

RUNWAY DATA TABLE												
	RUNWAY 9/27				RUNWAY 3/21							
	EXIST. RW 9	EXIST. RW 27	FUT. / ULT. RW 9	FUT. / ULT. RW 27	EXIST. RW 3	EXIST. RW 21	FUT. RW 3	FUT. RW 21	ULT. RW 3	ULT. RW 21		
RUNWAY LENGTH x WIDTH	10,591' x 150'				SAME		5,719' x 150' (60' WIDE FOR B-I)		SAME		8,000' x 150' (60' WIDE FOR B-I)	
RUNWAY SHOULDER WIDTH	35' PER SIDE (20' STANDARD FOR C-III)				SAME		35' PER SIDE (PARTIAL) (10' STANDARD FOR B-I)		25' PER SIDE (10' STANDARD FOR B-I)		SAME	
RUNWAY BLAST PAD WIDTH	220' WIDE (140' STANDARD FOR C-III)	220' WIDE (140' STANDARD FOR C-III)	SAME		N/A		N/A		200' WIDE (80' STANDARD FOR B-I)		SAME	
RUNWAY BLAST PAD LENGTH	400' BEYOND (200' STANDARD FOR C-III)	400' BEYOND (200' STANDARD FOR C-III)	SAME		N/A		N/A		200' BEYOND (100' STANDARD FOR B-I)		SAME	
RUNWAY DESIGN CODE (SEE NOTES)	C/III/1200 ¹				SAME		C/III/5000 ²		SAME ²		SAME ²	
RUNWAY DESIGN AIRCRAFT (SEE NOTES)	C-III NARROWBODY JET (B737 / A319 / A320)				SAME		C-III NARROWBODY JET (B737 / A319 / A320) ²		SAME ²		SAME ²	
CRITICAL AIRCRAFT (CIVILIAN TYPE)	C-III NARROWBODY JET (B737 / A319 / A320)				SAME		B-I LARGE (BEECHJET 400)		SAME		SAME	
CRITICAL AIRCRAFT (MILITARY TYPE)	D-I F-16 FALCON FIGHTER JET				SAME		N/A		SAME		D-I F-16 FALCON FIGHTER JET	
APPROACH REFERENCE CODE	D/IV/1200	D/IV/2400, D/VI/2400	D/VI/1200	D/VI/2400, D/VI/2400	B/II/4000	B/II/4000	D/IV/4000	D/IV/4000	D/IV/4000	D/IV/4000	D/IV/4000	D/IV/4000
DEPARTURE REFERENCE CODE	D/IV, D/V	D/IV, D/V	D/VI	D/VI	B/I	B/I	D/IV, D/V	D/IV, D/V	D/IV, D/V	D/IV, D/V	D/IV, D/V	D/IV, D/V
RUNWAY BEARING (TRUE)	S 92° 15' 20.8760° E				SAME		N 31° 32' 51.1159° E		SAME		SAME	
PAVEMENT STRENGTH (LBS.)	94,000 (SWG) 180,000 (DWG) 650,000 (DTWG)				SAME		52,000 (SWG) 100,000 (DWG) 361,000 (DTWG)		SAME		SAME	
PAVEMENT CLASSIFICATION RATING (PCR)	570/R/B/W/T				SAME		400/F/B/X/T		SAME		SAME	
PAVEMENT MATERIAL (TREATMENT)	CONCRETE (GROOVED)				SAME		ASPHALT (GROOVED)		SAME		ASPHALT OR CONCRETE (GROOVED) ²	
EFFECTIVE GRADIENT (%)	0.08%				SAME		0.17%		SAME		SAME	
RUNWAY END ELEVATION (MSL)	1,427.8'	1,419.4'	SAME	SAME	1,413.7'	1,416.0'	SAME	SAME	SAME	SAME	SAME	SAME
DISPLACED THRESHOLD DISTANCE	N/A	529'	SAME	SAME	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME
DISPLACED THRESHOLD LATITUDE (NAD83)	N/A	46° 50' 28.9038" N	SAME	SAME	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME
DISPLACED THRESHOLD LONGITUDE (NAD83)	N/A	92° 10' 48.4254" W	SAME	SAME	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME
DISPLACED THRESHOLD ELEVATION (MSL)	N/A	1,418.9'	SAME	SAME	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME
RUNWAY INSTRUMENT APPROACH AIDS	ILS LOC RNAV (GPS) TACAN	ILS LOC RNAV (GPS) TACAN	SAME	SAME	VORTAC RNAV (GPS)	VORTAC RNAV (GPS)	SAME	SAME	SAME	SAME	SAME	SAME
ARRESTING GEAR SYSTEM	±1,500' BEYOND RW END	±2,100' BEYOND RW END	SAME	SAME	N/A	N/A	SAME	SAME	±2,000' BEYOND RW END	±2,000' BEYOND RW END	SAME	SAME
LAND AND HOLD SHORT (LAHSO)	8,950'	N/A	SAME	SAME	N/A	N/A	SAME	SAME	SAME	SAME	SAME	SAME
INSTRUMENT APPROACH MINIMUMS (LOWEST)	< ½ Mile 1,200' RVR / 100'	< ½ Mile 2,400' RVR / 200'	SAME	SAME	1-MILE / ±400	1-MILE / ±288	SAME	SAME	SAME	SAME	SAME	SAME
AERONAUTICAL SURVEY REQUIRED	VERTICALLY GUIDED				SAME		VERTICALLY GUIDED		SAME		SAME	
DEPARTURE SURFACE	YES	YES	SAME	SAME	YES	YES	SAME	SAME	SAME	SAME	SAME	SAME
PART 77 APPROACH USE TYPE	PRECISION (PI)				SAME		NON-PRECISION (NPI)		SAME		SAME	
VISUAL APPROACH AIDS	ALSF-2 (FAA) PAPI-4L (DAA) TDZL (FAA)	MALSR (FAA) PAPI-4L (DAA)	SAME	SAME	REIL (DAA) PAPI-4L (FAA)	REIL (DAA) PAPI-4L (FAA)	SAME	SAME	MALSR	SAME	SAME	SAME
RUNWAY LIGHTING	HIRL (CENTERLINE)				SAME		MIRL		SAME		SAME	
RUNWAY MARKING	PRECISION (PI)				SAME		NON-PRECISION (NPI)		SAME		SAME	
RUNWAY TO TAXIWAY CENTERLINE	450' TO 840' (450' STANDARD)				500' TO 840' (450' STANDARD)		270' TO 400' (400' STANDARD)		400'		SAME	
RUNWAY HOLDLINE CENTERLINE DISTANCE	250' - 294' (250' STANDARD)				SAME		250'		264'		SAME	

