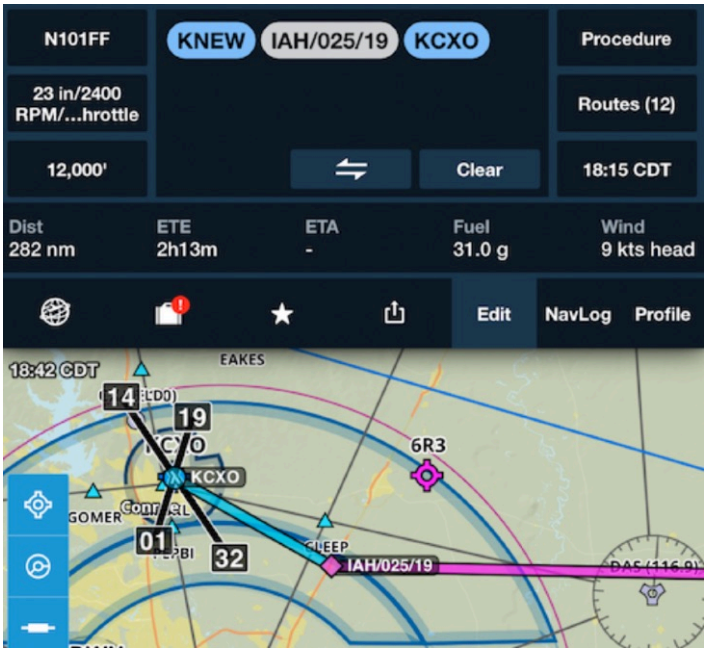
When a flight containing a rule change is sent from Maps to the Flights view, the flight rule change is automatically added to the route. When filing the flight plan, it is necessary to select the appropriate flight rule in the flight plan type section.

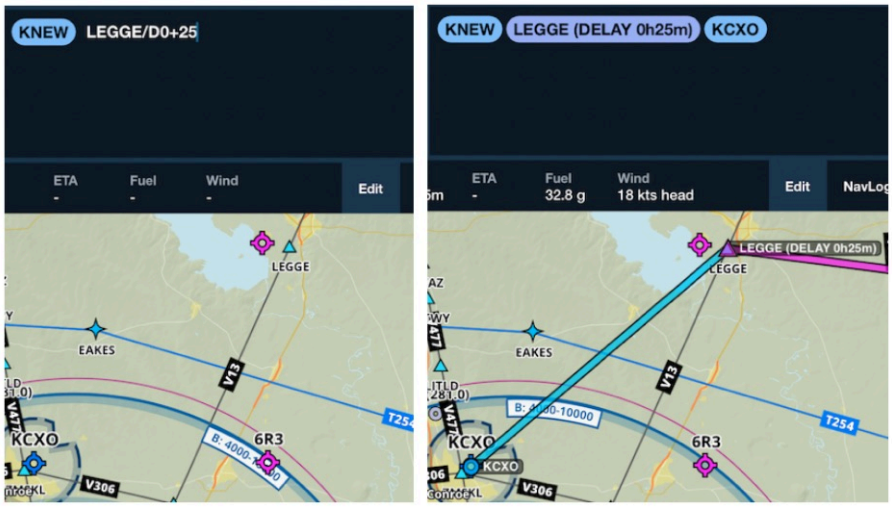
When filing a composite flight plan for the first time, pilots are encouraged to contact the appropriate agencies to ensure the plan was filed correctly.

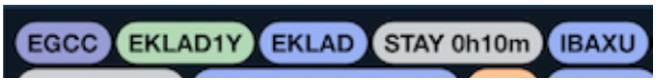
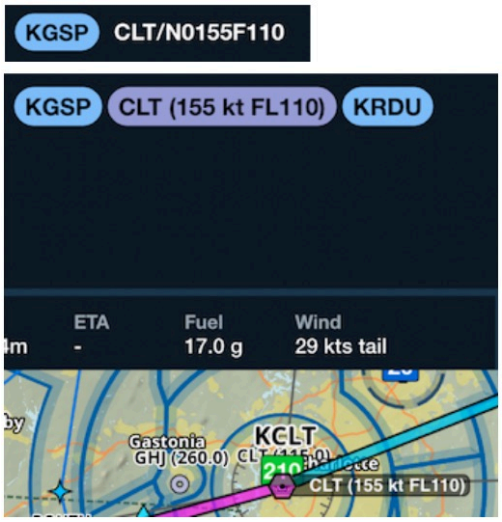
> **NOTE:** Flight rules do not automatically update on the filing form when planning a composite flight. Flight rules must be manually changed on the filing form.

11.2.4 Slash Codes

The route editor supports various elements that are defined with a forward slash.

Slash Code	Example	Usage
FIX/RAD/DIST Fix, radial, distance. Ex: IAH/025/19 19nm from IAH on the 025 radial		Worldwide
FIXRADDIST Ex: LFK225030 30nm from LFK on the 225 radial	Alternative not using “slash” to separate elements. RAD & DIST = 3 digits, with leading 0’s if needed	US only

Slash Code	Example	Usage
FIXRAD/ FIXRAD Plots a point at the intersection of one fix and radial with the other fix & radial. Ex: LFK270/ CLL030		Worldwide
FIX/Dh+mm Delay h hours, mm minutes, at the fix, which can be a VOR, Waypoint, Airport identifier, or FIXRADDIST. Ex: LEGGE/ D0+25 Delay 25 minutes at LEGGE Ex: CTF090010/ D1+05 Delay 1h 5min at a point 10 east of CTF VOR		US only

Slash Code	Example	Usage
STAY/hhmm Stay (delay) at the preceding waypoint for hh hours and mm minutes. Ex: EKLAD/ STAY0010 Delay 10 minutes at EKLAD	 See: How can an en route Stay be filed? for more details. **NOTE:** STAY requires a waypoint after the “STAY”. If adding a STAY at the final waypoint in the route before the airport it **must** be entered directly in the Flights: Route box. In the Flights: Route box, enter the waypoint, then the STAY, then DCT the same waypoint. E.G., for a route ending ...SHA EINN where STAY/0030 at SHA is desired, enter it in the Flights: Route box as: ...SHA STAY/0030 DCT SHA	Europe only
FIX/ N0000F000 FIX/F000 FIX/ N0000 Change Speed (N0000 in knots) or Altitude (F000 in flight level) at that fix. Ex: CLT/N0155/ F110 Change to 155 kts and 11000’ at CLT	 **NOTE:** Can also be selected by tapping the route “bubble” and choosing **Set Altitude/Speed**.	Worldwide

11.2.5 Reversing/Clearing the Route

Once route elements have been entered in the FPL editor, the **Reverse** and **Clear** buttons are displayed.

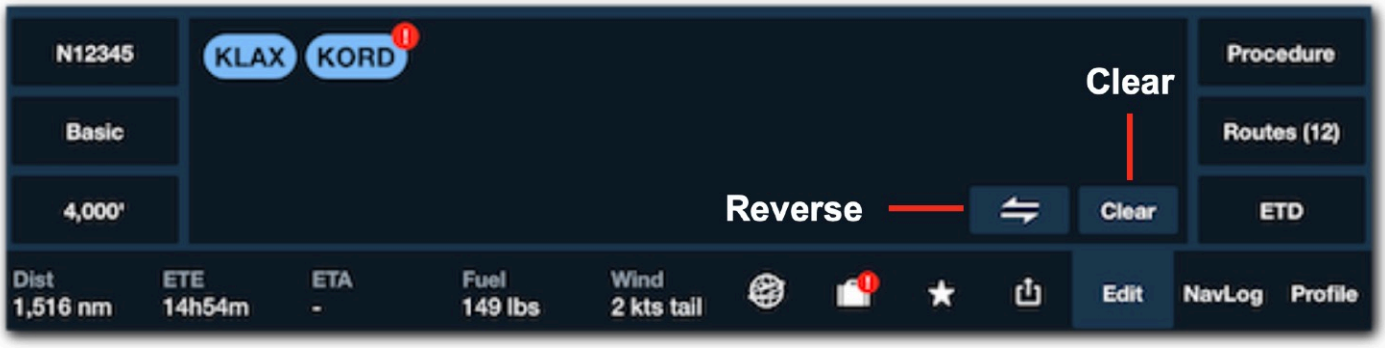


Figure 11-15. Reverse and Clear Buttons in the Route Editor

Tapping the **Reverse** button reverses the order of the route elements. However, this action also removes any procedures, such as SIDs, STARs, or approaches, that were added to the original route.

Tapping the **Clear** button removes all elements at once from the FPL editor.

11.3 Route Advisor

The **Routes** button opens Route Advisor, which displays a list of potential routes that can be selected for a pair of departure and destination airports.

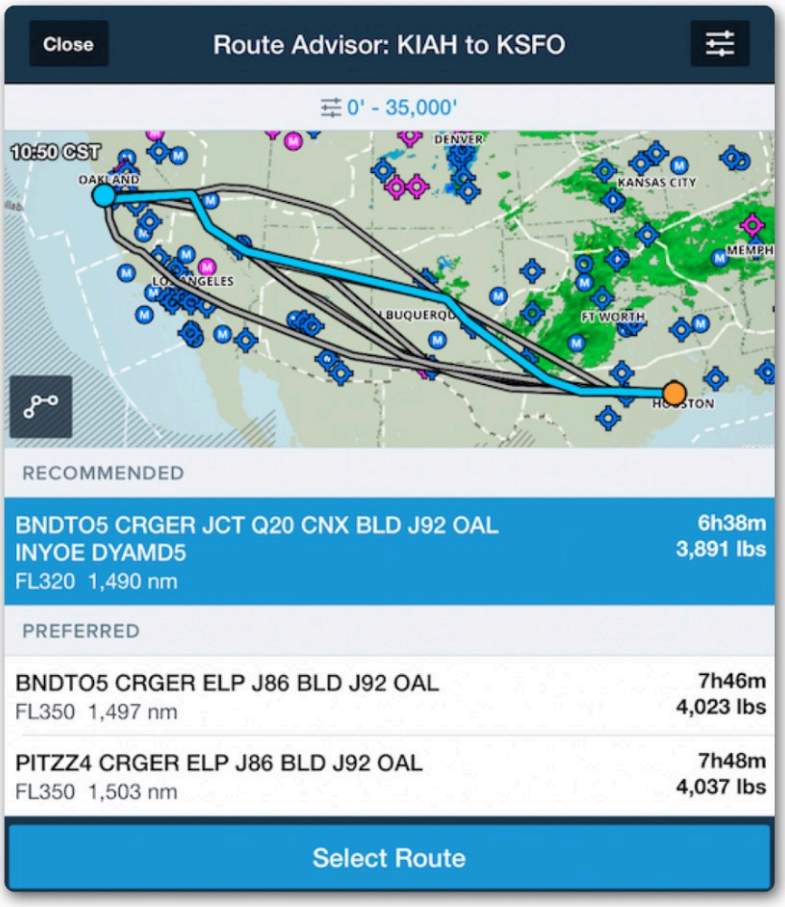


Figure 11-16. Route Advisor

To the right of the list is a route preview, showing the path of every route on an interactive map. Tap on a route in the list to highlight it on the map. The Route Preview Map can be panned and zoomed. Tap the **Zoom to Route** button in the bottom left of the map to return to a view of the full route. Tap **Select Route** after tapping on a route in the list to add the route in the route editor. This will replace any route that is already there.

When a performance profile has been selected, the estimated time en route and fuel burn based on that profile are shown for each route on the right, along with the total route distance.

Route Advisor requires an internet connection to load new routes for an airport pair, but once those routes are loaded, they can be viewed offline as long as the same departure and destination airports are entered in the route editor.

Types of routes shown include:

> **Recommended**
> (Premium tier only) Provide the best route based on the winds, aircraft, time/fuel savings, and chance of being cleared as filed. Recommended routes do not explicitly analyze terrain.

> **TEC/Preferred**
> Routes commonly used and may include an altitude or range of altitudes that are typically given with the route.

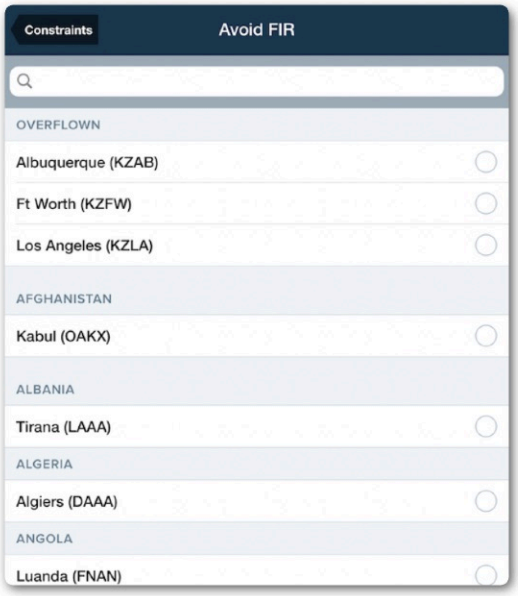
> **ATC Cleared**
> Routes that ATC has cleared in the recent past. These show the departure time of the most recently cleared flight, the number of times a route has been cleared in the past year, and the type of aircraft and clearance altitude for which the route was given.

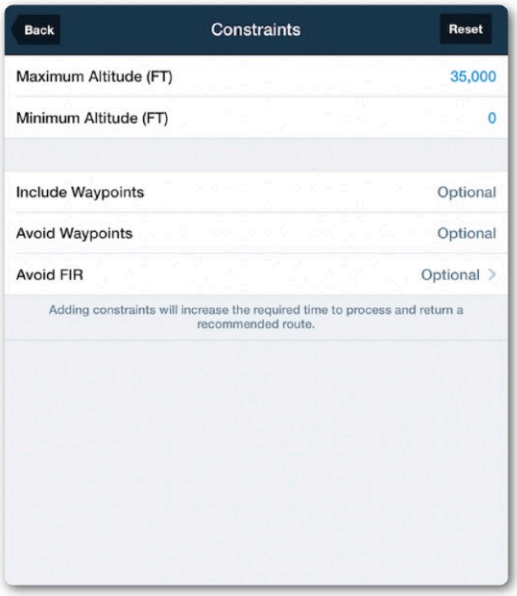
> **Airway**
> Victor-airway based routes.

11.3.1 Route Constraints

Any waypoint can be included or excluded and FIRs avoided by specifying constraints to a route. Tap **Constraints** in the upper-right to specify the waypoints to include or avoid, or the FIR(s) to avoid.





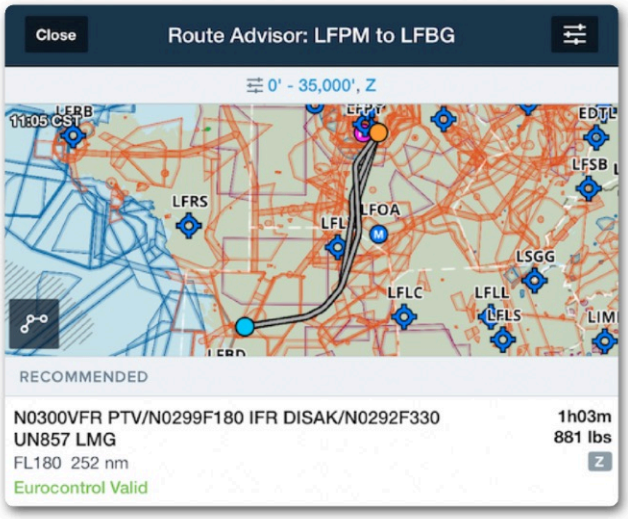


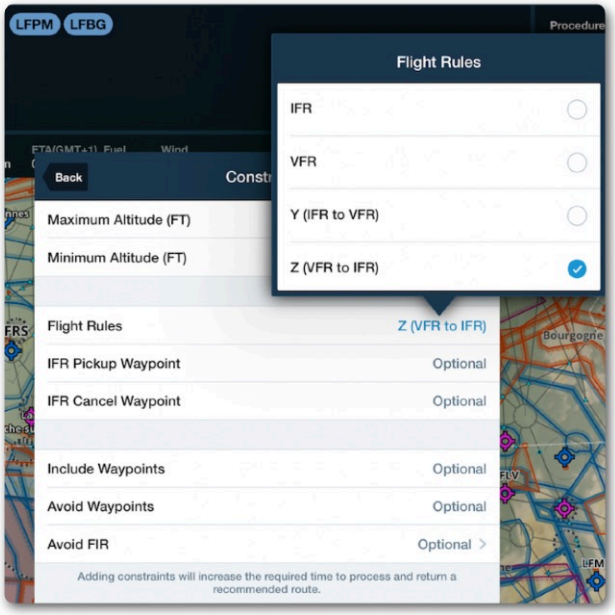
NOTE: Route Constraints are available only to Performance-tier or MFB One subscription holders.

11.3.2 Eurocontrol Valid and Invalid Routes

For any route that passes through Eurocontrol airspace, Route Advisor will evaluate the route against Eurocontrol's complex system of route constraints and display a "Eurocontrol Valid" or "Eurocontrol Invalid" label beneath the route. For European routes, Route Advisor will also show if a route is Y or Z.

If needed to find a "Eurocontrol Valid" route through complicated European airspace, tap the **Constraints** button in the upper-right corner of the route advisor window to choose maximum and minimum altitudes, as well as flight rules (VFR, IFR, Y, Z).





IMPORTANT: Eurocontrol validation may fail if the aircraft ICAO configuration is incomplete or incorrect. Before planning a flight, ensure the aircraft ICAO configuration is correct in **More ➔ Aircraft**.

11.4 Altitude Advisor

When a new flight is created, the altitude is automatically set to the aircraft default cruise altitude. Open Altitude Advisor to review other altitudes. The highest altitude shown is based on the value for the maximum ceiling altitude.

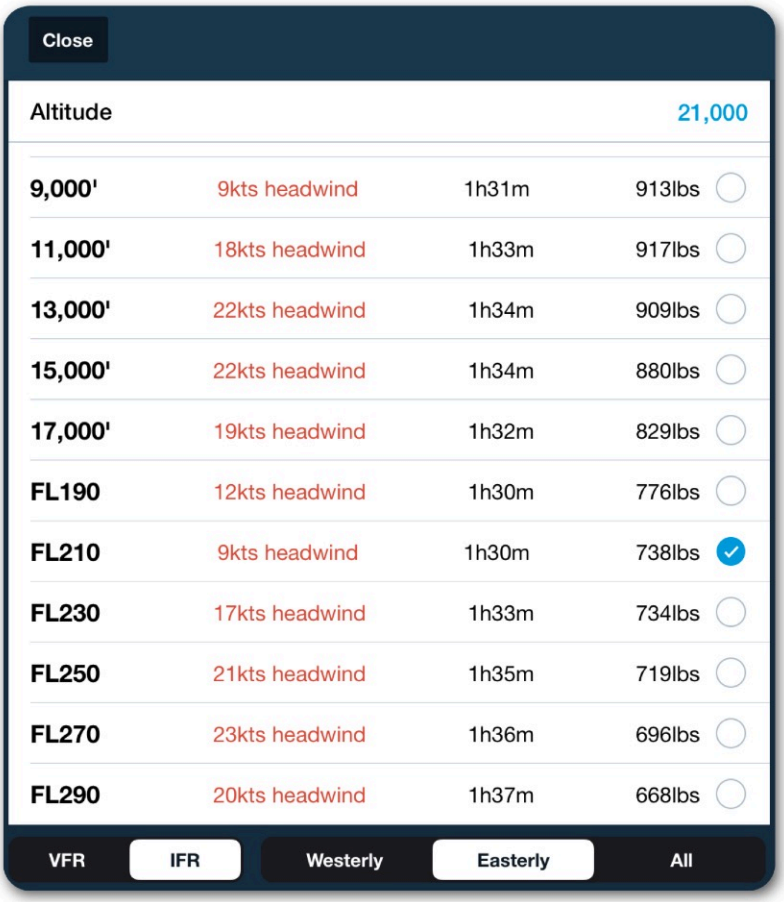


Figure 11-17. Altitude Advisor

All altitude options are evaluated by ForeFlight's planning engine and performance results are shown next to each one, including the average head/tailwind component over the entire route.

If performance results are not shown for a given altitude (e.g., "-----") it means that the aircraft cannot achieve the desired cruise speed quickly at that altitude, due to warmer than standard temperatures, payload/fuel weight, a cruise speed that is faster than can be achieved at that altitude, or a route too short to achieve that altitude.

The buttons along the bottom of Altitude Advisor allow filtering of the altitudes shown. The **VFR** and **IFR** buttons on the left filter the altitudes to those permissible for the selected flight rules. The **Westerly, Easterly**, and **All** buttons on the right filter altitudes to those that are fileable based on the flight direction. ForeFlight Mobile will automatically filter this list to show only relevant altitudes as changes are made to a flight.

If the climb performance on the **more ➔ Aircraft** page is entered, Altitude Advisor will automatically calculate whether it is possible to reach the listed altitude based on the rate of climb and the distance of the route.

When connected to a Sentry or other ADS-B or SiriusXM receiver, Altitude Advisor will only display wind effects if recent winds aloft data for the entire route has been received.

11.5 Procedure Advisor

Procedure Advisor can be used to add departures (SIDs), arrivals (STARs), IFR approaches, VFR approaches, VFR traffic patterns, holding patterns, alternate airports, and search & rescue (SAR) patterns to a route.

To open Procedure Advisor, enter a route in the FPL editor and tap **Procedure** in the upper-right corner. Departures, arrivals, approaches, and traffic patterns require that at least one airport be entered in the FPL editor. SAR patterns can be entered without an airport in the FPL editor.

11.5.1 Departures and Arrivals

Tap **Departure** or **Arrival** to see a list of SIDs and STARs for the airport. If the departure or arrival has an aircraft type restriction, it is indicated by a colored label (e.g., Piston, Turboprop, or Jet).

11.5.1.1 Selecting Departure or Arrival

Tap a SID or STAR to see a list of transition options for that procedure and to show the procedure on the map. For users with Essential or Premium subscriptions as well as Jeppesen coverage (purchased directly through ForeFlight or via a linked Jeppesen account), tapping a SID or STAR also displays its georeferenced plate on the map. Select a transition (and runway if required), and then tap **Add to Route** to load the procedure to the route in the FPL editor.

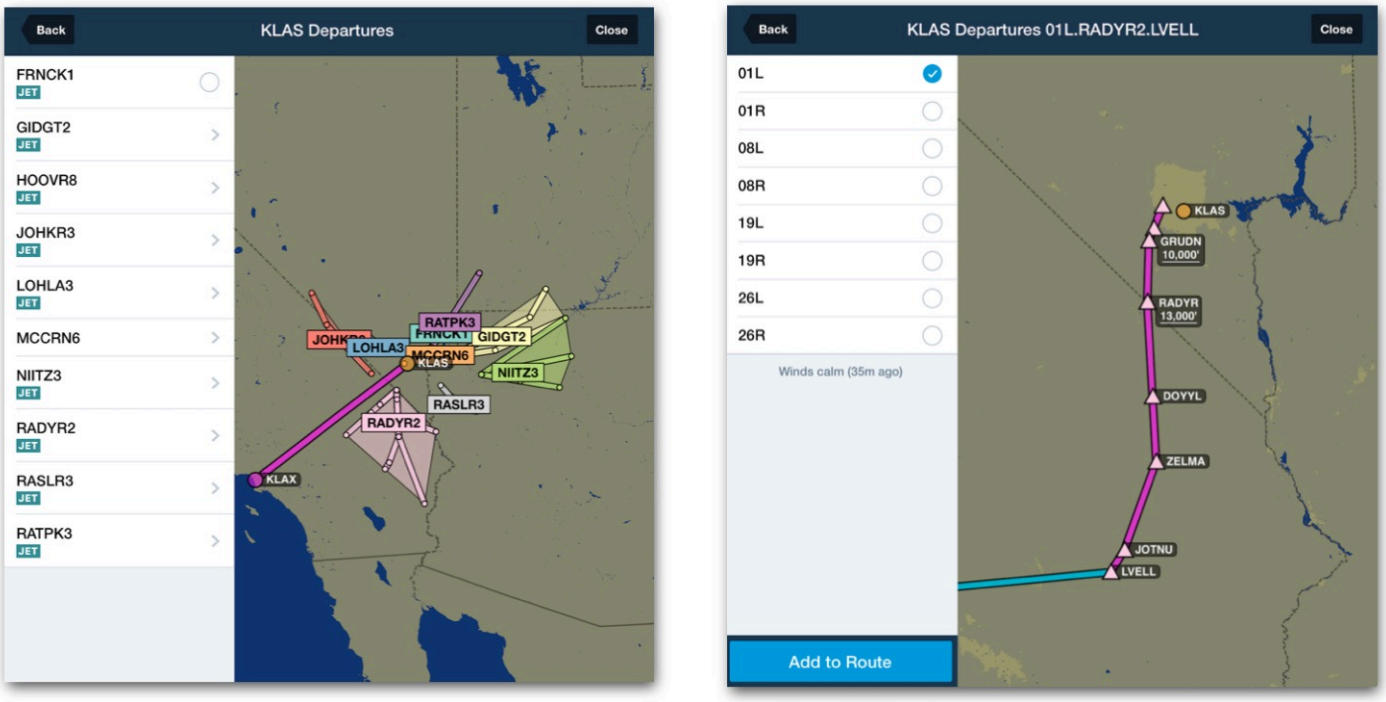


Figure 11-18. Selecting a Departure

11.5.1.2 Displaying SID and STAR Altitude and Airspeed Restrictions

With a Premium or Business Performance plan, the waypoint labels displayed for each SID or STAR include any crossing speed and altitude restrictions for each point.

SID and STAR speed and altitude restrictions are automatically visible when using Procedure Advisor to select a SID or STAR and when viewing the 3D preview of the route.



Figure 11-19. SEAVU2 Waypoint Crossing Restrictions in Route 3D Preview

When the **Route Labels Map** setting is turned on, SID and STAR speed and altitude restrictions are also visible on the map with their associated route waypoints.

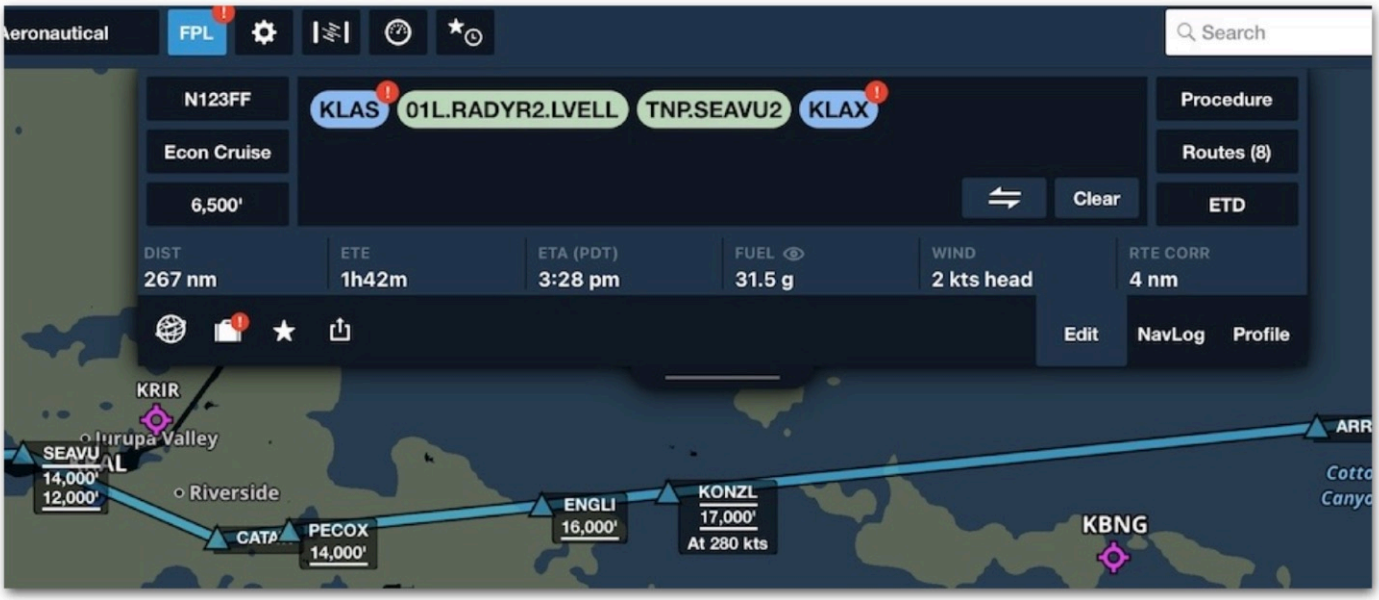


Figure 11-20. SEAVU2 Waypoint Crossing Restrictions on the Map

SID and STAR speed and altitude restriction labels will not be shown when a route between waypoints does not define a specific route segment. These can be depicted as dashed lines on the route.

For example, many SIDs start with a heading to fly followed by a turn upon reaching an altitude. Since this segment type will vary based on aircraft performance, a specific route line and where altitudes will be reached cannot be shown.

In the image below, the RADYR 2 RNAV Departure from Harry Reid International (KLAS) requires an initial climb on heading 014º to 2,692 ft, followed by a left turn direct to BESSY. A dashed line is shown for this route segment due to the variability of the actual path that will be flown. The route will have no initial altitude label.

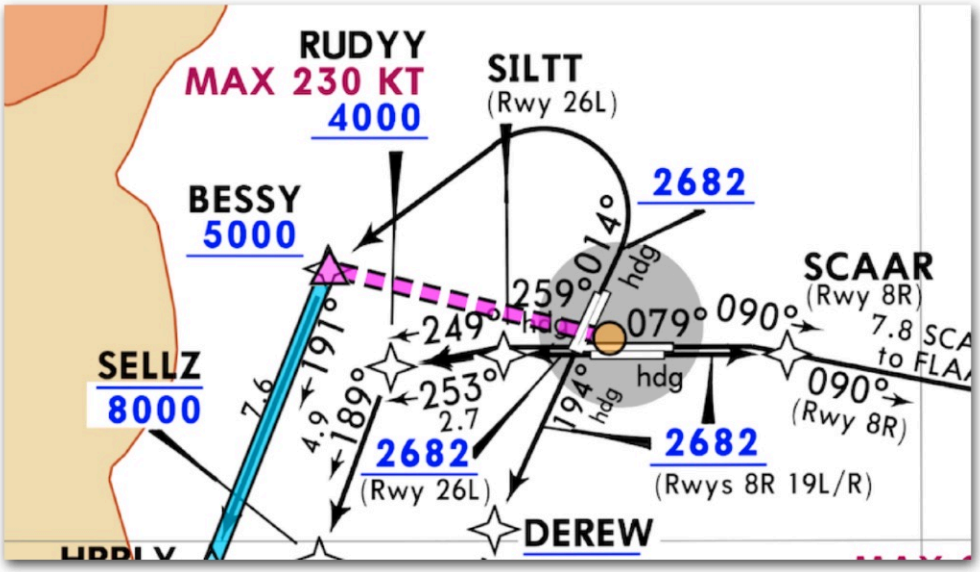


Figure 11-21. RADYR2 SID showing a departure heading with a turn upon reaching an altitude.

11.5.1.3 Closing Procedure Advisor

To close the procedure advisor window and return to the maps view without selecting a departure or arrival, tap **Close** or tap outside the procedure preview window.

11.5.1.4 Changing Departure or Arrival

A departure, arrival, or selected runway can be changed after loading it into the route. To do so, open the FPL editor, tap the green route element representing the procedure, and select **Change Departure...**, **Change Arrival...**, or **Change Runway...** as applicable.

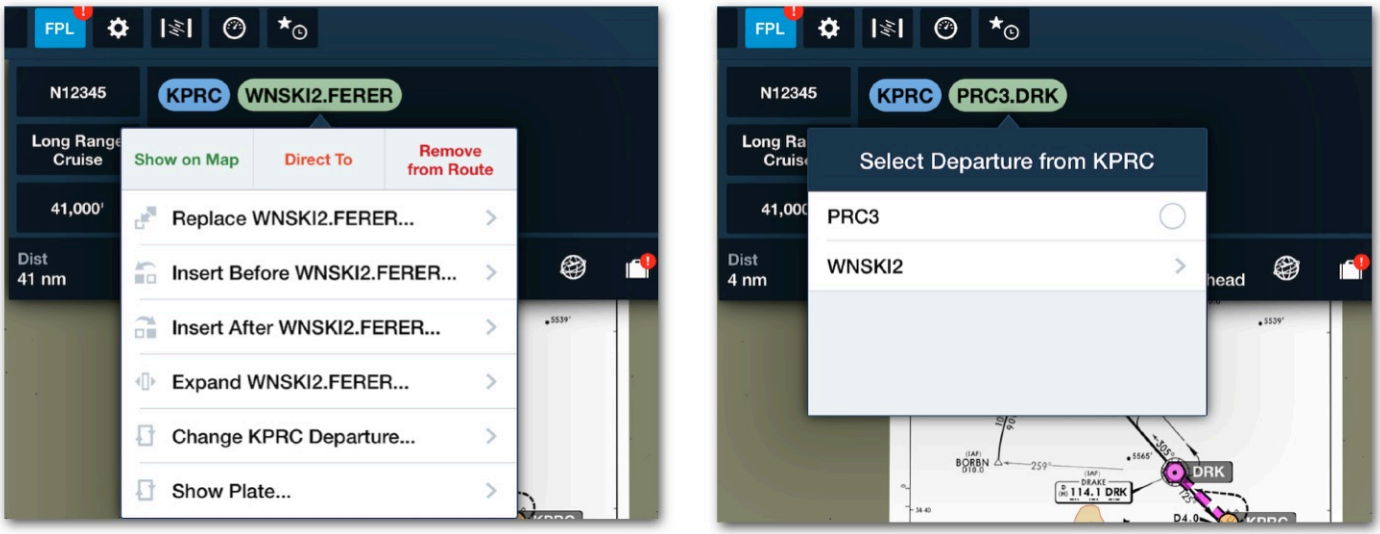


Figure 11-22. Changing the Selected Departure

11.5.2 IFR Approaches

Tap **Approach** to see the available IFR approaches (e.g., VOR, ILS, RNAV) for that airport. If any approach has additional information on favorable winds or NOTAMs, this will be displayed in the list.

11.5.2.1 Selecting an IFR Approach

Tap an approach to see a list of its available IAFs, and to show the approach on the map. For users with Essential or Premium subscriptions as well as Jeppesen coverage (purchased directly through ForeFlight or via a linked Jeppesen account), tapping an approach also displays its georeferenced plate on the map.

Select an IAF and, if applicable, add custom approach minimums. Then tap **Add to Route** to load the procedure to the route in the FPL editor.

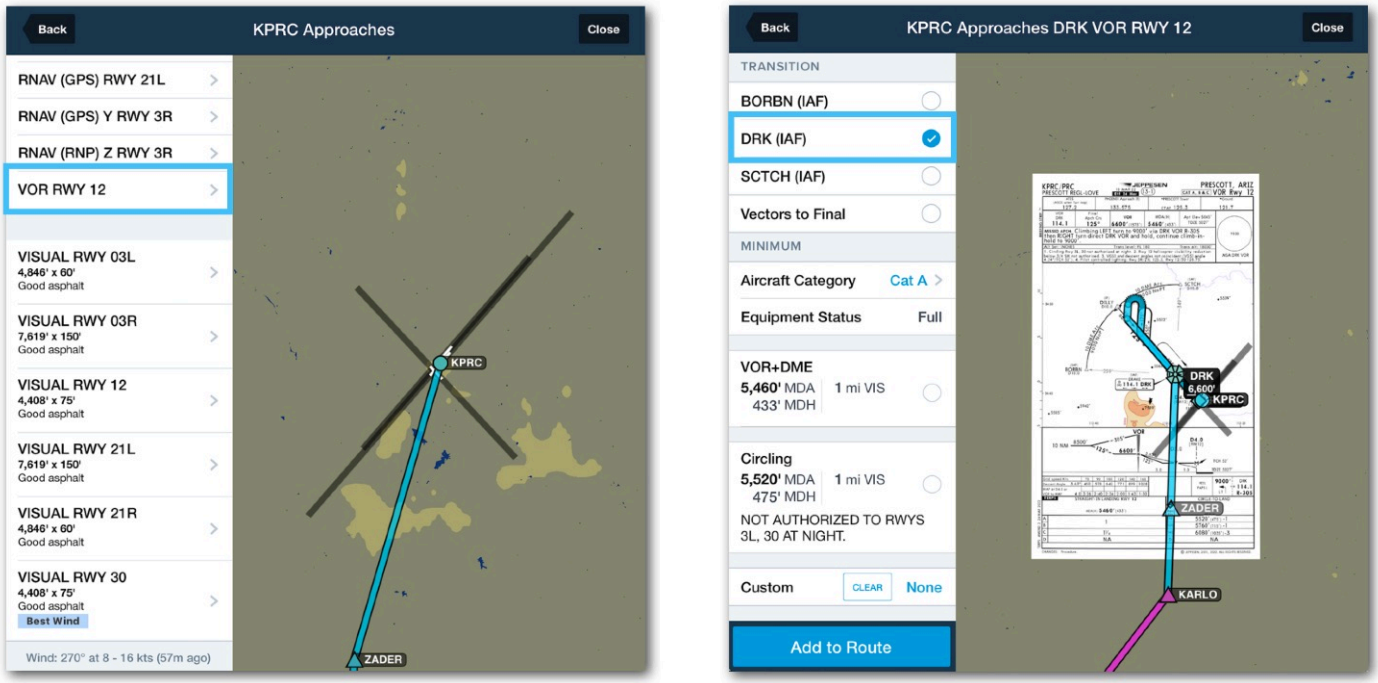


Figure 11-23. Selecting the VOR RWY 12 Approach and its IAF

11.5.2.2 Displaying IFR Approach Minimums

With a Premium or Business Performance plan, the Enhanced Approach Procedure Markers will show the IAF and FAF with unique icons, and the waypoint labels will include any crossing speed and altitude restrictions for each point. If an approach crosses the same point at different altitudes or speeds, each restriction is shown.

The approach minimum altitude can be specified, which appears as a magenta marker for easy reference during the approach.

> **NOTE:** The **Route Labels** setting must be on (in Map Settings) for approach minimums to be displayed.

11.5.2.3 Multiple Crossings with Airspeed/Altitude Restrictions

If an approach involves crossing a fix more than once at a different airspeed or altitude, a black label is displayed next to the fix showing each of these restrictions. This label displays all applicable altitude restrictions, airspeed restrictions, or both if they exist.

Inside the label, the first (or current) crossing is identified with bold font and a magenta arrow. In flight, once the fix has been crossed, the magenta arrow and highlighted font are applied to the next restriction.

After the fix has been crossed for the final time, the magenta arrow disappears from the label.



Figure 11-24. Altitude Restriction Prior to 1st and 2nd Crossing of DRK

> **NOTE:** The **Route Labels** setting must be on (in Map Settings) for altitude and airspeed restrictions at a fix to be displayed.

11.5.2.4 Best Winds and Alert NOTAMs

If current METAR data is available for the airport, the runways with the most favorable winds are given a blue tag that says “Best Wind.”

If a NOTAM affects any available runways, the runways are given a red tag summarizing the issue. Tap the **View Alert NOTAM** banner at the top of the runway list to view the relevant NOTAM or NOTAMs.

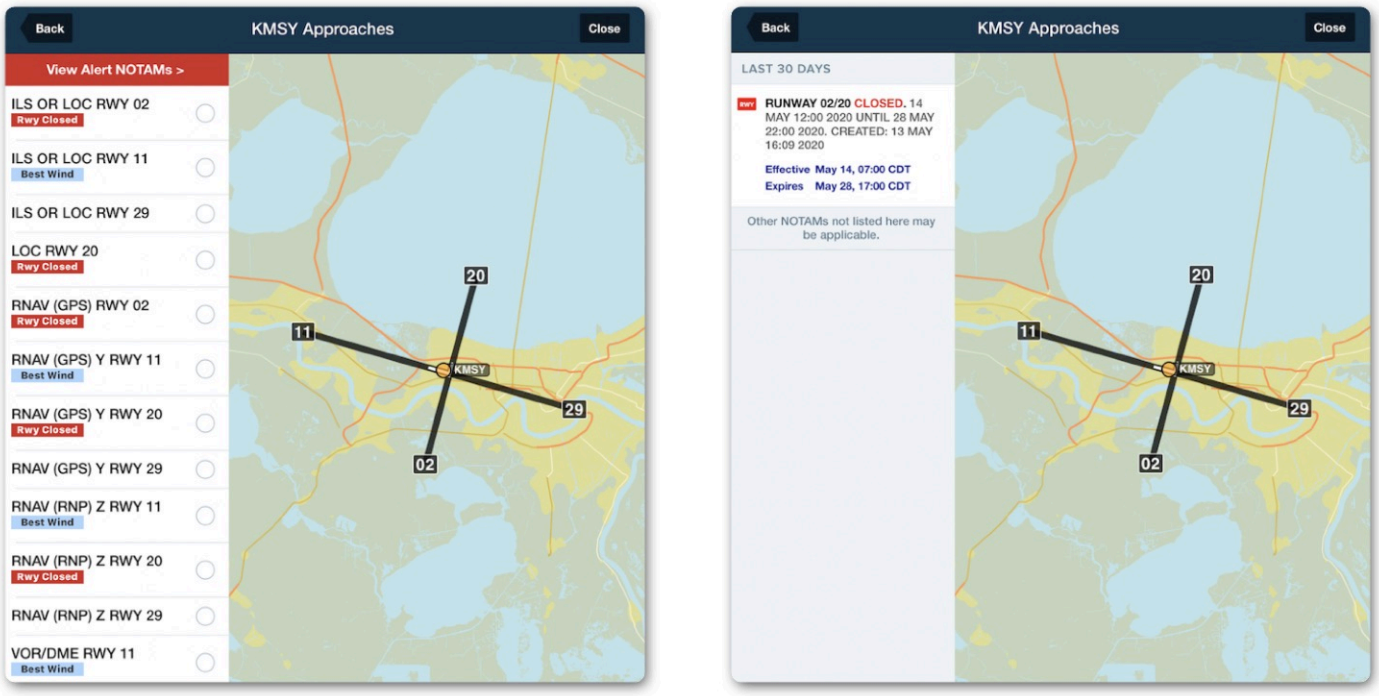


Figure 11-25. Alert NOTAMs

11.5.2.5 IFR Approach Holds

If an approach entry includes a hold, ForeFlight Mobile will automatically insert the correct direct, parallel, or teardrop entry based on the direction of flight.

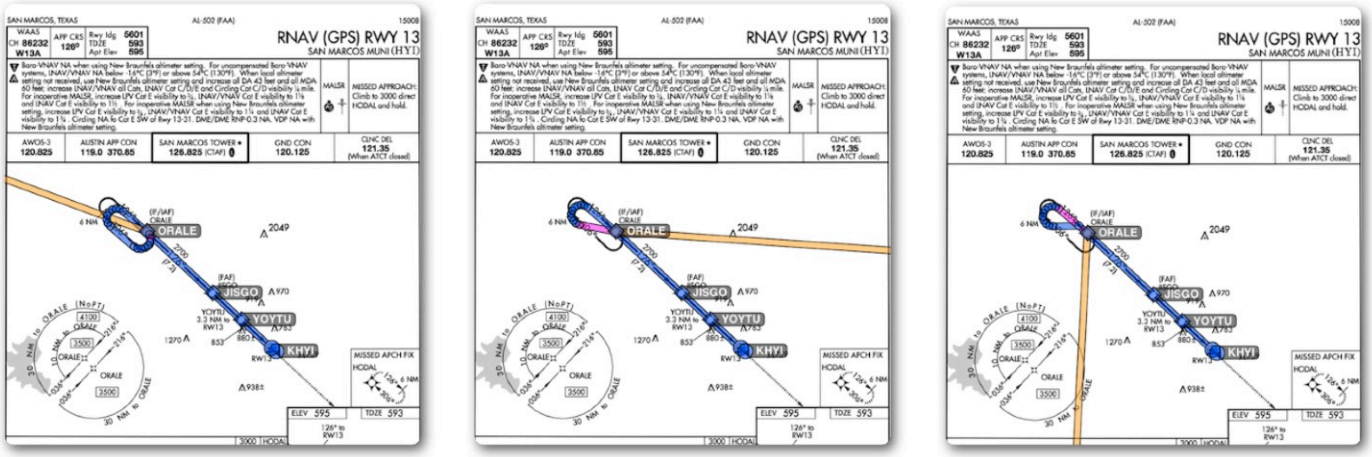
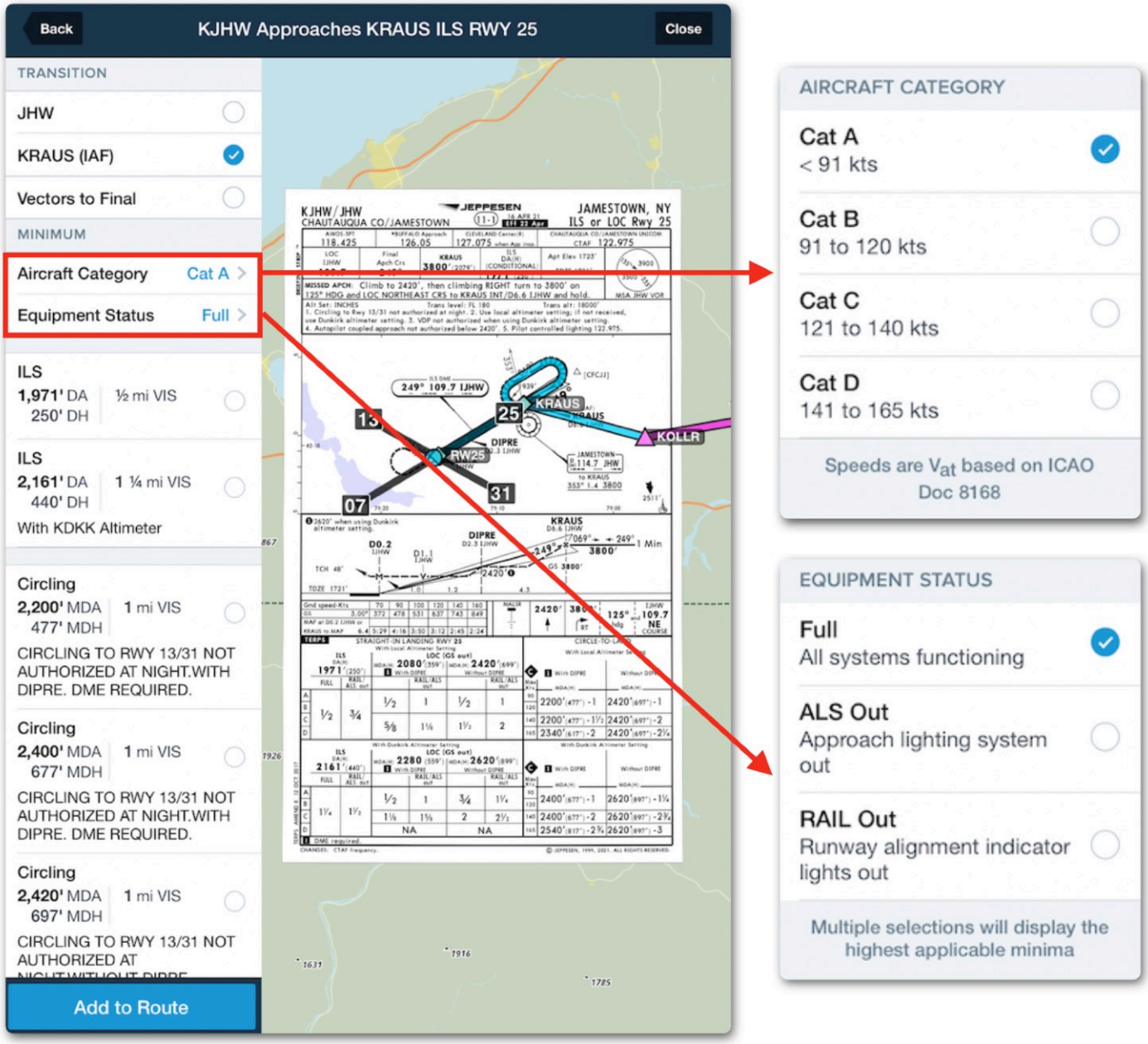


Figure 11-26. Direct Entry (Left), Teardrop Entry (Center), Parallel Entry (Right)

11.5.2.6 Adding Custom IFR Approach Minimums

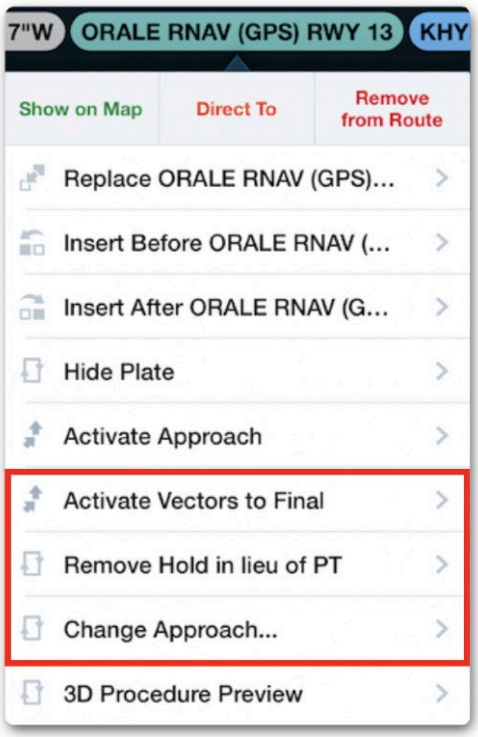
Augmented Procedures expand on the Custom Approach Minimum field by pairing Jeppesen data with pilot-entered inoperative airport equipment to show the relevant minimums, supplementing the information on the approach plate and helping to reduce the chance of errors.



11.5.2.7 Modifying the IFR Approach

Once an approach has been added to the route, it can be modified in several ways.

To do so, tap on the green route element representing that approach in the FPL editor and choose one of the following options:



> **Activate Vectors to Final:**
>
> Tap to plot a direct-to route from the current position to a point 3 NM outside the FAF. Activating vectors to final erases any existing IAF and draws a light magenta 30 NM extension from the FAF. Vectors to final can also be activated via the procedure advisor button by re-selecting the approach and tapping **Activate Vectors to Final**.

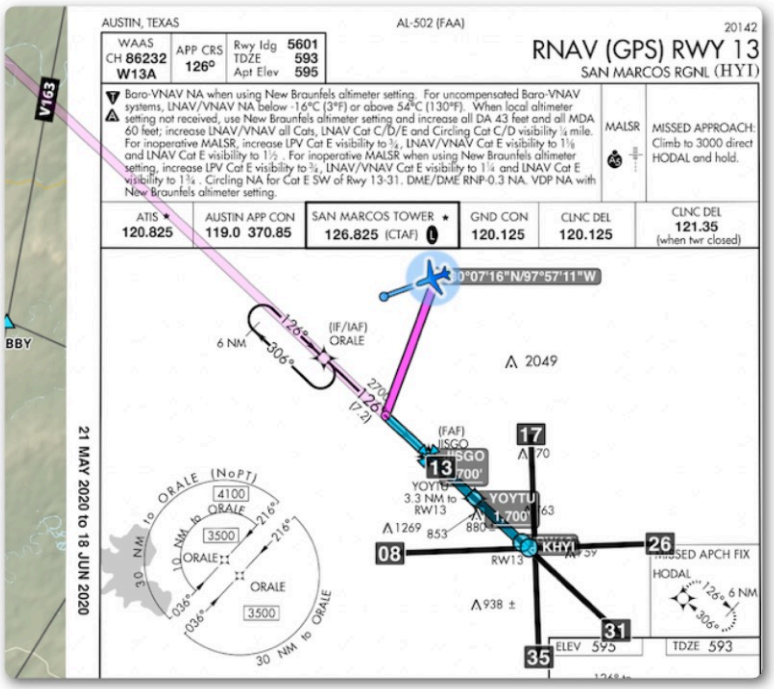


Figure 11-27. Vectors to Final Routing

Remove Hold in Lieu of PT

Tap to remove any hold that was automatically added as part of the approach. If there is a need to re-add the hold to the approach, tap **Add Hold in lieu of PT**.

Change Approach... or Change IAF...

Tap to switch to a different approach procedure or to modify the IAF of the current approach.

11.5.2.8 Viewing 3D Procedure Preview

Tap **3D Procedure Preview** to see a 3D preview of the approach, including the IAF, IF, and FAF. The navlog in 3D Procedure Preview includes any altitude and speed restrictions in the approach. If an approach has already been added to the route, it will also be included when doing a 3D preview of the entire route.

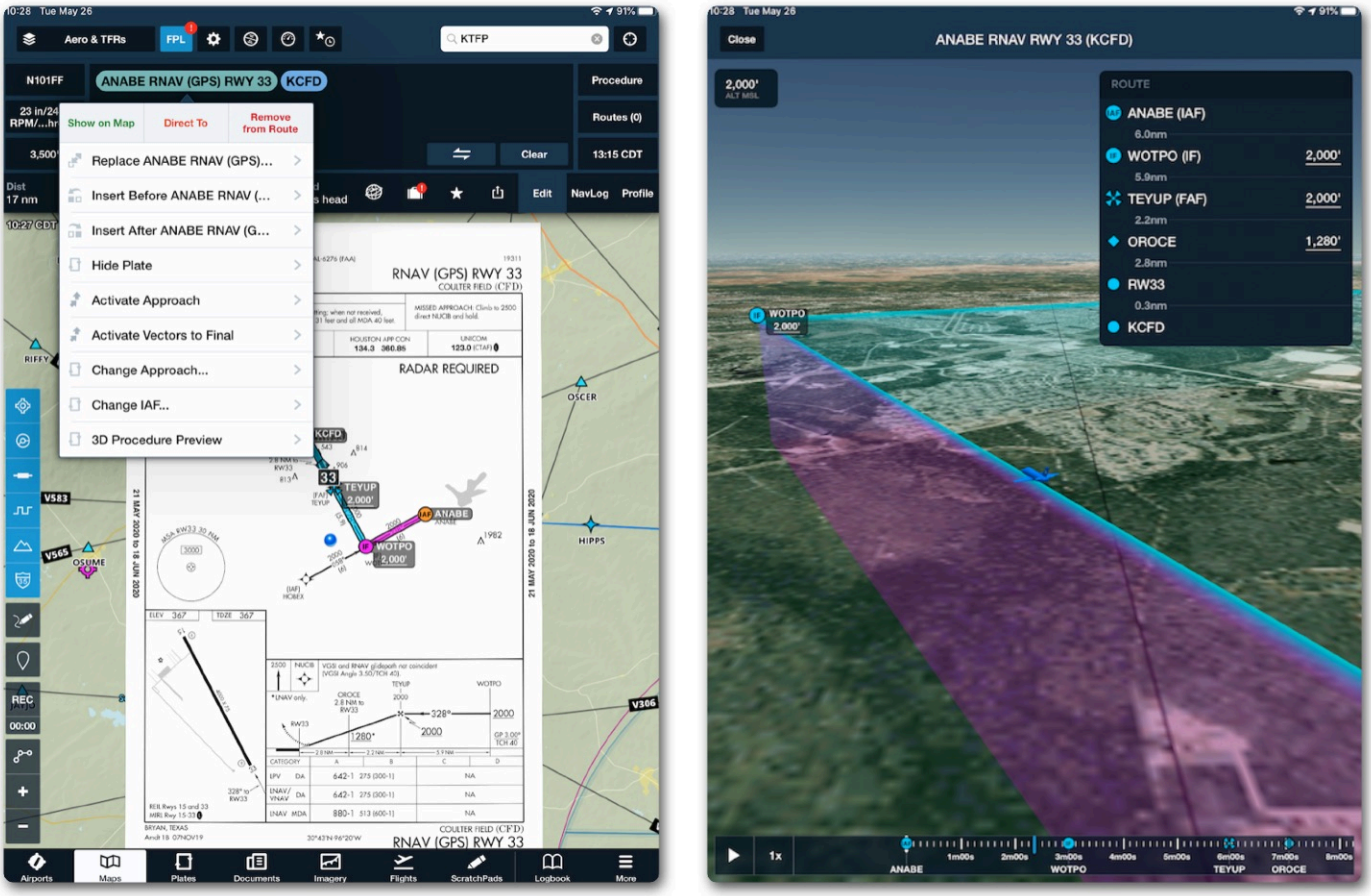


Figure 11-28. 3D Procedure Preview

11.5.3 Visual Approaches

Visual approaches can be added to a route from the Approach or Traffic Pattern menu. To do so, follow these steps:

1. Tap the **Procedure** button in the FPL editor
2. Select one of the available VFR approaches for the desired runway
3. Specify the pattern altitude in MSL or AGL (by tapping **SELECT** and choosing one of the options or tapping the current altitude and entering a manual value)
4. Select a traffic pattern entry, if applicable

5 Tap **Add to Route** to load the visual approach to the route in the FPL editor.

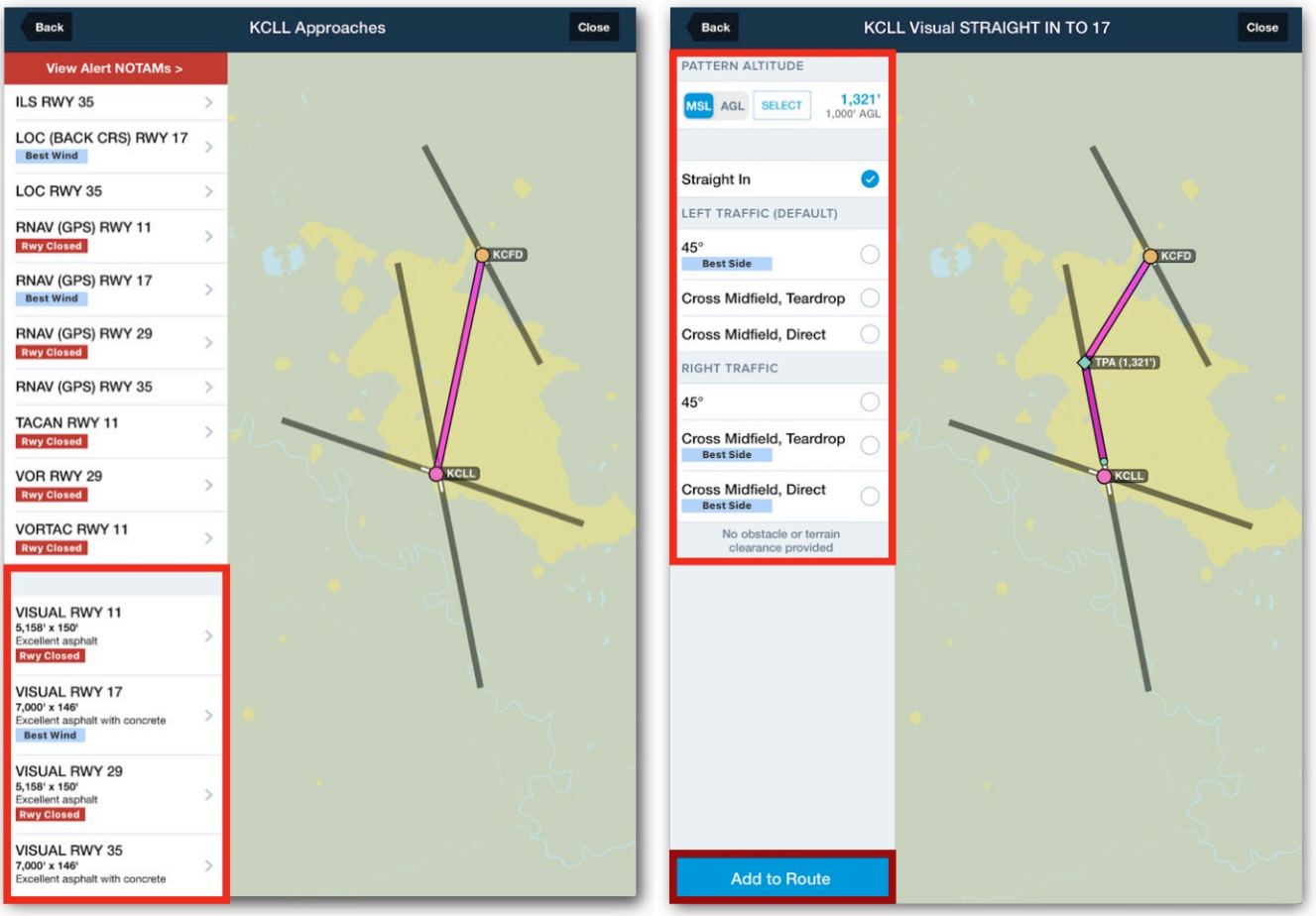


Figure 11-29. Adding Visual Route

After adding the visual approach, a TPA (in MSL) pattern entry waypoint marker is added to the route.



11.5.4 Traffic Patterns

To display VFR traffic patterns for the airport at the end of the current route, tap the **Procedure** button, then tap **Traffic Pattern**.

If current winds are available, the runway selections with the best winds are highlighted in the list. Wind direction, speed, and age of observation are also shown at the bottom of the list (scroll down if necessary to see the winds). If a NOTAM affects an available runway, a red tag is displayed. Tap the **View Alert NOTAM** banner at the top of the runway list to view the relevant NOTAM or NOTAMs.

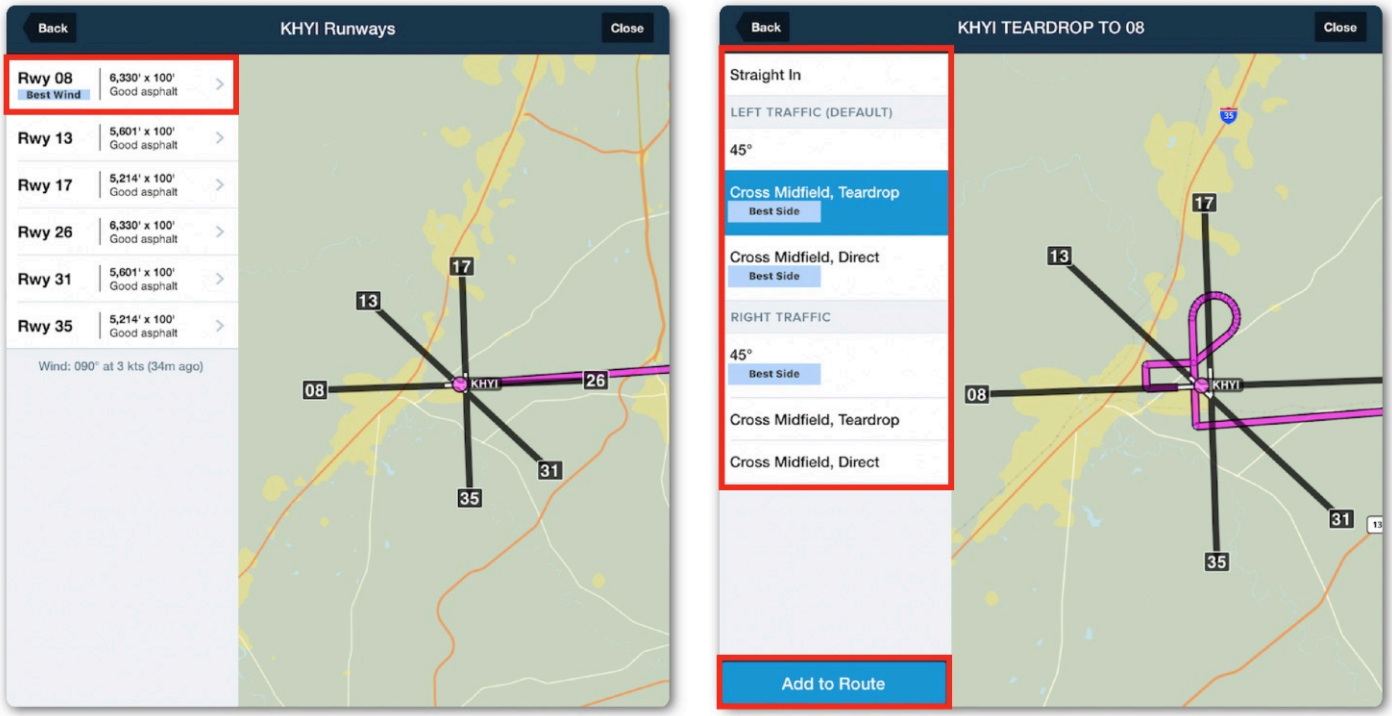


Figure 11-30. Selecting a VFR Traffic Pattern

After selecting a runway, the available pattern entry options, such as **Cross Midfield** or **Straight In**, are displayed. Selecting **Straight In** adds a 4 NM final to the route.

For non-towered airports, the entries are sorted based on the pattern side of each runway (right or left).

Additionally, entries are highlighted that make the most sense for the direction of flight. Tap an entry to add it to the end of the current route or to replace one already in the route. Traffic patterns are automatically removed from a route when certain route edits are made, such as reversing the route.

11.5.5 Holding Patterns

Hold Advisor facilitates inserting holding patterns into a flight plan and is available for Essential and higher subscriptions.

Method 1: To insert a holding pattern at the point immediately preceding the destination, tap the **Procedure** button, then tap **Holding Pattern**. If the current route is direct to with no following waypoints, the hold will insert immediately following the direct to waypoint.

Method 2: Tap any waypoint in the route, tap a navigation point on the map, or tap a route element in the FPL editor and select **Hold…** to insert a hold at that point.

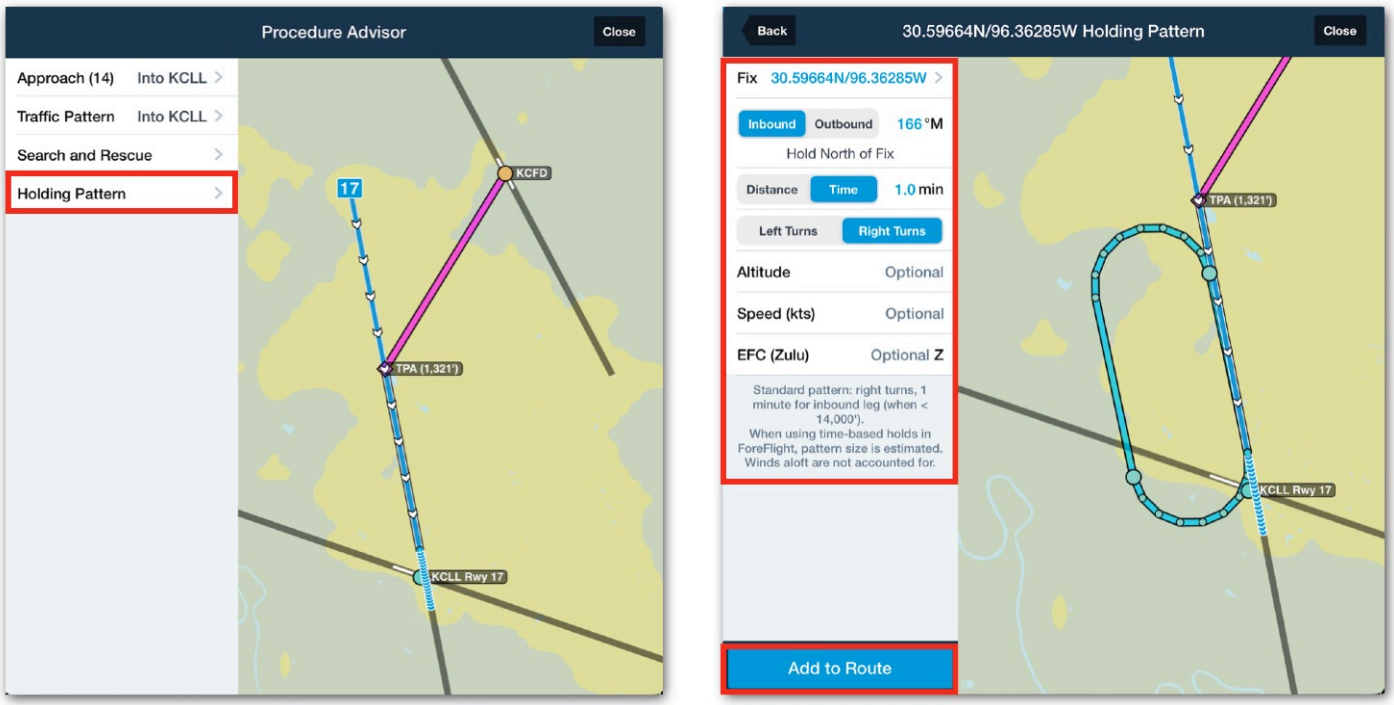


Figure 11-31. Inserting a Hold

Regardless of the method used to insert a hold, Hold Advisor includes an option to select the fix and to customize parameters for inbound or outbound legs, the pattern length (defined by either time or distance), turn direction, and optional altitude, speed, and Expect Further Clearance (EFC) settings.

After adjusting settings, tap **Add to Route** to add the hold to the route.

Hold Advisor automatically inserts the correct direct, parallel, or teardrop entry based on the direction of the hold and the direction of flight.

11.5.5.1 Editing Holds

After adding the holding pattern to the route, additional changes can be made by tapping the gray route element representing the hold in the FPL editor and selecting **Edit Hold**, or by tapping the point on the map where the hold was inserted and selecting **More** ➔ **Edit Hold** from the sidebar.

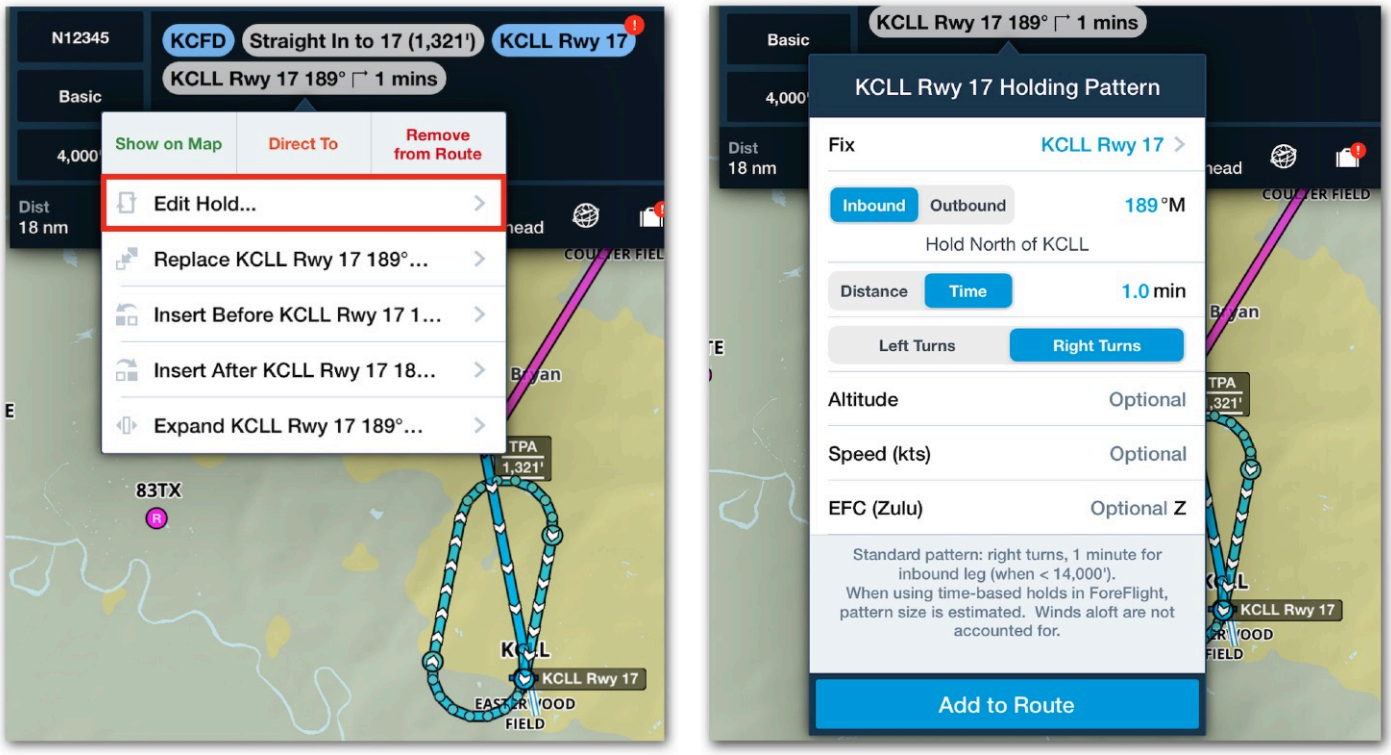


Figure 11-32. Editing a Hold

11.5.5.2 Expanding Holds into Individual Points

To expand holds into individual points:

1. Tap the route element representing the hold
2. Select the **Expand…** option.

The hold will be converted into individual points.

11.5.5.3 Sending Holds

ForeFlight Mobile supports sending holding patterns added using Hold Advisor to some connected avionics via Flight Plan Transfer. Holds that are part of an approach can be sent to connected avionics.

If a route is built that includes a hold, then sent to another pilot via email, the hold is automatically expanded in the route in the "FPL" file attached to the email.

11.5.6 Alternate Airport

Alternate airport planning is available to all subscription levels. Essential and higher subscriptions allow route, altitude, and cruise performance profile to be specified from the destination airport to the alternate

Tap **Alternate** to see suggested alternates for the destination airport. Alternate airports display:

- A colored dot indicating VFR, MVFR, or IFR conditions
- Forecast weather
- Towered or non-towered
- Longest runway length
- ETE
- Required fuel.

For Starter subscribers, enter an airport into the Alternate search bar or tap an airport from the suggested list, and then tap **Add XXXX**.

For Essential and higher subscriptions, enter an airport into the Alternate search bar or tap an airport from the suggested list, and then tap **Select options for XXXX**.

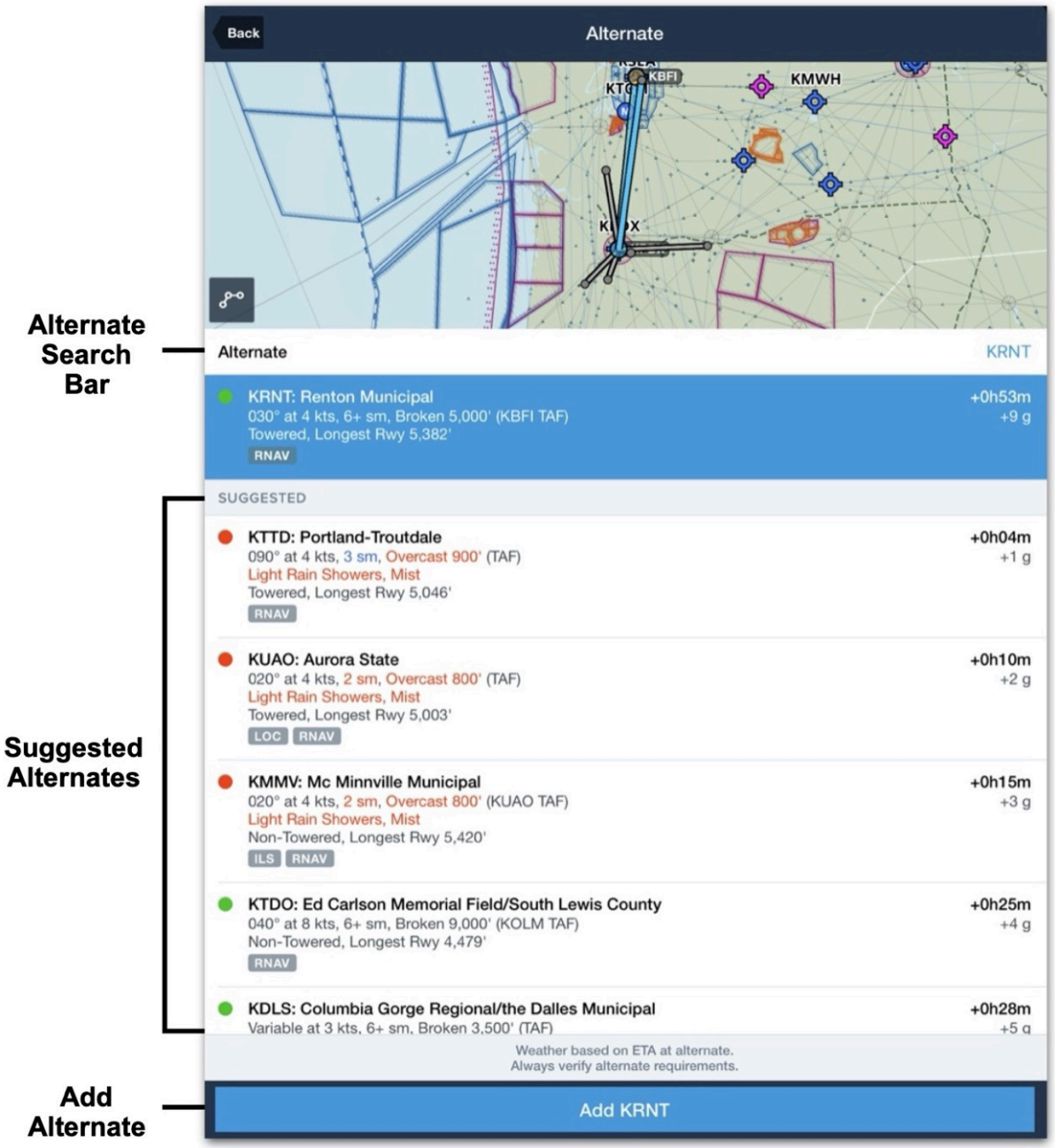


Figure 11-33. Alternate Procedure Advisor

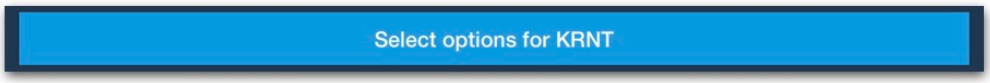


Figure 11-34. Alternate Procedure Advisor Options

11.5.6.1 Alternate Route Options

Premium, Business Performance, MFB One, and MFB Performance subscriptions allow specification of a route, altitude, and cruise performance profile for the destination to alternate leg.

The Route Editor defaults to **DIRECT**. Tap the Route Editor to manually enter a route.

When adding an alternate, the Route Editor defaults to DIRECT. The route, altitude, and cruise performance profile can be modified using the following controls:

- Tap the Route Editor to manually enter a route.
- Tap **Routes (X)** to open the Route Advisor and select the desired route.
- Tap **Altitude** to enter the desired altitude.
- Tap **Cruise Profile** to open the Cruise Profile window and select the desired profile.
- Tap **Add [airport identifier] as an Alternate** to add the airport as an alternate on the flight plan.

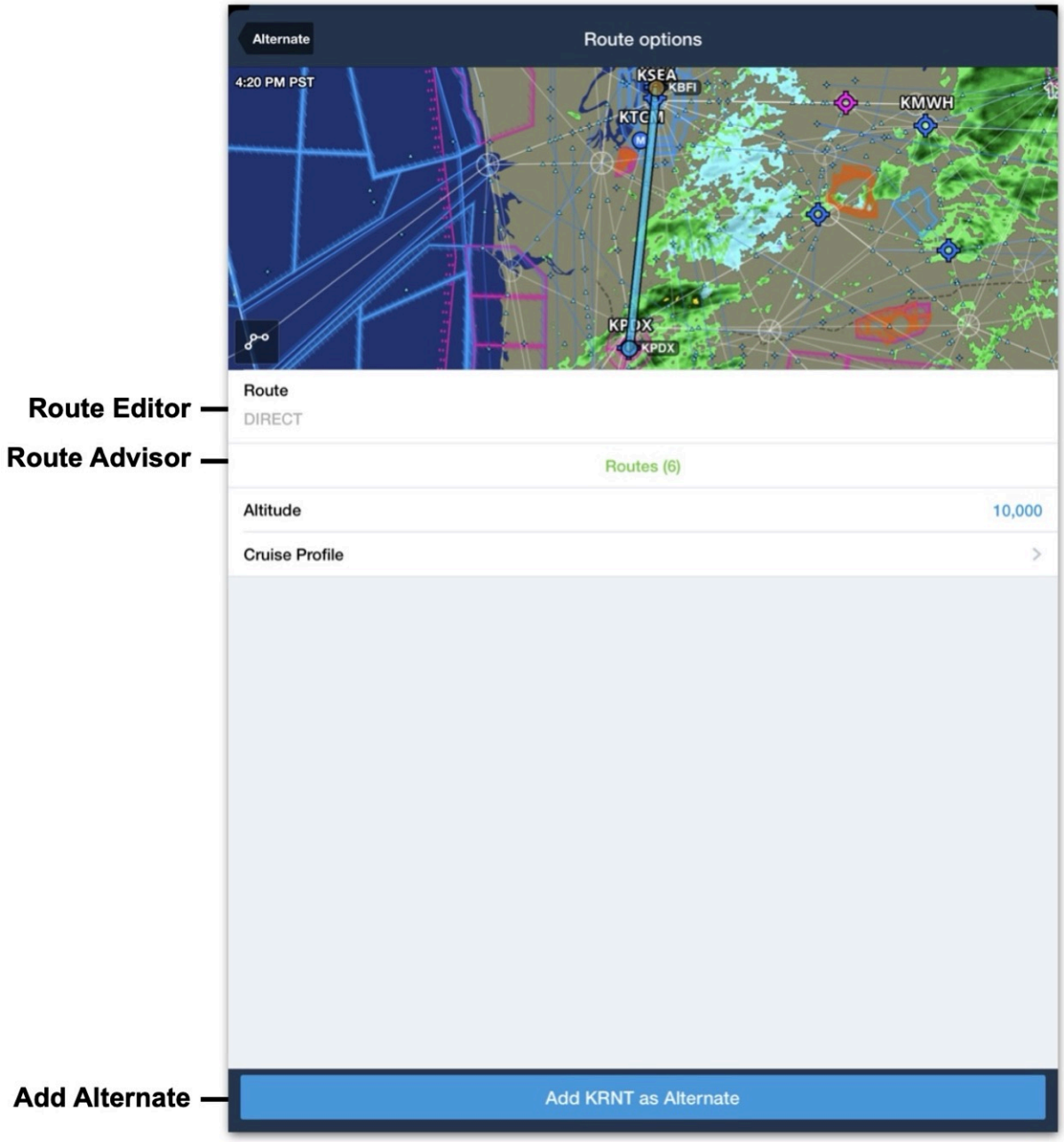


Figure 11-35. Alternate Route Options

11.5.7 SAR Patterns

On the iPad, (SAR) patterns can be inserted using the **Procedure** button when the Enable Search and Rescue setting is on. For more details about SAR features, see the ForeFlight Search and Rescue Guide in **Documents → ForeFlight**.

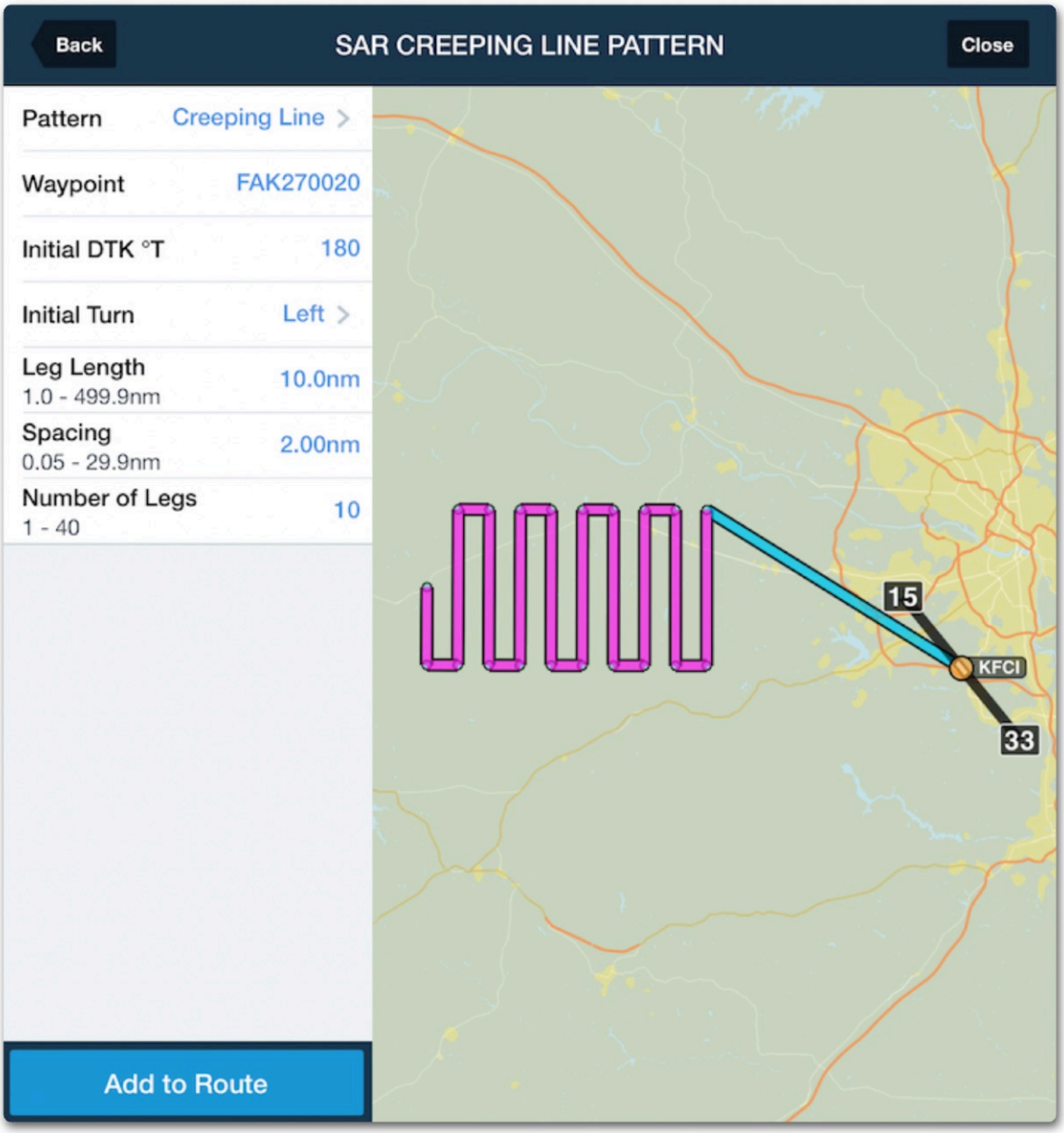


Figure 11-36. SAR Pattern Setup View

11.6 Pack

Pack is an optional preflight planning tool that downloads charts, plates, weather, NOTAMs, fuel price data, and more to the device for offline use. Pack is included with all subscriptions and can be accessed from the Maps or Flights views.

The data included in a Pack download varies based on the download selections, planned route, and ForeFlight Mobile subscription. Weather, NOTAM, cameras, and fuel data downloaded via Pack are temporarily stored on the device and automatically deleted once they become obsolete or more current data becomes available (via the internet, ADS-B, or SiriusXM).

Information downloaded with Pack is accessed using the same techniques as when the device is connected to the internet. For example, to access packed weather, select one of the map weather layers (e.g., Flight Category) using the layer selector.

Pack should be relied on as a secondary tool for flight planning. Configure download selections for charts and plates used regularly. Use Pack for additional flight-specific data. This ensures the necessary data is available in the event Pack is forgotten and cuts down on the time it takes to Pack additional data for each flight.

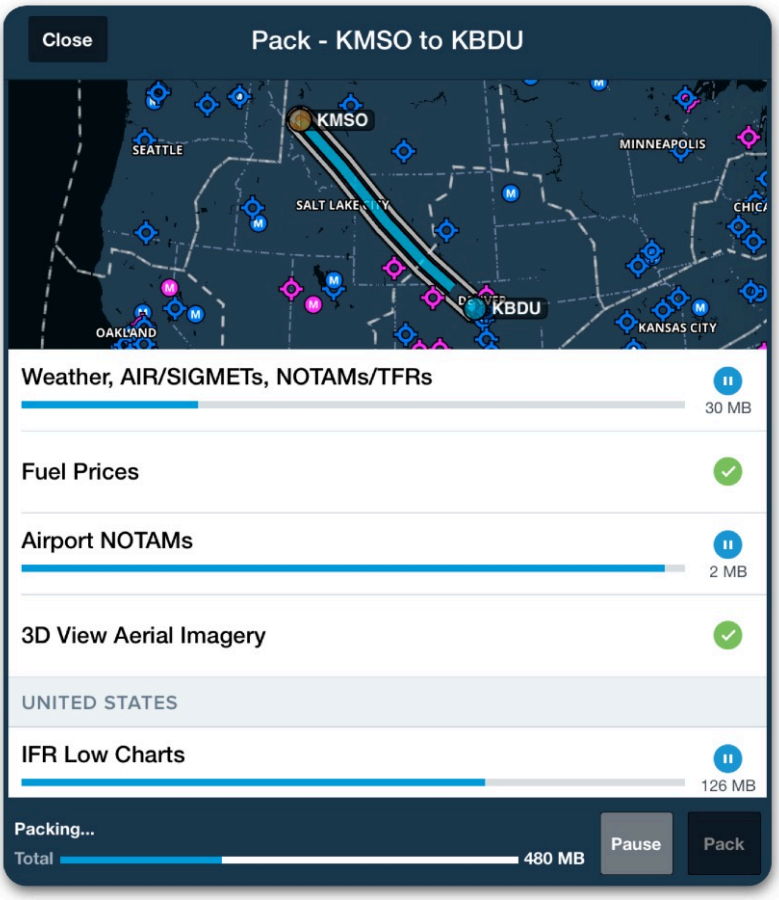


Figure 11-37. Packing Data for Offline Use

11.6.1 How to Pack

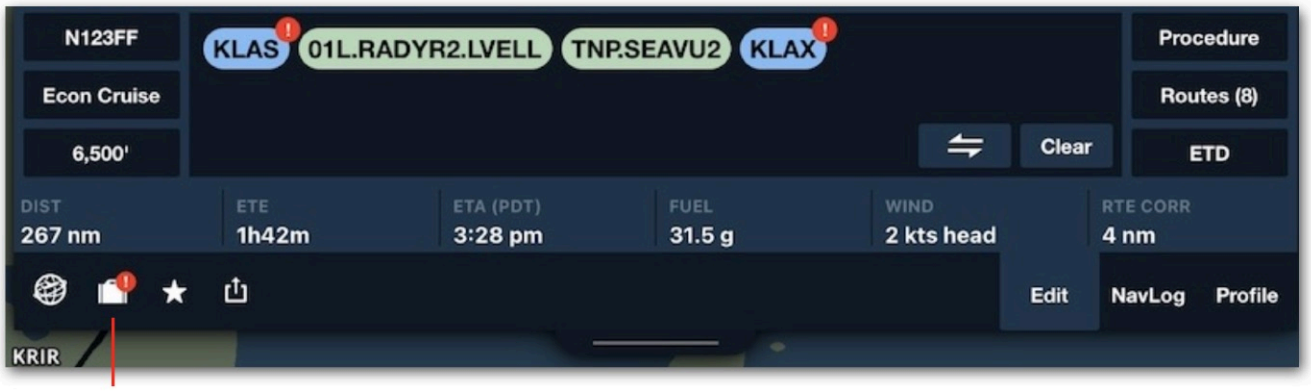
Packing is available for a flight in the Maps or Flights views. When planning with Maps and the Enable Auto-Check setting is on, a red exclamation point (!) is displayed on both the **Pack** (suitcase) and **FPL** buttons when data is available to download.

11.6.1.1 Packing with the Maps view

To Pack with the Maps view:

1. Plan a route in the Maps view.

2. Tap the **Pack** (suitcase) button to open the Pack menu.



Pack Button

11.6.1.2 Packing with the Flights view

To Pack with the Flights view:

1. Enter a route in the Flights view.
2. Scroll to the bottom.

3 Tap **Pack** to open the Pack menu.

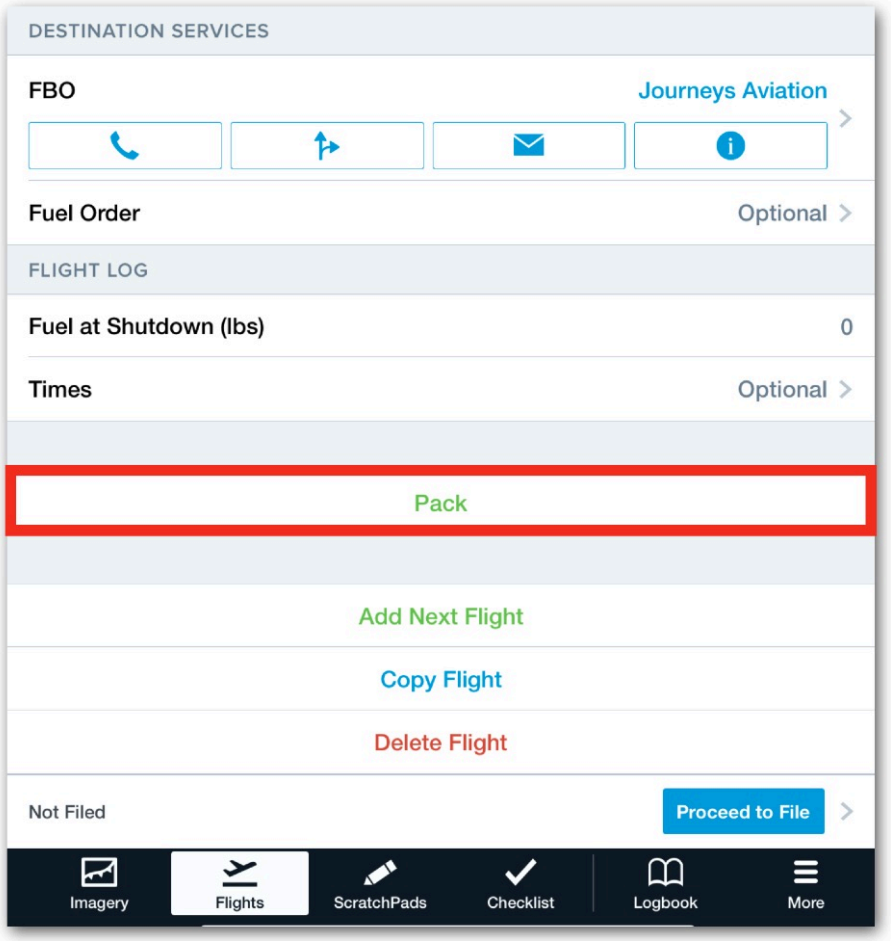


Figure 11-38. Packing with Flights

11.6.1.3 Pack Menu

The Pack pop-up menu is displayed whenever the **Pack** button is tapped. Hide the menu by tapping **Close** or somewhere on the screen outside the menu. The Pack menu includes an interactive map. The map displays the planned route in blue and an approximate Pack coverage corridor in gray. The map Pack coverage corridor encompasses 25 NM of airspace on either side of the route. However, the data that gets packed can exceed the depicted corridor. See the following sections for additional information.

Pack can only download data for one flight at a time. If packing a new flight is attempted while Pack is actively downloading data, a pop-up will appear with an option to pause the current Pack download.

The Pack menu lists downloads as individual items. The estimated file size and an option to download are displayed on the right side of the menu. To download an individual item, tap the single **download** button (blue circle with down arrow). To download all Pack items, tap **Pack** at the bottom of the menu.



Figure 11-39. Pack Menu

11.6.2 Packed Weather and NOTAM Data Overview

Pack downloads METARs, TAFs, MOS forecasts, and (textual) Airport NOTAMs for the airports within 25 NM of the planned route and 50 NM of the departure and destination airports. Pack only downloads Daily Weather forecasts for the airports that are included in the planned route.

Pack downloads the following map layers on a global scale:

- AIR/SIGMET/CWAs
- NOTAMs (graphically depicted NOTAMs)

- Fuel: 100LL and Jet A.

Packing with an Essential or Pro-Tier subscription

With an Essential or Pro-tier subscription or higher, Pack downloads the data discussed above in addition to the following map layers:

- Clouds
- Surface Analysis
- Icing (US) and Icing (Global)
- Turbulence (US) and Turbulence (Global).

Pack does not download global data for the above map layers. These map layers are broken into large rectangular sections that are hundreds of miles across. Pack only downloads the sections that the planned route intersects.

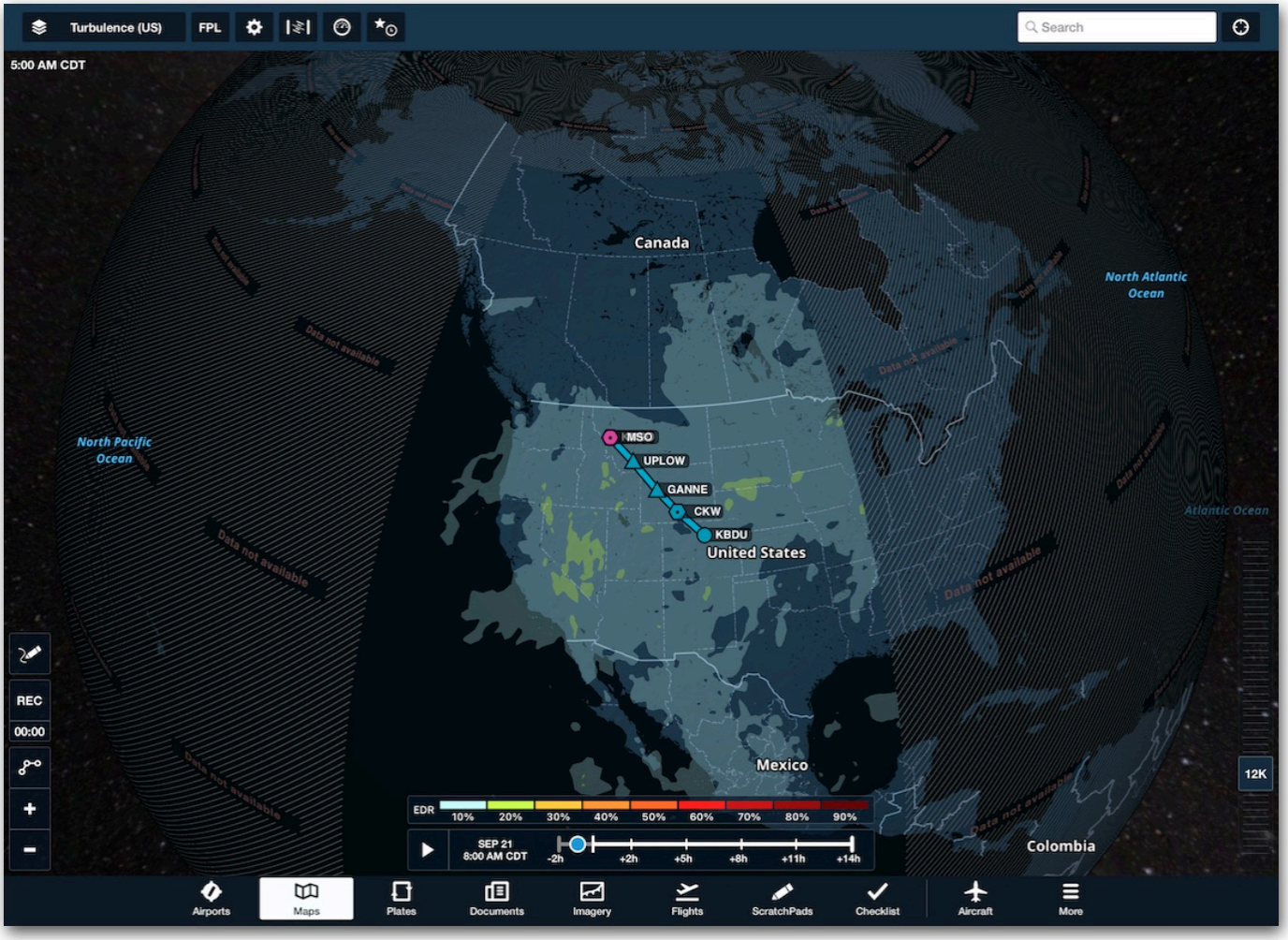


Figure 11-40. Packed Turbulence (US) Data

Packing with a Premium or Performance-Tier subscription

With a Premium or Performance-tier subscription, Pack downloads all data in addition to:

- **Digital ATIS (D-ATIS)** for the airports within 25 NM of the route and 50 NM of departure and destination airports.
- **Dynamic Winds** for the area around the route. Dynamic Wind data is broken into rectangular sections that are hundreds of miles across. Pack downloads the Winds (Temps) and Winds (Speeds) map layers for the sections the route intersects.
- **3D Imagery** for the areas approximately 25 NM from the airports that are in the planned route. Packed 3D Imagery can be viewed using the 3D Route Preview feature or by tapping the **3D View** button from the route's airport view. When Packing 3D Imagery, only the satellite imagery that is overlayed on the downloaded high-resolution terrain data is Packed to the device.

Packed Data - Profile View

Packed Icing, Turbulence, and Cloud data can be viewed in the Profile view with a Premium or Performance-tier plan. Profile View displays the appropriate forecast data for the flight's estimated time en route.

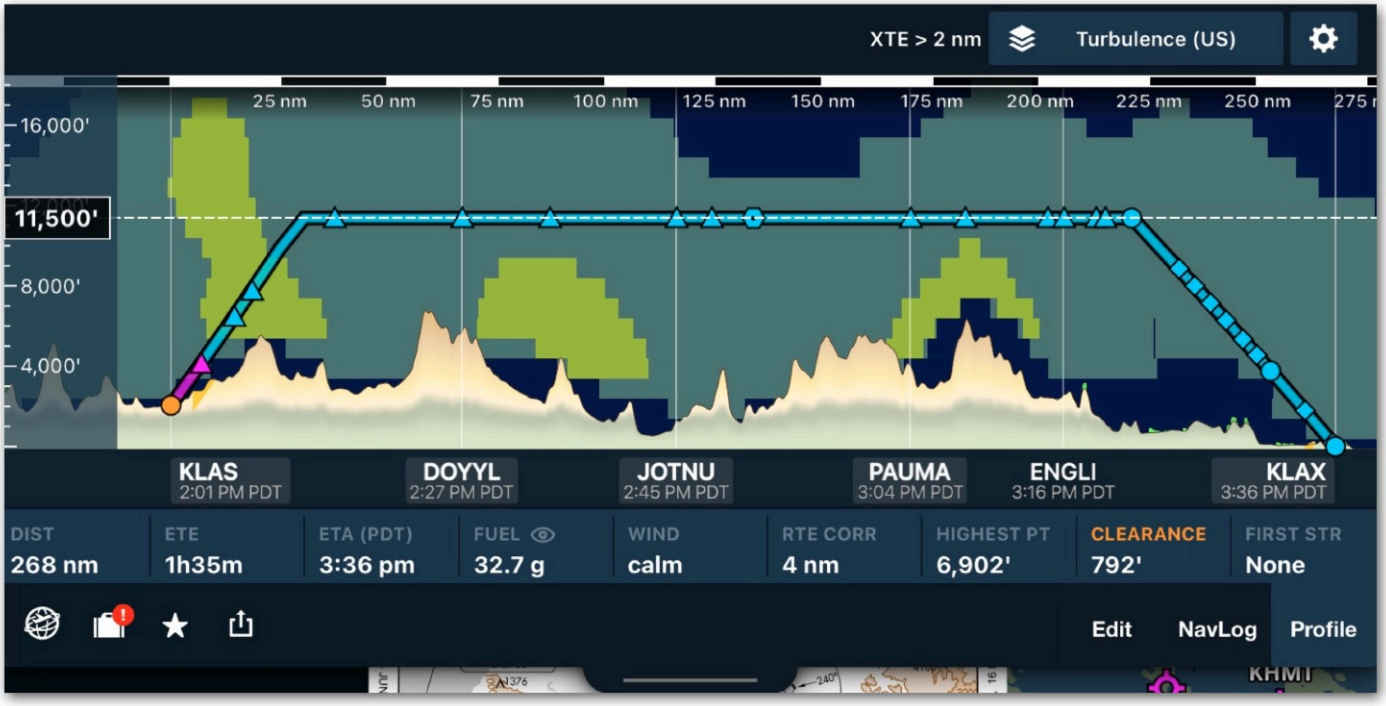


Figure 11-41. Packed Turbulence Data in Profile View

11.6.3 Packed Charts and Terminal Information

Using Pack to download charts is not recommended as it increases the amount of time required to Pack. Pilots should configure their download selections for the regions they normally operate in. See Downloads for additional information.

Pack evaluates the planned route for the missing downloads to include:

- VFR and IFR en route charts.
- Terminal Procedures (Airport Diagrams, and Departure, Arrival, and Approach Procedures).
- Airport Information / Flight Supplements (A/FD, AIP, and CFS).

If a route is missing downloads, Pack downloads the data according to the logic below.

Terminal Procedures and Airport Information

When planning in the United States, Canada, or Australia, Pack downloads Terminal Procedures and Airport Information for the entire state, province, or region if it is within 25 NM of the route or 50 NM of the destination or departure airport.

When planning in Europe, Pack only downloads Terminal Procedures and Airport Information if the route intersects the country.

Charts

Pack downloads all selected chart types if the route intersects the chart and it is not already downloaded. Charts and plates downloaded using Pack are only valid for the current data cycle and will not automatically update.

Charts are only downloaded with Pack if the chart type is selected. For example, if a route intersects California, Pack will only download the U.S. IFR (High) P-1 chart for California if **IFR High Charts** is enabled in **More → Downloads → Data → Settings**. If a chart type is not selected in Data Settings, Pack will not download it.

Airport Comments

Pack downloads all customer comments associated with airports and FBOs along the route. This includes published comments from other users, and all relevant comments in the My Comments list.

11.6.4 Accessing Packed Data

Packed data is not accessed from a different location than internet, ADS-B, or SiriusXM data. For example, to access charts that are downloaded with Pack, select a VFR or IFR chart from the Maps layer drop-down menu. If the chart was downloaded with Pack, it will appear the same as if it were downloaded as part of the download selections.

To access packed weather and NOTAM data, select the appropriate map layer (e.g., Flight Category) or Airport weather view (while offline).

> **NOTE:** Verify that data will be available offline by packing for a flight, disconnecting from the internet, ADS-B, and SiriusXM, and then viewing weather, NOTAMs, plates, and charts.

11.6.5 Deleting Packed Data

Weather, NOTAM, and fuel data downloaded with Pack is automatically removed when the information becomes obsolete or new information becomes available via the internet, ADS-B, or SiriusXM. In other words, once the device connects to the internet after a flight, the packed data is automatically deleted.

If the device does not connect to the internet, ADS-B, or SiriusXM for an extended period of time, refer to the table below to determine when data becomes obsolete and thus removed from the device.

Deleting Packed Charts and Plates

Packed charts appear in the Downloads view under the Packed and Unselected Regions. Manually delete these charts at any time by swiping from right to left on the download. To delete packed charts and plates after they expire, tap **More → Downloads → Delete → Delete Expired**.

Table 11-2. Packed Data Obsolescence Schedule

Packed Data Type	Time to Obsolete
METAR	3 Hours
Winds Aloft	12 Hours

Packed Data Type	Time to Obsolete
Dynamic Winds	Up to 28 Hours
TFR	14 Days
Fuel Price	1 Month
Airport NOTAMs	4 Days

11.7 LSALT Calculator

The LSALT Calculator is available with an Essential or higher Australian subscription and can be displayed in the FPL NavLog and Route Details. This calculator automatically determines the lowest safe altitude for route segments using customizable corridors or published data.

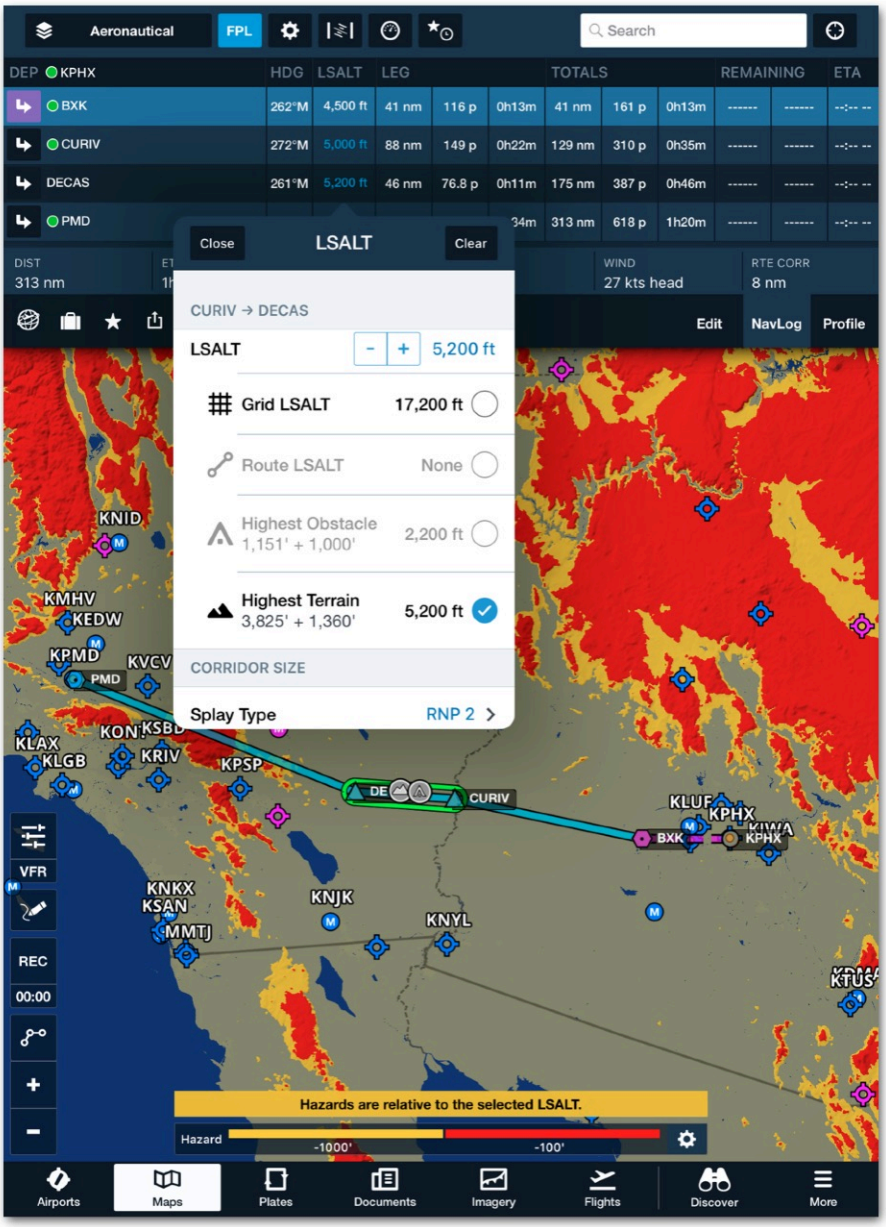


Figure 11-42. LSALT Calculator

See Map Setting to enable the LSALT Calculator.

11.7.1 LSALT Selection

LSALT may be based on published data:

- Grid LSALT
- Route LSALT (applicable for RNP2 equipped aircraft).

If no published data exists, LSALT must be calculated and based on:

- Highest terrain
  - Terrain databases are used to find the highest point within the corridor and 1,360 ft, is added, rounded up to the nearest 100 ft.
  - If the highest terrain is not above 500 ft, the LSALT must not be less than 1,500 ft.
- Highest obstacle
  - If the highest obstacle is more than 360 ft above terrain height, LSALT must be 1,000 ft above the obstacle.
  - If the highest obstacle is less than 500 ft, LSALT must not be less than 1,500 ft.

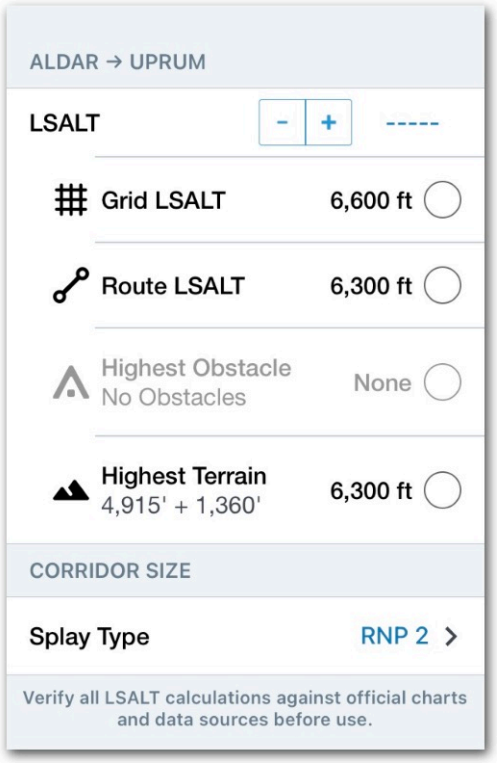


Figure 11-43. LSALT Selection

11.7.2 Splay Type

The LSALT corridor size, called Splay Type, is based on navigation equipment. Corridor size determines the boundaries that the highest terrain and obstacle are selected from.

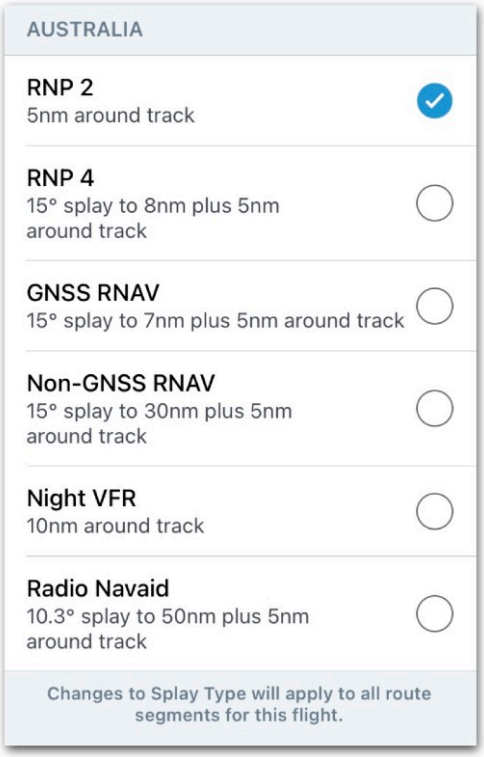


Figure 11-44. Splay Type

Splay type selections are:

- RNP2 - 5 NM on each side of track
- RNP4 - 15° splay to 8 NM with 5 NM on each side of track
- RNAV GNSS - 15° splay to 7 NM with 5 NM on each side of track
- Non GNSS RNAV - 15° splay to 30 NM with 5 NM on each side of track
- Night VFR - 10 NM on each side of track
- Radio Navaid - 10.3° splay to 50 NM with 5 NM on each side of track.

11.7.2.1 Selecting a Splay Type

To select a Splay type,

1. Tap an FPL NavLog data window

   OR

   Tap a route leg segment to open the Route Details sidebar, then tap **LSALT**.

2. Tap the **Splay Type** line.

3. Tap the desired Splay Type radio button.

FOREFLIGHT MOBILE CLEARANCE

ForeFlight Mobile Clearance allows pilots to electronically request, receive, review, and respond to IFR departure clearances in ForeFlight Mobile at supported airports while the aircraft is on the ground.

ForeFlight Mobile Clearance supplements standard ATC voice communication procedures. Pilots remain responsible for complying with all applicable FAA regulations and ATC instructions. If ForeFlight Mobile Clearance is unavailable, or if an electronic transaction cannot be completed, use standard voice communication procedures.

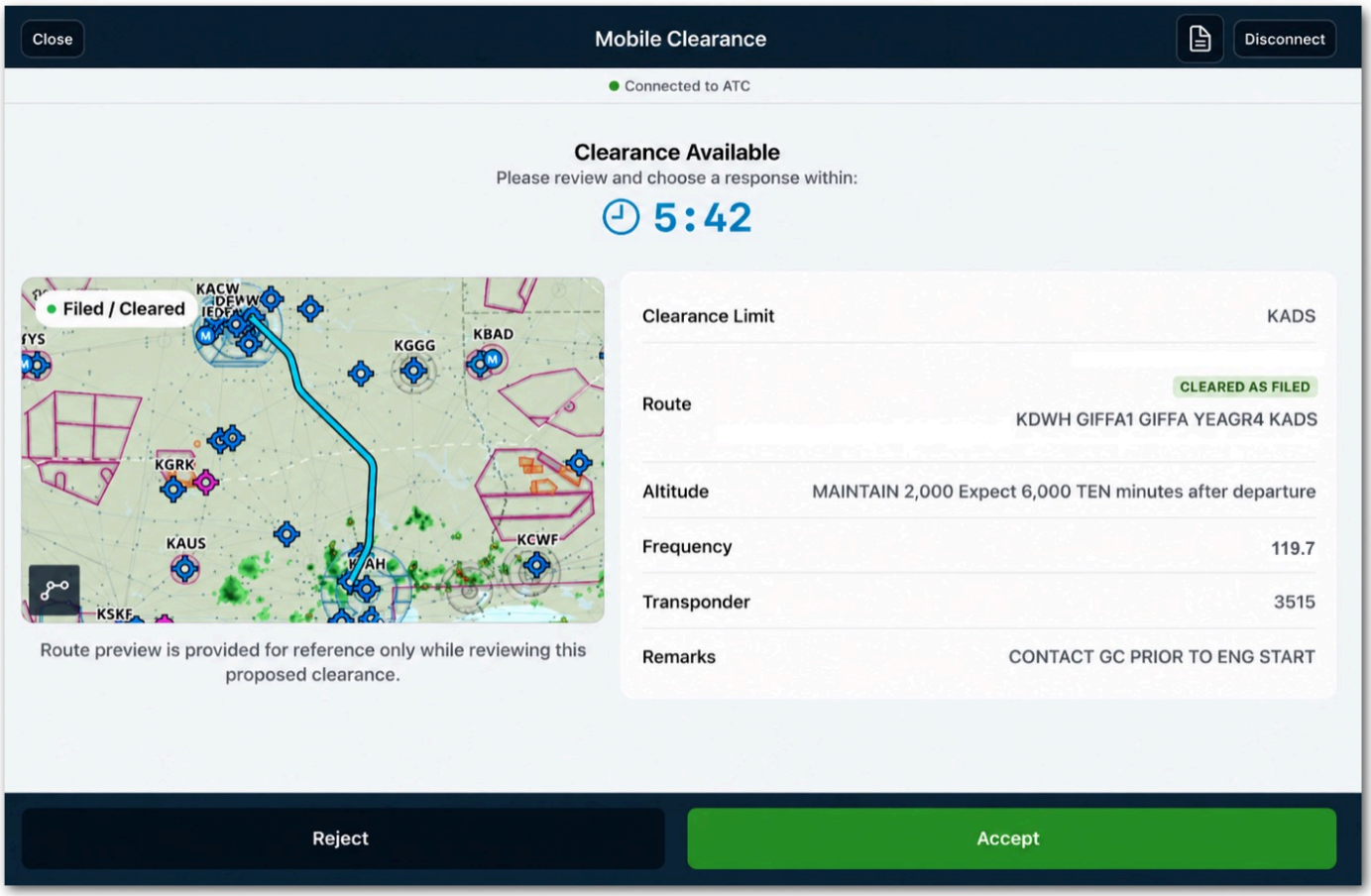


Figure 12-1. ForeFlight Mobile Clearance View

ForeFlight Mobile Clearance can be used to:

- Request an IFR departure clearance.
- Receive original and amended clearances.
- Accept or reject a clearance electronically.

- Receive Contact Me messages from ATC.
- Review clearance activity in the History Log.

ForeFlight Mobile Clearance is designed to reduce frequency congestion, decrease pilot and controller workload, and reduce errors associated with verbal clearance read-back while maintaining existing ATC procedures.

12.1 Participating Airports

ForeFlight Mobile Clearance is available only at airports participating in the FAA Mobile Clearance Delivery pilot program.

Airport participation will change over time as additional facilities are added to or removed from the pilot program. Because participation is subject to change, specific airports are not listed in this guide. ForeFlight Mobile Clearance is available when the flight meets the applicable requirements and the departure airport is participating in the program.

Only eligible flights departing from participating airports can benefit from ForeFlight Mobile Clearance.

12.2 Requirements for Using ForeFlight Mobile Clearance

Before using ForeFlight Mobile Clearance, verify that all of the following conditions are met:

- An IFR flight plan has been filed through ForeFlight.
- The flight plan has been accepted by the FAA.
- The iPad or iPhone running ForeFlight Mobile has an active internet connection.
- The aircraft is on the ground.
- The aircraft is within the supported geographic area of the departure airport when requesting the IFR clearance.
- The request is made within the supported time window: no earlier than 30 minutes before ETD and no later than 105 minutes after ETD.

If any requirement is not met, ForeFlight Mobile Clearance may not be available for the flight.

> **IMPORTANT:** During the FAA Mobile Clearance Delivery pilot program, the same Flight Plan Service Provider must be used to file the flight plan and retrieve the clearance. For ForeFlight Mobile Clearance, the flight plan must be filed through ForeFlight. Filing through one provider and requesting a clearance through another provider is not supported.

12.3 Flight Plan Eligibility

Only eligible flight plans can benefit from ForeFlight Mobile Clearance.

A flight plan is eligible when all of the following conditions are met:

- The flight plan is an IFR flight plan.
- The flight departs from a participating airport.
- The flight plan has been accepted by the FAA.
- The flight plan is not identified as a duplicate.

If the flight plan is not eligible, obtain the clearance using standard ATC voice communication procedures.

12.4 ForeFlight Mobile Clearance Availability

ForeFlight Mobile Clearance is available only when the required services are operating normally.

Availability depends on:

- Availability of the FAA Mobile Clearance Delivery service at the departure airport.
- Acceptance of the flight plan by the FAA.
- The operational status of ForeFlight Mobile Clearance.

Temporary service interruptions, maintenance, connectivity issues, or flight plan eligibility issues may make ForeFlight Mobile Clearance unavailable. If ForeFlight Mobile Clearance is unavailable, obtain the clearance using standard ATC voice communication procedures.

Voice communication remains necessary when:

- ForeFlight Mobile Clearance is unavailable.
- A clearance is rejected.
- A transaction expires.
- Internet connectivity is lost.
- A Contact Me message is received.
- Additional information is required.

> **NOTE:** ForeFlight Mobile Clearance supplements existing ATC communication methods and is not intended to replace voice communication in all situations.

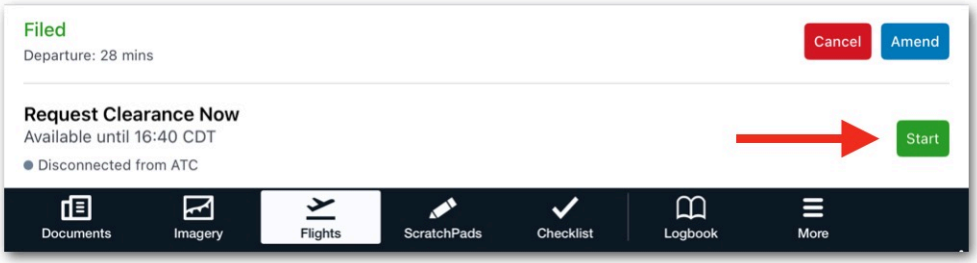
12.5 ATC Sessions

ForeFlight Mobile Clearance uses an ATC session to exchange clearance-related messages for an eligible flight. A session must be active before an electronic clearance can be requested, received, or responded to.

12.5.1 Start a ForeFlight Mobile Clearance Session

To start a ForeFlight Mobile Clearance session:

1. Tap **Flights** to open the Flights view.
2. Open the applicable flight.
3. Tap **Start** next to Request Clearance Now.



4. Tap **Request Clearance**.

When the session is established, ForeFlight Mobile displays "Connected to ATC" at the top of the ForeFlight Mobile Clearance view.

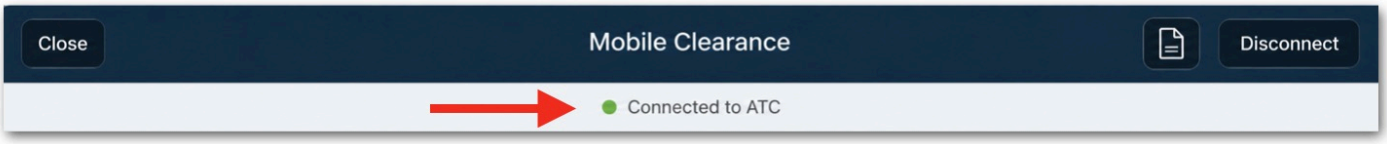


Figure 12-2. Connected to ATC Indication

12.5.2 End a ForeFlight Mobile Clearance Session

A ForeFlight Mobile Clearance session may end automatically or manually when it is no longer required.

A session may end when:

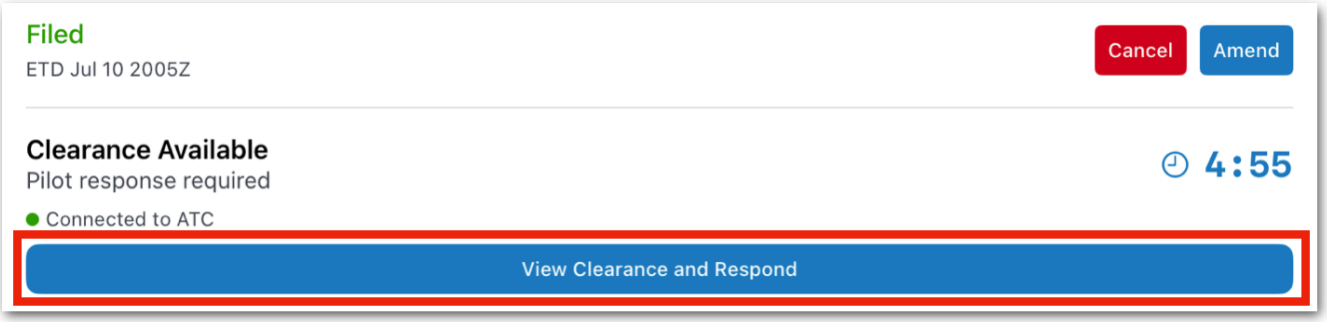
- The pilot disconnects the session.

- ForeFlight Mobile is closed or loses connectivity.
- ATC terminates the session.

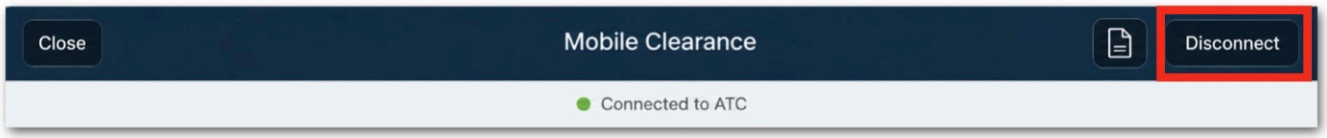
After a session ends, ForeFlight updates the session status. No additional clearance transactions can occur until a new session is established, if permitted.

To manually end a session:

1. Tap **Flights** to open the Flights view.
2. Open the applicable flight.
3. Tap **View** or **View Clearance and Respond** (whichever is available) in the Clearance section.



4. Tap **Disconnect**.



12.5.3 Re-establish a Session

If a session ends before departure, it can usually be re-established if the flight remains eligible.

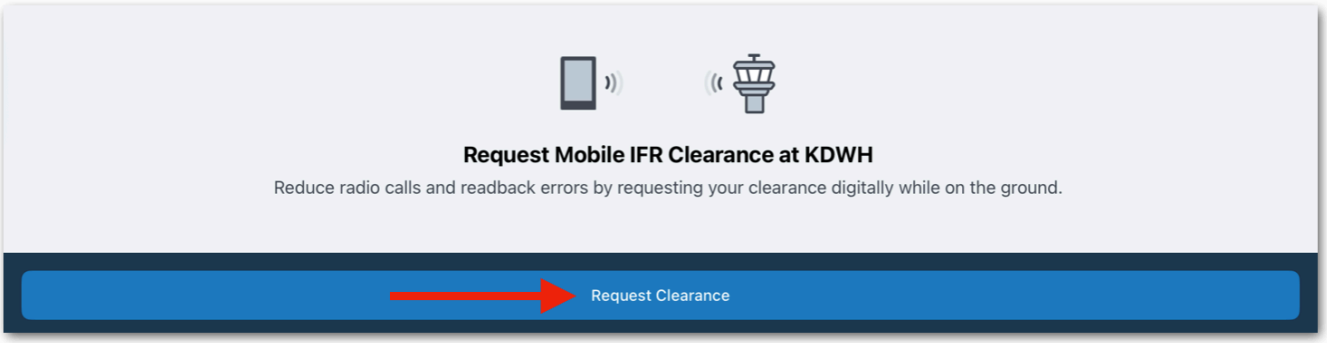
To re-establish a session:

1. Tap **Flights** to open the Flights view.
2. Open the applicable flight.

3. Tap **Start**, **View**, or **Retry** (whichever is available) in the Clearance section.



4. Tap **Request Clearance** if available.



If an active clearance transaction existed when the session ended, ForeFlight Mobile may display the outstanding clearance after the session is restored.

If the session cannot be re-established, obtain the clearance using standard ATC voice communication procedures.

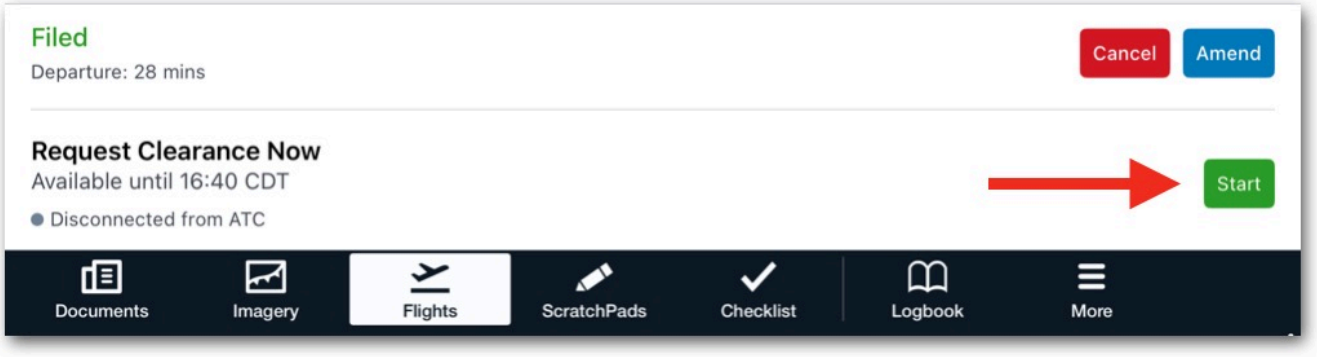
12.6 Request an IFR Clearance Using ForeFlight Mobile Clearance

After an IFR flight plan has been filed through ForeFlight, and the flight is within the supported time window, use ForeFlight Mobile Clearance to request the IFR departure clearance.

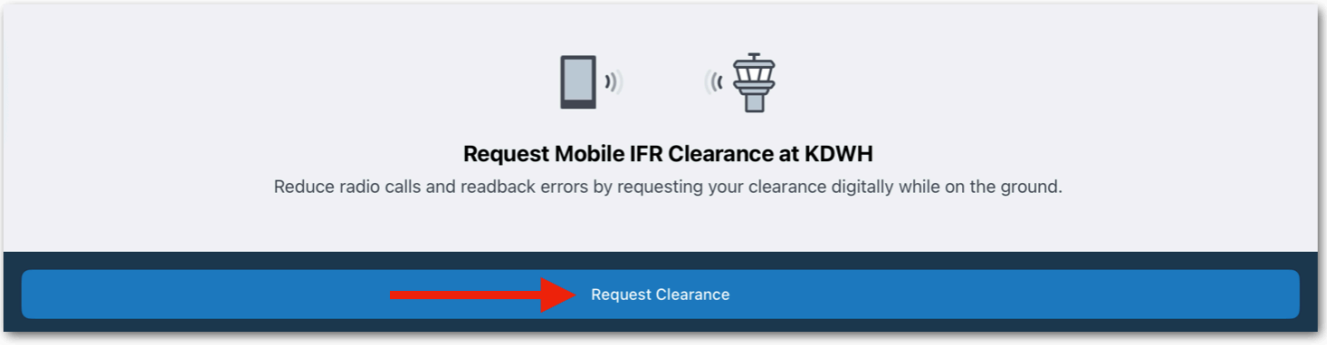
The clearance request must be made no earlier than 30 minutes before ETD and no later than 105 minutes after ETD.

To request an IFR clearance:

1. Tap **Flights** to open the Flights view.
2. Open the applicable flight.
3. Tap **Start** next to Request Clearance Now.



4. Tap **Request Clearance**.



5. Wait for the request to be processed.

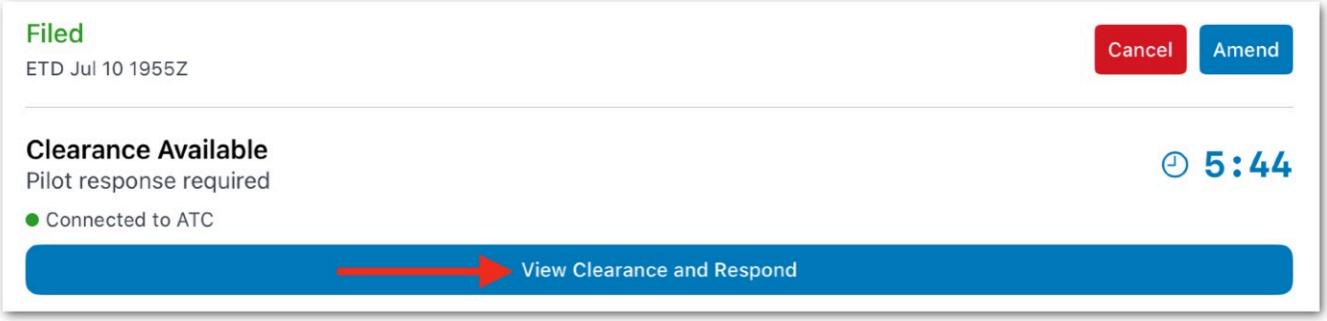
When the request succeeds, ForeFlight establishes a session for the flight. ATC can then deliver the clearance electronically.

12.6.1 View an Available Clearance

When ATC issues a clearance, ForeFlight Mobile displays a notification. When viewing the flight in the Flights view, a **View Clearance and Respond** button appears at the bottom of the flight.

To view the clearance:

1. Go to the **Flights** view.
2. Open the applicable flight.
3. Select **View Clearance and Respond**.



The clearance includes:

- Clearance limit
- Route
- Altitude
- Departure frequency
- Transponder code
- Additional remarks, when provided.

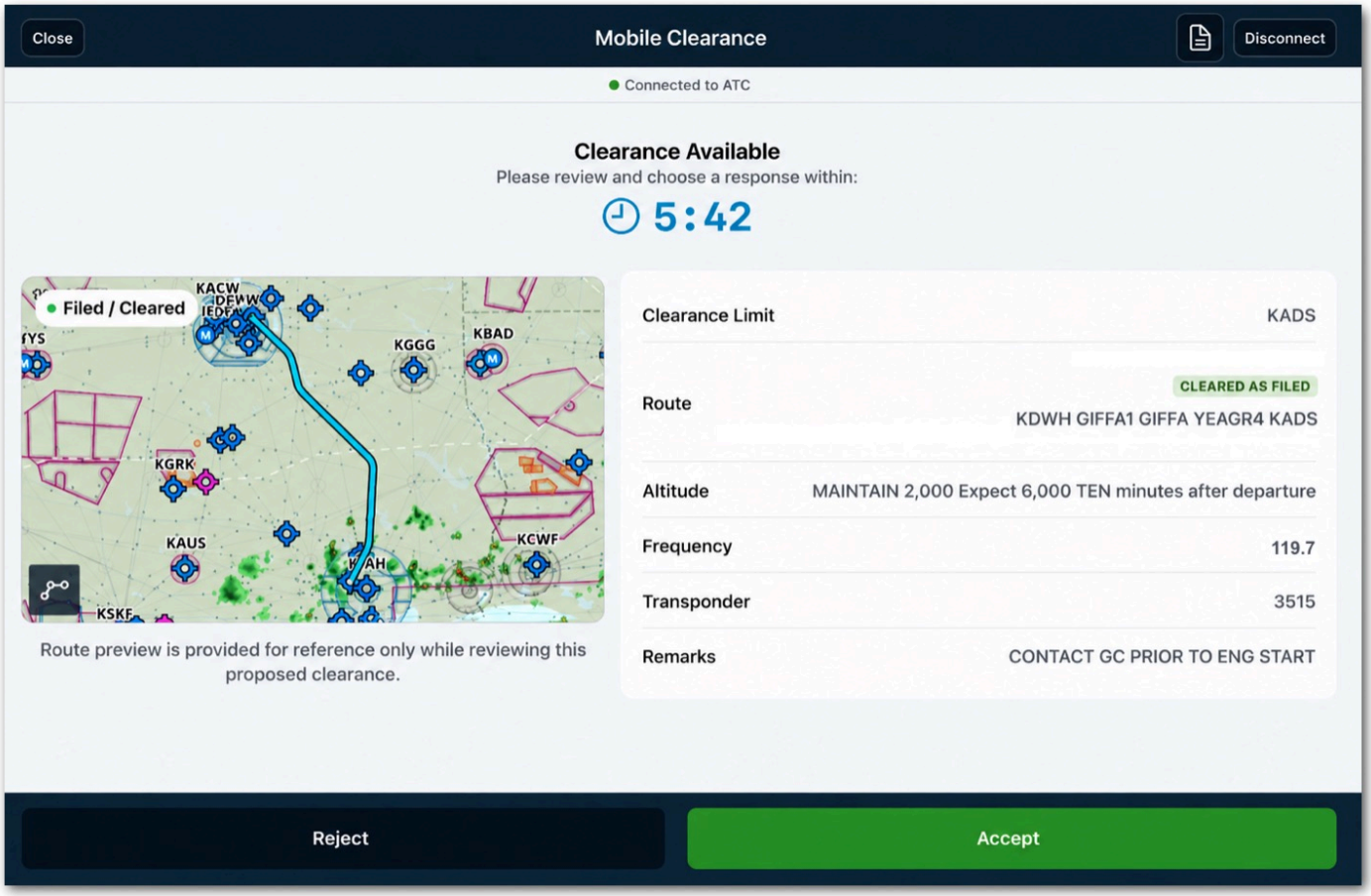


Figure 12-3. Clearance View

Review the entire clearance before responding.

> **NOTE:** If the cleared route differs from the filed route, the Mobile Clearance view includes a **Copy Route** button. To copy the cleared route, tap **Copy Route** then paste it into the flight's Route field or anywhere else in ForeFlight Mobile that supports pasted text.

An IFR clearance delivery transaction remains active for 6 minutes. If the transaction expires before a response is submitted:

- The transaction closes automatically.
- A new clearance request may be required.
- Standard ATC voice communication procedures may be required.

If repeated timeouts occur, or if the electronic transaction cannot be completed, continue using standard ATC voice communication procedures.

12.6.2 Respond to an Available Clearance

After reviewing the clearance, respond electronically from the Mobile Clearance view.

To respond to a clearance:

1. Go to the **Flights** view.
2. Open the applicable flight.
3. Tap **View Clearance and Respond**.
4. Review the clearance and verify that all information is correct.
5. Select one of the following options:
   - **Reject**: Notifies ATC that the clearance was rejected. Contact ATC using standard voice communication procedures to resolve the issue. ATC may issue a revised clearance electronically or by voice.
   - **Accept**: Acknowledges receipt of the clearance, closes the transaction, and records the response in the History Log.

> **NOTE:** If no response is submitted before the transaction expires, the clearance times out automatically and a new clearance request may be required.

12.6.3 Amended Clearances

ATC may issue an amended clearance after the original clearance has been accepted.

When an amended clearance is received:

1. Go to the **Flights** view.
2. Open the applicable flight.
3. Tap **View Clearance and Respond**.
4. Review the amended clearance.

5. Select one of the following options:

- **Reject**: Notifies ATC that the amended clearance was rejected. Contact ATC using standard voice communication procedures to resolve the issue. ATC may issue a revised clearance electronically or by voice.
- **Accept**: Acknowledges receipt of the amended clearance, closes the transaction, and records the response in the History Log.

12.6.4 Viewing an Accepted Clearance

After a clearance has been accepted, it can be viewed again, even if ForeFlight Mobile is disconnected from ATC.

To view an accepted clearance:

1. Go to the **Flights** view.
2. Open the applicable flight.
3. Tap **View** next to Pilot Acceptance Received.



Alternatively, tap **View Clearance from [time]Z** on the flight in the Flights list.

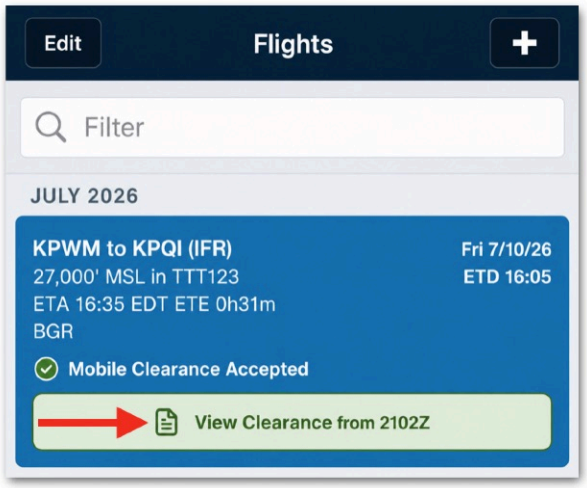


Figure 12-4. View Clearance Button in the Flights List

12.7 Contact Me Messages

A Contact Me message is a message from ATC instructing the pilot to contact ATC using voice communication.

ATC may send a Contact Me message for reasons such as:

- The route requires clarification.
- The departure time requires clarification.
- Additional information is needed.



Figure 12-5. Contact Me Message

To acknowledge a Contact Me message:

1. Review the message that appears on the screen.
2. Tap **Acknowledge**.
3. Contact ATC using the published frequency or telephone number provided, if applicable.

The acknowledgment is recorded in the History Log.

12.8 History Log

The History Log provides a chronological record of ForeFlight Mobile Clearance activity for the current flight. Use the History Log to review completed transactions and verify previous clearance activity.

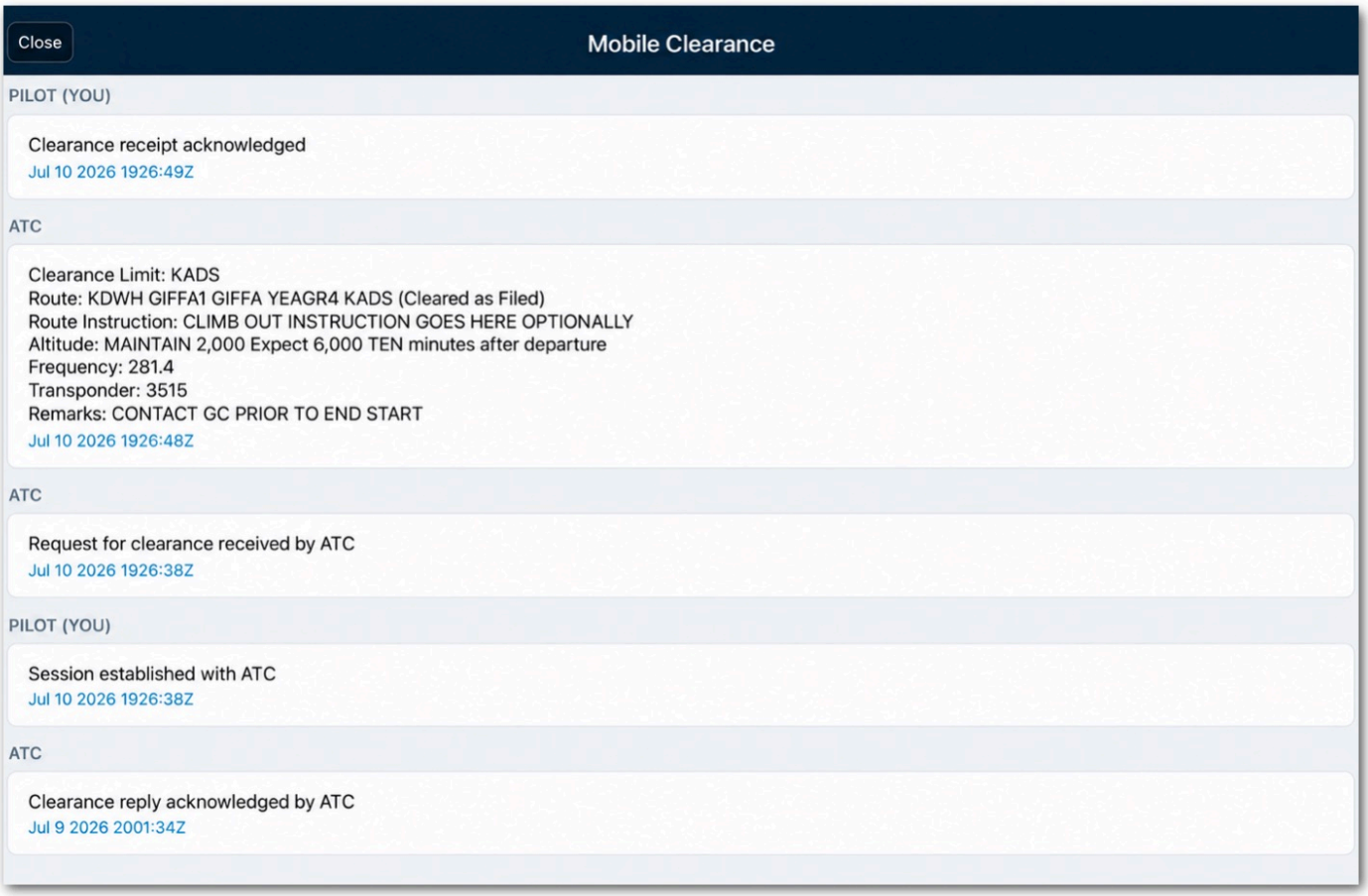


Figure 12-6. History Log

The History Log may include:

- Session establishment
- Clearance requests
- Original and amended clearances
- Clearance acknowledgments
- Contact Me messages
- Session termination events.

Each entry includes a timestamp and indicates whether the action originated from the pilot or ATC.

12.8.1 View the History Log

To view the History Log:

1. Go to the **Flights** view.
2. Tap **Start**, **View**, or **Retry** (whichever is available) in the Clearance section.
3. Select the **History Log** button in the upper-right corner of the Mobile Clearance view, to the left of Disconnect.

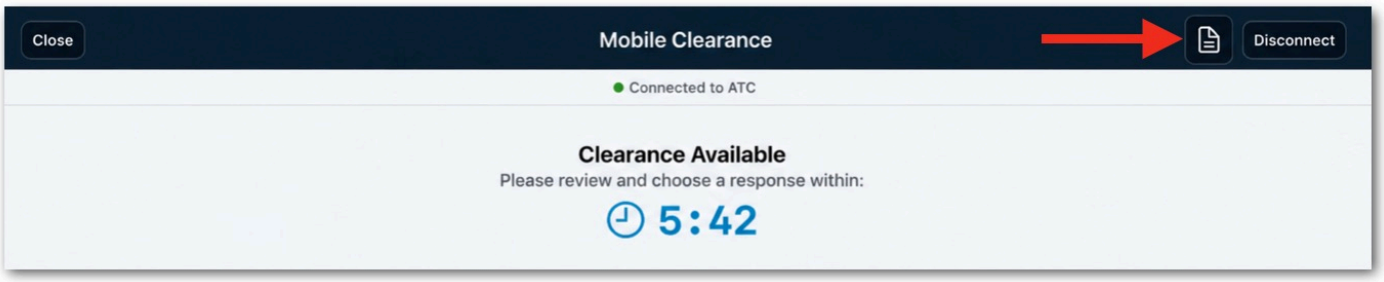


Figure 12-7. History Log Button

12.9 Troubleshooting ForeFlight Mobile Clearance

This section describes common issues that may occur while using ForeFlight Mobile Clearance and the recommended actions to resolve them.

If a problem cannot be resolved using the information in this section, use standard ATC voice communication procedures.

Issue	Recommended action
Unable to request a clearance.	Verify that the IFR flight plan has been accepted by the FAA, confirm that the aircraft is on the ground, and ensure the flight is within the supported clearance request time window.
Flight plan not found.	Verify that the correct flight is selected and confirm that the flight plan has been accepted by the FAA. If the issue persists, contact ATC using standard voice communication procedures.
Duplicate flight detected.	Cancel or modify duplicate flight plans, then submit the clearance request again.
Clearance request expired.	Submit a new clearance request. If the transaction continues to expire, contact ATC by voice.
Session ended unexpectedly.	Re-establish the session if the flight remains eligible. If a new session cannot be established, obtain the clearance by voice.
ForeFlight Mobile Clearance unavailable.	Verify the internet connection and service status. If the feature remains unavailable, continue using standard ATC voice communication procedures.

AIRPORTS

The Airports view contains information about more than 20,000 airports worldwide. It provides airport information comparable to official print publications, including geographical location, airport diagrams, procedures, frequencies, and available services. It also provides dynamic features such as the latest weather, NOTAMs, active runways, traffic patterns, and user-entered comments.

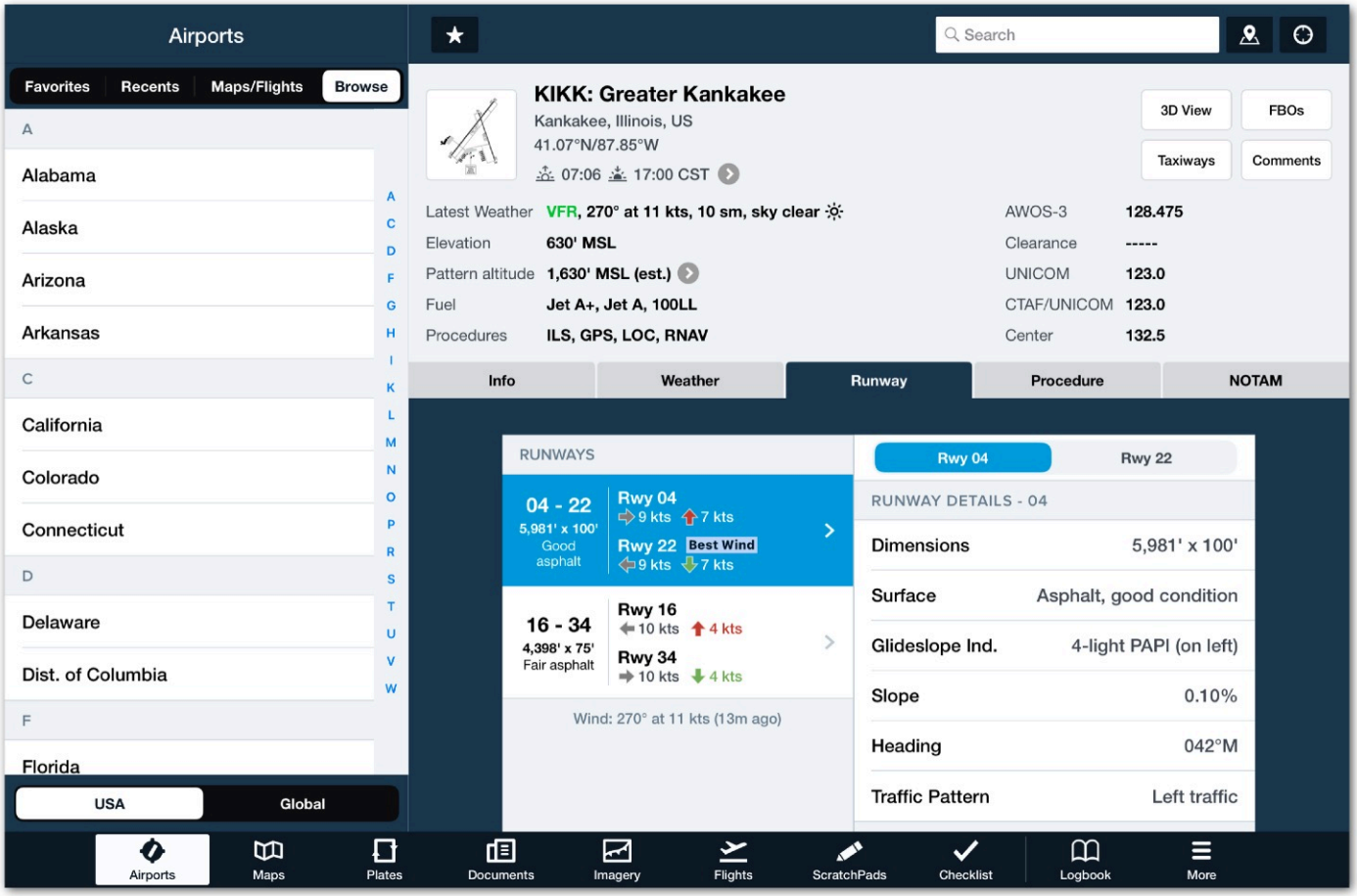
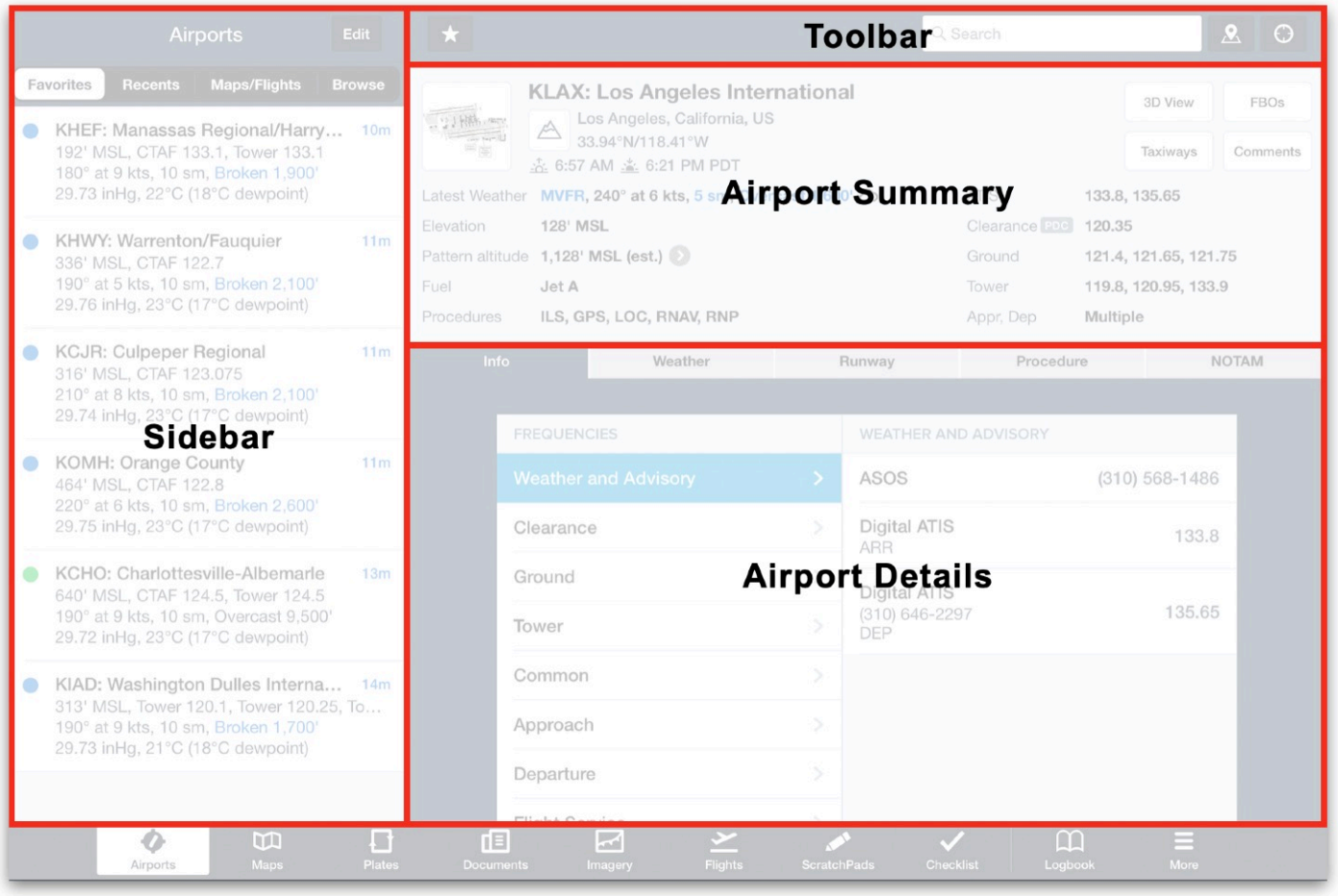


Figure 13-1. Airports View

13.1 Design

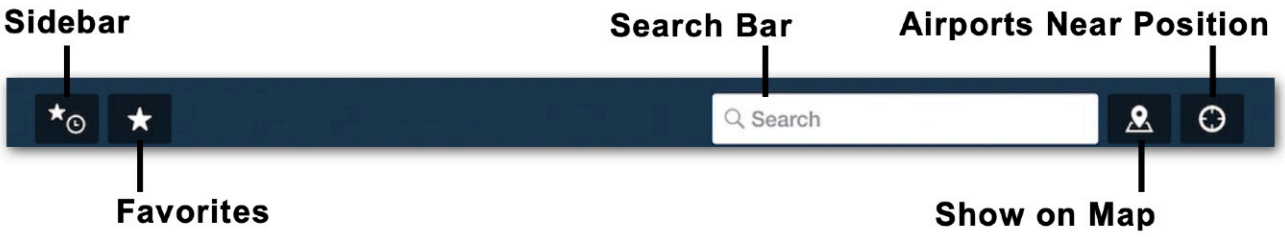
The Airports view is separated into four components:

- The Toolbar provides the ability to search for airports and related data based on keywords or proximity to the device, assign airports as favorites, display an airport on the Maps view, and toggle the Sidebar.
- The Sidebar lists the user's favorite airports, recently displayed airports, airports from recently created flights, and airports from the active route on the Maps view, as well as an alphabetized airport directory.
- The Airport Summary section provides a condensed overview of information about the selected airport.
- The Airport Details section provides detailed information about the selected airport divided into five tabs.



13.2 Toolbar

The Toolbar at the top of the Airports view provides the ability to toggle the Sidebar, assign airports as favorites, perform a keyword search for airports and related data, display an airport on the Maps view, and generate a list of airports near the device.



13.2.1 Sidebar Toggle Button

When the Airports view is displayed in landscape orientation, the Sidebar is always visible on the left side of the device screen. In portrait orientation, the Sidebar is hidden to save space. To display the sidebar, tap the **Sidebar** button in the upper left corner of the screen (looks like a star and clock).

Once opened in portrait orientation, the Sidebar can be hidden by tapping the **Close** button in its upper left corner.



Figure 13-2. Sidebar Toggle Button

13.2.2 Favorites Button

When an airport is displayed in the Airports view, tapping the **Favorite** button (looks like a star) in the upper left corner adds the airport to the top of the Favorites list (which can be viewed in the Sidebar). When an airport is selected that is already in the Favorites list, the button is yellow.



Figure 13-3. Favorite Airport Button

13.2.3 Search Bar

While the Search bar is designed to search for airports, it can also produce results for, aircraft registration (FAA registration only), cities, navaids, documents, waypoints, and addresses. Each search result is depicted with an icon to convey its category (such as airport, document, or navaid).

To use the Search bar:

1. Tap the Search bar to open a list of recent search results divided by category.
2. Enter text in the Search bar to dynamically generate results divided into categories (such as Airports and Heliports, Procedures, Places, Documents, and Recent Searches).
3. Tap **Show More** to expand the list of search results within one category.
4. Tap one of the search results to open the Maps, Airports, or Documents view. Each item has a different effect depending on the category of data.

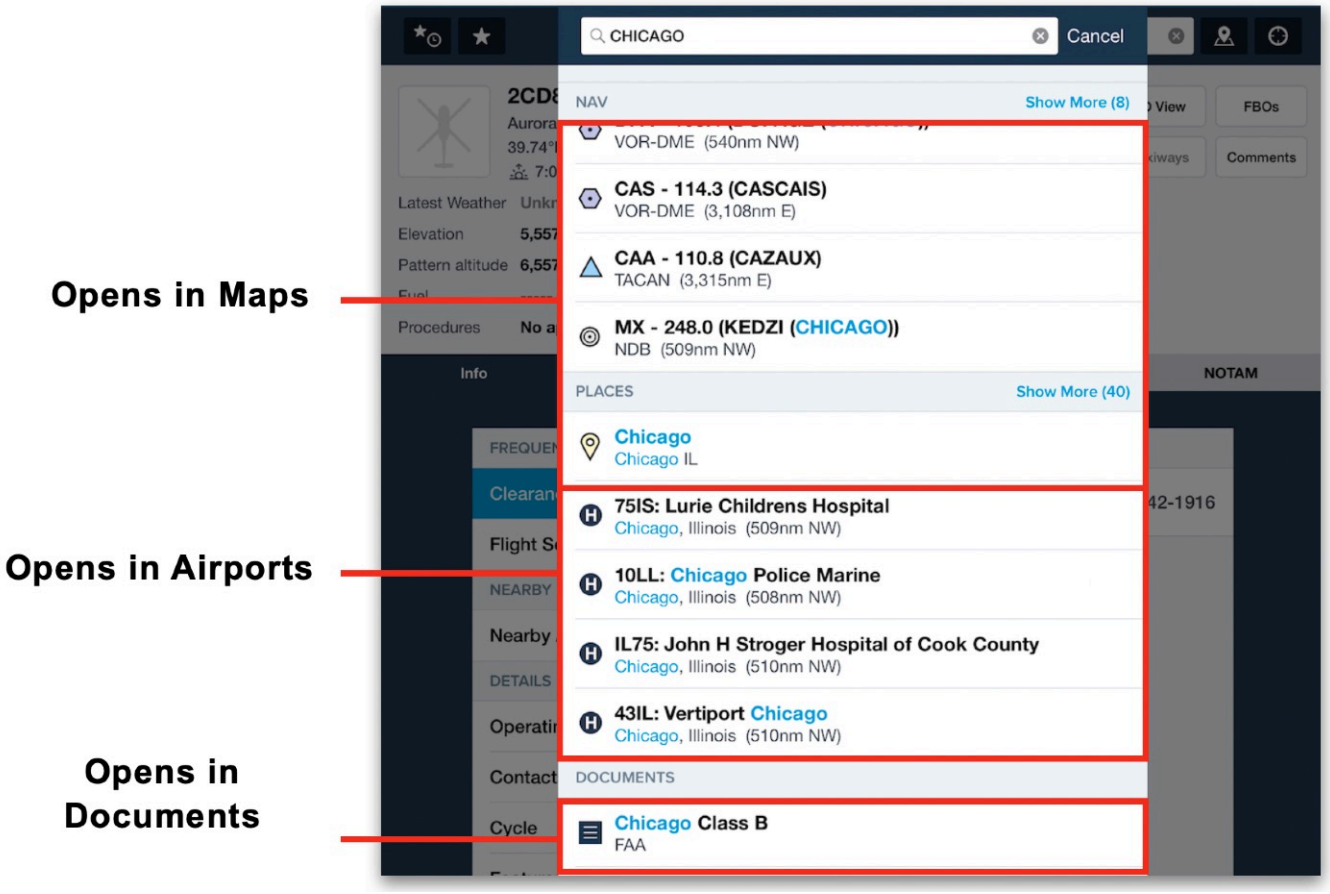


Figure 13-4. Airport View Search Results

13.2.4 Show on Map Button

The **Show on Map** button (marker icon) in the upper right corner opens the Maps view, with the airport selected and its details displayed in the Maps sidebar.

> **NOTE:** The **Show on Map** button displays the airport displayed onscreen, not the text entered in the Search bar.



Figure 13-5. Show on Map Button

13.2.5 Airports Near You Button

Tapping the **Airports Near You** button (shaped like crosshairs) on the top right corner opens a menu with information pertaining to the current location. The menu includes a button to retrieve weather information for the current location and a list of nearby airports which can be filtered to show all airports or only those with weather data.

> **NOTE:** The Airports Near You menu can also be opened directly from the device home screen by touching and holding the ForeFlight Mobile app icon and selecting **Nearest**.

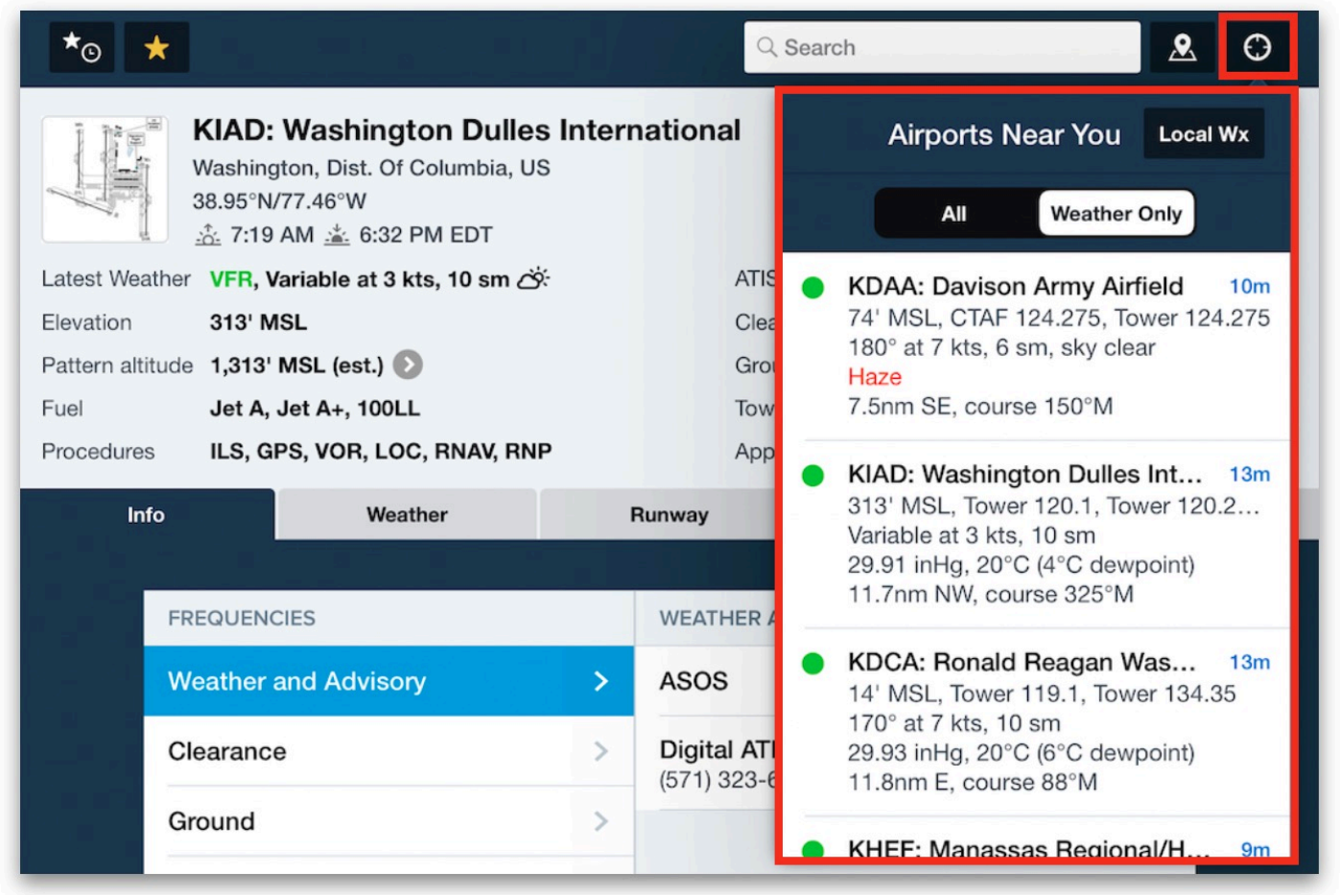


Figure 13-6. Airports Near You

13.2.5.1 Filtering Airports Near You Results

The Airports Near You search results can be filtered by airports with weather reports.

- Tap **All** to display nearby airports regardless of whether or not they have weather data. All results include the airport elevation in MSL, applicable communications frequencies, and both the distance and magnetic course to the airport from the device's location.
- Tap **Weather Only** to show only airports that are actively providing METAR data to ForeFlight Mobile. In addition to the standard data, "Weather Only" results display wind speed and direction, visibility, ceiling, obscuration hazards (if applicable), and the time since the weather was last updated. Ceiling and visibility are color-coded according to their severity. The results also display an icon color-coded according to flight category.



Figure 13-7. Airports Near You Result with Weather

13.2.5.2 Displaying Daily and Hourly Forecasts

In the Airports Near You menu, tapping **Local Wx** opens the Daily/Hourly Forecast.

13.3 Sidebar

The Sidebar on the left side of the Airports view provides four ways for users to find airports most relevant to them:

> **Favorites**
>
> A list of user-defined favorites.

> **Recents**
>
> A list of recently displayed airports.

> **Maps/Flights**
>
> A list of airports from the active route in the Maps view and from recent flights in the Flights view.

> **Browse**
>
> An alphabetized directory of all airports in ForeFlight Mobile's database.

Each of these lists can be opened using a category button at the top of the Sidebar.

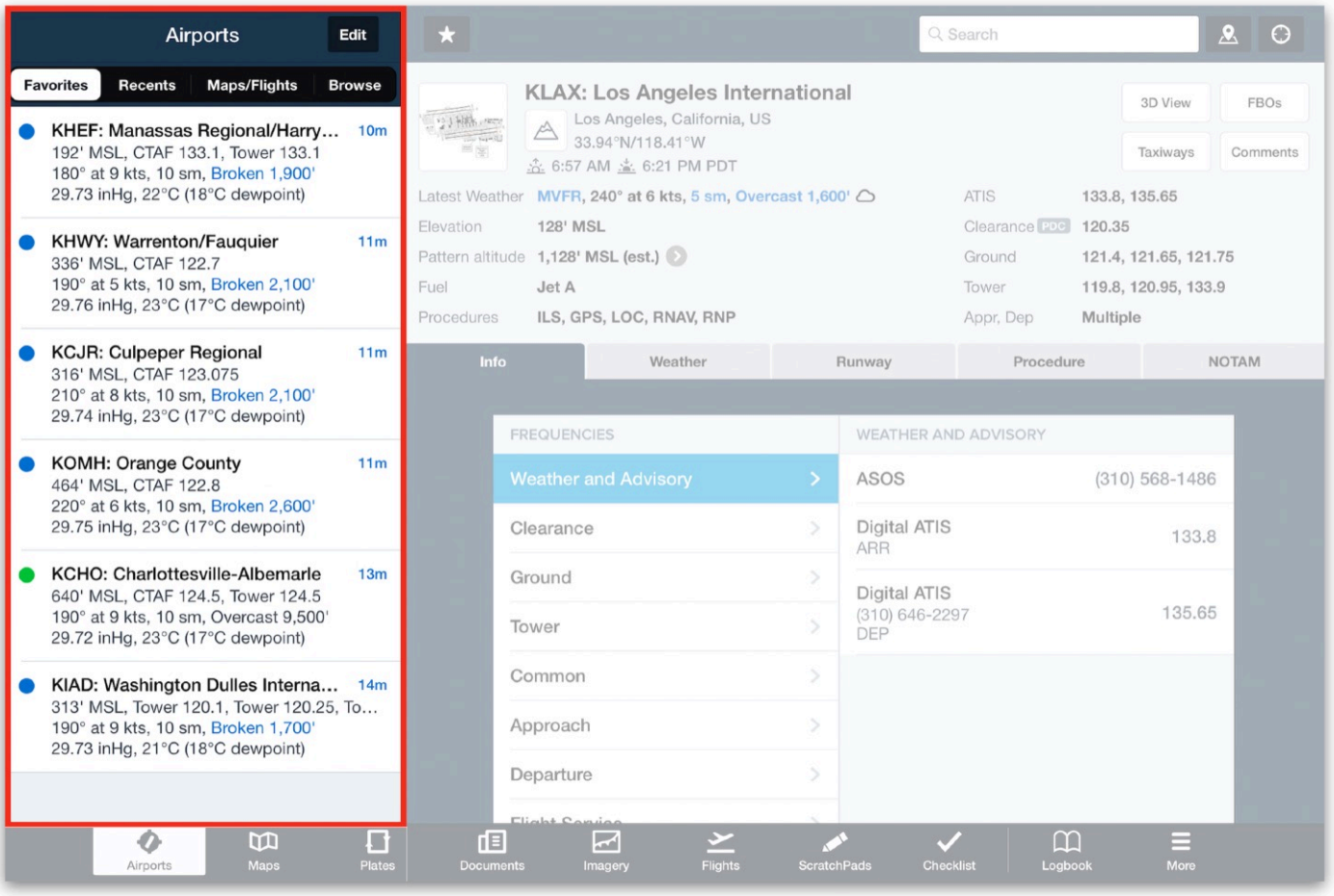


Figure 13-8. Airports View Sidebar

13.3.1 Sidebar Toggle Button

The Sidebar is automatically visible when the Airports view is displayed in landscape orientation. In portrait orientation, the Sidebar is hidden by default and can be displayed by tapping the **Sidebar button** (looks like a star and clock) in the upper left corner of the Toolbar.



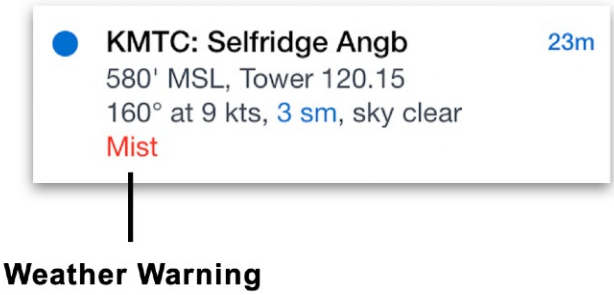
13.3.2 Airport Listings

With the exception of the Browse menu, all airport listings in the Sidebar look similar. Each listing includes the airport elevation in MSL and any applicable communications frequencies.

Weather data is also displayed if available. This may include wind speed and direction, visibility, ceiling, obscuration hazards (if applicable), density altitude, temperature, dewpoint, the time since the airport METAR was last updated, red-highlighted weather warnings, and an icon colored according to flight category.



Weather warnings (e.g., fog, thunderstorms, cumulonimbus clouds, lightning, mist) are always displayed in **red** at the bottom of the airport listing. ForeFlight Mobile checks for updated weather observations every minute. If a more current observation is available, it is downloaded immediately and the display is updated.



13.3.3 Favorites

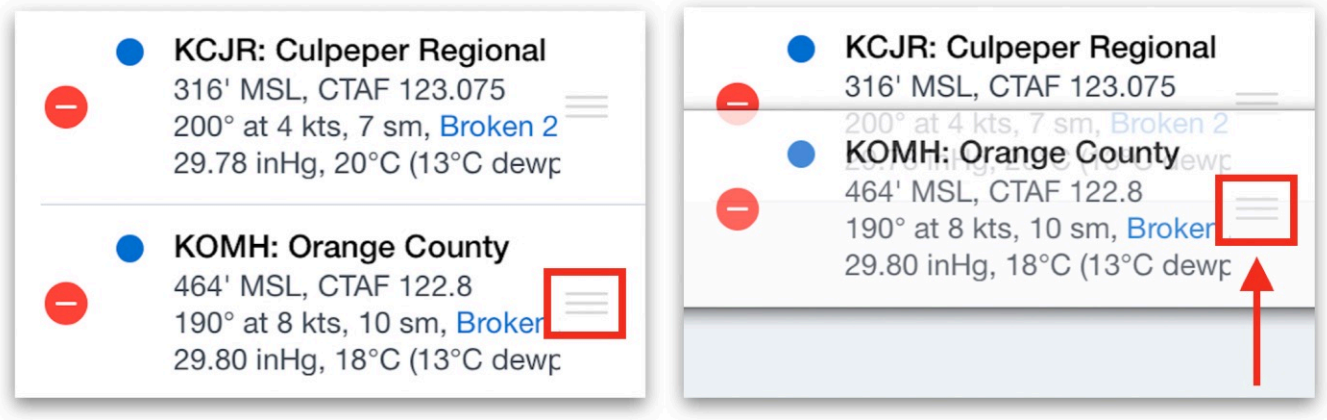
Open the Sidebar and tap **Favorites** to display a list of airports that have been marked as favorites. Tap any airport in the list to bring up the airport in the Airports view. The order of the Favorites list can be changed and airports can be removed from the list.

13.3.3.1 Reordering Favorites List

Airports are listed in the order in which they were added as favorites. To change the order of the Favorites list, follow these steps:

1. In the Favorites list, tap **Edit**.
2. Tap and hold the **drag handle** (three horizontal lines) to the right of an airport listing.

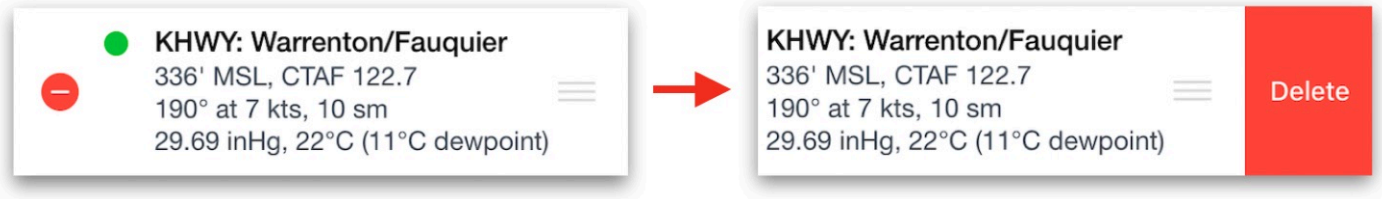
3. Drag the listing up or down to change its position in the list.
4. When reordering is complete, tap **Done**.



13.3.3.2 Removing Favorites

There are three different methods for removing airports from the Favorites list:

- When actively viewing a favorite airport, tap the **Favorite** button (button with a star) in the toolbar.
- While displaying the Favorites menu, swipe left on an airport to reveal a delete button. Tap **Delete**.
- While displaying the Favorites menu, tap **Edit** at the top of the Favorites menu. Tap the **red circle** to the left of the airport to be deleted. Tap **Delete** to the right of the airport to confirm, and then tap **Done**.



13.3.4 Recents

Open the Sidebar and tap **Recents** to display a list of airports that were recently displayed in the Airports view. Airports are listed in the order in which they were last viewed, starting with the most recently viewed airport on top. The list cannot be reordered, but individual airports can be removed from the list by swiping left and tapping **Delete**, and all airports can be removed simultaneously by tapping the **Clear** button in the top right corner.

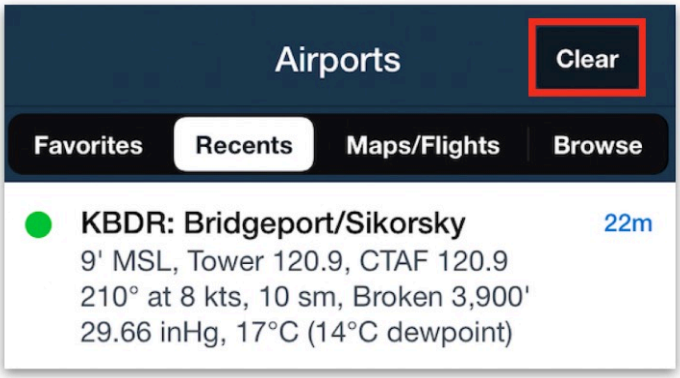


Figure 13-9. Recent Airports Clear Button

> **NOTE:** The Recents menu is synced. Tapping **Clear** on one device will also clear the list of recent airports from all devices signed into the account.

13.3.5 Maps/Flights

The **Maps/Flights** button (or category) displays a list of airports based on the flights planned on the Maps and Flights views. The list is divided in two sections:

- **From Maps** displays airports from the active route in the Maps FPL Editor if one exists, in top-down order starting with the departure airport on the route and ending with the destination airport in the route. The From Maps list only displays a given airport once, even if it is entered more than once in the route. En-route airports are also included.
- **From Flights** displays airports from recent flights in the Flights view. Airports from the most-recent flight are grouped first (according to departure, destination, and alternate), followed by the next most-recent flight, and so on. The From Flights list only displays a given airport once, even if it is used more than once on the same flight or on other flights in the list.

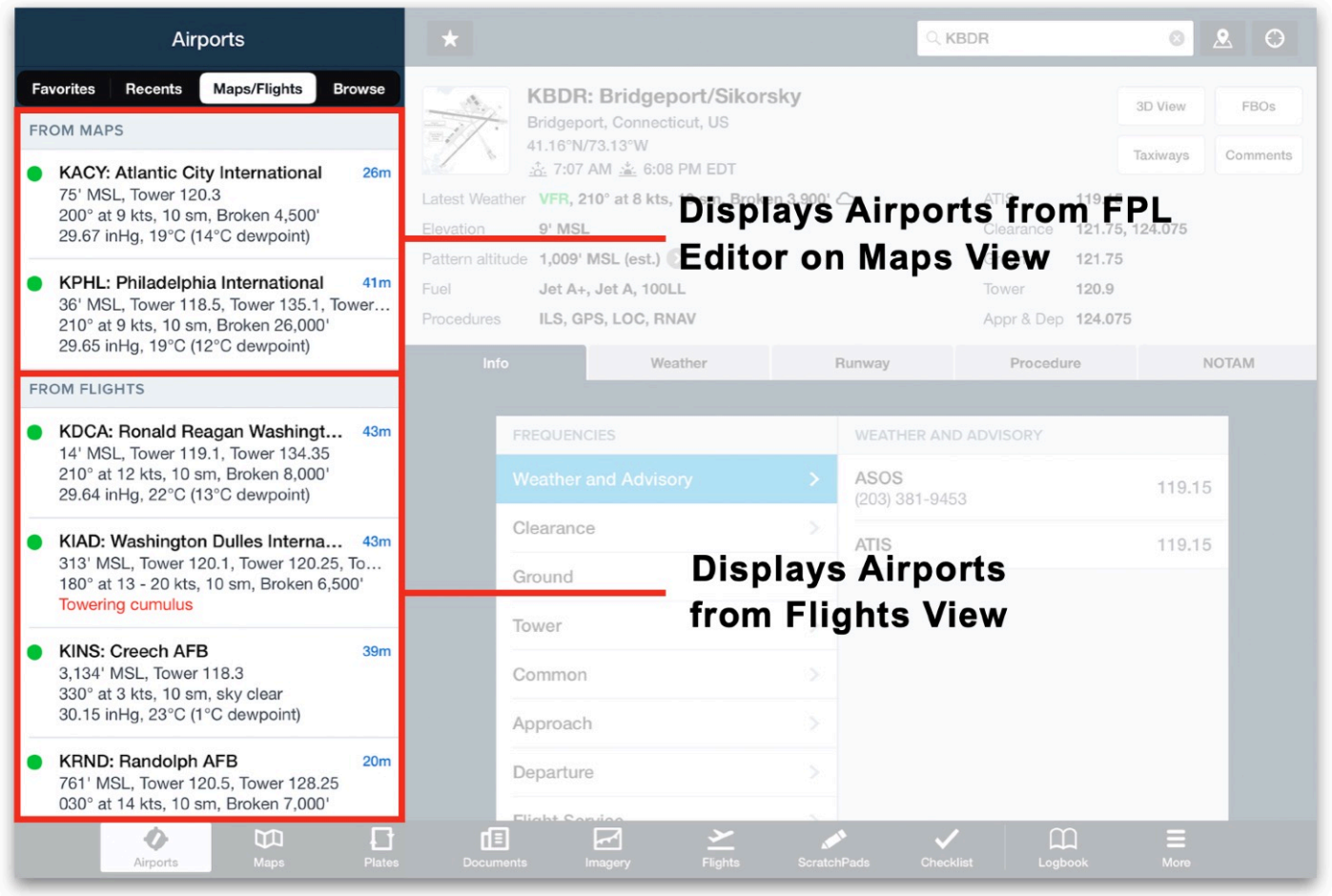


Figure 13-10. Maps/Flights List on the Sidebar

> **NOTE:** Reordering or removing airports from the Maps/Flights list cannot be done directly from within the Airports sidebar.

13.3.6 Browse

Open the Sidebar and tap **Browse** to display an alphabetized directory of airports in ForeFlight Mobile's database. There are two databases to choose from.

13.3.6.1 Toggling Between USA and World Directories

To toggle between a **Global** list alphabetized by country/territory and a smaller **USA** list alphabetized by state, tap the buttons at the bottom of the sidebar.

13.3.6.2 Browsing the Directory

With the USA or Global directory displaying, scroll up and down to navigate the directory in alphabetical order, or tap a **letter** on the right to jump to its section of the directory.

13.3.6.3 Displaying an Airport

Tap a country, territory, or U.S. state to open its list of airports. Tap an airport to display it in the Airports view.

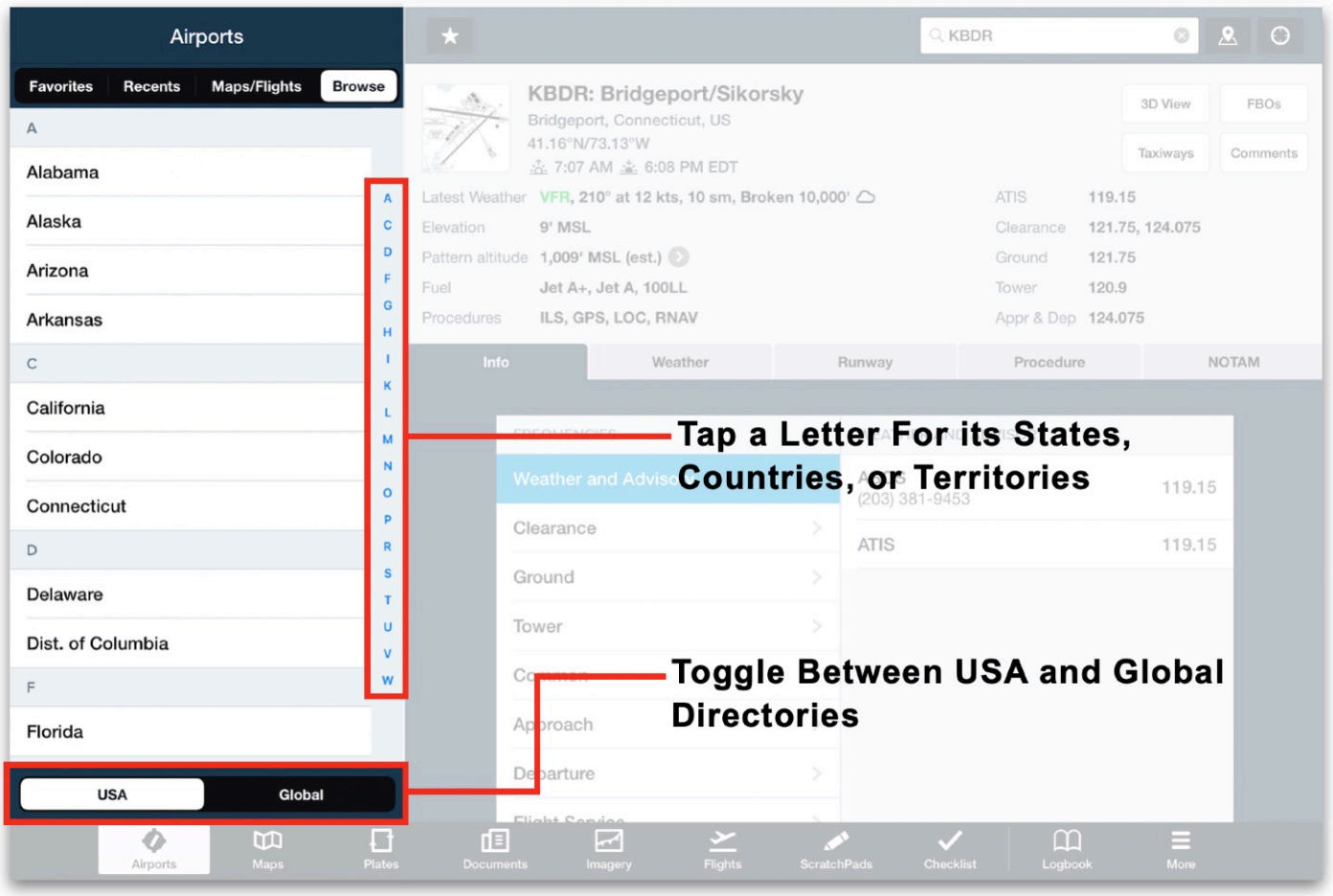


Figure 13-11. Browsing the Airports Directory

13.4 Airport Summary

The Airport Summary section on the upper-right side of the Airports view provides a condensed overview of the currently displayed airport, including location, local time, weather, elevation, terrain hazards, traffic patterns, fuel availability, procedures, frequencies, and important airport or runway closure NOTAMs. The four buttons in the upper right corner of the view open a dynamic 3D view of the airport, an FBO view, airport and taxiway diagrams, user-entered comments, and remarks from the controlling agency.

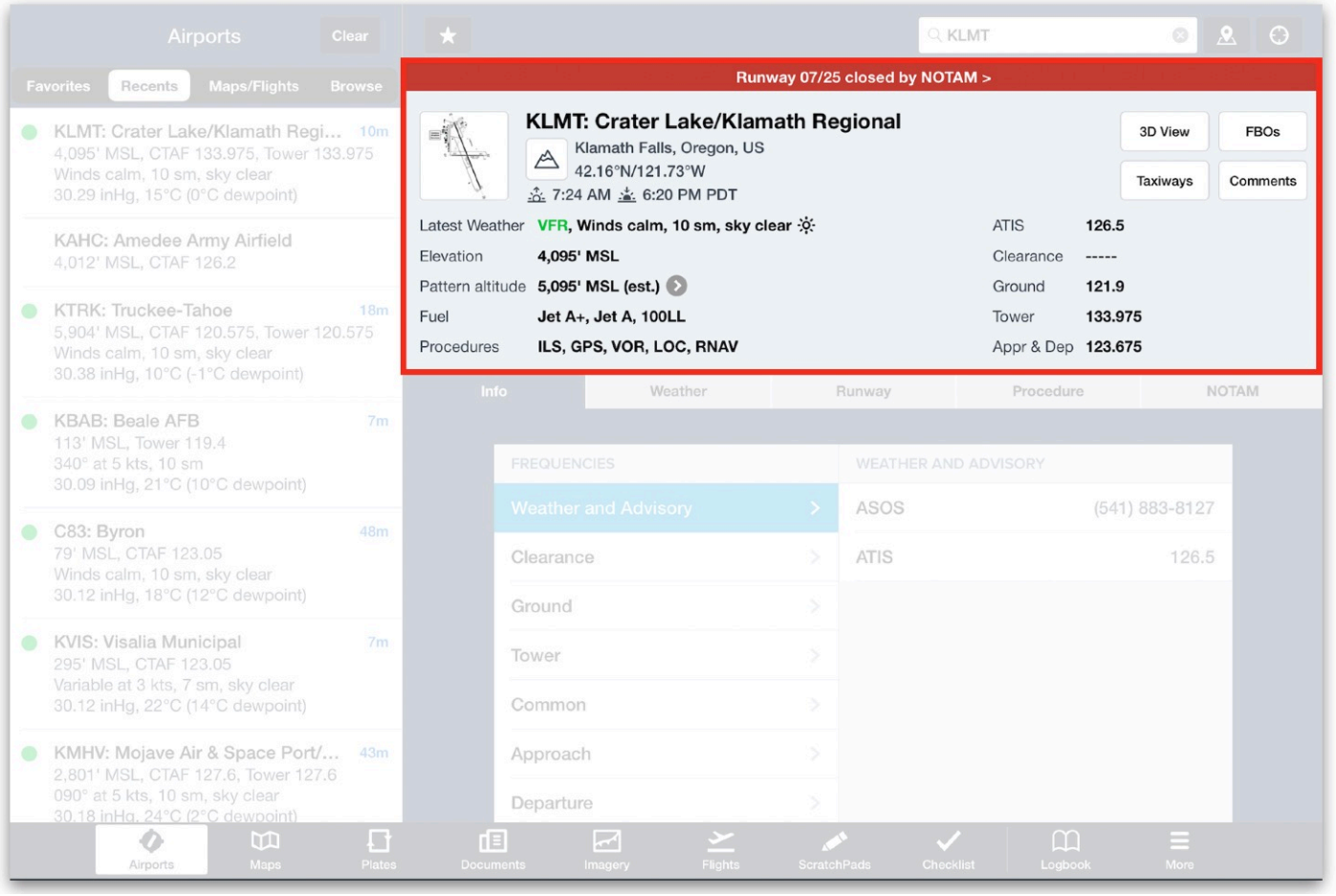


Figure 13-12. Airports Summary

13.4.1 Alert NOTAMs

If any runway or airport closure NOTAMs are in effect for an airport, a prominent banner across the top of the Airports view is displayed. Tap the **NOTAM banner** to display the applicable Alert NOTAMs.

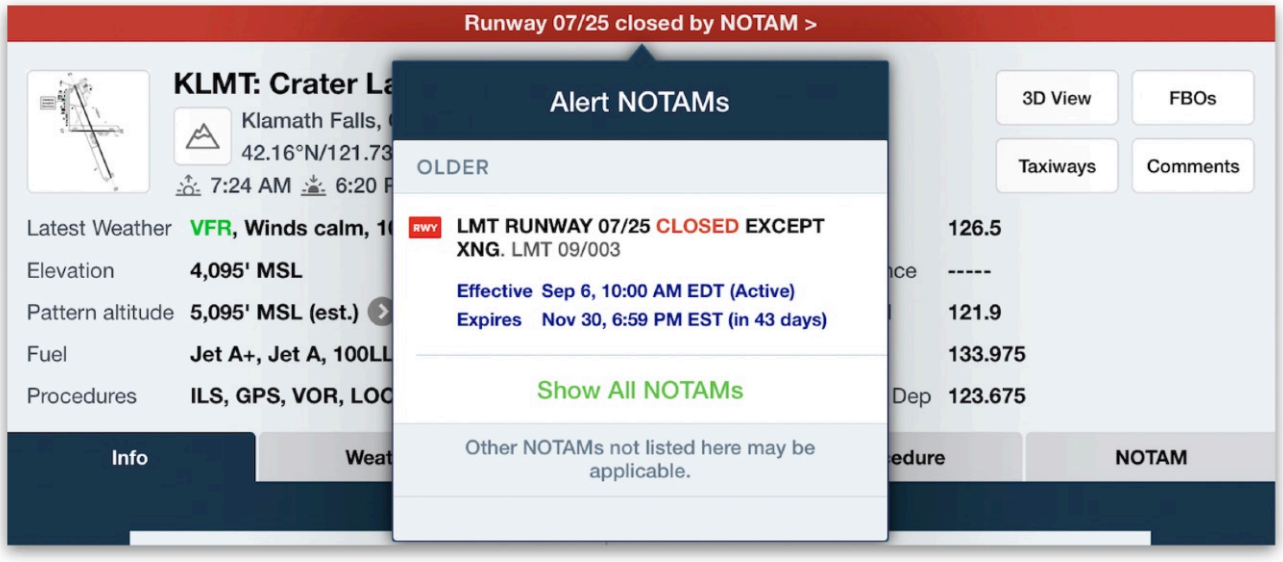


Figure 13-13. Alert NOTAMs

> **WARNING:** Alert NOTAMs do not represent the full list of NOTAMs pertinent to the airport. Do not use the Alert NOTAMs banner as a replacement for reviewing all NOTAMs prior to a flight.

Tapping **Show All NOTAMs** opens a menu with that airport's full list of effective airport, obstruction, TFR/ARTCC, and Jeppesen NOTAMs.

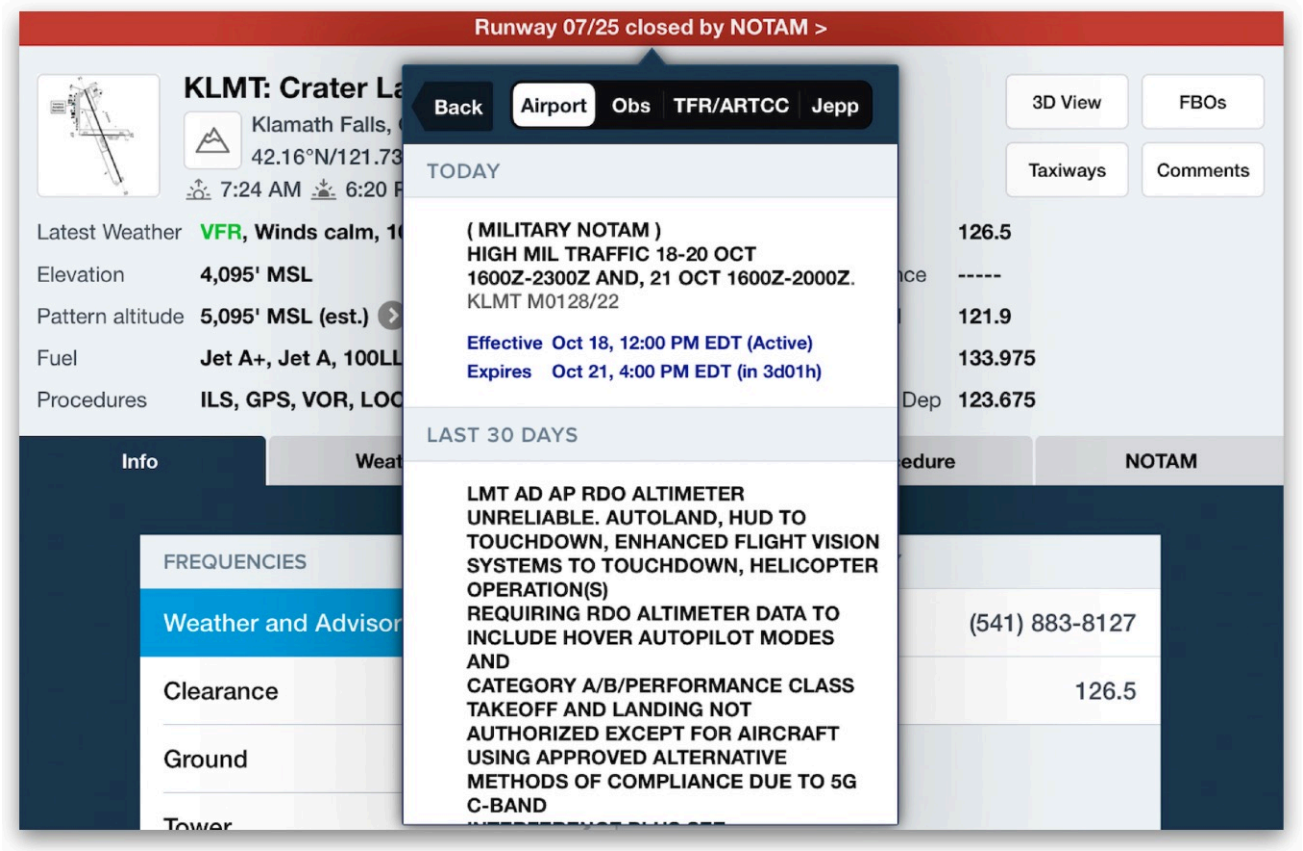


Figure 13-14. Show All NOTAMs

13.4.2 ForeFlight Airport Diagram

The Airport Summary section displays a thumbnail image of an airport diagram in its upper-left corner.

Tap this thumbnail to open a popover window displaying a miniature airport diagram generated by ForeFlight using satellite imagery. This miniature diagram does not show NOTAM alerts, nor are its FBO labels interactive.

Tap the expand icon in the bottom right corner to open a standard-sized, interactive ForeFlight diagram in the Plates view.

> **NOTE:** The ForeFlight diagram is not an official publication by the FAA, NavCanada, EUROCONTROL, or Jeppesen. It is meant as a visual reference only and should not be used in place of official diagrams.

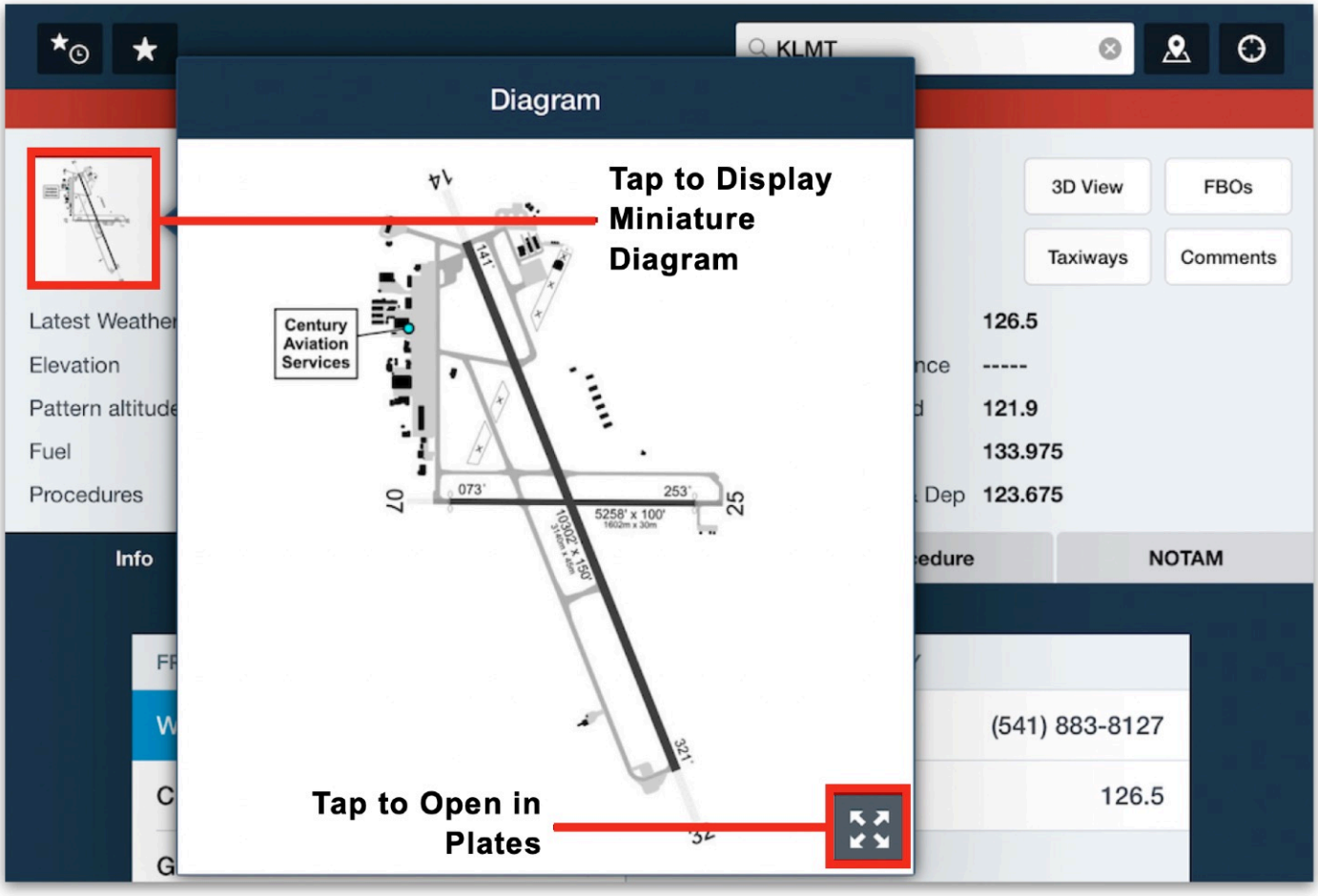


Figure 13-15. Airport Diagram Preview

13.4.3 Basic Information

To the right of the ForeFlight airport diagram, the Airport Summary section displays basic information about each airport. This includes location, latitude and longitude coordinates, sunrise and sunset times, and timezone. For airports in Europe, the Transition altitude (from QNH to QNE) is shown next to the lat/long coordinates.



Figure 13-16. Basic Airport Info

13.4.4 Terrain Icon

The Airport Summary section displays the terrain icon (shaped like a small mountain) whenever the terrain elevation changes by more than +/- 1,500 ft within 10 NM of the airport. Tapping the icon opens a window listing the airport elevation, maximum terrain elevation, and minimum terrain elevation. All values are in MSL.

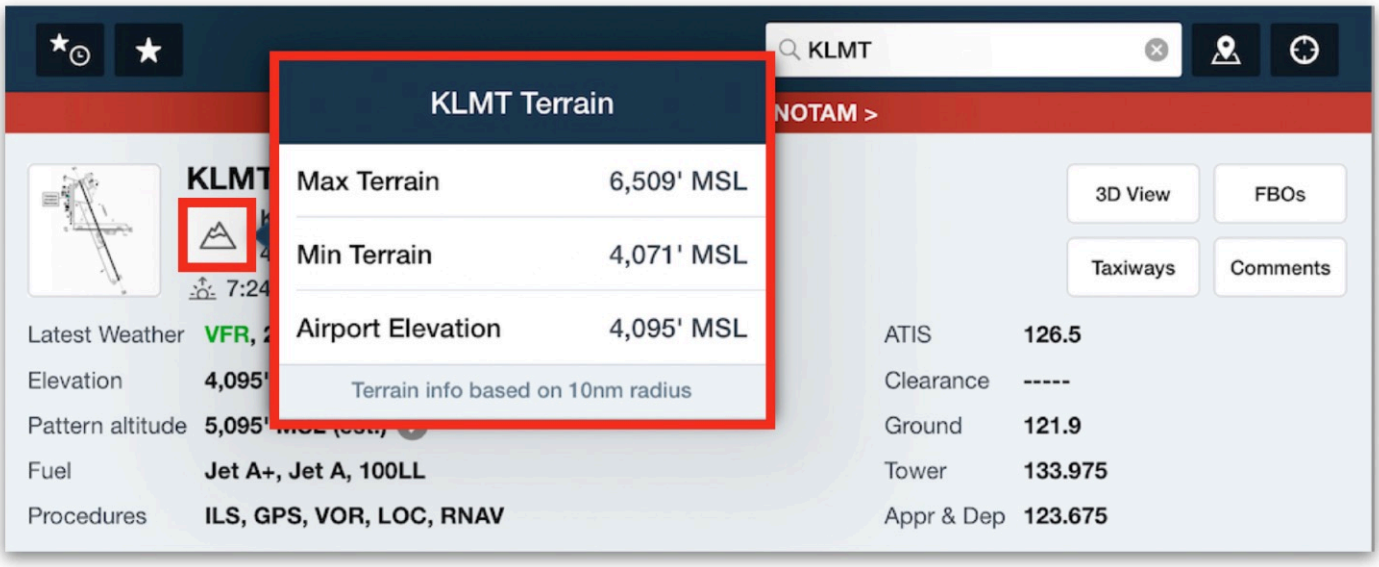


Figure 13-17. Max/Min Elevation Changes Within 10 NM

13.4.5 Latest Weather

If weather data exist for the currently selected airport, the Latest Weather field displays a textual and visual summary. This includes from left to right: color-coded flight category, wind speed and direction, visibility, color-coded ceiling, and icon depicting prevailing weather such as rain, gusting winds, or low ceilings. If weather data is not available, the Latest Weather field displays the text “Unknown”.



Figure 13-18. Latest Weather

13.4.6 Pattern Altitudes

The Airport Summary section by default displays the traffic pattern altitude in MSL for light aircraft. To see a comprehensive list of pattern altitudes including for heavy aircraft, turbine aircraft, light aircraft, rotorcraft, and ultralight aircraft, tap the **Expand View** button next to the displayed pattern altitude. ForeFlight sources traffic pattern altitude (TPA) data from the FAA’s eNASR database for U.S. airports and the Jeppesen database for international airports. If specific data is not available, ForeFlight uses standard rules from publications such as the FAA AIM 4-3-3 and Transport Canada AIM RAC 4.5.2. Whenever standard rules are applied, the TPA includes the notation **(est.)**

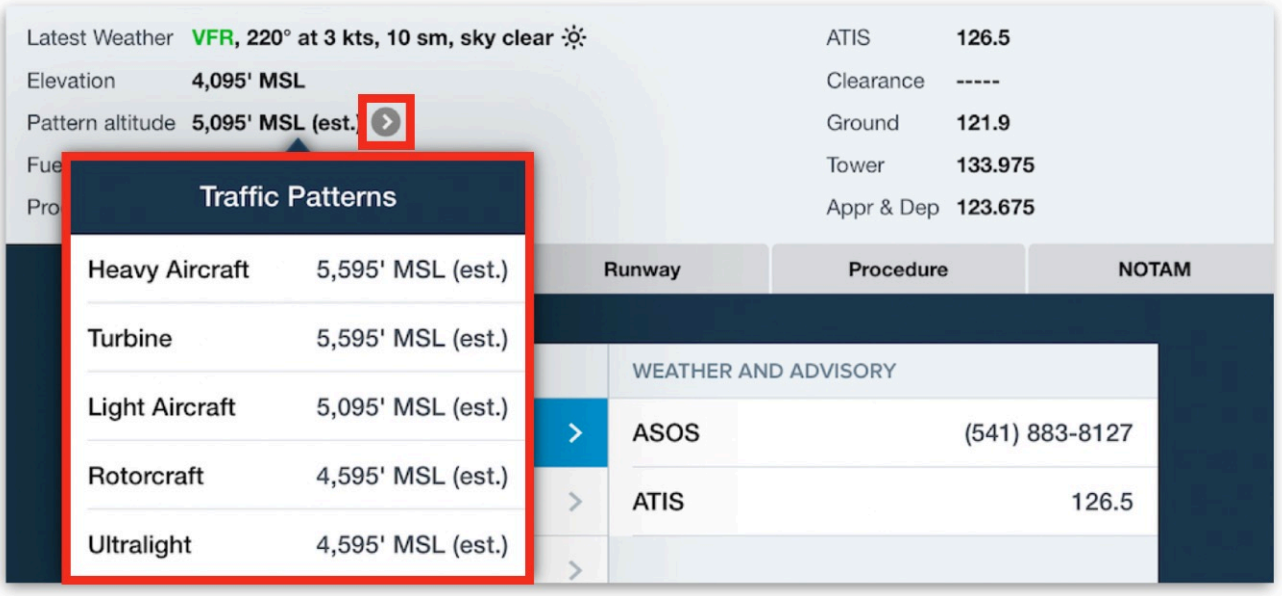
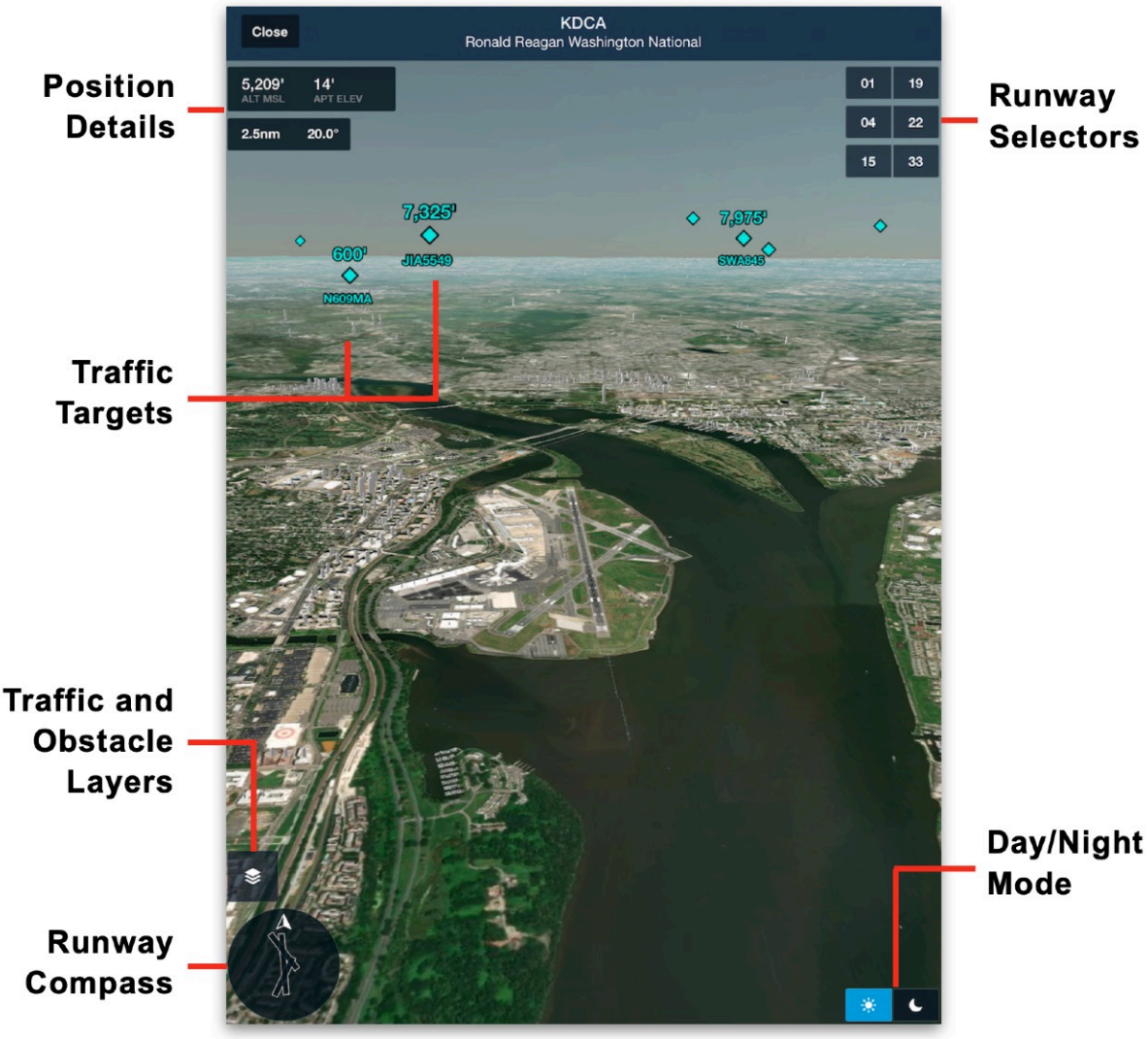


Figure 13-19. Pattern Altitudes

13.4.7 3D View

The **3D View** button in the Airport Summary section opens a dynamic three-dimensional representation of the airport environment. This view combines high-resolution terrain data and aerial imagery to help pilots become familiar with surrounding terrain, runway layout, and nearby obstacles.

Airport 3D View is included in Premium, Business Performance, and MFB Performance subscription plans.



13.4.7.1 Changing Orientation

Use touch gestures to adjust the Airport 3D View orientation and zoom level.

- Drag one finger on the screen to pan and rotate the view around the airport environment.
- Use a two-finger pinch gesture to zoom. The view can be zoomed out to display up to 15 nm from the airport.

13.4.7.2 Position Details

The top-left corner of Airport 3D View displays position details based on the current camera perspective. By default, the following information is shown:

- Camera altitude in mean sea level (MSL).
- Airport elevation in MSL.
- Distance from the airport reference point in nm.
- Camera angle.

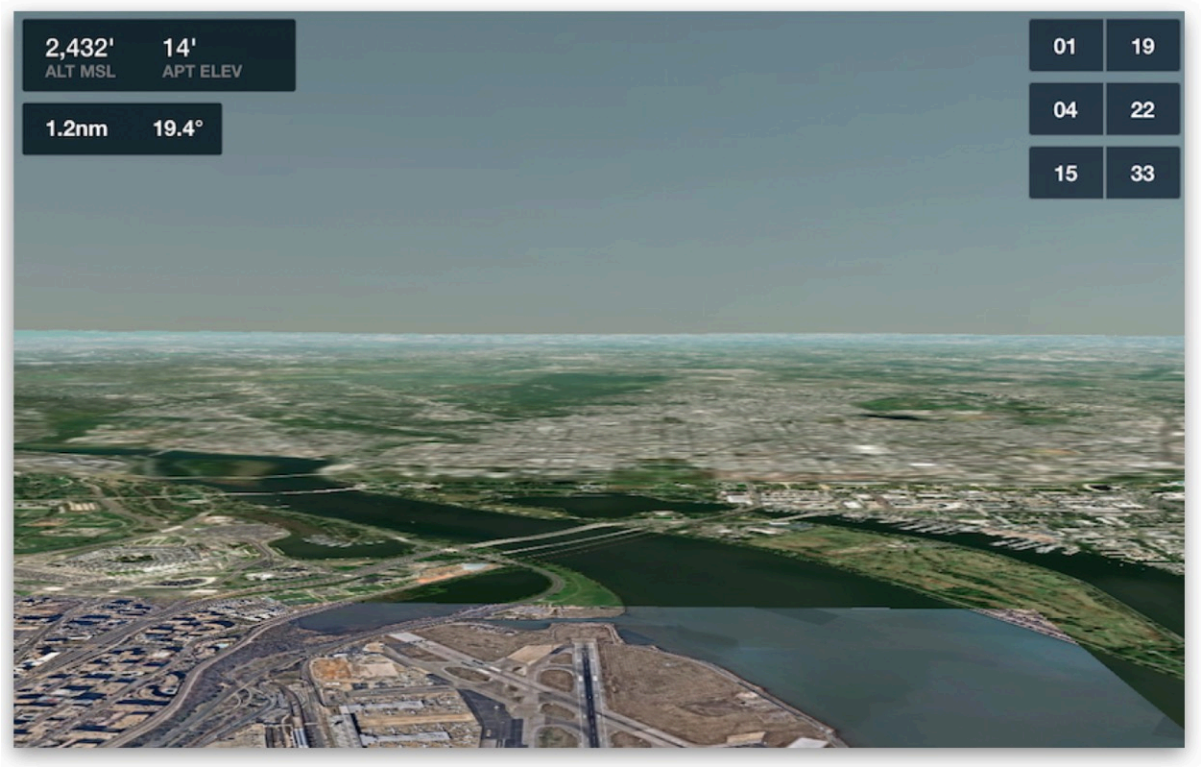


Figure 13-20. Position Details (Top Left)

If a runway is selected, the position details update to reflect the selected runway reference. The following information is shown:

- Camera altitude in MSL.
- Runway touchdown zone elevation in MSL.
- Distance from the runway end in nm.
- Camera angle relative to the runway.



Figure 13-21. Position Details (Top Left) with Runway Selected (Top Right)

13.4.7.3 Runway Selection

Tapping a runway button in the upper-right corner reorients Airport 3D View to visualize a straight-in approach. The camera automatically positions 1 nm from the runway threshold along the published glideslope. If glideslope information is not available, the camera is positioned at an inclination of six degrees.

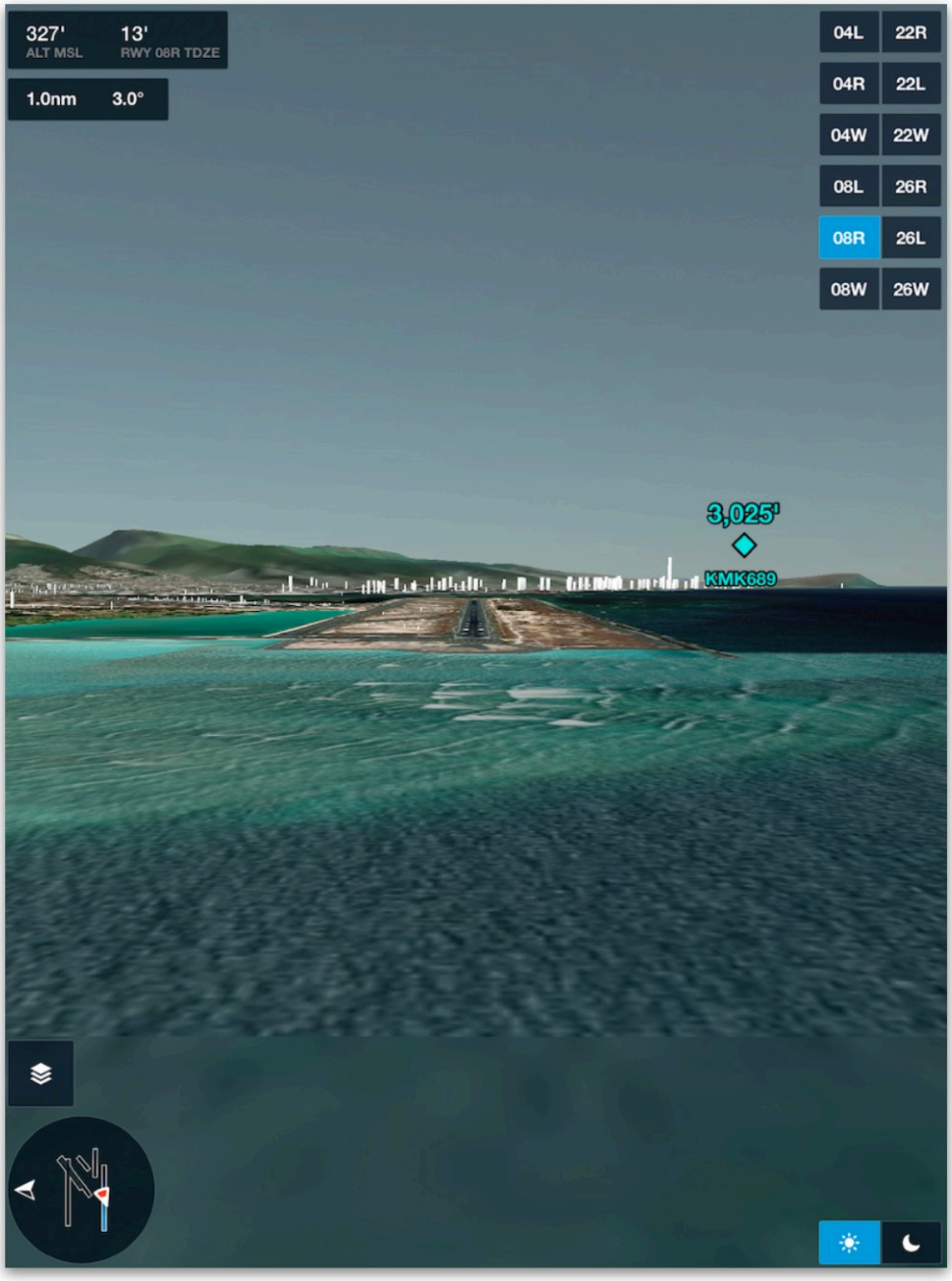


Figure 13-22. 3D View of 1 NM Approach to Runway 08R

13.4.7.4 Traffic/Obstacles Layers

Airport 3D View can display real-time traffic and obstacle data as optional layers. To enable these layers, tap the layer icon and toggle the **Traffic** or **Obstacles** layer.

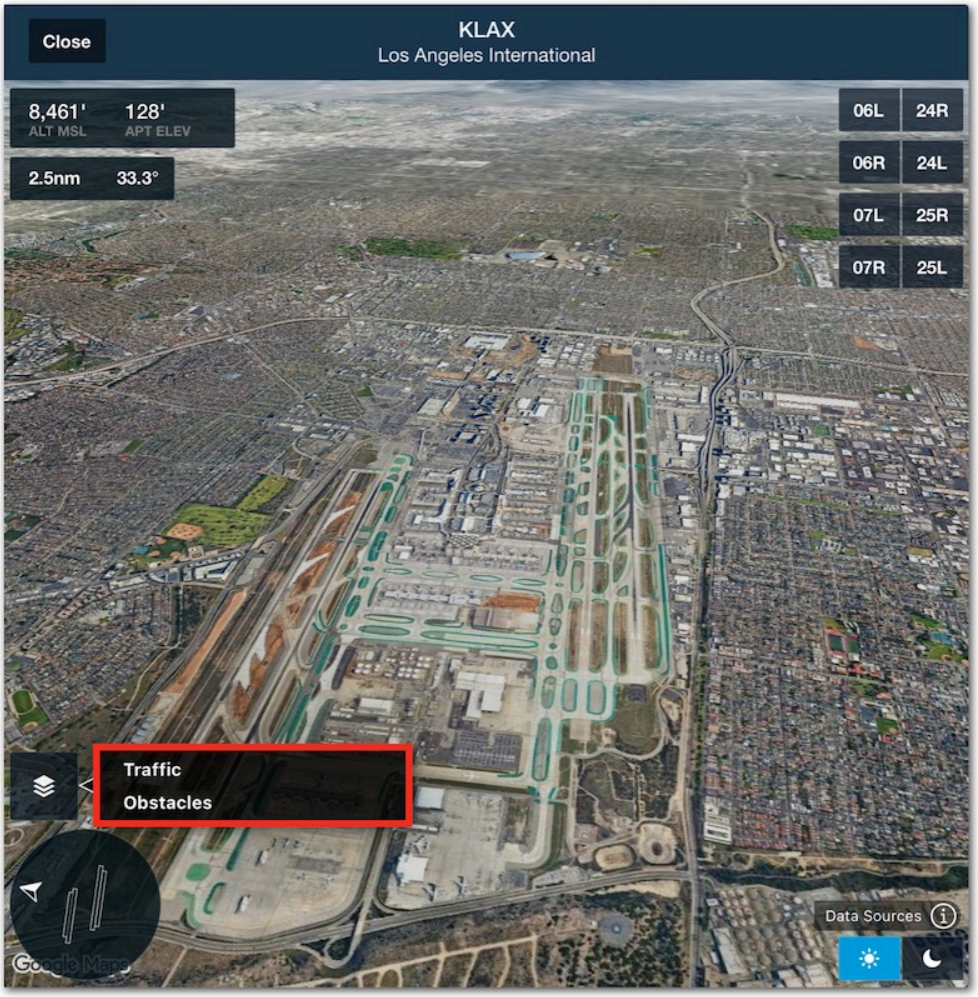


Figure 13-23. Displaying 3D View Layers

Displaying Traffic

When the Traffic layer is enabled, aircraft appear as turquoise diamond symbols moving in real time within the airport environment. Nearby aircraft also display tail numbers or callsigns and altitude in MSL.

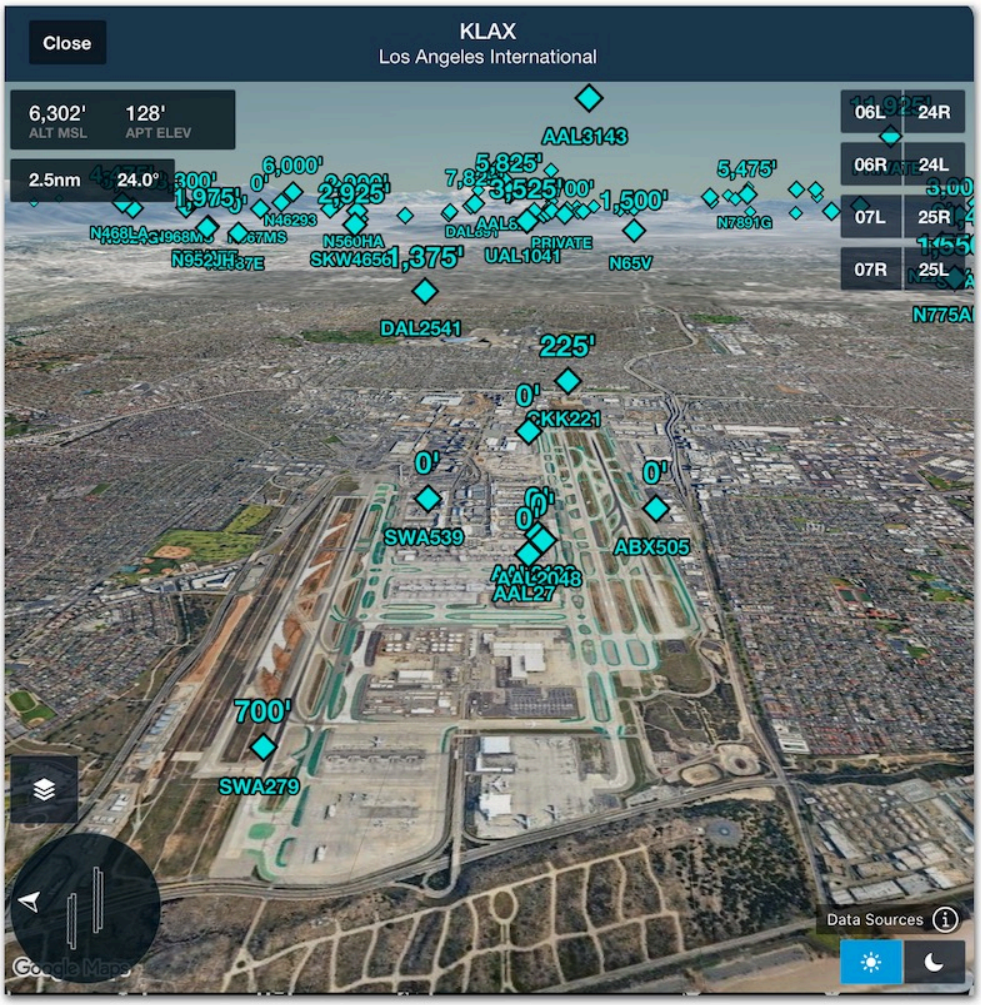


Figure 13-24. Displaying Traffic

Displaying a Traffic Flight Track

Selecting a traffic target changes the symbol to white and displays a blue ribbon representing the aircraft flight track and altitude profile.

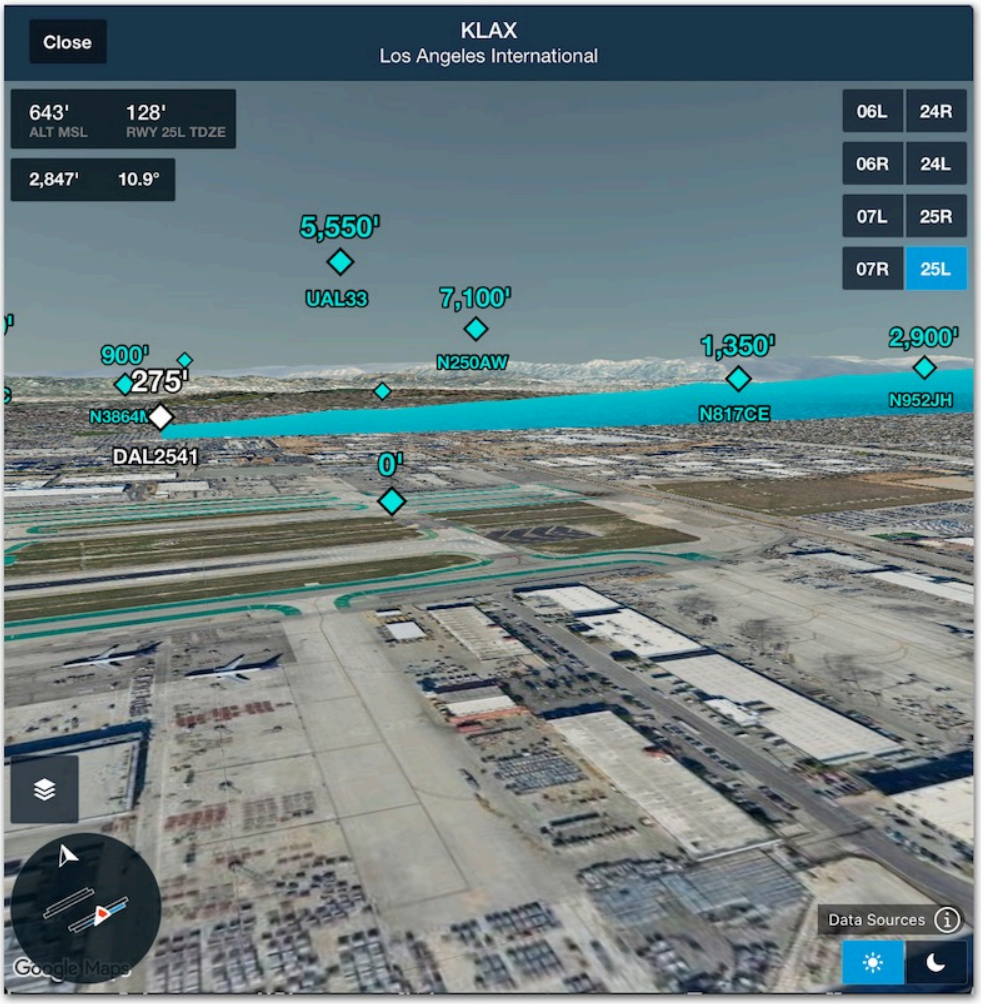


Figure 13-25. Traffic Displayed with Flight Track

Displaying Obstacles

When the Obstacles layer is enabled, obstacles appear as white vertical graphics that indicate height and position.

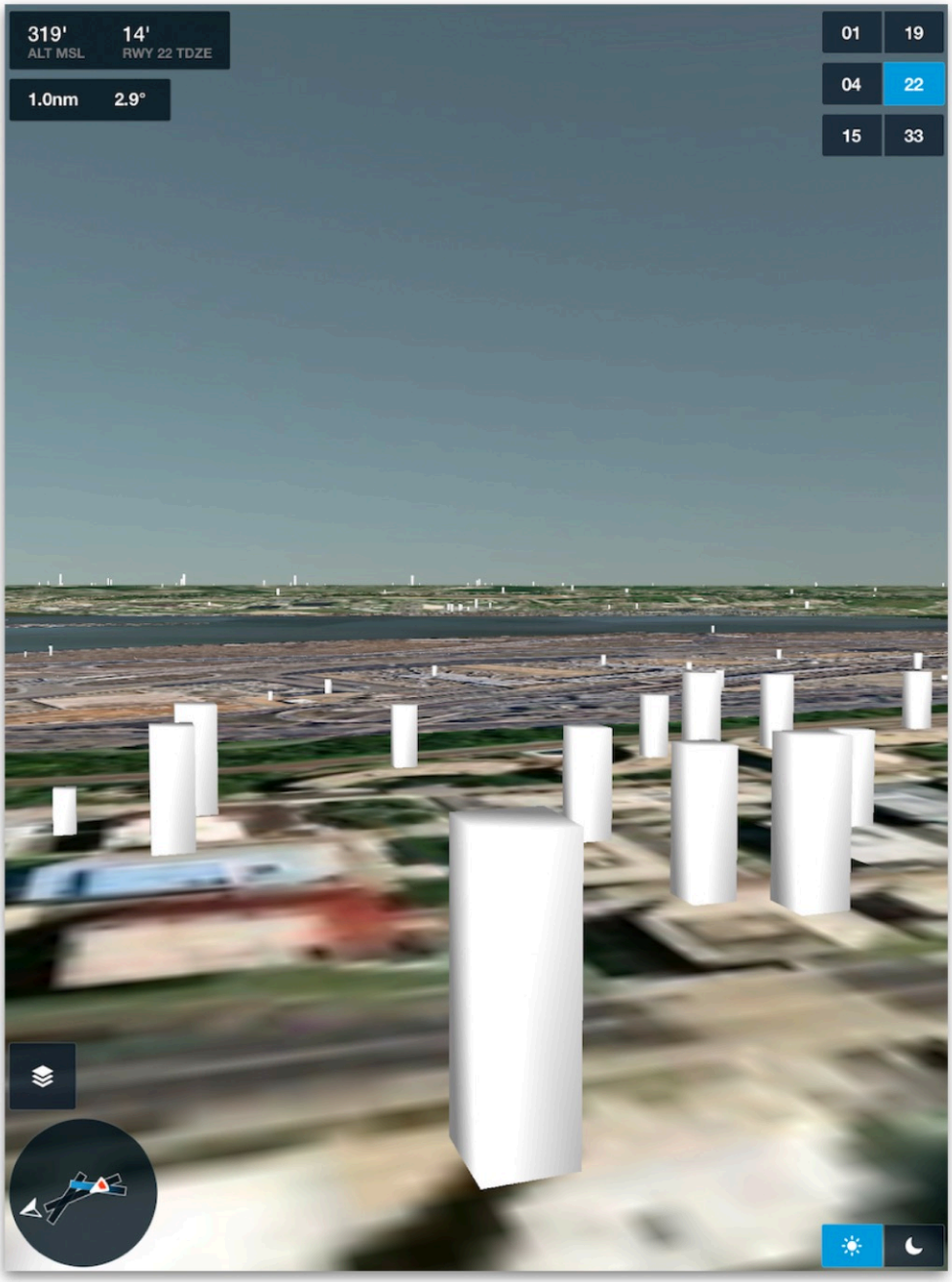


Figure 13-26. Obstacles in the Airport 3D View

> **WARNING:** Obstacle graphics do not represent the real-world shape or physical appearance of the obstacle.

13.4.7.5 Airport Compass

The airport compass in the bottom-left corner of Airport 3D View provides orientation and runway alignment information.

The compass includes:

- An arrow pointing toward true north.
- A diagram showing the current relative alignment of airport runways.
- A blue highlight indicating the currently selected runway.

If a runway is selected and airport METAR data is available, a windsock icon appears over the selected runway on the compass. The wider red end of the windsock points in the direction of the wind.

In the example shown, Runway 22 is selected. The windsock indicates a headwind component with a left crosswind component.



Figure 13-27. Airport Compass with Highlighted Runway and Windsock

13.4.7.6 Day/Night Mode

Tap the **Day** or **Night** button in the lower-right corner to switch between display modes. Night view dims surrounding terrain and renders runway lighting for improved nighttime familiarization.

Runway edge lighting is supported for most paved airports worldwide. At larger airports, additional lighting elements may be displayed when available, including:

- Touchdown zone lights.
- Precision Approach Path Indicator (PAPI) lights.
- Displaced threshold lights.
- Approach lighting systems.
- Runway centerline lights.

- Runway end identifier lights (REILs).
- Runway end light flashers.

WARNING: Lighting elements are shown for visualization purposes only and may vary based on available airport data.

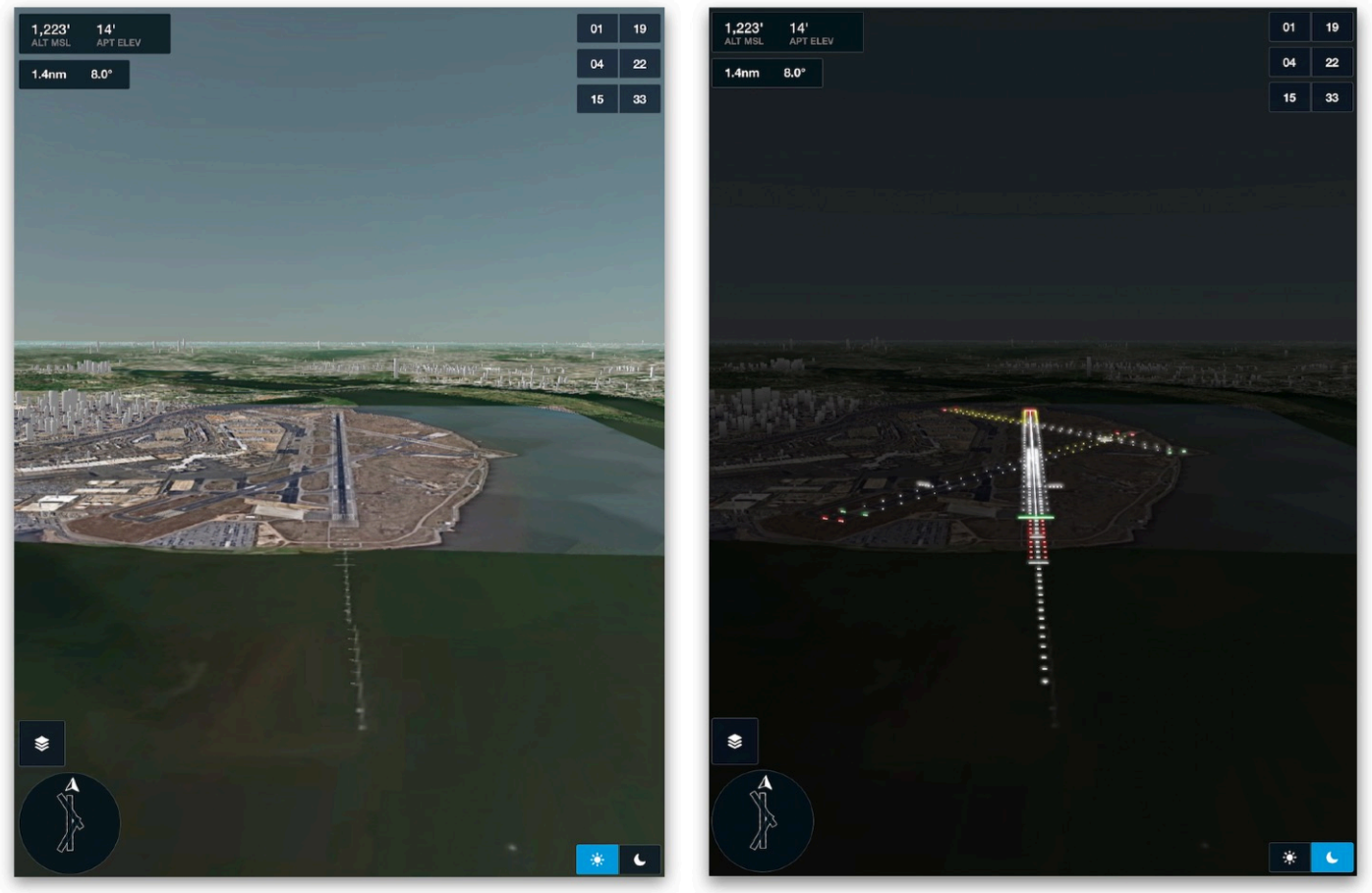


Figure 13-28. Airport 3D View Day Mode(Left) and Night Mode (Right)

13.4.8 FBOs

Tapping **FBOs** displays pilot services available at the selected airport. Selecting a listed service opens the FBO Details view, which provides additional information. The window is divided into multiple service-type sections depending on the types of pilot services available.

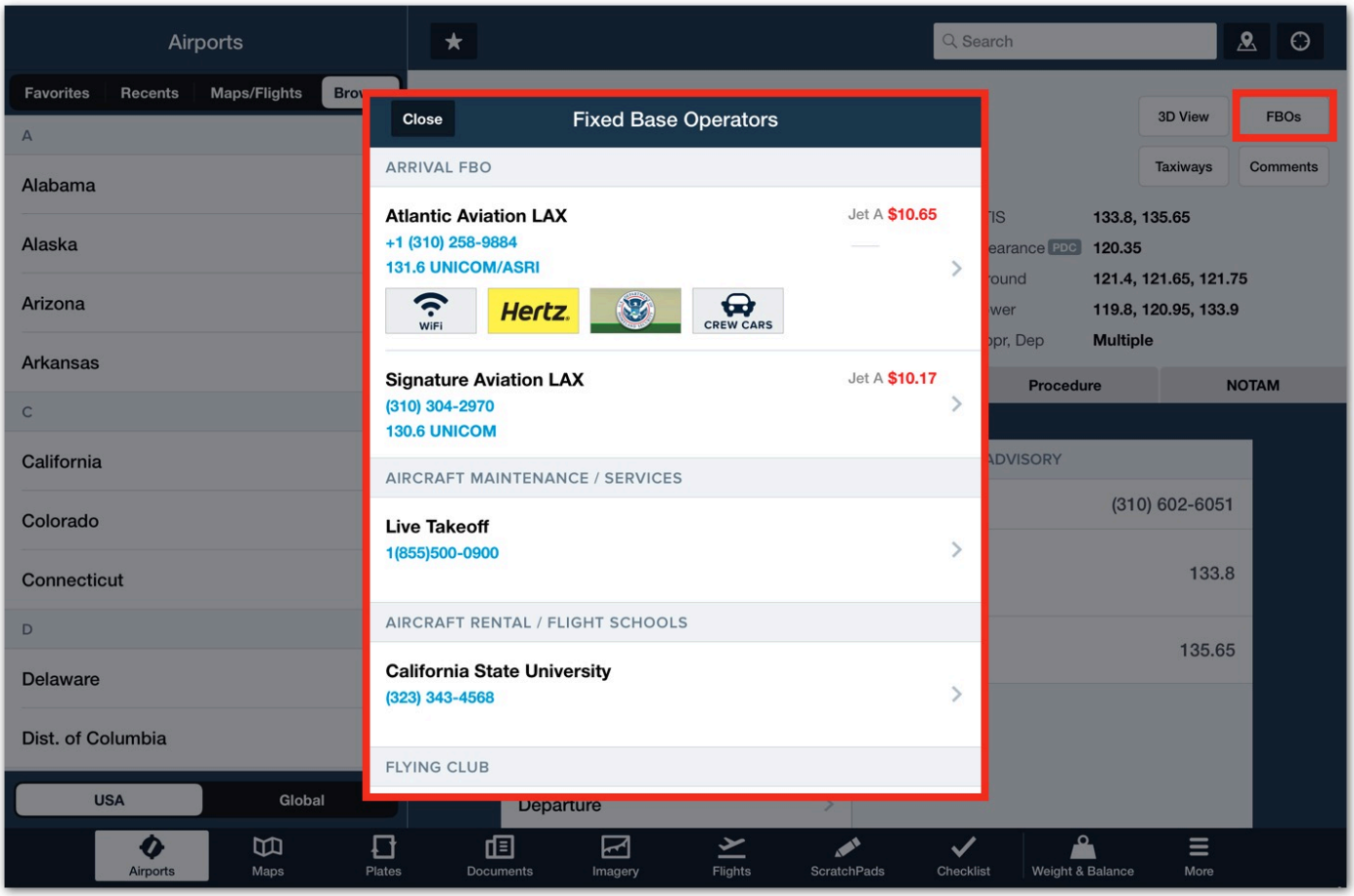


Figure 13-29. FBO List View

The FBO section lists fixed-base operators (FBOs) located at the airport. Each listing displays (if available):

- FBO name
- Phone number
- UNICOM frequency
- Fuel prices.

Fuel prices in the FBO list are color-coded in the same manner as on the **Maps** view. If the account is configured with JetFuelX integration, additional fuel pricing details may be available.

Additional pilot services may appear as separate sections in the FBO List view, depending on availability at the airport.

Possible section headers include:

- Aircraft Rental / Flight Schools
- Aircraft Maintenance / Services
- Restaurants
- Flying Clubs.

Section availability varies by airport and reported services.

Tapping a business name in the list opens the Business Details view, which provides expanded information and related functionality.

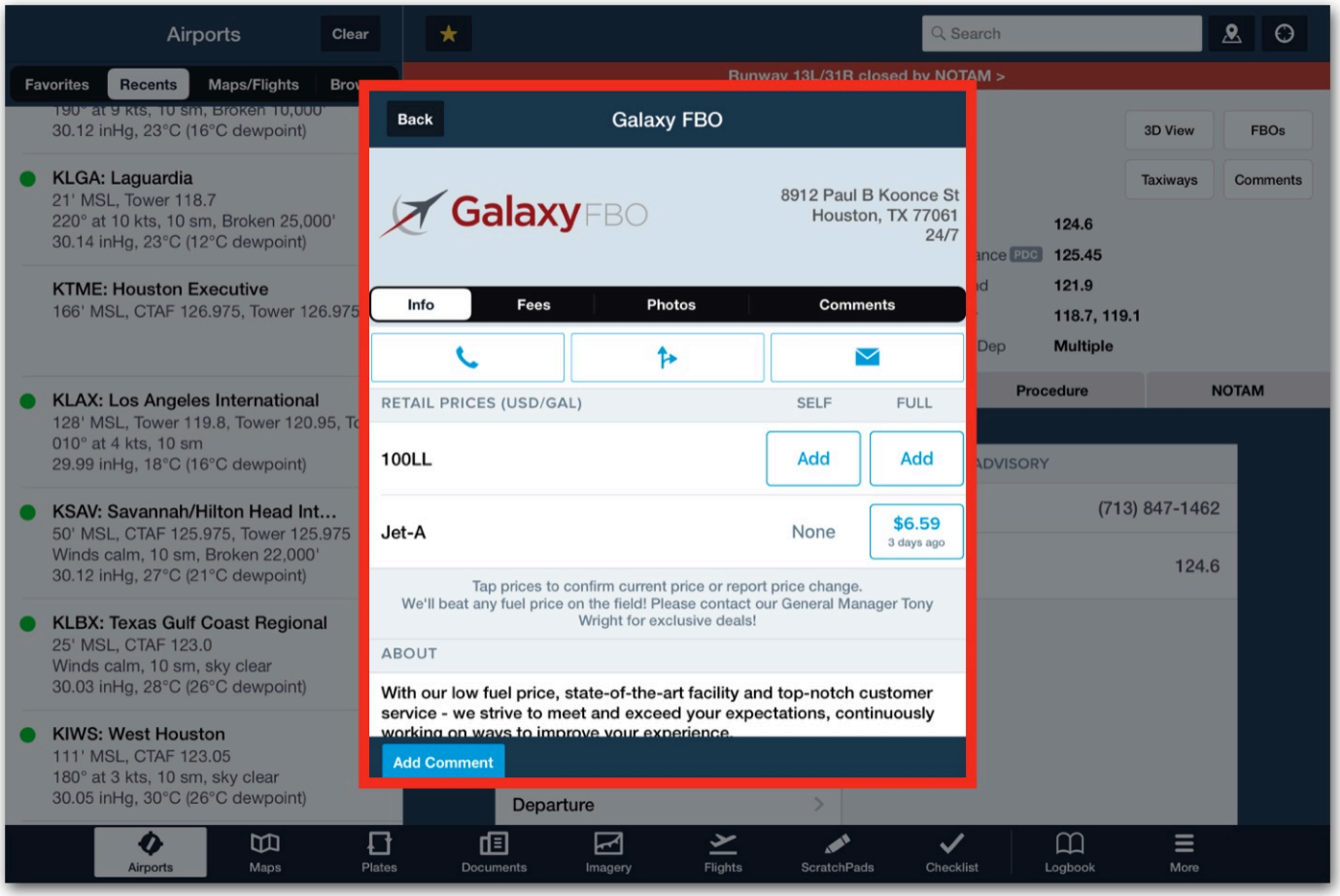


Figure 13-30. FBO Details View

The top of the Business Details view displays the provider. Below the provider name, up to four tabs may be displayed:

- Info
- Fees
- Photos

- Comments.

An **Add Comment** button appears at the bottom of service provider views.

13.4.8.1 Info

When the Business Details view is opened, the **Info** tab is selected by default.

At the top of the view, three blue buttons allow the following actions:

- Call the service, using an iPhone.
- Get directions, using iOS Maps.
- Send an email to the business.



If a phone number, mailing address, or email address is not provided, the corresponding button is disabled.

Additional sections may appear in the **Info** tab, depending on the business type and available data.

- **Retail** and **Contract (Jet-A) Prices**: Displays available retail and contract fuel prices and provides additional functionality associated with JetFuelX.
- **About**: Includes descriptive information provided by the business.
- **Contacts**: Lists available contact methods, such as UNICOM frequency, phone and fax numbers, email addresses, and website URLs.
- **Amenities**: Lists onsite amenities such as ATMs, pilot lounge, restrooms, and Wi-Fi.
- **Services**: Lists available pilot services, such as aircraft charter, hangar space, ground power unit, oxygen, lavatory services, aircraft maintenance, pilot supplies, catering, and rental cars.
- **Fuel Types**: Lists available aircraft fuel types.
- **Fuel Brands**: Lists available fuel brands.
- **Credit Cards**: Lists accepted credit cards.

Retail Fuel Prices

The Info tab displays fuel price data for each FBO as reported by FBOs and pilots. If a fuel type or service is unavailable, the word "None" appears in place of a fuel price. Displayed prices may not include fees, taxes, or discounts. Fees are listed in the Fees tab.

Fuel prices change frequently and may not reflect the current rate offered by the FBO. A timestamp appears below each fuel price to indicate when the data was last updated, helping assess reliability.

Pilots may recommend an update to existing fuel prices by submitting new price data.

> **NOTE:** Discounted contract fuel pricing shown in the JetFuelX feature cannot be updated using this process.

Adding a Retail Fuel Price

If a fuel type and service is available but a price has not yet been submitted, an **Add** button appears.

To submit a new fuel price, complete the following steps:

1. Tap the **Add** button.

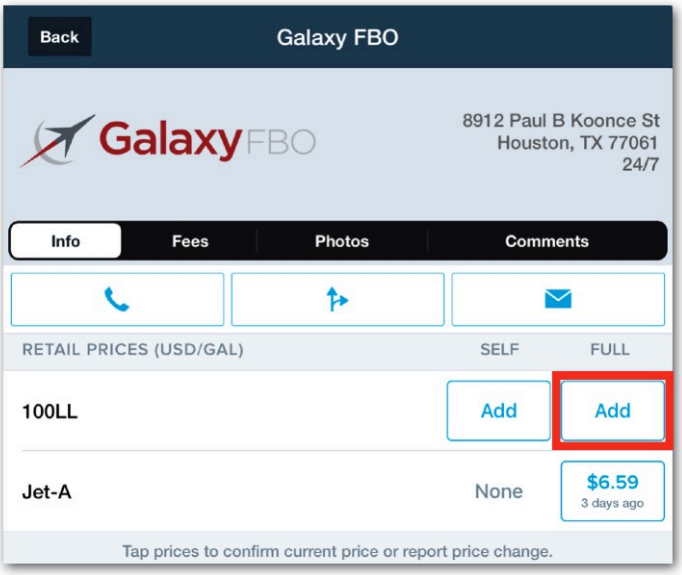


Figure 13-31. Add Fuel Price Button

2. Enter the fuel price.
3. Tap the **Close** button.
4. Tap **Submit** to submit for approval.

A message banner indicates that the price has been submitted and will update after approval.

> **NOTE:** Price submissions made while offline are sent when an internet connection is restored. The submission banner does not appear until the data is transmitted. All new submissions and updates are reviewed and are not visible immediately.

Updating Retail Fuel Prices

To update or confirm a fuel price, tap the **Price** button for the applicable fuel type. A pop-up provides options to report a price change or confirm the current price.

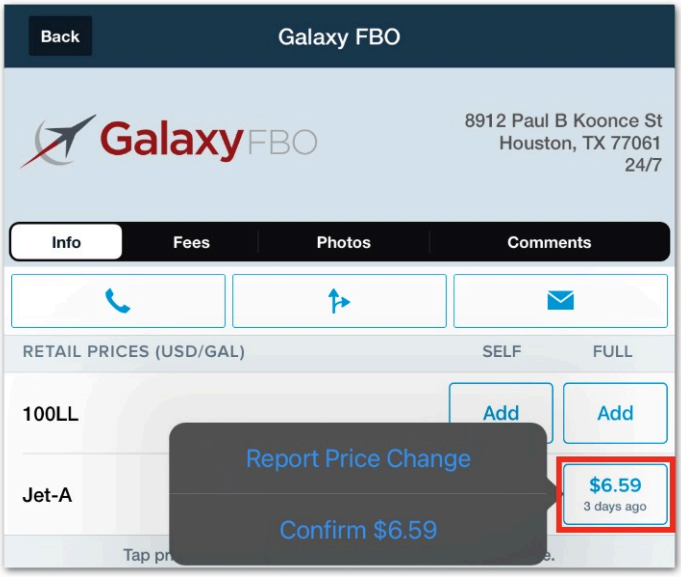


Figure 13-32. Updating Full Service Jet-A Fuel Price

To report a price change, complete the following steps:

1. Tap **Report Price Change**.
2. Enter the new price.
3. Tap **Close**.

4. Tap **Submit**.

A banner confirms that the price change was submitted for approval.

To confirm the listed price, tap **Confirm**. A banner acknowledges receipt of the confirmation.

13.4.8.2 Fees

The **Fees** tab displays a list of fees charged by the FBO. These may include:

- Ground power unit (GPU) fees
- Handling fees
- Landing fees
- Overnight parking or ramp fees
- Other applicable service fees.

> **IMPORTANT:** Fee information is provided for reference and may be subject to change.

13.4.8.3 Photos

The **Photos** tab displays thumbnail images provided by the FBO.

Selecting a thumbnail opens a larger view of the image for closer inspection or to share using the **Share** button.

13.4.8.4 Comments

The Comments tab displays user-entered comments about the business. When comments are accessed, they are saved to the device so they are able to be viewed again later, even when offline.

The Comments view offers sorting options, a list of comments about the business, and an **Add Comment** button. Comments in the Business Details view work the same as in the Airport Comments view. For a more detailed explanation about creating and managing comments, see Airport Comments.

13.4.9 Taxiways

The **Taxiways** button in the Airport Summary section opens the government (e.g., FAA) airport diagram or Jeppesen diagram (if subscribed) in the Plates view.

13.4.10 Comments

Comments on the Airports view provide user-contributed information about an airport that is not typically available from a controlling agency or other official sources. Examples include:

- Preferred parking locations for transient aircraft
- Wind behavior influenced by terrain, buildings, or nearby water
- Runway surface condition
- After-hours access, excluding gate codes
- Nearby food options within walking distance
- Tie-down quality or availability of chocks.

13.4.10.1 Viewing Comments on Airports

Tap the **Comments** button in the Airport Summary section to open a Comments popover window.

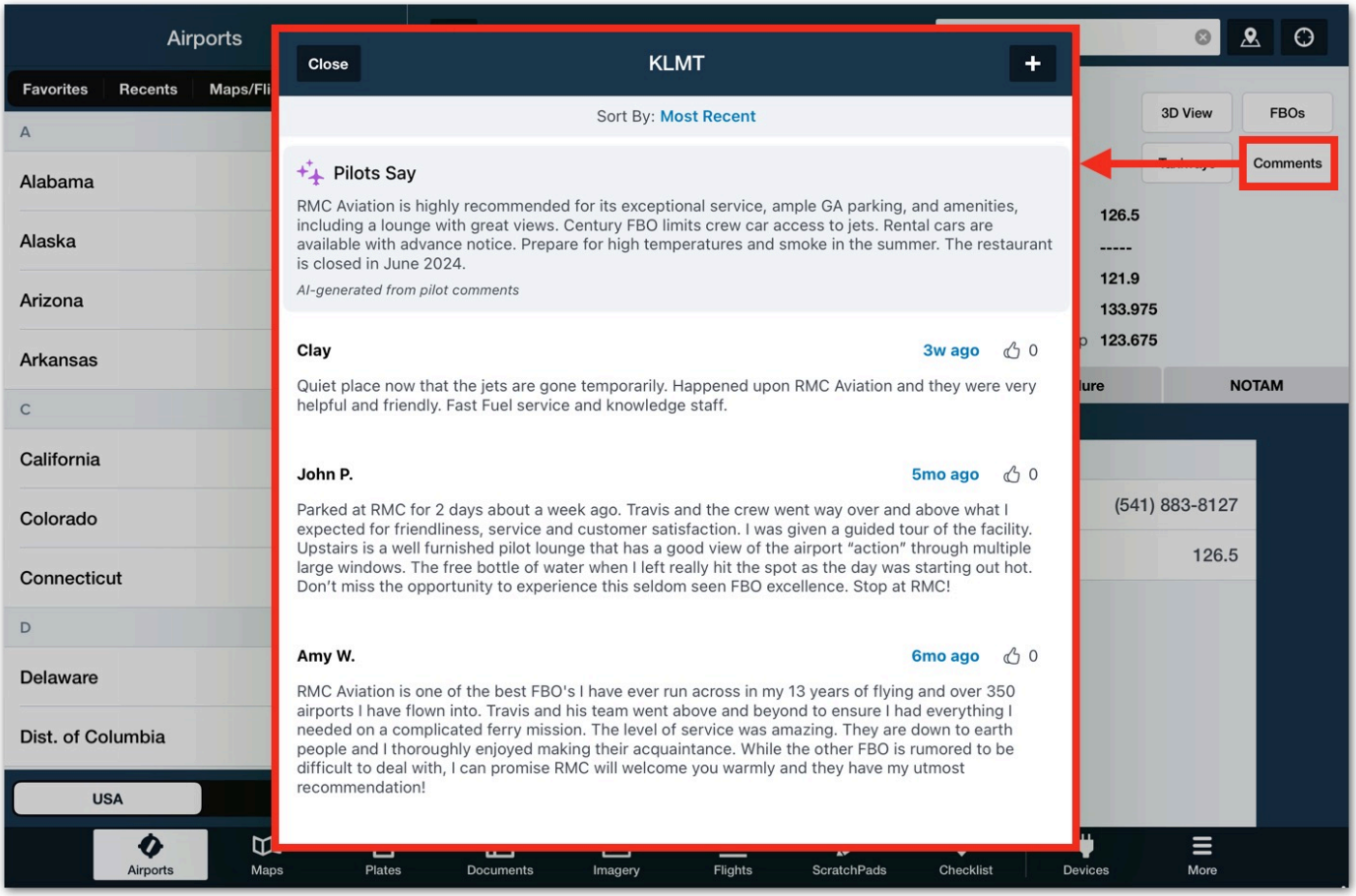


Figure 13-33. Airport Comments

The Comments view offers an **add comments** button (looks like a plus sign), sorting options, an AI summary of comments, and a list of comments about the airport entered by ForeFlight Mobile users.

13.4.10.2 Adding and Managing Comments

Comments can be added, edited, and deleted. A central comment management view is available under **More ➔ Comments**

Adding Comments

To add a comment, follow these steps:

1. Tap the **Comment** button for the airport of interest.
2. Tap the **Add Comment [+]** button.
3. Enter up to 500 characters in the COMMENT TEXT section.
4. When drafting is complete, select one of the following options:

   - To submit the comment for review and publication, tap **Publish**. Comments may be submitted offline and are sent to ForeFlight when a connection is re-established.
   - To save the comment as a draft, tap **Close ➔ Save Draft**.
   - To discard the comment, tap **Close ➔ Discard**.

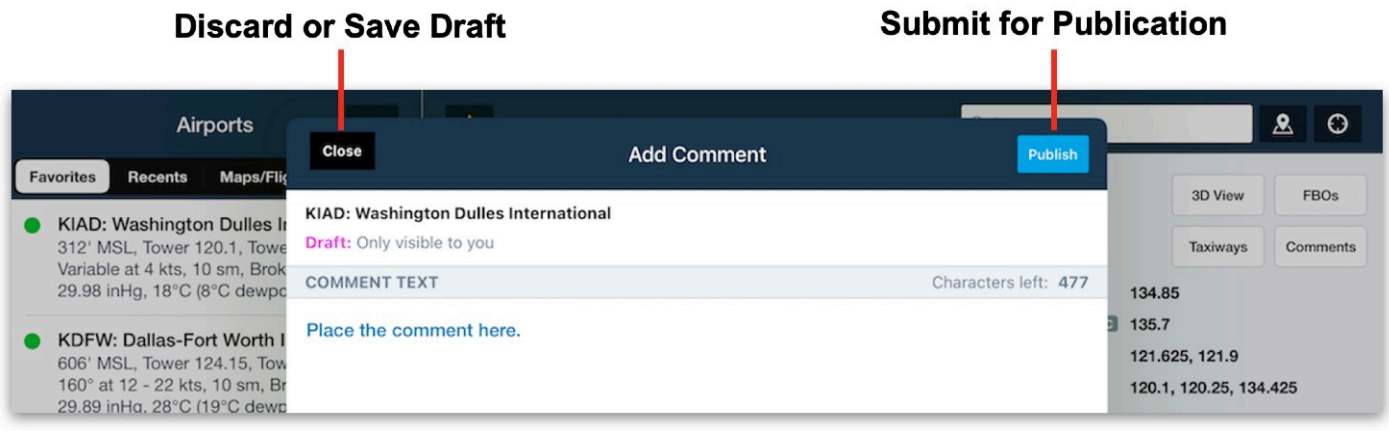


Figure 13-34. Adding a Comment

After submission, each comment is reviewed for compliance. If the comment meets publication standards, it is published and becomes visible to all users. If the comment does not meet standards, it is rejected and remains visible only in the My Comments view. Rejected comments may be edited and resubmitted.

The following types of content result in rejection:

- Gate codes
- Fuel prices
- Specific landing fees
- Promotional comments
- Personal attacks
- Vulgarity
- Libelous remarks
- Certain other airport data.

Editing Comments

Draft and rejected comments may be edited.

To edit a comment, complete the following steps:

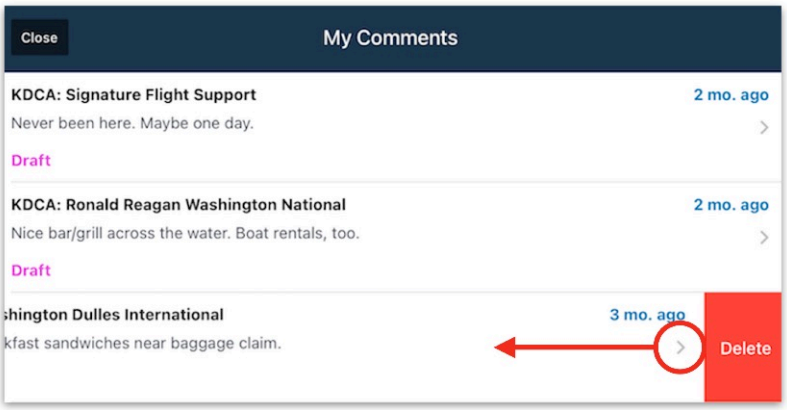
1. Tap **More**.
2. Tap **Comments**.
3. Select a comment to open it in editing mode.
4. Enter up to 500 characters in the COMMENT TEXT section.
5. When editing is complete, select one of the following options:
    - To submit the comment for review and publication, tap **Publish**. Comments may be submitted offline and are sent to ForeFlight when a connection is re-established.
    - To save the comment as a draft, tap **Close** ➔ **Save Draft**.
    - To discard the comment, tap **Close** ➔ **Discard**.

After submission, the comment is reviewed for compliance once again.

Deleting Comments

To delete a comment (draft, published, or rejected), follow these steps:

1. Go to **More ➔ Comments**.
2. Swipe left across the comment to delete.



3. Tap **Delete**.

Published comments that are deleted are removed from ForeFlight platforms and are not visible to other ForeFlight Mobile customers.

Managing My Comments

To view all submitted comments in a single location, tap **More ➔ Comments**.

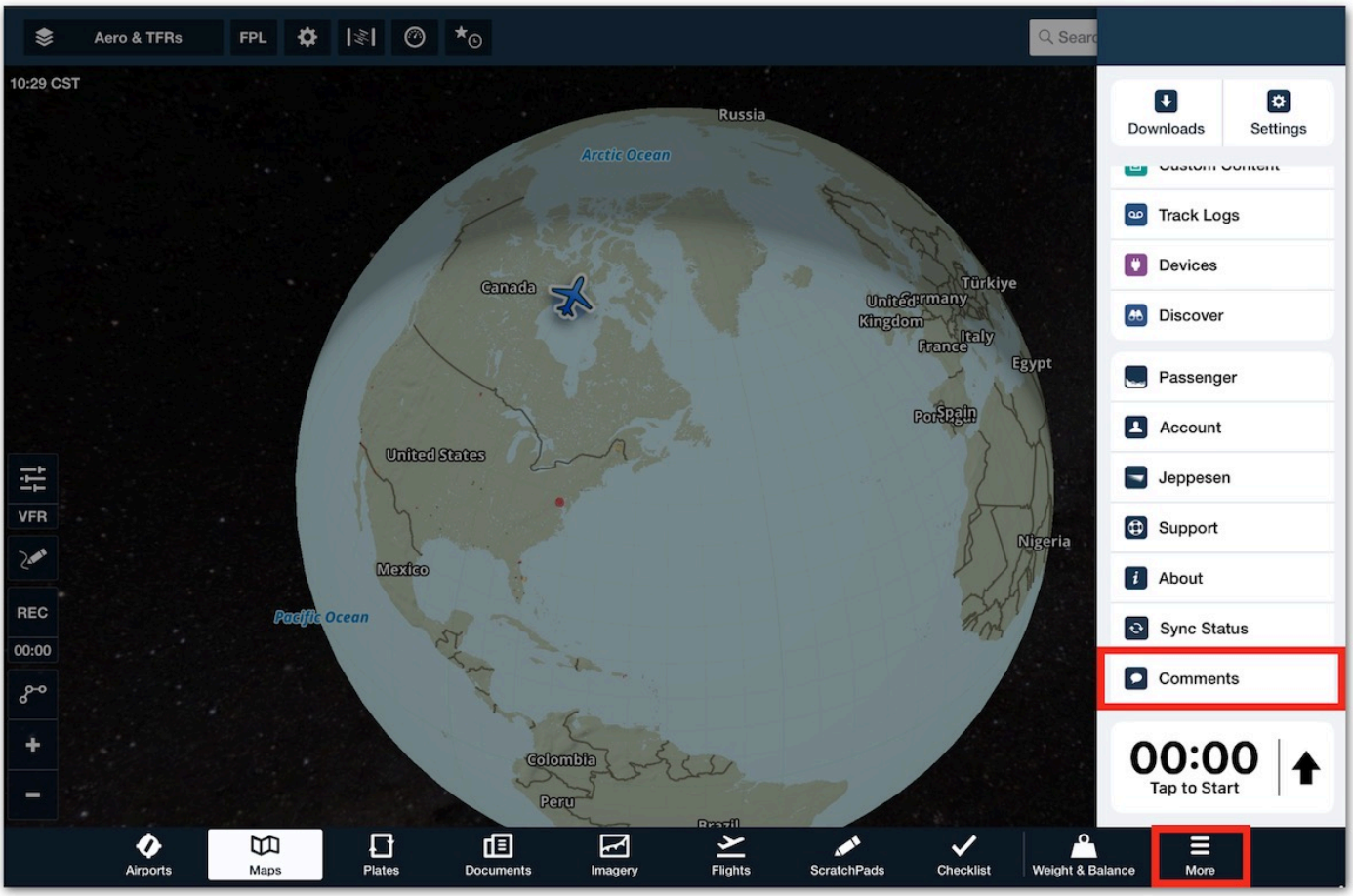


Figure 13-35. Displaying My Comments

The My Comments window displays each comment and its publication status:

- Draft
- In Review
- Published
- Rejected.

13.4.10.3 Comment Sort By

Tap the Sort By option at the top of the view to sort comments by:

- **Most Recent**
- **Most Upvoted**.

13.4.10.4 "Pilots Say" AI Comment Summary

At the top of the list of comments is a "Pilots Say" section. This section is an AI summary of all the comments.

13.4.10.5 Airport Comments

Below the "Pilots Say" section are user-entered comments about the airport. Use the **Thumbs Up** button to indicate that the comment is helpful.

13.5 Airport Details

Below the Airport Summary section, the Airports view provides details about the currently displayed airport separated into the following five tabs:

> **Info**
>
> Displays airport frequencies, chart supplements, nearby airports, operating hours, points of contact, AIRAC cycle data, flight tracking widgets, airport features, and nearby services.

> **Weather**
>
> Displays the following weather data types: METAR, D-ATIS broadcasts (Premium, Business Performance, and MFB Performance subscribers), ATIS, TAF, MOS, 10-day daily/hourly forecasts, and Winds Aloft forecasts.

> **Runway**
>
> Shows information including runway wind components, runway ends with best wind, runway dimensions and type, traffic patterns, glideslope, runway slope, lighting, elevation, and runway-specific procedures.

> **Procedure**
>
> Lists all available airport, departure, arrival, and approach procedures (sourced from ForeFlight, controlling agency, and Jeppesen if subscribed), and serves as a shortcut to open these in the Plates view.

> **NOTAM**
>
> Lists applicable airport, obstacle, TFR/ARTCC, and Jeppesen (if installed) NOTAMs, and provides a search bar to filter the list.

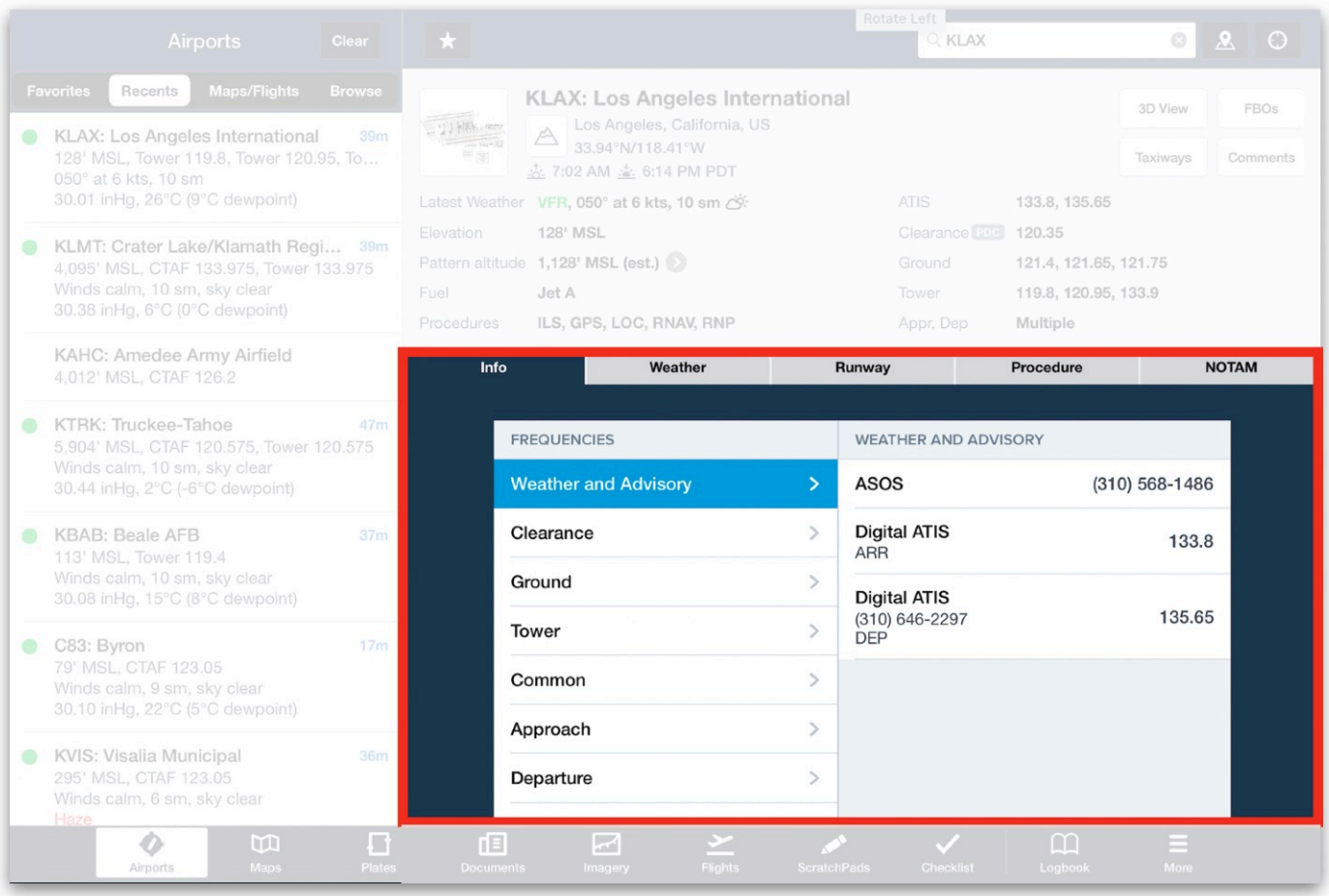


Figure 13-36. Airports Details

13.5.1 Info Tab

The **Info** tab at the top of the Airport Details section displays a list of general airport information subcategories on the left. Tap a specific item to reveal its details. Some details display to the right of the list, while others open in a new window or view.

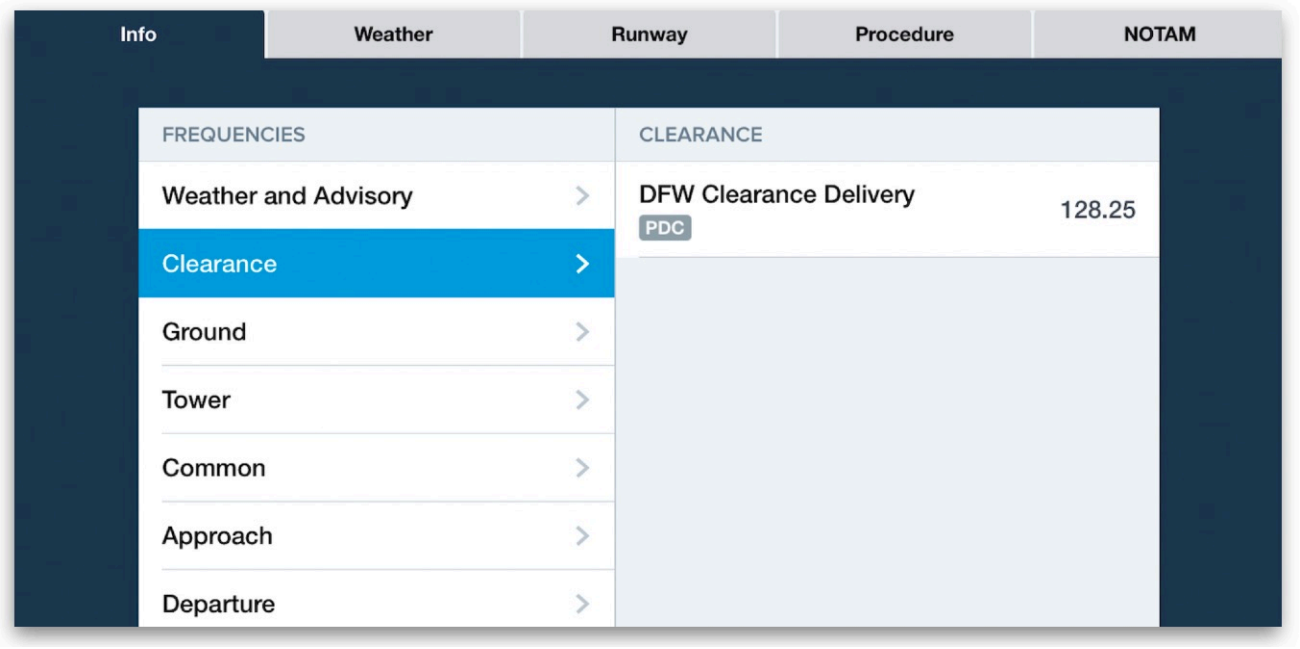


Figure 13-37. Airports View Info Tab

13.5.1.1 Cameras

The CAMERAS subcategory (only shown if available) displays connected airport camera images, time since the image was captured, and the facing direction of the camera. Tap an image to display the camera pop-over.

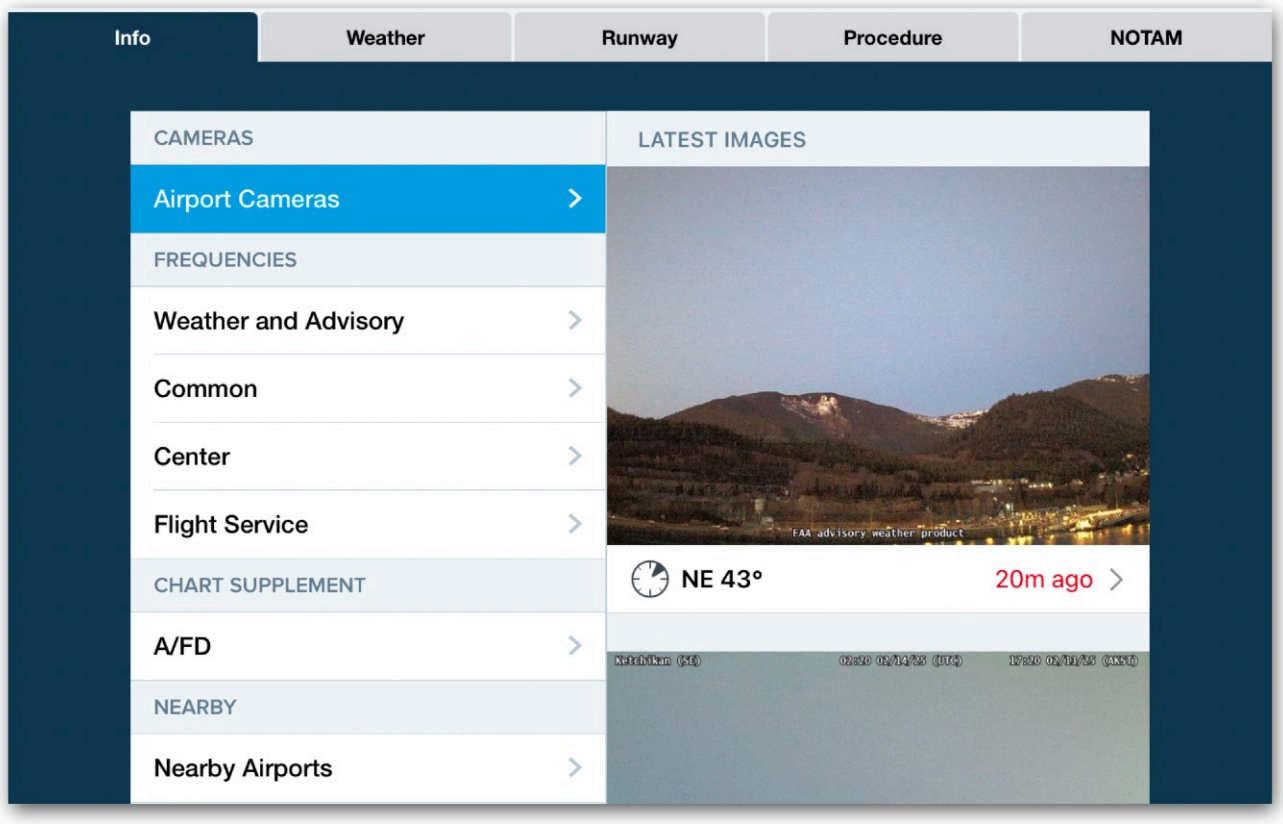


Figure 13-38. Cameras

The camera pop-over displays a larger image of the selected camera. Tap **Latest** to show the most recent images. Tap **Clear Day** to display clear day images with labeled landmarks and elevations, if available.

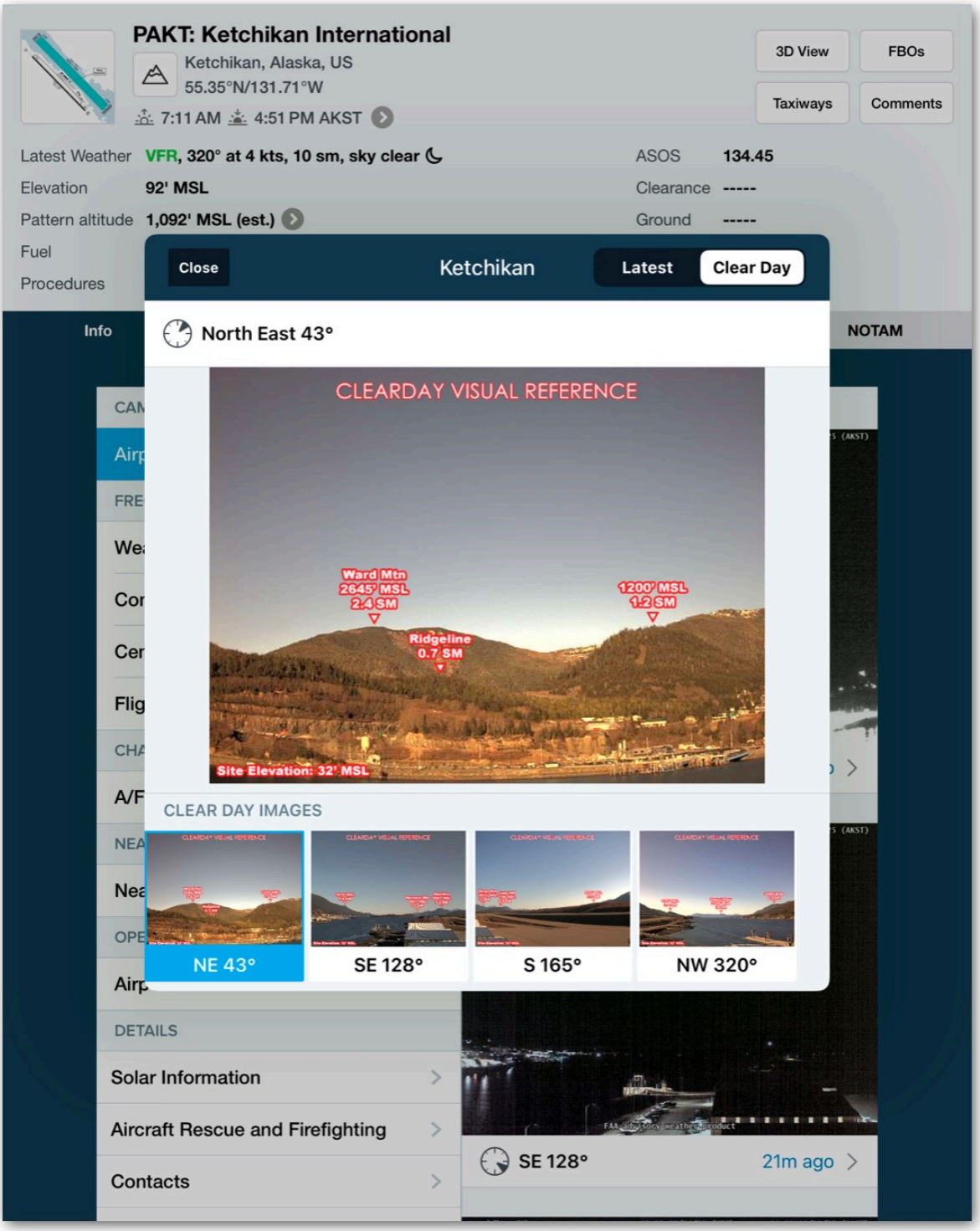


Figure 13-39. Airport Camera Pop-Over Clear Day

13.5.1.2 Frequencies

The FREQUENCIES subcategory lists airport frequencies according to their type (such as Clearance, Ground, or Tower). Tap one of these rows to display specific frequencies and other pertinent information on the right.

> **NOTE:** For Premium, Business Performance, and MFB Performance customers, larger U.S. airports where electronic Pre-Departure Clearances (PDC) are available for IFR flights are noted with the "PDC" badge next to the Clearance frequency.

ForeFlight Mobile displays the phone number and facility name for a pilot to call to obtain an IFR clearance directly from the appropriate overlying Air Route Traffic Control Center (ARTCC) or approach control facility. When using ForeFlight Mobile on an iPhone, tap on the number to initiate a phone call to that facility.

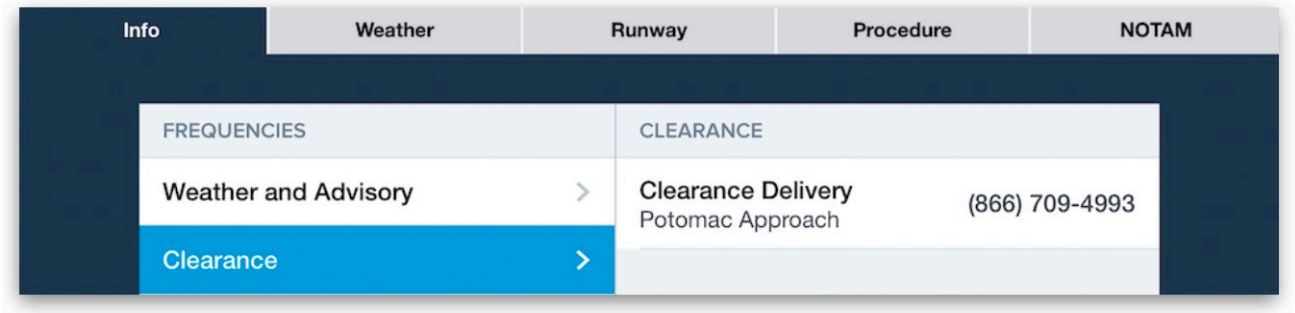


Figure 13-40. Tap Phone Number for Clearance Delivery

13.5.1.3 Chart Supplement

The CHART SUPPLEMENT subcategory lists options to view official publications or remarks about the currently selected airport.

Tap the official publication (e.g., A/FD) to open its details in the Plates view. Depending on the region, these are sourced from official sources, such as the FAA (Airport/Facility Directory (A/FD)), NAV CANADA (Canada Flight Supplement (CFS)), or EUROCONTROL (Aeronautical Information Publications (AIP)).

Tap the **Remarks** button to display a list of official remarks about the airport from the controlling agency (e.g., FAA).

13.5.1.4 Nearby

The NEARBY subcategory lists other airports, heliports, and facilities near the currently selected airport. Tap a row to display a new list of facilities on the right. This list shares functionality similar to the Airports Near You menu, but relies on the airport's location rather than the device's.

13.5.1.5 Operating Hours

The OPERATING HOURS subcategory shows the daily operating hours reported for that airport. Depending on the data available, this may take the form of one year-round schedule for the airport, several different schedules for different times of the week or year, or even the operating hours of flying clubs located at the airport. Hours may be reported in local time or UTC. If no data is available, "Operating Hours Unknown" will be displayed.

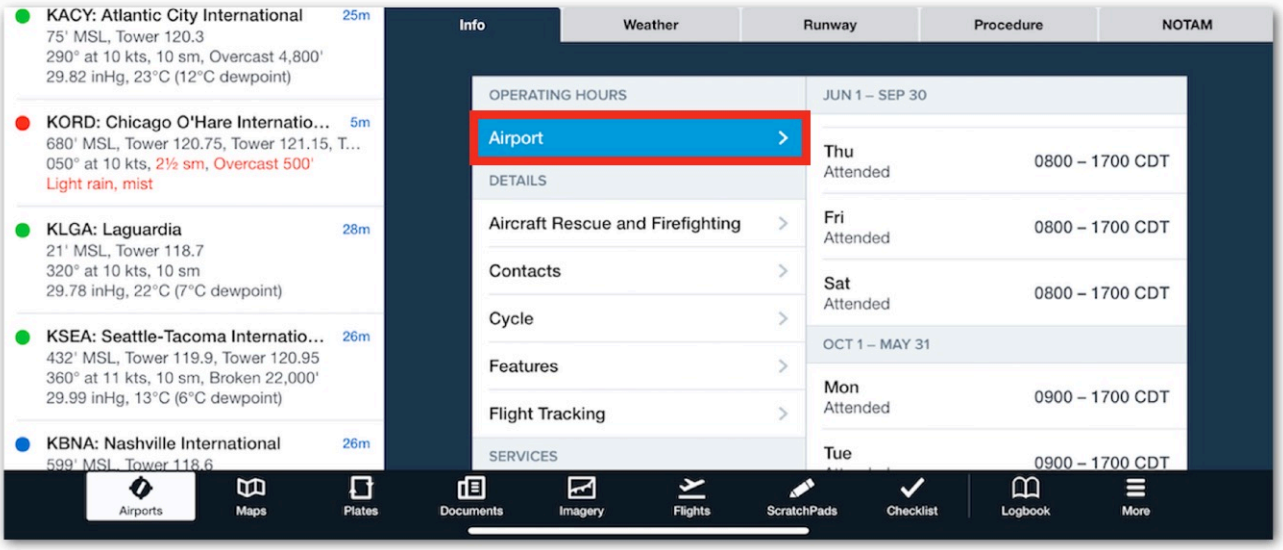


Figure 13-41. Airport Operating Hours

13.5.1.6 Details

The Details subcategory lists various logistical details about the currently selected airport. Tap a row to display a new list on the right. Each row and its functionality is described below:

> **Solar Information**
>
> Displays the Morning Civil Twilight, Sunrise, Sunset, and Evening Civil Twilight times for today and the next three days.

> **Aircraft Rescue and Firefighting**
>
> Displays the maximum size of aircraft that can be supported by the airport's fire suppression and emergency response personnel. Each entry includes Category, Max. Aircraft Length, and, if applicable, Max Fuselage Width fields defined by the controlling agency (FAA or ICAO). An entry may say "Unknown" if the airport's capabilities are unknown, or "Not Available" if it lacks any capabilities.

> **Contacts**
>
> Displays the names, mailing addresses, and phone numbers of the airport owner and manager. Tap an address to open its location in iOS Maps, or tap a phone number to place a call (iPhones only).

> **Cycle**
>
> Displays the current AIRAC cycle version and dates of the airport data in ForeFlight Mobile.

> **Features**
>
> Displays various geographical and logistical information about the airport such as its elevation, controlling facilities, location, magnetic variation, and timezone. With a working internet connection, tap **Show in Maps** to display the airport in iOS Maps, or tap **Wikipedia** to open the airport's wiki page. The location coordinates can be copied from this window by tapping the coordinates and then the **COPY** button next to the coordinates. See Copying Coordinates for more details.

> **Flight Tracking**
>
> Displays options to query flightaware.com about the airport's scheduled arrivals, scheduled departures, and en-route traffic. This feature requires a working internet connection and a FlightAware account.

13.5.1.7 Services

The Services subcategory lists various visitor services available at or near the airport such as car rentals, lodgings, and restaurants. Tap a row to display each service of that type on the right, as well as its phone number and distance from the airport if applicable.

13.5.2 Weather Tab

The **Weather** tab displays a list of the weather reports and forecasts for the selected airport. Tap a row in the list to display its details on the right.

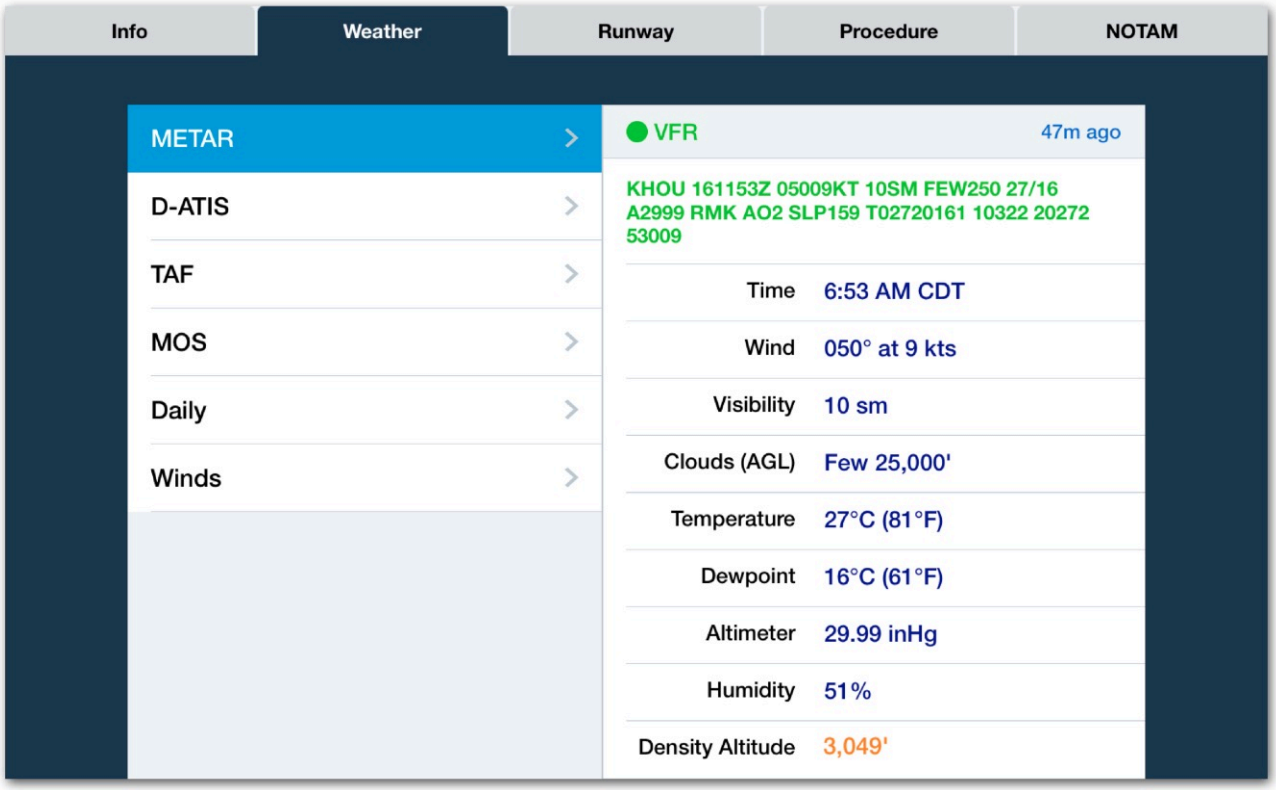


Figure 13-42. Airport View Weather Tab

13.5.2.1 METAR

Tap **METAR** to display the airport's current meteorological report. The METAR view displays the color-coded flight category, the age of the weather data, and both the coded and decoded METAR.

The density altitude is reported at the bottom of the listed METAR data and the text is usually **blue**. However, if the density altitude surpasses the field elevation by 2,500 feet or more, the value changes color to **orange**. This color shift serves as a visual signal for pilots to indicate the presence of a high density altitude that demands careful aircraft performance assessment.

Beneath the decoded METAR is a Nearby Weather section listing nearby airports. Tapping one of these airports switches to it in the Airports view and displays its METAR.

13.5.2.2 D-ATIS

Tapping **Digital ATIS (D-ATIS)** displays the current digital ATIS message, including the alphabetic identifier and the elapsed time since the last update. This feature requires an active internet connection and is available to Essential, Premium, Business Performance, and MFB Performance subscribers.

> **NOTE:** Digital ATIS is only available for select large airports in the United States, Australia, and Norway.

13.5.2.3 T-ATIS

Transcribed ATIS (T-ATIS) provides AI-powered transcriptions paired with the original audio recording.

Airports that have T-ATIS show the airport identifier and the effective time. Key terms appear in bold within the transcribed text. The original audio recording is available above the transcription for playback to verify accuracy. The ATIS frequency and phone number appear at the bottom of the view.

T-ATIS is included with ForeFlight Premium, Business Performance, and MFB Performance subscription plans.

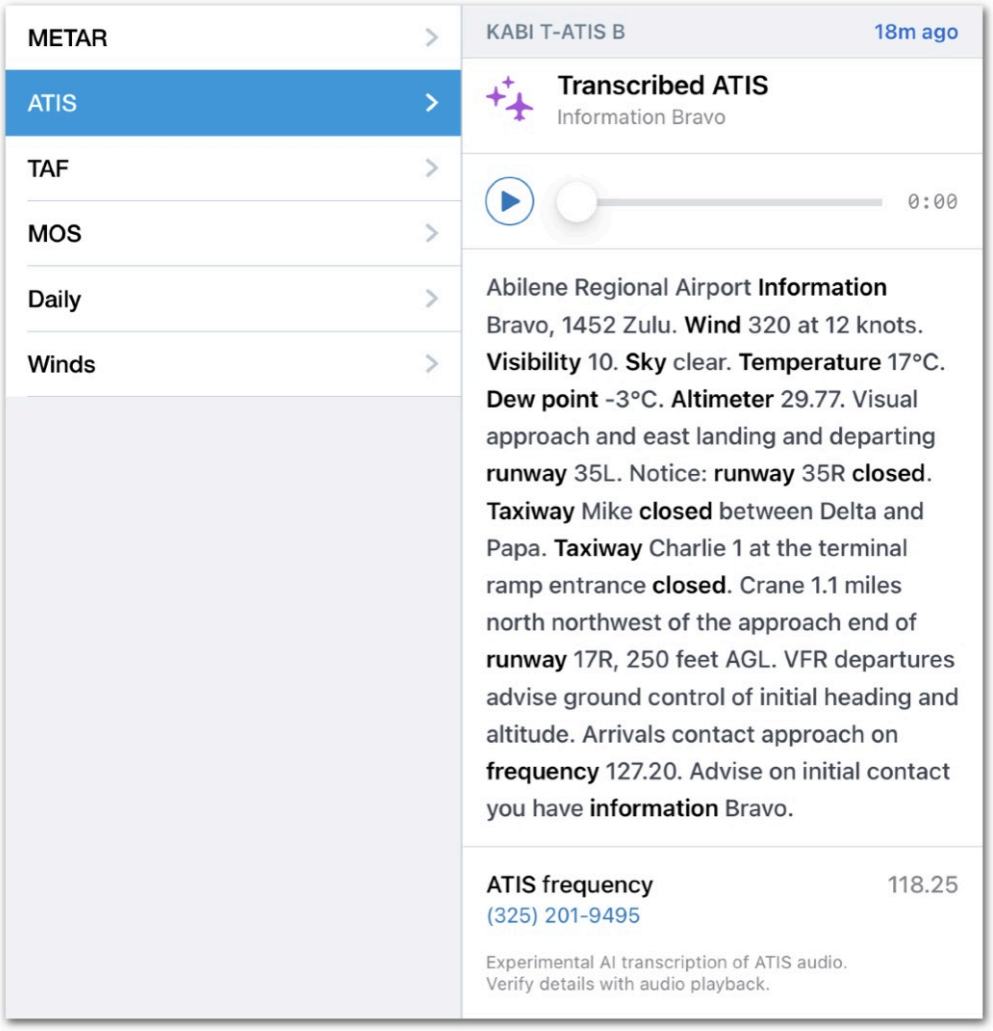


Figure 13-43. T-ATIS

13.5.2.4 TAF

Tap **TAF** to display the TAF for the currently selected airport (or the nearest airport with a TAF), including the time since the forecast was last updated. Swipe the TAF details down to see, in order: the name, direction, and distance of the originating airport, the coded TAF format with color-coded sections, a button to display the Forecast Discussion, and a decoded breakdown of conditions including a color-coded flight category icon.

If the TAF includes more than one forecast during its 24-hour period, each one is decoded and listed in chronological order.

13.5.2.5 MOS

Tap **MOS** to display the MOS forecast, including the time since the forecast was last updated. Swipe the MOS details down to see a breakdown of conditions during each forecast period.

13.5.2.6 Daily

Tap **Daily** to display a summary of the Daily/Hourly Forecast. Scroll down to see a row for each day in the forecast. Tap any day to open the Local Forecast window showing the full Daily/Hourly Forecast.

The upper right corner of the Local Forecast window displays the age of the forecast. When the device is connected to the Internet, forecast data is automatically refreshed after 1 hour.

The bottom portion of the window shows an hourly breakdown that can be swiped left or right to see the entire 10-day forecast. The bottom edge, along with text throughout the window, is color-coded according to flight category.

The Local Forecast window can be interacted with using a bottom-up approach:

1. Along the bottom edge, read the color-coded bar to see how the flight category fluctuates across the entire 10-day forecast.
2. Above the bar, swipe left and right to find and tap the desired date.
3. Above the date selector, swipe left and right to find/tap the desired time.
4. At the top, read the weather forecast for the selected date/time.
5. Note that any weather information responsible for the flight category is displayed in the appropriate color.

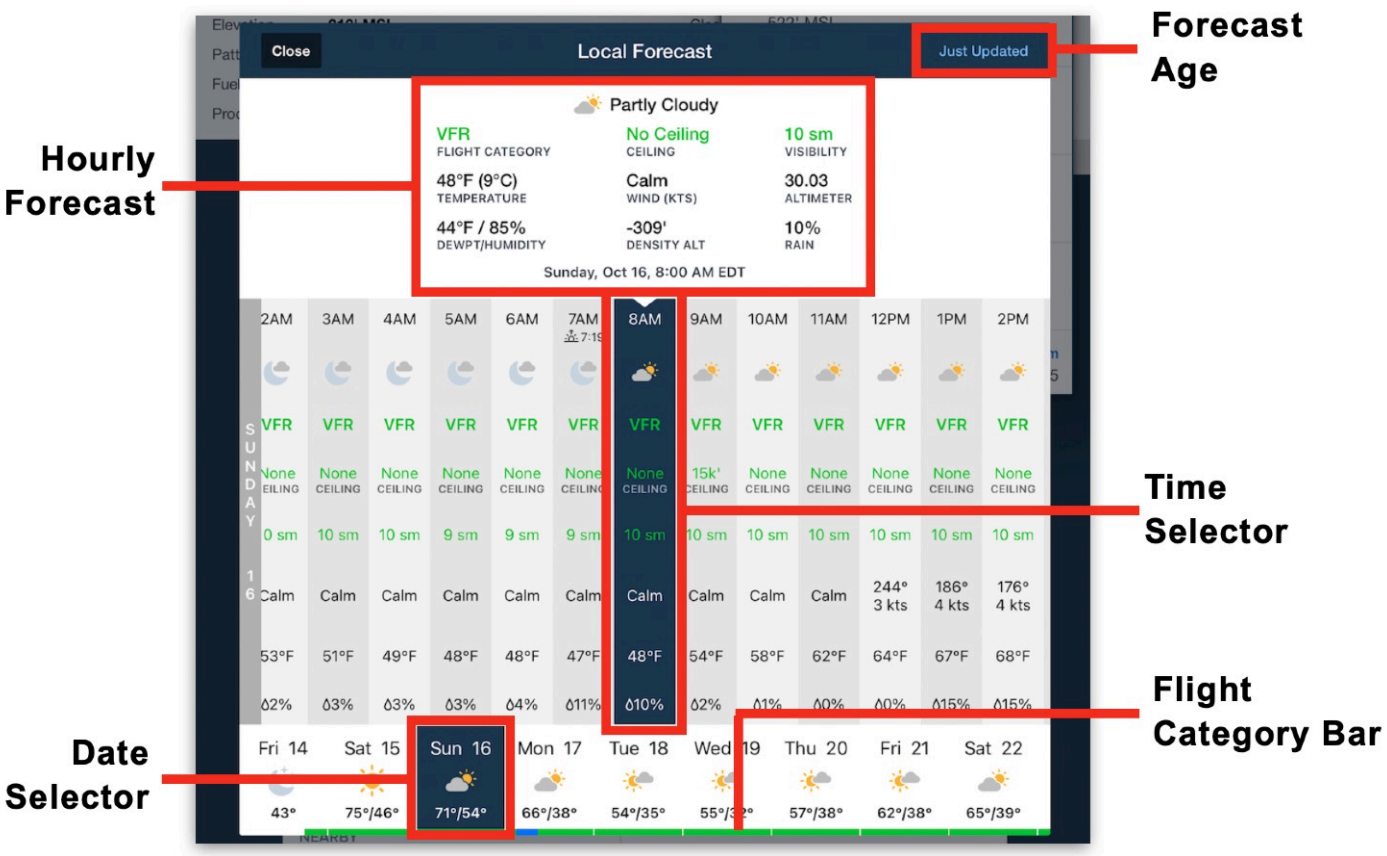


Figure 13-44. Daily/Hourly Forecast

NOTE: ForeFlight Mobile also provides Daily/Hourly Forecasts for non-airport locations:

- To see a forecast at the current location, long-tap the ForeFlight Mobile app icon on the device home screen and select **Local Forecast**.
- To see a forecast at a specific location on the Maps view, tap and hold the location on the Maps view and select **Wx Forecast**.

For more information, see ForeFlight's Daily/Hourly Forecast.

13.5.2.7 Winds

Tap **Winds** to display the airport Temperatures and Winds Aloft forecast in 3,000-foot increments. The time since the forecast was last updated is provided in the upper right corner. Swipe the Winds details down to see wind and temperature data at each 3,000-ft MSL increment and for each forecast period. Temperature values are color-coded based on temperature range:

- **Gray** above +2° C
- **Magenta** between +2° C to -25° C

- **Tan** below -26° C.

13.5.3 Runway Tab

The **Runway** tab at the top of the Airport Details section displays information about the runways at the selected airport. The left side displays a list of runways and a summary of their characteristics. Each runway in the list can be tapped to display additional information. Below the last item in the list, the wind direction and speed at the airport are provided along with the elapsed time since the wind data was reported. Each section of the Runways view is described in detail below.

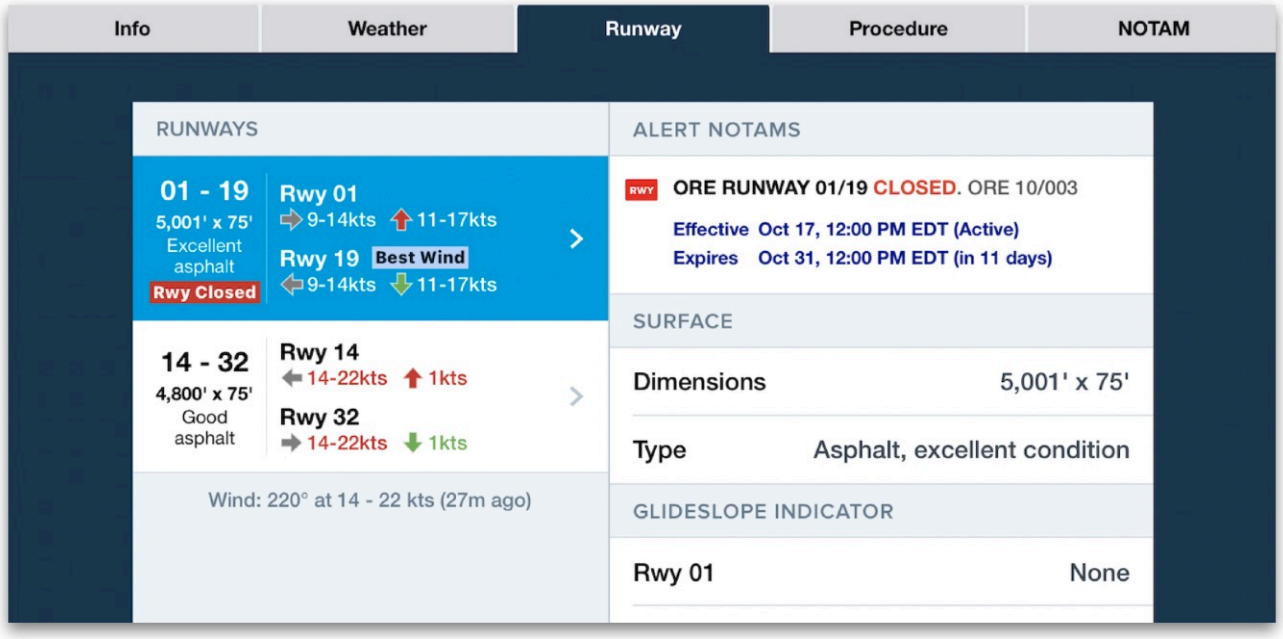


Figure 13-45. Airports View Runway Tab

13.5.3.1 Runway Summary

The left side of the Runway view lists each runway at the airport. Each list item is a summary of runway characteristics, including length, width, surface condition, and surface material. If applicable, runway-related NOTAM alerts, color-coded wind speeds and directions (in degrees True North), a **Right Traffic** label, and runways with the best wind for takeoffs and landings may also be provided.

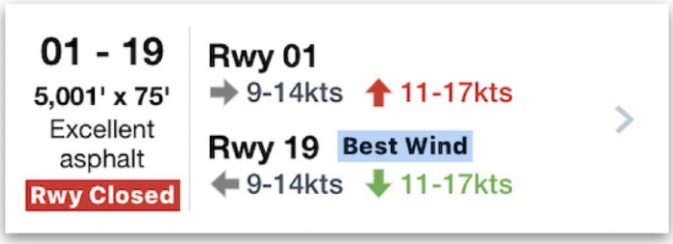


Figure 13-46. Runway Summary

Tap an item in the Runway List to display its details on the right. These details and their functionality are described below.

13.5.3.2 Runway Details

The Runway Details section provides general information about the selected runway. Tap the desired runway with the runway selection buttons.

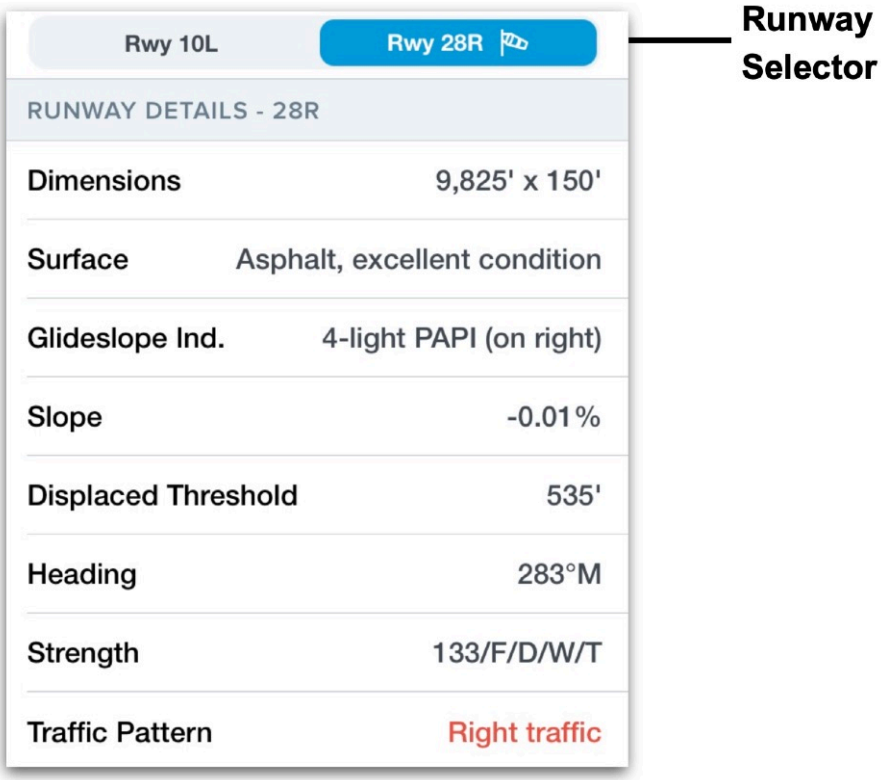


Figure 13-47. Runway Details

> **Dimensions**
>
> Runway length and width.

Surface

Runway surface material and condition.

Glideslope Ind.

Lists VASI, PAPI, or other visual descent guidance systems, along with position relative to the runway. In the absence of a VGSI, the entry is None.

Slope

Lists the gradient or slope the runway end communicated as a positive or negative percentage. For example: the gradient is -0.24%, the runway height decreases by 2.4 feet for every 1000 feet of runway length.

IMPORTANT: The Slope section refers to terrain gradients and should not be confused with the Glideslope information above it.

Displaced Threshold

If the runway has a displaced threshold, a Displaced Threshold section is displayed and provides the position of the threshold beyond the start of the runway end.

Heading

Displays the magnetic heading of the runway.

Strength

Displays the ICAO pavement classification number and pavement classification ratings if available.

Traffic Pattern

Displays Right traffic if the runway is subject to a **right traffic** pattern.

13.5.3.3 Elevation

The Elevation section shows touchdown zone elevation in MSL for the threshold and touchdown zone of the runway.

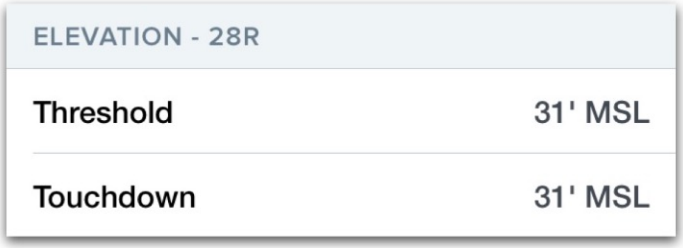


Figure 13-48. Runway Elevation

13.5.3.4 Declared Distances

Declared Distances contains the following:

> **Takeoff Run Available (TORA)**
>
> The length of runway available for an aircraft to accelerate from brake release to liftoff.

> **Takeoff Distance Available (TODA)**
>
> The TORA plus the length of any remaining runway or clearway beyond the far end of the TORA.

> **Accelerate Stop Distance Available (ASDA)**
>
> The length of runway available for an aircraft to accelerate to rotation speed and stop.

> **Landing Distance Available (LDA)**
>
> The distance available for landing.



Figure 13-49. Runway Declared Distances

13.5.3.5 Lighting

The Lighting section lists the type and intensity of the approach lighting system installed at the runway, as well as the edge lighting. If no system is installed, the entry is labeled with "None".

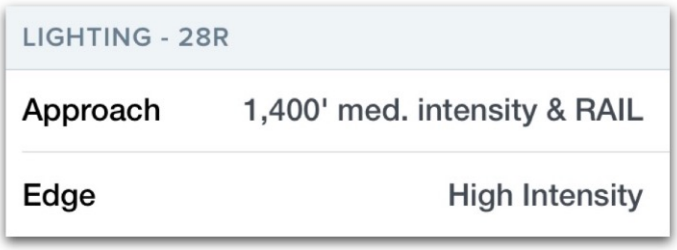


Figure 13-50. Runway Lighting

13.5.3.6 Procedures

The Procedures section lists any FAA, NavCanada, Eurocontrol, or Jeppesen approach procedures available for the runway, along with any custom procedures added by the user. Tapping a procedure name opens it in the Plates view. Tapping the **Send To Map** icon to the right of a procedure name opens it on the Maps view (only available to ForeFlight Mobile Essential, Business Pro, or Business Performance subscribers).

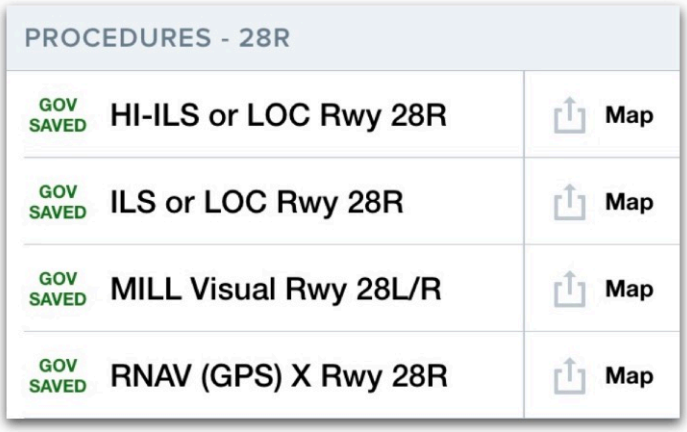


Figure 13-51. Procedures

13.5.3.7 Intersection

The Intersections section includes a list of runway intersections and the remaining usable takeoff distance from that intersection. Performance-tier subscribers with Runway Analysis licenses can use these intersections as part of their takeoff analysis.

> **NOTE:** The Intersections list may not include usable takeoff distance from all possible runway intersections.

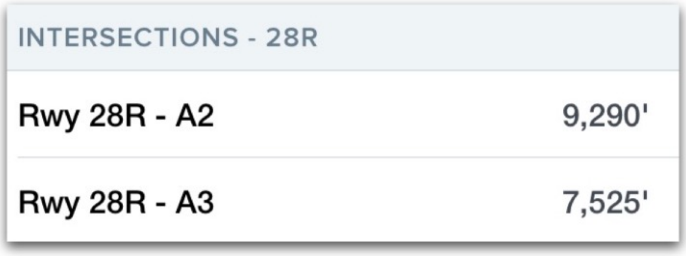


Figure 13-52. Runway Intersections

13.5.4 Procedure Tab

The **Procedure** tab displays terminal procedures for the selected airport. The left side shows four procedure categories: Airport, Departure, Arrival, and Approach. Tapping one of these categories displays its list of individual procedures on the right, subdivided by source: Jeppesen (if installed), ForeFlight, FAA, Nav Canada, and EUROCONTROL. The order of sources cannot be changed.

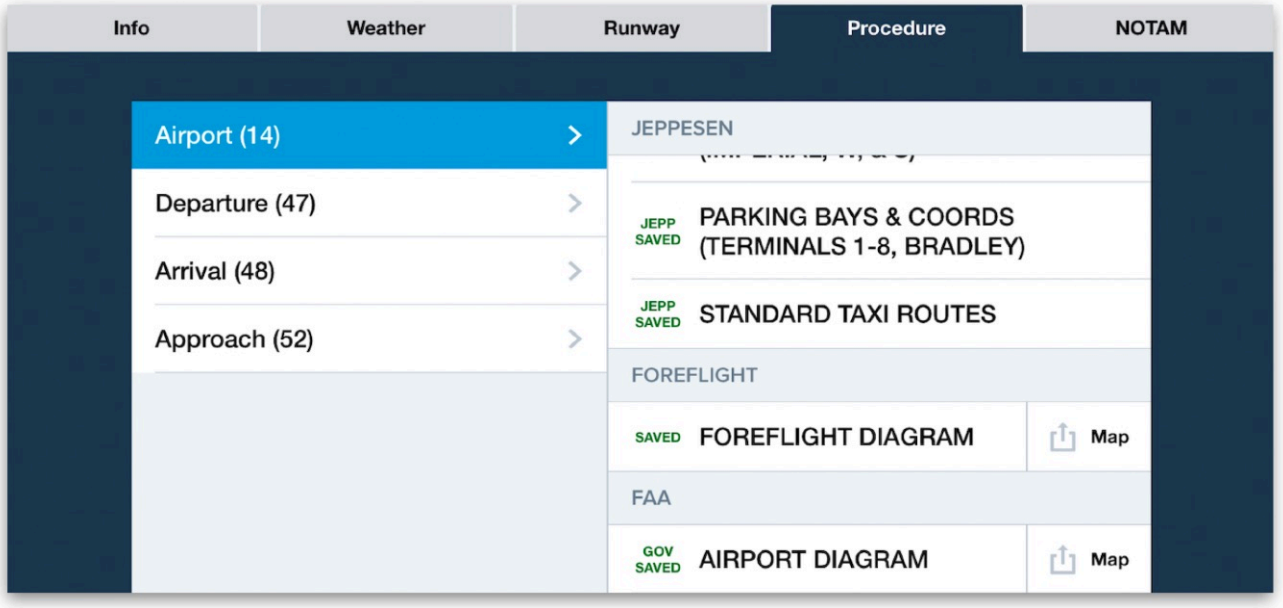


Figure 13-53. Airports View Procedure Tab

Procedures are marked as ***Saved*** or ***Not Saved***. Procedures marked *Saved (in green)* are downloaded locally on the device and are available when offline. By viewing a plate, it is downloaded to the device. Plates can be downloaded as part of an entire region download.

Tapping a procedure name opens it in the Plates view. Tapping the Send To Map icon to the right of the procedure name opens it on the Maps view (only available to ForeFlight Mobile Essential, Premium, Business Pro, or Business Performance subscribers).

> **NOTE:** Jeppesen charts may be downloaded and printed through the ForeFlight Web Airport page.

Airport

The Airport category includes publications about the airport environment such as airport diagrams, airspace diagrams, construction diagrams, taxi route diagrams, chart supplements excerpts, and notes on hot spots, takeoff minimums, and parking bays.

Departure

The Departure category includes the departure procedures and their related notes. When a departure procedure is restricted to aircraft with a particular propulsion type such as jet or piston, it is labeled with the aircraft propulsion system(s) to which applies.

Arrival

The Arrival category includes the arrival procedures and their related notes. When an arrival procedure is restricted to aircraft with a particular propulsion type such as jet or piston, it is labeled with the aircraft propulsion system(s) to which applies.

Approach

The Approach category includes the instrument approach procedures and their related notes.

Other

The other category includes special procedures, hot spots and other charts that do not fit into the prior categories.

13.5.5 NOTAM Tab

The **NOTAM** tab displays NOTAMs for the selected airport. The toolbar provides controls to filter NOTAMs by category, source, and activation time, as well as options to sort and pin items. NOTAMs are displayed in a list according to selected settings, and a dedicated search tool allows specific NOTAMs to be found by keywords, dates, or terms.

