



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

ORDER
6560.10D

Effective Date:
9/26/18

SUBJ: Runway Visual Range (RVR)

- 1. Purpose of This Order.** This order provides general information on the installation, operation, and utilization of Runway Visual Range (RVR) systems. It further establishes guidelines for the installation of RVR systems and retrofit programs for existing installations under the various categories of operation.
- 2. Audience.** The audience for this order is Federal Aviation Administration (FAA) personnel involved in the operation of RVR systems within the National Airspace System (NAS), including personnel involved in Instrument Flight Procedure (IFP) development, takeoff and landing operations, RVR installation, RVR maintenance, and RVR monitoring.
- 3. Where You Can Find This Order.** You can find this order on the MyFAA employee website at https://employees.faa.gov/tools_resources/orders_notices. Inspectors can access this order through the Flight Standards Information Management System (FSIMS) at <http://fsims.avs.faa.gov>. Air carriers (operators) can find this order on the FAA's website at <http://fsims.faa.gov>. This order is available to the public at http://www.faa.gov/regulations_policies/orders_notices.
- 4. What This Order Cancels.** FAA Order 6560.10C CHG 1, Runway Visual Range (RVR), dated May 24, 2016, is canceled.
- 5. Explanation of Policy Changes.** This revision:
 - a. Updates the status of conversion from transmissometer to scatter-effect RVR systems.
 - b. Removes information about authorizations issued through operations specifications (OpSpecs), management specifications (MSpecs), and letters of authorization (LOA) due to the merger of OpSpec/MSpec/LOA C059, Category II Instrument Approach and Landing Operations, into OpSpec/MSpec/LOA C060, Category II and Category III Instrument Approach and Landing Operations.
 - c. Harmonizes the order with the current editions of the following documents:
 - FAA Order 8260.3, United States Standard for Terminal Instrument Procedures (TERPS);
 - FAA Order 8400.13, Procedures for the Evaluation and Approval of Facilities for Special Authorization Category I Operations and All Category II and III Operations; and

- Advisory Circular (AC) 120-118, Criteria for Approval/Authorization of All Weather Operations (AWO) for Takeoff, Landing, and Rollout.

- d. Addresses organizational changes due to the Future of Flight Standards reorganization.
- e. Clarifies the definition and use of “threshold” throughout the document.

6. Scope. The requirements of this order apply to RVR use for takeoff and landing operations, including RVR siting criteria and the criteria for the use of an RVR visibility sensor (VS) to serve more than one runway (RVR VS sharing). Distances shown in this order are in feet (ft). The metric equivalent distances, when given, are approximations.

7. Definitions.

a. Runway Visual Range (RVR). In the United States, the RVR value is determined by instruments located alongside and approximately 14 ft higher than the runway centerline (RCL), based on standard calibrations. This represents the horizontal distance a pilot can expect to see down the runway, based on sighting either the High Intensity Runway Lights (HIRL) or the visual contrast of other targets, whichever yields the greater visual range. RVR, in contrast to prevailing or runway visibility, is based on what a pilot in a moving aircraft should see looking down the runway. RVR is horizontal visual range, not slant visual range.

b. Designated RVR Runway. The designated RVR runway is the runway officially designated by the FAA for reporting 10-minute average maximum and minimum RVR values based on light setting 5 (high intensity) for use in weather reporting via meteorological Aviation Routine Weather Report (METAR) and/or an automated surface observing system (ASOS) transmission. This will normally be the runway having the lowest instrument minima. This definition is for weather reporting and flight planning purposes. At large airports covering large geographic areas, more than one runway may be designated for weather reporting. Up to four runways may be reported in the METAR format.

c. RVR Usability Radius. When determining if an RVR VS is suitable for use on adjacent runways, an RVR VS is considered usable within an area defined by a circle centered at the RVR VS location, with a radius of 2,000 ft (4,000 ft diameter). See Figure 2, Runway Visual Range Visibility Sensor Sharing Example.

d. Threshold. In this order, all references to the threshold refer to the landing threshold unless otherwise noted.

e. RVR Visibility Sensors (VS).

