

FOR SIMULATION USE ONLY

**ORDER
ZMP 7200.10**

**VATSIM MINNEAPOLIS ARTCC
STANDARD OPERATING PROCEDURES**



November 15, 2024

VIRTUAL AIR TRAFFIC SIMULATION NETWORK

FOR SIMULATION USE ONLY

FOREWORD

This order prescribes procedures, policy, and guidance for the daily operation of the Minneapolis ARTCC on the VATSIM network. Controllers are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgement if they encounter situations not covered by it.

It is emphasized that information contained herein is designed and specifically for use in a virtual controlling environment. It is not applicable, nor should be referenced for live operations in the National Airspace System (NAS). The procedures within this order document how the positions are to be operated and in conjunction with FAA Orders 7110.10, 7110.65, and 7210.3, will be the basis for performance evaluations, training, and certification.



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TABLE OF CONTENTS

- CHAPTER 1. INTRODUCTION..... 1
 - 1.1 PURPOSE OF THIS ORDER..... 1
 - 1.2 AUDIENCE..... 1
 - 1.3 WHERE CAN I FIND THIS ORDER 1
 - 1.4 CANCELLATION 1
 - 1.5 EFFECTIVE DATE 1
 - 1.6 REVISIONS 1
 - 1.7 EXPLANATION OF CHANGES 1
- CHAPTER 2. OPERATIONS – GENERAL 2
 - 2.1 DUTY FAMILIARIZATION..... 2
 - 2.2 STATUS INFORMATION AREAS 2
 - 2.3 POSITION RELIEF BRIEFING (PRB)..... 2
 - 3.1 COMBINING AND DECOMBINING OF CONTROL SECTORS..... 3
 - 3.2 ERAM FILTER LIMITS..... 3
 - 3.3 COMPUTER ENTRY OF ASSIGNED ALTITUDE..... 3
 - 3.4 ADVANCED APPROACH INFORMATION RESPONSIBILITY 4
 - 3.5 FULL ROUTE CLEARANCE (FRC) PROCEDURES..... 5
 - 3.6 THREE-MILE SEPARATION AUTHORIZATION..... 6
 - 3.7 AUTOMATED INFORMATION TRANSFER (AIT) 6
 - 3.8 DATA BLOCK COORDINATION 7
 - 3.9 MINIMUM IFR ALTITUDE (MIA) SECTOR CHARTS..... 8
- CHAPTER 4. AREA 1 9
 - SECTION 1. SECTOR 01 9
 - 4.1.1 SECTOR NARRATIVE..... 9
 - 4.1.2 ASSIGNMENT OF AIRSPACE 9
 - 4.1.3 SECTOR INFORMATION 9
 - 4.1.4 SECTOR PROCEDURES 9
 - Sector 01 Map..... 11
 - SECTION 2. SECTOR 02 12
 - 4.2.1 SECTOR NARRATIVE..... 12
 - 4.2.2 ASSIGNMENT OF AIRSPACE 12
 - 4.2.3 SECTOR INFORMATION 12
 - 4.2.4 SECTOR PROCEDURES 12
 - Sector 02 Map..... 14
 - SECTION 3. SECTOR 3 15
 - 4.3.1 SECTOR NARRATIVE..... 15
 - 4.3.2 ASSIGNMENT OF AIRSPACE 15
 - 4.3.3 SECTOR INFORMATION 15
 - 4.3.4 SECTOR PROCEDURES 15
 - Sector 03 Map..... 17
 - SECTION 4. SECTOR 04 18
 - 4.4.1 SECTOR NARRATIVE..... 18
 - 4.4.2 ASSIGNMENT OF AIRSPACE 18
 - 4.4.3 SECTOR INFORMATION 18

4.4.4 SECTOR PROCEDURES18
 Sector 04 Map.....20
 SECTION 5. SECTOR 1221
 4.5.1 SECTOR NARRATIVE.....21
 4.5.2 ASSIGNMENT OF AIRSPACE21
 4.5.3 SECTOR INFORMATION21
 4.5.4 SECTOR PROCEDURES21
 Sector 12 Map.....23
 SECTION 6. SECTOR 1324
 4.6.1 SECTOR NARRATIVE.....24
 4.6.2 ASSIGNMENT OF AIRSPACE24
 4.6.3 SECTOR INFORMATION24
 4.6.4 SECTOR PROCEDURES24
 Sector 13 Map.....26
 CHAPTER 5. AREA 227
 SECTION 1. SECTOR 0527
 5.1.1 SECTOR NARRATIVE.....27
 5.1.2 ASSIGNMENT OF AIRSPACE27
 5.1.3 SECTOR INFORMATION28
 5.1.4 SECTOR PROCEDURES28
 Sector 05 Map.....30
 SECTION 2. SECTOR 0631
 5.2.1 SECTOR NARRATIVE.....31
 5.2.2 ASSIGNMENT OF AIRSPACE31
 5.2.3 SECTOR INFORMATION31
 5.2.4 SECTOR PROCEDURES31
 Sector 06 Map.....34
 SECTION 3. SECTOR 1035
 5.3.1 SECTOR NARRATIVE.....35
 5.3.2 ASSIGNMENT OF AIRSPACE35
 5.3.3 SECTOR INFORMATION35
 5.3.4 SECTOR PROCEDURES36
 Sector 10 Map.....39
 SECTION 4. SECTOR 1140
 5.4.1 SECTOR NARRATIVE.....40
 5.4.2 ASSIGNMENT OF AIRSPACE40
 5.4.3 SECTOR INFORMATION40
 5.4.4 SECTOR PROCEDURES40
 Sector 11 Map.....43
 SECTION 5. SECTOR 1544
 5.5.1 SECTOR NARRATIVE.....44
 5.5.2 ASSIGNMENT OF AIRSPACE44
 5.5.3 SECTOR INFORMATION44
 5.5.4 SECTOR PROCEDURES44
 Sector 15 Map.....46
 SECTION 6. SECTOR 1647
 5.6.1 SECTOR NARRATIVE.....47

- 5.6.2 ASSIGNMENT OF AIRSPACE47
- 5.6.3 SECTOR INFORMATION47
- 5.6.4 SECTOR PROCEDURES47
- Sector 16 Map.....51
- SECTION 7. SECTOR 2152
- 5.7.1 SECTOR NARRATIVE.....52
- 5.7.2 ASSIGNMENT OF AIRSPACE52
- 5.7.3 SECTOR INFORMATION52
- 5.7.4 SECTOR PROCEDURES52
- Sector 21 Map.....54
- CHAPTER 6. AREA 355
- SECTION 1. SECTOR 0755
- 6.1.1 SECTOR NARRATIVE.....55
- 6.1.2 ASSIGNMENT OF AIRSPACE55
- 6.1.3 SECTOR INFORMATION55
- 6.1.4 SECTOR PROCEDURES55
- Sector 07 Map.....58
- SECTION 2. SECTOR 0859
- 6.2.1 SECTOR NARRATIVE.....59
- 6.2.2 ASSIGNMENT OF AIRSPACE59
- 6.2.3 SECTOR INFORMATION59
- 6.2.4 SECTOR PROCEDURES59
- Sector 08 Map.....61
- SECTION 3. SECTOR 0962
- 6.3.1 SECTOR NARRATIVE.....62
- 6.3.2 ASSIGNMENT OF AIRSPACE62
- 6.3.3 SECTOR INFORMATION62
- 6.3.4 SECTOR PROCEDURES62
- Sector 09 Map.....64
- SECTION 4. SECTOR 1765
- 6.4.1 SECTOR NARRATIVE.....65
- 6.4.2 ASSIGNMENT OF AIRSPACE65
- 6.4.3 SECTOR INFORMATION65
- 6.4.4 SECTOR PROCEDURES65
- Sector 17 Map.....67
- SECTION 5. SECTOR 1868
- 6.5.1 SECTOR NARRATIVE.....68
- 6.5.2 ASSIGNMENT OF AIRSPACE68
- 6.5.3 SECTOR INFORMATION68
- 6.5.4 SECTOR PROCEDURES68
- Sector 18 Map.....70
- SECTION 6. SECTOR 1971
- 6.6.1 SECTOR NARRATIVE.....71
- 6.6.2 ASSIGNMENT OF AIRSPACE71
- 6.6.3 SECTOR INFORMATION71
- 6.6.4 SECTOR PROCEDURES71
- Sector 19 Map.....73

CHAPTER 7. AREA 474

SECTION 1. SECTOR 2074

7.1.1 SECTOR NARRATIVE74

7.1.2 ASSIGNMENT OF AIRSPACE74

7.1.3 SECTOR INFORMATION74

7.1.4 SECTOR PROCEDURES74

Sector 20 Map.....76

SECTION 2. SECTOR 2277

7.2.1 SECTOR NARRATIVE.....77

7.2.2 ASSIGNMENT OF AIRSPACE77

7.2.3 SECTOR INFORMATION77

7.2.4 SECTOR PROCEDURES77

Sector 22 Map.....79

SECTION 3. SECTOR 2380

7.3.1 SECTOR NARRATIVE.....80

7.3.2 ASSIGNMENT OF AIRSPACE80

7.3.3 SECTOR INFORMATION80

7.3.4 SECTOR PROCEDURES80

Sector 23 Map.....82

SECTION 4. SECTOR 2483

7.4.1 SECTOR NARRATIVE.....83

7.4.2 ASSIGNMENT OF AIRSPACE83

7.4.3 SECTOR INFORMATION83

7.4.4 SECTOR PROCEDURES83

Sector 24 Map.....85

SECTION 5. SECTOR 2586

7.5.1 SECTOR NARRATIVE.....86

7.5.2 ASSIGNMENT OF AIRSPACE86

7.5.3 SECTOR INFORMATION86

7.5.4 SECTOR PROCEDURES86

Sector 25 Map.....88

SECTION 6. SECTOR 3389

7.6.1 SECTOR NARRATIVE.....89

7.6.2 ASSIGNMENT OF AIRSPACE89

7.6.3 SECTOR INFORMATION89

7.6.4 SECTOR PROCEDURES89

Sector 33 Map.....91

CHAPTER 8. AREA 592

SECTION 1. SECTOR 2692

8.1.1 SECTOR NARRATIVE.....92

8.1.2 ASSIGNMENT OF AIRSPACE92

8.1.3 SECTOR INFORMATION92

8.1.4 SECTOR PROCEDURES92

Sector 26 Map.....94

SECTION 2. SECTOR 2995

8.2.1 SECTOR NARRATIVE.....95

8.2.2 ASSIGNMENT OF AIRSPACE95

8.2.3 SECTOR INFORMATION95

8.2.4 SECTOR PROCEDURES95

Sector 29 Map.....97

SECTION 3. SECTOR 3098

8.3.1 SECTOR NARRATIVE.....98

8.3.2 ASSIGNMENT OF AIRSPACE98

8.3.3 SECTOR INFORMATION98

8.3.4 SECTOR PROCEDURES98

Sector 30 Map.....100

SECTION 4. SECTOR 36101

8.4.1 SECTOR NARRATIVE.....101

8.4.2 ASSIGNMENT OF AIRSPACE101

8.4.3 SECTOR INFORMATION101

8.4.4 SECTOR PROCEDURES101

Sector 36 Map.....103

SECTION 5. SECTOR 37104

8.5.1 SECTOR NARRATIVE.....104

8.5.2 ASSIGNMENT OF AIRSPACE104

8.5.3 SECTOR INFORMATION104

8.5.4 SECTOR PROCEDURES104

Sector 37 Map.....106

CHAPTER 9. AREA 6107

SECTION 1. SECTOR 27107

9.1.1 SECTOR NARRATIVE.....107

9.1.2 ASSIGNMENT OF AIRSPACE107

9.1.3 SECTOR INFORMATION107

9.1.4 SECTOR PROCEDURES107

Sector 27 Map.....110

SECTION 2. SECTOR 38111

9.2.1 SECTOR NARRATIVE.....111

9.2.2 ASSIGNMENT OF AIRSPACE111

9.2.3 SECTOR INFORMATION111

9.2.4 SECTOR PROCEDURES111

Sector 38 Map.....113

SECTION 3. SECTOR 39114

9.3.1 SECTOR NARRATIVE.....114

9.3.2 ASSIGNMENT OF AIRSPACE114

9.3.3 SECTOR INFORMATION114

9.3.4 SECTOR PROCEDURES114

Sector 39 Map.....116

CHAPTER 10. COMMON EVENT/HIGH TRAFFIC AIRSPACE SPLITS117

SECTION 1. GENERAL.....117

10.1.1 GUIDELINES FOR vZMP AIRSPACE SPLITS117

10.2.1 MSP/M98 EVENT 3 WAY SPLIT118

10.2.2 MSP/M98 EVENT WITH HEAVY KKILR/MUSCL TRAFFIC.....120

10.2.3 OMA/LNK FOCUS.....122

APPENDIX 01 – POSITION RELIEF BRIEFING – ALL SECTORS124

APPENDIX 02 – 3-MILE SEPARATION AREAS125
APPENDIX 03 – COMBINED OPERATIONS126

CHAPTER 1. INTRODUCTION

1.1 PURPOSE OF THIS ORDER

This order provides guidance, procedures, instructions, and standards for fulfilling operational air traffic requirements within the VATSIM Minneapolis ARTCC (vZMP).

1.2 AUDIENCE

This order is intended for use by all VATSIM Minneapolis ARTCC enroute controllers.

1.3 WHERE CAN I FIND THIS ORDER

This order is located electronically within the Documents and Procedures section of the VATSIM Minneapolis ARTCC website located at <http://www.minniecenter.org>.

1.4 CANCELLATION

vZMP 7200.1N CHG 1 dated July 1, 2023.

1.5 EFFECTIVE DATE

This order is effective November 15, 2024.

1.6 REVISIONS

Revisions to this order will be made on an as needed basis. Any controller with suggestions to this order shall email changes to the ZMP ATM or DATM.

1.7 EXPLANATION OF CHANGES

Initial release.

CHAPTER 2. OPERATIONS – GENERAL

2.1 DUTY FAMILIARIZATION

It is essential that individuals working operational positions be provided information that is relevant to the position being worked. The establishment, maintenance, and use of the Status Information Area (SIA) provide the vehicle for meeting the requirement of continuous Duty Familiarization.

2.2 STATUS INFORMATION AREAS

The Status Information Area (SIA) is defined as manual and/or automatic displays of the status of position-related equipment and operations equipment and operational conditions or procedures. SIAs are comprised of weather briefings, PIREPs, NOTAMs, and Traffic Management Initiatives.

- A. The SIA is included in the IDC system found at <https://minniecenter.org/ids>. The responsible party for developing and maintaining the SIA is the ZMP Webmaster and their staff.
- B. ZMP Controllers will obtain, review, and update information pertinent to the SIA. This information may include special use airspace times and traffic management initiatives.
- C. Information that alters the SIA shall be posted as soon as it becomes available.

2.3 POSITION RELIEF BRIEFING (PRB)

Transfer of Position Responsibilities is a necessary activity, performed by each person working an operational position at vZMP. To successfully take responsibility for an operational position an individual must acquire all available information prior to accepting responsibility for that position. Operational personnel shall conduct position relief briefings in accordance with FAA Order 7110.65. The use of an operational position checklist is mandatory at vZMP.

- A. Position relief briefing checklists can be found in Appendix 01 of this order as well as in the checklists menu in ERAM..
- B. PRB Procedures:
 - 1. During controller transition, the relieving controller will sign onto the VATSIM network using a relief callsign for the position being relieved and receive a complete position relief briefing (PRB). The relieved controller will continue to monitor the sector until the relieving controller accepts responsibility for the sector.
 - 2. As sectors are combined, the controller leaving the combined sectors will first complete their PRB and then will monitor the combined position, following the procedures described in B.1 above, before signing off.

CHAPTER 3. OPERATIONAL SYSTEMS AND PROCEDURES

3.1 COMBINING AND DECOMBINING OF CONTROL SECTORS

Each operational area may be combined and de-combined by any ZMP CPC controlling center airspace. De-combining of individual sectors within the areas of operation may only be done with approved from vZMP staff.

3.2 ERAM FILTER LIMITS

1. Controllers shall ensure that ERAM altitude filters are set with the following guidance.

- When 1,000 foot vertical separation is being used, enter an altitude that is 1,200 feet above and below the altitude limits of the airspace being controlled at the position.
- When 2,000 foot vertical separation is being used, enter an altitude that is 2,200 feet above and below the altitude limits of the airspace being controlled at the position.

3.3 COMPUTER ENTRY OF ASSIGNED ALTITUDE

A. Background. FAA Order 7110.65, paragraph 5-14-3 requires that data blocks always reflect the current status of the aircraft. It specifically requires controllers to enter an interim altitude if the aircraft might maintain the new altitude for a short period of time, and subsequently be recleared to the altitude in the flight plan database (or recleared to a new altitude or a new requested altitude). FAA Order 7210.3, paragraph 8-2-7, allows facilities to waive this requirement where an operational advantage can be gained; e.g. heavy traffic or sector complexity. The following procedures are authorized to reduce workload and sector complexity.

B. Procedures.

1. Interim altitude entry is not required when a climbing aircraft, departing from M98 airspace, is assigned an altitude strictly based on sector stratification and is expected to be recleared to a higher altitude immediately upon handoff acceptance by the controller of the receiving sector in the next higher altitude stratum. ZMP low altitude terminal sectors must not clear M98 departing aircraft above FL230 without prior verbal coordination.
2. This procedure is allowed in the following ZMP Sectors Only:

ZMP Sector 06 handing off to 16	ZMP Sector 09 handing off to 11 or 19
ZMP Sector 07 handing off to 17	ZMP Sector 10 handing off to 11
ZMP Sector 08 handing off to 18	ZMP Sector 21 handing off to 15
3. For all other instances: Unless specifically addressed in sector SOPs, the receiving controller must not remove an interim altitude from a data block until communications have been established, and the aircraft has been issued a different/amended altitude.
4. Non – Mode C equipped aircraft are excluded from this procedure due to requirements of FAA Order 7110.65, paragraph 5-14-4, entry of reported altitudes.

3.4 ADVANCED APPROACH INFORMATION RESPONSIBILITY**A. PROCEDURES:**

1. Except as indicated below in paragraph A.4., issuance of advance approach information is assigned to the sector within which the airport is located.
2. Mission provision is provided when applied in accordance with FAA Order 7110.65, paragraph 4-7-10, Approach Information. (Automatic Terminal Information Service (ATIS), etc.)
3. Sectors must assume this responsibility for airports within part-time approach control facilities when that facility is closed.
4. To eliminate potential confusion, unless otherwise coordinated, the following sectors are specifically assigned responsibility for issuing advance approach information to aircraft filed to the perimeter airports indicated in figure 3-1;

Figure 3-1

AREA	AIRPORT	SECTOR
1	BFA	01
	CIU	01
	GOV	02
	RCX	03
	SSQ	03
	TKV	03
	AIG	04
	RRL	04
	MNM	04
2	Y51	05
3	AEL	08
	MWM	08
	AQP	09
	D42	09
4	06D	24
	D39	24
	GHW	24
	FSE	25
	48Y	25
	BTN	33
	DVP	33
	DXX	33
	ISB	33
	ICR	33
5	AFK	26
	EAR	26
	ODX	26
	0V3	26
	CIN	36
	CJJ	36
	BVN	37
6	DNS	27
	GFZ	27

3.5 FULL ROUTE CLEARANCE (FRC) PROCEDURES

When flight plans are filed it is not uncommon for minor errors in the departure point or a portion of the flight to occur. These errors prevent an orderly flow of traffic through vZMP airspace. vZMP controllers shall evaluate erroneous flight plans and amend if the route filed would present an operational disadvantage. It is imperative that any pilot given a reroute confirms he can fly it. If unable, offer radar vectors to a fix within vZMP airspace then as filed. Any time a route is changed a full route clearance must be issued to a pilot.

3.6 THREE-MILE SEPARATION AUTHORIZATION

Because of the location of the Empire, MI (QJA), Eagle River, WI (EGV), Alpena, MI (APN), and Sawyer, MI (SAW) radar sites, a significant advantage to both the user and the controller is gained by designating the areas depicted in Appendix 02 as single-site adapted areas. 3-mile radar separation may be used in these prescribed areas, when the criteria define in this section have been met. At least 5-mile radar separation shall be used near those sites where single site criteria does not apply and within all other vZMP airspace.

1. CPCs must:

- a. Limit the use of 3-mile radar separation to the areas depicted in the Appendix 02 of this SOP.
- b. Comply with the provisions set forth in FAAO 7110.65 regarding 3-mile radar separation standards.
- c. Immediately revert to 5-mile radar separation, or non-radar procedures as appropriate by visual observation of the radar display that an anomaly of data from the radar site providing “single site” coverage has occurred or is occurring.

3.7 AUTOMATED INFORMATION TRANSFER (AIT)

Automated Information Transfer is used for the transfer of altitude control, radar identification, and/or enroute fourth line control information, without verbal coordination, using information communicated via the full data block during a radar handoff.

A. Procedures:

1. It is the responsibility of the controller attempting to use these procedures to ensure that the requirements are met.
2. These procedures may only be used during ERAM operations.
3. These procedures are authorized for use only for aircraft that are radar identified.
4. Verbal coordination overrides AIT procedures.
5. This procedure is not authorized for, and does not apply to, pointout procedures as specified in 7110.65, paragraph 5-4-7.
6. For transfer of radar identification only:
 - a. This procedure is authorized for use in all areas of vZMP airspace, regardless of stratum, and with the first sector of an adjacent VATUSA facility (VATCAN sectors are unable to accept AIT).
 - b. This procedure is authorized for aircraft that are in level flight, climbing, descending, or have an interim altitude assigned and will enter the lateral limits of the receiving sector.

3.8 DATA BLOCK COORDINATION

Data Block Coordination is defined at vZMP as the transfer of radar identification and the approval for climb/descent or interim altitude of the affected aircraft. Data Block coordination differs from Automated Information Transfer (AIT); however it can be used in conjunction with AIT.

- A. Data Block Coordination is approved between two adjacent Minneapolis Center sectors only; e.g. Controller A transfers radar identification of an aircraft to adjacent Controller B; unless properly utilized in accordance with AIT.
- B. Data Block Coordination is only authorized if the following requirements are met:
 - 1. The aircraft is greater than 5 minutes flying time from the sector boundary when the change of altitude is entered into ERAM; and
 - 2. The radar handoff to the receiving sector is initiated prior to 3 minutes flying time from the boundary;
 - 3. Only for aircraft which are radar identified with valid mode C when the handoff is initiated and are reasonably expected to remain in radar contact until completion of the procedure; and
 - 4. Data Block Coordination shall not be used with departure aircraft within 5 minutes flying time from the sector boundary; and
 - 5. Verbal coordination overrides Data Block Coordination
- C. If all the above conditions are met a temporary altitude may be used for the coordination of the climbing/descending or interim altitude of the aircraft with the receiving controller.
- D. For aircraft on an optimized profile descent arrival into M98 airspace assigned “descend via” instructions, a procedural altitude must be entered into the datablock indicating the published altitude at the M98 boundary fix.

EXAMPLE – An aircraft on the KKILR arrival issued a “descend via” clearance would have a procedural altitude of 100 entered into its datablock.

- E. Acceptance of the radar handoff by the receiving controller constitutes approval for the aircraft to enter the receiving controller’s airspace and approval of the climb or descent and/or interim altitude.
- F. If the receiving controller cannot approve the climb/descent/interim, it is the receiving controller’s responsibility to advise the transferring controller prior to the acceptance of the radar handoff.
- G. Pilot’s Discretion descent is authorized in conjunction with this procedure.
- H. This procedure may also be used with the first sector of an adjacent VATUSA facility provided its use has been agreed to in a Letter of Agreement (LOA).

3.9 MINIMUM IFR ALTITUDE (MIA) SECTOR CHARTS

Control personnel must not clear or vector aircraft below the MIA unless the flights are operating along airways, transition routes, or off airway routes that have lower Minimum En Route Altitudes established.

CHAPTER 4. AREA 1

SECTION 1. SECTOR 01

4.1.1 SECTOR NARRATIVE

Sector 01 works all performances of aircraft from the ground to FL230. Radar coverage throughout the sector is good, with some gaps in the far north and south of the sector at low altitudes. Complexity is added by neighboring approach controls at Great Lakes TRACON (AZO) and Collins (APN). Sector 01 also works with Grayling ATCT, which is open part time. To the north and east lies Toronto Centre (YYZ), which requires the manual coordination of radar handoffs. To the south are Cleveland Center, and to the west Sector 01 is bordered by Minneapolis Center Sectors 02 and 03. Within 54 miles of the APN radar site, separation standards are reduced to 3 miles instead of the normal 5 miles below FL230. When not open, Sector 01 is combined at Sector 02.

4.1.2 ASSIGNMENT OF AIRSPACE

When APN Approach Control is not open, the airspace delegated to APN Approach Control becomes the responsibility of Sector 01. The airspace in the southern part of the sector delegated to AZO reverts to ZOB control when AZO is closed.

4.1.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

<u>Frequency</u>	<u>Callsign</u>
134.6	MSP_01_CTR

2. Unique Sector Equipment Configurations

- a. Sector 01 range limit is normally from 115 NM to 135 NM. The altitude limits to be entered at Sector 01 are 000B242.
- b. Aircraft may be radar vectored to final at PLN, MGN, APN, OSC, GOV, and GLR.

4.1.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: none.
2. Mandatory heading requirements: none.
3. Mandatory heading requirements: none.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. None.

5. Transfer of control points other than airspace boundaries:

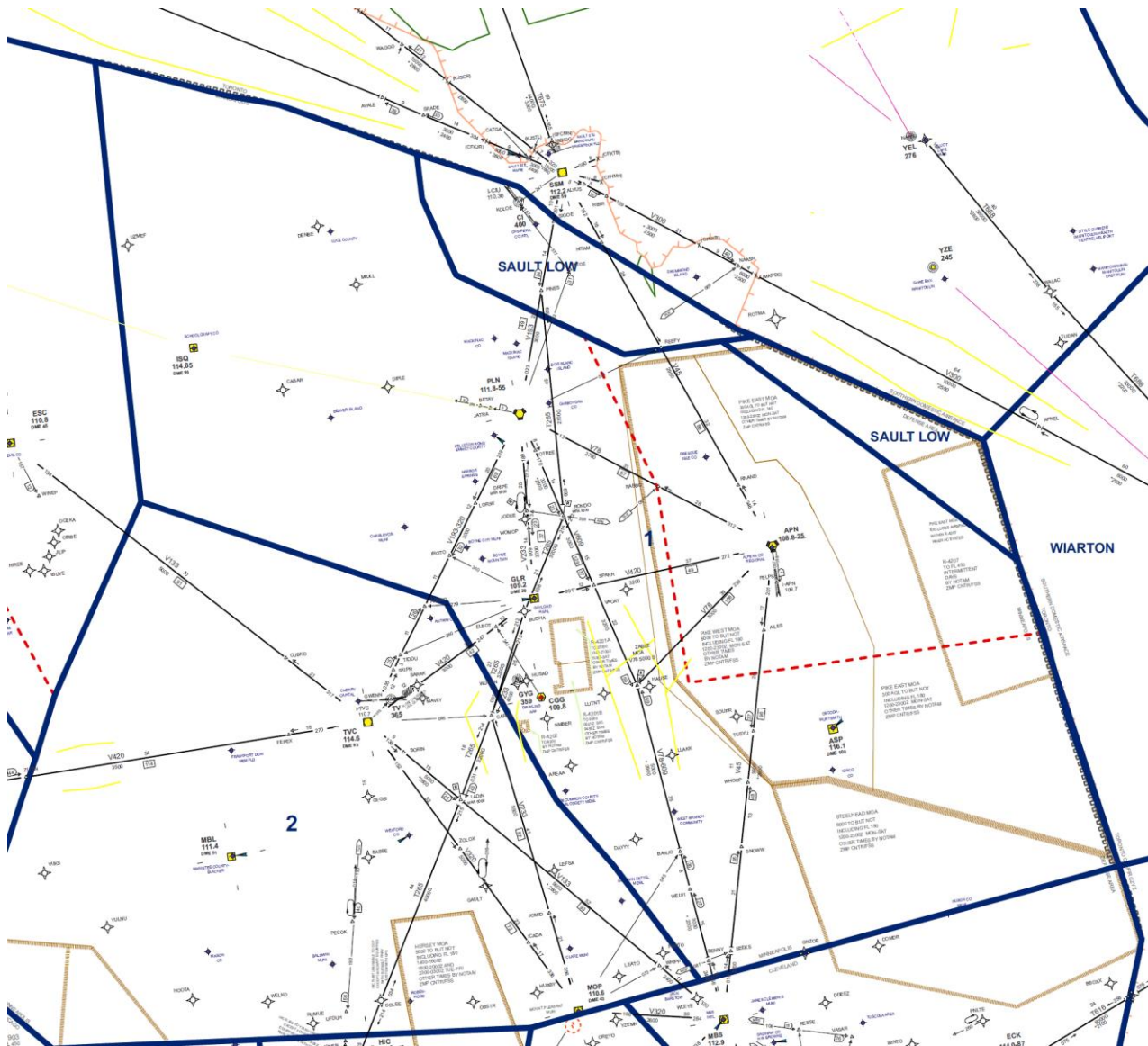
- a. ZMP/ZOB/YWG:** The receiving ARTCC may assume control for beacon code changes and turns up to 20 degrees on aircraft within 20 miles of the common boundary crossing point.
- b. ZMP/YYZ:** The receiving ARTCC may assume control for beacon code changes and turns up to 45 degrees on aircraft within 20 miles of the ZMP/ZAU common boundary crossing point.
- c. ZMP/APN:** APN APCH has control for turns, climbs, and descent upon completion of a handoff and communications transfer.
- d. ZMP/AZO:** AZO APCH/ZMP both have control for turns up to 30 degrees, descent, and code change within 10 miles of the ZMP/AZO common boundary.
- e.** Each Area 1 low sector releases control to all Area 1 low sectors, for descent and turns up to 20 degrees.

6. Radar arrival routes and restrictions: See LOAs for additional details.

Airport	Route	Restriction
CYYZ	SSM.BOXUM STAR.YYZ YZEMN.NUBER STAR.YYZ	
KMSP	CEWDA.MUSCL Arrival IDIOM.MUSCL Arrival GRB.EAU Arrival	RNAV Jets RNAV Jets Turboprops & Non-compliant Jets
M98 Satellite Airports	GRB..THATS.AGUDE Arrival	Jets and Turboprops
KDTW	PNNTO.GRAYT STAR.KDTW PNNTO.LAYKS STAR.KDTW	
KORD	TVC.WYNDE STAR.KORD OBSTR.WYNDE STAR.KORD	

- 7.** Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved: Holding locations may be used at the controller’s discretion.

Sector 01 Map



SECTION 2. SECTOR 02

4.2.1 SECTOR NARRATIVE

Sector 02 works all performances of aircraft from the ground up to FL230. Within 40 miles of the Empire Radar site, separation standards are reduced to 3 miles instead of the normal 5 miles below FL230. Sector 02 works with three approach controls: Green Bay (GRB), Great Lakes TRACON (AZO), and Milwaukee (MKE). It also works with the VFR control tower at Traverse City (TVC), which is open part time. Sector 02 is bordered to the south by ZOB and ZAU, and is also bordered by ZMP Sectors 01, 03, and 04.

4.2.2 ASSIGNMENT OF AIRSPACE

Sector 02 combines to Sector 04 when traffic does not warrant its opening. TVC ATCT has a class D surface area when it is open. The airspace delegated to AZO Approach Control for Chippewa and Bay sectors, in the southeast of the sector reverts to ZOB when AZO is not open. GRB airspace goes to Sector 04. AZO Lumbertown and White Cap sectors go to ZAU.

4.2.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

<u>Frequency</u>	<u>Callsign</u>
132.9	MSP_02_CTR

2. Unique Sector Equipment Configurations

- a. Sector 02 range limit is normally from 075 to 100 NM. The altitude limits to be entered at Sector 02 are 000B242.
- b. Radar coverage allows controllers to vector aircraft to final at three airports: TVC, CAD, and MBL.

4.2.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: none
2. Mandatory heading requirements: none
3. Mandatory altitude requirements: none
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. Slow climbing aircraft, southeast bound climbing to high altitude out of GRB APCH airspace, that Sector 02 has taken a point out on, must be pointed out by Sector 02 to ZAU low altitude sectors if necessary.

5. Transfer of control points other than airspace boundaries:

- a. ZMP/ZAU/ZOB:** The receiving sector may assume control for beacon code changes and turns up to 20 degrees on aircraft within 20 miles of the ZAU/ZMP common boundary.
- b. ZMP/AZO:** Within 10 NM of the ZMP/AZO boundary, the receiving facility may:
 - 1) Turn aircraft a maximum of 30 degrees.
 - 2) Descend aircraft.
 - 3) Change the beacon code of any aircraft.
- c. Each Area 1 low sector releases control, to all other Area 1 sectors, for descent and turns up to 20 degrees.**

6. Radar arrival routes and restrictions: See LOAs for additional details.

Airport	Route	Restriction
CYYZ	YZEMN.NUBER STAR.YYZ	
KMSP	CEWDA.MUSCL Arrival IDIOM.MUSCL Arrival GRB.EAU Arrival	RNAV Jets RNAV Jets Turboprops & Non-Compliant Jets
M98 Satellite Airports	GRB..THATS.AGUDE Arrival	Jets and Turboprops
KDTW	PNNTO.GRAYT STAR.KDTW PNNTO.LAYKS STAR.KDTW	
KORD	FGHRN.MADUU/ERNNY STAR.KORD SHIKY.FYTTE STAR.KORD OBSTR.WYNDE STAR.KORD TVC.WYNDE STAR.KORD	

7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved: Holding locations may be used at the controller discretion or as published on STARs.

