PHOTO CREDIT: MILITARY SPOUSES BOARD A C-130J SUPER HERCULES DURING A SPOUSE ORIENTATION FLIGHT AT LRAFB. (AIRMAN 1ST CLASS ISAIAH MILLER)

Appendices

List of Appendices

Appendix A
Draft Military Planning and Coordination Agreement

Military Planning & Coordination Agreement[1][2]

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[1] Referred to in the 2021 Compatible Use Study as the "Memorandum of Understanding" or "MOU."

[2] The purpose of this draft "MPCA" is to include the content and terms proposed for the jurisdictions and committee members to consider. Following discussions at the workshop on October 20th, the contents of the MPCA may be reformatted or put into a particular statutory framework once the committee settles on some remaining questions of authority and legislation.

This Military Planning & Coordination Agreement (the "Agreement") is entered into by and between:

Little Rock Air Force Base, Lonoke County, City of Austin, City of Cabot, City of Ward, White County, Pulaski County, City of Jacksonville, City of Sherwood, City of Maumelle, City of North Little Rock, Faulkner County, North Little Rock Municipal Airport, Searcy Municipal Airport, and the Arkansas Department of Transportation. [3]

WHEREAS, Little Rock Air Force Base ("LRAFB"), the Local Governments, and the community have historically cooperated to ensure the sustainability of the ongoing mission of LRAFB and its associated local installations, as well as the preservation of quality of life for citizens and businesses in the region; and

WHEREAS, the ongoing presence and operation of LRAFB is critical to the nation's defense, the protection and well-being of the citizens of Arkansas, and to the common good of this community; and

WHEREAS, the 2021 *Little Rock Air Force Base Compatible Use Study* (the CUS) recognized the importance of the ongoing input of community members affected by military land uses; and

WHEREAS, Recommendation E.1. the 2021 CUS recommended formation of a CUS Implementation Committee to develop tools and techniques to implement the CUS Policy Committee's recommendations; and

WHEREAS, a CUS Implementation Committee was formed in the summer of 2021, which recommends adoption of a coordination agreement among local governments and LRAFB; and

WHEREAS, Recommendations B.4. and E.6. of the 2021 CUS recommended that review and comment by LRAFB be afforded prior to local development review processes related to height and interference avoidance and other local government land use an infrastructure approvals; and

WHEREAS, Recommendation B.5. recommended a review of military impacts prior to annexations; and

WHEREAS, Recommendation D.2. of the 2021 CUS recommended that military impacts be the subject of real estate disclosures for both property rentals and purchases; and

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[3] The City of Lonoke has not been included as a party to the Agreement since neither the City nor its ETJ is covered by any documented military impacts (see CUS, Appendix B).

WHEREAS, Recommendations E.3. and G.2. of the 2021 CUS recommended that a regional Memorandum of Understanding to facilitate coordination among local governments, the base, and other parties be entered into and maintained; and

WHEREAS, Recommendation E.11. of the 2021 CUS recommended formalized and consistent updates by LRAFB to local government representatives and the community; and

WHEREAS, Recommendation G.1. of the 2021 CUS recommended creation of a standing military coordination committee for purposes of coordinating land use and compatibility in the community related to military impacts; and

WHEREAS, the Parties to this Agreement wish to implement these and other recommendations in the 2021 LRAFB Compatible Use Study in order to establish a consistent regulatory and coordination framework for the lands around LRAFB; and

WHEREAS, the Parties wish to adopt a Military Coordination & Planning Agreement in order to fulfill these recommendations and to further formalize the procedures guiding coordination among them; and

NOW THEREFORE, the Parties voluntarily agree to participate in this Agreement for the purpose of formalizing the procedures guiding public outreach and coordination efforts related to military planning and operational impacts within the jurisdictions of the Local Governments.

1.0 Generally

1.1. Effective Date

1. This Agreement applies only to Parties who have signed it by the effective date of its original execution or the date of modification as provided herein.
2. The provisions of the Agreement only apply to land uses and structures proposed after effective date of its original execution or the date of modification as provided herein.

1.2. Designated MPCC Members for the Parties to the MPCA

Attachment A to this Agreement identifies the designated MPCC members for each Party to this Agreement. For Local Governments that have designated a Coordinating Official by ordinance or resolution, such Coordinating Official, or their designee, will serve as the jurisdiction's member of the MPCC.

The MPC Committee Chair will maintain a list of names and contact information for the MPC Committee representatives for the Parties to this Agreement, in addition to any ex officio advisors the Committee appoints, if applicable. When the list is revised, the Chair will attach the revised Attachment A, with the date of revision, to the Agreement and provide a copy to each MPC Committee member representative.

1.3. Applicability of Local Military Zoning Overlays

This Agreement has been developed in coordination with, and to work in conjunction with, Military Zoning Overlays (MZOs) adopted or pending adoption by some Local Governments

that are Parties to this Agreement as well. The terms of this Agreement apply to proposed developments and coordination activities as provided below, in addition to and not instead of, any military-related ordinances or laws adopted by a Local Government Party to this Agreement.

1.4. Commitment of the Parties

This Agreement represents the Parties' commitment to maintain a dialogue and a specific coordination effort regarding civilian and military land uses in the vicinity of LRAFB. Though not legally binding, the Parties have entered into the Agreement after discussion and recommendations from the CUS Implementation Committee, which included representatives of each of the Parties.

2.0 Definitions

AIRPORT OBSTRUCTION OR INTERFERENCE: Any structure, object, or use of land the LRAFB base commander determines will impede operations at an LRAFB Installation, in any manner described below.

1. A structure or land use, or its anticipated impacts, that will protrude above the planes or surfaces as contained in Title 14, Part 77 CFR [Code of Federal Regulations];
2. A structure or land use, or its anticipated impacts, that will interfere with pilot vision, communication, radar, or otherwise interferes with the safe and effective operation of military aircraft;
3. Structures are proposed to extend within 10 feet of approach/departure or transitional surfaces;
4. A structure or land use, or its anticipated impacts, that will produce steam, dust, smoke, light emissions, glare, or other visual impairments, has explosive characteristics, or otherwise interferes with pilot vision or the operation of military aircraft;
5. A structure or land use, or its anticipated impacts, that will produce electrical emissions that interfere with navigation equipment or radio communication between aircraft, LRAFB, or other air traffic control facility; or
6. A structure or land use, or its anticipated impacts, that will attract wildlife into a Department of Defense Airport Imaginary Surface, pursuant to 14 C.F.R. 77.21, which the LRAFB base commander determines may create a hazard to military operations.

IMAGINARY SURFACES: Lands within the contours of the "Imaginary Surface Low Elevation Notification Area" or the "Imaginary Surface Upper Elevation Notification Area" on Attachment B.

IMAGINARY SURFACE LOW ELEVATION NOTIFICATION AREA: Lands within the contours of the "Potential Height Incompatibility Notification Area" on Attachment B.

IMAGINARY SURFACE UPPER ELEVATION NOTIFICATION AREA: Lands within the contours of the "Potential Height Incompatibility Notification Area" on Attachment B.

INCREASED MILITARY IMPACTS: Sound, vibration, noise, traffic, or other off-base impacts that are greater than those typically experienced by the community, and which may result from operations and activities at an LRAFB Installation. Increased military impacts generally result from an operational event involving a temporary increase in personnel, military equipment, munitions, and aircraft on a military facility or within restricted airspace.

LAND USE NOTIFICATION AREAS: Lands within the contours of the "MOU Notification Areas" on Attachment D.

LOCAL GOVERNMENT COORDINATING OFFICIAL: The official designated by a Local Government Party to serve as the liaison to the LRAFB Official.

LOCAL GOVERNMENT PARTY: A County, City, or Town that has executed this agreement.

LRAFB INSTALLATIONS: Little Rock Air Force Base, Blackjack Drop Zone, and All-American Landing Zone.

LRAFB OFFICIAL: The designee of the LRAFB base commander who acts as liaison with other Parties for the purposes of coordination under the provisions of this Agreement and local government ordinances. The LRAFB Official reviews and, as applicable, provides comments related to Potential Incompatible Land Use Actions and Height Incompatibilities and as otherwise required by this Agreement, local ordinances, or state law. The LRAFB Official will serve as the LRAFB representative on the MPCC.

POTENTIAL HEIGHT INCOMPATIBILITY:

1. Structures 50' or greater from grade proposed on lands situated under the Imaginary Surface Low Elevation Notification Area in Attachment B; and
2. Structures 200' or greater from grade proposed on lands situated under the Imaginary Surface Upper Elevation Notification Area in Attachment B.

POTENTIAL INCOMPATIBLE LAND USE ACTIONS: The following land uses or structures proposed within the jurisdiction of a Local Government Party to this Agreement:

1. The following land uses when proposed on lands situated within the Land Use Notification Areas in Attachment D:
    a. Private and general aviation airports, runways, helipads, and other aviation facilities;
    b. Landfills;
    c. Concentrated animal feeding operations;
    d. Renewable energy facilities;
    e. Open pit mining and sand or gravel dredging operations;
    f. Manmade waterbody impoundments or wetlands of one (1) acre or more; and
    g. Any other land use or structure a Local Government Coordinating Official or the LRAFB Official determines, after consultation with one another, to pose a potential threat to or encroachment on military operations at a LRAFB Installation.
2. The following Local Government applications, as applicable:

a. Rezonings and other regulatory or plan amendments that change the permitted uses of property;
b. Revisions to a local Military Zoning Overlay ordinance;
c. Variances; and
d. Special exceptions.

POTENTIAL HEIGHT INCOMPATIBILITY:

3. Structures 50' or greater from grade proposed on lands situated under the Imaginary Surface Low Elevation Notification Area in Attachment B; and
4. Structures 200' or greater from grade proposed on lands situated under the Imaginary Surface Upper Elevation Notification Area in Attachment B.

3.0 Informal Coordination to avoid Potential Incompatible Land Use Actions and Height Incompatibilities near LRAFB

1. The Parties to this agreement vary in terms of their statutory authorities. Some Local Governments, for example, have adopted zoning, while others have not. Therefore, in addition to the Parties' commitment to formal coordination in Section 4.0 and pursuant to local MZOs, all Parties further agree to informal coordination with appropriate other agencies in order to meet the intent, purpose, and spirit of this Agreement.
2. Informal coordination may take place through the MPCC or among its members as appropriate in a given situation.
3. In order to save time and money – for the Local Government, LRAFB, property owners, and businesses – the Parties will take reasonable steps to coordinate with property owners and the base if they become aware land is being prepared for or considered as a Potential Incompatible Land Use Action or Potential Height Incompatibility.
4. In these instances, a Party may but is not required to take such steps as:
   a. Contacting the property owner of record or agency to inform them of the potential incompatibility; and
   b. Contacting the LRAFB Official to make them aware of the potential incompatibility.
4. At the time of the original execution of this Agreement, several Parties without adopted zoning regulations had received awareness and outreach materials, through the Compatible Use Study process, with the intent of making such materials available to local officials and property owners to advance informal coordination under this Agreement.
5. The Parties have no further responsibility for informal coordination under this provision but will be available to answer questions from property owners, agencies, or the LRAFB Official and to participate in related discussions, if requested.

4.0 Coordination Regarding Potential Incompatible Land Use Actions and Height Incompatibilities [4]

4.1. Generally

1. Several Local Government Parties to this Agreement have adopted Military Zoning Overlay ordinances, which have been incorporated into their land use, zoning, or subdivisions codes.
2. In order to provide consistency among these jurisdictions, coordination with the LRAFB Coordinating Official, as required by each local MZO, will be conducted in accordance with the agreed to processes set forth in this Agreement.
3. For cities and counties that adopt a Military Zoning Overlay, coordination consistent with this Agreement may also be included in the ordinance.
4. As of the date of its original execution, the requirements of this Section 4.0 apply to: Pulaski County and the cities of Jacksonville, Sherwood, Maumelle, North Little Rock, Austin, Ward, and Cabot.

4.2. Applicability of Notice Requirement

Local Government Parties with an adopted MZO will provide notice and an opportunity to comment to the LRAFB base commander, as provided herein, when a Potential Incompatible Land Use Action and Height Incompatibility requires coordination between the Parties by this Agreement, local ordinance, or state law.

4.3. Timing of Notice to LRAFB

Notice of a proposed Potential Incompatible Land Use Action Height Incompatibility must be provided by the Local Government:

1. At least ten (10) business days before an official recommendation is made by staff or a planning board or planning commission; or
2. If no preliminary recommendation is made, at least 10 business days before a final decision on the Potential Incompatible Land Use Action of Height Incompatibility is made by the local government official designated by code to make such decision.

[4] This section of the Agreement applies only to the jurisdictions that adopt an MZO, currently anticipated to be those listed in 4.1.4. Notification of Potential Incompatible Land Use Actions or Height Incompatibility is not required, therefore, of Lonoke, White, or Faulkner Counties, though they would have agreed to *informal* cooperation through Section 3.0.

4.4. Form and Content of Notice

1. Notice by the Local Government Coordinating Official shall be by email to the LRAFB Official designated by the base commander, at the email address provided in Attachment A or otherwise provided by the base to the coordination Official.
2. The notice will include:
    a. The type of Potential Incompatible Land Use Action or Height Incompatibility proposed;
    b. The specific property location and parcel number;
    c. A general description of the proposed land use action or structure;
    d. An area map showing the location of the proposed action;
    e. The date on which the Local Government Party will make recommendation, if applicable, and a final decision on the proposed action;
    f. The date, time, and location of any public meetings or hearings to be held regarding the proposed action, if applicable; and
    g. A request of the LRAFB Official for written recommendations and supporting facts relating to the compatibility of the Potential Incompatible Land Use Action or Height Incompatibility with military operations, prior to the local government's recommendation or final decision.

4.5. Review Procedure once Notice is Given

1. Upon receipt of notice from the Local Government Coordinating Official:
    a. The LRAFB Official may confirm via email receipt of the notice from the Local Government Coordinating Official;
    b. The LRAFB Official will oversee base review of the proposed Potential Incompatible Land Use Action or Height Incompatibility; and
    c. Prior to the local government recommendation or final decision, the base commander, through the LRAFB Coordinating Official, will determine whether the proposed Potential Incompatible Land Use Action or Height Incompatibility will create an Airport Obstruction or Interference.
2. Upon making his or her determination, the base commander will instruct the LRAFB Official to provide the Local Government either:
    a. Written notice that LRAFB does not object to the proposed Potential Incompatible Land Use Action or Height Incompatibility; or
    b. Written notice that the proposed Potential Incompatible Land Use Action or Height Incompatibility will create an Airport Obstruction or Interference.

3. Written comments from LRAFB should include sufficient analysis to support the determination, particularly if it identifies a potential Airport Obstruction or Interference.

4. In addition, the LRAFB Official may:

   a. Detail mitigation or modifications to the proposed Potential Incompatible Land Use Action or Height Incompatibility that would achieve or improve compatibility between military and civilian land uses;

   b. Request to meet with the applicant, property owner, or Local Government staff; or

   c. Request to appear before the Local Government officials, committees, or governing bodies to present comments and analysis.

5. If the Local Government does not receive a written response by the recommendation or final decision date provided in the notice, the Local Government may assume LRAFB does not object to the proposed Potential Incompatible Land Use Action or Height Incompatibility.

4.6. Local Government Consideration of LRAFB Determinations

1. The Local Government Coordinating Official will forward any LFARB comments to relevant decision-makers in the Local Government for their consideration prior to making recommendations or final decisions regarding the Potential Incompatible Land Use Action or Height Incompatibility.

2. In addition to the requirements of subparagraph 3, below, Local Government officials will attempt to resolve any concerns expressed by the LRAFB Official or base commander and to encourage applicants to mitigate or avoid negative impacts on LRAFB operations.

3. Local Governments Parties with an effective Military Zoning Overlay will act pursuant to those requirements in addition to those in this MPCA, including where applicable, to deny approval of a structure the LRAFB Official determines will create an Airport Obstruction or Interference under the ordinance, if applicable.

5.0 Intergovernmental Briefings & Notice of Increased Military Impacts

5.1. Briefings to Local Government Elected and Planning Officials

Upon request, the commanding officer or his or her designee may arrange to appear at a regular meeting of the governing or planning bodies of the Local Government Parties, in order to give updates on current events, compatibility efforts, and anticipated changes in mission or operations, and to answer questions of the officials related to LRAFB Installations.

5.2. Notice of Increased Military Impacts

1. LRAFB will give 90-days emailed notice to the Local Government Coordinating Officials and members of the MPC Committee of anticipated Increased Military Impacts, as defined above.
2. If LRAFB becomes aware of potential Increased Military Impacts less than 90 days prior to their anticipated occurrence, LRAFB will give emailed notice as soon as is reasonably possible.
3. LRAFB is not expected to give notice when to do so would require disclosure of information it deems classified or sensitive.

5.3. Community Member Inquiries

1. LRAFB will continue to maintain a transparent procedure for receiving and resolving inquiries regarding noise and other military impacts.
2. Contact information and a description of the process LRAFB uses to resolve such inquiries will be maintained on the LRAFB webpage.

6.0 Public Awareness & Notice by Local Government Parties

6.1. Application Notice by Local Governments

Local Governments with adopted Military Zoning Overlay will include notice of potential miliary impacts on the application forms for the following types of development approval requests:

1. Preliminary and final subdivision or plat approvals;
2. Zoning text or maps amendments;
3. Building, grading, and construction permits;
4. Certificates of occupancy;
5. Site plan approval;
6. Road access/curb cut requests;
7. Business licenses;
8. Conditional or special uses; and
9. Variances.

"Properties located in **<insert name of applicable jurisdiction>** ***may experience impacts associated with operations at Little Rock Air Force Base installations in the area.***

Impacts can include noise, vibration, and flight safety hazards. Also, in some areas near the installations, certain incompatible land uses and structure types are limited or prohibited.

Please contact **<insert name of applicable Local Government Coordinating Official>** ***at*** **<insert name of applicable jurisdiction>**

and <insert name of LRAFB Official> at LRAFB for more information or to ask any questions you have."

6.2. Property Records & GIS

The Local Government Parties may coordinate to ensure their geographic information systems (GIS) and property records indicate:

1. Whether a property is located, in whole or in part, within an aircraft noise, safety, or airspace impact area; and
2. That local ordinances or federal requirements may apply to buildings and structures on the property that will ensure compatibility with local military operations.

6.3. Real Estate Disclosure of Military Operational Impacts

1. The Parties to this Agreement will take reasonable steps to make Real Estate Disclosure Forms available to the public and the North Pulaski Board of Realtors interested in increasing awareness of how LRAFB and the community can work together to protect the base's important operations and local viability.
2. A Sample Real Estate Disclosure Form is included at Attachment C.

6.4. Public Awareness Materials

The Parties to this Agreement will endeavor to make the following available in hardcopy, upon request, and on their websites, in order to expand public awareness, disseminate important information, and keep the public informed of related emerging issues:

1. Flyers, brochures, and other information disseminated during the CUS Implementation process, and as amended;
2. Other public information materials and weblinks created or provided by Parties to this Agreement related to ongoing compatibility efforts; and
3. Other information prepared or provided by the MPC Committee.
4. creating appropriate signage with the ADOT and other responsible agencies.

7.0 Coordination of LRAFB & General Aviation Airport Operators

The LRAFB Official and the Coordinating Officials for North Little Rock Municipal Airport and Searcy Municipal Airport will continue to facilitate coordination between military and general aviation pilots and air traffic control personnel including, but not limited to, through participation on the MPCC, as provided in Section 8.0.

8.0 Military Planning and Coordination Committee (MPCC)

8.1. Generally

The Military Planning and Coordination Committee's primary role is to oversee and maintain ongoing coordination, facilitate communications and provide information between the Local Governments, LRAFB, other parties to this Agreement, and the community.

8.2. Committee Duties

1. The MPCC may convene as provided below to discuss any land use applications, changes, or community trends that could impact the use of off-base lands or that could negatively impact operations at LRAFB Installations.
2. The MPCC may monitor land use trends and advise the other Parties to this Agreement, or necessary third parties, if additional actions, policies, strategies, outreach materials, or other steps are needed to maintain land use compatibility within the jurisdictions of the Parties.
3. The MPCC may track the progress of the "Strategies and Recommendations" from the 2021 CUS and work to effectuate "Phase 3" of the Compatible Use Study process, Strategy Adoption (see Table 1.1, Compatible Use Study).
4. The MPCC may seek outside input from subject matter experts in order to inform its decision-making and formulate recommendations to other appointed and elected bodies.
5. The MPC Committee may oversee and maintain the MPCC website and its content and will coordinate activities with personnel at the City of Jacksonville.
6. The MPC Committee will facilitate the recurring review of this Agreement and applicable state law and will make recommendations for revisions to this Agreement or local ordinances, as appropriate and necessary.
7. The MPCC may serve as the clearinghouse or point of contact for elected officials and other agencies with business or questions related to land use compatibility in the region or the provisions of this Agreement.

8.3. MPCC Members

1. The MPC Committee will be comprised of the jurisdiction and agency representatives who are parties to this Agreement.
2. Local Government Coordinating Officials, or their designee, will serve as their jurisdiction's MPC Committee member.
3. Contact information for each party at the time of the original formulation of this Agreement is in Attachment A.
4. By majority vote of the Parties, additional members or agencies may be appointed to the Committee as *ex officio* advisors at any time.

