Letter of Agreement
vZNY ARTCC & vZBW ARTCC

1. PURPOSE

This agreement defines the necessary pre-defined air traffic control procedures and coordination responsibilities between the Virtual Boston ARTCC (vZBW) and the Virtual New York ARTCC (vZNY)

2. DISCLOSURE

vZBW and vZNY are affiliated with the Virtual Air Traffic Simulation (VATSIM) network. The procedures outlined in this document are intended exclusively for use in the VATSIM flight simulation environment and shall never be used for actual flight or air traffic control operations. vZBW and vZNY are not affiliated with the FAA in any manner.

3. GENERAL PROCEDURES:

A. <u>vZBW/vZNY ATC shall at all times</u>

1) Coordinate and resolve, in a practical manner that provides the smoothest experience to the pilot, all deviations from, and situations not addressed by, this document (e.g. non-standard sectorization, holding, pilots unable to accept LOA routes, aircraft above/below LOA altitudes, etc.).

2) Ensure that all aircraft are at a 1X simulation rate prior to initiating handoff

3) Ensure that aircraft on the same route segment at the same altitude are separated by not less than 10 nm (steady or increasing) or other valued specified herein unless greater MIT separation is requested real-time by vZBW/vZNY

> NOTE: Separation of less than 10 nm is permitted provided that the trailing aircraft has enough groundspeed to complete an overtake in adequate time and both are in level flight at different altitudes.

4) Ensure that handoff requests are made at least 10 nm prior to the relevant airspace boundary unless otherwise specified in this document. Handoff requests may be initiated up to 50 nm without prior coordination.

5) Ensure that all conflicts, imminent situations, and MIT separation issues are resolved prior to handoff, or the handoff may be subject to refusal.

6) Ensure that all scratchpad entries are cleared unless required to convey operational information (e.g. ".80" for assigned Mach number, "H###" for assigned heading) not coordinated by other means (e.g. private message, verbally, etc.).

4. AIR TRAFFIC PROCEDURES:

A. GENERAL

1) Without prior coordination, New York Center may:

   a. Turn aircraft 30 degrees left or right of track "on contact"

   b. Clear aircraft direct the following waypoints within vZBW Airspace

      SYR VOR (For aircraft filed/cleared J59 [PSB-SYR])

      RKA VOR (For aircraft filed/cleared J190 [CFB-RKA])

      HNK VOR (For aircraft filed/cleared J217 [ETG-HNK] or J49 [PSB-HNK])

   c. Initiate a handoff to Boston Center (or subordinate facility, as appropriate) for any aircraft requesting VFR flight following services into vZBW Airspace

2) Without prior coordination, Boston Center may:

   a. Turn aircraft 30 degrees left or right of track "on contact"

   b. Clear aircraft direct the following waypoints within vZBW Airspace

      SAX VOR (For aircraft filed/cleared J77 or J80 [BAF-SAX])

      LOLLY intersection (For aircraft filed/cleared IGN# STAR)

      CRANK intersection (For aircraft filed/cleared SHAFF# STAR or HELON# STAR)

   c. Initiate a handoff to New York ARTCC (or subordinate facility, as appropriate) for any aircraft requesting VFR flight following services into vZNY Airspace

B. ARRIVALS:

1) New York ARTCC shall:

   a. Descend aircraft according to the following table:

Arr	…To cross…	At an altitude of…	…and handoff
KBOS	BAWLL (KRANN# STAR) (ORW# STAR)	At/maintain FL230	Passing JFK VOR
	ARTCC Boundary (ALB.GDM# STAR)	At/below FL310	10 nm from boundary
KBDL	DPK VOR	At/below FL200	Prior to crossing DPK VOR
	RKA/HNK (SWEDE# STAR)	At/below FL270	10 nm from boundary
KPVD	HTO (JORDN# STAR)	At/below 15,000 and 250 KIAS	10 nm from boundary
	20 nm west of SEY	At/maintain 11,000	
KSYR	HNK/DNY/RKA/CFB	At/below FL200	10 nm from boundary
	ITH VOR/J95/V35	At/below 11,000	
KALB	ARTCC Boundary	At/below FL240	10 nm from boundary

2) Boston ARTCC shall:

a. Descend aircraft according to the following table:

Arr	…To cross…	At an altitude of…	…and handoff
KEWR	CRANK (or SAX VOR)	7,000 / 250 (6,000 / 250)	IGN VOR
KJFK	CCC VOR	12,000 / 250 (Jets)	10 nm East of CCC VOR to NY Approach
		11,000 / 250 (Props)	
	LOLLY	FL200	IGN VOR to NY Center (to APP if CTR off)
	LOVES	6,000	PWL VOR
KLGA	NOBBI	8,000	PWL VOR
	BASYE	9,000	VALRE
	IGN	12,000 / 250	IGN VOR
	VALRE	8,000	VALRE

C. DEPARTURES

1) New York ARTCC/TRACON shall:

a. Initiate handoff of aircraft bound for KBOS 10 nm prior to MERIT or over BDR VOR climbing to 17,000 or lower assigned cruise altitude.

b. Initiate handoff of aircraft bound to BETTE/HAPIE climbing to 11,000 10 nm prior to HAPIE and 5 nm prior to BETTE

c. Initiate handoff of aircraft departing vZNY entering vZBW airspace at other points (e.g. from KPOU, KSWF, KOXC, etc.) direct the first waypoint or established on route and climbing to the vertical limits of vZNY airspace

d. Route aircraft bound for KBOS according to the following table:

Departure	Type	Altitude	Route
EWR / ISP / JFK / LGA and Satellites	RNAV Jets	Max FL230	MERIT ORW.KRANN#
	Non-RNAV Jets		MERIT ORW.ORW#
	Props		MERIT ORW.WOONS# or BDR V229 HFD V3 WOONS
PHL and Satellites	RNAV Jets	FL190-FL250	DITCH J225 JFK.KRANN#
	Non-RNAV Jets		DITCH J225 JFK.ORW#
	Props Jets Below FL190	11,000-17,000	DITCH V312 DRIFT V308 ORW.WOONS#
SWF / POU and Satellites	All	Max FL230	STUBY CTR GDM.GDM# or PWL CTR GDM.GDM#

2) Boston ARTCC shall:

   a. Route aircraft bound for N90 according to the following table:

Destination	Type	Route
KEWR	Jets	…BDL.SHAFF#
	Props	…BDL IGN FLOSI V213 SAX …HFD V3 CMK V188 SAX
KJFK	Jets	…PARCH CCC ROBER
	Props	…ORW V16 CCC ROBER
KLGA	Jets	…BAF IGN.HAARP#
	Props	…BDL VALRE V157 HAARP …BAF PWL V405 CASSH V123 HAARP
KPHL	Jets	…SEY J121 BRIGS.JIMGE# (RNAV) …SEY J121 BRIGS.VCN#
	Props	…SEY J121/V268 BRIGS.VCN#

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Don Desfosse   Nicola Felini
Air Traffic Manager, Virtual Boston ARTCC   Air Traffic Manager, Virtual New York ARTCC

ATTACHMENTS:

1. New York Center Standard Sectorization Scheme
2. N90 Kennedy Sectorization
3. N90 LaGuardia Sectorization
4. N90 Newark Sectorization
5. Boston Center Standard Sectorization Scheme

ATTACHMENT 1: NEW YORK CENTER STANDARD SECTORIZATION SCHEME

1. **General**

    A. When New York Center is combined, it will be combined as NY_KND_CTR on frequency 125.32.

    B. Occasionally, major VATSIM events will necessitate multiple Center sectors (splits). These are typically coordinated and published (internally as well as to adjacent centers) prior to the event. The number and configuration of sectors opened shall be determined by the event coordinator and/or Traffic Management Unit Coordinator (TMC), with approval of the New York Air Traffic Manager (ATM).