SECTION 3. SECTOR 3

4.3.1 SECTOR NARRATIVE

Sector 03 works all performances of aircraft from the surface to FL230. Controllers work with two approach controls: Green Bay (GRB) and Duluth (DLH). Thunder Bay Terminal is a terminal facility based in YWG Centre and radar handoffs must be coordinated manually. Single-site radars at SAW and EGV allow controllers to use reduced separation within 40 miles of the antenna site (3 miles instead of 5). In addition, Sector 03 controllers work with one VFR tower, Marquette/Sawyer, Michigan (SAW). All coordination with the tower is done manually. Sector 03 is bordered on the north by Winnipeg Centre (YWG) and Toronto Centre (YYZ), which require manual coordination of radar handoffs. Sector 03 is bordered on the east, south, and west by ZMP Sectors 01, 02, 04, 05, 06, 10, and 25 (clockwise).

4.3.2 ASSIGNMENT OF AIRSPACE

During the time that GRB Approach Control is not operational, the airspace delegated to that approach control becomes the responsibility of Sector 04. During the time that DLH Approach Control is not operational, the airspace delegated to that approach control becomes the responsibility of Sector 25.

4.3.3 SECTOR INFORMATION

1. Frequency and sign-on information

<u>Frequency</u>	<u>Callsign</u>
133.55	MSP_03_CTR

2. Unique Sector Equipment Configurations

- a. Sector 03 range limit is normally 150 NM. The altitude limits to be entered at Sector 03 are 000B242.

4.3.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None
2. Mandatory heading requirements: None
3. Mandatory altitude requirements: None
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None
5. Transfer of Control points other than airspace boundaries:
 - a. ZMP/YWG: The receiving ARTCC may assume control for beacon code changes and turns up to 20 degrees on aircraft within 20 miles of the common boundary crossing point.

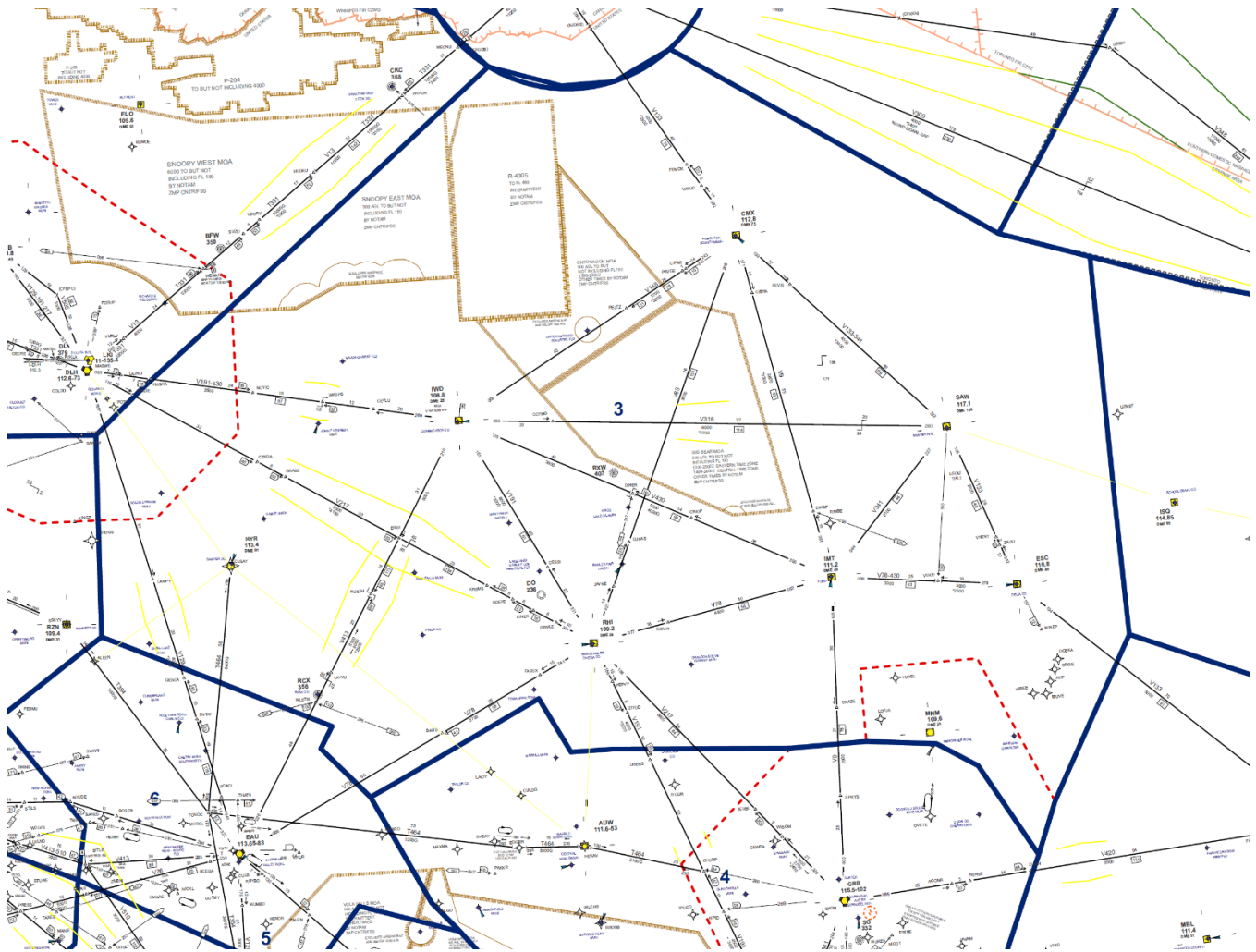
- b. ZMP/DLH: DLH APCH has control for turns and descent 10 miles from the ZMP/DLH common boundary.
 - c. Each Area 1 low sector releases control, to all other Area 1 low sectors, for descent and turns up to 20 degrees.
 - d. Areas 1 and 4 mutually release control for turns up to 20 degrees and within 20 miles of the sector boundary.
6. Radar arrival routes and restrictions: See LOAs for additional details

Airport	Route	Restriction
KMSP	CEWDA.MUSCL Arrival IDIOM.MUSCL Arrival HHOGS.BAINY Arrival GRB.EAU Arrival	RNAV Jets RNAV Jets RNAV Jets Turboprops & Non-Compliant Jets
M98 Satellite Airports	GRB..THATS.AGUDE Arrival	Jets and Turboprops
KDTW	PNNT0.GRAYT STAR.KDTW PNNT0.LAYKS STAR.KDTW HOOTA.KKISS STAR.KDTW HOOTA.RKCTY STAR.KDTW	
KORD	FGHRN.MADII/ERNNY STAR.KORD SHIKY.FYTTE STAR.KORD	

NOTE: Direct EAU, SHEAY, or radar vectors to intercept the STAR are acceptable and an in trail sequence will have to be established. When requires, TMU may determine when aircraft on MUSCL or EAU arrival are to be offloaded to the BAINY or GEP arrival.

- 7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved: holding locations may be used at the controller’s discretion.

Sector 03 Map



SECTION 4. SECTOR 04

4.4.1 SECTOR NARRATIVE

Sector 04 works all performances of aircraft from the ground up to FL230. Geographically, the sector is small and requires coordination with the surrounding sectors for clearances. The sector works with three approach controls: Green Bay (GRB), Volk (VOK), and Milwaukee (MKE) and two VFR control towers: Central Wisconsin (CWA) Airport and Appleton Tower (ATW) when Green Bay Approach is not open. On the south, the sector is bordered by Chicago Center and by ZAU, and by ZMP Sectors 02, 03, 05, and 06 on the other sides. Sector 04 handles a large amount of traffic into and out of GRB Airport and CWA Airport.

4.4.2 ASSIGNMENT OF AIRSPACE

1. During the times that GRB Approach Control is not operational, the airspace delegated to GRB Approach Control becomes the responsibility of Sector 04.
2. All Area 1 sectors combine to Sector 04.
3. During times that Volk Approach Control is not operational, the airspace delegated to VOK Approach Control becomes the responsibility of ZAU.

4.4.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
124.4	MSP_04_CTR

2. Unique Sector Equipment Configurations

- a. Sector 04 range limit is normally from 100 NM to 124 NM. The altitude limits to be entered at Sector 04 are 000B242.
- b. All Area 1 sectors combine to Sector 04. Altitude limits are to be set to 000B999 when all sectors are combined to Sector 04.

4.4.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: none.
2. Mandatory heading requirements: none.
3. Mandatory altitude requirements: none.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None
5. Transfer of control points other than airspace boundaries:

- a. GRB APCH may alter a GRB arrival’s route of flight no more than 30 degrees either side of course. GRB APCH has control for the descent and turns of ATW arrivals at a point 25 miles from the ATW airport.
- b. ZMP/VOK: ZMP assumes control, upon receipt of radar hand-off and communication transfer, for turns up to 30 degrees left/right of course on all aircraft landing CWA, STE, AUW, and MFI.
- c. ZMP/ZAU: During ERAM operations, the receiving ARTCC may assume control for beacon code changes and turns up to 20 degrees on aircraft within 20 miles of the ZMP/ZAU common boundary crossing point.
- d. ZMP/MKE: Both facilities **MUST** release control for descent and turns up to 30 degrees for all arrivals.
- e. Each Area 1 low sector releases control, to all other Area 1 low sectors, for descent and turns up to 20 degrees.

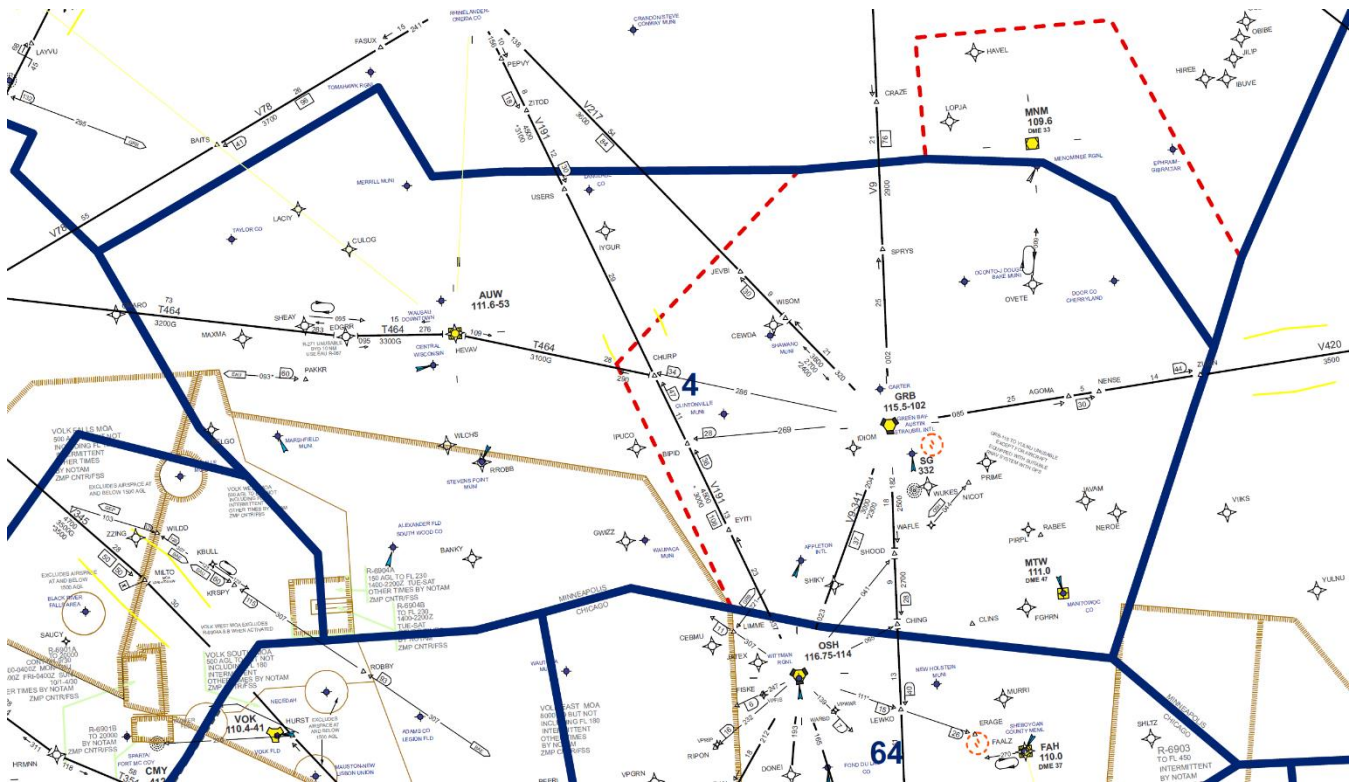
6. Radar arrival routes and restrictions: See LOAs for additional details.

Airport	Route	Restriction
KMSP	CEWDA.MUSCL Arrival IDIOM.MUSCL Arrival HHOGS.BAINY Arrival GRB.EAU Arrival	RNAV Jets RNAV Jets RNAV Jets Turboprops & Non-Compliant Jets
M98 Satellite Airports	GRB..THATS.AGUDE Arrival	Jets and Turboprops
KDTW	HOOTA.KKISS STAR.KDTW HOOTA.RKCTY STAR.KDTW	
KORD	FGHRN.MADII/ERNNY STAR.KORD SHIKY.FYTTE STAR.KORD	

NOTE: Direct EAU, SHEAY, or radar vectors to intercept the STAR are acceptable and an in trail sequence will have to be established. When requires, TMU may determine when aircraft on MUSCL or EAU Arrival are required to be offloaded to the BAINY or GEP Arrival.

- 7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved: Holding locations may be used at the controller’s discretion or as published on STARs.

Sector 04 Map



SECTION 5. SECTOR 12

4.5.1 SECTOR NARRATIVE

Sector 12 works all performances of aircraft at FL240 and above. It is bordered to the north and east by Toronto Centre (YYZ), requiring manual handoffs. It is also bordered by ZAU and ZOB to the south. O'Hare departing traffic and DTW arrivals compose a large amount of the sector's traffic.

4.5.2 ASSIGNMENT OF AIRSPACE

Sector 12 is the main high altitude sector of Area 1. All Area 1 high altitude sectors combine to Sector 12 when a single high operation is used.

4.5.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
132.425	MSP_12_CTR

2. Unique Sector Equipment Configurations

- a. Sector 12 range limit is normally from 130 NM to 175 NM. The altitude limits to be entered at Sector 12 are 228B999.

4.5.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: none.
2. Mandatory heading requirements: none.
3. Mandatory altitude requirements: none.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.
5. Transfer of control points other than airspace boundaries:
 - a. ZMP/ZAU/ZOB/YWG: The receiving ARTCC may assume control for beacon code changes and turns up to 20 degrees on aircraft within 20 miles of the common boundary crossing point.
 - b. Each Area 1 sector releases control to all other Area 1 sectors for turns up to 20 degrees.
 - c. ZMP/YYZ: The receiving ARTCC may assume control for beacon code changes and turns up to 45 degrees on aircraft within 20 miles of the ZMP/YYZ common boundary crossing point.

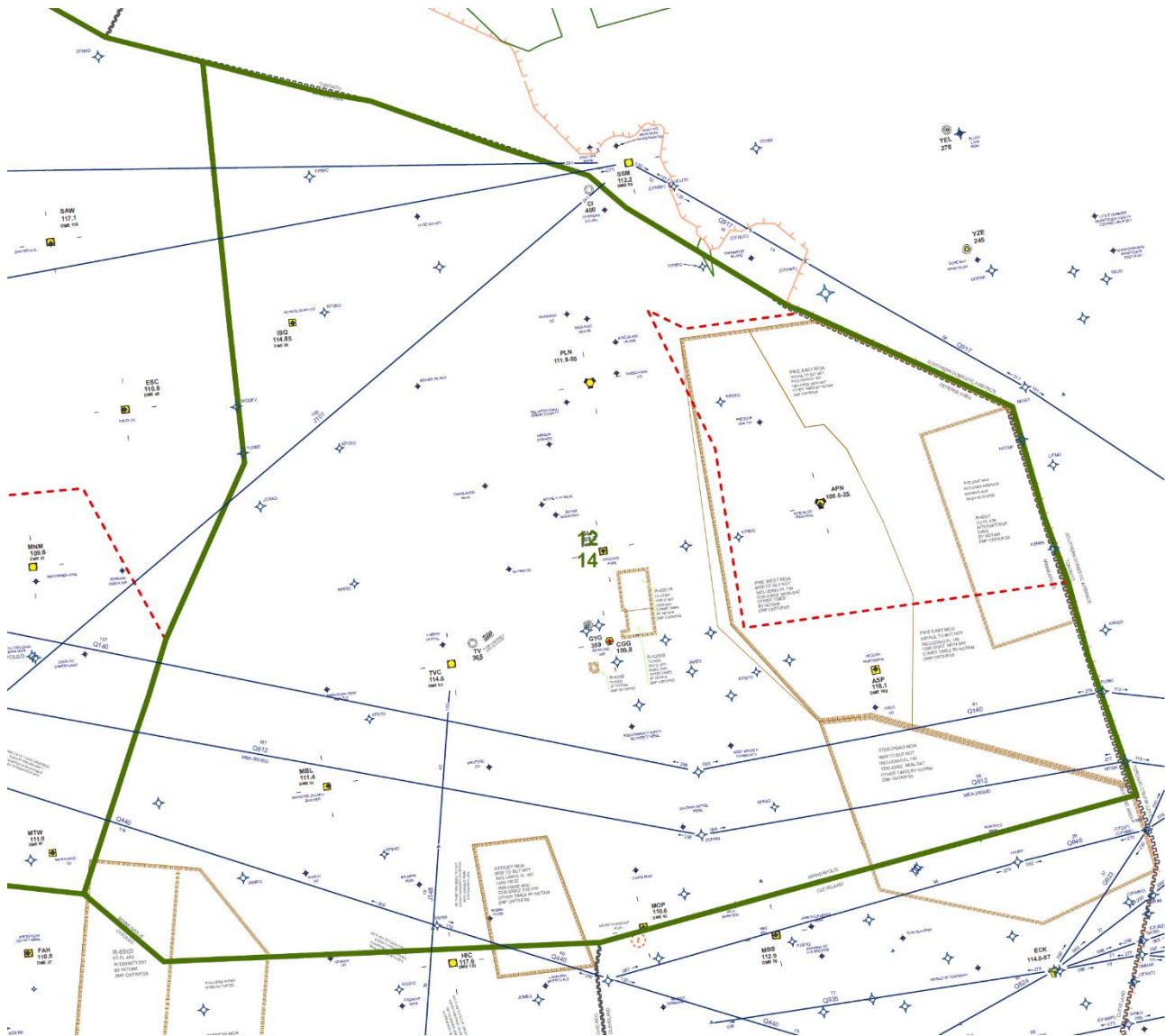
6. Radar arrival routes and restrictions: See LOAs for additional details.

Airport	Route	Restriction
CYYZ	SSM.BOXUM STAR.YYZ YZEMN.NUBER STAR.YYZ	
KMSP	CEWDA.MUSCL Arrival IDIOM.MUSCL Arrival GRB.EAU Arrival	RNAV Jets RNAV Jets Turboprops & Non-Compliant Jets
M98 Satellite Airports	GRB..THATS.AGUDE Arrival	Jets and Turboprops
KDTW	HOOTA.KKISS STAR.KDTW HOOTA.RKCTY STAR.KDTW PNNT0.GRAYT STAR.KDTW PNNT0.LAYKS STAR.KDTW	
KORD	FGHRN.MADII/ERNNY STAR.KORD SHIKY.FYTTE STAR.KORD OBSTR.WYNDE STAR.KORD TVC.WYNDE STAR.KORD	AOB FL240

NOTE: TMU will advise when ‘in-trail spacing’ or if HHOGS offloads are required.

7. Normally used sector holding fixes: Holding locations may be used at the controller’s discretion or as published on STARS.

Sector 12 Map



SECTION 6. SECTOR 13

4.6.1 SECTOR NARRATIVE

Sector 13 works all performances of aircraft from FL240 and above. Sector 13 is bordered by ZAU to the south, YWG and YYZ to the north, and ZMP sectors 12, 16, 11, and 22/25 to the east and west. YYZ and YWG require manual handoffs. Arrivals and departures from Minneapolis International Airport and flights to and from Canadian sectors compose most of its traffic.

4.6.2 ASSIGNMENT OF AIRSPACE

Sector 13 combines to Sector 12 to create a large single high-altitude sector for Area 1.

4.6.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
133.45	MSP_13_CTR

2. Unique Sector Equipment Configurations

- a. Sector 13 range limit is normally from 150 NM to 200 NM. The altitude limits to be entered at Sector 13 are 228B999.

4.6.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: none.
2. Mandatory heading requirements: none.
3. Mandatory altitude requirements: none.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.
5. Transfer of control points other than airspace boundaries:
 - a. ZMP/ZAU/YWG: The receiving sector may assume control for beacon code changes and turns up to 20 degrees on aircraft within 20 miles of the common boundary.
 - b. ZMP Sector 13 may assume control for speed adjustments and turns of 20 degrees or less from Sector 16 on KMSP departures routed on the WLSTN departure route.
 - c. Sector 13 releases control of all KMSP arrivals on the MUSCL and EAU arrivals, and MSP Satellite arrivals on the AGUDE arrival, or routed BITLR..GEP, upon transfer of communication. Sector 13 is responsible for either pointing out or separating any conflicting traffic prior to transfer of communication to Sector 16. Sector 13 must APREQ and requests for the KKILR arrival prior to issuing.

d. Sector 13 must have all satellite arrivals entering Sector 16 in-trail with the MSP arrivals. If unable to provide in-trail, satellite arrivals must be below MSP arrivals. Sector 13 releases control of satellite arrivals and is responsible for either pointing out or separating any conflicting traffic prior to transfer of communication to Sector 16. A radar vector to intercept the AGUDE arrival is acceptable and an in-trail sequence must be established. Any request for BITLR..GEP routing must be APREQed prior to issuing.

e. Each Area 1 sector releases control to all other Area 1 sectors for turns up to 20 degrees.

f. Area 1 and Area 2 mutually release control for turns up to 20 degrees within 20 miles of the common boundary.

6. Radar arrival routes and restrictions. See LOAs for additional details.

Airport	Route	Restriction
CYYZ	SSM.BOXUM STAR.YYZ YZEMN.NUBER STAR.YYZ	
KMSP	CEWDA.MUSCL Arrival IDIOM.MUSCL Arrival GRB.EAU Arrival	RNAV Jets RNAV Jets Turboprops & Non-Compliant Jets
M98 Satellite Airports	GRB..THATS.AGUDE Arrival	Jets and Turboprops
KDTW	PNNTO.GRAYT STAR.KDTW PNNTO.LAYKS STAR.KDTW HOOTA.KKISS STAR.KDTW HOOTA.RKCTY STAR.KDTW	
KORD	FGHRN.MADII/ERNNY STAR.KORD SHIKY.FYTTE STAR.KORD	

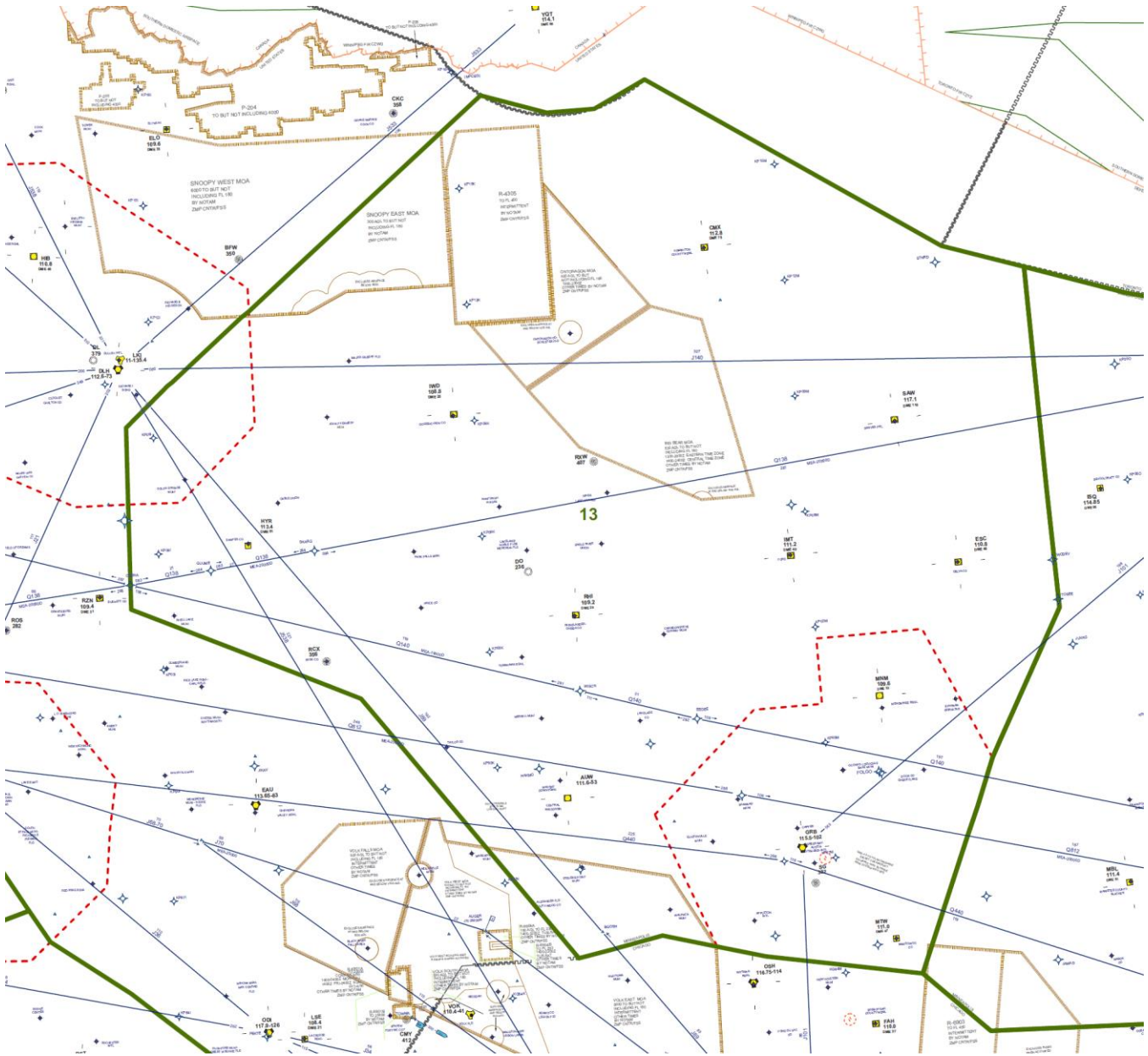
a. TMU may determine when aircraft on the MUSCL or EAU Arrivals are required to be offloaded to the BAINY or GOPHER Arrivals.

b. En route spacing of the offloaded aircraft must be determined by TMU.

c. Area 1 must clear aircraft assigned altitudes at or above FL330, being offloaded to the GOPHER or BAINY Arrivals, to be level at FL320 when the aircraft reaches a point no closer than 2.5 NM from the Sector 13/11 common boundary.

7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved: Holding locations may be used at the controller discretion or as published on the STARS.

Sector 13 Map



CHAPTER 5. AREA 2

SECTION 1. SECTOR 05

5.1.1 SECTOR NARRATIVE. Sector 05 is a low altitude sector (FL230 and below) and handles a broad array of traffic; which can make it a complex sector. Eau Claire, WI (EAU), and La Crosse, WI (LSE) both have several IFR approaches and both have Class D Surface areas with part-time control towers.

At EAU, the IFR approaches are:

- LOC BC RWY 04
- ILS or LOC RWY 22
- RNAV (GPS) RWY 04
- RNAV (GPS) RWY 22
- VOR-A

At LSE, the IFR approaches are:

- ILS or LOC RWY 18
- RNAV (GPS) 18
- RNAV (GPS) 36
- RNAV (GPS) 31
- RNAV (GPS) 13
- RNAV (GPS) 04
- RNAV (GPS) 22
- VOR RWY 13
- VOR RWY 36

Sector 05 also includes:

- Provides approach control services for numerous small airports including; RPD, UBE, Y23, AHH, BCK, VIQ, and ONA.
- A RAPCON operates at VOK Field – 10,000 MSL and below. When VOLK RAPCON is closed, their airspace is delegated to ZAU.

5.1.2 ASSIGNMENT OF AIRSPACE

1. La Crosse ATCT is responsible for the control of IFR and Special VFR aircraft operation to, from, through, and/or within the Class D surface area at La Crosse, WI. During the times LSE ATCT is non-operational, the Class D surface area is assigned to Sector 05.
2. Eau Claire ATCT is responsible for the control of IFR and Special VFR aircraft operation to, from, through, and/or within the Class D surface area at Eau Claire, WI. During the times that EAU FCT is non-operational, the Class D surface area is assigned to Sector 05.

3. Sector 05 is delegated the airspace depicted in Attachment A of the ZMP/M98 LOA 7,000 MSL and below along the common ZMP/M98 boundary underlying the sector 06 shelf.
4. Sector 05 is delegated that airspace depicted in attached map 11,000 MSL and below in the area underlying the Sector 06 shelf.
5. Sector 21 will normally be combined at Sector 05.
6. Area 2 sectors are normally combined at Sector 05 when Area 2 is combined to a single scope.

5.1.3 SECTOR INFORMATION

1. Frequency and sign-on Information

<u>Frequency</u>	<u>Callsign</u>
125.3	MSP_05_CTR

2. Unique Sector Equipment Configurations

- a. Sector 05 normal range is 75 to 100 NM
- b. The altitude limits to be entered at Sector 05 are 000B242
- c. Sector 21 is normally combined with Sector 05
- d. Area 2 sectors are normally combined at Sector 05 when Area 2 is combined to a single scope and the range limit is normally set at 125-175 miles.

5.1.4 SECTOR PROCEDURES

1. Sector Specific Directives

- a. When Rochester APCH is closed the airspace reverts to Sector 07.

2. Mandatory speed restrictions: None.

3. Mandatory heading requirements: None.

4. Mandatory altitude requirements: See ZMP/M98 LOA.

5. Sector handoff/pointout procedures comply with the requirements in FAAO 7110.65, Chapter 5, Section 4, with the exception of the following: None.

6. Transfer of control points other than airspace boundaries: As stated in the ZMP/M98 LOA.

7. Radar arrival routes and restrictions for airports within sector jurisdiction:

- a. Arrivals: All turbojet and turboprop aircraft must be routed via STAR routings.