(1) Touchdown RVR VS. The touchdown RVR VS is located near the touchdown end of the runway and is installed in accordance with the criteria stated in this order and the applicable standard installation drawings.

(2) Midpoint RVR VS. The midpoint RVR VS is located within 1,000 ft of the center point of the runway and is installed in accordance with this order and the applicable standard installation drawings.

(3) Rollout RVR VS. The rollout RVR VS is located near the rollout end of the runway and is installed in accordance with this order and the applicable standard installation drawings.

(4) Far End RVR VS. The far end RVR VS is the touchdown RVR VS on the reciprocal runway when four RVRs are installed.

8. RVR VS Requirements.

a. Transmissometer RVR Systems. Transmissometer systems utilize a projector and receiver that provide RVR readings as low as 600 ft, reporting in 200-ft increments from 600 RVR to 3000 RVR. Transmissometer RVR systems are no longer being installed in the United States. However, the relevant standard installation drawings contain information concerning longitudinal and lateral projector and receiver locations. Transmissometer is a legacy system and must not be installed or relocated unless it is meant to replace a previously installed transmissometer system at a runway served only by transmissometer systems.

b. Scatter-Effect RVR Systems. Although there are a small number of transmissometer RVR systems still in use in the NAS, newer RVR systems using scatter-effect technology have largely replaced them. These systems have lower maintenance costs, eliminate the use of steel and concrete structures on the airport surface, are sometimes personal computer (PC)-based, and provide RVR readings as low as 0 ft. The new systems utilize an infrared projector and receiver and report data in 100-ft increments below 800 ft, in 200-ft increments between 800 ft and 3,000 ft, and in 500-ft increments between 3,000 ft and 6,500 ft. An RVR reading above 6,249 ft generates an RVR report of 6,500 ft, and an RVR reading below 50 ft generates an RVR report of 0 ft. The RVR system rounds off the calculated value based upon the appropriate reporting increment; for example, an RVR report of 800 ft indicates an actual RVR value between 751 ft and 899 ft. RVR at the designated runway shall be reported to the ASOS through the RVR/ASOS interface.

c. Longitudinal Location.

(1) Touchdown RVR VSs are located 0 to 2,500 ft (0 to 750 meters (m)) from the threshold, normally behind the instrument landing system (ILS) glideslope (GS) antenna, precision approach path indicator (PAPI), or Visual Approach Slope Indicator (VASI). See Figure 1, Runway Visual Range Visibility Sensor Longitudinal Locations.

(2) Rollout RVR VSs are located 0 to 2,500 ft (0 to 750 m) from the threshold at the rollout end of the runway, normally behind the ILS GS antenna, PAPI, or VASI.

(3) Midpoint RVR VSs are located within $\pm 1,000$ ft (300 m) of the center point of the runway.

(4) Runways longer than 12,000 ft may require four RVR VSs to adequately support low-visibility operations to both ends of the runway. Placement of RVR VSs will be in a manner that ensures the maximum continuous coverage. The touchdown RVR VS must be located 0 to 2,500 ft (0 to 750 m) from the threshold. The midfield RVR VSs will be located within 1,000 ft (300 m) of a point one-third of the way down the runway from the respective thresholds. RVR reporting for the “touchdown, mid, and rollout” will be referencing the first three sensors

from the threshold (i.e., the second midfield RVR is considered the “rollout” RVR). The fourth, or “far end,” sensor will serve as additional information. Figure 1 shows an example of RVR siting criteria.