ABBREVIATIONS: (S) - SURVEYED | (EST.) - ESTIMATED | (SWG) - SINGLE WHEEL GEAR AIRCRAFT | (DWG) - DUAL WHEEL GEAR AIRCRAFT | (DTWG) - DUAL TANDEM WHEEL GEAR AIRCRAFT

NOTE 1: THE CRITICAL AIRCRAFT DESIGN CODE FOR RUNWAY 9/27 IS C-II. DUE TO OPERATIONS BY AIRCRAFT LARGER THAN C-II AND THE 148TH AIR NATIONAL GUARD, THE RUNWAY IS UTILIZED BY MORE DEMANDING AIRCRAFT AND, AS MUCH AS POSSIBLE D-V STANDARDS SHOULD BE APPLIED.

NOTE 2: RUNWAY 3/21 IS CURRENTLY DESIGNED TO C-III STANDARDS AND SERVES GA, MILITARY AND AIR CARRIER AIRCRAFT. THE CRITICAL AIRCRAFT IS B-I. AN ELIGIBILITY DETERMINATION WILL BE REQUIRED PRIOR TO FUTURE RUNWAY RECONSTRUCTION OR IMPROVEMENTS.

NOTE 3: PAVEMENT DESIGN TO DETERMINE ULTIMATE RUNWAY PAVEMENT TYPE.

NOTE 4: WHERE THE EXISTING CONDITION EXCEEDS THE STANDARD, THE STANDARD IS PROVIDED IN PARENTHESES.

