

**AERONAUTICAL CHARTING MEETING
Instrument Procedures Group
Meeting 22-02 – October 24-25, 2022**

RECOMMENDATION DOCUMENT

FAA Control #22-02-374

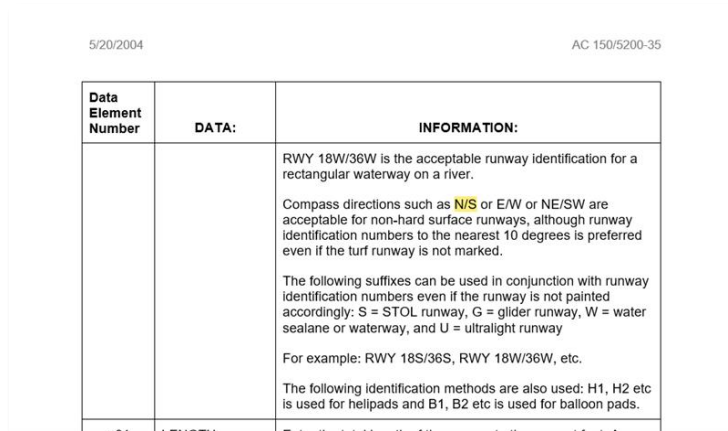
Subject: Inconsistent Private Airport Unpaved Runway Data in NASR/ADIP

Background/Discussion:

Airport Master Records FAA Form 5010, and now [ADIP](#), are used by airport proponents/owners/operators to establish and update airport/runway/facility information. Several systemic issues present with this information when looking at private airport unpaved runways. Problems manifest when an airport chooses to name its runways rather than number them (eg. RWY E/W instead of RWY 09/27). There is inconsistent (or non-existent) guidance from the FAA about how non-numerical runways should be named and databased. The following issues are (we propose) a result of the lack of guidance:

Existing N/S/E/W runway identifications often confuse landing ends and landing headings. If you land on runway NE, are you landing on the northeastern end of the runway or landing on the southwestern end on a northeasterly heading? (See Figs)

N/S/E/W guidance removed from publications:



5/20/2004 AC 150/5200-35

Data Element Number	DATA:	INFORMATION:
		<p>RWY 18W/36W is the acceptable runway identification for a rectangular waterway on a river.</p> <p>Compass directions such as N/S or E/W or NE/SW are acceptable for non-hard surface runways, although runway identification numbers to the nearest 10 degrees is preferred even if the turf runway is not marked.</p> <p>The following suffixes can be used in conjunction with runway identification numbers even if the runway is not painted accordingly: S = STOL runway, G = glider runway, W = water sealane or waterway, and U = ultralight runway</p> <p>For example: RWY 18S/36S, RWY 18W/36W, etc.</p> <p>The following identification methods are also used: H1, H2 etc is used for helipads and B1, B2 etc is used for balloon pads.</p>

Figure 1: AC 150/5200-35A

Non-numerical runway identification guidance was published in [AC 150/5200-35A](#).(Fig.1).

AC 150/5200-35A was replaced by [AC 150/5300-19](#)(Fig.2). AC 150/5300-19 provides only numerical runway guidance.

150/5300-19 - Airport Data and Information Program

Date Issued

September 30, 2015

Responsible Office

AAS-100, Office of Airport Safety & Standards - Airport Engineering Division

Description

This AC provides general guidance and information for airport owners and operators in the collection and management of data describing the physical infrastructure, characteristics, and services of their airport. This data is source material for the FAA's aeronautical information databases, for use in the dissemination of aviation information to the public, preparation of government and private industry aeronautical charts, and related flight information publications. This AC also describes the schedule, frequency, and standards for airport inspections.

This AC replaces AC 150/5200-35A, *Submitting the Airport Master Record in Order to Activate a New Airport*.

- [AC 150/5300-19](#) (PDF, 851 KB)
- [Airport Master Records Data Dictionary \(4/2022\)](#) (PDF, 418 KB)

Figure 2: AC150-5300-19

Runway identification guidance is not mentioned in AC 150/5300-19 and has been moved to ADIP's [AirportMasterRecordsDataDictionary.pdf](#) (Fig.3)