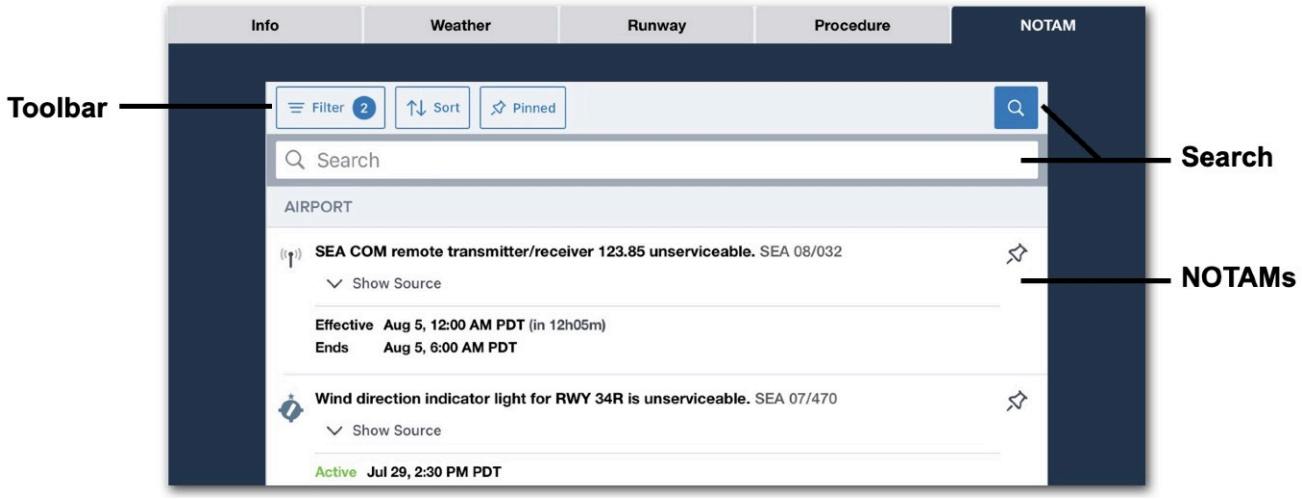
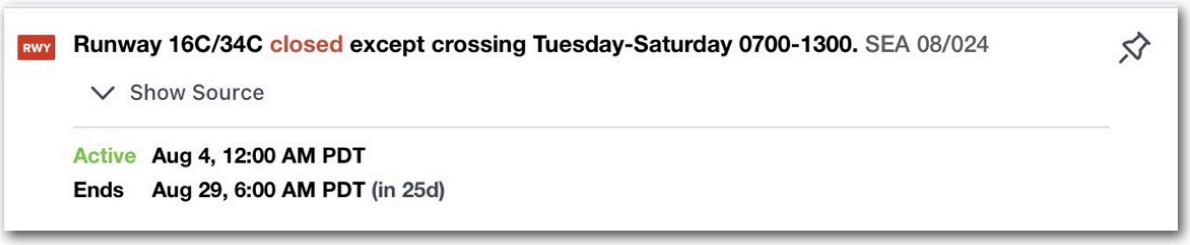


Figure 13-54. Airports View NOTAM Tab

13.5.5.1 NOTAMs

Individual NOTAM rows display the NOTAM number, text, effective date, expiration date, and duration if applicable, as well as an icon conveying the NOTAM type (such as runway, taxiway, obstacle, airspace, or navigation). If a NOTAM communicates a closure or out-of-service message, certain keywords will be in red text.

Double tap on the NOTAM to expand or collapse the text.



13.5.5.2 Filtering NOTAMs

NOTAMs can be filtered by NOTAM category, source, and activation time. An active filter will be displayed as a solid **blue** button.

Any combination of categories can be selected. NOTAMs may be filtered by:

- **Airport**
- **Runway**
- **Taxiway**
- **Procedures**

- **Airspace**
- **Obstacle**
- **TFR**
- **Jeppesen**
- **Other**

Tap a NOTAM category button of show or hide that category in the NOTAM view. Tap **Select All** or **Deselect All** to change all filter options at once.

NOTAM sources are **Local** or **Regional**. At least one NOTAM source must be selected. Tap a source to show or hide NOTAMs from a source.

Filter NOTAMs by activation time to show currently active items or expand the list to include all available NOTAMs. To set a time filter, tap and hold the white circle, then drag it to to the desired time frame.

Tap **Reset** to return filters the the default parameters.

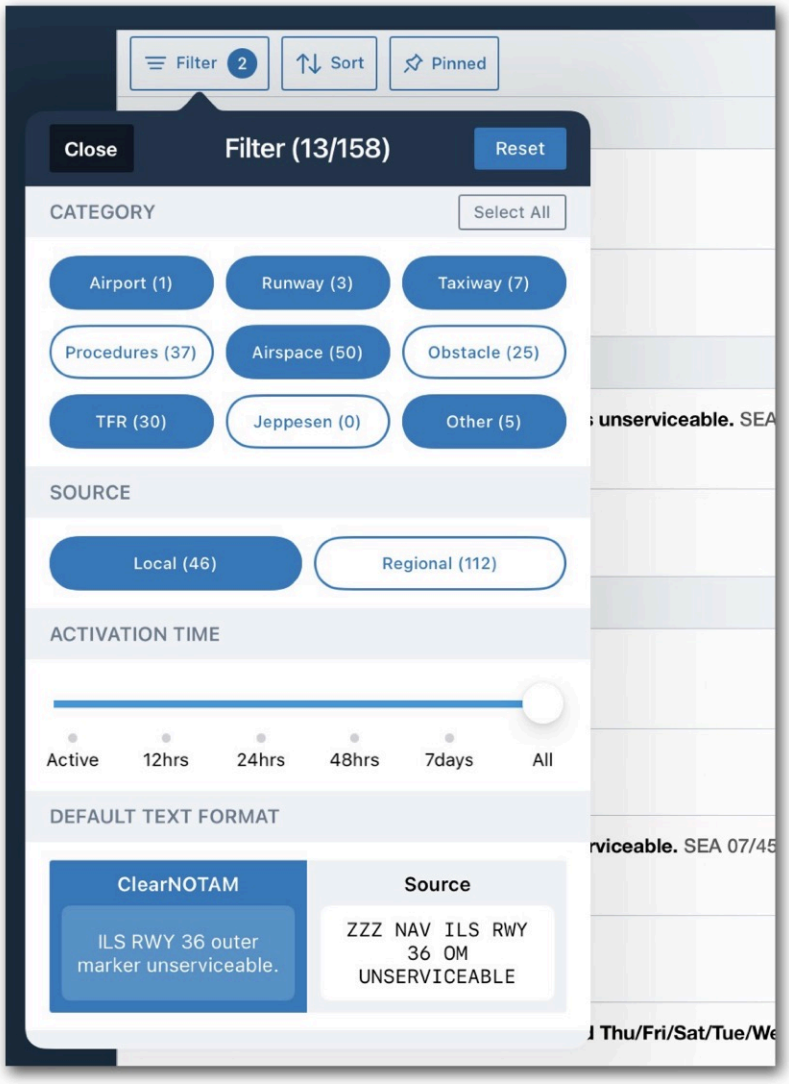


Figure 13-55. Filter

13.5.5.3 Sorting NOTAMs

Customize the order of NOTAMs to quickly prioritize time-critical information during preflight planning or in-flight updates. Sort by selections are:

- Category
- Last Updated
- Date Effective (Newest)
- Date Effective (Oldest).

Tap a check box to sort NOTAMs.

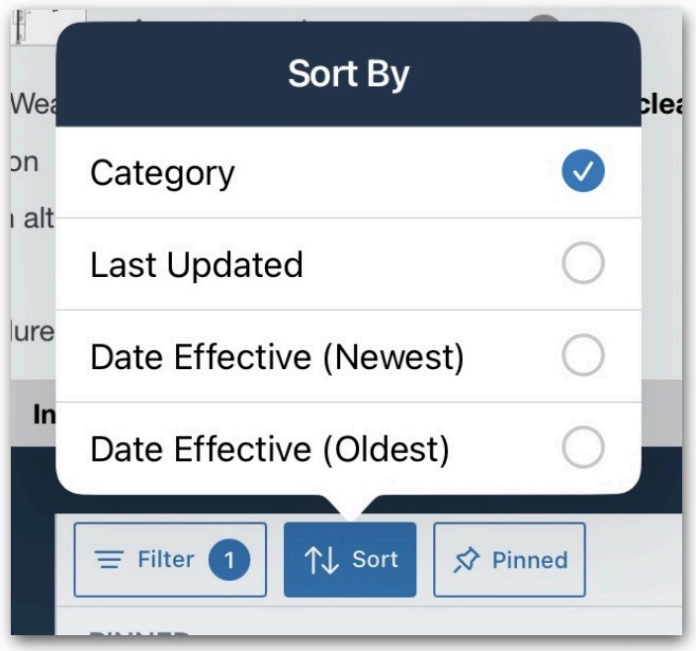


Figure 13-56. Sorting NOTAMs

13.5.5.4 Pinning NOTAMs

Pin high-priority NOTAMs to keep them anchored at the top of the list for fast access. Tap the Pin symbol on the NOTAM view to pin it to the top of the list. Tap the pin again to remove it.

To show only pinned NOTAMs in the NOTAM view, tap the **Pinned** filter button in the toolbar.

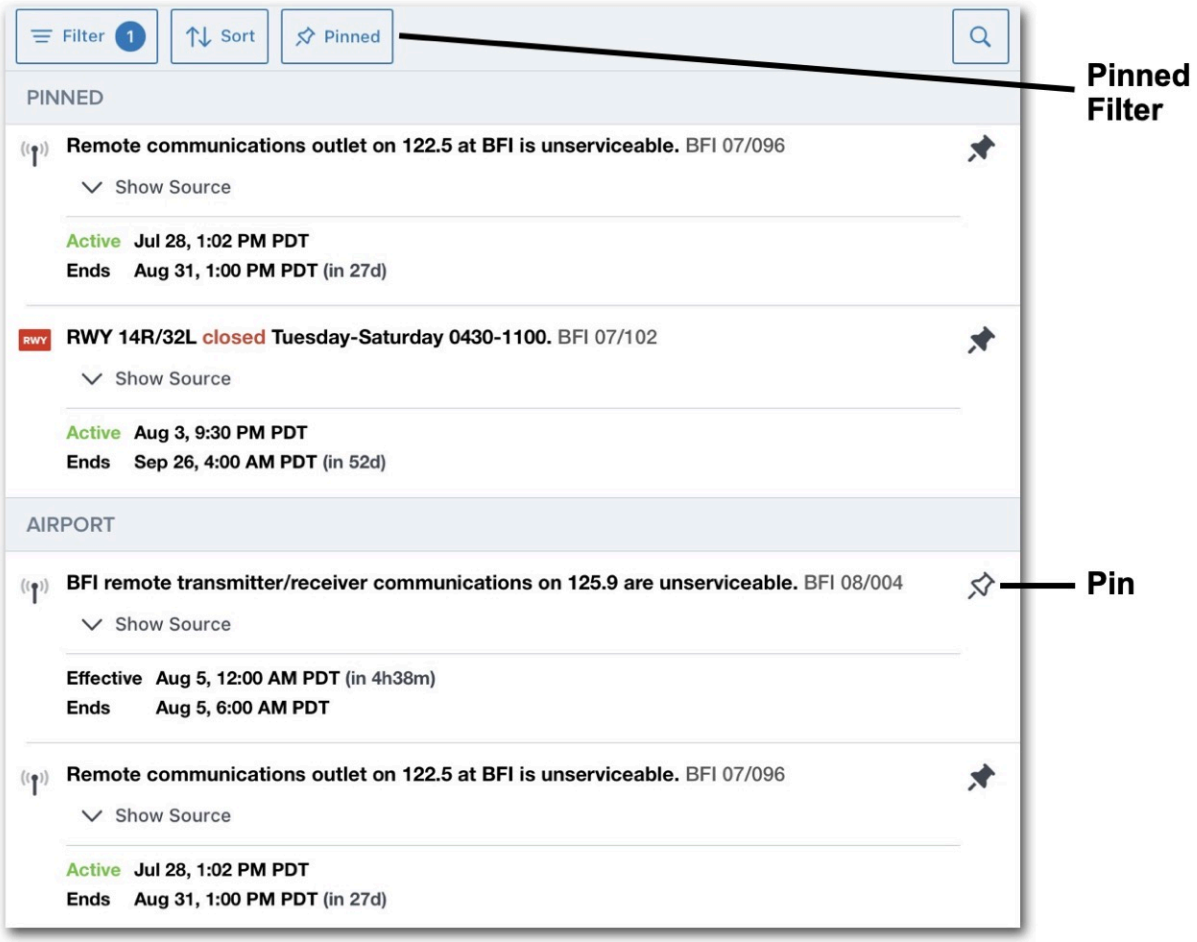
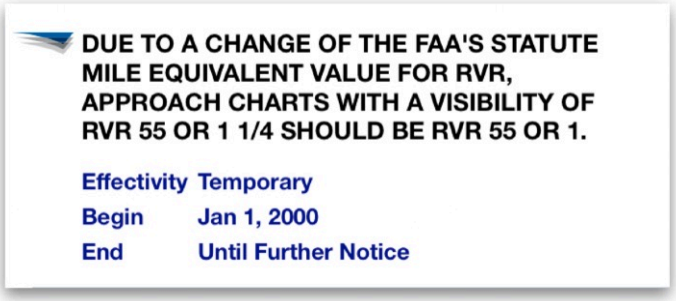


Figure 13-57. Pinning NOTAMs

13.5.5.5 Jeppesen NOTAMs

Jeppesen NOTAM rows display the NOTAM effectivity, beginning and ending dates, and text. All Jeppesen NOTAMs display the Jeppesen icon regardless of their subject.



13.5.5.6 ClearNOTAMs

ClearNOTAMs provide AI-translated summaries of NOTAMs to convey the essential meaning in plain English.

To set a default text format, tap Filter, then tap the desired format. All NOTAMs in ForeFlight Mobile will be displayed in the selected format.

> **NOTE:** PDF briefings do not support ClearNOTAMs.

Tap **Show Source** directly below any translated NOTAM to view and compare the original authoritative text side-by-side.

If an inaccurate translation is noticed, tap the **Report Translation Error** button to notify the ForeFlight team immediately.

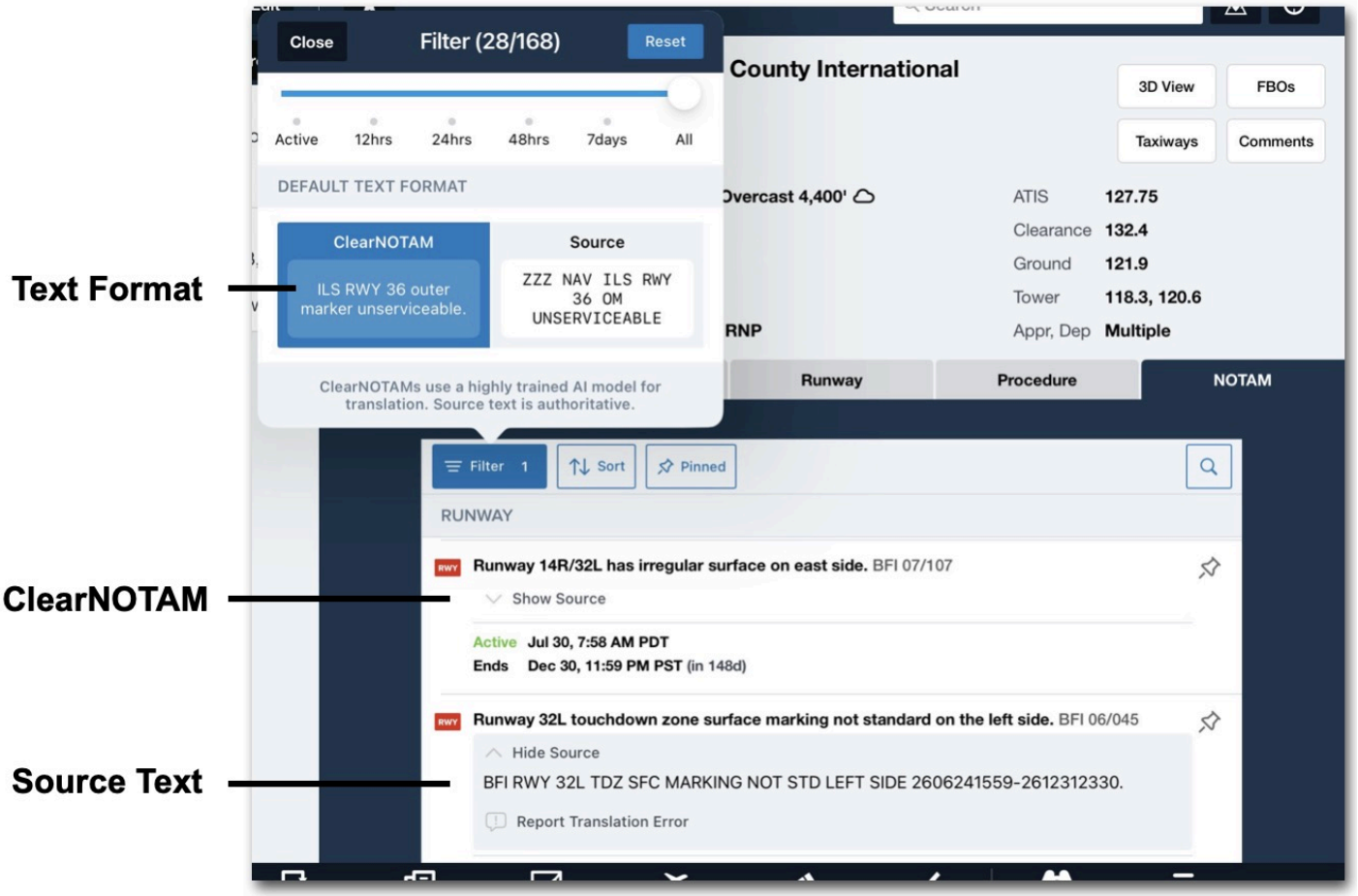


Figure 13-58. ClearNOTAMs

MAPS

The Maps view is primarily used for planning flights and is an aid to situational awareness while in flight. The Maps view can display airspace, weather, terrain, traffic, aeronautical information, aeronautical charts, terminal procedures, planned routes, custom content, and more.



Figure 14-1. Maps View

14.1 Design

Access the Maps view by tapping **Maps** in the navigation toolbar at the bottom of the screen. Buttons in the upper toolbar control what is displayed on the map.

Aeronautical information is displayed in a collapsible sidebar on the right side of the screen. Filters on the left side of the screen allow map features to be toggled on and off.

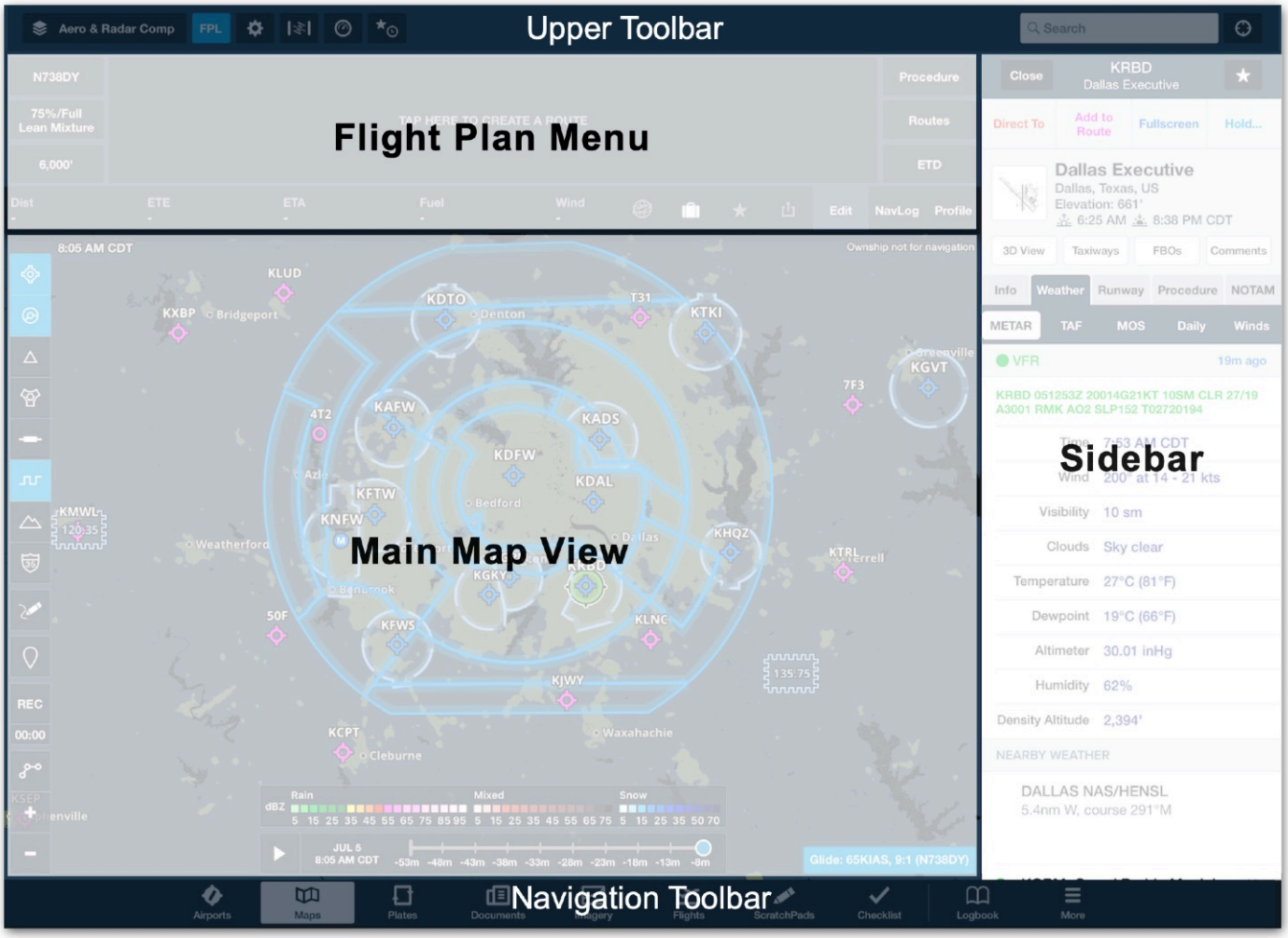


Figure 14-2. Maps View Design

14.1.1 Upper Toolbar

The upper toolbar contains a drop-down layer selector and buttons for toggling different features.



From left to right, the upper toolbar consists of:

Map Layer Menu

Displays a drop-down map layer selector. The items selected in the drop-down menu are displayed on the main map view. The map layer menu contains charts, maps, weather layers, aeronautical information, and custom content. When map layers are enabled, the names of the selected layers are displayed in the map layer menu button.

FPL Button

Toggles the Flight Plan (FPL) menu. The FPL menu is used to plan routes, display the Navlog, and display Profile View.

Map Settings

Toggles the Map Settings menu. Maps settings are used to customize the look of the map.

Attitude Information/Synthetic Vision

Toggles the Attitude Indicator. The attitude indicator displays GPS track, altitude, ground speed, climb or descent rate, and pitch and bank if connected to an external device with an attitude (AHRS) sensor.

Instrument Panel

Toggles the Instrument Panel on and off. The instrument panel is located at the bottom of the Maps view. The instrument panel displays user-selected flight details.

Favorite and Recent Routes

Toggles the recent and favorite routes menu.

Search Bar

Search bar for searching points of interest, aeronautical data, routes, and more.

Auto-Center Button

The auto-center (crosshair) button centers the map on the current location. See Auto Center for more information. When auto-center is activated:

- The button is highlighted and a compass symbol will appear below the auto-center button on the map.
- Clicking the compass button will cycle the map and compass symbol between track-up and North-up orientation.



Figure 14-3. Track-Up Compass

14.1.1.1 GNSS Availability Indication

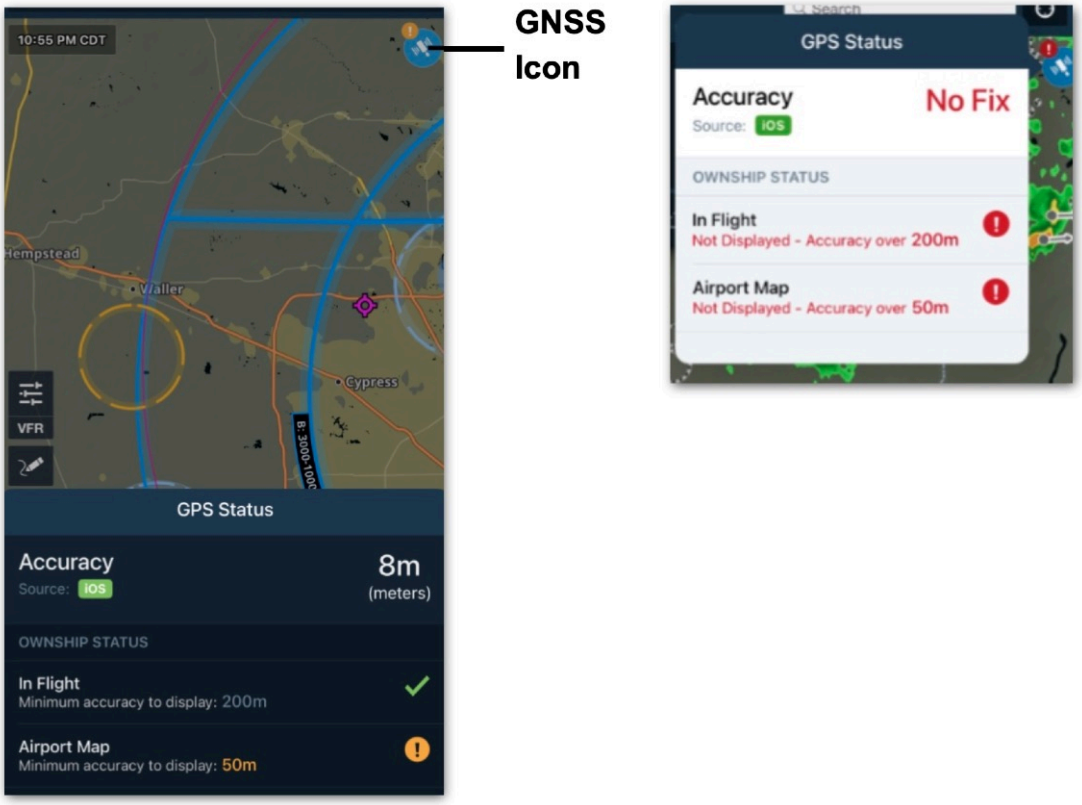
The GNSS icon, displayed in the top right corner of the map, plates view, and active navlog, provides an indication of GNSS signal integrity. A color-coded status symbol is displayed at all times above the GNSS icon.

- **Orange**: GNSS accuracy exceeds 5 meters on the ground, 20 meters in flight.
- **Red** : data missing or a degraded signal.

Tap the icon to reveal additional GNSS Status details. When **Limited** has been selected in Settings (**More ➔ Settings ➔ Preferences ➔ Enable Ownship**), enabled mode (**In Flight** or **Airport Map**) details are displayed. The connected GPS source is displayed.

Accuracy will read "No Fix" if GNSS data has not been received for 5 seconds or the accuracy exceeds the limits for the phase of flight. When this occurs, the ownship marker is hidden and the auto-center button is disabled.

NOTE: Requires Business Pro, Business Performance, or EASA Compliance license.



14.1.2 Flight Plan Drawer

The Flight Plan Drawer contains three views. To access the drawer, tap the **FPL** button in the upper toolbar. The three buttons used to access the views are:

Edit: Displays the Flight Plan Editor.

NavLog: Displays the navlog for the planned route.

Profile: Displays the Profile View (Essential subscription or higher required).

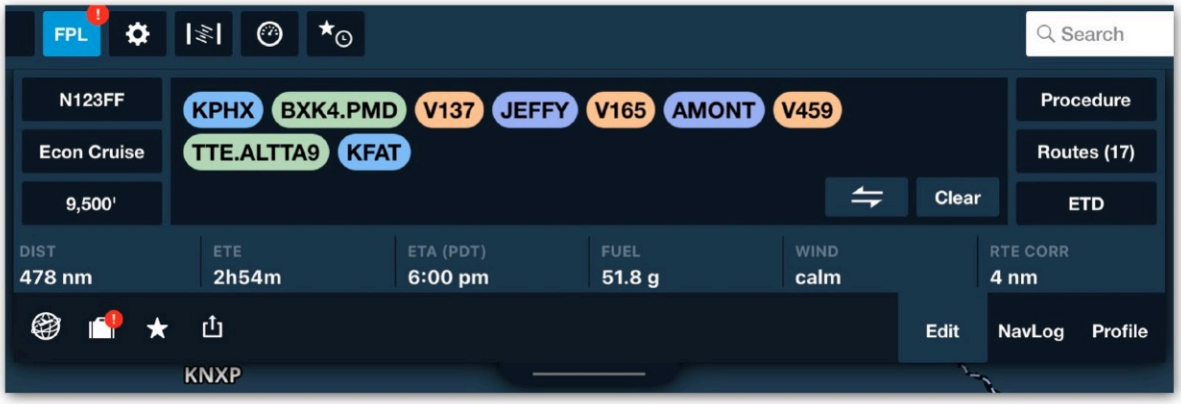


Figure 14-4. Flight Plan Editor



Figure 14-5. NavLog View

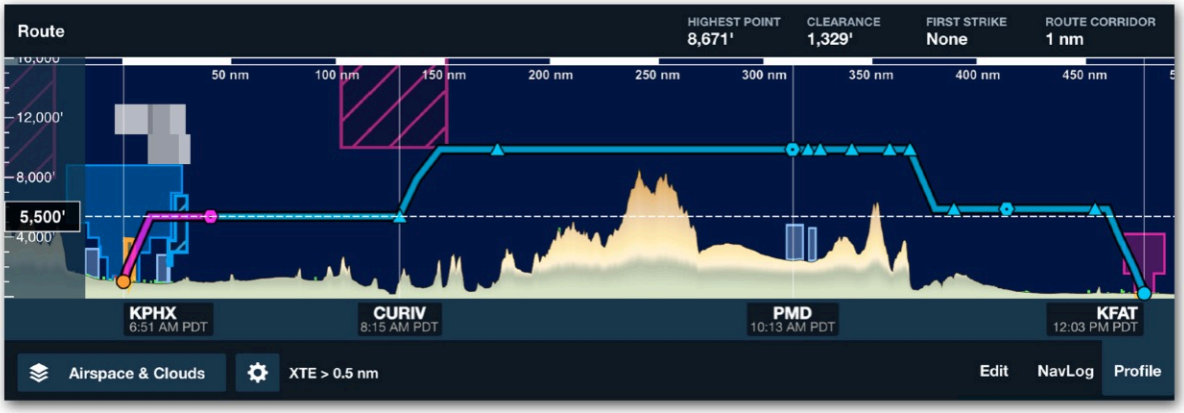


Figure 14-6. Profile View

For more information, see Flight Plan Drawer for additional information.

14.1.3 Maps Sidebar

The sidebar appears with a single map element tap or when the map is tapped and held. The sidebar remains open until a blank area of the map or the **Close** button is tapped.

When a map element is tapped (airport, waypoint, navaid) a green marker highlights the selected element. When a geographic element such as airspace is tapped and held, the airspace is highlighted in green. See Sidebar for more information.

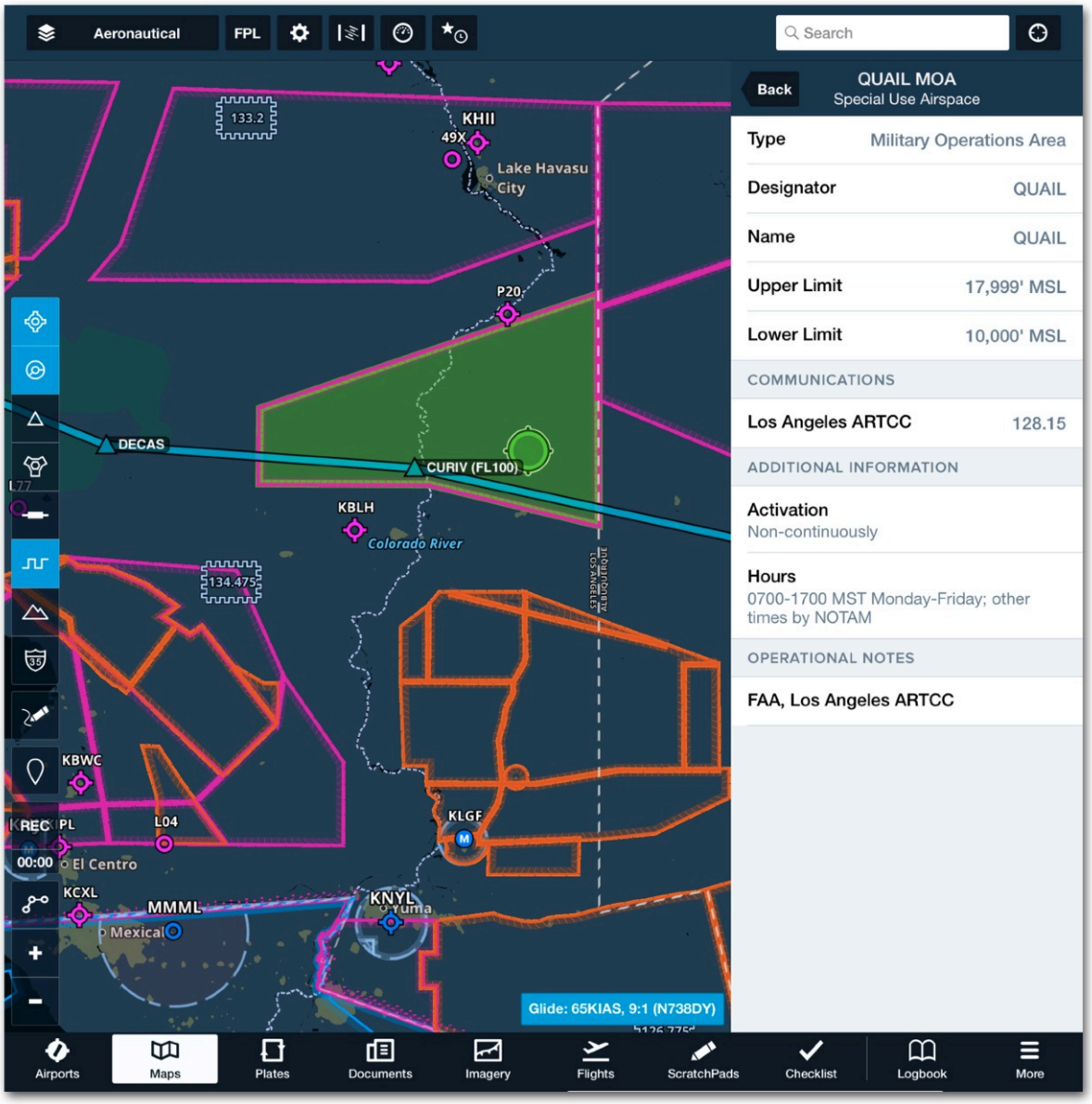


Figure 14-7. Maps Sidebar (Special Use Airspace)

14.1.4 Main Map View

The main map view displays the layers selected in the map layer drop-down menu. When no map layers are selected, the base map is displayed. Base map appearance can be adjusted by tapping the **map settings** (gear button) and changing the options in the ForeFlight Map section.

The map view does not resize as the FPL menu, sidebar, instrument panel, or layer selector menus are toggled. The map automatically resizes when the attitude indicator is toggled on and off.

14.1.4.1 Pinch, Zoom, Pan

The map supports standard iPad gestures for zooming and panning.

- Drag a finger on the map to pan to a new region.
- Use two fingers in a pinch or expand motion to adjust the zoom level.
- Double-tap and hold on the second tap, then drag up or down to adjust the zoom level.
- Double-tap the map to zoom in one level.
- Tap once with two fingers simultaneously to zoom out one level.

When a new route is displayed, the map automatically adjusts the zoom level and region to bring the route into view. To manually reset the view, tap **Zoom to Route** in the lower-left corner of the Maps screen.

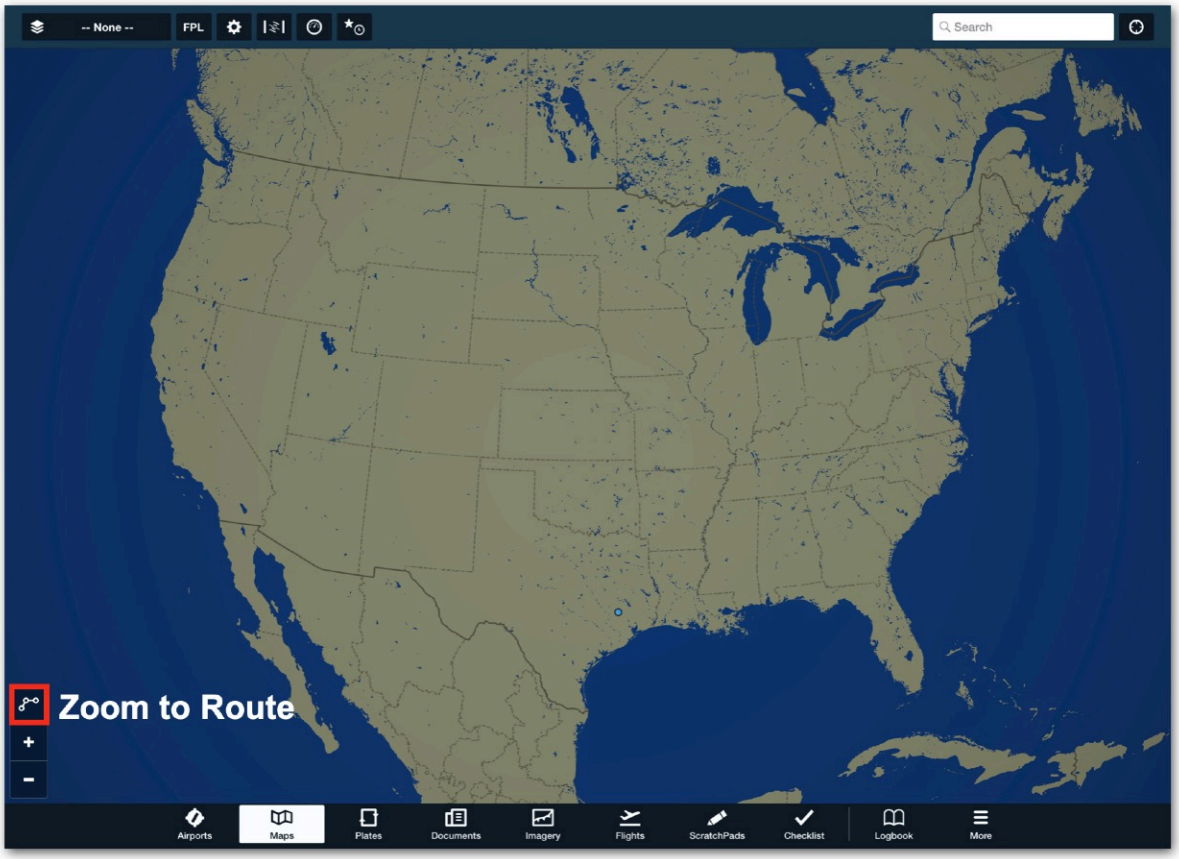


Figure 14-8. ForeFlight Base Map

14.1.4.2 Map Layer Menu

Various map layers are selectable from the **map layer menu**. Available layers are determined by subscription, region, and download selections. If a feature is not included in the subscription plan or if it is not selected for download, it is hidden in the drop-down menu.

Map layers are grouped with thin horizontal lines. Charts and weather layers can only display one active layer at a time. Selecting a map layer in a group with an already active layer may result in automatically deselecting the active layer. For example, selecting the satellite layer automatically deselects radar if the radar layer is enabled.

The map layer menu is dismissed each time a map layer is selected. To make multiple selections without dismissing the map layer menu, enable Multiple Selections in the Map Settings menu.

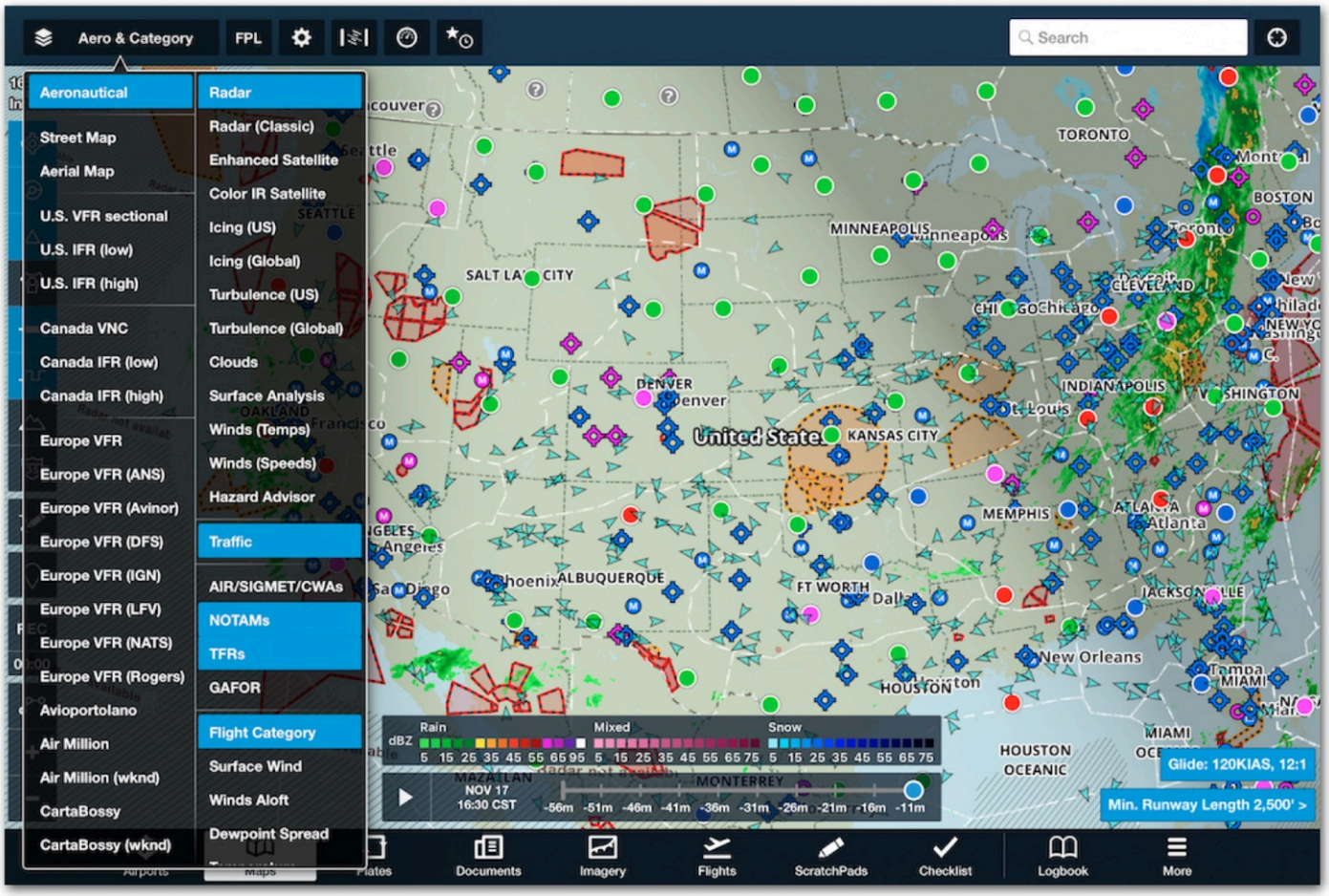


Figure 14-9. Premium Map Layer Menu

When downloading ForeFlight Mobile for the first time, a low-resolution base map is automatically downloaded and available offline. The base map includes basic geographic features and is displayed when no other layers are selected. All charts and map layers are overlaid on the base map.

14.2 High-Resolution Base Map

The high-resolution base map displays ground features and cultural elements in greater detail than the default base map. Features include:

- High-resolution roads and railroads
- Detailed coastlines
- Terrain peak markers with altitudes
- Mountain peaks
- Mountain passes
- Highway labels.

Individual base map elements can be toggled on or off in **Map Settings ➔ Cultural Elements**.

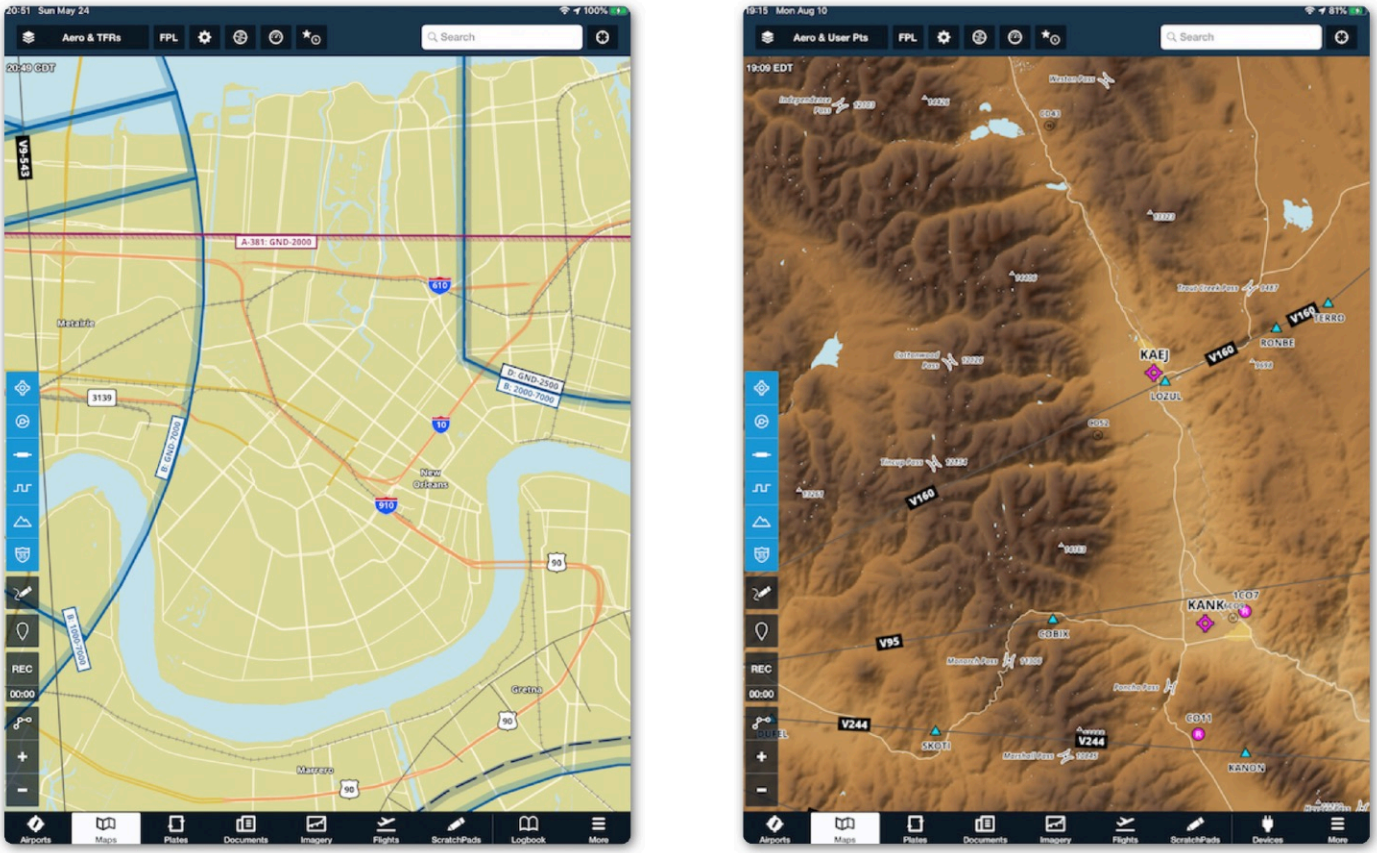


Figure 14-10. High-Resolution Base Map and Terrain

14.2.1 Enabling the High-Resolution Basemap

The high-resolution base map is not displayed automatically. To enable it:

1. Go to **More → Downloads → Data Settings**.
2. Select the data for the desired regions.
3. Download the high-resolution base map.

Once downloaded, the high-resolution base map is automatically displayed when no other charts are selected.

14.3 Aeronautical Map

ForeFlight's Aeronautical Map displays (Jeppesen-sourced) digital aeronautical data. The Aeronautical Map dynamically updates to display the most relevant information as it is panned and zoomed. Enable the Aeronautical map with the **layer selector menu** in the upper left corner of the Maps view.

Individual aeronautical elements (e.g., navaids, airports, and airspace) can be displayed or hidden. See Aeronautical Settings for additional information. The Aeronautical map must be enabled to adjust its settings.

Updates to the Aeronautical Map are made available every 28 days (or sooner) as part of the Airport and Nav Database. The Aeronautical map is automatically overlaid on all other maps and charts.



Figure 14-11. Aeronautical Map

14.3.1 Aeronautical Map Features

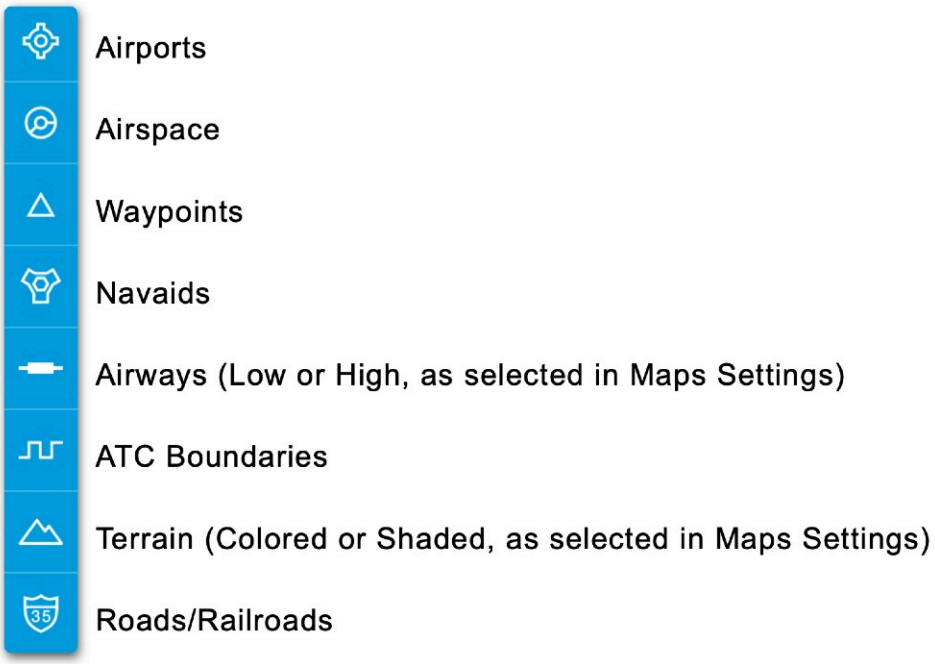
The Aeronautical Map includes the following features.

- **Continuous Zoom**: Icons, shapes, and text labels smoothly fade in and out as the zoom level changes, in contrast to traditional (raster) charts which have to re-render at certain zoom levels to maintain their clarity.
- **Decluttering**: The information shown on the map changes along with the zoom level, with large-scale features like ARTCC boundaries and major airports appearing when zoomed out and small-scale features like waypoints, VORs, and smaller airports appearing when zoomed in. This prevents the map from cluttering and ensures that the most relevant information at any zoom level is shown.
- **Automatic Airspace Highlighting**: Automatically highlights airspace within an altitude of +/- 1,000’ and a 1-nautical mile corridor of the planned route, and dims all other airspace to reduce clutter. When determining which airspace to highlight, climb, cruise, and descent trajectory are considered. In-flight, airspace ahead of the current track is highlighted. Automatic airspace highlight settings are available in **Airspace Settings → Airspace**.
- **Always-Up Labels**: Labels for airports, waypoints, and other map features always appear in the proper orientation, even when the rest of the map is upside down, as when flying south in Track Up mode.
- **Customizable Data**: The data shown on the map can be customized to the type of planning or flying conducted. Airspace can be turned on or off, airways can be set to high or low IFR, and ARTCC borders, heliports, and private airports can be toggled on or off. See Aeronautical Settings for more information.
- **Adjustable Text Size**: The text size of labels for every map element can be adjusted using a slider. See Text Size Adjustment for more information.
- **Single Tap**: When the Aeronautical layer is enabled, single tap a map element to open the sidebar and display information about the element.
- **Embedded Airport Diagrams**: ForeFlight airport diagrams are directly integrated with the Aeronautical Map. Airport diagrams automatically fade in and out with zoom. Embedded airport diagrams include runways, taxiways, hold pads, FBO labels, towers, windsocks, and parking areas.

14.3.2 Aeronautical Map Quick Filters

A column of toggle buttons enables and disables Aeronautical Map features. The buttons display when the **Quick Filter** button (Looks like 3 sliders) is tapped, see Aeronautical Settings. Tap a quick filter button to show/hide the feature.

Aeronautical quick filters are:

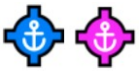


14.3.3 Aeronautical Map Symbols

The following symbols are shown on the Aeronautical Map layer.

> **NOTE:** For VFR flight-specific elements on the Aeronautical Map Layer, see VFR Aeronautical Map Symbols.

Symbol	Meaning	Symbol	Meaning
	Civil Airports **with** Services (with and without tower)		Civil Airports **without** Services (with and without tower)
	Military Airports (with and without tower)		Private Airports (with and without tower)

Symbol	Meaning	Symbol	Meaning
	Seaplane Bases **with** Services (w/ and w/o tower)		Seaplane Bases **without** Services (w/ and w/o tower)
	Glider Airfield		Hang Glider Airfield
	Balloon Airfield		Ultralight Airfield
	Heliports (light map color scheme)		Heliports (dark map color scheme)
	Helipad		Model Flights
	Standard fix		RNAV fix
	Standard fix (Compulsory)		RNAV Fix (Compulsory)
	VOR Navaid		DME Navaid
	VOR/DME Navaid		VORTAC Navaid
	NDB Navaid		NDB/DME Navaid
	FBO Location (on ForeFlight airport diagram)		
	ADIZ		ARTCC Boundary
	Class B/TMA/CTA Airspace		Class B Altitude (U.S.A)
	Class C Airspace		Class C Altitude (U.S.A)

Symbol	Meaning	Symbol	Meaning
	Class D Airspace	45	Class D Altitude (U.S.A)
	Class E to Surface (U.S.A)		Mode C (U.S.A)
	TRSA (U.S.A)		SATR Area (U.S.A)
	CTR		MOA/Alert/Training Airspace
	RMZ/TMZ		ATZ/TIZ/TIA
	MATZ		TSA/TRA
	Caution/Warning/Danger Airspace		Prohibited/Restricted Airspace
	Other Airspace		Parachute Areas
V553	VOR Airways/Jetways	T344	RNAV Routes
B: 2000-7000	Global Airspace Altitude Labels		ARTCC Sector Stamps
V163 (3,500')		Airway ID (MEA)	
V163 (3,500'/ 94°M)		Airway ID (MEA / Heading based on route)	

14.3.4 VFR Aeronautical Map Symbols

The following VFR elements are found in the U.S., Canada, Europe, Australia, and South Africa. See Aeronautical Settings for details.

Symbol	Meaning	Symbol	Meaning
	VFR Waypoint / Tracking Point		VFR Waypoint / Checkpoint
	VFR Checkpoint		VFR Waypoint (Compulsory) - En route Reporting Point

Symbol	Meaning	Symbol	Meaning
	VFR Helicopter Waypoint		VFR Helicopter Waypoint (Compulsory)
	Landmarks / Windsocks		HIRTA (High Intensity Radio Transmission Area)
	Low Point		Bird Refuge
	FIS Boundary		VFR Arrival
	VFR Departure		VFR Arrival & Departure
	VFR Flight Corridors		IFR Flight Corridors
	Helicopter Procedure		VFR Transit Route
	Traffic Circuit (Non-standard aircraft)		Traffic Circuit
	Directional Traffic Circuit (Non-standard aircraft)		Directional Traffic Circuit
	Nature Area		No Overfly Area
	Fuel		Parking
	Tower		Cashier
	Beacon		Tower (Lit)

14.3.5 Airspace Alerts

Airspace Alerts are an optional feature that provide app-wide audible and visual alerts for approaching, entering, and exiting airspace. When an approaching airspace alert is issued, the corresponding airspace on the Aeronautical Map is also highlighted green. Airspace Alerts are enabled by default. For more information, see the Alerts chapter.

14.3.6 ATC Boundaries

The Aeronautical Map includes global (high and low) ARTCC and FIR boundaries. To display these boundaries, enable the Show Boundaries setting using the ATC Boundary Settings menu or toggle the Air Traffic Control (ATC) quick filter on.

14.3.6.1 Displaying ATC Sectors

The Aeronautical Map also includes EUROCONTROL Area Control Center (ACC) and Upper Area Control Center (UAC) ATC sector boundaries. To display these boundaries:

1. Open the ATC Boundary Settings menu.
2. Tap **ATC Boundaries** .
3. Toggle the **ATC Sectors** setting on.

> **NOTE:** ATC Sectors are only available for EUROCONTROL airspace.

14.3.6.2 Displaying ATC Details

ATC details, such as upper and lower altitude limits, operational notes, RVSM, and communication details can be accessed in the sidebar. To reveal airspace details:

1. Tap and hold on the map.
2. Locate the airspace of interest in the Airspace section.
3. Tap **Details**.

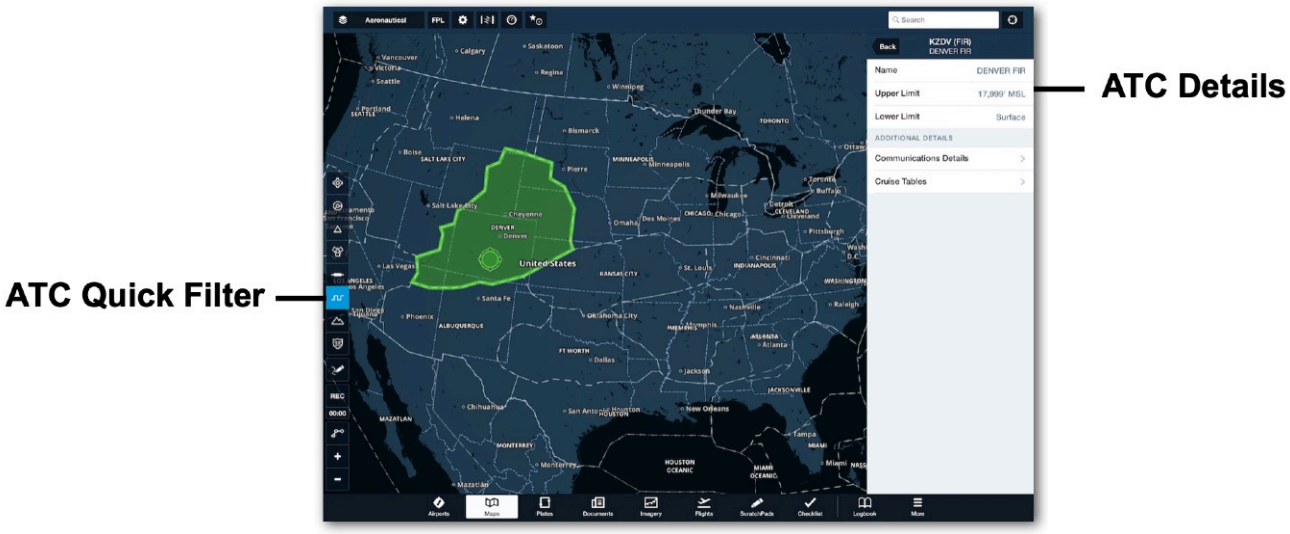


Figure 14-12. ATC Boundaries

14.3.7 European Airspace

With a Europe subscription, the Aeronautical Map includes Jeppesen's European VFR navigation and airport data in addition to IFR data, supporting both VFR and IFR flying in Europe.

Data includes VFR Waypoints (Standard and Helicopter), VFR Procedures including Entries & Exits, Traffic Circuits, Holds, No Overfly Areas, Nature Areas, Bird Sanctuaries, and Model Flight Areas.

These examples show how the airspace is depicted at various levels of zoom, all the way from the Airport level showing the location of Parking, Fuel, and the Cashier, up to large areas of airspace, including FIR boundaries.

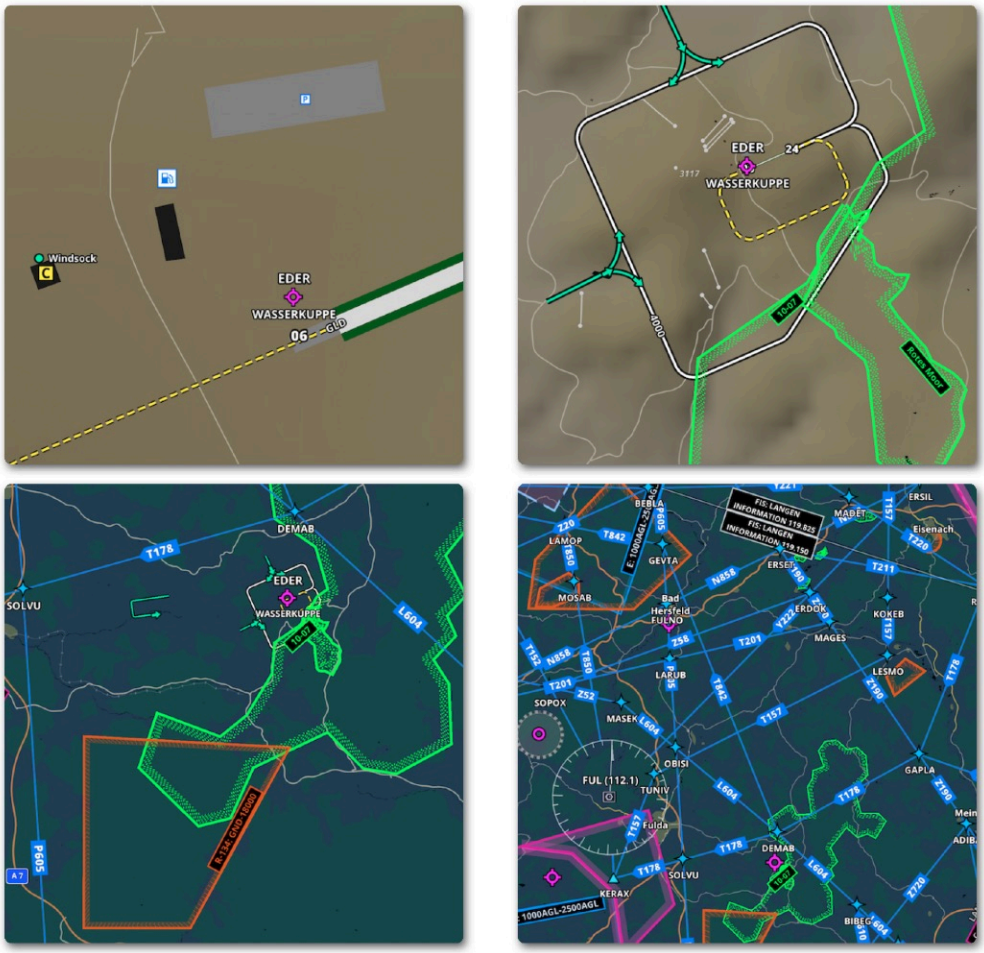


Figure 14-13. European Airspace

14.4 Charts

Charts are selected from the left column of the map layer dropdown menu. The charts column includes the Aeronautical Map, Street Map, Aerial Map, all downloaded published charts based on subscribed regions, and any custom charts.

The following chart types are available:

- **Aeronautical Map**: Displays Jeppesen-sourced digital aeronautical data. This map dynamically updates to show the most relevant information as the map is panned and zoomed.
- **Street Map**: A global street map provided by a third-party service (OpenStreetMap). The map displays increasing detail as the view is zoomed in. It is only available when connected to the Internet and cannot be downloaded.
- **Aerial Map**: A global satellite-based imagery map that includes street data. Provided by a third-party agency, it is available only when connected to the Internet. Imagery may be outdated due to the infrequency of satellite updates.
- **VFR Charts**: Charts designed for visual flight rules (VFR) at various scales, ranging from 1:1,000,000 to 1:250,000. Chart availability depends on the region, and some charts may require additional fees due to licensing.
- **IFR**: Includes low and high instrument flight rules (IFR) en route charts.
- **Helicopter Charts**: Charts specifically designed for helicopter operations, providing enhanced detail for low-level flight. These charts must be enabled via **More ➔ Downloads ➔ Data Settings** to appear in the layer selector.
- **Specialty Charts**: Includes additional chart types such as IFR Planning and Oceanic charts. These must also be enabled via **More ➔ Downloads ➔ Data Settings**.
- **Custom Charts**: Charts added through the Custom Content feature. These appear below other charts in the list. Refer to Custom Content for details on creating and importing custom files.

14.5 Map Layers

Map layers are selected from the right column of the layer menu. The available layers are dependent upon ForeFlight Mobile subscription, region, and external device connection. If a subscription, region, or connected external device does not include a product, it is hidden from the layer menu. For example, if not connected to an external device that provides SiriusXM data, the SiriusXM weather layers are hidden.

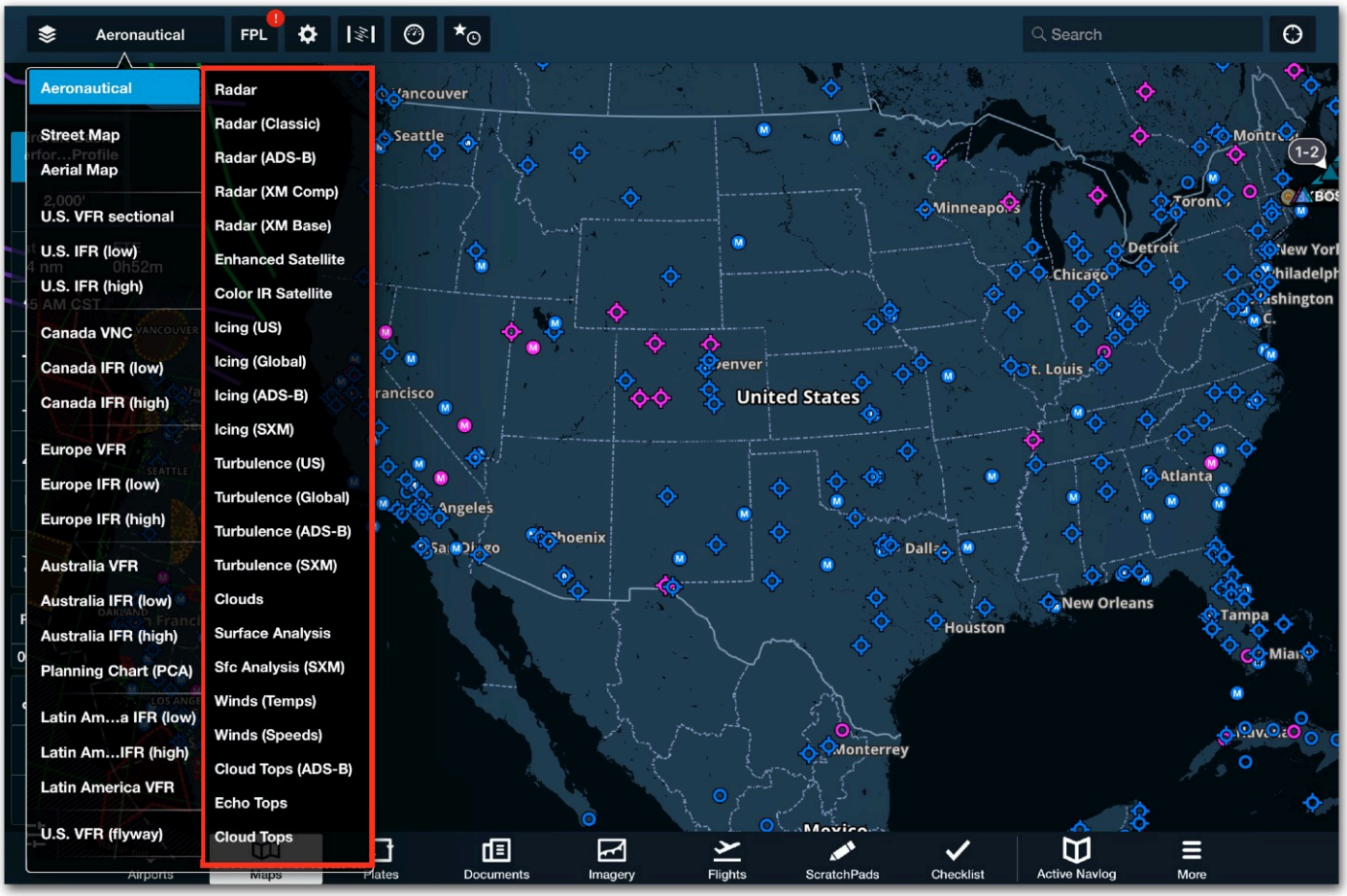


Figure 14-14. Map Layers

14.5.1 Map Layer Sections

The Map Layer menu is divided into multiple sections. Sections are defined by thin horizontal lines. Most sections only allow one map layer to be selected at a time.

Map layers can be selected at any time. However, they will only display updated information if the corresponding internet, ADS-B, or SiriusXM connection is available.

For example, when connected to a Sentry, the ADS-B layers can be selected, however, they will not display data until the device is receiving ADS-B data from a ground-based tower.

The remainder of this section describes each map layer available in ForeFlight Mobile.

14.5.2 Radar Layers

Radar imagery is generated from ground-based stations. Composite or lowest tilt angles returns are shown depending on the layer selected. The maximum echo reflectivity from all radar tilt angles is compiled to generate a composite image. Reflectivity, measured in decibels, corresponds to the intensity of precipitation. The radar image is displayed on the map when the following map layers are selected:

- **Radar**: Internet-based composite radar layer that offers timely updates, smooth graphics, and a representation of the extent of coverage.
- **Radar (Classic)**: Internet-based composite radar layer that can be used as an alternative to the newer radar layer.
- **Radar (Lowest Tilt)**: Internet-based radar layer that displays .5° tilt angle returns.
- **Radar (ADS-B)**: Composite radar layer for in-flight radar.
- **Radar (XM Comp)**: Composite radar layer for in-flight radar.
- **Radar (XM Base)**: Source of in-flight radar that displays returns from the lowest tilt angle.

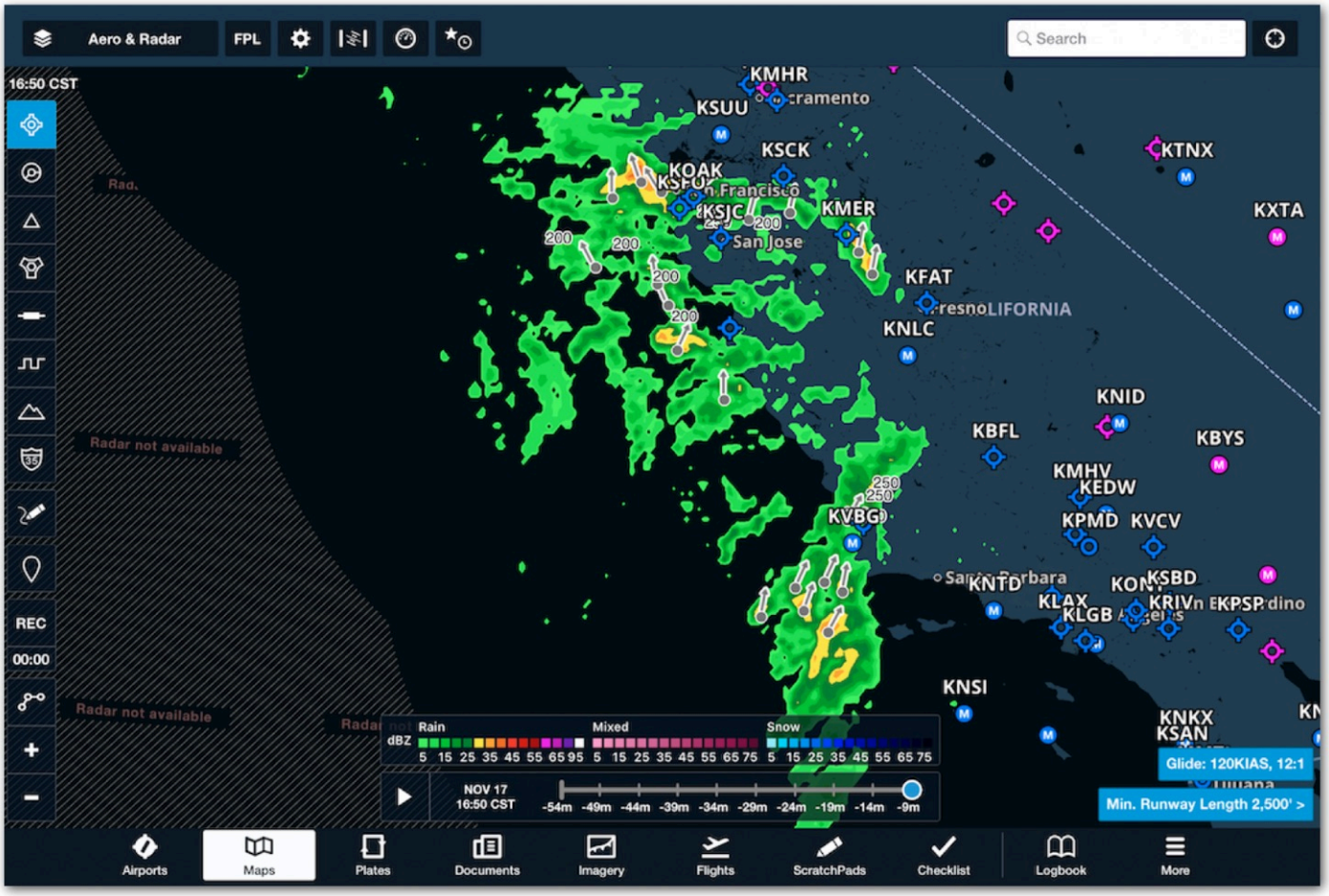


Figure 14-15. Radar (Internet)

14.5.2.1 Types of Radar

ForeFlight Mobile offers a choice of five types of radar. Each radar type displays the intensity, location, movement, and type of precipitation (with varying resolutions).

ADS-B and SiriusXM Radar require a supported external device.

Table 14-3. Radar Map Layer Types

	Radar and Radar (Classic)	Radar (ADS-B)	Radar (XM Comp)	Radar (XM Base)
Source	Internet	ADS-B	SiriusXM	SiriusXM
Resolution	High	Low	Medium	Medium
Type	Composite	Composite	Composite	Lowest Tilt

14.5.2.2 Radar Color Scale

ForeFlight Mobile displays precipitation type and intensity using a graduated color scale. Display the color scale on the map by enabling the Map Legend setting and selecting a Radar map layer. The Radar (Classic) layer uses a separate color scale for its weather imagery.



Figure 14-16. Graduated Color Scale of Radar Layer

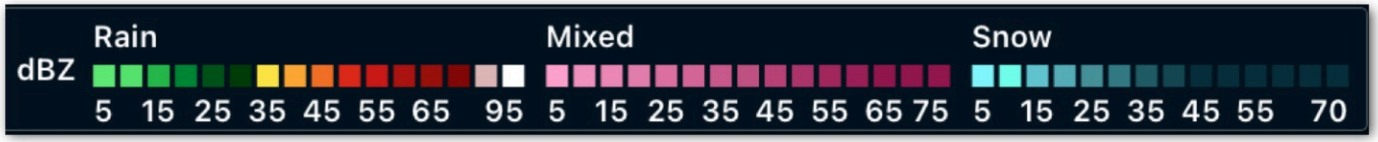


Figure 14-17. Graduated Color Scale of Radar (Classic) Layer

14.5.2.3 Storm Cell Attributes

The internet-sourced Radar and Radar (Classic) layers includes storm cell attributes and echo tops (in hundreds of feet). The table below illustrates the storm cell attribute icons used in internet-based radar within ForeFlight Mobile.

Table 14-4. Storm Cell Attribute Definitions

Icon	Meaning
	Storm direction indicator. Represents storm direction, not speed. All storm direction indicators are the same length.
	Large column of rotating air (mesocyclone)
	Hail
	Tornado

14.5.2.4 Radar Timestamp

A radar timestamp, showing the time radar data was last updated, is displayed in the upper-left corner of the map. The time label changes from white to yellow when the data is 15 minutes old and to red when it is 20 or more minutes old.



Figure 14-18. Radar Timestamp

14.5.2.5 Radar Coverage

Areas of the map out of radar range are shown with a hashed overlay and the message “Radar not available.

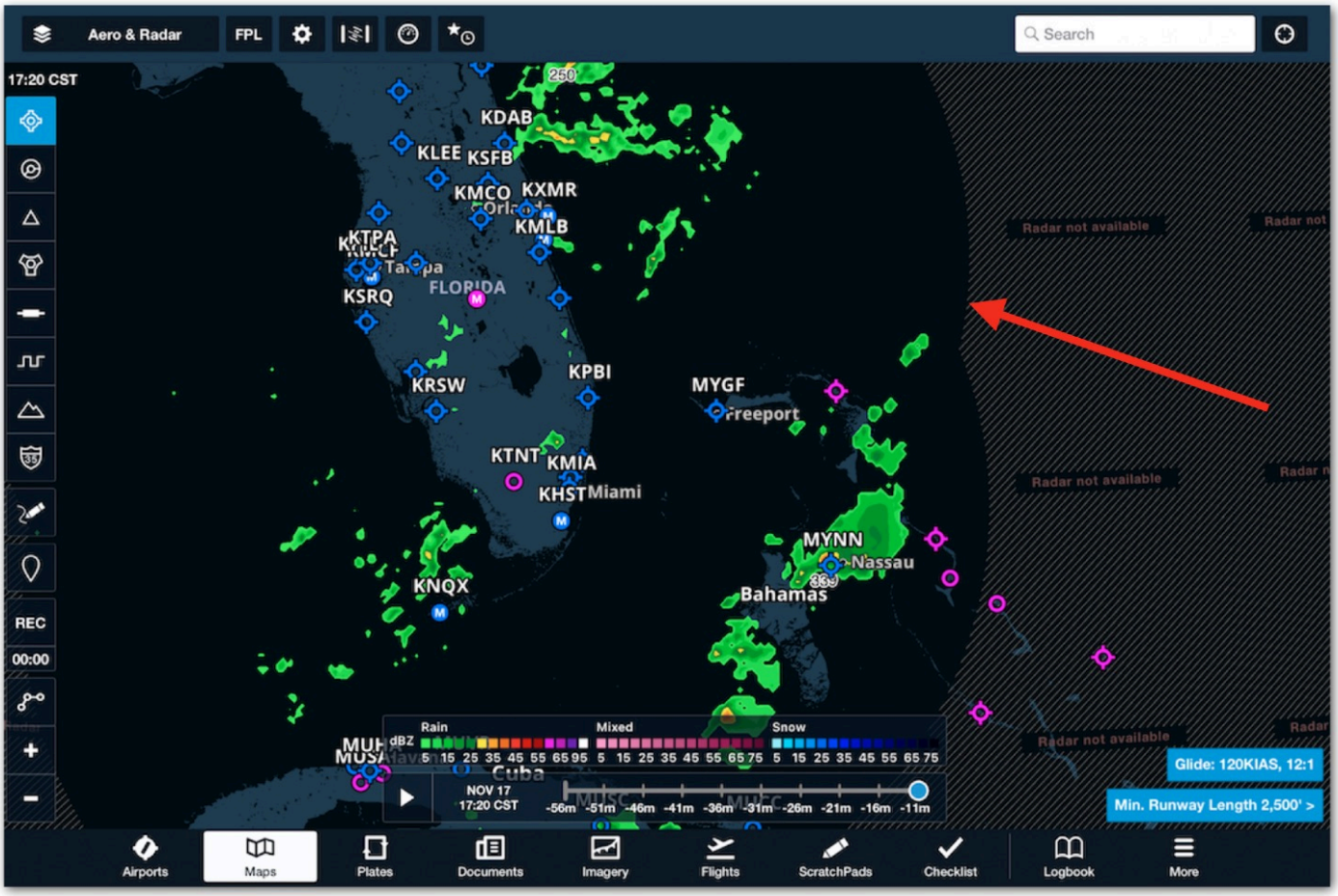


Figure 14-19. Radar Layer Coverage Boundary

14.5.2.6 Radar

The Radar layer utilizes internet data and advanced computing techniques to quickly update and load imagery. The Radar layer uses vector graphics to generate pixel-free images with smooth contouring at close magnification.

The Radar map layer can be selected anytime but only displays updated radar imagery with an active (Wi-Fi or cellular) internet connection.

Radar is updated every five minutes, with approximately 55 minutes of radar data available to animate.

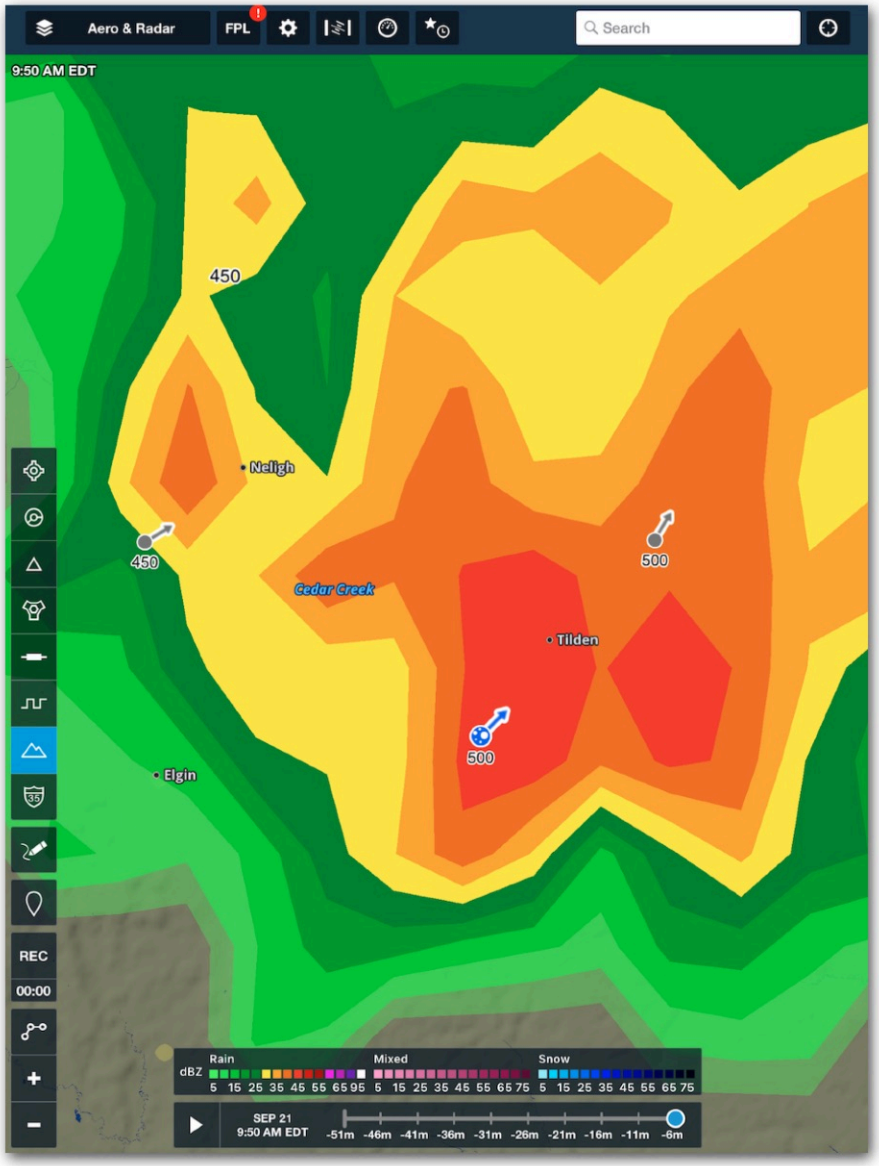


Figure 14-20. Radar Layer

> **NOTE:** The Radar Color Scale of the Radar layer is slightly different from the one on the standard internet Radar (Classic) layer.

14.5.2.7 Radar (Classic)

The Radar (Classic) map layer remains in the application as an alternative to the Radar layer. The layer displays high-resolution composite internet radar data for much of the United States, southern Canada, northern Mexico, Australia, and Europe.

The layer can be selected anytime but will only display updated radar imagery with an active (Wi-Fi or cellular) internet connection.

Radar (Classic) is updated every five minutes, with approximately 55 minutes of radar data available to animate.

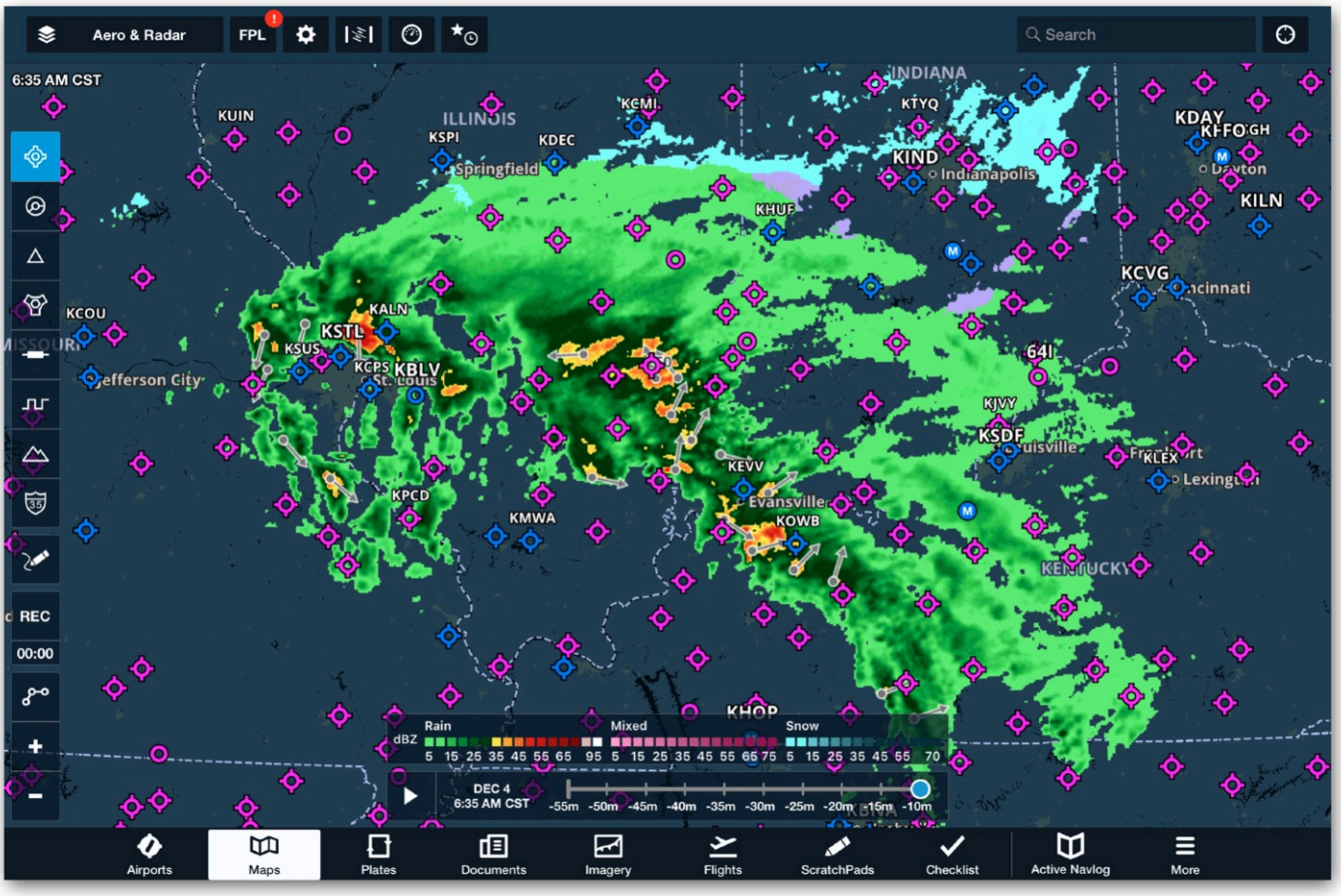


Figure 14-21. Classic Radar

14.5.2.8 Radar (Lowest Tilt)

The Radar (Lowest Tilt) layer is similar to the Radar layer but only shows returns from a .5º tilt angle. The Radar (Lowest Tilt) layer uses vector graphics to generate pixel-free images with smooth contouring at close magnification.

The layer can be selected anytime but only displays updated radar imagery with an active (Wi-Fi or cellular) internet connection. The layer will not show storm top or tracking data.

The layer is updated every five minutes, with approximately 55 minutes of radar data.

14.5.2.9 Radar (ADS-B)

The Radar (ADS-B) map layer can be selected when connected to an external ADS-B device. ADS-B radar data is generally only available while airborne near the United States. See Radar ADS-B for additional information.

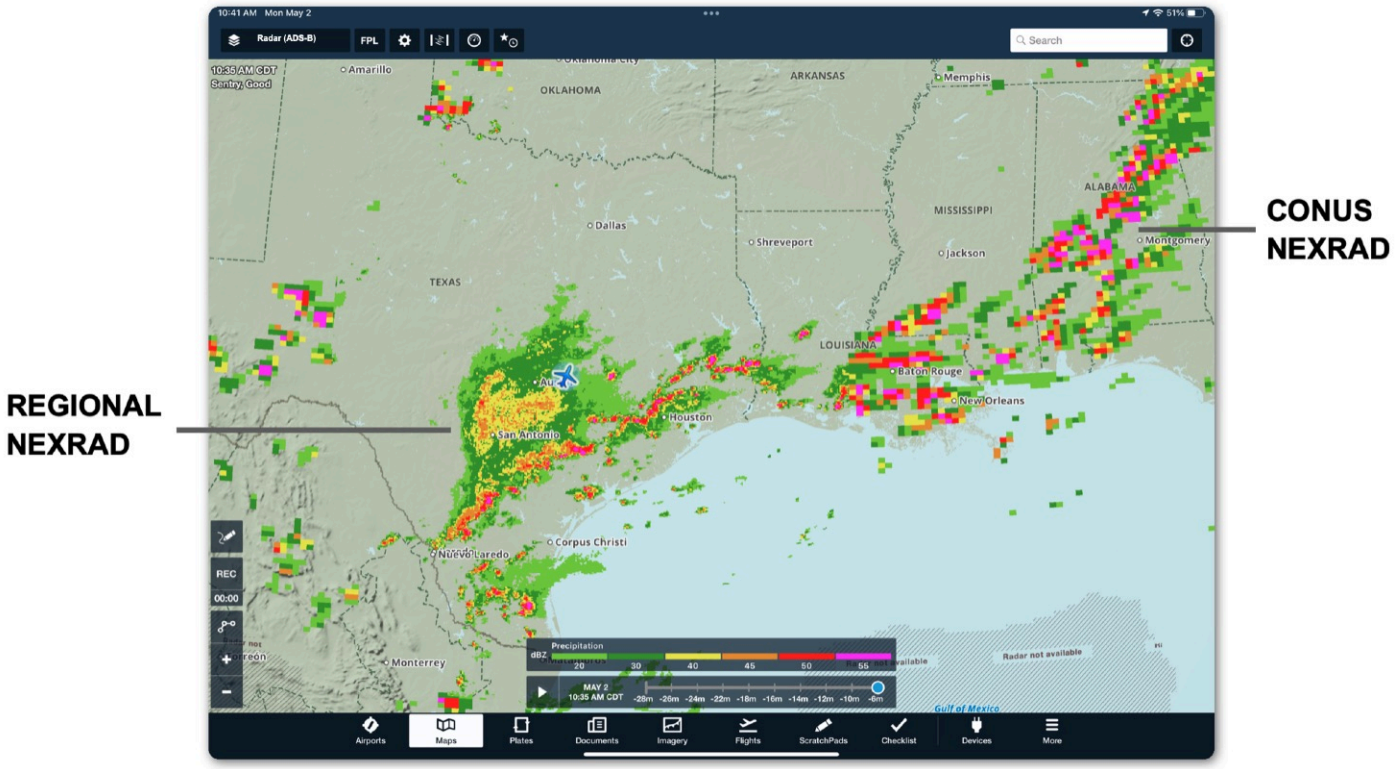


Figure 14-22. ADS-B Radar (Composite)

14.5.2.10 SiriusXM Radar

The Radar (XM Comp) and Radar (XM Base) map layers are available for the United States, southern Canada, and northern Mexico when connected to a supported SiriusXM receiver.

SiriusXM composite and base radar provide a higher resolution radar picture than ADS-B, but lower resolution than internet radar. SiriusXM composite and base radar include storm track, hail, echo top, and mesocyclonic indicators. See SiriusXM Radar for additional information.

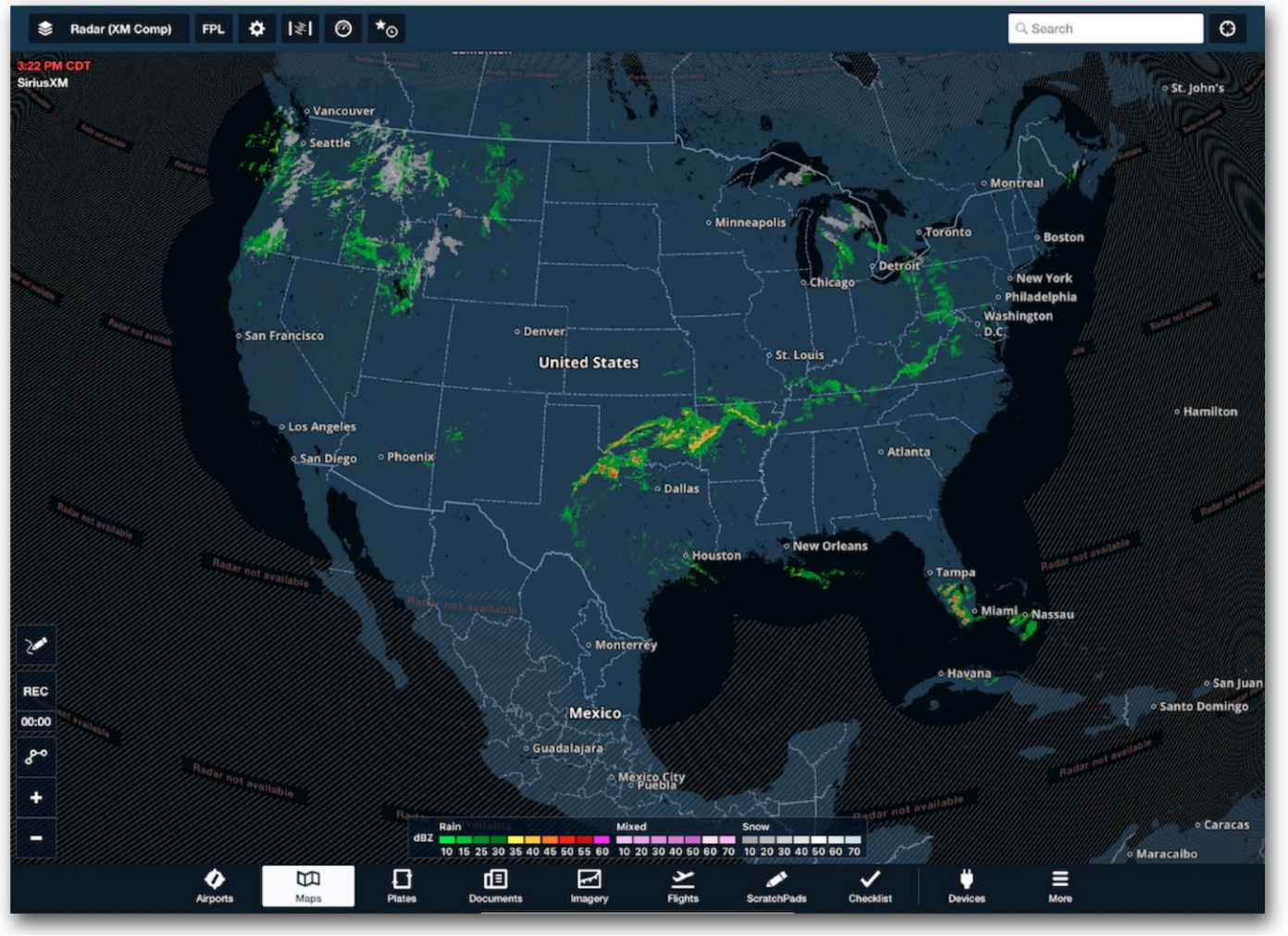


Figure 14-23. Radar (XM Comp) Coverage Area



Figure 14-24. Radar (XM Comp) Storm Cell Indicators

14.5.3 Enhanced Satellite Layer

Enhanced Satellite is a grayscale satellite image derived from visible or infrared data, depending on the time of day. It includes color infrared highlights that emphasize high-altitude cloud tops.

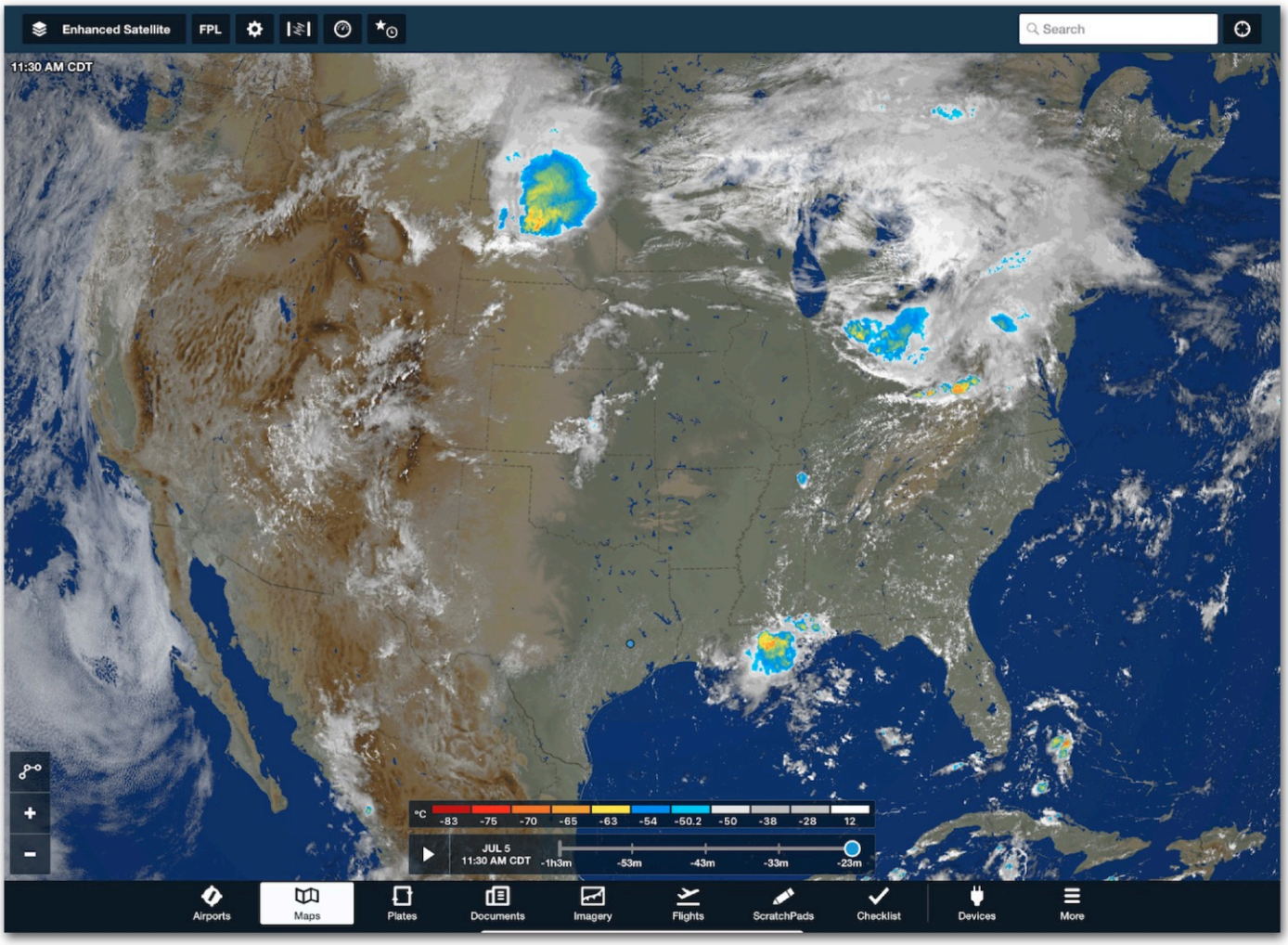


Figure 14-25. Enhanced Satellite

14.5.3.1 Enhanced Satellite Legend

Enhanced Satellite colors represent temperature, allowing estimation of relative cloud top height, similar to how elevation is shown using color on a hypsometric (color-shaded) topographic map. The Enhanced Satellite legend is enabled in **Map Settings ➔ Map Legend**.

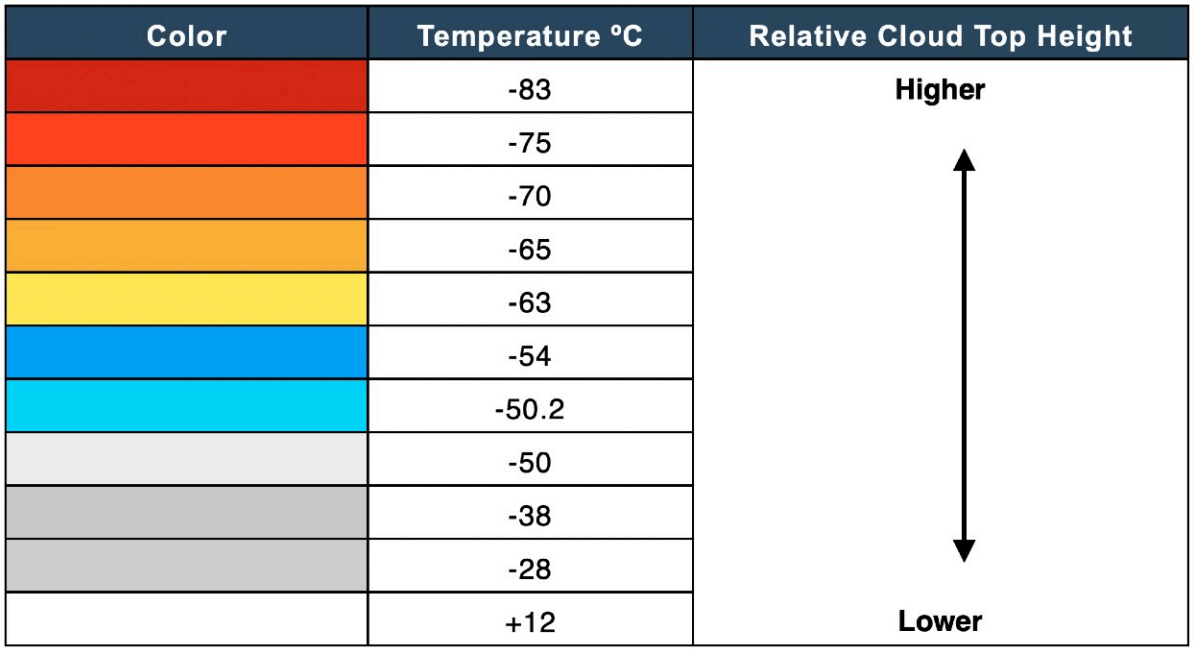


Figure 14-26. Enhanced satellite color definitions

14.5.4 Color IR Satellite Layer

Color IR Satellite displays infrared satellite imagery colorized to indicate cloud top temperatures. Ground temperatures are masked to highlight only areas with cloud coverage. The color-temperature scale matches that used in Infrared Satellite imagery.

Satellite layers can be animated using the time slider. ForeFlight Mobile checks for updates every three minutes, although new images are typically transmitted every 30 minutes.

14.5.4.1 Color IR Satellite Legend

Color IR Satellite colors represent temperature, allowing estimation of relative cloud top height, similar to how elevation is shown using color on a hypsometric (color-shaded) topographic map. The Color IR Satellite legend is enabled in **Map Settings ➔ Map Legend**.

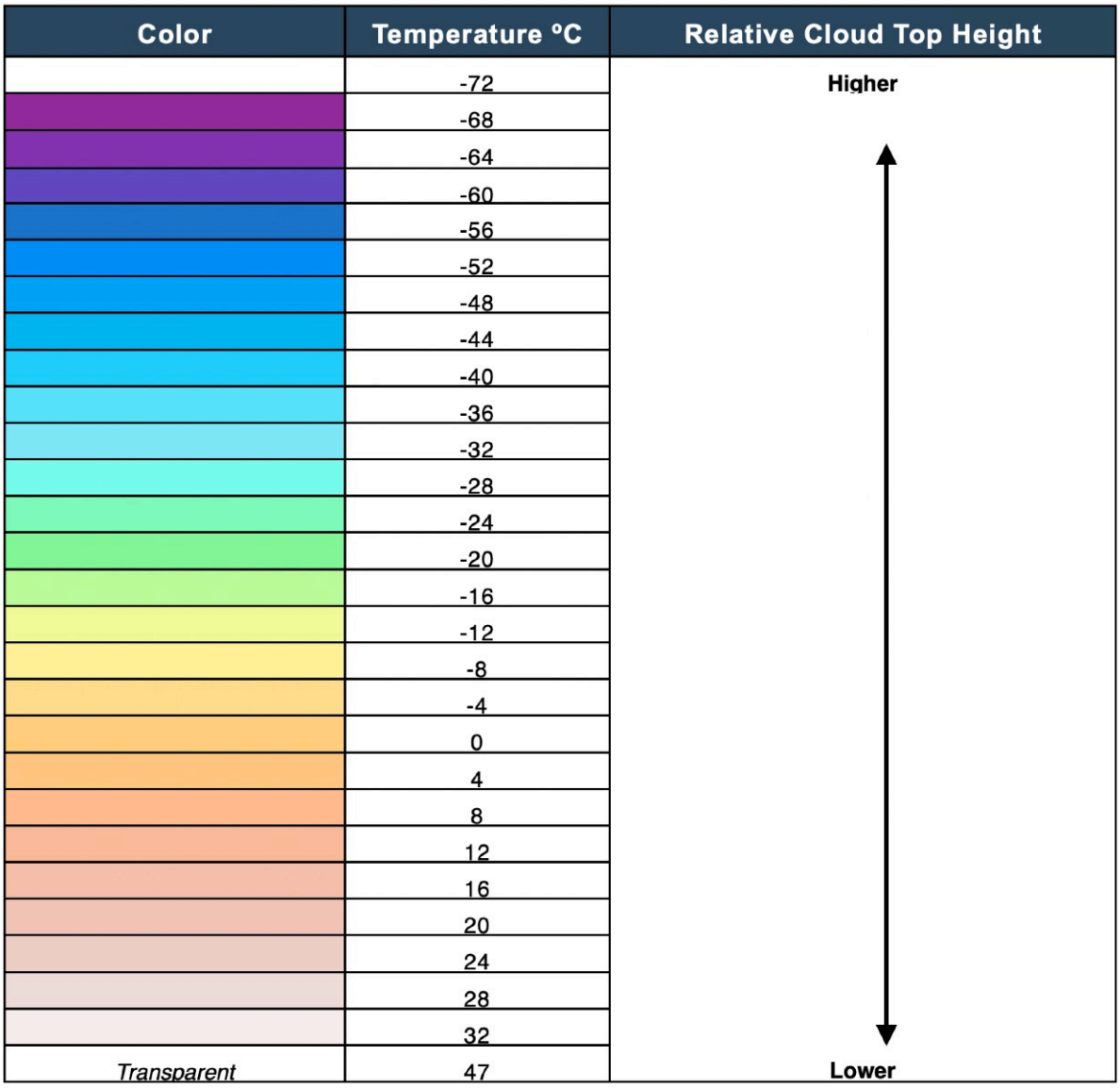


Figure 14-27. Color IR satellite definitions

14.5.5 Icing (US) Layer

Icing (US) (Essential or higher subscription) is an internet-sourced forecast based on the Forecast Icing Product (FIP). It displays icing severity levels:

- Light
- Moderate
- Heavy.

The forecast runs every six hours, updating four times daily, and extends 18 hours into the future. Coverage includes the continental United States, northern Mexico, and southern Canada.

An altitude slider on the right side of the screen allows icing severity to be viewed at different altitudes. Tap the **Auto** button at the top of the slider, when in flight, to set the selected altitude to the GPS altitude.

The Icing (US) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.6 Icing (Global) Layer

Icing (Global) (Essential or higher subscription) is an internet-sourced forecast based on the Global Forecast System (GFS) model. It displays icing severity levels:

- Light
- Moderate
- Heavy.

The forecast runs four times per day (every six hours) and extends 24 hours into the future. When in flight, tapping the **Auto** button at the top of the altitude slider sets the selected altitude to the GPS altitude of the aircraft.

The Icing (Global) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.7 Icing (XM) Layer

Icing (XM) (requires GDL 51 or GDL 52) displays icing severity as:

- Light
- Moderate
- Heavy.

Icing (XM) also displays supercooled large droplet (SLD) threat.

Coverage includes the continental U.S., northern Mexico, and southern Canada, generally between 16N and 59N latitude. In flight, tapping the **Auto** button at the top of the altitude slider sets the selected altitude to the GPS altitude of the aircraft.

The Icing (XM) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.8 Icing (ADS-B) Layer

Icing (ADS-B) (requires ADS-B receiver) is a graphical forecast provided by the National Weather Service (NWS).

The forecast includes icing severity and the presence of supercooled large droplets (SLD) at intervals of 2,000 ft up to 24,000 ft MSL. Coverage is limited to the continental United States. No forecast data is available for Alaska, Hawaii, Guam, or Puerto Rico.

The model runs hourly with updates transmitted every 15 minutes. A look-ahead range of 150 to 250 nautical miles is provided. When in flight, the **Auto** button sets the selected altitude to the GPS altitude of the aircraft.

The Icing (ADS-B) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.9 Turbulence (US) Layer

Turbulence (US) (Essential or higher subscription) displays Eddy Dissipation Rate (EDR) forecasts, which estimate turbulence severity based on aircraft weight.

This layer covers the continental United States, northern Mexico, and southern Canada. Forecast data is available from the surface up to FL440 in 1,000 foot increments.

The forecast is updated hourly and extends 18 hours into the future. An altitude slider on the right side of the screen allows turbulence intensity to be viewed at different altitudes. Tap the **Auto** button at the top of the slider when in flight, to automatically set the selected altitude to the GPS altitude.

The Turbulence (US) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.10 Turbulence (Global) Layer

Turbulence (Global) (Essential or higher subscription) displays EDR forecasts, which represent turbulence severity based on aircraft weight.

Global turbulence data is available from FL120 to FL450 in 3,000 ft increments. The forecast is generated four times per day (every six hours) and extends 18 hours into the future.

An altitude slider on the right side of the screen allows users to view turbulence intensity at specific altitudes. When in flight, tapping the **Auto** button at the top of the slider sets the selected altitude to the GPS altitude of the aircraft.

The Turbulence (Global) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.11 Turbulence (XM) Layer

The Turbulence (XM) layer displays turbulence intensity forecasts based on a medium aircraft weight category. This layer requires a GDL 51 or GDL 52 SiriusXM receiver.

Coverage includes the continental United States, along with northern Mexico and southern Canada.

An altitude slider on the right side of the screen allows users to view turbulence intensity at different flight levels. When in flight, tapping the **Auto** button at the top of the slider automatically sets the selected altitude to the GPS altitude of the aircraft.

The Turbulence (XM) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.12 Turbulence (ADS-B) Layer

The Turbulence (ADS-B) layer is an NWS forecast map that displays Eddy Dissipation Rate (EDR) values based on a medium aircraft weight category. This layer requires a compatible ADS-B receiver.

It provides a look-ahead range of approximately 150 to 250 nautical miles. An altitude slider on the right side of the screen allows users to view turbulence intensity at different flight levels. When in flight, tapping the **Auto** button at the top of the slider automatically sets the selected altitude to the GPS altitude of the aircraft.

The Turbulence (ADS-B) legend is enabled in **Map Settings ➔ Map Legend**.



Figure 14-28. Turbulence (ADS-B)

14.5.13 Reported Turbulence Layer

Displays a Sentry-sourced layer that displays turbulence data collected from connected Sentry and Sentry Plus devices. The reported turbulence severity is indicated by color-coded circles, with data captured in 2 minute increments along the flight path.

Table 14-5. Reported Turbulence Icon Definitions

Symbol	Meaning
	Smooth
	Intermittent Light
	Light
	Light to Moderate
	Moderate
	Severe
	Extreme

Turbulence reports are viewed in altitude blocks. Altitude is selected by tapping the altitude slider above or below the selected altitude to move in one-block increments, or by pressing the selected altitude and sliding to the desired altitude block. Altitude blocks are 3,000 foot increments below FL140 and 5,000 foot blocks above FL140.

Individual turbulence report details are viewed by tapping the desired circle on the map. The Map Info window will appear populated by a list of nearby turbulence reports. Tapping a report opens a Turbulence Information field that contains altitude, aircraft type, wake category, and airspeed of the reporting device.

> **NOTE:** Access to Reported Turbulence may necessitate additional prerequisites beyond standard package offerings. See the ForeFlight Website for additional information on options to access Reported Turbulence.

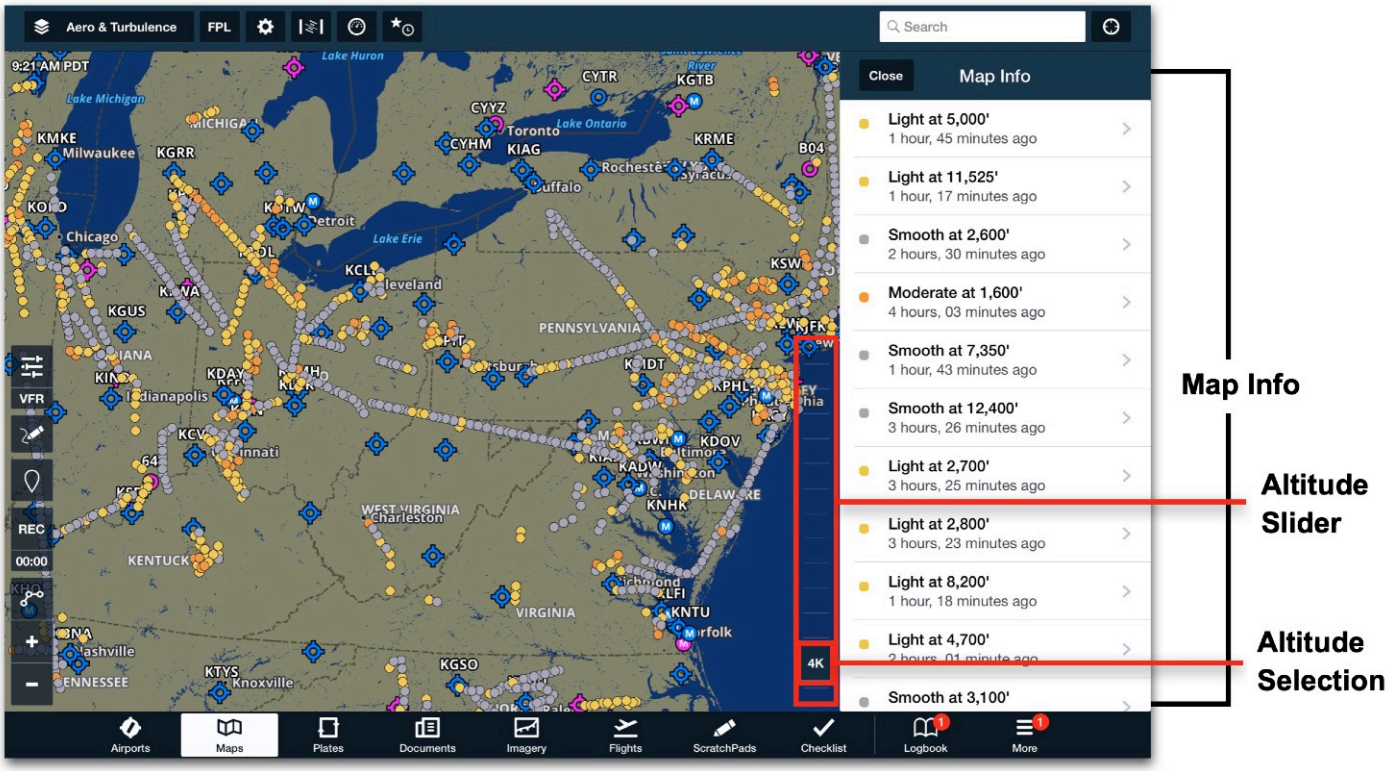


Figure 14-29. Reported Turbulence

14.5.14 Clouds Layer

Displays a global view of forecast cloud coverage at a selectable altitude (using the altitude slider on the right) and time (using the time slider at the bottom). The forecast is based on the GFS Cloud Coverage product and depicts the forecast percentages of cloud cover using different shades of gray. This forecast is run hourly and is extended 18 hours into the future. The forecast data is included in Pack for offline use during the valid forecast period. The Clouds map layer is included in Essential, Premium, and Business Performance plans.

The Clouds legend is enabled in **Map Settings ➔ Map Legend**.

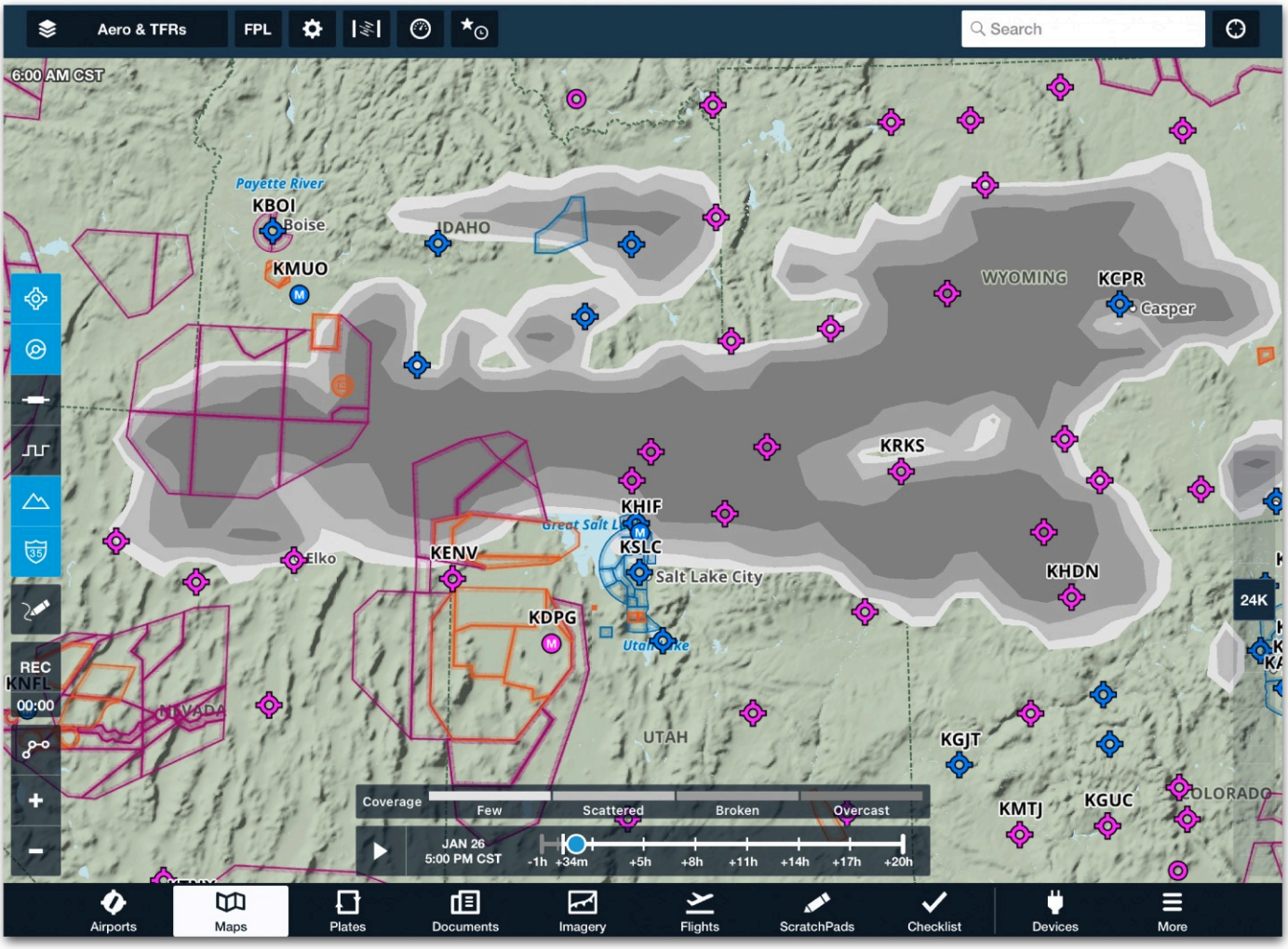


Figure 14-30. Cloud Coverage Forecast on Maps view

14.5.15 Surface Analysis Layer

Surface Analysis provides global isobar and pressure system data, with enhanced detail for North America. This layer is available in Essential, Premium, and Business Performance plans.

Use the time slider to view different forecast frames over time.

Surface Analysis Legend

Surface Analysis elements are displayed using standard meteorological symbols. The following symbols appear when viewing Surface Analysis via Internet or SiriusXM:

Table 14-6. Surface Analysis icon definitions

Symbol	Meaning
	Isobars
	Pressure Labels
	High Pressure Centers
	Low Pressure Centers
	Cold Front
	Warm Front
	Occluded Front
	Stationary Front
	Trough

14.5.16 Sfc Analysis (XM) Layer

Sfc Analysis (XM) displays isobars, pressure systems, and related weather features. This layer requires a GDL 51 or GDL 52 SiriusXM receiver.

Coverage includes most of North and Central America, excluding northern Canada and Alaska, and extends west to Hawaii.

Additional symbols appear only when viewing Surface Analysis via SiriusXM:

Table 14-7. SiriusXM only Surface Analysis icon definitions

Symbol	Meaning
	Squall Line (XM only)
	Dry Line (XM only)

14.5.17 Winds (Temps) Layer

Winds (Temps) displays forecast global temperatures in °C up to 24 hours in the future, as colors at a selectable altitude with wind direction and speed represented by smoothly-flowing particle animations. The layer features a dynamic legend at the bottom of the Maps view, showing the color range corresponding to the temperatures. The layer is included when packing for a flight. Included in Premium and Business Performance.

The Winds (Temps) legend is enabled in **Map Settings ➔ Map Legend**.

14.5.18 Winds (Speeds) Layer

Winds (Speeds) displays forecast global wind speeds in knots up to 24 hours in the future, as colors at a selectable altitude with wind direction and speed represented by smoothly-flowing particle animations. The layer features a dynamic legend at the bottom of the Maps page, showing the color range corresponding to the wind speed. The layer is included when packing for a flight. Included in Premium and Business Performance.

The Winds (Speed) legend is enabled in **Map Settings ➔ Map Legend**.

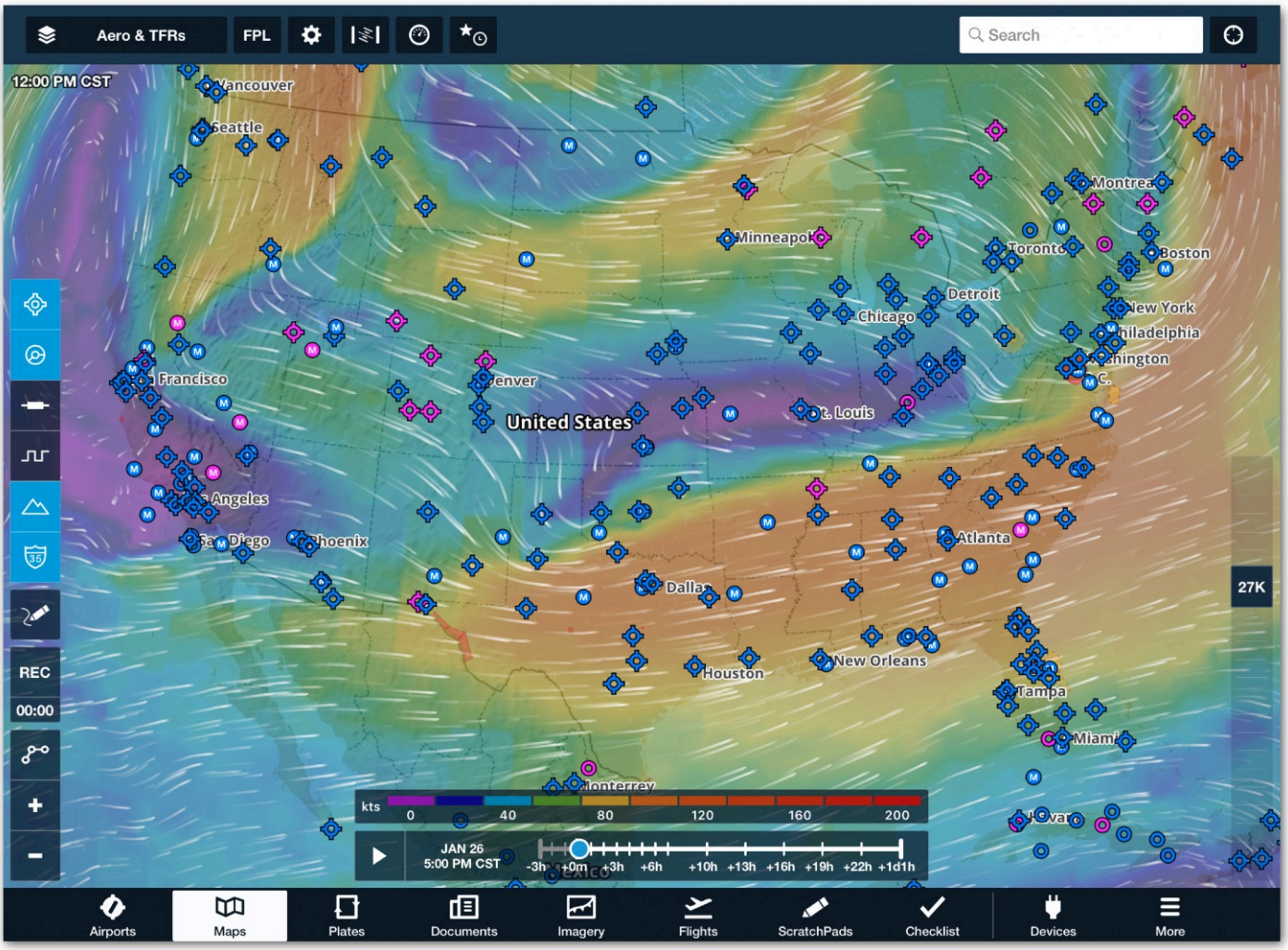


Figure 14-31. Winds displayed on Maps view

14.5.19 Echo Tops (XM) Layer

Echo Tops require a SiriusXM compatible receiver (GDL 51/52). The echo top map layer displays the height where ground-based radar detects reflectivities above 18 dBZ.

Use the altitude slider on the right to filter out echo tops at lower altitudes. Covers CONUS plus northern Mexico and southern Canada. 5000' increments from 0' to FL450.

The Echo Tops (XM) legend is enabled in **Map Settings → Map Legend**.

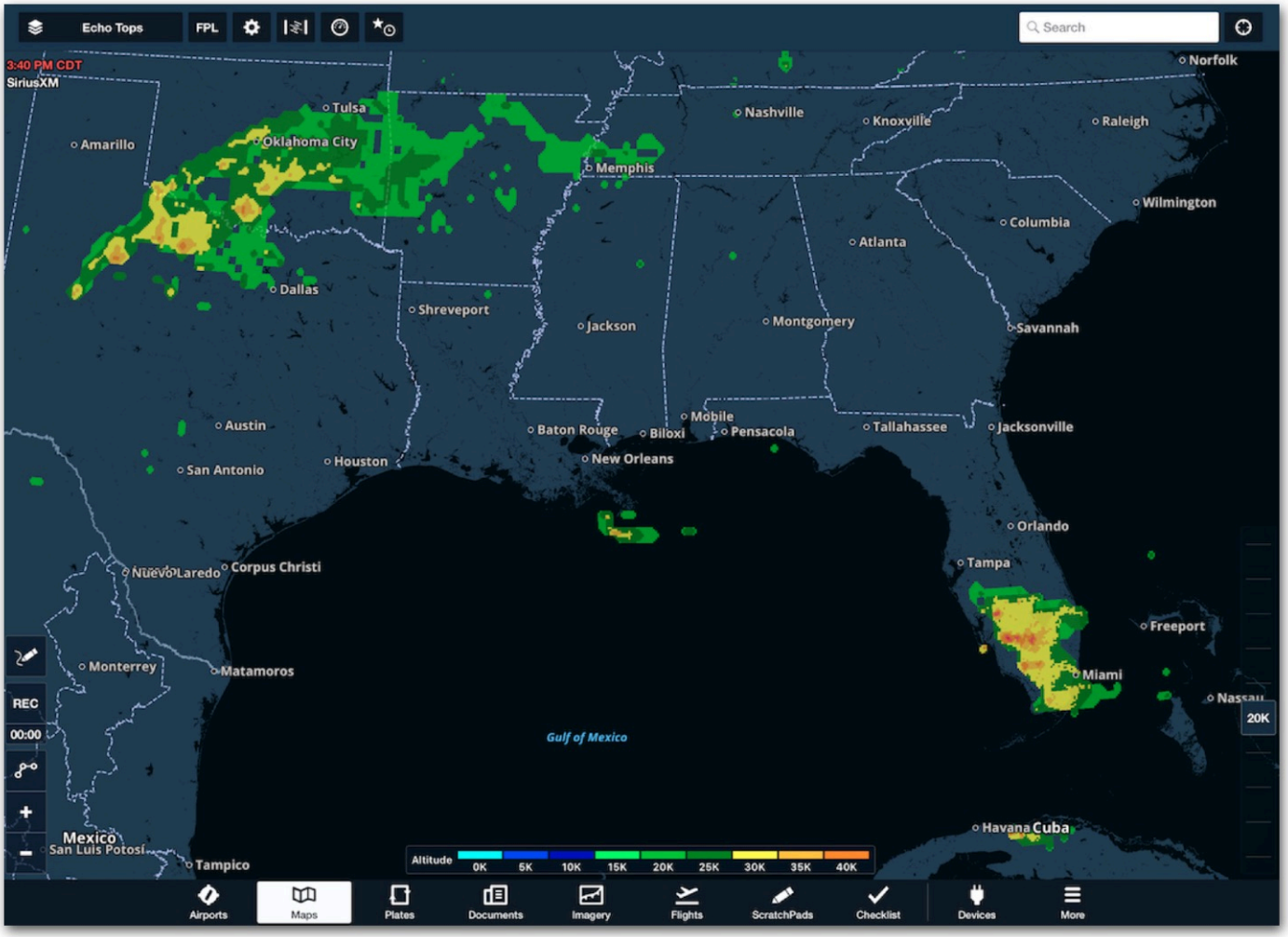


Figure 14-32. Echo Tops (XM)

14.5.20 Cloud Tops Layer (XM) Layer

Cloud Tops (XM) (requires GDL 51/52) displays cloud top height derived from satellite temperature sensors. Covers the continental United States plus northern Mexico and southern Canada. Displays cloud tops in 5000' increments from 0' to FL400. An altitude slider on the right side of the screen filters cloud tops at lower altitudes. When in flight, the **Auto** button at the top of the slider sets the selected altitude to the GPS altitude.

The Cloud Tops (XM) legend is enabled in **Map Settings → Map Legend**.

14.5.21 Cloud Tops (ADS-B) Layer

Cloud Tops (ADS-B)(requires ADS-B receiver) is a National Weather Service (NWS) forecast map layer. Using the High-Resolution Rapid Refresh (HRRR) model, cloud tops are derived from satellite temperature sensors. An altitude slider on the right side of the screen filters cloud tops at lower altitudes. When in flight, the **Auto** button at the top of the slider sets the selected altitude to the GPS altitude.

Cloud Tops are only available for the continental United States. Cloud tops are unavailable for Alaska, Hawaii, Guam, or Puerto Rico. The Cloud Top forecast is generated by NWS every hour and transmitted over ADS-B every 15 minutes.

The Cloud Tops (ADS-B) legend is enabled in **Map Settings → Map Legend**.

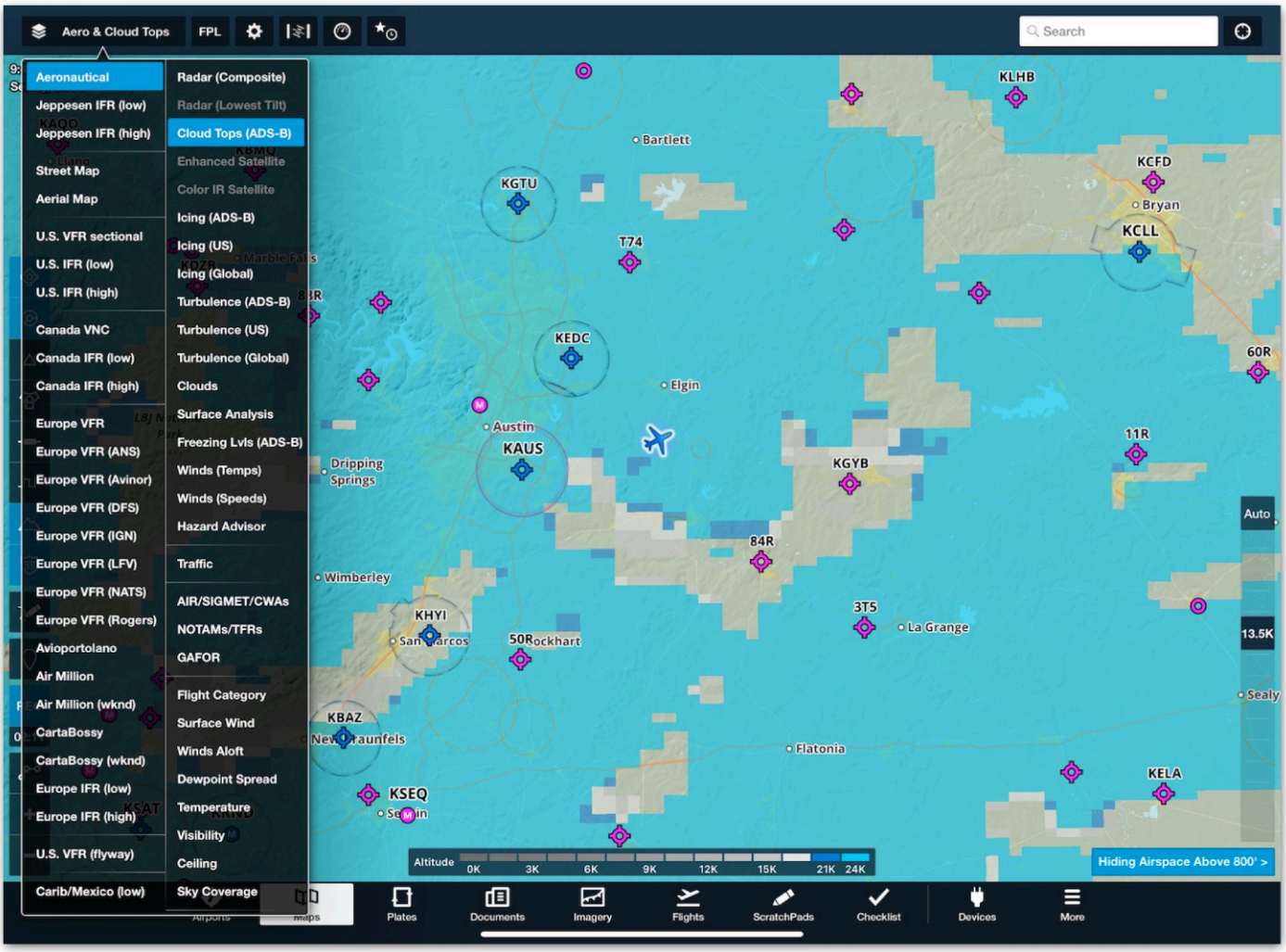


Figure 14-33. Cloud Tops (ADS-B)

14.5.22 Freezing Levels Layer

Freezing Levels (requires GDL 51/52) displays freezing level boundaries in 1,000-foot intervals using a colored overlay. It covers the Continental United States plus northern Mexico and southern Canada.

The Freezing Level legend is enabled in **Map Settings → Map Legend**.

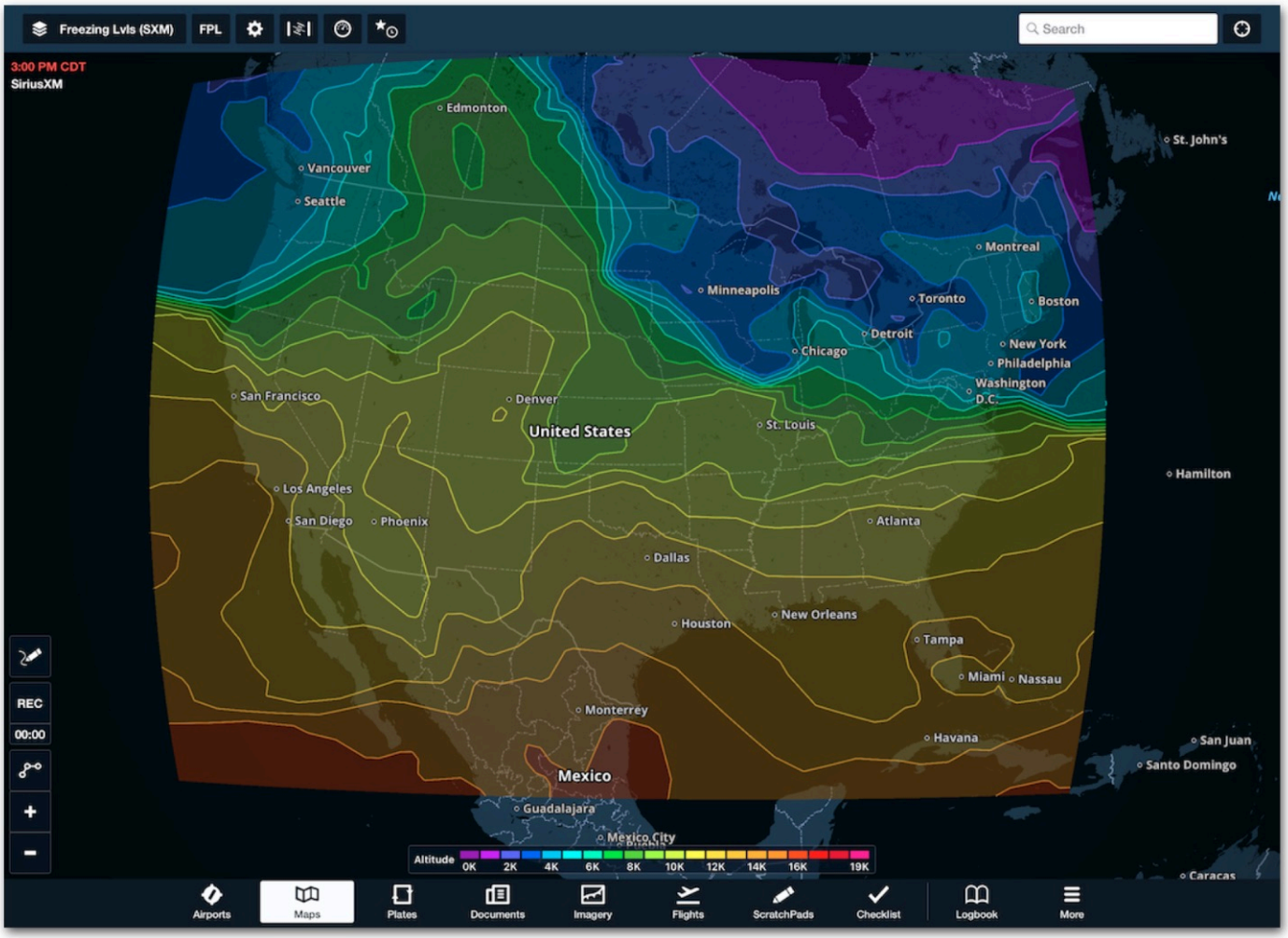


Figure 14-34. Freezing Levels (SiriusXM)

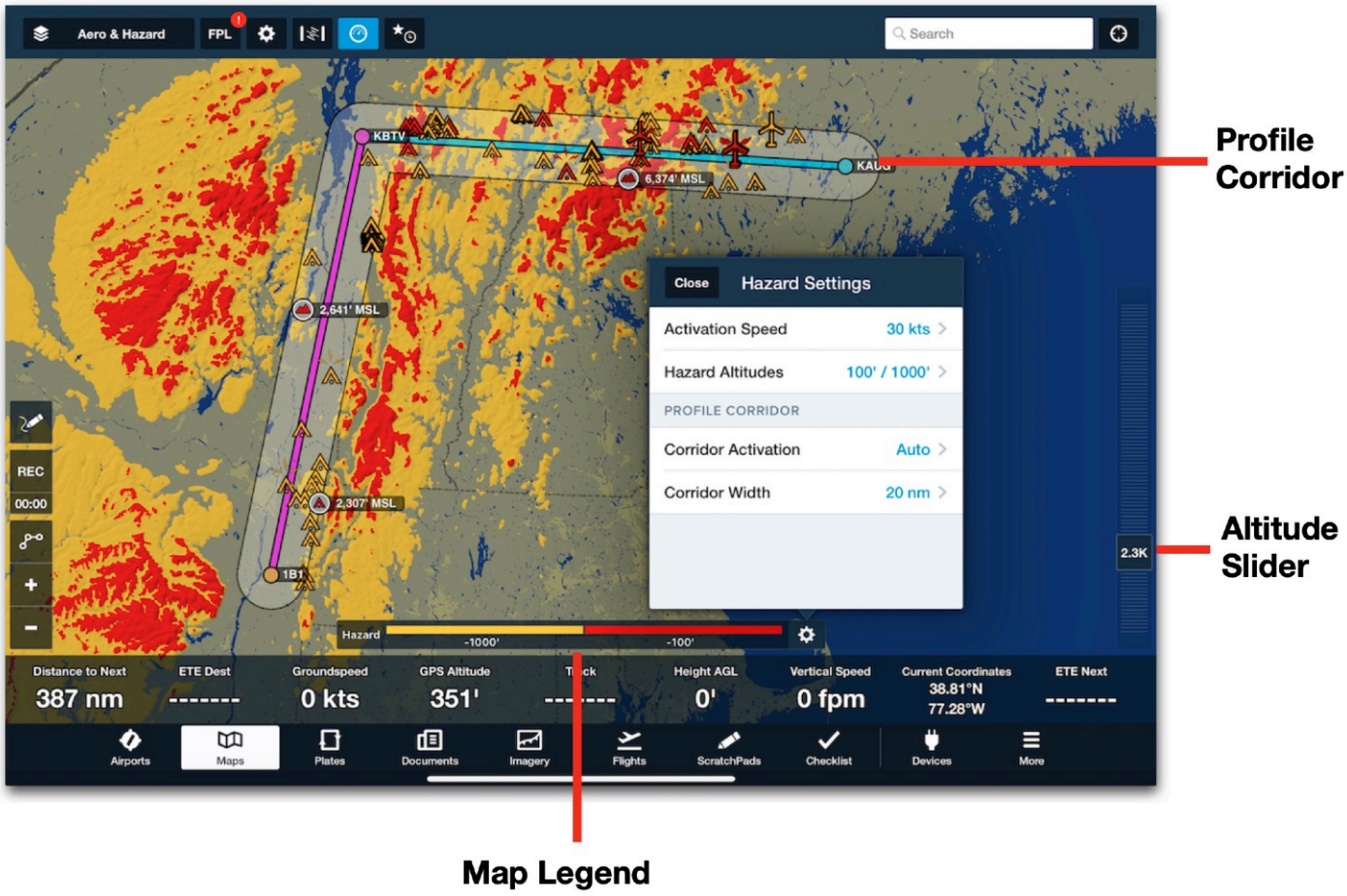
14.5.23 Hazard Advisor Layer

Hazard Advisor is a map overlay that highlights terrain as it relates to the aircraft or a user-specified altitude. The purpose of Hazard Advisor is to identify potential hazards at different altitudes. Hazard Advisor will automatically use the current altitude when the user-set groundspeed is exceeded. This feature requires an Essential subscription or higher.

14.5.23.1 Map Elements

When the Hazard Advisor map layer is selected, it displays map coloration showing hazardous terrain at the current altitude and a slider on the right that can be used to analyze hazards at different altitudes. Hazard Advisor can also display a Map Legend showing hazard colors and settings, as well as a Profile Corridor showing obstacles along the route.

The Hazard Advisor legend is enabled in **Map Settings → Map Legend**.



> **NOTE:** Hazard Advisor only displays obstacles while airborne or when on the ground and the Profile Corridor is enabled.

14.5.23.2 Hazard Advisor Settings

The following options in the Hazard Settings menu control the Hazard Advisor:

> **Activation Speed**
>
> Specifies a minimum groundspeed above which Hazard Advisor enters Active Mode. Active mode should reflect the minimum groundspeed required for flight. Once Active Mode begins, hazardous obstacles appear on the map even if the Profile Corridor is inactive and the Hazard Altitude Slider is set to **Auto**.

> **Hazard Altitudes**
>
> Specifies the maximum altitude clearance required to color nearby obstacle and terrain hazards. There are four settings with different vertical clearances. The colors described in the Hazard Advisor Map Legend reflects this setting.

> **Corridor Activation**
>
> Controls when the Profile Corridor displays along the route: **Show** (always), **Hide** (never), or **Automatic** (whenever the Profile View or Hazard View are displayed). When active, the Profile Corridor displays hazards along the route even if Hazard Advisor is not in Active Mode.

> **Corridor Width**
>
> Determines the total width of the Profile Corridor around the route centerline. For example, a 20 NM Corridor Width shows hazards 10 NM on either side of the route centerline.

14.5.23.3 Active Mode

When Hazard Advisor is enabled and ForeFlight Mobile detects a groundspeed greater than the selected Activation Speed (ranging from 0 to 140 knots), Hazard Advisor enters Active Mode. This is indicated by a blue "Auto" label above the slider. When Auto Mode begins, the altitude slider switches from MSL to GPS altitude and automatically adjusts to the current device GPS altitude, and the map displays nearby hazards (including obstacles). Any changes made to the altitude slider once this mode is active are reset to the GPS altitude after six seconds as indicated by a radial timer.

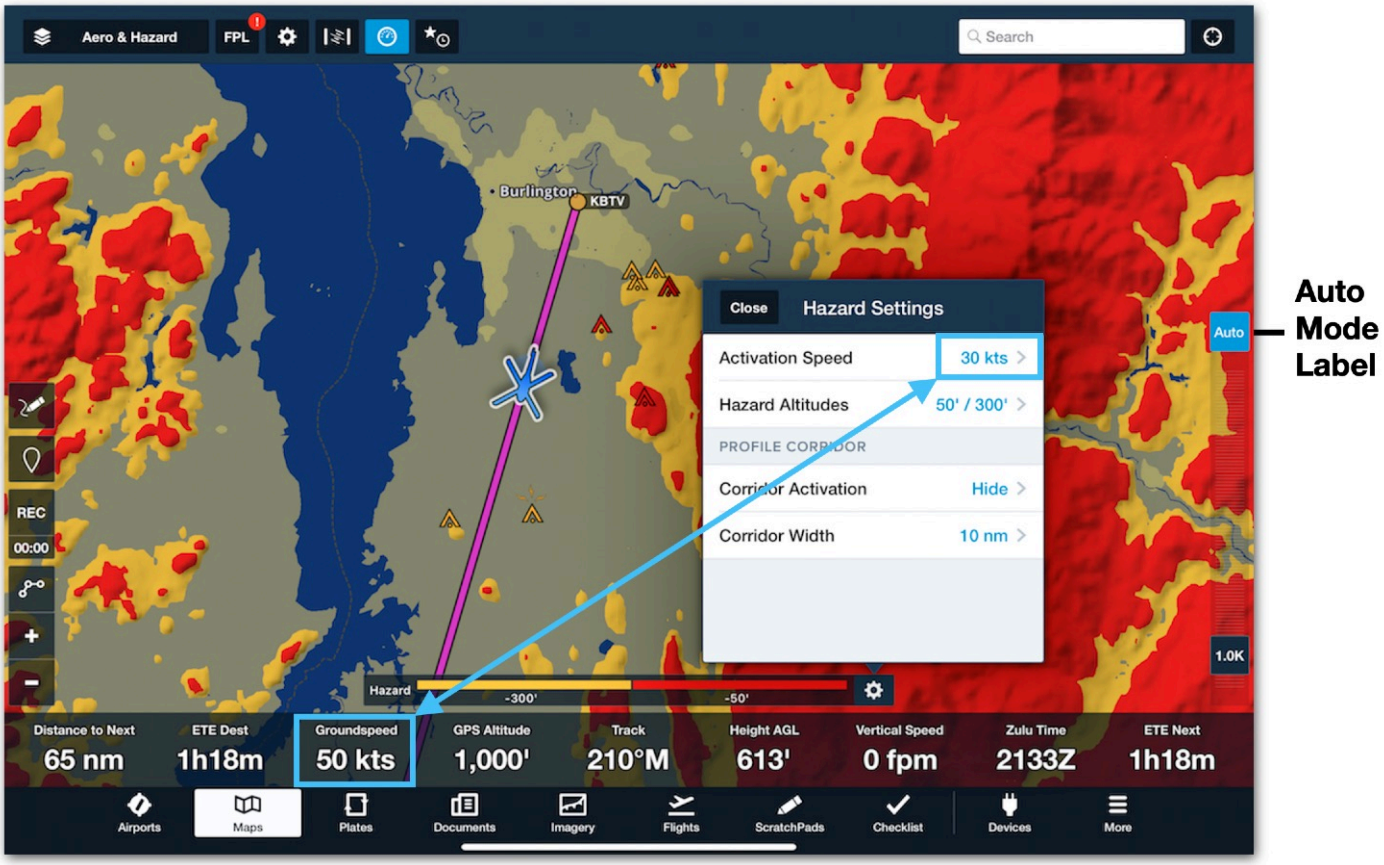


Figure 14-35. Auto Mode starts when Groundspeed exceeds Activation Speed.

14.5.24 Traffic Layer

The Traffic map layer displays traffic data when connected to a compatible ADS-B receiver or when on the ground and connected to the Internet via Wi-Fi or cellular data. The global traffic stream is available only on the ground with an Internet connection.

14.5.24.1 Traffic (Internet)

When connected to the Internet on the ground, ForeFlight Mobile can stream live global traffic. Available information includes:

- Decoded callsign
- Departure airport
- Destination airport
- Estimated time of arrival (ETA).

The following behaviors apply when viewing Internet Traffic on the ground with an active Internet connection:

- Internet Traffic is automatically disabled after takeoff unless connected via Wi-Fi or hotspot.
- Internet Traffic cannot be displayed while connected to an ADS-B receiver.
- The tail number and altitude are hidden when zoomed out.

> **WARNING:** Internet Traffic should not be used as a primary means of traffic information in flight due to the potential for latency.

Tap a traffic target to view additional details, including the timestamp of the last position update.

Tap the **auto-center** button in the upper-right corner of the traffic target pop-up to keep the target in view. Tap the **auto-center** button again or tap outside the pop-up to disable auto-center.



Figure 14-36. Internet Traffic

Internet Traffic Search

To locate a traffic target:

1. Tap the **search box**.

2. Enter the registration (e.g., N-number) or callsign (e.g., EDV4653 or SWA1257).

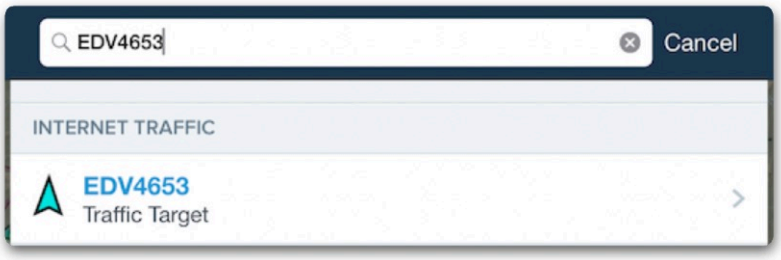


Figure 14-37. Traffic Search

If the target position is available, the map centers on the target and displays additional information.

14.5.24.2 Traffic (ADS-B)

ADS-B traffic is the primary source of in-flight traffic data. A supported external receiver is required.

The following conditions and behaviors apply when using ADS-B as the source of traffic data during flight:

- When connected, the **Traffic** layer is automatically enabled and displays traffic detected by the receiver in the Maps view.
- Aircraft do not need to be ADS-B Out equipped for traffic to be received.
- If the connected aircraft is not ADS-B Out equipped, traffic targets may show significant discrepancies in relative altitude.

For more information, see ADS-B Traffic.

14.5.25 Search and Rescue Layers

Map layers intended for Search and Rescue operations are available when **Search and Rescue** is enabled in **More → Settings**.

For additional information, refer to the **ForeFlight Search and Rescue Guide** located in **Documents → ForeFlight**.

14.5.26 AIRMETs, SIGMETs, and CWAs Layer

ForeFlight Mobile displays AIRMETs, SIGMETs, and Center Weather Advisories (CWAs) issued by the FAA and international agencies.

Each advisory is shown as a color-coded shape on the map. Colors indicate the type of advisory, and CWAs adopt the color of the associated condition (e.g., purple for IFR conditions).

Table 14-8. AIRMET, SIGMET, CWA coloration

Overlay Color	Meaning
	Freezing level and icing conditions.
	Turbulence and high winds
	IFR conditions
	Mountain obscuration
	Convective outlook
	SIGMETs of all types

When this layer is active, five toggle buttons at the bottom of the screen allow selective filtering of advisory types.

Tap any advisory shape to open a sidebar listing all overlapping advisories at that location. Select an individual advisory to view its full details and a highlighted lateral boundary, outlined in thick orange, which is useful when multiple advisories overlap.

14.5.27 NOTAMs Layer

Global graphical NOTAMs, including geographic and obstacle NOTAMs, can be displayed on the map. NOTAMs are displayed on the map from 2-48 hours prior to becoming active (see NOTAM Settings) and are not affected by the Hide Airspace setting.

Red and yellow NOTAMs will appear before gray NOTAMs. Zoom in on the map to display gray and obstacle NOTAMs. Tap a NOTAM to reveal NOTAM details in the sidebar. Graphical NOTAMs can be displayed in flight if the Pack feature is used. Graphical NOTAMs are not provided with ADS-B.

> **NOTE:** Graphical NOTAMs are depicted using coordinates and radius provided by ICAO NOTAMs in the Q line of the NOTAM. ForeFlight Mobile will automatically parse the text in the NOTAM to define a shape if able. If unable to automatically define the shape, ForeFlight will attempt to correct the shape manually.

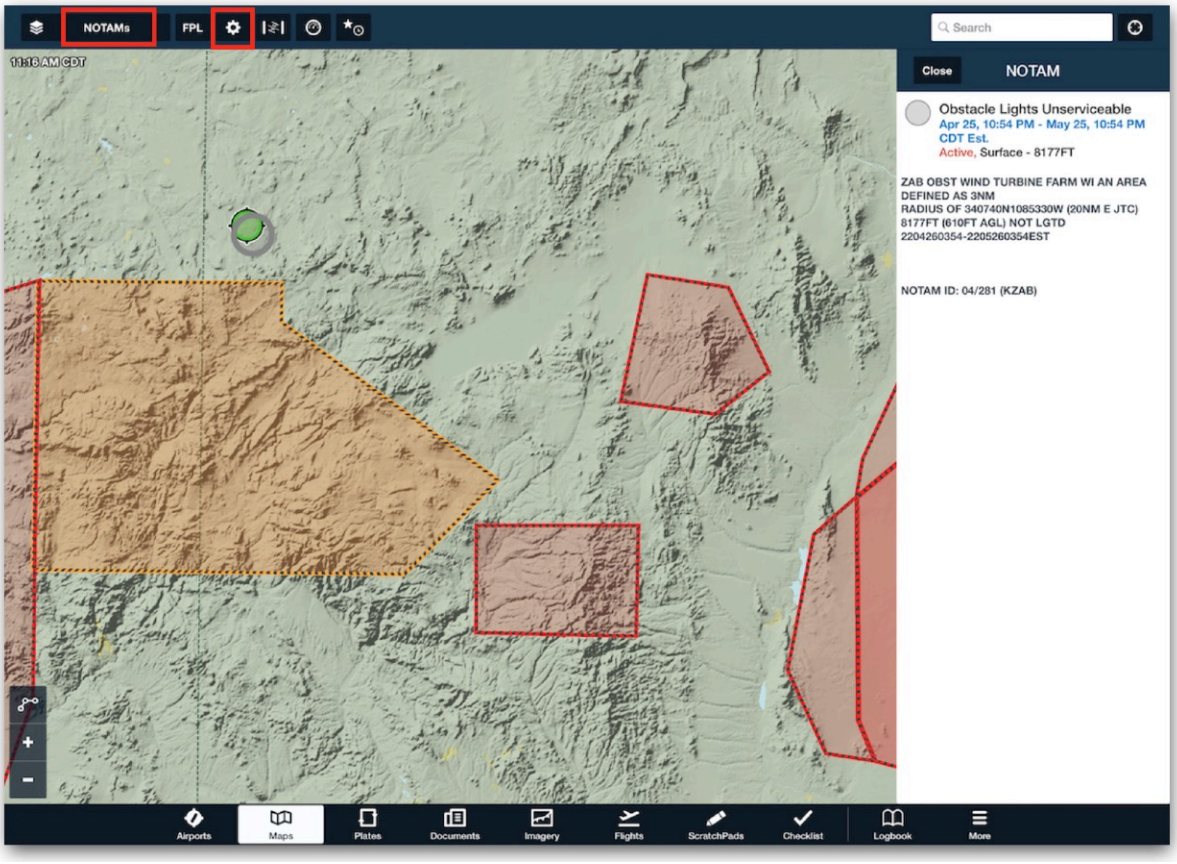


Figure 14-38. Graphical NOTAMs

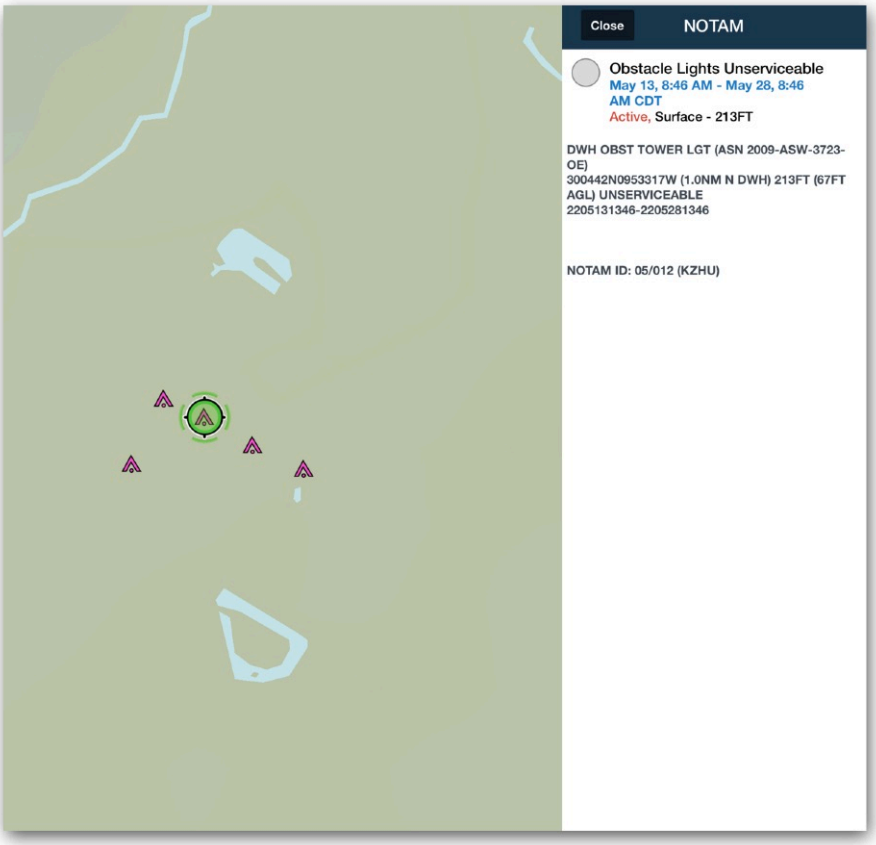


Figure 14-39. Obstacle NOTAMs

14.5.27.1 Filtering NOTAM Settings

NOTAMs can be filtered based on time and type. To filter NOTAMs:

1. Ensure the **NOTAMs** layer is selected on the Map.
2. Tap the (Map Settings) button.

3 Tap **NOTAMs Settings**.

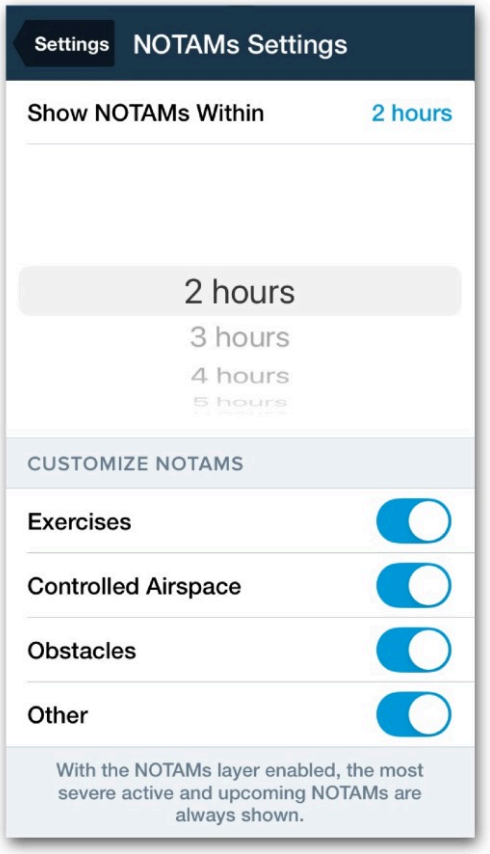
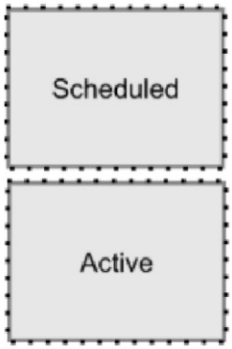


Figure 14-40. NOTAMs Settings

When the **NOTAMs** map layer is enabled, NOTAMs which restrict airspace or potentially present a danger to non-participating aircraft are unable to be turned off with the settings. This includes scheduled and active NOTAMs associated with Military Operating Areas, Warning Areas, Controlled Firing Areas, and Danger Areas (Europe).

14.5.27.2 NOTAM Color Coding

NOTAMs are color-coded based on NOTAM type and activation status.

NOTAM Color	Time Active	NOTAM TYPE
	Currently active	• **Restricted Area**: Prohibited, Restricted, Military Operation, Danger • **Warning Area** Live Fire
	Currently active	• **Warning Area**: Parachute, Glider, UAV, Demolition, Air Display
	2 hours prior to activation	• **Restricted Area** • **Warning Area**
	2 hours prior to activation and currently active	• **Airspace** • **Obstacles** • **Obstacle lighting** • **Aerobatics**
	Currently active	• **Obstacle NOTAMs**

NOTE: A red NOTAM does not guarantee the airspace is restricted. Tap a NOTAM to reveal NOTAM details to determine the status of the airspace.

14.5.28 TFR Layer

The Temporary Flight Restriction (TFR) map layer is available only when the iOS device region is set to the United States. TFRs are issued exclusively for U.S. airspace.

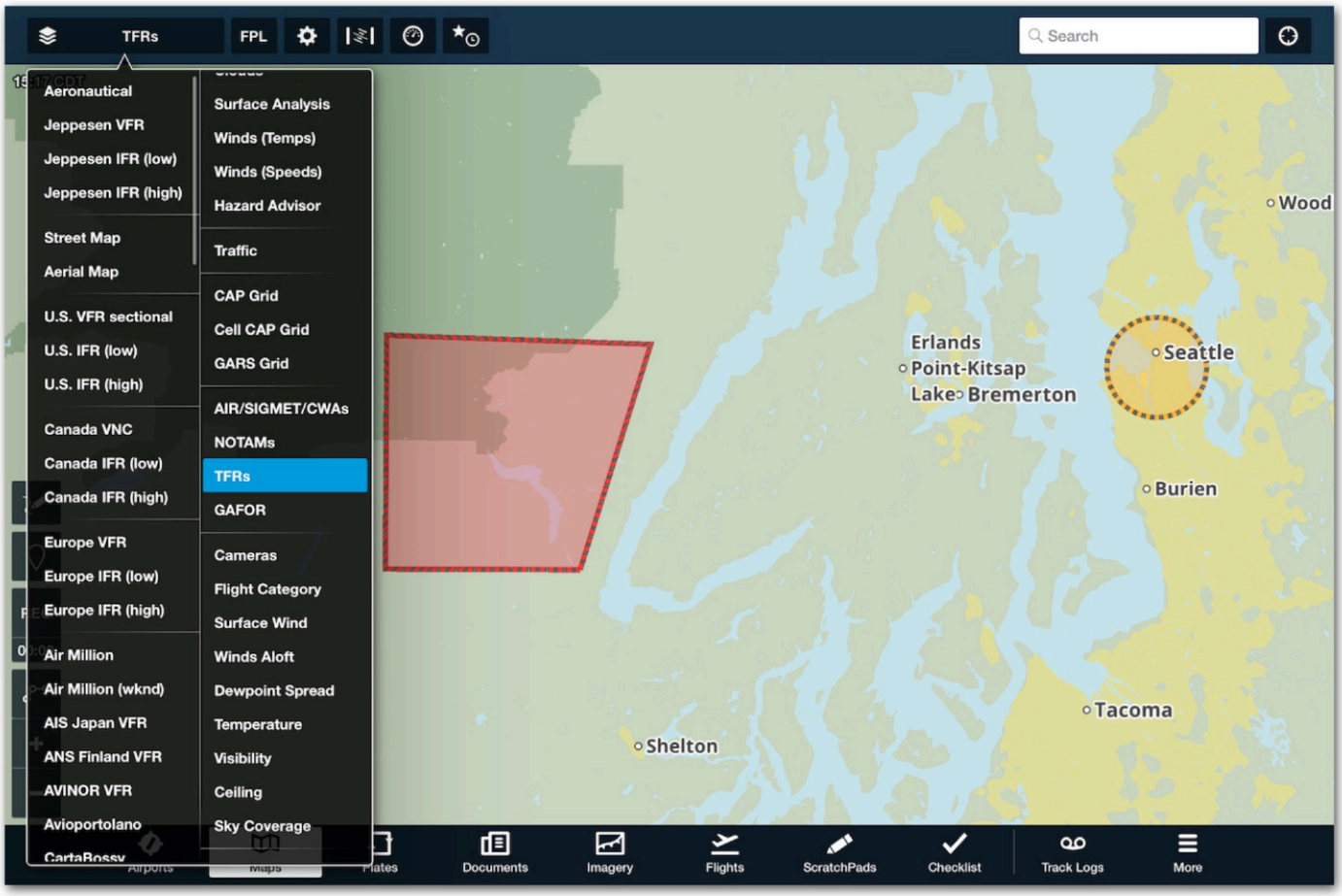


Figure 14-41. TFR Map Layer

TFR Color Coding

TFRs are color-coded based on their activation status:

Table 14-10. TFR Color Definitions

TFR Color	Meaning
	Scheduled TFR: Displayed when the TFR is more than eight hours from activation.
	Active TFR: Displayed from eight hours before activation until expiration.

IMPORTANT:

Graphical TFR information displayed is only updated when the TFR layer is selected while connected to the Internet or a Sirius XM receiver.

TFRs disseminated by the FAA lacking graphical shape information will not be depicted on the map. Pilots must thoroughly brief planned flights. Supplementary TFR information is accessible on the Airports page under **NOTAMs → TFR/ARTCC**. Flight Service Station (FSS) or ATC can also verify planned routes do not intersect TFRs.

While connected to the Internet, use the Pack feature to ensure all relevant TFR and weather data is downloaded before flight. TFRs issued after packing will not be shown in the app when not connected to the Internet.

14.5.29 GAFOR Layer (Europe Only)

The General Aviation Forecasts (GAFOR) layer displays color-coded indexes for regions in Germany and route forecasts for Switzerland, Austria, and Slovenia.

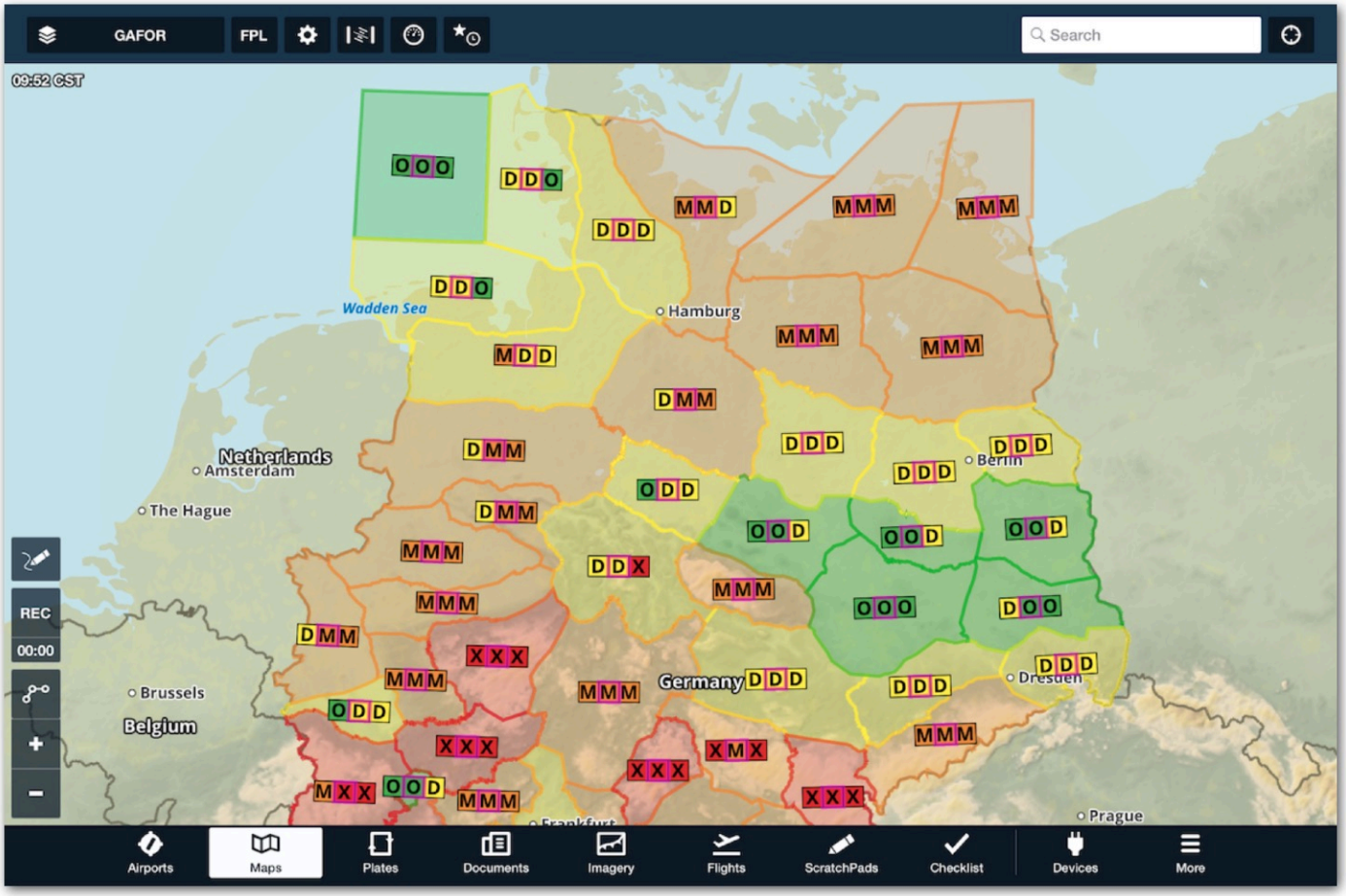


Figure 14-42. GAFOR Layer

GAFOR is updated multiple times daily but is typically unavailable between 0000Z–0300Z. During this time, the layer displays hash marks and “Data not available.”

Tap a GAFOR icon to view the index, forecast periods, reference altitude, cloud base (in feet), and visibility (in kilometers).

The GAFOR Indexes are:

Table 14-11. GAFOR Indexes

GAFOR Index	Germany & others	Switzerland
C - Clear	Visibility > 10km and cloud bases > 5,000ft (Germany only)	--
O - Open	Visibility ≥ 8km and cloud bases ≥ 2,000ft	

GAFOR Index	Germany & others	Switzerland
D - Difficult	Visibility ≥ 5km and cloud bases ≥ 1000ft < 2000ft	Visibility ≥ 5km < 8km and cloud bases ≥ 1500ft < 2000ft
M - Marginal	Visibility ≥ 1.5km and cloud bases ≥ 500ft < 1000ft	Visibility ≥ 2km < 5km and cloud bases ≥ 1000ft < 1500ft
X - Closed	Visibility < 1.5km and any cloud bases or Any Visibility and cloud bases < 500ft	Visibility < 2km and cloud bases < 1000ft

14.5.30 Cameras Layer

Cameras displays connected airport cameras on the map. Tap a camera icon to display the most recent camera views. See Cameras for additional details.

14.5.31 Flight Category Layer

The Flight Category layer displays METAR-derived weather conditions on the map, indicating current Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) status.

The layer updates every five minutes when connected to the Internet. Once flight category data exceeds three hours, it is removed from the map.

Flight Category Legend

Flight category conditions are represented using standardized color codes.

Icon Color	Flight Category
	**LIFR**: Ceiling less than 500 feet or visibility less than 1 mile.
	**IFR**: Ceiling 500 to less than 1,000 feet or visibility 1 to less than 3 miles.
	**MVFR**: Ceiling 1,000 to 3,000 feet or visibility 3 to 5 miles inclusive.
	**VFR**: Ceiling greater than 3,000 feet and visibility greater than 5 miles; includes sky clear.

Icon Color	Flight Category
	**Unknown**: Weather conditions are unknown.

14.5.32 Surface Wind Layer

The Surface Wind layer displays METAR-derived surface wind speed and direction on the map.

This layer is updated every five minutes when connected to the Internet.



Figure 14-43. Surface Winds (SiriusXM)

14.5.32.1 Wind Barb Symbology

Wind barb direction is indicated in true degrees by a stem (line) pointing in the direction the wind is coming from. Wind speed is represented using barbs on the stem:

- Short barb = 5 knots
- Long barb = 10 knots
- Flag = 50 knots.

Multiple barbs may be combined on a single stem to represent higher wind speeds.

Table 14-13. Wind Barbs Icon Definitions

Barb Icon	Meaning
	Calm
	Variable
	5 knots / 315°
	15 knots / 45°
	40 knots / 180°
	60 knots / 270

14.5.32.2 Surface Wind (Wind Barb Color)

Wind barbs are color-coded to represent different wind speed ranges at the surface. Each color corresponds to a specific wind speed range.

Table 14-14. Surface Wind Barb Color Definitions

Surface Wind Barb Color	Meaning
	Peak < 20 knots
	Peak 20 - 30 knots
	Peak > 30 knots

14.5.33 Surface Wind Analysis Layer

Surface Wind Analysis is generated from an automated forecast model and requires a GDL 51 or GDL 52 SiriusXM receiver.

It displays forecast wind speed and direction at tens of thousands of evenly spaced points across the country and is useful for identifying low-level wind circulations over broad areas.

14.5.34 Winds Aloft Layer

Winds Aloft displays forecast wind speed, direction, and temperature on the map.

Forecast winds from 3,000 ft to FL540 are shown in 3,000 ft increments. To adjust the forecast altitude, tap and hold the **altitude slider**, then move it up or down to the desired level. In flight, tap the **Auto** button to automatically set the altitude to the current cruising altitude.

Tap a **wind barb** at the selected altitude to view detailed forecast data for the current three-hour forecast period.

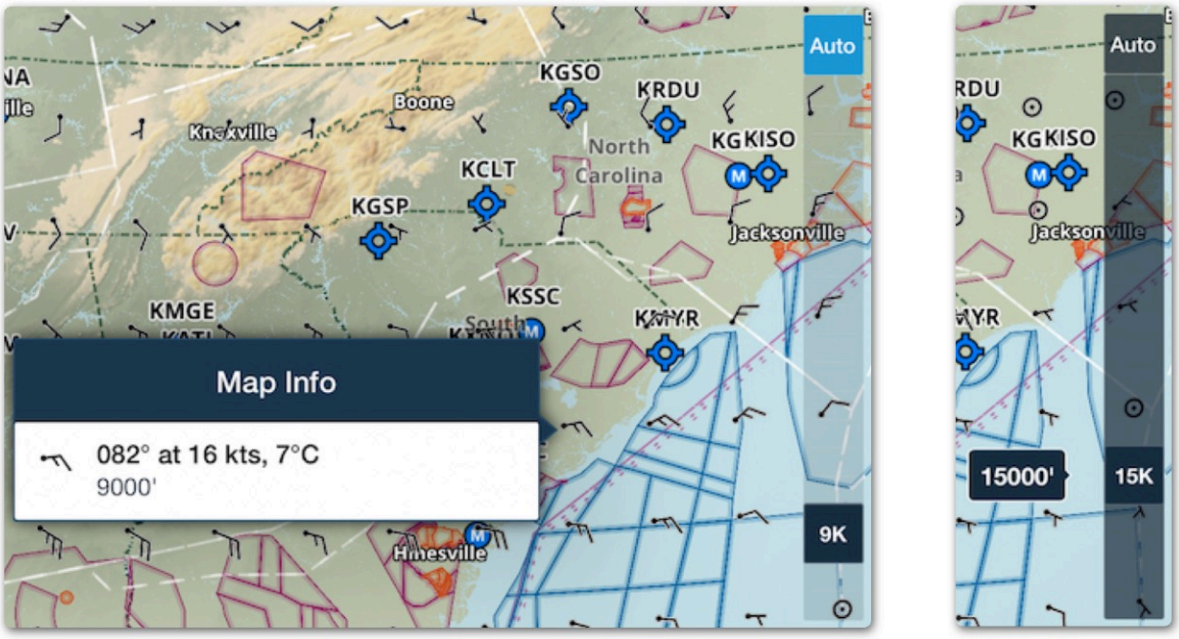


Figure 14-44. Winds Aloft

> **NOTE:** Winds Aloft data must be Packed for offline use. If connected to an ADS-B receiver, data is available without packing.

14.5.34.1 Winds Aloft Legend

Winds Aloft values are displayed using color-coded wind barbs to represent varying wind conditions. Color interpretations differ for altitudes above and below 12,000 feet.

Table 14-15. Winds aloft barb color below 12,000 feet

Winds Aloft Barb Color	Meaning
	0 - 29 knots
	30 - 39 knots
	40 - 49 knots
	50 - 59 knots
	60 - 69 knots
	≥ 70 knot

Table 14-16. Winds aloft barb color above 12,000 feet

Winds Aloft Barb Color	Meaning
	0 - 69 knots
	70 - 89 knots
	90 - 109 knots
	110 - 124 knots
	125 - 149 knots
	≥ 150 knot

14.5.35 Dewpoint Spread Layer

Dewpoint Spread displays METAR-derived dewpoint spread on the map. The weather layer is updated every five minutes when connected to the Internet.

14.5.35.1 Dewpoint Spread Legend

Dewpoint spread is indicated using color coded icons.

Table 14-17. Dewpoint Spread Marker Definitions

Icon and Color	Meaning
	0 - 4° C: Orange
	≥ 5° C: Green

14.5.36 Temperature Layer

Temperature displays METAR-derived surface temperatures on the map. This layer is updated every five minutes when connected to the Internet.

14.5.36.1 Temperature Legend

Temperature values are shown using color-coded icons to represent different temperature ranges.

Table 14-18. Temperature Marker Color Definitions

Icon and Color	Meaning
	< 3° C: Red
	3 - 34° C: Green
	≥ 35° C: Orange

14.5.37 Visibility Layer

The Visibility layer displays METAR-derived visibility values on the map. This layer is updated every five minutes when connected to the Internet.

14.5.37.1 Visibility Legend

Visibility values are represented using color-coded icons, each indicating a specific visibility range.

Table 14-19. Visibility Marker Color Definitions

Icon Color	Visibility Value
	< 1 Statute Mile
	1 -2 Statute Miles
	3 - 5 Statute Miles
	> 5 Statute Miles

14.5.38 Ceiling Layer

The Ceiling layer displays METAR-derived ceiling conditions on the map. This layer is updated every five minutes when connected to the Internet.

14.5.38.1 Ceiling Legend

Ceiling values are represented using color-coded icons, each indicating a specific ceiling range.

Table 14-20. Ceiling Marker Color Definitions

Icon Color	Ceiling Value
	< 500 feet
	500 - 999 feet
	1000 - 2999 feet
	≥ 3000 feet

14.5.39 Sky Coverage Layer

Sky Coverage displays METAR-derived sky coverage conditions on the map. This layer is updated every five minutes when connected to the Internet.

14.5.39.1 Sky Coverage Legend

Sky coverage values are represented using color-coded icons , each corresponding to a specific level of sky coverage.

Table 14-21. Sky Coverage Marker Definitions

Sky Coverage Icon	Meaning
	Sky Clear
	Few
	Scattered
	Broken
	Overcast
	Vertical Visibility

14.5.40 PIREP Layer

PIREP displays pilot weather reports (PIREPs) on the map, providing observations of in-flight conditions.

14.5.40.1 PIREP Legend

PIREPs are represented using specific icons, with each icon corresponding to a particular reported condition.

Table 14-22. PIREP Icon Definitions

PIREP Icon	Meaning
	Icing PIREPs (increasing severity)
	Turbulence PIREPs (increasing severity)
	Sky & Weather PIREP

14.5.41 Lightning Layer

Lightning displays a graphical representation of the observed cloud-to-ground lightning strike density and polarity every five minutes from the U.S. National Lightning Detection Network (NLDN).

14.5.42 Obstacles Layer

Obstacles show obstacle markers based on Jeppesen obstacle data.

14.5.43 User Waypoints Layer

All User Waypoints associated with the account are shown on the Map. See User Waypoints for more information.

14.5.44 Fuel Layers

The Fuel Prices layer displays regional prices for 100LL and Jet-A fuel. Prices are color-coded: green for less expensive, orange for average, and red for the most expensive. UL94, UL91/96, and Mogas fuels are not displayed as map layers.

14.5.45 Custom Map Layers

Custom Map Layers displays a custom KML or KMZ file on the Map. Multiple KML and KMZ files can be displayed at a time. See Custom Map Layers for additional details.

14.6 Weather Layer Time Slider

A time slider appears at the bottom of the screen when an observed or forecast-based weather layer is selected. Observed weather, such as radar and satellite, will display weather imagery from the past. Forecast weather, such as AIRMETs, SIGMETs, and Center Weather Advisories will display what the weather is expected to do in the future.

Tap the play button on the left to animate the layers. The play button advances the time slider frame-by-frame, while the timestamp on the left shows the date and time when each frame is valid.



Figure 14-45. Forecast Weather Time Slider

Forecast-based weather layers use a vertical white bar on the time slider to indicate the present time. Manually control the animation by tap-holding on the time slider and dragging it left or right to view different frames or by tapping on the line to the left or right of the slider to advance it one frame at a time in either direction.

14.7 Weather Legends

When one of the following weather layers are selected, a legend can be displayed near the bottom of the Maps view.

- Radar
- Color IR Satellite
- Clouds
- Enhanced Satellite
- Icing and Turbulence
- Winds (Temps/Speeds)

The legend is toggled on and off using the Map Settings menu and will update based on the selected layer.



Figure 14-46. Map Legend (Radar)

14.8 Maps Sidebar

The sidebar is displayed when map layers are enabled and a map element is tapped. The sidebar is also shown when the map is pressed and held (no active map layer required). When the map is pressed and held, the sidebar reveals the **Add to Route** menu.

The sidebar responds to tapped elements to display relevant information. For example, if the **Fuel: Jet A** map layer is enabled and a fuel price is tapped, the sidebar automatically displays FBO information. Similarly, tapping a METAR-based weather layer (flight category, visibility, etc.) opens the airport details view with the METAR tab selected. If a VFR Waypoint is tapped on the Aeronautical Map layer, the sidebar displays information such as its waypoint type, ForeFlight Identifier, and whether or not it is a compulsory reporting point.

The sidebar airport details view displays all the same information as the full-screen Airports view. When an Aeronautical map airport icon is tapped, the airport details view opens to the Info tab. If the Show Weather First setting is enabled, the sidebar opens to the METAR tab.

Dynamic map layers such as Radar, Satellite, Icing (US & Global), Turbulence (US & Global), Clouds, and Winds (Temps & Speeds) do not reveal the sidebar with a single tap.

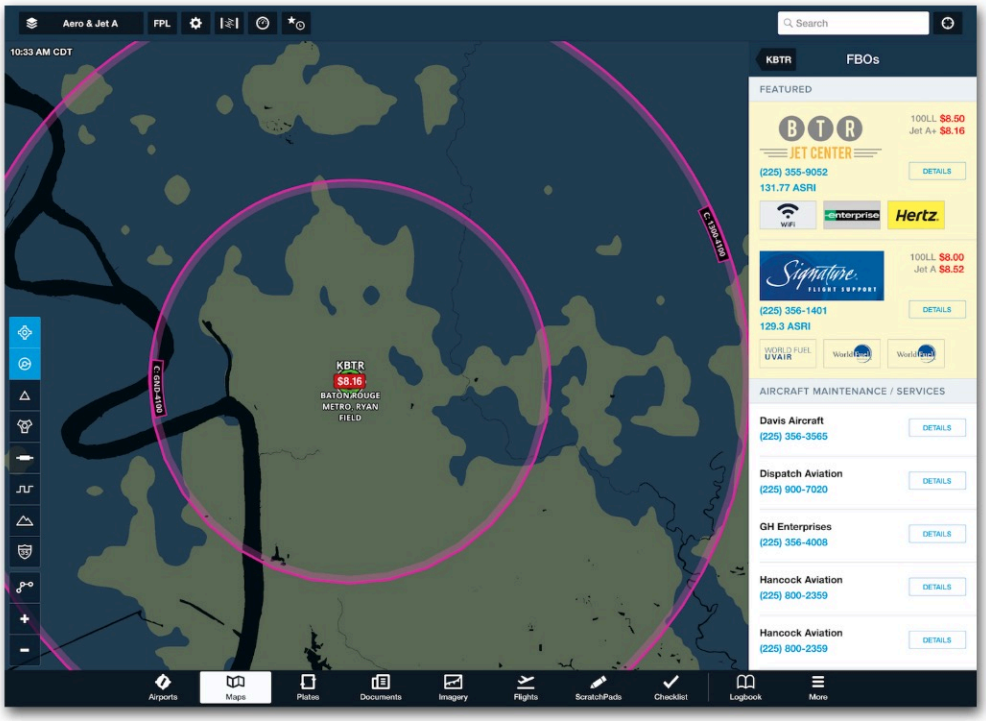


Figure 14-47. Maps Sidebar - FBO View

14.8.1 Airport Details Menu

When an Aeronautical Map Layer is displayed, tapping an airport on the map opens the Airport Details Menu in the sidebar with the functionality described below.

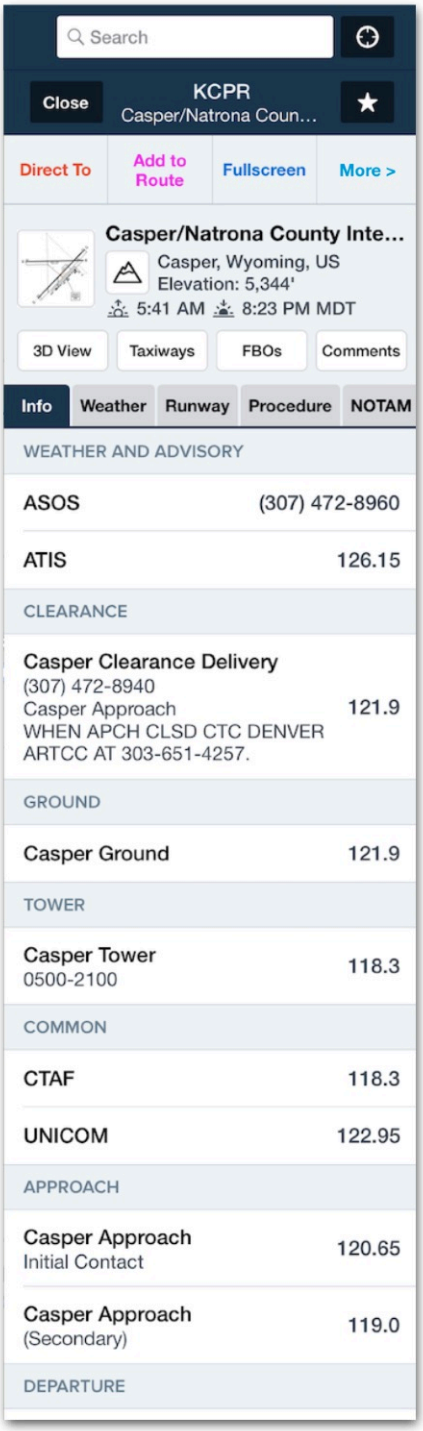


Figure 14-48. Airport Details Sidebar

14.8.1.1 Touch Planning Actions

The top of the Airport Details Menu provides the following Touch-Planning actions. Many of these options are described in further detail in the Flight Planning chapter.

- Tapping **Direct To** for an airport on the current route will create a route from the present position to the airport and keep all waypoints after the airport. Tapping **Direct To** for an airport not on the route will create a route from the present position to the airport and erase any route in the FPL Editor.
- To add the selected airport as the next element in the current route, tap **Add to Route**. The selected airport will be added to the end of the route as the last waypoint in the Flight Plan (FPL) Editor.
- To open the selected airport in the Airports view, tap **Fullscreen**.
- To add the airport as an alternate, tap **Set as Alternate**. A list of suggested alternates also opens. For Essential and higher, **More >** ➔ **Set as Alternate**
- To open the Hold Advisor for the selected airport, tap **More >** ➔ **Hold...**. Hold Advisor is available for Essential and higher subscriptions.

If the selected airport is already in the route, tap **More >** to reveal the following additional actions:

- If the selected airport is already in the current route, tap **Remove from Route** to remove it.
- To add an airport to the route when it is already an earlier part of the route, tap **Add Again**.
- To add a point at an arbitrary distance before the end of the leg, tap **Along-Track Offset**.
- To include a delay or stay at the current airport, tap **Set Altitude/Speed/Time**. This action is only available for Premium and Business Performance subscribers.
- To designate a runway at the selected airport, tap **Select Runway**.
- Tap **Set As Alternate** to open the Alternate Airport Advisor.

14.8.1.2 Mini Airports View

Underneath the Airports Details Menu touch-planning options are buttons for viewing airport details. This mini Airports view provides nearly identical functionality to what is offered when an airport is displayed in the Airports view.

For additional airport detail information, see the Airports chapter.

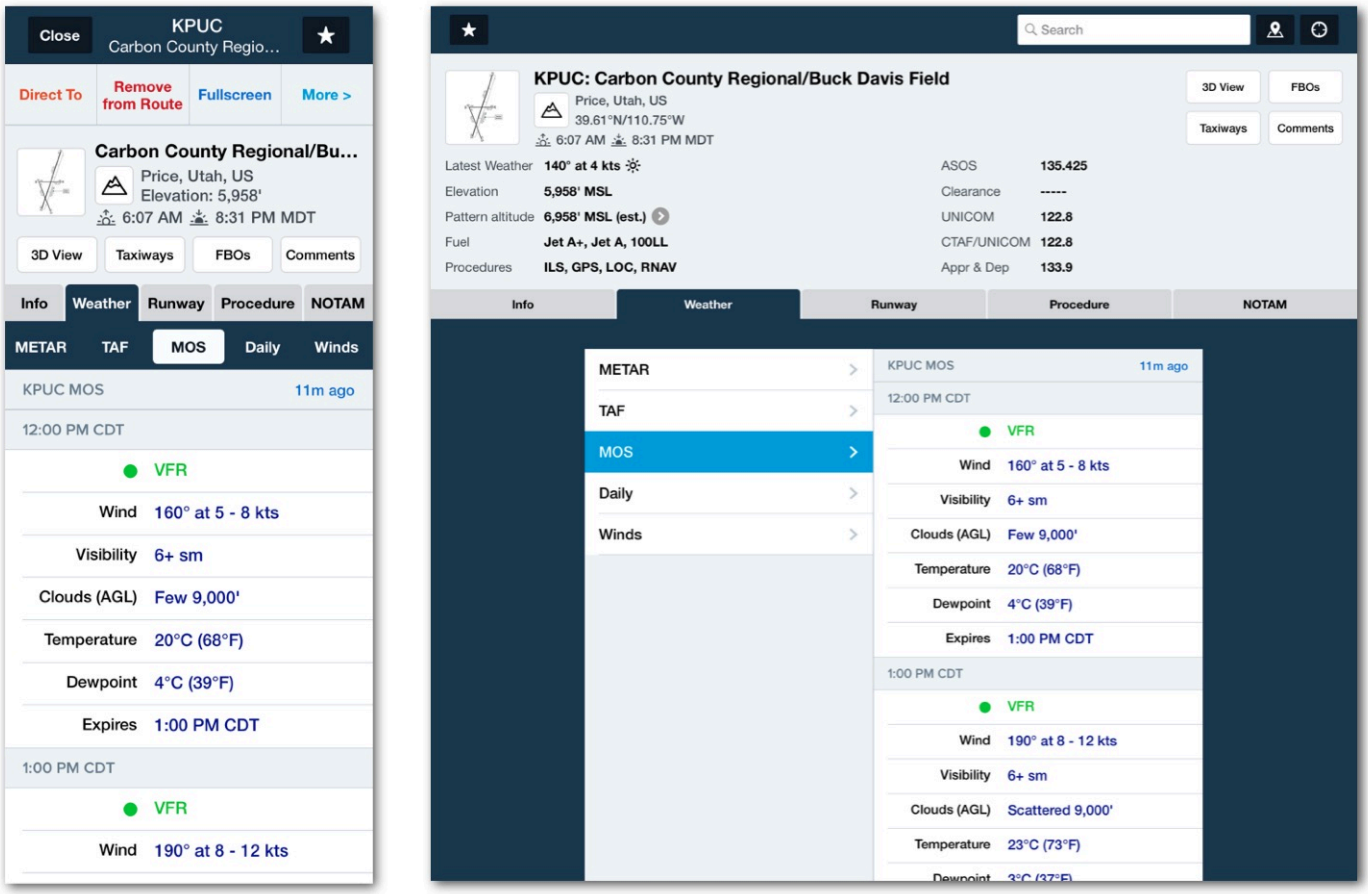


Figure 14-49. Maps Sidebar (Left), Airports View (Right)

14.8.2 Waypoint Information Menu

When a map layer is displayed, tapping a navaid or waypoint on the map opens the Waypoint Details sidebar. This panel provides waypoint-specific information along with interactive touch-planning tools, including routing options, hold entries, altitude and timing adjustments, and access to local weather forecasts.

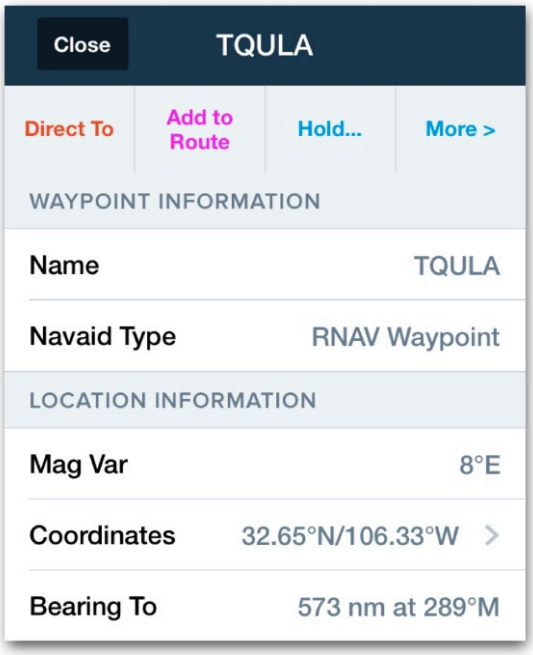


Figure 14-50. Waypoint Sidebar

14.8.2.1 Touch Planning Actions - Waypoint Information Menu

The top of the Waypoint Details menu includes several touch-planning actions. Many of these actions are described in more detail in Flight Planning .

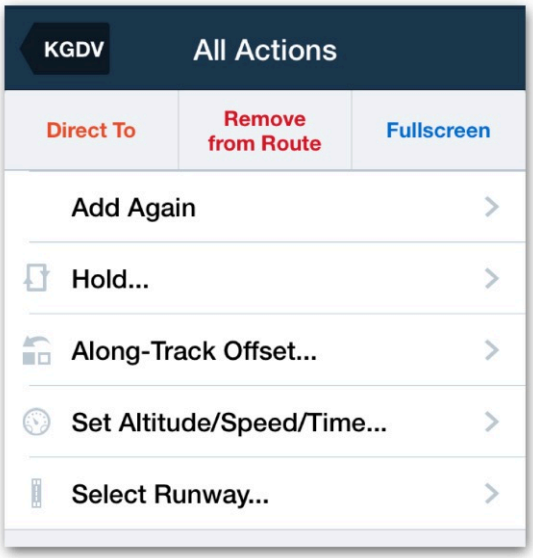


Figure 14-51. More Actions Menu

- **Direct To** -
  - **For a waypoint on the current route**: creates a route from the present position to the selected waypoint and retains all waypoints after it.

    - **For a waypoint not on the current route**: creates a route from the present position to the waypoint and clears any existing route in the FPL Editor.
- **Add to Route**: Adds the selected waypoint as the last waypoint in the current route in the FPL Editor.
- **Hold** - Opens the Hold Advisor for the selected waypoint.

If the selected waypoint is already part of the current route, tap **More >** to access additional options:

- **Remove from Route**: Removes the selected waypoint from the current route.
- **Add Again**: Adds the waypoint again if it is already an earlier part of the route.
- **Along-Track Offset**: Inserts a point at a user-defined distance before the end of the leg.
- **Set Altitude/Speed/Time**: Adds a delay or constraint at the waypoint. This feature is available only with Premium and Business Performance subscriptions.
- **Wx Forecast**: Displays an hourly and daily local weather forecast provided by The Weather Company.

14.8.3 Add to Route Menu

The Add to Route Menu is displayed in the sidebar when the map is tapped and held. The menu allows creating user waypoints, planning flights, and viewing aeronautical details.

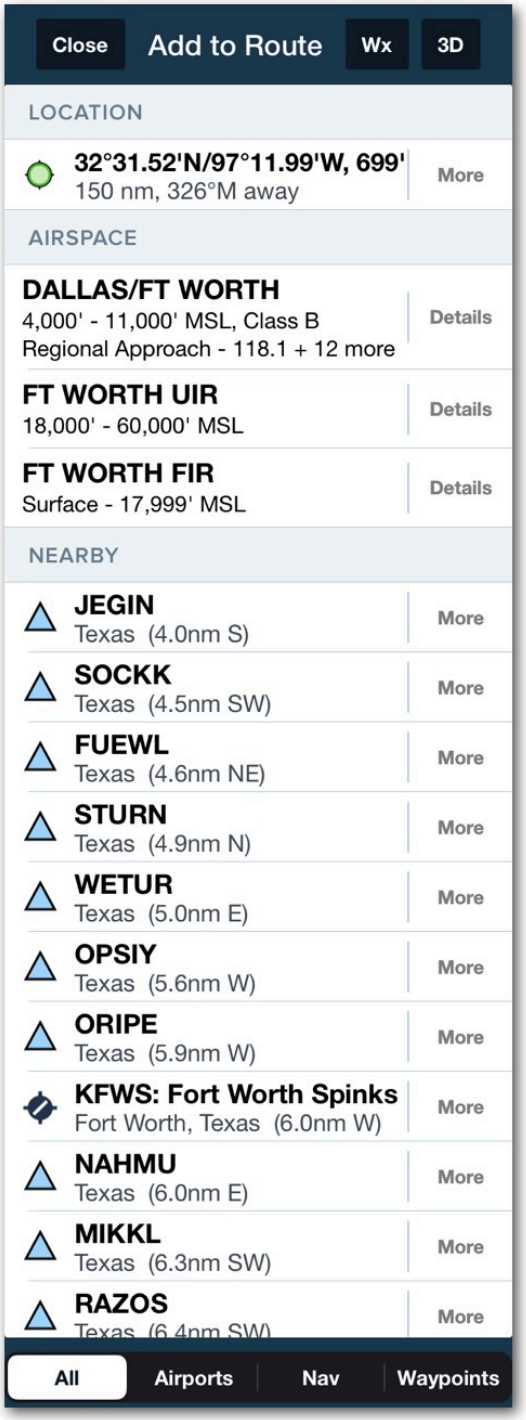


Figure 14-52. Add to Route Menu

There are two buttons at the top of the menu. The **Wx** button displays the Daily Weather pop-over. The **3D** button offers an aerial three-dimensional view centered around the coordinates (Premium, Business Performance, or MFB Performance plan required).

14.8.3.1 Add to Route Design

The Add to Route menu is divided into three sections.

Location

The location section displays the coordinates and highest elevation within 0.25 nautical miles. The coordinate format is determined by the Unit/Time setting. To copy coordinates tap the **More** ➔ **Copy** buttons to open the Coordinate Formats pop-over.

Airspace

The airspace section lists all airspace from the surface to 60,000 feet. Tap **Details** to highlight the airspace on the map. The airspace details view displays frequencies, NOTAMs, RVSM cruise tables, operational notes, speed restrictions, prior notification procedures, and communication details for CPDLC and satellite services.

Nearby

The nearby section lists nearby airports, navigational aids, and waypoints, sorted by distance. Icons are provided to assist with determining the type. The **All**, **Airports**, **Nav**, and **Waypoint** buttons at the bottom of the menu filter the nearby list.

Heliports, Private Airports, and Seaplane bases are only included in the nearby list if the **All** or **Airports** filter is selected and the airport types are enabled in the **Aeronautical Map** > Airport settings. Tap an element in the waypoint list to append it to the end of the existing route.

14.8.3.2 Touch Planning Actions - Add to Route Menu

When a location or nearby waypoint is touch-held on the map, the Touch Planning popover, accessed by tapping **More** next to the location or nearby waypoint, provides quick access to planning actions. Touch Planning actions are described in detail in the Flight Planning chapter.

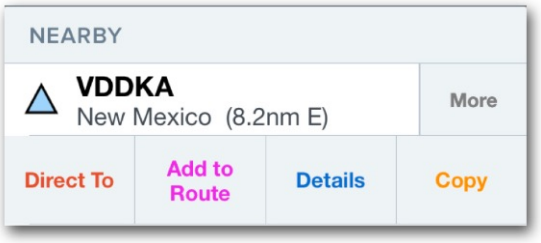


Figure 14-53. More Waypoint Details

The following actions are available from the Touch Planning pop-over:

- **Direct To**: Creates a route from the present position to the selected waypoint.
  - If the waypoint is on the current route, the new route retains all subsequent waypoints.
  - If the waypoint is not on the current route, the new route replaces the existing route in the FPL Editor.
- **Add to Route**: Inserts the selected waypoint into the current route. The waypoint is appended to the end of the route as the last waypoint in the FPL Editor.
- **Details**: Opens the Details pop-over with the following additional functions:
  - **Remove from Route**: Available when the waypoint is included in the current route; removes the waypoint.
  - **Add Again**: Adds the waypoint to the route when it already appears earlier in the route.
- **Copy**: Opens the Coordinate Formats popover and provides options to copy waypoint coordinates.

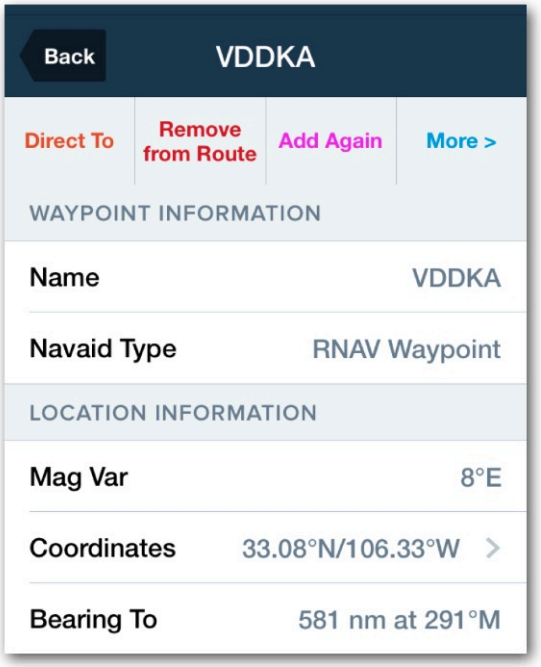


Figure 14-54. Waypoint Details

To access additional actions, tap **More >** to open the All Actions pop-over.

The following actions are available from the All Actions pop-over:

- **Hold**: Opens Hold Advisor for the selected waypoint. Hold Advisor requires an Essential or Business Pro subscription.

- **Along-Track Offset**: Adds a point at an specified distance prior to the end of the active leg.
- **Set Altitude/Speed/Time**: Adds a delay or stay at the selected waypoint. This action is only available for Premium and Business Performance subscribers.
- **Wx Forecast**: Displays hourly and daily local forecast for the selected waypoint. Forecast data provided by The Weather Company.

14.8.4 Coordinate Copying

Coordinate Copying allows a user to select the desired coordinate format and copy it to the clipboard. The coordinates can be pasted to other fields within ForeFlight Mobile, notes, or other apps (Waypoint Copying requires a Premium, Business Performance, MFB One, or MFB Performance plan).

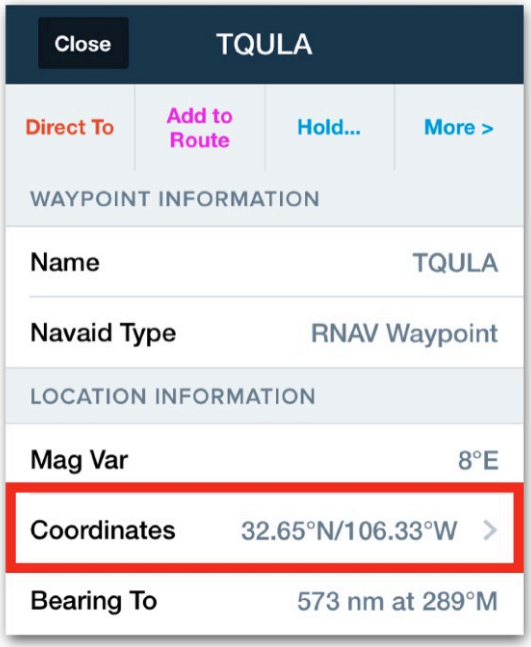


Figure 14-55. Waypoint Sidebar

14.8.4.1 Copying Airport Coordinates

To copy airport coordinates, follow these steps:

1. Tap on the airport in the Main Maps View to open the Airport Details Menu in the sidebar.
2. Select the **Info** tab.
3. Scroll down to the FEATURES section.

4. Tap on the **Location** line to open the Coordinate Formats pop-over.
5. Tap on the **COPY** button next to the desired location coordinates.

   A link at the bottom of the popover opens the Coordinates settings view, where the default coordinate format can be verified or changed. Tap the link to confirm the format currently in use in ForeFlight Mobile.

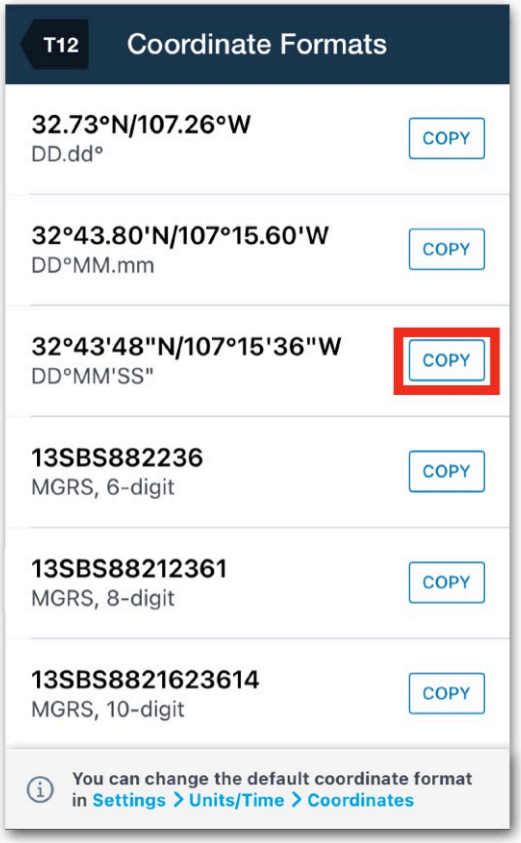


Figure 14-56. Coordinate Formats with Copy Buttons

See Airport Info Tab for more details.

14.8.4.2 Copying Waypoint Coordinates

To copy waypoint coordinates, follow these steps:

1. Tap on a waypoint in the Main Maps View to open the Waypoint Information Sidebar.
2. Tap on **Coordinates** to open the Coordinate Formats pop-over.

3. Tap **COPY** next to the desired coordinate format.

   A link at the bottom of the popover opens the Coordinates settings view, where the default coordinate format can be verified or changed. Tap the link to confirm the format currently in use in ForeFlight Mobile.

14.9 Route Line

The Route Line is a visual representation of the planned flight path on the map. Each leg connects route waypoints and uses color and line style to indicate flight progress.

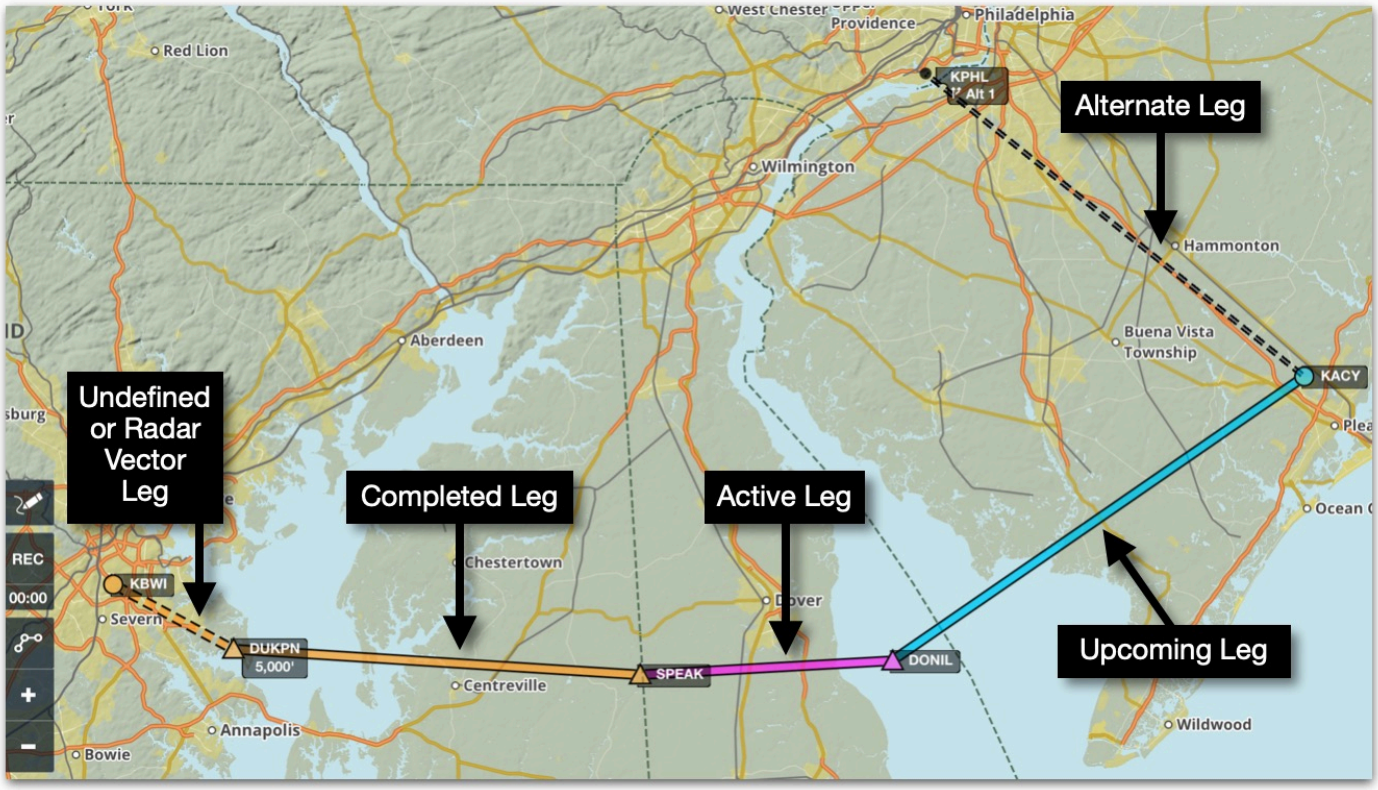


Figure 14-57. Route Line Color and Style



Figure 14-58. Overlapping Route Lines

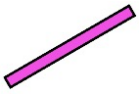
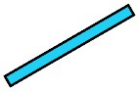
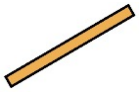
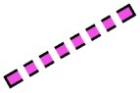
14.9.1 Route Line Colors

The appearance of each route leg conveys specific information:

- **Color** represents flight progress.
- **Line style** differentiates between actual and approximate routing, and indicates when the route overlaps itself.

Refer to the Route Line Color Legend table for detailed descriptions of each combination.

Table 14-24. Route Line Color Legend

Color	Meaning
	**Magenta** lines represent the active leg of the flight plan. The first leg of a new route is always magenta.
	**Blue** lines represent future legs.
	**Orange** lines represent completed legs.
	**Dashed** lines indicate an approximate path to the next waypoint. Like solid lines, they can be **magenta**, **blue**, or **orange**. This is common when expecting radar vectors from ATC during an instrument procedure.
	**Overlapping** lines indicate two or more legs on the route overlap one another. As a flight progresses, the legs are displayed to maximize their visibility. Specifically: • The active (**magenta**) leg is always displayed on top of the completed (**orange**) or future (**blue**) legs it overlaps. • When a flight starts, the outbound legs are centered and on top of inbound legs. • When all overlapped outbound legs are complete, those legs are offset and moved under the inbound legs
	**Dashed Gray** lines indicate the alternate route.

14.9.2 Route Waypoints

Waypoints in the route are drawn with an icon to represent their type, such as a VOR. For more information, see Aeronautical Map Symbols.

14.9.3 Route Details

Tap on any leg in the route to access certain information and actions.

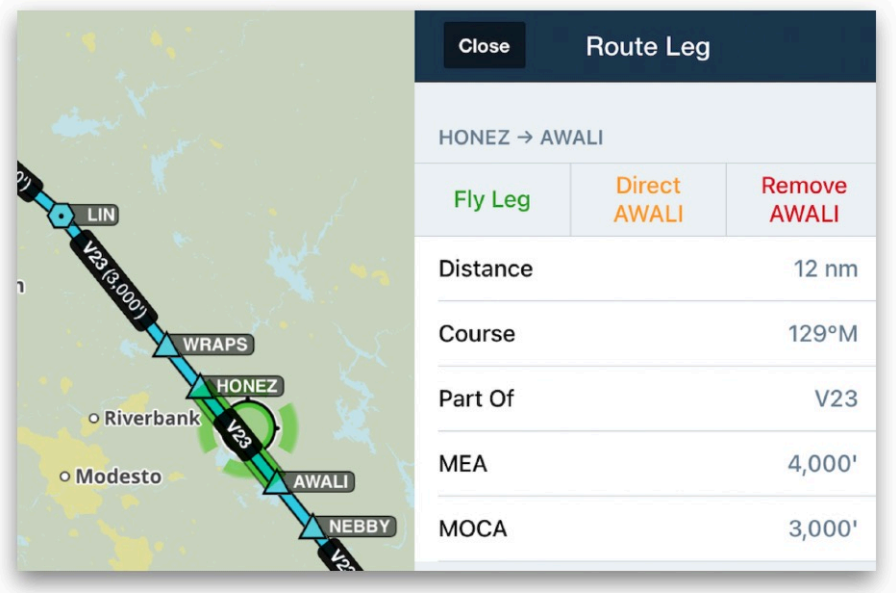


Figure 14-59. Tap a leg to show its details

The Route Leg popup includes the length and magnetic course, and if the leg is part of a named airway, the popup also includes the name of the airway, the leg MEA, and the leg Minimum Obstruction Clearance Altitude (MOCA), if it has one. If Corridor Activation is set to Show, or when it is set to Automatic and the Profile View or Hazard Advisor is displayed, the popup also shows the highest-point markers of the leg.

Buttons at the top of the popup allow the following actions:

- **Fly Leg** – Activates the selected leg for navigation.
- **Direct To** – Navigates direct to the waypoint at the end of the leg.
- **Remove** – Removes the waypoint at the end of the leg.

If the selected leg overlaps another leg, the sidebar opens to list all overlapping legs at the selected location. The currently active leg is marked with an ACTIVE LEG badge.

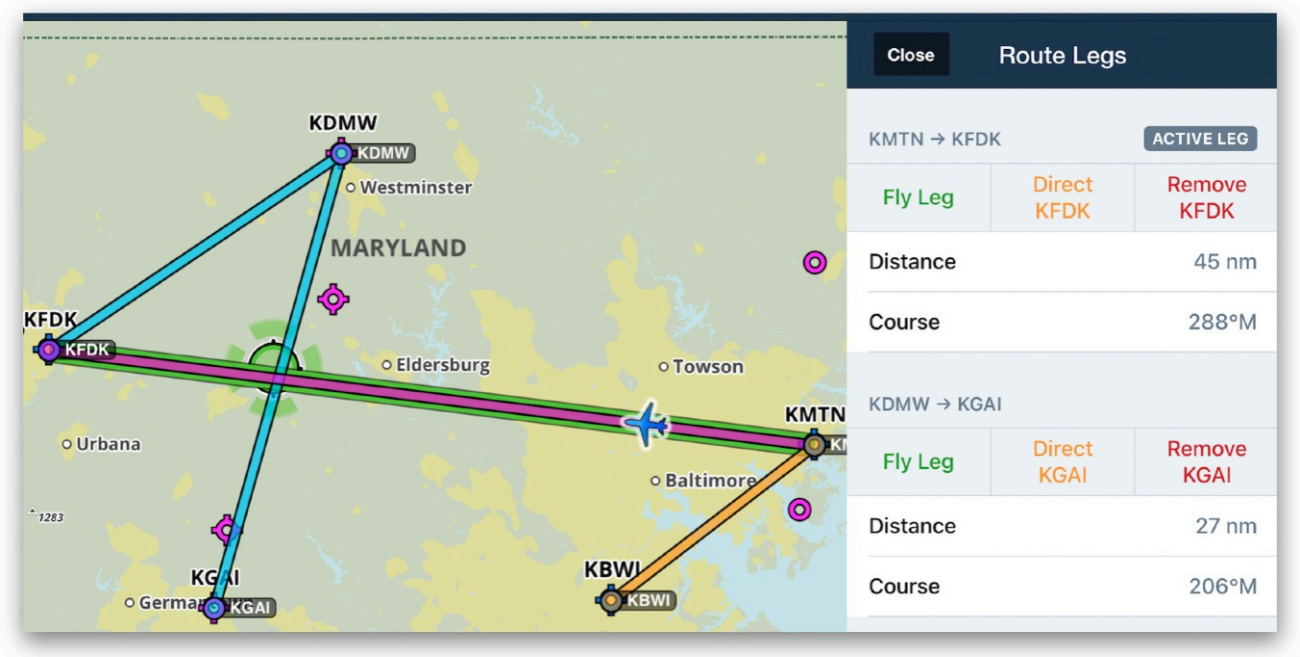


Figure 14-60. Tap an overlapped region to show all its legs

14.9.3.1 LSALT Calculator (Route Leg Details)

The LSALT Calculator may be displayed on the Route Details to show lowest safe altitude calculations per leg. See Map Settings to enable the LSALT Calculator.

To calculate LSALT:

1. Tap the leg to be calculated.
2. Tap **LSALT** in the Route Leg sidebar.
3. Manually enter a custom LSALT or tap a radio button for the desired calculation.

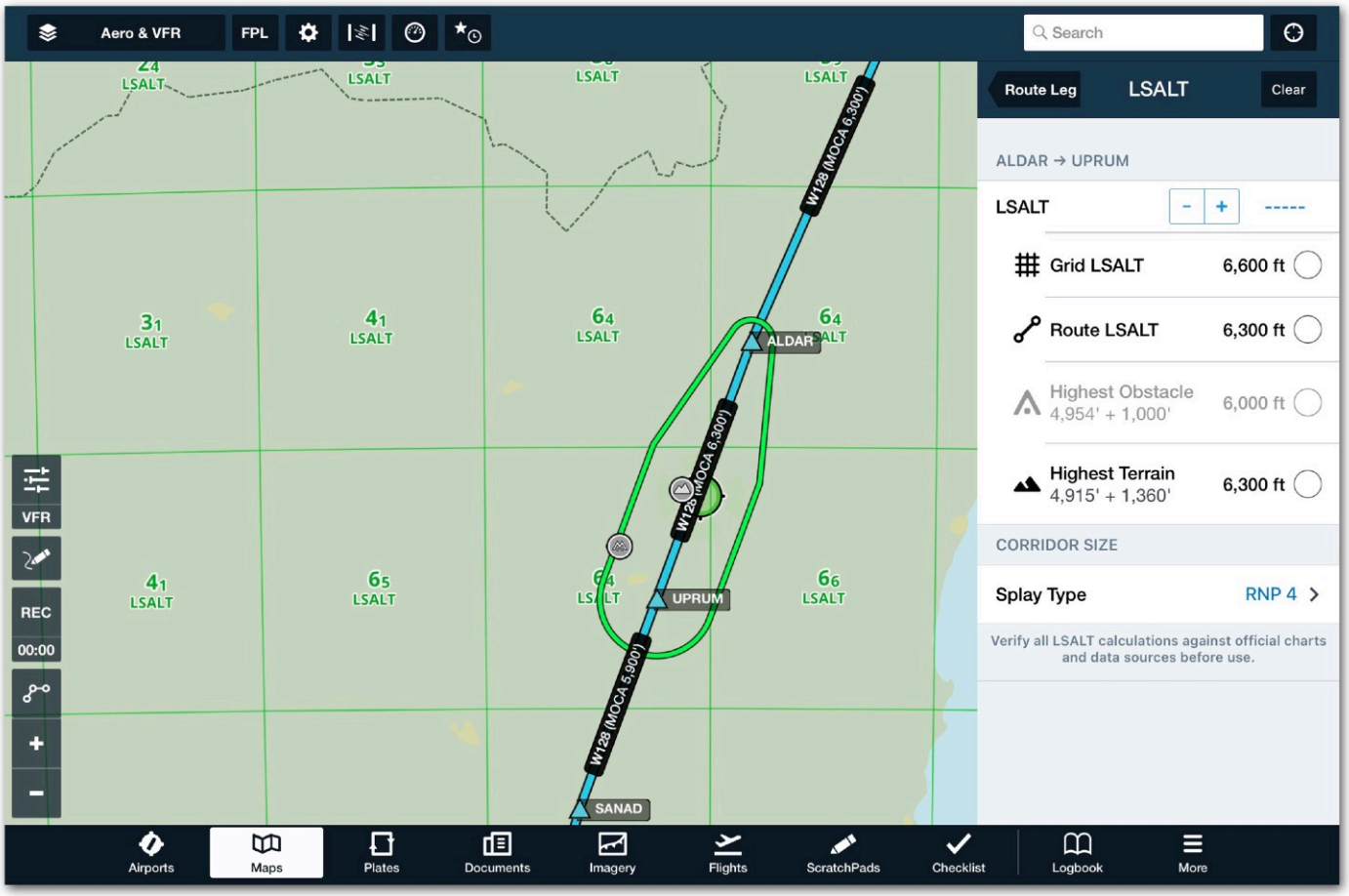


Figure 14-61. Route Details LSALT Calculator

14.9.4 Operational Note Flags

The Airport and Nav Database includes Jeppesen-sourced Operational Notes. Notes can be issued for airspace, airways, waypoints, navaids, and more. Operational Notes can be displayed in the Sidebar regardless of subscription type or settings.

With a Performance-tier subscription, numbered flags can be displayed on the map for each Operational Note that exists along the planned route. Flags are numbered sequentially for each Operational Note encountered. Tapping a flag highlights it and opens the Sidebar with the details of the Operational Note displayed.

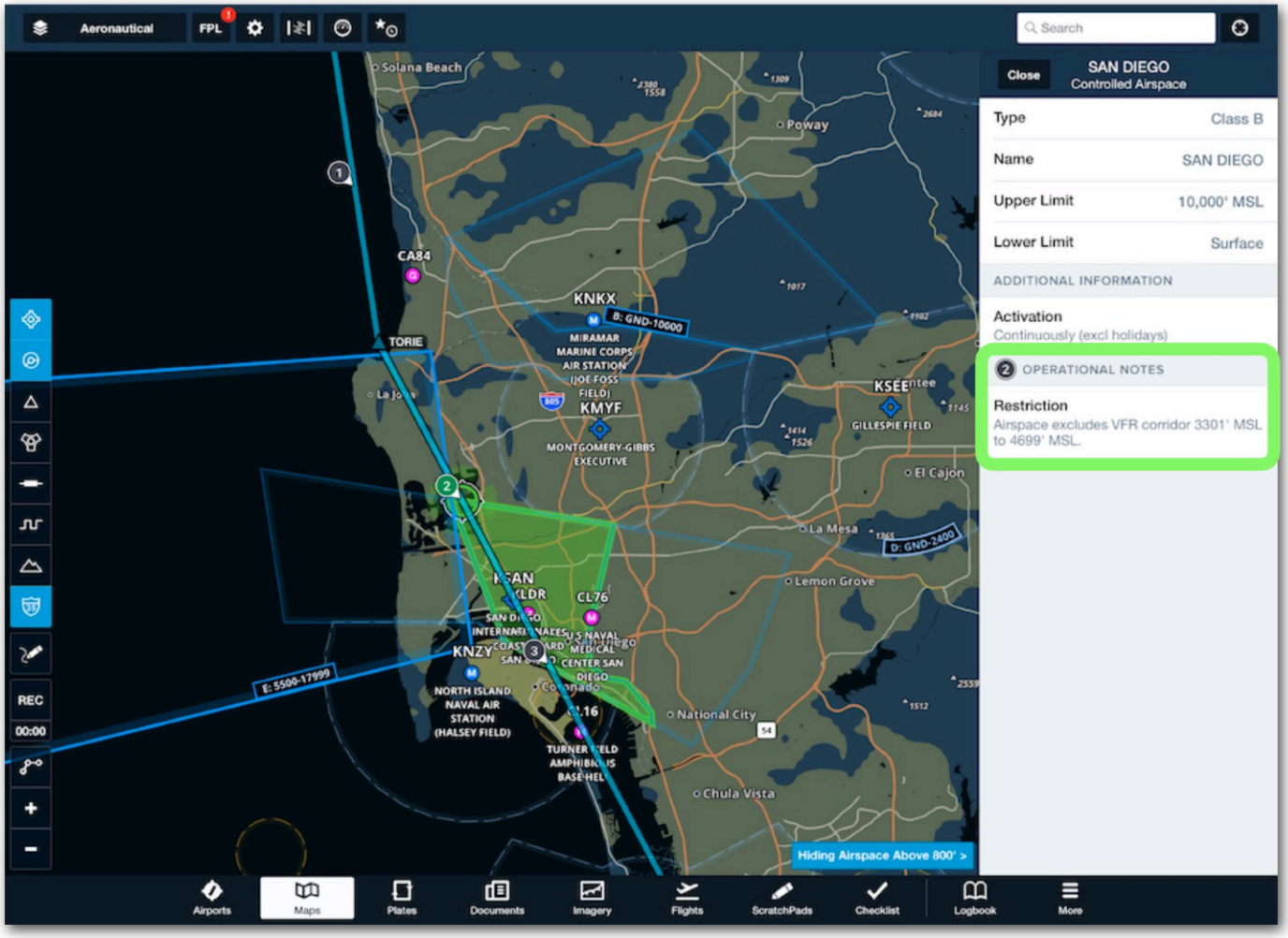


Figure 14-62. Planned Route with Operational Notes in Sidebar

To enable Operational Note Flags:

1. Tap the **Map Settings** button (looks like a gear in upper toolbar) open the Map Settings menu .
2. Scroll down and enable the **Operational Note** setting.

> **NOTE:** Operational Notes can be viewed in the Sidebar with the Operational Note setting disabled. The Operational Note setting only enables the flags.

14.9.4.1 Flags

Operational Note Flags are displayed at the waypoint where the note exists.

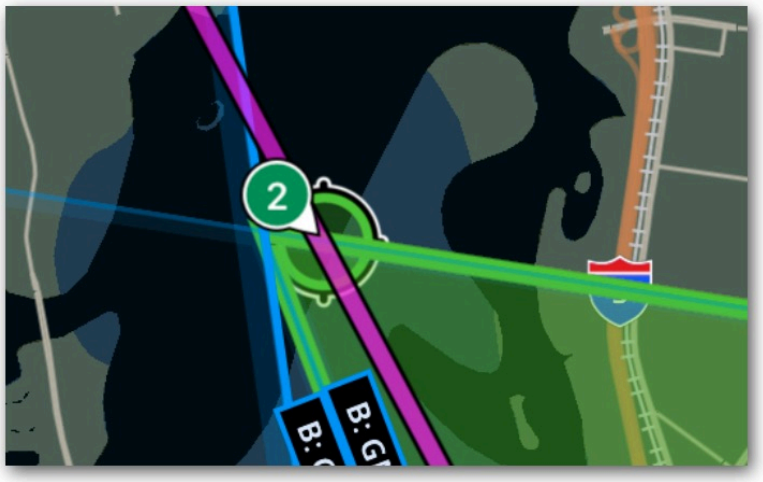


Figure 14-63. Airspace Flag

If an Operational Note relates to airspace, a flag is displayed at the point where the route intersects the airspace. The planned altitude (including climb and descent) must be within 1000 ft (vertically) of the airspace for the flag to appear.

14.9.4.2 Multiple Operational Notes

When an Operational Note is co-located with a waypoint, tapping the flag results in the Sidebar displaying the Operational Note and the waypoint. Tap the numbered flag to display the details of the Operational Note.

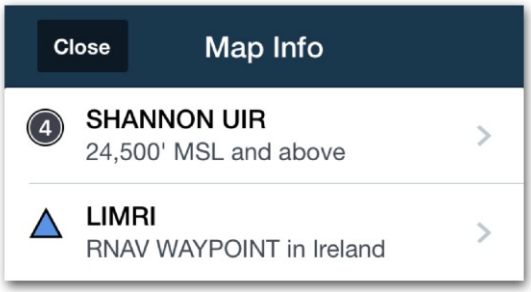


Figure 14-64. Numbered Operational Note and Waypoint

When more than one Operational Note exists where a flag is located, the flag will show the range of notes, separated by a dash (e.g., 6 - 9). Tap the flag to display the notes in the Sidebar.

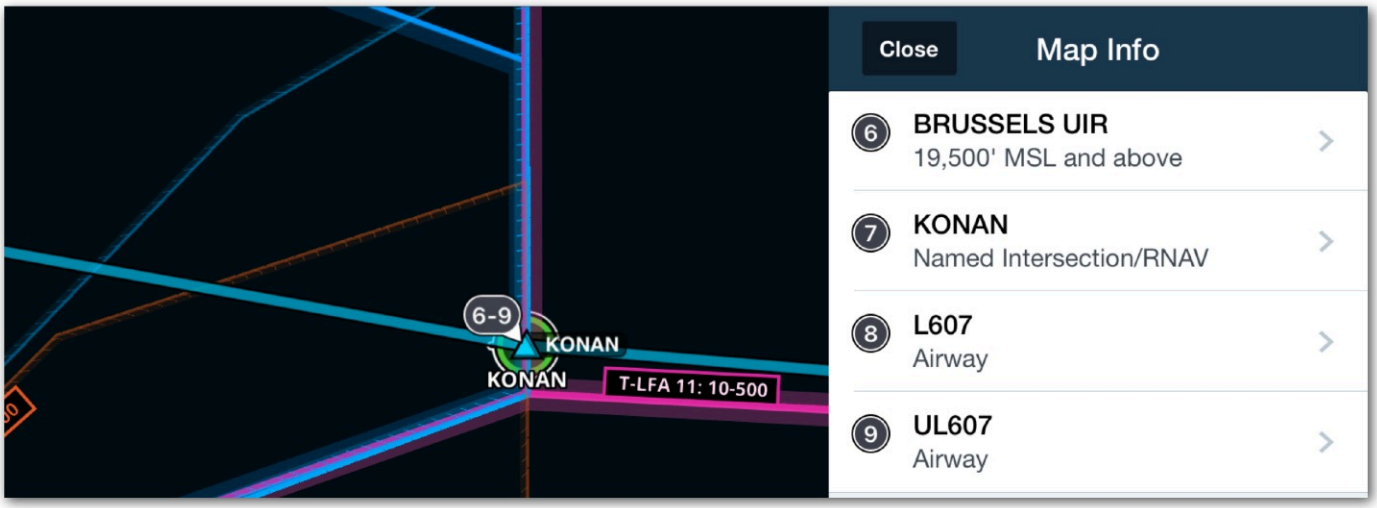
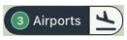


Figure 14-65. Operational Notes (6 - 9)

14.10 Emergency Glide Mode

Emergency Glide Mode (EGM) may be activated to provide critical data following an inflight engine failure. The system identifies optimal algorithm-derived available landing sites, facilitating rapid decision making. In scenarios where no suitable airports are within glide range, EGM highlights possible landing areas based on terrain analysis.

EGM operates as an extension of Glide Advisor feature, therefore Glide Advisor must be enabled. The EGM button 

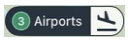
displays in the lower portion of the map. ForeFlight Mobile continuously evaluates the proximity of up to 3 airports within the glide range. Upon activation, EGM automatically clears non-essential map and UI elements to establish a focused display.

14.10.1 EGM Activation (Airport)

If airports are within the calculated glide distance ForeFlight Mobile will display the algorithm-derived top 3 candidates. Factors considered are:

- Estimated arrival altitude
- Runway length
- Weather conditions
- Runway orientation options
- Runway surface.

Instrument panel, extended centerlines, and track vector are automatically activated upon entering EGM. To activate EGM to an airport:

1. Tap the EGM button. 

2. Tap the desired airport from the available airports list or from the map.
3. Tap **Activate Glide**.
4. Tap **Exit** to return to map view.

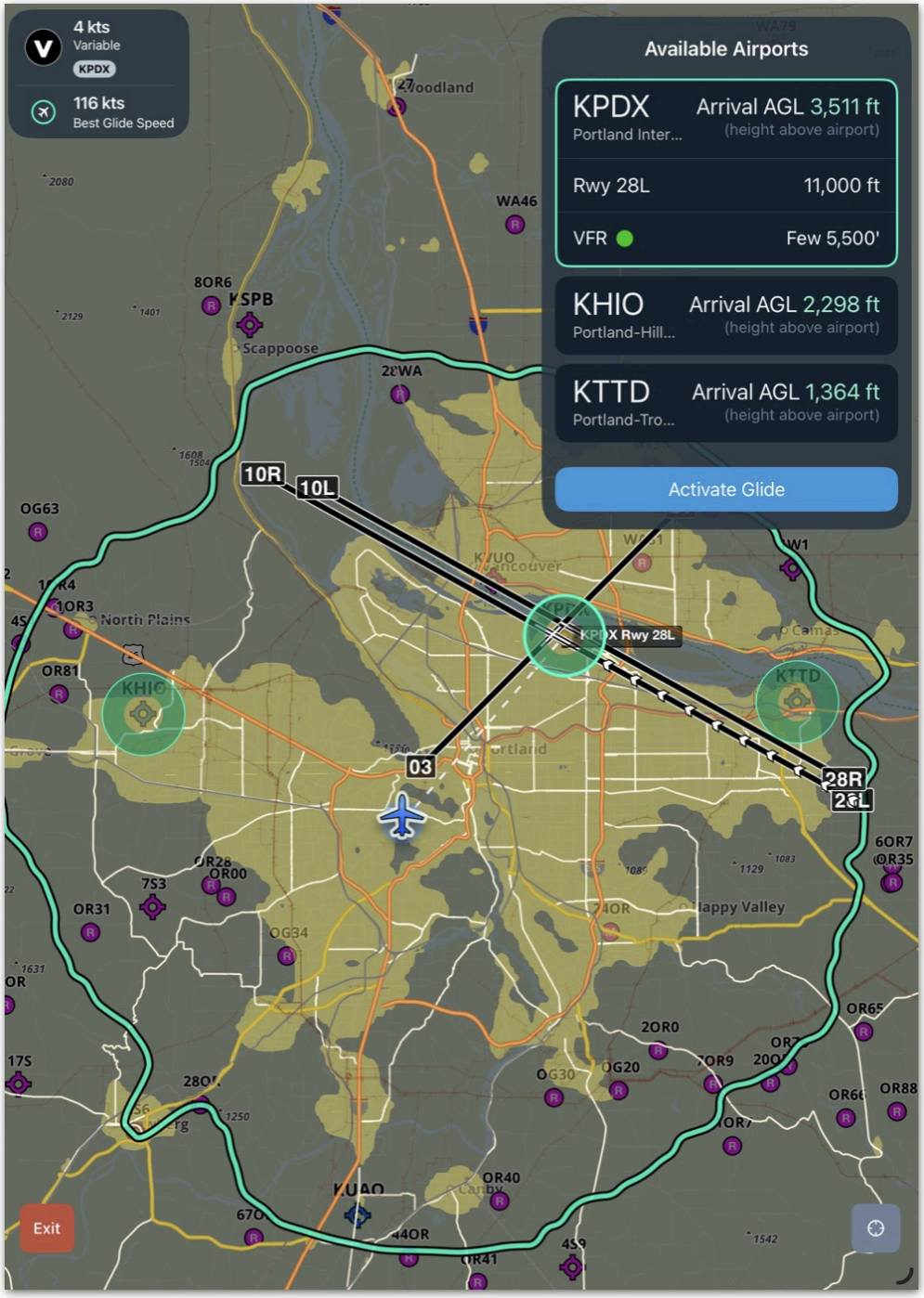


Figure 14-66. EGM Airport Selection

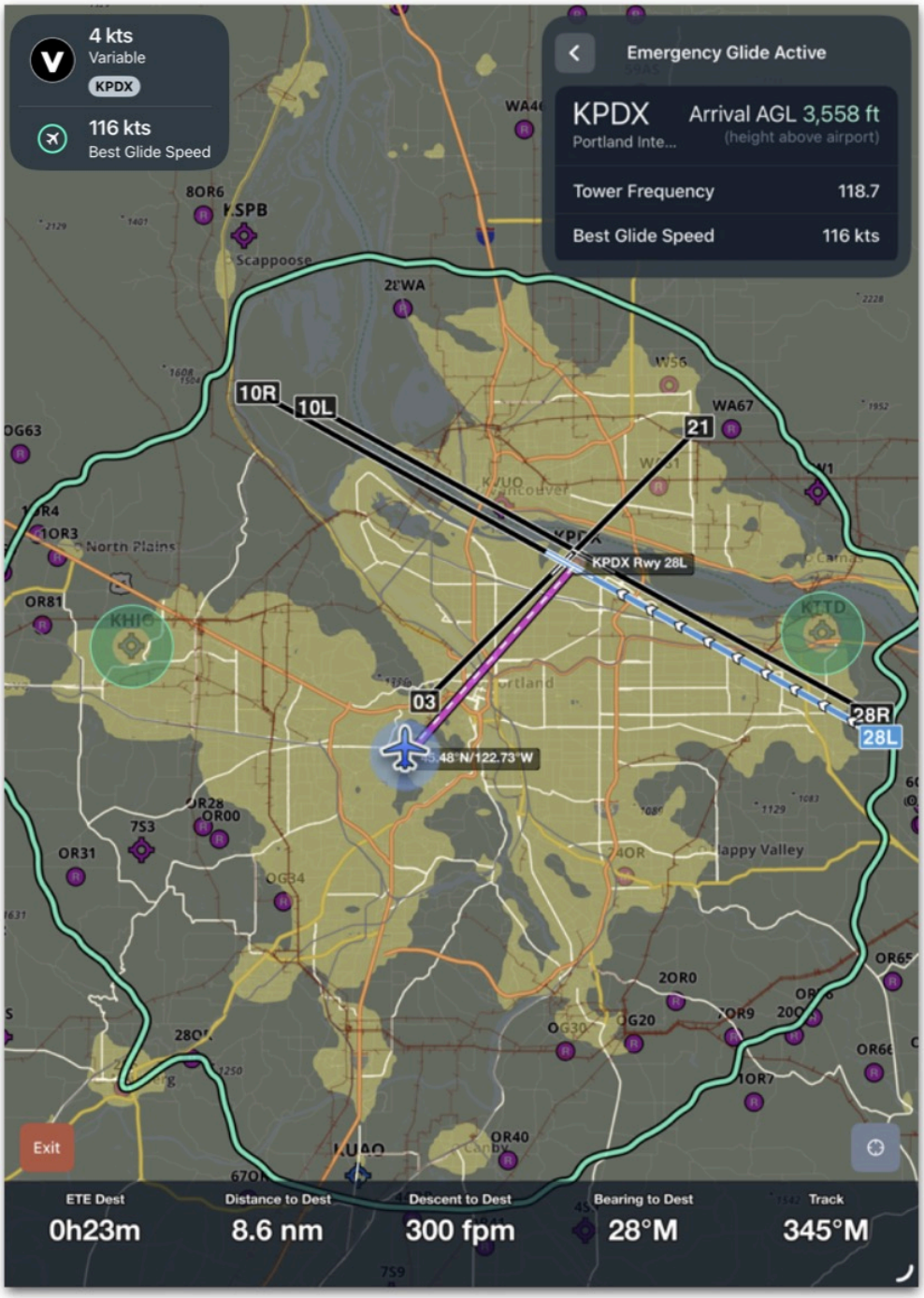


Figure 14-67. EGM Active

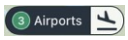
14.10.2 EGM Activation (Off-Airport)

If no airports are within the calculated glide distance, the off-airport mode will display when the EGM button is tapped. Off airport landing areas are identified by:

- Surface type
- Trees and built-up surface

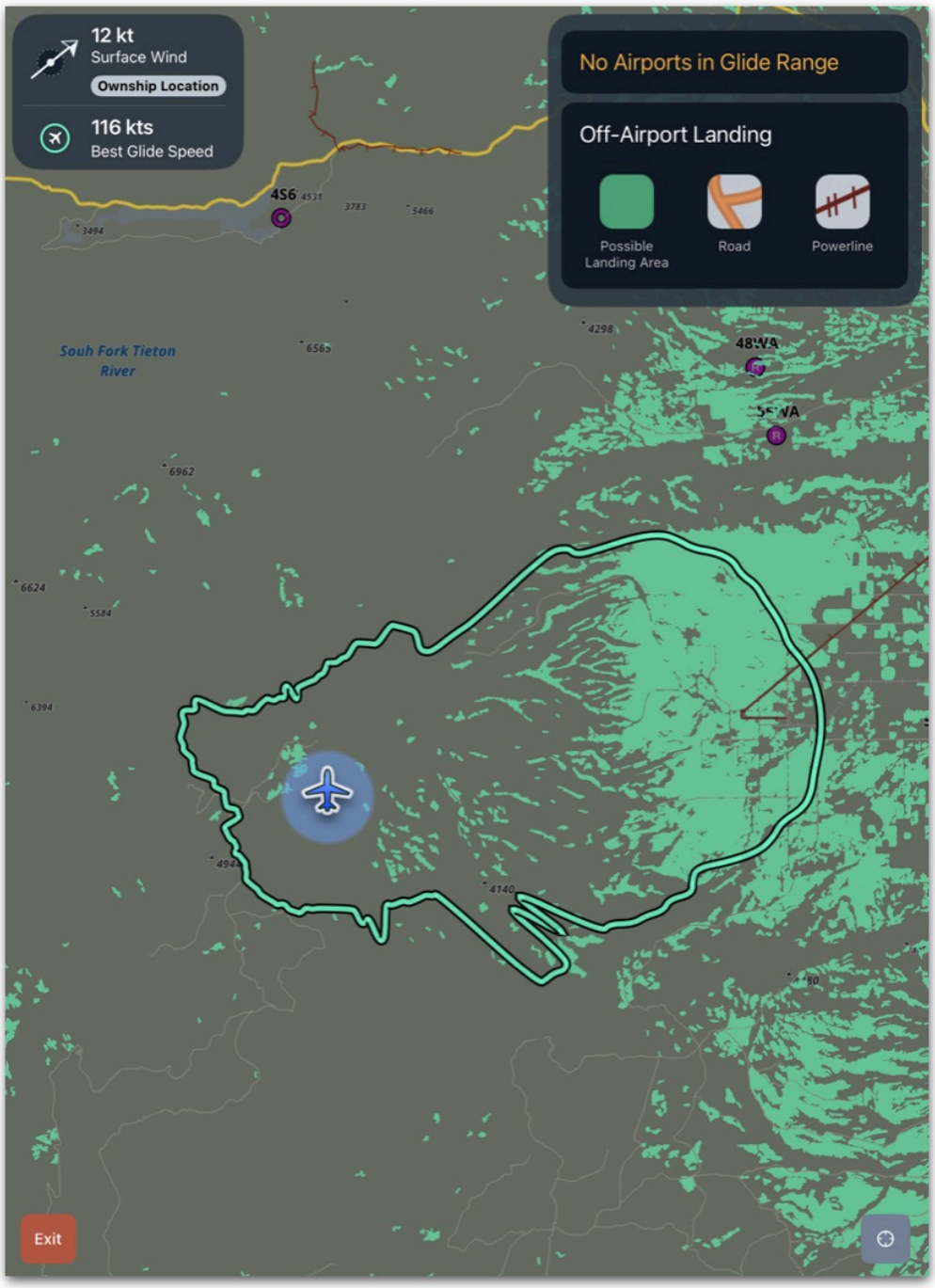
- Terrain
- Nearby hazards
- Landing area geometry.

> **WARNING:** Off-airport iconography is intended to provide situational awareness. Iconography does not guarantee a safe landing area.

1. Tap the EGM button. 

2. Potential landing areas are shaded in green.
3. Tap **Exit** to return to map view.

Figure 14-68. EGM Potential Landing Site



14.11 Breadcrumbs

Breadcrumbs are an optional feature included with all ForeFlight Mobile plans that draw a thin green line on the Map indicating the path since takeoff. When enabled in **More ➔ Settings**, breadcrumbs automatically displays when groundspeed exceeds 40 knots and height AGL exceeds 250 feet. Breadcrumbs automatically stop when height AGL decreases below 250 feet or groundspeed slows below 40 knots. For a video demonstration, visit the ForeFlight Video Library.

Breadcrumbs remain displayed on the Map until manually cleared or the user-specified time has elapsed without another flight being detected. To adjust how long breadcrumbs are displayed, tap **More ➔ Settings ➔ Breadcrumbs Clear After** and select an option.

Breadcrumbs can be saved alongside the track log recordings. See Saving a Breadcrumb.

> **IMPORTANT:** Breadcrumbs do not record pitch, bank, or gLoad data.

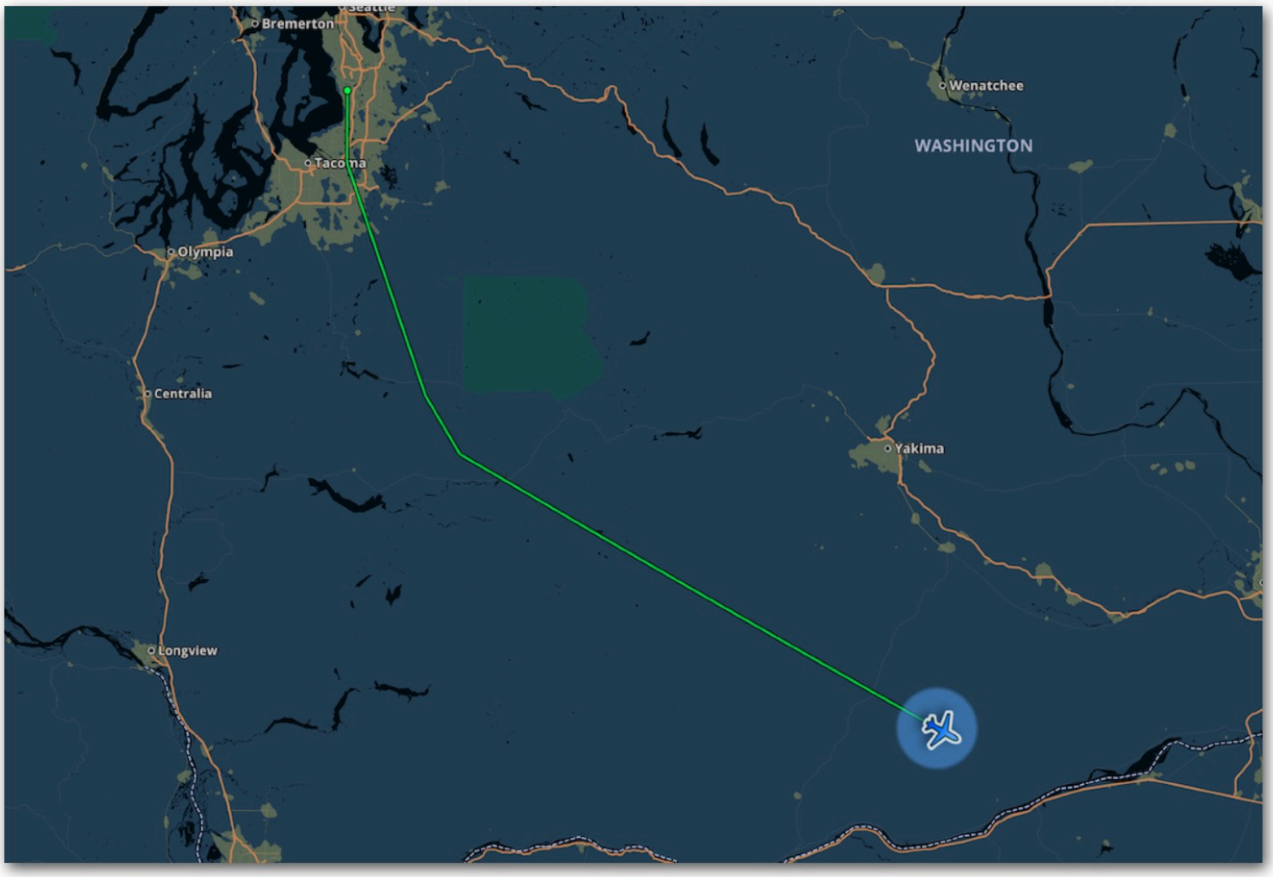


Figure 14-69. Flight with Breadcrumbs Enabled

14.11.1 Saving a Breadcrumb

Breadcrumbs are independent of Track Logs. However, they can be saved as a track log, which serves as an alternative (or supplement) to manually or automatically recording a flight.

When a breadcrumb is saved, it is accessible from the Track Logs view and is indistinguishable from other track logs. Breadcrumbs do not affect ongoing track log recordings. In other words, a track log can be recorded for a flight and a breadcrumb saved for the same flight.

Breadcrumbs can be saved at any time. This is useful for saving a particular maneuver or portion of flight. After a breadcrumb is saved, it is cleared from the map and a new breadcrumb is automatically started if groundspeed exceeds 40 knots and height AGL exceeds 250 feet.

> **NOTE:** It is not possible to save a breadcrumb while also leaving it on the map.

To save a breadcrumb,

1. Tap the breadcrumb on the Map.
2. Select **Save as Track Log** from the sidebar.

14.11.1.1 Clearing a Breadcrumb

To clear a breadcrumb without saving it,

1. Tap the breadcrumb line.
2. Select **Reset** from the slide-over.

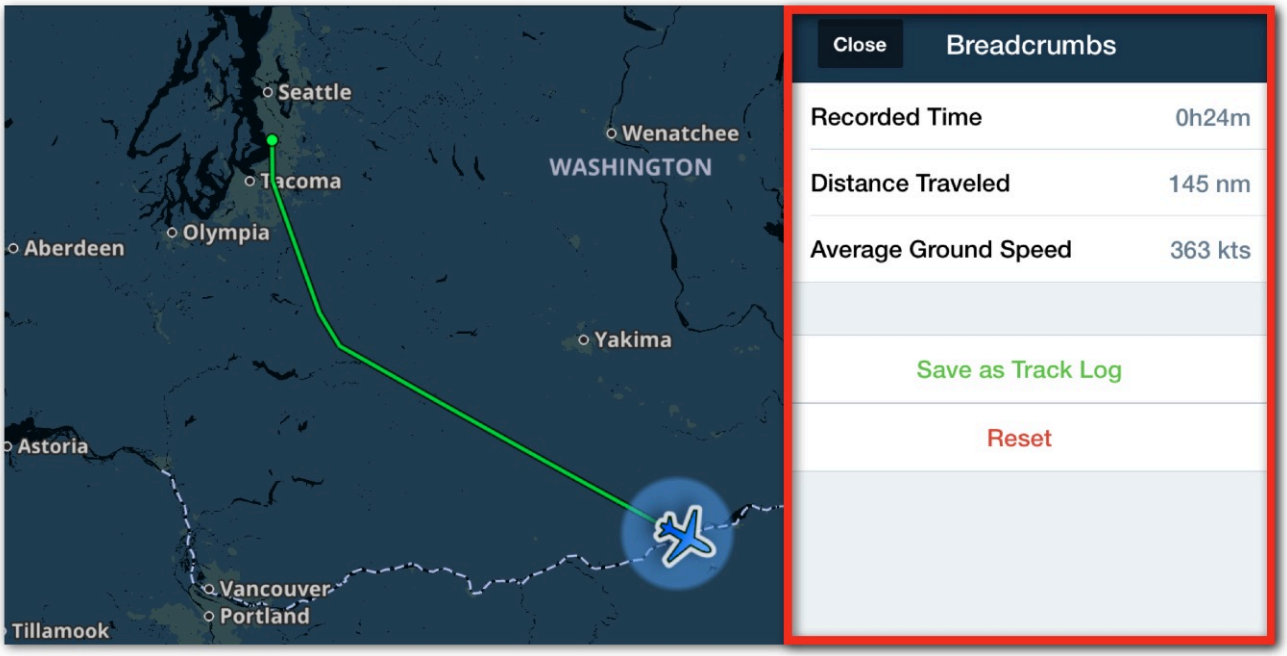


Figure 14-70. Breadcrumbs Sidebar View

14.11.2 Traffic Breadcrumbs

When connected to an ADS-B or FLARM receiver, breadcrumbs can be displayed on the map for a traffic target by tapping its traffic icon. Traffic Breadcrumbs require a ForeFlight Mobile Essential or higher subscription and are enabled by default. Disable this feature in **More ➔ Settings** or Map Settings.

The traffic target breadcrumb depicts where the target aircraft has been since the ADS-B or FLARM receiver started receiving traffic data from the target (up to 30 minutes). This applies to both airborne and ground traffic targets.

This feature is useful for determining what type of flying the aircraft is doing and may help determine where the aircraft is going next.

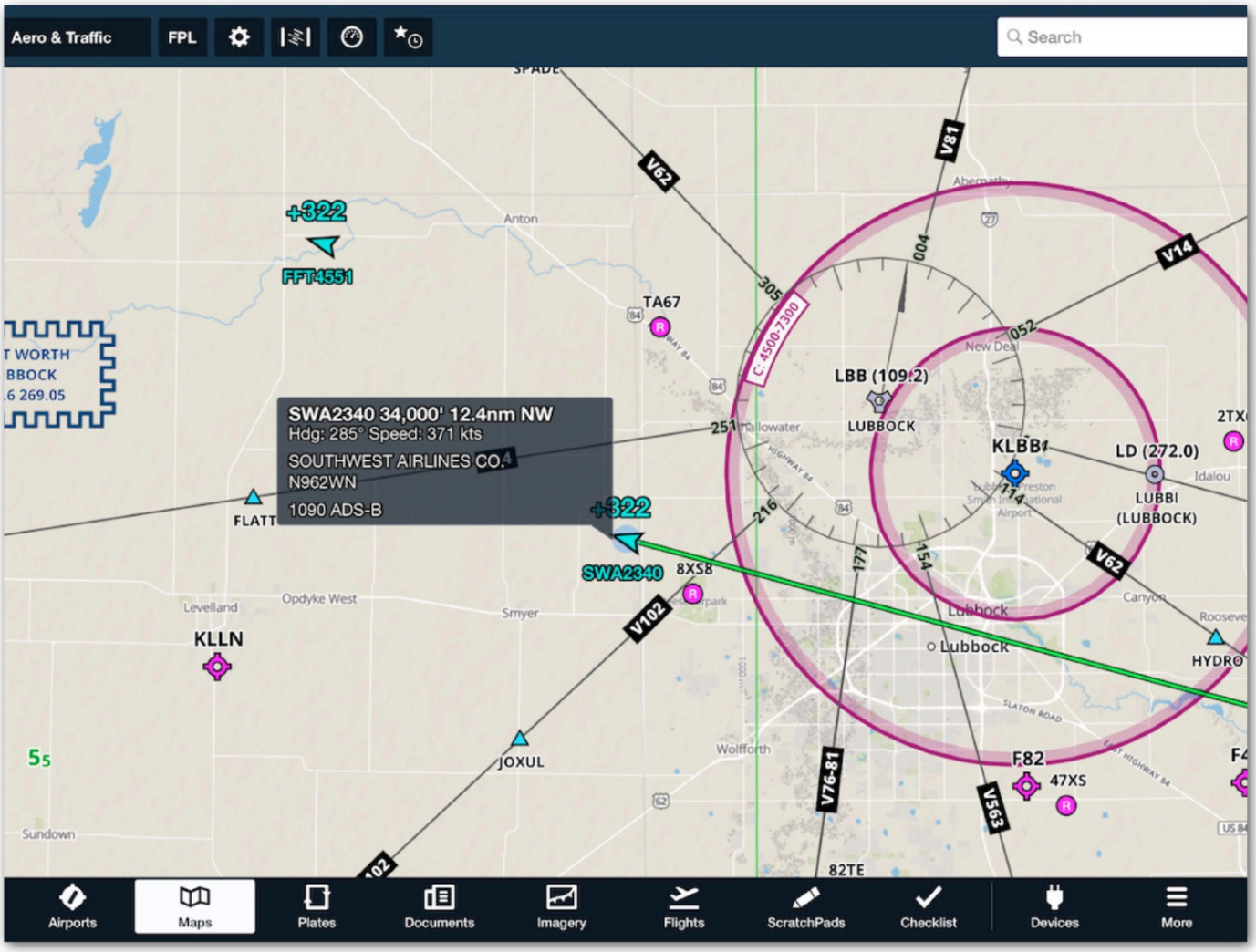


Figure 14-71. Traffic Breadcrumb

14.11.2.1 Traffic Labels

When Traffic Breadcrumbs are enabled and a traffic icon is tapped, a pulsing halo is displayed around the icon, indicating it is the selected aircraft.

The selected aircraft displays a label with information from its transponder. Tap the label to hide it while leaving the traffic breadcrumb displayed. Tap the traffic icon again or anywhere else on the map to deselect the traffic target, thus hiding its breadcrumb, pulsing halo, and label (if applicable).



Figure 14-72. Traffic Label Displayed

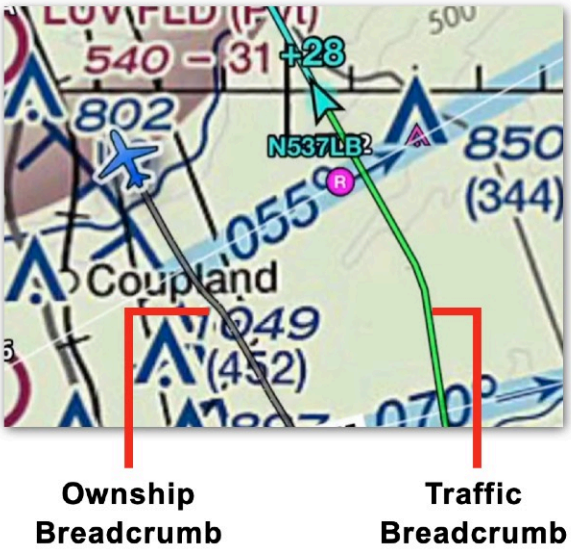


Figure 14-73. Traffic Label Hidden

14.11.2.2 Ownship and Traffic Breadcrumbs

Only one green breadcrumb can be displayed at a time. When breadcrumbs are enabled for ownship and a traffic breadcrumb is displayed, ownship breadcrumb is temporarily depicted as a dark gray line.

Tap the traffic icon again or anywhere else on the map to deselect the traffic target, restoring ownship breadcrumb to a thin green line.



14.12 Map Annotations

Map Annotations allows free drawing or adding shapes on the map to highlight or make notes about specific elements or locations. Annotations remain on the map until cleared and automatically scale as the map is zoomed in and out.

- To enable map annotations, tap the **Annotation Settings** (gear) button, scroll down to **Map Annotations** and toggle on.
- To activate annotations, tap the **Map Annotation**  button on the left sidebar to open the Map Annotation Toolbar.
- Use one finger, a stylus, or an apple pencil to draw. Use two fingers to move the map.

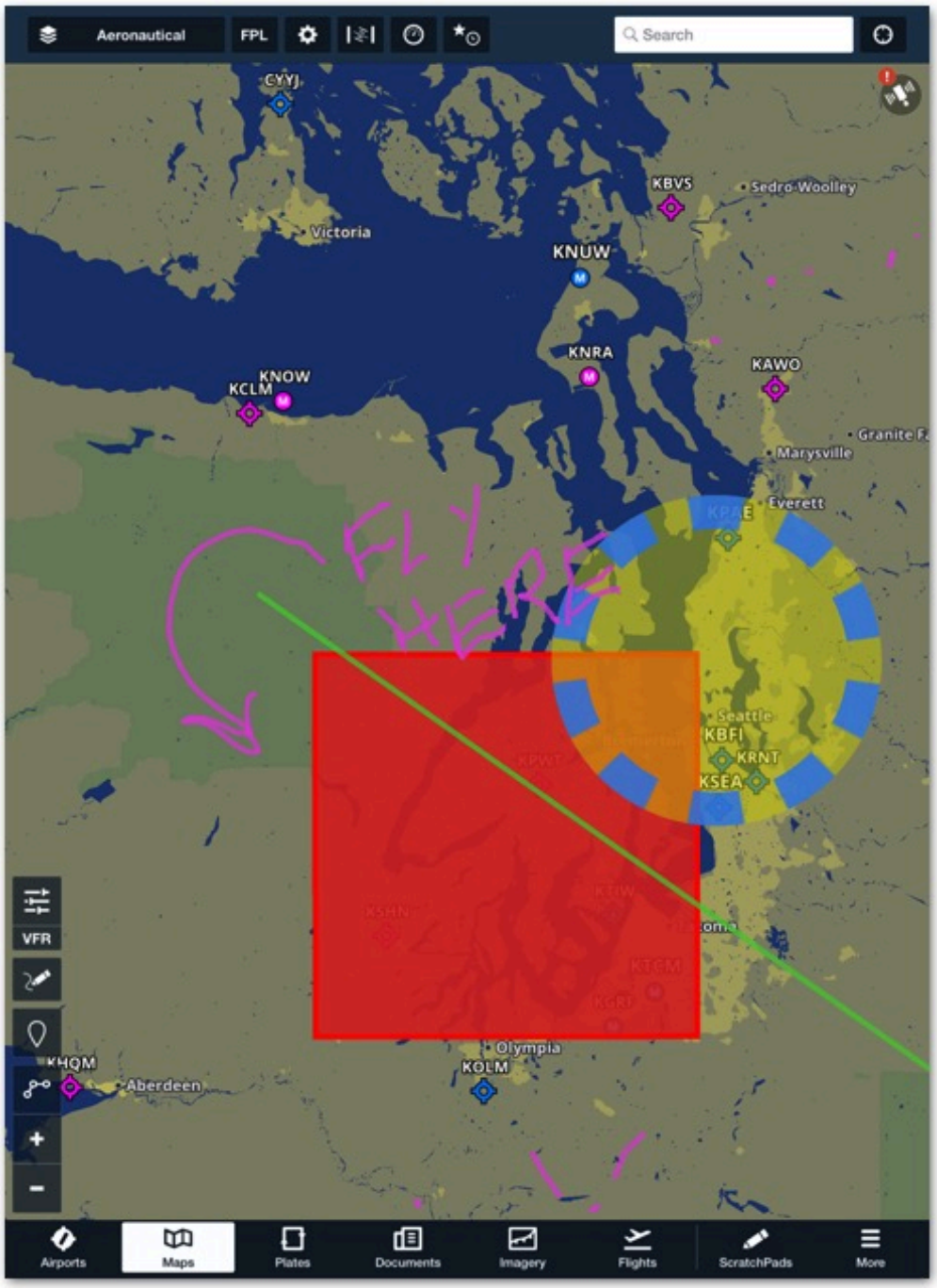


Figure 14-74. Map Annotation

When using an Apple Pencil, the Auto Apple Pencil Drawing setting allows adding map annotations by touching the Apple Pencil to the iPad screen without tapping the **Annotation** button first. Double-tapping with a finger, towards the tip, on the flat edge of the Apple 2 Pencil will switch between Writing and Eraser modes. Normal touch gestures still allow panning, zooming, or tapping on map objects.

14.12.1 Map Annotation Toolbar

The Map Annotation Toolbar includes tools for free drawing, customization, and creating precise geometric shapes.The tools are:

- **Free Draw**: The default annotation tool.
- **Shapes**: Draw a straight line, rectangle, or circle. The shape will display dimensions as it is drawn.
- **Erase**: Erase free-drawn annotations in a free-erase style. Shapes will be erased entirely.
- **Select**: Tap to select any free-drawn element or shape to edit the annotation properties.
- **Appearance**: Set stroke and fill color, opacity, thickness and line type.
- **Clear**: Clear all map annotations.
- **Exit**: Close the Map Annotation Toolbar.

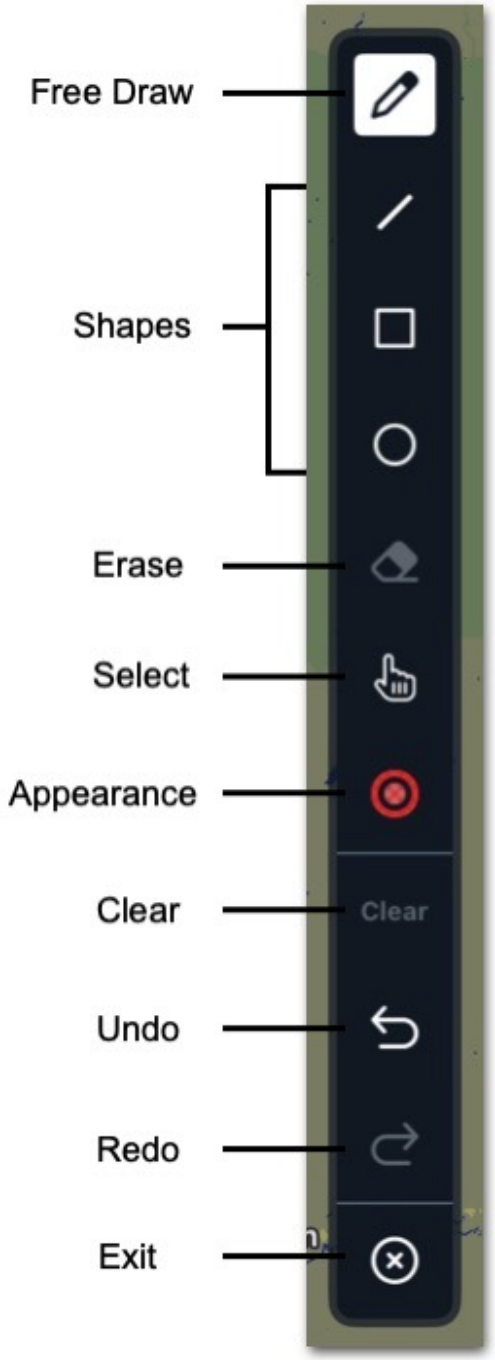


Figure 14-75. Map Annotation Toolbar

14.12.2 Editing Annotations

After an annotation has been placed on the map, it can be edited tapping the select tool and then tapping the desired annotation. Editing tools are:

- **Copy**: Copies the annotation and pastes it on the map as a new layer.
- **Delete**: Deletes the annotation.

- **Lock**: Locks out further editing on the annotation.
- **Set Location**: Type in a location (e.g. "KPAE" or "47.52N/122.27W") to snap the end of a line or center point of a shape to that location.
- **Size**: Specify line length or radii for a shape.
  - **Dimension Lock**: Circles and squares may be changed to ovals and rectangles by tapping the Dimension Lock button to toggle between **=** (square or circle) and **X** (rectangle or oval). Radii or side lengths can be manually entered. Alternatively, tap and drag the cyan resizing outline to the desired dimensions.
- **Z Order**: If annotations overlap, tap the Order window to set it to the top or bottom layer.
- **Rotation**: Use a slider or type in degrees to rotate rectangles or ovals.
- **Stroke**: Edit line color, opacity, thickness, and type.
  - **Color**: Tap a color to change the color of the line.
  - **Opacity**: Tap and drag the slider to set the opacity of the line.
  - **Thickness**: Tap to set thickness of the line.
  - **Line Type**: Tap to select solid or dashed line type.
- **Fill**: Set the color and opacity of the fill for rectangles or ovals.

> **NOTE:** Fill and stroke opacity cannot both be set to 0 simultaneously. i.e., If stroke opacity is set to 0% the minimum value for the fill is 10%.

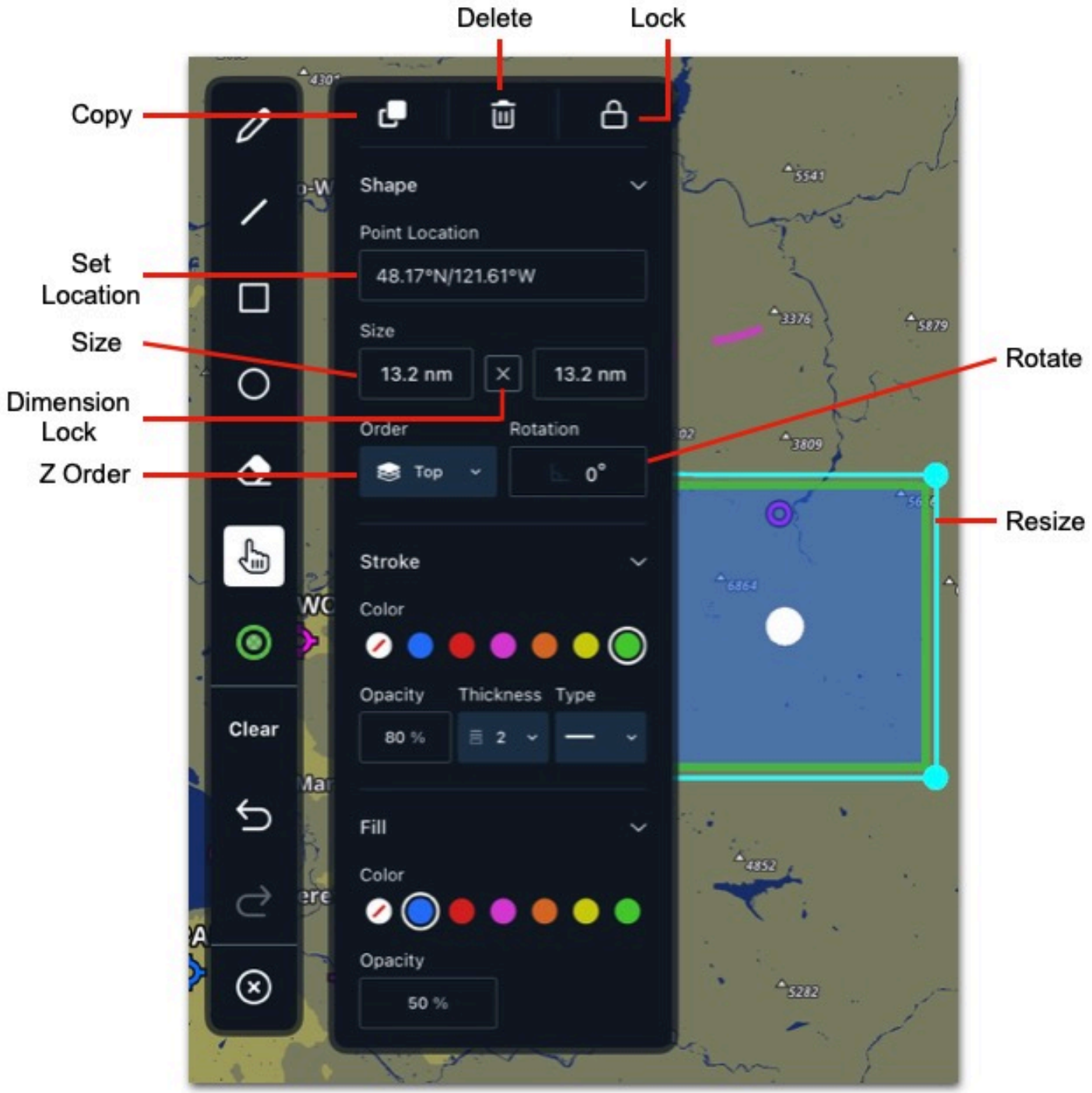


Figure 14-76. Editing Annotations

14.13 Marked Positions

Marked Positions (available in Premium and Business Performance plans) can drop a position marker (green pin shape) at any point along the flight. To enable Marked Positions, tap the **Maps Settings** (gear) button and turn the **Marked Positions** switch On. For a video demonstration, see Marked Positions.

To add a Marked Position, tap the Pin button on the left side of the map. Each position marker (green pin shape) includes the current time, GPS coordinates, altitude, and speed and can be named and additional notes added. If a name is not entered, the marker name shown on the Maps view is the time when the marker was dropped.



Markers are included in a track log recorded during the flight, and can be shared as part of the Track log, viewed in a flight whose ETD and duration span the time when the marker was dropped, and exported from the flight as a KML or CSV file.

The pins for positions marked during a particular flight are automatically hidden from the map 15 minutes after the end of the flight.

14.13.1 Editing Marked Positions

While a Marked Position is displayed on the map the information can be edited by tapping the green pin, then tapping the **Edit** button. Make any desired changes, then tap **Save**. While Editing a Marked Position it can be saved as a User Waypoint, so it can then be added to the Route or used as part of a Search & Rescue (SAR) pattern.

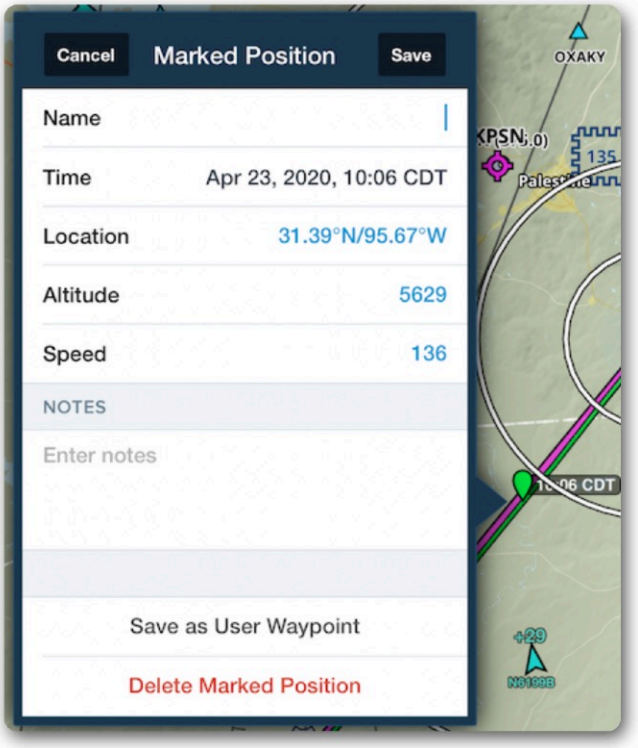


Figure 14-77. Marked Position Edit Menu

After the flight, edit a Marked Position by viewing the Track Log containing the position and tapping the **Marked Position** or tapping the Track Log **Info** button and scrolling down to the Marked Position, or by opening a Flight whose ETD and duration span the time when the marker was dropped and scrolling down to the "Flight Log" section.

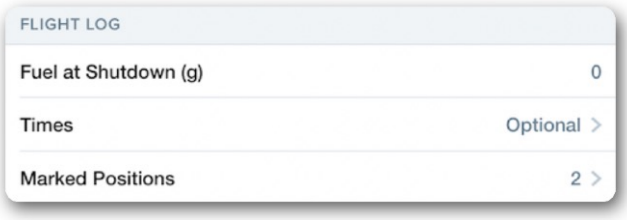


Figure 14-78. Marked Position in a Flight

14.13.2 Exporting Marked Positions

After a flight, positions marked during a flight can be directly exported as a KML or CSV file by tapping **Marked Positions** in the Flight Log section of the flight. Tap an individual Marked Position to edit its information, or tap the **Send to** button in the upper-right and choose the export file type.

Marked Positions are saved in a Track Log and are included when the Track Log is exported as a KML for use in another app.

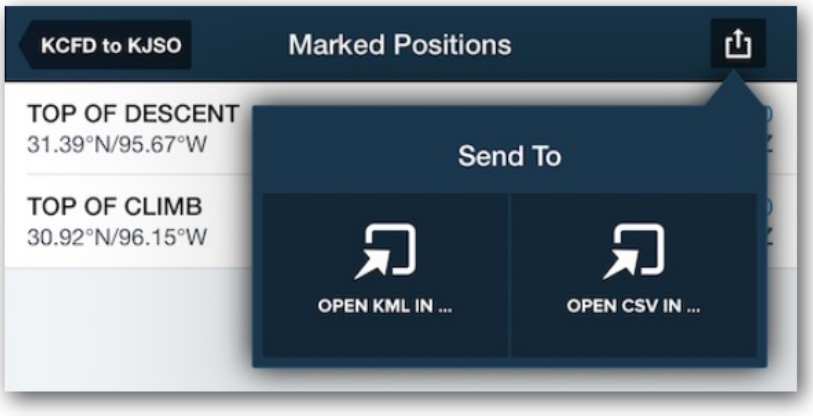


Figure 14-79. Exporting Marked Positions

14.14 Organized Track Systems

ForeFlight Mobile includes the option of displaying Organized Track Systems (OTS) for North Atlantic and North Pacific (Premium or Business Performance plan required).

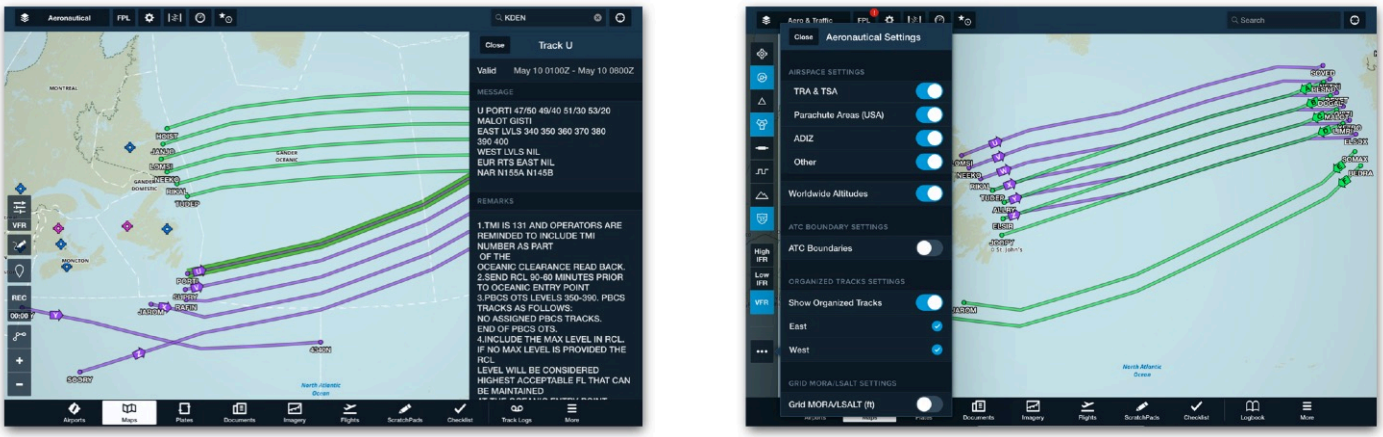


Figure 14-80. Organized Track System

Tracks are updated automatically, and tapping on a track shows additional details such as valid times and controller notes.

Display the tracks by selecting the Aeronautical Data layer, then tapping the  (**Aeronautical Drawer**) button, then tapping the  (menu) button, and turning the **Show Organized Tracks** switch On. Toggle **East** or **West** for the desired track to display.

Organized Tracks cannot be automatically added to a route. However, the points on a track can be added manually using touch planning.

14.15 Smart Airway Labels

When the route entered in the Route Editor includes one or more airways, dynamic labels appear along each airway segment with information about the segment, including the name of the airway, the segment MEA, and the segment MOCA, if it has one. These labels expand to fill available space between waypoints, adding more information as the map is zoomed in.

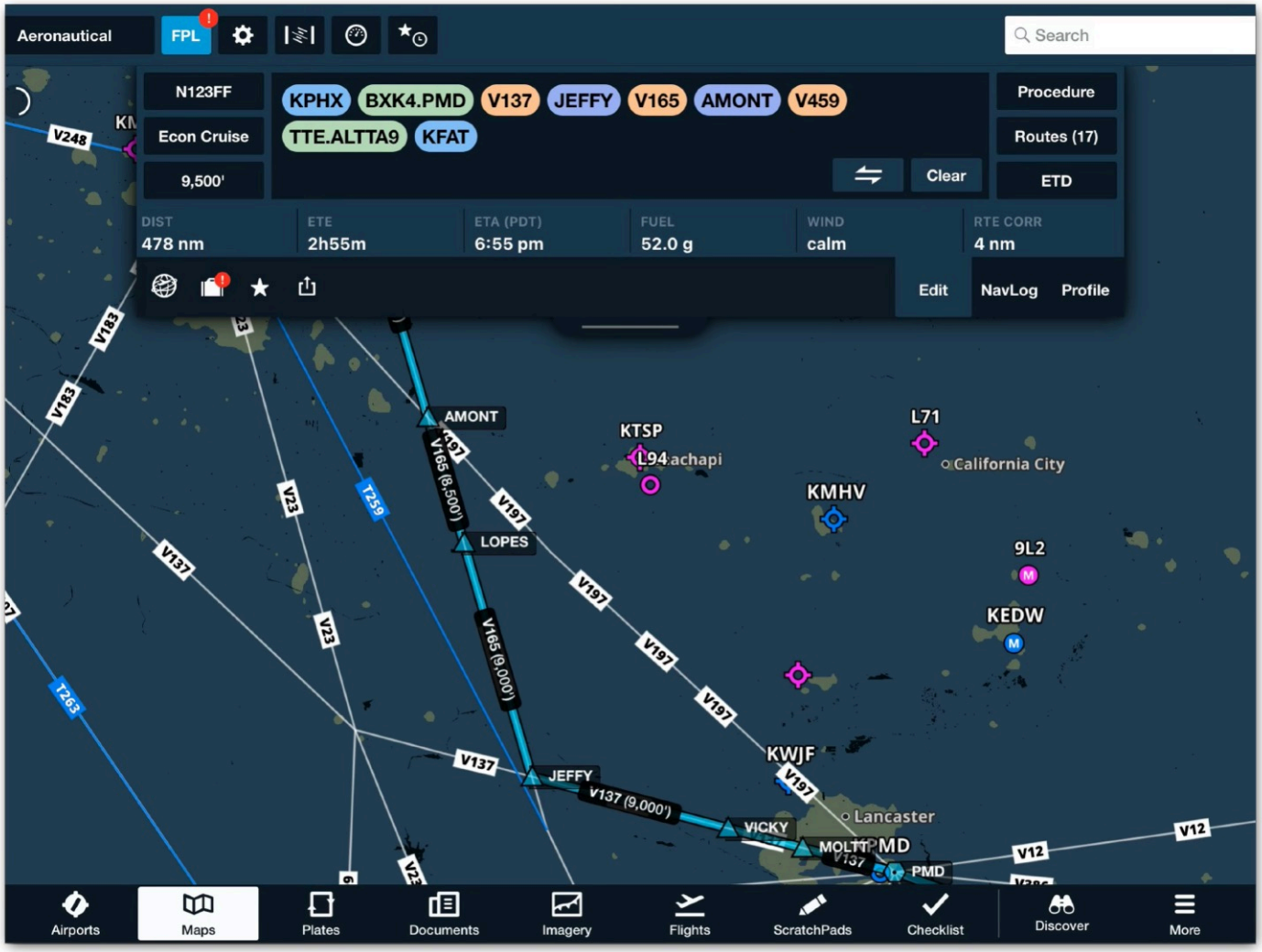


Figure 14-81. Smart Airway Labels

Smart airway labels only appear when an airway is explicitly named in the Route Editor, meaning that one of the route bubbles is the airway name. To ensure all airway labels are shown, turn the **Airway Decoding Setting** to **All Waypoints Shown**. Building a route with the individual waypoints in an airway but without naming the airway itself will result in the airway labels not appearing.

Smart airway labels are tied to other route labels and can be disabled by turning off **Route Labels** in Maps Settings.

14.16 Attitude Indicator/Synthetic Vision

For Starter subscriptions, the Attitude Indicator (AI) display will show altitude, ground track, ground speed, and rate of climb on the iPad. If connected to a Sentry or other supported AHRS-equipped external device, the display will also include an AHRS-derived horizon (pitch & roll). If using a GPS source that does not include an AHRS sensor, attitude information (pitch, roll) is not displayed, and the horizon will appear level regardless of attitude. When receiving valid METAR data, such as FIS-B from a Sentry, the calculated barometric altitude replaces GPS altitude, and a "Baro Alt" label is displayed below the altitude tape.

Essential and Premium subscriptions will also include a 3D depiction of the obstacles and terrain ahead (Synthetic Vision). Tap the **Attitude Indicator (AI)/Synthetic Vision (SV)** button at the top of the Maps view to view the AI/SV display.



Figure 14-82. Attitude Indicator (Left), Synthetic Vision Attitude Indicator (Right)

Obstacles and terrain are colored based on the relative altitude (tied to the **Profile View** altitude selection). Terrain color can be red, yellow, or green and is based on the user-set Hazard Altitudes setting. The terrain grid lines on the Synthetic Vision (SV) view are aligned North-South and East-West for easy orientation.

When the iPad is in landscape orientation, the AI/SV display is shown on the left side of the screen. When the iPad is in Portrait orientation, the AI/SV display is shown at the top of the screen on the Maps view. Tap the **Full/Half-screen** button in the lower-left corner of the screen to switch between split-screen and full-screen Attitude Indicator display in either landscape or portrait orientation.

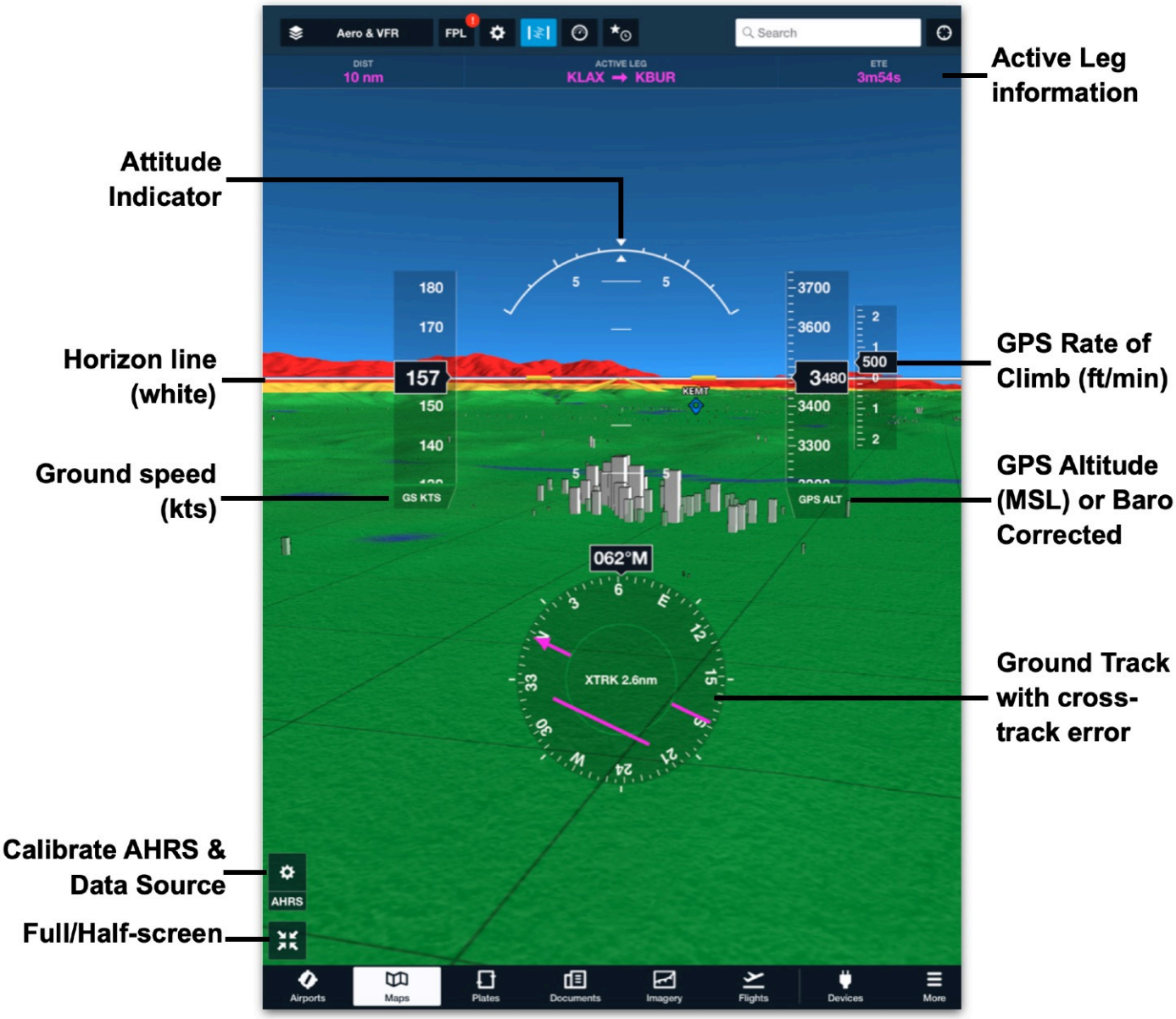


Figure 14-83. AHRS Design

14.16.1 iPhone Attitude Indicator

The Attitude Indicator/Synthetic Vision (AI/SV) display on iPhone is always shown in full-screen mode. It does not include the following features available on iPad:

- Groundspeed tape
- GPS rate of climb tape
- GPS altitude tape
- Ground Track compass circle

An optional instrument panel may be displayed at the bottom of the iPhone screen. Users can customize the panel to include instruments such as GPS Altitude, Groundspeed, and others.

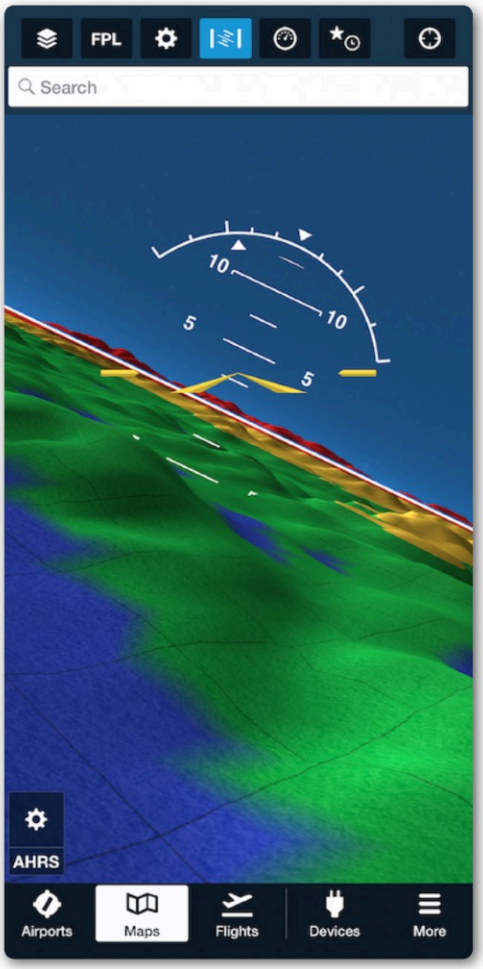


Figure 14-84. iPhone Attitude Indicator

The iPhone AI/SV display works in portrait and landscape orientation on any iPhone currently supported by ForeFlight Mobile.

The AI/SV display will automatically begin dimming to a darker night mode beginning 20 minutes before local sunset and will be fully dimmed 20 minutes after sunset. 20 minutes before local sunrise, the AI/SV display will automatically begin brightening to day mode.

> **NOTE:** The iPhone Display Zoom setting must be set to Default to use SV. To adjust this on the iPhone go to **Settings → Display & Brightness → Display Zoom** and select **Default**.

> **WARNING:** The ForeFlight Mobile AI/SV display is for informational purposes only. Do not use the ForeFlight Mobile AI/SV display as a primary instrument in any phase of flight.

14.16.2 Unreliable GPS or AHRS Indication in Attitude Indicator

In the event that AHRS or GPS data becomes unreliable, the affected instrument(s) will be X'd out until reliable data is received.

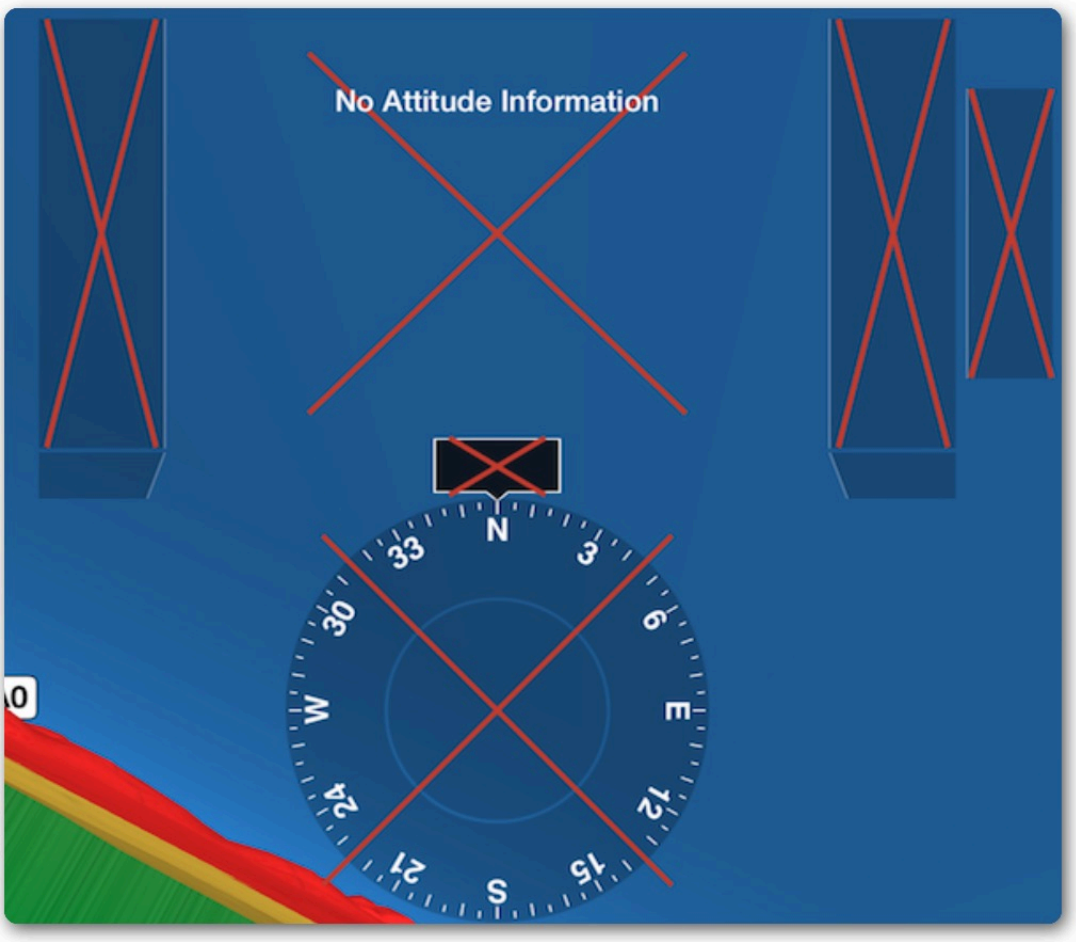


Figure 14-85. Unreliable GPS data

14.16.3 Pitch Recovery Chevrons

Red chevrons are shown on the AI/SV display if the nose-up or nose-down attitude approaches 30 degrees. The chevrons point in the direction of pitch recovery.



Figure 14-86. Red chevrons beyond 30 degrees of pitch

14.16.4 Glance Mode

Swipe within the Synthetic Vision window to enter Glance Mode, an interactive experience with zoomable 360-degree view of the terrain, obstacles, airports, and traffic (requires a compatible ADS-B receiver) around the aircraft.

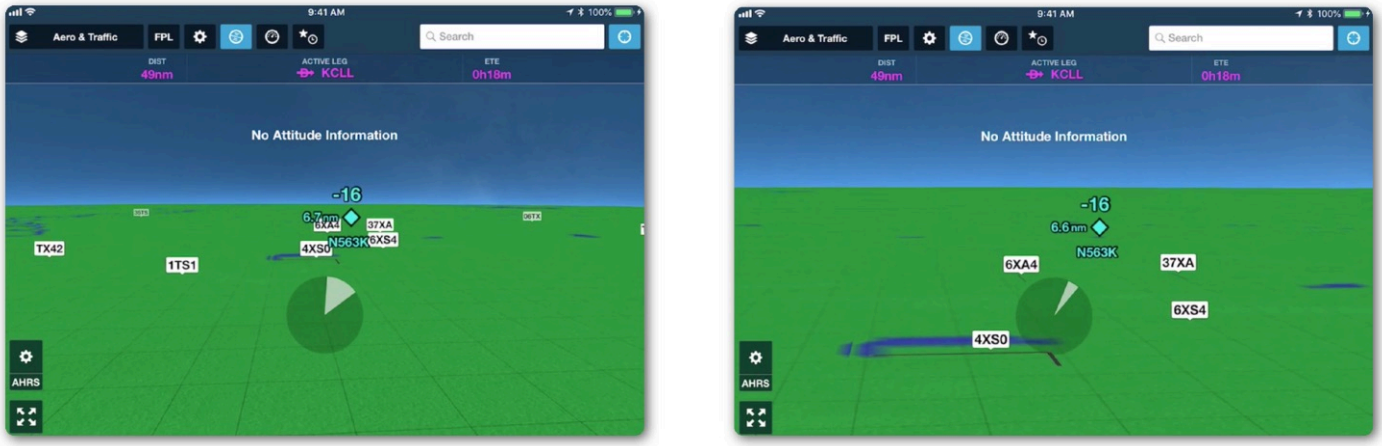
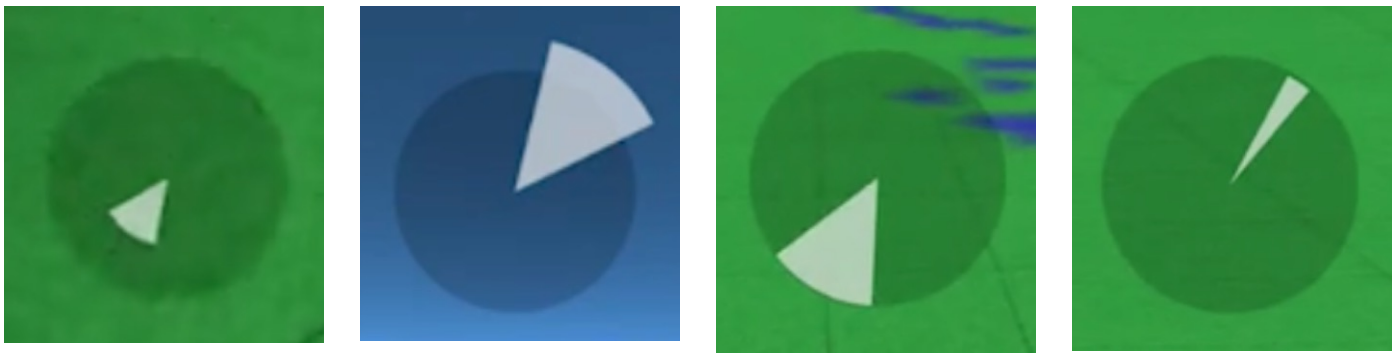


Figure 14-87. Glance Mode Examples

Once Glance Mode is enabled, the heading, altitude, and groundspeed indicators disappear to provide a more open view, and a circular field of view indicator including a “slice” appears to show the camera orientation relative to the ground track and the horizon.

Use single-finger touch to pan the view both horizontally and vertically, and use two fingers pinch to zoom in (up to 10x) and out. The view indicator “slice” narrows as the view zooms in, widens as the view returns to normal, gets shorter as the view tilts down, and gets longer the view tilts up:



View tilted down **View tilted up** **View zoomed out** **View zoomed in**

A radial timer begins moving clockwise around the view indicator after the last touch, and Glance Mode automatically exits if no touches are received within six seconds. In this example, approximately two seconds have passed since the last touch.



Figure 14-88. Glance Mode Radial Timer

Alternatively, tap on the **view indicator** to manually exit Glance Mode and return the view to its default forward direction.

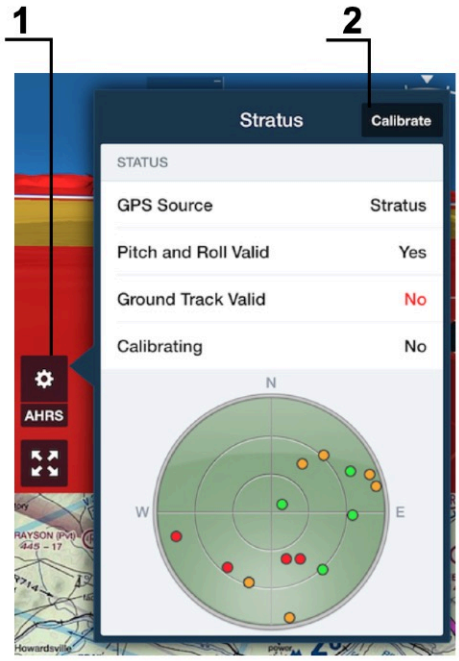
14.16.5 Portable AHRS Positioning

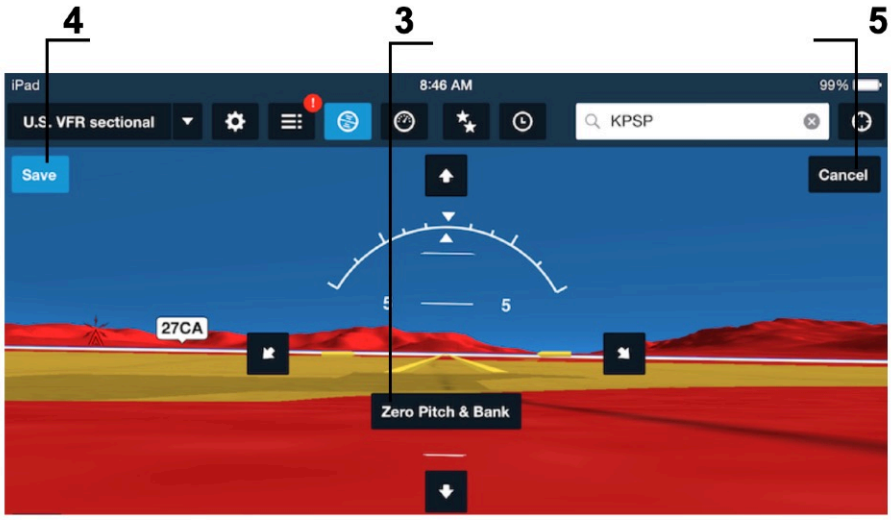
For accurate pitch and roll indications, a portable AHRS device should be positioned in the aircraft in a stable location that will not shift or move during the flight. If the portable AHRS shifts or moves, the AI/SV display may need to be recalibrated.

14.16.6 Calibrate the AI/SV Display

When using an AHRS device, the Attitude Indicator can be calibrated to straight and level by doing the following:

1. Tap the AHRS **data source label** (1) in the lower-left of the Attitude Indicator display.
2. Tap **Calibrate** (2) on the popup window.
3. Tap on the **Zero Pitch & Bank** button (3) to automatically set the current condition as level.Optionally, on the iPad tap on any of the four Pitch & Bank arrows to adjust the pitch and roll in small increments.
4. Tap **Save** (4) to save the calibration or **Cancel** (5) to cancel the calibration.


1
2
Stratus
Calibrate
STATUS
GPS Source
Stratus
Pitch and Roll Valid
Yes
Ground Track Valid
No
Calibrating
No
AHRS
N
W
E


4
3
5
iPad
8:46 AM
99%
U.S. VFR sectional
KPSP
Save
Cancel
27CA
Zero Pitch & Bank

14.17 Map Search

To center the map on an airport, navigation aid, or waypoint:

1. Tap the **Search box** in the upper-right corner of the Airports, Maps, or Plates view.
2. Enter the name, identifier, latitude/longitude, or bearing and distance from a known waypoint.
3. Tap the **Search** button on the keyboard.

The selected waypoint appears with an animated marker. Searching does not clear existing routes displayed on the Maps view. To remove the marker, tap elsewhere on the map.

14.17.1 Example Searches

The following search inputs can be used to center the map on specific coordinates, navigation aids, airports, or other reference points:

Standard Identifiers

- **KJFK**: Centers the map on John F. Kennedy International Airport.
- **GARBENHEIMER WEISEN**: Centers the map on the airport of the same name in Germany.
- **FLW**: Centers the map on the FLW VOR.

Latitude/Longitude Formats

- **32.3N/99W**: Decimal degrees format.
- **324455/-0804557**: Degrees, minutes, seconds (DMS): 32°44′55″N, 80°45′57″W.
- **N324455/W0804557**: DMS format with cardinal directions.
- **3244.92/-08045.95**: Degrees and decimal minutes: 32°44.92′N, 80°45.95′W.
- **3244556/-08045576**: DMS with decimal seconds: 32°44′55.6″N, 80°45′57.6″W.
- **4952N**: ARINC 424 coordinate format: 49°N, 52°W.

Bearing/Distance Formats

- **HIGAL/320/15**: 15 nm on a 320° magnetic bearing from HIGAL.

> **NOTE:** If a VOR is used, the bearing is interpreted as a radial.

- **LAX/246R/20**: 20 nm on the 246° radial from LAX.
- **LAX/246M/20**: 20 nm on a 246° magnetic bearing from LAX.
- **LAX/246T/20**: 20 nm on a 246° true bearing from LAX.
- **MZB293/SLI148**: Intersection of MZB's 293° radial and SLI's 148° radial.

Search and Rescue Grid References

For more details, see the ForeFlight Search and Rescue Guide in **Documents → Drive → ForeFlight**.

- **CAP@ORD451C**: Centers the map on the middle of CAP Grid ORD451, quadrant C.
- **CAP@40092CD**: Centers the map on the middle of CAP Cell Grid 40092CD.
- **GARS@176LW3**: Centers the map on the middle of GARS Grid 176LW, quadrant 3.
- **15RTN50008000** or **MGRS@15RTN50008000**: Centers the map on MGRS grid 15RTN, easting 5000, northing 8000.

  > **NOTE:** The MGRS@ prefix is optional.

Aircraft or Flight Identification

- **N####** or **ENY3961**: Displays a flight currently en route or scheduled to depart within 24 hours, based on filed flight plans. Tap the result to add the route to the NavLog.

14.18 Flight Plan Drawer

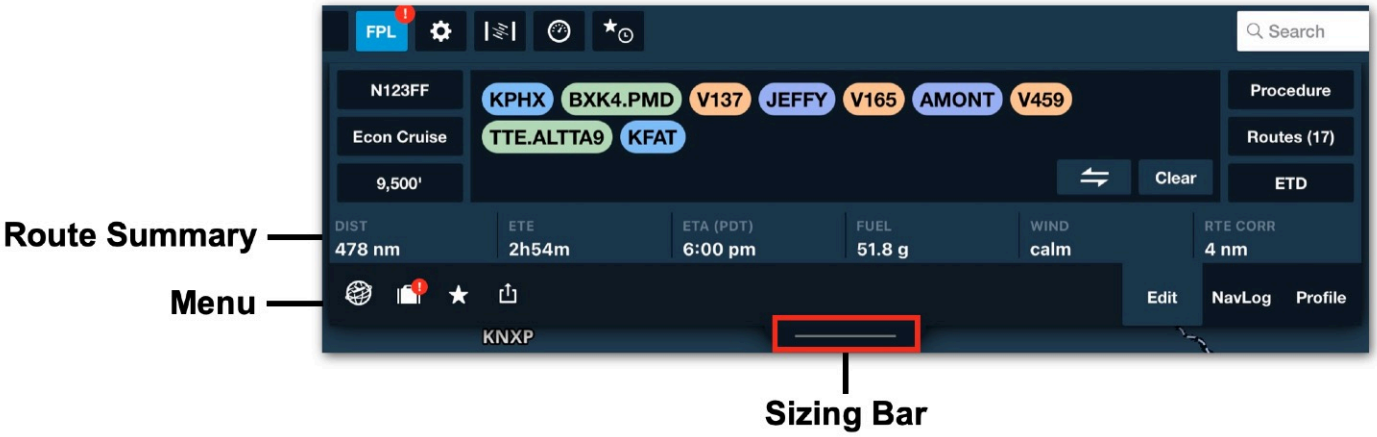
The Flight Plan (FPL) drawer contains three distinct views used for planning and in-flight reference. These views are accessed using buttons located near the bottom-right corner of the FPL drawer.

To open and adjust the FPL drawer:

- Tap the **FPL** button in the upper toolbar to display the drawer.
- Drag the sizing bar to adjust the height of the drawer.
- Tap a view button to switch between views.

The available views include:

- **Edit**: Opens the Flight Plan Editor for route creation and modification.
- **NavLog**: Displays the Navigation Log for the planned route.
- **Profile** (Essential subscription or higher.): Shows the Profile View for terrain, obstacle, and weather awareness.



14.18.1 Route Summary

The bottom of the FPL Drawer contains a summary of the planned route. Tap **Profile** for additional hazard summary data.



Figure 14-89. Route Summary

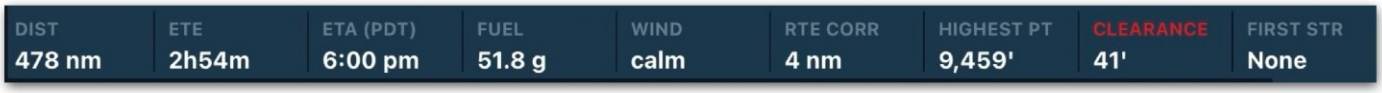


Figure 14-90. Route Summary (Profile)

The Route Summary displays key route performance and hazard metrics, based on the selected aircraft performance profile, forecast data, and route settings. Displayed values include:

- **Total Route Distance**: The complete distance of the planned route.
- **Estimated Time En Route (ETE)**: Calculated using the planned cruise altitude, forecast winds, and selected performance profile.
- **Estimated Time of Arrival (ETA)**: Populated when an Estimated Time of Departure (ETD) is specified. If no ETD is selected, the ETA field remains blank.
- **Required Fuel**: Depicts the fuel required for the planned route, based on the selected performance profile. This value does not include alternate or reserve fuel requirements.
- **Average Wind Component**: Displays the average wind component for flights planned within the next seven days. For flights beyond seven days, a zero-wind assumption is used due to forecast uncertainty.
- **Route Corridor**: Shows the corridor width as configured in the Hazard Settings menu.

In Profile view, the Route Summary includes additional terrain and obstacle data:

- **Highest Point**: Elevation of the highest terrain within the route corridor.
- **Clearance**: Vertical difference between the flight plan altitude and the highest obstacle.
- **First Strike**: Distance from the current position to the first obstacle higher than the planned altitude.

14.18.2 Flight Plan Menu Bar

The flight plan menu bar has buttons for 3D Preview, Trip Pack, Favorite (saving the route) and, Sharing.



14.18.3 3D Preview

Route 3D Preview (Requires a Premium, Business Performance, MFB Performance, or MFB One subscription) is a feature that generates a three-dimensional video representation of the planned route from the FPL Editor. This tool provides visual familiarity with the route prior to departure.

To access Route 3D Preview, with a route in the FPL Editor, tap the **3D Preview** button (globe icon).

The 3D Preview window opens over the current screen and displays the route in a 3D environment, along with relevant flight data and visual references.

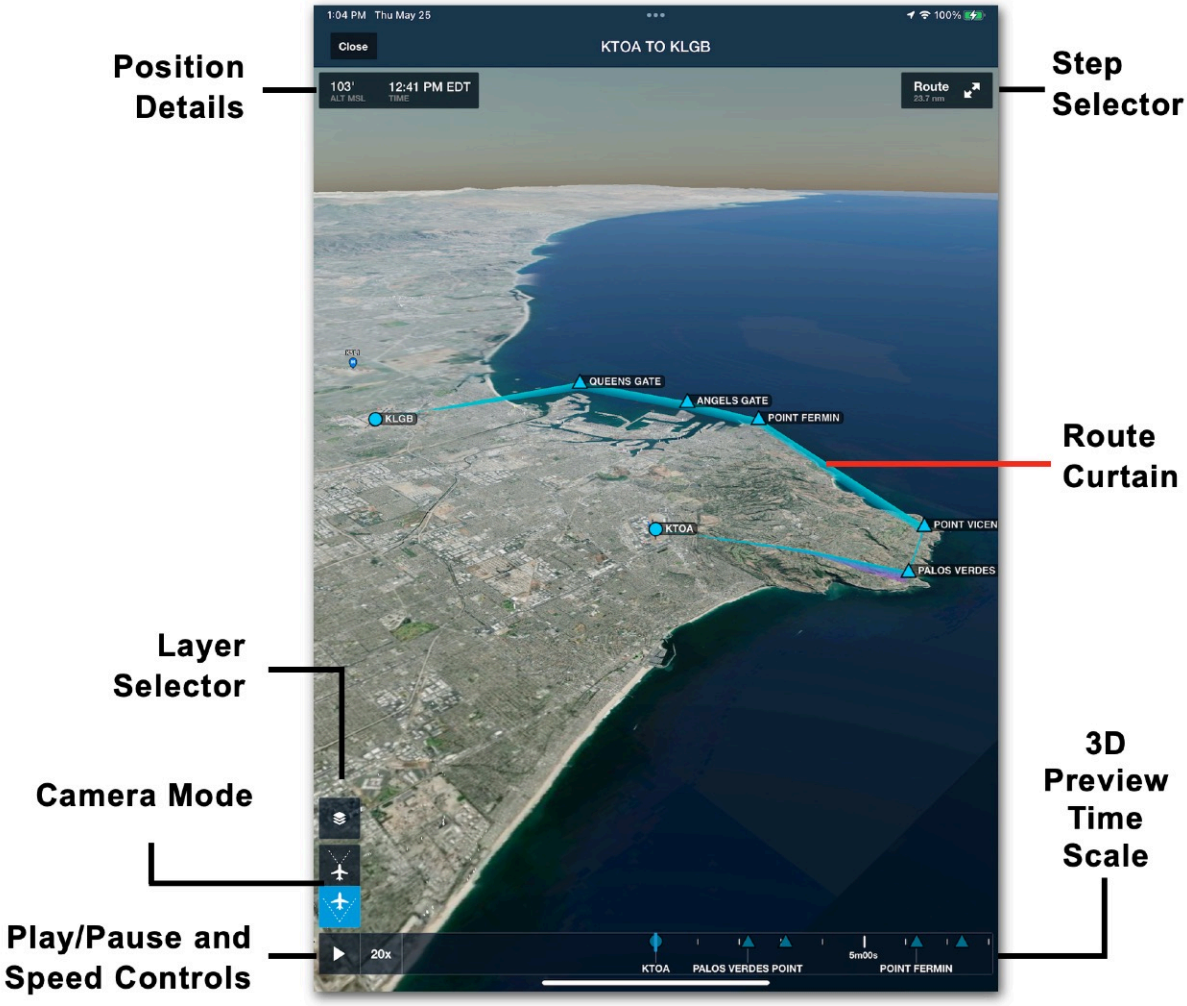


Figure 14-91. 3D Preview

14.18.3.1 Position Details

The top left corner of the Route 3D Preview window provides details about the current moment in the preview video. By default, this includes the current MSL altitude and the time based on the planned departure time.

If a weather layer is selected, additional information about that weather is added to the Position Details. The information in Position Details represents weather at the planned altitude, not the altitude set in the altitude slider.

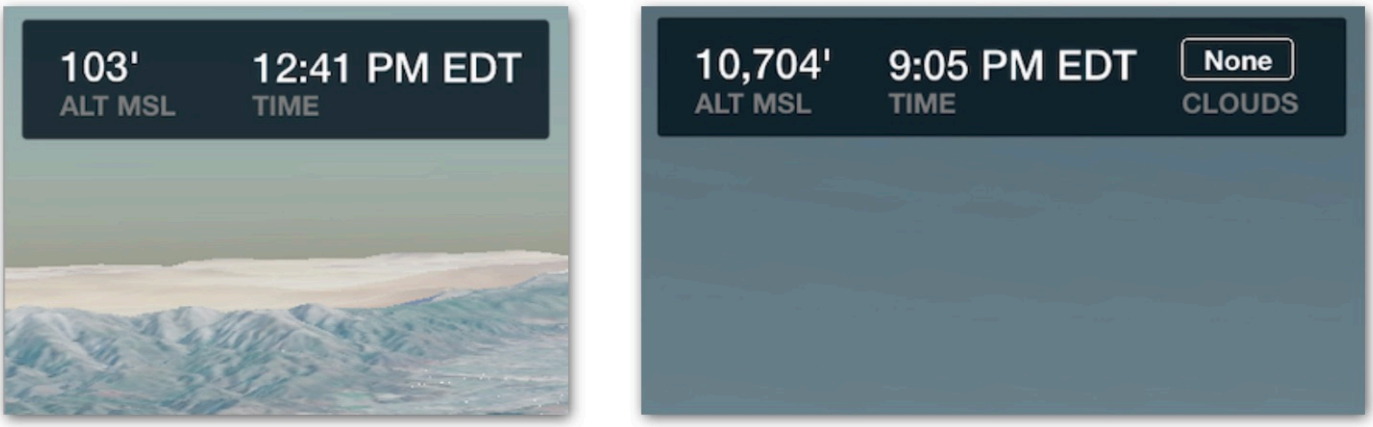


Figure 14-92. Position Details (Left), Position Details with Cloud Coverage (Right)

14.18.3.2 Layer Selector

The Route 3D Preview can display or hide certain map and weather features along the route. To display these features, tap the **layer icon** and select one item in each section from the available options.

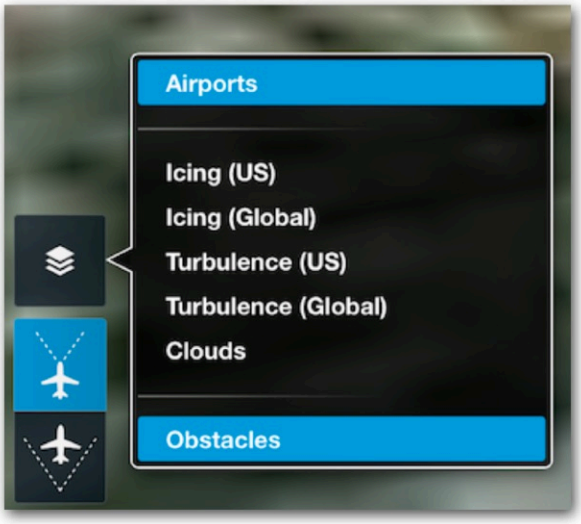


Figure 14-93. 3D Preview Layer Selector

Tap **Airports** to display or hide nearby airports along the route. Airports are displayed using standard aeronautical map symbols.

Tap an airport icon to display its details. Departure, destination, and any other airports that are part of the route are instead represented as blue circles and cannot be hidden by this layer.



Figure 14-94. Airports Layer

Tap one of the available weather layers (**Icing (US)**, **Icing (Global)**, **Turbulence (US)**, **Turbulence (Global)**, or **Clouds**) to display the forecast weather of that type along the route. When the layer is first tapped, the age of the weather forecast is shown next to the label.