8.4. MPCC Chair

1. During approximately the first 12 months of the MPCC's period of organization, the CUS Project Director will serve as the MPCC Chair.
2. Following the initial 12 month period, the MPC Committee Chair will be a committee member selected by the other MPCC members to a two-year term.
3. The MPCC Chair will have the duty to:
    a. Act as the point of contact for:
        (i) Members of the community;
        (ii) Elected Officials; and
        (iii) Other relevant agencies.
    b. Prepare meeting agendas and coordinate MPCC meetings and activities;
    c. Call meetings of the MPC Committee, as provided below, or as requested by MPCC members or as needed based on direction from a Party to this Agreement.

8.5. MPCC Meetings

1. During approximately the first 12 months of the MPCC's period of organization, the committee will meet once each quarter.
2. Following the initial 12 month period, the committee will meet at least twice a year but may meet as frequently as needed.
3. Additional meetings of the MPCC may be called by the Chair or at the request of at least two members.
4. All MPCC meetings will be held in a central location and should be in-person, except when a majority of the Committee requests a teleconference or video conference meeting.

8.6. MPCC Funding

1. At the time of the Agreement's original execution, the Parties anticipated funding availability for the first 12 months of the Committee's period of organization from the Arkansas Economic Development Commission's Military Affairs Grant Program.
2. Upon the initiation of the MPCC, the MPCC Chair will immediately pursue efforts to confirm funding from the Military Affairs Grant Program.
3. During its first 12 months, the MPCC will develop a project work plan and budget for subsequent years and, as applicable, identify additional fundings sources to achieve its work plan.

9.0 Miscellaneous

9.1. Nature of Agreement

This Agreement reflect the Parties' commitments related to a consistent and coordinated effort to maintain land use compatibility between privately owned properties within the jurisdictions of the Parties and LRAFB. However, to maintain the spirit of cooperation in which its terms were agreed to, this Agreement is in the nature of a "memorandum of understanding," and is legally non-binding and may not be enforced by a party against any Party to this Agreement.

9.2. Two-Year Review of the Agreement

1. At least every twenty-four (24) months, starting from the Effective Date, the MPC Committee may review and make recommendations for modifications to this Agreement as provided herein.
2. Review by the Parties should consider, in addition to any other related matters:
   a. The need for additional protections against incompatible land uses and developments as trends change in the vicinity of the LRAFB Installations;
   b. Clarification of or revisions to any administrative procedures;
   c. Updated contact information for the Coordinating Officials, members of the MPC Committee, and any *ex officio* advisors listed in Attachment A;
   d. Potential changes in the missions or impacts of the LRAFB Installations;
   e. The need for additional studies; and
   f. The need to invite additional Parties to join this Agreement.

9.3. Modification

Modifications to this Agreement, including the addition of new Parties, shall be valid only when reduced to writing and duly signed by all Parties. However, the MPC Committee Chair may maintain and disseminate revised points of contact and the addition of *ex officio* advisors appointed by the committee, under Attachment A as needed, without the need to modify the Agreement.

9.4. Withdrawal

1. After the Effective Date, any Party may withdraw from participation in the Agreement, without the consent of the other Parties.
2. A Party's withdrawal will be effective upon receipt of emailed notice to all remaining Parties to the Agreement.
3. Following a Party's withdrawal, all commitments of the withdrawing Party as stated herein shall cease, as shall all commitments of the remaining Parties to the withdrawing Party.
4. Withdrawal of a Party does not terminate the Agreement or the commitments of the remaining Parties.

5. Upon withdrawal of a Party, the remaining Parties may execute an amended Agreement in order to reflect the withdrawn Party.

9.5. Effective Date

This Agreement is effective on March 1, 2023

IN WITNESS WHEREOF, the parties have executed this Agreement on the dates below written.

<signature bars to be inserted for each party to the MPCA>

<NAME OF ORGANIZATION>

The _____ day of _____, 20_____

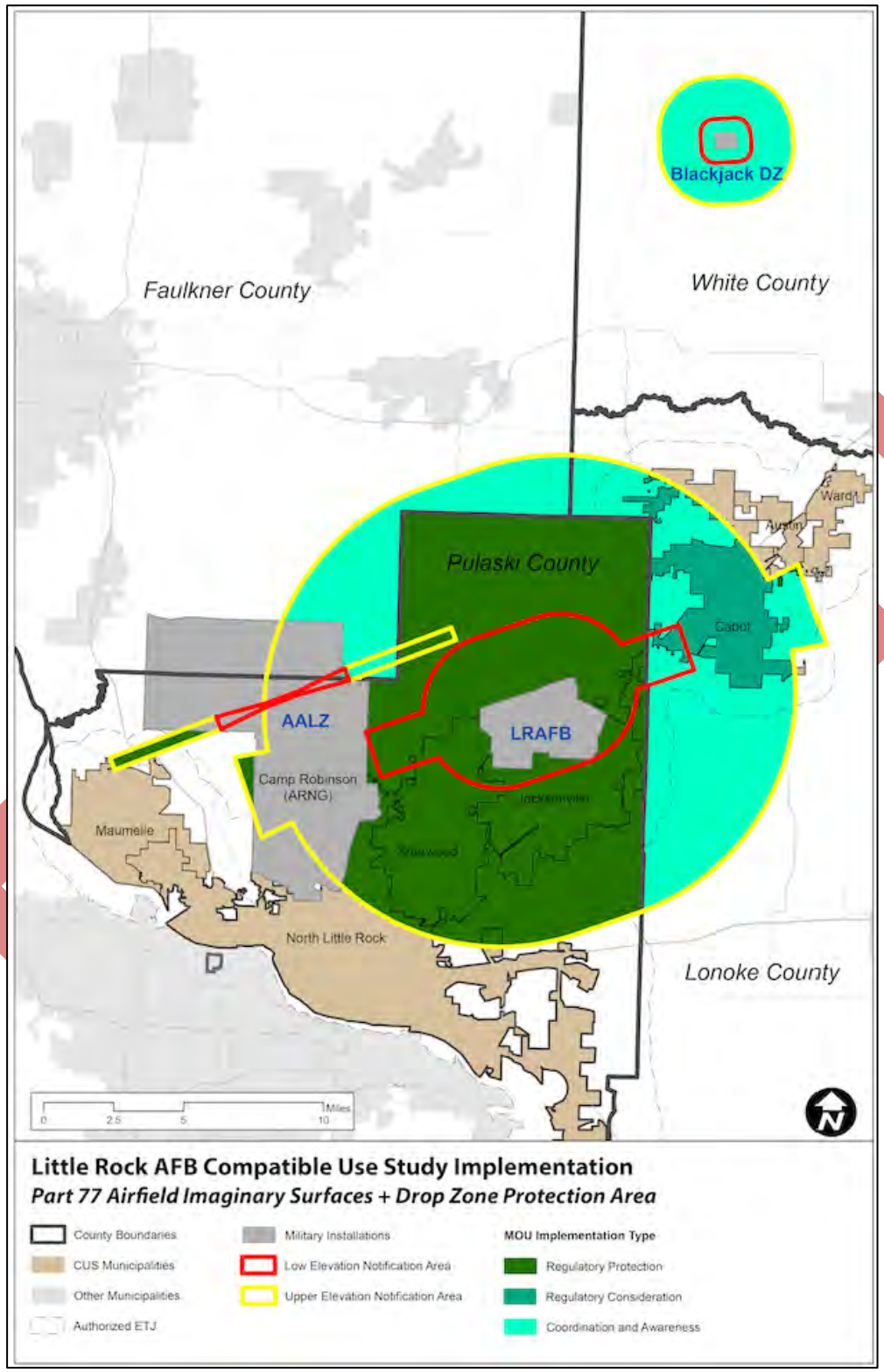
_____

<name>, <title>

Attachment A: Military Planning and Coordination Committee Members & *Ex Officio* Advisors

Contact Information for MPCC members Inserted here.

Attachment B: Potential Height Incompatibility Notification Areas



Attachment C: Sample Real Estate Disclosure Form

Real Estate Disclosure Form
LRAFB and Outlying Installations

Little Rock Air Force Base has been part of the community fabric here since 1955. Those purchase or leasing property should be aware of the ways in which the use of property near the base can negatively impact base operations and also that conditions associated with local military operations may affect their property near the base.

If you are contemplating leasing, renting, buying, or selling a property in *<insert name of jurisdiction>*, please be aware the property may be subject to operational impacts, including noise, vibration, odors, flight safety hazards, and other impacts related to Little Rock Air Force Base operations. In addition, land uses and structures established near an LRAFB installation may negatively impact base operations. You can check with the local jurisdiction or the installation to verify what restrictions, if any, may apply to use of your property.

Additional information concerning LRAFB and its outlying installations, including the 2021 *Compatible Use Study*, is available from your local government and on the website of the local Military Planning and Coordination Committee, which is <insert MPCC URL>.

BUYER/LESSEE UNDERSTANDS & ACKNOWLEDGES HAVING READ THIS ENTIRE STATEMENT.

Buyer/Lessee #1 Signature: _____

Print Name: _____

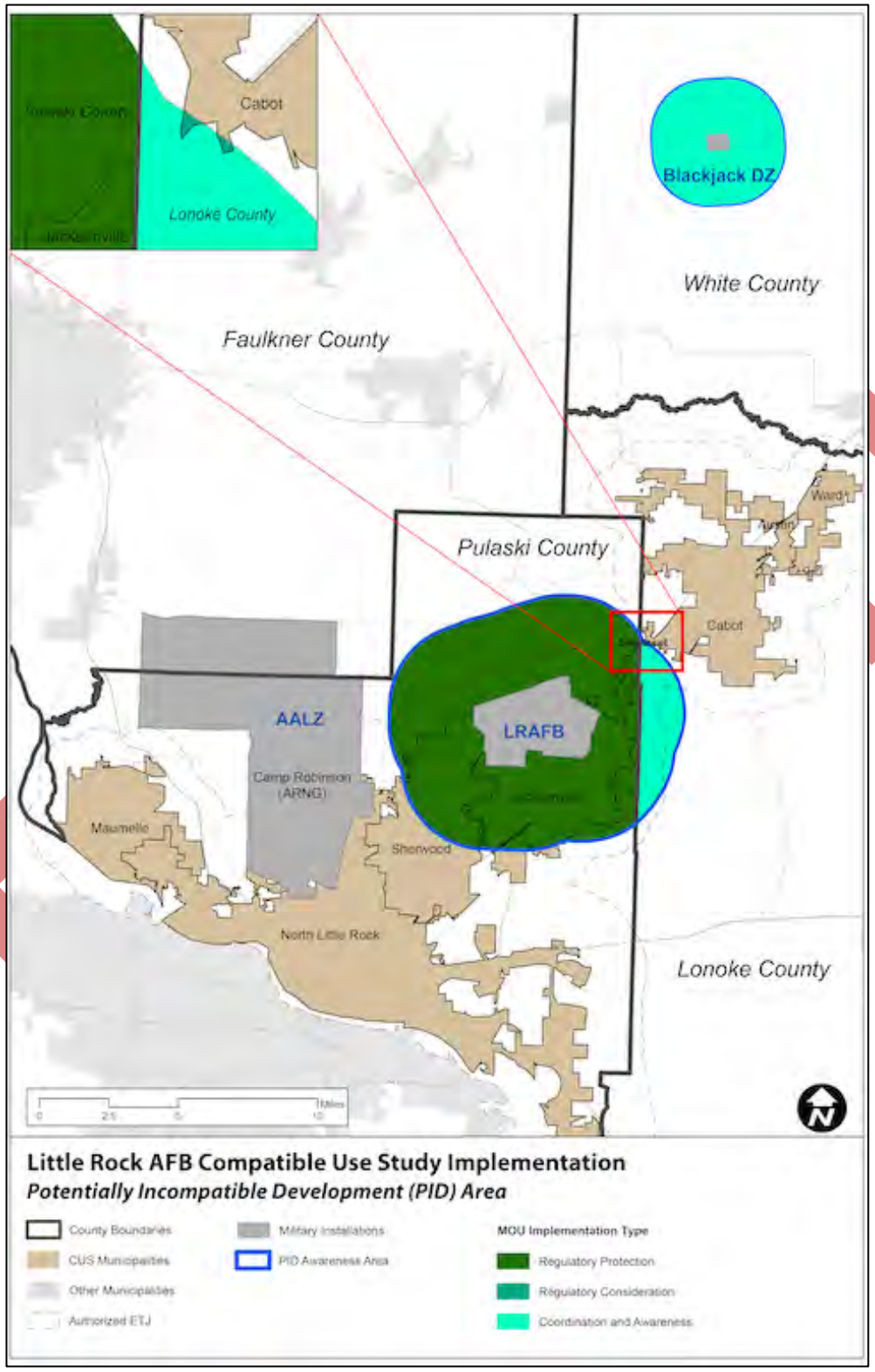
Date: _____

Buyer/Lessee #2 Signature: _____

Print Name: _____

Date: _____

Attachment D: Potential Incompatible Land Use Action Notification Areas



Appendix B

Draft Regional Military Zoning Overlay Ordinance

Regional Military Zoning Overlay[1] [2]

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[1] To the extent a jurisdiction currently regulates military-related land uses, the Military Zoning Overlay represents a baseline for repealing, supplementing, or revising existing regulations, consistent with the 2021 Compatible Use Study and updated guidance. For example, the City of Sherwood may elect to revise its current *Air Installation Compatible Use Zone Overlay District*, sec. 14.09.02, *et seq.*, to incorporate the provisions of the MZO instead of replacing it entirely.

[2] Based on Committee input so far, the assumption is that all jurisdictions, other than the City of Lonoke, may commit to adopting a zoning (or "regulatory") overlay. Lonoke has no documented military impact areas within it, so has not been included as a Party to the MPC Agreement or this MZO.

Note: Unincorporated White County has only the Drop Zone buffer associated with Blackjack DZ within it. For this reason, White County may wish to simply coordinate with LRAFB through the MPC Agreement when certain "Potentially Incompatible Developments" are proposed and not to adopt this overlay zone.

1.0 General Purpose & Intent

(A) In accordance with applicable Arkansas state law and the "Strategies and Recommendations" of the 2021 *Little Rock Air Force Base Compatible Use Study*, the purposes of the LRAFB Military Zoning Overlay (MZO) regulations are to protect community compatibility, assist LRAFB in the preservation of its operational capability, and to promote the public health, safety, and general welfare.

(B) The intent of the zoning overlay is to promote compatibility between Little Rock Air Force Base (LRAFB) operations and the use and development of property off-base, by ensuring that, City/County and LRAFB officials coordinate regarding on- and off-base land uses that may impact military operations or quality of life in the community.

(C) These purposes are achieved by the adoption of:

(1) Reasonable land use regulations generally consistent with other local governments coordinating with LRAFB through similar regulations and a Military Planning and Coordination Agreement (MPCA);

(2) Reasonable requirements for notice and coordination between the City/County and LRAFB; and

(3) Applicable only to new development proposed after the adoption date of the MZO.

2.0 Authority & Scope of Coordination

(A) The MZO is adopted pursuant to Arkansas state law, including but not limited to A.C.A §14-56-101, 14-56-201, §14-56-301, §14-56-401, §14-56-402, §14-56-412, §14-56-413, §14-56-416, §14-56-426, §14-36-602, and §14-17-205.[3]

(B) In addition, the City/County is a party to the MPCA, which specifies additional commitments to coordinate with LRAFB and other parties to the MPCA. To the extent there is a conflict between the terms of the MPCA and state law, state law shall govern.

3.0 Applicability of the Military Zoning Overlay

(A) The Military Zoning Overlay (MZO) does not apply to any land use or structure approved prior to the adoption date of the MZO.[4]

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[3] Based on Committee direction at its April 14, 2022 meeting, this draft assumes current statutes grant sufficient authority to effectuate the Committee's recommendations; and includes here the potential sources of both city and county authority; for discussion and direction during the upcoming Committee workshop. *See* 2021 CUS for further discussion regarding current statutes, particularly Chapters 4 and 7. Each jurisdiction should confirm with local counsel scope of authority prior to adoption.

[4] This section should be revised by the City or County adopting it to ensure consistency with existing regulations.

(B) If a parcel of land subject to the MZO is located partially but not entirely within a documented military impact area (e.g., safety, noise, or imaginary surfaces), the MZO applies only to that portion of the parcel located within the designated area.

(C) In addition to the standards set forth in the MZO, all uses and structures must comply with all other applicable local, State, and Federal regulations, including Title 14, Part 77 Code of Federal Regulations.

(D) Compliance with the MZO does not exempt an applicant from complying with other requirements of the City/County code of ordinances.

4.0 Definitions

These terms have the following meaning for purposes of enforcing and interpreting the MZO.

ACCIDENT POTENTIAL ZONES (APZ): APZ-I lies beyond the Clear Zone, and is located in an area of lower, but still considerable, aircraft accident potential. LRAFB APZs are depicted in **Error! Reference source not found.**.

ACCIDENT POTENTIAL ZONE (APZ) II: APZ-II is beyond APZ-I and possesses less aircraft accident potential than APZ-I, but the potential is still high enough to warrant land use restrictions. LRAFB APZs are depicted in **Error! Reference source not found.**.

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY: The most recent AICUZ Study or Studies, which identify the Clear Zones and Accident Potential Zones associated with one or all LRAFB Installations; maps the noise contours associated with aircraft operations; and identifies types of development considered incompatible with aircraft operations at LRAFB Installations. As of the MZO's original adoption date, the most recent AICUZ Study was completed in 2011.

AIRCRAFT NOISE ZONES: Areas that may be affected by noise associated with current aircraft operations, as set forth in the AICUZ Study. LRAFB Noise Zones are depicted in **Error! Reference source not found.**.

AIRCRAFT SAFETY ZONES: Refers to any one or more of the following: Clear Zone, Accident Potential Zone I, and Accident Potential Zone II.

AIRPORT OBSTRUCTION OR INTERFERENCE: Any structure, object, or use of land the LRAFB base commander determines impedes operations at an LRAFB Installation, in any manner described below.

1. A Potential Incompatible Development, or its anticipated impacts, protrude above the planes or surfaces as contained in Title 14, Part 77 CFR [Code of Federal Regulations];
2. A Potential Incompatible Development, or its anticipated impacts, interfere with pilot vision, communication, radar, or otherwise interferes with the safe and effective operation of military aircraft;
3. Structures are proposed within 10 feet of approach/departure or transitional surfaces;

4. The Potential Incompatible Development produces steam, dust, smoke, light emissions, glare, or other visual impairments, has explosive characteristics, or otherwise interferes with pilot vision or the operation of military aircraft;
5. The Potential Incompatible Development produces electrical emissions that interfere with navigation equipment or radio communication between aircraft, LRAFB, or other air traffic control facility; or
6. The Potential Incompatible Development attracts wildlife into a Department of Defense Airport Imaginary Surface, pursuant to 14 C.F.R. 77.21, which the LRAFB base commander determines may create a hazard to military operations.

CITY/COUNTY COORDINATING OFFICIAL: The City/County designee for purposes of coordinating with the LRAFB Official, as defined below.

CLEAR ZONE (CZ): The Clear Zone (CZ) begins at the end of the runway and is the area of highest aircraft accident potential; it has few uses that are compatible. The CZ starts at the end of the runway, and its dimensions are specified by the Department of Defense based on the type of aircraft and runway. CZs associated with LRAFB operations are depicted in **Error! Reference source not found.**.[5]

IMAGINARY SURFACES: Lands within the contours of the "Imaginary Surface Low Elevation Notification Area" or the "Imaginary Surface Upper Elevation Notification Area" in Figure 3.

IMAGINARY SURFACE LOW ELEVATION NOTIFICATION AREA: Lands within the contours of the "Imaginary Surface Low Elevation Notification Area" in Figure 3.

IMAGINARY SURFACE UPPER ELEVATION NOTIFICATION AREA: Lands within the contours of the "Imaginary Surface Upper Elevation Notification Area" in Figure 3.

LRAFB INSTALLATIONS: Little Rock Air Force Base, Blackjack Drop Zone, and All-American Landing Zone.

LRAFB Official: The designee of the LRAFB base commander who acts as a liaison with the City/County Coordinating Official for the purposes of coordination under the provisions of the MZO. The LRAFB Official reviews and, as applicable, provides comments related to Potential Incompatible Development in the City/County and as otherwise required by the MZO.

LAND USE NOTIFICATION AREAS: Lands within the contours of the "MOU Notification Areas" designated in Figure 4.

MILITARY PLANNING AND COORDINATION AGREEMENT (MPCA): A cooperative agreement between the City/County, LRAFB, and other designated agencies. The MPCA includes protocols for compliance with the requirements of the MZO, as well as other cooperative efforts between the parties to the agreement. The MPCA may be amended from time to time and is maintained by the Military Planning and Coordination Commission.

[5] Both Clear Zones at the LRAFB runway are located entirely on-base. However, they are still located within the City of Jacksonville, which current AICUZ overlay addresses clear zones.