    C. Sector splits may also be used for training purposes

2. **Number of Splits**

    A. Controllers shall work their airspace utilizing the minimum number of splits necessary to ensure positive and effective control over the aircraft under their control. It is very rare to need splits, and extremely rare to need more than 2 splits.

    B. The New York ATM, DATM, TA, or TMU has the authority to initiate, approve, or deny sector splits to effectively manage traffic conditions affecting vZNY and neighboring facilities

3. **Geographical Splits**

    A. The most common split is for vZNY is a Hi/Lo split. If traffic warrants, additional Hi/Lo or geographic splits may be utilized as traffic/workload warrants. The most common vZNY splits are shown in Figures 1-4.
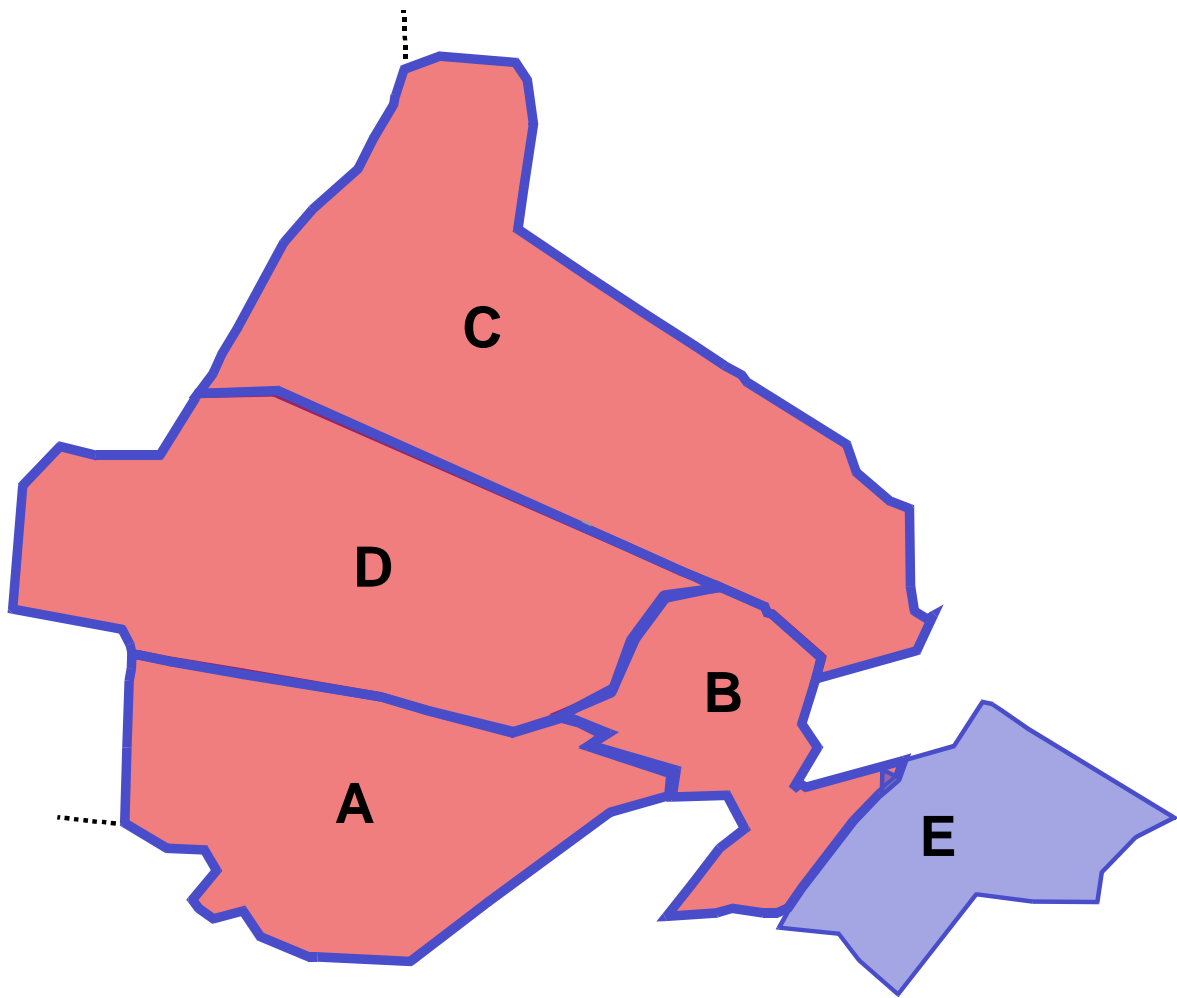
4. **Typical Frequencies**

