Noise Abatement Information
Best Practices for Chart Supplement

Presented to: Aeronautical Charting Meeting 21-01
By: Kent Duffy, APP-400
Date: April 27, 2021
Agenda

• Introduction: Why? Who? How?
• Initial Analysis
• Inferior Practices
• Best Practices
• Taxonomy
• Examples (before and after)
• Next Steps
Why? Who?

• **Problem:**
  – No standard terminology or structure to describe noise abatement information/procedures within the Chart Supplement
  – Often difficult, or high workload, for pilots to locate and understand the intended noise abatement plan--which can result in pilots not flying the intended noise abatement route or procedure
  – Effectively, there is a gap between in this area

• **Who:**
  – Lead by Office of Airports with active participation by AJV Airport Mapping Team
  – Contractor support from Ricondo
  – Stakeholder engagement: Pilots, Operators, and Airports
Remarks that indicate noise information and/or abatement measures that exist at and in the vicinity of the airport.

Results go here!
How?

• **Intended Outcomes**
  – Develop best practices for noise abatement information in the Chart Supplement
    • Develop standard terminology and structure for noise abatement entries published in front matter
    • Chart Supplement entry should normally be the single reference needed by the pilot
    • Define when complex (graphical) noise abatement plans are best to include in the back matter

• **Implementation**
  – ‘Best Practices’ guidance document
  – ‘New’ noise abatement information will use the guidance document to develop entries for the Chart Supplement
  – Airports with existing entries would be requested to revise the entry in accordance with the guidance document (incrementally)
Initial Analysis

• Evaluated the existing 489 airport noise abatement entries in the Chart Supplement
  – Used evaluation criteria to consistently evaluate each entry to identify best and inferior practices

• Areas of interest:
  – Consistency of language, including nomenclature, structure, and taxonomy.
  – Clarity, such that a pilot can reasonably follow the intended route or avoid noise sensitive areas?
  – Whether the information published in the Chart Supplement is complete or if a pilot needs to reference other sources of information (e.g., websites, phone, etc.)
  – Location(s) in the front or back matter that pilots need to reference for noise abatement information
Inferior Practices

• Incomplete entries (missing relevant information)
• Inconsistent use of terminology or use of outdated nomenclature
• Incorrect/inconsistent use of abbreviations
• Lack of reference to published IFPs or graphics in the back matter
• Extraneous information not relevant to flight operations
• Inconsistencies between CS entries vs back matter graphics or on airport websites
Best Practices

1. **Publish all relevant noise abatement information at an airport within the Chart Supplement**
   - Normally, this should be the single reference needed by a pilot
   - When information is more complex, include graphics in the back matter (with cross reference)
   - Avoid need to call airport or ATCT via phone
Best Practices

2. Consistent terminology and nomenclature:
   - When noting hours of operational restriction, use:
     • “Curfew Hrs,” if the restriction/discontinuation of operations during a specific time period is mandatory
     • “Quiet Hrs,” if the restriction/discontinuation of operations during a specific time period is voluntary
   - Common terminology:
     • Procedures are tracks and routes, either as VFR or IFPs
     • Profiles (e.g., NBAA departure or arrival profiles)
     • Noise Sensitive Areas

3. Identify and consistently use abbreviations
Best Practices

4. Avoid the use of redundant and excessive words
   - Ex: “Do not overfly extremely noise sensitive residential area…”
5. Specify applicability when applied to a particular aircraft category (Seng piston, JET, MIL, ALL ACFT, etc.)
6. Use Zulu as the time standard
7. Altitudes in MSL
Best Practices

6. If avoiding overflight of noise sensitive areas (i.e., no procedures), define the location and type of noise sensitive areas in relation to the airport, and how to best avoid
   - Ex: Avoid ovft of noise sensitive area lctd 1 NM E of arpt blo 1,000 ft MSL.

7. Most noise abatement plans are voluntary; any mandatory procedures should be identified specifically
Back Matter Graphic Inclusion

• Criteria?
  – Complexity
  – Pilot benefit for visual references to local landmarks

• Graphics published in the back matter are advised to depict the following:
  – Noise sensitive area(s)
  – Arrival and departure procedures/routes, as applicable
  – A note indicating the graphic is “not for navigational use”
  – Other pertinent information

Complex example

**Noise:** NS ABTMT in eff all times all acft. Quiet Hrs 0300–1200Z‡. Maint runups proh 0100–1300Z‡. All acft use recommended dep: Rwy 05 left turn 360° stay W of interstate to 1500’; Rwy 23 rgt turn hdg 255° as soon as practicable after passing rwy end to 1500’; avoid residential areas, overfly mall area. -Rwy 05 left turn out within 1/2 mi and proceed on crs W of I–95. Arr Rwy 23 remain W of I–95 til as close in as practicable to avoid ovft of residential area.