A/H	30	Runway/Heli pad ID	<p><small>NOTE: This element is not applicable to civil private-use airports.</small></p> <p><i>Note: At an airport with no federal funding, the FAA will conduct an aeronautical study of an airport proposal provided the airport operator file an FAA Form 7480-1, Notice of Landing Area Proposal online with the nearest FAA Regional Office at least 90 days before any construction, realignment, alteration, activation, or deactivation of any runway or other aircraft landing or takeoff area.</i></p> <p><i>At an airport with federal funding, the FAA will conduct an aeronautical study of an airport proposal based on the review and approval of the Airport Layout Plan (the ALP is used in lieu of the FAA Form 7480-1).</i></p> <p><i>Do not enter remarks detailing any modification to the values published as they will be removed prior to inclusion in the database.</i></p> <p>This is the two-number identification (designation) of both ends of the runway and</p>
11			
			<p>is derived from the magnetic compass headings of the runway ends. The runway end numbers are separated by a slash (/).</p> <p>Represents the runway identification numbers of both ends separated by a slash. The runway identification number is reported in 10-degree increments by dropping the last zero.</p> <p>For Example: 18/36 (the identification of a runway with a centerline magnetic bearing of 180 degrees and 360 degrees)</p> <p>For more detailed information, see AC 150/5340-1, Standards for Airport Markings.</p> <p>RWY 18W/36W is the acceptable runway identification for a sealane.</p> <p><u>The following suffixes can be used in conjunction with runway identification numbers even if the runway is not painted accordingly:</u></p> <p>G = Glider Runway W = Water Sealane or Waterway U = Ultra-light Runway</p> <p>For Example: RWY 18W/36W, etc.</p> <p>The following identification methods are also used: H1, H2, etc. is used for helipads, and B1, B2, etc. is used for balloon pads.</p>

Figure 3: AMR Data Dictionary



Figure 4: Homan Airport (47PA)



Figure 5: Swift Aero Field Airport(2PN1)



Figure 6: Rexford Airport (98KS)

Findings:

We analyzed the NASR dataset for the 2209 cycle and found variance in the data provided for non-numerical runways.

904 Runways with Non numerical idents that are missing both coordinates and true alignment.

rwy_ident	end counts	rwy counts
E/W	572	286
SE/NW	2	1
S/N	0	0
SW/NE	0	0
W/E	2	1
NW/SE	240	120
N/S	774	387
NE/SW	218	109

- W should not be a low-end ident (W end vs landing westerly)
- NW should not be a low-end ident (NW end vs landing north westerly)
- Without bearing unknown if N should be low end or high end

4 runways with Idents that contradict the landing direction (north end instead of landing northerly)

loc_ident	state_code	rwy_ident	rwy_end_ident	true_alignment	rwy_end_lat	rwy_end_lon
98KS	KS	N/S	N	180	37-27-10.2700N	100-30-23.1200W
98KS	KS	N/S	S	0	37-26-46.1400N	100-30-23.2400W
071	IN	SW/NE	NE	221	39-04-37.1880N	086-25-44.1260W

07I	IN	SW/NE	SW	41	39-02-44.4380N	086-27-47.6845W
2PN1	PA	NE/SW	NE	226	41-58-58.0600N	077-31-04.5900W
2PN1	PA	NE/SW	SW	46	41-58-47.1500N	077-31-19.9300W
47PA	PA	NE/SW	NE	236	40-43-16.6500N	077-57-28.4500W
47PA	PA	NE/SW	SW	56	40-43-04.0600N	077-57-53.3400W

These are instances of runways records that do provide true alignment and coordinates, the bearings provided are reversed. In the first example at 98KS, RWY end "N" has a bearing of 180. At 2PN1, it contradicts the low end/high end runway end logic which should be based on magnetic alignment. The record can be corrected by swapping each ends LAT/LONG coordinates thus correcting the low-end true alignment to 41 and high-end true alignment to 226.

8 runways with coordinates but missing true_alignment (Highlighted values contradicts the landing direction (north end instead of landing northerly))

loc_ident	state_code	rwy_ident	rwy_end_ident	true_alignment	rwy_end_lat	rwy_end_lon	CALC MAG BEARING
5KE	AK	E/W	E	NULL	55-20-49.1500N	131-40-15.6700W	119.9
5KE	AK	E/W	W	NULL	55-20-30.0700N	131-39-17.2500W	299.9
ILI	AK	E/W	E	NULL	59-45-37.0000N	154-56-13.0000W	97.8
ILI	AK	E/W	W	NULL	59-45-33.0000N	154-55-15.0000W	277.8
ILI	AK	N/S	N	NULL	59-45-13.0000N	154-55-55.0000W	18.6
ILI	AK	N/S	S	NULL	59-45-40.0000N	154-55-37.0000W	198.6
13FD	FL	NW/SE	NW	NULL	27-57-35.9700N	081-30-14.0800W	311.6
13FD	FL	NW/SE	SE	NULL	27-59-29.4400N	081-32-38.6600W	131.6
GA82	GA	E/W	E	NULL	33-19-58.1700N	084-23-46.5900W	270.4
GA82	GA	E/W	W	NULL	33-19-58.3600N	084-24-19.0100W	90.4
3KS4	KS	N/S	N	NULL	37-46-33.5500N	101-26-05.0400W	178.9
3KS4	KS	N/S	S	NULL	37-45-56.9800N	101-26-04.1900W	358.9
MS41	MS	N/S	N	NULL	33-59-59.5047N	090-25-37.2175W	16.4
MS41	MS	N/S	S	NULL	34-00-22.2763N	090-25-29.1270W	196.4
37XA	TX	N/S	N	NULL	29-59-16.3400N	095-55-50.1000W	359.4
37XA	TX	N/S	S	NULL	29-59-46.3400N	095-55-50.4900W	179.4

It is unclear why true alignment was not provided for these runways.

