BOSTON ARTCC (vZBW)
STANDARD OPERATING PROCEDURE

BOSTON ARTCC (ZBW)

RELEASE RECORD			
Version	**Date**	**Author**	**Notes**
1.0	10 Dec 2006	SK	Initial Release
2.0	01 Oct 2011	DO	Major update, transformed from more of a training document to a true SOP, added split info, aligned to RW procedures

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1.0 General

1.1 *Overview*

1.1.1 The Boston Air Route Traffic Control Center (vZBW ARTCC) provides safe passage for aircraft overflying over 165,000 square miles, including 8 states, and the safe and expedited sequencing of arrivals and departures along Standard Terminal Arrival Routes (STARs) and Departure Procedures (DPs), operating to and from 182 airports and 12 TRACONs.

1.1.2 Center provides positive separation and ATC services to aircraft operating on an IFR flight plan within the Boston ARTCC controlled airspace not already being controlled by a TRACON or lower facility/controller, and, workload permitting, shall provide services to VFR aircraft within its lateral and vertical boundaries. All airspace within the Boston ARTCC which is not being provided services by another controller is controlled by Boston Center. The Center controller may be providing services for enroute aircraft, aircraft conducting approaches and departures, and aircraft at nontowered airports. For this reason, center/enroute controllers must possess a full understanding of the IFR system and the Boston ARTCC airspace.

1.2 *Purpose*

1.2.1 This order standardizes duties and responsibilities, and clarifies operating procedures, that shall be followed by vZBW ARTCC personnel

1.3 *Effectivity*

1.3.1 This order is effective on 01 October 2011

1.3.2 This order hereby supersedes and cancels vZBW SOP v1.0, 10 Dec 2006

1.4 *Responsibility*

1.4.1 All personnel are required to be familiar with the provisions of this order that pertain to their operational responsibilities and to exercise their best judgment when encountering situations not provided herein

1.5 *Adjacent Centers*

1.5.1 Center controllers shall be comfortable and competent with all procedures for coordination with the adjacent ARTCCs/FIRs, including ZNY, ZDC, ZOB, CYUL, CZYZ, and CZQM, including knowledge of, and proficiency with, the Letters of Agreement (LOA) in place with adjacent centers

1.6 *Automated Terminal Information Service*

1.6.1 Center controllers are not required to publish an ATIS, but may if operational advantage will be gained. If this is done, it is normally for the busiest Class B airspace, in this case Boston. If an ATIS is published the controller shall ensure that both the text ATIS and the recorded ATIS are in agreement, and that they both clearly depict the airport which they serve.

2.0 ZBW Airspace

2.1 *Boston ARTCC Airspace*

2.1.1 The geographic area indicated on the map below (Figure 1) is designated as airspace under the control of the Boston ARTCC

2.1.2 ZBW airspace contains a shelf to the southwest of its airspace (part of the HTO and Yankee sectors), Aircraft within this shelf FL240 and above are controlled by ZBW, and transfer of control and communication is performed with Washington Center (ZDC). Aircraft within this shelf FL239 and below are controlled by New York Center (ZNY).