POTENTIAL INCOMPATIBLE DEVELOPMENT: The following land uses or structures proposed within the City/County:

1. Structures 50' or greater from grade proposed on lands situated under the Imaginary Surface Low Elevation Notification Area in Figure 3;
2. Structures 200' or greater from grade proposed on lands situated under the Imaginary Surface Upper Elevation Notification Area in Figure 3;
3. The following land uses when proposed on lands situated under the Imaginary Surfaces illustrated in Figure 3:
   a. Private and general aviation airports or runways;
   b. Landfills;
   c. Cattle feeding stations;
   d. Renewable energy facilities;
   e. Open pit mining and sand or gravel dredging operations;
   f. Livestock and agricultural research uses;
   g. Stormwater detention or retention;
   h. Created wetlands; and other wildlife attractants; and
   i. Any other land use or structure a City/County Coordinating Official or the LRAFB Official determines, after consultation with one another, to pose a potential threat to or encroachment on military operations at a LRAFB Installation.

5.0 Administration

The City/County Department of Planning/Building is responsible for implementing the provisions of the MZO.

6.0 City/County Coordinating Official

The City/County governing body designates the Director of the City/County Planning/Building Department, or their designee, as the City/County Coordinating Official for purposes of the MZO, the Military Planning and Coordination Agreement, and as a representative on the Military Planning and Coordination Commission (MPCC).

7.0 Compatible Use Standards

7.1. Aircraft Safety Zones Overlay[6]

(A) Certain parcels within the City/County are located within LRAFB Clear Zones and Accident Potential Zones as indicated in **Error! Reference source not found.**.[7]

(B) The Aircraft Safety Zones Overlay includes all portions of a parcel located in the CZs and APZs associated with Little Rock Air Force Base.

(C) According to the AICUZ Studies and current Air Force guidance, certain land uses in CZs and APZs are not compatible with LRAFB air operations, given increased potential for aircraft accidents in these areas.

(D) Unless expressly exempt[8], all development proposed within the CZs and APZs shown in Figure 1 must be consistent with Appendix A: Land Use Compatibility Recommendations for APZs.[9]

Figure 1: Clear Zones and Accident Potential Zones[10]

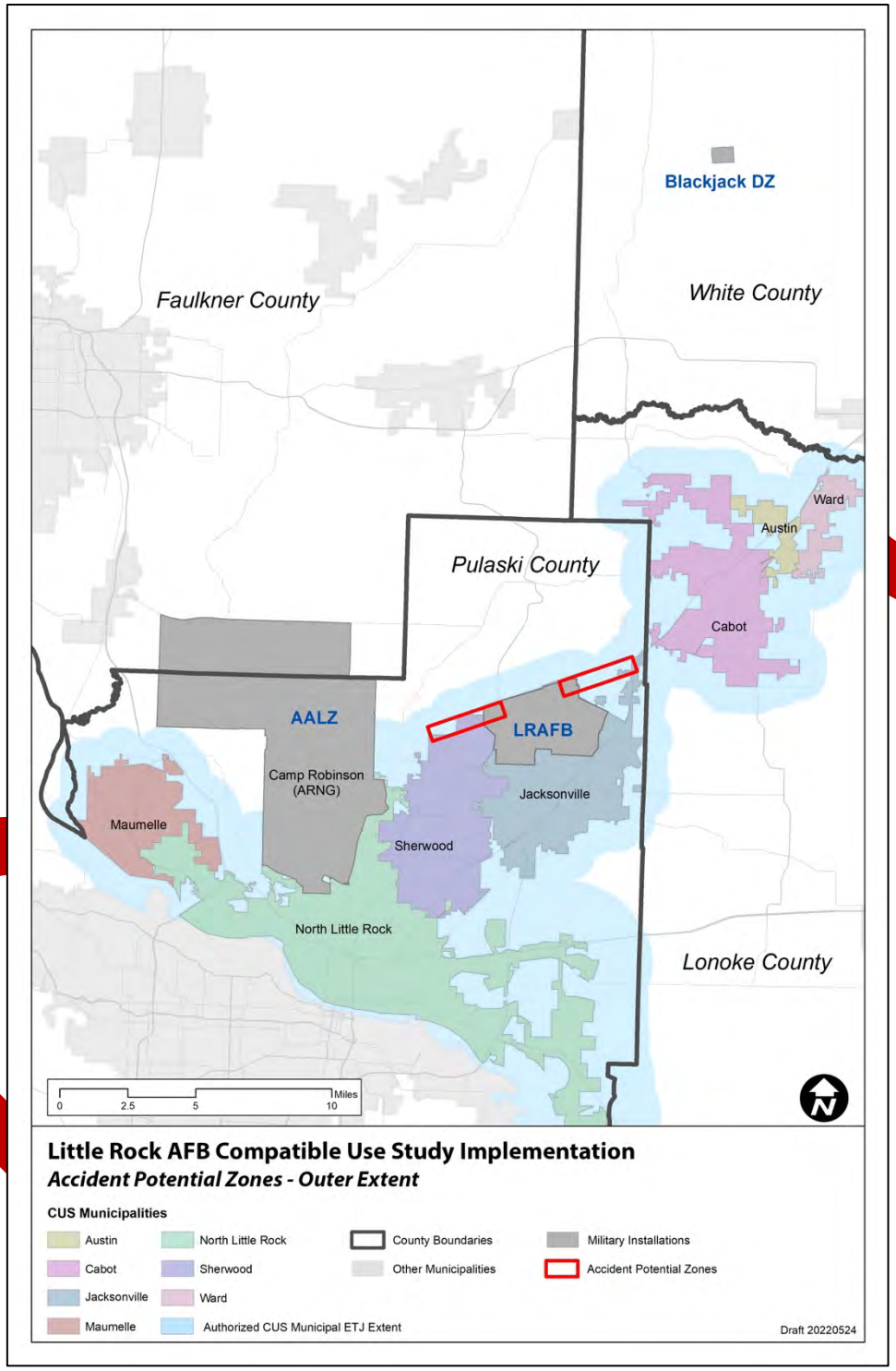
[6] This section applies to Sherwood, Jacksonville, and Cabot (ETJ only), which contain portions of APZ-and/or APZ-2.

[7] When we draft the ordinance for each jurisdiction, Figure 1 would be replaced with an APZ/CZ map tailored for Sherwood, Jacksonville, and Cabot and will only include the APZs/CZs in each specific jurisdiction.

[8] Appendix A provides Air Force guidelines for land use compatibility in Aircraft Safety Zones. These are recommendations and may be modified in consideration of local circumstances. We will discuss this specifically at the June Workshop to get feedback on which restrictions, if any, don't fit circumstances in Jacksonville, Sherwood, or Cabot's ETJ.

[9] The Air Force safety zone compatibility guidelines may be implemented "ministerially," for the most part; that is, a City/County staff member can usually determine whether a proposed land use is allowed or not based on the table, without the need to consult with the base. This may not be the case related to "Potential Incompatible Developments" and some height determinations, as provided in Sections 7.3 and 7.4, which will need to be reviewed case-by-case by the LRAFB Official.

[10] Accident Potential Zones impact lands only in Sherwood, Jacksonville, and Cabot's ETJ.


Blackjack DZ
Faulkner County
White County
Ward
Austin
Pulaski County
Cabot
AALZ
LRAFB
Camp Robinson
(ARNG)
Jacksonville
Maumelle
Sherwood
North Little Rock
Lonoke County
0
2.5
5
10
Miles
N
Little Rock AFB Compatible Use Study Implementation
Accident Potential Zones - Outer Extent
CUS Municipalities
Austin
Cabot
Jacksonville
Maumelle
North Little Rock
Sherwood
Ward
Authorized CUS Municipal ETJ Extent
County Boundaries
Other Municipalities
Military Installations
Accident Potential Zones
Draft 20220524

7.2. Aircraft Noise Zones Overlay[11]

(A) Certain parcels within the City/County are located within LRAFB Aircraft Noise Zones as indicated in **Error! Reference source not found.**.[12]

(B) The Aircraft Noise Zones Overlay includes all parcels or portions of parcels located in the Noise Zones associated with LRAFB operations.

(C) According to the AICUZ Study and current Air Force guidance, certain land uses in the noise zones may not be compatible with LRAFB air operations, given the noise sensitivity of some land uses, like child care services, hospitals, some outdoor venues, and some residential uses.

(D) Unless expressly exempt[13], all development proposed within the LRAFB Aircraft Noise Zones must be consistent with Appendix B: Recommended Land Use Compatibility for Noise Zones.[14]

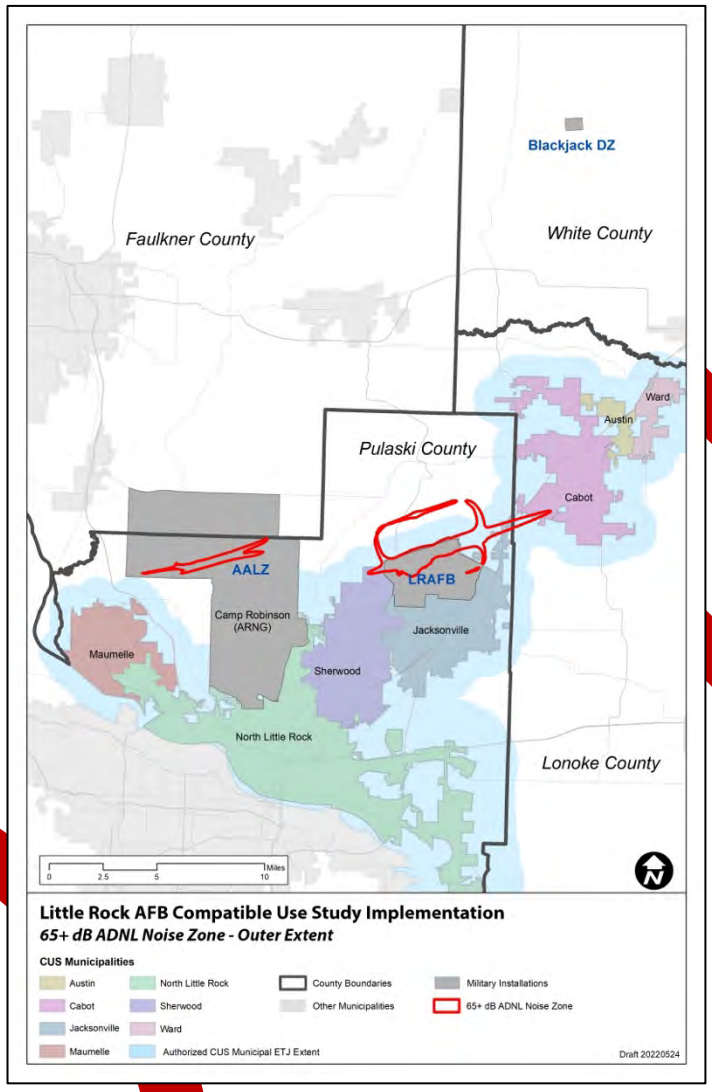
[11] This section only applies to a city or county that has an Aircraft Noise Zone, which are: Lonoke County Cabot, Pulaski County, Jacksonville, and Sherwood.

[12] Figure 2 will be replaced with a jurisdiction-specific Noise Zones map, and will not include CZ/APZs. The consultant will provide GIS data to the jurisdictions at the end of the study.

[13] Appendix B provides Air Force guidelines for land use compatibility in Aircraft Noise Zones. As with accident potential recommendations these recommendations may be modified in consideration of local circumstances, which also will be the subject of discussion at the Workshop.

[14] Also similar to the accident potential tables, in most cases, noise compatibility guidelines are straightforward for City/County staff to interpret and implement. In contrast, some "Potential Incompatible Developments" and tall structures will have to be reviewed case-by-case by LRAFB.

Figure 2: Aircraft Noise Zones[15]



[15] Noise zone restrictions would only apply within Sherwood, Jacksonville, Cabot and portions of unincorporated Pulaski and Lonoke Counties.

7.3. Limitations on Incompatible and Potential Incompatible Developments[16]

(A) **Generally**. Certain land uses by their very nature or location may present threats to LRAFB airspace operations, and therefore, are considered a "Potential Incompatible Developments," which are subject to this Section 7.3.

(B) **Airport Obstructions or Interference prohibited**. Potential Incompatible Developments that the LRAFB base commander, through the LRAFB Official, determines create an Airport Obstruction or Interference, shall be prohibited within the City/County.

(C) **Procedures.** Coordination under this section 7.3 shall be pursuant to the process in Section 8.0.

7.4. Limitations on Height of Structures[17]

(A) **Applicability.** This section applies to all buildings and structures proposed to be established, expanded, or replaced within the City/County and, as applicable its zoning jurisdiction.

(B) **Proposed Structures within Imaginary Surface Notification Areas.** This section applies to new structures proposed within the Imaginary Surfaces illustrated in Figure 3.

(1) The City/County will not approve the following structures until a determination by the LRAFB Official has been made that the structure will not create an Airport Obstruction or Interference, as defined above.

(a) Structures 50' or greater from grade proposed on lands situated under the Imaginary Surface Low Elevation Notification Area in Figure 3; and

(b) Structures 200' or greater from grade proposed on lands situated under the Imaginary Surface Upper Elevation Notification Area in Figure 3.

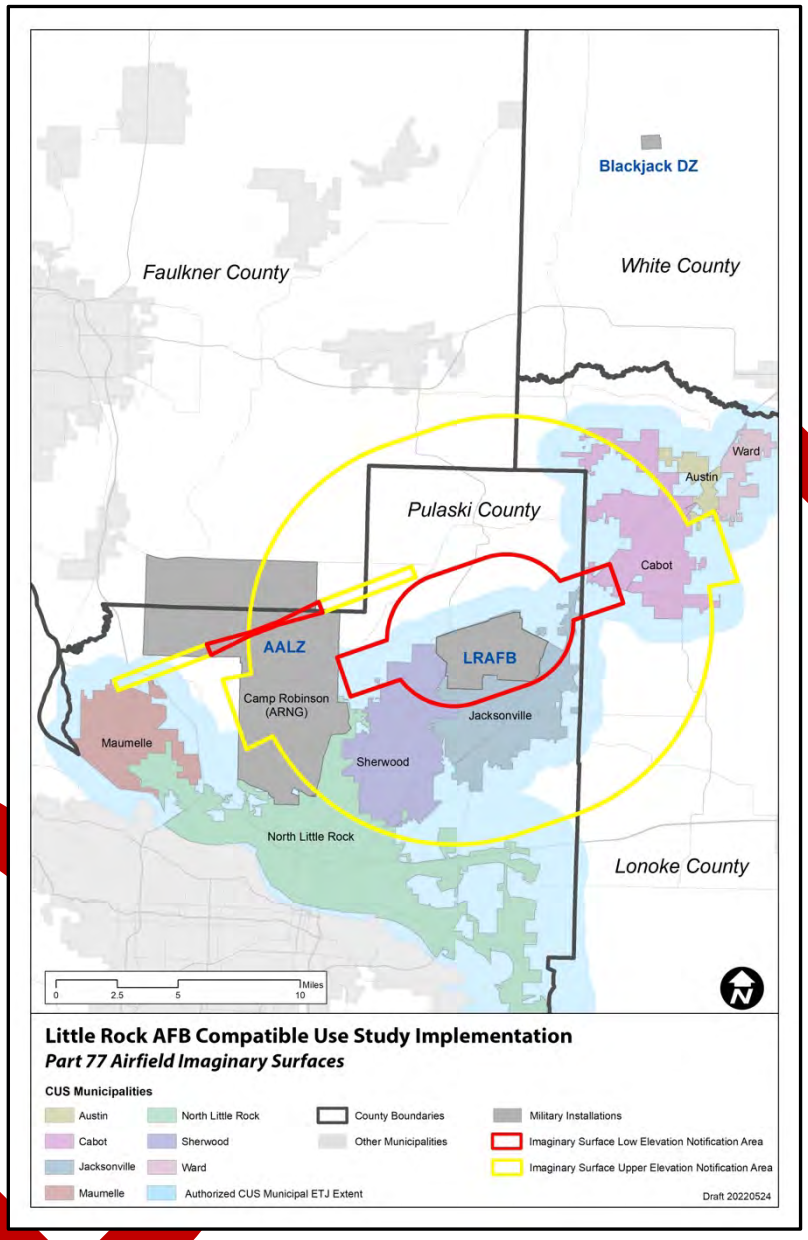
(2) No determination by the LRAFB Official is required for structures below the 50' and 200' height thresholds as provided above. Therefore, only generally applicable City/County height restrictions, if any, apply in these circumstances.

(3) However, any proposed structure the LRAFB Official determines creates an Airport Obstruction or Interference is prohibited by this section.

[16] In contrast to the compatibility tables in Appendix A and Appendix B, determinations regarding "Potential Incompatible Developments require LRAFB input to determine whether a proposed use is allowed – whether it will interfere with LRAFB operations.

[17] Similarly, certain tall structures will need to be reviewed by LRAFB to determine whether it creates an "Airport Obstruction or Interference," as defined above.

Figure 3: Imaginary Surfaces Area[18]



[18] LRAFB will review the compatibility of "Potential Incompatible Developments" (defined in Section 4.0) and tall structure *only* within the area marked in yellow in this figure. The areas in red are the only areas where review is required for structures only 50' in height from grade. Structures over 200' in the remainder of the area are the only ones to be reviewed by LRAFB.

(C) **Procedures.** Coordination under this section 7.4 shall be pursuant to the process in Section 8.0.

8.0 Notice & Coordination with LRAFB

8.1. Generally

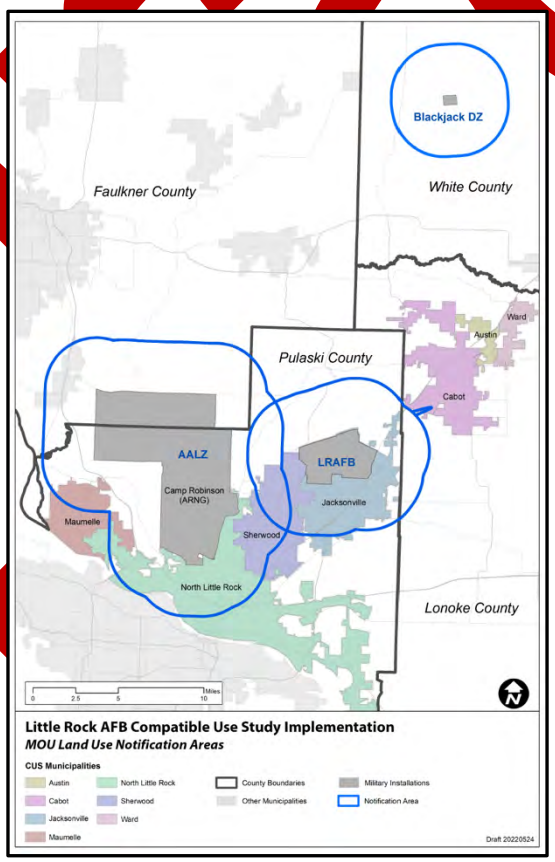
(A) The City/County Coordinating Official will provide notice to and receive comments from the LRAFB base commander, through the LRAFB Coordinating Official, regarding Potential Incompatible Development proposed within the City/County's zoning jurisdiction, as provided in Sections 7.3 and 7.4.

(B) The Military Planning and Coordination Agreement, to which the City/County is a party, describes the agreed to protocol for this coordination.

8.2. Modifications to Zoning Map or Permitted Uses of Land

The City/County will notify and receive comments from the LRAFB Official prior to any public hearing or final decision related to a change in the City/County zoning map or a change that would affect the uses permitted on a property within the Land Use Notification Areas shown in Figure 4 below.

Figure 4: Land Use Notification Areas



9.0 Application Notice of Military Impacts

The City/County will provide notice on application approvals, as provided in the MPCA, indicating that occupants of the land to be developed may experience the impacts of LRAFB military activities.

10.0 No Delegation of Local Authority

Nothing herein is intended to, and should not be interpreted to, authorize or require approval by LRAFB of a development or land use action proposed in the City/County.[19]

11.0 Severability

If any section, subsection, or clause of the MZO shall be deemed unconstitutional or otherwise invalid, the validity of the remaining sections, subsections, and clauses, shall not be affected thereby.

12.0 Effective Date

The MZO shall be effective from and after _____, 2022.

[19] The Ordinance is not intended to delegate authority to LRAFB or any party outside of the city or county adopting the MZO. As drafted, the Ordinance provides that the jurisdiction will rely on the determinations of the base commander as to whether a Potential Incompatible Development would create an Airport Obstruction or Interference with respect to air operations at an LRAFB Installation. The jurisdiction's reliance on LRAFB for its final decisions should be consistent with local procedures and guidance from local counsel.

Appendix A: Land Use Compatibility Recommendations for Clear Zones and APZs[20]

See Attachment "Recommended Land Use Compatibility in APZs, Table 1 (from DoDI 4165.57 (Dec 13, 2020)

[20] These tables will be replaced with tailored land use tables in Word Formats for each jurisdiction. Land uses and accident potential zones that are not in a particular jurisdiction, will be excluded for that jurisdiction. Sherwood's MZO, for example, would include both APZ-1 and APZ-2 restrictions, while Cabot's table would include only APZ-2 (and only within its ETJ).

Appendix B: Recommended Land Use Compatibility for Noise Zones[21]

See "Recommended Land Use Compatibility in APZs, Table 2 (from DoDI4165.57 (Dec 13, 2020)

[21] These tables will be replaced with tailored land use tables in Word Formats for each jurisdiction. Land uses and noise zones that are irrelevant to a particular jurisdiction, will be excluded for that jurisdiction. For example, Cabot's table would not include columns for noise zones 75-79 dB or above, since those zones are not present in Cabot or its ETJ.