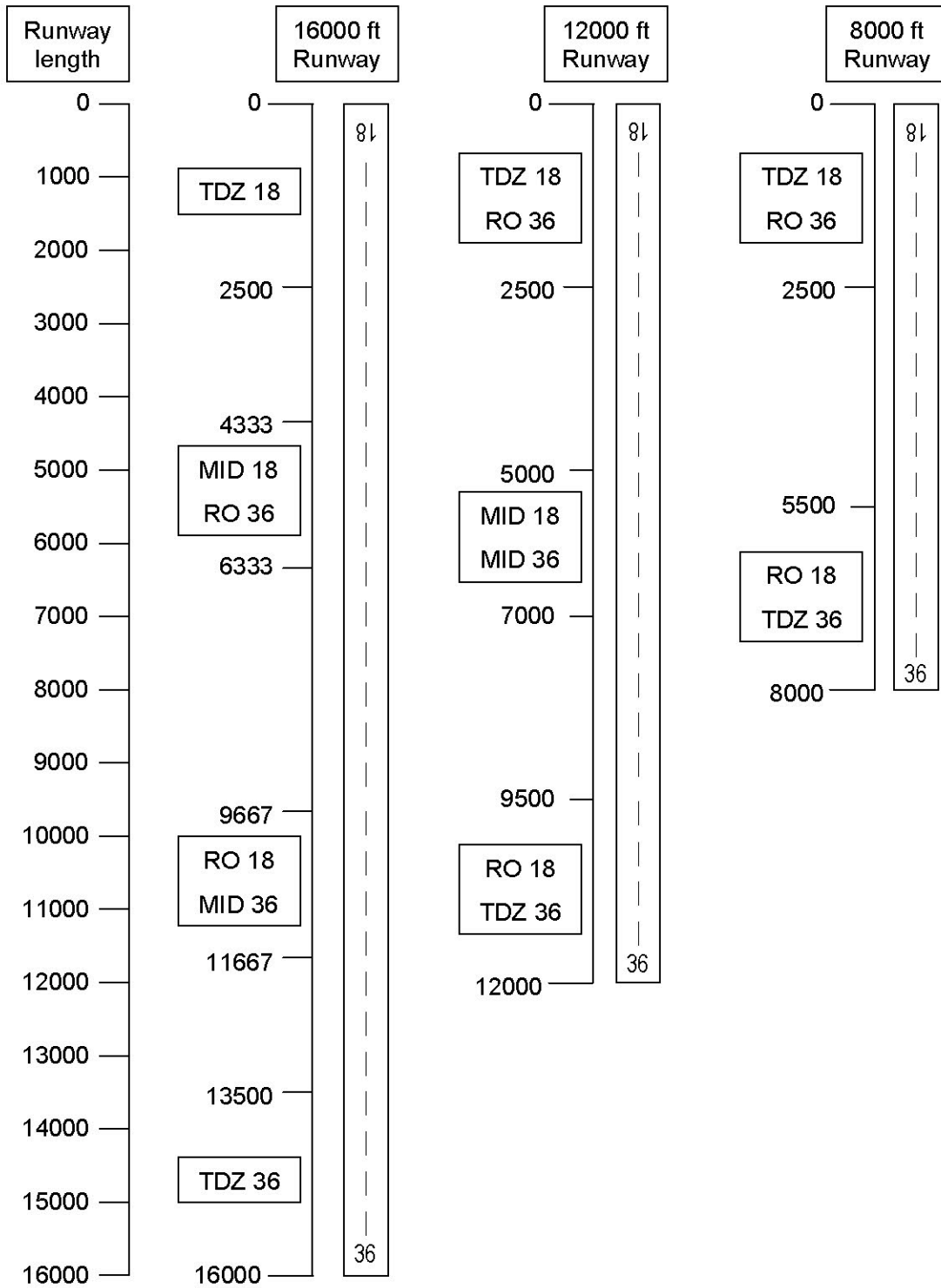
(5) Based on both the current and proposed airport layout, longitudinal location of any RVR VS installation should consider the possibility of sharing service with an adjacent runway.

d. Lateral Location. RVR VSs are installed adjacent to the instrument runway that they serve, in a location that does not conflict with an adjacent runway or taxiway.

(1) Single-point RVR VSs are located at least 400 ft (120 m) from the RCL. RVR VSs must also be sited outside any taxiway object-free areas. Coordinate locations with the responsible FAA Airports Regional Office or Airport District Office (ADO).

(2) Lateral location of any RVR installation should consider the possibility of sharing with an adjacent runway, based on both the current and proposed airport layout.

Figure 1. Runway Visual Range Visibility Sensor Longitudinal Locations



e. RVR Sharing. Adjacent runways may be authorized to share RVR when segments of those runways (as described below) are located within a circle with a 2,000 ft radius (4,000 ft diameter) centered at the RVR VS location. Figure 2 shows an example of how to apply RVR sharing criteria.