2.1.3 Vertical limits of ZBW are surface to FL600, except for that airspace which is delegated in letters of agreement

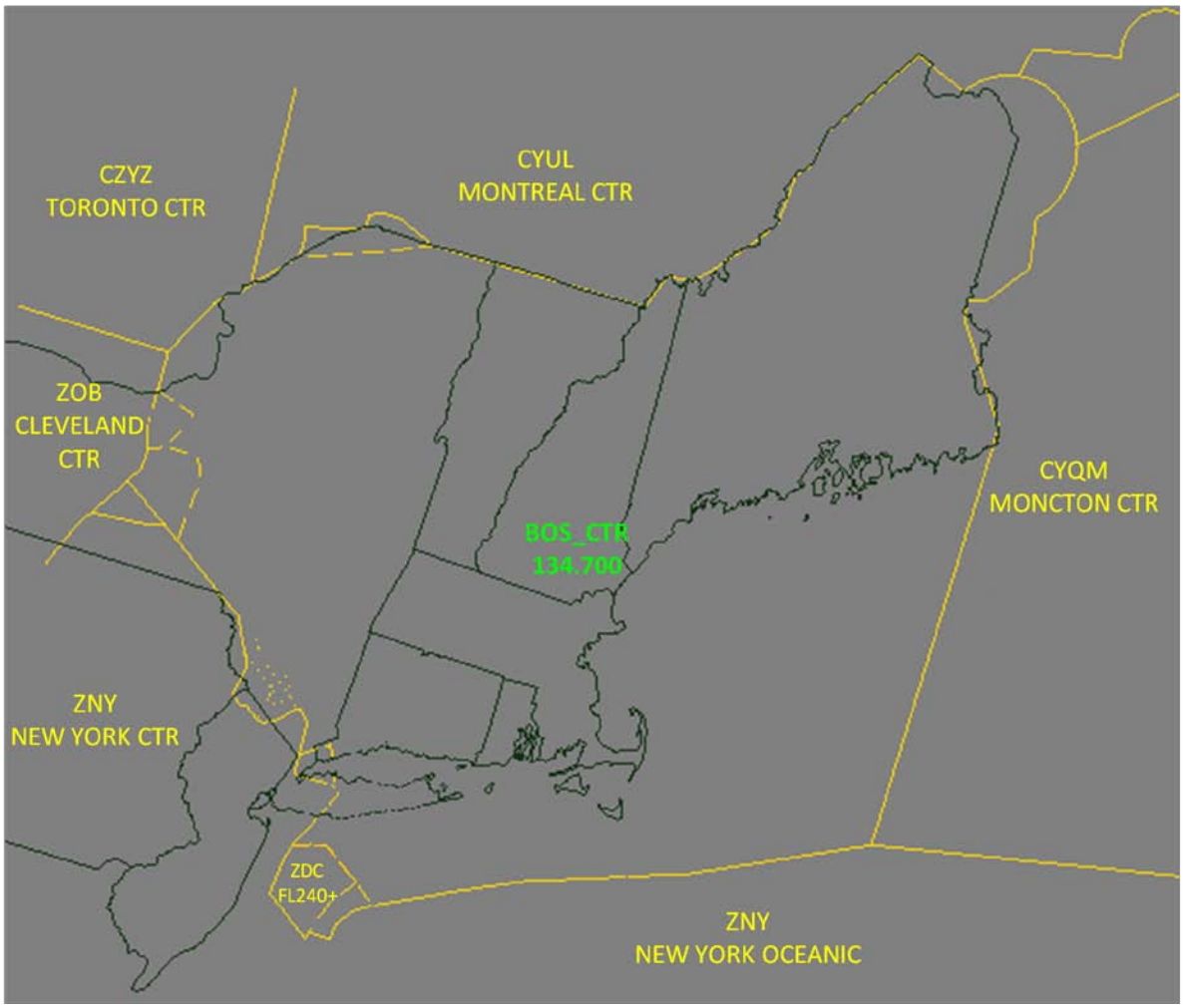

Figure 1: Boston Center Airspace

2.2 *Airspace Delegation*

2.2.1 When control positions within a TRACON are not staffed, Boston Center is also responsible for all operations within the lateral and vertical boundaries of that TRACON. As subordinate positions within the TRACON are staffed, Boston Center transfers responsibility for specific sets of operations to the controller(s) staffing those positions, as follows:

If this position is staffed	**These responsibilities are transferred**	**These responsibilities remain with Center for that TRACON**
Clearance Delivery	Clearance Delivery at only those airfields where Clearance Delivery is staffed.	Clearance Delivery at unstaffed airfields
		Ground
		Tower
		Approach
Ground	Ground at only those airfields where Ground is staffed.	Clearance Delivery at unstaffed airfields
		Ground at unstaffed airfields
	Clearance Delivery at only those airfields where Ground is staffed.	Tower
		Approach
Tower	Tower at only those airfields where Tower is staffed.	Clearance Delivery at unstaffed airfields
	Ground at only those airfields where Tower is staffed.	Ground at unstaffed airfields
	Clearance Delivery at only those airfields where Tower is staffed.	Tower at unstaffed airfields
Approach	Clearance Delivery	None
	Ground	
	Tower	
	Approach	

Table 1: Airspace Delegation

EXAMPLE --

If both BOS_CTR and BOS_APP are staffed, then Boston Center is responsible for the entirety of ZBW airspace, minus the airspace delegated to the Boston (A90) TRACON. The controller staffing BOS_APP assumes the responsibility for all aircraft operations within his airspace, including all applicable operations at airfields within its lateral boundaries.