Appendix C

Final Military Zoning Overlay Ordinance - City of Jacksonville

Sample City of Jacksonville Military Zoning Overlay[1]

Table of Contents

[1] The provisions of this draft ordinance shall be reviewed by local legal counsel and local staff responsible for or who's duties involve its implementation and subject matter, prior to consideration by the local government governing body. Any questions during that review may be directed to the CUS Project Director or the RPC Official, as applicable. Footnotes in the draft include explanatory notes only and should not be included in the form of the ordinance adopted by the local government.

1.0 General Purpose & Intent

(A) In accordance with applicable Arkansas state law and the "Strategies and Recommendations" of the 2021 *Little Rock Air Force Base Compatible Use Study*, the purposes of the LRAFB Military Zoning Overlay (MZO) regulations are to protect community compatibility, assist LRAFB in the preservation of its operational capability, and to promote the public health, safety, and general welfare.

(B) The intent of the zoning overlay is to promote compatibility between Little Rock Air Force Base (LRAFB) operations and the use and development of property off-base, by ensuring that City of Jacksonville and RPC officials coordinate regarding on- and off-base land uses that may impact military operations or quality of life in the community.

(C) The further intent of the MZO is to apply a consistent program of regulation and coordination with other jurisdictions that participated in the development of the *Compatible Use Study* and that also are parties to the *Intergovernmental Agreement Creating the Little Rock Air Force Base Regional Planning Committee and Fixing its Authority and Responsibilities* (the RPC Intergovernmental Agreement).

(D) These purposes are achieved by the adoption of:

(1) Reasonable land use regulations generally consistent with other local governments coordinating with LRAFB through consistent regulations and the RPC Intergovernmental Agreement;

(2) Reasonable requirements for notice and coordination between the City and the LRAFB RPC; and

(3) Requirements applicable only to new development proposed after the adoption date of the City of Jacksonville MZO.

2.0 Authority & Regional Coordination

(A) The MZO is adopted pursuant to Arkansas state law, including but not limited to A.C.A Title 14, Subtitle 3.

(B) In addition, the City is a party to the RPC Intergovernmental Agreement, which specifies additional commitments to coordinate with LRAFB, the RPC, and other parties to the Agreement. To the extent there is a conflict between the terms of the RPC Intergovernmental Agreement and state law, state law shall govern.

3.0 Applicability of the Military Zoning Overlay

(A) The MZO applies within the municipal boundaries of the City of Jacksonville as shown in Figures 1-4.

(B) The Military Zoning Overlay (MZO) does not apply to any land use or structure approved prior to the effective date of the MZO.[2]

(C) If a parcel of land subject to the MZO is located partially but not entirely within a documented military zoning overlay, the MZO applies only to that portion of the parcel located within the designated area.

(D) In addition to the standards set forth in the MZO, all uses and structures must comply with all other applicable local, State, and Federal regulations, including Title 14, Part 77 Code of Federal Regulations.

(E) Compliance with the MZO does not exempt an applicant from complying with other requirements of the City code of ordinances.

4.0 Definitions

These terms have the following meaning for purposes of enforcing and interpreting the MZO.

ACCIDENT POTENTIAL ZONE (APZ) II: APZ-II is beyond APZ-I and possesses less aircraft accident potential than APZ-I, but the potential is still high enough to warrant land use restrictions. LRAFB APZ-II is depicted in Figure 1.

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY: The most recent AICUZ Study or Studies, which identify the Clear Zones and Accident Potential Zones associated with one or all LRAFB Installations; maps the noise contours associated with aircraft operations; and identifies types of development considered incompatible with aircraft operations at LRAFB Installations. As of the MZO's original adoption date, the most recent AICUZ Study was completed in 2011.

AIRCRAFT NOISE ZONES: Areas that may be affected by noise associated with current aircraft operations, as set forth in the AICUZ Study. LRAFB Noise Zones are depicted in Figure 2.

AIRPORT OBSTRUCTION OR INTERFERENCE: Any structure, object, or use of land the RPC Official determines will impede operations at an LRAFB Installation, in any manner described below.

1. A structure or land use, or its anticipated impacts, that will protrude above the planes or surfaces as contained in Title 14, Part 77 CFR [Code of Federal Regulations];
2. A structure or land use, or its anticipated impacts, that will interfere with pilot vision, communication, radar, or otherwise interferes with the safe and effective operation of military aircraft;
3. Structures are proposed to extend within 10 feet of approach/departure or transitional surfaces;

[2] The CUS Phase IIIA action plan suggested the MZO of each MZO Area Jurisdiction, as designated in the RPC Intergovernmental Agreement, be effective prior to July 31, 2023.

4. A structure or land use, or its anticipated impacts, that will produce steam, dust, smoke, light emissions, glare, or other visual impairments, has explosive characteristics, or otherwise interferes with pilot vision or the operation of military aircraft;
5. A structure or land use, or its anticipated impacts, that will produce electrical emissions that interfere with navigation equipment or radio communication between aircraft, LRAFB, or other air traffic control facility; or
6. A structure or land use, or its anticipated impacts, that will attract wildlife into a Department of Defense Airport Imaginary Surface, pursuant to 14 C.F.R. 77.21, which the RPC Official determines may create a hazard to military operations.

CITY OF JACKSONVILLE COORDINATING OFFICIAL: The City designee for purposes of coordinating with the RPC Official, LRAFB officials, and other parties on matters related to military compatibility, as provided herein.

IMAGINARY SURFACE LOW ELEVATION NOTIFICATION AREA: Lands within the contours of the "Imaginary Surface Low Elevation Notification Area" in Figure 4.

IMAGINARY SURFACE UPPER ELEVATION NOTIFICATION AREA: Lands within the contours of the "Imaginary Surface Upper Elevation Notification Area" in Figure 4.

LRAFB INSTALLATIONS: Little Rock Air Force Base, All-American Landing Zone, and Blackjack Drop Zone.

LAND USE NOTIFICATION AREA: Lands within the contours of the "Land Use Action Notification Area," designated in Figure 3.

LRAFB REGIONAL PLANNING COMMITTEE (RPC): The regional planning commission created pursuant to the RPC Intergovernmental Agreement.

MILITARY COMPATIBILITY ADMINISTRATIVE GUIDELINES: Administrative standards maintained by the LRAFB Regional Planning Committee to facilitate cooperation and land planning oversight between the members of the Committee. The guidelines may be revised from time to time through processes adopted by the RPC. The RPC Official maintains the most current edition of the guidelines, which are available upon request.

MILITARY ZONING OVERLAY: Lands within a mapped military impact area as shown in Figures 1-4.

POTENTIAL INCOMPATIBLE LAND USE ACTIONS: The following land uses or structures proposed within the MZO:

1. The following land uses when proposed on lands situated within the Land Use Notification Areas in Figure 3:
    a. Private and general aviation airports, runways, helipads, and other aviation facilities;
    b. Landfills;
    c. Concentrated animal feeding operations;
    d. Renewable energy facilities;

e. Open pit mining and sand or gravel dredging operations;
f. Manmade waterbody impoundments or wetlands of one (1) acre or more; and
g. Any other land use or structure City Coordinating Official and RPC Official determine, after consultation with LRAFB, to pose a potential threat to or encroachment on military operations at a LRAFB Installation.

2. The following City or County applications, as applicable:
    a. Rezonings and other regulatory or plan amendments that change the permitted uses of property;
    b. Revisions to this Ordinance;
    c. Variances;
    d. Special exceptions; and
    e. The subdivision of land into three (3) or more parcels for residential purposes.

RPC INTERGOVERNMENTAL AGREEMENT: A cooperative agreement between the City and other agencies proximate to and supportive of Little Rock Air Force Base installations. The RPC Intergovernmental Agreement includes protocols for compliance with the requirements of the MZO, A.C.A. 14-56-426, as well as other cooperative efforts between the parties and state law. The RPC Intergovernmental Agreement may be amended from time to time and is maintained by the LRAFB Regional Planning Committee.

RPC Official: The designee of the LRAFB Regional Planning Committee who acts as a liaison with the City of Jacksonville Coordinating Official for the purposes of coordination under the provisions of the MZO and the RPC Intergovernmental Agreement. The RPC Official reviews and, as applicable, provides comments related to Potential Incompatible Land Use Actions in the City and as otherwise required by the MZO, RPC Intergovernmental Agreement, and the Military Compatibility Administrative Guidelines.

5.0 Administration

(A) The City of Jacksonville Department of Engineering and Planning is responsible for implementing the provisions of the MZO.

(B) The City will coordinate with the RPC Official to inform property owners within unincorporated areas near the City of Jacksonville that approval under Pulaski County or RPC regulations may be required.

6.0 City Coordinating Official

The City Council designates the Director of the Engineering and Planning Department, or their designee, as the City of Jacksonville Coordinating Official for purposes of the MZO and to support, or if designated expressly by the Council, to serve as the City's designated member to the LRAFB Regional Planning Committee.

7.0 Compatible Use Standards

7.1. Generally

(A) Structures and uses proposed within the City of Jacksonville MZO proposed on or after the effective date of this section, must comply with the requirements herein prior to final City approval.

(B) The director of the Engineering and Planning Department will maintain the official maps included in this section on file at the City, including in GIS format, as adopted by the City Council.

(C) City officials and property owner applicants may use the official maps to establish the degree to which a property is located within an impact zone included in the MZO, as addressed in this section.

(D) The maps in this section are for general reference purposes only and the official maps on file control and shall be interpreted as provided in the City zoning code.

(E) Coordination between the City and the RPC required under this section shall be pursuant to the terms of the RPC Intergovernmental Agreement and RPC administrative guidelines.

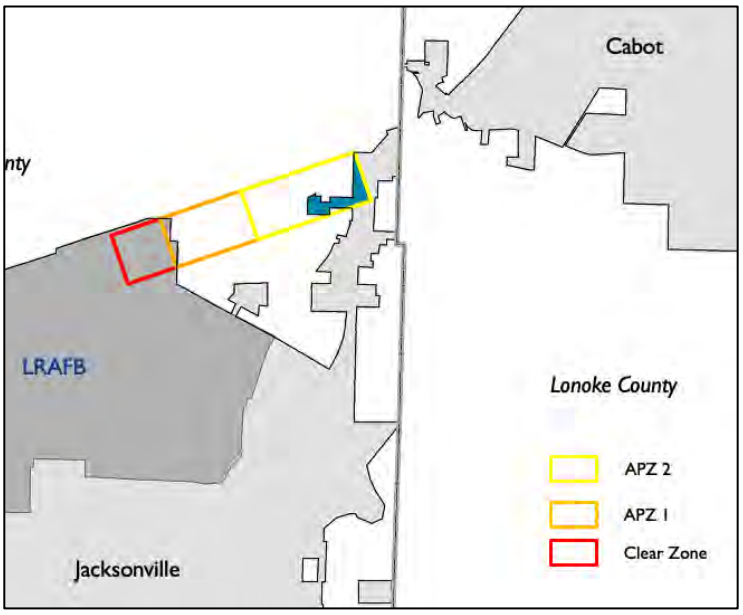
7.2. Accident Potential Zone 2

(A) Certain parcels or portions thereof within the MZO are located within LRAFB Accident Potential Zone 2, as indicated in Figure 1.

(B) According to the AICUZ Studies and current Air Force guidance, certain land uses in Accident Potential Zone 2 are not compatible with LRAFB air operations, given increased potential for aircraft accidents in these areas.

(C) Therefore, unless expressly exempt, all development proposed in the MZO, within APZ 2 shown in Figure 1, must be consistent with Appendix A: Land Use Compatibility Recommendations for APZs.

Figure 1: Accident Potential Zone 2



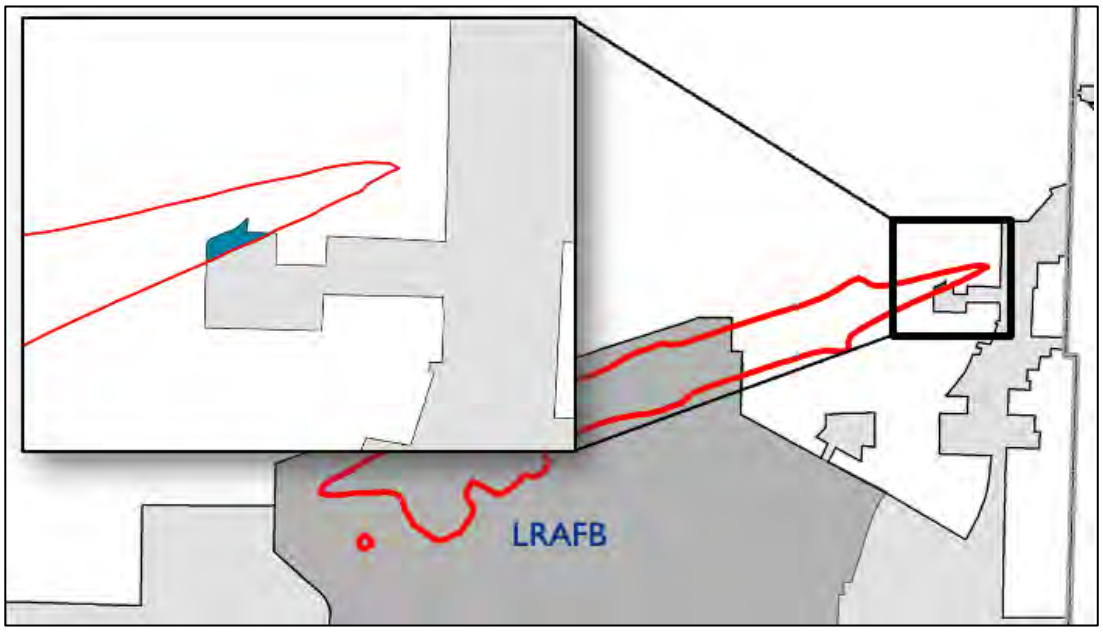
7.3. Aircraft Noise Zone

(A) Certain parcels or portions thereof within the City MZO are located within an LRAFB Aircraft Noise Zone as indicated in Figure 2, which encompasses only lands within the 70-75 dB (A-weighted DNL/CNEL levels) noise zones established by the AICUZ Study.

(B) According to the AICUZ Study and current Air Force guidance, certain land uses in the noise zone may not be compatible with LRAFB air operations, given the noise sensitivity of some land uses.

(C) Therefore, unless expressly exempt, all development proposed within the MZO, in the LRAFB Aircraft Noise Zone, must be consistent with Appendix B: Recommended Land Use Compatibility for Noise Zones.

Figure 2: Aircraft Noise Zones (70-75 dB)

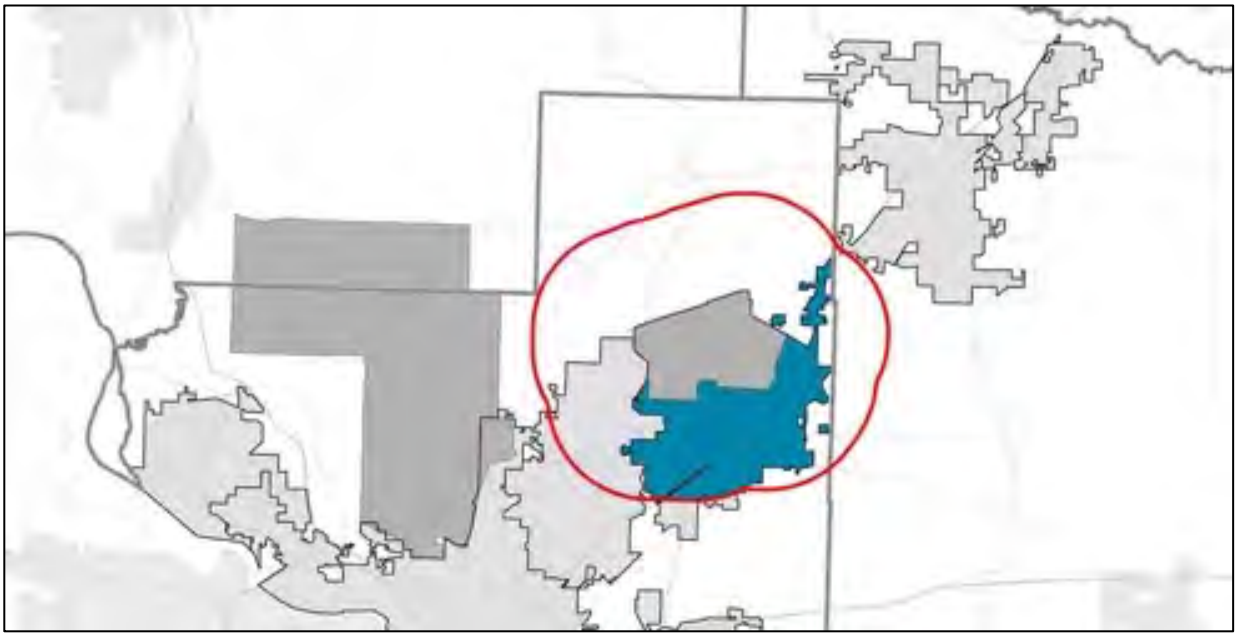


7.4. Limitations on Incompatible and Potential Incompatible Land Use Actions

(A) **Generally**. Certain land uses and structures by their very nature or location may present threats to LRAFB airspace operations, and therefore, are considered a "Potential Incompatible Land Use Action," which are subject to this Section 7.4. However, whether this is the case, requires an expert determination by the RPC Official, as provided in this subsection.

(B) **Airport Obstructions or Interference prohibited**. Potential Incompatible Land Use Actions that the RPC Official determines create an Airport Obstruction or Interference, shall be prohibited within the areas indicated in Figure 3.

Figure 3: Land Use Action Notification Area



7.5. Limitations on Height of Structures

(A) **Applicability.** This section applies to all buildings and structures proposed to be established, expanded, or replaced within the City MZO.

(B) **Proposed Structures within Imaginary Surface Notification Areas.** This section applies to new structures proposed within the Imaginary Surfaces illustrated in Figure 4, within the corporate limits of the City.

(1) The City will not approve the following structures until a determination by the RPC Official has been made that the structure will not create an Airport Obstruction or Interference.

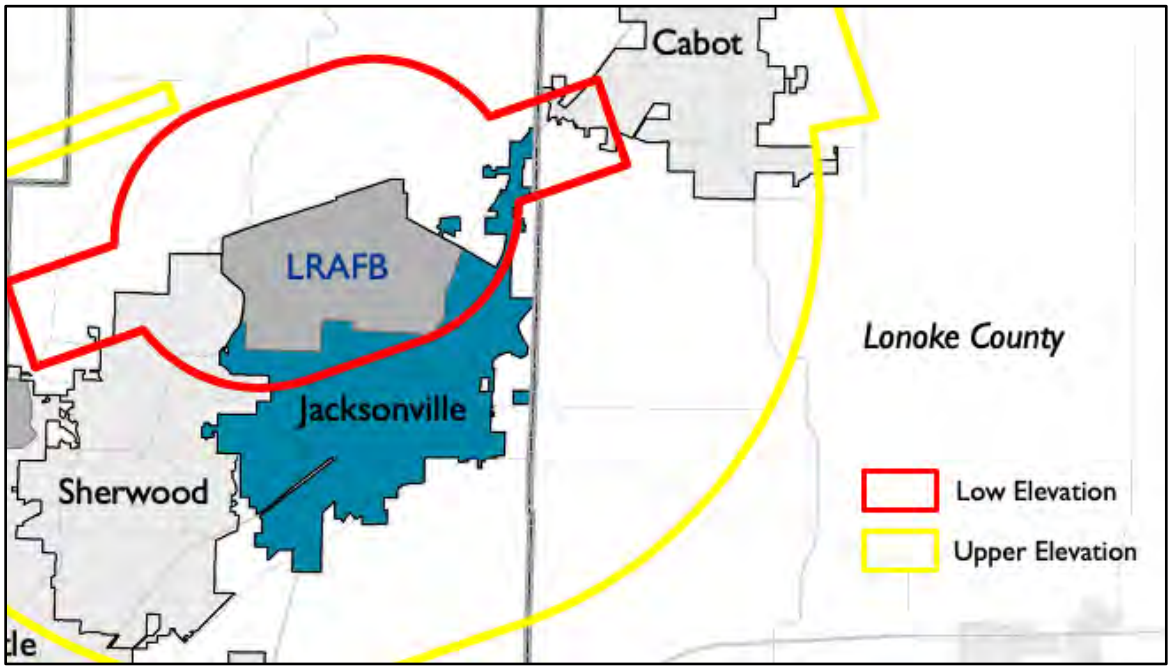
(a) Structures 50’ or greater from grade proposed on lands situated under the Imaginary Surface Low Elevation Notification Area in Figure 4 (within the red boundary to the base); and

(b) Structures 200’ or greater from grade proposed on lands situated under the Imaginary Surface Upper Elevation Notification Area in Figure 4 (between the red and yellow boundaries).

(2) No determination by the RPC Official is required for structures below the 50’ and 200’ height thresholds as provided above. Therefore, only generally applicable City height restrictions, if any, apply in these circumstances.

(3) However, any proposed structure within the MZO the RPC Official determines creates an Airport Obstruction or Interference is prohibited by this section.