(1) Touchdown RVR VS.

(a) Category (CAT) II and CAT III Operations. The threshold plus 2,000 ft of runway is required within the 2,000 ft radius circle.

(b) All Other Takeoff and Landing Operations. The threshold plus 1,200 ft of runway is required within the 2,000 ft radius circle.

(2) Midpoint RVR VS. For all operations, 2,000-ft coverage of the RCL including the runway midpoint is required within the 2,000 ft radius circle.

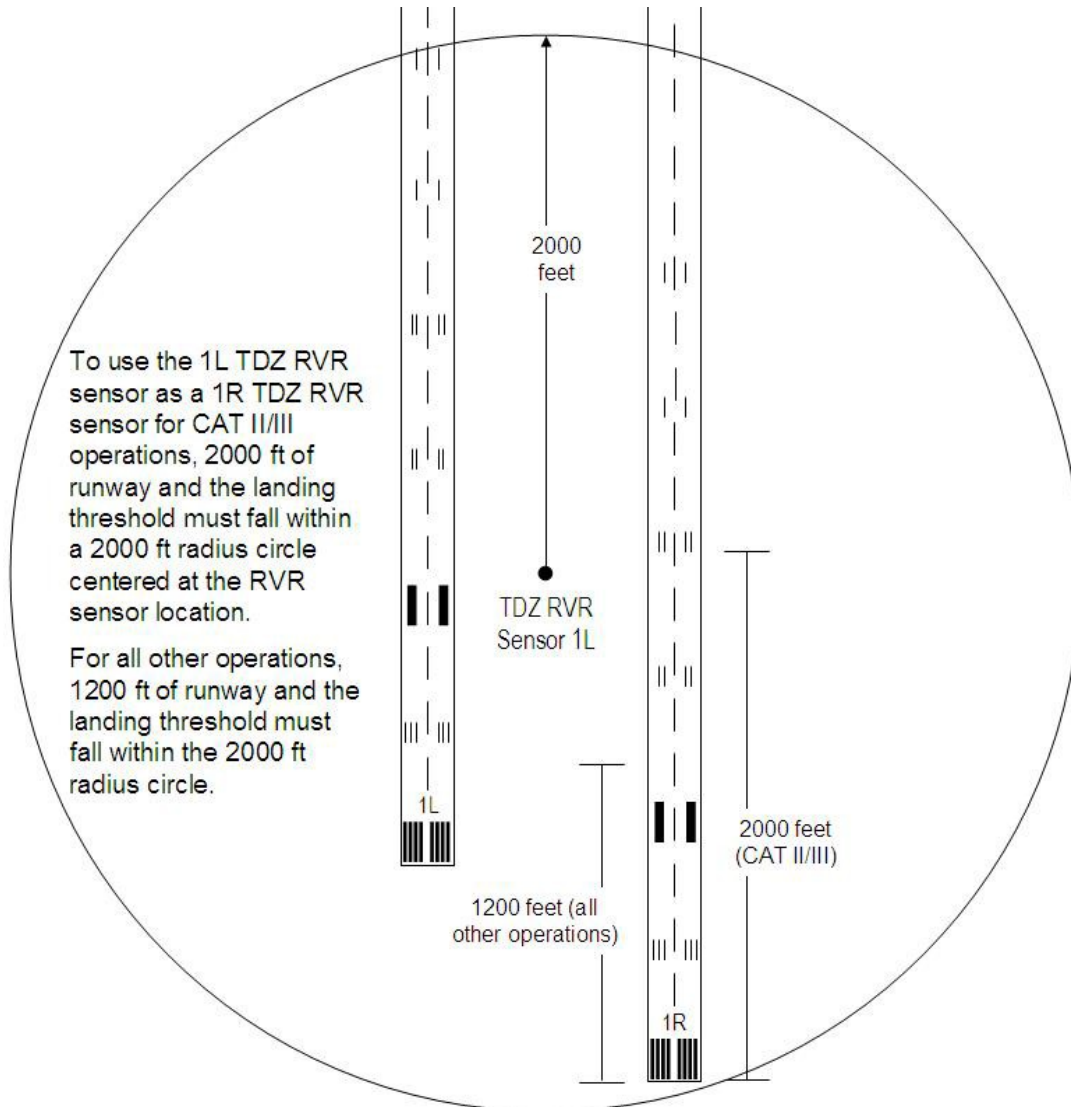
(3) Rollout RVR VS.