EXAMPLE --

If both BOS_CTR and PWM_GND are staffed, then Boston Center is responsible for the entirety of ZBW airspace, minus the taxiways and ramps of the KPWM airport, and minus the clearance delivery responsibilities at KPWM. The controller staffing PWM_GND assumes the responsibility for all aircraft operations on the ground at KPWM until the aircraft reaches the hold-short / transfer of control point for any runway. At the hold-short / transfer of control point, (in this example) BOS_CTR assumes responsibility.

3.0 Adjacent and Subordinate Airspace/Controllers

3.1 *Transfer of Control and Communications*

3.1.1 Boston Center shall transfer control and communications of an aircraft to the appropriate controller staffing an adjacent facility prior to that aircraft entering the lateral and vertical boundaries of the adjacent controller's airspace. Transfer of radar identification is normally accomplished via an automated handoff. Unless otherwise specified in a letter of agreement, the Boston Center controller shall ensure that the aircraft is at a 1x simulation rate, clear of any conflict, is at an appropriate altitude and is on course. In addition, when not otherwise specified by a letter of agreement, the Boston Center controller shall initiate transfer of radar identification:

3.1.1.1 no sooner than 50 nm and no later than 10 nm from the adjacent controller's lateral boundary, when transferring to another center;

3.1.1.2 no sooner than 50 nm and no later than 5 nm from the adjacent controller's lateral boundary, when transferring to another Boston Center sector controller;

3.1.1.3 no later than 10 nm (but optimally at 20 +/- 10 nm) from the adjacent controller's lateral boundary, when transferring control to an TRACON controller;

3.1.1.4 no later than 2 nm (but optimally at 5 +/- 3 nm) from the adjacent controller's lateral boundary, when transferring control to a tower controller.

3.1.2 Unless otherwise coordinated, or specified by a letter of agreement, transfer of control shall occur when the aircraft enters the receiving controller’s airspace, or reaches the top or bottom of the transferring controller’s airspace

3.1.3 The Boston Center controller shall initiate transfer of communications no later than 5 nm (but optimally at 10 +/- 5 nm)

3.1.4 These requirements may be modified through coordination and mutual agreement between the controllers involved

3.2 *Crossing restrictions*

3.2.1 Crossing restrictions shall be issued as depicted on published instrument approach plates (subject to speed restriction waivers as described in this chapter), with the following exceptions (or as otherwise coordinated between center and TRACON controllers:

3.2.1.1 KBOS arrivals on the Gardner (GDMx) arrival shall be instructed to cross LOBBY at 11000

3.3 *Speed restrictions*

3.3.1 If traffic is light, and there is no immediate concern for safety or separation, speed restrictions may be waived with prior coordination between center and TRACON controllers. Though this is normally done on a “blanket” basis, it may also be done on a per-aircraft basis, as required by the affected TRACON controller

3.4 *Temporary Altitudes*

3.4.1 Certain situations may call for the use of temporary altitudes, including step climbs, keeping track of altitude assignments for aircraft descending for an arrival procedure or an approach, or conducting a handoff with other than standard altitudes. If temporary altitudes are used, the enroute controller shall clear them when the altitude information is no longer valid or required for coordination or organization purposes.

4.0 vZBW Sectors and Splits

4.1 *General*

4.1.1 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 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.

4.1.2 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 Controller in Charge (CiC), with approval of the Air Traffic Manager (ATM).

4.1.3 Sector splits may also be used for training purposes

4.2 *Number of Splits*

4.2.1 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.

4.2.2 The Controller in Charge shall have authority to initiate, approve, or deny sector splits to effectively manage traffic conditions affecting ZBW and neighboring facilities

4.3 *Geographical Splits*

4.3.1 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 2-4.