    A. When New York Center is combined, it will be combined as NY_KND_CTR on frequency 125.32

    B. Standard split frequencies are shown in Figures 1-4

SFC-170

SFC-80
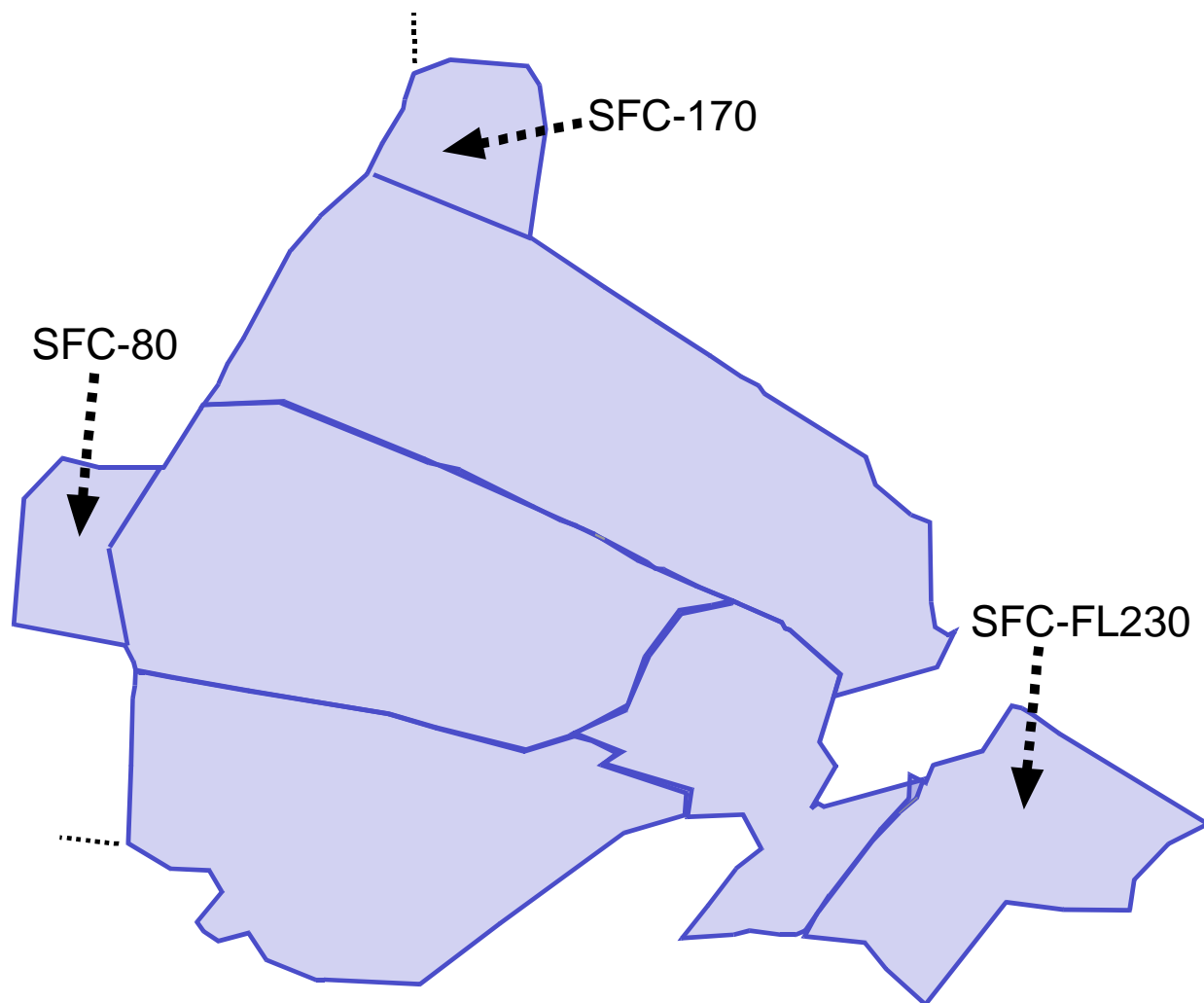
SFC-FL230

When one Center position is manned:
NY_KND_CTR (B-56) on 125.32
controls all of New York Center

Figure 1: New York Center Airspace Combined

With two center controllers online, a High/Low split is in effect:
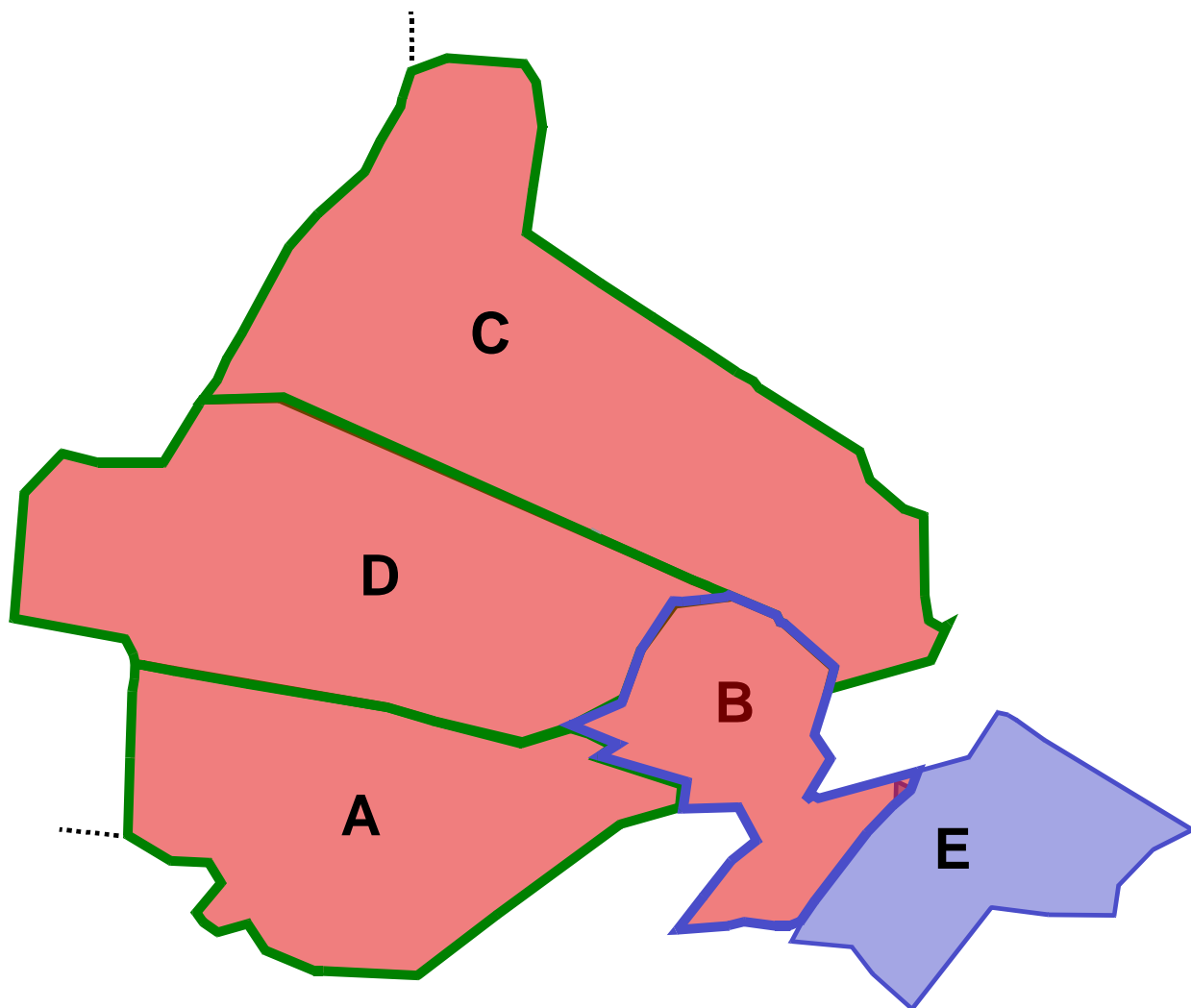
NY_ARD_CTR (B-55) on 134.60
A, B, C, and D sectors SFC-FL240 (outlined in blue)
E sector SFC-FL230 (filled in blue)

NY_KND_CTR (B-56) on 125.32
A, B, C, and D sectors >FL240 (filled red)

Figure 2: New York Center Most Common Two Way Split (Hi/Lo)

With three centers online, a High Low/Low split is in effect:

NY_ARD_CTR (B-55) on 134.60
B sector SFC-FL240 (outlined in blue)
E sector SFC-FL230 (filled in blue)