AIRPORT DATA			
ITEM	EXISTING	FUTURE	ULTIMATE
DESIGN AIRPORT REFERENCE CODE (ARC)	D-V	SAME	SAME
MEAN MAX. TEMP OF HOTTEST MONTH	76.3° (JULY)	N/A	N/A
AIRPORT ELEVATION (NAVD88)	1,427.8'	SAME	SAME
AIRPORT REFERENCE POINT (LATITUDE) (LONGITUDE)	46° 50' 31.45" N 92° 11' 35.65" W	SAME	46° 50' 35.73" N 92° 11' 27.12" W
NPIAS ROLE	NON-HUB PRIMARY	SAME	SAME
MnDOT SASP CLASSIFICATION	KEY AIRPORT	SAME	SAME
SOURCE: NOAA CLIMATIC DATA CENTER, DULUTH INTERNATIONAL AIRPORT STATION (2009-2018).			

CRITICAL AIRCRAFT DATA		
	RUNWAY 9/27	RUNWAY 3/21
CRITICAL AIRCRAFT RUNWAY DESIGN CODE (RDC)	C-II	B-I ¹
CRITICAL AIRCRAFT TAXIWAY DESIGN CODE (TDG)	TDG 3	TDG 1A ¹
REPRESENTATIVE AIRCRAFT	AIRBUS A319	BEECHJET 400 ¹
TAIL HEIGHT	39.73'	13.92' ¹
WING SPAN	117.45'	43.50' ¹
APPROACH SPEED	126 KNOTS	121 KNOTS ¹
COCKPIT TO MAIN GEAR (CMG)	44.90'	19.25' ¹
MAIN GEAR WIDTH (MGW)	29.36'	9.33' ¹
MAX TAKEOFF WEIGHT	166,449 LBS.	16,300 LBS. ¹
NOTE 1: BASED ON THE MOST DEMANDING AIRCRAFT THAT DOES NOT HAVE ADEQUATE WIND COVERAGE (95%) ON RUNWAY 9/27 AND HAS DEMONSTRATED REGULAR USE OF RUNWAY 3/21. LARGER AIRCRAFT, INCLUDING AIR CARRIER, CURRENTLY USE AND ARE EXPECTED TO USE RUNWAY 3/21 THROUGH THE 20 YEAR PLANNING PERIOD.		

NGS MONUMENT DATA					
IDENTIFIER	SURVEY STATION NAME	PACS OR SAC	LATITUDE	LONGITUDE	ELEVATION
DLH F	NGS PID-DP1542	PAC	46° 50' 35.77" N	92° 11' 08.89" W	1,420.26'
DLH G	NGS PID-DP1543	SAC	46° 50' 07.79" N	92° 11' 26.91" W	1,418.5'
DLH H	NGS PID-DP1544	SAC	46° 50' 27.18" N	92° 13' 37.13" W	1,442.13'
SOURCE: NATIONAL GEODETIC SURVEY, NAD 83 (2011), NAVD 88.					

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FAA'S APPROVAL OF THIS AIRPORT LAYOUT PLAN (ALP) REPRESENTS ACCEPTANCE OF THE GENERAL LOCATION OF FUTURE FACILITIES DEPICTED DURING THE PRELIMINARY DESIGN PHASE. THE AIRPORT OWNER IS REQUIRED TO RESUBMIT FOR APPROVAL THE FINAL LOCATIONS, HEIGHTS, AND EXTERIOR FINISH OF STRUCTURES. FAA'S CONCERN IS OBSTRUCTIONS, IMPACT ON ELECTRONIC AIDS, OR ADVERSE EFFECTS ON CONTROLLER VIEW OF AIRCRAFT APPROACH AND GROUND MOVEMENT AREAS, WHICH COULD ADVERSELY AFFECT THE SAFETY, EFFICIENCY, OR UTILITY OF THE AIRPORT.

MODIFICATIONS OF DESIGN STANDARDS			
NO.	DESCRIPTION OF FAA STANDARD MODIFIED	FAA AIRSPACE CASE NUMBER	DATE APPROVED
1	EXISTING AIRCRAFT PARKING ON THE TOWER RAMP WHICH IS LOCATED INSIDE THE RUNWAY VISIBILITY ZONE (RVZ)	DLH_2022_28554	02/17/2022