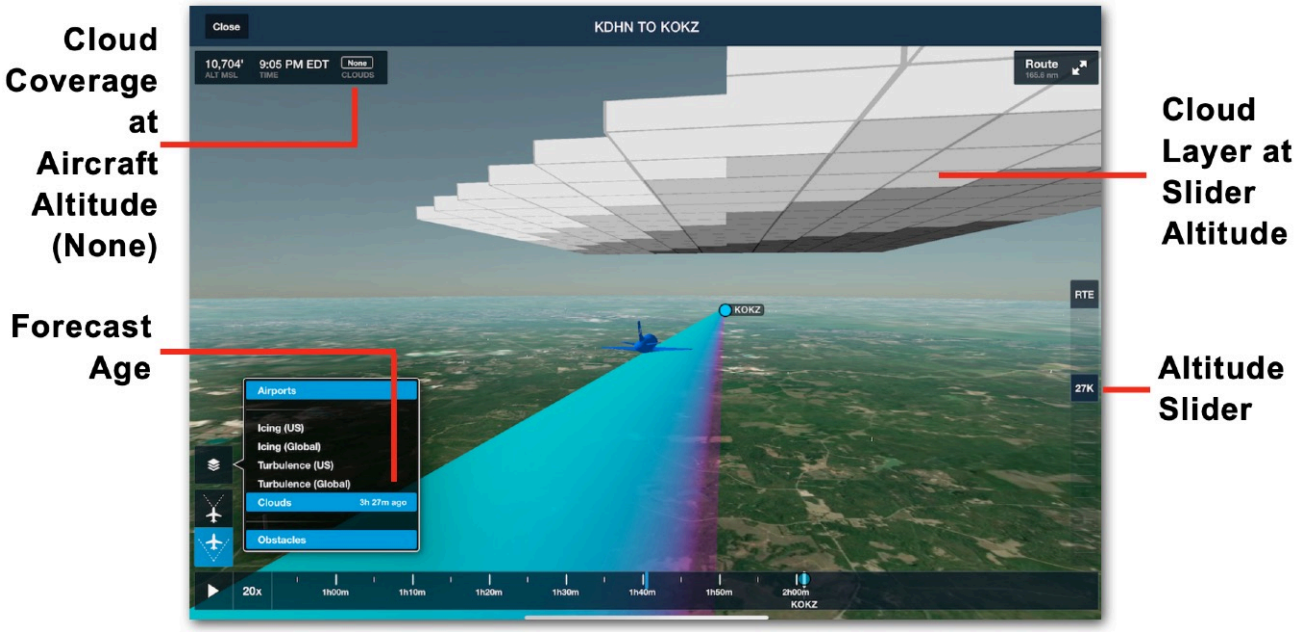


Figure 14-95. Weather Layer (Clouds)

A slider on the right side of the screen can be used to display the selected weather as colored graphics at different altitudes. Tapping the **RTE** button at the top of the slider causes the slider to adjust in real-time to match the planned flight altitude as the video is animated.

Displaying this layer also adds a label to the Position Details box indicating the severity of that weather at the current position of the aircraft in the playback video.

14.18.3.3 Camera Mode

In the Route 3D Preview window, two buttons in the bottom-left corner control the camera perspective:

- **Top button**: Switches to first-person perspective (cockpit view).
- **Bottom button**: Switches to third-person perspective (external view behind the aircraft).

While in first-person camera mode, use one finger to pan the view. Use two fingers to pinch to zoom, which moves the view forward from the cockpit. After fingers are lifted from the device, the camera returns to the forward position after five seconds as indicated by a radial timer. Tap this timer to instantly return the camera forward.

While in third-person camera mode, use one finger to pan around the aircraft. Use two fingers to pinch to zoom out and adjust the distance behind the aircraft.

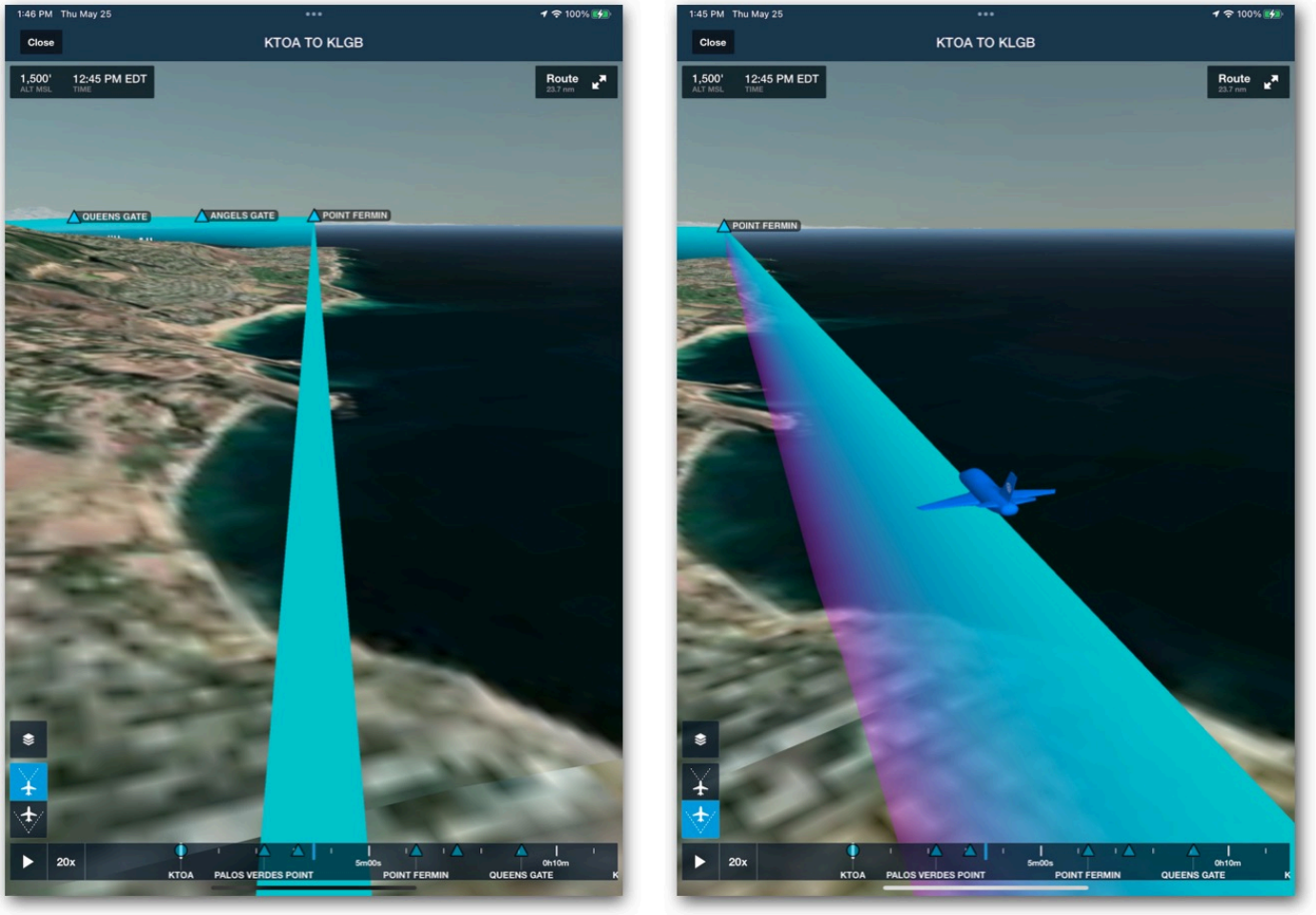


Figure 14-96. Camera Mode: 1st person (left), 3rd person (right)

14.18.3.4 Step Selector

At the top right corner, the Route 3D Preview window displays the length of the route (23.7 NM in the example below) and can be tapped to show a list of steps in the route. Tap any of the steps to rewind or fast-forward the preview video to the beginning of that step. Tap **Route** to expand or collapse the list of steps.

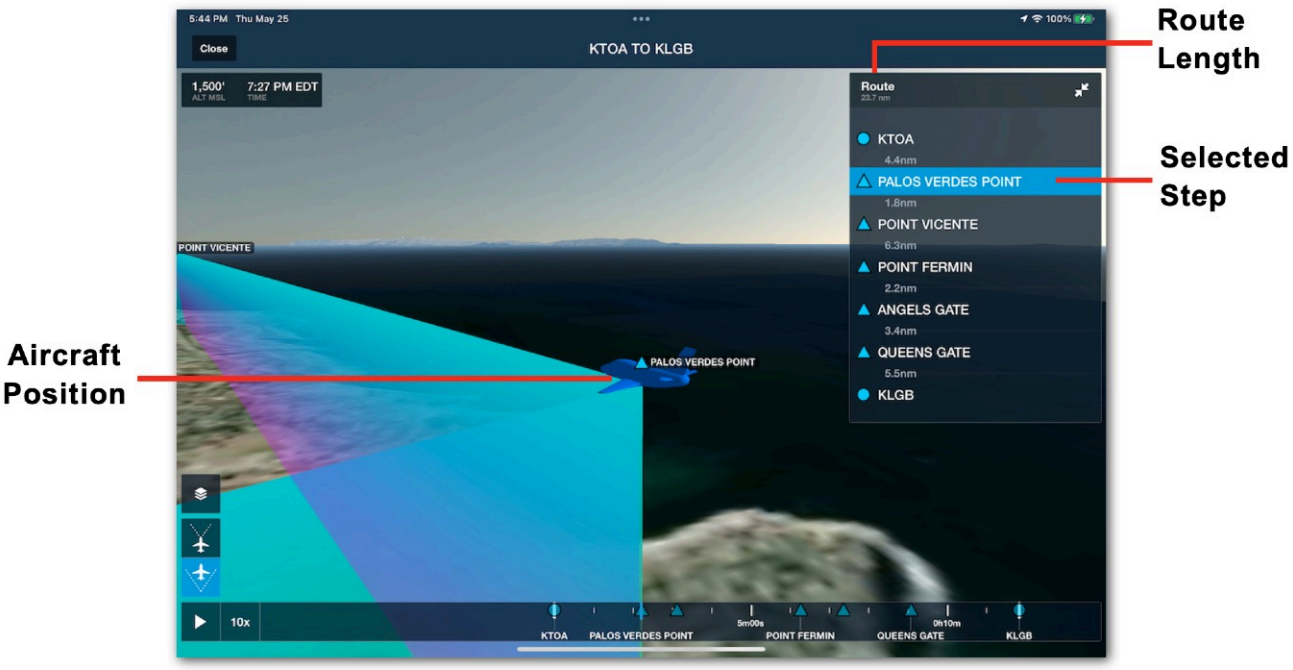
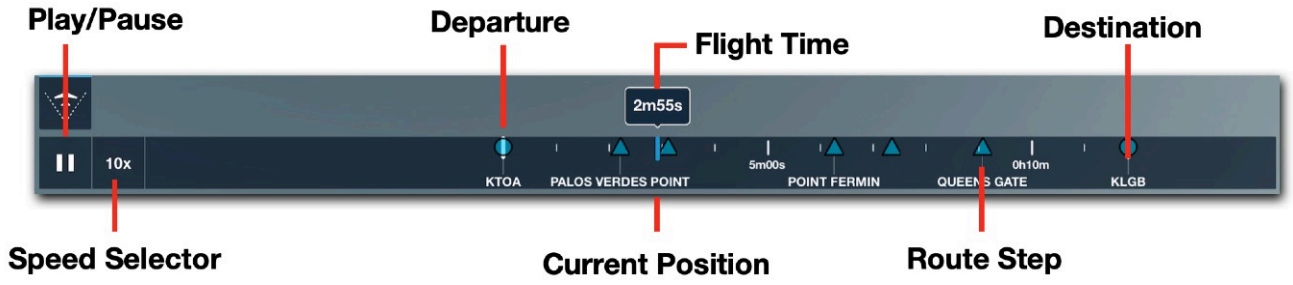


Figure 14-97. Step Selector

14.18.3.5 Video Preview Controls

Along the bottom edge of the Route 3D Preview window is a set of controls that can be used to show specific moments in the route preview video.



The preview controls include the following elements.

- **Play/Pause**: Tap the **Play/Pause** button on the left side to start and stop the video animation.
- **Speed Selector**: Tap the **Speed Selector** button (defaulted to 1x) to play the video at 1x, 3x, 5x, 10x, or 20x speed.
- **Current Position / Flight Time**: A vertical blue line on the time scale indicates the current position of the aircraft in the preview video. When the video is playing, the total flight time displays above the current position.

- **Route Steps**: Blue triangles along the Time Scale indicate when a step in the route begins. The departure and destination airports are indicated by blue circles. These icons correspond with items in the Step Selector list, but they cannot be tapped to change aircraft position.
- **Time Scale**: Slide one finger left or right along the Time Scale to move the video to a specific moment. The Time Scale extends from the beginning to the end of the route, as indicated by large vertical white lines.

14.18.3.6 Route Curtain

The horizontal and vertical path of the route is drawn as a translucent curtain extending from the surface up to the planned flight altitude. The route line above the curtain is always blue, but the curtain can be one of three colors:

- Magenta for the active leg.
- Blue for a future leg.
- Yellow for a completed leg.

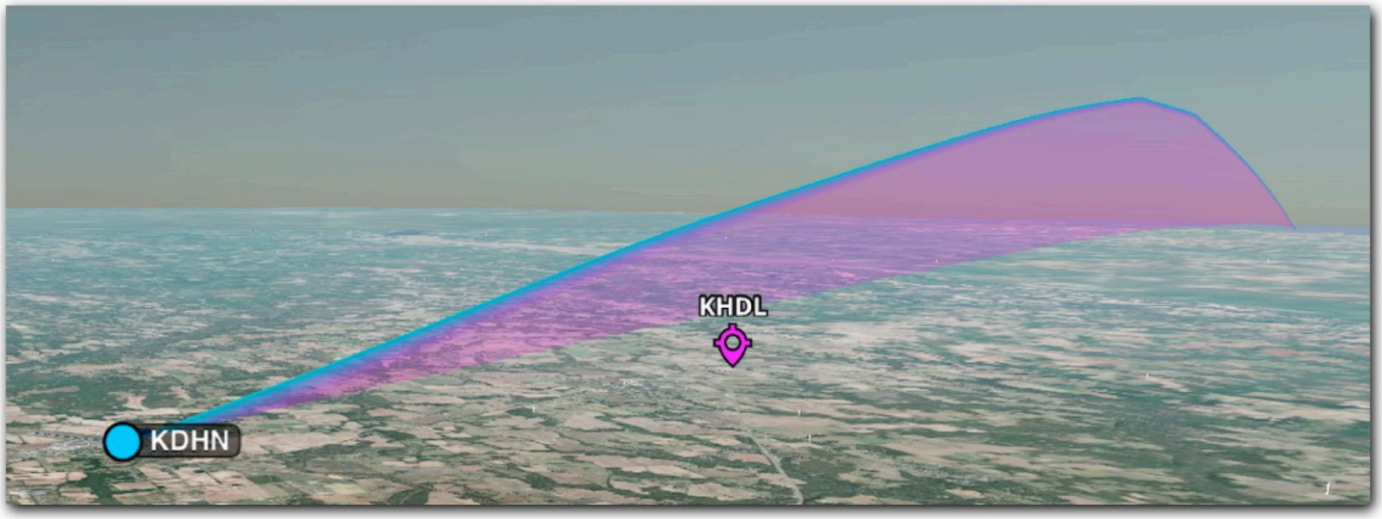


Figure 14-98. Route Curtain

14.18.4 Pack

Pack provides a method for downloading all charts, weather, NOTAMs, TFRs, fuel price data, comments, and 3D View Aerial Imagery needed for the planned route. Pack can be accomplished from the Maps or Flights views. For more information, see the Pack section.

14.18.5 Favorite Routes

The **star** button toggles the favorite status of the current route. When the star icon is orange, the current route has been saved as a favorite. When marking a route as a favorite, the route can be named as something other than the default Origin-to-Destination name. Having a custom name can be helpful when searching for a route in the Favorite Routes list.

14.18.6 Route Sharing

Routes can be shared via various methods. Tap the **Send To** button and select one of the sharing options.

- **Mail**: Creates a new email message with the navigation log and a screenshot of the trip. The message also includes a link that other ForeFlight Mobile users can tap to load the route onto their iPad or iPhone.

  > **NOTE:** This option only appears if an email account is set up in the device's Mail app.

- **Flights**: Copies the current route and performance data to an empty flight plan on the Flights view.

  > **NOTE:** Tapping this button does not directly file the flight plan or submit a request for a briefing.

- **Plates**: Creates a Flight Binder and automatically plates relevant to the planned route for the departure and destination airports.
- **Logbook**: Generates a new logbook entry and auto-fills it with the current route, aircraft, and estimated time en route.
- **Clipboard**: Copies the flight plan to the iPad internal clipboard to allow pasting in another application.
- **Share FPL File**: Shares the route file to other iOS devices on the same Wi-Fi network that are running ForeFlight Mobile (listed by device name). Wi-Fi ADS-B receivers such as Sentry accommodate Cockpit Sharing. This feature is enabled in **More → Settings**.
  - If a Wi-Fi network is unavailable flight plans can be shared using AirDrop.
- **Print**: Sends the navigation log to an AirPrint-compatible printer.

14.18.7 Route Editor

The Route Editor (FPL menu Edit view) is used to plan routes. To create a route, tap within the dark blue space of the route editor and use the keyboard to enter route elements. See the flight planning chapter for additional information.



Figure 14-99. Route Editor (FPL - Edit Mode)

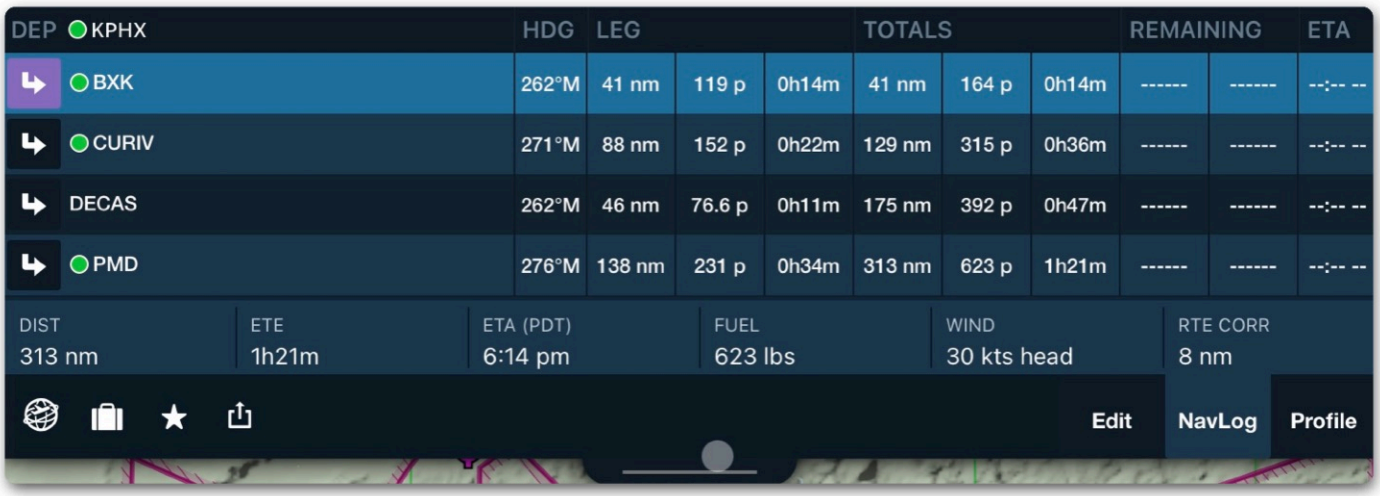
Route elements are any airport, navigational aid, waypoint, airway, or procedure. Route elements are color-coded based on type.



Figure 14-100. Route Editor - Element Icon Colors

14.18.8 NavLog

The navigation log (FPL - NavLog mode) on the Maps view displays each leg of the route, with course (or heading, if winds aloft are included for the route), distance, fuel burn, and time data. The table listing shows the end points of each leg, the totals for the route and leg, and ETA.



On smaller screens, it is not possible to display all of the columns. Only the destination, departure, heading, and distance/fuel/time totals are depicted. This NavLog is independent of the Navlog generated from the Flights view.

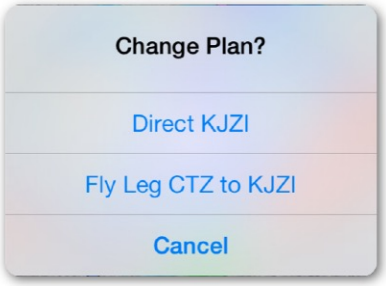
- Planned Data: Information in the Heading (or Course), Totals, and Leg columns represent the planned route and is based on the information provided in the Search box, or based on the selected aircraft performance profile. This information is not updated once displayed.
- Real-Time Distance, ETE/ETA: The Remaining and ETA columns are updated in real time based on current GPS position and groundspeed. The distance remaining on the leg, estimated time en route for the leg, and estimated time of arrival at the next waypoint are displayed.

  > **NOTE:** during pre-flight planning on the ground, the Remaining and ETA columns will not show accurate information, because they require actual (real time) GPS speed and position to update.

- DIST, ETE, ETA, Fuel, Wind, and RTE CORR: The information lower-left below the table are planned values calculated when the route is entered, so are not updated in flight.

Tap on a **waypoint ID** in the table to jump to that waypoint on the map.

Tap the (**Leg Select**) button button to adjust the route to any leg, or direct to a waypoint on a leg.



14.18.8.1 LSALT Calculator (NavLog)

The LSALT Calculator may be displayed on the NavLog to show lowest safe altitude calculations per leg. See Map Settings to enable the LSALT Calculator.

To calculate LSALT:

1. Tap the **LSALT data window** of the leg to be calculated.
2. Manually enter a custom LSALT.
3. Tap a **radio button** for the desired calculation.

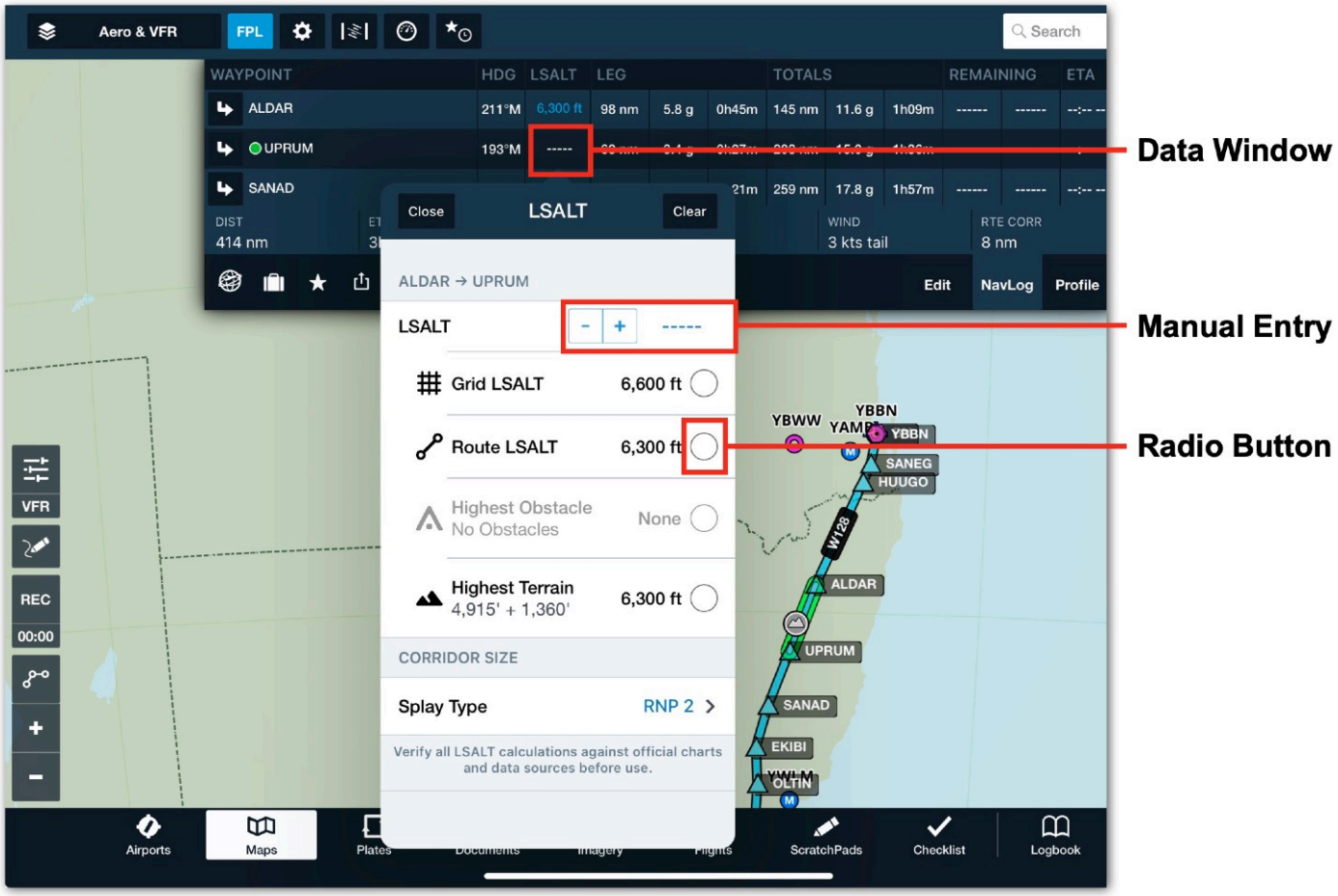


Figure 14-101. NavLog LSALT Calculator

14.19 Dynamic Procedures

Dynamic Procedures delivers streamlined procedure data based on user-selected parameters, integrated with the moving map, profile view, and a dedicated sidebar. This feature extracts and presents key procedure elements as structured, interactive components. Information such as frequencies, minimums, notes, and waypoint data is filtered based on selected criteria.

Dynamic Procedures is available in the U.S., Canada, and Europe. Access requires an Essential, Business Pro, or higher subscription with regional coverage for the area of interest.

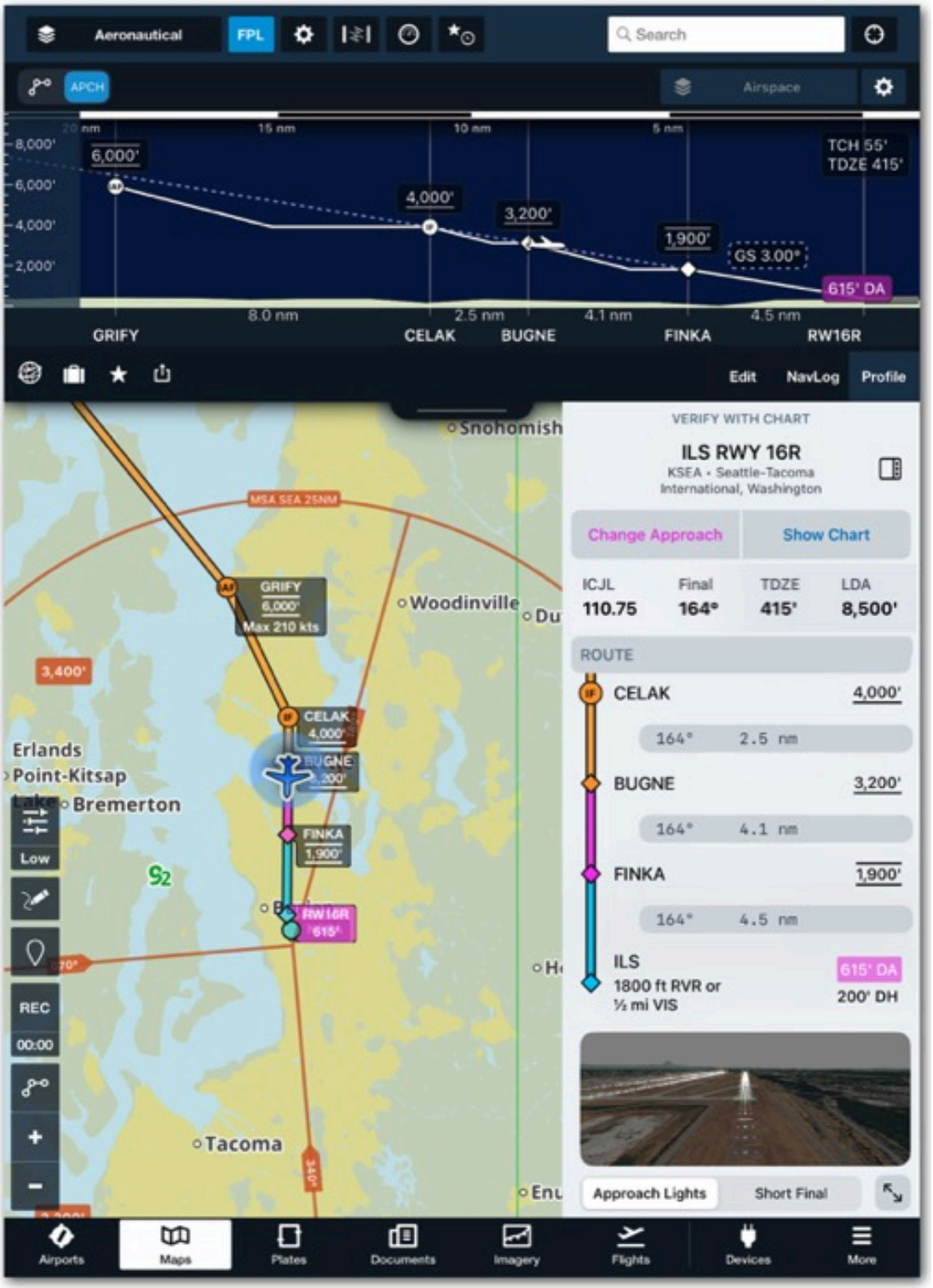


Figure 14-102. Dynamic Procedures

14.19.1 Access the Procedures Sidebar

To access the Procedures Sidebar:

1. Create a route using the **FPL Editor**.
2. Tap **Procedure** in the **FPL Editor** and select a **Departure**, **Arrival**, and/or **Approach** from the Procedure Advisor.
3. Define the Procedure Advisor parameters and tap **Add to Route**.
4. Tap Procedures Sidebar button to open the Procedure Sidebar or Terminal Procedure menu.

> **NOTE:** If multiple procedures are loaded into the FPL Editor, the Terminal Procedure selection menu will initially display when the Procedure Sidebar button is tapped.

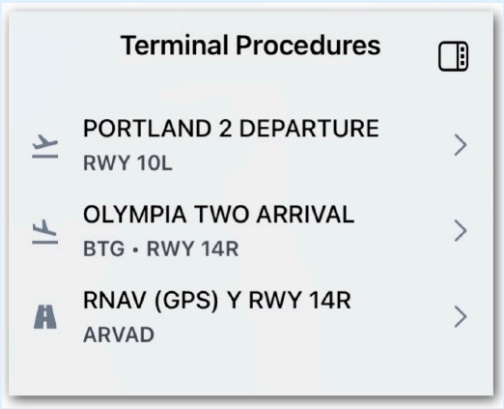


Figure 14-103. Terminal Procedure Menu

5. If multiple procedures are loaded in the FPL Editor, tap the desired procedure to open the Procedure Sidebar.

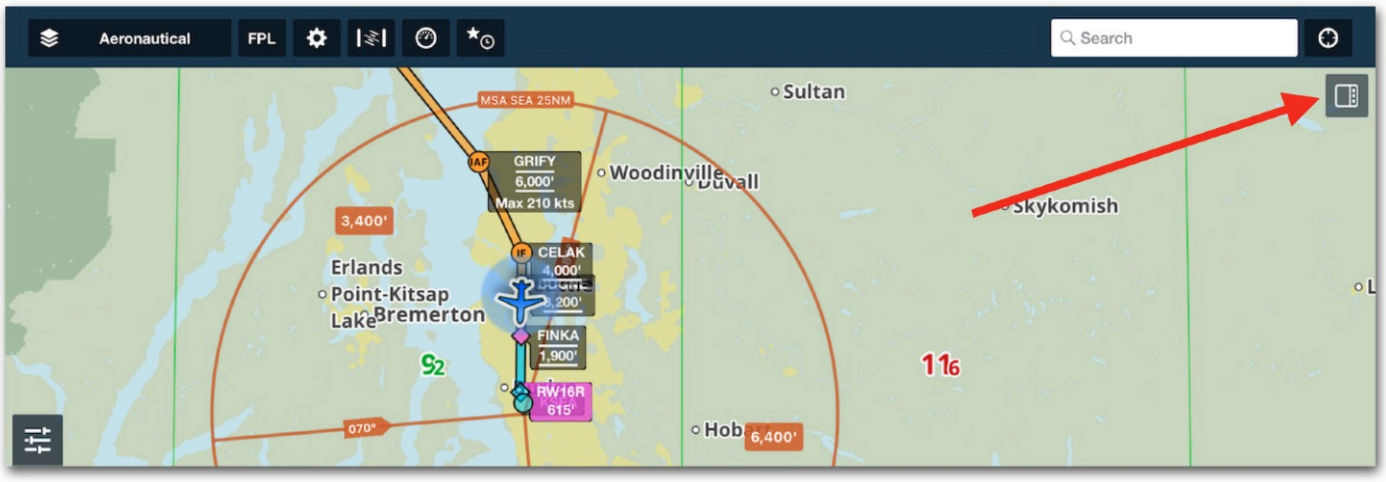


Figure 14-104. Show Procedures Sidebar

14.19.2 Hide Procedure Sidebar/Return to Menu

To close the Dynamic Procedure sidebar tap the (**Procedures Sidebar**) button.

To return to the Terminal Procedure menu tap the **<** button.



Figure 14-105. Hide Procedure Sidebar/Return to Menu Buttons

14.19.3 Procedures Sidebar

The Procedure Sidebar contains key procedure details in a briefing format for a selected procedure. The elements displayed will be unique for the type of procedure selected.

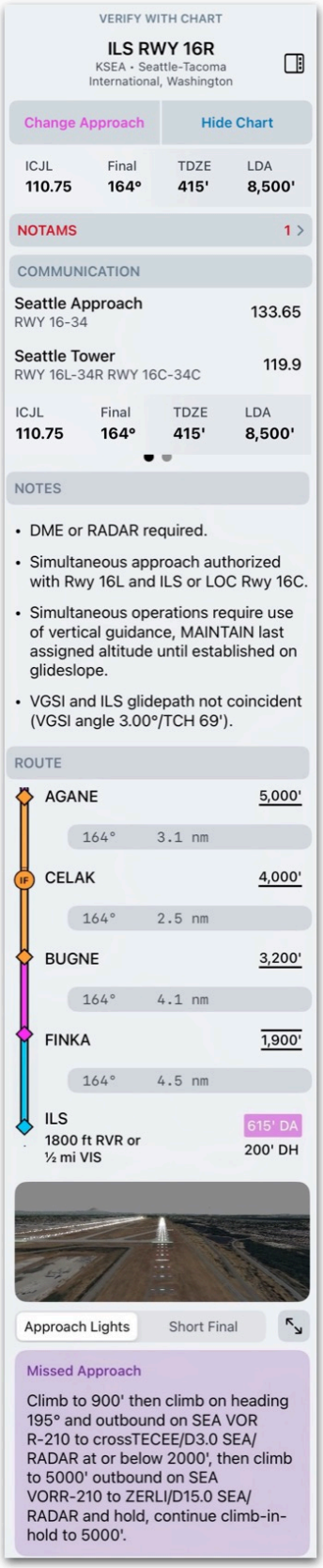


Figure 14-106. Procedures Sidebar

The Procedure Sidebar is dynamic and displays charted information tailored for the parameters of the selected procedure. Displayed elements for a procedure may include:

Procedure Identification: Displays procedure name, airport, navaid identifier, final approach course, Touch Down Zone Elevation (TDZE), and Landing Distance Available (LDA).

- **Change Approach**: Used to modify or change the currently selected approach procedure.
- **Change Departure**: Used to modify or change the currently selected departure procedure.
- **Change Arrival**: Used to modify or change the currently selected arrival procedure.
- **Show Chart**: Displays the associated chart on the map.
- **Hide Chart**: Hides the associated chart.

NOTAMS: Displays the number of NOTAMs associated with the selected procedure. Tap to open NOTAMs view in the sidebar. See Alert NOTAMs.

Communication: Lists the relevant frequencies for the procedure. Dots at the bottom of the section indicate additional entries, accessible by swiping.

Notes: Displays the relevant notes for the procedure and selected variables.

Route: Lists waypoints, altitude, course, distance, and speed restrictions of the procedure. May include a textual description of the procedure. Line colors indicate:

- **Magenta**: Active segment
- **Blue**: Upcoming segments
- **Orange**: Completed segments.

Tap on a waypoint or route segment to open the respective menus. See Waypoint Information Menu and Route Details.

Tap on the approach minimum to open the Change Minimum dialog and change approach parameters.

Airport View: Provides a visual indication of the airport environment on approach. The three button options are:

- **Approach Lights**: Displays the runway lighting configuration
- **Short Final**: Shows a view near the runway threshold.
- **3D View**: Opens the 3D view pop-over (requires a Premium subscription).

- **Missed Approach**: Description of the missed approach procedure.

Takeoff Minima: Description of takeoff minimums for the selected departure runway.

Obstacles: Description of relevant departure obstacles.

Lost Communications: Description of lost comm procedures.

Initial Climb: Description of the initial climb for the selected departure runway.

14.19.4 Map Elements

When Dynamic Procedures are enabled, additional map elements are displayed:

- An MSA ring overlays the map, when applicable.
- Approach minimums are shown in context on the moving map.

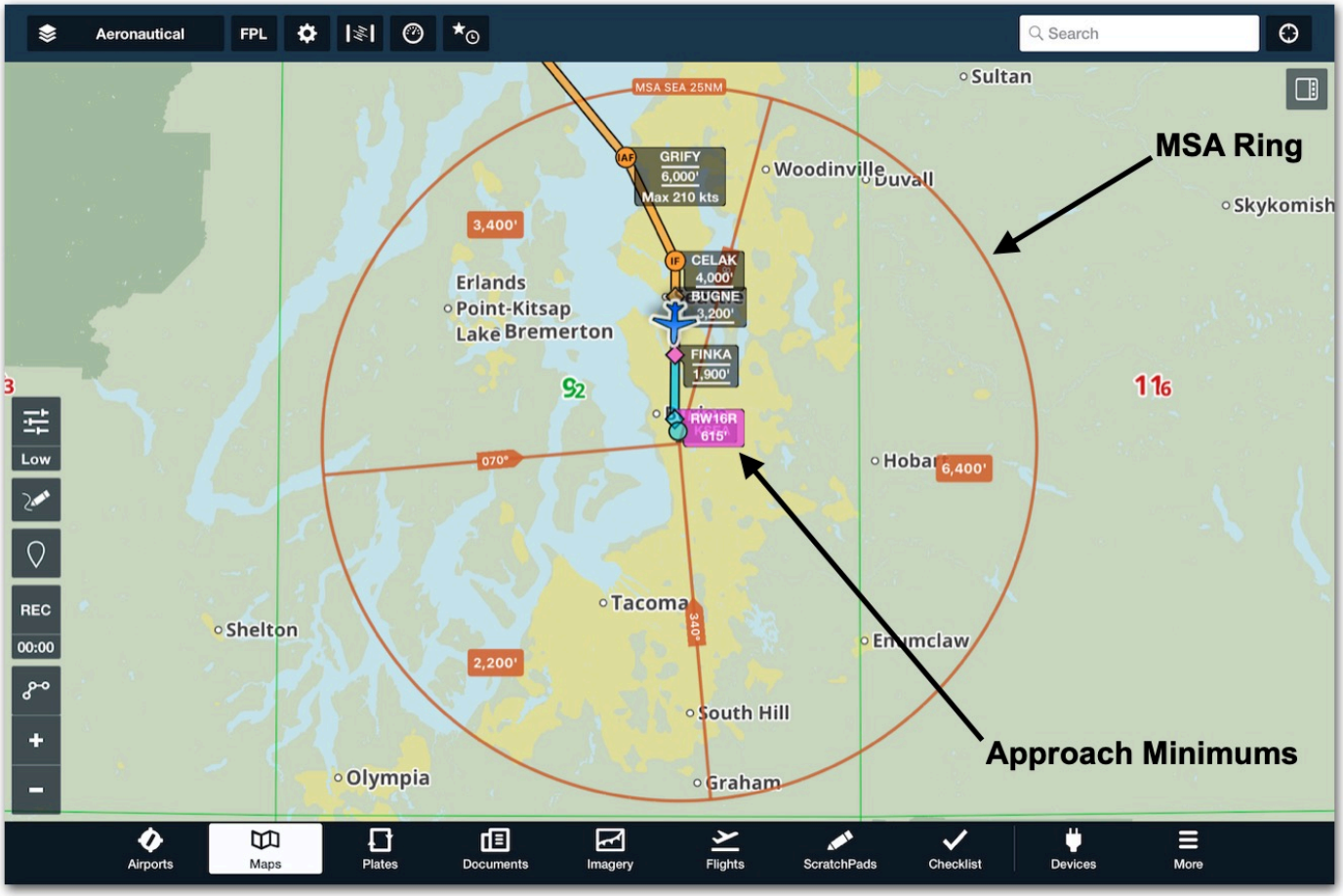


Figure 14-107. Dynamic Procedures Map Elements

14.19.4.1 Circle to Land Display

When circling minimums are selected for an approach, the circling visibility minimums are depicted on the map at the distance required by the aircraft category selection.

> **WARNING:** Depicted circles are generated generically and may not represent the required circling area. Circling minimums with notes such as "NOT AUTHORIZED WEST OF AIRPORT" may not be depicted.

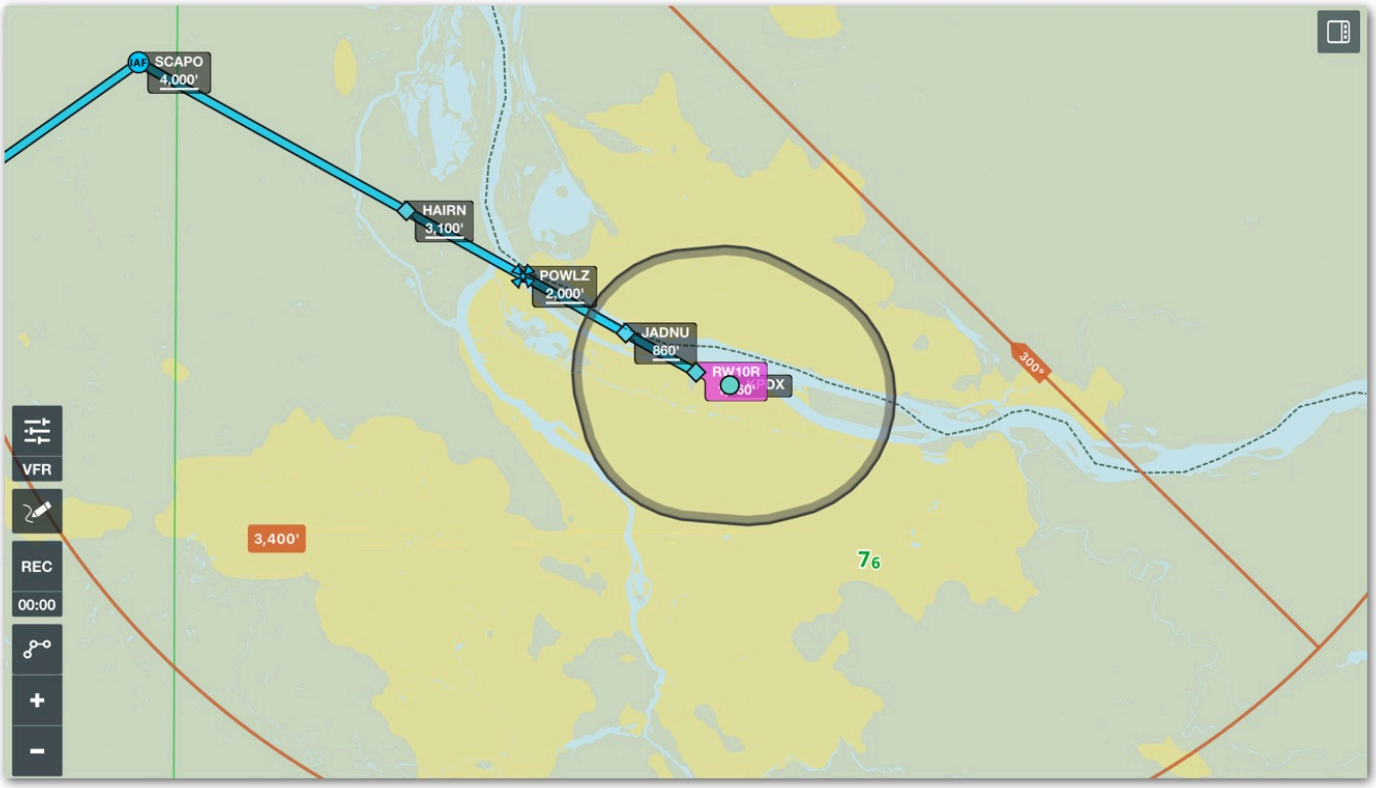


Figure 14-108. Circle to Land

14.19.5 Approach Profile View

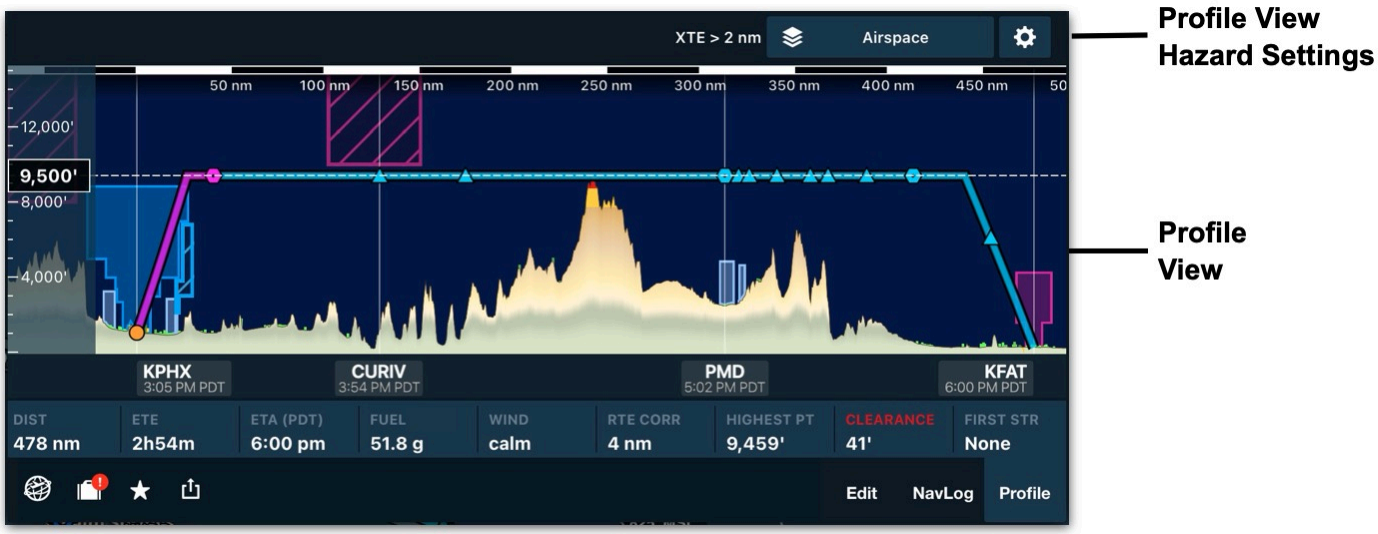
The Dynamic Procedure Approach Profile is available in the FPL Profile view. To access:

1. Tap **FPL** to open the FPL Viewer.
2. Tap **Profile**.
3. Tap **APCH** in the upper left to display the Dynamic Procedure Approach Profile.

14.20 Profile View

Profile View displays a cross-section of the planned route including the climb, en route, and descent phases. Climb and descent rates are based on the selected performance profile and forecast weather.

Profile View is available on iPad and iPhone by selecting **Profile** from the bottom right corner of the FPL window. Profile View requires an Essential or higher subscription.



14.20.1 Profile View Hazards (Terrain & Obstacles)

Profile View displays terrain and obstacle hazards along the route. The hazards displayed in Profile View are determined by the Corridor Width setting in the Profile View Hazard Settings.

Corridor Width specifies the total distance (perpendicular to the route) for which hazards are analyzed. For example, an 8 NM corridor width setting displays all hazards within 4 NM on either side of the route.

14.20.2 Cross Track Error (XTE)

When the GPS position (on the ground or in the air) is more than half the corridor width distance from the route, a cross track error (XTE) notation is displayed to the right of the Profile View Hazard settings button. The XTE notation indicates the flight is outside the lateral range of displayed hazards.

14.20.3 Hazard Colors

Obstacles in Profile View are green and terrain is tan when the planned height above hazards exceeds the selected Hazard Altitude setting. Hazards in Profile View become yellow or red when the planned height above hazards is less than the Hazard Altitudes selection.

Hazard Altitude settings are available at the bottom of the Profile View **Hazard settings** menu (gear button) and in **More ➔ Settings ➔ Hazard Altitudes Setting**.

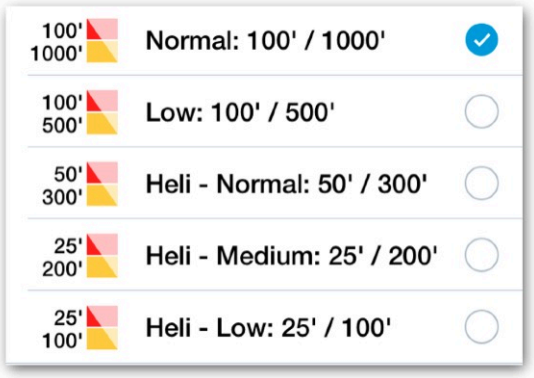


Figure 14-109. Hazard Altitudes

There are five hazard altitude settings. The **Normal 100’/1000’** setting is selected by default.

With a hazard altitude setting selected, hazards change to yellow when clearance is less than the higher hazard altitude setting. Hazards change to red when clearance is less than the lower hazard altitude setting. For example; when **Normal 100’ / 1000’** is selected, hazards are yellow when clearance is less than 1000’ AGL and red when clearance is less than 100’ AGL.

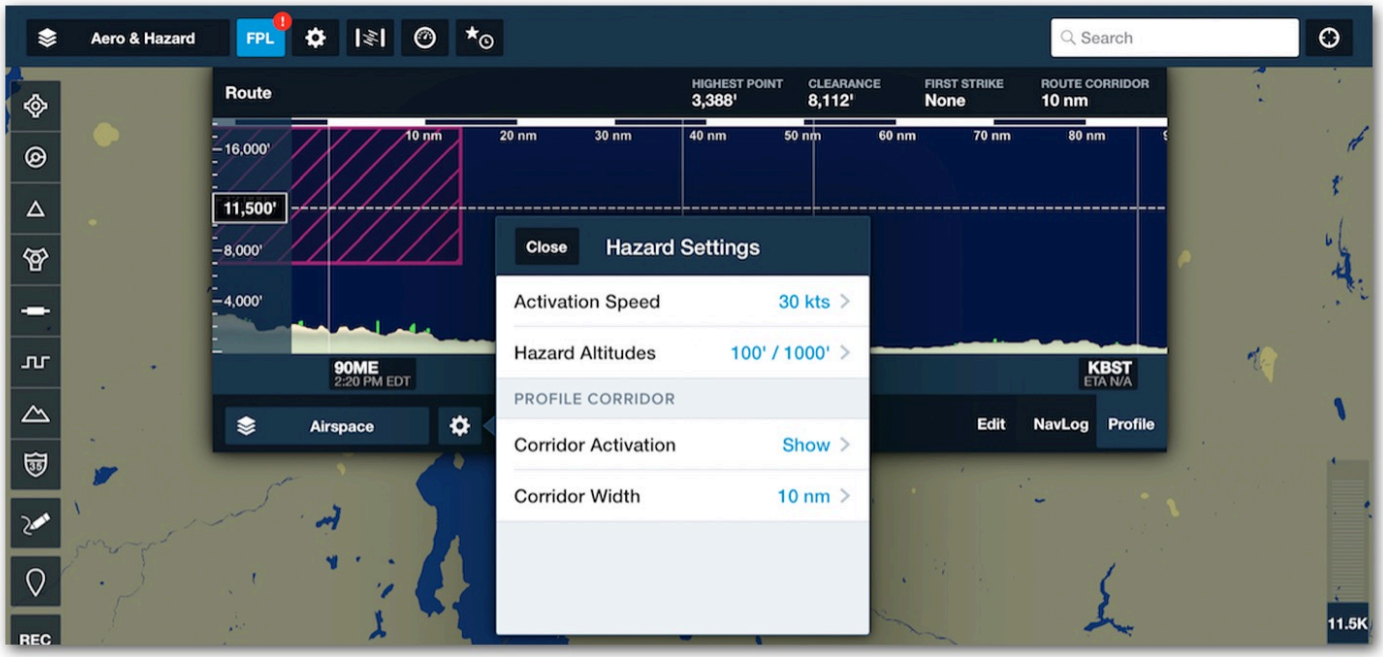


Figure 14-110. Profile View Hazard Settings

14.20.4 Profile View Waypoints

Waypoints and their estimated crossing time are displayed near the bottom of Profile View. Crossing time is based on the estimated time of departure and is not updated in flight to reflect actual groundspeed. If a route contains multiple waypoints, Profile View may hide waypoints to avoid overlapping labels (see image below). Use two fingers to zoom in on Profile View to display hidden waypoints.

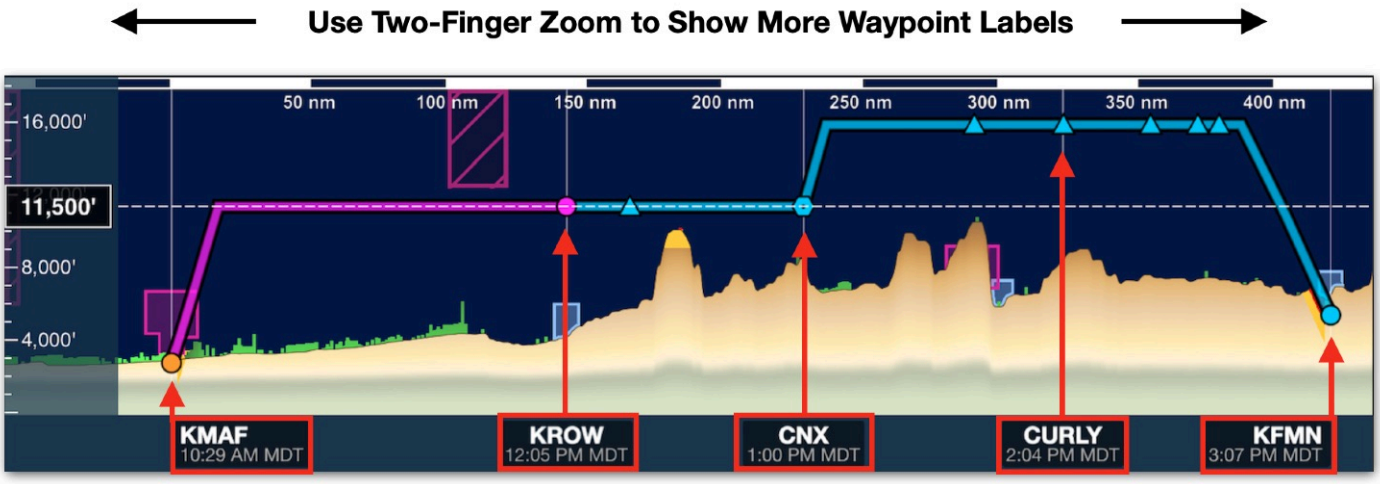


Figure 14-111. Waypoints Labeled at Bottom

14.20.5 Waypoint Menu

Route changes can be made from the FPL Route Editor, Maps View, or from within Profile View. See Route Editor for more information. To edit a route using Profile View:

1. Use two fingers to zoom in on a waypoint in Profile View (if necessary).
2. Tap the waypoint near the bottom of Profile View.
3. Use the waypoint menu to specify a delay, altitude, speed, or flight rule change.

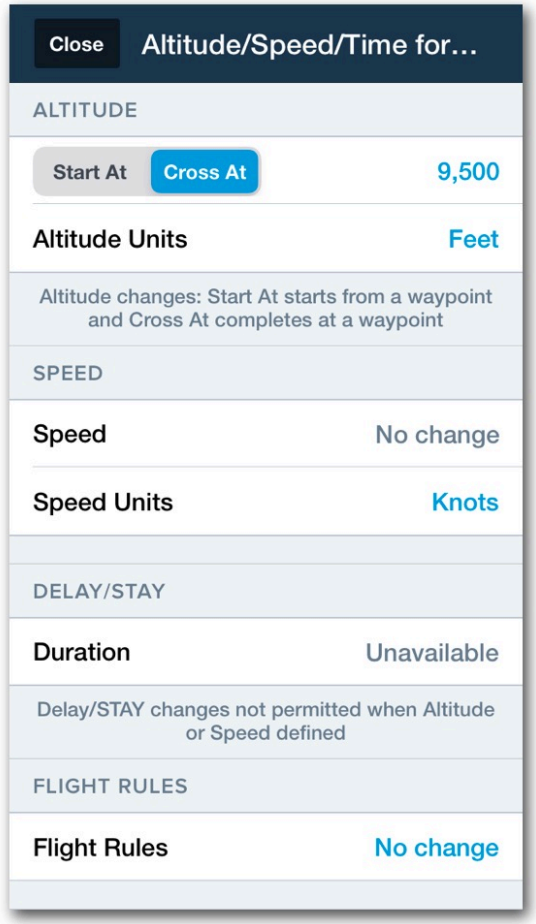


Figure 14-112. Waypoint Menu

4. Tap **Close** in the upper-left corner of the waypoint menu (or anywhere outside the waypoint menu) to save the changes.

14.20.6 Altitude Changes in Profile View

The initial cruise altitude for the route is displayed in a black box on the left side of Profile View. Slide the altitude box up or down to adjust the initial cruise altitude.

Cruise altitude for subsequent legs can be adjusted by tapping a waypoint where the altitude change is to occur and manually entering a new cruise altitude in the waypoint menu.

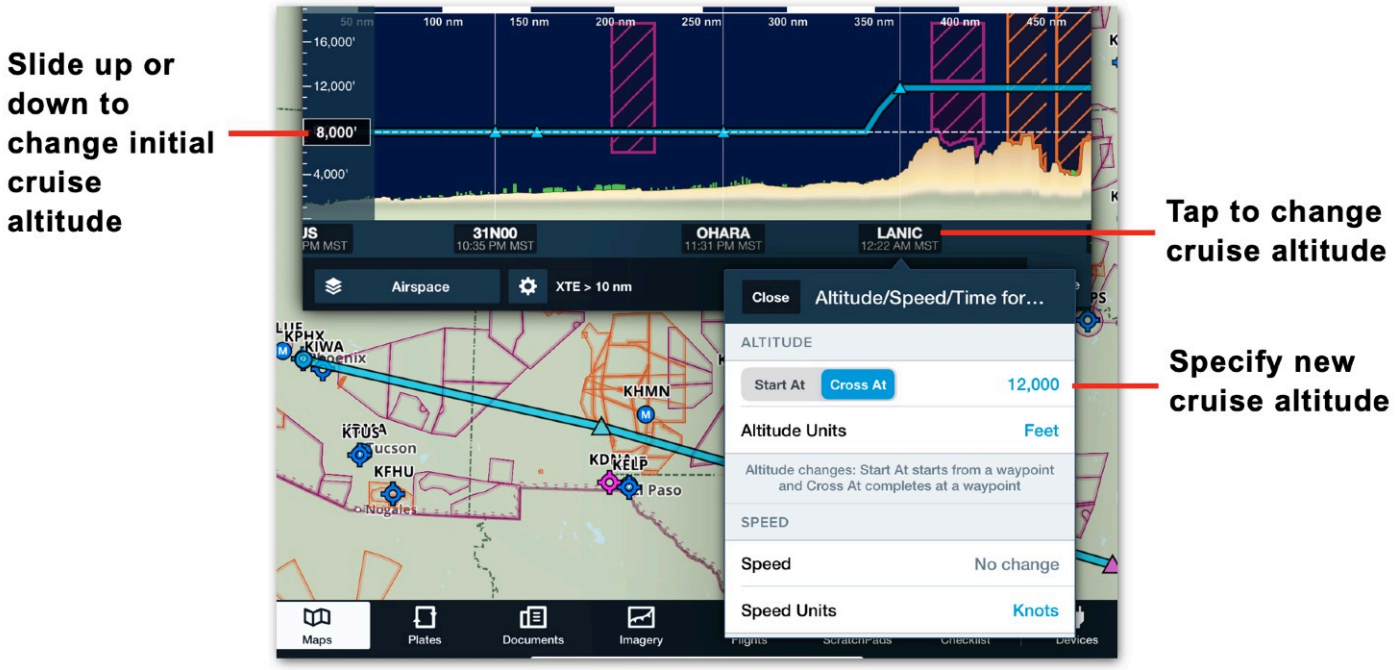


Figure 14-113. Profile View Altitude Changes

14.20.7 Profile View in Flight

In flight, Profile View automatically switches to flight mode. Flight mode displays airspace, obstacles, and terrain 60 NM ahead of the location based on the current GPS track. To switch between flight and planning mode, tap the **Flight/Planning** button in the top left corner of Profile View. Flight and planning buttons are only available when ForeFlight Mobile detects the aircraft is in flight.

When flying, the **Route** button displays the current position along the planned route. Tap the **Aircraft** button to return to flight mode. In flight mode, the Profile View automatically displays an aircraft symbol and horizontal dashed line at the geometric altitude relative to sea level (GSL). Height above ground (AGL) is shown below the GSL altitude.

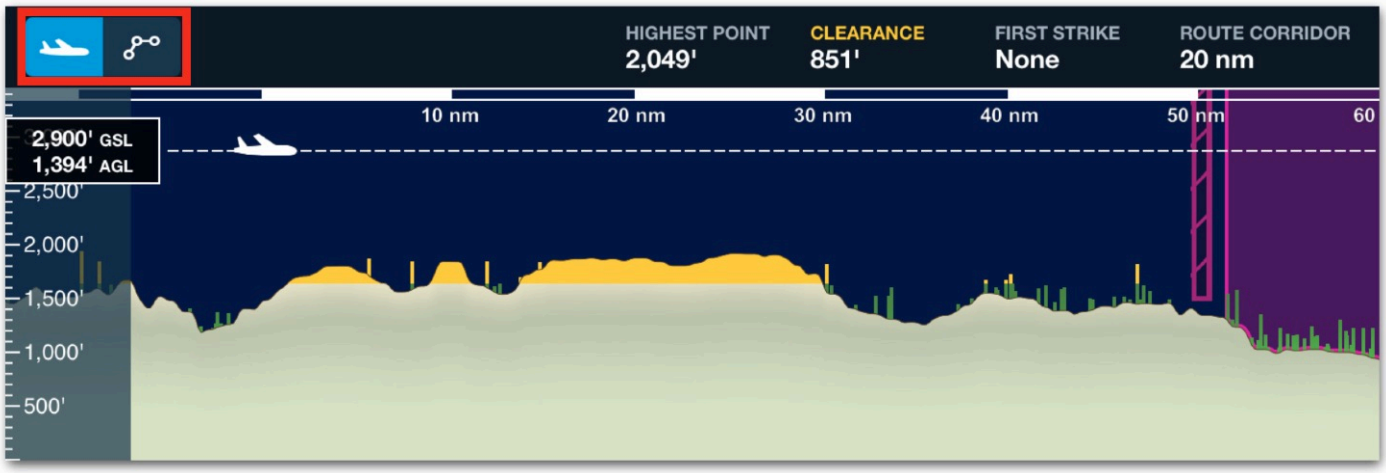


Figure 14-114. Profile View in Flight (based on current GPS ground track)

14.20.8 Dynamic Procedure Approach Profile

The procedure descent profile and glide path are viewable in profile view. The procedure waypoints and approach minima identified during procedure selection will display along with glide path, TCH, TDZE, and distances.

To display the procedure tap the **APCH** button.

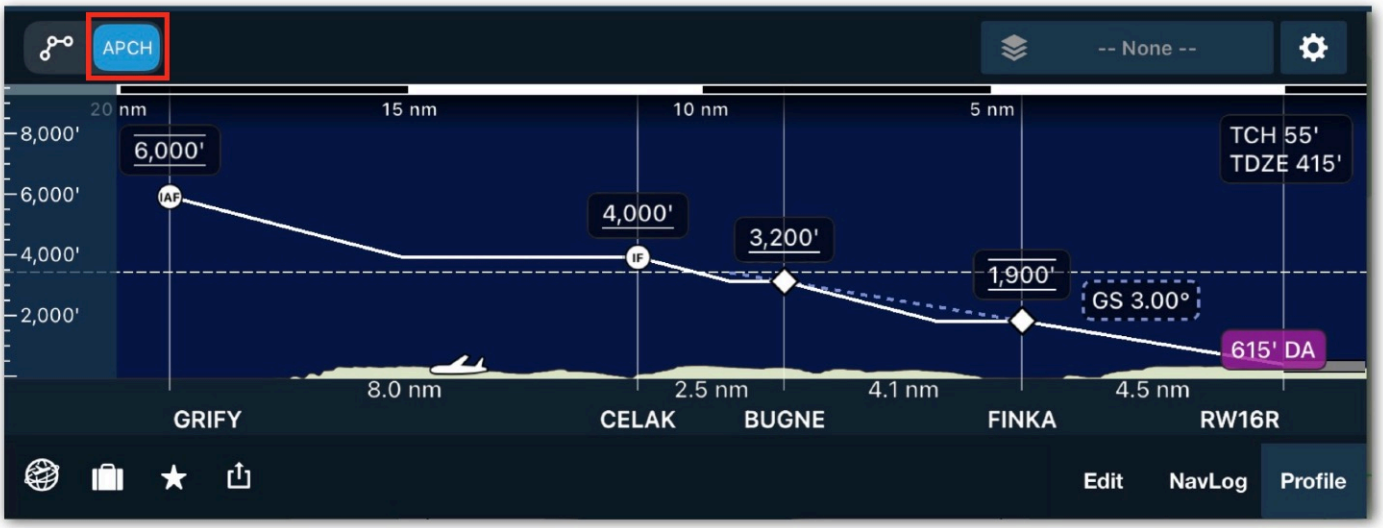


Figure 14-115. Procedure Advisor Profile View

14.20.9 Profile View Zoom

Profile View automatically scales to show the entire route. To zoom in on an area of interest, touch two fingers to the Profile View and slide them apart horizontally. Pinch them together to zoom out.

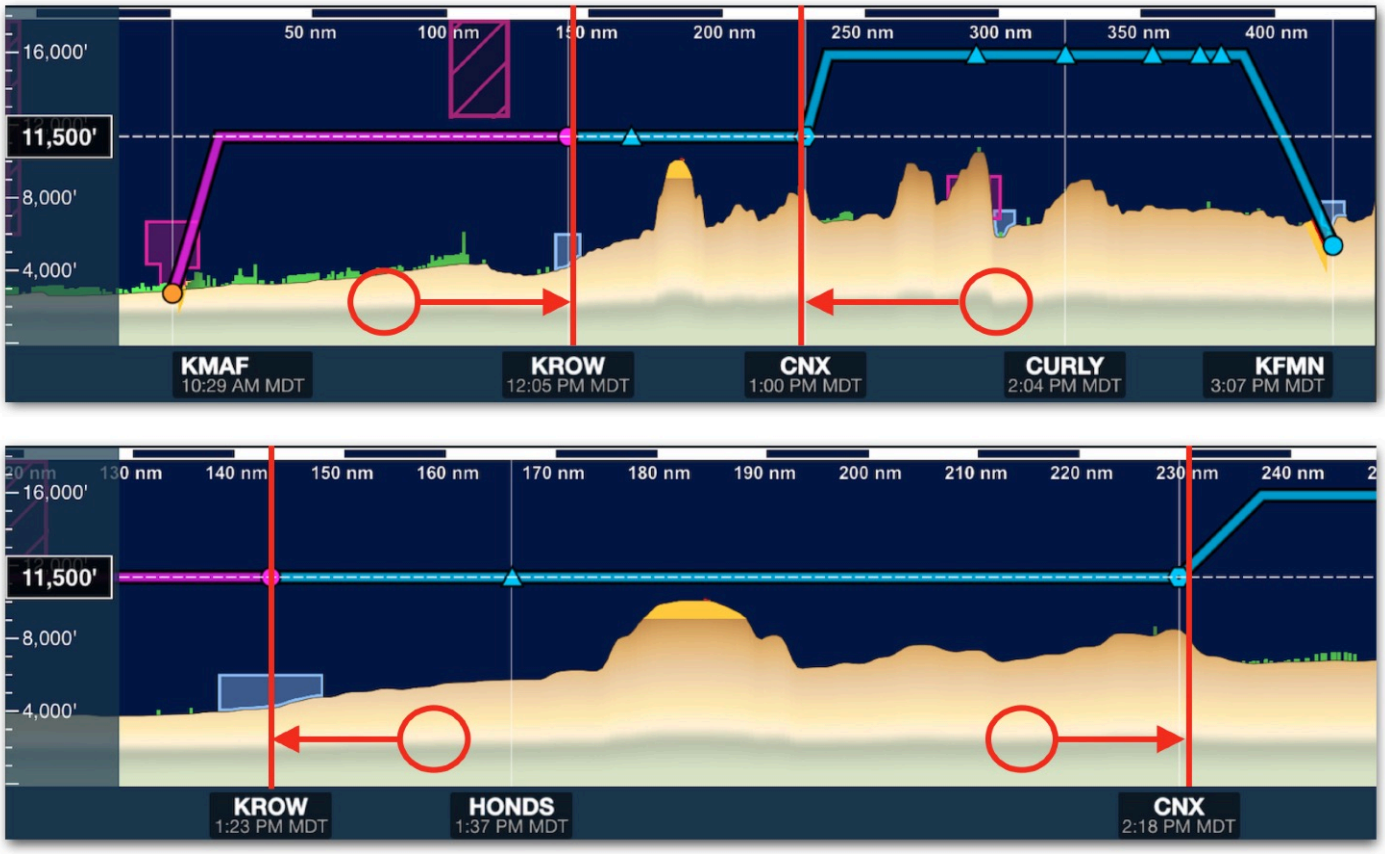


Figure 14-116. Zooming In/Out of the Same Region

14.20.10 Profile View Scrubbing

To analyze potential hazards during preflight, tap and hold one finger on the Profile View at a specific point along the route. This places a marker at the corresponding point on the map and displays the following hazard details relevant at that point:

- The MSL height of the point above terrain/obstacle hazards within the lateral bounds of the user-specified Corridor Width.
- The vertical clearance of the point from underlying terrain or obstacle hazards within the lateral bounds of the user-specified Corridor Width. The label font color indicates vertical proximity to hazards and can be red or yellow based on the user-set Hazard Altitudes setting.
- The NM distance and ETE (above 60 KTS) of the marker from the current position while in flight (Flight Mode) or the departure point if in Planning Mode.

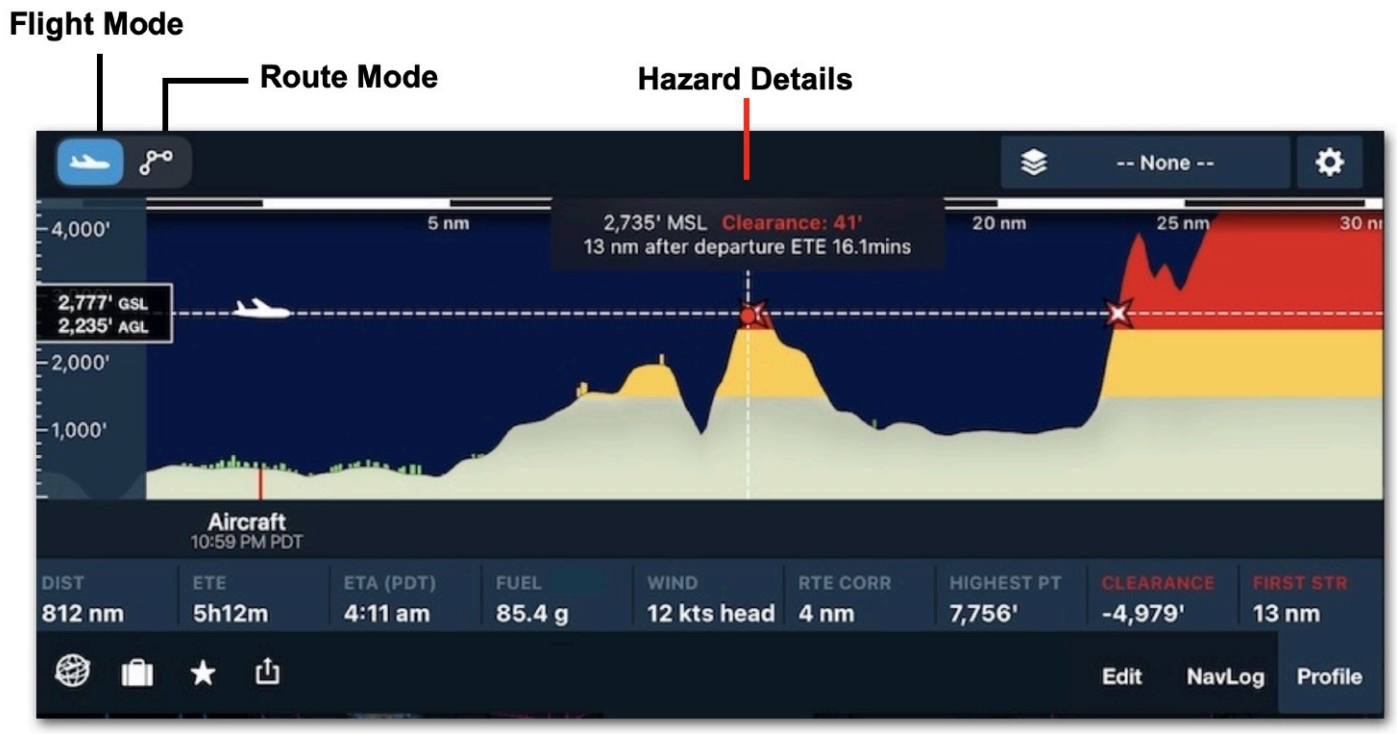


Figure 14-117. In-Flight Profile View Hazard Details

While in flight mode, a marker can be set in front of the position by tap and holding on the Profile View in front of the aircraft. The marker will remain there, providing hazard information, until the screen is tapped or leaving the Profile view.

> **NOTE:** If the Airspace layer is enabled and a point within controlled airspace is scrubbed, the boundaries of that airspace are highlighted both in the Profile View and on the map.

14.20.10.1 Scrubbing the Profile View

To see details for different points along the route,

1. Tap and hold one finger on the Profile View.
2. Drag the finger left and right across the Profile View.

The hazard details are updated at each new point, and the marker moves along the route line on the map.

14.20.10.2 Marker Characteristics

As the marker moves along the route line on the map, it uses width and color to provide additional details about each point:

- **Marker Width**: The marker always spans the user-specified Corridor Width. This can be used to visualize how far to the left and right of the route centerline ForeFlight scans for potential hazards, even when the Profile Corridor is not displayed.
- **Marker Color**: The color of the marker indicates the vertical proximity to underlying obstacles or terrain within the user-specified Corridor Width. The marker color is red, yellow, or green, depending on the user-set Hazard Altitudes setting.

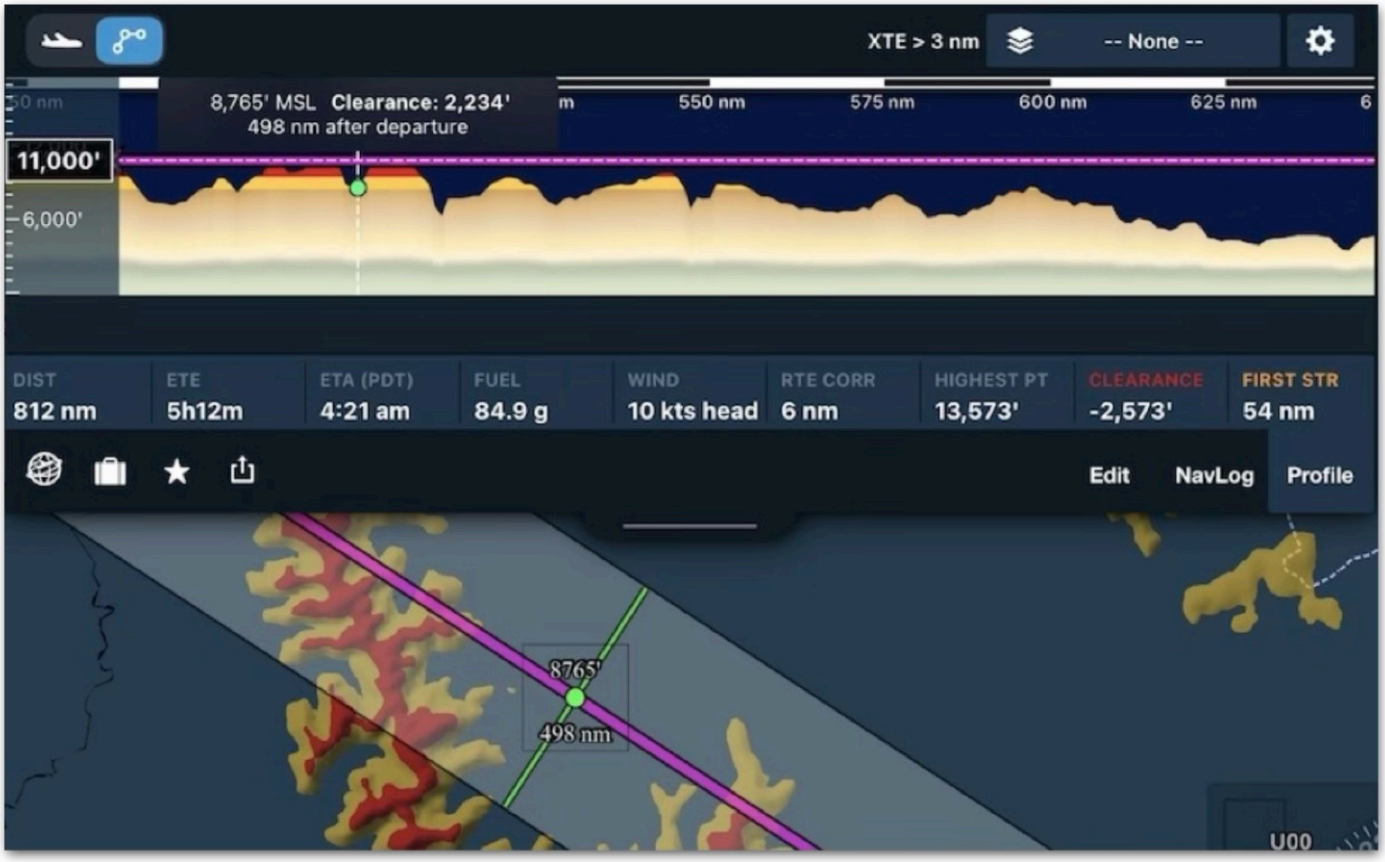


Figure 14-118. Scrubbing the Profile View

14.20.11 First Strike and Clearance Calculations

A first strike and clearance analysis is conducted during planning and while in flight.

In planning mode, clearance is the difference between the highest hazard within the route corridor and the planned cruise altitude, including its climb and descent performance. In flight mode, clearance is the difference between the highest point looking 60 NM ahead of the current track, inside the user-defined corridor, and the current GSL.

> **NOTE:** For short routes (of less than 12 NM), the Clearance field displays a blank line "---". This is because ForeFlight Mobile adds a 5 NM buffer to the start and end of the Profile Corridor, within which clearance calculations cannot be made.

Hazard information is displayed in the Profile View header. While in flight, the distance and time (based on the current groundspeed) to the First Strike is displayed.

> **IMPORTANT:** To account for takeoff and landing, hazards within 5 NM of the departure and destination airports are not factored in the first strike calculation. Hazards within 5 NM of the departure and destination airports are not factored in the clearance calculation.

The Clearance and First Strike labels are color-coded as follows:

- Clearance values less than 1,000 feet result in a yellow Clearance label.
- Clearance values less than 100 feet result in a red **Clearance** label.
- If a first strike is anticipated in planning mode, the **FIRST STRIKE** label is yellow and will show the distance remaining to impact.
- If a first strike is anticipated in flight mode, the **FIRST STRIKE** label is yellow and will show the distance and time remaining to impact.
- In flight mode, the label changes to red when the clearance is zero or less and the time to **FIRST STRIKE** is 20 minutes and will show the distance and time remaining to impact.

14.20.12 Obstacle/Terrain Strike Indicators

Obstacles and terrain hazards within the lateral boundaries of the Profile Corridor are marked with a star on the Profile View diagram if their height exceeds the planned aircraft altitude at that point. This star represents the potential of the aircraft to strike the hazard at its planned flight altitude. As shown in the image below, the impact point of each hazard is marked.

Obstacles and terrain are considered hazards if they are within the user-specified Profile Corridor.

In Flight Mode, only obstacles and terrain ahead of the current position are considered. First-strike markers and hazard coloration are not applied to anything behind the current flight path.

This safety buffer is demonstrated in the image below. The 40-NM Profile Corridor encompasses two 1,000-ft AGL towers south of the route line even though the aircraft passes well to their north. Both towers are given strike indicators.



Figure 14-119. Obstacle/Terrain Strike Indicators

14.20.13 Airspace in Profile View

Tap the **Layer Selector** to show or hide airspace in the Profile View. Tap within the boundary of airspace to reveal airspace details and to highlight the airspace on the map. When the **Airspace** layer is selected, controlled airspace, special use airspace, and TFRs within 1 NM of the planned route are depicted in Profile View.



Figure 14-120. Airspace Details in Profile View

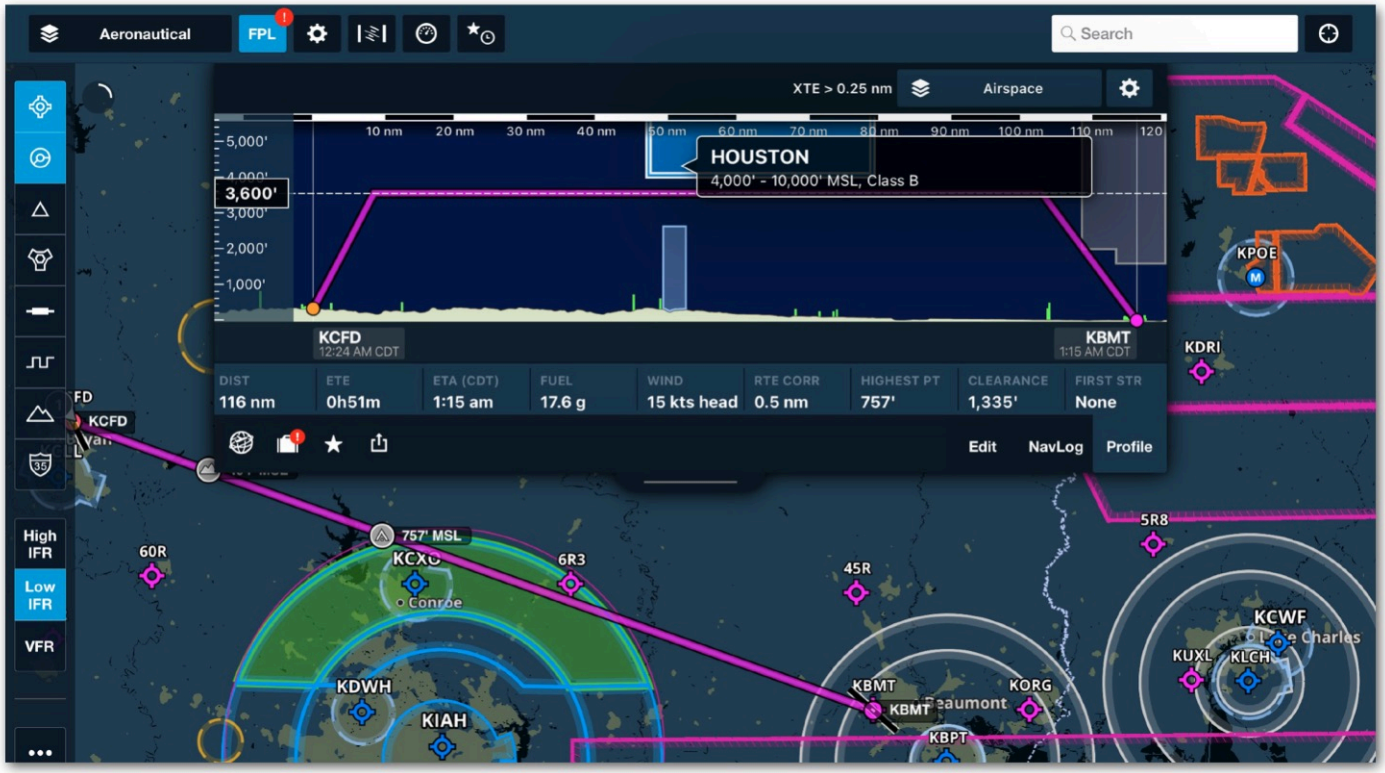


Figure 14-121. Airspace Highlighted on Map

14.20.14 Weather in Profile View

Premium and Business Performance plans offer a cross-sectional view of icing, turbulence, and cloud forecasts along the planned route. Tap the **layer selector** to enable the Icing, Turbulence, or Cloud forecast.

Weather in Profile View uses the same color scales as the map to depict varying intensities for each layer at multiple altitudes in relation to the route line.

Profile View automatically considers the planned departure and en route times to display the appropriate weather forecast. For longer flights, multiple forecast periods are blended together.

ForeFlight Mobile will display Icing, Turbulence, and Cloud forecasts in Profile View during a flight if Pack was used to download the data while connected to the Internet. Profile View does not support ADS-B Icing, Turbulence, or Cloud weather layers.

If no forecast data is available for all or part of the route, either because the duration of the flight exceeds the forecast period, or because Pack was not used prior to the flight, Profile View shows hatch lines at the position along the route that corresponds to when the data is not available.

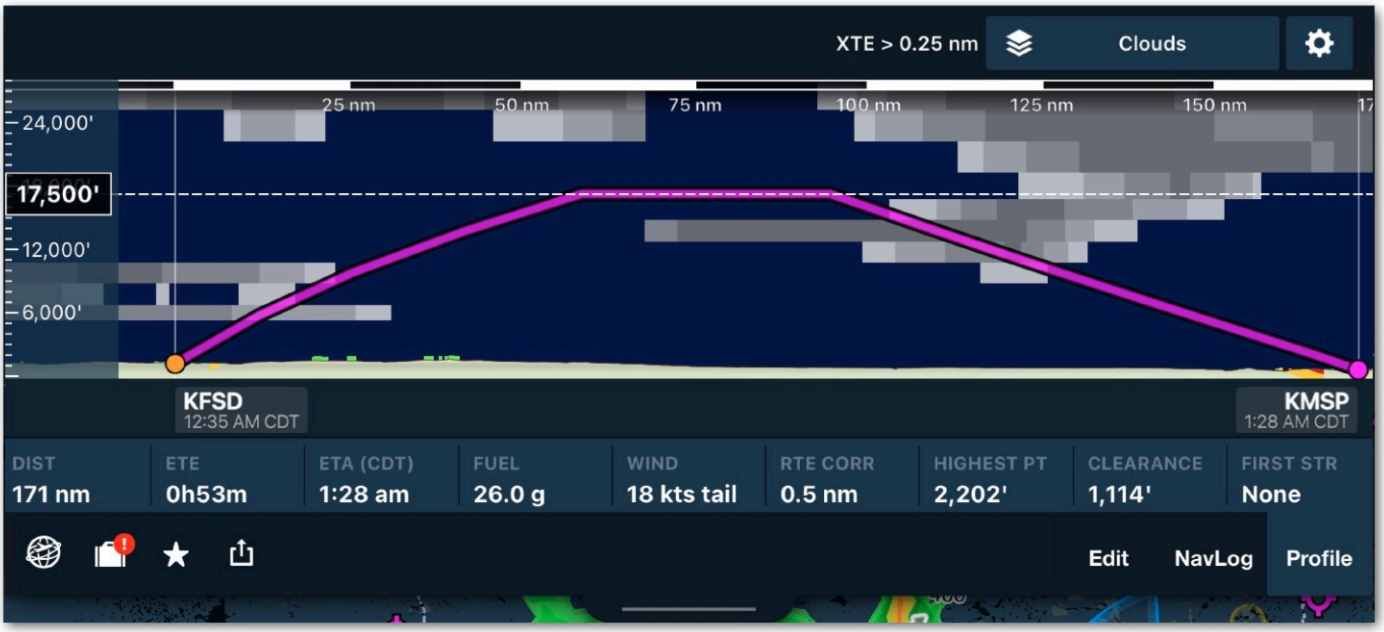


Figure 14-122. Clouds in Profile View

14.20.15 Reported Turbulence in Profile View

Reported Turbulence offers a cross-sectional view of turbulence along the planned route. To enable it, tap the **layer selector** and tap **Reported Turbulence**.

Reported Turbulence in Profile View uses the same symbology as the map to depict varying turbulence levels in relation to the route line. Reports within 20 NM of the route line are displayed. Reports closest to the route line will be displayed on top of reports located in the same route plane and altitude but further laterally from the route line.

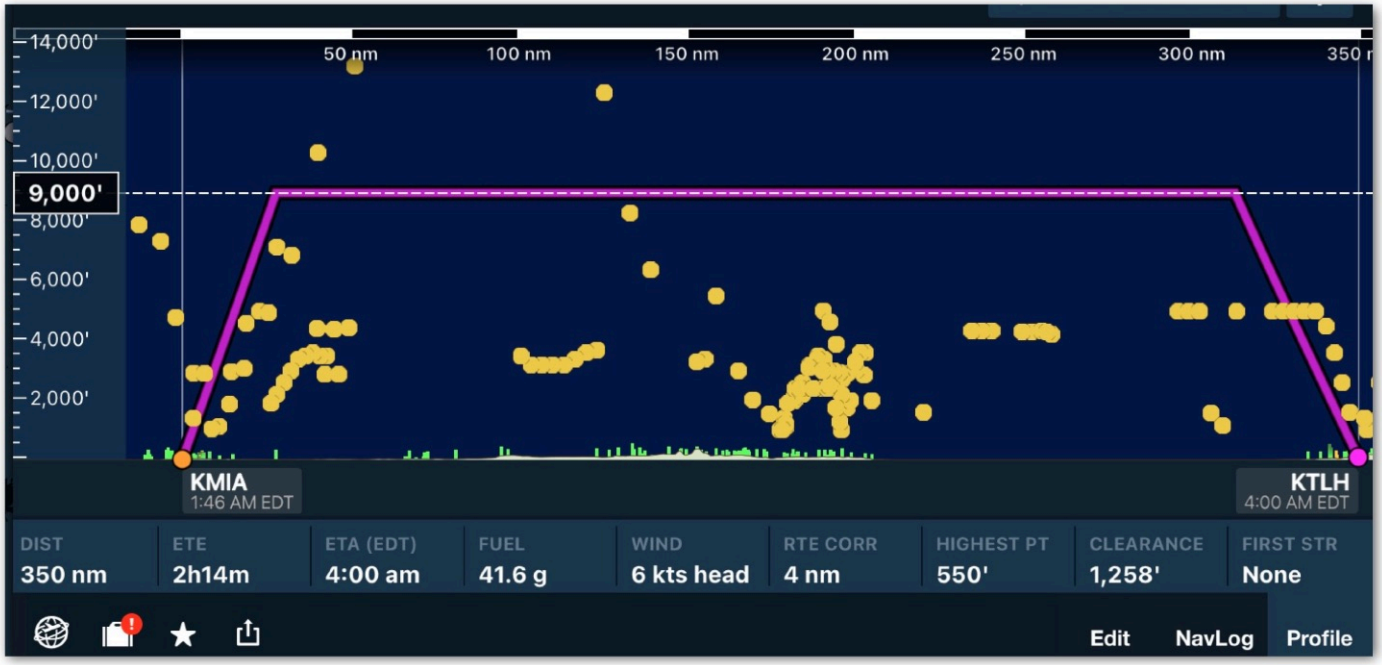


Figure 14-123. Reported Turbulence in Profile View

> **NOTE:** Access to Reported Turbulence may necessitate additional prerequisites beyond standard package offerings. See the ForeFlight Website for additional information on options to access Reported Turbulence

14.20.16 Profile View Headwind/Tailwind and Est Groundspeed

The **Headwind/Tailwind** selection offers a cross-sectional view of anticipated headwind or tailwind components along the planned route. More advantageous winds within the profile altitude scale will be highlighted in green.

The **Est Groundspeed** selection offers a cross-sectional view of estimated ground speed calculations along the planned route. The highest groundspeed within the profile altitude scale will be highlighted in green.

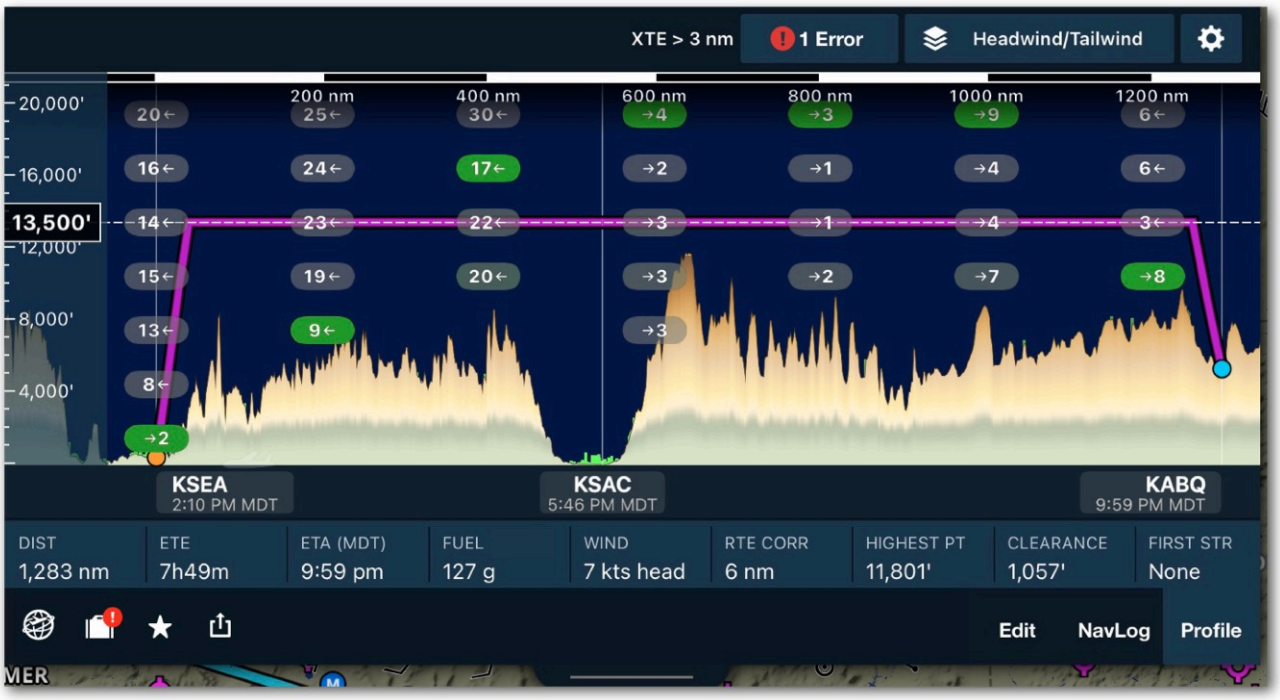


Figure 14-124. Headwind/Tailwind Profile



Figure 14-125. Groundspeed Profile

14.20.17 Profile View Ruler

When touching two fingers to the Maps page to display the ruler, Profile View changes to display the airspace, obstacles, terrain, and selected weather information under the ruler.

When the ruler is displayed on the map, scrub along the Profile view to see the, altitude and terrain clearance popup for the area corresponding to points along the ruler path. Single-tap on the Maps view to remove the ruler and return to the Route/Flight Profile view.

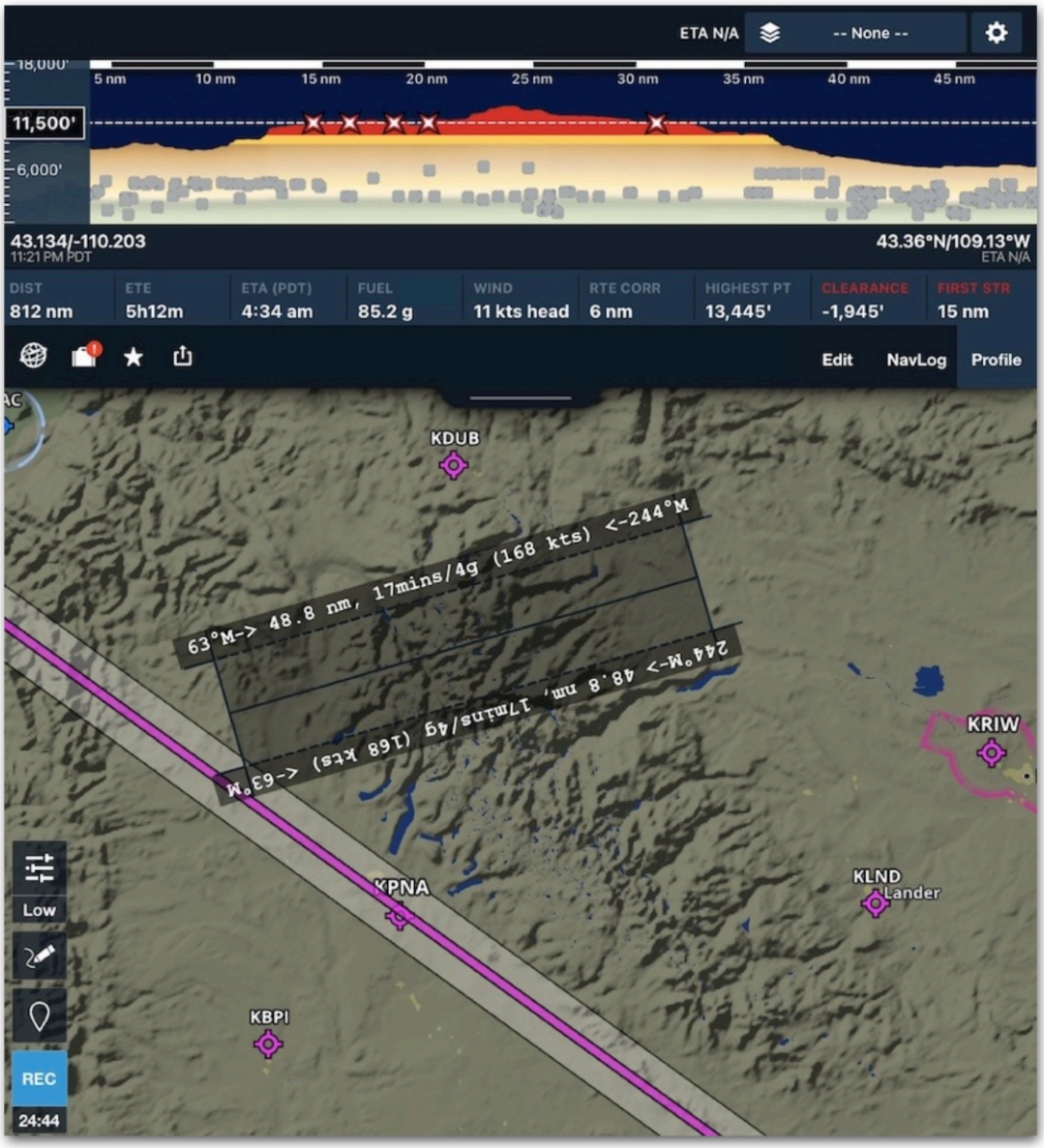


Figure 14-126. Terrain in Profile View based on ruler location

14.20.18 Profile View Profile Corridor

If the Corridor Activation setting is set to **Automatic**, the Profile Corridor displays automatically whenever the Profile View is displayed.

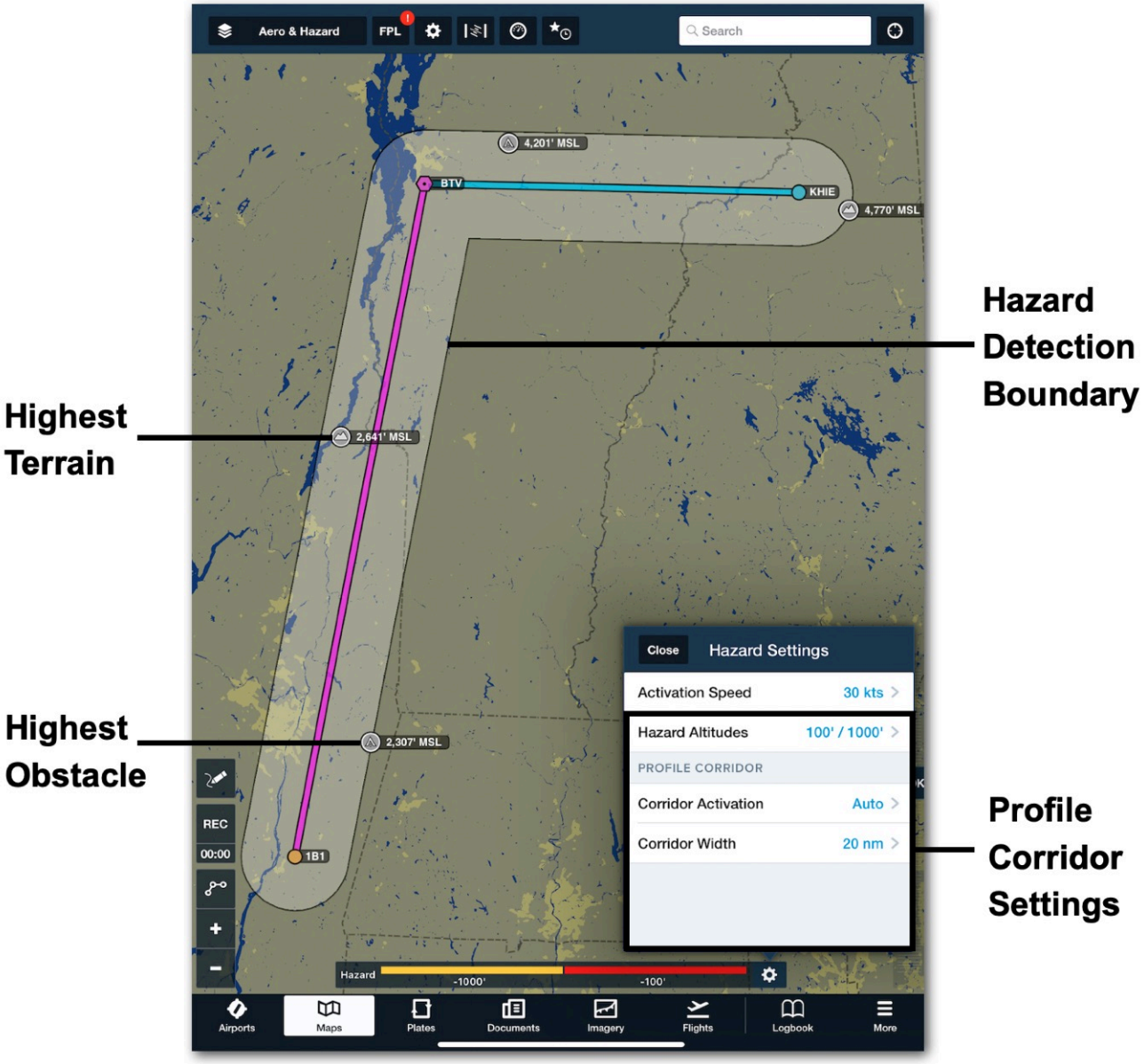
14.21 Profile Corridor

The Profile Corridor is an optional map feature that depicts the hazard detection range on either side of the route line and identifies the highest terrain and obstacle hazards along each leg in the route. The Profile Corridor is related to the Profile View and Hazard Advisor and requires an Essential or higher subscription to use.

14.21.1 Hazard Detection Boundary

The Profile Corridor (depicted in the screenshot below) is shown as a transparent boundary enclosing the route and bending to follow each leg. The size of this boundary is determined by the Corridor Width setting.

> **NOTE:** The hazard detection boundary may lose uniformity around legs less than 2 NM long. For details, see Why does the Profile Corridor appear segmented between close waypoints? in the ForeFlight Support Center.



14.21.2 Profile Corridor Settings

The following options in the Hazard Settings menu affect how the Profile Corridor behaves and what it displays.

Hazard Altitudes

When both the Hazard Advisor map layer and Profile Corridor are active:

- The Profile Corridor displays:
  - Highest-point markers for each leg.
  - Obstacles that pose a hazard at the current altitude (or as set by the **Altitude Slider**).
- The type and color of obstacles displayed depend on the Hazard Altitudes setting.

If the **Hazard Advisor** layer is not displayed, only the highest terrain and obstacle markers are shown in the Profile Corridor.

Interaction with Hazard Advisor

The Profile Corridor and Hazard Advisor can display distinct hazard data depending on which are active:

- **Profile Corridor ON, Hazard Advisor OFF**: Only highest-point markers are displayed.
- **Profile Corridor OFF, Hazard Advisor ON**: Obstacles appear only when Hazard Advisor is in Active Mode.
- **Both ON**: Highest-point markers are displayed; additional obstacles may appear when Hazard Advisor is in Active Mode.

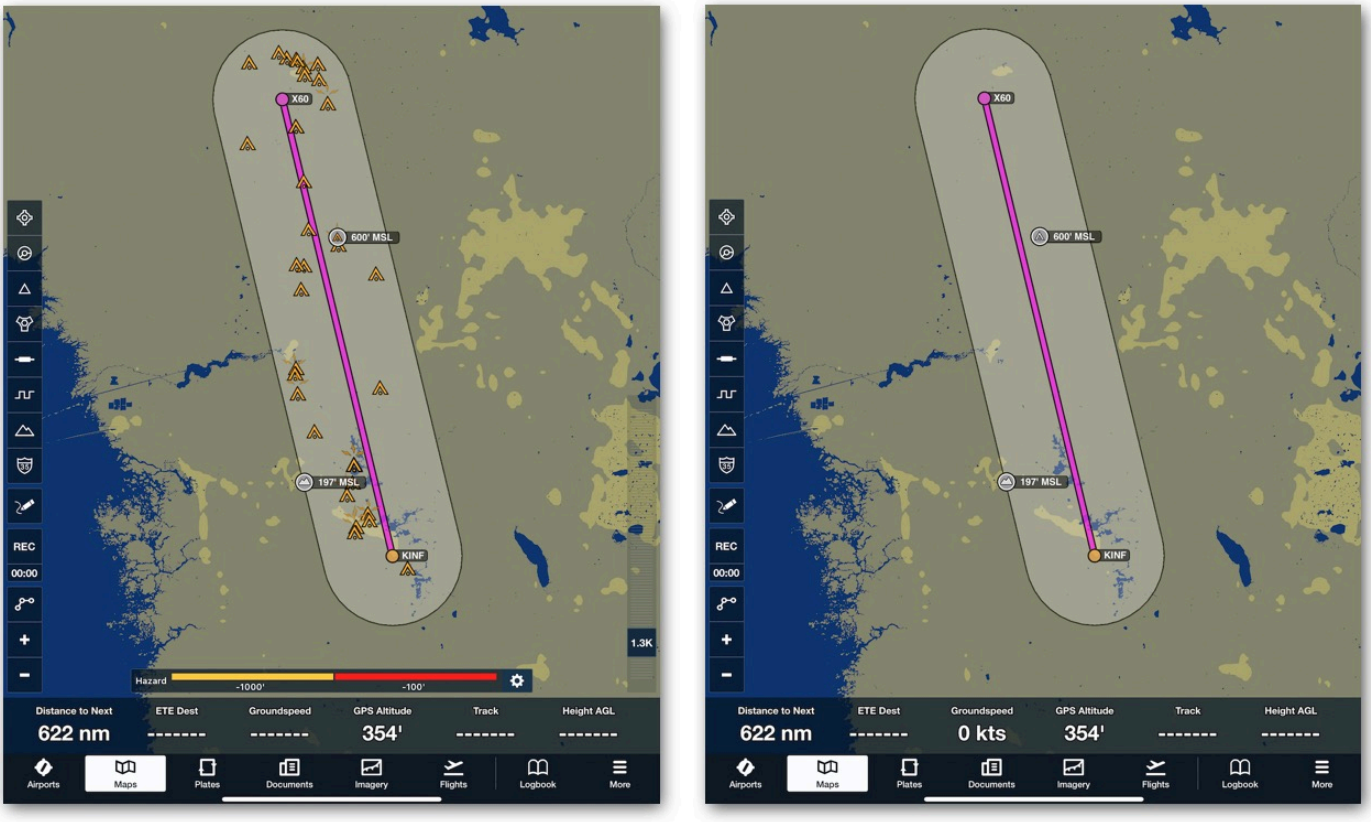


Figure 14-127. Profile Corridor With and Without Hazard Advisor

Corridor Activation

This setting controls when the Profile Corridor appears around the route line on the map. Options include:

- **Automatic** (default): Displays the Profile Corridor when the Hazard Advisor layer is on or when Profile View is open.

- **Show**: Always displays the Profile Corridor and highest-point markers.
- **Hide**: Disables the Profile Corridor and highest-point markers entirely.

Corridor Width

This setting determines the lateral range of hazard detection around the route line. Values range from 0.5 NM to 100 NM. Adjusting the corridor width causes the Profile Corridor to expand or contract visually. New highest-point markers may appear when the width is changed.

> **NOTE:** Changes to the Corridor Width setting also affect terrain and obstacle displays in both the Profile View and Hazard Advisor.

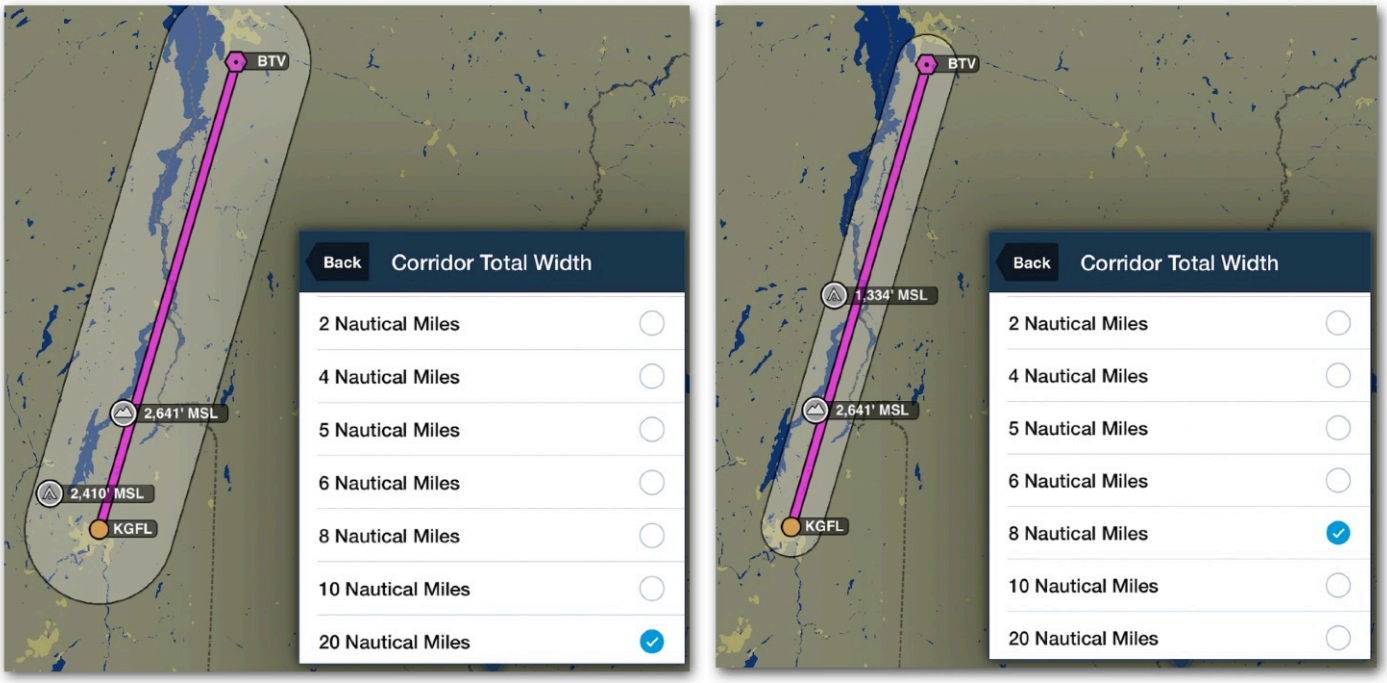


Figure 14-128. Changing Corridor Width (and Highest Points)

14.21.3 Highest-Point Markers

When the Profile Corridor is active, two markers are displayed on each leg of the route:

- One for the highest terrain.
- One for the highest obstacle.

These markers indicate the most critical vertical hazards along each leg.

> **NOTE:** If multiple highest-point markers are located close together, the marker with the highest altitude may obscure others. Zooming in will improve visibility of all markers.

14.21.3.1 Highest-Point Marker Color

The color of each marker is based on the Hazard Altitudes setting and reflects the marker's height relative to the aircraft altitude (or the altitude set using the Hazard Advisor slider):

- **Red**: Terrain or obstacle is within the alert altitude buffer.
- **Yellow**: Terrain or obstacle is within the cautionary altitude buffer.
- **White**: Terrain or obstacle is below the cautionary altitude buffer.

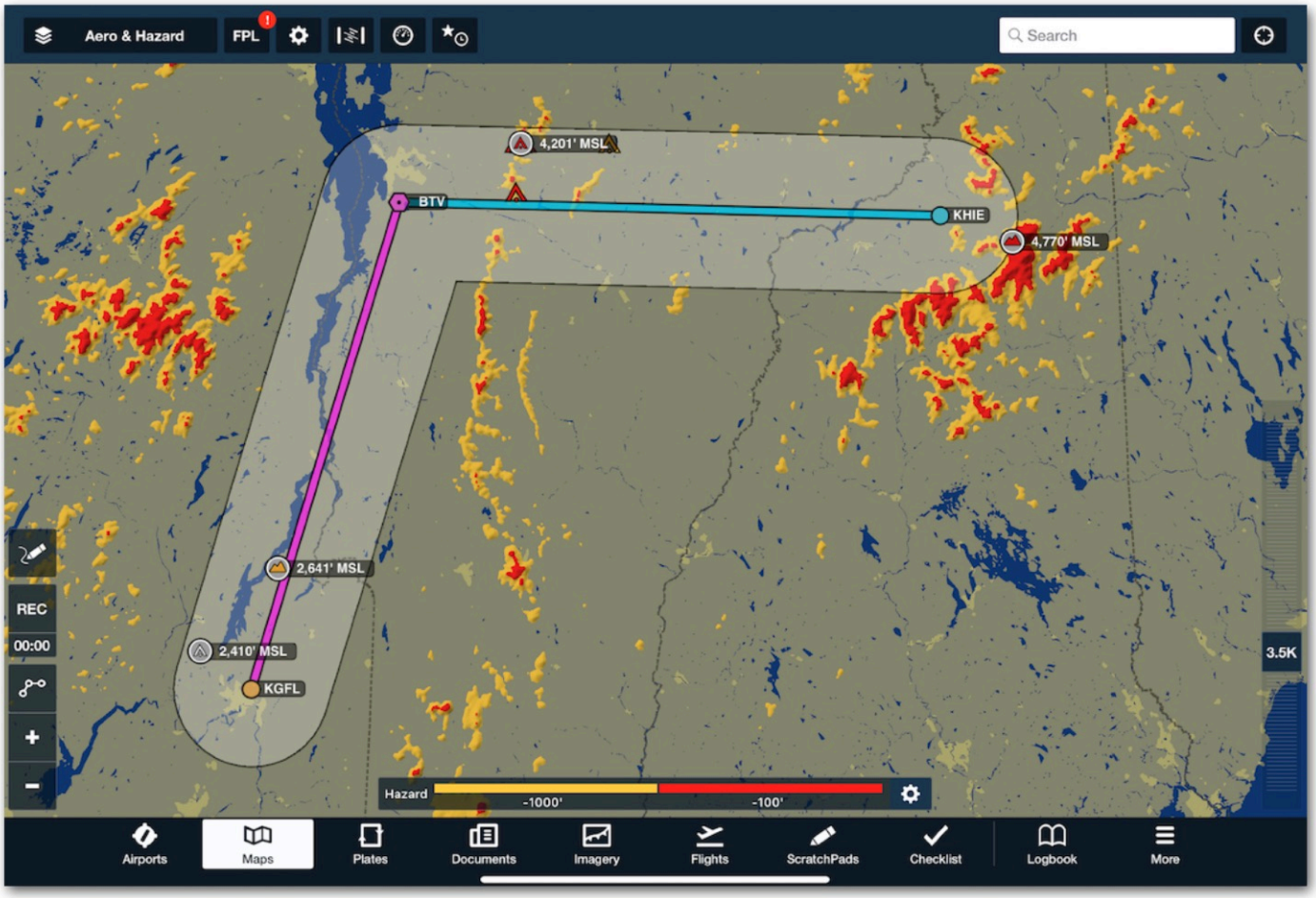


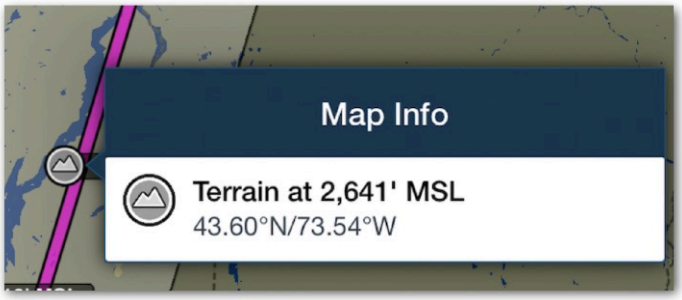
Figure 14-129. Highest-Point Marker Colors

14.21.3.2 Marker Info

All highest-point markers are labeled with MSL altitude.

Tapping a **Highest Terrain** marker displays:

- MSL altitude
- Latitude/longitude coordinates



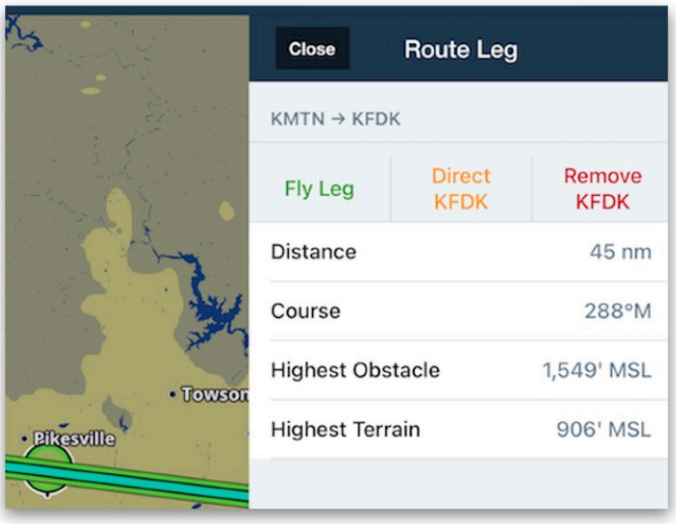
Tapping a **Highest Obstacle** marker displays:

- MSL altitude
- Obstacle type
- AGL altitude
- Lighting status (if applicable)



14.21.3.3 Marker Info in Sidebar

When Corridor Activation is set to **Show**, or set to **Automatic** with Profile View or Hazard Advisor active, tapping a route leg opens the Route Details sidebar. This sidebar includes highest-point marker information for the selected leg.


Close
Route Leg
KMTN → KFDK
Fly Leg
Direct KFDK
Remove KFDK
Distance
45 nm
Course
288°M
Highest Obstacle
1,549' MSL
Highest Terrain
906' MSL
Towson
Pikesville

14.22 Ruler

The Ruler tool allows measurement of distance, estimated time, fuel burn, and initial course bearings directly on the Maps view.

To activate the ruler:

- Press and hold two fingers on the map until the ruler appears.
- While keeping both fingers on the screen, slide them to reposition the ruler and measure between other locations.

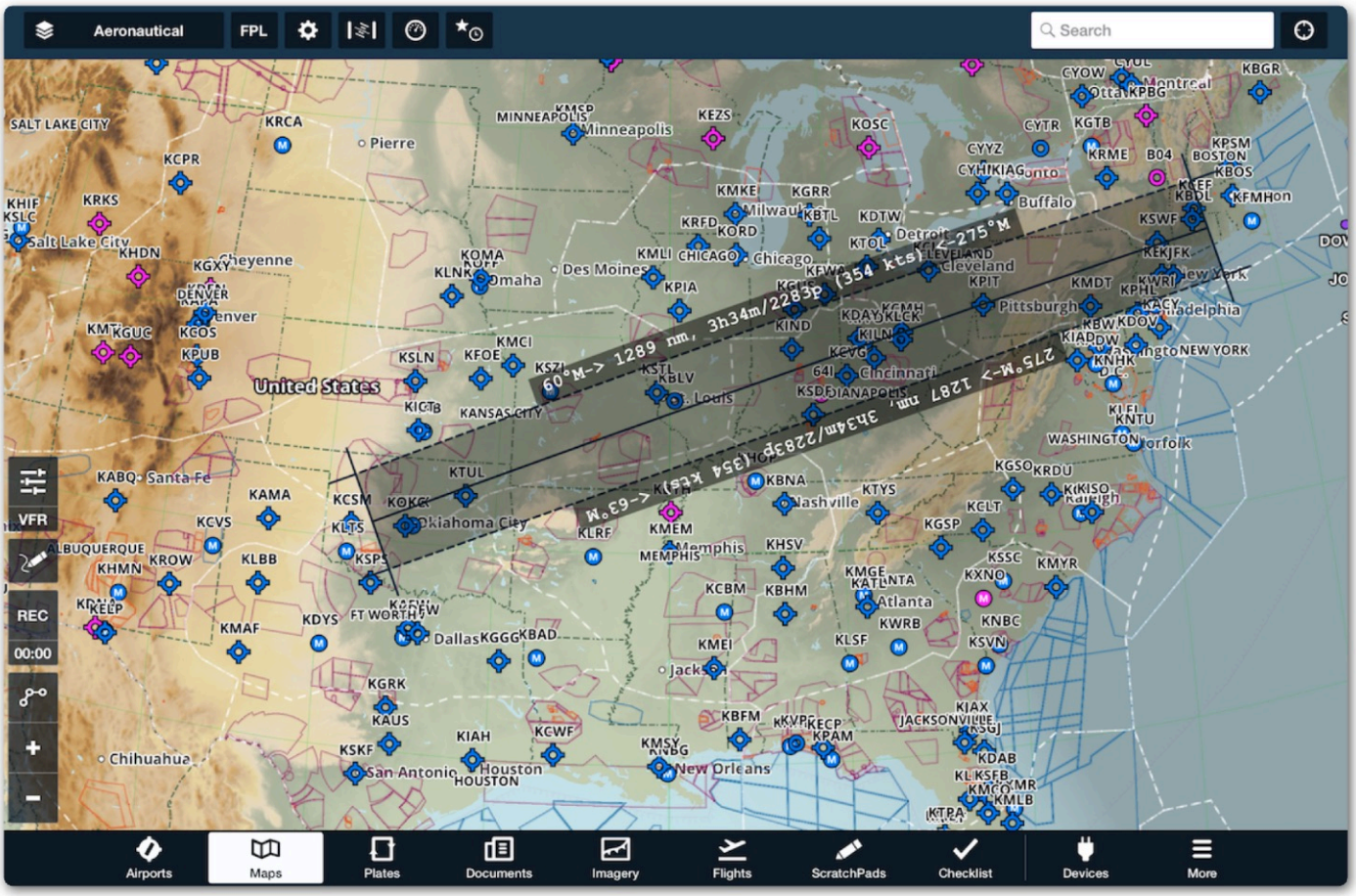


Figure 14-130. Ruler

The following features and behaviors apply when using the ruler on the Maps view:

- The ruler is useful for visualizing great-circle (direct) routes between two points.
- For distances less than three nautical miles, the distance is also displayed in feet, which is useful for estimating available runway length.
- When used in flight, the ruler uses current groundspeed to estimate travel time.

- When used on the ground, the TAS (True Airspeed) from the current route or default aircraft is used.
- Fuel burn estimates are based on the fuel burn rate of the current route or default aircraft.
- All time and fuel estimates are calculated assuming zero wind.
- Initial course bearings are shown at both ends of the ruler.

The ruler remains visible after fingers are lifted. Tap the map to remove it.

14.23 Instrument Panel

The Maps view includes an optional Instrument Panel that displays real-time flight data. Tap the **instrument button** (airspeed indicator icon) in the upper toolbar to show or hide the panel.

Instrument availability by device and orientation is as follows:

- **iPad**: Up to 6 instruments in portrait mode; 8 in landscape.
- **iPhone**:
  - Most models: Up to 5 in portrait; 8 in landscape.
  - Smaller models: Up to 4 in portrait; 6 in landscape.

Instruments at the far left and right in landscape mode are hidden when the device is rotated to portrait.

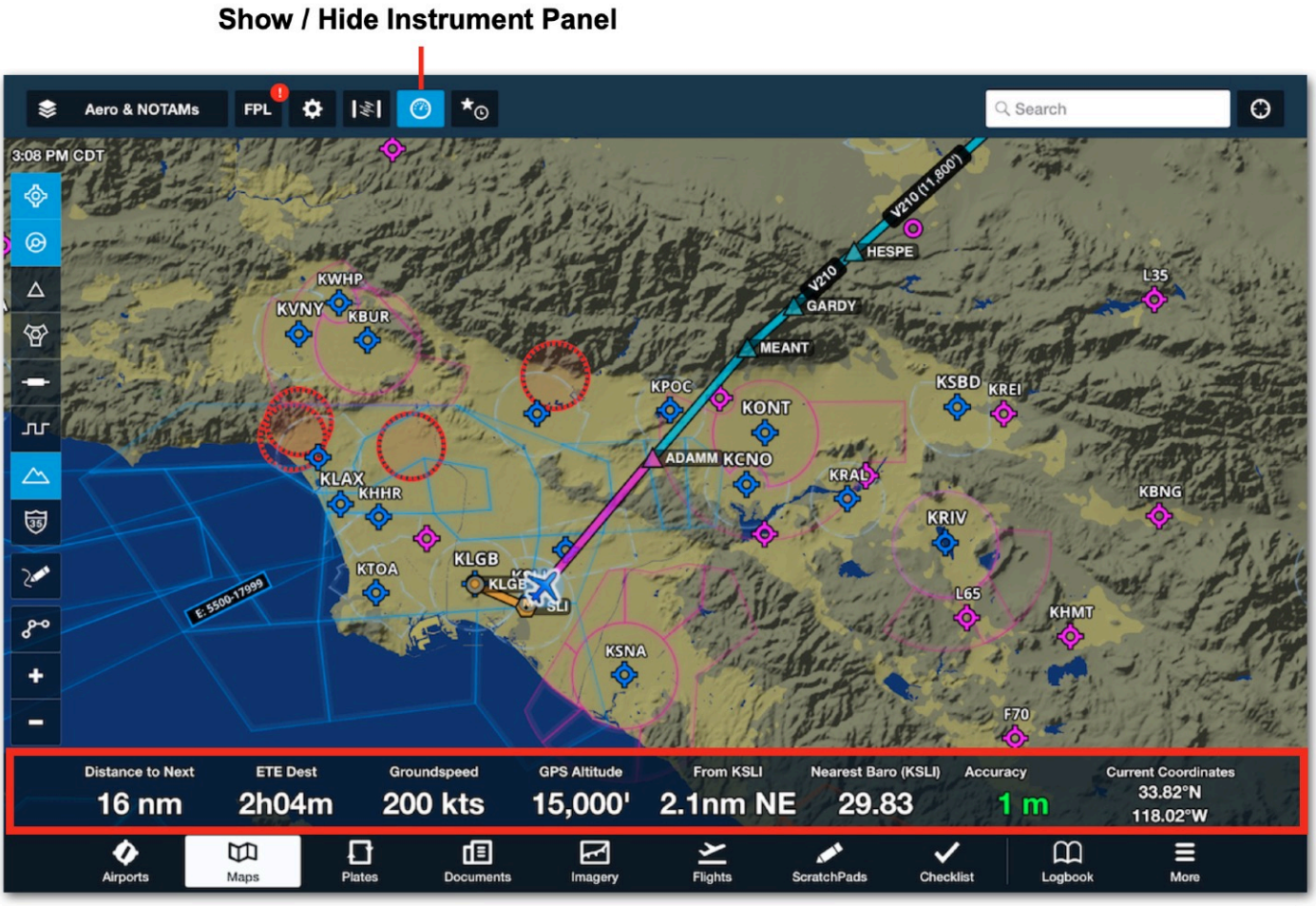


Figure 14-131. Instrument Panel

14.23.1 Instruments

Default instruments can be replaced with other options by tapping an **instrument** and selecting a new one from the Select Instrument menu. This menu includes all available instruments, grouped into the following categories:

- Standard Instruments
- Next Waypoint Instruments
- Destination Instruments
- Other Instruments.

In portrait mode, instruments visible only in landscape are marked as (already shown).

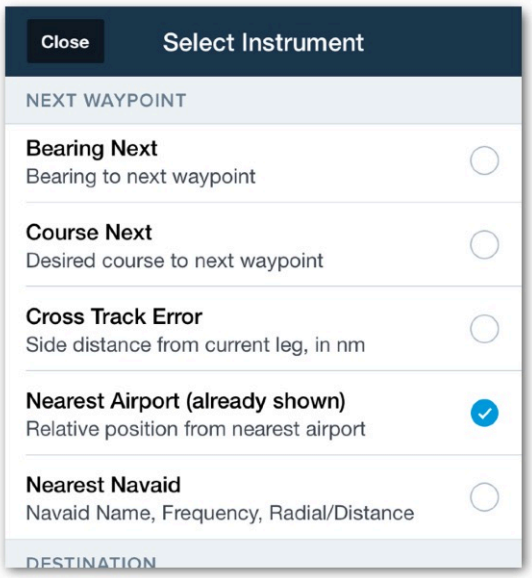


Figure 14-132. Select Instrument Menu

> **NOTE:** Many instruments support unit customization (e.g., time format, altitude units, compass reference). Adjust units in **More → Settings → Units/Time**.

Standard Instruments

- **Groundspeed**: GPS groundspeed.
- **GPS Altitude**: Geometric altitude from an internal or external GPS.
- **Height AGL** (Essential or Premium subscription): GPS altitude above terrain within a 1/4 NM radius. Requires a groundspeed of ≥40 knots.

- **Height MEF** (Essential or Premium subscription): Dynamic Maximum Elevation Figure in a 0.5° × 0.5° grid centered on the aircraft location. Requires a groundspeed of ≥40 knots. Height MEF is calculated as the tallest obstacle or terrain in that box, rounded up to the nearest 200 feet.
- **Grid MORA / Grid LSALT**: Displays the MORA or LSALT at the current location in feet.
- **Pressure Altitude**: Derived from a connected barometric sensor. Displays "Indicated" or "Corrected" if available via supported devices.
- **Cabin Pressure**: Uses the internal pressure sensor on iOS devices. Displays only if Pressurized Cabin is enabled.
- **Baro Altitude**: Pressure altitude corrected for local barometric pressure using supported connected devices. Nearest station pressure (within 100 NM) is used. The source of pressure data (e.g., Connext) is displayed in the instrument.
- **G-Meter**: Pitch-axis g-loads. Requires Sentry Plus.
- **Track**: GPS track or externally provided (e.g., Satcom Direct) track data.
- **Accuracy**: GPS accuracy in meters. Color-coded:
  - **Green**: ≤20 meters
  - **Orange**: >20 to 60 meters
  - **Red**: > 60 meters.
- **Rate of Turn**: Rate of turn in degrees per second.
- **Vertical Speed**: Vertical speed from GPS in ft/min or m/min. Unit selection available in Units/Time settings.
- **Climb Gradient**: Climb gradient in ft/NM or m/NM. Units selection can be edited in **More → Settings → Unit/Time → Altitude Instruments**.
- **Nearest Baro**: Barometric pressure from the nearest reporting station.

Next Waypoint Instruments

- **ETE Next**: Estimated time en route to the next waypoint.
- **ETA Next**: Estimated time of arrival at the next waypoint in the selected time format (local, station, or Zulu).
- **Distance to Next**: Distance to the next waypoint in the selected format (nautical miles, statute miles, or kilometers).
- **Bearing Next**: Magnetic or true bearing to the next waypoint.

- **Course Next**: Desired course from previous to next waypoint. in the selected format (Magnetic or True).
- **Cross Track Error**: Lateral deviation from the current leg in the selected format (nautical miles, statute miles, or kilometers).
- **Nearest Airport**: Cardinal position and distance from the nearest airport to the present location in the selected format (nautical miles, statute miles, or kilometers. (respects Min. RWY Length).
- **Nearest Navaid**: Identifier, frequency, radial, and distance from the nearest navaid.

Destination Instruments

- **ETE Dest**: Estimated time en route to the destination.
- **ETA Dest**: Estimated time of arrival at the destination in the selected time format (local, station, or Zulu).
- **Distance to Dest**: Distance to the destination in the selected format (nautical miles, statute miles, or kilometers).
- **Bearing to Dest**: Bearing needed to fly directly to the destination in the selected format (Magnetic or True).
- **Descent to Dest**: Required vertical speed to reach the destination elevation at arrival.

Other Instruments

- **Current Coordinates**: Current GPS coordinates in the selected format.
- **Zulu Time**: Coordinated Universal Time (UTC).
- **Horizon Distance**: Estimated distance to the horizon from current AGL assuming a simplified, spherical model of the earth.
- **Blank**: Empty space to allow more of the map to show behind the panel.
- **Flight Time**: Time since automatic takeoff detection (groundspeed ≥60 knots). Requires an active track log recording to activate.
- **Thermal State**: The current operating temperature status of the iOS device to help prevent overheating and ensure uninterrupted system stability during flight. Displayed states are:
  - **Nominal**: Device is operating within standard, safe temperature parameters.
  - **Fair**: Device temperature is elevated above normal.
  - **Serious**: Device temperature is high; iOS may throttle processing performance to reduce heat.

- **Critical**: Device is near maximum operational temperature; iOS may terminate background processes or force-close applications to protect internal hardware.

14.24 Favorite and Recent Routes

The **Favorites / Recents** (Star/Clock) button in the upper toolbar opens the Favorites / Recents menu. Use the tabs near the top of the menu to switch between Favorite and Recent routes.

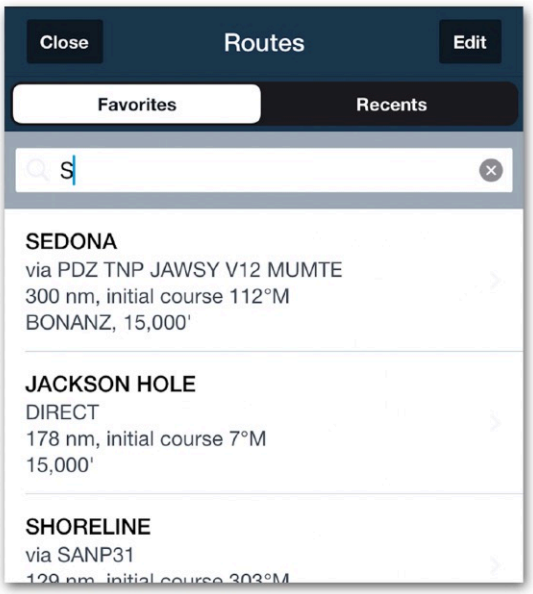


Figure 14-133. Favorite Route Menu

Routes are automatically added to the Recent route list as flights are planned. Add routes to Favorites routes by tapping the **Favorite** (star) button at the bottom of the FPL view.

The Favorites list can be re-ordered. To re-order the list:

1. Tap the **Favorite** tab to display the list of Favorite routes.
2. Tap **Edit** in the upper toolbar of the menu.
3. Tap and hold the **three bars** of the flight (right side of the menu).
4. Without lifting, drag the flight up or down to the desired position.
5. Release the finger.
6. Repeat steps 3 - 6 as needed.
7. Tap **Done**.

To delete a Favorite or Recent route, swipe from right to left on the route.

Changes to Favorite and Recent routes, including adding, removing, and changing the order of the routes are automatically synced to each device that is signed in to the ForeFlight Mobile account.

When searching for a Recent or Favorite route, the lists can be filtered by searching on the following items.

- Tail Number
- Destination / Departure
- Favorite Route Name
- Route Elements (waypoint).

PLATES

The Plates view serves as an electronic kneeboard, allowing pilots to organize, view, and swipe between plates in flight. This is the default tool for viewing plates in ForeFlight Mobile and can be accessed in many ways.

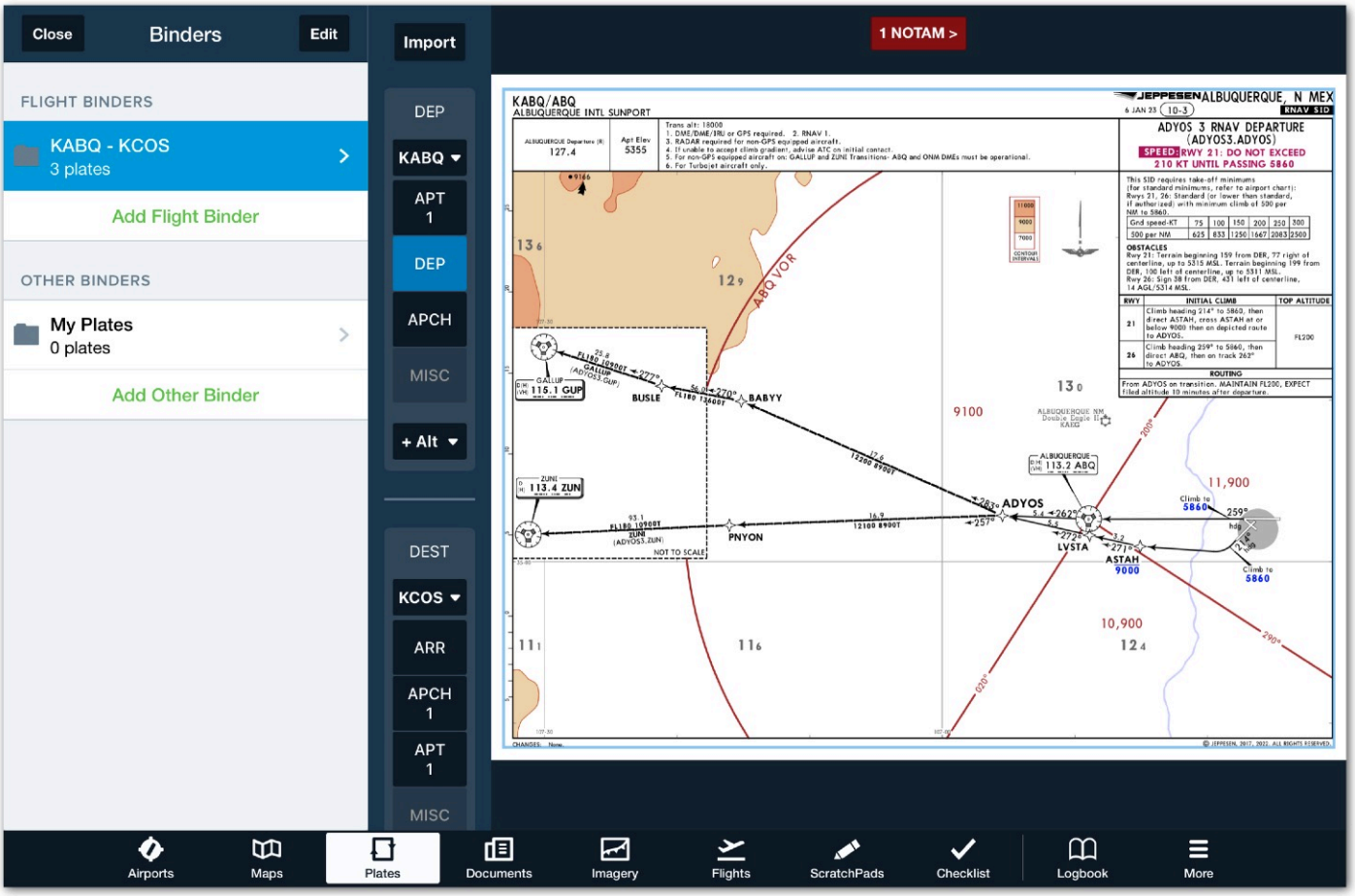


Figure 15-1. Plates View

15.1 Design

The following sections describe the two layouts and key features of the Plates view.

15.1.1 Layout

The Plates view displays one of two layouts depending on how it was accessed:

- **Full-Screen:** When a plate is opened on the Maps, Airports, or Flights view, ForeFlight Mobile switches to the Plates view to display the plate in full-screen mode. Users can tap the **Close** button to return to wherever they were in ForeFlight Mobile before opening the plate.
- **Split-Screen:** When the Plates view is opened directly by tapping **Plates** in the Navigation Toolbar, the view displays a split-screen layout with the Plates Viewer to the right of a collapsible Binders Drawer.

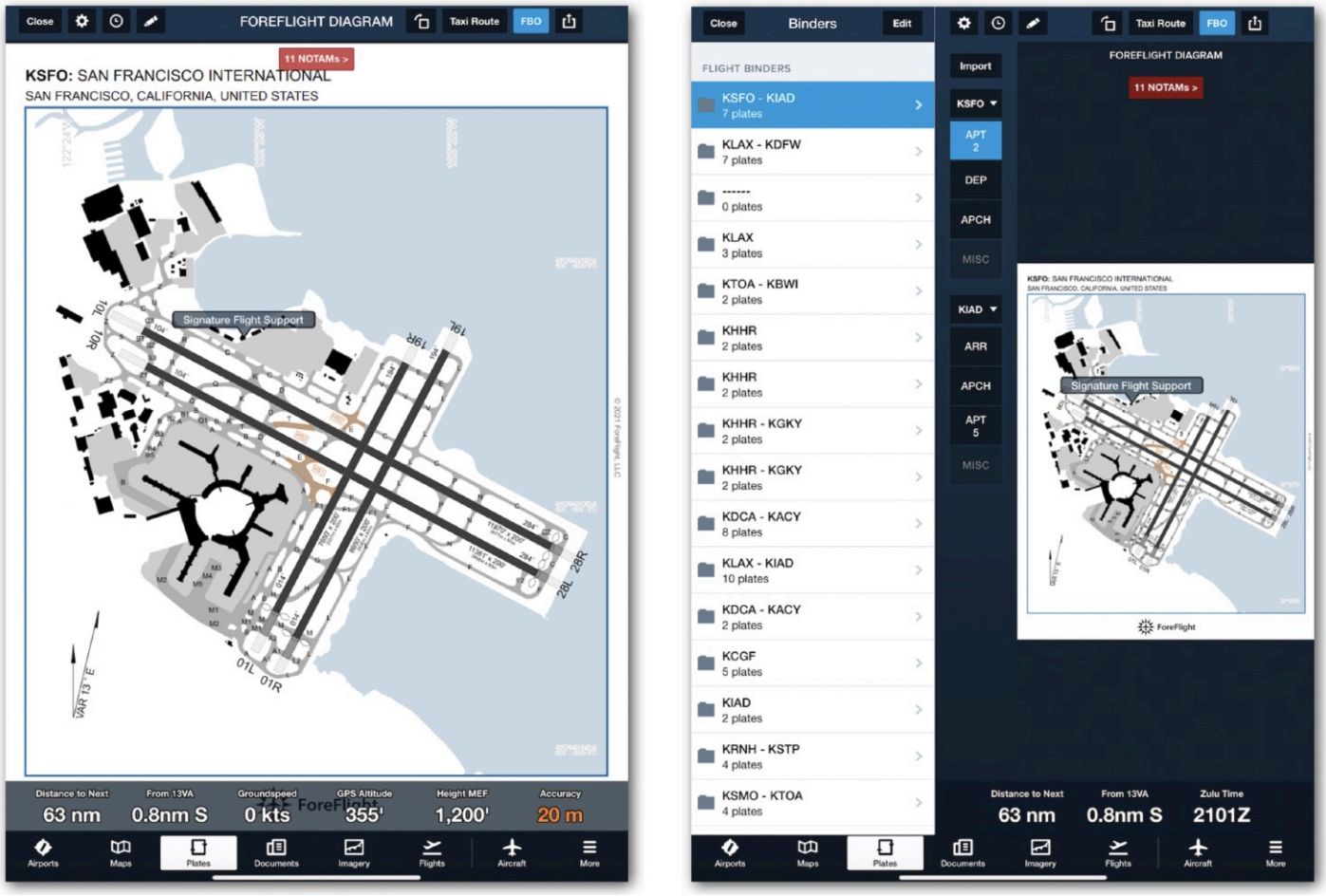


Figure 15-2. Full Screen (Left), Split Screen (Right)

15.1.2 Key Features

The Plates view is a powerful in-flight tool. Key features include:

- Navigation
- Binders Organize Plates for Flight
- View Online Without Downloads
- On-Plate Functionality
- Optional Features.

15.1.2.1 Navigation

The Plates view incorporates on-screen finger gestures to pan and zoom, and a three-finger swipe to quickly switch between plates in a binder.

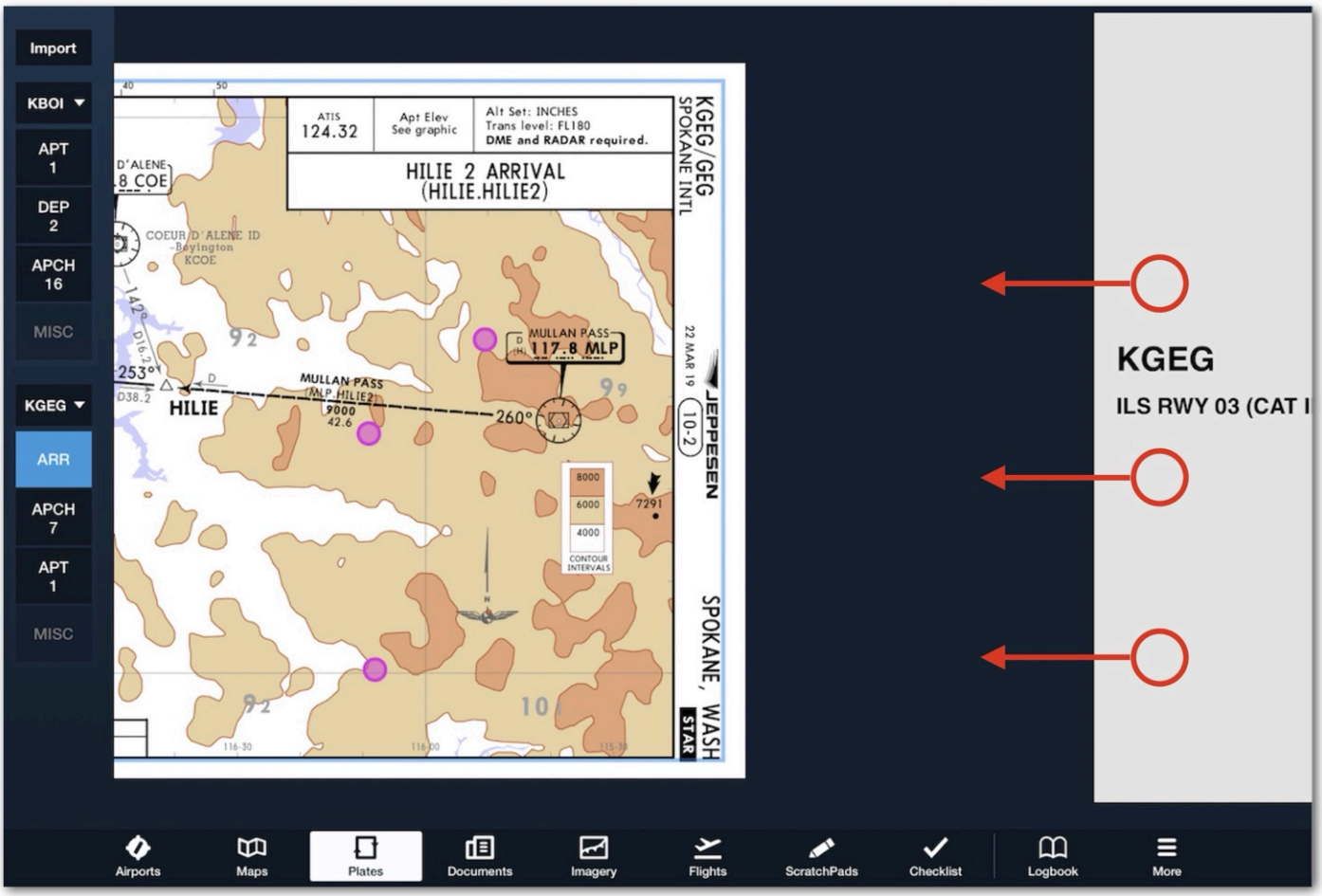


Figure 15-3. Switch Plates in a Binder

15.1.2.2 Binders Organize Plates for Flight

Flight Binders are used to organize plates for a specific flight and can be generated from the Maps and Flights views.

Other Binders are used for unstructured collections of plates.

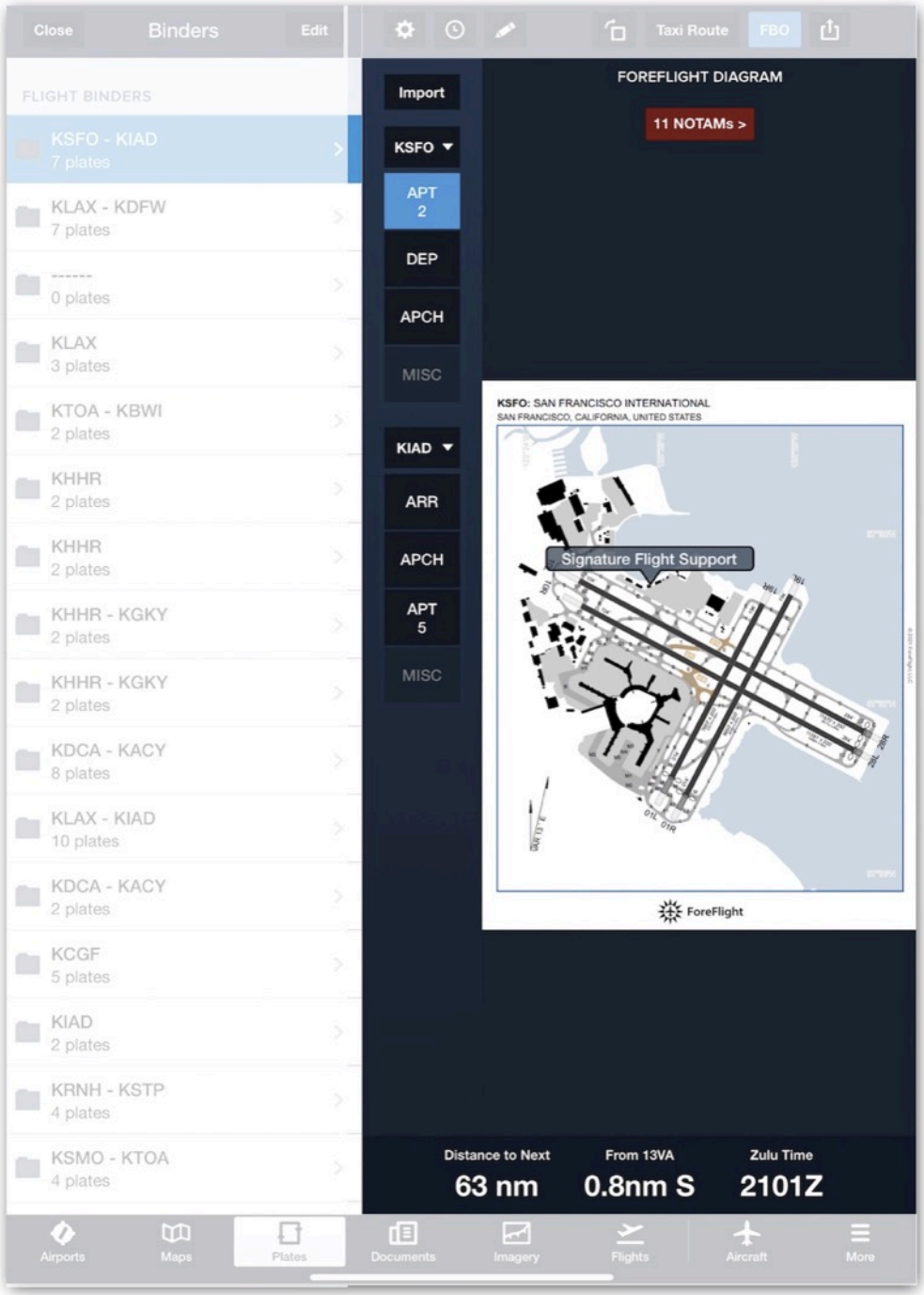


Figure 15-4. Flight Binders View

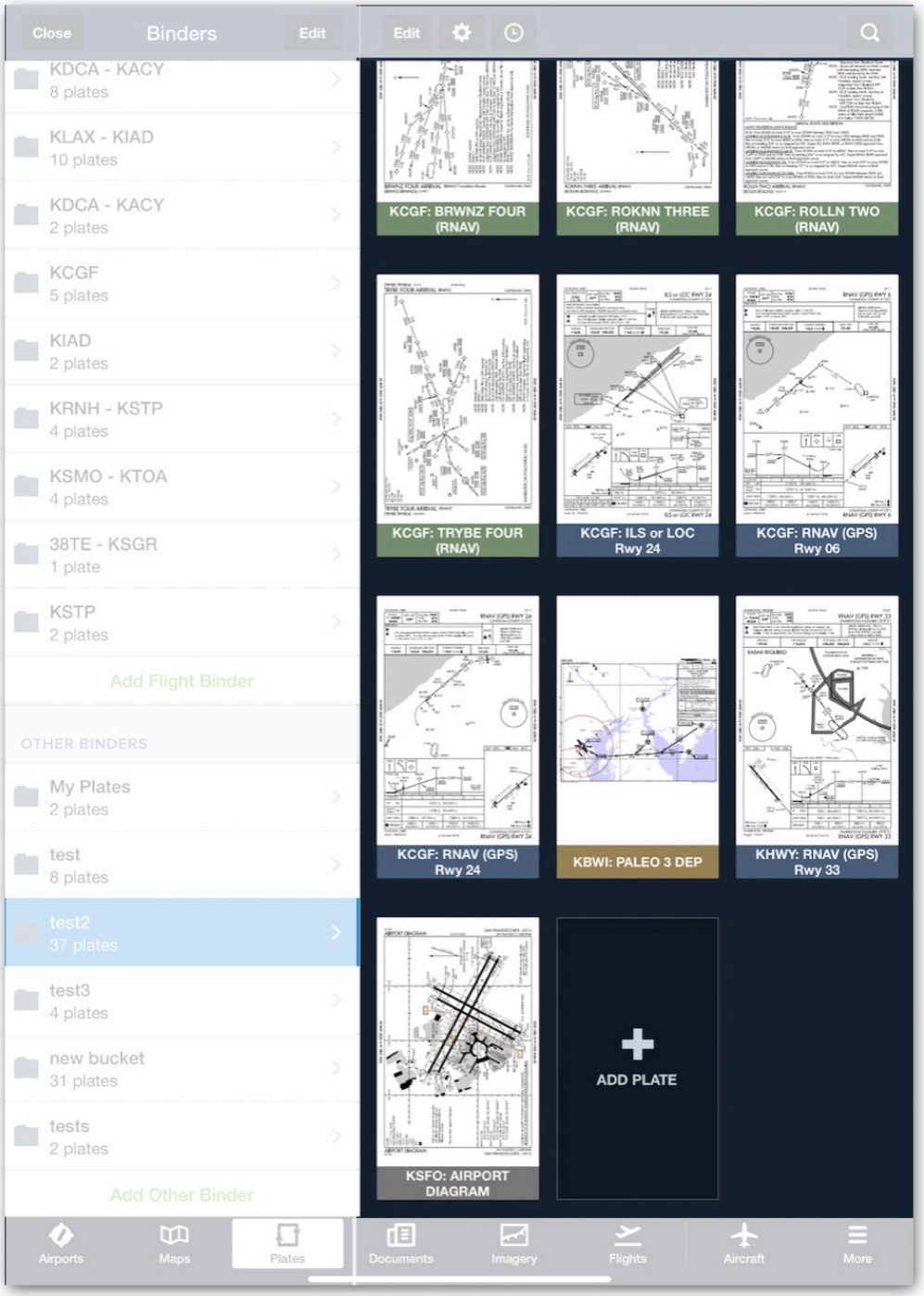


Figure 15-5. Other Binders View

15.1.2.3 View Online Without Downloads

US, Canadian, European, and Australian plates can be viewed with an active internet connection. To view plates offline, they must first be downloaded.

The availability of specific plates is limited only by the regions allowed in a subscription plan. ForeFlight-generated plates are available regardless of subscription.

15.1.2.4 On-Plate Functionality

The actively displayed plate can be manipulated to resize, pan, and switch between adjacent plates, add annotations, show or hide the toolbar and instrument panel, and see information about NOTAMs, FBOs, and aircraft position.

15.1.2.5 Optional Features

Additional optional features are:

- Jeppesen plates can be displayed in addition to the standard government and ForeFlight plates.
- Essential and higher subscribers can use georeferenced plates to show their aircraft position on a plate and overlay plates on the map.
- Premium subscribers can use the Taxi Routes tool to create taxi routes based on destination and taxi clearances.



Figure 15-6. Georeferenced Procedure (Left), Taxi Routes (Right)

15.1.3 Types of Plates

Plates encompass a variety of terminal procedures and documents including, but not limited to, the following: SIDs, Instrument Approach Procedures (IAP)s, STARs, airport diagrams, taxiway diagrams, Obstacle Departure Procedures (ODP)s, IFR takeoff minimums, alternate minimums, and special notes.

Plates can be published by different sources. When a user opens a plate, the version displayed varies based on availability and priority. It is not possible to reorder or assign plate priority. ForeFlight offers the following types of plates.

15.1.3.1 Jeppesen Plates

Jeppesen plates are available to ForeFlight users who link their existing Jeppesen subscriptions or purchase Jeppesen Plates coverage from ForeFlight. If Jeppesen coverage is installed on a device, the plates will appear above all other plates and are the default plates when selecting a procedure using the Procedure Advisor.

> **NOTE:** Accounts with Jeppesen coverage installed default to the Jeppesen procedures, but this can be changed using the **More ➔ Jeppesen ➔ Prioritize Jeppesen Plates** setting.

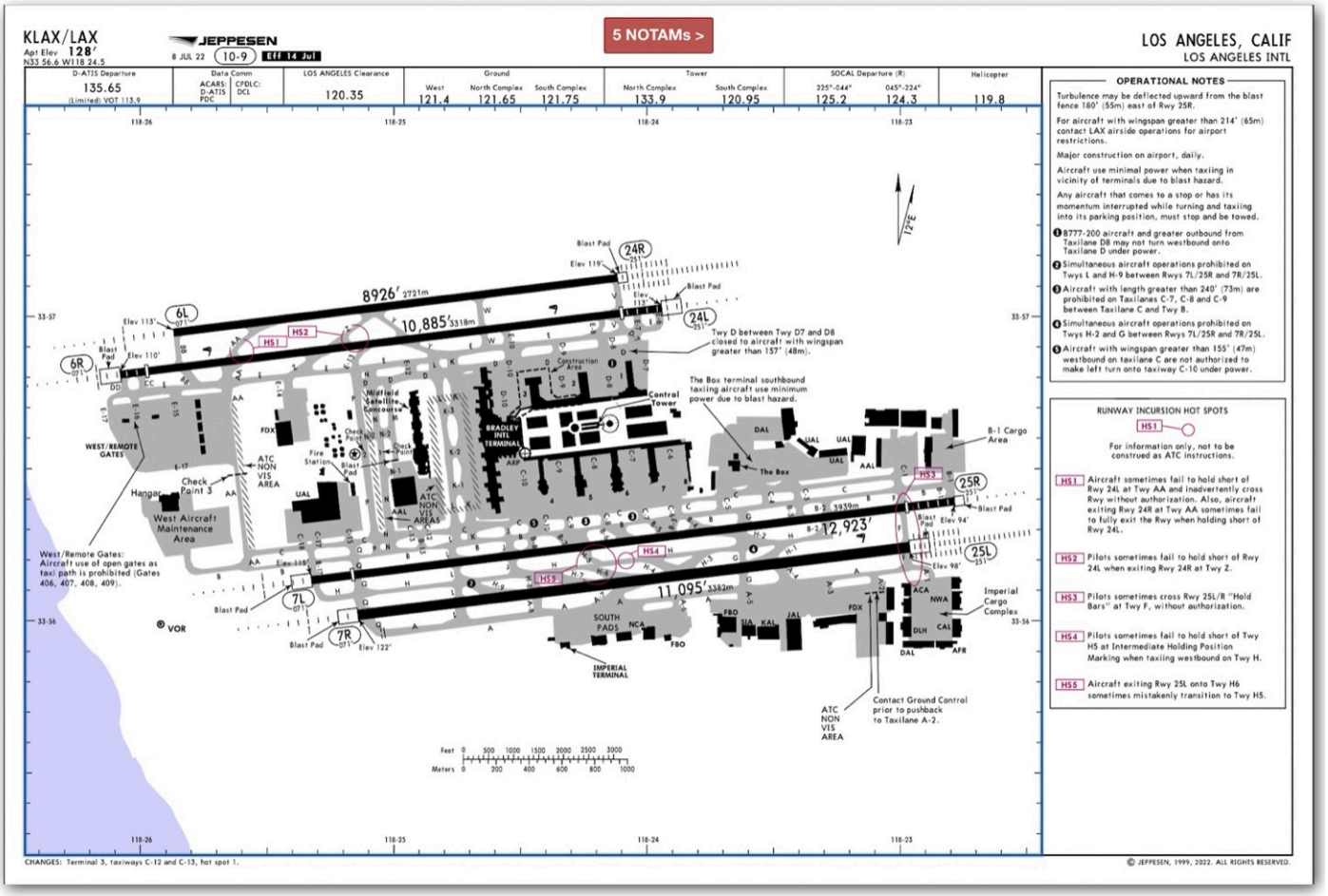


Figure 15-7. Jeppesen Airport Diagram

15.1.3.2 Government Plates

Terminal Procedures are available from the FAA with a United States subscription, from Nav Canada with a Canadian subscription, from Airservices with an Australian subscription, and from EUROCONTROL with a European subscription.

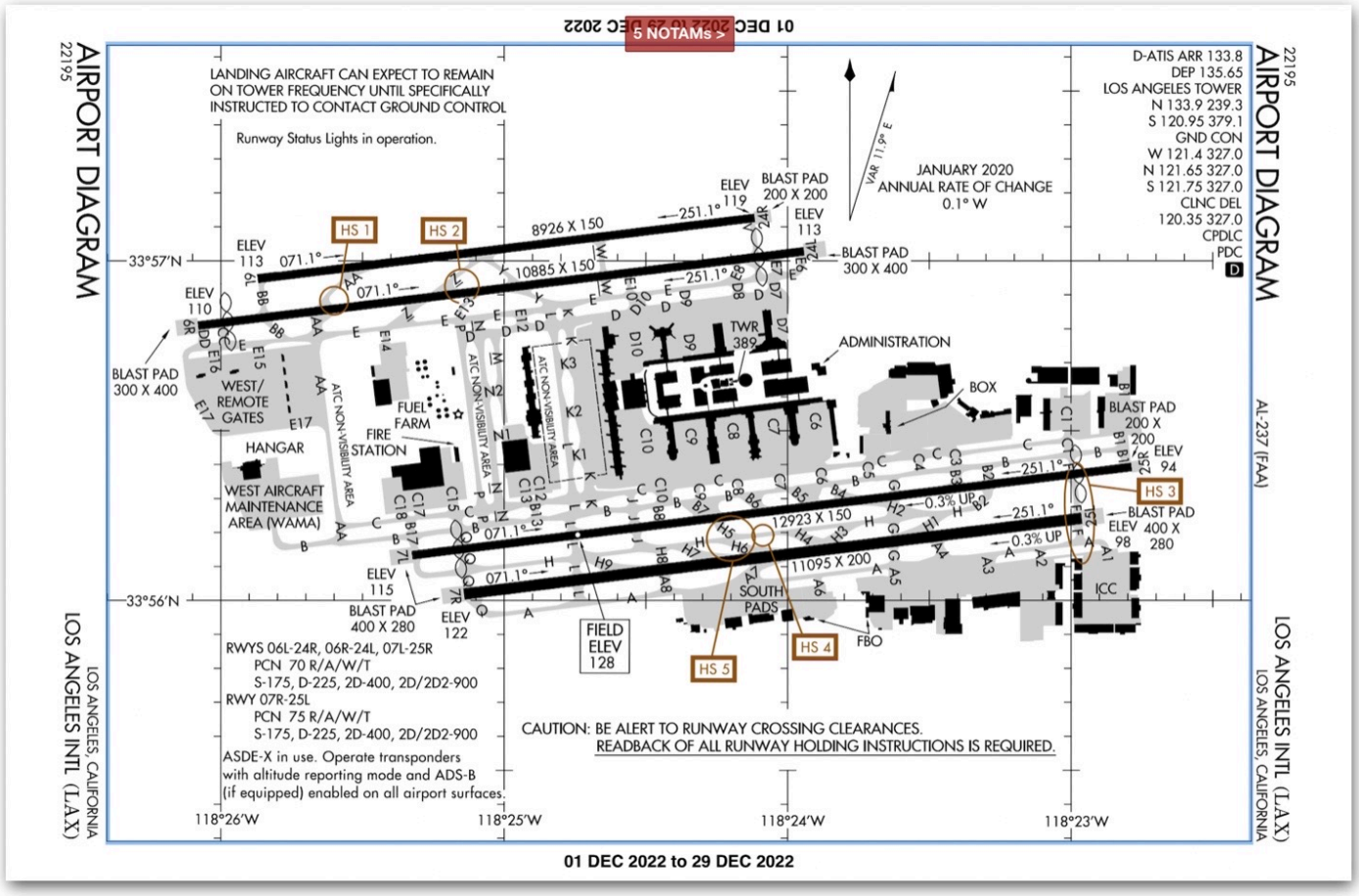


Figure 15-8. FAA Airport Diagram

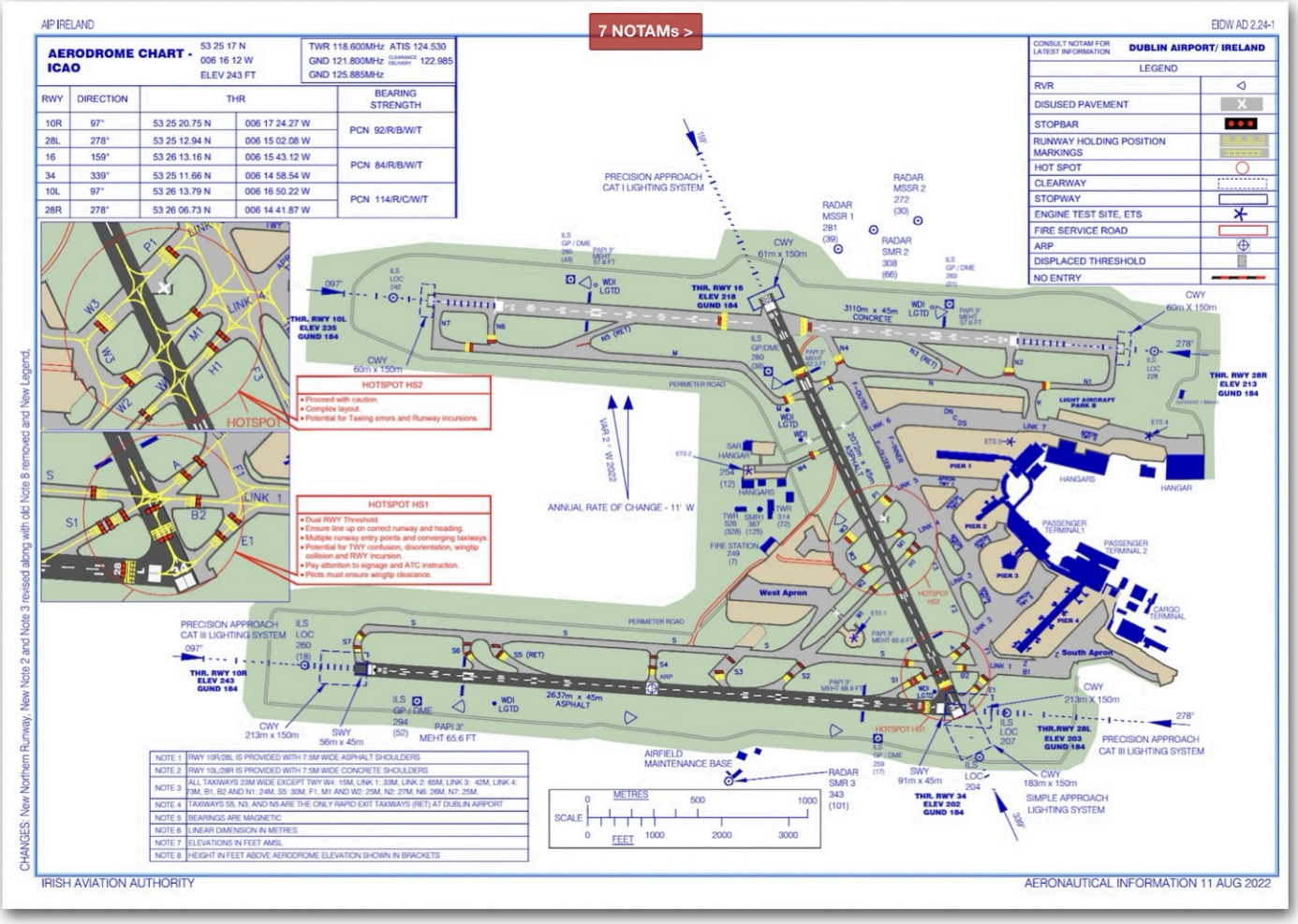


Figure 15-9. EUROCONTROL Airport Diagram

15.1.3.3 European Charts

European VFR and IFR plates (including airport diagrams, en route charts, and procedures) can be purchased. These can include optional chart add-ons for specific European countries offered by providers such as Jeppesen, IGN, DFS, SkyGuide, and Cartabassy. The full range of options is listed at foreflight.com/europe/data.

15.1.3.4 Bring Your Own Plates

Custom plates can be associated with an airport using the Bring Your Own Plates (BYOP).

15.1.3.5 Georeferenced Plates

Georeferenced plates are Jeppesen, government, ForeFlight, or other plates that have an additional embedded geospatial layer.

Georeferenced plates are identified by a thin blue box around the plan view area of the plate. Most plates are georeferenced. If a plate is not georeferenced, it is usually because it is not drawn to scale.

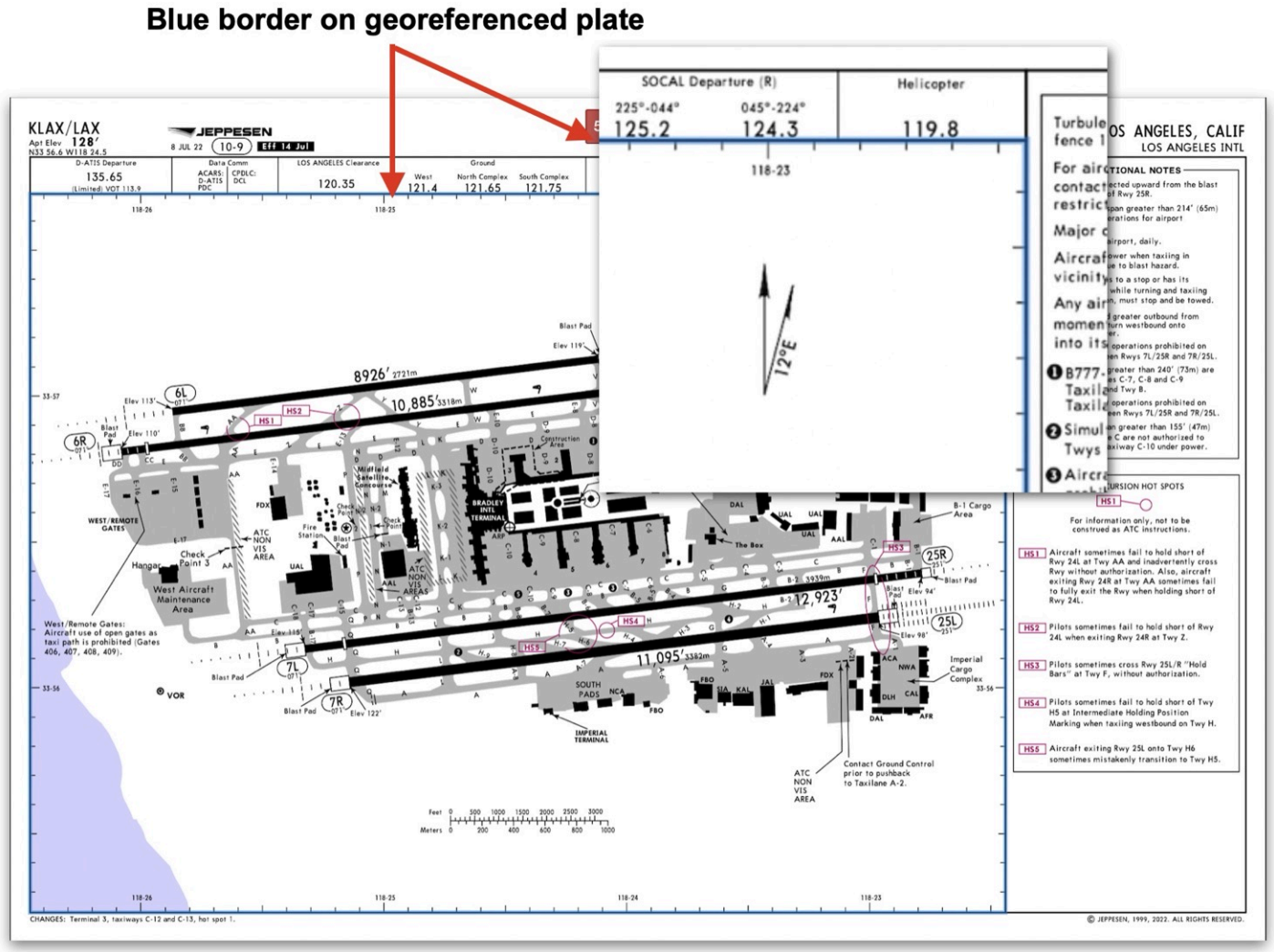


Figure 15-10. Georeferenced Jeppesen Plate

Georeferenced plates can be precisely overlaid on the Map and used to show position. Georeference features requires an Essential or higher subscription.



Figure 15-11. Georeferenced Plates on the Map

15.1.4 Plates Sync

Plates view functionality does *not* sync between devices on an account. Specifically, this means that Flight Binders, Other Binders, and plate annotations only exist on the device used to create them.

> **IMPORTANT:** If ForeFlight Mobile is deleted and reinstalled, binders and plate annotations will be lost.

15.2 On-Plate Functionality

The actively displayed plate can be manipulated to resize, pan, and switch between adjacent plates, add annotations, show or hide the toolbar and instrument panel, and see information about NOTAMs, FBOs, and aircraft position.

15.2.1 Onscreen Finger Gestures

Plates can be manipulated in the following ways using onscreen finger gestures as described below.

- **Panning and Zooming**: When a plate is zoomed in, drag one finger across the screen to pan in 360 degrees across the plate. To zoom in on a plate, touch the screen with two fingers and draw them apart. Use the opposite gesture to zoom out.
- **Swiping to Previous/Next Plate**: Swipe with three fingers left or right to display the previous or next plate. In a Flight Binder, swiping right on the last plate in a folder opens the next folder.
- **Toggling Toolbar/Instrument Panel**: Tap a displayed plate to hide the Toolbar and Instrument Panel (for navigational plates). Tap again to show the Toolbar and Instrument Panel.

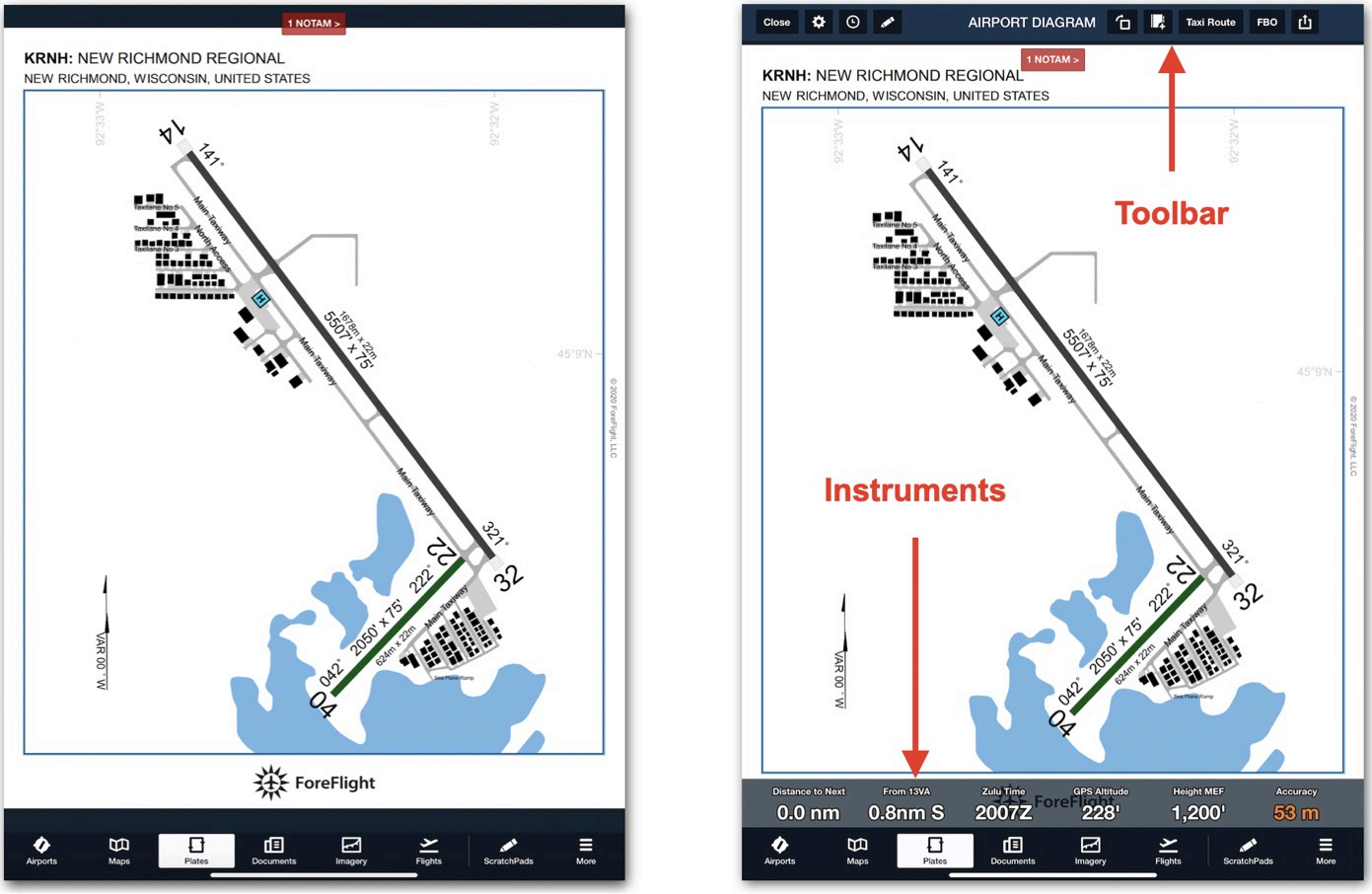


Figure 15-12. Full Screen (Left), Toolbar and Instruments Showing (Right)

15.2.2 Alert NOTAMs

When a plate is displayed, ForeFlight Mobile cross-checks NOTAMs and displays a warning banner at the top of the plate showing a count of relevant NOTAMs related to that plate.

> **NOTE:** The NOTAM Alert banner is not displayed when the plate is sent to Maps.

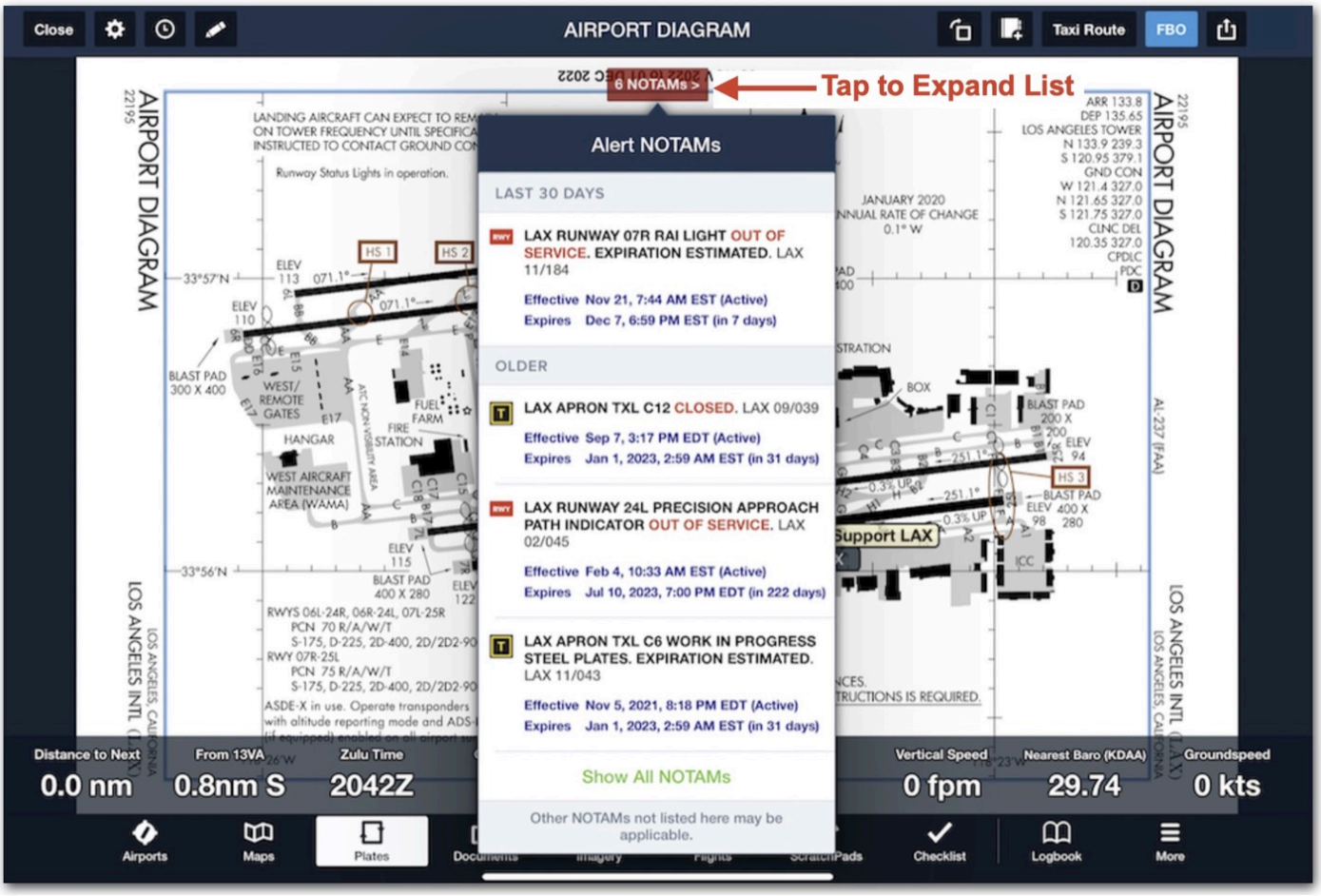


Figure 15-13. List of Alert NOTAMs

Tap the banner to view the NOTAMs associated with the plate, grouped vertically by age. Tap **Show All NOTAMs** to see a breakdown of Airport, Obstacle, TFR/ARTCC, and Jeppesen NOTAMs for the airport. Tap again anywhere outside the popup to close it.

> **WARNING:** Do not use Alert NOTAMs as a substitute for traditional preflight planning. ForeFlight Mobile is not guaranteed to display a complete list of NOTAMs relevant to the plate.

15.2.3 FBO Locations

When viewing an airport diagram, tap **FBO** in the upper toolbar to show or hide the location of FBOs on the plate. Tap a label to open its FBO Details. FBO labels can also be shown when the airport diagram is overlaid on the Map.



Figure 15-14. FBO Location Labels

15.2.4 Instrument Panel

A semi-transparent instrument panel can be displayed underneath navigational plates such as airport diagrams, approach, arrival, and departure procedures. The number of instruments displayed varies based on device orientation, screen size, and binder being viewed. Tap the plate surface to show or hide the panel. Tap an instrument to customize it. This is the same instrument panel that can be displayed on the Maps view.

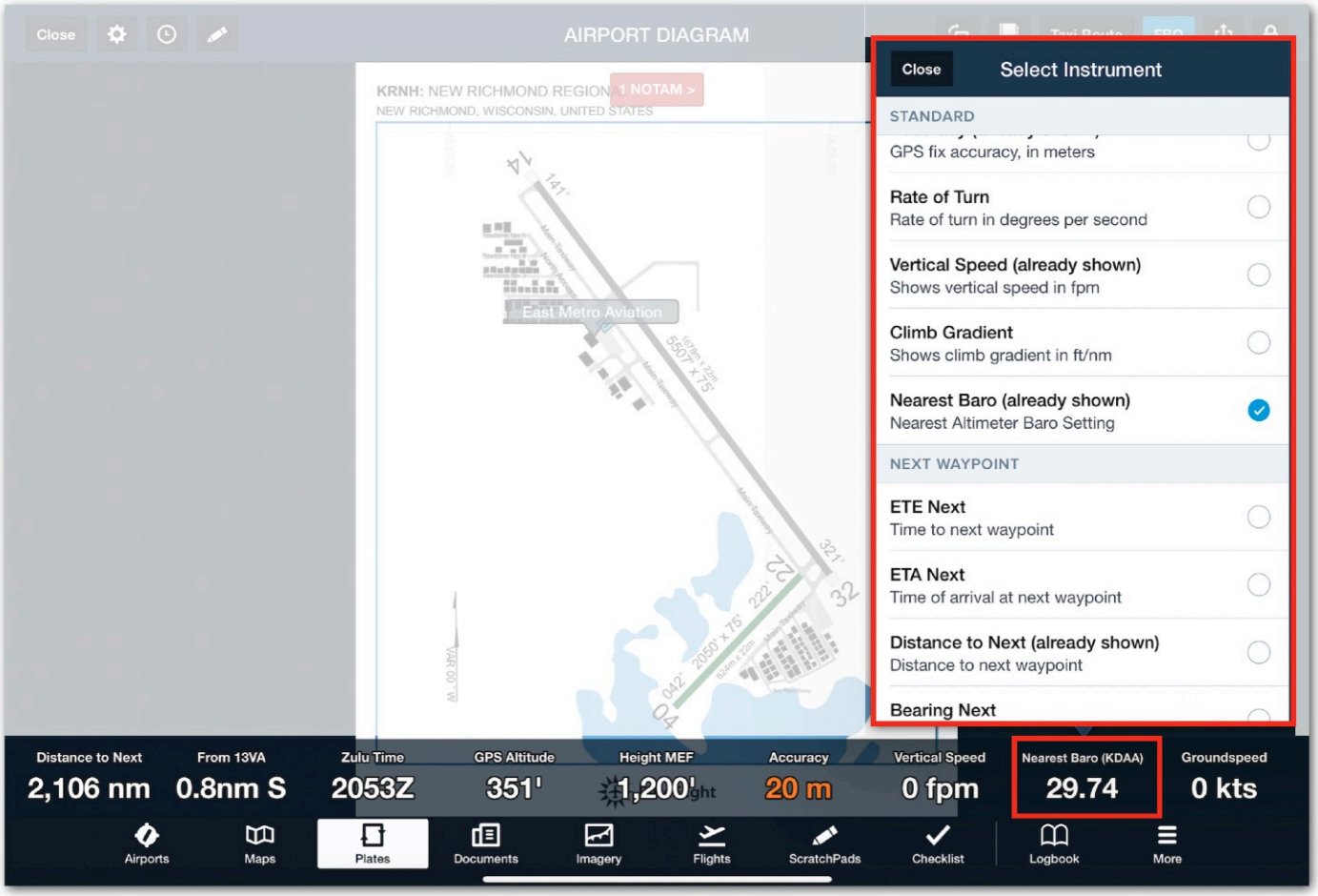


Figure 15-15. Customizing Instrument Panel

15.2.5 Position on Plate

Essential or higher subscribers can see their position on a georeferenced plate provided that they have toggled the Enable Ownship setting to **Always** or **Limited**.

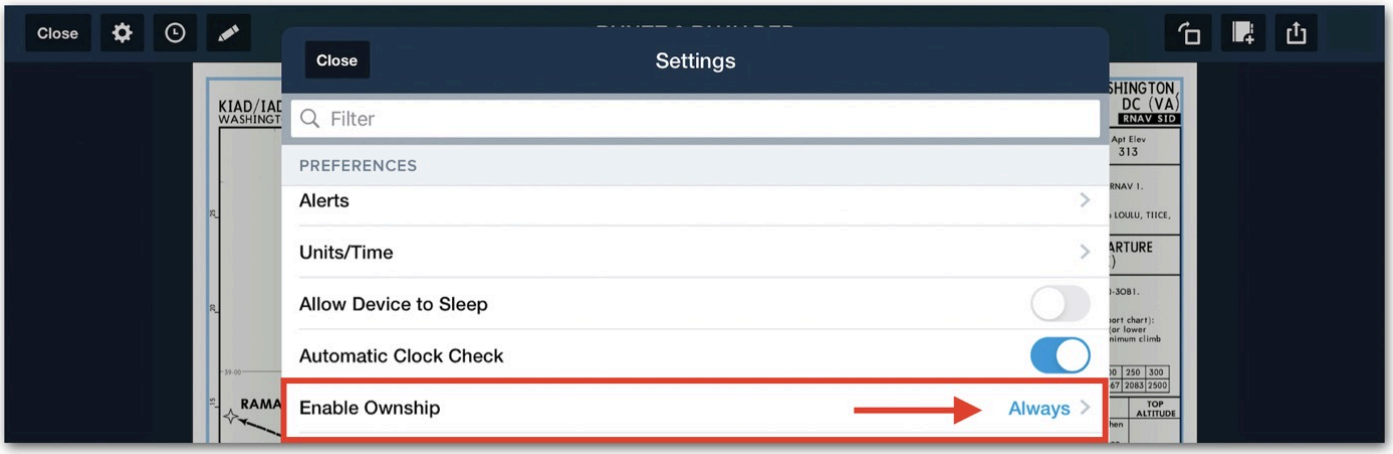


Figure 15-16. Enabling Position Displayed on Plate

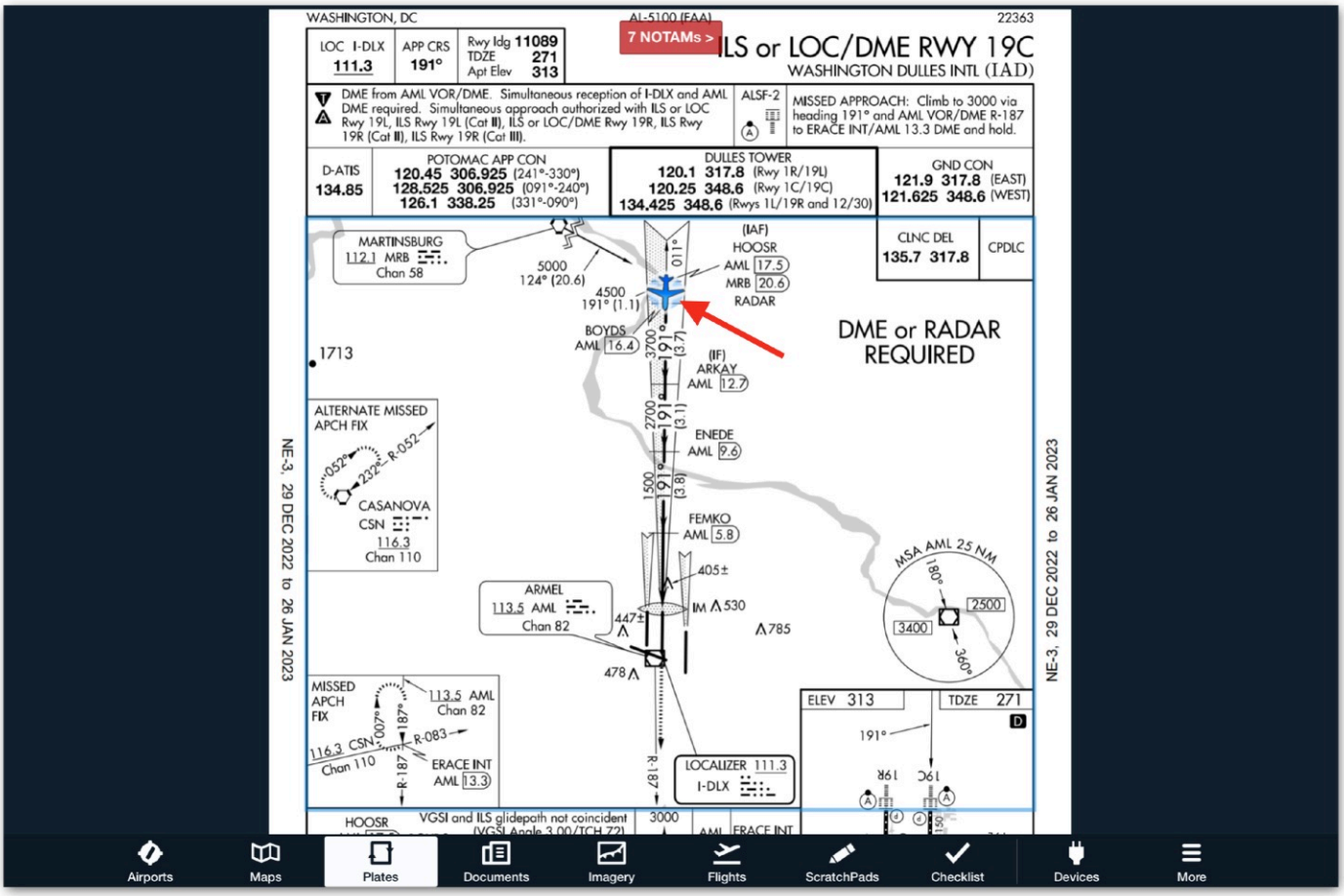


Figure 15-17. Current Position on Plate

15.3 Toolbar Controls

The Toolbar displays an array of plate controls that varies depending on the type of plate or binder being viewed. The full list of Toolbar controls and their functionality is described in this section.



Figure 15-18. Toolbar

15.3.1 Plate Settings

With any plate displayed, tap the **Settings** (gear) button to adjust screen brightness with a slider or to invert plate colors. These settings are applied throughout ForeFlight Mobile, not just the Plates view.

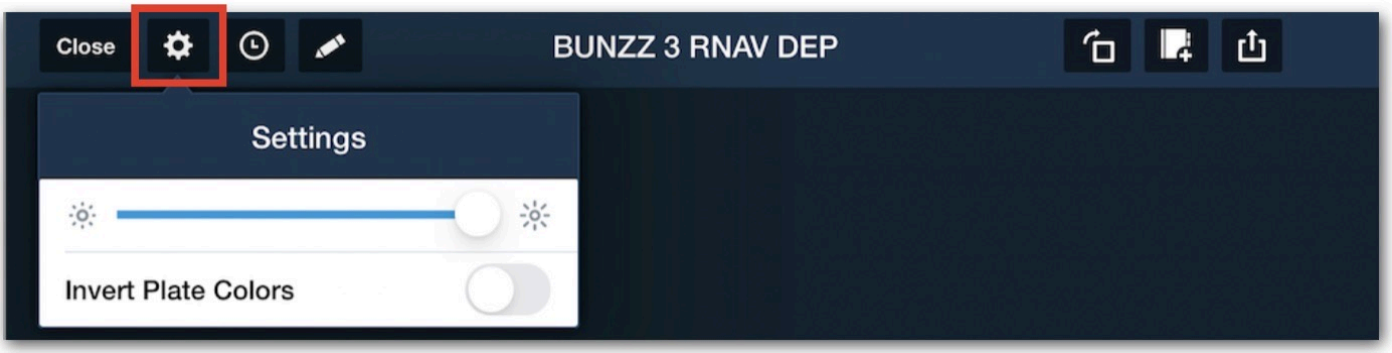


Figure 15-19. Plate Settings Menu

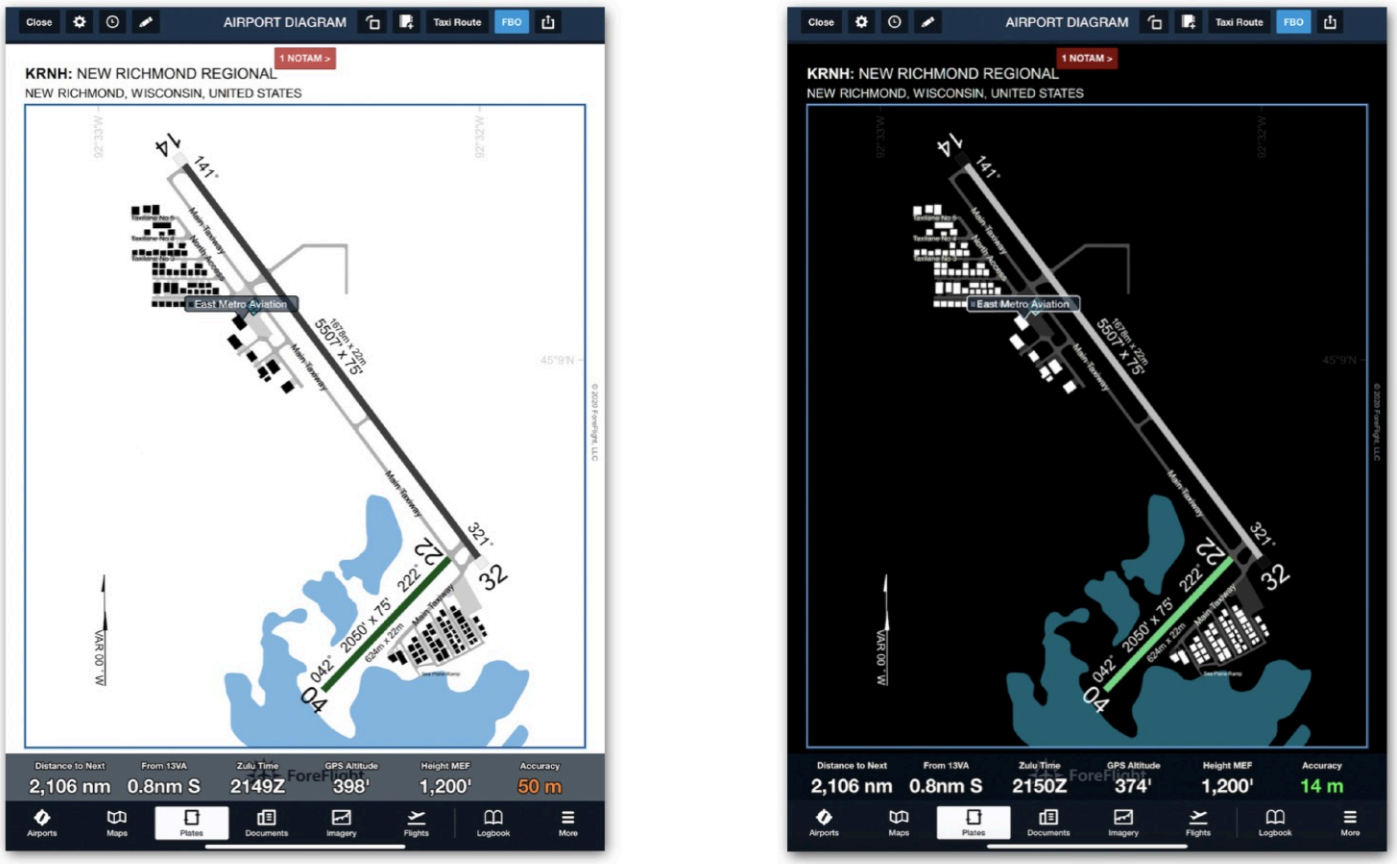


Figure 15-20. Standard Colors (Left), Inverted Colors (Right)

15.3.2 Recent Plates

Tap the Recent Plates (clock) button to open a list of plates that were recently displayed in ForeFlight Mobile.

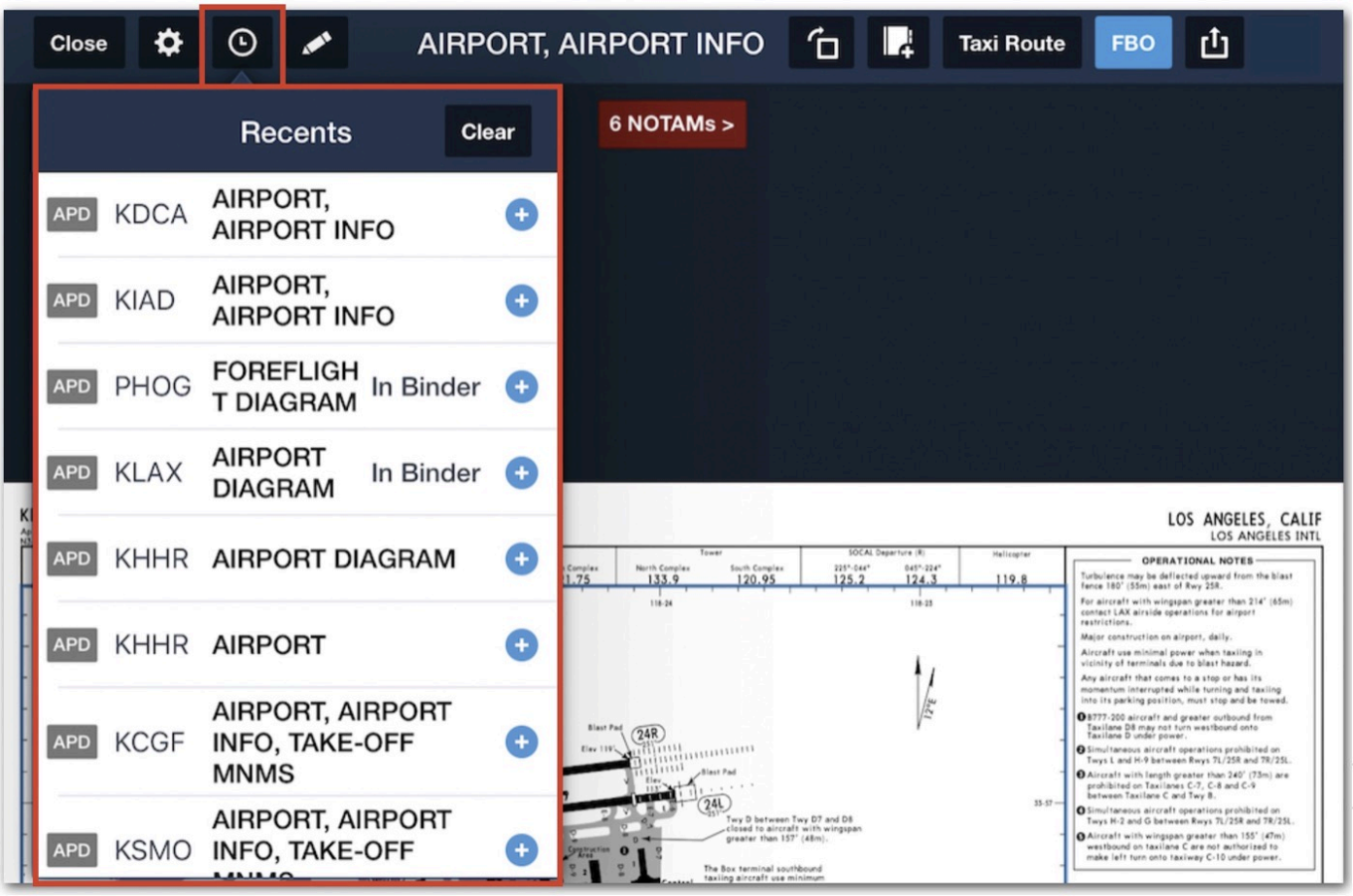


Figure 15-21. Recent Plate Searches

A colored box to the left of each plate name indicates its subject:

> **APD**
>
> Airport Diagram, Airport Info, Airspace Diagram, Advisories, Low Vis Taxi Routes, Parking Gates, or ODP Obstacle Takeoff Notes

> **DP**
>
> Departure Procedure

> **STAR**
>
> Arrival Procedure

> **IAP**
>
> Approach Procedure

> **MIN**
>
> Takeoff Minimums (Obstacle) Departure Procedures, and Diverse Vector Area (Radar Vectors), Alternate Minimums.

Tap a plate name to display it, or tap **Clear** to empty the list. If an Other Binder has been left open, tap the **Plus (+)** button to add it to the binder. If the Plate is already added, **In Binder** is displayed.

15.3.3 Plate Annotations

To add annotations to a plate, tap the Annotation (pencil) button to open an annotations toolbar. Plate annotations do not sync between devices. The functionality of each annotation is described in Annotations.

Button	Device	Purpose
	iPad iPhone	Use one finger to draw freeform annotations.
	iPad iPhone	Drag finger across plate to create rectangular outline.
	iPad	Drag finger across plate to create circular outline.
	iPad	Drag finger across plate to draw straight line.
	iPad	Draw multiple straight lines end to end that form a closed shape when the button is deselected.
	iPad	Draw multiple straight lines end to end.
	iPad iPhone	Type text on the plate using a keyboard with controls for font style, size, alignment, and color.
	iPad	Write a note on the plate visible as a small icon. Tap the paintbrush button to edit icon shape and color. The note icon can be tapped to open its contents.
	iPad iPhone	Drag finger across plate to select multiple annotations and group, copy, or delete them, as well as invert plate color.
	iPad iPhone	Edit annotation size, font, alignment, color, fill color, opacity, thickness, style, layer order, and color presets.
	iPad iPhone	Clear all annotations from the plate.
	iPad iPhone	Undo the previous annotation.
	iPad iPhone	Redo the previously undone annotation.

Button	Device	Purpose
Done	iPad iPhone	Tap to finish adding annotations and return to the Plates Viewer.

15.3.4 Rotate

To rotate the plate clockwise, tap the Rotate button. Note that a plate shrinks to fit the device screen if its current orientation does not match the device orientation.



Figure 15-22. Chart Portrait Orientation (Left), Chart Landscape Orientation (Right)

15.3.5 Add to Binder

When an Other Binder has been left open in the Plates view as described inLeaving a Binder Open, and a plate is accessed from the Maps, Fights, or Airports view, the Add To Binder (folder) button is visible in the Toolbar. Tap this button to add the current plate to that binder.

15.3.6 Taxi Route

Premium subscribers viewing an airport diagram can tap the **Taxi Route** button to open a tool used to create taxi routes based on their desired destination and taxi clearances.

> **NOTE:** If this button is not visible, it can be enabled by tapping **More → Account → ForeFlight Labs** and toggling on **Taxi Routes**.

15.3.7 FBO

When viewing an airport diagram, the FBO button is visible in the toolbar. Tap it to show or hide FBO location labels on the diagram.

15.3.8 Send To Map or Print

To send the currently displayed plate to be overlaid on the Maps view, tap the **Send To** button and select **MAP**. This requires an Essential subscription and can only be done for georeferenced plates.

To send the currently displayed plate to a printer, tap the **Send To** button, select **PRINT** , and then select the iOS Printer Options.

The Send To button can also be used to print an entire Flight Binder.

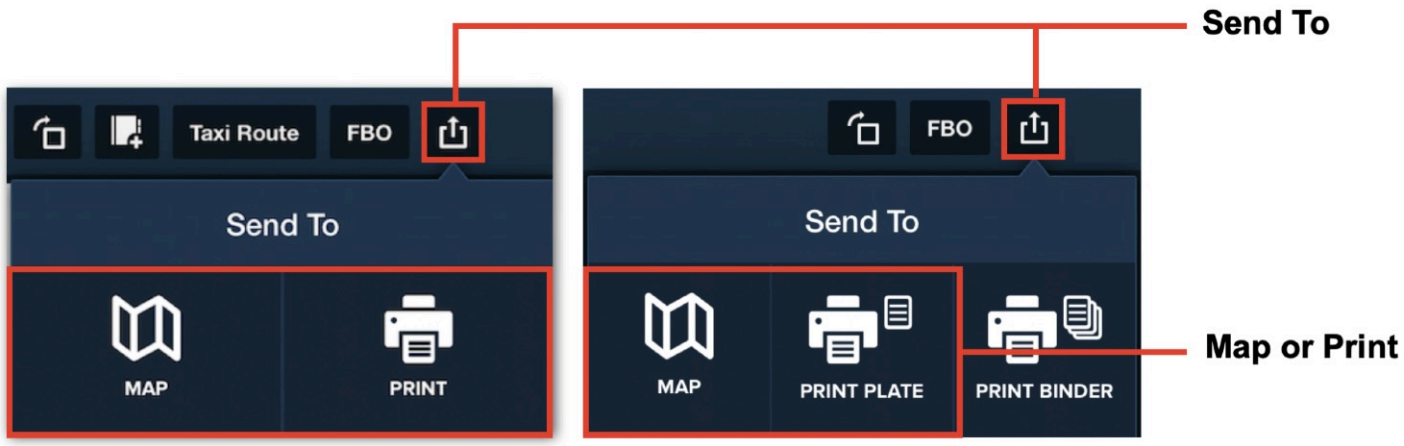


Figure 15-23. Standard "Send To" Options (Left), Flight Binder "Send To" Options (Right)

> **NOTE:** ForeFlight Mobile does not control printer settings or page sizes. This must be done in the printer interface.

15.4 Plates on the Map

Plates on the Map is used to overlay geo-referenced plates on the Maps view. It requires a ForeFlight Essential, Premium, Business Pro, or Business Performance subscription.

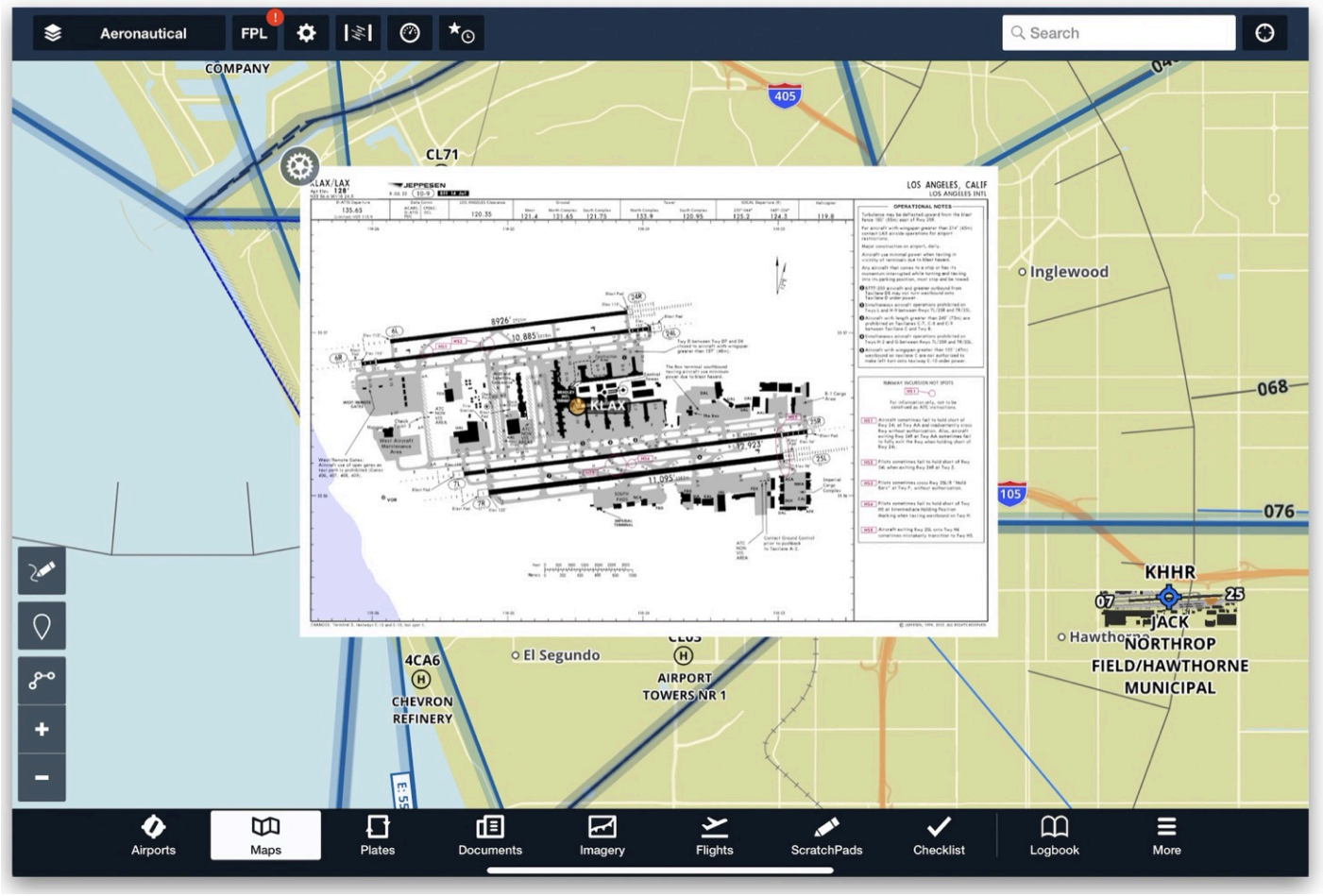


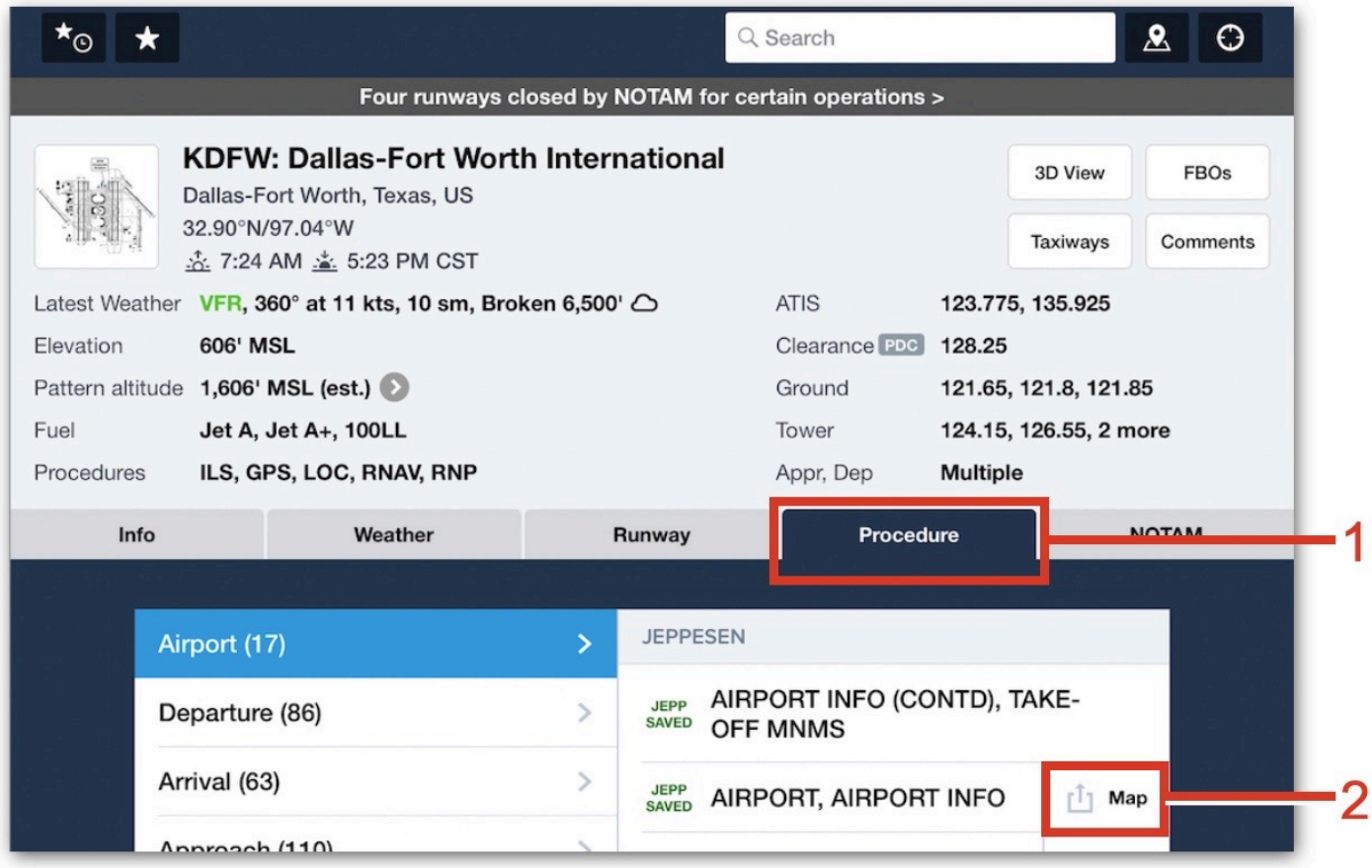
Figure 15-24. Plate Overlaid on the Map

15.4.1 Displaying Plates on the Map

Five methods may be used to display a plate on the map.

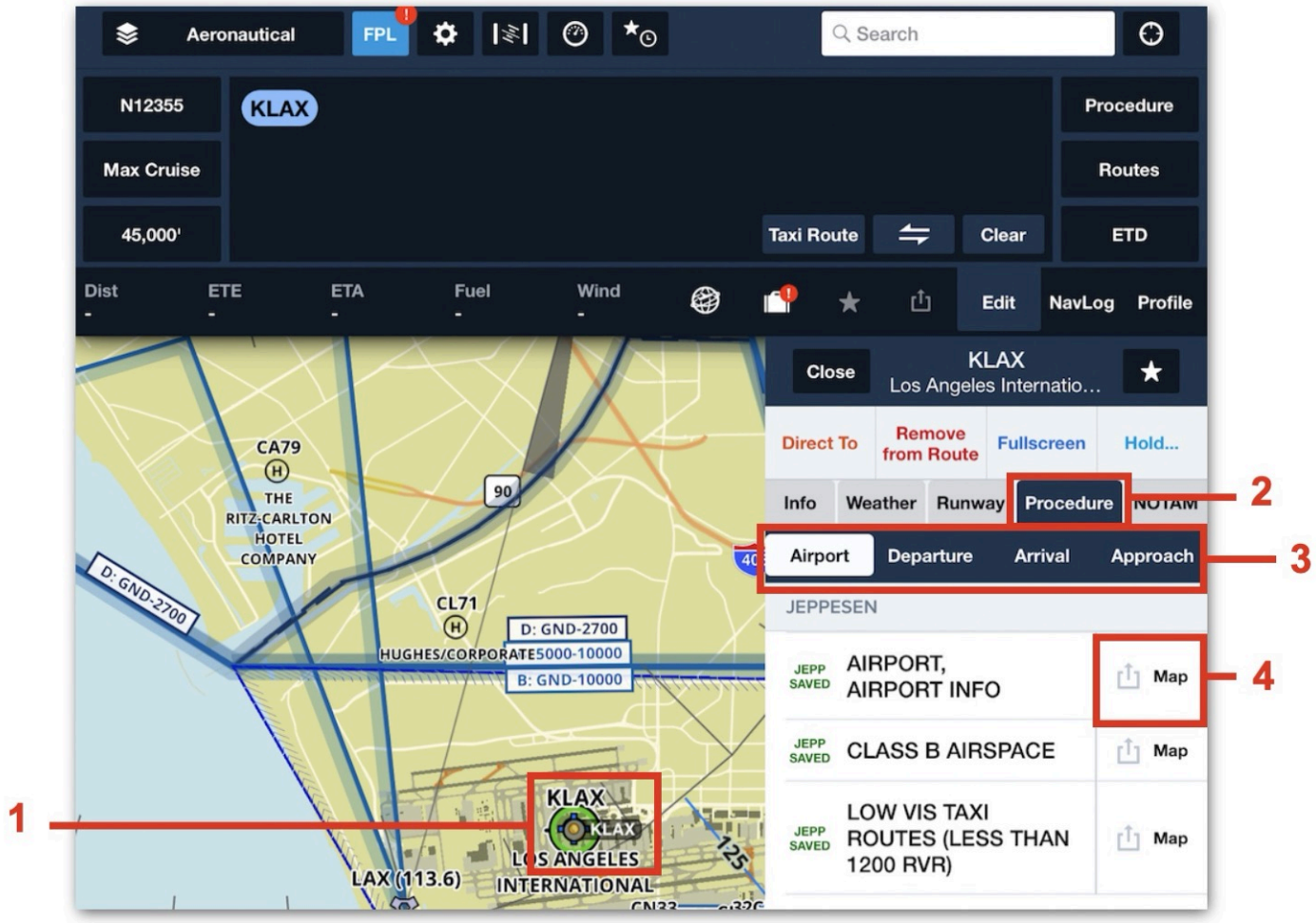
Method #1 - From the Airports View

To display a plate on the Airports view, open the **Procedures** tab, and tap **Map** next to the desired plate.



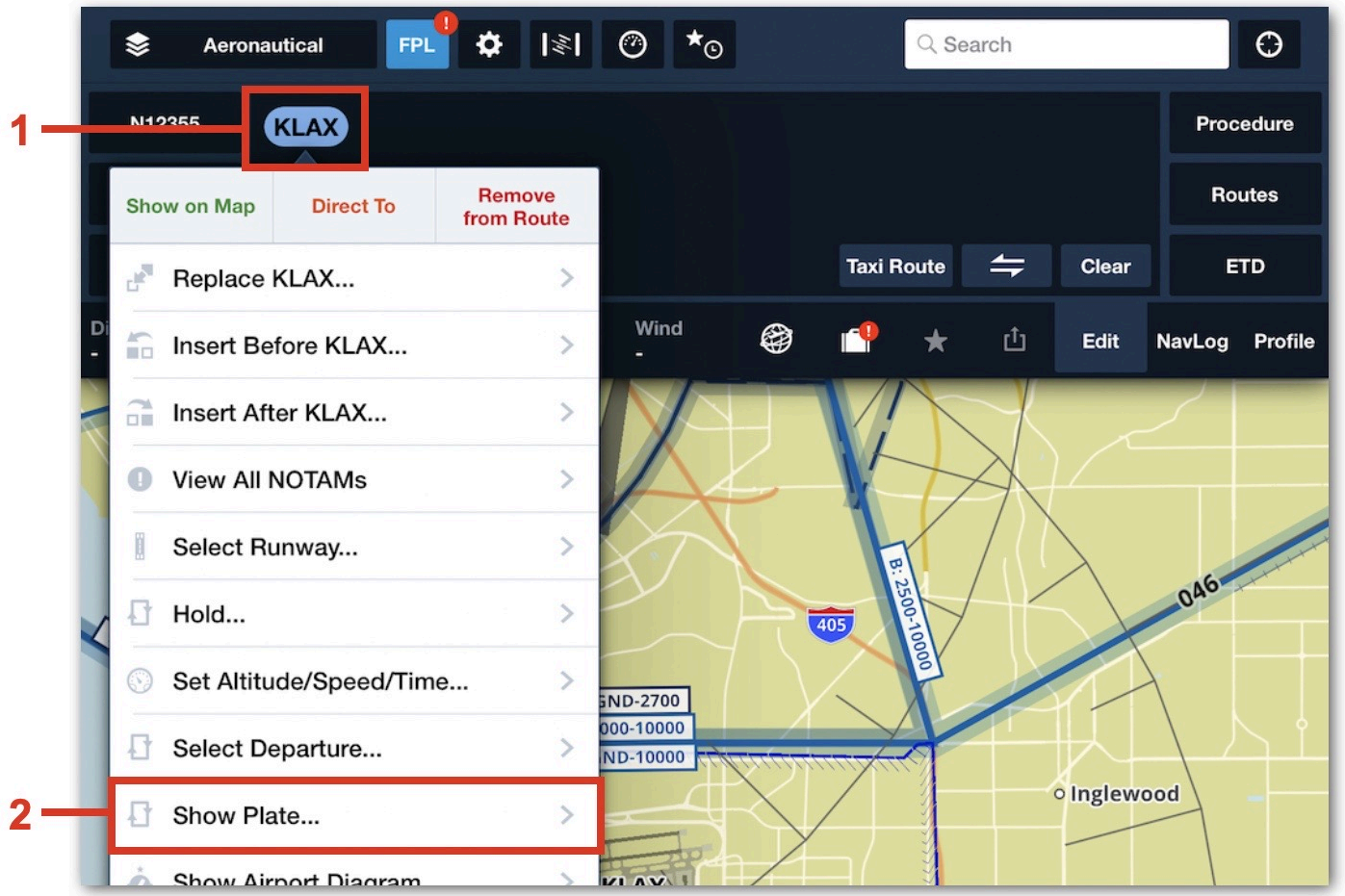
Method #2 - From the Maps View

Tap an airport on the map to display its details. Select the **Procedure** tab and the appropriate sub-tab (**Airport** , **Departure** , **Arrival** , or **Approach**). Tap **Map** next to the desired plate.



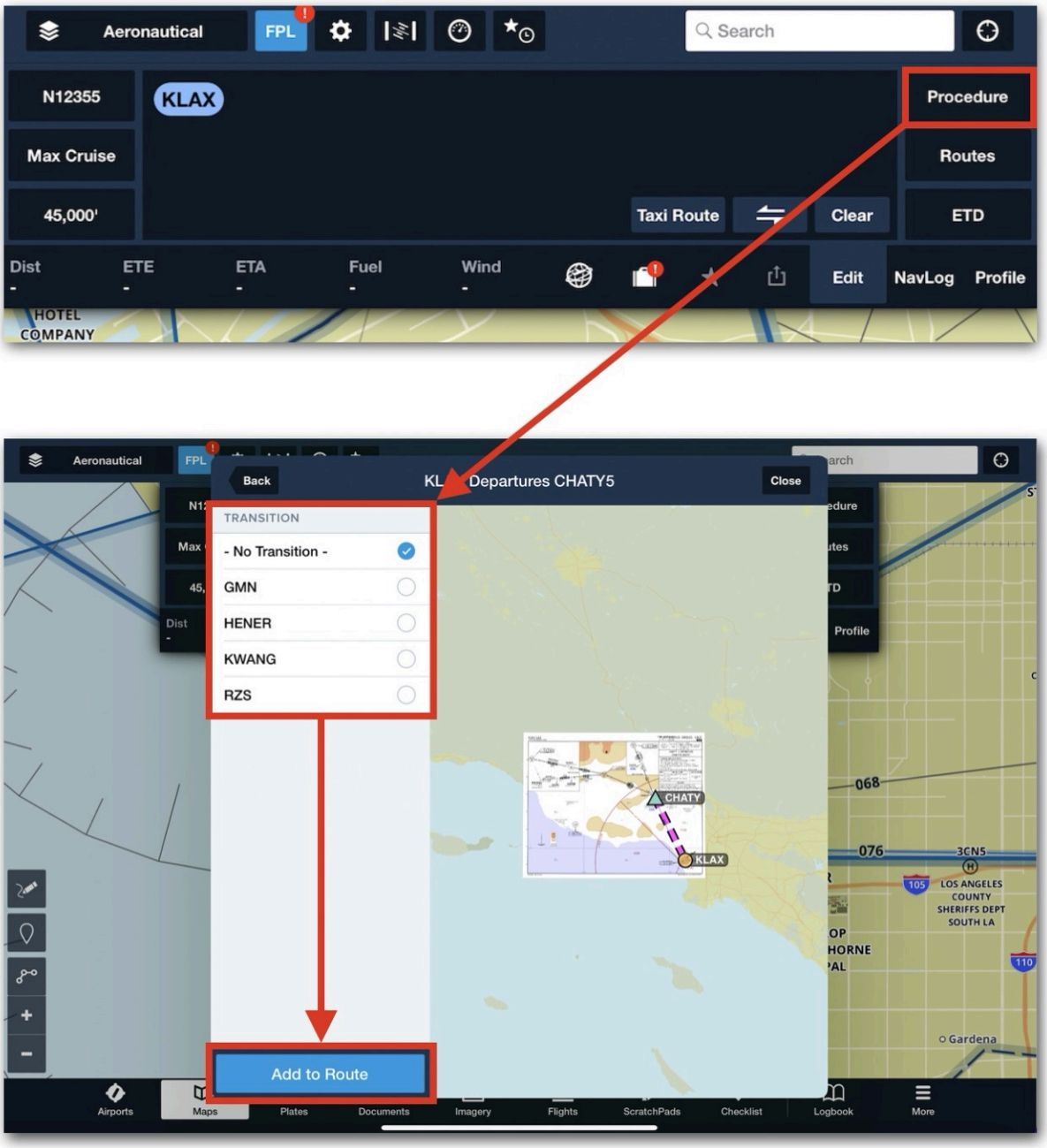
Method #3 - From the FPL Editor

On the Maps view FPL Editor, tap the colored bubble of an airport or procedure and select **Show Plate…** Then, select the appropriate plate.



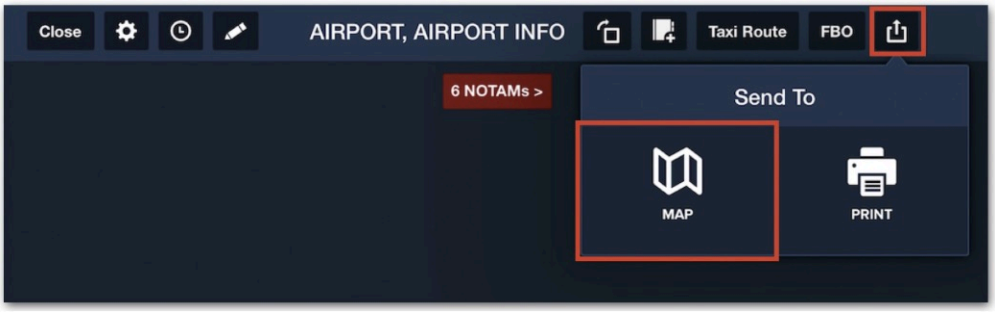
Method #4 - From the Procedure Advisor

On the Maps view FPL Editor, tap **Procedure** to open the Procedure Advisor, select the appropriate plate and transition, then tap **Add to Route**.



Method #5 - From the Plates View

Display a plate on the Plates view, then tap the **Send To** button and select **MAP**.



15.4.2 Display Settings for Plates on the Map

When a plate is overlaid on the map, the display settings can be adjusted to hide the plate, view in full-screen mode, swap one plate for another, show annotations and FBO labels, invert plate colors, and adjust the transparency of the plate.

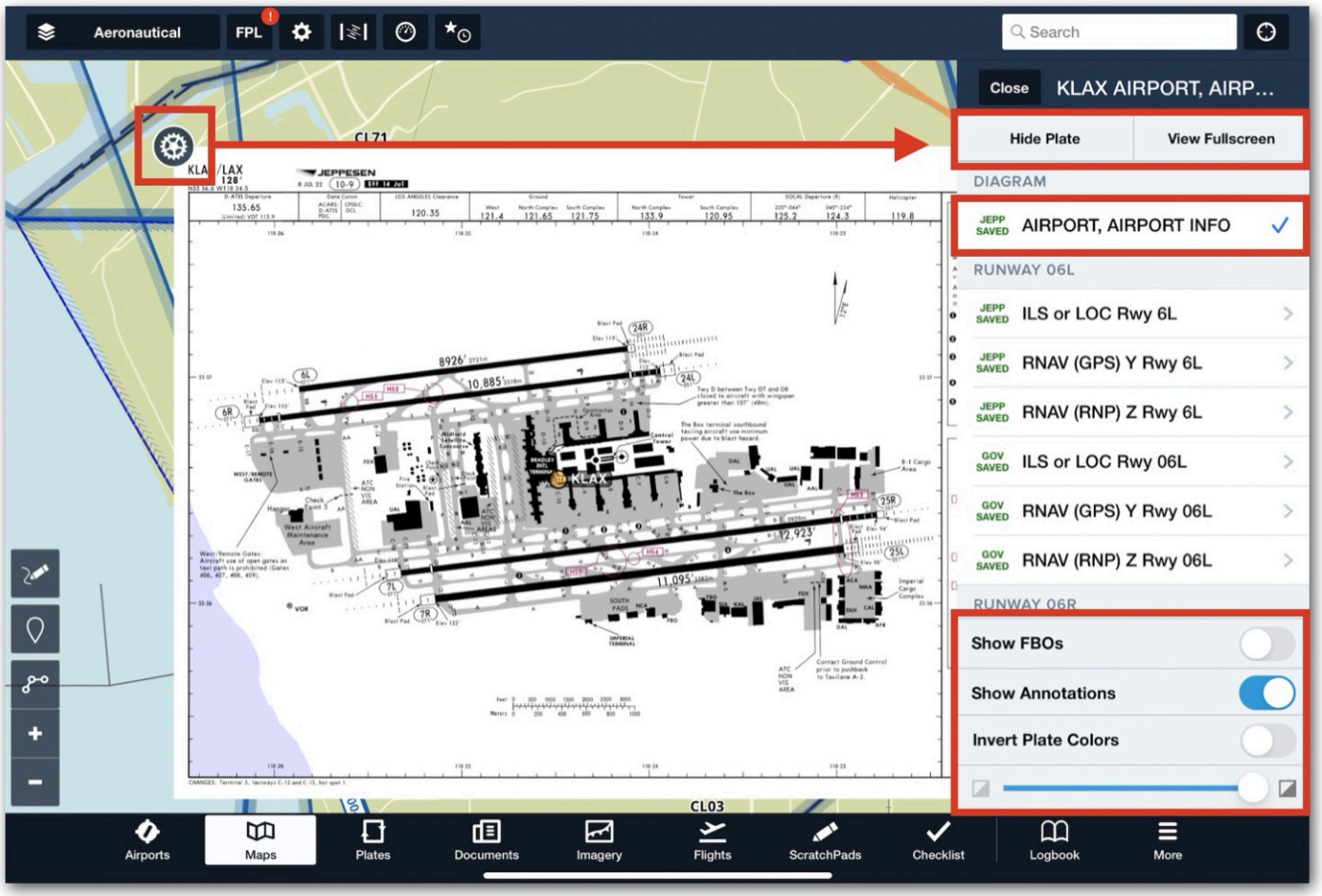


Figure 15-25. Display Settings for Plates on the Map

15.4.2.1 Removing Plates From the Map

To remove a plate overlay from the map:

1. On the map, tap the plate or the gear icon in its top-left corner. See Display Settings for Plates on the Map.
2. In the popup, tap **Hide Plate** to remove it from the map.

15.4.2.2 Displaying a Plate in Full-Screen Mode

To cause a plate overlaid on the map to display in full-screen mode:

1. On the map, tap the plate or the gear icon in its top-left corner. See Display Settings for Plates on the Map.
2. Tap **View Fullscreen** to open the plate in the Plates view.
3. Tap **Close** to return to the previous location on the Maps view.

15.4.2.3 Swapping Plates on the Map

To change the plate currently overlayed on the map at a given airport:

1. On the map, tap the plate or the gear icon in its top-left corner. See Display Settings for Plates on the Map.
2. In the popup, the displayed plate will have a blue checkmark next to it. Tap any other plate listed to display it instead.

> **NOTE:** If a non-graphical procedure (such as takeoff minimums or advisory) is selected, it does not replace the current plate on the map. Non-graphical procedures open in the Plates view.

15.4.2.4 Showing Annotations/FBO Labels

To show annotations and FBO labels on the plate overlayed on the map:

> **NOTE:** FBO labels are only available for airport diagrams.

1. On the map, tap the plate or the gear icon in its top-left corner. See Display Settings for Plates on the Map.
2. Toggle the **Show FBOs** button on to display or hide interactive FBO labels.

3. Toggle the **Show Annotations** button to show or hide annotations previously added to the plate.

15.4.2.5 Inverting Plate Colors

To invert the colors of any plate displayed on the map:

1. On the map, tap the plate or the gear icon in its top-left corner. See Display Settings for Plates on the Map.
2. Toggle the **Invert Plate Colors** button on or off as necessary.

> **NOTE:** This change affects all place where plates can be viewed in ForeFlight Mobile, not just on the map.

15.4.2.6 Adjusting Transparency

To adjust the transparency of a plate on the map (in order to view or hide map features behind the plate):

1. On the map, tap the plate or the gear icon in its top-left corner. See Display Settings for Plates on the Map.
2. At the bottom of the plate details, move the transparency slider left (transparent) or right (opaque) as necessary.

15.5 Binders Drawer

The Binders Drawer is used to manage the two types of binders supported in the Plates view:

- Flight Binders are used to organize plates for a specific flight
- Other Binders are used for unstructured collections of plates.

Operations in the Binders Drawer include showing/hiding the drawer from the Plates view, and creating, opening, renaming, reordering, and deleting binders. These operations are described below.

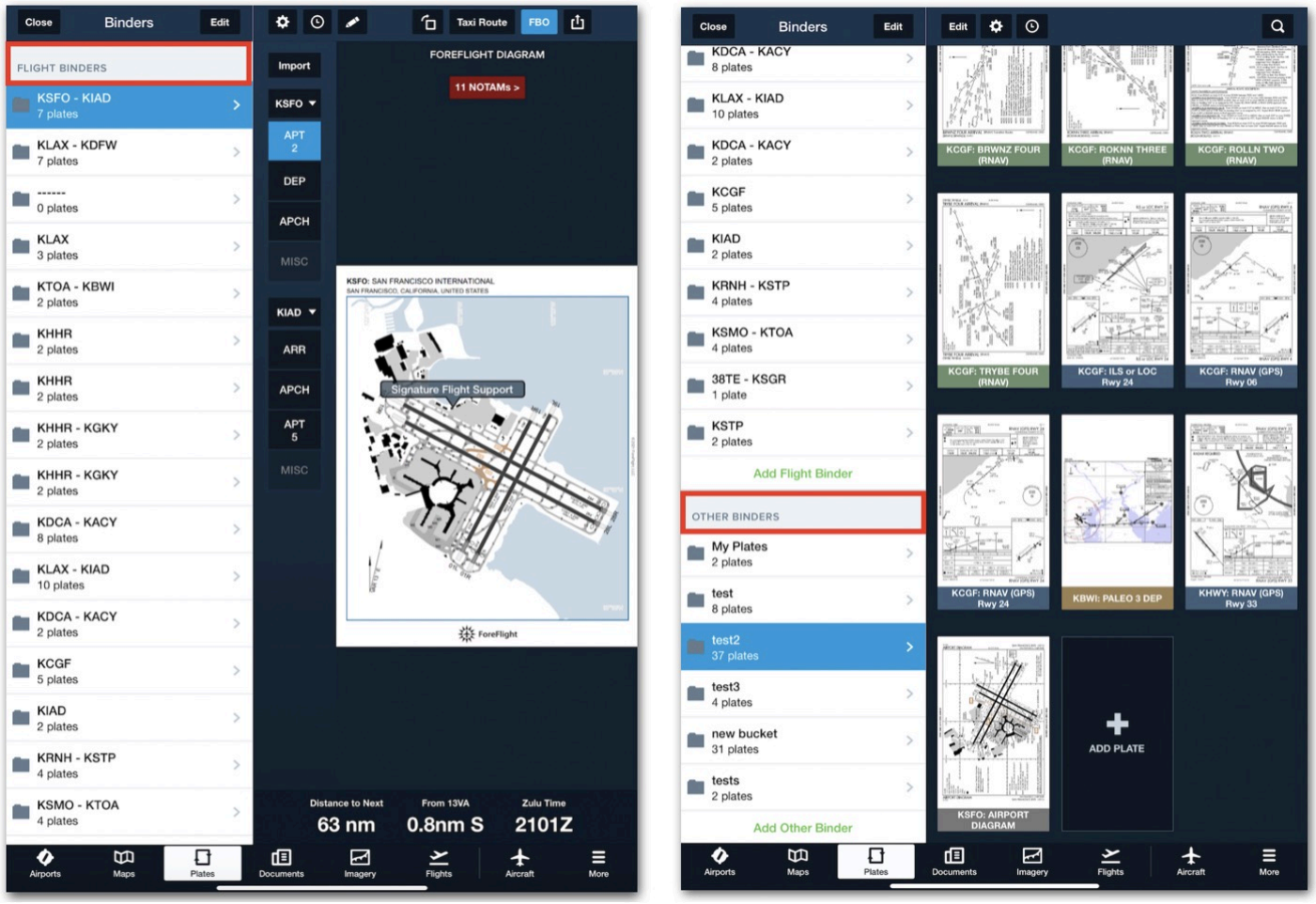


Figure 15-26. Flights Binders (Left), Other Binders (Right)

15.5.1 Show/Hide Binders

The Binders Drawer can be opened or closed while working directly in the Plates view. To display the Binders drawer if it is not visible, tap **Binders**. The drawer will open as a sidebar on the left. To hide it, tap **Close**.

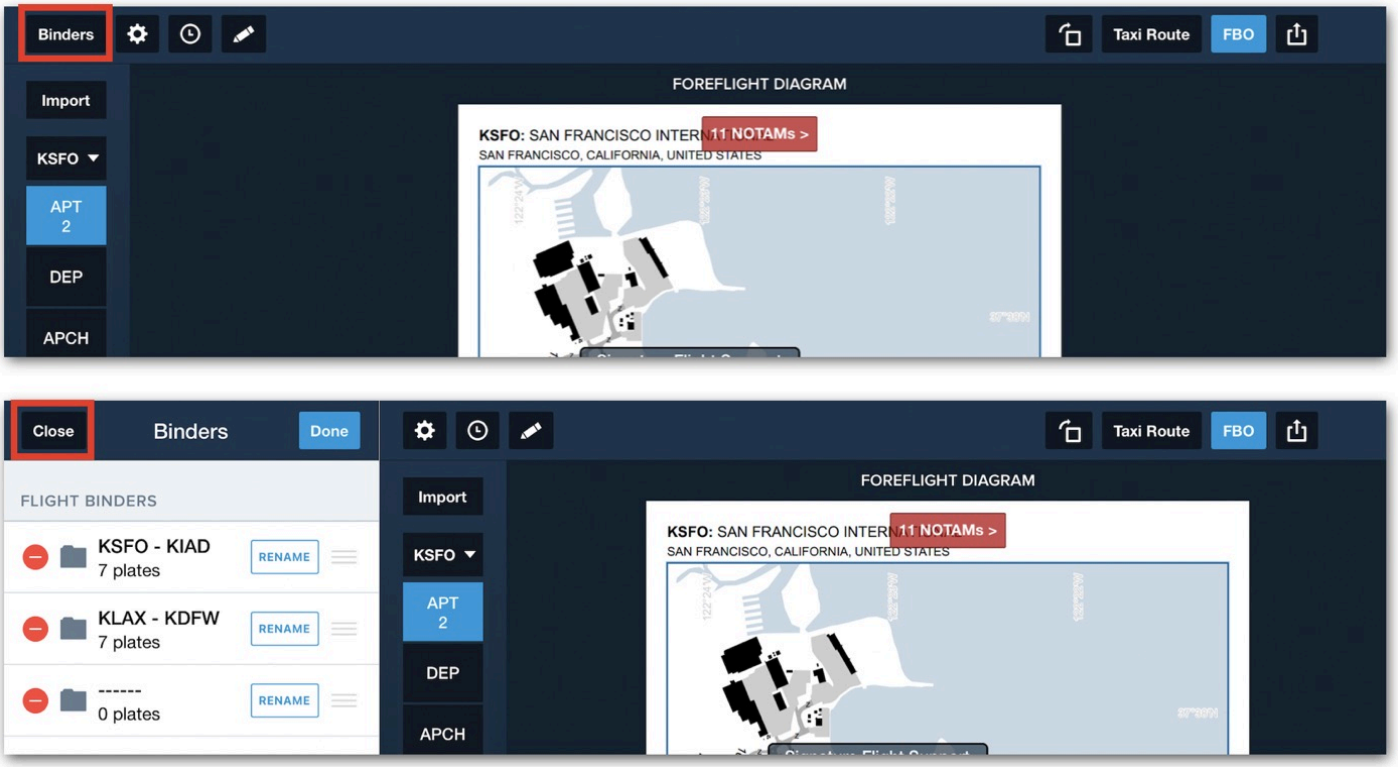


Figure 15-27. Show/Hide Binders

15.5.2 Renaming Binders

Flight Binders are named automatically based on their departure and destination airports. Empty Flight Binders have no name. Other Binders are named manually at creation. All binders can be renamed.

To rename a Flight Binder or Other Binder, tap the **Edit** button at the top of the Binders Drawer, then tap **RENAME** next to a binder to enter a new name. Tap **Save** to finish naming that binder, and tap **Done** to finish editing binders.

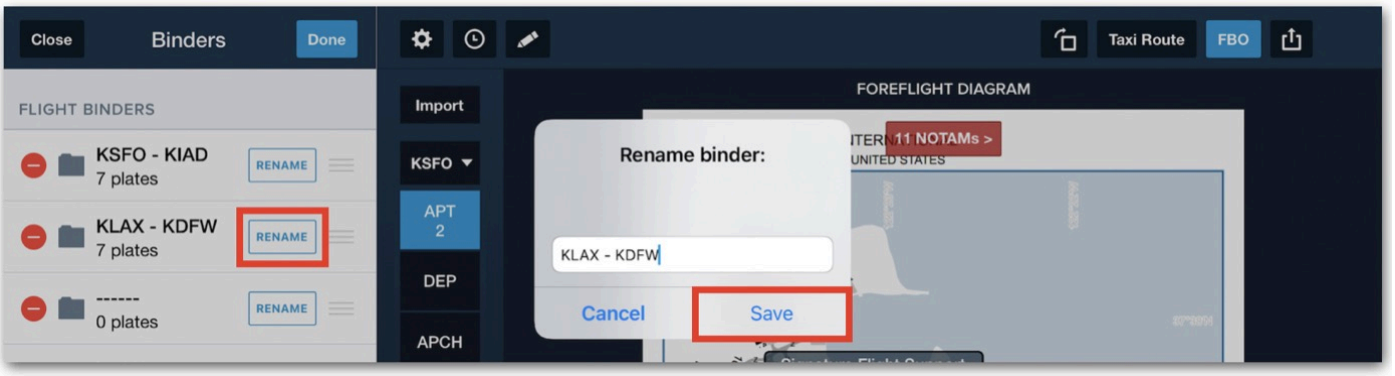


Figure 15-28. Renaming Binders

15.5.3 Reordering Binders

Flight Binders are listed from newest to oldest, while Other Binders are listed from oldest to newest. Either list can be reordered by manually dragging each individual binder up and down within its own list.

To reorder a Flight Binder or Other Binder, tap the **Edit** button at the top of the Binders Drawer, then tap and hold the **(☰)** icon next to a binder to drag it to a different position in its list. Tap **Done** when finished.

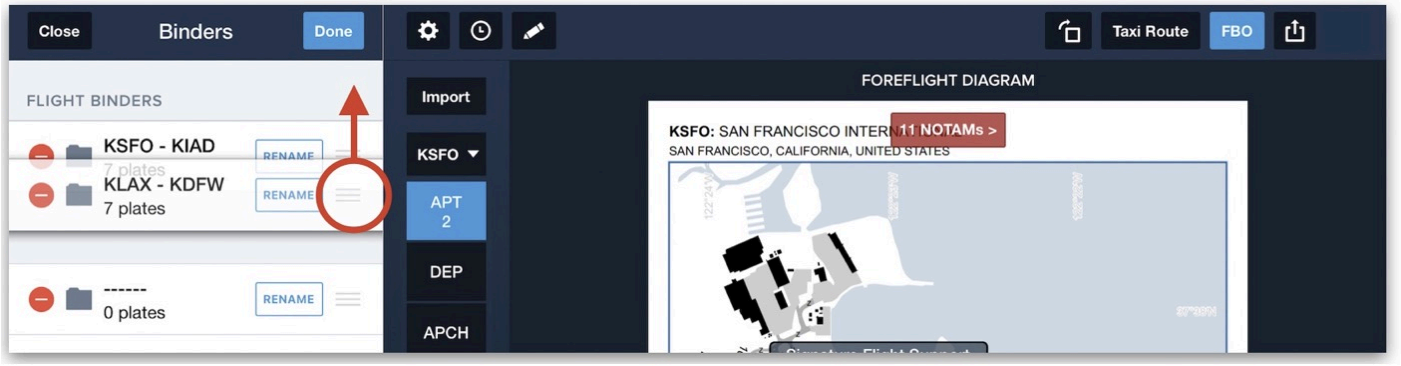


Figure 15-29. Reordering Binders

15.5.4 Removing Binders

Flight Binders and Other Binders do not actually contain plates. Instead, they contain references to plates stored on the ForeFlight device. Any binder can be removed without deleting the plates it references.

To remove a binder, tap the **Edit** button at the top of the Binders Drawer, tap the **(-)** icon next to a binder, and tap **Delete** to remove the binder (but not its plates) from the device. Tap **Done** when finished.

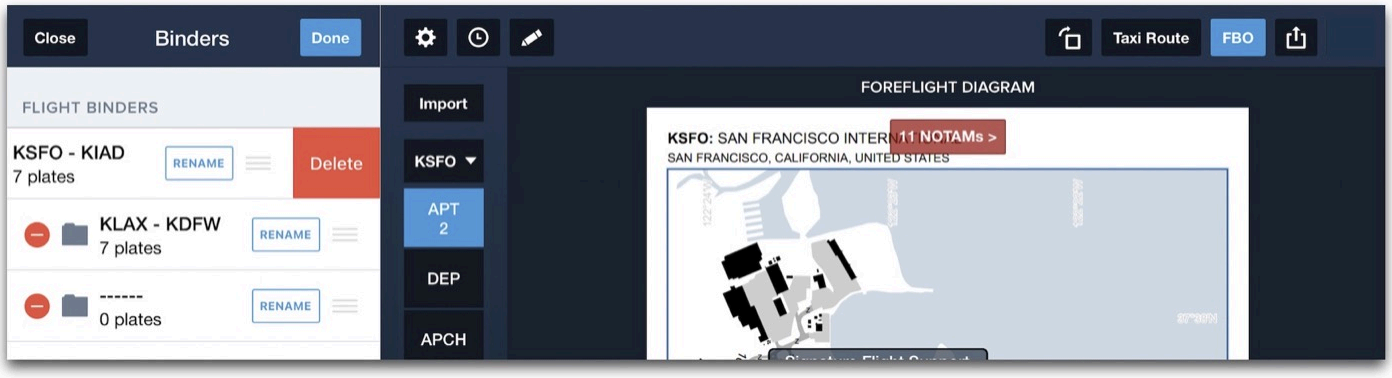


Figure 15-30. Deleting Binders

15.6 Flight Binders

Flight Binders organize plates according to a specific flight for easy reference. They can be generated automatically from existing flights on the Maps or Flights views, or created using a blank template.

> **NOTE:** Flight Binders do not sync between devices on an account.



Figure 15-31. Flight Binders

15.6.1 Flight Binder Structure

Flight Binders group plates into departure airport and destination airport sections. Each section contains four folders where plates can be added.

- The **departure airport section** has folders for airport diagrams, departure procedures, return-to-base approaches, and miscellaneous procedures.
- The **destination airport section** has folders for arrival procedures, approach procedures, airport diagrams, and miscellaneous procedures.
- The **alternate airport section** has folders for arrival procedures, approach procedures, airport diagrams, and miscellaneous procedures. One departure alternate and two destination alternate airports may be added.

An **airport selector** at the top of each group determines which plates that group can hold. A number under each folder indicates how many plates it contains. Folders without any plates have no number.

15.6.2 Creating Flight Binders

Flight Binders can be created in three ways. Click one of the following options to learn more:

- Generate using the Maps view.
- Generate using an existing Flight.
- Use a blank template.

15.6.2.1 Generating a Flight Binder From the Maps View

To generate a Flight Binder from the Maps view, use the FPL Editor to build a route with departure and destination airports. Use the Procedure Advisor to add departure, arrival, approach, or other procedures to the route. At the bottom of the FPL Editor, tap the **Send To** button and choose **PLATES** to send the route to the Plates view as a new Flight Binder.

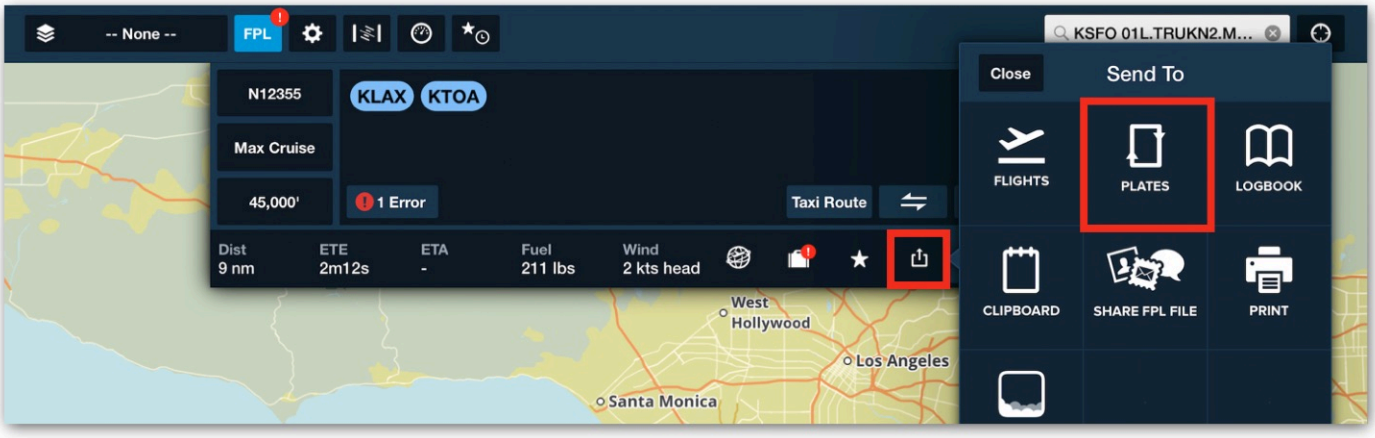


Figure 15-32. Creating a Flight Binder from the Maps View

15.6.2.2 Generating a Flight Binder From the Flights View

To generate a Flight Binder from an existing Flight, navigate to the Flights view and tap any Flight to display its Flight Planning Form. At the top right corner, tap the **Send To** button and choose **PLATES**.

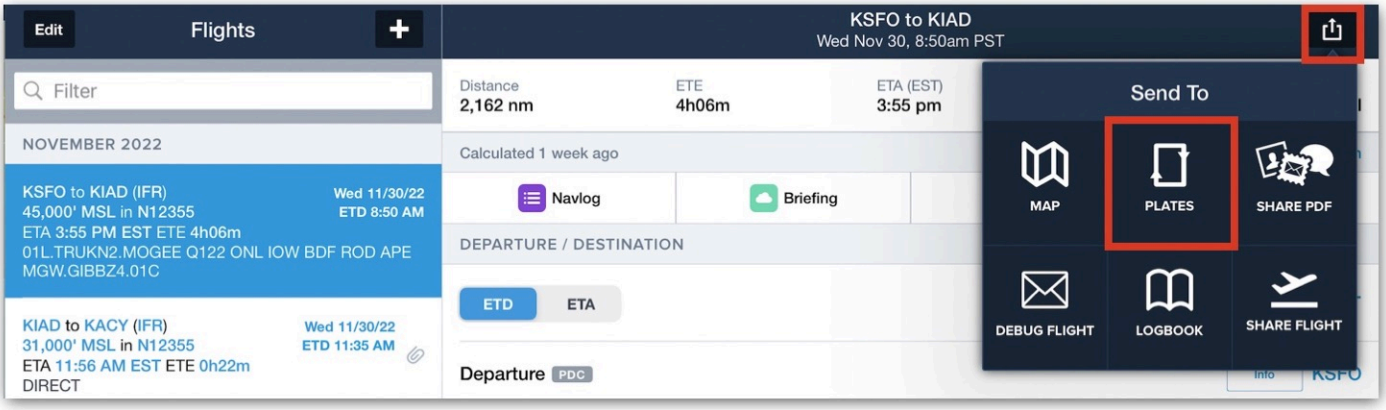


Figure 15-33. Create Flight Binder from the Flights View

15.6.2.3 Creating a Flight Binder from a Blank Template

If no suitable map route or flight exists, an empty Flight Binder can be created. In the Plates view, expand the Binders Drawer and tap **Add Flight Binder**. In the Add Flight Binder window, tap a suggestion (from Maps and Flights) to create a full Flight Binder, or tap **add an empty binder** to generate a blank binder.

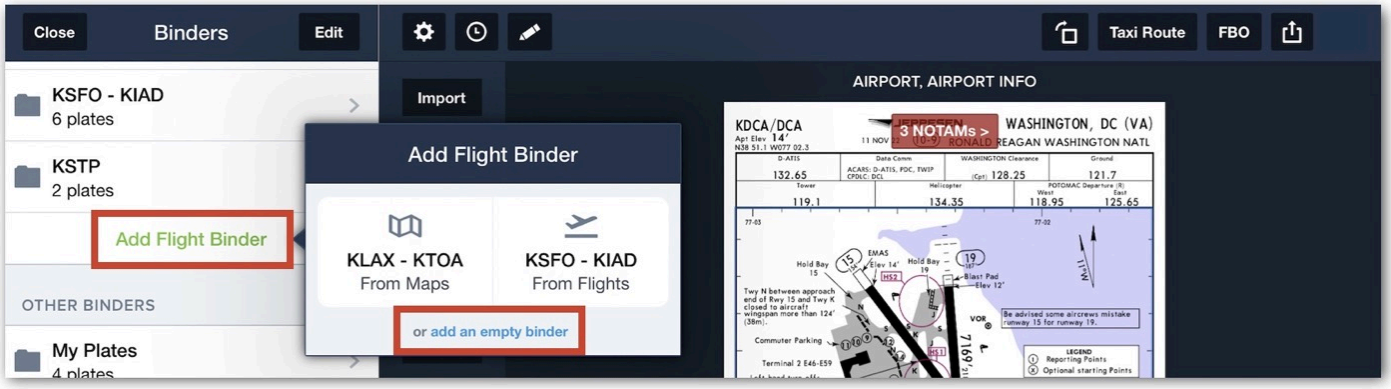


Figure 15-34. Creating an Empty Flight Binder

The new blank Flight Binder template can be used to manually add airports and plates.

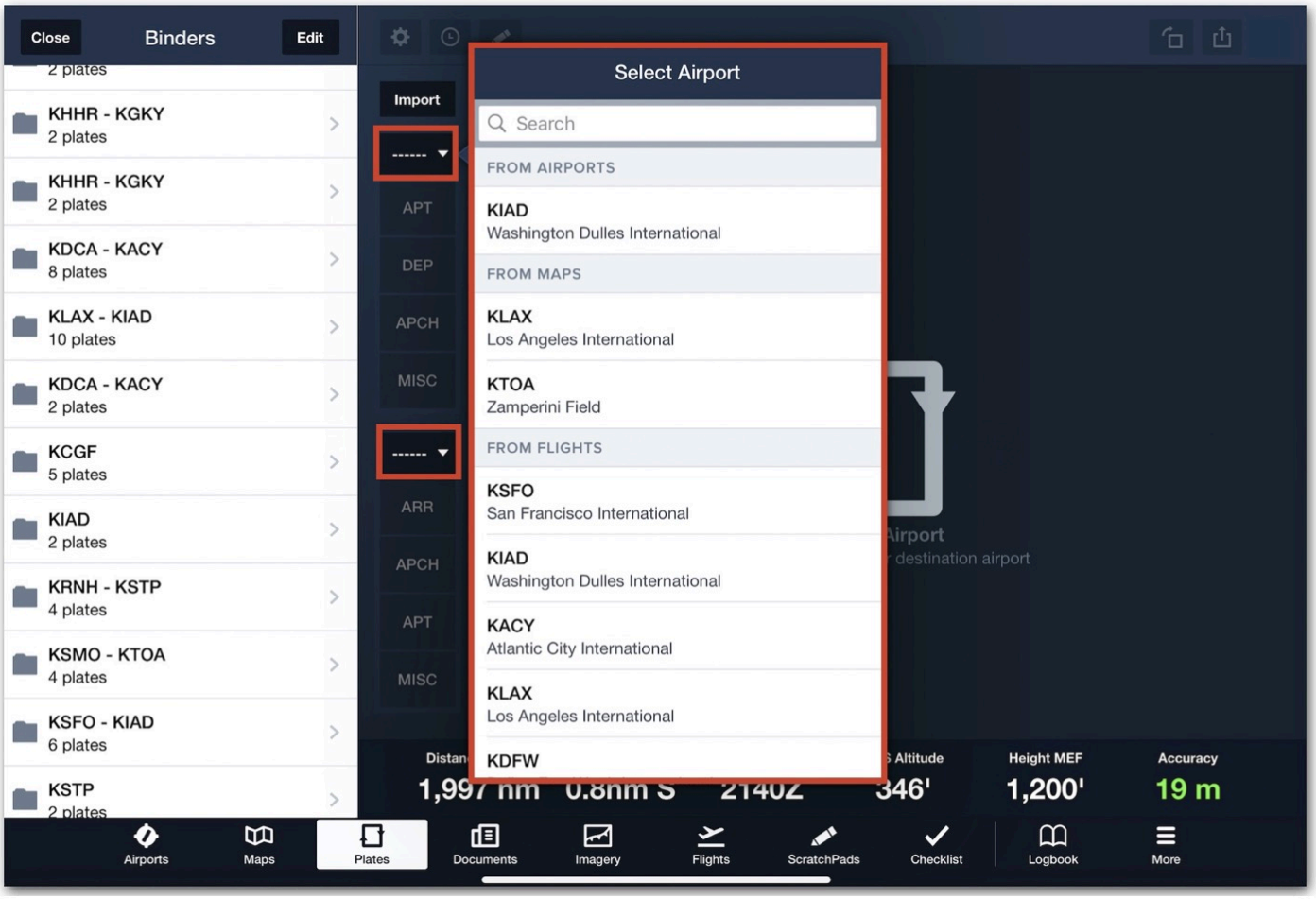


Figure 15-35. Adding to an Empty Flight Binder

15.6.3 Adding, Removing, Viewing Plates

Whether a new Flight Binder is empty or populated with data from the Maps or Flights views, its contents can be managed in the following ways.

Selecting Airports

The Flight Binder includes two airport selection buttons. Each one is labeled with the currently selected airport identifier (e.g. KSFO) or blank (------) if no airport is selected.

While these two buttons are intended for the departure and destination airports, any pair can be selected. To add or replace the current airport, tap its button and use the Select Airport menu to choose a different airport. This configures the folders beneath it to display or download plates for that airport.

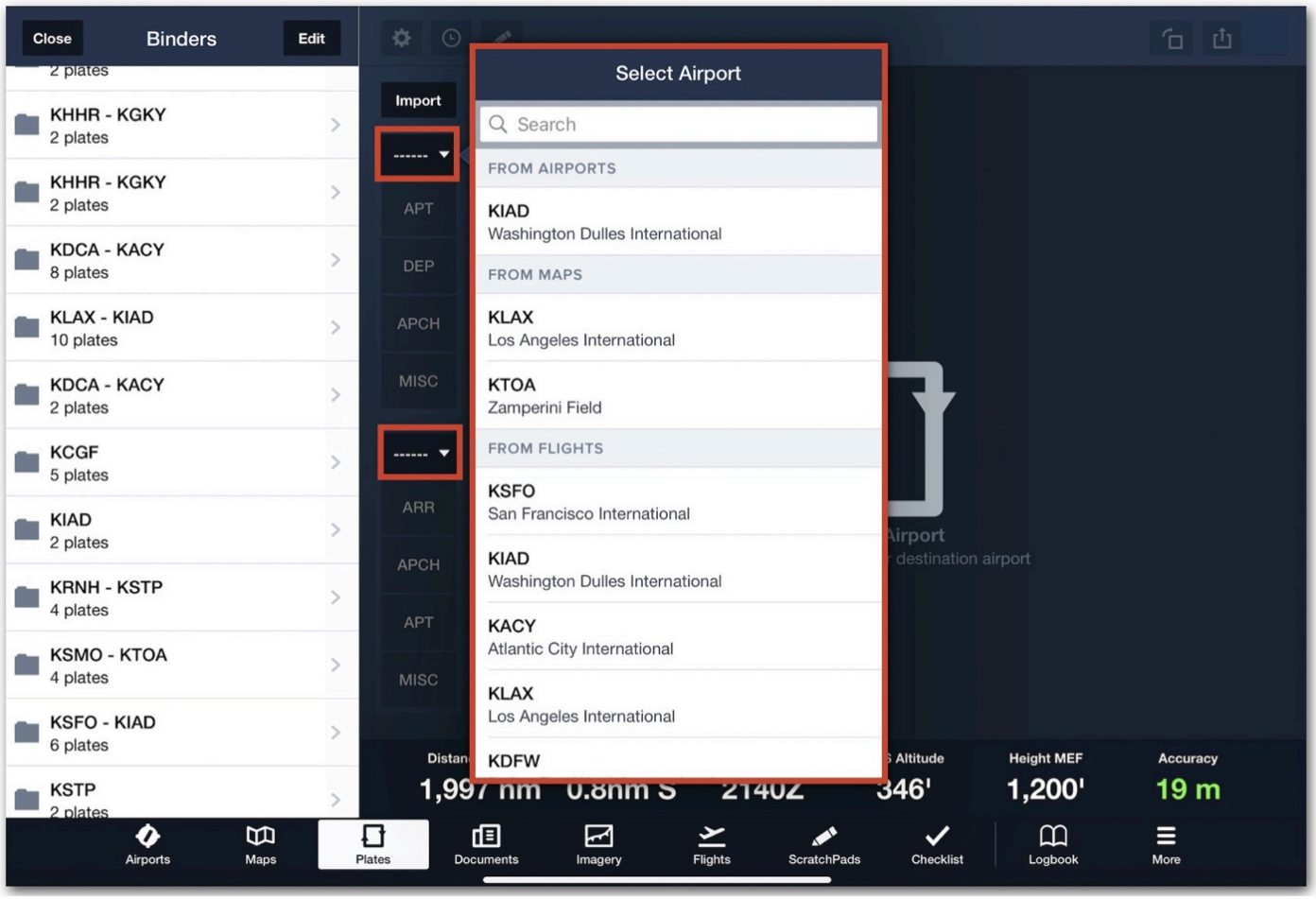


Figure 15-36. Selecting Airport

Opening a Plates Folder

If an airport has been selected as described above, the four plates folders beneath each airport selection button can display or download the plates for that airport. Folders display a number if they currently contain plates.

To see a list of added and optional plates for a given folder, tap an empty folder or long-tap (tap, hold, and release) a non-empty folder. In the list, Plates already added to the binder display blue checkmarks by their names.

Adding, Removing, and Viewing Plates

Tap the circle next to the plate name to add it to the folder. Tap the blue checkmark next to a plate to remove it from the folder. To view a plate without adding it to a folder, tap the plate name.

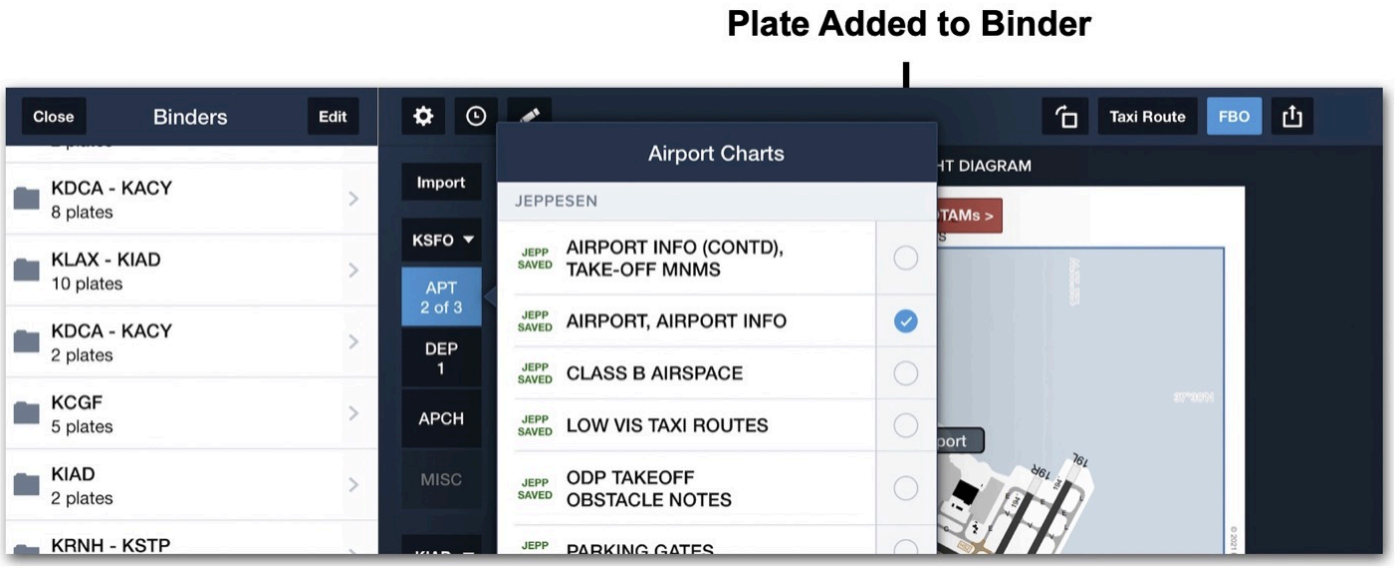


Figure 15-37. Viewing/Adding Plates

15.6.3.1 Adding Alternate Airports

It is possible to add one alternate departure airport and up to two alternate destination airports.

To add alternate airports tap the **+Alt** button to open the **Add Alternate Airport** pop-over. Tap a pre-loaded airport from the list or use the search bar to enter an airport alphanumerically.

To remove an alternate airport, tap the alternate airport selector, then tap **Remove Alternate** at the bottom of the **Alternate Airport**



Figure 15-38. Add Alternate Plates

15.6.4 Printing Flight Binders

It is possible to print one or more plates from a Flight Binder, or the entire Flight Binder in one operation.

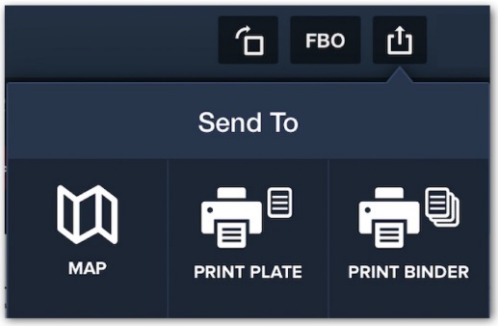


Figure 15-39. Print Plates/Binders

15.6.4.1 Printing a Single Plate

1. To print the currently displayed plate, tap the **Send To** button in the Toolbar.
2. Tap **PRINT PLATE** and follow the prompts to choose print settings.

   Available settings vary based on the connected printer.

15.6.4.2 Printing Several Plates or an Entire Flight Binder

To print an entire Flight Binder or several plates at once:

1. Open a Flight Binder, tap the **Send To** icon and select **PRINT BINDER**.
2. In the Print Options window, swipe through the print preview and remove any unwanted plates from the print job by tapping their blue checkmark.
3. Depending on the capabilities of the connected printer, change the layout as needed (e.g. print multiple plates on one page, or print on both sides of the page).
4. When print options are selected, tap **Print**.

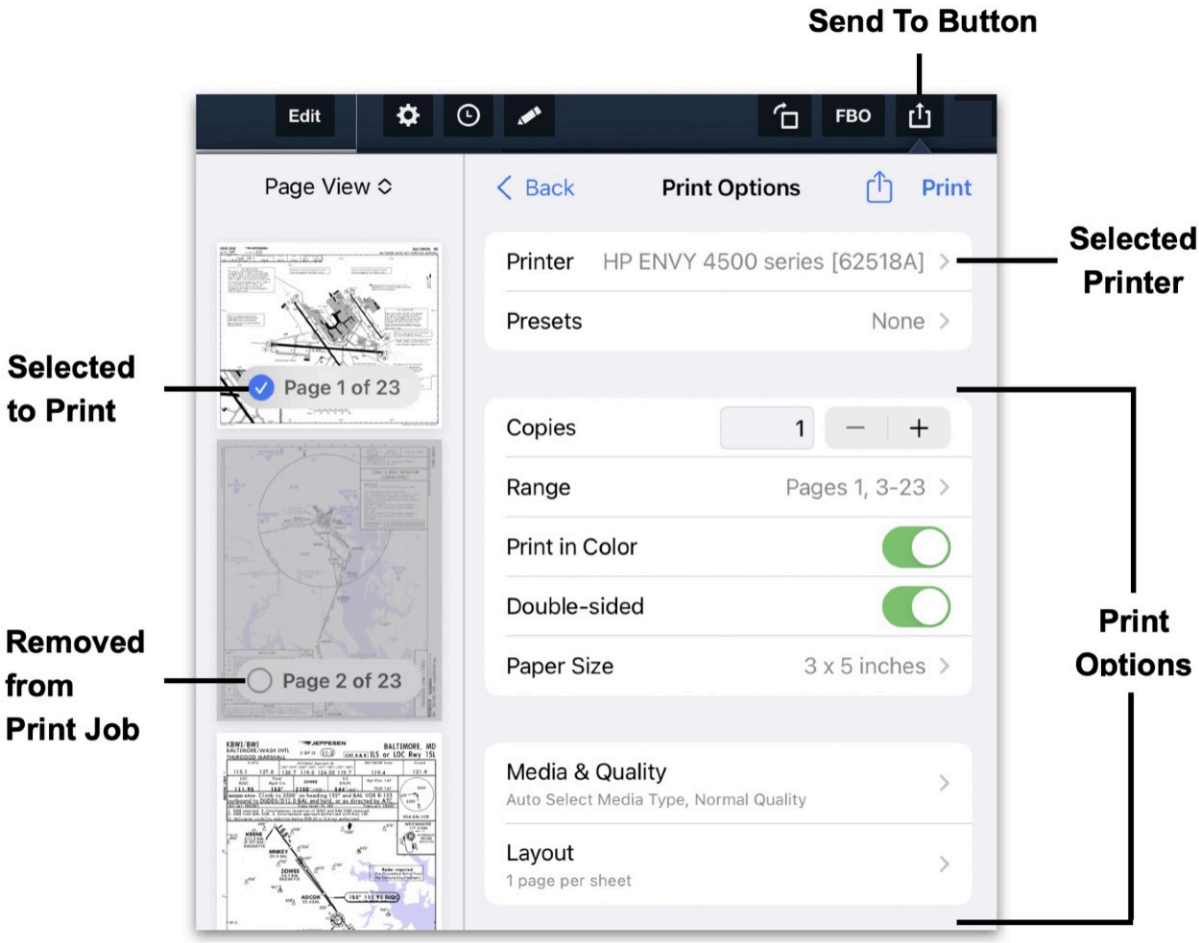


Figure 15-40. Printing a Flight Binder

15.7 Other Binders

While Flight Binders are restricted to a particular airport pair and structured according to the phase of flight, Other Binders are unstructured and can contain plates from a variety of unrelated airports.

> **NOTE:** Content Packs are not visible in ForeFlight Web.

> **NOTE:** Other Binders do not sync between devices on an account.

15.7.1 Other Binder Structure

The Other Binders structure displays a toolbar with a Print button, Search bar, a list of existing plates, and a button to add plates. When a plate is opened, swipe with three fingers left and right to switch between plates.

> **NOTE:** The Search bar above the Other Binder is not specific to the Plates view. It displays airports, places, procedures, documents, and recent search results in the applicable ForeFlight Mobile view.

Plates inside Other Binders appear as large icons with file names displayed in labels along their bottom edges. These labels are color-coded according to type: **Airport**, **Departure**, **Arrival**, **Approach**, and **Minimums**.

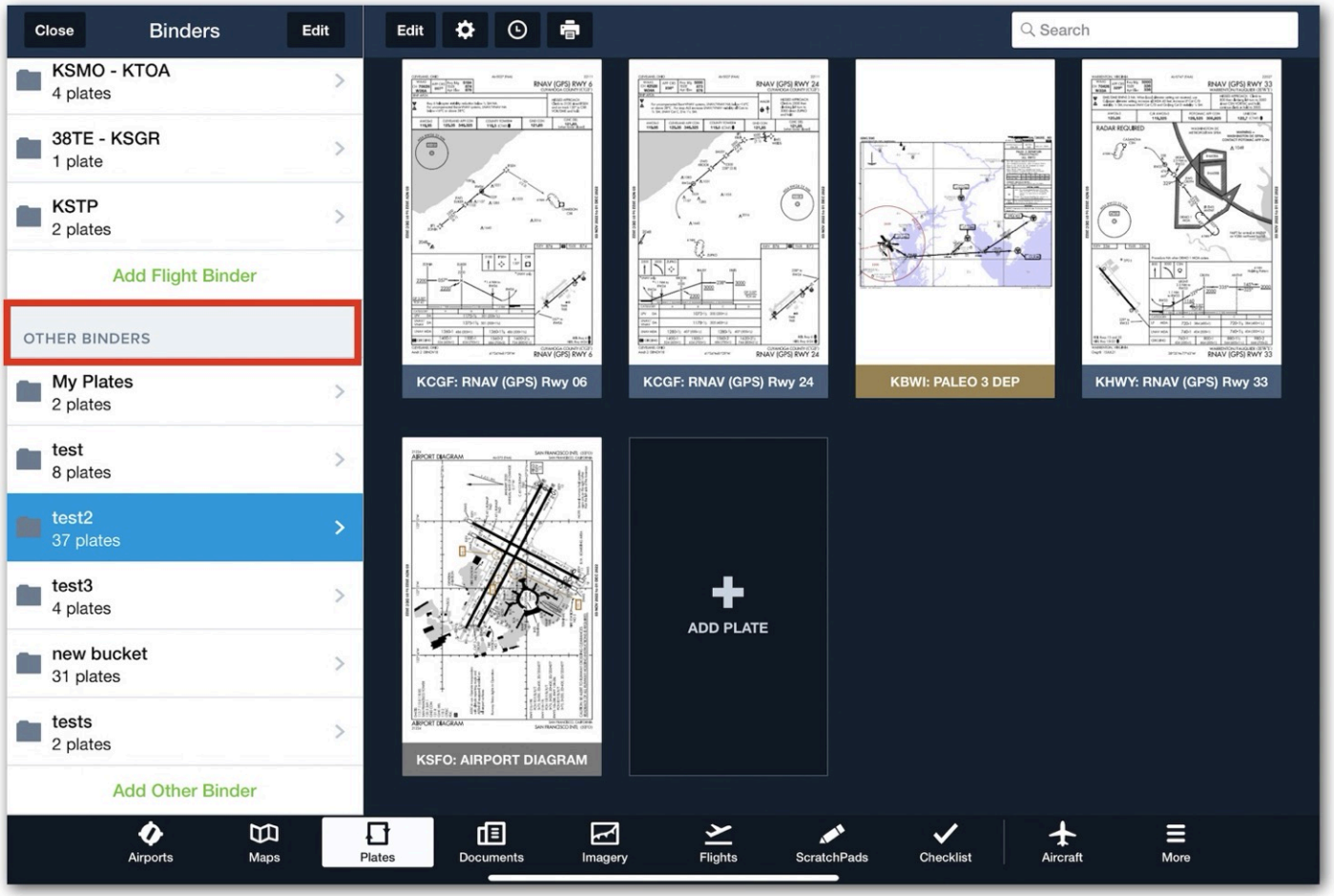


Figure 15-41. Other Binder Elements

15.7.2 Creating Other Binders

To create an Other Binder in the Plates view, expand the Binders Drawer, tap **Add Other Binder**, and enter a name for the binder. The new Other Binder opens with a button to add plates.

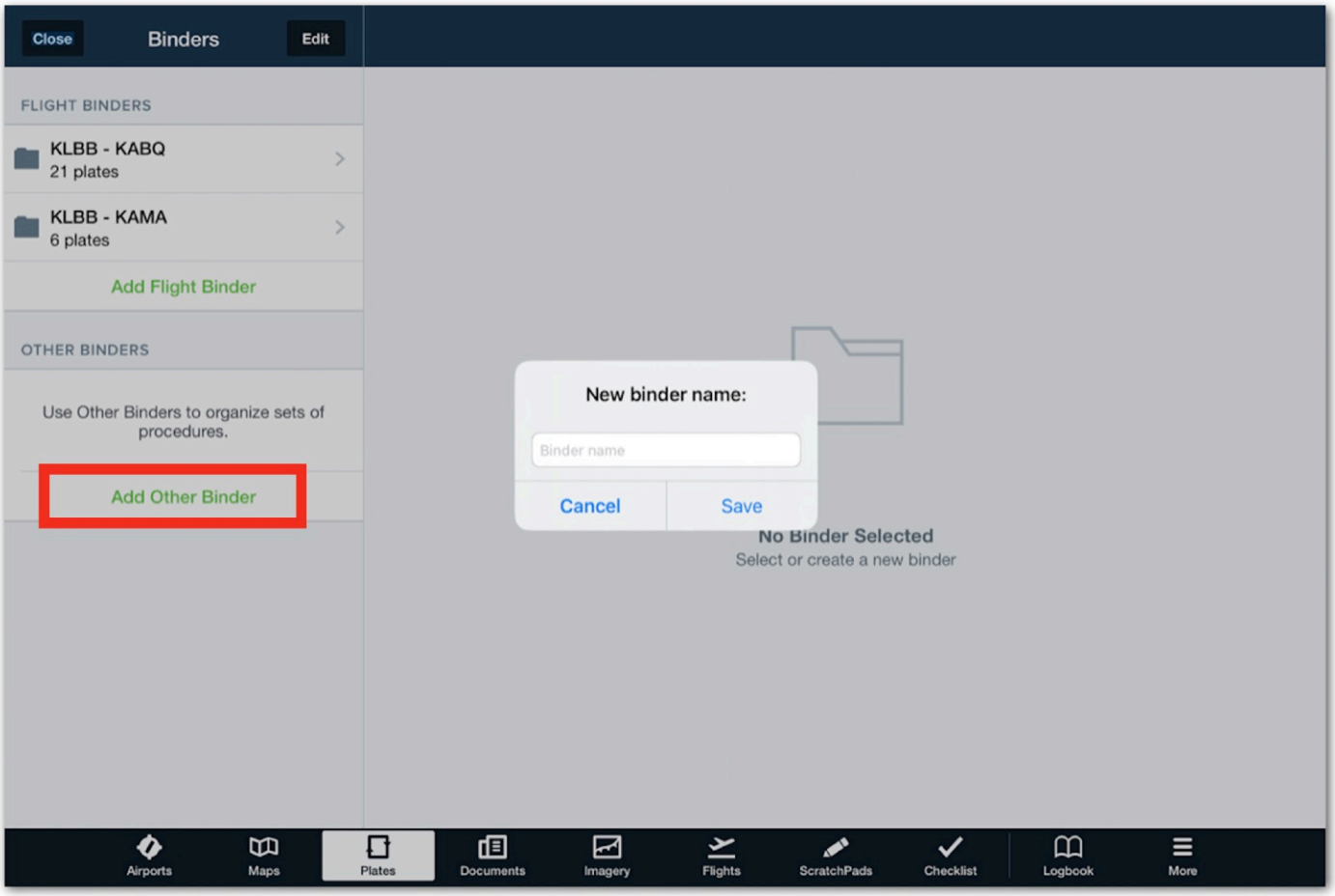


Figure 15-42. Create a New Other Binder

15.7.3 Adding Plates

To add plates to an Other Binder, follow these steps:

1. In the Plates view, expand the Binders Drawer and tap an **Other Binder** to display the contents.
2. In the Plates Viewer, tap **ADD PLATE**.
3. In the Select Airport window, use the search bar or ForeFlight-generated suggestions to select the airport, and then scroll through the list of the airport plates.
4. Tap a plate name to display it without adding, or tap the plus (+) button next to its name to add it to the binder.

5. If a plate is already in the binder, “In Binder” is displayed next to the name. Adding it again creates a duplicate.

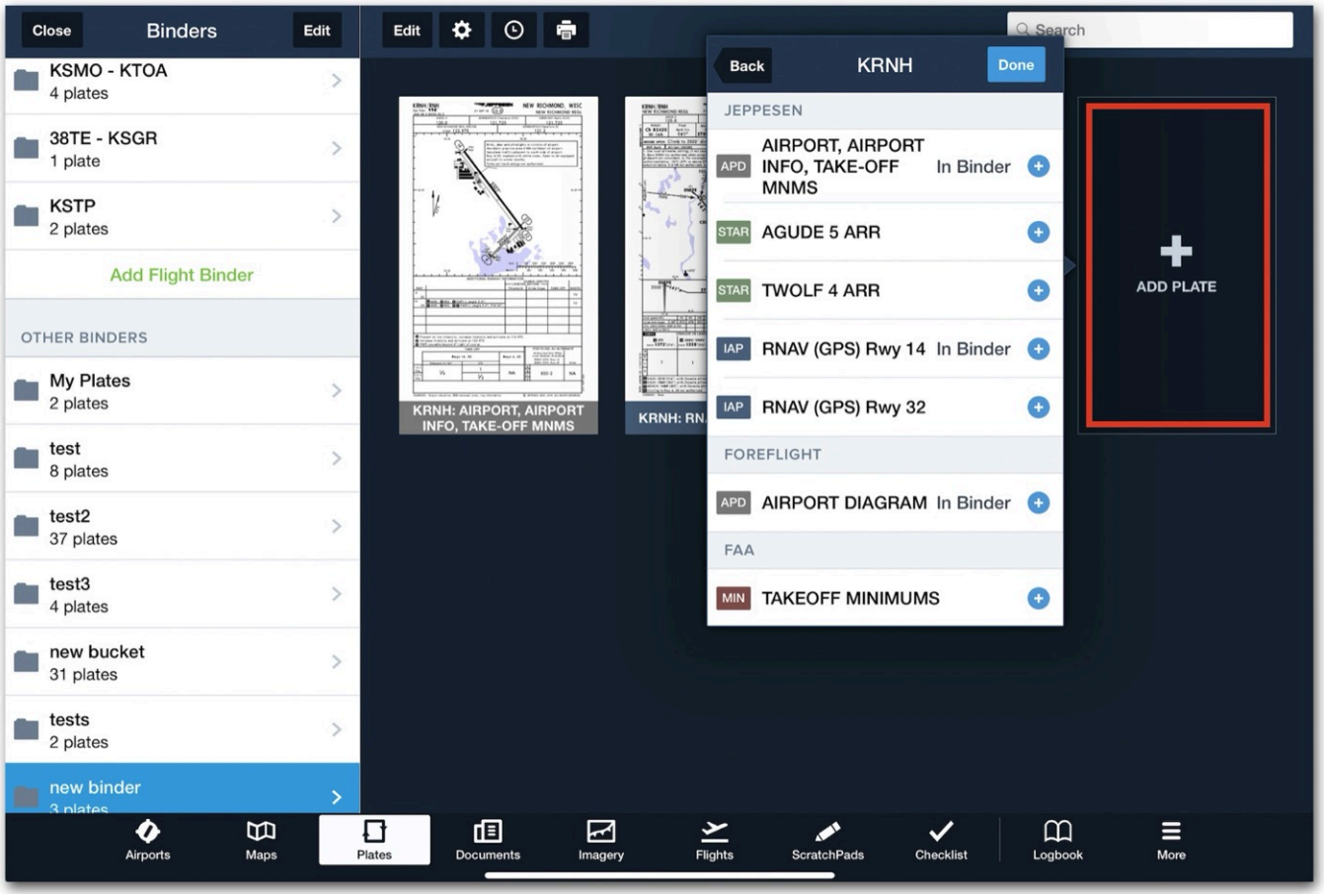


Figure 15-43. Adding Plates to Other Binder

> **NOTE:** Plates can also be added to a binder while working on unrelated tasks in ForeFlight Mobile. Leaving a Binder Open describes how to leave a separate Other Binder open while working.

15.7.4 Leaving a Binder Open

Plates can also be added to a binder while working outside the Plates view. To leave a separate Other Binder open and add plates to it while working in other parts of ForeFlight Mobile:

1. In the Plates view, expand the Binders Drawer and tap an Other Binder to display its contents.

2. With the binder still open, navigate away from the Plates view to complete other tasks in ForeFlight.
3. If a plate is opened while working in the Maps view, Airports view, or Flights view, tap the **Add to Binder** button (shaped like a folder). This button only appears if the Other Binder is still selected on the Plates view.
4. If the plate has already been added to the binder, confirm the prompt to add a duplicate. As a binder only contains references to a plate stored on the device, each duplicate opens the same plate, and annotations applied to a plate affects its duplicate.

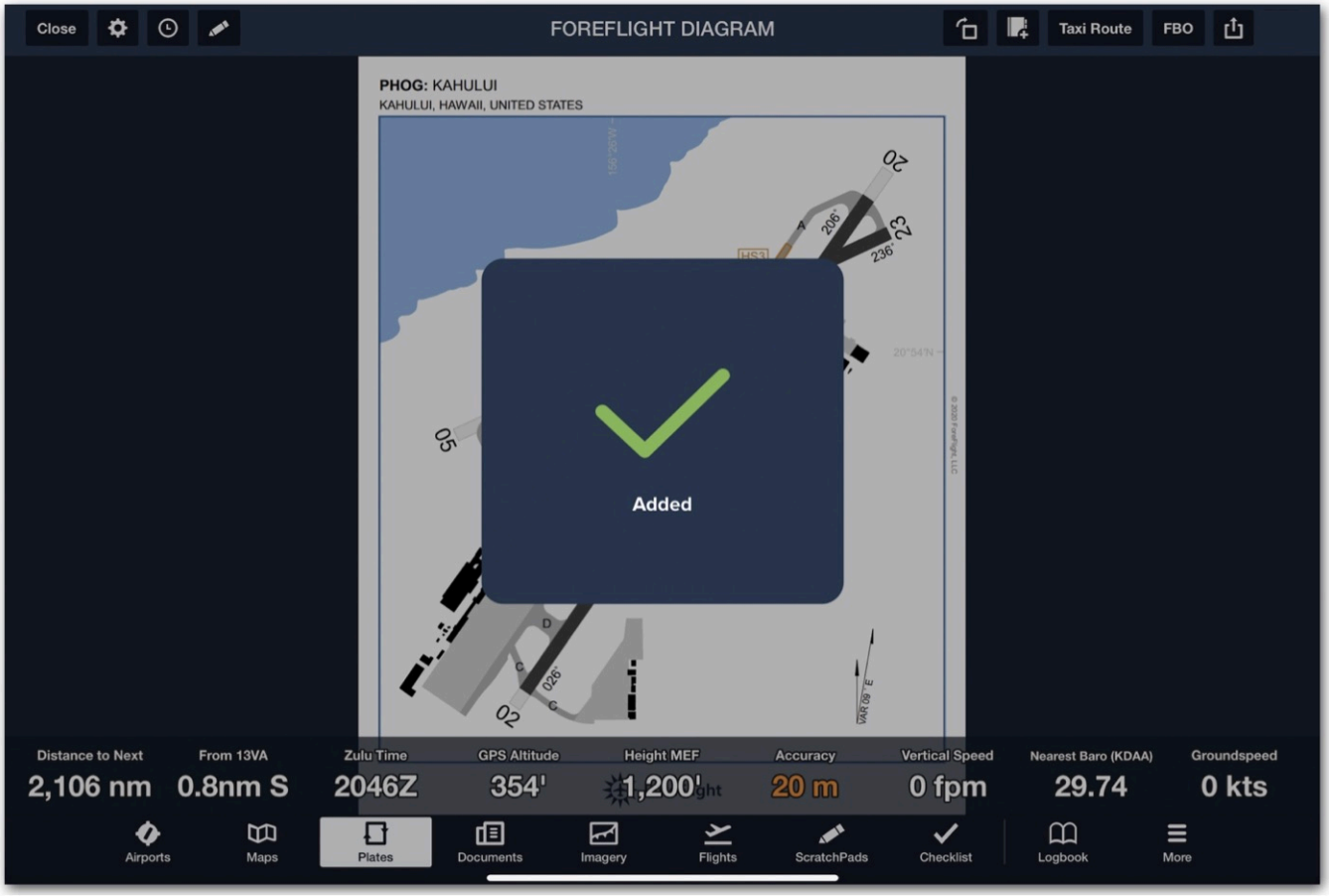


Figure 15-44. Adding Plates to an Open Binder

15.7.5 Reorder Plates

To reorder the plates in an Other Binder:

1. Tap the **Edit** button in the Toolbar.

2. Hold and drag individual plates to their new positions.
3. Tap **Done** when finished reordering.

15.7.6 Remove Plates

To remove plates from an Other Binder:

1. Tap the **Edit** button in the Toolbar.
2. Tap the red **X** on a plate to remove it from the binder.
3. Tap **Done** when finished removing plates.

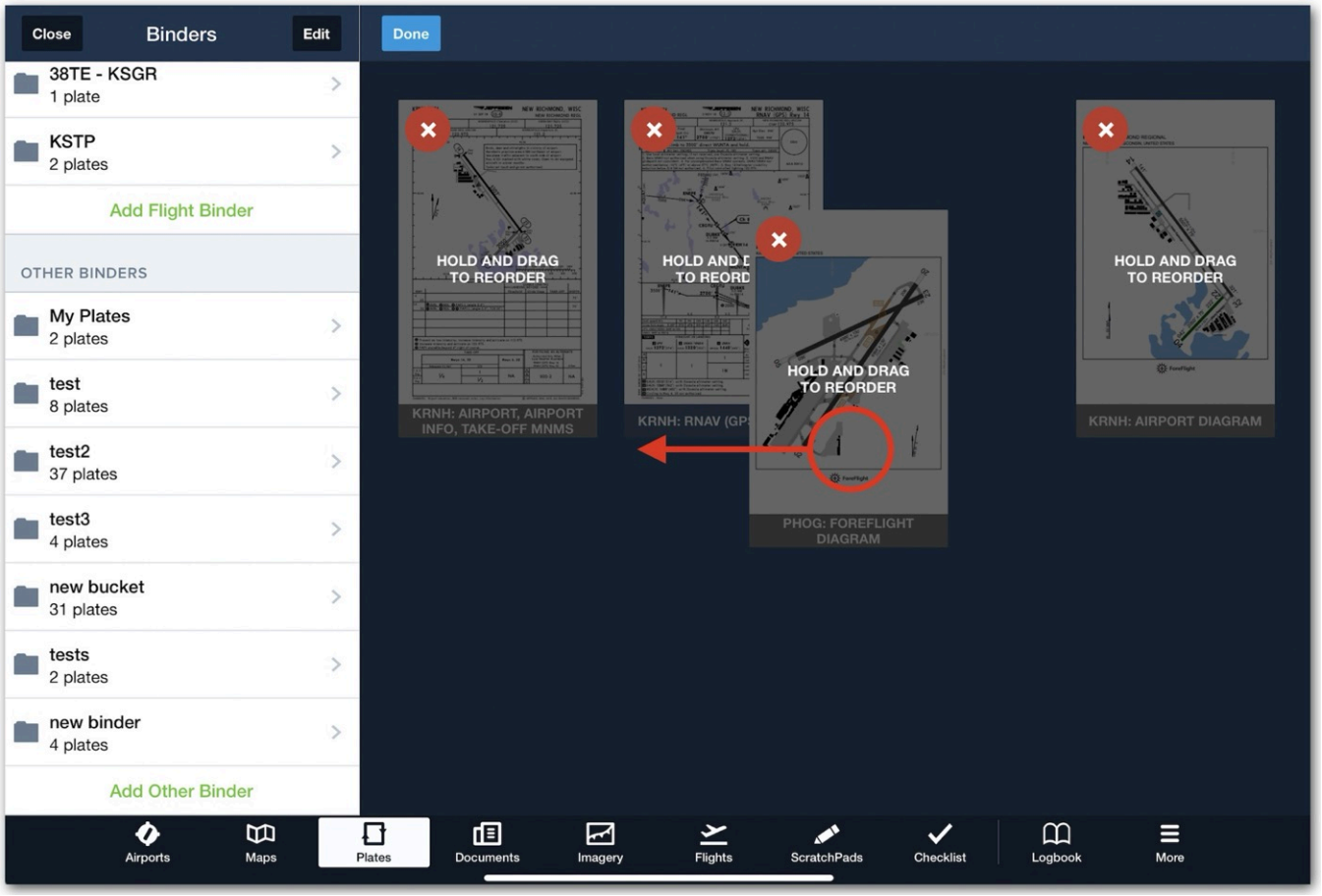


Figure 15-45. Reordering and Removing Plates

15.7.7 Printing Other Binders

Instead of printing individual plates, it is possible to print all of the plates in an Other Binder together. To do so, tap the **Printer** button in the Toolbar and follow the prompts to choose print settings.

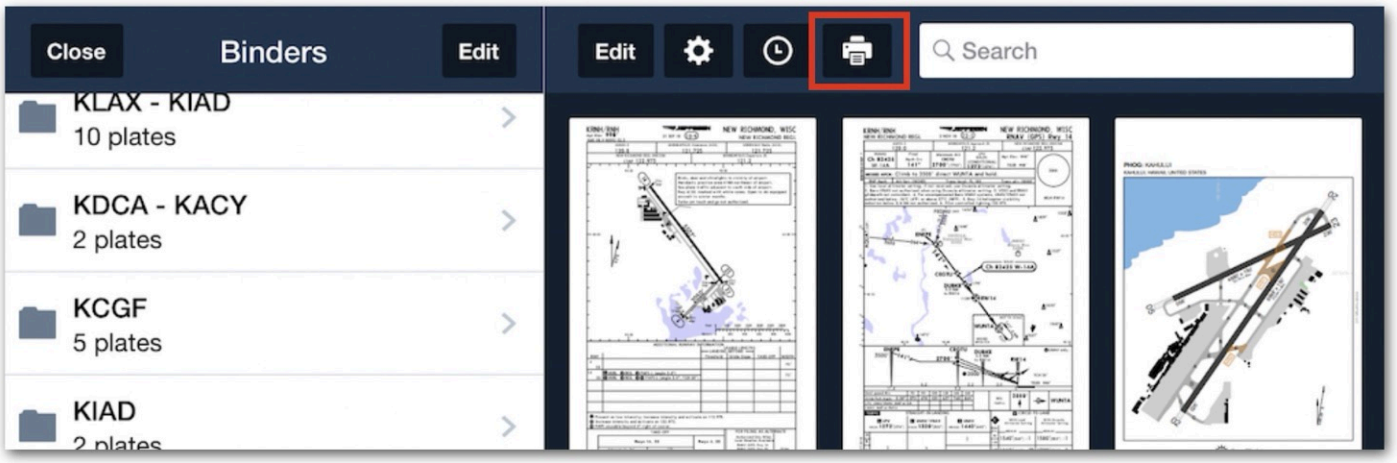


Figure 15-46. Printing Other Binder

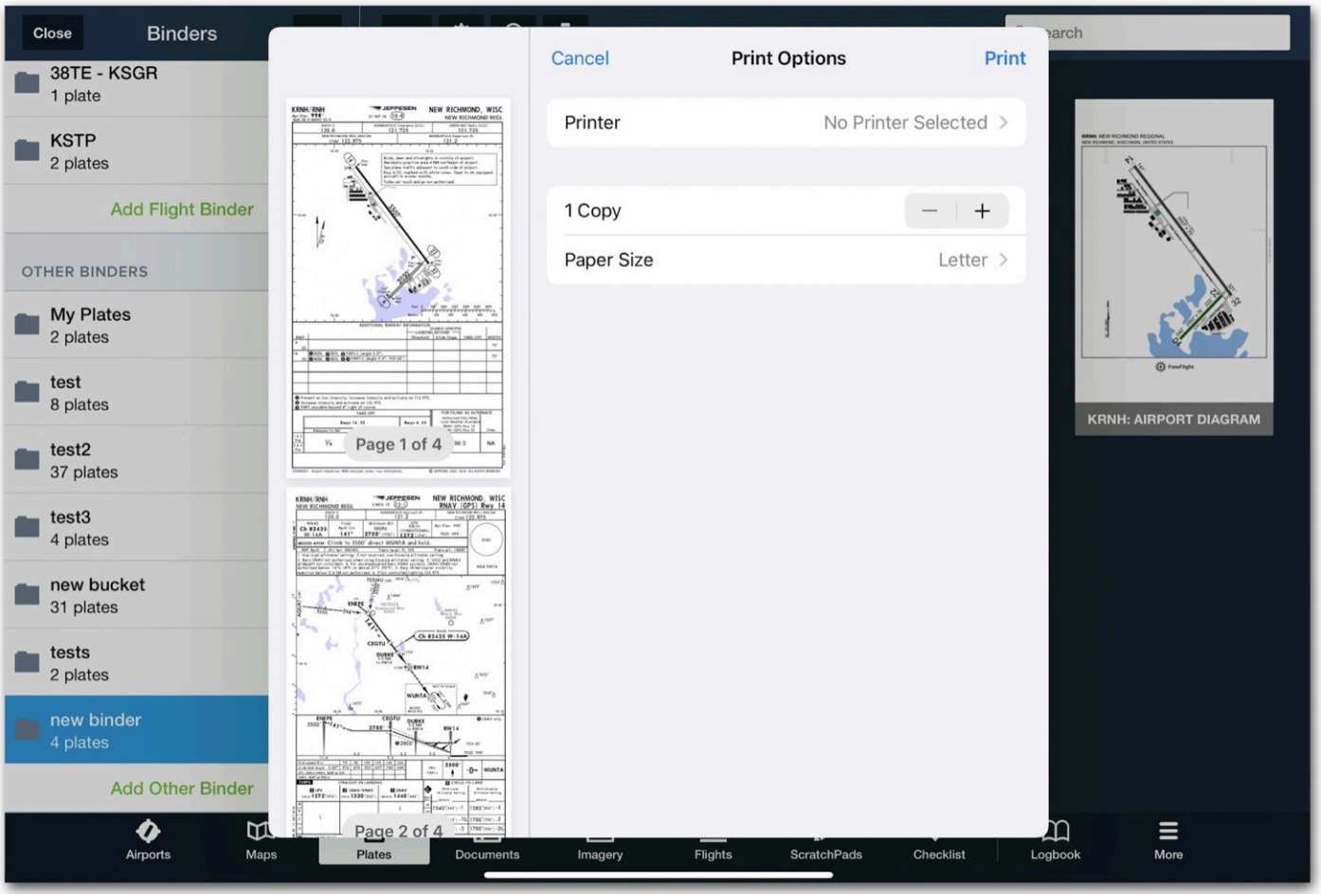


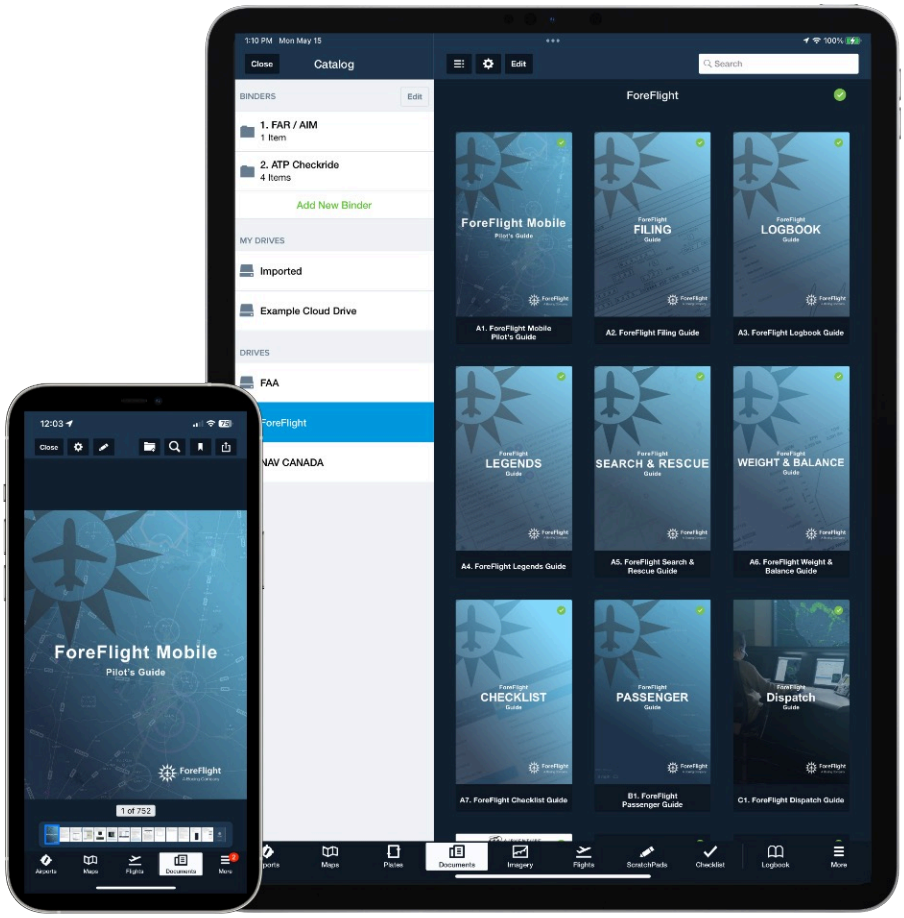
Figure 15-47. Selecting Printer Options

NOTE: ForeFlight Mobile does not control printer settings or page sizes. This must be done using the iOS Printer Options.

DOCUMENTS

ForeFlight Documents allows pilots to access and manage important aviation documents such as manuals, handbooks, guides, and supplements. This feature eliminates the need for paper copies, making it easier for pilots to keep their cockpit organized and up-to-date.

ForeFlight Documents offers several benefits, including automatic document syncing, intelligent document organization, powerful search functionality, and advanced annotation tools. With this feature, pilots can easily find information , make annotations, and share documents with other members of their flight crew.



NOTE: For the purpose of this guide, when referencing “document” or “documents” any supported file type can be interchanged.

16.1 Documents Design

The Documents view consists of the following elements:

- A toolbar for managing the Documents view.
- A collapsible Catalog that contains all documents. The Catalog is organized into three sections: My Drives, Drives, and Binders.
- Binder or Drive contents, organized in a thumbnail view.
- A full-screen viewer for viewing documents (not shown here).

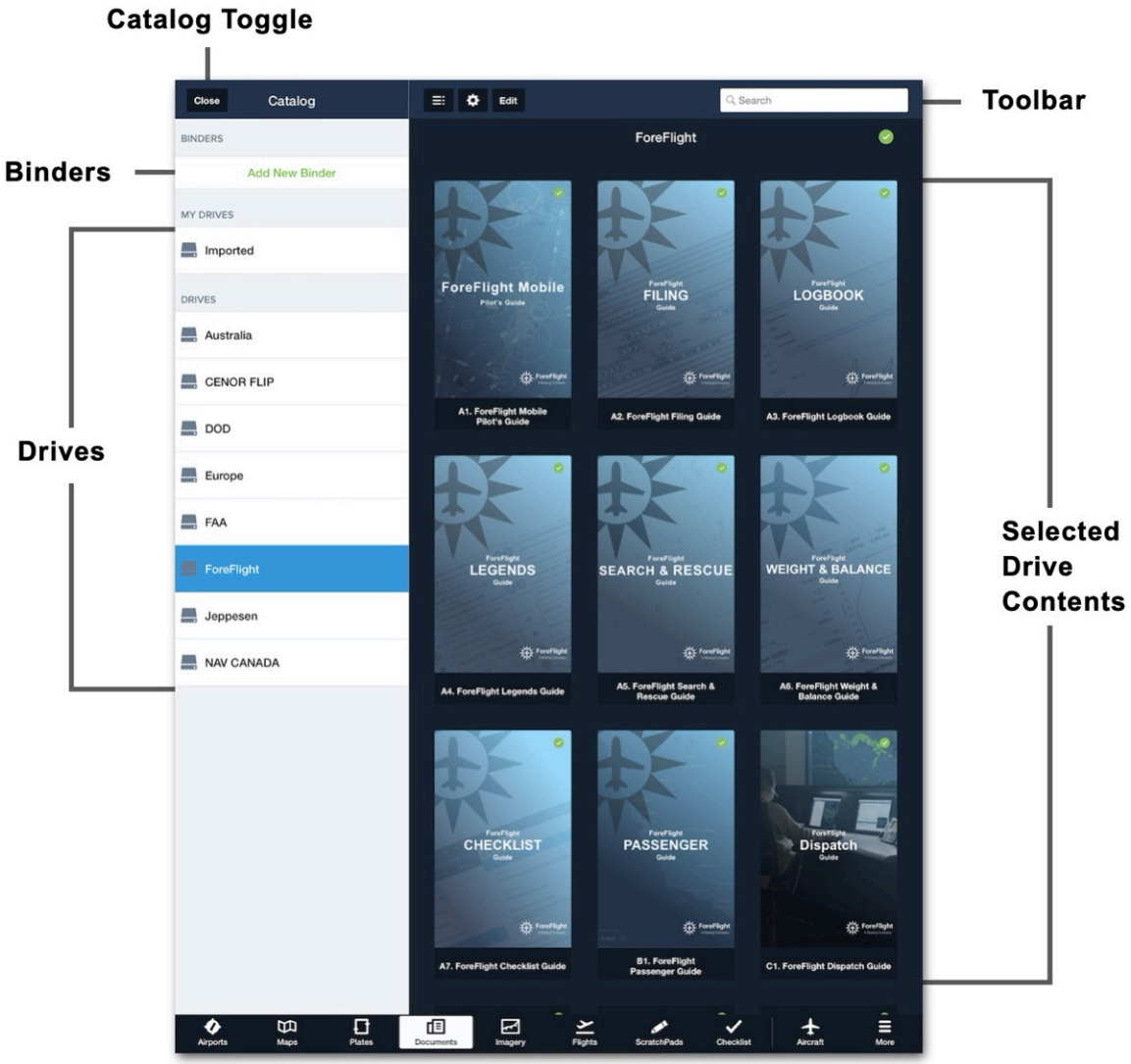


Figure 16-1. Documents View

16.2 Toolbar

The toolbar includes Catalog Toggle to show/hide the Documents Catalog, changing the view with the Grid/List button, adjusting document settings, editing drives and binders, and searching ForeFlight Mobile for aeronautical and document data.

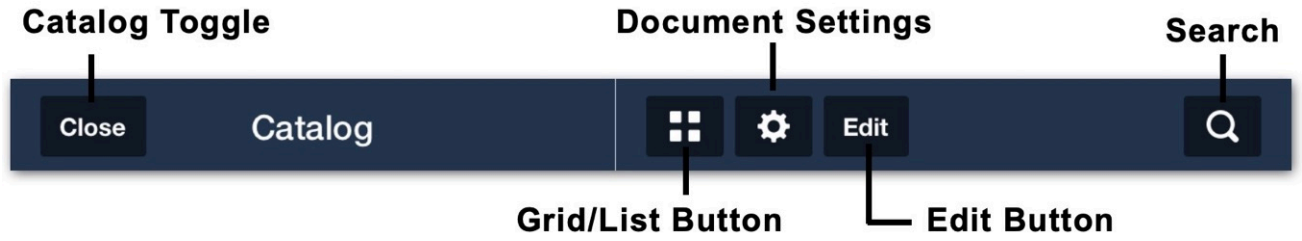


Figure 16-2. Toolbar

16.2.1 Documents Catalog

The Documents Catalog can be displayed or hidden by tapping the **Catalog** toggle button in the upper-left toolbar. When the catalog is displayed, the **Close** button hides it. When hidden, the **Catalog** button displays the document catalog.



Figure 16-3. Catalog Button

16.2.2 Grid and List Thumbnail Viewing Options

When a binder or drive is tapped, its contents are displayed as thumbnails in a grid or list view. The **Grid/List** button in the upper toolbar switches between the two views.

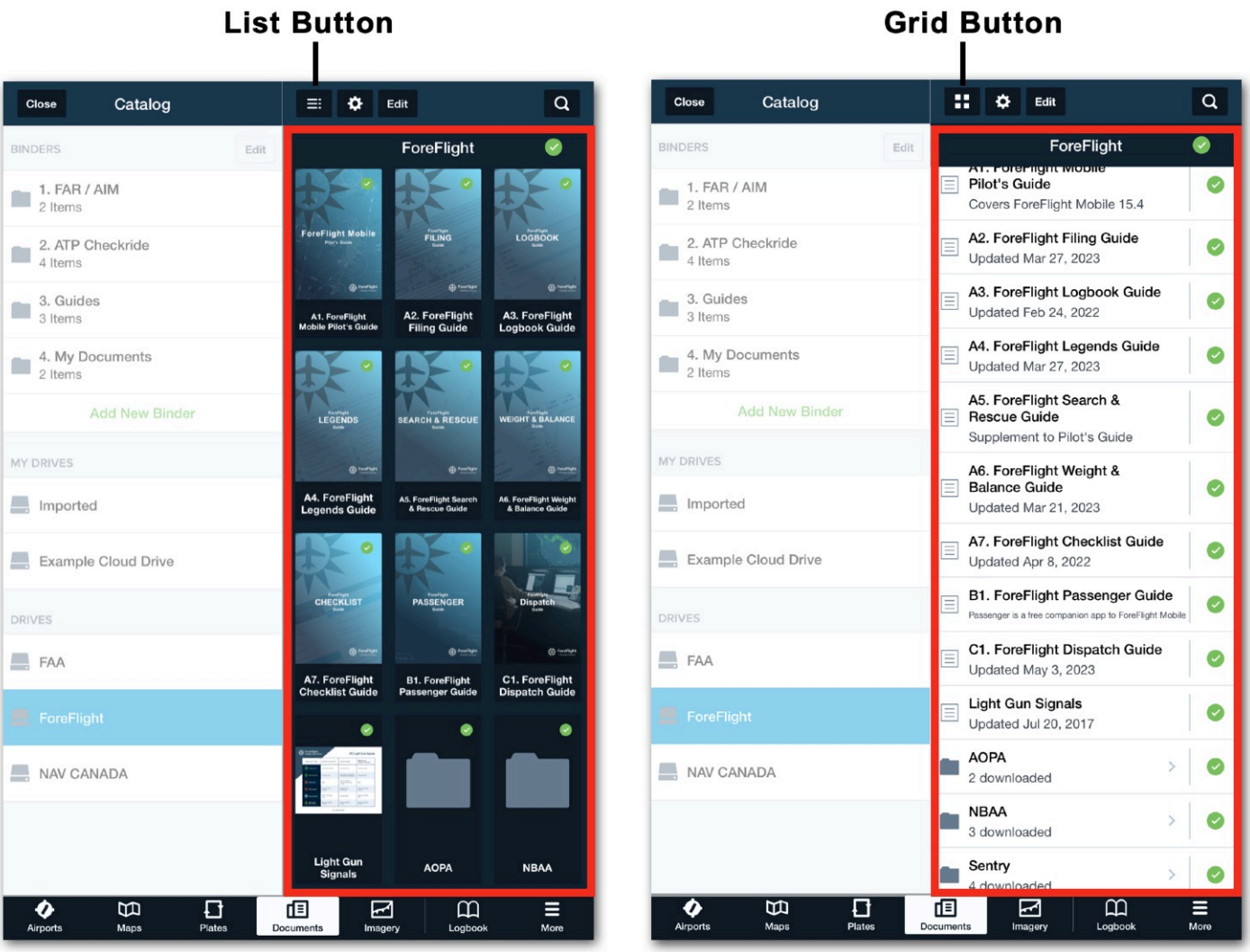


Figure 16-4. Grid View (Left), List View (Right)

16.2.3 Documents Settings

The settings button provides a menu with two settings.

- The **Brightness Slider** adjusts the screen brightness.
- **Invert Document Colors** inverts all colors within all documents.



Figure 16-5. Settings Button

16.2.4 Edit Button

The **Edit** button provides the following functionality:

- Rearrange or remove documents when viewing the contents of a binder.
- Rename or remove imported documents when viewing the Imported drive.
- Remove a document from the device when viewing a drive other than the Imported drive.



Figure 16-6. Edit Button

16.2.5 Document Search

The search bar at the top of the Documents view searches all of ForeFlight Mobile. This search bar is similar to the one found in the Airports view upper toolbar. When toolbar space is limited, the search bar is replaced by the magnifying glass.



Figure 16-7. Search Button (Magnifying Glass)

16.3 Binders

Binders provide a convenient method for users to organize and store their chosen documents within folders, making them easily accessible for future reference. Documents from any drive can be added to a binder. For instance, a user could create a binder that includes documents from both the Imported drive and a subscription-based drive, like the FAA drive.

Binders are sorted alphabetically. It is not possible to reorder binders. A naming convention, such as using a numerical prefix as in Figure 398. Document Binders, allows users to customize how binders are sorted.

Files added to a binder are not duplicates of the original. Rather, a file opened from a binder is the same file that is opened from its original location. Annotations and bookmarks that have been added to a document appear regardless if the document is opened from a binder or its original location.

Binders are synced and can be accessed through ForeFlight Web as well as any devices that are logged into the account.

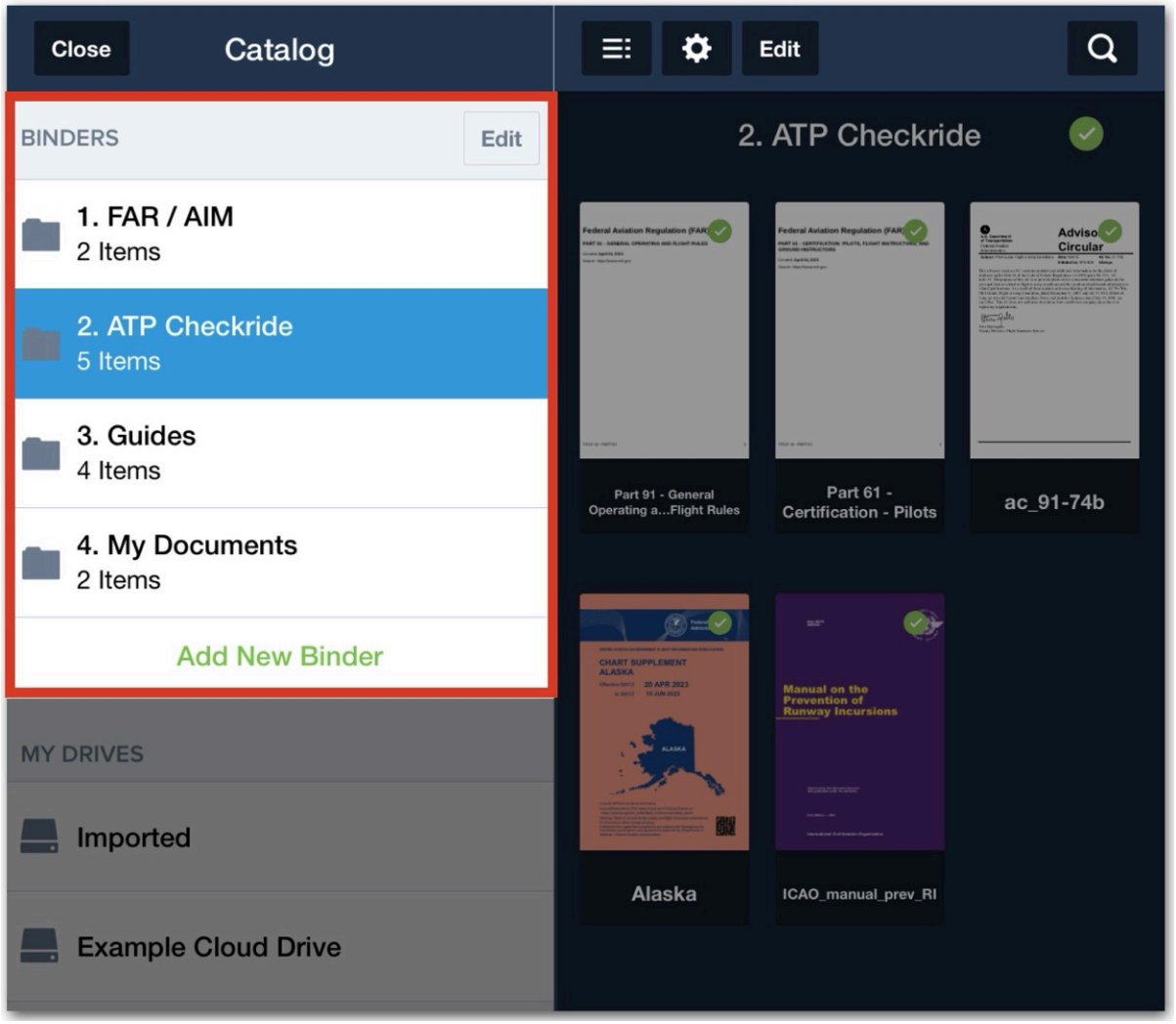


Figure 16-8. Document Binders

16.3.1 Creating Document Binders

There are two methods for creating a binder, the standard method and using the document viewer. Once created, binders are listed alphabetically and can be renamed, deleted, and contents within the binder can be added, removed, and rearranged.

16.3.1.1 Adding Binders Using the Standard Method

The standard method for adding a binder is to tap the **Add New Binder** button near the bottom of the Binders section. Tap the button to show a pop-up prompting a binder name.