Figure 4: Imaginary Surfaces Areas



8.0 Application Notice of Military Impacts

In addition to the requirements of sections 1.0 through 7.0, the City will provide notice on application forms for development approvals, consistent with the Military Compatibility Guidelines, indicating that occupants of the land to be developed may experience the effects of LRAFB military activities within the MZO areas identified in Figures 1-4.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF JACKSONVILLE, ARKANSAS, THAT THE ZONING CODE OF THE CITY BE AMENDED AS PROVIDED HEREIN AND FURTHER THAT:

No Delegation of Local Authority

Nothing herein is intended to, and should not be interpreted to, authorize or require approval by the RPC or LRAFB of a development or land use action proposed in the City.[3]

[3] The Ordinance is not intended to delegate authority to the RPC or LRAFB to *approve or deny* developments or land use actions in the City. As drafted, the Ordinance does provide that the City will rely on the *expert determinations* of the RPC Official as to whether a Potential Incompatible Land Use Action or particular tall structure would, in fact, create an Airport Obstruction or Interference.

Severability

If any section, subsection, or clause of the MZO shall be deemed unconstitutional or otherwise invalid, the validity of the remaining sections, subsections, and clauses, shall not be affected thereby.

Codification

Sections 1.0 through 8.0 of this Ordinance shall be codified as and become and be made a part of the City Code, Title 18, Zoning, or Title 17, Subdivisions, as applicable.

The Sections of this Ordinance may be renumbered or relettered to accomplish such intention and the word “Ordinance,” or similar words, may be changed to “Section,” “Article,” or other appropriate word; provided, however, that unnumbered section shall not be codified.

The Code codifier is granted liberal authority to codify the provisions of this Ordinance.

Effective Date

The MZO shall be effective from and after _____ _____, 2023.

_____

MAYOR

ATTEST:

_____

CITY CLERK

Appendix A: Land Use Compatibility Recommendations for Accident Potential Zone II

Appendix A
Accident Potential Zone II
City of Jacksonville

Land use Name and SLUCM Category	APZ-II	Maximum Density
Residential use group (SLUCM Category 10)		
Residential uses, inclusive of all residential units i.e., any type of single or multiple dwelling units	Y1,2	Maximum density of 2 dwelling units per acre
Mobile home parks or courts	N	
Transient lodgings	N	
Manufacturing use group (SLUCM Categories 20 and 30)		
Food and kindred products; textile mill products; manufacturing; stone, clay, glass, primary metal and fabricated metal products; manufacturing	Y	Max FAR 0.56 in APZ II
Fabric products; leather and similar materials; chemicals and allied products; petroleum refining and related industries; rubber and miscellaneous plastic products; manufacturing; precision manufacturing	N	
and fixtures; paper and allied products; pringing, publishing, and allied industries; miscellaneous manufacturing	Y	Maximum FAR of 0.28 in APZ I and 0.56 in APZ II
Transportation, communication, and utilities use group (SLUCM Category 40)		
Rail, motor vehicle, aircraft, marine etc. transportation, highway and street right-of-way, automobile parking, and utilities, telephone, cellular and radio communication	Y	Maximum FAR of 0.28 in APZ I and 0.56 in APZ II
Solid waste disposal (e.g., landfills, incinerators.)	N	
Trade use group (SLUCM Category 50)		
Wholesale trade	Y	Maximum FAR of 0.28 in APZ I and .56 in APZ II
Retail trade – building materials	Y	Maximum FAR of 0.20 in APZ-I and 0.40 in APZ-II
Retail trade – hardware, paint, and farm equipment stores	Y	Maximum FAR of 0.14 in APZ I and 0.28 in APZ II
Retail trade – including neighborhood centric shops	Y	Maximum FAR of 0.16 in APZ II
Mass retailing, super stores, strip malls, shopping centers5, discount clubs, home improvement stores, eating and drinking establishments, etc.	N	
Retail trade – food such as groceries, bakeries, confectionaries, meat markets, and fast food establishments	Y	Maximum FAR of 0.24 in APZ II
Retail trade – automotive, marine craft, aircraft, and acces	Y	Maximum FAR of 0.14 in APZ I and 0.28 in APZ II
Retail trade – apparel and accessories, furniture, home, furnishings and equipment	Y	Maximum FAR of 0.28 in APZ II
Other retail trade	Y	Maximum FAR of 0.16 in APZ II
Services use group (SLUCM Category 60)		
Finance, insurance, real estate, personal, professional and miscellaneous services (office uses only)	Y	Maximum FAR of 0.22 in APZ II
Cemeteries	Y6	
Warehousing and storage services	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
Repair services and contract construction	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
Hospitals, nursing homes, and other medical facilities; educational services, childcare services, child development centers, and nurseries	N	
Government services	Y	Maximum FAR of 0.24 in APZ II
Cultural, entertainment, and recreational use group (SLUCM Category 70)		
Nature exhibits	Y7	
Cultural activities, auditoriums, concert halls, places of worship; outdoor music shells, museums, outdoor displays, amphitheaters, sports arenas, spectator sports, resorts and group camps, or other places of assembly	N	

Amusements (e.g., fairgrounds, miniature golf, driving ranges; amusement parks.)	Y11	50 people per acre
Recreational activities (including golf courses, riding stables,	Y7	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
Other cultural, entertainment and recreation	Y6	
Resource production and extraction use group (SLUCM Category 80)		
Agriculture and livestock farming, including grazing and fee	Y8	
Agriculture related activities	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Forestry activities9	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Fishing activities	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Mining activities	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Other resource production or extraction	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Other use group (SLUCM Category 90)		
Undeveloped land	Y	
Water areas	N	

Key to Appendix A – Land use compatibility in APZs Land use recommendations:

Y (Yes) – Land use and related structures compatible without restrictions.

N (No) – Land use and related structures are not compatible and should be prohibited.

Yx – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscrip

Nx – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscri

Notes for Appendix A – Land Use Compatibility in APZs General notes for all uses:

a. The suggested maximum occupancy for commercial, service, or industrial buildings or structures in APZ I is 25 people per acre, and 50 people per acre in APZ II. Outside events should normally be limited to assemblies of not more than 25 people an acre in APZ I, and maximum assemblies of 50 people an acre in APZ II.

b. Recommended FARs are calculated using standard parking generation rates for various land uses, vehicle occupancy rates, and desired density in APZ I or II. For APZ I, the formula is FAR equals 25 people an acre divided by (Average vehicle occupancy times Average parking rate times (43560÷1000)). The formula for APZ II is FAR equals 50 divided by (Average vehicle occupancy times Average parking rate times (43560÷1000)).

c. No structures (except airfield lighting and navigational aids necessary for the safe operation of the airfield when there are no other siting options), buildings, or above ground utility and communications lines should normally be located in clear zone areas on or off the air installation. For pilot and public safety, the clear zone is subject to the most severe restrictions.

d. Safety of flight should be considered when evaluating development that includes explosive potential; generates smoke, steam, or dust; creates electronic interference; lighting or glare; or tall structures.

e. Development of renewable energy resources, including solar and geothermal facilities and wind turbines, may impact military operations through hazards to flight or electromagnetic interference. Each new development should be analyzed for compatibility on a case-by-case basis that considers both the proposal and potentially affected mission.

f. Water features and other activities that may present bird or wildlife aircraft strike hazards, or activities that produce dust or light emissions that could affect pilot vision are generally not compatible and should be evaluated on a case-by-case basis.

g. Evaluation of potential land management actions occurring on public and private lands, such as prescribed burns, should identify the hazard (e.g., visual impairment) to aircraft flight safety and de-conflict operations occurring at the base (e.g., scheduled exercises and training requirements).

h. This compatibility table identifies places of worship or tribal ceremonies as a cultural gathering. However, religious institutions provide a wide variety of services and in these instances refer to the applicable category.

Footnotes for Appendix A – Land Use Compatibility in APZs

Footnotes specific to certain land uses:

farming and
open space.

2. Where a parcel is partially located in an APZ II, clustered development is encouraged on the portion outside the APZ while maximizing open space
within the APZ.
3. Blank
4. Blank
5. Blank
6. Land uses in the APZs should be passive open space; ancillary places of public assembly are not recommended.
7. Low occupancy facilities are compatible with these uses; however, playgrounds and marinas are not recommended.
8. Activities that attract concentrations of birds creating a hazard to aircraft operations are not compatible.

9. Blank
10. Blank

11. Amusement centers, family entertainment centers or amusement parks designed or operated at a scale that could attract or result in concentrations
of people, including employees and visitors, greater than 50 people per acre at any given time are incompatible in APZ II. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

12. Blank

Appendix B: Recommended Land Use Compatibility for 70-75 dB Noise Zone

Appendix B
Noise Zone (70-75 dB)
City of Jacksonville

	A-weighted DNL/CNEL levels
Land use Name and SLUCM Category	**70-75 dB**
Residential use group (SLUCM Category 10)	
Residential uses, inclusive of all residential units (i.e. any type of single or multiple dwelling units).	N1
Mobile home parks or courts	N
Transient lodgings	N1
Manufacturing use group (SLUCM Categories 20 and 30)	
Manufacturing and industrial uses	Y2
Precision manufacturing	Y2
Transportation, communication and utilities use group (SLUCM Category 40)	
Rail, motor vehicle, aircraft, marine, and other transportation,	Y2
Highway and street right-of-way, automobile parking	Y
Telephone, cellular and radio communication	Y2
Trade use group (SLUCM Category 50)	
Wholesale trade	Y2
Building materials, hardware and farm equipment sales	Y2
Mass retailing, super stores, strip malls, shopping centers, discount clubs, home improvement stores, eating and drinking establishments, etc.	Y2
Services use group (SLUCM Category 60)	
Finance, insurance and real estate, personal, professional and miscellaneous services; religious activities	Y2
Cemeteries	Y2
Warehousing or storage and repair services	Y2
Hospitals or medical, child care and development services, educational facilities	Y3
Nursing homes	N1
Governmental	Y2
Cultural, entertainment, and recreational use group (SLUCM Category 70)	
Cultural activities, auditoriums and concert halls	Y3
Nature exhibits	N
Public assembly	N
Outdoor music shells, amphitheaters	N
Outdoor sports arenas, spectator sports	Y6
Amusements	Y
Outdoor recreational activities	Y2
Resorts, camps, parks and other cultural, entertainment, and recreational activities	Y2

Resource production and extraction use group (SLUCM Category 80)	
Agriculture and forestry	Y8
Livestock farming, animal breeding	Y8
Fishing, mining, and other resource production or extraction	Y

Key to Appendix B

Y (Yes) – Land use and related structures compatible without restrictions.

N (No) – Land use and related structures are not compatible and should be prohibited.

Yx – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

Nx – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

Notes for Appendix B

General notes for all uses:

a. Compatibility designations in Appendix B generally refer to the principal use of the site. If other uses with greater sensitivity to noise are proposed, a determination of compatibility should be based on that use which is most adversely affected by noise and its contribution to the successful use of the property.

b. Where a proposed development falls within two DNL or CNEL noise zones, the land use recommendations of the higher noise zone should be used. For example, if a proposed development is exposed to 70 dB DNL or CNEL, land use recommendations for the 70-75 dB DNL or CNEL noise zone should be applied.

c. When appropriate, noise level reduction (NLR) may be necessary to achieve compatibility. NLR (outdoor to indoor) is achieved through the incorporation of sound attenuation into the design and construction of a structure. Measures to achieve an indoor noise reduction do not necessarily solve noise issues outside the structure and additional evaluation may be warranted. Building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure, particularly from aircraft ground maintenance run-ups. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

when evaluating the application of these guidelines, should consider possible annoyance tied to land uses that involve predominately outdoor activities, or where quiet is a basis for the use.

e. Land uses that involve outdoor activities in areas above 80dB DNL are not recommended.

Footnotes for Appendix B

Footnotes specific to certain land uses:

1. Residential

a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is strongly discouraged above DNL 70. The absence of viable alternative development options should be determined, and an evaluation should be conducted locally prior to local approvals. These evaluations should clearly demonstrate that the community's need for additional residential property could not be met if development were prohibited in these zones, and that the expense of additional noise attenuation will not undermine affordable housing goals.

b. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 30 dB in DNL 70-75 should be incorporated into building codes, and be considered in individual approvals; for transient housing, an NLR of at least 35 dB should be incorporated in DNL 75-80.

c. Normal permanent construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded sound transmission class ratings in windows and doors, and closed windows year-round. Additional consideration should be given to modifying NLR levels based on peak noise levels (as defined in the glossary) or vibrations.

2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

4. Blank

5. Blank

6. Land use is compatible provided special sound reinforcement systems are installed.

7. Blank

8. Where residences are permitted, measures to achieve outdoor to indoor NLR of at least 30 dB should be incorporated into the design.

Appendix D

Municipal Resolutions of Support for RPC

Resolution No. 2 Of 2023

A Resolution Authorizing The Mayor, City Clerk – Treasurer, And Other Officials To Enter Into A Regional Planning Commission And Interlocal Agreement With Participating Jurisdictions; And For Other Purposes

Jan-23-2023-
City Council -
Meeting Packet
City of Cabot

"There Is No Limit To The Amount Of Good You Can Do, If You Don't Care Who Gets The Credit"
~Ronald Reagan

RESOLUTION NO. 2 OF 2023

A RESOLUTION AUTHORIZING THE MAYOR OF CABOT, CITY CLERK-TREASURER, AND OTHER OFFICIALS TO ENTER INTO A REGIONAL PLANNING COMMISSION AND INTERLOCAL AGREEMENT WITH PARTICIPATING JURISDICTIONS; AND FOR OTHER PURPOSES

WHEREAS, The Little Rock Air Force Base Compatible Use Study (CUS) is a project initiated by the Office of Military Affairs in the Arkansas Economic Development Commission to identify and mitigate land use compatibility concerns; and

WHEREAS, Pulaski County has developed a proposal for jurisdictions surrounding the Little Rock Air Force Base to form a regional planning commission, under Ark. Code Ann. §§ 14-56-501 *et seq.* and 14-17-301 *et seq.*, and other applicable statutes, in order to implement CUS recommendations and create a uniform code to assist all participating jurisdictions in the uniform goal of securing and sustaining Little Rock Air Force Base military training and operational missions while promoting compatible growth; and

WHEREAS, the regional planning commission will guide the unified organizational framework and approach for participating jurisdictions; eliminate planning duplication; promote economy and efficiency in the coordinated development of the area; and promote the general welfare and prosperity of its people; and

WHEREAS, the City Council further supports effectuating the creation and implementation of a statutory regional planning commission by interlocal agreement, pursuant to Ark. Code Ann. §§ 14-14-910 and 25-20-101 *et seq.* and other available means consistent with applicable law; and

WHEREAS, after due consideration and deliberation, it is hereby found that it is in the best interest of the City of Cabot to enter into a regional planning commission.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF CABOT, ARKANSAS THAT:

SECTION 1: The Mayor, City Clerk~Treasurer, and other designated officials and employees of the City of Cabot, Arkansas, are hereby authorized to participate in a regional planning commission and to enter interlocal agreements between the City of Cabot and participating jurisdictions, consistent with Arkansas statutes and other applicable law. The City Council finds that doing so will benefit the Little Rock Air Force Base, the City

of Cabot, and its citizens.

SECTION 2: The Mayor, City Clerk, and designated officials are hereby authorized to take all necessary steps and to negotiate all appropriate agreements to join the regional planning commission and to effectuate the intent of this Resolution.

SECTION 3: This Resolution shall be in effect from and after its passage.

SPONSOR:
Ken Kincade, Mayor

PASSED:
DATE:
APPROVED:

_____
Ken Kincade, Mayor

APPROVED AS TO FORM:

_____
Ben Hooper, City Attorney

ATTEST:

_____
Tammy Yocom, City Clerk-Treasurer

RESOLUTION NO. 830 (#15 – 2022)

A RESOLUTION APPROVING AND GRANTING AUTHORIZATION TO THE MAYOR OF JACKSONVILLE AND OTHER OFFICIALS TO ENTER INTO A REGIONAL PLANNING COMMISSION AND INTERLOCAL AGREEMENT WITH PARTICIPATING JURISDICTIONS AND, FOR OTHER PURPOSES.

WHEREAS, the City of Jacksonville managed the Little Rock Air Force Base Compatible Use Study (CUS), a study initiated by the Office of Military Affairs in the Arkansas Economic Development Commission to identify and mitigate land use compatibility concerns.

WHEREAS, Pulaski County has developed a proposal for jurisdictions surrounding the Little Rock Air Force Base to form a regional planning commission, under Ark. Code Ann. §§ 14-56-501 *et seq.* and 14-17-301 *et seq.*, and other applicable statutes, in order to implement CUS recommendations and create a uniform code to assist all participating jurisdictions in the uniform goal of securing and sustaining Little Rock Air Force Base military training and operational missions while promoting compatible growth.

WHEREAS, the regional planning commission will guide the unified organizational framework and approach for participating jurisdictions; eliminate planning duplication; promote economy and efficiency in the coordinated development of the area; and promote the general welfare and prosperity of its people.

WHEREAS, the City further supports effectuating the creation and implementation of a statutory regional planning commission by interlocal agreement, pursuant to Ark. Code Ann. §§ 14-14-910 and 25-20-101 *et seq.* and other available means consistent with applicable law.

WHEREAS, after consideration and negotiation, it is hereby found that it is in the best interest of the City of Jacksonville to enter into a regional planning commission.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF JACKSONVILLE, ARKANSAS, THAT:

SECTION ONE: The Mayor, City Clerk, and other designated officials of the City of Jacksonville, Arkansas, are hereby authorized to participate in a regional planning commission and to enter interlocal agreements between the City of Jacksonville and participating jurisdictions, consistent with Arkansas statutes and

other applicable law. The City Council recognizes and agrees that doing so will benefit the Little Rock Air Force Base, the City of Jacksonville, and its citizens.

SECTION TWO: The Mayor, City Clerk, and designated officials are hereby authorized and directed to take all necessary steps and to negotiate all appropriate agreements to join the regional planning commission and to effectuate the intent of this Resolution.

SECTION THREE: Any other Resolutions in conflict herewith are hereby repealed to the extent of said conflict. This Resolution shall be in effect from and after its date of passage.

APPROVED AND ADOPTED THIS 1ST DAY OF DECEMBER, 2022.

CITY OF JACKSONVILLE, ARKANSAS

BOB JOHNSON, MAYOR

ATTEST:

SUSAN DAVITT, CITY CLERK

APPROVED AS TO FORM:

STEPHANIE FRIEDMAN, CITY ATTORNEY

RESOLUTION NO. _____

A RESOLUTION APPROVING AND GRANTING AUTHORIZATION TO THE MAYOR OF SHERWOOD AND OTHER OFFICIALS TO ENTER INTO A REGIONAL PLANNING COMMISSION AND INTERLOCAL AGREEMENT WITH PARTICIPATING JURISDICTIONS AND, FOR OTHER PURPOSES.

WHEREAS, the City of Sherwood has participated in the Little Rock Air Force Base Compatible Use Study (CUS), a study initiated by the Office of Military Affairs in the Arkansas Economic Development Commission to identify and mitigate land use compatibility concerns.

WHEREAS, Pulaski County has developed a proposal for jurisdictions surrounding the Little Rock Air Force Base to form a regional planning commission, under Ark. Code Ann. §§ 14-56-501 *et seq.* and 14-17-301 *et seq.*, and other applicable statutes, in order to implement CUS recommendations and create a uniform code to assist all participating jurisdictions in the uniform goal of securing and sustaining Little Rock Air Force Base military training and operational missions while promoting compatible growth.

WHEREAS, the regional planning commission will guide the unified organizational framework and approach for participating jurisdictions; eliminate planning duplication; promote economy and efficiency in the coordinated development of the area; and promote the general welfare and prosperity of its people.

WHEREAS, the City further supports effectuating the creation and implementation of a statutory regional planning commission by interlocal agreement, pursuant to Ark. Code Ann. §§ 14-14-910 and 25-20-101 *et seq.* and other available means consistent with applicable law.

WHEREAS, after consideration and negotiation, it is hereby found that it is in the best interest of the City of Sherwood to enter into a regional planning commission.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SHERWOOD, ARKANSAS, THAT:

SECTION ONE: The Mayor, City Clerk, and other designated officials of the City of Sherwood, Arkansas, are hereby authorized to participate in a regional planning commission and to enter interlocal agreements between the City of Sherwood and participating jurisdictions, consistent with Arkansas statutes and other applicable law. The City Council recognizes and agrees that doing so will benefit the Little Rock Air Force Base, the City of Sherwood, and its citizens.

SECTION TWO: The Mayor, City Clerk, and designated officials are hereby authorized and directed to take all necessary steps and to execute all appropriate agreements to join the regional planning commission and to effectuate the intent of this Resolution.

SECTION THREE: Any other Resolutions in conflict herewith are hereby repealed to the extent of said conflict. This Resolution shall be in effect from and after its date of passage.