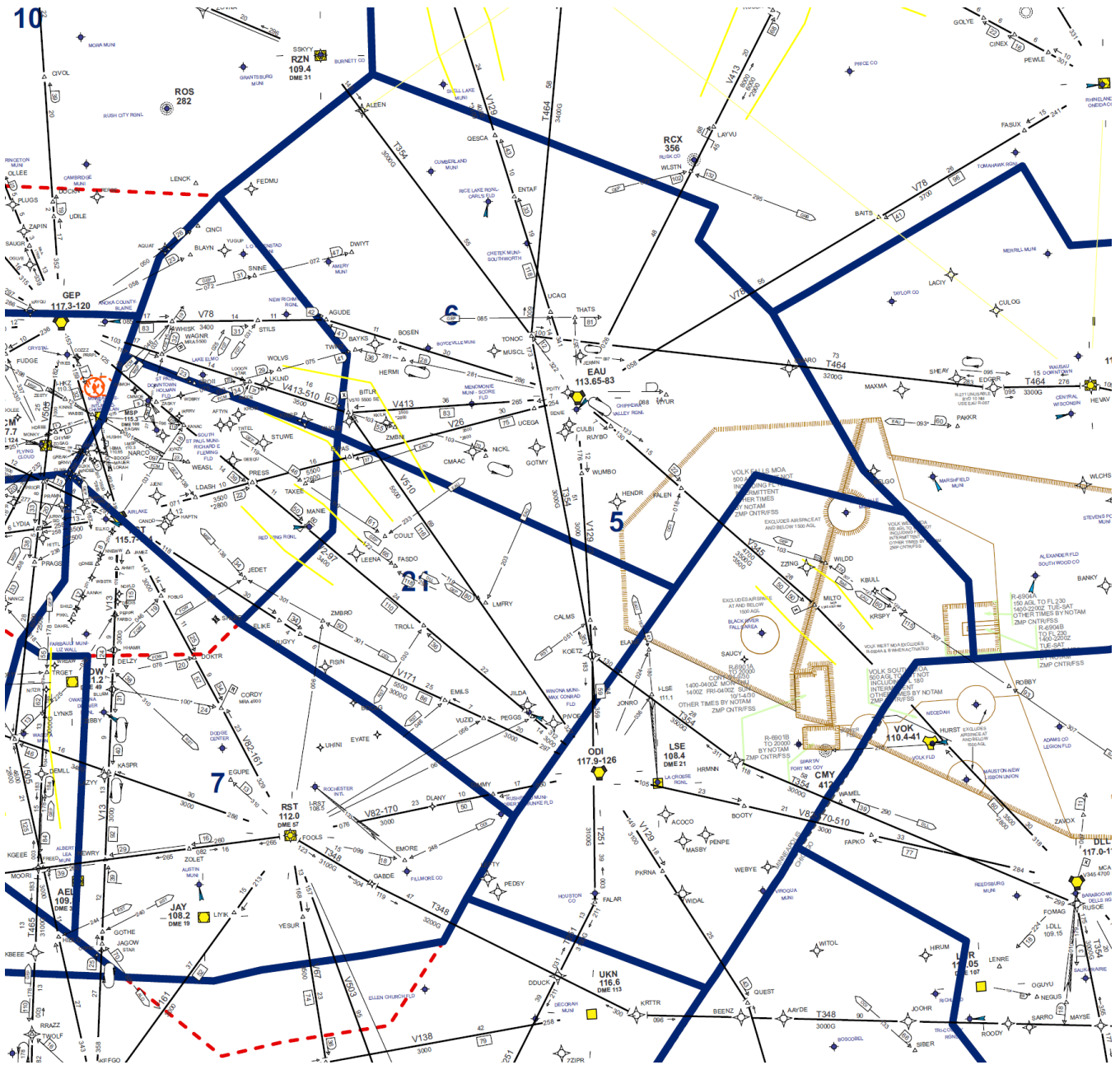
<u>Airport</u>	<u>Route</u>	<u>Restriction</u>
MSP	EAU STAR	See ZMP/M98 LOA
	MUSCL/KKILR STAR	See ZMP/M98 LOA
STP, ANE, FCM, MIC, LVN	AGUDE STAR	See ZMP/M98 LOA
STP, ANE, FCM	BITLR..GEP..(Dest.)	X BITLR @ 6000

8. Normally used sector holding fixes to include published/unpublished hold, maximum length, direction of turn, and direction from fix:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>TURNS</u>
EAU	SE	STD	RT
JERMN	E	10NM	RT
CMAAC	SE	10NM	LT
MAGGS	NE/FC	STD	RT
PKRNA	S	STD	RT
NICKL	SE	STD	LT

- a. Additional holding locations may be used at the controller's discretion.
- b. Deviations from the above holding procedures may be used at the controller's discretion.

Sector 05 Map



SECTION 2. SECTOR 06

5.2.1 SECTOR NARRATIVE. Sector 06 is a low altitude sector (8,000 MSL through FL230). The traffic flow consists mainly of MSP Terminal Area arrival traffic from the east. Sector 06’s primary function is in the sequencing of MSP Area arrival traffic. The EAU, MUSCL, and KKILR STARs serve MSP from the east. The AGUDE STAR serves the appropriate MSP Satellite airport arrivals from the east. Eastbound departure traffic entering Sector 06 should be north of the MUSCL and EAU arrivals on the WLSTN SID.

5.2.2 ASSIGNMENT OF AIRSPACE

1. Sector 06 is normally combined at Sector 16.
2. Sector 06 will normally be open when traffic levels in Sector 16 approach or exceed moderate volume/complexity levels. It may also be opened to accommodate proposed M98 Area departure traffic.

5.2.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
134.3	MSP_06_CTR

2. Unique Sector Equipment Configurations
 - a. Sector 06 range limit is normally from 60 to 75 nm.
 - b. The altitude limits to be entered at Sector 06 are 000B242.

5.2.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See ZMP/M98 LOA.

4. Sector handoff/pointout procedures comply with the requirements in FAAO 7110.65, Chapter 5, Section 4, with the exception of the following:
- a. Fourth line data block usage: The fourth line of the data block may be used to forward specified control information in FAAO 7110.65 para 5-4-11. Additionally, the following fourth line control information is authorized for coordination purposes between ZMP Sectors 06 and 16, IAW FAAO 7110.65, para 5-4-8 (AIT):

<u>ARRIVAL FIX/ROUTING</u>	<u>FOURTH LINE COORDINATION INDICATORS</u>
TWINZ	T, TW
BITLR	BT, BTLR
BAYKS	B, BA, BK
HUGGI	H, HU, HG
KKILR	K, KL, KK
AGUDE	A, AG, AGUD
NICKL	N, NICL, NIKL
BITLR..GEP..STP	B/G/S, BS, BSTP, B/G/STP
BITLR..GEP..ANE	B/G/A, BANE, B/G/ANE
BITLR..GEP..FCM	B/G/F, BF, BFCM, B/G/FCM
GEP 103 RADIAL	G103, 103R
MSP arrival holding at EAU,	HXX (last two digits of EFC), XXXX (actual EFC)
MSP arrival holding at JERMN	HXX (last two digits of EFC), XXXX (actual EFC)
MSP arrival holding at CMAAC	HXX (last two digits of EFC), XXXX (actual EFC)

- b. When entering the hold at CMAAC waypoint on the KKILR Arrival, the following procedure shall be followed IAW FAAO 7110.65, Par 5-4-10 and FAAO 7210.3, Par 3-6-7.
- 1) The sector 06/16 controller shall point out the first aircraft entering the hold at CMAAC to the Sector 05/21 (and Sector 15 if holding FL 240 and above) and advise them of the altitudes that will be utilized in the holding stack.
 - 2) The Sector 06/16 controller shall PVD all subsequent aircraft entering the hold at CMAAC to the Sector 05/21/15 controller with no verbal coordination required.
 - 3) All PVDs from the Sector 06/16 controller to Sector 05/21/15 constitute prior coordination.
 - 4) The Sector 05/21/15 controller is responsible for separation from all aircraft holding at CMAAC that have been displayed on the 05/21/15 situational display. If action needs to be taken, the Sector 05/21/15 controller is responsible for verbal coordination.
 - 5) At no time may the Sector 06/16 controller descend aircraft lower than the previously coordinated holding altitudes without verbal coordination with the Sector 05/21 controller.
 - 6) The Sector 06/16 controller must verbally coordinate with the Sector 05/21/15 controller when the last aircraft has left the hold at CMAAC and holding has ceased on the KKILR arrival.

- 5. Transfer of control points other than airspace boundaries:
 - a. Transfer of control points with M98: See ZMP/M98 LOA.
 - b. During ERAM operations, ZMP Sector 06 may assume control for turns from ZMP Sector 16 for direct routing on M98 arrival aircraft upon transfer of communication. Sector 06 is responsible for any point-outs to adjacent sectors affected by this routing change.
- 6. Radar arrival routes and restrictions for airports within sector jurisdiction:
 - a. Arrivals: All turbojet and turboprop aircraft must be routed via STAR routings.

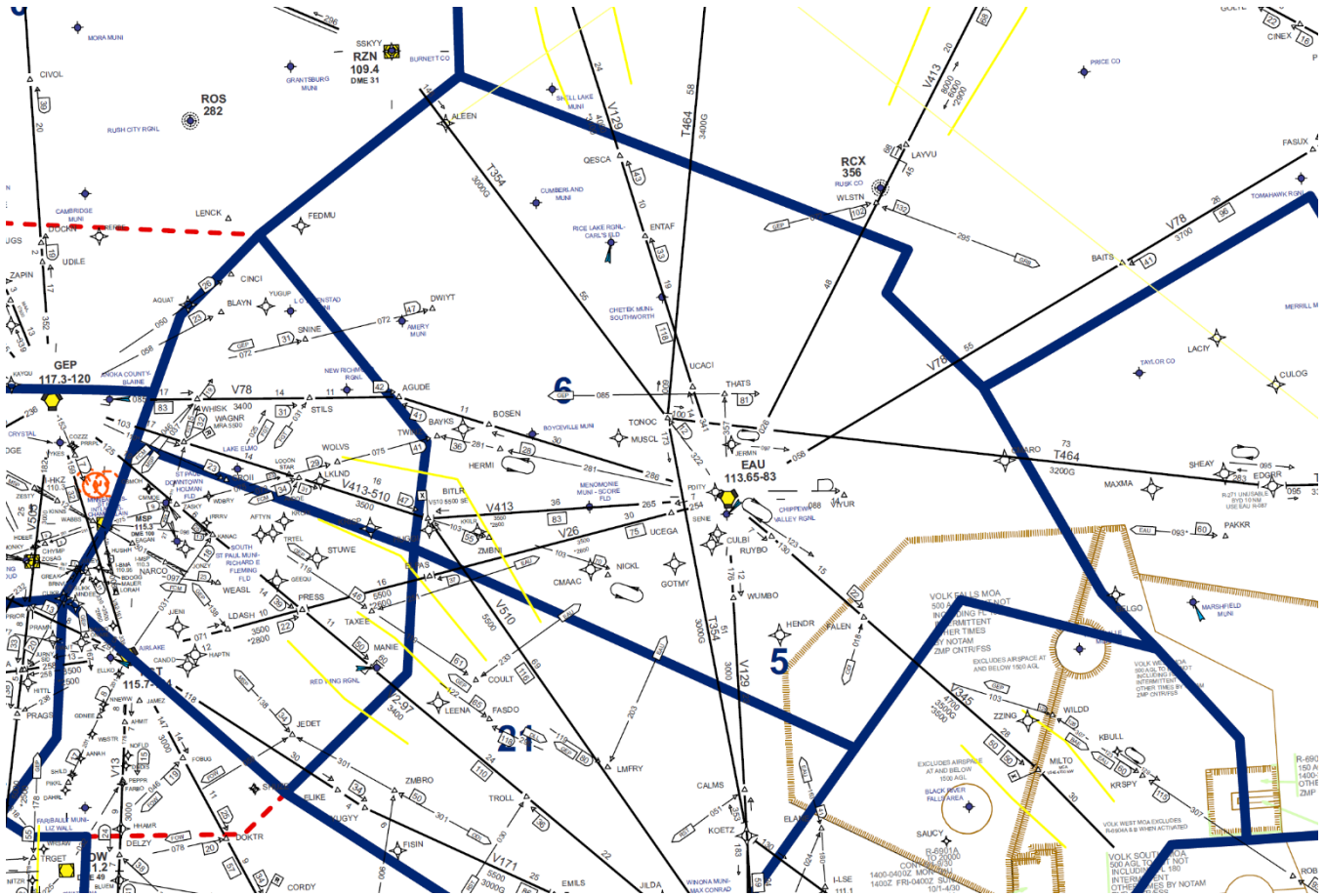
<u>Airport</u>	<u>Route</u>	<u>Restriction</u>
MSP	EAU	See M98/ZMP LOA
	MUSCL/KKILR STAR	See M98/ZMP LOA
STP, ANE, FCM, MIC, LVN	AGUDE STAR	See M98/ZMP LOA
STP, ANE, FCM	BITLR..GEP..(Dest.)	X BITLR @ 6000

- b. When Optimized Profile Descents (OPD) are in use on the MUSCL or KKILR arrivals, Sector 16 will issue a “descent via” clearance through Sector 06. Radar handoff and transfer of communication must be accomplished prior to aircraft entering the vertical limits of Sector 06. Aircraft on an OPD will enter Sector 06 descending, unless otherwise coordinated.
- 7. Normally used sector holding fixes to include published/unpublished hold, maximum speed, maximum length, direction of turn, and direction from fix:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>TURNS</u>
EAU	SE	STD	310	RT
NICKL	SE	STD	310	LT
HERMI	E	STD	310	LT
JERMN	E	10NM	310	RT
CMAAC	E	10NM	280	LT

- a. Additional holding locations may be used at the controller’s discretion.
 - b. Deviations from the published holding procedures may be authorized by the sector controller.

Sector 06 Map



SECTION 3. SECTOR 10

5.3.1 SECTOR NARRATIVE. Sector 10 is a low altitude sector (ground up to and including FL230). Sector 10 and Minneapolis Approach Control (M98) share a common boundary along the South and Southwestern edge of Sector 10's airspace. Sector 10 sequences MSP Terminal Area arrivals over the GEP and BAINY STARs and handles north and northwest-bound departures from M98. Northwest-bound M98 jet departures are issued the KBREW SID. The sector works aircraft into and out of numerous small airports (STC, CBG, PNM, JMR, and RZN among others). STC generates the majority of this smaller airport traffic. STC is a class D airspace with a part-time ATCT.

At STC, the IFR approaches are:

- ILS or LOC RWY 31
- ILS or LOC RWY 13
- RNAV (GPS) RWY 05
- RNAV (GPS) RWY 13
- RNAV (GPS) RWY 23
- RNAV (GPS) RWY 31
- VOR/DME RWY 31

5.3.2 ASSIGNMENT OF AIRSPACE

1. Sector 10 is delegated the airspace of the 'BRD shelf' 9,000 – FL230 MSL (see map).
2. Sector 10 is normally combined at Sector 11.
3. Sector 10 combines to Sector 05 during single-scope operations.
4. St. Cloud FCT is responsible for the control of IFR and Special VFR aircraft operation to, from, through, and/or within the Class D surface area at St. Cloud, MN is assigned to the St. Cloud ATCT. During the times the STC FCT is non-operational, the Class D surface area is assigned to Sector 10.
5. During published hours of operation, Duluth Approach Control is delegated the responsibility for the control of IFR and SVFR traffic in the area depicted in Attachment 'A' of the ZMP/DLH LOA. The airspace is delegated to ZMP Sector 25 when Duluth Approach is not operational. (See ZMP/DLH LOA).

5.3.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
121.05	MSP_10_CTR

2. Unique Sector Equipment Configurations
 - a. Sector 10 range limit is normally 75.
 - b. The altitude limits to be entered at Sector 10 are 000B242.

5.3.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: See ZMP/M98 and ZMP/DLH LOAs.
3. Mandatory altitude requirements: See ZMP/M98 and ZMP/DLH LOAs.
 - a. Departures off airports within the BRD shelf requesting 9,000 feet or higher will be stopped at 8,000 feet by Sector 25, without need of an APREQ for wrong altitude for direction of flight.
 - b. Acceptance of a hand-off on an aircraft with a valid mode C, which has a filed inappropriate altitude for direction of flight, constitutes approval with DLH Approach for that altitude.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. Data Block Coordination – Assigned heading/fix: The notation ‘OLLEE’, ‘OL’, ‘LU’, or ‘L’ may be entered into the 4th line of the data block for coordination of route information on KMSP landing traffic between Sector 11 and Sector 10. The assigned heading may be entered into the 4th line of the data block to coordinate a radar vector heading on KMSP landing traffic provided the aircraft is assigned a heading to join the GEP STAR prior to GOLLF intersection.
 - b. Northbound M98 departures entering Sector 11 must be on an assigned heading or route to remain east of the GEP and BAINY STARs. (Sector 11 SOP)
 - c. When automated hand-offs are used, DLH Approach must:
 - 1) Issue FL230, or the requested altitude if lower, to departures after ZMP has accepted the hand-off. (Before accepting a hand-off, controllers must advise DLH Approach when a different altitude is to be assigned.)
 - 2) Point-out aircraft to any other affected ZMP Sector (See ZMP/DLH LOA)
5. Transfer of control points other than airspace boundaries: See ZMP/M98 LOA and ZMP/Duluth Approach LOA.
 - a. STC Tower assumes control of IFR inbound aircraft at the Class D boundary and must not alter the route of flight without prior coordination with Sector 10.
 - b. Arrivals from Sector 10 into KGPZ, KPKD, and airports in the BRD shelf will be descending to 9,000 feet or will be at altitude if at or below 8,000 feet. Sector 10 releases control for turns up to 30 degrees and descent upon transfer of communication.
 - c. Duluth Approach Control may descend and/or alter an arrival’s route of flight no more than 30 degrees either side of the aircraft’s heading provided the aircraft is within 10 miles of Duluth Approach Control’s airspace, and the alteration of course or altitude does not affect another Center sector’s airspace. (ZMP/DLH Approach LOA)
 - d. After receiving a handoff and frequency change from Duluth Approach Control and the departure has reached an altitude of 8,000 feet MSL, Minneapolis Center may alter a

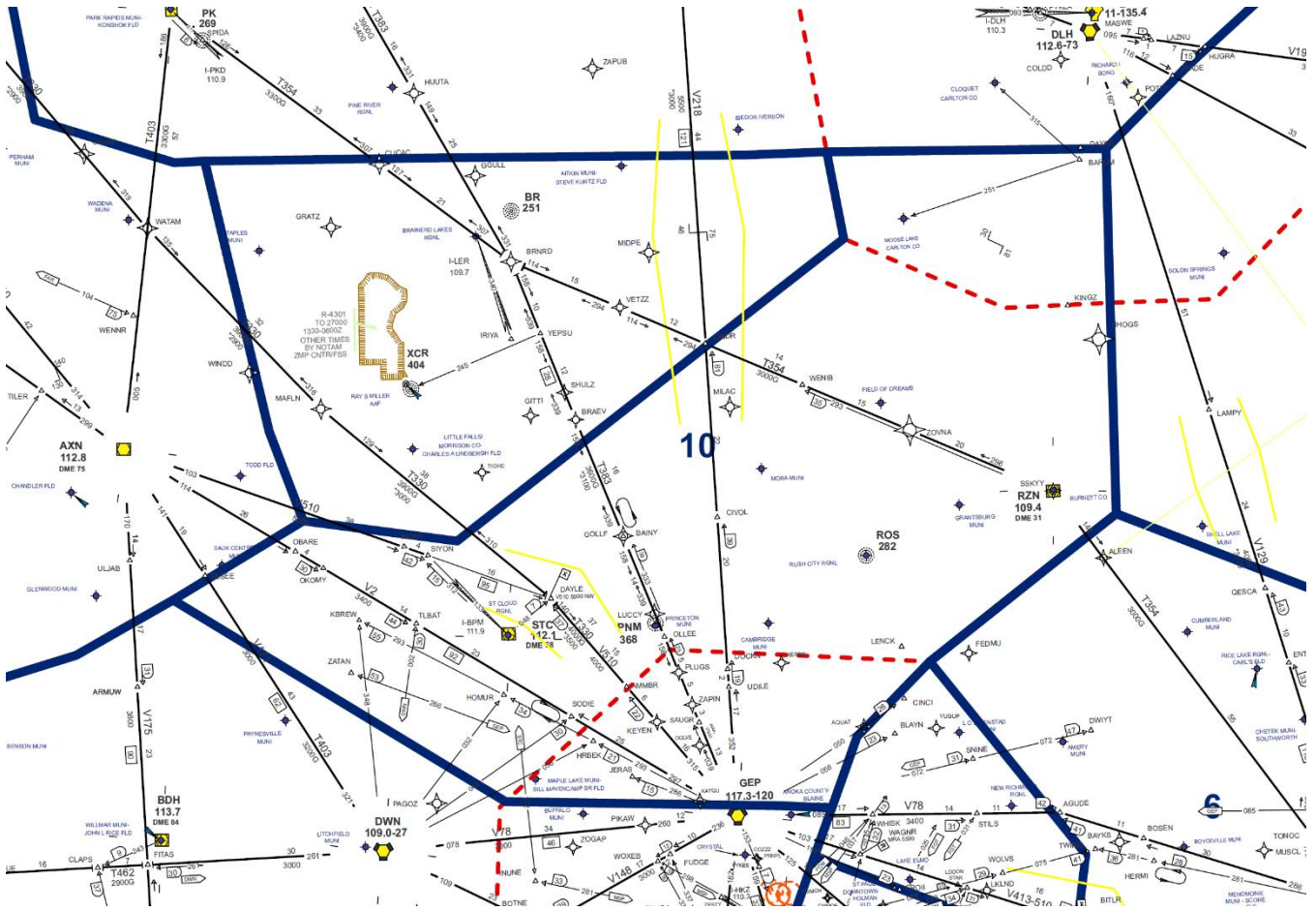
- departure's heading and/or route. The maximum turn must not exceed 30 degrees either side of the aircraft's heading/route. This action must not be initiated if the result will affect another sector (ZMP/Duluth Approach LOA).
- e. Upon completion of a radar handoff, Sector 11, releases control to Sector 10 for control turns of 30 degrees left or right of course on M98 arrivals (Sector 11 SOP).
 - f. Upon completion of a radar handoff, Sector 24 releases to Sector 10, control for turns of up to 30 degrees and descent on all M98 arrivals filed on the GEP or BAINY STARs AOB FL230.
 - g. Upon completion of radar handoff, Sector 10 releases control to Sector 11 for turns of 30 degrees or less left or right of course on M98 north-bound departures between KBRD and DLH (Sector 11 SOP).
 - h. Sector 10 has control from Sector 9 for turns and descent on STC arrivals.
 - i. Aircraft landing STC (from M98) must enter ZMP airspace descending to 4,000 feet MSL. Sector 10 has control, for descent and turns up to 30 degrees either side of course, when aircraft are 25 nm from the MSP VOR. (ZMP/M98 LOA)
 - j. Upon completion of a Radar handoff and transfer of communications, Sector 10 releases control, for descent and turns of 30 degrees, to Sector 24 on all AXN landing traffic. Sector 24 is responsible for any necessary point outs as a result of turns issued by Sector 24.
 - k. Acceptance by Sector 10 of an automated point out for aircraft landing KFAR releases to Sector 24 control for descent to FL200. Additionally, if Sector 10 is combined at Sector 11, the combined sector releases to Sector 24 control for aircraft landing KFAR upon completion of a radar handoff.
 - l. Sector 25 releases to Sector 10 control for descent to 9000 and turns of up to 30 degrees within 30 NM of the boundary for M98 arrival aircraft.
6. Radar arrival routes and restrictions for airports within sector jurisdiction:
- a. M98 area piston aircraft arrivals must cross the approach control boundary at 5,000 (ZMP/M98 LOA).
 - b. All turbojet and turboprop aircraft must be routed via STAR routings and altitudes if landing in M98 airspace (See ZMP/M98 LOA).
 - c. STC departures landing MSP and M98 satellite airports must enter M98 airspace at 5,000 feet MSL. When runways other than 12L/R are in use at MSP, turbojet and turboprop aircraft departing STC and landing MSP must be on a STAR arrival at the appropriate altitude (ZMP/M98 LOA).
 - d. Sector 11 is not required to sequence M98 satellite landing traffic with MSP landing traffic, but satellite traffic must be below MSP traffic.
 - e. When Optimized Profile Descents (OPD) are in use on the BAINY arrival, Sector 11 will issue a "descent via" clearance through Sector 10. Radar handoff and transfer of communication must be accomplished prior to aircraft entering the vertical limits of Sector

- f. 10. Aircraft on an OPD will enter Sector 10 descending, unless otherwise coordinated.
7. Normally used sector holding fixes to include published/unpublished hold, maximum speed, maximum length, direction of turn, and direction from fix:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>TURNS</u>
GOLFF	NW	STD	310	LT
BAINY	NW	10NM	280	LT

- a. Additional holding locations may be used at the controller's discretion.
- b. Deviations from the above holding procedures may be authorized by the sector controller.
- c. Holding information
- 1) The character 'H' for holding followed by a two digit number for the Expect Further Clearance (EFC) time may be entered into the 4th line of the data block for KMSP landing traffic to accomplish coordination of holding information between Sector 11 and Sector 10.
 - 2) The acceptance of a handoff by Sector 10 constitutes receipt of the information. It is the responsibility of the Sector 10 controller to advise the Sector 11 controller if any information is not understood.
 - 3) Sector 11 must advise Sector 10 of first and last aircraft assigned holding (Sector 11 SOP).

Sector 10 Map



SECTION 4. SECTOR 11

5.4.1 SECTOR NARRATIVE. Sector 11 is a high altitude sector, FL240 and above. It has no boundaries bordering another facility. Sector 11's traffic flow consists of east & westbound over-flights and sequencing MSP arrivals from the north and northwest. The sector also controls MSP departing traffic to the north and northwest.

5.4.2 ASSIGNMENT OF AIRSPACE

1. Sector 11 is combined with Sector 10 when traffic permits.
2. When Area 2 is combined to a single scope, Sector 11 will combine at Sector 05.

5.4.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
133.4	MSP_11_CTR

2. Unique Sector Equipment Configurations
 - a. Sector 11 range limit is normally 150.
 - b. The altitude limits to be entered at Sector 11 are 228B999

5.4.4 SECTOR PROCEDURES

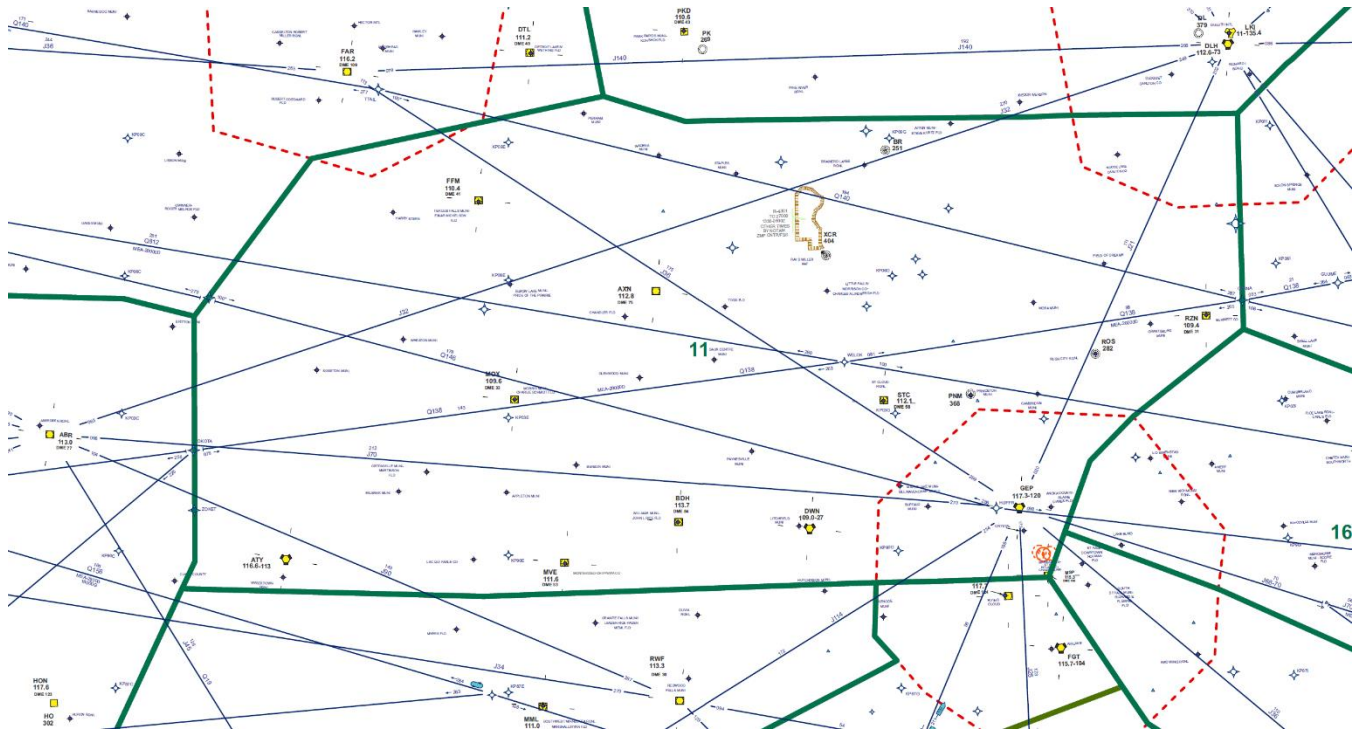
1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: Northbound M98 departures entering Sector 11 must be on an assigned heading or route to remain east of the GEP and BAINY STARs (Sector 10 SOP).
3. Mandatory altitude requirements: None.
4. Sector handoff/pointout procedures comply with the requirements in FAAO 7110.65, Chapter 5, Section 4, with the exception of the following:
 - a. Satellite landing traffic need not be sequenced with MSP landing traffic but must be below said traffic.
 - b. Data Block Coordination – Assigned heading/Fix – The notation 'OLLEE', 'OL', 'L', or 'LU' may be entered into the 4th line of the data block for coordination of the route information on KMSP landing traffic between Sector 11 and Sector 10. The assigned heading may be entered into the 4th line of the data block to coordinate a radar vector on KMSP landing traffic provided the aircraft is assigned a heading to join the GEP STAR prior to GOLLF intersection.
 - c. Upon completion of a radar handoff, Sector 25 releases control to Sector 11 for descent to FL240 and turns up to 30 degrees within 30 NM of the boundary for M98 arrivals. In this configuration, Sector 10 is responsible for any point outs required with Sector 25.

- d. When Sector 22 is open over Sector 25, Sector 22 releases to Sector 11 control for descent to FL240 and turns of up to 30 degrees within 30 NM of the boundary for M98 arrivals. In this configuration, Sector 11 is responsible for any point outs required with Sector 25.
 - e. When Sector 22 is open transfer of control to Sector 11, as designated in paragraph 'd' above, remains applicable within the lateral airspace boundaries of Sector 25 only.
 - f. Upon completion of radar handoff, Sector 11 will release control to Sector 10 for turns of 30 degrees or less left or right of course on M98 arrivals.
 - g. Upon completion of radar handoff, Sector 10 will release control to Sector 11 for turns of 30 degrees or less left or right of course on M98 north bound departures between KBRD and DLH.
 - h. Upon completion of radar handoff, Sector 9 will release control for turns to the north, up to 30 degrees, on all SMERF, DARWIN, and LEINY SID aircraft.
 - i. Acceptance by Sector 10 of an automated point out for aircraft landing KFAR releases to Sector 24 control for descent to FL200. Additionally, if Sector 10 is combined at Sector 11, the combined sector releases to Sector 24 control for descent to FL200 for aircraft landing KFAR upon completion of radar handoff.
5. Radar arrival routes and restrictions for airports within sector jurisdiction:
- a. For aircraft landing MSP or the satellite airports under MSP Approach, assigned the GEP/SKETR arrival, a heading left in 4th line is understood to be a heading to join the arrival prior to the GOLLF/SKETR intersection unless otherwise coordinated.
 - b. Sector 11 is responsible for sequencing MSP or satellite landing traffic over the BAINY and GEP arrivals.
 - c. Sector 20 & Sector 24 shall not clear satellite aircraft direct OLLEE.
 - d. Sector 13 must clear aircraft, assigned altitudes at or above FL330 being offloaded to the GEP or BAINY Arrivals, to be level at or below FL320 when the aircraft reaches a point no closer than 2.5 NM from the Sector 11/13 common boundary.
 - e. When Optimized Profile Descents (OPD) are in use on the BAINY arrival, Sector 11 will issue a "descend via" clearance through Sector 10. Radar handoff and transfer of communication must be accomplished prior to aircraft entering the vertical limits of Sector 10. Aircraft on an OPD will enter Sector 10 descending, unless otherwise coordinated.
6. Normally used sector holding fixes to include published/unpublished hold, maximum speed, maximum length, direction of turn, and direction from fix:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>URNS</u>
GOLLF	NW	10NM	265	LT
BAINY	NW	10NM	280	LT

- a. Sector 11 must advise Sector 10 of first and last aircraft assigned holding.
- b. Additional holding locations may be used at the controller's discretion.
- c. Deviations from the above holding procedures may be authorized by the sector controller.
- d. Data Block Coordination – Holding Information – The character 'H' for holding followed by a two digit number for the Expect Further Clearance (EFC) time may be entered into the 4th line of the data block for KMSP landing traffic to accomplish coordination of holding information between Sector 11 and Sector 10. The acceptance of a handoff by the receiving controller constitutes receipt of the information. It is the responsibility of the receiving controller to advise the transferring controller if any information is not understood.

Sector 11 Map



SECTION 5. SECTOR 15

5.5.1 SECTOR NARRATIVE. Sector 15 (ODI High) is a high altitude sector (FL240 and above). The traffic flow consists mainly of east and westbound over-flight traffic along with MSP Terminal Area departure traffic climbing above FL230. The COULT and ZMBRO SIDs are the primary departure routes to the east from the MSP Terminal Area.

5.5.2 ASSIGNMENT OF AIRSPACE

1. Sector 15 is usually combined at Sector 05 when Area 2 is combined at a single scope.

5.5.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
135.7	MSP_15_CTR

2. Unique Sector Equipment Configurations

- a. Sector 15 range limit is normally from 100 to 125 NM.
- b. The altitude limits to be entered at Sector 15 are 228B999.

5.5.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See ZMP/ZAU LOA.
4. Sector handoff/pointout procedures comply with the requirements in FAAO 7110.65, Chapter 5, Section 4, with the exception of the following:
 - a. When entering the hold at CMAAC waypoint on the KKILR Arrival, the following procedure shall be followed IAW FAAO 7110.65, Par 5-4-10 and FAAO 7210.3, Par 3-6-7.
 - 1) The sector 06/16 controller shall point out the first aircraft entering the hold at CMAAC to the Sector 05/21 (and Sector 15 if holding FL 240 and above) and advise them of the altitudes that will be utilized in the holding stack.
 - 2) The Sector 06/16 controller shall PVD all subsequent aircraft entering the hold at CMAAC to the Sector 05/21/15 controller with no verbal coordination required.
 - 3) All PVDs from the Sector 06/16 controller to Sector 05/21/15 constitute prior coordination.
 - 4) The Sector 05/21/15 controller is responsible for separation from all aircraft holding at CMAAC that have been displayed on the 05/21/15 situational display. If action needs to be taken, the Sector 05/21/15 controller is responsible for verbal coordination.