NY_PTO_CTR (D-92) on 124.62
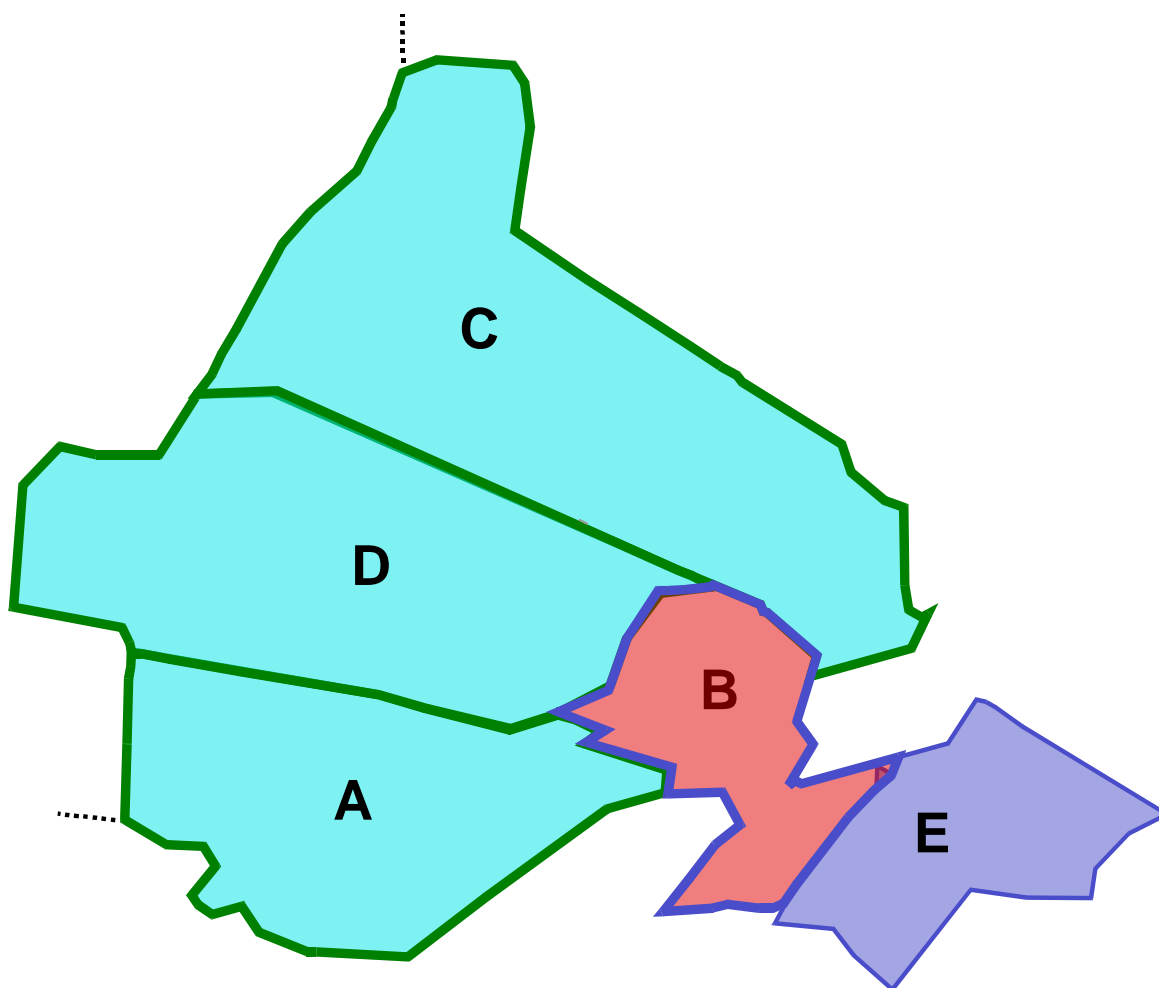**A, C, and D sectors SFC-FL240 (outlined in green)**

NY_KND_CTR (B-56) on 125.32
A, B, C, and D sectors >FL240 (filled red)

Figure 3: New York Center Most Common Three Way Split (Hi/Lo/Lo)

With four centers online, a High/High Low/Low split is in effect:

NY_ARD_CTR (B-55) on 134.60
B sector SFC-FL240 (outlined in blue)
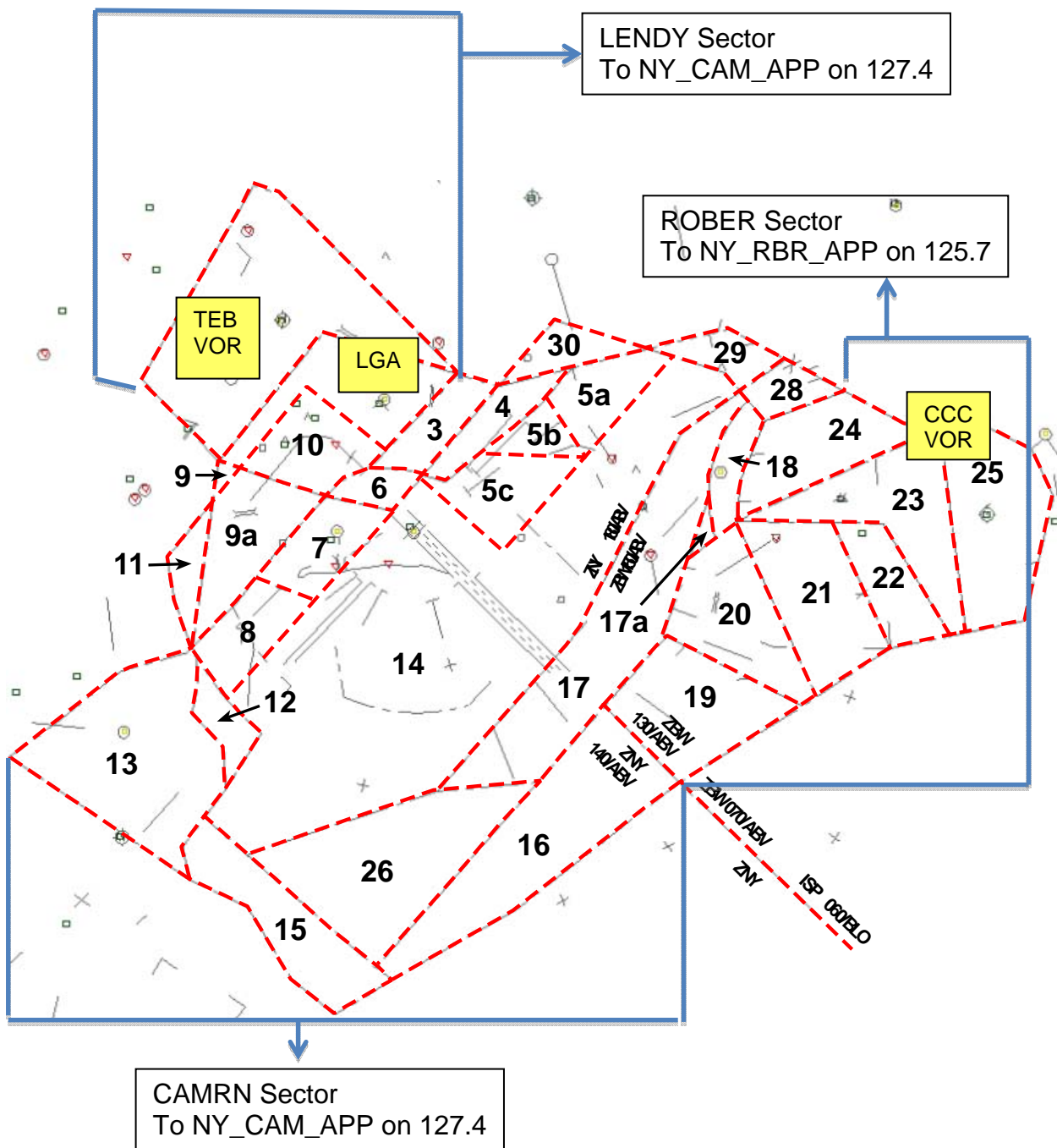**E sector SFC-FL230 (filled in blue)**

