U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NORTHWEST MOUNTAIN REGION
AIRPORT IMPROVEMENT PROGRAM

MODIFICATION OF AIRPORT DESIGN STANDARDS

BACKGROUND

1. AIRPORT:	2. LOCATION(CITY,STATE):	3. LOC ID:
Methow Valley State	**Winthrop, Washington**	**S52**

4. EFFECTED RUNWAY/TAXIWAY:	5. APPROACH (EACH RUNWAY):	6. AIRPORT REF. CODE (ARC):
Runway 13/31	☐ PIR ☐ NPI ☒ VISUAL	**B-II**

7. DESIGN AIRCRAFT (EACH RUNWAY/TAXIWAY):
DeHavilland Twin Otter (DHC-6)

MODIFICATION OF STANDARDS

8. TITLE OF STANDARD BEING MODIFIED (CITE REFERENCE DOCUMENT):
AC 150/5340-30G Design and Installation Details for Airport Visual Aids & AC 150/5300-13A Airport Design - 624. Airport Rotating Beacons

9. STANDARD/REQUIREMENT:
AC 150/5340-30G - Any runway edge lighting system requires that the airport be equipped with a rotating beacon meeting the requirements of AC 150/5345-12, Specification for Airport and Heliport Beacons.

8.1.1 Restrictions on Use of Radio Control. (150/5340-30G)
Air-to-ground radio control may be used at uncontrolled airports or at controlled airports during periods when the ATC tower is closed. Obstruction lights and the airport beacon may not be radio controlled. All other lighting systems on the airport may be operated by air-to-ground radio control.

AC 150/5300-13A – 624. Airport rotating beacons.
Airport rotating beacons indicate the location of an airport by projecting beams of light spaced 180 degrees apart. Airport rotating beacons are required for any airport with runway edge lights. Alternating white/green flashes identify a lighted civil airport. See AC 150/5340-30 for additional guidance.

10. PROPOSED:
Radio controlled - pilot activated airport beacon

11. EXPLAIN WHY STANDARD CANNOT BE MET (FAA ORDER 5300.1E):
This modification to standard is justified by unusual local conditions.

Upon initial activation of the recently constructed airport rotating beacon on July 14, 2012, set at an angle of 5-degrees, WSDOT Aviation immediately received an overwhelming amount of negative feedback, opposition and criticism from the community with reports that the sweeping beam of light filled the interiors of their homes, preventing sleep, and that the light blotted out the night sky environment, which is highly valued by the Methow community.

The FAA standard calls for an airport rotating beacon to be operated from dusk to dawn with a light intensity between 25,000 and 50,000 candelas at angles of 1 to 10

degrees measured at the center of the light beam operating at 22 to 26 flashes per minute - flash duration of 75 to 300 milliseconds(ms). In no case shall the elevation of the beam adjustment be less than 2 degrees above the horizon.

The Methow Valley is one of Washington's most unique year-round destinations and has long attracted visitors and residents for its wilderness setting and unique recreational opportunities. Sitting at an elevation of 1,706' Mean Sea Level (MSL), the Methow Valley State Airport is located approximately 3 miles southeast of Winthrop and 4 miles northwest of Twisp, in the western part of Okanogan County in North-Central Washington. The airport is located in the Methow Valley, surrounded by mountainous terrain ranging from approximately 7,000' to 9,000' MSL in all directions. The unique geographic topography of the Methow Valley attributes to significant adverse impacts to the residents of the Methow Valley with the dusk to dawn operation of an airport rotating beacon.

WSDOT conducted a visual impact analysis to study the effects of the beacon and to obtain more input from the community. Crews tested different angles of the beacon (8- to 12-degrees) and shielding options on Nov. 5-7, 2012. The purpose of the testing was to observe the beacon at different angles, take video and still images, test shielding options, and obtain more public feedback. A copy of the final report is attached (Methow Valley Airport Beacon Visual Report, February 2013).

The study found that all beacon angles tested had substantial direct visual impacts to neighbors and substantial indirect impacts to views of the night sky from properties not directly in the line of sight of the airport.

At the end of the testing, the public was invited to comment on the effects of the mitigation via the SurveyMonkey website, and the survey was made available for download. Paper versions of the survey were printed out and made available throughout the Methow Valley. WSDOT received more than 400 responses with over 90 percent of the responses indicating that the different angles and shielding resulted in no improvement to the beacon's effect on the community.