- 5) At no time may the Sector 06/16 controller descend aircraft lower than the previously coordinated holding altitudes without verbal coordination with the Sector 05/21 controller.
 - 6) The Sector 06/16 controller must verbally coordinate with the Sector 05/21/15 controller when the last aircraft has left the hold at CMAAC and holding has ceased on the KKILR arrival.
5. Transfer of control points other than airspace boundaries: For transfer of control points with ZAU, see ZMP/ZAU LOA.
 6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:
 - a. Departures:
 - 1) Unless otherwise coordinated, M98 departures proceeding over ODI/DLL/MSN must be assigned the ZMBRO or COULT SID.
 7. Normally used sector-holding fixes: None.

SECTION 6. SECTOR 16

5.6.1 SECTOR NARRATIVE. Sector 16 is a high altitude sector (FL240 and above). The traffic flow consists mainly of MSP Terminal Area arrival traffic from the east, east/westbound over-flight traffic and MSP Terminal Area departure traffic climbing northwest above FL230. Sector 16's primary function however is in the sequencing of MSP Area arrival traffic. The EAU, MUSCL, and KKILR STARs serve MSP from the east. The AGUDE STAR serves MSP Satellite airports (FCM, MIC, STP, ANE, LVN) from the east. Most of these aircraft will transition into Sector 16's airspace from BAE or GRB. Sector 16 will sequence MSP arrivals via the appropriate STAR prior to handing off to Sector 06. Eastbound departure traffic entering Sector 16 should be north of the EAU and MUSCL STARs on the WLSTN SID.

5.6.2 ASSIGNMENT OF AIRSPACE

1. Sector 16 is routinely combined with Sector 06.
2. Sector 06 will normally open when traffic levels in Sector 16 approach or exceed moderate traffic volume/complexity levels. This typically occurs during busy MSP arrival or departure periods.
3. Sector 16 combined at Sector 05 during single-scope operations at Area 2.

5.6.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
133.75	MSP_16_CTR

2. Unique Sector Equipment Configurations
 - a. Sector 16's range limit is normally from 100 to 125 NM.
 - b. The altitude limits to be entered at Sector 16 are 228B999.

5.6.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements:
 - a. See ZAU/ZMP LOA.
 - b. From 0700 to 2100 local, Sector 13 must have all MSP Arrivals entering Sector 16 at or below FL320 on the MUSCL or EAU arrival. Sector 13 must apeq any requests for the KKILR arrival prior to issuing.

- c. Sector 13 must have all satellite arrivals entering Sector 16 in-trail with the MSP arrivals. If unable to provide in-trail, satellite arrivals must be below MSP arrivals. Sector 13 releases control of satellite arrivals and is responsible for either pointing out or separating any conflicting traffic prior to transfer of communication to Sector 16. A radar vector to intercept the AGUDE arrival is acceptable and an in-trail sequence must be established. Any request for BITLR..GEP..direct routing must be apreqd prior to issuing.
- 4. Sector handoff/point out procedures comply with the requirements in FAAO 7110.65, Chapter 5, Section 4, with the exception of the following:
 - a. Fourth line data block usage: The fourth line of the data block may be used to forward specified control information in FAAO 7110.65 para 5-4-11. Additionally, the following fourth line control information is authorized for coordination purposes between ZMP Sectors 06 and 16, IAW FAAO 7110.65, para 5-4-8 (AIT):

<u>ARRIVAL FIX/ROUTING</u>	<u>FOURTH LINE COORDINATION INDICATOR(S)</u>
TWINZ	T, TW
BITLR	BT, BTLR
BAYKS	B, BK
HUGGI	H, HU, HG
KKILR	K, KL, KK
AGUDE	A, AG, AGUD
NICKL	N, NICL, NIKL
BITLR..GEP..STP	B/G/S, BS, BSTP
BITLR..GEP..ANE	B/G/A, BA, BANE, B/G/FCM
GEP 103 RADIAL	G103, 103R
MSP arrivals holding at EAU	HXX (last two digits of EFC), XXXX (actual EFC)
MSP arrivals holding at JERMN	HXX (last two digits of EFC), XXXX (actual EFC)
MSP arrivals holding at CMAAC	HXX (last two digits of EFC), XXXX (actual EFC)

- a. When entering the hold at CMAAC waypoint on the KKILR Arrival, the following procedure shall be followed IAW FAAO 7110.65, Par 5-4-10 and FAAO 7210.3, Par 3-6-7.
 - 1) The sector 06/16 controller shall point out the first aircraft entering the hold at CMAAC to the Sector 05/21 (and Sector 15 if holding FL 240 and above) and advise them of the altitudes that will be utilized in the holding stack.
 - 2) The Sector 06/16 controller shall PVD all subsequent aircraft entering the hold at CMAAC to the Sector 05/21/15 controller with no verbal coordination required.
 - 3) All PVDs from the Sector 06/16 controller to Sector 05/21/15 constitute prior coordination.
 - 4) The Sector 05/21/15 controller is responsible for separation from all aircraft holding at CMAAC that have been displayed on the 05/21/15 situational display. If action needs to be taken, the Sector 05/21/15 controller is responsible for verbal coordination.

- 5) At no time may the Sector 06/16 controller descend aircraft lower than the previously coordinated holding altitudes without verbal coordination with the Sector 05/21 controller.
 - 6) The Sector 06/16 controller must verbally coordinate with the Sector 05/21/15 controller when the last aircraft has left the hold at CMAAC and holding has ceased on the KKILR arrival.
- 5. Transfer of control points other than airspace boundaries:**
- a. Transfer of control points with ZAU: See ZMP/ZAU LOA.
 - b. During ERAM operations, ZMP Sector 06 may assume control for turns from ZMP Sector 16 for direct routing on M98 arrival aircraft upon transfer of communication. Sector 06 is responsible for any point-outs to adjacent sectors affected by this routing change.
 - c. ZMP Sector 16 may assume control for speed adjustments and turns of 20 degrees or less from ZMP Sector 13 on MSP area arrival traffic within 20 NM of the common boundary.
 - d. ZMP Sector 13 may assume control for speed adjustments and turns of 20 degrees or less from Sector 16 on MSP area departures routed on the WLSTN departure route.
- 6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:**
- a. Arrivals: All turbojet and turboprop aircraft must be routed via STAR routings (See M98/ZMP LOA).

<u>Airport</u>	<u>Route</u>	<u>Restriction</u>
MSP	EAU STAR	See M98/ZMP LOA
	MUSCL/KKILR STAR	See M98/ZMP LOA
STP, ANE, FCM, MIC, LVN	AGUDE STAR	See M98/ZMP LOA
STP, ANE, FCM	BITLR..GEP..(Dest.)	See M98/ZMP LOA

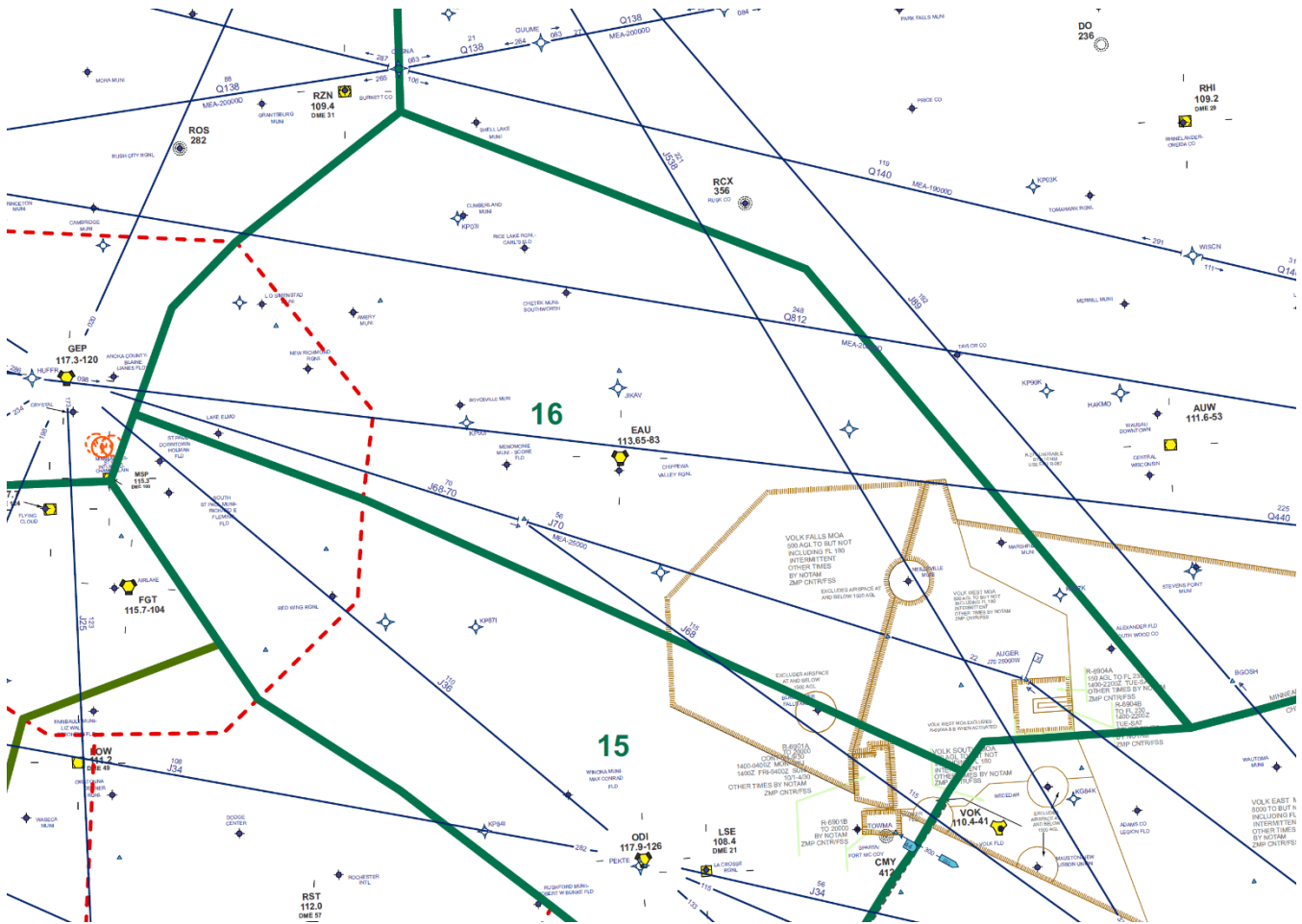
- b. When Optimized Profile Descents (OPD) are in use on the MUSCL or KKILR arrivals, Sector 16 will issue a “descend via” clearance through Sector 06. Radar handoff and transfer of communication must be accomplished prior to aircraft entering the vertical limits of Sector 06. Aircraft on an OPD will enter Sector 06 descending, unless otherwise coordinated.
- c. Departures: Unless otherwise coordinated,
 - 1. M98 eastbound departures must be north of the EAU and MUSCL STARs on the WLSTN SID.

7. Normally used sector holding fixes to include published/unpublished hold, maximum speed, maximum length, direction of turn, and direction from fix:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>URNS</u>
EAU	SE	STD	310	RT
NICKL	SE	STD	310	LT
JERMN	E	10NM	310	RT
CMAAC	SE	10NM	280	LT

- a. Sector 16 will advise Sector 6 of the first and last aircraft assigned holding.
- b. Additional holding locations may be used at the controller's discretion.
- c. Deviations from the published holding procedures may be authorized by the sector controller.

Sector 16 Map



SECTION 7. SECTOR 21

5.7.1 SECTOR NARRATIVE. Sector 21 is a low altitude sector encompassing the departure corridor to the southeast of MSP. All M98 departure traffic cleared via the ODI or DLL SIDs will enter this sector.

5.7.2 ASSIGNMENT OF AIRSPACE

1. Sector 21 will normally be combined at Sector 05.
2. Sector 21 will normally be open when traffic levels in Sector 05 approach or exceed moderate volume/complexity levels.
3. Sector 21 is combined at Sector 05 during single-scope operations in Area 2.

5.7.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
134.85	MSP_21_CTR

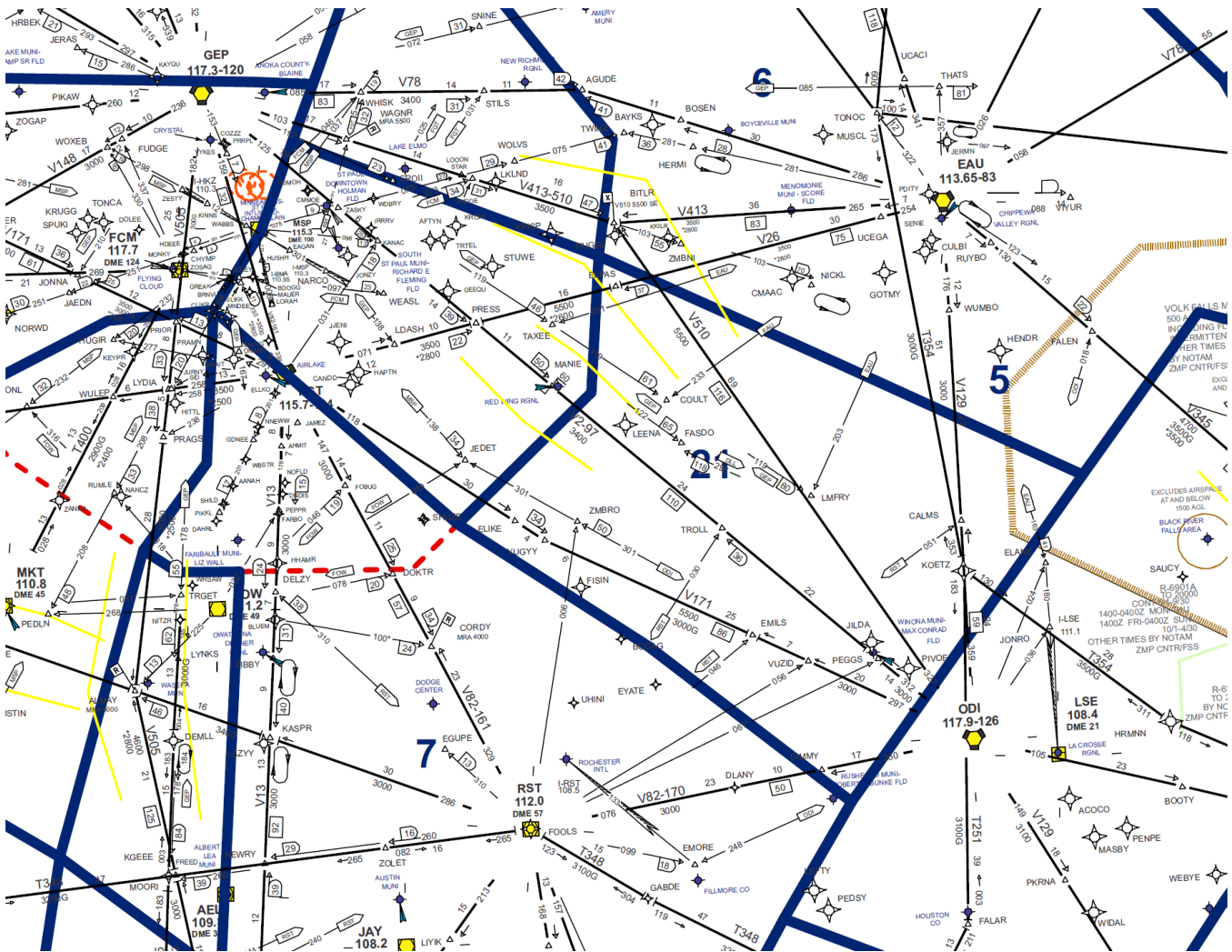
2. Unique Sector Equipment Configurations
 - a. Sector 21 range limit is normally from 60 to 75 NM.
 - b. The altitude limits to be entered at Sector 21 are 068B242.

5.7.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See ZMP/M98 LOA.
4. Sector handoff/point out procedures comply with the requirements in FAAO 7110.65, Chapter 5, Section 4, with the exception of the following:
 - a. When entering the hold at CMAAC waypoint on the KKILR Arrival, the following procedure shall be followed IAW FAAO 7110.65, Par 5-4-10 and FAAO 7210.3, Par 3-6-7.
 - b. The sector 06/16 controller shall point out the first aircraft entering the hold at CMAAC to the Sector 05/21 (and Sector 15 if holding FL 240 and above) and advise them of the altitudes that will be utilized in the holding stack.
 - c. The Sector 06/16 controller shall PVD all subsequent aircraft entering the hold at CMAAC to the Sector 05/21/15 controller with no verbal coordination required.
 - d. All PVDs from the Sector 06/16 controller to Sector 05/21/15 constitute prior coordination.

- e. The Sector 05/21/15 controller is responsible for separation from all aircraft holding at CMAAC that have been displayed on the 05/21/15 situational display. 52 If action needs to be taken, the Sector 05/21/15 controller is responsible for verbal coordination.
 - f. At no time may the Sector 06/16 controller descend aircraft lower than the previously coordinated holding altitudes without verbal coordination with the Sector 05/21 controller.
 - g. The Sector 06/16 controller must verbally coordinate with the Sector 05/21/15 controller when the last aircraft has left the hold at CMAAC and holding has ceased on the KKILR arrival.
5. Transfer of control points other than airspace boundaries: See ZMP/M98 LOA.
 6. Radar arrival routes and restrictions for airports within sector jurisdiction: None.
 7. Normally used sector holding fixes: None.

Sector 21 Map



CHAPTER 6. AREA 3

SECTION 1. SECTOR 07

6.1.1 SECTOR NARRATIVE. Sector 07 is a low altitude sector controlling traffic from 10,000' MSL to FL230. Sector 07's primary functionalities are sequencing M98 arrivals on the KASPR, TWOLF, NITZR, and BLUEM STARs, and controlling M98 departures on the RST SID.

6.1.2 ASSIGNMENT OF AIRSPACE

1. During single-scope operations in Area 3, all sectors can be combined at Sector 07, 18, or 09.

6.1.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
132.35	MSP_07_CTR

2. Unique Sector Equipment Configurations

- a. Sector 07 range limit is normally from 60 to 75.
- b. The altitude limits to be entered at Sector 07 are 000B242.

6.1.4 SECTOR PROCEDURES

1. Sector Specific Directives

- a. Routes for Low Altitude (AOB FL230) M98 Arrivals:

- 1) All MSP RNAV capable turbojet aircraft must be cleared by Sector 36 via the NITZR Arrival except those aircraft entering from ZAU must be cleared via the BLUEM Arrival.
- 2) All MSP turboprop and non-RNAV capable turbojet aircraft must be cleared by Sector 36 via the KASPR Arrival.
- 3) All M98 satellite aircraft (turbojet and turboprop) must be cleared by Sector 36 via the TWOLF Arrival.

2. Mandatory speed restrictions: None.
3. Mandatory heading requirements: None.

4. Mandatory altitude requirements:
 - a. Minneapolis Arrivals:

Non-RNAV Turbojets: Cross DELZY at 10,000 feet.
*Turboprops: Cross DELZY at 9,000 feet.
(*When RST approach is closed)
 - b. Satellite Arrivals:

Turbojets: Cross TRGET at 8,000 feet after point-out to Sector 8.
Turboprops: Cross TRGET at 7,000 feet after point-out to Sector 8.
 - c. Piston Aircraft:

Cross the M98 boundary at 4,000 feet when RST Approach is closed.
 - d. MCW departures to ORD must be assigned FL230 or their requested altitude, whichever is lower.
5. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. Acceptance of an automated point out between sector 36 and sector 07, on aircraft departing RST approach control airspace, constitutes approval to climb to FL230 or RAL, whichever is lower regardless of what is displayed in the data block.
 - b. For M98 arriving aircraft descending to FL240 with a temporary altitude of FL240 displayed in the data block, sectors 07 and 36 may use an automated point out. Acceptance of an automated point out from sector 07 to sector 36 constitutes approval for descent.
6. Transfer of control points other than airspace boundaries:
 - a. As stated in the ZMP/M98 LOA.
 - b. Sector 07 has control for turns to the north on M98 arrivals from Sector 17.
 - c. M98 arrivals from Sector 36: Sector 07 has control for descent down to 10,000 feet MSL and for turns up to 45 degrees either side of course within the area west of V67 and 10NM south of the 07/36 boundary. Acceptance of a Radar handoff from Sector 36 for aircraft AOB FL230 with MODE C readout shall constitute altitude approval.
 - d. Mason City Arrival Procedures: Upon transfer of radar handoff and communications Sector 36 may turn up to 30 degrees and/or descend aircraft arriving MCW without verbal coordination.

7. Radar arrival routes and restrictions for airports within sector jurisdiction:

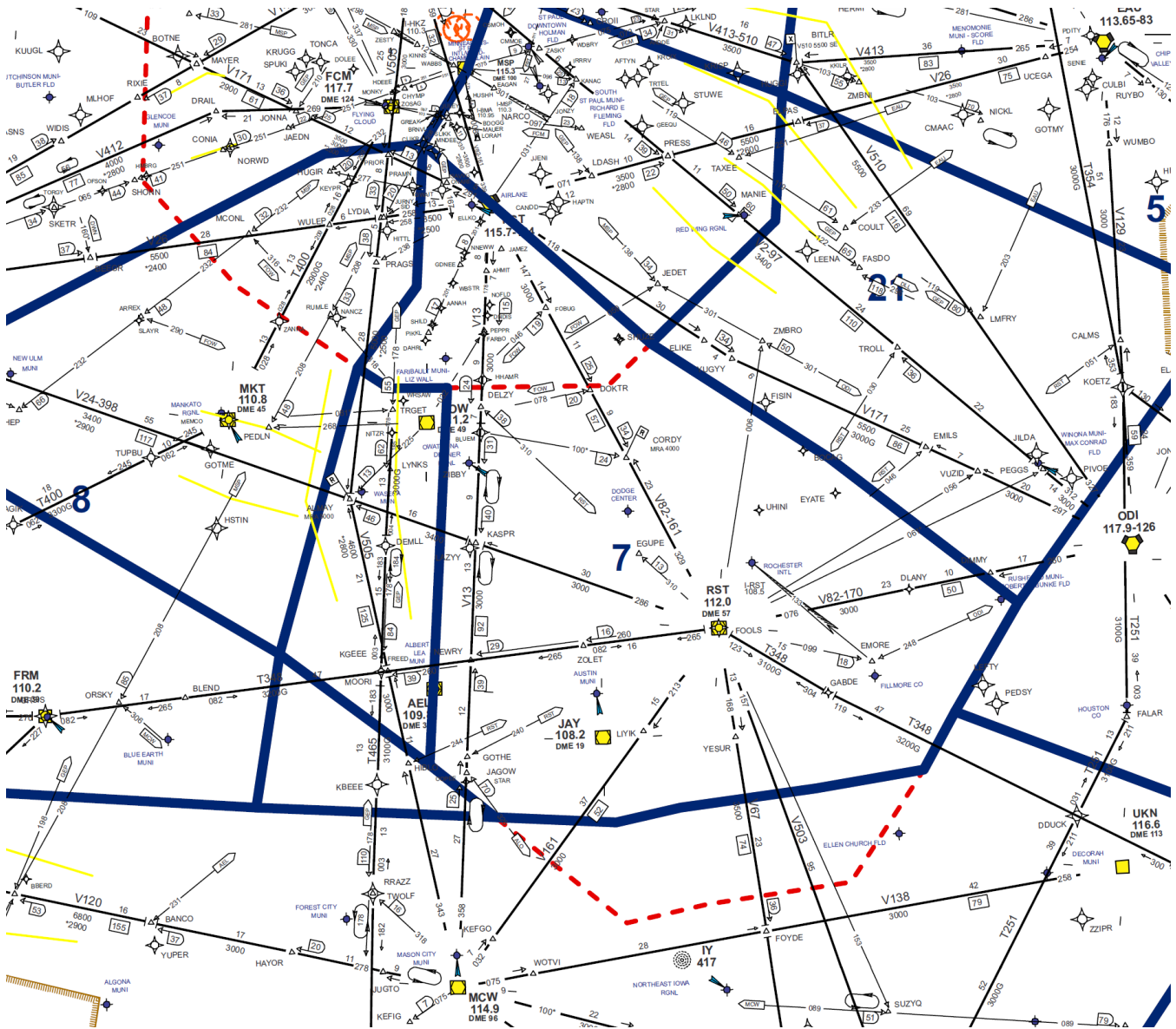
<u>Airport</u>	<u>Route</u>	<u>Restriction</u>
MSP	NITZR, BLUEM Arrivals	RNAV Turbojets
MSP	KASPR Arrival	Turboprops & Non-RNAV Turbojets
M98 Sats	TWOLF Arrival	Turbojets & Turboprops

- a.** When Optimized Profile Descents (OPDs) are in use on the NITZR and BLUEM arrivals, Sector 17 will issue a clearance to FL240 and Sector 07 will issue the “descend via” clearance. Prior coordination is required in order for Sector 17 to issue the “descend via” clearance.
 - b.** Sector 17 is not required to forward the heading information to Sector 7 on aircraft that are issued a heading to join the KASPR or TWOLF arrivals.
 - c.** Unless otherwise coordinated, M98 departures must be on a SID.
- 8.** Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>TURNS</u>	<u>ALTITUDE</u>
KASPR	S	10NM	260	RT	100-FL230
ZIBBY	S	10NM	260	RT	100-FL230
JAGOW	S	10NM	260	RT	100-FL230
LAZYY	S	10NM	280	RT	100-FL230
DEMLL	S	10NM	280	RT	100-FL230

- a.** Deviations from the above published holding procedures or additional holding locations may be authorized by the sector controller.

Sector 07 Map



SECTION 2. SECTOR 08

6.2.1 SECTOR NARRATIVE. Sector 08 is a low altitude sector controlling traffic from the surface to FL230. Sector 08's primary functionality is working M98 departures on the SCHEP and ORSKY SIDs. In addition, Sector 08 works VFR and IFR aircraft in and out of Rochester Approach and numerous small airports, including MKT, ULM, ACQ, and AEL.

6.2.2 ASSIGNMENT OF AIRSPACE

1. Sector 08 can be combined at Sector 07 or 09.
2. During single-scope operations, all sectors can be combined at Sector 07, 18, or 19.

6.2.3 SECTOR INFORMATION

1. Frequency and Sign-on Information:

Frequency	Callsign
135.0	MSP_08_CTR

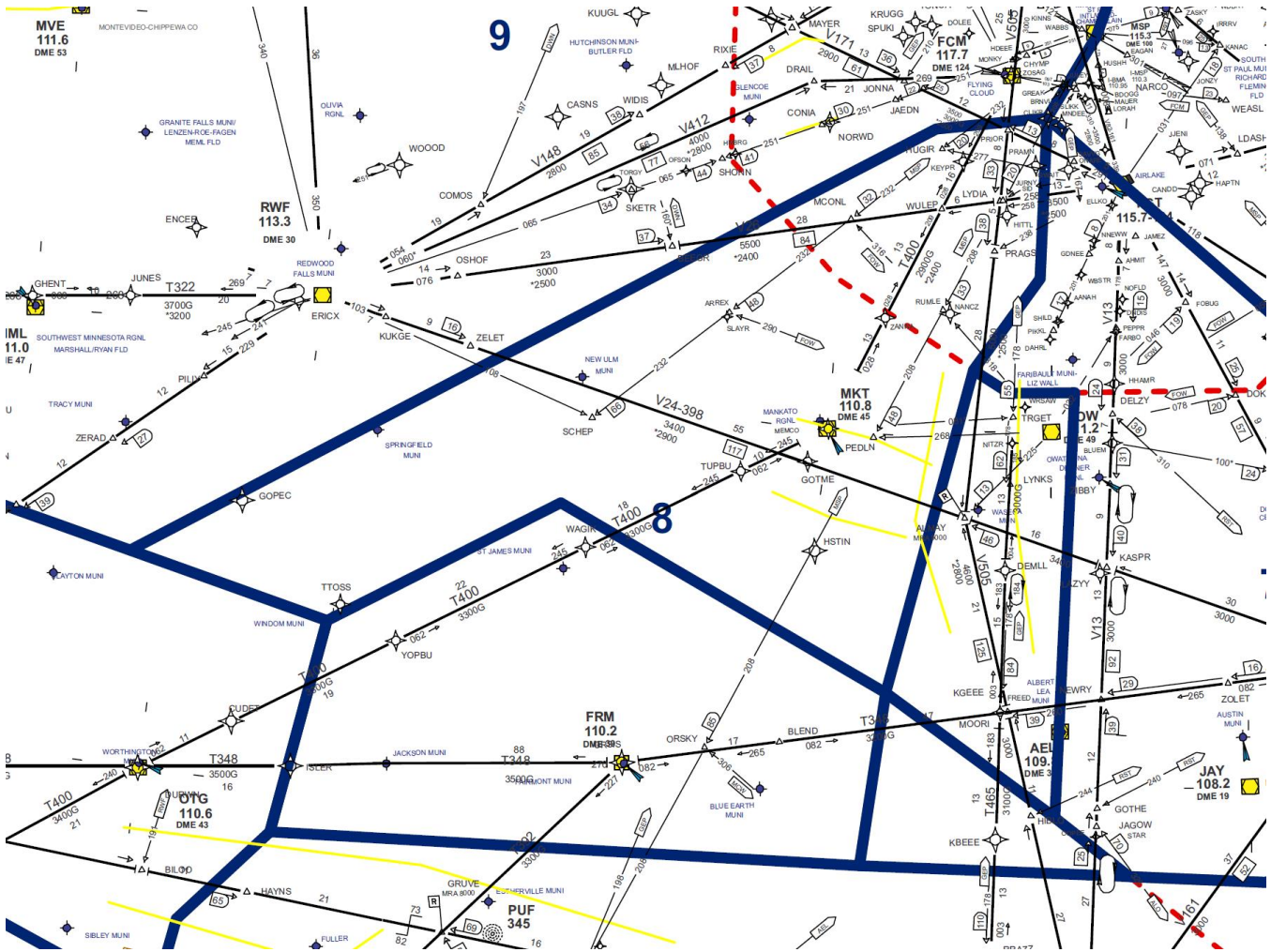
2. Unique Sector Equipment Configurations
 - a. Sector 08 range limit is normally from 60 to 75 miles.
 - b. The altitude limits to be entered at Sector 08 are 000B242.

6.2.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements:
 - a. M98 departures at or above 090 must enter Sector 08 on a heading between 210° and 240° or on the appropriate SID.
 - b. M98 departures at 070 or 080 will be on headings.
 - c. M98 departures at or below 060 will be on course.
3. Mandatory altitude requirements:
 - a. M98 piston aircraft arrivals must cross the approach control boundary at 5,000.
 - b. Satellite Arrivals:
 - Turbojets: Cross TRGET at 8,000 feet.
 - Turboprops: Cross TRGET at 7,000 feet.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.

5. Transfer of control points other than airspace boundaries:
 - a. As stated in the ZMP/M98 and ZMP/RST LOAs.
 - b. Mason City Arrival Procedures: Upon transfer of radar handoff and communications Sector 36 may turn up to 30 degrees and/or descend aircraft arriving MCW without verbal coordination.
 - c. Sector 08 releases to Sector 33 control for descent only for aircraft landing KFSD.
6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:
 - a. M98 departures entering Sector 18 must be established on the SCHEP or ORSKY SID or on course routed to remain at least 2.5nm from the Sector 18/19 or 18/17 boundary. Sector 18 has control for turns up to 30 degrees and is responsible for subsequent point outs.
7. Holding locations may be used at the controller's discretion.

Sector 08 Map



SECTION 3. SECTOR 09

6.3.1 SECTOR NARRATIVE. Sector 09 is a low altitude sector controlling traffic from the surface to FL230. Sector 09's primary functionalities are sequencing M98 arrivals on the TORGY, SKETR, and ENCEE STARs and controlling M98 departures on the SMERF, DARWIN, and LEINY SIDs. In addition, Sector 09 works VFR and IFR aircraft in and out of numerous small airports, including RWF, MML, and BDH.

6.3.2 ASSIGNMENT OF AIRSPACE

1. During single-scope operations in Area 3, all sectors will combine at Sector 07, 18, or 09.

6.3.3 SECTOR INFORMATION

1. Frequency and Sign-on Information:

Frequency	Callsign
125.5	MSP_09_CTR

2. Unique Sector Equipment Configurations
 - a. The range limit for Sector 09 is normally from 75 to 100 NM.
 - b. The altitude limits to be entered at Sector 09 are 000B242.