NY_PTO_CTR (D-92) on 124.62
A, C, and D sectors SFC-FL240 (outlined in green)

NY_KND_CTR (B-56) on 125.32
B sector >FL240 (filled red)

NY_MIP_CTR (D-75) on 128.57
A, C, and D sectors >FL240 (filled light blue)

Figure 4: New York Center Most Common Four Way Split (Hi/Hi/Lo/Lo)

ATTACHMENT 2: NEW YORK TRACON – KENNEDY SECTORIZATION

LENDY Sector
To NY_CAM_APP on 127.4

ROBER Sector
To NY_RBR_APP on 125.7

TEB
VOR

LGA

CCC
VOR

30

29

5a

4

28

24

3

5b

18

25

10

5c

23

9

6

9a

7

21

22

11

17a

20

8

14

19

12

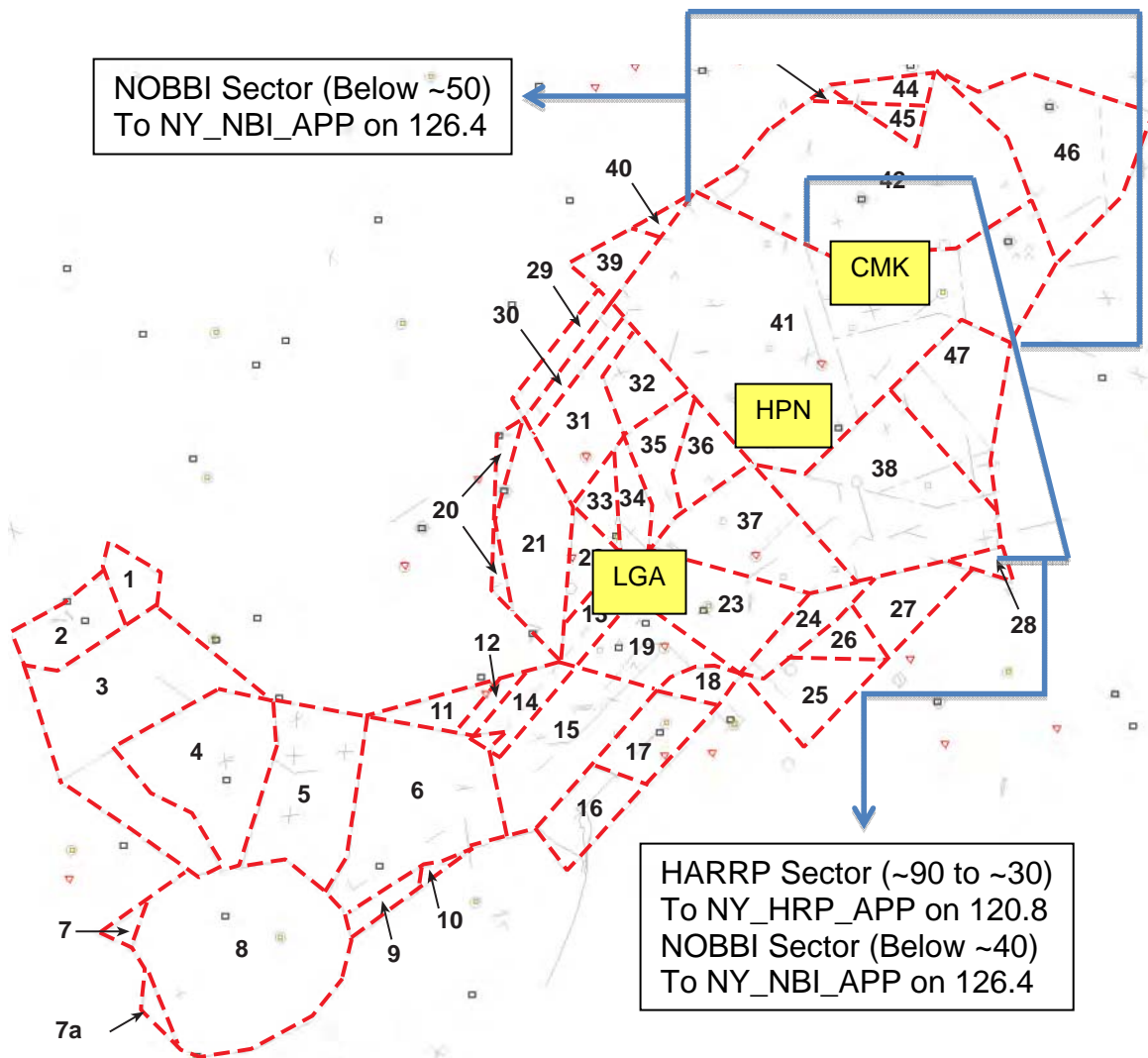17

16

13

26

15

With one Approach Controller online:
Approach services are combined under NY_CAM_APP on 127.4

With multiple Approach Controllers online, sectorization can be as above:
CAMRN/LENDY Sector - NY_CAM_APP on 127.4
ROBER Sector – NY_RBR_APP on 125.7