Graphic is better!
Taxonomy
(as applicable)

- Intro
- Quiet or Curfew Hours
- Ground Procedures
- Preferential Runway Use (by aircraft categories)
- Noise-Sensitive Areas
- VFR Flight Procedures
- IFR Flight Procedures
- Flight Profile (NBAA)
- Military Ops
- Reference to Backmatter Graphic (If applicable)

Noise Abatement Plan
Example 1

- **As is:**
  NS ABTMT pro in eff. Successive and/or simultaneous dep approved on Rwy 36L-18R and Rwy 36C-18C or Rwy 36L-18R and Rwy 36R-18L with crs divergence no later than 2.27 NM from Rwy end.

**Missing:**
- Correct use of abbreviations
- Reference to procedures in the back matter
- New taxonomy and best practice implementation
<table>
<thead>
<tr>
<th>Taxonomy Rules</th>
<th>New Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro</td>
<td><strong>Noise</strong>: NS ABTMT in eff 24 hrs.</td>
</tr>
<tr>
<td>Quiet or Curfew Hours</td>
<td></td>
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<tr>
<td>Ground Procedures</td>
<td></td>
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<tr>
<td>Preferential Runway Use</td>
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<tr>
<td>Noise-Sensitive Areas</td>
<td></td>
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<tr>
<td>VFR Flight Procedures</td>
<td></td>
</tr>
<tr>
<td>IFR Flight Procedures</td>
<td>IFR Successive and/or simultaneous dep on Rwy 36L-18R and Rwy 36C-18C or Rwy 36L-18R and Rwy 36R-18L with crs divergence no later than 2.27 NM fm EOR.</td>
</tr>
<tr>
<td>Flight Profile</td>
<td></td>
</tr>
<tr>
<td>Military Ops</td>
<td></td>
</tr>
<tr>
<td>Reference to Backmatter</td>
<td>See Special Notices –XYZ Airport Noise Abatement</td>
</tr>
</tbody>
</table>
Ex 1 Adjusted

- **As is:**
  NS ABTMT pro in eff. Successive and/or simultaneous dep approved on Rwy 36L-18R and Rwy 36C-18C or Rwy 36L-18R and Rwy 36R-18L with crs divergence no later than 2.27 NM from Rwy end.

- **Adjusted:**
  NS ABTMT in eff 24 hrs. IFR Successive and/or simultaneous dep on Rwy 36L-18R and Rwy 36C-18C or Rwy 36L-18R and Rwy 36R-18L with crs divergence no later than 2.27 NM from EOR. See Special Notices –XYZ Airport Noise Abatement.
Example 2

• **As is:**
  No touch and go ops are permitted btn 0300–1100Z‡. NS ABTMT procedures in effect are as follows, Rwy 05, turn left hdg 020° until reaching 1000’, then on crs, Rwy 23, turn left hdg 210° until reaching 1000’, then on crs, Rwy 33, fly rwy hdg until reaching 1000’, then on crs.

**Missing:**
- Correct use of abbreviations
- New taxonomy and best practice implementation
- Missing relevant parts
### Taxonomy Rules

<table>
<thead>
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<tr>
<td><strong>Intro</strong></td>
</tr>
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<td><strong>Noise</strong>: NS ABTMT in eff 24 hrs.</td>
</tr>
<tr>
<td><strong>Quiet or Curfew Hours</strong></td>
</tr>
<tr>
<td>No maint runups btn 0300-1200Z, exc when rqr for early morning sked flt</td>
</tr>
<tr>
<td><strong>Ground Procedures</strong></td>
</tr>
<tr>
<td>PREF RWY USE, Rwy 23 for calm winds. No TGL btn 0300–1100Z.</td>
</tr>
<tr>
<td><strong>Preferential Runway Use</strong></td>
</tr>
<tr>
<td><strong>Noise-Sensitive Areas</strong></td>
</tr>
<tr>
<td>VFR, Rwy 05 dep, turn left and maint hdg 020° til 3000’ MSL, then proceed on crs. Rwy 23 dep, turn left and maint hdg 210° til 3000’ MSL, then proceed on crs. Rwy 33 dep, maint rwy hdg til 3000’ MSL, then proceed on crs.</td>
</tr>
<tr>
<td><strong>IFR Flight Procedures</strong></td>
</tr>
<tr>
<td><strong>Flight Profile</strong></td>
</tr>
<tr>
<td><strong>Military Ops</strong></td>
</tr>
</tbody>
</table>
| Reference to Backmatter
Ex 2 Adjusted

As is:
No touch and go ops are permitted btn 0300–1100Z‡. NS ABTMT procedures in effect are as follows, Rwy 05, turn left hdg 020º until reaching 1000’, then on crs, Rwy 23, turn left hdg 210º until reaching 1000’, then on crs, Rwy 33, fly rwy hdg until reaching 1000’, then on crs.

Adjusted:
NS ABTMT in eff 24 hrs. No maint runups btn 0300-1200Z, exc when rqr for early morning sked flt. PREF RWY USE, Rwy 23. No TGL btn 0300–1100Z. VFR, Rwy 05 dep, turn left and maint hdg 020º til 3000’ MSL, then proceed on crs. Rwy 23 dep, turn left and maint hdg 210º til 3000’ MSL, then proceed on crs. Rwy 33 dep, maint rwy hdg til 3000’ MSL, then proceed on crs.
Example 3

- **As is:**
  Voluntary ngt curfew in effect from 0400–1100Z. No high pwr engine/maint runups from 0300–1200Z‡. Noise sensitive area all quadrants, pilots use close–in departure procedures.