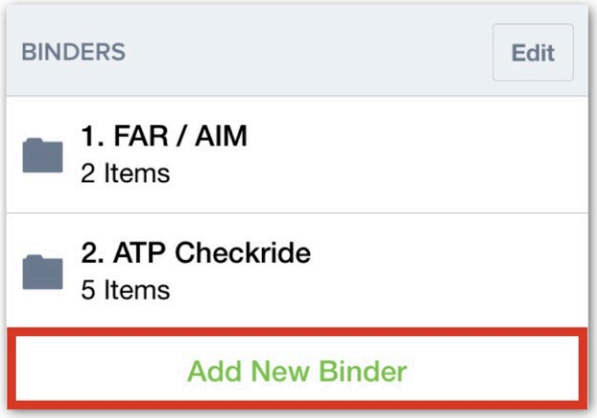


Figure 16-9. Add New Binder Button

16.3.1.2 Adding Binders Using the Document Viewer

To add a binder while viewing a document:

1. Open any document and tap the **Add Document to Binder** button.
2. Tap the **+** button to create a new binder.

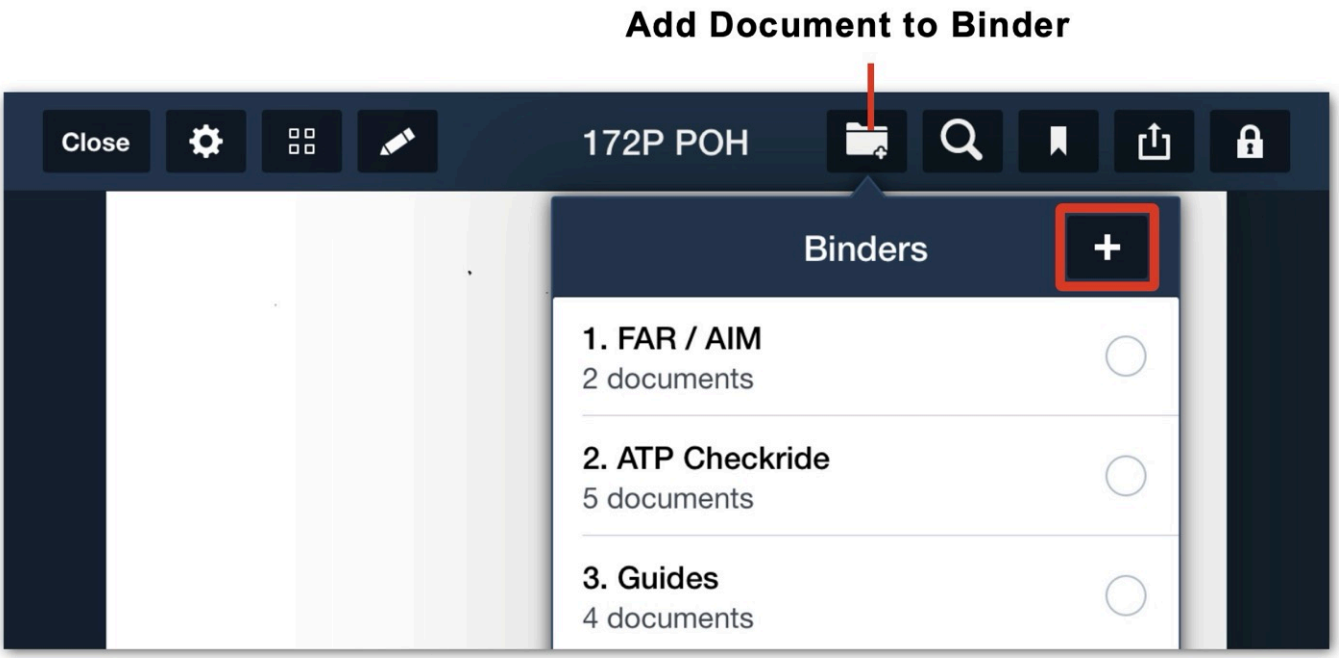


Figure 16-10. Add Binder Using Document Viewer

16.3.1.3 Naming Binders

Enter a binder name that is intuitive and will describe the contents of the binder. If having the binder near the top of the list is desired, use a naming convention with that in mind. For example, binders could be named with a numerical prefix, as depicted throughout this chapter.

16.3.2 Renaming Binders

Editing a binder name does not affect its contents. Binders and their names are synced between devices. To rename a binder:

1. Tap the **Edit** button near the top of the Binders section.
2. Tap **RENAME** next to the binder to be renamed.
3. Edit the binder name.
4. Tap **Save**.
5. Once all binders are appropriately renamed, tap **Done**.

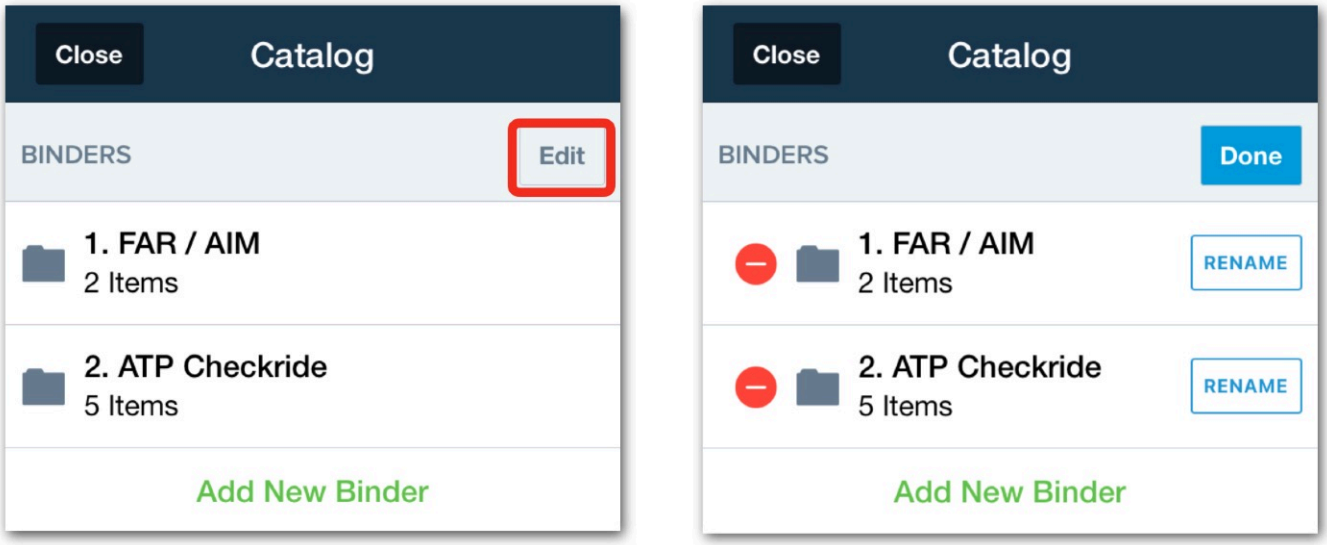


Figure 16-11. Edit Button (Left), Rename and Done Buttons (Right)

16.3.3 Adding Documents to Binders

To add a document to a binder:

1. Open the document from its original drive (e.g. Imported > AC 91-73B).
2. Tap the **Add Document to Binder** button in the upper toolbar.
3. In the pop-up menu, tap the binder or binders that the document should be added to. When a document is added to a binder, the binder count (e.g., “6 documents”) increases by one and the checkbox is highlighted.
4. Once the document has been added to the appropriate binders, tap outside the pop-up menu.

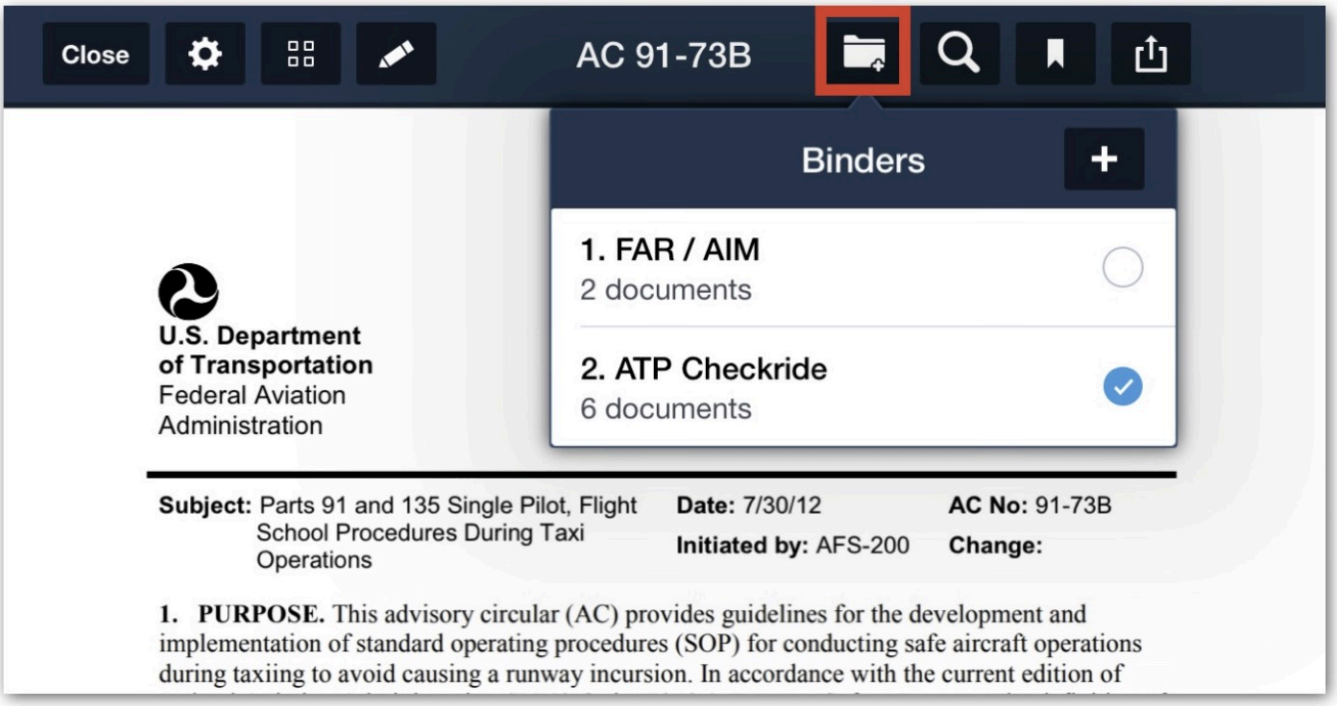


Figure 16-12. Adding a Binder Using the Full-Screen Document Viewer

16.3.4 Arranging Binder Documents

The documents within a binder are sorted according to when they were added. To rearrange binder documents:

1. Tap and hold a document until it appears to lift off the screen.

2. Without lifting the finger, drag the document to its new location.
3. Release the finger from the screen.

16.3.5 Removing Documents from Binders

Removing a document from a binder removes it from the binder on all account devices. Removing a document from a binder does not delete it from the device. The document is still available in its original drive.

There are three methods for removing documents from a binder:

- When viewing a binder, tap **Edit** ➔ **Remove button** ➔ **Remove**.
- When viewing a binder in list view, swipe right to left across a document.
- Tap the Add to Binder button and deselect the binder when viewing a document that is included in a binder.

16.3.6 Deleting Binders

Deleting a binder from one device will remove it from all devices signed into the account. Deleting a binder does not remove documents from the device. The documents that were in a deleted binder can still be accessed from their original drive.

There are two methods for deleting a binder:

- Swipe right to left across a binder.
- Tap **Edit** ➔ **Delete button** ➔ **Delete**. Tap **Done**.

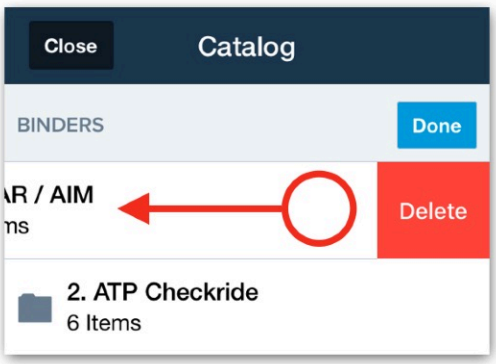


Figure 16-13. Swipe Left to Delete Method

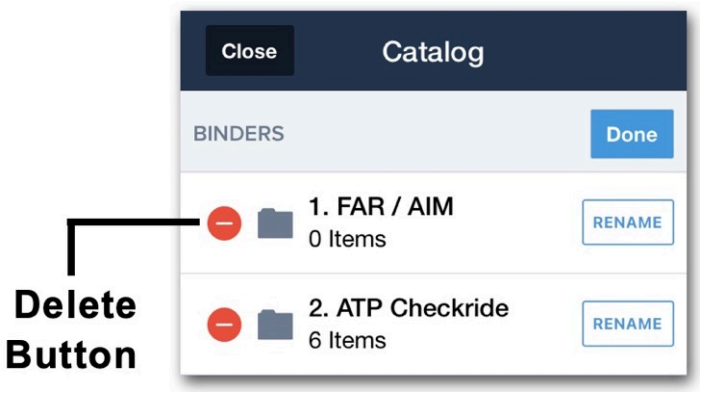


Figure 16-14. Menu → Delete Method

16.4 My Drives

The My Drives section contains the Imported drive. This drive consists of documents that have been manually imported to ForeFlight Mobile. Pilots with an Essential or higher subscription also have the ability to add a Cloud Drive.

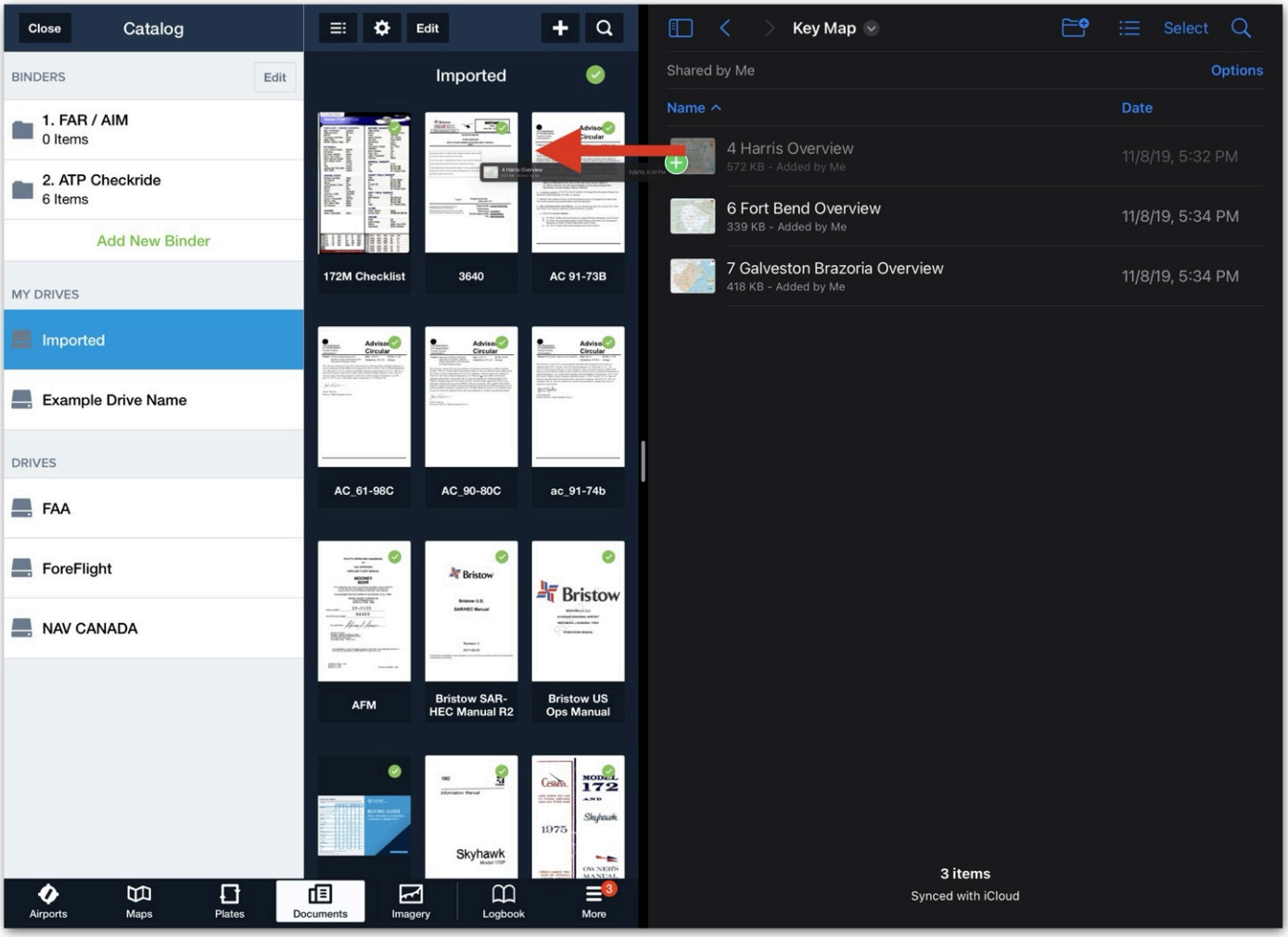


Figure 16-15. My Drives

16.4.1 Supported File Types and Size Limits

My Drive documents are read-only. For example, an Excel spreadsheet can be added to Documents but Documents cannot be used to edit the spreadsheet.

Documents supports files with a maximum size of 500 MB. The following file types are supported in ForeFlight Mobile Documents:

- BMP
- GIF
- PAGES
- TIF

- BMPF
- CSV
- DOC
- DOCX
- JPG
- JPEG
- KEY
- NUMBERS
- PDF
- PNG
- PPT
- PPTX
- TIFF
- TXT
- XLS
- XLSX

> **NOTE:** Maximum file size for importing documents via ForeFlight Web is 115 MB.

16.4.2 Imported Drive

All files that have been added to ForeFlight Mobile Documents by the user are stored in the Imported drive. Imported documents are synced to the account and become available on all devices and ForeFlight Web with an active internet connection. Imported documents are sorted alphabetically and cannot be reordered.

16.4.3 Importing Documents

Documents can be imported using:

- ForeFlight Mobile
- Third-party Apps
- Drag and Drop.

16.4.3.1 Importing Documents using ForeFlight Mobile

To import a document using ForeFlight Mobile, follow the steps below:

1. Open the Documents view and tap the **Imported** drive to display its contents.
2. Tap the **+** button in the upper toolbar.
3. Select where to import documents from (Camera, Photo Library, Files).
4. Locate and tap the file to be imported.

16.4.3.2 Importing from third-party apps

Many apps can share files with other apps. If the shared file type is supported by Documents, ForeFlight Mobile will appear as an app that can receive the shared file. To import files using third-party apps, follow the steps below:

> **NOTE:** These steps may vary slightly depending on which apps are used.

1. Open the app that has the file to be imported (e.g., Mail, Files, Safari, etc).
2. Open the file to be shared.
3. Tap the **Send To** button.
4. Choose ForeFlight from the list of apps that can accept the file. ForeFlight Mobile will automatically open.
5. If using a Performance-tier account, select whether the file should be saved to a flight or to the **Imported** drive.
6. After selecting **Documents**, the Documents view is opened, and the imported file is displayed in the full-screen document viewer.

16.4.3.3 Importing via drag-and-drop

When using ForeFlight in split view or slide over mode, files can be imported to Documents using the iOS drag-and-drop feature. To do so, follow the steps below:

1. Open ForeFlight Mobile and tap **Documents**.
2. Select the **Imported** drive.
3. Open another app in split view or slide over mode. Files and Photos are two apps that work well with this feature.
4. Tap and hold the file to be imported until it appears to lift off the screen. Without releasing the finger, drag the file to the Imported drive.

5. Release the finger from the screen. A confirmation pop-up is displayed after the file has been imported.

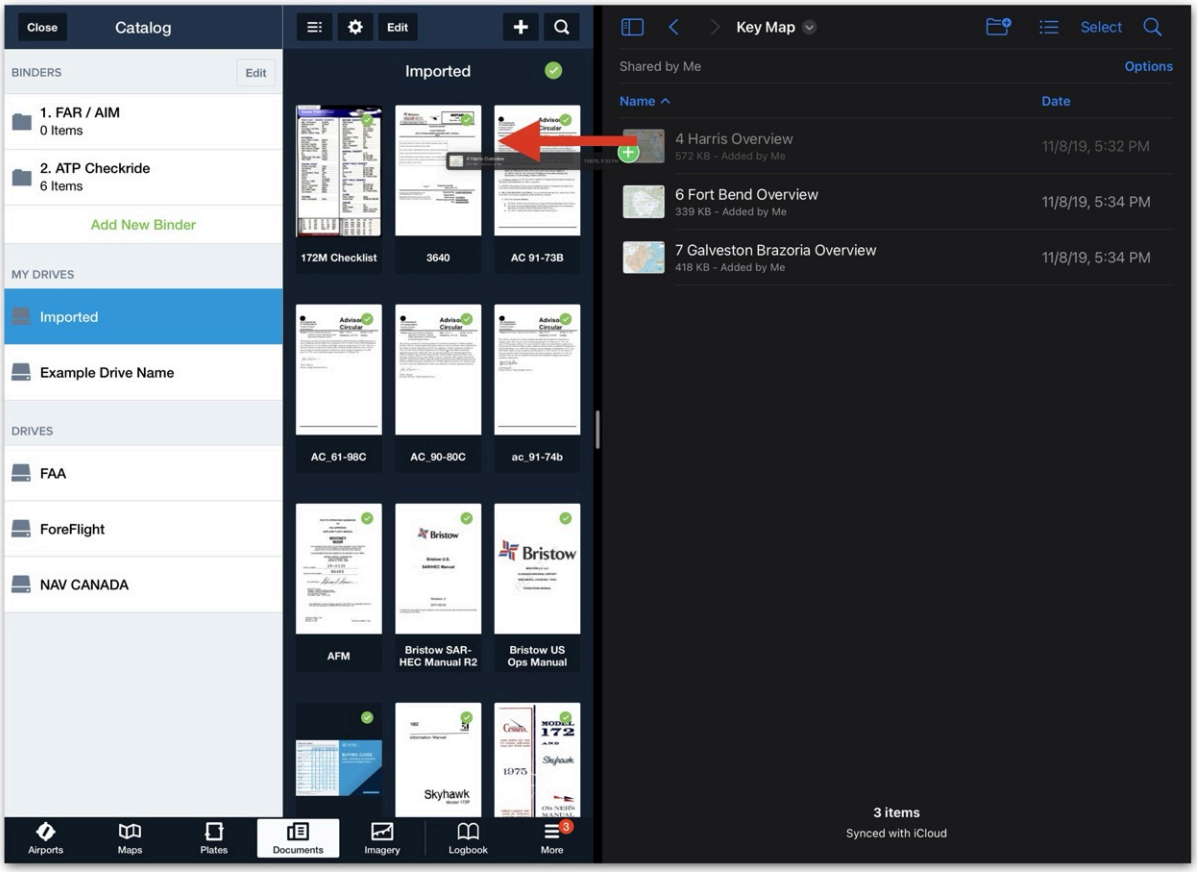


Figure 16-16. Split View Drag-and-Drop Document Import

16.4.4 Renaming Imported Documents

Documents can be renamed after importing. Imported document names are synced between devices. Renaming an imported document may result in it being moved as the Imported Drive is sorted in alphabetical order. To rename an imported document:

1. Tap the **Imported** drive to view its contents.
2. Tap the **Edit** button in the upper toolbar.
3. Tap **RENAME** next to the document to be renamed.
4. Using the keyboard, edit the document's name.
5. Tap **Save**.

6 Once all documents are appropriately renamed, tap **Done**.

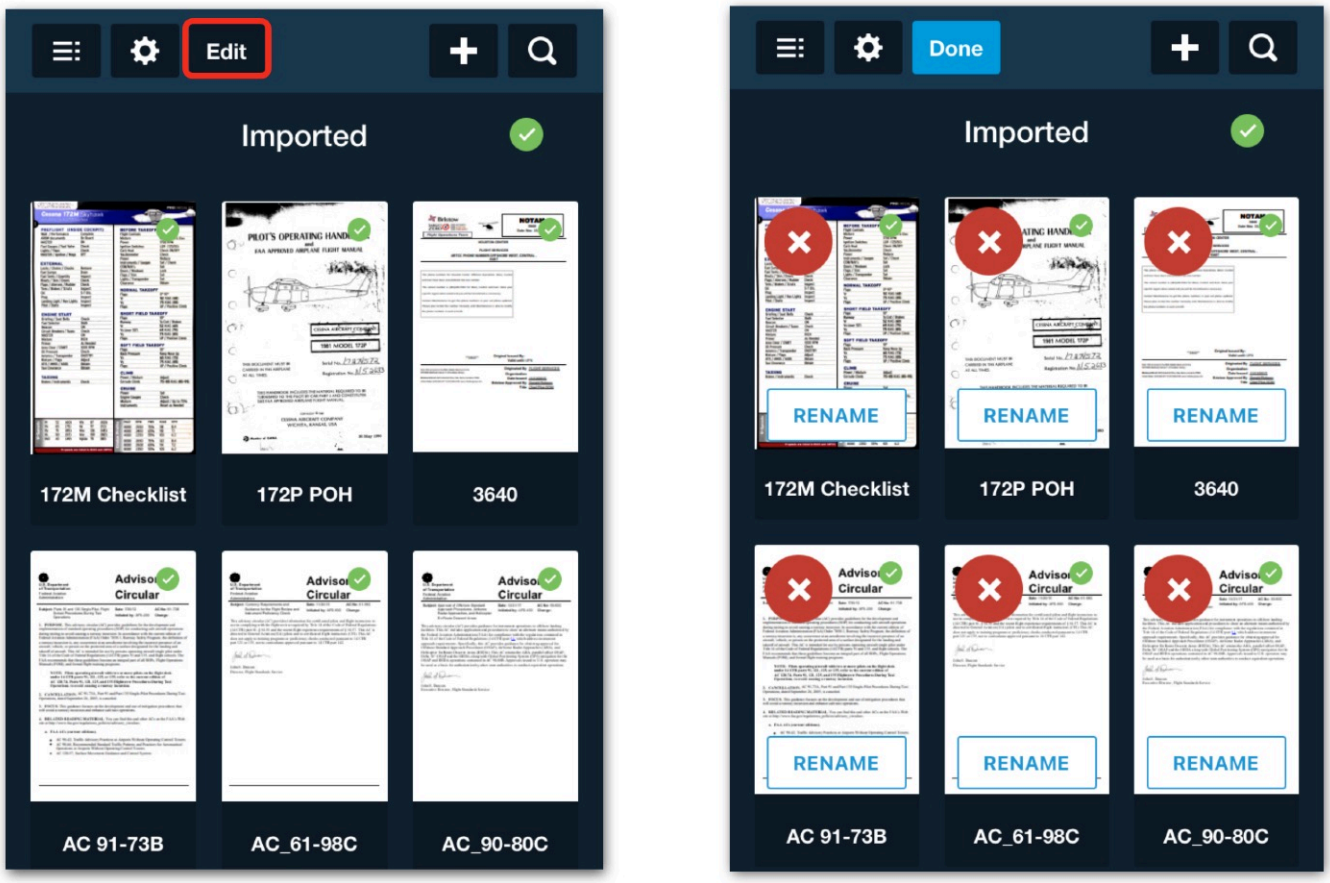


Figure 16-17. Documents Edit Button (Left), Rename and Done Buttons (Right)

16.5 Cloud Drives

A cloud drive is a type of storage service that allows users to store files on the internet. ForeFlight Mobile can sync with supported (free or paid) cloud drives enabling users to access their files from anywhere with or without an internet connection.

ForeFlight Mobile supports a *single* DropBox, Microsoft OneDrive, Box, or Amazon S3 cloud drive integration per account. Cloud drives require an Essential or higher subscription.

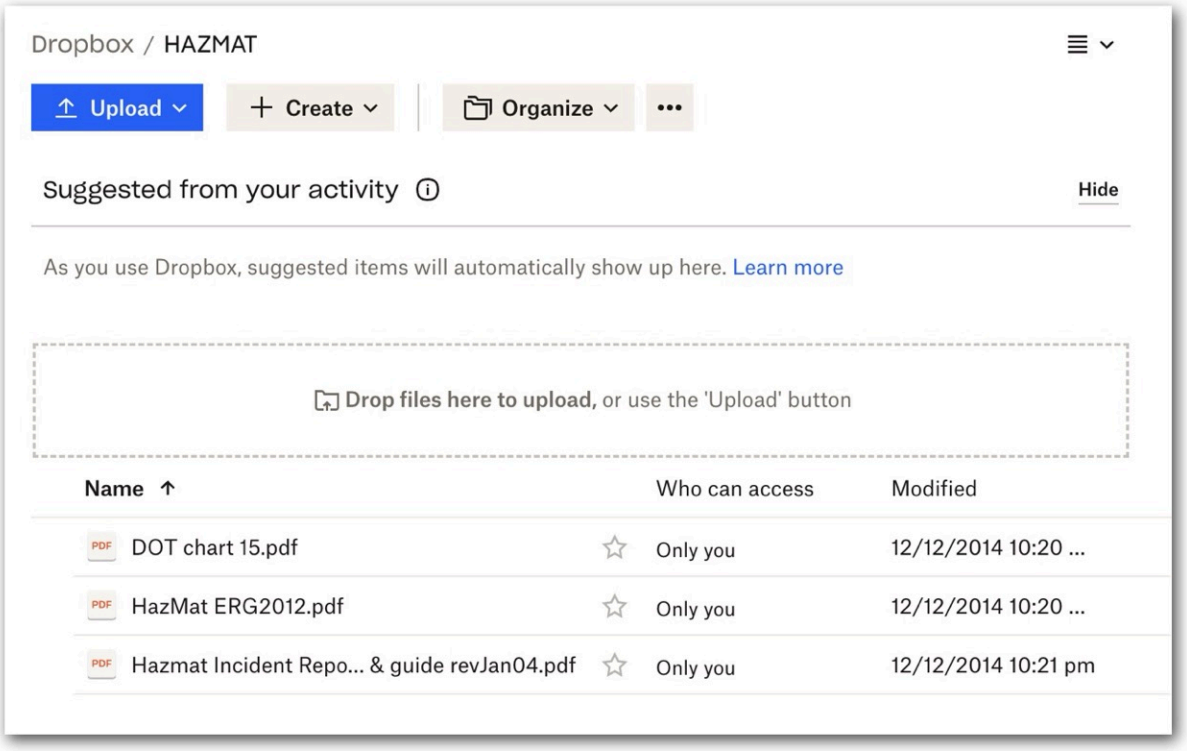


Figure 16-18. Sample DropBox Account

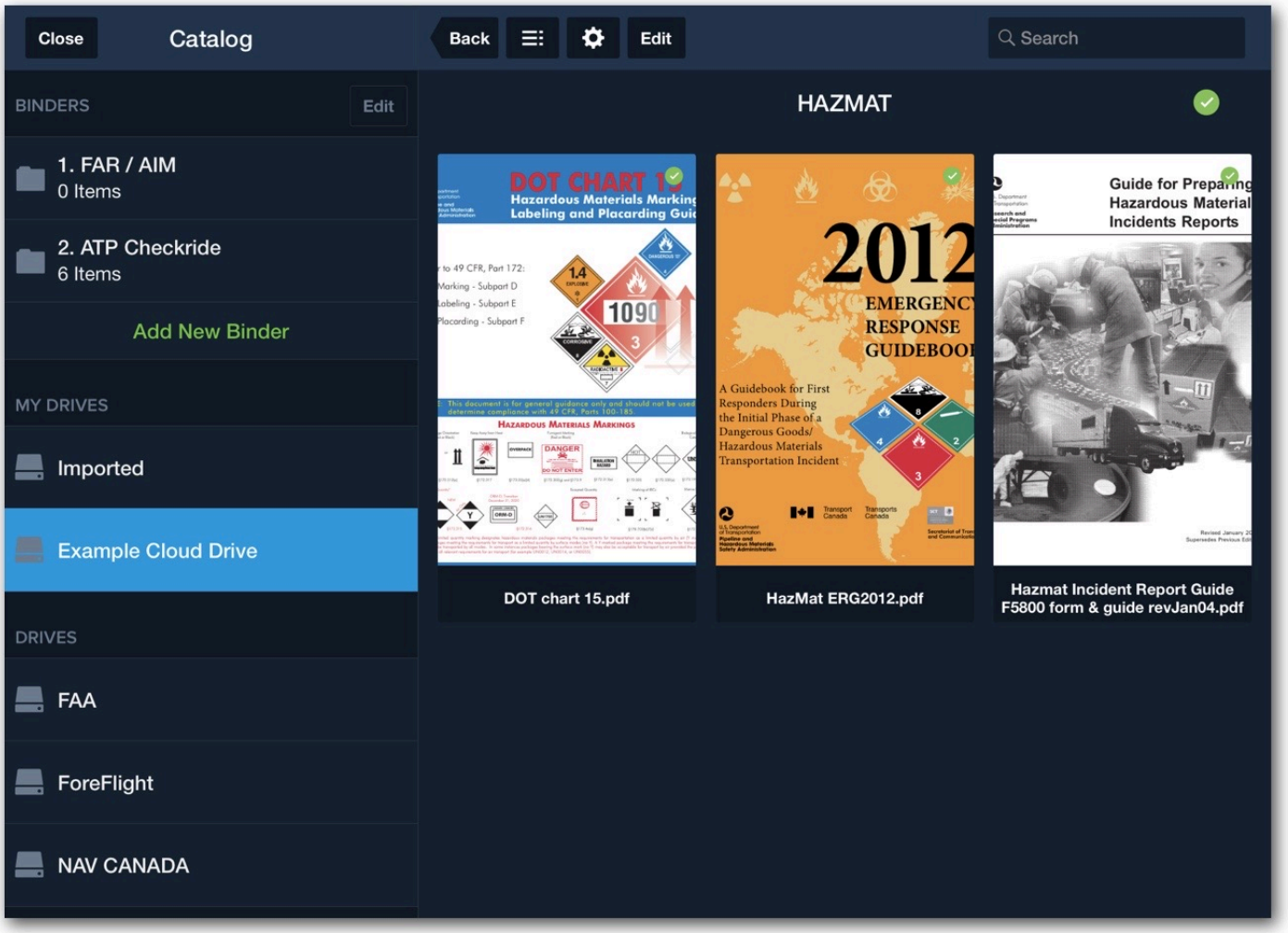


Figure 16-19. DropBox Documents Synced to ForeFlight Mobile

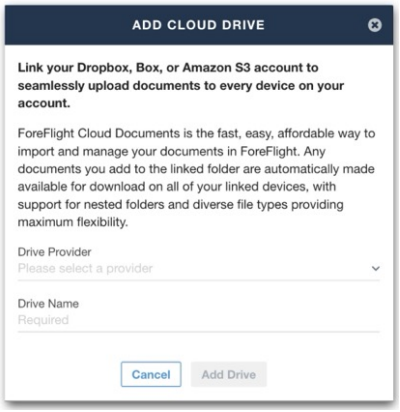
16.5.1 Adding a Cloud Drive

The process for adding a cloud drive is similar for all supported cloud drive providers. Amazon S3 and OneDrive cloud drives require additional fields.

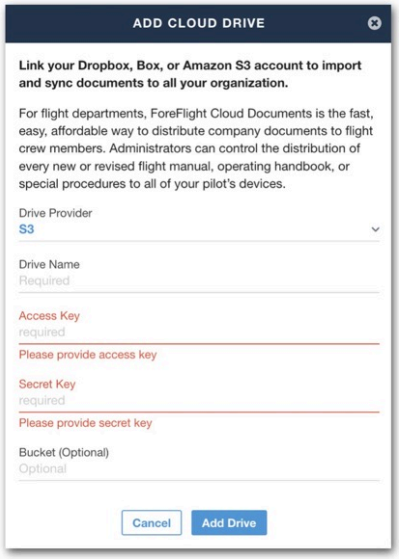
To add a cloud drive:

1. Using a web browser, sign into plan.foreflight.com using the ForeFlight username and password.
2. Click **Documents** in the left sidebar.
3. In the My Drives section, click **Add a Cloud Drive**.

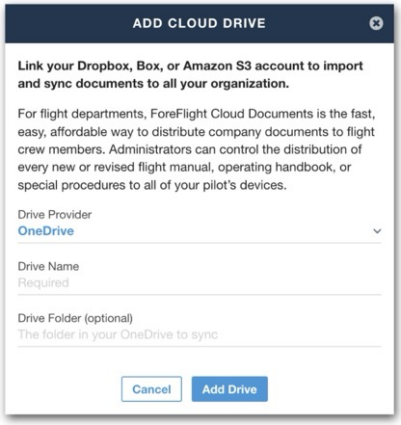
4. In the pop-up that appears, select the Drive Provider (Box, DropBox, S3, OneDrive). The menu dynamically adjusts to allow the required information to be entered, see .
5. Enter a Drive Name and click **Add Drive**.



DropBox and Box



Amazon S3



OneDrive

> **NOTE:** Individual pilot accounts cannot link to a cloud drive that is already linked to another ForeFlight account.

16.5.2 Cloud Drive Names

All cloud drives require a name. The drive name is what appears in the My Drives section of ForeFlight Documents. The drive name should be intuitive and reflect the contents of the drive. Examples include: “Flight Department Manuals," “EFB Digital Documents,” “Our Flight Department’s DropBox Account,” etc.

The drive name can be edited after initial setup using the Cloud Drive Settings menu in **ForeFlight Web → Documents**.

> **IMPORTANT:** When naming a cloud drive, do not use a drive or subfolder name that already exists. For example, do not use Jeppesen, FAA, Handbooks, Legends, etc.

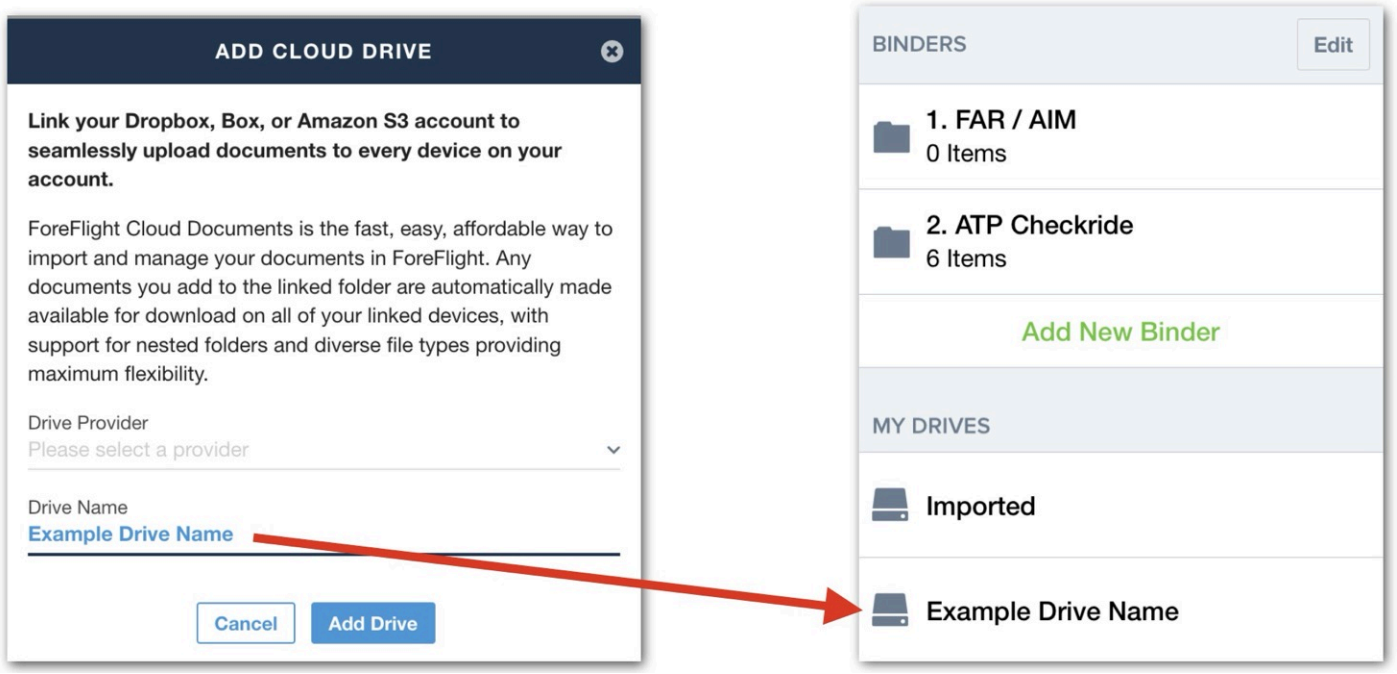


Figure 16-23. Drive Name as it Appears in ForeFlight Mobile

16.5.3 Adding OneDrive and S3 Cloud Drives

Additional information is required to add a OneDrive or Amazon S3 cloud drive.

16.5.3.1 OneDrive

A OneDrive integration requires the user to specify the name of the synced OneDrive folder. This is done with the Drive Folder field.

If the name of the synced OneDrive folder is known, enter it in the Drive Folder field. If the folder does not exist yet or the name is not known, leave it blank and enter it later in the cloud drive settings.

A Drive Folder is required to sync documents.

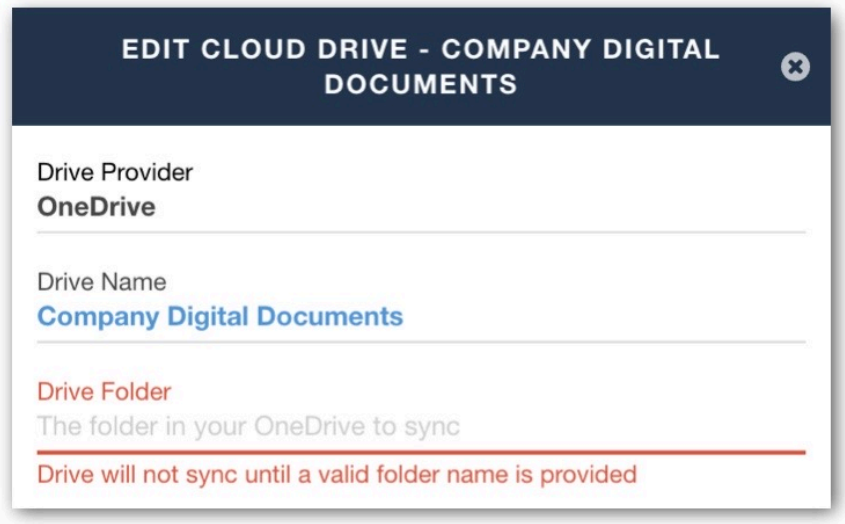


Figure 16-24. OneDrive Account Setup

16.5.3.2 Amazon S3

When integrating with an Amazon S3 folder, the user will need to provide an access key and a corresponding secret access key to authenticate and authorize access.

Instructions for obtaining this information can be found in the Obtaining an Amazon S3 Access Key section.

The bucket that will sync with ForeFlight needs to be specified.

If the name of the S3 bucket is known, enter it in the bucket field. If the name is unknown or a bucket does not exist, leave it blank and enter it later in the cloud drive settings. A bucket is required to sync documents.

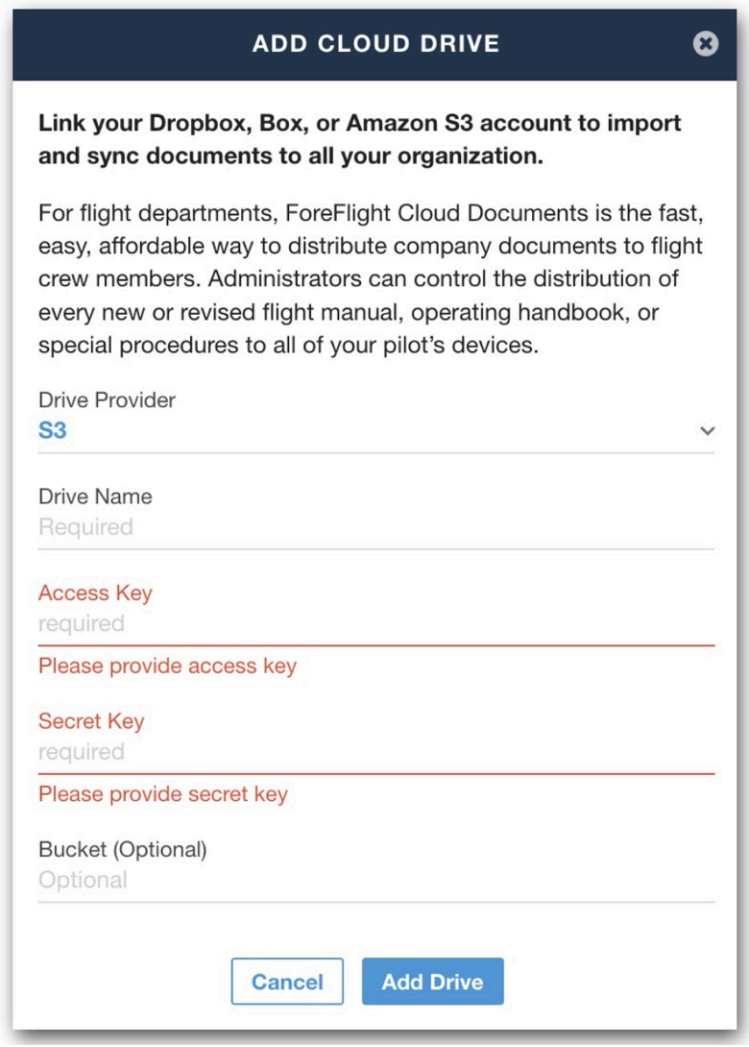


Figure 16-25. Amazon S3 Account Setup

16.5.3.3 Obtaining an Amazon S3 Access Key

1. Sign in to the AWS Management Console.
2. Open the IAM (Identity and Access Management) service.
3. In the navigation pane on the left, click on **Users** or **IAM Users** to manage users.
4. Create a new user or select an existing user to generate an access key for.
5. Open the user's details by clicking on the username.
6. In the **Security credentials** tab, locate the **Access keys** section.
7. Click on **Create access key** or **Manage access keys**.

8. When creating a new access key, it will be generated and displayed. Make sure to download the key file or copy the access key ID and secret access key to a secure location, as the secret access key will not be shown again.

   The secret access key is only displayed once during the creation process. If lost, a new access key will need to be generated.

16.5.4 Providing Access to the Cloud Drive

When adding a Box, DropBox, or OneDrive account, ForeFlight redirects to a login page for the appropriate cloud drive. Enter the cloud drive account credentials and sign in. Depending on the cloud drive used, a confirmation email may be sent to the cloud drive's email address. Check the account for applicable emails.

After entering account credentials, and verifying via email (if applicable), a pop-up appears. Click **Grant Access** to allow ForeFlight to access the cloud drive.

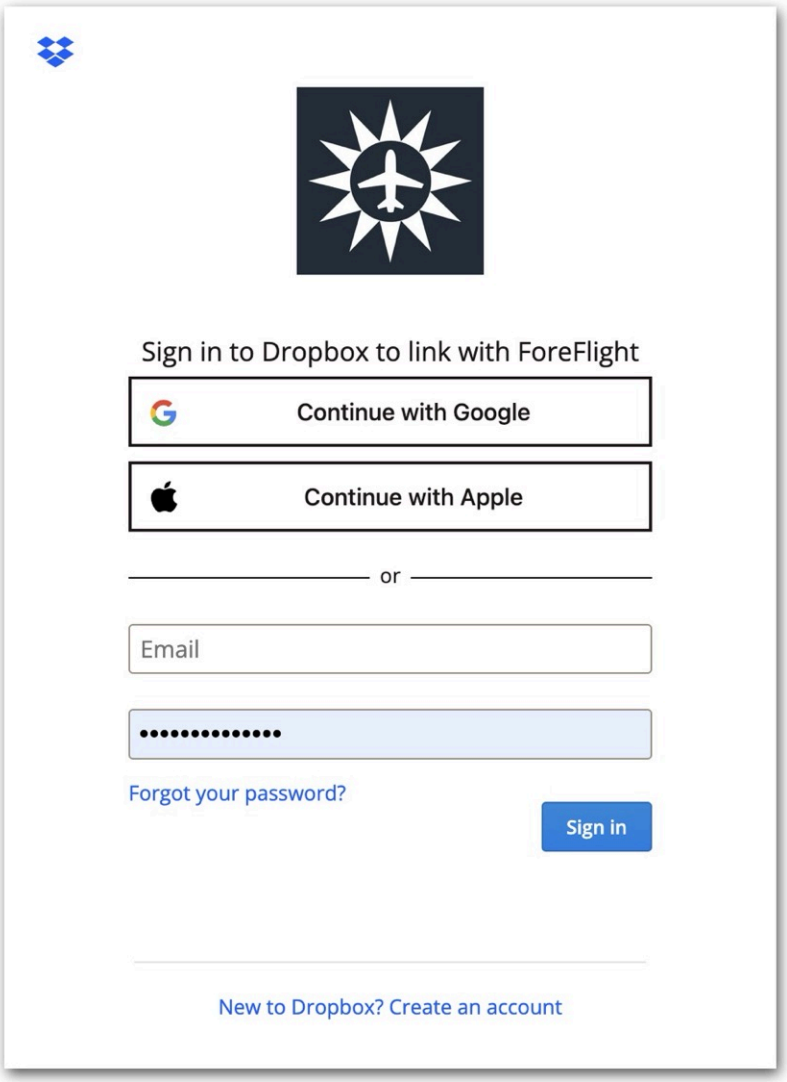


Figure 16-26. DropBox Login Screen

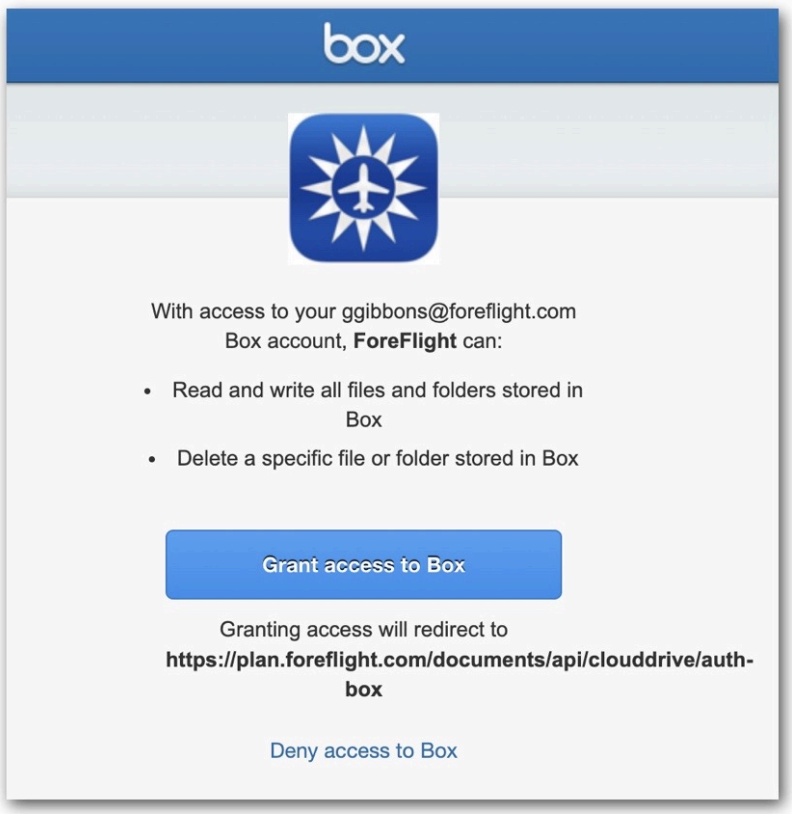


Figure 16-27. Grant Access Confirmation

> **NOTE:** If unable to sign into the cloud drive or the wrong account is synced to ForeFlight, add the cloud drive using an incognito or private browser session as the browser may be automatically populating cloud drive account credentials.

16.5.5 Cloud Drive Synced Folder

Each integrated cloud drive syncs with a single folder. That folder can contain subfolders (including the Content Pack subfolder) and individual documents. The synced folder is automatically generated when integrating DropBox and Box accounts and manually specified when integrating OneDrive and Amazon S3 drives (see DropBox Synced Folder).

16.5.5.1 DropBox Synced Folder

When adding a DropBox drive, an “apps” folder is automatically added to the DropBox root directory. Do not rename or move the folder. Within the apps folder, a “ForeFlight” subfolder is also added. All files and subfolders should be added to the ForeFlight folder. The file path below provides an example of the correct file structure.

```
DropBox / Apps / ForeFlight / Company Docs / Aircraft Manuals.
```

> **IMPORTANT:** DropBox drives do not support duplicate documents. If duplicate documents are added to the synced folder, the documents will not download.

16.5.5.2 Box Synced Folder

When adding a Box drive, a "ForeFlight" folder is automatically added to the Box root directory. Do not rename or move the folder. All files and subfolders should be added to the ForeFlight folder. The file path below provides an example of the correct Box file structure.

```
All Files / ForeFlight / Company Docs / Aircraft Manuals.
```

16.5.5.3 OneDrive Synced Folder

The OneDrive synced folder is specified by the user either during setup or after setup using the cloud drive settings. The folder cannot be a subfolder and needs to be at the root level of the **My files** or **Shared with you** directories.

The synced folder name is not restricted to “ ForeFlight” but should be intuitive and must contain all files and documents that are to sync with ForeFlight. The file path below provides an example of the correct OneDrive file structure.

```
My Files / ForeFlight / Company Docs / Aircraft Manuals.
```

16.5.5.4 Amazon S3 Synced Bucket

The Amazon S3 synced bucket is specified by the user either during setup or after setup using the cloud drive settings. The bucket cannot be a subfolder and needs to be at the root level of the Amazon S3 directory.

The synced bucket name is not restricted to “ ForeFlight” but should be intuitive and must contain all files and documents that are to sync with ForeFlight. The file path below provides an example of the correct Amazon S3 file structure.

```
Amazon S3 / Buckets / ForeFlight / Company Docs / Aircraft Manuals.
```

16.5.5.5 S3 Bucket Permissions

In addition to providing an access and secret key, ForeFlight needs to be granted access to the S3 bucket. By default, all Amazon S3 buckets are private. Access to the bucket can be granted in one of two ways:

- Grant ForeFlight access to the synced bucket by explicitly listing it. See the List Bucket Method on the next page for more information.
- Grant ForeFlight access to all S3 buckets. See the List All Buckets Method for more information.

To edit bucket permissions, follow the steps below:

1. Sign in to the AWS console at https://console.aws.amazon.com/s3/.
2. Select the bucket that to be edited.
3. Select **Permissions**.
4. In the Bucket policy text field, enter the JSON permissions described in the List Bucket Method or List All Buckets Method examples.

16.5.5.6 List Bucket Method

The following permissions show an example list bucket policy. Replace “foreflight_bucket_name” with the actual name of the synced S3 bucket.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "BucketLevelPermissions",
      "Effect": "Allow",
      "Action": "s3:ListBucket",
      "Resource": "arn:aws:s3:::<foreflight_bucket_name>"
    },
    {
      "Sid": "ObjectLevelPermissions",
      "Effect": "Allow",
      "Action": [
        "s3:ListBucket",
        "s3:GetBucketLocation",
        "s3:GetObject",
        "s3:GetObjectVersion",
```

```
        "s3:GetBucketAcl"
      ],
      "Resource": [
        "arn:aws:s3:::<foreflight_bucket_name>",
        "arn:aws:s3:::<foreflight_bucket_name>/*"
      ]
    }
  ]
}
```

16.5.5.7 List All Buckets Method

The following permissions show an example list all buckets policy.

```
{
"Version": "2012-10-17",
"Statement": [
    {
        "Sid": "BucketLevelPermissions",
        "Effect": "Allow",
        "Action": [
            "s3:ListAllMyBuckets"
        ],
        "Resource": "*"
    },
    {
        "Sid": "ObjectLevelPermissions",
        "Effect": "Allow",
        "Action": [
            "s3:ListBucket",
            "s3:GetBucketLocation",
            "s3:GetObject",
            "s3:GetObjectVersion",
            "s3:GetBucketAcl"
```