CAMRN Sector
To NY_CAM_APP on 127.4

NOBBI Sector (Below ~50)
To NY_NBI_APP on 126.4

HARRP Sector (~90 to ~30)
To NY_HRP_APP on 120.8
NOBBI Sector (Below ~40)
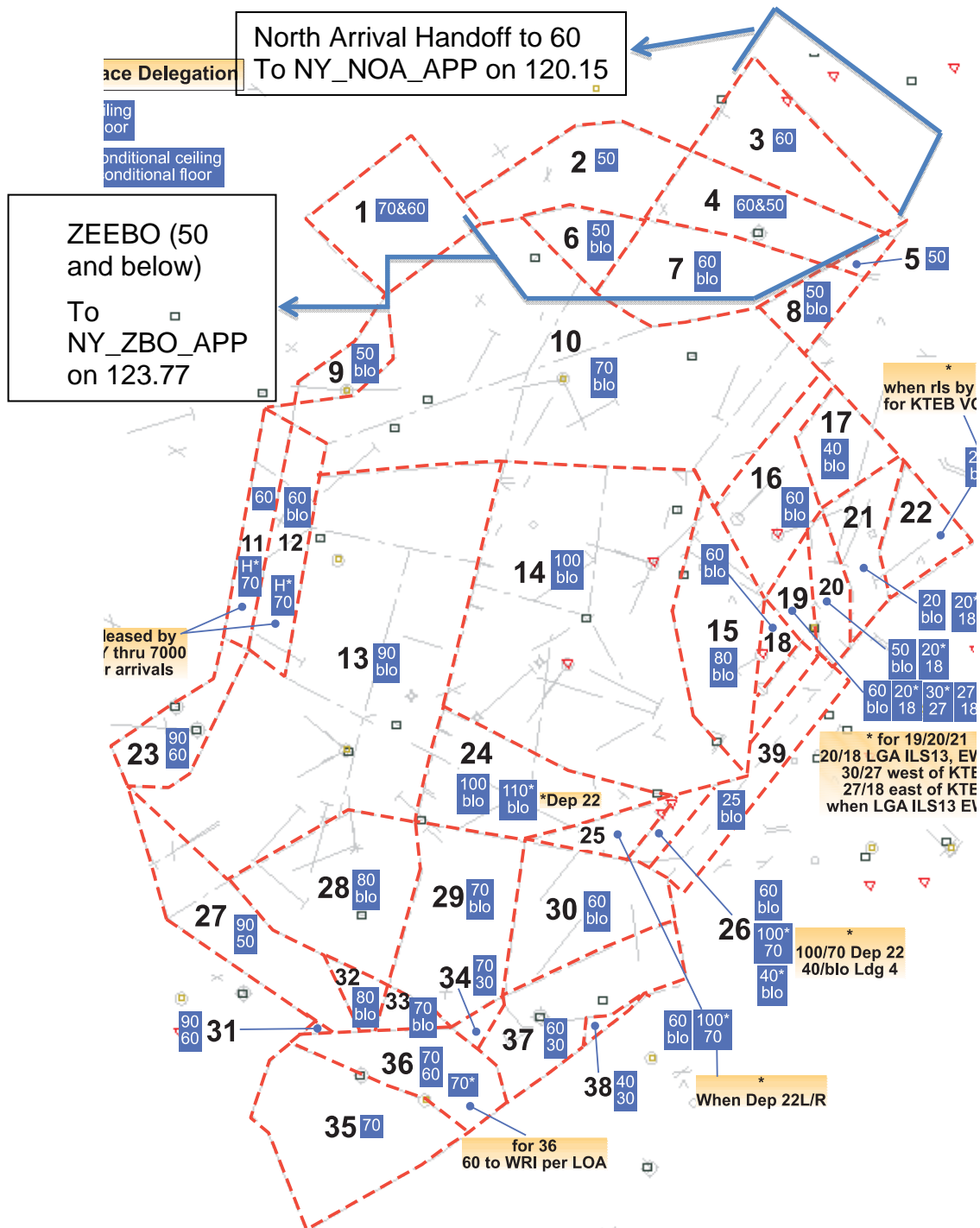To NY_NBI_APP on 126.4

With one Approach Controller online:
Approach services are combined under NY_HRP_APP on 128.80

With multiple Approach Controllers online, sectorization can be as above:
HAARP Sector - NY_HRP_APP on 120.8
NOBBI Sector – NY_NBI_APP on 126.4

North Arrival Handoff to 60
To NY_NOA_APP on 120.15

ZEEBO (50 and below)

To NY_ZBO_APP on 123.77

With one Approach Controller online:
Approach services are combined under NY_ARD_APP on 128.55

With multiple Approach Controllers online, sectorization can be as above:
North Arrival Sector - NY_NOA_APP on 120.15
ZEEBO Sector – NY_ZBO_APP on 123.77

ATTACHMENT 5: BOSTON CENTER STANDARD SECTORIZATION SCHEME

1. **General**

    A. When Boston Center is combined, it will normally be combined as BOS_CTR on frequency 134.700. The Event Coordinator / Controller in Charge (CiC) of an event, the Boston Air Traffic Manager, Deputy Air Traffic Manager or Training Administrator may approve specific requests to operate on another valid vZBW Center frequency; such approvals are one-time approvals to be limited to one session.

    B. Occasionally, major VATSIM events will necessitate multiple Center sectors (splits). These are typically coordinated and published (internally as well as to adjacent centers) prior to the event. The number and configuration of sectors opened shall be determined by the event coordinator and/or Boston Controller in Charge (CiC), with approval of the Boston Air Traffic Manager (ATM).

    C. Sector splits may also be used for training purposes

2. **Number of Splits**

    A. Controllers shall work their airspace utilizing the minimum number of splits necessary to ensure positive and effective control over the aircraft under their control. It is very rare to need splits, and extremely rare to need more than 2 splits.

    B. The Boston Controller in Charge shall have authority to initiate, approve, or deny sector splits to effectively manage traffic conditions affecting vZBW and neighboring facilities

3. **Geographical Splits**

    A. The most common geographical split is North/South (N/S). Another, less common, split is East/West (E/W). If traffic warrants, ordinal (NE/SE/SW/NW) splits may also be used. Combinations, such as a three-way split (e.g. NW/SW/E) may also be utilized as traffic/workload warrants. If an operational advantage will be gained, the airspace may also be split High/Low, using altitudes defined in this section. The most common vZBW splits are shown in Figures 6-8.