6.3.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements:
 - a. Minneapolis terminal area departures will be cleared via the appropriate SID by M98.
3. Mandatory altitude requirements:
 - a. Minneapolis Arrivals:
 - Non-RNAV Turbojets: Cross SHONN at 11,000 feet.
 - Turboprops: Cross SHONN at 9,000 feet.
 - b. Satellite Arrivals:
 - Turbojets: Cross RIXIE at 8,000 feet.
 - Turboprops: Cross RIXIE at 7,000 feet.
 - c. Piston Aircraft: Cross the approach control boundary at 5000 feet.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.

- 5. Transfer of control points other than airspace boundaries:
 - a. As stated in the ZMP/M98 LOA.
 - b. Sector 9 has control from Sector 19 for turns up to 40 degrees left and right of course on all M98 arrival aircraft.
 - c. Sector 11 has control from Sector 9 for turns to the north, up to 30 degrees, on all SMERF, DARWIN, and LEINY SID aircraft.
 - d. Sector 10 has control from Sector 9 for turns and descent on STC arrivals.
 - e. Sector 09 releases to Sector 33 control for descent only for aircraft landing KFSD.
 - f. Sector 33 releases to Sector 09 control for shortcut turns to M98.

6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:

Airport	Route	Restriction
MSP	TORGY Arrival	RNAV Turbojets
MSP	SKETR Arrival	Non-RNAV Turbojets & Turboprops
M98 Sats	ENCEE Arrival	Turbojets & Turboprops

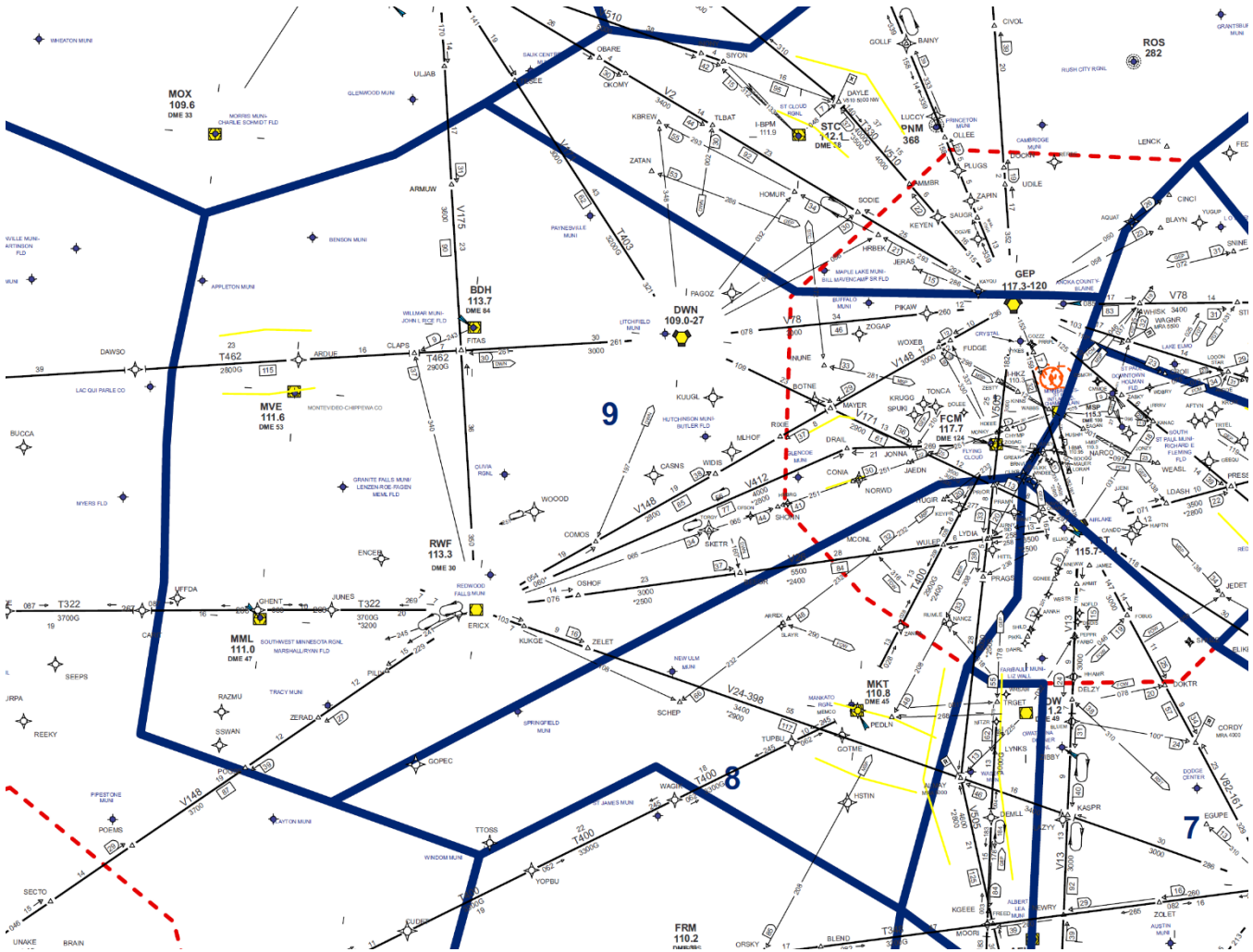
- a. When Optimized Profile Descents (OPDs) are in use on the TORGY Arrival, Sector 19 will issue a clearance to FL240 and Sector 09 will issue the “descend via” clearance. Prior coordination is required in order for Sector 19 to issue the “descend via” clearance.

7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved:

FIX	DIR	LENGTH	MAX SPEED	TURNS	ALTITDE
SKETR	SW	10NM	310	LT	070-FL230
RWF	SW	10NM	310	LT	070-FL230
ERICX	SW	10NM	280	LT	100-FL230
TORGY	SW	10NM	280	LT	100-FL230

- a. Additional holding locations may be used at the controller’s discretion.
- b. Deviations from the above holding procedures may be authorized by the sector controller.

Sector 09 Map



SECTION 4. SECTOR 17

6.4.1 SECTOR NARRATIVE. Sector 17 is a high altitude sector controlling traffic at FL240 and above. Sector 17's primary responsibilities are sequencing M98 arrivals on the NITRZ, BLUEM, KASPR, and TWOLF STARs, and controlling departures on the RST SIDs. In addition, Sector 17 works over-flight traffic, assists with in-trail restrictions and adheres to numerous altitude and flow requirements for ZAU.

6.4.2 ASSIGNMENT OF AIRSPACE

1. During single scope operations at Area 3, all sectors will combine at Sector 07, 18, or 09.

6.4.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
134.25	MSP_17_CTR

2. Unique Sector Equipment Configurations

- a. Sector 17 range limit is normally from 90 to 125.
- b. The altitude limits to be entered at Sector 17 are FL228B999.

6.4.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements:
 - a. When Optimized Profile Descents (OPDs) are in use on the NITZR and BLUEM arrivals, Sector 17 will issue a clearance to FL240. Radar handoff and transfer of communication must be accomplished as soon as practical to ensure Sector 07 has adequate time to issue the "descend via" clearance prior to the aircraft reaching FL240. Prior coordination with Sector 07 is required in order for Sector 17 to issue the "descend via" clearance.
 - b. MSP RNAV capable turbojet aircraft from Sector 30 will be cleared via the NITZR Arrival and M98 satellite (turbojet and turboprop) aircraft will be cleared via the TWOLF Arrival at or below FL330 between 0600 to 2200 local time. M98 satellite arrivals must be below or in-trail of MSP arrivals.
 - c. MSP turboprop and non-RNAV turbojet aircraft from Sector 30 must be routed via the KASPR Arrival.

- 4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.
- 5. Transfer of control points other than airspace boundaries:
 - a. Sector 7 has control for turns to the north on all M98 arrivals.
 - b. Sector 30 releases to Sector 17 control for turns of 30 degrees or less, at a point 10 miles south of the 17/30 common boundary, on all aircraft landing within M98’s airspace.
- 6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:

Airport	Route	Restriction
MSP	NITZR, BLUEM Arrivals	RNAV Turbojets
MSP	KASPR Arrival	Non-RNAV Turbojets & Turboprops
M98 Satellites	TWOLF Arrival	Turbojets & Turboprops

- a. Sector 17 is not required to forward heading formation to Sector 7 on aircraft that are issued a heading to join the KASPR or TWOLF arrivals.
 - b. Area 5 may clear turbojet arrivals that are east of FOD direct TWOLF, RRAZZ, or JAGOW without an apeq.
 - c. Unless otherwise coordinated, M98 departures will be on a SID.
7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved:

FIX	DIR	LENGTH	MAX SPEED	URNS	ALTITUDE
LAZYY	S	10NM	280	RT	FL240 & Above
DEMLL	S	10NM	280	RT	FL240 & Above
KASPR	S	1 ½ min	310	RT	FL240 & Above
TWOLF	S	1 ½ min	310	LT	FL240 & Above
MCW	W	1 ½ min	310	LT	FL240 & Above
SUZYQ	W	1 ½ min	310	LT	FL240 & Above
JAGOW	S	1 ½ min	310	RT	FL240 & Above

- a. Deviations from the above published holding procedures or additional holding locations may be authorized by the sector controller.
- b. During normal metering operations, all MSP arrivals requiring holding will be held on the KASPR Arrival at KASPR. TWOLF Arrivals will be moved to the KASPR Arrival.

SECTION 5. SECTOR 18

6.5.1 SECTOR NARRATIVE. Sector 18 is a high altitude sector controlling traffic at FL240 and above. Sector 18's primary functionality is working M98 departures on the SCHEP and ORSKY SIDs. In addition, Sector 18 assists with in-trail restrictions and works over-flight traffic.

6.5.2 ASSIGNMENT OF AIRSPACE

1. During single scope operations, all Area 3 sectors will combine at Sectors 07, 18, or 09.

6.5.3 SECTOR INFORMATION

1. Frequency and Sign-on Information:

Frequency	Callsign
128.675	MSP_18_CTR

2. Unique Sector Equipment Configurations

- a. Sector 18 range limit is normally from 120 to 150 NM.
- b. The altitude limits to be entered at Sector 18 are 228B999.

6.5.4 SECTOR PROCEDURES

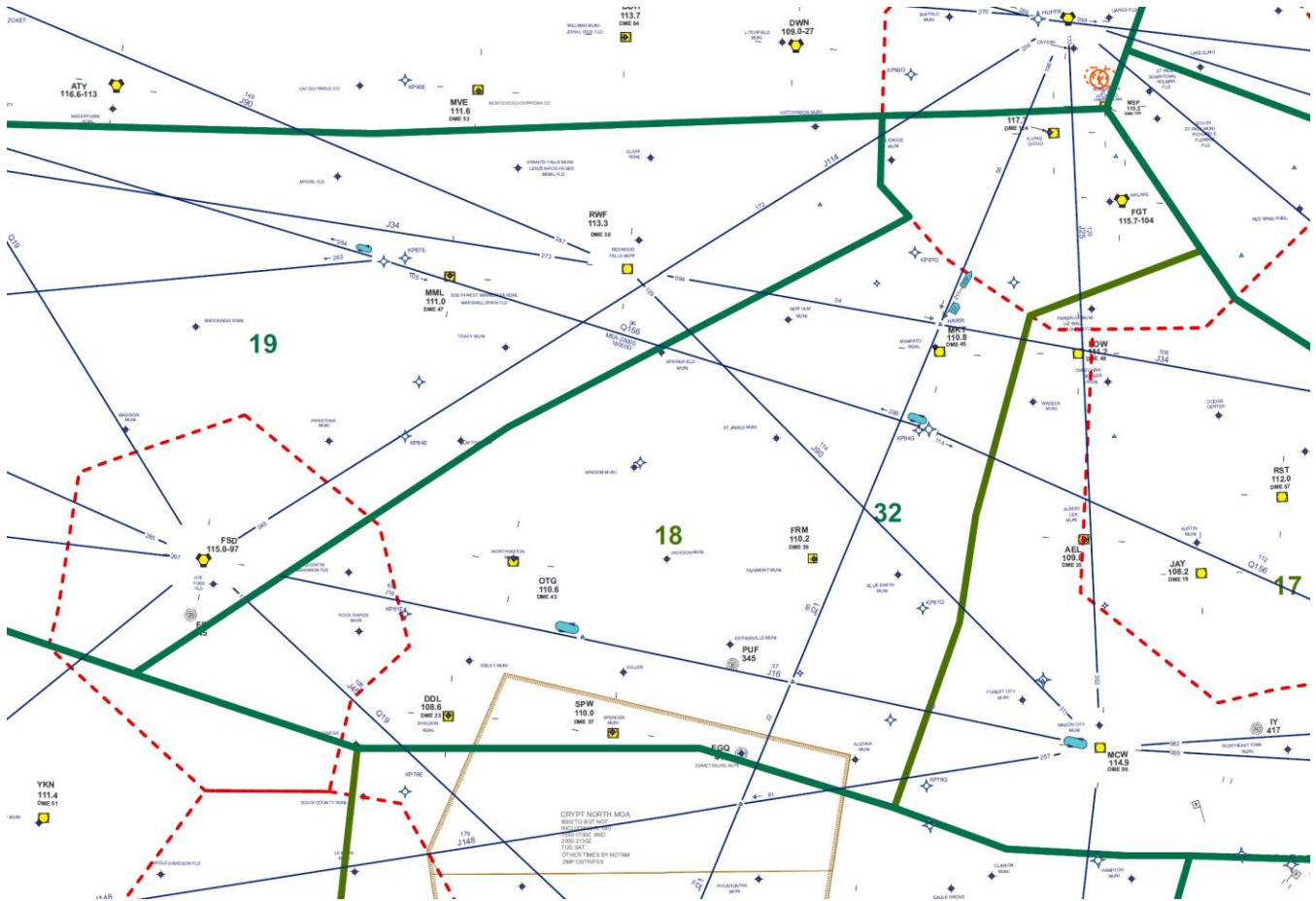
1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: None.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.
5. Transfer of control points other than airspace boundaries: See 6.a. below.
6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:
 - a. M98 departures entering Sector 18 must be established on the SCHEP or ORSKY SID or on course routed to remain at least 2.5nm from the Sector 18/19 or 18/17 boundary. Sector 18 has control for turns up to 30 degrees and is responsible for subsequent point outs.
 - b. M98 departures from Sector 18, entering Sector 30, that will enter ZKC airspace are considered at the right altitude for direction if level at, or climbing to, an westbound flight level (FL300, FL320, FL340, etc.).
 - c. M98 departures from Sector 18, entering Sector 30, that will enter ZAU airspace are considered at the right altitude for direction if level at, or climbing to, an eastbound flight level (FL290, FL310, FL330, etc.).
 - d. M98 departures from Sector 18 must be cleared on course entering Sector 30. Aircraft requiring a heading must be cleared "when able direct" next fix.
 - e. M98 departures from Sector 18, entering an Area 5 sector, landing at an airport within MSP ARTCC airspace must be level at, or climbing to, the appropriate altitude for direction crossing the sector boundary. (An example would be DSM landing traffic requiring an eastbound altitude to be assigned.)

- f. Sector 18 must verbally obtain the Sector 30 controller’s approval if altering an aircraft’s flight path, altitude or data block information if the aircraft is within five minutes flying time of the sector boundary. (Sector 30 relies on aircraft being on course to determine their east/west traffic flow situations.)
- 7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>TURNS</u>	<u>ALTITUDE</u>
HAYNS	W	10NM	265	LT	FL240 & ABV

- a. Additional holding locations may be used at the controller's discretion.
- b. Deviations from the above holding procedures may be authorized by the sector controller.

Sector 18 Map



SECTION 6. SECTOR 19

6.6.1 SECTOR NARRATIVE. Sector 19 is a high altitude sector controlling traffic at FL240 and above. Sector 19's primary functionality is sequencing M98 arrivals over the TORGY, SKETR, and ENCEE STARs. In addition, Sector 19 assists with in-trail restrictions and works over-flight traffic.

6.6.2 ASSIGNMENT OF AIRSPACE

1. During single-scope operations at Area 3, all sectors will combine at Sector 07, 18, or 09.

6.6.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
119.875	MSP_19_CTR

2. Unique Sector Equipment Configurations

- a. Sector 19 range limit is normally from 120 to 150 NM.
- b. The altitude limits to be entered at Sector 19 are 228B999.

6.6.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: None.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4: None.
5. Transfer of control points other than airspace boundaries:
 - a. Sector 9 has control from Sector 19 for turns up to 40 degrees left and right of course on all M98 arrival aircraft.
6. Radar arrival routes and restrictions for airports within sector jurisdiction:
 - a. Sector 19 is responsible for sequencing MSP landing traffic on the TORGY and SKETR STARs.
 - b. When Optimized Profile Descents (OPDs) are in use on the TORGY Arrival, Sector 19 will issue a clearance to FL240. Radar handoff and transfer of communication shall be accomplished as soon as practical to ensure Sector 09 has adequate time to issue the "descend via" clearance prior to aircraft reaching FL240. Prior coordination with Sector 09 is required in order for Sector 19 to issue the "descend via" clearance.
 - c. Turbojets and turboprops landing at M98 satellite airports will be routed via the ENCEE STAR and sequenced as necessary.

7. Normally used sector holding fixes to include published/unpublished hold, allowable altitudes, maximum speed, maximum length, direction of turn, direction from fix, and (if applicable) published procedures involved:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>MAX SPEED</u>	<u>URNS</u>	<u>ALTITUDE</u>
SKETR	SW	10NM	265	LT	FL240 & ABV
RWF	SW	10NM	265	LT	FL240 & ABV
ERICX	SW	10NM	280	LT	FL240 & ABV
TORGY	SW	10NM	280	LT	FL240 & ABV

- a. Additional holding locations may be used at the controller's discretion.
- b. Deviations from the above holding procedures may be authorized by the sector controller.

CHAPTER 7. AREA 4

SECTION 1. SECTOR 20

7.1.1 SECTOR NARRATIVE

Sector 20 is a high altitude sector (FL240 and above) working mostly air carrier and military aircraft transitioning the sector. The main traffic flow is East/West, with occasional North/South traffic. Sector 20 is responsible for ORD and MSP MIT when in effect. The sector is bordered to the far west by Salt Lake City Center and to the west and southwest by Denver Center. The remainder of the sector is bordered by Minneapolis Center sectors.

7.1.2 ASSIGNMENT OF AIRSPACE

All Area 4 sectors combine with Sector 20 for a one sector configuration.

7.1.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
128.425	MSP_20_CTR

2. Unique Sector Equipment Configurations

- a. Sector 20 range limit is normally 150.
- b. The altitude limits to be entered at Sector 20 are 228B999.

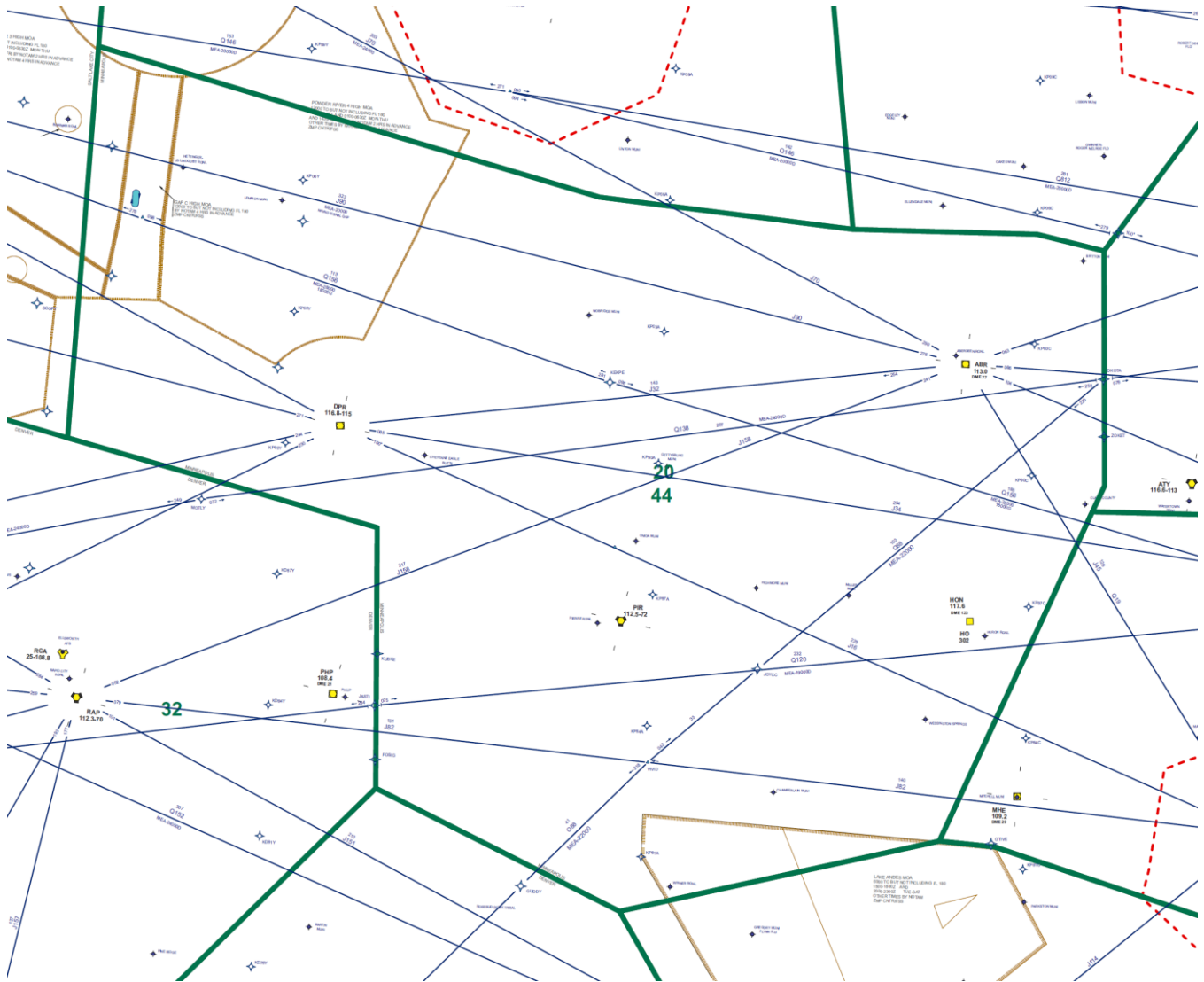
7.1.4 SECTOR PROCEDURES

1. Sector Specific Directives

- a. Acceptance of a handoff by Sector 24 on landing traffic with descend clearance to FL240 is approval of IAFDOF.
2. Mandatory speed restrictions: None.
3. Mandatory heading requirements: None.
4. Mandatory altitude requirements: None.
5. Sector handoff/point out procedures if different from requirements of Order 7110.65, Chapter 5, Section 4: None.

- 6.** Transfer of control points other than airspace boundaries:
 - a.** All Area 4 sectors release to other Area 4 sectors control for turns of up to 20 degrees within 20 nautical miles of the lateral boundary. Unless otherwise specified, control for turns is not released between stratum.
 - b.** Sector 20 releases control to sector 23 for turns of up to 20 degrees on aircraft landing KDIK and KBIS.
 - c.** Those covered by Salt Lake City Center Letter of Agreement.
- 7.** Radar arrival routes and restrictions for airports within sector jurisdiction:
 - a.** Aircraft on the TORGY Arrival must not be cleared direct to a fix beyond ERICX without prior approval from Sector 19.
- 8.** Normally used sector holding fixes:
 - a.** Holding locations may be used at the controller's discretion.

Sector 20 Map



SECTION 2. SECTOR 22

7.2.1 SECTOR NARRATIVE

Sector 22 is a high altitude sector with boundaries which overly Sectors 24 and 25. Sector 22's airspace encompasses FL240 and above. Air carriers, air taxis, military, and civilian aircraft are all a part of the traffic flow for this sector. Winnipeg Center (YWG) is this sector's northern border. Handoffs must be manually coordinated with YWG controllers. The remainder of this sector is bordered by Minneapolis Center sectors.

7.2.2 ASSIGNMENT OF AIRSPACE

1. Sector 22 will normally be combined at Sector 24/25.
2. Sector 22 has the ability to assume airspace overlying either Sector 24 or 25, or assume the airspace overlying both.

7.2.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
134.55	MSP_22_CTR

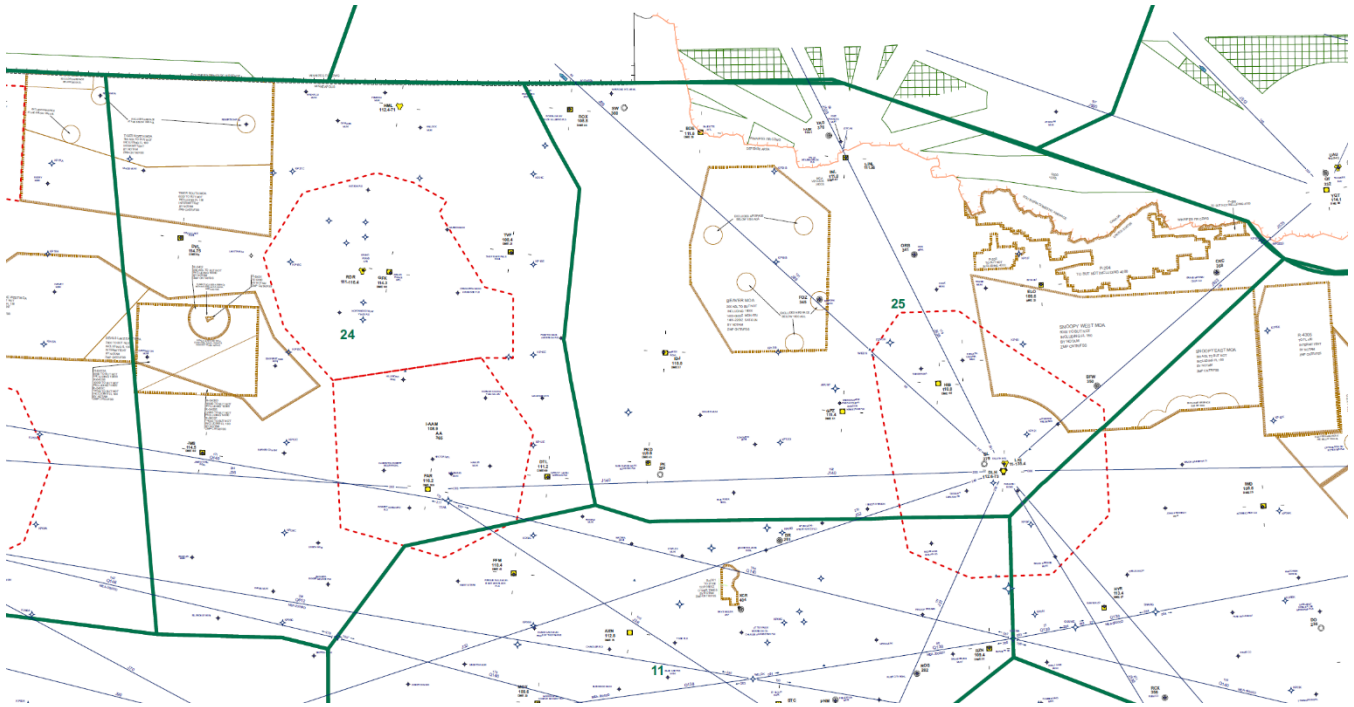
2. Unique Sector Equipment Configurations
 - a. Sector 22 range limit is normally 150 or 225 depending on configuration.
 - b. The altitude limits to be entered at Sector 22 are 228B999.

7.2.4 SECTOR PROCEDURES

1. Sector Specific Directives
 - a. Acceptance of a handoff from Sector 20 on landing traffic with a descent clearance to FL240 is approval of IAFDOF.
2. Mandatory speed restrictions: None.
3. Mandatory heading requirements: None.
4. Mandatory altitude requirements: See YWG LOA.
5. Sector handoff/point-out procedures if different from requirements of Order 7110.65, Chapter 5, Section 4: None.

6. Transfer of control points other than airspace boundaries:
 - a. All Area 4 sectors release to other Area 4 sectors control for turns of up to 20 degrees within 20 nautical miles of the lateral boundary. Unless otherwise specified, control for turns is not released between stratum.
 - b. Upon completion of a radar handoff, Sector 22 releases control to Sector 11 for descent to FL240 and turns up to 30 degrees on all M98 arrivals within the lateral airspace boundaries of Sector 25 and within 30 miles of the Sector 11 boundary.
 - c. Areas 1 and 4 mutually release control for turns up to 20 degrees within 20 miles of the sector boundary.
 - d. When sector 22 is open over sector 25, sector 22 releases to sector 11 control for descent to FL240 and turns of up to 30 degrees within 30 NM of the boundary for M98 arrivals. In this configuration, sector 10 is responsible for any point outs required with sector 25.
7. Radar arrival/departure routes and restrictions for airports within sector jurisdiction: None.
8. Normally used sector holding: Holding locations may be used at the controller's discretion.

Sector 22 Map



SECTION 3. SECTOR 23

7.3.1 SECTOR NARRATIVE

Sector 23 is a HIGH/LOW altitude sector with a shelf to the south and southeast of Dickinson (known as DPR LOW) from the surface to FL230. All types of aircraft (military, air carrier, air taxi, and civilian) are worked by Sector 23 controllers. Winnipeg Center is this sector's northern border. Radar handoffs must be coordinated manually with the Canadian controllers. To the west is Salt Lake City Center, and to the south is Denver Center. To the east and south are Minneapolis Center sectors. There are two approach controls which work with Sector 23, Minot RAPCON works airspace FL230 and below, and Bismarck Approach controls airspace 15,000 MSL and below.

7.3.2 ASSIGNMENT OF AIRSPACE

1. During times when Minot Approach Control and Bismarck Approach Control are not operational, delegated airspace will revert back to ZMP Sector 23's control.

7.3.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
127.6	MSP_23_CTR

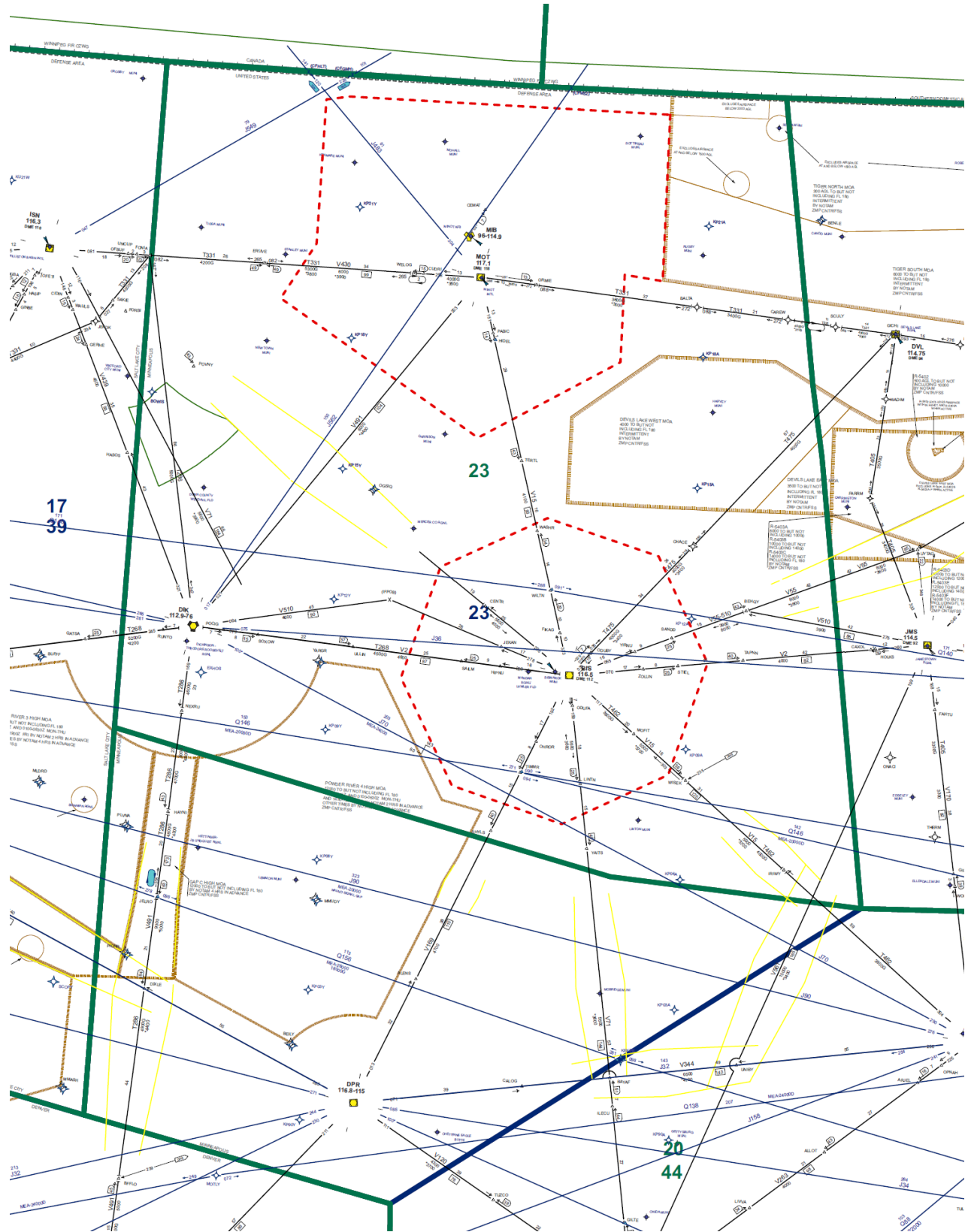
2. Unique Sector Equipment Configurations
 - a. Sector 23 range limit is normally from 125 to 150.
 - b. The altitude limits to be entered at Sector 23 are 000B999.