ADOPTED on this ____ day of **December 2022.**

_____
Virginia R. Young, Mayor

ATTEST:

_____
Angela Nicholson, City Clerk

APPROVED AS TO FORM:

_____
Stephen Cobb, City Attorney

Appendix E
Final LRAFB Intergovernmental Agreement

INTERGOVERNMENTAL AGREEMENT

CREATING THE

LITTLE ROCK AIR FORCE BASE REGIONAL PLANNING COMMITTEE

AND

FIXING ITS AUTHORITY AND RESPONSIBILITIES

This Intergovernmental Agreement is made and entered into this ____ day of _____, 2023, among parties City of Jacksonville, Pulaski County, City of North Little Rock, City of Sherwood, City of Maumelle, City of Cabot, City of Ward, City of Austin, Lonoke County, Faulkner County and White County pursuant to Ark. Code Ann. §§ 14-14-910, 14-56-501 et seq. and 14-17-301 et seq. to create the Little Rock Air Force Base Regional Planning Committee and to fix its authority and responsibilities.

WHEREAS, Little Rock Air Force Base ("LRAFB"), the Local Governments, and the community have historically cooperated to ensure the sustainability of the ongoing mission of LRAFB and its associated local installations, as well as the preservation of quality of life for citizens and businesses in the region; and

WHEREAS, the ongoing presence and operation of LRAFB is critical to the nation's defense, the protection and well-being of the citizens of Arkansas, and to the common good of this community; and

WHEREAS, for more than three (3) years representatives and community members of these participating jurisdictions have been actively meeting on a

regular basis in pursuit of developing appropriate recommendations to ensure that land uses around the Little Rock Air Force Base and other mission critical sites (hereinafter "Base" or "LRAFB") are compatible with the missions of the Base. These meetings produced the LRAFB Compatible Use Study.

WHEREAS, the 2021 *Little Rock Air Force Base Compatible Use Study* (the LRAFB Compatible Use Study) recognized the importance of the ongoing input of community members affected by military land uses.

WHEREAS, the LRAFB *Compatible Use Study* was a regional initiative, managed by the City of Jacksonville, initiated by the Office of Military Affairs in the Arkansas Economic Development Commission and the participating jurisdictions to identify and mitigate land use compatibility concerns.

WHEREAS, during the development of the *LRAFB Compatible Use Study*, the parties to this agreement participated in the development of a uniform regional military zoning ordinance and administrative procedures for effectuating coordination among the parties.

WHEREAS, following the 2021 *Compatible Use Study*, the parties participated in the development of a compatible use implementation program from July 2022 until its completion in February 2023, including development of the final report: *CUS Phase II: Implementation for Little Rock Air Force Base and Environs.*

WHEREAS, the participating jurisdictions have a uniform goal of securing and sustaining LRAFB's economically significant military training and operational missions while simultaneously promoting and ensuring compatible growth.

WHEREAS, the Parties to this Agreement wish to implement these and other recommendations in the 2021 *LRAFB Compatible Use Study* in order to establish a consistent regulatory and coordination framework for the lands around LRAFB.

WHEREAS, the distribution and division of authority between cities and counties regarding growth planning and land use controls is complex, and complexities may be resolved or avoided with the centralization of expertise and record keeping, a coordination framework, and, within Pulaski County's unincorporated areas, as provided herein, the administration of a County Military Zoning Overlay (MZO).

WHEREAS, a regional planning commission will ensure that participating jurisdictions are equally represented, promote consistent application of uniform provisions of code, eliminate duplication, promote economy and efficiency in the coordinated development of the area, and promote the general welfare and prosperity of the people.

WHEREAS, the parties to this agreement have determined, after years of study and coordination, that the agreement represents an authorized and effective means of complying with Ark. Code Ann. § 14-56-426, *Control of Property Use – Proximity to Military Installation.*

NOW, THEREFORE, IT IS HEREBY AGREED BY AND BETWEEN ALL OF THE PARTIES HERETO AS FOLLOWS:

SECTION 1: PURPOSE

This Intergovernmental Agreement is executed pursuant to Ark. Code Ann. § 14-14-910 to provide for formal cooperative action between the parties hereto and for the coordination of land use and development planning in the area surrounding the LRAFB to ensure that current and future land uses are compatible with the current and future operation and missions of the LRAFB, in the manner set out herein.

A further purpose of this Agreement is to maintain a uniform, consistent, and effective approach to protecting LRAFB installations from encroachment and incompatible land uses for the long-term through the administration of Military Zoning Overlay ordinances , as well as through awareness and public outreach.

The division of land area into MZO Area and Advisory Areas jurisdictions is designed to comport with the expressions of willingness of representatives of the Participating Jurisdictions to participate in accordance with this Agreement through mechanisms most fitting and appropriate to each jurisdiction's needs and authorities.

SECTION 2: NAME

The name of the organization created by this agreement shall be "Little Rock Air Force Base Regional Planning Committee."

SECTION 3: ORGANIZATION

a. The Little Rock Air Force Base Regional Planning Committee ("Committee") shall be authorized by this agreement to make determinations, recommendations, and to take other actions for the purpose of ensuring land development and use compatibility with LRAFB activities, as provided herein.

b. Military Zoning Ordinance (MZO) Areas – The MZO Areas include the jurisdictions of those local governments that have an adopted MZO, consistent with the regional Military Zoning Ordinance included as an appendix to the *CUS Phase II: Implementation for Little Rock Air Force Base and Environs* final report. Figure A, below, lists the Participating Jurisdictions confirmed or committed to joining the RPC as an MZO Area jurisdiction and the parties' agreed to allocation of powers and authorities among the MZO jurisdictions, as authorized by Arkansas law, including Ark. Code Ann. § 14-56-426, *Control of Property Use – Proximity to Military Installation*. The MZO Areas may be modified, following approval of the RPC membership, through adoption of an ordinance by a party hereto indicating the jurisdiction's desire to thereafter be member of the RPC as an MZO Area jurisdiction.

c. Advisory Areas – The Advisory Areas include the jurisdictions of those local governments that have not adopted an MZO. Figure A lists the Participating

Jurisdictions confirmed or committed to joining the RPC as an Advisory Area jurisdiction only. The RPC's role with respect to Advisory Area jurisdictions is advisory only and its determinations are not binding on the Advisory Area jurisdiction. The Advisory Areas may be modified, following approval of the RPC membership, through adoption of an ordinance by a party hereto indicating the jurisdiction's desire to thereafter be member of the RPC as an Advisory Area jurisdiction. Advisory Area jurisdictions shall use outreach and public awareness materials developed by the RPC in coordination with LRAFB and the Participating Jurisdictions, including, for example, those included as appendices to the *CUS Phase II: Implementation for Little Rock Air Force Base and Environs* final report.

d. Participating Jurisdiction – A Participating Jurisdiction is a city or county identified herein, which has adopted an ordinance through its governing body authorizing its executive officer to execute this Agreement, and the same executive officer has done so. Each Participating Jurisdictions shall be designated as MZO or Advisory Area jurisdictions.

e. Military Zoning Overlays (MZOs) – The code of land use controls, adopted by ordinance by an MZO Area jurisdiction, consistent with the regional MZO included as an appendix in the *CUS Phase II: Implementation for Little Rock Air Force Base and Environs* final report, which was jointly developed by the Participating Jurisdictions, Little Rock Air Force Base, and other relevant agencies and stakeholders. At the time of entry into this Intergovernmental

Agreement, none of the Participating Jurisdictions will have adopted a Military Zoning Overlay; however, it is anticipated that each Participating Jurisdiction will adopt such a code, or incorporate into their existing code, the same or materially consistent protections intended to meet the ends described in the regional MZO.

f. Upon the execution of this Agreement, each Participating Jurisdiction shall be entitled to appoint or elect the number of members identified herein, and in the same manner as each Participating Jurisdiction appoints or elects its planning body members, or in the absence of such a planning body would by law appoint or elect, its own planning commissions or board members.

Figure A

Responsibility for Administration of MZO and Considerations for which RPC Recommendation is Required
All MZO determinations administered by Municipalities shall be reported to RPC for record keeping purposes

		No RPC Recommendation Required*			RPC Recommendation Prior to Final Municipal Determination*	
Jurisdiction Area Type	**Participating Jurisdiction**	**Noise**	**Accident Potential**	**Tall Structures BELOW 50'/200'**	**Tall Structures ABOVE 50'/200' ("Potential Height Incompatibility")**	**Potential Incompatible Land Use Action (incl. res. Subdivision)**
MZO Jurisdiction	Jacksonville (inside corporate boundary)	Jacksonville	Jacksonville	Jacksonville	Jacksonville	Jacksonville
	Jacksonville (ETJ)	RPC	RPC	RPC	RPC	RPC
MZO Jurisdiction	Sherwood (inside corporate boundary)	N/A	Sherwood	Sherwood	Sherwood	Sherwood
	Sherwood (ETJ)	RPC	RPC	RPC	RPC	RPC
MZO Jurisdiction	Maumelle (inside corporate boundary)	N/A	N/A	Maumelle	Maumelle	N/A
	Maumelle (ETJ)	RPC	RPC	RPC	RPC	RPC
MZO Jurisdiction	North Little Rock (NLR) (inside corporate boundary)	N/A	N/A	NLR	NLR	N/A
	North Little Rock (ETJ)	N/A	N/A	NLR	NLR	N/A
MZO Jurisdiction	Pulaski County	RPC	RPC	RPC	RPC	RPC
MZO Jurisdiction	Cabot	N/A	N/A	Cabot	Cabot	Cabot
MZO Jurisdiction	Austin	N/A	N/A	Austin	Austin	N/A
MZO Jurisdiction	Ward	N/A	N/A	Ward	Ward	N/A
Advisory Jurisdiction	Lonoke County	N/A	N/A	Outreach/Awareness only	Outreach/Awareness only	Outreach/Awareness only
Advisory Jurisdiction	White County	N/A	N/A	Outreach/Awareness only	Outreach/Awareness only	Outreach/Awareness only
Advisory Jurisdiction	Faulkner County	N/A	N/A	Outreach/Awareness only	Outreach/Awareness only	N/A

* For all applications of MZO by entities other than RPC

SECTION 3: EFFECTIVENESS OF AGREEMENT

This agreement shall become effective upon the adoption of an ordinance and execution pursuant to said ordinance by all of the listed cities and counties identified herein, and the filing with the County Clerks of the participating counties, so long as all have accomplished such an execution on or before March 31, 2023; or, in the event that fewer than all of the listed cities and counties have accomplished such an execution on or before March 31, 2023, it shall be effective April 1, 2023 among the Participating Jurisdictions that have accomplished such an execution.

SECTION 4: REGIONAL PLANNING COMMITTEE ACTIVITIES

a. In the first meeting of the Committee, the members shall cast lots or draw straws to determine whether their position shall serve a one (1), two (2) or three (3) year term. All subsequent terms of members shall be three (3) years. Also in the first meeting of the Committee, the members shall elect one of their own to serve as Chair, Vice-Chair, and Secretary and any other officer positions that they deem beneficial or necessary to the operation of the Committee. Annually thereafter, the Vice-Chair shall be elevated to the Chair position and a new Vice-Chair shall be elected, and the Secretary and other officers shall be elected by the Committee annually. There shall be no limit on the number of successive terms the Secretary and other officers serve.

b. The Committee shall meet at least annually; however, upon the need to address business, whatever it may be, the Committee may establish more frequent regular meetings and/or meet on the call of the Chair with notice of at least five (5) business days.

c. The Committee is encouraged to utilize the resources that each or any of the Participating Jurisdiction provides to the Committee, whether in personnel time, or supplies.

d. No less than two (2) years after the date of execution of this agreement, the Committee may request that the Participating Jurisdictions appropriate funds for the use and benefit of the Committee. Such a request must be submitted in writing no later than August of the calendar year prior to year for which the appropriation is requested, and include a proposal for the division of expenses among Participating Jurisdictions in reasonable proportion to the share of activity of the Committee with respect to each Participating Jurisdiction. This shall not act as a limitation on any Participating Jurisdiction to prevent or preclude such an appropriation for the use and benefit of the Committee, whether such an appropriation is made from the general funds or grant funds. This shall not, at any time, act as a limitation on the funding of a regional planning commission as set out in Ark. Code Ann. §§ 14-17-308 and 14-56-508.

e. For the first three (3) years following the effective date, Pulaski County agrees that it will make the staff members of Pulaski County Planning and

Development Department available to the Committee to provide supportive staffing to assist in the conduct of its affairs and satisfaction of its responsibilities, in the absence of an employed director.

f. The Committee is hereby authorized to act as a Planning Commission of each Participating Jurisdiction for the purpose of making plans, studies, and recommendations for the adoption of or amendment to the land use and planning controls of each Participating Jurisdiction's governing body limited to the MZOs and making of plans as set out in Ark. Code Ann. § 14-17-307 and 14-56-507, to the extent that any such recommendations aim to guide unified development of the area, eliminate duplication and inefficiency, promote economy and efficiency, promote the general welfare and prosperity of its people, and ensure current and future compatibility of land uses and development with the LRAFB and other military installations within the Administration and Advisory Areas.

g. The Committee shall directly receive applications for approval from property owners and their agents in the RPC's administration area, as provided in the following paragraph and as noted in Figure A.

h. The Committee shall act as a Planning Commission in the administration of the Military Zoning Overlay within the unincorporated areas of Pulaski County, excluding areas within North Little Rock's adopted planning and zoning jurisdiction, as noted in Figure A.

i. The Committee shall assist all planning commissions, boards, or agencies of the Participating Jurisdictions in the carrying out of and administration of the Military Zoning Overlays, and other awareness and outreach efforts, through coordination with the command of LRAFB, interpretation of the Military Zoning Overlays and written comment in response to proposed subdivisions of land and development and land use considerations.

j. For the purpose of ensuring land use and development compatibility with the LRAFB or nearby military installations, each Participating Jurisdiction shall notify the Committee of applications for permit or approval within documented military impact areas, as provided in the Military Planning and Coordination Guidelines provided, in its original form, as an appendix to the *CUS Phase II: Implementation for Little Rock Air Force Base and Environs* final report and prior to amendments to existing codes or plans affecting or applying to the documented military impact areas.

k. At the end of each year, the Committee shall lodge with the County Clerk of Pulaski County record of each meeting of that year, as well as record of administrative determinations of the RPC and Participating Jurisdictions in the application of the MZOs, as well as, written advisory responses to the Participating Jurisdictions for proposals considered within the MZO areas administered by Participating Jurisdictions.

l. The RPC shall maintain a website to provide access to maps of the MZO Areas, MZOs, appropriate forms, contact information for support staff, as well as a public calendar for all RPC meetings with meeting agendas.

m. Any appeal of a decision made by the RPC in the administration of the MZO shall be taken directly to a judicial court with jurisdiction over the matter.

SECTION 5: DURATION & TERMINATION

The duration of this organization shall be indefinite. The intent is to ensure the perpetual existence of and compatibility with the training and operational missions of the LRAFB and other nearby military installations. However, any of the Participating Jurisdictions may withdraw from said organization at the close of any fiscal year; provided, however, that notice thereof shall have been given to all other Participating Jurisdictions at least one (1) year in advance of the proposed date of withdrawal.

SECTION 6: EFFECTIVE DATE

This Agreement is effective on April 1, 2023.

IN WITNESS WHEREOF, the parties have executed this Agreement on the dates below written.

PULASKI COUNTY

The _____ day of _____, 2023

BARRY HYDE, COUNTY JUDGE

CITY OF JACKSONVILLE

The _____ day of _____, 2023

JEFF ELMORE, MAYOR

CITY OF SHERWOOD

The _____ day of _____, 2023

MARY JO HEYE-TOWNSELL, MAYOR

CITY OF CABOT

The _____ day of _____, 2023

KEN KINCADE, MAYOR

CITY OF MAUMELLE

The _____ day of _____, 2023

CALEB NORRIS, MAYOR

CITY OF NORTH LITTLE ROCK

The _____ day of _____, 2023

TERRY HARTWICK, MAYOR

CITY OF AUSTIN

The _____ day of _____, 2023

BERNIE CHAMBERLAIN, MAYOR

CITY OF WARD

The _____ day of _____, 2023

CHARLES GASTINEAU, MAYOR

LONOKE COUNTY

The _____ day of _____, 2023

DOUG ERWIN, COUNTY JUDGE

WHITE COUNTY

The _____ day of _____, 2023

MICHAEL LINCOLN, COUNTY JUDGE

FAULKNER COUNTY

The _____ day of _____, 2023

ALLEN DODSON, COUNTY JUDGE

Appendix F

Jurisdictional Information Sheet - White County (Example)

EXAMPLE

Little Rock Air Force Base

Protecting the Mission in White County

White County and the Military Mission at Little Rock Air Force Base

Little Rock AFB is the home of C-130 Combat Airlift – the largest fleet of C-130s and the primary C-130 Hercules training base for the Department of Defense – training C-130 pilots, navigators, flight engineers, and load masters from all branches of the US military in tactical airlift and aerial delivery.

In addition to the main base, drop zones, and landing zones, such as the All-American landing zone at Camp Robinson and the Blackjack drop zone in White County, provide crucial training as part of the local Air Force mission.

White County is a member of the LRAFB Regional Planning Committee, which is staffed by the Pulaski County Department of Planning & Development. Concerns and questions related to military land use compatibility should be directed to that department, as discussed below.

How can land development in White County impact the local Military Mission?

Even though land-based activities on the base are located in other counties, the Air Force is using airspace over portions of White County surrounding the Blackjack drop zone.

And, importantly, these air operations can be obstructed or interfered with by certain land uses or the placement of tall structures on the ground, sufficient to disrupt operations or threaten the safety of Air Force pilots.

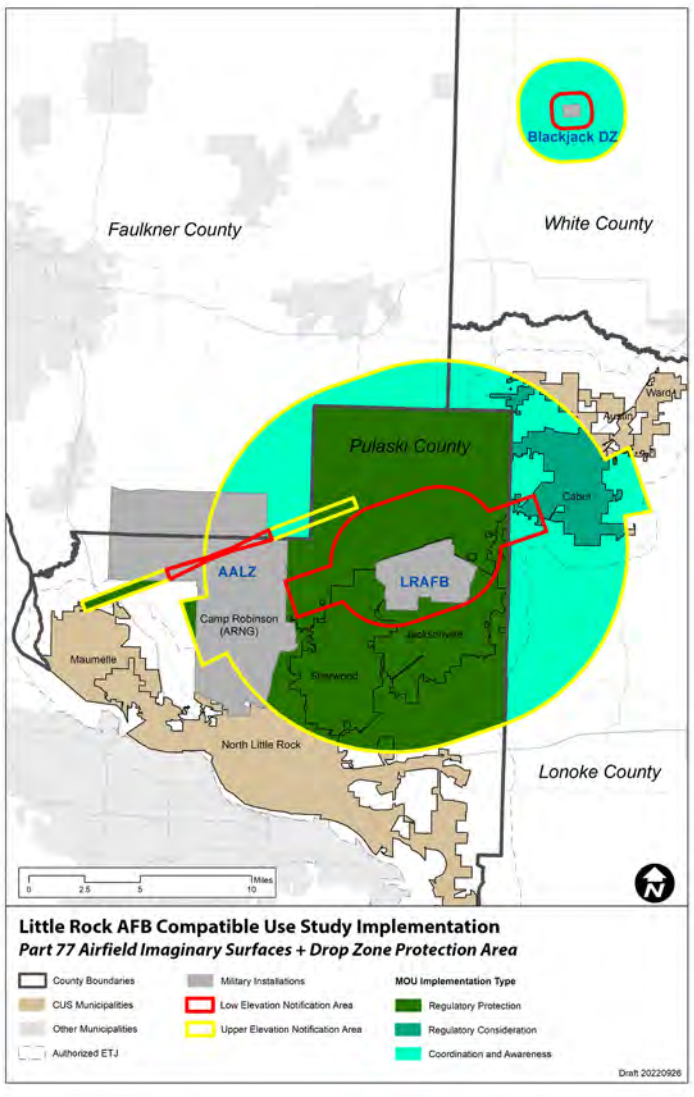
One example would be telecommunications towers and other utility structures, built too high or creating significant electromagnetic interference that could protrude into or obstruct critical airspace around Blackjack.

Another example includes land uses – like water impoundments or landfills – that attract birds that also can interfere with Air Force operations. These we refer to as "potential incompatible land use actions," or "PILUAs," because whether they create an interference will depend on the nature of the specific development.

Figures A (this page) and B (next page) illustrate the extent of the areas, delineating military airspace and operation areas in the region, and the lands on which incompatible developments and some tall structures should be avoided.

It is important that tall structures and PILUAs proposed within these areas be reviewed by the base beforehand to ensure they will not interfere with air operations after they are built.

FIGURE A



EXAMPLE

Little Rock Air Force Base

Protecting the Mission in White County

When should landowners coordinate with the LRAFB Regional Planning Committee?

Tall Structures

Landowners planning structures within the areas outlined in red in Figure A (about .5 miles from Blackjack) that could exceed 50' from grade should contact RPC staff (as provided below) first to confirm whether their planned structures might interfere with military air operations or whether federal review or approvals are required. Structures planned within the yellow outlined areas (about 2 miles from Blackjack) that could exceed 200' should also be reviewed by RPC staff prior to construction or significant investments are made.