**Missing:**
- New taxonomy and best practice implementation
- Remaining aspects of airport’s noise abatement program
- Correct abbreviations
- Reference to published noise abatement IFP
## Ex 3 Taxonomy Application

<table>
<thead>
<tr>
<th>Taxonomy Rules</th>
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<tbody>
<tr>
<td>Intro</td>
<td><strong>Noise:</strong> NS ABTMT</td>
</tr>
<tr>
<td>Quiet or Curfew Hours</td>
<td>ALL ACFT, Quiet Hrs 0400-1100Z.</td>
</tr>
<tr>
<td>Ground Procedures</td>
<td>No hi pwr eng/maint runups 0300-1200Z.</td>
</tr>
<tr>
<td>Preferential Runway Use</td>
<td>PREF RWY USE, dep Rwy 03R when twr is clsd. No int tkfs. No TGL 0300-1200Z dly and also Sun 1600-1700Z.</td>
</tr>
<tr>
<td>Noise-Sensitive Areas</td>
<td></td>
</tr>
<tr>
<td>VFR Flight Procedures</td>
<td></td>
</tr>
<tr>
<td>IFR Flight Procedures</td>
<td>IFR, Fly RNAV (GPS) Y RWY 21L.</td>
</tr>
<tr>
<td>Flight Profile</td>
<td>JET ACFT, Fly NBAA dep pro.</td>
</tr>
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Ex 3 Adjusted

• As is:
  Voluntary ngt curfew in effect from 0400–1100Z. No high pwr engine/maint runups from 0300–1200Z‡. Noise sensitive area all quadrants, pilots use close-in departure procedures.

• Adjusted:
  NS ABTMT ALL ACFT, Quiet Hrs 0400-1100Z, No hi pwr eng/maint runups 0300-1200Z. PREF RWY USE, dep Rwy 03R when twr is clsd. No int tkfs. No TGL 0300-1200Z dly and also Sun 1600-1700Z. IFR, fly RNAV (GPS) Y RWY 21L. JET ACFT, fly NBAA dep pro.
Next Steps

• **Spring/Summer:**
  – Brief to airport organizations (ACI and AAAE, etc.)
  – Additional engagement with pilots and operators?

• **Fall:**
  – Draft best practices document available for review
  – Brief at Fall ACM
Q/A?

- Kent Duffy
- FAA Airport Division (ARP)
- Kent.Duffy@faa.gov
- 202.267.3961
Example 4

- **As is:**
  Voluntary NS ABTMT procedures in effect all times all acft. Voluntary curfew 0300–1200Z‡. Use NBAA profiles std NS ABTMT apch and departure procedures. All acft use recommended departures: Rwy 05 left turn 360° stay W of interstate to 1500´; Rwy 23 rgt turn hdg 255° as soon as practicable after passing rwy end to 1500´; avoid residential areas, overfly mall area. For NS ABTMT info call 561–391–2202. Rwy 05 left turn out within 1/2 mile and proceed on crs course W of I–95. Arr Rwy 23 remain W of I–95 until as close in as practicable to avoid over flt of residential area. Rwy 23 departures turn to 255° as soon as practicable after passing rwy end. Noise sensitive arpt. Maintenance runups prohibited 0100–1300Z‡.

**Missing:**
- Common taxonomy and best practice implementation
- Correct use of abbreviations
- Other aspects that are part of the airport’s noise abatement program
- Also…possibly better for complex graphic in the back matter
### Ex 4 Taxonomy Application

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<td>Quiet Hrs 0300-1200Z</td>
</tr>
<tr>
<td><strong>Ground Procedures</strong></td>
<td>Maint runups proh 0100–1300Z.</td>
</tr>
<tr>
<td><strong>Preferential Runway Use</strong></td>
<td>PREF RWY USE, Minimize reverse thrust, use full rwy. Int tkfs, SGL, and Str–in apch discouraged. TGL permitted Mon-Fri 1400-2200Z.</td>
</tr>
<tr>
<td><strong>Noise-Sensitive Areas</strong></td>
<td>NSA, Avoid residential areas, ovfl mall.</td>
</tr>
<tr>
<td><strong>VFR Flight Procedures</strong></td>
<td>VFR, ALL ACFT, Rwy 05, left tfc pat. Rwy 23, rgt tfc pat. Rwy 05 make crosswind turn ASAP. Rwy 05 dep, turn left to hdg 360° within ½ mi and stay W of I-95 til 1500’. Rwy 23 dep, turn rgt to hdg 255º ASAP after passing EOR til 1500’. Rwy 23 arr, remain W of I-95 as practicable.</td>
</tr>
<tr>
<td><strong>IFR Flight Procedures</strong></td>
<td></td>
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