RUNWAY SAFETY / PROTECTION AREAS				
RUNWAY	SURFACE	WIDTH	LENGTH BEYOND RUNWAY ENDS	LENGTH PRIOR TO THRESHOLD
EXIST. / FUT. / ULT. RUNWAY 9/27	RUNWAY SAFETY AREA (RSA)	500'	1,000'	600'
	RUNWAY OBSTACLE FREE ZONE (OFZ)	400'	200'	200'
	PRECISION OBSTACLE FREE ZONE (POFZ)	800'	200'	200'
EXIST. / FUT. / ULT. RUNWAY 3/21	RUNWAY SAFETY AREA (RSA)	500'	1,000'	600'
	RUNWAY OBSTACLE FREE ZONE (OFZ)	400'	200'	200'
	RUNWAY OBSTACLE FREE AREA (OFA)	800'	1,000'	600'

NOTE 1: A 400' OFZ IS SHOWN TO ACCOMMODATE EXISTING AND/OR FUTURE C AND D PUBLISHED APPROACHES VS. (120', 250' OR 300') FOR SMALL AIRCRAFT

RUNWAY END PROTECTION AREAS					
RUNWAY	SURFACE	BASE	LENGTH	OUTER WIDTH	SLOPE
EXIST. / FUT. / ULT. RUNWAY 9/27	FAA APPROACH RUNWAY PROTECTION ZONE (RPZ)	1,000'	2,500'	1,750'	N/A
	MnDOT CLEAR ZONE	1,000'	2,500'	1,750'	50:1
	PART 77 APPROACH SURFACE	1,000'	50,000'	16,000'	50:1 / 40:1
	TERPS APPROACH SURFACE 5 (AC 150/5300-13B, TABLE 3-4)	400'	10,000'	3,400'	34:1
EXIST. / FUT. / ULT. RUNWAY 3/21	FAA APPROACH RUNWAY PROTECTION ZONE (RPZ)	500'	1,700'	1,010'	N/A
	MnDOT CLEAR ZONE	500'	1,700'	1,010'	34:1
	PART 77 APPROACH SURFACE	500'	10,000'	3,500'	34:1
	TERPS APPROACH SURFACE 5 (AC 150/5300-13B, TABLE 3-4)	400'	10,000'	3,400'	20:1

RUNWAY END COORDINATES				
POINT	EXISTING	FUTURE	ULTIMATE	
RUNWAY 9	LAT. 46° 50' 32.84" N	SAME	SAME	
	LONG. 92° 13' 13.04" W	SAME	SAME	
RUNWAY 27	LAT. 46° 50' 28.70" N	SAME	SAME	
	LONG. 92° 10' 40.82" W	SAME	SAME	
RUNWAY 3	LAT. 46° 50' 08.67" N	SAME	SAME	
	LONG. 92° 11' 17.77" W	SAME	SAME	
RUNWAY 21	LAT. 46° 50' 56.77" N	SAME	46° 51' 15.97" N	
	LONG. 92° 10' 34.72" W	SAME	92° 10' 17.60" W	

TOUCHDOWN ZONE (TDZ) LIMITS				
RUNWAY	TDZ LIMITS	STA.	ELEV.	
EXIST. / FUT. RUNWAY 9	100+00 - 130+00	100+00	1,427.7'	
EXIST. / FUT. RUNWAY 27	175+91 - 205+91	185+60.8	1,420.9'	
EXIST. / ULT. RUNWAY 3	100+00 - 130+00	128+59.5	1,420.0'	
EXIST. RUNWAY 21	127+19 - 157+19	128+59.5	1,420.0'	
ULT. RUNWAY 21	150+00 - 180+00	157+19.0	1,416.0'	
EXIST. / FUT. RUNWAY 9/27 HIGH POINT	N/A	100+00	1,427.7'	
EXIST. / FUT. RUNWAY 9/27 LOW POINT	N/A	126+39.9	1,418.7'	
EXIST. / ULT. RUNWAY 3/21 HIGH POINT	N/A	128+59.5	1,420.0'	
EXIST. / ULT. RUNWAY 3/21 LOW POINT	N/A	102+61.1	1,410.0'	

