

**Follow Advisory Vertical Guidance (+V)**

Many GPS navigators offer unofficial vertical guidance down to MDA. Below that, you're on your own.

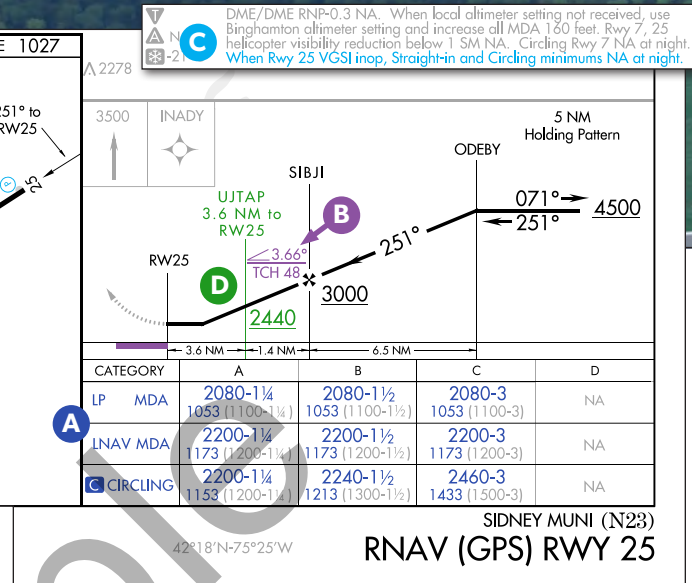
1. Strategize for the descent.
2. Follow "+V" guidance.
3. Comply with altitude stepdowns.
4. Anticipate MDA.

**Strategize for the Descent**

RNAV approaches with LPV minimums are becoming ubiquitous, but there are still places where official vertical guidance isn't available. An RNAV approach with LP minimums offers the same WAAS-enabled lateral guidance of an LPV without the vertical guidance. Similarly, LNAV minimums offer no vertical guidance. The RNAV (GPS) Rwy 25 at Sidney, NY (N23) has both LP and LNAV minimums. Note they are MDAs, not DAs **A**, and that "+V" will never appear in a line of minimums.

What's important here is the approach has no vertical guidance by design. The charted 3.66° descent angle shown is simply the angle from the FAF (3000 feet at SIBJI) to the touchdown zone **B**. It says nothing about obstacle clearance. The lack of a VDP (page 107) and the note that all minimums are NA at night without the PAPI **C** are a strong hint there are obstacles between the MDA and the runway.

Historically, approaches without vertical guidance have been flown "dive-and-drive" style: At each stepdown there's a rapid descent followed by lev-

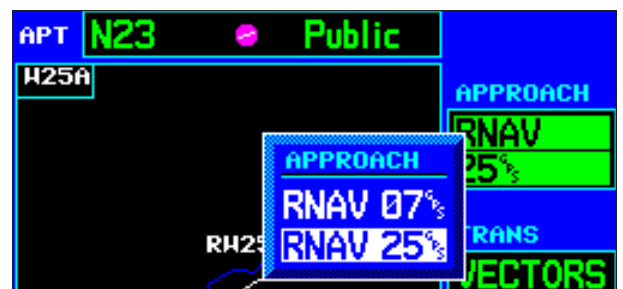


el flight, including a final rapid descent followed by level flight at the MDA. This maximized the pilot's chances of seeing the runway before the MAP, but at the expense of stability due to the multiple descents and level-offs.

The alternative was estimating a rate of descent to approximate a stabilized, continuous descent. This is made easier when that angle is published on charts **B**. Modern WAAS GPS units do this one better with "advisory vertical guidance"—what Garmin calls "+V." This lets you fly using the same basic technique used on approaches with official vertical guidance.

However, there are some important caveats.

Some GPS navigators, like the GTN (left), will show when you load the approach if +V guidance is possible (assuming GPS accuracy is sufficient). A GNS (right) would likely offer the same guidance, but you won't know until the FAF is the active waypoint.