4.4 *Altitudes*

4.4.1 Low: Surface to FL239

4.4.2 High: FL240 to FL600

4.5 *Typical Frequencies*

4.5.1 When Boston Center is combined, it will normally be combined as BOS_CTR on frequency 134.700

4.5.2 Standard split frequencies are shown in Table 2

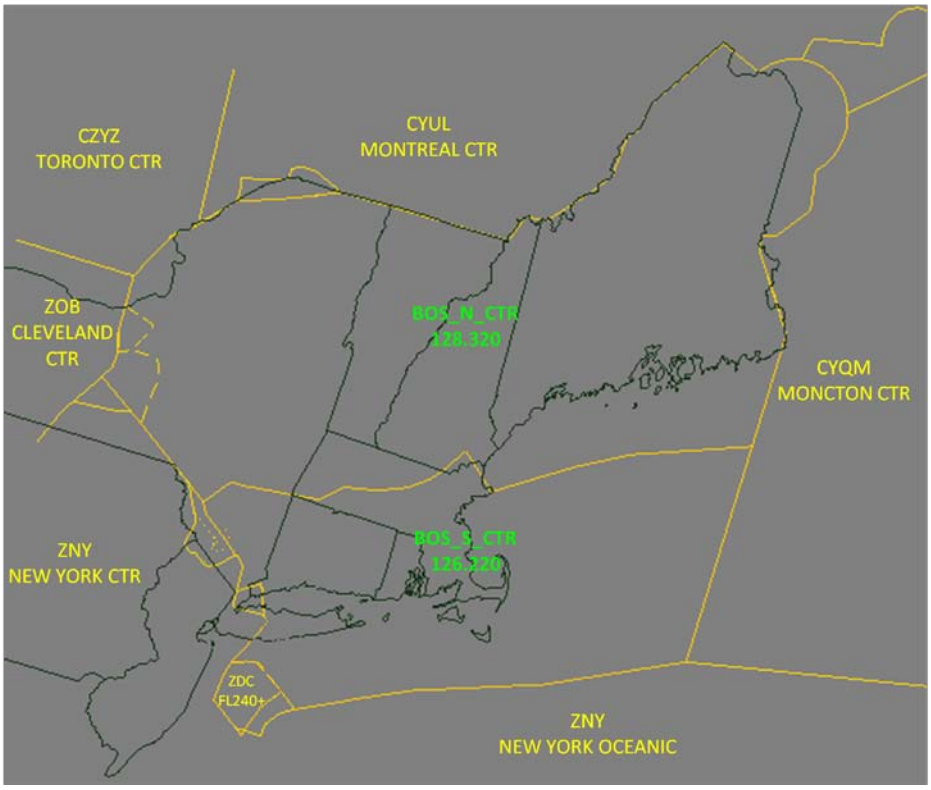

Figure 2: Two-Way (North/South) Split

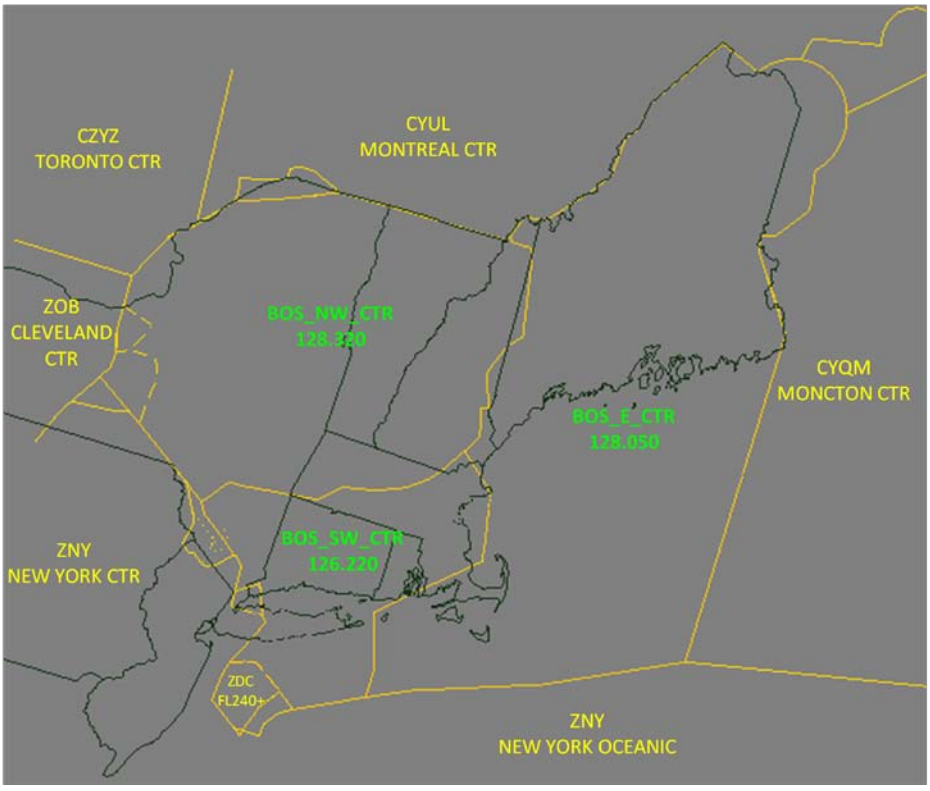

Figure 3: Three Way (NW/SW/E) split

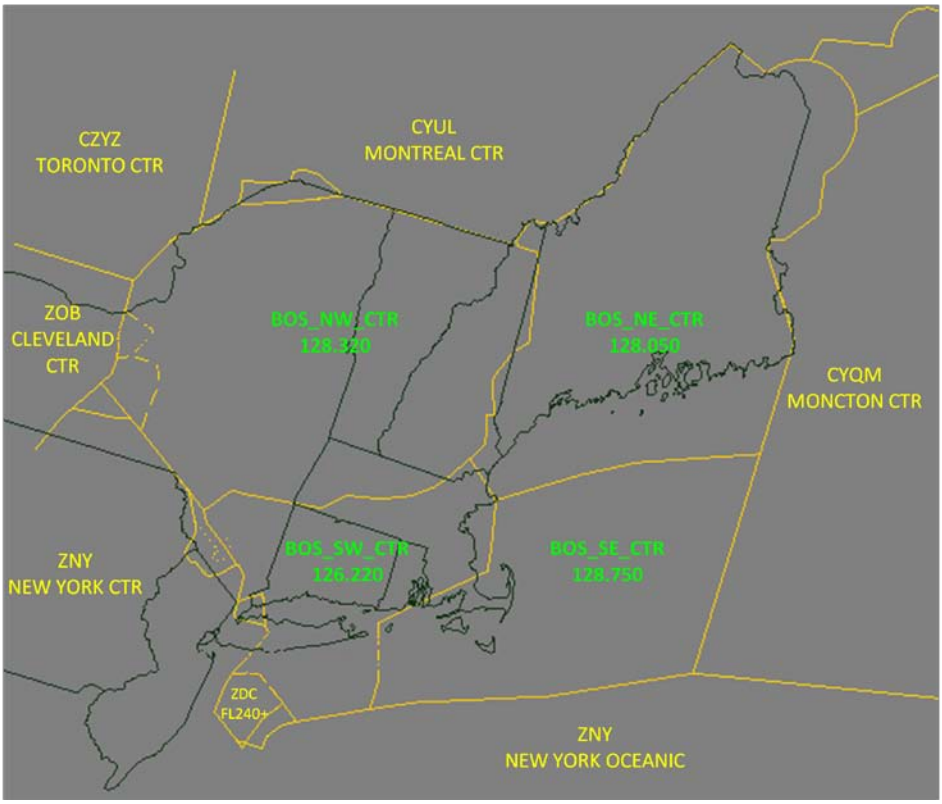

Figure 4: Four Way Split

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 2: Standard Boston Center Frequency Usage

5.0 Service Priority

5.1 *General*

5.1.1 As VATSIM operates with a top-down methodology, all airspace within the Boston ARTCC which is not being provided services by another controller is controlled by Boston Center

5.1.2 VFR and additional services are provided on a workload-permitting basis, but shall not be provided to the detriment of duty and operational priorities, such as the safe, orderly, and expeditious flow of traffic and issuance of safety alerts

5.2 *Workload Management*

5.2.1 In the absence of controllers "beneath" the Center controller (e.g. TRACON, Local, Ground, Clearance Delivery), Boston Center controllers shall provide service using the following priority:

5.2.1.1 Provide full enroute services in Class A airspace

5.2.1.2 Provide full top-down service down to the level of the next lower controller for all Class B airspaces

5.2.1.3 Provide service for all Class E airspace

5.2.1.4 Provide full top-down service down to the level of the next lower controller for all Class C airspace, on a workload-permitting basis

5.2.1.5 Attempt to provide full top-down service down to the level of the next lower controller for all Class D airspace/airports, on a workload-permitting basis

5.2.2 Quality of air traffic control services is paramount with vZBW. In the event that workload becomes, or is predicted to become in the near-term, overwhelming, Center controllers should:

5.2.2.1 Provide services based on normal duty priority (e.g. provide separation services before providing approach clearances before providing local services before providing ground services before providing clearance delivery services, etc.)