13 runways with idents that coincide with the landing direction (landing NE with a north-easterly heading)

loc_ident	state_code	rwy_ident	rwy_end_ident	true_alignment	rwy_end_lat	rwy_end_lon
APF	FL	NE/SW	NE	44	26-08-54.9913N	081-46-49.9146W
APF	FL	NE/SW	SW	224	26-09-08.1231N	081-46-35.7517W
IA11	IA	N/S	N	9	41-17-34.5500N	093-38-53.8600W
IA11	IA	N/S	S	189	41-17-44.3100N	093-38-51.8300W
3IS3	IL	E/W	E	90	39-44-20.8700N	089-09-02.6200W
3IS3	IL	E/W	W	270	39-44-20.9700N	089-08-37.0300W
5LL7	IL	E/W	E	90	42-12-37.6200N	088-31-25.6000W
5LL7	IL	E/W	W	270	42-12-37.8100N	088-30-58.8000W

LL53	IL	NE/SW	NE	54	42-00-23.2700N	088-27-42.1500W
LL53	IL	NE/SW	SW	234	42-00-37.2600N	088-27-16.4800W
SN88	KS	E/W	E	92	38-34-16.9900N	094-43-10.1200W
SN88	KS	E/W	W	272	38-34-16.5600N	094-42-49.9800W
ME55	ME	NE/SW	NE	36	44-04-16.0000N	068-49-16.8400W
ME55	ME	NE/SW	SW	216	44-04-28.0000N	068-49-04.5600W
MI99	MI	E/W	E	87	42-48-01.8800N	082-39-51.6900W
MI99	MI	E/W	W	267	42-48-03.0900N	082-39-20.2100W
H63	NE	E/W	E	90	40-03-32.0600N	099-17-33.5100W
H63	NE	E/W	W	270	40-03-31.8500N	099-16-16.3300W
NE49	NE	N/S	N	360	41-04-01.4500N	096-14-44.1600W
NE49	NE	N/S	S	180	41-04-23.9800N	096-14-44.1800W
B16	NY	E/W	E	86	43-04-48.6600N	076-32-31.2500W
B16	NY	E/W	W	266	43-04-50.4600N	076-31-53.6000W
2F6	OK	N/S	N	0	36-21-05.0200N	096-00-37.3800W
2F6	OK	N/S	S	180	36-21-30.7300N	096-00-37.1100W
THA	TN	N/S	N	360	35-22-38.4694N	086-14-40.6282W
THA	TN	N/S	S	180	35-22-59.0660N	086-14-40.7072W

Recommendations:

We assume part of the confusion seems to come from the actual data collected/provided by the airport proponent. We believe that without clear guidance on what constitutes the proper use of non-numerical runway idents, inconsistencies will continue to arise.

These inconsistencies present both an operational risk of confusion and a data consistency problem – if the FAA is to provide runway data for these airfields, a standard must be set and enforced.

We assert that both true alignments, coordinates, and end elevations should be required for all airfields. In addition, clear and concise naming convention guidance should be agreed upon. **If the removal of the N/S/E/W convention was intentional, corrections should be made to the existing non-numerical runways and future proponent updates to these records should require the change to numerical idents.**

If it's the FAA's intention to continue to establish new non-numerical runways, AC 150/5300 and ADIP's Airport Master Records Data Dictionary should be updated to provide guidance to the users. A proposal of this guidance follows:

Compass directions such as N/S, E/W, and NE/SW are acceptable for non-hard surface runways, although runway identification numbers to the nearest 10 degrees is preferred even if the turf runway is not marked. A runway identification "E/W" represents a landing strip situated on an east/west layout. The low-end ident "E" is the western end of the runway landing in an easterly direction. The high-end ident "W" is the eastern end of the runway landing in a westerly direction. Use the below table to determine the runway's non-numerical ident.