7.3.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See BIS and MOT LOA.
4. Sector handoff/point-out procedures if different from requirements of Order 7110.65, Chapter 5, Section 4: None.

5. Transfer of control points other than airspace boundaries:
 - a. All Area 4 sectors release to other Area 4 sectors control for turns of up to 20 degrees within 20 nautical miles of the lateral boundary. Unless otherwise specified, control for turns is not released between stratus.
 - b. Sector 20 releases control to sector 23 for turns of up to 20 degrees on aircraft landing KDIK and KBIS.
 - c. Sector 23 releases control to sector 24 for descent on aircraft landing KFAR, KGFK, and KJMS.
 - d. Sector 24 releases control to sector 23 for descent on aircraft landing KMOT, KMIB, and KBIS.
 - e. Those covered by Salt Lake City Center, BIS Approach and MOT Approach Letters of Agreement.
6. Radar arrival/departure routes and restrictions for airports within sector jurisdiction: None.
7. Normally used sector holding fixes: Holding locations may be used at the controller's discretion.

Sector 23 Map



SECTION 4. SECTOR 24

7.4.1 SECTOR NARRATIVE

Sector 24 is a high/low altitude sector working airspace from the surface up. Air carriers, air taxis, military, and civilian aircraft are all a part of the traffic flow for this sector. Winnipeg Center is this sector's northern border. Radar handoffs must be coordinated manually with the Canadian controllers. The remainder of the sector is bordered by Minneapolis Center sectors. Sector 24 controllers work with two approach controls, Grand Forks RAPCON and Fargo Approach.

7.4.2 ASSIGNMENT OF AIRSPACE

1. During times when Grand Forks and Fargo Approach Controls are not operational, respective delegated airspace reverts back to ZMP Sector 24's control.

7.4.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
124.2	MSP_24_CTR

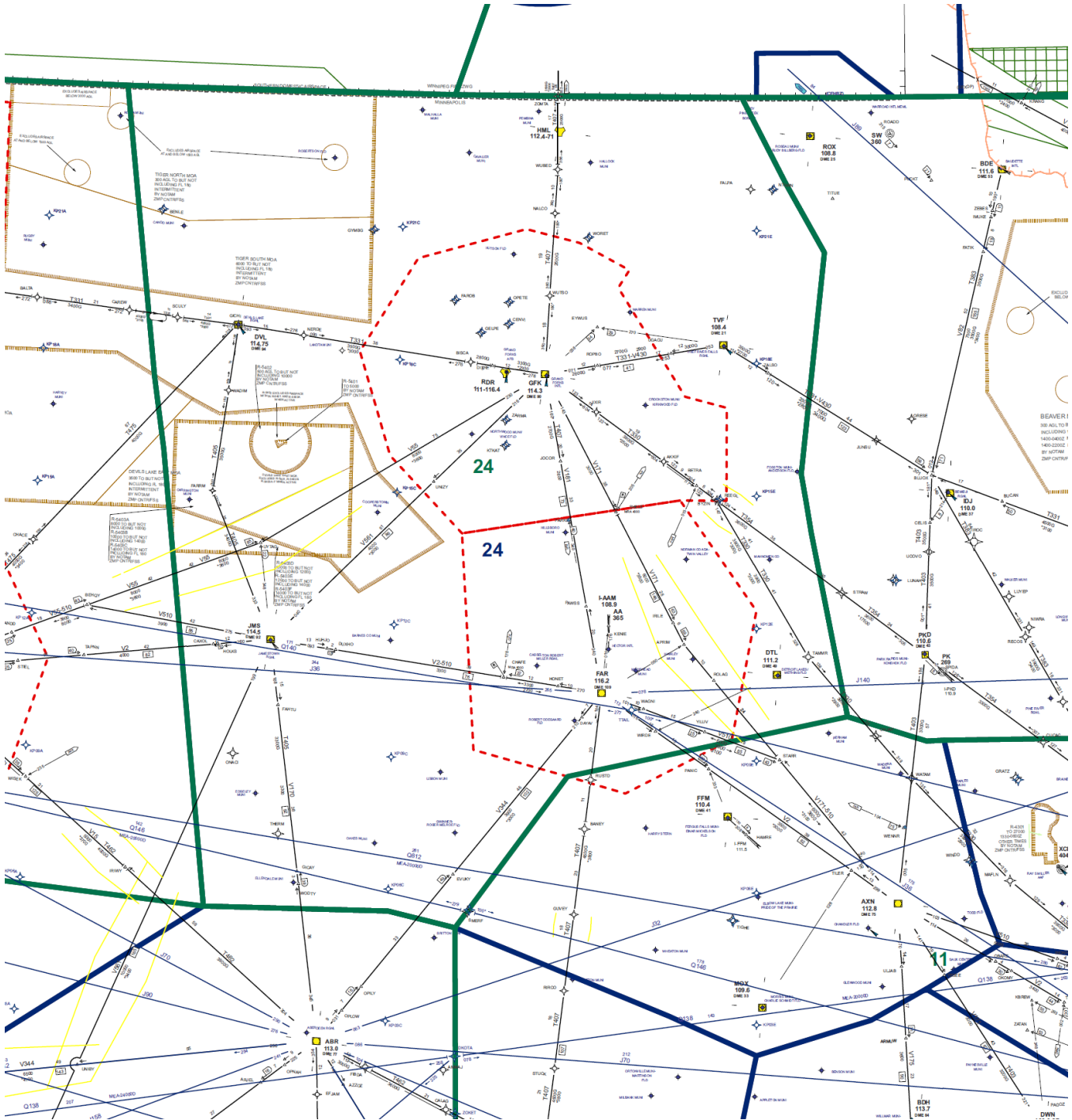
2. Unique Sector Equipment Configurations
 - a. Sector 24 range limit is normally 150.
 - b. The altitude limits to be entered at Sector 24 are 000B999.

7.4.4 SECTOR PROCEDURES

1. Sector Specific Directives
 - a. Acceptance of a handoff from Sector 20 on landing traffic with descent clearance to FL240 is approval of IAFDOF.
2. Mandatory speed restrictions: None.
3. Mandatory heading requirements: None.
4. Mandatory altitude requirements: See FAR, GFK, and YWG LOAs.
5. Sector handoff/point-out procedures that differ from requirements of FAAO 7110.65, Chapter 5, Section 4: None.

6. Transfer of control points other than airspace boundaries:
 - a. All Area 4 sectors release to other Area 4 sectors control for turns of up to 20 degrees within 20 nautical miles of the lateral boundary. Unless otherwise specified, control for turns is not released between stratum.
 - b. Sector 24 releases control to sector 23 for descent on aircraft landing KMOT, KMIB, and KBIS.
 - c. Sector 23 releases control to sector 24 for descent on aircraft landing KFAR, KGFK, and KJMS.
 - d. Sector 25 releases control to sector 24 for descent on all aircraft landing KFAR, KGFK, and KTVF.
 - e. Acceptance by sector 10 of an automated point out for aircraft landing KFAR releases to sector 24 control for descent. Additionally, if sector 10 is combined at sector 11, the combined sector releases to sector 24 control for descent for aircraft landing KFAR.
 - f. Acceptance by sector 33 of an automated pointout for aircraft landing KFAR releases to sector 24 control for descent.
 - g. Upon completion of a radar handoff, Sector 24 releases to Sector 10, control for turns of up to 30 degrees and descent on all M98 arrivals filed on the GEP or BAINY STARs AOB FL230.
 - h. Upon completion of a Radar handoff and transfer of communication, Sector 10 releases control, for descent and turns of 30 degrees, to Sector 24 on all AXN landing traffic. Sector 24 is responsible for any necessary point outs as a result of turns issued by Sector 24.
 - i. See FAR and GFK Letters of Agreement.
7. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:
 - a. Aircraft on the BAINY Arrival must not be cleared direct to a fix beyond WINDD without prior approval from Sector 11.
 - b. Aircraft on the TORGY Arrival must not be cleared direct to a fix beyond ERICX without prior approval from Sector 19.
8. Normally used sector holding: Holding locations may be used at the controller's discretion.

Sector 24 Map



SECTION 5. SECTOR 25

7.5.1 SECTOR NARRATIVE

Sector 25 is a HIGH/LOW altitude sector working aircraft of all types and performance levels from the surface up. Sector 25 works the BRD shelf from the SFC to 8000 MSL. Winnipeg Center is this sector's northern border. Radar handoffs must be coordinated manually with the Canadian controllers. All other boundaries are with Minneapolis Center sectors. Sector 25 works with two Approach Controls. Duluth is fully automated, and Thunder Bay, which requires manual coordination.

7.5.2 ASSIGNMENT OF AIRSPACE

1. During those times that Duluth Approach Control is non-operational, the delegated airspace reverts back to ZMP Sector 25's control, including said airspace underlying ZMP Sectors 03 and 10.

7.5.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
134.75	MSP_25_CTR

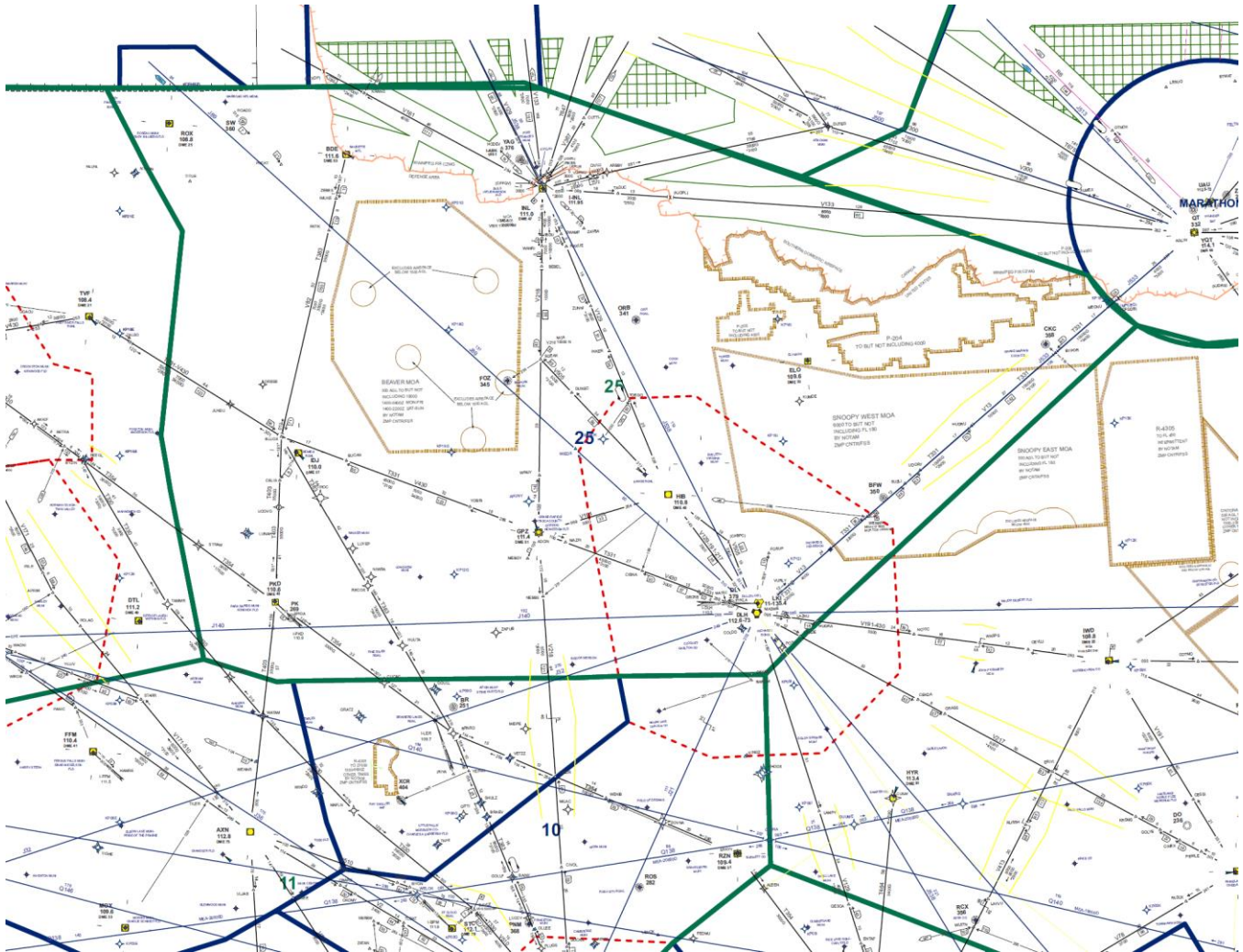
2. Unique Sector Equipment Configurations
 - a. Sector 25 range limit is normally from 125 to 150.
 - b. The altitude limits to be entered at Sector 25 are 000B999.

7.5.4 SECTOR PROCEDURES

1. Sector Specific Directives
 - a. Upon completion of a radar handoff, Sector 25 will release control to Sector 11 for descent to FL240 and turns up to 30 degrees for all M98 arrivals when 30 miles north of the Sector 11 boundary. Sector 25 must ensure separation with other aircraft, within their sector, that may be affected by release of control.
2. Mandatory speed restrictions: None.
3. Mandatory heading requirements: None.
4. Mandatory altitude requirements:
 - a. Departures off airports within the BRD shelf requesting 9,000 feet or higher will be stopped at 8,000 feet without need of an APREQ for inappropriate altitude for direction of flight.
 - b. Arrivals from Sector 10 into KGPZ, KPKD, and airports in the BRD shelf will be descending to 9,000 feet or will be at altitude if at or below 8,000 feet. Sector 10 releases control for turns up to 30 degrees and descent upon transfer of communication.
 - c. See YWG LOA.

5. Sector handoff/point-out procedures that differ from requirements of FAAO 7110.65, Chapter 5, Section 4: None.
6. Transfer of control points other than airspace boundaries:
 - a. All Area 4 sectors release to other Area 4 sectors control for turns of up to 20 degrees within 20 nautical miles of the lateral boundary. Unless otherwise specified, control for turns is not released between stratus.
 - b. Areas 1 and 4 mutually release control for turns up to 20 degrees within 20 miles of the boundary.
 - c. Sector 25 releases control to sector 24 for descent on all aircraft landing KFAR, KGFK, and KTVF.
 - d. When sector 22 is open over sector 25, sector 22 releases to sector 11 control for descent to FL240 and turns of up to 30 degrees within 30 NM of the boundary for M98 arrivals. In this configuration, sector 10 is responsible for any point outs required with sector 25.
 - e. Sector 25 releases to sector 10 control for descent to 9000 and turns of up to 30 degrees within 30 NM of the boundary for M98 arrival aircraft.
 - f. See Duluth LOA
 - g. See 7.5.4 4b above.
 - h. Upon completion of a radar handoff, Sector 25 releases control to Sector 11 for descent to FL240 and turns up to 30 degrees on all M98 arrivals within 30 miles of the Sector 11 boundary.
7. Radar arrival/departure routes and restrictions for airports within sector jurisdiction:
 - a. Aircraft on the BAINY Arrival must not be cleared direct to a fix beyond SHULZ on the GGULL transition or MILAC on the COLDD transition without prior approval from Sector 11.
8. Normally used sector holding fixes: None.

Sector 25 Map



SECTION 6. SECTOR 33

7.6.1 SECTOR NARRATIVE

Sector 33, also known as “PIR LOW”, is a low altitude (FL230 and below) sector working mostly air taxis and general aviation aircraft. The sector is bordered to the west by Denver Center. The remainder of this sector is bordered by Minneapolis Center sectors. Sector 33 works with Sioux Falls Approach.

7.6.2 ASSIGNMENT OF AIRSPACE

1. During those times when Sioux Falls Approach Control is not operational, FSD delegated airspace reverts back to ZMP Sector 33 control.

7.6.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
125.1	MSP_33_CTR

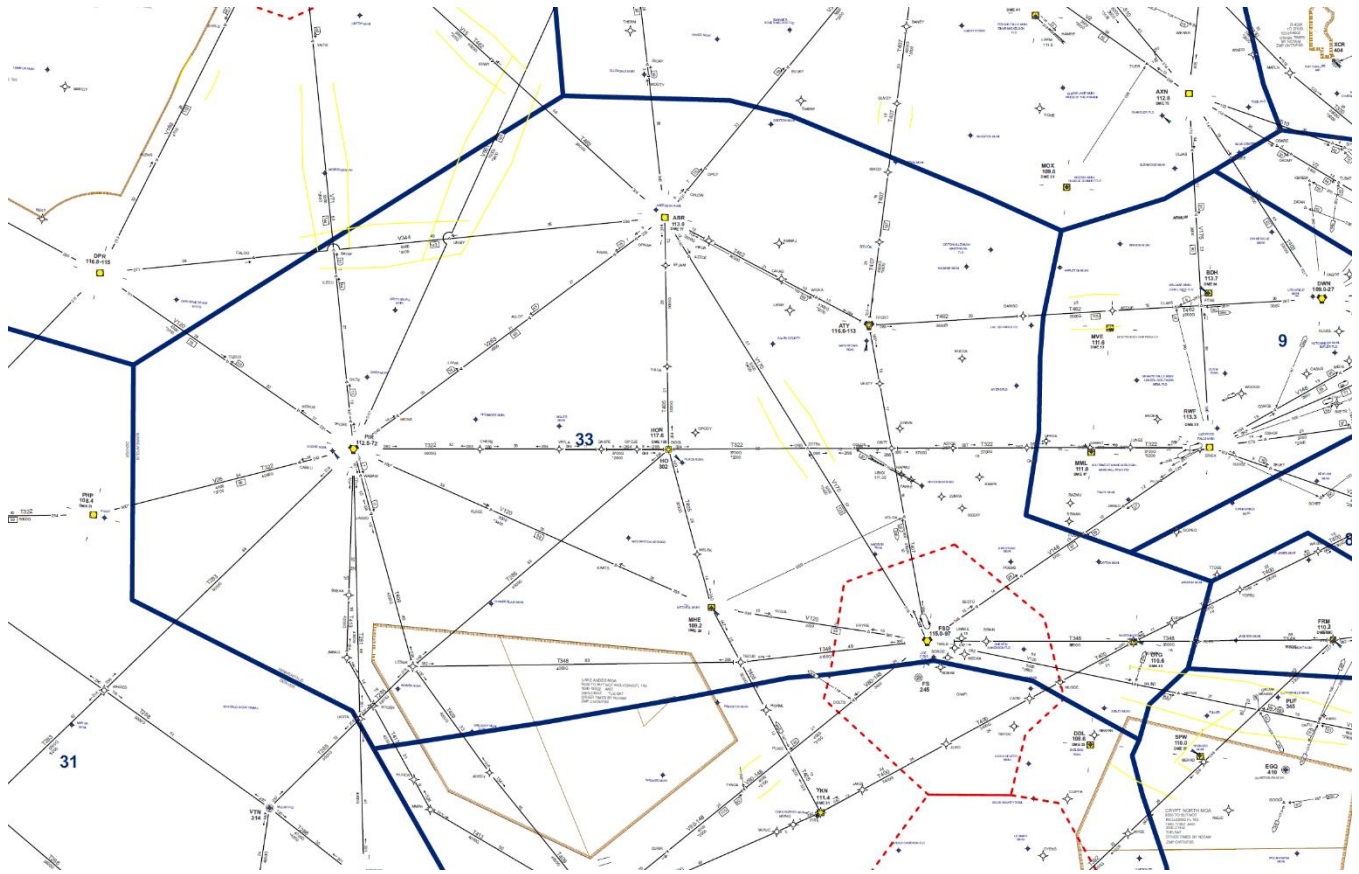
2. Unique Sector Equipment Configurations:
 - a. Sector 33 range limit is normally from 150 to 200.
 - b. The altitude limits to be entered at Sector 33 are 000B242.

7.6.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements:
 - a. MSP RNAV turbojet arrivals shall be cleared via the TORGY arrival and shall not be cleared beyond ERICX. MSP non-RNAV turbojet and turboprop arrivals shall be cleared via RWF and the SKETR arrival. M98 piston arrivals may be cleared direct destination.
3. Mandatory altitude requirements:
 - a. See FSD LOA.
 - b. Arrivals from Sector 37 landing at ICR must be descending to 7,000 feet, or will be level at altitude if at or below 7,000 feet. Sector 33 has control of these aircraft within 20 nm of the sector boundary.
 - c. Arrivals from Sector 37 landing at MHE must be descending to 7,000 feet, or will be level at altitude if at or below 7,000 feet. Sector 33 has control of these aircraft within 20 nm of the sector boundary.

- 4.** Sector handoff/point-out procedures if different from requirements of FAAO 7110.65:
 - a.** Acceptance by sectors 33, 36 or 37 of an automated pointout for aircraft landing KFSD also releases to the initiating sector control for descent.
- 5.** Transfer of control points other than airspace boundaries:
 - a.** All Area 4 sectors release to other Area 4 sectors control for turns of up to 20 degrees within 20 nautical miles of the lateral boundary. Unless otherwise specified, control for turns is not released between stratum
 - b.** Sectors 08 and 09 release to sector 33 control for descent only for aircraft landing KFSD.
 - c.** Sector 33 releases to sector 09 control for shortcut turns and speed assignments on all M98 arrivals.
 - d.** Acceptance by sector 33 of an automated pointout for aircraft landing KFAR releases to sector 24 control for descent
 - e.** Those covered by Sioux Falls (FSD) Letter of Agreement.
- 6.** Radar arrival routes and restrictions for airports within sector jurisdiction: None.
- 7.** Normally used sector holding fixes:
 - a.** Holding locations may be used at the controller's discretion.

Sector 33 Map



CHAPTER 8. AREA 5

SECTION 1. SECTOR 26

8.1.1 SECTOR NARRATIVE

Sector 26 is a low altitude sector from the surface up to and including FL230. The sector consists of a VFR tower at GRI and two approach controls at OMA and SUX. OMA has established STARs and PDRs due to their higher volume of traffic.

8.1.2 ASSIGNMENT OF AIRSPACE

When OMA Approach is closed, Sector 26 will assume control of the OMA airspace. Sector 37 will assume control of the SUX airspace when SUX approach is closed.

8.1.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
119.4	MSP_26_CTR

2. Sector configuration

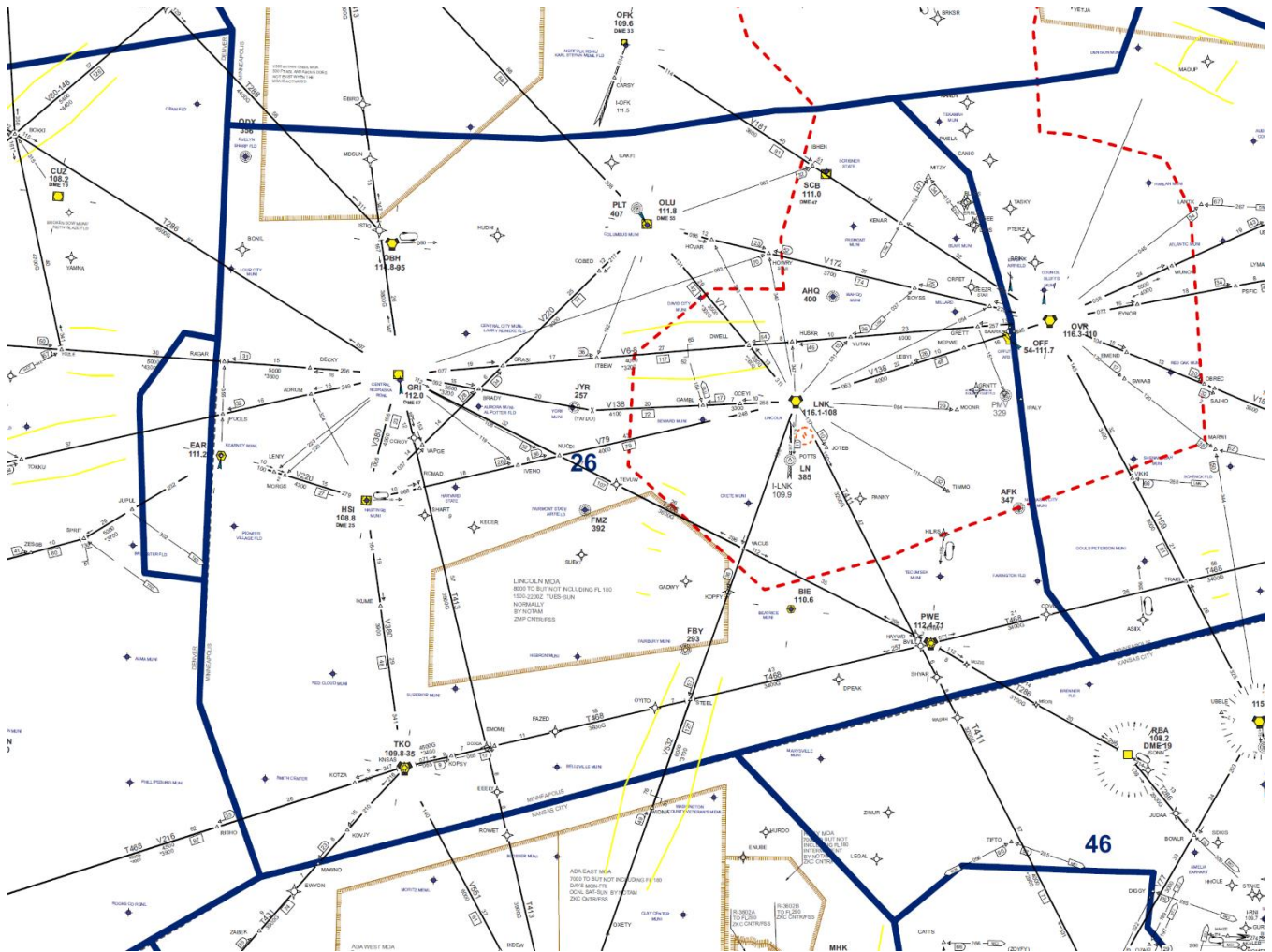
- a. Sector 26 range limit is normally from 100 to 150 miles.
- b. The altitude limits to be entered at Sector 26 are 000B242.

8.1.4 SECTOR PROCEDURES

1. Mandatory heading requirements: See R90 LOA.
2. Mandatory altitude requirements: See R90, SUX, and GRI LOAs.
3. Transfer of control points and coordination: See corresponding LOAs.
 - a. ZMP Sectors 26 and 39
 - 1) OMA, LNK and Kansas City area arrivals from high altitude: Sectors 38 and 39 release control to Sector 26 for pilot's discretion descent on those subject arrivals which have previously been issued a descent to FL240.
 - b. ZMP Sectors 26 and 37
 - 1) Acceptance of a radar handoff by Sector 26 on R90 arrivals descending to 160 constitutes altitude approval.
 - 2) Acceptance of a radar handoff by Sector 37 on SUX arrivals descending to 110 constitutes altitude approval.
 - 3) Sector 26/37 releases control for turns, of up to 20 degrees left or right of course, to Sector 37/26 for aircraft within 20NM of the 26/37 common boundary.

- c. ZMP Sectors 26 and 27
 - 1) Sector 26/27 releases control for turns, of up to 20 degrees left or right of course, to Sector 27/26 for aircraft within 20NM of the 26/27 common boundary.
- 4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. MCI area arrivals: Acceptance of an automated point out from Sector 39, on aircraft routed DPEAK direct JSONN, required to cross DPEAK AOB FL230 as specified in the ZMP/ZKC Letter of Agreement constitutes approval for Sector 39 to descend that aircraft to FL230.
 - b. Acceptance of an automated point out to sector 37, from sector 26, on all aircraft landing within R90 airspace AOA FL240, constitutes approval for descent to 110.

Sector 26 Map



SECTION 2. SECTOR 29

8.2.1 SECTOR NARRATIVE

Sector 29 is a high altitude sector controlling FL240 and above. The basic traffic flow is generally east and west with departure traffic from MSP mixing into the stream. Sector 29 sequences traffic for ORD, JFK, and DEN.

8.2.2 ASSIGNMENT OF AIRSPACE

All Area 5 sectors combine at Sector 29.

8.2.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
124.875	MSP_29_CTR

2. Sector configuration

- a. Sector 29 range limit is normally from 95 to 150 miles.
- b. The altitude limits to be entered at Sector 29 are 228B999.

8.2.4 SECTOR PROCEDURES

1. Sector specific directives:

- a. All RNAV capable turbojet MSP landing traffic from Sector 29 entering sectors 18 or 19 must be routed FSD..SSWAN.TORGY arrival. These arrivals may be direct SSWAN if the route remains west of FSD.
- b. All turboprop and non-RNAV capable turbojet MSP landing traffic from Sector 29 entering sectors 18 or 19 must be routed FSD..RWF.SKETR arrival. These arrivals may be direct RWF if the route remains west of FSD.
- c. All M98 satellite landing traffic from Sector 29 entering sectors 18 or 19 must be routed FSD..ENCEE.ENCEE arrival. These arrivals may be direct ENCEE if the route remains west of FSD.

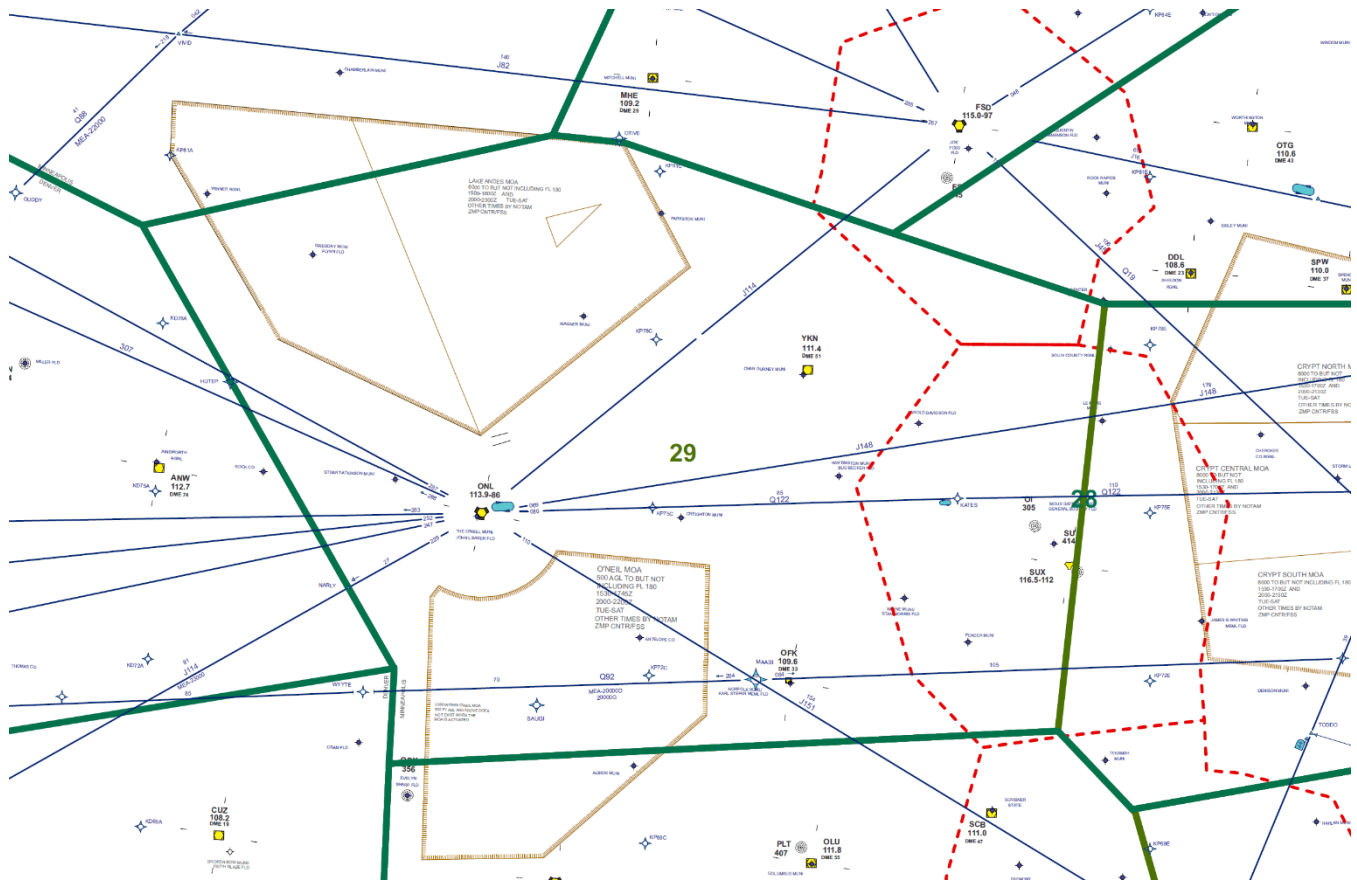
2. Transfer of control points:

- a. See ZDV LOA.
- b. Sectors 29/39 release control for turns, of up to 20 degrees left or right of course, for aircraft within 20NM from the common sector boundary.
- c. Sector 29/30 releases control for turns, of up to 20 degrees left or right of course, to Sector 30/29 for aircraft within 20NM of the 29/30 common boundary.