```
        ],
        "Resource": [
            "arn:aws:s3:::<foreflight_bucket_name>",
            "arn:aws:s3:::foreflight_bucket_name>/*"
        ]
    }
]
}
```

16.5.6 Cloud Drive Supported File Types and Size Limits

Cloud drive documents are read-only. For example, an Excel spreadsheet can be added to a supported cloud drive but ForeFlight Documents cannot be used to add data to the spreadsheet.

Documents supports various cloud drive file types. The following file types are supported in ForeFlight Documents:

- BMP
- BMPF
- CSV
- DOC
- DOCX
- GIF
- JPEG
- JPG
- KEY
- NUMBERS
- PAGES
- PDF
- PNG
- PPT
- PPTX
- TIF
- TIFF
- TXT
- XLS
- XLSX

> **NOTE:** Refer to the cloud service provider for file size limitations.

16.5.7 Cloud Drive Settings

After adding a cloud drive, the settings can be accessed from ForeFlight Web. Select the settings (gear) button next to the cloud drive name to open the settings modal..

All cloud drives integrations offer the following settings.

Sharing Options

Use the sharing options to control whether users can share or print cloud drive content from ForeFlight.

- **Users may email documents from their accounts**: allows users to email cloud drive files from ForeFlight. When disabled, the email button is grayed out and unavailable.
- **Users may print documents from their accounts**: allows users to print cloud drive files from ForeFlight. When disabled, the print button is grayed out and unavailable.

Sync Options

Use the sync options to control automatic downloads to iPad and iPhone.

- **Automatically download all Documents to pilots iOS devices**: downloads the files in the cloud drive to the iPad or iPhone when an active internet connection is available. This setting is not affected by the Automatic Download settings.
- **Automatically download all Content Packs to pilots iOS devices**: downloads all Content Packs in the cloud drive to the iPad or iPhone when an active internet connection is available. This setting is not affected by the Automatic Download settings.

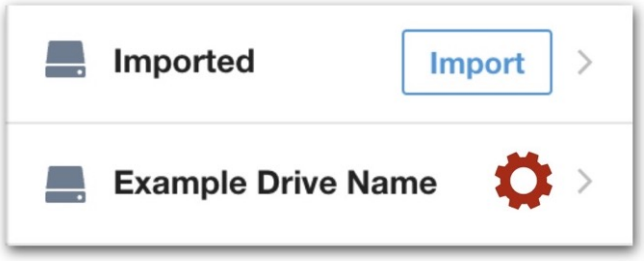


Figure 16-28. Settings (Gear) Button

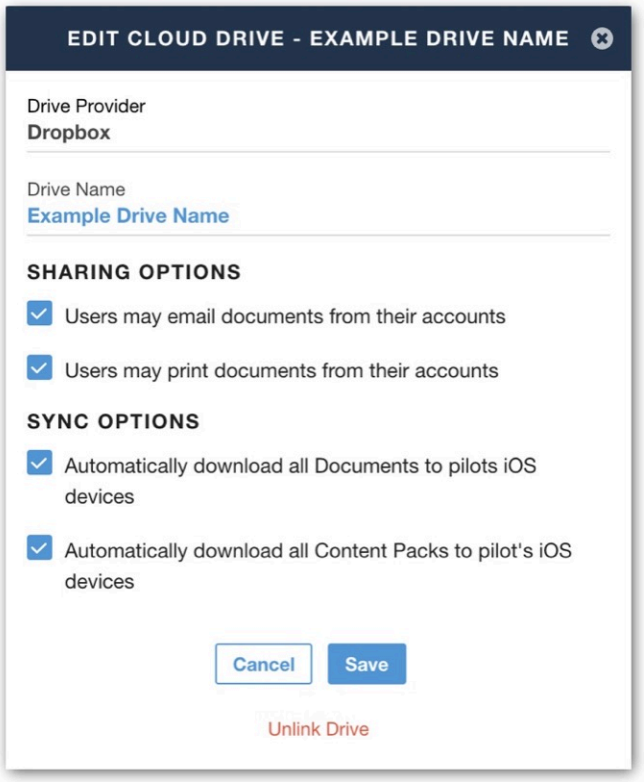


Figure 16-29. Cloud Drive Settings

Cloud Drive Additional Settings, Amazon S3

Amazon S3 integrations include the share and sync options described above. Amazon S3 integrations also include additional settings that allow the user or administrator to:

- Switch to a different Amazon S3 bucket.
- Rotate Amazon S3 credentials.

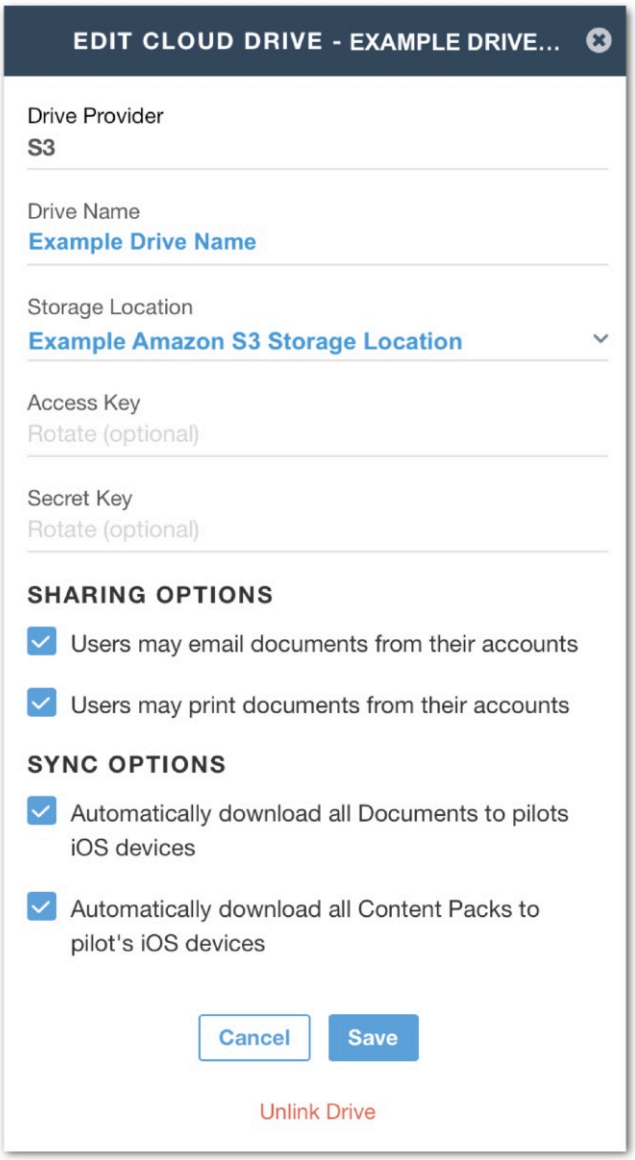


Figure 16-30. Amazon S3 Cloud Drive Settings

Cloud Drive Additional Settings, OneDrive

OneDrive integrations include the share and sync options described above. OneDrive integrations also include a Drive Folder field in the settings modal.

Use the Drive Folder field to sync with a specified root-level folder in OneDrive.

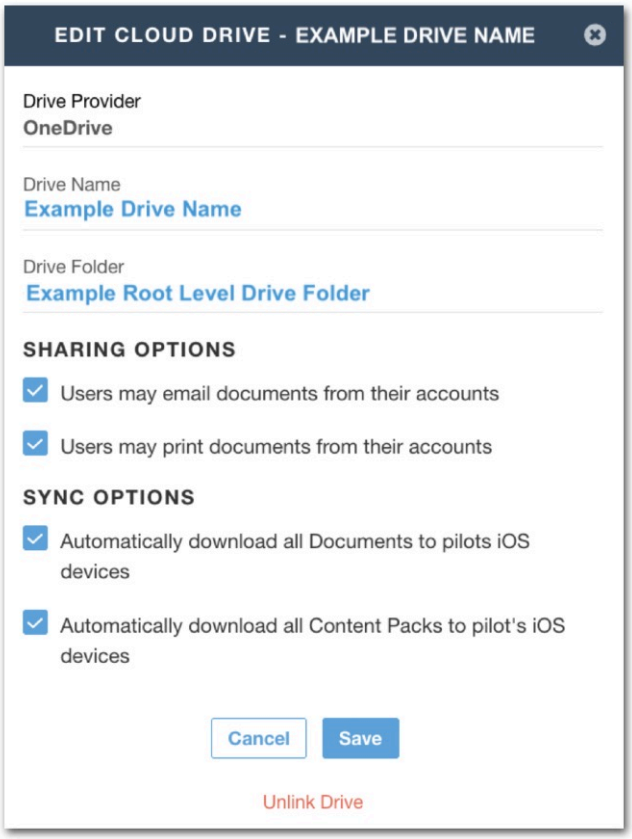


Figure 16-31. OneDrive Cloud Drive Settings

16.5.8 Unlinking a Cloud Drive

Unlinking a cloud drive disables syncing between ForeFlight and the cloud drive. New files added to the cloud drive after it has been unlinked will not be available in ForeFlight.

To unlink a cloud drive, click **Unlink Drive** at the bottom of the cloud drive settings menu.

When a cloud drive is unlinked, an email notification is sent to account administrators. To protect against accidental cloud drive unlinking, the contents of the linked cloud drive are saved to the Missing Drive.

If a cloud drive is added to ForeFlight after it has been unlinked, pilots will have access to both the Missing Drive and cloud drive in the My Drive section of the document catalog.

IMPORTANT: The Missing Drive is not synced. In the event a cloud drive is accidentally unlinked and then relinked, administrator should advise pilots to delete the contents of the Missing Drive, thus removing it from the device. If not, pilots will have duplicate documents and only the cloud drive documents will update.

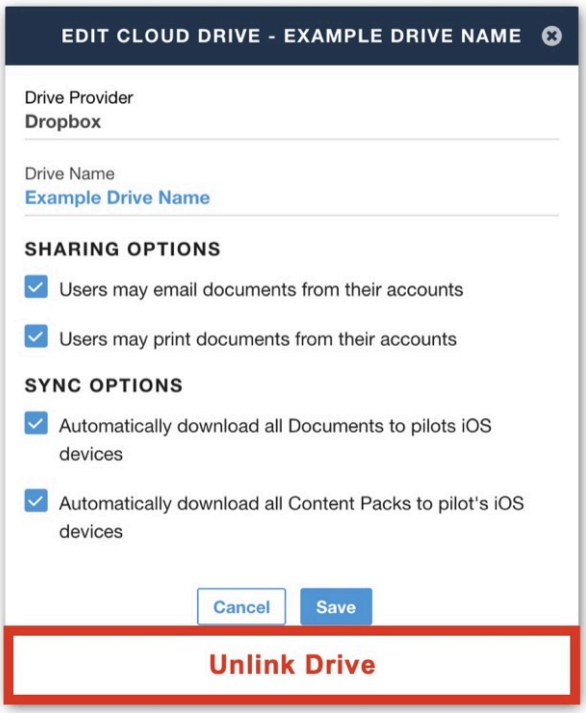


Figure 16-32. Cloud Drive Unlink

16.6 Drives

The Drives section contains the default drives, subscription-based drives, and potentially the Missing Drive. Drives are sorted alphabetically and cannot be edited.

Drives supports nested folders, allowing documents to be downloaded individually. The entire folder may be selected for download by tapping the blue download button to the right of the folder name or the corner of its thumbnail.

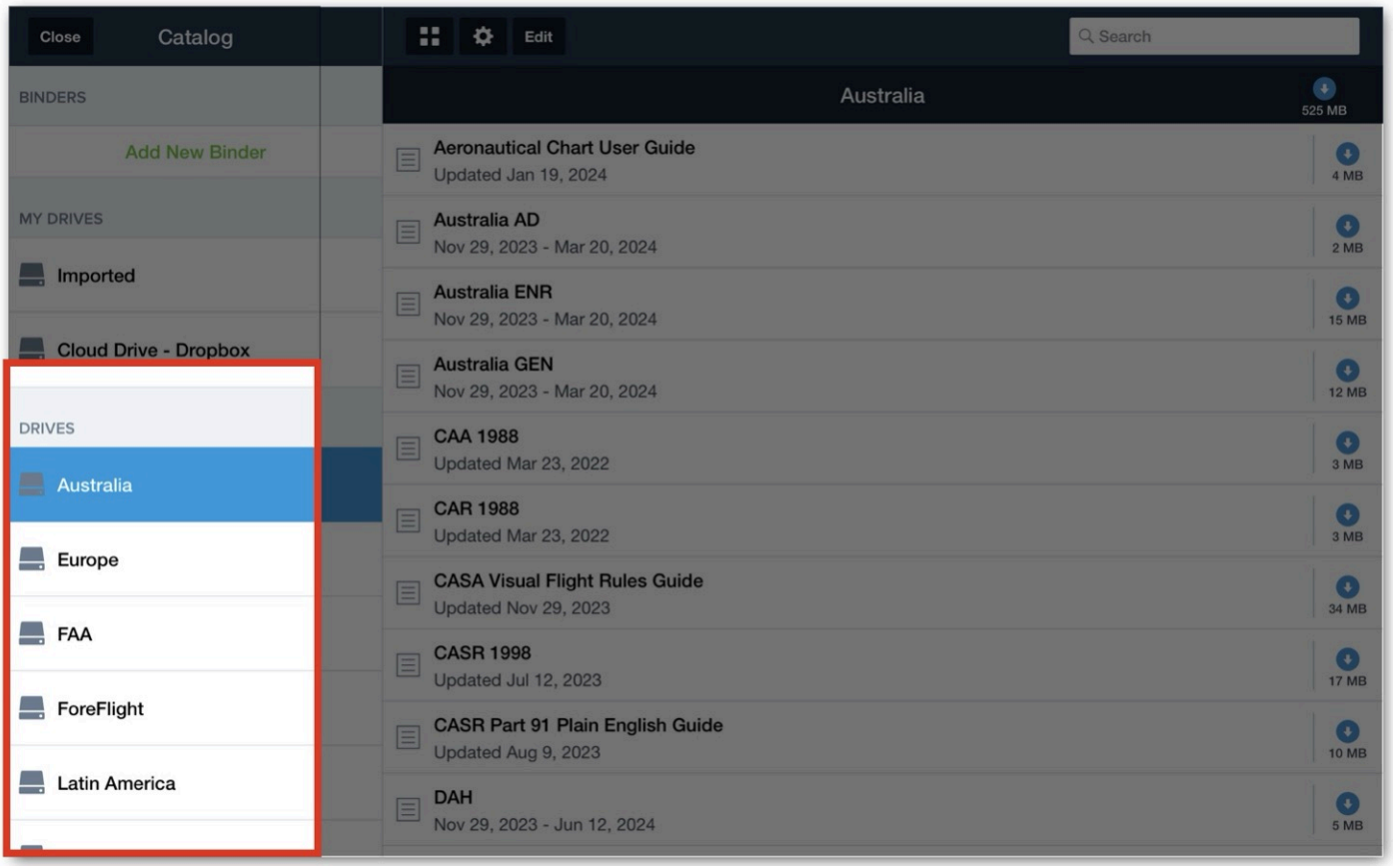


Figure 16-33. Document Drives

16.6.1 Default Drives

The FAA, ForeFlight, and NAV CANADA drives are displayed by default. These default drives cannot be removed. Nav Canada and United States subscriptions are required to view the contents of the Nav Canada and FAA drives, respectively.

16.6.2 Subscription-Based Drives

Additional drives are available with a Europe, Australia, or Jeppesen subscription.

ForeFlight Military Flight Bag customers have access to additional DOD-related documentation. Refer to the ForeFlight Military Flight Bag Guide in **Documents → DOD** for additional information.

The types of documents stored in each drive are:

- **Australia** requires a ForeFlight Australian subscription. This drive includes aeronautical chart users guides, civil aviation regulations, airport information publications, civil aviation safety regulations, general operating procedures, and more.
- **Europe** requires a ForeFlight European subscription. This drive includes various aviation-related documents organized by country.
- **FAA** requires a ForeFlight United States subscription. This drive provides chart supplements, federal aviation regulations, FAA handbooks, legends, and more.
- **ForeFlight** is included with all subscriptions. This drive contains user guides for all ForeFlight products.
- **Jeppesen** is included with a linked Jeppesen account or Jeppesen coverage purchased through ForeFlight. This drive contains Jeppesen Airway Manuals and Jeppesen user guides appropriate to the Jeppesen coverage installed on the device.
- **Latin America** requires a ForeFlight Latin America subscription. This drive includes various aviation-related documents.
- **Nav Canada** requires a ForeFlight Canada subscription. This drive includes Aeronautical Information Manuals, Chart Legends, Canada Water Aerodrome Supplements, Canada Air Pilot General Pages, AIPs, and more.

16.6.3 Missing Drive

The Missing Drive is added to the Drives section when a Cloud Drive is unlinked. This drive contains all cloud drive documents that were downloaded to the device when the cloud drive was unlinked. The purpose of this drive is to prevent a situation where digital documents get removed if a cloud drive gets accidentally disconnected, which could pose a risk to aircraft operation if airworthiness relies on those documents.

Missing Drive documents are not synced and remain on the device until they are either deleted by the pilot, or the pilot signs out of their ForeFlight account. When the Missing Drive is empty, it is removed from the Drives section.

16.7 Downloading Documents and Drives

To view a document, it must first be downloaded to the device. To download a document, tap the document thumbnail. Tapping the thumbnail subscribes the device to the document, begins the download and once complete, the document is automatically opened in the full-screen viewer.

Downloaded documents have a green checkmark and can be viewed without an internet connection. Documents that have not been downloaded display a download button (above the size of the download) and cannot be viewed offline.

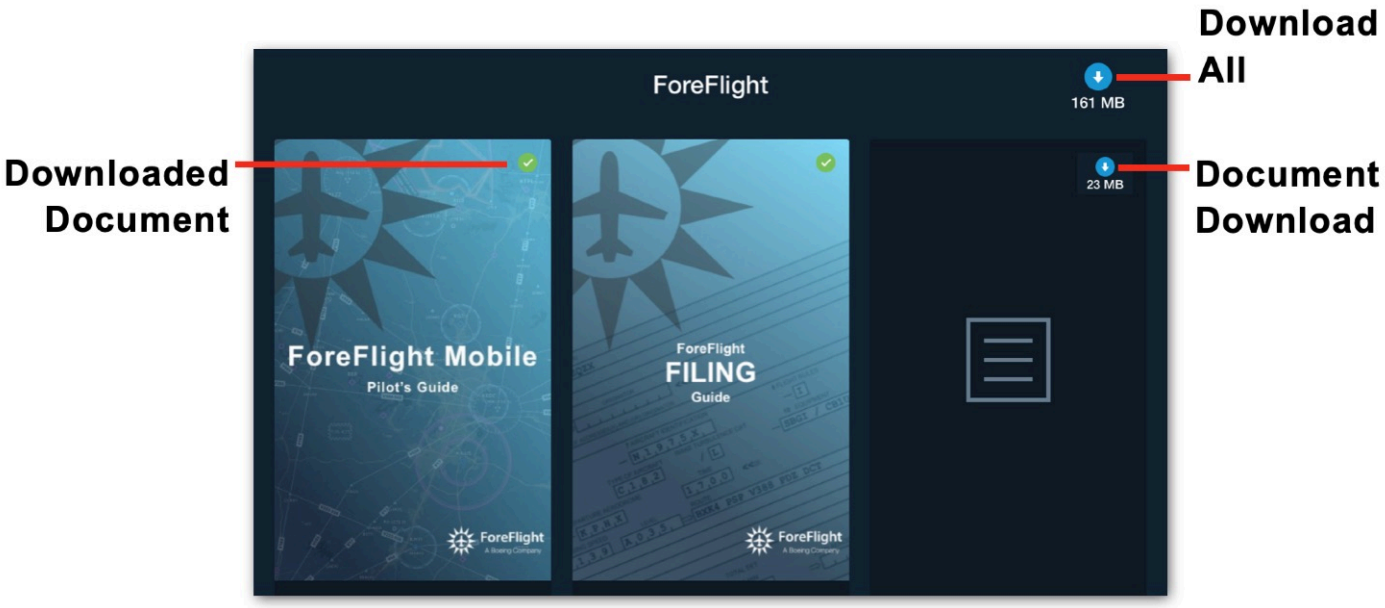


Figure 16-34. Document Thumbnails

16.7.1 Document and Drive Subscriptions

For the purpose of this guide, downloading a document (or an entire drive) is similar to a subscription.

16.7.1.1 Document Subscriptions

Downloading a document subscribes the device to the document. When subscribed, updates to the document are automatically downloaded.

16.7.1.2 Folder and Drive Subscriptions

Tap the **Download All** button associated with a folder or drive to subscribe to it. When subscribed, the contents of the drive, including future documents and updates, are automatically downloaded. When subscribed to a folder or drive, a green checkmark is displayed and all documents within the drive can be viewed offline.

> **NOTE:** Downloading the contents of a folder or drive without using the folder or drive Download button does not subscribe the device to the folder or drive.

16.7.2 Removing Documents

Documents downloaded to a device remain on the device until manually removed.

To remove a document:

- To remove a document in grid view, tap the **Edit** button followed by the X.
- If viewing drive contents in list view, swipe right to left across the document to remove it.

16.7.2.1 Removing Imported Documents

Imported documents can be removed locally from the device or from everywhere permanently. When removing an imported document, the pop-up below is displayed.

- **Remove from only this device** removes the document from the device. The document will no longer be available while offline. The document is able to be redownloaded with an active internet connection. If the Imported drive was subscribed to, removing the device will disable the Imported drive subscription.
- **Delete everywhere permanently** removes the document from all devices and cannot be undone. If this option is selected, the imported document cannot be redownloaded.

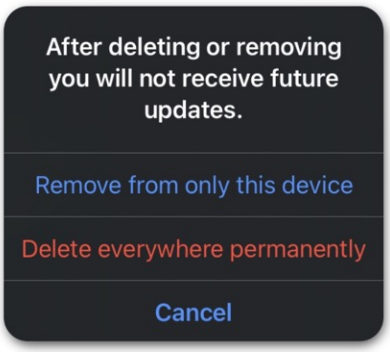


Figure 16-35. Imported Document - Remove Document Pop-up

IMPORTANT: If subscribed to a folder or drive, removing a document from within the folder or drive cancels the subscription.

If a document is removed from its original drive and is also included in a Binder, it will be removed from both the device and the binder.

16.8 Viewing Documents

To view a document, tap the document thumbnail. If the document has not yet been downloaded to the device, it will begin downloading automatically. Once the download is complete, the document is opened in the full-screen document viewer.

Multiple documents may be open simultaneously. Opening any document will open it as a new tab alongside any existing tabs, which appear in the Tabs bar at the top of the document viewer. To use the Tabs bar:

- Tap on other tabs to switch between them.
- Tap the X button on the left side of the current tab to close it.
- Tap-holding on a tab provides options to close that tab, close all other tabs, or close all tabs.
- Tap-hold and drag a tab to move it within the tab bar.
- When the number of open tabs exceeds the size of the tab bar, swipe left or right to scroll through the tab bar and access hidden tabs.
- Tap the **...** button at the far-right of the tab bar to show a list of all open tabs, tap a listed document to open it.

Flip through document pages by swiping across the screen. Tap the document to reveal and hide the Document Toolbar.

Jump to a page by using the supported search options or by tapping a page thumbnail near the bottom of the screen. Return to the previous page after using search by tapping the return-to-page option.

Zoom the page by double-tapping with a single finger. Double-tap again to return to the original size. Alternatively, use standard iOS gestures to zoom.

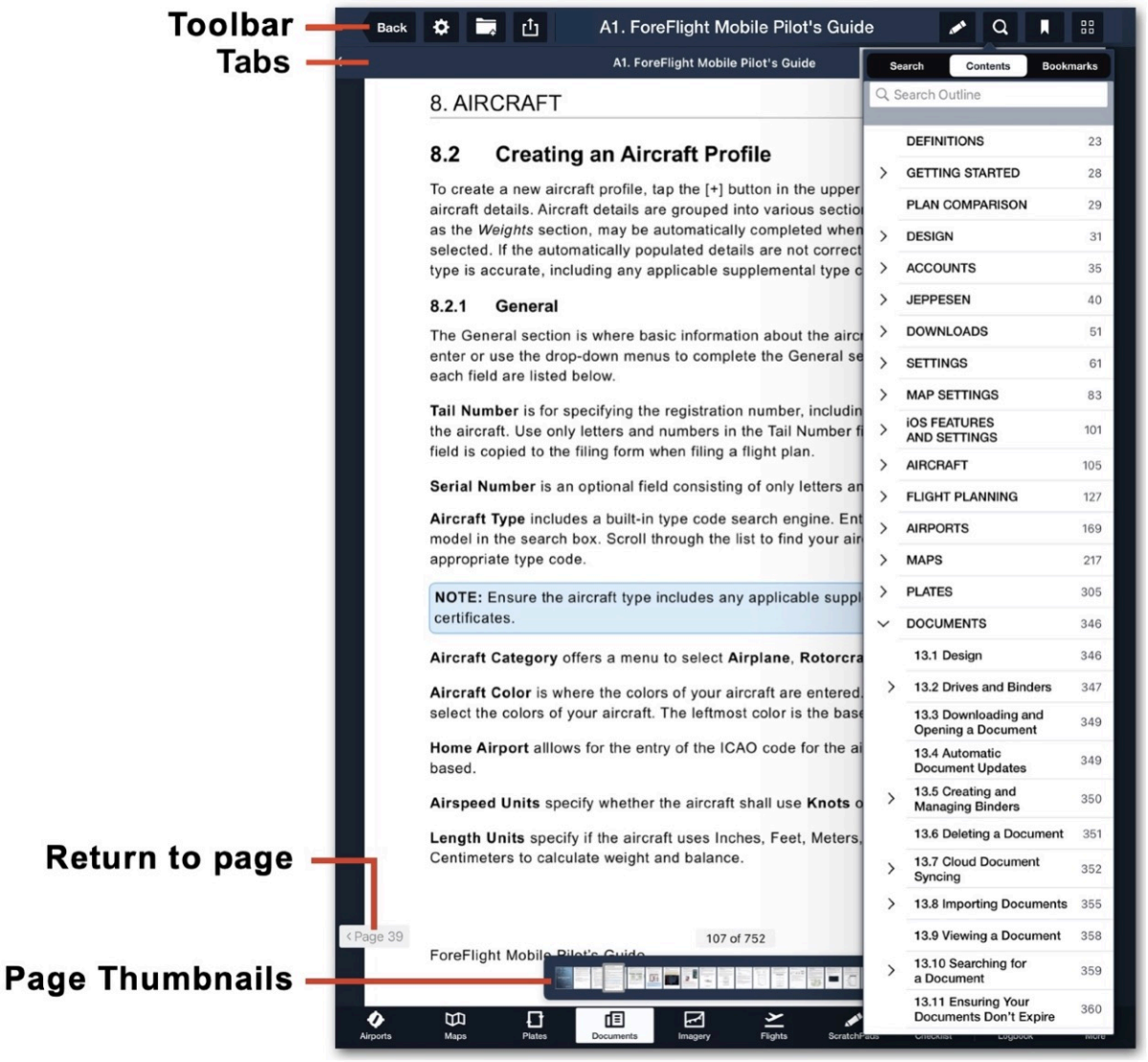


Figure 16-36. Full Screen Document Viewer

16.8.1 Document Viewer Toolbar

At the top of the document viewer is a toolbar. The toolbar can be hidden or displayed by tapping the document. The toolbar contains the following tools:

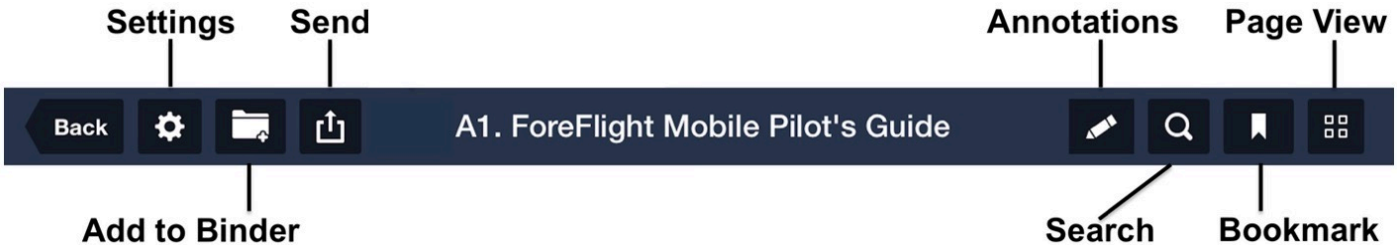


Figure 16-37. Document Viewer Toolbar

- **Back** button closes the viewer and returns the user to the Documents view.

- **Settings** contains the following options:
  - **Brightness Slider** adjusts the screen brightness.
  - **Invert Document Colors** inverts all colors within all documents.
- **Add to Binder** adds the current document to the selected Binders.
- For **Send To** see Sharing Documents.
- **Annotations** reveals the toolbar for annotating the document.
- For **Search**, see Searching Documents.
- For **Bookmark** see Document Bookmarks.
- **Page View** toggles between a single and multi-page viewer.

16.8.2 Searching Documents

The search bar in the upper toolbar provides three search methods.

Tap a search result from any of the methods to jump to the applicable page in the document:

- **Search** highlights results for document text that matches the search term.
- **Contents** displays the document's table of contents. The search bar at the top of the window allows users to search the document's table of contents.
- **Bookmarks** displays all user-created document bookmarks.

16.8.3 Document Bookmarks

Bookmarks are user-generated and allow pilots to mark a specific location within a document for quick reference. It serves as a reference point within a document, to allow pilots to return to that position without having to scroll the entire document.

16.8.3.1 Adding Bookmarks

Bookmarks can be searched with the search bar in the upper toolbar. To add a bookmark:

1. Navigate to the appropriate page and tap the Bookmark button in the upper toolbar.
2. Enter a name for the bookmark and tap **Add Bookmark**.

16.8.3.2 Deleting Bookmarks

Bookmarks can be deleted in two ways:

- Tap Search in the upper toolbar and select **Bookmarks**. Swipe right to left across the bookmark.
- Navigate to a bookmarked page and tap the **Bookmark** button to remove the bookmark.

16.8.4 Sharing Documents

Documents can be shared in various methods:

- **Attach to Flight** attaches the document to the selected flight (Performance-tier plan required).
- **Mail** can be used to email the document. Maximum file size varies by email provider, but is generally limited to 25 MB or less.
- **Print** enables the document, or specific pages within the document, to be printed using a compatible AirPrinter.

IMAGERY

The Imagery view displays regularly updated graphical weather reports and forecasts that pilots can use to supplement their flight planning. It is available to all ForeFlight plan holders and requires an active internet connection. Imagery cannot be packed, nor can it be received over ADS-B.

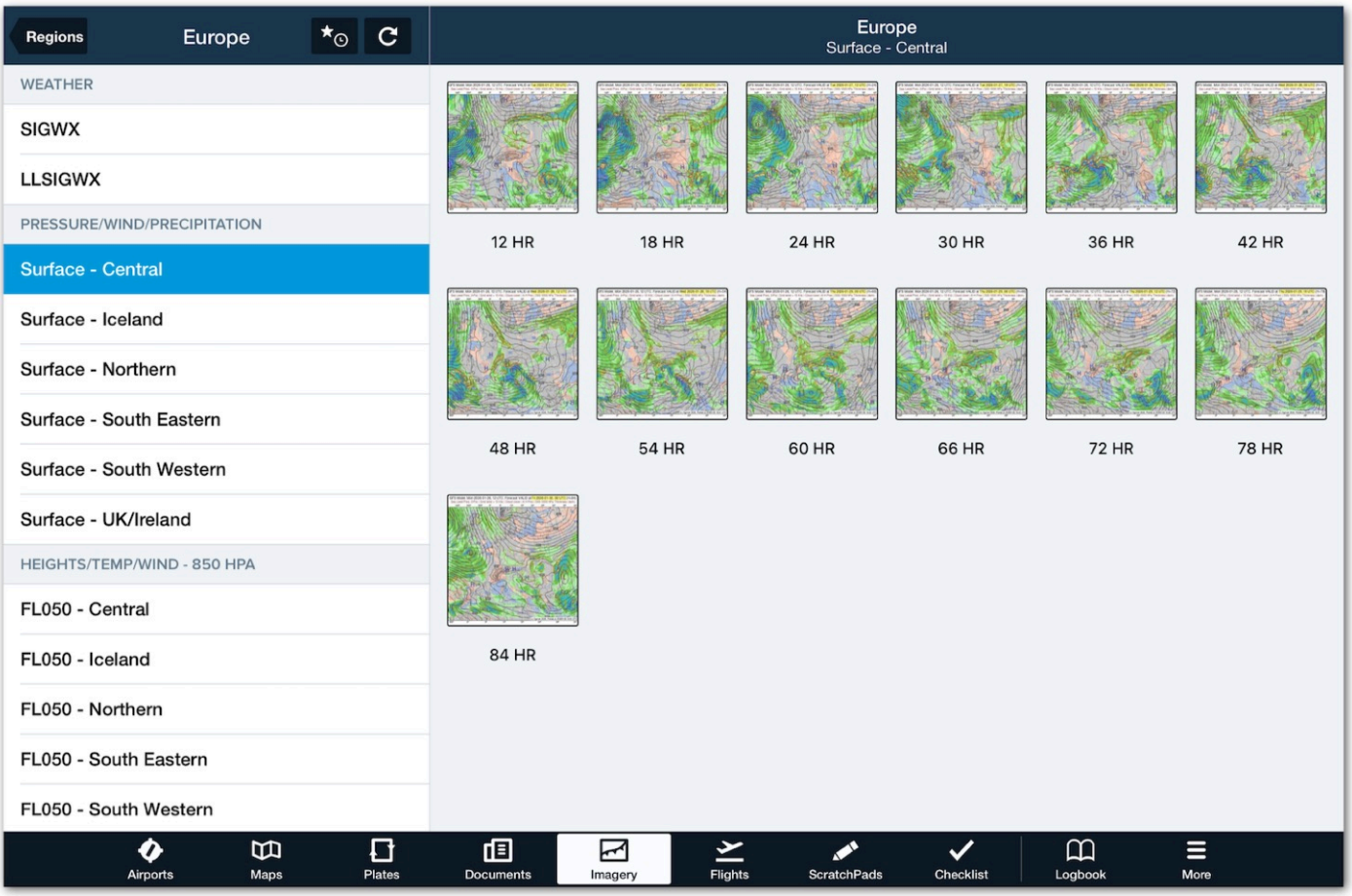


Figure 17-1. Imagery View

17.1 Design

The Imagery view can display in one of two modes: Navigation (with a sidebar and a thumbnail image pane) or Full-Screen Image.

- Navigation Mode is for choosing a global region and sorting through its list of image sets, managing favorite and recent images, and refreshing image data.
- Full-Screen Image Mode displays when a thumbnail is tapped. Images respond to swiping and other standard touch-screen gestures, allow printing and sharing, and can be marked as favorites.

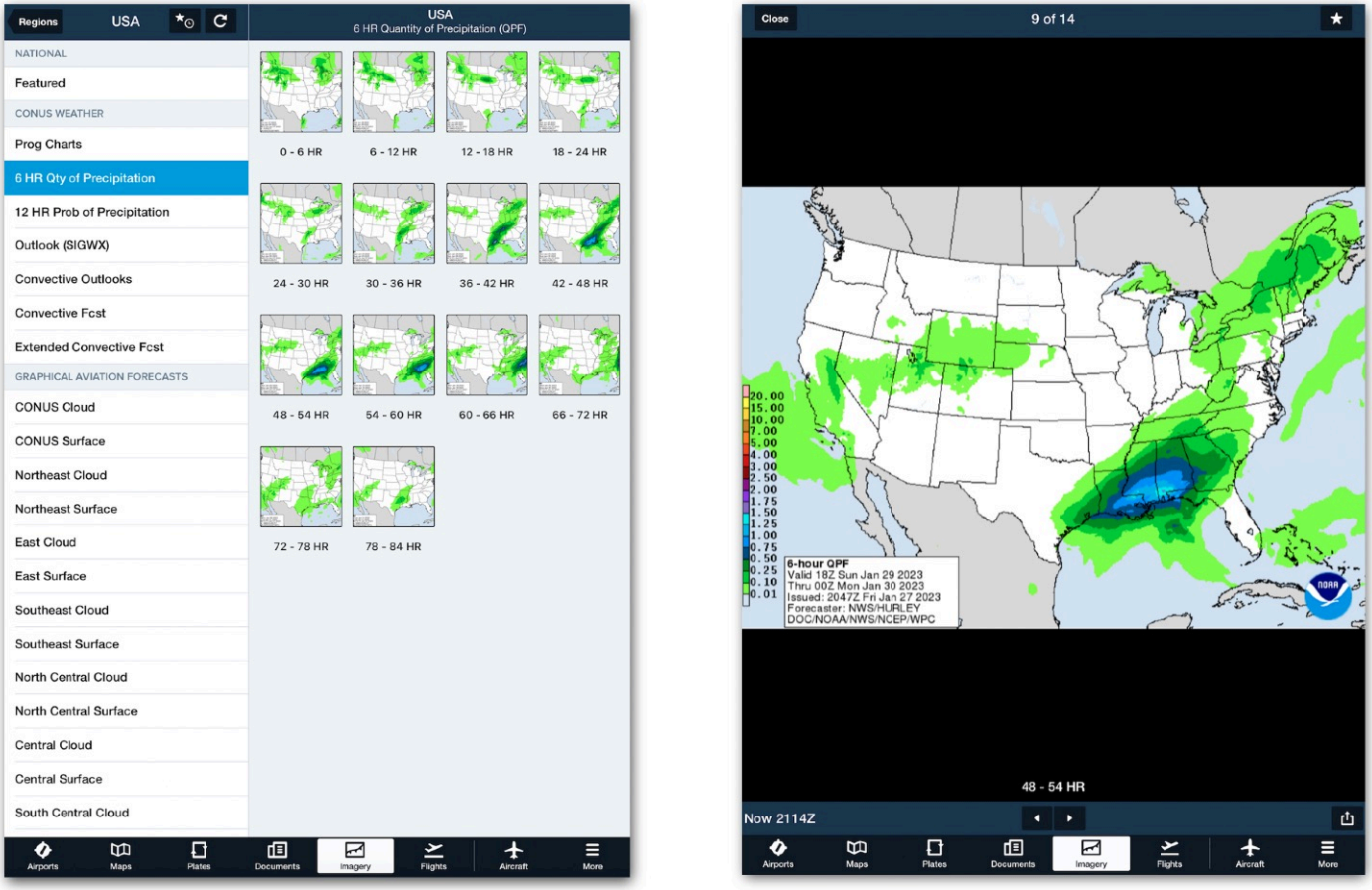


Figure 17-2. Navigation Mode (Left), Full Screen Mode (Right)

17.1.1 Images

Images may be generated internally with data from an official weather provider (e.g., NOAA), or is retrieved from an official weather provider and displayed without modification to its annotations or symbology.

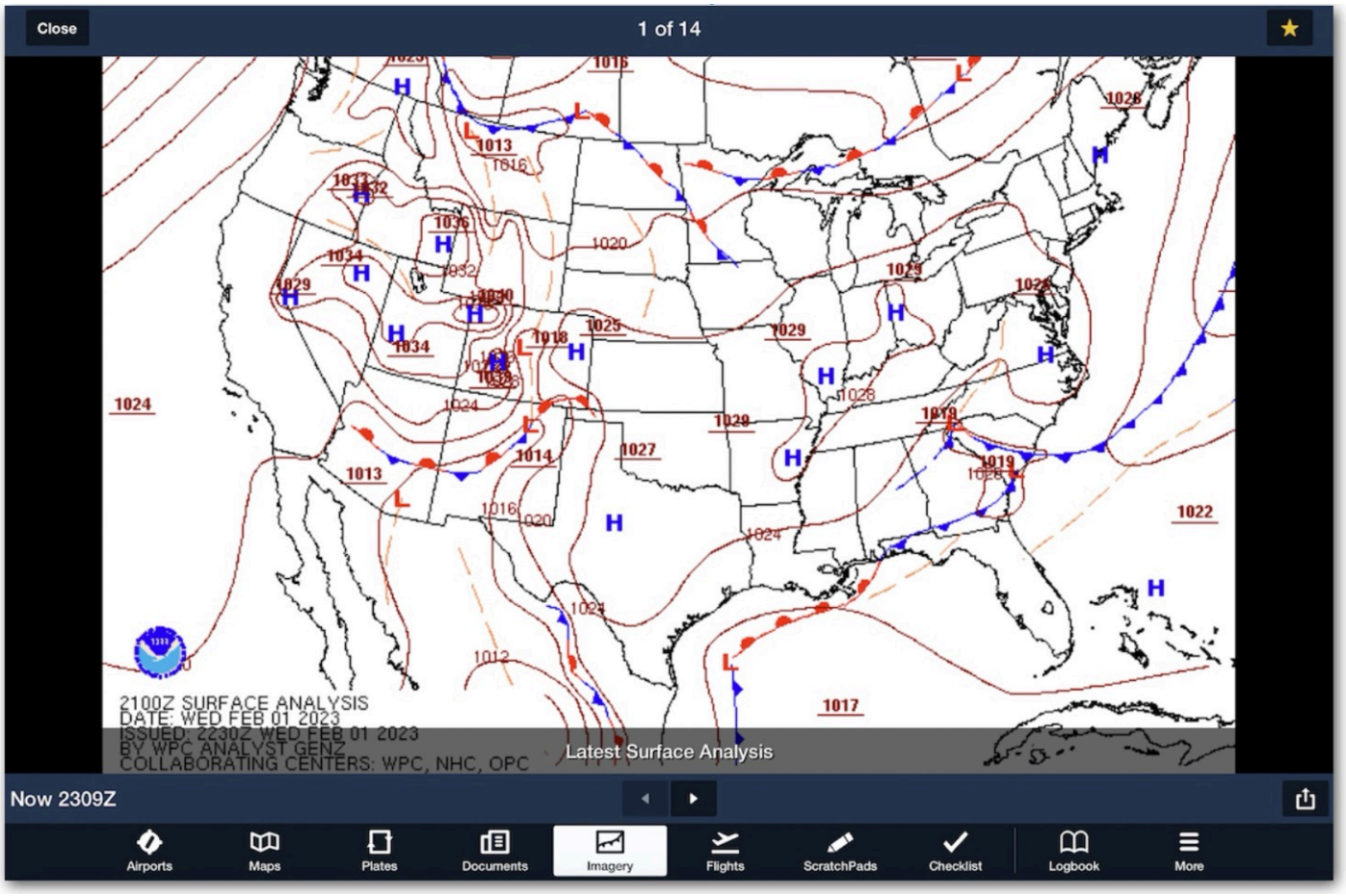


Figure 17-3. Surface Analysis Chart

17.1.2 Image Sets

Weather data with more than one valid time, forecast period, or coverage area is represented as a set of images. For example, the 4-8 HR Convective Forecast image set below contains three images, with one for the 4 HR, 6 HR, and 8 HR forecast periods, respectively.



Figure 17-4. 4-8 HR Convective Forecast Image Set

17.2 Navigation

The Navigation view sidebar lists the following geographic regions:

- USA
- Canada
- Europe
- Caribbean, Mexico, Central America
- South America
- Americas
- Atlantic (ocean)
- Pacific (ocean)
- Australia
- Middle East
- Africa
- Indian Ocean
- Asia.

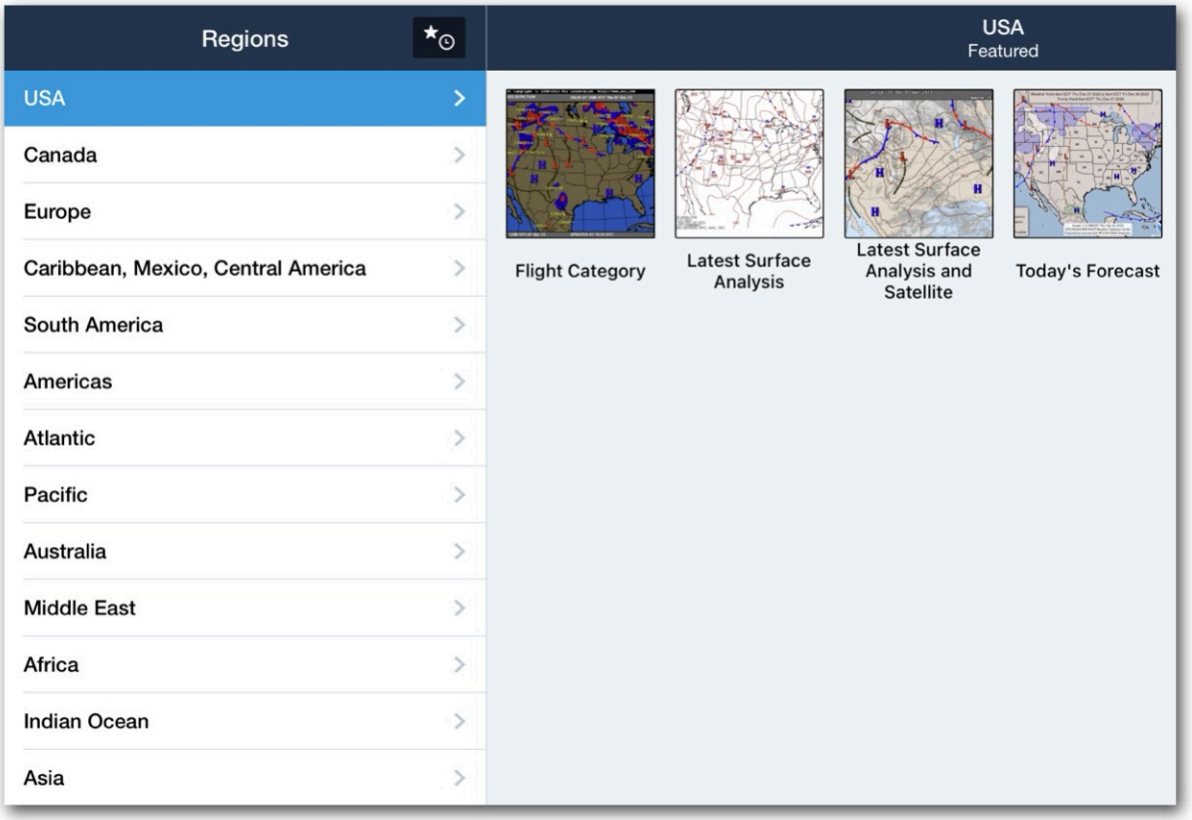


Figure 17-5. Available Imagery Regions

Each region is divided into categories (e.g., CONUS Weather) containing one or more image sets (e.g., Prog Charts). When an image set is selected, thumbnails of each image are displayed in sequential order, such as chronologically by the forecast period.

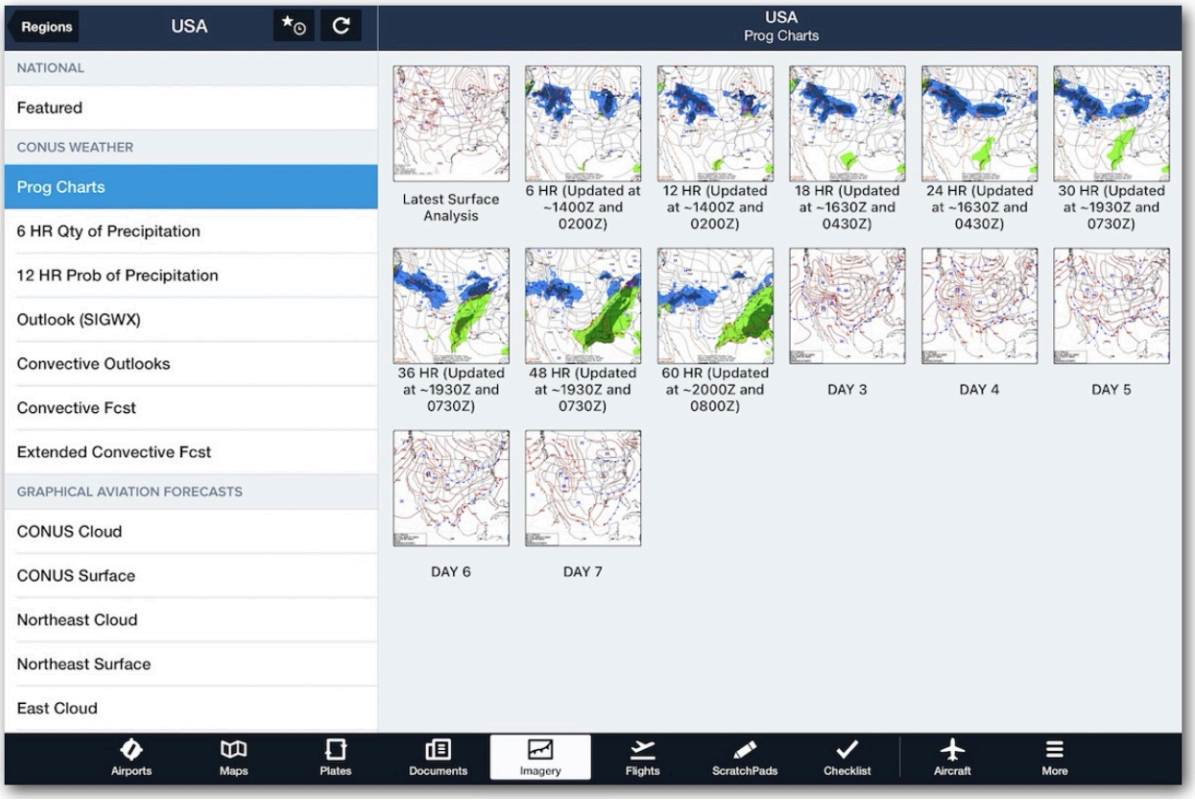


Figure 17-6. Prog Chart Image Set with Thumbnails

17.2.1 Displaying Images

To display a weather image, tap a region in the sidebar, scroll through its categories to find an image set, tap the image set, and tap one of the thumbnails to open its Full-Screen Image. To display an image from a different region, tap **Close** to exit the Full-Screen Image, tap the **Regions** back button at the top of the sidebar, and then select a new region and image set as before.

> **NOTE:** Full-Screen Images might not display without an internet connection. When an image thumbnail is tapped, the most current weather data from the internet or from the temporary device cache is retrieved. If unavailable, an error message is returned. This applies to images in all regions, and in the Favorites/Recents list.

17.2.2 Favorite/Recent Images

At the top of the Navigation view, tap the **Favorites/Recents** button (depicting a star and clock) to see a menu with two tabs:

- Tap the **Favorites** tab to see a list of thumbnails for images that were marked as Favorites.
- Tap the **Recents** tab to see a list of thumbnails for images that were recently opened as Full-Screen Images (starting with the most-recently viewed image).

> **NOTE:** Both the Favorites and Recents lists are synced between devices on an account. Adding, deleting, reordering, or clearing out images on one device is reflected on other devices.

17.2.2.1 Adding Favorites

Images can be added as Favorites when viewing a full-screen image, see Adding to Favorites.

> **NOTE:** Favorite images may not display without an internet connection. To save an image file to the device for offline viewing, use the iOS sharing feature.

17.2.2.2 Reordering Favorites

Favorite images are listed by default according to when they were added (with the newest addition at the bottom). To change this order, tap the **Edit** button at the top right corner, then tap and hold the **(☰)** icon next to an image to drag it to a different position in its list. Tap **Done** when finished.

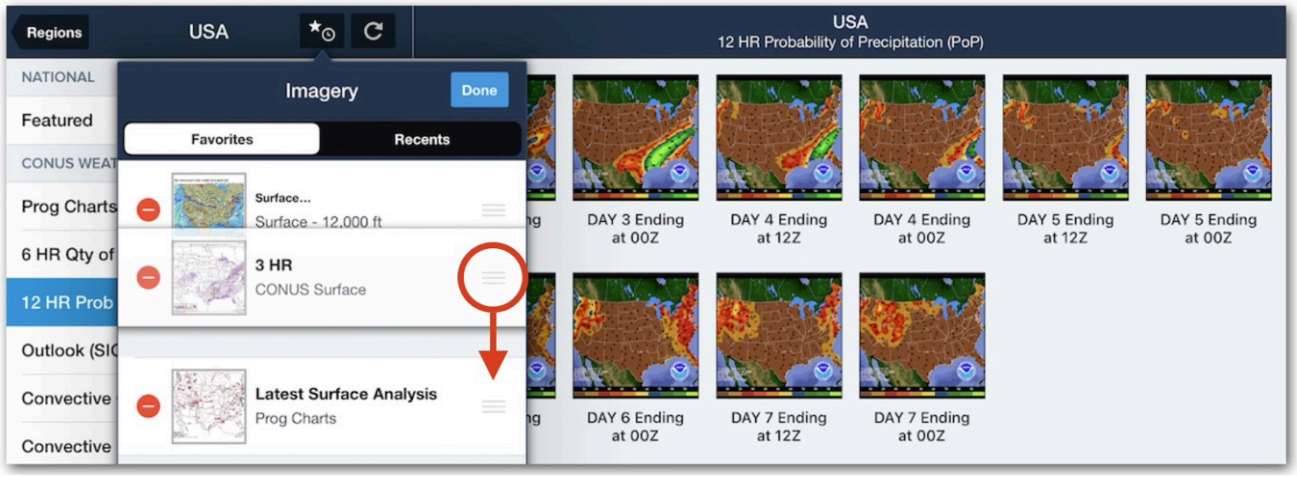


Figure 17-7. Reordering Favorites

17.2.2.3 Deleting Favorites

To delete an image from the Favorites list, swipe left on the image in the list and tap **Delete**. Alternatively, tap the **Edit** button, tap the **(-)** icon followed by **Delete** for one or more images being deleted, and tap **Done** when finished.

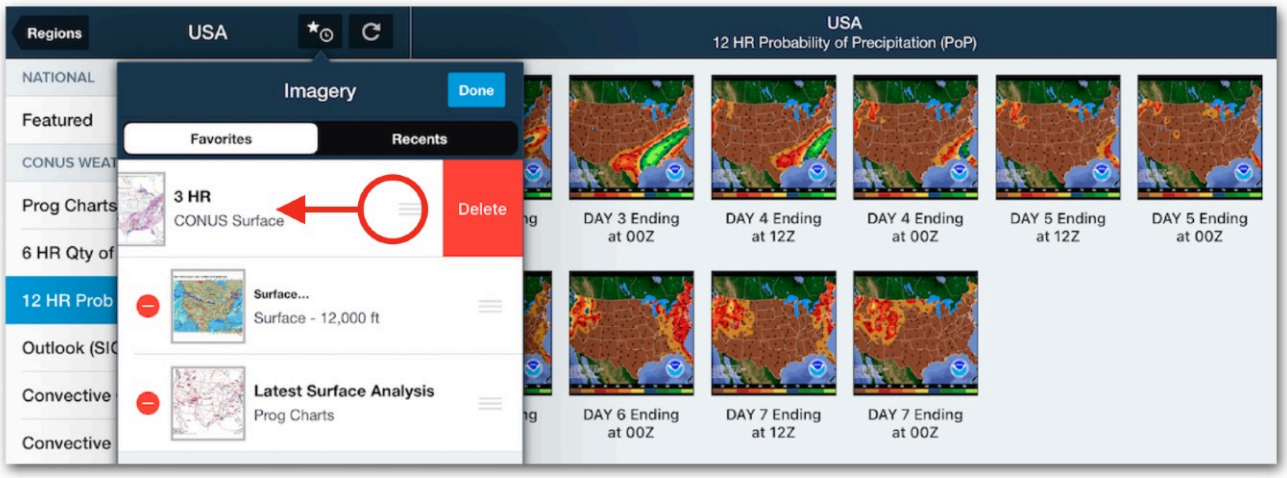


Figure 17-8. Removing Favorites

17.2.2.4 Deleting Recent Images

Images cannot be removed individually from the Recents list. However, the entire list can be cleared out at once. To do so, tap the **Clear** button in the top right corner and then tap **Clear Recent Imagery on All Devices**.

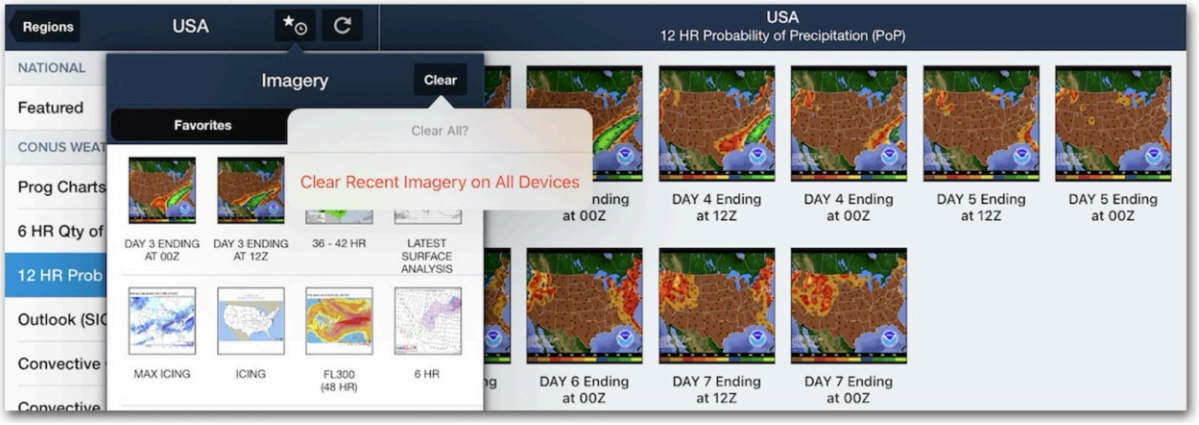


Figure 17-9. Clearing Recent Images

17.2.3 Refreshing Image Sets

Tapping the **Refresh** button updates the list of imagery available for each image set.

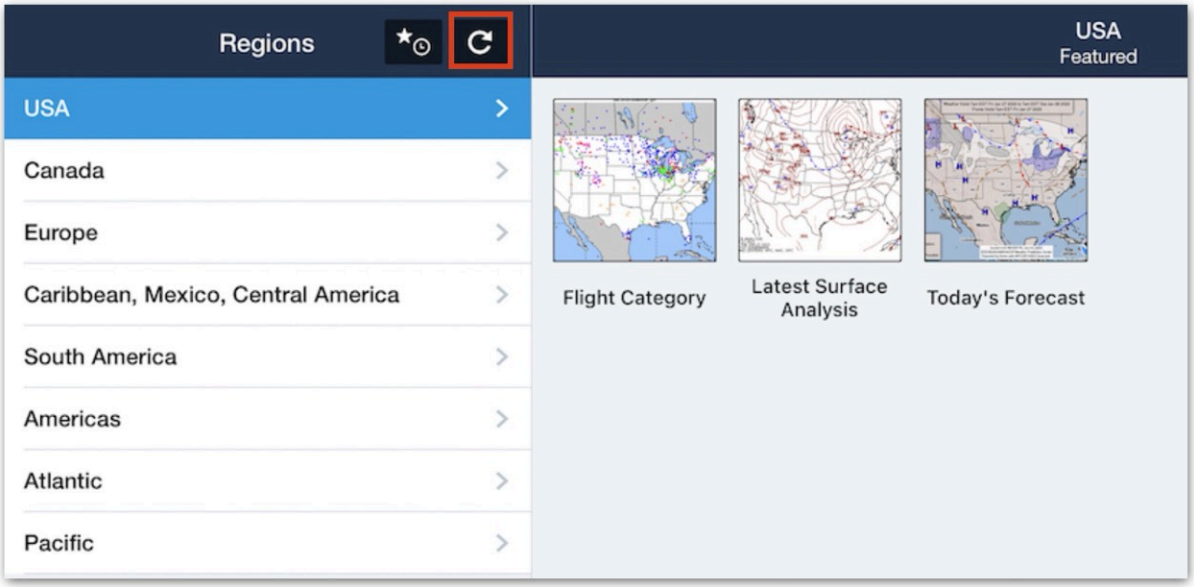


Figure 17-10. Refreshing Image Data

17.3 Full-Screen Image

When a thumbnail is tapped, the most recent weather image is retrieved from the internet or the temporary device cache and displayed over the full screen. Each Full-Screen Image displays with the following features:

- The **Close** button exits the Full-Screen Image and returns to the Navigation view.
- The **Position Number** above each image indicates its position in the currently selected image set.
- The **Favorites** button on the top right can be tapped to add an image to the Favorites list or to remove it if it is already a favorite.
- The **Current Time** in UTC is displayed on the lower left.
- The **Left/Right** arrows beneath the image can be used to switch to the previous or next image in the set. (This can also be done with finger swiping.)
- The **Send To** button on the lower right can be tapped to copy, print, or share the image using iOS device options.

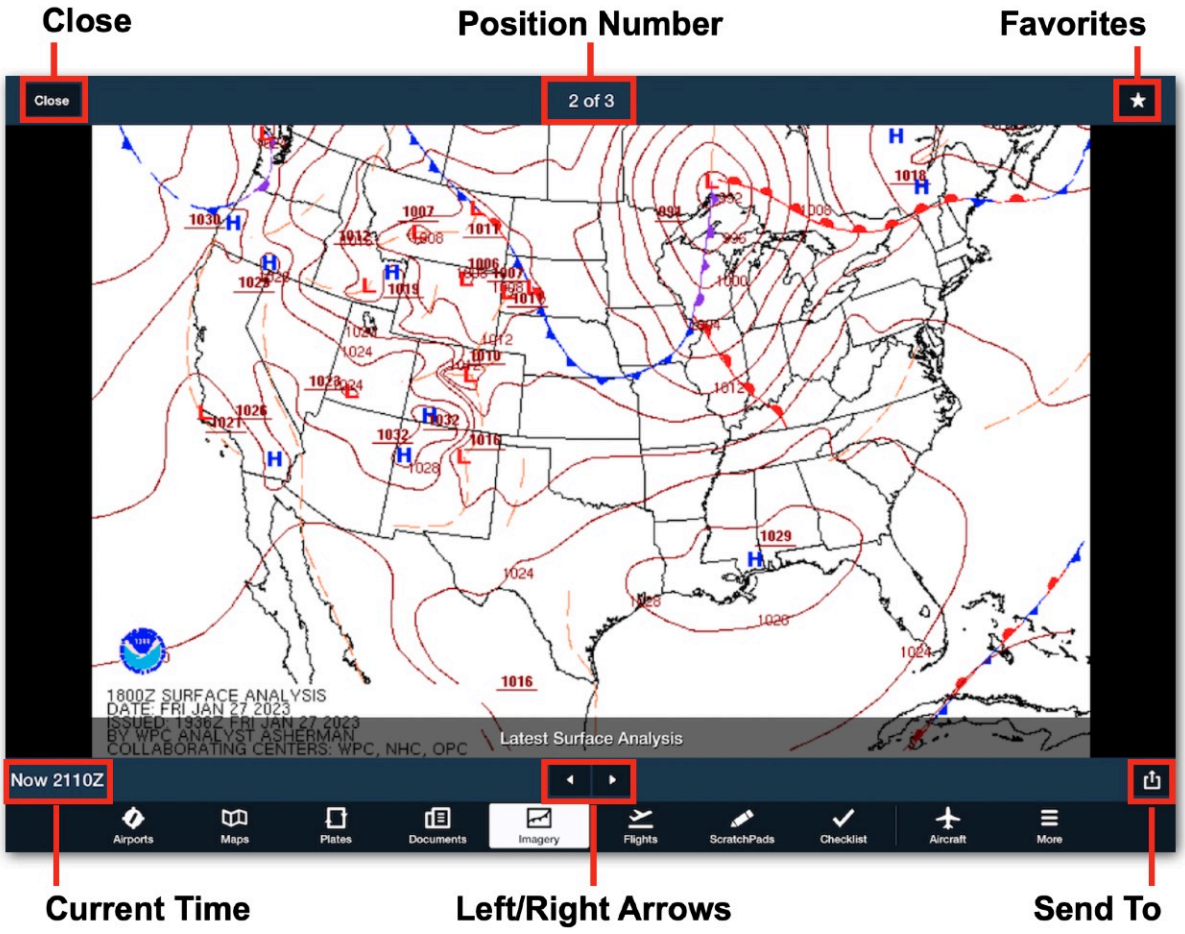


Figure 17-11. Image Controls

17.3.1 Onscreen Finger Gestures

Gestures can be used to zoom on an image, pan across sections of the image, or swipe between images.

- **Panning and Zooming:** When an image is zoomed in, drag one finger across the screen to pan in all directions across the image. To zoom in on an image, touch the screen with two fingers and draw them apart. Use the opposite gesture to zoom out.
- **Swiping to Previous/Next Image:** Swipe with one finger left or right to display the previous or next image in the image set.

17.3.2 Adding to Favorites

Images can be added to the Favorites list for future reference.

To add a Favorite, display that image in full-screen mode and tap the star-shaped button at the top right corner of the screen. When an image is set as a favorite, the star-shaped button is yellow. To remove the image from the favorites list, tap the (yellow) star button again.



Figure 17-12. Favorite (Left), Non-Favorite (Right)

> **NOTE:** Favorite images may not display without an internet connection. To save an image file to the device for offline viewing, use the iOS sharing feature.

17.3.3 iOS Sharing

Images can be copied, saved, printed, or shared with external apps on the iOS device (such as Gmail, AirDrop, or DropBox). To do so, display the image in full-screen mode and tap the Send To button at the bottom right corner of the screen. Select from the iOS options available on the device.

> **IMPORTANT:** Do not rely on images shared outside ForeFlight (by copying, printing, emailing, or saving offline) for flight planning. iOS sharing creates a static snapshot that cannot be updated with current weather data.

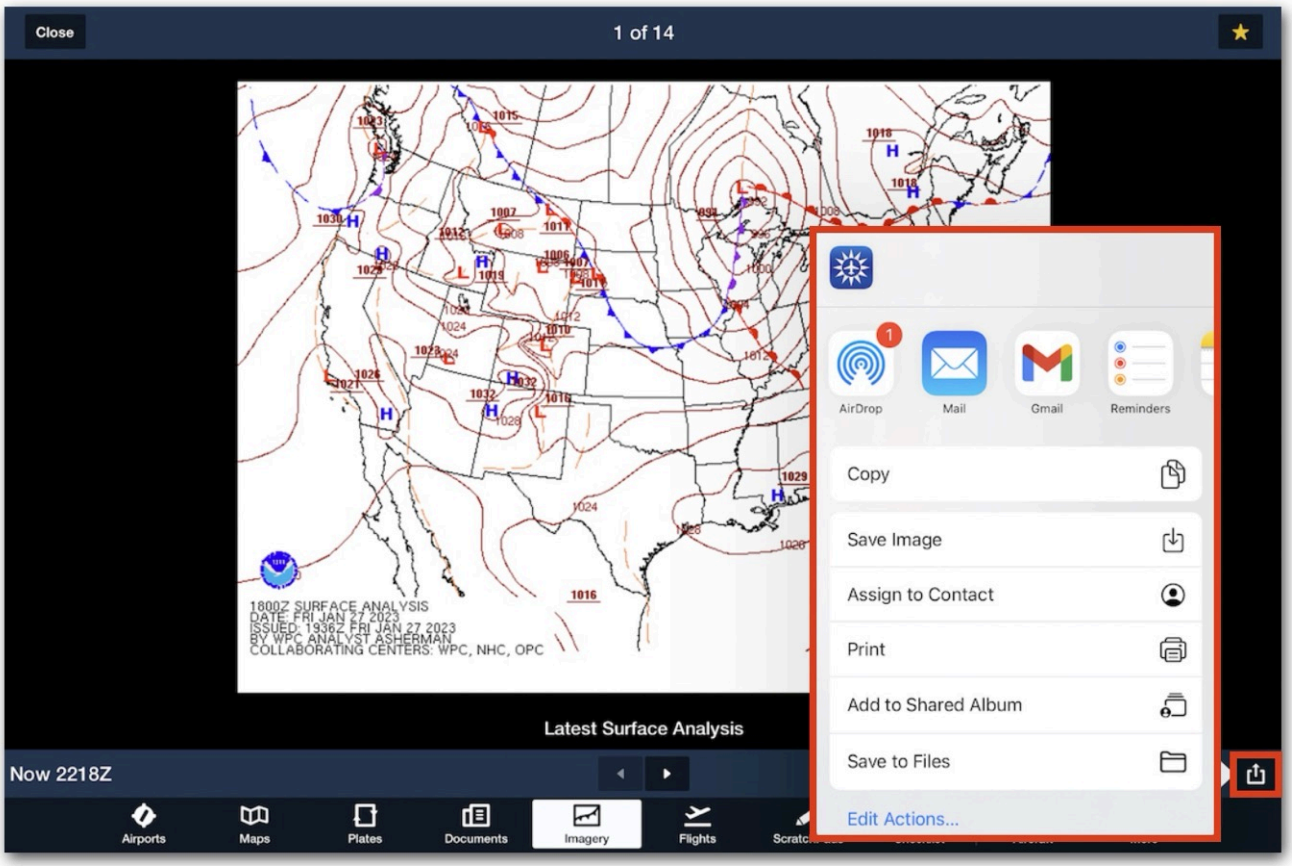


Figure 17-13. iOS Device Sharing

FLIGHTS

The Flights view is a form-based flight planning and flight plan filing tool. The Flights view can also be used to obtain weather briefings and generate Navlogs.

Flights are synced to an account and can be created and edited with an iPad, iPhone, or ForeFlight Web. Some features available on the Flights view may require a subscription upgrade.

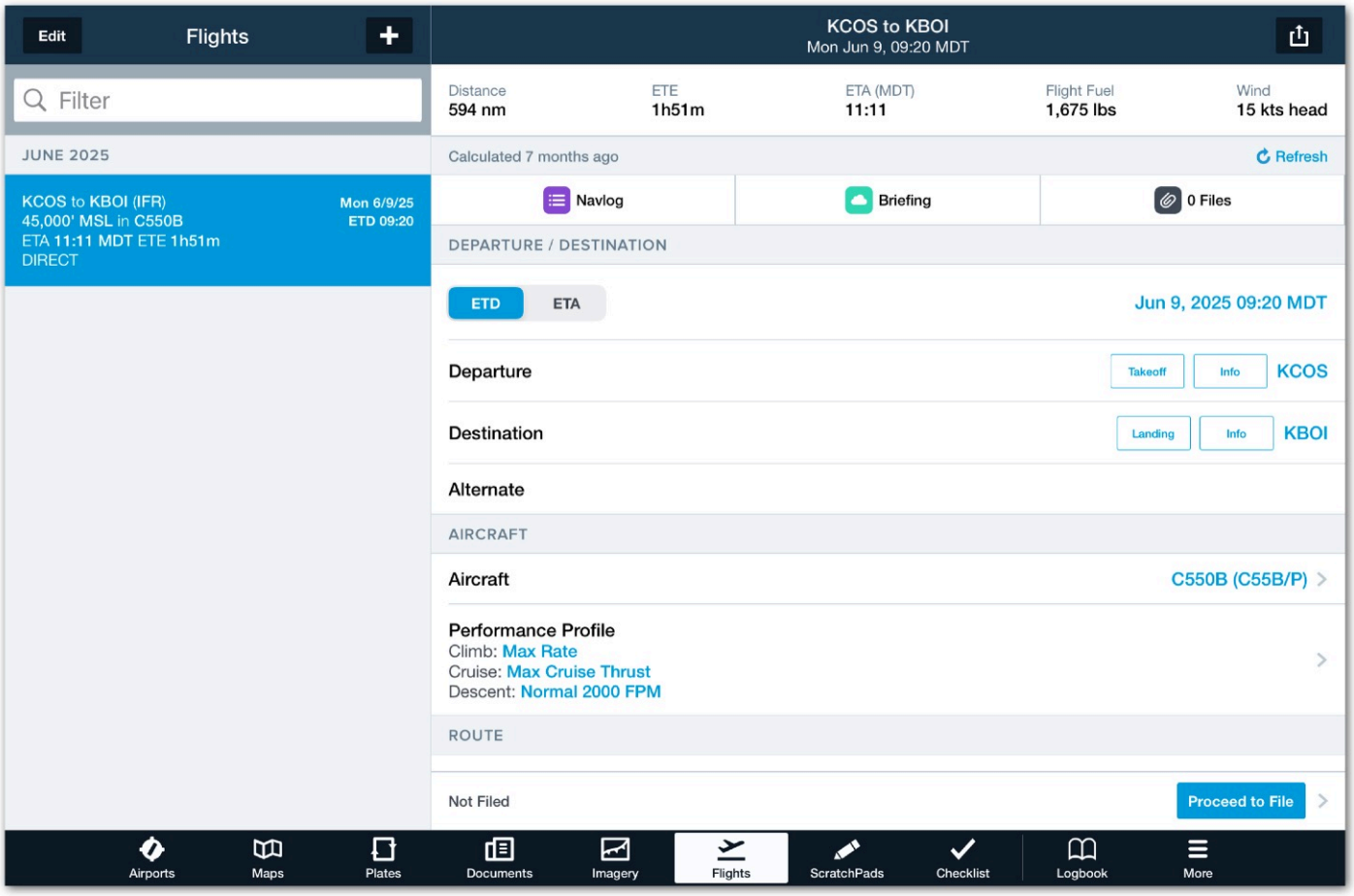


Figure 18-1. Flights View

18.1 Design

The Flights view is divided into two columns. The left column displays the Flights List which provides a summary of all flights associated with the account. The flight summary highlighted in blue is the selected flight and its details are presented in the right column. Tap a flight in the list to select it.

The right column contains the flight planning form. The form is organized with a top-to-bottom workflow from inputting airports, calculating Takeoff & Landing Performance, performing a Runway Analysis, selecting an aircraft, defining a route, entering payload and fuel details, and filing a flight plan.

The top of the view summarizes the flight and provides buttons for generating a Navlog, obtaining a Briefing, and attaching files.

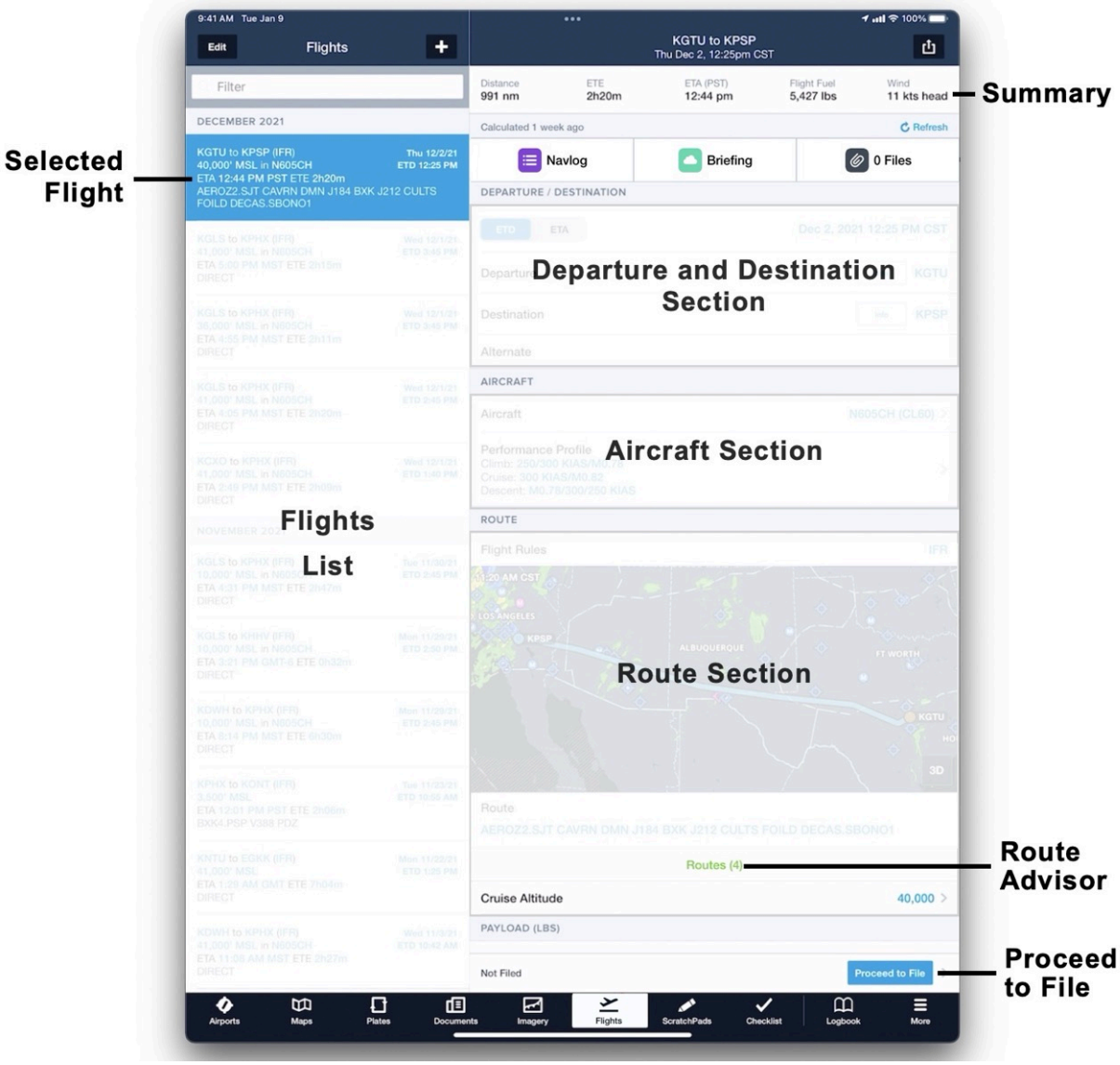


Figure 18-2. Flights View

Business Performance ForeFlight and Premium subscription plans can access the Files, Takeoff & Landing Performance, Payload, Fuel, Weights, and Fuel Order features.

18.2 Creating New Flights

The seven methods for creating a new flight are:

- Tap the new flight button in the upper toolbar
- A route is sent to Flights from the Maps page
- Tap **Add Next Flight** at the bottom of the Flights form
- Tap **Copy Flight** at the bottom of the Flights form
- A flight is created with ForeFlight Web
- A shared flight is accepted
- A flight is assigned by a flight planner using ForeFlight Dispatch.

When a new flight is created, it is added to the flight list and synced to an account, even if no planning details have been entered. A flight planned on one device is available on all other devices signed into the same account (internet connection required).

> **NOTE:** Some methods result in portions of the flight planning form being automatically completed.

18.2.1 Creating a New Flight

The new flight button in the upper toolbar creates a blank flight, with some exceptions. If an account has a default aircraft, performance profile, and cruise altitude, those items are automatically populated. If defaults are not specified, the fields are left blank.

18.2.2 Sending a Route to Flights

Send a route to the Flights page from Maps using the Send To button in the lower-right corner of the Maps Flight Plan Editor. Sending a route to Flights auto-fills all fields with the information entered on the Maps view.

18.2.3 Adding the Next Flight

Add Next Flight creates a new flight using the previous destination, aircraft, and performance profile. For more information, see Add Next Flight.

18.2.4 Copying a Flight

Copy Flight is a button at the bottom of the flight planning form. Tapping this button copies all flight details except for the ETD. This button is useful for copying a shared flight since shared flights cannot be edited. For more information, see Copy Flight.

18.2.5 Shared Flights

Flights can be shared between accounts. When a flight is shared, either from another individual ForeFlight account or ForeFlight Dispatch, a tag is displayed at the bottom of the summary in the flight list. The tag depicts the name of the account that shared the flight. Flights shared from individual accounts are read-only and cannot be edited.

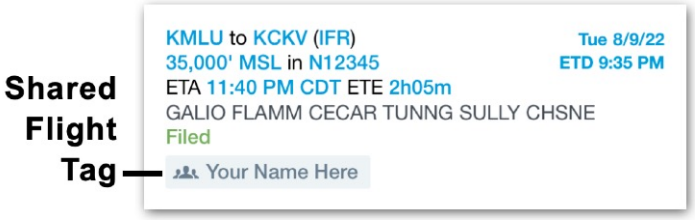


Figure 18-3. Shared Flights

For flights shared from Dispatch, refer to the ForeFlight Dispatch Guide at foreflight.com/dispatch-guide.

As updates are made to shared flights by the flight owner, the changes are reflected on the recipient's device. Shared flights can be copied and edited however, edits to copied flights are not reflected on the original flight.

18.3 Flight Sharing

Once a flight has been created, it can be shared to the Maps, Plates, and Logbook views. Flights can also be shared with other pilots.

To share a flight, tap the Send To button in the upper-right corner of the Flights view. The Send To menu opens, offering a choice of how to share the flight.

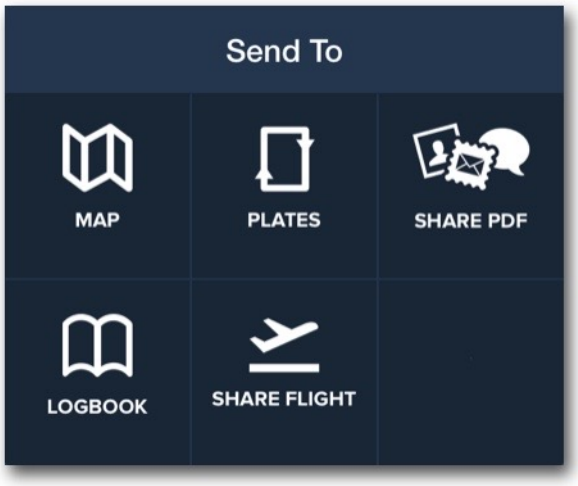


Figure 18-4. Flight Sharing Options

18.3.1 Sending a Flight to Maps

When the **Map** button is tapped, the Maps view opens with aircraft, performance profile, cruise altitude, ETD, and route details copied from Flights.

18.3.2 Sending a Flight to Plates

When **Plates** is tapped, a new Plates Flight Binder with the airport diagrams for the departure, destination, and alternate airports airports is automatically selected.

18.3.3 Sharing a PDF

When **Share PDF** is tapped, a PDF copy of the flight Navlog and filing form is generated. Flight PDFs can be shared via email, text message, AirDrop, and third-party apps.

18.3.4 Sending a Flight to Logbook

When **Logbook** is tapped, a new logbook entry with the aircraft, departure and destination, route, and flight times is created.

18.3.5 Sharing a Flight

The **Share Flight** option allows a flight to be sent to another ForeFlight account. Flights can be shared via email, text message, AirDrop, and third-party app.

When the recipient receives the shared flight, they must tap the share link to accept or deny the flight.

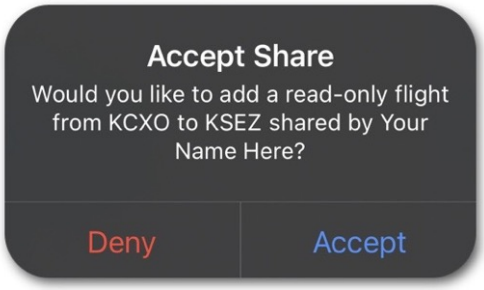


Figure 18-5. Accept Share Menu

When a shared flight is accepted, it is displayed in the flight list as a read-only flight. Any changes made to the flight by the owner are updated on the recipient device.

The recipient of a shared flight cannot make changes to the shared flight or share that flight with someone else. The recipient can copy and edit the copied flight. The copied flight preserves all of the shared flight details except for the original aircraft and performance profile, which uses default aircraft and performance profile of the the recipient.

The recipient of a shared flight can delete a shared flight by swiping from right to left on the flight in the Flights list or by tapping **Delete Flight** at the bottom of the flight planning form. Once deleted by the recipient, the shared flight cannot be restored. However, the flight can be shared by the owner to the recipient again.

If the pilot who shared a flight tries to delete it, a warning advises that deleting the shared flight will also delete it from all recipients of that shared flight.

> **NOTE:** If a flight is shared from a Performance tiered subscription to a recipient without a Performance plan, they will not be able to view the Navlog since the Navlog is dependent upon the plan type.

18.4 Deleting Flights

There are two methods for deleting flights.

- Swipe right to left on a flight in the Flights List and select **Delete**.
- Tap **Delete Flight** ➔ **Delete** from the bottom of the flight planning form.

Deleted flights are removed from all devices signed into the account. If a flight is shared with another user, the flight is deleted from the recipient device when the person sharing the flight deletes it.

Deleted flights cannot be restored. There is not a requirement to delete a flight, however some users may elect to delete flights to reduce the amount of flights in the Flights list.

> **CAUTION:** Do not delete a VFR flight plan that has been activated without first closing it. Deleting a Filed or Activated flight plan does not cancel or close the flight plan.

18.5 Flight List

The Flights list contains summaries for each flight. Flight summaries are sorted by departure time and grouped by month. It is not possible to change how flight summaries are ordered. Tapping a flight in the list makes it the active flight and displays its details in the flight planning form.

18.5.1 Flight Summary

Each flight summary has a minimum of three rows. The summary is dynamic and updates as the flight is planned. If a summary item does not apply to the flight, it is omitted from the summary.

For example, a flight that is not shared does not include a shared flight tag. Similarly, a flight that has not been filed does not include filing status. For more information on filing status, refer to the ForeFlight Filing Guide available in **Documents → ForeFlight**.



Figure 18-6. Flight Summary Layout

18.6 Flight Planning Form

Flight details are displayed in the flight planning form. Details are automatically saved as edits are made. Some details, like the default aircraft, are automatically populated when a new flight is created. However, all flight details are editable at any time.

The following sections describe each component of the flight planning form, starting from the top down.

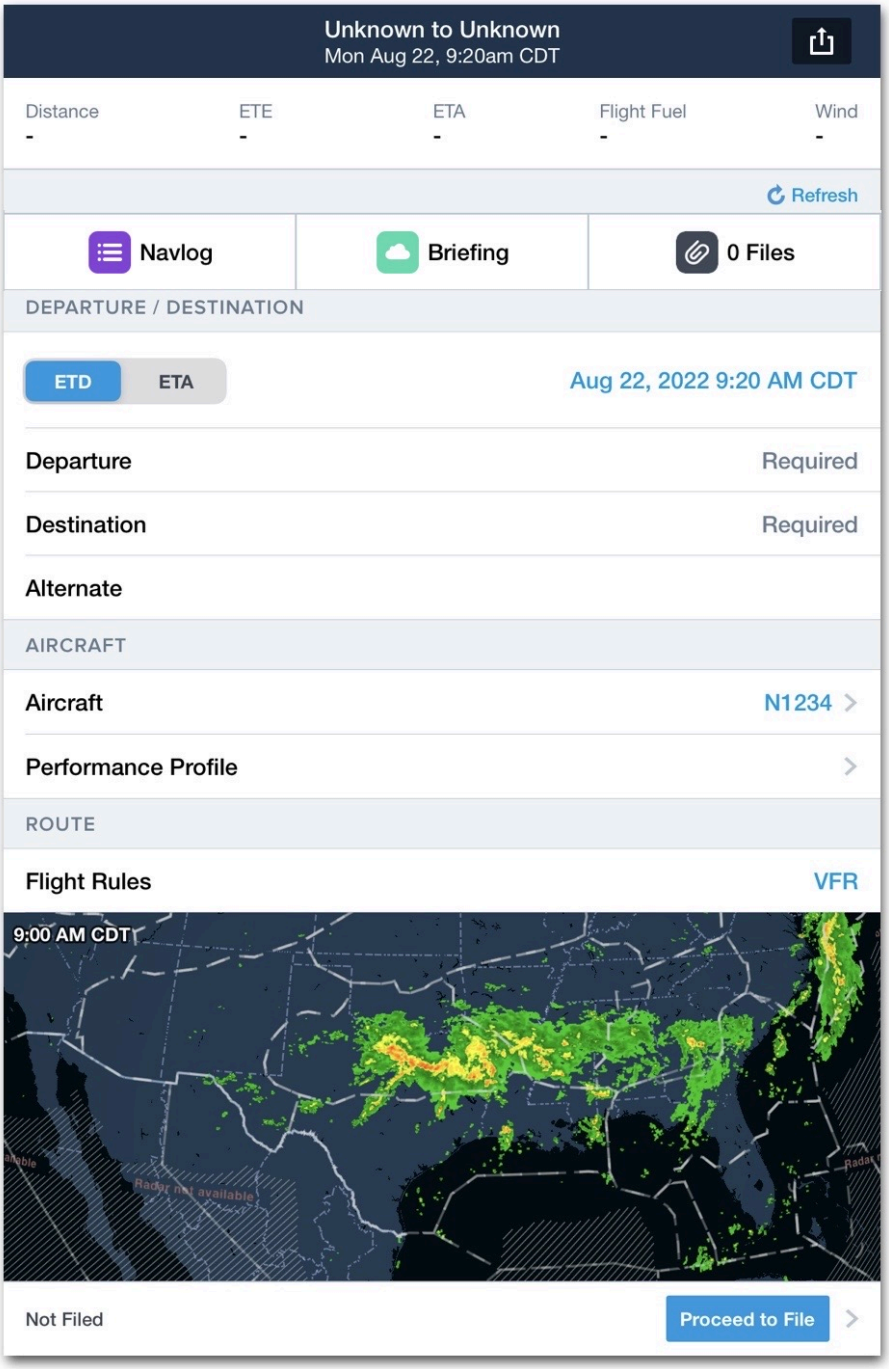


Figure 18-7. Blank Flight Planning Form

18.6.1 Banner Messages

As described below, persistent banners may be displayed to alert the pilot of items needing attention. The banner is either red (warning), yellow (caution), or blue (informative). If multiple error and caution banners exist, tap the banner to display additional details. Informative banners are displayed below errors and cautions.

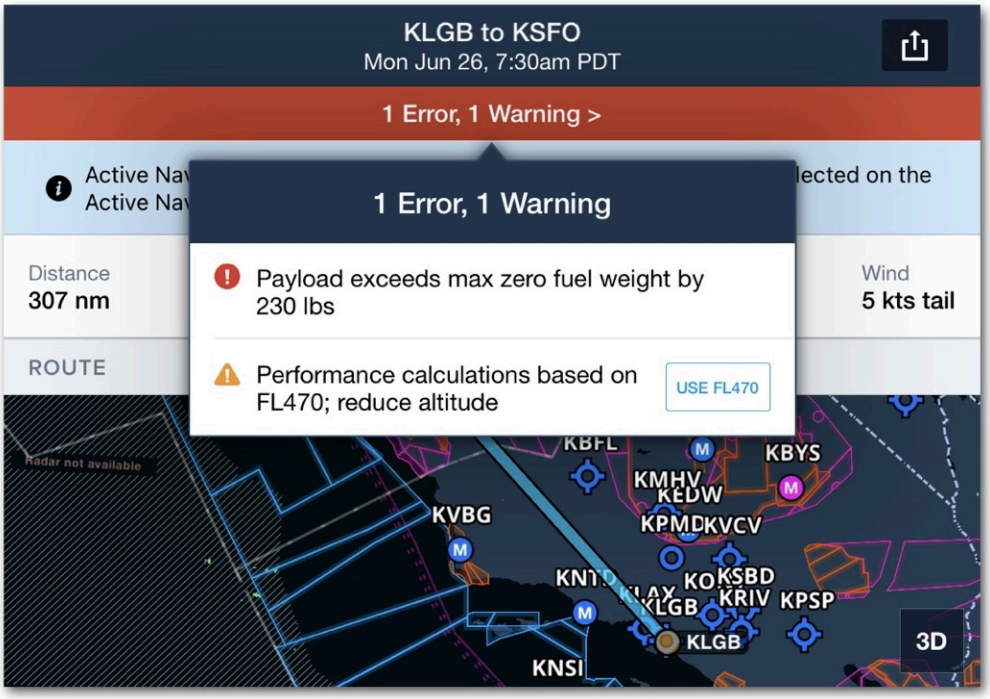


Figure 18-8. Banner Messages

> **Warning Messages**
>
> Displayed when weight or capacity limits are exceeded.

> **Caution Messages**
>
> Displayed for problems that prevent ForeFlight from calculating flight planning results, e.g., selecting a cruise altitude that is above the service ceiling.

> **Informative Messages**
>
> Displayed to aid the pilot. For example, when an active navlog is in progress, a banner is displayed.

CAUTION: Errors and cautions do not prevent flight plans from being filed.

18.6.2 Flight Performance Summary

At the top of the flight planning form is a summary of key planning results that allows quick evaluation of a flight. The summary is always visible and is blank until enough details are entered to calculate results.

The Flight Performance Summary is calculated by evaluating the route between the departure and destination airports using the selected performance profile and forecast wind. Flight time and fuel required to the alternate airport is not included in the summary.



Figure 18-9. Flight Performance Summary

18.6.2.1 Flight Fuel

The Flight Fuel Summary includes the fuel required to start, taxi, take off, and fly to the destination. Start, taxi, and takeoff fuel is specified in the aircraft profile and can be manually edited on the Flights page with a Premium account. Flight Fuel does not include fuel required for an alternate, or any reserve, extra, or contingency fuel.

18.6.2.2 Wind

The wind component in the flight summary is an average of the wind across the duration of the flight.

18.6.2.3 Refreshing the Summary

The Flight Performance Summary is automatically updated each time the flight is edited. The summary does not automatically update as new weather forecasts are issued.

To manually update the performance results with the latest forecast conditions, tap the Refresh button near the bottom right corner. The time the calculations were completed is displayed at the bottom of the summary.

18.7 Navlog, Briefing, and Files

Navlog, Briefing, and Files, buttons are available at the top of the flight planning form. Files is a Performance-tier feature and will be hidden from view unless signed into a Premium, Business Performance, or MFB Performance account.



Figure 18-10. Navlog - Briefing - Files Buttons

18.7.1 Navlog

The Navlog button opens a full-screen detailed Navlog view. Internet connectivity is required to generate a Navlog.

The exact type of Navlog generated depends on ForeFlight account type and user preference. However, all Navlogs include a summary, flight planning results by leg, winds aloft, and departure/destination airport information.

The Navlog can be shared and printed by tapping the share button in the upper-right corner of the Navlog view. Navlogs are also available on ForeFlight Web. Navlogs generated on the web will automatically become available on ForeFlight Mobile and vice versa. See the Navlog chapter for additional information.

18.7.2 Briefing

Briefings can only be obtained from the Flights page. There are two briefing formats, HTML and PDF. See the Briefing chapter for additional information.

18.7.3 Files

ForeFlight Premium subscribers can add files to flights. Files sync between the devices signed into the same account. Files added to a flight are sorted alphabetically and are available offline. Files are associated with flights indefinitely provided the flight is not deleted.

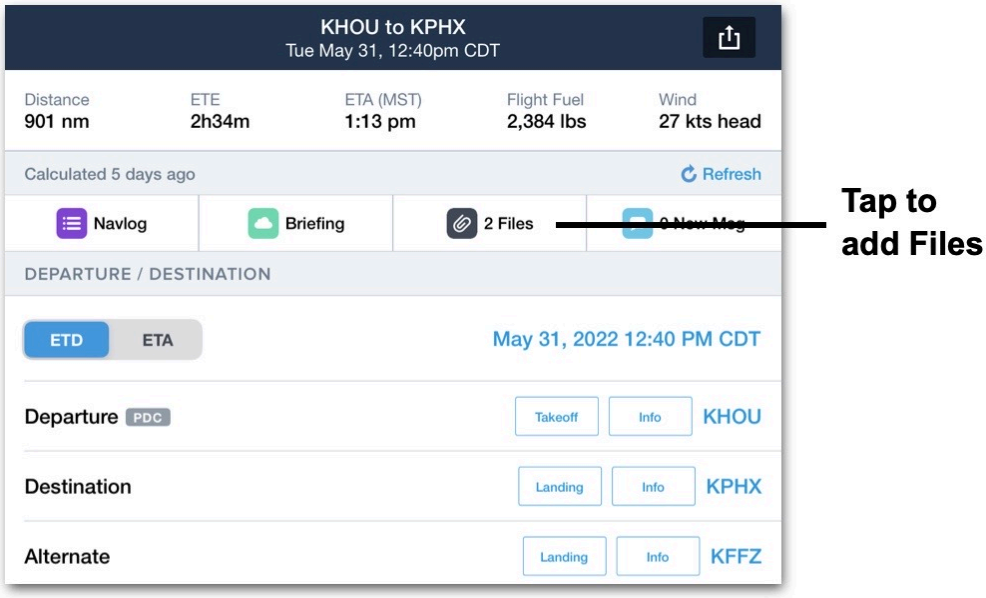


Figure 18-11. Flights View

18.7.3.1 File Types and Size Limits

Flight files support the formats listed below. Individual file attachments are limited to 25 MB or less.

- BMP
- BMPF
- CSV
- DOC
- DOCX
- GIF
- JPEG
- JPG
- KEY
- NUMBERS
- PAGES
- PDF
- PNG
- PPT
- PPTX
- TIF
- TIFF
- TXT
- XLS
- XLSX

18.7.3.2 Adding Files to a Flight

To add a file to a flight, tap the **Files** button at the top of the flight planning form. Then, tap the ✚ button in the upper toolbar to add files. Files can be added from Photos or the device iOS Files app. Select where the file will be imported from and then choose the file to attach to the flight.

Files can also be imported with AirDrop. To import via AirDrop, select **ForeFlight → Flights** from the AirDrop "Open with…" menu. Once a file has been added, the **Files** button depicts the number of files currently attached to the flight.

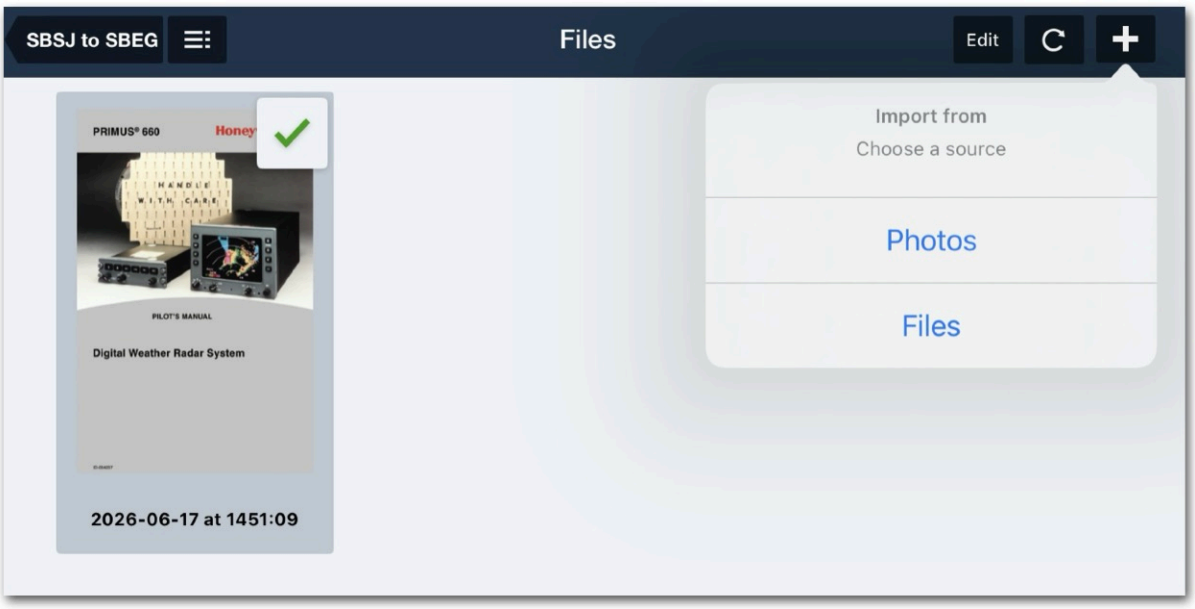


Figure 18-12. Adding a File to a Flight

18.7.3.3 Editing Files

To edit a file, tap the file thumbnail to open the file viewer. Tap **Edit** to annotate, rename, or delete the file. Not all file types are able to be annotated.

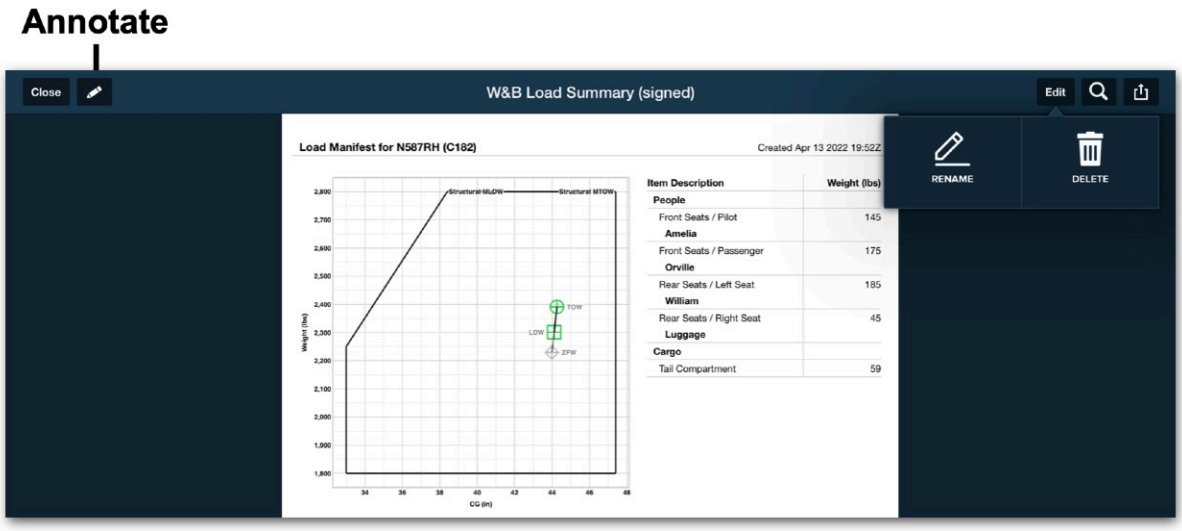


Figure 18-13. File Viewer

18.8 Departure and Destination

The Departure / Destination section specifies the departure time, departure location, destination, and alternate airport.

Pilots planning with a Premium account and a supported piston-engine aircraft can also calculate Takeoff & Landing Performance from this section. Customers with a Runway Analysis license for a supported turbo-prop or jet aircraft can access Runway Analysis performance data from this section.

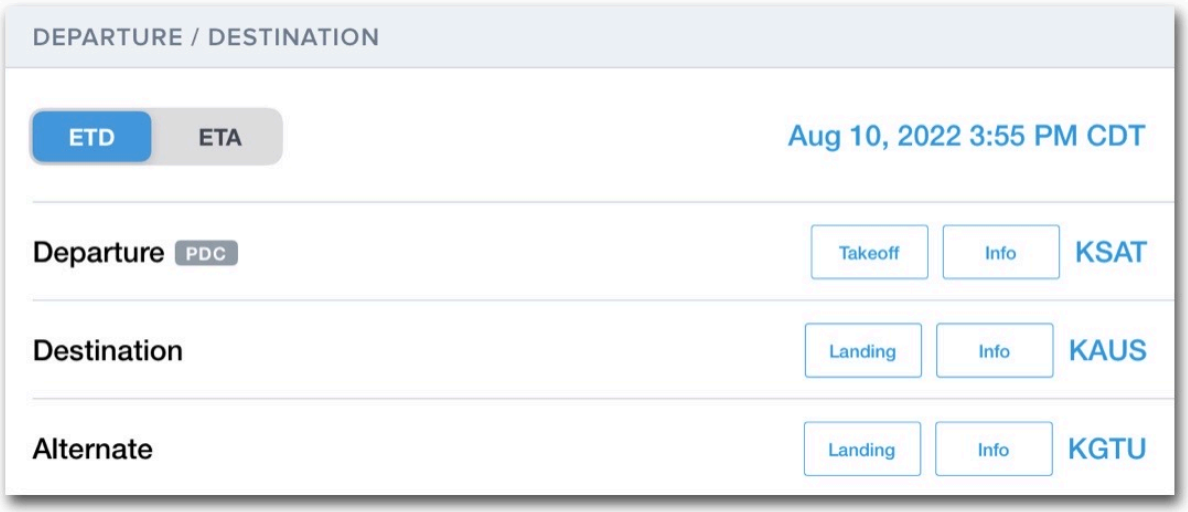


Figure 18-14. Departure / Destination Section - Premium Account

18.8.1 Departure Time

The Departure Time field specifies the estimated departure time for planning and filing purposes. When creating a new flight, the ETD is set to approximately ten minutes from the current time (rounded to the nearest five-minute interval).

The date field uses the format (e.g., month/day/year) based on the iPad or iPhone region setting. Region settings can be located in the iPad or iPhone **Settings → General → Language & Region**.

18.8.1.1 ETD/ETA

The ETD/ETA buttons are a Premium features that determine whether the selected date/time represents the beginning or end of the flight. Select ETD to set the date/time as the departure time, and the arrival time will be calculated. Select ETA to set the date/time as the arrival time, and the departure time required to arrive at the selected time ETA will be calculated.

18.8.2 Departure

The Departure field specifies the departure location for the flight. The departure field supports ICAO identifiers, airport names (if the airport lacks an identifier), user waypoints, coordinates, and place/bearing/distance entries. If the departure location is something other than a published ICAO identifier or airport name, ForeFlight Mobile will convert the location to coordinates when filing.

> **NOTE:** While the Departure field can include the name of an airport without an identifier (if the flight was sent from the Maps view), airports without identifiers cannot be manually entered in this field.

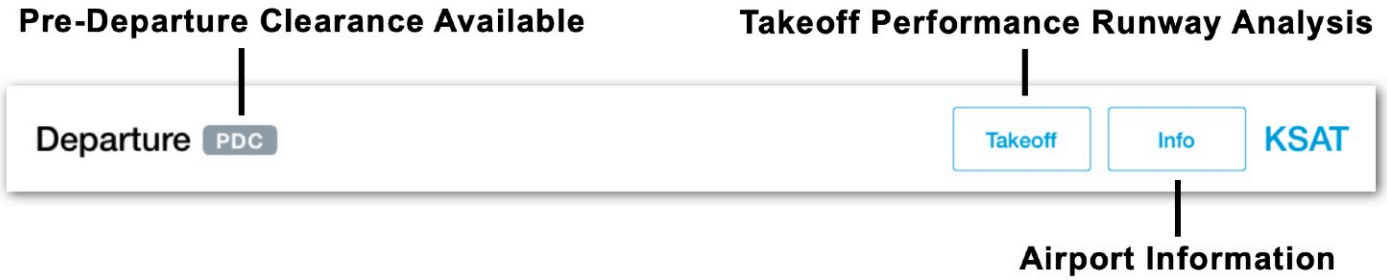


Figure 18-15. Departure Section

18.8.2.1 PDC

When planning to depart from an airport that supports Pre-Departure Clearance (PDC), a PDC tag is displayed to the right of the Departure label. PDC is a Premium feature.

18.8.2.2 Takeoff Performance and Runway Analysis

When planning a flight with a Premium account and a supported piston engine aircraft (or a jet or turbo-prop with a Runway Analysis license), a Takeoff button appears if runway data is available. The Takeoff button opens a split-screen Takeoff Performance or Runway Analysis view.

18.8.2.3 Airport Info

Once an airport is selected, an Info button appears to the left of the airport identifier. Click Info to display the airport pop-up menu to find detailed information about the airport.

18.8.3 Destination

The Destination field specifies the flight destination. The field supports ICAO identifiers, airport names (if the airport lacks an identifier), user waypoints, coordinates, and place/bearing/distance entries. If the location is something other than a published ICAO identifier, ForeFlight Mobile will convert the location to coordinates when filing.

> **NOTE:** While the Destination field can include the name of an airport without an identifier (if the flight was sent from the Maps view), airports without identifiers cannot be manually entered in this field.



Figure 18-16. Destination Section

18.8.3.1 Landing Performance and Runway Analysis

When planning a flight with a Premium account and a supported piston engine aircraft (or a jet or turbo-prop with a Runway Analysis license), a Landing button appears if runway data is available. The Landing button opens a split-screen Takeoff Performance or Runway Analysis view.

18.8.3.2 Airport Info

Once an airport is selected, an Info button appears to the left of the airport identifier. Click Info to display the airport pop-up menu to find detailed information about the airport.

18.8.4 Alternate

The Alternate field specifies the alternate airport for flight planning and filing purposes. Tapping the **Alternate** field opens the Alternate Advisor in a pop-up window.

18.8.4.1 Alternate Advisor

The Alternate Advisor suggests alternate airports based on several variables such as time and fuel requirements, forecast weather conditions, available approach procedures, and if an airport was previously selected as an alternate on flights with the same destination. To enter an alternate airport not in the suggested list, tap **Airport Code** and type the desired alternate airport. Airports without identifiers cannot be entered as an alternate.

The Alternate Advisor map shows each alternate with a gray line between it and the destination airport. Tap an alternate airport to highlight the route from the destination to the alternate. Tap the **Add Airport** button at the bottom of the Alternate Advisor to select it as the alternate.

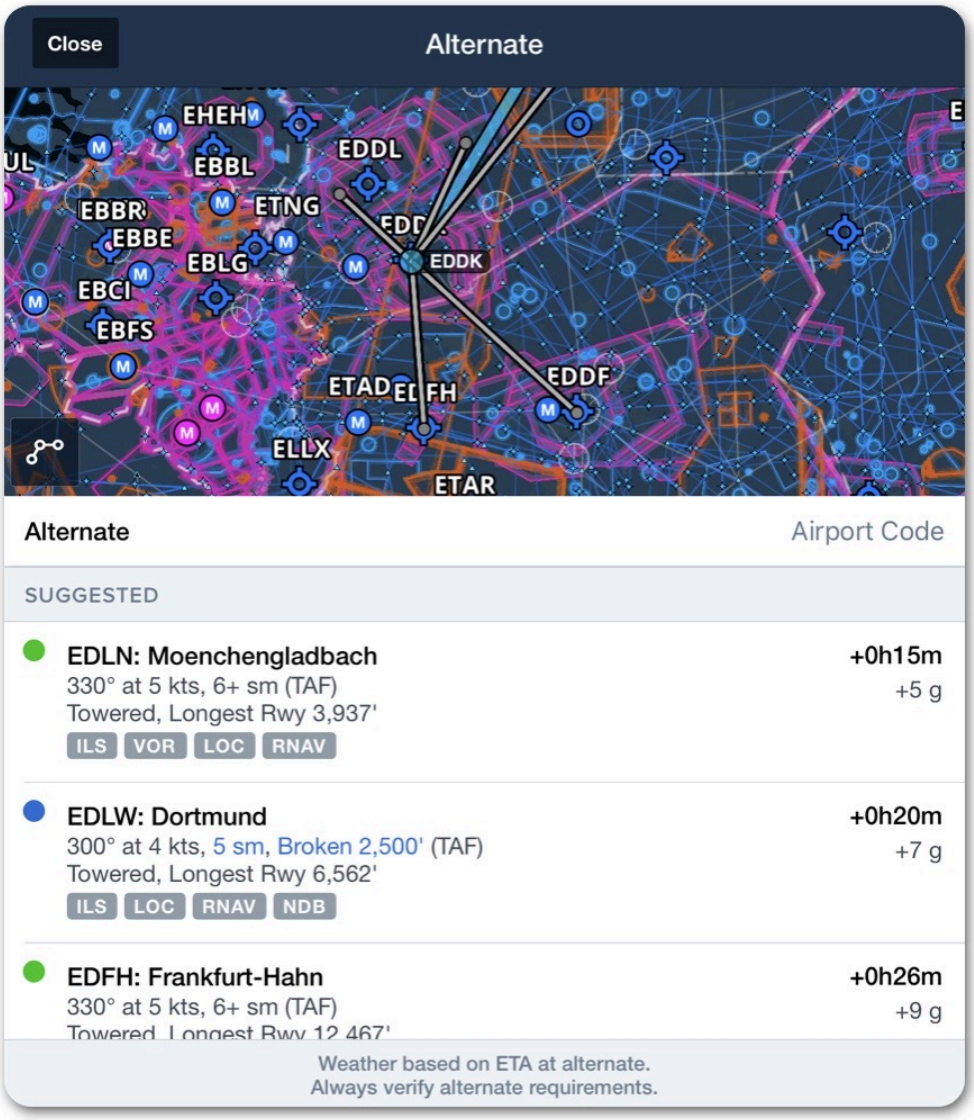


Figure 18-17. Alternate Advisor

18.8.4.2 Alternate Advisor Performance Calculations

Time and fuel calculations to the alternate airport are based on a direct route from the destination airport to the alternate using the same performance profile as the rest of the flight and a cruise altitude appropriate to the distance to the alternate. To account for missed approach, holding, and another instrument approach, a fuel buffer is added. See the Fuel section of this chapter for additional information.

18.8.4.3 Alternate Airports with a Dispatch license

When planning with an aircraft that has a ForeFlight Dispatch license, multiple alternate airports and a distinct performance profile, route, and cruise altitude for each alternate may be specified.



Figure 18-18. ForeFlight Mobile Alternate Airports (ForeFlight Dispatch)

18.8.4.4 Specifying Alternate Routes and Performance Profiles

To specify a unique route or cruise profile to the alternate airport:

1. Tap one of the alternate fields.
2. Select an alternate airport and tap **Select Options**.
3. Specify a route manually or use the Route Advisor.
4. Specify an altitude to the alternate airport.
5. Select a cruise profile.

6 Tap Add as Alternate.

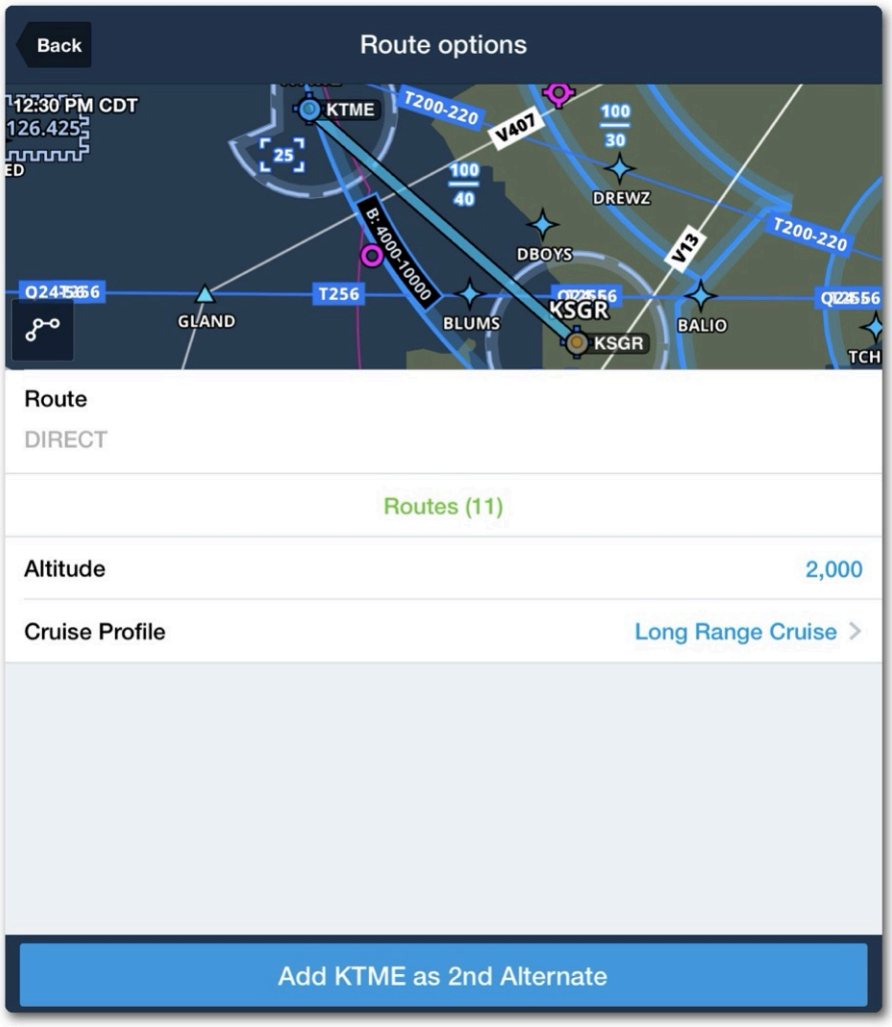


Figure 18-19. Alternate Route options with ForeFlight Dispatch

18.9 Aircraft

The Aircraft section specifies the aircraft and performance profile for the flight.

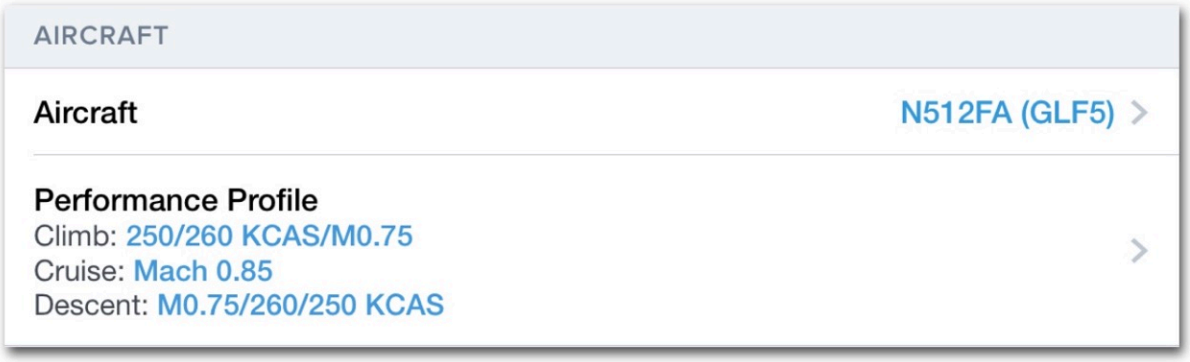


Figure 18-20. Selected Aircraft and Performance Profiles

18.9.1 Aircraft Profile

When creating a new flight, the aircraft field is automatically populated with the default aircraft. If no default aircraft is specified, the aircraft from the last flight is automatically populated. If no prior flights exist, the aircraft field is blank.

To select an aircraft profile, tap the aircraft field and choose an aircraft from the list. Aircraft profiles can be edited from the Flights page by tapping **Edit** when viewing the list of aircraft profiles. For more information on aircraft profiles, see the Aircraft chapter.

18.9.2 Performance Profile

When creating a new flight, the performance profile is automatically populated with the default profile for the selected aircraft. To select a different performance profile, tap the selected profile and choose a different one from the list (if applicable).

Performance profiles can be edited from the Flights page by tapping **Details** when viewing the list of performance profiles. For more information on performance profiles, see the Performance section of the Aircraft chapter.

18.10 Route

The Route section displays flight rules, an interactive map, the elements of the route, and the cruise altitude.

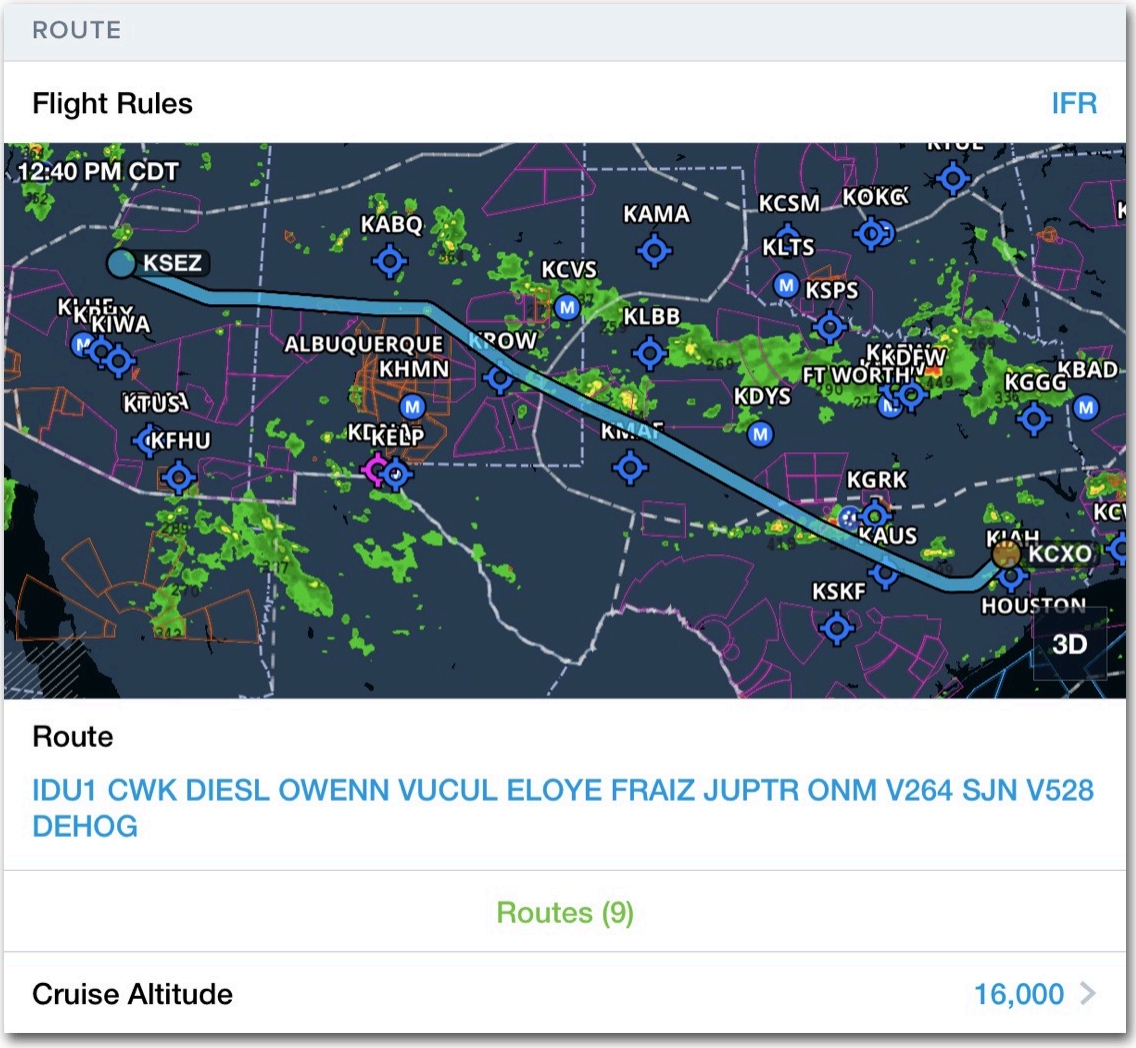


Figure 18-21. Flight Rules, Route, and Cruise Altitude

18.10.1 Flight Rules

The Flight Rules field is automatically populated when a flight is created by evaluating the route and cruise altitude. When creating a new flight, the default cruise altitude (specified in the aircraft profile) determines the flight rules. For example, if the default cruise altitude is 5,500 ft, new flights will automatically populate with VFR flight rules.

Cruise altitudes that are divisible by 1,000 result in the IFR flight rule automatically being selected. Planning with a VFR altitude (altitude which is divisible by 500) results in the VFR flight rule automatically being selected.

Routes that contain a flight rule change will automatically result in the appropriate composite flight rule (Y or Z).

Once a flight rule has been assigned, it will only update automatically if selecting a new route from the Route Advisor. Manually editing the route or changing the cruise altitude does not update the flight rule.

Flight rules can be manually changed at any time regardless of the planned route or cruise altitude. To change the flight rule, tap the current one and select a new one from the pop-up menu.

> **NOTE:** DVFR and VFR (DC SFRA) flight rule types are not automatically selected.

18.10.2 Interactive Map

The Route section contains an interactive map. Tap the map to expand it. Once expanded, the map can be panned and zoomed. Tap the button in the lower-left corner of the map to recenter the map on the route.

The map color is determined by the Aeronautical Map Theme setting (Classic, Light, or Dark).

The map displays the route, aeronautical map, and composite radar layer. The aeronautical map elements cannot be filtered and additional map layers cannot be added.

18.10.2.1 3D Preview

The planned route can be previewed in 3D with a Premium account. To preview the route, tap the **3D** button on the map before expanding it.

18.10.3 Routing

The Route field displays the planned route. There are two methods for planning a route. Using the Route Advisor or manually editing a route.

18.10.3.1 Route Advisor (Recommended)

To plan a route using Route Advisor, tap **Routes (x)** where "x" represents the number of available routes for the airport pair. Route Advisor opens in a pop-up window with a list of potential routes that may be selected for the pair of departure and destination airports.

Manual Editing

To manually edit a route, tap the Route field and use the keyboard to customize the route. Route elements are separated by a space.

Certain route legs will be labeled with non-standard conventions see Lat/Long Coordinates and ForeFlight Identifiers.



Figure 18-22. Route Section

Lat/Long Coordinates

Airports without ICAO, IATA, FAA, or other short-code identifiers will be labeled on the route as decimal degrees (DD.dd°) coordinates. For example, a leg leading to Garbenheimer Weisen is listed as "50.575/8.532".

ForeFlight Identifiers

VFR waypoints without ICAO-standard identifiers will use the ForeFlight Identifier (FF Identifier). The FF Identifier is an ICAO formatted code, generated by ForeFlight Mobile, that consists of portions of the waypoint name and its associated airport.

For example, the VFR waypoint "November 2" that is associated with Cologne-Bonne (EDDK) airport would be labeled on the route as "DKNOV2". This convention is also followed in the Navlog, Briefing, and Logbook. However, when filing, ForeFlight Mobile automatically converts these waypoints to coordinates in the Degree Minute format.

18.10.4 Cruise Altitude

The cruise altitude field opens the Altitude Advisor which displays the forecast winds aloft at various altitudes. To select a cruise altitude, tap the current altitude then select a new one from the Altitude Advisor pop-up menu.

18.10.5 Contingency Planning

When a flight is planned with a Dispatch account, a Contingency Planning section is added to the Flights view.



Figure 18-23. Contingency Planning Section

This section can be tapped to let pilots view, add, or edit the ETP pairs, and to configure whether ETOPS rings and PSR waypoints are visible in the .

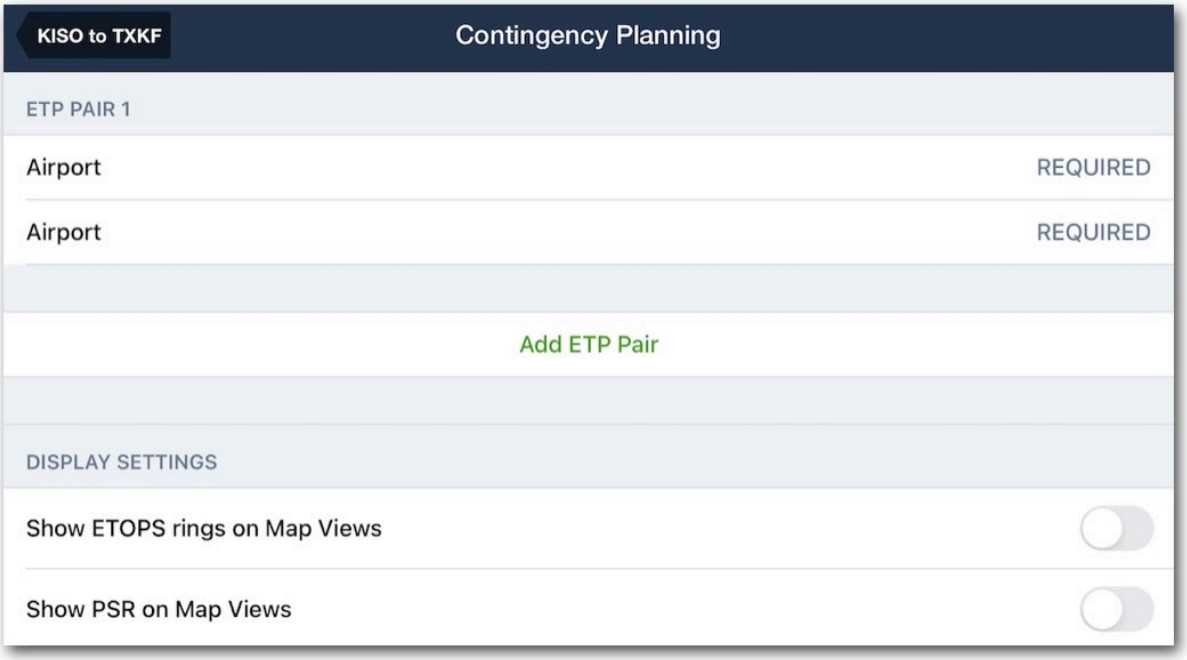


Figure 18-24. Contingency Planning Fields

18.10.5.1 ETP Pairs

Equal Time Point (ETP) pairs are used to inform pilot decision-making during the following in-flight emergency scenarios: loss of one engine, loss of cabin pressure, and medical emergencies. For each scenario, an ETP is placed at the point along the route where the time to continue to the second airport is the same as the time to turn around and return to the first airport given the emergency procedure of each scenario.

Coast-to-coast transoceanic flights may only have one ETP pair representing the departure and destination airports. However, if the aircraft passes close enough to additional airports along the route, these airports can be designated as additional ETP pairs to give pilots more emergency landing options.

To modify an existing ETP pair or add an ETP pair:

1. On the Flight Planning Form, tap **Contingency Planning**.
2. On the Contingency Planning view, tap **Add ETP Pair**.
3. In the newly created ETP PAIR [1,2,3, etc…] section, tap the first **Airport** row and select the first ETP airport.
4. Tap the second **Airport** row and select the second ETP airport.

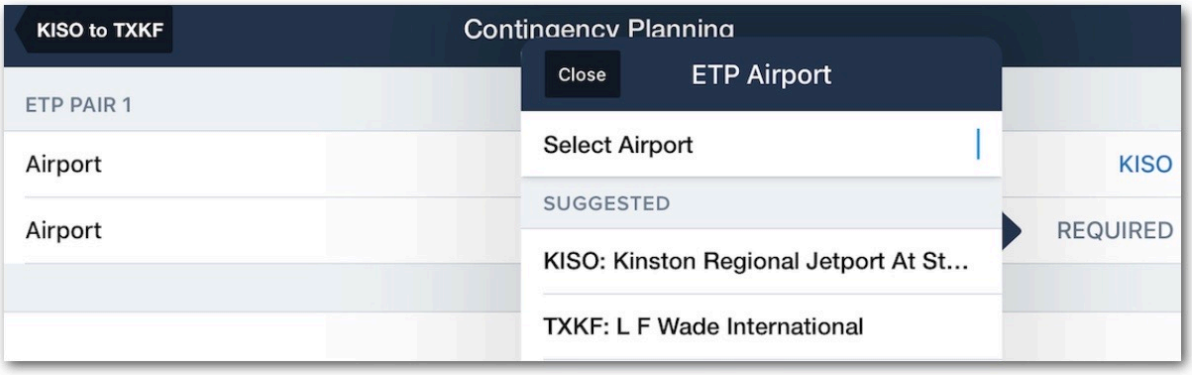


Figure 18-25. Adding ETP Pairs

To delete an ETP pair from the flight, swipe left on the ETP Pair header or one of its Airport rows, and tap **Delete**.

NOTE: ETP Pairs are only visible on the Active Navlog Route Preview Map. They are not visible on the Flights page Route Preview Map.

18.10.5.2 Active Navlog Map Settings

When a transoceanic flight is planned with a Premium account, the Active Navlog Route Preview Map shows a route preview. Additionally, it can optionally show or hide the route ETP pairs, PSR waypoint and ETOPS rings. Use the toggle buttons to activate one or both views shown below.

18.10.5.3 PSR Waypoint

The Point of Safe Return (PSR) waypoint is a point along the route where an aircraft can turn around and safely return to the departure airport, given planned fuel, weather, and other factors. To display or hide the PSR waypoint on the Active Navlog Route Preview Map:

1. On the Flight Planning Form, tap **Contingency Planning**.
2. On the Contingency Planning view, toggle the **Show PSR on Map Views** switch on or off as desired.

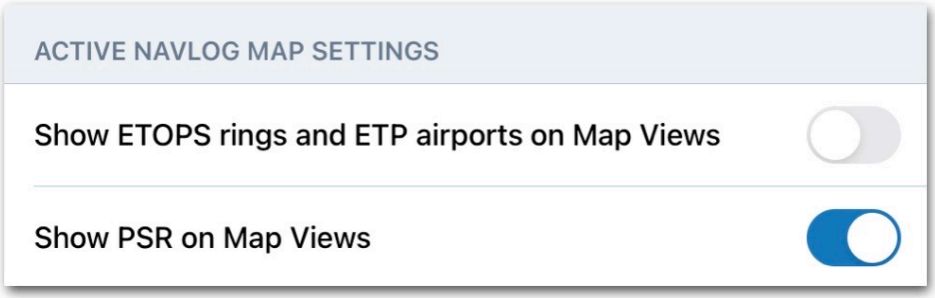


Figure 18-26. PSR Toggled On

NOTE: The PSR Waypoint is only visible on the Active Navlog Route Preview Map. It is not visible on the Flights page Route Preview Map.

18.10.5.4 ETOPS Rings

Extended-range Twin-engine Operations Performance Standards (ETOPS) rings are drawn around the ETP airports along a route of flight. To display or hide the ETOPS rings on the Active Navlog Route Preview Map:

1. On the Flight Planning Form, tap **Contingency Planning**.
2. On the Contingency Planning view, toggle the **Show ETOPS rings on Map Views** switch on or off as desired.

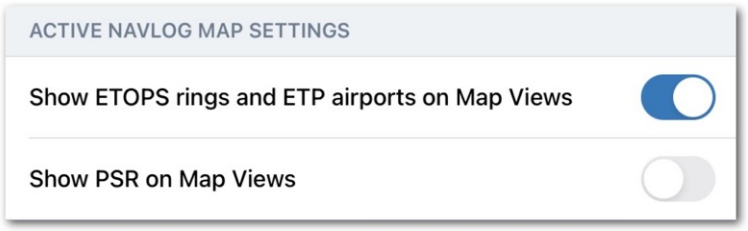


Figure 18-27. ETOPS and ETP Toggled On

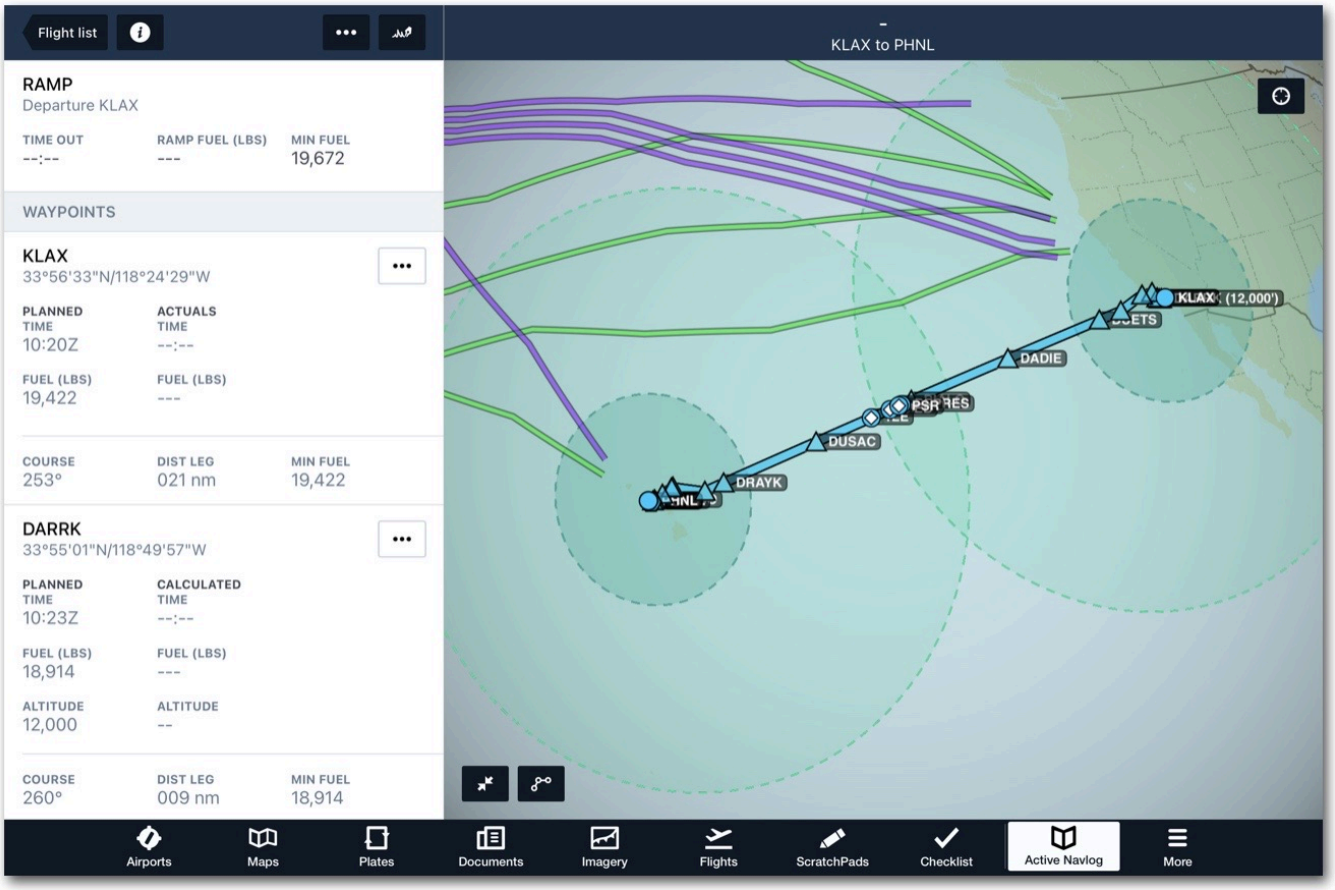


Figure 18-28. Active Navlog Preview Map

NOTE: The ETP waypoints, PSR waypoints, and ETOPS rings will only be displayed on the the Active Navlog Route Preview Map. Only ETOPS rings are visible on the Flights page Route Preview map

18.11 Payload

Payload is a Premium feature that is used for planning weight and balance. This section permits two planning methods. The first method allows weight and balance to be quickly calculated using average weights. The second method integrates the weight and balance profile for more detailed planning.

When a new flight is created, the payload section only contains three editable fields (cargo, people count, and average weight). These fields provide basic weight planning functionality. Detailed weight and balance planning can be done from the Flights view by tapping **Weight and Balance** at the bottom of the Payload section. The weight and balance button opens the weight and balance view and integrates the information into the flight.

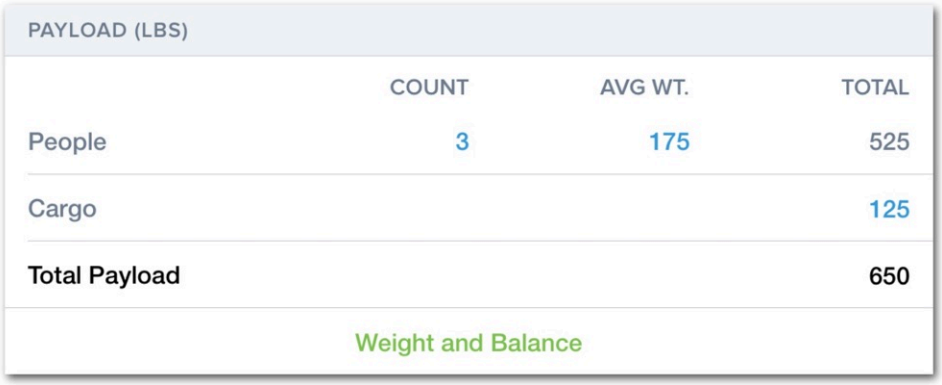


Figure 18-29. Payload Section - Basic Planning

18.11.1 People

When a new flight is created, the People field initially contains two editable values (count and average weight). The default value for the number of people is either 1 or 2, based on the minimum crew requirement for the aircraft.

The starting default value for the average weight is 200 pounds. The average weight is editable. If the average weight is adjusted, the adjusted amount is carried forward to subsequent flights. Total people weight is calculated by multiplying the people count by the average weight.

18.11.2 Cargo

When a new flight is created, a single editable field exists for entering cargo weight. The default cargo weight is zero. Tap the total cargo weight to edit it manually.

18.11.3 Weight and Balance

The **Weight and Balance** button is displayed at the bottom of the Payload section with a Premium account. When the button is tapped, the Weight & Balance view is opened. This view is used to enter detailed payload and fuel information. After entering payload information, tap **Back** in the upper toolbar to return to the Flights view.

After returning to the Flights view, the weight and balance is integrated into the flight (e.g., fuel entered in Weight & Balance is copied to the Fuel section of Flights). For more information, refer to the ForeFlight Weight and Balance Guide in **Documents ➔ ForeFlight**.



Figure 18-30. Integrated Weight and Balance

18.11.3.1 Weight and Balance Signature

Once the W&B calculation is complete, it can be digitally signed using a secure PIN, locking the data to ensure record-keeping integrity and regulatory compliance.

E-Sign Weight & Balance is available with for Business Performance subscriptions with Active Navlog.

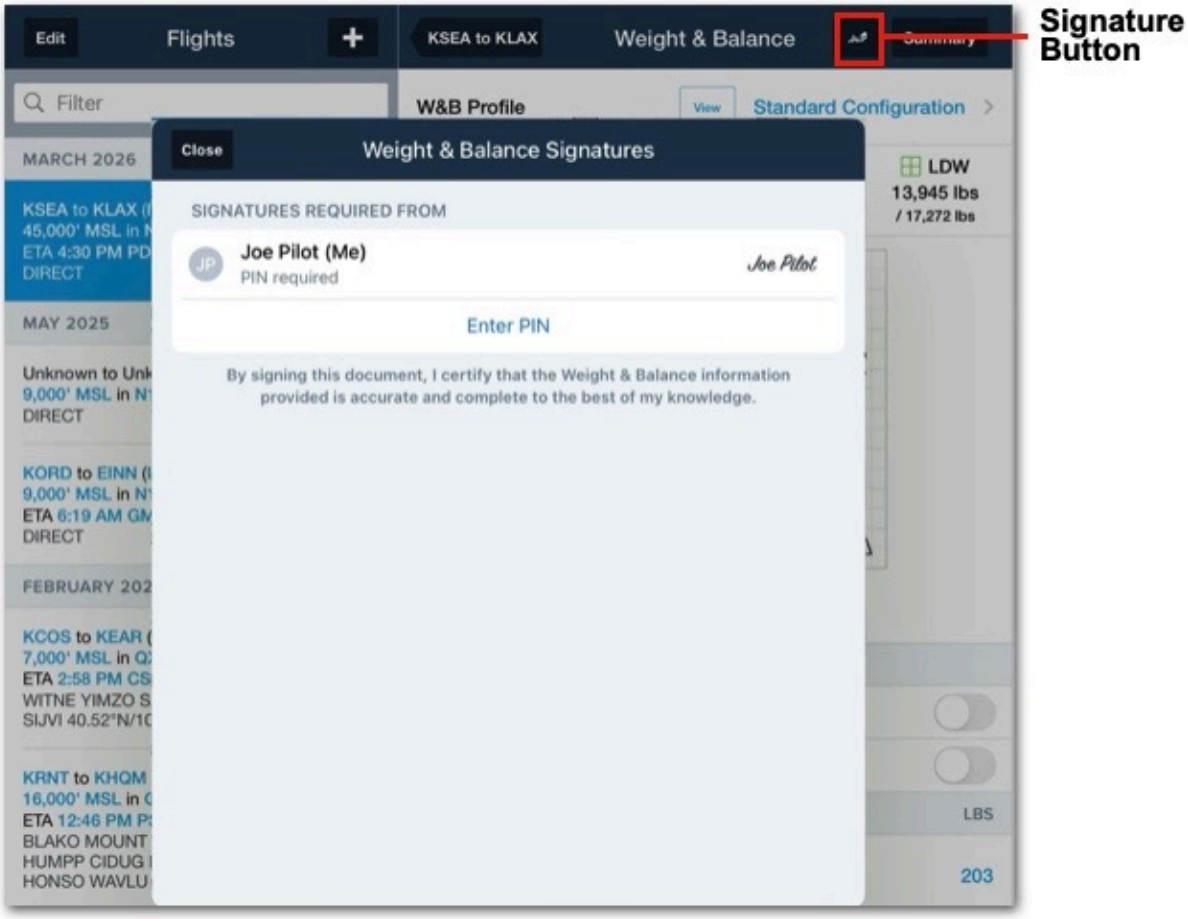


Figure 18-31. Weight and Balance Signatures

To add a signature:

1. Tap the Signature button in the top-right of the W&B view.
2. Tap **Enter PIN** .
3. Enter the unique PIN to apply the signature.

If changes are needed after the W&B has been signed, tap the signature button and **Remove Signature** to unlock the W&B view.

18.12 Fuel

The Fuel section is only available with a Premium account and contains a Fuel Policy selector and a Fuel Table. The Fuel Policy determines how much fuel is required for the flight at start.

When planning with a Dispatch, European Business, or Australian Business account, a Reserve Fuel Policy selector is available. The Reserve Rule Policy determines how much reserve fuel is required based on a selected regulatory requirement.

The Fuel Table is dynamic and adjusts based on the aircraft type, ForeFlight subscription, and fuel policy.

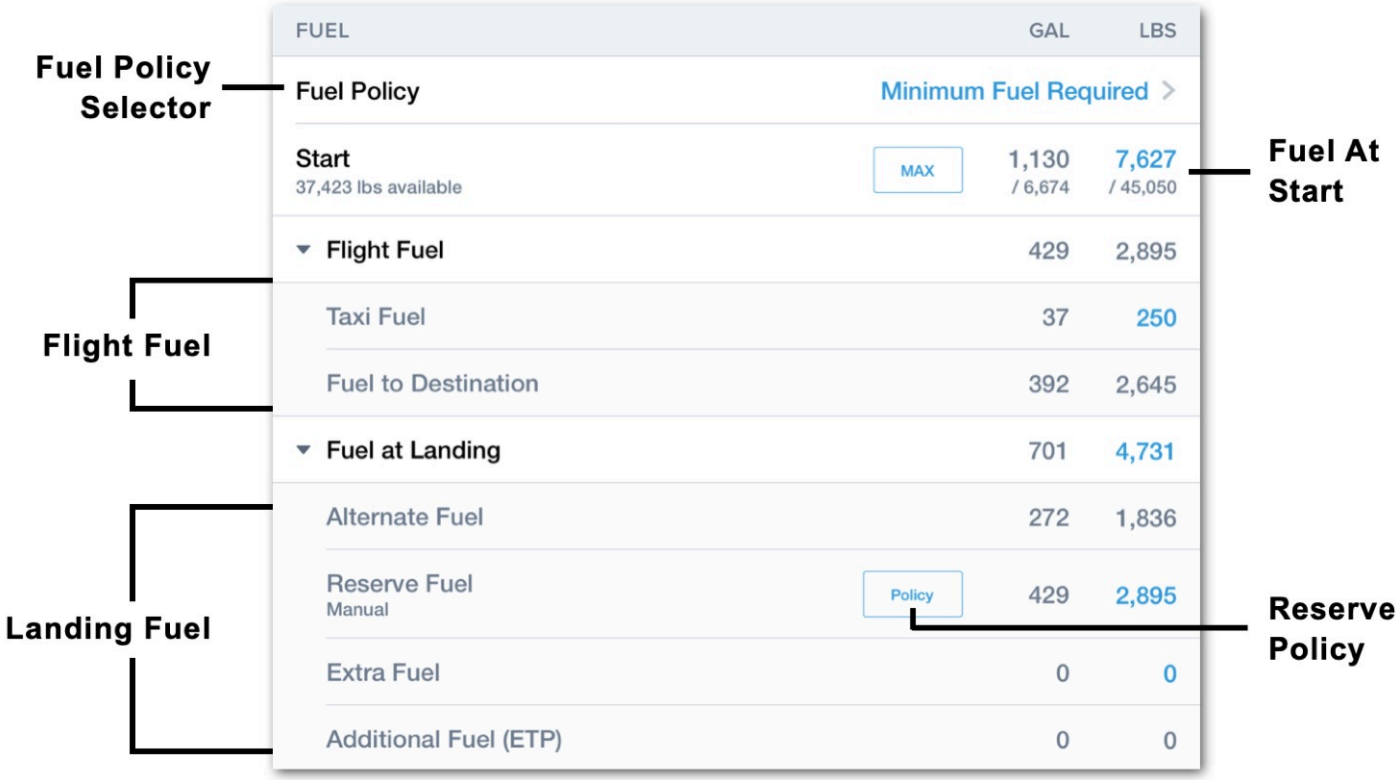


Figure 18-32. Flights Fuel Section

18.12.1 Fuel Policy

The Fuel Policy lists different options for calculating fuel at start. When planning a new flight, the Minimum Fuel Required policy is selected by default. There are five fuel policies to choose from:

> **Minimum Fuel Required**
>
> A calculated value that determines the minimum amount of fuel required for taxi, flight, flight to an alternate airport (if specified), reserve, extra, and additional fuel. The default amount of reserve fuel is determined by the aircraft profile.

> **Extra Fuel**
>
> A user-defined amount of fuel over the minimum fuel. Extra fuel is listed at the bottom of the Fuel section and can be added anytime. If extra fuel is manually added by tapping the **Extra Fuel** field, the Extra Fuel policy is automatically selected.

> **Maximum Fuel**
>
> A calculated value based on the maximum amount of fuel the aircraft can hold without exceeding airframe weight or fuel tank capacity limits. When maximum fuel is selected, fuel over what is minimally required for the flight is added to the extra fuel field.

> **Landing Fuel**
>
> A user-defined amount of fuel that calculates how much fuel is needed at the start to land with the user-defined amount. If the Fuel at Landing field is manually edited, the Landing Fuel policy is automatically selected. Entering a landing fuel that is less than the default reserve fuel plus the amount needed to fly to the alternate results in error.

> **Manual Fuel**
>
> A user-defined amount of fuel at start. Editing Start Fuel results in the manual fuel policy being automatically selected.

Manually Editing Fuel

Manually editing the fuel at start, fuel at landing, or extra fuel will change the fuel policy automatically. For example, when manually editing Fuel at Landing, the Landing Fuel policy is automatically selected.

> **NOTE:** When selecting a fuel policy, ForeFlight does not check to ensure the aircraft will remain within forward and aft CG limits.

18.12.2 Fuel Table

The Fuel Table provides a dynamic breakdown of flight fuel. Some fields are only displayed for certain aircraft types, accounts, or selected fuel policies. Editable fields are highlighted blue. Fuel weight and volume are given in separate columns. See the numbered list below for a description of each field.

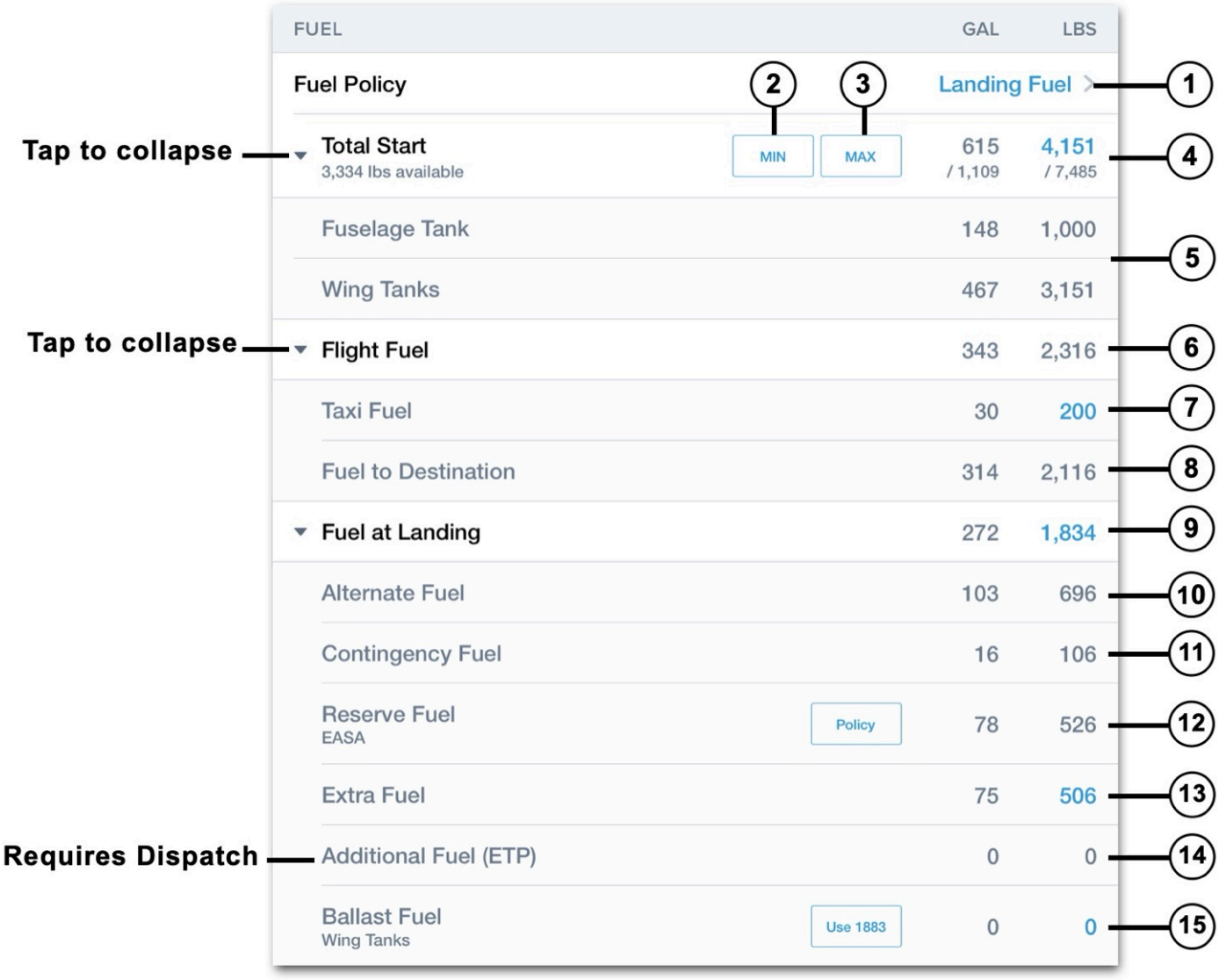


Figure 18-33. Fuel Table

1. Tap to select a Fuel Policy.
2. Quick access button for selecting the Minimum Fuel policy.
3. Quick access button for selecting the Maximum Fuel policy.

4. Total Start Fuel is equivalent to the sum of the Flight Fuel and Fuel at Landing. This value can be automatically calculated by the selected fuel policy (recommended) or manually specified by the user.
5. If the aircraft has multiple Fuel Tanks, fuel allocation per tank is displayed.
6. Flight Fuel is the sum of the taxi fuel and fuel to the destination.
7. Taxi Fuel is the fuel required for start, taxi, and takeoff. The default amount is specified in aircraft profile and can be overwritten on a per-flight basis for unique circumstances, such as operating out of an airport that will require an extensive ground taxi.
8. Fuel to Destination is the fuel required for flight from departure to destination airport. This amount is calculated using the selected performance profile, planned cruise altitude, and forecast weather.
9. Fuel at Landing is the sum of alternate, contingency, reserve, extra, additional, and ballast fuel. It is also equal to the starting fuel minus the flight fuel (taxi + fuel to destination).
10. Alternate Fuel refers to the fuel required to fly to the alternate airport. There are two methods for calculating alternate fuel requirements. The second method discussed below automatically adds a fuel buffer.
    a. Alternate routing (Dispatch license required): This method applies the user-specified route, altitude, and performance profile to determine the fuel required to reach the alternate airport. No buffer fuel is added with this method.
    b. If no user-specified alternate routing is provided, fuel to the alternate is calculated using a direct route and the same performance profile as the route to the destination airport. To account for a missed approach procedure, instrument approach procedure, and holding, a fuel buffer is added (in addition) to the fuel required to fly direct to the alternate airport.
        - Jet and Turboprop aircraft add 5 minutes of buffer fuel for holding and enough fuel to fly an additional 30 NM.
        - Piston aircraft add 5 minutes of buffer fuel for holding and enough fuel to fly an additional 15 NM.
        - There is no fuel buffer added when planning with a helicopter.

> **NOTE:** Holding fuel is calculated at the standard holding speed, 1,500 feet above destination airport elevation, in standard atmospheric conditions.

> **NOTE:** The altitude to the alternate airport is automatically determined by evaluating the flight's cruise altitude, aircraft performance, and distance to the alternate.

11. Contingency Fuel is carried by an aircraft to account for unforeseen circumstances that may require the aircraft to fly longer than anticipated and may be required by regulation. When a Reserve Fuel policy requiring contingency fuel is selected, this amount of fuel is automatically calculated.

    > **NOTE:** Contingency fuel is calculated at the standard holding speed of the aircraft, 1,500 feet above destination airport elevation, in standard atmospheric conditions.

12. Reserve Fuel is assigned in the aircraft profile and can be edited on a per-flight basis. Business Performance accounts with European, Australian, or Dispatch licenses also have access to a Reserve Fuel Policy selector for specifying an amount of reserve fuel based on regulatory requirements.
13. Extra Fuel is a user-defined amount of fuel in excess of what is minimally required. Extra fuel is automatically calculated when a Fuel Policy is selected that required more than the minimum amount of fuel.
14. Additional Fuel (ETP) is only displayed when planning with a Dispatch account. Additional ETP (Equal Time Point) fuel is automatically added to ensure the aircraft can reach each alternate ETP airport with the necessary fuel at landing. If the aircraft does not require additional fuel to reach the alternate ETP airports with the necessary minimums, additional ETP fuel is zero.
15. Ballast Fuel is unusable, extra fuel that is added to the zero fuel weight to move the center of gravity within limits. This feature requires a Business Performance or MFB Performance account and can only be displayed when planning with one of the following aircraft:
    - Cessna 650 Citation III
    - Cessna 650 Citation VI
    - Cessna 650 Citation VII
    - Cessna 700 Citation Longitude
    - Cessna 750 Citation X
    - Cessna 750 Citation X+

18.12.2.1 Adding Ballast Fuel

Ballast Fuel is added with Weight and Balance. If the center of gravity exceeds the limits and Ballast Fuel can correct the error, a **USE** button is displayed next to the Ballast Fuel row with an amount of fuel to resolve the error. Ballast fuel can be manually edited as necessary.

When Integrated Weight & Balance is complete, Ballast Fuel is included at the bottom of the Fuel section, the Navlog, and the Weight and Balance Summary Document.

18.12.3 Reserve Fuel

The default reserve fuel is defined in the Fuel section of the Aircraft Profile and can be edited on a per-flight basis.

18.12.3.1 Reserve Fuel Policy Tool

Premium accounts have access to a Reserve Fuel Policy tool for calculating an amount of reserve fuel based on regulatory requirements. The default reserve fuel policy is specified in the Fuel section of the aircraft profile and can be edited on a per-flight basis. To select an amount of reserve fuel based on regulatory requirements:

1. Tap the Reserve Fuel **Policy** button.

2 Select the reserve fuel policy applicable to the flight.

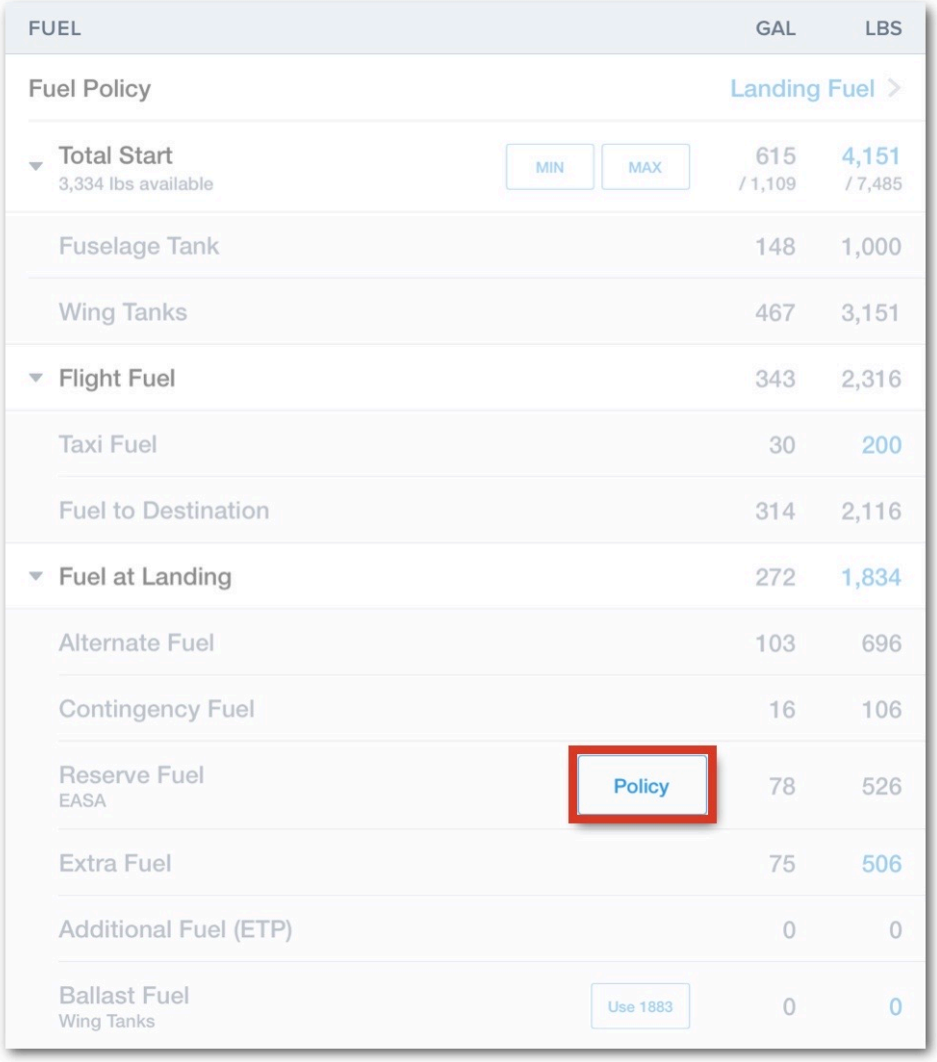


Figure 18-34. Fuel Table - Reserve Policy Button

18.12.3.2 Reserve Fuel Policies

When using the Reserve Fuel Policy tool, the flight's reserve fuel, including any additional or contingency fuel, is automatically calculated based on the selected reserve fuel policy.

Depending on the ForeFlight subscription region, there are up to twelve reserve policies. The table below describes which policies are available per region. An explanation of how reserve fuel amounts are calculated is discussed on the next page.

Table 18-2. Reserve Fuel Policies per Subscription Region

Reserve Policy	USA	Europe	Canada	Australia
Manual	✓	✓	✓	✓
Manual (Minutes)	✓	✓	✓	✓
FAA Part 91/135	✓			
FAA Part 121	✓			
FAA Part 121 International	✓			
EASA NCC		✓		
EASA Part NCO		✓		
EASA CAT		✓		
ICAO		✓		
CASA Part 91				✓
CASA Part 121				✓
CASA Part 135				✓

NOTE: Reserve Policy availability is based on the subscription region, not the region of the planned flight. Dispatch customers have access to *all* Reserve Policies.

18.12.3.3 How Reserve Fuel is Calculated

Reserve fuel is calculated using guidance from the applicable regulation and is described below.

- **Manual** - is a user-specified amount of reserve fuel. Manual reserve fuel is not explicitly based on a regulatory environment or calculated value. When this option is selected, two additional fields are displayed for specifying the fixed amount of reserve fuel and an amount of fuel that is contingent on the length of the flight (see note below).

- **Manual (minutes)** - is a user-specified reserve fuel amount expressed in flight time. When this option is selected, two additional fields are displayed for specifying a fixed amount of reserve fuel in minutes and an additional amount of fuel that is contingent on the length of the flight (see note below). Manual (minute) fuel is calculated at the top-of-descent (TOD) fuel consumption rate.

  > **NOTE:** Contingency fuel is calculated as a percentage of flight time using the fuel consumption rate at the TOD waypoint.

- **FAA Part 91/135** - adds a quantity of reserve fuel equivalent to 45 minutes of flight time using the TOD fuel consumption rate.
- **FAA Part 121** - adds a quantity of reserve fuel equivalent to 45 minutes of flight time using the TOD fuel consumption rate.
- **FAA Part 121 International** adds 10% contingency fuel (10% of the time to destination converted to a fuel quantity using the TOD fuel consumption rate) *plus* an amount of fuel equivalent to 30 minutes of flight time using the holding pattern fuel consumption rate (see note below).
- **EASA NCC** - adds the following quantity to reserve fuel planning:
  - **Piston IFR** - 45 minutes of reserve fuel at 1,500 ft above destination or alternate.
  - **Piston VFR** - 30 minutes of reserve fuel at 1,500 ft above destination or alternate.
  - **Turboprop or Jet** - 30 minutes of reserve fuel at 1,500 ft above destination or alternate.
- **EASA Part NCO** adds the following quantity to reserve fuel planning:
  - **IFR** - 45 minutes of reserve fuel at 1,500 ft above destination or alternate.
  - **VFR** - 30 minutes of reserve fuel at 1,500 ft above destination or alternate.
- **EASA CAT** - adds the following quantity to reserve fuel planning:
  - 30 minutes of reserve fuel at 1,500 ft above the alternate airport. 45 minutes above the destination if there is no alternate.
  - Adds 5% contingency fuel or 5 minutes (whichever is higher) at the holding pattern fuel consumption rate (see note below).
- **ICAO** - adds the following quantity to reserve fuel planning:
  - 45 minutes of reserve fuel at 1,500 ft above the destination or alternate airport. 30 minutes for turboprop or jet.

> **NOTE:** The holding pattern fuel consumption rate is determined using standard holding speed, 1,500 ft above the destination airport in standard conditions.

> **NOTE:** *Discretionary fuel* is an optional user-specified amount of fuel that complies with EASA's amendment to Fuel Schema and can be entered on the Fuel Table.

> **NOTE:** Contingency fuel is calculated as a percentage of flight time using the fuel consumption rate at the TOD waypoint.

- **CASA Part 91** - varies by aircraft type and weight:

Aircraft Type	Contingency Percentage	Reserve Fuel Time (min)
VFR (MTOW 5,700 kg or less)	0%	30
VFR (MTOW 5,700 kg or less)	0%	45
Piston (MTOW greater than 5,700 kg)	0%	45
Jet/TurboProp (MTOW greater than 5,700 kg)	5%	45
Rotorcraft VFR	0%	20
Rotorcraft IFR	0%	30

- **CASA Part 121** - fuel varies by aircraft type:

Aircraft Type	Contingency Percentage	Reserve Fuel Time (min)
Piston	10%	45
Jet/TurboProp	5%	30

- **CASA Part 135** - varies by aircraft type.

Aircraft Type	Contingency Percentage	Reserve Fuel Time (min)
Piston	10%	45
Jet/TurboProp	5%	30

> **NOTE:** CASA Part 121 contingency fuel is either a percentage of flight time (as indicated above) or 5 minutes (whichever is higher).

> **NOTE:** CASA Part 121, Part 135, and Part 91 reserve fuel is calculated using the holding pattern fuel consumption rate at the standard holding speed, 1,500’ above the destination airport in standard conditions. Contingency fuel is calculated using the fuel consumption rate at the top of descent waypoint, 1,500’ above the destination airport in standard conditions.

18.13 Weights

The weights section provides a detailed breakdown of weights during four phases of flight.

> **Zero Fuel Weight**
>
> Equals the basic empty weight plus its payload.

> **Ramp Weight**
>
> Equals the zero fuel weight plus total fuel at start.

> **Takeoff Weight**
>
> Equals ramp weight minus taxi/takeoff fuel.

> **Landing Weight**
>
> Equals takeoff weight minus the fuel to destination.

Each phase of flight includes three weights: the planned weight, maximum weight, and the available weight for the phase of flight. Planned and maximum weights are displayed on the right side of the table (e.g., 4,481 / 5,500). Available weight is displayed on the left side of the table and calculated by subtracting the maximum weight by the planned weight.

If a weight limit is exceeded, the text is changed to red and an error message is displayed at the top of the flight planning form.

Collapse the zero fuel, ramp, or takeoff weight section by tapping the arrow on the left side of the table.

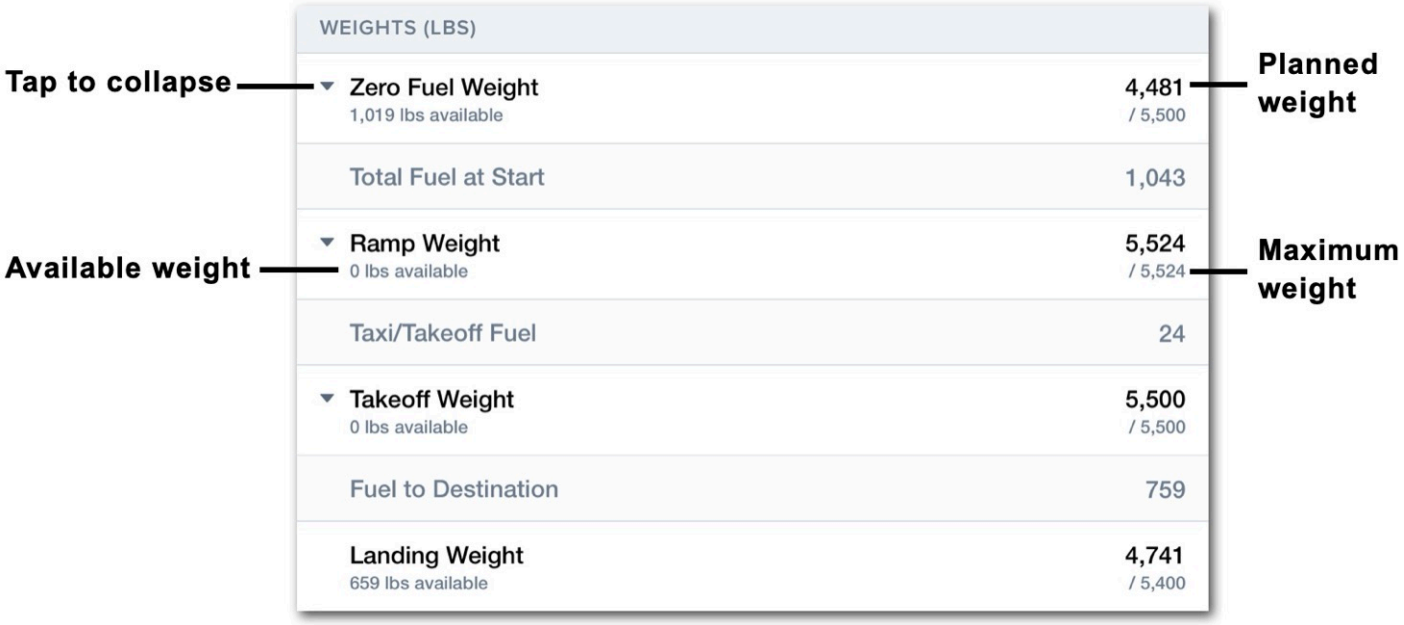


Figure 18-35. Weights Section

18.14 Services

The Services section is an optional section and can be used to display FBO information. Customers with a Premium tiered account can order fuel from this section when Fuel Orders are enabled in **More ➔ Settings**.

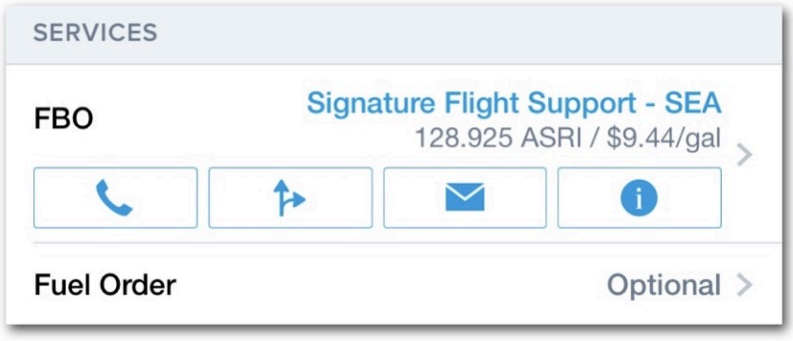


Figure 18-36. Services

18.14.1 FBO Information

When planning with Flights, an FBO may be selected. Selecting an FBO adds quick-reference information to the flight planning form and Navlog.

To select an FBO:

1. Tap the top row of the Destination Services section.
2. Review the available businesses.

3 Tap an FBO to select it.

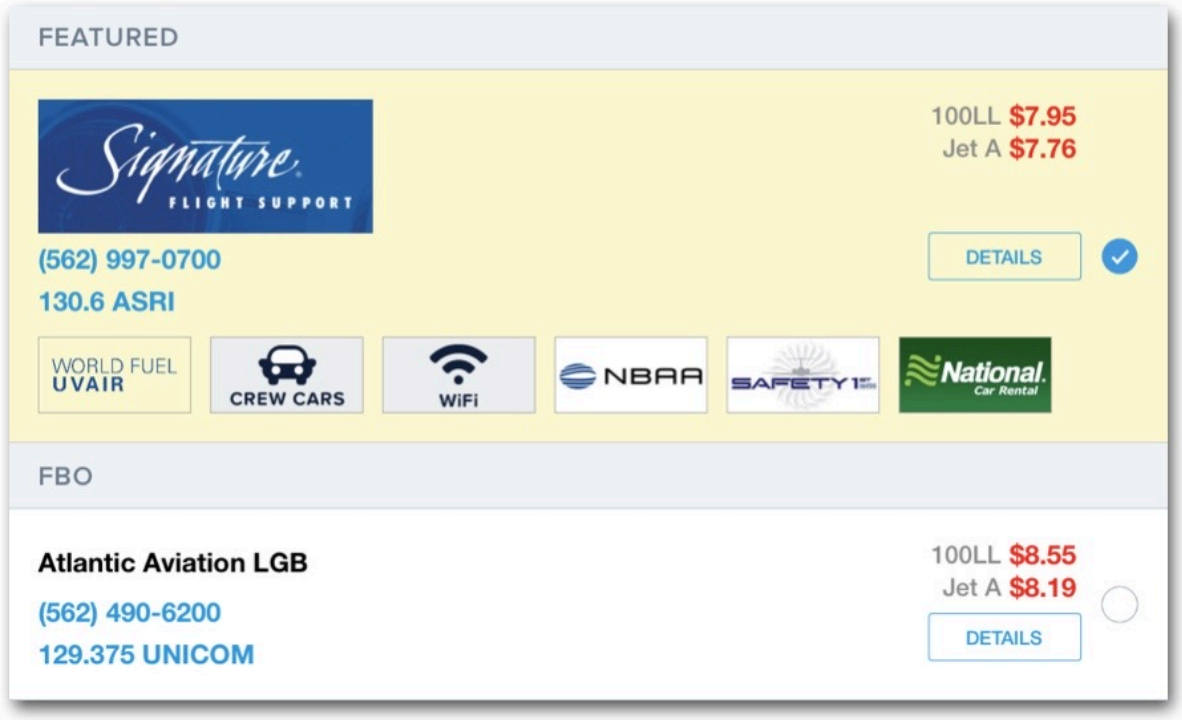


Figure 18-37. List of available FBOs

The FBO list displays frequencies, phone numbers, services, and the latest fuel prices. To see additional FBO information, including photos, user-submitted comments, and contract prices (through the JetFuelX feature), tap **Details**. To select that FBO for the flight, tap **Select FBO** at the bottom of the screen. FBOs may be selected and deselected by tapping them in the list.

Selecting an FBO adds its details to the Flights form and Navlog. When an FBO is selected, ForeFlight will automatically select the same FBO for subsequent flights to the same airport.

FBO Quick Action Buttons

Once an FBO has been selected, its frequency and lowest available fuel prices are displayed on the Flights form along with four buttons. The phone button initiates a phone call to the FBO primary phone number (requires iPhone). The mail button opens a new email to the FBO primary email address. To view additional FBO information, tap the information button to the right of the email button.



Figure 18-38. FBO Quick Action Buttons

18.14.2 Fuel Release

The Fuel Release option allows Premium and Business Pro subscribers to order full-service fuel via email (internet connection required) from within the app. Mobile fuel releases are available for customers who have added Jet-A fuel cards and prices via the JetFuelX tab on ForeFlight Web. To enable this feature, tap **More ➔ Settings** and toggle **Enable Fuel Releases**.

To create a fuel release:

1. Tap **Fuel Release** to open the Request Fuel Release page.
2. Select either the departure or destination airport.
3. Select the **Fuel On** date, **Fuel Type**, **Estimated Quantity** (optional), enter a **COMMENT** if desired.
4. Tap **Fuel Provider** to select the desired vendor.
5. Tap **Request Fuel Release** to send a fuel request email to the vendor.

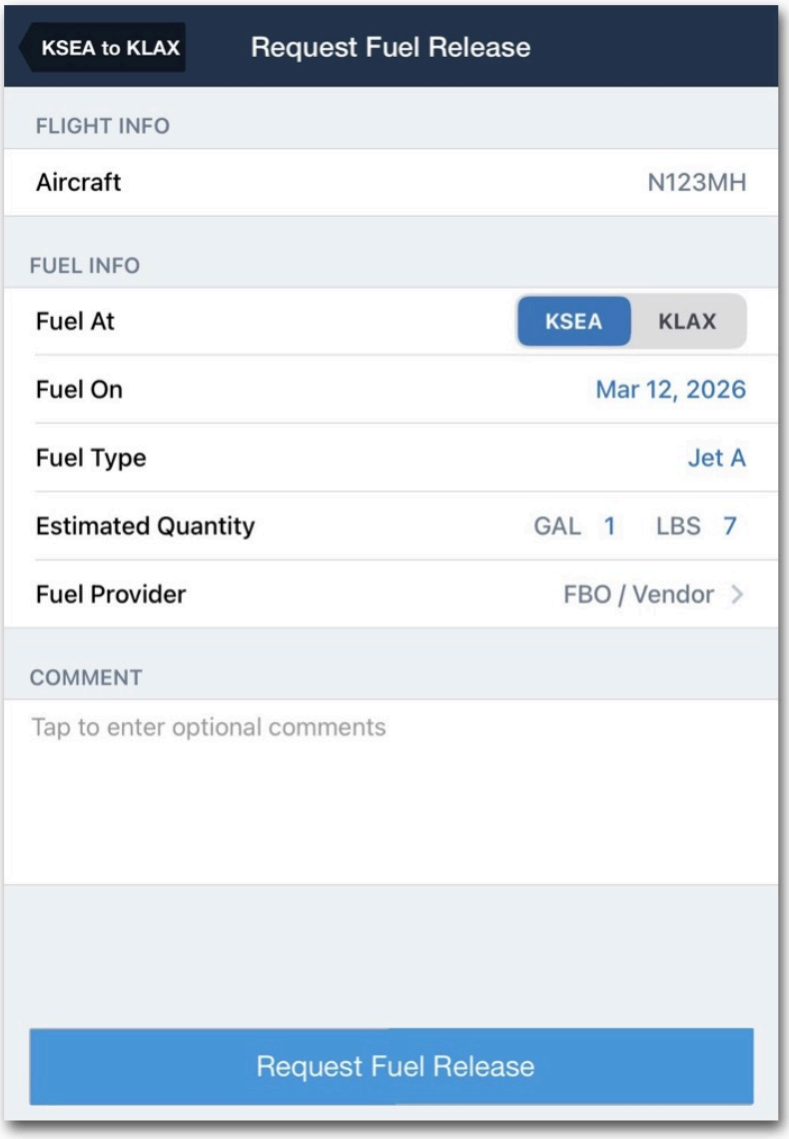


Figure 18-39. Request Fuel Release

18.14.2.1 Select Provider

If the fuel card selected supports fuel releases at that FBO, a list of vendors will display along with prices. The list is sorted by lowest cost. Tap the desired vendor, and then tap **Fuel Request** to return to the Fuel Release page.

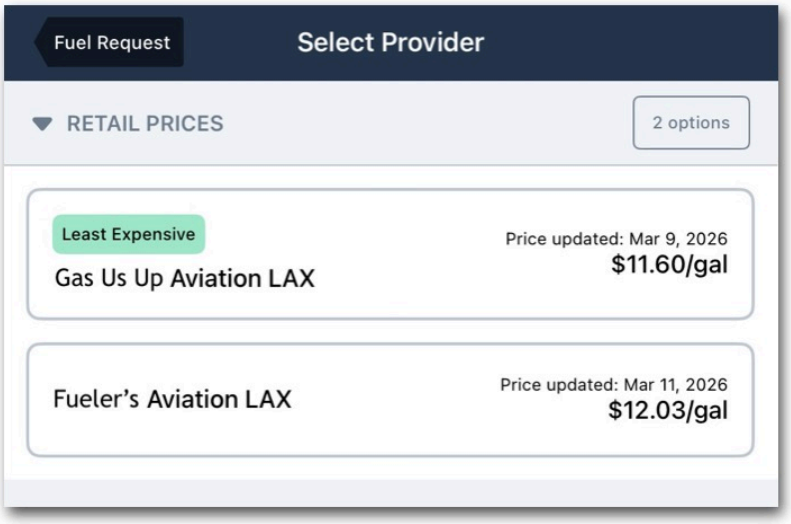
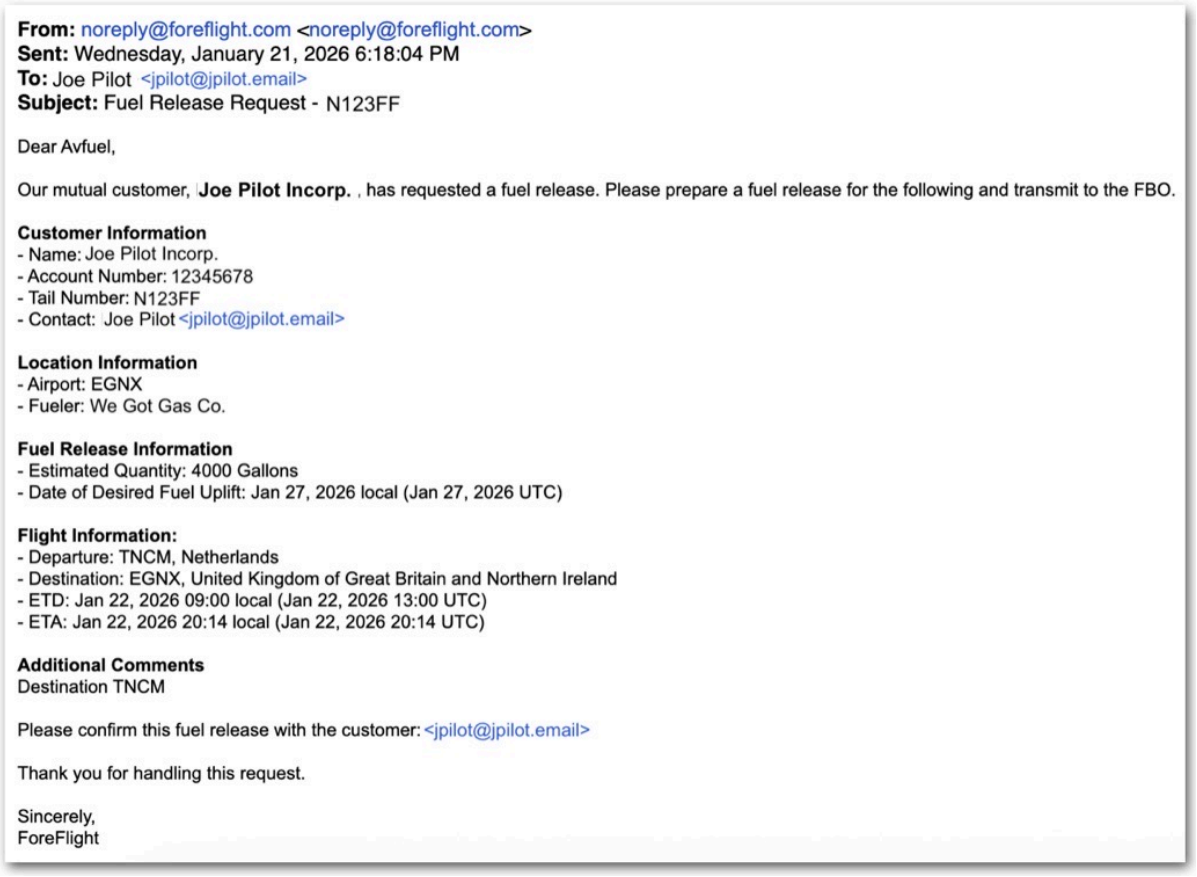


Figure 18-40. Select Provider

18.14.2.2 Fuel Release Email

When a fuel release request is submitted, a copy of the request email is automatically sent to the vendor and submitting user. This email includes details about the requesting customer, the associated flight, and the specifics of the fuel uplift, including the requested time, volume, and location. Once the request has been sent, the fuel vendor will follow up directly with the customer to confirm the fuel release.



From: noreply@foreflight.com <noreply@foreflight.com>
Sent: Wednesday, January 21, 2026 6:18:04 PM
To: Joe Pilot <jpilot@jpilot.email>
Subject: Fuel Release Request - N123FF

Dear Avfuel,

Our mutual customer, **Joe Pilot Incorp.** , has requested a fuel release. Please prepare a fuel release for the following and transmit to the FBO.

Customer Information
- Name: Joe Pilot Incorp.
- Account Number: 12345678
- Tail Number: N123FF
- Contact: Joe Pilot <jpilot@jpilot.email>

Location Information
- Airport: EGNX
- Fueler: We Got Gas Co.

Fuel Release Information
- Estimated Quantity: 4000 Gallons
- Date of Desired Fuel Uplift: Jan 27, 2026 local (Jan 27, 2026 UTC)

Flight Information:
- Departure: TNCM, Netherlands
- Destination: EGNX, United Kingdom of Great Britain and Northern Ireland
- ETD: Jan 22, 2026 09:00 local (Jan 22, 2026 13:00 UTC)
- ETA: Jan 22, 2026 20:14 local (Jan 22, 2026 20:14 UTC)

Additional Comments
Destination TNCM

Please confirm this fuel release with the customer: <jpilot@jpilot.email>

Thank you for handling this request.

Sincerely,
ForeFlight

Figure 18-41. Fuel Release Email

18.15 Flight Log

The Flight Log section allows pilots to record fuel remaining at shutdown and flight-related times. Information in this section can be shared with the ForeFlight Logbook.

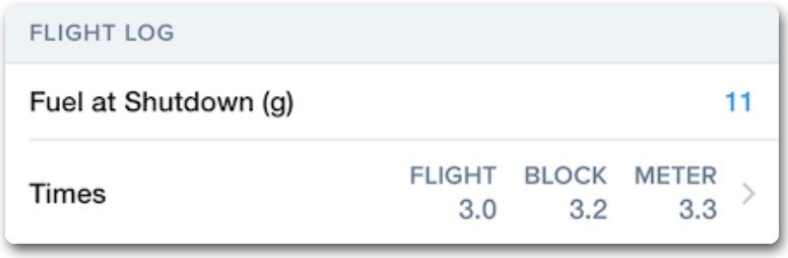


Figure 18-42. Flight Log

18.15.1 Fuel at Shutdown

The remaining fuel at shutdown can be logged in the Flight Log section. Fuel at shutdown is not copied to the next flight or any other ForeFlight features. Fuel at shutdown allows pilots to compare flight planning results with actual results. The fuel at shutdown unit (e.g., gallons, kilograms, etc) is set at **Aircraft ➔ Weight Units**.

18.15.2 Times

The Times section allows pilots to record flight meter time (e.g., hobbs and tach meters), flight time, and block time. If the start and end times required to calculate a value have not been entered, the time field will display "Logged".

18.15.2.1 Flight Meter Time

The Flight Meter section contains three rows, **Start** , **End** , and **Total**. These rows are intended to log starting and ending hobbs or tach time. Once a start and end time are entered, the total time is automatically calculated. Flight Meter time is *not* currently copied to Logbook.

18.15.2.2 Flight Time

Flight time is the difference between **Time Off** and **Time On** and is automatically calculated. Log this time by sharing the flight with Logbook.

The Flights view and Logbook do not automatically sync. Adding flight time after a flight has been shared to the Logbook or editing flight time in the Logbook does not update the time in both Flights and Logbook. Flight time is only copied to Logbook when the flight time is entered and then the flight is shared.

18.15.2.3 Block Time

Block time is the difference between **TimeOut** and **Time In** and is automatically calculated. Share the flight with Logbook to log the block time. The Flights view and Logbook do not automatically sync. Manually updating one does not automatically update the other. Adding block time after a flight has been shared to logbook or editing block time in the logbook does not update the time in both Flights and Logbook. Block time is only copied to Logbook when the time is entered and then the flight is shared.

18.15.3 Marked Positions

If created between the estimated departure and arrival time, Marked Positions retroactively display on the Interactive Map and at the bottom of the Flight Log section.

For instance, if a flight is planned from 0800 to 0900, any Marked Positions created during that period will be associated with the flight. This allows Marked Positions to be automatically linked to the appropriate flight during planning and flight.

The number of Marked Positions associated with a flight is displayed on the right and can be tapped to view or edit each Marked Position.



Figure 18-43. Flight Log with Marked Positions

18.16 Flight Risk

The Flight Risk Assessment Tool (FRAT) provides flight departments with a structured way to evaluate the risk associated with individual flights. Administrators and Safety Managers configure FRAT templates in ForeFlight Web, and pilots complete assessments in ForeFlight Mobile.

Templates can combine Custom Risk Factors with System Risk Factors. System Risk Factors are scored automatically when sufficient flight plan, airport, and weather data is available. When sufficient data is unavailable, a manual response may be required.

For information about creating FRAT templates and configuring associated risk factors, see the Flight Risk Assessment Tool section in the ForeFlight Web Guide.

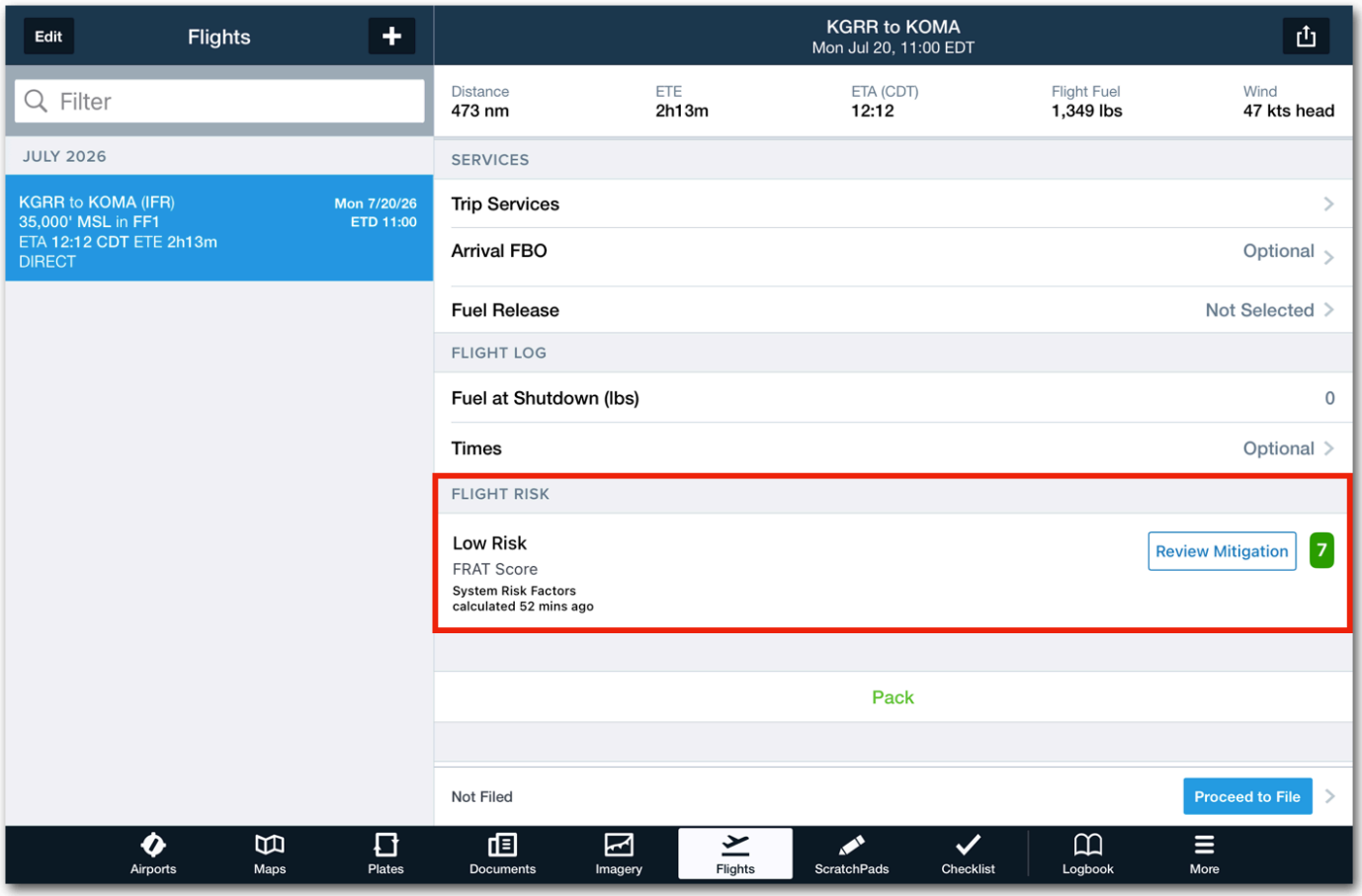


Figure 18-44. FRAT in the FLIGHT RISK Section

> **NOTE:** The Flight Risk section is available when the selected aircraft is licensed for FRAT and a FRAT template has been published.

18.16.1 FRAT Menus

The FRAT workflow includes a questionnaire menu and a score and mitigation menu.

- **FRAT Questionnaire Menu**: Used to review flight information, answer Custom Risk Factors, and review automatically scored System Risk Factors.
- **FRAT Score and Mitigation Menu**: Displays the FRAT score, risk severity, and required mitigation fields after **Show Score and Mitigate** is selected.

18.16.1.1 FRAT Questionnaire Menu

The FRAT Questionnaire Menu is organized as follows:

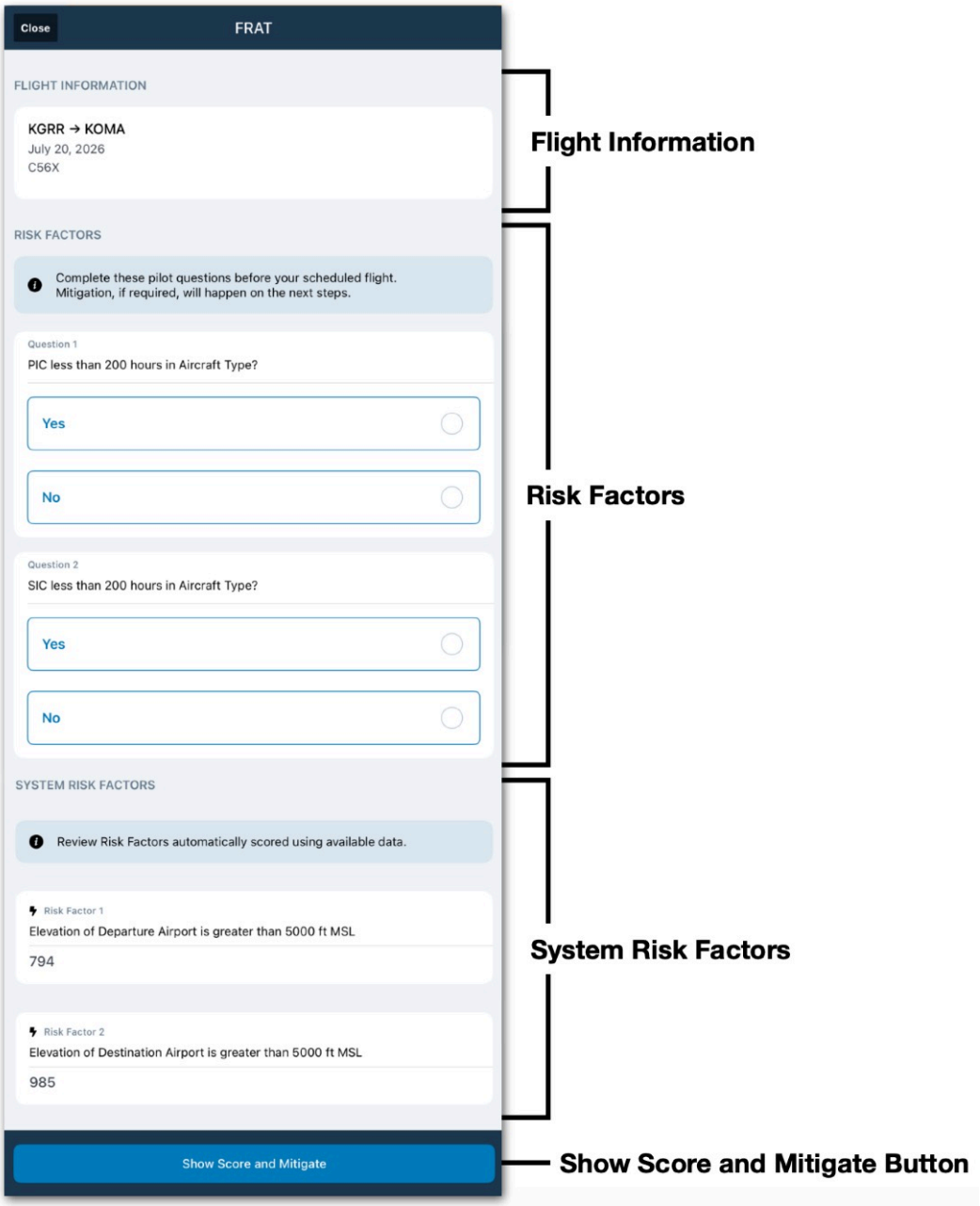


Figure 18-45. FRAT Menu

18.16.1.2 FRAT Score and Mitigation Menu

The FRAT Score and Mitigation Menu is organized as follows:

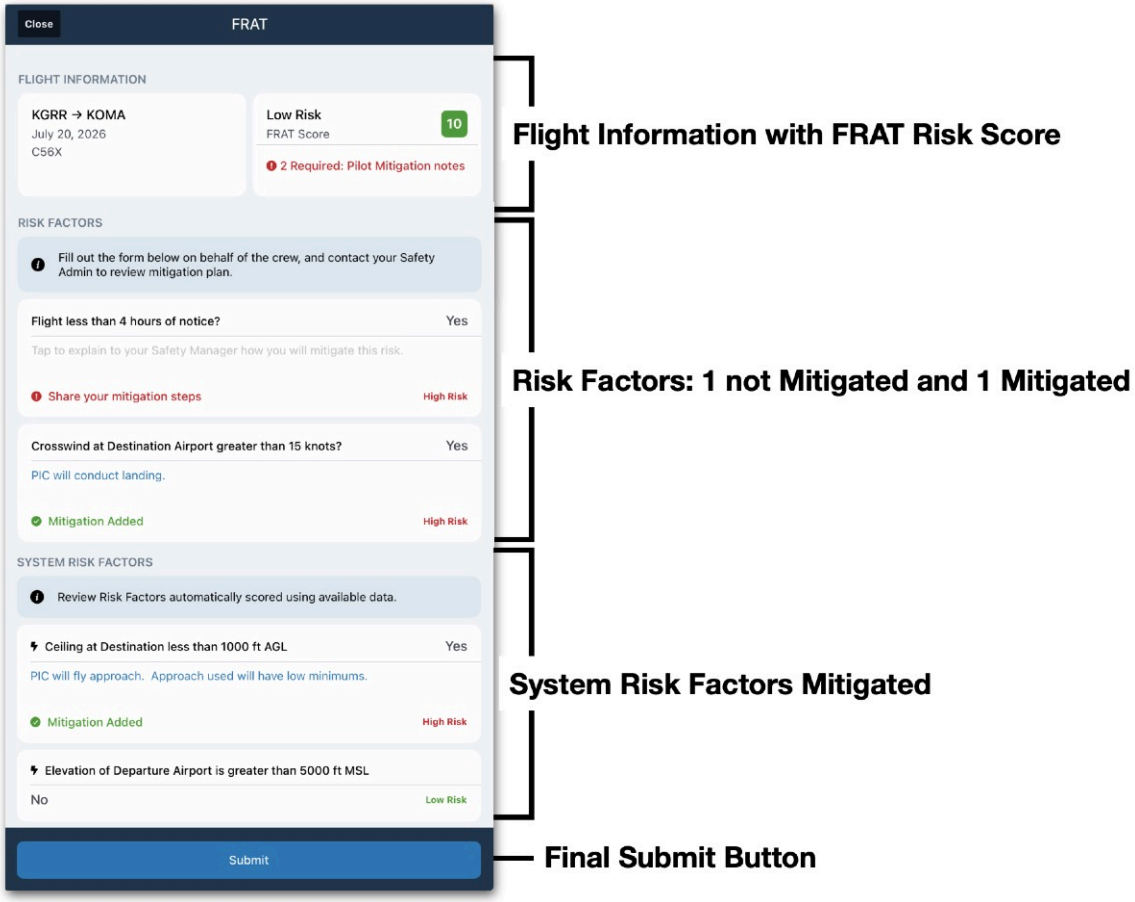
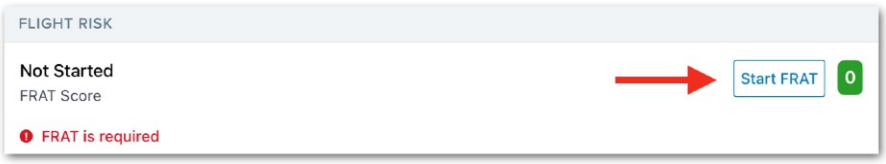


Figure 18-46. Risk Factors

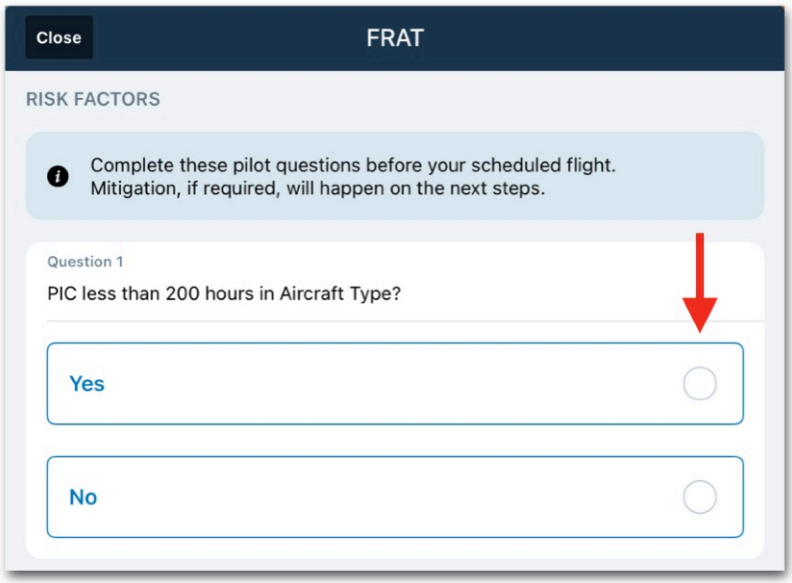
18.16.2 Complete a FRAT

To complete a FRAT, follow these steps:

1. Tap **Start FRAT** while viewing the flight.



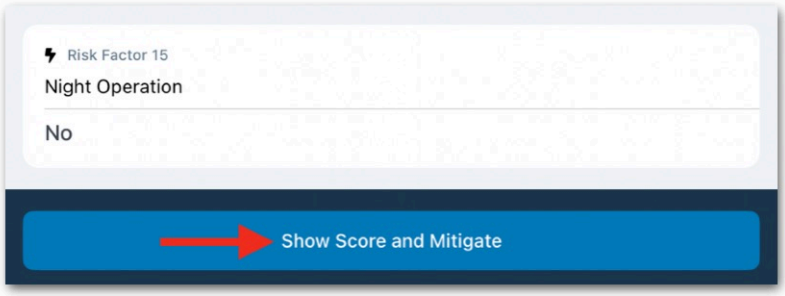
2. Answer each risk factor by tapping the appropriate response.



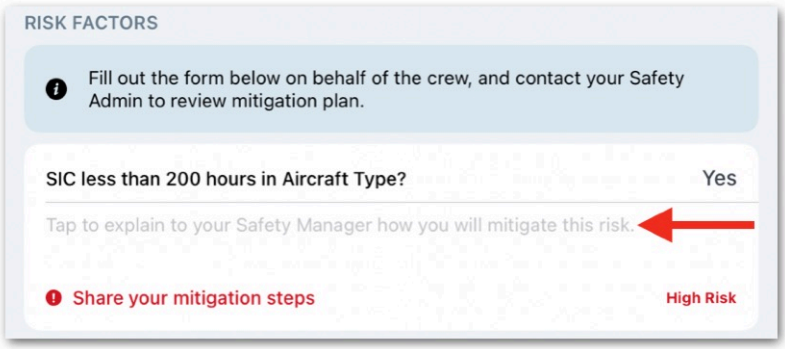
3. Review the answers for accuracy.

> **IMPORTANT:** After **Show Score and Mitigate** is selected, the answers cannot be edited.

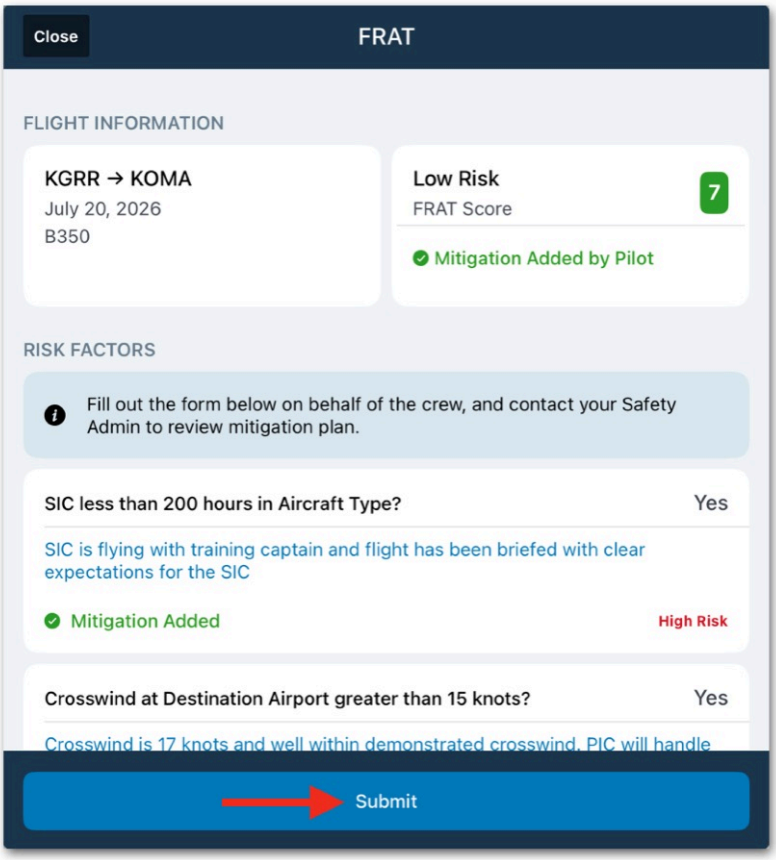
4. Tap **Show Score and Mitigate**.



5. When mitigation is required, scroll to each applicable risk factor, tap the text field, and enter a mitigation explanation.



6. Tap **Submit**.



NOTE: When a FRAT is started but not completed, return to the flight, and tap **Finish FRAT** to continue.

18.17 Pack

Pack provides a method for downloading all charts, weather, NOTAMs, and fuel-price data needed for the planned route. Pack can be accomplished from the Maps or Flights pages. For more information, see the Pack section.

18.18 Add Next Flight

The **Add Next Flight** button creates a new flight and copies pertinent details. Add Next Flight sets the destination airport of the previous flight as the departure airport of the new flight, and sets the new flight's ETD to 30 minutes after the ETA of the previous flight, if that time has not already passed. Add Next Flight preserves the aircraft, performance profile, and payload details of the first flight. Add Next Flight does not copy the previous flight landing fuel.

18.19 Copy Flight

The **Copy Flight** button can be used to duplicate a flight that needs to be planned again. Copying a flight is also useful when a flight is shared. Shared flights can not be edited, however they can be copied and then edited.

Copying a flight is the preferred method for planning a flight with the same route and aircraft instead of editing an old flight. Editing a flight that has been previously published or filed can cause unintended consequences.

> **NOTE:** When planning the same flight multiple times, use the **Copy flight** function.

18.20 Delete Flight

The **Delete Flight** button is used to delete the selected flight. When tapped, a confirmation pop-up is displayed. Tap the confirmation pop-up **Delete** button to permanently delete the flight. Deleted flights cannot be recovered.

18.21 Proceed to File

The **Proceed to File** button opens the filing form. The filing form is automatically populated with the fields from the flight planning form and is used to file a flight plan. For information on filing flight plans with ForeFlight, see the ForeFlight Filing Guide in **Documents ➔ ForeFlight** or online at foreflight.com/filing-guide.

RUNWAY ANALYSIS

Runway Analysis (RWA) is an optional Takeoff and Landing Analysis tool for select single and multi-engine jet and turboprop aircraft. RWA utilizes performance data and procedures sourced directly from OEMs to provide maximum takeoff and landing solutions for multiple conditions. When planning with multi-engine aircraft, RWA results (including 1st and 2nd segment climb gradients) are predicated on losing an engine at V1, ensuring that the flight can be safely operated in the event of an engine failure.

Runway Analysis is designed to meet the guidelines and requirements of Advisory Circular 120-91A and CFR14 part 135.379. Runway Analysis is also EASA and CASA compliant when the slightly larger ICAO Obstacle Corridor is selected.

Runway Analysis is available to ForeFlight Premium and Business Performance customers.

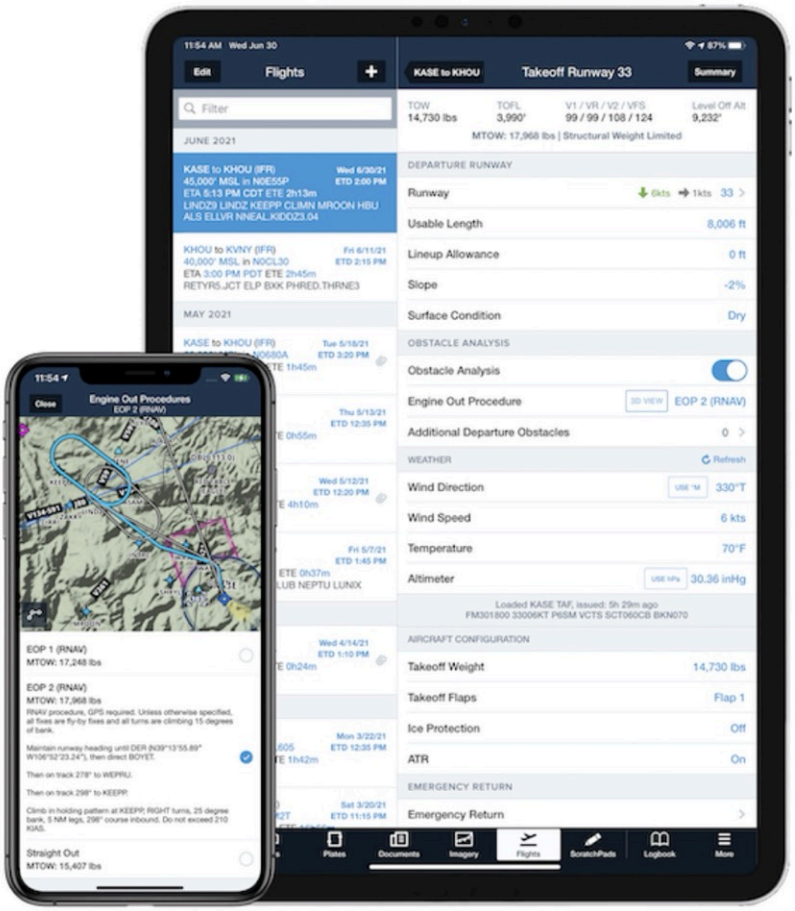


Figure 19-1. Runway Analysis

19.1 Purchasing Runway Analysis

Runway Analysis requires a Premium, Business Performance, or a MFB Performance subscription and paid add-on Runway Analysis license. When purchased, Runway Analysis is integrated into the ForeFlight Mobile Flights view. Runway Analysis is also available on the web when a ForeFlight Dispatch license is purchased.

Runway Analysis can be purchased by signing into plan.foreflight.com/account/subscription/aircraft. To add Runway Analysis, select the Runway Analysis **Buy** button for the appropriate aircraft from the bottom of the screen.

Customers with Starter, Essential, Business Pro, or MFB Pro plans must first upgrade to a Premium, Business Performance, or MFB Performance tier plan before adding Runway Analysis.

19.1.1 Purchasing Runway Analysis for Individuals

Runway Analysis is available to individual customers as a per-type add-on. Visit foreflight.com/products/runway-analysis-individual for aircraft availability.

19.1.2 Purchasing Runway Analysis for Business

Runway Analysis is available for business customers as a per-tail add-on. Visit foreflight.com/products/runway-analysis-business for aircraft availability.

19.2 Configuring Runway Analysis

When a Runway Analysis license is purchased for an aircraft type with an individual Premium plan, a Supports Runway Analysis label is added to each type variant that supports Runway Analysis.

To verify support, select **More ➔ Aircraft** and choose an aircraft profile. Tap the aircraft type field and look for the Supports Runway Analysis label. If the label is missing, either the variant is not yet supported or a Runway Analysis license has not been purchased for the aircraft type.

Runway Analysis is licensed to Business and ForeFlight Military Flight Bag (MFB) customers on a per aircraft profile basis. As a result, the Supports Runway Analysis label is not displayed when using one of these accounts.

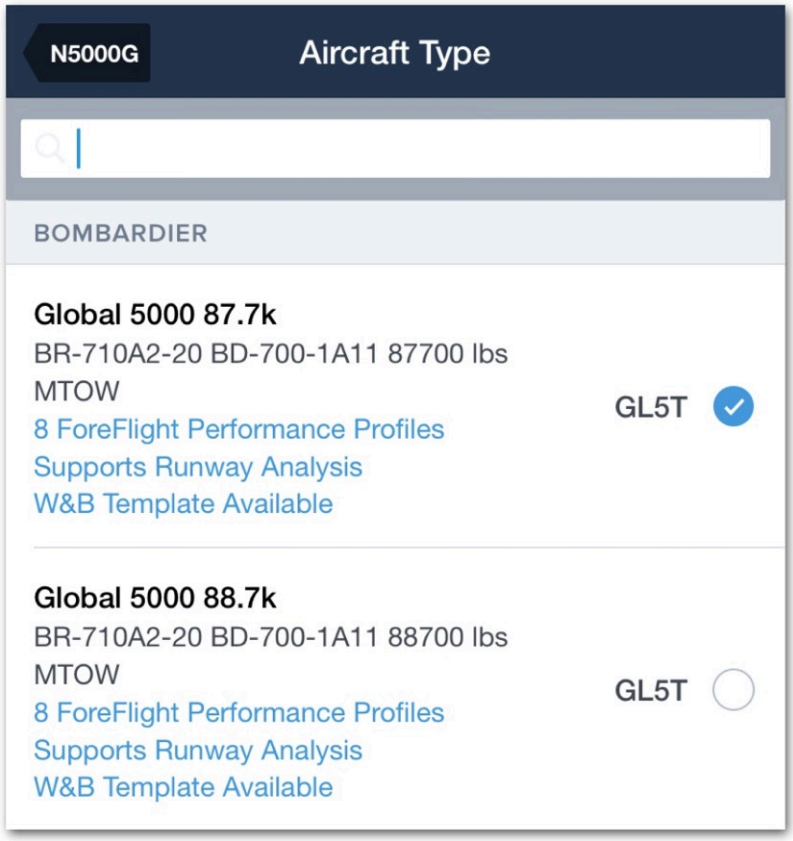


Figure 19-2. Supports Runway Analysis Label

19.2.1 Runway Analysis Settings

When a Runway Analysis license is purchased, two configurable fields are added to the aircraft profile Performance section, Runway Profile and Field Performance.

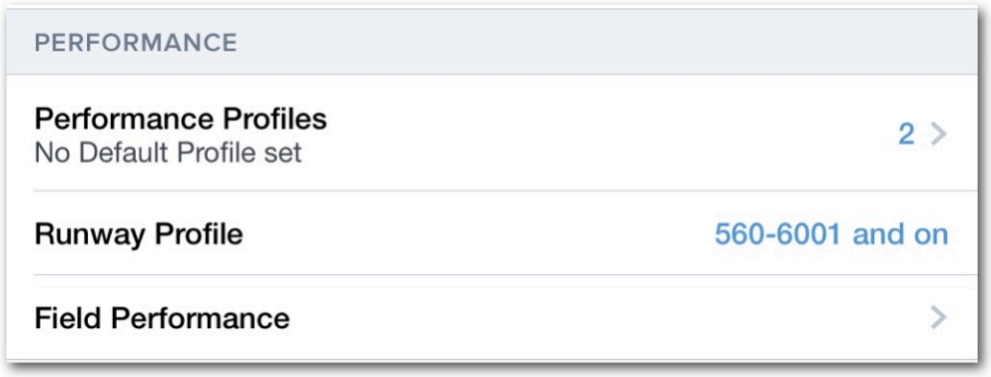


Figure 19-3. Aircraft Profile - Runway Analysis Settings

19.2.1.1 Runway Profile

The Runway Profile field specifies the serial number, weight limit, or special equipment for which the Runway Analysis data is applicable. If more than one profile exists for the aircraft type, tap the **Runway Profile** setting and choose the correct version.

19.2.1.2 Field Performance

The Field Performance settings specify the default takeoff and landing configuration. These settings are unique to the aircraft type and are populated with information from the manufacturer.

The default settings can be adjusted from the aircraft profile. Edits to the aircraft profile default configuration affect subsequent flights. Takeoff and landing configuration can also be adjusted on a per-flight basis using the Aircraft Configuration section of the Takeoff or Landing Analysis view.

Field Performance settings are broken into two sections (Takeoff and Landing). Settings can be edited by tapping a field and selecting another option from the menu.

The settings (and menus) only contain options that are specified in the Aircraft Flight Manual (AFM) (e.g., Takeoff Flaps may only have options for 10º and 20º). It is impossible to set a value if it is not included in the menu. The flight manual revision used to populate field performance settings is listed at the bottom of the menu (e.g., AFM Revision Level: Rev 11).

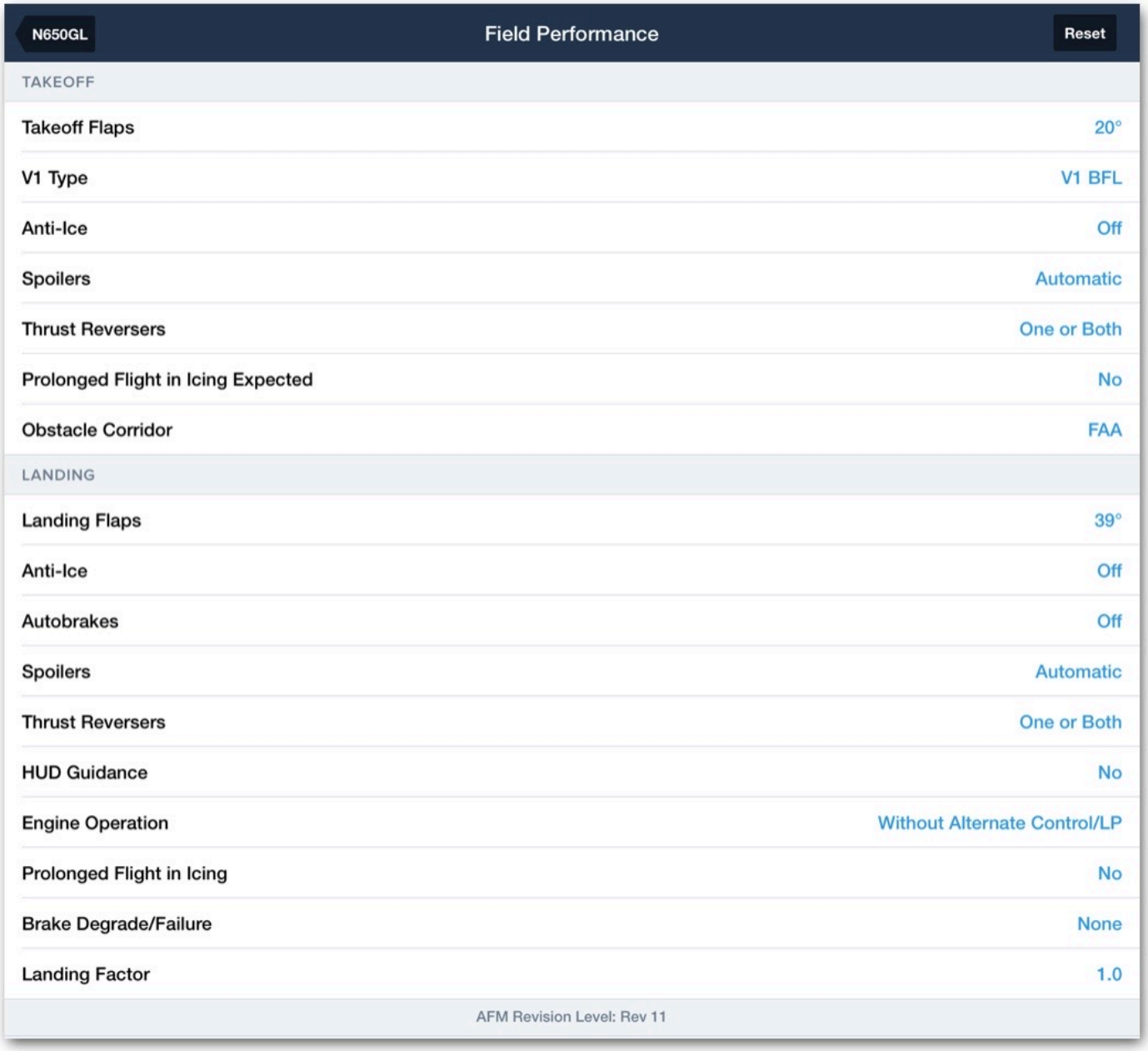


Figure 19-4. Field Performance Default Settings

19.2.1.3 Standard Field Performance Settings

Aircraft Field Performance settings are unique except for the following:

- The **Obstacle Corridor** setting specifies the flight path obstacle accountability corridor using guidance from the FAA, ICAO, EASA, or CASA. This setting cannot be adjusted per flight.
- The **Lineup Allowance** setting specifies the default loss of available runway due to lining the aircraft on centerline and is zero by default. Lineup Allowance is unavailable for piston aircraft and is limited to select turboprop aircraft.

- The **Landing Factor** setting specifies an amount (e.g. 1.25) by which the Calculated Landing Distance is multiplied to produce a Factored Distance. The Landing Factor is similar to a safety buffer that is generally used to account for wet or dry runway conditions. This setting can also be adjusted on a per-flight basis.

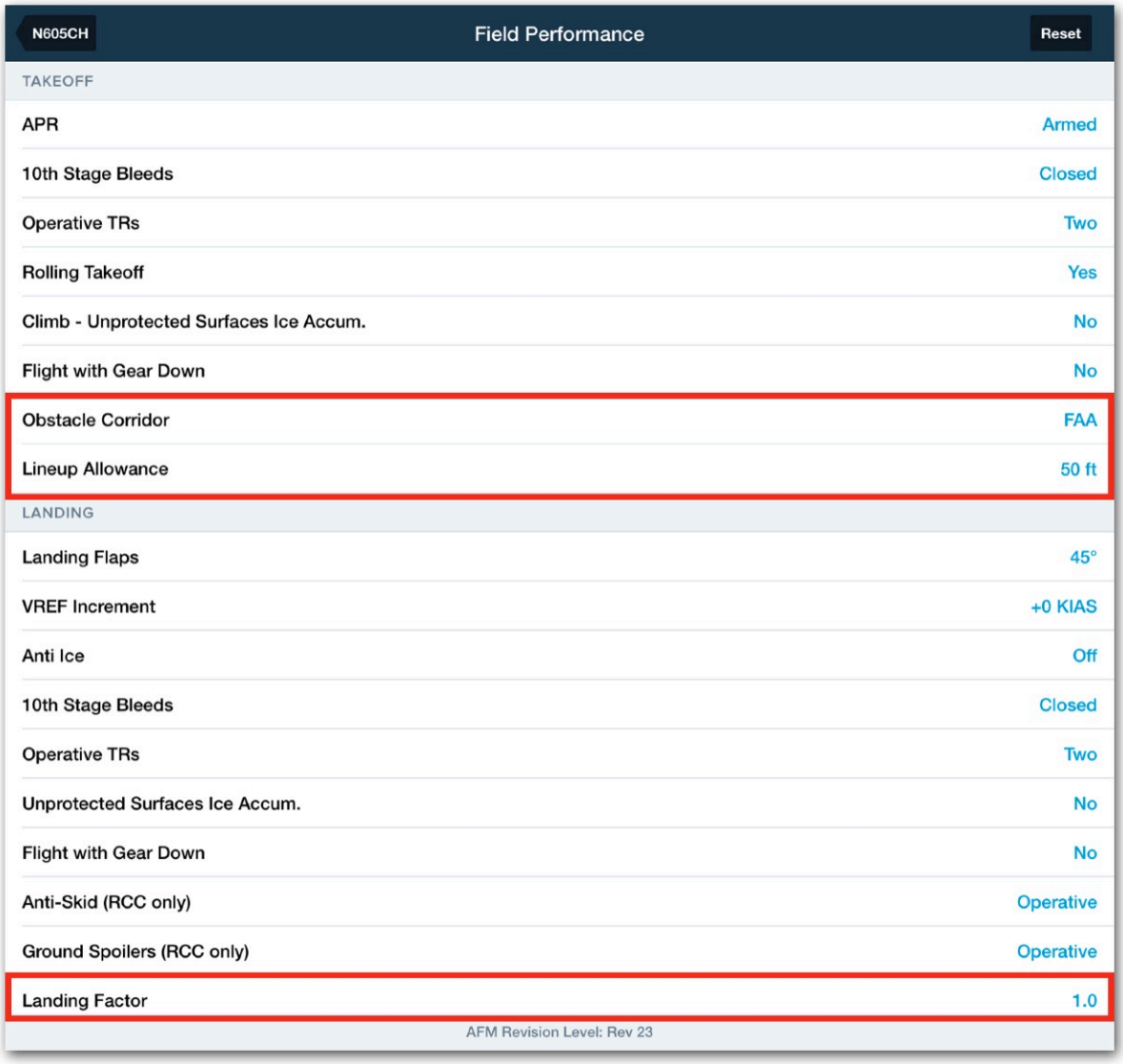


Figure 19-5. Standard Field Performance Settings

19.3 Conducting Takeoff Analysis

Takeoff Analysis is accessed from the Departure / Destination section of the Flights view. Takeoff Analysis determines the maximum weight an aircraft can depart in the event of an engine failure (multi-engine aircraft) or the total distance required to perform the takeoff (single-engine aircraft).

To conduct an analysis, enter the flight route, payload, and fuel details into the Flights view. After entering details, tap the **Takeoff** button to open the Takeoff Analysis view. Results are calculated when a runway is selected.

The **Takeoff** or **Landing** button may be hidden under the following conditions:

- The selected aircraft does not support Runway Analysis.
- A Runway Analysis license for the aircraft has not been purchased.
- A non-performance tier account is being used to plan the flight.
- Runway data for the airport is unavailable.
- The airport specified does not have an ICAO, IATA, FAA, or other short-code identifier. Only airports with identifiers are supported by Runway Analysis.

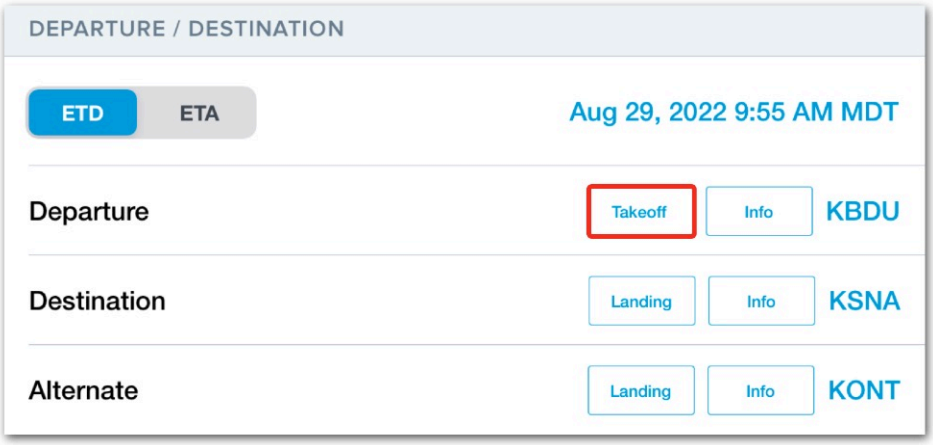


Figure 19-6. Takeoff Analysis Button

19.3.1 Takeoff Analysis View

The Takeoff Analysis view is organized into the following sections.

- Performance Summary
- Departure Runway
- Obstacle Analysis (multi-engine only)

- Weather
- Aircraft Configuration
- Emergency Return
- Performance.

At the top of the Takeoff Analysis view, a Performance Summary displays key performance metrics for quickly evaluating a takeoff.

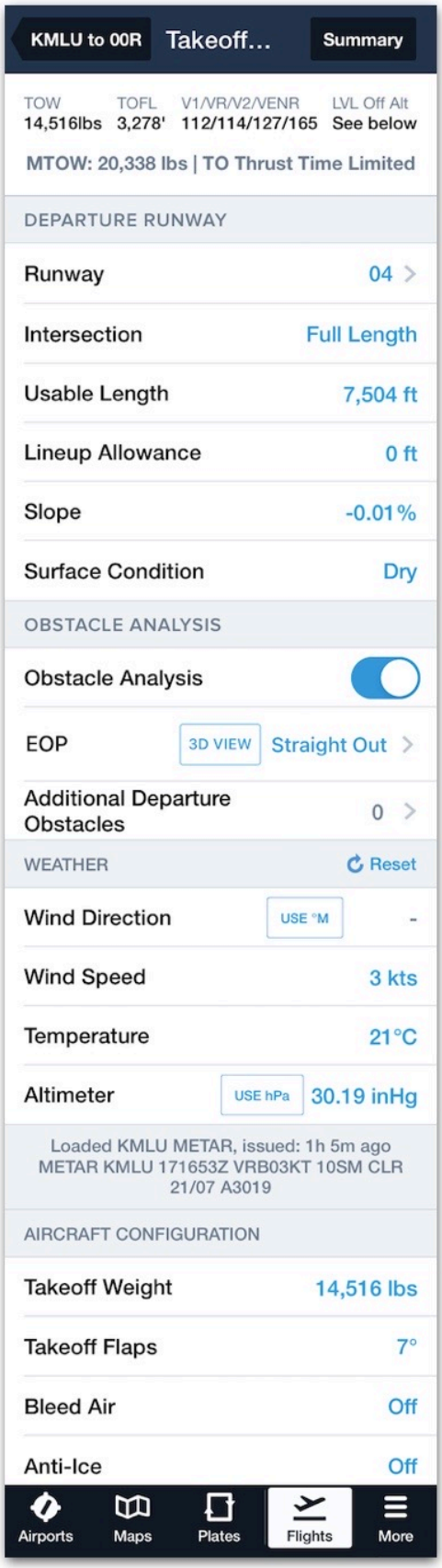


Figure 19-7. Takeoff Analysis

Takeoff Analysis Default Data

When planning a new flight, Takeoff Analysis is automatically populated with the latest runway data, current (or forecast) weather, and default aircraft configuration.

Each field in blue text can be edited from this view to plan hypothetical conditions or circumstances that are unique to the flight.

For example, if the runway usable length has changed due to construction, manually edit the runway length to represent current conditions.

19.3.2 Multi-Engine Takeoff Analysis

When planning with a multi-engine aircraft, Takeoff Analysis determines if the aircraft can perform (or abort) a takeoff in the event of an engine failure. If an aircraft cannot perform (or abort) a takeoff at the maximum gross weight, Runway Analysis will determine the maximum takeoff weight (MTOW) that it can.

Takeoff Analysis does not provide all engine operating results for multi-engine aircraft.

19.3.2.1 Multi-Engine Takeoff Analysis Constraints

When analyzing a takeoff, multiple aircraft performance and environmental constraints are evaluated to ensure the aircraft takeoff and abort is in compliance with the selected (FAA, ICAO, EASA, or CASA) obstacle corridor standards (specified in the Field Performance settings). Constraints that are evaluated include:

Aircraft Performance Constraints

- Climb Gradient
- Takeoff Distance
- Stopping Distance
- Braking Energy
- Tire Speed Limits.

Environmental Constraints

- Wind
- Temperature
- Available Runway Distance
- Surface Conditions

- Obstacles.

19.3.2.2 Determining Maximum Takeoff Weight

When an aircraft cannot perform an OEI takeoff at the maximum structural takeoff weight, Takeoff Analysis calculates a unique Maximum Takeoff Weight (MTOW) for the flight by reducing the MTOW until all constraints are satisfied or the takeoff is deemed impossible.

For example, when planning operations from a short runway, the MTOW is reduced so that the distance required to accelerate and stop is less than the Accelerate and Stop Distance Available (ASDA). In this example, available runway distance is the constraint that limits the aircraft from departing at its maximum structural weight. If a longer runway were selected, the MTOW would increase if there were no other limiting constraints.

19.3.2.3 Identifying the Limiting Constraint

Takeoff Analysis displays the MTOW and limiting constraint for the flight at the bottom of the Performance Summary. There are ten potential limiting constraints (see below).



Figure 19-8. Takeoff Limiting Constraint

19.3.2.4 Limiting Constraints

Variables that have the potential to limit the maximum takeoff weight or render the takeoff impossible are listed below. When a constraint limits the maximum takeoff weight (MTOW), the text in bold is displayed at the bottom of the performance summary, followed by the word **Limited** (e.g., Runway Limited).

Structural Weight

The maximum weight for the aircraft type defined by the AFM. If an aircraft is not limited by performance or environmental constraints, MTOW is determined by the structural weight limit.

Obstacles

Obstacles along the flight path can limit MTOW or deem a takeoff impossible. An aircraft must be able to clear all obstacles along the flight path by the selected FAA or ICAO lateral and vertical distance. If an aircraft cannot clear all obstacles, MTOW is reduced until takeoff is deemed possible.

Runway

Runway length can reduce MTOW and deem a takeoff impossible. The aircraft must be able to takeoff or abort, given the available runway distance. If takeoff or abort distances exceed available runway, MTOW is reduced until takeoff is deemed possible.

Climb

Climb gradient can reduce MTOW or deem a takeoff impossible. The aircraft must achieve the minimum climb gradient as required per the aircraft certification rules. The climb constraint does not factor in obstacles.

Temperature

Temperature cannot exceed the AFM published temperature limits.

Wind

Wind cannot exceed the AFM published wind limits.

Brake Energy

Brake energy required to stop the aircraft cannot exceed the published limits. This constraint is most common with downslope runways or departures with a tailwind.

Tire Speed

Tire speed cannot exceed the AFM published limits.

> **VMC**
>
> V_{MC} is the minimum ground control speed or V_{MCG}. V1 cannot be lower than the published minimum control speed.

> **AFM Data**
>
> AFM Data limits exist when data interpolation is not possible. When an AFM Data limit is applicable, Runway Analysis uses the next available lower value. For example, if the planned takeoff weight is 18,500 lbs, yet performance data only exists for 20,000 lbs and 15,000 lbs, Takeoff Analysis will limit MTOW to 15,000 lbs and the performance summary will indicate AFM Data Limited.

19.3.2.5 Takeoff Impossible Error

If Takeoff Analysis determines the planned takeoff weight exceeds the maximum takeoff weight for the conditions, the flight is deemed impossible and an error banner is displayed near the top of the Takeoff Analysis view. To clear the Takeoff impossible error, try the following suggestions.

- Select a different runway or a different Engine Out Procedure.
- Reduce Start Fuel or Payload.
- Plan a shorter leg (results in reduced fuel load).
- Select a more fuel efficient en route performance profile.
- Manually edit winds or temperature to determine if departing under different conditions results in a possible takeoff.

> **NOTE:** If the Maximum Fuel Policy is selected on the Flights view and the Takeoff Analysis shows a warning, tapping back will prompt ForeFlight Mobile to automatically reduce the planned Start Fuel to the lower limit calculated by Takeoff Analysis. If a Fuel Policy other than Maximum is selected, manually reduce the fuel quantity or payload to the constrained value to remove the warning.

19.3.3 Single-Engine Takeoff Analysis

Takeoff Analysis for single-engine aircraft calculates the total distance required for takeoff given the selected runway, aircraft performance, and environmental conditions.

19.3.4 Takeoff Analysis - Performance Summary

Takeoff Analysis key performance results are always visible at the top of the view in the Performance Summary. Additional performance results are available in the Takeoff Analysis Performance section.

The Performance Summary is populated once a runway is selected. Results are initially based on the default takeoff configuration and the current or forecast weather. Results are updated each time a new departure runway is selected or a configurable field is edited. If a takeoff is deemed impossible, the Performance Summary is blank.

Information in the summary varies based on the aircraft type. The information found in the summary is representative of the performance results that can be calculated using the AFM.

Complete performance results for can also be found in the Runway Analysis Summary Document.

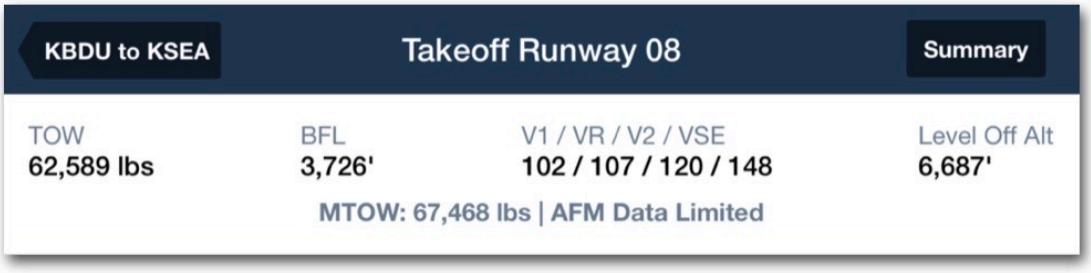


Figure 19-9. Multi-Engine Performance Summary



Figure 19-10. Single-Engine Performance Summary

19.3.5 Takeoff Analysis - Departure Runway

The Departure Runway section contains fields that define the runway environment. The fields in this section are automatically populated with the latest data and represent the variables that affect the selected takeoff performance.

A field is only included in the Departure Runway section if it is documented in the AFM as a variable that affects takeoff performance (e.g., Surface Condition).

Individual runway TORA, TODA, and ASDA declared distances will be displayed when available for the selected runway. If the available runway declared distances are all the same, **Usable Length** will be displayed instead of TORA, TODA, or ASDA.

The Departure Runway values can be overwritten to accommodate unique circumstances (e.g., runway NOTAMs). To overwrite a value, tap the applicable field and enter a new value.



Figure 19-11. Departure Runway Section

> **NOTE:** When any of the runway lengths are edited, the edits are made to the start of the runway. This may result in calculations that bring the aircraft closer to obstacles along the departure path.

19.3.6 Selecting a Departure Runway

To select a departure runway, tap the **Runway** field and select a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a Closed tag is displayed next to the runway name.

> **CAUTION:** Runway distance reductions via NOTAM are not factored by Runway Analysis.

When weather data is available via the internet, ADS-B, or SiriusXM, the wind component for each runway is displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

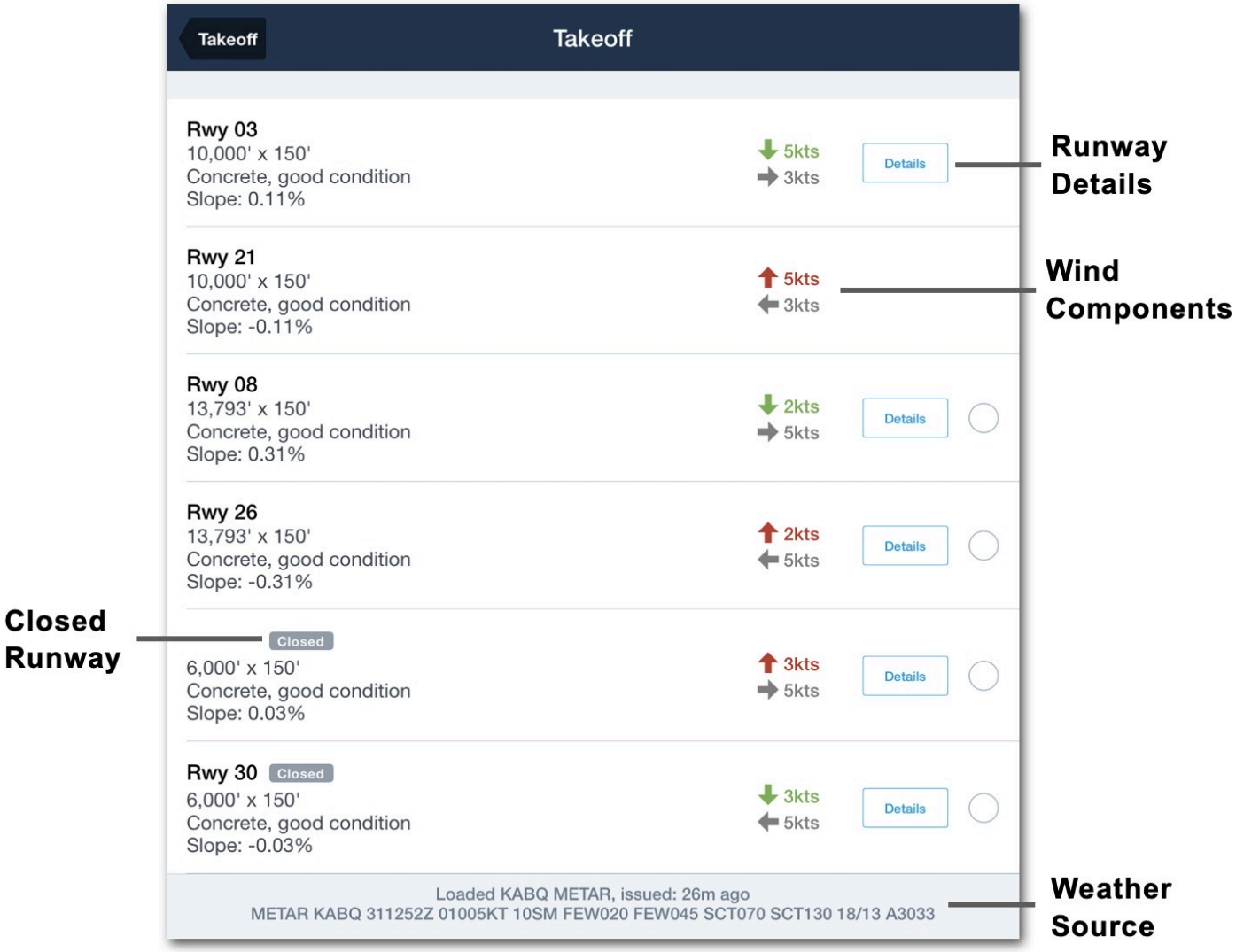


Figure 19-12. Selecting a Departure Runway

19.3.6.1 Highest MTOW EOP

The EOP that allows the highest MTOW is displayed below the runway details. This facilitates departure runway selection and decision-making if special consideration for the EOP is needed.

If Obstacle Analysis is disabled, a message will be displayed when selecting a runway.

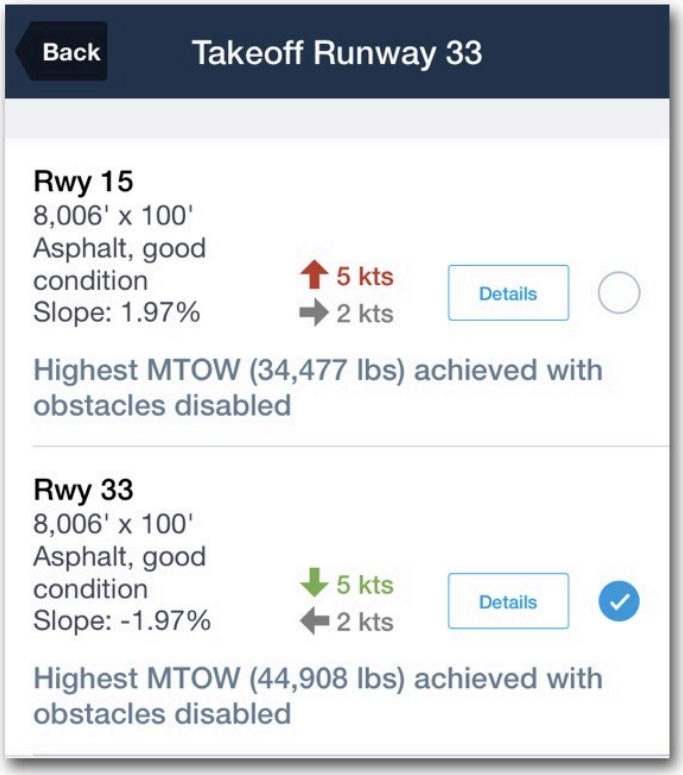


Figure 19-13. Highest MTOW

19.3.6.2 Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information including:

- Surface Dimensions
- Surface Type and Condition
- Wind Components
- Glide Slope Indicators
- Slope
- Magnetic Heading
- Lighting
- Elevation
- Procedures
- Intersection Distance Remaining

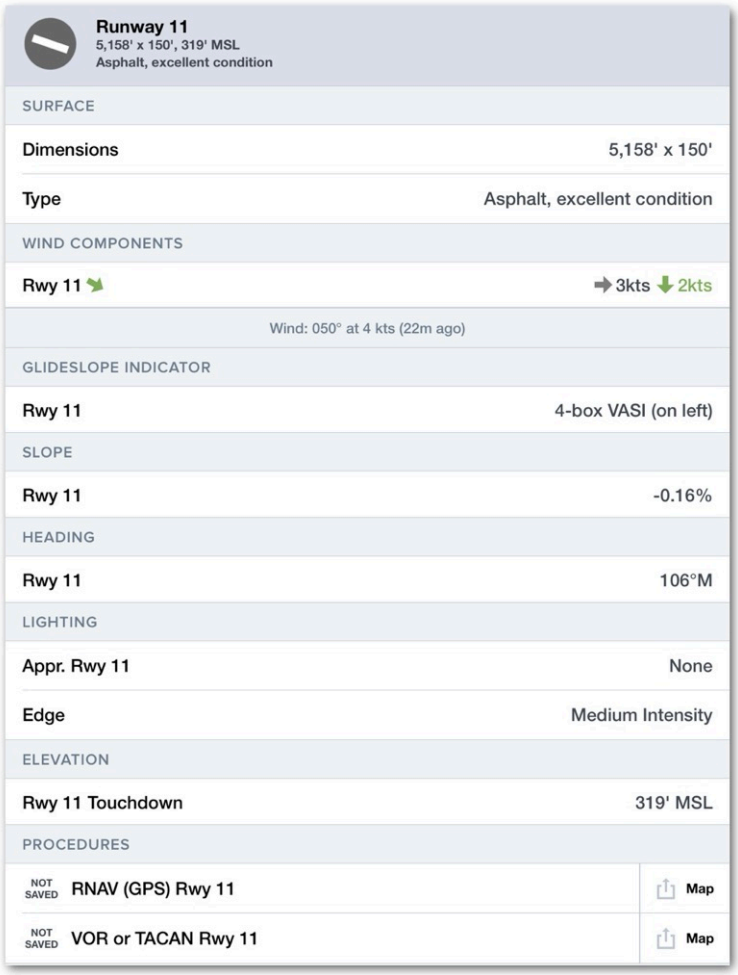


Figure 19-14. Runway Detail View

19.3.7 Selecting Intersection Departures

Instead of taking off at the beginning of a runway, pilots can elect to start their takeoff at one of the runway intersections or a custom distance down the runway.

When using an initial point other than full length for the departure, the aircraft will start the takeoff roll closer to obstacles in the takeoff path. Therefore, selecting an intersection departure or custom length will result in updates to the takeoff analysis calculations, including TORA, TODA, ASDA, and Usable Length.

To select an intersection for departure:

1. Tap the Intersection field, which reads Full Length by default.

2. In the popup, select one of the available intersections or tap **Custom** and enter a custom TORA value.

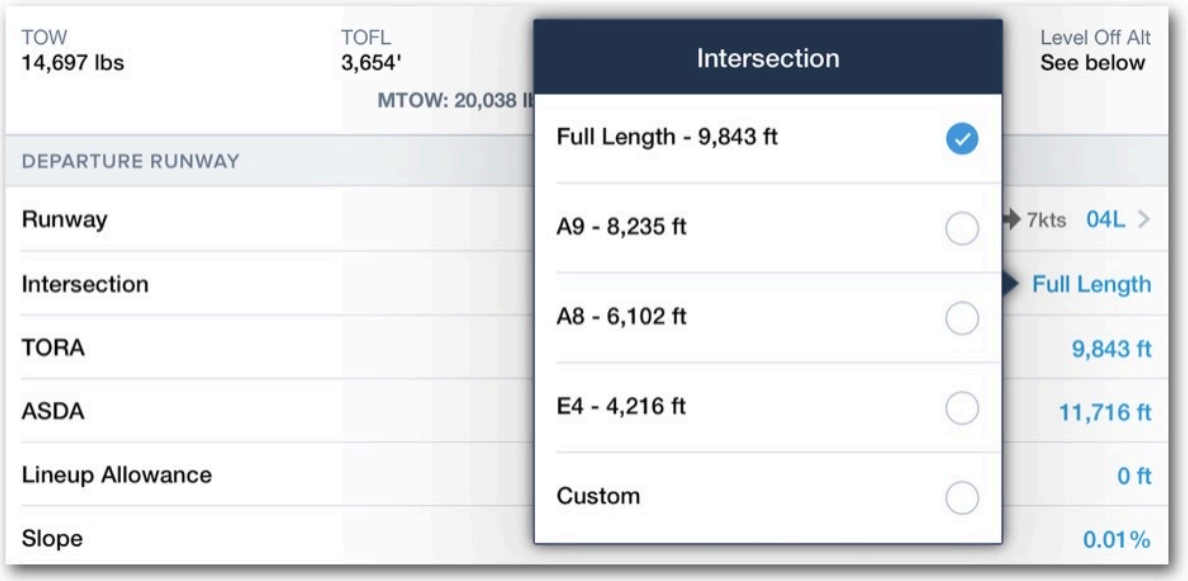


Figure 19-15. Selecting Runway Intersection for Takeoff

The Intersection field will be updated with the selection. Additionally, the TORA, TODA, ASDA, and Usable Length fields (if available) will be updated based on the selection, and their labels will be prefixed with **Remaining**.



Figure 19-16. TORA and ASDA Values Adjusted for Takeoff Intersection

19.3.7.1 Departure Runway Field Definitions

Definitions for terms and abbreviations found in the Departure Runway section are listed below.

Intersection

A defined point of departure associated with an adjoining taxiway that is located at a point other than at the beginning of the runway.

TORA

The portion of the runway suitable for the takeoff ground roll.

TODA

Takeoff Distance Available (includes stopway and clearway).

ASDA

Accelerate Stop Distance Available (includes stopway).

Usable Length

If the available runway declared distances are all the same, this field will be displayed instead of TORA, TODA, or ASDA.

Stopway

Paved area beyond TORA that can be used for stopping during a rejected takeoff.

Clearway

Unpaved area clear of obstacles beyond the runway that can be used for a portion of the initial climb with unbalance field length takeoffs.

Lineup Allowance

Distance loss in takeoff calculations due to lining the aircraft on the centerline. The default value is zero but can be edited in the Aircraft Profile>Field Performance section.

NOTE: Lineup Allowance is unavailable for piston aircraft and is limited to select turboprop aircraft.

Slope

The difference in elevation from the beginning of the runway to the end, divided by the runway length, and multiplied by one hundred.

> **Surface Condition**
>
> The physical condition of the runway according to the options published in the AFM. Dry/ Not Contaminated is the default value.

19.3.8 Takeoff Analysis - Obstacle Analysis

Obstacle Analysis is exclusive to multi-engine jet aircraft. This section enables and disables the obstacle constraint, selects the engine out procedure, and is used to specify additional obstacles along the departure runway centerline. The Obstacle Analysis section is made available when a runway has been selected.

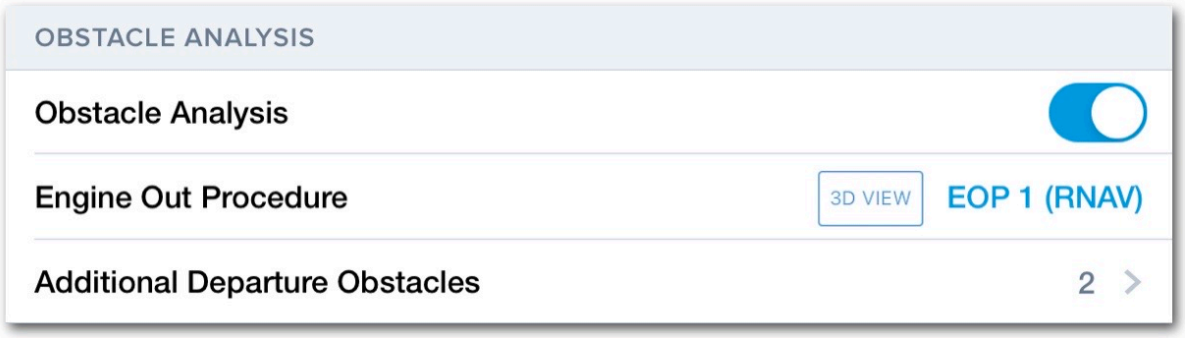


Figure 19-17. Obstacle Analysis Section

Obstacle Analysis Toggle Switch

The first row of the Obstacle Analysis section is a toggle switch for enabling or disabling the Obstacle Analysis.

When enabled, Takeoff Analysis evaluates the selected EOP and Additional Departure Obstacles to ensure clearance can be maintained. If obstacle clearance cannot be maintained, obstacles become the limiting constraint and the maximum takeoff weight is reduced until the flight is deemed possible. Obstacle Analysis includes banked climb performance degradation.

When Obstacle Analysis is disabled, the Engine Out Procedure field is removed and obstacles are not evaluated for that phase of flight. Departure obstacles manually added are still evaluated when Obstacle Analysis is disabled.

Engine Out Procedure 3D View Button

The Engine Out Procedure row includes a 3D VIEW button that can be tapped to open a dynamic 3D Preview of the selected EOP.

19.3.9 Takeoff Analysis - Engine Out Procedure

The EOP specifies the route that will be flown in the event of an engine failure. The selected EOP is used for Obstacle Analysis and is included in the Runway Analysis Summary Document.

To select an EOP for the flight, tap the circle on the right side of its row. To see an EOP's procedural steps, tap its name. To open a dynamic 3D Preview of the EOP, tap the 

button.

Straight Out Procedure

The Straight Out procedure analyzes obstacles along the runway heading and is selected by default. To select a different EOP, tap the field and select an option from the list (if available).

ForeFlight Designed Engine Out Procedures

Engine Out Procedures labeled **EOP** are designed by ForeFlight. There are over 9,000 ForeFlight EOPs to choose from, with more being regularly added.

When possible, ForeFlight EOPs are overlayed onto existing Standard Instrument Departure (SID) procedures. All ForeFlight EOPs are designed in accordance with FAA Advisory Circular 120-91A.

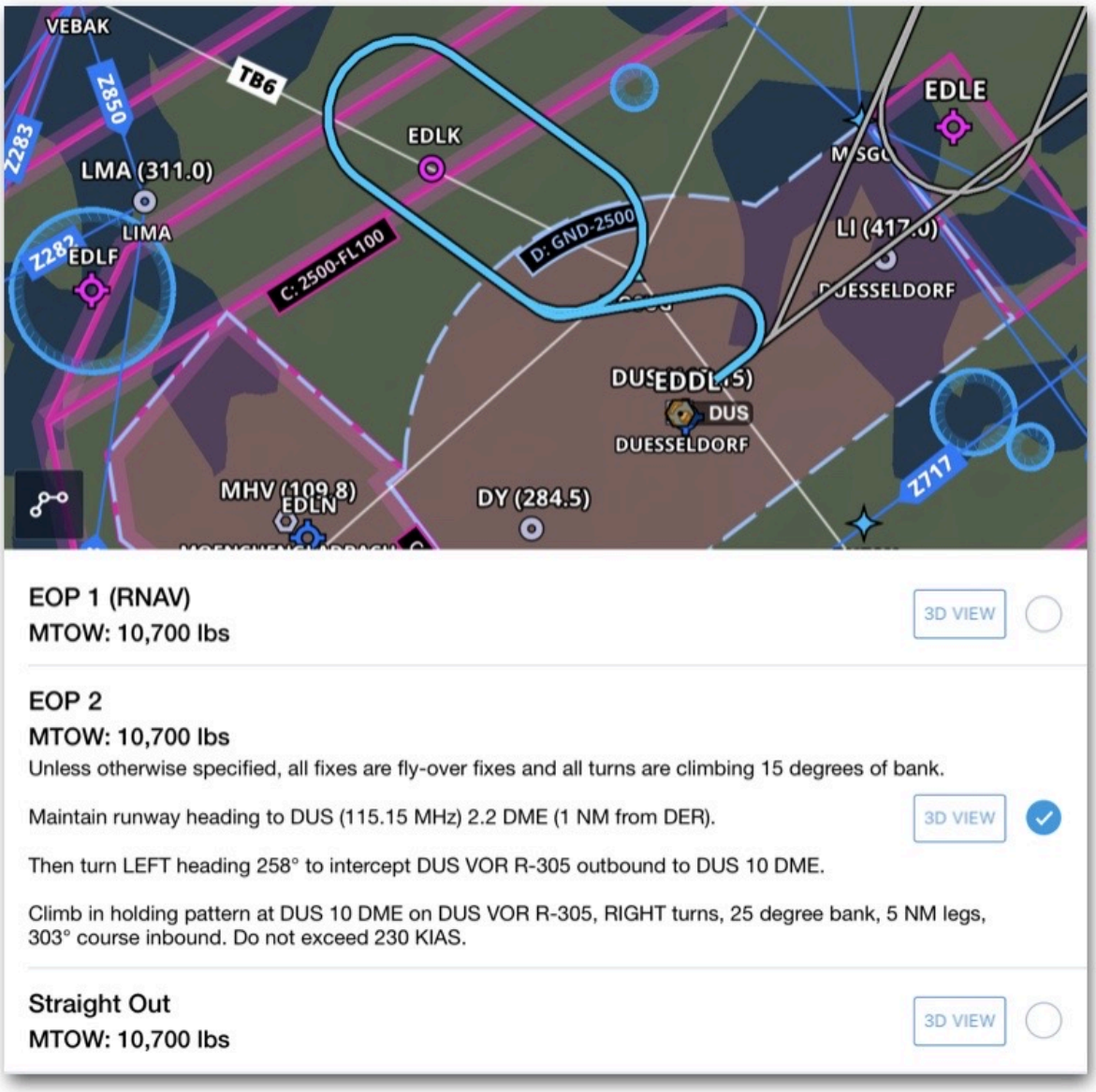


Figure 19-18. Engine Out Procedures - EDDL Dusseldorf

EOP Text Summary

Once an EOP has been selected, its text description and procedural steps are also displayed at the bottom of the Takeoff Analysis view.

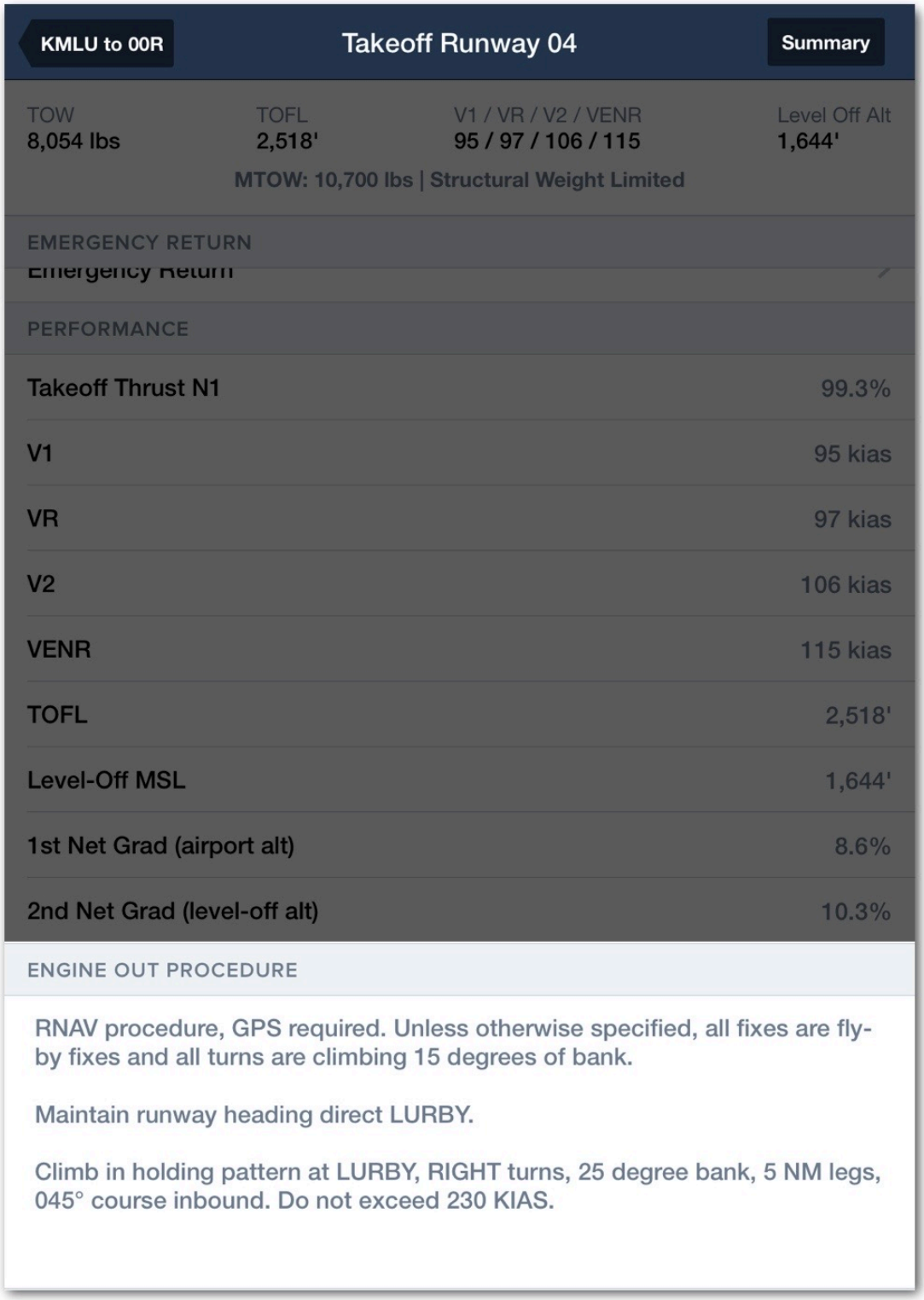


Figure 19-19. Engine Out Procedure Section

19.3.10 Takeoff Analysis - Additional Departure Obstacles

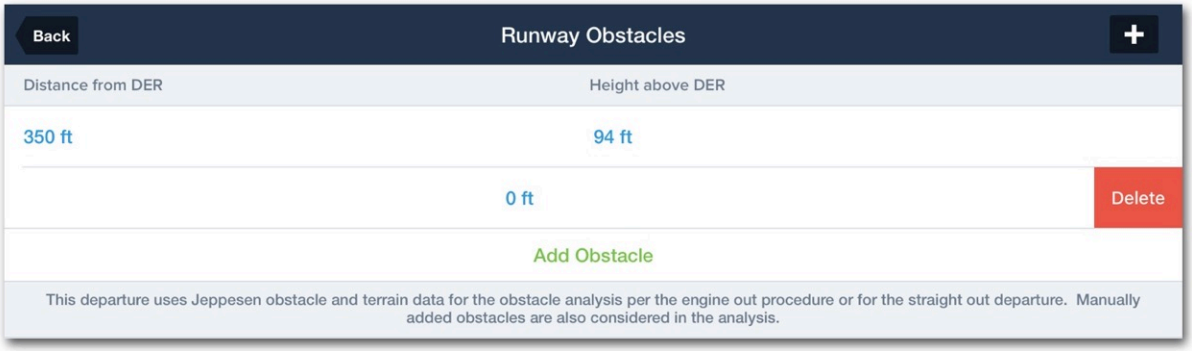


Figure 19-20. Additional Departure Obstacles

The Additional Departure Obstacle field is used to manually add obstacles along the runway extended centerline. This feature is useful for adding obstacles that are issued via NOTAM and are not yet in the obstacle database.

19.3.10.1 Adding Obstacles

To add an obstacle:

1. Tap **Additional Departure Obstacles**.
2. Tap **Add Obstacle** or the + button in the upper right corner.
3. Manually specify a distance from the departure end of the runway (DER).
4. Manually specify a height above the DER.
5. To add additional obstacles, repeat steps 1-3.
6. When complete, tap the **Back** button near the top of the screen.

19.3.10.2 Deleting Obstacles

1. To delete an obstacle, swipe from right to left and tap **Delete**.
2. When complete, tap the Back button near the top of the screen.

> **NOTE:** It is not possible to add obstacles not aligned with the extended centerline.

19.3.11 Takeoff Analysis - Weather

Takeoff Analysis automatically loads the latest METAR, TAF, MOS forecast, or general forecast (using ForeFlight Daily Weather) according to the estimated departure time. If the departure airport does not provide weather information, Runway Analysis uses the appropriate weather from a nearby airport. The weather source and raw text are displayed at the bottom of the Weather section.

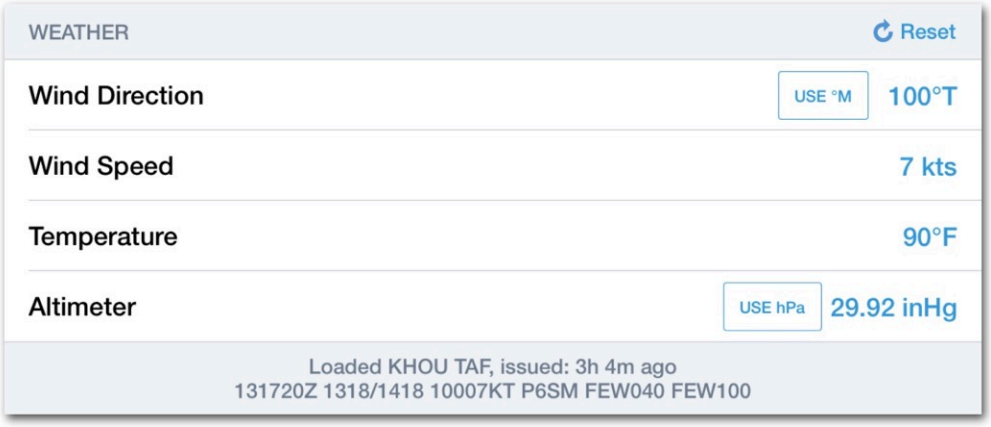


Figure 19-21. Takeoff Analysis Weather Section (KHOU TAF)

> **Temperature**
>
> The Terminal Aerodrome Forecast (TAF) does not include temperature data. If the Weather section indicates data is derived from a TAF, temperature data will be provided by the MOS forecast. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to **Using Custom Weather**.

When custom weather information has been entered, the performance results are updated, and the edited values are used throughout Takeoff Analysis. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.

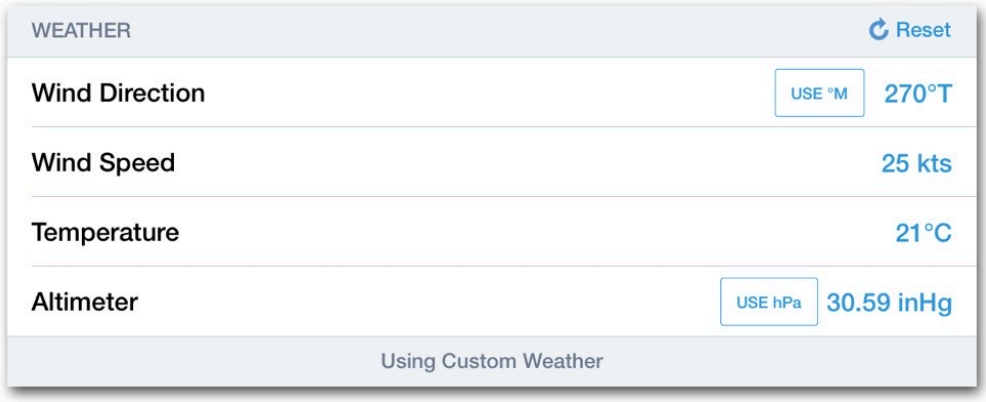


Figure 19-22. Takeoff Analysis Custom Weather

> **Wind Direction**
>
> Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use °M** button. Using magnetic winds changes the weather source to custom.

> **Altimeter**
>
> Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

> **Weather Reset**
>
> To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

19.3.12 Takeoff Analysis - Aircraft Configuration

The Aircraft Configuration section is automatically populated with the planned takeoff weight and default values from the aircraft Field Performance settings.

Each field in the section can be edited to accommodate a non-standard takeoff configuration. Adjusting the takeoff configuration updates the planning results.

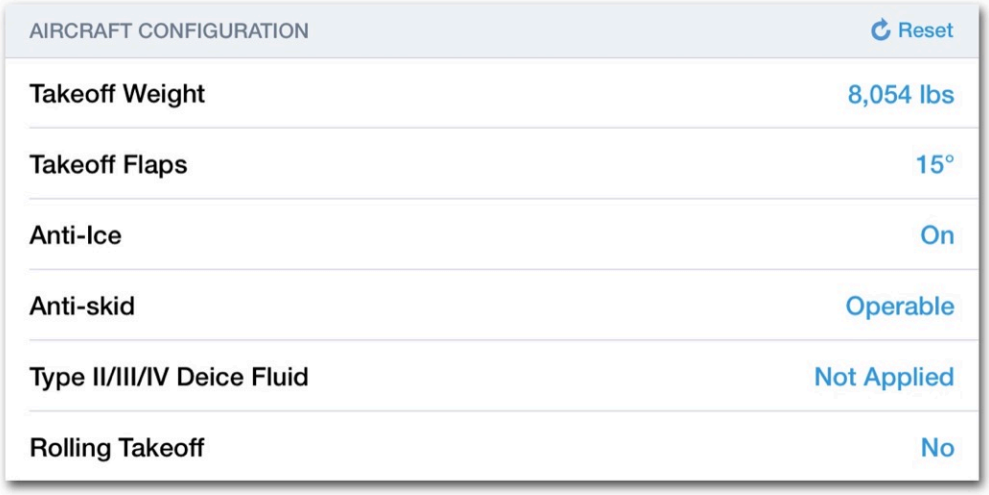


Figure 19-23. Takeoff Analysis Aircraft Configuration

Aircraft Configuration Checks

Some aircraft equipment may have limitations that prohibit a configuration from being selected. For example, this aircraft is prohibited from applying deicing fluid with takeoff flaps. When takeoff flaps are selected, the Deice Fluid Applied option is displayed in gray but is not selectable.

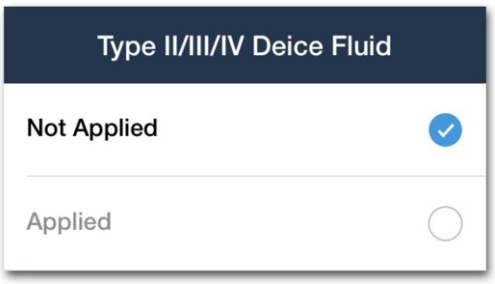


Figure 19-24. Configuration Unavailable

Aircraft Configuration Errors

If a takeoff configuration is selected that exceeds a limit, an error is displayed. In this example, the anti-ice setting was enabled outside of published limits.

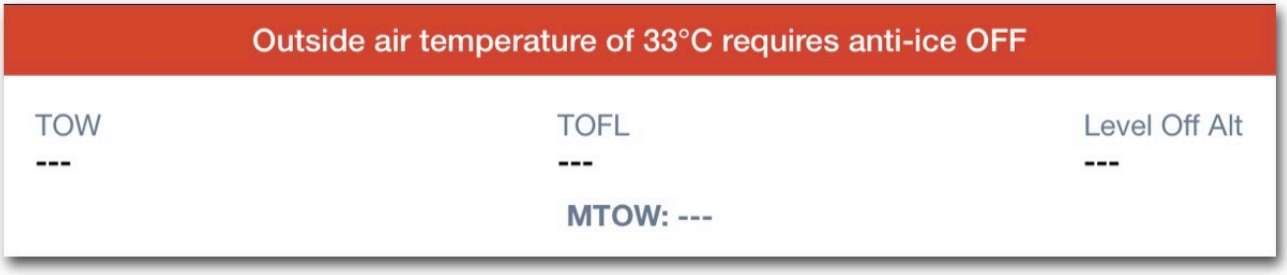


Figure 19-25. Takeoff Configuration Error Message

Aircraft Configuration - V_1 Type

Takeoff decision speed (V_1) is a calculated value that is affected by multiple variables (takeoff weight, thrust, aircraft configuration, and runway length). Most non-transport category aircraft calculate a single V_1 speed using the balanced field length technique.

Some larger aircraft provide performance results for multiple V_1 speeds. When planning with one of these types of aircraft, there are options for selecting a V_1 speed (V_1 Min, V_1 BFL, or V_1 Max).

Balanced Field Length (BFL)

The balanced field length is a condition where the distance required to stop the aircraft after an abort (at V_1) equals the distance required to continue the takeoff and reach 35 ft above the runway surface. With a single V_1 speed, the pilot can abort or continue the takeoff at V_1 in the event of an engine failure.

Unbalanced Field Length

When planning with an aircraft that supports unbalanced V1 speed calculations, Takeoff Analysis provides the following options.

- **V1 Min** - The minimum V_1 speed published for the flight conditions and results in a shorter accelerate stop distance but a higher accelerate-go distance.
- **V1 BFL** - The speed that results in equal accelerate-stop and accelerate-go distances.
- **V1 Max** - The maximum V_1 speed published for the flight conditions and results in a shorter accelerate go distance, but a higher accelerate stop distance.

19.3.13 Takeoff Analysis - Emergency Return

The Emergency Return section is used to perform a Landing Analysis for the departure airport in the event of an emergency after departure. To conduct an Emergency Return analysis, tap the field and select a runway.

If an Emergency Return results in an overweight condition, a warning message is displayed at the top of the Emergency Return view. However, that warning is not also displayed on the Flights view since an emergency return is often expected to be overweight.

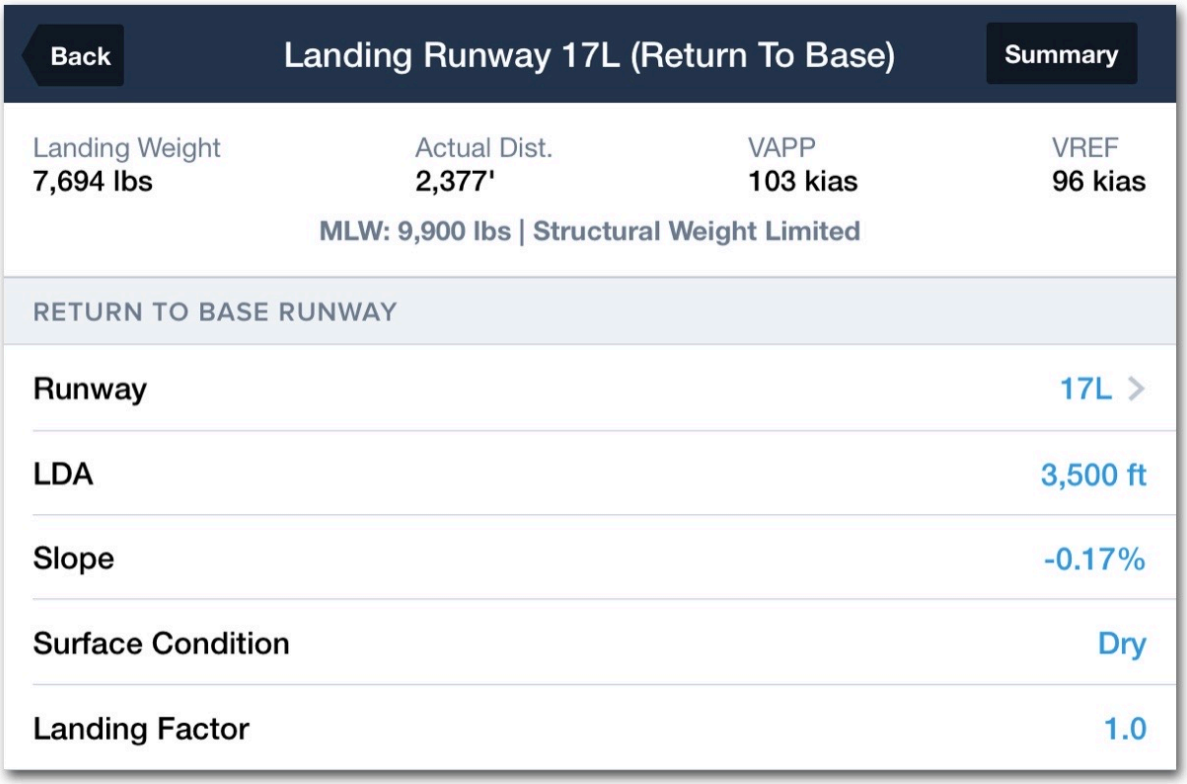


Figure 19-26. Emergency Return - Landing Analysis

19.3.14 Takeoff Analysis - Performance

The Performance section contains all takeoff performance results for the selected runway. The items in the Performance section vary by aircraft type and represent the information found in the AFM. The results discussed in this section are only included in the results if they are related to the selected aircraft. Performance results cannot be edited directly.

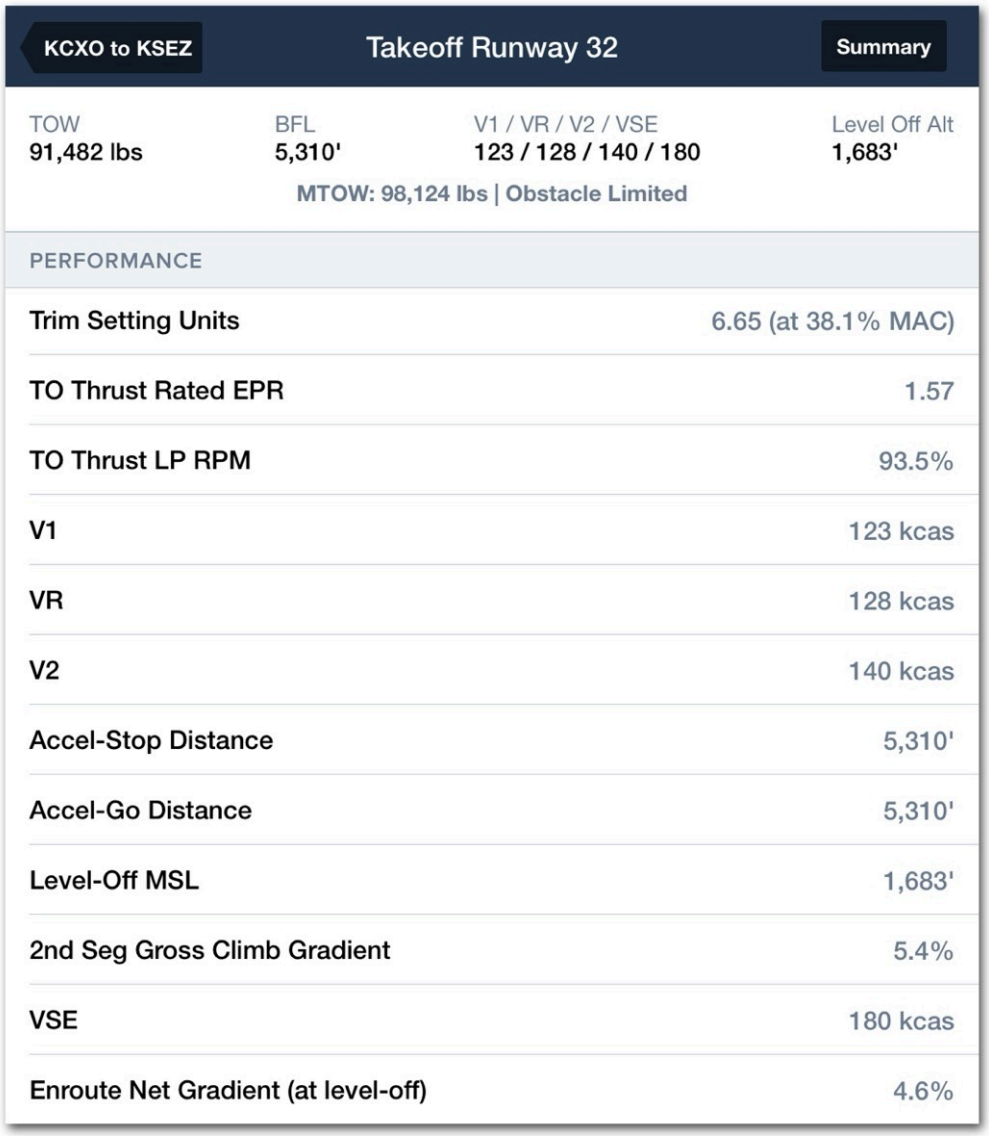


Figure 19-27. Takeoff Analysis - Performance Section

Performance Results

Performance results include values related to aircraft power, speed, distance, and altitude. These values correlate to individual takeoff, climb, and level-off segments as defined in the AFM.

Some aircraft are certified with two level-off and accelerate segments. The first segment is typically between 400 ft and 1,500 ft AGL and the second is 1,500 ft or higher. Once the aircraft is 1,500 ft or higher and reaches the en-route speed, Takeoff Analysis is complete.

If the aircraft is certified with two level-off and accelerate segments, the performance results are included in the Takeoff Analysis.

Takeoff Trim

Runway Analysis supports Takeoff Trim for select aircraft (listed below). To generate Takeoff Trim results, calculate weight and balance (W&B) using the integrated W&B tool with a profile that has %MAC enabled. If Weight & Balance is not calculated with %MAC enabled, the error message "CG Unavailable" is displayed in place of the trim results.

Takeoff Trim results are displayed near the top of the Takeoff Analysis Performance section and in the Runway Analysis Summary Document.

- Cessna 680 Citation Sovereign
- Cessna 680 Citation Sovereign+
- Cessna 680A Citation Latitude
- Challenger 300
- Challenger 604
- Challenger 605
- Challenger 650
- Falcon 900DX/900DX API Winglets
- Falcon 900EX/900EX EASy
- Falcon 900LX
- Global 5000 87.7k
- Global 5000 88.7k
- Global 5000 89.7k
- Global 5000 92.5k
- Global 6000 98k
- Global 6000 99.5k
- Global Express 93.5k
- Global Express 95k
- Global Express 96k
- Global Express 98k
- Global XRS 98k
- Global XRS 99.5k
- Global 7500
- Gulfstream IV
- Gulfstream IV/SP
- Gulfstream V
- Gulfstream VII-500
- Gulfstream VII-600
- Gulfstream 150
- Gulfstream 200
- Gulfstream 280
- Gulfstream 300
- Gulfstream 350
- Gulfstream 400
- Gulfstream 450
- Gulfstream 550
- Gulfstream 650
- Gulfstream 650ER
- Learjet 35A
- Learjet 40XR
- Learjet 45XR
- Learjet 60
- Learjet 60XR
- Learjet 70
- Learjet 75
- Phenom 300/300E
- Pilatus PC-24

Speed-Related Definitions

The following results related to aircraft indicated airspeed may be found in the Performance section.

> **V_1**
>
> The speed by which the pilot must initiate an action to abort the takeoff in the event of an engine failure.

> **V_R**
>
> The speed at which the pilot initiates rotation by pulling back on the yoke or stick to transition to flight.

> **V_2**
>
> The speed that must be attained when the aircraft is 35 ft above the runway surface with one engine inoperative. V2 is also the target climb speed after engine failure to maintain through initial level-off.

> **50' Speed**
>
> The climb speed reached at the end of the total takeoff distance while 50 ft AGL (gear down and takeoff flaps).

> **V_{SE}**
>
> The clean configuration climb speed after all obstacles have been cleared.

> **V_{FTO}**
>
> The takeoff final climb segment speed.

> **V_{ENR}**
>
> The en route climb speed, or the target speed after all obstacle segments have been completed and the aircraft is clear of all obstacles. Once the aircraft reaches this speed, the Takeoff Analysis portion of the flight is complete.

Distance-Related Results

The following aircraft distance-related results may be found in the Performance section.

> **Ground Roll**
>
> The portion of the takeoff procedure during which the airplane is accelerated from a standstill to an airspeed that provides sufficient lift to become airborne.

BFL

The balanced field length. This distance is determined by finding the V1 speed that results in an equal distance for accelerate-go and accelerate-stop.

Total Dist

The distance required to complete a takeoff to 35 ft above the runway surface.

TOFL

The takeoff field length, or the length required to complete a takeoff to 35 ft above the runway surface.

19.4 Conducting Landing Analysis

Landing Analysis determines the maximum landing weight, landing distance, and landing reference speed for the selected runway and aircraft configuration.

To conduct a Landing Analysis, enter the route, payload, and fuel details into the Flights view then tap the **Landing** button next to the destination or alternate airport and select a runway.

To conduct a Landing Analysis for the departure airport, select the Emergency Return option from the Takeoff Analysis view. Landing Analysis results are calculated once a runway is selected.

The **Takeoff** or **Landing** buttons may be hidden under the following conditions:

- The selected aircraft does not support Runway Analysis.
- A Runway Analysis license for the aircraft has not been purchased.
- A non-performance tier account is being used to plan the flight.
- Runway data for the airport is unavailable.

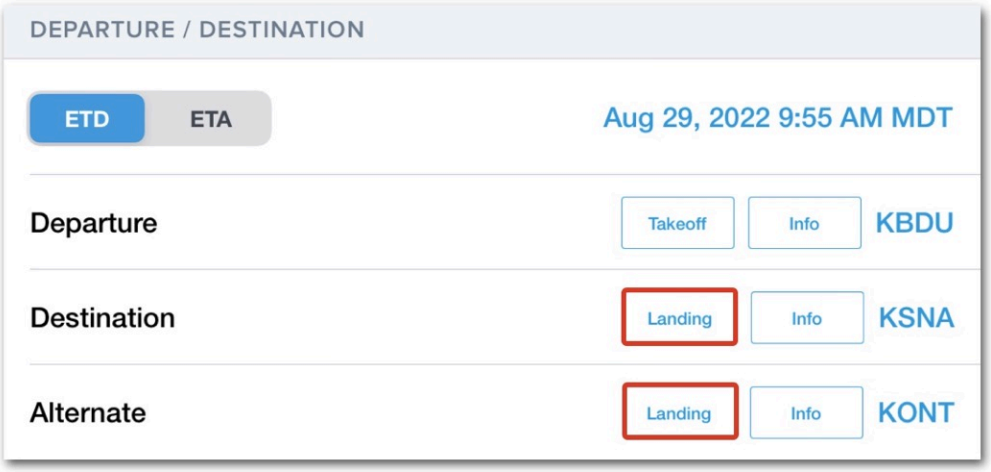


Figure 19-28. Landing Analysis Buttons

19.4.1 Landing Analysis View

The Landing Analysis view is organized into sections. At the top of the view, a Performance Summary displays key performance metrics for quickly evaluating a landing.

Each Landing Analysis section is described in detail throughout this chapter.

Landing Analysis Sections

- Performance Summary
- Destination Runway
- Missed Approach
- Weather
- Aircraft Configuration
- Performance.

Landing Analysis Default Data

When planning a new flight, Landing Analysis is automatically populated with the latest runway data, current (or forecast) weather, and default aircraft configuration.

Each field in blue text can be edited from this view to plan hypothetical conditions or circumstances that are unique to the flight.

For example, if the runway usable length has changed due to construction, manually edit the runway length to represent current conditions.

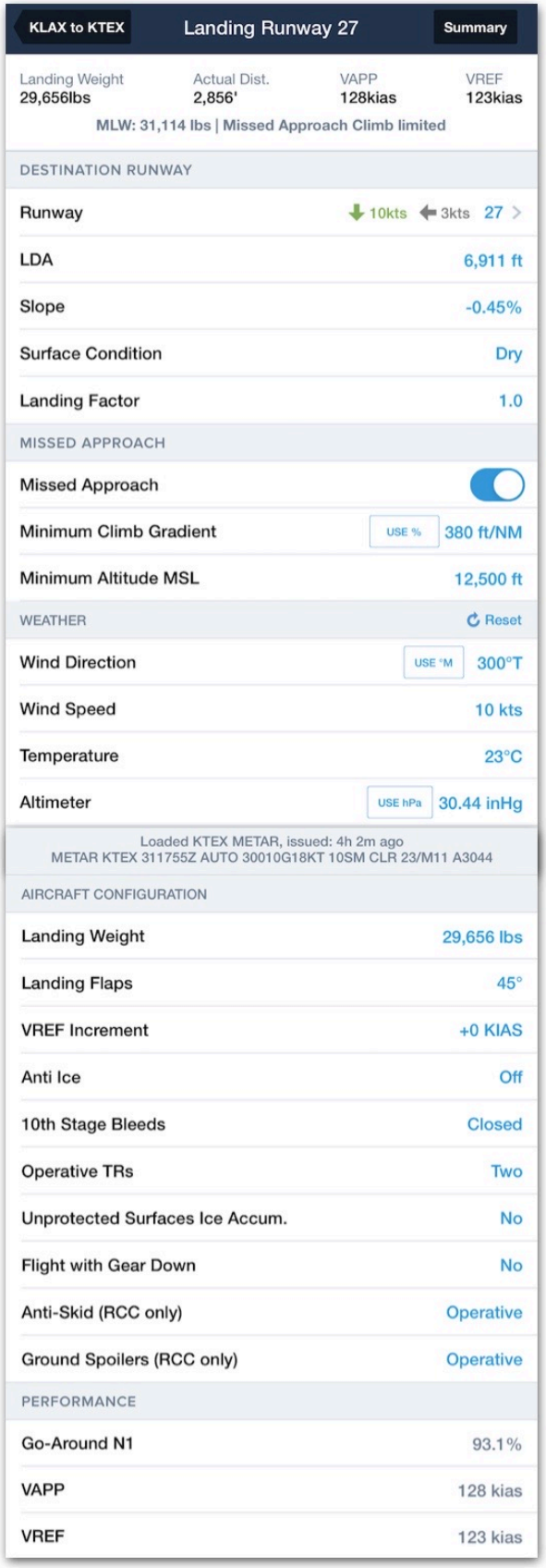


Figure 19-29. Landing Analysis View

19.4.2 Landing Analysis - Performance Summary

Landing Analysis performance results are always visible at the top of the view in the Performance Summary. Additional performance data is available in the Performance section.

Performance results are displayed once a destination runway is selected. Results are initially based on the default landing configuration and the current or forecast weather. Results are updated each time a new destination runway is selected, or a configurable field is edited.

If a landing is deemed impossible due to a limit being exceeded, the performance summary will be blank.

Information in the summary varies based on the aircraft type. The information found in the summary is representative of the performance results that can be derived from the AFM.



Figure 19-30. Landing Analysis Performance Summary - Single Engine Aircraft

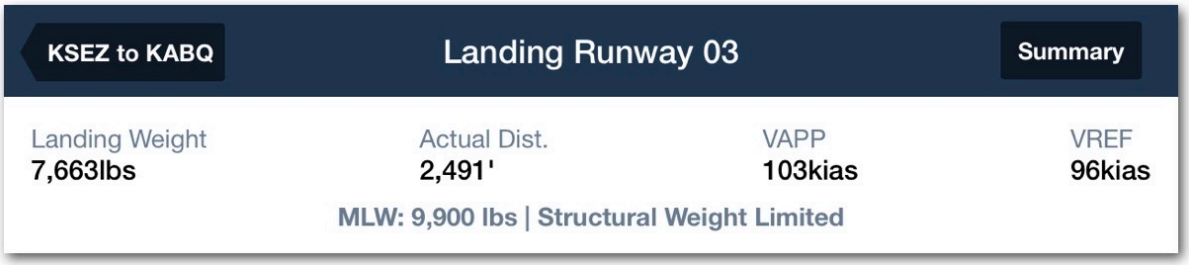


Figure 19-31. Landing Analysis Performance Summary - Multi Engine Aircraft

19.4.3 Determining Maximum Landing Weight

Landing Analysis calculates a unique Maximum Landing Weight (MLW) for the flight by reducing the MLW until all constraints are satisfied or the landing is deemed impossible.

For example, when planning operations to a short runway, the maximum landing weight is reduced so that the distance required to land and stop is less than the Landing Distance Available (LDA) of the runway.

19.4.3.1 Identifying the Limiting Constraint

Landing Analysis displays the MLW and limiting constraint for the flight at the bottom of the performance summary. There are eight potential constraints that can limit the MLW.



Figure 19-32. Landing Limiting Constraint

19.4.3.2 Landing Impossible Error

If Landing Analysis determines the required landing distance exceeds the landing distance available, an error message is displayed at the top of the view.

To clear the error, try the following suggestions:

- Select a different runway.
- Reduce Start Fuel or Payload.
- Manually edit winds to determine if landing under different environmental conditions results in a successful landing.
- Select a different Surface Condition (e.g., Dry).
- Adjust the Landing Factor.
- Adjust the Aircraft Configuration (e.g., enable drag-producing equipment).

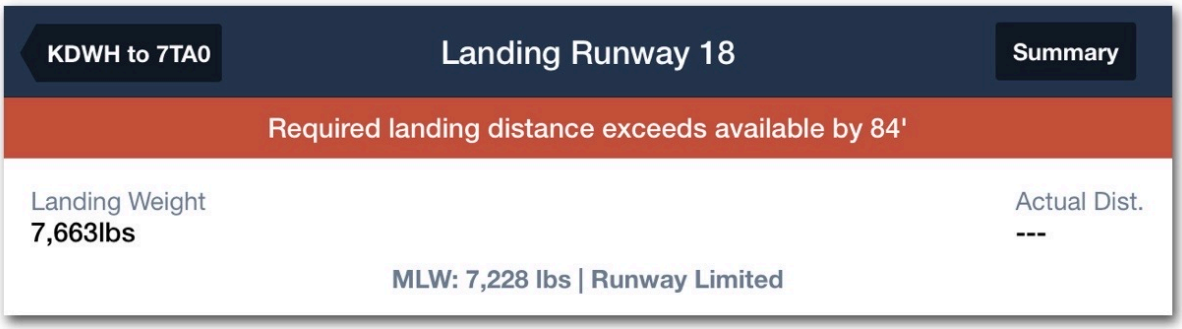


Figure 19-33. Landing Impossible Error

19.4.3.3 Limiting Constraints

Variables that have the potential to limit the maximum takeoff weight or render the takeoff impossible are listed below. When a constraint limits the maximum takeoff weight (MTOW), the text in bold is displayed at the bottom of the performance summary, followed by the word **Limited** (e.g., Runway Limited).

> **Structural Weight**
>
> The maximum weight for the aircraft type defined by the AFM. If an aircraft is not limited by performance or environmental constraints, MTOW is determined by the structural weight limit.

> **Obstacles**
>
> Obstacles along the flight path can limit MTOW or deem a takeoff impossible. An aircraft must be able to clear all obstacles along the flight path by the selected FAA or ICAO lateral and vertical distance. If an aircraft cannot clear all obstacles, MTOW is reduced until takeoff is deemed possible.

> **Runway**
>
> Runway length can reduce MTOW and deem a takeoff impossible. The aircraft must be able to takeoff or abort, given the available runway distance. If takeoff or abort distances exceed available runway, MTOW is reduced until takeoff is deemed possible.

> **Climb**
>
> Climb gradient can reduce MTOW or deem a takeoff impossible. The aircraft must achieve the minimum climb gradient as required per the aircraft certification rules. The climb constraint does not factor in obstacles.

> **Temperature**
>
> Temperature cannot exceed the AFM published temperature limits.

> **Wind**
>
> Wind cannot exceed the AFM published wind limits.

> **Brake Energy**
>
> Brake energy required to stop the aircraft cannot exceed the published limits. This constraint is most common with downslope runways or departures with a tailwind.

> **Tire Speed**
>
> Tire speed cannot exceed the AFM published limits.

> **V_{MC}**
>
> V_{MC} is the minimum ground control speed or V_{MCG}. V1 cannot be lower than the published minimum control speed.

> **AFM Data**
>
> AFM Data limits exist when data interpolation is not possible. When an AFM Data limit is applicable, Runway Analysis uses the next available lower value. For example, if the planned takeoff weight is 18,500 lbs, yet performance data only exists for 20,000 lbs and 15,000 lbs, Takeoff Analysis will limit MTOW to 15,000 lbs and the performance summary will indicate AFM Data Limited.

19.4.4 Landing Analysis - Destination Runway

The Destination Runway section contains various fields for defining the runway environment. The variables (e.g., landing distance available) are automatically populated with the latest available data and can be overwritten to accommodate unique circumstances (e.g., runway NOTAMs). To overwrite a value, tap the field and enter a new value.

The fields available in the Destination Runway section vary by aircraft type. A field is only included in the Destination Runway section if it is documented as a variable that affects landing performance in the AFM (e.g., Surface Condition).

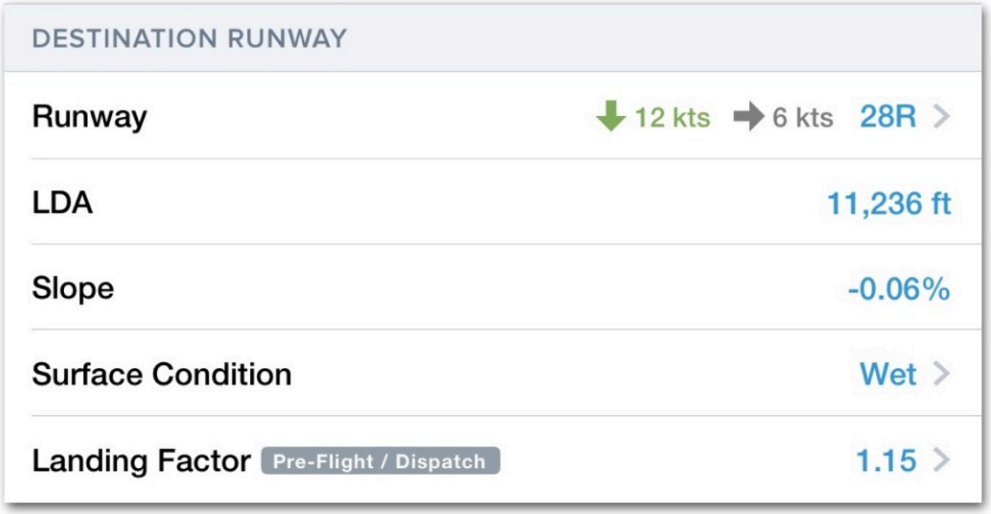


Figure 19-34. Destination Runway Section

NOTE: Runway distance reductions via NOTAM are not factored by Runway Analysis.

19.4.4.1 Selecting a Destination Runway

To select a destination runway, tap the **Runway** field and choose a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a Closed tag is displayed next to the runway name.

When weather data is available, the wind components for each runway are displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

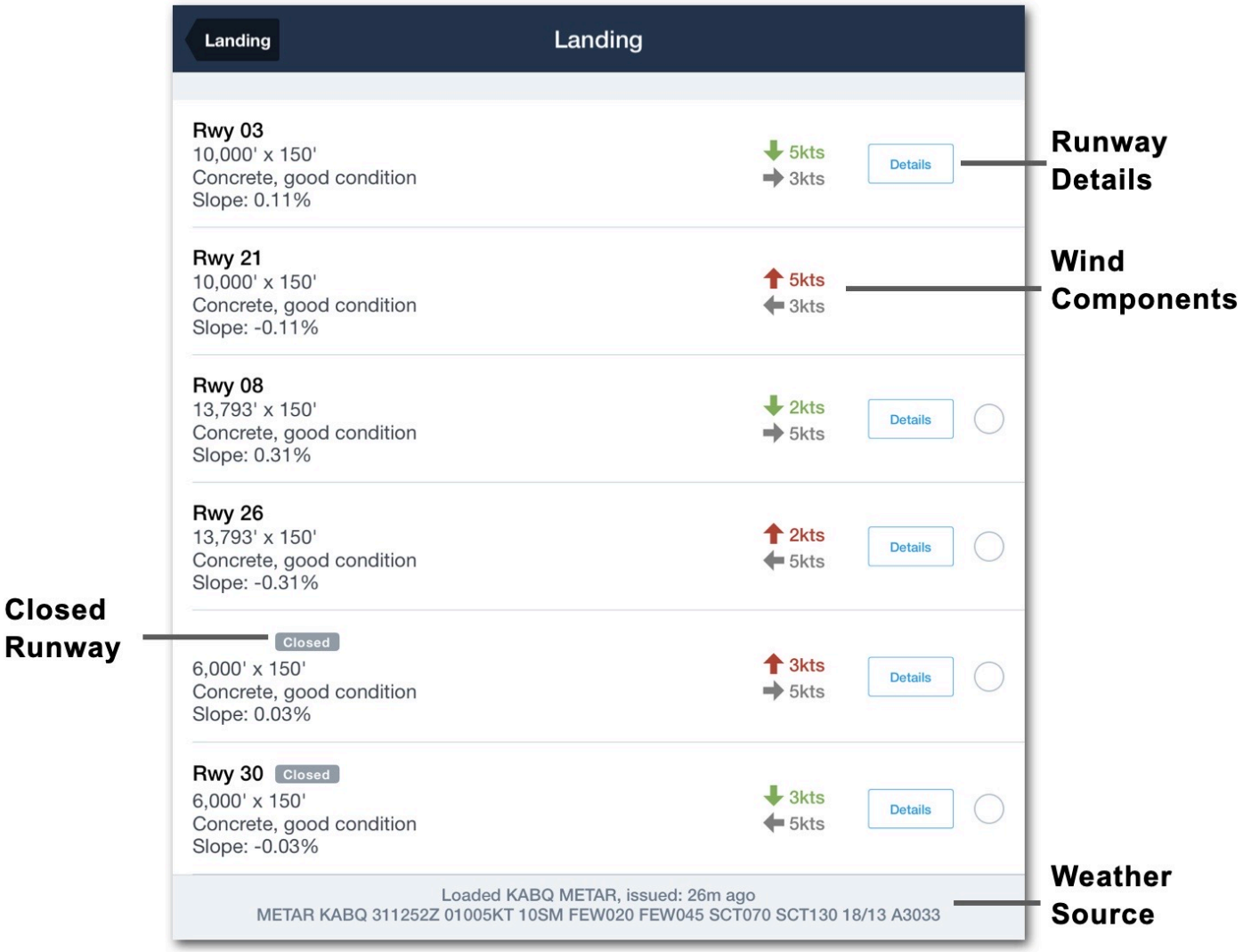


Figure 19-35. Selecting a Destination Runway

19.4.4.2 Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information, including:

- Surface dimensions
- Surface type and condition
- Wind components
- Glide Slope Indicators
- Slope
- Magnetic heading
- Lighting
- Elevation
- Available procedures

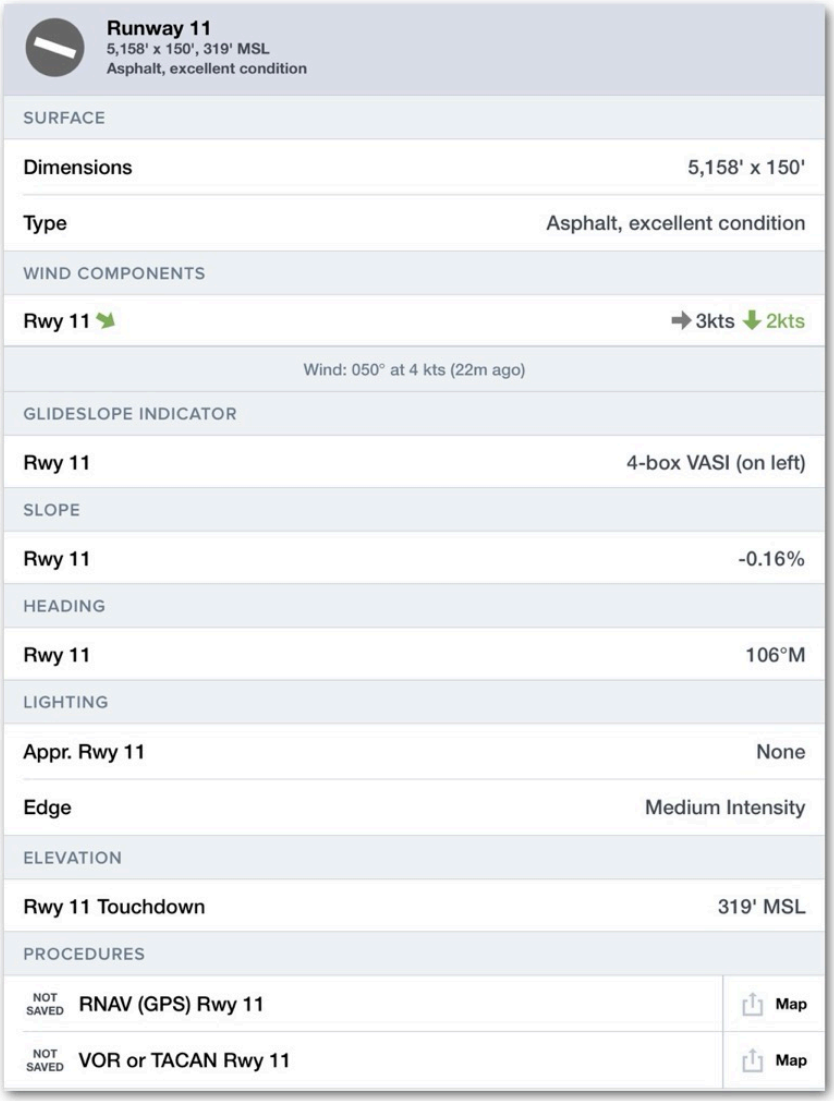


Figure 19-36. Runway Detail View

19.4.4.3 Destination Runway Field Definitions

Definitions for most terms and abbreviations used in the Landing Runway section can be found below. Items will vary by aircraft type and represent the data found in the AFM.

LDA

Runway Landing Distance Available. It does not include unusable runway distance as specified by NOTAM.

Stopway

The paved area beyond the portion of the runway suitable for the takeoff ground roll that can be used for stopping during a rejected takeoff.