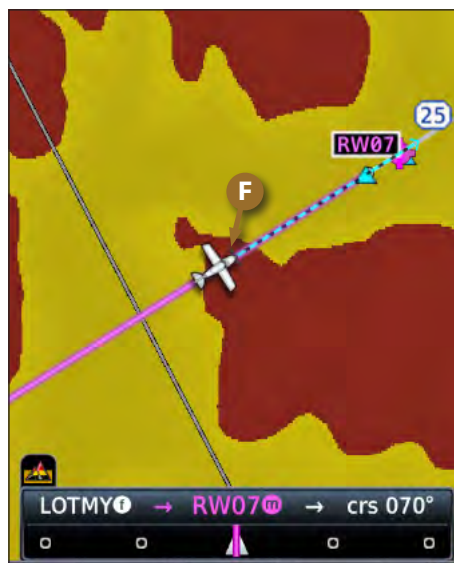


The “+V” vertical guidance is advisory only. It is designed to clear altitude stepdowns inside the FAF, but it doesn’t come with the same “official” guarantee as an LPV glidepath. You must ensure compliance with any intervening stepdown both outside *and inside* the FAF. Here that’s 2440 feet at UJTAP **D**. You’ll also need to start a missed approach slightly above the published MDA, because you can’t dip below it during the transition to the missed as you can with a DA. Below MDA, the advisory glidepath is *not* designed to provide obstacle protection. You must use visual references to ensure a safe landing.

### Follow “+V” Guidance

When the FAF becomes the active waypoint, the GPS annunciates its approach mode, including whether “+V” guidance is available. This may also annunci-ate on a PFD. If advisory guidance is available, you should use it in most cases. A possible exception could be if reduced visibility or a ragged cloud base means you won’t see the runway where the advisory glidepath meets MDA. In this case, flying the ap-proach without vertical guidance (page 101) might be better, presuming you can still land with “normal maneuvers.”

*The +V guidance looks like a traditional glidepath **E**, but don’t be fooled. Once you’re below MDA no obstacle clearance is assured. MDA for the op-posite-direction RNAV (GPS) Runway 07 at N23 is 2140. Centered on the +V glidepath at 1540 feet is still 513 feet above touchdown but hits the hill (0 AGL) **F**—and that doesn’t account for the trees.*



Ensure that you’re at or above the FAF crossing altitude and transition to a glidepath descent using the same methods as official vertical guidance (page 96). If you have an autopilot with approach mode, it can probably couple to that guidance—and will happily take you below MDA if you let it. Note that the +V glidepath intercept may occur some distance after the FAF, if a steeper descent is necessary to clear stepdowns on the final approach segment.

### Comply With Altitude Stepdowns

Advisory “+V” guidance is designed to clear all alti-tude stepdowns inside the FAF. But as the guidance isn’t an “official” part of the approach, it’s wise to cross-check your altitude against published altitudes. That also provides a cross-check against other errors, like an incorrectly set altimeter.

### Anticipate MDA

If you don’t see the runway at MDA, you could level off and continue all the way to the MAP—but you probably shouldn’t unless you intended to do that from the start. Leveling off puts you above the nor-mal glidepath. The closer you get to the runway, the steeper the necessary descent to land becomes.

You can fly the approach like an ILS or LPV until the last few seconds ... but then it’s different. To pre-vent dipping below MDA during a missed approach, you must choose between landing and going missed sufficiently above the MDA. Practice the transition in your plane to see how much altitude is lost in the process. A good rule of thumb is to begin the tran-sition by 5 percent of your vertical speed above the

MDA. If you’re descending at 600 FPM, begin the transition 30 feet above MDA—which means deciding to go missed a couple seconds before that.

Advisory guidance pro-vides no guarantee of obstacle clearance below MDA, even if the glidepath continues. As you approach MDA plus your required buffer, ensure you have the visual references to continue safely for landing (page 109)—or execute the missed approach (page 116).