Potential Incompatible Land Use Actions ("PILUAs")

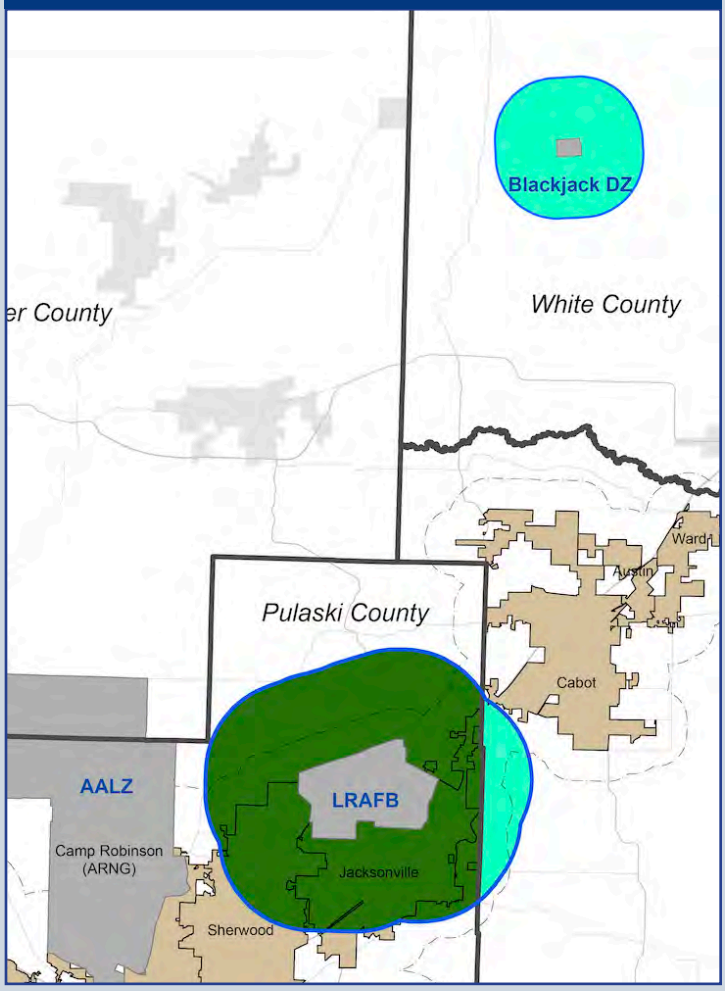
Landowners planning to establish one of the following "potential incompatible land use actions," within the delineated green areas in Figure B (about 2 miles from Blackjack) also should contact RPC staff first to confirm whether their development, as proposed, could interfere with military air operations and, if so, what mitigating steps might be taken to avoid that interference.

a. Private and general aviation airports or runways;
b. Landfills
c. Concentrated animal feeding operations;
d. Renewable energy facilities;
e. Open pit mining and sand or gravel dredging operations;
f. Manmade waterbody impoundments or wetlands of one (1) acre or more; and
g. Subdivision of land into 3 or more residential parcels.

When should the County coordinate with RPC staff?

When County officials become aware of or are asked about a structure planned above 50' or 200' from grade within the "White County Height Notification Areas," or which would include a PILUA within the "PILUA Notification Area," we can help by making RPC Official aware of a proposed tall structure or development before it happens and before the landowner expends money and time on the project.

FIGURE B



Who is the RPC Point of Contact?

County personnel and landowners may contact Van McClendon, the current RPC official, prior to starting a tall structure in the notification area.

RPC Planning Official

vmcclendon@pulaskicounty.net

501-340-8260

Where can we learn more about land use and Little Rock Air Force Base?

www.cityofjacksonville.net

Appendix G
Noise Attenuation
Construction
Standards

Metropolitan Council

Builders Guide

Mitigating Aircraft Noise in New Residential Construction

March 2006

Metropolitan Council
Mears Park Centre, 230 East Fifth Street, St. Paul, Minnesota 55101

Metropolitan Council Members

Peter Bell	Chair
Roger Scherer	District 1
Tony Pistilli	District 2
Mary Hill Smith	District 3
Julius C. Smith	District 4
Russ Susag	District 5
Peggy Leppik	District 6
Annette Meeks	District 7
Lynette Wittsack	District 8
Natalie Haas Steffen	District 9
Kris Sanda	District 10
Georgeanne Hilker	District 11
Chris Georgacas	District 12
Rick Aguilar	District 13
Song Lo Fawcett	District 14
Daniel Wolter	District 15
Brian McDaniel	District 16

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Web site	*www.metrocouncil.org*

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On request, this publication will be made available in alternative formats to people with disabilities. Call the Metropolitan Council Data Center at 651 602-1140 or TTY 651 291-0904.

CONTENTS

INTRODUCTION

Aircraft Noise in the Twin Cities

The issues and impacts of aircraft noise first started in the Twin Cities with military jet-fighter training activity at the Fort Snelling air base during the Korean Conflict. Aircraft noise has become a constant presence at Minneapolis-St. Paul International Airport (MSP) since the advent of passenger jet airline service in 1961. The noise impact grew so sever in the 1960s that a new supplemental major airport site to MSP was identified. In the 1970s, new "quieter" Stage II aircraft started replacing the very loud first-generation aircraft. A preferential runway system and other aircraft operational procedures were also implemented, helping reduce noise impacts in MSP communities.

The effects of airline deregulation began to occur at MSP in the 1980s with airport hubbing operations by both Northwest and Republic Airlines. In addition to proposed improvements from Stage III jet engine technology and airport operational changes, noise mitigation measures were also being introduced through land-use planning. In 1983, the Metropolitan Council – in cooperation with the Federal Aviation Administration (FAA), Minnesota Pollution Control Agency (MPCA), Mn/DOT Aeronautics and Metropolitan Airports Commission (MAC), affected airport communities and airport users – completed its work on aircraft noise and land-use development. The Aviation chapter of the *Metropolitan Development Guide* was amended to include ***Land-use Compatibility Guidelines for Aircraft Noise.***

During the 1990s, the Minnesota Legislature determined that MSP International Airport should be expanded. The MAC was directed to implement a 2010 MSP Development Plan and prepare a Noise Mitigation Plan. A federally defined and funded noise mitigation program was established for applying corrective land-use measures in noise impacted areas. Numerous schools, thousands of homes and residential units have been noise-insulated under the FAR Part-150 Program at MSP.

Current noise mitigation efforts have focused on updating the Part-150 Program to include year 2007 noise exposure maps. It is expected that future plan and program updates will focus on effects of runway improvements, changes in the aircraft fleet, annual aircraft activity, application of Stage IV compliant engines and other technology improvements.

Transportation Policy Plan – Land-Use Compatibility Guidelines

The Land-use Compatibility Guidelines for Aircraft Noise are found in the Metropolitan Council's *Transportation Policy Plan* (TPP), Appendix H; they apply to MSP International Airport and all the other regional system airports. Land uses are categorized as either "New Development-Major Redevelopment" or "Infill-Reconstruction-Additions to Existing Structures."

Depending upon which aircraft noise zone the particular land use is located in, it will be identified in local community comprehensive plans as being one of the following:

- **Compatible** (COMP) – Uses that are acoustically acceptable for both indoor and outdoor activities.
- **Provisional** (PROV) – Uses that should be discouraged if at all feasible; if allowed, must meet certain structural performance standards to be acceptable according to MS473.192 (Metropolitan Area Aircraft Noise Attenuation Act). Structures built after December 1983 shall be acoustically constructed so as to achieve the interior sound levels described in Table A1 of this document. Each local governmental unit having land within the airport noise zones is responsible for implementing and enforcing the structure performance standards in its jurisdictions.
- **Conditional** (COND) – Uses that should be strongly discouraged; if allowed, must meet structural performance standards, and requires a comprehensive plan amendment for review of the project under the factors described in Table 5, Appendix H of the Council's *Transportation Policy Plan*.
- **Incompatible** (INCO) – Land uses that are not acceptable even if acoustical treatment were incorporated in the structure and outside uses restricted.

Land-use/noise compatibility is implemented through both preventive and corrective noise mitigation measures. The preventive measures apply primarily to undeveloped areas of the community where land-use designation, zoning controls, building performance standards and project development proposals for new development are reviewed by the affected governmental units and the Council for consistency with the compatibility guidelines. To assist communities with building new residential units that meet performance standards, the Council has helped pass noise legislation, developed a model noise ordinance and prepared this *Builders Guide*.

The corrective land-use measures apply primarily to developed areas of communities where mitigation of incompatible uses is necessary. Acquisition and redevelopment of property and sound insulation of sensitive land uses (such as residences, schools, churches, nursing homes, etc.) are two of the most important measures used in the MSP noise mitigation program. The funding for the corrective measures mitigation program comes from the FAA through its Part 150 Program, which is implemented at MSP by the MAC and includes funding from passenger facility charges (PFCs), and grants. Land-use compatibility measures will continue to be applied beyond the year 2005 to reflect the Metropolitan Council's *2030 Regional Development Framework* and *Transportation Policy Plan*, the Part 150 [2007] Update, and the Metropolitan Land Planning Act, which requires updated community comprehensive plans by 2008.

Metropolitan Area Aircraft Noise Attenuation Act
Minnesota Statutes 473.192 describes the aircraft noise attenuation act of 1987.

> Subdivision 1 - Citation - This section may be cited as the "Metropolitan Area Aircraft Noise Attenuation Act".
>
> Subdivision 2 - Definitions - For purposes of this section, "Metropolitan area" has the meaning given it in section 473.121, subdivision 2. "Aviation Policy Plan" means the plan adopted by the metropolitan council pursuant to section 473.145. "Municipality" has the meaning provided by section 462-352, subdivision 2.

Subdivision 3 - Ordinance - A municipality in the metropolitan area that, in part or in whole is within the aircraft noise zones designated in the *Transportation Policy Plan*, may adopt and enforce ordinances and controls to regulate building construction methods and materials for the purpose of attenuating aircraft noise in habitable buildings in and around the noise zone.

The ordinance or control shall not apply to remodeling or rehabilitating an existing residential building or to construction of an appurtenance to an existing residential building. An ordinance adopted by a municipality must be adequate to implement the metropolitan council's guidelines for land-use compatibility with aircraft noise. Section 16B.62 does not apply to ordinances adopted under this section.

16B.62 State Building Code; Application

Subdivision 1 - Municipal enforcement - The state building code applies statewide and supersedes the building code of any municipality.

The state building code does not apply to agricultural buildings except with respect to state inspections required or rulemaking authorized by sections 104.05, 326.244, and 216C.192, subdivision 8.

All municipalities shall adopt and enforce the state building code with respect to new construction within their respective jurisdictions.

Model Noise Ordinance

In 1983 a model noise ordinance governing control of aircraft noise mitigation in buildings was prepared by regional and state agencies with the assistance of acoustic consultants.

The participants in this effort determined that a performance standard, rather than detailed structural specifications, would be most appropriate. They also determined that meeting an interior level of 45dba[1] for residential land uses would be a reasonable objective.

In addition, they preferred using acoustic sound transmission class ratings (STC) rather than other single or multiple-figure ratings, since extensive STC data was available to architects and building code officials. The aim was to require a minimum amount of additional effort and cost for builders and to avoid additional laboratory testing where possible. Thus, while it was recognized that additional laboratory data would be needed, it was determined that the STC rating would still provide the simpler alternative.

The model noise attenuation ordinance that resulted from this effort is included in Appendix C. The ordinance is applied through use of a noise overlay map for the specific airport. Noise contours on the overlay map are defined using the federal noise descriptor DNL. Application of the compatibility guidelines starts at the DNL 60 noise contour for all system airports. The guidelines allow for a “buffer zone”, at the discretion of the affected community, for specific areas outside the DNL 60 noise contour.

[1] DNL, reference *Transportation Policy Plan*, Appendix H, Table 4.

ABOUT THIS GUIDE

Purpose of the Guide
The *Builders Guide* has been prepared to provide builders, developers, architects and building inspectors with information to help comply with the ***Land-use Compatibility Guidelines for Aircraft Noise***. The Guide specifically addresses the noise reduction performance of structures in areas exposed to aircraft noise as defined in the *Transportation Policy Plan* of the *Metropolitan Development Guide*. The guidelines and model noise attenuation ordinance are used by the Council in its review of community comprehensive plans and plan amendments. The Guide is also intended to provide better understanding of the issues and problems encountered in complying with the guidelines and designing for exterior-to-interior noise attenuation.

The *Builders Guide* provides a satisfactory method for estimating required sound transmission class values within certain aircraft noise zones and for determining whether the design of a residence or other habitable structures (apartments, townhouses, hotels, condominiums) comply with noise reduction guidelines. It also provides STC values for a variety of building elements, including walls, roof assemblies, windows and doors.

Limitations of the Guide
This Guide is based upon published and unpublished data sources and manufacturer's literature and is not intended as a comprehensive handbook on acoustical techniques in construction. It is intended to permit an evaluation of building designs in an aircraft-noise environment with the aim of meeting acceptable interior noise levels. The Guide can be used for both preventive treatment (appropriate new construction) and for some corrective treatment.

The Metropolitan Council does not guarantee that any specific level of noise reduction will be achieved through the application of this *Builders Guide*. Too many factors, ranging from the aircraft noise spectrum and details of building design, to the estimated STC values presented in this Guide, are subject to variation and error. The procedures in this Guide assume that good building practices are followed. It should be noted that application of the procedures in this Guide does not address the problem of low-frequency noise and associated vibrations within a structure caused by this noise. Procedures and guidelines for control of low-frequency noise within structures are being evaluated by the FAA.

This Guide provides the level of detail needed for an acoustical evaluation in Noise Zones 1 through 4 at the region's system airports. The regional airport system is shown in Figure 1. No attempt has been made in this Guide to estimate the cost of meeting noise reduction guidelines since, for many contemporary designs, no additional costs will be incurred. Design requirements of the State Energy Code may be sufficient to meet sound attenuation guidelines in Noise Zone 4; however, differences do exist between acoustical and thermal evaluation; these are discussed in Appendix A.

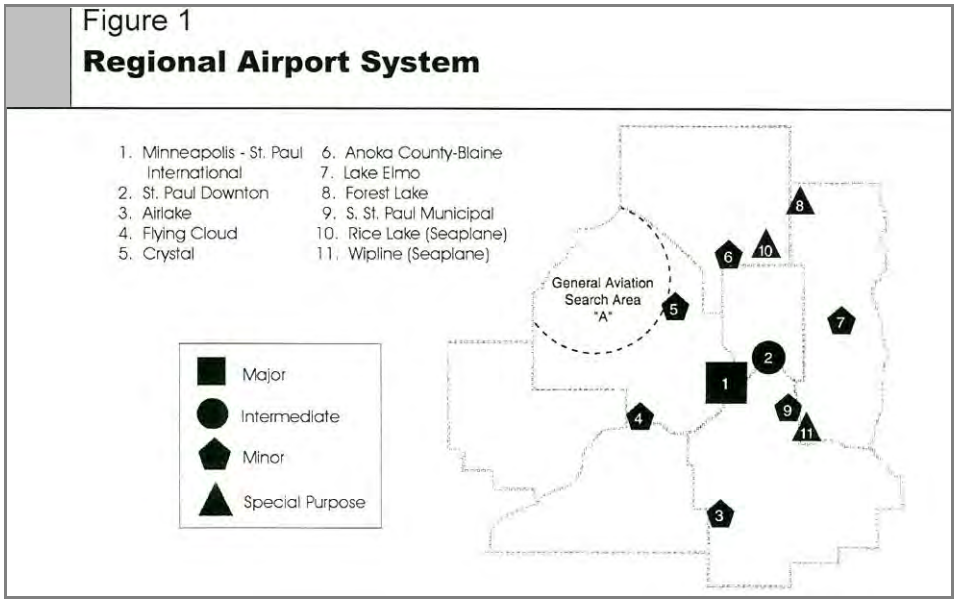
The listing of STC data contained in the Guide is not intended to be complete but is based upon the type of construction commonly found in a review of homes proposed in Noise

Zone 4 at MSP International Airport. It also contains additional information collected from various sources and manufacturers of building products. The STC values are limited and subject to revision.

The use of actual test data for building components is strongly recommended and may be explicitly required in some communities. This *Builders Guide* is not intended to remove the responsibility of the architect, engineer or builder to obtain and use actually measured STC values when required.

Figure 1

Regional Airport System



HOW TO USE THIS GUIDE

The following step-by-step process will help the user of this Guide to achieve appropriate structural noise reduction. A sample calculation following the approach described here is included on page 17.

Step 1. Locate Structure in Noise Zone
Check with the affected community to see if the building site is located within an aircraft noise zone or one-mile buffer zone. If the structure is located within Noise Zones 1 or 2, an analysis, by a recognized acoustical specialist, more detailed than that provided by this Guide is recommended. If the structure is located in Noise Zones 3 or 4, this Guide may be used.

Application of noise control efforts in a noise "buffer zone" at MSP or at the reliever airports is done at the discretion of the affected community (see Appendix D). Check to see if the community has adopted use of the buffer zone in its land-use plan or local ordinances.

Maps of the noise contours are included in the *Transportation Policy Plan*, Appendix H, which can be accessed on the Council's website (metrocouncil.org). Metropolitan area communities currently included within aircraft noise zones are:

Airlake Airport
- City of Lakeville
- City of Farmington
- Eureka Township

Anoka Co.-Blaine Airport
- City of Blaine

Crystal Airport
- City of Crystal
- City of Brooklyn Park

Flying Cloud Airport
- City of Eden Prairie

Lake Elmo Airport
- City of Lake Elmo
- West Lakeland Township

MSP International Airport
- City of Minneapolis
- City of Richfield
- City of Bloomington
- City of St. Paul
- City of Eagan
- City of Mendota Heights
- City of Burnsville

St. Paul Downtown Airport
- City of Saint Paul

South St. Paul Airport
- City of So. St. Paul
- City of Inver Grove Heights

Step 2. Determine If Use Is Acceptable

If the building site lies within an aircraft noise zone, as determined in Step 1, what do regional compatibility guidelines say about acceptable uses? Table 1 shows acceptable land uses in the particular noise zones.

Table 1
Land-use Compatibility Guidelines for Aircraft Noise

	Noise Exposure Zones									
Type of Development	**New Development or Major Redevelopment**					**Infill - Reconstruction or Additions to Existing Structures**				
Land-use Category	Zone 1	Zone 2	Zone 3	Zone 4	Buffer Zone[1]	Zone 1	Zone 2	Zone 3	Zone 4	Buffer Zone
	DNL 75+	DNL 74-70	DNL 69-65	DNL 64-60		DNL 75+	DNL 74-70	DNL 69-65	DNL 64-60	
Residential										
Single/Multiplex, with individual entrance	INCO[2]	INCO	INCO	INCO	COND	COND	COND	COND	COND	PROV
Multiplex/Apartment, with shared entrance	INCO	INCO	COND	PROV	COMP	COND	COND	PROV	PROV	COMP
Mobile Home	INCO	INCO	INCO	COND	PROV	COND	COND	COND	COND	PROV
Educational, Medical, Schools, Churches, Hospitals, & Nursing Homes	INCO	INCO	INCO	COND	PROV	COND	COND	COND	PROV	COMP
Cultural, Entertainment, & Recreation										
Indoor	COND[3]	COND	COND	PROV	COMP	COND	COND	COND	PROV	COMP
Outdoor	COND	COND	COND	COND	PROV	COND	COND	COND	COMP	COMP
Office, Commercial, Retail	COND	PROV	PROV	COMP	COMP	COND	PROV	PROV	COMP	COMP
Services										
Transportation - Passenger Facilities	COND	PROV	PROV	COMP	COMP	COND	PROV	PROV	COMP	COMP
Transient Lodging	INCO	COND	PROV	PROV	COMP	COND	COND	PROV	PROV	COMP
Other Medical, Health, and Education	COND	PROV	PROV	COMP	COMP	COND	PROV	PROV	COMP	COMP
Other Services	COND	PROV	PROV	COMP	COMP	COND	PROV	PROV	COMP	COMP
Industrial, Communication, & Utilities	PROV[4]	COMP	COMP	COMP	COMP	PROV	COMP	COMP	COMP	COMP
Agriculture, Land/Water Area, & Resource Extraction	COMP[5]	COMP	COMP	COMP	COMP	COMP	COMP	COMP	COMP	COMP

Note: The *Transportation Policy Plan* adopted in 2004 includes an Appendix H that addresses the *Land-use Compatibility Guidelines for Aircraft Noise*. The purpose of the buffer zone is to provide additional protection for noise sensitive uses within the context of preventive land-use measures, allow for contour expansion/contraction over time, and provide flexibility in using other tools in support of noise efforts (e.g., a TIF district), that may be partially outside the then "current" noise contours. Use of a buffer zone is encouraged, but it is a voluntary effort; implementation is at the discretion of the affected community. Application of the "buffer zone" in local comprehensive plans is discussed in Appendix D.

[1] Buffer Zone (see definitions in Appendix D)
[2] INCO means "Incompatible"
[3] COND means "Conditional"
[4] PROV means "Provisional"
[5] COMP means "Compatible"

Step 3. Determine Needed Noise Reduction

If the use is acceptable, what is the required noise level reduction? Table 2 shows the required noise level reduction for each acceptable land use.