Clearway

The unpaved area clear of obstacles beyond the takeoff runway that can be used for a portion of the air distance with unbalance field length takeoffs.

Slope

The difference in elevation from the beginning of the runway to the end, divided by the runway length and multiplied by one hundred.

Surface Condition

The physical condition of the runway according to the options published in the AFM. Dry/ Not Contaminated is the default value. Tap the **Surface Condition** field to open the Landing Factor Selector screen.

Landing Factor

The value by which the calculated landing distance is multiplied to produce the Factored Distance. The Landing Factor field will show a gray text field to indicate the phase of flight selected for the displayed landing factor. Tap the **Landing Factor** field to open the Landing Factor Selector screen.

Factored Distance

A longer landing distance achieved by multiplying the actual distance (also called unfactored distance) with a multiplier larger than 1.0, called the factor. This is done to provide a safety buffer distance to avoid landing overruns. The landing factor is never less than 1.0.

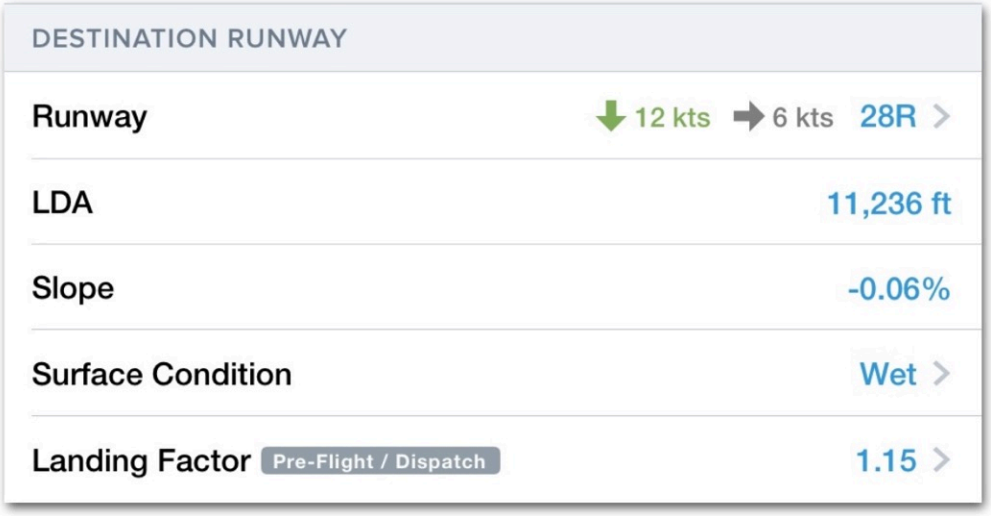


Figure 19-37. Destination Runway Section

19.4.4.4 Landing Factor Selector

To select a runway surface condition or landing factor tap either the **Surface Condition** or **Landing Factor** field. The Landing Factor Selector allows for independent phase of flight selections for **Pre-Flight/Dispatch** and **In-Flight/LDTA** runway conditions and landing factors.

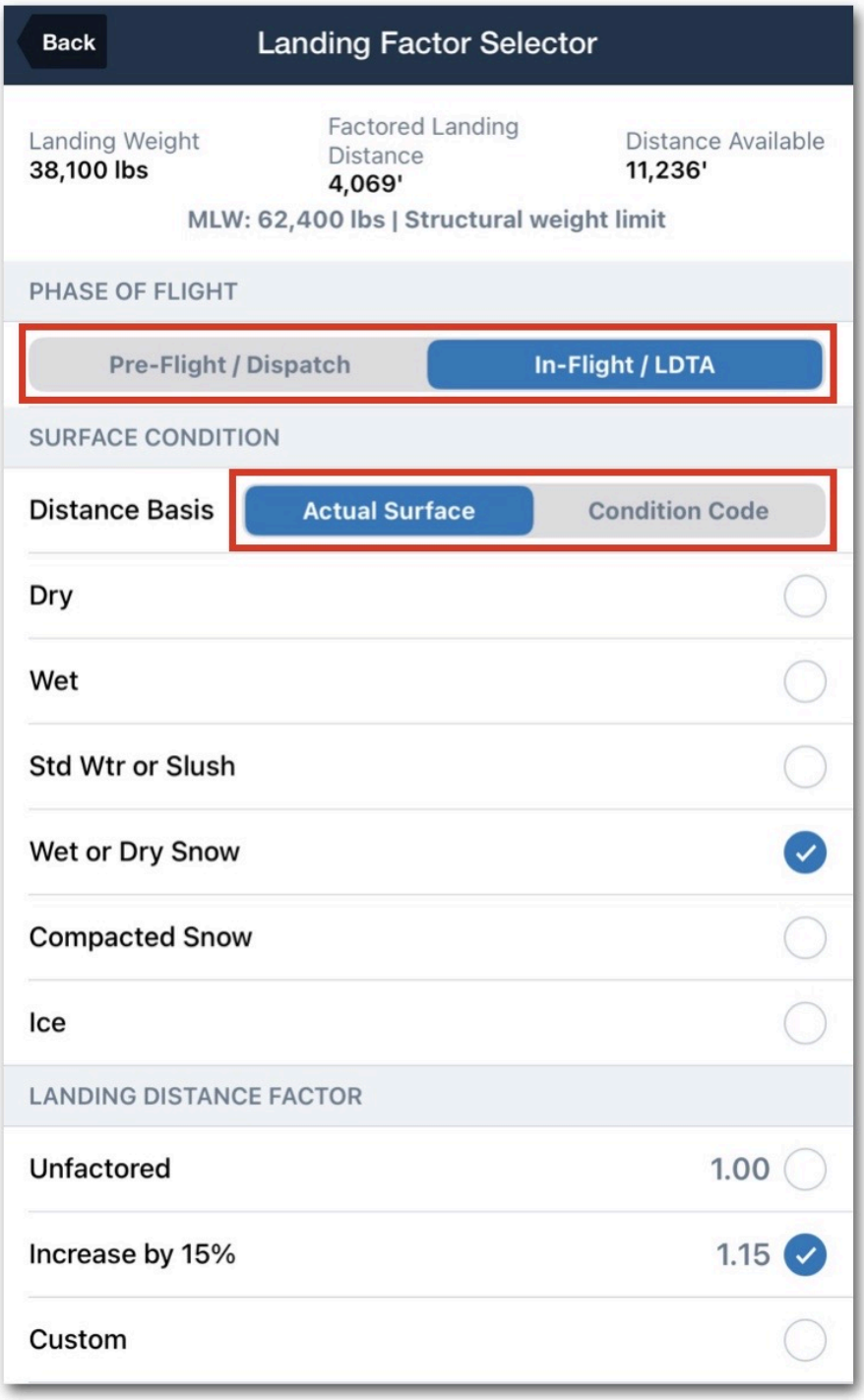


Figure 19-38. Landing Factor Selector

Phase of Flight

The Phase of Flight selector has two options:

- **Pre-Flight/Dispatch** - is intended for planning and allows for inputs of forecast surface conditions and landing distance factor.

- **In-Flight/LDTA** - is intended for calculating landing distance once the actual runway conditions are known. This phase of flight selection adds Distance Basis options.

Distance Basis Has Two Options

- **Actual Surface** - select the reported surface conditions of the runway.
- **Condition Code** - select the reported Runway Condition Code (RWYCC).

Landing Distance Factor has both preset and custom selections.

To set custom landing factor tap the Custom field and enter the landing factor in the pop-over box. Factors are input by percentage. For example an entry of 1.25 would result in the landing distance being increased by 25%. Factors lower than 1 are not permitted.

> **NOTE:** If the selected landing factor calculation is more than the available landing distance of the runway, a warning will display.



Figure 19-39. Landing Distance Warning

19.4.5 Landing Analysis - Missed Approach

The optional Missed Approach section determines if an aircraft can safely climb over terrain and obstacles when executing a missed approach. If an airport requires a non-standard minimum climb gradient and climb-to altitude to execute the missed approach, this information will be listed in the appropriate approach plate and can be entered into ForeFlight Mobile to update the landing analysis computation.

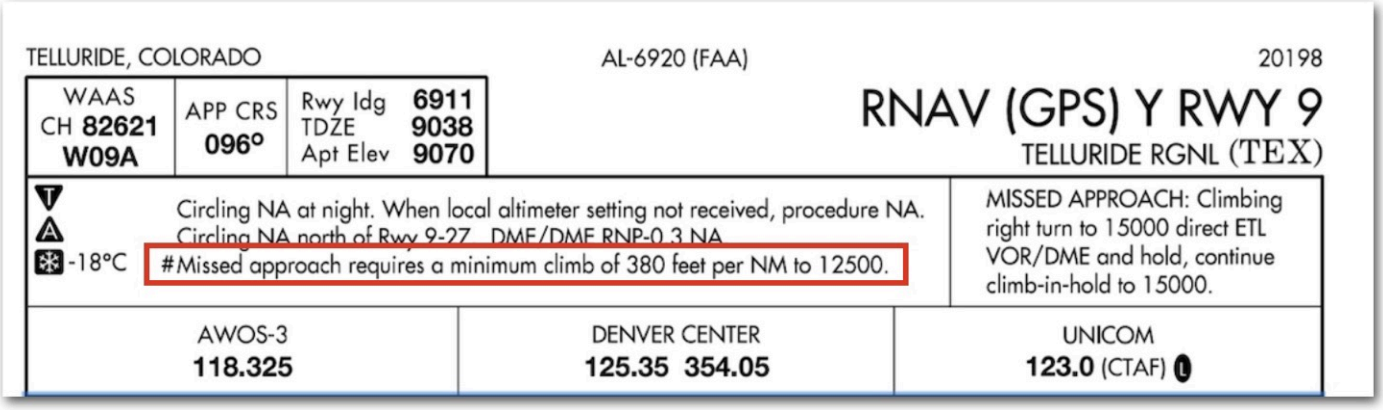


Figure 19-40. Approach Plate with Missed Approach Requirements

To include missed approach requirements in the landing analysis:

1. On the Landing Analysis view, toggle the **Missed Approach** switch on to reveal the Minimum Climb Gradient and Minimum Altitude MSL fields.
2. Enter the **Minimum Climb Gradient** as specified on the approach plate in ft per NM. The **Use %** button can be tapped to toggle this field between units of ft/NM and gradient.
3. Enter the **Minimum Altitude MSL** as specified on the approach plate.

> **NOTE:** The above information is not automatically populated by ForeFlight, and must be manually entered by the pilot.

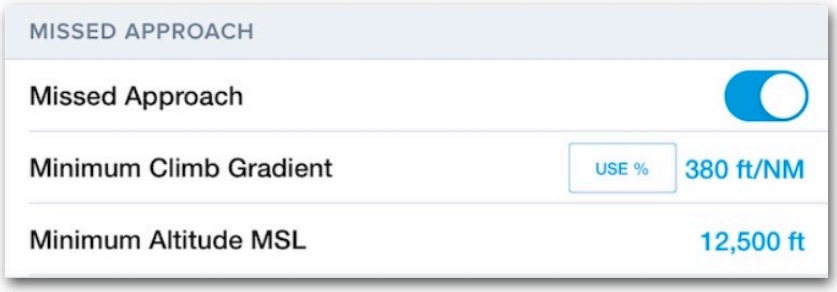


Figure 19-41. Missed Approach Section

19.4.6 Landing Analysis - Weather

Landing Analysis automatically loads the latest METAR, TAF, MOS forecast, or general forecast (using ForeFlight Daily Weather) according to the flight's estimated departure time. If the destination airport does not provide weather information, nearby airport weather is used. The weather source and the raw METAR or forecast are displayed at the bottom of the weather section.

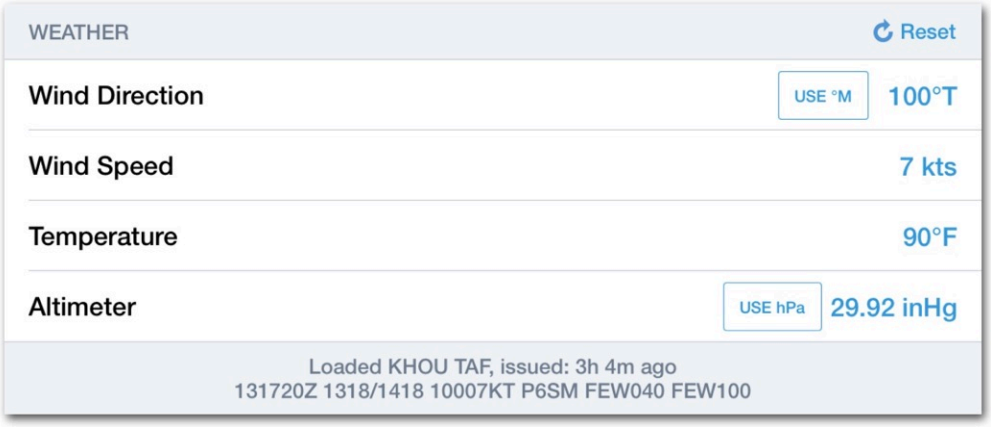


Figure 19-42. Landing Analysis Weather Section (KHOU TAF)

Temperature

The TAF does not include temperature data. If the Weather section indicates data is derived from a TAF, temperature data will be provided by the MOS forecast. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

> **NOTE:** ForeFlight Dispatch does not use MOS forecast temperature data. Flights planned with ForeFlight Dispatch use temperature from the METAR when the estimated time of departure is within 3 hours. If the ETD is greater than 3 hours, the temperature field needs to be manually entered.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to Using Custom Weather.

When custom weather information has been entered, the performance results are updated, and the edited values are used throughout Landing Analysis. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.

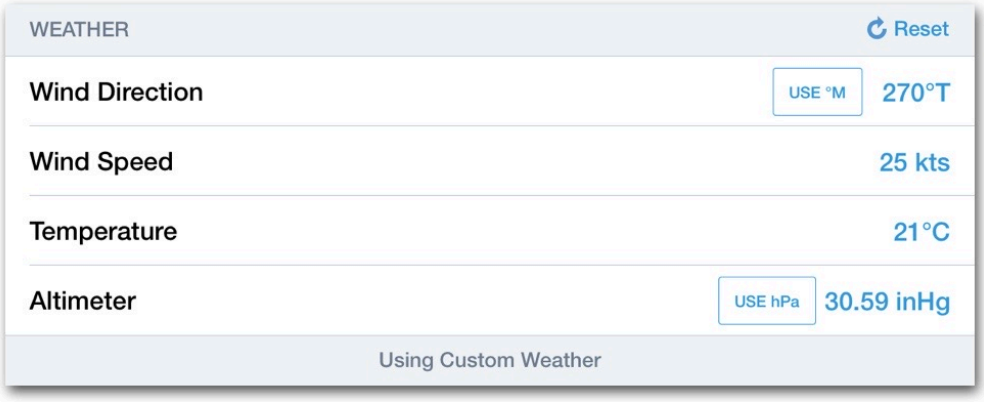


Figure 19-43. Landing Analysis Custom Weather

> **Wind Direction**
>
> Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use ºM** button. Using magnetic winds changes the weather source to custom.

> **Altimeter**
>
> Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

> **Weather Reset**
>
> To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

19.4.7 Landing Analysis - Aircraft Configuration

The Aircraft Configuration section is automatically populated with the planned landing weight and the default values from the aircraft Field Performance settings.

Each field in the section can be edited to accommodate a non-standard landing configuration. Adjusting the landing configuration updates the planning results.

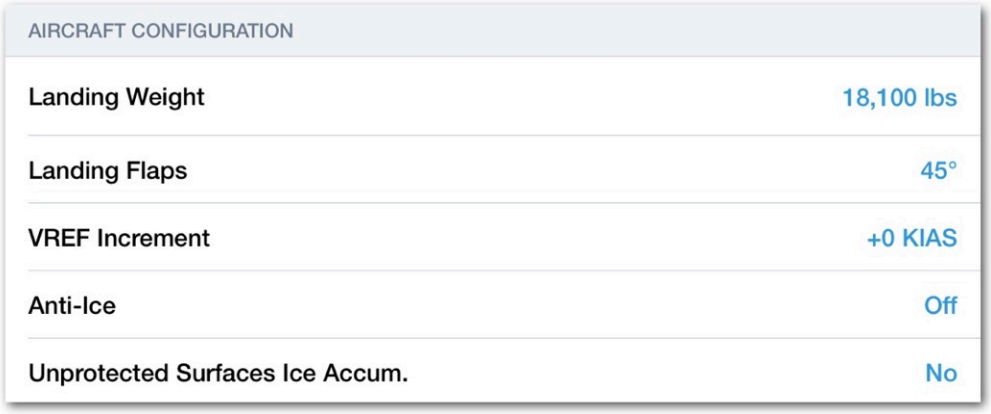


Figure 19-44. Landing Analysis Aircraft Configuration Section

Aircraft Configuration Checks

Some aircraft equipment may have limitations that prohibit a configuration from being selected. If a configuration is not possible, the item will be displayed but is not selectable.

Aircraft Configuration Errors

If a landing configuration is selected that exceeds a limit, an error message is displayed at the top of Landing Analysis, and the performance results are blank.

19.4.8 Landing Analysis - Performance

The Landing Analysis Performance section displays landing results for the selected runway (and balked landing results for single-engine aircraft). The items in the Performance section vary by aircraft type and represent the information found in the AFM. Most aircraft provide landing results related to speed and distance.

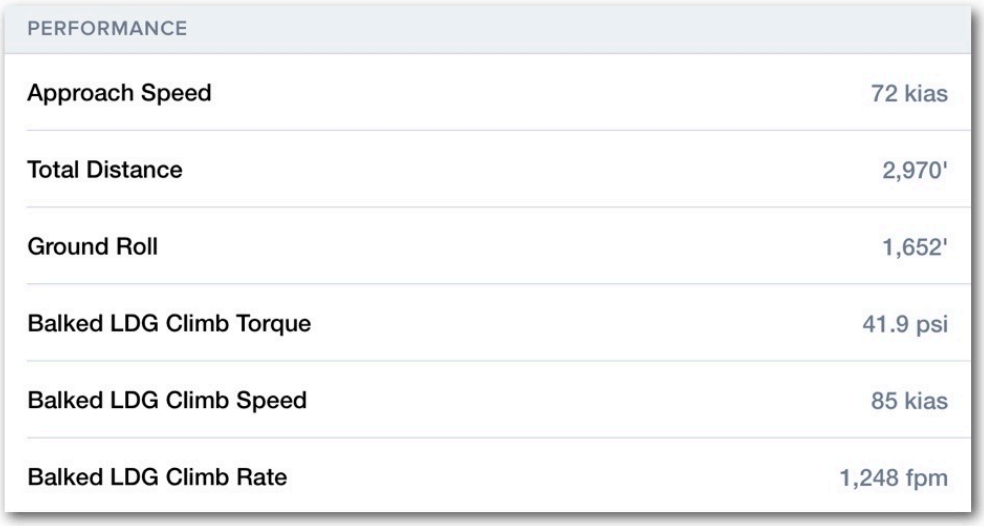


Figure 19-45. Landing Analysis Performance Section

Speed-Related Definitions

The following results may be found in the Landing Analysis Performance section.

> **V_{APP} (Approach Speed)**
>
> A target indicated airspeed flown during the approach phase of the landing, typically at approach flap setting and gear up.

> **V_{REF} (Reference Speed)**
>
> A target indicated airspeed slower than V_{APP} flown at landing flap settings and gear down to be achieved by 50 ft height when crossing the landing threshold.

Distance-Related Definitions

> **Ground Roll**
>
> The distance required to decelerate the aircraft to normal taxi speed after touchdown.

> **Actual Landing Distance**
>
> The demonstrated (during flight testing) total landing distance achievable by the aircraft.

> **Factored Distance**
>
> A longer landing distance achieved by multiplying the actual distance (also called unfactored distance) with a multiplier larger than 1.0. This is done to provide a safety buffer and thus avoiding landing overruns.

19.5 Runway Analysis Summary Document

Runway Analysis includes a Summary Document. There are two document formats. One for single-engine aircraft and another for multi-engine.

To generate the Summary Document, use Runway Analysis to select runways for the departure, destination, and alternate airport. Tap **Summary** in the upper-right corner of the Takeoff Analysis *or* Landing Analysis view. If an emergency return runway or alternate airport runway is not selected, the summary document omits this information.



Figure 19-46. Generate Summary Document

19.5.1 Single-Engine Summary Document

The Single-Engine Summary Document is organized into three sections. Takeoff and landing performance results are displayed at the top of the document. Below the takeoff and landing data is a climb performance table (when climb data is available). If an emergency return or alternate airport runway is selected, the performance results for those runways is displayed below the climb table. The climb table includes performance data for the current temperature and -5ºC, +5ºC, and +15ºC deltas.

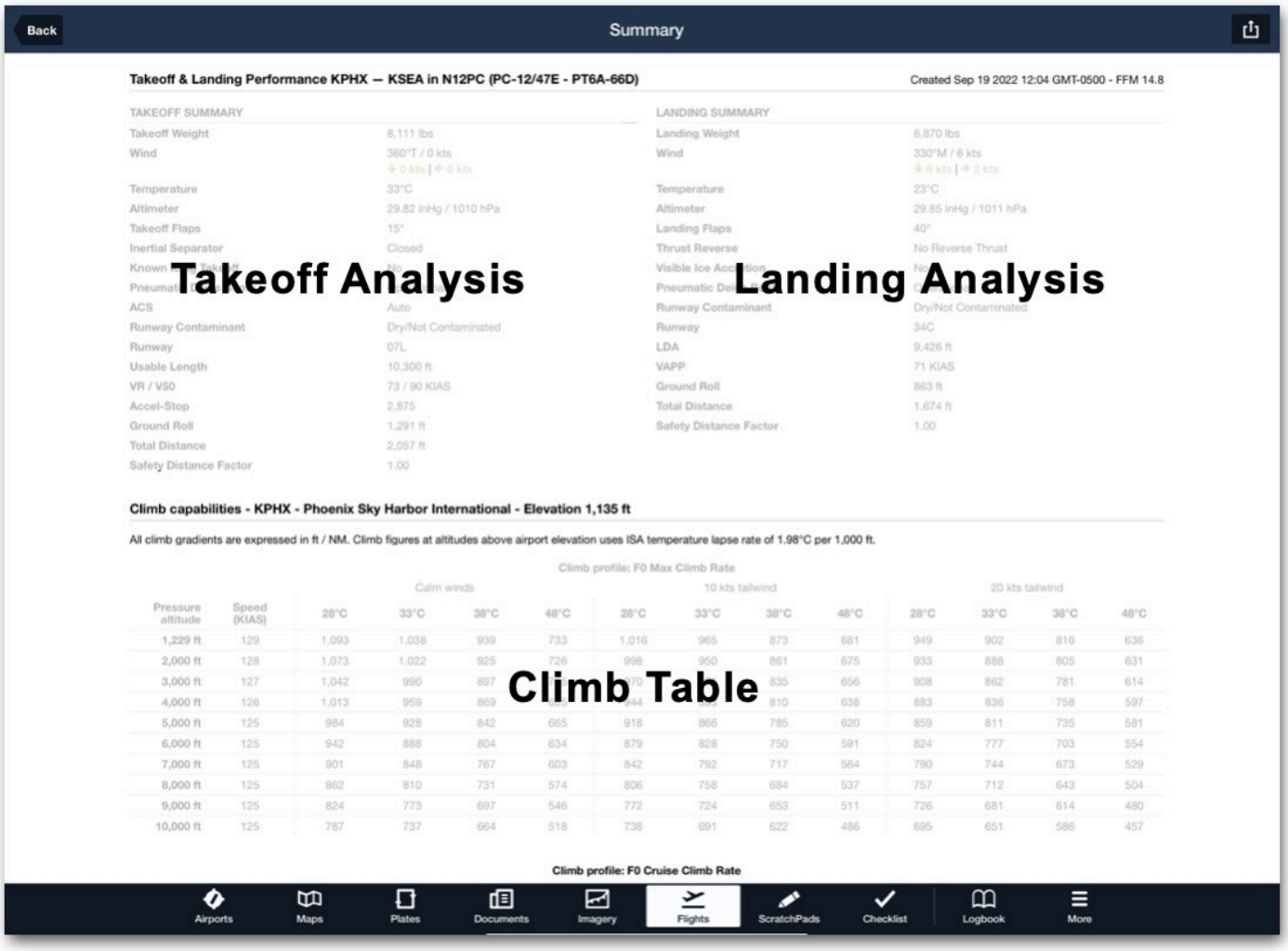


Figure 19-47. Single-Engine Runway Analysis Summary Document

19.5.2 Multi-Engine Summary Document

The Multi-Engine Summary Document is organized into four sections.

- Takeoff and Landing Summary for the selected runways
- Maximum Takeoff Weight Analysis for all runways at the departure airport
- Maximum Landing Weight Analysis for all runways at the destination airport
- Landing Summary for the alternate airport and emergency return (if selected).

19.5.2.1 Takeoff and Landing Summary Section

The Multi-Engine Takeoff and Landing Summary section contains performance, environmental, aircraft configuration, and engine-out procedure data for the selected runways. If a takeoff or landing is deemed impossible, the summary section is blank, and an error message is displayed instead.

Runway Analysis EKCH — ESSA in N12345 (Citation III - TFE 731-3BR-100S (or -3CR-100S)) Created Oct 17 2023 15:21 GMT-0400 - FFM 15.10

TAKEOFF SUMMARY - EKCH - KASTRUP

	Takeoff Weight	14,697 lbs
Runway	Runway / EOP / Intersection	04L / Straight Out / A8
	TORA / TODA / ASDA	6,102 / 6,102 / 7,975 ft
	Slope	0.01%
	Obstacle criteria	FAA 120-91A
	Surface Condition	Dry
Weather	Wind	250°T / 10 kts ↑ 9 kts | → 5 kts
	Temperature	9°C
	Altimeter	30.03 inHg / 1017 hPa
Aircraft configs	Takeoff Flaps	7°
	Bleed Air	Off
	Anti-Ice	Off
	Type II/III/IV Deice Fluid	Not Applied
	APR	Off
	Anti-Skid	On
Performance	Takeoff Thrust N1	92.7%
	V1 / VR / V2	110 / 114 / 128 KIAS
	Takeoff Distance	3,656 ft
	Acceleration / Final Level-Off MSL	1,675 / 1,675 ft
	1st Seg Net Grad (airport alt)	7.1%
	2nd Seg Net Grad (accel level-off alt)	9.8%
	VENR	165 KIAS
	Enr Seg Net Grad (final level-off alt)	7.8%
	Takeoff Trim	CG Unavailable

LANDING SUMMARY - ESSA - ARLANDA

	Landing Weight	13,485 lbs
Runway	Runway	01L
	LDA	10,830 ft
	Slope	0.18%
	Surface Condition	Dry
Weather	Wind	277°T / 7 kts ↑ 1 kts | → 7 kts
	Temperature	6°C
	Altimeter	30.03 inHg / 1017 hPa
Aircraft configs	App/Landing Flaps	20°/Full
	VREF Increment	+0 KIAS
	Bleed Air	Off
	Anti-Ice	Off
	Anti-Skid	On
	Landing Factor	1.00
Performance	Go-Around Thrust N1	92.7%
	VAPP / VREF	114 / 111 KIAS
	Actual Distance	2,147 ft
	Approach Gross Climb Gradient	11.6%
	Landing Gross Climb Gradient	30.3%

TAKEOFF ENGINE OUT PROCEDURE

Continue straight on extended runway centerline.

Figure 19-48. Takeoff and Landing Summary Section

19.5.2.2 Max Takeoff Weight Analysis

The Maximum Takeoff Weight Analysis section contains the MTOW for each runway at the departure airport. Performance results for temperatures above and below the planned temperature are displayed on unique rows. Results for all available engine-out procedures and displayed in columns.

The constraint that limits MTOW is displayed below the results for the scenario. If a takeoff is deemed impossible for a runway, the text Takeoff Impossible replaces the performance results.

Max Takeoff Weight Analysis - EKCH - Kastrup - Elevation 17 ft

	SELECTED RUNWAY					
Runway	**04L**		**22R**		**04R**	
TORA/TODA/ASDA	6,102 / 6,102 / 7,975 ft		11,791 / 11,791 / 11,791 ft		10,833 / 10,833 / 10,833 ft	
Slope	0.01%		-0.01%		-0.04%	
Winds	↑ 9 kts | → 5 kts		↓ 9 kts | ← 5 kts		↑ 9 kts | → 5 kts	
	EOP 1 (RNAV)	**Straight Out**	**EOP 1 (RNAV)**	**Straight Out**	**EOP 1 (RNAV)**	**Straight Out**
Possible Intersections	A8 A9 E4	A8 A9 E4	A2 A3 A4 A5	A2 A3 A4 A5	B2 B3 B4/C	B2 B3 B4/C
OAT						
MTOW (lbs) LIMIT 3°C	19,982 TO Thrust Time	19,982 TO Thrust Time	21,282 TO Thrust Time	21,282 TO Thrust Time	19,991 TO Thrust Time	19,991 TO Thrust Time
5°C	19,984 TO Thrust Time	19,984 TO Thrust Time	21,279 TO Thrust Time	21,279 TO Thrust Time	19,992 TO Thrust Time	19,992 TO Thrust Time
7°C	19,995 TO Thrust Time	19,995 TO Thrust Time	21,273 TO Thrust Time	21,273 TO Thrust Time	20,005 TO Thrust Time	20,005 TO Thrust Time
9°C	20,008 TO Thrust Time	20,008 TO Thrust Time	21,275 TO Thrust Time	21,275 TO Thrust Time	20,020 TO Thrust Time	20,020 TO Thrust Time
11°C	20,020 TO Thrust Time	20,020 TO Thrust Time	21,281 TO Thrust Time	21,281 TO Thrust Time	20,031 TO Thrust Time	20,031 TO Thrust Time
13°C	20,016 TO Thrust Time	20,016 TO Thrust Time	21,277 TO Thrust Time	21,277 TO Thrust Time	20,027 TO Thrust Time	20,027 TO Thrust Time
15°C	19,918 TO Thrust Time	19,918 TO Thrust Time	21,169 TO Thrust Time	21,169 TO Thrust Time	19,928 TO Thrust Time	19,928 TO Thrust Time

Runway	**22L**		**12**		**30**	
TORA/TODA/ASDA	10,833 / 10,833 / 10,833 ft		9,186 / 9,186 / 9,186 ft		7,759 / 7,759 / 8,743 ft	
Slope	0.04%		-0.1%		0.1%	
Winds	↓ 9 kts | ← 5 kts		↑ 7 kts | ← 8 kts		↓ 7 kts | → 8 kts	
	EOP 1 (RNAV)	**Straight Out**	**EOP 1 (RNAV)**	**Straight Out**	**EOP 1 (RNAV)**	**Straight Out**
Possible Intersections	V2	V2	D K2 K3	D K2 K3		
OAT						
MTOW (lbs) LIMIT 3°C	21,264 TO Thrust Time	21,264 TO Thrust Time	20,320 TO Thrust Time	20,320 TO Thrust Time	21,156 TO Thrust Time	21,156 TO Thrust Time
5°C	21,261 TO Thrust Time	21,261 TO Thrust Time	20,330 TO Thrust Time	20,330 TO Thrust Time	21,157 TO Thrust Time	21,157 TO Thrust Time
7°C	21,255 TO Thrust Time	21,255 TO Thrust Time	20,342 TO Thrust Time	20,342 TO Thrust Time	21,155 TO Thrust Time	21,155 TO Thrust Time
9°C	21,258 TO Thrust Time	21,258 TO Thrust Time	20,350 TO Thrust Time	20,350 TO Thrust Time	21,154 TO Thrust Time	21,154 TO Thrust Time
11°C	21,264 TO Thrust Time	21,264 TO Thrust Time	20,351 TO Thrust Time	20,351 TO Thrust Time	21,154 TO Thrust Time	21,154 TO Thrust Time
13°C	21,258 TO Thrust Time	21,258 TO Thrust Time	20,340 TO Thrust Time	20,340 TO Thrust Time	21,143 TO Thrust Time	21,143 TO Thrust Time
15°C	21,151 TO Thrust Time	21,151 TO Thrust Time	20,240 TO Thrust Time	20,240 TO Thrust Time	21,034 TO Thrust Time	21,034 TO Thrust Time

Figure 19-49. Max Takeoff Weight Analysis Section

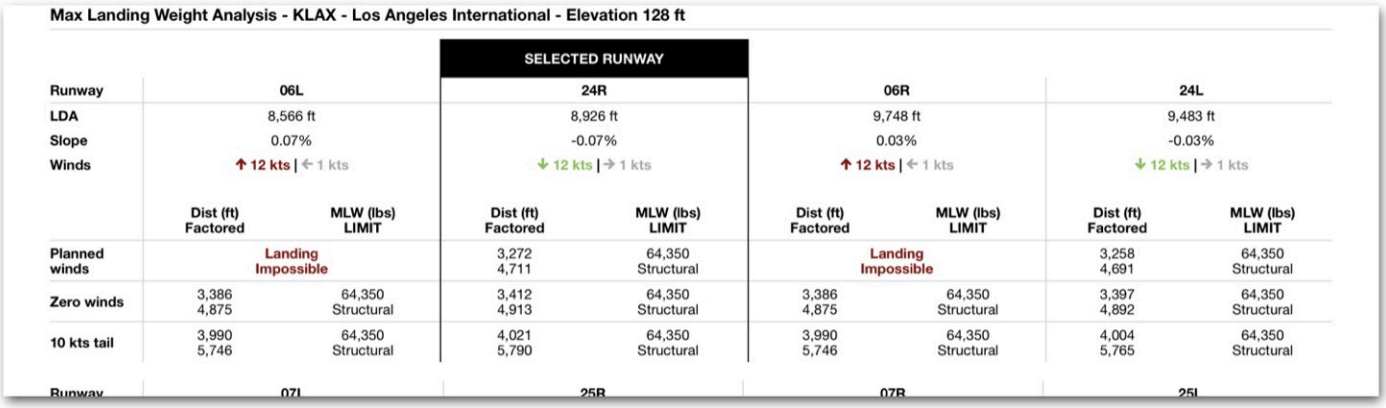
19.5.2.3 Max Landing Weight Analysis

The Maximum Landing Weight Analysis calculates the landing distance at the calculated MLW for all runways at the destination airport. Results are given for three scenarios: zero winds, ten-knot tailwind, and the planned winds.

If a Landing Factor is selected, two distances will be shown for every scenario:

- Dist (ft) - the landing distance at the calculated MLW
- Factored - a distance that equals the calculated MLW distance (Dist (ft)) multiplied by the selected factor additive (e.g., 1.67).

If a landing is deemed impossible, the results are replaced with the text Landing Impossible.



Max Landing Weight Analysis - KLAX - Los Angeles International - Elevation 128 ft

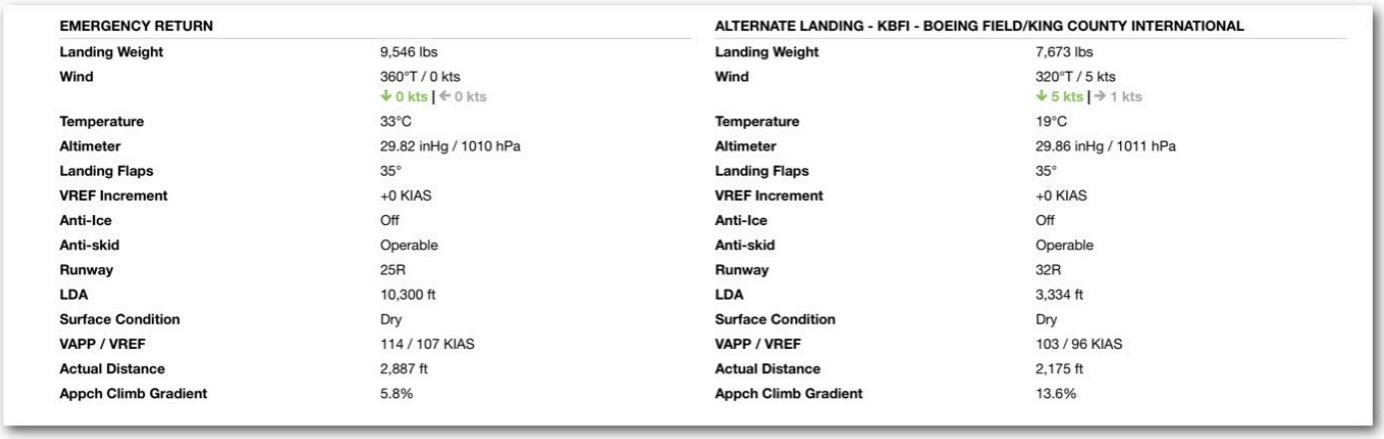
			SELECTED RUNWAY					
Runway	06L		24R		06R		24L	
LDA	8,566 ft		8,926 ft		9,748 ft		9,483 ft	
Slope	0.07%		-0.07%		0.03%		-0.03%	
Winds	↑ 12 kts | ← 1 kts		↓ 12 kts | → 1 kts		↑ 12 kts | ← 1 kts		↓ 12 kts | → 1 kts	
	Dist (ft) Factored	MLW (lbs) LIMIT	Dist (ft) Factored	MLW (lbs) LIMIT	Dist (ft) Factored	MLW (lbs) LIMIT	Dist (ft) Factored	MLW (lbs) LIMIT
Planned winds	Landing Impossible		3,272 4,711	64,350 Structural	Landing Impossible		3,258 4,691	64,350 Structural
Zero winds	3,386 4,875	64,350 Structural	3,412 4,913	64,350 Structural	3,386 4,875	64,350 Structural	3,397 4,892	64,350 Structural
10 kts tail	3,990 5,746	64,350 Structural	4,021 5,790	64,350 Structural	3,990 5,746	64,350 Structural	4,004 5,765	64,350 Structural
Runway	07L		25R		07R		25L	

Figure 19-50. Max Landing Weight Analysis Section

> **NOTE:** The Max Landing Weight Analysis does not consider data from the Missed Approach analysis. Use the MLW on the Landing Analysis view if Missed Approach data has been entered.

19.5.2.4 Emergency Return and Alternate Landing Analysis

When an Emergency Return runway or Alternate Airport runway is selected, a summary of the performance, environmental, and aircraft configuration data is displayed below the Max Landing Weight Analysis section.



EMERGENCY RETURN	
Landing Weight	9,546 lbs
Wind	360°T / 0 kts ↓ 0 kts | ← 0 kts
Temperature	33°C
Altimeter	29.82 inHg / 1010 hPa
Landing Flaps	35°
VREF Increment	+0 KIAS
Anti-Ice	Off
Anti-skid	Operable
Runway	25R
LDA	10,300 ft
Surface Condition	Dry
VAPP / VREF	114 / 107 KIAS
Actual Distance	2,887 ft
Appch Climb Gradient	5.8%

ALTERNATE LANDING - KBFI - BOEING FIELD/KING COUNTY INTERNATIONAL	
Landing Weight	7,673 lbs
Wind	320°T / 5 kts ↓ 5 kts | → 1 kts
Temperature	19°C
Altimeter	29.86 inHg / 1011 hPa
Landing Flaps	35°
VREF Increment	+0 KIAS
Anti-Ice	Off
Anti-skid	Operable
Runway	32R
LDA	3,334 ft
Surface Condition	Dry
VAPP / VREF	103 / 96 KIAS
Actual Distance	2,175 ft
Appch Climb Gradient	13.6%

Figure 19-51. Emergency Return and Alternate Landing Section

19.5.3 Summary Document Options

The Multi-Engine and Single-Engine Summary Documents can be annotated, shared, printed, or attached to a Flight by tapping the button in the upper-right corner.

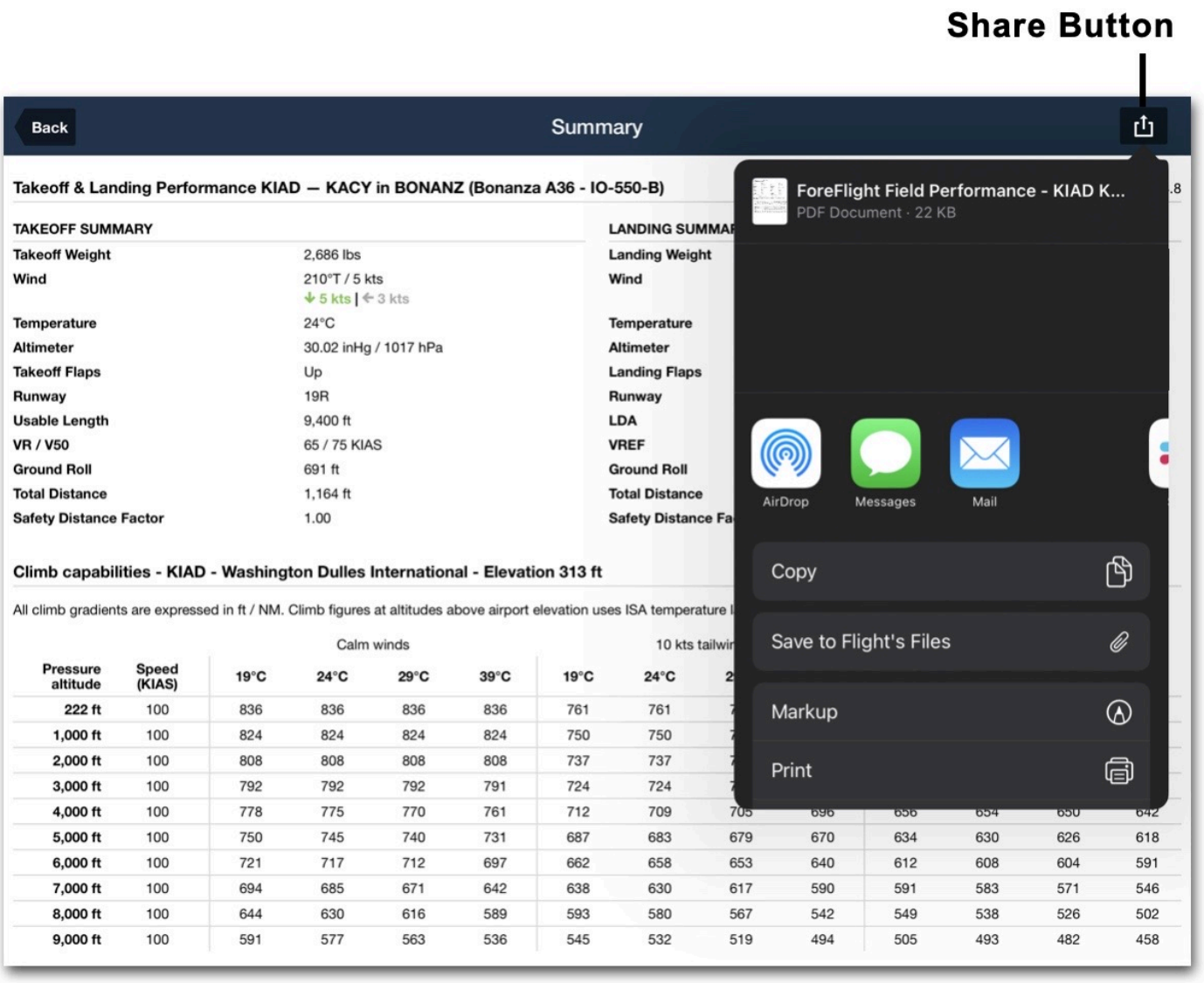


Figure 19-52. Summary Document Options

19.6 Engine Out Procedure 3D View

EOP 3D View combines high-resolution terrain data and aerial imagery to help pilots familiarize themselves with an Engine Out Procedure before takeoff. EOPs 3D View requires a Runway Analysis subscription for the aircraft used in the flight. EOPs 3D View is similar in functionality to route Track Log 3D Review.

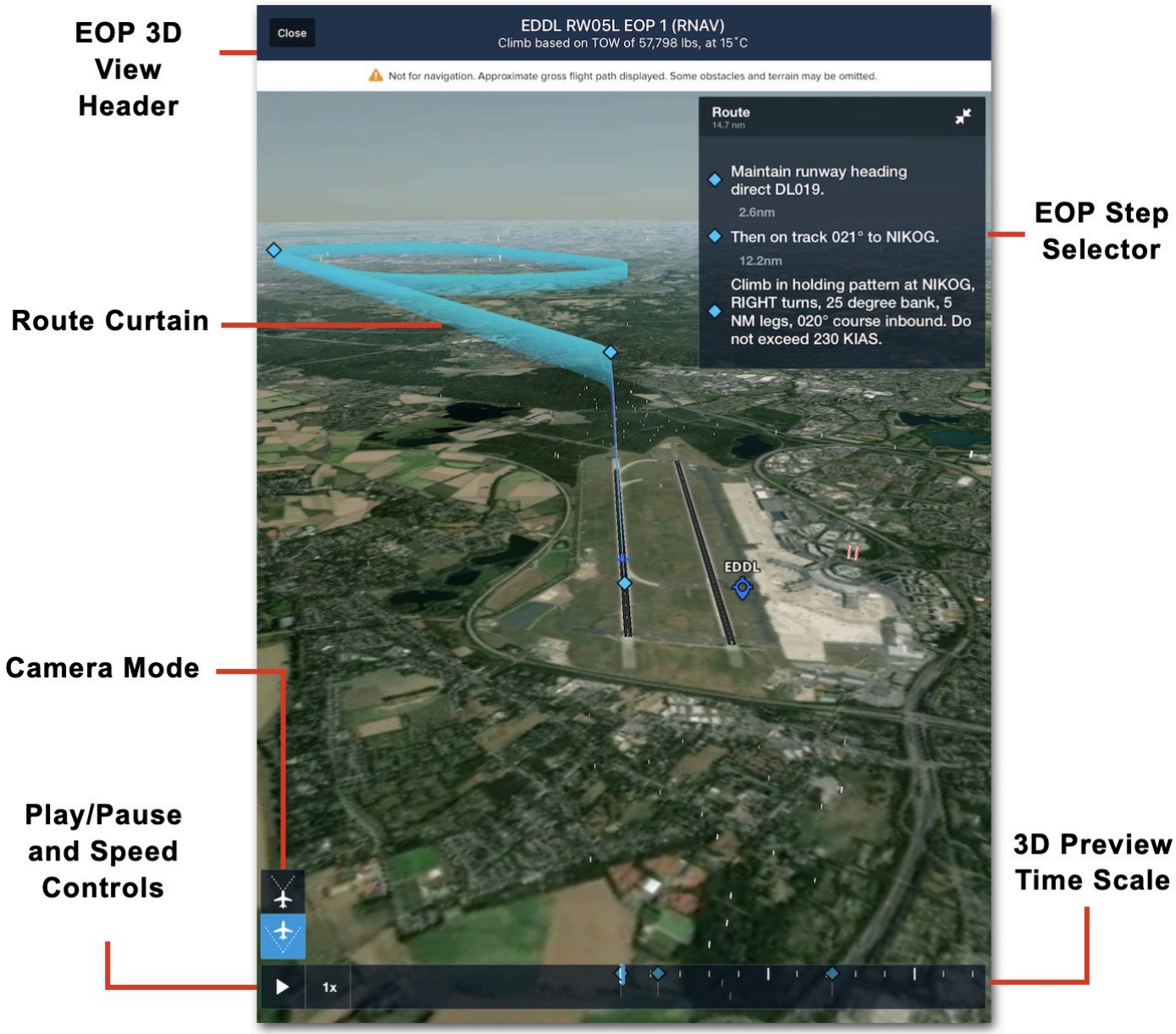


Figure 19-53. EOPs 3D View

19.6.1 Opening EOP 3D View

To open the 3D View, tap **Takeoff** next to the Departure airport, verify that a runway is selected, toggle on the Obstacle Analysis switch, then tap **3D VIEW** next to Engine Out Procedure.

Alternately, tap the current Engine Out Procedure (**Straight Out** to select from other options or open their 3D View windows.

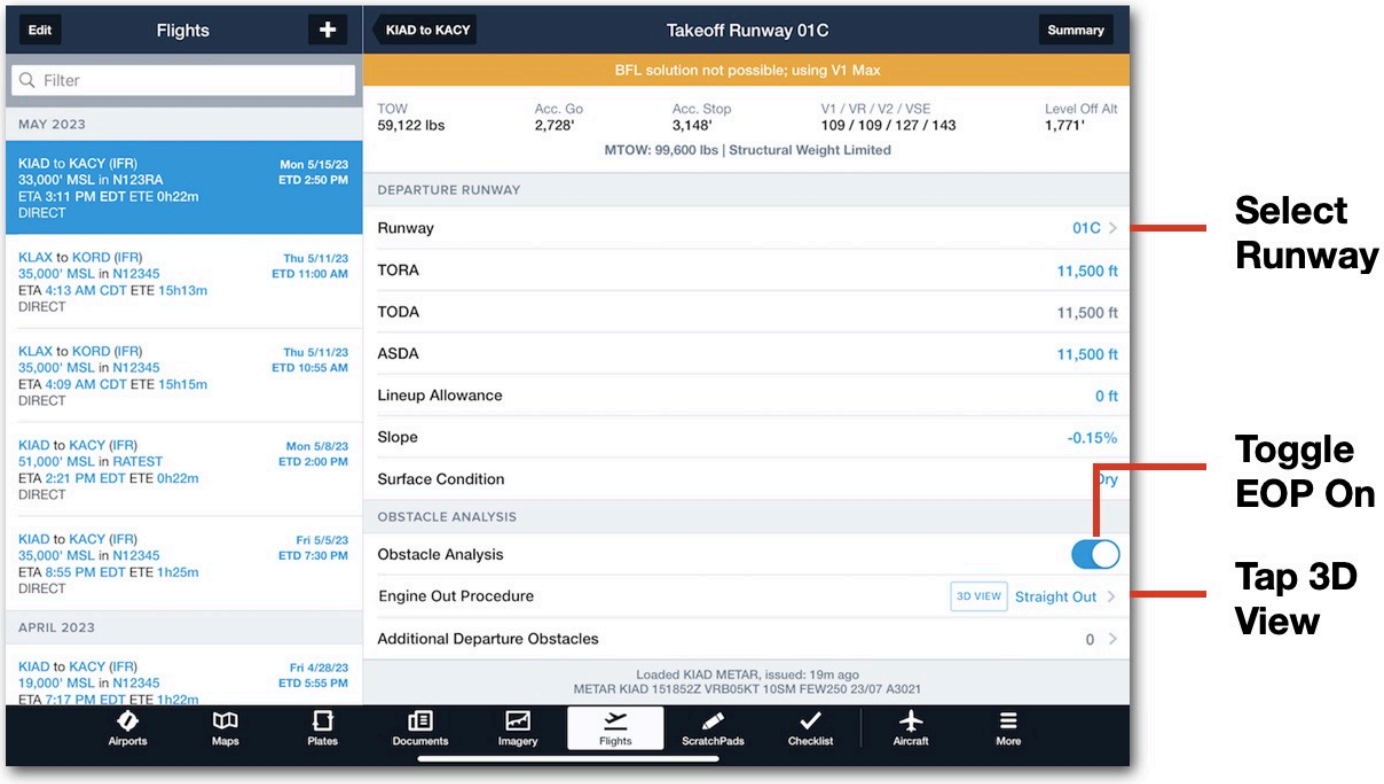


Figure 19-54. Opening EOP 3D View

19.6.2 EOP 3D View Header

The top of the EOP 3D View window displays the EOP name and climb performance details, and a disclaimer indicating that this feature is not meant for navigation due to the use of approximate gross flight path and obstacle data.

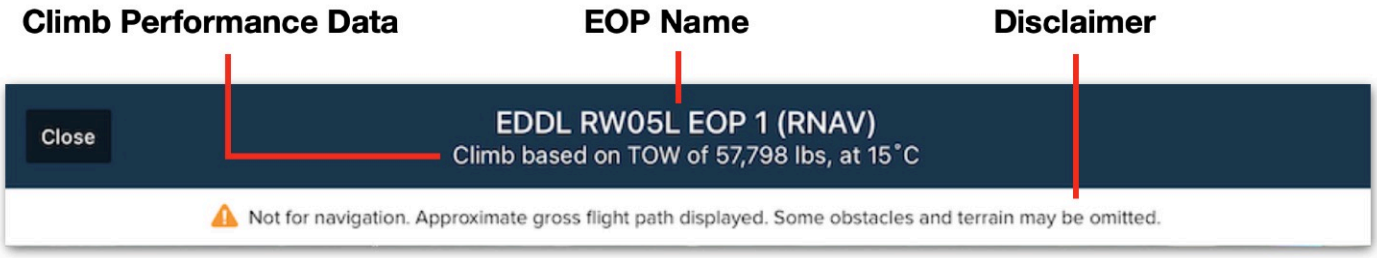


Figure 19-55. EOP 3D View Header

19.6.3 Changing Orientation

The EOPs 3D View is always centered on the aircraft location. At any point, use a single finger to rotate the view around the aircraft and the 2-finger pinch to zoom to zoom the view in and out from the aircraft.

19.6.4 EOP Step Selector

At the top right corner, the **Route** window displays the length of the EOP (14.7 NM in the example below) and a list of steps in the EOP. Tap any of the steps to rewind or fast-forward the preview video to the beginning of that step. Tap **Route** to expand or collapse the list of steps.

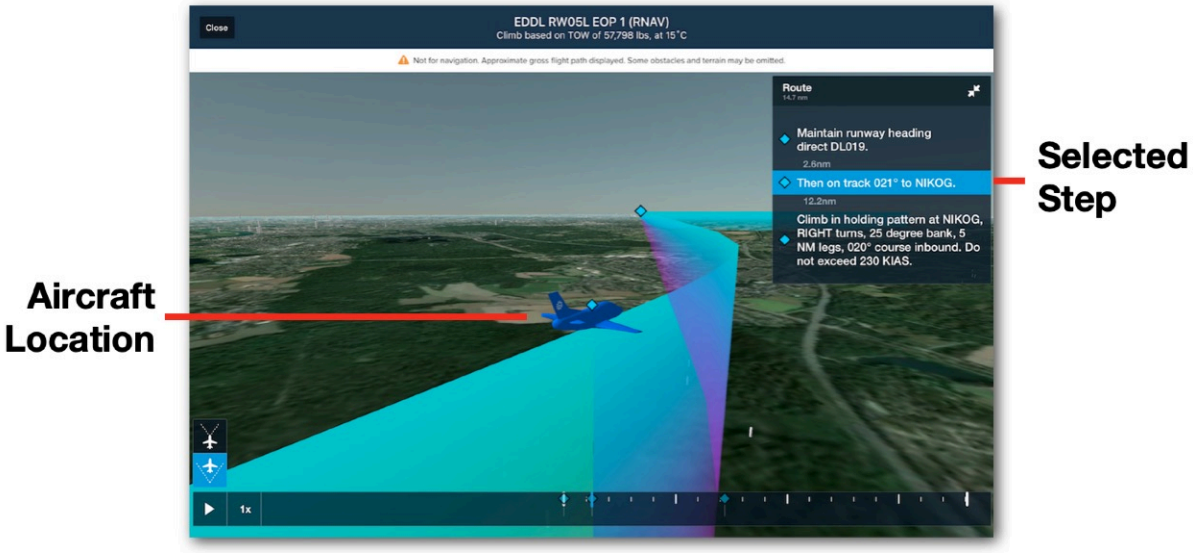


Figure 19-56. EOP Step Selector

19.6.5 Camera Mode

At the bottom left corner of the EOPs 3D View window, two buttons allow the camera perspective to be switched between third-person perspective and first-person perspective .

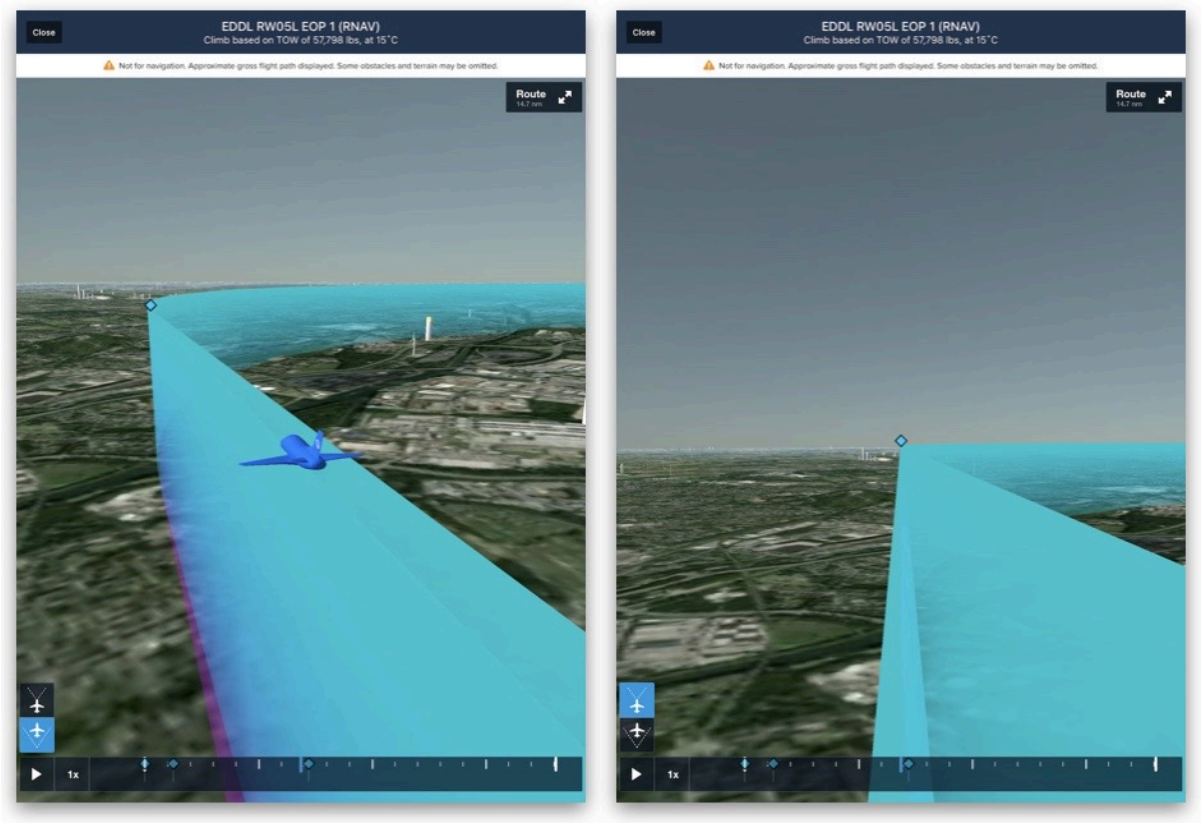


Figure 19-57. Waypoint Approach (3rd vs 1st Person)

19.6.6 Video Preview Controls

Along the bottom edge of the EOPs 3D View window is a set of video preview controls that can be used to show specific moments in the EOP. The preview controls include the following elements.

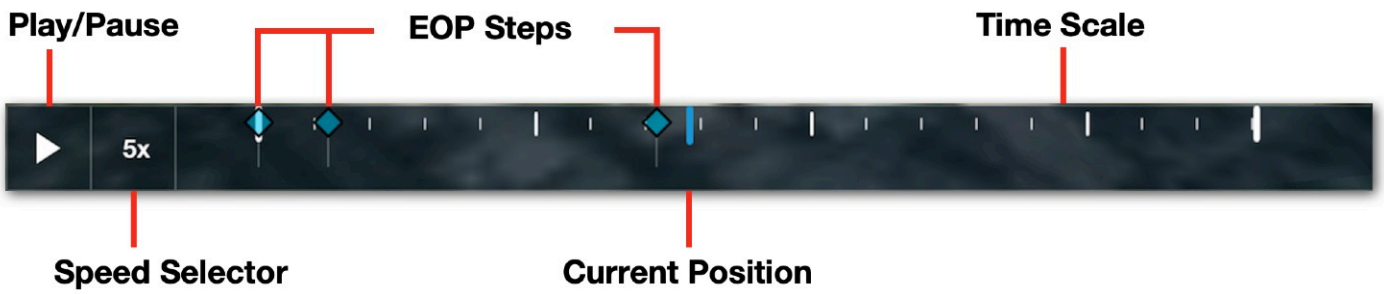


Figure 19-58. Video Preview Controls

Play/Pause

Tap the Play/Pause button on the left side to start and stop the video animation.

Speed Selector

Tap the Speed Selector button (defaulted to **1x**) to play the video at 1x, 3x, 5x, 10x, or 20x speed.

Current Position

A vertical blue line on the Time Scale indicates the current position of the aircraft in the preview video.

EOP Steps

Icons along the Time Scale indicate when a step in the EOP begins. These icons correspond with items in the EOP Step Selector list, but they cannot be tapped to change aircraft position.

Time Scale

Slide one finger left or right along the Time Scale to scrub the video to a specific moment. The Time Scale extends from the beginning to the end of the EOP, as indicated by large vertical white lines.

19.7 Compliance Independent Calculation

To meet requirements set by various regulatory agencies, performance calculations provided by the Runway Analysis feature must be independently validated. This process ensures the accuracy and integrity of the calculation engine used for takeoff and landing data.

ForeFlight Mobile supports two comparison methods for independent validation.

19.7.1 Method 1: Comparing Online/Offline Calculation Consistency

This method confirms that the connectivity status of the device does not affect the accuracy of the performance calculation.

1. Take one device offline while keeping another device online.
2. Enter identical flight details into Runway Analysis on both devices.
3. Compare the final performance values on both devices. The values should be identical, independently validating both calculations.

> **IMPORTANT:** If weather conditions shift after user 2 takes the device offline, values may not match.

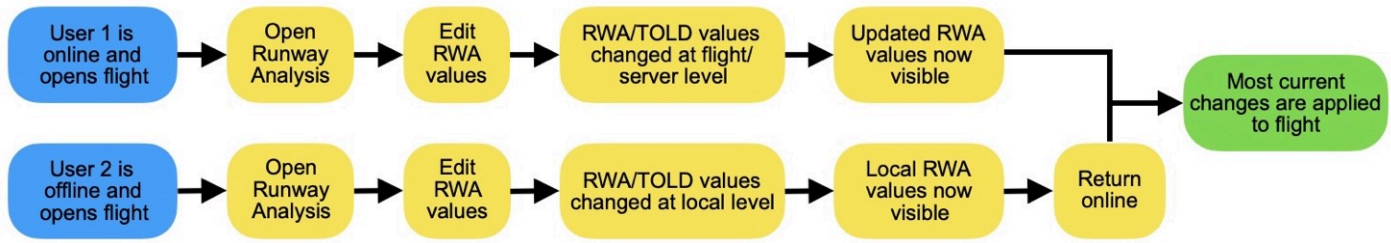


Figure 19-59. Method 1

19.7.2 Method 2: Comparing Original vs. Copied Flight Consistency

This method confirms that the connectivity status of the device does not affect the accuracy of the performance calculation.

1. Copy the released flight on one device while using the original released flight on another device.
2. Enter Runway Analysis on both devices and complete the calculations.

3. Compare the final performance values on both devices. The values should be identical, independently validating both calculations.

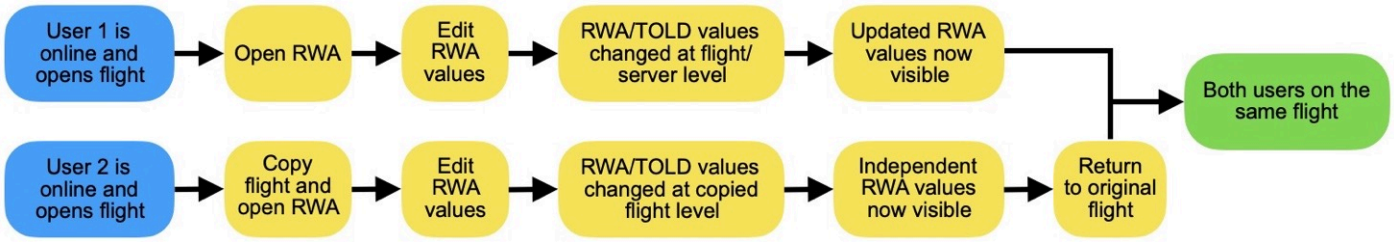


Figure 19-60. Method 2

TAKEOFF AND LANDING PERFORMANCE

Takeoff & Landing Performance provides integrated takeoff and landing distance calculations for over 300 popular piston aircraft and is included with Premium subscriptions. Jet and turboprops can calculate takeoff and landing performance with a Runway Analysis license.

Takeoff & Landing Performance is a fast, integrated alternative to manual computation. Takeoff & Landing Performance calculations can also be completed using ForeFlight Web. This chapter discusses how to configure default Takeoff & Landing Performance settings, and how to calculate results.

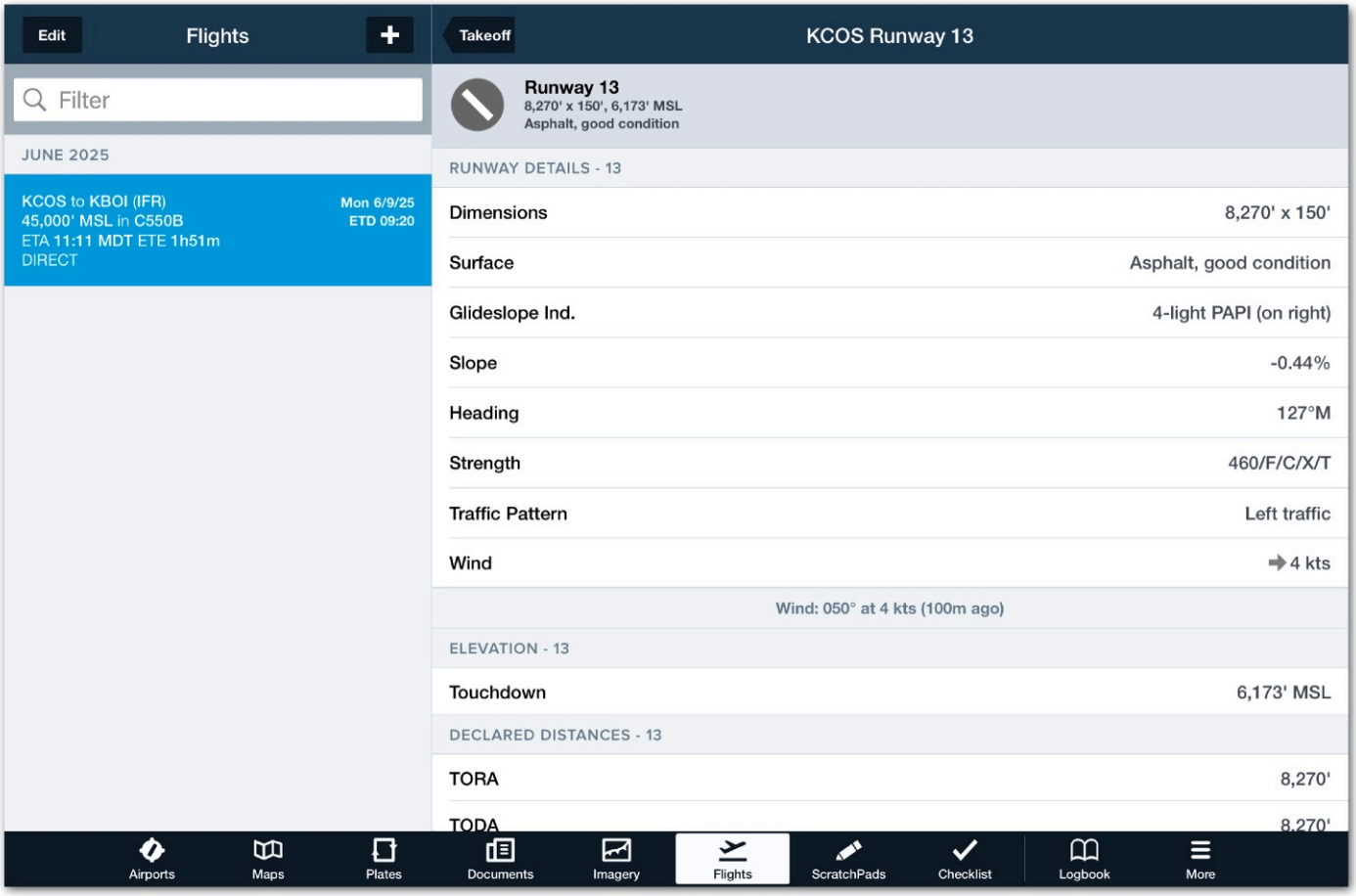


Figure 20-1. ForeFlight Mobile - Takeoff and Landing Performance

20.1 Configuring Takeoff & Landing Performance

The first step to configuring an aircraft for Takeoff & Landing Performance is determining if the aircraft type is supported. Aircraft that support Takeoff & Landing Performance display a label below the aircraft type and include additional performance settings.

20.1.1 Verifying Takeoff & Landing Performance Support

To check if an aircraft supports Takeoff & Landing Performance, select **More → Aircraft** and choose an aircraft profile. Tap the **Aircraft Type** field and ensure the **Supports Takeoff & Landing Performance** label is displayed.

If the label is missing, either the aircraft type is not yet supported or a Premium account is not being used.

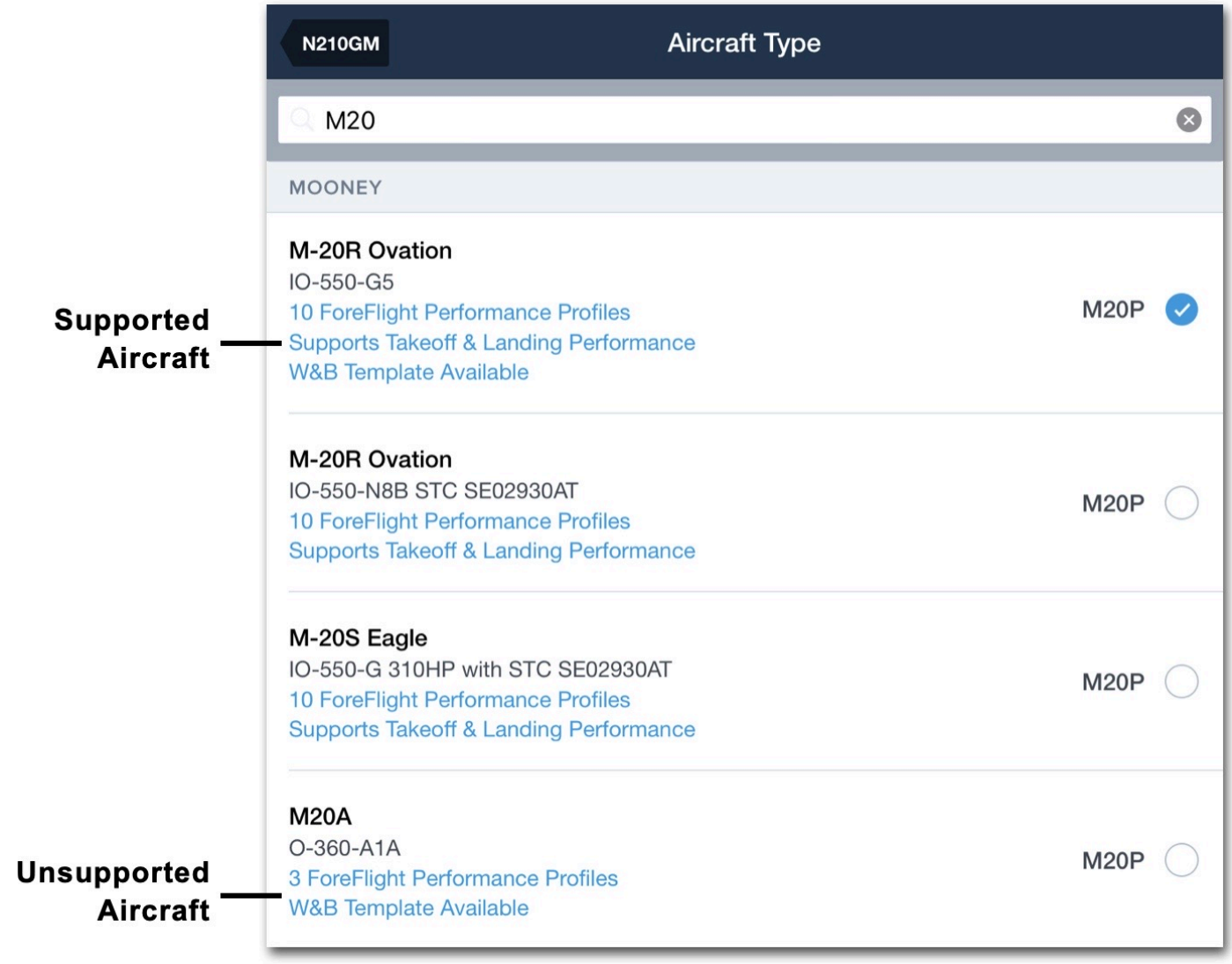


Figure 20-2. Supports Takeoff & Landing Performance Label

20.1.2 Takeoff & Landing Performance Settings

Another method for determining Takeoff & Landing support is checking the aircraft profile Performance section. Aircraft that support Takeoff & Landing Performance have settings for selecting a Runway Profile and configuring the default takeoff and landing configuration. If these settings are missing, the aircraft does not support Takeoff & Landing Performance.

To access the settings, select **More → Aircraft** and choose an aircraft profile. Tap **Runway Profile** or **Field Performance** in the Performance section to edit the settings.

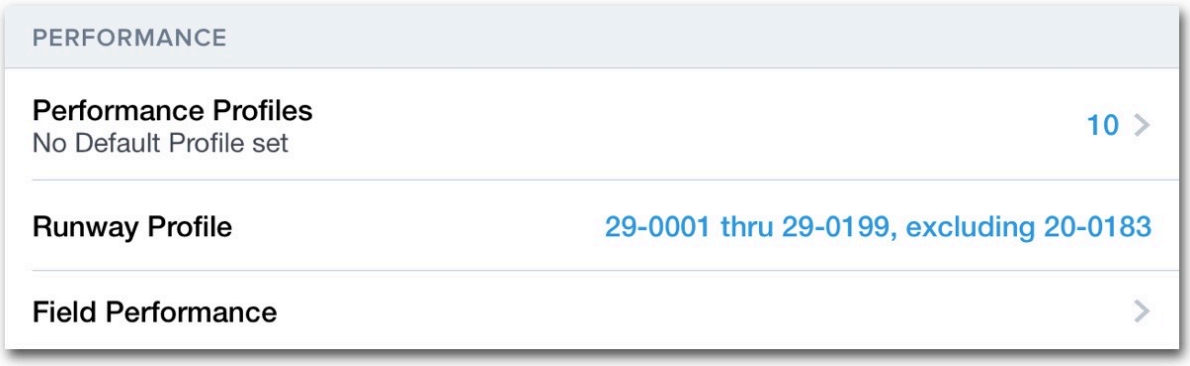


Figure 20-3. Takeoff & Landing Performance Settings

20.1.2.1 Runway Profile

The Runway Profile setting specifies the serial number, weight limit, or special equipment for which the Takeoff & Landing Performance data is applicable. If more than one profile exists for the aircraft type, tap the **Runway Profile** setting and choose the correct version for the aircraft.



Figure 20-4. Runway Profile Setting

20.1.2.2 Field Performance

The Field Performance setting specifies the default takeoff and landing configuration for the aircraft (e.g., flap settings). These settings are unique to the aircraft type and reflect the variables in the performance section of the Aircraft Flight Manual (AFM) that affect Takeoff & Landing Performance. Some aircraft do not offer Field Performance settings, while others provide multiple configuration settings. If an aircraft does not provide Field Performance settings, the field is omitted from the menu.

Changes to the Field Performance settings are reflected in subsequently planned flights. Takeoff and landing configurations can also be adjusted per flight using the Flights view. Edits to the takeoff or landing configuration using the Flights view do not affect the default aircraft settings.

Field Performance settings are broken into two sections (takeoff and landing). Settings can be edited by tapping the appropriate field and selecting another option from the drop-down menu.

The settings and drop-down menus only contain options that are specified in the AFM (e.g., Takeoff Flaps may only have options for 10º and 20º). It is impossible to set a value if it is not included in the flight manual.



Figure 20-5. Field Performance Settings

20.2 Calculating Takeoff Performance

Takeoff distances are calculated from the Departure / Destination section of the Flights view. To calculate Takeoff Performance results, begin by entering the flight's route, payload, and fuel details into the Flights view.

After entering flight details, tap the **Takeoff** button to open the Takeoff Performance view.

If the **Takeoff** button is missing, it is impossible to calculate Takeoff Performance. The **Takeoff** or **Landing** buttons can be hidden under the following conditions:

- The selected aircraft does not support Takeoff & Landing Performance.
- A non-Premium tier account is being used to plan the flight.
- Runway data for the airport is unavailable.
- The airport specified does not have an ICAO, IATA, FAA, or other short-code identifier. Only airports with identifiers are supported by Takeoff & Landing Performance.

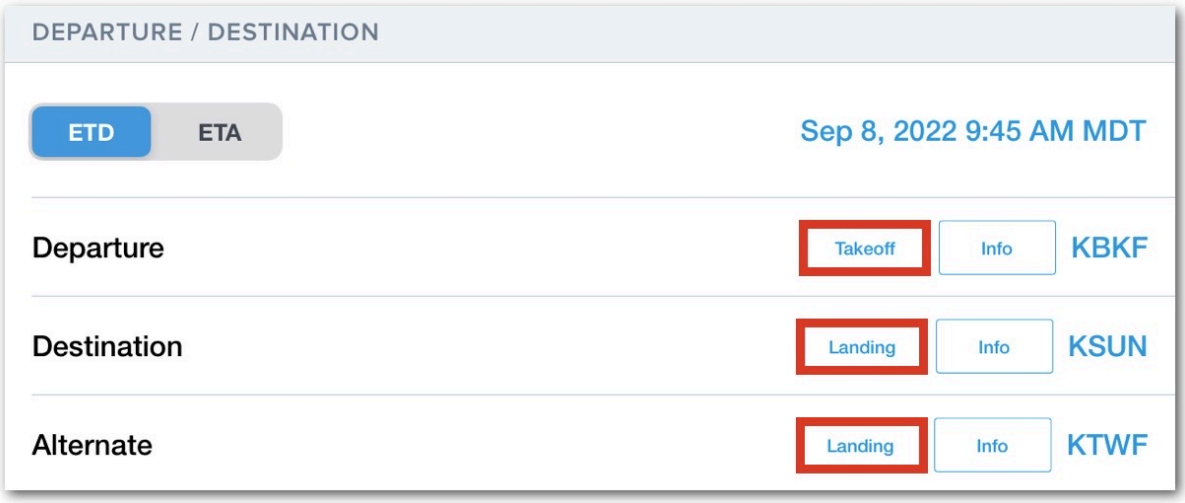


Figure 20-6. Takeoff & Landing Performance Buttons

20.2.1 Takeoff Performance View

The Takeoff Performance view is organized into six sections. Each section is automatically populated with the latest runway, weather, and default aircraft configuration data.

Blue text in this view can be edited for hypothetical planning purposes or to accommodate circumstances that are unique to the flight. For example, if the runway usable length is reduced due to construction, manually edit the length to represent the available runway. Each section of the Takeoff Performance view is described in detail throughout this chapter.

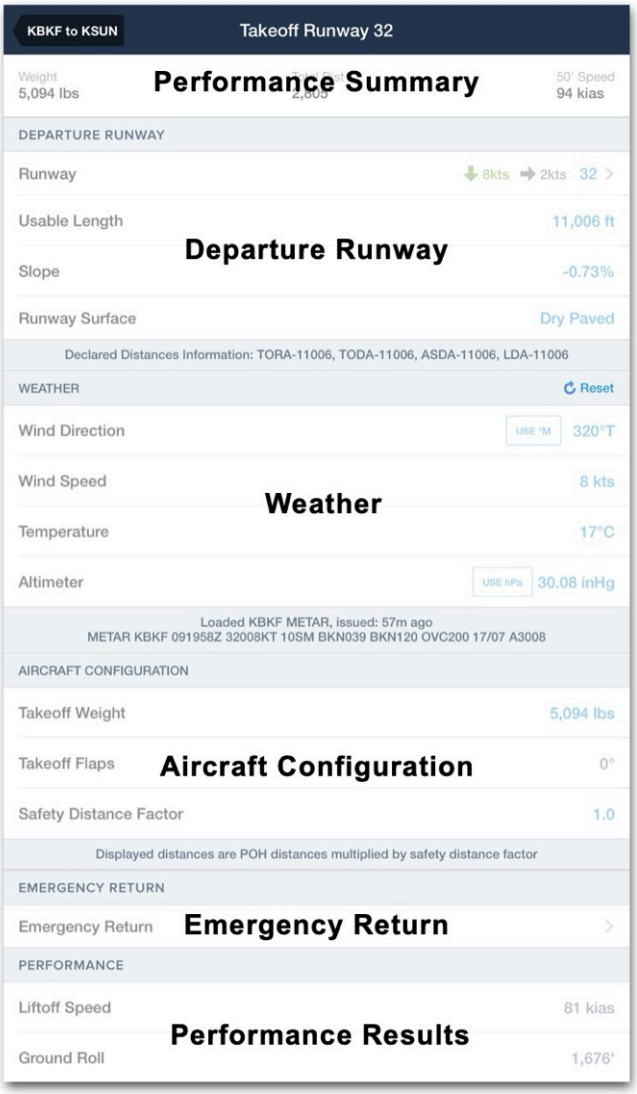


Figure 20-7. Takeoff Performance View Sections

20.2.2 Takeoff Performance Summary

The Performance Summary contains key values that allow quick evaluation of the takeoff.



Figure 20-8. Takeoff Performance Summary

Results are displayed at the top of the view when a runway is selected and are initially based on the default takeoff configuration and the current weather. The summary generally contains the planned takeoff weight, the total distance required to achieve a height of 35 feet above the runway surface, and target airspeeds for the takeoff.

The Performance Summary is updated each time a new departure runway is selected or a configurable field is edited.

Compete results are available in the Performance section at the bottom of the Takeoff Performance view.

20.2.3 Takeoff Performance - Departure Runway

The Departure Runway section contains fields that define the runway environment. The fields in this section are automatically populated with the latest data and represent items that affect the selected aircraft takeoff performance.

Some aircraft do not provide performance data for common variables such as the runway surface condition (rain, snow, etc). If the AFM does not include this data, the Departure Runway section will not include it either.

A field is only included in the Departure Runway section if it is documented in the AFM as a variable that affects takeoff performance. Departure Runway values can be overwritten to accommodate unique circumstances. To overwrite a value, tap the applicable field, enter a new value, and tap **Close**.



Figure 20-9. Takeoff Performance Departure Runway Section

Declared Distances

Declared runway distances are displayed at the bottom of the Departure Runway section.

> **TORA**
>
> The portion of the runway suitable for the takeoff ground roll.

> **TODA**
>
> Takeoff Distance Available (includes stopway and clearway).

> **ASDA**
>
> Accelerate Stop Distance Available (includes stopway).

> **Stopway**
>
> Paved area beyond TORA that can be used for stopping during a rejected takeoff.

> **Clearway**
>
> Unpaved area clear of obstacles beyond the runway that can be used for a portion of the initial climb.

> **LDA**
>
> Runway Landing Distance Available.

20.2.4 Selecting a Departure Runway

To select a departure runway, tap the **Runway** field and select a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a Closed tag is displayed next to the runway name. If the usable length is reduced due to a NOTAM, the reduced useable length is not automatically reflected in the Departure Runway section.

When weather data is available via the internet, ADS-B, or SiriusXM, the wind components for each runway are displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

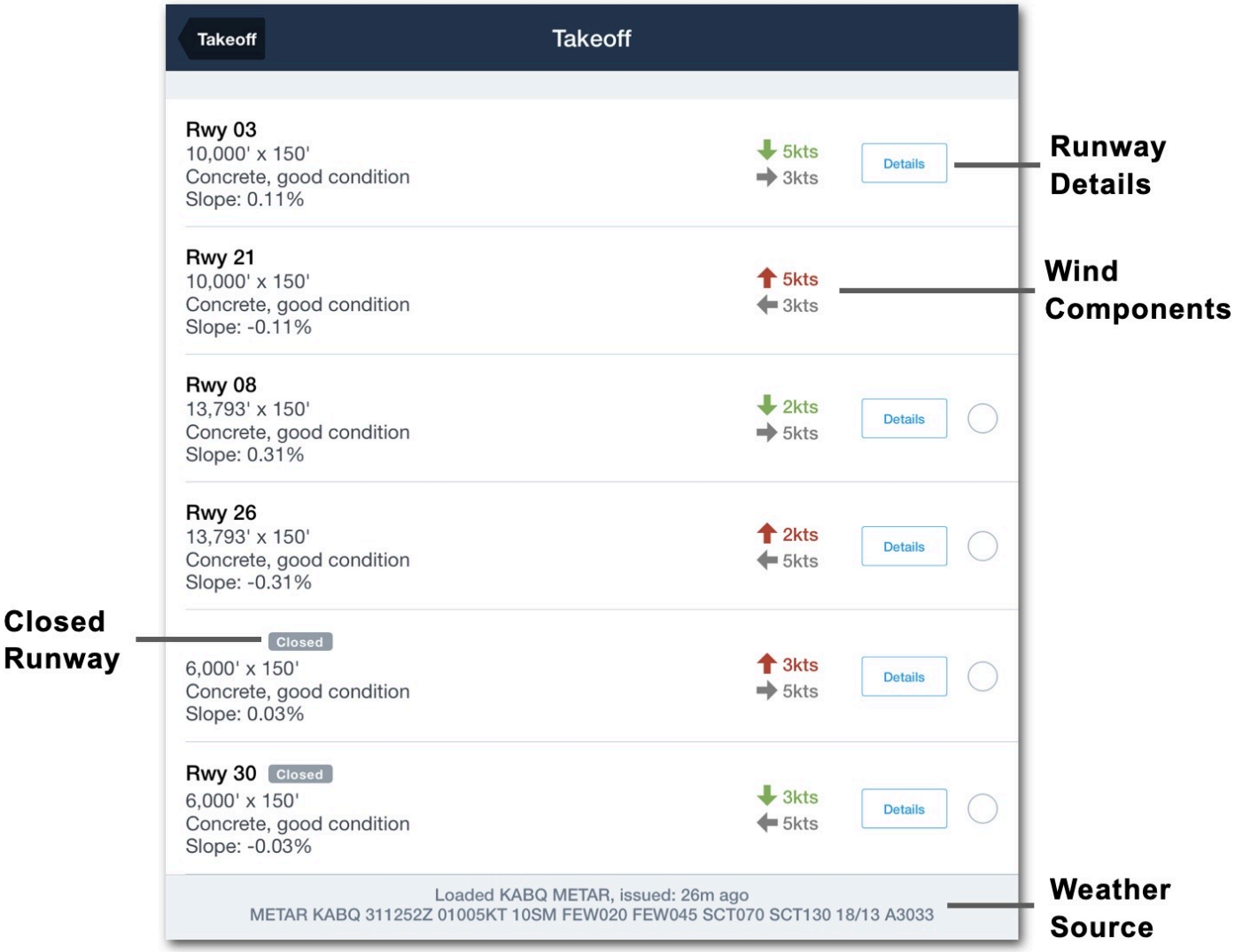


Figure 20-10. Selecting a Departure Runway

20.2.4.1 Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information including:

- Surface dimensions
- Surface type and condition
- Wind components
- Glide Slope Indicators
- Slope
- Magnetic heading
- Lighting
- Elevation
- Available procedures.

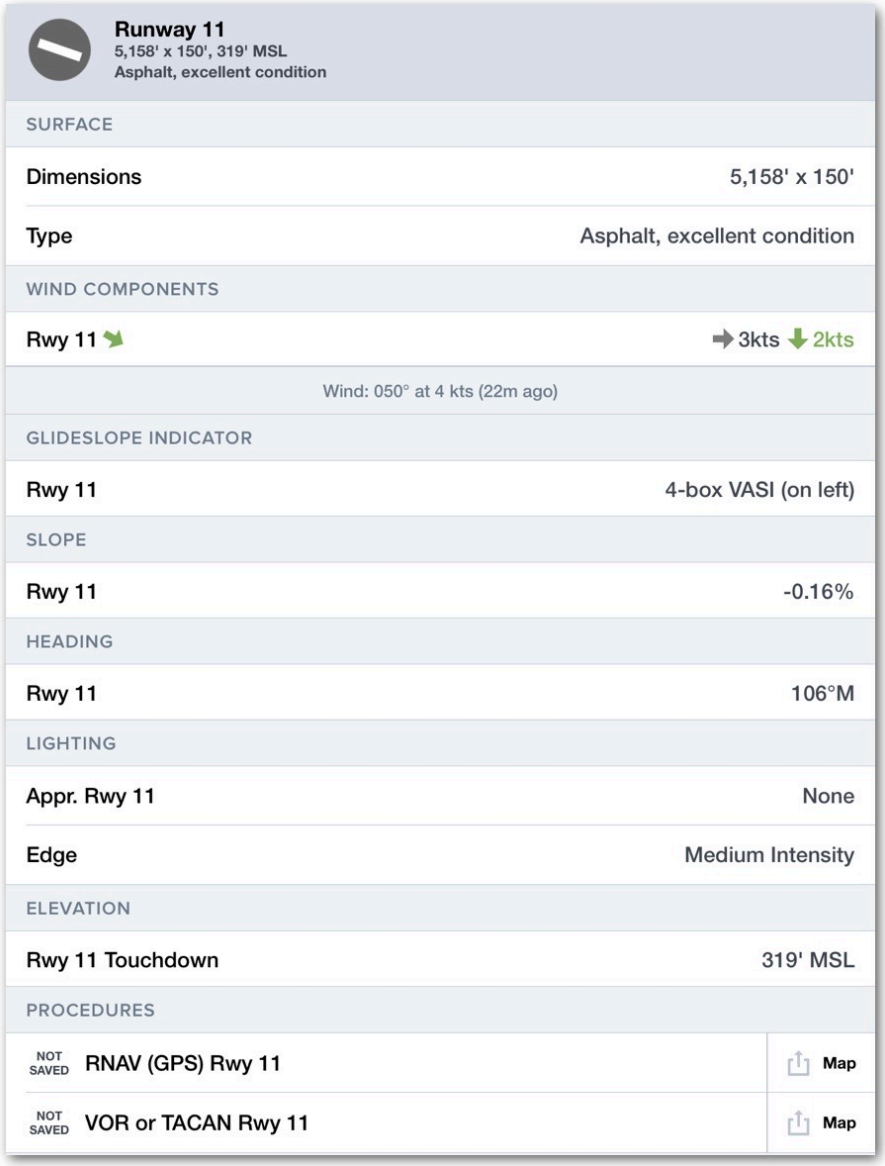


Figure 20-11. Runway Detail View

20.2.5 Takeoff Performance - Weather

The Weather section displays the latest METAR, TAF, MOS, or general forecast based on weather data availability and the estimated departure time at the departure airport.

If the airport does not provide weather information, nearby airport weather is used. Each field in the weather section can be manually edited. The weather source and raw text are displayed at the bottom of the weather section.

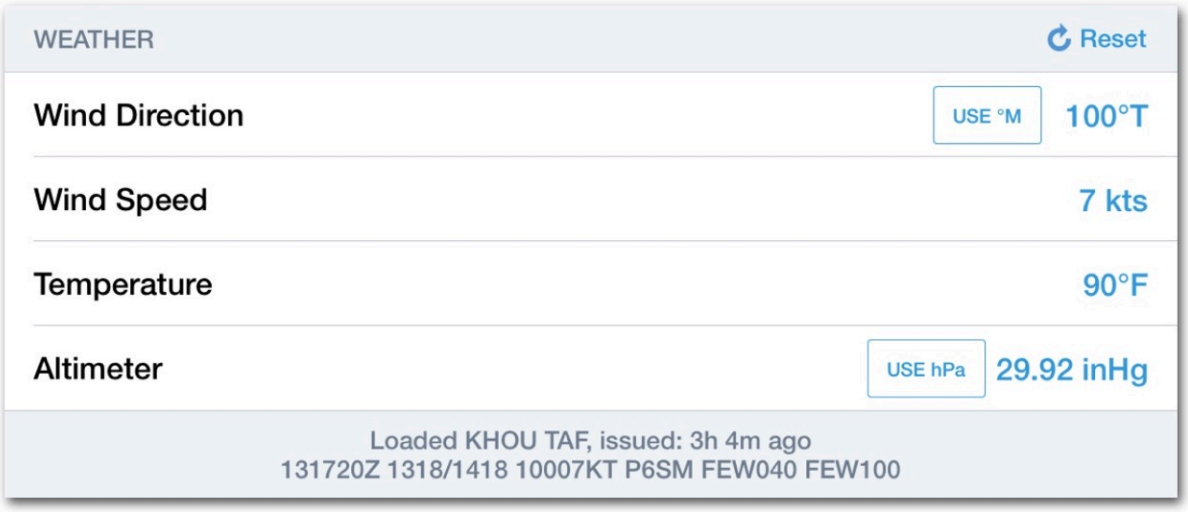


Figure 20-12. Takeoff Performance Weather Section (KHOU TAF)

Temperature

The TAF does not provide temperature data. If Takeoff & Landing Performance indicates that weather data is provided by a TAF, temperature from the MOS forecast will be used. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to Using Custom Weather.

When custom weather information has been entered, the performance results are updated and the edited values are used throughout Takeoff Performance. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.

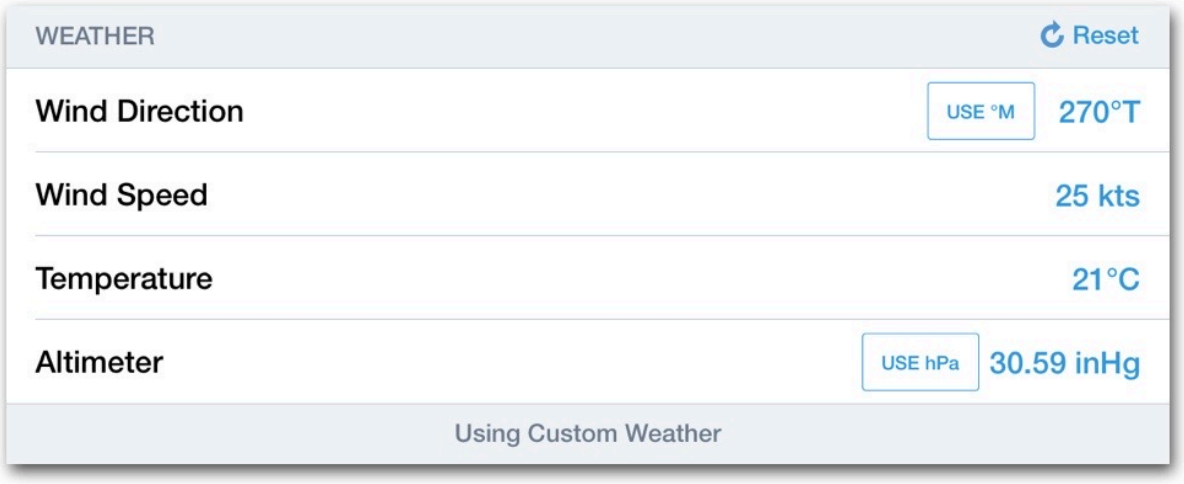


Figure 20-13. Takeoff Analysis Custom Weather

> **Wind Direction**
>
> Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use °M** button. Using magnetic winds changes the weather source to custom.

> **Altimeter**
>
> Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

> **Weather Reset**
>
> To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

20.2.6 Takeoff Performance - Aircraft Configuration

The Aircraft Configuration section is populated with the planned takeoff weight and default values from the Field Performance settings.

Each field in the section can be edited to accommodate a non-standard takeoff configuration. Adjusting the takeoff configuration from this view updates the planning results and not the default configuration.

20.2.6.1 Safety Distance Factor

The Safety Distance Factor is a user-specified safety margin. The Safety Distance Factor has a minimum and default value of 1.0 and can only be edited on a per-flight basis.

When a value other than 1.0 is entered in the Safety Distance Factor field, all distance results are multiplied by the user-specified amount. For example, to add a 25% safety margin to all results, enter a Safety Distance Factor of 1.25. To revert back to the original calculations, change the Safety Distance Factor to 1.0.



Figure 20-14. Adding a Safety Distance Factor

20.2.7 Takeoff Performance - Emergency Return

The Emergency Return section is used to determine Landing Performance for the departure airport in the event of an emergency after departure. To conduct an Emergency Return analysis, tap the field and select a runway.

If an Emergency Return results in an overweight condition, a warning message is displayed at the top of the Emergency Return view. However, that warning is not also displayed on the Flights view since an emergency return is often expected to be overweight.

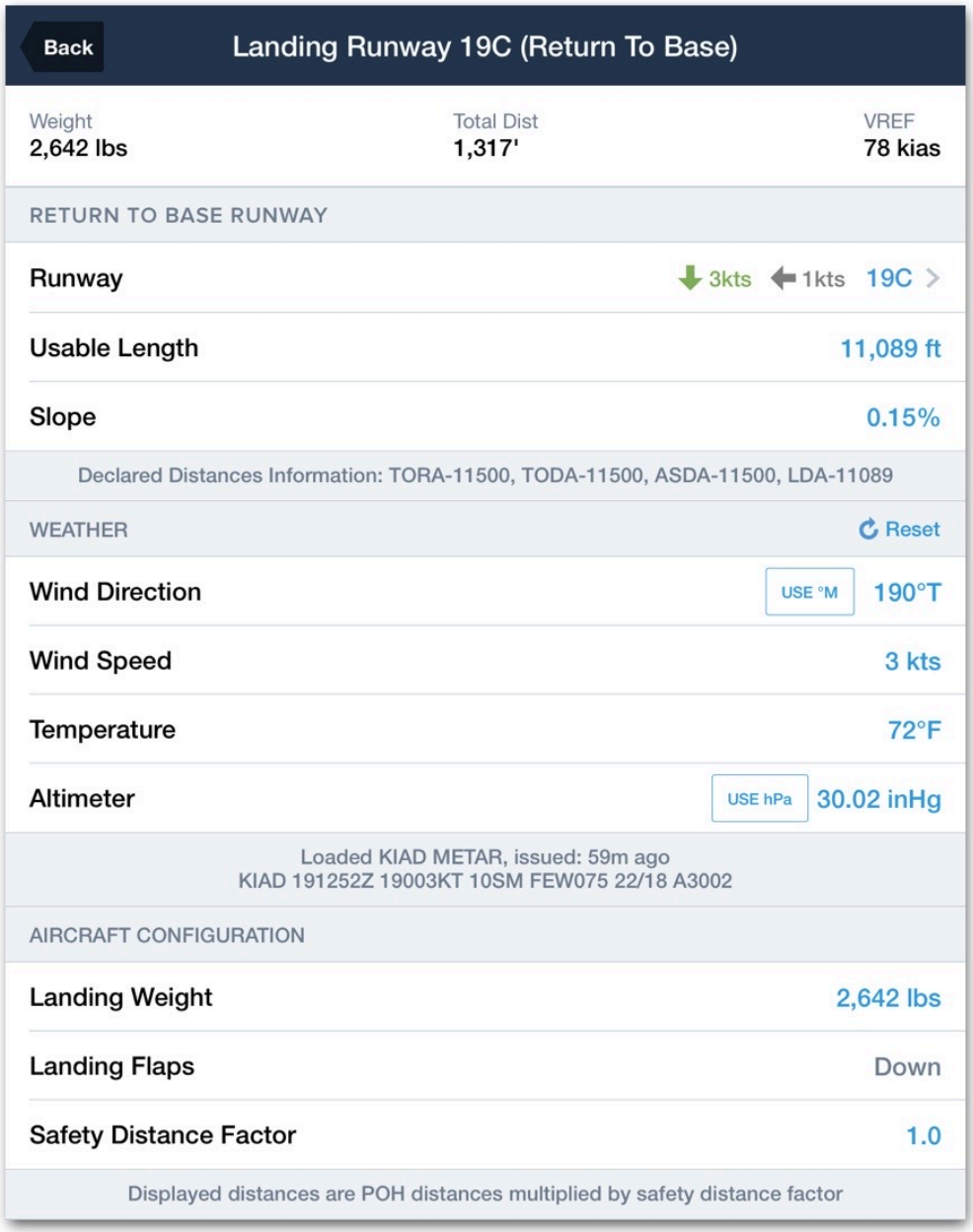
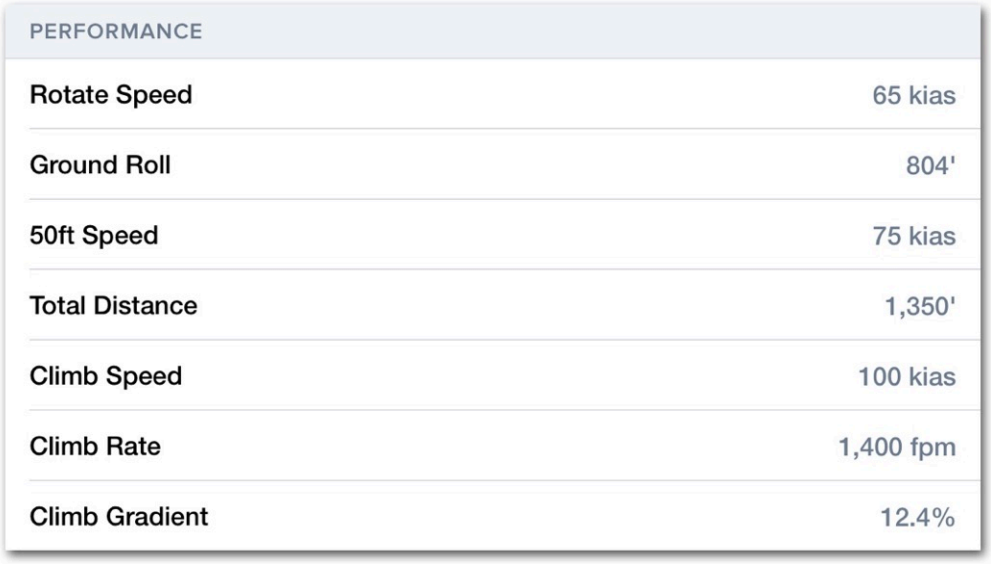


Figure 20-15. Emergency Return View

20.2.8 Takeoff Performance - Performance Details

The Performance section includes results for the selected runway given the planned weather and aircraft configuration. Performance results are interpolated from flight manual performance data and are not physics-based.

The items in the Performance section vary by aircraft type and represent the information found in the AFM (including the name of the performance parameter).



PERFORMANCE	
Rotate Speed	65 kias
Ground Roll	804'
50ft Speed	75 kias
Total Distance	1,350'
Climb Speed	100 kias
Climb Rate	1,400 fpm
Climb Gradient	12.4%

Figure 20-16. Takeoff Performance Section

20.2.8.1 Performance Parameter Definitions

This section lists generic takeoff output labels for most aircraft, though not all aircraft provide every output label and some aircraft have specific output labels that apply only to that aircraft and are not listed here. Consult the AFM for further detail on the specific aircraft configuration used for these outputs.

> **Rotate Speed**
>
> Target takeoff speed upon which to initiate takeoff rotation.

> **Liftoff Speed**
>
> Approximate speed when main gear leaves the runway; faster than rotate speed, but slower than 50 ft speed.

> **Ground Roll**
>
> Takeoff distance from brake release point until main gear lifts off the runway.

> **50 ft Speed**
>
> Initial climb speed reached at end of total takeoff distance and at the obstacle height of 50 ft AGL with gear down and takeoff flaps.

Total Distance

Takeoff distance from brake release point through reaching 50 ft obstacle height point AGL. Consists of ground roll distance and air segment for initial climb, all at takeoff flap setting and gear down (if retractable).

Takeoff Distance

Typically the distance from brake release through 35 feet AGL. The climb altitude may be lower in some scenarios– see AFM for details.

Accel-Stop Distance

Distance from brake release point through acceleration to a reject speed and subsequent deceleration to a full stop; aircraft never leaves the runway (this distance is typically only found with twin engine aircraft).

Climb Speed

Target speed for the initial climb after reaching the 50 ft AGL takeoff point, typically gear up, if retract (see POH for flap setting used).

Climb Rate

Instantaneous rate of climb in ft/min for the initial climb after reaching the 50 ft AGL takeoff point typically gear up, if retract (see POH for flap setting used).

Climb Gradient

Instantaneous climb gradient (rise/run) for the initial climb after reaching the 50 ft AGL takeoff point typically gear up, if retract (see POH for flap setting used).

Takeoff Climb Speed

Target speed for the initial climb after reaching the 50 ft AGL takeoff point in the POH-defined takeoff flap and gear configuration.

Takeoff Climb Rate

Instantaneous rate of climb in ft/min for the initial climb after reaching the 50 ft AGL takeoff point in the POH-defined takeoff flap and gear configuration.

Takeoff Climb Gradient

Instantaneous climb gradient (rise/run) for the initial climb after reaching the 50 ft AGL takeoff point in the POH-defined takeoff flap and gear configuration.

Cruise Climb Speed

Target en route climb speed, typically flaps up and gear up, if retract.

Cruise Climb Rate

En route climb rate, typically flaps up and gear up, if retract.

Cruise Climb Gradient

En route climb gradient, typically flaps up and gear up, if retract.

OEI Climb Speed

Target climb speed when one engine inoperative (OEI) on a twin engine aircraft.

OEI Climb Rate

Climb rate when one engine inoperative (OEI) on a twin engine aircraft.

20.3 Calculating Landing Performance

Landing Performance results can be calculated for the departure, destination, and alternate airport. To calculate results, begin by entering the route, payload, and fuel details into the Flights view.

To calculate Landing Performance, tap the **Landing** button next to the destination or alternate airport and select a runway. To calculate Landing Performance for the departure airport, select the **Emergency Return** option from the Takeoff Performance view.

If the **Landing** button is missing, it is not possible to calculate Landing Performance. The **Takeoff** or **Landing** buttons can be hidden under the following conditions:

- The selected aircraft does not support Takeoff & Landing Performance.
- A non-Premium tier account is being used to plan the flight.
- Runway data for the airport is unavailable.

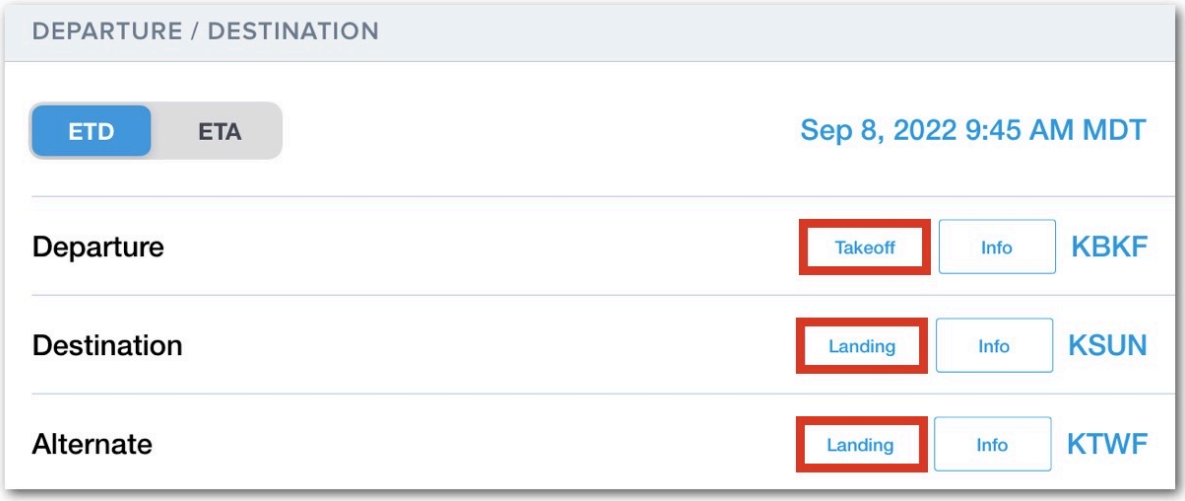


Figure 20-17. Takeoff & Landing Performance Buttons

20.3.1 Landing Performance View

The Landing Performance view is organized into five sections. The Landing Performance view is populated with the latest runway, weather, and default aircraft configuration data.

Blue text in this view can be edited for hypothetical planning purposes or to accommodate circumstances that are unique to the flight. For example, if the runway usable length is reduced due to construction, manually edit the length to represent the available runway distance.

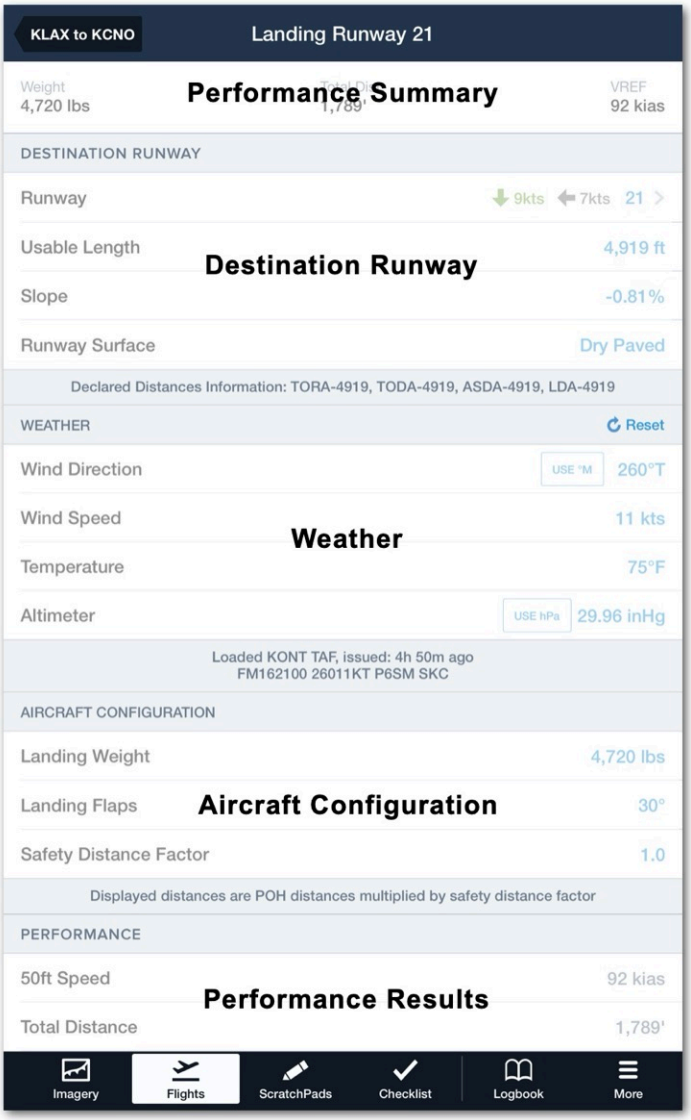


Figure 20-18. Landing Performance Sections

20.3.2 Landing Performance Summary

A summary of the Landing Performance results is always visible at the top of the Landing Performance view.



Figure 20-19. Landing Performance Summary

The summary displays the planned landing weight, the distance required to land and stop the aircraft, and the landing reference speed. Compete results are available in the Performance section at the bottom of the Landing Performance view.

Performance Summary results are displayed when a runway is selected and are based on the default landing configuration, weather, and latest runway data. Performance results are updated each time a new landing runway is selected or a configurable field is edited.

20.3.3 Landing Performance - Destination Runway

The Destination Runway section contains fields that define the runway environment. The fields in this section are automatically populated with the latest data and represent items that affect the selected aircraft takeoff performance.

Some aircraft do not provide performance data for common variables such as runway surface condition (rain, snow, etc). As a result, if the AFM does not include this data, the Destination Runway section will not include it either.

Destination Runway values can be overwritten to accommodate unique circumstances. To overwrite a value, tap the applicable field, enter a new value, and tap **Close**.

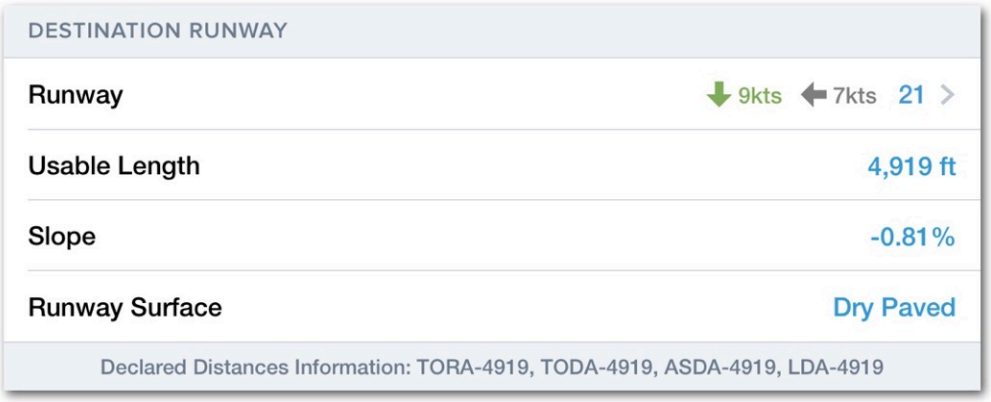


Figure 20-20. Landing Performance - Destination Runway Section

Declared Distances

Declared runway distances are displayed at the bottom of the section.

> **TORA**
>
> The portion of the runway suitable for the takeoff ground roll.

> **TODA**
>
> Takeoff Distance Available (includes stopway and clearway).

> **ASDA**
>
> Accelerate Stop Distance Available (includes stopway).

> **Stopway**
>
> Paved area beyond TORA that can be used for stopping during a rejected takeoff.

> **Clearway**
>
> Unpaved area clear of obstacles beyond the runway that can be used for a portion of the initial climb.

> **LDA**
>
> Runway Landing Distance Available.

20.3.4 Selecting a Destination Runway

To select a destination runway, tap the **Runway** field and select a runway from the list. Each available runway for the airport is included in the list even if the runway is closed. When a NOTAM is issued to close a runway, a Closed tag is displayed next to the runway name. If a runway usable length is reduced due to a NOTAM, the reduced useable length is not automatically reflected in the Destination Runway section.

When weather data is available via the internet, ADS-B, or SiriusXM, the wind component for each runway is displayed. Headwind components are displayed in green, tailwinds in red, and crosswind components in gray. The weather used to determine the wind component is displayed below the list of available runways.

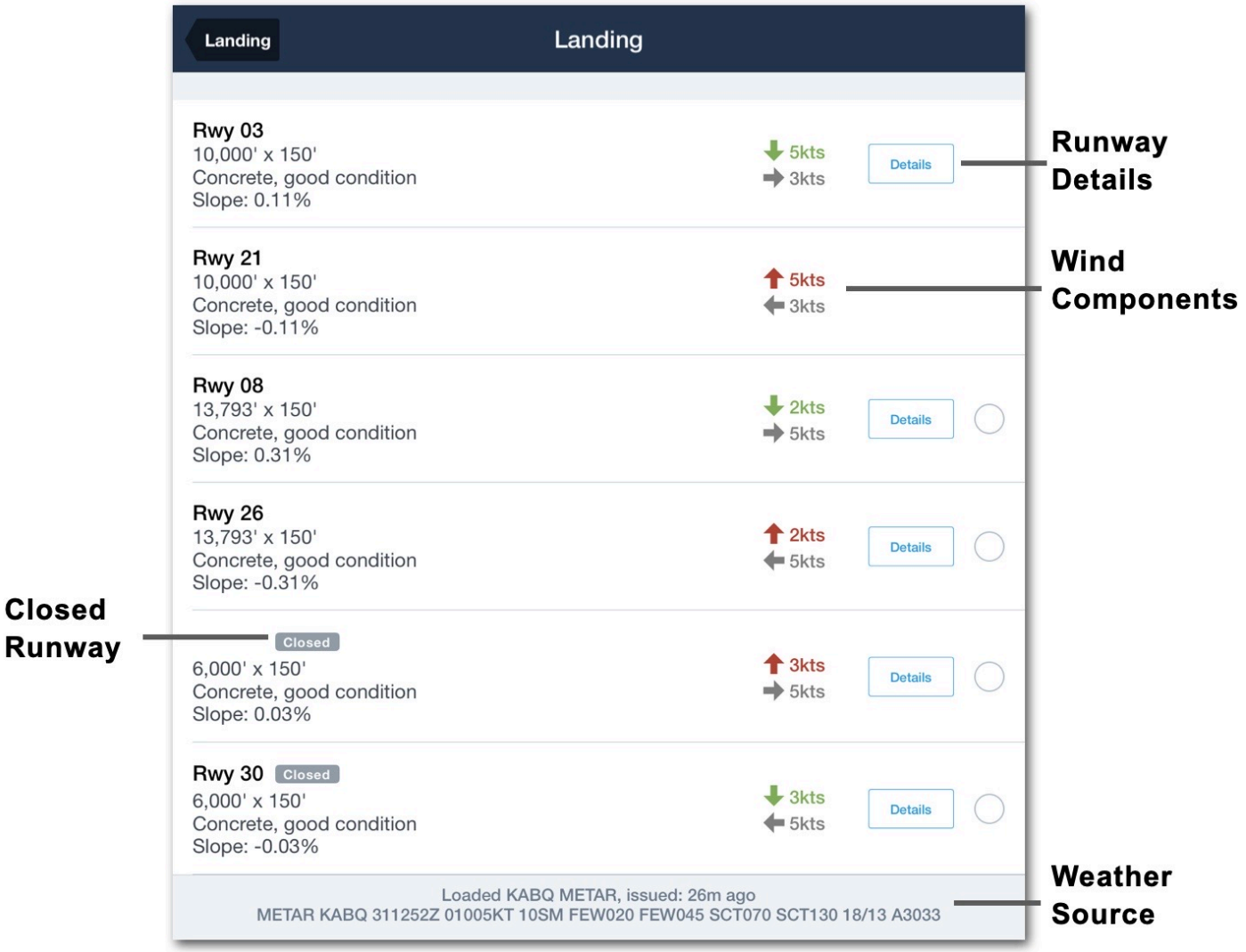


Figure 20-21. Selecting a Destination Runway

20.3.4.1 Runway Details

When selecting a runway, the **Details** button opens a new view with additional runway information including:

- Surface dimensions
- Surface type and condition
- Wind components
- Glide Slope Indicators
- Slope
- Magnetic heading
- Lighting
- Elevation
- Available procedures.

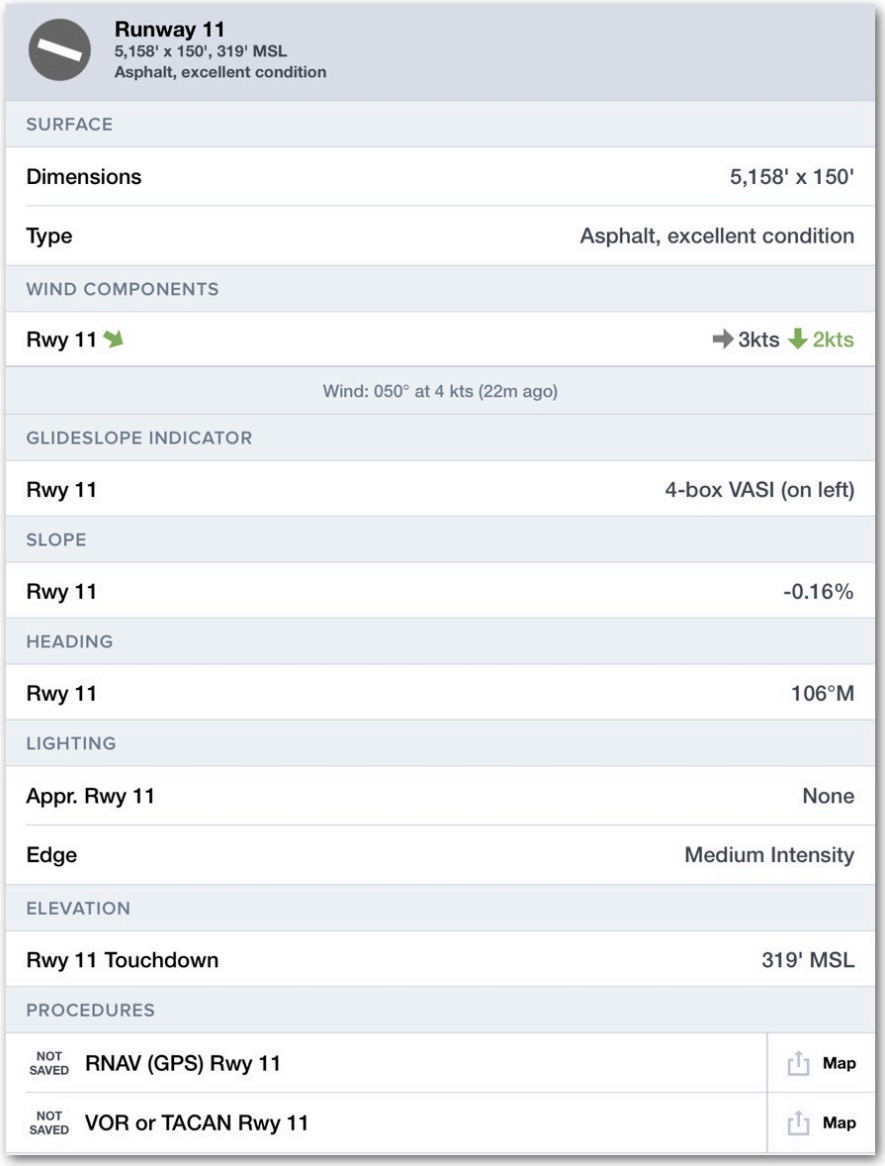


Figure 20-22. Runway Detail View

20.3.5 Landing Performance - Weather

The Weather section displays the latest METAR, TAF, MOS, or general forecast based on weather data availability and the estimated arrival time at the destination airport.

If the airport does not provide weather information, Landing Performance uses the appropriate weather from a nearby airport. Each field in the weather section can be manually edited. The weather source and raw text are displayed at the bottom of the weather section.

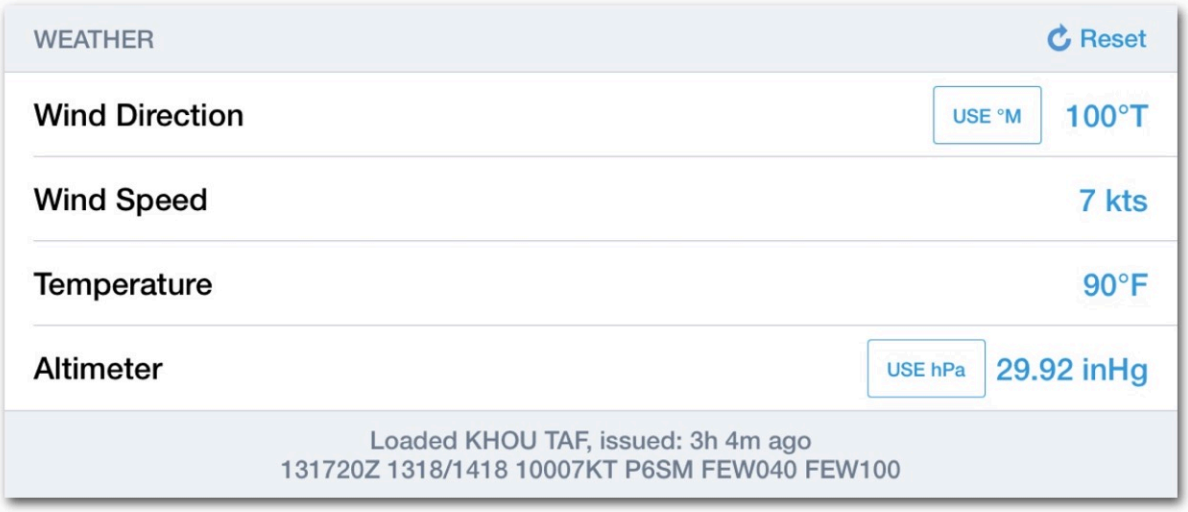


Figure 20-23. Landing Performance Weather Section (KHOU TAF)

Temperature

The Terminal Aerodrome Forecast (TAF) does not provide temperature data. If Takeoff & Landing Performance indicates weather data is provided by a TAF, temperature from the MOS forecast will be used. When the MOS forecast issues a range of temperatures, the maximum temperature in the range is used.

Custom Weather

Each field in the weather section can be edited to allow for scenario planning. When a weather field is edited, the source and raw text at the bottom of the section change to Using Custom Weather.

When custom weather information has been entered, the performance results are updated and the edited values are used throughout Takeoff Performance. For example, if Wind Speed is manually edited, the wind components are updated to reflect the custom weather when selecting a runway.

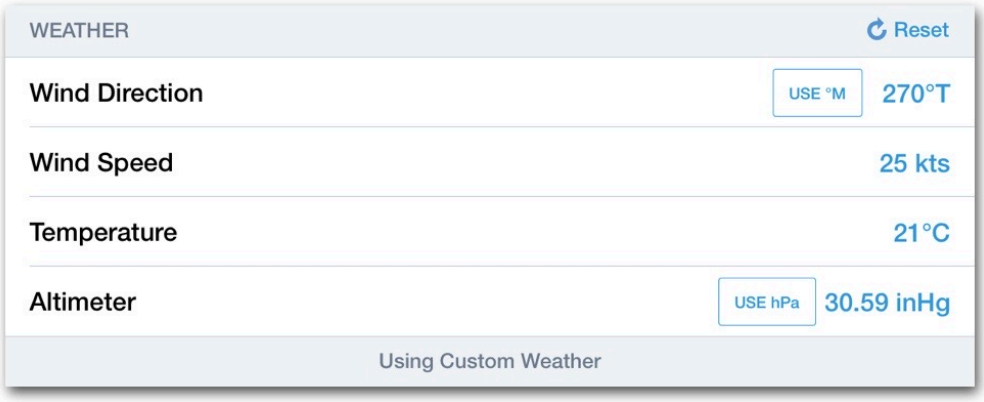


Figure 20-24. Takeoff Analysis Custom Weather

> **Wind Direction**
>
> Wind Direction is given relative to true north by default. To use magnetic winds, tap the **Use ºM** button. Using magnetic winds changes the weather source to custom.

> **Altimeter**
>
> Altimeter information can be displayed in inches of mercury (inHg) or hectopascal (hPa). To convert from one unit to the other, tap the button in the altimeter field.

> **Weather Reset**
>
> To revert the weather back to the current METAR or forecast weather after making edits, tap the **Reset** button in the top right corner of the Weather section.

20.3.6 Landing Performance - Aircraft Configuration

The Aircraft Configuration section is populated with the planned landing weight and default values from the Field Performance settings.

Each field in the section can be edited to accommodate a non-standard landing configuration. Adjusting the landing configuration from this view updates the planning results and not the default configuration.

20.3.6.1 Safety Distance Factor

The Safety Distance Factor is a user-specified safety margin. The Safety Distance Factor has a minimum and default value of 1.0 and can only be edited on a per-flight basis.

When a value other than 1.0 is entered in the Safety Distance Factor field, all distance results are multiplied by the user-specified amount. For example, to add a 25% safety margin to all results, enter a Safety Distance Factor of 1.25. To revert back to the original calculations, change the Safety Distance Factor to 1.0.

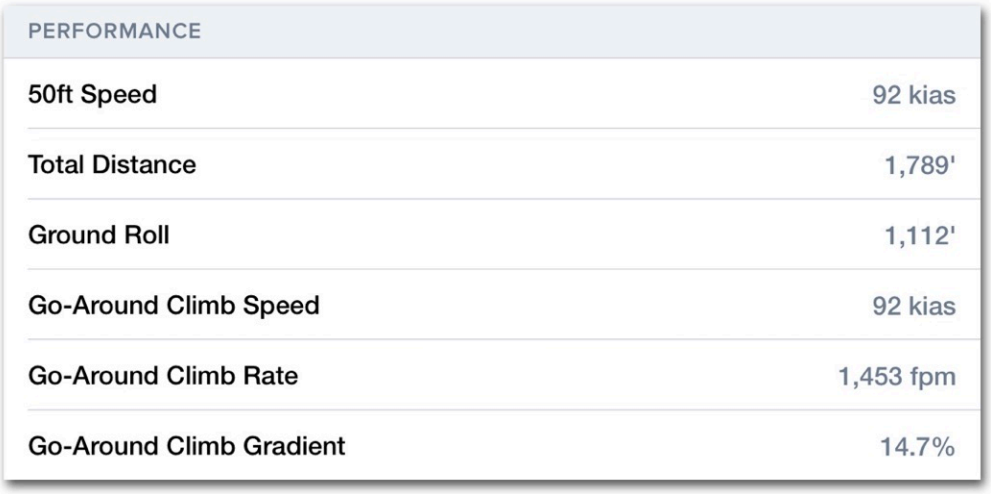


Figure 20-25. Adding a Safety Distance Factor

20.3.7 Landing Performance - Performance Details

The Performance section includes results for the selected runway given the planned weather and aircraft configuration. Performance results are interpolated from flight manual performance data and are not physics-based.

The items in the Performance section vary by aircraft type and represent the information found in the AFM (including the name of the performance parameter).



PERFORMANCE	
50ft Speed	92 kias
Total Distance	1,789'
Ground Roll	1,112'
Go-Around Climb Speed	92 kias
Go-Around Climb Rate	1,453 fpm
Go-Around Climb Gradient	14.7%

Figure 20-26. Landing Performance Results

20.3.7.1 Landing Output Labels

This section lists generic landing output labels used for most aircraft, though not all aircraft provide every output label, and some aircraft have specific output labels that apply only to that aircraft and are not listed here. Consult the POH or AFM for further detail on the specific aircraft configuration used for these outputs.

> **50 ft Speed (or Approach Speed)**
>
> Target threshold crossing speed for landing and at 50 ft AGL (obstacle height point). Typically referred to as the reference speed (V_{REF}), some manuals call it the approach speed (V_{APP}).

> **Total Distance**
>
> Landing distance from 50 ft AGL obstacle height point (over approach end runway threshold) until full stop is reached. Consists of air portion with flare, touchdown and stopping portion.

> **Ground Roll**
>
> Landing distance from touchdown point on the runway until full stop is reached.

> **Go-Around/Balked Landing Climb Speed**
>
> Target go-around speed, typically in landing flap/gear configuration.

> **Go-Around/Balked Landing Climb Rate**
>
> Go-around climb rate in ft/min. Consult POH for flap and gear configuration.

> **Go-Around/Balked Landing Climb Gradient**
>
> Go-around climb gradient (rise/run). Consult POH for flap and gear configuration.

20.4 Takeoff & Landing Summary Document

Takeoff & Landing Performance includes a summary document. The document includes a climb performance table (when climb data is available) and Takeoff & Landing Performance data for all selected runways. If an emergency return runway or an alternate airport runway is not selected, the summary document does not include this information.

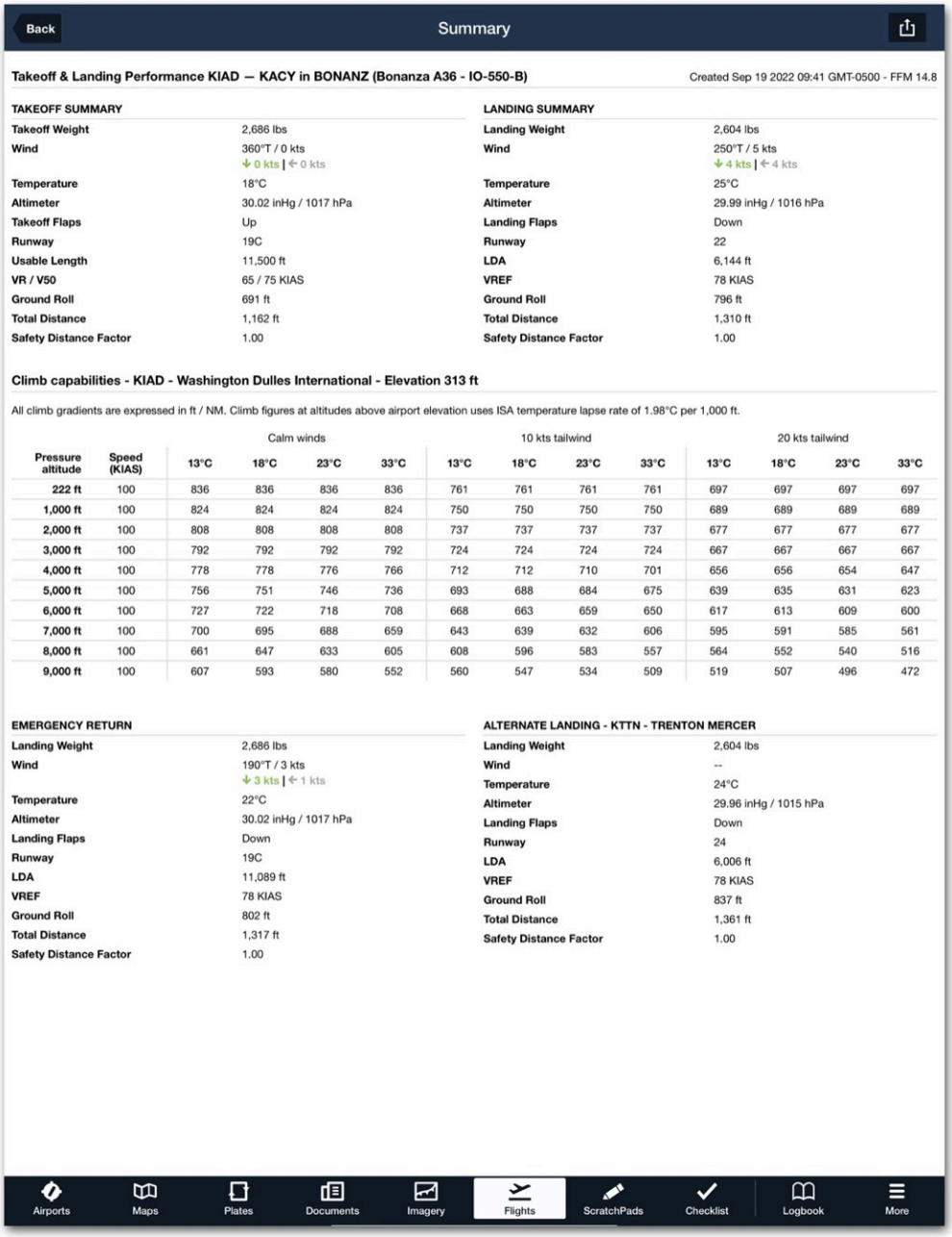


Figure 20-27. Takeoff & Landing Performance Summary Document

20.4.1 Generating the Summary Document

To generate the Summary Document, select Takeoff & Landing Performance runways for the departure, destination, and alternate airport. Tap **Summary** in the upper-right corner of the Takeoff or Landing Performance view.



Figure 20-28. Generate Summary Document

20.4.2 Summary Document Options

The Summary can be annotated, shared, printed, or attached to a Flight by tapping the share button in the upper-right corner when viewing the document.

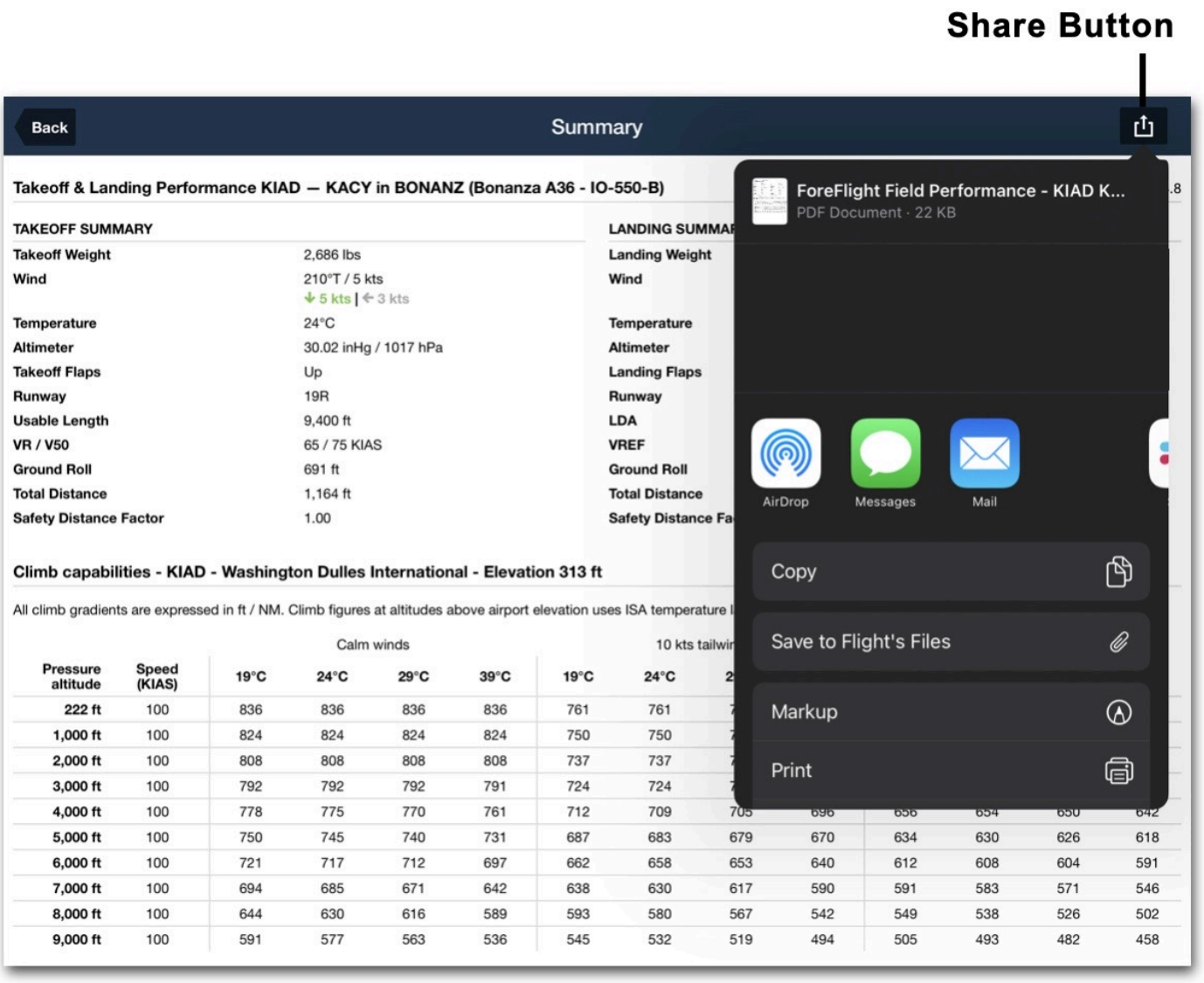


Figure 20-29. Summary Document Options

20.5 TOLD Card

The Takeoff and Landing Data (TOLD) is a standardized single-page summary of performance data such as speeds, performance calculations and meteorological conditions.

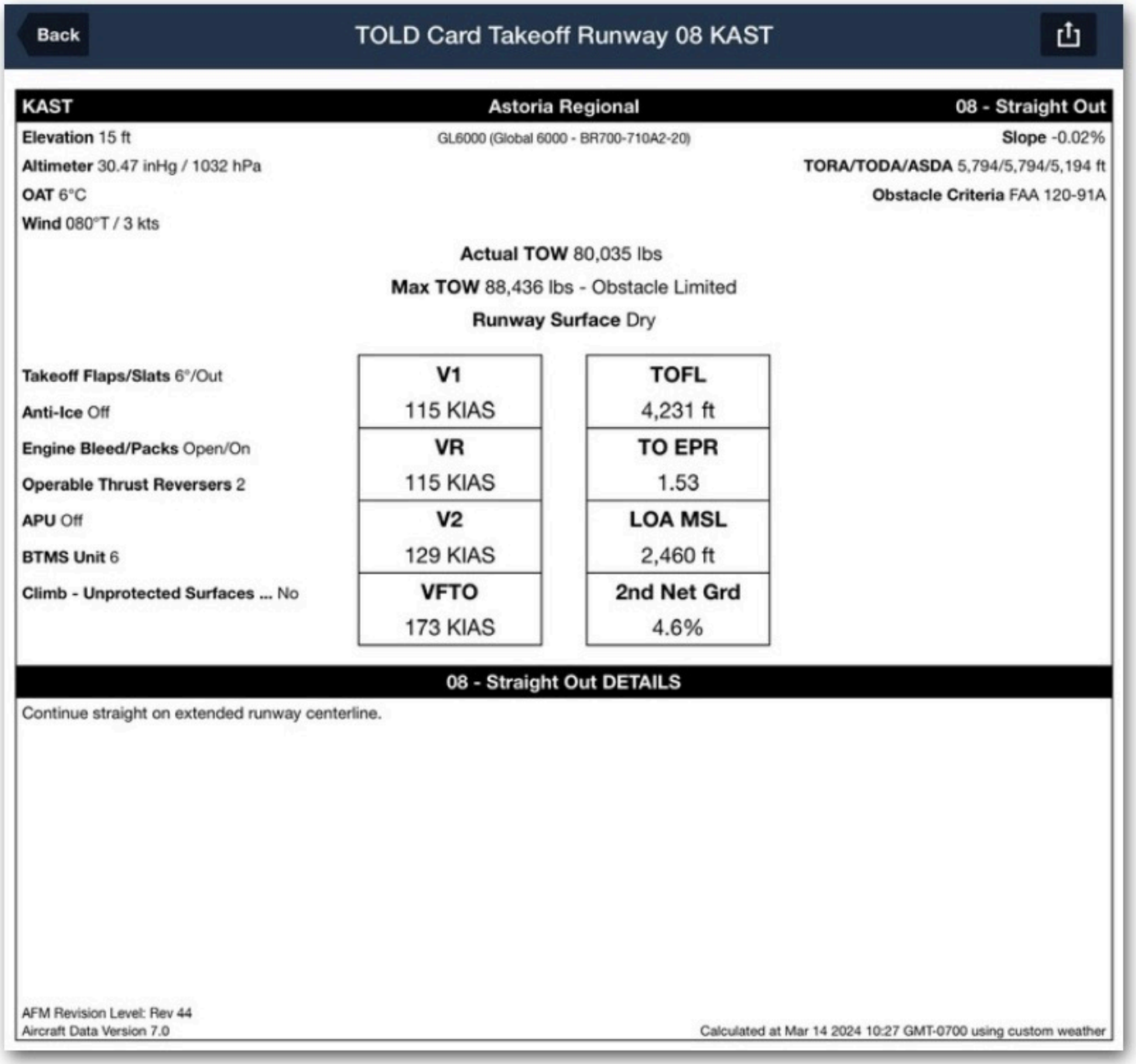


Figure 20-30. TOLD Card (Takeoff)

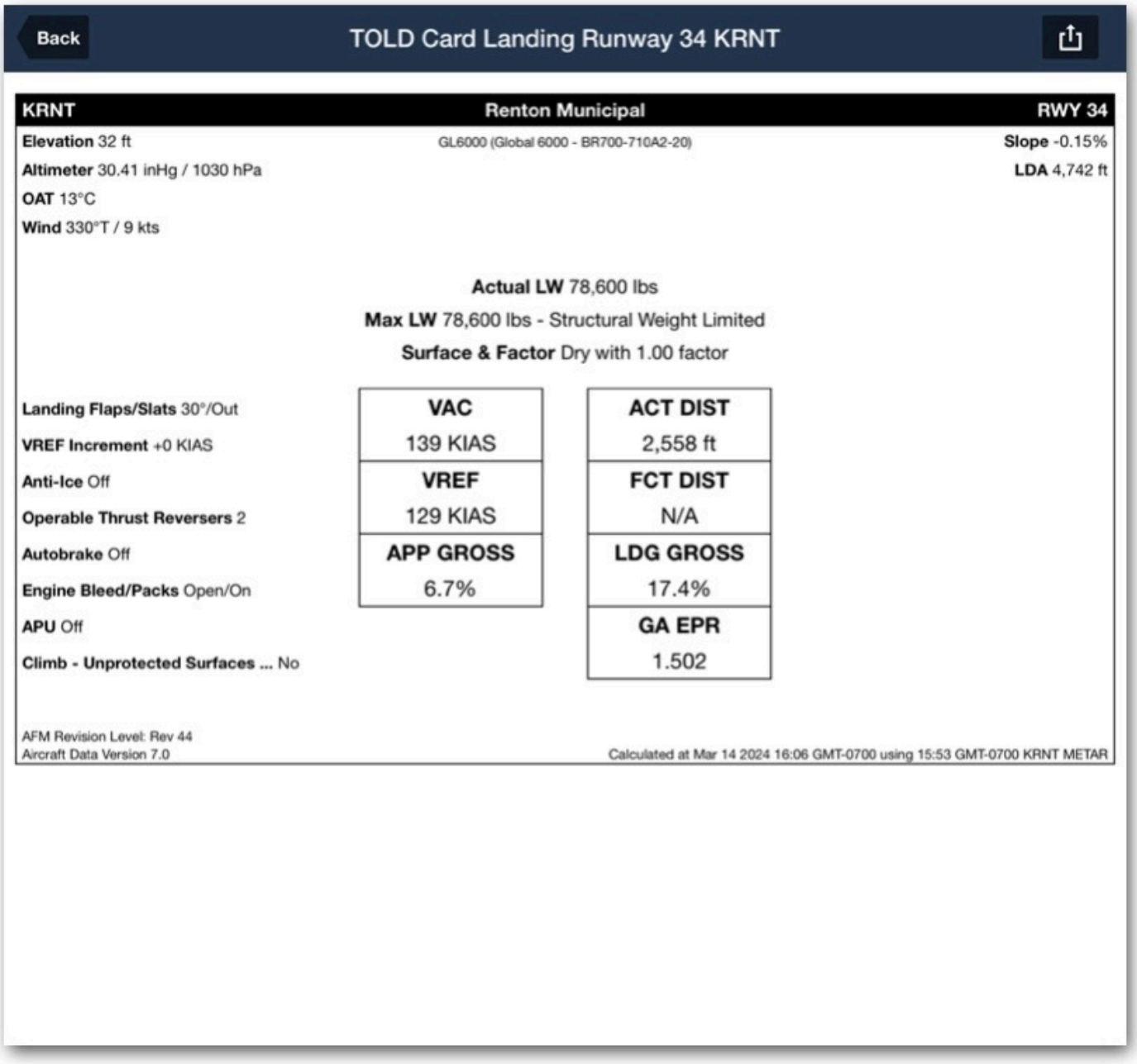


Figure 20-31. TOLD Card (Landing)

20.5.1 Generating the TOLD Card

To generate the TOLD Card:

1. Select Takeoff & Landing Performance runways for the departure, destination, and alternate airport.

2 Tap **TOLD** in the upper-right corner of the Takeoff or Landing Performance view.

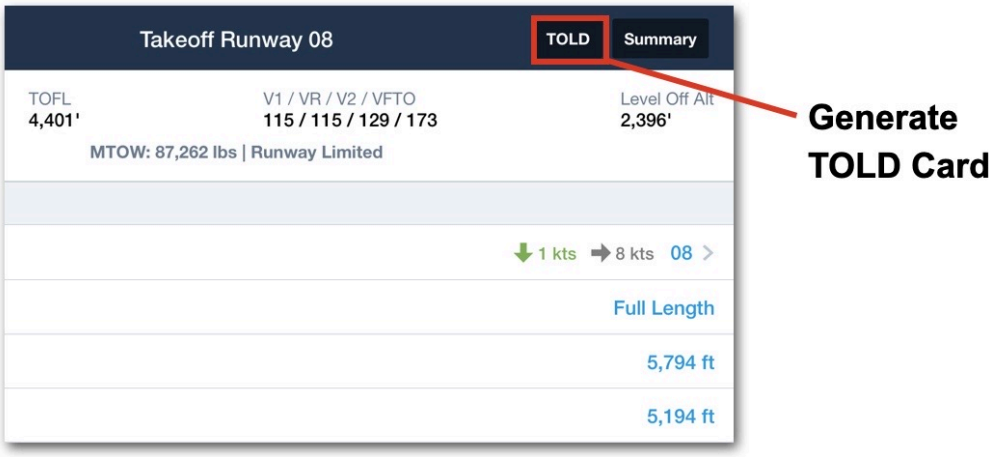


Figure 20-32. Generate Told Card

20.5.2 TOLD Card Options

The TOLD Card can be annotated, shared, printed, or attached to a flight by tapping the share button in the upper-right corner when viewing the document.

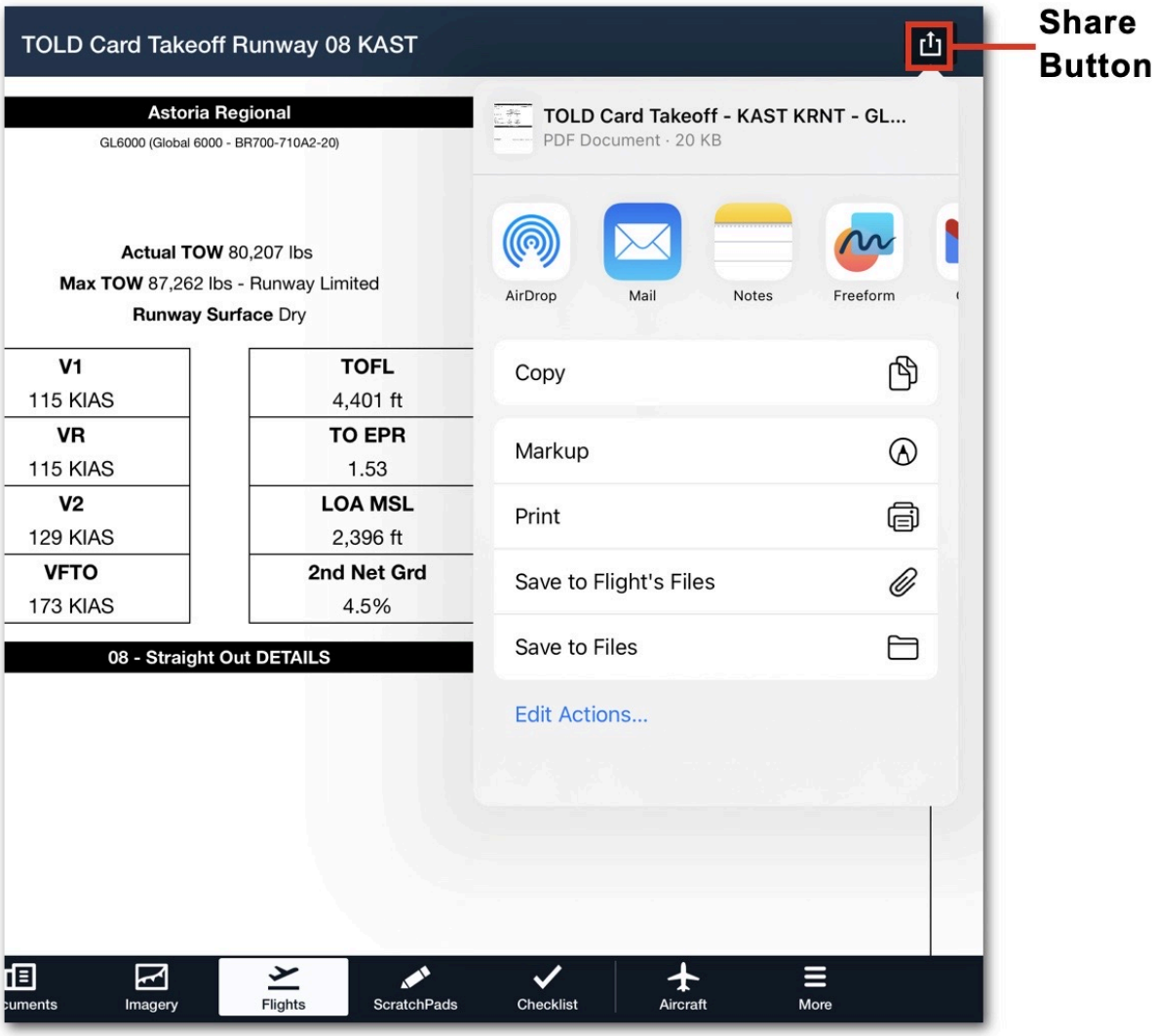
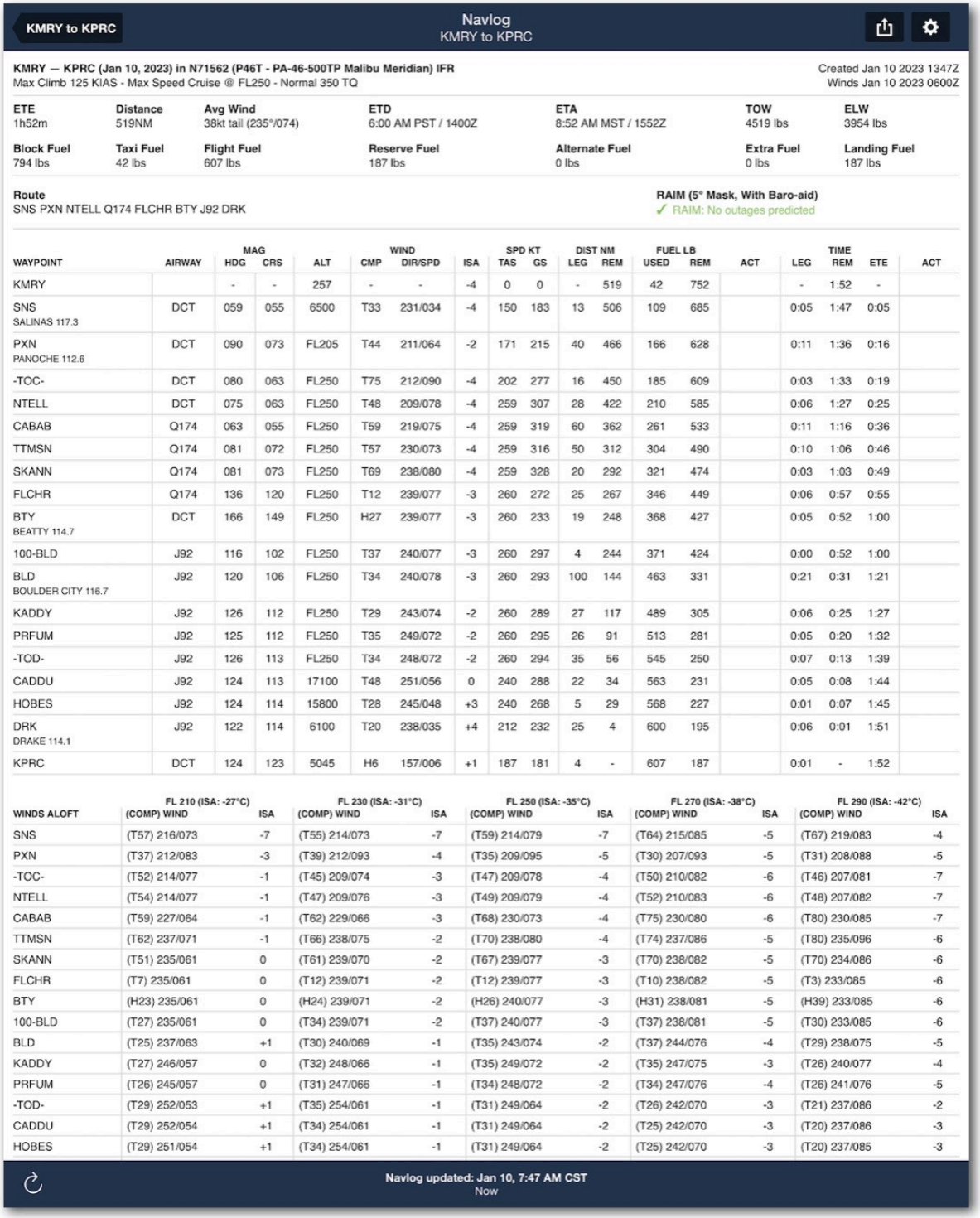


Figure 20-33. TOLD Card Share Options

NAVLOG

ForeFlight Navlog is a static PDF document that contains a flight summary, per-leg performance results, airport details, weather, and various blank fields for recording flight actuals using a pen and paper. There are up to six types of Navlog, depending on the ForeFlight subscription tier.

Navlogs are synced to a user account and saved indefinitely provided the flight is not deleted. If a flight is deleted from ForeFlight Mobile or ForeFlight Web, the Navlog is also deleted and cannot be restored.



KMRY to KPRC

Navlog
KMRY to KPRC

KMRY — KPRC (Jan 10, 2023) in N71562 (P46T - PA-46-500TP Malibu Meridian) IFR
Max Climb 125 KIAS - Max Speed Cruise @ FL250 - Normal 350 TQ

Created Jan 10 2023 1347Z
Winds Jan 10 2023 0600Z

ETE	Distance	Avg Wind	ETD	ETA	TOW	ELW
1h52m	519NM	38kt tail (235°/074)	6:00 AM PST / 1400Z	8:52 AM MST / 1552Z	4519 lbs	3954 lbs

Block Fuel	Taxi Fuel	Flight Fuel	Reserve Fuel	Alternate Fuel	Extra Fuel	Landing Fuel
794 lbs	42 lbs	607 lbs	187 lbs	0 lbs	0 lbs	187 lbs

Route
SNS PXN NTELL Q174 FLCHR BTY J92 DRK

RAIM (5° Mask, With Baro-aid)
✓ RAIM: No outages predicted

		MAG			WIND			SPD KT		DIST NM		FUEL LB			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KMRY		-	-	257	-	-	-4	0	0	-	519	42	752		-	1:52	-	
SNS SALINAS 117.3	DCT	059	055	6500	T33	231/034	-4	150	183	13	506	109	685		0:05	1:47	0:05	
PXN PANOCHE 112.6	DCT	090	073	FL205	T44	211/064	-2	171	215	40	466	166	628		0:11	1:36	0:16	
-TOC-	DCT	080	063	FL250	T75	212/090	-4	202	277	16	450	185	609		0:03	1:33	0:19	
NTELL	DCT	075	063	FL250	T48	209/078	-4	259	307	28	422	210	585		0:06	1:27	0:25	
CABAB	Q174	063	055	FL250	T59	219/075	-4	259	319	60	362	261	533		0:11	1:16	0:36	
TTMSN	Q174	081	072	FL250	T57	230/073	-4	259	316	50	312	304	490		0:10	1:06	0:46	
SKANN	Q174	081	073	FL250	T69	238/080	-4	259	328	20	292	321	474		0:03	1:03	0:49	
FLCHR	Q174	136	120	FL250	T12	239/077	-3	260	272	25	267	346	449		0:06	0:57	0:55	
BTY BEATTY 114.7	DCT	166	149	FL250	H27	239/077	-3	260	233	19	248	368	427		0:05	0:52	1:00	
100-BLD	J92	116	102	FL250	T37	240/077	-3	260	297	4	244	371	424		0:00	0:52	1:00	
BLD BOULDER CITY 116.7	J92	120	106	FL250	T34	240/078	-3	260	293	100	144	463	331		0:21	0:31	1:21	
KADDY	J92	126	112	FL250	T29	243/074	-2	260	289	27	117	489	305		0:06	0:25	1:27	
PRFUM	J92	125	112	FL250	T35	249/072	-2	260	295	26	91	513	281		0:05	0:20	1:32	
-TOD-	J92	126	113	FL250	T34	248/072	-2	260	294	35	56	545	250		0:07	0:13	1:39	
CADDU	J92	124	113	17100	T48	251/056	0	240	288	22	34	563	231		0:05	0:08	1:44	
HOBES	J92	124	114	15800	T28	245/048	+3	240	268	5	29	568	227		0:01	0:07	1:45	
DRK DRAKE 114.1	J92	122	114	6100	T20	238/035	+4	212	232	25	4	600	195		0:06	0:01	1:51	
KPRC	DCT	124	123	5045	H6	157/006	+1	187	181	4	-	607	187		0:01	-	1:52	

	FL 210 (ISA: -27°C)		FL 230 (ISA: -31°C)		FL 250 (ISA: -35°C)		FL 270 (ISA: -38°C)		FL 290 (ISA: -42°C)	
WINDS ALOFT	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA
SNS	(T57) 216/073	-7	(T55) 214/073	-7	(T59) 214/079	-7	(T64) 215/085	-5	(T67) 219/083	-4
PXN	(T37) 212/083	-3	(T39) 212/093	-4	(T35) 209/095	-5	(T30) 207/093	-5	(T31) 208/088	-5
-TOC-	(T52) 214/077	-1	(T45) 209/074	-3	(T47) 209/078	-4	(T50) 210/082	-6	(T46) 207/081	-7
NTELL	(T54) 214/077	-1	(T47) 209/076	-3	(T49) 209/079	-4	(T52) 210/083	-6	(T48) 207/082	-7
CABAB	(T59) 227/064	-1	(T62) 229/066	-3	(T68) 230/073	-4	(T75) 230/080	-6	(T80) 230/085	-7
TTMSN	(T62) 237/071	-1	(T66) 238/075	-2	(T70) 238/080	-4	(T74) 237/086	-5	(T80) 235/096	-6
SKANN	(T51) 235/061	0	(T61) 239/070	-2	(T67) 239/077	-3	(T70) 238/082	-5	(T70) 234/086	-6
FLCHR	(T7) 235/061	0	(T12) 239/071	-2	(T12) 239/077	-3	(T10) 238/082	-5	(T3) 233/085	-6
BTY	(H23) 235/061	0	(H24) 239/071	-2	(H26) 240/077	-3	(H31) 238/081	-5	(H39) 233/085	-6
100-BLD	(T27) 235/061	0	(T34) 239/071	-2	(T37) 240/077	-3	(T37) 238/081	-5	(T30) 233/085	-6
BLD	(T25) 237/063	+1	(T30) 240/069	-1	(T35) 243/074	-2	(T37) 244/076	-4	(T29) 238/075	-5
KADDY	(T27) 246/057	0	(T32) 248/066	-1	(T35) 249/072	-2	(T35) 247/075	-3	(T26) 240/077	-4
PRFUM	(T26) 245/057	0	(T31) 247/066	-1	(T34) 248/072	-2	(T34) 247/076	-4	(T26) 241/076	-5
-TOD-	(T29) 252/053	+1	(T35) 254/061	-1	(T31) 249/064	-2	(T26) 242/070	-3	(T21) 237/086	-2
CADDU	(T29) 252/054	+1	(T34) 254/061	-1	(T31) 249/064	-2	(T25) 242/070	-3	(T20) 237/086	-3
HOBES	(T29) 251/054	+1	(T34) 254/061	-1	(T31) 249/064	-2	(T25) 242/070	-3	(T20) 237/085	-3

Navlog updated: Jan 10, 7:47 AM CST
Now

Figure 21-1. Performance Tier Standard Navlog

21.1 Generating Navlogs

Navlogs are generated using the ForeFlight cloud-based flight planning engine. Therefore, an active internet connection is required to generate Navlogs. This feature is independent of the NavLog on the Maps view and may contain slightly different flight planning results.

The ForeFlight cloud-based flight planning engine is more accurate than the planning engine available on the Maps view as it factors more variables (e.g., aircraft weight, temperatures aloft, etc.).

Navlogs are generated without user input. A new Navlog is generated every time a change is made to the Flights view. Once a Navlog is generated, it is saved locally to the device and can be accessed offline. Therefore, if a flight is planned while connected to the Internet, the Navlog will be available for offline viewing.

21.1.1 Accessing Navlogs

Navlogs are accessed from the ForeFlight Mobile or ForeFlight Web Flights view by tapping the **Navlog** button near the top of the screen.

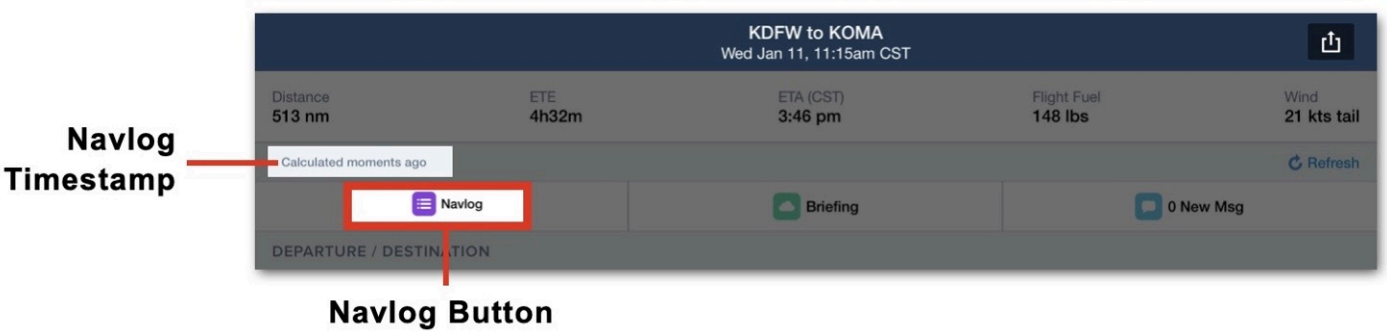


Figure 21-2. Access Navlog

When the **Navlog** button is tapped, the latest Navlog is displayed in the Navlog viewer. It is not possible to view historical Navlogs that were generated as the flight was being planned.

Navlogs are synced to a user account. Generating a Navlog using ForeFlight Web and then tapping the **Navlog** button in ForeFlight Mobile results in the same document, and vice versa.

> **IMPORTANT:** An internet connection is required to generate a Navlog.

21.1.2 Refreshing Navlogs

Pilots who generate Navlogs in advance of their estimated departure time are encouraged to refresh their Navlogs prior to flight as updated weather forecasts may be available.

> **IMPORTANT:** The Navlog does not automatically refresh; an internet connection is required to refresh the Navlog.

There are three methods for refreshing the Navlog.

- Tapping the **Refresh** button on the Flights view (recommended).
- Opening the Navlog and tapping the refresh icon in the left corner of the lower toolbar.
- Editing the flight.



Figure 21-3. Flights View

The time at which the Navlog was generated is displayed above the Navlog button and on the Navlog itself. To incorporate the latest weather forecasts, the Navlog must be refreshed.

When the Navlog is refreshed, the Navlog is updated with the latest available weather, and the Navlog timestamp is updated.

21.2 Navlog Types

There are six types of Navlogs. The table below indicates available Navlog types per subscription.

Subscription	Basic	Standard	Standard (PS)[2]	International	Custom	Active Navlog
Starter	✓	✓				
Essential	✓	✓				
Premium	✓		✓	✓		
Business Pro	✓	✓				
Business Performance	✓		✓	✓		1
MFB Pro	✓	✓				
MFB Performance	✓		✓	✓		1
Business Pro + Dispatch	✓		✓	✓	✓	1
ForeFlight Military Flight Bag + Dispatch	✓		✓	✓	✓	1

[1] Active Navlog is available as a per-account add-on for Business Performance accounts.

[2] (PS) - Premium Subscription

All Navlog types are read-only, printable, and shareable documents. Navlogs cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs to make annotations.

The Basic Navlog contains essential flight planning details. The Standard and International Navlogs contain additional flight planning details in commonly used formats. Basic, Standard, Standard for Performance-level subscriptions, and International Navlog types are discussed in detail later in this chapter.

Custom Navlogs can be created with a ForeFlight Dispatch account. See the ForeFlight Dispatch Guide for additional information.

Navlog Template Selection

After a Navlog is generated, a different template may be selected. The Navlog Settings (gear) button in the upper toolbar can be used to toggle between Navlog formats.

> **NOTE:** The International Navlog is only available to Premium, Business Performance, and MFB Performance customers.

21.2.1 Basic Navlog

The Basic Navlog is organized into sections:

- Basic Navlog Flight Summary Section
- Basic Navlog Notes Section
- Basic Navlog Airport Details
- Basic Navlog Planning Table Definition
- Basic Navlog Planning Results Section.

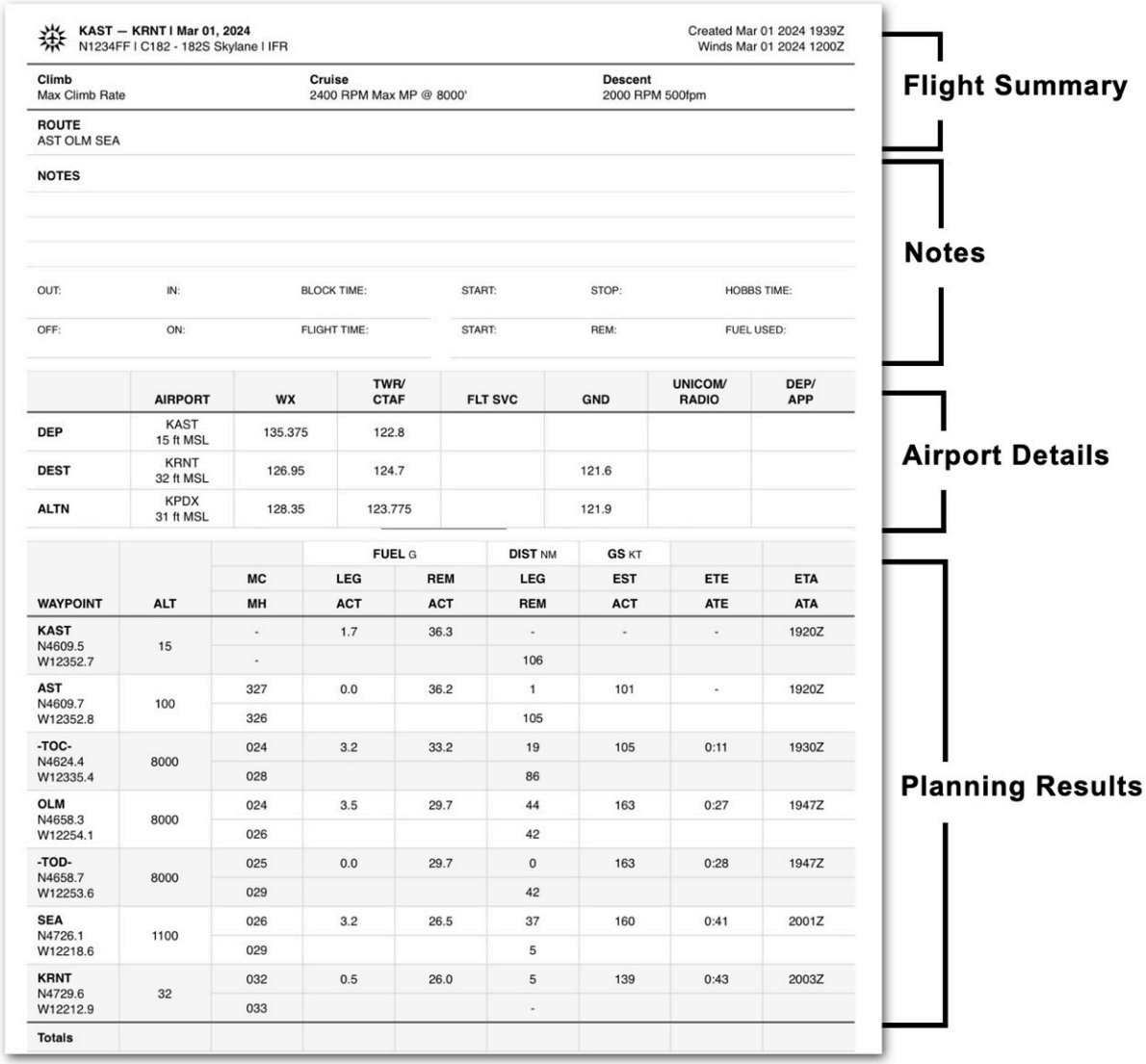


Figure 21-4. Basic Navlog

21.2.1.1 Basic Navlog Flight Summary Section

The Basic Navlog summary section provides an overview of the flight.

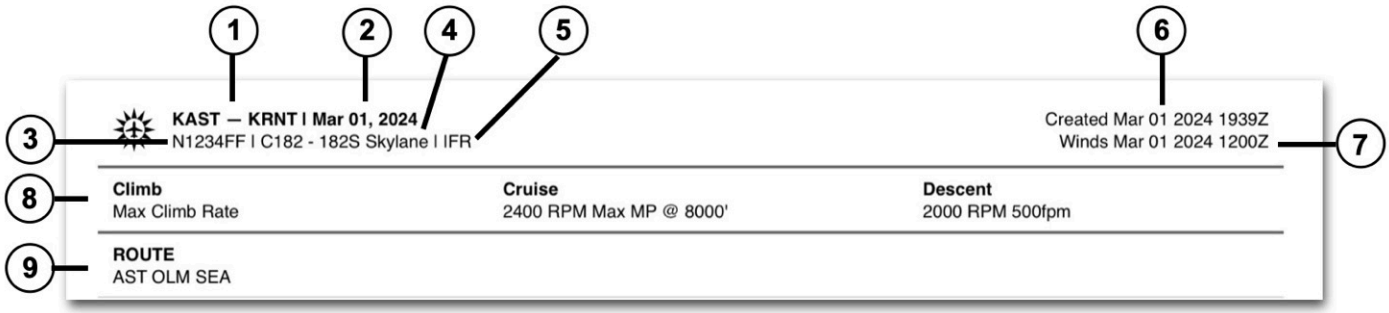


Figure 21-5. Basic Navlog Flight Summary

1. Departure and destination identifiers, names (for airports without identifiers), or lat/long coordinates (if the location is not an airport, navaid, or waypoint).
2. Departure date. The date format cannot be edited.
3. Aircraft registration (tail number). If a flight plan is filed with a callsign, the callsign is included in this section.
4. Aircraft type code.
5. Flight Rules.
6. Navlog generation timestamp.
7. Winds aloft data timestamp.
8. Performance profile.
9. Route waypoints (including airways, arrival and departure procedures, navaids, and waypoints) listed as identifiers or lat/long coordinates if there is no identifier.

21.2.1.2 Basic Navlog Notes Section

The Notes section provides blank fields for notes and manually recording flight times. These fields cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.



Figure 21-6. Basic Navlog Notes

21.2.1.3 Basic Navlog Airport Details

The Airport Details section includes commonly used airport frequencies and field elevation.

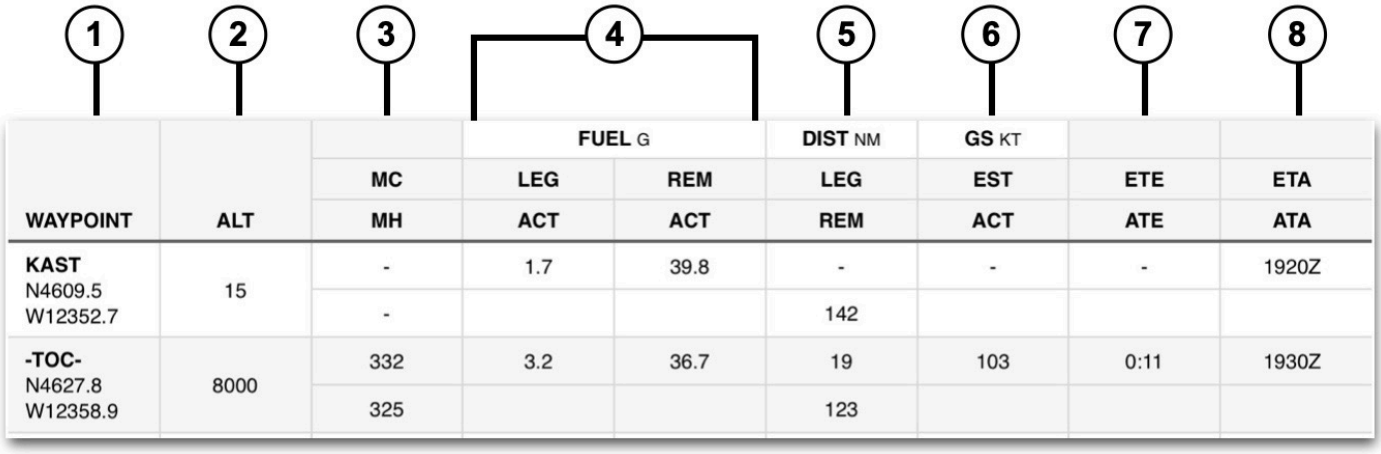
> **NOTE:** Only one listing is shown for each radio frequency category. To review additional frequencies see Info Tab.

	AIRPORT	WX	TWR/ CTAF	FLT SVC	GND	UNICOM/ RADIO	DEP/ APP
DEP	KAST 15 ft MSL	135.375	122.8				
DEST	KRNT 32 ft MSL	126.95	124.7		121.6		
ALTN	KPDX 31 ft MSL	128.35	123.775		121.9		

Figure 21-7. Basic Navlog Airport Details

21.2.1.4 Basic Navlog Planning Table Definition

Definitions for the values found in the planning table are given below.



			FUEL G		DIST NM	GS KT		
		MC	LEG	REM	LEG	EST	ETE	ETA
WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	39.8	-	-	-	1920Z
		-			142			
-TOC- N4627.8 W12358.9	8000	332	3.2	36.7	19	103	0:11	1930Z
		325			123			

Figure 21-8. Basic Navlog Planning Table

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route, top of climb and descent, and 100 NM waypoints) listed as identifiers or lat/long coordinates if there is no identifier.
2. Altitude (MSL) at which the waypoint is crossed.
3. Magnetic Course (true course corrected for geographic variation)/Magnetic Heading (magnetic course corrected for winds).
4. Fuel section displayed in units selected in aircraft profile
   - LEG - Planned fuel required for the flight plan leg.
   - REM - Planned fuel remaining upon flight plan leg completion.
5. Leg distance and total flight distance remaining.
6. Average estimated groundspeed for the leg.
7. Estimated time for the leg rounded to the nearest minute.
8. Estimated time of arrival based on proposed departure time.

21.2.1.5 Basic Navlog Planning Results Section

Detailed per-leg flight planning results are provided via a table. The table includes each waypoint that defines the route, including those that are not explicitly included in the route but are a part of terminal procedures or airways.

Each waypoint row describes the leg of the flight leading to it from the previous waypoint. In the image below, the leg of the flight from HQM to OLM is described on the row for OLM. In other words, to get to the next waypoint, read that waypoint row.

			FUEL G		DIST NM	GS KT		
		MC	LEG	REM	LEG	EST	ETE	ETA
WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	39.8	-	-	-	1920Z
		-			142			
-TOC- N4627.8 W12358.9	8000	332	3.2	36.7	19	103	0:11	1930Z
		325			123			
HQM N4656.8 W12409.0	8000	332	2.5	34.2	30	154	0:23	1942Z
		324			93			
OLM N4658.3 W12254.1	8000	073	4.3	29.7	51	147	0:44	2003Z
		081			42			

Figure 21-9. How to Read Planning Results from HQM to OLM

Basic Navlog Routes with Legs Greater than 100 NM

If any leg in the route is longer than 100 NM, that leg is subdivided into 100 NM increments. Each of these increments becomes a new leg and is assigned a unique name representing the distance from it to the waypoint.

In Figure 589. Basic Navlog 100 NM Segments, the leg **300-KOMA** is reached when the aircraft is 300 NM from KOMA.

If the waypoint is an airport without an identifier, the airport lat/long coordinates are listed instead, e.g. **300-5036N00827E** for 300 NM from Garbenheimer Weisen Airfield.

WAYPOINT	ALT	MC MH	LEG ACT	REM ACT	LEG REM	EST ACT	ETE ATE	ETA ATA
KDFW N3253.8 W09702.3	606	- -	1.7	56.7	- 507	-	-	1920Z
500-KOMA N3300.5 W09701.4	3800	003 360	1.2	55.3	7 500	95	0:05	1924Z
-TOC- N3310.9 W09700.1	8000	003 351	1.8	53.7	10 490	96	0:11	1930Z
400-KOMA N3440.1 W09648.9	8000	003 353	8.0	45.5	90 400	138	0:50	2009Z
300-KOMA N3619.7 W09636.0	8000	003 354	9.0	36.5	100 300	137	1:34	2053Z
200-KOMA N3759.3 W09622.5	8000	004 356	9.3	27.3	100 200	134	2:19	2138Z
100-KOMA N3938.8 W09608.4	8000	004 360	9.3	17.8	100 100	132	3:04	2223Z
-TOD- N4047.5 W09558.3	8000	004 359	6.3	11.7	69 31	136	3:34	2254Z
KOMA N4118.2 W09553.6	985	004 360	3.3	8.3	31 -	132	3:48	2308Z

Figure 21-10. Basic Navlog 100 NM Segments

Basic Navlog Top of Climb and Descent

The Basic Navlog includes waypoints for the Top of Climb (TOC) and Top of Descent (TOD). These waypoints are calculated automatically using the latest weather forecasts and selected aircraft performance profile.

WAYPOINT	ALT	MH	ACT	ACT	REM	ACT	ATE	ATA
KAST N4609.5 W12352.7	15	-	1.7	39.8	-	-	-	1920Z
		-			142			
AST N4609.7 W12352.8	100	327	0.0	39.8	0	101	-	1920Z
		326			142			
-TOC- N4627.8 W12359.0	8000	332	3.2	36.7	19	103	0:11	1930Z
		325			123			
HQM N4656.8 W12409.0	8000	332	2.5	34.2	30	154	0:23	1942Z
		324			93			
OLM N4658.3 W12254.1	8000	073	4.3	29.7	51	147	0:44	2003Z
		081			42			
-TOD- N4658.5 W12253.9	8000	026	0.0	29.7	0	162	0:44	2003Z
		029			42			
KRNT N4729.6 W12212.9	32	026	3.7	26.0	42	158	0:59	2019Z
		029			-			

Figure 21-11. Top of Climb and Descent Waypoints

21.2.2 Standard Navlog

The Standard Navlog is available to all customers. The Standard Navlog for Premium, Business Performance, and MFB Performance customers have additional features described in Standard (PS) Navlog. The Standard Navlog is organized into sections:

- Standard Navlog Flight Summary Section
- Standard Navlog Planning Table Definitions
- Standard Navlog Planning Results Section
- Standard Navlog Winds Aloft Table
- Standard Navlog Summary & Times
- Standard Navlog Fuel & Weights Section
- Standard Navlog Notes Section
- Standard Navlog Airport Details

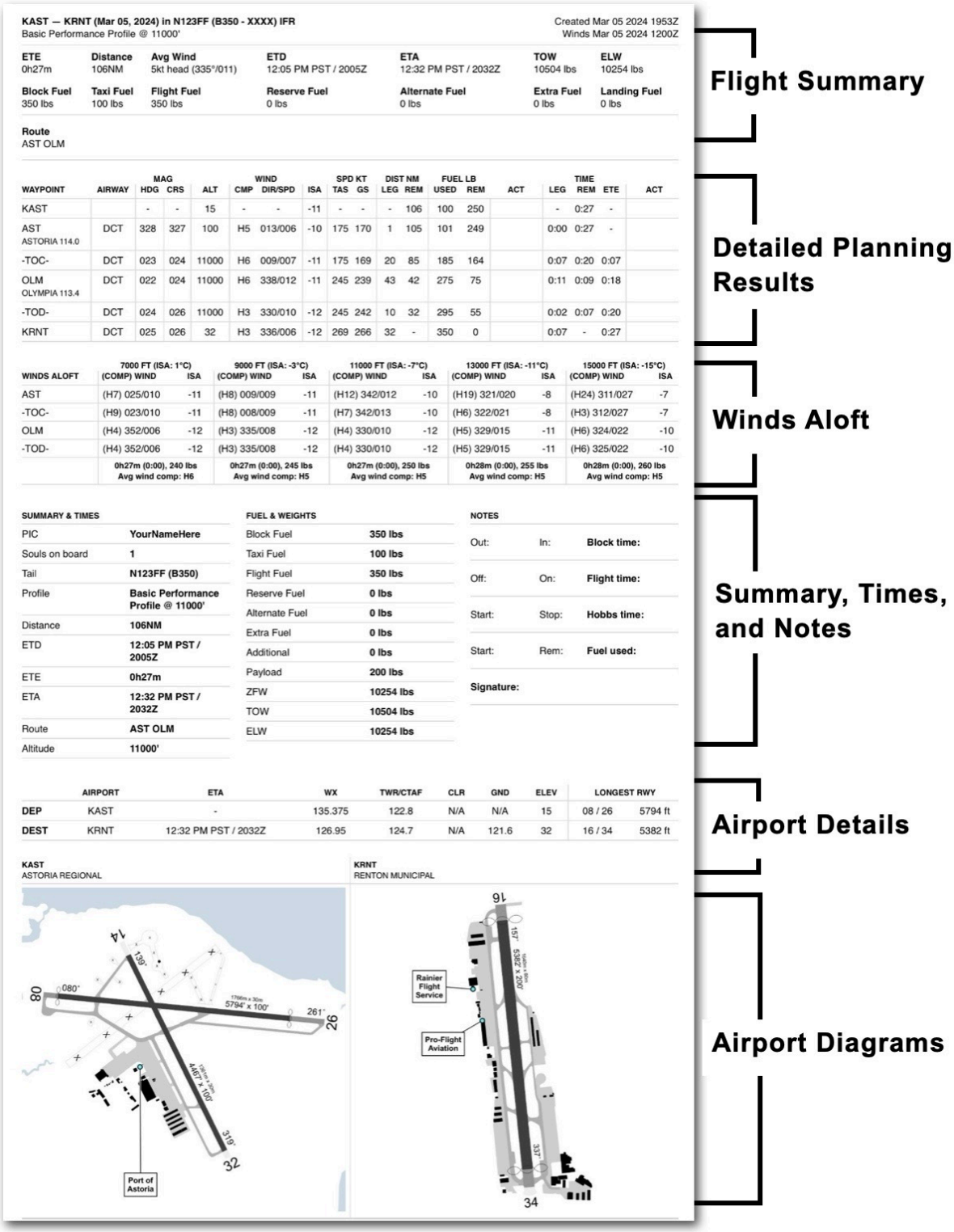


Figure 21-12. Standard Navlog

21.2.2.1 Standard Navlog Flight Summary Section

The Standard Navlog summary section provides an overview of the flight.

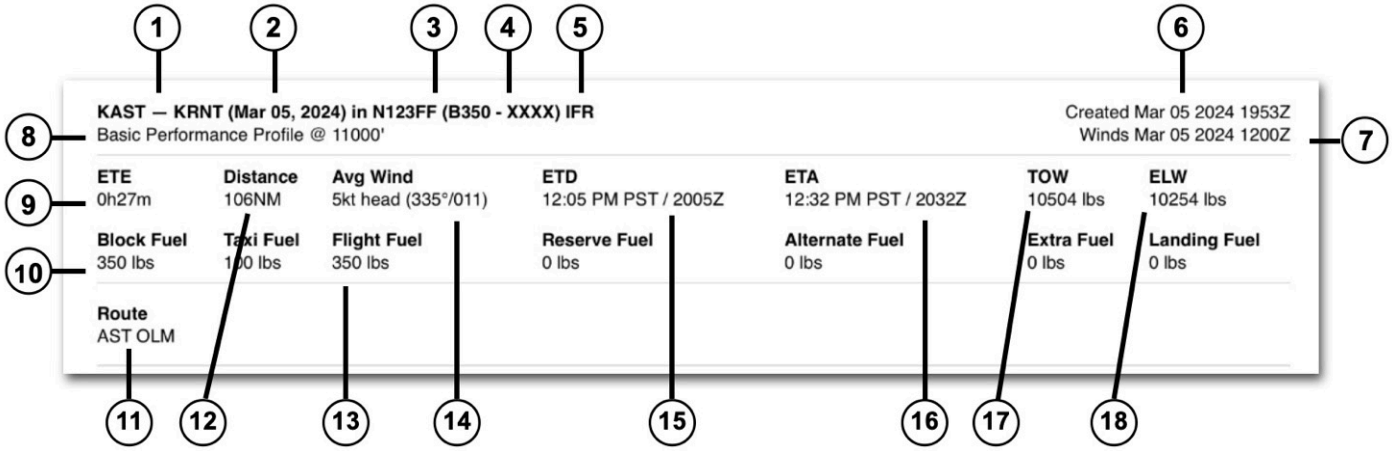


Figure 21-13. Standard Navlog Flight Summary

1. Departure and destination identifiers, names (for airports without identifiers), or lat/long coordinates (if the location is not an airport, navaid, or waypoint).
2. Departure date. The date format cannot be edited.
3. Aircraft registration (tail number). If a flight plan is filed with a callsign, the callsign is included in this section.
4. Aircraft type code.
5. Flight Rules.
6. Navlog generation timestamp.
7. Winds Aloft Observation Time. The observation time the wind forecast is based on (0000Z, 0600Z, 1200Z, or 1800Z).

   > **NOTE:** Winds aloft observations require 5-7 hours for processing. For example, a 1200Z forecast may not be available until 1900Z but is indexed as a 1200Z observation. Each forecast remains valid for up to 6 hours

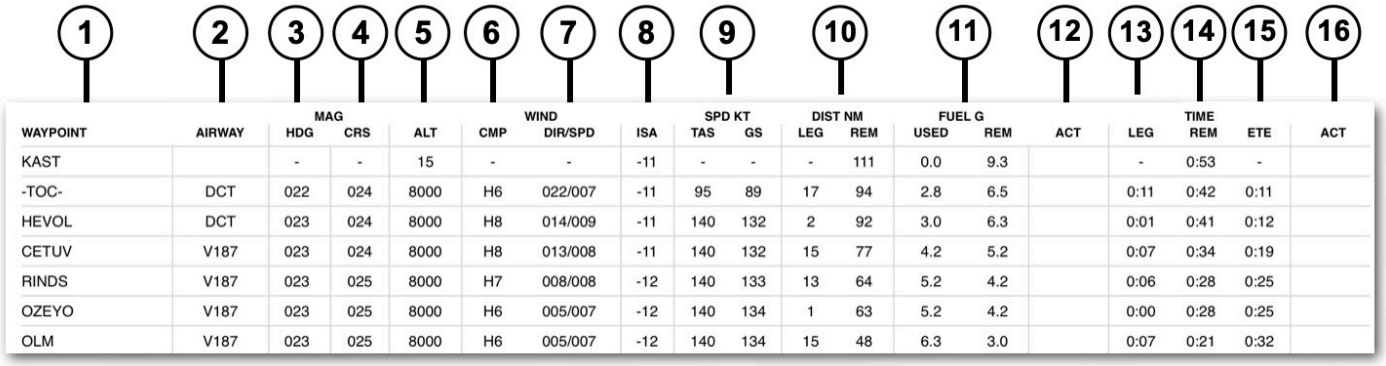
8. Selected aircraft performance profile.
9. Estimated flight time en route.
10. Block fuel is the sum of flight, alternate, reserve, and extra fuel.
11. Route waypoints (including airways, arrival and departure procedures, navaids, and waypoints) listed as identifiers or lat/long coordinates if there is no identifier.
12. Total distance along the route.
13. Total flight fuel.
14. Average wind and wind component for the duration of the flight.
15. Estimated departure time in departure time zone local and Zulu formats.

16. Estimated arrival time in local and Zulu formats.
17. Planned takeoff weight.
18. Estimated landing weight.

> **NOTE:** Reserve Fuel, Extra Fuel, and Landing Fuel are calculated only for Premium subscriptions and will show as 0 in the standard navlog.

21.2.2.2 Standard Navlog Planning Table Definitions

Definitions for the values found in the planning table:



		MAG			WIND			SPD KT		DIST NM		FUEL G			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KAST		-	-	15	-	-	-11	-	-	-	111	0.0	9.3		-	0:53	-	
-TOC-	DCT	022	024	8000	H6	022/007	-11	95	89	17	94	2.8	6.5		0:11	0:42	0:11	
HEVOL	DCT	023	024	8000	H8	014/009	-11	140	132	2	92	3.0	6.3		0:01	0:41	0:12	
CETUV	V187	023	024	8000	H8	013/008	-11	140	132	15	77	4.2	5.2		0:07	0:34	0:19	
RINDS	V187	023	025	8000	H7	008/008	-12	140	133	13	64	5.2	4.2		0:06	0:28	0:25	
OZEYO	V187	023	025	8000	H6	005/007	-12	140	134	1	63	5.2	4.2		0:00	0:28	0:25	
OLM	V187	023	025	8000	H6	005/007	-12	140	134	15	48	6.3	3.0		0:07	0:21	0:32	

Figure 21-14. Standard Navlog Planning Table

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route, top of climb and descent, and 100 NM waypoints) listed as identifiers or lat/long coordinates if there is no identifier.
2. Airway or terminal procedure by which the waypoint is defined. If no airway or terminal procedure defines the point, the route is direct (DCT).
3. Magnetic heading (magnetic course corrected for winds).
4. Magnetic course (true course corrected for geographic variation).
5. Altitude (MSL) at which the waypoint is crossed.
6. Average wind component for the leg (e.g., T8 is an eight-knot tailwind, and H4 is a four-knot headwind.
7. Average wind direction and speed for the leg at the planned altitude.
8. Temperature in degrees Celsius for the planned altitude in relation to the International Standard Atmosphere (ISA). For example, ISA at 14,000 feet is -12.5°C. A temperature of +9 in the Navlog results in an ambient temperature of -3.5°C at altitude.
9. Average true airspeed (TAS) and groundspeed (GS) for the leg.

10. Leg distance (left) and total flight distance remaining.
11. Estimated fuel required for the leg.
12. Blank field to record actual fuel used. This field cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.
13. Time required to complete the leg.
14. Estimated total time remaining for the flight.
15. Estimate total time en route when crossing the waypoint.
16. Blank field to record actual flight time. This field cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.

21.2.2.3 Standard Navlog Planning Results Section

Detailed per-leg flight planning results are provided via a table. The table includes each waypoint that defines the route, including those that are not explicitly included in the route but are a part of terminal procedures or airways.

Each waypoint row describes the leg of the flight leading to it from the previous waypoint. In the image below, the leg of the flight from HEVOL to CETUV is described on the row for CETUV. In other words, to get to the next waypoint, read the next waypoint row.

		MAG			WIND			SPD KT		DIST NM		FUEL G			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KAST		-	-	15	-	-	-11	-	-	-	111	0.0	9.3		-	0:53	-	
-TOC-	DCT	022	024	8000	H6	022/007	-11	95	89	17	94	2.8	6.5		0:11	0:42	0:11	
HEVOL	DCT	023	024	8000	H8	014/009	-11	140	132	2	92	3.0	6.3		0:01	0:41	0:12	
CETUV	V187	023	024	8000	H8	013/008	-11	140	132	15	77	4.2	5.2		0:07	0:34	0:19	
RINDS	V187	023	025	8000	H7	008/008	-12	140	133	13	64	5.2	4.2		0:06	0:28	0:25	
OZEYO	V187	023	025	8000	H6	005/007	-12	140	134	1	63	5.2	4.2		0:00	0:28	0:25	
OLM	V187	023	025	8000	H6	005/007	-12	140	134	15	48	6.3	3.0		0:07	0:21	0:32	

Figure 21-15. Standard Navlog Planning Results

International Navlog Routes with Legs Greater than 100 NM

If any leg in the route is longer than 100 NM, that leg is subdivided into 100 NM increments. Each of these increments becomes a new leg and is assigned a unique name representing the distance from it to the waypoint.

In Figure 595. International Navlog 100NM Segments, the leg **300-KOMA** is reached when the aircraft is 300 NM from KOMA.

If the waypoint is an airport without an identifier, the lat/long coordinates are listed instead, e.g. **300-5036N00827E** for 300 NM from Garbenheimer Weisen Airfield.

WAYPOINT	AIRWAY	MAG HDG	MAG CRS	ALT	WIND CMP	WIND DIR/SPD	ISA	SPD KT TAS	SPD KT GS	DIST NM LEG	DIST NM REM
KDFW		-	-	606	-	-	+7	0	0	-	507
500-KOMA	DCT	351	003	3900	T15	237/023	+7	80	95	7	500
-TOC-	DCT	340	003	14000	T16	258/033	+9	80	96	20	480
400-KOMA	DCT	345	003	14000	H6	276/041	+9	135	129	80	400
300-KOMA	DCT	343	003	14000	H8	276/046	+10	135	127	100	300
200-KOMA	DCT	349	003	14000	T4	262/036	+9	135	139	100	200
100-KOMA	DCT	352	004	14000	T4	261/028	+7	135	139	100	100
-TOD-	DCT	353	004	14000	T3	265/026	+5	135	138	38	62
KOMA	DCT	360	004	985	T8	222/018	+2	135	143	62	-

Figure 21-16. International Navlog 100NM Segments

International Navlog Top of Climb and Descent

The Basic Navlog includes waypoints for the TOC and TOD. These waypoints are calculated automatically using the latest weather forecasts and selected aircraft performance profile.

WAYPOINT	AIRWAY	MAG HDG	MAG CRS	ALT
KIAH		-	-	96
BBYSE	STYCK8	338	348	4500
SPICR	STYCK8	322	332	12100
-TOC-	STYCK8	323	332	14000
WLLIS	STYCK8	327	332	14000
STYCK	STYCK8	325	333	14000
-TOD-	DCT	334	346	14000
CQY CEDAR CREEK 114.8	DCT	331	345	13400
HOWDY	CQY1	304	314	10600
KDFW	CQY1	302	313	606

Figure 21-17. Standard Navlog Top of Climb and Descent Waypoints

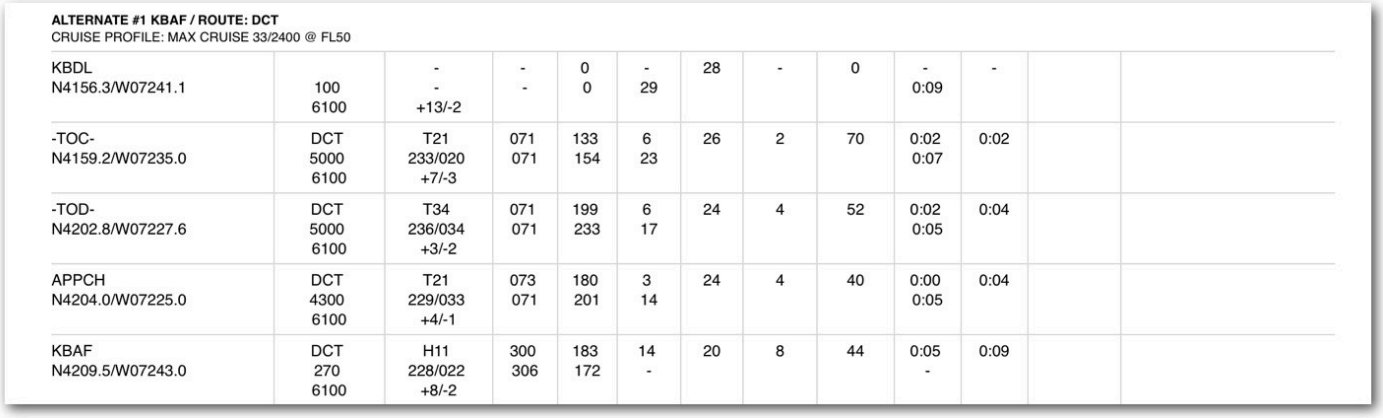
Standard Navlog Alternate Airports

When an alternate airport is included in the flight, the Navlog introduces an "APPCH" waypoint to add time and distance representative of the time and fuel required to fly a missed approach procedure and instrument approach.

With the exception of Dispatch accounts, alternate fuel calculations use the same cruise, climb, and descent profiles as the flight to calculate the fuel to the alternate airport.

The routing from the initial destination airport to the alternate airport is not direct, nor does it reflect a published approach. Rather, it serves as an estimate for flight planning purposes.

A fuel buffer is added to account for the additional routing and varies by aircraft type. Jet and Turboprop aircraft add a 30 NM buffer. Piston aircraft add a 15 NM buffer. No alternate buffer added when planning with a helicopter.



ALTERNATE #1 KBAF / ROUTE: DCT
CRUISE PROFILE: MAX CRUISE 33/2400 @ FL50

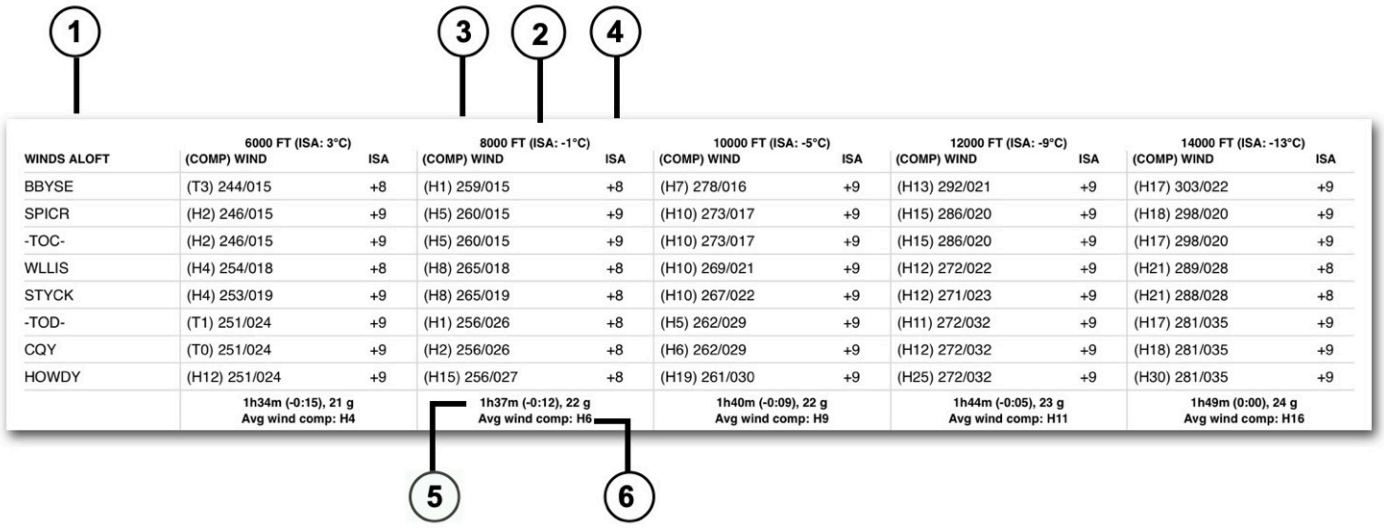
KBDL N4156.3/W07241.1	100 6100	- - +13/-2	- -	0 0	- 29	28	-	0	- 0:09	-		
-TOC- N4159.2/W07235.0	DCT 5000 6100	T21 233/020 +7/-3	071 071	133 154	6 23	26	2	70	0:02 0:07	0:02		
-TOD- N4202.8/W07227.6	DCT 5000 6100	T34 236/034 +3/-2	071 071	199 233	6 17	24	4	52	0:02 0:05	0:04		
APPCH N4204.0/W07225.0	DCT 4300 6100	T21 229/033 +4/-1	073 071	180 201	3 14	24	4	40	0:00 0:05	0:04		
KBAF N4209.5/W07243.0	DCT 270 6100	H11 228/022 +8/-2	300 306	183 172	14 -	20	8	44	0:05 -	0:09		

Figure 21-18. Alternate Airport Planning Results

21.2.2.4 Standard Navlog Winds Aloft Table

The Winds Aloft table includes forecast wind and temperatures at each waypoint for five different altitudes up to the planned cruise altitude in 2,000 ft increments. A brief summary is included at the bottom of each column. The summary reflects the flight planning results should the aircraft be flown at that particular altitude.

The winds and temperatures in this section reflect the forecast weather at the specific waypoint and not an average across route segments. To read the table, find the appropriate waypoint in the left column. Follow its row to the right to the desired altitude column.



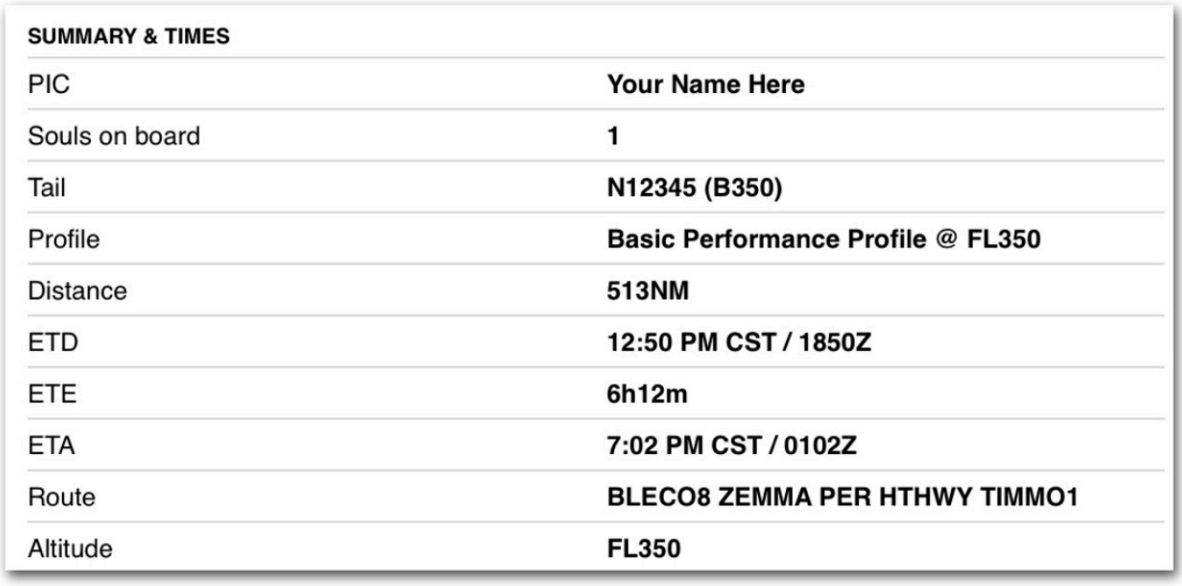
WINDS ALOFT	6000 FT (ISA: 3°C) (COMP) WIND	ISA	8000 FT (ISA: -1°C) (COMP) WIND	ISA	10000 FT (ISA: -5°C) (COMP) WIND	ISA	12000 FT (ISA: -9°C) (COMP) WIND	ISA	14000 FT (ISA: -13°C) (COMP) WIND	ISA
BBYSE	(T3) 244/015	+8	(H1) 259/015	+8	(H7) 278/016	+9	(H13) 292/021	+9	(H17) 303/022	+9
SPICR	(H2) 246/015	+9	(H5) 260/015	+9	(H10) 273/017	+9	(H15) 286/020	+9	(H18) 298/020	+9
-TOC-	(H2) 246/015	+9	(H5) 260/015	+9	(H10) 273/017	+9	(H15) 286/020	+9	(H17) 298/020	+9
WLLIS	(H4) 254/018	+8	(H8) 265/018	+8	(H10) 269/021	+9	(H12) 272/022	+9	(H21) 289/028	+8
STYCK	(H4) 253/019	+9	(H8) 265/019	+8	(H10) 267/022	+9	(H12) 271/023	+9	(H21) 288/028	+8
-TOD-	(T1) 251/024	+9	(H1) 256/026	+8	(H5) 262/029	+9	(H11) 272/032	+9	(H17) 281/035	+9
CQY	(T0) 251/024	+9	(H2) 256/026	+8	(H6) 262/029	+9	(H12) 272/032	+9	(H18) 281/035	+9
HOWDY	(H12) 251/024	+9	(H15) 256/027	+8	(H19) 261/030	+9	(H25) 272/032	+9	(H30) 281/035	+9
	1h34m (-0:15), 21 g Avg wind comp: H4		1h37m (-0:12), 22 g Avg wind comp: H6		1h40m (-0:09), 22 g Avg wind comp: H9		1h44m (-0:05), 23 g Avg wind comp: H11		1h49m (0:00), 24 g Avg wind comp: H16	

Figure 21-19. Standard Navlog Winds Aloft

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route) listed as identifiers or lat/long coordinates if there is no identifier.
2. International Standard Atmospheric (ISA) temperature rounded to the nearest degree for the altitude (e.g., 6000 FT ISA 3ºC).
3. Wind component at the waypoint (in parenthesis). For example, (T8) is an eight-knot tailwind, and (H4) is a four-knot headwind. Forecast true wind direction and speed to the right of the wind component.
4. Temperature in degrees Celsius compared to the International Standard Atmospheric temperature (ISA).
5. From left to right: Estimated time en route for the altitude column. Estimated time en route difference (rounded to the nearest minute) compared to the planned cruise altitude. Required fuel for the altitude column.
6. Average wind component of the entire flight for the altitude column.

21.2.2.5 Standard Navlog Summary & Times

The Summary & Times section contains information sourced from the Flights page, the user account, and the flight plan filing form.



SUMMARY & TIMES	
PIC	**Your Name Here**
Souls on board	**1**
Tail	**N12345 (B350)**
Profile	**Basic Performance Profile @ FL350**
Distance	**513NM**
ETD	**12:50 PM CST / 1850Z**
ETE	**6h12m**
ETA	**7:02 PM CST / 0102Z**
Route	**BLECO8 ZEMMA PER HTHWY TIMMO1**
Altitude	**FL350**

Figure 21-20. Standard Navlog Summary & Times

PIC

Automatically populated with the name associated with the account. Tap **More → Account** to change the name.

Souls on board

1 is the default entry. If a flight plan is filed, the Persons on Board field is copied from the filing form to this section of the Navlog. Premium customers can edit this field using the Payload section.

Tail

The selected registration number and type code.

Profile

The selected Performance Profile.

Distance

The total distance along the route.

ETD

The estimated departure time in local and Zulu formats.

ETE

The estimated time en route for the planned cruise altitude.

ETA

The estimated arrival time in local and Zulu formats.

Route

Waypoints, including airways, arrival and departure procedures, navaids, and waypoints.

Altitude

The planned cruise altitude.

21.2.2.6 Standard Navlog Fuel & Weights Section

The Fuel & Weights section contains information sourced from Flights and Aircraft pages.

FUEL & WEIGHTS	
Block Fuel	**20.2 g**
Taxi Fuel	**0.0 g**
Flight Fuel	**8.4 g**
Reserve Fuel	**0.0 g**
Alternate Fuel KPDX	**11.8 g**
Extra Fuel	**0.0 g**
Additional	**0.0 g**
Payload	**200 lbs**
ZFW	**1933 lbs**
TOW	**2054 lbs**
ELW	**2004 lbs**

Figure 21-21. Standard Navlog Fuel & Weights

Block Fuel

Total of flight and alternate fuel.

Taxi Fuel

Not computed for the Standard Navlog.

> **Flight Fuel**
>
> Total flight fuel.

> **Reserve Fuel**
>
> Not computed for the Standard Navlog.

> **Alternate Fuel**
>
> The fuel required to reach the alternate destination.

> **Extra Fuel**
>
> Not computed for the Standard Navlog.

> **Additional Fuel**
>
> Additional ETP fuel added to ensure the aircraft can reach each alternate ETP airport with the necessary fuel at landing.

> **Payload**
>
> Total payload (passengers and cargo).

> **ZFW**
>
> Zero fuel weight.

> **TOW**
>
> Takeoff weight.

> **ELW**
>
> Estimated landing weight.

21.2.2.7 Standard Navlog Notes Section

The Notes section provides blank fields for manually recording flight times. These fields cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs.



Figure 21-22. Standard Navlog Notes

21.2.2.8 Standard Navlog Airport Details

The Airport Details section includes commonly used airport frequencies, field elevation, longest runway, and FBO location details.

> **NOTE:** Only one listing is shown for each radio frequency category. To review additional frequencies see Info Tab.

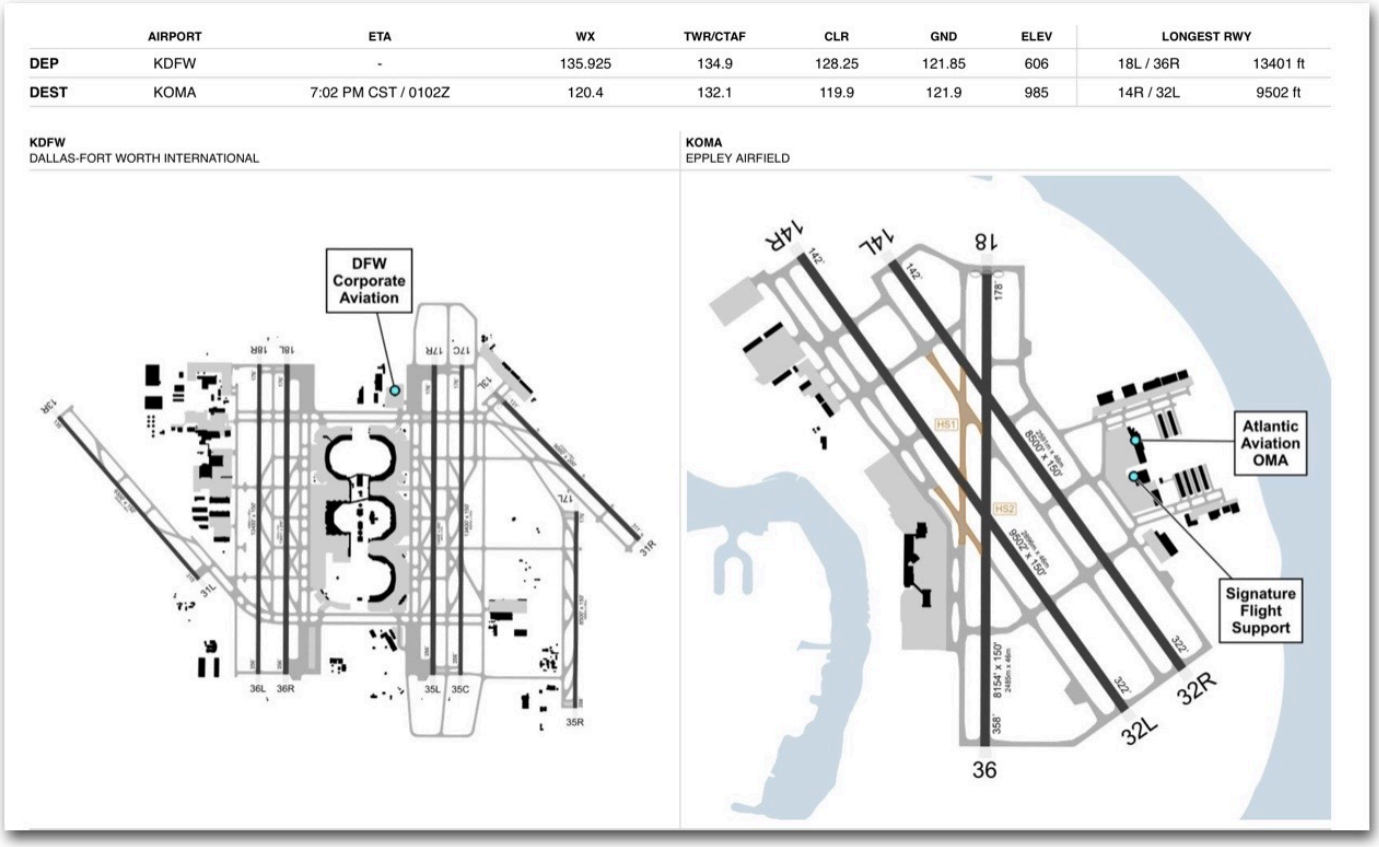


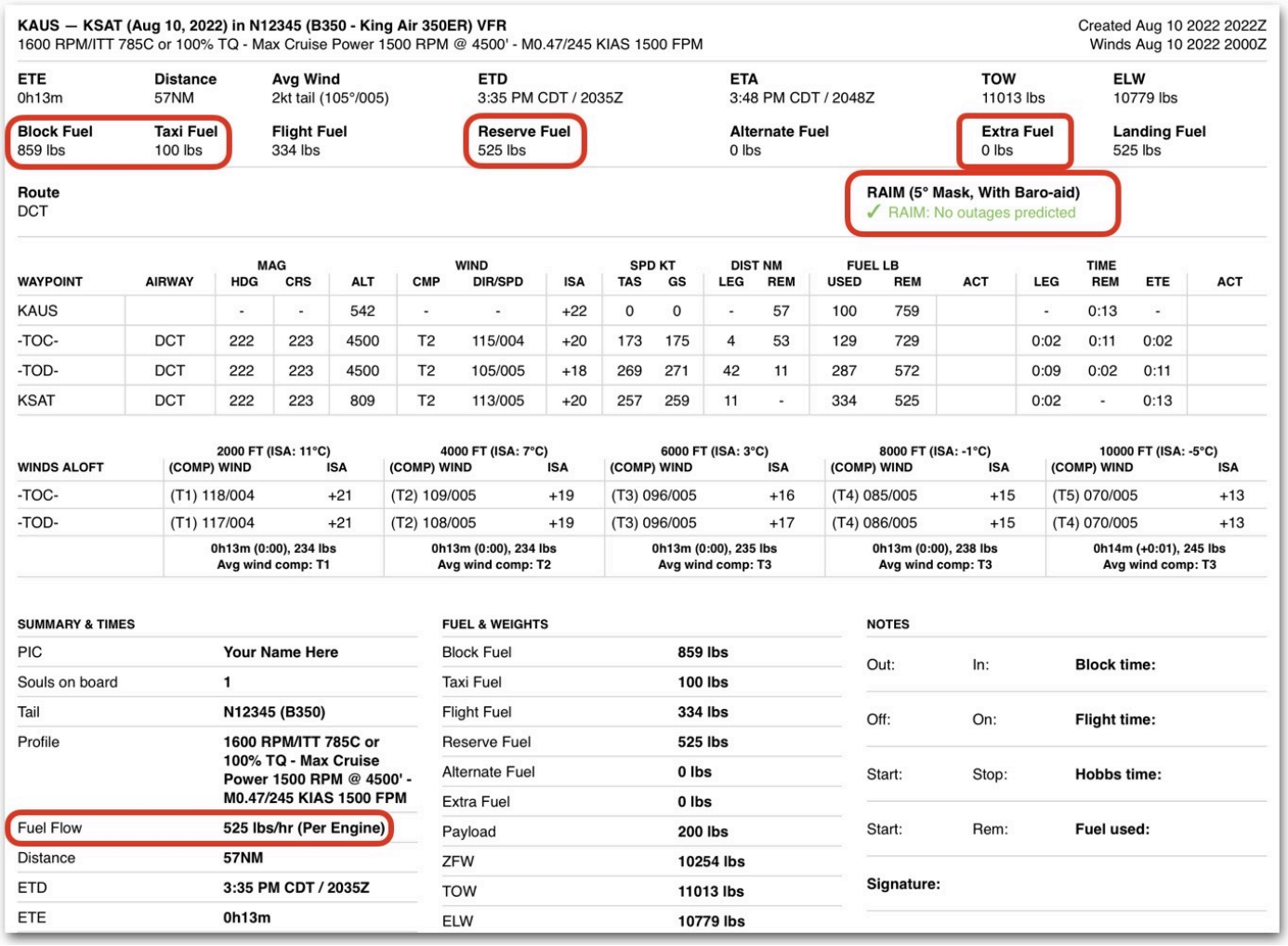
Figure 21-23. Standard Navlog Airport Details

21.2.3 Standard (PS) Navlog

The Standard (PS) Navlog is only available to Premium, Business Performance, and MFB Performance customers. The Navlog Settings (gear) button in the upper toolbar provides the option to toggle between Basic, Standard, and International Navlog formats.

The Performance Standard Navlog is identical to the Standard Navlog, with additional features. Those additional features are circled below and discussed in this section.

> **NOTE:** The Navlog selection menu does not differentiate between Standard and Standard (PS) Navlogs. The generated Standard Navlog will automatically contain subscription-level data.



KAUS — KSAT (Aug 10, 2022) in N12345 (B350 - King Air 350ER) VFR
1600 RPM/ITT 785C or 100% TQ - Max Cruise Power 1500 RPM @ 4500' - M0.47/245 KIAS 1500 FPM

Created Aug 10 2022 2022Z
Winds Aug 10 2022 2000Z

ETE	Distance	Avg Wind	ETD	ETA	TOW	ELW
0h13m	57NM	2kt tail (105°/005)	3:35 PM CDT / 2035Z	3:48 PM CDT / 2048Z	11013 lbs	10779 lbs

Block Fuel	Taxi Fuel	Flight Fuel	Reserve Fuel	Alternate Fuel	Extra Fuel	Landing Fuel
859 lbs	100 lbs	334 lbs	525 lbs	0 lbs	0 lbs	525 lbs

Route
DCT

RAIM (5° Mask, With Baro-aid)
✓ RAIM: No outages predicted

		MAG			WIND			SPD KT		DIST NM		FUEL LB			TIME			
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM	USED	REM	ACT	LEG	REM	ETE	ACT
KAUS		-	-	542	-	-	+22	0	0	-	57	100	759		-	0:13	-	
-TOC-	DCT	222	223	4500	T2	115/004	+20	173	175	4	53	129	729		0:02	0:11	0:02	
-TOD-	DCT	222	223	4500	T2	105/005	+18	269	271	42	11	287	572		0:09	0:02	0:11	
KSAT	DCT	222	223	809	T2	113/005	+20	257	259	11	-	334	525		0:02	-	0:13	

	2000 FT (ISA: 11°C)		4000 FT (ISA: 7°C)		6000 FT (ISA: 3°C)		8000 FT (ISA: -1°C)		10000 FT (ISA: -5°C)	
WINDS ALOFT	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA	(COMP) WIND	ISA
-TOC-	(T1) 118/004	+21	(T2) 109/005	+19	(T3) 096/005	+16	(T4) 085/005	+15	(T5) 070/005	+13
-TOD-	(T1) 117/004	+21	(T2) 108/005	+19	(T3) 096/005	+17	(T4) 086/005	+15	(T4) 070/005	+13
	0h13m (0:00), 234 lbs Avg wind comp: T1		0h13m (0:00), 234 lbs Avg wind comp: T2		0h13m (0:00), 235 lbs Avg wind comp: T3		0h13m (0:00), 238 lbs Avg wind comp: T3		0h14m (+0:01), 245 lbs Avg wind comp: T3	

SUMMARY & TIMES	
PIC	Your Name Here
Souls on board	1
Tail	N12345 (B350)
Profile	1600 RPM/ITT 785C or 100% TQ - Max Cruise Power 1500 RPM @ 4500' - M0.47/245 KIAS 1500 FPM
Fuel Flow	525 lbs/hr (Per Engine)
Distance	57NM
ETD	3:35 PM CDT / 2035Z
ETE	0h13m

FUEL & WEIGHTS	
Block Fuel	859 lbs
Taxi Fuel	100 lbs
Flight Fuel	334 lbs
Reserve Fuel	525 lbs
Alternate Fuel	0 lbs
Extra Fuel	0 lbs
Payload	200 lbs
ZFW	10254 lbs
TOW	11013 lbs
ELW	10779 lbs

NOTES

Out: In: **Block time:**

Off: On: **Flight time:**

Start: Stop: **Hobbs time:**

Start: Rem: **Fuel used:**

Signature:

Figure 21-24. Standard Navlog Additional Features

21.2.3.1 Additional Performance Standard Navlog Features

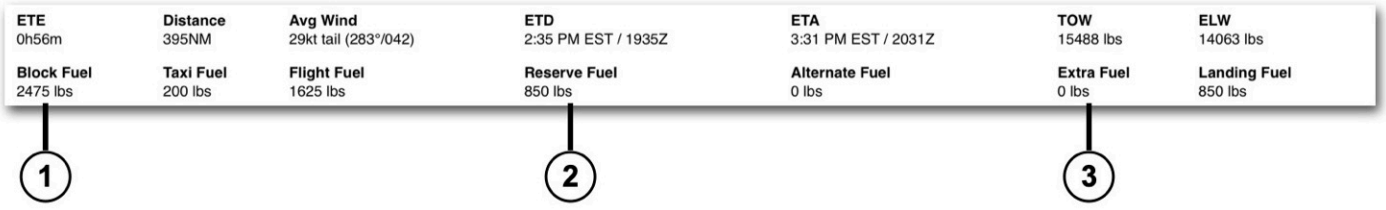


Figure 21-25. Additional Navlog Features

The following features are only included with the Performance Standard Navlog.

1. Block fuel refers to the total quantity of fuel in the tanks prior to engine start (sum of flight, alternate, reserve, and extra fuel).
2. The default amount of reserve fuel specified in the aircraft profile or from a manual entry on the flight planning form.

3. Extra fuel specified by the fuel policy or from a manual entry.

Performance Standard Navlog RAIM Prediction

The Performance Standard Navlog can include a RAIM prediction for the flight. If conducted, the RAIM calculation will indicate whether or not outages are predicted.

This calculation is conducted assuming the aircraft is equipped with barometric pressure-aiding equipment and the GPS antenna is installed on the airframe to ensure a maximum 5-degree airframe mask angle.

The Standard Navlog includes RAIM prediction for any flight that meets one of the following criteria.

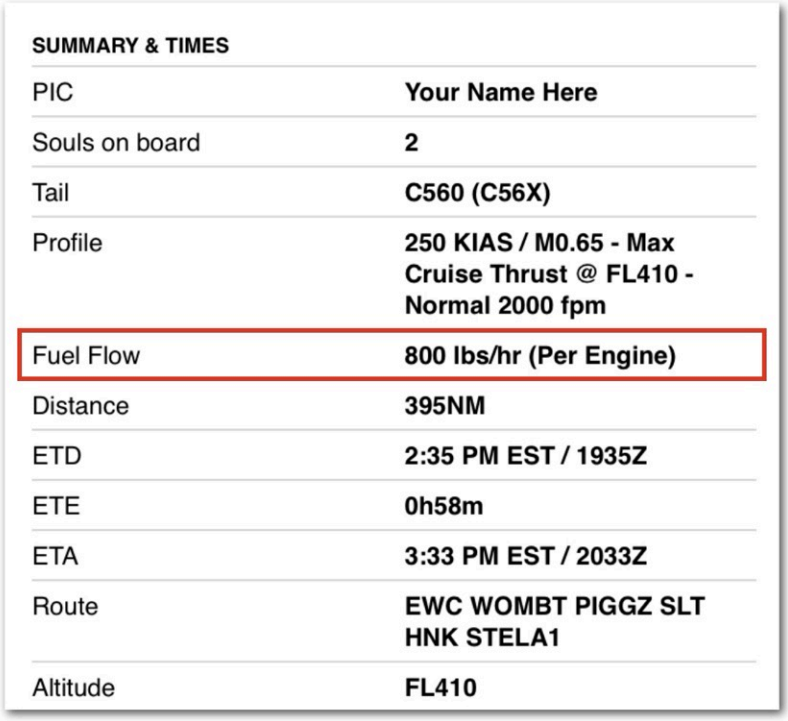
- The flight is conducted entirely within the continental United States, Alaska, Hawaii, or Puerto Rico.
- The flight begins and ends in the continental United States and spends less than or equal to 15 minutes in Canadian airspace.
- The flight begins and ends in the continental United States and spends less than or equal to 15 minutes in Mexican airspace.
- The flight begins and ends in Alaska and spends less than or equal to 15 minutes in Canadian airspace.



Figure 21-26. RAIM Prediction

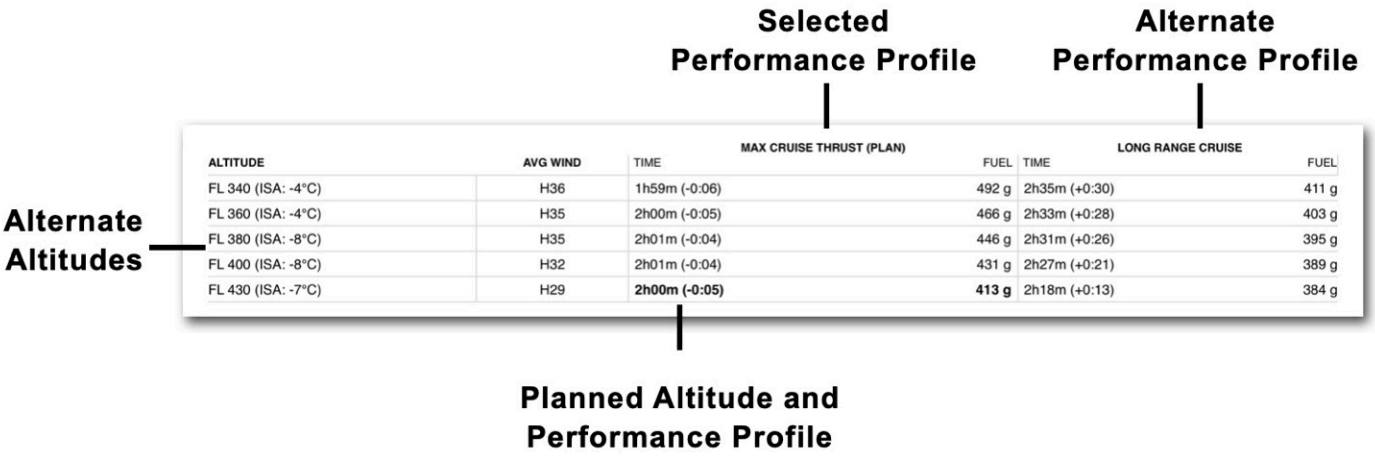
Performance Standard Navlog Fuel Flow

The Performance Standard Navlog includes a Fuel Flow field in the Summary & Times section. This is a calculated value that reflects the average fuel flow for the entirety of the flight.



SUMMARY & TIMES	
PIC	Your Name Here
Souls on board	2
Tail	C560 (C56X)
Profile	250 KIAS / M0.65 - Max Cruise Thrust @ FL410 - Normal 2000 fpm
Fuel Flow	800 lbs/hr (Per Engine)
Distance	395NM
ETD	2:35 PM EST / 1935Z
ETE	0h58m
ETA	3:33 PM EST / 2033Z
Route	EWC WOMBT PIGGZ SLT HNK STELA1
Altitude	FL410

Figure 21-27. PS Navlog Fuel Flow



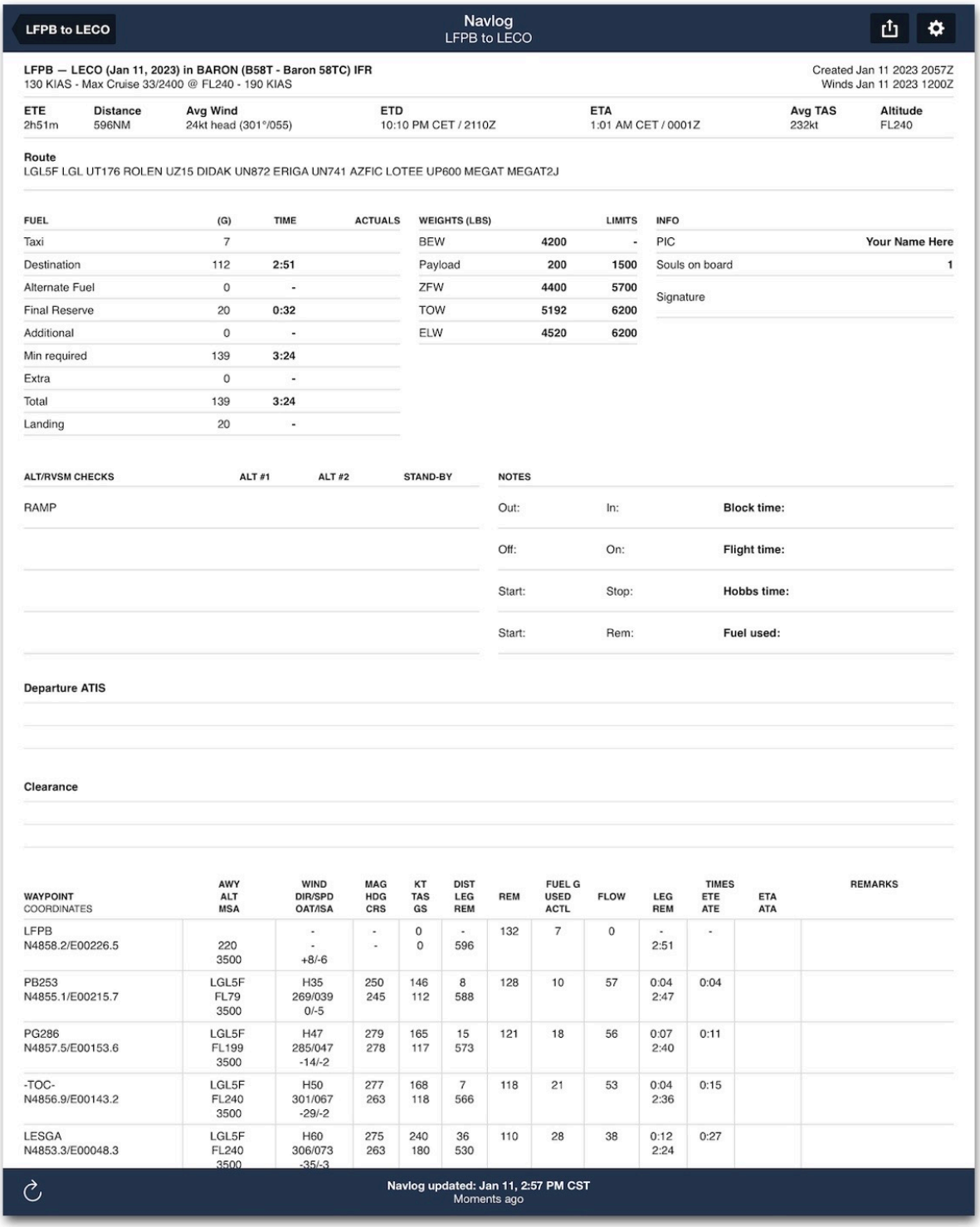
		MAX CRUISE THRUST (PLAN)		LONG RANGE CRUISE	
ALTITUDE	AVG WIND	TIME	FUEL	TIME	FUEL
FL 340 (ISA: -4°C)	H36	1h59m (-0:06)	492 g	2h35m (+0:30)	411 g
FL 360 (ISA: -4°C)	H35	2h00m (-0:05)	466 g	2h33m (+0:28)	403 g
FL 380 (ISA: -8°C)	H35	2h01m (-0:04)	446 g	2h31m (+0:26)	395 g
FL 400 (ISA: -8°C)	H32	2h01m (-0:04)	431 g	2h27m (+0:21)	389 g
FL 430 (ISA: -7°C)	H29	**2h00m (-0:05)**	**413 g**	2h18m (+0:13)	384 g

Figure 21-28. Performance Profile

21.2.4 International Navlog

The International Navlog is only available to Premium, Business Performance, and MFB Performance customers. The Navlog Settings (gear) button in the upper toolbar can be used to toggle between the International and Standard Navlog formats.

The International Navlog contains much of the same information as the Standard and Performance Standard Navlogs, however, it also includes fields pertinent to international flights.



LFPB to LECO

Navlog
LFPB to LECO

LFPB — LECO (Jan 11, 2023) in BARON (B58T - Baron 58TC) IFR
130 KIAS - Max Cruise 33/2400 @ FL240 - 190 KIAS

Created Jan 11 2023 2057Z
Winds Jan 11 2023 1200Z

ETE	Distance	Avg Wind	ETD	ETA	Avg TAS	Altitude
2h51m	596NM	24kt head (301°/055)	10:10 PM CET / 2110Z	1:01 AM CET / 0001Z	232kt	FL240

Route
LGL5F LGL UT176 ROLEN UZ15 DIDAK UN872 ERIGA UN741 AZFIC LOTEE UP600 MEGAT MEGAT2J

FUEL	(G)	TIME	ACTUALS
Taxi	7		
Destination	112	2:51	
Alternate Fuel	0	-	
Final Reserve	20	0:32	
Additional	0	-	
Min required	139	3:24	
Extra	0	-	
Total	139	3:24	
Landing	20	-	

WEIGHTS (LBS)		LIMITS
BEW	4200	-
Payload	200	1500
ZFW	4400	5700
TOW	5192	6200
ELW	4520	6200

INFO	
PIC	Your Name Here
Souls on board	1
Signature	

ALT/RVSM CHECKS	ALT #1	ALT #2	STAND-BY
RAMP			

NOTES		
Out:	In:	**Block time:**
Off:	On:	**Flight time:**
Start:	Stop:	**Hobbs time:**
Start:	Rem:	**Fuel used:**

Departure ATIS

Clearance

WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL G USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +8/-6	- -	0 0	- 596	132	7	0	- 2:51	-		
PB253 N4855.1/E00215.7	LGL5F FL79 3500	H35 269/039 0/-5	250 245	146 112	8 588	128	10	57	0:04 2:47	0:04		
PG286 N4857.5/E00153.6	LGL5F FL199 3500	H47 285/047 -14/-2	279 278	165 117	15 573	121	18	56	0:07 2:40	0:11		
-TOC- N4856.9/E00143.2	LGL5F FL240 3500	H50 301/067 -29/-2	277 263	168 118	7 566	118	21	53	0:04 2:36	0:15		
LESGA N4853.3/E00048.3	LGL5F FL240 3500	H60 306/073 -35/-3	275 263	240 180	36 530	110	28	38	0:12 2:24	0:27		

Navlog updated: Jan 11, 2:57 PM CST
Moments ago

Figure 21-29. International Navlog

21.2.4.1 International Navlog Layout

The International Navlog is organized into sections:

International Navlog Flight Summary International Navlog Blank Fields

International Navlog Planning Results
International Navlog Comparison Table
International Navlog Airport Details
International Navlog Arrival ATIS
International Navlog Flight Information Region
International Navlog ICAO Flight Plan

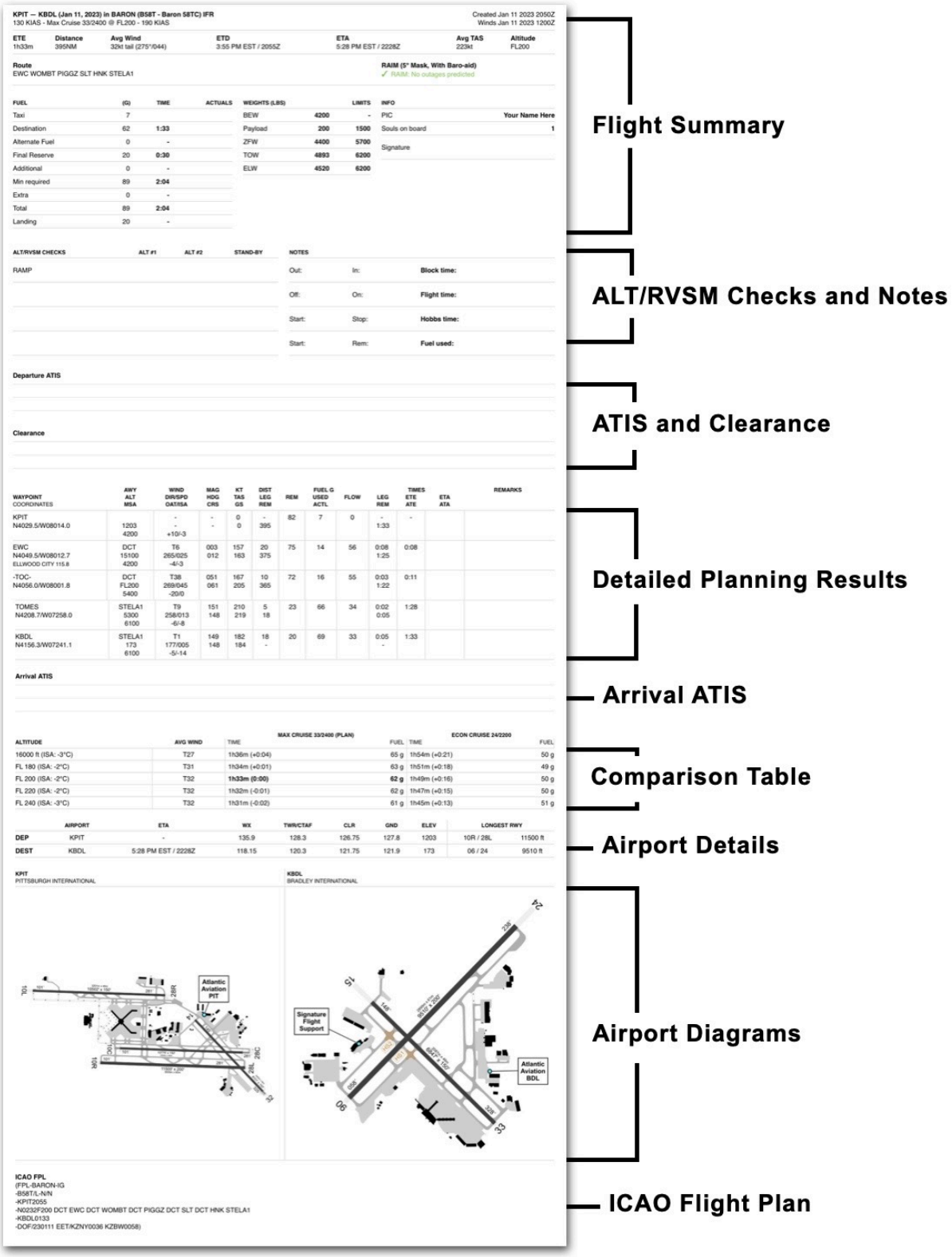


Figure 21-30. International Navlog Layout

21.2.4.2 International Navlog Flight Summary

The International Navlog summary section provides an overview of the flight.

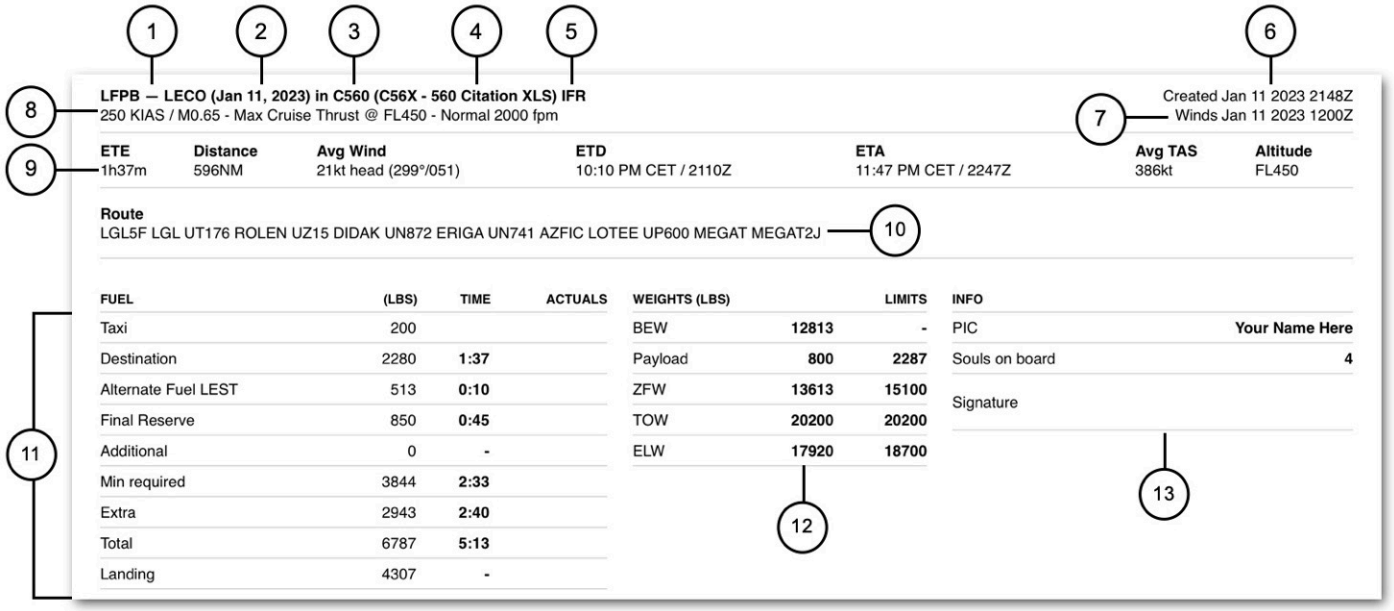


Figure 21-31. International Navlog Flight Summary

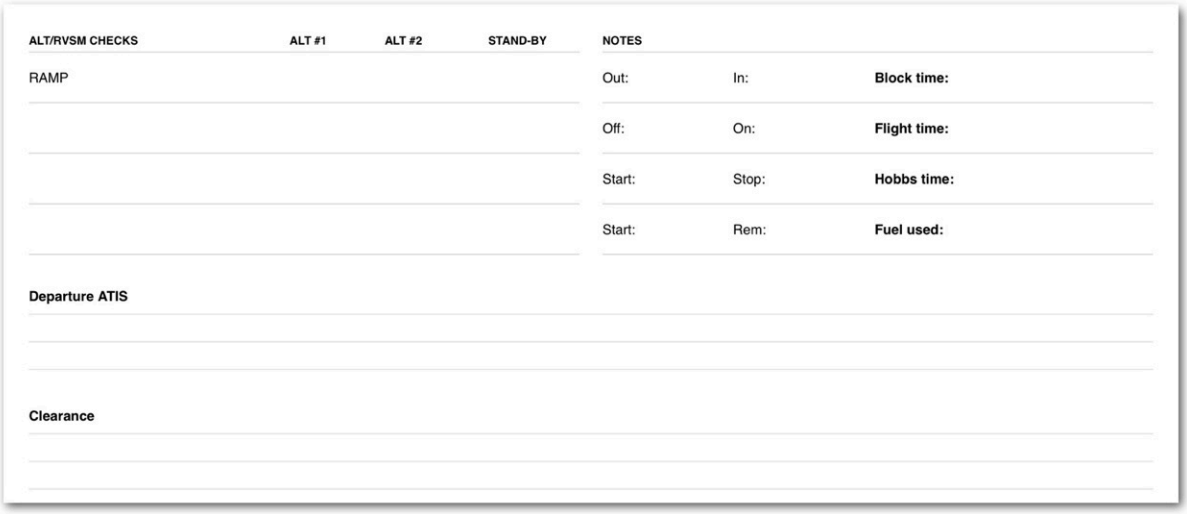
1. Departure and destination identifiers, names (for airports without identifiers), or coordinates (if the location is not an airport, navaid, or waypoint).
2. Departure date. The date format cannot be edited.
3. Aircraft registration (tail number). If a flight plan is filed with a callsign, the callsign is included in this section.
4. Aircraft type code.
5. Flight Rules.
6. Navlog generation timestamp.
7. Winds aloft data timestamp.
8. Selected aircraft performance profile.
9. From left to right:
   - Estimated flight time en route.
   - Total route distance.
   - Average wind component, direction, and speed.
   - Estimated departure time in local and Zulu formats.
   - Estimated arrival time in local and Zulu formats.
   - Average true airspeed for the entirety of the flight.
   - Planned cruise altitude.
10. Route waypoints (including airways, arrival and departure procedures, navaids, and waypoints) listed as identifiers or lat/long coordinates if there is no identifier.

11. The Fuel section includes required and optional fuel amounts. When a time is provided, it is calculated at the en route cruise fuel flow. The Actuals column can be used to record actual fuel amounts during flight. From top to bottom, the fuel section includes:
    - Taxi fuel as specified in the Aircraft profile or manually edited on Flights.
    - Total flight fuel and flight time.
    - Total fuel and time required for the alternate airport (if specified).
    - Total reserve fuel amount and time.
    - Total additional fuel amount and time.
    - Minimum fuel required with
    - Extra fuel amount and time.
    - Total planned fuel amount (sum of taxi, destination, alternate, final reserve, additional, extra, and additional fuel).
    - Fuel amount at landing.
12. The Weights section includes planned and aircraft weight limits. If a limit is exceeded, the Navlog does *not* display an error message or change the text to indicate the exceedance. Weights include, from top to bottom:
    - The BEW as defined by the aircraft profile.
    - Total payload (passengers and cargo).
    - Zero fuel weight and maximum zero fuel weight capacity.
    - Planned takeoff weight and maximum takeoff weight for the aircraft.
    - Estimated landing weight and maximum landing weight for the aircraft.
13. The Info section contains the following fields:
    - PIC is automatically populated with the name associated with the account. Tap **More ➔ Accounts** to change the name.
    - Souls on board is copied from the Flight's payload section.
    - The Signature field can be signed after the navlog is printed or using an annotation-capable PDF viewer.

21.2.4.3 International Navlog Blank Fields

The following section can be used to record altitudes, times, fuel amounts, weather observations, IFR clearances, or any other notes deemed appropriate.

The Navlog must be printed or opened with a viewer capable of editing PDFs to record actual fuel amounts, as the International Navlog is a read-only document.



ALT/RVSM CHECKS	ALT #1	ALT #2	STAND-BY	NOTES		
RAMP				Out:	In:	**Block time:**
				Off:	On:	**Flight time:**
				Start:	Stop:	**Hobbs time:**
				Start:	Rem:	**Fuel used:**

Departure ATIS

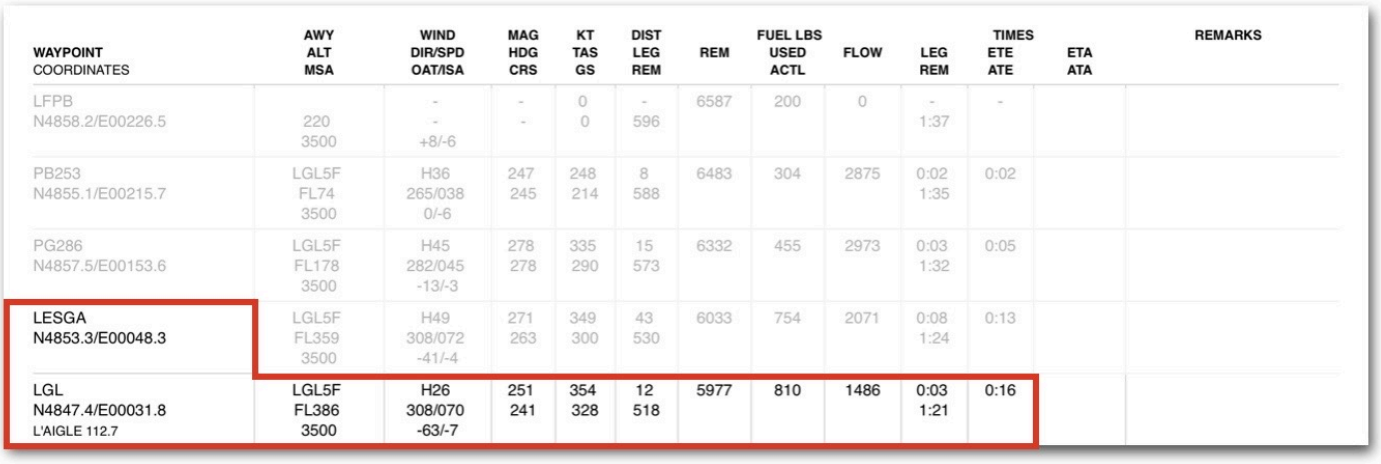
Clearance

Figure 21-32. International Navlog Blank Fields

21.2.4.4 International Navlog Planning Results

Detailed per-leg flight planning results are provided via a table. The table includes each waypoint that defines the route, including those that are not explicitly included in the route but are a part of terminal procedures or airways.

Planning results for two adjacent waypoints are located on the bottom row of the two waypoints. For example, the heading, distance, and speed requirements between LESGA and LGL are located on the lower row of the two rows. In other words, once a waypoint is crossed, the applicable flight details for the next leg are on the following row.



WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD OAT/ISA	MAG HDG CRS	KT TAS GS	DIST LEG REM	REM	FUEL LBS USED ACTL	FLOW	LEG REM	TIMES ETE ATE	ETA ATA	REMARKS
LFPB N4858.2/E00226.5	 220 3500	- - +8/-6	- -	0 0	- 596	6587	200	0	- 1:37	-		
PB253 N4855.1/E00215.7	LGL5F FL74 3500	H36 265/038 0/-6	247 245	248 214	8 588	6483	304	2875	0:02 1:35	0:02		
PG286 N4857.5/E00153.6	LGL5F FL178 3500	H45 282/045 -13/-3	278 278	335 290	15 573	6332	455	2973	0:03 1:32	0:05		
LESGA N4853.3/E00048.3	LGL5F FL359 3500	H49 308/072 -41/-4	271 263	349 300	43 530	6033	754	2071	0:08 1:24	0:13		
LGL N4847.4/E00031.8 L'AIGLE 112.7	LGL5F FL386 3500	H26 308/070 -63/-7	251 241	354 328	12 518	5977	810	1486	0:03 1:21	0:16		

Figure 21-33. How to Read Planning Results from LESGA to LGL

International Navlog Routes with Legs Greater than 100 NM

If any leg in the route is longer than 100 NM, that leg is subdivided into 100 NM increments. Each of these increments becomes a new leg and is assigned a unique name representing the distance from it to the waypoint.

In Figure 613. International Navlog 100NM Segments, the leg **300-KOMA** is reached when the aircraft is 300 NM from KOMA.

If the waypoint is an airport without an identifier, the lat/long coordinates are listed instead, e.g. **300-5036N00827E** for 300 NM from Garbenheimer Weisen Airfield.

		MAG			WIND			SPD KT		DIST NM	
WAYPOINT	AIRWAY	HDG	CRS	ALT	CMP	DIR/SPD	ISA	TAS	GS	LEG	REM
KDFW		-	-	606	-	-	+7	0	0	-	507
500-KOMA	DCT	351	003	3900	T15	237/023	+7	80	95	7	500
-TOC-	DCT	340	003	14000	T16	258/033	+9	80	96	20	480
400-KOMA	DCT	345	003	14000	H6	276/041	+9	135	129	80	400
300-KOMA	DCT	343	003	14000	H8	276/046	+10	135	127	100	300
200-KOMA	DCT	349	003	14000	T4	262/036	+9	135	139	100	200
100-KOMA	DCT	352	004	14000	T4	261/028	+7	135	139	100	100
-TOD-	DCT	353	004	14000	T3	265/026	+5	135	138	38	62
KOMA	DCT	360	004	985	T8	222/018	+2	135	143	62	-

Figure 21-34. International Navlog 100NM Segments

International Navlog Top of Climb and Descent

The Basic Navlog includes waypoints for the TOC and TOD. These waypoints are calculated automatically using the latest weather forecasts and selected aircraft performance profile.

WAYPOINT	AIRWAY	MAG HDG	MAG CRS	ALT
KIAH		-	-	96
BBYSE	STYCK8	338	348	4500
SPICR	STYCK8	322	332	12100
-TOC-	STYCK8	323	332	14000
WLLIS	STYCK8	327	332	14000
STYCK	STYCK8	325	333	14000
-TOD-	DCT	334	346	14000
CQY CEDAR CREEK 114.8	DCT	331	345	13400
HOWDY	CQY1	304	314	10600
KDFW	CQY1	302	313	606

Figure 21-35. Standard Navlog Top of Climb and Descent Waypoints

International Navlog Table Definitions

Definitions for the values found in the planning table are given below. All definitions are given per column from top to bottom. Blank fields cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs to record actuals.

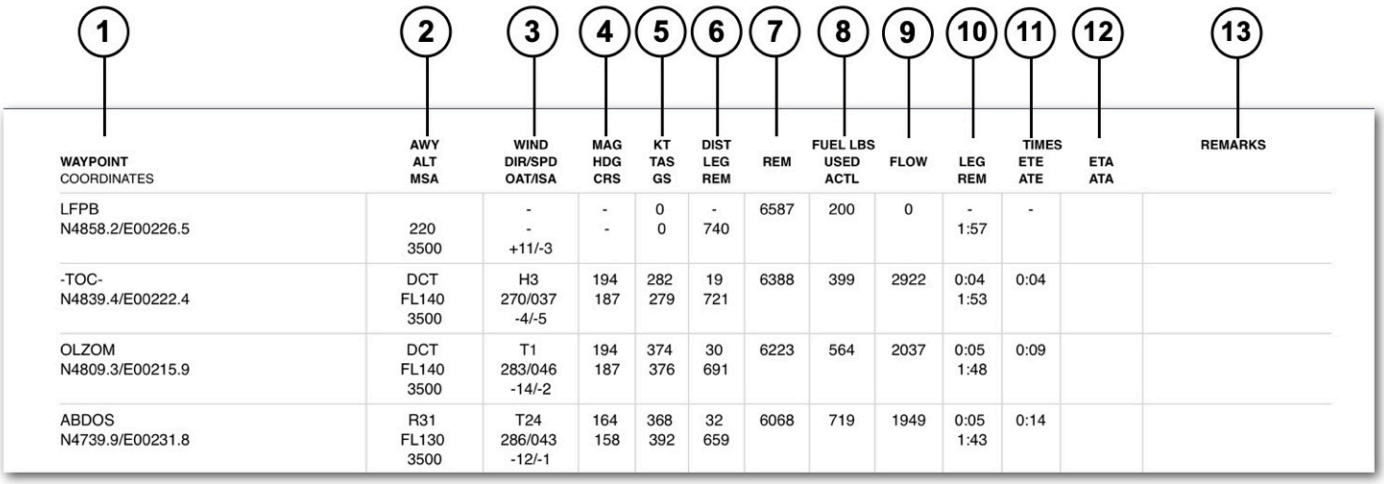


Figure 21-36. International Navlog Table

1. Route waypoints (including airway and terminal procedure waypoints not explicitly included in the route) listed as identifiers or lat/long coordinates for airports without identifiers. Coordinates for waypoints are included in the Degree, Minute, Decimal Minute (DDMM.m) format and cannot be changed.

2. Airway (AWY) or terminal procedure that includes the waypoint. If an airway or procedure does not define the waypoint, the route between points is direct (DCT). Altitude (ALT) at which the waypoint is crossed.
3. *Average* wind component for the leg (e.g., T8 is an average eight-knot tailwind and H4 a four-knot headwind). *Average* wind direction and speed for the leg at the planned altitude. Average outside air temperature (OAT) at the planned altitude and its divergence from the International Standard Atmospheric (ISA) temperature.
4. Magnetic heading (magnetic course corrected for winds) and Magnetic course (true course corrected for geographic variation).
5. Knots true airspeed (TAS) and groundspeed (GS).
6. Leg distance and distance remaining for the flight in nautical miles. Navlog distance units cannot be adjusted.
7. Fuel remaining at each waypoint. Fuel units reflect the selection in the aircraft profile.
8. Planned fuel use per leg and a blank area to notate actual fuel (ACTL) usage. Fuel units reflect the selection in the aircraft profile.
9. Average fuel flow per leg. Fuel units reflect the selection in the aircraft profile.
10. Estimated time en route per leg. Total time remaining per waypoint.
11. Cumulative time en route per leg and a blank area to notate actual cumulative en route time.
12. Blank fields to notate estimated and actual time of arrival based on the actual departure time.
13. Blank field for recording any remarks deemed necessary by the pilot.

International Navlog Alternate Airports

When an alternate airport is included in the flight, the Navlog introduces an "APPCH" waypoint to add time and distance representative of the time and fuel required to fly a missed approach procedure and instrument approach.

Alternate fuel calculations use the same cruise, climb, and descent profiles to calculate the fuel to the alternate airport.

The routing from the initial destination airport to the alternate airport is not direct, nor does it reflect a published approach. Rather, it serves as an estimate for flight planning purposes.

The alternate routing varies by aircraft type. Jet and Turboprop aircraft add a 30 NM buffer. Piston aircraft add a 15 NM buffer. There is no alternate buffer added when planning with a helicopter.

21.2.4.5 International Navlog Arrival ATIS

The arrival ATIS section can be used to record the weather for the destination airport. This field cannot be edited using the Navlog viewer. The Navlog must be printed or opened with a viewer capable of editing PDFs to record the weather.



Figure 21-37. Arrival ATIS

21.2.4.6 International Navlog Comparison Table

The International Navlog comparison table lists various hypothetical performance results. The table is composed of four columns and five rows.

The two rightmost columns include the selected performance profile with (plan) appended its name and the performance profile with the best range. It is not possible to manually select another alternate performance profile.

Alternate cruise altitudes are listed in increments of 2,000 feet (ft) up to the planned cruise altitude. To the right of each alternate cruise altitude is its average wind component (e.g., H36 is an average 36 knot headwind).

Reading the Comparison Table

To read the comparison table, follow the desired cruise altitude to the desired performance profile to find the estimated time en route and the required fuel for that combination. The time difference compared to the currently planned route is given in parentheses (e.g., -0:05 is a five-minute shorter route).

The performance results for the planned cruise altitude and performance profile are displayed in **bold text**.

NOTE: The comparison table performance results are for a single climb and descent to the alternate altitude. As a result, if the planned route has step climbs or descents, the comparison table performance results may not match the Navlog for the altitude and performance profile combination.

21.2.4.7 International Navlog Flight Information Region

The Flight Information Region (FIR) section includes details for the FIRs that the aircraft will enter. Each FIR includes:

- The identifier and name (e.g., LFFF - Paris).
- The estimated time en route (EET) while within the boundaries of the FIR.
- The FIR entry and exit time in Zulu format.
- The total distance covered in the FIR.

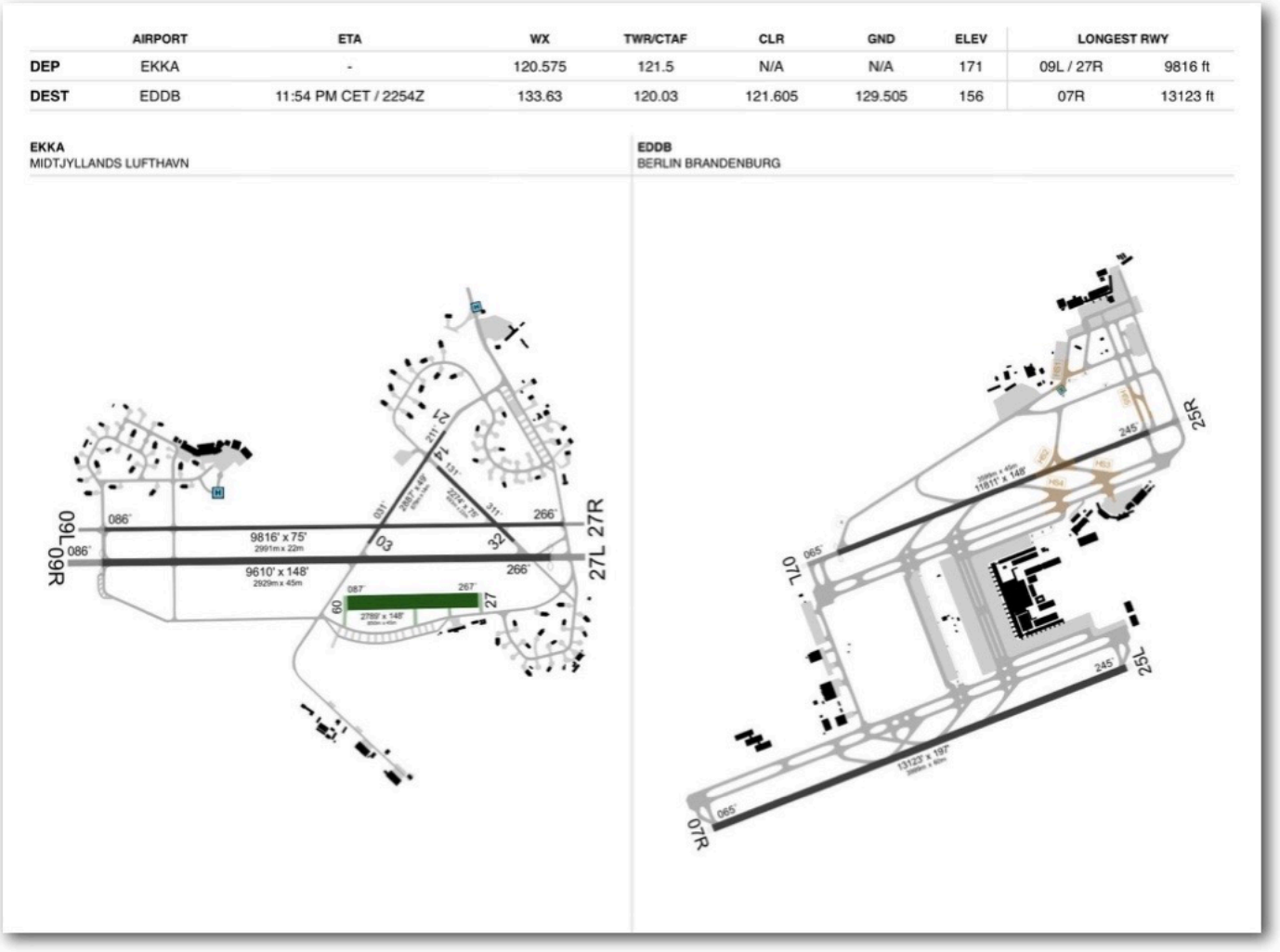
FLIGHT INFORMATION REGION	EET	ENTRY	EXIT	DISTANCE
LFFF - PARIS	-	2145Z	2214Z	162NM
LFBB - BORDEAUX	0:29	2214Z	2317Z	278NM

FLIGHT INFORMATION REGION	EET	ENTRY	EXIT	DISTANCE
LFFF - FRANCE	1:32	2317Z	2317Z	1NM
LECM - MADRID	1:32	2317Z	0012Z	295NM

Figure 21-38. International Navlog Flight Information Region

21.2.4.8 International Navlog Airport Details

The Airport Details section includes commonly used airport frequencies, field elevation, longest runway, and FBO location details (if available).



	AIRPORT	ETA	WX	TWR/CTAF	CLR	GND	ELEV	LONGEST RWY	
DEP	EKKA	-	120.575	121.5	N/A	N/A	171	09L / 27R	9816 ft
DEST	EDDB	11:54 PM CET / 2254Z	133.63	120.03	121.605	129.505	156	07R	13123 ft

Figure 21-39. International Navlog Airport Details

21.2.4.9 International Navlog ICAO Flight Plan

The International Navlog includes the coded ICAO flight plan (FPL) at the bottom of the document. This information exists whether or not a flight plan is filed.



ICAO FPL
(FPL-N750HK-IG
-H25B/M-N/N
-EKKA2205
-N0378F340
-EDDB0049
-DOF/230112 EET/EDVV0021 EDUU0025 EDWW0040)

Figure 21-40. International Navlog ICAO Flight Plan

21.3 Printing and Sharing Navlogs

Navlogs can be printed and shared using the built-in iOS share menu. To print or share a Navlog:

1. Open the Navlog by tapping the **Navlog** button.
2. Tap the **Send To** button in the upper toolbar.
3. Choose an option from the menu.

When a Navlog is printed or shared, it is automatically divided into pages to accommodate a standard 8.5 by 11-inch standard sheet of paper.

ACTIVE NAVLOG

Active Navlog is an in-flight interactive tool for recording actual fuel usage, waypoint crossing time, waypoint remarks, and more. Unlike the standard Navlog, Active Navlog updates the estimated time and fuel burn based on actual usage of the flight.

Active Navlog is available to Business Performance customers as a per-user add-on and MFB One customers. With ForeFlight Dispatch, completed active navlogs are automatically attached to the flight. As a result, Dispatch is recommended when using Active Navlog.

> **NOTE:** Oceanic Plotting is a feature in Active Navlog that is available to customers with Dispatch and active Active Navlog licenses. See Oceanic Plotting features in Active Navlog Oceanic Plotting.

22.1 About the Design

Active Navlog contains various components:

- The Flight List displays Upcoming and Past Flights.
- The Active Navlog Editor is used to record flight actuals.
- **Flight Banners** display the Active Navlog status. Each flight planned with the Flights view results in an Active Navlog. The planned route, estimated departure time, aircraft, performance profile, and cruise altitude are copied from the Flights view to the Active Navlog.

Once actual time and fuel values are entered in the Active Navlog, the Active Navlog is considered to be In Progress and edits to the Flights view are no longer copied. Active Navlog entries do not update the Flights view or the standard PDF Navlog.

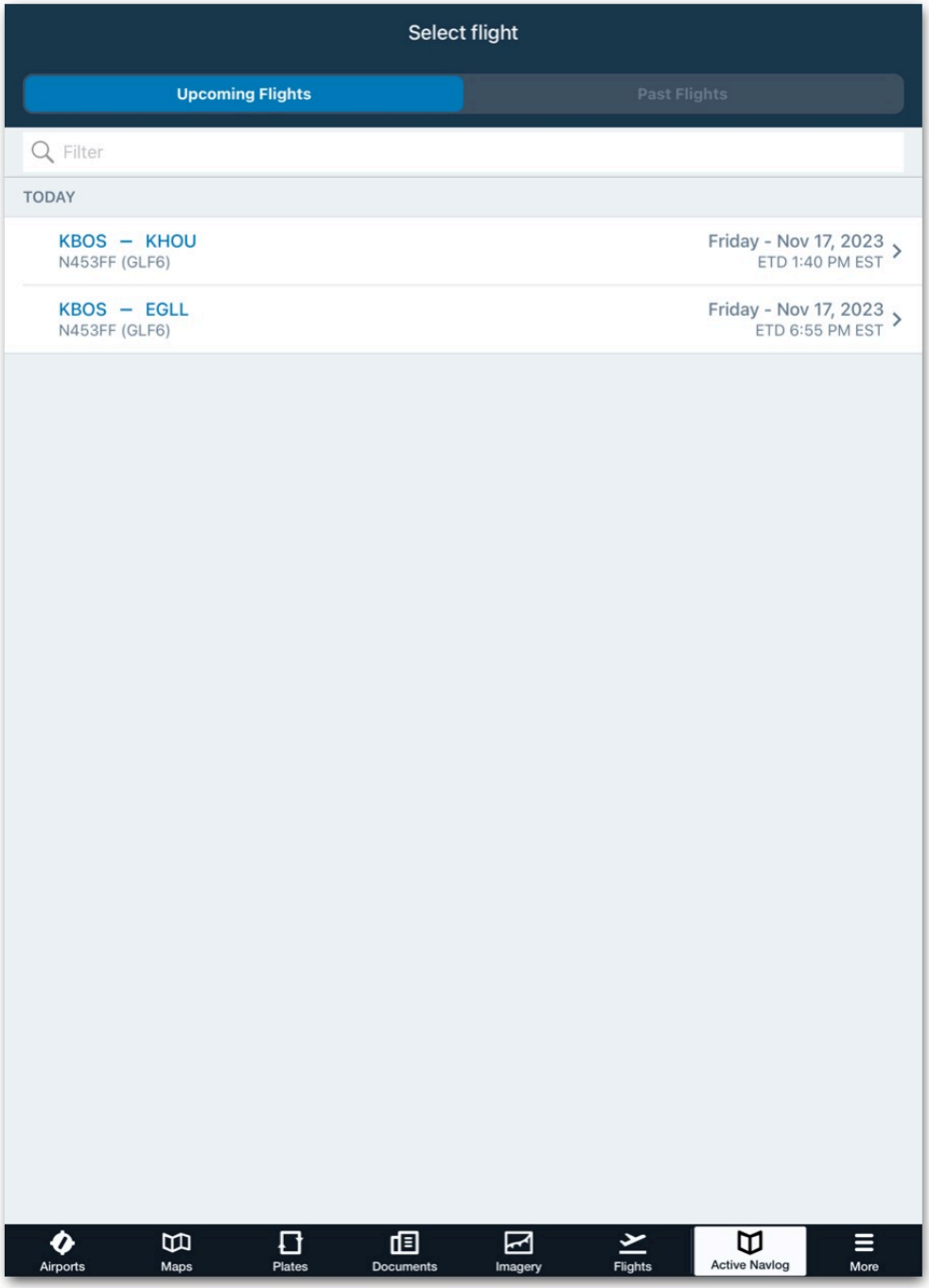


Figure 22-1. Flight List

22.1.1 Accessing the Flight List

1. To access the Flight List, tap **More → Active Navlog**.
2. Tap a flight from the list to open it in the Navlog Editor.

22.1.2 Accessing the Active Navlog Editor

The Active Navlog Editor can be accessed in two ways:

1. From the Active NavLog view, tap a flight in the Flight List.
2. From the Flights view, select a flight, and open its Navlog. Near the bottom of the navlog, tap **Go To Active Navlog**.

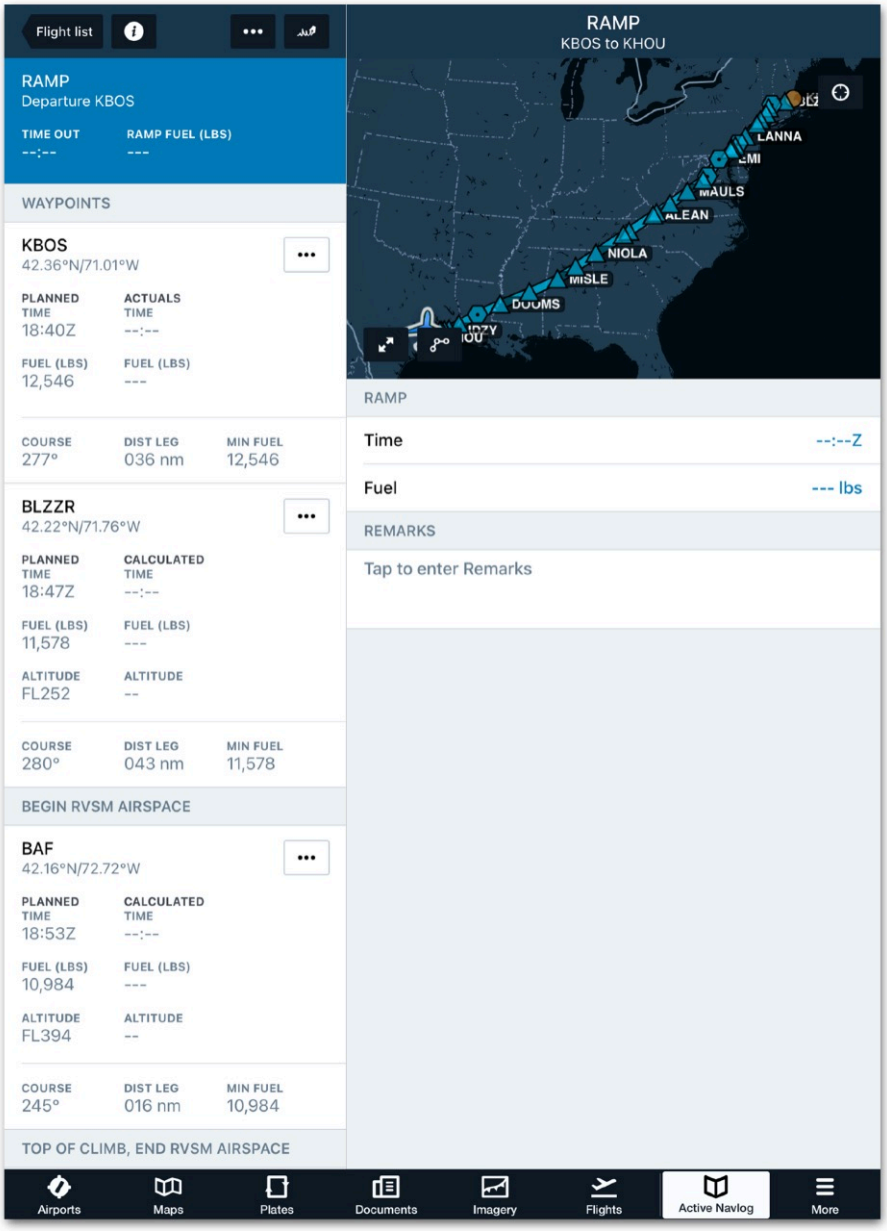


Figure 22-2. Active Navlog Editor

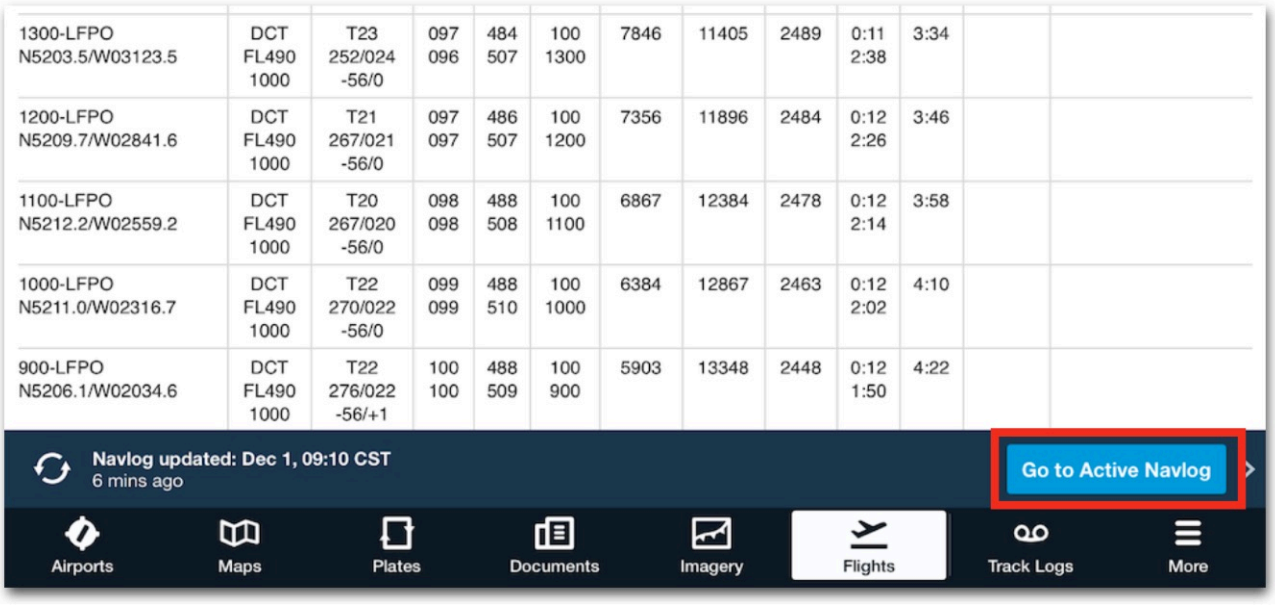


Figure 22-3. Go to Active Navlog Button in Flight View Navlog

22.1.3 Active Navlog Banners

When an Active Navlog is in progress, a banner is displayed on the Flights view.

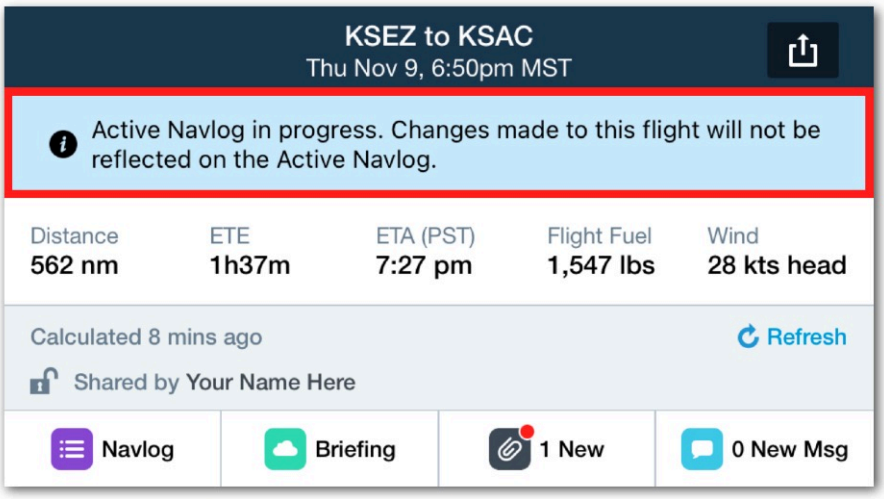


Figure 22-4. Banner Message Displayed on Flights Page

22.2 Flight List

The Flight List is divided into two sections: Upcoming Flights and Past Flights. To navigate between the two views, tap the toggle buttons or swipe the screen left and right. A search bar near the top of the view allows users to filter flights by destination, departure, or tail number.

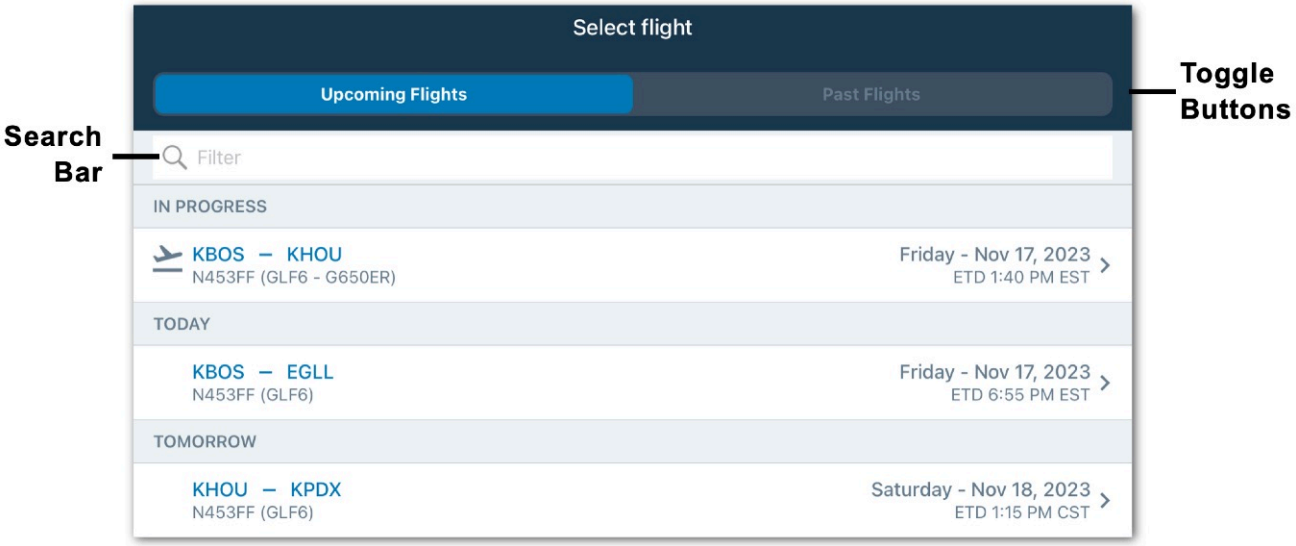


Figure 22-5. Upcoming Flights List

22.2.1 Upcoming Flights

The Upcoming Flights section lists all planned flights for the next two days. The list is sorted with the earliest flights at the top. Flights are further organized into:

- **In Progress:** This section contains flights with actual time and fuel values entered.
- **Today:** This section contains flights without actuals and a planned departure time of today (local time).
- **Tomorrow:** This section contains flights that are planned to depart tomorrow. Flights beyond tomorrow can only be opened by tapping **Go To Active Navlog** from the bottom of the Standard Navlog.

22.2.2 Past Flights

The Past Flights section contains:

- Flights with estimated departure times more than 48 hours old.
- Active Navlogs with a signature.

22.3 Active Navlog Editor

The Navlog Editor contains an Upper Toolbar, Waypoints List, Route Preview Map, and a Waypoint Details section. Each section and its functionality is summarized below and described later in the chapter.

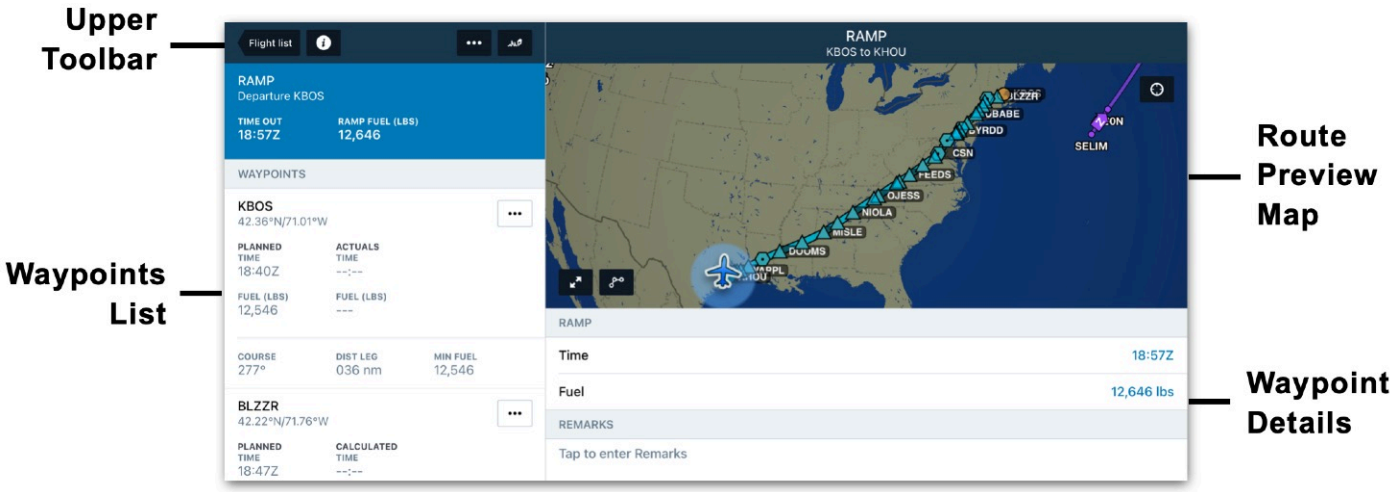


Figure 22-6. Navlog Editor

22.3.1 Upper Toolbar

The Active Navlog Editor Upper Toolbar contains the following features:

- **Flight list** button for navigating back to the Flight List.
- **Flight Details** button for viewing Flight Details.
- **Active Navlog Actions** button for recording Altimeter Checks, Fuel Checks, ATC Clearance, adding remarks, recording ATIS, and starting Altimeter and Fuel Interval Timers.
- **Signature** button for signing the active navlog.

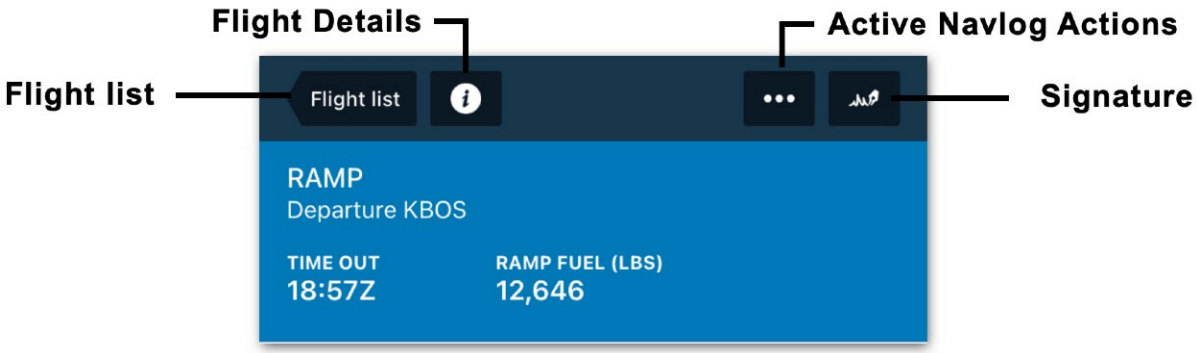


Figure 22-7. Navlog Editor - Upper Toolbar

22.3.2 Flight Details

The Flight Details pop-up contains a Flight Summary, Fuel Summary, and Weight Summary. Tap the buttons at the top of the window or finger-swipe across the screen to navigate between the views. The summaries are generated when the active navlog is opened and are not updated when the route is edited. See Editing the Route for more detail.

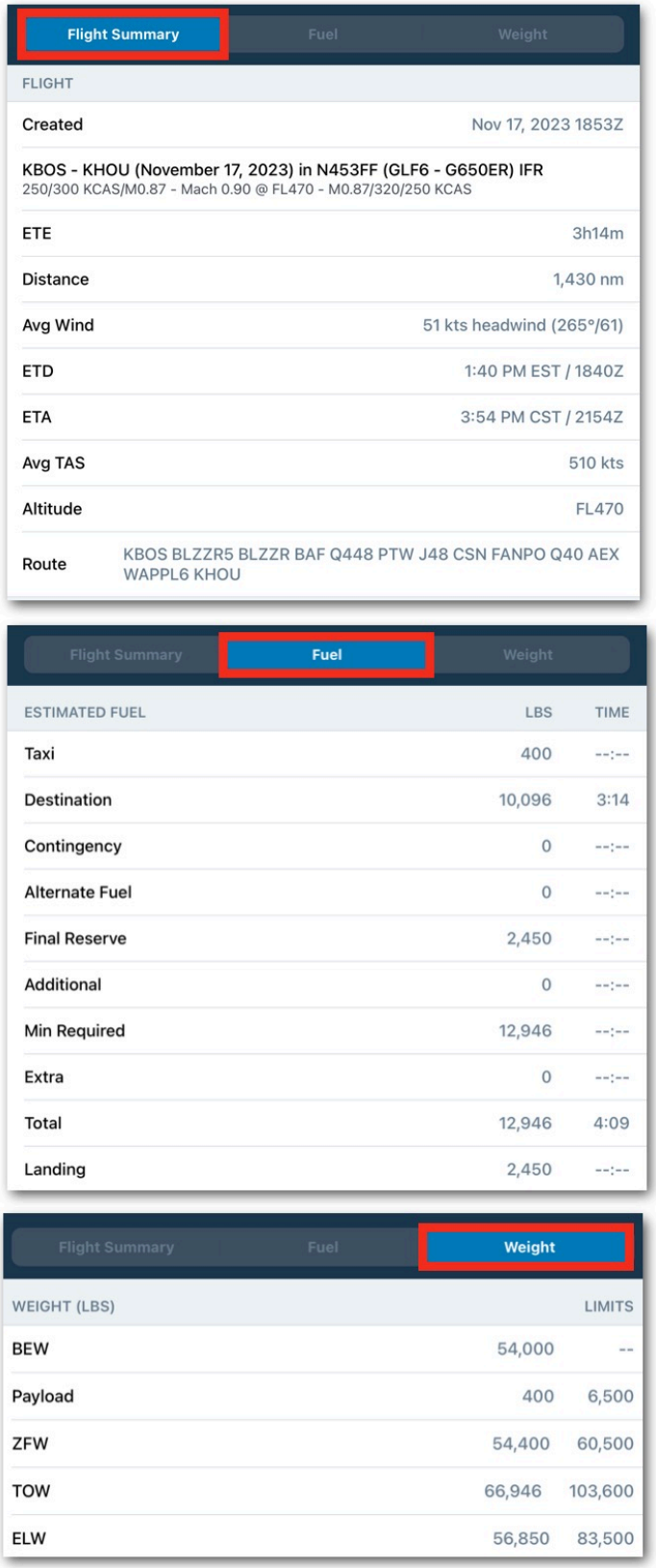


Figure 22-8. Flight Details

22.3.2.1 Flight Summary

The flight summary provides an overview of the flight.

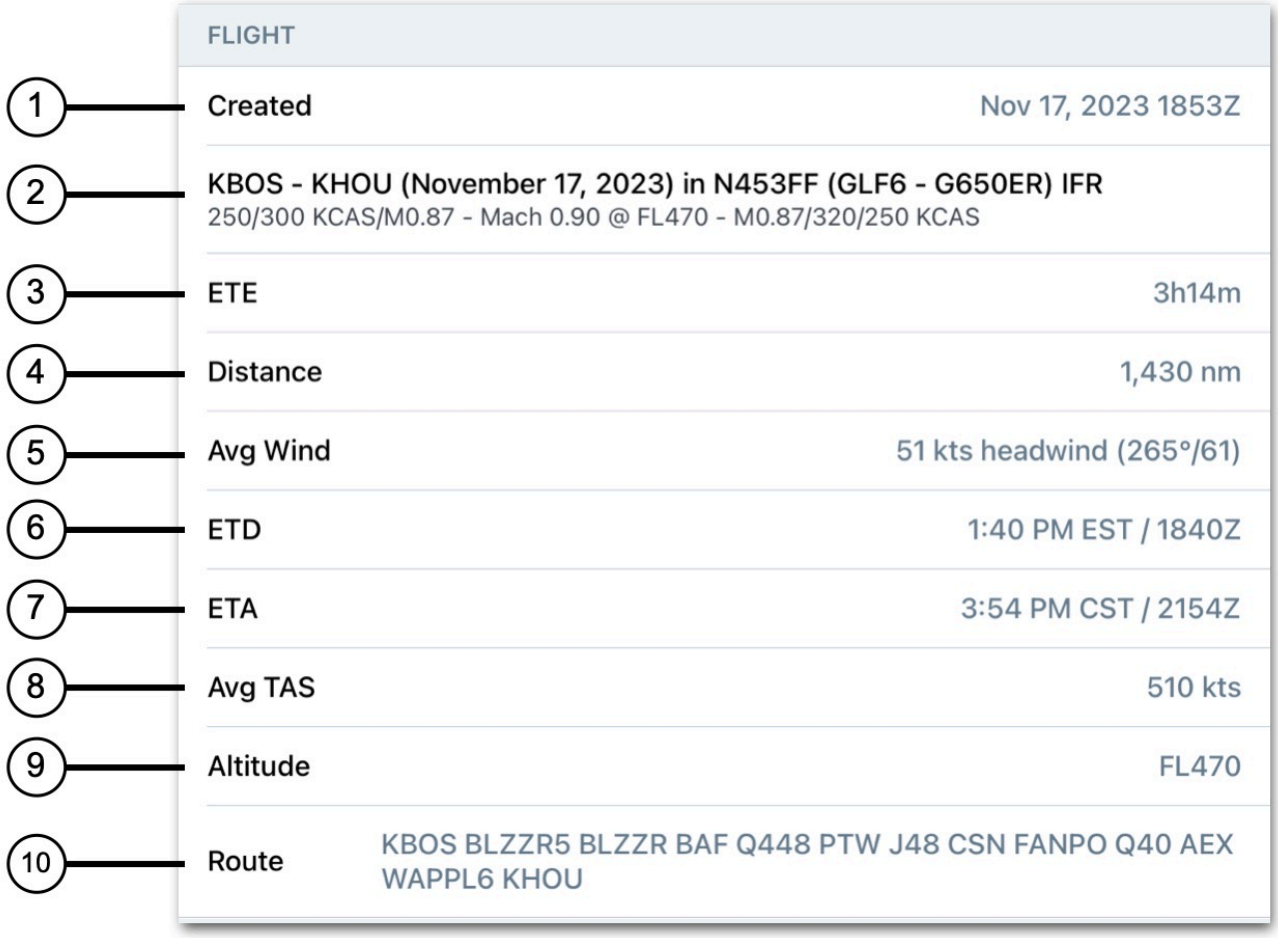


Figure 22-9. Flight Summary

1. **Created**: The date and Zulu time when the active navlog was created.
2. **Route Summary**: From left to right: Departure - Destination, Departure Date, Tail Number (Aircraft Type - Description), Flight Rules, Performance Profiles.
3. **ETE**: The estimated time en route.
4. **Distance**: The total distance of the route.
5. **Avg Wind**: Average wind for the entirety of the flight.
6. **ETD**: Estimated time of departure (local / Zulu time).
7. **ETA**: Estimated time of arrival (local / Zulu time).
8. **Avg TAS**: Average true airspeed for the entirety of the flight.
9. **Altitude**: Planned cruise altitude.
10. **Route**: Planned route.

22.3.2.2 Fuel Summary

The Fuel Summary provides a detailed breakdown of the flight fuel. Fuel and, when applicable, times are provided in two separate columns.

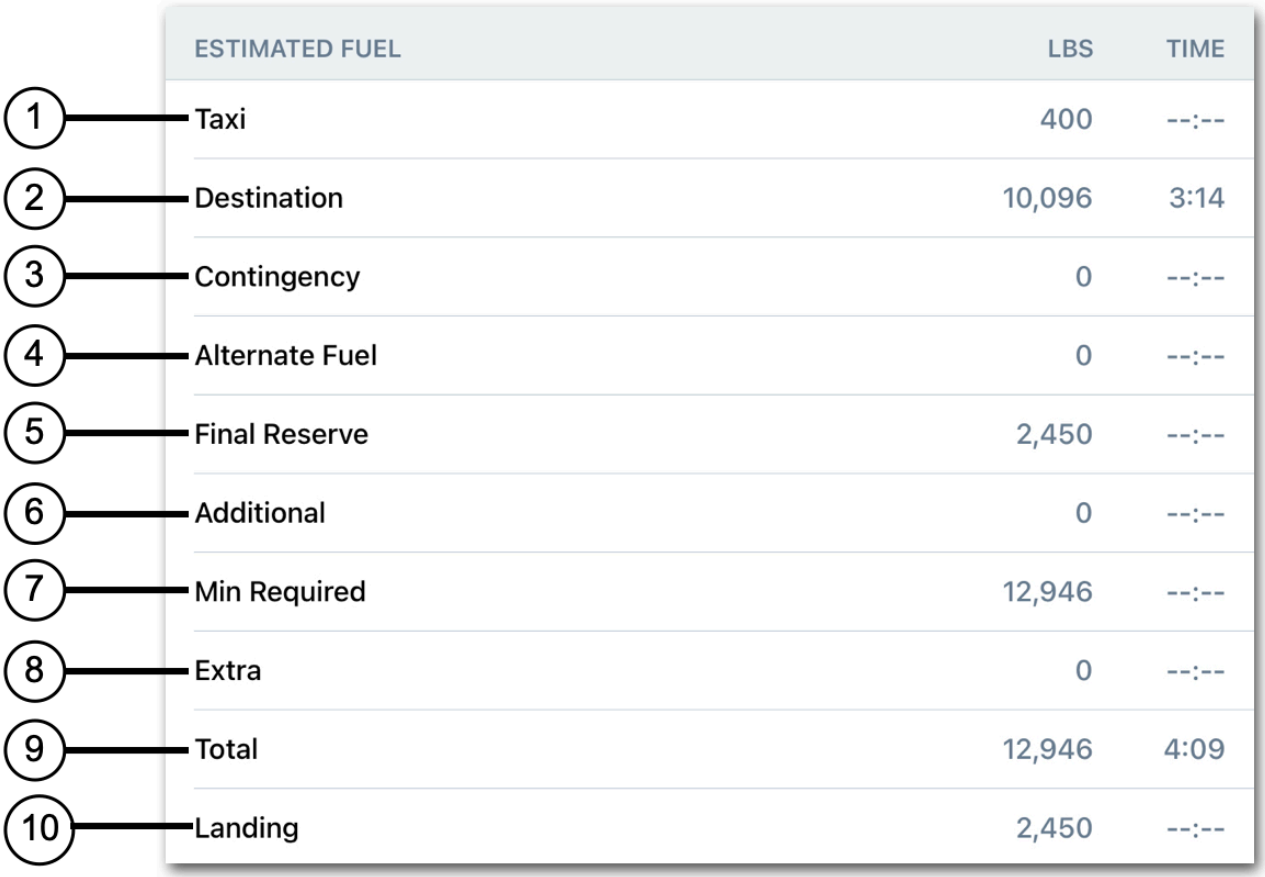


Figure 22-10. Fuel Summary

1. **Taxi**: Fuel as specified by the aircraft profile.
2. **Destination**: Fuel required to fly to the destination airport.
3. **Contingency Fuel**: Fuel that is uplifted to account for unforeseen circumstances.
4. **Final Reserve**: The default amount of reserve fuel as determined by the aircraft profile or as specified on the flight planning form.
5. **Alternate Fuel**: Fuel required to fly to the alternate airport.
6. **Additional**: Additional ETP fuel added to ensure the aircraft can reach each alternate ETP airport with the necessary fuel at landing.
7. **Min Required**: The sum of taxi, destination, alternate, final reserve, and additional fuel.
8. **Extra**: User-specified extra fuel. Fuel in excess of the minimum required fuel.

9. **Total**: Min Required fuel plus Extra fuel. The amount of fuel that should be in the aircraft at start.
10. **Landing**: The planned landing fuel.

22.3.2.3 Weight Summary

The Weight Summary provides an overview of weights at different flight stages. Planned weights and aircraft weight limitations are displayed in separate columns.

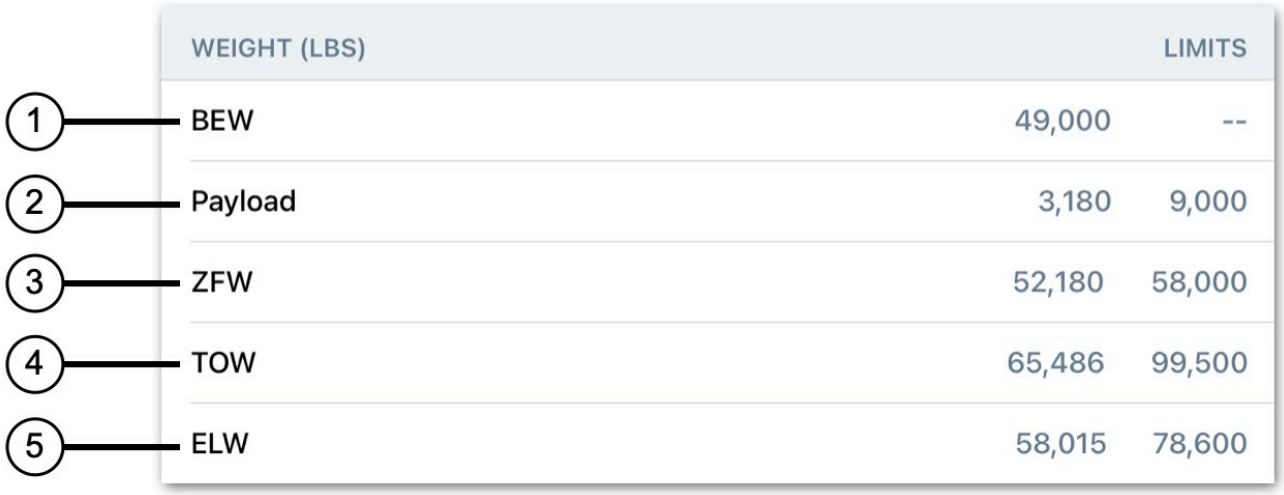


Figure 22-11. Weight Summary

1. **BEW**: Basic Empty Weight as defined in the aircraft profile.
2. **Payload**: Planned and maximum payload (persons and cargo).
3. **ZFW**: Planned and maximum zero fuel weight.
4. **TOW**: Planned and maximum takeoff weight.
5. **ELW**: Estimated landing and maximum landing weight.

22.4 Active Navlog Actions

Active Navlog allows users to perform the following actions:

- Altimeter Checks
- Fuel Checks
- ATC Clearance
- Add General Remarks
- Record ATIS
- Start a Timer
- Resetting the Navlog.

To perform any of the above actions, tap the three-dot **Active Navlog Action** button in the upper toolbar and select an option from the menu.

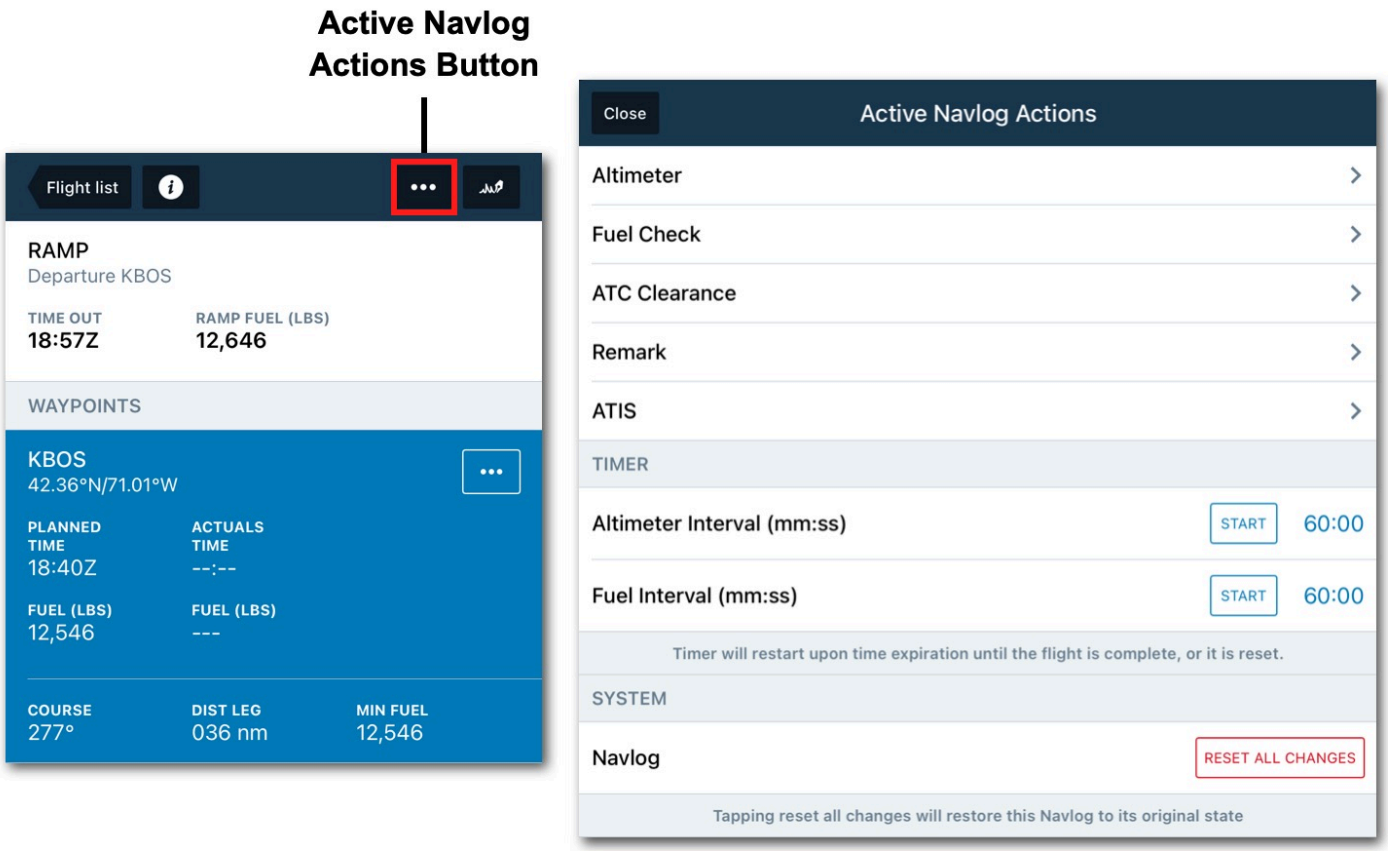


Figure 22-12. Active Navlog Actions Button opens the Active Navlog Actions Pop-Over.

22.4.1 Conducting an Altimeter Check

The Altimeter check allows pilots to record the indicated altitudes of their primary and standby altimeters to determine how much error exists between the systems.

To conduct an Altimeter check:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Altimeter**.
2. If this is the first Altimeter check for the flight, the Altimeter Check (1) editor is automatically opened. If this is not the first Altimeter check, tap **New Altimeter Check**.
3. Enter the time, indicated altitude for each altimeter, and select which altimeter the autopilot is set to. After selecting an altimeter, the difference between altimeters is calculated.
4. When complete, tap the **Back** button.

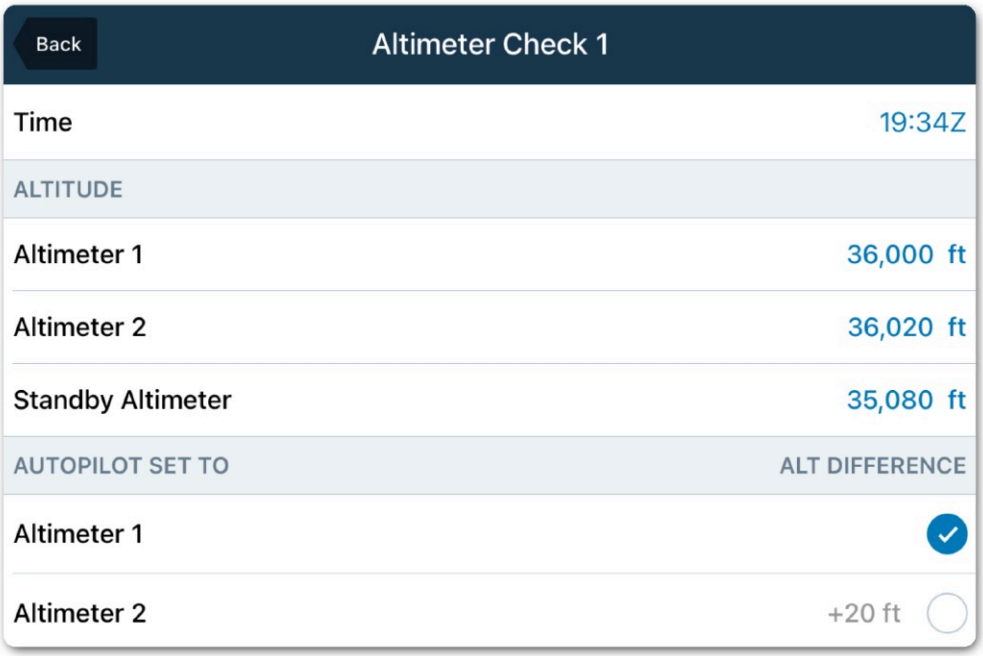


Figure 22-13. Performing an Altimeter Check

22.4.1.1 Viewing Altimeter Checks

Completed Altimeter checks can be accessed by tapping the Active Navlog Actions button in the upper toolbar to display the Active Navlog Actions menu and selecting **Altimeter**.

Completed checks are listed in chronological order and are also included as a table at the end of the Active Navlog PDF Document.

22.4.1.2 Editing Altimeter Checks

To edit an Altimeter check, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Altimeter**.
2. Select the desired Altimeter check.
3. Manually edit the desired fields as necessary.
4. Tap the **Back** button when complete.

22.4.1.3 Deleting Altimeter Checks

To delete a completed Altimeter check:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Altimeter**.
2. Perform one of the two options:
   - Swipe right to left across an Altimeter check. Tap **Delete**.
   - Select the desired Altimeter check. Tap **Delete Altimeter Check** at the bottom of the menu. Tap **Delete**.

22.4.2 Conducting a Fuel Check

The Fuel Check allows pilots to record fuel amounts at any time. This feature is useful for pilots wanting to analyze fuel burn more frequently than at each route waypoint. To conduct a fuel check:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Fuel Check**.
2. If this is the first fuel check for the flight, the Fuel Check (1) editor is automatically opened. If this is not the first fuel check, tap **New Fuel Check**.
3. Enter time and fuel values as appropriate.
4. When complete, tap the **Back** button.

22.4.2.1 Viewing Fuel Checks

Completed Fuel Checks can be accessed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **Fuel Check**.

Completed checks are listed in chronological order and are also included as a table at the end of the Active Navlog PDF Document.

22.4.2.2 Editing Fuel Checks

To edit a fuel check:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap **Fuel Check** and select a completed check.
3. Manually edit the check as necessary.
4. Tap the **Back** button when complete.

22.4.2.3 Deleting Fuel Checks

To delete a completed fuel check:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Fuel Check**.
2. Perform one of the two options:
   - Swipe right to left across a fuel check. Tap **Delete**.
   - Select a completed fuel check. Tap **Delete Fuel Check** at the bottom of the menu. Tap **Delete**.

22.4.3 Adding ATC Clearances

An ATC Clearance can be added to a waypoint or at any time using the Active Navlog Actions menu. To add an ATC Clearance:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATC Clearance**.
2. If this is the first remark for the flight, the Clearance (1) editor is automatically opened. If this is not the first remark, tap **New Clearance**.
3. Enter the Clearance time, title, and clearance as appropriate. When complete, tap the **Back** button.

22.4.3.1 Viewing ATC Clearances

Completed clearances can be viewed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **ATC Clearance**. Completed Clearances are listed in chronological order.

Completed Clearances are listed in chronological order and are also included as a table on the Active Navlog PDF Document.

22.4.3.2 Editing ATC Clearances

To edit a clearance:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATC Clearance**.
2. Select the desired clearance and manually edit as necessary.
3. Tap the **Back** button when complete.

22.4.3.3 Deleting ATC Clearances

To delete a clearance:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATC Clearance**.
2. Perform one of the two options:
   - Swipe right to left across a fuel check. Tap **Delete**.
   - Select a completed fuel check. Tap **Delete Remark** at the bottom of the menu. Tap **Delete**.

22.4.4 Adding Remarks

Remarks can be added to a waypoint or at any time using the Active Navlog Actions menu. To add a general remark:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Remark**.
2. If this is the first remark for the flight, the Remark (1) editor is automatically opened. If this is not the first remark, tap **New Remark**.
3. Enter the remark time, title, and remark as appropriate. When complete, tap the **Back** button.

22.4.4.1 Viewing Remarks

Completed remarks can be viewed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **Remark**. Completed remarks are listed in chronological order.

Completed Remarks are listed in chronological order and are also included as a table on the Active Navlog PDF Document.

22.4.4.2 Editing Remarks

To edit a remark:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Remark**.
2. Select the desired remark and manually edit as necessary.
3. Tap the **Back** button when complete.

22.4.4.3 Deleting Remarks

To delete a remark, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **Remark**.
2. Perform one of the two options:
   - Swipe right to left across a remark. Tap **Delete**.
   - Select a completed remark. Tap **Delete Remark** at the bottom of the menu. Tap **Delete**.

22.4.5 Documenting ATIS

The Active Navlog Actions menu can be used to type ATIS. To so do, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATIS**.
2. If this is the first ATIS recording, the ATIS editor is automatically opened. If not, tap **New ATIS**.
3. Enter the time, tap the departure or destination airport (or manually type airport identifier), and manually Type the ATIS broadcast information.

4. When complete, tap the **Back** button.

22.4.5.1 Viewing ATIS

Completed ATIS can be viewed by tapping the **Active Navlog Actions** button in the upper toolbar to display the Active Navlog Actions menu and selecting **ATIS**. Completed ATIS are listed in chronological order.

Completed ATIS are listed in chronological order and are included as a table on the Active Navlog PDF Document.

22.4.5.2 Editing ATIS

To edit an ATIS recording, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap **ATIS** and select the appropriate ATIS.
3. Manually edit the ATIS recording as necessary.
4. Tap the **Back** button when complete.

22.4.5.3 Deleting ATIS

To delete an ATIS, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar and select **ATIS**.
2. Perform one of the two options:
   - Swipe right to left across the ATIS. Tap **Delete**.
   - Select a completed ATIS. Tap **Delete ATIS** at the bottom of the menu. Tap **Delete**.

22.4.6 Interval Timers

Interval Timers allow pilots to set recurring reminders for recording Altimeter or FUEL checks. The timers can be active simultaneously. iOS notifications must be enabled for this feature. To set a timer, follow the steps below:

1. Tap the **Active Navlog Actions** button in the upper toolbar.

2. Tap the Altimeter Interval or Fuel Interval clock duration **60:00**.
3. Set a timer frequency. A minimum of one minute must be set. For example, to set a timer that repeats every fifteen minutes set **15:00**.
4. Tap the **START** button.

22.4.6.1 Timer Notification Behavior

After starting a timer, the **START** button becomes a **RESET** button, and the timer begins counting down. When the timer ends, audible and visual notifications are played, and the timer starts again. When ForeFlight is open, the notification style shown below is displayed. Tap the notification to dismiss it.

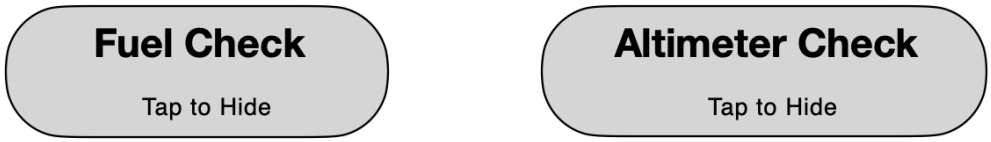


Figure 22-14. Interval Timer Visual Notifications

If ForeFlight Mobile is not open, the notification behavior is controlled by the notification settings on the iOS device. Open the iPad/iPhone Settings app and select **Notifications → ForeFlight** ForeFlight to select the behavior. Tap the notification to open ForeFlight Mobile.



Figure 22-15. iOS Banner Style Notification

22.4.6.2 Stopping the Timer

Timers repeat until they are manually stopped, or the flight ends. To stop a timer, tap the **Active Navlog Actions** button and tap the **RESET** button. Once stopped, the timer duration can be adjusted, or the timer can be restarted.

22.4.7 Re-Setting the Active Navlog

There may be situations where a user needs to reset the inputs that have been made to an Active Navlog. To reset the Active Navlog:

1. Tap the **Active Navlog Actions** button in the upper toolbar.
2. Tap the **RESET ALL CHANGES** button.

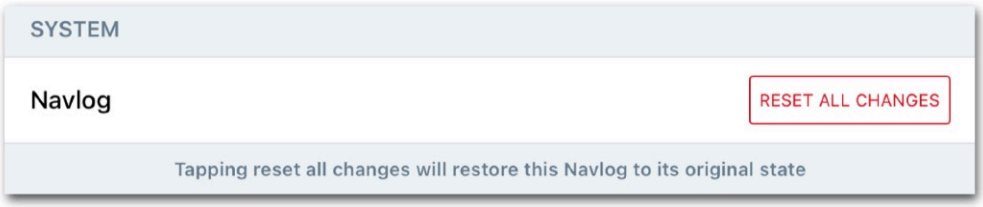


Figure 22-16. Reseting the Active Navlog

3. Tap the **Reset** button to confirm this action.

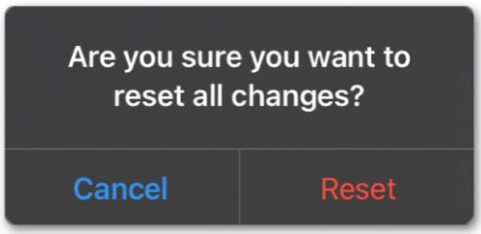


Figure 22-17. Confirmation Pop-Over

CAUTION: Re-setting the Active Navlog will cause all user entered data to be erased and cannot be undone.

22.5 Waypoints List

The Waypoints list displays all route waypoints. The list is organized into the following sections:

- Ramp (Departure)
- Waypoints
- Top of Climb
- Begin RVSM Airspace
- End RVSM Airspace
- Top of Descent
- Alternate
- Ramp (Destination).

Each waypoint contains various fields based on planning and actual data. Additional waypoint element information is available on the next page.

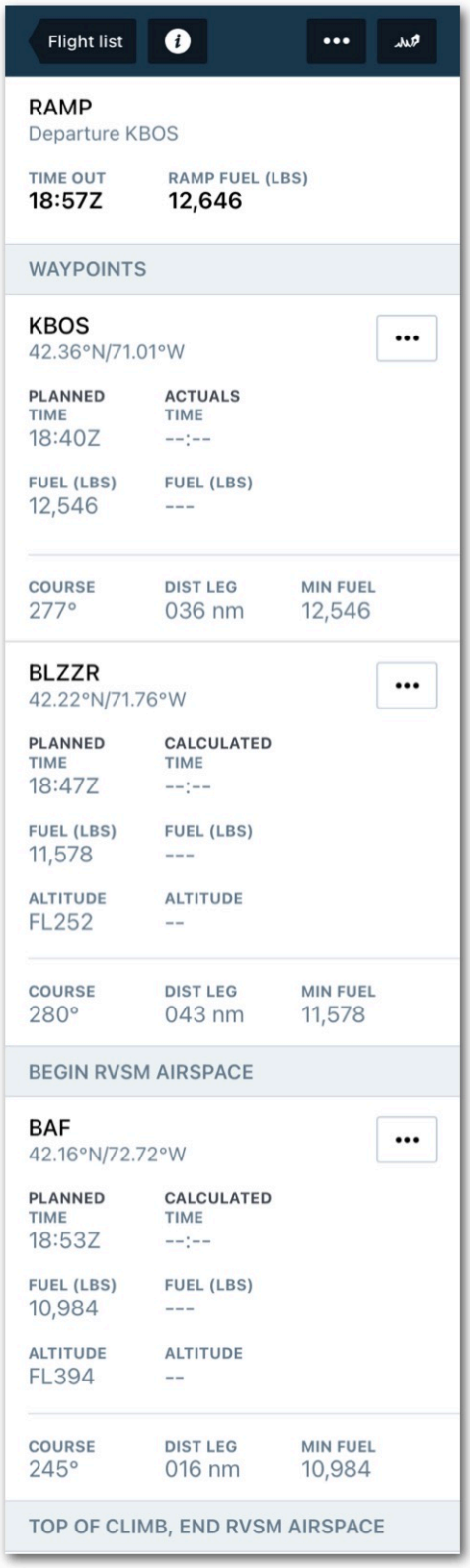
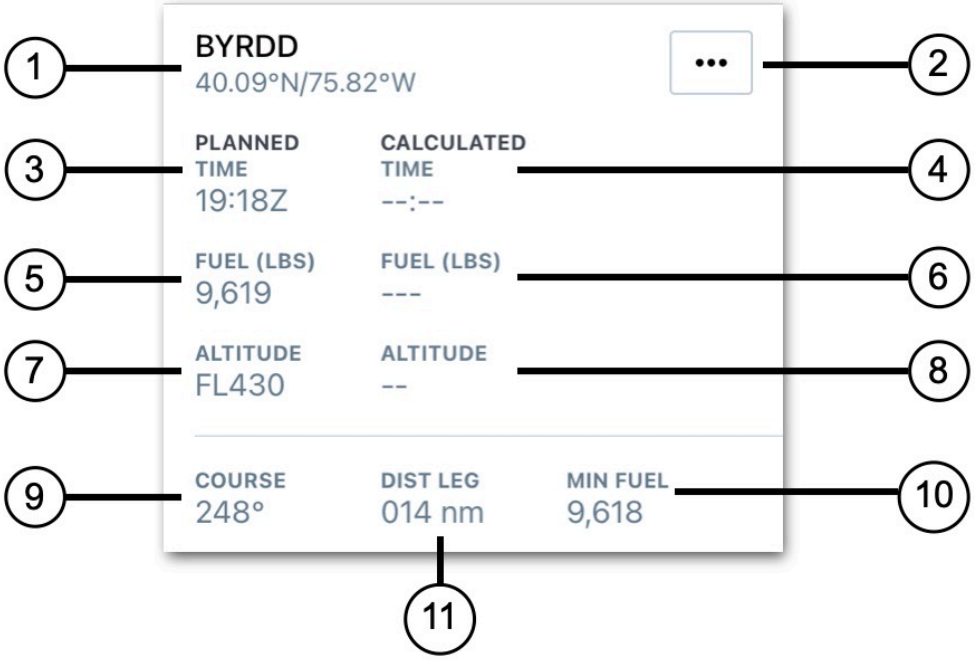


Figure 22-18. Waypoints List

22.5.1 Route Waypoint Elements

Each route waypoint contains the data listed below. Values reflect when the aircraft crosses the waypoint.



1. **BYRDD**: Waypoint identifier and latitude/longitude coordinates. The coordinate format can be adjusted in **More → Settings → Units/Time → Coordinates**.
2. Three-dot action button for making route edits.
3. **Planned Time**: The planned waypoint arrival time determined by the aircraft profile, route, and forecast weather. See Active Navlog Planning Logic for more information.
4. **Calculated Time**: The calculated waypoint arrival time based on user-entered actuals. See Active Navlog Planning Logic for more information.
5. **Planned Fuel**: The planned fuel is calculated from the planned arrival time.
6. **Calculated Fuel**: The calculated fuel is based on user-entered actuals.
7. **Planned Altitude**: The planned altitude is determined by using aircraft performance values and the filed altitude.
8. **Calculated Altitude**: The calculated altitude is based on user-entered actuals.
9. **COURSE**: The course to the next waypoint.
10. **MIN FUEL**: The Minimum Fuel field displays the minimum fuel required at each waypoint. This value is determined by the aircraft profile performance data, route, forecast weather, and does not update as actuals are entered.

11. **DIST LEG**: Leg distance to the waypoint.

22.6 Adding Actual Flight Details

Entering actual flight information as a flight progresses allows the Active Navlog to provide updated calculated times and fuel burn for en-route planning. As actuals are entered, the estimates for each subsequent waypoint are updated. See Active Navlog Planning Logic for more information.

To enter actual Time, Fuel, Altitude, or Remarks, tap anywhere on the Waypoint data in the waypoint list. The waypoint information will be highlighted in blue, and Actuals and Waypoint Details will be displayed on the right side of the Active Navlog Editor.

Actual values can be entered at any time and in any order. Beginning with Ramp actuals and entering subsequent waypoints in order as they are reached is recommended.

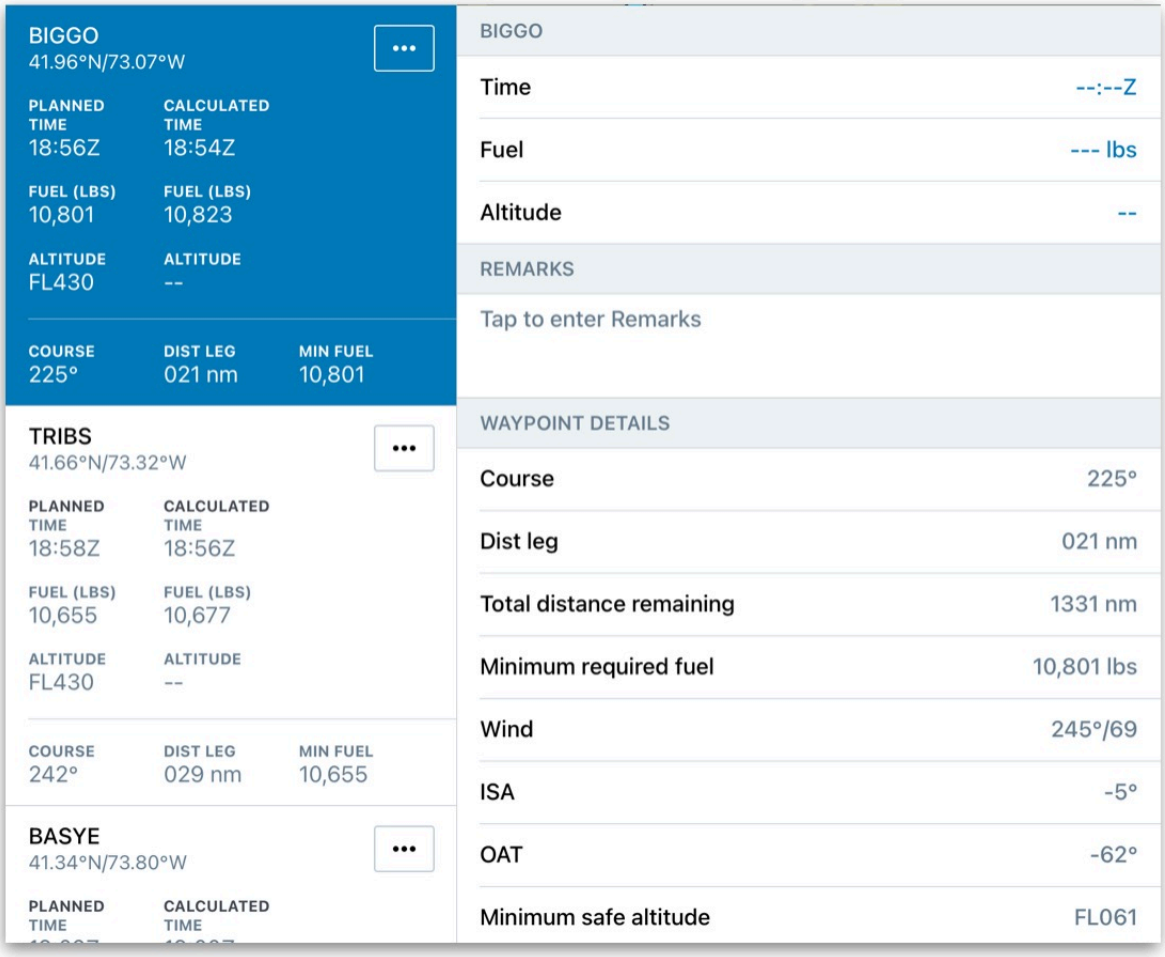


Figure 22-19. Entering Waypoint Actuals

After adding the actual waypoint time and fuel amounts:

- The planned values are replaced with actual values in bold text.
- The planned values are compared to its actual values. The differences are displayed next to the actual values. Values that are better than estimated (less time or more remaining fuel) are displayed in green text. Values that are worse than estimated are displayed in orange text.



Figure 22-20. Time and Fuel Details (Planned and Actual)

> **NOTE:** The first two waypoints (Ramp and Departure) do not apply the coloring discussed above.

- If the departure airport values differ from planned, the active navlog is re-planned. See Active Navlog Planning Logic for more information.
- Subsequent estimates are updated based on the user-entered actuals.

22.6.1 Active Navlog Planning Logic

Active Navlog has three unique time and fuel fields: Minimum, Planned, and Calculated. Some of the data is dynamically updated as actuals are entered. The other data is predetermined by the flight plan.

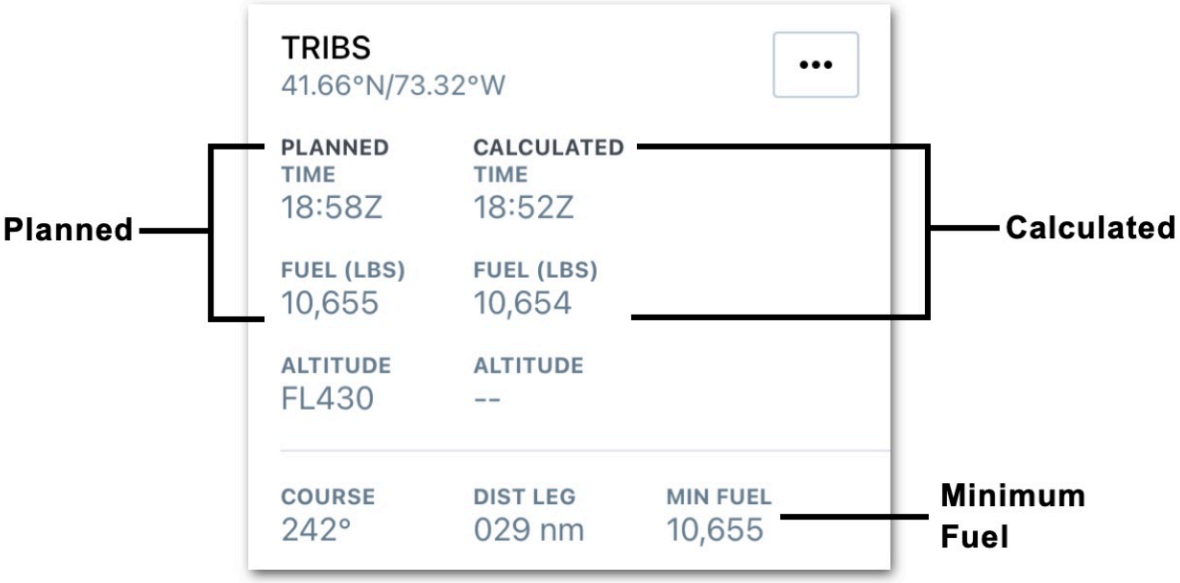


Figure 22-21. Time and Fuel Data

Minimum Fuel