NAVAID / COMMUNICATION EQUIPMENT DATA TABLE				
EQUIPMENT	LATITUDE	LONGITUDE	TOP ELEVATION (MSL)	OWNER
AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)	46° 50' 36.49" N	92° 11' 11.55" W	1,427.8'	NWS
BEACON	46° 50' 16.85" N	92° 11' 36.93" W	1,478.6'	DAA
RVR	46° 50' 31.49" N	92° 11' 37.10" W	1,428'	FAA
AIRPORT SURVEILLANCE RADAR (ASR)	46° 50' 45.01" N	92° 11' 57.04" W	1,422.0'	FAA
VORTAC STATION	46° 48' 07.79" N	92° 12' 10.33" W	1,427.9'	FAA
TACAN STATION	46° 50' 37.86" N	92° 11' 09.41" W	1,423.6'	MNANG
RW 9 ILS GLIDESLOPE ANTENNA	46° 50' 36.33" N	92° 12' 56.30" W	1,414.9'	FAA
RW 9 ILS LOCALIZER ANTENNA	46° 50' 27.58" N	92° 10' 00.11" W	1,391.2'	FAA
RW 27 ILS GLIDESLOPE ANTENNA (EXIST.)	46° 50' 33.18" N	92° 11' 09.68" W	1,423.4'	FAA
RW 27 ILS GLIDESLOPE ANTENNA (FUT.)	46° 50' 33.12" N	92° 11' 04.36" W	1,424' (EST.)	FAA
RW 27 ILS LOCALIZER ANTENNA	46° 50' 33.41" N	92° 13' 34.27" W	1,438.3'	FAA
RW 9 PAPI-4L (EXIST.)	46° 50' 33.99" N	92° 12' 52.18" W	1,420.0'	DAA
RW 27 PAPI-4L (EXIST.)	46° 50' 27.87" N	92° 11' 12.85" W	1,420.0'	DAA
RW 3 PAPI-4L (EXIST.)	46° 50' 15.84" N	92° 11' 14.23" W	1,409.3'	FAA
RW 21 PAPI-4L (EXIST.)	46° 50' 50.01" N	92° 10' 37.90" W	1,414.4'	FAA

NOTE: VORTAC STATION LOCATED ± 3 MILES SOUTH OF AIRPORT

NAVAID / COMMUNICATION EQUIPMENT DATA TABLE				
EQUIPMENT	LATITUDE	LONGITUDE	TOP ELEVATION (MSL)	OWNER
RW 9 WINDCONE - SECONDARY	46° 50' 35.26" N	92° 12' 56.29" W	1,422.4'	DAA
RW 27 WINDCONE - PRIMARY	46° 50' 26.35" N	92° 11' 21.21" W	1,435.3'	DAA
RW 3 WINDCONE - SECONDARY	46° 50' 14.35" N	92° 11' 16.92" W	1,408.2'	DAA
RW 21 WINDCONE - SECONDARY	46° 50' 46.61" N	92° 10' 39.41" W	1,422.9'	DAA
RW 27 PAPI (FUT.)	46° 50' 27.51" N	92° 11' 04.91" W	1,420' (EST.)	DAA
RW 21 PAPI (ULT.)	46° 51' 06.57" N	92° 10' 23.09" W	1,418' (EST.)	FAA

TAXIWAY DATA TABLE														
EXISTING TAXIWAY NAME	FUTURE / ULTIMATE TAXIWAY NAME	EXISTING (E) / FUTURE (F) / ULTIMATE (U)	ADG	TDG	WIDTH	SHOULDER	TESM	TSA	TOFA	LIGHTING	OBJECTS INSIDE TSA OR TOFA	SEPARATION FROM TWY CL TO FIXED/MOVEABLE OBJ.	SEPARATION FROM TWY CL TO RUNWAY CL	RUNWAY CL TO HOLD LINE
TAXIWAY A	SAME	E	V	5	75'	35' (PARTIAL)	14'	214'	285'	MITL	NO	142.5'	837' (EAST END) 512' (WEST END)	300'
TAXIWAY A1	SAME	F	V	5	75'	25'	14'	214'	285'	MITL	NO	142.5'	837' (EAST END) 512' (WEST END)	300'
TAXIWAY A2	SAME	E	V	5	75'	35' (PARTIAL)	14'	214'	285'	MITL	NO	142.5'	N/A	300'
TAXIWAY A3	SAME	F/U	V	5	75'	25'	14'	214'	285'	MITL	NO	142.5'	N/A	300'
TAXIWAY A4	SAME	E	V	5	75'	35' (PARTIAL)	14'	214'	285'	MITL	NO	142.5'	N/A	300'
TAXIWAY A5	SAME	F/U	V	5	75'	30'	14'	214'	285'	MITL	NO	142.5'	N/A	300'
TAXIWAY B	SAME	E/F	V	5										