5.2.2.2 Attempt to open a sector split with another Center controller or add subordinate TRACON controllers, as needed

5.2.2.3 Shed workload by ceasing to provide services that are indicated as "workload-permitting" above at the lowest possible level (e.g. reduce clarity of taxi instructions at a Class D airport, terminate service for a Class D arrival when the aircraft is approaching a final approach fix and would otherwise normally be cleared to land, then the same for Class C, etc.).

5.2.2.4 Discontinue provision of additional services, such as VFR flight following and services to VFR aircraft, with a preference towards providing required separation services between IFR aircraft

5.2.2.5 As required, implement traffic management initiatives, such as enroute holding, miles or minutes in trail, reroutes, and altitude capping to reduce workload

6.0 Methods, Procedures, and Traffic Management

6.1 *General*

6.1.1 Provide separation services in accordance with FAA JO 7110.65

6.1.1.1 Reduced separation standards may be adopted for subordinate airspace, to the separation standard utilized by that subordinate airspace

EXAMPLE –
If an aircraft leaves ZBW airspace and enters PWM_APP airspace, and top down service is being provided, minimum separation may be decreased from five miles to three miles within 40 miles of the radar site.

6.1.2 Ensure that transfer of control to approach controls for which there is not an LOA occurs with minimum lateral separation of 5 nautical miles, regardless of altitude, unless otherwise coordinated

6.1.3 Refer to appropriate standard operating procedures and letters of agreement for subordinate airspace when providing top-down service

6.2 *Services to Nontowered Airports*

6.2.1 Provide IFR arrival and departure services to nontowered airports according to the “one-in one-out” rule, and in accordance with FAA JO7110.65

6.2.1.1 Ensure aircraft conducting an instrument approach to a nontowered airport are informed of the termination of radar services and are authorized to change frequency prior to the final approach fix

6.2.1.2 Controllers may provide a frequency for cancellation of IFR, however, controllers shall not initiate or solicit cancellation of IFR

6.2.2 Utilize feeder routes and full instrument approaches when approach centerlines are not available, or when an operational advantage will be gained

6.3 *Speed Adjustment*

6.3.1 Adjust speeds when an operational advantage will be gained in accordance with FAA JO 7110.65T 5-7

6.3.1.1 Minor speed adjustment should be used in preference to change of route or altitude to preempt conflicts

6.3.1.2 When adjusting speeds for enroute or overflight aircraft, consider the operational effect on orderly traffic flow when determining a course of action. Controllers should use the least restrictive speed adjustment when possible.

6.3.2 Verbally coordinate all speed adjustments, or use agreed upon scratchpad entries, with neighboring sectors prior to the transfer of radar identification

6.4 *Traffic Management*

6.4.1 Traffic management initiatives are rarely required, and will usually be implemented by the Controller in Charge or Events Coordinator during major events

6.4.1.1 When restrictions are no longer required in the sector(s) that you are controlling, inform the Controller in Charge

6.4.2 When operationally advantageous, implement traffic management initiatives with neighboring facilities

6.4.2.1 Traffic management initiatives include, but are not limited to, ground stops, miles in trail, and minutes in trail. To meet these restrictions, controllers may use enroute holding, vectors, reroutes, speed adjustment, and other approved techniques.

6.4.2.2 Restrictions may be used to reduce controller workload, especially for neighboring and subordinate approach control facilities

6.4.3 Controller shall comply with traffic management restrictions imposed by neighboring facilities

6.4.3.1 These are normally communicated by a Controller in Charge or Event Coordinator, but in the absence of those positions being filled at vZBW, may come directly from the facility implementing traffic management procedures