On Jan. 28, 2013, WSDOT received additional public comments from "Friends of the Night Sky" a group of concerned citizens interested in preserving the natural beauty of the dark night sky. The booklet, which is attached, contains 284 statements from local residents. The statements indicate a range of effects, including substantial impacts on health and safety, serious devaluation of property, interference with peaceful use and quiet enjoyment of property, and a general degradation of the peaceful tranquility of the Methow Valley.

12. DISCUSS VIABLE ALTERNATIVES (FAA ORDER 5300.1E):

WSDOT evaluated several alternatives to mitigate the visual impacts of the airport rotating beacon on the Methow Valley. WSDOT evaluated each mitigation strategy in terms of feasibility, acceptability and suitability. The only alternative that met the criteria was to change the beacon to radio controlled operation to allow for pilot activation via air-to-ground radio control. Residents of the Methow Valley have requested and expressed that a pilot activated beacon would be an acceptable alternative.

The non-viable alternatives evaluated included increasing the angle of the beacon to 8- 10- and 12-degrees, and baffling added on the 12-degree setting. Due to the mountainous terrain surrounding the airport, all beacon angles had substantial direct

impacts to neighbors and substantial indirect impacts to views of the night sky from properties not directly in the line of sight of the airport.

WSDOT also evaluated moving the beacon away from the airport to a surrounding hilltop. FAA standards require that the airport's rotating beacon be located within 5,000' of the runway, this distance would only allow the beacon to be moved half way up an adjacent hill which would not alleviate the impacts experienced from the current location on the airport.

13. STATE WHY MODIFICATION WOULD PROVIDE ACCEPTABLE LEVEL OF SAFETY, ECONOMY, DURABILITY, AND WORKMANSHIP (FAA ORDER 5300.1E):

The Methow Valley State Airport experiences low nightime use primarily by local pilots, the U.S. Forest Service (USFS) North Cascades Smoke Jumper Base located at the airport, and AERO Methow air ambulance service. The mountainous terrain of the Methow Valley surrounding the airport makes nightime use of the airport undesirable.

The FAA Airport Compliance Manual - Order 5190.6B allows for part time operation of airport lighting (Chapter 7.12).

"a. Field Lighting When Needed. The airport must operate field lights whenever needed. This means that the lights must be on during the hours of darkness (dusk to dawn) every night or be available for use upon demand. This requirement can be effectively met by an attendant to turn on the proper lights when requested to do so by radio or other signal. The airport can also install an electronic device that permits remote activation of field lighting by radio equipment in an aircraft.

b. Part-time Operation. At some locations, the airport may not need to operate the lights all night. This might occur where the aeronautical demand is seasonal or where demand ceases after a certain hour each night because the airport's location is not likely to be needed in an emergency. Also, many airports have in place pilot operated or on-demand lighting that is controlled via radio signals from the aircraft operating out of or into the airport in question.

In very rare cases, circumstances may make using an airport undesirable during certain hours of darkness, such as when air traffic control is suspended during some part of the night and the local environment (obstructions or heavy en route traffic) makes using the airport hazardous during that period. Under such circumstance, the FAA may consent to a part-time operation of field lights. In cases involving safety related hours of operations, it is essential that FAA Flight Standards be involved in any validation process."

Because of the low aeronautical demand for nightime use of the Methow Valley State Airport, pilot activation meets the requirement of making the beacon available during the hours of darkness and provides an acceptable level of safety.

A pilot activated beacon is supported by the USFS North Cascades Smoke Jumper Base in addition to 14 other local pilots.

ATTACH ADDITIONAL SHEETS AS NECESSARY – INCLUDE SKETCH/PLAN

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MODIFICATION: **Airport Rotating Beacon**	LOCATION: **Winthrop, WA**	PAGE 2 OF 2
14. SIGNATURE OF ORIGINATOR: **/s/Tristan Atkins**	15. ORIGINATOR'S ORGANIZATION: **Washington State Department of Transportation, Aviation**	16. TELEPHONE: **(360) 651-6301**
17. DATE OF LATEST FAA SIGNED ALP: **June 2010 - Signed by Carolyn Read Aug. 18, 2011**		
18. ADO RECOMMENDATION:	19. SIGNATURE:	20. DATE:
21. FAA DIVISIONAL REVIEW (AT, AF, FS):		

ROUTING SYMBOL	SIGNATURE	DATE	CONCUR	NON-CONCUR

COMMENTS:

22. AIRPORTS' DIVISION FINAL ACTION:

☐ UNCONDITIONAL APPROVAL	☐ CONDITIONAL APPROVAL	☐ DISAPPROVAL

DATE:	SIGNATURE:	TITLE:

CONDITIONS OF APPROVAL: