Outline

• Overview of airspace
• Complexity of BNA airspace
• Federal Aviation Regulations
• Notice of Proposed Construction
• Airport Coordination
Classes of Airspace

<table>
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<tr>
<th>Airspace Features</th>
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<tr>
<td>ATC Facility</td>
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<td>TRACON</td>
<td>TRACON or ATCT</td>
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<td>Operations Permitted</td>
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<td>IFR &amp; VFR</td>
<td>IFR &amp; VFR</td>
<td>IFR &amp; VFR</td>
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<td>Entry Requirements</td>
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<td>ATC Clearance for IFR. All require radio contact</td>
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<td>VFR Minimum Distance from Clouds</td>
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<td>Clear of clouds</td>
<td>500’ below, 1,000’ above, and 2000’ horizontal</td>
<td>500’ below, 1,000’ above, and 2000’ horizontal</td>
<td>500’ below, 1,000’ above, and 2000’ horizontal</td>
<td>Clear of clouds</td>
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<tr>
<td>Aircraft Separation</td>
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<td>All</td>
<td>IFR, SVFR, and runway operations</td>
<td>IFR, SVFR, and runway operations</td>
<td>IFR and SVFR</td>
<td>None</td>
</tr>
</tbody>
</table>

Courtesy of FAA
Complexities of Airspace Design
BNA Flight Tracks for one day
Flight Tracks for BNA for two weeks
Navigational Aids (NAVAIDS)

- Instrument Landing System (ILS)
  - Provides precision and non-precision approach capability
Navigational Aids (NAVAIDS)

• Instrument Landing System (ILS)
Navigational Aids (NAVAIDS)

- VOR/VORTAC
  - Non-precision approach
  - Enroute
  - Departure
Navigational Aids (NAVAIDS)

- BNA VORTAC
Navigational Aids (NAVAIDS)

- Global Position System (GPS)
  - Approaches
  - Enroute
  - Departures
Navigational Aids (NAVAIDS)

- GPS approaches
Plane Encounters TV Tower in Lubbock, TX on 4 Feb, 2015
Result of Encounter with TV Tower
Aircraft was on published instrument approach; tower location was noted on approach chart.
Tower was Charted as an obstruction
Imagine what happens when obstructions are not charted…

**Issues:**
- Hazard to aircraft
- Reflect navigational aid signals
- Subject to $1,000 fine per day
Federal Grant Assurances

• (The airport) will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.
BNA’s FAR Part 77 Airspace
Arrival Surface

- Standard 3 degree approach slope
- Protected by a 50:1 FAR Part 77 approach surface and a 34:1 Terminal Instrument Procedures arrival surface
Departure Surface

• Standard climb gradient of 200 feet/nautical mile
• Protected by a 40:1 departure surface
Federal Aviation Regulation Part 77
Safe, Efficient Use, and Preservation of the National Airspace

• **Who Needs to File**
• **14 CFR Part 77.9** states that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:
  • any construction or alteration exceeding 200 feet above ground level
  • any construction or alteration:
    - within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet
    - within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet
    - within 5,000 feet of a public use heliport which exceeds a 25:1 surface
  • any highway, railroad or other traverse way whose prescribed adjusted height would exceed the above noted standards
  • when requested by the FAA
  • any construction or alteration located on a public use airport or heliport regardless of height or location
Federal Aviation Regulation Part 77
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    − within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet
    − within 5,000 feet of a public use heliport which exceeds a 25:1 surface
  • **any highway, railroad or other traverse way whose prescribed adjusted height would exceed the above noted standards**
  • when requested by the FAA
  • **any construction or alteration located on a public use airport or heliport regardless of height or location**
Form and Time of Notice

- FAA Form 7460-1, “Notice of Proposed Construction or Alteration”
- Must be filed 45 days before the earlier of the following days:
  - The date construction is to begin
  - The date an application for a construction permit is filed
- Applies to temporary as well as permanent structures
- The length of time a temporary structure will be used is irrelevant
**FAA’s OE/AAA Website**

### Obstruction Evaluation / Airport Airspace Analysis (OE/AAA)

Obstruction Evaluation Version 2013.2.2

In administering Title 14 of the Code of Federal Regulations (14 CFR) Part 77, the prime objectives of the FAA are to promote air safety and the efficient use of the navigable airspace. To accomplish this mission, aeronautical studies are conducted based on information provided by proponents on an FAA Form 7400-1, Notice of Proposed Construction or Alteration.

**Advisory Circular 150/5000-6E, Obstruction Marking and Lighting,** describes the standards for marking and lighting structures such as buildings, chimneys, antenna towers, cooling towers, storage tanks, supporting structures of overhead wires, etc.

#### OE/AAA Filing Process

If your organization is planning to sponsor any construction or alterations which may affect navigable airspace, you must file a Notice of Proposed Construction or Alteration (FAA Form 7400-1) either electronically via the website or manually with the FAA.

#### If construction or alteration is NOT LOCATED on an airport:

- [File forms 7400-1 and 7400-2 electronically via this website](#) - [New User Registration](#)
- If filing your proposal is preferred because it is the fastest, most accurate method to submit to the FAA and immediately assigns an aeronautical study number to your case.
- It establishes an electronic communications link with FAA and allows you to obtain project status and notifications directly from the site.

**Or**

If you are unable to file electronically please click here.

**Questions?** Please contact the appropriate representative.

#### If construction or alteration IS LOCATED on an airport:

You may file forms 7400-1 electronically via this website - [New User Registration](#) or Find the FAA Airports Region | District Office having jurisdiction over the airport on which the construction is located, and file to that address.

**14 CFR Part 77 states that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:**

- Any construction or alteration exceeding 200 feet above ground level.
- Any construction or alteration within 300 feet of a public use or military airport which exceeds a 100 foot surface from any point on the runway of each airport with its longest runway more than 1,200 feet.
- Within 10,000 feet of a public use or military airport which exceeds a 100 foot surface from any point on the runway of each airport with its longest runway more than 1,200 feet.
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above noted standards.
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

www.flynashville.com
Electronic FAA Form 7460-1
Airspace Determination

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Issued Date: 10/31/2008

NASHVILLE, TN 37214

**TEMPORARY DETERMINATION OF NO HAZARD TO AIR NAVIGATION**

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: [Redacted]
Location: NASHVILLE, TN
Latitude: 36°09.960' NAD 83
Longitude: 86°48.31.61 W
Heights: 218 feet above ground level (AGL)
720 feet above mean sea level (AMSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is (are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, Flarelight lights - Chapters 3(Marked), 5(4(Red)), & 12.

As a condition to this determination, the temporary structure must be lowered to the ground when not in use and during the hours between sunset and sunrise.

This determination expires on 05/01/2010 unless extended, revised or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. Any changes in coordinates and/or heights will void this determination. Any future construction or alteration, including increase to heights, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of a structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.
Airspace Determination

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Issued Date: 10/31/2008

NASHVILLE, TN 37214

**TEMPORARY DETERMINATION OF NO HAZARD TO AIR NAVIGATION**

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:
Location: NASHVILLE, TN
Latitude: 36°09′12.960 NAD 83
Longitude: 86°48′31.610 W
Heights: 218 feet above ground level (AGL)
730 feet above mean sea level (MSL)

This aeronautical study revealed that the temporary structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is (are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, flagged lights - Chapters 3(Marked), 4,5,6(Red), & 12.

As a condition to this determination, the temporary structure must be lowered to the ground when not in use and during the hours between sunset and sunrise.

This determination expires on 05/01/2010 unless extended, revised or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.
Notice to Airmen (NOTAM)

- Issued to make pilots and air traffic controllers aware of conditions, hazards, etc.
- Can be issued if cranes, boom trucks, etc. used on an emergency basis create a potential hazard
- Not a substitution for filing proper notice with the FAA
- Can often result in airspace restrictions or runway closures
- Airport issues notice to inform pilots and ATC; does not condone the use of NOTAMs
NOTAM

The proponent is required to provide Notice to the Federal Aviation Administration (FAA) of proposed construction or alteration under circumstances outlined in Federal Aviation Regulation (FAR) Part 77, Section 77.9, at least 45 days prior construction. The proponent’s failure to do so is subject to FAA fines. This requirement applies to permanent construction as well as temporary structures, including cranes, regardless of how brief their use. Such notice may be filed via the FAA’s OE/AAA website at the following link: https://oeaaa.faa.gov/oeaaa/external/portal.jsp. Note: the Metropolitan Nashville Airport Authority has no authority to approve or disapprove any such activity nor does it condone such activity without appropriate notice to the FAA.

As timely notice has not been provided for use of this crane, the information contained herein requesting issuance of a Notice to Airmen (NOTAM) is strictly advisory in nature to inform pilots and air traffic control personnel of a potentially hazardous situation.
Obstruction marking and lighting

“Any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet above ground level (AGL) or exceeds any obstruction standard contained in 14 CFR part 77, should normally be marked and/or lighted.”

Equipment on the airport and cranes in close proximity to the airport should be both marked (flagged) and lighted.
Marking and Lighting

• “Any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet (61m) above ground level (AGL) or exceeds any obstruction standard contained in 14 CFR part 77, should normally be marked and/or lighted.”

• “An FAA aeronautical study may reveal that the absence of marking and/or lighting will not impair aviation safety.”

• “Conversely, the object may present such an extraordinary hazard potential that higher standards may be recommended for increased conspicuity to ensure safety to air navigation.”
Spherical Markers

- Spherical markers are used to identify overhead wires.

- **Size and Color.**
  - “The diameter of the markers used on extensive catenary wires should be not less than 36 inches (91cm). Smaller 20-inch (51cm) spheres are permitted on less extensive power lines or on power lines below 50 feet above the ground and within 1,500 feet (458m) of an airport runway end. Each marker should be a solid color such as aviation orange, white, or yellow.”

- **Installations.**
  - **(a) Spacing.** Markers should be spaced equally along the wire at intervals of approximately 200 feet (61m) or a fraction thereof. Intervals between markers should be less in critical areas near runway ends (i.e., 30 to 50 feet (10m to 15m). They should be displayed on the highest wire or by another means at the same height as the highest wire. Where there is more than one wire at the highest point, the markers may be installed alternately along each wire if the distance between adjacent markers meets the spacing standard. This method allows the weight and wind loading factors to be distributed.”
  
  - **(b) Pattern.** An alternating color scheme provides the most conspicuity against all backgrounds. Mark overhead wires by alternating solid colored markers of aviation orange, white, and yellow. Normally, an orange sphere is placed at each end of a line and the spacing is adjusted (not to exceed 200 feet (61m)) to accommodate the rest of the markers. When less than four markers are used, they should all be aviation orange.
When is coordination necessary?

- **Not necessary when:**
  - Replacing a pole/tower of the same height
  - If equipment is not higher than the pole/tower on which it is being used
  - If the equipment is “shadowed” by taller structures

- **Necessary when:**
  - Installing a new pole/tower close to the Airport
  - When equipment used close to the Airport will exceed height of pole or tower
  - When there is doubt as to whether FAA Form 7460-1 should be filed or there is insufficient time to file
  - When working on the Airport