(a) CAT II/III Operations. The threshold plus 2,000 ft of runway is required within the 2,000 ft radius circle.

(b) All Other Takeoff and Landing Operations. The threshold plus 1,200 ft of runway is required within the 2,000 ft radius circle.

Note: Siting criteria: when an RVR VS serves a single runway, the VS must meet the siting criteria found in the standard installation drawings for the type of equipment being installed. When an RVR VS serves more than one runway, at least one runway must meet the siting criteria in subparagraphs 8c and d, and the other runway(s) must meet the relevant RVR sharing criteria. See Figure 2.

Figure 2. Runway Visual Range Visibility Sensor Sharing Example

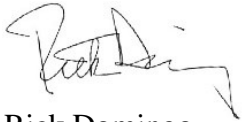


f. Existing RVR Installations and Operational Approvals. RVR VSs installed and authorized prior to the issuance of this order at locations not meeting the above requirements may be retained with existing operational approvals. If the above requirements are not met, either in the case of new or relocation of existing RVR facilities, the RVR VS location must be approved by the Flight Technologies and Procedures Division in coordination with Navigation Programs (AJM-32) on a case-by-case basis.

g. Determining the “Designated RVR Runway.” At those airports where more than one runway has the same published RVR landing minimum, all of which are the lowest RVR landing minimum for the airport, the appropriate Flight Standards office, in cooperation with the air traffic control (ATC) facility chief, shall determine which runway is to be the “Designated RVR Runway.” This designation shall not change unless the RVR landing minima for that runway changes or another runway supports a lower RVR landing minima.

9. Operational Criteria. RVR systems are not provided at all locations. In addition to the requirements in FAA Order 8260.3, the criteria in paragraph 8 of this order must be met to publish RVR values on approach charts as controlling visibility minima for all types of approaches. In general, runways with approach minima below ½ statute mile (sm) and/or takeoff minima below ¼ sm will be equipped with RVR sensors in accordance with the requirements of this order. The number of RVR sensors required for a given runway is dependent upon the lowest minima associated with that runway. Refer to FAA Order 6750.24, Instrument Landing System and Ancillary Electronic Component Configuration and Performance Requirements, and FAA Order 8400.13 for current RVR system installation requirements. Refer to AC 120-118 and FAA Order 8900.1, Volume 3, Chapter 18, Section 5, Part C Operations Specifications—Airplane Terminal Instrument Procedures and Airport Authorizations and Limitations, for guidance on operational criteria and authorizing the relevant OpSpecs, MSpecs, or LOAs. RVR data will be disseminated to pilots in accordance with ATC procedures and as requested.

10. Directive Feedback Information. Direct questions or comments regarding this order or minimum reduction for operations conducted with properly equipped aircraft to the Flight Technologies and Procedures Division, Flight Operations Group at 202-267-8795. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this order on FAA Form 1320-19, Directive Feedback Information, and forward your comments to the Flight Operations Group for consideration. If an interpretation is needed immediately, call for guidance and use FAA Form 1320-19 as a followup to verbal conversation.



Rick Domingo
Executive Director, Flight Standards Service



U.S. Department
of Transportation
**Federal Aviation
Administration**

FAA Form 1320-19, Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: FAA Order 6560.10D, Runway Visual Range (RVR)

To: Flight Standards Directive Management Officer, AFB-140 Directives Mailbox
(9-AWA-AFB-140-Directives@faa.gov)

(Please check all appropriate line items)

An error (procedural or typographical) has been noted in paragraph _____ on page _____.

Recommend paragraph _____ on page _____ be changed as follows:
(attach separate sheet if necessary)

In a future change to this directive, please include coverage on the following subject
(briefly describe what you want added):

Other comments:

I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____