3. Normally used sector holding fixes:

<u>FIX</u>	<u>DIR</u>	<u>LENGTH</u>	<u>TURNS</u>	<u>ALTITUDE</u>
ONL	E	10NM	RT	FL240 and above
KATES	W	10NM	RT	FL240 and above

Sector 29 Map



SECTION 3. SECTOR 30

8.3.1 SECTOR NARRATIVE

Sector 30 is a high altitude sector working traffic at FL240 and above. The basic traffic pattern is generally east and west with north and south traffic causing crossing situations within close proximity of the sector boundary. Sector 30 sequences traffic for ORD and JFK.

8.3.2 ASSIGNMENT OF AIRSPACE

All area 5 sectors combine at Sector 29.

8.3.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
135.775	MSP_30_CTR

2. Sector configuration

- a. Sector 30 range limit is normally from 95 to 150 NM.
- b. The altitude limits to be entered at Sector 30 are 228B999.

8.3.4 SECTOR PROCEDURES

1. Sector specific directives

- a. MSP RNAV jet aircraft from Sector 30 must be cleared via the NITZR Arrival at or below FL330 between 0600 and 2200 local time.
- b. MSP turboprop and non-RNAV jet aircraft from Sector 30 must be cleared via the KASPR Arrival at or below FL330 between 0600 and 2200 local time.
- c. M98 satellite (jet and turboprop) aircraft from Sector 30 must be cleared via the TWOLF Arrival at or below FL330 between 0600 and 2200 local time. MSP satellite arrivals must be below or in trail of MSP arrivals.
- d. Area 5 may clear M98 Jet arrivals that are east of FOD direct TWOLF, RRAZZ, or JAGOW without an apeq.
- e. M98 departures from Sector 18 entering Sector 30 that will enter ZKC airspace are considered at the right altitude for direction if level at or climbing to a westbound altitude.
- f. M98 departures from Sector 18, entering Sector 30, that will enter ZAU airspace are considered at the right altitude for direction if level at or climbing to an eastbound altitude.
- g. M98 departures from Sector 18, entering an Area 5 sector landing at an airport within ZMP must be level at, or climbing to, the appropriate altitude for direction of flight crossing the sector boundary. (An example would be DSM landing traffic requiring an eastbound altitude to be assigned).

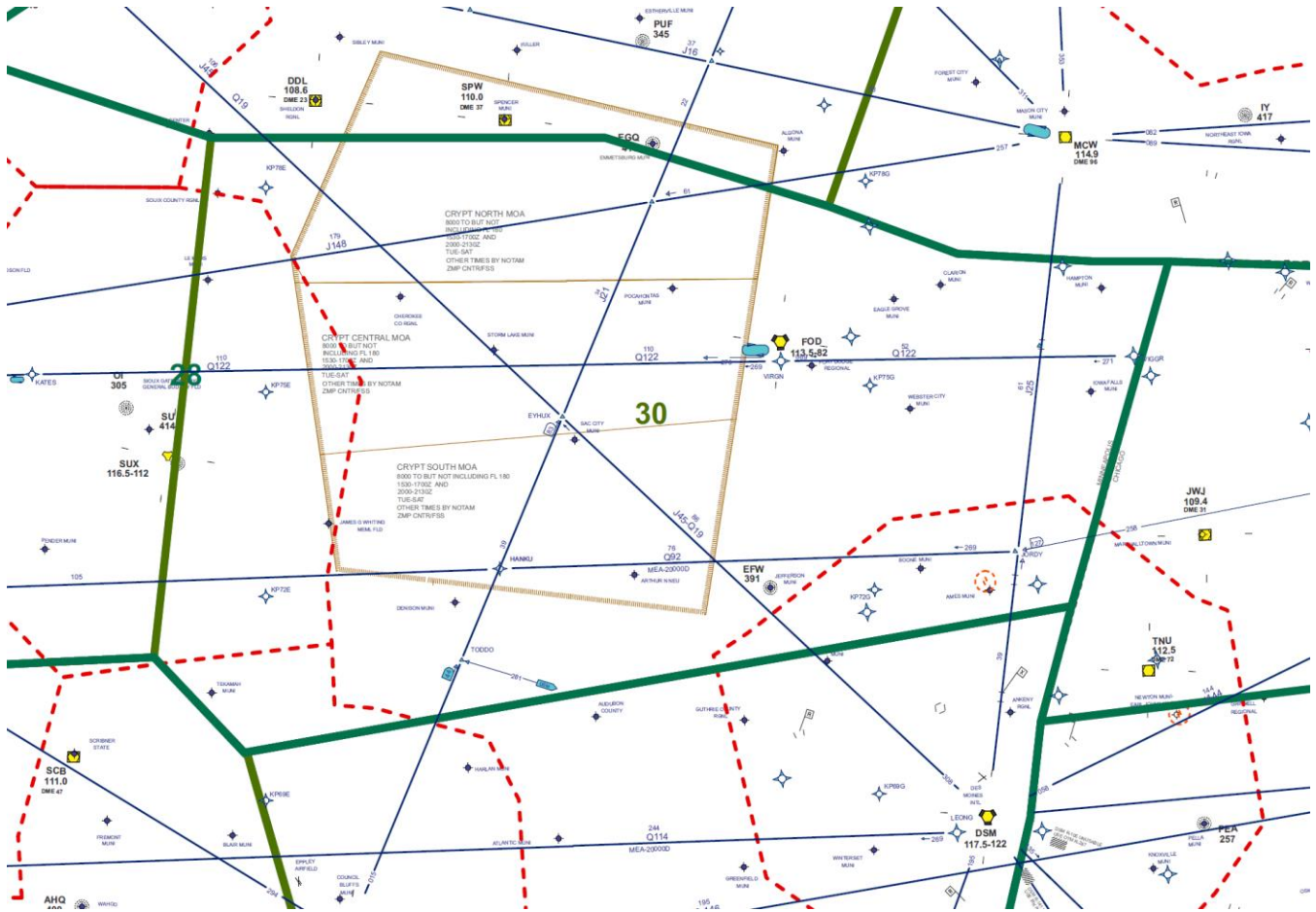
2. Transfer of control points:

- a.** Sector 17 has control for turns 30 degrees or less, at a point 10 miles south of the 17/30 common boundary, on all aircraft landing within M98’s airspace.
- b.** Sectors 30/38/39 release control for turns, of up to 20 degrees left or right of course, for aircraft within 20NM from the common sector boundary.
- c.** Sector 29/30 releases control for turns, of up to 20 degrees left or right of course, to Sector 30/29 for aircraft within 20NM of the 29/30 common boundary.

3. Normally used sector holding fixes:

FIX	DIR	LENGTH	URNS	ALTITUDE
FOD	W	10NM	RT	FL240 and above
JORDY	W	10NM	LT	FL240 and above
TODDO	W	10NM	LT	FL240 and above

Sector 30 Map



SECTION 4. SECTOR 36

8.4.1 SECTOR NARRATIVE

Sector 36 is a low altitude sector from the surface up to and including FL230. Sector 36 works with three approach controls at DSM, RST, and ALO. There are multiple airports with overlapping approaches.

8.4.2 ASSIGNMENT OF AIRSPACE

1. See LOAs for assignment of airspace. During the hours when RST approach is closed the airspace reverts back to Sector 07. During the hours when ALO approach is not operational the airspace reverts back to ZAU.
2. Sector 37 can be combined with Sector 36. All sectors combine at sector 29.

8.4.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

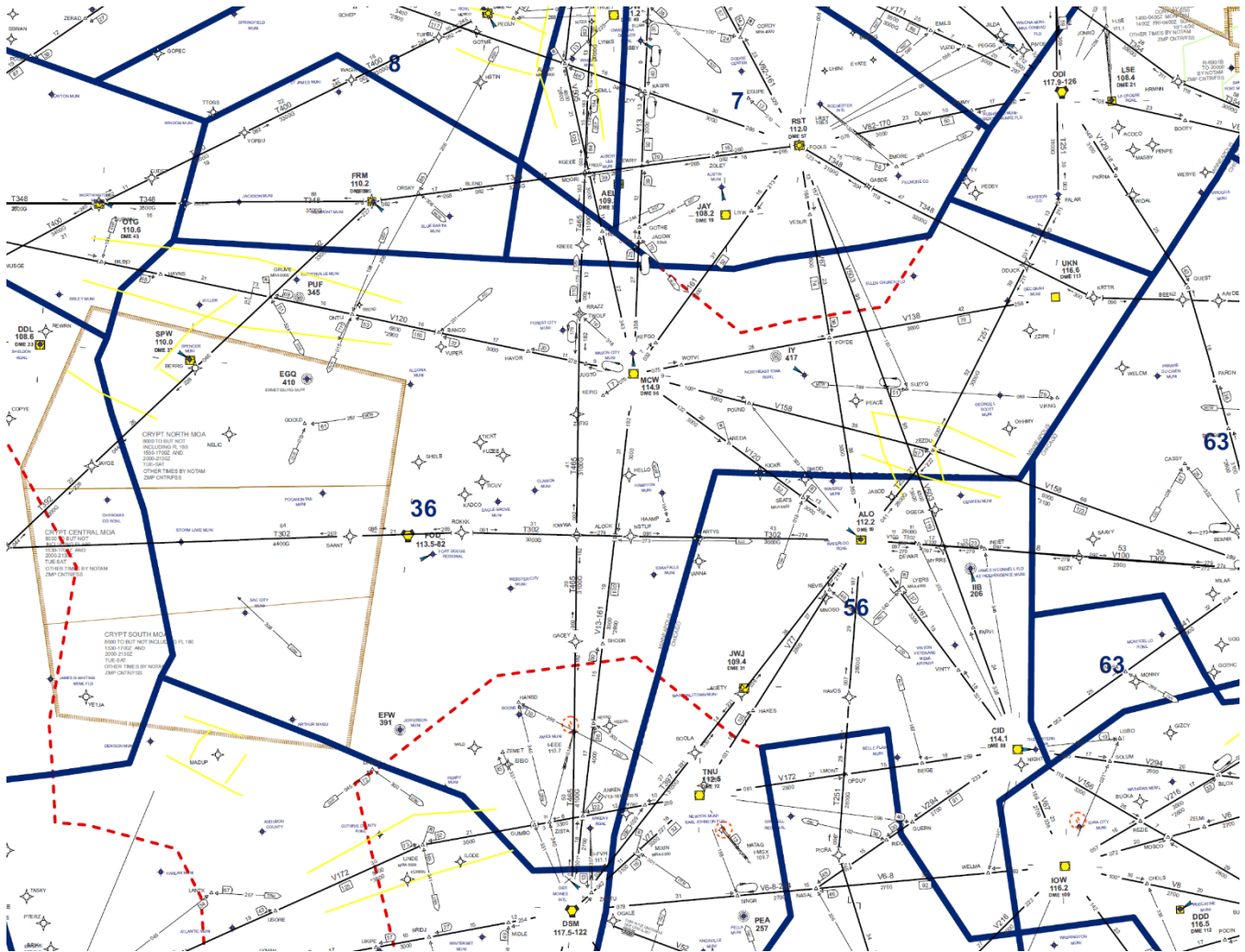
Frequency	Callsign
134.0	MSP_36_CTR

2. Sector Configuration
 - a. Sector 36 range limit is normally from 95 to 150 miles.
 - b. The altitude limits to be entered at Sector 36 are 000B242.

8.4.4 SECTOR PROCEDURES

1. Sector specific directives.
 - a. M98 Arrivals:
 - 1) All MSP RNAV capable turbojet aircraft must be cleared by Sector 36 via the NITZR Arrival except those aircraft entering from ZAU must be cleared via the BLUEM Arrival.
 - 2) All MSP turboprop and non-RNAV capable turbojet aircraft must be cleared by Sector 36 via the KASPR Arrival.
 - 3) All M98 satellite aircraft (turbojet and turboprop) must be cleared by Sector 36 via the TWOLF Arrival.
 - 4) Acceptance of a radar handoff by Sector 07 on M98 arrivals with a MODE C readout AOB FL230 constitutes altitude approval.

Sector 36 Map



SECTION 5. SECTOR 37

8.5.1 SECTOR NARRATIVE

Sector 37 is a low altitude sector from the surface up to and including FL230. The sector works with three approach controls at OMA, SUX, and FSD.

8.5.2 ASSIGNMENT OF AIRSPACE

1. See LOAs for specific assignment of airspace. When SUX Approach is not operational, the airspace reverts back to Sector 37. During the hours when FSD Approach is not operational, the airspace reverts back to Sector 33.
2. Sector 37 can be combined at Sectors 36 or 26. Sector 37 combines to Sector 29 when Area 5 is combined to one scope.

8.5.3 SECTOR INFORMATION

1. Frequency and Sign-on Information.

Frequency	Callsign
128.0	MSP_37_CTR

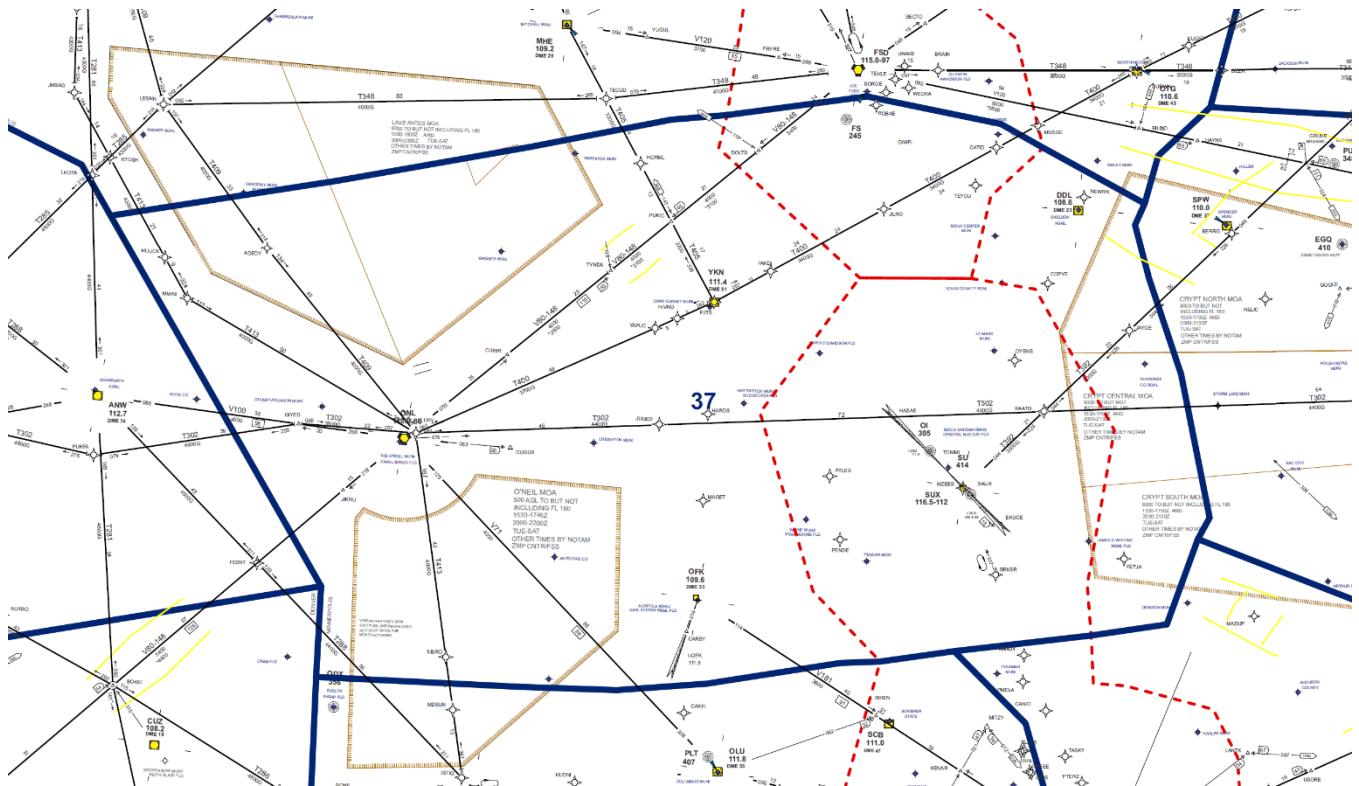
2. Sector Configuration.
 - a. Sector 37 range is normally 95 to 150 miles.
 - b. The altitude limits to be entered at Sector 37 are 000B242.

8.5.4 SECTOR PROCEDURES

1. Sector specific directives: None.
2. Sector handoff/pointout procedures: See corresponding LOAs.
3. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. Sioux City Arrivals:
 - 1) Sioux City arrivals from Sectors 27 and 36 above 11,000 feet must be assigned an altitude of 11,000 feet and handed off to Sector 37. Sector 37 must handoff the aircraft to SUX Approach. Acceptance of the handoff by SUX Approach constitutes data block coordination with Sector 37 and communications must be transferred to SUX Approach.
 - 2) Sioux City arrivals from Sectors 27 at or below 11,000 feet must be handed off to Sector 37 who must then handoff to SUX Approach. Acceptance of the handoff by SUX Approach constitutes Automated Information Transfer (AIT) and communications must be transferred to SUX Approach.

- b.** R90 Arrivals:
 - 1)** Acceptance of a radar handoff by Sector 26 or 27 on R90 arrivals descending to 160 constitutes altitude approval.
 - 2)** Acceptance of an automated point out from sector 26, on all aircraft landing within R90 airspace coming from high altitude, constitutes approval for descent to 110.
 - 3)** Acceptance by sectors 33, 36 or 37 of an automated pointout for aircraft landing KFSD also releases to the initiating sector control for descent.
- 4.** Transfer of control points:
 - a.** See corresponding LOAs.
 - b.** Arrivals from sector 37 landing at ICR or MHE must be descending to 7,000 feet, or will be level at altitude if at or below 7,000 feet. Sector 33 has control of these aircraft within 15 nm of the sector boundary.
 - c.** Sectors 37/27 releases control for turns, of up to 20 degrees left or right of course, to Sector 27/37 for aircraft within 20NM of the 37/27 common boundary.
 - d.** Sectors 36/37/26 release control for turns, of up to 20 degrees left or right of course, for aircraft within 20NM from the common sector boundary.

Sector 37 Map



CHAPTER 9. AREA 6

SECTION 1. SECTOR 27

9.1.1 SECTOR NARRATIVE

Sector 27 is a low altitude sector from the surface up to and including FL230. Sector 27 works with two approach controls at OMA and DSM. There are multiple airports with overlapping approaches. The main traffic flow in the sector is comprised of inbound and outbound aircraft to and from the east of OMA and the west of DSM. Sector 27 is responsible for clearing aircraft inbound to MCI, and the Kansas City satellite airports via either the BRAYMER or JSONN arrivals.

9.1.2 ASSIGNMENT OF AIRSPACE

1. Sector 27 combines to Sector 38. Des Moines and Omaha Approaches are delegated airspace as depicted in their respective LOAs.
2. When R90 is not staffed, Sector 26 will assume control of R90's airspace.
3. Sector 27 assumes control of DSM Approach airspace when it is not staffed.
4. When Sioux City Approach is not operational, the airspace reverts to ZMP Sector 37's control.
5. When St. Joseph Approach is not operational, the airspace reverts to ZKC control.

9.1.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

Frequency	Callsign
119.6	MSP_27_CTR

2. Unique Sector Equipment Configurations:
 - a. Sector 27 range limit is normally 100 miles.
 - b. The altitude limits to be entered at Sector 27 are 000B242.

9.1.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See LOAs.

4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. MCI area arrivals: Aircraft required to be AOB FL230, as required by the ZMP/ZKC LOA, may be, if operationally advantageous, handed-off and communications transferred directly from Sector 38 to Sector 27. However, in most cases:
 - 1) Sector 38 shall display an automated point out to Sector 27.
 - 2) Acceptance of an automated point out by Sector 27 constitutes approval for descent to FL230.
 - b. Sioux City Arrivals:
 - 1) Sioux City arrivals from Sector 27 above 11,000 feet must be assigned an interim altitude of 11,000 feet and handed off to Sector 37. Sector 37 must handoff the aircraft to SUX Approach. Acceptance of the handoff by SUX Approach constitutes data block coordination with Sector 37 and communications must be transferred to SUX Approach.
 - 2) Sioux City arrivals from Sector 27 at or below 11,000 feet must be handed off to Sector 37 who must then handoff to SUX Approach. Acceptance of the handoff by SUX Approach constitutes Automated Information Transfer (AIT) and communications must be transferred to SUX Approach.

Note: When necessary Sector 27 is responsible for point outs to Omaha TRACON.
 - c. R90 Arrivals:
 - 1) Acceptance of an automated point out by sector 36 on aircraft landing within R90 airspace AOA FL240 constitutes approval for descent to 160.
 - d. High Altitude Approaches:
 - 1) Verbal coordination is required for aircraft inbound to high altitude approach fixes.
5. Transfer of control points other than airspace boundaries: See LOAs.
 - a. Sectors 26/36/37/27 release control for turns, of up to 20 degrees left or right of course, for aircraft within 20NM from the common sector boundary.
 - b. Kansas City area arrivals from high altitude: Sector 38 releases control for pilot's discretion descent on all Kansas City terminal area arrivals to Sector 27 after handoff and transfer of communications.
 - c. R90 arrivals: Sector 38 releases control for pilot's discretion descent on all R90 arrivals to Sector 27 after handoff and transfer of communications.

6. Radar arrival/departure routes and restrictions for airports within sector:

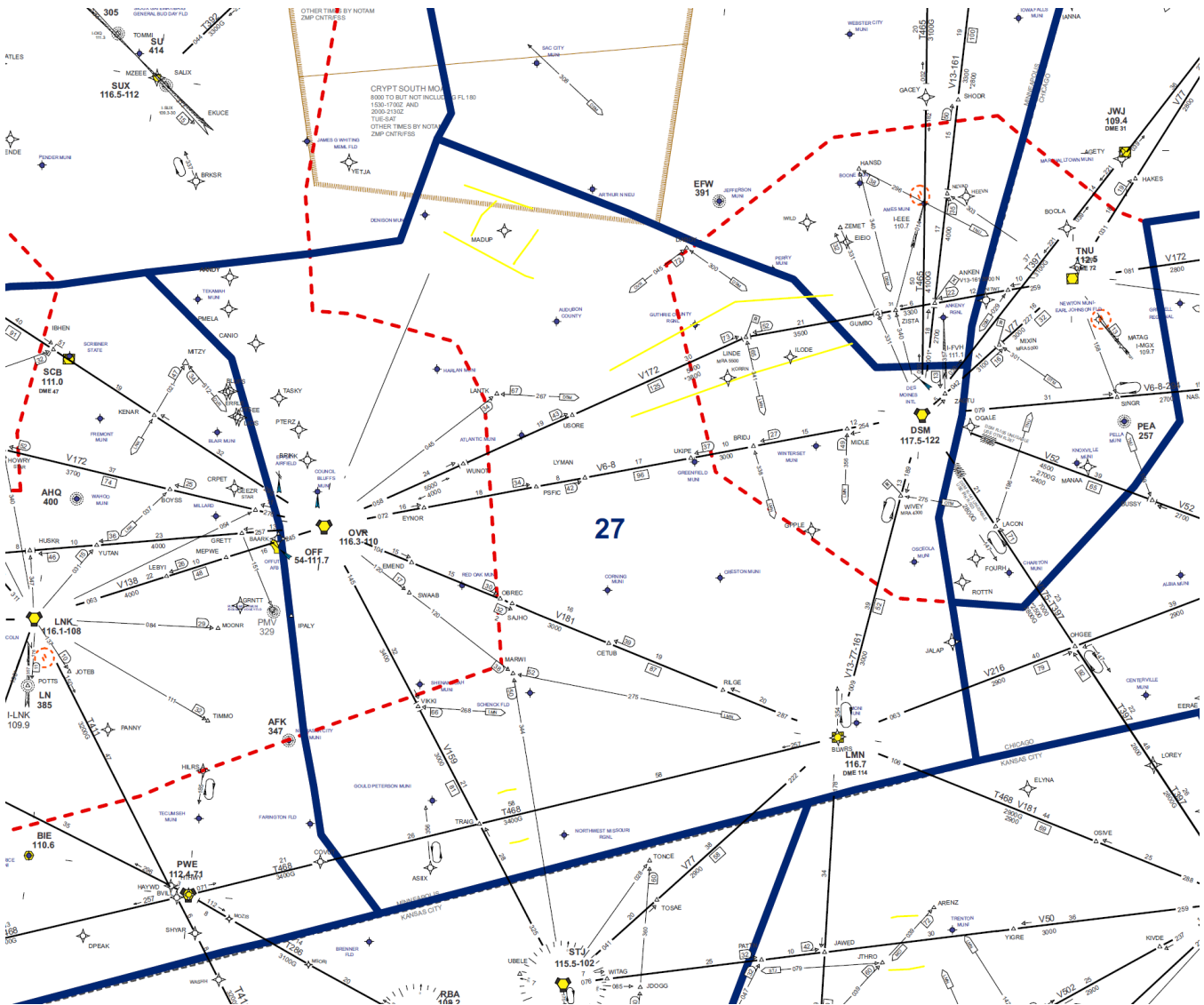
- a. OMA/OFF Arrivals:** From 0730 to 2300 Local time (LCL) all turbojet and turboprop aircraft landing OMA or OFF must be assigned a STAR. During all other times, or when approved by Omaha TRACON, aircraft will be direct destination.
- b. M98 Arrivals:** MSP RNAV arrivals must be direct ROKKK on the NITZR arrival. MSP non-RNAV arrivals must be direct MCW on the KASPR arrival. All M98 satellite arrivals must be direct FOD on the TWOLF arrival. Routing aircraft direct TICKT on the TWOLF Arrival, or direct FUZEE on the NITZR RNAV Arrival, is approved by Sector 30 if the route will remain east of FOD.

7. Normally used sector holding fixes:

FIX	DIR	LENGTH	MAX SPEED	TURNS	ALTITUDE
LMN	W	10 NM	310	LEFT	030-FL230
LOOKR	SE	10NM	310	LEFT	095 & ABV
BOMBR	SE	8 NM	310	RIGHT	100

- a. Additional holding locations may be used at the controller's discretion.**
- b. The sector controller may authorize deviations from the above holding procedures**

Sector 27 Map



SECTION 2. SECTOR 38

9.2.1 SECTOR NARRATIVE

Sector 38 is a high altitude sector working FL240 and above. It is bordered to the south by ZKC, to the east by ZAU, and to the north and west by ZMP. The main flow in Sector 38 is east/west over-flight traffic. Sector 38 becomes more complex with arrivals and departures at DSM, OMA, and OFF. The sector complexity is compounded by crossing traffic generated by the MSP and MCI terminal areas. The sector controller is responsible for separating those arrivals and departures from the overflights as well as sequencing aircraft en route to DEN, MDW, and EWR.

9.2.2 ASSIGNMENT OF AIRSPACE

All Area 6 sectors combine to Sector 38.

9.2.3 SECTOR INFORMATION

1. Frequency and Sign-on Information:

Frequency	Callsign
123.975	MSP_38_CTR

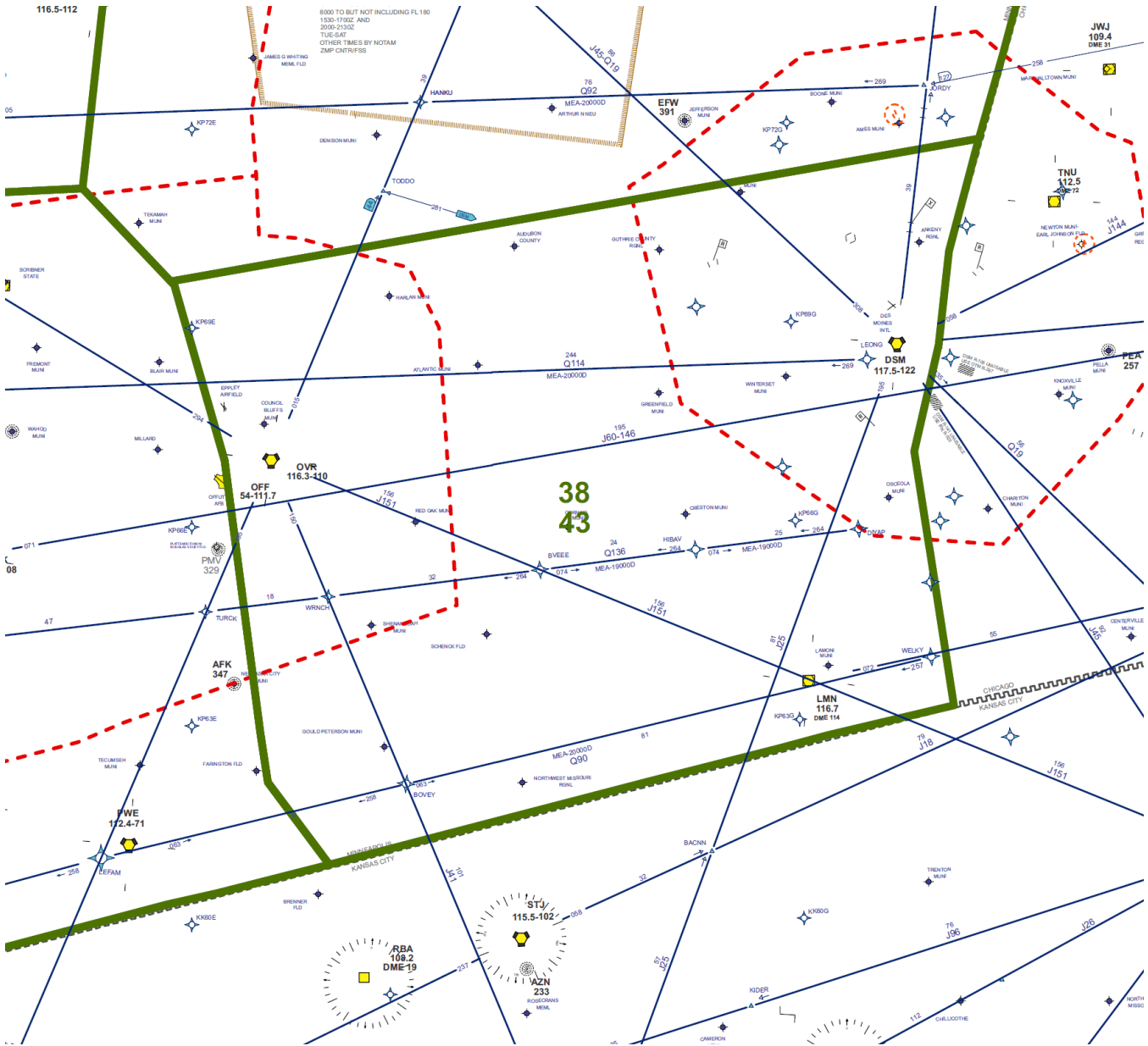
2. Unique Sector Equipment Configurations:
 - a. Sector 38 range limit is normally from 90 NM to 110 NM.
 - b. The altitude limits to be entered at Sector 38 are 228B999.

9.2.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See LOAs.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. MCI area arrivals: Aircraft required to be AOB FL230, as required by the ZMP/ZKC LOA, may be, if operationally advantageous, handed-off and communications transferred directly from Sector 38 to Sector 27. However, in most cases,
 - 1) Sector 38 shall display an automated point out to Sector 27.
 - 2) Acceptance of an automated point out by Sector 27 constitutes approval for descent to FL230.

5. Transfer of control points other than airspace boundaries: See LOAs.
 - a. Sector 38/39 releases control for turns, of up to 20 degrees left or right of course, to Sector 39/38 for aircraft within 20 nm of the 38/39 common boundary.
 - b. Sector 38/30 releases control for turns, of up to 20 degrees left or right of course, to Sector 30/38 for aircraft within 20NM of the 38/30 common boundary.
 - c. Kansas City Area Arrivals: Sector 38 releases control for pilot's discretion descent on all Kansas City terminal area arrivals to Sector 27 after handoff and transfer of communications.
 - d. R90 arrivals: Sector 38 releases control for pilot's discretion descent on all R90 arrivals to Sector 27 after handoff and transfer of communications.
6. Radar arrival routes and restrictions for airports within sector jurisdiction: See LOAs.
 - a. OMA/OFF Arrivals: From 0730 to 2300 Local time (LCL) all turbojet and turboprop aircraft landing OMA or OFF must be assigned a STAR. During all other times, or when approved by Omaha TRACON, aircraft will be direct destination.
 - b. M98 Arrivals: MSP RNAV arrivals must be direct ROKKK on the NITZR arrival. MSP non-RNAV arrivals must be direct MCW on the KASPR arrival. All M98 satellite arrivals must be direct FOD on the TWOLF arrival. Routing aircraft direct TICKT on the TWOLF Arrival, or direct FUZEE on the NITZR RNAV Arrival, is approved by Sector 30 if the route will remain east of FOD.
7. Normally used sector holding fixes: none.