4. **Altitudes**

    A. Low: Surface to FL239

    B. High: FL240 to FL600

5. **Typical Frequencies**

    A. When Boston Center is combined, it will normally be combined as BOS_CTR on frequency 134.700
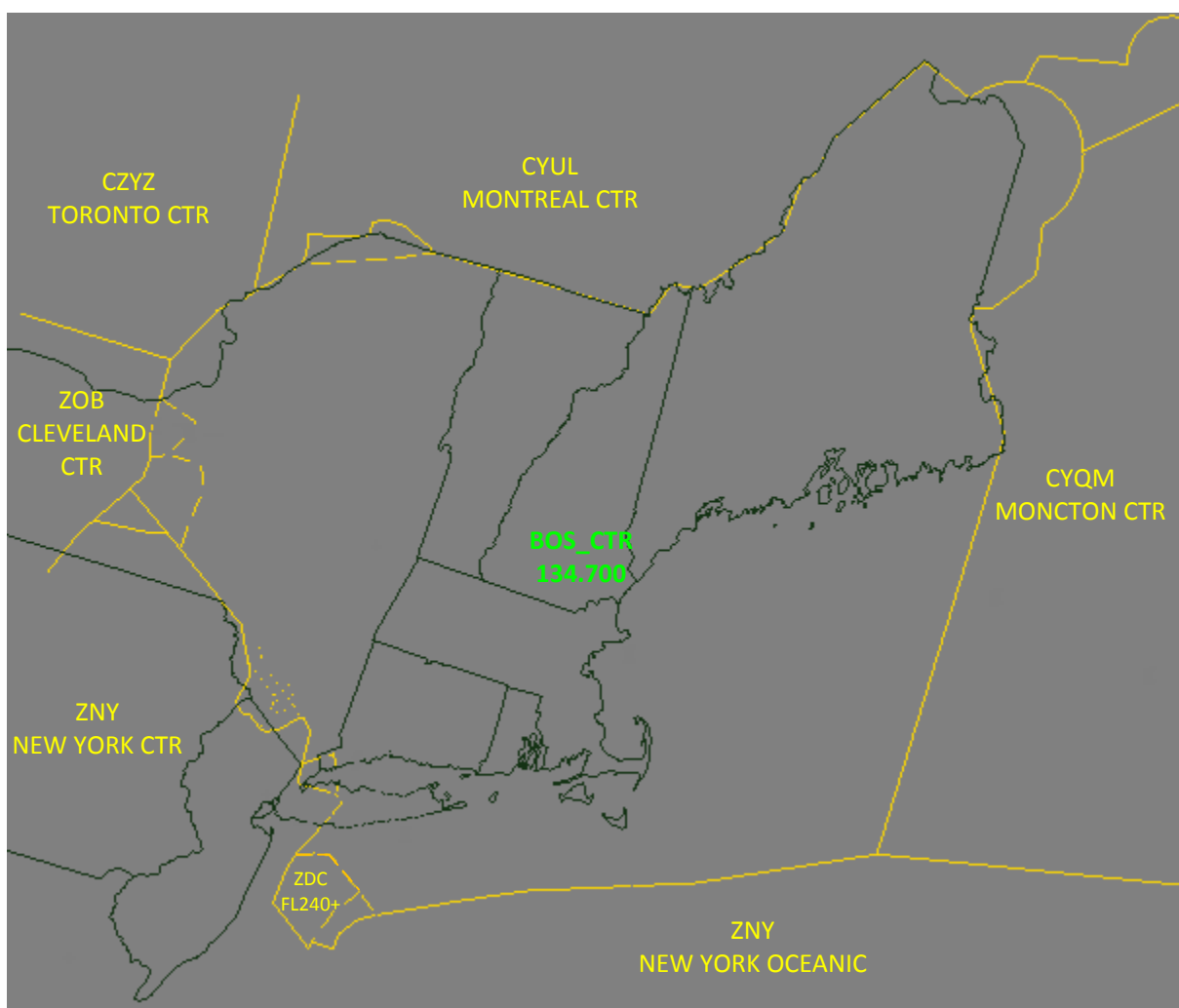
    B. Standard split frequencies are shown in Table 1
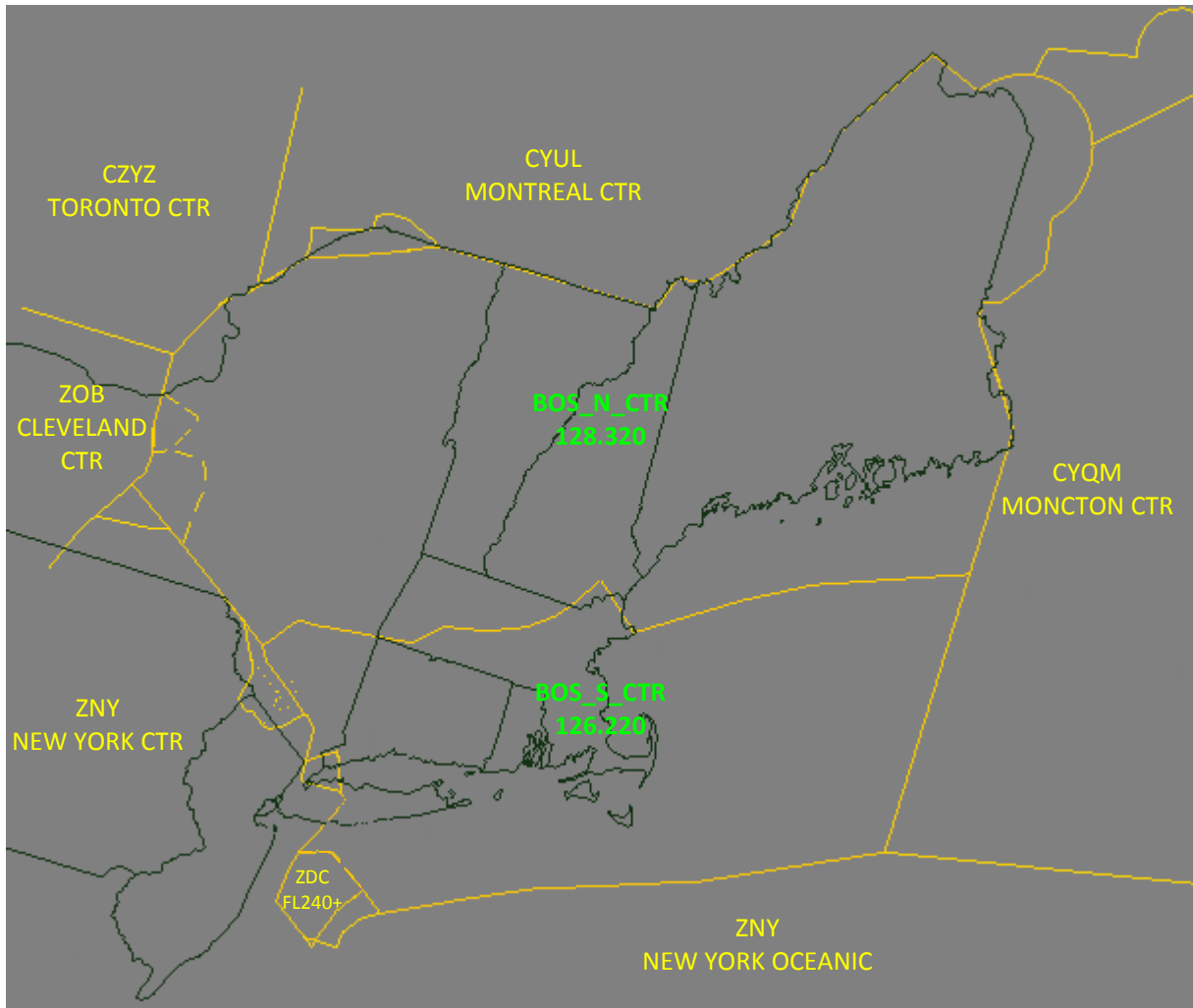
Figure 5: Boston Center Airspace Combined

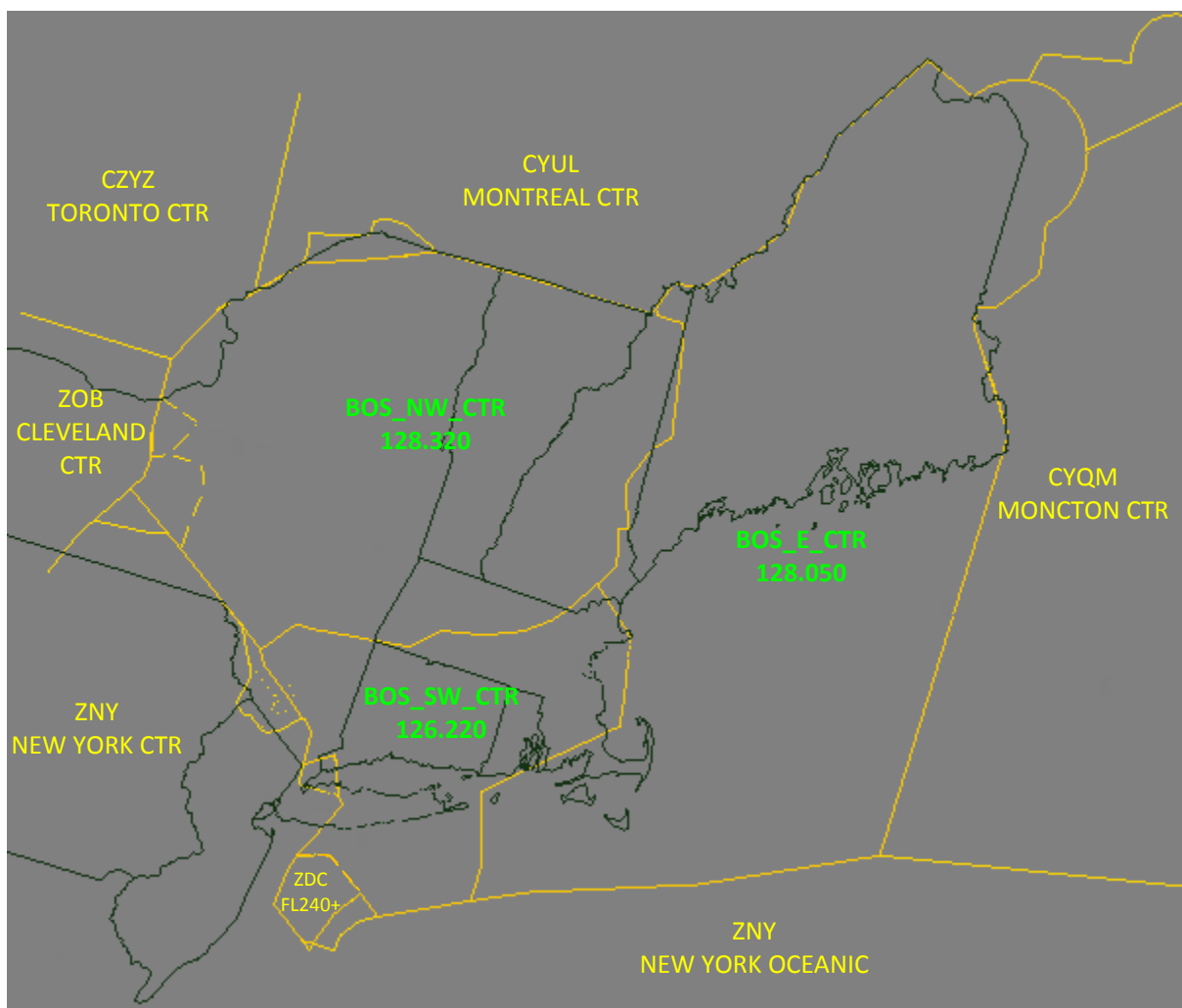**Figure 6: Boston Center Two-Way (North/South) Split**