Low-End Alignment Guidance			High-End Alignment Guidance		
	START BEARING	STOP BEARING		START BEARING	STOP BEARING
N	0.1	22.5	S	180.1	202.5
NE	22.5	67.5	SW	202.5	247.5

E	67.5	112.5		W	247.5	292.5
SE	112.5	157.5		NW	292.5	337.5
S	157.5	180		N	337.5	360

Comments:**Submitted by:** Steven Madigan, John Gibson**Organization:** Garmin International**Phone:** 913-440-6025**E-mail:** Steven.Madigan@garmin.com, John.Gibson@garmin.com**Date:** 09/16/22

Please send completed form and any attachments to:

9-AMC-AVS-ACM-Info@faa.gov

MEETING 22-02

John Gibson, Garmin, briefed that Airport Master Records FAA Form 5010, and now the Airport Data and Information Portal (ADIP), are used by airport proponents/owners/operators to establish and update airport/runway/facility information. He explained that problems exist when private-use airports name unpaved runways with cardinal directions rather than numerical runway identifiers. He said the existing runways are not named in a standardized way and often confuse landing ends and landing headings. He explained that guidance for naming runway ends using cardinal directions is lacking and that the revised Advisory Circular ([AC 150/5300-19](#)) only provides guidance for numerical runways. John provided tables of runway data that represent the various issues related to the problem that he has discovered. (See [RD 22-02-374](#).)

Garmin proposes that true alignments, coordinates, and end elevations should be required for all airfields. In addition, clear and concise naming convention guidance should be published. If the removal of the cardinal direction naming convention was intentional, corrections should be made to update the existing non-numerical runway identifiers to numerical identifiers. If it is the FAA's intention to continue to support non-numerical runway identifiers, AC 150/5300-19 and ADIP's Airport Master Records Data Dictionary should be updated to provide guidance for that naming.

Carlton Lambiasi, FAA/AAS-120, said the FAA Office of Airports is aware of these runways and explained that most of them are located at unmarked, private-use facilities, most often water runways. He said most of them were activated over 50 years ago and that in the last four years there have only been 10 runways activated using cardinal directions. He said any new runways must include the latitudes/longitudes in the submission. He suspects that the airport operators at these locations would like to keep their runways named using cardinal

directions based on how they operate. He asked the audience if there are safety concerns with the way these runways are specified today.

John said that this is more an issue about how these runways are captured in the NASR database. He said true alignments, coordinates and end elevations should be required for all runways. Carlton said all new runways will have that data and the Office of Airports can try to get coordinates for those that don't have them currently.

John said he will provide the list of entries that have missing or incorrect data to the Office of Airports. Carlton said he is willing to work with John to identify the problematic locations and conduct outreach to those facilities.

STATUS: OPEN

ACTION: John Gibson, Garmin, will provide the Office of Airports with the list of the problematic NASR data that was found.

ACTION: Carlton Lambiasi, FAA/AAS-120, will work to correct the data by reaching out to the facilities and will report back at the next meeting.

MEETING 23-01

Jennifer Hendi, FAA/AJV-A250, reported that Sam Moore, AeroNavData, sent the requested list of problematic NASR data to Carlton Lambiasi, FAA/AAS-120. Carlton said that after working closely with Garmin, they determined the issue is not with the cardinal direction but rather with the runway bearing. It is not a safety concern, but more a matter of pilot confusion. Steve Madigan, Garmin, agrees that it is an element of pilot confusion not a safety concern.

John Moore, Boeing/Jeppesen, asked if Office of Airports has any oversight over small, private airports. Aeronautical Information Services (AIS) does not capture or publish information on private use airports. He would think the Office of Airports has the same policy and probably does not have any oversight over private airports. Without authority, it will be hard to make any progress. Scott Jerdan, FAA/AJV-A310, clarified that AIS does collect and publish private use airport information that is submitted by the Office of Airports. Steve also shared that he found an example of a public airport that does have non-numerical runway identifiers.

Carlton said he has spoken with Flight Standards about this recommendation. He said they agreed that since there are no safety concerns raised, he is not planning to move forward with the proposal.

Mike Stromberg, UPS IPA, agrees and thinks this is a lot of work with not a lot of benefit.

Clint Carter, AeroNavData, said his main concern is that this issue might be causing confusion. He said he does not know if the Flight Management System will work properly with non-numerical runways.

John Moore said this seems like an issue more for industry than for the FAA. He does not think this is an issue for the ACM and suggested closing this issue.

Rich Boll, NBAA, added that seaplane airports have geographical directions for their runways in Alaska. If the FAA were to require numerical runway identifiers, that would create a lot of work for these small airports. He thinks if the airport owner wants the runway bearing information, it is up to them to provide it and the FAA should not be pushing it on them to satisfy an avionics need.

Gary Fiske, FAA/AJV-P310, agrees with John and Rich and thinks this is out of scope of the ACM.

Jennifer Hendi, FAA/AJV-A250 summarized the issue and asked Sam if he agrees with closing this issue. He agreed and there were no other objections to closure.

STATUS: CLOSED