The Minimum Fuel field displays the minimum fuel required at each waypoint. This value is determined by the aircraft profile performance data, route, and forecast weather and does not update as actuals are entered.

Planned and Replanned Time/Fuel

The Planned field displays the planned arrival time and minimum fuel requirement of each waypoint. These values are based on flight planning data and do not update as actuals are entered, with one exception.

If the departure airport time or fuel actuals differ from what was planned, the planned time and fuel requirement for each subsequent waypoint are re-planned. When this occurs, the "PLANNED" label is replaced with a "REPLANNED" label. This is the only action that results in the active navlog being replanned.

For example, if the aircraft departs before or after the planned departure time or with more or less fuel than planned, the active navlog is replanned, and the planned time and fuel calculations for each waypoint is updated accordingly.

> **NOTE:** If the Ramp time or fuel values differ from planned, it does not result in replanning as the exact time to taxi is unknown.

In the example below, the aircraft departed from KBOS with an extra 104 pounds of fuel and 40 minutes before the planned departure time. As a result, the subsequent waypoints were replanned using those values.

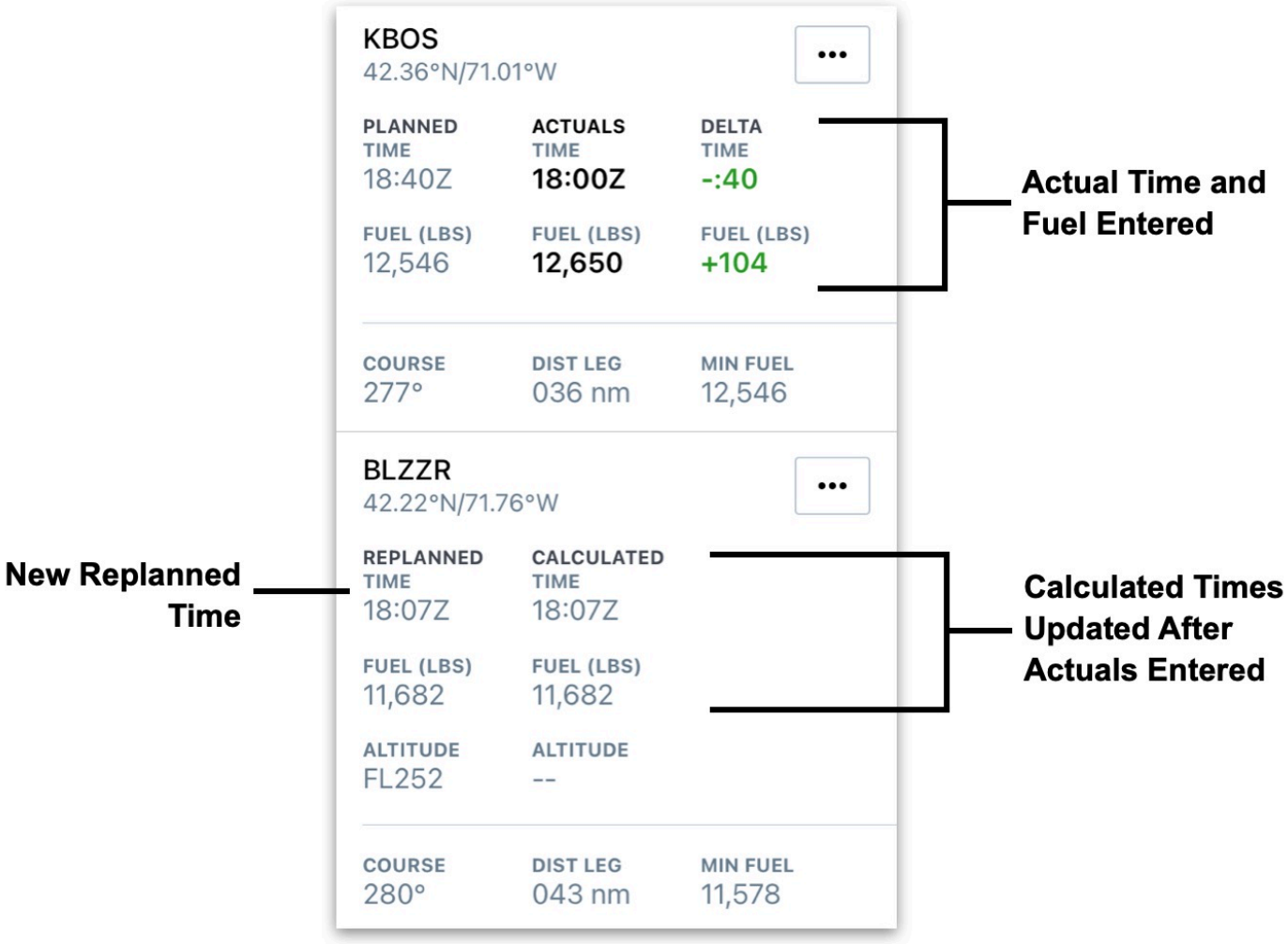


Figure 22-22. Active Navlog Replanning

Calculated Time and Fuel

Calculated time and fuel values are updated each time a pilot adds actuals. Calculated values are not updated:

- If the waypoint already has actual values entered.
- If the waypoint occurs before the waypoint with actuals.

22.6.2 Adding Actual Time

To add the actual waypoint crossing time, tap the **Time** field for the appropriate waypoint and then do one of the following:

- Use the numerical keyboard to enter the time manually. Tap the **Close** button in the menu header to save the time.
- Tap **CURRENT TIME** to enter the current Zulu time. Tap the **Close** button in the menu header to save the time.
- Tap **USE 00:00Z** to enter the Planned/Replanned or Calculated waypoint arrival time. If any actual time has been entered for previous waypoints, this time will be the Calculated arrival time. Tap the **Close** button in the menu header to save the time.

> **NOTE:** If the flight departs before or after the planned departure time, the active navlog is replanned. See Active Navlog Planning Logic for more information.

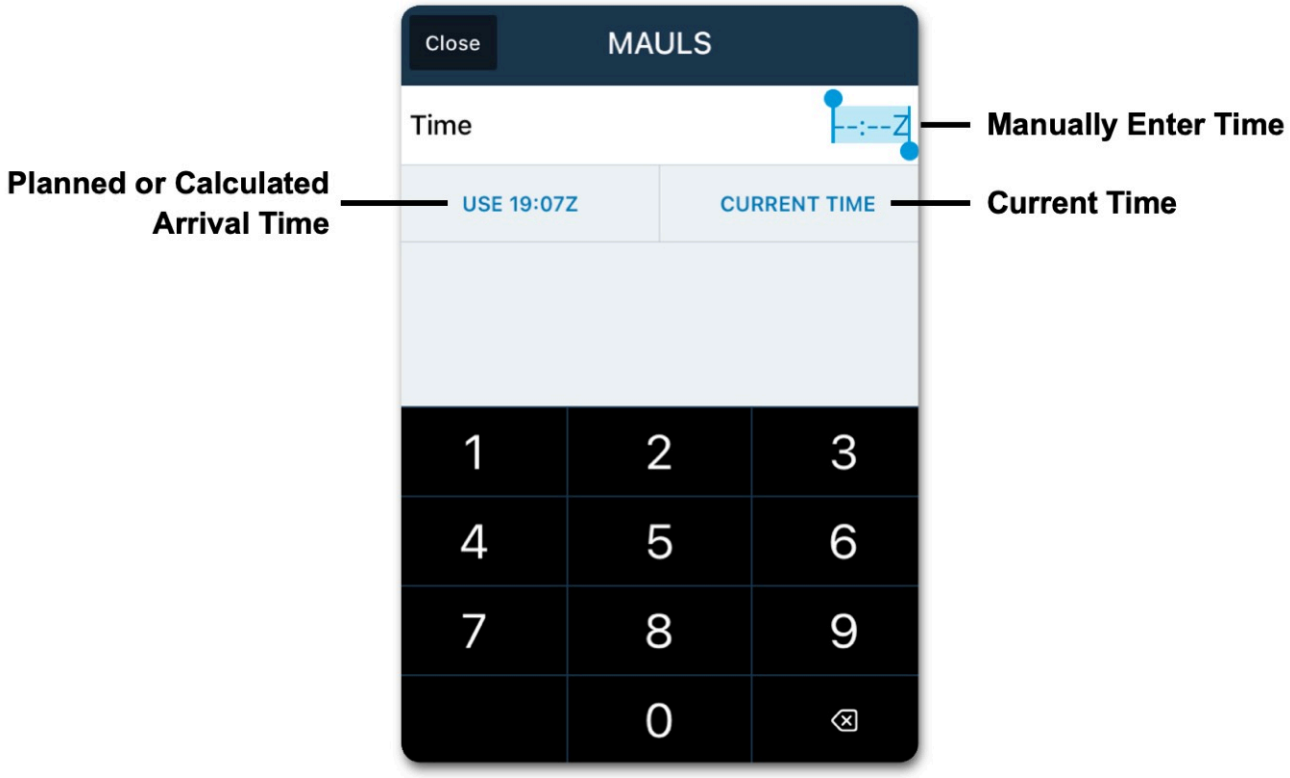


Figure 22-23. Waypoint Time Entry

> **NOTE:** Actual times are automatically copied to the Flight Log Times sections.

22.6.3 Adding Actual Fuel

To enter fuel details, tap the **Fuel** field for the appropriate waypoint and do one of the following:

1. The Fuel field is highlighted, and manual fuel entry can be completed by typing in the fuel amount. When complete, tap the **Close** button.
2. Tap **USE 0,000 LBS** to enter the planned waypoint fuel. If any actual fuel has been entered for previous waypoints, this fuel will be the calculated fuel. Tap the **Close** button in the menu header to save the fuel.

> **NOTE:** If the flight departs with more or less fuel than planned, the active navlog is replanned. See Active Navlog Planning Logic for more information.

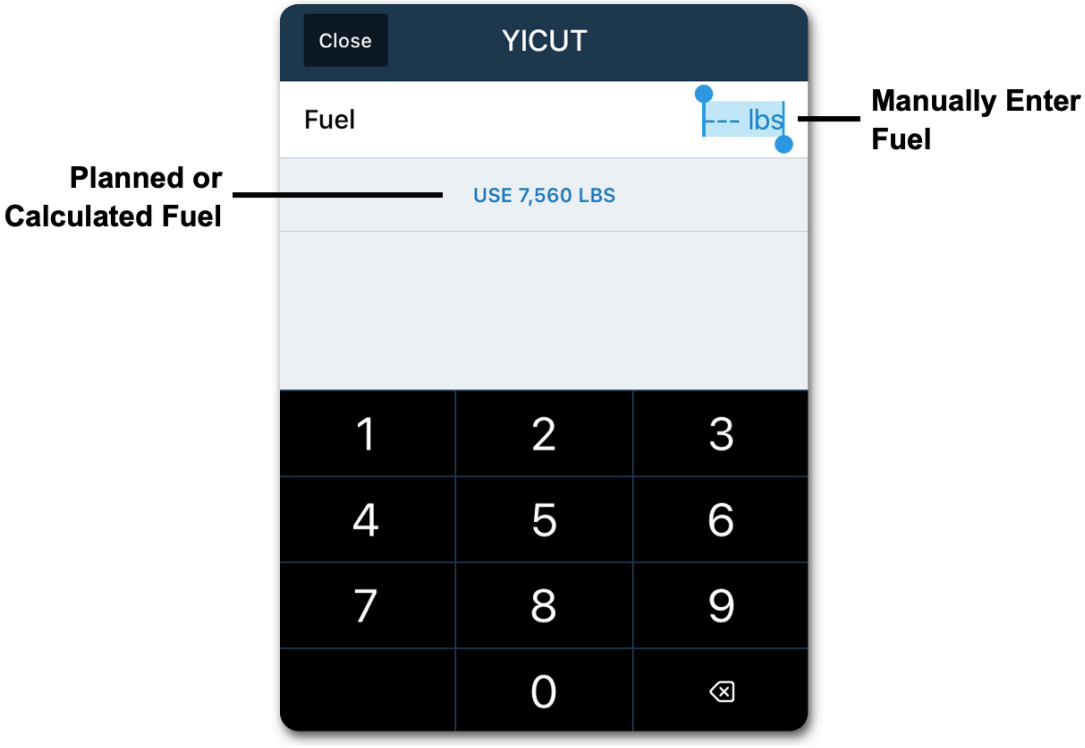


Figure 22-24. Waypoint Fuel Entry

> **NOTE:** The actual fuel amount entered at the destination ramp is automatically copied to the Fuel at Shutdown field in the Flight Log.

22.6.4 Adding Actual Altitude

To enter actual altitude:

1. Tap the Altitude field to open the Altitude pop-over.
2. Use the keyboard and flight level **[FL]** button (if necessary) to enter the waypoint crossing altitude.
3. When complete, tap the **Close** button in the menu header.

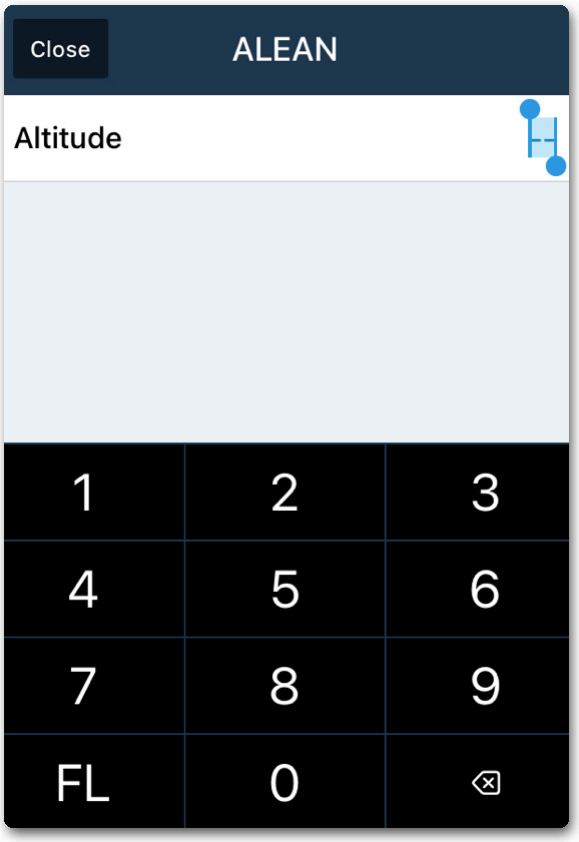
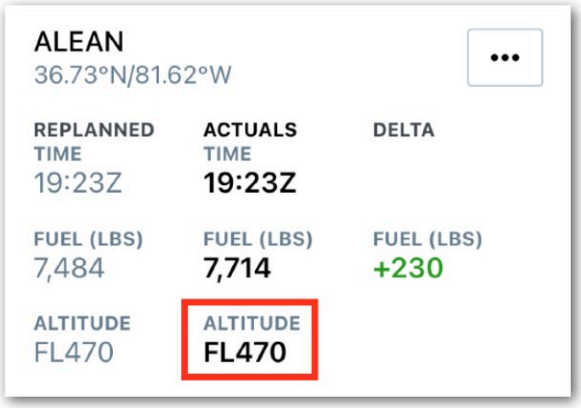


Figure 22-25. Waypoint Altitude Entry

When an actual crossing altitude is entered, it is displayed below the waypoint actuals. If this optional field is not entered, the ALT field is not displayed in the waypoint table for the waypoint.



NOTE: Adding an actual altitude does not affect planned or calculated values.

22.6.5 Adding Waypoint Remarks

Waypoint remarks can be added in the waypoint actuals editor. These remarks differ from the general remarks in the following ways:

- Waypoint remarks can be added, viewed, and edited from the waypoint actuals editor. General remarks can only be accessed from the Actions button in the upper toolbar.
- When the active navlog is signed, the contents of the waypoint remark are added in line with the waypoint to the Active Navlog PDF Document. General remarks are listed in a table on the first page of the Active Navlog PDF Document.

To add a waypoint remark:

1. Tap the Remarks field to open the keyboard.
2. Type in desired remarks.
3. Close the keyboard when finished to save the remarks.

The entered remarks will not be visible on the waypoint list unless the waypoint is selected. Remarks will be visible on the Active Navlog PDF Document in line with the waypoint on the waypoint table.



Figure 22-26. Entering Waypoint Remarks

22.6.5.1 Viewing or Deleting Waypoint Remarks

To view, edit, or delete a waypoint remark, tap the waypoint where the remark was entered. The remark will be visible in the **REMARKS** field. To delete the remark, use the keyboard to delete all or part of the remark. Close the keyboard to stop editing.

22.7 Editing Actual Flight Details

Time, Fuel, and Altitude actuals for any waypoint can be edited anytime. Editing waypoint actuals results in the same actions as when the actuals were originally added.

To edit an actual after it has been added, follow the steps below:

1. Tap on the waypoint to be edited.
2. Tap on the field to be adjusted.
3. Manually adjust the actuals.
4. When complete, tap the **Close** button in the menu header.

22.7.1 Deleting Actuals

If actual values were entered in error, they can be deleted. Deleting actuals restores estimates to the values that existed before the actual was added.

To delete an actual entry:

1. Tap on the waypoint to be edited.
2. Tap on the field to be adjusted.
3. Tap the backspace button to delete the entry.
4. When complete, tap the **Close** button in the menu header.

22.8 Editing the Route

Active Navlog can accommodate en-route changes. Edits made with Active Navlog are not reflected in the Flights view and vice versa.

1. To edit the route, tap the three-dot action button for the appropriate waypoint.
2. Select one of the actions.

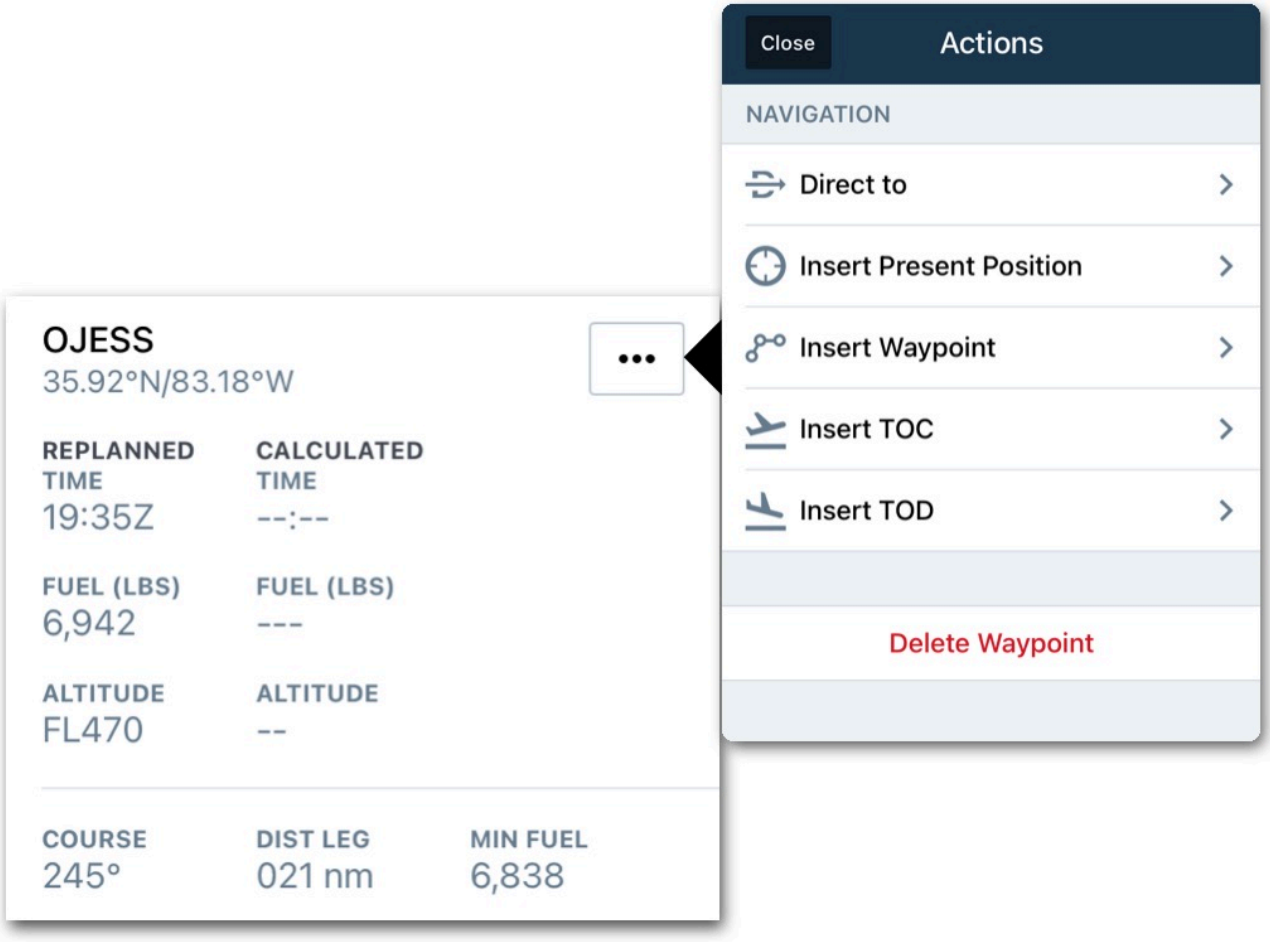


Figure 22-27. Route Edit Actions Menu

22.8.1 Direct To Route Edits

When rerouted direct to a waypoint, update the active navlog with the steps below:

1. Tap the waypoint where clearance has been received to fly Direct TO.
2. Tap the appropriate three-dot action button and select **Direct to.**

3. In the Direct to menu, select the FROM waypoint where the Direct to portion begins. When complete, tap **Confirm**.

> **NOTE:** If issued a direct to clearance from a position other than a route waypoint, first insert the coordinates or Present Position where the direct to portion of the route begins. Then, proceed with the direct to edit.

> **NOTE:** It is not possible to navigate directly to the top of climb or descent.

22.8.1.1 Logging ABEAM Details

Direct to route edits update the Navlog Waypoint list with a vertical line indicating where the Direct to portion begins and ends. An ABEAM field is added to the Actuals fields to allow recording when the aircraft is abeam the waypoint.

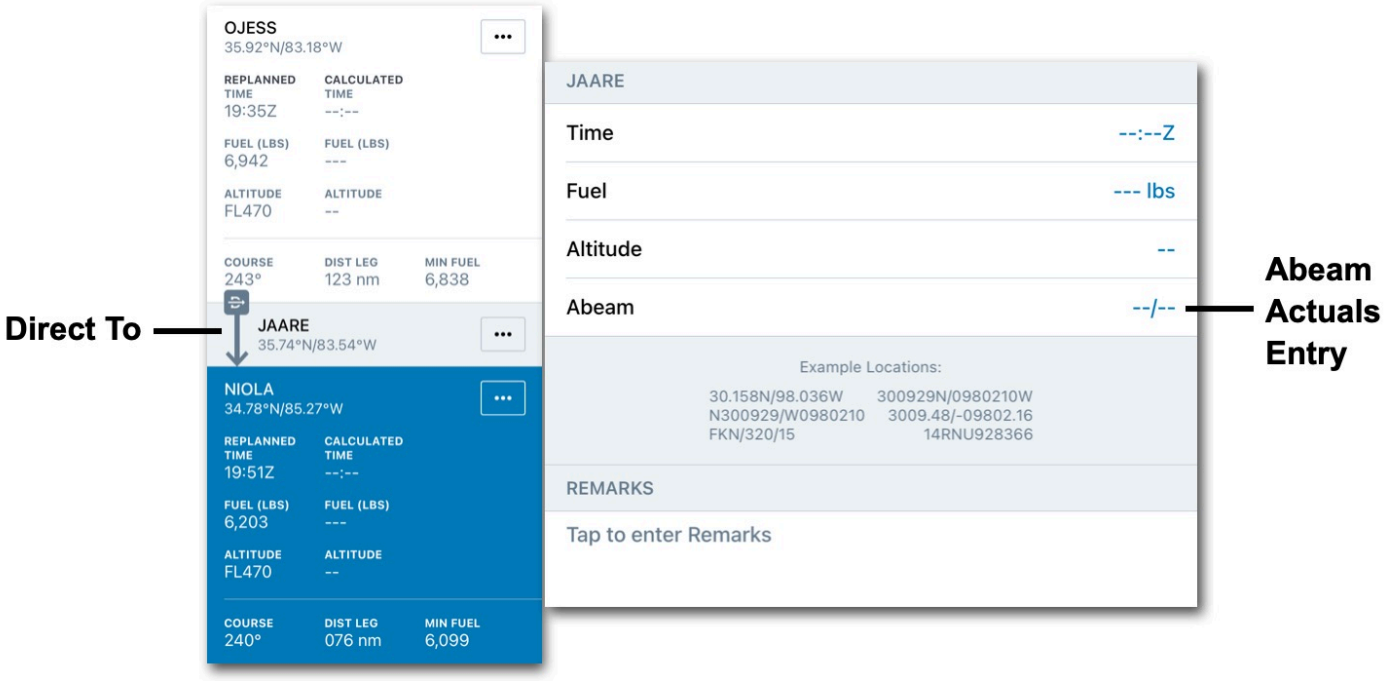


Figure 22-28. Route with Direct to edit

To record actual abeam details:

1. Tap the **ABEAM** field.
2. Tap **PRESENT POSITION** or enter coordinates manually.

3. When complete, tap the **Close** button in the menu header.



Figure 22-29. Abeam Field

> **NOTE:** The Abeam Location field is populated with current coordinates.

22.8.1.2 Removing a Direct To Edit

To remove a direct to edit:

1. Tap the three-dot action button for a bypassed waypoint.
2. Select **Undo abeam**.
3. Repeat for each waypoint as necessary.

22.8.2 Inserting Present Position

To add a Present Position to the route:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap**Insert Present Position**.
3. Tap**Insert Present Position Before** or **Insert Present Position After** as appropriate.
4. Tap the **CURRENT TIME** and **PRESENT POSITION** buttons or enter the information manually by tapping on that field and using the keyboard to enter the data.
5. When complete, tap the **Insert** button in the menu header.

The Present Position will be inserted into the waypoint list before or after the selected waypoint with the coordinates and time that was entered.

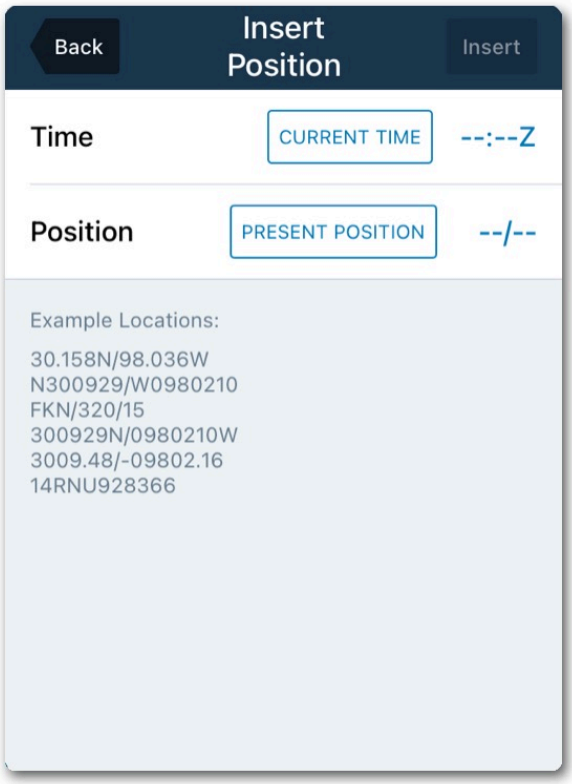


Figure 22-30. Insert Present Position

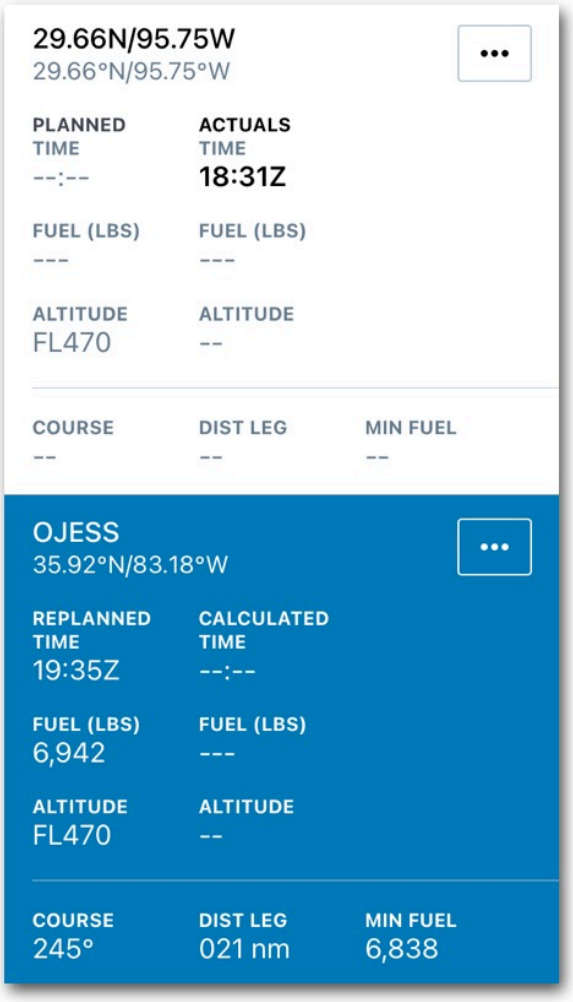


Figure 22-31. Present Position Inserted before OJESS

22.8.3 Inserting Route Waypoints

To add a waypoint to the route:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap**Insert Waypoint**.
3. Tap**Insert Waypoint Before** or **Insert Waypoint After** as appropriate.
4. Type in the waypoint coordinates, identifier, or airway as applicable.
5. When complete, tap the **Add** button in the menu header.

The waypoint will be inserted into the Waypoint list before or after the selected waypoint in the appropriate waypoint sequence.

> **NOTE:** It is not possible to insert a waypoint between waypoints where actual values have been entered, or before or after the departure airport.

Supported Waypoint Types

The following types of waypoints can be added to Active Navlog.

- Airport Identifiers
- Navaids
- Airways
- Waypoints
- Latitude/Longitude Coordinates.

22.8.4 Inserting Top of Climb (TOC)

To insert a TOC into the route:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap**Insert TOC**.
3. Tap**Insert TOC Before Waypoint** or **Insert TOC After Waypoint** as appropriate.

The TOC will be inserted into the waypoint list before or after the selected waypoint.

> **NOTE:** Tapping on the TOC waypoint allows actuals to be entered and edited similar to other waypoints.

22.8.5 Inserting Top of Descent (TOD)

To insert a TOD into the route:

1. Tap the three-dot action button for the appropriate waypoint.
2. Tap **Insert TOD**.
3. Tap **Insert TOD Before Waypoint** or **Insert TOD After Waypoint** as appropriate.

The TOD will be inserted into the waypoint list before or after the selected waypoint.

> **NOTE:** Tapping on the TOD waypoint allows actuals to be entered and edited similar to other waypoints.

22.8.6 Deleting Route Waypoints

To remove a waypoint from the route:

1. Tap the three-dot action button for the waypoint to be removed.
2. Select **Delete Waypoint**.
3. Tap the confirmation pop-up **Delete** button.

22.9 Signing the Active Navlog

Active Navlog can be signed at any time. Once signed, the following actions occur:

- The active navlog is locked and cannot be modified. Remove the signature to modify the active navlog.
- The Active Navlog PDF Document is generated.
- The active navlog is moved to the Past Flights list, and a signature icon is added to the flight.



Figure 22-32. Archived Flight - Active Navlog Signature Icon

To sign the Active Navlog, follow the steps below:

1. Tap the signature button in the upper toolbar to display the signature menu. The menu includes a timestamp and flight info. These fields cannot be edited using this menu.
2. Tap **Add Signature**.
3. If more than one crew member was assigned to the flight with Dispatch, select the crew member who will sign the active navlog. Only one signature is required.
4. Tap **Sign**.
5. Use a finger or a stylus to add a signature. When complete, tap **Close**.

22.9.1 Removing a Signature

If a signed active navlog requires modification, the signature must be removed. To remove a signature, follow the steps below:

1. Tap the signature button in the upper toolbar.
2. Tap **Delete Signature** ➔ **Delete**.

22.10 Sharing Active Navlog

The Active Navlog PDF Document can be shared after a signature has been added. The shared active navlog is a read-only file and cannot be used to modify actuals.

To share a signed active navlog:

1. Tap the **Document** button in the upper toolbar to open the PDF document.

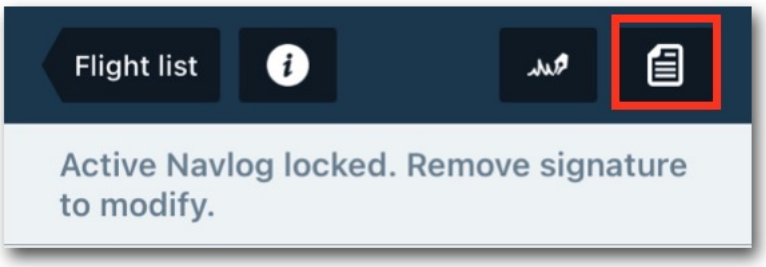


Figure 22-33. Document Button

2. While viewing the PDF document, tap the **Send To** button in the upper toolbar to open the iOS sharing menu.
3. Select one of the standard iOS sharing options. ForeFlight recommends sharing the navlog to the flight by selecting **Save to Flight's Files**.

> **NOTE:** The Active Navlog PDF Document is not automatically attached to the Flight's Files. If the flight was released from Dispatch, the signed PDF document is automatically listed alongside the other Navlog formats.

22.11 Active Navlog Cockpit Sharing

Active Navlog Cockpit Sharing facilitates seamless collaboration among multiple pilots on the same flight by centralizing the management of a single Active Navlog. This feature ensures that all flight crew members have immediate access to the most current flight plan details, encompassing updates to fuel logs, ETAs, and route revisions.

Requirements:

- The organization, tail, and users must have Dispatch, Business Performance, and Active Navlog
- Flight released by dispatch
- Users must be in the same organization
- WiFi and bluetooth enabled.

22.11.1 Connect to Cockpit Sharing

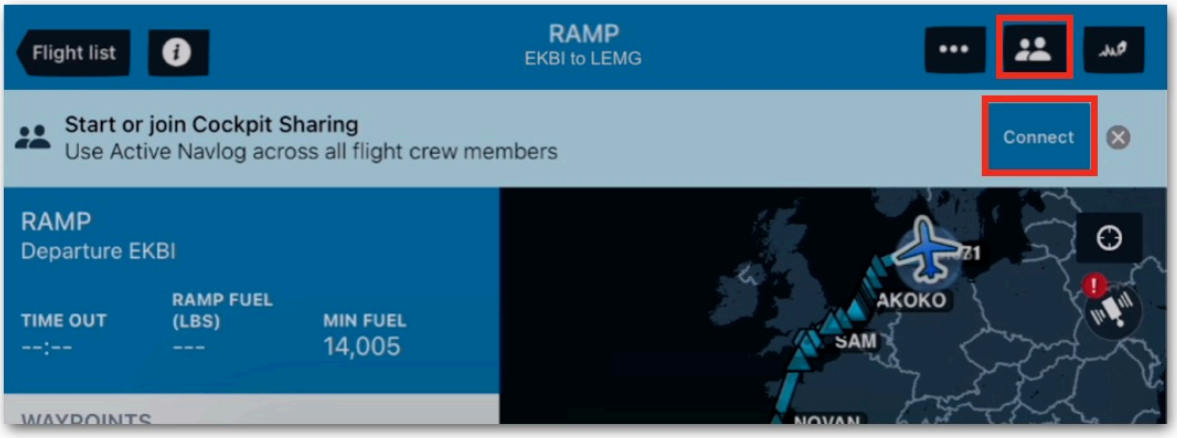
Once dispatch releases an Active Navlog to two or more users, they will be presented with the option to commence Cockpit Sharing. Within a shared session, one pilot assumes the role of the Master, with authority to edit and update the navlog throughout the flight. All other participants operate in a Read Only capacity, enabling them to view real-time changes without the ability to make modifications.

To start Cockpit Sharing:

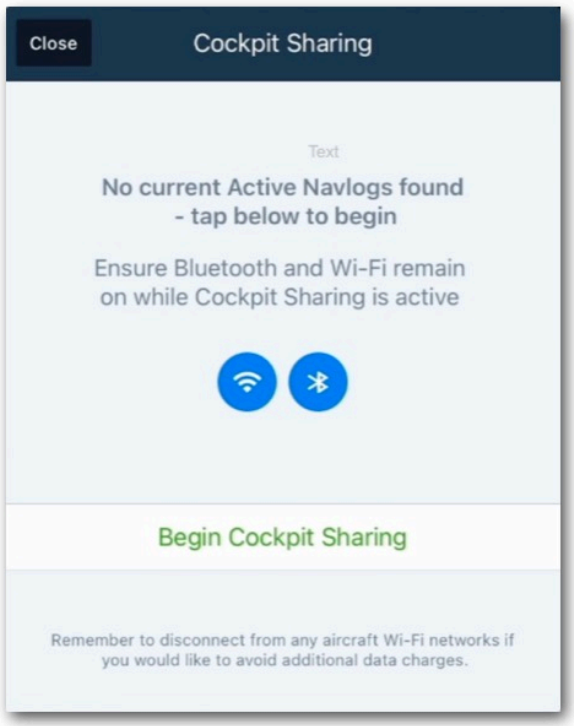
1. Navigate to Active Navlog (see Accessing the Active Navlog Editor).
2. All users select the same flight.

3 User 1 (Master):

Ⓐ Tap the **Connect** button or Cockpit Sharing icon.



Ⓑ Tap **Begin Cockpit Sharing** in the pop-over.



User 1 is now designated as Master user for this Active Navlog. A **Master** badge and **Devices Connected** is displayed in the Cockpit Sharing banner.



4 User 2 (read only):

Ⓐ Tap the **Connect** button or Cockpit Sharing icon.

Ⓑ Tap the **Join** button in the Cockpit Sharing pop-over.



Ⓒ Connected users are listed in the Cockpit Sharing banner and in the pop-over.

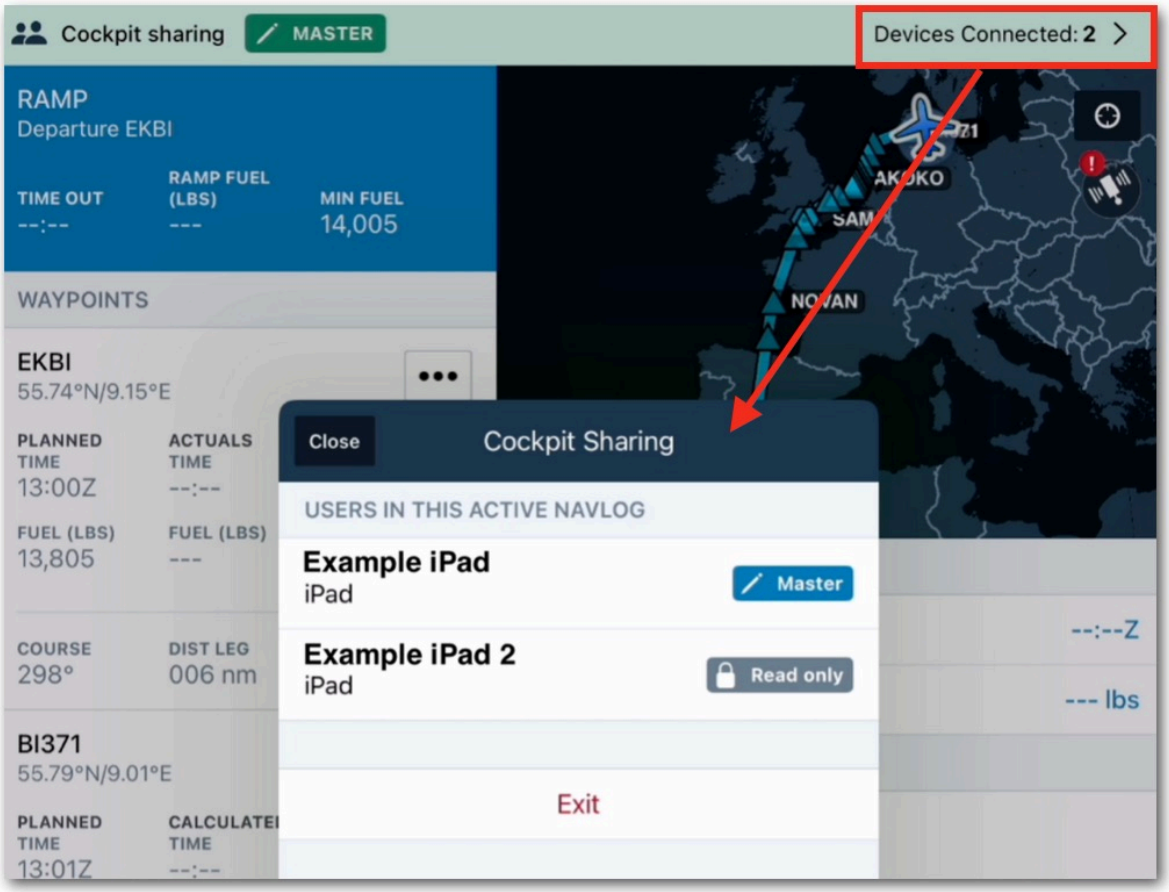


Figure 22-34. Title

5. The Master user may complete the Navlog. Read only users will see Navlog changes in real-time.

22.11.2 Transfer of Control

A Read Only pilot is able to assume Master control at any point during the flight by tapping the **Take Control** button.

If the Master device experiences a loss of connection, technical difficulties, or ForeFlight Mobile is closed, the Read Only user is automatically designated as the Master.

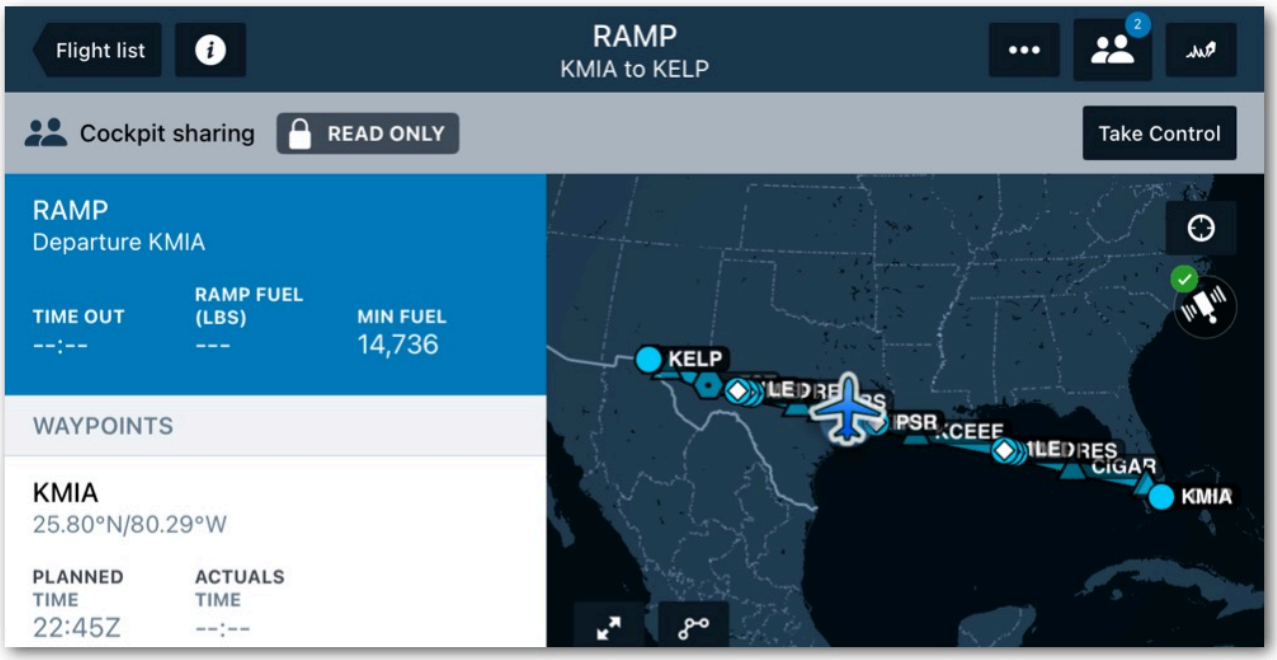


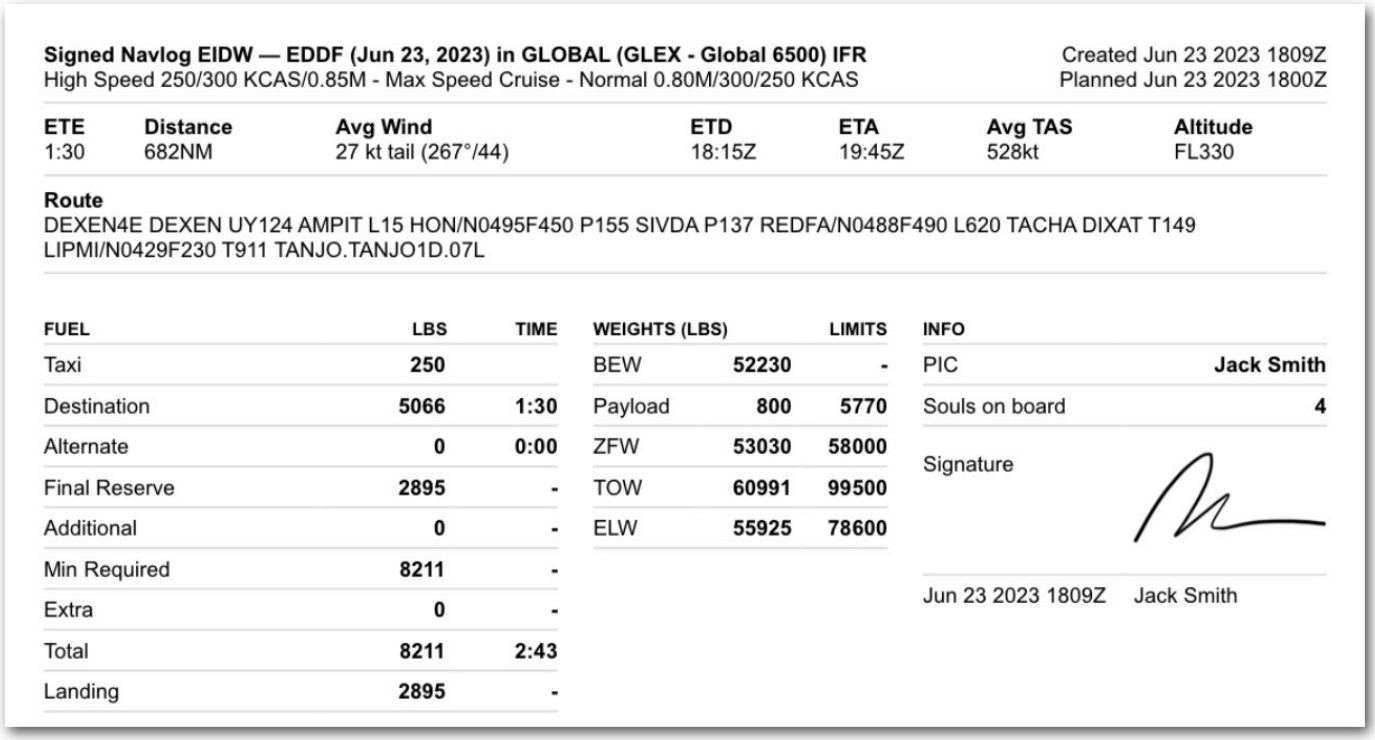
Figure 22-35. Transfer Control

22.12 Active Navlog PDF Document

The Active Navlog PDF Document is a read-only sharable file that is generated after an active navlog has been signed. The navlog is divided into various sections. Tap the document button in the upper toolbar to access the document. Each section of the navlog is described below in the order it appears in the document.

22.12.1 General Flight Information

The General Section of the Active Navlog PDF Document contains information from the Flight Details pop-up. With the exception of the signature, this information is based on planning data and is not updated with actuals.



Signed Navlog EIDW — EDDF (Jun 23, 2023) in GLOBAL (GLEX - Global 6500) IFR
High Speed 250/300 KCAS/0.85M - Max Speed Cruise - Normal 0.80M/300/250 KCAS

Created Jun 23 2023 1809Z
Planned Jun 23 2023 1800Z

ETE	Distance	Avg Wind	ETD	ETA	Avg TAS	Altitude
1:30	682NM	27 kt tail (267°/44)	18:15Z	19:45Z	528kt	FL330

Route
DEXEN4E DEXEN UY124 AMPIT L15 HON/N0495F450 P155 SIVDA P137 REDFA/N0488F490 L620 TACHA DIXAT T149 LIPMI/N0429F230 T911 TANJO.TANJO1D.07L

FUEL	LBS	TIME
Taxi	250	
Destination	5066	1:30
Alternate	0	0:00
Final Reserve	2895	-
Additional	0	-
Min Required	8211	-
Extra	0	-
Total	8211	2:43
Landing	2895	-

WEIGHTS (LBS)		LIMITS
BEW	52230	-
Payload	800	5770
ZFW	53030	58000
TOW	60991	99500
ELW	55925	78600

INFO	
PIC	Jack Smith
Souls on board	4

Signature

Jun 23 2023 1809Z Jack Smith

Figure 22-36. Active Navlog PDF Document - General Flight Information

22.12.2 Additional Information

If applicable, additional information, such as ramp times, remarks, and ATIS is included below the general flight information.

RAMP	TIME	FUEL (LBS)
OUT	19:31Z	(START) 19022
OFF	00:30Z	18772
ON	05:33Z	4509
IN	05:40Z	(SHUTDOWN) 4400

REMARKS	TIME	INFO
Remark 1	20:05Z	General Remark

ATIS	TIME	INFO
KBOS (DEP)	20:06Z	231855Z 14009KT 10SM FEW038 34/24 A2997

Figure 22-37. Additional Flight Information

Ramp Information

Each active navlog PDF document contains a RAMP section that displays the actual OUT, OFF, ON, and IN (OOOI) times and fuel amounts from the departure and destination.

Remarks

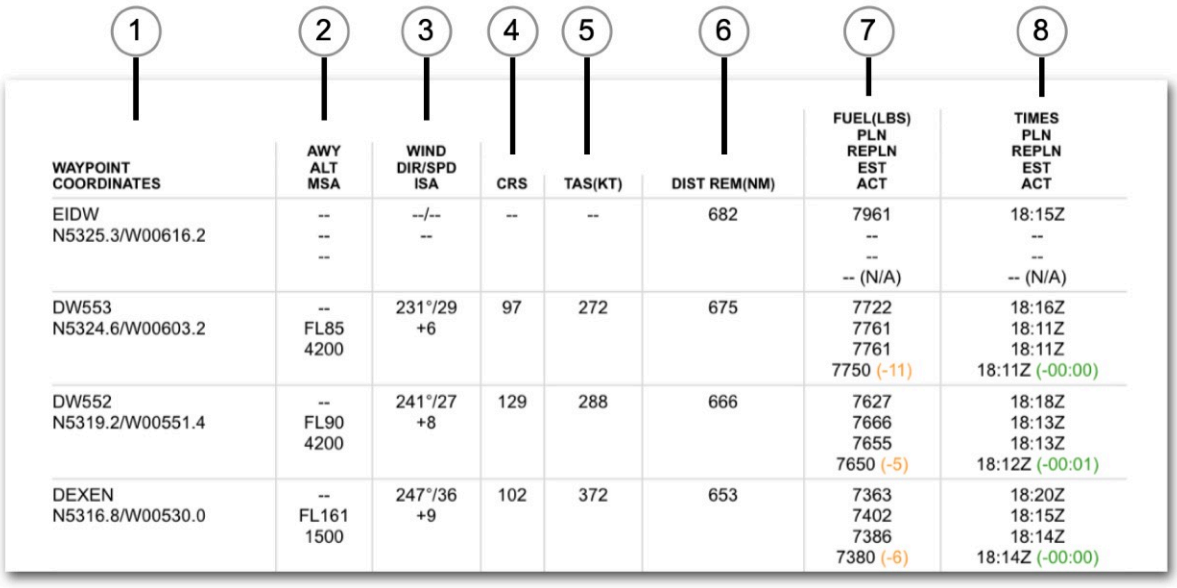
If a general remark is added using the Active Navlog Actions button, it is listed in the Additional Information section. If no general remarks are added, this section is hidden. As discussed later, waypoint remarks are added inline on the route table.

ATIS

If ATIS information is recorded using the Active Navlog Actions button, it is listed in the Additional Information section. If ATIS is not recorded, this section is hidden.

22.12.3 Route Table

The Route Table provides planned, estimated, and actual flight details. Refer to the image below for more information.



WAYPOINT COORDINATES	AWY ALT MSA	WIND DIR/SPD ISA	CRS	TAS(KT)	DIST REM(NM)	FUEL(LBS) PLN REPLN EST ACT	TIMES PLN REPLN EST ACT
EIDW N5325.3/W00616.2	-- -- --	--/-- --	--	--	682	7961 -- -- -- (N/A)	18:15Z -- -- -- (N/A)
DW553 N5324.6/W00603.2	-- FL85 4200	231°/29 +6	97	272	675	7722 7761 7761 7750 (-11)	18:16Z 18:11Z 18:11Z 18:11Z (-00:00)
DW552 N5319.2/W00551.4	-- FL90 4200	241°/27 +8	129	288	666	7627 7666 7655 7650 (-5)	18:18Z 18:13Z 18:13Z 18:12Z (-00:01)
DEXEN N5316.8/W00530.0	-- FL161 1500	247°/36 +9	102	372	653	7363 7402 7386 7380 (-6)	18:20Z 18:15Z 18:14Z 18:14Z (-00:00)

Figure 22-38. Route Table

NOTE: If a route waypoint is deleted using the Active Navlog Editor prior to generating the PDF document, the waypoint is in the PDF document displayed using strikethrough notation. Direct to route edits use similar notation as the Active Navlog Editor.

1. Waypoint identifier. Latitude/longitude coordinates. Coordinate format can be adjusted in **More → Settings → Unit/Times → Coordinates**.
2. Airway details:
   - **AWY:** Airway (if applicable).
   - **ALT:** Planned waypoint crossing altitude. If an *actual altitude* is entered, it is displayed below the MSA in bold text.

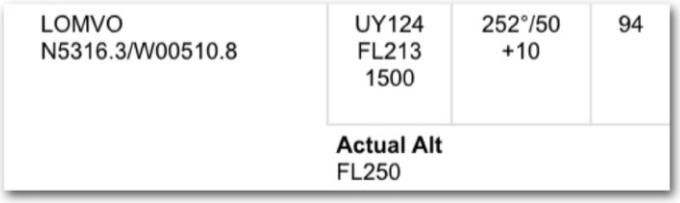


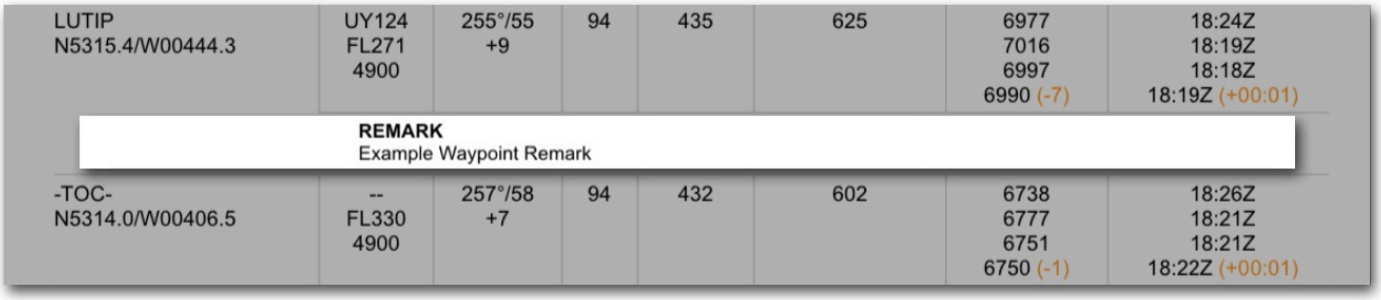
Figure 22-39. Waypoint with Actual Altitude

   - **MSA:** The highest grid MORA value encountered along a route segment. See MORA for obstacle clearance definition.
3. Forecast wind/temps at the waypoint:
   - **DIR:** Forecast wind direction (true).
   - **SPD:** Forecast wind speed.

    - **ISA:** Temperature relative to the international standard.
4. **CRS:** Magnetic course to the waypoint.
5. **TAS:** Planned true airspeed upon crossing the waypoint.
6. **DIST REM:** Route distance remaining in nautical miles.
7. Fuel details as described below:
    - **PLN:** Planned fuel amount when reaching the waypoint.
    - **REPLN:** Replanned fuel amount. This value is calculated when the departure airport's time or fuel differs from planned. See Active Navlog Planning Logic for more information.
    - **EST:** Estimated fuel when reaching the waypoint. This value is determined by actual fuel amount of the previous waypoint.
    - **ACT:** Actual fuel amount as entered by the user. The difference between the planned and actual fuel is displayed in color-coded font. Actual fuel amounts less than planned are displayed in orange. Actual fuel amounts equal to or greater than planned are green.
8. Time details as described below (from top to bottom):
    - **PLN:** Planned waypoint crossing time.
    - **REPLN:** Replanned waypoint crossing time. This value is calculated when the departure airport's time or fuel differs from planned. See Active Navlog Planning Logic for more information.
    - **EST:** Waypoint estimated crossing time. This time is determined by the previous waypoint's crossing time.
    - **ACT:** Actual waypoint crossing time. The difference between the planned and actual times are displayed in color-coded font. Arrival times later than planned are orange. Arrival times earlier than planned are green.

22.12.4 Waypoint Remarks

When a remark is added to a waypoint, the contents of the remark are added inline to the route table section of the PDF document.

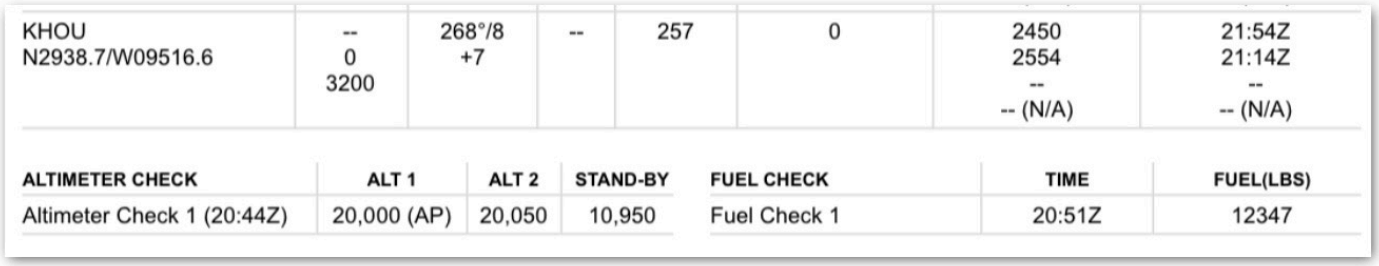


LUTIP N5315.4/W00444.3	UY124 FL271 4900	255°/55 +9	94	435	625	6977 7016 6997 6990 (-7)	18:24Z 18:19Z 18:18Z 18:19Z (+00:01)
	REMARK Example Waypoint Remark						
-TOC- N5314.0/W00406.5	-- FL330 4900	257°/58 +7	94	432	602	6738 6777 6751 6750 (-1)	18:26Z 18:21Z 18:21Z 18:22Z (+00:01)

Figure 22-40. Waypoint Remark

22.12.5 Altimeter and Fuel Checks

If Altimeter or Fuel Checks are performed, the check details are included at the end of the PDF document. If no checks are performed, this section is hidden.



KHOU N2938.7/W09516.6	-- 0 3200	268°/8 +7	--	257	0	2450 2554 -- -- (N/A)	21:54Z 21:14Z -- -- (N/A)

ALTIMETER CHECK	ALT 1	ALT 2	STAND-BY	FUEL CHECK	TIME	FUEL(LBS)
Altimeter Check 1 (20:44Z)	20,000 (AP)	20,050	10,950	Fuel Check 1	20:51Z	12347

Figure 22-41. Altimeter and Fuel Checks

ACTIVE NAVLOG OCEANIC PLOTTING

Oceanic Plotting is a valuable tool that helps crews maintain course accuracy in non-radar environments without ATC surveillance. This feature emerges from regulatory requirements ensuring flights adhere to pre-planned flight paths and ensuring safety and compliance over large non-radar areas such as oceanic crossings. The ForeFlight development is rooted in the guidelines set forth by FAA Advisory Circular 91-70C and ICAO NAT Doc 007.

> **IMPORTANT:** The Active Navlog Oceanic Plotting chapter aligns with the procedures detailed in the Active Navlog Chapter. The steps outlined in this chapter specifically pertain to Oceanic Plotting.

23.1 About Oceanic Plotting

Oceanic Plotting requires a Dispatch account with Active Navlog activated. Oceanic Plotting is integrated with Active Navlog to provide flight progress tracking. ForeFlight's comprehensive planning and navigation features offer safe, efficient, and compliant operations while flying on oceanic routes and in non-radar airspace.

The checklist workflow recommended in AC 91-70C encourages an orderly task flow and reduces oceanic vertical, lateral, longitudinal, and timing navigation errors. The steps outlined in this chapter relate to Active NavLog functions specific to Oceanic Plotting.

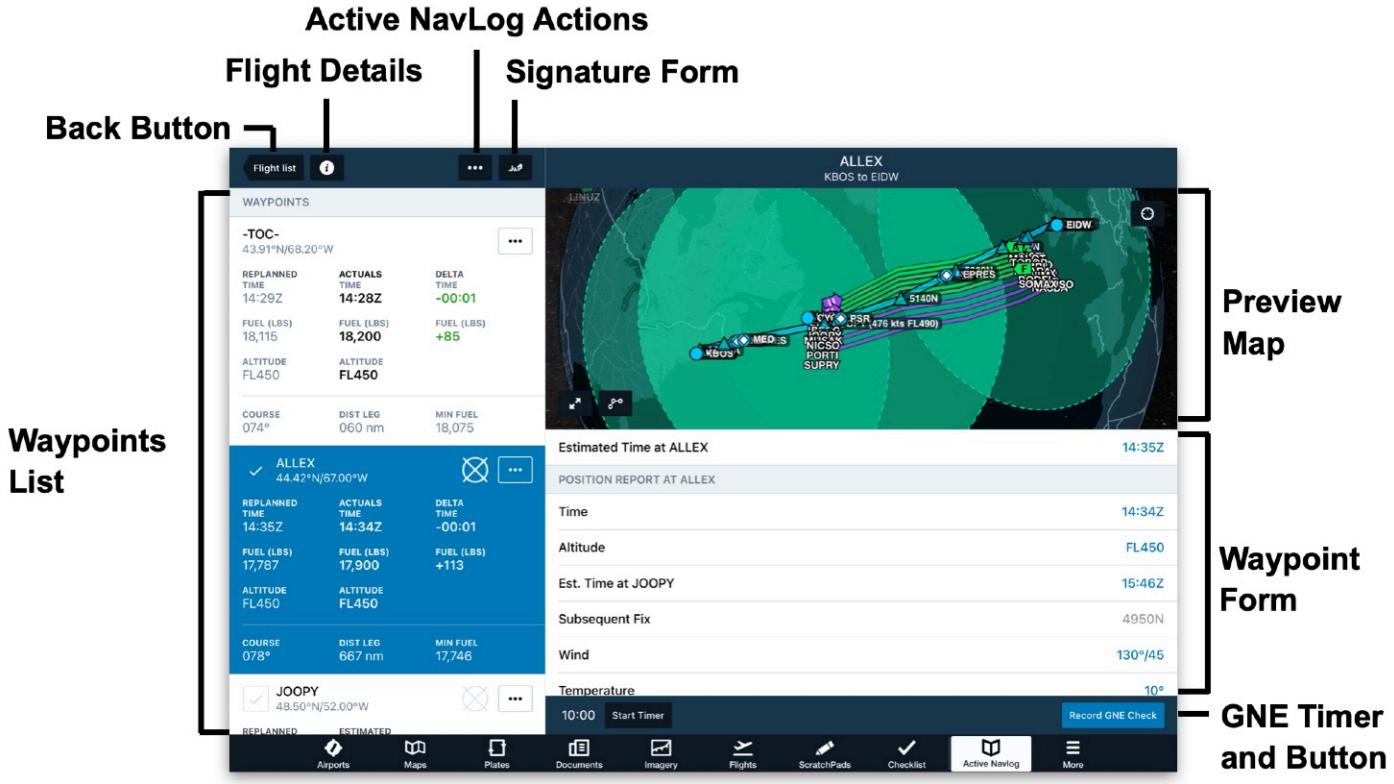


Figure 23-1. Oceanic Plotting Active Navlog Layout

23.1.1 Oceanic Plotting Steps

The procedures for Oceanic Plotting follow these steps:

- Flight Planning – The crew receives an oceanic clearance and will assign the Oceanic Entry (Coast-Out) and Oceanic Exit (Coast-In) points, activating the Oceanic Plotting symbols.
- Preflight Waypoint Verification – The crew will complete first and second pilot waypoint verification.

- Subsequent Waypoint Verification – The crew will follow established procedures in flight to verify subsequent waypoints.
- Current Waypoint Verification – The crew will transmit a position report, complete a GNE check, and verify current waypoint information.
- The Master Document – The Master Document is signed and saved as a PDF.

> **IMPORTANT:** Organizational procedures for Oceanic Flights will include comprehensive steps aligned with AC 91-70C. This chapter only contains steps using ForeFlight Oceanic Plotting tools for planning and documentation.

23.2 Flight Planning (Oceanic Entry & Exit Assignment)

The flight plan (documented in the Navlog) and the oceanic clearance are used to create the Master Flight Plan (Master Document). The Master Document will be accessed via the Active Navlog to record waypoint crossing and flight progress.

> **NOTE:** When an oceanic clearance is received in flight, the verification steps must be completed en route.

23.2.1 Designating Oceanic Entry

A point where non-radar procedures begin and radar contact ends must be designated. This point will be identified in the Oceanic Clearance. To designate an Oceanic Entry Point to begin non-radar procedures, follow these steps:

1. Find the waypoint on the waypoint list where Oceanic Plotting will begin.
2. Tap the three dot action button for the waypoint.

3 Tap **Start Non-Radar Procedures**.

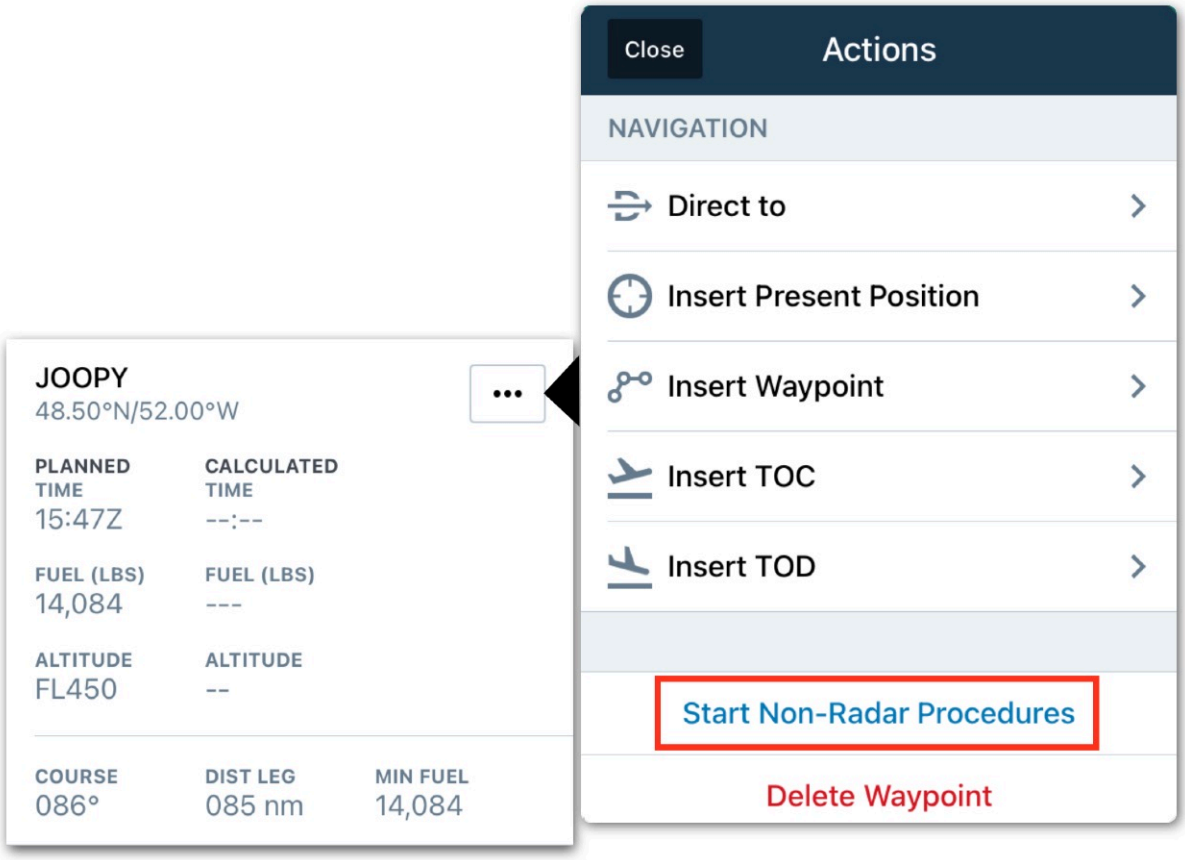


Figure 23-2. Beginning Non-Radar Procedures

The Oceanic Plotting symbology is visible on the waypoint where non-radar procedures begin and all subsequent waypoints.

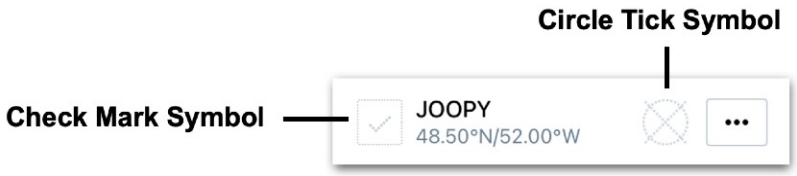


Figure 23-3. Oceanic Plotting Symbology

23.2.2 Designating Oceanic Exit

A point where non-radar procedures end and radar contact begins again must be designated. This point will be identified in the Oceanic Clearance. To designate an Oceanic Exit Point to end non-radar procedures, follow these steps:

1. Find the waypoint on the waypoint list where Oceanic Plotting will end.
2. Tap on the three-dot action button for the waypoint.
3. Tap **End Non-Radar Procedures**.

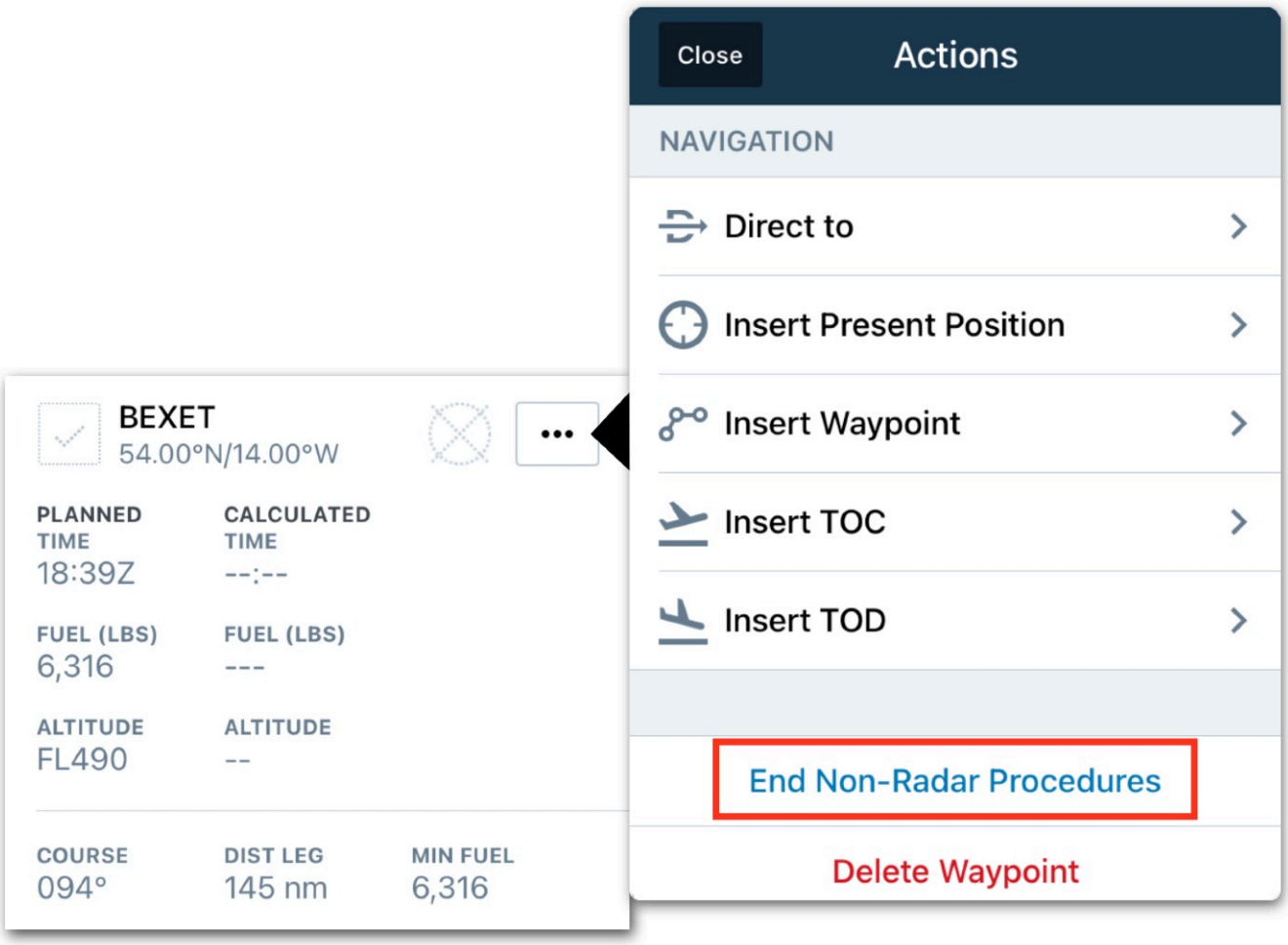


Figure 23-4. End Non-Radar Procedures

After a waypoint is designated the Oceanic Exit Point, where non-radar procedures will end, all oceanic plotting symbols will be removed from subsequent waypoints.

NOTE: The Oceanic Entry Point or Oceanic Exit Point can be a known waypoint or coordinates. To insert an Oceanic Entry or Exit in the waypoint list, go to Inserting Route Waypoints.

23.3 Preflight Waypoint Verification

ForeFlight Oceanic Plotting utilizes the circle tick methodology. After the Oceanic Entry and Oceanic Exit waypoints are established and entered into the Waypoint List, the crew should independently verify each waypoint.

23.3.1 First Pilot Waypoint Verification

To complete the first pilot verification, follow these steps:

1. Load the entire route into the Long Range Navigation System (LRNS), using the Master Document as the source.
2. Verify that the routing has been loaded correctly.
3. Tap on the **Circle symbol** for the desired waypoint to signify entry of the coordinates in the navigation computer have been verified.

The Circle symbol will change to a solid blue color, indicating that the first pilot verification is complete.

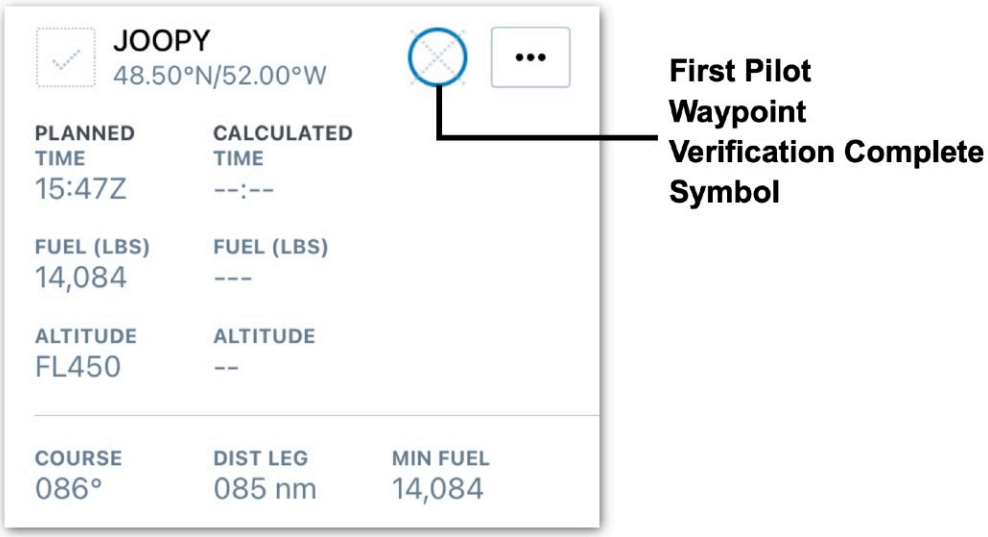


Figure 23-5. First Pilot Waypoint Verification

23.3.2 Second Pilot Waypoint Verification

After the first pilot has loaded and verified the LRNS entries against the flight plan, the second pilot should complete the following steps:

1. Confirm the waypoint data comparing what was entered into the LNRS against the flight plan document.
2. Tap the checkmark symbol for the desired waypoint to signify that they have cross-checked the coordinates in the navigation computer.

The checkmark symbol will change to a solid blue color, indicating that the second pilot waypoint verification is complete.

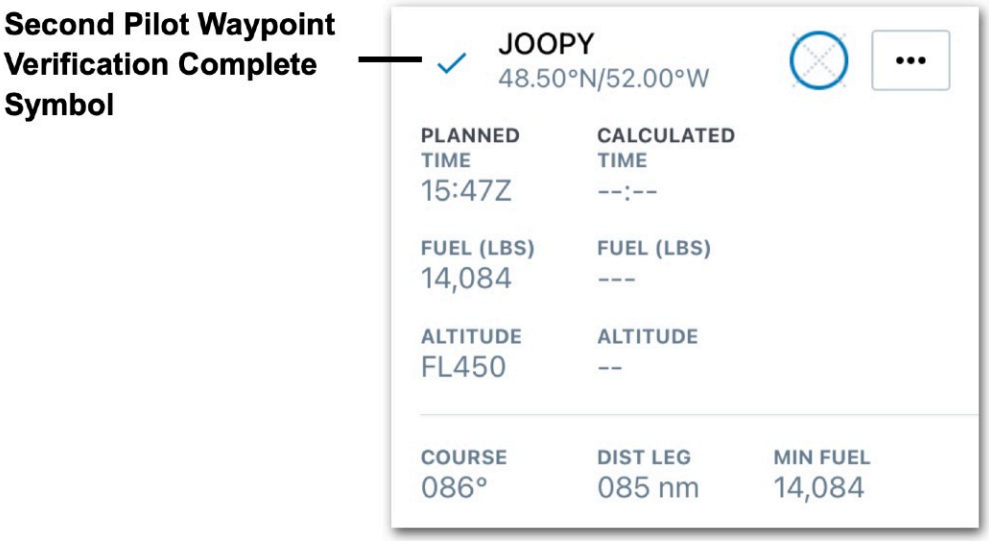


Figure 23-6. Second Pilot Verification Symbol

23.4 Subsequent Waypoint Verification

At a pre-established time before reaching each oceanic waypoint, verify the next and subsequent waypoints. Using the current effective route clearance, verify the expanded Flight Management Computer (FMC) coordinates for the next and subsequent waypoints. Check that the expected outbound magnetic course and distance to the next waypoint presented in the FMC agree with that clearance.

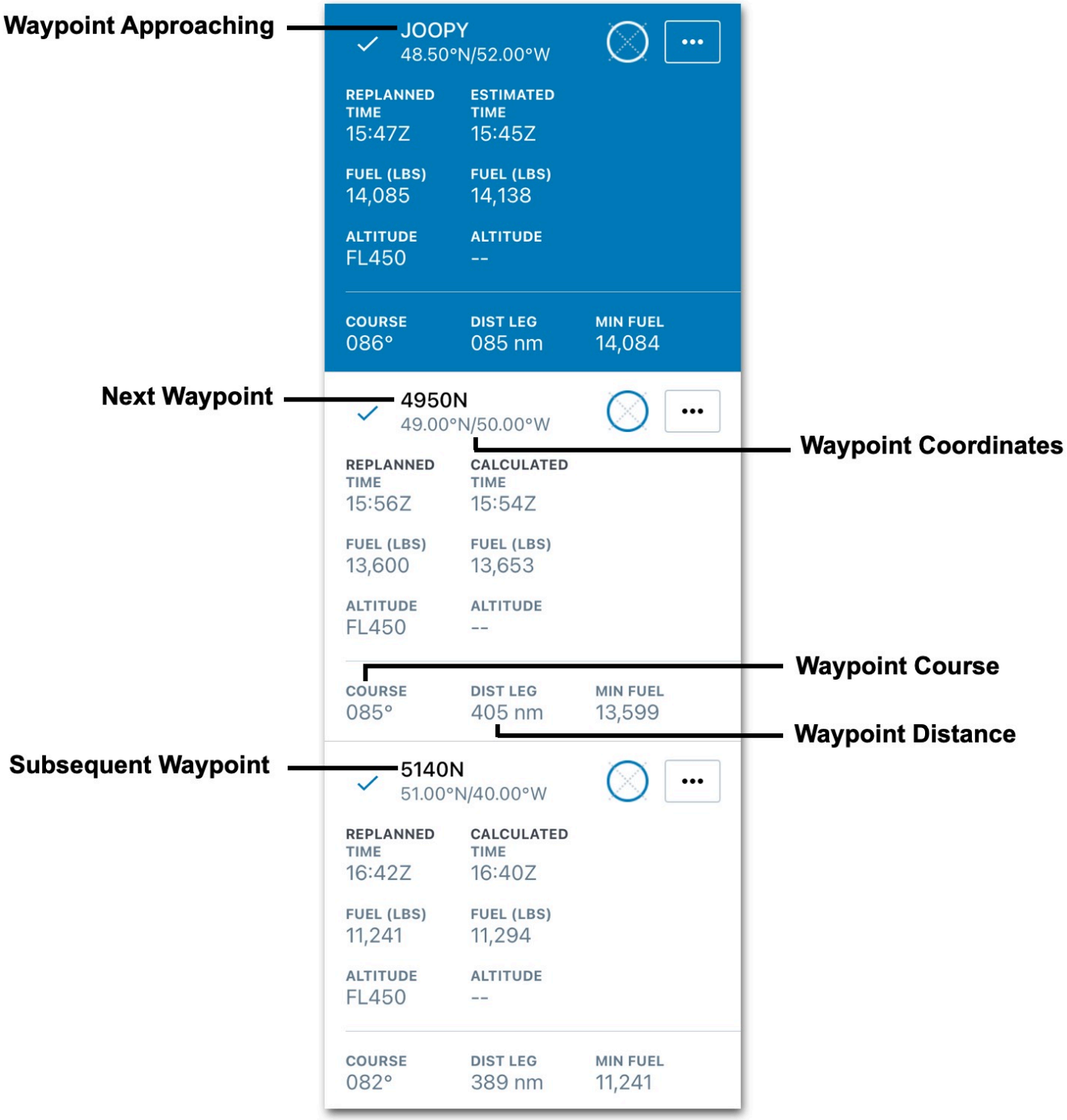


Figure 23-7. Subsequent Waypoint Verification

23.4.1 Marking Subsequent Waypoint Verification Complete

After verifying the waypoints, tap the circle symbol for the current waypoint being approached. A blue forward diagonal line will appear on the circle symbol to signify that the next and subsequent waypoints have been verified.

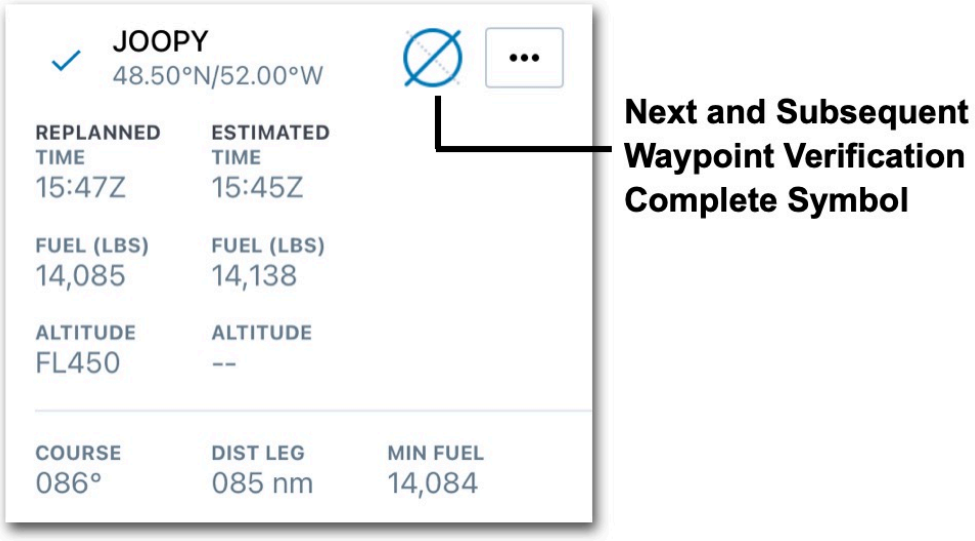


Figure 23-8. Next and Subsequent Waypoint Verification Complete

23.5 Current Waypoint Verification

When arriving at waypoints, two tasks must be completed: a position report and a GNE Check.

23.5.1 Position Reports

A position report must be completed at designated waypoints. Every oceanic waypoint has a form to enter data and record it to the Master Document. To access the position report form, tap on the waypoint. The POSITION REPORT AT "[WAYPOINT NAME] will be visible in the right-hand panel of the screen.

For details on filling out the fields, see the section starting with Adding Actual Time in the Active Navlog chapter.

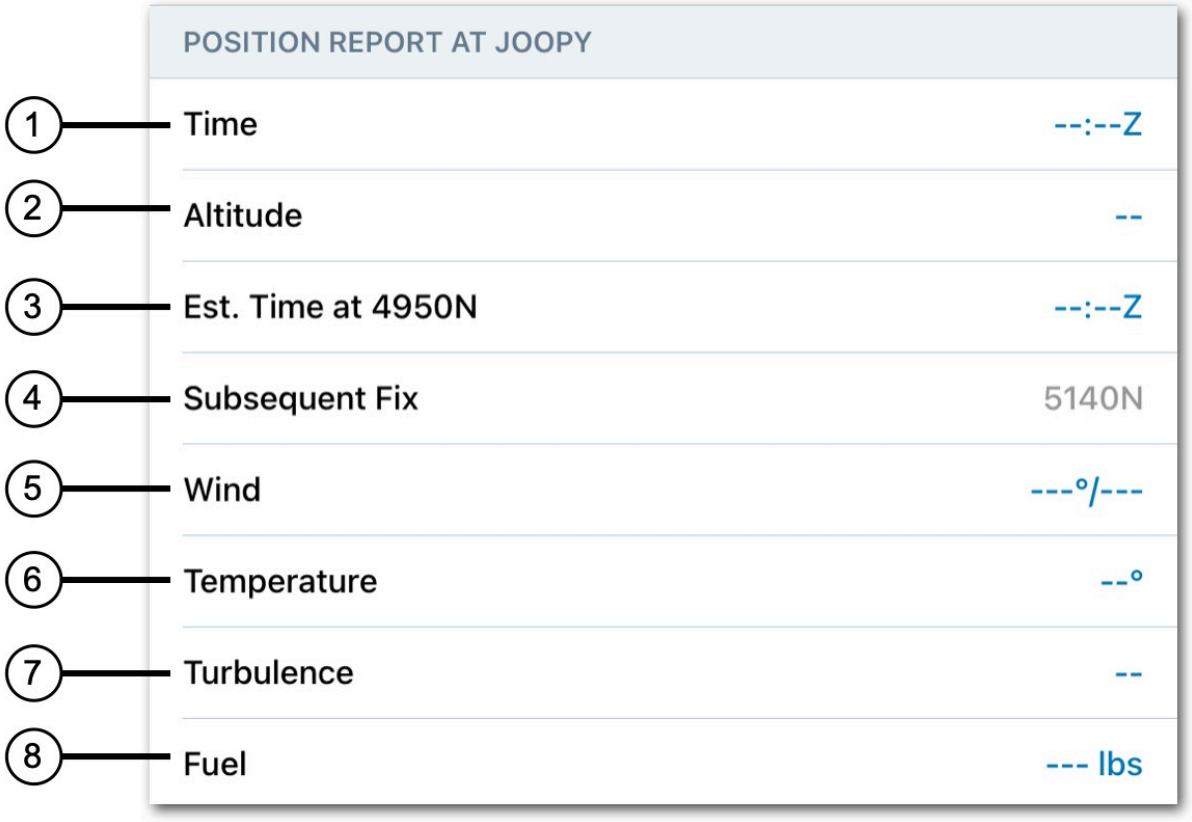


Figure 23-9. Position Report Actuals Entry

1. **Time**: The time can be entered manually or using the calculated time or current time buttons.
2. **Altitude**: Enter the altitude flown when crossing the waypoint.

3. **Est. Time at [Next Waypoint Name]**: The time can be entered manually or using the calculated time button.
4. **Subsequent Fix**: Displays the Waypoint identifier for the subsequent waypoint. This field is not editable.
5. **Wind**: Current wind direction and speed can be recorded by tapping the wind field and using the keyboard to enter the data.
6. **Temperature**: Current temperature data can be recorded by tapping the temperature field and using the keyboard to enter the data.
7. **Turbulence**: Current turbulence or chop data can be recorded, as well as intensity. To record turbulence data, tap the Turbulence field and use the keyboard to enter the data.
8. **Fuel**: The fuel onboard at the current waypoint can be recorded.

23.5.2 Gross Navigational Error (GNE) Check

Cross-check procedures, specifically the GNE Check, enable pilots to determine the aircraft is established on the cleared route, preventing significant navigational errors from occurring. Follow the procedures in this section to complete a GNE Check.

23.5.2.1 GNE Timer

When crossing a waypoint, tap the waypoint being crossed in the waypoint list and then tap the **Start Timer** button located at the bottom of the waypoint form. A countdown from 10 minutes will begin. When the timer reaches 0:00, a message will be presented indicating it is time to record the GNE check.



Figure 23-10. GNE Timer and Record GNE Check Buttons

23.5.2.2 Recording GNE Check

1. To add a GNE check, with the applicable waypoint selected, enter the time and coordinates into the GNE Check section in the waypoint form or tap the **Record GNE Check** button to open the GNE Check pop-over.

2. To record time, in the Time field, tap the **CURRENT TIME** button. The current time will autofill into the Time field.

   If the current time is not preferred, then enter the time manually by tapping the blank time field. Use the keyboard to enter the desired time and select the **Close** button to record the time.

3. To record the position, in the Position field, tap the **PRESENT POSITION** button. The coordinates for the present position will autofill into the Position field.

   To enter a position manually, tap the blank coordinates field to open the position pop-over. Enter the desired coordinates and select the **Close** button to record the position.

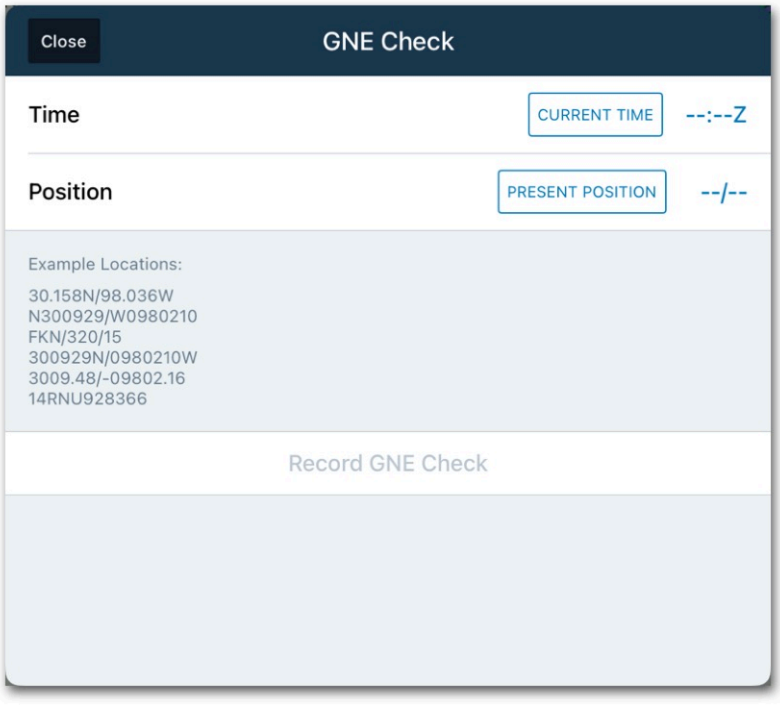


Figure 23-11. GNE Check Time and Position Pop-Over

4. Once the Time and Position have been recorded, tap the **Record GNE Check** button at the bottom of the GNE Check pop-over to save the GNE Check.

23.5.3 Recording Final Waypoint Verification

After the GNE Check is saved, the final waypoint verification is complete. Tap the circle symbol for the waypoint to display the final diagonal line.

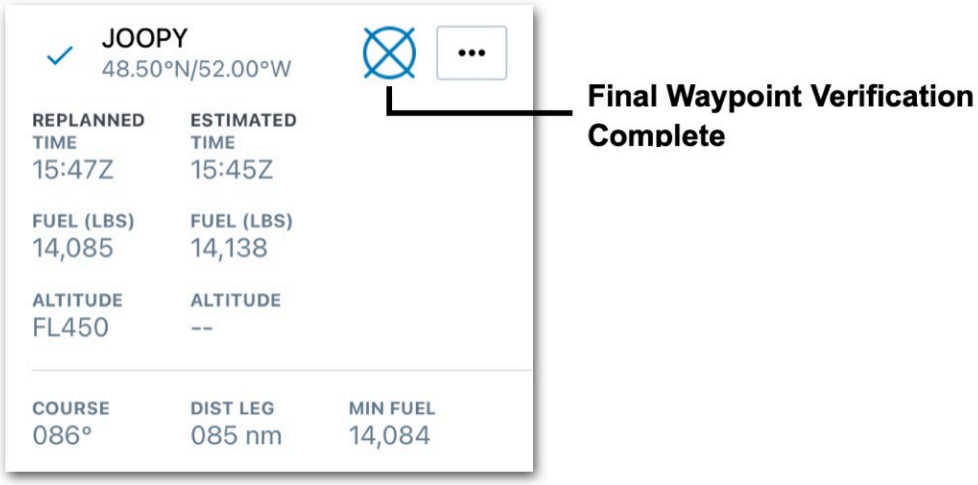


Figure 23-12. Final Waypoint Verification

NOTE: The crew will perform subsequent and current waypoint verification for all oceanic waypoints repeating the steps presented above.

23.6 Signing the Master Document

After the flight is complete, the Master Document can be signed and locked to prevent further editing. To do so, follow these steps:

1. From the Upper Toolbar, tap the **Signature** button.
2. Select **Add Signature**.
3. Select the crew member that will be signing.
4. Select **Sign**.
5. Add a signature.
6. Select **Done**.
7. Select **Close** in the upper left corner of the Signature pop-over.

When completed, a Document button will appear to the right of the Signature button. See Signing the Navlog for more details. The Master Document can be viewed as a PDF by tapping the **Document** button. See the Active Navlog PDF Document section for details about the document design.

23.6.1 Removing a Signature from the Master Document PDF

If the Master Document PDF is signed but the signature needs to be removed, Follow these steps:

1. Tap on the **Signature** button in the top right-hand corner of the left hand column.
2. At the bottom of the Signature pop-over, select **Delete Signature**.
3. Select **Delete** from the confirmation pop-over.
4. Select **Close** from the upper left-hand corner of the pop-over.

23.7 Finalizing Master Document (Active Navlog PDF)

The Master Document records all of the flight data that was entered during a flight using Active Navlog Oceanic Plotting, including Altimeter and Fuel Checks, Oceanic Plotting symbols, Position reports, and more. The features presented in this chapter are specific to Oceanic Plotting. See Active Navlog PDF Document for more details.

23.7.1 Route Table

The Circle/Tick symbology is added to the Route Table in the waypoint identifier column.

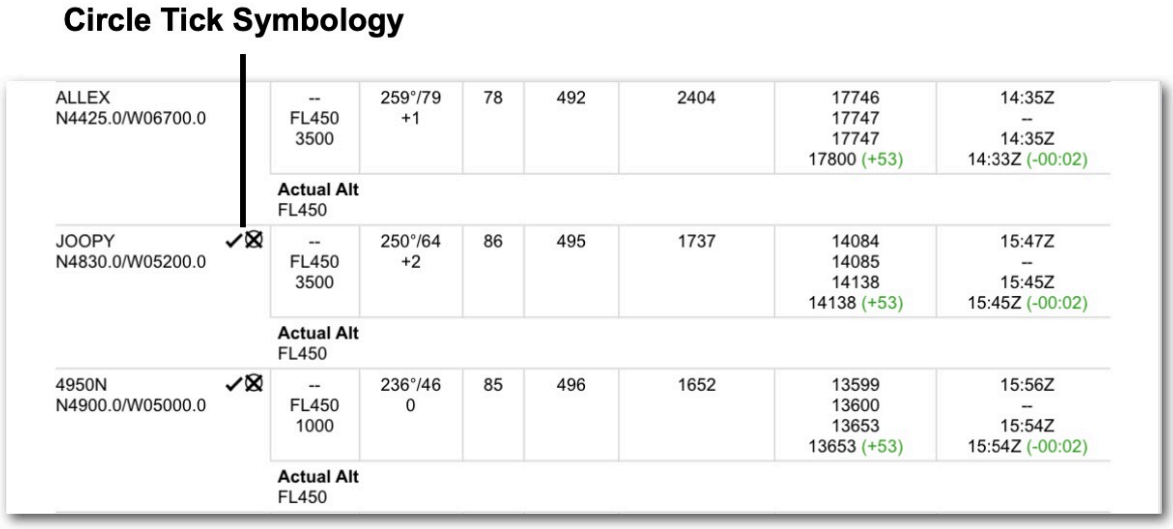
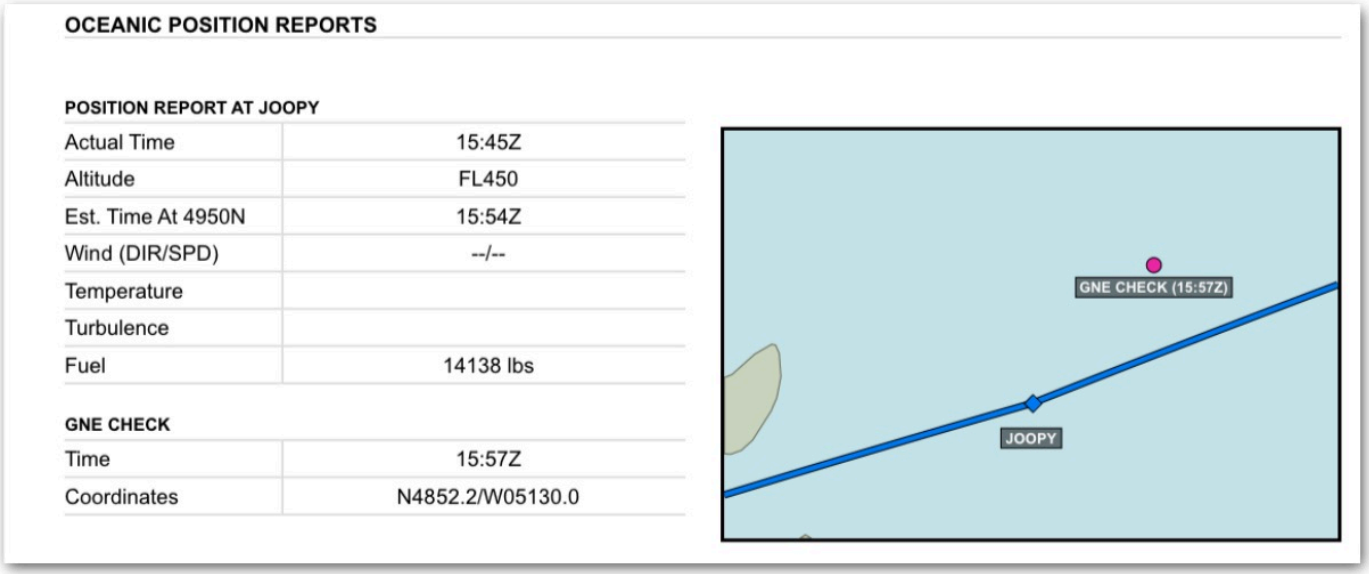


Figure 23-13. Route Table with Oceanic Plotting Symbols

23.7.2 Oceanic Position Reports and GNE Check

The en route position report and GNE Check information is saved to the master document and available for viewing after the Route Table and is listed as Oceanic Position Reports. An example of a position report at JOOPY is shown below:



OCEANIC POSITION REPORTS

POSITION REPORT AT JOOPY

Actual Time	15:45Z
Altitude	FL450
Est. Time At 4950N	15:54Z
Wind (DIR/SPD)	--/--
Temperature	
Turbulence	
Fuel	14138 lbs

GNE CHECK

Time	15:57Z
Coordinates	N4852.2/W05130.0

Figure 23-14. Oceanic Position Report on Active Navlog PDF

BRIEFING

ForeFlight Mobile can generate graphical HTML or PDF preflight briefings from the Flights view. Once generated, briefings sync between devices on an account and remain saved for 120 days. This feature is available to all ForeFlight plan holders and requires an active internet connection.

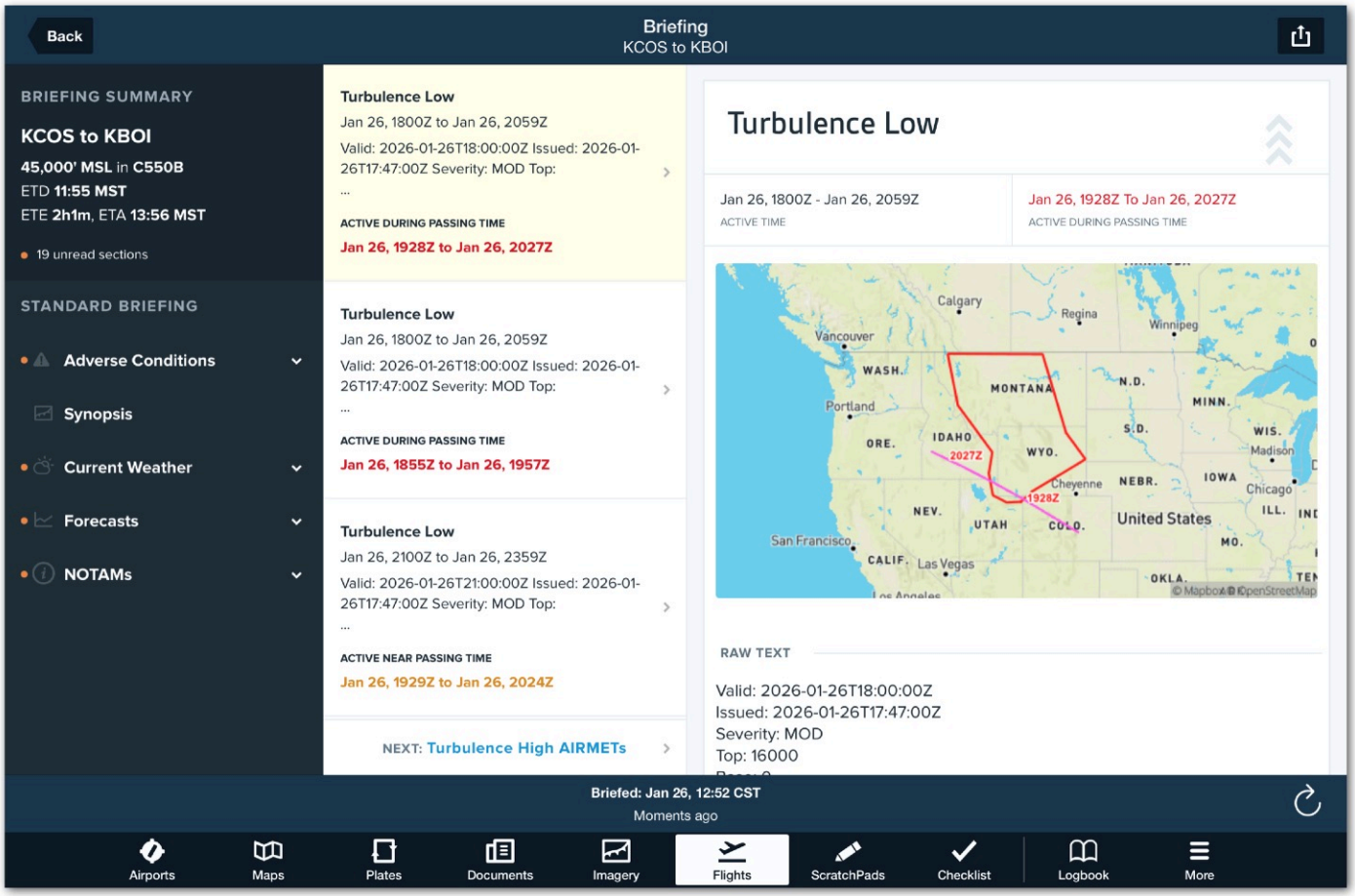


Figure 24-1. HTML Briefing

24.1 About the Design

Briefings can be generated in one of two file formats (PDF or HTML) depending on subscription, flight plan location, and the Briefing Format setting. The HTML briefing is longer and more comprehensive. Each format is summarized below and described later in this chapter.

Graphical (PDF) format is always generated for a flight that is all or partly located outside the U.S., as well as for any flight planned with a ForeFlight Dispatch account. However, any user can opt to generate a PDF briefing.

The PDF briefing can be printed and shared outside the ForeFlight Mobile app. Marked-up copies can also be saved.

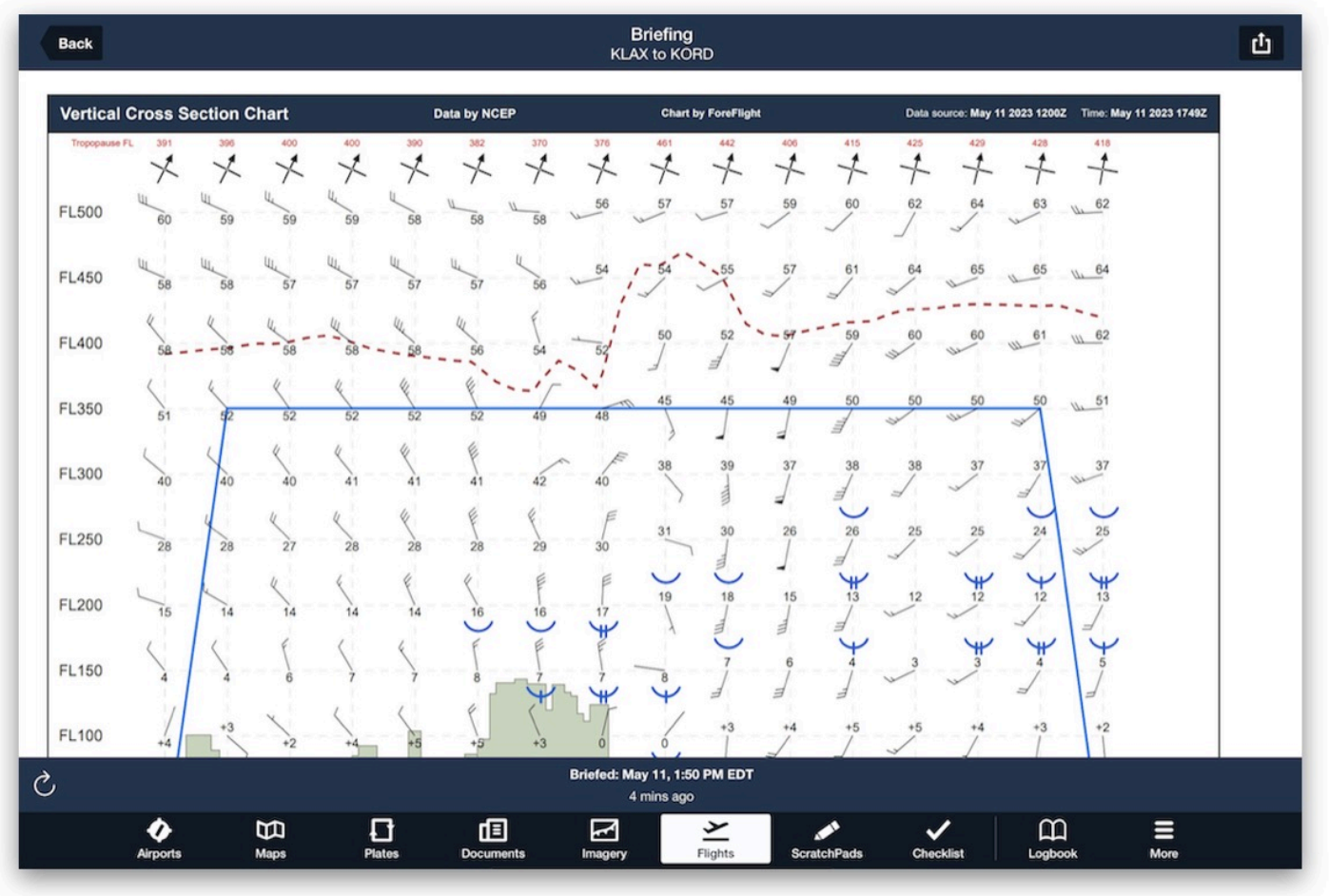


Figure 24-2. PDF Briefing

Graphical (HTML) format is another option available to non-Dispatch account holders when planning a flight entirely within the U.S.

The HTML format is designed to be read inside ForeFlight Mobile or a web browser, and provides aids for navigating and understanding its contents. However, it cannot be printed or marked up the way a PDF briefing can.

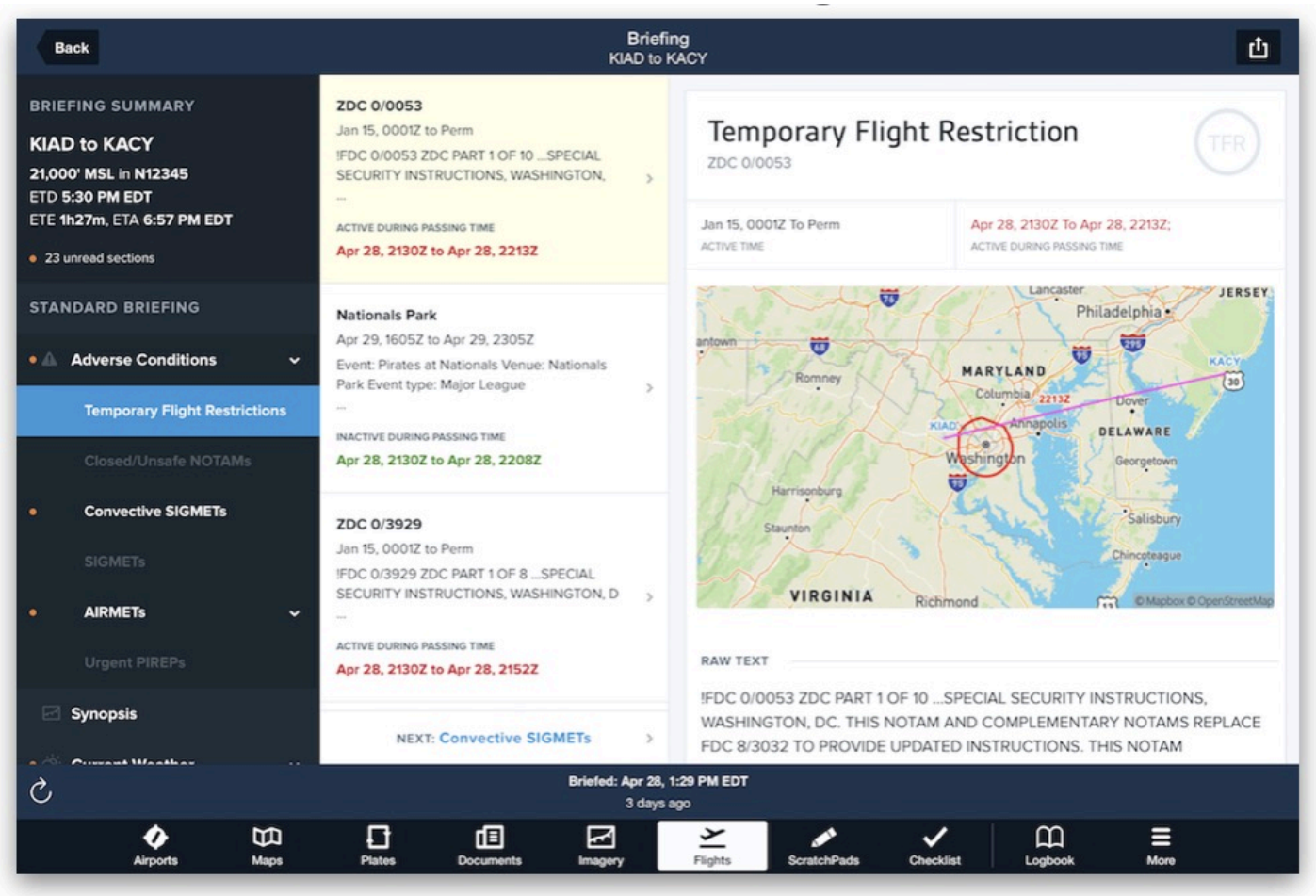


Figure 24-3. HTML Briefing

24.1.1 Generating a Briefing

Briefings are generated from the Flights view. To generate a briefing, select a flight and tap the **Briefing** button in the upper right corner. The briefing will open in a new window.



If another briefing format is desired, see Switching Briefing Format.

After tapping **Close** to navigate away, the same briefing can be reopened by tapping the Briefing button again. However, if any flight details have been changed since the first briefing was generated, tapping the **Briefing** button replaces the old briefing with a new one to reflect those changes.

24.1.2 Switching Briefing Format

The Briefing Format setting determines whether briefings are generated as PDF or HTML documents.

> **NOTE:** Dispatch account holders and pilots of flights not entirely within the U.S. *always* generate PDF briefings, regardless of the Briefing Format setting. Other pilots can use the HTML format.

To change this setting, tap **More ➔ Settings ➔ Briefing Format** and select **Graphical (PDF)** or **Graphical (HTML)**. The new format will be used to generate all future briefings.

Existing briefings will retain their old format as long as the flight plan details have not changed. The only way to regenerate an existing briefing in the other format is to do each of the following:

1. Change the **Briefing Format** setting to the other format.
2. Change the flight plan details, preferably in a minor way that won't noticeably alter the flight (such as a 5-minute delay in the ETD).
3. Tap the **Briefing** button again.

ForeFlight Mobile will generate a new briefing to encompass the altered flight plan details, and it will use the current Briefing Format setting.

24.1.3 Refreshing Weather and NOTAM Data

Briefings are static documents generated using weather and NOTAM data available at the time. Because this data is updated frequently, briefings grow outdated the longer they exist.

To refresh an existing briefing with the latest weather and NOTAM data, tap the **Refresh** button in the lower-left corner of the briefing. If the refreshed briefing uses the HTML format, updated sections will be marked as unread. Otherwise, there will be no indication of where updates were made.

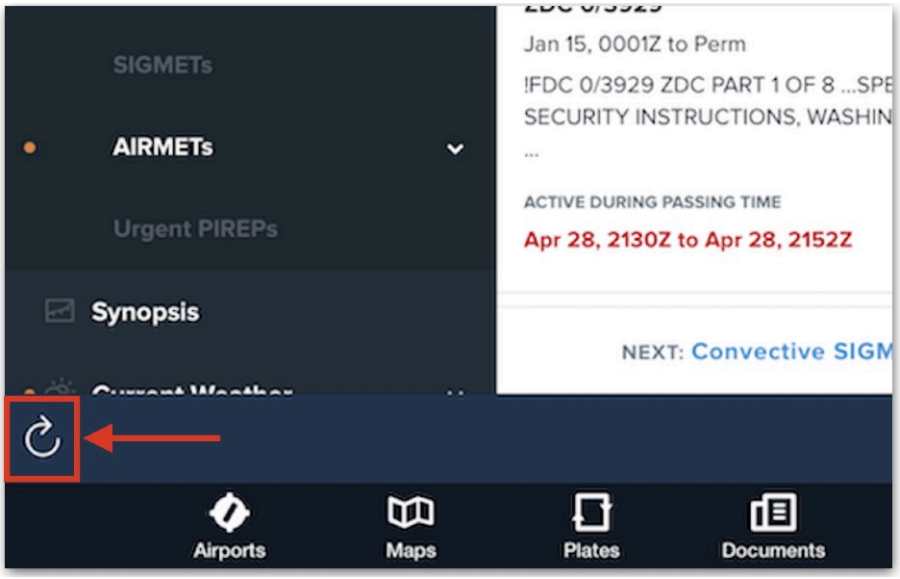


Figure 24-4. Refreshing Briefing Data

24.1.4 Printing and Sharing

Briefings can be printed and shared outside ForeFlight Mobile in a variety of ways depending on the selected Briefing Format. Additionally, PDF briefings can be marked up before they are printed. For instructions on performing these operations, refer to Printing and Sharing.

24.2 PDF Briefing

All ForeFlight Mobile users have access to the PDF briefing, a condensed multi-page file suitable for printing and sharing externally. ForeFlight Dispatch account holders and pilots flying outside the U.S. always use the PDF briefing.

The contents of the PDF briefing are described in the following sections:

- Vertical Cross Section Chart
- Wind Chart
- Significant Weather Chart
- METARs / TAFs
- SIGMETs
- Organized Track System
- NOTAMs.

24.2.1 Vertical Cross Section Chart

The Vertical Cross Section Chart shows the weather over time as the route progresses from departure to destination. Its X-axis divides the flight into 15 equidistant segments that may represent waypoints or distances between them. The Y-axis divides the flight into flight-level (FL) altitudes. The sideways perspective of the Vertical Cross Section Chart is similar to the Profile View.

To read the chart, follow the blue route line from left to right, noting the weather it intersects. Then, look straight down to the labels at the bottom of the chart to see the Flight Segments where the aircraft will encounter the weather.

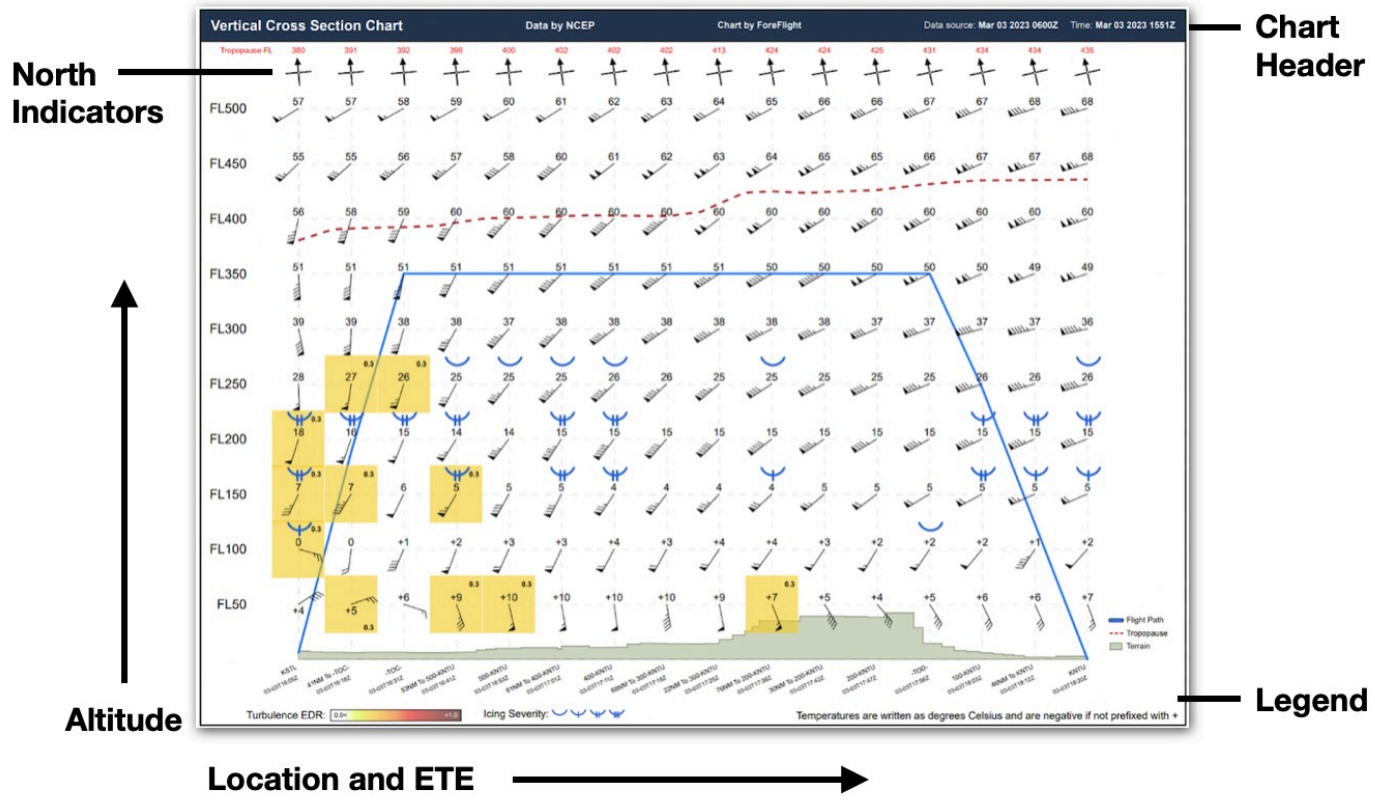


Figure 24-5. Vertical Cross Section Chart

24.2.1.1 Chart Header

The top of the chart shows, from left to right: the title “Vertical Cross Section Chart”, the weather data source, the time when the weather data was gathered by the source, and the moment the briefing was generated.

> **IMPORTANT:** The Time field on the Vertical Cross Section Chart is different from the Time field on the Wind Chart. This has implications for how the two charts are read. See the Wind Chart section for details.



Figure 24-6. Chart Header

24.2.1.2 Tropopause

The height of the tropopause along each segment is depicted as a series of red numbers at the top of the chart. When the flight is planned near the tropopause, it is depicted as a red dashed line. The exact height of this line can be determined by reading the red flight-level altitudes on the Y-axis of the chart.

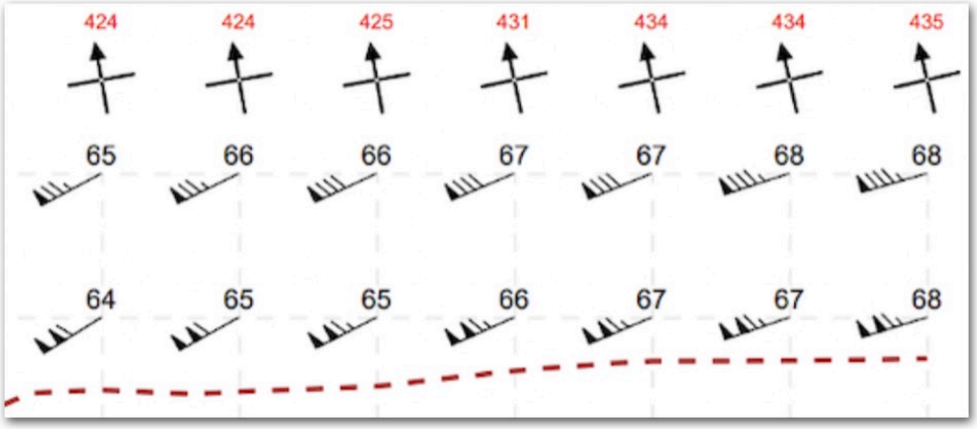


Figure 24-7. Tropopause Symbols (Red Line and Numbers)

24.2.1.3 Route Compass

The top of the chart shows a series of compass crosses that can be used to estimate the direction of flight along each segment. To do so, read the chart from left to right and note the deflection of the north arrow on each cross.

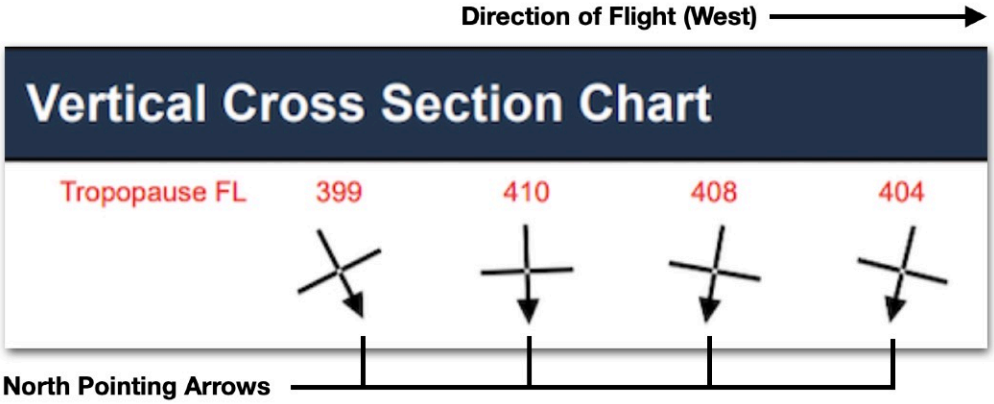


Figure 24-8. Downward-pointing north arrows show this is a westerly flight.

24.2.1.4 Flight Path

A blue line shows the aircraft altitude along each segment of the flight, starting from departure (left corner of the chart) to destination (right corner). The rising and falling of this line corresponds to the flight level altitude along each segment, which can be read along the Y-axis of the chart.

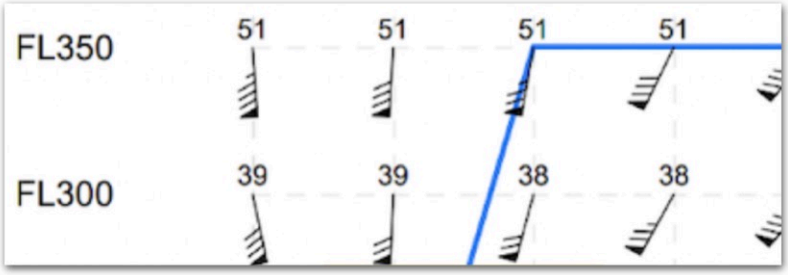


Figure 24-9. Flight Path Leveling Off at FL350

24.2.1.5 Wind Direction and Speed

Barbs throughout the chart show wind direction and speed. Wind speed is indicated by a stem with no barbs (calm winds), or a stem with short barbs (5 knots), long barbs (10 knots), or flags (50 knots). Wind direction is indicated by the direction of the stem in true degrees.

Table 24-1. Wind Barb Symbols

Barb Icon	Meaning
	0 knots / 90°
	5 knots / 315°
	15 knots / 45°
	60 knots / 270°

IMPORTANT: When reading the wind barbs on the Vertical Cross Section Chart, remember that they are oriented according to a left-to-right flight path, not in a North-up fashion as they would be on a map. If the long stem of the wind barb is pointing up, the wind is blowing from the right side of the aircraft in flight (not necessarily from the South). The route compass icons at the top of each column can be used to determine the direction of flight in each segment.

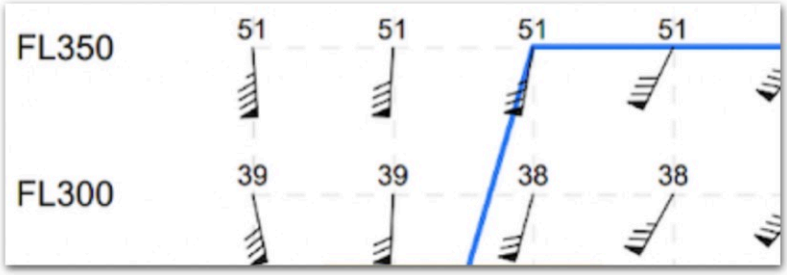


Figure 24-10. Wind Barbs Indicating Right Crosswind

24.2.1.6 Temperatures

Temperatures are depicted as black numbers near the stem end of each wind barb and are all negative degrees Celsius unless prefixed with a + symbol.

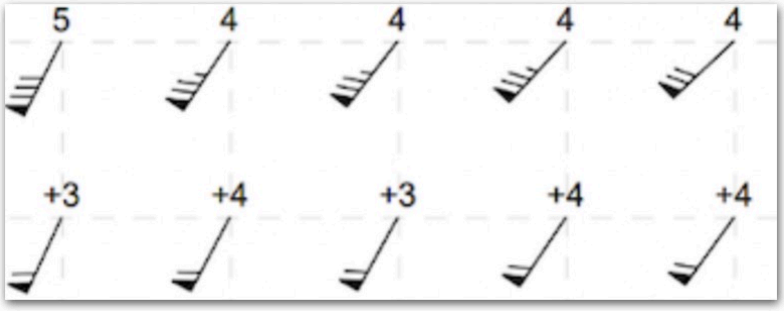


Figure 24-11. Temperatures Ranging From -5°C to +4°C

24.2.1.7 Turbulence

Colored boxes indicate the presence and severity of turbulence along each segment of the flight. The severity of turbulence along each segment is indicated by an EDR value in the corner of each box, and by color ranging from yellow to brown. The legend at the bottom of the chart shows an EDR scale that can be used to interpret the severity by color.

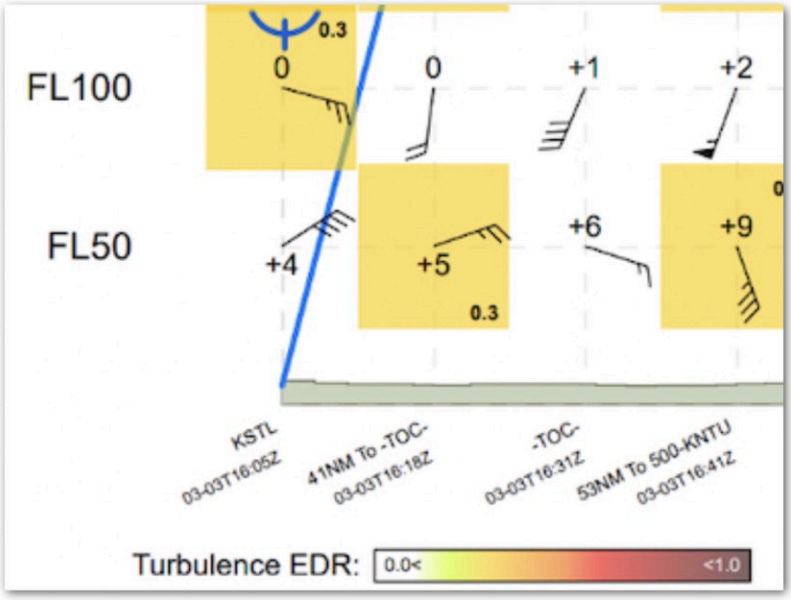


Figure 24-12. Turbulence at 0.3 on the EDR Scale

24.2.1.8 Icing Severity

Blue semicircular symbols indicate the presence and severity of icing along each segment of the flight. The legend at the bottom of the chart shows each symbol in order of increasing severity from left to right: trace, light, moderate, and severe.



Figure 24-13. Icing Symbols

24.2.1.9 Flight Segments

The bottom edge of the chart includes labels for each segment along the flight, along with a timestamp for the expected ETA at that segment.

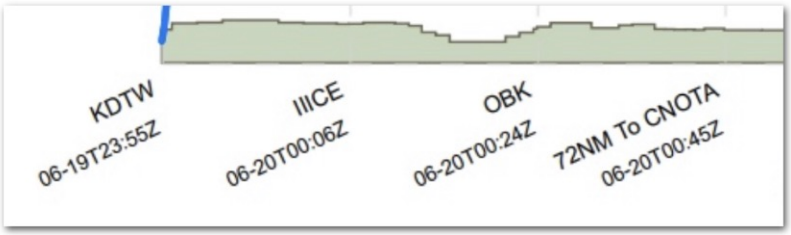


Figure 24-14. Flight Segments and ETEs

Flight segments are labeled based on elements of the flight plan and route. Depending on how the flight is constructed, each label may correspond to an airport, a waypoint, or a distance from a waypoint. Because the chart is divided evenly into 15 segments, not all route elements will be represented as labels.

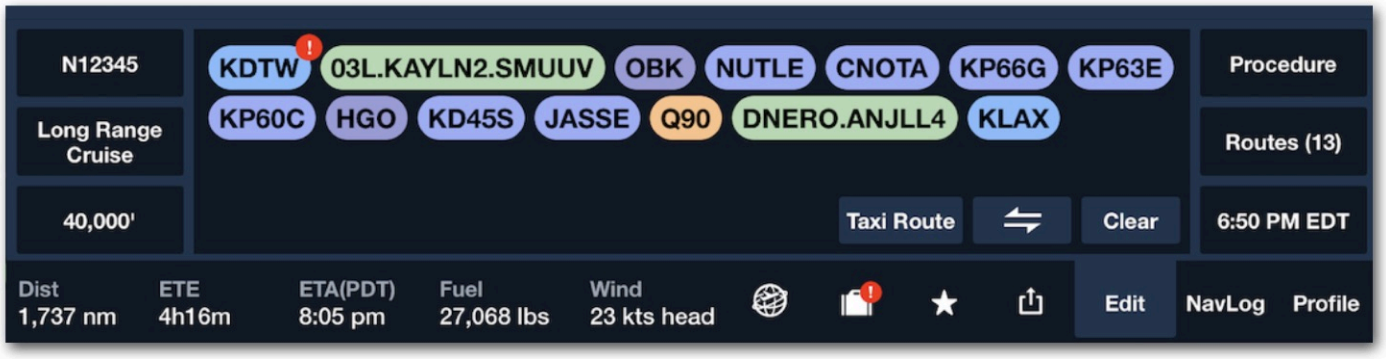


Figure 24-15. Flight segment labels often correspond to route elements.

24.2.1.10 Terrain

Green portions along the bottom edge of the chart depict the rising and falling of terrain along the route of flight. It also shows terrain to either side of the route with a 0.1 -degree grid resolution. Like other chart elements, the terrain height at each segment can be roughly determined by reading the corresponding flight-level altitude on the Y-axis of the chart.

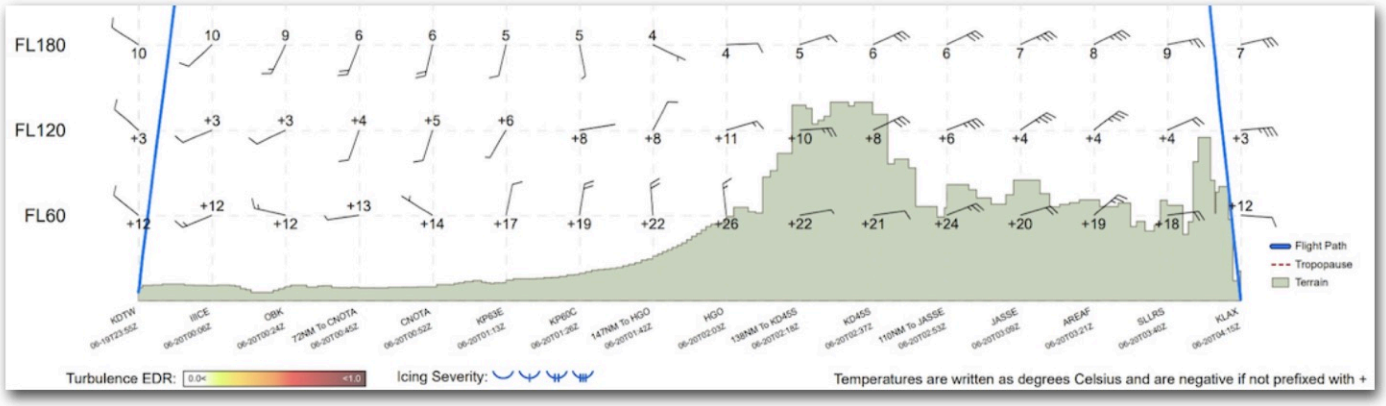


Figure 24-16. Terrain Rising Above FL120

24.2.1.11 Legend

Along the bottom edge is a legend for use in interpreting the symbols throughout the Vertical Cross Section Chart. These aids include:

- A color-coded Turbulence EDR scale.
- Icing symbols listed in order of increasing severity.

- A depiction of the Flight Path and Tropopause lines, as well as terrain color.
- A note about temperature numbers.

24.2.2 Wind Chart

The Wind Chart provides a visual representation of forecast wind, temperature, and turbulence expected at the ETD. It offers a snapshot of forecast weather conditions at that moment in time and displays this weather over a map of the entire route. All chart elements are described below.

> **IMPORTANT:** The Wind Chart is designed to provide a single forecast based on the scheduled departure time and should not be used to predict the weather conditions for the entire duration of a long flight.
>
> The Wind Chart uses similar symbology for winds, temperatures, and turbulence as the Vertical Cross Section Chart, however all directional symbols on the Wind Chart are oriented in a North-up fashion.

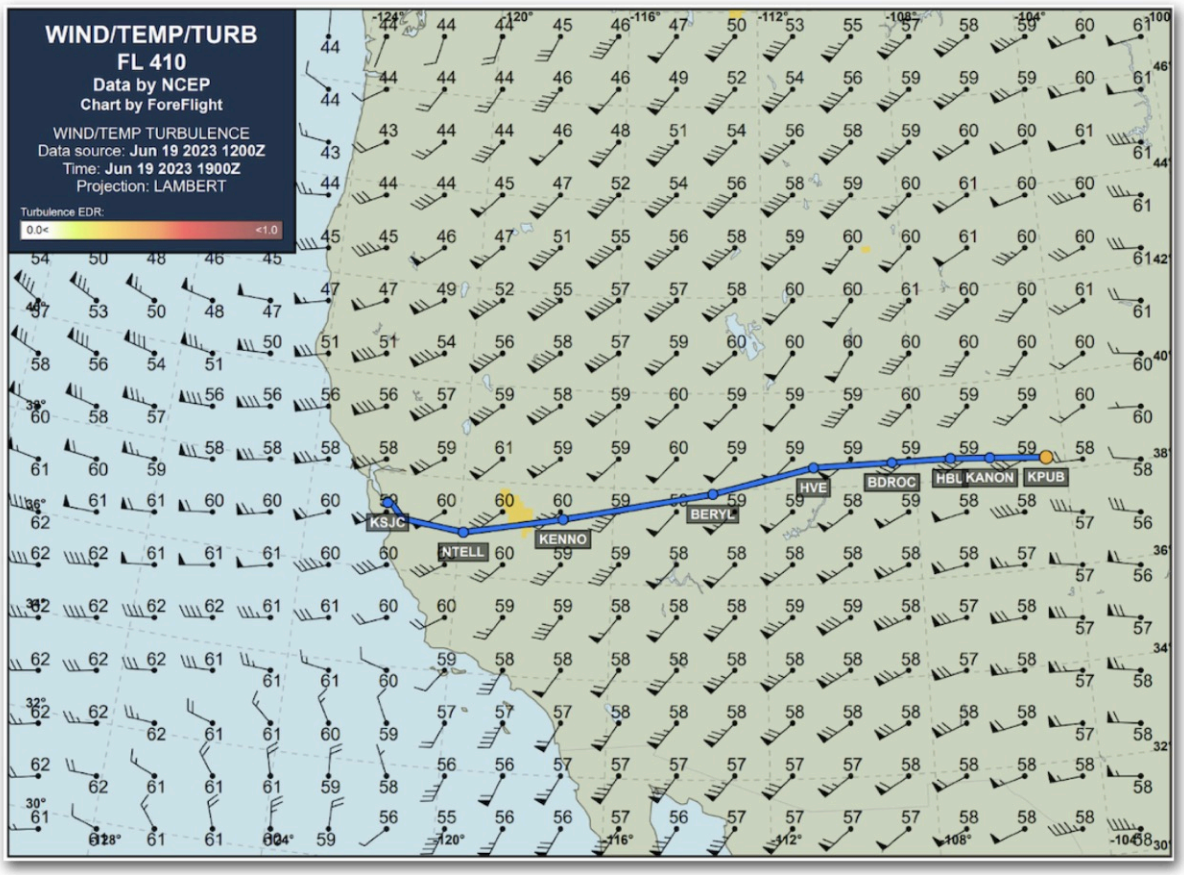


Figure 24-17. Wind Chart

24.2.2.1 Latitude/Longitude

If a flight covers a wide enough area, the Wind Chart will show lines of latitude and longitude and display their values on the chart edges. This can be used to estimate the coordinates of the forecast weather at the flight's ETD.

24.2.2.2 Chart Legend

The WIND/TEMP/TURB legend in the top left corner provides information for reading the chart's symbols.

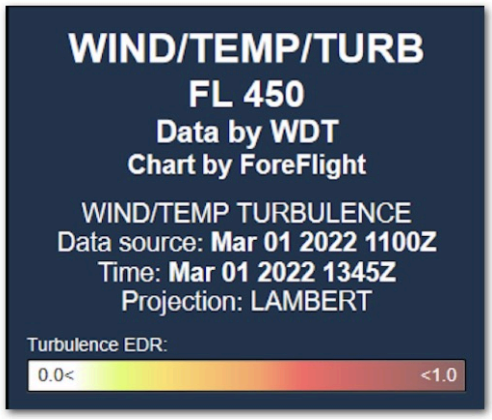


Figure 24-18. Wind Chart Legend

The following information is provided from the top down:

Height of the chart data

The maximum planned flight altitude and is conveyed as a flight-level altitude (e.g., FL 450) in the image.

Chart data provider

Listed, e.g. `Data by WDT` in the image.

Data source field

Indicates when the wind, temperature, and turbulence data was collected by the above data provider (e.g. Mar 01 2022 1100Z) in the image.

Time field

Shows the start of the forecast weather valid period (e.g. Mar 01 2022 1345Z) in the image, and is set according to the ETD. This is different from the Vertical Cross Section Chart Time field, which conveys when the briefing was generated.

Projection field

Indicates which projection was used for the chart (e.g., LAMBERT) in the image.

Turbulence EDR scale

Used to interpret the intensity of turbulence on the chart according to color ranging from yellow to brown.

24.2.2.3 Route Line

The blue line on the chart shows the planned route of flight from start to finish.

> **IMPORTANT:** While the route line intersects many weather symbols along the chart, those symbols represent weather forecast at the moment of the flight's ETD, not the moment when the aircraft crosses each point.

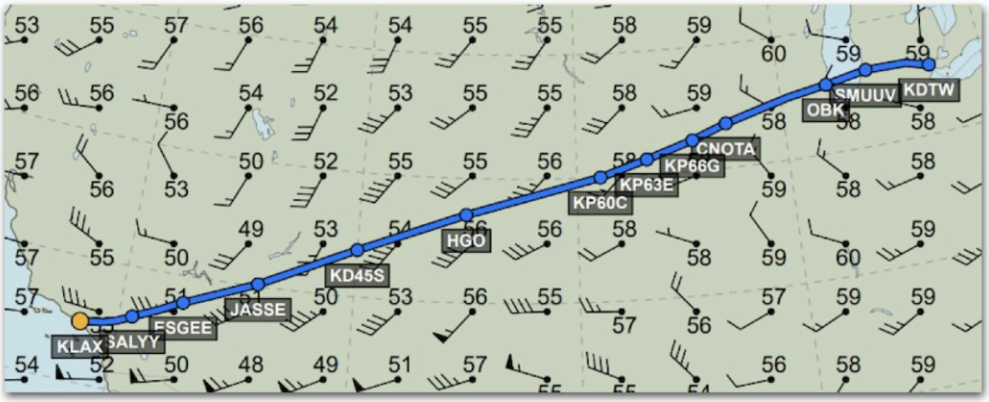
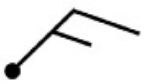


Figure 24-19. Wind Chart Route Line

24.2.2.4 Wind Direction and Speed

Barbs throughout the chart show wind direction and speed. Wind speed is indicated by a stem with no barbs (calm winds), or a stem with short barbs (5 knots), long barbs (10 knots), or flags (50 knots). Wind direction is indicated by the direction of the stem in true degrees.

Table 24-2. Wind Barb Symbols

Barb Icon	Meaning
	Less than 5 knots / 90°
	5 knots / 315°
	15 knots / 45°
	60 knots / 270

24.2.2.5 Temperatures

Temperatures are depicted near the stem end of each wind barb and are all negative degrees Celsius unless prefixed with a **+** symbol.

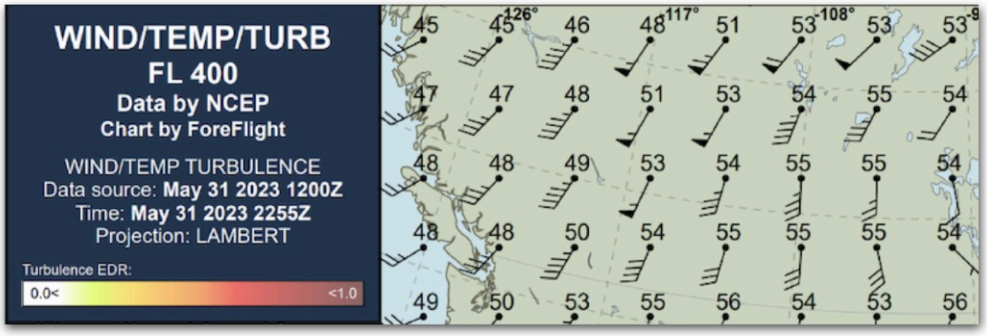


Figure 24-20. Temperatures at FL 400 from -45°C to -56°C

24.2.2.6 Turbulence

Turbulence is indicated on the Wind Chart by regions of color ranging from yellow to brown. The severity of turbulence can be interpreted using the Turbulence EDR scale in the chart legend.

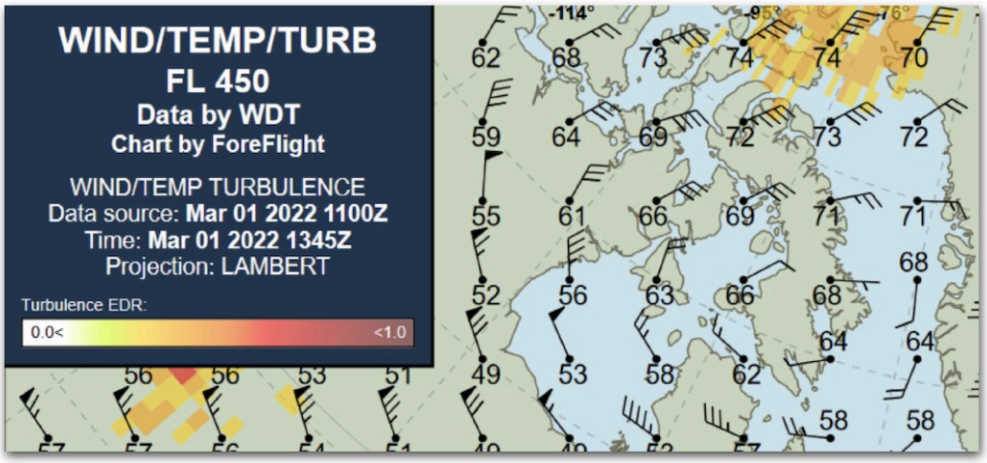


Figure 24-21. Moderate turbulence at FL 450

24.2.3 Significant Weather Chart

The Significant Weather Chart forecasts areas of clear-air turbulence, cumulonimbus clouds, jet stream location and velocity, and the expected height of the tropopause; all at a specific time and altitude range. For Premium accounts, the chart also displays any nearby Organized Track Systems (OTS).

Each chart is valid at one of four predetermined, 6-hour intervals starting at 0000Z (i.e. 0000Z, 0600Z, 1200Z, and 1800Z). Each chart is also forecast at one of two altitude ranges: mid-level charts display weather at FL 100 to 450, and high-level charts display weather at FL 250 to 600. Significant Weather Chart elements are described below.

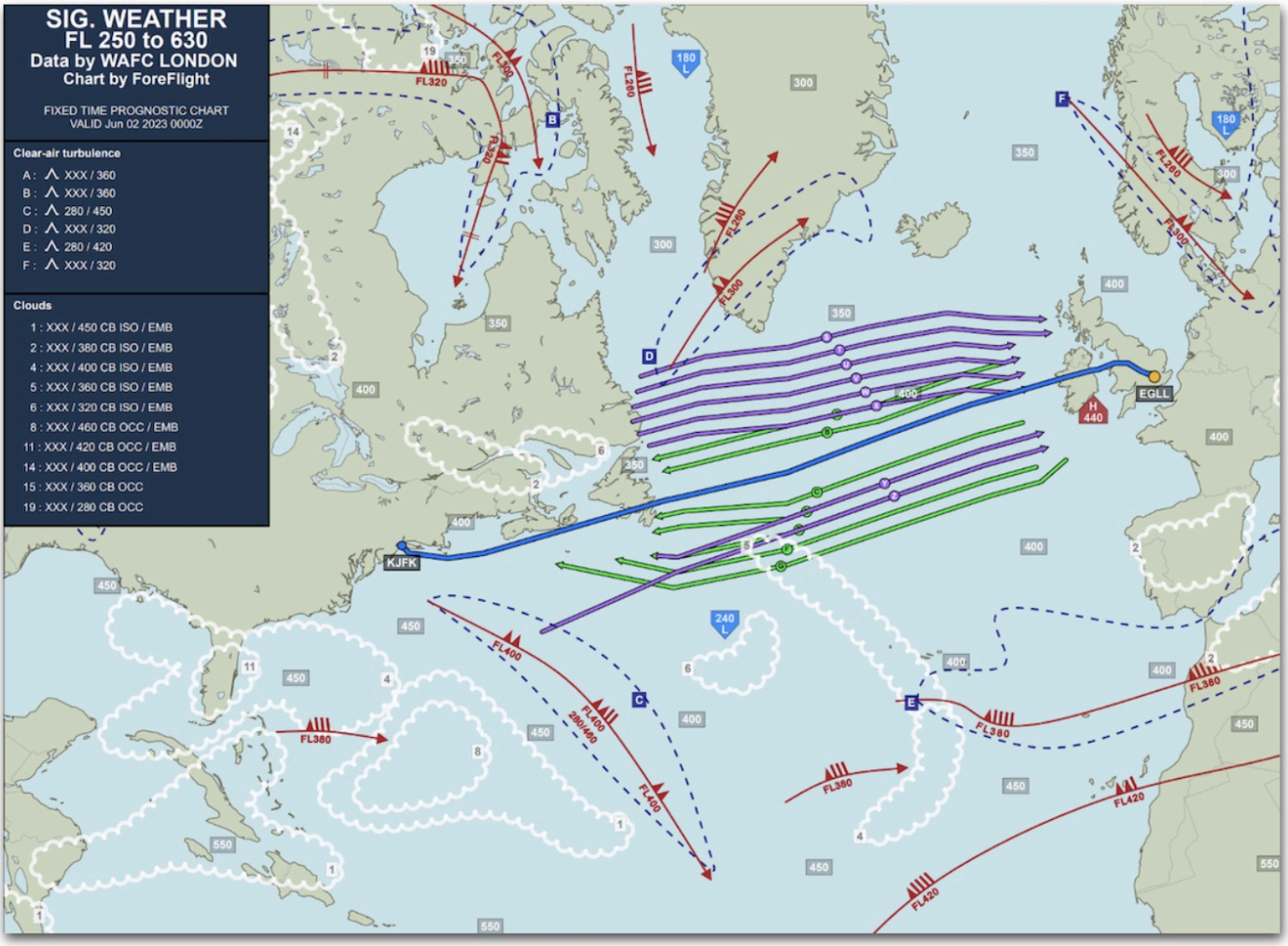


Figure 24-22. Significant Weather Chart

24.2.3.1 Chart Legend

A legend on the left side of the chart provides additional information that cannot be depicted graphically.

The chart legend includes the following information, from the top down:

Flight-level altitude range

The flight-level altitude range covered by the chart is either mid-level (FL 100 to 450) for certain flights in Europe and Asia, or high-level (FL 250 to 630) for all other flights. To use the mid-level chart, all Flight Information Regions (FIRs) intersected by the route must start with E, L, O, or V, and the maximum altitude of the flight must be below or equal to FL 450.

Chart data provider

The chart data provider. The data provider will be either WAFC London (EGRR) or WAFC Washington (KKCI).

VALID field

The VALID field indicates the date/time when the data shown on the chart becomes valid. Valid times are calculated in 6-hour intervals starting at 0000Z (i.e. 0000Z, 0600Z, 1200Z, and so on). The data for each valid time is published approximately 18 hours in advance. ForeFlight Mobile always uses weather data with a valid time closest to the flight's scheduled departure time.

Clear-air turbulence

Lists the base and ceiling of each region of clear-air turbulence shown on the chart.

Clouds

The base and top of each cumulonimbus cloud layer shown on the chart.

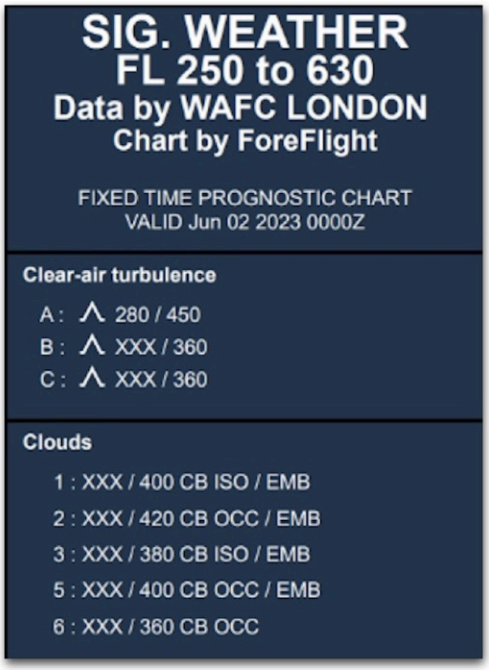


Figure 24-23. Chart Legend

24.2.3.2 Clear-Air Turbulence

Areas of turbulence are enclosed in dashed blue lines. Each area is labeled with a letter corresponding to an item in the chart legend describing the base and top of the clear-air turbulence layer. An **XXX** in place of the base height means that the turbulence layer exceeds the lower height limit of the chart e.g. FL 250 in Figure 698. Turbulence Areas. Each item in the list is prefixed with a letter matching one of the graphics on the chart.



Figure 24-24. Turbulence Areas

24.2.3.3 Cumulonimbus Clouds

Areas of cumulonimbus clouds are enclosed by a scalloped white line. Each area is labeled with a number corresponding to an item in the chart legend describing the base and tops of the cloud layer. An **XXX** in place of the base height means that the cloud base exceeds the lower height limit of the chart. Each item in the list is prefixed with a number matching one of the graphics on the chart.



Figure 24-25. CB Clouds

24.2.3.4 Tropopause Height

The height of the tropopause is conveyed with three-digit numbers enclosed in white boxes throughout the chart. Tropopause lows and highs are enclosed in blue or red polygons, respectively.



Figure 24-26. Tropopause Height Symbols

24.2.3.5 Jet Stream Location

Jet streams with wind speeds of 80 knots or greater are depicted as solid red lines with directional arrowheads. Each line is labeled with its flight-level altitude and standard wind barb symbols.



Figure 24-27. Jet Stream

24.2.3.6 Oceanic Track Systems

For transoceanic flights, the Significant Weather Chart displays nearby Organized Track Systems (OTSs). This feature requires a Premium or Business Performance plan.

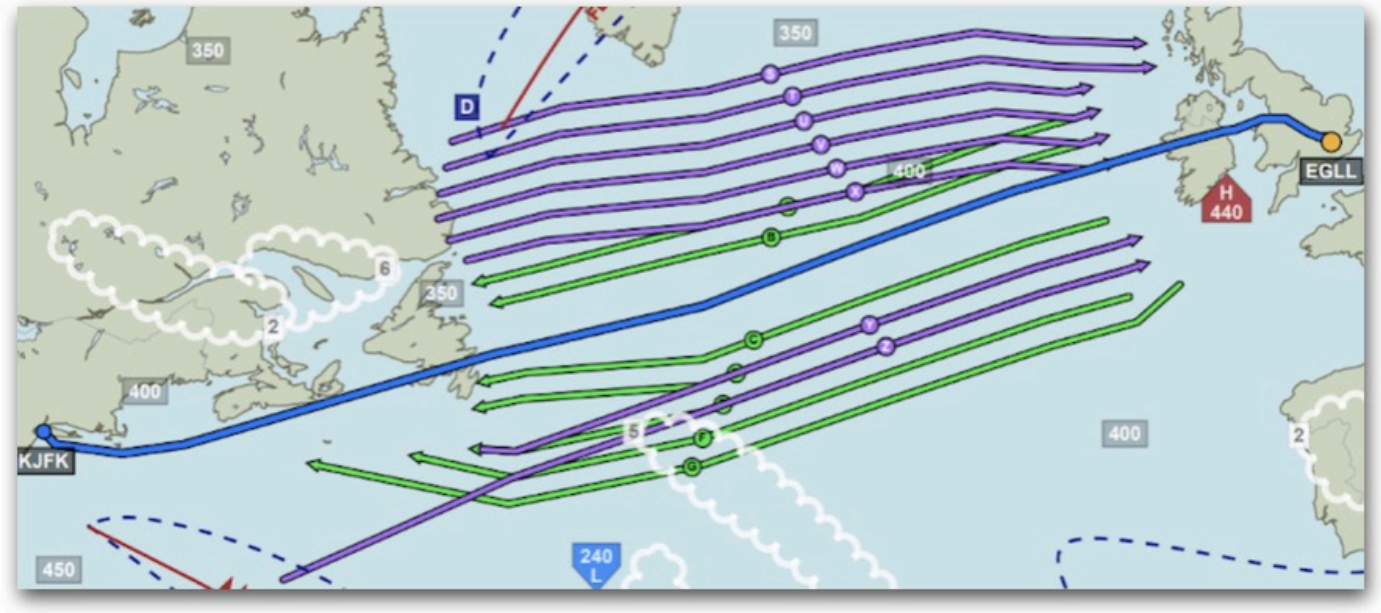


Figure 24-28. Oceanic Track Systems

24.2.4 METARs / TAFs

The PDF briefing includes one or more pages listing METARs and TAFs within 30 NM of the route. It groups METARs and TAFs into subcategories based on the phase of flight (departure, destination, alternate, etc), and depicts the flight category of each item using colored circles. All elements are described below.



Figure 24-29. METARs / TAFs

24.2.4.1 Flight Category

Each METAR and TAF is accompanied by a color-coded flight category icon to aid in scanning the general weather conditions along the route. The following table defines each icon.

Icons	Flight Category
	**LIFR**: Ceiling less than 500 feet or visibility less than 1 mile.
	**IFR**: Ceiling from 500 to less than 1,000 feet or visibility from 1 to less than 3 miles.
	**MVFR**: Ceiling from 1,000 to 3,000 feet or visibility from 3 to 5 miles.
	**VFR**: Ceiling greater than 3,000 feet and visibility greater than 5 miles; includes sky clear.

24.2.4.2 Airport Subcategories

The PDF briefing groups METARs and TAFs into subcategories depending on the type of flight, aircraft, and subscription. Some or all of the following subcategories may be displayed:

- Departure Airports
- Destination Airports
- Alternate Airports
- ETP Airports (Dispatch accounts only)
- En route Airports.

24.2.5 SIGMETs

The SIGMETs section lists relevant SIGMETs and Convective SIGMETs along the route, grouped by region. A SIGMET is included in the briefing if it is active within two hours before or after aircraft passage, and if the route intersects the FIR. (U.S. convective SIGMET locations are translated into East, Central, or West FIRs for the purpose of inclusion.)

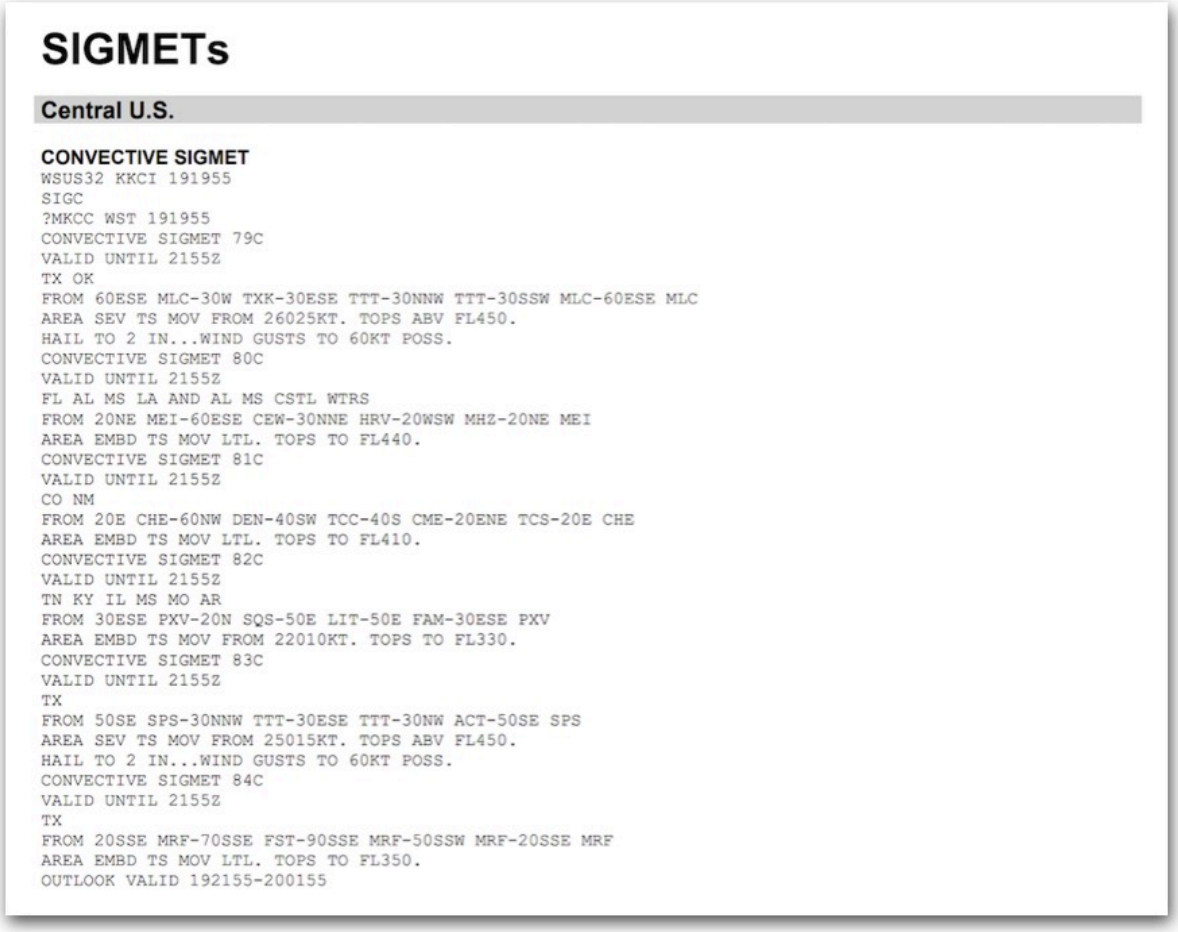
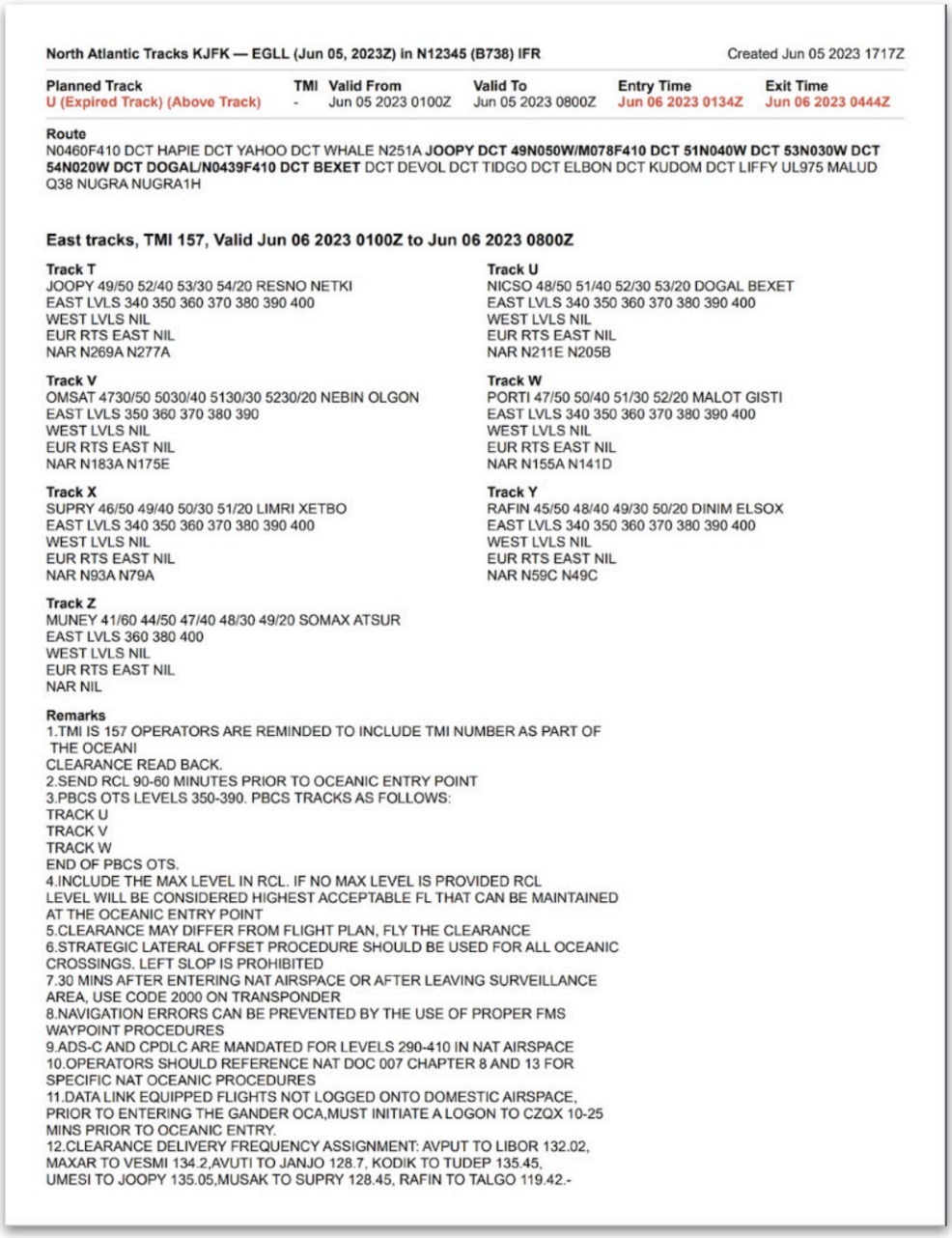


Figure 24-30. SIGMETs

24.2.6 Organized Track System

For Business Performance and MFB Performance accounts, the PDF briefing includes a section providing details on an OTS if the flight passed near one.



North Atlantic Tracks KJFK — EGLL (Jun 05, 2023Z) in N12345 (B738) IFR Created Jun 05 2023 1717Z

Planned Track	TMI	Valid From	Valid To	Entry Time	Exit Time
U (Expired Track) (Above Track)	-	Jun 05 2023 0100Z	Jun 05 2023 0800Z	Jun 06 2023 0134Z	Jun 06 2023 0444Z

Route
N0460F410 DCT HAPIE DCT YAHOO DCT WHALE N251A **JOOPY DCT 49N050W/M078F410 DCT 51N040W DCT 53N030W DCT 54N020W DCT DOGAL/N0439F410 DCT BEXET** DCT DEVOL DCT TIDGO DCT ELBON DCT KUDOM DCT LIFFY UL975 MALUD Q38 NUGRA NUGRA1H

East tracks, TMI 157, Valid Jun 06 2023 0100Z to Jun 06 2023 0800Z

Track T
JOOPY 49/50 52/40 53/30 54/20 RESNO NETKI
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N269A N277A

Track U
NICSO 48/50 51/40 52/30 53/20 DOGAL BEXET
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N211E N205B

Track V
OMSAT 4730/50 5030/40 5130/30 5230/20 NEBIN OLGON
EAST LVLS 350 360 370 380 390
WEST LVLS NIL
EUR RTS EAST NIL
NAR N183A N175E

Track W
PORTI 47/50 50/40 51/30 52/20 MALOT GISTI
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N155A N141D

Track X
SUPRY 46/50 49/40 50/30 51/20 LIMRI XETBO
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N93A N79A

Track Y
RAFIN 45/50 48/40 49/30 50/20 DINIM ELSOX
EAST LVLS 340 350 360 370 380 390 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR N59C N49C

Track Z
MUNEY 41/60 44/50 47/40 48/30 49/20 SOMAX ATSUR
EAST LVLS 360 380 400
WEST LVLS NIL
EUR RTS EAST NIL
NAR NIL

Remarks
1.TMI IS 157 OPERATORS ARE REMINDED TO INCLUDE TMI NUMBER AS PART OF THE OCEANI
CLEARANCE READ BACK.
2.SEND RCL 90-60 MINUTES PRIOR TO OCEANIC ENTRY POINT
3.PBCS OTS LEVELS 350-390. PBCS TRACKS AS FOLLOWS:
TRACK U
TRACK V
TRACK W
END OF PBCS OTS.
4.INCLUDE THE MAX LEVEL IN RCL. IF NO MAX LEVEL IS PROVIDED RCL LEVEL WILL BE CONSIDERED HIGHEST ACCEPTABLE FL THAT CAN BE MAINTAINED AT THE OCEANIC ENTRY POINT
5.CLEARANCE MAY DIFFER FROM FLIGHT PLAN, FLY THE CLEARANCE
6.STRATEGIC LATERAL OFFSET PROCEDURE SHOULD BE USED FOR ALL OCEANIC CROSSINGS. LEFT SLOP IS PROHIBITED
7.30 MINS AFTER ENTERING NAT AIRSPACE OR AFTER LEAVING SURVEILLANCE AREA, USE CODE 2000 ON TRANSPONDER
8.NAVIGATION ERRORS CAN BE PREVENTED BY THE USE OF PROPER FMS WAYPOINT PROCEDURES
9.ADS-C AND CPDLC ARE MANDATED FOR LEVELS 290-410 IN NAT AIRSPACE
10.OPERATORS SHOULD REFERENCE NAT DOC 007 CHAPTER 8 AND 13 FOR SPECIFIC NAT OCEANIC PROCEDURES
11.DATA LINK EQUIPPED FLIGHTS NOT LOGGED ONTO DOMESTIC AIRSPACE, PRIOR TO ENTERING THE GANDER OCA,MUST INITIATE A LOGON TO CZQX 10-25 MINS PRIOR TO OCEANIC ENTRY.
12.CLEARANCE DELIVERY FREQUENCY ASSIGNMENT: AVPUT TO LIBOR 132.02, MAXAR TO VESMI 134.2,AVUTI TO JANJO 128.7, KODIK TO TUDEP 135.45, UMESI TO JOOPY 135.05,MUSAK TO SUPRY 128.45, RAFIN TO TALGO 119.42.-

Figure 24-31. Transatlantic flights may include a North Atlantic Tracks Section

24.2.7 NOTAMs

The PDF briefing ends with a list of NOTAMs considered most relevant to the flight. These NOTAMs are filtered, grouped, and marked up as described below.

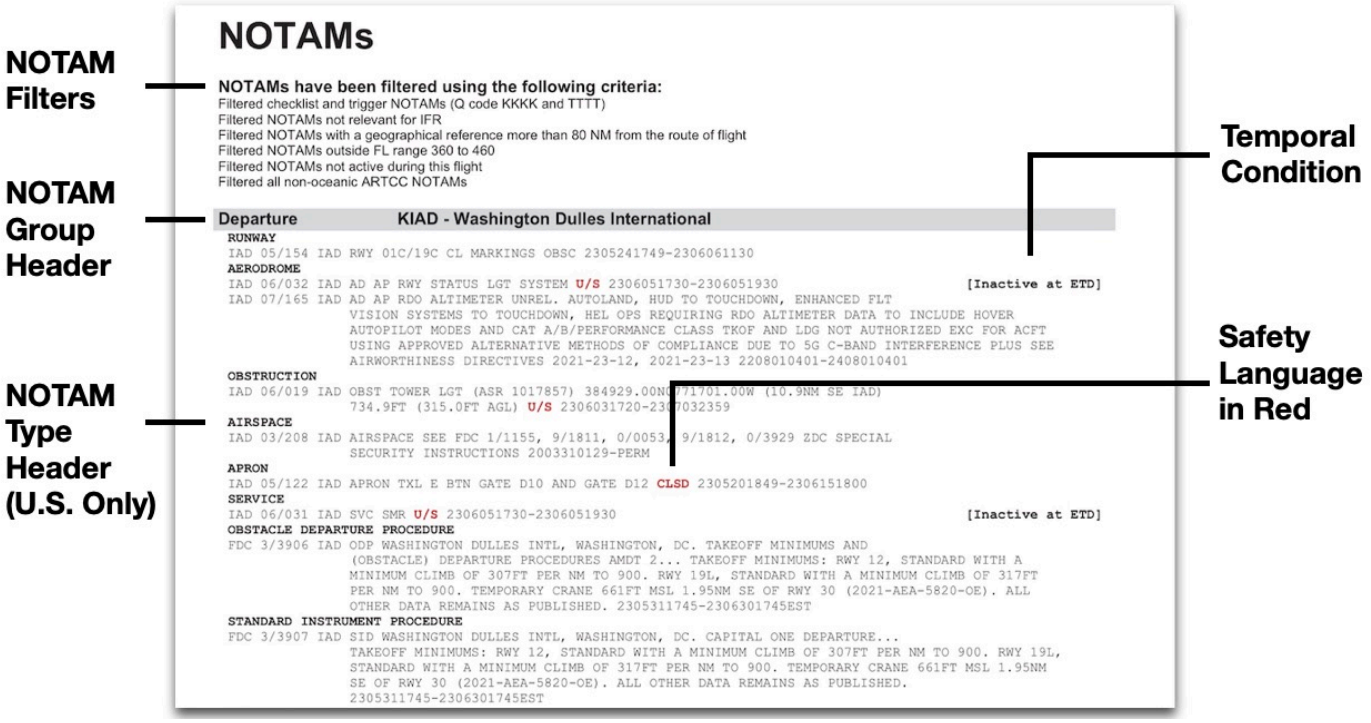


Figure 24-32. PDF Briefing

24.2.7.1 NOTAM Filters

When a PDF briefing is requested, ForeFlight Mobile selects an initial list of NOTAMs (issued by relevant airports and overflown FIRs, and U.S. navigation NOTAMs within a 30-NM radius of the route). It then applies filters to narrow down the list. These filters cannot be adjusted. The page header indicates if any NOTAMs are filtered out of the briefing.

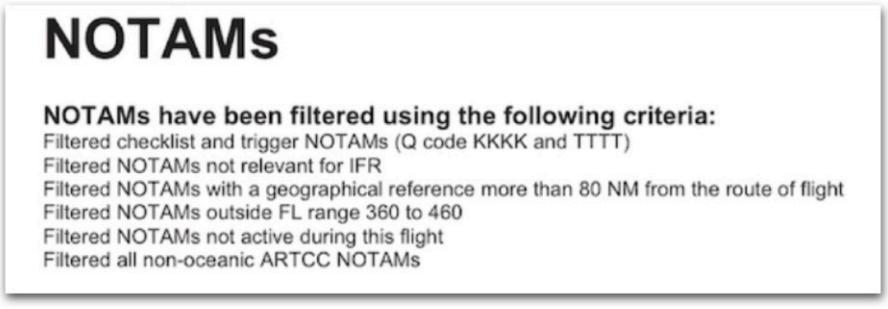


Figure 24-33. NOTAM Filters Applied

The PDF briefing uses the following NOTAM filters:

> **Flight Level Filter**
>
> Removes all NOTAMs more than 50,000 ft outside the minimum or maximum flight planned altitudes.

Route Filter

Removes all NOTAMs that affect an area more than 80 NM from the route.

Valid Time Filter

Removes all NOTAMs that are not active 12 hours before or after the flight.

Miscellaneous NOTAMs Filter

Removes all NOTAMs given an “M” in the PURPOSE field of their Q code, designating them as Miscellaneous NOTAMs that are not subject for a briefing.

Checklist NOTAMs Filter

Removes all NOTAMs that have a Q code of “KKKK” or have a “K” in the SCOPE field of their Q code.

Flight Rules Filter

Remove all NOTAMs that are not relevant to the flight based on the flight rules used. (For IFR flights, NOTAMs without an “I” in the TRAFFIC field are excluded. For VFR flights, NOTAMs without a “V” in the TRAFFIC field are excluded.)

Local Language Filter

Removes non-English NOTAMs for each country below based on its series identifier:

- Turkey (LT): G, H, M, L
- Serbia (LY): C
- Slovenia (LJ): C
- Poland (EP): P, M, N, U, L, J
- Italy (LI): C
- Portugal (LP): D
- Slovakia (LZ): C

ARTCC NOTAMs Filter

Removes all FDC NOTAMs unless they are issued by the Departure, Destination, Alternate 1 or Alternate 2 airports, or are of type “NAV” and are issued by an en route airport.

> **Military NOTAMs Filter**
>
> Removes all military NOTAMs from briefings for non-military flights. Specifically, this filter removes all NOTAMs containing the text “DOD PROCEDURAL NOTAM”.

24.2.7.2 NOTAM Groups

The PDF briefing groups NOTAMs under headings according to each phase of flight. Departure and destination NOTAMs are listed first, followed by en route NOTAMs and NOTAMs for overflown FIRs, ETP airports, and alternate airports.

Each group starts with a list of its recent NOTAMs (added or edited within the past 12 hours), followed by the remaining NOTAMs in that group.

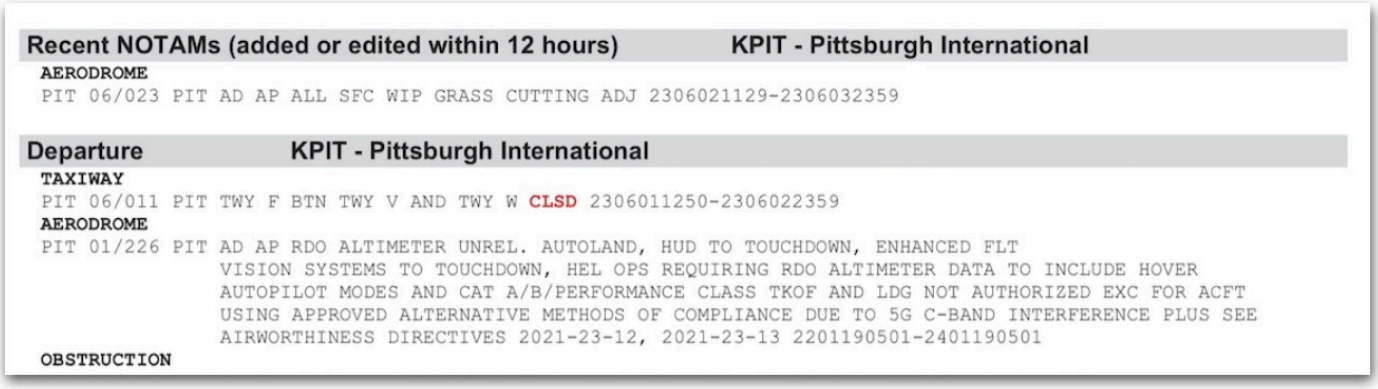


Figure 24-34. Recent NOTAMs

For any portion of the flight outside the U.S., NOTAMs are listed individually within each phase of flight. Each NOTAM is listed under a descriptive header in bold font.

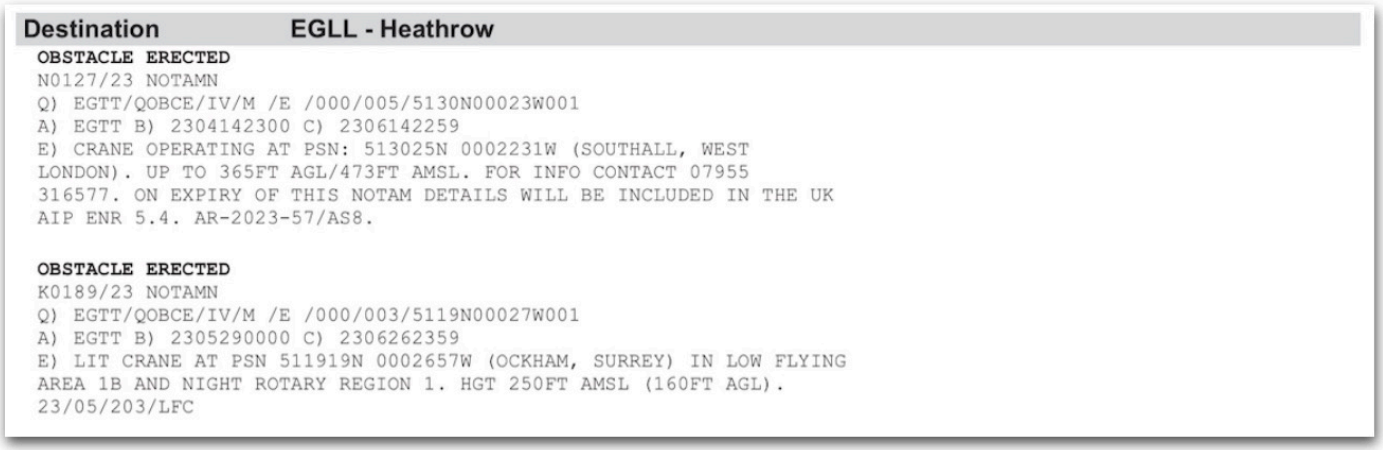


Figure 24-35. Non-U.S. NOTAMs Listed Individually with Headers

24.2.7.3 NOTAM Type Subgroups (U.S. Only)

For the U.S. portion of a flight, NOTAMs within each phase of the flight are further grouped by type. For example, the Departure airport list may include several subsections for “Runway”, “Aerodrome”, “Obstruction”, and other applicable types of NOTAMs.

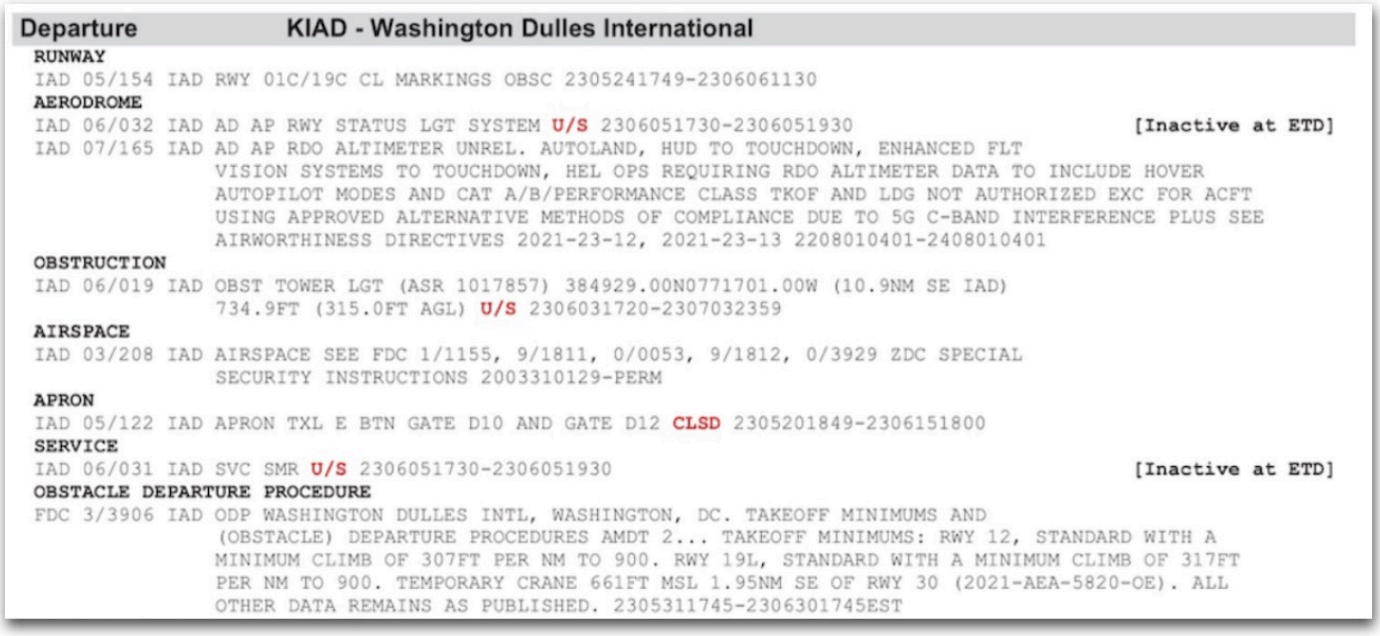
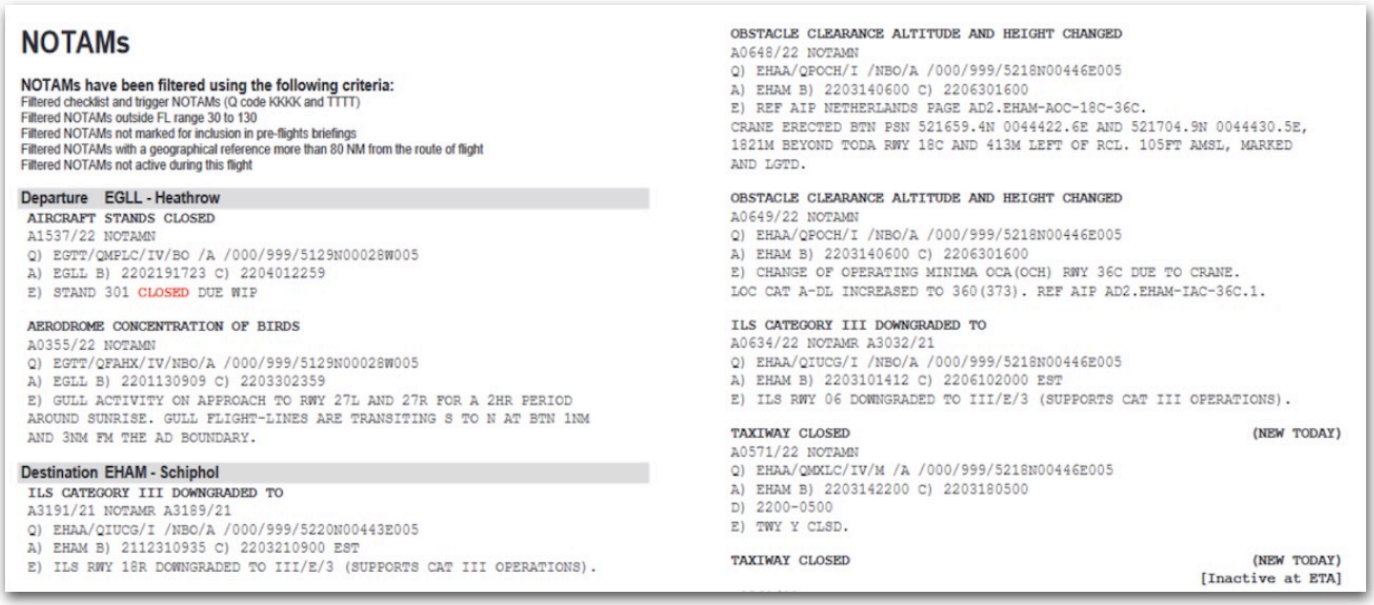


Figure 24-36. U.S. NOTAMs Subdivided by Type

24.2.7.4 Two-Column Mode (Non-U.S. Flights Only)

For flights that are not in the U.S., the briefing can generate the NOTAMs section in a two-column mode to save page space.



NOTAMs

NOTAMs have been filtered using the following criteria:
Filtered checklist and trigger NOTAMs (Q code KKKK and TTTT)
Filtered NOTAMs outside FL range 30 to 130
Filtered NOTAMs not marked for inclusion in pre-flights briefings
Filtered NOTAMs with a geographical reference more than 80 NM from the route of flight
Filtered NOTAMs not active during this flight

Departure EGLL - Heathrow

AIRCRAFT STANDS CLOSED
A1537/22 NOTAMN
Q) EGTT/QMPLC/IV/BO /A /000/999/5129N00028W005
A) EGLL B) 2202191723 C) 2204012259
E) STAND 301 CLOSED DUE WIP

AERODROME CONCENTRATION OF BIRDS
A0355/22 NOTAMN
Q) EGTT/QFAHX/IV/NBO/A /000/999/5129N00028W005
A) EGLL B) 2201130909 C) 2203302359
E) GULL ACTIVITY ON APPROACH TO RWY 27L AND 27R FOR A 2HR PERIOD AROUND SUNRISE. GULL FLIGHT-LINES ARE TRANSITING S TO N AT BTN 1NM AND 3NM FM THE AD BOUNDARY.

Destination EHAM - Schiphol

ILS CATEGORY III DOWNGRADED TO
A3191/21 NOTAMR A3189/21
Q) EHAA/QIUCG/I /NBO/A /000/999/5220N00443E005
A) EHAM B) 2112310935 C) 2203210900 EST
E) ILS RWY 18R DOWNGRADED TO III/E/3 (SUPPORTS CAT III OPERATIONS).

OBSTACLE CLEARANCE ALTITUDE AND HEIGHT CHANGED
A0648/22 NOTAMN
Q) EHAA/QPOCH/I /NBO/A /000/999/5218N00446E005
A) EHAM B) 2203140600 C) 2206301600
E) REF AIP NETHERLANDS PAGE AD2.EHAM-AOC-18C-36C.
CRANE ERECTED BTN PSN 521659.4N 0044422.6E AND 521704.9N 0044430.5E, 1821M BEYOND TODA RWY 18C AND 413M LEFT OF RCL. 105FT AMSL, MARKED AND LGTD.

OBSTACLE CLEARANCE ALTITUDE AND HEIGHT CHANGED
A0649/22 NOTAMN
Q) EHAA/QPOCH/I /NBO/A /000/999/5218N00446E005
A) EHAM B) 2203140600 C) 2206301600
E) CHANGE OF OPERATING MINIMA OCA(OCH) RWY 36C DUE TO CRANE.
LOC CAT A-DL INCREASED TO 360(373). REF AIP AD2.EHAM-IAC-36C.1.

ILS CATEGORY III DOWNGRADED TO
A0634/22 NOTAMR A3032/21
Q) EHAA/QIUCG/I /NBO/A /000/999/5218N00446E005
A) EHAM B) 2203101412 C) 2206102000 EST
E) ILS RWY 06 DOWNGRADED TO III/E/3 (SUPPORTS CAT III OPERATIONS).

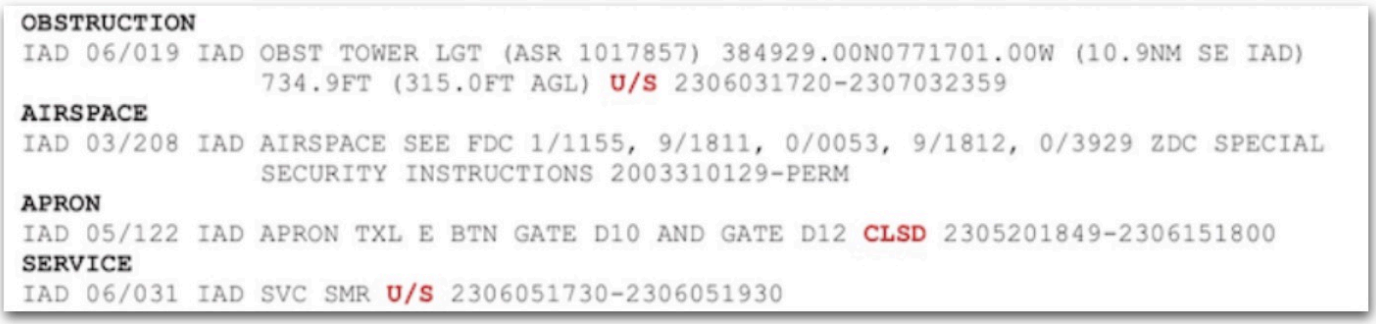
TAXIWAY CLOSED (NEW TODAY)
A0571/22 NOTAMN
Q) EHAA/QMXLC/IV/M /A /000/999/5218N00446E005
A) EHAM B) 2203142200 C) 2203180500
D) 2200-0500
E) TWY Y CLSD.

TAXIWAY CLOSED (NEW TODAY)
[Inactive at ETA]

Figure 24-37. Two-Column Format

24.2.7.5 Safety Items

NOTAMs containing specific safety-related contractions (such as “U/S” for unserviceable, or “CLSD” for closed) are highlighted in bold, red font.



OBSTRUCTION
IAD 06/019 IAD OBST TOWER LGT (ASR 1017857) 384929.00N0771701.00W (10.9NM SE IAD)
734.9FT (315.0FT AGL) **U/S** 2306031720-2307032359
AIRSPACE
IAD 03/208 IAD AIRSPACE SEE FDC 1/1155, 9/1811, 0/0053, 9/1812, 0/3929 ZDC SPECIAL SECURITY INSTRUCTIONS 2003310129-PERM
APRON
IAD 05/122 IAD APRON TXL E BTN GATE D10 AND GATE D12 **CLSD** 2305201849-2306151800
SERVICE
IAD 06/031 IAD SVC SMR **U/S** 2306051730-2306051930

Figure 24-38. Contractions "U/S" and "CLSD" Highlighted

24.2.7.6 Temporal Conditions

The right side of the PDF briefing identifies any NOTAMs that are new or inactive during the passing time.



Figure 24-39. NOTAM Temporal Conditions

24.3 HTML Briefing

Users flying in the U.S. with non-Dispatch subscriptions can generate an HTML version of the briefing.

The HTML briefing includes a sidebar for scanning and navigating its topics. It displays the current topic in a viewing pane that permits limited toggling between plain and raw text formats. These features are described below.

The HTML briefing is divided into the following weather and NOTAM topics:

- Adverse Conditions
- Synopsis
- Current Weather
- Forecasts
- NOTAMs.

24.3.1 Navigation Sidebar

The HTML briefing sidebar is always displayed when the device is held in landscape mode. To display it in portrait mode, swipe right on the device screen or tap the sidebar icon (☰). To hide it, swipe left on the device screen or tap the close icon (X). The sidebar is divided into two halves and includes a progress-tracking feature.

24.3.1.1 Briefing Summary

The top half of the navigation sidebar presents a briefing summary of flight data, including the departure and destination ICAO codes, planned altitude, aircraft, ETD, ETE, and ETA. It also indicates the number of unread briefing sections.

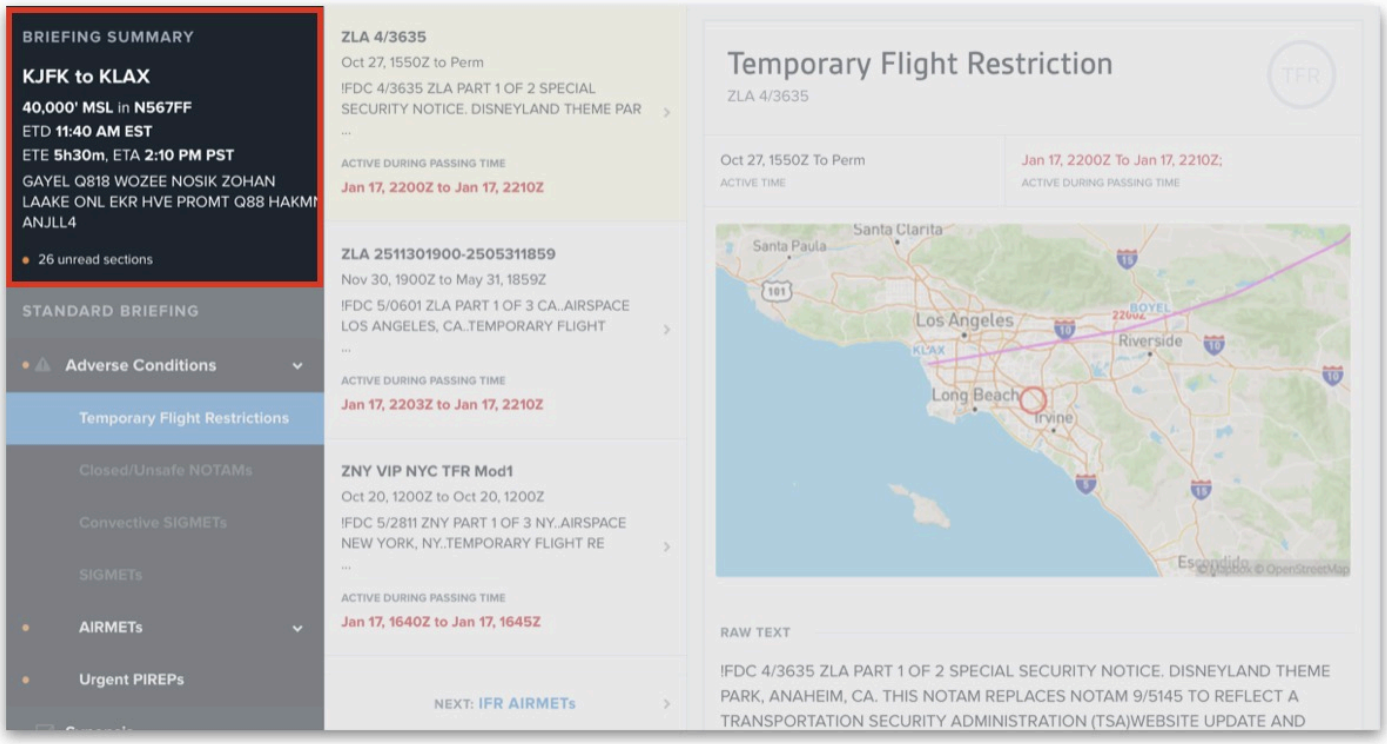


Figure 24-40. Sidebar - Briefing Summary

24.3.1.2 Standard Briefing Sections

The bottom half of the sidebar lists all of the briefing sections. Tapping a section opens it in the viewing pane to the right. Some sections are followed by a carat symbol (V) and expand when tapped to display their subsections. Tap these to open them in the viewing pane. If a section is not included in the briefing, its title is grayed out in the sidebar. For example, the image below shows a briefing with no SIGMETs or Urgent PIREPs. Those sections are grayed out in the sidebar. All other sections are contained in the briefing, as indicated by bold white text.

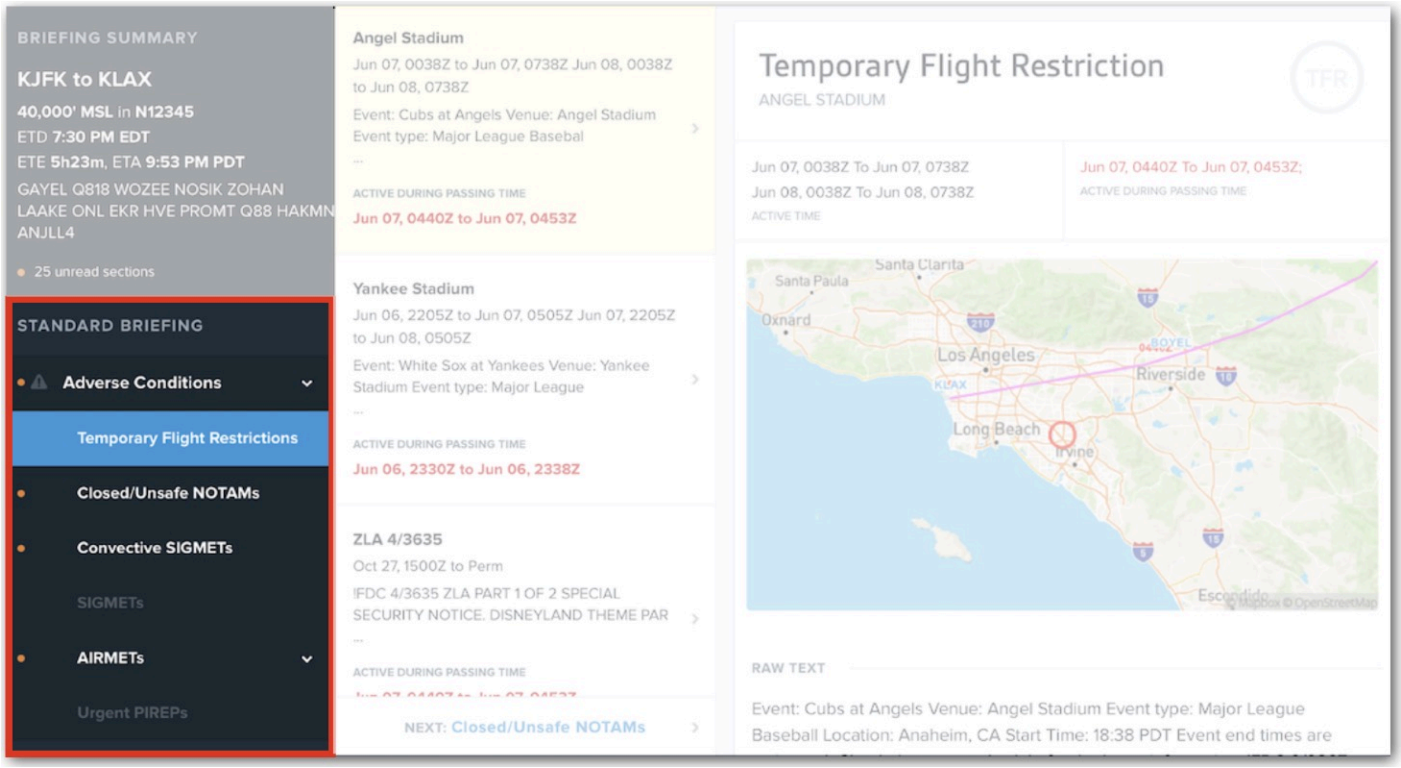


Figure 24-41. Sidebar - Standard Briefing

24.3.1.3 Progress Tracking

Orange dots in the sidebar indicate that a section (or one of its subsections) has not been viewed. An additional orange dot in the Briefing Summary displays the total number of unread sections. Once a section or subsection has been opened in the viewing pane, it is considered read and its orange dot disappears.

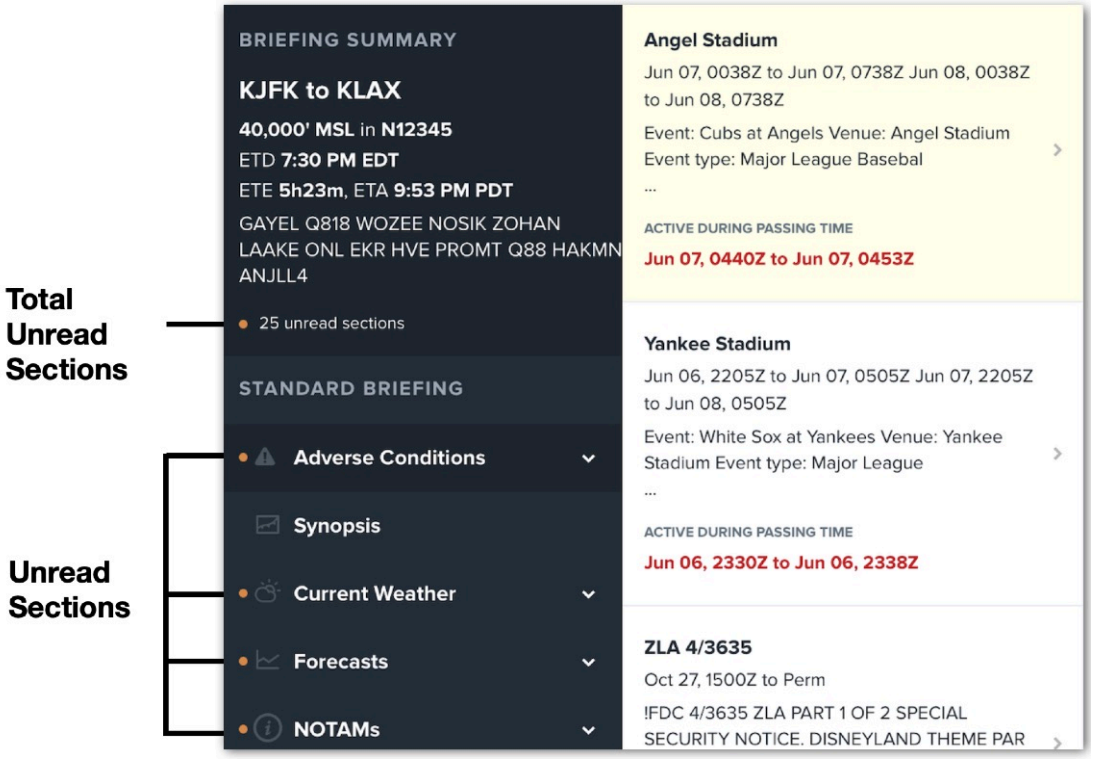


Figure 24-42. Progress Tracking

24.3.1.4 Previous and Next Page Navigation

Buttons at the bottom of the page allow for navigating to the previous or next page. The name of the page is displayed in blue font e.g. **NEXT: Cloud Coverage >**. Tap it to move to the next page, or tap the back button **<** to its left to move to the previous page.

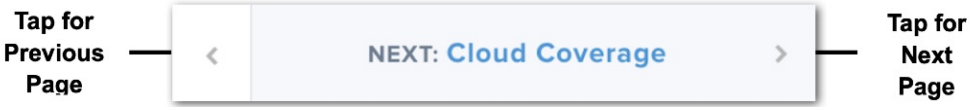


Figure 24-43. Page Navigation

24.3.1.5 Secondary Sidebars

Many subsections of the briefing, such as Temporary Flight Restrictions, are several pages long. These are presented with a secondary sidebar that can be used to skim through and display individual pages. Each entry in the secondary sidebar summarizes the page contents. Tap the summary in the secondary sidebar to display its contents.

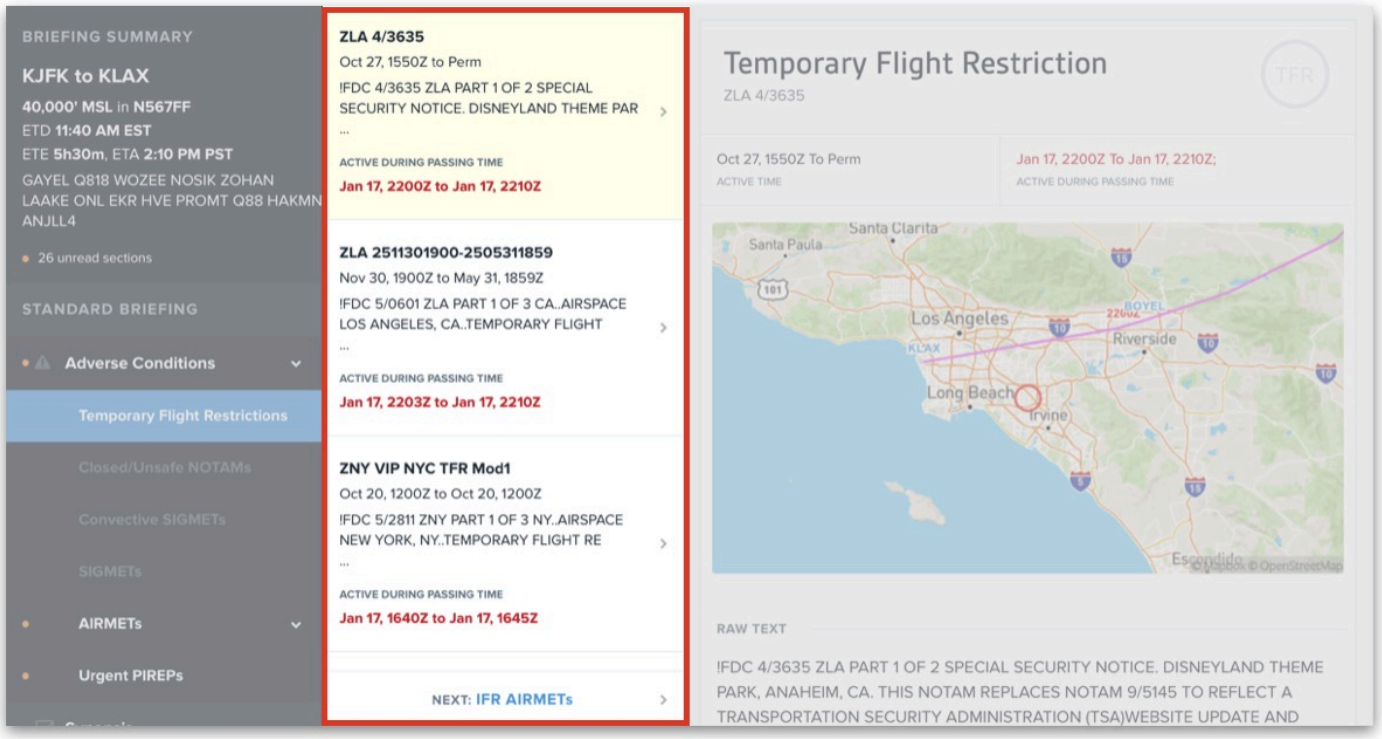


Figure 24-44. Secondary Sidebar

24.3.2 Viewing Pane

The right side of the briefing displays the contents of the selected section or subsection. Depending on the page being viewed, some or all of the following functionality may be available in the viewing pane.

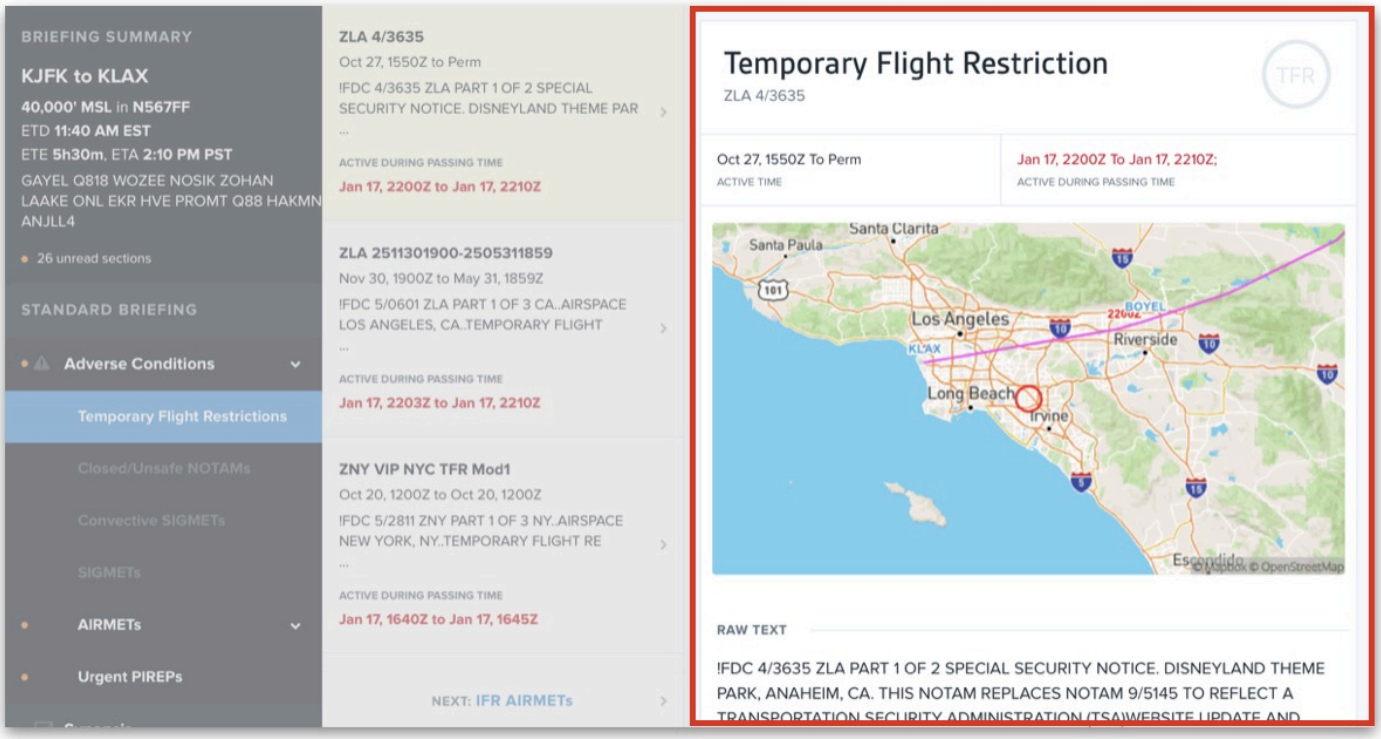


Figure 24-45. Viewing Pane

24.3.2.1 Full-Screen Images

Images in the viewing pane can be tapped to view in full-screen mode, then panned and zoomed using onscreen finger gestures. Tap the **Briefing** back button at the top of the screen to close the full-screen image.

24.3.2.2 Plain/Raw Text Toggling

Several pages of the Graphical (HTML) briefing can be viewed in raw notation or plain language.

On split-screen pages like those in the Adverse Conditions section or the Synopsis page, raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the right column.



Figure 24-46. Show Raw Text Button

On full-screen pages like the METARs, TAFs, or NOTAMs pages, a **PLAIN TEXT** toggle at the top right of the page can be used to select the text between raw and translated. The position of this toggle is retained between pages in the same briefing.

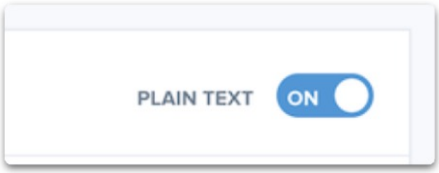


Figure 24-47. Plain Text Toggle

24.3.3 Adverse Conditions

The Adverse Conditions section lists the following advisory types:

- Temporary Flight Restrictions
- Closed/Unsafe NOTAMs
- Convective SIGMETs
- AIRMETs
- Urgent PIREPs.

Each advisory type can be tapped to open a secondary sidebar listing instances of that advisory type.

Each advisory displays its name, active time, and location on a map. Additionally, Temporary Flight Restriction, Convective SIGMET, and AIRMET advisories display a color-coded indication of whether the advisory will be active when the aircraft passes within 2 NM of its location:

- **Red**: Active when the aircraft passes within 2 NM.
- **Orange**: Active within 1 hour before or after the aircraft passes within 2 NM.
- **Green**: Inactive within 1 hour before or after the aircraft passes within 2 NM.

24.3.3.1 Temporary Flight Restrictions

Temporary Flight Restrictions are listed in the HTML briefing if they occur less than 25 NM from the route and are active within one day of the ETD and ETA.

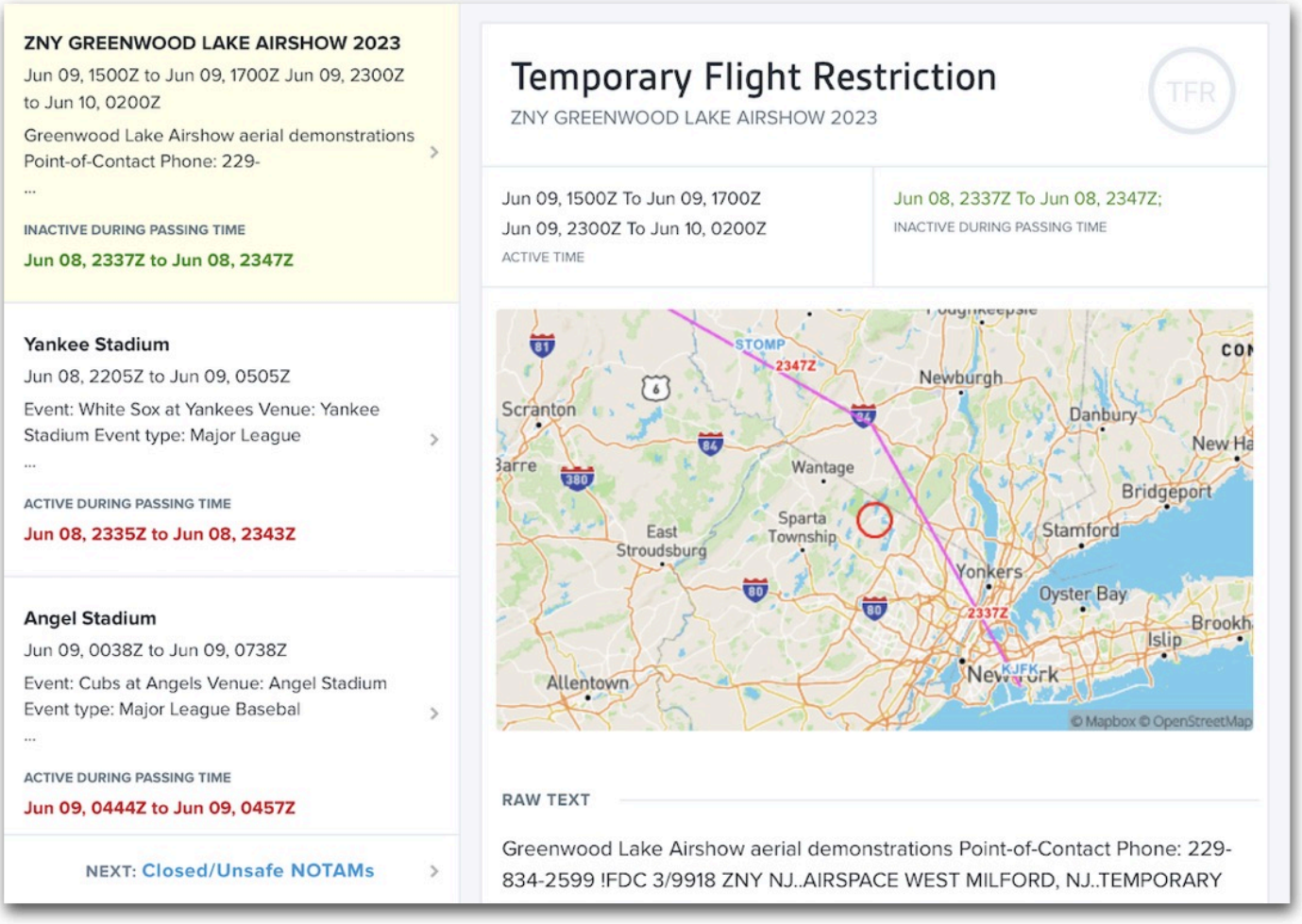


Figure 24-48. Temporary Flight Restrictions

24.3.3.2 Closed/Unsafe NOTAMs

The Closed/Unsafe NOTAMs section contains runway and aerodrome NOTAMs that include the contractions “CLOSED” or “CLSD”, and which have passed the appropriate NOTAM filters.

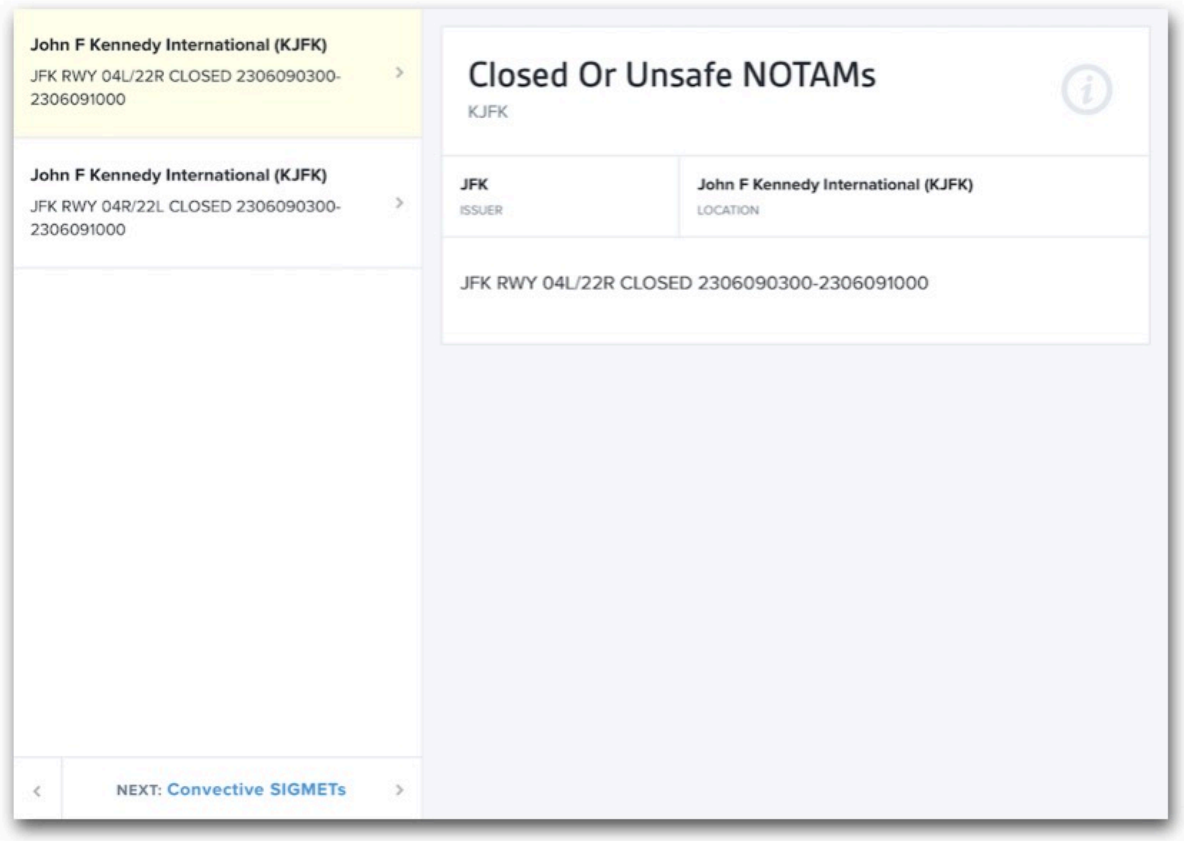


Figure 24-49. Closed/Unsafe NOTAMs

24.3.3.3 Convective SIGMETs

Convective SIGMETs are listed in the briefing if they occur less than 80 NM from the route and are active within two hours of the ETD or ETA. Convective SIGMET raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the page.

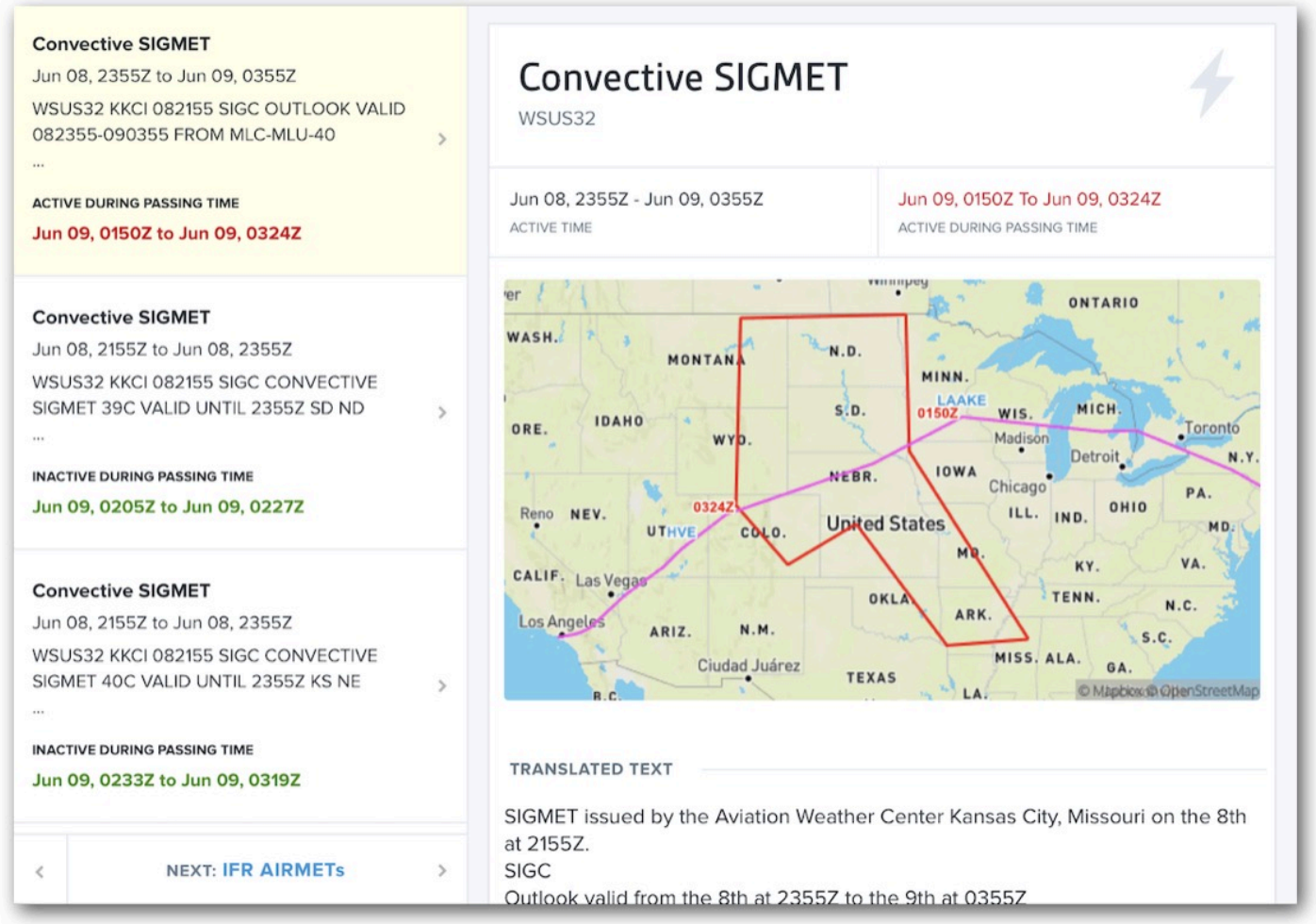


Figure 24-50. Convective SIGMETs

24.3.3.4 SIGMETs

SIGMETs are listed in the briefing if they occur less than 80 NM from the route and are active within two hours of the flight's ETD or ETA. SIGMET raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the page.

24.3.3.5 AIRMETs

AIRMETs are listed in the HTML briefing if they occur less than 80 NM from the route and are active within two hours of the ETD or ETA.

The HTML briefing sidebar groups AIRMETs into the following subheadings: IFR, Mountain Obscuration, Icing, Turbulence Low, Turbulence High, Low Level Wind Shear, and Other. Tapping one of the subheadings opens a page listing all AIRMETs of that type.

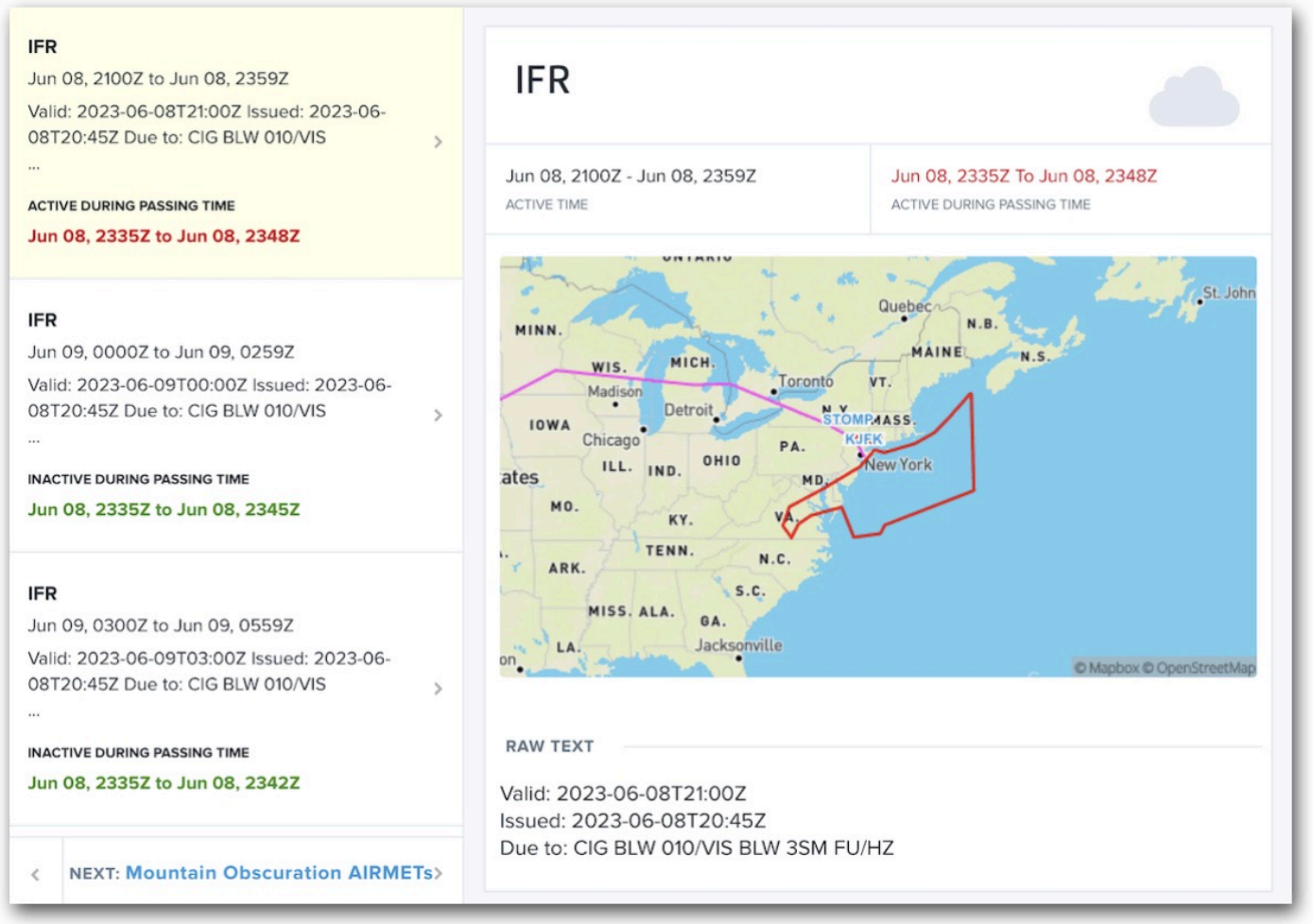


Figure 24-51. AIRMETs (IFR Group Shown)

24.3.3.6 Urgent PIREPs

Urgent PIREPs are listed in the HTML briefing if they occur less than 80 NM from the route and are less than 90 minutes old. Urgent PIREP raw text can be displayed by tapping **SHOW RAW TEXT** at the bottom of the page.

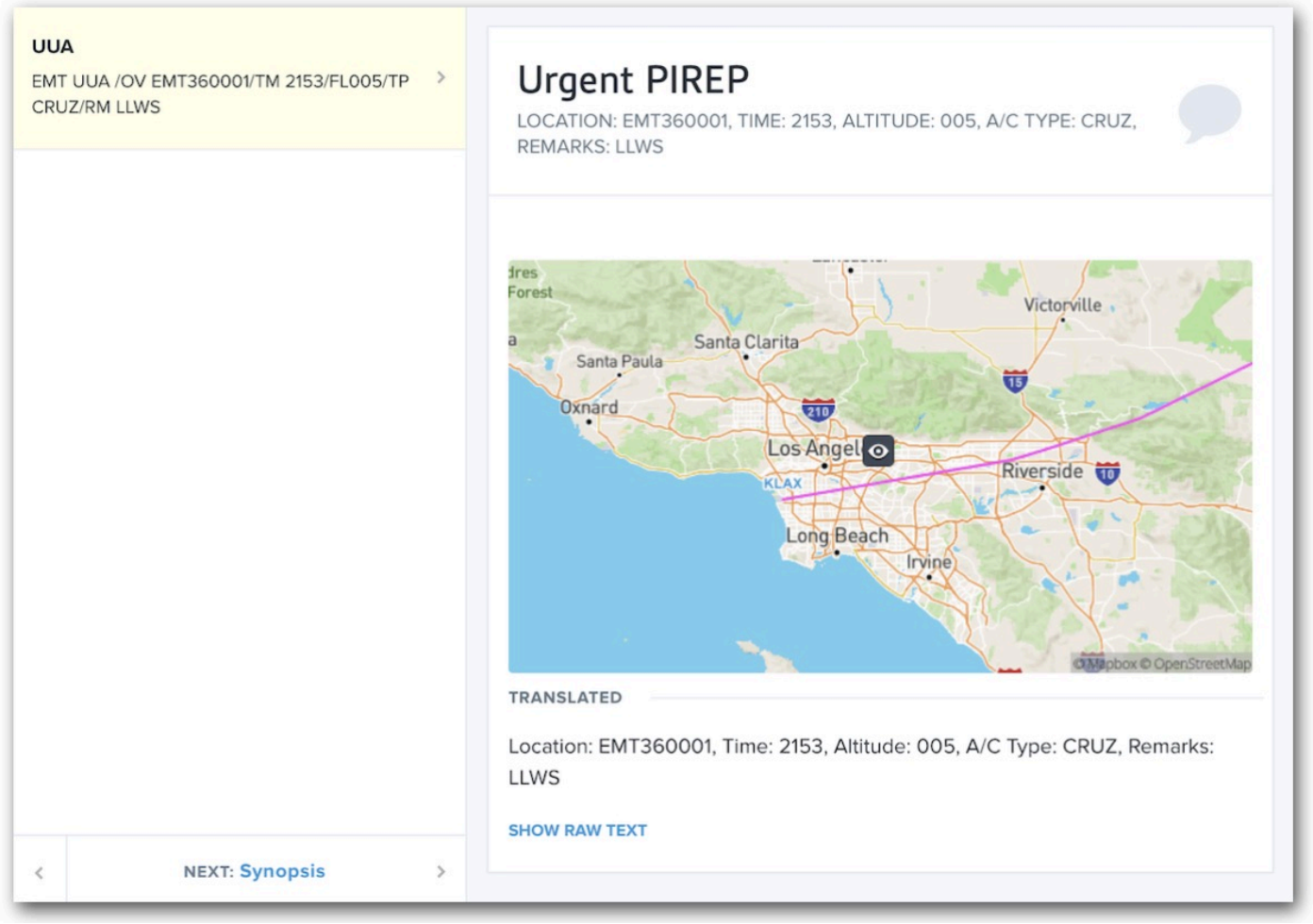


Figure 24-52. Urgent PIREPs

24.3.4 Synopsis

The Synopsis section provides an overview of weather trends for each geographical area through which the route passes. Depending on the flight, it may include charts for the continental U.S., Hawaii, and Alaska. These charts are downloaded as images directly from their source and are not created by ForeFlight Mobile.

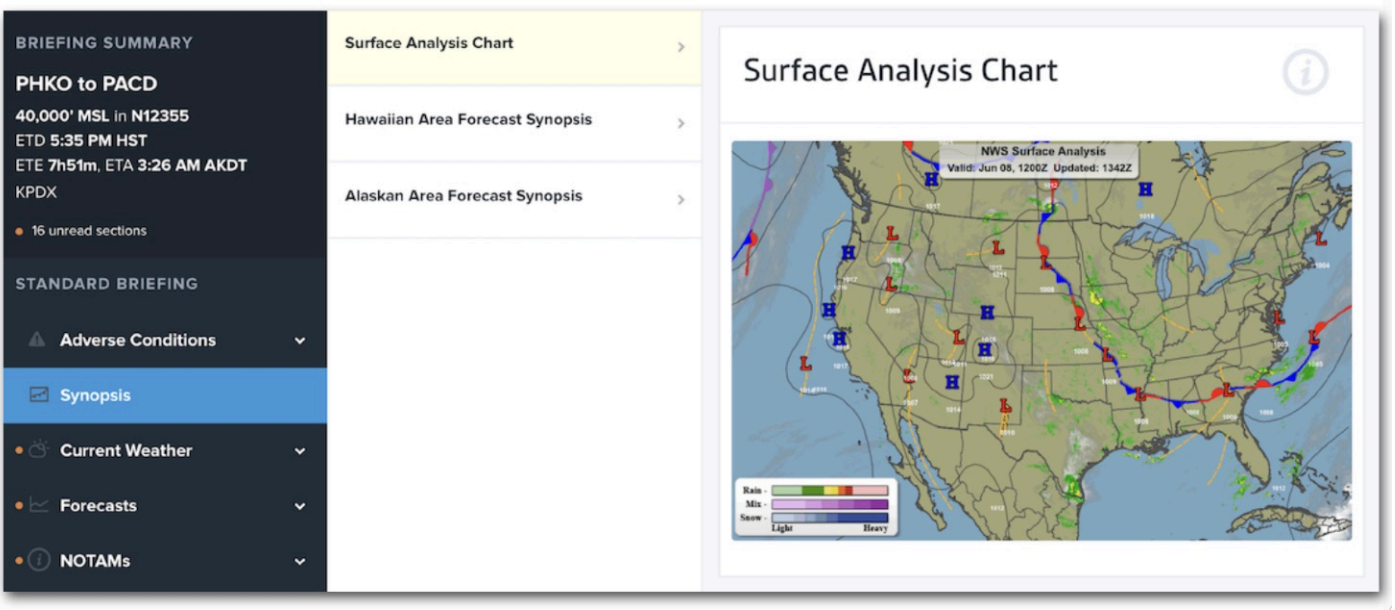


Figure 24-53. Synopsis Section

24.3.4.1 Surface Analysis Chart

The HTML briefing always includes the latest Surface Analysis Chart for the continental U.S. published by the National Weather Service (NWS).

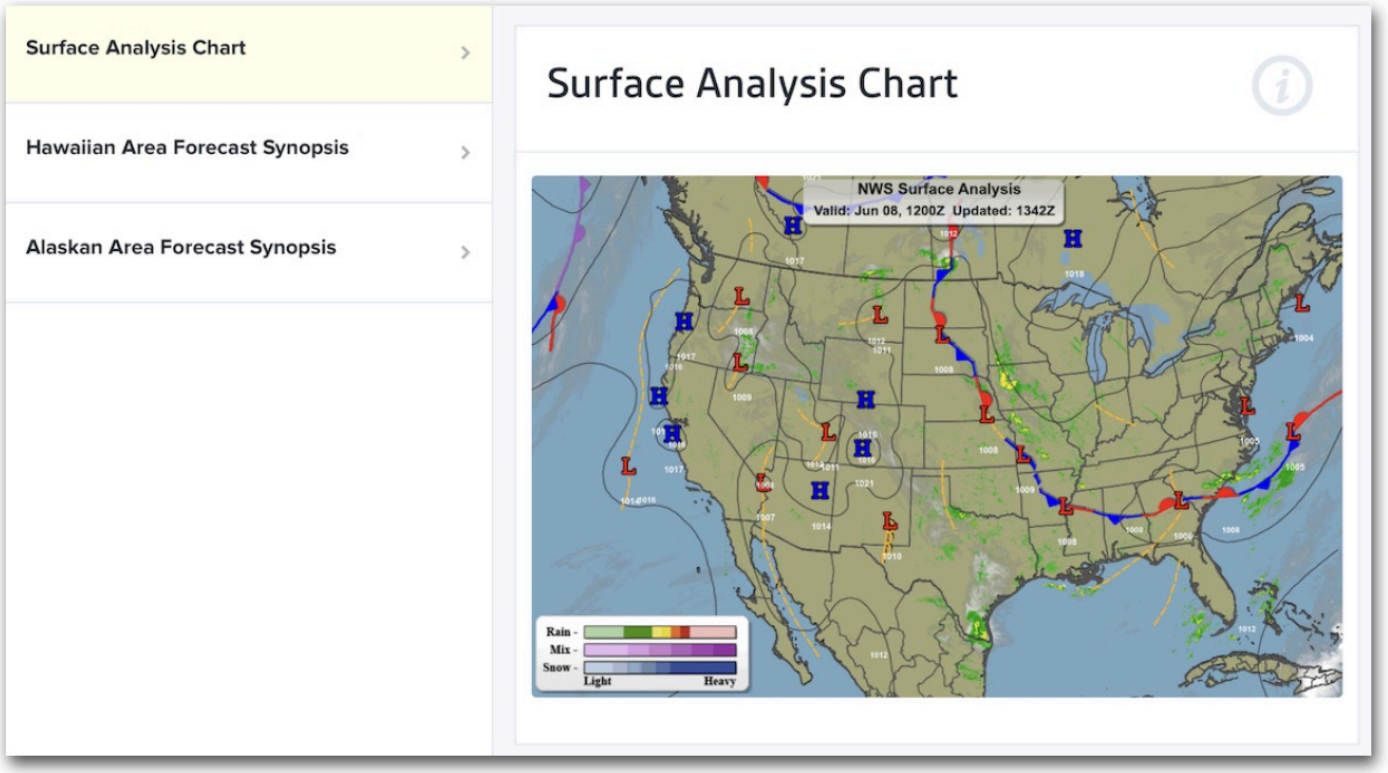


Figure 24-54. U.S. Surface Analysis Chart

24.3.4.2 Hawaiian Area Forecast Synopsis

If the route intersects the Honolulu Area Control Center (FIR PHZH), the latest North Pacific Surface Analysis Chart from the NWS is provided.

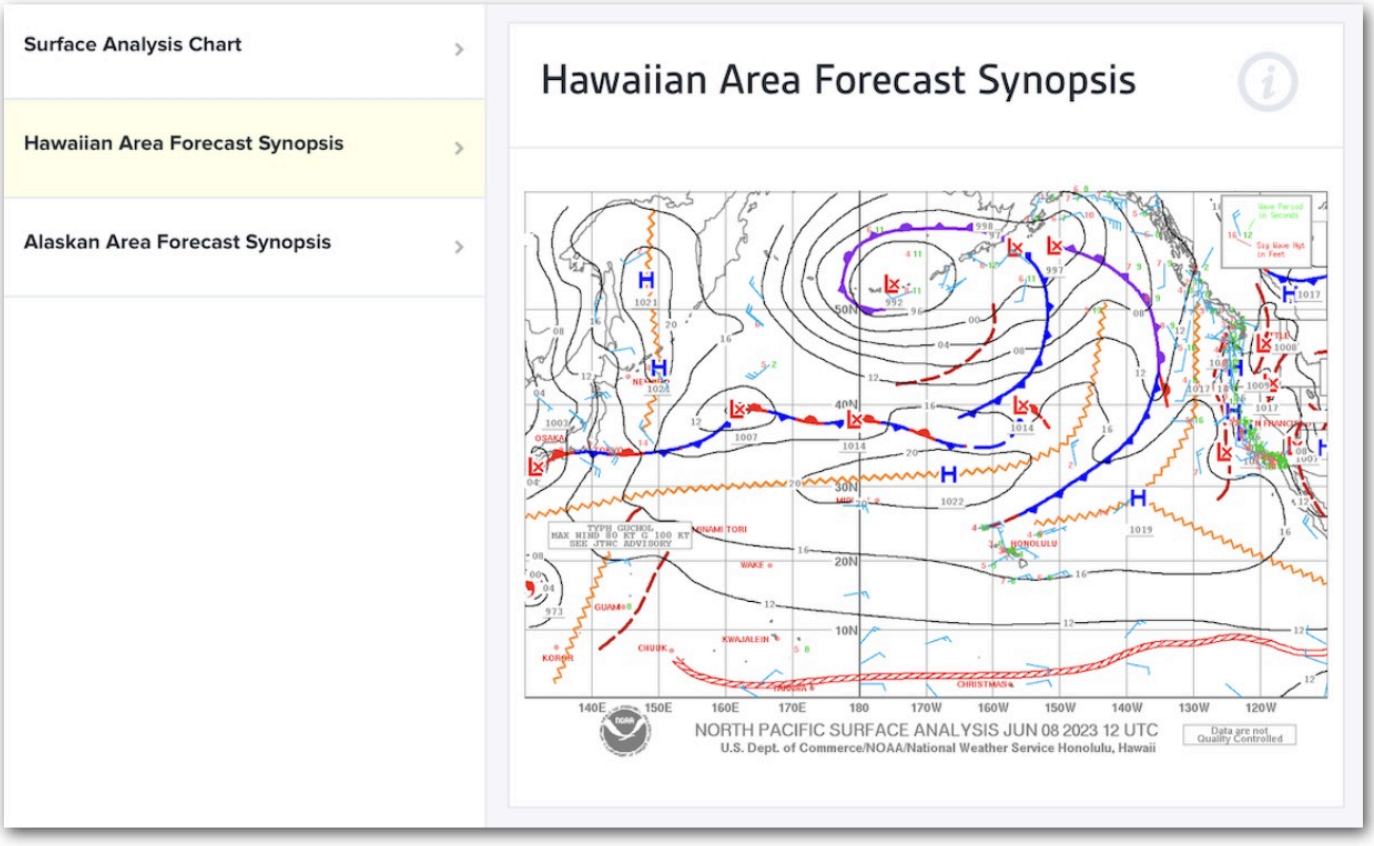


Figure 24-55. Hawaiian Area Forecast Synopsis

24.3.4.3 Alaskan Area Forecast Synopsis

If the route intersects the Anchorage Area Control Center (FIR PAZA), the latest Alaskan Area Forecast from the NWS is provided.

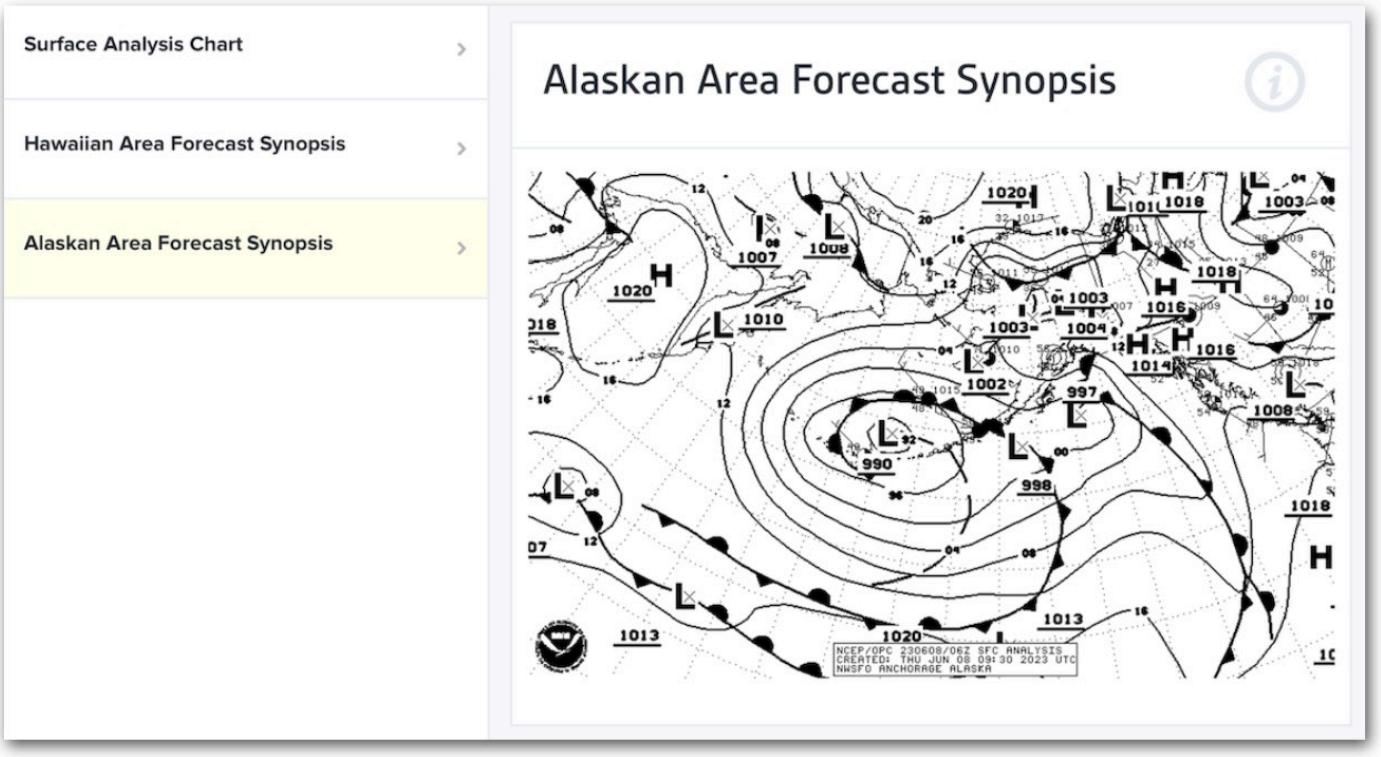


Figure 24-56. Alaskan Area Forecast Synopsis

24.3.5 Current Weather

The Current Weather section displays METARs and PIREPs along the route. These are displayed graphically on a map, and listed beneath the map. This section allows toggling between raw and plain text.

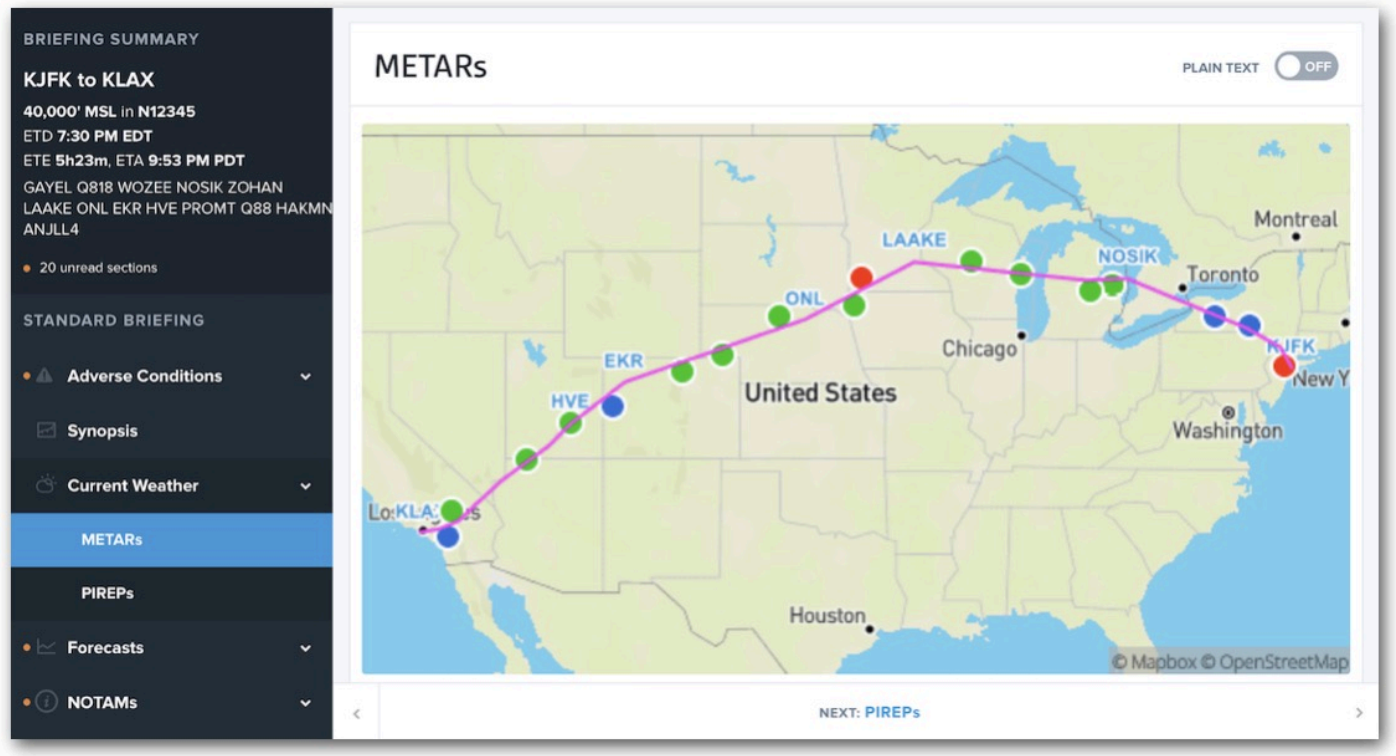


Figure 24-57. Current Weather Section

24.3.5.1 METARs

The METARs page shows METARs along the route as a map and a list.

The map uses flight category icons to show a subset of METARs along the route. Only METARs with the worst weather are shown on the map. This is done to declutter the image for readability. The remaining METARs can be found in the list.

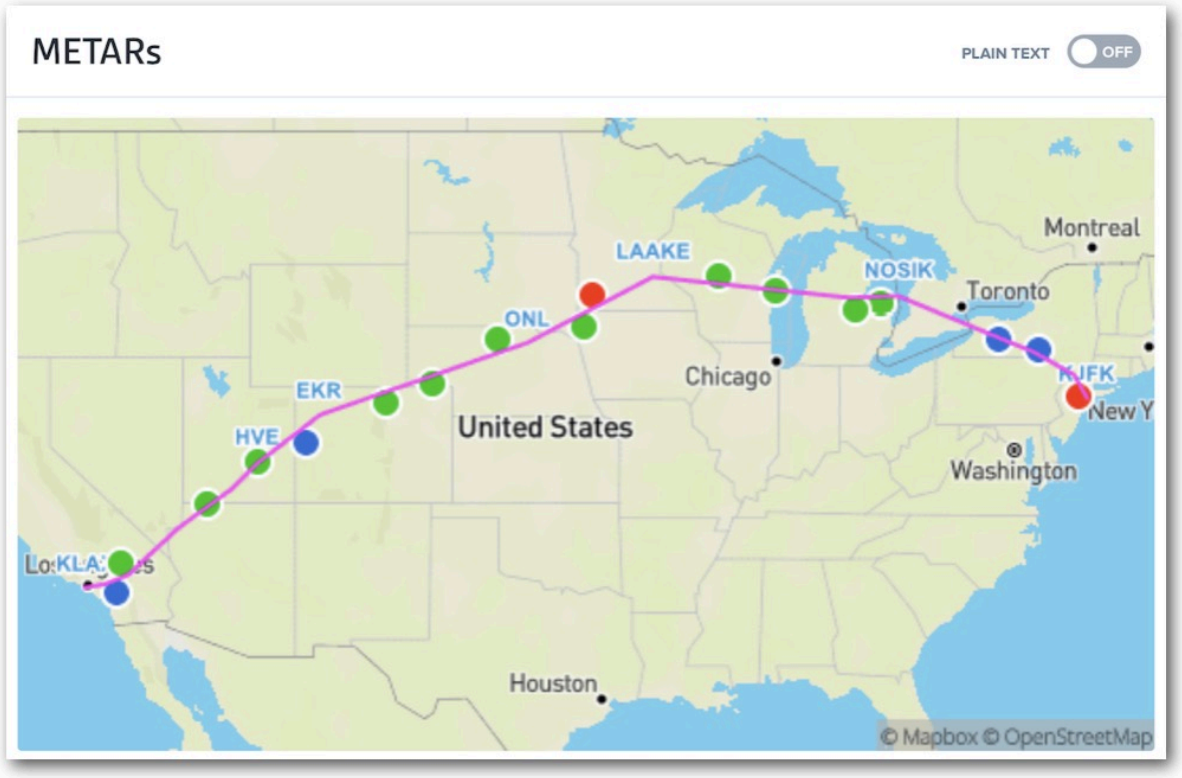


Figure 24-58. METARs Map

The list at the bottom of the page includes all METARs within 30 NM of the route in order from departure to destination. By default, METARs are listed using raw text. To toggle the list between raw and plain text, tap the blue **PLAIN TEXT** switch above the METARs page map.

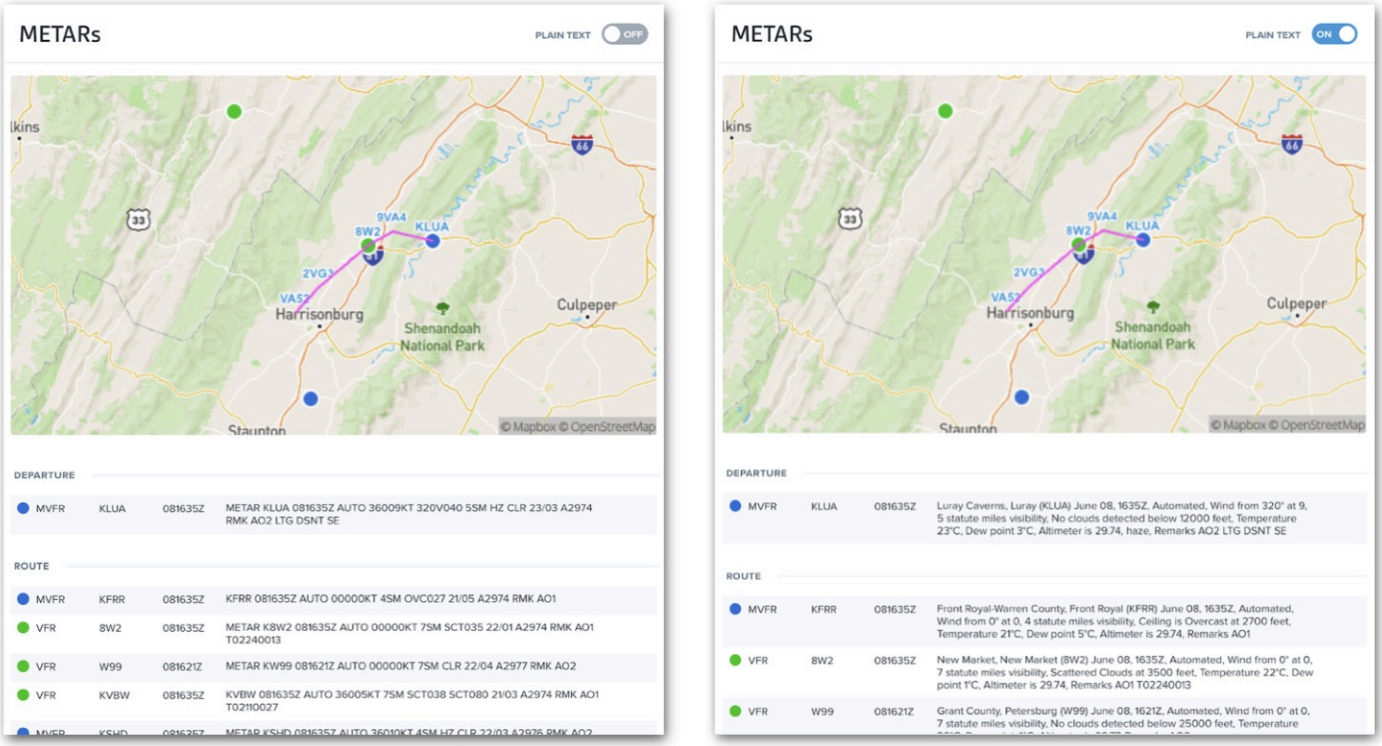


Figure 24-59. Toggling Between Raw and Plain Text METARs

24.3.5.2 PIREPs

The PIREPs page uses a secondary sidebar to list all PIREPs less than 90 minutes old and within 80 NM of the route. When tapped, each PIREP is displayed on a map and as text.

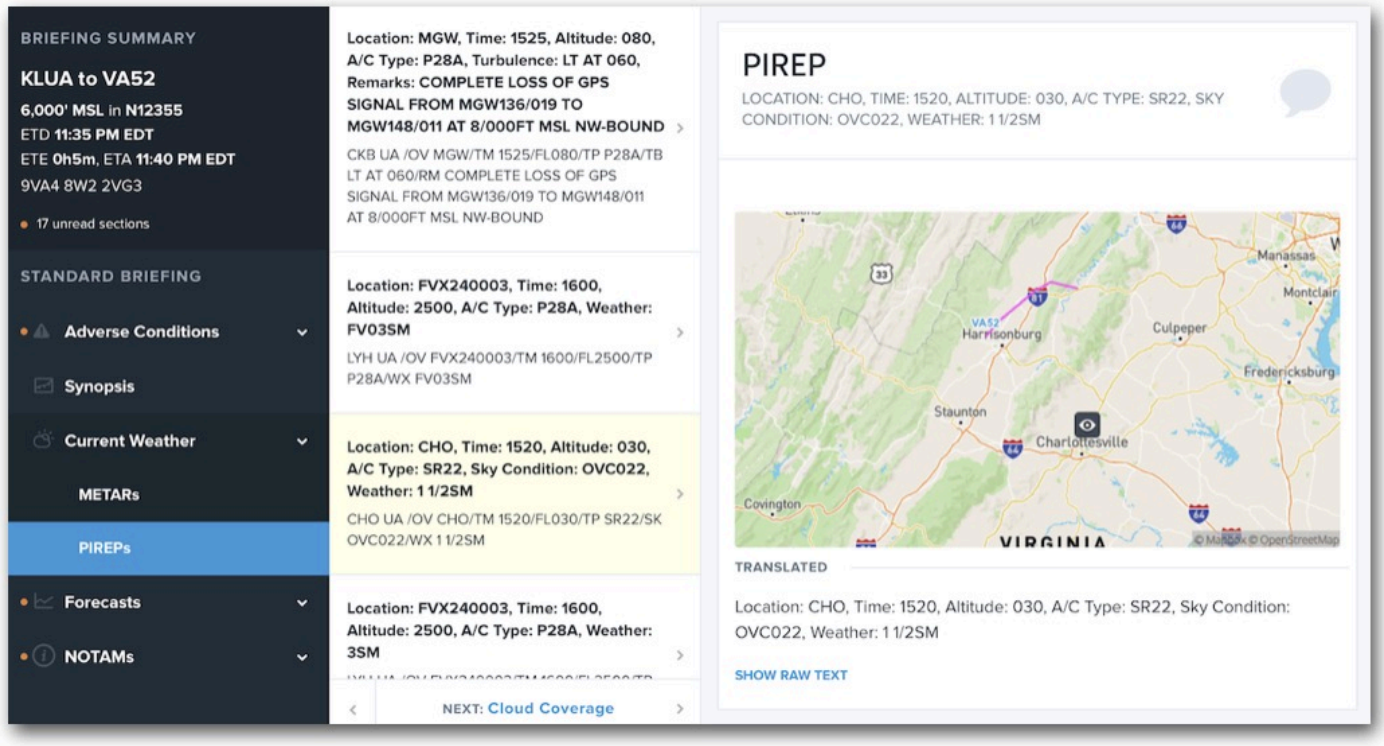


Figure 24-60. PIREPs Page

The location of the PIREP is depicted with a symbol on the map. A plain-text description of the PIREP is provided above and beneath the map. To display the actual PIREP notation, tap **SHOW RAW TEXT** beneath the map.

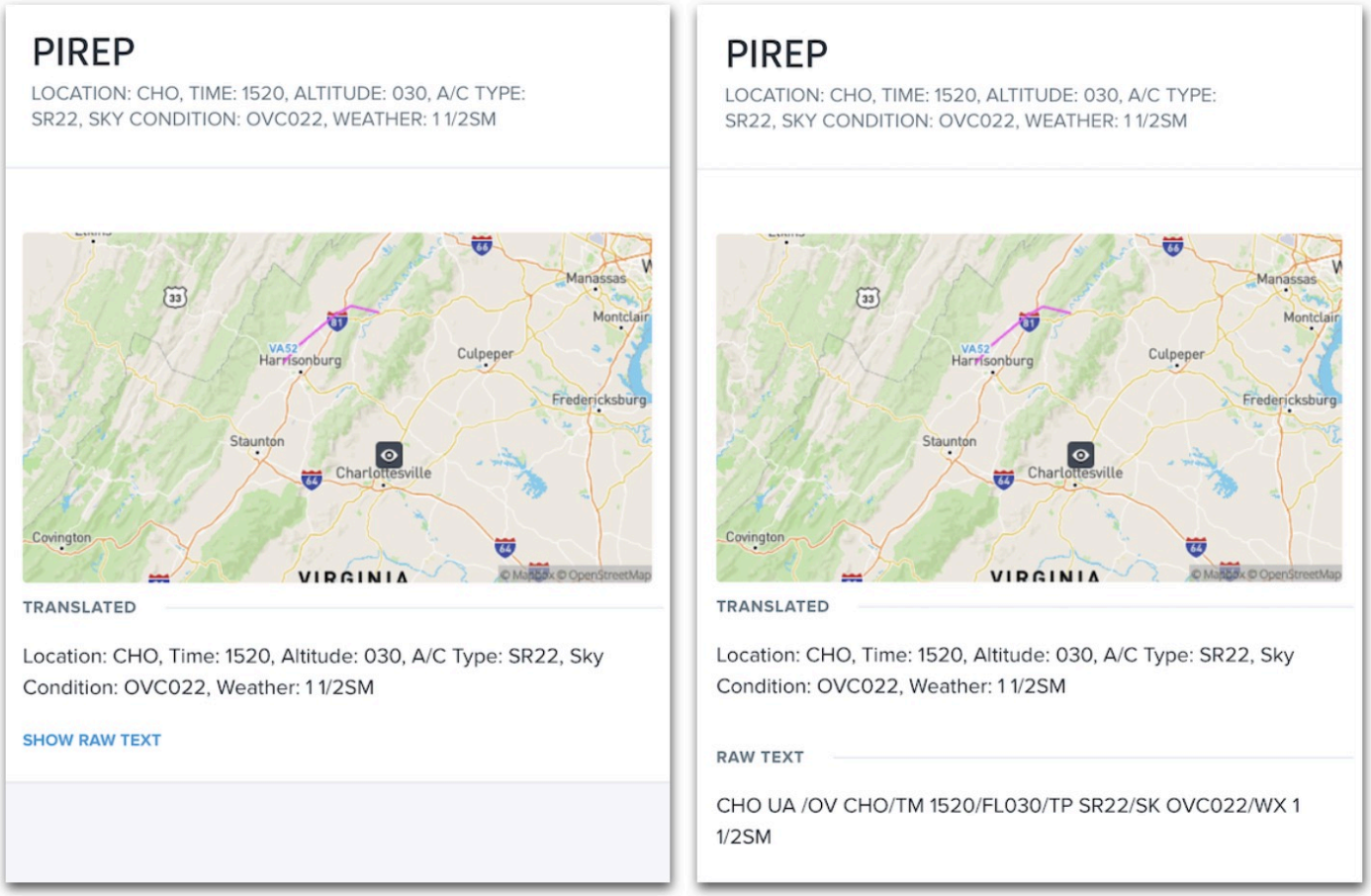


Figure 24-61. Displaying Raw Text PIREPs

24.3.6 Forecasts

The Forecasts section includes various images and tables providing information on forecast conditions along the route. Its contents include Cloud Coverage, Vis, Sfc Winds & Precip, TAFs, Wind Chart, Vertical Cross Section Chart, and Winds Aloft Table.

24.3.6.1 Cloud Coverage

The Cloud Coverage section uses a secondary sidebar to list images generated by the NWS that show forecast cloud coverage. Images are provided for every region within the continental U.S. that the route passes through, and for all times that the flight is active.

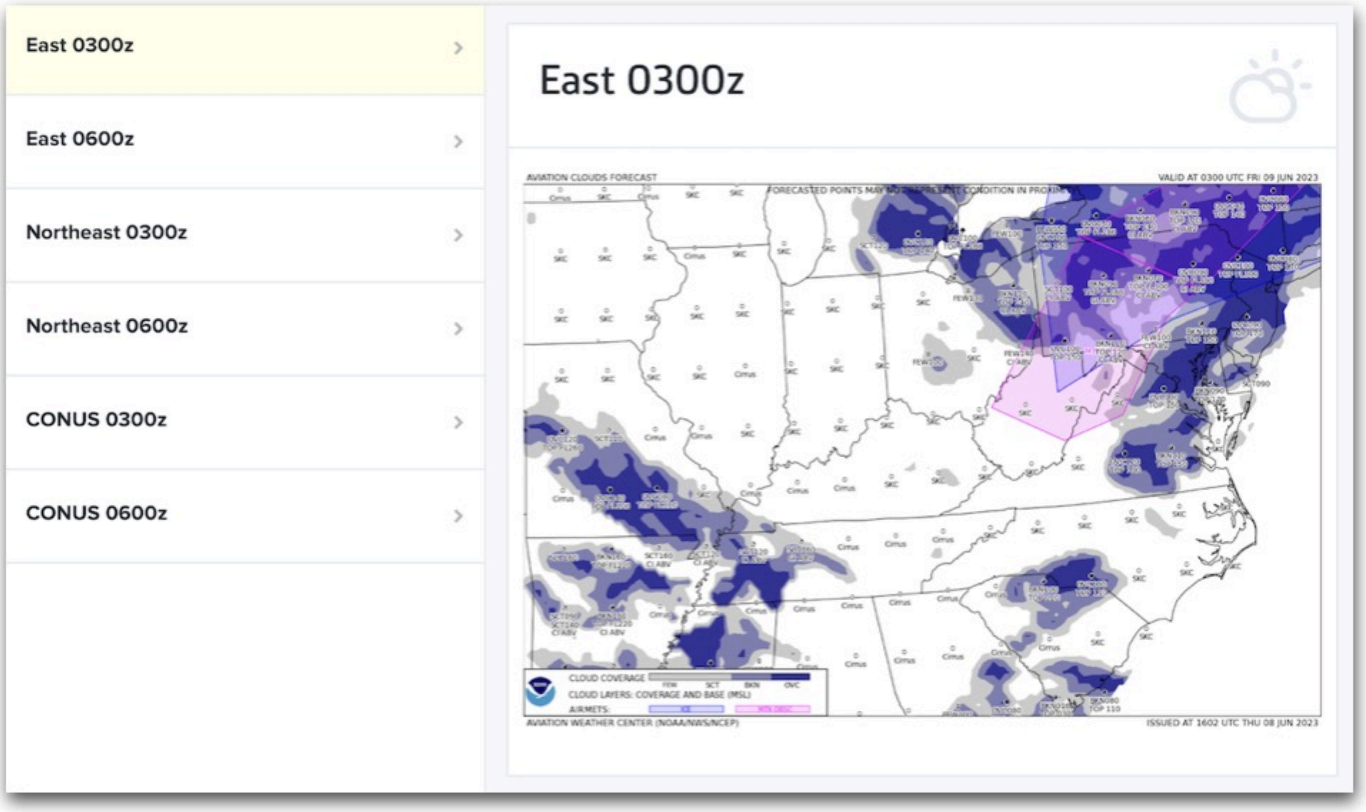


Figure 24-62. Cloud Coverage

24.3.6.2 Vis, Sfc Winds & Precip

The Vis, Sfc Winds & Precip section uses a secondary sidebar to list images generated by the NWS that show forecast visibility, surface winds, and precipitation. Images are provided for every region within the continental U.S. that the route passes through, and for all times that the flight is active.

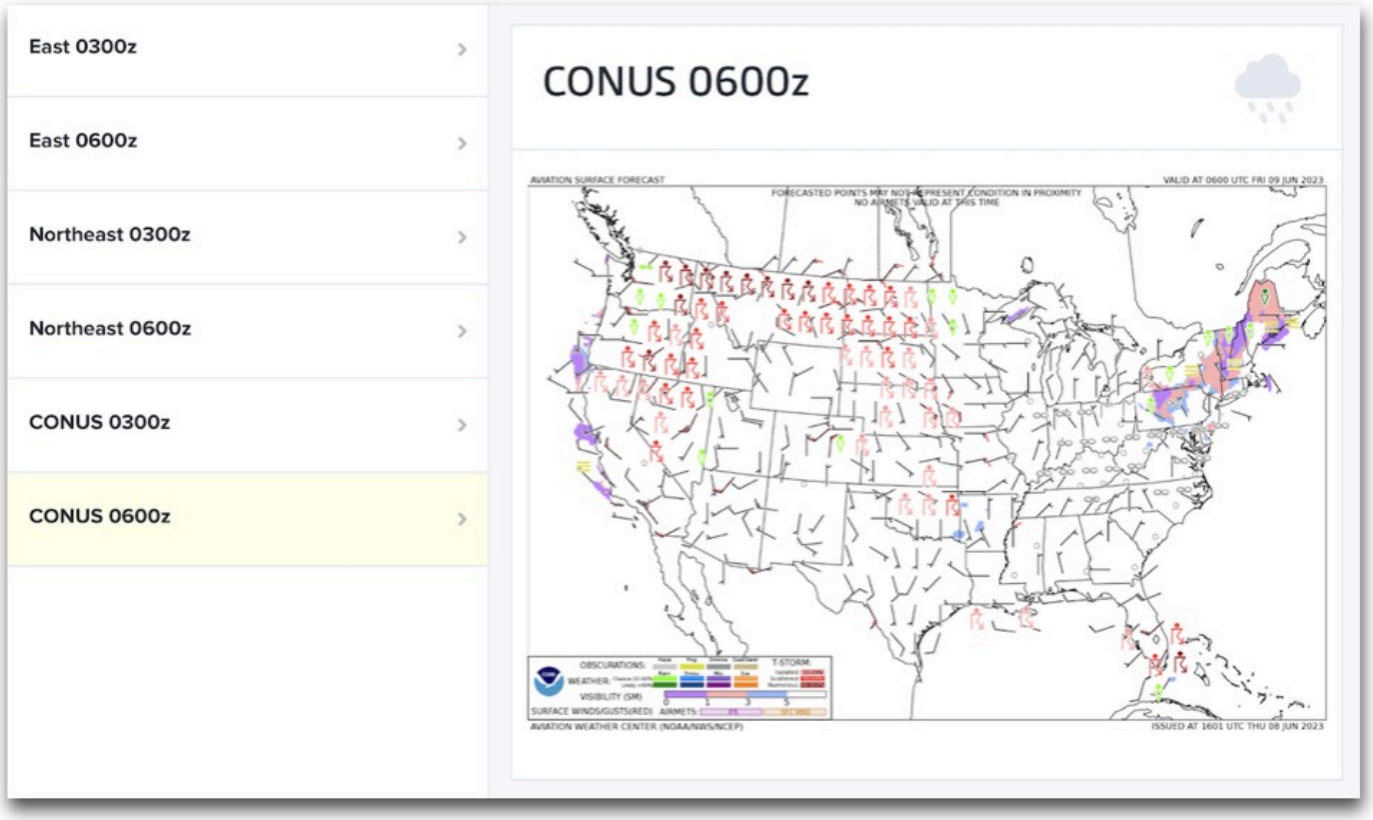


Figure 24-63. Vis, Sfc Winds & Precip

24.3.6.3 TAFs

The TAFs page displays TAFs for every airport that issues them along the route. It includes a map at the top showing the route and flight categories that correspond to the TAFs that will be valid for each airport at the passing time.

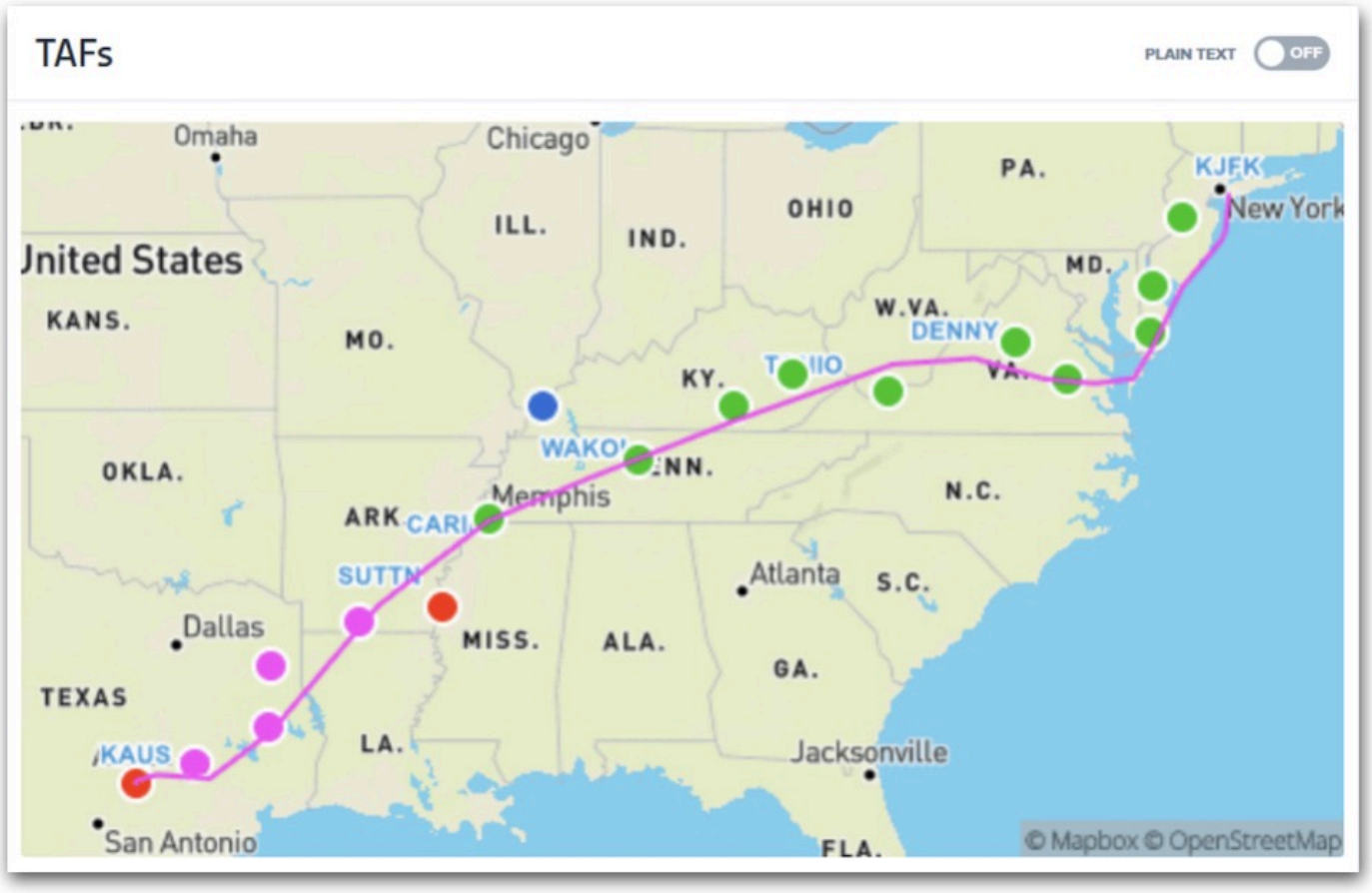


Figure 24-64. TAFs Map

Below the map is a list of TAFs within 30 NM of the route that will be valid at or near the time the aircraft passes each airport. If a portion of any TAF will be valid during the aircraft passing time, it will be highlighted in the flight-category color. By default, TAFs are listed using raw text. To toggle the list between raw and plain text, tap the blue **PLAIN TEXT** switch above the TAFs page map.



Figure 24-65. TAFs with Portions Active at Passing Time

24.3.6.4 Wind Chart

The Wind Chart shows forecast winds, temperatures, and turbulence along the route of flight at a single specific altitude and time. This chart is produced by ForeFlight Mobile and can be read in the same way as the Wind Chart in the PDF briefing.



Figure 24-66. Wind Chart

24.3.6.5 Vertical Cross Section Chart

The Vertical Cross Section Chart depicts winds, temperatures, turbulence, icing, tropopause, and terrain at different altitudes along the route of flight. This chart is produced by ForeFlight Mobile and can be read in the same way as the Vertical Cross Section Chart in the PDF briefing.

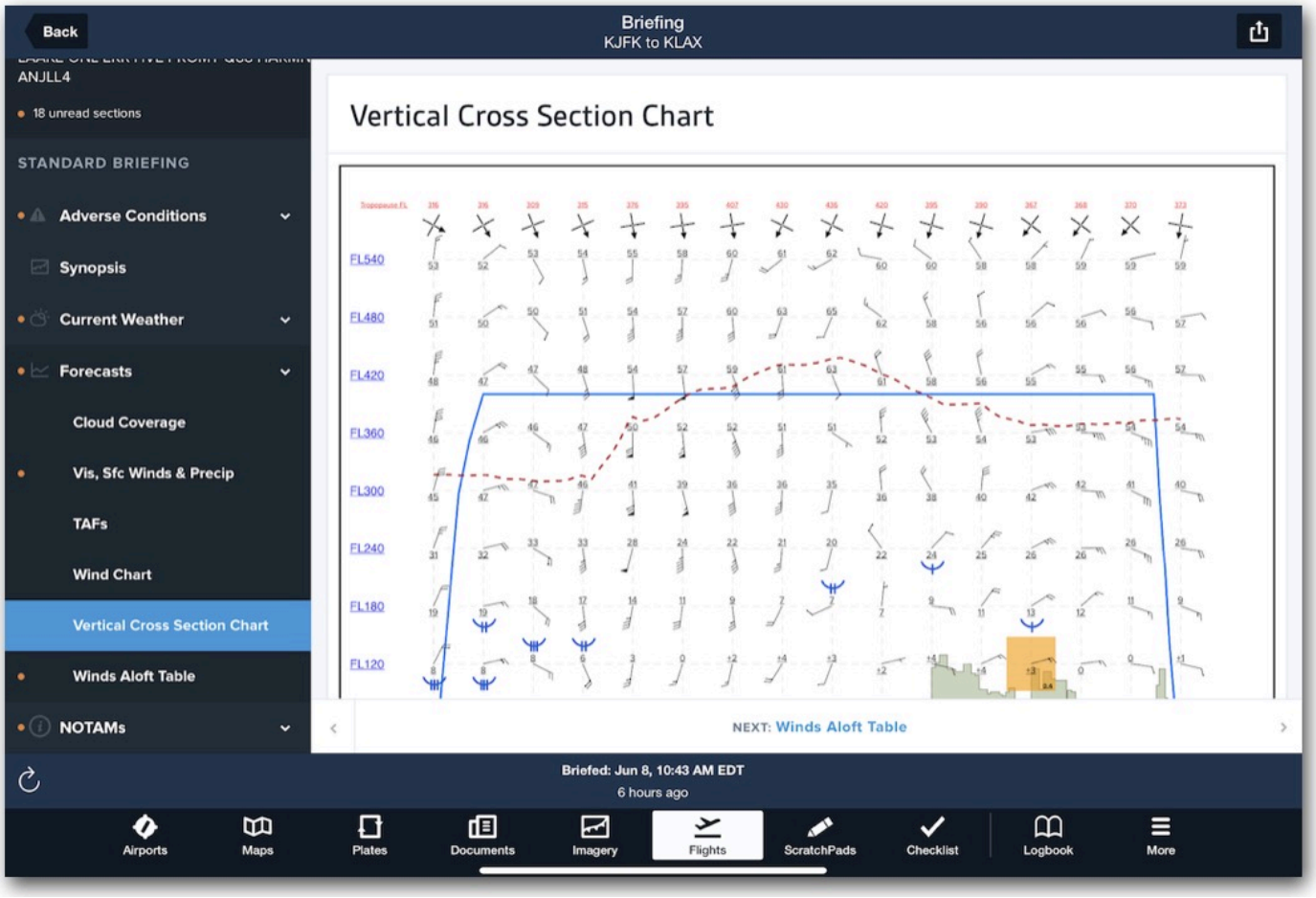


Figure 24-67. Vertical Cross Section Chart

24.3.6.6 Winds Aloft Table

The Winds Aloft Table compares forecast winds aloft at the filed altitude with winds aloft at other altitudes.

Enable the switch in the upper-right corner of the page to limit the altitudes shown to only those within 4,000 feet of the filed altitude (shown in the blue column). Disable it to show winds aloft forecasts for all altitudes.

Each column provides wind forecasts for different altitudes, and each row shows the forecast winds at each waypoint in the route. If the switch in the upper-right corner of the page is disabled, swipe left and right on each table to view forecast winds at altitudes that are more than 4,000’ from the filed altitude.

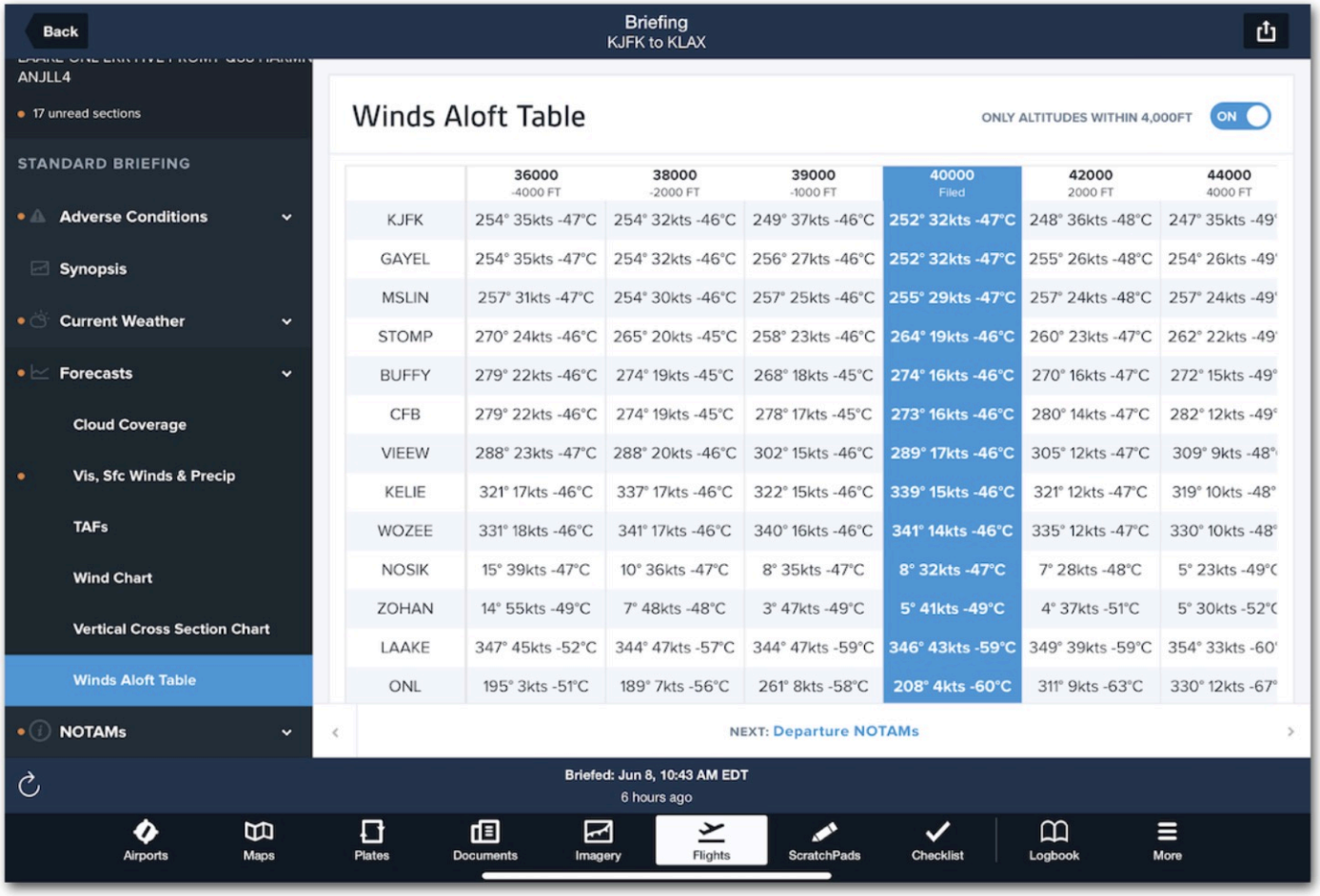


Figure 24-68. Winds Aloft Table

24.3.7 NOTAMs

The NOTAMs section includes a filtered list of NOTAMs considered most relevant to the flight. It then applies additional filters to narrow down the list. These NOTAMs are filtered and grouped as described below.

> **NOTE:** This section does not include closed/unsafe NOTAMs, which are found instead in the Adverse Conditions section.

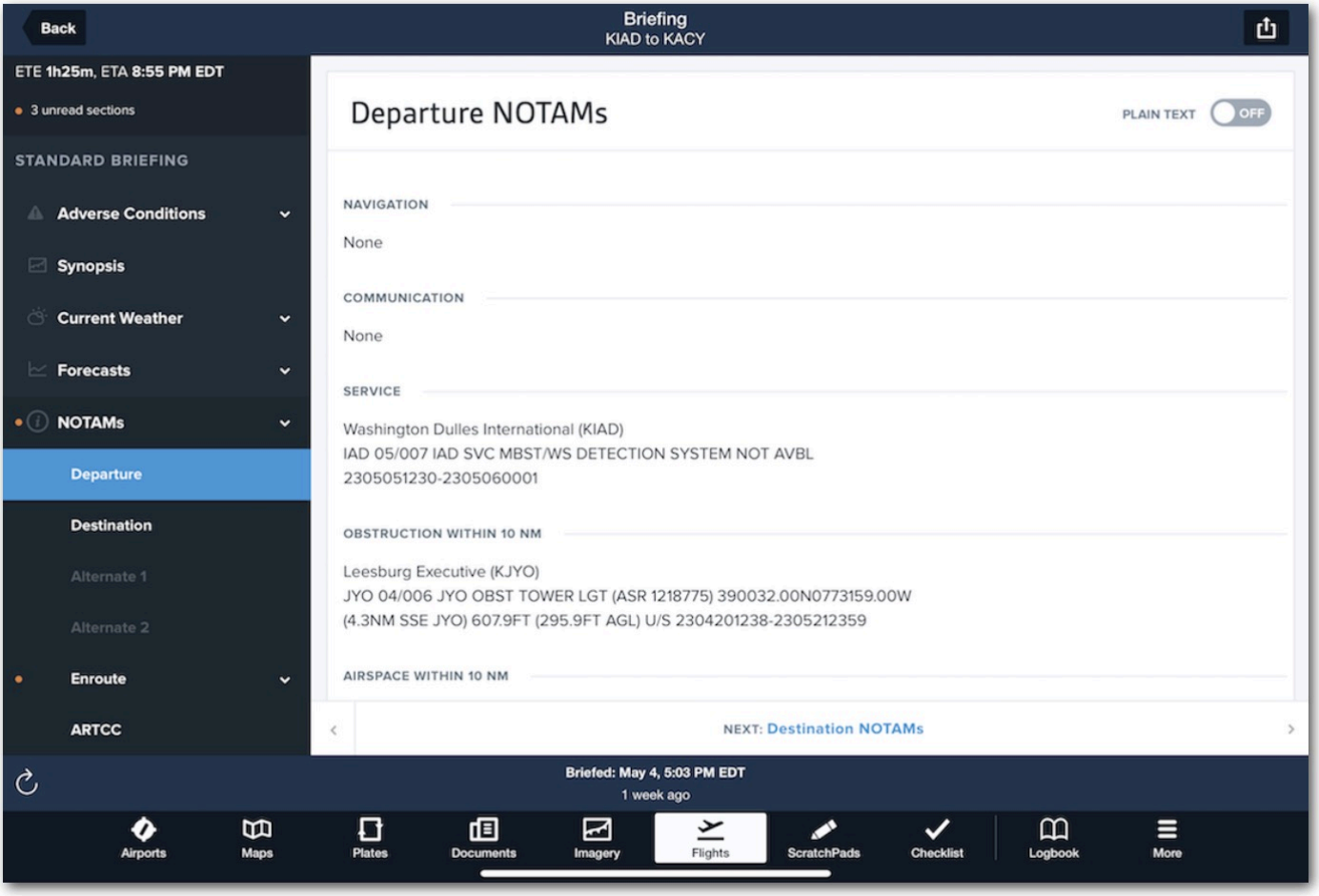


Figure 24-69. NOTAMs: Departure

24.3.7.1 NOTAM Filters

When an HTML briefing is requested, ForeFlight Mobile gathers all airport NOTAMs within a 30-NM buffer of the route and all NOTAMs from overflown FIRs. The HTML briefing applies a similar list of NOTAM filters as those used in the PDF briefing, but it does not include the ARTCC NOTAM filters.

> **Flight Level Filter**
>
> Removes all NOTAMs more than 50,000 ft outside the minimum or maximum flight planned altitudes.

> **Route Filter**
>
> Removes all NOTAMs that affect an area more than 80 NM from the route.

> **Valid Time Filter**
>
> Removes all NOTAMs that are not active 12 hours before or after the flight.

> **Miscellaneous NOTAMs Filter**
>
> Removes all NOTAMs given an “M” in the PURPOSE field of their Q code, designating them as Miscellaneous NOTAMs that are not subject for a briefing.

> **Checklist NOTAMs Filter**
>
> Removes all NOTAMs that have a Q code of “KKKK” or have a “K” in the SCOPE field of their Q code.

> **Flight Rules Filter**
>
> Remove all NOTAMs that are not relevant to the flight based on the flight rules used. (For IFR flights, NOTAMs without an “I” in the TRAFFIC field are excluded. For VFR flights, NOTAMs without a “V” in the TRAFFIC field are excluded.)

> **Local Language Filter**
>
> Removes non-English NOTAMs for each country below based on its series identifier:
>
> - Turkey (LT): G, H, M, L
> - Serbia (LY): C
> - Slovenia (LJ): C
> - Poland (EP): P, M, N, U, L, J
> - Italy (LI): C
> - Portugal (LP): D
> - Slovakia (LZ): C

> **Military NOTAMs Filter**
>
> Removes all military NOTAMs from briefings for non-military flights. Specifically, this filter removes all NOTAMs containing the text “DOD PROCEDURAL NOTAM”.

24.3.7.2 NOTAM Groups

The HTML briefing groups NOTAMs under the following subheadings in the main sidebar:

- Departure
- Destination
- Alternate 1
- Alternate 2
- En route

- ARTCC.

The En route group is further subdivided into these subgroups:

- Communication
- SVC
- Airspace
- Special Use Airspace
- Rwy/Twy/Apron/AD/FDC
- Other/Unverified.

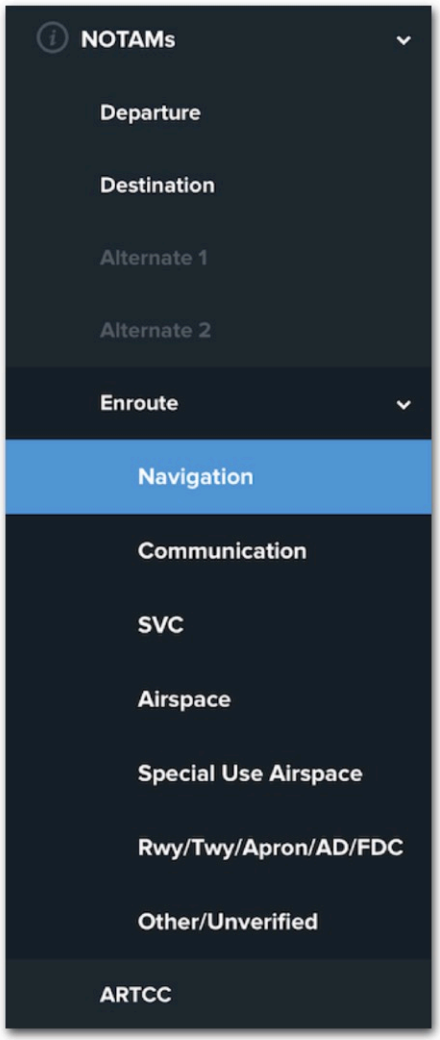


Figure 24-70. NOTAM Groups

24.3.7.3 NOTAM Pages

Tapping a NOTAM group or subgroup heading opens a page on the right listing NOTAMs in that group.

Most pages list NOTAMs in order of the route of flight. However, the Departure, Destination, Alternate 1, and Alternate 2 groups instead list NOTAMs in the following order: Navigation, Communication, Service, Obstruction Within 10 NM, Airspace Within 10 NM, Special Use Airspace Within 10 NM, Runway, Taxiway, Apron, Aerodrome, FDC, and Other/Unverified

By default, METARs are listed using raw text. To toggle the list between raw and plain text, tap the blue **PLAIN TEXT** switch above the METARs page map.

24.4 Printing and Sharing

Briefings in PDF format can be printed. Briefings can be shared with varying results depending on whether they are PDF or HTML format. To share or print a briefing, tap the **Send To** button in the upper-right corner and select from one of the following options.

24.4.1 PDF Printing / Sharing

PDF briefings have the following printing and sharing options available:

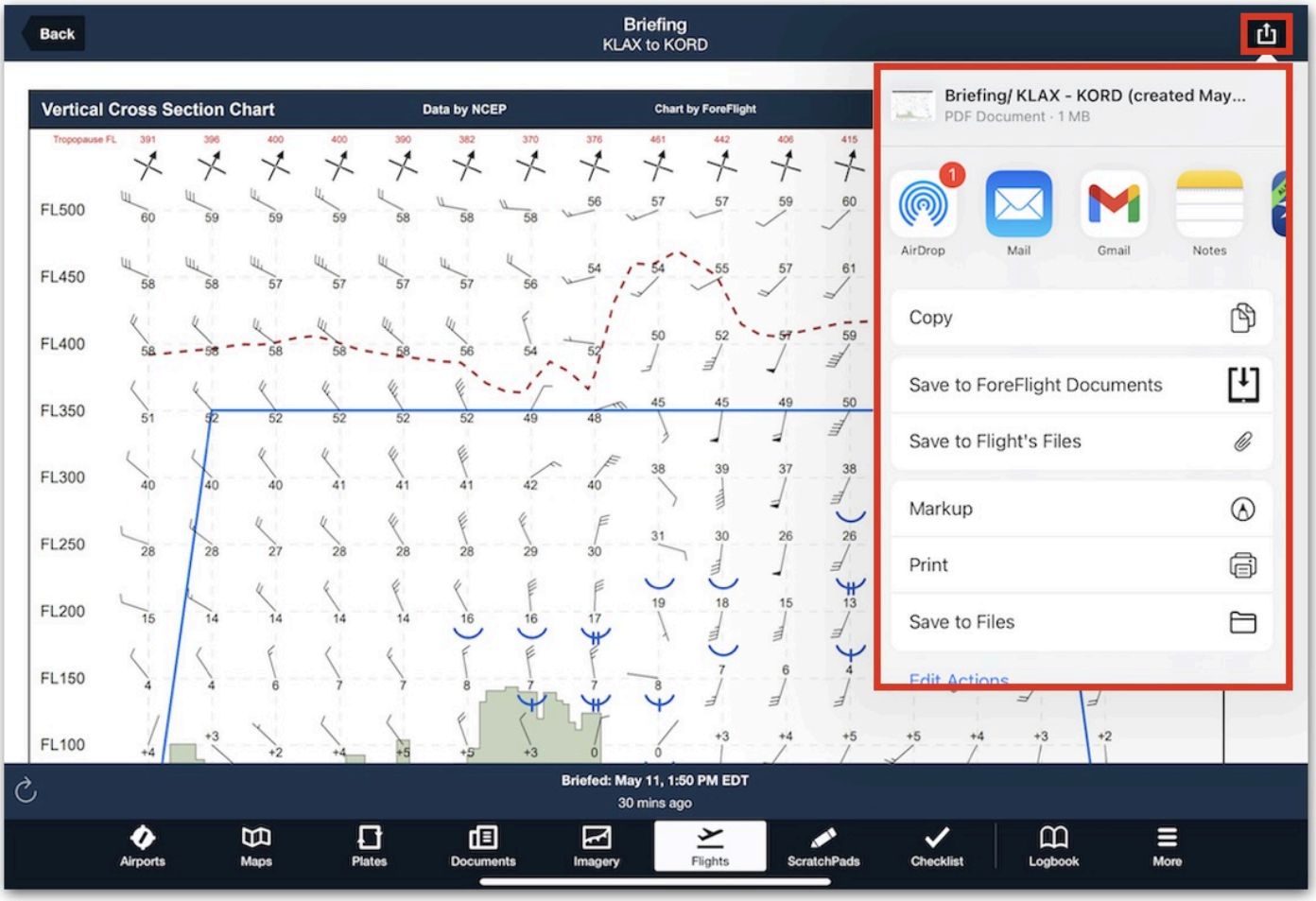


Figure 24-71. Printing and Sharing

- *iOS apps* (**AirDrop**, **Gmail**, **Notes**): Sends the PDF to the selected app. The results vary depending on the app. For example, Gmail will send a copy of the full PDF as an email attachment, while Notes will create a new note file with a thumbnail that opens the briefing.

- **Copy**: Sends a copy of the PDF to the device clipboard. The effects of pasting depend on its destination. For example, pasting to Notes creates a thumbnail of the first page of the briefing that can be tapped to show the other pages.
- **Save to ForeFlight Documents**: Sends the PDF to the device Imported Drive in the Documents view.
- **Save to Flight's Files**: Saves the PDF as an attachment to the flight. This PDF can be accessed via the Files button on the Flights view. This action requires a Premium subscription.
- **Markup**: Opens a copy of the PDF that can be saved with markups.
- **Print**: Sends the PDF briefing to a connected printer. A printed hard copy of the PDF briefing appears exactly how it does in ForeFlight.
- *Save to Device*: Tap **Save to Files** to save the PDF to a location on or connected to the device. Options include hard drive directories on the device along with connected cloud or network drives.

24.4.2 HTML Sharing

HTML briefings have the following sharing options available:

- *iOS apps (* **AirDrop** *,* **Gmail** *,* **Notes** *): Sends the URL of the HTML briefing to the selected app. Results vary based on the app used, but all involve pasting the URL or opening it in a web browser.*
- **Copy** *: Sends the URL of the HTML briefing to the device clipboard.*
- **Add to Reading List** *: Saves the HTML briefing to the Safari Reading List for viewing later, even without an internet connection. See Apple's Reading List documentation for details.*

24.4.3 Adding Markups

Only PDF briefings can be marked up. This is done using the iOS drawing palette. Any annotations added this way are saved to a copy of the PDF, and do not overwrite the original briefing in ForeFlight Mobile. To create a marked-up copy:

1. Tap the **Send To** icon.
2. Tap **Markup**.
3. Use the drawing and text tools at the top right corner of the screen to add markups.

4 Tap **Done** to save a copy, or tap the **Send To** icon for other iOS sharing options.

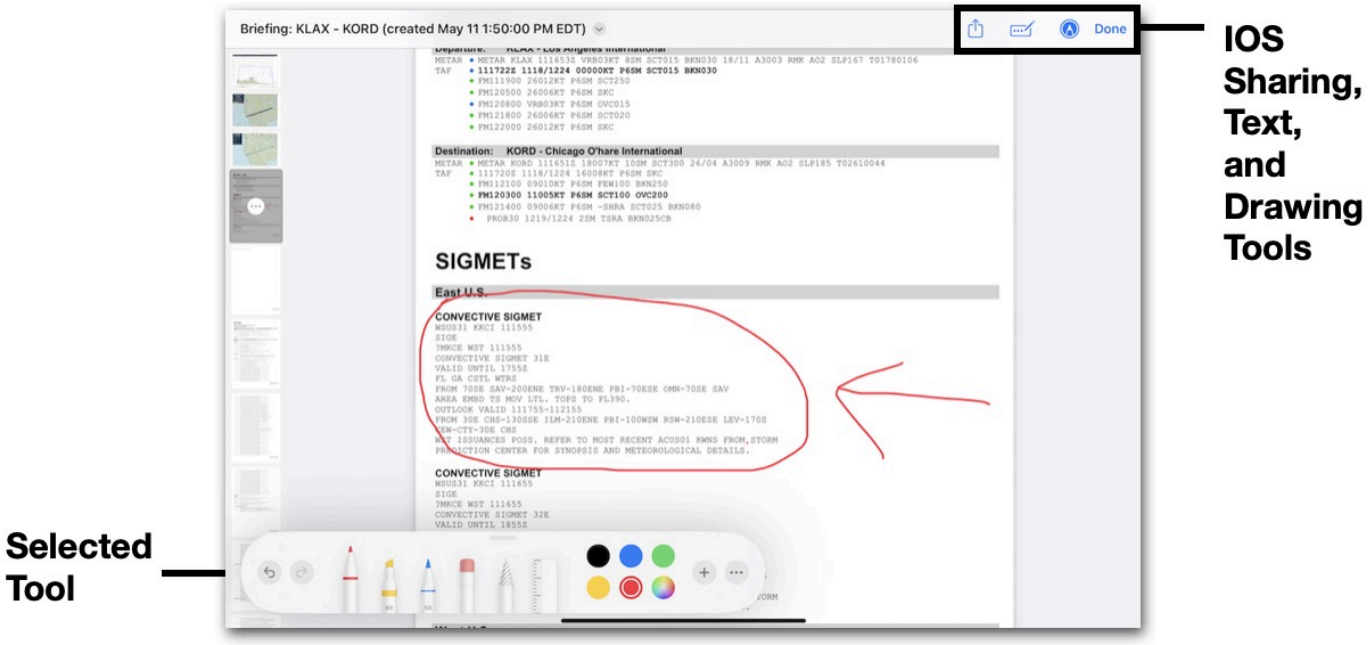


Figure 24-72. Marking up a PDF Briefing

SCRATCHPADS

ScratchPads provides a convenient way to capture notes within ForeFlight Mobile for reference while using the app.

> **IMPORTANT:** ScratchPads are intended for short-term notes associated with a flight or for post-flight reference.

ScratchPads are automatically synced between devices on the account. ScratchPads can be copied, deleted, reordered, and saved to the device directory. PDFs of ScratchPads can be shared manually with other devices over the cloud and other apps on the device. With a Premium subscription, PDFs can be attached to the flights.

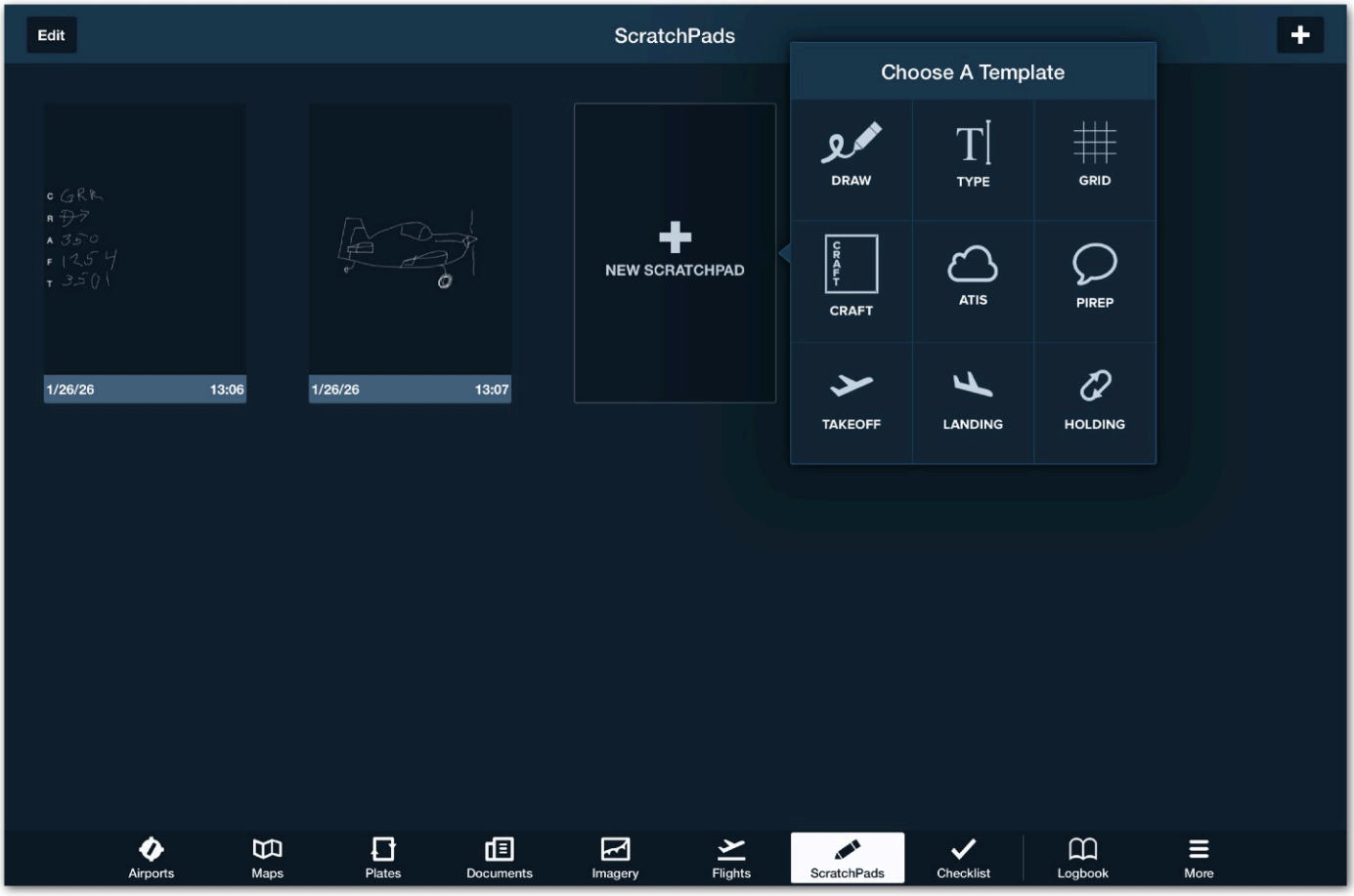
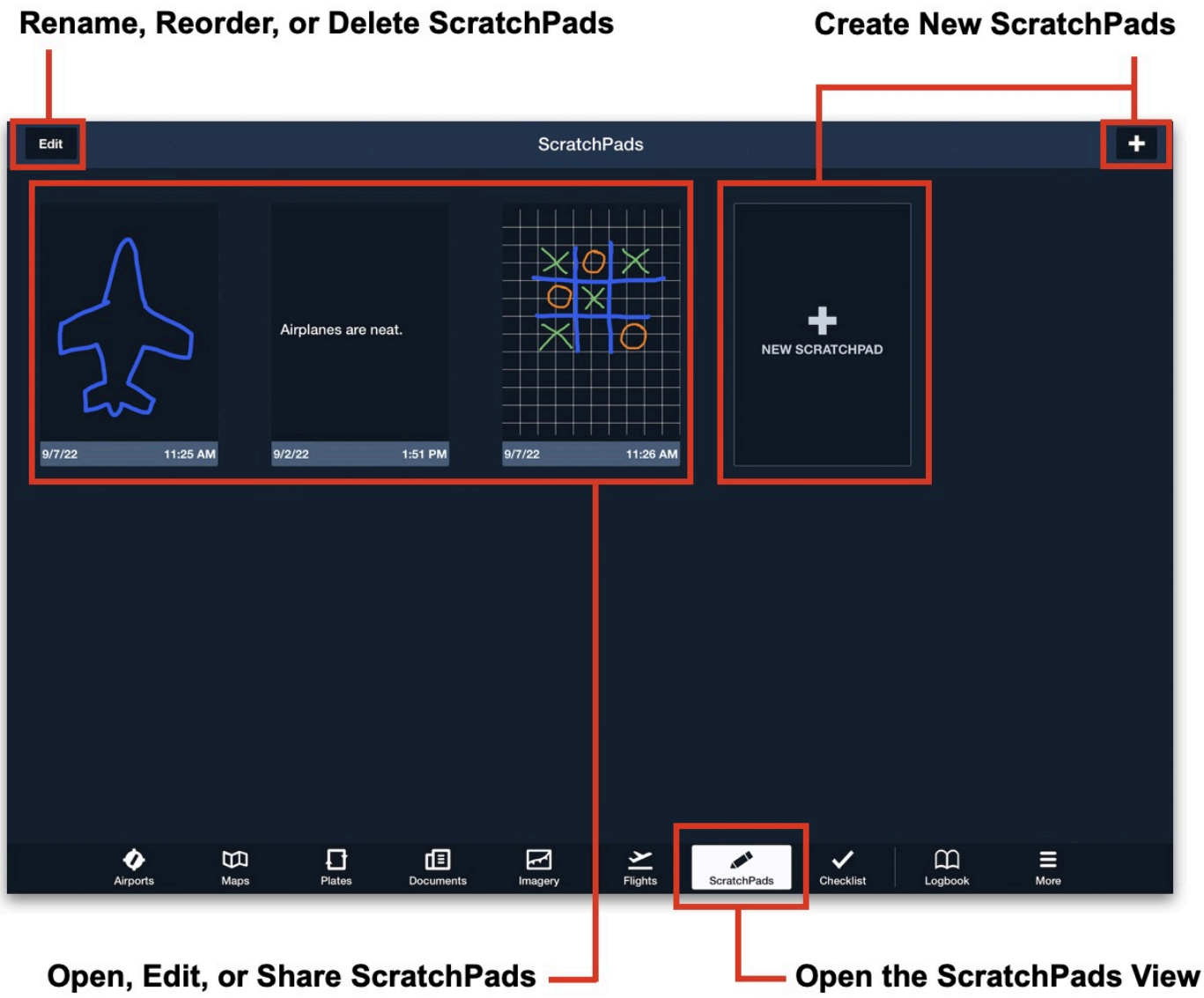


Figure 25-1. ScratchPads View

25.1 Design

ScratchPads are stored in a dedicated view on ForeFlight Mobile (iPad or iPhone). In the navigation toolbar, tap **ScratchPads** to see the available functionality and any existing ScratchPads arranged as thumbnail icons.



25.2 Selecting a Template

ForeFlight Mobile offers nine ScratchPad templates. Each one is an uneditable background image resembling a common aviation form (like a PIREP) or another tool (like a text document) to aid in note-taking. ForeFlight Mobile does not allow creating a custom template.

To select a template:

1. On the ScratchPads View, tap **New ScratchPad** or the **+** button in the upper-right corner of the device screen. (The **+** button can also be tapped with another ScratchPad currently open.)

2. Select one of the nine available templates from the Choose A Template menu to open a new ScratchPad.

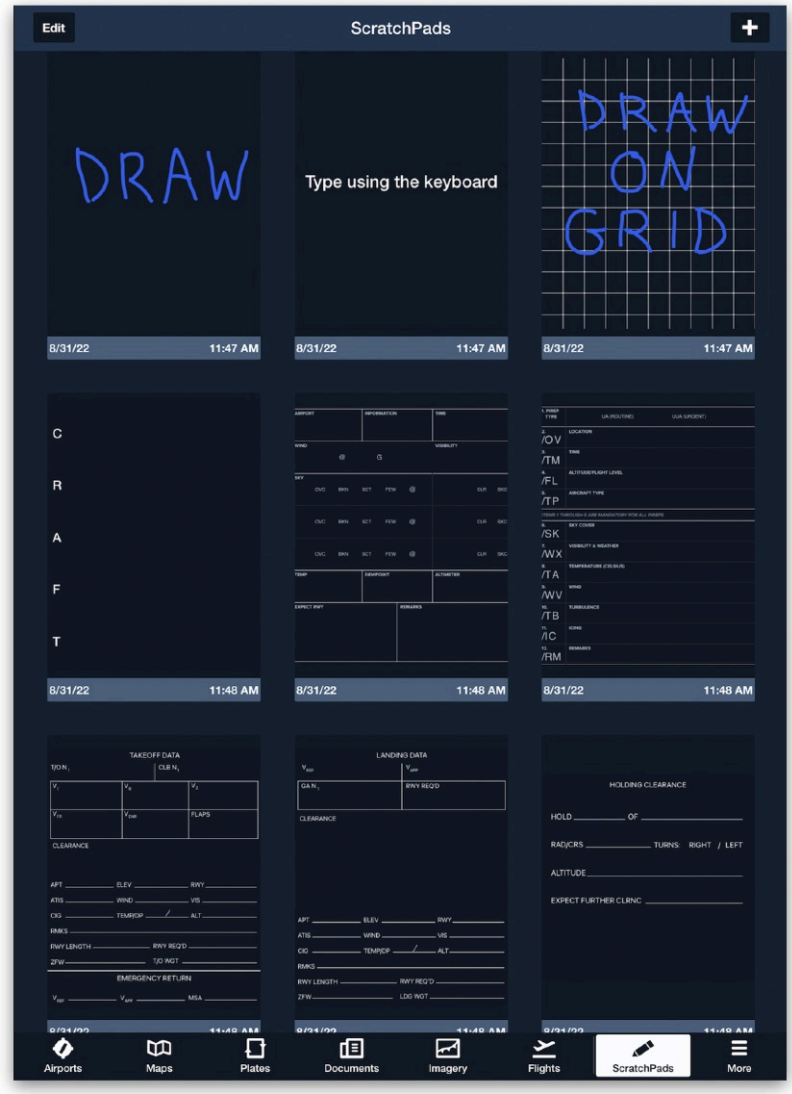


Figure 25-2. ScratchPad Templates

The available templates include:

- **Draw**: A blank canvas.
- **Type**: A text document that uses the keyboard instead of the Pen tool.
- **Grid**: A square grid.
- **CRAFT**: A form to record a clearance (Cleared to, Route, Altitude, Frequency, Transponder code).
- **ATIS**: A form to record an Automatic Terminal Information Service (ATIS) broadcast.

- **PIREP**: A form to record a Pilot Report (PIREP).
- **Takeoff**: Has fields for V-speeds, departure clearance, and runway details.
- **Landing**: Has fields for V-speeds, local conditions, and clearance information.
- **Holding**: Has fields for location, direction, and altitude of the hold, and Expect Further Clearance (EFC) time.

25.3 Creating ScratchPads

ScratchPads can be written in one of two ways depending on the template selected - either using a pen or the keyboard.

25.3.1 Using the Pen Tool

The majority of templates use the Pen tool (or a finger) to draw annotations as if it were handwriting on a paper form.

When using the pen tool, the color, thickness, and opacity can be edited.

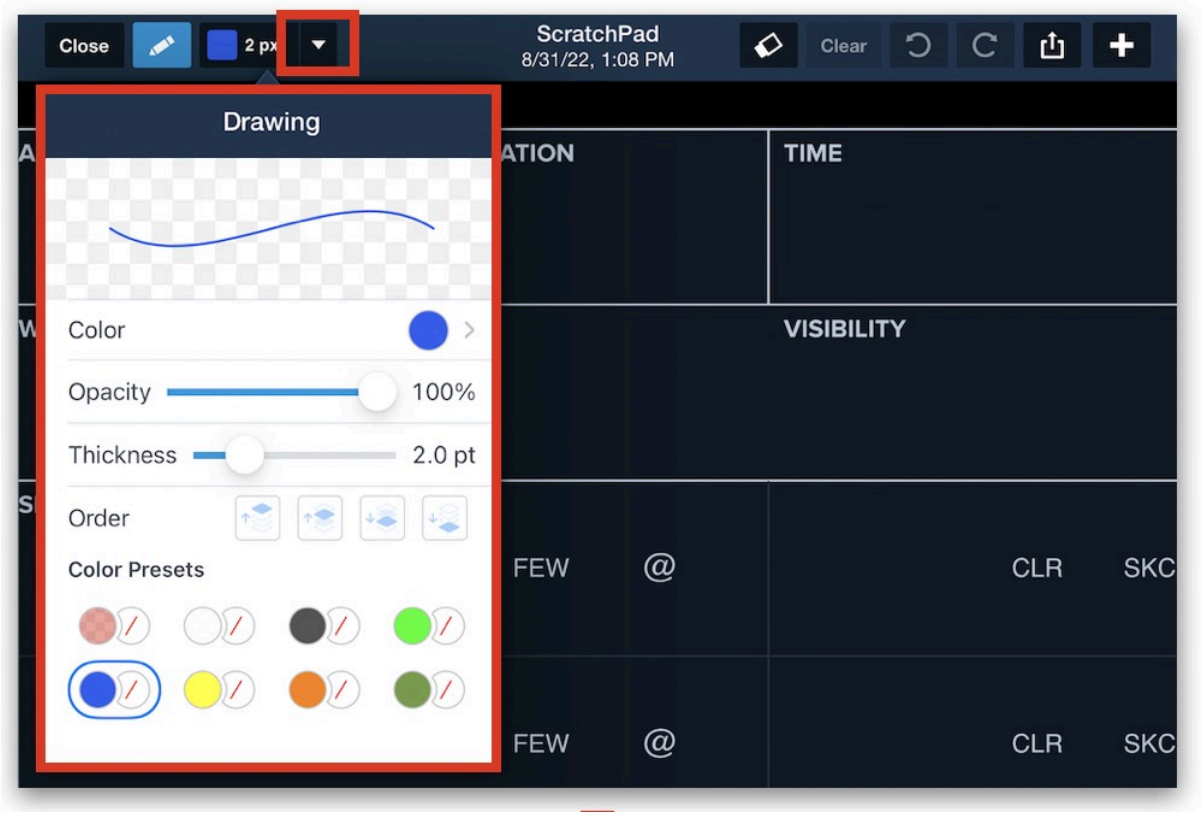


Figure 25-3. Drawing on the ATIS Template

To configure and use the Pen tool, follow these steps:

1. With a new ScratchPad open, tap the ScratchPad Drawing settings icon in the upper-left corner to open the Drawing settings menu.

2. In the Drawing settings menu, adjust the line controls as follows:

- **Color**: Use a color grid, spectrum, sliders, or eye dropper tool.
- **Opacity**: Use the slider to adjust from 10–100%.
- **Thickness**: Use a slider to adjust from 0.1–40 pt.
- **Order**: Configure the most recent marking to overlap above or below previous markings.
- **Color Presets**: ScratchPads saves the most-recently set color and opacity values in the active (selected) preset. Tap a preset to reuse its saved values or to store another color/opacity combination for future use.



Figure 25-4. Drawing on the ATIS Template

25.3.2 Using Text

In the Type template, the keyboard is used to write plain-text annotations. Tap anywhere in the template to bring up the keyboard and start typing.

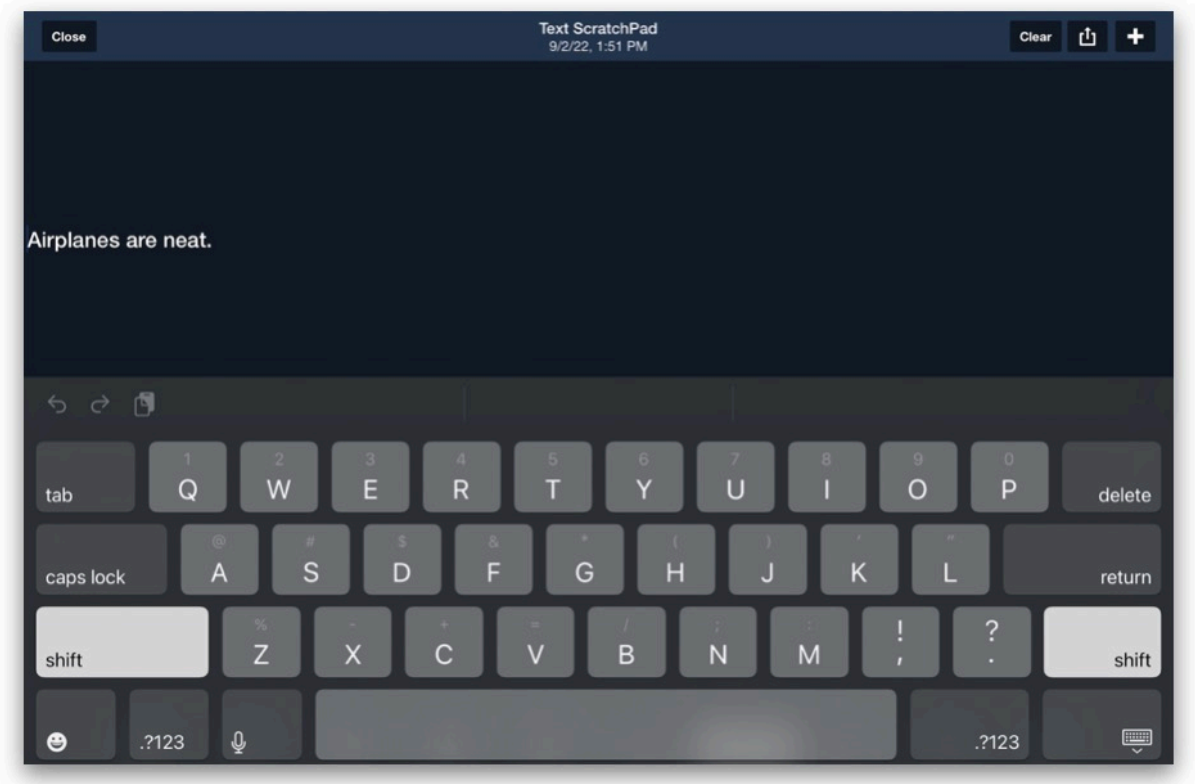


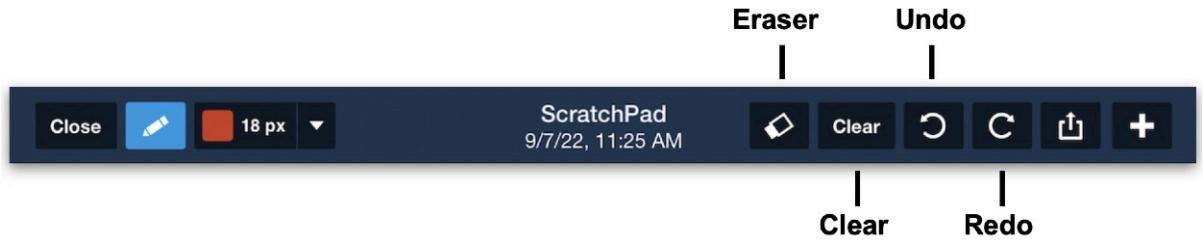
Figure 25-5. Writing on the Type Template

25.4 Editing ScratchPads

Annotations can be edited multiple ways.

To edit Scratchpad annotations do one of the following:

- Tap the **Eraser** button to turn the Pen cursor into an eraser. Drag a finger over annotations to erase. To disable the eraser, tap the Pen button. If using an Apple 2 Pencil, double tap the flat side near the tip to switch between Pen and eraser modes.
- Tap **Clear** to erase all annotations from the ScratchPad.
- Tap the **Undo** button once or more to undo recent annotations.
- Tap the **Redo** button once or more to redo changes that were recently undone.



NOTE: The Type template only supports the Clear operation. Undo and Redo only work on changes made since the ScratchPad was last opened. The Eraser button does not toggle on and off, the Pen button must be tapped to disable the eraser.

25.5 Saving ScratchPads

After adding annotations to a ScratchPad, tap **Close** to save it. The new ScratchPad is listed as a thumbnail on the ScratchPads View, and it is synced automatically to all user devices.

25.6 Renaming ScratchPads

The default name for each ScratchPad is the date and time that it was created or last edited. To rename the ScratchPad:

1. On the ScratchPads view, tap **Edit**.
2. Tap the blue name label at the bottom of the ScratchPad thumbnail.
3. Using the keyboard, type a new name.
4. Tap **Done** (either on the keyboard or the top-left corner of the ScratchPads View).

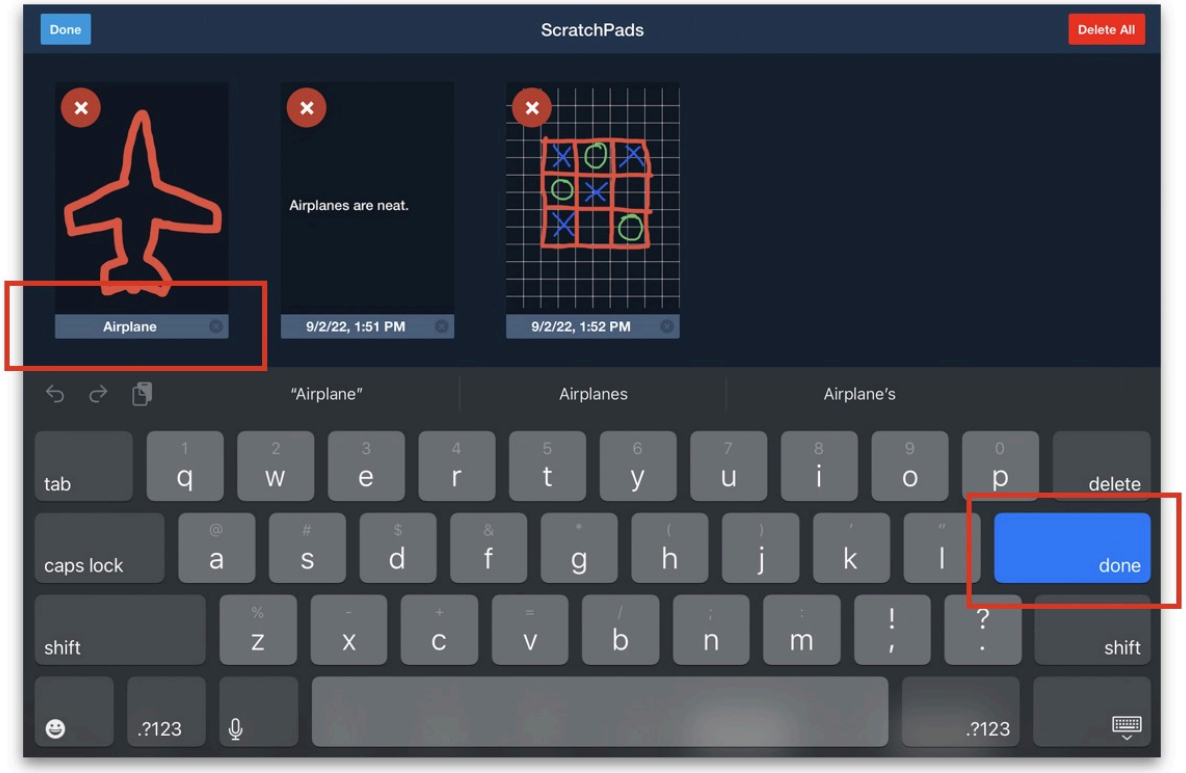


Figure 25-6. Renaming a ScratchPad

25.7 Deleting ScratchPads

To delete ScratchPads, tap **Edit** on the ScratchPads view and perform one of the following operations:

1. To delete an individual ScratchPad, tap the **X** icon at the top-left corner of its thumbnail, and then tap **Done**.
2. To delete all ScratchPads at once, tap **Delete All** in the upper-right corner, and then tap **Delete All** again in the confirmation prompt.

25.8 Reordering ScratchPads

Individual ScratchPads are listed in order of their creation dates. To change this order:

1. On the ScratchPads View, tap **Edit**.
2. Tap and hold a finger on a ScratchPad thumbnail and then drag it to a new position.
3. When finished, tap **Done**.

25.9 Exporting ScratchPads

ScratchPads can be exported as a PDF to other locations on a device. To do so, follow these steps:

1. Open the ScratchPad to be shared.
2. Tap the **Send-To** button in the top-right corner.
3. Perform one of the following operations:
   - **Export to another iOS app**: Tap an **app icon** and follow its instructions. If the desired app icon is not seen, tap **More** to see the whole list.
   - **Attach to Flights**: See the next section.
   - **Copy as PDF image**: Tap **Copy**.
   - **Save to device directory**: Tap **Save to Files** and select or create the destination directory.

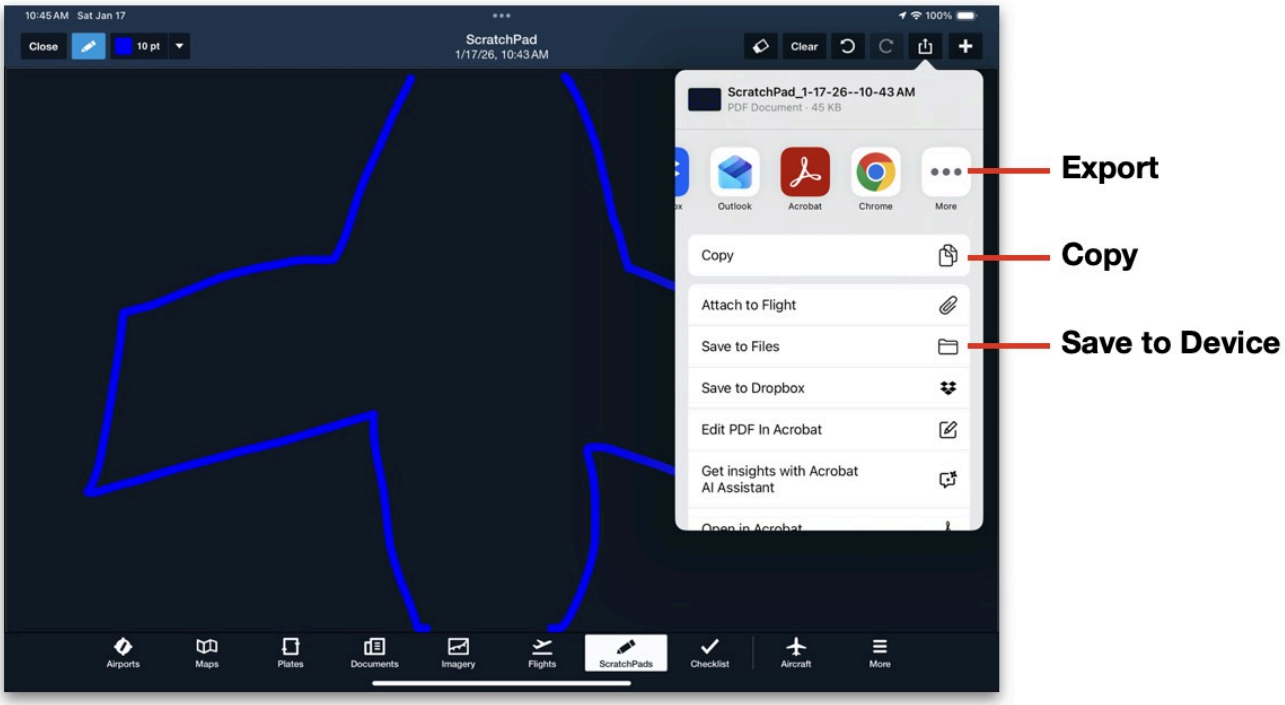


Figure 25-7. Sharing ScratchPads Externally

25.10 Attaching ScratchPads to Flights

Premium subscribers can attach ScratchPads to one or more flights. To do so, follow these steps:

1. Open the ScratchPad to be attached.
2. Tap the **Send-To** button in the top-right corner.
3. In the Send-To menu, tap **Attach to Flights**.
4. In the Flights window, tap the Flight(s) to attach the ScratchPad to.
5. Tap **Select Flight Plans**.

The ScratchPad now appears as a PDF attachment on the flight(s). View it by clicking the file attachment button at the top of the Flight Summary pane.

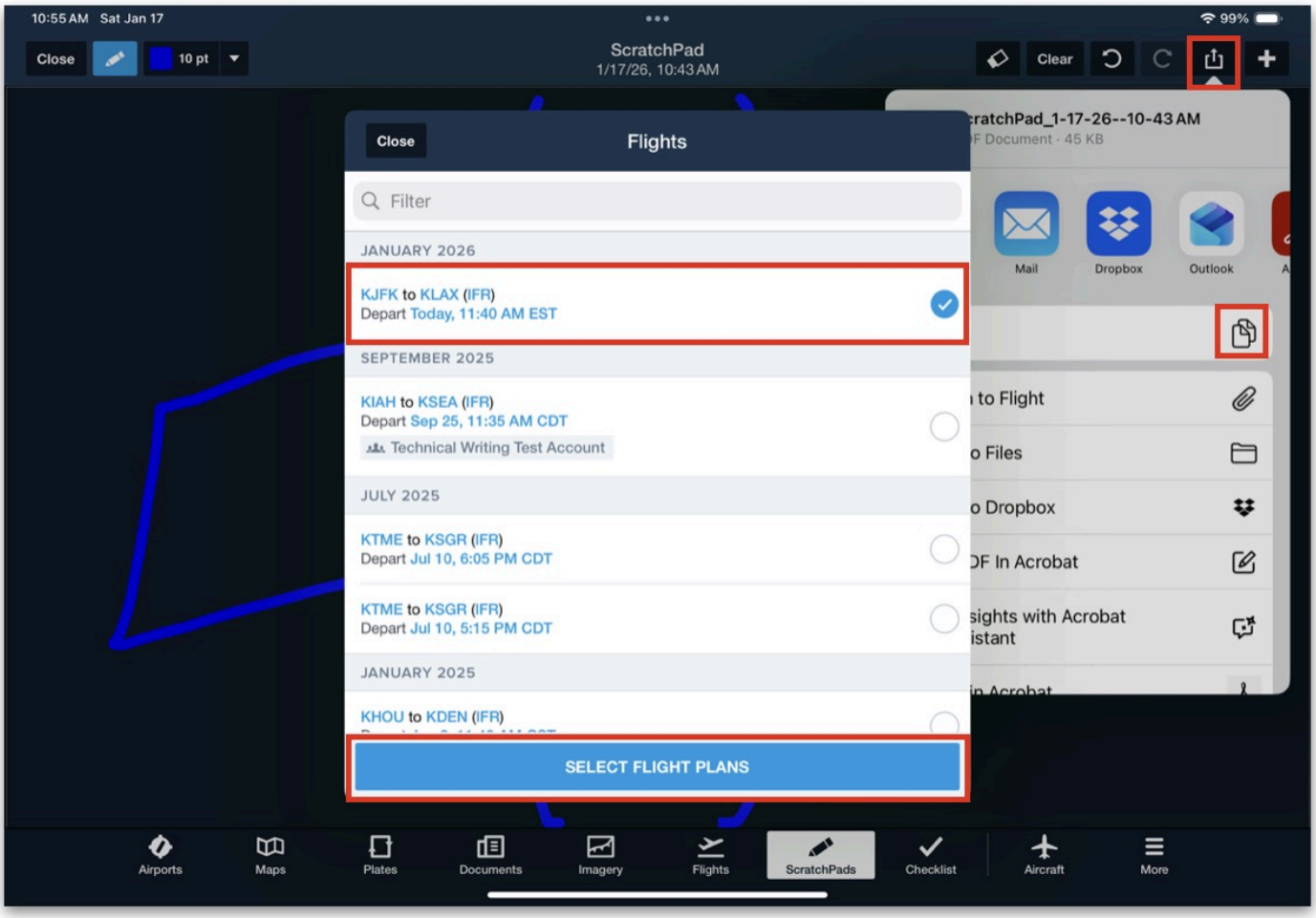


Figure 25-8. Attaching ScratchPads to Flights

CUSTOM CONTENT

The Custom Content feature allows custom map layers, charts, and user waypoints to be added to ForeFlight Mobile. The Custom Content view lists all custom content installed on the device. Select **More → Custom Content**, then tap the **Menu** button in the upper left corner to access the view.

The left side of the Custom Content View list four categories of custom content. Tapping a category displays the contents of the category in a detailed view on the right side of the screen. The four types of custom content are listed below.

- Custom Charts
- Custom Map Layers
- User Waypoints
- Content Packs.

The Custom Content view can be used to access custom content, however the typical workflow involves accessing custom content from the Maps, Plates, and Airports views. Custom Charts, Custom Map Layers, and Content Packs do not sync between devices. User Waypoints sync to the devices signed into the account. Dispatch does not support custom content.

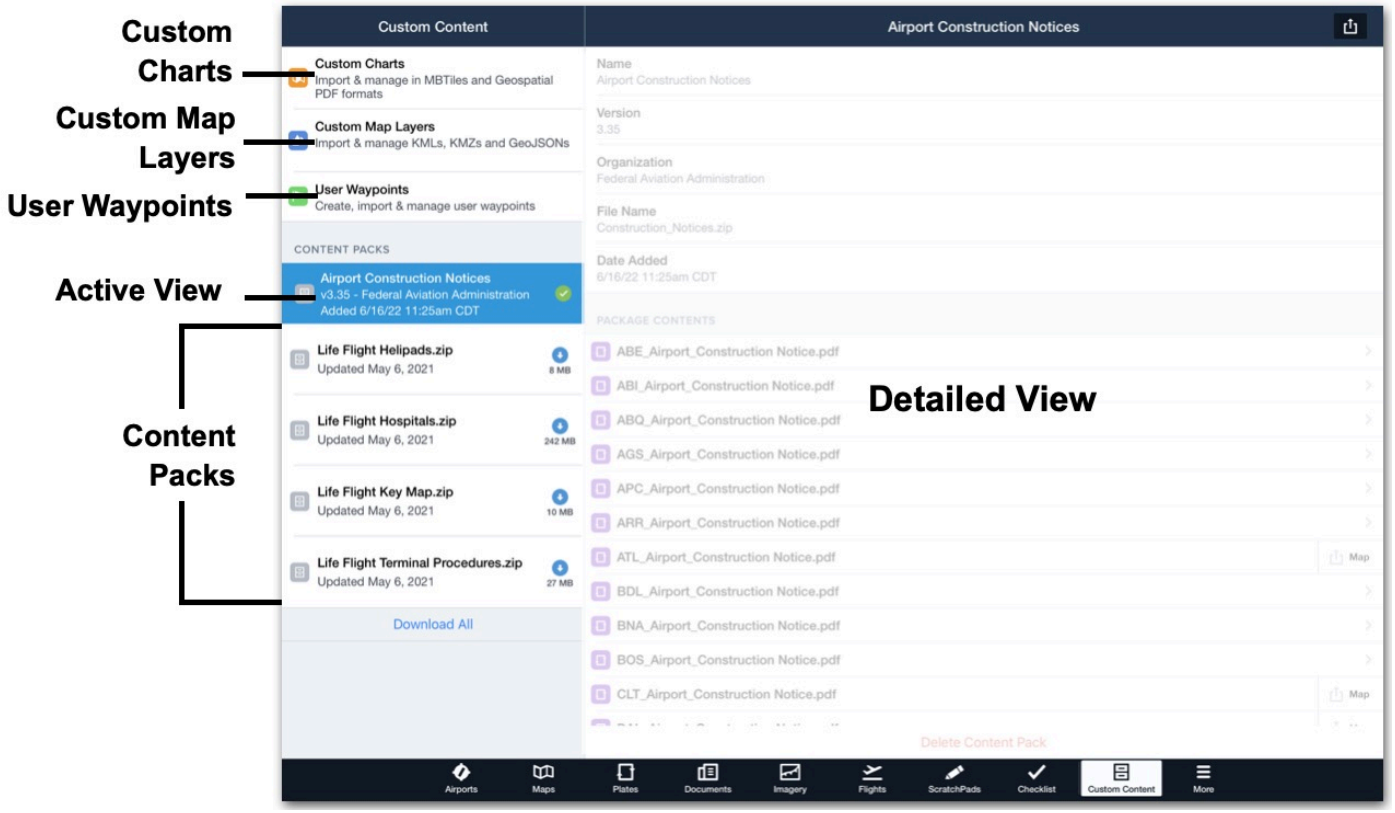


Figure 26-1. Custom Content View

26.1 Creating Custom Content

Custom Content cannot be created in ForeFlight Mobile (with the exception of user waypoints). Custom content must be created with a third-party program and imported to ForeFlight Mobile. This chapter provides a basic overview of creating and importing custom content.

26.2 User Waypoints

User waypoints can be created in ForeFlight Mobile Pilot's Guide using the Maps or Custom Content pages.

User waypoints are displayed on the map when the **User Waypoint** map layer is selected from the map drop-down menu. The user waypoint icon is customizable. For customizable user waypoints using Google Earth, see Custom Map Layers.

User waypoints can be entered in the route editor and used in flight plan filing.

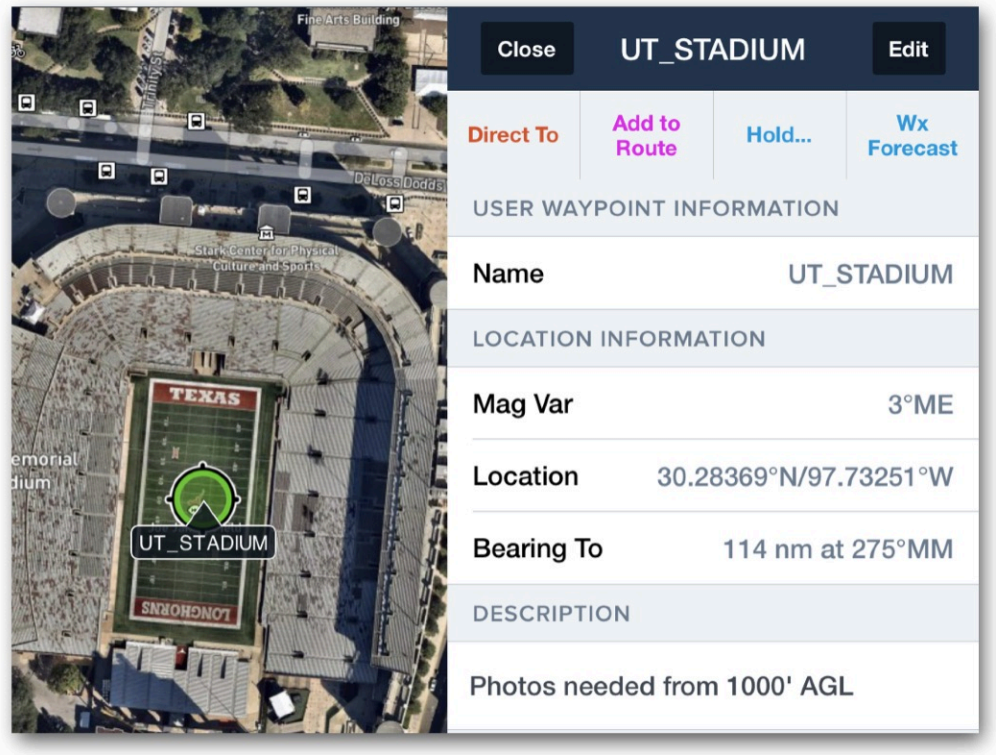


Figure 26-2. User Waypoint

26.2.1 User Waypoint Fields

User waypoints consist of four fields.

> **Name**
>
> Must be a minimum of 3 characters, all one word with no spaces. Names must contain at least one letter and should not duplicate an existing published waypoint name. Waypoint names can be entered into the flight plan editor for planning purposes.

Location

Location is defined by latitude/longitude, point/radial/distance, or Military Grid Reference System (MGRS). When adding a user waypoint with Maps, the latitude/longitude is automatically populated.

Elevation (optional)

The elevation field provides ForeFlight Mobile with elevation data for flight planning purposes. When an elevation is provided, flight planning results are more accurate. Entering an elevation also allows Profile View to display climbs and descents when the destination or departure are a user waypoint.

Description (optional)

User waypoint descriptions are displayed in the user waypoint pop-up when tapped. Descriptions support letters, numbers, and special characters.

26.2.2 Creating User Waypoints - Maps View

User waypoints can be created on the Maps and Custom Content views. If user waypoint coordinates are unknown, creating the user waypoint with the Maps view is recommended.

To create a user waypoint on the map:

1. Open the Maps view and zoom in to improve waypoint accuracy.
2. Place and hold a finger on the map where the user waypoint will be added.
3. In the sidebar, tap **More**.

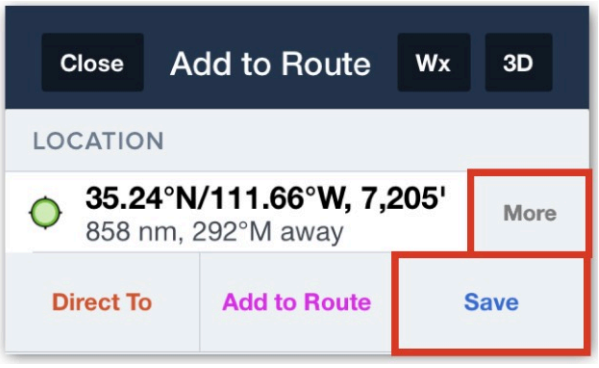


Figure 26-3. More and Save Buttons

4. Tap **Save**.
5. Enter a name (recommended). If a name is not entered, the coordinates will be used.
6. Verify waypoint location on the map and manually edit coordinates if needed.
7. Enter an elevation in feet MSL (recommended).
8. Tap **Waypoint Style** .
9. Select color and type of waypoint to display.
10. Select **Close**.
11. Provide a description (optional).
12. Tap **Save** near the top of the pop-up.

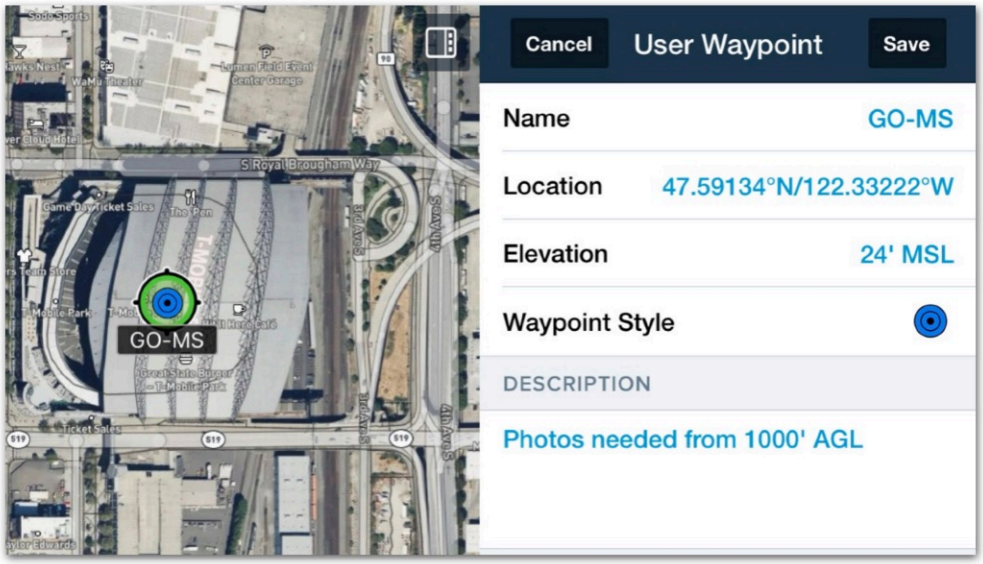


Figure 26-4. Creating a user waypoint - Maps View

26.2.3 Creating User Waypoints - Map Search

To create a user waypoint with search:

1. Open the Maps view.
2. Enter a location or point of interest in the search bar.

3. Locate and tap the location in the list of search results.
4. Tap **Save** near the top of the pop-up.
5. Edit the name if desired.
6. Provide an elevation (recommended).
7. Select a waypoint style and color (optional).
8. Provide a description (optional).
9. Tap **Save** near the top of the pop-up.

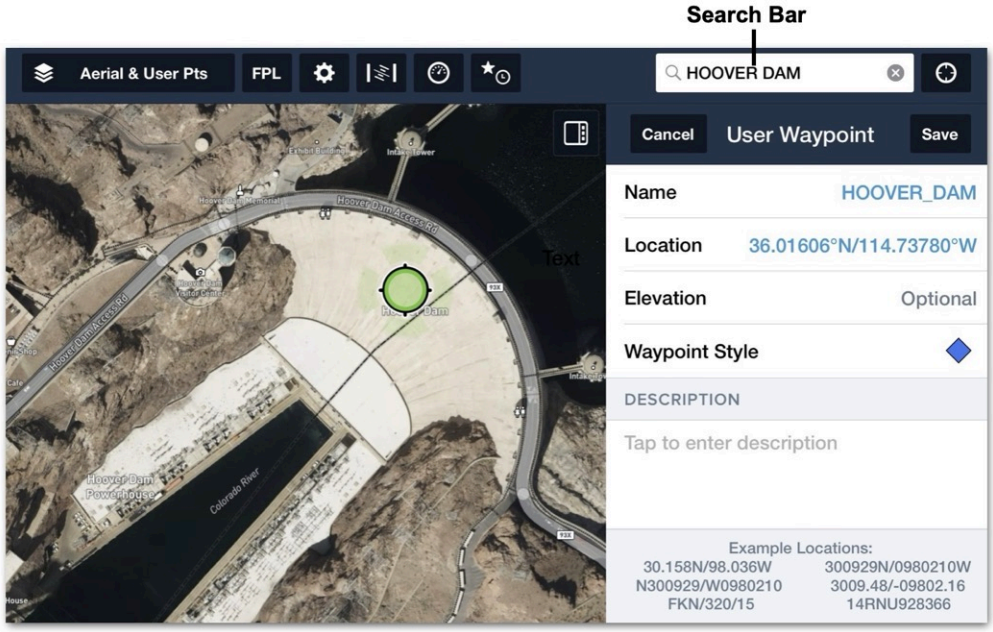
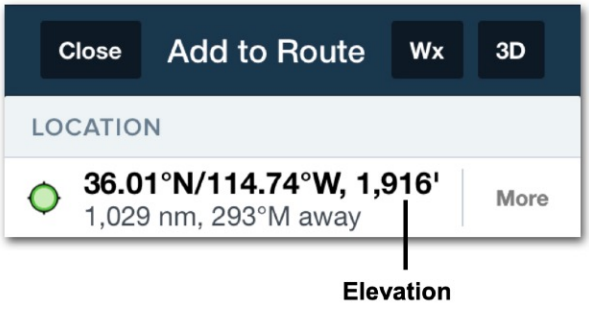


Figure 26-5. Creating User Waypoint - Search

> **NOTE:** Tap/Hold the map to display elevation. Elevation is displayed next to the coordinates in the Add to Route menu and is the highest point within a 0.25 NM radius.



26.2.4 Creating User Waypoints - Custom Content View

To create a user waypoint using the Custom Content view:

1. Select **More ➔ Custom Content ➔ User Waypoints**.
2. Tap the **[+]** button in the upper toolbar.
3. Enter a name and location (required).
4. Enter an elevation (recommended), and provide a description (optional).
5. Tap **Save** near the top of the pop-up.

The user waypoint location field can be entered in the following formats:

- Place/bearing/distance - IAH/320/15 (IAH VOR, 320 bearing and 15 NM).
- Military Grid Reference System - 14RNU928366.
- Coordinates (see below).

26.2.4.1 Supported Coordinate Formats

Coordinates can be entered using any of the following formats. ForeFlight Mobile will automatically convert coordinates to display them in the format selected in **More ➔ Settings ➔ Units/Time ➔ Coordinates** .

If no hemisphere is specified, ForeFlight Mobile defaults to the north and east hemisphere. Specify the southern hemisphere with a “-” prefix or “S” after the latitude. Specify the western hemisphere with a "-" prefix or “W” after the longitude.

- Decimal Degree - 30.158N/98.036W
- Decimal Minute - 3015.89/-9803.62
- Degree Minute Seconds - 301545N/0980355W.



Figure 26-6. Creating User Waypoints - Custom Content View

26.2.5 Delete a User Waypoint

User waypoints may be deleted by tapping the waypoint on the map, then tap **Edit** in the waypoint sidebar followed by **Delete** Waypoint.

Alternatively, tap **More → Custom Content → User Waypoint**. Tap the **Edit** button in the top right corner. Tap the ⊖ button on the desired waypoint, then tap **Delete**.

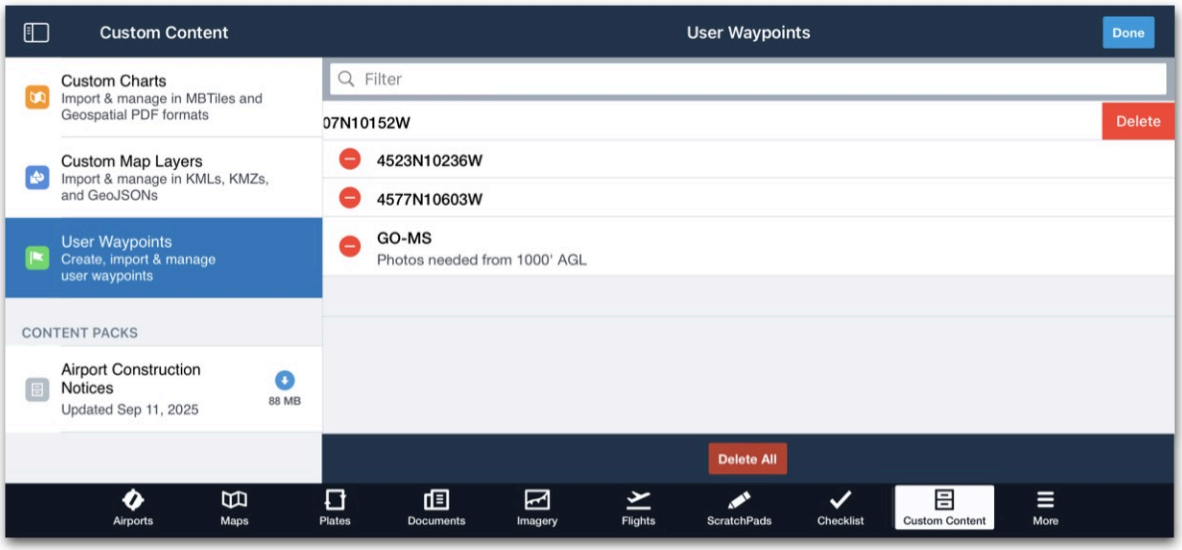


Figure 26-7. Delete User Waypoints

26.3 Multiple User Waypoints

Multiple user waypoints can be added or deleted in bulk.

26.3.1 Bulk Import

User waypoints can be imported in bulk via AirDrop, e-mail, file transfer, or as part of a content pack. Bulk user waypoints must be a Comma Separate Value (CSV) file or Keyhole Markup Language (KML) file.

CSV files can be created with spreadsheet programs like Microsoft Excel, Google Sheets, or Apple Numbers. KML files can be created with mapping programs like Google Earth or Google My Maps.

26.3.2 Bulk Delete

To delete user waypoints in bulk tap **More ➔ Custom Content ➔ User Waypoints**. Tap the **Edit** button in the top right corner, then tap the **Delete All** button. A confirmation pop-over will display, tap **Delete** to confirm.

26.4 Creating CSV Files

User Waypoint CSV files must follow the formatting defined in this section. CSV files contain a single table with five columns. Each column defines one of the waypoint description fields. The User Waypoint CSV file should include the following column names as the first row. Subsequent rows in the CSV are used to define the user waypoints.

Table 26-1. User waypoint CSV file fields

NAME	DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION

When creating a CSV file, each waypoint is defined on its own row. There is no limit to the number of rows a file can contain. To create a user waypoint CSV file for bulk import, open a new spreadsheet with a preferred program. Add a single table with five columns. Add enough rows for the number of user waypoints in the file. Fill in the table with user waypoint data. Only one table per file is supported.

Table 26-2. Example CSV File

NAME	DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION
NORTH_BASE	North Base	29,243	-97,565	450
WD355	West Delta 355	27,443	-98,123	355
WEST_LAKE_FD	West Lake Fire	28,202	-90,788	1276
VFD23	Volunteer Fire Station	26,955	-93,544	2376
HOME	Home Sweet Home	29,512	-94,233	355
CP_23	Check Point 23	27,909	-91,110	2934

26.4.1 CSV File Field Formatting

Each field of the CSV file must be formatted as described below. If a CSV file does not follow this formatting, it will not import into ForeFlight Mobile.

Name Field

The **Name** field must be formatted with the following properties:

- Minimum of 3 characters, including at least one letter. For example, "12A".
- All caps, for example, "THE_CABIN", not "The_Cabin".

- No spaces between words. Use a "_" or "-" between words. For example, "THE_CABIN" or "THE-CABIN", not "THE CABIN".

Description Field (Optional)

The Description field is optional. User waypoint descriptions are displayed in the user waypoint pop-up when tapped. Descriptions support letters, numbers, and special characters.

Latitude/Longitude Field

The Latitude/Longitude field accepts coordinates written in a specific decimal degrees (DD) notation. To enter coordinates in the southern or western hemisphere, prefix the decimal degrees value with a minus (-) sign, e.g. -97.711. To indicate northern or eastern hemisphere, omit the minus sign, e.g. 29.243.

> **NOTE:** Unlike manual entry via the Custom Content view, User Waypoint CSV files cannot accept other variations of decimal degrees notation. Do not use letters (N, S, E, W) to indicate hemispheres or symbols (°) to indicate degrees.

Elevation Field (Optional)

The Elevation field is optional. Enter elevation in feet without any additional notation.

26.4.2 Naming User Waypoint CSV Files

User waypoint CSV files must be named “user_waypoints.csv”. The file name should use lower case letters with no spaces. If a user waypoint file is not named properly, the waypoints will not be added to ForeFlight Mobile.

26.5 KML User Waypoints

KML is a robust mapping language used to display geographic data in a browser such as Google Earth. For more in-depth information, ForeFlight recommends the Google KML Tutorial.

ForeFlight Mobile supports basic KML features such as waypoints (placemarks), customizable icons, customizable labels, lines, and shapes. Files which only contain waypoints can be imported as a User Waypoint or Custom Map Layer file. If a file contains features other than just waypoints (lines or shapes), it can only be imported as a Custom Map Layer. This section discusses creating KML files for the purpose of bulk importing user waypoints. Icon and label color, size, and opacity changes are ignored when importing a KML file as user waypoints.

26.5.1 Creating KML User Waypoint Files

To create a KML user waypoint file, ForeFlight recommends using Google My Maps.

To create a KML file with My Maps, select the add waypoint button and use the mouse to specify the location of the waypoint. Enter a name and description for the waypoint. Spaces in the name field are automatically replaced by an underscore when imported into ForeFlight Mobile. After entering a waypoint name and description, click **Save**.

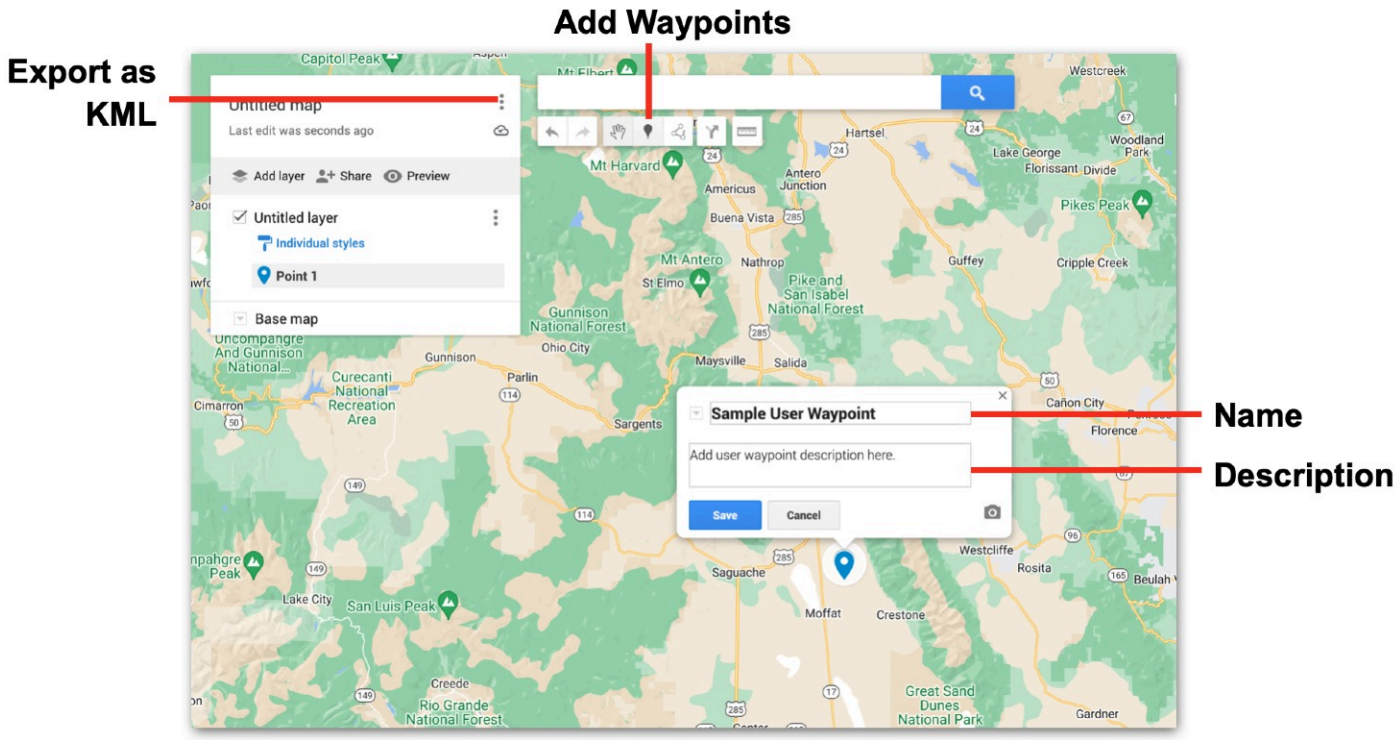


Figure 26-8. Adding Waypoints with Google My Maps

Google My Maps does not include elevation data in the KML file. Elevation can be added to user waypoints after they have been imported in **More → Custom Content → User Waypoints**.

When all user waypoints have been added to the map, click the menu button to export the map layer as a KML/KMZ file. ForeFlight can import KML and KMZ files as user waypoints. It's not necessary to specify a particular format. The format (KML or KMZ) is only applicable when importing a custom map layer with custom icons. See Custom Map Layers for additional information.

It's not necessary to rename KML/KMZ files. File names are ignored when importing as a user waypoint file. If there are multiple user waypoint KML/KMZ files, renaming the file is recommended so the contents of the file can be easily identified. Save the file to a computer in preparation for importing it to ForeFlight Mobile.

26.6 Importing User Waypoints

User waypoints can be added to ForeFlight Mobile by incorporating them in a content pack or by importing them as stand-alone files. If user waypoints are added via Content Pack, the date the file was added is listed in **More ➔ Custom Content**. Other than the Date Added field, there is no difference in how the waypoints are displayed in ForeFlight Mobile.

When a standalone CSV or KML file is imported, the waypoints are appended to the existing user waypoint list. During the import process, the current user waypoints are compared to the waypoints in the CSV/KML file. Duplicate waypoints are not appended to the waypoint list.

User Waypoints imported via content pack are not appended to the user waypoint list.

26.6.1 Importing a CSV or KML/KMZ file

To import a stand-alone user waypoint file, share the file to an iPad/iPhone via one of the supported methods. ForeFlight supports AirDrop, e-mail, and file transfer.

When opening a CSV or KML/KMZ file on an iPad or iPhone, a list of installed apps which are capable of importing the file are listed. Select **ForeFlight** from the list of installed apps.

After selecting **ForeFlight**, the app will automatically open and provide prompts for importing. If a KML/KMZ file containing only waypoints is imported, ForeFlight Mobile will display a menu for importing the file as a Custom Map Layer or User Waypoint. Select **User Waypoints** to append the waypoints to the current user waypoint list.

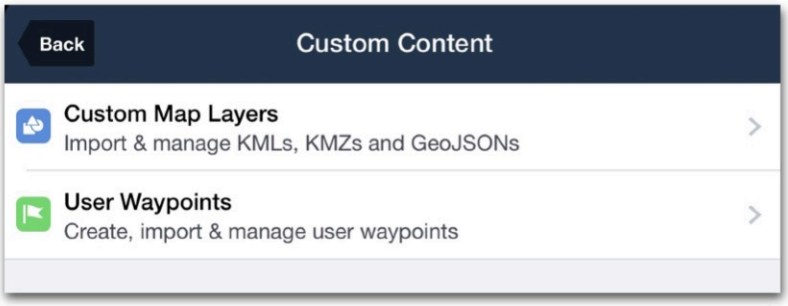


Figure 26-9. KML/KMZ User Waypoint Import Options

If a KML/KMZ file with lines or shapes is imported, Custom Map Layer will be the only option. If a CSV user waypoint file is imported, User Waypoints will be the only option.

Once the file has been imported, the waypoints can be displayed on the map by selecting **User Waypoints** from the map drop-down menu.

26.7 Importing User Routes

ForeFlight Mobile supports the direct import of GPX (GPS Exchange Format) files, providing the ability to share GPS data between devices and applications. Import route files from external sources, such as web-based planning tools, and instantly display the route on the Maps view.

To import a GPX file:

- AirDrop - Receive a GPX file from another device via AirDrop
- Email - Open a GPX attachment from an email
- Files App - Open a GPX file from the iOS Files app or cloud storage.

26.8 Custom Map Layers

Custom map layers can display shapes, lines, custom icons, and custom labels. Multiple custom map layers can be installed and displayed simultaneously on a device. Custom map layers are selected from the right column of the map layer drop-down menu. Each map layer can have a unique name. ForeFlight supports KML, KMZ, and geoJSON custom map layers.

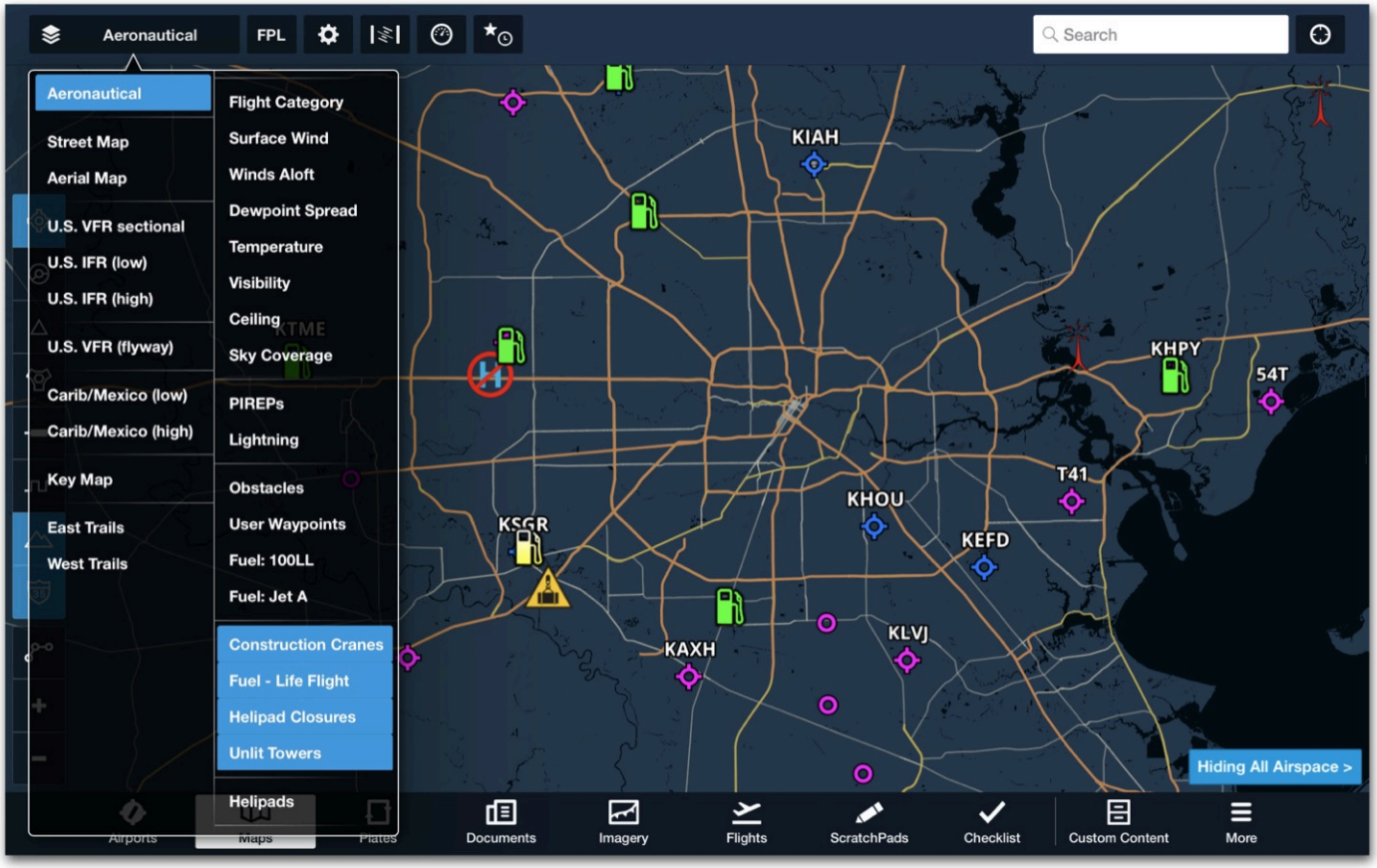


Figure 26-10. Custom Map Layers with Custom Icons

26.8.1 Creating Custom Map Layers

There are various programs that enable building and exporting custom map layers. ForeFlight recommends using the Google Earth Pro desktop app. Google Earth Pro can export custom map layers in the KML and KMZ file format. For more in-depth information, ForeFlight recommends the Google KML Tutorial.

This section provides basic instruction for creating custom map layers with Google Earth Pro. For detailed instructions, the Google Earth Learn website is recommended.

26.8.2 Supported Data Types

KML is a robust mapping language that supports a large variety of features. For example, KML can specify camera perspectives, time-dependent features, and even guided tours. ForeFlight Mobile only supports a small sub-set of all KML features.

If a file is imported that includes a KML feature that is not listed below, the unsupported feature is ignored by ForeFlight Mobile. ForeFlight Mobile supports the following KML features:

- Waypoint
- LineString
- LinearRing
- Polygon
- MultiGeometry
- Style
- StyleMap (normal)
- LineStyle
- PolyStyle
- IconStyle
- gx:LabelVisibility

26.8.3 Waypoints

One of the more common custom map layer features is the waypoint. Waypoints are displayed as icons on the map. Waypoints can be added to the route editor for planning purposes and used in flight plan filing. To create a custom map layer with waypoints, click the **Add Placemark** button in the Google Earth Pro upper toolbar.



Figure 26-11. Google Earth Pro Toolbar

After clicking the placemark button, drag the waypoint icon to the appropriate position or manually enter the waypoint latitude/longitude. Enter a waypoint name and description. Custom map layer names do not have to be a single word.

Select a supported icon for the waypoint or use a custom icon and click **OK**. Waypoint icons are discussed on the following pages.

> **NOTE:** KML/KMZ files exported from Google Earth do not include elevation data.

26.8.3.1 Waypoint Descriptions

The waypoint description field in ForeFlight Mobile supports text and basic HTML formatting. HTML is not required, however when it is used, it allows the look of the description field to be customized. HTML elements such as links, line breaks, headings, font color, and size are supported.

To customize the description section of a waypoint, add the HTML directly to the description field in Google Earth Pro.

To view HTML formatted text in ForeFlight Mobile, tap the custom waypoint on the Maps view and tap **More Details** in the Description section of the pop-up.

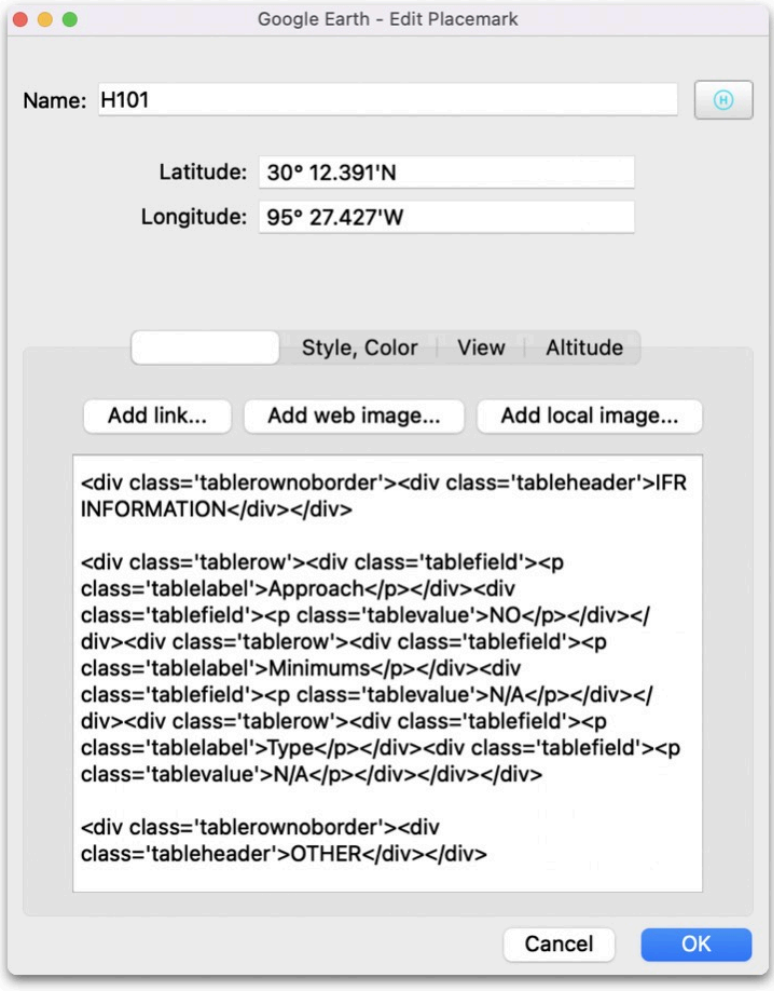


Figure 26-12. HTML formatted text in Google Earth Pro

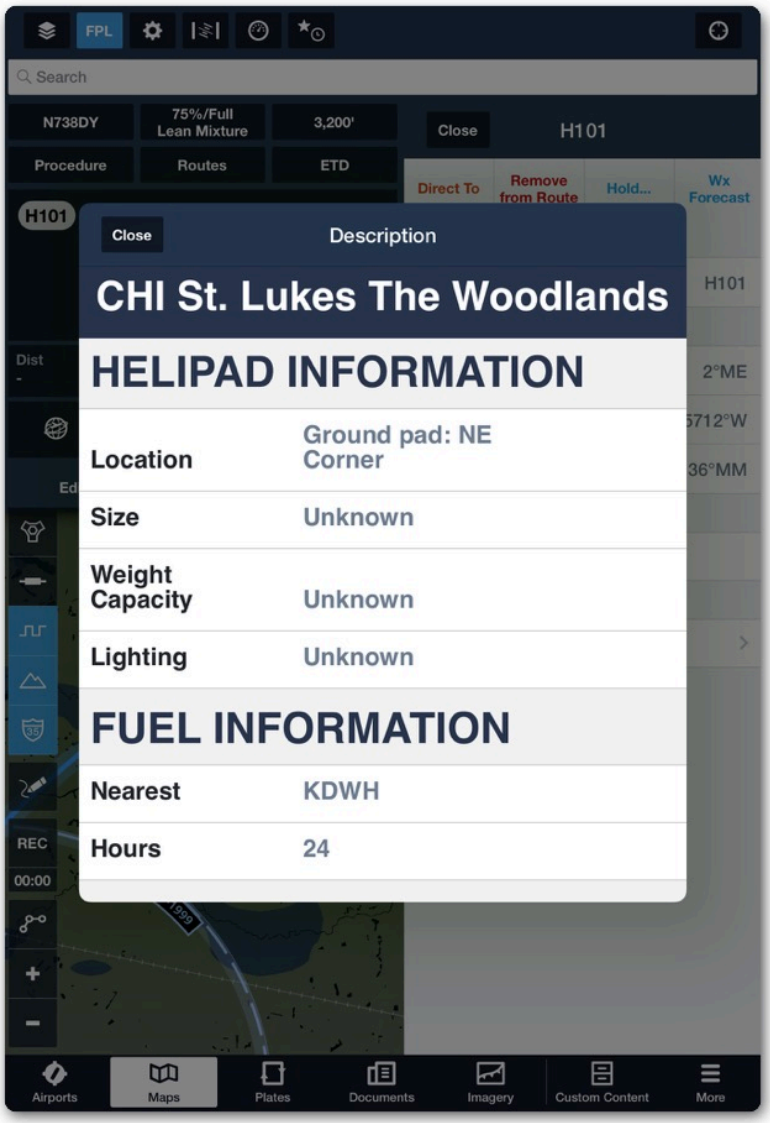


Figure 26-13. Custom map layer waypoint with HTML formatting

26.8.3.2 Waypoint Icons

ForeFlight Mobile only supports select Google Earth waypoint icons. If an unsupported icon is selected, the default icon is used.



Figure 26-14. Default Icon

When choosing a waypoint icon, select a supported icon or use the **Add Custom Icon** … option at the bottom of the icon menu.

To select a waypoint icon, click the icon button in the upper right corner of the waypoint menu and select an icon from the subsequent page. Once an icon has been selected, click **OK**.

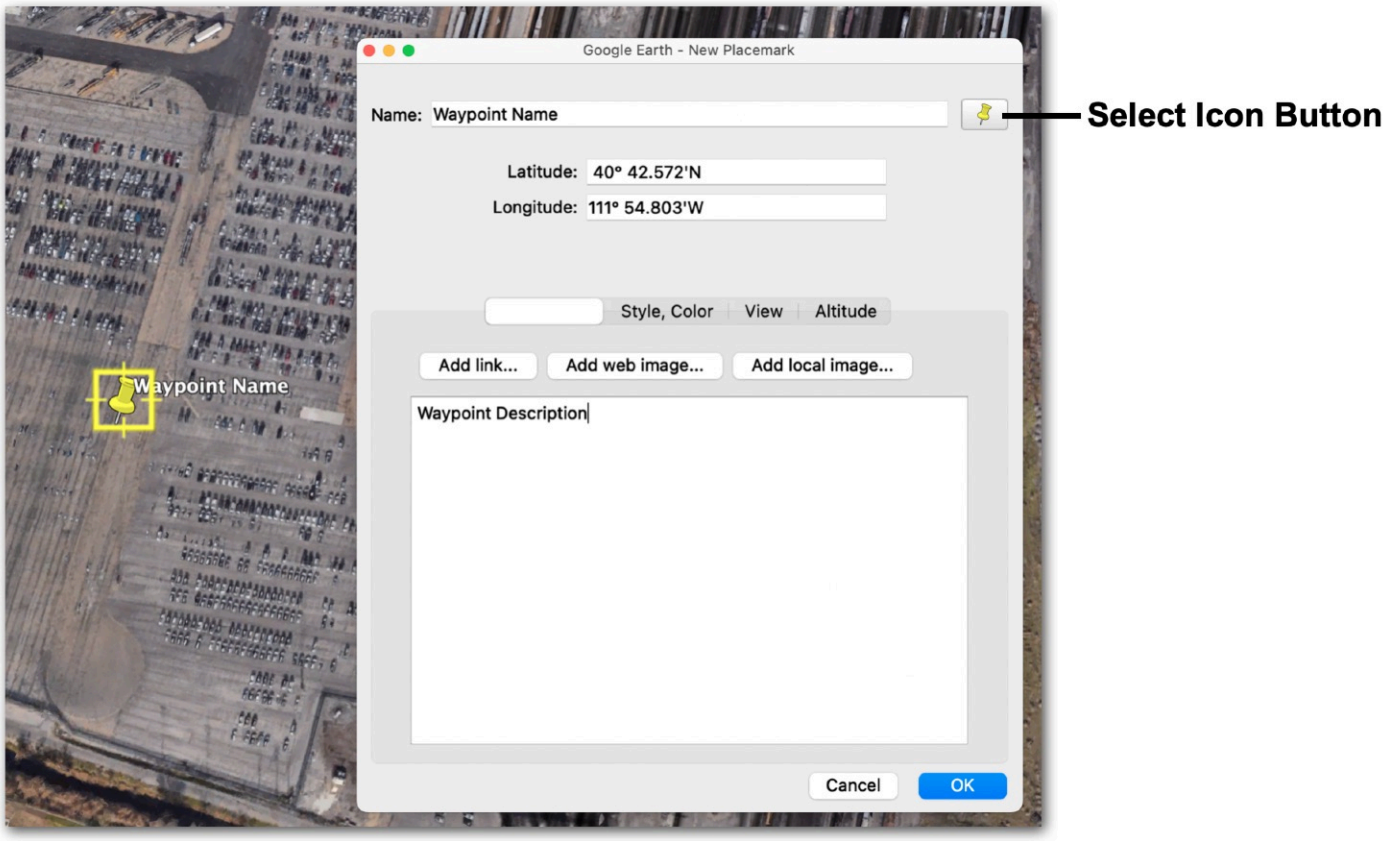


Figure 26-15. Adding Waypoints with Google Earth Pro

26.8.3.3 Supported Icons

The image below depicts the icons that are supported in ForeFlight Mobile. Use the **Add Custom Icon** button at the bottom of the menu to use an image from a computer as the waypoint icon.

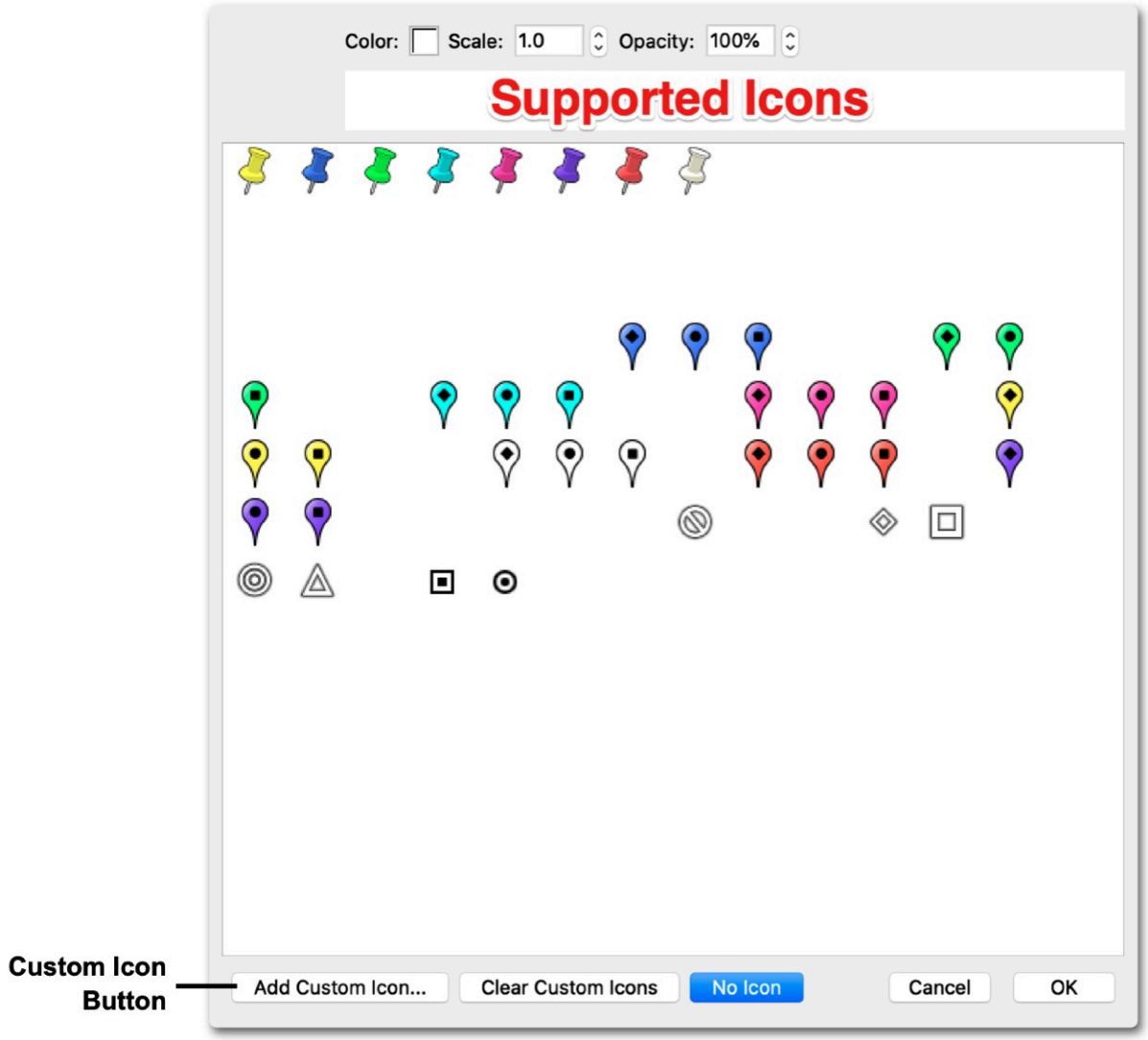


Figure 26-16. Supported Icons

26.8.3.4 Custom Icons

For best results, custom icons should be PNG image files with transparent backgrounds. The image should be approximately 100 pixels by 100 pixels.

When using a custom icon, the map layer must be saved as a KMZ file. KMZ files are zipped files with KML map data and the custom icon image files.

26.8.4 Label and Icon - Style and Color

Label and icon color, size, and opacity can be customized. To make style adjustments, select **Style** , **Color** from the Google Earth waypoint menu. Not all customization fields are supported in ForeFlight Mobile. See the following pages for additional information.

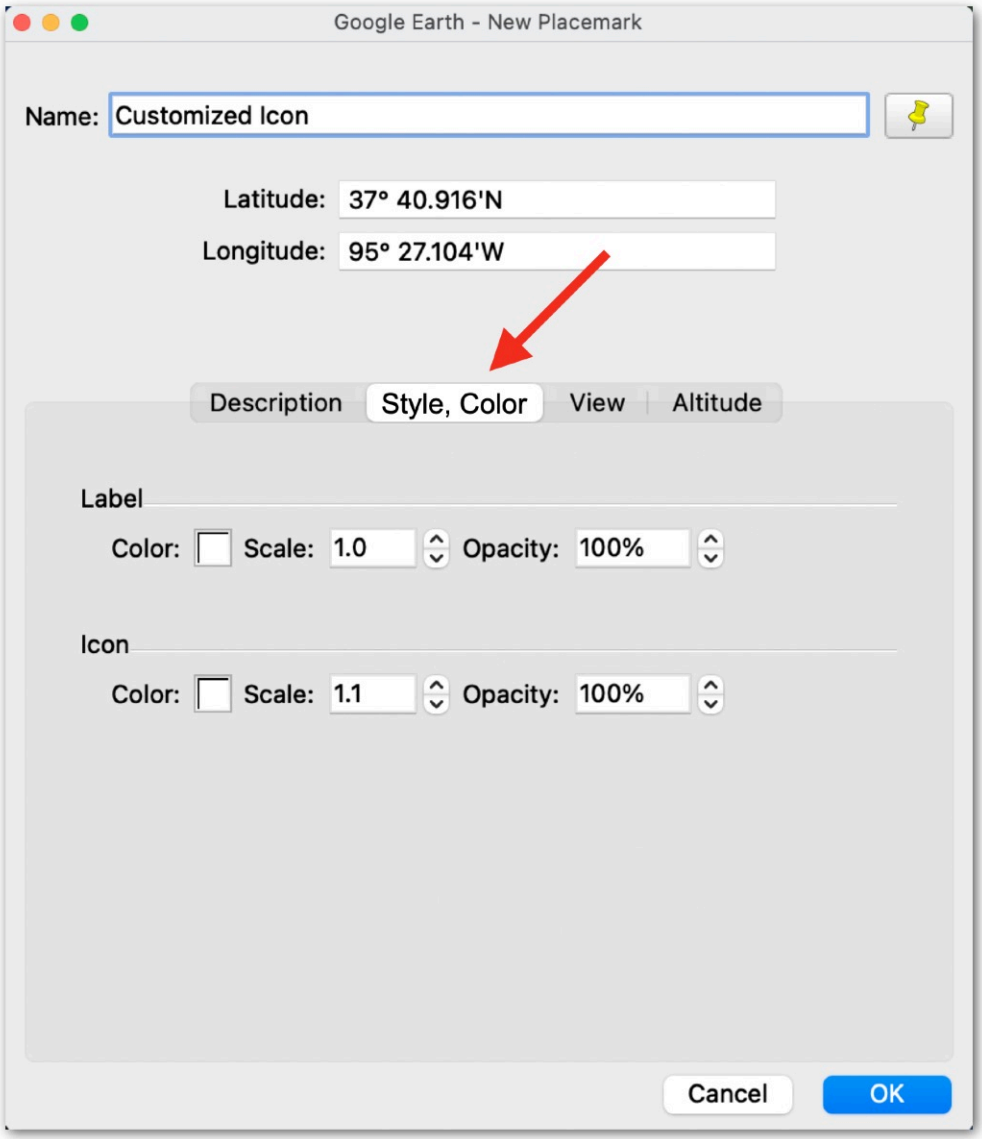


Figure 26-17. Customizing Waypoints

26.8.4.1 Color and Opacity

Waypoint icons and their associated labels share color and opacity attributes. To adjust the color or opacity of a waypoint, use the **Icon** settings in Google Earth to make adjustments. When using a supported icon, it is not possible to differentiate the color or opacity of the waypoint icon and its label.



Figure 26-18. Green icon (Left) and label with 50% opacity (Right)

26.8.4.2 Scale

Icon and label scale (size) can be independently adjusted. The maximum label scale is one. A label scale greater than one will not be reflected in ForeFlight Mobile.

Specifying a label scale of zero results in the label not being displayed. If the label is not displayed, the waypoint name can still be used for flight planning purposes. To create a map layer with only icons, set **label scale** to zero as in the image below.

There is no upper limit for **icon** scale. An icon scale greater than one results in a larger icon in ForeFlight Mobile. To display a label without an icon, use the "Add Custom Icon" option and use a blank image.

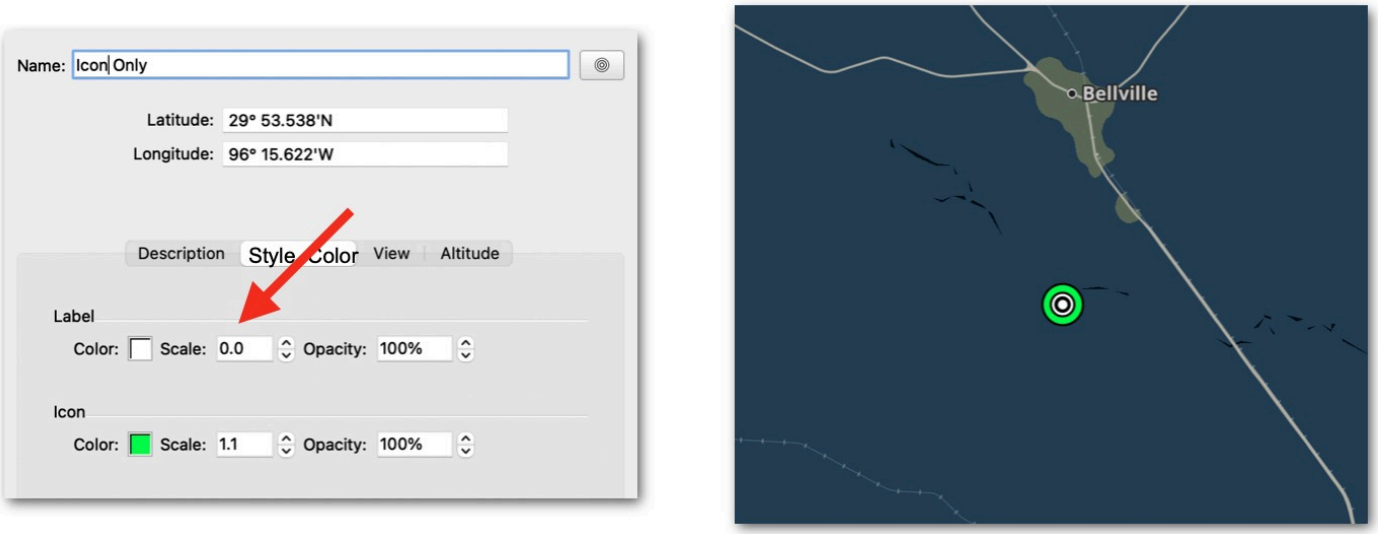


Figure 26-19. Icon Only Waypoint - Label scale equal to zero

26.8.5 Lines

Custom map layers can depict lines. Lines can be included in the same file as waypoints and custom shapes. To add lines to a custom map layer, select the **Add Path** button in the Google Earth Pro upper toolbar.

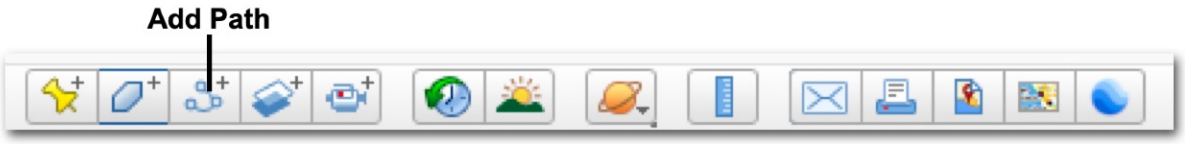


Figure 26-20. Google Earth Pro Toolbar

Use the mouse and cursor to add points to the path. Adjust line width and color by selecting **Style, Color**. When all points have been added, click **OK**.

It's not necessary to provide the path with a name as ForeFlight will ignore it. The KML/KMZ file name is what will appear in the map drop-down menu.

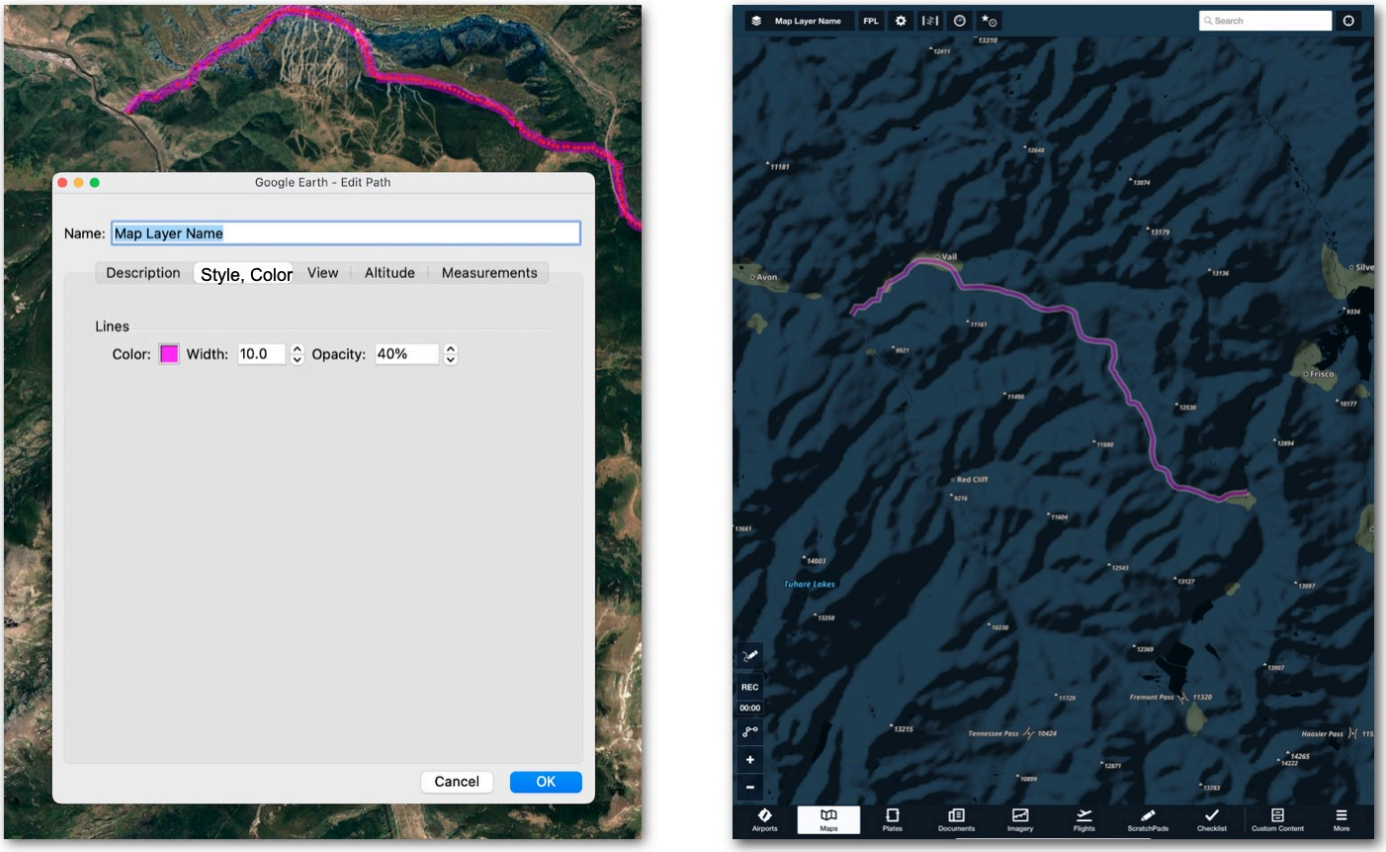


Figure 26-21. Custom Map Layer Line (path) in Google Earth and ForeFlight Mobile

26.8.6 Shapes

Custom map layers can depict shapes. Shapes can be included in the same file as waypoints and lines. To add shapes (Google Earth Polygons), select the **Add Shape** button in the Google Earth Pro upper toolbar.



Figure 26-22. Google Earth Pro Toolbar

ForeFlight Mobile does not recognize a shape name. To display a name over the center of a shape, add a custom waypoint (placemark) with the shape name.

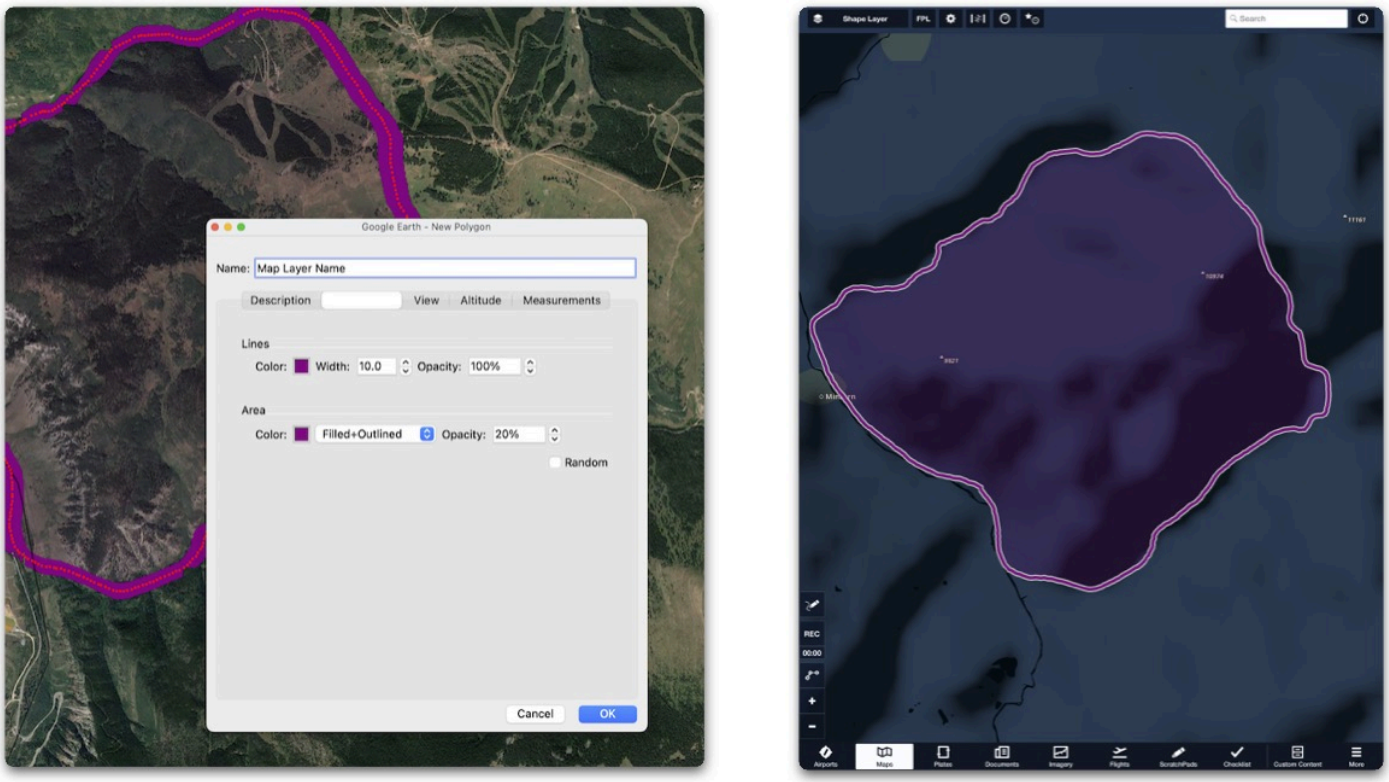


Figure 26-23. Google Earth - Polygon (Left) / ForeFlight Mobile Custom Map Layer - Shape (Right)

26.9 Importing Custom Maps

Custom map layers can be imported via content pack or as a stand-alone file. To import a custom map, it must first be exported. To export a map layer, right-click the folder that contains the custom data.

Map layers and folders are displayed in the left column of Google Earth Pro under the **Places** menu.

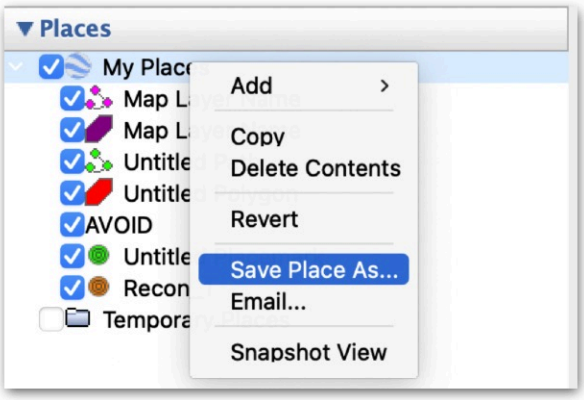


Figure 26-24. Save Place As….

Select **Save Place As….** and provide a name for the file. The file name will appear in **MoreCustom ContentCustom Map Layers** and in the map layer drop-down menu.

If the file contains custom icons, ensure the KMZ file format is selected. After exporting the file to a computer, share the file to an iPad/iPhone via AirDrop, Email, or File Transfer. When the iPad/iPhone receives the file, a list of installed apps which are capable of importing the file are listed. Select **ForeFlight** from the list of installed apps. ForeFlight Mobile will automatically open and provide prompts for importing the custom map.

Once the map has been imported, it can be selected from the map drop-down menu. Select **More → Custom Content → Custom Map Layer** to share, delete, or show the map layer.

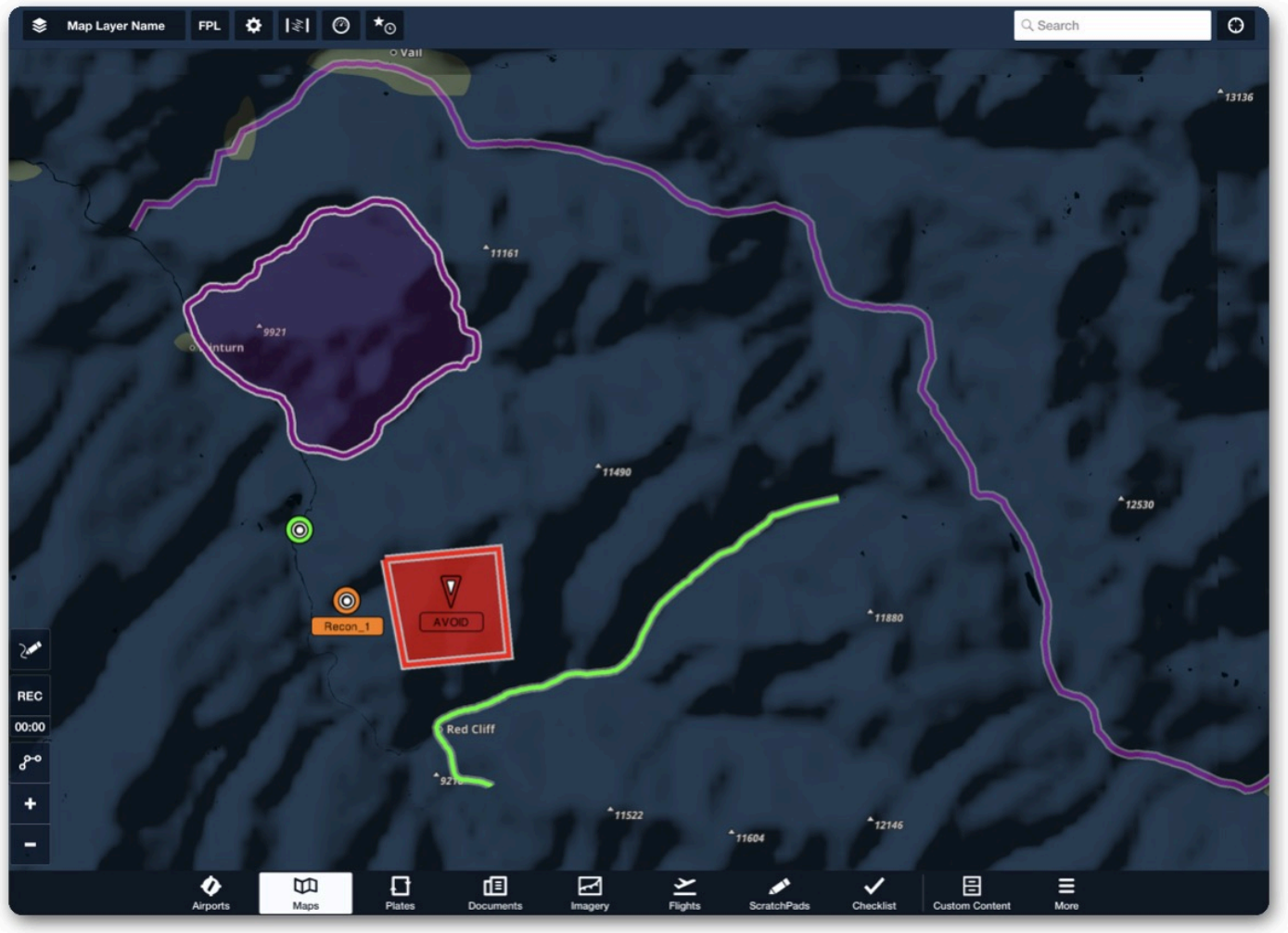


Figure 26-25. Custom Waypoints, Lines, and Shapes

26.10 Custom Charts

The Custom Charts feature enables importing custom georeferenced charts in MBTiles, Geospatial PDF, or GeoTiff (MFB only) format. Custom charts can be displayed on the Maps view on top of other charts. Multiple custom charts can be displayed simultaneously on the map.



Figure 26-26. Custom Chart in ForeFlight Mobile

ForeFlight Mobile can not create custom charts. If a chart does not contain geospatial information, a third-party program can be used to add the data. ForeFlight recommends Map Tiler for creating MBTile custom charts and QGIS for creating geospatial PDF. For additional information, see our Custom Content Support Page.

26.11 Custom Plates (BYOP)

The Bring Your Own Plates (BYOP) feature allows PDF plates to be added to published airports, heliports, and private airports. Common BYOP plates include airport diagrams, private terminal procedures, arrivals, departures, or any other plate needing to be associated with a published airport. It is possible to import custom plates via content pack and as stand-alone files. Importing custom plates via content pack is recommended and discussed in this chapter.

Custom plates are accessed from the Plates, Airports, or Maps procedure view similar to published procedures. If the BYOP plate is georeferenced, the plate is able to be sent to the Map with an Essential or higher subscription. If a plate is not georeferenced, geospatial data can be added to the PDF with various mapping programs. For more information, visit the How do I create a Geospatial PDF support article.

26.11.1 BYOP Naming Convention

Adding a plate to an airport or heliport is done by renaming the plate according to a specific naming convention. BYOP file names contain three elements separated by underscores. (e.g. AirportCode_CategoryName_Procedure_Name.pdf). Plates must end with a .pdf extension. The three naming elements and examples are listed below.

- **Four character ICAO airport/heliport code**: ICAO codes should be all caps with no spaces immediately followed by and underscore. (e.g. KLAX, 38TE)
- **Procedure Category**: Procedures are divided into four categories by default: Airport, Departure, Arrival, and Approach. Custom plates can be added to the existing categories. If the category name is omitted, a fifth category is created by ForeFlight Mobile. The fifth category is named **Other** and any plate without a specified category is added to this folder.

  If a category name other than one of the four existing categories is used, a custom procedure category is created in ForeFlight Mobile for the airport/heliport. See the example on the following page.

- **Procedure Name**: The procedure name supports letters, numbers, and special characters. The procedure name should be entered exactly as it is to appear in ForeFlight (e.g., COPTER RNAV 09 APPROACH, Ramp Operations).

26.11.1.1 BYOP Examples

In the example below, the first plate (38TE_Approach_Copter RNAV 08 Approach) is added to the existing Approach category (left image).

The second plate (KAUS_Flight School Procedures_Ramp Procedures) creates a custom category for Austin International Airport (right page) and adds the Ramp Procedures plate to the category.

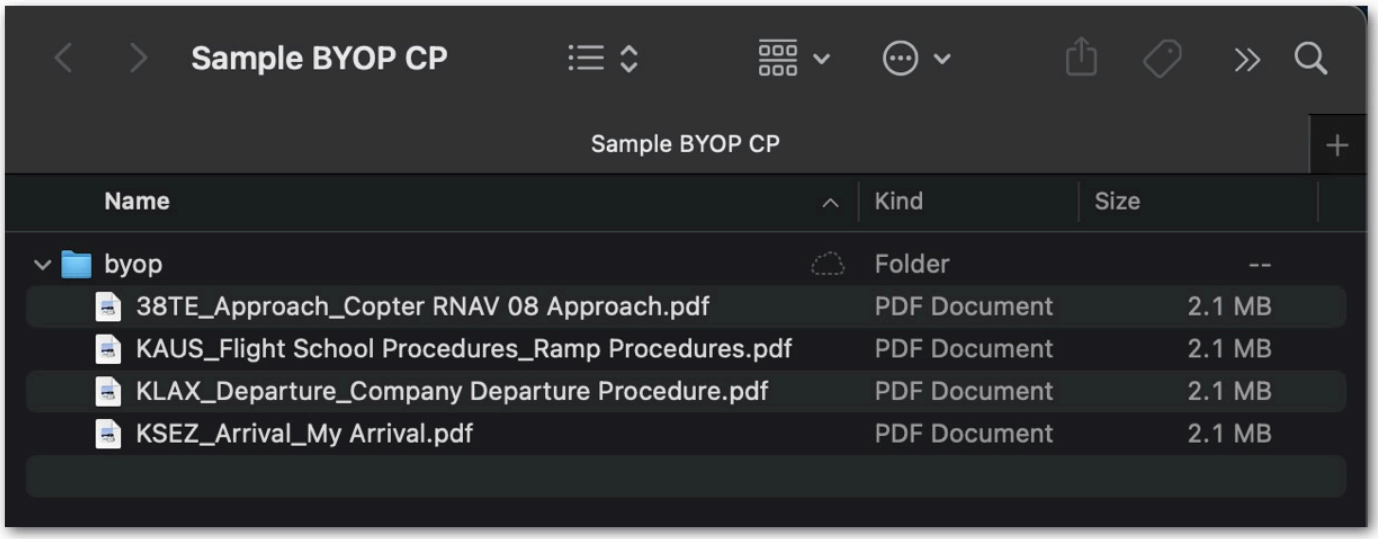


Figure 26-27. BYOP Subfolder

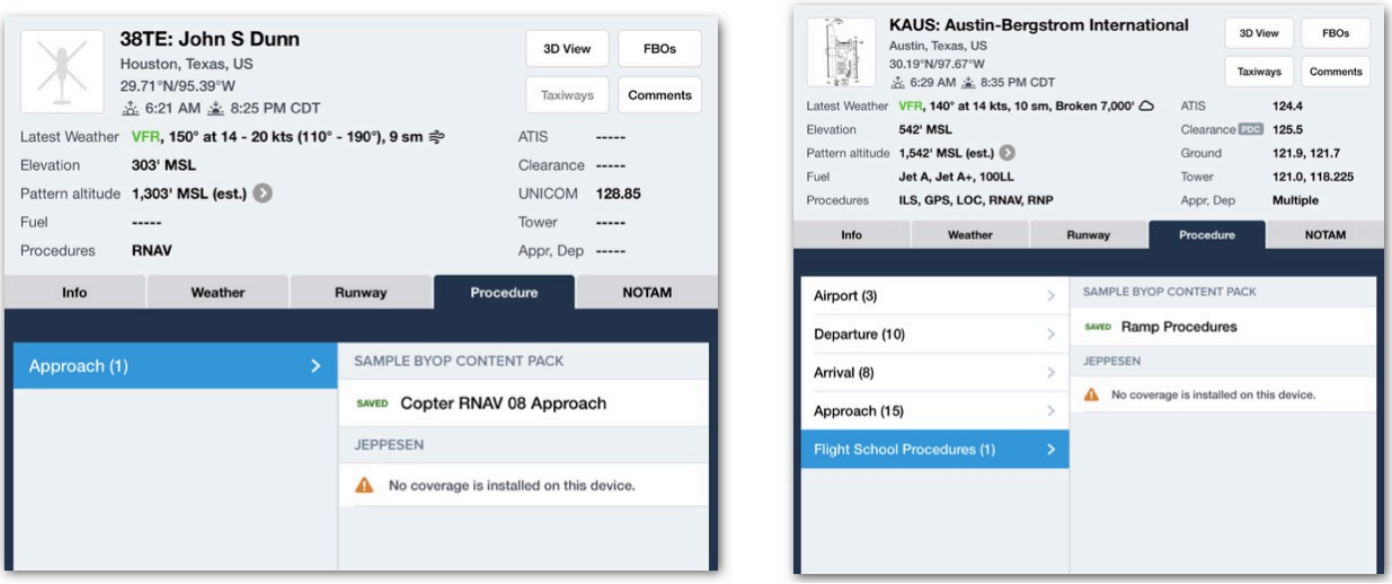


Figure 26-28. 38TE Copter Approach (Left) / KAUS Flight School Procedures (Right)

26.11.2 Importing Plates (BYOP)

Standalone BYOP files can only be imported via wired connection, using Finder (MacOS Catalina 10.15 or later) or iTunes (MacOS Mojave 10.14 or earlier).

To import BYOP files without using Finder or iTunes, the files must be imported via content pack. For information on importing standalone BYOP files, refer to the BYOP Support Page.

26.12 Content Packs

A content pack is a single file that can contain various types of custom content. Content packs are easy to create, install, share, manage, and delete. Content packs add additional capabilities to the custom content features, including the ability to associate files with the waypoints in custom map layers.

Content packs can range from a basic list of user waypoints to complex bundles of geo-referenced charts, plates, map layers, and linked files. Content packs are listed in the left column of the Custom Content view. When tapped, the contents of a pack are listed in the detail view.

Multiple content packs can be installed on a device. Content packs are available to all individual subscribers and Performance level or above Business and MFB subscribers. Example content packs can be found at foreflight.com/support/content-packs.

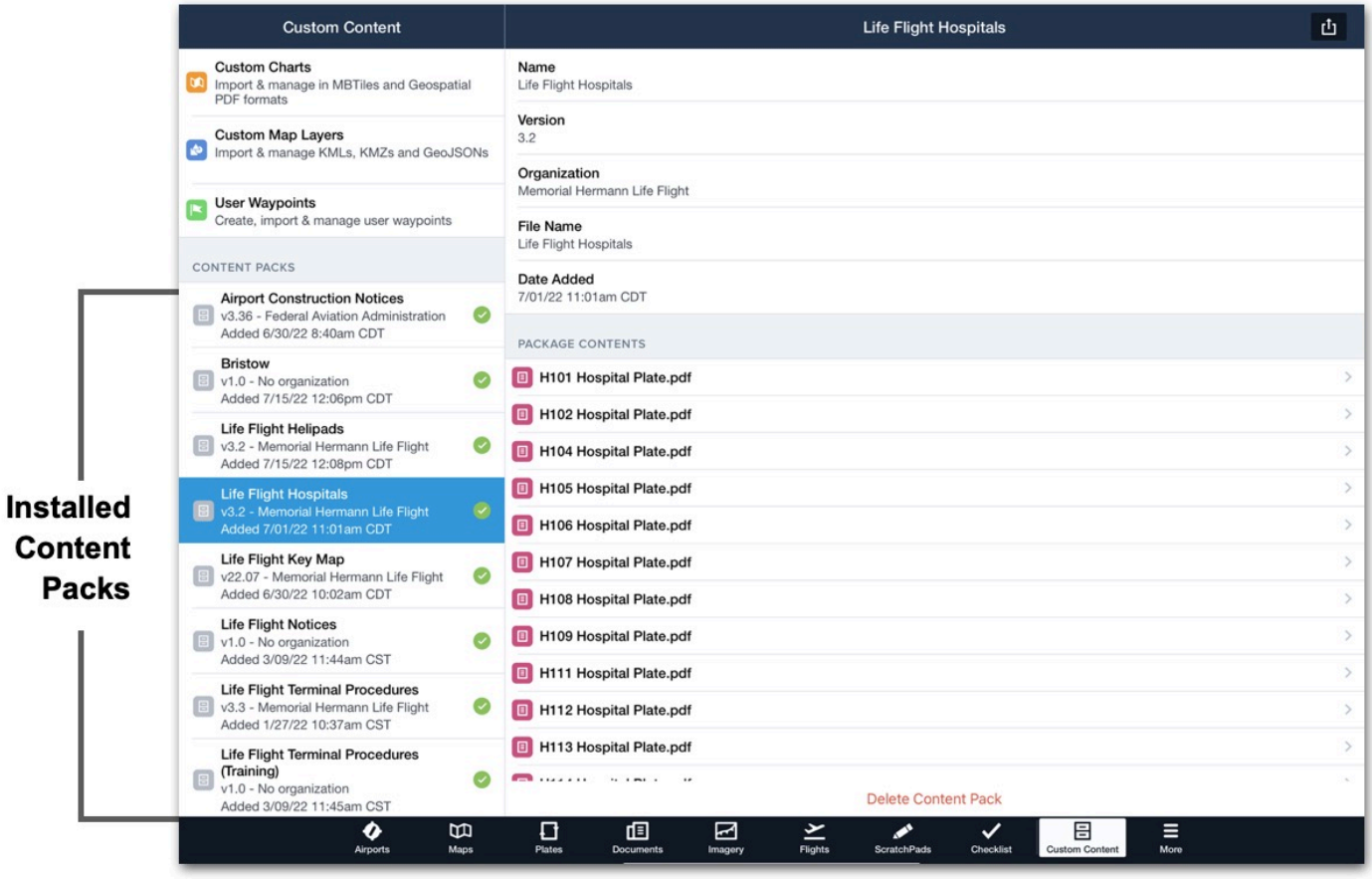


Figure 26-29. Custom Content View - Content Packs

26.12.1 Package Contents

Content packs can contain multiple types of custom content. There is no limit to how many custom content types a content pack can have. Content packs must contain at least one type of custom content. The following custom content can be added to a content pack.

- Custom Charts
- Map Layers
- User Waypoints
- Associated Files
- Plates (BYOP).

26.12.2 Creating Content Packs

Content packs require the use of a computer and cannot be created with ForeFlight mobile. Begin by dragging and dropping custom content to the appropriate subfolder as described in this section.

Content Pack Structure

Content packs have a main folder and up to three subfolders. The subfolders are placed into the main folder and must be named exactly as depicted below. If a subfolder is empty, it is not necessary to include it in the content pack.

The main folder becomes a user content pack once all custom content is added. The main folder does not have a specific naming requirement. Assign the main folder a name that is easily recognizable. The main folder (content pack) name is displayed in ForeFlight Mobile.

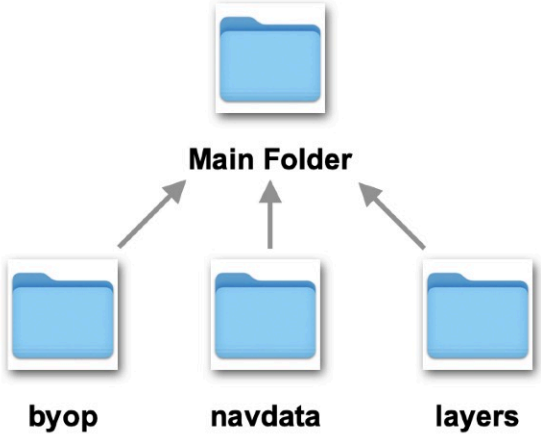


Figure 26-30. Content Pack Folder Structure

26.12.3 Adding Content to Subfolders

The type of custom content determines which subfolder it's placed in. Add custom content to subfolders per the image below. Each subfolder that contains custom content should be placed in the main content pack folder.

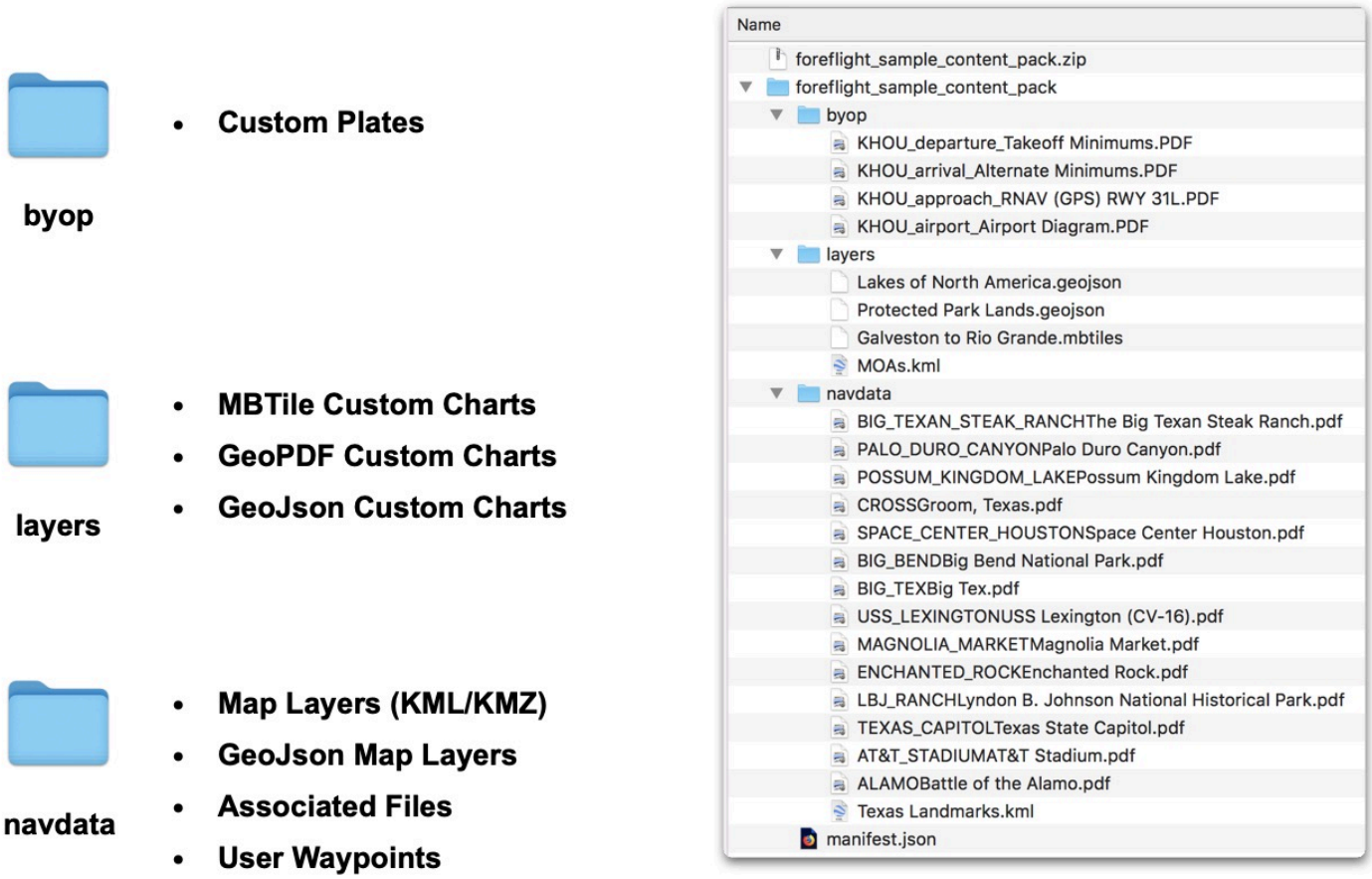


Figure 26-31. Content Pack Folder Structure

26.12.4 Manifest

Content packs can also include an optional manifest. The manifest provides information about the content pack to help distinguish it from other content packs. It can also establish effective and expiration dates and specify if the content pack can be shared after being imported.

Information specified in the manifest is displayed at the top of the content pack details view in **More ➔ Custom Content**. Manifests are placed in the main content pack folder. If a manifest is not included, ForeFlight Mobile will use the content pack file name by default.

26.12.4.1 Manifest Structure

The manifest must be a JSON file and has the following structure.

```
{
"name": "Sample content pack",
"abbreviation": "FFCP.V2",
"version": 2.0,
"expirationDate": "20230101T00:00:00",
"effectiveDate": "20220101T00:00:00",
"organizationName": "ForeFlight",
"noShare": "true"
}
```

26.12.5 Effective & Expiration Dates

Effective and expiration dates are an optional element of a content pack's manifest. The dates are depicted in the content pack's detail view. ForeFlight Mobile will also display red warning text in both the expiration date field and the content pack's summary in the left-hand list for any content pack that has passed its expiration date.

If the content pack includes plates within the `byop` folder, expired plates will display a red "EXPIRED" banner at the top of the Plates view. Expired content packs remain fully functional. The red banners only serve as a notice to the user that the content pack expiration date has passed.

Dates must be specified using the format "`YYYYMMDDThh:mm:ss`", where Y=year, M=month, D=day, h=hour, m=minute, and s=seconds. Single digit months, days, hours, minutes, and seconds should be preceded by a single 0 character. The "T" in the string date is required, and is a delimiter that separates the date portion from the time portion (see the example manifest JSON above). Both times are interpreted in relation to the device's local time setting, *unless* a "Z" suffix is added to indicate Zulu time, as in: "`YYYMMDDThh:mm:ssZ`"

For ForeFlight Military Flight Bag customers, special logic has been implemented to impose an expiration date on Giant Report zip files downloaded from the NGA aerodata website. Any content pack with a file name formatted as “Giant_Reports-YYYY-MM-DD” will automatically be assigned an expiration date corresponding to 8 days after the publication date identified in the file name.

26.12.6 Disable Content Pack Sharing

To prevent users from sharing a content pack from within ForeFlight Mobile, add the line `"noShare": "true"` to the manifest.json file. This hides the Send To button whenever the content pack is being viewed in ForeFlight Mobile's Custom Content view.

Adding `"noShare": "true"` to one content pack does not disable sharing of other content packs installed on the same device. The code must be added to the manifest for each content pack not desired to be shared.

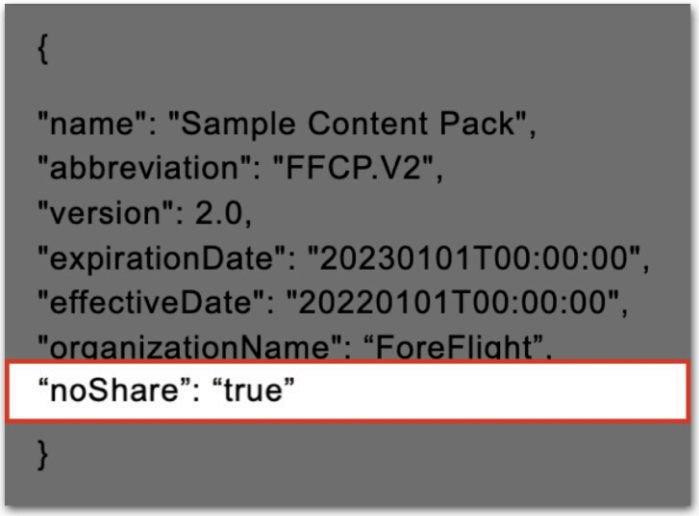


Figure 26-32. Disable Content Pack Sharing

Once content pack sharing is disabled, the Send To button will be hidden regardless of how the content pack was imported. For instance, whether imported it via AirDrop or downloaded it via an integrated cloud drive, the Send To button will remain hidden when the content pack from the Custom Content view is selected.

To enable sharing, remove `"noShare": "true"` from the manifest.

26.12.7 NavData

The navdata subfolder contains custom map layers, user waypoints, and files that are associated with map layer waypoints.

Content Pack Map Layers

Custom map layers imported via content pack behave similar to map layers imported as standalone files. The exception is that map layers imported via content pack can have waypoints that are linked to supporting files (associated information).

Content Pack User Waypoints

User waypoints imported via content pack are not appended to the user waypoint list. As a result, user waypoints imported via content pack are not synced to the account. A user waypoint file added via content pack is selectable from the map layer dropdown menu. The CSV file name appears in the map layer dropdown menu.

Associated Information

Files that are related to a waypoint in a KML, KMZ, or geojson map layers can be added to the navdata subfolder. Associated files can be image or PDF documents. Adding a file to the navdata subfolder allows viewing the selected file from the Maps page.

Associated files are linked to waypoints by their naming convention. To link a file to a waypoint, use the following file naming convention: "Waypoint _Name Document Description".

The waypoint name and document description are separated by a space. For example, a document named "H413 Aerial View" links the "Aerial View" file to the H413 waypoint.

The first component of a document's name (H413) links the document to the waypoint in the custom map layer. The waypoint name in the associated file should match the waypoint name in the custom map layer.

The second component of the file's name is what will be displayed in the waypoint's slide-over menu. In the image below, note how multiple associated files are linked to the waypoint H413. Each file is accessible by tapping the waypoint on the map. The document description is displayed in ForeFlight Mobile exactly as the file is named (e.g. Aerial View, Hospital Plate, Ground View).

Associated PDF, PNG, and IMG files can be accessed from the map by tapping the custom map layer waypoint icon and selecting an associated file. Tapping an associated file opens the file in the Documents view.

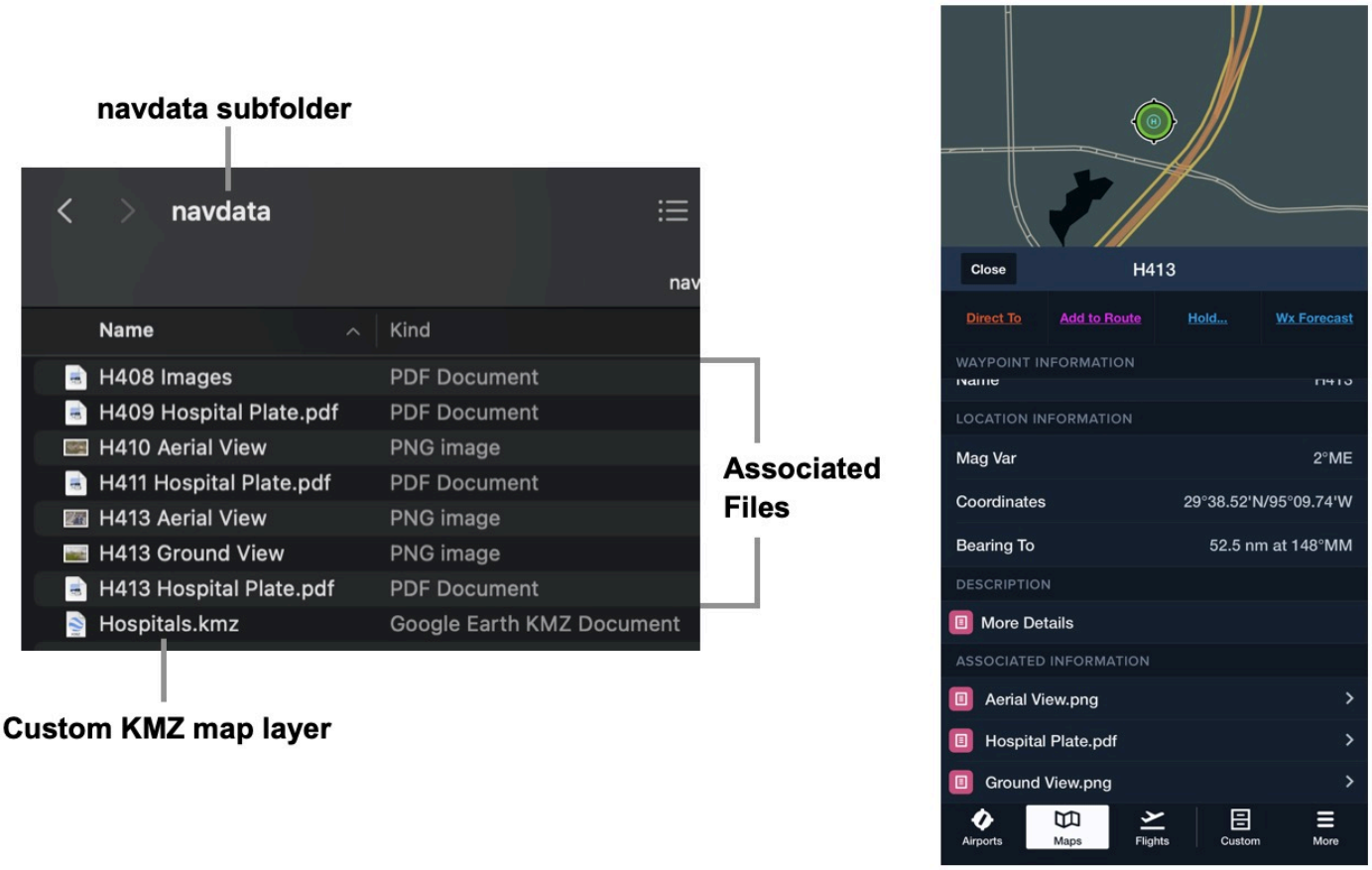


Figure 26-33. H413 Waypoint with Associated Information

26.12.8 Layers

The layers subfolder contains custom charts. Custom charts in content packs operate the same as they do on their own. Content packs support the following types of map layer files: MBtiles, FBtiles, geospatial PDF, KML, and GeoJSON.

MBtiles, FBtiles, and geospatial PDFs appear at the bottom of the left column in the Maps layer selector, and KML and GeoJSON files appear in the bottom of the right column.

26.12.9 Importing Content Packs

Before a content pack can be imported, it must be compressed (zipped). Compress the main folder of the content pack and share the zipped file to the device via one of the supported methods. Files can be compressed by right-clicking the content pack's main folder and selecting **compress** from the menu.

Content packs can be imported via AirDrop, Mail, web browser, hyperlink, and cloud document drive (DropBox, Box, S3). Once a content pack has been shared with the device, a menu appears that lists all installed apps capable of importing the content pack. Select **ForeFlight** from the list of installed apps.

After selecting ForeFlight, the app will automatically open and import the content pack. Once the content pack is installed, a confirmation message will appear with options to dismiss the message or view the content pack. Selecting **View** in the pop-up menu displays the content pack in **More ➔ Custom Content** .

26.12.9.1 Importing/Hosting via Hyperlink

If a content pack is hosted somewhere that is desired to be made available for download in ForeFlight Mobile, configure a hyperlink to make the content pack download through ForeFlight Mobile using this URL scheme: “https://foreflight.com/content?downloadURL=<The URL to the content pack location>”.

Users can install the content pack to a device with ForeFlight Mobile installed by tapping or long-pressing the link and selecting **Open in ForeFlight**. Opening the link with ForeFlight Mobile adds the content pack as an available download. If Automatic Downloads are enabled on the device, the content pack will automatically download.

To see this in action, long-press on this link using a device with ForeFlight Mobile installed and tap **Open in ForeFlight**. Or, tap on the link and swipe down on the next page (a 404 page) to find the **Open in ForeFlight** banner at the top of the page.

26.12.10 Content Pack Cloud Drive Integration

With an Essential, Premium, Business Performance or MFB Performance plan, content packs can be imported into ForeFlight Mobile using a linked cloud storage account (Dropbox, Box, OneDrive, or Amazon S3). Importing via cloud drive is the recommended method for multi-pilot accounts.

To import content packs using a cloud drive, add a folder named `contentpack` to the root ForeFlight folder of the cloud drive.

Content Pack Folder Naming Convention

The content pack folder is not case-sensitive and supports various conventions. For example, "content-pack", "content_pack", "content pack", "content-packs", and "Content Packs" are all acceptable Content Pack folder names.

Content Pack Folder Location

The content pack subfolder must be located in the cloud drive's root folder as depicted below:

- **Dropbox**: `~/Dropbox/Apps/ForeFlight/contentpack/`
- **Box**: `~/Box Sync/ForeFlight/contentpack/`
- **Amazon S3**: Add the `contentpack` subfolder to the drive used to import ForeFlight documents.
- **OneDrive**: Add the `contentpack` subfolder to the drive used to import ForeFlight Mobile documents.

Content Packs Size Limits

Once the content pack folder is created, add zipped content packs to the folder.

ForeFlight Mobile does not limit the size of content packs. However, content packs imported via a cloud service (OneDrive, Dropbox, Box, or Amazon S3) may be limited by the service provider. Content packs that meet the cloud provider's criteria can be imported into ForeFlight Mobile. Check provider criteria for current size limits.

26.12.11 Automatic Content Pack Download

Content packs imported via cloud drive can be installed automatically or manually. To specify how content packs should be installed, log into ForeFlight Web from an administrator account and select **Documents (left sidebar) ➔ Add a Cloud Drive**.

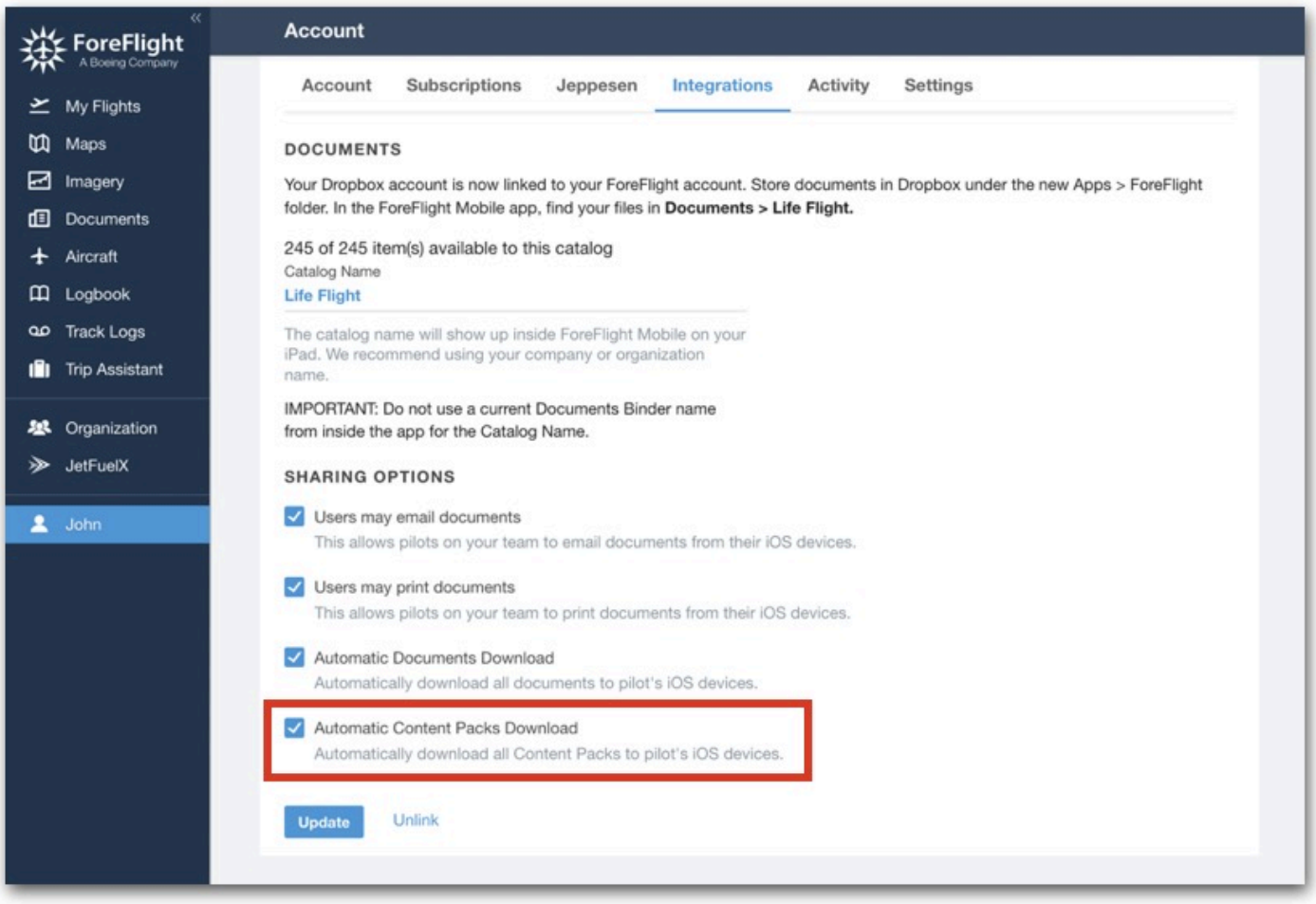


Figure 26-34. Automatic Content Pack Download Setting

When automatic content pack downloads are enabled, users are prompted and required to download content packs. A red download badge is displayed for content packs that are uploaded to the document drive and not yet downloaded to the device. When deleting a content pack from ForeFlight Mobile, a prompt to reinstall the content pack is immediately displayed.

If automatic content pack downloads are enabled and Automatic Downloads are enabled on the device, content packs uploaded to the cloud drive will be automatically installed on the device when connected to the internet.

If automatic content pack downloads are disabled, users are not required to download content packs. Content packs uploaded to the cloud drive appear as available for download in the **Custom Content** view but a badge is not depicted when new content packs are available.

26.12.12 Updating Content Packs

Content packs can be updated by replacing the content pack in the cloud drive with a file with the same name. When content packs are replaced in cloud drives, ForeFlight Mobile installs the updated content pack and automatically removes the old one.

The old content pack is not removed if an updated content pack is installed with a different name. If updating a content pack via a method other than integrated cloud drive, ForeFlight Mobile does not automatically remove the old content pack.

26.12.13 Content Pack Sharing

By default, content packs can be shared from within ForeFlight Mobile. To share a content pack:

1. Tap **More ➔ Custom Content**.
2. Tap the content pack to be shared.
3. Tap the **Send To** button in the upper toolbar.
4. Use the standard iOS sharing options to share the content pack.

To prevent a content pack from being shared from within ForeFlight Mobile, see Disable Content Pack Sharing.

TRACK LOGS

Track Logs is an optional feature included with all ForeFlight subscriptions that allows pilots to record flights using the iPad or iPhone built-in GPS or a compatible external GPS. Track Logs is a useful, integrated debriefing tool that syncs to an account.

A track log recording can be shared, viewed in other apps, and associated with logbook entries. Recordings capture GPS position, altitude, and groundspeed data at a rate of once per second and are less than 300 KB in size per hour. If connected to a supported external AHRS device, Track Logs records the pitch and bank at the same rate.

To access the Track Logs view, tap the **Track Logs** button in the navigation toolbar at the bottom of the screen or select **More ➔ Track Logs**. To configure how track logs are recorded, tap **More ➔ Settings** and scroll to the Track Log section.

The Maps view can display a button for manually recording track logs and a timer to indicate when a track log is being recorded.

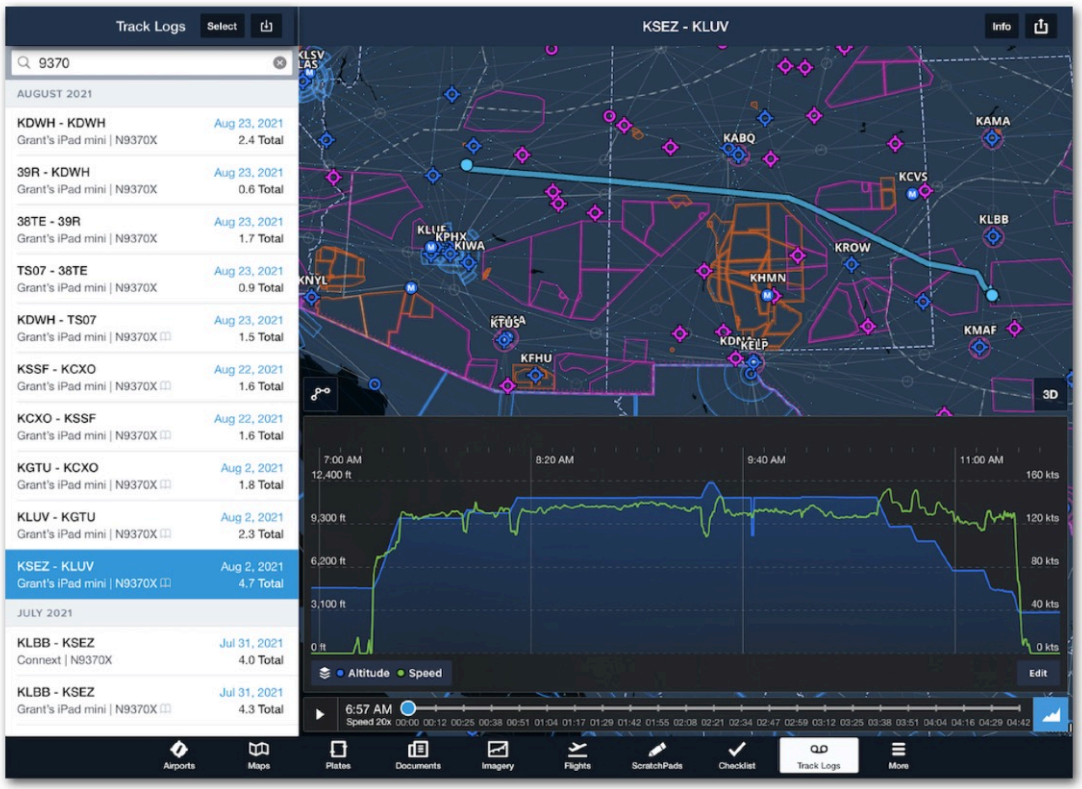


Figure 27-1. Track Logs View

27.1 Design

The Track Logs view lists Track Log Summaries on the left, sorted by date. In portrait mode, tap the **Track Logs / Close** button in the upper toolbar to show or hide the summaries.

A search bar at the top of the list allows track logs to be filtered by departure, destination, aircraft, or GPS data source.

The selected track log is highlighted in blue and is displayed on the interactive map and graph to the right. Buttons along the perimeter serve the following functions:

- The **Select** button allows multiple track logs to be deleted at once.
- The **Import** button allows G1000 and Sentry Plus track logs to be imported.
- The **Info** button reveals a pop-up with additional Track Log Information.
- The Send To button allows the selected track log to be sent to Logbook or shared outside of ForeFlight Mobile.
- The **3D** button opens Track Log 3D Review.
- The **Edit** button enables Track Log Trimming.
- The **Graph** button hides and shows the Track Log Graph.

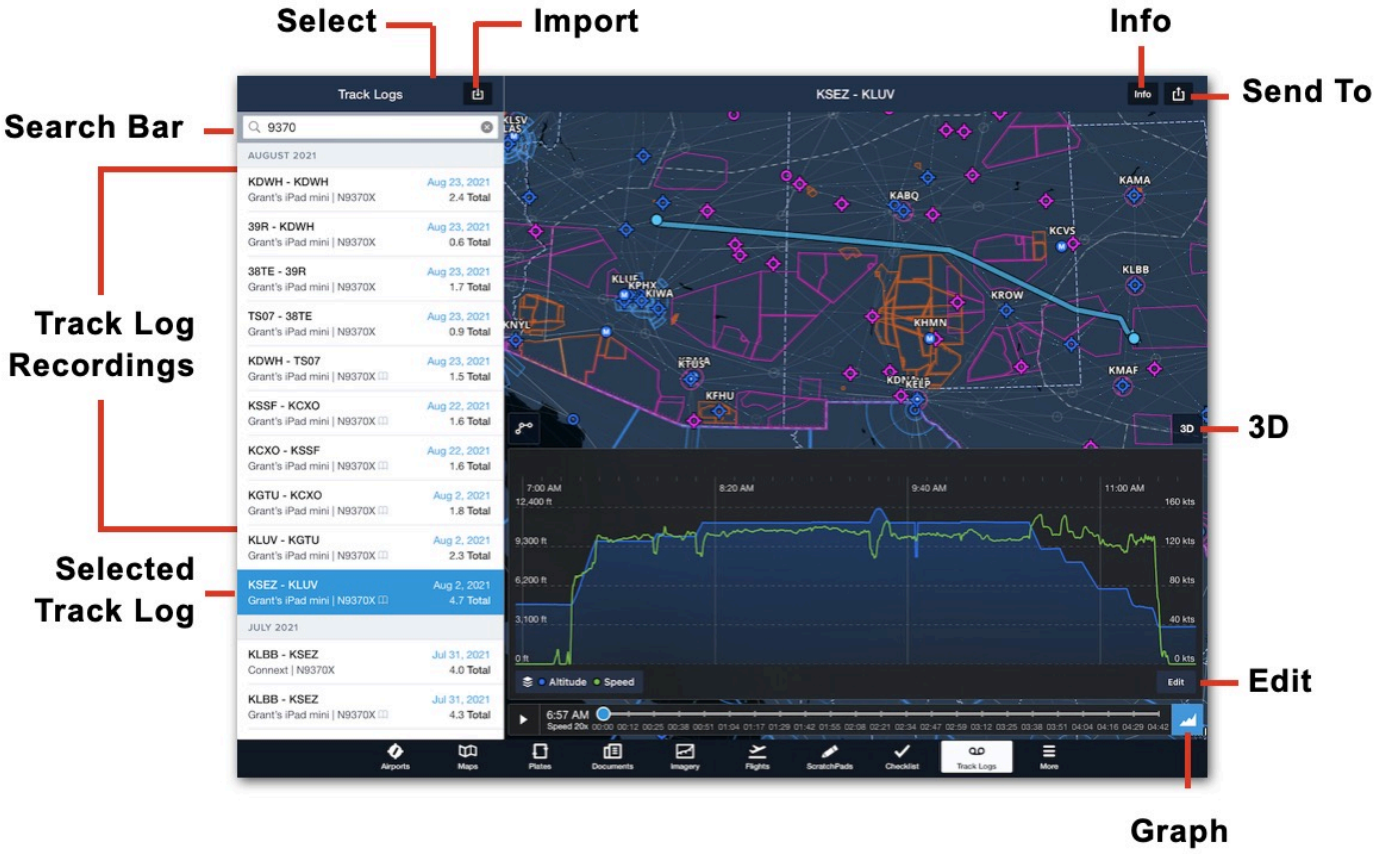


Figure 27-2. Track Log Design

27.1.1 Track Log Summary

Each track log contains a summary with the following information.

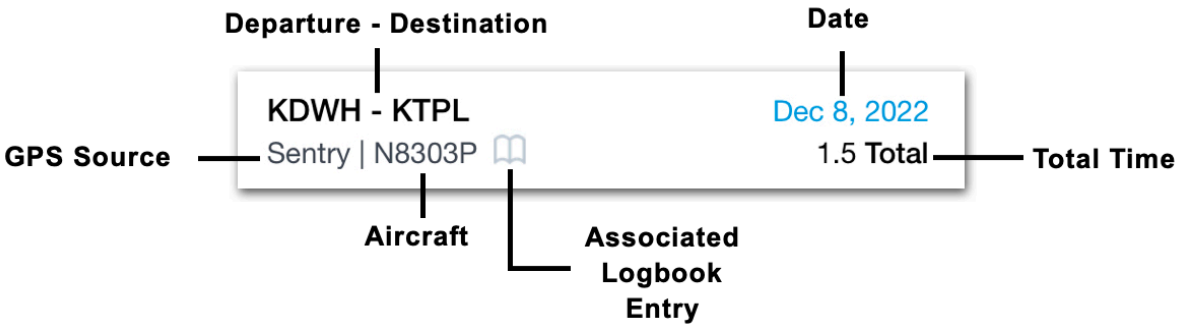


Figure 27-3. Track Log Summary

- **Departure - Destination**: The starting and ending points are automatically derived by comparing the track log starting and ending coordinates to nearby airports, seaports, and heliports. If no airport, seaport, or heliport is within 2 NM, the coordinates are displayed. If the incorrect location is automatically filled, it can be corrected by tapping the Info button.

- **GPS Source**: When a track log recording is started, the current GPS data source is captured. The GPS source is the initial source, not the source used for most of the recording. For example, if a recording is started and an external device is later connected, the track log will indicate the iPad or iPhone was the initial GPS data source. It is not possible to adjust this field.
- **Aircraft**: The tail number is determined by the following logic:
  - If ADS-B ownship is detected during the flight, the ownship aircraft is assigned.
  - If no ownship is detected, the track log start time is compared to planned flights. If a flight with a similar estimated departure time is found, the aircraft from the flight is assigned.
  - If ownship is not detected and no flights are planned, the default aircraft profile is assigned.
- **Date**: The date at the start of the track log.
- **Total Time**: Time between the start and end of the track log. If a track log is trimmed, the Total Time reflects the edits.
- **Associated Logbook Entry**: If the track log has an associated logbook entry, a Logbook Badge is displayed.

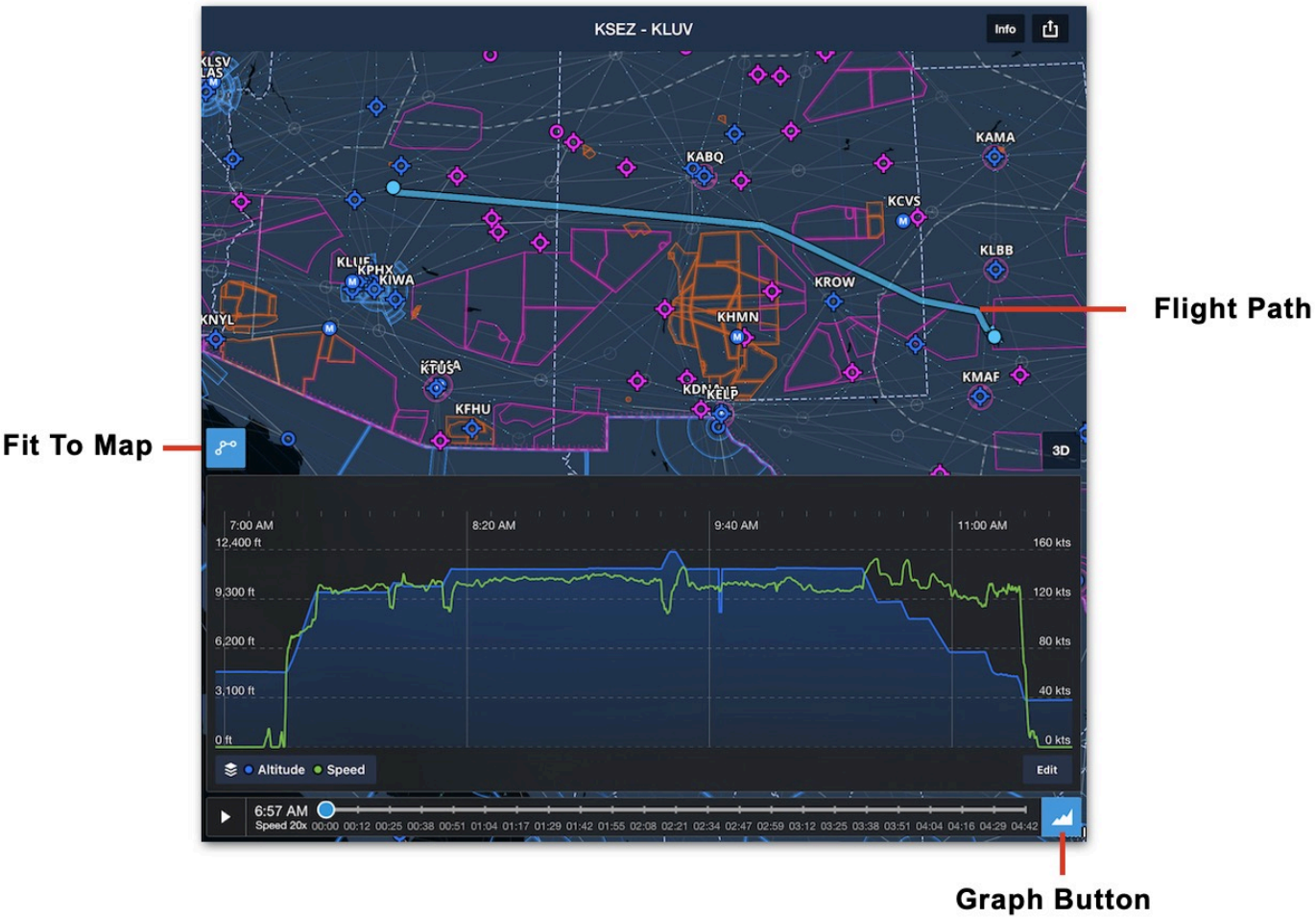
27.1.2 Track Log Map

The map overlays the selected track log flight path on top of the Aeronautical Map. The Track Log map is similar to the one found on the Maps view, but it cannot be used to interact with or filter the map elements.

When first opened, the flight path is centered on the map. The map is interactive and responds to standard touch gestures. To recenter the map on the flight path after panning or zooming, tap the **Fit To Map** button.

By default, the Graph is overlayed on the map. To hide the Graph and display a larger map, tap the **Graph** Button.

If a Marked Position was created during the flight, it will appear on the map and can be tapped to edit or review its details.



27.1.3 Track Log Graph

The Track Log Graph displays two data types along a linear timescale. Altitude and Speed are shown by default, but any two of the following options may be selected depending on how the track log was recorded. Tap the **Data Menu** to select options.

Table 27-1. Track Log Graph

Line Color	Description
	Altitude: GPS altitude data as provided by the GPS data source.
	Ground Speed: Groundspeed as determined by ForeFlight Mobile.
	Pitch: Pitch attitude as provided by an external AHRS source. If no AHRS external device was connected during the flight or if saving a Breadcrumb as a track log, this option is not selectable.

Line Color	Description
	**Bank**: Bank attitude as provided by an external AHRS source. If no AHRS external device was connected during the flight or if saving a Breadcrumb as a track log, this option is not selectable.
	**g Load**: Acceleration data as provided by a Sentry Plus. If the flight was conducted without Sentry Plus, this option is not selectable.

27.1.3.1 Track Log Graph Design

The top data selection (i.e., **Speed** in the screenshot below) is displayed on the left y-axis of the graph. The bottom selection is displayed on the right. The minimum and maximum y-axis values dynamically adjust to reflect the minimum and maximum values recorded during the flight. The track log local time is displayed across the top of the graph and a time slider is displayed along the bottom.



Figure 27-4. Graph Design

27.2 Required Equipment

To create a track log, ForeFlight Mobile needs access to GPS data. This data can be obtained from the built-in GPS receiver of the device or an external Bluetooth or Wi-Fi GPS receiver.

If multiple GPS sources are available, Track Logs will use GPS data according to the GPS priority logic. When recording a track log, the GPS source providing data for the moving map is the same source used to record the track log.

27.2.1 External GPS

Track Logs can use external Bluetooth or Wi-Fi GPS data. Access to external GPS data does not rely on iOS Location Services setting. When a track log is recorded while connected to an external GPS, the track log is still considered to be recorded by ForeFlight Mobile. The external device simply provides ForeFlight Mobile with GPS data.

Wi-Fi GPS Devices

GPS data delivered over Wi-Fi can only be accessed when ForeFlight Mobile is actively being used. This limitation leads to two possible scenarios if ForeFlight Mobile is closed while recording:

- **Wi-Fi only iPad**: If recording a track log with a Wi-Fi only iPad, the track log will stop two minutes after being closed as GPS data is no longer accessible.
- **Cellular-Capable iPad or iPhone**: If recording a track log with a cellular-capable device, the track log will revert to using built-in GPS data after external GPS data is no longer accessible.

> **IMPORTANT:** If recording track logs with an external Wi-Fi GPS, ForeFlight Mobile should remain open for the entirety of the flight. GPS data cannot be accessed via Wi-Fi while ForeFlight is inactive.

> **NOTE:** A change to the GPS source can result in erratic GPS data.

Bluetooth GPS Devices

External Bluetooth GPS data can accessed when ForeFlight Mobile is in the background. The limitations that apply to Wi-Fi GPS devices do not apply to Bluetooth.

27.2.2 Built-In GPS

Access to the iPhone or iPad built-in GPS relies on the iOS Location Services setting being enabled.

To record track logs while ForeFlight Mobile is in the background, ForeFlight Mobile Location Services setting must be set to **Always**. If the Location Services setting is set to **While Using the App**, Track Logs will not be able to access the built-in GPS data while ForeFlight is inactive.

> **NOTE:** Wi-Fi only iPads do not have built-in GPS and cannot use GPS data from a hotspot-enabled iPhone.

27.2.3 Background Recording

Track logs recorded while using the built-in GPS of the device or a Bluetooth GPS can record while ForeFlight Mobile is in the background. Track logs recorded with a Wi-Fi only iPad and external Wi-Fi GPS cannot be recorded while ForeFlight Mobile is inactive.

27.3 Recording Track Logs

There are five methods for recording a track log. The use of one method does not prohibit others. Multiple devices can simultaneously record a track log, which has the potential to generate multiple track logs.

Track log recording methods are listed below and described throughout this section.

- Automatic track log recording with ForeFlight Mobile.
- Manual track log recording with ForeFlight Mobile.
- Saving a Breadcrumb as a track log.
- Recording a track log with a Flight Data Recorder (FDR).
- Recording a track log with a Garmin G1000.

27.3.1 Automatically Recording Track Logs

Automatically recording a track log is the most common way to record. With this method, ForeFlight Mobile automatically starts recording after takeoff and stops after landing. Track logs that are automatically started can be manually stopped and vice versa.

Enabling Automatic Recordings

To enable this feature, tap **More ➔ Settings** and scroll to the Track Log section. Verify **Enable Auto Start/Stop** is toggled on.

Auto-Start Criteria

In order to detect a takeoff and start a track log, the following must be met:

- ForeFlight Mobile must remain open with available GPS data during the takeoff phase.
- Acceleration must be detected and groundspeed must exceed 60 knots.

> **NOTE:** If ForeFlight is opened after takeoff, the auto-start feature will not work.

When started automatically, the track log start time reflects when ForeFlight Mobile was opened prior to takeoff (up to 30 minutes). This time is intended to account for taxiing.

If the start (or end time) is incorrect as a result of using automatic recording, it can be edited. See Trimming Track Logs for additional information.

Verifying Automatic Starts (Flight Timer)

There are no notifications when ForeFlight Mobile automatically starts a track log. To verify that a track log recording has started, reference the Flight Timer.

> **IMPORTANT:** If the Flight Timer is not active, ForeFlight Mobile is not recording a track log.

Flight Timer

When a track log recording is in progress, either from automatic or manual initiation, the Flight Timer displayed on the Maps view shows the duration of the current recording.

The timer is displayed in the lower left corner of the Maps view below the Track Log **REC** (record) button.

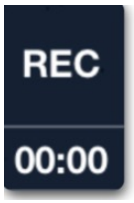


Figure 27-5. Flight Timer

Auto-Stop Criteria

Track logs are automatically stopped 15 minutes after a landing is detected. This is true for recordings that are started automatically or manually. A landing is defined as the portion of flight where:

- groundspeed slows from above 60 knots to less than 40 knots, and
- height AGL descends below 250 feet.

In addition to landing auto-stop, track logs also automatically stop when either of the following conditions exists:

- ForeFlight Mobile is closed and no GPS data is received for 2 minutes, which is a typical scenario when using a Wi-Fi only iPad and Wi-Fi based external GPS. In such a case, GPS data from Wi-Fi cannot be accessed as ForeFlight Mobile is inactive.
- A landing is not detected and groundspeed is below 40 knots for two minutes.

> **NOTE:** Once a track log has stopped, it cannot be manually resumed. Additionally, track logs cannot be merged.

Auto-Stop Exceptions

If another takeoff is detected within 15 minutes of a landing, the track log is resumed. This scenario is intended to account for touch-and-go and full-stop taxi back landings.

> **NOTE:** To record multiple legs with stops exceeding 15 minutes as a single track log, disable automatic recording and manually start and stop the track log.

27.3.2 Manually Recording Track Logs

Track logs can be manually started and stopped by tapping the **REC** button on the Maps page.

27.3.2.1 Enabling the REC Button

The REC button is enabled by tapping **Map Settings ➔ Track Log Record Button** or by tapping **More ➔ Settings**, scrolling to the Track Log section, and tapping **Enable Start/Stop Control**.

27.3.2.2 Manual Recordings with Auto Start/Stop Enabled

Manually starting or stopping a track log is not affected by the automatic track log recording feature. Track logs can be manually started and stopped with automatic track log recordings enabled or disabled.

To manually start a track log recording

1. Open the ForeFlight Mobile Maps page.
2. Tap the **REC** button.

   The timer starts and the REC button is highlighted blue to indicate that the recording is active.

Unlike automatic recordings, no time is added to a track log that is manually started or stopped.

To manually stop a track log recording

1. Open the ForeFlight Mobile Maps page.
2. Tap the **REC** button.

   A new track log is created for every recording in excess of one minute.

27.3.3 Recording with a Flight Data Recorder

Flight data recorders (FDR)s are external devices that record GPS and AHRS flight data. As depicted in the image below, the ForeFlight Mobile **More** ➔ **Devices** view is used to import track logs that were recorded with an FDR.

Recording a flight with an FDR does not prohibit ForeFlight Mobile from recording a track log or saving a breadcrumb. Because the two operate independently it is possible to record multiple track logs for the same flight.

ForeFlight Mobile supports the following FDRs:

- **Sentry Plus**
- **Stratus 2/2S/2i/3/3i**.

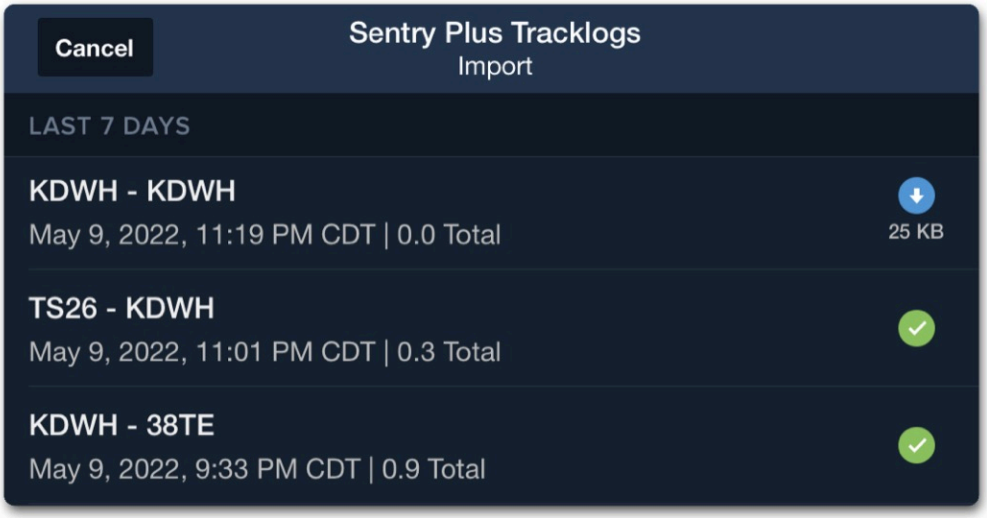


Figure 27-6. Sentry Plus FDR Track Logs

27.3.3.1 Sentry Plus Flight Data Recorder

The **Sentry Plus** Flight Data Recorder automatically captures track, altitude, attitude, groundspeed, and g-load data from **Sentry Plus** every second (1 Hz) for *every* flight.

The flight data recorder automatically starts recording continuously when **Sentry Plus** is powered on until it is powered off.

To import **Sentry Plus** Track logs:

1. Open ForeFlight Mobile while connected to **Sentry Plus** and select **More ➔ Track Logs**.
2. Tap the **Import** button in the upper toolbar.
3. Tap **From Sentry Plus.**
4. Tap the blue **download** button next to a track log to import it.

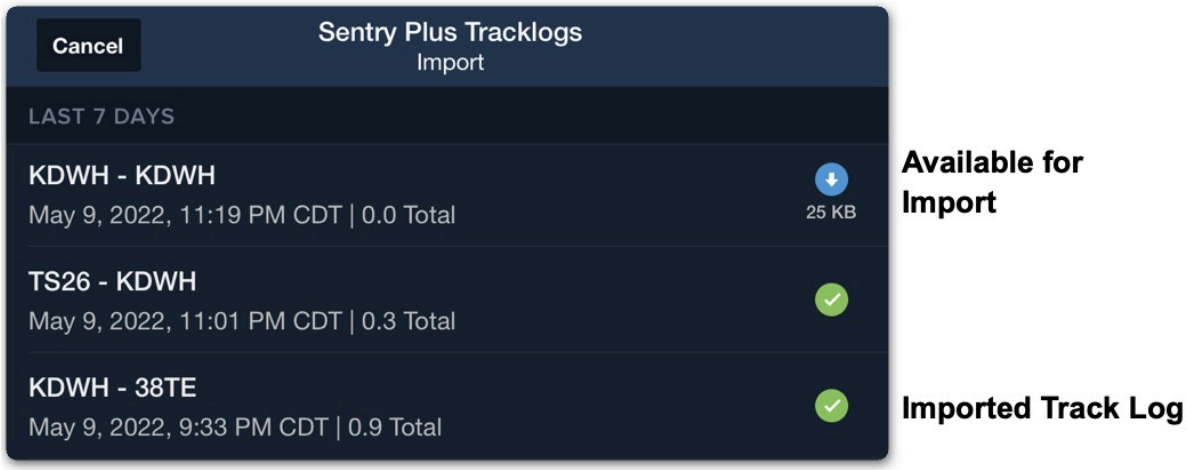


Figure 27-7. Imported and Available Track Logs

Track logs that have already been imported to ForeFlight Mobile display a green checkmark. Track logs that have not been imported display a blue download button and an import file size. **Sentry Plus** track logs can be imported to multiple ForeFlight Mobile accounts.

See foreflight.com/sentry-guide for additional information or refer to the **Sentry Pilot's Guide** in-app by selecting **Documents ➔ ForeFlight ➔ Sentry ➔ Sentry Pilot's Guide**.

27.3.3.2 Stratus Flight Data Recorder

The Stratus Flight Data Recorder automatically captures up to 20 hours of track, altitude, attitude, and groundspeed data at a rate of five times per second (5 Hz). Flights are automatically recorded any time the unit is powered on and movement is detected. Track logs are stopped when the unit is powered off. Older track logs are automatically overwritten as new flights are completed.

27.3.3.3 Status Flight Data Recorder Settings

The flight data recorder is enabled by default. To disable the Stratus Flight Data Recorder:

1. Go to **More ➔ Devices** and tap the Stratus device tile.
2. Scroll to the Flight Data Recorder section and toggle the **Enabled** switch off.

27.3.3.4 Auto-Detect Segments

When enabled, the Auto-Detect Segments setting in **More ➔ Devices ➔ Stratus** stops track log recordings when a full-stop landing is detected. New recordings are started when a takeoff is detected.

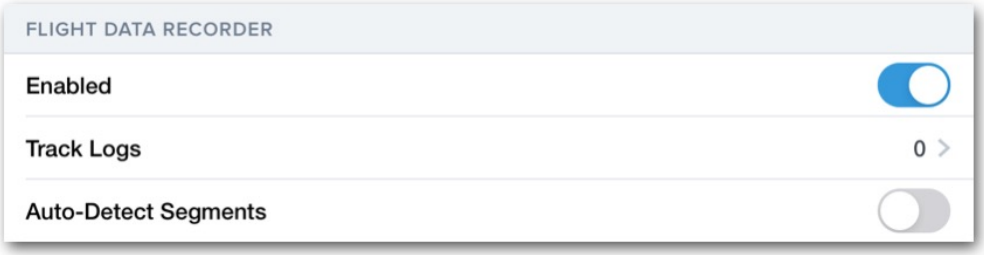


Figure 27-8. Stratus Flight Data Recorder Settings

> **NOTE:** ForeFlight Mobile can record track logs independently of the Stratus Flight Data Recorder. Importing flights from Stratus may results in duplicate track logs.

27.3.3.5 Viewing Stratus Track Logs

Track logs recorded to Stratus are not automatically downloaded to ForeFlight Mobile. To view track logs, they must first be downloaded. To download Stratus track logs:

1. Go to **More ➔ Devices** and tap the **Stratus Device Tile**.
2. Scroll to the Flight Data Recorder section and tap **Track Logs**. The number of track logs available for download are displayed on this row.

3. Locate a flight and tap the **Cloud** icon to download it from Stratus.

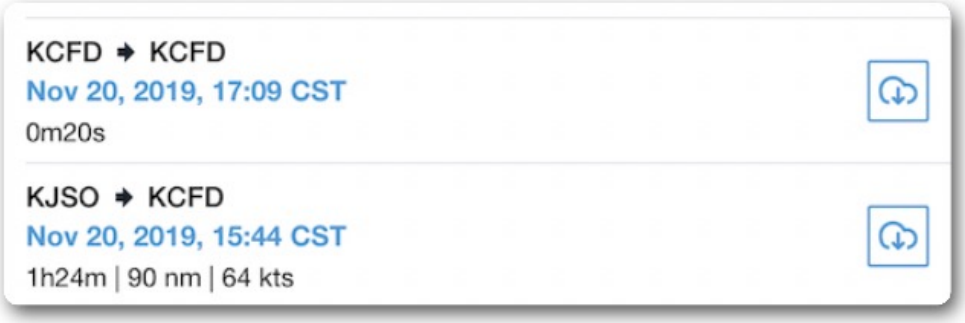


Figure 27-9. Stratus Track Logs

4. Once downloaded, select **More ➔ Track Logs** to view the flight.

27.3.4 Importing G1000 Track Logs

Properly configured Garmin G1000s can record track logs to a CSV file. These files can be transferred to an SD card using the G1000 top card slot. Track logs that have been saved to an SD card can be imported to ForeFlight Mobile by using a computer or an SD card reader. For a video demonstration, see G1000 Track Log Import.

27.3.4.1 Importing G1000 track logs with an SD card reader

To import G1000 track logs using an SD card reader like the one pictured below, follow these steps:

1. Insert the SD card with G1000 track logs into the reader.



Figure 27-10. SD Card Reader

2. Plug the reader into the iOS device Lighting or USB-C port.
3. Open ForeFlight Mobile and tap **More ➔ Track Logs**.

4. Tap the **Import** button in the upper toolbar.
5. Tap **From G1000 (CSV File)**.
6. Locate and choose the SD card using the iOS Files view.
7. Tap the **Track Logs** folder.
8. Select the track logs to import.

27.3.4.2 Saving G1000 track logs using a computer

Using a computer, track logs can be transferred from the SD card to ForeFlight Mobile. This method requires the track logs to be saved to a cloud drive that is accessible from both a computer and an iOS device.

For example, if the computer has access to DropBox, iCloud, or Google Drive, the files can be saved to one of these directories and later accessed and imported with ForeFlight Mobile. Follow the steps below to import track logs using a computer:

1. Insert the SD card into a computer that has access to a cloud drive.
2. Copy the track log folder to the drive.
3. Open ForeFlight Mobile and tap **More ➔ Track Logs**.
4. Tap the **Import** button in the upper toolbar.
5. Tap **From G1000 (CSV File)**.
6. Locate and tap the cloud drive, folder, or directory where the track logs are saved using the iOS Files view (e.g., DropBox).
7. Tap the **Track Logs** folder and select the track logs to import.
8. If importing a G1000 track log from a new aircraft, a prompt will appear and is used to enter the tail number to associate with the track log. Future imports from the same aircraft will use the same tail number and will not display the prompt.

9 After importing G1000 track logs, a “NEW” flag is displayed until the Track Logs page is navigated away from.

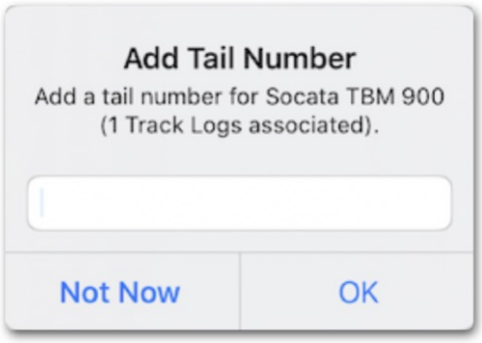


Figure 27-11. Add Tail Number Prompt

27.3.4.3 Garmin G1000 Import Errors

If ForeFlight Mobile is unable to import a G1000 track log, a pop-up appears with an option to **Dismiss** or **Export** an error report. The error report contains the original CSV file and a text file with an explanation of the errors.

Using a program that is compatible with CSV files (e.g., Microsoft Excel), the track log can be edited according to the error report and an import can be reattempted.

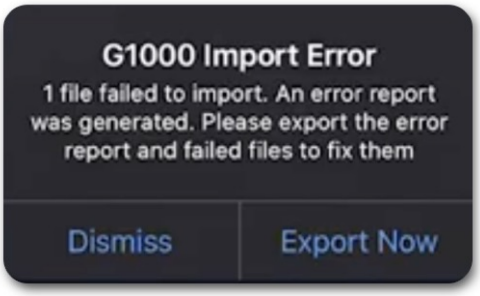


Figure 27-12. Error Pop-up

27.3.5 Marked Positions in Track Logs

Performance plan holders can record Marked Positions as part of track logs. See the Marked Positions Support Video for additional information.

If marked positions are dropped during a flight while a track log is in progress, those marked positions are saved in the track log recording.

Likewise, if marked positions are dropped during a flight with a breadcrumb, and that breadcrumb is converted to a track log, the track log recording will also include the marked positions.



Figure 27-13. Track Log with Marked Position

When a track log containing marked positions is exported as a KML or CSV file, the file includes the marked positions and can be displayed in third-party apps.

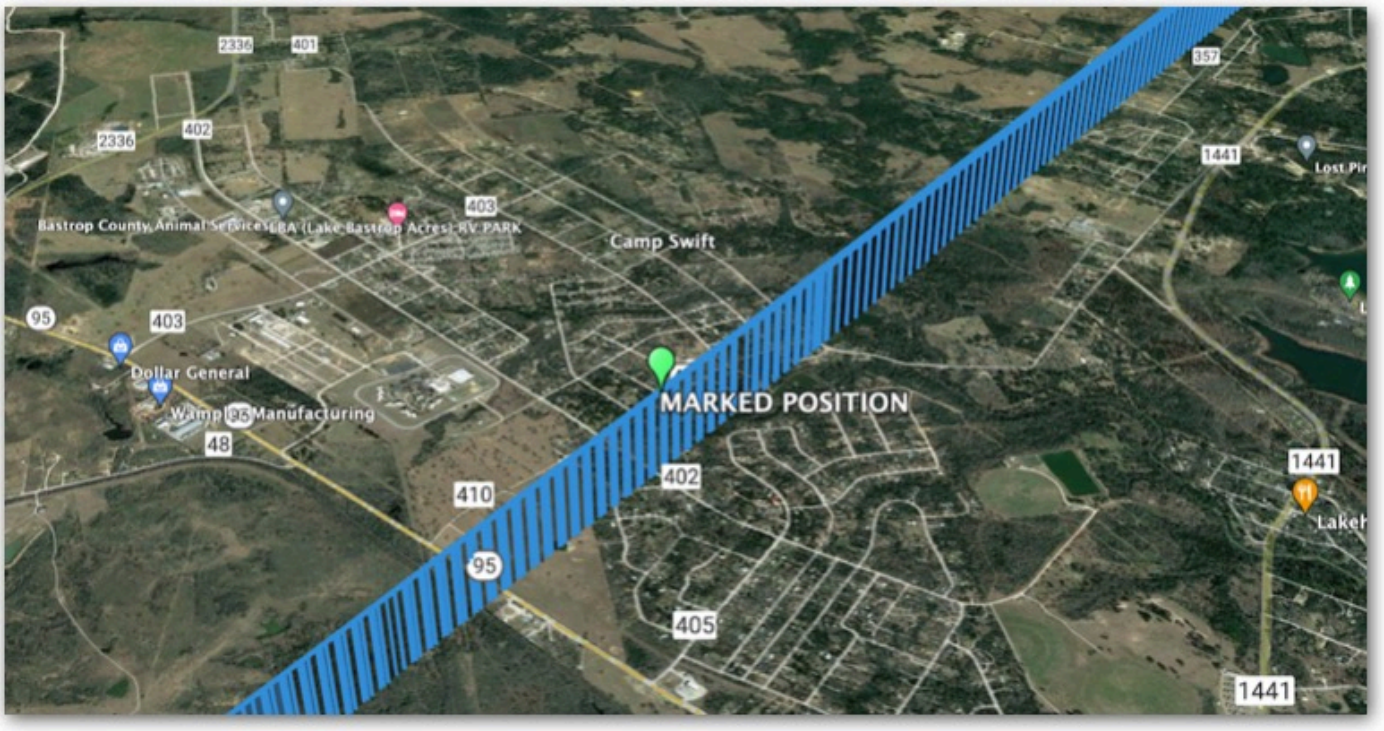


Figure 27-14. KML File with Marked Position in Google Earth

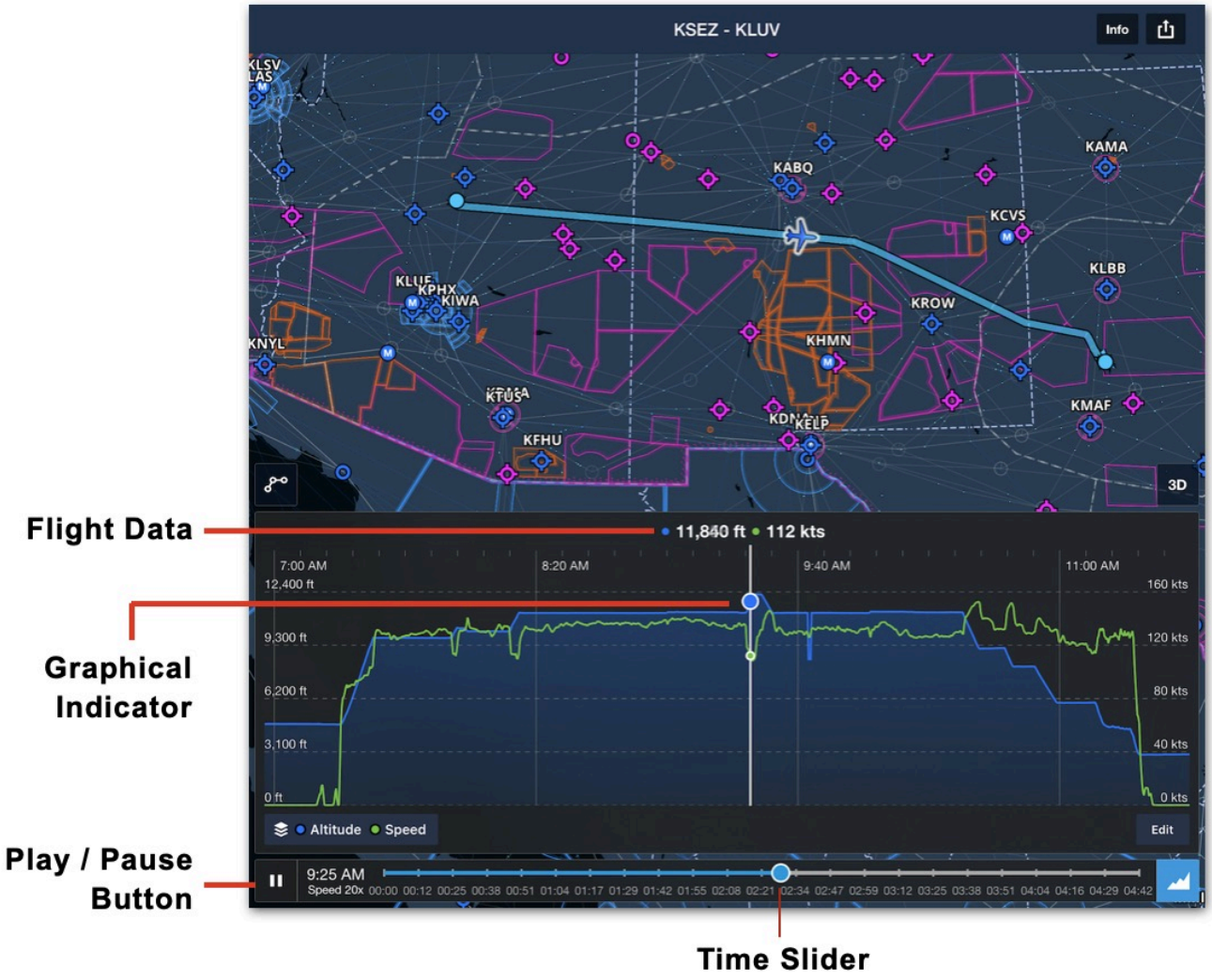
27.4 Track Log Review

Track Log Review is an integrated debriefing tool used to view and compare multiple data types simultaneously. To review a Track log, select **More ➔ Track Logs** and tap a Track Log Summary. The selected track log flight path is displayed on the Interactive Map and flight data is displayed on the Track Log Graph. For a video demonstration, see Track Log Review.

27.4.1 Animating Track Logs

Track logs can be reviewed and paused by tapping the **Play / Pause** button. When animating a track log, a thin vertical line appears on the Graph with two color-coded indicators that graphically depict the flight data at that moment. Above the vertical line, the actual flight data readout for that moment is displayed.

The airplane icon, flight data, graph, and flight time are updated dynamically at 20 times (20x) the actual speed of the flight. With the exception of scrubbing, it is not possible to animate track logs at a speed other than 20x.



27.4.1.1 Track Log Scrubbing

Scrubbing a track log is a method for manually animating across a track log timeline and can be used to animate the track log at a speed other than 20x.

To scrub the track log, drag the blue dot on the time slider left or right. Alternatively, tap *and hold* a finger on the Graph. Without lifting the finger, slide it left or right.

If a track log is being animated and scrubbing is initiated, the animation will resume at the point where the finger was lifted.

27.4.1.2 Track Log Graph Zoom

The Graph can be zoomed to reveal more detail. To zoom the Graph, place two fingers on the Graph and separate them.

When zoomed in, not all portions of the flight are visible in the Graph. The portions of the flight path that are not visible are changed to a thin, orange path on the map and marked with Start/End points. To view the hidden portions, drag a finger left or right across the Graph.



Figure 27-15. Track Log Graph Zoom

27.4.2 Track Log Info

Text-based track log information is available by tapping the **Info** button in the upper toolbar. When tapped, the **Info** button reveals a pop-up with up to six sections. Some fields within the pop-up can be edited. Track log definitions are found below.

Summary Section

The Summary section contains the following fields, many of which are editable.

> **Name**
>
> An editable field that describes the track log. By default, the Name is the Start and End point separated by hyphen.

Tail Number

An editable field that is automatically populated using the following logic:

- If ADS-B ownship is detected during the flight, the ownship aircraft is assigned.
- If no ownship is detected, the track log start time is compared to planned flights. If a flight with a similar estimated departure time is found, the aircraft from the flight is assigned.
- If ownship is not detected and no flights are planned, the default aircraft profile is assigned.

Date

An automatically populated non-editable field based on the track log start time.

Start

The track log starting location and is automatically derived by comparing the starting coordinates to nearby airports, seaports, and heliports. If no airport, seaport, or heliport is nearby, the starting coordinates are displayed.

End

The track log ending location and is automatically derived by comparing the ending coordinates to nearby airports, seaports, and heliports. If no airport, seaport, or heliport is nearby, the ending coordinates are displayed.

Pilot Name

An optional, editable field for recording the name of the pilot. The pilot name is not forwarded to associated logbook entries.

Recorded On

A non-editable field that indicates the device that provided the track log with GPS data when the track log was started (e.g., Sentry, Garmin Connext, iPad).

Imported From

A non-editable field that indicates if the track log was imported from a flight data recorder (e.g., Sentry Plus, Stratus, or Garmin G1000).

Metrics

The Metrics section is automatically calculated. Individual fields within this section are not editable. However, if a track log is trimmed, the Metrics section reflects the updates. Definitions for the Metrics section are found below.

> **Total Distance**
>
> The actual total distance flown.

> **Total Time**
>
> The total time between the start and end of the track log.

> **Flight Time**
>
> The time between detected takeoffs and landings.

> **Night Time**
>
> The total flight time between the end of evening civil twilight and the beginning of morning civil twilight.

> **All Landings**
>
> The number of day and night landings.

> **Average Ground Speed**
>
> The average groundspeed between takeoffs and landings.

Time

Fields within the Time section are not editable. However, if a Track log is trimmed, the times reflect the updates. Definitions for the Time section are found below.

> **Time Out**
>
> The start time of the track log in UTC.

> **Time Off**
>
> The first detected takeoff time of the track log in UTC.

> **Time On**
>
> The last detected landing time of the track log in UTC.

> **Time In**
>
> The ending track log time in UTC.

Logbook Entries

Track logs can be shared to the Logbook. Sharing a track log automatically populates fields within the Logbook entry. If a track log is shared to Logbook, the Logbook entries associated with the track log are listed in the Logbook Entries section. If the track log is not associated with a Logbook entry, this field is hidden.

Marked Positions

Marked Positions is an optional section that displays if Marked Positions have been added during the flight. Tap the Marked Positions listed in this section to view its details or to make edits.

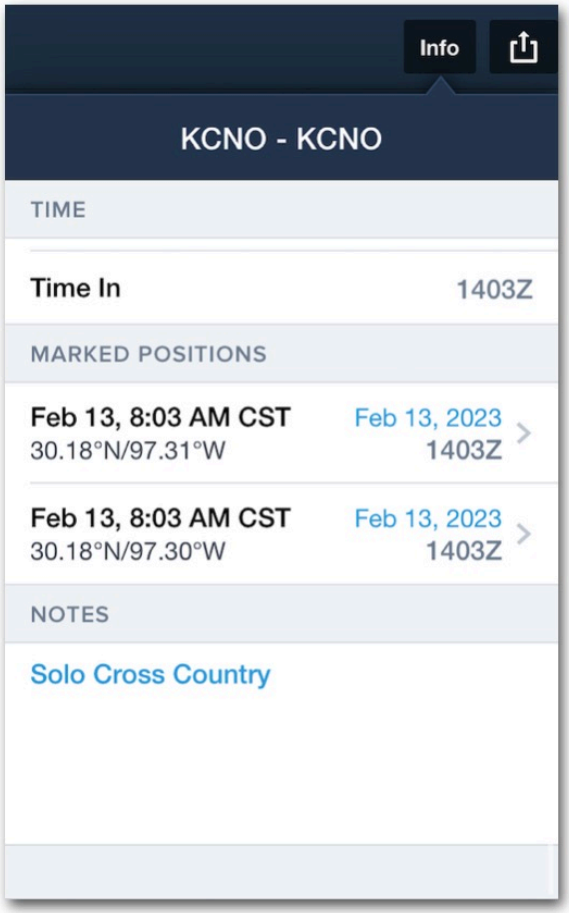


Figure 27-16. Marked Positions and Notes

Notes

The Notes section shows an optional field for recording comments. Notes are not forwarded to the Logbook if the track log is associated with a logbook entry.

27.5 Track Log 3D Review

Track Log 3D Review combines high-resolution terrain, aerial imagery, and track log data to help pilots debrief their flights. 3D Review is included with all **Performance** plans. To review a flight in 3D, tap the **3D** button on the Track Log Map. For a video demonstration, see Track Log 3D Review.

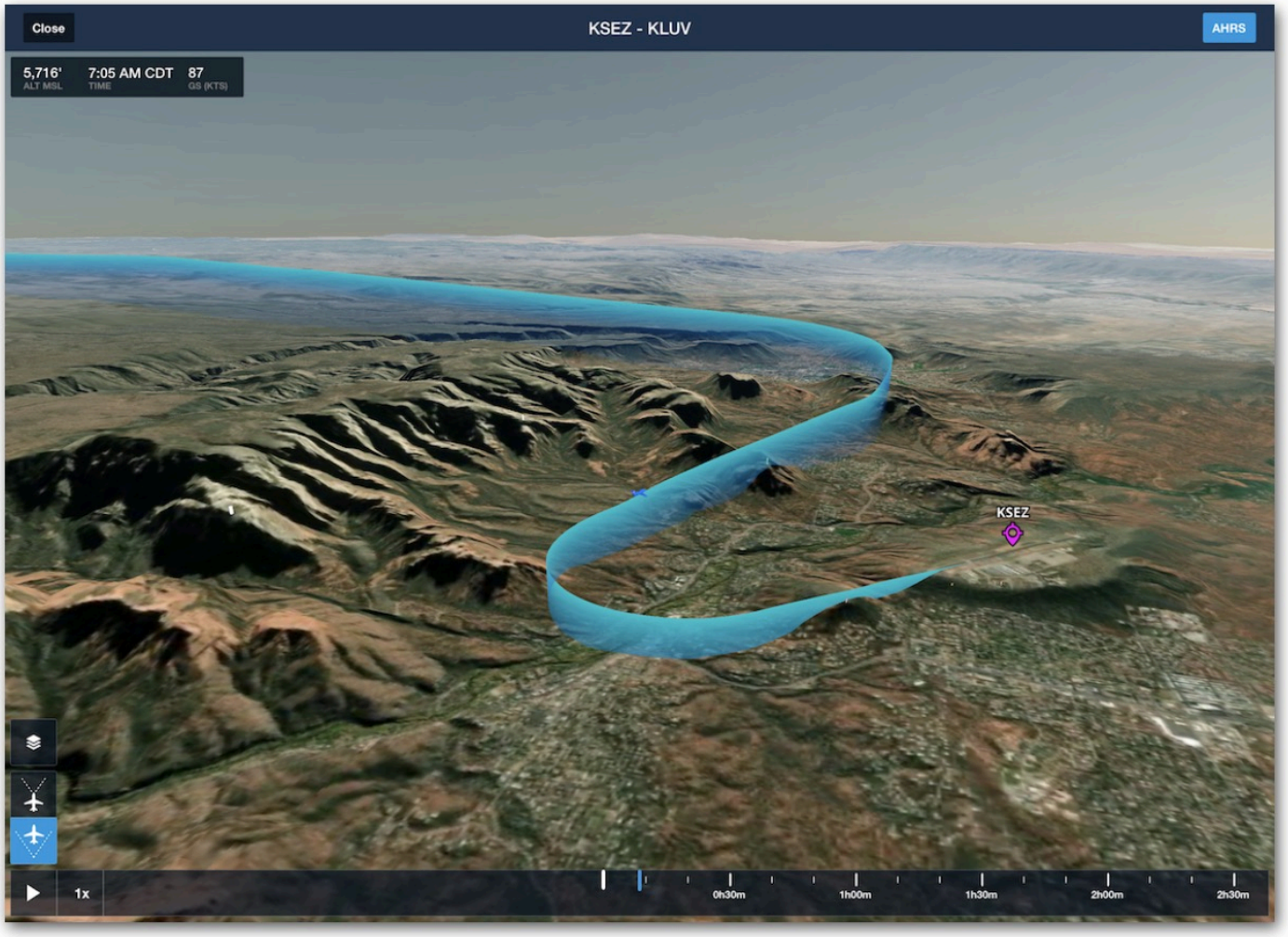


Figure 27-17. Track Log 3D Review

27.5.1 Design

The view consists of an interactive map, a flight path curtain, buttons for controlling the view, and an interactive time slider. The view supports standard touch gestures, two viewing modes, and is always centered on the airplane.

AHRS Button

The **AHRS** button in the upper toolbar is enabled by default and causes the pitch and bank to reflect what was recorded in flight. When disabled, the 3D airplane remains straight and level when the track log is animated.

If a track log is recorded without an external AHRS device or a breadcrumb is converted to a track log, the track log will not contain pitch and bank data, and the 3D airplane will only show straight and level.

Flight Details

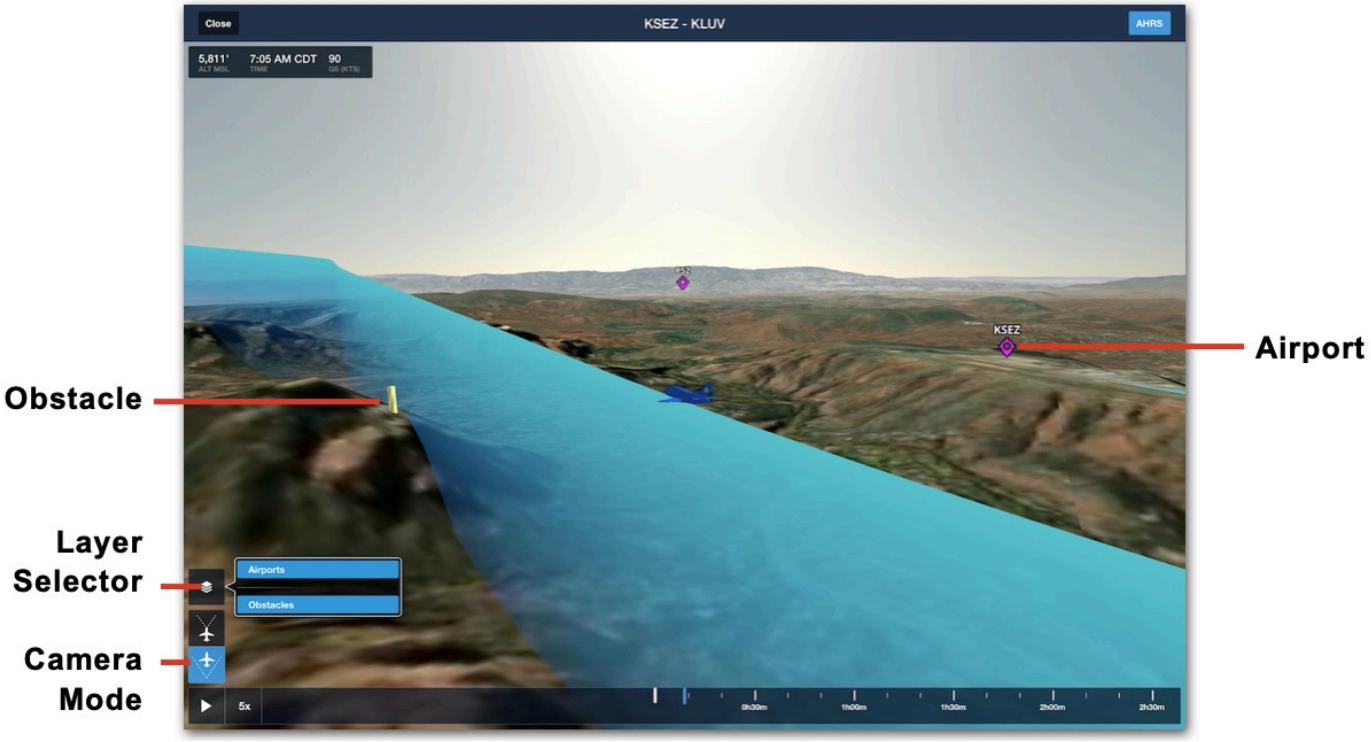
The window in the upper-left corner displays the GPS altitude, groundspeed, and local time of the 3D airplane. As the track log is animated, these values are dynamically updated.



Figure 27-18. Flight Details

Layer Selector

The Track Log 3D View can display airport and obstacle icons. Tap the **Layer Selector** to toggle these layers on or off. Airport icons can be tapped to reveal the Airport Sidebar. The Airport Sidebar in the Track Log 3D View is similar to the Sidebar available on the Maps view.



27.5.2 3D Review Camera Modes

Track Log 3D Review supports first- and third-person perspectives. Use the buttons in the lower left corner to change perspectives. When in third-person, touch gestures cause the view to rotate about the airplane.

Glance Mode

In first-person perspective, touch gestures enable Glance Mode, a zoomable, 360-degree view from the perspective of the cockpit. Once Glance Mode is enabled, a circular field of view indicator appears to show the camera orientation relative to the ground track and horizon.

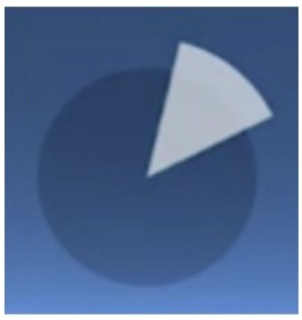


Glance Mode View Indicator

The view indicator slice shortens as the view tilts down, lengthens as the view tilts up, narrows as the view zooms in on a point in the distance, and widens as the view zooms back out to normal.



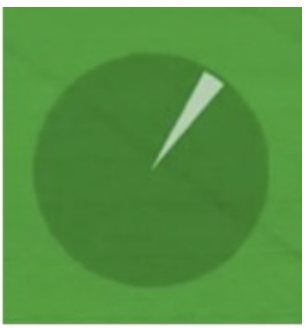
Tilted Down



Tilted Up



Zoomed Out



Zoomed In

Exiting Glance Mode

To exit Glance Mode, tap the view indicator. Glance Mode automatically exits if no touch gestures are made for six seconds, as indicated by a radial timer.



Figure 27-19. Radial Timer

27.5.3 Time Slider

An interactive time slider at the bottom of the view can be used to locate a specific moment during the flight. Drag the time slider left or right or tap the **Play / Pause** button to animate 3D Review.

3D Review can be animated at 1, 3, 5, 10, or 20 times the actual speed by tapping the current speed selection next to the Play / Pause button.



Figure 27-20. Time Slider

27.6 Trimming Track Logs

Track logs that are automatically started and stopped add time at both ends of the recording to serve as an estimate of taxi time. Because the estimate may not accurately reflect the actual taxi time, the beginning and end of the track log can be trimmed. For a video demonstration, see Trimming Track Logs.

Trimming a track log is non-destructive. If a track log is trimmed, the data is not deleted. Trimming can be undone by editing the track log and restoring the trimmed portions. Track logs edited on one device are edited on all other devices signed into the same account.



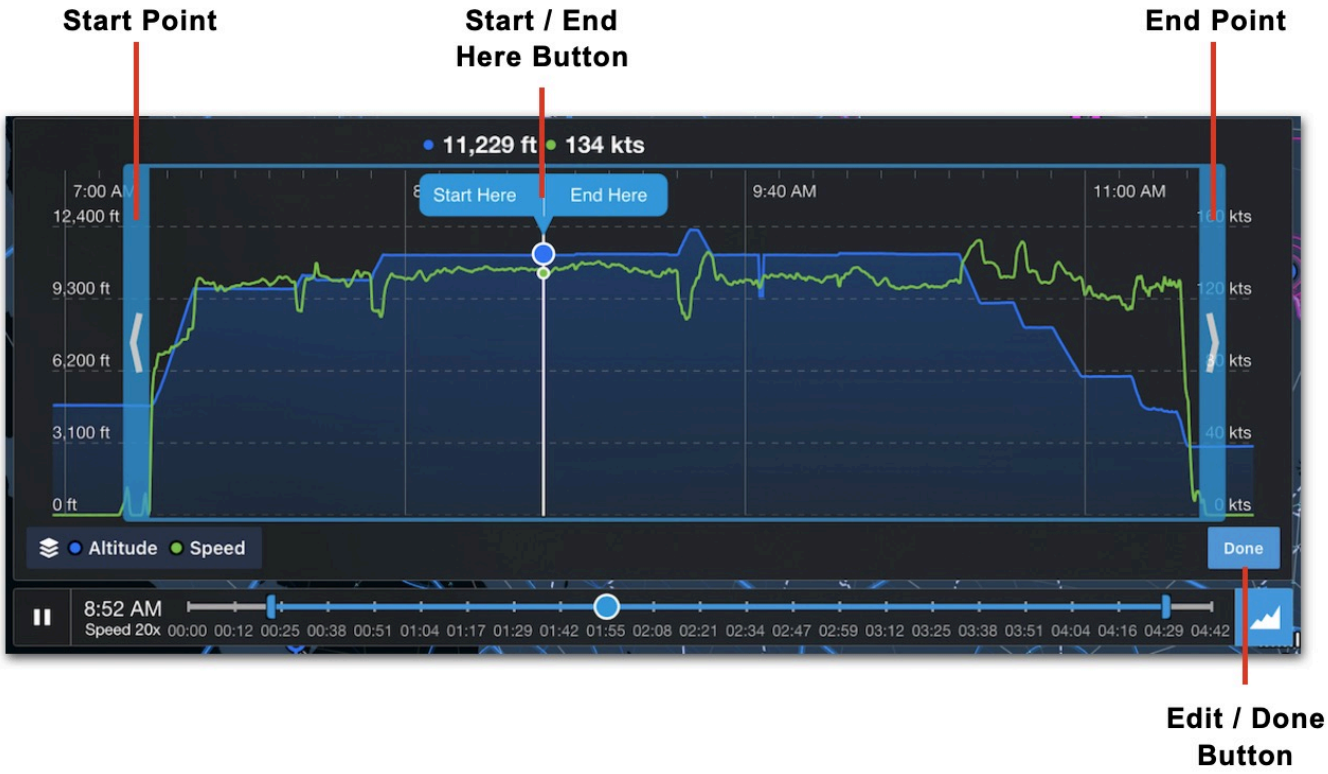
Figure 27-21. Track Log Trimming

27.6.1 How to Trim a Track Log

To trim a track log, follow the steps below:

1. Select the track log to be edited and ensure the Graph is displayed.
2. Tap the **Edit** button. When in Edit Mode, the graph responds to standard touch gestures.
3. In Edit Mode, perform one or more of the following:
   - Tap and drag the blue bars to set new start and end points.
   - Animate the track log. Tap the **Start Here** or **End Here** button as appropriate.
   - Using the time slider, locate a start or end point. Tap the **Start Here** or **End Here** button as appropriate.
   - Tap and Hold the Graph. Drag a finger to locate a start or end point. Tap the **Start Here** or **End Here** button as appropriate.

4 When the correct start and end points have been set, tap the **Done** button.



In Edit mode, the trimmed portion of the map flight path is colored gray, and a blue bar denotes the new start or end point. After tapping **Done**, the trimmed portion is removed from the map and graph.



27.6.2 Edited Track Logs

After a track log has been trimmed, the fields within Track Log Info are automatically updated. If a track log is associated with a Logbook Draft Entry, trimming the track log automatically updates the auto-filled fields in the Logbook entry. Sending a trimmed track log to Logbook will adjust the auto-filled fields to match the new start and end times.

27.7 Combining Track Logs

Track logs cannot be combined, however multiple track logs can be added to a single logbook entry. Pilots wanting to record multiple legs as a single track log should follow one of the recommended practices.

Manually Record Track Logs

When the Track Log Auto Start/Stop setting is enabled, track logs stop recording when a landing is detected and no takeoff occurs within the next 15 minutes. Once a track log has stopped, it is not possible to resume the recording.

To record a flight with stops that exceed 15 minutes, pilots should disable the Track Log Auto Start/Stop setting and manually start and stop their flights using the **REC** button.

Save Breadcrumbs as Track Logs

For flights with extended stops between legs, saving a breadcrumb as a track log is a recommended alternative. Unlike track logs that are automatically recorded, breadcrumbs persist on the map for up to four hours after a flight. For more information, see Breadcrumbs.

27.8 Deleting Track Logs

To delete a single track log, swipe from right to left across the Track Log Summary.

To delete multiple track logs at once:

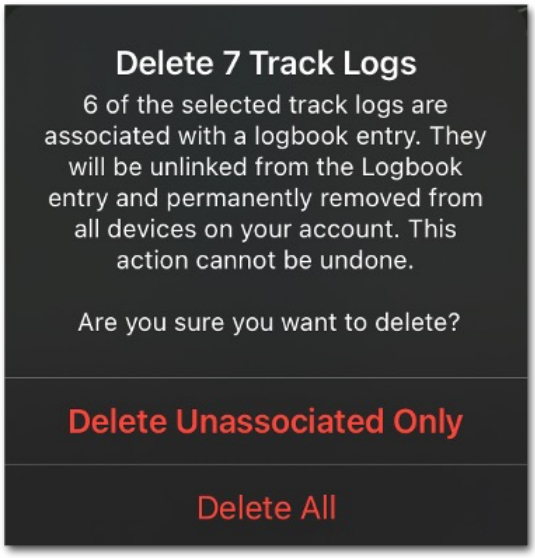
1. Tap **Select** in the upper toolbar.
2. Select the track logs to be deleted or tap **Select All**.
3. Tap **Delete**.

27.8.1 Track Logs with Associated Logbook Entires

If a track log with an associated logbook entry is selected, a pop-up warns that the track log will be removed from the logbook entry. Deleting a track log does not also delete the associated logbook entry.

If multiple track logs are selected and some are associated with logbook entries and others are not, a popup provides two options (see image below).

- **Delete Unassociated Only** deletes the track logs that are *not* associated with a logbook entry.
- **Delete All** deletes all selected track logs.



WARNING: When a track log is deleted, it cannot be restored. Track logs deleted on one device will be removed from the other devices on the account.

27.9 Sharing Track Logs

Track logs can be shared with a Logbook, friends and family, and third-party apps. Track log recipients do not need a ForeFlight Mobile account to view shared track logs. Track logs can be shared as a KML, GPX, CSV, or web links.

> **NOTE:** Track logs cannot be shared in a format that will allow them to be imported to another ForeFlight Mobile account.

27.9.1 Logbook

Sharing a track log with Logbook creates a new logbook entry with the track log info fields (e.g., Total Time, Night Time, Time Out, Time In) automatically populated in the Logbook. Additionally, the track log becomes associated with the Logbook entry and can be accessed from the Logbook view. Editing a field that was automatically populated by a track log (e.g., Total Time) does not edit the original track log.

When a track log is associated with a logbook entry, a Logbook Badge is displayed in the track log summary. If the track log is associated with more than one logbook entry, a number indicating the number of associations is displayed next to the badge.

27.9.2 Mail

There are two options when sharing a track log via Mail:

- **KML file** shares an attachment that can be opened with mapping apps, including ForeFlight Mobile. For more information about KML files, see Custom Content.
- **Web link** shares a link to open the track log on ForeFlight Web. The track log webpage can overlay the track log on the Aerial or Street Map. When viewing a track log in ForeFlight Web, the download options in the upper toolbar allow the track log to be downloaded as a KML or GPX file.

27.9.3 ForeFlight.com

Sharing a track log to ForeFlight.com opens the ForeFlight Web Track Log view using the iOS device default web browser. The ForeFlight Track Log webpage can overlay the track log on the Aerial or Street Map. The download options in the upper toolbar allow the Track log to be downloaded as a KML or GPX file.

27.9.4 OPEN KML IN …

The OPEN KML IN … sharing option opens the Apple share menu. Apps that are installed on the device and capable of importing a KML file are displayed. Tap the app to import the KML file. ForeFlight does not appear in the list of apps as it is the app sharing the file.

27.9.4.1 Sending a Track Log to the Maps View

Track logs cannot be sent directly to the ForeFlight Mobile Maps view. To see a track log on the Maps view, it must first be shared as a KML file then imported with ForeFlight Mobile as a Custom Map Layer. To view a track log on the map, follow the steps below.

1. Open ForeFlight Mobile and select **More → Track Logs**.
2. Select the desired track log from the list to view it on the map.
3. Tap the **Send To** button in the upper toolbar and select one of the following:
   - **Mail → KML file**
   - OPEN KML In...

Emailed KML File

If Mail was selected, follow the steps below:

1. Email the KML file to an address accessible from the iOS device.
2. Open the Mail app, select the email, and tap the KML attachment.
3. After tapping the attachment, the KML text is opened in a new window. Tap the **Send To** button at the top of this view.
4. Select **ForeFlight** from the list of apps capable of importing KML files.
5. Select **Custom Content → Custom Map Layer** from the Import menu. Once a KML file has been imported, it can be viewed from the Maps view layer menu.

OPEN KML IN... Option

If OPEN KML IN… was selected, follow the steps below:

1. Select where to save the KML file (e.g., Files, Dropbox, Google Drive).

2. Open the file using the app where the file was saved.
3. Tap the **share** button.
4. Select **ForeFlight** from the list of apps capable of importing KML files.
5. Select **Custom Content ➔ Custom Map Layer** from the Import menu. Once a KML file has been imported, it can be viewed from the Maps view layer menu.

27.10 Track Logs on ForeFlight Web

ForeFlight on the Web can be used to review and share track logs. Much of the same functionality exists as with ForeFlight Mobile with the exception of the items discussed below.

> **NOTE:** Administrators of ForeFlight multi-pilot accounts have access to the track logs of all child accounts when using ForeFlight Web.

27.10.1 ForeFlight Web Track Log Map

The ForeFlight Web Track Log map overlays the selected track log flight path on top of the selected map. The Track Log map supports Quick Filters. The Track Log graph is not displayed with ForeFlight Web.

Click the **Charts & Layers** button to open the **Charts & Layers** and **Map Settings** menu. See Charts, Map Layers, and Map Settings for more information.

27.10.2 Track Log Download

ForeFlight Web can be used to download four types of track log files.

- **KML (Filtered)** files graphically depict track logs. Track log recorded with a Status Flight Data Recorder record five points per second. The KML (Filtered) download filters the data to one point per second so that the file can be displayed in common mapping files such as Google Earth. If the track log was recorded with a device other than a Stratus Flight Data Recorder, only one point per second is recorded and the file does not get filtered.
- **KML (Full)** files graphically depict track logs. With the exception of the Stratus FDR, all track logs record one data point per second. If the track log was recorded with a Stratus Flight Data Recorder, the KML (Full) file will include higher-resolution five points per second data.
- **GPX** is a widely used file format used to store and share GPS data. Many GPS-enabled devices and apps such as Google Maps can read GPX files.
- **CSV** is a text file with data points separated by commas. Spreadsheet programs, e.g., Microsoft Excel, can open this file type. A CSV file is useful for analyzing track log data. For additional information, see this support article.

27.10.3 ForeFlight Mobile Debrief

ForeFlight Debrief enhances Track Logs on the web with additional data and capabilities to provide a robust and interactive debriefing experience. ForeFlight Debrief requires a Premium subscription. Debrief adds:

- Flight segmentation
- Scoring
- Enhanced flight data and graphs
- Segment decluttering
- V-Speed and aircraft selection
- Approach V_{REF} and approach-type selection
- Debrief sharing.

To open Debrief, select a Track Log and click **Debrief**.

To toggle Debrief Score, click the gear icon, and then click the OFF/ON slider.

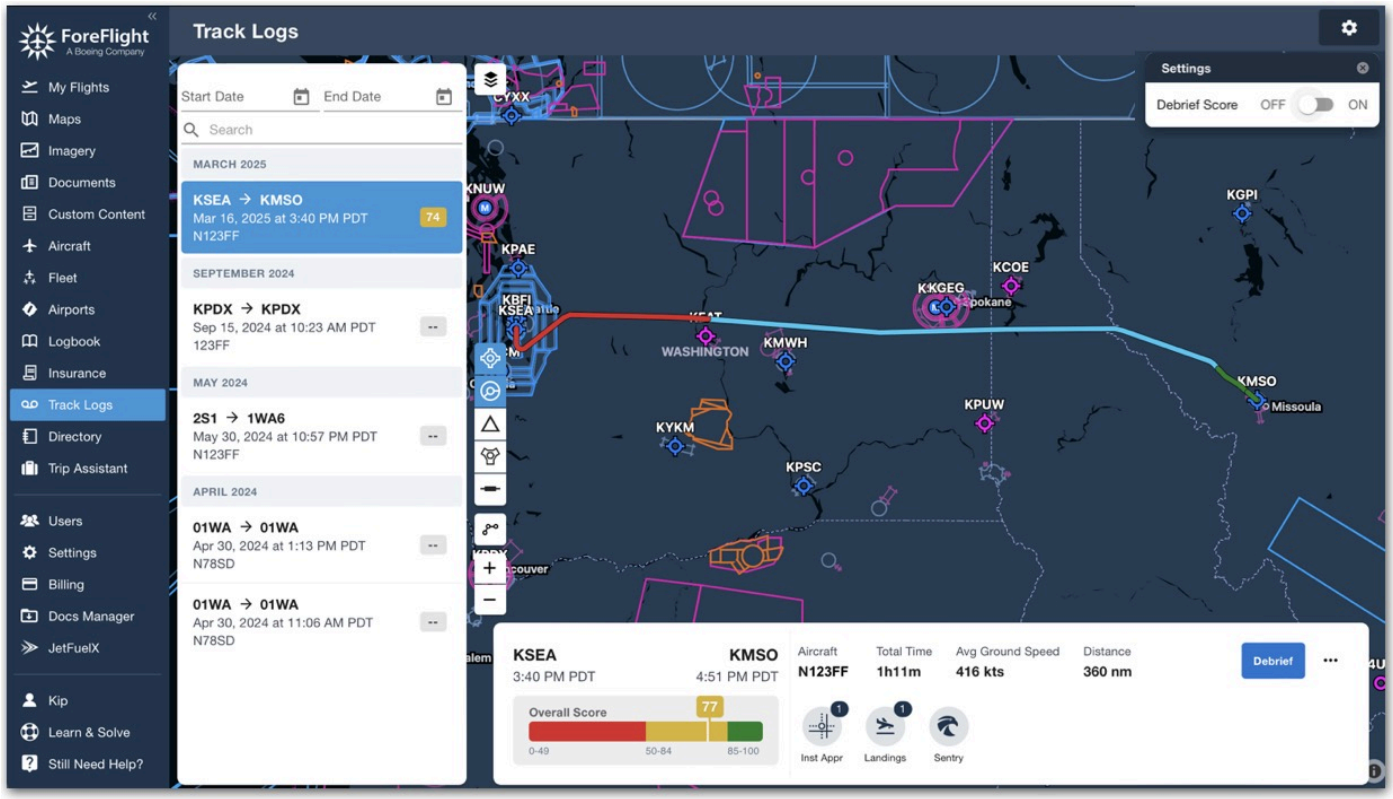


Figure 27-22. ForeFlight Debrief

27.10.3.1 Debrief Editor Menu

To open the Debrief Editor menu, click the **...** button in the Track Logs title bar.

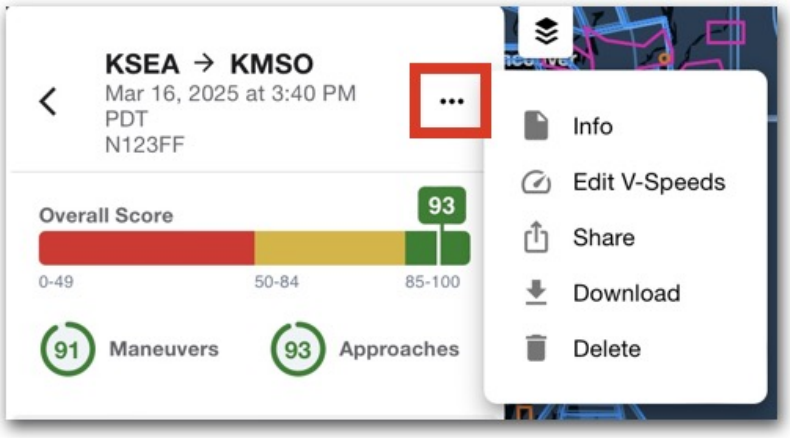


Figure 27-23. Debrief Editor Menu

- **Info** – Display and edit the flight information
- **Edit V-Speeds** – Edit aircraft type and set V-Speeds
- **Share** – Create a shareable link for the Debrief
- **Make Private** – Cancel a shared Debrief
- **Download** – Download KML, GPX, or CSV files
- **Delete** – Delete the track log across all devices.

27.10.3.2 Flight Segmentation

ForeFlight Mobile will automatically break down a Track Log into maneuvers, departures, approaches, and more, and are displayed in a segment list.

To expand or condense a segment, click the triangle to the left of the segment heading.

To jump to a segment or portion of a segment click on it.

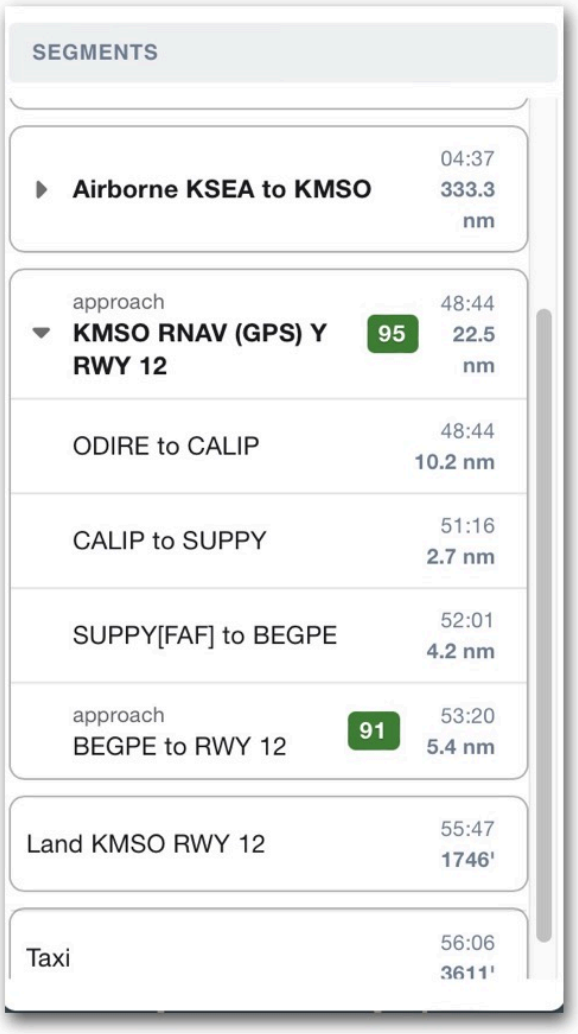


Figure 27-24. Segments

27.10.3.3 Enhanced Flight Data Graphs

A dual-axis profile graph is available that can be used to view

- Altitude (AGL) or (MSL)
- Airspeed (derived IAS)
- Ground speed
- Bank
- Pitch
- G Load.

To select the data displayed on an axis, click the desired data selector and then click a parameter from the drop-down menu.

To view the specific values at any point in the flight, drag the mouse over the graph.

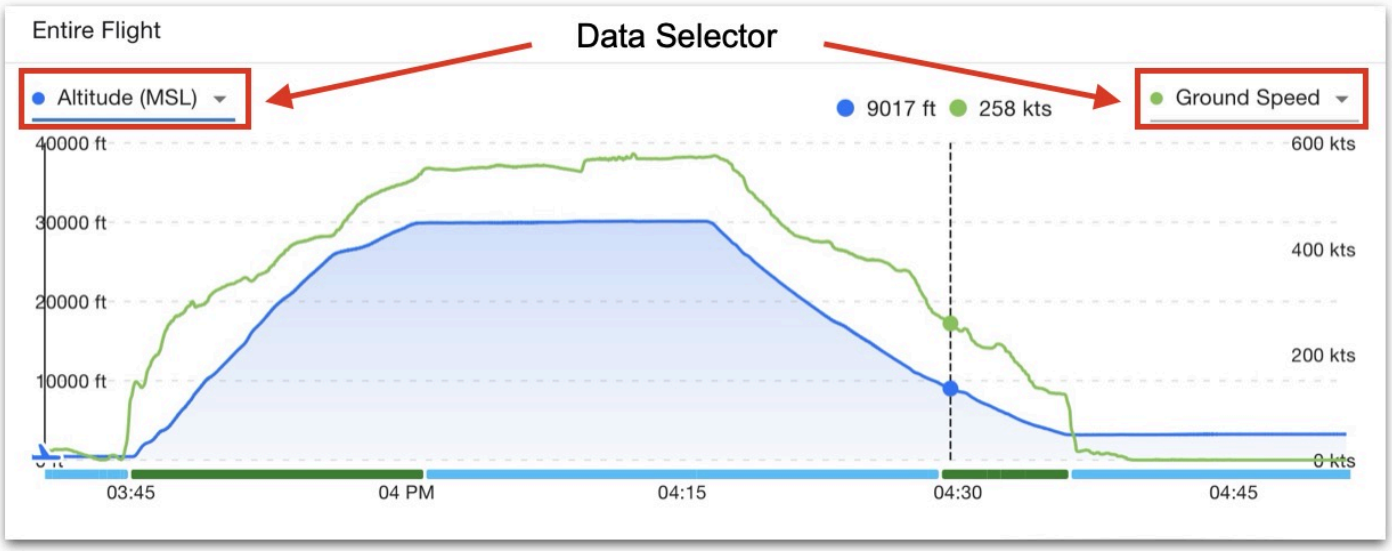


Figure 27-25. Flight Data Graph

27.10.3.4 Approach Segment

The approach type and V_{REF} can be set in the approach segment view. Click on the **Approach** segment in flight segmentation to display the approach details. Click **Edit** to change the target V_{REF}. Click the Approach drop-down and select the desired approach.



Figure 27-26. Approach Segment

27.10.3.5 Scoring

Certain maneuvers will be scored on a 0-100 scale. Each type of scored maneuvers has its own grading criteria. A score is assigned to the overall flight, to the individual score maneuvers, and to the individual graders that comprise the maneuver.

To show Score Details, click a segment with a score attached. Score Details will open next to the profile view.

Scoring can be toggled OFF/ON by clicking the gear button on the map and then the OFF/ON slider.

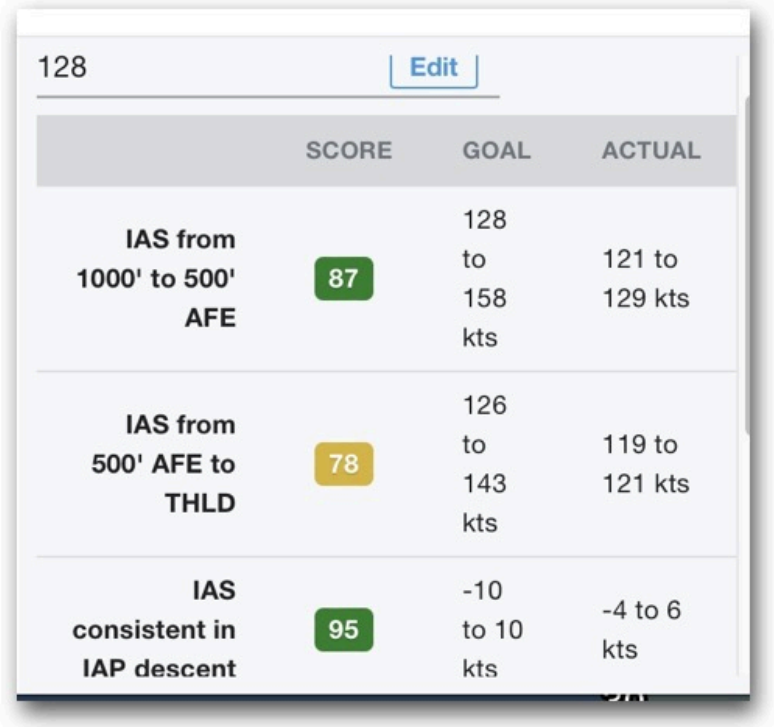


Figure 27-27. Score Details

SAFETY MANAGEMENT SYSTEM

The Safety Management System (SMS) module integrates directly into the ForeFlight Mobile, allowing operations to seamlessly manage safety reporting, risk assessments, corrective/ preventive actions, and compliance audits.

By streamlining the reporting process on both ForeFlight Web and ForeFlight Mobile, the SMS fosters a proactive safety culture. Crew members can quickly log hazards, incidents, or safety concerns on the go, ensuring that operational risks are systematically tracked, investigated, and mitigated before they impact flight safety.

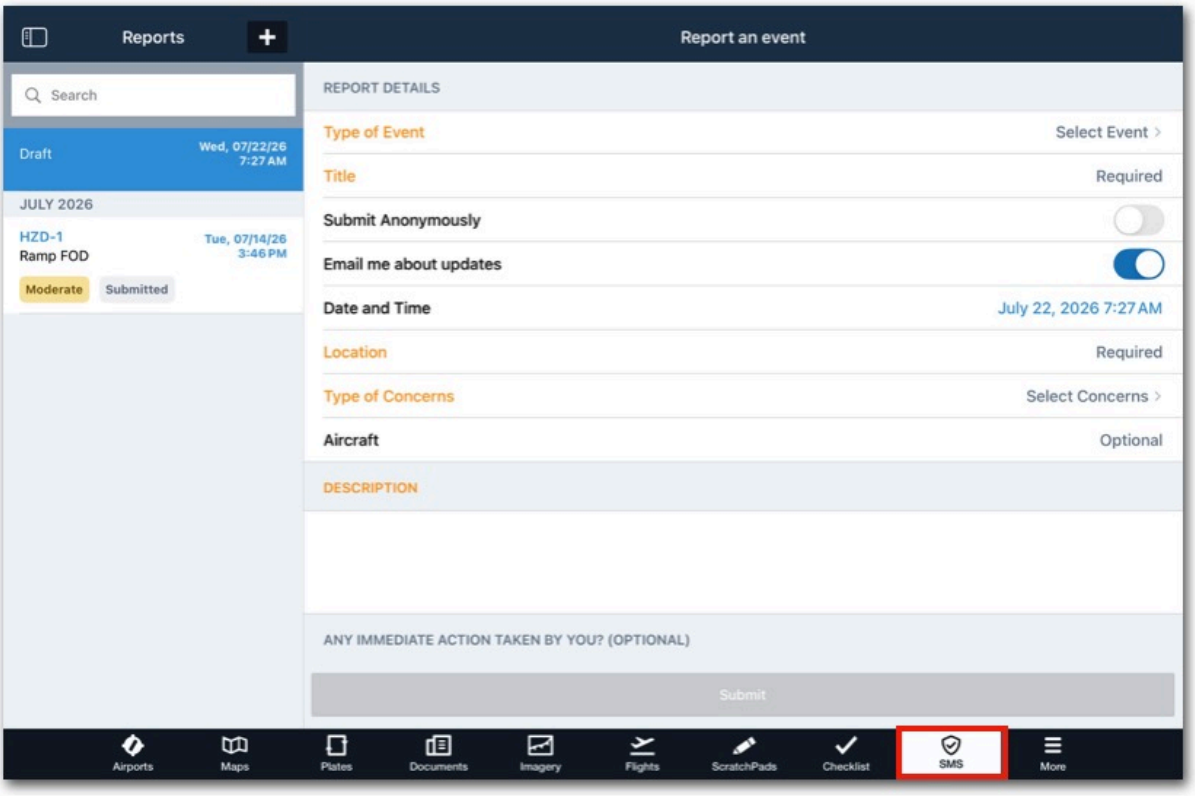
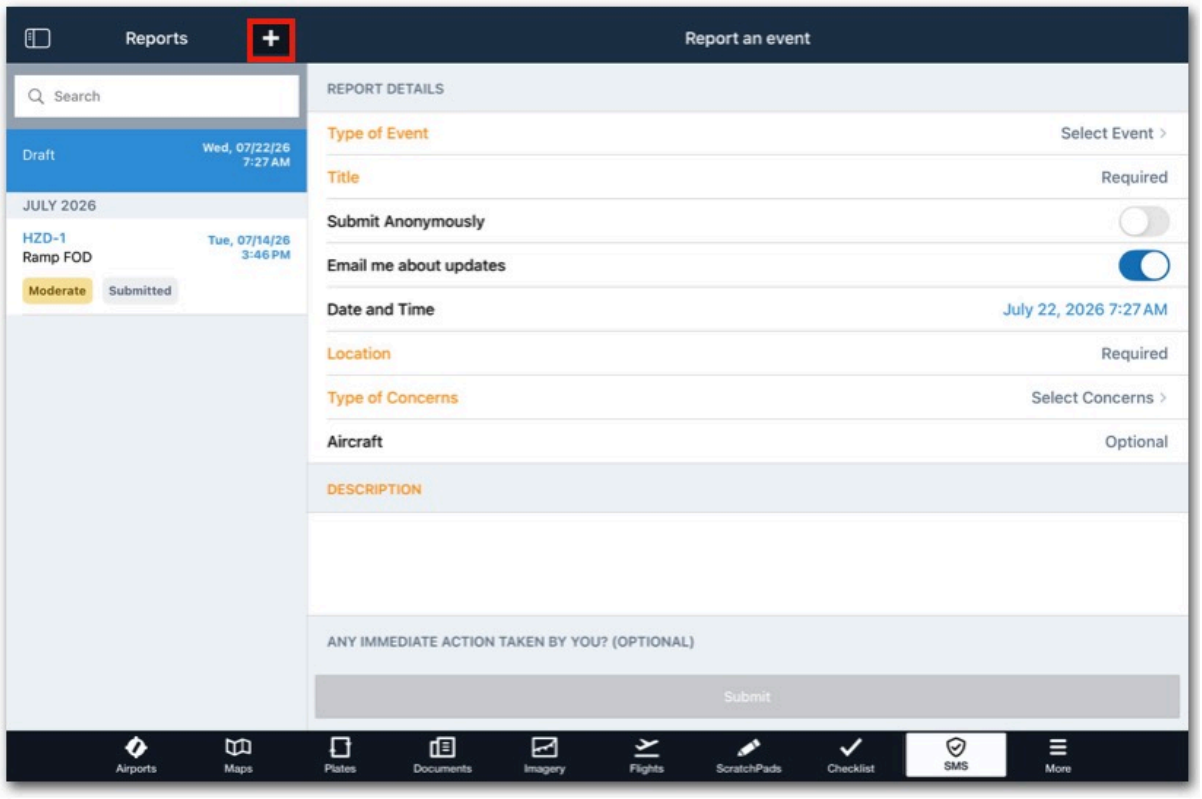


Figure 28-1. SMS

28.1 Create a Report

To create a report:

1. Tap **More → SMS → +**



NOTE: All fields in ORANGE are required to be completed for submission.

2. Tap **Select Event** and then tap a Type of Event radio button.

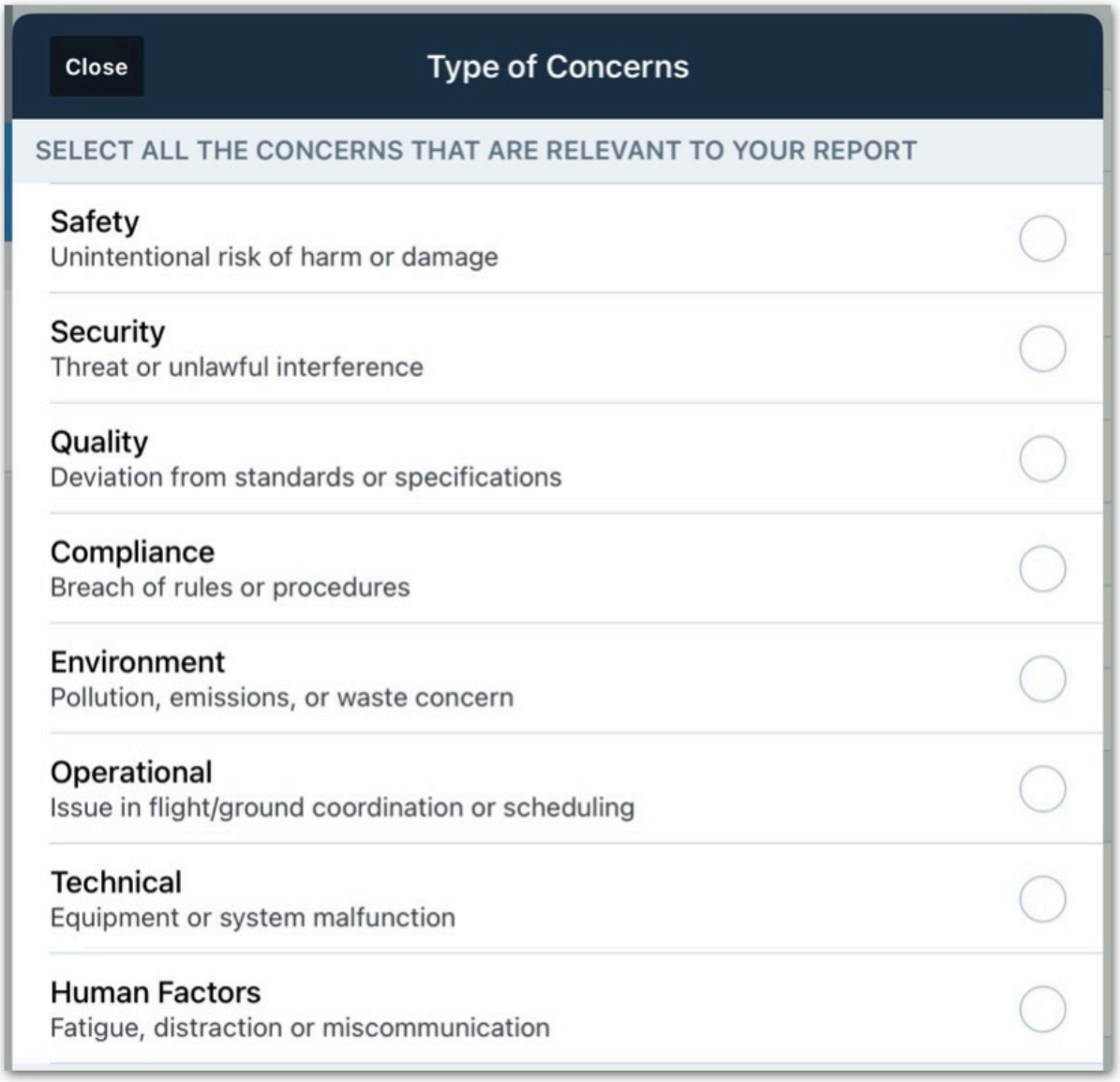


3. Add a Title.
4. Tap the **Submit Anonymously** toggle to hide submitter identity.

> **NOTE:** If a report is submitted anonymously email updates, submission viewing, and editing will be disabled.

5. Select date and time.
6. Enter the location of the event.

7. Tap **Select Concerns** and then tap a Type of Concerns radio button.



8. Enter aircraft (optional).
9. Enter a description of the event.
10. Enter any immediate actions (optional).
11. Tap **Add Attachments** to add any supporting documents or images (optional).

12. Tap **Add Assessment**, tap the corresponding risk scale tile, and then tap **Save & Close**.



13. Add a recommendation or suggestion (optional).

14. Tap **Submit**.

> **NOTE:** To discard the report tap **Delete Draft**.

A confirmation message appears upon successful submission.

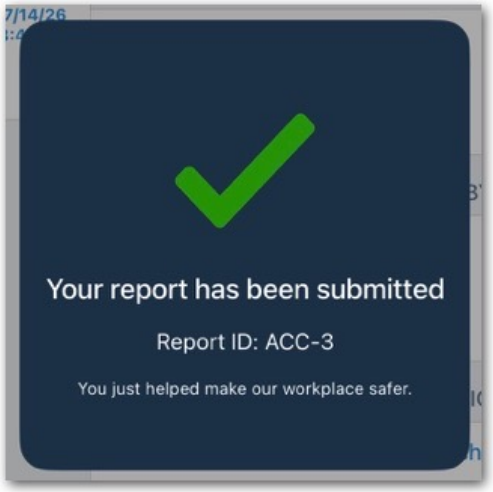


Figure 28-2. Confirmation Message

FOREFLIGHT CONNECT



ForeFlight Connect is a platform that allows portable and installed avionics to send weathertraffic , attitude, GPS position, barometric pressure, SiriusXM Aviation weather, and two-way flight plan information to ForeFlight Mobile.

Data from connected devices is used to display the position on the map, show weather and traffic without an internet connection, and to transfer flight plans between supported navigators. ForeFlight Connect is intended to be used in flight.

29.1 Supported Devices

ForeFlight Connect supports various devices from a number of manufacturers. Supported devices are tested by ForeFlight and are supported by the Pilot Support Team. Supported manufacturers, compatible devices, and their capabilities are listed in tables on the following pages. If a device is not listed in the tables, it is not supported.

29.1.1 Supported Portable Devices

The table below lists supported portable devices and their capabilities.

Table 29-1. uAvionix Portable Devices

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
Sentry Mini	✓			✓			
Sentry	✓	✓	✓	✓			
Sentry Plus	✓	✓	✓	✓		✓	✓
SkyEcho 2	✓		✓	✓			✓

Table 29-2. Garmin Portable Devices

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
GDL 39	✓		✓	✓			
GDL 39 3D	✓	✓	✓	✓			
GDL 50	✓	✓	✓	✓			

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
GDL 51	✓	✓	✓		✓		
GDL 52	✓	✓	✓	✓	✓		
GLO	✓						

Table 29-3. Appareo

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
Stratus 2S	✓	✓	✓	✓		✓	
Stratus 3	✓	✓	✓	✓		✓	

Table 29-4. Bad Elf

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
GPS Pro	✓		✓				
GPS Pro +	✓		✓				
Lightning	✓		✓				

Table 29-5. Dual

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
XGPS 150	✓						
XGPS 160	✓						
XGPS 170	✓			✓			
GPS 190	✓	✓		✓			

Table 29-6. Sporty's

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	FDR	FLARM
PJ2 GPS Radio	✓						

29.1.2 Supported Garmin Avionics

The tables below lists supported Garmin panel avionics and their capabilities.

Table 29-7. Supported Garmin Avionics Capabilities

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
GTX 345	✓	✓	✓	✓	
GNX 375	✓	✓	✓	✓	✓

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
GPS 175	✓	✓	✓		✓
GNC 355	✓	✓	Requires a separate source	Requires a separate source	✓
G3X Touch	✓	✓	✓	Requires GDL39R	✓

Table 29-8. Garmin Flight Stream 110 Connectivity and Capabilities

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Flight Stream 110	✓				
Flight Stream 110 with GTX 345	✓	✓	✓	✓	
Flight Stream 110 with GDL 84/88	✓			✓	

Table 29-9. Garmin Flight Stream 210 Connectivity and Capabilities

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Flight Stream 210	✓	✓	✓		
Flight Stream 210 with GTX 345	✓	✓	✓	✓	
Flight Stream 210 with GDL 84/88	✓	✓	✓	✓	

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Flight Stream 210 with GNS 430W	✓	✓	✓		✓
Flight Stream 210 with GNS 530W	✓	✓	✓		✓
Flight Stream 210 with GTN 650 / 750	✓	✓	✓		✓
Flight Stream 210 with G1000	✓	✓	✓		✓

Table 29-10. Flight Stream 510 Connectivity and Capabilities

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Flight Stream 510 with GTX 345	✓	✓	✓	✓	
Flight Stream 510 with GDL 84/88	✓			✓	
Flight Stream 510 with GTN 650 / 750	✓		✓		✓
Flight Stream 510 with G500 / G600		✓			
Flight Stream 510 with G1000 NXi	✓	✓	✓		✓
Flight Stream 510 with G3000	✓	✓	✓		✓
Flight Stream 510 with G5000	✓	✓	✓		✓

Table 29-11. Garmin GDL 60 Connectivity and Capabilities

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
GDL 60 with GTX 345	✓	✓	✓	✓	
GDL 60 with GDL 88	✓			✓	
GDL 60 with GTN 650Xi / 750Xi	✓		✓		✓
GDL 60 with G500TXi / G600TXi		✓			
GDL 60 with G3000	✓	✓	✓		✓

29.1.3 Other Supported Panel Avionics

The tables below lists supported panel avionics and their capabilities.

Table 29-12. Appareo

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
ESG / ESGi [1]	✓	✓	✓	✓	

[1] *Appareo ESG and ESGi require a Stratus 2, 2S, or 3 for attitude (AHRS).*

Table 29-13. Avidyne

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
IFD 440 / 540	✓			✓	✓
IFD 550 [1]	✓	✓		✓	✓

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
[1] *Weather and traffic requires firmware 10.2.3.1 or later and a compatible ADS-B receiver. See Avidyne Remote Wi-Fi Pairing.*					

Table 29-14. Baron

Device	GPS	Attitude (AHRS)	Pressure Altitude	SiriusXM Weather	Flight Plan Transfer
WxWorx XM Receiver				✓	

Table 29-15. DAC International

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
GDC64	✓			✓	

Table 29-16. Dynon

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Skyview [1]	✓	✓	✓	✓	✓
[1] *Weather and traffic requires firmware version 15.4.7 and higher.*					

Table 29-17. FreeFlight

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Rangr	✓			✓	

Table 29-18. GoGo

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
gogo ATG [1]	✓				
gogo AVANCE [1]	✓				

[1] *Gogo customers must have one of the following systems: AVANCE L5, AVANCE L3, ATG 5000/4000/2000/1000 w/CTR, SCS Elite w/ATG, SCS Media w/ATG.*

Table 29-19. Golze Engineering

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
ADL 140 / 150B [1]	✓			Weather Only	
ADL 180 / 190 / 200 [1]	✓	✓		✓	
ADL Connect for Iridium Go [1]				Weather Only	

[1] *Golze uses weather downloaded via Iridium or LTE.*

Table 29-20. Honeywell

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	Flight Plan Transfer
Apex FMS with Aspen CG [1]						✓
Aircraft Data Gateway [1, 2]						✓

[1] *Honeywell devices require a Premium or Business Performance subscription.*

[2] *Honeywell Aircraft Data Gateway requires SSL certificate and a unique profile installed per device to access the network. Contact Honeywell for SSL certificate and profile information.*

Table 29-21. L3 Harris

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
Lynx NGT-2000/ 2500/9000	✓			✓	

Table 29-22. Satcom Direct

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	Flight Plan Transfer
Satcom Direct SDR [1]	✓	✓	✓			

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	SiriusXM Weather	Flight Plan Transfer

[1] *All customers can connect to Satcom Direct Router or SDR Gateway to receive internet data in ForeFlight. Premium and Business Performance customers can also receive SDR GPS, indicated altitude, and pressure altitude data.*

Table 29-23. uAvionix

Device	GPS	Attitude (AHRS)	Pressure Altitude	ADS-B Weather + Traffic	Flight Plan Transfer
AV-30 with AV Link [1]	✓	✓	✓	✓	✓
echoUAT				✓	
SkySensor	✓		✓	✓	

[1] *Weather and traffic requires Sentry Receiver.*

29.1.4 GDL 90 Data Interface

ForeFlight Connect can be used by third-party devices that are not explicitly supported by ForeFlight Mobile. These devices can transmit data to and from ForeFlight Mobile using the industry standard GDL 90 data interface.

Devices that use the GDL 90 interface to connect to ForeFlight Mobile are not supported by the Pilot Support Team. For additional information, visit foreflight.com/connect/spec.

29.2 Connecting to External Devices

ForeFlight Mobile can connect to Wi-Fi and Bluetooth devices. Only one Wi-Fi device can be connected at a time. Multiple simultaneous Bluetooth connections are supported.

Once ForeFlight Mobile has connected to an external device (via Wi-Fi or Bluetooth) it can display the device data (e.g., GPS, Attitude, Weather, and Traffic) in-app.

29.2.1 Wi-Fi Devices

Connecting ForeFlight Mobile to an external Wi-Fi device is similar to connecting to a Wi-Fi router.

29.2.1.1 Connecting via Wi-Fi

To connect to portable or installed avionics via Wi-Fi:

1. Power the device on and verify it is transmitting a Wi-Fi signal. Most devices automatically transmit a Wi-Fi signal when powered on.
2. Open the iPad or iPhone's Settings app and select **Wi-Fi.**
3. Locate and tap the Wi-Fi device (e.g., Sentry, Stratus, gogo, or SDR).

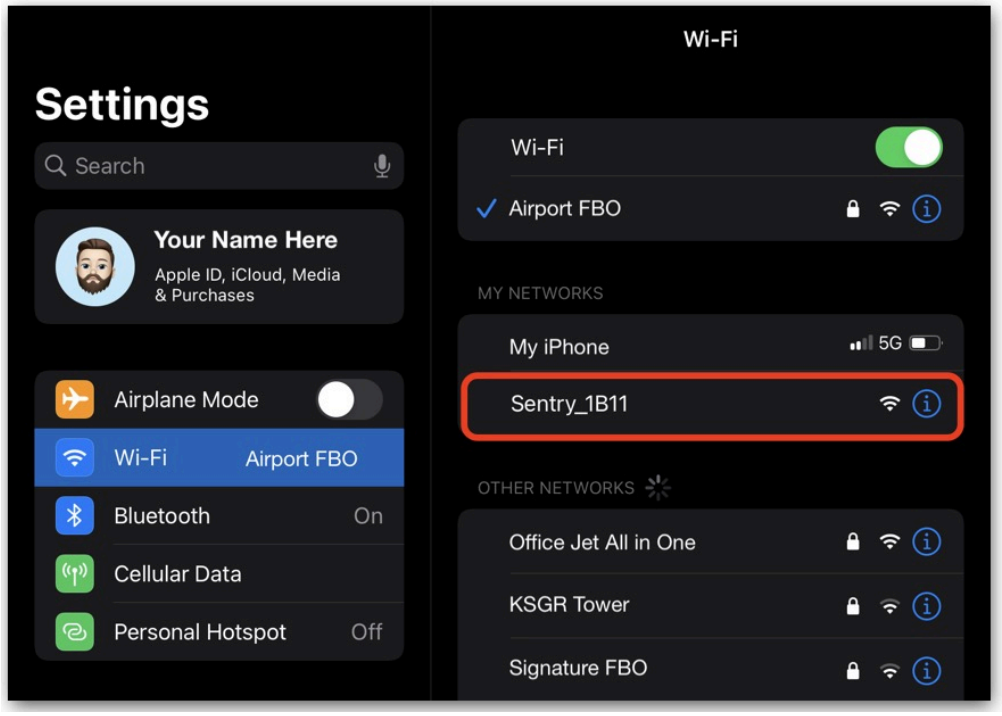


Figure 29-1. iOS Wi-Fi Settings

4. Ensure the device connects to an iPad or iPhone. A checkmark is displayed to the left of the device's name when connected.
5. Open ForeFlight Mobile and select **More → Devices**. If a tile is present for the device, it has successfully paired with ForeFlight Mobile and can display data from the device in-app.
6. Tap the Device Tile to view additional information.

> **NOTE:** The Local Network setting must also be enabled when using a device with iOS 14 or later. See the next page for additional information.

29.2.1.2 iOS 14 Local Network Setting

Devices with iOS 14 or later installed must enable the Local Network setting when connecting to external devices via Wi-Fi. To enable this setting:

1. Open the iPad or iPhone Settings app and select **ForeFlight**.
2. Toggle the **Local Network** setting on.

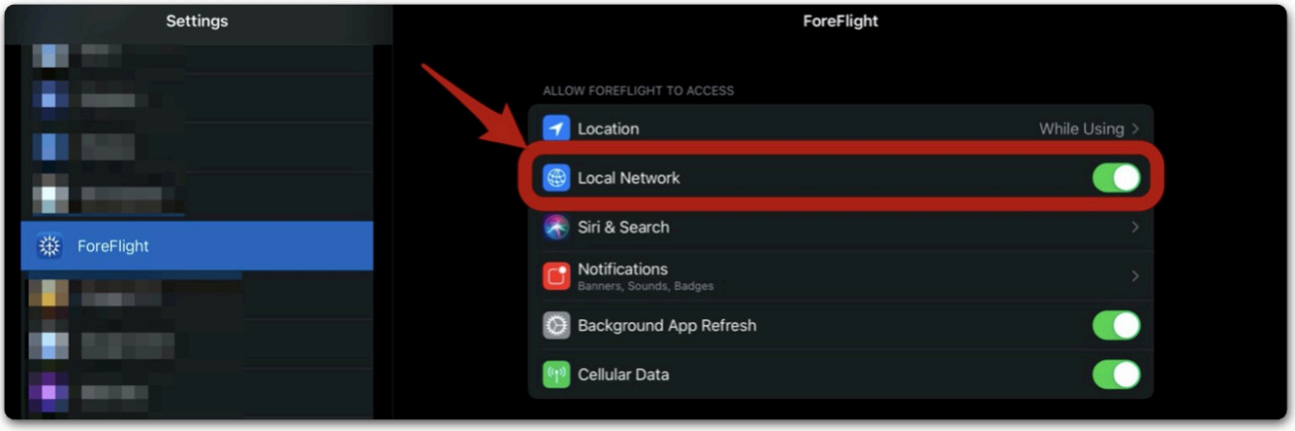


Figure 29-2. iOS Local Network Setting Enabled

29.2.2 Bluetooth Devices

ForeFlight Mobilecan pair simultaneously to multiple Bluetooth devices. Bluetooth devices can also be paired while simultaneously connected to a Wi-Fi device.

Unlike Wi-Fi, most Bluetooth devices do not pair automatically when powered on. If the Bluetooth device does not automatically pair when powered on, it may be necessary to select it from a list of Bluetooth devices.

29.2.2.1 Pairing a Bluetooth Device

To pair a Bluetooth device:

1. Power the device on.
2. Enable Bluetooth pairing on the device (see note below).
3. Open the iPad or iPhone Settings app and select **Bluetooth.**
4. Locate and tap the device in the My Devices or Other Devices section.
5. Ensure the device indicates "Connected".
6. Open ForeFlight Mobile and select **More → Devices**. If a tile is present for the device, it has successfully paired with ForeFlight Mobile.
7. Tap the Device Tile to view additional information.

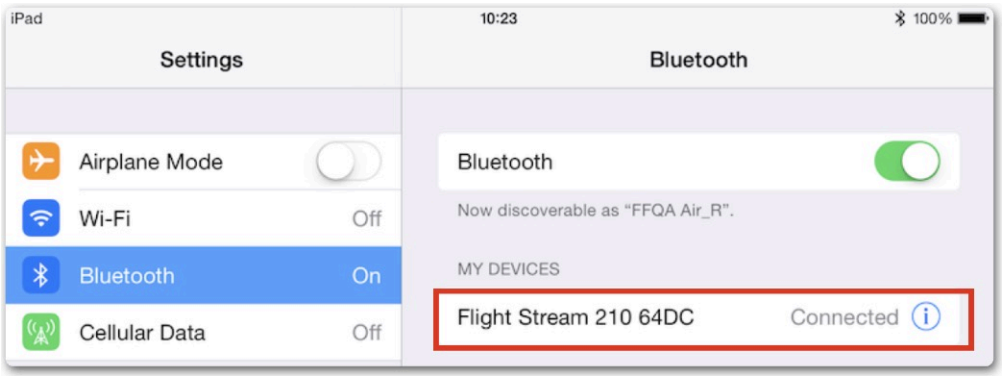


Figure 29-3. iOS Bluetooth Settings Page

> **NOTE:** When pairing to a device for the first time or if the device does not appear in the list of Bluetooth devices, it may be necessary to manually enable the device's Bluetooth pairing mode. Instructions for enabling Bluetooth pairing vary by device. Refer to the Bluetooth device's manual for additional instructions.

29.2.3 Garmin Avionics

Garmin devices pair via Bluetooth and can simultaneously connect to a maximum of two devices (e.g., two iPads).

There is not a practical limit for the number of Garmin avionics ForeFlight Mobile can connect to. For example, a GTX-345 transponder it is limited to two device pairings. However, an iPad can simultaneously connect to a GTX-345, GDL52, and GNC355.

Garmin Flight Stream

If the aircraft is equipped with a Garmin Flight Stream, ForeFlight Mobile should only pair with the Flight Stream. All other installed avionics should be wired to the Flight Stream so that their data is passed through to the portable devices. When configured in this manner, the Flight Stream is the access point for all Garmin data.

If a device is not wired to a Flight Stream, it must be paired directly. When paired to a Flight Stream, information about the devices that are wired to it are listed on the Garmin Connext Information page.

29.2.4 Multiple Device Connections

When connected to multiple devices that provide the same data, ForeFlight Mobile displays the data from the most appropriate source. See below for additional information.

29.2.4.1 Multiple Sources of Weather, Traffic, and NOTAM Data

When receiving weather, traffic, and NOTAM data from multiple external sources (e.g., Sentry and Garmin GTX-345), the most recent information is displayed. It is not possible to manually select weather, traffic, or NOTAM data from a specific device.

When receiving ADS-B and SiriusXM data, unique map layers exist for radar, turbulence, icing, and clouds allowing selection of a particular data type (e.g., Radar ADSB).

29.2.4.2 Multiple Sources of Barometric Pressure Data

When connecting to multiple devices, ForeFlight Mobile uses barometric data from a single device according to the following logic.

1. If an installed device is connected, the data from it is used.
2. If an installed device is not connected, the portable data source is used.

3. If installed and portable devices are not connected, the iOS device's integrated data is used.

This logic ensures that data from the installed device is prioritized, as it is presumed to be superior to a portable device.

> **NOTE:** If connected to a device that normally provides a type of data (e.g., Attitude, GPS, or Barometric Pressure), ForeFlight Mobile will not automatically revert to the next source should that data type be unavailable. For example, if connected to both a GTX-345 transponder and Sentry and the GTX-345 is not providing attitude data, ForeFlight Mobile will not automatically revert to use the attitude data from Sentry. In this scenario, ForeFlight Mobile's Attitude Indicator would display No Attitude Data unless the **Use As AHRS** setting was disabled for the GTX-345. See the next page for additional information.

29.2.4.3 Multiple Sources of GPS and AHRS Data

When connected to an external device or multiple external devices, the barometric data source used by ForeFlight is determined by the multiple-device connection logic discussed earlier. The barometric data source cannot be manually selected.

GPS and AHRS use the same multi-device connection logic as barometric data but can be manually selected by disabling sources of higher priority.

For example, if connected to a transponder that provides GPS data, the transponder GPS data is used by default since it is an installed device. However, if the transponder's GPS is inoperative, ForeFlight Mobile will not be able to display GPS data.

To resolve this issue, the use of the transponder GPS data should be disabled. To disable a GPS data source:

1. Go to **More** ➔ **Devices** and tap the Device Tile of the source to be disabled.
2. Scroll to the device settings at the bottom of the view.
3. Toggle Use as GPS off.

Similarly, if the transponder normally provides AHRS data, ForeFlight Mobile will use it for the Attitude Indicator. However, if the transponder's AHRS is inoperative, ForeFlight Mobile will not be able to display pitch and bank data.

To resolve this issue, the use of the transponder's AHRS data should be disabled. To disable an AHRS data source:

1. Go to **More ➔ Devices** and tap the Device Tile of the source to be disabled.
2. Scroll to the device settings at the bottom of the view.
3. Toggle Use as AHRS off.

In the above examples, once the GPS or AHRS source is disabled, ForeFlight Mobile will use the data from the next source.

29.2.4.4 Connecting to multiple devices of the same type

When connecting to multiple devices of the same type, installed or portable, ForeFlight Mobile uses the GPS, Attitude, and Barometric data from those devices in this order:

- Garmin
- Dynon
- Avidyne
- SkyEcho
- Sentry
- Stratus
- Dual, Bad Elf
- FreeFlight
- Lynx
- SXAR1
- Baron MobileLink
- Gogo
- Satcom Direct Router (SDR)
- iOS internal GPS data.

> **NOTE:** SDR supplies latitude, longitude, and groundspeed data. GPS altitude and track data delivery are dependent on the router's firmware.

29.2.4.5 Multiple Device Connection Example

When connected to portable and installed devices, ForeFlight Mobile uses the GPS, attitude, and barometric data from the installed device by default. If connected to Garmin and Dynon installed avionics simultaneously, the Garmin's GPS, attitude, and barometric data are used.

If the installed device does not provide one of the data types, for example, attitude data, the Attitude Indicator in ForeFlight Mobile will not automatically revert to using the portable device. To display attitude data from the portable device, either disable the Use as AHRS setting or disconnect from the installed device.

29.2.5 Avidyne Remote Wi-Fi Pairing

The Avidyne IFD 440/540/550 navigators support remote Wi-Fi pairing which allows them to connect to supported ADS-B receivers so that flight plan data can be passed through the ADS-B receiver to ForeFlight Mobile. This configuration permits flight plan transfers and ADS-B weather and traffic while being connected to the ADS-B receiver.

For detailed setup instructions, see the appropriate IFD 440/540/550 manual or this support article. Abbreviated IFD 440/540/550 setup instructions can be found below:

1. Enable maintenance mode on the IFD 440/540/550.
2. Navigate to the Wi-Fi configuration page.
3. Enter the SSID (network name) of the supported ADS-B receiver.
4. Change the navigator Wi-Fi mode to **Remote**.
5. Connect ForeFlight Mobile to the ADS-B receiver.

When properly configured, ForeFlight Mobile will display two Devices Tiles. One tile for the IFD navigator and another for the ADS-B receiver.

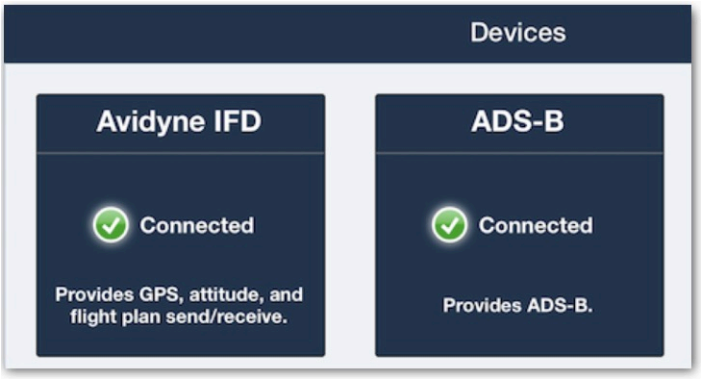


Figure 29-4. Avidyne Remote Wi-Fi Pairing Device Tiles

29.3 Device Tiles

Tiles are displayed on the Devices page for each connected device. To access Devices, tap **More ➔ Devices**. The tile indicates connection status and features (e.g., GPS, attitude, and ADS-B data). When connected to multiple Garmin devices, a single Garmin Connext device tile is displayed.

29.3.1 Device Capabilities

The device capabilities are listed at the bottom of the tile. If a capability is not listed, the device is not providing that data type to ForeFlight Mobile. For example, if connected to a Garmin GTX345 and attitude is not listed, the transponder likely has not been calibrated and is not transmitting attitude data to ForeFlight Mobile.

Bluetooth GPS devices such as the Bad Elf GPS Pro, DUAL XGPS 150, and Garmin GLO indicate their connection status, but no additional information is displayed.



Figure 29-5. Sentry Plus Device Tile (Left) / Garmin Connext Device Tile (Right)

29.4 Device Information

The Device Information view displays device status, identifying information, device capabilities, and device settings. To access the view, go to **More ➔ Devices** and tap the **Device Tile**.

The Device Information view is grouped into sections. Each section only appears if the device provides that type of information (e.g., ADS-B and SiriusXM data). Device Settings are discussed later in this chapter.

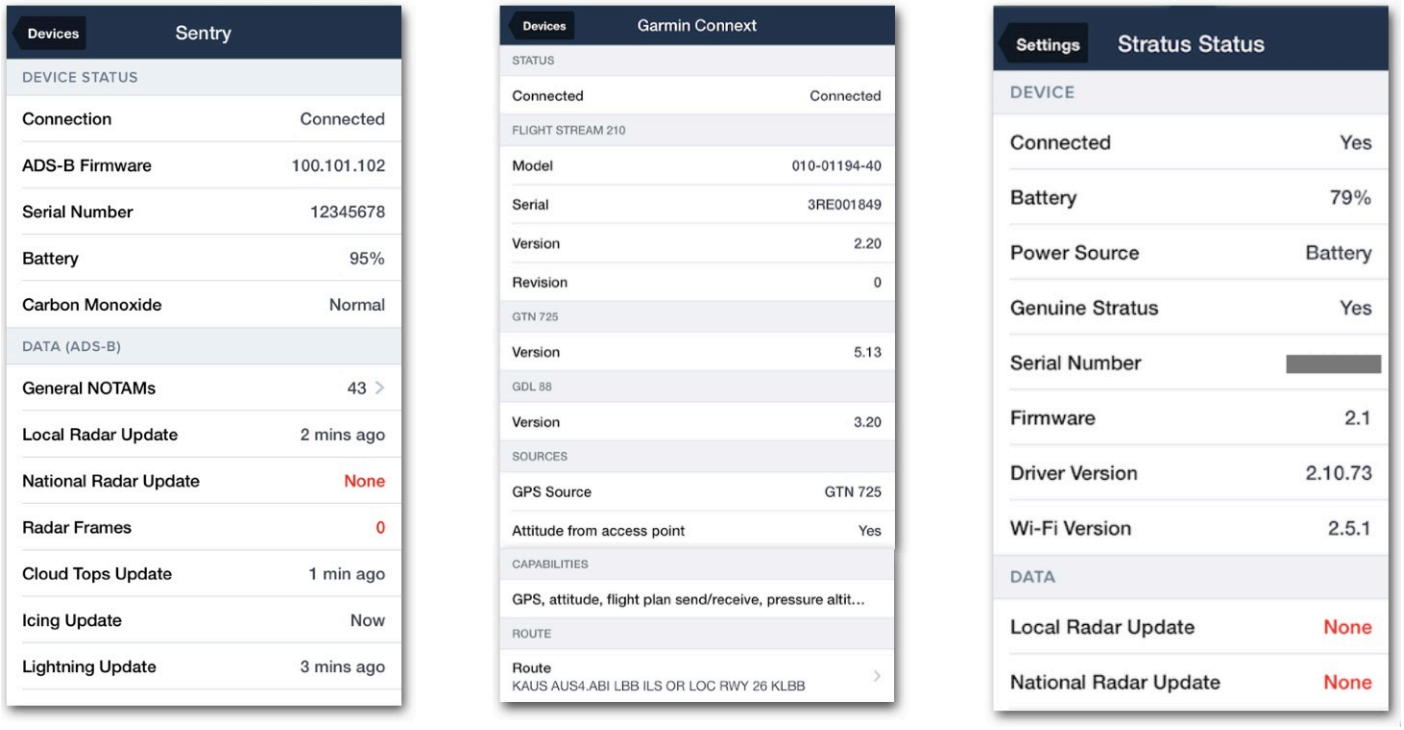


Figure 29-6. Sentry (Left), Garmin (Center), and Stratus Device Information Pages (Right)

29.4.1 General Device Information

The top of the Device Information view lists general information about the device, such as its connection status, battery state, temperature, serial number, firmware, and more. This section is dynamic and varies by device.

When connected to Garmin devices, the view lists each connected device. When multiple Garmin devices can provide the same data (e.g., GPS or attitude), the data source being used by ForeFlight Mobile is listed in the Sources section. In this scenario, it is not possible to manually select a different data source.

When connected to a device that supports flight plan transfer, the route row displays the route currently loaded in the navigator. Tap the route to load it into the route editor.

The capabilities row displays the cumulative capabilities of all connected devices.

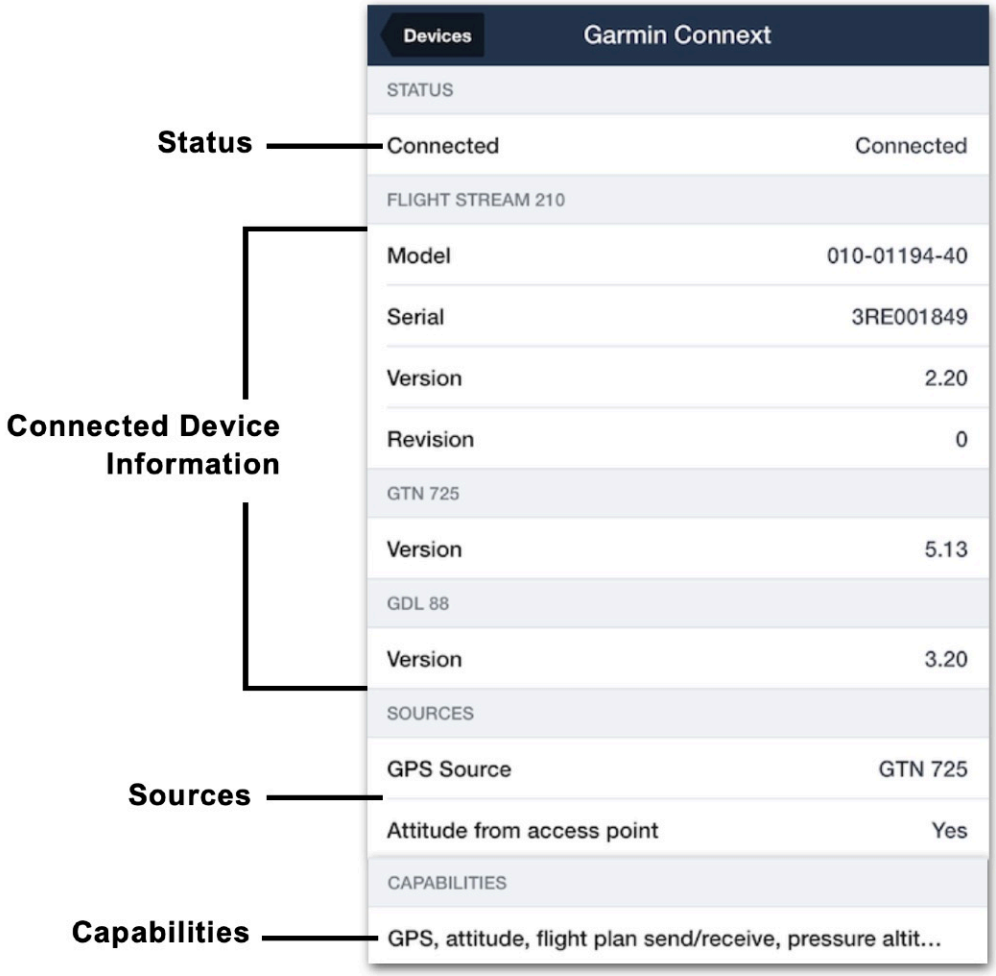


Figure 29-7. General Device Information

29.4.2 ADS-B Data

If connected to an ADS-B device, an ADS-B data section is displayed below the general information. This section lists NOTAM, weather, and ADS-B signal status details.

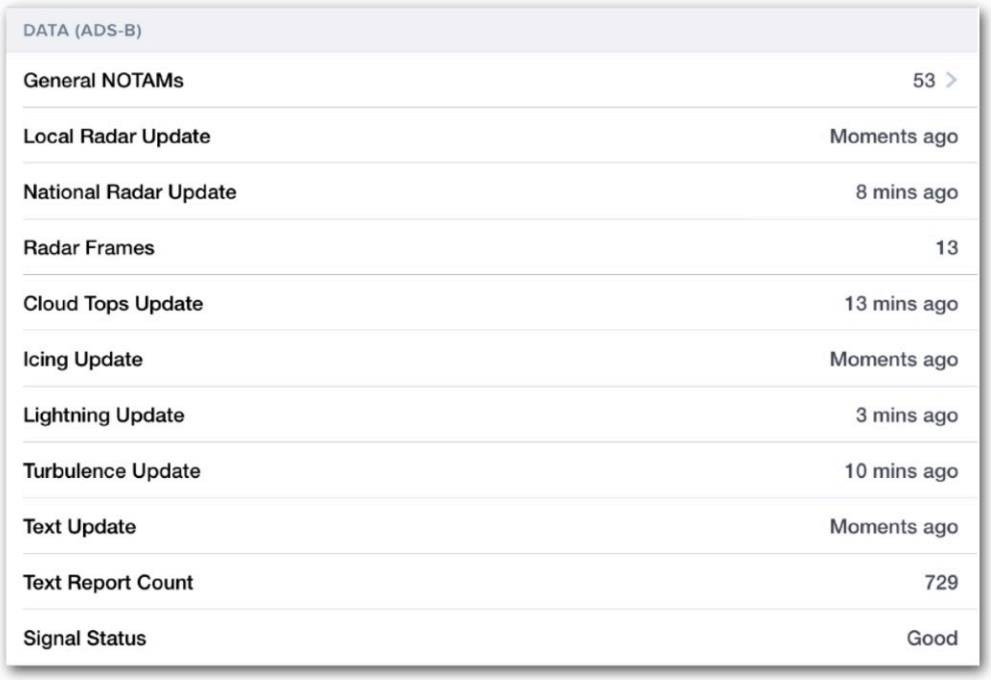


Figure 29-8. ADS-B Data Section

General NOTAMs

Displayed once NOTAM data has been received by the ADS-B receiver (may take up to ten minutes). The row displays the NOTAM count and can be tapped to display FIS-B textual NOTAMs.

Local Radar Update

The last time Regional NEXRAD data was received.

National Radar Update

The last time CONUS NEXRAD data was received.

Radar Frames

How many radar frames have been received.

Cloud Tops Update

The last time Cloud Top data was received.

Icing Update

indicates the last time Icing data was received.

> **Lightning Update**
>
> The last time Lightning data was received.

> **Turbulence Update**
>
> The last time Turbulence data was received.

> **Text Update**
>
> When METAR and TAF data was last received.

> **Text Report Count**
>
> The amount of individual METAR and TAF reports.

> **Signal Status**
>
> Represents the number of ADS-B towers that are being received. This information is also displayed in the upper left corner of the Map when a dynamic map layer is selected.

29.4.3 SiriusXM Information

If connected to a device that provides SiriusXM data, the Data (SiriusXM) section displays the last time weather products were received. See SiriusXM Weather for additional information.



Figure 29-9. SiriusXM Data Information

29.4.4 Traffic Information

If connected to an ADS-B receiver, the Traffic section displays the last time ADS-B traffic data was received on the 978 MHz (UAT), 1090 MHz, and TIS-B (978 MHz) frequencies.

If ForeFlight Mobile is able to determine Ownship, additional information can be found by tapping the aircraft in the Ownship row. If Ownship is not detected, **Not Detected** is displayed.



Figure 29-10. Traffic Information Section

29.4.5 Device Settings

The bottom of the Device Information Page is where device-specific settings are found.

29.4.5.1 Universal Settings

The following settings are universal and appear when connected to any device equipped with the corresponding feature.



Figure 29-11. Universal Device Settings (Sentry)

> **Use As GPS**
>
> Allows ForeFlight Mobile to receive GPS data from the connected device. When disabled, ForeFlight Mobile ignores the GPS data and uses the next source according to GPS source logic (if available). If no alternative GPS source is available, ForeFlight Mobile will not show position on the map.

> **Use As AHRS**
>
> Allows ForeFlight Mobile to receive the device pitch and bank data and is enabled by default. When disabled, ForeFlight Mobile ignores the AHRS data from the external device and uses the next source according to AHRS source logic (if available). If no alternative AHRS source is available, ForeFlight Mobile will not show pitch and bank.

> **Cabin is Pressurized**
>
> Should be selected when flying with a device inside a pressurized cabin. When this setting is enabled, the Pressure Altitude instrument is disabled and the barometric data from the device is used to power the Cabin Pressure instrument. When disabled, the Pressure Altitude and Cabin Pressure instruments display the same (uncorrected) value.

> **Show ADSB Towers**
>
> Displays towers which ForeFlight Mobile is receiving data from on the map.

> **Logging**
>
> Records the data sent from the device for troubleshooting purposes. This setting should only be enabled when requested by the Pilot Support Team. Device logging can degrade performance and is disabled by default. When connected to a SiriusXM device, the setting is labeled “Stream Logging”.

29.4.5.2 Sentry Settings

Settings are available for testing and muting the Sentry CO alarm. For additional information, refer to the ForeFlight Sentry Guide available in-app by selecting **Documents ➔ ForeFlight ➔ Sentry ➔ ForeFlight Sentry Guide**, or online at foreflight.com/sentry-guide.

29.4.5.3 Garmin Settings

When connected to certain Garmin devices, additional settings allow the barometric data source to be specified. There are three potential settings:

> **Pressurized Cabin**
>
> Should be enabled when flying a pressurized aircraft.

Use as Pressure Altitude

Should be enabled when the barometric data comes from outside ambient air. For example, when flying a pressurized aircraft and connected to a transponder that derives pressure data from the pitot system, enable this setting.

Use as Cabin Pressure Altitude

Should be enabled when the device is inside the pressurized cabin.

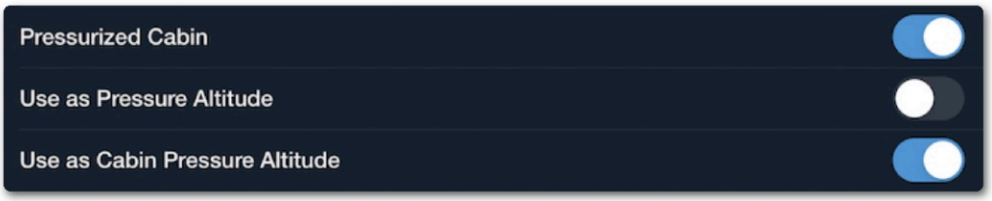


Figure 29-12. Garmin Connext Pressure Settings

29.4.5.4 Garmin Reset AHRS

The Garmin Flight Stream 210 is able to receive a Reset AHRS message from ForeFlight Mobile. When connected to the Flight Stream 210, a **Reset AHRS** button is displayed near the bottom of the Device Information page.

The **Reset AHRS** button sends a message to the Flight Stream 210 to reset the pitch and bank values to zero. When this message is received, pitch and bank values of the device are reset to zero and reflected on any display that uses the AHRS data. For additional information, see Calibrating AHRS.

CAUTION: Do not press the **Reset AHRS** button unless the current pitch and bank are level.

29.4.5.5 SXAR1 Settings

There are two unique SXAR1 settings:

Dim LEDs

Turn ON to dim the SXAR1 status lights, which helps preserve battery life and reduces brightness when flying at night.

Background Data Connection

Sends updated weather data to ForeFlight Mobile even when it is in the background. We recommend leaving this ON, because turning it OFF can result in the loss of Bluetooth connection to SXAR1 if ForeFlight Mobile is kept in the background.



29.4.5.6 Stratus Settings

When connected to a Stratus, additional settings may be displayed to include:

Turn on When Plugged In

Will turn Stratus on when power is provided over a USB cable and turn off after two minutes when power is removed and speed is less than five knots.

Wi-Fi Settings

Implements security for the Stratus local network. Disabling the SSID broadcast hides the Stratus network name from devices that have not already joined the network.

> **CAUTION:** WPA2 security should not be enabled when using ForeFlight as the Wi-Fi connection can become unreliable.

Ignore Mfg. AHRS Settings

Reinitializes Stratus AHRS every time the unit is powered on. This setting should remain disabled unless Stratus has been dropped or has been subjected to large temperature variations.

Save AHRS Calibration

Stores manual AHRS calibration data between power cycles. This setting is useful for aircraft that cannot be calibrated on the ground due to not sitting level. If this setting is enabled, Stratus should not be moved between power cycles. If Stratus is moved, it may need to be recalibrated.

Power-Saving Mode

Reduces the Wi-Fi transmission power to increase battery life.

Auto Shutoff Mode

(Stratus 3 only) Turns off Stratus after groundspeed is less than five knots for 30 minutes or if no GPS data is received for 30 minutes after being powered on.

Cabin is Pressurized

(Stratus 3 and 2S) Select when flying with a device inside a pressurized cabin. When this setting is enabled, the Pressure Altitude Instrument is disabled and the barometric data from the device is used to power the Cabin Pressure Instrument. When disabled, the Pressure Altitude and Cabin Pressure instruments display the same (uncorrected) value.

> **NOTE:** To perform a factory reset, hold the Stratus power button for 30 seconds. A factory reset disables WPA2 security and enables the device SSID broadcast.

LED Brightness

Used to adjust the brightness of the Stratus LEDs.

Flight Data Recorder

Discussed in the Track Logs chapter.

29.4.5.7 Satcom Direct and Gogo Settings

All customers can connect to a Satcom Direct or Gogo Router to receive in-flight internet data. A Premium or Business Performance subscription is required to receive GPS and pressure altitude data from each device. Satcom Direct routers can also provide ForeFlight Mobile with track information when properly configured.

29.4.5.8 Internet Access Settings

When connected to a Satcom Direct or Gogo router, the **Allow ForeFlight to access the Internet** setting can be used to allow or prevent ForeFlight Mobile from using internet data. This setting is enabled by default.

29.4.5.9 Local Area Network Administrator Settings

To access the Satcom Direct Router'Local Area Network administrator page, tap the **Web UI** row.

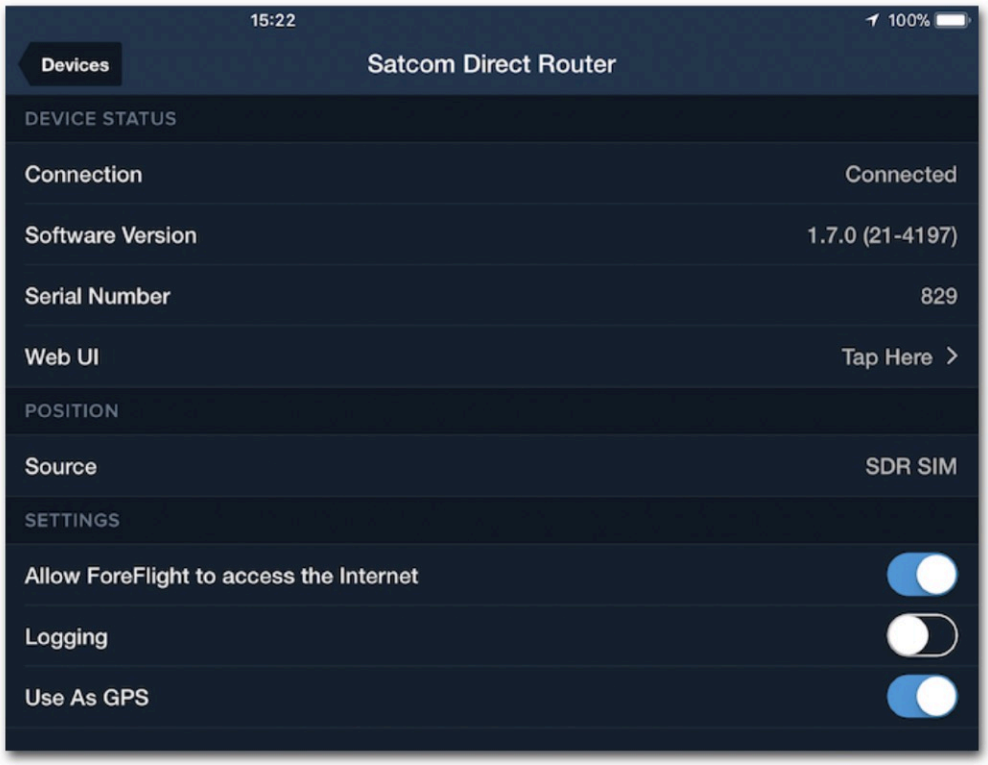


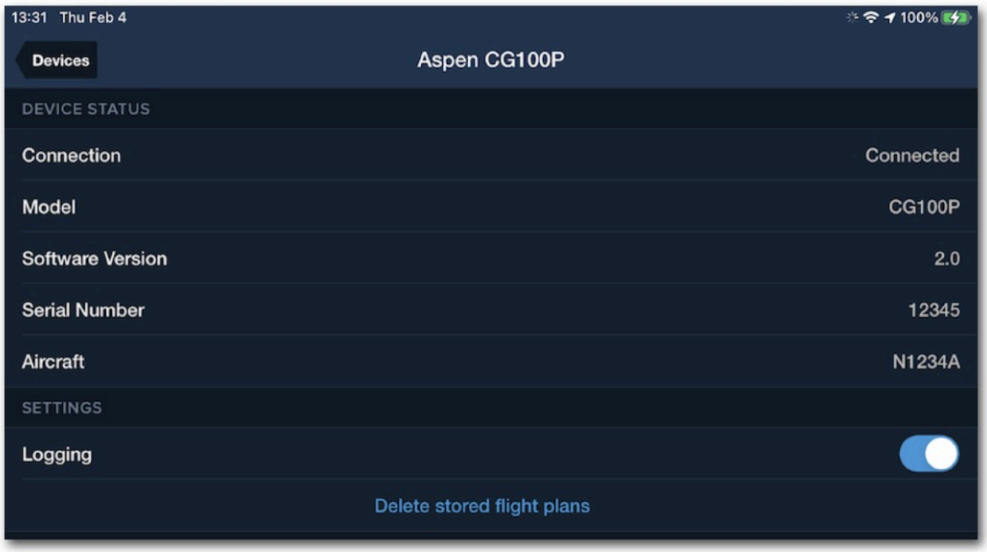
Figure 29-13. Satcom Direct Route Device Information Page

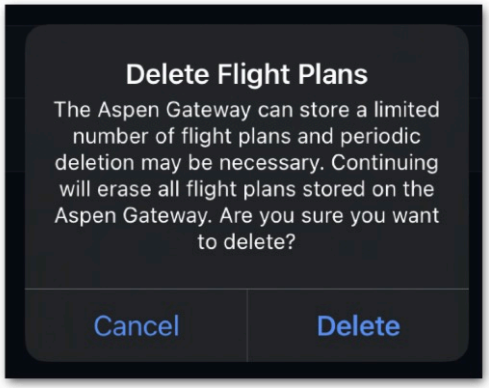
29.4.5.10 Aspen CG100P/CG200P

The Aspen Connected Gateway can store transferred routes on an SD card. When the SD card is full, new routes cannot be transferred until the SD card is cleared.

To clear the routes, tap the CG100P/GC200P Device Tile, then tap **Delete stored flight plans**.

Deleting stored flight plans will clear ALL routes that have been sent to the Connected Gateway.


13:31 Thu Feb 4
100%
Devices
Aspen CG100P
DEVICE STATUS
Connection
Connected
Model
CG100P
Software Version
2.0
Serial Number
12345
Aircraft
N1234A
SETTINGS
Logging
Delete stored flight plans


Delete Flight Plans
The Aspen Gateway can store a limited number of flight plans and periodic deletion may be necessary. Continuing will erase all flight plans stored on the Aspen Gateway. Are you sure you want to delete?
Cancel
Delete

29.5 GPS

ForeFlight Mobile can only display GPS position and altitude data from a single source at a time. The source of GPS data is used across all aspects of the app, including:

- **Ownship**: GPS data is used to display the current position on the map.
- **Track Logs**: record GPS position.
- **GPS Accuracy Instrument**: displays the reported accuracy of the GPS source.

29.5.1 Multiple GPS Data Sources

When GPS data is available from multiple sources, the highest priority source is used. See multiple-device connection logic for additional information.

29.5.1.1 Source of GPS Data

The GPS source is displayed above the Accuracy Instrument. If no source is displayed, GPS data is provided by the internal iOS GPS processor.



Figure 29-14. Garmin, Avidyne, uAvionix, SkyView, FreeFlight GPS Source Labels

29.5.2 GPS Accuracy

The GPS Accuracy Instrument displays the accuracy of position data. GPS accuracy is reported to ForeFlight Mobile and displayed in the Instrument Panel rounded to the nearest meter.

Accuracy is calculated by the device GPS processor by measuring its distance from multiple GPS satellites. GPS accuracy refers to how close the calculated position of the device is from the truth, expressed as a radius.

29.5.2.1 GPS Accuracy Color-Coding

The Accuracy instrument uses color coding to indicate the reported Global Positioning System (GPS) accuracy. Lower values represent more accurate position data.

- **Green** - 20 meters or less.

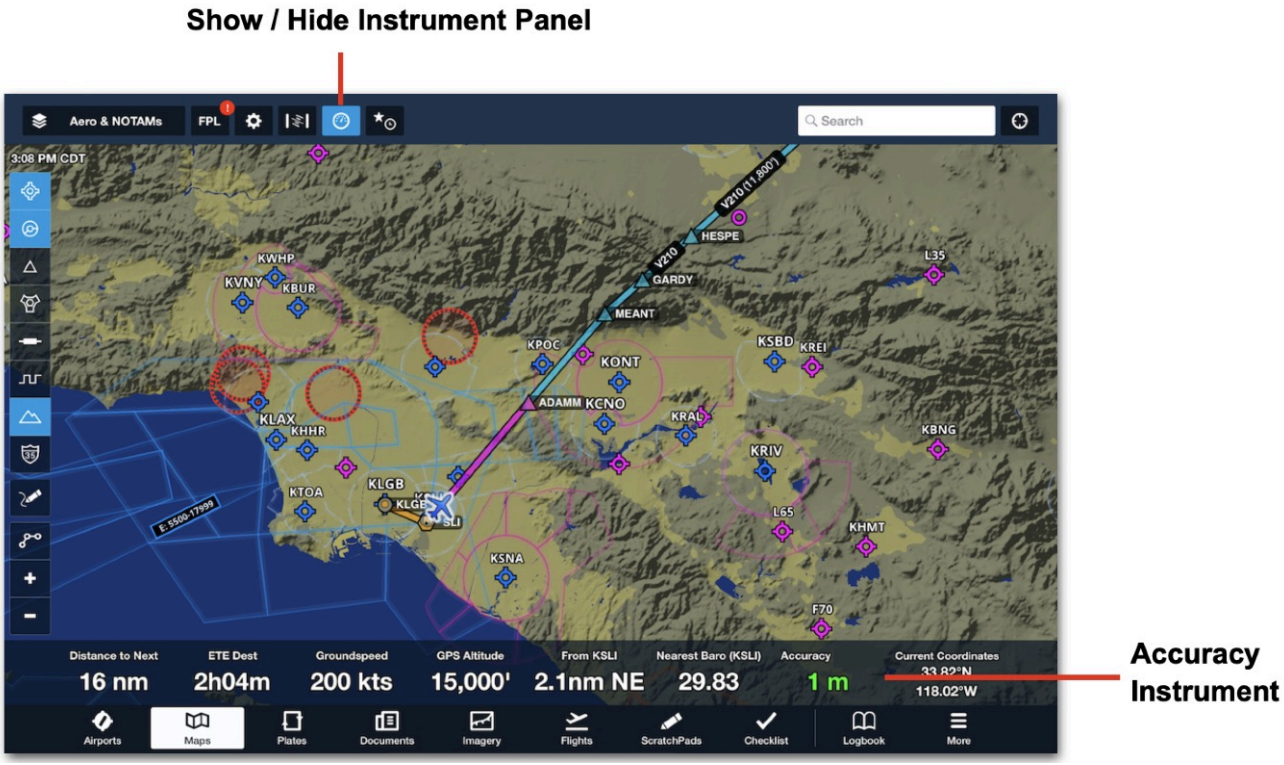
- **Orange** - 20 to 60 meters.
- **Red** - Greater than 60 meters.

> **NOTE:** See Ownship for additional GPS accuracy implications.

29.5.2.2 Displaying GPS Accuracy

To display GPS Accuracy:

1. Tap the **Instrument Panel** button in the upper toolbar.
2. If the Accuracy instrument is missing, tap any instrument in the panel and select **Accuracy** from the list.



> **NOTE:** When GPS data is being sent from Satcom Direct to ForeFlight Mobile, the Accuracy instrument will show "Accuracy (A429)".

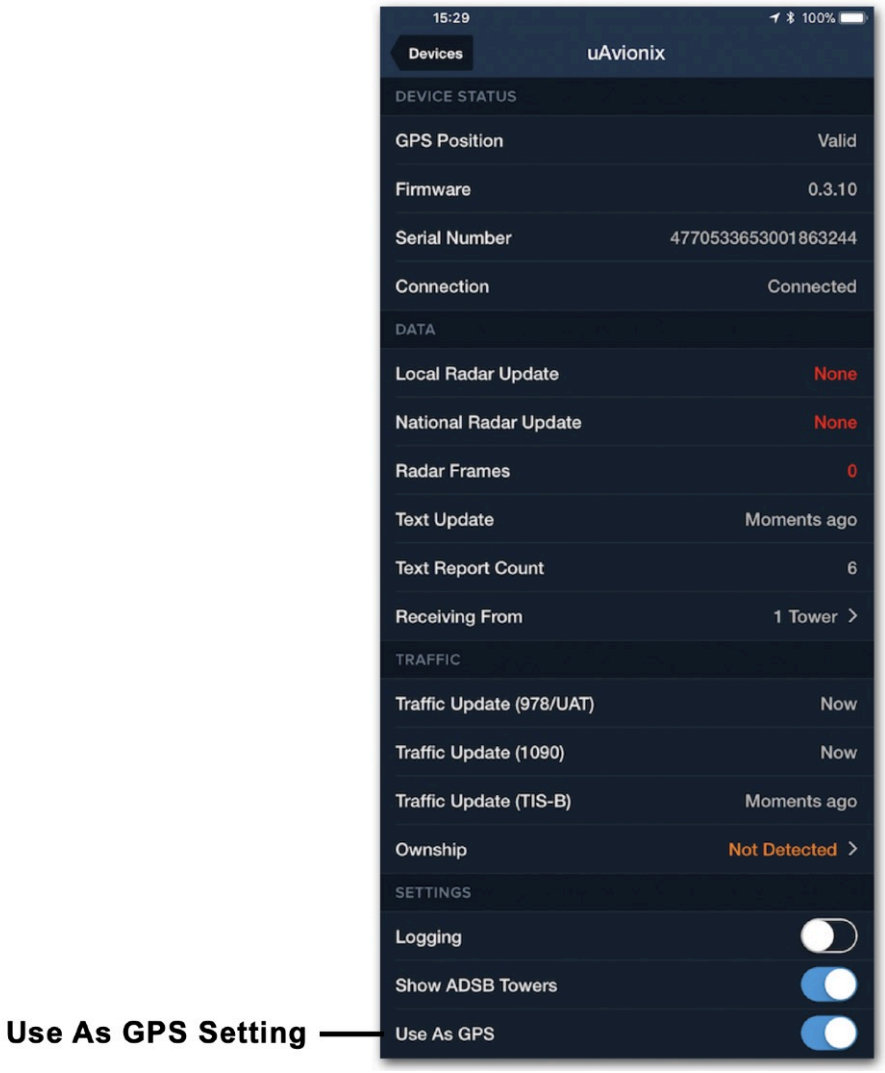
> **NOTE:** Lynx reports GPS accuracy as a range (e.g., between 10 and 30 meters). ForeFlight Mobile displays the highest value within the reported range (30m).

29.5.3 Use As GPS Setting

When connected to a device, GPS data from the device is enabled by default.

To block GPS data from an external device (for troubleshooting purposes or to prioritize a different GPS source) follow the steps below:

1. Tap **More → Devices**.
2. Tap the external Device Tile to access its settings.
3. Scroll to the Settings section.
4. Tap the **Use As GPS** toggle switch to enable or disable the GPS data flow between the external device and ForeFlight Mobile.



29.5.4 iOS Location Services

To display current position on the map, using the built-in GPS, ForeFlight Mobile needs permission to access location data. These settings are configured when ForeFlight Mobile is used for the first time.

To adjust Location Services permission settings after the initial launch:

1. Open the iPad or iPhone Settings app.
2. Select **Privacy → Location Services**.
3. Enable Location Services at the top of the page.
4. Locate and tap **ForeFlight** from the list of installed apps.
5. Verify the ForeFlight Mobile Location Services setting is set to **Always** or **While Using the App**.
6. Enable**Precise Location**.

Selecting a setting other than Always may result in ForeFlight Mobile not being able to perform as designed. Displaying position on the map also requires the ForeFlight Mobile Enable Ownship setting to be set to Always (or Limited). Access the Enable Ownship setting by selecting **More → Settings** and scrolling to the bottom of the view.

If using an external GPS, the Location Services permission settings do not apply.

29.5.5 GPS Cross-Check

GPS Cross-Check is available to Premium, Business Performance, MFB One subscribers. This feature allows entry of position information from a nearby VOR-TACAN or VOR-DME to verify ownship position accuracy.

> **NOTE:** To enable GPS interference alerts tap **Settings → Alerts → GPS Interference Alerts**. See ALERTS.

To cross-check GPS accuracy:

1. Tap a VOR Navaid on the map.

2. Tap **GPS Cross-Check** to open the side bar.
3. Enter the DME distance and radial position, then tap **Calculate**.
4. Deviation between the calculated and GPS position will be displayed.

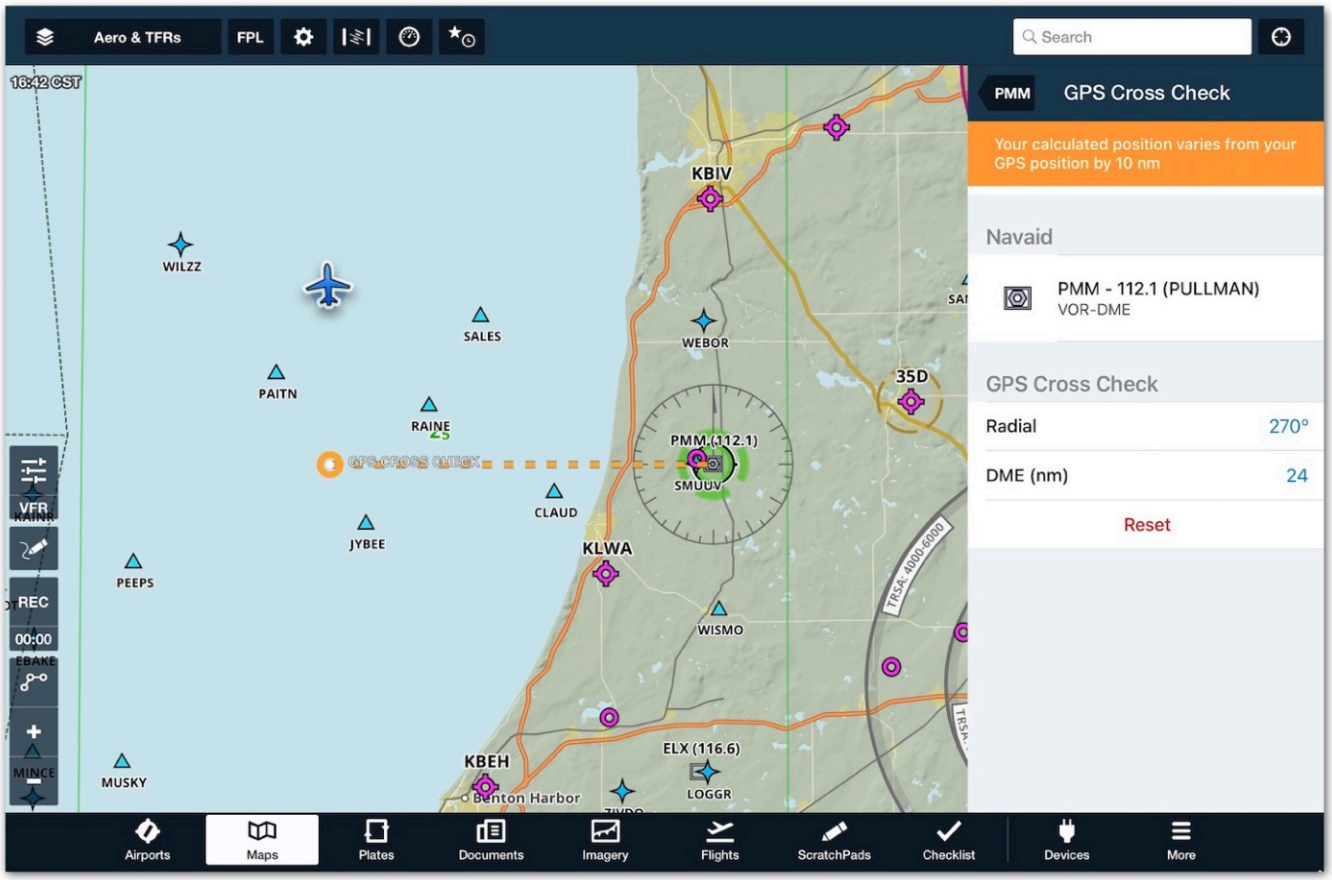


Figure 29-15. GPS Cross-Check

29.5.5.1 GPS Interference Alerting with Sentry

GPS jamming and spoofing can be detected with a Sentry device, providing timely and location-specific alerts, this situational awareness tool enables pilots to quickly assess the impact on their navigation systems, prepare procedures, and maintain operational safety in a degraded GPS environment.

If jamming or spoofing is detected by the Sentry, an unreliable signal alert pop-over will display on the map. Tap **Verify** to initiate a GPS Cross-check.

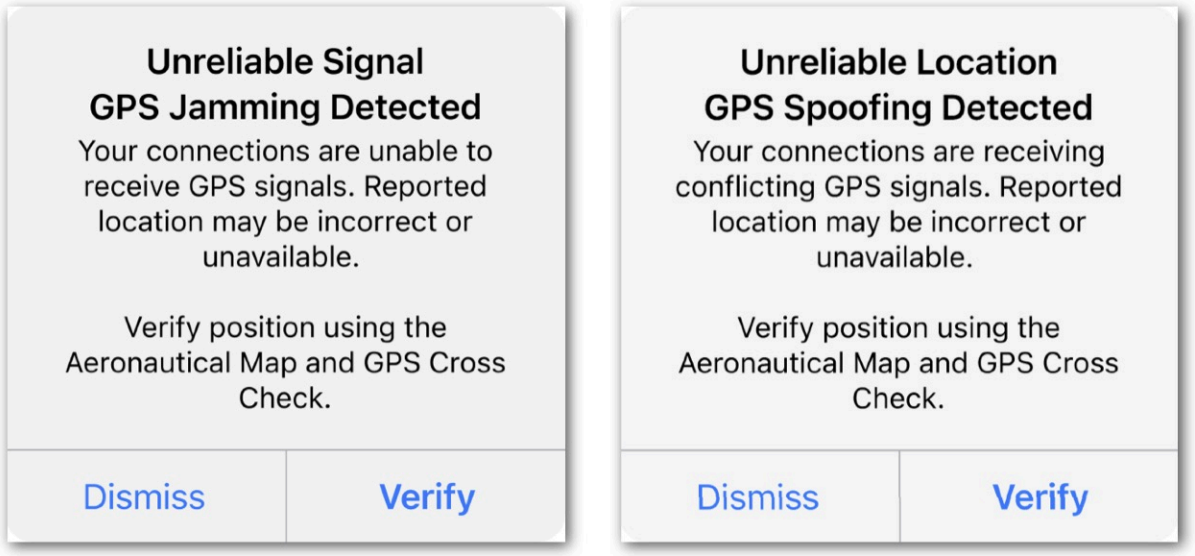


Figure 29-16. GPS Jamming and Spoofing Alert

29.5.5.2 GPS Interference Alerting without Sentry

ForeFlight Mobile can detect GPS interference without a Sentry device, providing timely and location-specific alerts. This situational awareness tool enables pilots to quickly assess the impact on their navigation systems, prepare procedures, and maintain operational safety in a degraded GPS environment.

If interference is detected by ForeFlight Mobile, an unreliable signal alert pop-over will display on the map. Tap **Verify** to initiate a GPS Cross-check.

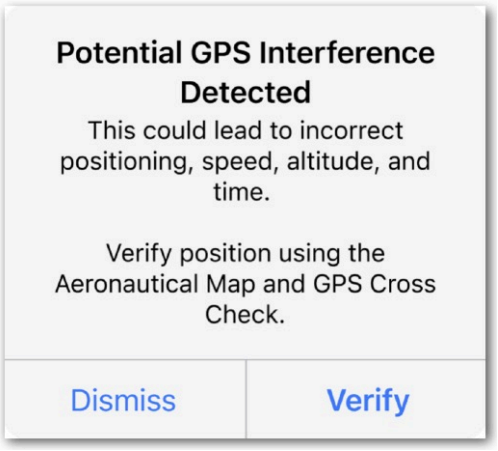


Figure 29-17. GPS Interference Alert

29.6 Attitude Indicator (AHRS)

iPad and iPhone are not equipped with an attitude and heading reference sensor (AHRS). As a result, when ForeFlight Mobile is not connected to an external device, or the **Use As AHRS** setting is disabled, the Attitude Indicator is inoperative and displays wings level with a "No Attitude Information" label.

All ForeFlight Mobile subscriptions can display attitude information when connected to a supported AHRS device. It is important to note, the Attitude Indicator only displays pitch and bank data provided by the source.

If the Attitude Indicator is inaccurate, the erroneous information originates at the source. As a preliminary troubleshooting step, AHRS should be calibrated as discussed on the following pages.

> **WARNING:** Attitude information in ForeFlight Mobile is an aid to situational awareness and shall not be used as a primary source of attitude information during IFR flight.



Figure 29-18. Attitude Indicator - No External Devices

29.6.1 Calibrating AHRS

Calibrating AHRS establishes the reference point from which changes to pitch and bank are reflected. For example, an aircraft with a 3 degree nose high calibration will indicate 8 degrees nose up when the aircraft is pitched up 5 degrees.

The process for calibrating AHRS varies by device type and can be done as often as necessary. There are three unique calibration methods:

- **Source**: AHRS can be calibrated at the source using the device interface. This method is used by most installed avionics and should be the first step when calibrating AHRS. See Calibrating the Source for additional information.
- **ForeFlight**: AHRS can be calibrated after being received by ForeFlight. This method is supported by all portable devices and some installed avionics. See Calibrating with ForeFlight for additional information.
- **(Reset) ARHS**: The Flight Stream 210 supports a remote Reset AHRS message. See Resetting AHRS with ForeFlight for additional information.

The table on the next page list supported AHRS calibration methods per device.

> **IMPORTANT:** AHRS should be calibrated on the ground or in unaccelerated flight when the aircraft is straight and level. AHRS calibration should begin at the source if applicable.

29.6.1.1 Supported AHRS Calibration Methods

The table below lists the calibration methods supported per device.

Table 29-24. uAvionix Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
Sentry		✓	✓	
Sentry Plus		✓	✓	Device

Table 29-25. Garmin Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
GDL 39 3D		✓		
GDL 50		✓		
GDL 52		✓		
GTX 345	✓	✓		
GNX 375	✓	✓		
GPS 175	✓	✓		
G3X Touch	✓	✓		
Flight Stream 210		✓		✓
Flight Stream 510	✓	✓		

Table 29-26. Appareo Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
Stratus		✓		

Table 29-27. Dual Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
XGPS 190		✓		

Table 29-28. Avidyne Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
IFD 550	✓			

Table 29-29. Dynon Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
Skyview	✓			

Table 29-30. Golze Calibration Methods

Device	Source	ForeFlight Mobile	Supports Auto Zero Pitch & Bank	Supports Reset AHRS message
ADL 180/ 190/200	✓	✓		

29.6.2 Calibrating the Source (Installed Devices)

Most installed avionics are calibrated using their own interface. Installed avionics should be calibrated by a certified avionics shop during installation. If calibration was not completed, AHRS data may not be broadcast by the device.

If using a device for the first time or troubleshooting an AHRS issue, the first step should be to ensure the device is accurately calibrated. Pilots may be able to calibrate an installed device AHRS using the device interface. This generally involves setting the current pitch and bank through the use of various menus. Refer to the device documentation for additional information.



Figure 29-19. Example Garmin AHRS Calibration Interface

IMPORTANT: AHRS must be calibrated at the source before pitch and bank data can be broadcast to ForeFlight Mobile.

NOTE: The Avidyne IFD 500 and Dynon SkyView can only be calibrated with their interface. The Garmin GTX345 will only transmit AHRS data after the unit has been calibrated using the device interface.

29.6.3 Calibrating with ForeFlight Mobile

Portable AHRS devices can only be calibrated using ForeFlight Mobile. Once a portable device is calibrated, it should not be moved. If moved, the device should be recalibrated.

Certain installed avionics can also be calibrated using ForeFlight Mobile. Calibrating an installed device with ForeFlight Mobile should not take the place of calibrating the device at the source. Additional information is located later in this section. See Calibrating AHRS with ForeFlight for additional instructions.

29.6.4 Resetting AHRS with ForeFlight Mobile

The Flight Stream 210 can accept a Reset AHRS message from portable devices. Unlike using an interface that permits pitch and bank to be manually specified, this method sends a Reset AHRS message which resets the device pitch and bank to zero degrees.

The reset message is delivered with the **Reset AHRS** button found at the bottom of the Device Information page. When this message is received, the device pitch and bank are reset to zero and reflected on any integrated or portable display that uses the AHRS data.

> **CAUTION:** Do not press the **Reset AHRS** button unless the aircraft pitch and bank is level.

29.6.5 Auto Zero Pitch and Bank

Sentry provides an Auto Zero Pitch & Bank setting. When Auto Zero Pitch & Bank is enabled, ForeFlight Mobile evaluates pitch, bank, and acceleration. When it is determined that the aircraft has been straight and level with no acceleration for more than ten seconds, the AHRS is reset to display zero degrees of pitch and bank.

To access the Auto Zero Pitch & Bank setting, select the Maps view and display the Attitude Indicator. Tap the AHRS settings (gear) button in the lower-left corner of the display. Toggle the **Auto Zero Pitch & Bank** setting on or off as needed.

29.6.6 Multiple AHRS Sources

If connected to multiple AHRS devices, ForeFlight Mobile uses the AHRS data according to its multiple-device connection logic. Higher priority AHRS signals can be ignored with the **Use As AHRS** setting found on the Device Information page.

29.6.6.1 Calibrating AHRS with ForeFlight Mobile

Portable and certain installed AHRS devices can be calibrated using ForeFlight Mobile. Calibrating devices with ForeFlight Mobile using the steps below applies pitch and bank correction values to the AHRS data after it has been received by ForeFlight Mobile.

To calibrate AHRS with ForeFlight Mobile:

1. Ensure installed avionics are calibrated using their interface (if applicable).
2. In ForeFlight Mobile, open the **Maps** view.
3. Tap the **Attitude Indicator** button to display its view.

4. Tap the **AHRS (gear) Settings** button to reveal calibration options.

   - If the **Zero Pitch & Bank** button is displayed, tap it to set the reference point.
   - If an AHRS setup menu is displayed, tap **Calibrate AHRS**, then tap **Zero Pitch & Bank**. If applicable, tap the arrows to make minor adjustments to the device pitch and bank wings level reference point.

5. Tap **Done** (or **Save**).

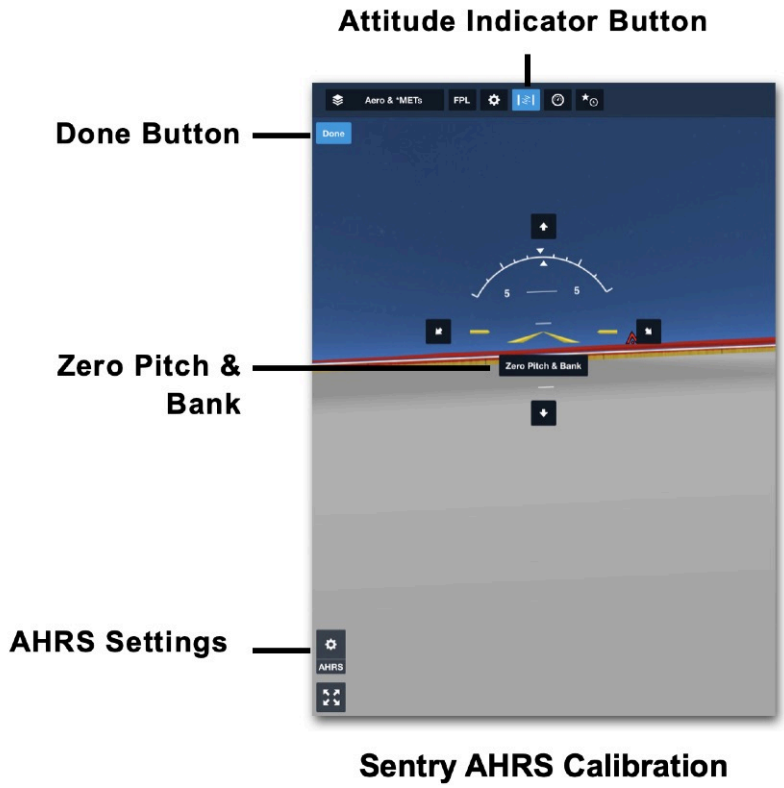


Figure 29-20. Sentry AHRS Calibration

29.7 ADS-B Traffic

ForeFlight displays ADS-B traffic on the map when connected to an ADS-B receiver and the **Traffic** layer is selected. It is not possible to display traffic from the internet when connected to an ADS-B device.



WARNING: ADS-B traffic data from ForeFlight Mobile is an aid to situational awareness. Traffic from ForeFlight Mobile should not be used as the sole means of traffic avoidance. Always follow see and avoid techniques or direct instructions from ATC.

CAUTION: Any ADS-B traffic target within 500’ vertically should be considered as potentially being at the same altitude.

29.7.1 Types of ADS-B Traffic

ADS-B traffic consists of two components:

- **Air-to-Air traffic** is ADS-B Out equipped aircraft whose broadcast can be directly received by an ADS-B receiver.
- TIS-B traffic is non ADS-B Out equipped air traffic whose information is received via the TIS-B broadcast.

29.7.2 ADS-B Frequency Bands

All ADS-B traffic is transmitted on either the 978 MHz or 1090 MHz frequency (1090 MHz is required internationally and above FL180). Most ADS-B receivers are dual-band and capable of receiving traffic from both frequencies.

29.7.3 Requirements and Limitations

The aircraft does not need to be ADS-B Out equipped to receive traffic information. However, if it is not not equipped, ForeFlight may show fewer traffic targets and significant relative altitude discrepancies. See ADS-B Ownship and Traffic Information Service Broadcast (TIS-B) for additional information.

29.7.4 ADS-B Traffic Symbology

A traffic target color and symbol depend on its location, proximity, and movement.

29.7.4.1 ADS-B Traffic Coloration

Traffic symbol colors indicate alert status as follows:

Traffic Icon Color	Meaning
	Traffic target is on the **ground**
	Traffic target is **airborne**
	Traffic **caution** when a traffic target is within 2.0 NM horizontally and +/- 1,200 feet vertically, or will be within 45 seconds. Both aircraft must be moving at a speed greater than 40 knots.
	Traffic **warning** when traffic target is within 1.3 NM horizontally and +/- 1,200 feet vertically of current position, or will be within 25 seconds. Traffic targets that are no longer an immediate hazard remain red for 15 seconds.

29.7.4.2 Relative Altitude Symbols

Relative altitude of a traffic target is depicted with a plus **[+]** (height above) or minus **[-]** symbol (height below). Relative altitude is given in hundreds of feet. For example, a traffic target with a +9 relative altitude is 900’ above.

An up or down arrow next to a traffic target indicates that the traffic is climbing or descending greater than 500 feet per minute.

> **NOTE:** In the unlikely event ForeFlight Mobile is connected to an ADS-B receiver and ownship is not detected, traffic evaluations will performed using pressure altitude corrected for local barometric pressure in order to provide a better comparison with the target.

29.7.4.3 Traffic Cautions and Warnings

Cautions and warnings are issued for traffic targets that pose a risk. Multiple cautions and warnings can be issued simultaneously. Ownship groundspeed and the groundspeed of the traffic target must be greater than 40 knots for a caution or warning to be issued.

Traffic Cautions are issued for targets that are less than 45 seconds from being within 2.0 NM and +/- 1,200' of ownship position. When a caution is issued, the target icon is highlighted **YELLOW**.



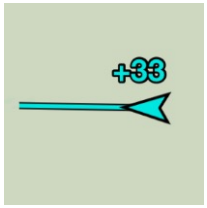
Traffic Warnings are issued for targets that are less than 25 seconds from being within 1.3 NM and +/- 1,200' of ownship position. When a warning is issued, the target icon is highlighted **RED**, and a Traffic Alert is activated if the setting is enabled.



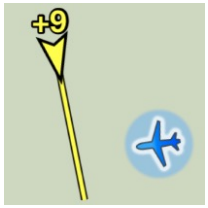
Traffic targets remain highlighted for 15 seconds after they no longer exceed the thresholds.

29.7.4.4 Example Traffic Symbols (ADS-B)

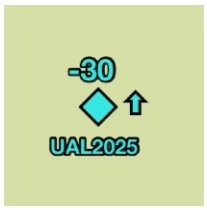
The following examples illustrate how to interpret ADS-B traffic symbols and understand their visual representation in ForeFlight.



Moving Traffic +33 means the target is 3,300 feet above current altitude



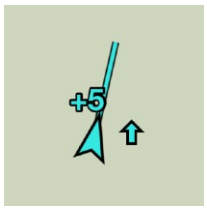
Caution Target Within 2.0 NM and +/- 1,200 feet, or will be within 45 seconds (+9 is 900 feet above)



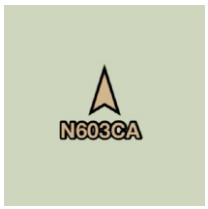
Stationary Traffic or Unknown Direction/Speed -30 means the target is 3,000 feet below current position



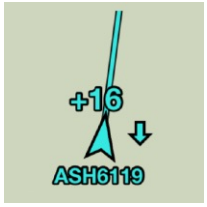
Warning Target Within 1.2 NM and +/- 1,200 feet, or will be within 25 seconds (+7 is 700 feet above)



Climbing Traffic >500 feet/ minute (+5 is 500 feet above)



Ground Traffic Target is not known to be airborne



Descending Traffic >500 feet/minute (+16 is 1,600 feet above)

29.7.5 Traffic Alerts

Traffic alerts are enabled by default across all views and map layers. To disable traffic alerts, go to **More → Settings → Alerts**.

An audible alert may accompany the visual alert if the **Speak All Alerts** setting is enabled. These alerts convey the relative (clock) direction, distance, and altitude of nearby targets.

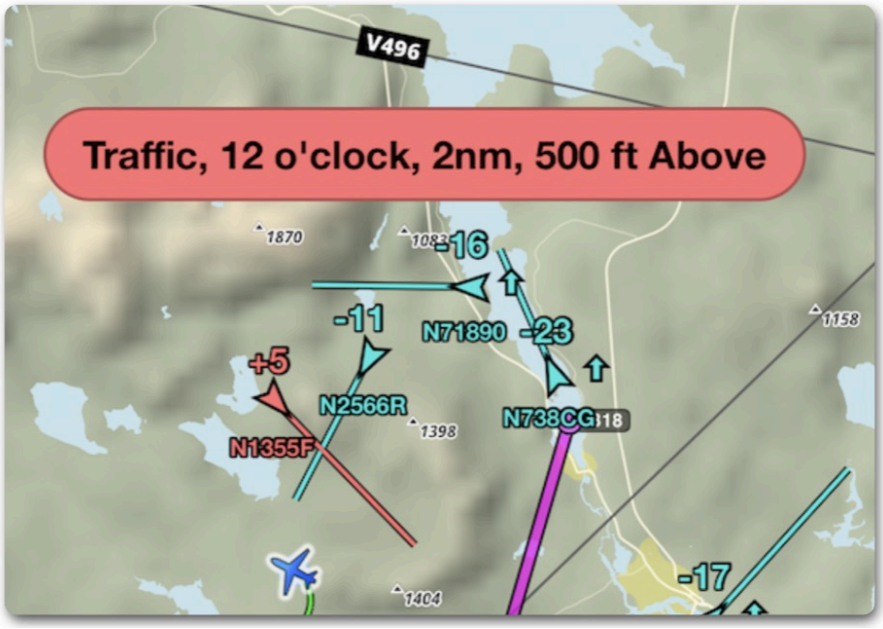


Figure 29-21. Traffic Alert

29.7.5.1 Activation Criteria for Traffic Alerts

Traffic alerts are activated only when all of the following conditions are met:

- Ownship has been determined.
- Ownship and the traffic target are both moving at ground speeds greater than 40 knots.
- The traffic target is expected to be within 25 seconds of the warning range, defined as being closer than 1.3 NM horizontally and within ±1,200 feet vertically.
- For audio alerts, Ownship must be at or above 250 feet AGL. This helps avoid nuisance alarms during near-ground operations.

29.7.6 Traffic in Synthetic Vision

Traffic within 11 NM of current position is depicted in the Attitude Indicator, also referred to as Synthetic Vision.

As traffic moves more than 11 NM away, the traffic target fades out of view. Traffic moving closer grows in size. Tapping on a traffic target in Synthetic Vision does *not* display a traffic information pop-up.



Figure 29-22. Traffic in Synthetic Vision

29.7.7 Hide Distant Traffic

All ADS-B traffic that is detected by the receiver is displayed on the map when the **Traffic** layer is selected. To reduce the amount of traffic displayed on the map, enable the **Hide Distant Traffic** setting.

The **Hide Distant Traffic** setting is only available when connected to an ADS-B receiver and hides traffic that is more than 15 NM or more than 3,500 feet above or below ownship position. To enable this setting:

1. Open the Map setting menu.
2. Enable **Hide Distant Traffic (ADS-B)**.

When Hide Distant Traffic is enabled, a label appears in the lower right corner of the map, indicating that distant traffic is hidden.

To remove all traffic from the map, deselect the Traffic layer from the map layer menu.

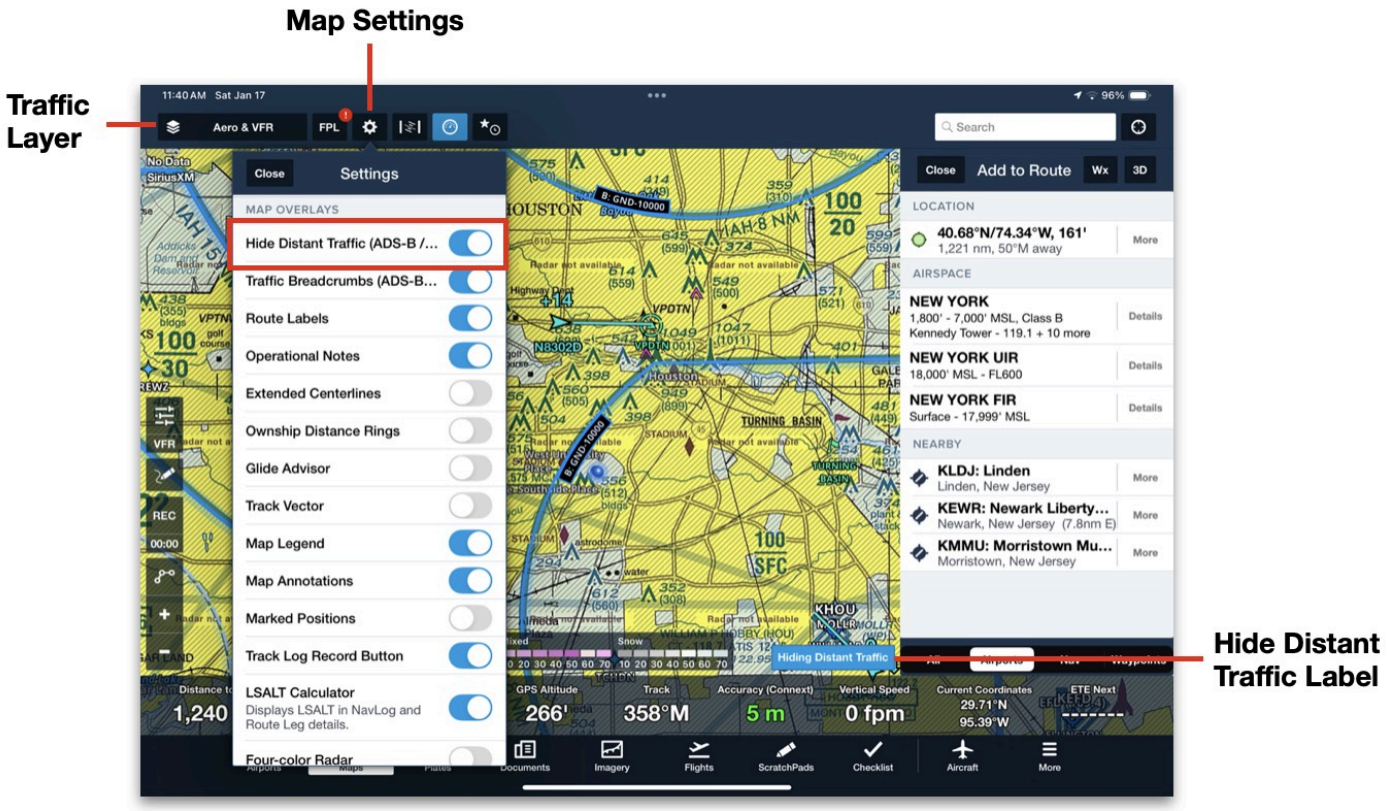


Figure 29-23. Hide Distant Traffic (ADS-B) Enabled

> **NOTE:** The Hide Distant Traffic setting does not affect traffic alerts.

29.7.8 Traffic Information Service Broadcast (TIS-B)

The Traffic Information Service Broadcast (TIS-B) is a component of ADS-B traffic. It is continuously broadcast on the 978 MHz frequency by ADS-B towers and exclusively contains information about air traffic not equipped with ADS-B Out.

29.7.8.1 Client aircraft

The TIS-B broadcast provides a more complete picture of the traffic around the present position. ADS-B Out equipped aircraft (also referred to as client aircraft) benefit the most from the TIS-B broadcast.

29.7.8.2 Traffic is included in the Broadcast

To be included in the TIS-B broadcast, air traffic must meet the following requirements:

- Within 15 NM and 3,500 feet (vertically) of any client aircraft.
- Equipped with an altitude encoding (Mode C) transponder (Not ADS-B Out equipped).
- Operating within the service volume of surveillance radar.

29.7.8.3 Traffic Excluded From the Broadcast

The following aircraft are excluded from the TIS-B broadcast:

- Aircraft operating outside 15 NM and 3,500 feet (vertically) of any client aircraft.
- Aircraft without transponders.
- Aircraft operating outside of surveillance radar.
- ADS-B Out equipped aircraft.

29.7.8.4 How TIS-B is received

Pilots can receive the TIS-B broadcast by operating within the ADS-B service volume while connected to an ADS-B (978 MHz) receiver. All traffic targets that are included in the TIS-B broadcast can be received by aircraft equipped with an ADS-B receiver for display in ForeFlight Mobile.

In other words, the ownship does not need to be ADS-B Out equipped to receive TIS-B traffic. However, TIS-B traffic will only be included in the broadcast and thus displayed in ForeFlight Mobile if the traffic target operates within 15 NM and 3,500 feet of an ADS-B Out equipped client aircraft.

29.7.9 ADS-B and TIS-B Differences

The icons used to depict air-to-air (ADS-B) and TIS-B traffic targets are the same. Differences exist when the traffic target is tapped. Unlike ADS-B traffic targets, TIS-B targets often lack identifying information (e.g., tail number or call sign).

When a traffic target is tapped, a pop-up displays information about the target to include whether the target originated from an air-to-air or TIS-B broadcast.



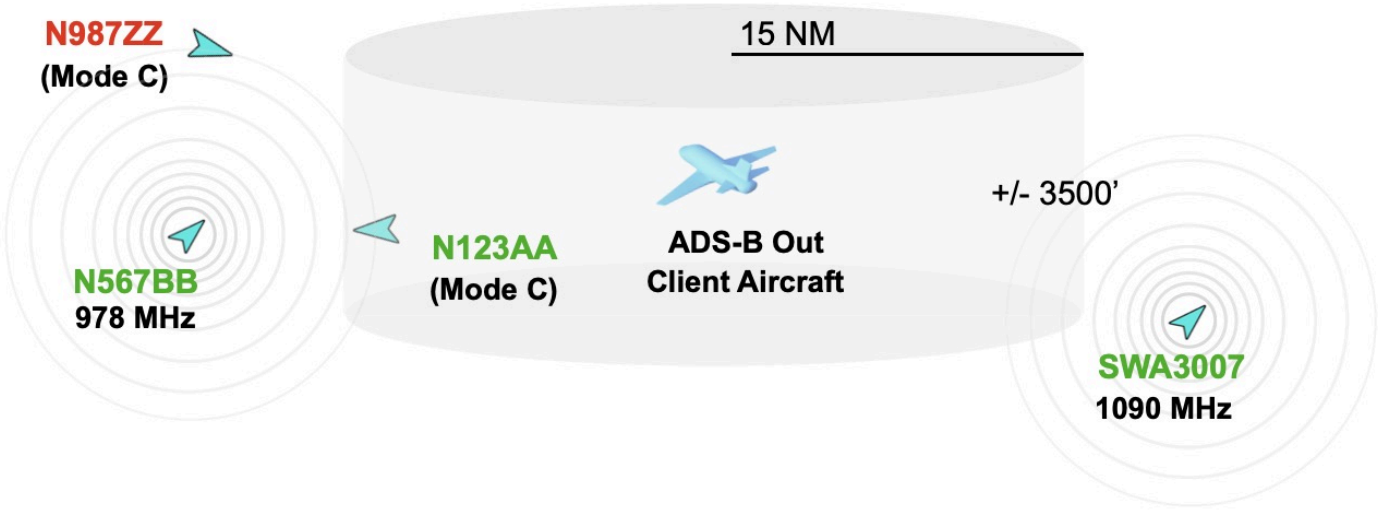
Figure 29-24. 1090 MHz ADS-B Traffic Pop-up (Left) / 978 MHz TIS-B Traffic Pop-up (Right)

> **NOTE:** Garmin receivers do not indicate which frequency traffic was detected on.

29.7.9.1 ADS-B and TIS-B Traffic Examples

The image below depicts four traffic targets and an ADS-B (In and Out) equipped airplane in the center of a gray ring. The ring represents the proximity requirements discussed in the TIS-B section.Traffic that can be displayed in ForeFlight Mobile is depicted in green. Traffic not able to be displayed is red.

- **N123AA** is a Mode C (non-ADS-B Out equipped) traffic target. This traffic target is included in the TIS-B broadcast because it is within 15 NM and 3,500’ of a client aircraft. Any aircraft receiving the TIS-B broadcast (including non ADS-B Out equipped aircraft) will receive the N123AA target for display in ForeFlight Mobile.
- **N987ZZ** is a Mode C (non-ADS-B Out equipped) traffic target. This traffic target is not available for display in ForeFlight Mobile because it is outside the TIS-B client proximity requirement. This traffic target will not be displayed in ForeFlight Mobile unless it were to enter the proximity requirements of any client aircraft.
- **N567BB** and **SWA3007** are air-to-air ADS-B traffic targets that can be received directly and are available for display in ForeFlight Mobile. These traffic targets are not included in the TIS-B broadcast because they are ADS-B Out equipped aircraft.



29.7.10 ADS-B Ownship

ADS-B Ownship is an automated process that identifies a traffic target as belonging to ownship aircraft.

29.7.10.1 Determining Ownship

To determine ownship, ForeFlight Mobile compares the location and movement of nearby traffic targets with the aircraft's current location and movement. If the traffic target's location and movement closely match the aircraft's current location and movement, ForeFlight Mobile recognizes that the signal is coming from the aircraft and assigns Ownship status. To improve ownship detection, open the **Maps** view, tap **FPL**, and select the aircraft for the flight from the dropdown menu on the left. Selecting the aircraft for the flight improves ownship identification accuracy.

> **NOTE:** To determine ownship, the ADS-B receiver must detect the ADS-B Out broadcast.

29.7.10.2 Benefits of Ownship

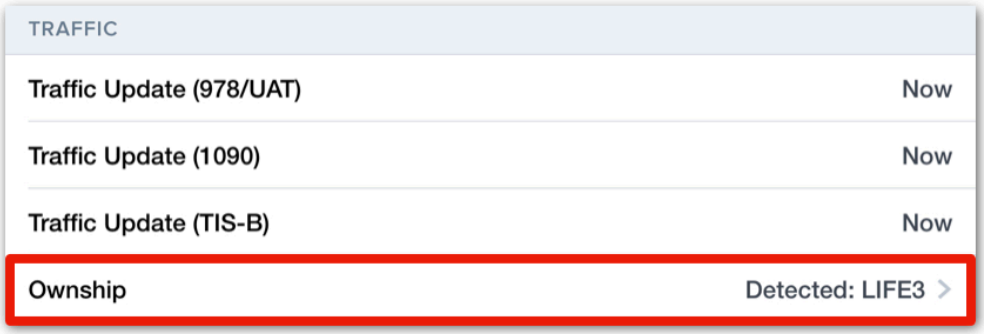
There are a number of benefits to a successful Ownship assignment:

- Ownship traffic target is removed from the map (eliminating false traffic targets).
- Information from the transponder is automatically incorporated into other aspects of ForeFlight Mobile (e.g., tail number is automatically assigned in Track Logs).
- Pressure altitude from the transponder is used for altitude comparison. When ownship is not detected and pressure altitude data is unavailable, ForeFlight Mobile compares GPS altitude with the pressure altitude of nearby traffic.

29.7.10.3 Checking Ownship Status

To determine if Ownship status has been assigned:

1. Select **More** ➔ **Devices** and tap the ADS-B Device Tile.
2. Scroll to the Traffic section and reference the **Ownship** field.
3. If an aircraft is listed, ownship status is assigned. Tap the **aircraft** to display the information from the transponder.



29.7.10.4 Ownship Information

The Ownship Information view displays information as reported by the transponder. Descriptions of each field can be found below.

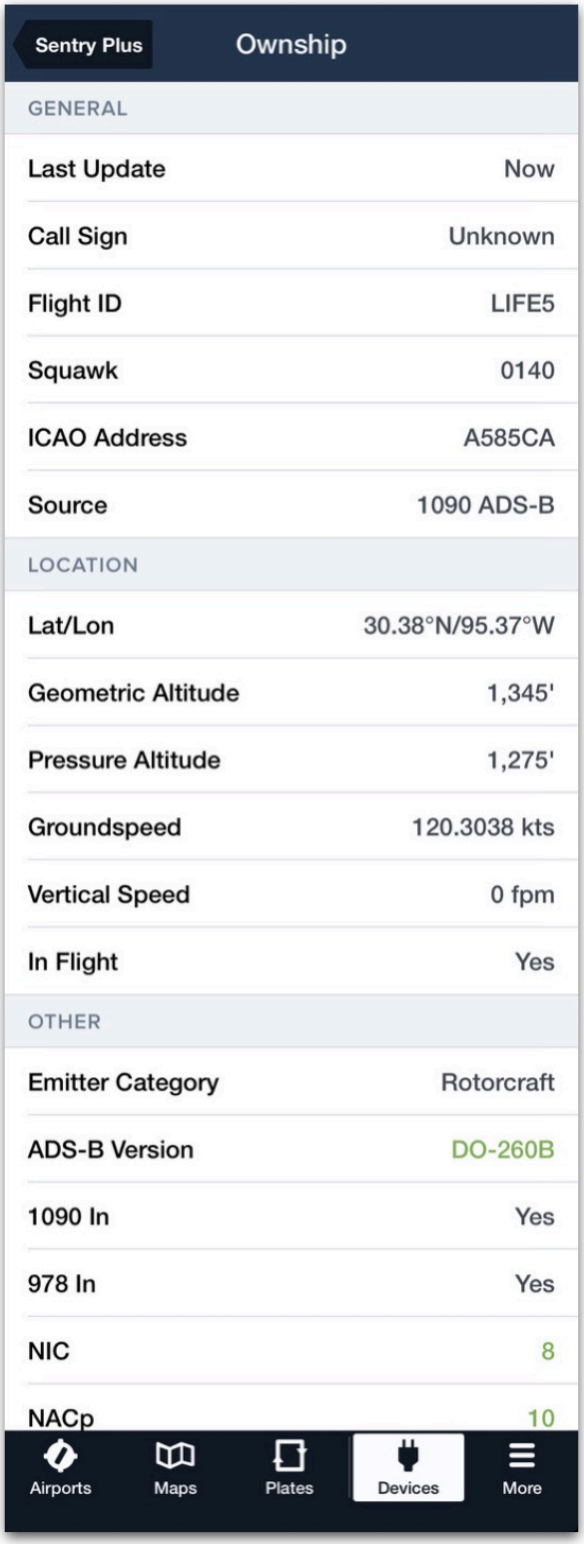


Figure 29-25. Ownship Information

> **Last Update**
>
> Indicates the last time data was received from the transponder.

Call Sign

An optional alphanumeric value used to identify the aircraft (e.g., UAL123).

Flight ID

The identifier for the aircraft and should match the aircraft ID (or call sign) entered on the flight plan.

Squawk

Displays the current squawk code entered into the transponder.

ICAO Address

A 24-bit code unique to the aircraft assigned by ICAO.

Source

Displays the frequency of the transponder (978 or 1090 MHz).

Lat/Lon

Displays the last reported latitude and longitude.

Geometric Altitude

Displays the last reported GPS altitude.

Pressure Altitude

Displays the last reported pressure altitude from the transponder. This data is used for altitude comparisons to nearby traffic targets.

Groundspeed

Displays the last reported groundspeed.

Vertical Speed

Displays the last reported vertical speed.

In Flight

Indicates whether the aircraft has been determined to be in flight. When in flight, certain features are disabled (e.g., account changes).

> **Emitter Category**
>
> Indicates the aircraft category (e.g., light airplane, small airplane, large airplane, rotorcraft, glider).

> **ADS-B Version**
>
> Displays the applicable TSO minimum operational performance standard. This value is established when the ADS-B equipment is manufactured.

> **1090 In**
>
> Specifies if the aircraft is capable of receiving the 1090 MHz frequency.

> **978 In**
>
> Specifies if the aircraft is capable of receiving the 978 MHz frequency.

> **NIC (Navigation Integrity Category)**
>
> Specifies an integrity containment radius around the reported position, as defined in TSO-C166b and TSO-C154c.

> **NACp (Navigation Accuracy Category for Position)**
>
> Specifies the accuracy of a reported position, as defined in TSO-C166b and TSO-C154c.

29.7.11 False Traffic Targets

A false traffic target is a traffic icon or traffic alert for the ownship. Two scenarios can result in false traffic targets. The error depends on the transponder type.

ADS-B Out Equipped False Traffic Targets

If the ADS-B receiver detects an ADS-B Out transponder and the position data does not match between the two, ownship cannot be assigned. If ownship is not assigned to the user aircraft, it may be displayed on the map if detected and can also generate false traffic alerts.

False traffic alerts are most likely to occur with rapid maneuvering or poor GPS accuracy. Once position data matches, ownship can be established and false traffic targets will cease.

If ownship is not assigned over the course of an entire flight, this may indicate airframe interference, an issue with the aircraft configuration, or an issue with transponder position reporting.

TIS-B False Traffic Targets (non ADS-B Out equipped)

If Mode C traffic information is broadcast via the TIS-B broadcast and the ADS-B receiver detects the traffic target, user aircraft may appear as a traffic target slightly behind and +/- 200' the actual position.

After a short period of time, ForeFlight Mobile will recognize the TIS-B target is the user aircraft and will assign it ownship status. Once assigned, the TIS-B target will be suppressed.

If ForeFlight Mobile is unable to determine ownship and the user TIS-B target is detected, there is no way to remove the TIS-B target from the map other than by turning off the **Traffic** layer.

29.7.12 Traffic Breadcrumbs

When connected to an ADS-B or FLARM receiver with an Essential or higher account, traffic breadcrumbs can be displayed on the map by tapping the traffic symbol. See Traffic Breadcrumbs for more information.

29.8 ADS-B Weather (FIS-B)

The Flight Information Service Broadcast (FIS-B), commonly referred to as ADS-B weather, is a subscription-free, continuous weather and NOTAM broadcast. ADS-B weather is primarily only available in the United States and includes the following products:

- Regional NEXRAD
- METARs
- AIRMETs/SIGMETs/CWAs
- PIREPs
- NOTAMs
- Icing
- Turbulence
- Freezing Levels
- CONUS NEXRAD
- TAFs
- Center Weather Advisories
- AIRMETs/SIGMETs/CWAs
- Special Use Airspace
- Cloud Tops
- Lightning
- Winds/Temperatures Aloft

To display ADS-B weather, the following criteria must be met:

- Connected to a supported ADS-B receiver
- Operating within the FIS-B broadcast service area
- In line-of-sight communication with at least one ADS-B tower
- A minimum of one ADS-B weather product or map layer selected.



Figure 29-26. ADS-B AIRMETs and NEXRAD Map Layers

29.8.1 ADS-B Towers

There are hundreds of ADS-B towers throughout the United States. Towers are classified into tiers and are subject to line-of-sight restrictions.

Each type of tower tier (surface, low, medium, and high altitude) offer a range of products with varying coverage areas (see the table in this chapter for additional details). Approximately two-thirds of towers in the United States are low-altitude tier towers.

Each tower type has a defined look-ahead range for the products it broadcasts. The look-ahead range specifies the coverage area for the broadcasted data. For example, a low-altitude tower broadcasts METARs for airports within 250 NM of the tower. Thus, the METAR look-ahead range for low-altitude towers is 250 NM.

ADS-B receivers are capable of receiving data from multiple towers simultaneously. What is shown in ForeFlight Mobile is a combination of data from all the towers being received.

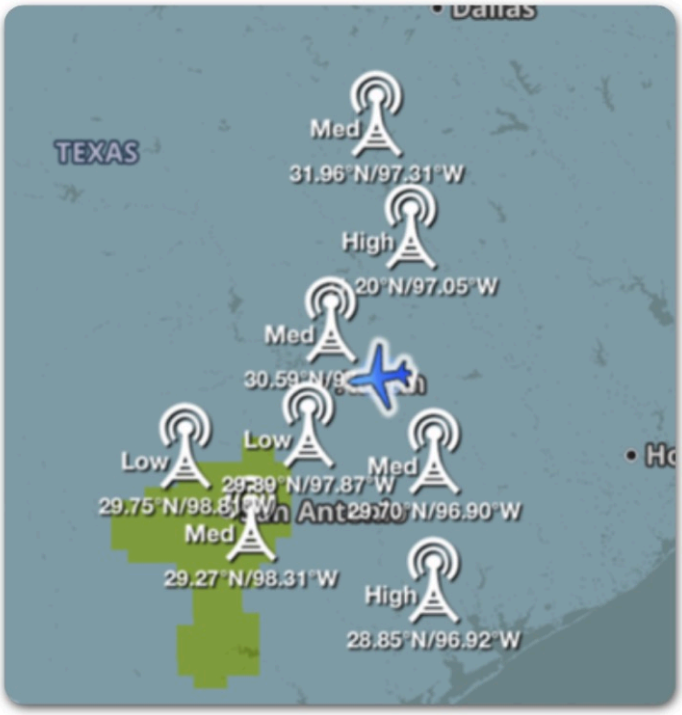


Figure 29-27. ADS-B Towers on the map

29.8.1.1 Tower Location on Map

ForeFlight Mobile can display the towers it receives data from on the map. When any data is received from a tower, including station data (location, type, and status) the tower is displayed on the map when the **Show ADS-B Towers** setting is enabled. To display ADS-B towers on the map:

1. Select **More → Devices**.
2. Tap the Device Tiles.
3. Enable the **Show ADSB Towers** setting.

Towers are depicted on the map near their exact location. Tower latitude, longitude, and type are shown next to the tower icon. Tapping an ADS-B tower icon does not provide any additional information.

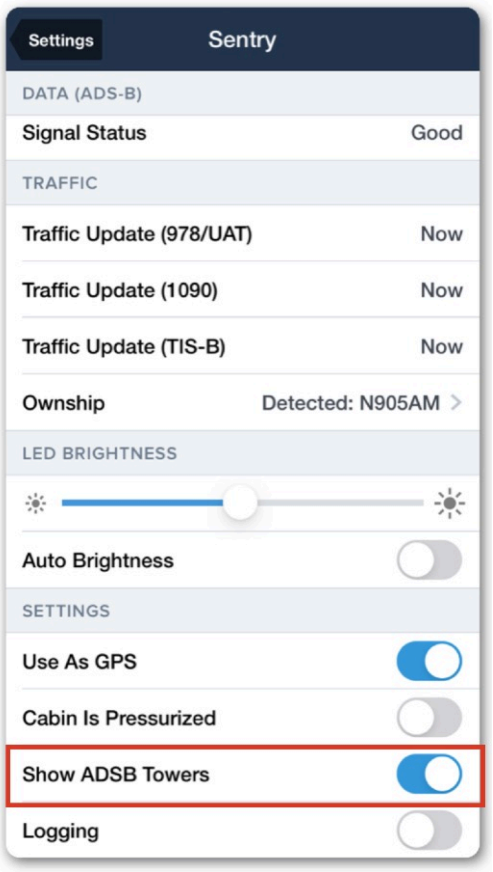


Figure 29-28. Show ADSB Towers Setting

29.8.2 FIS-B Look-Ahead Range

When viewing an ADS-B map layer, (e.g., radar, turbulence, icing) ForeFlight Mobile combines the data from multiple towers (if applicable) into a single map layer.

The image is an example of ADS-B turbulence, the corresponding look ahead ranges, and multiple ADS-B towers.

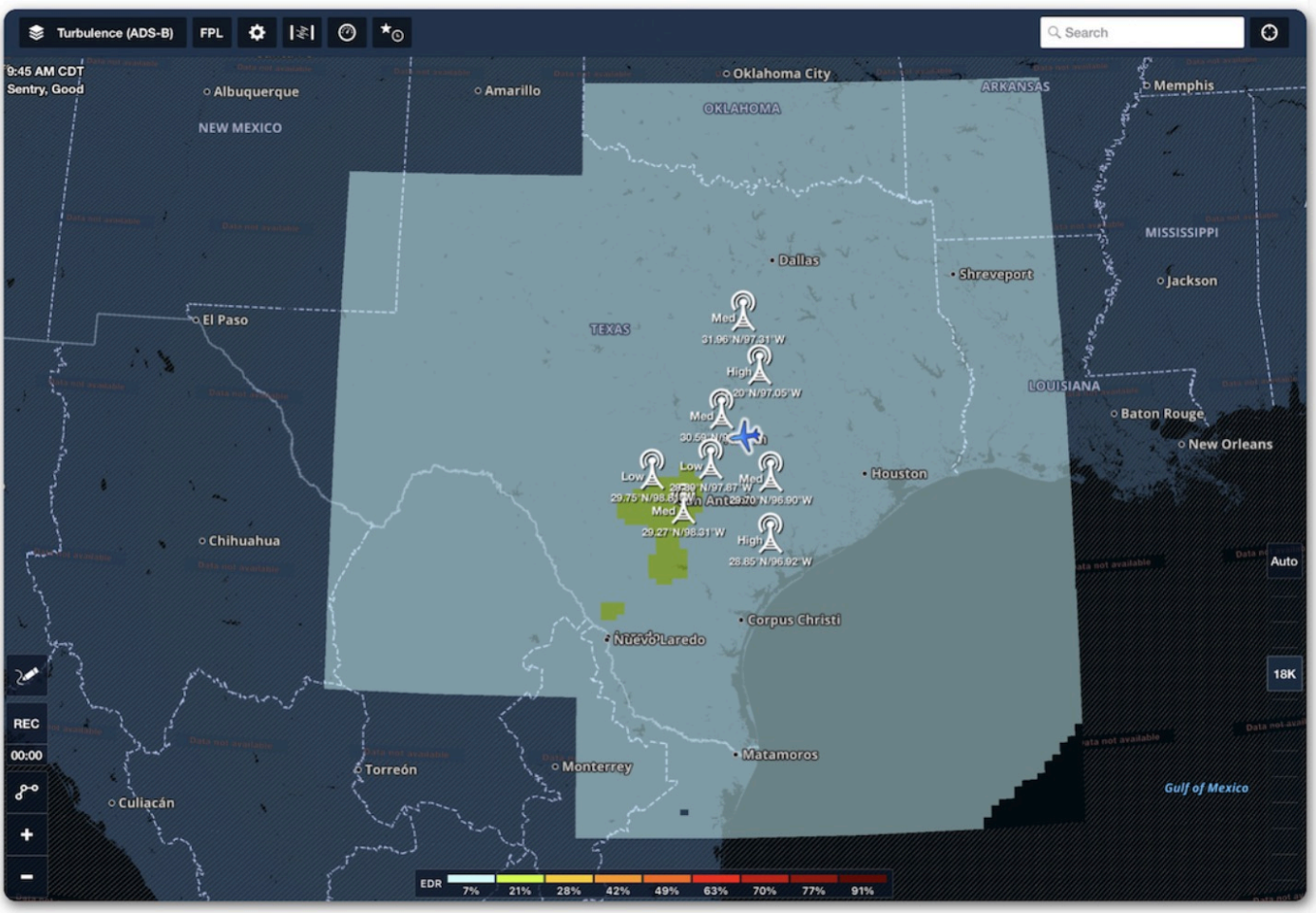


Figure 29-29. ADS-B Turbulence Look-Ahead Range

Areas beyond the look-ahead range do not contain weather data and depict a hashed map layer and “Data not available” labels.

Refer to the table below to determine weather product availability and broadcast range.

Table 29-34. FIS-B Look-Ahead Range by Tower Tier and Weather Product

Weather Product	Surface Towers	Low Altitude Tier	Medium Altitude Tier	High Altitude Tier
CONUS NEXRAD	Not Provided		Entire CONUS	
REGIONAL NEXRAD	150 NM		200 NM	250 NM
METAR	100 NM	250 NM	375 NM	CONUS B & C Airports
TAF	100 NM	250 NM	375 NM	

Weather Product	Surface Towers	Low Altitude Tier	Medium Altitude Tier	High Altitude Tier
AIRMET/SIGMET	100 NM	250 NM	375 NM	500 NM
Graphical AIRMETs	Not Provided	250 NM	375 NM	
CWA				
PIREPs				
SUA				
NOTAM	100 NM			
Cloud Tops	Not Provided	150 NM	200 NM	250 NM
Icing				
Lightning				
Turbulence				
Winds & Temp Aloft	500 NM		750 NM	1000 NM

29.8.3 Dynamic Map Layer Source and Status

When a dynamic map layer is selected (e.g., Traffic or ADS-B Radar), the data source (Sentry), its status (Good), and the last time the data was updated is displayed in the upper left corner of the map. When no map layers are selected, the label is removed.

Timestamp

A color-coded timestamp depicts the age of the oldest active map layer. The timestamp color changes based on when the map layer was updated and how often the data is refreshed.

- **White** indicates the latest data is displayed.
- **Orange** indicates the data is nearing expiration.
- **Red** indicates the data is expired and newer data should be available.

When multiple map layers are selected, the timestamp reflects the oldest data. Tap the timestamp to display a popup with the update times of each selected layer.

Signal Source and Status

Below the timestamp is a label that reflects the source of data (e.g., Sentry, Connext, Stratus, etc.). Next to the data source is a status indicator. Signal status represents the *number of towers* the device is receiving data from. Signal status does *not* represent the quality of the signal.

There are four potential ADS-B receiver statuses:

- **No Towers** indicates the device is not receiving any tower data.
- **No Data** indicates the device is receiving tower data (tower type or location), but not weather or NOTAM data.
- **Marginal** indicates the device is receiving FIS-B data from one tower.
- **Good** indicates the device is receiving FIS-B data from more than one tower.

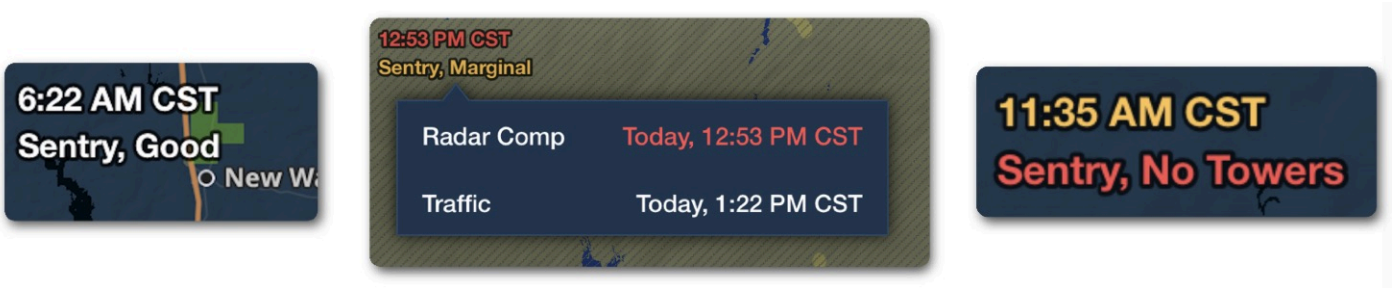


Figure 29-30. Good, Marginal, and No Towers Map Labels

ADS-B Replay

Sentry and Stratus ADS-B receivers save the last 30 minutes of ASD-B weather information received by the device, including NEXRAD Radar, METARs, TAFs, etc.

ADS-B Replay automatically sends saved data to ForeFlight Mobile when the app is reopened after sleeping the device or switching from another app. ADS-B Replay reduces the amount of time required to view ADS-B weather information. Check Replay status on the Device Information page.

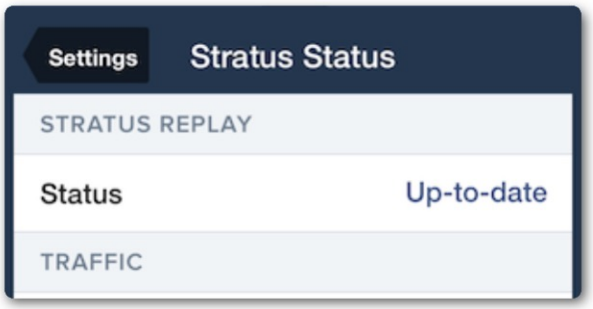


Figure 29-31. ADS-B Replay

29.8.4 ADS-B Radar

Next-generation radar data (NEXRAD) is available over ADS-B for the continental United States (CONUS). To display ADS-B NEXRAD data, select the **Radar (ADS-B)** map layer when connected to an ADS-B receiver and within the FIS-B service volume.

> **NOTE: Radar** and **Radar (ADS-B)** are two separate map layers. **Radar** is available with an internet connection and is not available when connected to a Wi-Fi ADS-B receiver.

ADS-B Radar consists of two types of data (CONUS and Regional). Both types automatically display when the **Radar (ADS-B)** map layer is selected.

29.8.4.1 CONUS NEXRAD

CONUS radar is a low-resolution composite radar picture for the continental United States. This data is available from medium and high-altitude FIS-B towers. CONUS NEXRAD data is updated every 15 minutes. ForeFlight Mobile checks for new data every 5 minutes.

29.8.4.2 Regional NEXRAD

Regional radar is a higher-resolution composite radar picture broadcast by all tower tiers. Regional NEXRAD data is only available for the areas within 150 to 250 NM from the towers data is received from. On clear days when there are no radar returns, Regional NEXRAD is updated every 10 minutes. Otherwise, Regional NEXRAD is updated every 2 minutes.

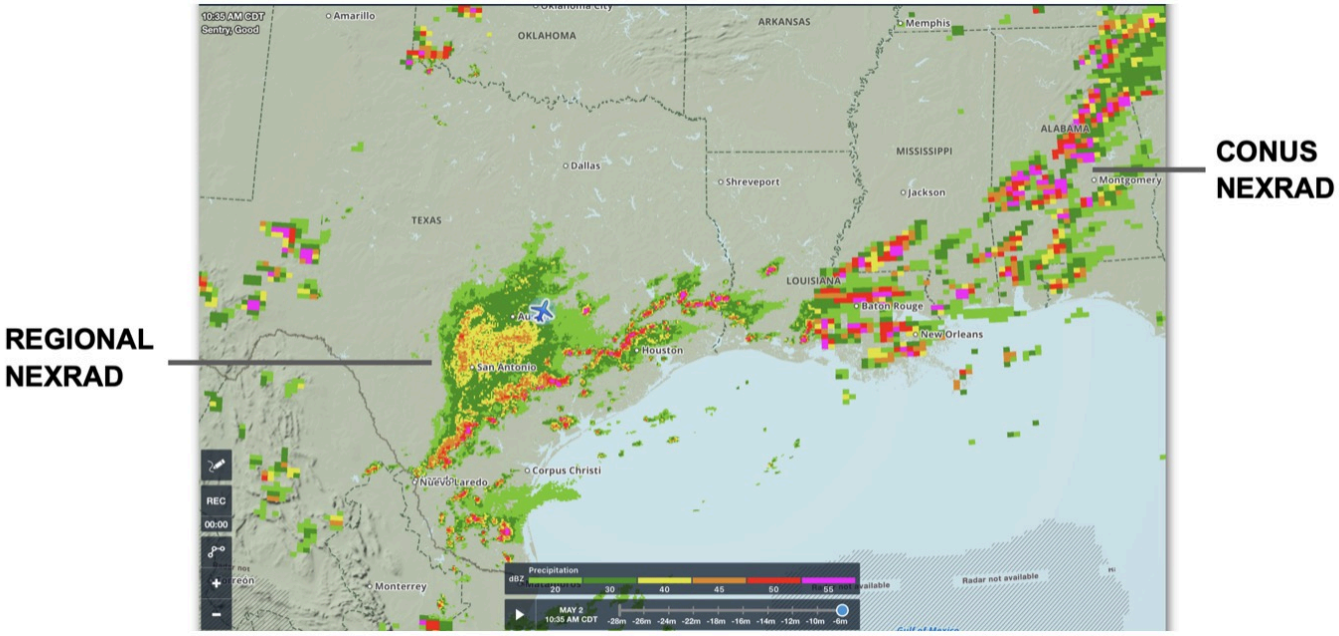


Figure 29-32. Regional and CONUS ADS-B Radar

29.8.4.3 Animated ADS-B Radar

When **Radar (ADS-B)** is selected, radar returns can be animated with the play button left of the time slider at the bottom of the Maps view. The time slider and play button are removed when less than two radar frames are available. ForeFlight can animate (loop) up to 15 frames of ADS-B NEXRAD data.

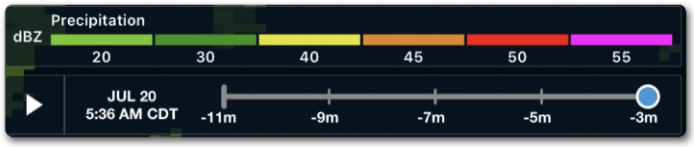


Figure 29-33. NEXRAD Animation Time Slider with Play Button

29.8.4.4 Radar Frame Information

To check the number of available radar frames:

1. Open the **Map Settings**(gear button in the Maps upper toolbar).
2. Select the ADS-B receiver (near the bottom of the menu).

3 Reference the Radar Frames field.

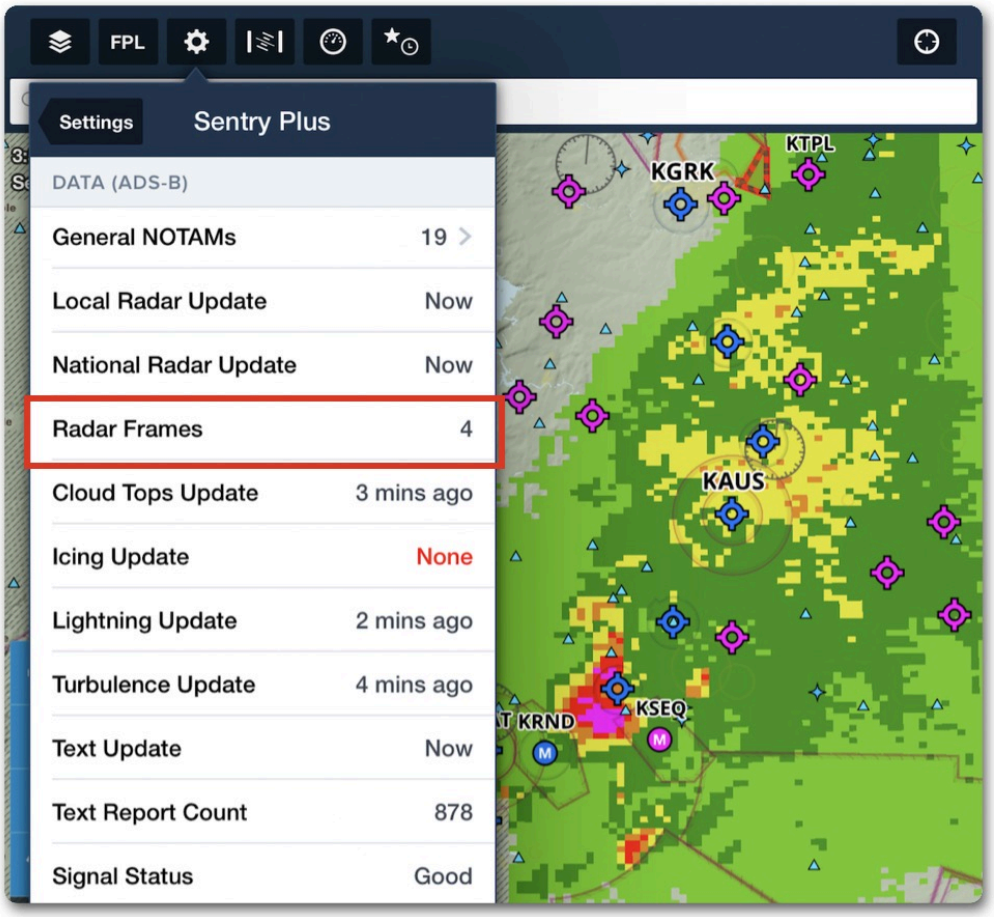


Figure 29-34. ADS-B Radar Frames

29.8.5 ADS-B Cloud Tops

ADS-B Cloud Tops are available for the continental United States and are a useful tool for determining if flight can be conducted in visual conditions above the clouds.

Cloud tops are a forecast map layer from the National Weather Service (NWS) and is derived from satellite temperature sensors using the High-Resolution Rapid Refresh (HRRR) model. The Cloud Tops forecast is generated every hour and transmitted over ADS-B every 15 minutes.

To view Cloud Tops, select **Cloud Tops (ADS-B)** from the map layer menu and use the **altitude slider** on the right side of the map to filter clouds with tops below the selected altitude.

Forecast Cloud Tops that exist at or above the selected altitude are depicted on the map according to the color-coded scale. Each color represents an MSL altitude in 3,000-foot increments. Tap **Auto** at the top of the altitude slider to automatically display cloud tops at and above the current GPS altitude.

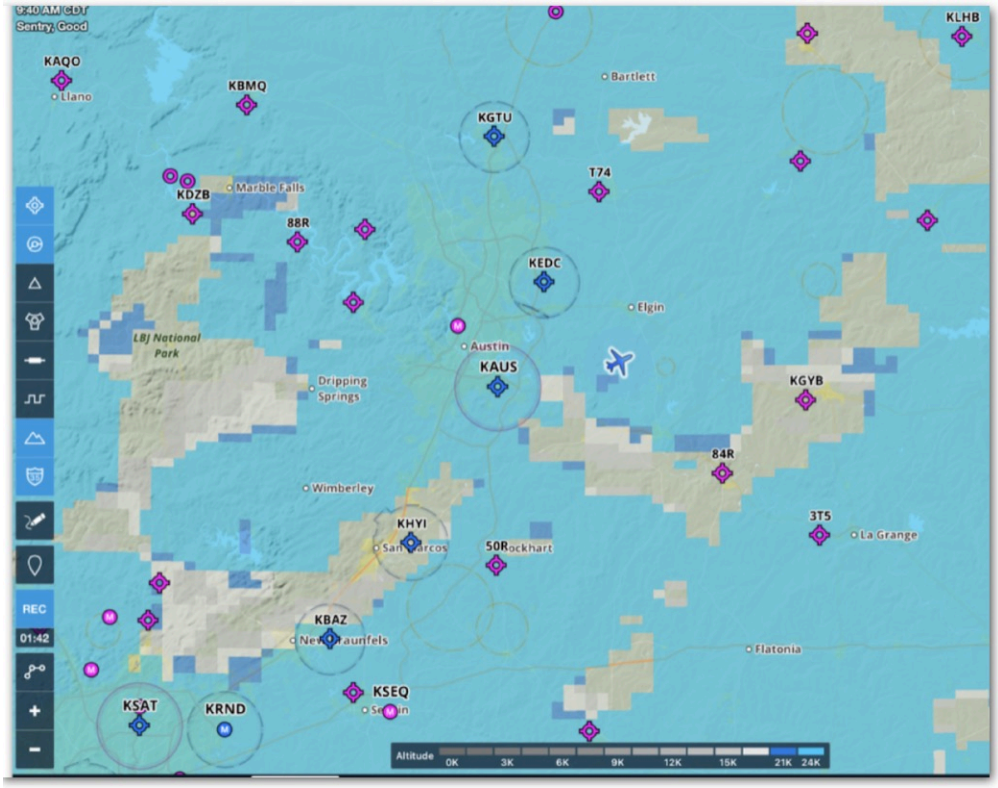


Figure 29-35. ADS-B Cloud Tops

29.8.6 ADS-B Icing

ADS-B Icing provides continental United States forecasted icing data from the NWS Forecast Icing Potential model. This product has a look-ahead range of 150 to 250 NM and is run on an hourly basis. Forecasted icing data is transmitted over FIS-B at 15-minute intervals.

Forecasted icing severity and anticipated presence of super-cooled large droplets (SLD) are provided from the surface up to 24,000 ft MSL in 2,000 ft increments. Use the altitude slider on the right side of the map to display icing data at various altitudes. Tap **Auto** at the top of the altitude slider to automatically display icing data at the current GPS altitude.

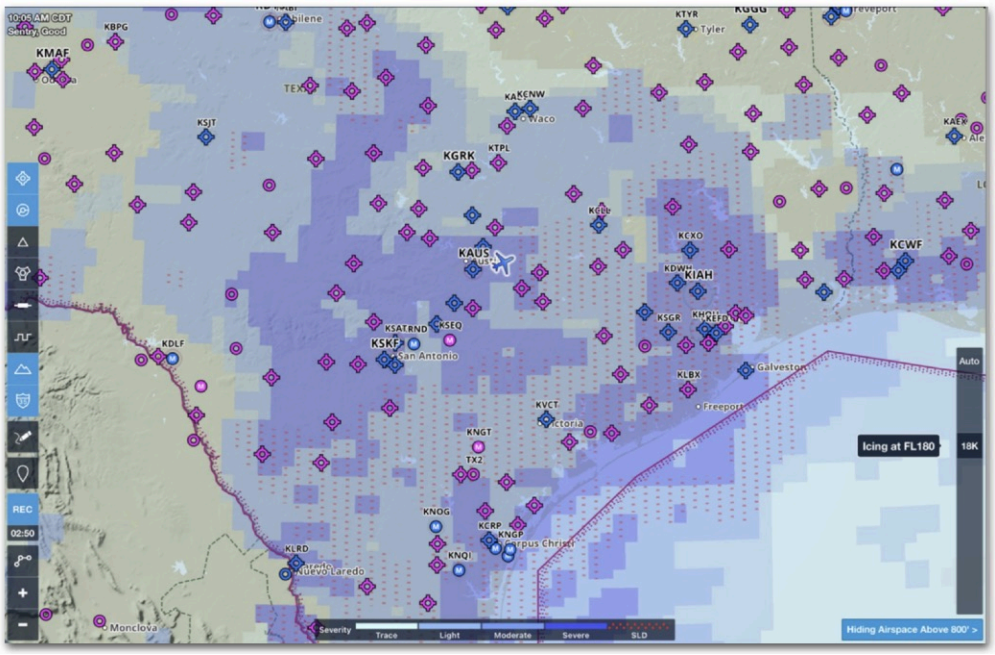


Figure 29-36. ADS-B Icing

29.8.7 ADS-B Turbulence

The ADS-B Turbulence map layer displays the NWS forecast covering the continental United States with a look-ahead range of 150 to 250 NM. ADS-B Turbulence displays the forecast eddy dissipation rate (EDR) (i.e., turbulence intensity) based on a medium aircraft weight category.

Turbulence data is available from the surface up to 24,000 ft MSL in 2,000 ft increments using the altitude slider on the right side of the map. Tap **Auto** above the altitude slider to automatically display forecast turbulence intensity at the GPS altitude.



Figure 29-37. ADS-B Turbulence

29.8.8 ADS-B Freezing Levels

The ADS-B Freezing Level map layer provides a graphical representation of freezing levels across North America. Freezing levels are delineated with color-coded lines at 4,000-foot intervals up to 24,000 feet (MSL).

If there are multiple freezing levels for a region, a shaded polygon is displayed on the map. Tap the polygon to display additional details. Freezing level forecasts are generated every three hours and automatically updated in ForeFlight.

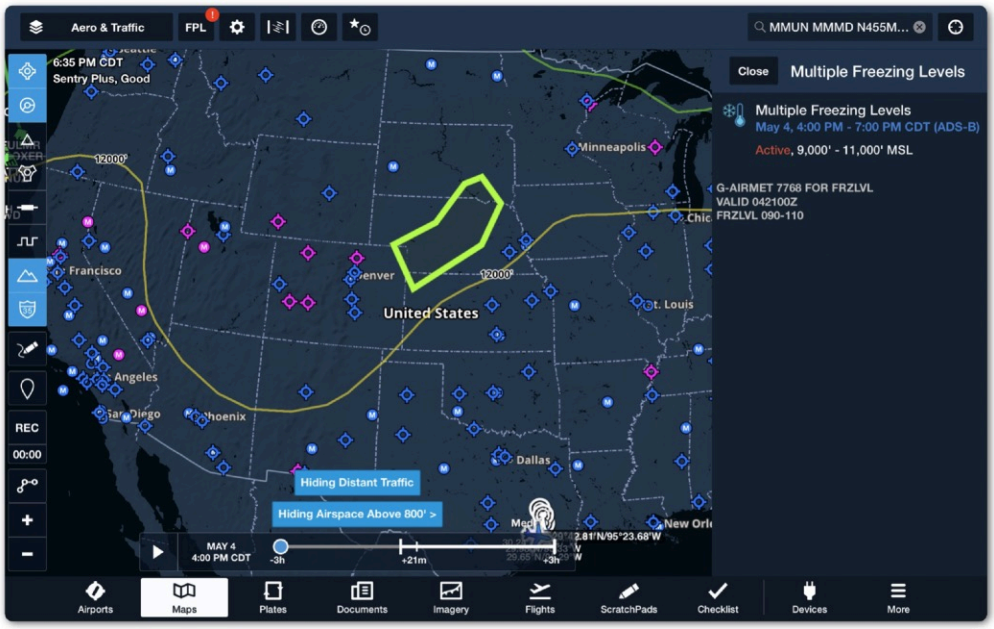


Figure 29-38. Freezing Lvls (ADS-B)

29.8.9 ADS-B AIRMETs, SIGMETs, CWAs

AIRMETs, SIGMETs, and Center Weather Advisories (CWAs) are issued by meteorological watch offices for weather that is potentially hazardous to low-level aircraft with limited capability. AIRMETs consist of less severe weather than SIGMETs: moderate turbulence & icing, surface winds of 30 knots, or widespread restricted visibility. AIRMETs, SIGMETs, and CWAs are combined into a single map layer.

When the **AIR/SIGMET/CWAs** map layer is selected, the individual weather products can be filtered with the buttons near the bottom of the map. Selected types are highlighted blue and the relevant advisories are displayed graphically on the map during their active time.



Figure 29-39. AIR/SIGMET/CWA Filters

AIRMETs, SIGMETs, and CWA forecasts are generated every six hours. ForeFlight Mobile checks for updated data every five minutes. The time slider at the bottom of the map can be used to view future forecast periods.

Tap an AIRMET, SIGMET, or CWA to display additional information in the sidebar. If there is more than one active layer in the location tapped, the advisories are depicted in a list view. Tap an individual advisory to display the advisory text.

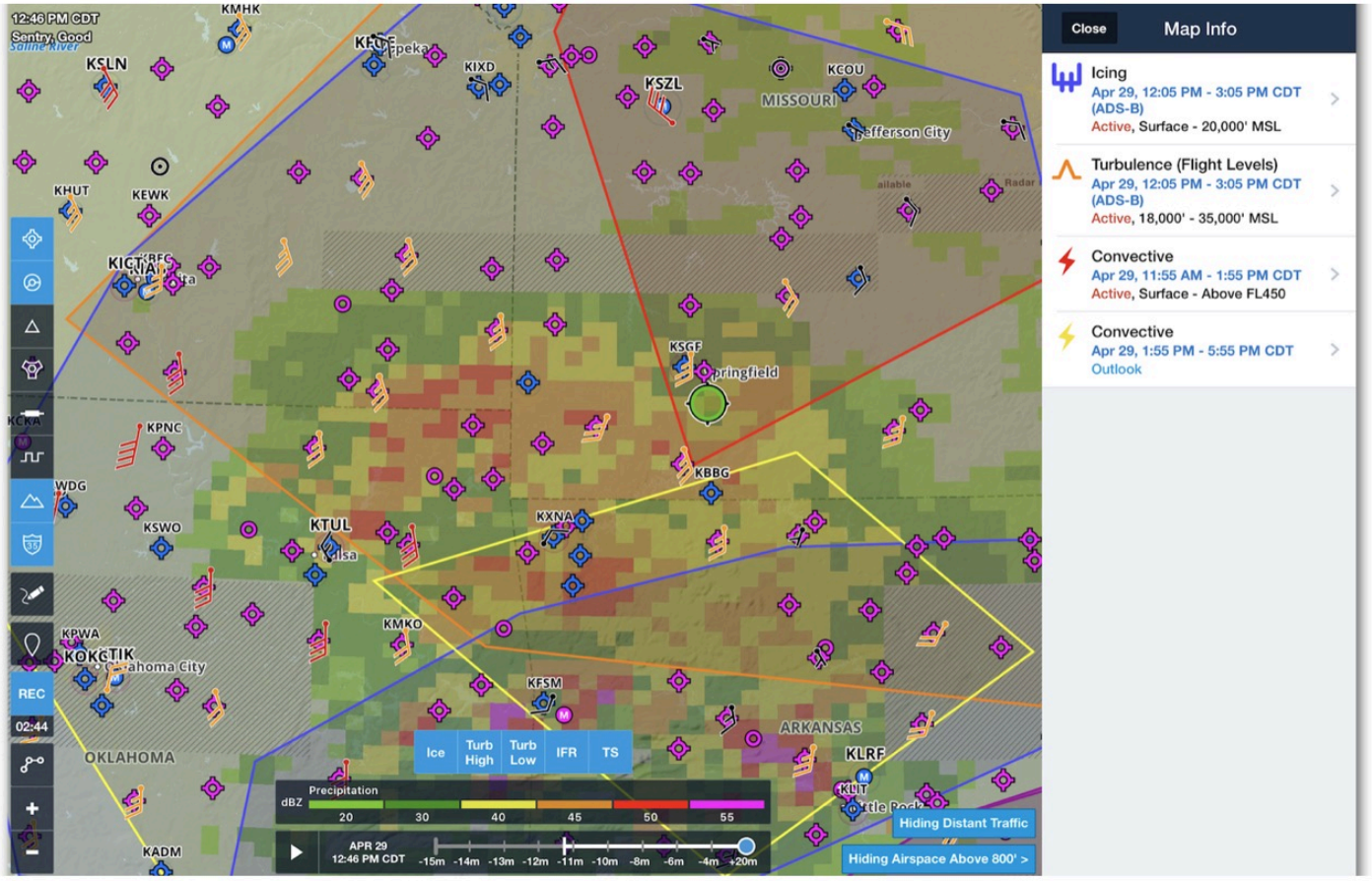


Figure 29-40. ADS-B AIRMETs, SIGMETs, and CWAs

29.8.10 ADS-B PIREPs

Pilot reports (PIREPs) are broadcast over ADS-B with a range of 250 NM, 375 NM, and 500 NM for low, medium, and high altitude towers respectively. PIREPs are issued by pilots as needed and are automatically refreshed in ForeFlight every ten minutes.

PIREPs are displayed graphically on the map when the **PIREPs** layer is active. Tap a PIREP to display the coded and decoded PIREP text. The age of the PIREP is displayed at the top of the PIREP menu alongside the source (ADS-B).

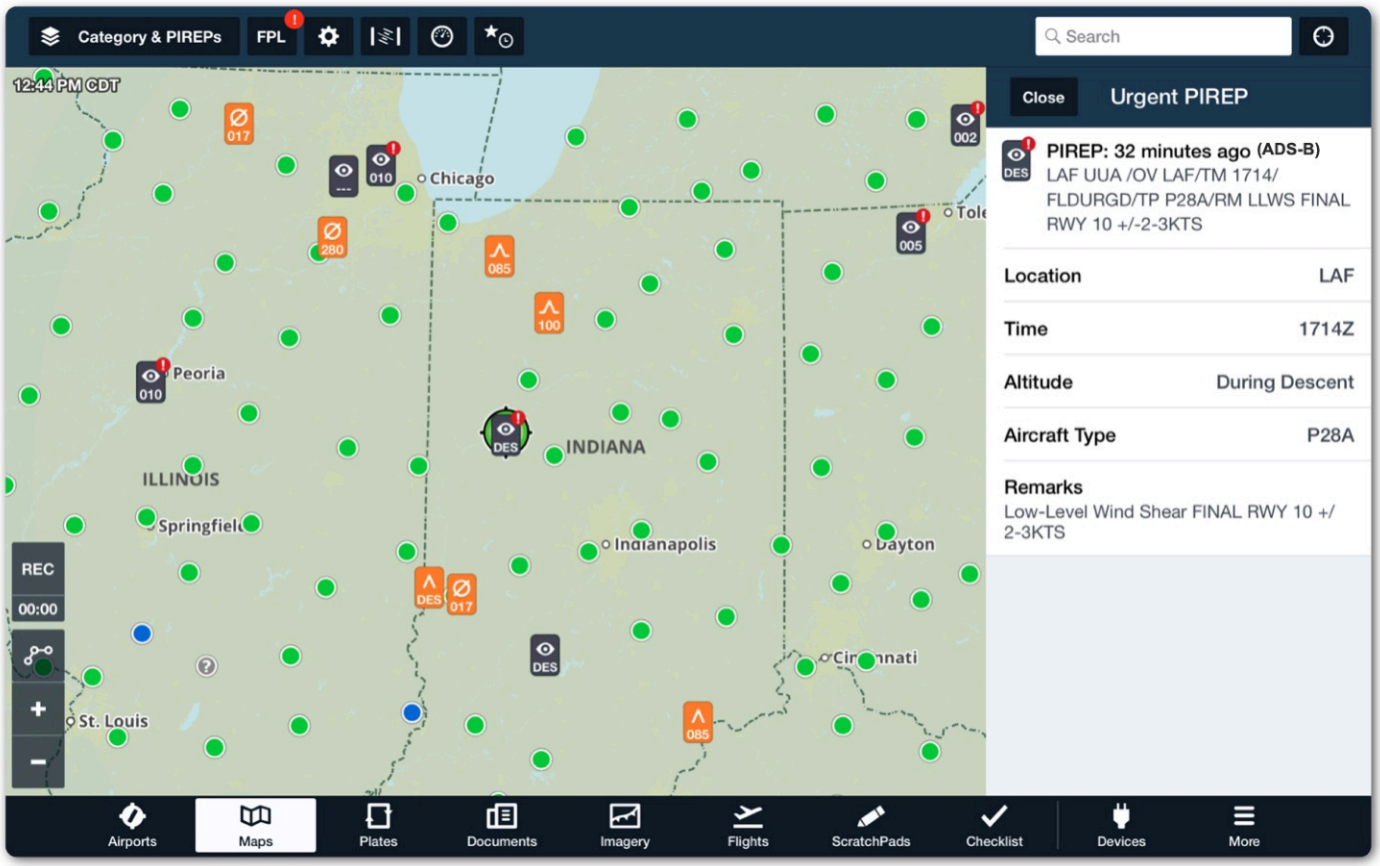


Figure 29-41. ADS-B PIREPs

Icon	Meaning
	Icing (increasing severity)
	Turbulence (increasing severity)
	Obscuration or other weather

29.8.11 ADS-B Lightning

ADS-B Lightning provides a graphical representation of the observed cloud-to-ground lightning strike density and polarity every five minutes from the U.S. National Lightning Detection Network (NLDN).

Lighting data is transmitted over FIS-B with a 150 to 250 NM look-ahead range. Tap a lightning icon to reveal the number of strikes within the given radius.

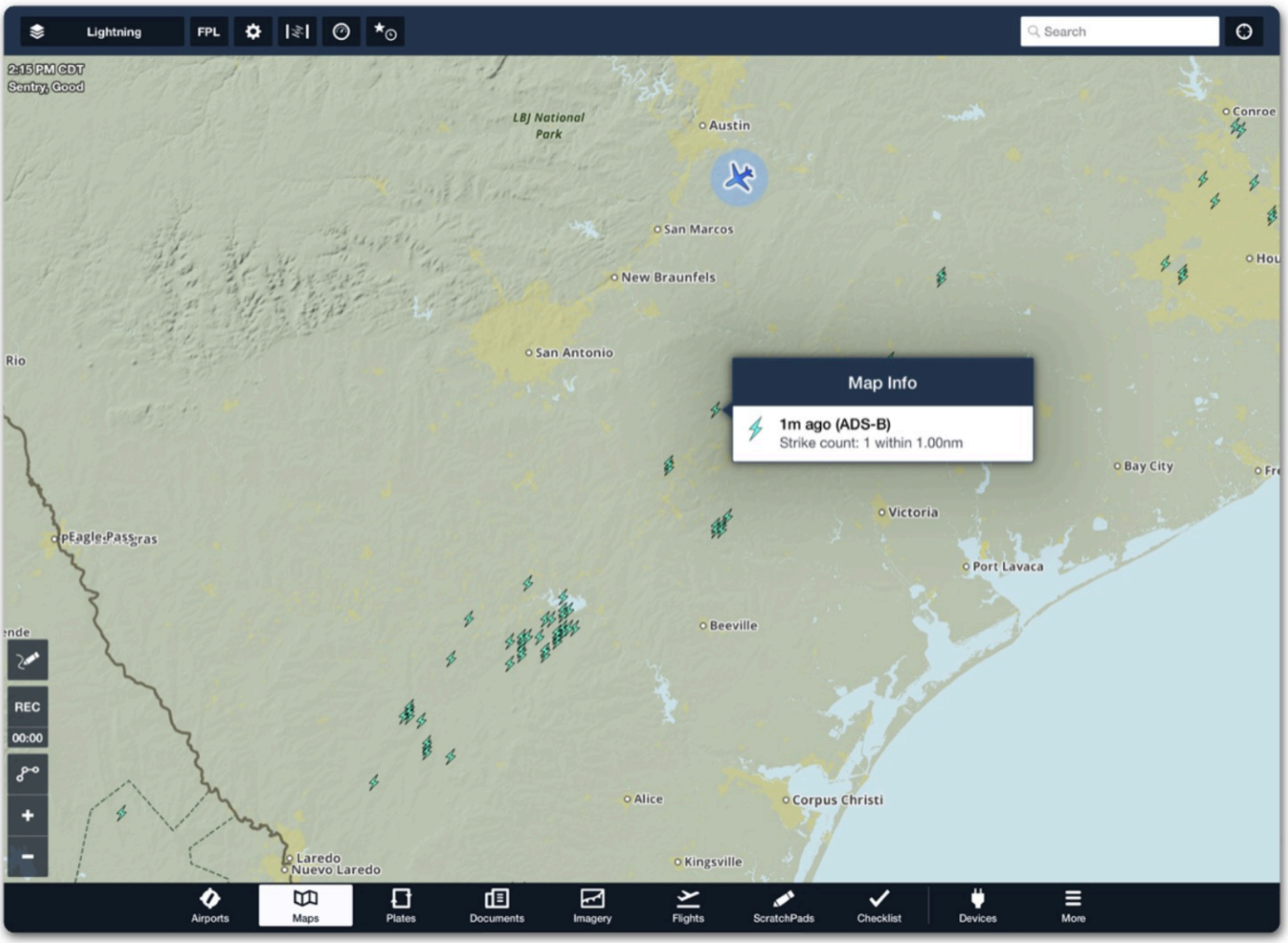


Figure 29-42. ADS-B Lightning

> **NOTE:** Baron Mobile Link ADS-B Lightning requires firmware version 2.0 or higher.

29.8.12 ADS-B METARs

METARs received via ADS-B are nearly identical to METARs received over the internet and can be viewed using the same techniques as when connected to the internet.

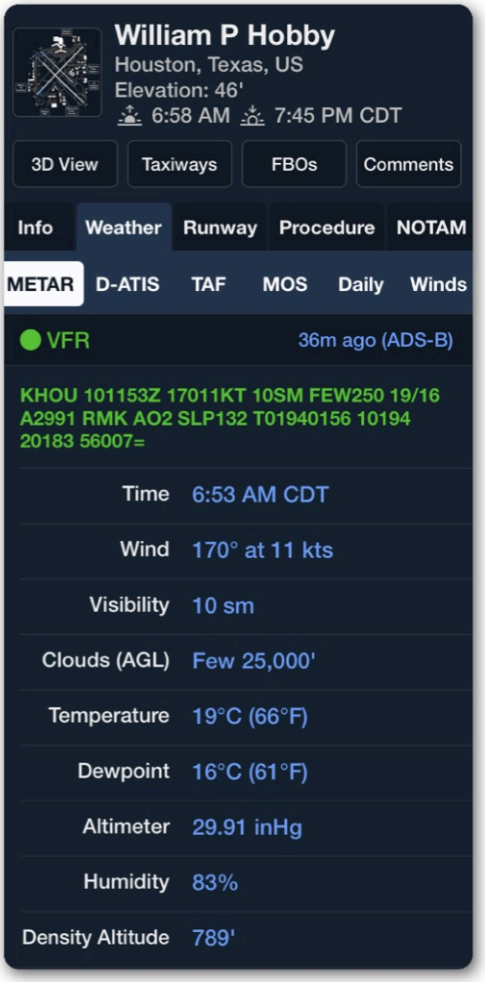


Figure 29-43. ADS-B METAR

ADS-B METARs differ from internet-based METARs in two ways:

- An (ADS-B) source label is displayed to the right of the METAR timestamp.
- METARs are only available for the airports within the look-ahead range of the towers data is received from.

METARs contain temperature, dewpoint, wind speed, wind direction, precipitation, cloud cover, cloud heights, visibility, and barometric pressure data. METARs are updated every hour unless changing weather conditions dictate more frequent updates. ForeFlight Mobile checks for updated ADS-B METARs when the data is first displayed and automatically every five minutes after that.

29.8.12.1 Graphical METAR Map Layers

Selecting a map layer that uses METAR data (e.g., Flight Category, Surface Winds, Dewpoint Spread, Temperature, Visibility, Ceiling, Sky Coverage) displays the relevant ADS-B METAR data graphically on the map. Tap the weather icon on the map to display the METAR in the sidebar.

29.8.13 ADS-B TAFs

ADS-B TAFs are broadcast with the same functionality and look-ahead specifications as METARs. TAFs are updated by the National Weather Service every six hours or as unexpected weather occurs. ForeFlight Mobile checks for updated TAFs when the layer is first selected and automatically every ten minutes after that. Due to TAF update frequency, it is not uncommon to see TAF update times up to six hours old.

29.8.14 ADS-B Special Use Airspace

Special Use Airspace (SUA) is an area designated for operations that may impose limitations on non-participating aircraft. Examples include Alert Areas, Controlled Firing Areas, Military Operations Areas, Prohibited Areas, Restricted Areas, and Warning Areas.

SUA status is broadcast over the ADS-B NOTAM-D feed and displayed *textually* in ForeFlight. SUA status delivered via ADS-B is only available by selecting **More ➔ Devices ➔ Device Tile ➔ General NOTAMs**. SUA NOTAMs have a 100 NM look ahead and are refreshed automatically in ForeFlight Mobile every ten minutes.

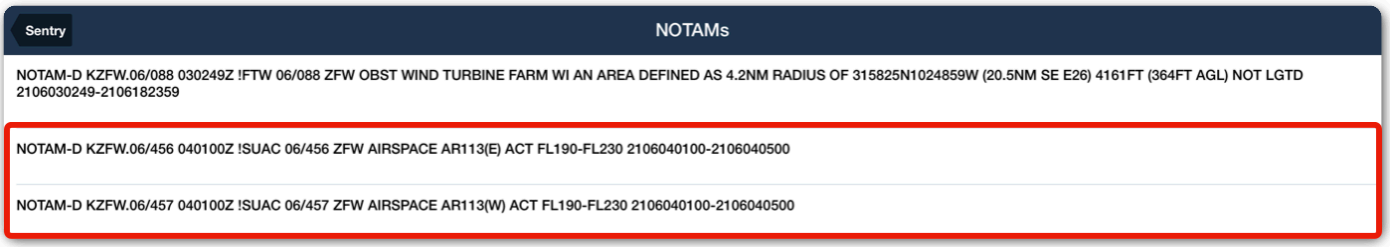


Figure 29-44. Special Use Airspace (SUA) Status NOTAMs

> **NOTE:** NOTAMs delivered over ADS-B are not depicted graphically on the map. If NOTAMs are viewed prior to flight, they may be saved to the temporary (cache) storage of the device and be visible on the map during the flight. For best results, ForeFlight recommends Packing before flight.

29.8.15 ADS-B NOTAMs

The ADS-B NOTAMs broadcast does not provide all NOTAMs or NOTAM types that a standard preflight briefing would include. Only NOTAMs from the preceding 30 days are broadcast over ADS-B. With the exception of Temporary Flight Restrictions (TFRs), NOTAMs delivered over ADS-B are not depicted graphically on the map.

ADS-B NOTAMs have a 100 NM look-ahead range and are updated every ten minutes. The ADS-B NOTAM feed includes two NOTAM types:

29.8.15.1 Distant (D) NOTAMs

Distant NOTAMs are NOTAMs that are primarily distributed within the United States in the U.S. Domestic NOTAM format. Distant NOTAMs are NOTAMs that require wide dissemination: en route navigational aids, civil public use landing areas and aeronautical data. To view Distant NOTAMs, select **More ➔ Devices ➔ Device Tile ➔ General NOTAMs**.

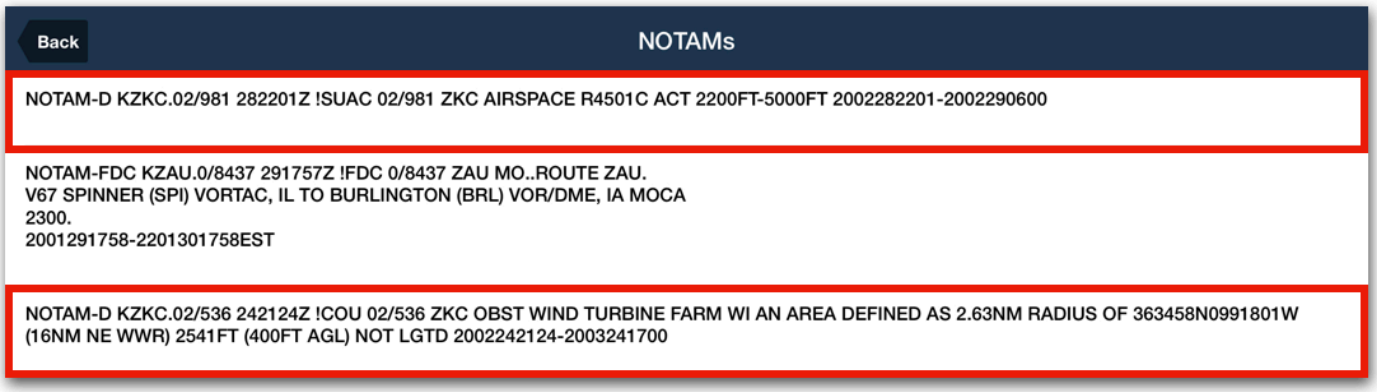


Figure 29-45. ADS-B Domestic NOTAMs

29.8.15.2 Flight Data Center (FDC) NOTAMs

FDC NOTAMs are regulatory in nature. Temporary Flight Restrictions (TFRs) and amendments to published instrument approach procedures are broadcast as FDC NOTAMs over ADS-B. To view FDC NOTAMs, select
More ➔ Devices ➔ Device Tile ➔ General NOTAMs.

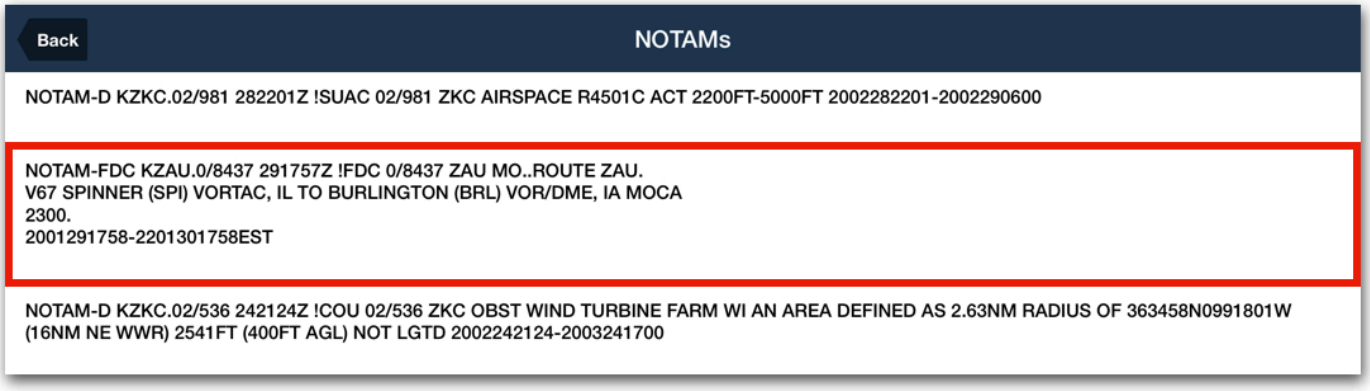


Figure 29-46. ADS-B FDC NOTAM

29.8.15.3 Temporary Flight Restrictions (TFRs)

ADS-B TFRs that contain properly formatted graphical information can be displayed on the map when the **TFRs** map layer selected.

TFRs within 8 hours of becoming active are red. Published TFRs that are more than 8 hours from becoming active are orange. Tap the TFR shape to reveal the raw text associated with the FDC NOTAM.

29.8.15.4 Stadium TFRs

Individual sporting event TFRs (FDC NOTAM 0/0367) are not broadcast over ADS-B. As a result, stadium TFRs must be Packed to be displayed in flight.

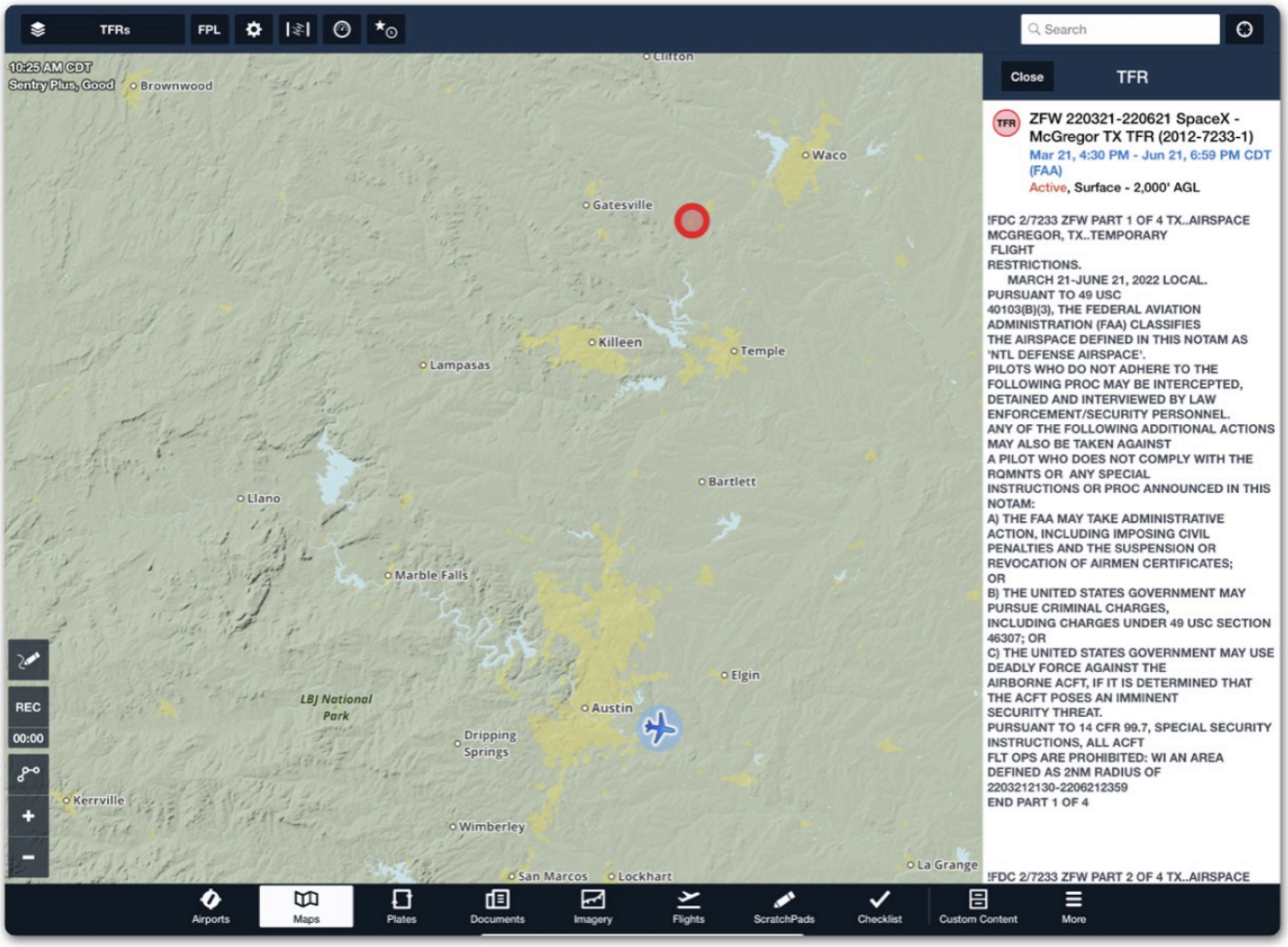


Figure 29-47. ADS-B Temporary Flight Restriction - NOTAM (FDC)

> **WARNING:** Information obtained *solely* via ADS-B should not be regarded as a thorough preflight briefing. NOTAMs that are not TFRs are not displayed graphically when the only data source is ADS-B.

29.8.16 ADS-B Winds & Temperatures Aloft

Winds & Temperatures Aloft forecasts are broadcast over ADS-B with various look-ahead ranges.

To view Winds & Temperatures Aloft, tap an airport icon on the map or display an airport in the Airports view, and then tap **Weather ➔ Winds**.

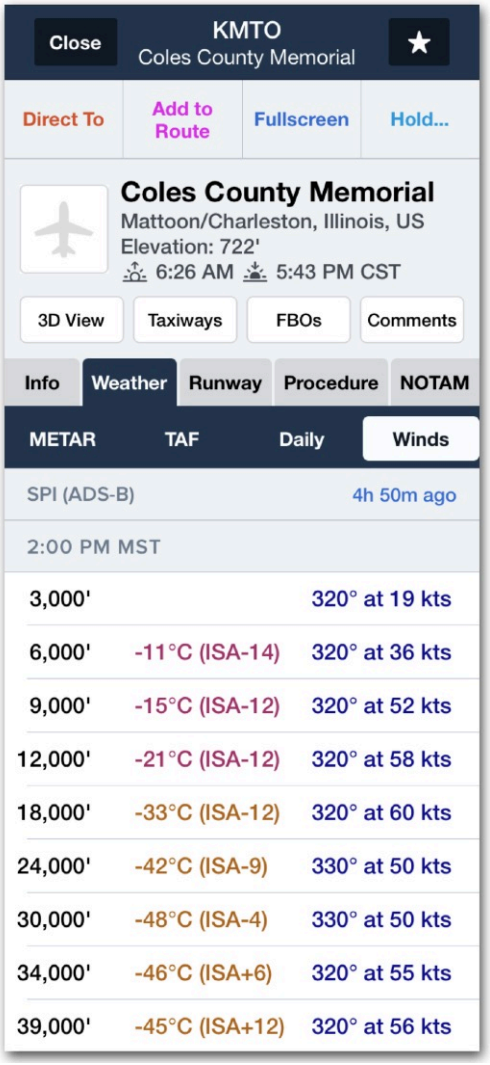


Figure 29-48. ADS-B Winds and Temps Aloft

Wind data is available from the surface up to FL 390 in 3,000 ft increments.

Temperature data is available in 3,000 ft increments up to FL 390 beginning at 6,000 ft MSL. Scroll the Winds Table to view additional forecast periods. Temperature values are color-coded based on temperature range:

- **Gray** above +2° C
- **Magenta** between +2° C to -25° C
- **Tan** below -26° C.

29.9 SiriusXM Weather

ForeFlight Mobile can display SiriusXM weather when connected to a compatible device with an active SiriusXM subscription. To verify that a SiriusXM subscription is active, visit siriusxm.com/refresh to send the device a refresh signal.

29.9.1 Supported Receivers

The following three receivers are the only supported SiriusXM receivers:

- **Garmin GDL 51 and GDL 52** (recommended) are portable Bluetooth SiriusXM receivers capable of delivering SiriusXM weather to ForeFlight Mobile. ForeFlight Mobile does not support SiriusXM Radio with the Garmin GDL 51/52.
- The **WXWorx SiriusXM** weather receiver can deliver SiriusXM weather to ForeFlight Mobile via the **Baron Mobile link**. The Baron Mobile link creates a Wi-Fi network that supports up to four simultaneous device connections. ForeFlight Mobile does not support SiriusXM Radio with the Baron Mobile Link.
- **SXAR1** (discontinued) supports SiriusXM weather and radio. The SXAR1 receiver supports a single Bluetooth connection.

> **NOTE:** ForeFlight Mobile does not support SiriusXM weather via a Garmin Flight Stream.

29.9.2 SiriusXM Supported Weather Products

SiriusXM weather products are accessed with the same techniques as when connected to the internet. No additional configuration is required beyond ensuring the external device is connected. When connected to a supported SiriusXM weather receiver with an active subscription, the following weather products are available.

- Composite Radar
- Storm Cell Attributes
- TAFs
- AIR/SIGMETs
- Turbulence
- Freezing Levels
- Surface Analysis
- Cloud Tops
- Surface Visibility Forecast
- Lowest Tilt (Base) Radar
- METARs
- TFRs
- Lightning
- Icing
- PIREPs
- Winds/Temps Aloft
- Surface Wind Analysis

> **NOTE:** ForeFlight Mobile does not support SiriusXM Satellite Imagery.

29.9.3 SiriusXM Radar

Radar (XM Comp) and Radar (XM Base) map layers are available for the United States, southern Canada, and northern Mexico. SiriusXM radar provides a higher resolution radar picture than ADS-B, but a lower resolution than internet radar. SiriusXM composite and base radar include storm track, hail, echo top, and mesocyclonic indicators.

> **NOTE:** The XM Base layer, storm cell attributes, echo tops, and storm track are not supported with the WxWorx Baron Mobile Link.

Radar (XM Comp)

The SiriusXM composite map layer displays the maximum echo reflectivity from *all* radar tilt angles. The Composite layers can reveal important storm structure features and the intensity trends of storms.

Radar (XM Base)

The SiriusXM base radar layer displays the maximum echo reflectivity from only the lowest tilt angle of the radar. The Lowest Tilt (Base) radar layer reveals where precipitation is likely reaching the ground.

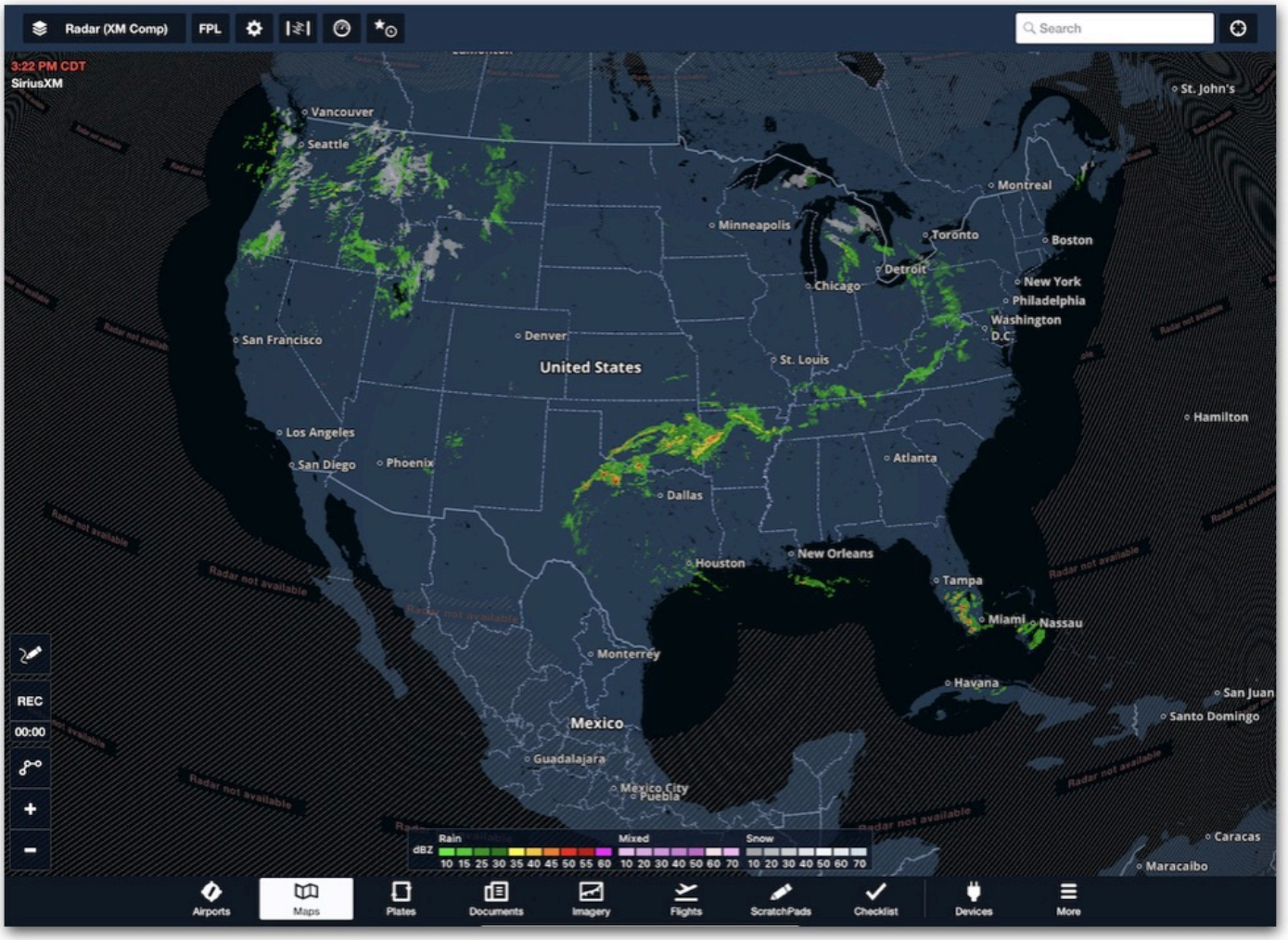


Figure 29-49. Radar (XM Comp) Coverage Area

SiriusXM Storm Cell Attributes

Storm cell attributes are embedded in the SiriusXM base and composite radar layers. Storm cell attributes include icons that represent the characteristics of a storm. With the exception of storm tracks, each icon can be tapped to reveal additional information.

Storm Cell attributes automatically update with the latest radar frame and cannot be animated. See the image below for additional information.

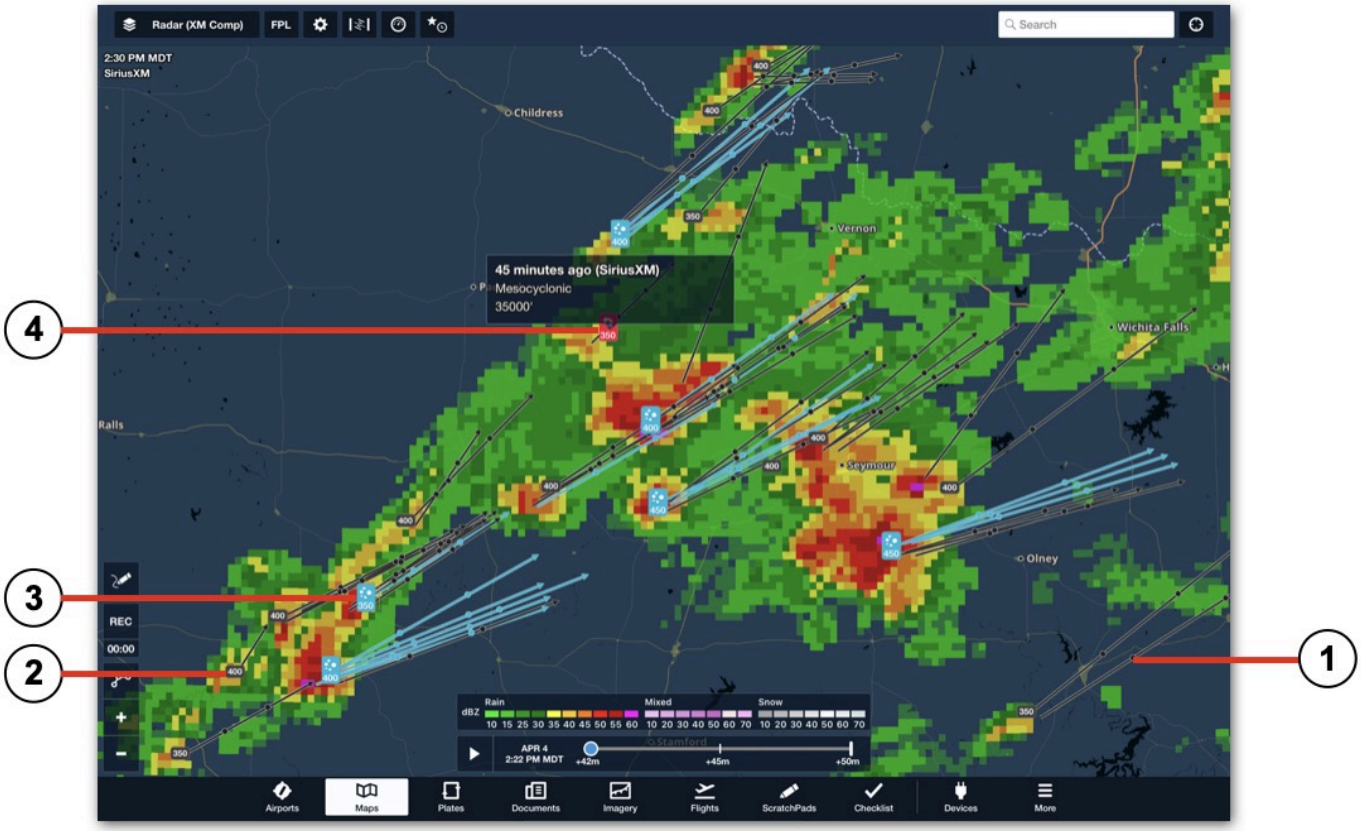


Figure 29-50. Radar (XM Comp) Storm Cell Attributes

1. **Storm Tracks**: A thin black line representing the projected 60-minute path of a storm. Dots are depicted at 20 and 40-minute intervals. If a storm cell also contains hazardous weather (e.g., hail), the track is colored to match the hazard.
2. **Echo Tops**: A small gray box with a three-digit value representing the height of a storm (in hundreds of feet). For example, a storm with an echo top of 400 equates to 40,000 ft or FL400.
3. **Hail**: A blue box indicative of a storm containing hail (co-located with the storm echo top).
4. **Mesocyclonic**: A red box indicative of a storm consisting of rising, rotating air (co-located with the storm echo top).

29.9.4 SiriusXM METARs

METARs contain temperature, dewpoint, wind speed, wind direction, precipitation, cloud cover, cloud heights, visibility, and barometric pressure data. METAR reports are generated every hour unless changing weather conditions dictate more frequent updates. METARs are broadcast by SiriusXM every ten minutes. ForeFlight Mobile checks for updated SiriusXM METARs when the data is first displayed and automatically every five minutes after that.

SiriusXM METARs can be viewed using the same techniques as when connected to the internet. When viewing a SiriusXM METAR, a SiriusXM label is displayed next to the METAR timestamp.

SiriusXM METAR Coverage Area

SiriusXM METARs are available for North America, Central America, and the northern portions of South America.

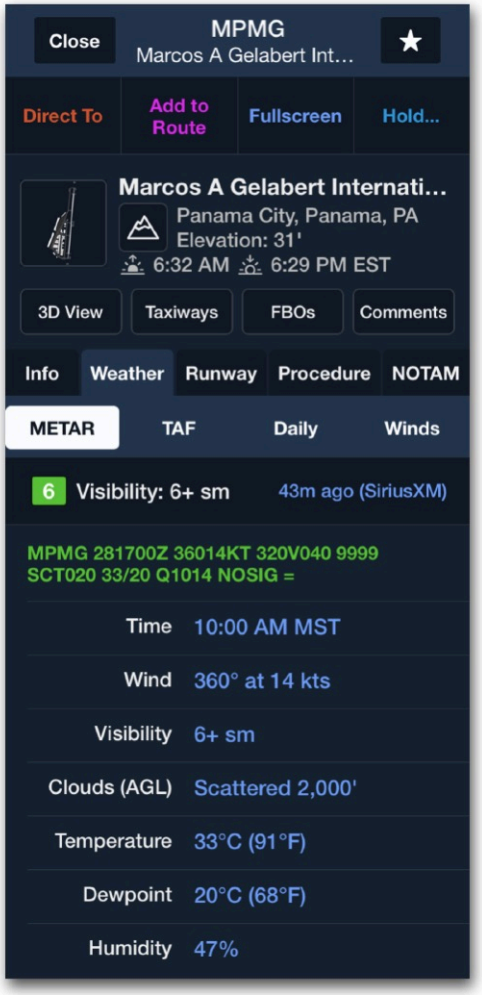


Figure 29-51. SiriusXM METAR

> **NOTE:** If receiving SiriusXM and ADS-B METAR data, the latest METAR data will be displayed regardless of source.

SiriusXM Graphical METAR Map Layers

The weather information contained in a METAR can be displayed graphically on the map. To graphically display SiriusXM METARs, select one of the following map layers from the map layer menu.

- Flight Category
- Winds Aloft
- Temperature
- Ceiling
- Surface Wind
- Dewpoint Spread
- Visibility
- Sky Coverage



Figure 29-52. SiriusXM Visibility Layer (METAR Data)

29.9.5 SiriusXM TAFs

SiriusXM TAFs contain wind speed, wind direction, precipitation, cloud cover, cloud heights and visibility. TAFs are updated by the National Weather Service every six hours or as unexpected weather occurs.

ForeFlight Mobile checks for updated TAFs when the information is first displayed and automatically every five minutes after that. Due to the TAF update frequency, it is not uncommon to see TAF timestamps that are six hours old.

SiriusXM TAFs can be viewed using the same techniques as when connected to the internet. When viewing a SiriusXM TAF, a SiriusXM label is displayed next to the timestamp.

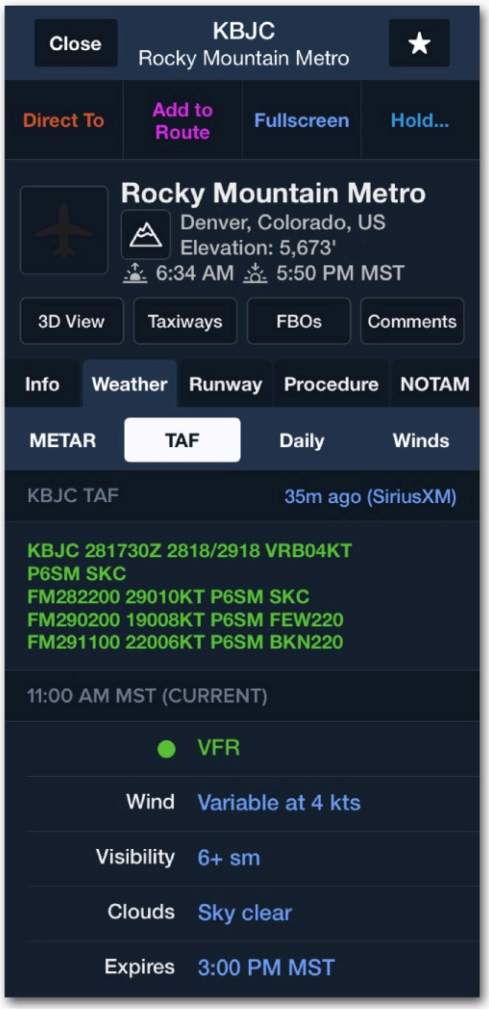


Figure 29-53. SiriusXM TAF

Coverage Area

SiriusXM TAFs are available for North America, Central America, and the northern portions of South America.

> **NOTE:** If receiving SiriusXM and ADS-B TAF data, the latest TAF will be displayed regardless of source.

29.9.6 SiriusXM TFRs

SiriusXM TFR data is displayed on the map when the **TFRs** map layer is selected. Tap a TFR on the map to display its details in the sidebar.

TFRs are orange until 8 hours before their scheduled start time. Within 8 hours of a TFR being active, it is shown in **Red** until the end of the TFR.

SiriusXM TFR Coverage Area

SiriusXM TFRs are available for the continental United States.

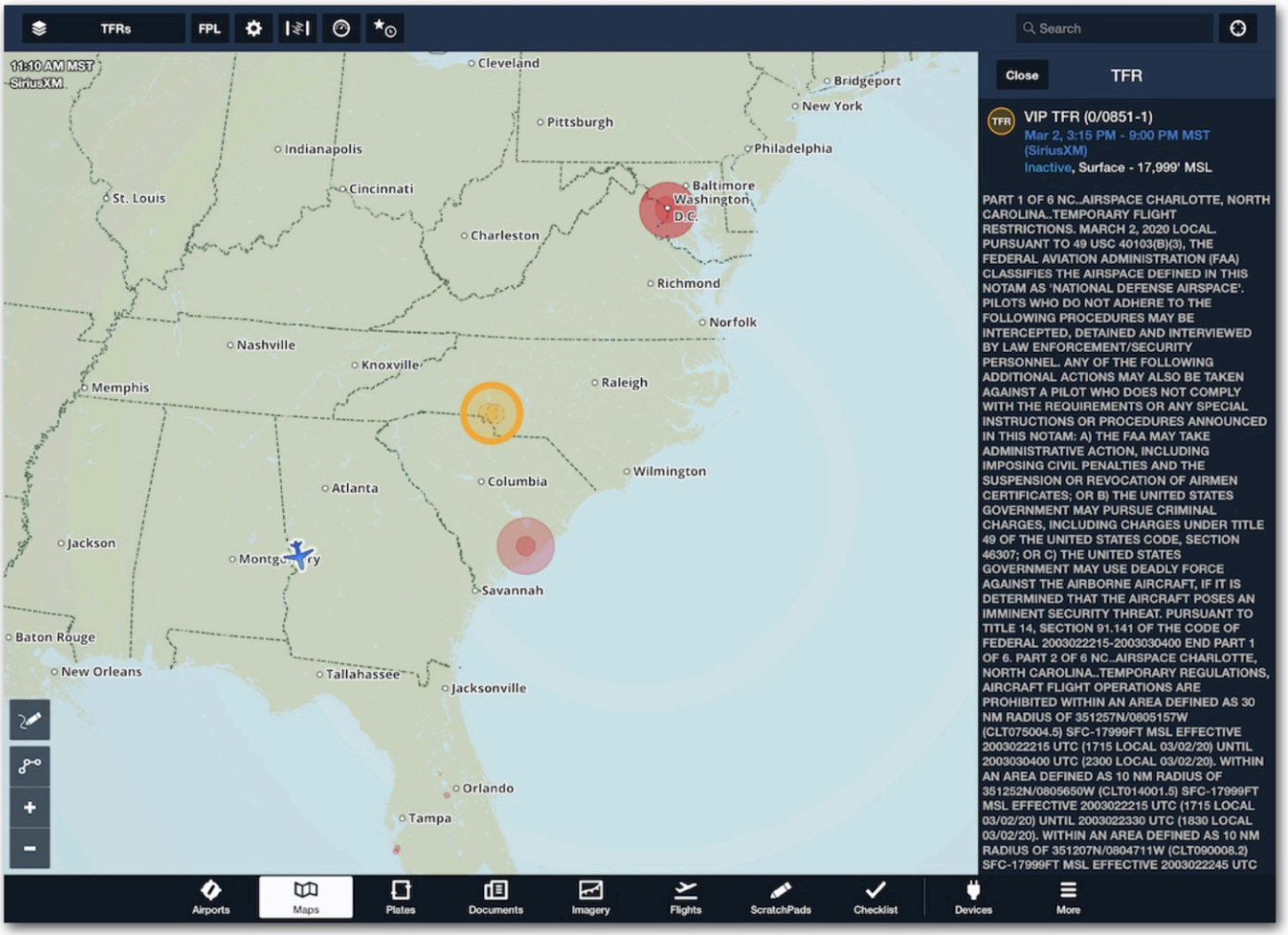


Figure 29-54. SiriusXM TFRs

29.9.7 SiriusXM AIR/SIGMET/CWA

SiriusXM AIRMETs, SIGMETs, and Center Weather Advisories are viewed the same way as when connected to the internet.

AIRMETs, SIGMETs, and Center Weather Advisories (CWA) are issued by meteorological watch offices for weather that is potentially hazardous to low-level aircraft with limited capability. AIRMETs consist of less severe weather than SIGMETs: moderate turbulence and icing, surface winds of 30 knots, or widespread restricted visibility.

AIRMETs, SIGMETs, and CWAs are combined into a single map layer. When the **AIR/SIGMET/CWAs** map layer is selected, the individual weather products can be filtered with the buttons near the bottom of the map. Selected types are highlighted in blue and the relevant advisories are displayed graphically on the map during their active time.



Figure 29-55. AIR/SIGMET/CWA Filters

AIRMET, SIGMET, and CWA forecasts are generated every six hours. ForeFlight Mobile checks for updated data every five minutes. The time slider at the bottom of the map can be used to view future forecast periods.

Tap an AIRMET, SIGMET, or CWA to display additional information in the sidebar. If there is more than one active layer in the location tapped, the advisories are depicted in a list view. Tap an individual advisory to display the advisory text.

29.9.8 SiriusXM Lightning

SiriusXM provides both cloud-to-cloud and cloud-to-ground lighting and is updated every 2.5 minutes. Display SiriusXM Lightning data by selecting the **Lighting** map layer.

29.9.9 SiriusXM Turbulence

SiriusXM Turbulence is displayed when the **Turbulence (SXM)** map layer is selected. The graphical turbulence product provides forecasted turbulence severity from FL180 to FL390 in 3,000 foot increments. Use the slider on the right side of the screen to display forecasted turbulence at a specific flight level.

Turbulence severity is displayed using a four-color scale representing light, moderate, severe, and extreme turbulence. The turbulence forecast is conducted hourly and updated in ForeFlight Mobile when first selected and automatically every 30 minutes after that. Turbulence data is available from 15 degrees north latitude to 59 degrees north and 138 degrees west to 58 degrees west.

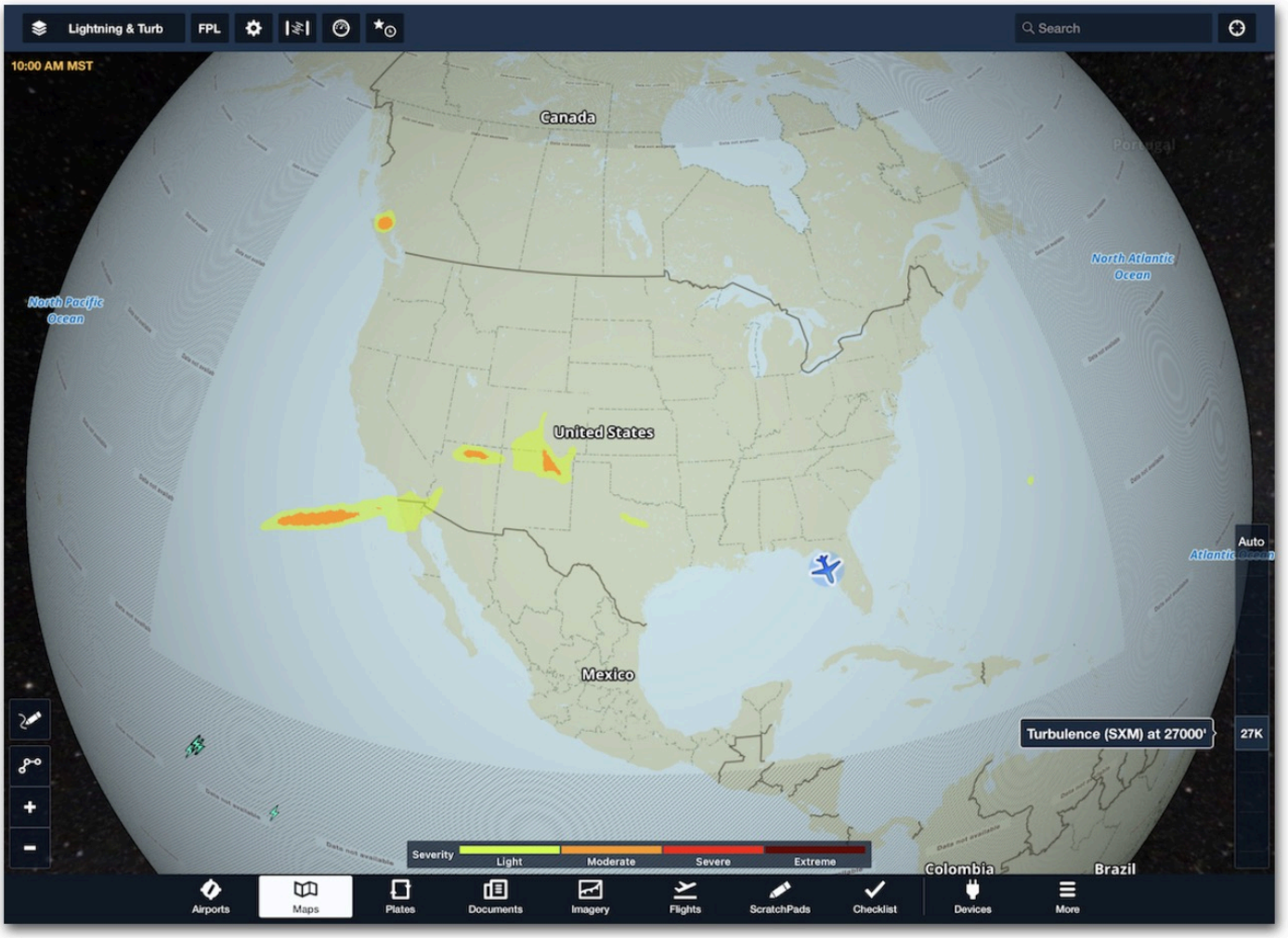


Figure 29-56. SiriusXM Turbulence

29.9.10 SiriusXM Icing

SiriusXM Icing data is graphically displayed when the **Icing (SXM)** map layer is selected. The map layer provides icing potential, severity, and the probability of Supercooled Large Droplets (SLD) from the surface to FL240 in 3,000 foot increments. Use the slider on the right side of the screen to display icing data at specific altitudes.

Icing severity is displayed using a three-color scale representing light, moderate, and heavy icing. Supercooled Large Droplets are depicted with red dots. SiriusXM Icing data is updated every fifteen minutes and covers from 16 degrees north latitude to 54 degrees north and 139 degrees west to 58 degrees west.

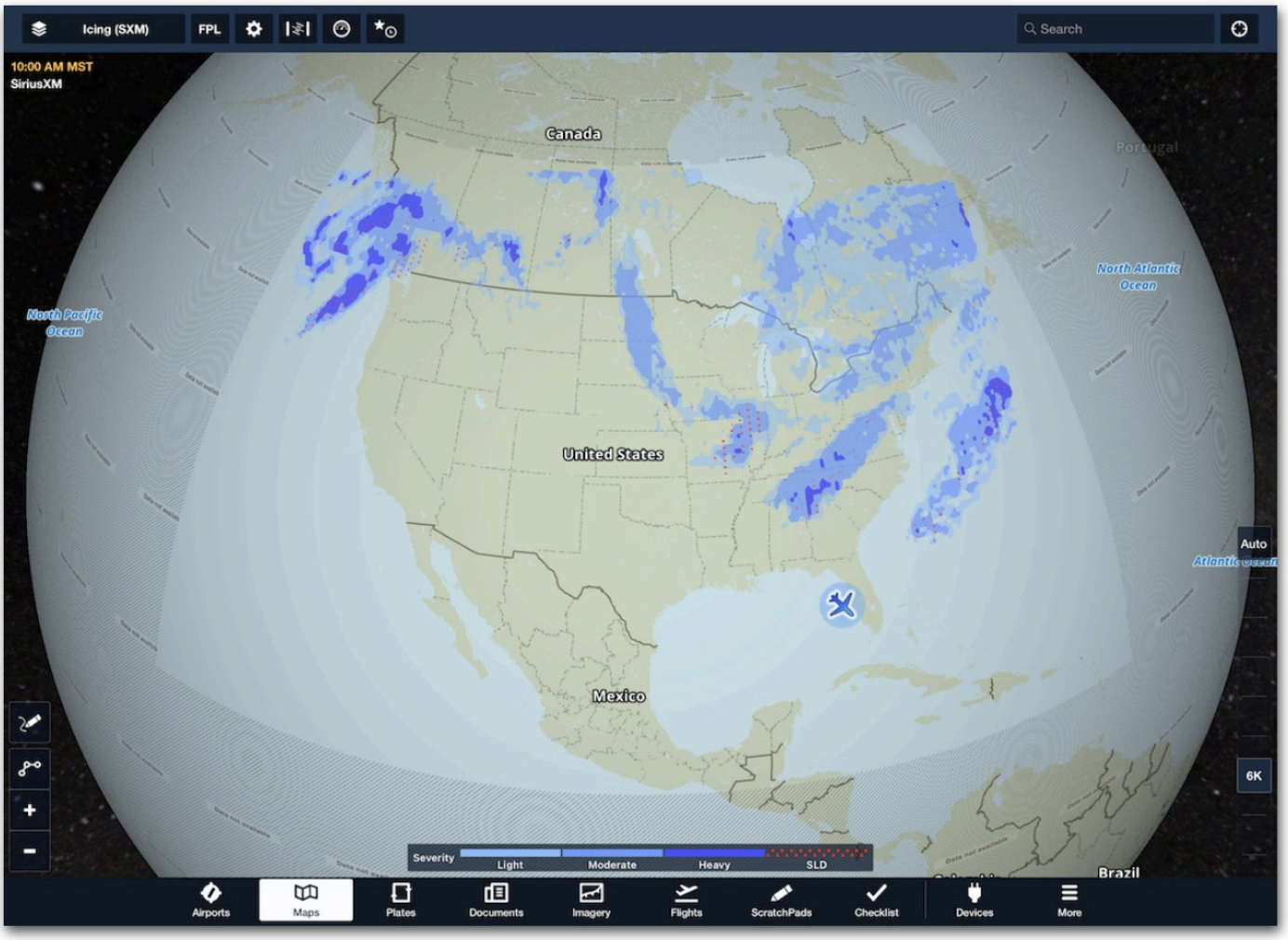


Figure 29-57. SiriusXM Icing

29.9.11 SiriusXM Freezing Levels

The **Freezing Lvls (SXM)** map layer uses colored gradient to indicate the altitude at which the air temperature is at or below the freezing level. Freezing levels are delineated with color-coded lines in 1,000 foot intervals up to 20,000 feet and are updated every 30 minutes.

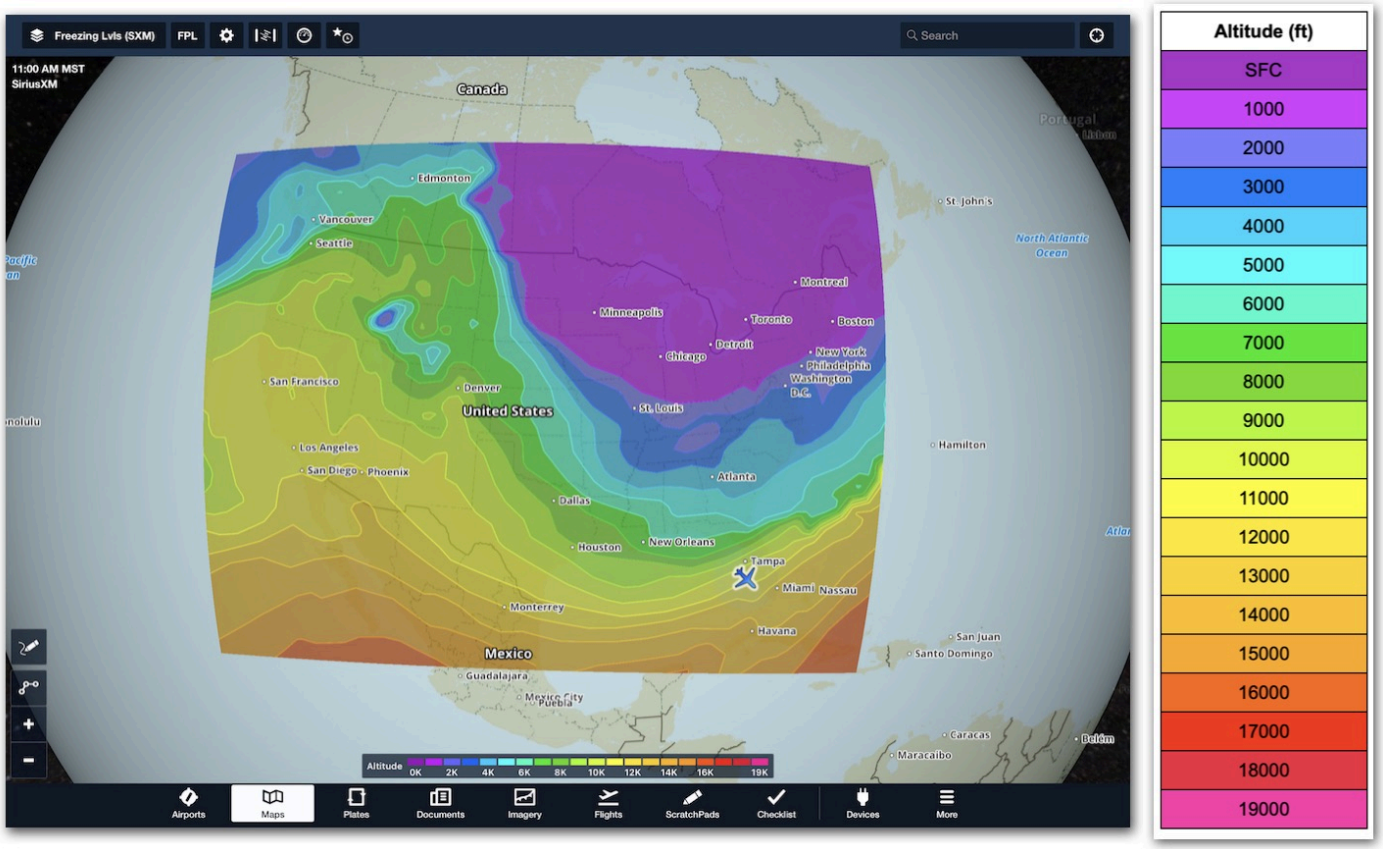


Figure 29-58. SiriusXM Freezing Levels

29.9.12 SiriusXM PIREPs

SiriusXM PIREPs are displayed on the map by selecting **PIREPs** from the map layer menu. Icons represent the PIREP type, severity, and altitude. Tap an icon to display the coded and decoded PIREP in the sidebar.

PIREPs are issued by pilots as needed and are automatically refreshed in ForeFlight Mobile every fifteen minutes. The age of the PIREP is displayed at the top of the PIREP menu alongside the source (SiriusXM). SiriusXM PIREPs cover 5º north latitude to 62º north and 50º west longitude to 160º west.

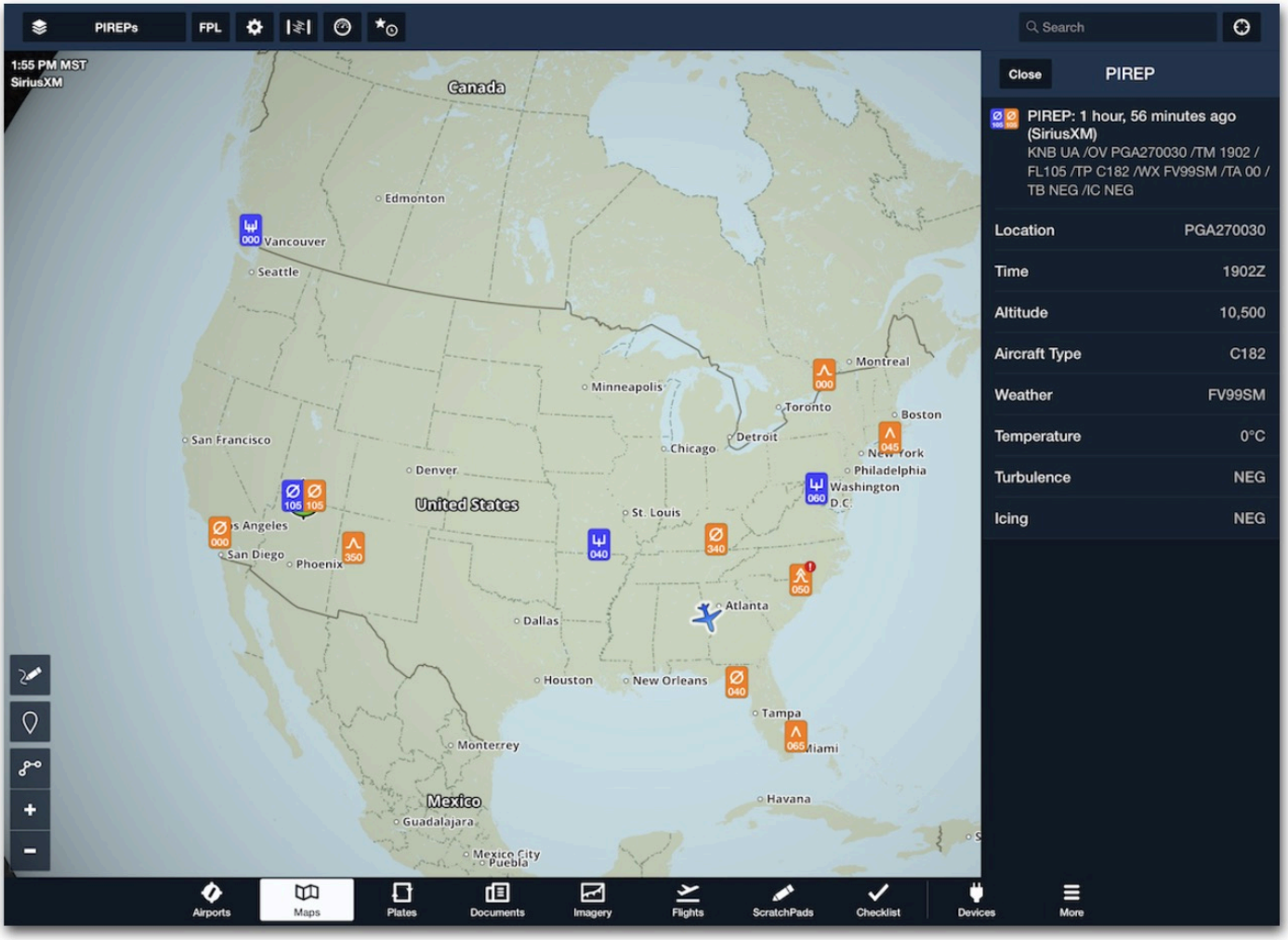


Figure 29-59. SiriusXM PIREPs

Icon	Meaning
	Icing (increasing severity)
	Turbulence (increasing severity)
	Obscuration or other weather

29.9.13 SiriusXM Surface Analysis

The **Sfc Analysis (SXM)** map layer dynamically displays pressure systems (measured in millibars), frontal boundaries, and isobars (lines of equal pressure). The layer can show current or forecast conditions up to 48 hours in the future. The SiriusXM Surface Analysis map layer covers from 5 degrees north to 62 degrees north and 65 degrees west to 130 degrees west and is updated every twenty minutes.

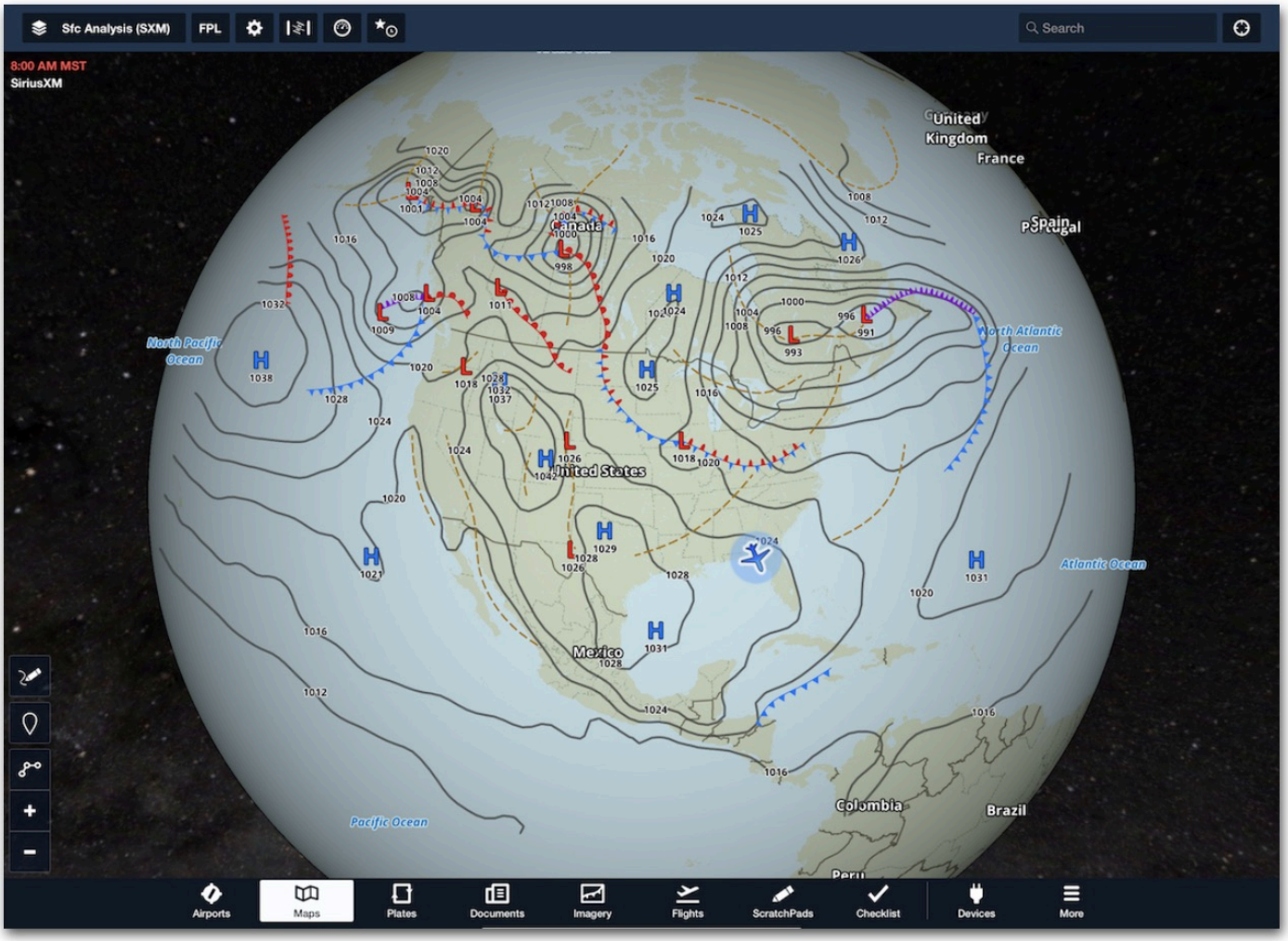


Figure 29-60. SiriusXM Surface Analysis

29.9.14 SiriusXM Winds/Temps Aloft

To view Winds & Temperatures Aloft, tap an airport icon on the map or display an airport in the Airports view, and then tap **Weather ➔ Winds**.

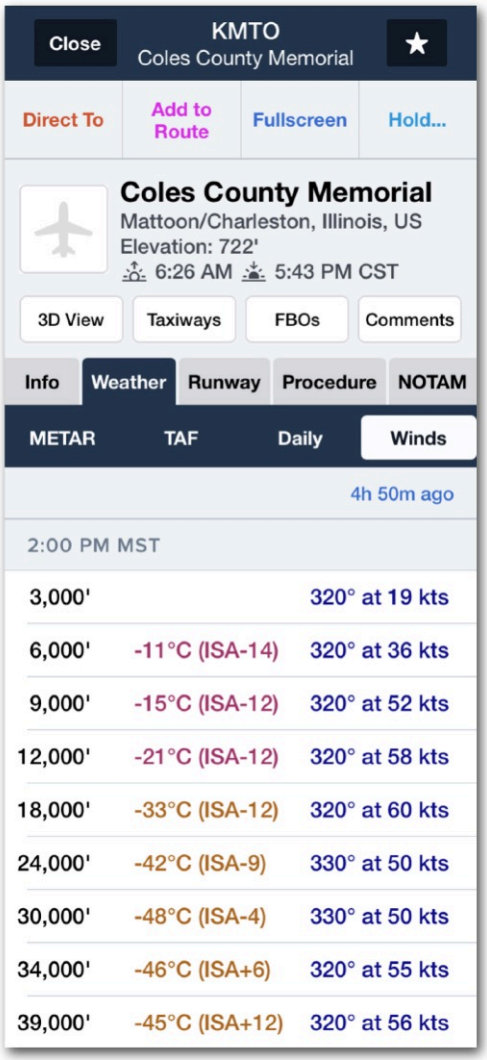


Figure 29-61. ADS-B Winds and Temps Aloft

Wind data is available from the surface up to FL 540 in 3,000 ft increments.

Temperature da ta is available in 3,000 ft increments up to FL 540 beginning at 6,000 ft MSL. Scroll the Winds Table to view additional forecast periods. Temperature values are color-coded based on temperature range:

- **Gray** above +2° C
- **Magenta** between +2° C to -25° C
- **Tan** below -26° C.

29.9.15 SiriusXM Cloud Tops

SiriusXM Cloud Tops are available for the continental United States, southern Canada, and northern Mexico. This map layer is a useful tool for determining if flight can be conducted in visual conditions above the clouds.

Select **Cloud Tops** from the map layer menu and use the **altitude slider** on the right side of the map to filter clouds with tops below the selected altitude.

Forecast Cloud Tops that exist at or above the selected altitude are depicted on the map according to the color-coded scale. Each color represents an MSL altitude in 5,000-foot increments. Tap **Auto** at the top of the altitude slider to automatically display cloud tops at and above the current GPS altitude. SiriusXM Cloud Tops are available from the surface to FL400 in 5,000 foot increments (excluding FL350).

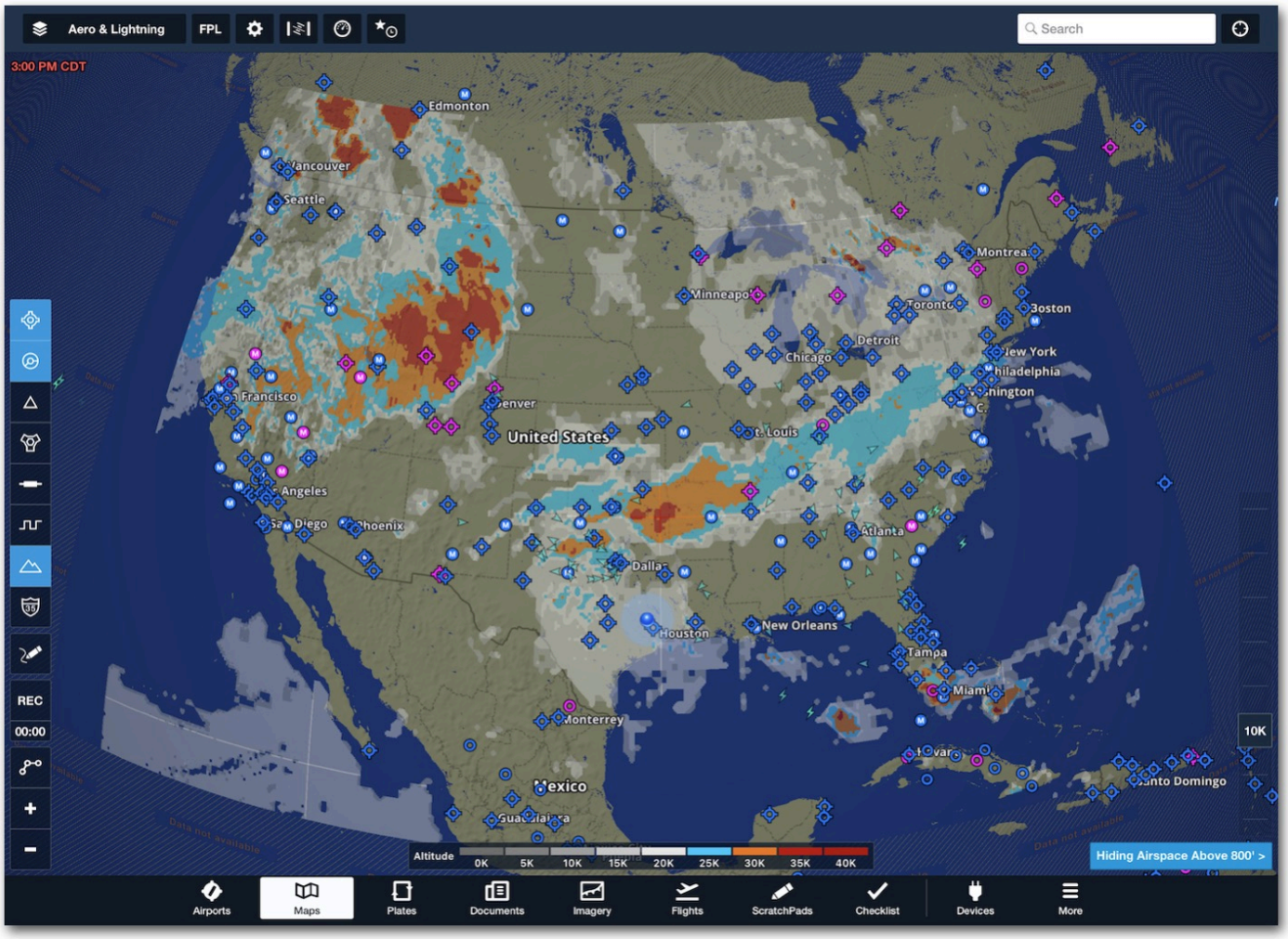


Figure 29-62. SiriusXM Cloud Tops

29.9.16 SiriusXM Surface Wind Analysis

The Surface Wind Analysis map layer is displayed by selecting **Sfc Wind Analysis** from the map layer selector. This map layer graphically displays current wind data using standard aviation symbology.

The wind data is generated from weather models that predict surface winds and is not tied to specific weather stations. The map layer dynamically adjusts and filters weaker winds as the map is zoomed out. As the map is zoomed in, wind information is included for approximately every 10 miles. Tap a wind icon to display its details in the sidebar.



Figure 29-63. SiriusXM Surface Wind Analysis

29.9.17 SiriusXM Surface Visibility Forecast

The **SiriusXM Surface Visibility** layer provides a near-term forecast of surface visibility across the U.S., using colors to indicate forecast visibilities from 0 to 10 statute miles.

This layer is updated regularly and is available when connected to a compatible SiriusXM receiver.

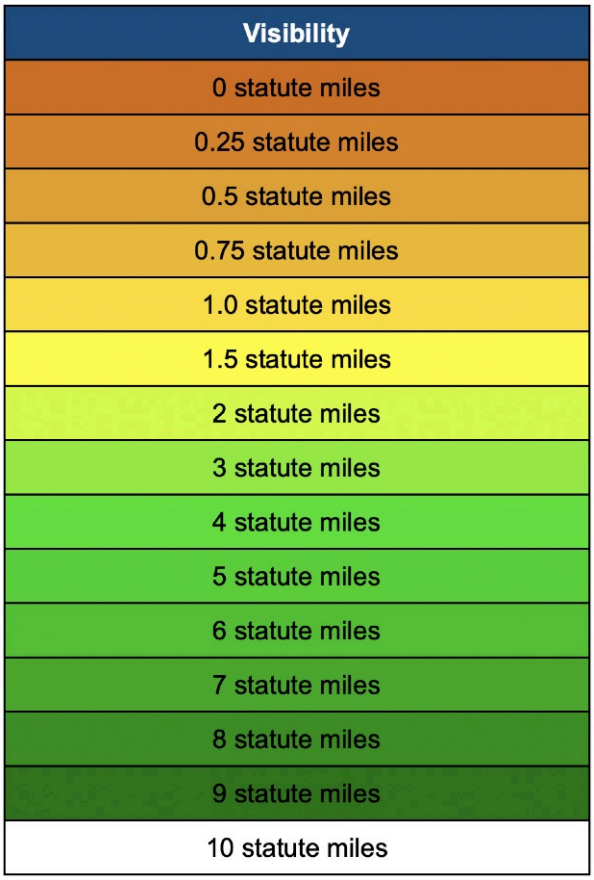


Figure 29-64. SiriusXM Surface Visibility Color Definitions

29.10 SiriusXM Radio

SiriusXM radio is only supported with the SiriusXM SXAR1 receiver. For more information, visit siriusxm.com/aviation. With a SiriusXM radio subscription (an add-on to the SiriusXM weather subscription) it is possible to listen to SiriusXM radio in flight via Bluetooth with a single headset or an intercom with a Bluetooth audio interface. The status of the radio subscription is displayed on the SXAR1 Device Information page.



Figure 29-65. SXAR1 Active Audio Subscription

> **IMPORTANT:** SiriusXM satellite radio does not play directly through the iPad or iPhone speaker (or headphone jack). A Bluetooth audio device must be connected.

29.10.1 Setting up SiriusXM Radio

To configure an iOS device to listen to SiriusXM radio:

1. Connect an iPad (or iPhone) to the SXAR1 via Bluetooth.
2. Power the Bluetooth headset (or audio interface) on.
3. Ensure the headset (or audio device) is in Bluetooth pairing mode.
4. Do not pair the headset (or audio device) to an iPad (or iPhone).

In ForeFlight Mobile:

1. Select **More → Devices**.
2. Tap the SXAR1 tile.
3. Tap the **Audio** row.

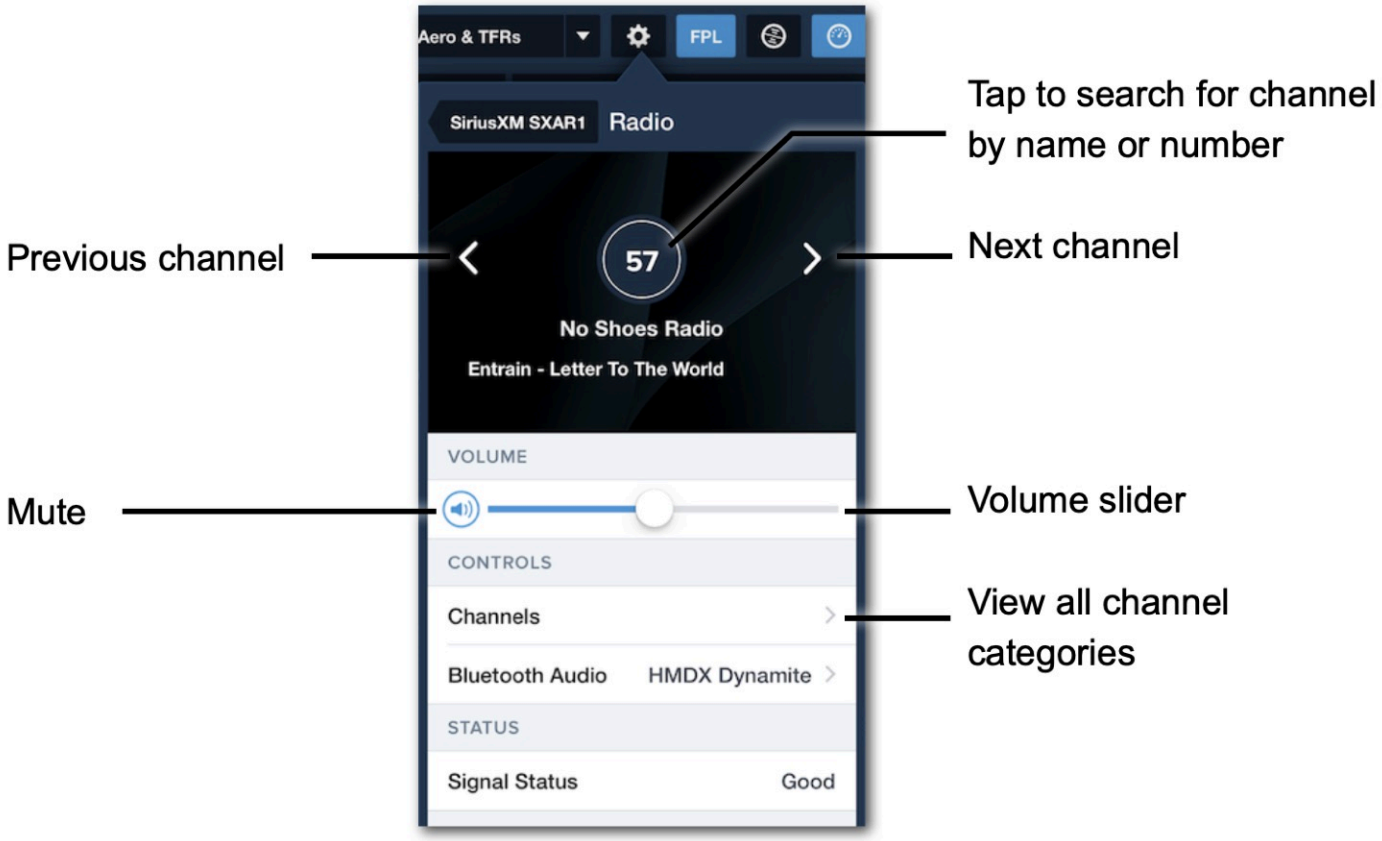
4. Tap **Bluetooth Audio** to see a list of available Bluetooth devices.
5. Tap the **headset** (or audio interface) to pair it to the SXAR1

When pairing is complete, the connected device will show in the My Devices section and audio will begin playing.

29.10.2 Controlling SiriusXM Radio

SiriusXM radio is controlled with ForeFlight Mobile. Audio is sent directly from the SXAR1 to the Bluetooth audio device. See this video for additional information.

To change the channel, tap **Category ➔ Channel**. Alternatively, type the Channel number or name (full or partial) in the Tune or Search box. A vertical scroll bar shows when there are more Channels or Categories than can be shown, and a blue speaker icon shows in the currently-playing Category and Channel.



29.11 Flight Plan Transfer

ForeFlight Mobile includes two-way flight plan transfer with supported navigators. See the tables in Supported Devices for additional information.

29.11.1 Route Elements

Flight Plan Transfer supports various types of route elements for most navigators. Altitude and speed changes are not included in flight plan transfer.

Supported Route Elements

- Airports
- Runways
- Departure and Arrival Procedures
- Navaids
- Waypoints
- Airways
- Approach Procedures
- User Waypoints

> **NOTE:** If an unrecognized route element is transferred, it will be converted to latitude and longitude.

> **NOTE:** Honeywell devices does not support departure, arrival, or approach procedure transfers. Airways are broken into their individual route elements when transferred. Performance data (winds, temps, weight, and fuel) can be transferred to Honeywell devices from the Flights view.

29.11.2 Maximum Route Elements

The number of elements that can be included in a single transfer varies by navigator. If a route exceeds the navigator maximum supported route elements, the transfer will be rejected. To reduce the number of elements included in a route transfer:

1. Select **More ➔ Settings**.
2. Tap **Airway ➔ Decoding** and select **Bends Only**.

When enabled, the **Bends Only** setting removes waypoints along an airway that do not cause a course change.

29.11.3 Sending Routes

When connected to a supported Navigator, buttons for sending routes are added to the bottom of the FPL Editor and the Maps and Flights Send To menus.

To send a route to a Navigator, follow the steps below:

1. Plan a route in ForeFlight Mobile.
2. Follow one of the steps below.
   - Tap the **Panel** button at the bottom of the FPL Editor. Tap **Send To Panel**.
   - Tap the **Send To** button. Tap **Panel**.
3. Tap **OK** to dismiss the route transfer confirmation popup.

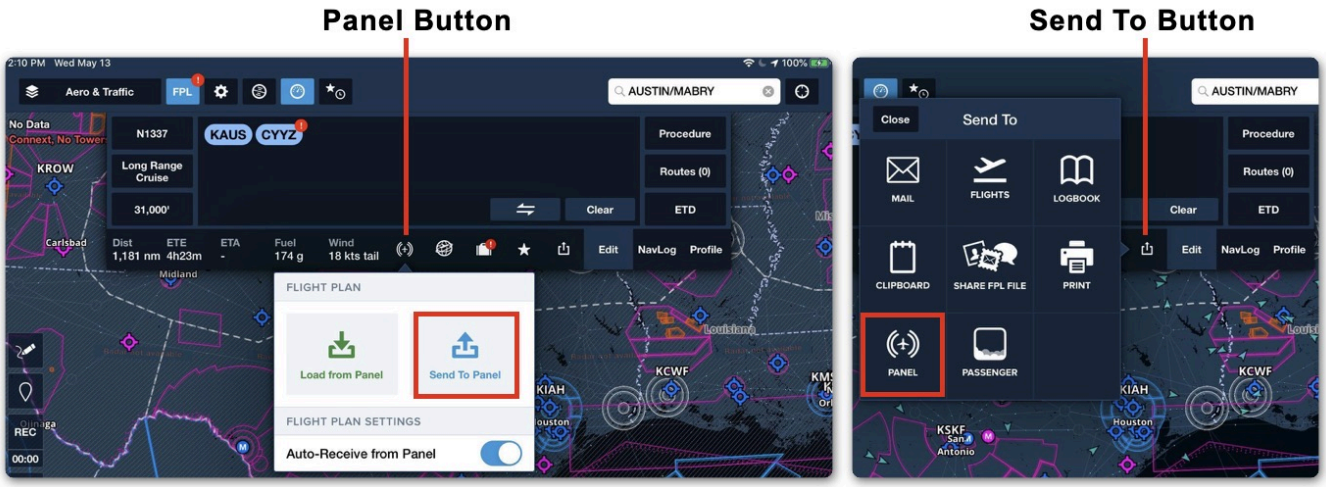


Figure 29-66. Sending a route to the panel

29.11.3.1 Auto Prompt Send To Panel

Upon initial connection to a panel that supports Flight Plan Exchange (FPX), a flight plan can be automatically sent to the panel via an auto prompt. To receive the auto prompt, the following criteria must be met:

- The departure time must be within ± 2 hours of the ETD in the flight plan
- The iPad GPS location must be the same location as the planned departure
- A connection to the avionics must be established

- There is no flight plan already loaded in the avionics.

To send the flight plan to the panel, tap **Confirm** from the auto prompt that appears.

Tap **Cancel** to remove the prompt without sending the flight plan.

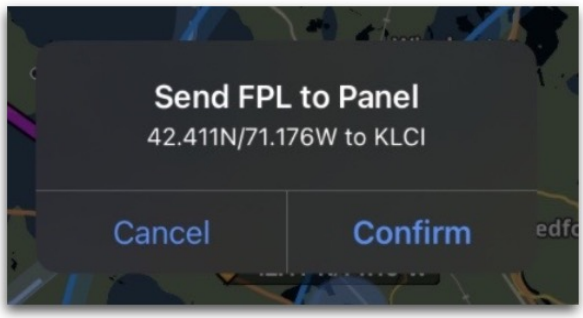


Figure 29-67. Auto Prompt

> **NOTE:** Auto prompt will only occur once per app launch.

Flight Plan Transfer Troubleshooting

If routes are unable to be transferred but can be received, check the following items:

- Verify Flight Plan Import is enabled in the navigator settings.
- Ensure the navigator flight plan catalog is not full. Delete unnecessary flights from the catalog if applicable.

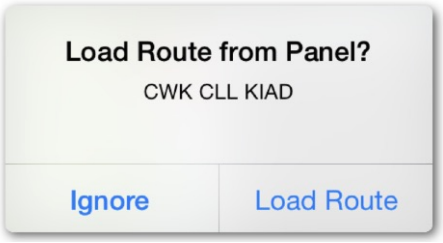
> **NOTE:** After sending a route, it may be necessary to manually load the route into the navigator. Refer to the navigator manual for additional information.

29.11.4 Loading Routes

Flight Plans can be loaded from supported navigators automatically and manually.

Automatically Receiving Routes

To automatically receive the new routes that are planned in the GPS navigator, select **More → Settings** and enable **Auto-Receive Panel Flight Plans**. This setting is also available at the bottom of the Panel menu (see image below).



When **Auto-Receive Panel Flight Plans** is enabled, planning a new route with the navigator results in a ForeFlight Mobile prompt.

- **Ignore** dismisses the prompt. The existing route on the ForeFlight Maps view is retained.
- **Load Route** dismisses the prompt and loads the route from the navigator into the ForeFlight Mobile FPL Editor.

Manually Loading Routes

If the **Auto-Receive Panel Flight Plan** setting is disabled or if **Ignore** is selected when prompted, the navigator active route can be manually loaded into ForeFlight Mobile by tapping the **Panel** button at the bottom of the FPL Editor and selecting **Load from Panel**.

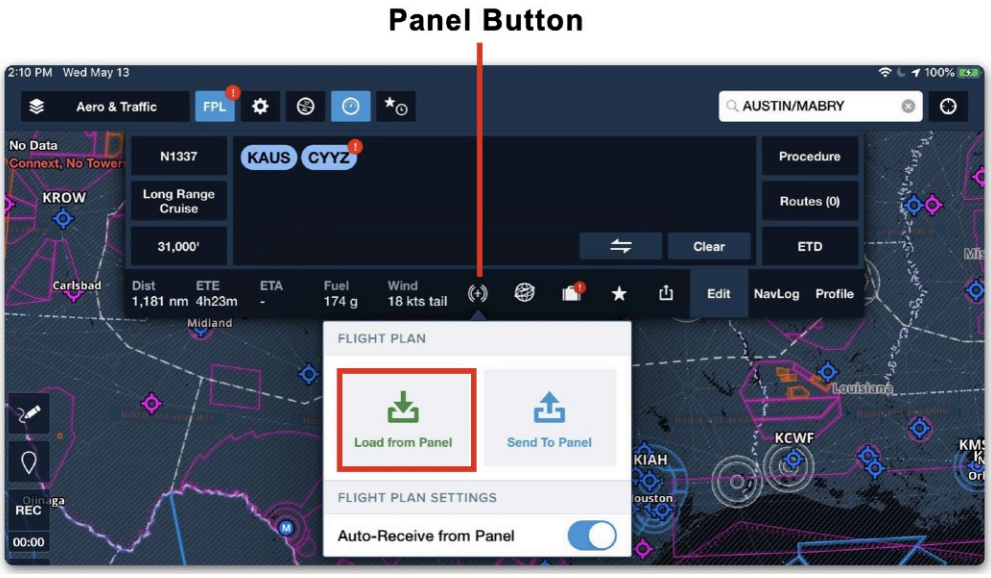


Figure 29-68. Manually Loading Flight Plans

29.12 FLARM

FLARM is a collision avoidance technology popular in the glider pilot community (particularly in Europe). FLARM operates on different frequencies in different regions of the world.

To enable FLARM traffic in ForeFlight Mobile, a FLARM decoding license must be purchased. A FLARM decoding license is associated with the ForeFlight account and can be purchased at foreflight.com/buy.

FLARM traffic targets can be viewed on the map with the **Traffic** layer enabled while connected to a supported device. If the connected FLARM receiver is also capable of detecting ADS-B traffic, ForeFlight will simultaneously display both types of traffic.

There are no indications that FLARM traffic is being received other than the traffic pop-up which displays (FLARM) as the traffic source.

ForeFlight recommends the Sentry Plus to receive FLARM traffic. Visit flywithsentry.com for additional information.

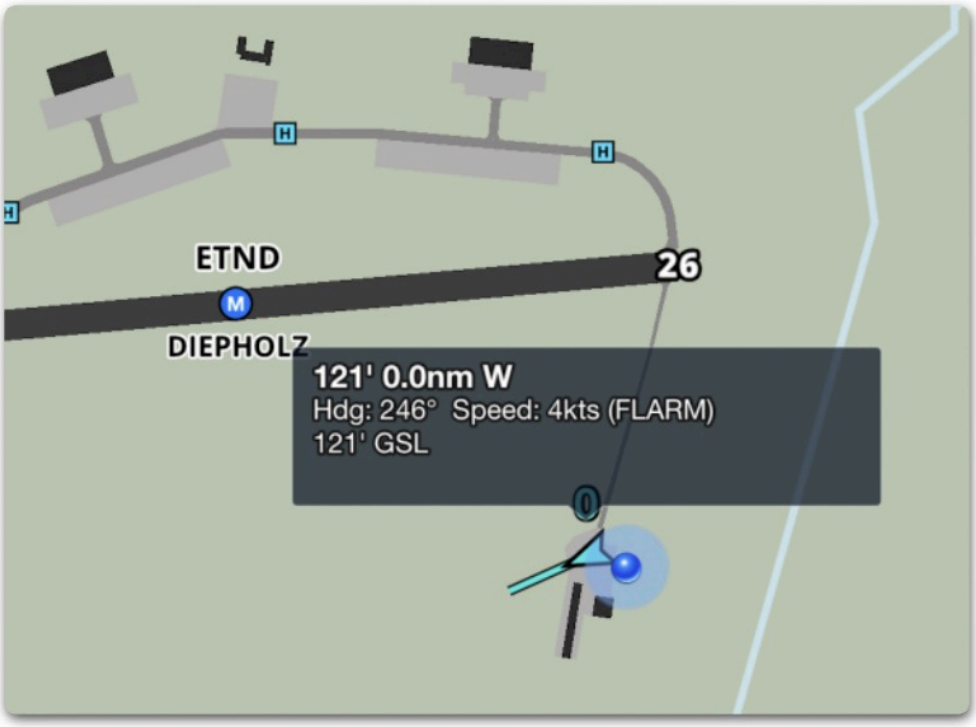


Figure 29-69. FLARM Traffic in ForeFlight

29.12.1 SkyEcho 2 FLARM

If connected to a SkyEcho 2 and activate FLARM mode via the SkyEcho 2 Web UI but ForeFlight Mobile FLARM decoding license is not active, the “License required...” tile on the Device Information page will be displayed.

The next time the iPad connects to the Internet after this tile is displayed, the ForeFlight Mobile app will notify the ForeFlight servers and a personalized email with instructions for adding the FLARM decoding license to the ForeFlight subscription will be received.

The next time the app is opened while connected to the SkyEcho 2 after the FLARM decoding license is added to the ForeFlight subscription, the updated tile will display. Tap the SkyEcho 2 Device Tile to see details about the SkyEcho 2 device and the data being received.

FLARM via NMEA (Europe-only)

ForeFlight Mobile can display FLARM traffic information delivered via the NMEA protocol. An adapter (typically Wi-Fi) is required to convert NMEA data into a format that can be received by the iPad.

ALERTS

ForeFlight Mobile alerts notify pilots of potential hazards and improves situational awareness. Most alerts are available to all ForeFlight Mobile users, some require an Essential or Performance tier subscription. This chapter describes the three types of alerts, explains set up, and describes each alert in detail.

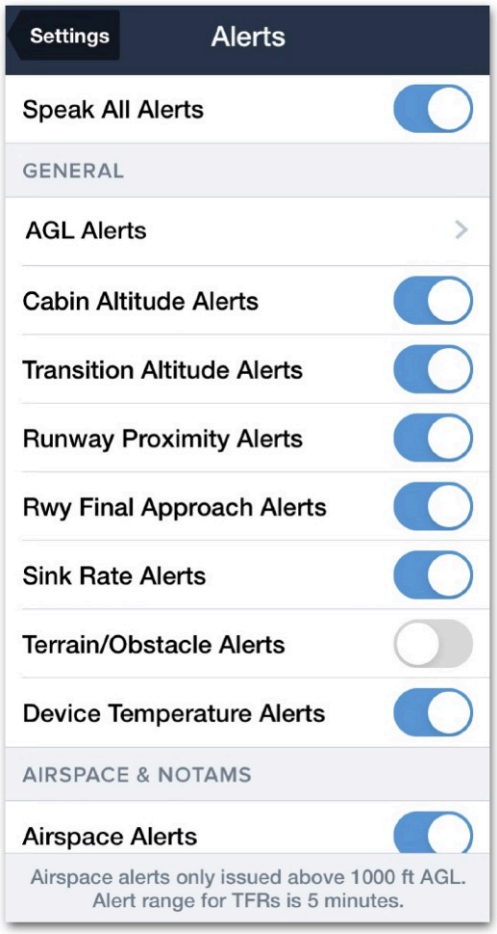


Figure 30-1. Alerts Menu

> **IMPORTANT:** To ensure visual, audible, and tactile alerts are received, ForeFlight Mobile should be open and active on the device screen.

30.1 Alert Types

Alerts can be issued using visual text, audio messages, and tactile vibrations.

Visual Alerts

By default, alerts display as a banner near the top of the device screen. Tap the banner to dismiss it immediately. Most alert banners disappear on their own after a short time.

Audible Alerts

Audible alerts are optional messages that play alongside a visual alert and convey the same information. Once enabled, they play through the device speakers or a paired Bluetooth headset.

Tactile Alerts

If audible alerts are enabled, ForeFlight also triggers tactile vibrations in any device with that capability (like most iPhones) as soon as an alert is triggered.

30.2 Setting Up Alerts

Alerts can be configured with **Map ➔ Settings ➔ Alerts** or by tapping **More ➔ Settings ➔ Alerts**. The Alerts menu provides configuration controls for individual visual and audible alerts, and customizable threshold settings for airspace alerts.

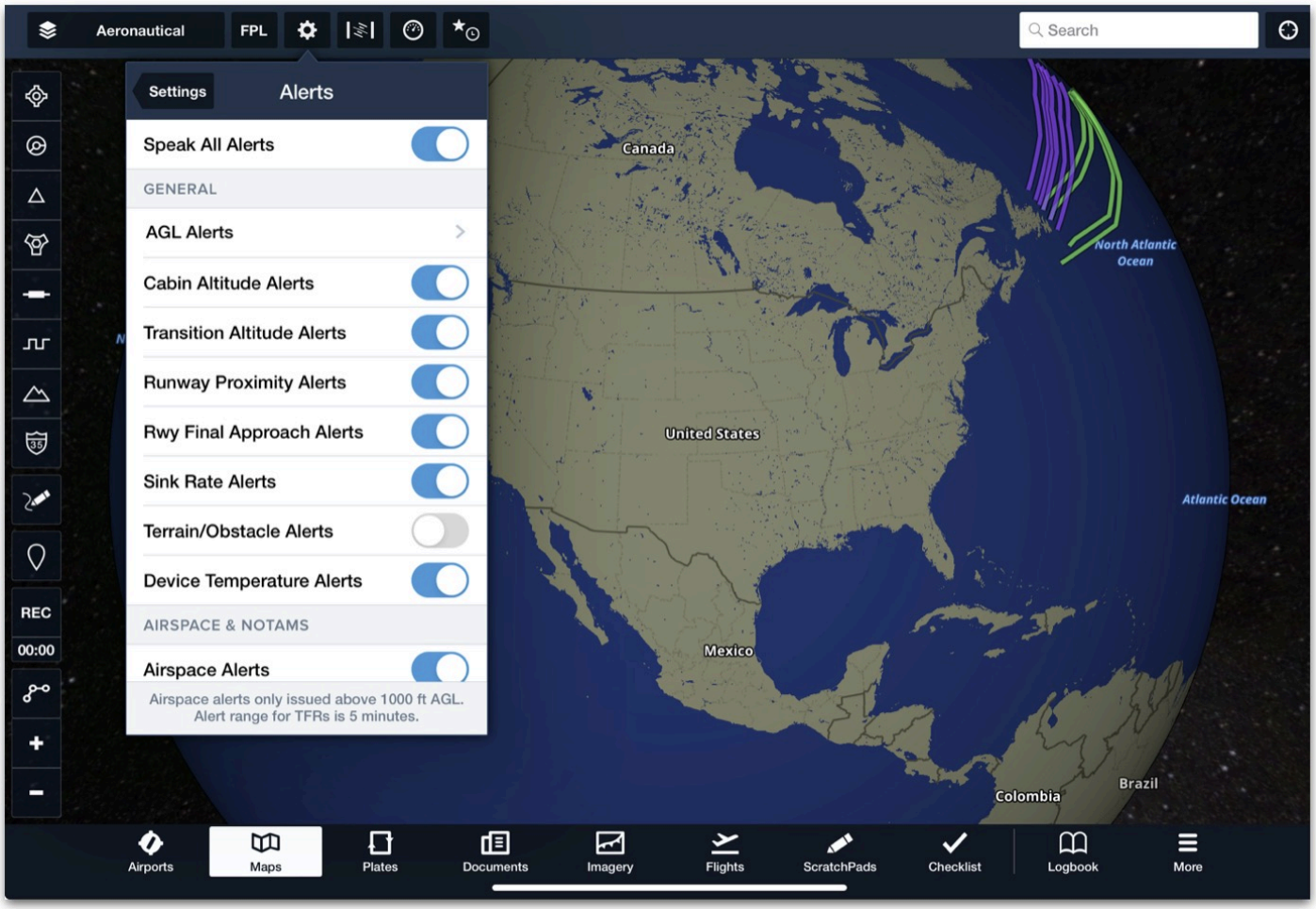


Figure 30-2. Map Settings - Alerts

30.2.1 Enabling Audible Alerts

To enable *audible* alerts (and tactile vibrations if a device uses them):

1. Tap, **More ➔ Settings ➔ Alerts**.
2. Enable, **Speak All Alerts**.

> **NOTE:** When setting the volume of audible alerts, it is helpful to toggle **Speak All Alerts** on and off repeatedly. This plays audio messages that can be used to fine-tune the volume on the device.

30.2.2 Enabling Headset Alerts

Audible alerts can be played through a Bluetooth headset when enabled. To set this up, pair the headset to the device and set the device volume to an appropriate and safe level.

30.2.3 Disabling Individual Alerts

Most alerts are enabled by default. To disable individual alerts on a device:

1. Select **More ➔ Settings ➔ Alerts**.
2. Disable the appropriate toggle.

30.2.4 Customizing Airspace Alerts

Airspace Alerts triggers can be customized. This functionality is described in the Airspace Alerts description.

30.3 Available Alerts

The following sections describe each alert trigger(s), requirements, and default behavior, along with any conditions that change its behavior. Unless specifically noted, each alert is supported under all ForeFlight Mobile subscription plans.

30.4 General Alerts

The following General Alerts are available in the main settings and map settings menus.

30.4.1 AGL Alerts

1,000, 500, 400, 300, 200, and 100 foot AGL alerts can be selected by navigating to **Settings → Alerts → AGL Alerts**. To enable an alert, tap the desired altitude slider.



Requirements

AGL alerts will arm when:

- Climbing above alert altitude + 1,000 feet.
- Ground speed is at least 40 knots.

AGL Alerts will only trigger once every 60 seconds for the same altitude.

30.4.2 Cabin Altitude Alerts

Cabin Altitude Alerts notify when the cabin pressure altitudes pertinent to supplemental oxygen requirements are reached (12,000 ft and 25,000 ft MSL).



Requirements

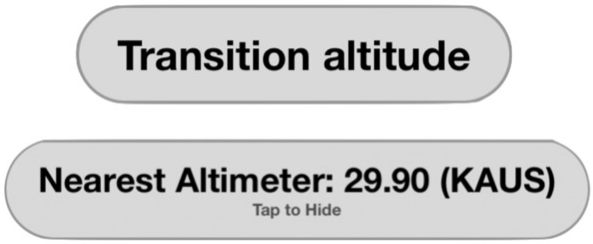
For this alert to trigger, the iPad/iPhone must be equipped with a barometric pressure sensor or be connected to an external device that provides that capability (such as a Sentry or Garmin Flight Stream 210).

Alert Behavior

This alert triggers when cabin pressure altitude exceeds 12,000 ft MSL, and again when it exceeds 25,000 ft MSL. The alert triggers no more than once every 30 minutes for each cabin pressure altitude.

30.4.3 Transition Altitude Alert

Transition Altitude Alerts trigger when climbing or descending through 18,000 feet MSL in the U.S. or Canada (or local transition altitude in Europe).



Requirements and Behavior

If up-to-date weather data is being received in-flight via ADS-B or SiriusXM, the alert also includes the nearest altimeter setting on descent.

30.4.4 Runway Proximity Alerts

Runway Proximity Alerts use GPS and geographic runway safety areas to alert pilots as they approach or enter a runway environment.

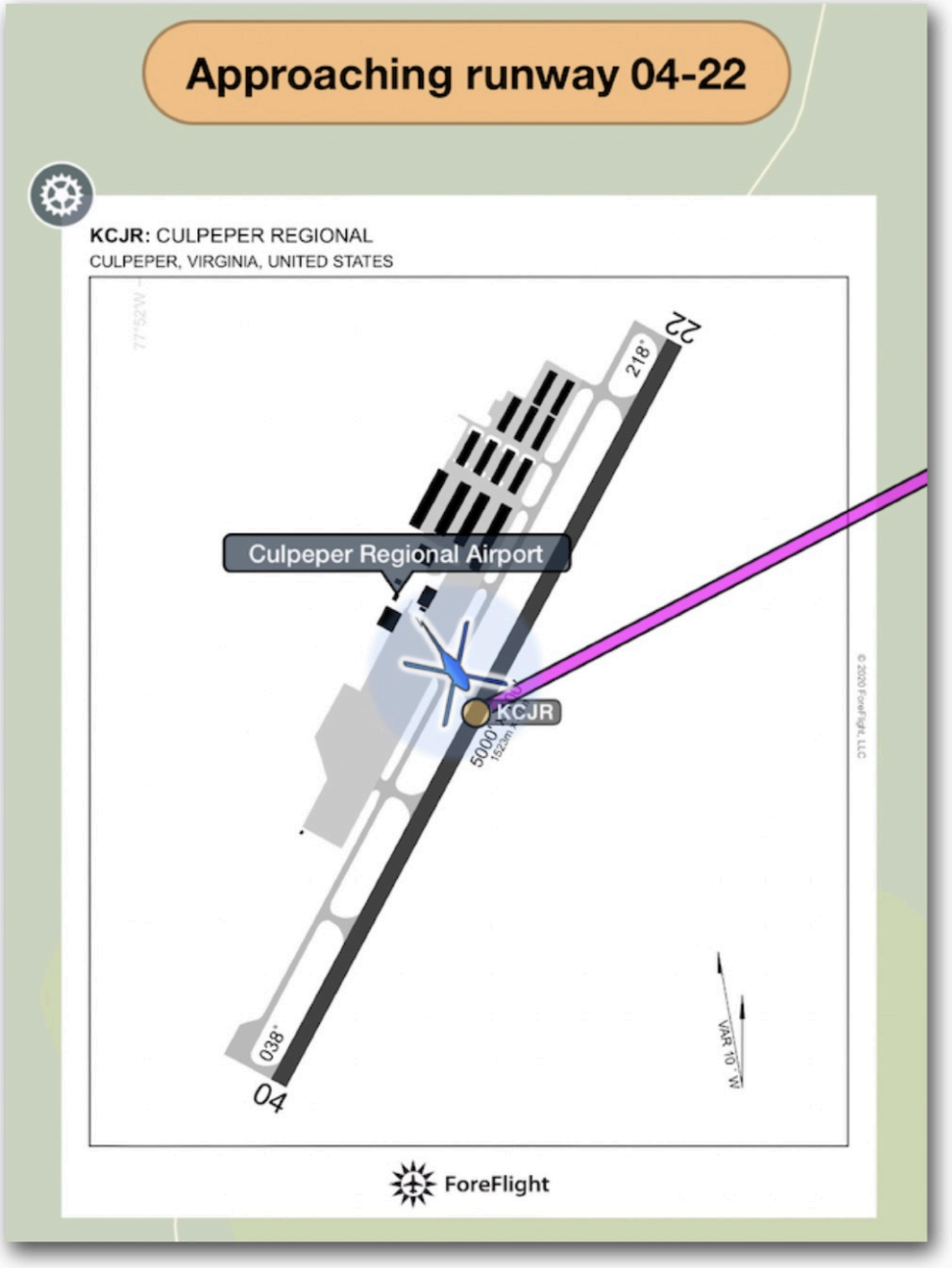


Figure 30-3. Runway Proximity Alert

Requirements

For this alert to function, ForeFlight Mobile must be active on the device screen, the aircraft must be moving at less than 40 knots, and runway data must be available for the airport.

Alert Behavior

Runway Proximity Alerts can convey one of four message types depending on the proximity to the runway. The following examples are written using a hypothetical runway 04-22:

- **Approaching runway 22**: Notifies when nearing one end of the runway and expected to enter the runway environment.
- **Entered runway 22, 4,500' remaining**: Notifies when one end of the runway has been crossed onto. ForeFlight Mobile predicts which end of the runway will be used to take off and provides runway distance remaining rounded to the nearest hundreds of feet.
- **Approaching runway 04-22**: Notifies when nearing the midpoint of a runway and expected to enter the runway environment.
- **Entered runway 04-22**: Notifies when entered onto the runway near its midpoint. Runway length remaining is omitted because takeoff runway selection is unclear.

> **NOTE:** An alert may show on takeoff if a different runway is crossed before reaching 40 knots during the takeoff roll, or on landing if a different runway is crossed while rolling out.
>
> Runway Proximity Alerts are not provided for the landing runway while landing; the aircraft must be taxiing onto or near a runway to get an alert.

30.4.5 Runway Final Approach Alerts

Runway Final Approach Alerts trigger when descending toward a runway.

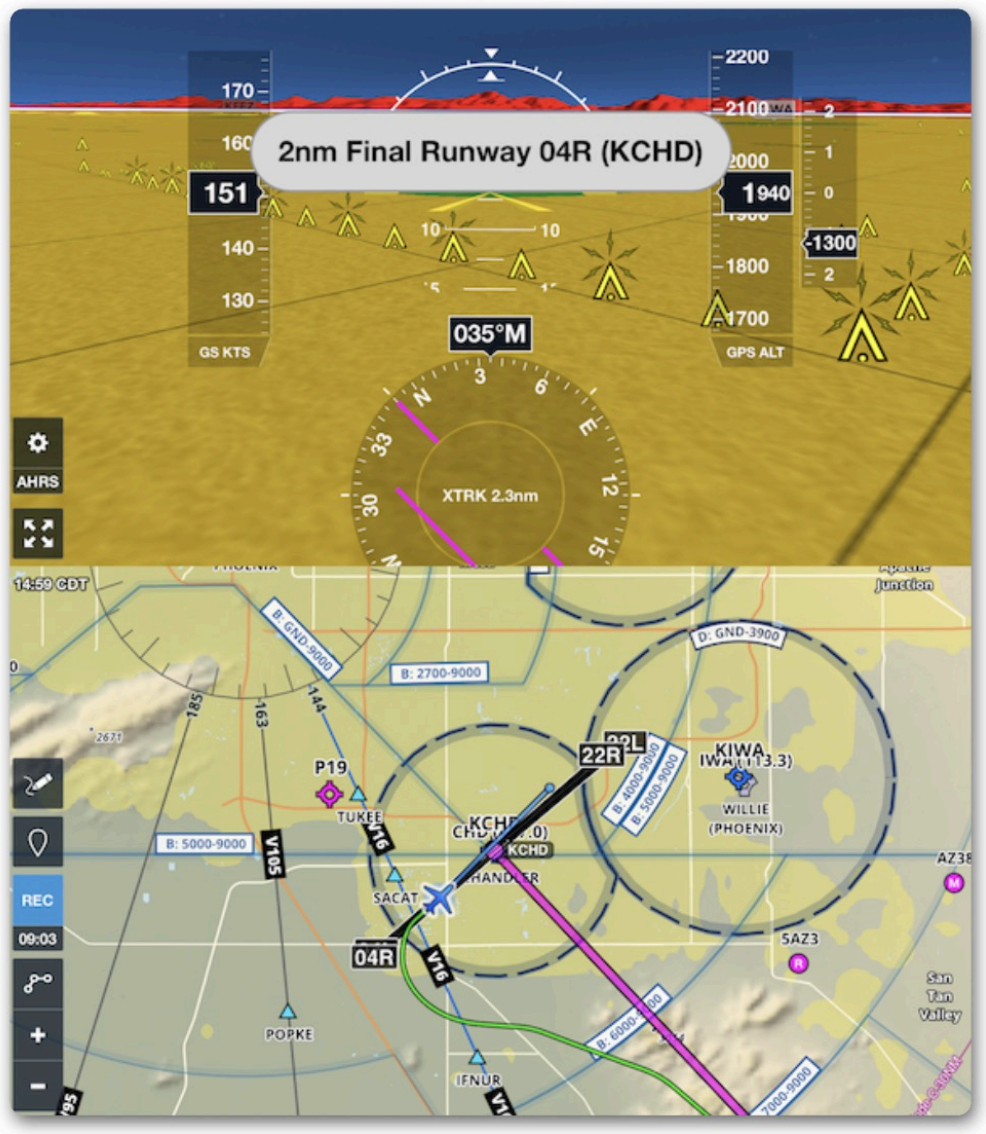


Figure 30-4. Runway Final Approach Alert

Requirements

Descending toward a runway and the ground track within 15 degrees of the runway heading will trigger the alert. The destination airport does not need to be included in the route to trigger the runway final approach alert.

Alert Behavior

This alert is only activated once every 10 minutes.

30.4.6 Sink Rate Alerts

Sink Rate Alerts trigger when the descent rate exceeds a predetermined limit.



Requirements

To trigger this alert, groundspeed must be above 40 knots and a given sink rate must maintained (see below) for at least five seconds. Once triggered, this alert will not trigger again for 30 seconds.

Alert Behavior

The descent rate necessary to trigger this alert varies according to height above the ground. Sink Rate Alerts trigger sooner at lower altitudes.

- Above 2,500 ft AGL (or when AGL is not known), the alert is triggered if the descent rate exceeds 3,500 Feet Per Minute (FPM).
- Between 2,500 ft AGL and 500 ft AGL the descent rate required to trigger the alert decreases linearly along with altitude, down to a threshold of 1,500 FPM.
- At 500 ft AGL, the alert is triggered if the descent rate exceeds 1,500 FPM.

30.4.7 Terrain/Obstacle Alerts

Terrain/Obstacle Alerts trigger an app-wide pop-up window when it detects hazardous terrain or obstacles along the flight path. Unlike other alerts, Terrain/Obstacle Alerts are disabled by default.

Requirements

To use, the following requirements must be met:

- A subscription plan other than Starter
- Downloaded obstacle data
- Enable Terrain/Obstacle Alerts in **More ➔ Settings ➔ Alerts**.

Alert Behavior

ForeFlight Mobile monitors the area within 60 seconds and 60 degrees of the flight track. When within two miles of a final approach path, alert sensitivity automatically adjusts to reduce nuisance alerts.

If hazardous terrain or obstacles are detected, a Hazard Alert pop-up window opens over the active screen and displays the following information on a moving map:

- Aircraft location
- Aircraft altitude AGL
- Hazard detection range
- Color-coded terrain elevation (based on the Hazard Altitudes setting)
- Nearby obstacles.

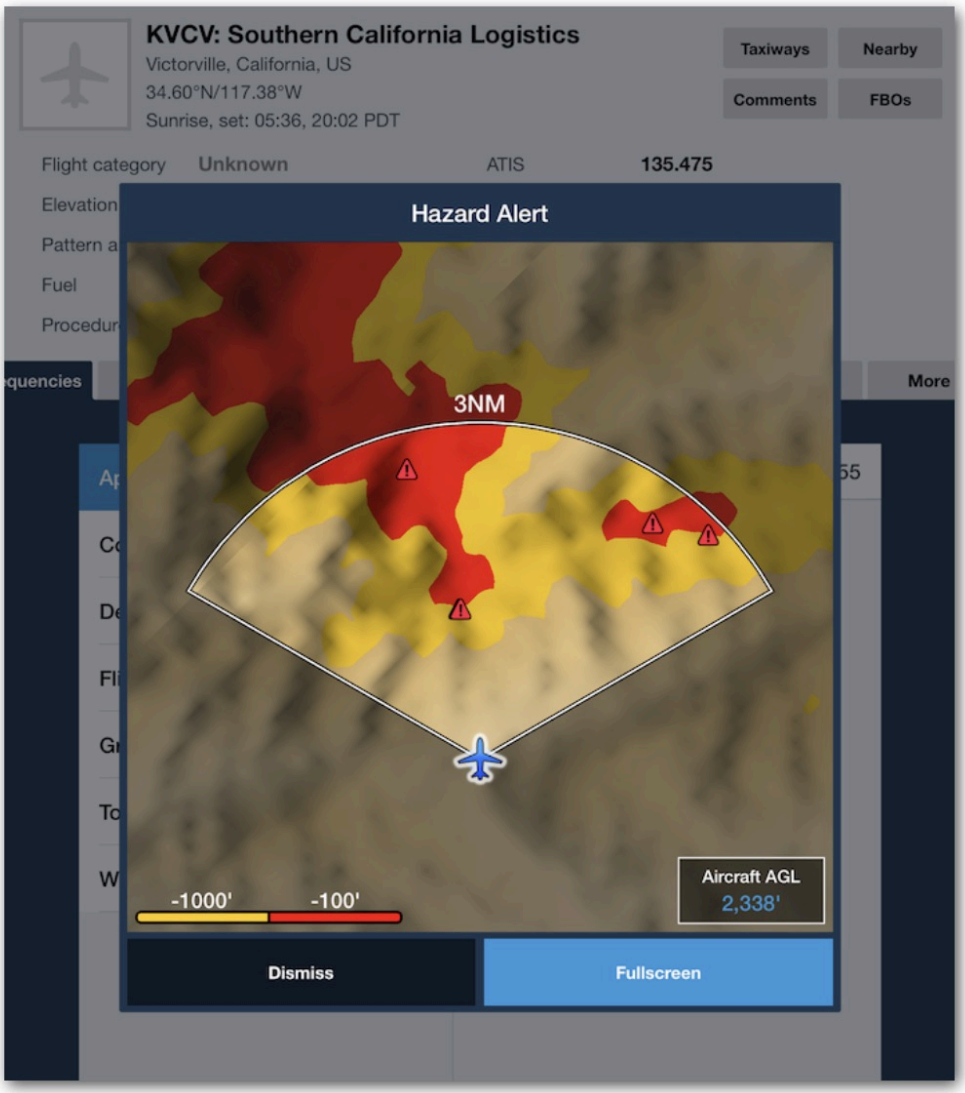


Figure 30-5. Hazard Alert Pop-Up Window

Tap **Fullscreen** to switch to the Map view with the Hazard Advisor map layer enabled, or tap **Dismiss** to close the Hazard Alert window. The window closes automatically 10 seconds after the terrain/obstacle is no longer a threat.

30.4.8 Device Temperature Alerts

This alert indicates that the iPad or iPhone is in danger of overheating and potentially shutting down during a flight.



Recommended Actions

ForeFlight recommends taking the following steps to cool down the device:

- Position the device so it is out of direct sunlight.
- Lower the screen brightness.
- Remove the device from any case.
- Direct a vent or other cooling airflow onto the device.
- Remove the device from a charging source.
- Consider turning off the device.

> **CAUTION:** This alert is not guaranteed to display in time to prevent overheating and shutdown, as it relies on device temperature data supplied by iOS. Additionally, this alert only displays once per hour even if the device returns to a high temperature after initially cooling down.

30.4.9 Unusual Attitudes

The **Attitude Alert** feature provides notification of attitude deviations beyond selected limits. The alert is disabled by default. To enable the alert, tap
More ➔ Settings ➔ Alerts ➔ Unusual Attitudes.

Pitch limits may be specified for nose high and nose low independently. Bank limits may be specified separately for **Low Alt** (<2000 ft AGL) and **High Alt** (>2000 ft AGL).

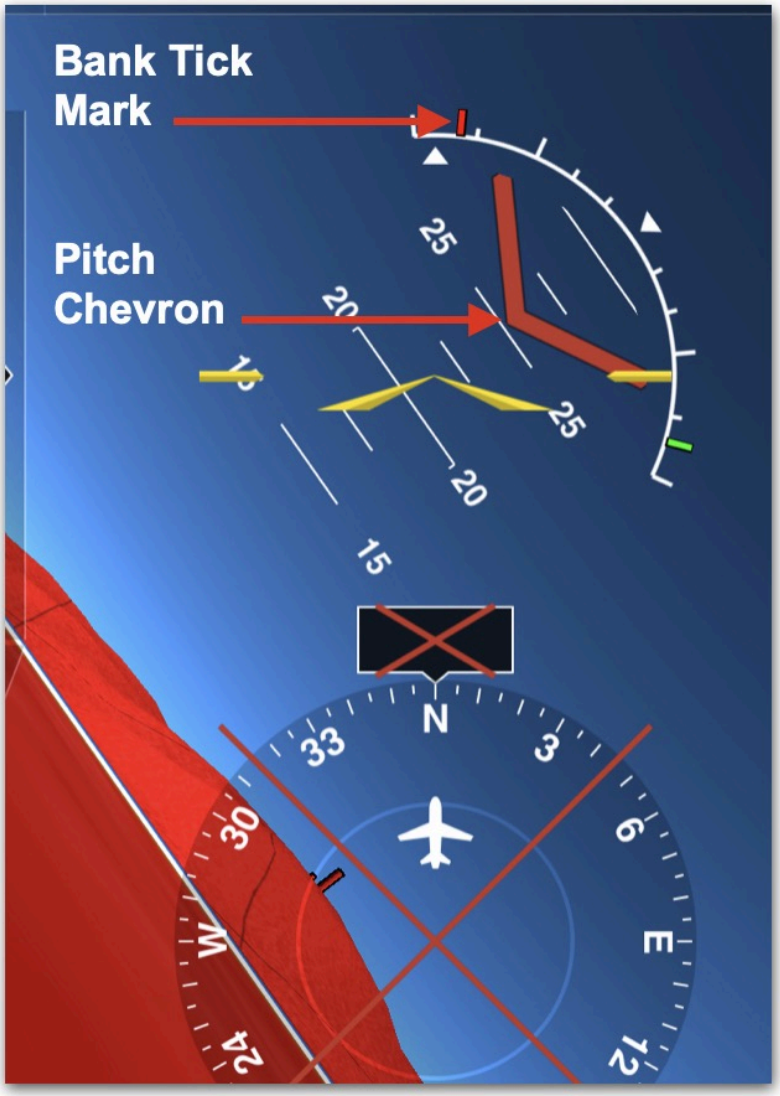


Figure 30-6. Unusual Attitude Indications

Requirements

To receive unusual attitude alerts ForeFlight must be connected to a panel-mounted AHRS source.

Display and Indications

Bank angle limits are displayed on the HUD using colored tick marks on the bank indicator:

- **Green**: Within limits
- **Amber**: Approaching limit
- **Red**: Exceeds limit.

The pitch limits are displayed on the HUD using red chevrons pointing in the direction of the horizon.

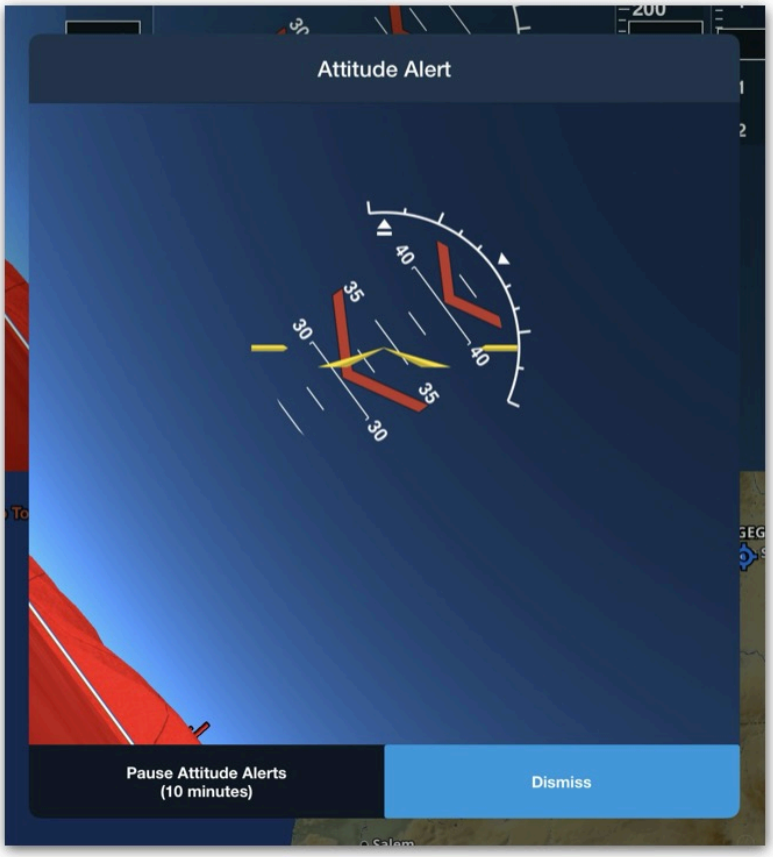


Figure 30-7. Unusual Attitude Pop-Over

Alert Behavior

The alert is triggered when any pitch or bank limit is exceeded for 2 seconds or more. The alert provides both a visual pop-over attitude indicator and a aural attitude announcement.

If the alert is dismissed, it will re-trigger at the next exceedance. Alternatively, it can be paused for 10 minutes.

30.5 Airspace & NOTAMS

The following Airspace and NOTAMS alert settings are available in the main settings and map settings menus.

30.5.1 Airspace Alerts

Airspace Alerts is an optional feature that provides app-wide airspace-related alerts, is enabled by default, and is only issued above 1,000 ft AGL. Airspace Alerts are triggered by user-defined parameters (see Airspace Alert Settings for additional information).

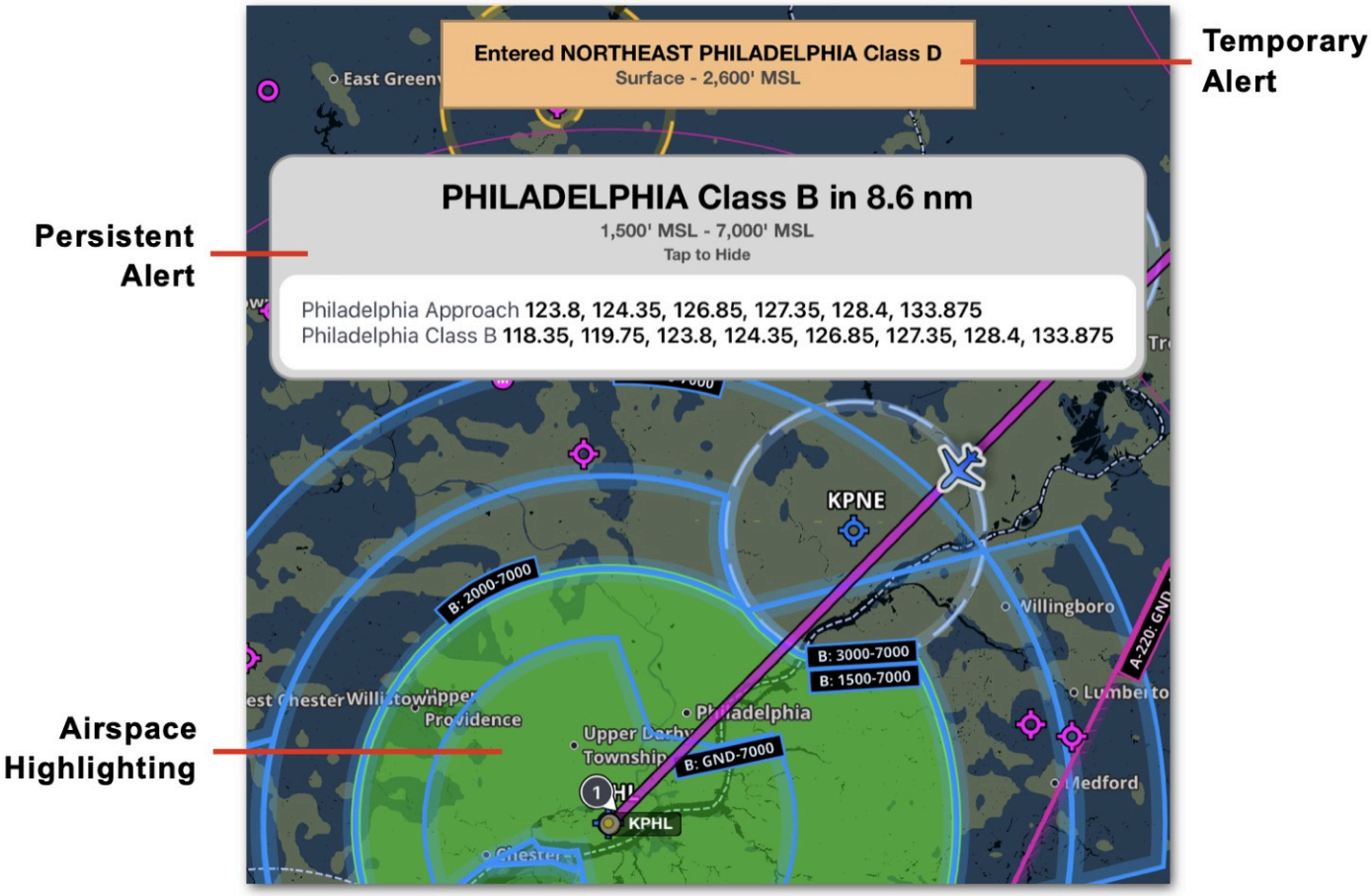


Figure 30-8. Airspace Alert Types

As depicted below, there are two types of Airspace Alerts: Persistent and Temporary. These two alert types can be displayed simultaneously.

Persistent Alerts

Persistent alerts are displayed until they are no longer applicable, it is hidden, or another alert replaces it (see next page for additional information). These alerts are issued for approaching airspace and airspace above or below. When an alert is triggered, the corresponding airspace is highlighted (green) and the alert banner displays the airspace name, class, distance to airspace, vertical limits, and ATC frequencies. The distance to airspace in the alert banner is dynamic and adjusts to reflect the position.

If approaching airspace above or below its vertical limits but within the user-defined Altitude Buffer setting, the alert indicates the airspace is above or below the current position. Once within the lateral boundaries of the airspace, the banner updates to reflect that the airspace is above or below the current position.

Persistent Alerts remain visible until one of the following actions occurs:

- The alert is no longer applicable
- The alert is tapped and hidden
- Another alert replaces it.

> **NOTE:** Airspace Alerts are issued one at a time based on proximity, meaning that if an active persistent alert is displayed and another alert is triggered, the next alert will automatically replace the existing one. Alerts other than Airspace Alerts (e.g., Traffic, Terrain, etc.) automatically replace active Airspace Alerts should they be issued.

Only one alert is issued per airspace class (e.g., B, C, or D). For example, if flying across the shelves of class B airspace, only one alert is issued.

The alert will not trigger if an alert for that airspace was issued within the past minute, e.g. departing and returning to the same airspace.

Audio alerts are available in conjunction with persistent alerts, however, they do not contain the airspace name.

Temporary Alerts

Temporary Alerts are issued when entering and exiting the controlled airspace lateral and vertical boundaries. Temporary alerts are issued one at a time and do not contain an audible portion. Temporary alerts are automatically hidden after a few seconds.

If entering airspace sectors with different altitude limits, such as when flying across class B shelves, the Entered Airspace alert is issued for each airspace sector.

When exiting the vertical or lateral airspace boundary, a single temporary alert is depicted.



Figure 30-9. Entered Airspace Alert (Left) / Exited Airspace Alert (Right)

30.5.2 Airspace Alert Settings

Five settings control the behavior of Airspace Alerts.

Airspace Alerts

Toggles Airspace Alerts on and off. Approaching, Entering, and Exiting airspace alerts are enabled and disabled with the Airspace Alerts toggle.

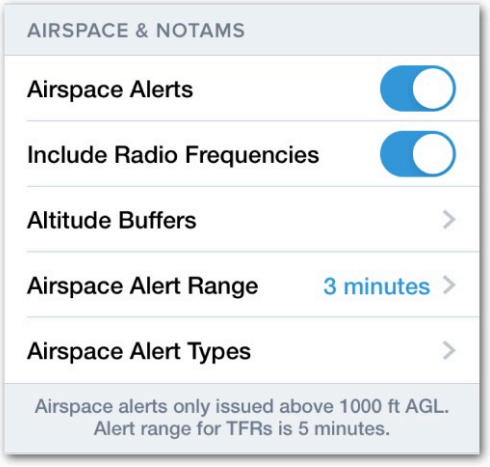


Figure 30-10. Airspace Alert Settings

Include Radio Frequencies

Shows ATC frequencies with the Airspace Alert.

Altitude Buffer

Specifies the altitude proximity above or below the airspace required to trigger an alert. The default buffer is 500'. Additional options exist for 1000', 2000', and 5000'.

Airspace Alert Range

Specifies how far in advance an Approaching Airspace Alert is triggered. The alert trigger evaluates airspace 1 NM on either side of the selected time or distance setting. Figure 897. Airspace Alert Range is representative of a 2 NM Airspace Alert Range and the 1 NM buffer on either side of the track. The triangle is not a feature that can be enabled. The default Alert Range setting is 3 NM. Additional distance (in NM) and time-based options exist. Time-based settings use current groundspeed to determine when to trigger alerts.

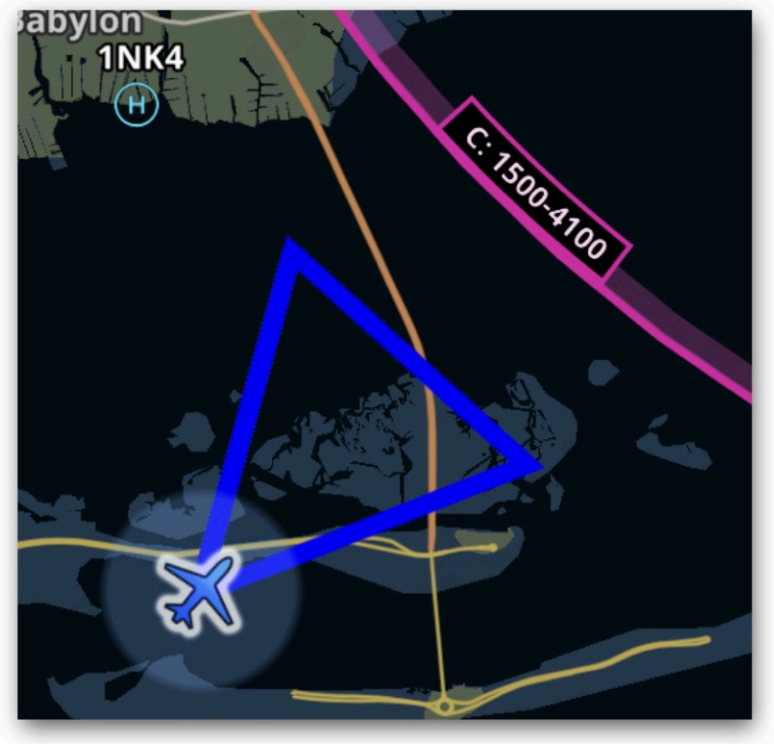


Figure 30-11. Airspace Alert Range

Airspace Alert Types

Specifies the type of airspace which will trigger alerts. All airspace types are enabled by default. An alert will not be issued if an airspace type is not listed.

30.6 Devices

The following Devices Alerts are available in the main settings and map settings menus:

- Device Disconnect
- Flight Plan Auto Update
- Connected Portable Device Low Battery.

30.6.1 Device Disconnect

Device Disconnect alerts are triggered if the Bluetooth or Wi-Fi connection to a portable or panel-mounted device that ForeFlight Mobile supports is lost. This allows the appropriate action to be taken to restore the connection, to switch to a backup device (if available), or to continue the flight knowing that the previously connected device is no longer available.



Requirements

The alert is only triggered if groundspeed is above 40 knots or if the device does not have a GPS fix.

30.6.2 Flight Plan Auto Update

Flight Plan Auto Update alerts trigger when ForeFlight receives a flight plan from a supported navigator.



Requirements

For this alert to trigger, ForeFlight must be connected to supported, installed (or panel) avionics (such as Garmin Connect devices) that can send flight plans.

Alert Behavior

Whenever ForeFlight Mobile receives and loads a new flight plan from the panel, it displays a "New Flight Plan Loaded From Panel" message.

30.6.3 Connected Portable Device Low Battery

Device Battery Low alerts display a low-battery message when the portable device battery level is reduced to 20%.



Requirements

For this alert to trigger, ForeFlight must be connected to a supported portable device such as the Sentry, Stratus, SXAR1 or Garmin portables.

> **NOTE:** This alert does not trigger when the mobile device running ForeFlight Mobile (iPad or iPhone) is running low on battery level.

30.7 Route-Based

The following Route-Based alerts are available in the main settings and map settings menus;

- Destination WX Frequency Alerts

30.7.1 Destination WX Frequency Alerts

Destination WX Frequency Alerts provides the destination airport weather frequency (ATIS, AWOS, or ASOS) approaching the airport.



Requirements

For Destination WX Frequency Alerts to trigger, more than one waypoint in must be in the route, the last item in the route must be an airport, and that airport must have a published weather frequency.

Alert Behavior

The Destination WX Frequency Alert occurs at a certain distance from the airport, which is greater at higher altitudes. (At 5,000 feet or below, the alert triggers at 20 NM from the airport.)

This alert does not disappear on its own. It remains on screen until dismissed by tapping on it or until it is replaced by another alert.

The alert will not occur more than once every 20 minutes for the same airport. However, if the destination airport is changed, the alert can occur again in less time.

30.8 Traffic

The following Traffic Alerts are available in the main settings and map settings menus.

- Airborne Traffic Alerts
- Traffic on Runway Alerts
- Traffic on Same Runway Alerts
- Traffic On Short Final Alerts
- Wake Turbulence Alerts

30.8.1 Airborne Traffic Alerts

Airborne Traffic Alerts notify when traffic is detected that may intersect the flight path or will be in close proximity.

Requirements

Airborne Traffic Alerts require a connection to an external ADS-B receiver (such as a Sentry) capable of the following:

- Receiving ADS-B Out traffic data.
- Assigning ADS-B Ownship to the aircraft.

For additional details regarding ownship, see Ownship ADS-B Out Information.

Audible alerts require ownship at or above 250 ft AGL.

Alert Behavior

An alert is triggered when another aircraft is within or projected to be within:

- 1.3 nautical miles horizontal distance, and
- ±1,200 feet vertical distance,
- Within the next 25 seconds.

Unknown Altitude Alerts

When a traffic target does not broadcast altitude data, ForeFlight assumes the aircraft is at the same altitude. In such cases, an alert is triggered when the target is is within or projected to be within:

- 1.3 nautical miles horizontal distance
- Within the next 25 seconds.

The alert displays and, if enabled, announces the relative position and distance of the traffic, and the message "*Altitude Unknown*."

30.8.2 Traffic on Runway Alerts

Traffic on Runway Alerts notify when another aircraft is detected on the runway on which the user's aircraft is landing.

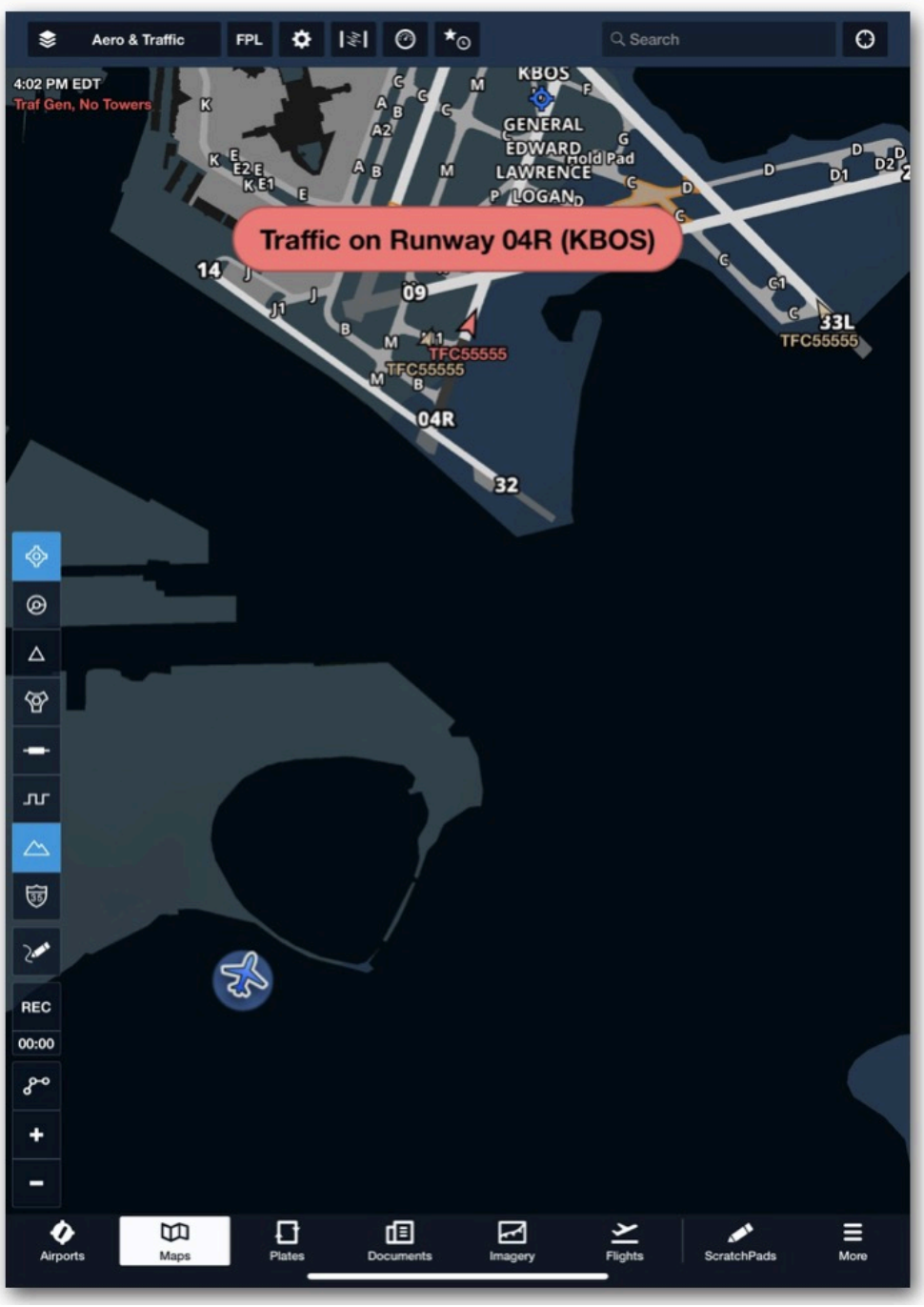


Figure 30-12. Traffic on Runway Alert

Requirements

To receive Traffic On Runway Alerts:

- ForeFlight Mobile must be connected to an external ADS-B device (such as a Sentry).
- ADS-B Ownship must be detected.
- Runway data must be available for the airport.
- The user's aircraft must be descending on a short final with a vertical speed of at least 200 ft, at an altitude of between 200 and 1,000 ft AGL, and at a distance within 60 seconds or 2 NM from the runway threshold (whichever is less). The user's aircraft must also have a heading within 15 degrees of the runway alignment and within a 3-degree final envelope extending out from the runway threshold.
- An ADS-B traffic target must currently be on the runway. Aircraft holding short of, or otherwise near to, the runway will not trigger an alert. Aircraft diverging from the user's position (moving away with a greater groundspeed) will not trigger the alert. Internet traffic will not trigger this alert.

Alert Behavior

When the above requirements are met, this alert triggers a visual and audible notification of traffic on the runway, including the runway number and airport.

The alert can be dismissed with a tap and will not trigger again for at least one minute. However, the traffic target identified by the alert will remain red until the user's aircraft is no longer within one minute or 2 NM of the runway threshold, whichever is less.

> **CAUTION:** Traffic On Runway Alerts are inhibited for parallel runways whose centerlines are less than 830 ft apart. When runways are farther apart, the alert may be delayed until ForeFlight Mobile can more precisely determine the destination runway.

30.8.3 Traffic on Same Runway Alerts

Traffic on Same Runway Alerts notify when the user's aircraft is either approaching or is currently on a runway and another aircraft or ground vehicle equipped with ADS-B is on that runway.

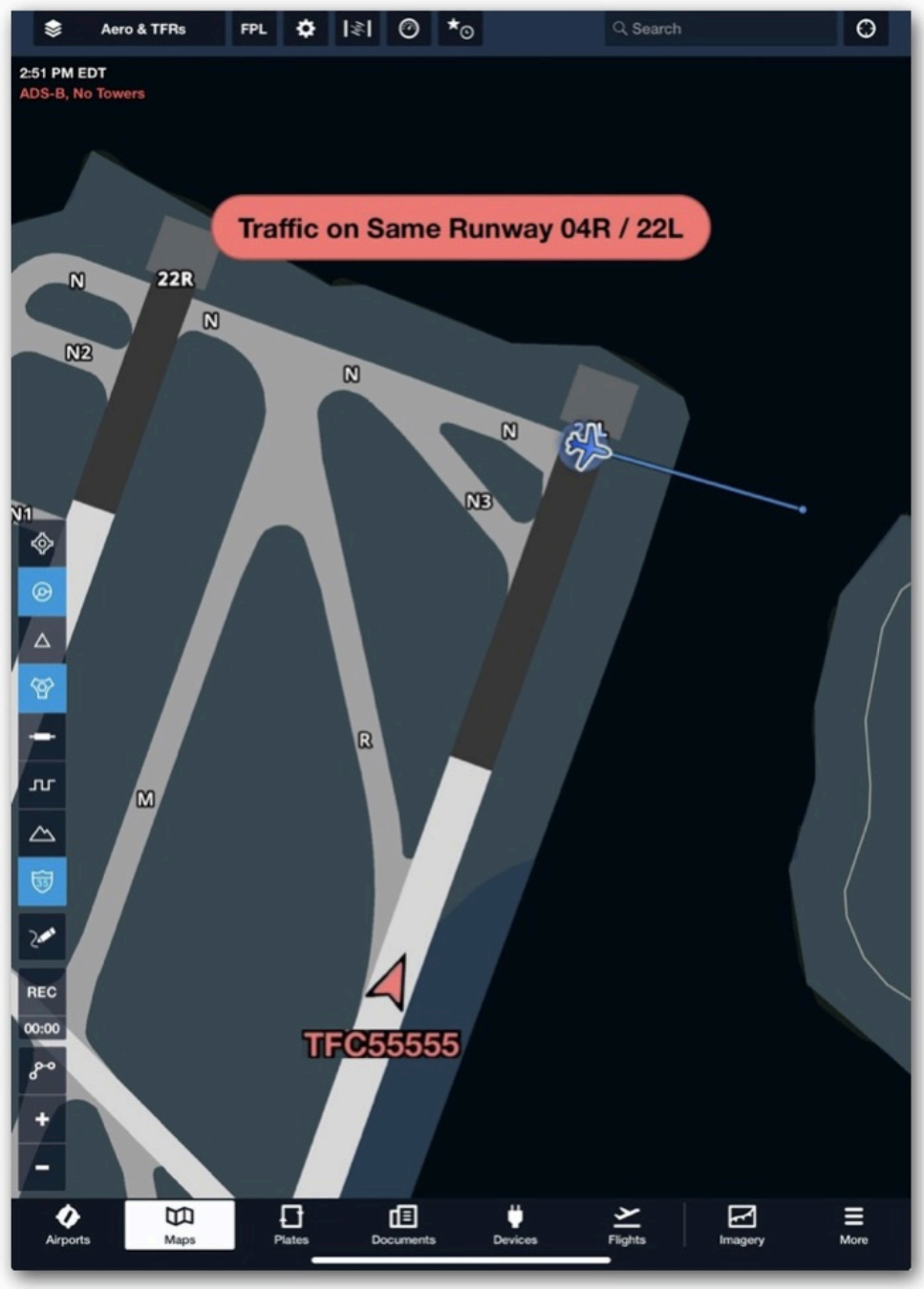


Figure 30-13. Traffic on Same Runway

Requirements

To receive Traffic On Runway Alerts:

- ForeFlight Mobile must be connected to an external ADS-B device (such as a Sentry).
- ADS-B Ownship must be detected.
- Runway data must be available for the airport.
- User aircraft must be on the runway or be approaching the runway.

- An ADS-B traffic target must currently be on the runway. Aircraft holding short of, or otherwise near to, the runway will not trigger an alert. Aircraft diverging from the user's position (moving away with a greater groundspeed) will not trigger the alert. Internet traffic will not trigger this alert.

Alert Behavior

When the above requirements are met, this alert triggers an audible notification of traffic on same runway, and a visual notification including the runway number.

The alert can be dismissed with a tap and will not trigger again for at least one minute. However, the traffic target identified by the alert will remain red until the user's aircraft is no longer within one minute or 2 NM of the runway threshold, whichever is less.

> **CAUTION:** Traffic On Runway Alerts are inhibited for parallel runways whose centerlines are less than 830 ft apart. When runways are farther apart, the alert may be delayed until ForeFlight Mobile can more precisely determine the destination runway.

> **NOTE:** Approaching the runway is calculated by projecting the current position 7 seconds into the future at the current speed/heading when the groundspeed is > 3kts.

30.8.4 Traffic On Short Final Alerts

Traffic On Short Final Alerts notify when an aircraft is on short final to the runway that the user is either on or approaching.

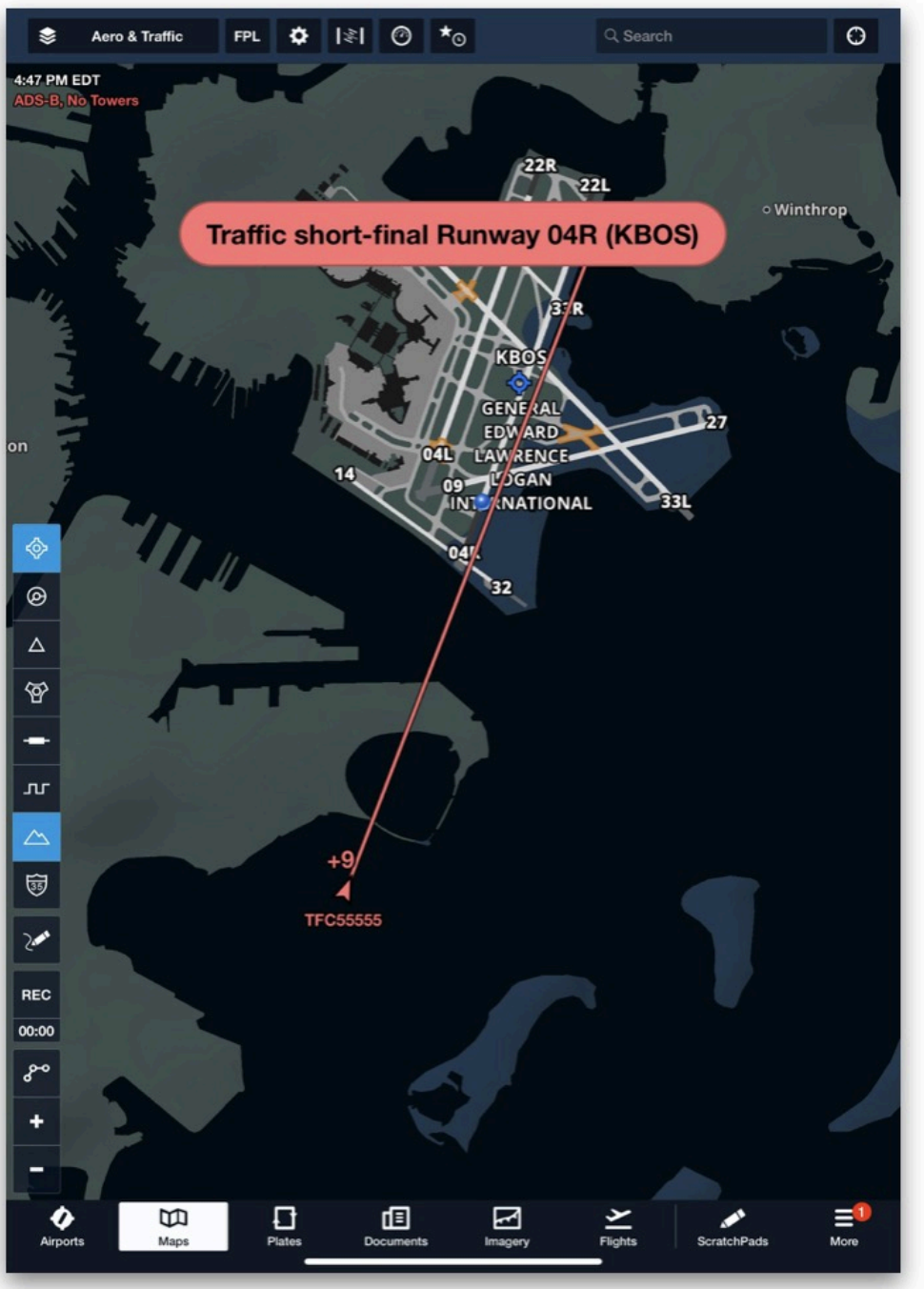


Figure 30-14. Traffic on Short Final Alert

Requirements

To receive Traffic On Short Final Alerts:

- ForeFlight Mobile must be connected to an external ADS-B device (such as a Sentry).
- ADS-B Ownship must be detected.
- Runway data must be available for the airport.

- User must be on or approaching the runway.
- A traffic target with ADS-B Out data must be approaching within a 1,000 ft AGL altitude of the user's position and within 60 seconds or 2 NM of the runway threshold (whichever is less). Diverging traffic targets and traffic sourced from the internet will not trigger the alert. The traffic target must also have a heading within 15 degrees of the runway alignment and must be within a 3-degree final envelope extending out from the runway threshold.

Alert Behavior

When the above requirements are met, a visual and audible notification of traffic on a short final to the runway the user is currently on is triggered, including the runway number and airport. Additionally, the traffic target on a short final will turn red.

The alert can be dismissed with a tap and will not trigger again for at least one minute. However, the traffic target identified by the alert will remain red until it is no longer within one minute or 2 NM of the runway threshold, whichever is less.

> **CAUTION:** Traffic On Runway Alerts are inhibited for parallel runways whose centerlines are less than 830 ft apart. When runways are slightly farther apart, the alert may be delayed until ForeFlight Mobile can more precisely determine the destination runway.

> **NOTE:** Approaching the runway is calculated by projecting the current position 7 seconds into the future at the current speed/heading when the groundspeed is > 3kts.

30.8.5 Wake Turbulence Alerts

The wake turbulence alert system calculates and displays possible wake turbulence conditions behind a potentially hazardous wake generated by traffic in the vicinity.

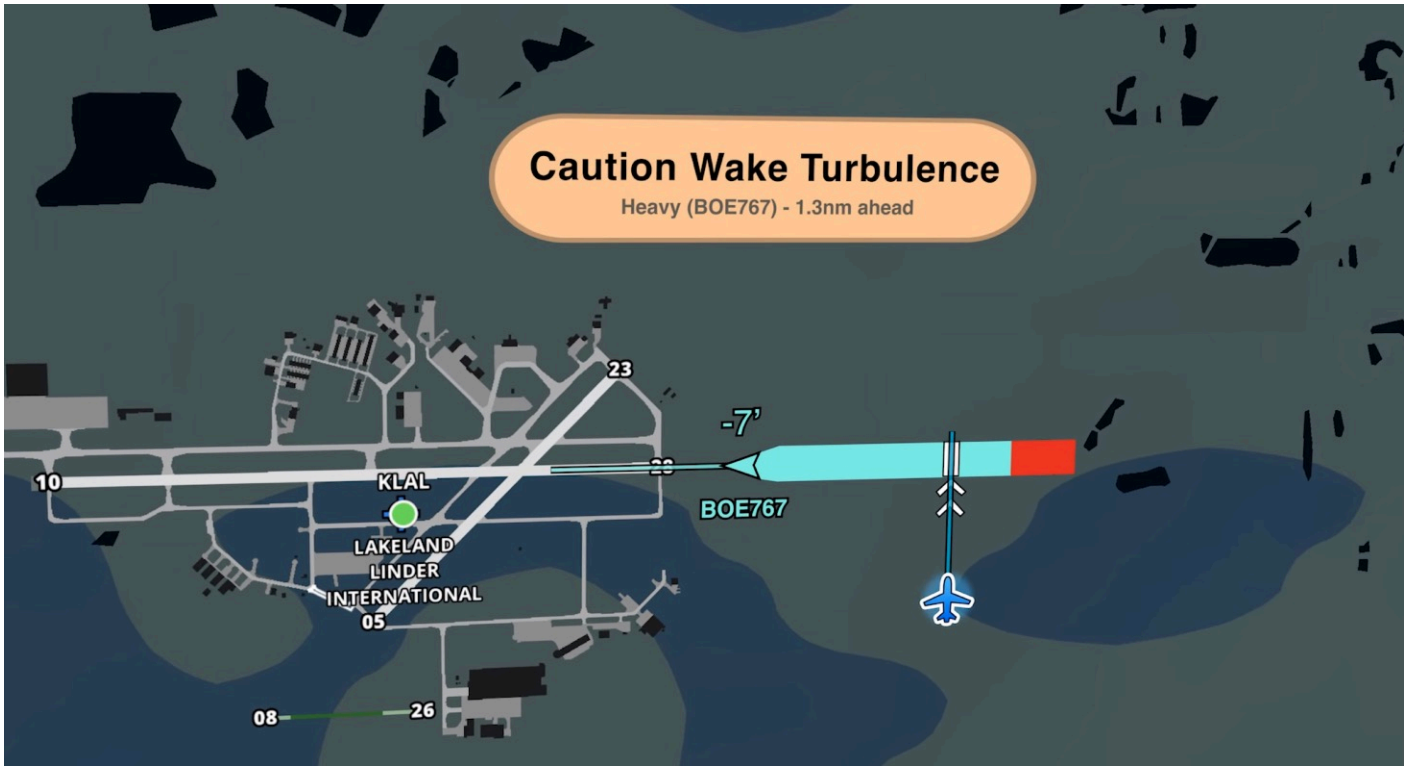


Figure 30-15. Wake Turbulence Alert

Requirements

To receive wake turbulence alerts:

- ForeFlight Mobile must be connected to an external ADS-B device (such as a Sentry)
- Traffic must be in a larger wake-category than ownship
- The predicted time of entering the wake is 30 seconds or less.

Alert Behavior

When the above requirements are met, both visual and aural "Caution Wake Turbulence" alerts are triggered. The alert can be dismissed with a tap, or will disappear after 10 seconds if not acknowledged. The alert will not trigger again for at least one minute.

The visual depiction of the wake provides an aid to situational awareness when approaching wake turbulence. It moves based on the current winds and dissipates overtime removing it from the map display. The wake will show on the map until it has fully dissipated or 60 seconds has gone by since the alert.

The red portion of the wake represents the vertical portion of the wake closest to ownship altitude. The red area is from 100 feet above to 300 feet below ownship altitude. This portion will change as the wake descends or ownship altitude changes.

A white intersection line accompanied by two chevrons will display where the predicted flight path will cross the wake turbulence.

CAUTION: Rotorcraft wake turbulence will not generate alerts.

NOTE: Wake turbulence alerts are inhibited when ownship is below 500 feet AGL.

30.9 TFR Alerts

TFR Alerts display app-wide if ownship will pass inside, over, or under a TFR within the next five minutes. This alert pertains specifically to TFRs issued in the United States and cannot be disabled.

Requirements

For this alert to work, altitude must be at or above 500 ft AGL and either have the ability to receive inflight TFR data, or have downloaded that data recently with the Pack feature (see below).

Preflight Data Download

Before the flight, connect to the internet and use the Pack feature to download all relevant TFRs and weather data.

> **CAUTION:** The Pack feature does not provide updated TFR Alerts in flight. ForeFlight Mobile can only display TFRs issued *after* Pack is complete if an ADS-B or SiriusXM inflight weather receiver is used.

Setting the Altitude Buffer

To configure the sensitivity of TFR Alerts, tap **Map Settings ➔ Alerts ➔ Altitude Buffer** and set the TFR buffer to 500', 1000', 2000', or 5000'. This setting determines how far ForeFlight Mobile searches for TFRs above or below the flight altitude.

Alert Behavior

TFR Alerts display app-wide even if the TFRs layer is not enabled on the Maps View. TFR Alerts are disabled if flying below 500 ft AGL. There are five possible TFR alert messages depending on position relative to the TFR and its active status:

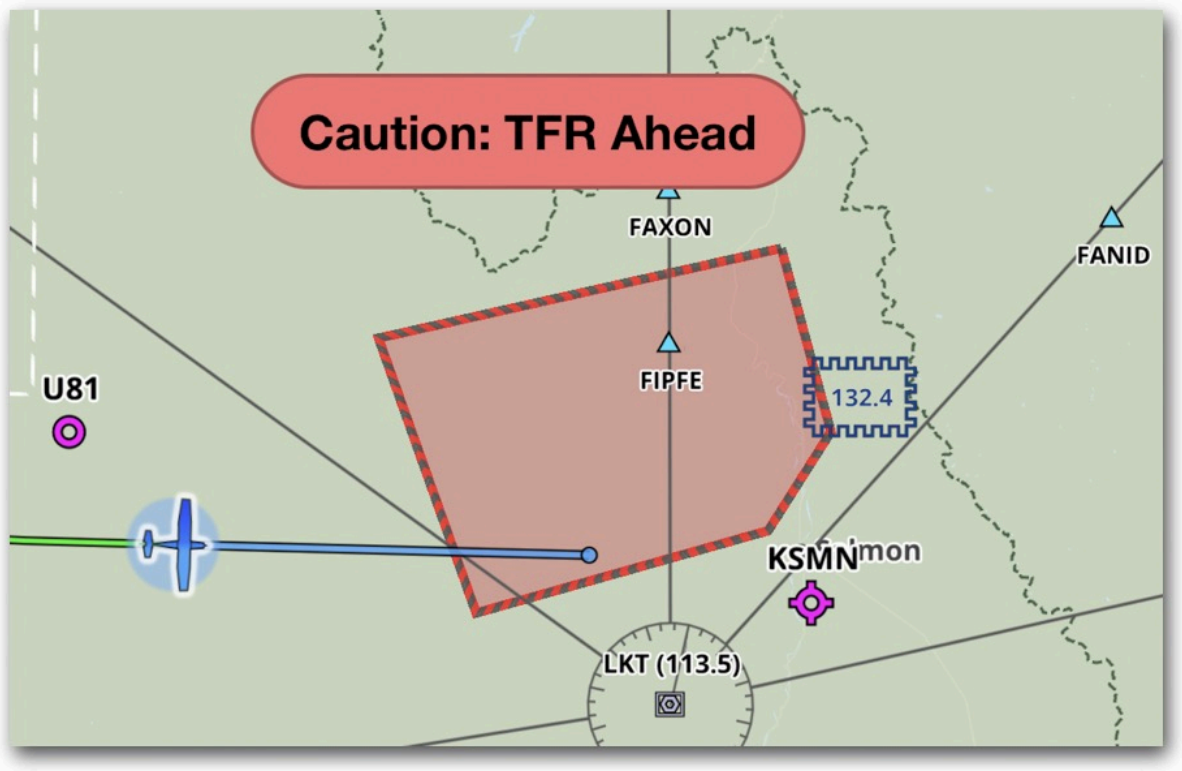


Figure 30-16. TFR Ahead Alert

- **Caution: Upcoming TFR Ahead**: Within five minutes, flight will pass within 3 NM of a soon-to-be-active TFR.
- **Caution: TFR Ahead**: Within five minutes, flight will pass within 3 NM of an active TFR.
- **Caution: Inside TFR**: Flight has entered the lateral and vertical boundaries of an active TFR.
- **Caution: TFR Below**: Flight is above an active TFR by a number of feet set by the Altitude Buffer (see below).
- **Caution: TFR Above**: Flight is below an active TFR by a number of feet set by the Altitude Buffer.

CAUTION: TFR Alerts are provided as a supplementary tool for increasing situational awareness and should not replace conventional tools and methods for avoiding TFRs. Failure to use the Pack feature to download relevant weather and TFR data before a flight (see above) can impede the ability of ForeFlight Mobile to display accurate TFR Alerts. The Pack feature downloads a snapshot of the airspace taken at that specific time. After a fight is packed, TFR alerts will only be issued if an ADS-B or SiriusXM inflight weather receiver is used.

JETFUELX

*Performance Category*JetFuelX is a feature in ForeFlight Mobile that helps operators view and compare contract Jet -A fuel prices and request fuel releases. Contract fuel account information is uploaded into JetFuelX and linked to selected aircraft on the account. The JetFuelX feature is available to Premium, and Business Performance subscribers.

Eligible tier ForeFlight subscribers can apply for new accounts with participating vendors and link contract Jet-A fuel accounts on ForeFlight Web. ForeFlight Mobile then displays contract Jet-A fuel prices on Maps, Airports, Plates, and Flights views. Fuel release requests are supported from within the Flights view. ForeFlight Web also displays contract Jet-A fuel prices in My Flights and Maps views.

> **NOTE:** Fuel cards cannot be added to a sub-org within a Business Performance parent account. It must be added to the parent account.

31.1 Dashboard Overview

The **dashboard** is the primary landing page for JetFuelX. It provides a comprehensive overview of:

- **Fuel Cards**: Accounts linked to vendors.
- **Fuel Release Requests**: A sortable and searchable table of requested fuel releases.
- **Fuel Prices**: A tool for browsing fuel prices associated with the user's cards.

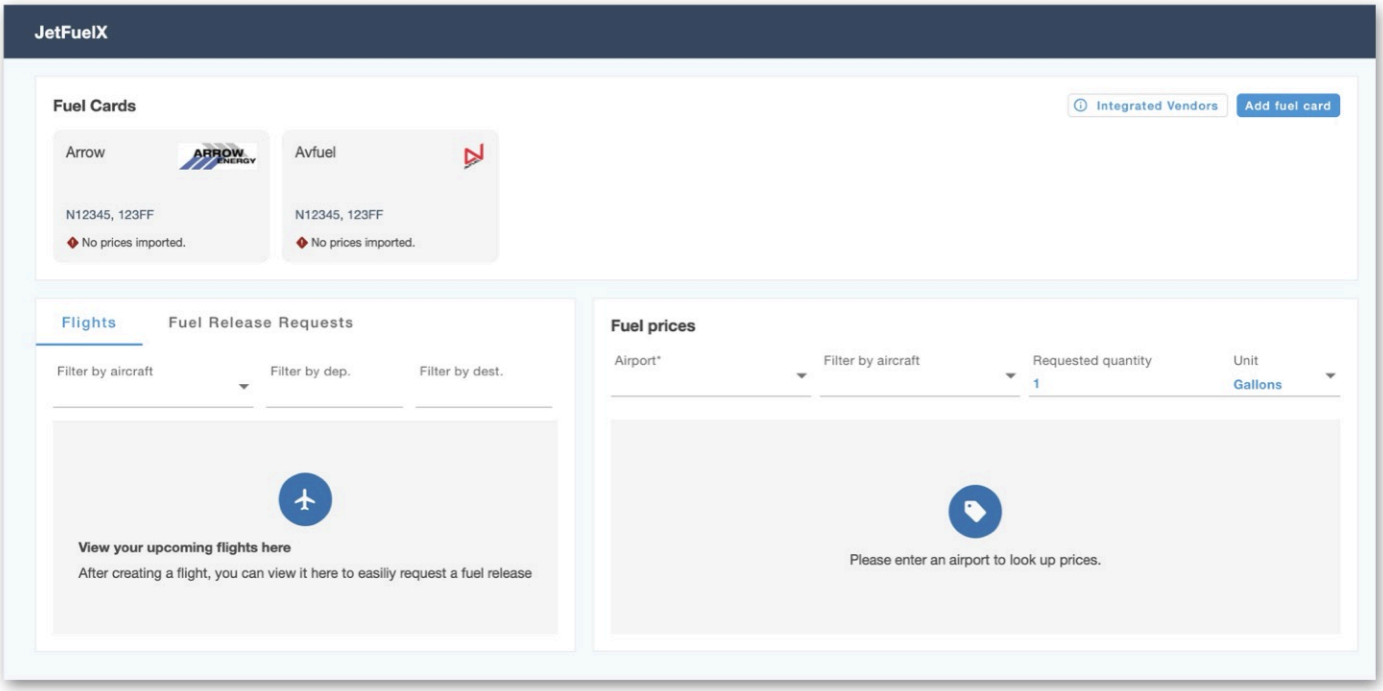


Figure 31-1. Dashboard

31.2 Fuel Cards

Contract fuel accounts are managed on the ForeFlight Web JetFuelX page. Vendors send fuel price data directly to the user's ForeFlight account. Fuel cards can be added, edited, and removed. At least one aircraft profile must be linked to each fuel card. Status indicators on each fuel card show whether an account has prices and the date last updated. Vendor CSV price files can be manually imported.

> **NOTE:** JetFuelX uses the term "cards" to represent all accounts. Vendors may not necessarily issue a physical card.

31.2.1 Applying for Contract Fuel Accounts

Before using the JetFuelX feature, users must have already signed up with one or more participating contract fuel providers. The application process varies by vendor and is outside the scope of ForeFlight guides. Users can access participating fuel vendor websites from within ForeFlight Web.

1. Log into plan.foreflight.com.
2. Select **JetFuelX** from the sidebar.
3. Click the **Integrated Vendors** button.

4. Click a vendor icon to navigate to their website.

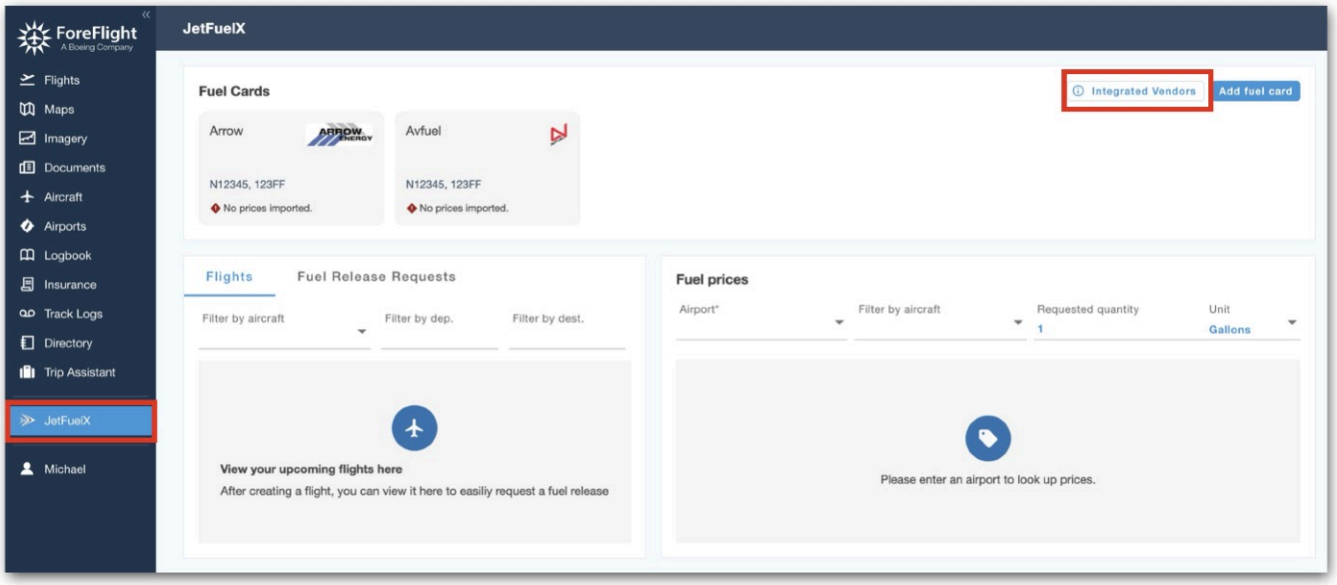


Figure 31-2. Applying for Contract Fuel Account

5. Complete the vendor application process.

31.2.2 Linking Fuel Cards

The process to link fuel cards is similar for all users, however:

- Individual account holders can assign fuel cards to any aircraft profile.
- Business account holders can assign fuel cards only to aircraft profiles set up as organization aircraft and published by their organization.

To link a fuel card, follow these steps:

1. Log into plan.foreflight.com and select **JetFuelX** from the sidebar.
2. Click **Add fuel card** to open the **Add fuel card** pop-over.
3. Click **Custom**, a specific vendor, or use the search bar to find a vendor.
4. **Card/Account Number**: enter a card or account number if one is listed in the contract fuel account.
5. **Card/Account Name**: enter the name on the contract fuel account.
6. **Description**: enter any other useful information about the card.

7. **Aircraft**: select one or more aircraft profiles.
8. If adding a CAA fuel card, follow these additional steps:
   - For CAA, click **Connect CAA Account**. In the CAA login window, enter the account username and password, and click **Login**. Then, return to the **Add fuel card** pop-over.
9. If adding a Jetex or Everest Fuel card, follow these additional steps:
   - Enter the **Integration ID** or **Customer ID** received from the vendor. The input field contains a yellow email icon button which can be clicked to open an email client with the subject and receiver populated.
10. Click **Add fuel card**.

After adding a fuel card, it may take up to a week for some vendors to begin sending fuel price data.

If a custom card is added, fuel prices in a CSV format can be uploaded. See Price Updating by Creating and Importing CSV Files.

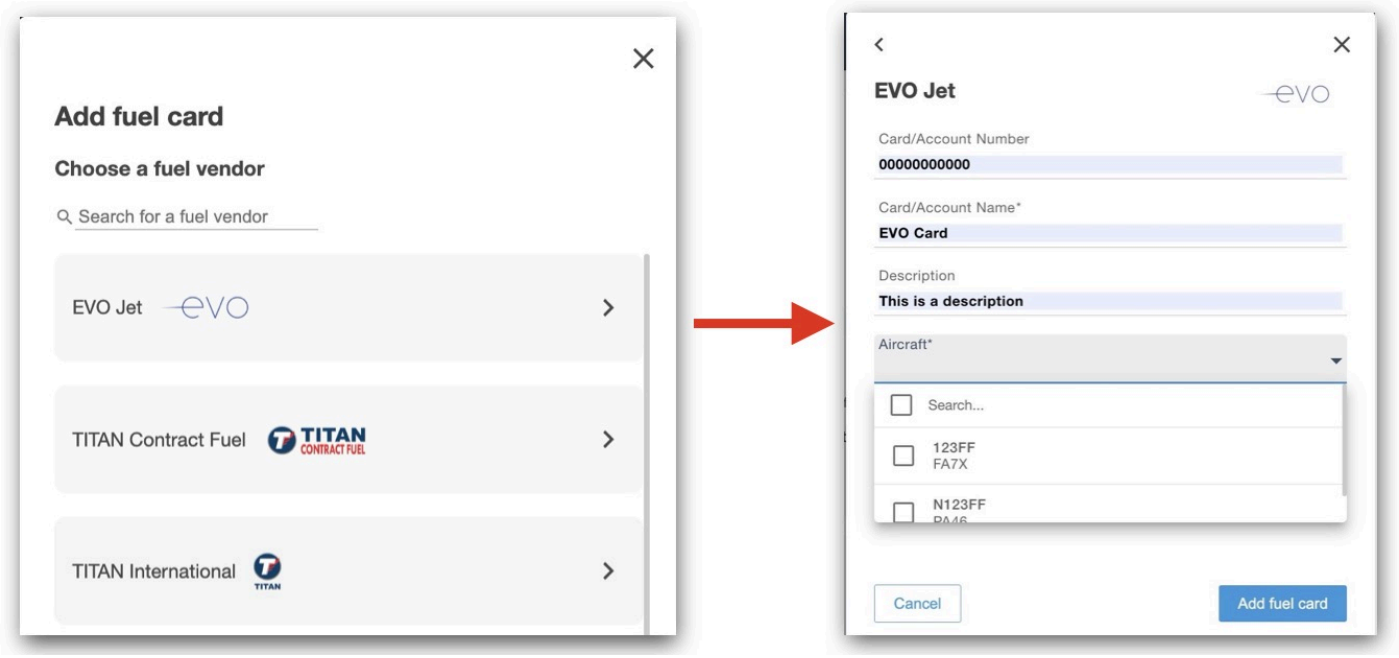


Figure 31-3. Link Fuel Card

31.2.3 Automatic Price Updates

Adding a contract fuel card triggers an automated email to the fuel vendor requesting they provide regularly scheduled fuel price data to the user's ForeFlight account. This email includes all of the information the vendor needs to send price updates to the account.

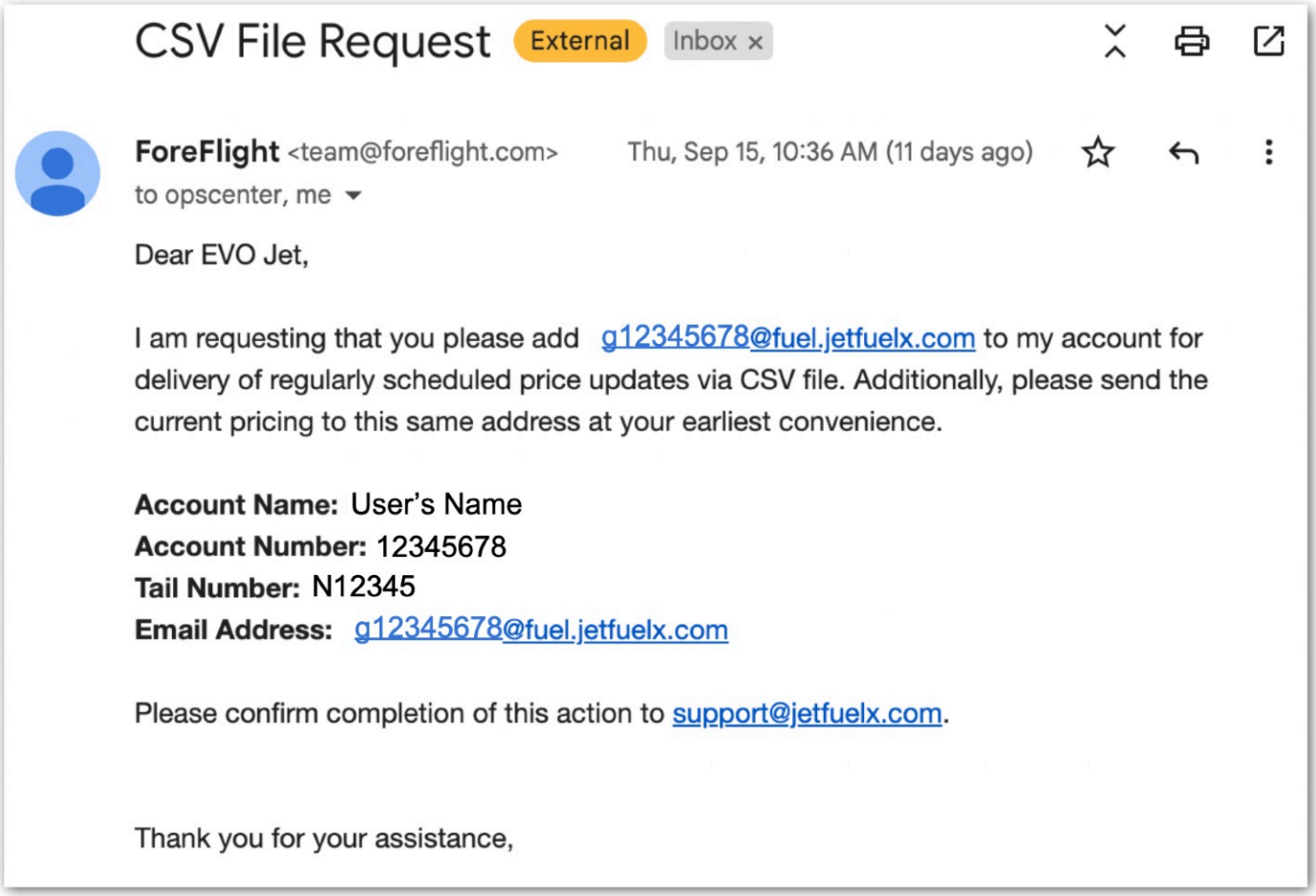


Figure 31-4. ForeFlight Email to Fuel Vendors Example

Within one week, the vendor should start sending contract fuel prices to the ForeFlight account, and the fuel card will display a **Prices updated** status message. This message will display the date of the most recent update.

31.2.4 Manual Price Updates

A red status symbol displays on the fuel card along with the message, "No fuel prices imported," if prices have not been received. If the vendor send prices in a CSV file, users may update prices manually by forwarding the fuel price emails or importing the file from the vendor into ForeFlight Web.

31.2.4.1 Price Updating by Forwarding Emails

To set up forwarding:

1. Log into plan.foreflight.com and select **JetFuelX** from the sidebar.
2. Click the fuel card to be updated.
3. Click **Upload fuel prices**.
4. On the **Import prices** pop-over, **Copy** the email address ending in @fuel.jetfuelx.com. This is the unique JetFuelX import email address to be used to forward emails from the contract fuel provider.
5. Locate the vendor email containing the CSV file. This email will most likely be sent to the address listed on the contract fuel membership account. Forward the email to the @fuel.jetfuelx.com account copied in the previous step.
6. Use the process dictated by the email provider to set up auto-forwarding of all future emails from the email address the vendor used above to the @fuel.jetfuelx.com email address.

> **NOTE:** @fuel.jetfuelx.com addresses are receive-only and cannot respond to any messages. If an email provider requires a confirmation reply to its request for autoforwarding, it will be necessary instead to forward the email or manually import the CSV files.

31.2.4.2 Price Updating by Manually Importing CSV Files

To manually import price updates to a JetFuelX account using the vendor CSV file:

1. Locate and download the vendor CSV file (either on the vendor's website or in an email from the vendor).
2. Log into plan.foreflight.com and select **JetFuelX** from the sidebar on the left side of the page.
3. Click the fuel card to be updated.
4. Click **Upload fuel prices**.

5 Drag and drop the CSV file from the computer to the gray box, or click **Browse your computer** and use the pop-over window to locate and import the CSV file.

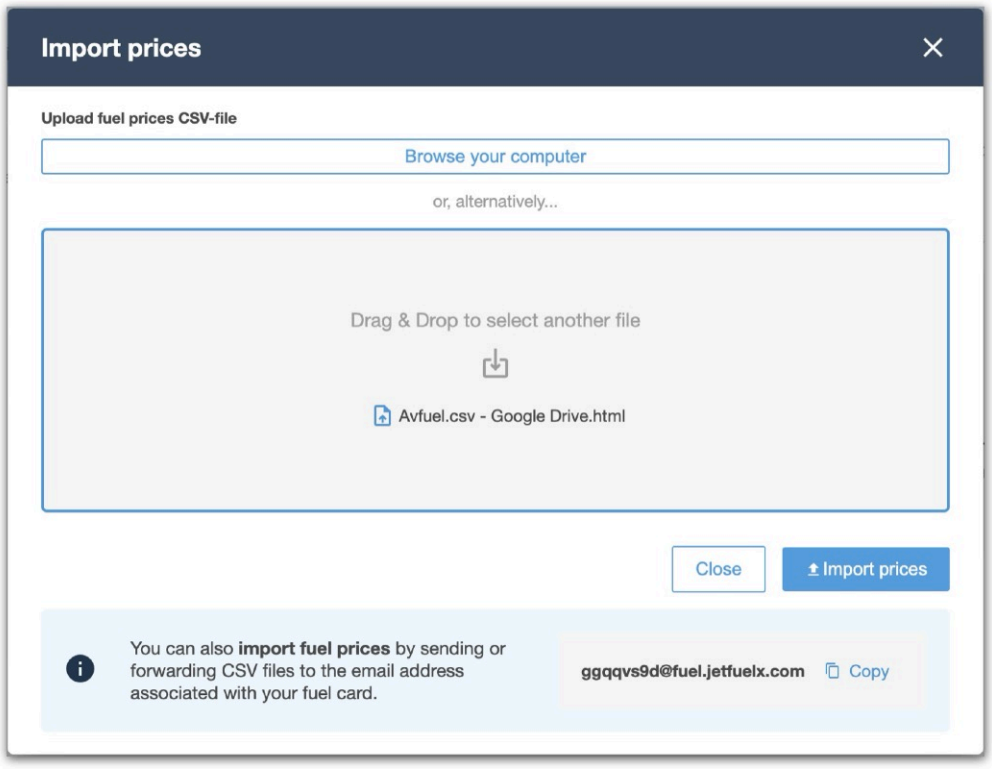


Figure 31-5. Import Prices Pop-Over

31.2.4.3 Price Updating by Creating and Importing CSV Files

To manually create and import a price update CSV file to a JetFuelX account for a custom card or a non-integrated vendor:

1 Click **Download sample file** to download a CSV file with the correct formatting to add fuel prices to the custom card.

ICAO	IATA	FAA	FBO Name	Country	Fuel Type	Minimum Volume	Maximum Volume	Unit Type	Price	Currency	Effective Date	Notes
ABCD	BCD	BCD	a real FBO name	a real country	JETA	1	1000	G	5.25	USD	1970/01/01	A note from the vendor
EFGH	FGH	FGH	a real FBO name	a real country	JETAPLUS	1	3000	L	5.25	USD	1970/01/01	A note from the vendor

Figure 31-6. Sample CSV File

2. Enter required information. Required fields for the CSV file are:
   - At least one of ICAO, IATA, or FAA
   - FBO
   - Price
   - Currency
   - Unit Type.
3. Save the CSV file.
4. Click the fuel card to be updated.
5. Click **Upload fuel prices**.
6. At the top of the Import Prices page, drag and drop the CSV file from the computer to the gray box, or click **Browse your computer**and use the pop-over window to locate and import the CSV file.
7. Drag and drop the CSV file from the computer to the gray box, or click **Browse your computer** and use the pop-over window to locate and import the CSV file.

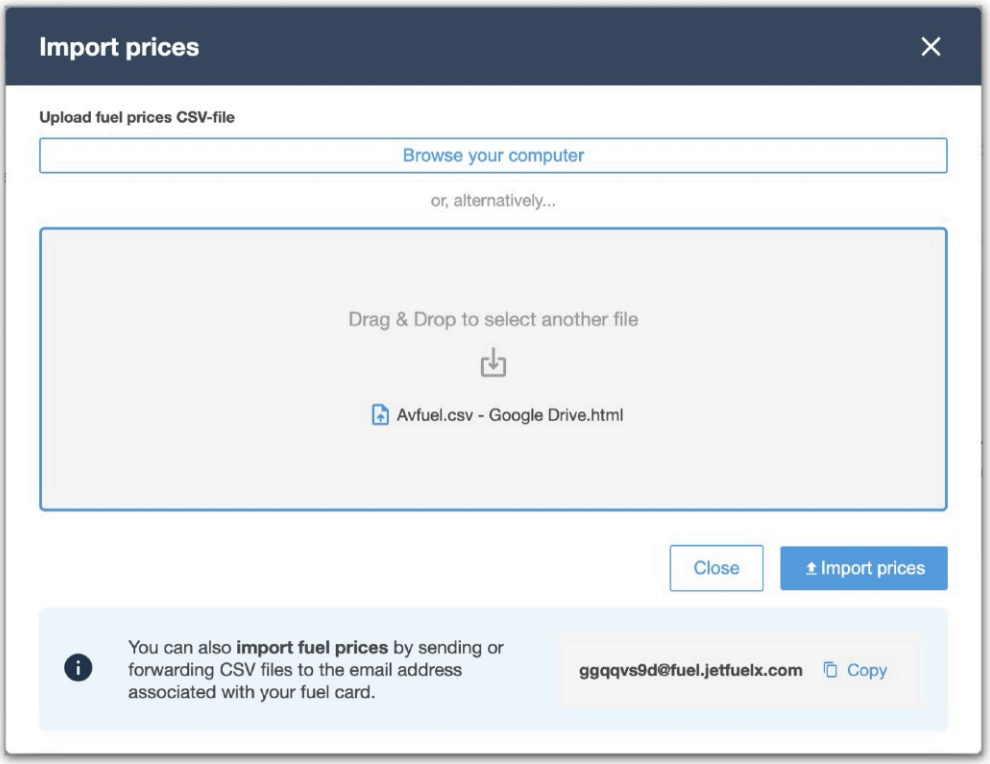


Figure 31-7. Import Prices Pop-Over

31.3 Fuel Card View

Click a fuel card on the dashboard to see a more detailed view of the fuel card. Fuel prices can be managed and requests for fuel releases can be viewed. The fuel card can be edited or deleted from this view.

31.3.1 Editing Fuel Card

To edit the account information for a fuel card:

1. Log into plan.foreflight.com and select **JetFuelX** from the sidebar.
2. Click the fuel card to be edited.
3. Click the **...** at the top right.
4. Click **Edit card**.
5. Edit the account information as necessary.
6. When finished, click **Update fuel card**.

> **NOTE:** For CAA, click **Connect CAA Account**. In the CAA login window, enter the account username and password, and click **Login**. Then, return to the **Update fuel card** pop-over.

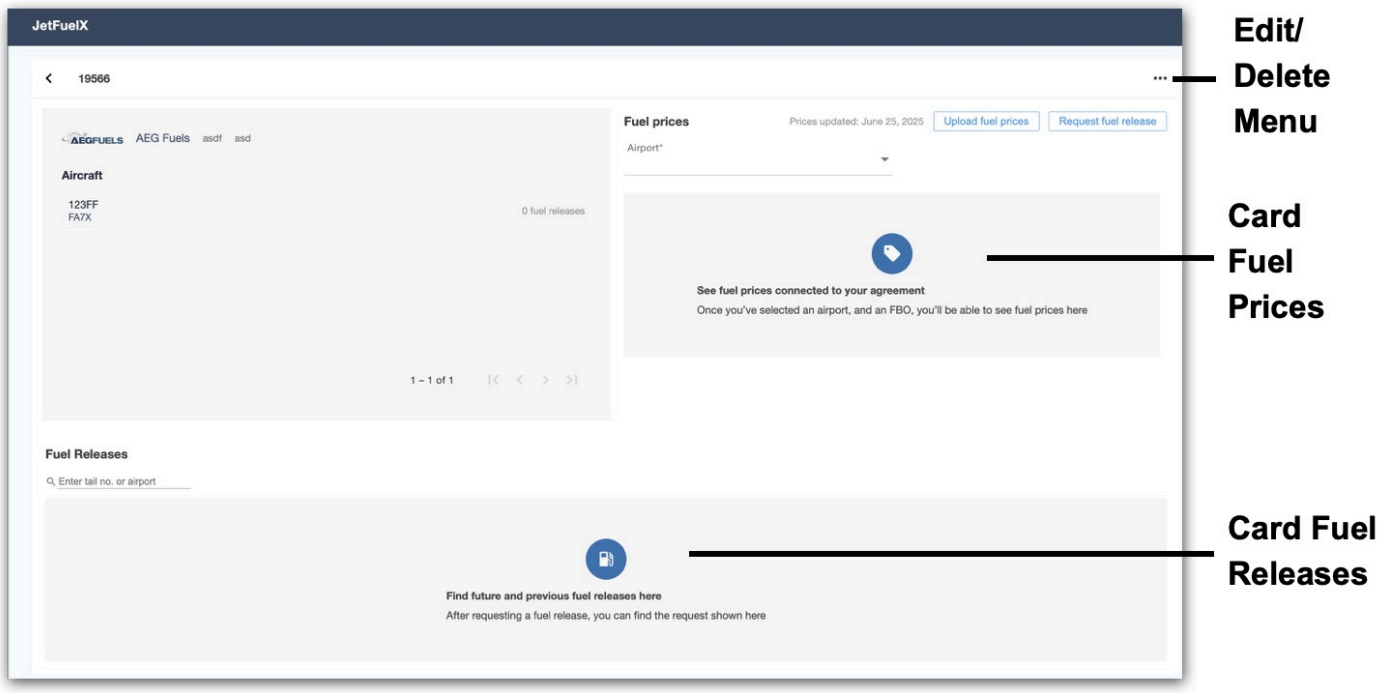


Figure 31-8. Fuel Card View

31.3.2 Delete Fuel Card

Deleting a fuel card will remove existing contract fuel prices from ForeFlight Mobile and notify the vendor to stop sending prices to the associated ForeFlight account. To delete a fuel card:

1. Log into plan.foreflight.com and select **JetFuelX** from the sidebar.
2. Click the fuel card to be deleted.
3. Click the **...** at the top right.
4. Click **Delete card.**
5. In the Delete fuel card pop-over, click **Delete Fuel Card** to confirm.

31.3.3 Card Details

The upper left section of the fuel card view contains an expanded version of the smaller view displayed the dashboard. It shows a paginated view of all aircraft assigned to the card with information about the number of fuel releases associated with each aircraft.



Figure 31-9. Fuel Card Details

31.3.3.1 Fuel Prices (Card Specific)

The **Fuel prices** view in the detailed fuel card view shows prices for the specific fuel card. To view prices, select an airport and an FBO. Click the right-pointing arrow to deselect the FBO so another airport or FBO can be chosen.

Click the **Request fuel release** button to generate a fuel release request form.

> **NOTE:** If the vendor does not support fuel releases, the button will be disabled.

If a fuel card has not received prices, it will be indicated by a **No prices imported** message in the **Fuel prices** section. It can take up to seven days before prices are received from the vendor and updated on the card. Alternatively, prices can be manually uploaded (see Manual Price Updates).

31.4 Fuel Releases

The Fuel Releases view contains requests for fuel releases that have been submitted. Hovering over **ETA** , **ETD** or **Created** column headers will reveal an arrow. Click the arrow to toggle the direction in which the rows are sorted.

The list can be filtered by entering a tail number or an airport code in the search field.

Click the **More** button to reveal a menu with the option to open the confirmation. Click **Open confirmation** to show the Fuel Release Confirmation that was originally displayed when the fuel release was requested.

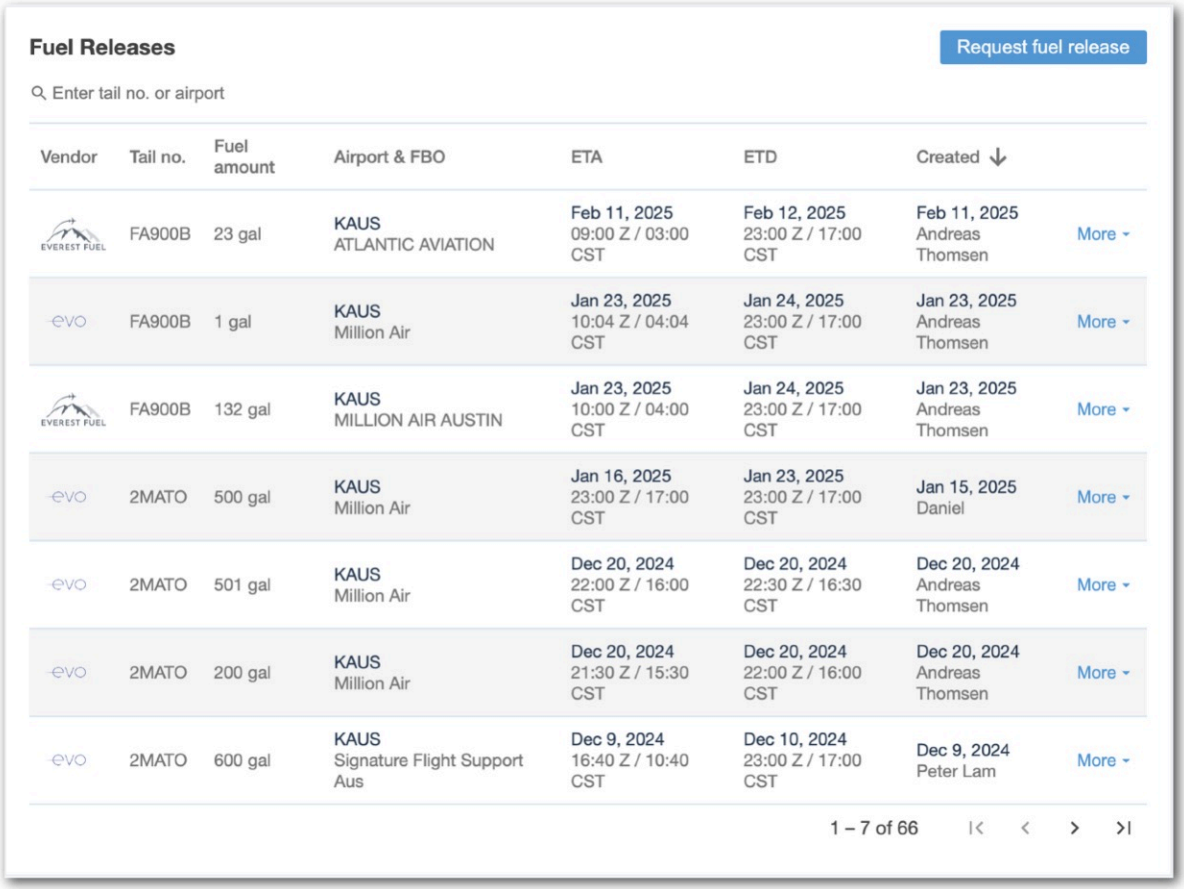


Figure 31-10. Fuel Releases

31.4.1 Request Fuel Release

Click the **Request fuel release** button to open a Fuel Release Request form.

31.5 Fuel Prices

The Fuel prices section of the dashboard enables browsing prices associated with all of the fuel cards at a given airport. The prices are grouped into FBO expansion panels. Each FBO panel can be expanded to show the prices at that specific FBO. Each price item lists the vendor who offers the price, a list of aircraft for which the price is available and an optional note from the vendor.

Click **Request fuel release** to open a Fuel Release Request form.

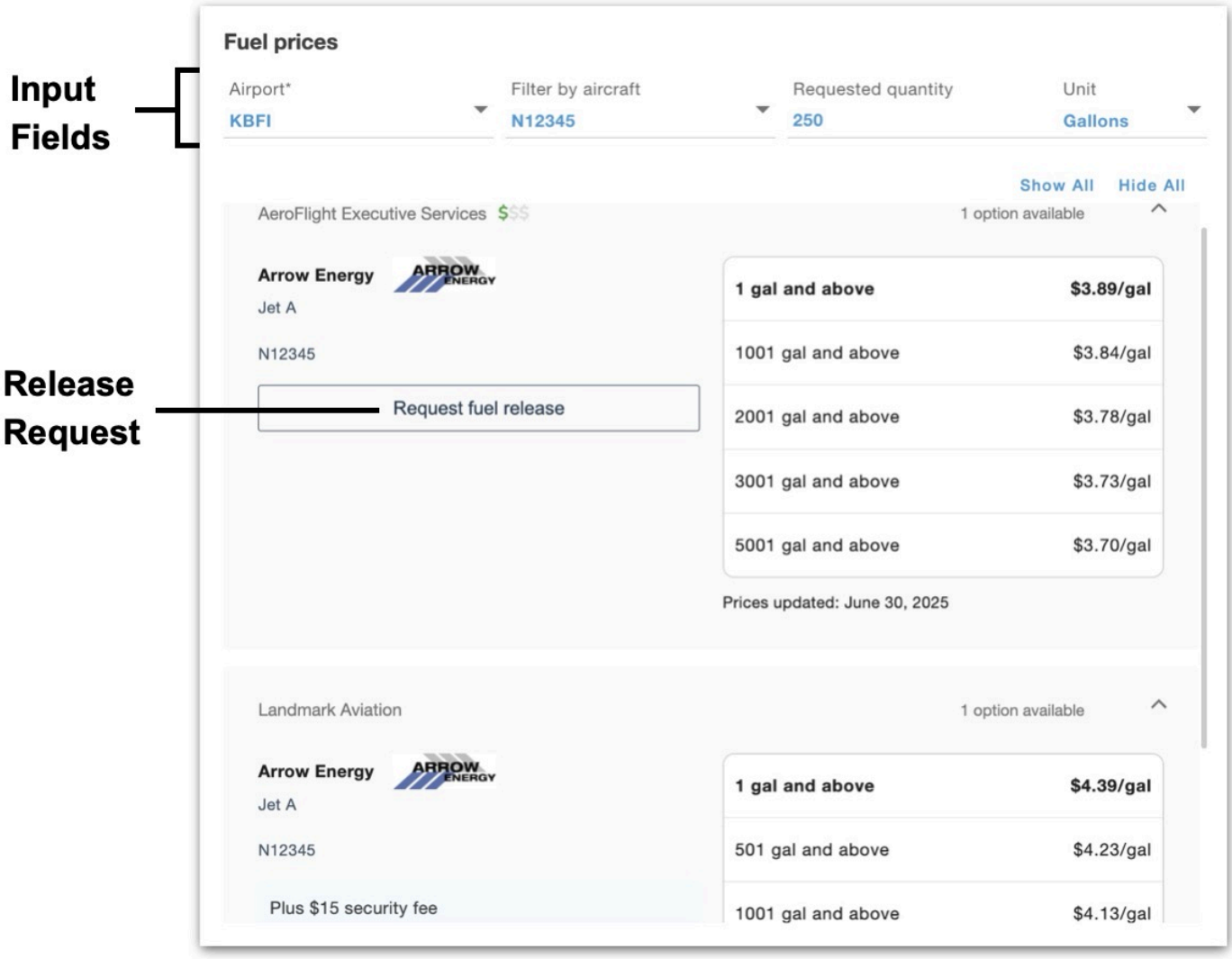


Figure 31-11. Fuel Price Browser

Prices are grouped by fuel provider.

The lowest available contract price option is marked with dollar signs **$$$**.

31.5.1 Input Fields

The input fields are:

- **Airport**: Select an airport to display the offer prices at the airport.
- **Aircraft**: Select an aircraft to filter the results to that specific aircraft.
- **Quantity**: Enter the requested quantity to filter the results to the range into which the requested quantity falls.
- **Unit**: Select the desired fuel units.

31.6 Fuel Release Requests

The request form is divided up into 3 sections: Details, Fuel card, and Comment.

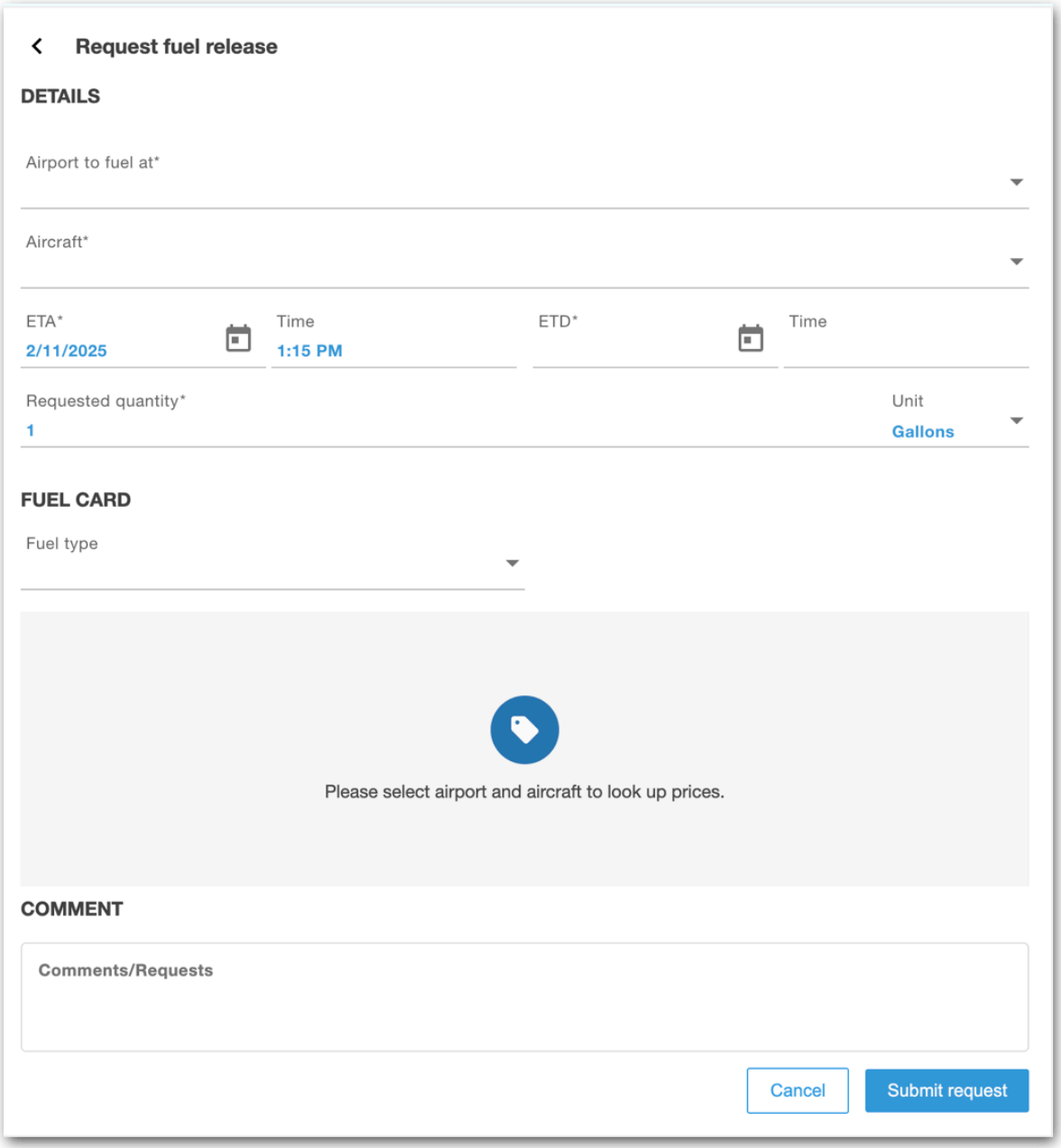


Figure 31-12. Fuel Release Request Form

31.6.1 Details

Fill the details fields for the fuel release request.

31.6.2 Fuel Card

The FUEL CARD section will populate after an airport and aircraft are selected.

- Prices are grouped by fuel provider
- The lowest available contract price option is marked with a $$$icon
- Summary is shown if price selected from collapsed panel
- Summary section displays total cost.

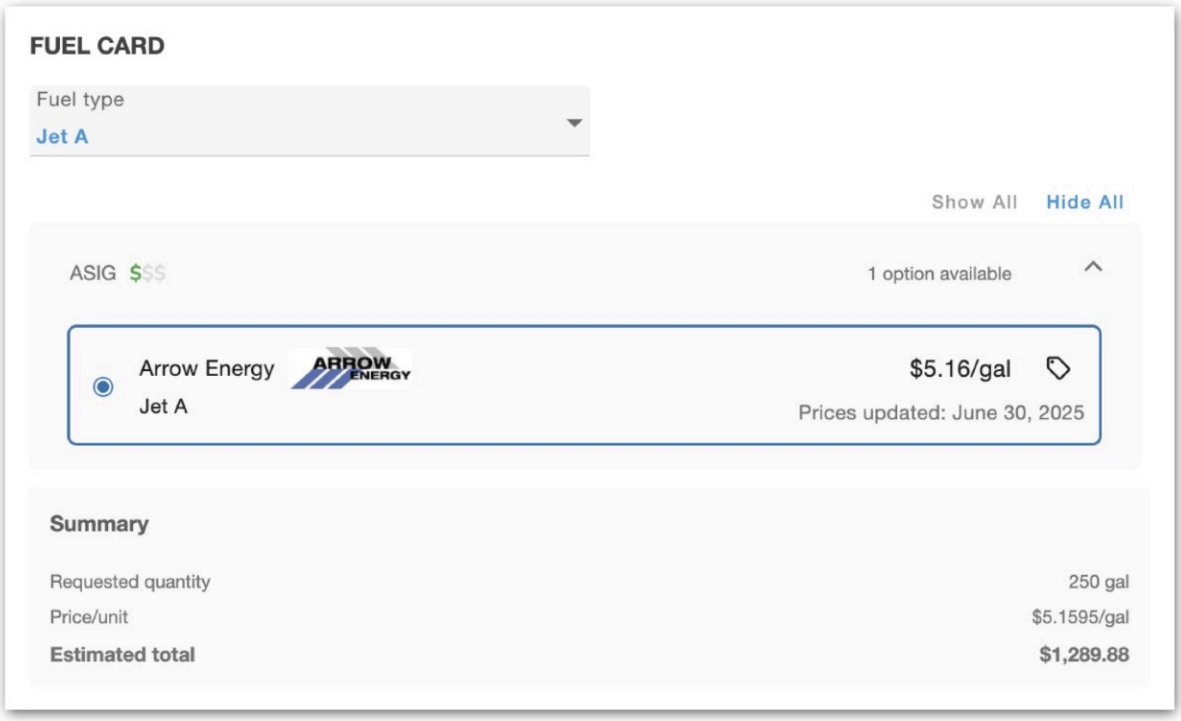


Figure 31-13. Fuel Card

31.6.2.1 Price Option

The price option can be selected by clicking anywhere within the gray line. The price/unit is based on the requested quantity entered in the details section. Additional tiers can be viewed by clicking on the price tag icon.

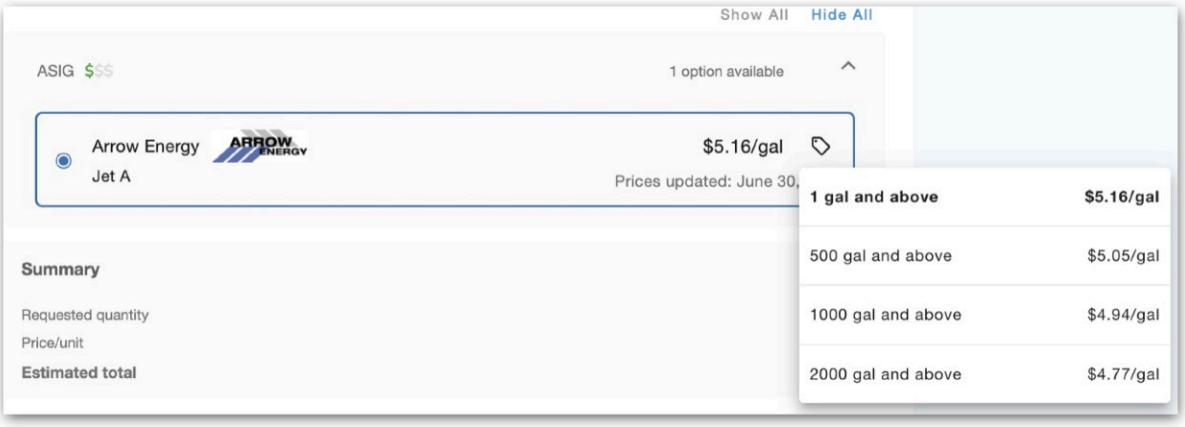


Figure 31-14. Price Option

31.6.3 Comment

Comments can be added to the fuel request using the COMMENT section entry.

31.6.4 Fuel Release Request Confirmation

After a successful request submission, the Fuel Release Request Confirmation will display, indicating that ForeFlight has sent the request.

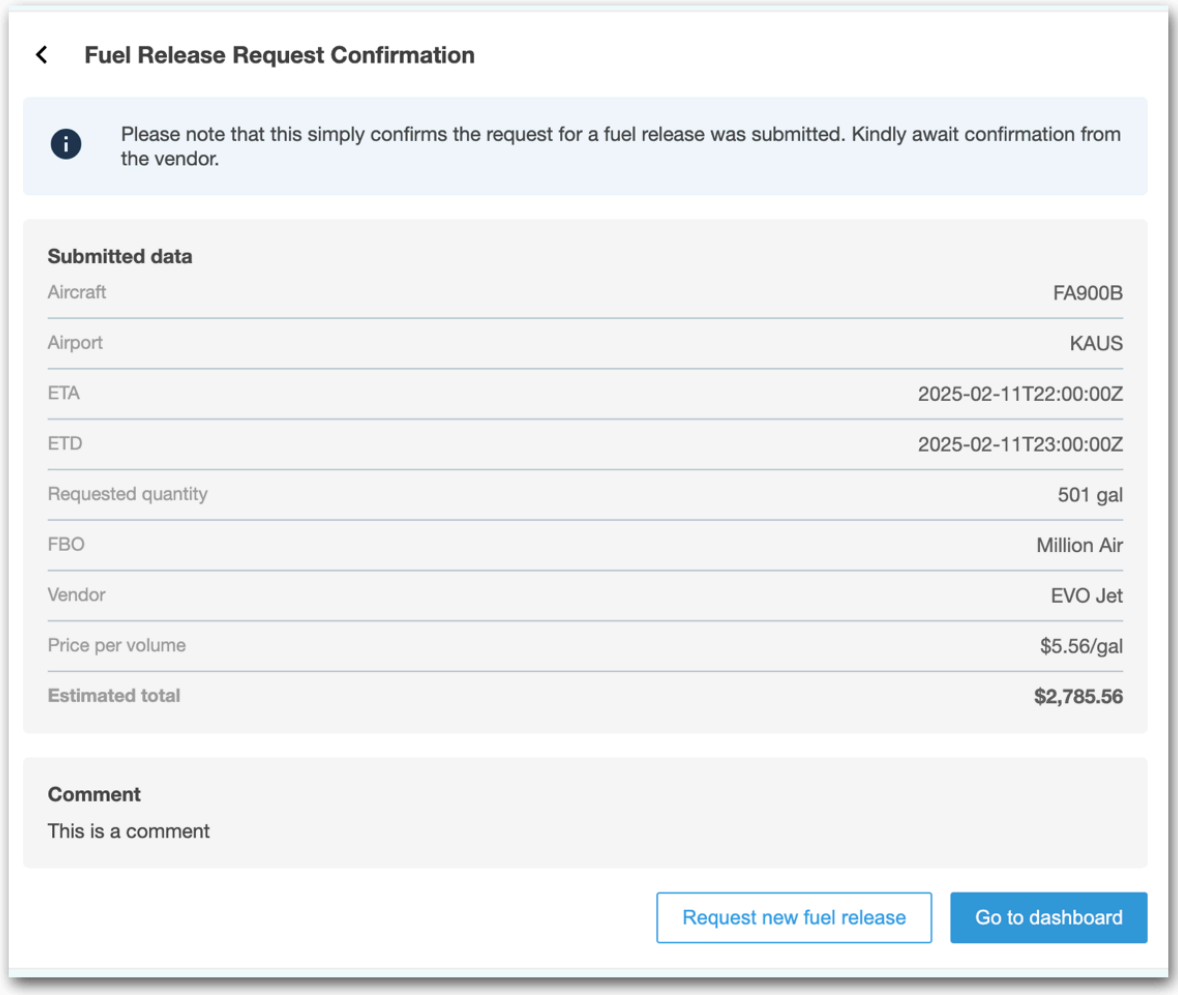


Figure 31-15. Fuel Release Request Confirmation

IMPORTANT: The Fuel Release Request Confirmation is not a confirmation from the vendor.

DISCOVER

The Discover view displays upcoming aviation community events as well as an integrated video education library for getting the most out of ForeFlight Mobile.

Access the Discover tab by selecting **More ➔ Discover**.

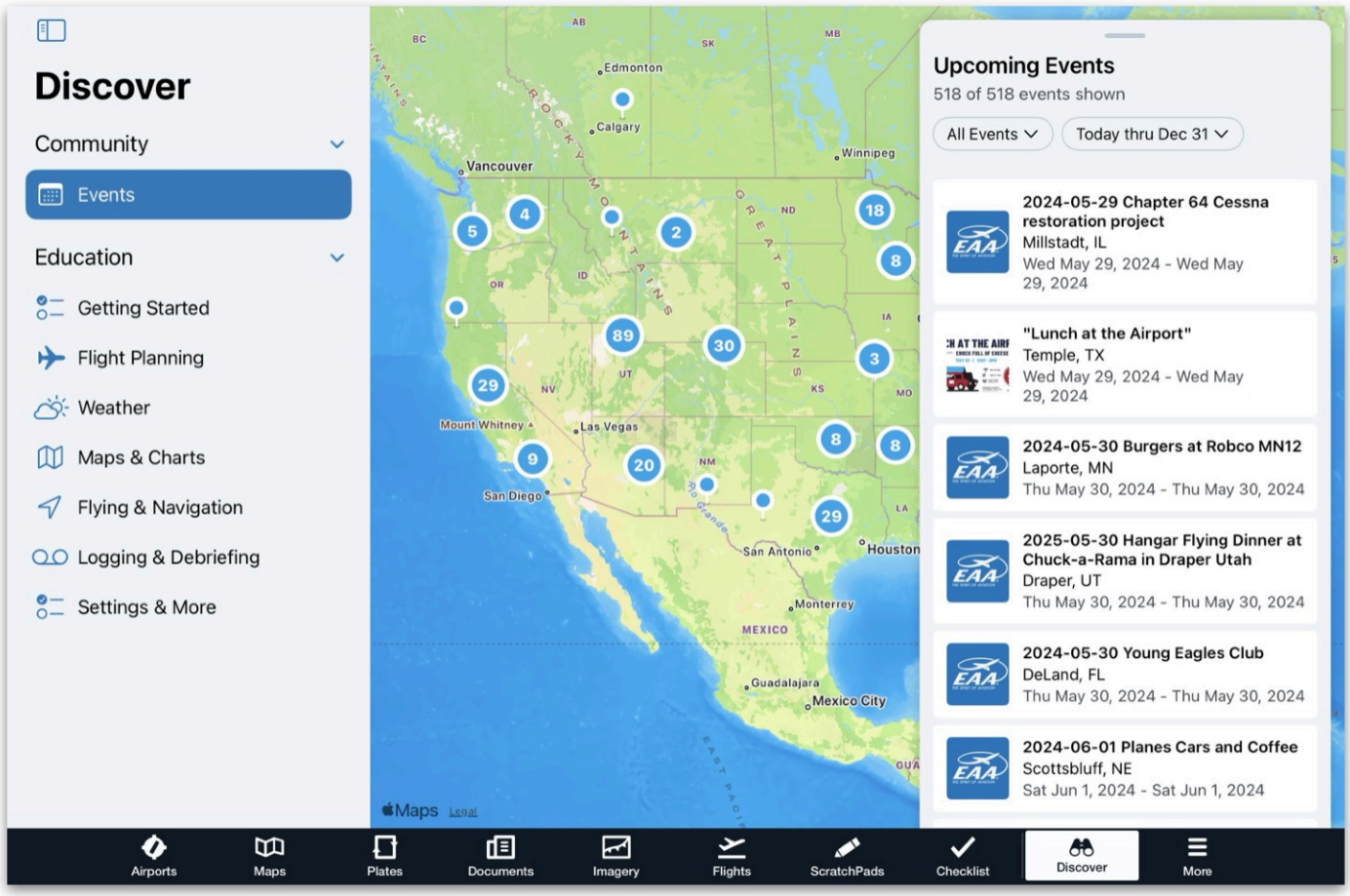


Figure 32-1. Discover Tab

32.1 Event Map

Events are displayed on the map, represented by pins. For multiple events that occur near the same location within the selected date range, a blue marker with a number representing these events is shown. Tap on the marker to see all events occurring at that location and select an event to view its details.

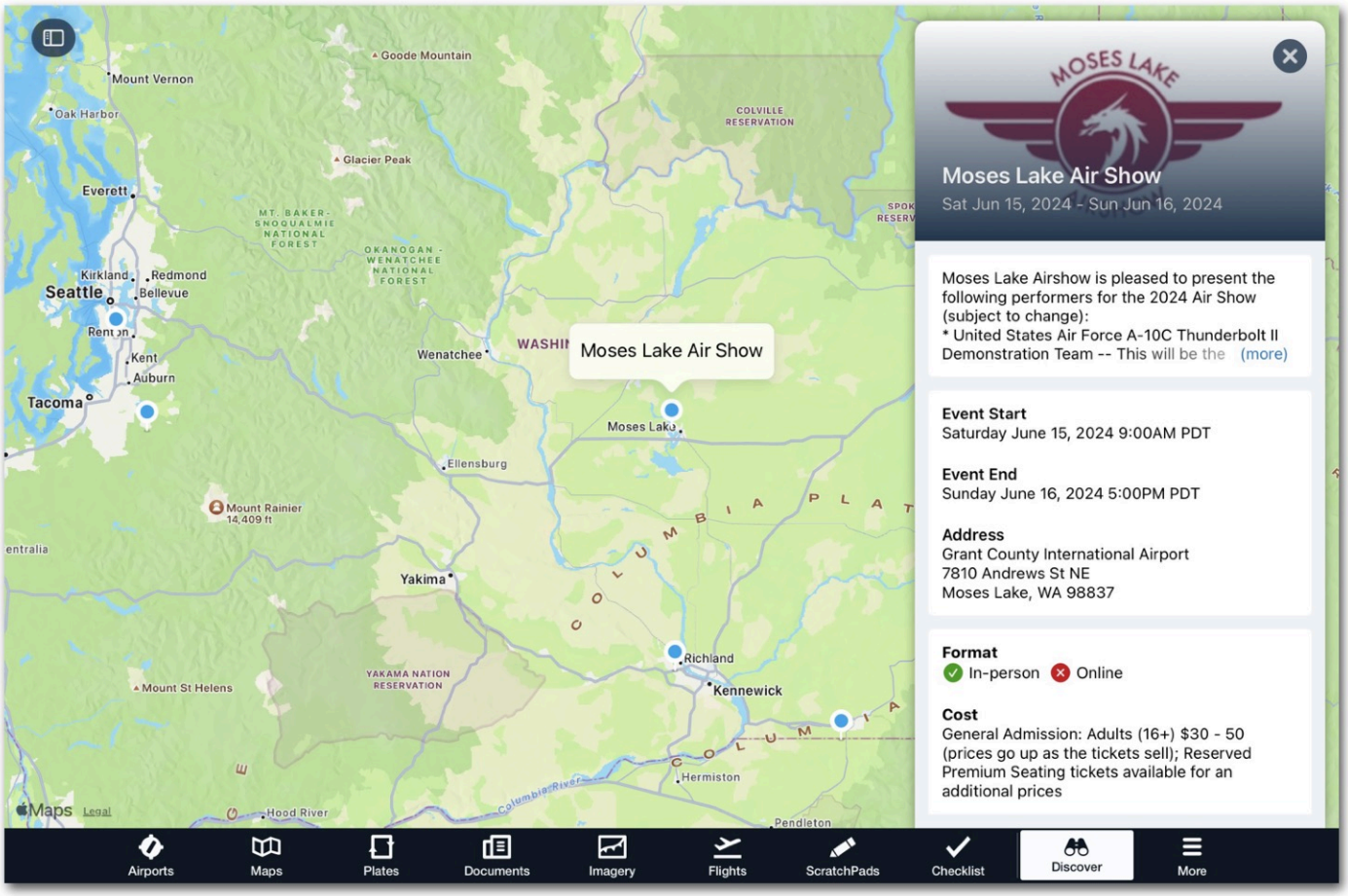


Figure 32-2. Event Map

32.1.1 Event Drawer

All events shown on the map are also shown in the Event Drawer, in a list format. Select an event from the list to see its details. The drawer is collapsible by swiping down from the top, and expandable by swiping up.

32.1.2 Filters

Events in the drawer may be filtered by date or category. Select the date or category filters at the top of the drawer to modify their values. When filtered, events will update in the drawer as well as the map.

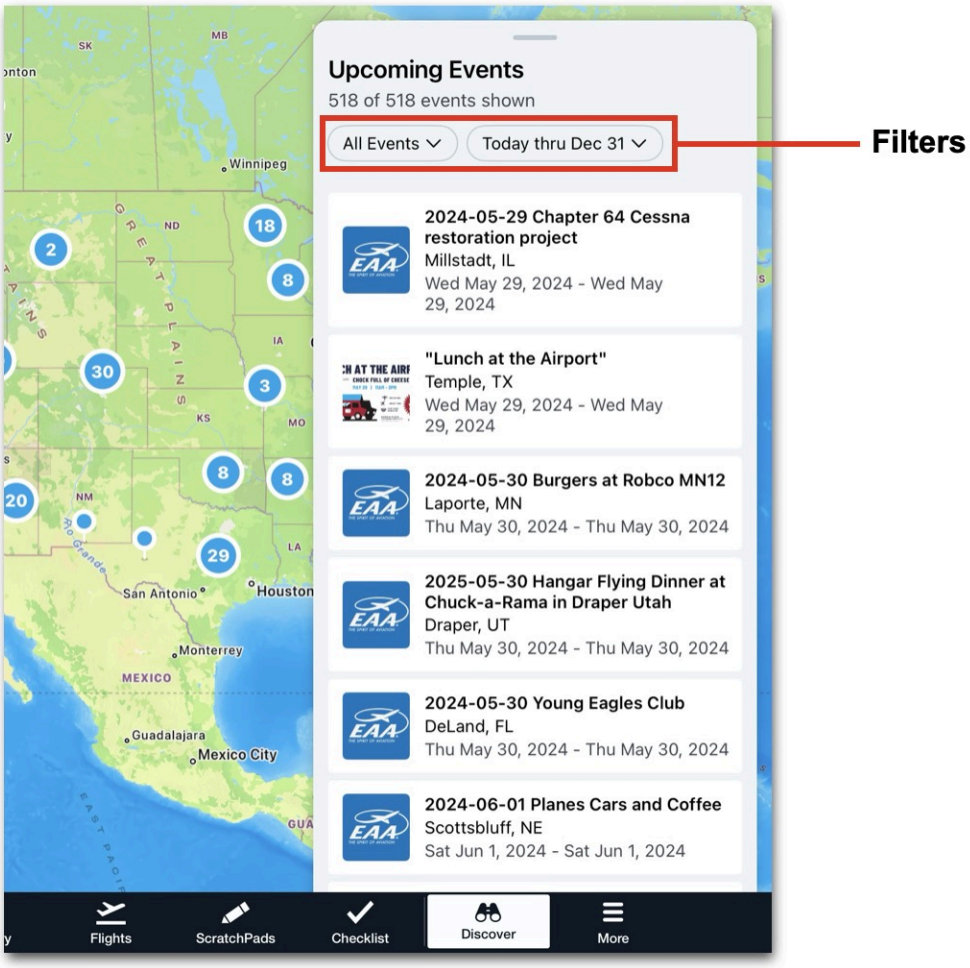


Figure 32-3. Event Drawer

32.1.3 Event Details

Tap on an event pin on the map or an event within the drawer to show a detail view with information about the event, including location, time (in event local timezone), a description of the event, format (in-person, online, or both), photos the event host has included, and contact information. Tap the in the top right corner to close the detail view.

32.2 Discover Sidebar

The Discover view contains a sidebar which may be expanded or collapsed.

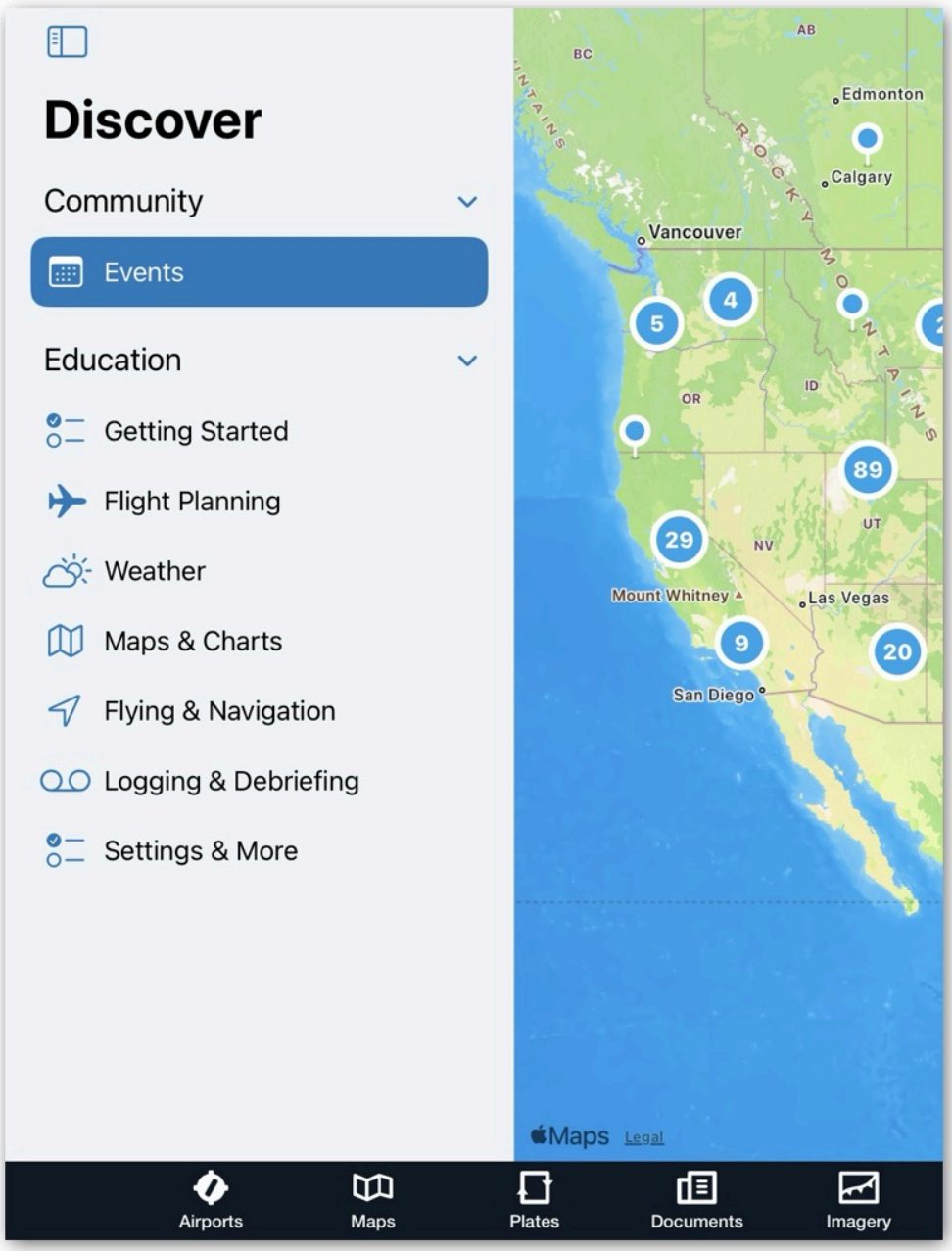


Figure 32-4. Discover Sidebar

Tap the sidebar button to expand the sidebar in any view. In the expanded state, the sidebar allows the selection of either Community Events or Education video categories.

Tap the sidebar button  to collapse the sidebar. In the collapsed state, the selected content is viewable in full screen.

32.2.1 Community

Worldwide, the aviation industry hosts tens of thousands of events dedicated to safety, training, sales, and more. The Discover tab can inform, inspire, and connect pilots to the real world of flying and encourage more flying to interesting places and events. Community, connection, and adventure encompass the future of Discover.

The Discover tab integrates aviation community event data (both in-person events and webinars) into ForeFlight Mobile, sourced directly from trusted third-party sources.

32.2.2 Education

The ForeFlight full video education library is integrated directly into Discover. Videos are organized into categories, which contain playlists. The Education section requires a network connection.

Select a category to see all available playlists. Tap into a playlist to view videos relevant to that topic. Select a video to play it directly within ForeFlight Mobile.

SYNC STATUS

Synchronization and connection status to ForeFlight servers can be checked by selecting **More ➔ Sync Status**. Troubleshooting tips can be accessed by tapping **MISSING DATA? VIEW TROUBLESHOOTING TIPS** at the bottom of the Sync Status page.

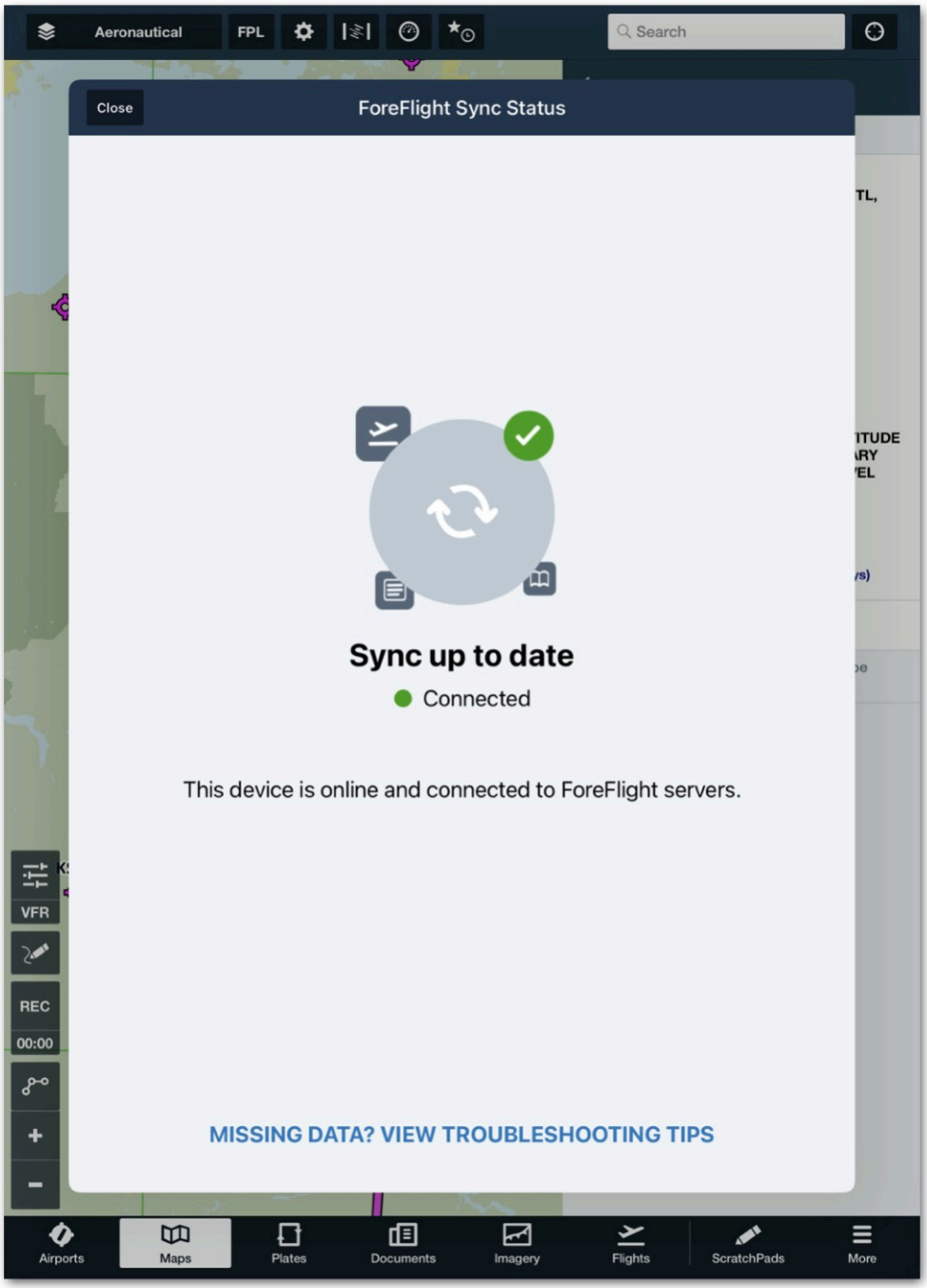


Figure 33-1. Sync Status

33.1 Sync Status State

When opened, the Sync Status page automatically displays the current state of data synchronization and internet connectivity.

ForeFlight Mobile may exhibit lag while **Sync in progress…** is displayed.

> **IMPORTANT:** Do not force quit ForeFlight Mobile while **Sync in progress…** is displayed. If the app is quit during sync, tap **More ➔ Support ➔ Support Actions ➔ Refresh Data** to resume sync.

If **Waiting to sync…** is displayed, ForeFlight Mobile is not connected to the internet, and data synchronization will not occur.

When Sync is sending or receiving data to/from the server, the Sync Status view will display the **Sync sending data…** or **Sync receiving data…** message. Once complete, the Sync data should be up to date.

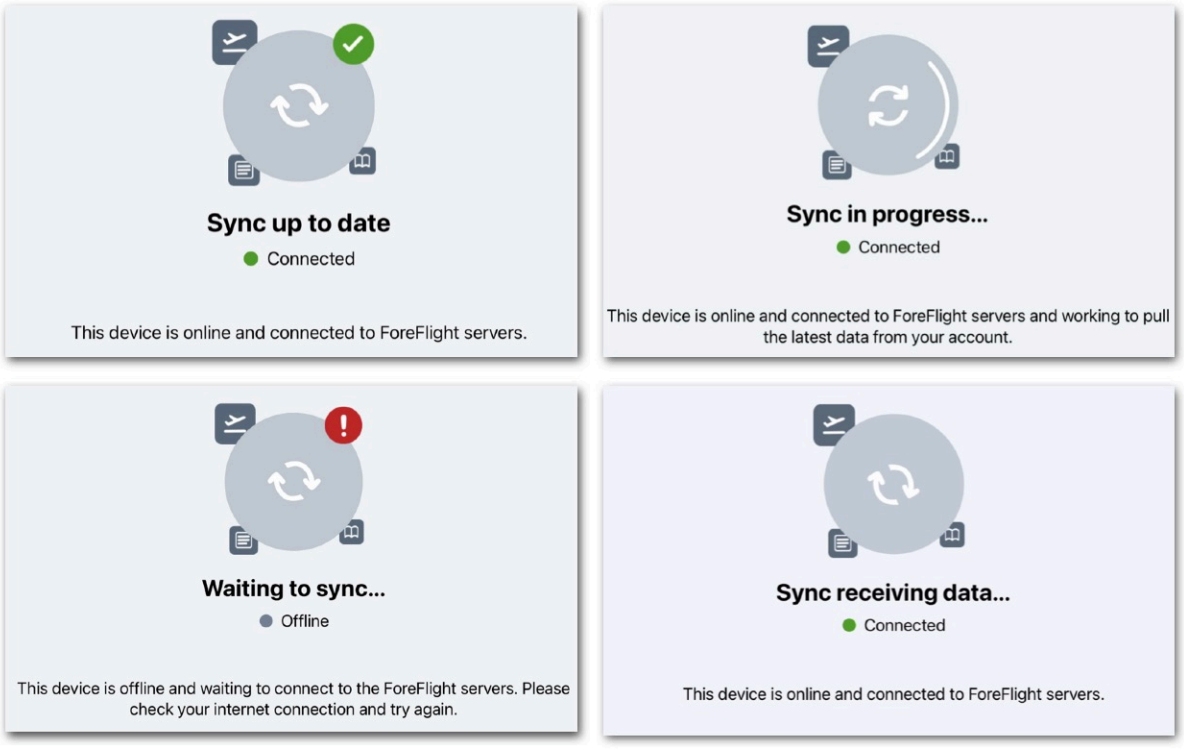


Figure 33-2. Sync Status

33.1.1 Sync Disabled

The Sync Disabled status is shown when Sync is disabled via **Settings ➔ Preferences ➔ Sync Data To/From Device** or Sync has been disabled via the organizational account settings. When displayed, no sync activity will take place, and all data will remain on the device.

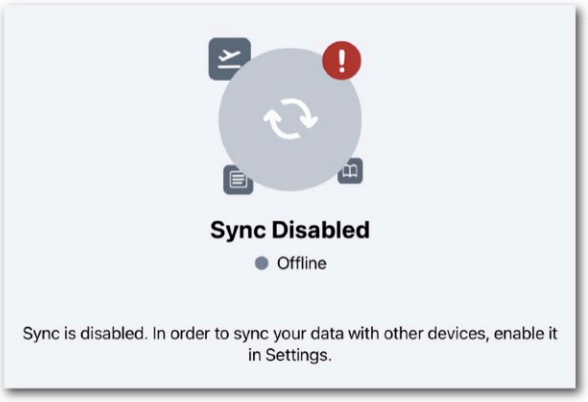


Figure 33-3. Sync Disabled

SUPPLEMENTAL GUIDES

Supplemental guides for various ForeFlight Mobile features are available in-app by selecting **Documents ➔ ForeFlight**.

ForeFlight Checklist Guide

ForeFlight Checklist provides interactive checklists including Abnormal and Emergency checklists. The app includes checklist templates for various fixed-wing and select rotorcraft models, all derived from pilot operating handbooks.

For complete details, refer to the ForeFlight Checklist Guide available in-app by selecting **Documents ➔ ForeFlight** or online at foreflight.com/checklist-guide.

ForeFlight Filing Guide

ForeFlight Mobile can be used to file most VFR, IFR, DVFR, and composite flight plans. For complete details, refer to the ForeFlight Filing Guide available in-app by selecting **Documents ➔ ForeFlight** or online at foreflight.com/filing-guide.

ForeFlight Logbook Guide

Logbook is part of the ForeFlight Cloud and can track hours, currency, ratings, endorsements, medical certificates, and more across all devices. For complete details, see the ForeFlight Logbook Guide in **Documents ➔ ForeFlight** or at foreflight.com/logbook-guide.

ForeFlight Search and Rescue Guide

ForeFlight Mobile includes a Search and Rescue feature that allows pilots to plan search and rescue flights. For complete details, refer to the ForeFlight Search and Rescue Guide available in-app by selecting **Documents ➔ ForeFlight** or online at foreflight.com/sar-guide.

ForeFlight Weight and Balance Guide

Weight and Balance is a dedicated view for determining if an aircraft is loaded within limits. In addition to the dedicated Weight and Balance view, Integrated Weight and Balance is available for all MFB Performance and Business Performance subscribers. Integrated Weight and Balance allows users to view Weight and Balance information on the Flights view.

Once a Weight and Balance profile is set up, a Loading Summary for each flight can be quickly created, and the profile and a PDF copy of the Loading Summary can be shared via email.

Weight and Balance profiles are automatically synced between devices when **Sync Data To/From Device** is enabled in **More ➔ Settings**.

For full details, see the ForeFlight Weight and Balance Guide in **Documents ➔ ForeFlight** or at foreflight.com/wb-guide.

CHANGE HISTORY

Version	Date	Change Summary
18.7	August 2026	• Added Thermal State instrument. • Removed Flight Notifications. • Added LDA and tap-to-change approach minimums to Dynamic Procedures. • Added Debrief to ForeFlight Labs.
18.6	July 2026	• Added double-tap zoom. • Added Safety Management System. • Revised NOTAM format. • Added ClearNOTAMs. • Added Mobile Clearance. • Added waypoint and route segment touch planning to Dynamic Procedures.
18.5	June 2026	• Added Enhanced Map Annotations. • Added PJ2 integration. • Added European Dynamic Procedures support. • Revised favorite route sorting. • Revised adding files to flights.
18.4	May 2026	• Removed lock function from plates and documents. • Added AGL alert
18.3	April 2026	• Added SIDs and STARs to dynamic procedures. • Added Emergency Glide Mode. • Added GPS interference alerting.
18.2	March 2026	• Added GPX file import support. • Added per-aircraft custom ownship marker. • Added electronic weight and balance signature. • Added fuel releases for JetFuelX. • Deprecated fuel orders.
18.1	February 2026	• Reorganized Airports chapter. • Added 12.4.10.3 describing the ability to sort comments. • Added 12.4.10.5 discussing the option to upvote a comment

Version	Date	Change Summary
		• Added 12.5.2.3 T-ATIS. • Updated Plan Comparison chapter to categorize T-ATIS and D-ATIS. • Added tabs to the Document Viewer, 15.8. • Added AirDrop to flight plan sharing 13.17.6. • Added graphical alternate flight planning elements in Chapters 11 and 13. New section 11.5.6 Alternate Airport. • Added User Waypoint customization and elevation entry, 25.2.
17.10.1	January 2026	• Updated Style.
17.10	November 2025	• Added GPS Cross Check.
17.9	October 2025	• Added Show NOTAMs Within settings to 5.9.17, 6.4.18, and 11.5.27.1. • Added Active Navlog Cockpit Sharing 19.11. • Revised section 23.2 and 23.3 to include deleting user waypoints. • Reorganized Section 26.5. • Revised Sync Status and added Sync Disabled 30.1.2.
17.8	September 2025	• Added user waypoint customization in 23.2.2, 23.2.3, and 23.2.4. • Added new Breadcrumbs 5.7 and Ownship 5.8 sections to Settings chapter. • Added NOTAMs section to Dynamic Procedures sidebar 11.18.3. • Added Sync Status chapter 30. • Revised Airborne Traffic Alerts 26.8.1. • Added Prioritize Jeppesen Plates to 3.7.
17.7	August 2025	• Revised JetFuelX Section 27. • Added alternates to Flight Binders in 12.6 and 15.3.2. • Added Dynamic Procedures 11.18 and 11.19.8. • Added LSALT Calculator 6.4.14, 9.7, 11.9.3.1, and 11.17.8.1. • Added Debrief scoring toggle 24.10.3. • Corrected block fuel calculation inputs 18.2.

Version	Date	Change Summary
		• Revised FPL NavLog to match new format 11.7.8. • Added obstacle corridor regulatory agencies 16.2.1.4 and 16.3.2. • Revised NOTAM colors to match new format 11.5.17. • Revised Fuel Orders 15.4.2.

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ForeFlight

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