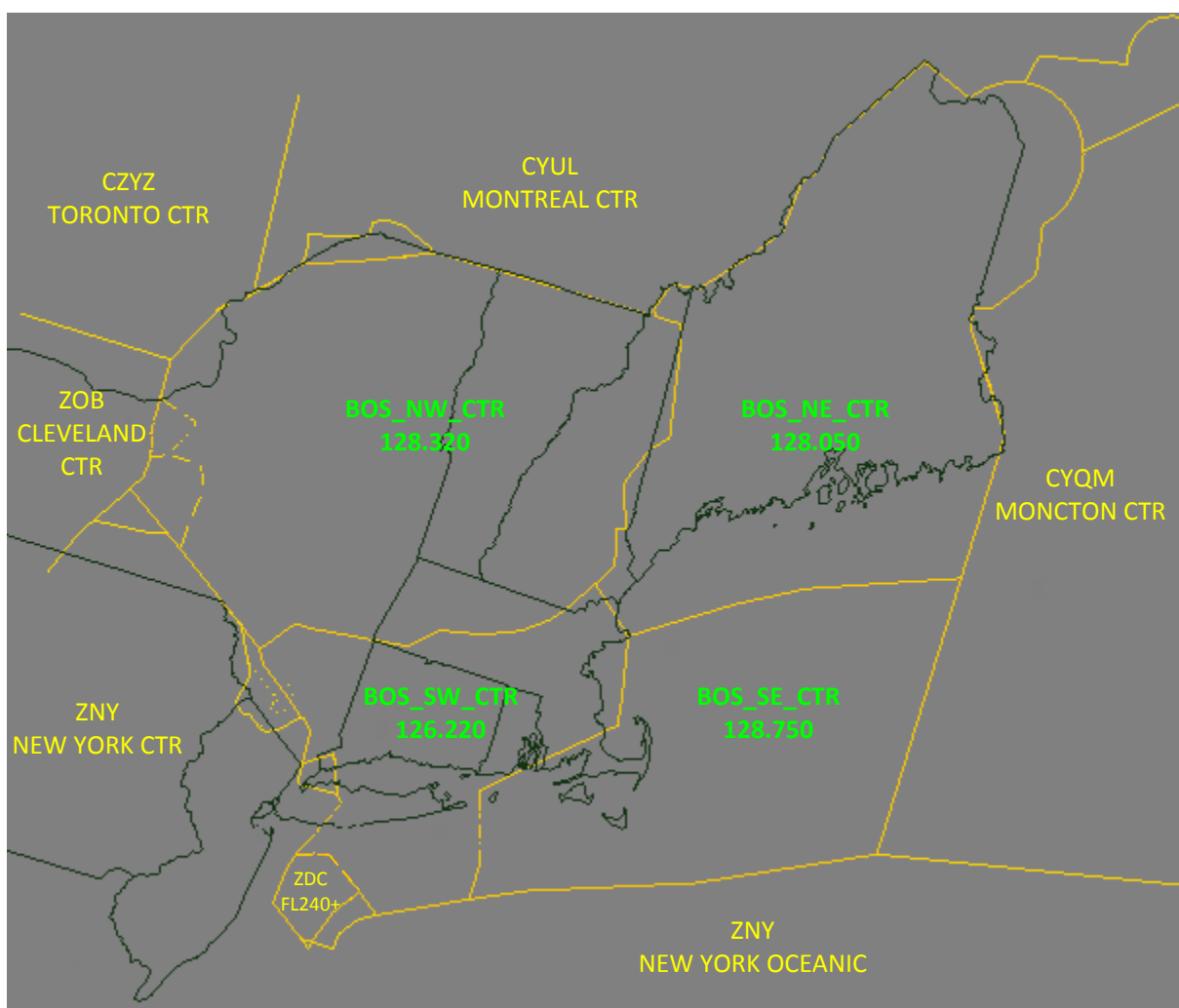**Figure 7: Boston Center Three Way (NW/SW/E) split**

Figure 8: Boston Center Four Way Ordinal Split

Position Callsign	Description	Frequency	Vox Channel
BOS_CTR	Fully Combined	134.700	ZBW_134.700
BOS_N_CTR	N/S Two-Way Combined	128.320	ZBW_128.320
BOS_S_CTR		126.220	ZBW_126.220
BOS_E_CTR	E/W Two-Way Combined	128.050	ZBW_128.050
BOS_W_CTR		128.320	ZBW_128.320
BOS_NW_CTR	Three-Way	128.320	ZBW_128.320
BOS_SW_CTR		126.220	ZBW_126.220
BOS_E_CTR		128.050	ZBW_128.050
BOS_HN_CTR	N/S Two-Way Hi/Low	128.320	ZBW_128.320
BOS_LN_CTR		134.700	ZBW_134.700
BOS_HS_CTR		126.220	ZBW_126.220
BOS_LS_CTR		128.750	ZBW_128.750
BOS_HE_CTR	E/W Two-Way Hi/Low	128.050	ZBW_128.050
BOS_LE_CTR		128.750	ZBW_128.750
BOS_HW_CTR		128.320	ZBW_128.320
BOS_LW_CTR		134.700	ZBW_134.700
BOS_NE_CTR	Four-Way Ordinal	128.050	ZBW_128.050
BOS_SE_CTR		128.750	ZBW_128.750
BOS_SW_CTR		126.220	ZBW_126.220
BOS_NW_CTR		128.320	ZBW_128.320

Table 1: Boston Center Standard Frequency Usage