Sector 38 Map



SECTION 3. SECTOR 39

9.3.1 SECTOR NARRATIVE

Sector 39 is a high altitude sector working aircraft from FL240 and above. The sector is bordered on the west by ZDV, to the south by ZKC, and on the north and east by ZMP. The main flow in Sector 39 is east/west over-flight traffic. This flow is complicated by arrivals and departures at LNK, OMA, OFF, and MCI. Separating the east/west traffic from the crossing traffic en route to MSP further compounds the sector's complexity. The Sector 39 controller is also responsible for sequencing aircraft en route to DEN and EWR when requested by TMU.

9.3.2 ASSIGNMENT OF AIRSPACE

Sector 39 combines at Sector 38, but may be combined elsewhere.

9.3.3 SECTOR INFORMATION

1. Frequency and Sign-on Information

<u>Frequency</u>	<u>Callsign</u>
135.1	MSP_39_CTR

2. Unique Sector Equipment Configurations:

- a. Sector 39 range limit is normally from 110 NM to 125 NM.
- b. The altitude limits to be entered at Sector 39 are 228B999.

9.3.4 SECTOR PROCEDURES

1. Mandatory speed restrictions: None.
2. Mandatory heading requirements: None.
3. Mandatory altitude requirements: See LOAs.
4. Sector handoff/pointout procedures if different from requirements of FAAO 7110.65, Chapter 5, Section 4:
 - a. MCI area arrivals: For aircraft required to be AOB FL230 routed DPEAK direct JSONN, as required by the ZMP/ZKC LOA:
 - 1) Sector 39 shall display an automated point out to Sector 26. Sector 39 shall display an automated point out to Sector 26.
 - 2) Acceptance of an automated point out by Sector 26 constitutes approval for descent to FL230.

- 5. Transfer of control points other than airspace boundaries: See LOAs.
 - a. Sector 38/39 releases control for turns, of up to 20 degrees left or right of course, to Sector 39/38 for aircraft within 20 nm of the 38/39 common boundary.
 - b. Sectors 39/29/30 release control for turns, of up to 20 degrees left or right of course, for aircraft within 20NM from the common sector boundary.
 - c. Kansas City Area Arrivals: Sector 39 releases control for pilot's discretion descent on all Kansas City terminal area arrivals to Sector 26 after handoff and transfer of communications.
 - d. OMA/OFF arrivals: Sector 39 releases control to cross aircraft flying a STAR at the required altitudes.
- 6. Radar arrival routes and restrictions for airports within sector jurisdiction:
 - a. OMA/OFF Arrivals: From 0730 to 2300 Local time (LCL) all turbojet and turboprop aircraft landing OMA or OFF must be assigned a STAR. During all other times, or when approved by Omaha TRACON, aircraft will be direct destination.
 - b. M98 Arrivals: MSP RNAV arrivals must be direct ROKKK on the NITZR arrival. MSP non-RNAV arrivals must be direct MCW on the KASPR arrival. All M98 satellite arrivals must be direct FOD on the TWOLF arrival. Routing aircraft direct TICKT on the TWOLF Arrival, or direct FUZEE on the NITZR RNAV Arrival, is approved by Sector 30 if the route will remain east of FOD.
- 7. Normally used sector holding fixes:

FIX	DIR	LENGTH	MAX SPEED	TURNS	ALTITUDE
OBH	E	10NM	310	RT	FL240&ABV
PWE	W	10NM	310	LT	FL240&ABV

CHAPTER 10. COMMON EVENT/HIGH TRAFFIC AIRSPACE SPLITS

SECTION 1. GENERAL

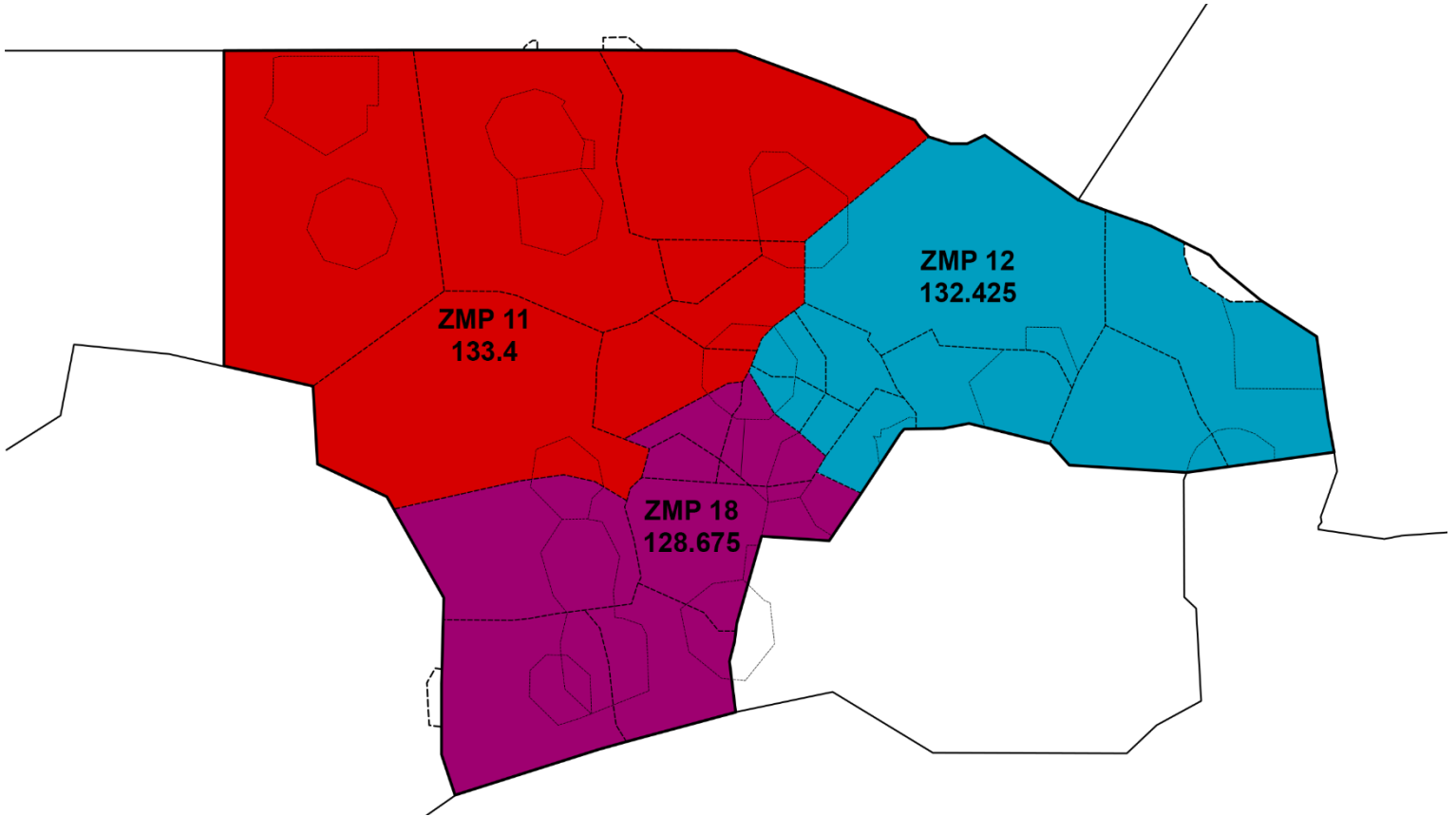
10.1.1 GUIDELINES FOR vZMP AIRSPACE SPLITS

The following splits have been designed for use during event and/or high-traffic situations within vZMP airspace. For day-to-day traffic, controllers are encouraged to open an underlying TRACON or local position before splitting vZMP airspace, unless traffic complexity or controller workload dictates otherwise. Additionally, the following splits need not be completely adhered to when vZMP airspace is split, and controllers may find it advantageous to delegate certain sectors to other controllers to better balance workload.

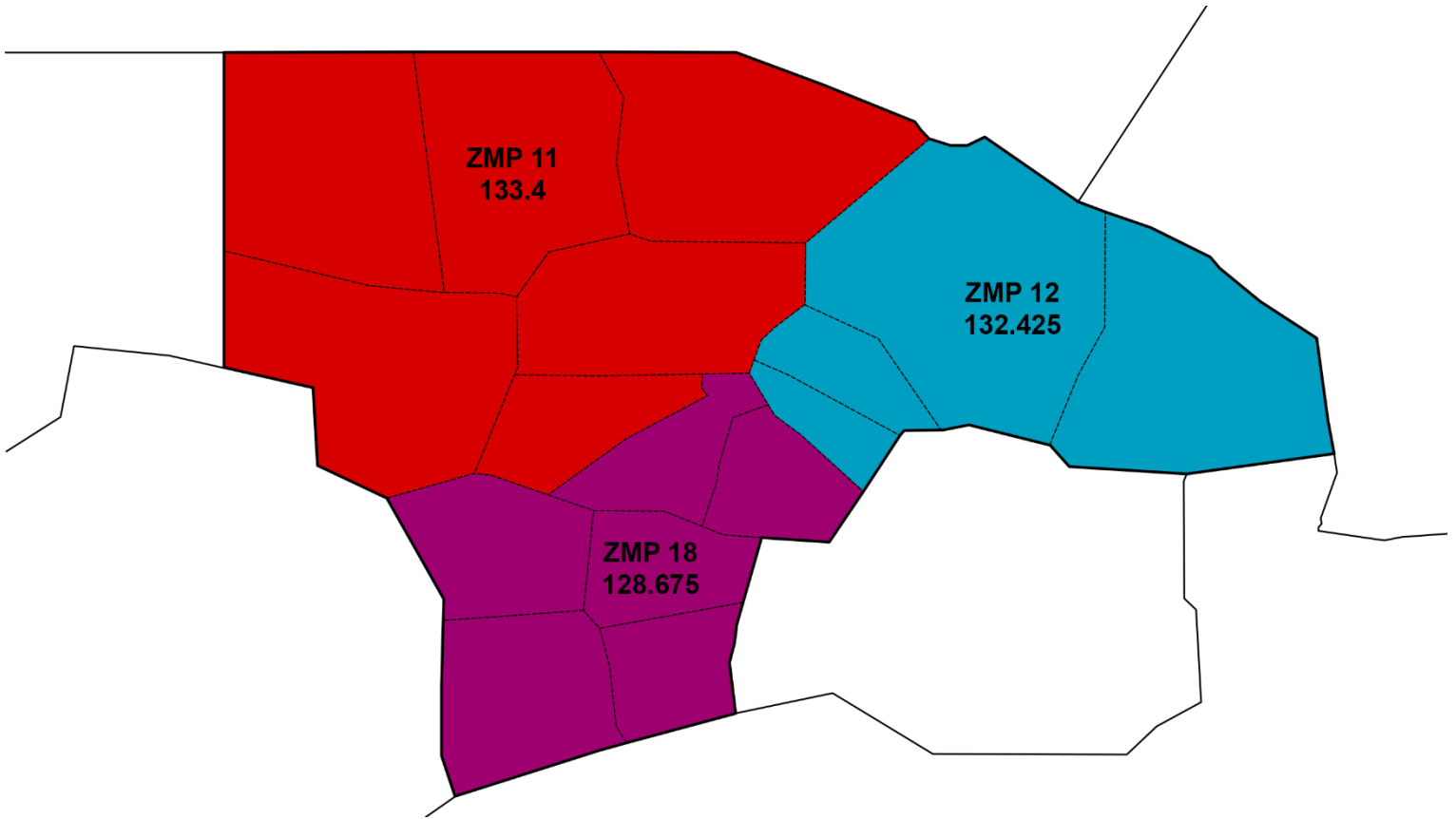
10.2.1 MSP/M98 EVENT 3 WAY SPLIT

This split is used in most cases when an event is scheduled at MSP or other airports in M98 airspace. When necessary, Sector 05 (125.3) may be opened to cover Sector 12's airspace from SFC-230, and/or Sector 09 (125.5) may be opened to cover Sector 18's airspace from SFC-230.

SFC-FL230:



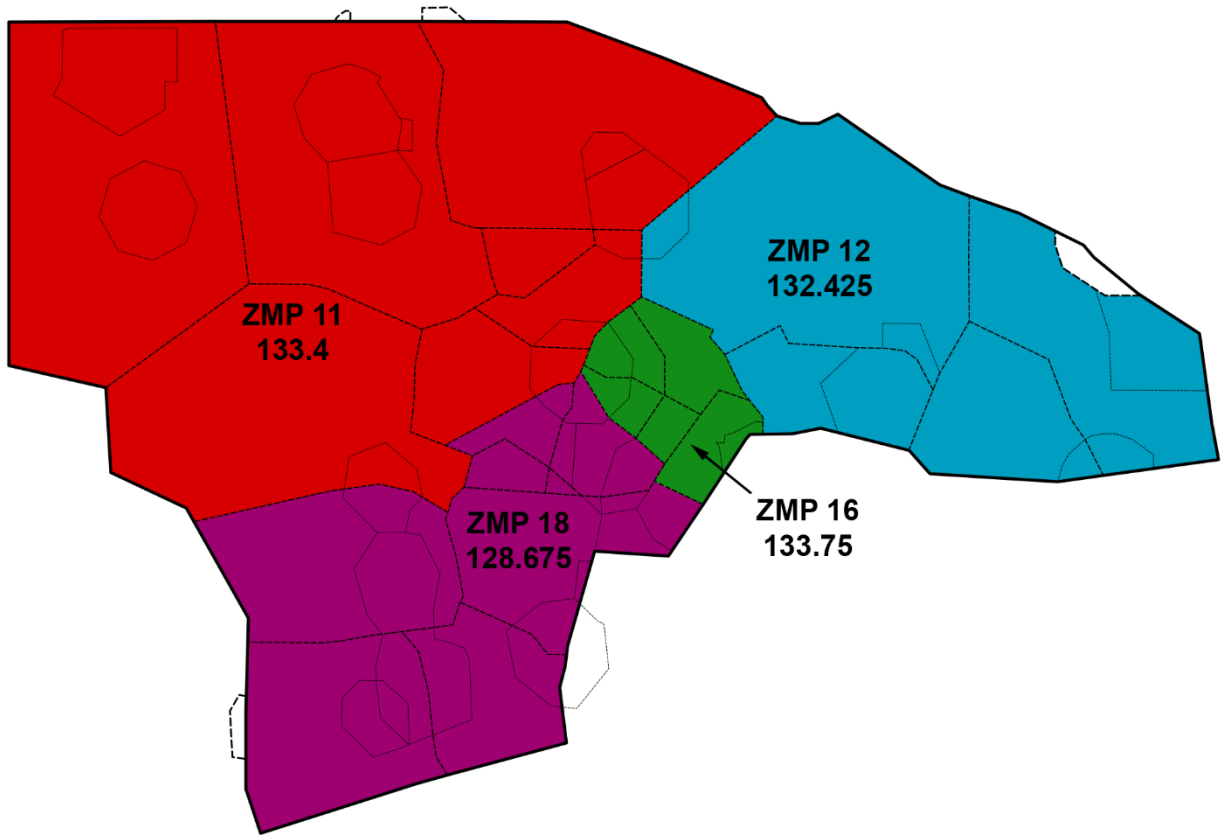
FL240-UNL:



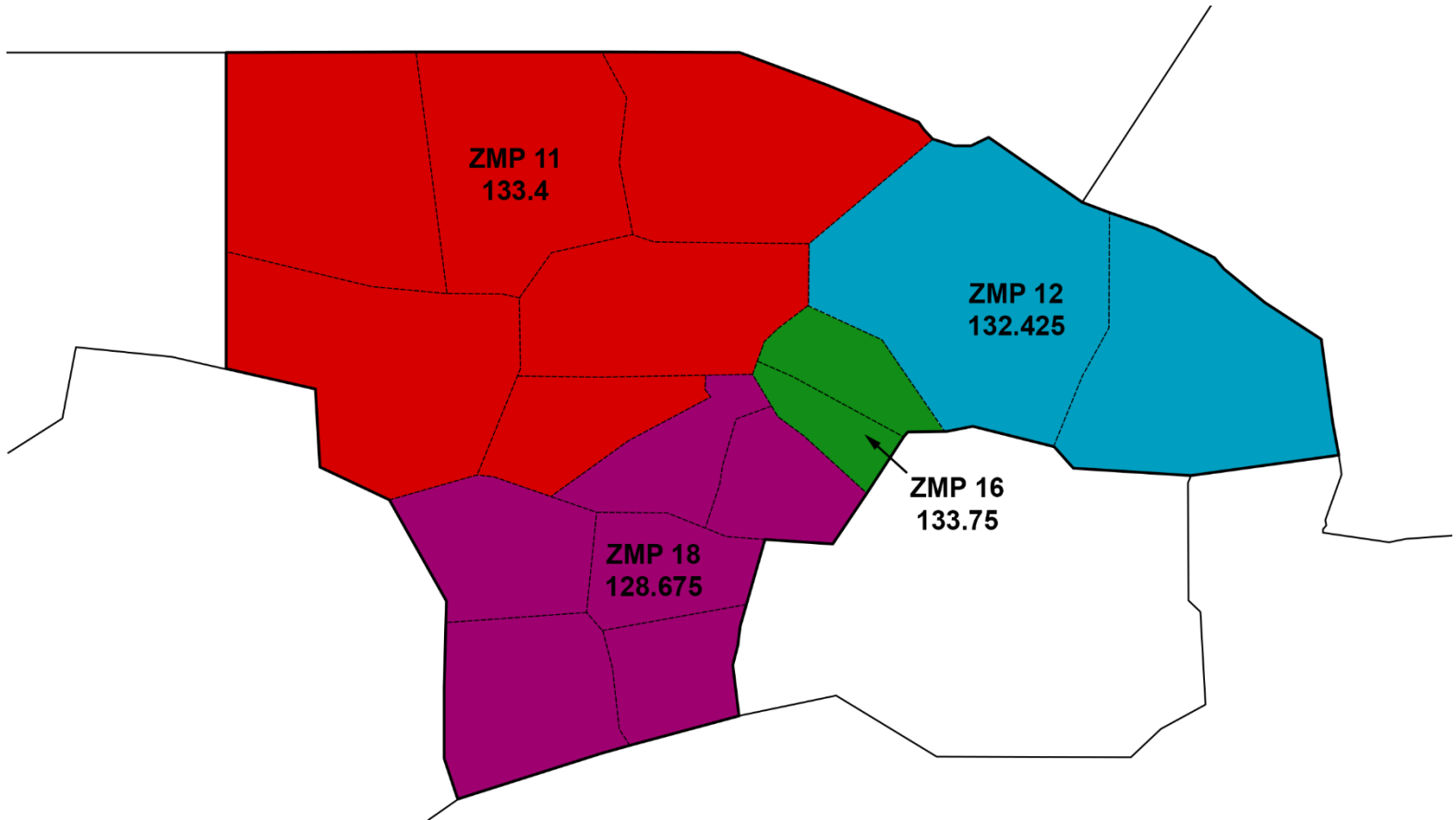
10.2.2 MSP/M98 EVENT WITH HEAVY KKILR/MUSCL TRAFFIC

This split utilizes four controllers and is meant for use when heavy arrival traffic from the east is anticipated, i.e. in events or crossfires featuring ZAU/ZOB airports.

SFC-FL230:



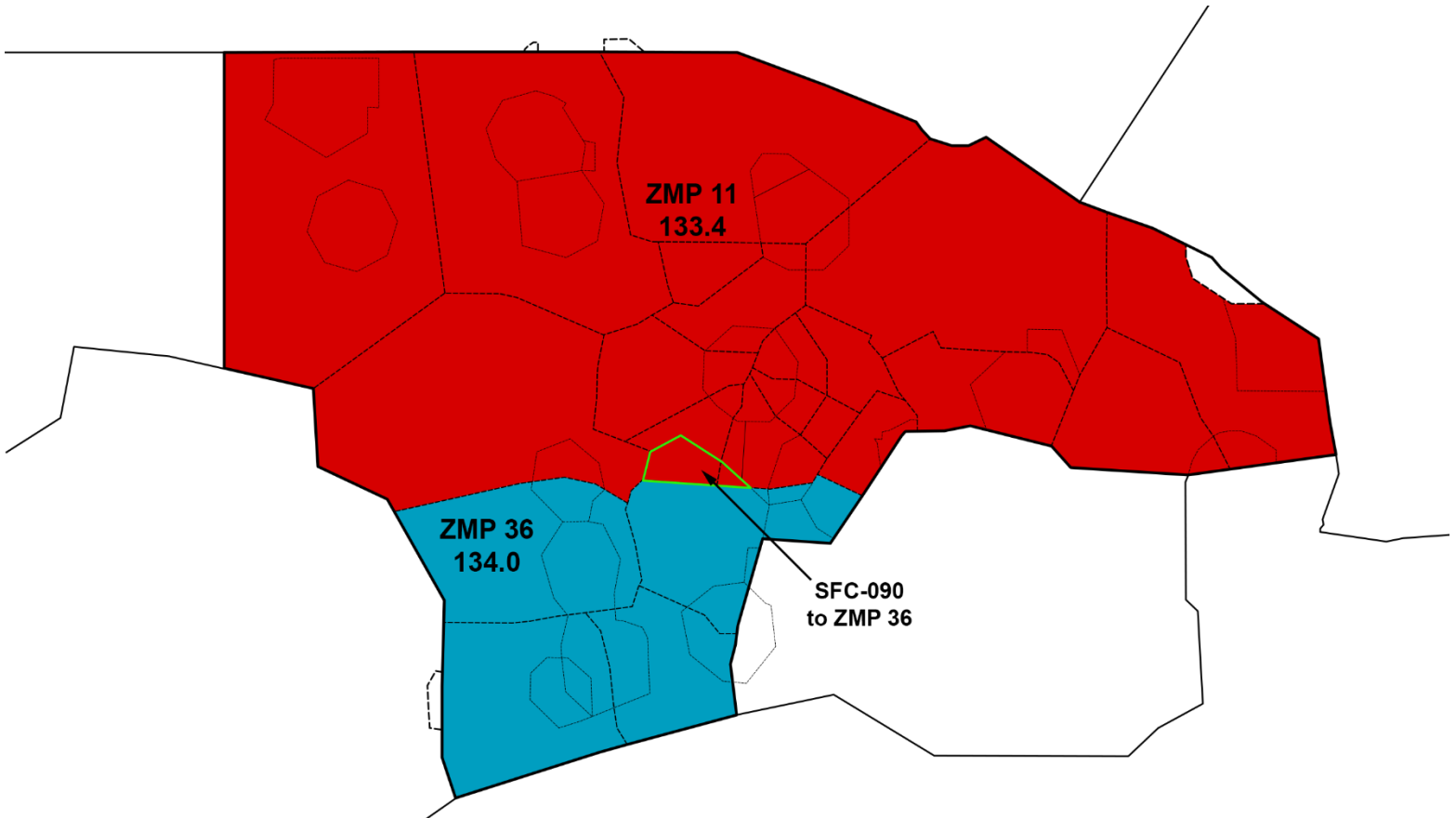
FL240-UNL:



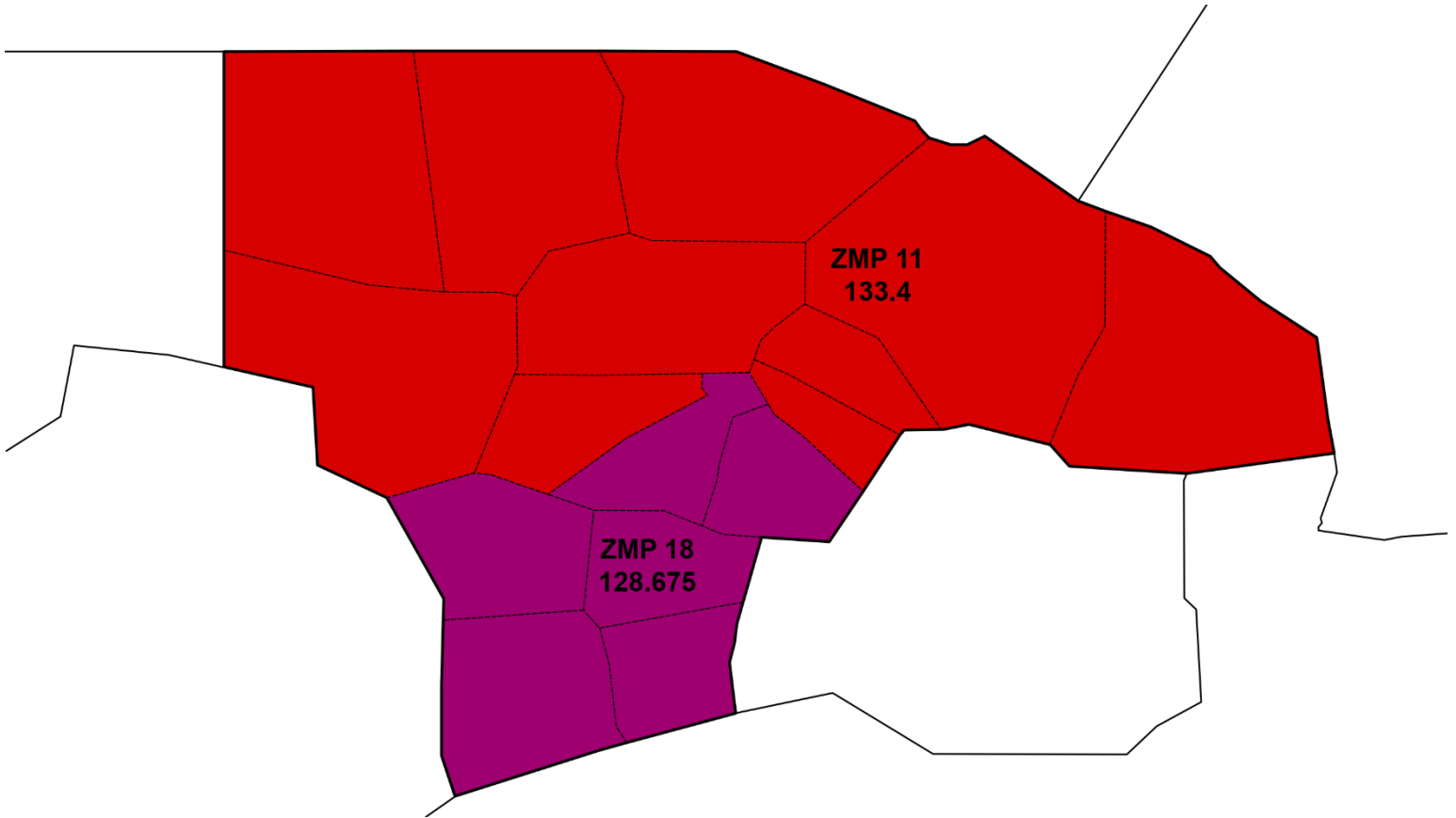
10.2.3 OMA/LNK FOCUS

This split utilizes three controllers and is meant for use when an event is taking place at OMA/LNK. This split can also be used when other airports in Areas 5 and/or 6 are hosting an event or anticipating higher traffic volumes.

SFC-FL230:



FL240-UNL:



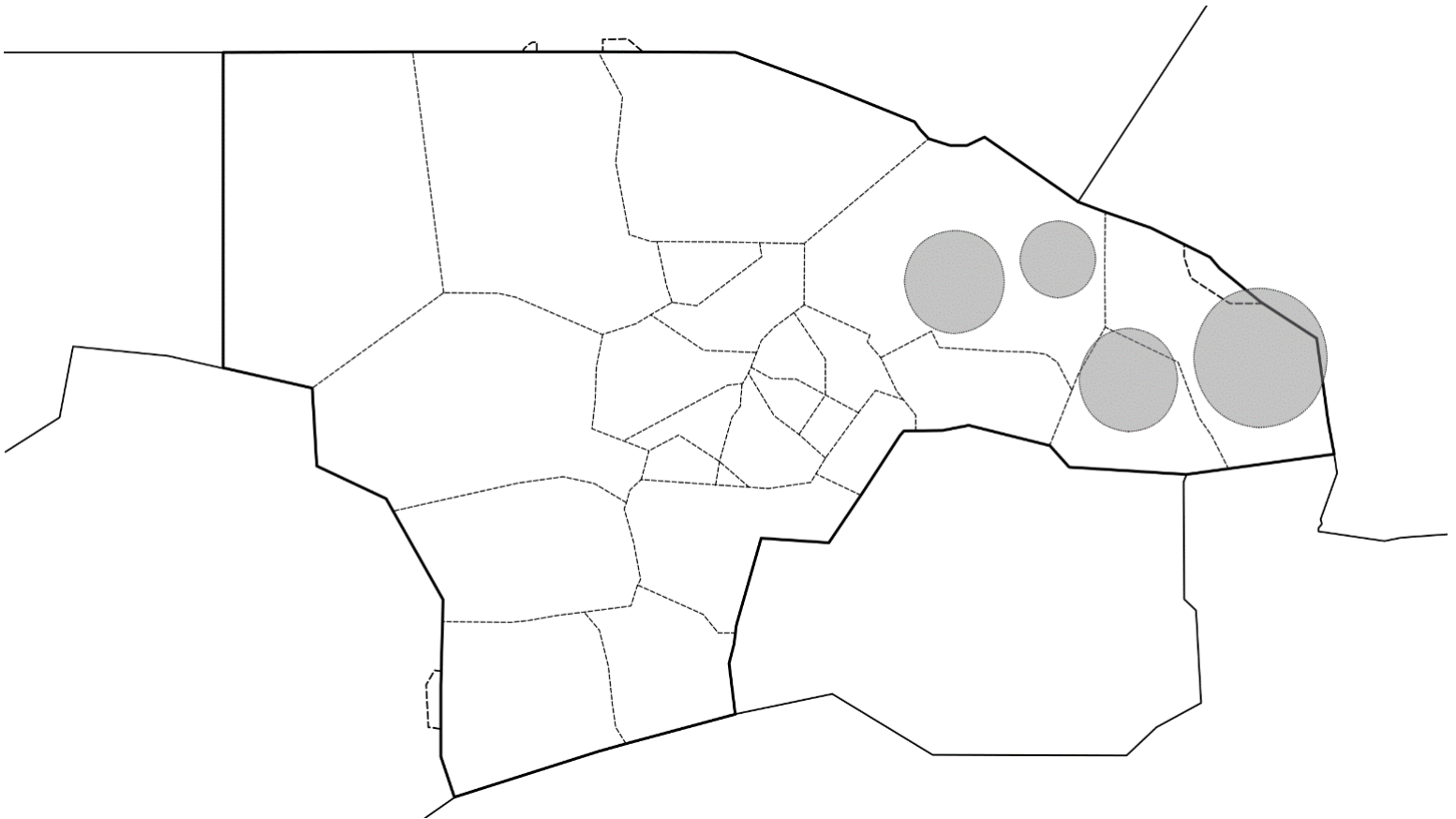
APPENDIX 01 – POSITION RELIEF BRIEFING – ALL SECTORS

- 1. STATUS INFORMATION AREA (SIA)**
- 2. EQUIPMENT**
- 3. SECTOR CONFIG**
- 4. AIRPORT STATUS & ACTIVITIES**
 - a. Airport or RWY Closures**
 - b. Braking Action**
- 5. WEATHER & ALTIMETER TRENDS**
 - a. Rides**
 - b. Winds**
 - c. T-Storm Tops**
- 6. FLOW CONTROL**
 - a. Routes**
 - b. Metering/Miles-in-trail**
- 7. MILITARY**
- 8. SPECIAL ACTIVITIES**
 - a. Special configurations, Coordination agreements**
 - b. Forward pertinent messages when combining/splitting sectors**
 - c. Flight Check Aircraft**
- 9. COMMUNICATION STATUS**
- 10. TRAFFIC CURRENT/PENDING**
 - a. Non-radar Operations**
 - b. Point-out Aircraft**
 - c. Holding Aircraft**
 - d. Primary targets with no Associated Data Block**
 - e. Aircraft in Restricted Areas/MOAs/ATCAAs/IRs**
 - f. Aircraft released but not yet Airborne**
 - g. Aircraft handed off but still in the Sector**
 - h. VFR Advisory aircraft**

APPENDIX 02 – 3-MILE SEPARATION AREAS

The use of 3-mile radar separation is authorized within the grey-shaded areas in Figure 1 when the provisions of this order are applied. Figure 1 depicts the mapping of the radius in which 3-mile separation may be applied by controllers using the Empire, MI, Eagle River, WI, Alpena, MI, and Sawyer, MI radar sites.

Figure 1



APPENDIX 03 – COMBINED OPERATIONS

For day-to-day operations on the VATSIM network, splitting off of ZMP sectors is typically not warranted. vZMP airspace combines at Sector 11, with the primary frequency being 133.4. In the AFV client, controllers should take care to ensure that TX/RX are selected for MSP_CTR, otherwise transceiver coverage will only be for Sector 11 itself, and not the whole airspace. Figure 1 depicts airspace delegated to vZMP as well as airspace delegated to adjacent facilities falling within the lateral boundaries of vZMP airspace.

Figure 1