Table 2
Land Use Compatibility Guidelines and Noise Reduction requirements for Aircraft Noise

	Noise Exposure Level (dBA)									
Type of Development	**New Development or Major Redevelopment**					**Infill - Reconstruction or Additions to Existing Structures**				
Land Use Category	Zone 1	Zone 2	Zone 3	Zone 4	Buffer Zone	Zone 1	Zone 2	Zone 3	Zone 4	Buffer Zone
	DNL 75+	DNL 74-70	DNL 69-65	DNL 64-60		DNL 75+	DNL 74-70	DNL 69-65	DNL 64-60	
Residential										
Single/Multiplex, with individual entrance	INCO	INCO	INCO	INCO	19	30+	29	24	19	19
Multiplex/Apartment, with shared entrance	INCO	INCO	24	19	COMP	30+	29	24	19	COMP
Mobile Home	INCO	INCO	INCO	19	19	30+	29	24	19	19
Educational, Medical, Schools, Churches, Hospitals, & Nursing Homes	INCO	INCO	INCO	19	19	30+	29	24	19	COMP
Cultural, Entertainment, & Recreation										
Indoor	25+	29	24	19	COMP	30+	29	19	19	COMP
Outdoor	30+	29	24	19	19	30+	29	19	COMP	COMP
Office, Commercial, Retail	30+	29	24	COMP	COMP	30+	29	19	COMP	COMP
Services										
Transportation - Passenger Facilities	30+	29	24	COMP	COMP	30+	29	24	COMP	COMP
Transient Lodging	INCO	29	24	19	COMP	30+	29	24	19	COMP
Other Medical, Health & Education	30+	29	24	COMP	COMP	30+	29	24	COMP	COMP
Other Services	30+	29	24	COMP	COMP	30+	29	24	COMP	COMP
Industrial, Communication, & Utilities	30+	COMP	COMP	COMP	COMP	30+	COMP	COMP	COMP	COMP
Agriculture, Land/Water Areas, and Resource Extraction	COMP	COMP	COMP	COMP	COMP	COMP	COMP	COMP	COMP	COMP

Step 4. Establish Design Criteria

It is recommended that the principles listed below be incorporated into the building design in its earliest phases to minimize exterior-to-interior sound transmission. Most of these principles are also consistent with the Minnesota Energy Code. Alternate design features may be accommodated but may require a more extensive acoustical evaluation.

- Avoid large areas of glass unless appropriate STC can be provided.
- Use solid-core exterior doors (in combination with storm doors) where possible.
- Use patio (glass) doors sparingly.
- Do not use large wooden frame casement windows that cannot accommodate the weight of heavier glazing.
- Use skylights sparingly (STC rated if possible).
- Avoid roof-ceiling structures without insulated attics.
- Specify caulking and sealing off all through-the-wall penetrations.
- When using sound channels on interior skin, avoid bypassing channels by attaching shelving and appliances directly to studs.

Step 5. Complete Standard Checklist

What type of acoustical information does the city require? A checklist of information needed for an acoustical evaluation should be completed and submitted to the local building inspector (check boxes below).

√	**Table 3** **Standard Checklist of Required Acoustical Information**
	1. Name, address and telephone number of building plan submitter, architect, or other contact person for questions or clarifications of the plans and information submitted.
	2. Location of the site on the Noise Policy Area Map (including noise buffer zone when applied by community).
	3. Set of the plans and specifications with the following information:
	a. Floor plans and evaluations.
	b. Information on exterior envelope of the building:
	Exterior wall systems, including materials, elevations, sections, thermal or acoustical insulation used, R-values and STC values where available (or estimated).
	Roof-ceiling systems, including materials, elevations, sections, thermal or acoustical insulation used, R-value and STC values where available (or estimated).
	Window specifications and schedule, product(s) upon which door specifications were based, R-values and STC values where available (or estimated).
	Exterior door specifications and schedule, product(s) upon which door specifications were based, R-values and STC values where available (or estimated).
	c. Basement and floor-ceiling details if basement is vented or has windows, doors, or other major penetrations through the exterior walls.
	d. Attic-space venting information on thermal or acoustic insulation not provided elsewhere.
	e. Heating-ventilating system (and fireplace), especially details of any penetration through exterior walls or roof.
	f. Specifications for airtight seals on windows and doors.
	g. Specifications for caulking and treatment of penetrations through exterior walls.
	h. Room finish schedules, especially if carpet or other acoustically absorbent materials are to be installed.
	i. Any other information that may be helpful in estimating the overall noise reduction of the exterior surface of the structure.
	4. A complete set of plans and specifications can be submitted in lieu of information outlined above in Number 3 if all relevant information is included.

Step 6. Determine Component STC Ratings

Estimate STC ratings from the following tables for roof-ceiling, wall, window construction, glazing, and door assemblies. The STC rating is a single-number rating based upon a standard laboratory procedure. The basis for this rating is described in Appendix A. STC ratings will be used in Steps 8 through 10 to determine whether the proposed windows are satisfactory. Roof-ceiling construction can generally be broken into two classes: single-joist systems and attic-space systems. The use of attic-space systems is generally required in Minnesota because of the climate and the Minnesota Energy Code. However, information on both systems is included here. Venting of the attic space as required by the building code will reduce the acoustical effectiveness of construction as noted in Table 4. **A roof-ceiling STC value of at least 40 STC is assumed in the design charts used in this guide. A roof-ceiling with STC lower than 40 should not be used in any of the aircraft noise zones.**

Step 7. Determine Window and Patio Door Area

Calculate the percentage of total exterior wall area (in square feet) represented by windows and patio doors (glazed), or take this information from the standard calculation needed to meet the state energy code. These percentages and the STC value of the wall will be used in Step 8 to determine the required window STC. If a particular room has a window area greater than 30%, this room should be analyzed as a separate entity separate from the overall exterior building facade (see Step 8). If there are any skylights, their area should be added to the wall plus window area and included in the calculation.

Step 8. Determine Required Window STC

Based upon the percent of window area and patio doors determined in Step 7, use Figure 2 through Figure 4 to determine the window STC required to meet the Land-use Compatibility Guidelines for particular noise zones. These figures are based upon a needed sound reduction of 20dBA.

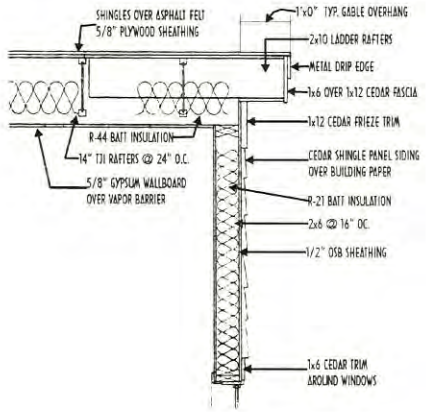
Figure 2. Window STC Requirements - Wall @ 40 STC
Figure 3. Window STC Requirements - Wall @ 45 STC
Figure 4. Window STC Requirements - Wall @ 50 STC

These figures assume a door STC of at least 26 (with no more than 1% of exterior wall area) and a patio door with STC of 28. Patio doors with STC of less than 28 are not recommended. These figures are applicable to Noise Zone 4. **For sites located in Noise Zone 3, add 5 STC to the window STC value determined from these figures.** The wall STC determined in Step 6 should be used to select the correct graph to be used. If wall, door or patio door STC values are well outside those used in the figures, then outside assistance may be required. Use the following figures for determining the required window STC ratings for Noise Zone 4 (note that these figures assume the following typical STC values: Door STC 26, Patio Door STC 28, Roof-Ceiling STC 40 or greater).

Table 4

Ceiling Material and STC Rating (Typical Sections)

	Single-Joist Systems	
Roof Material	1/2" Gypsum Board	Exposed Joist
Wood shingles	45	34
Composition shingles	49	40
Clay or concrete tiles	57	45
Build-up roofing	49	37
1/3" wood-sheet metal	--	36



	Attic-Space Systems	
Roof Material	1/2" Gypsum Board	Exposed Joist
Wood shingles	41	43
Composition shingles	42	44
Clay or concrete tiles	43	45
Build-up roofing	41	43
1/3" wood-sheet metal	41	43

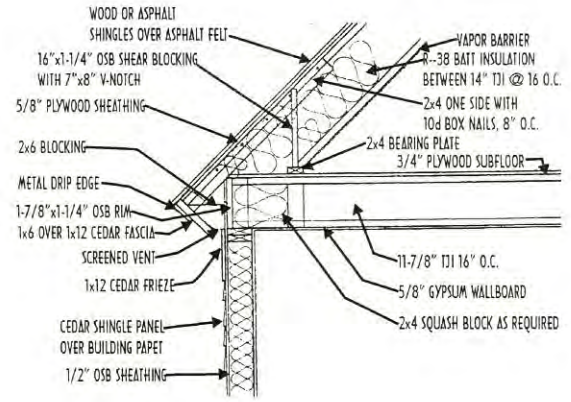


Figure 2

Window STC Requirements - Wall @ 40 STC

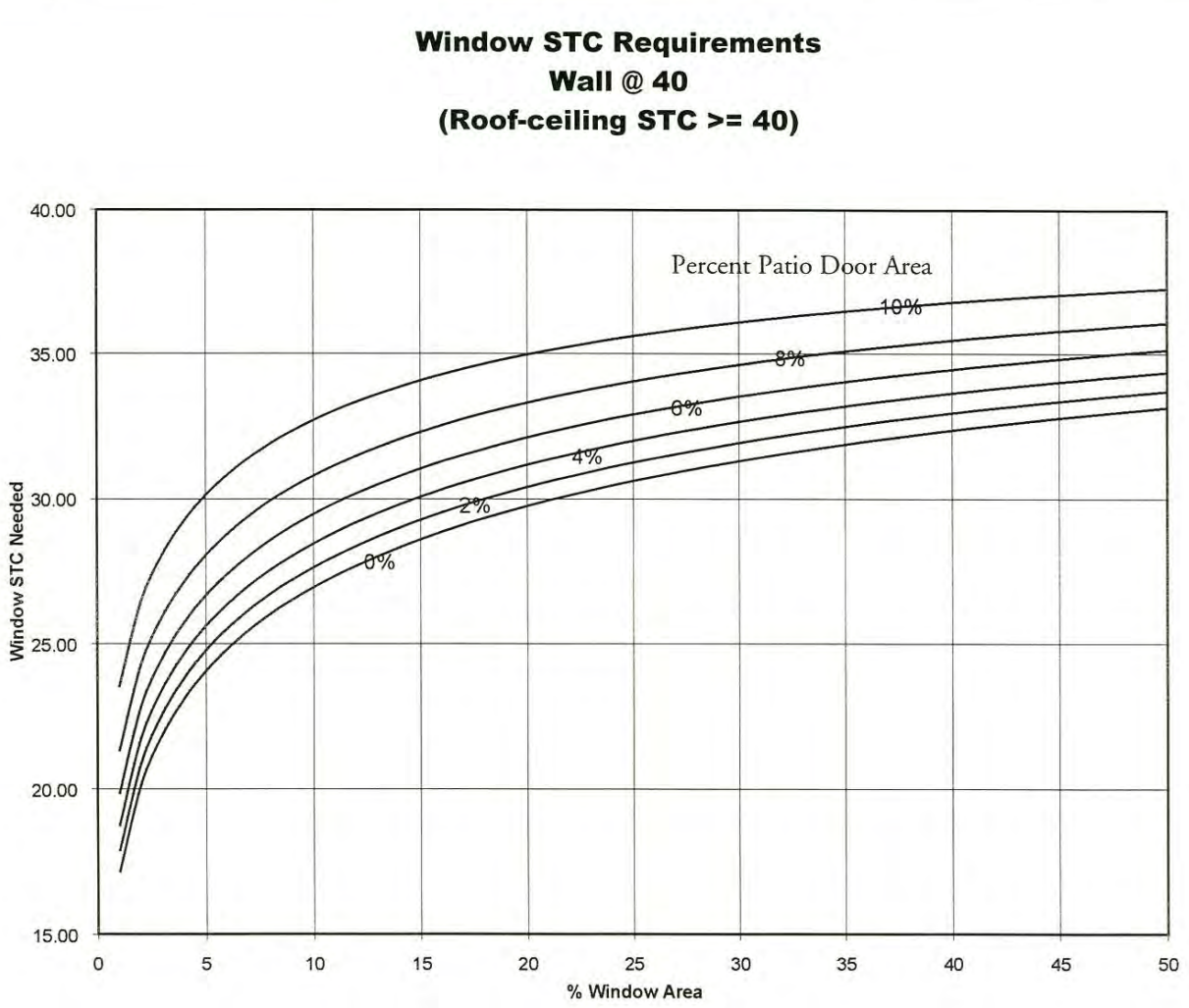


Figure 3

Window STC Requirements - Wall @ 45 STC

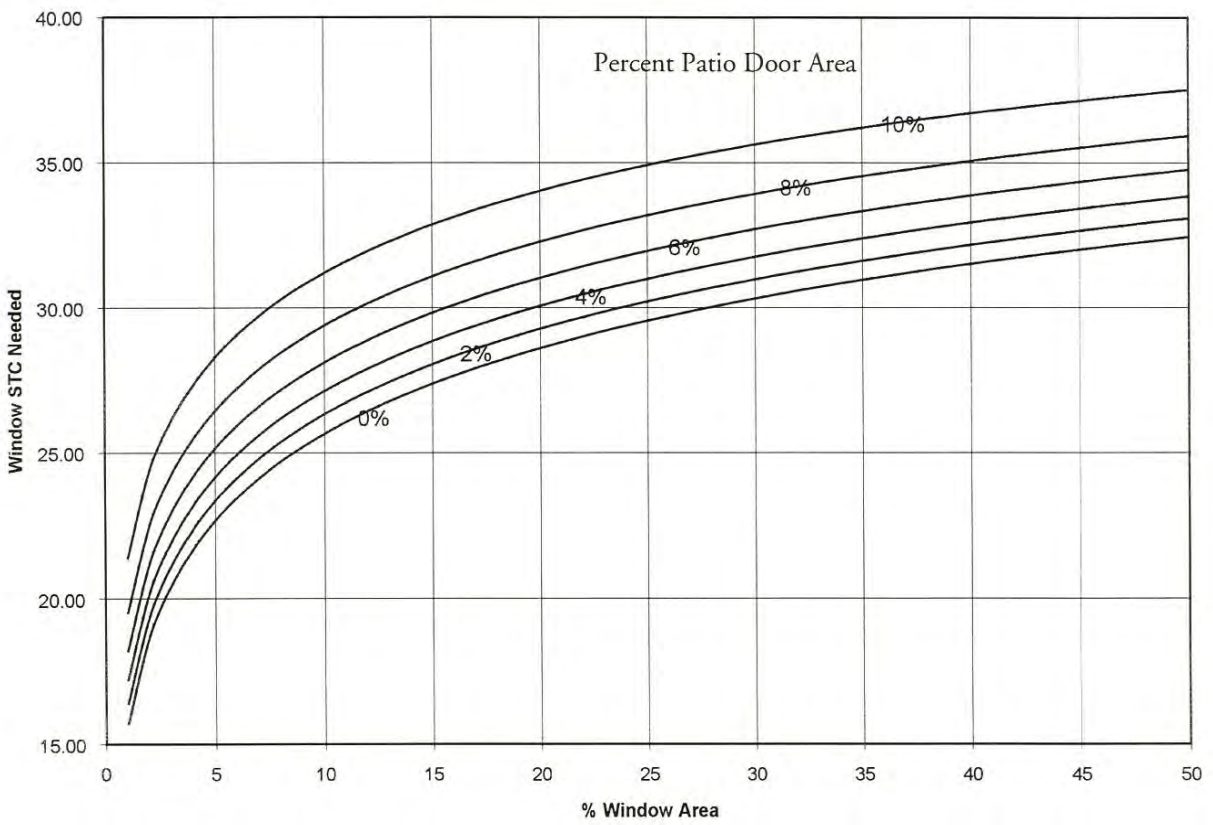


Figure 4

Window STC Requirements - Wall @ 50 STC

Step 9. Determine Adjusted STC Values
The following corrections should be made to the basic window STC ratings determined from Figures 2 through 4.

- When there are more than two exterior walls in a room +3 STC
- Rooms without carpeting or soft furniture +2 STC
- Resilient mounting of interior gypsum wall -1 STC
- If entry door rating is less than 26 STC +1 STC
- If patio door rating is less than 23 STC and area is over 5 percent +2 STC

Step 10. Select Windows to Meet STC Requirement
Compare the STC ratings of the proposed windows as determined in Step 6 and compare these with the regional adjusted value determined in Step 9. If the proposed STC value is insufficient to meet the requirement, then one or a combination of the following alternatives should be considered:

1) Select a window (Step 6) with the required STC value.
2) Reduce window area.
3) Use walls or patio doors with higher STC values.

Step 11. Prepare Acoustical Report
If the design can be shown to meet the noise level reduction required, the completed acoustical report should then be submitted to the local building inspector. An example is shown in Table 5.

Step 12. Measure Building Performance
Acoustic testing may be required under the city ordinance if the plans are changed following the acoustical review and no subsequent substantiation of the building performance is provided to the building inspector.

Should testing of the finished structure be necessary, the ASTM (American Society for Testing Materials) E 966-04 standard for measuring exterior-interior noise reduction should be followed. This test is described in the *Annual Book of ASTM Standards* (see references).

Use of this Guide does not guarantee that a specific noise level reduction can be met.

Table 5
Sample Plan Review for Compliance with Aircraft Noise Ordinance

Submitter:	**Noise Impact Area:**		**Compliance with Procedures to Ensure Adequate Noise Attenuation:**
John Doe Construction, Inc. *0000 Avenue Z* *Minneapolis, MN 55000* *Telephone* *(000) 000-0000*	*Airport - MSP International* *Noise Zone – 4* *New Infill Residence is a "COND" use in Noise Zone 4.*		Exterior wall construction*:* *Cedar siding* *15/32" sheathing* *Tyvek wrap* *2x6 studs 16" o.c.* *6" batt insulation with 1/2" gypsum board* Roof Construction*:* *Peaked roof with manufactured trusses 24" o.c.* *Roof vents* *270# shingles* *15# felt* *1/2" sheathing* *Blown Insulation* *5/8" gypsum board* Mechanical Ventilation System: *4-ton central air conditioning unit* Window, Door Frame, Perimeter and Other Seals: *All window and door openings are to be caulked With butyl-based caulk.* Fireplace Chimney Cap: *Built-in flue damper, chimney cap, glass enclosed.* Ventilation Duct Exterior Wall Penetrations: *All exterior ducts will have bends as required by The ordinance.* Door and Window Construction: *Windows: Acme clad casement, 1" insulating (29 STC) or high -performance glass.* Swinging Patio Doors: *Acme clad 3/4" insulating (28 STC) or high -performance glass (30 STC).* Entry Doors: *Acme Insulating metal (26 STC)* Skylights: *(STC not provided)* Other Exterior Wall Penetrations: *Sill sealer between plates and blocks.*
Plan Reviewed:			
Single-family home for John & Susan Doe			
Information Submitted:			
Annotated architectural drawings including:			
Windows: Acme clad casements *Swinging Patio Doors: Acme clad* *Entry Doors: Acme Insulated metal* *Skylights: Acme fixed skylights*			
Compliance with STC Requirements:			
Average window/wall area for exterior wall: 14% *With this window/wall area ratio and STC 45 walls, windows with an STC 29 can be used to meet the noise reduction requirements.*			
Summary:			
Other measures including duct bends and caulking are being taken to ensure minimum transmission of noise through the exterior building shell so that the construction should meet the intent of the noise ordinance and the Metropolitan Council compatibility guidelines. *Therefore, the materials and construction as proposed should meet the requirements of the [City] aircraft noise ordinance.*			
Review Completed [Date] **By:**			
Name, address and telephone number of person completing review.			

SAMPLE DESIGN CALCULATION

Step 1. Locate Structure: Using the airport noise maps in Appendix E, determine the noise zone in which the structure is located. Assume in this example that a new single-family residential structure is proposed as infill in aircraft Noise Zone 4 at MSP International Airport.

Step 2. Determine If Use Is Acceptable: From Table 1 the compatibility of the particular proposed structure can be determined. For this single-family residential example the use is "conditional" – that is, subject to the requirements of the local noise ordinance and specific stipulations (review criteria) contained in the land-use compatibility guidelines.

Step 3. Determine Needed Noise Reduction: Table 2 then indicates the needed noise level reduction for the structure. In this case, with a structure in Noise Zone 4, the needed noise reduction is almost 20dBA. Therefore, Figure 2 through Figure 4 can be used directly. If a 25dBA reduction were needed (Zone 3), 5dBA would have to be added to the required window STC determined from these figures.

Step 4. Establish Design Details: It is assumed that the house design takes into account the basic good acoustical practices listed on page 8.

Step 5. Complete Standard Checklist: A standard checklist can then be completed as shown on page 9.

Step 6. Determine Component STC Ratings: It is assumed for this example that the roof-ceiling system has an STC of 41. The wall system is assumed to have an STC of 45. The proposed windows have an STC of 27.

Step 7. Determine Window and Patio Door Area: The given design indicates a window area of 12%, a patio door area of 2%, a door area of 1% and a wall area of 85%.

Step 8. Determine Required Window STC: Using Figure 3 (wall of 45 STC) the required window STC is 27. For this design, the proposed window is satisfactory and the structure meets the guidelines.

Step 9. Determine Adjusted Window STC: In this case, no adjustments are needed. If, for example, a patio door area of 6% were used, an STC of 29 would be needed. This could be achieved by either picking an improved window or by reducing the window area to just over 8%.

Step 10. Select Windows to Meet STC Requirement: If a patio door area of 6% is assumed, a 29 STC window would have to be used. A variety of windows are available with this STC rating as can be seen in Appendix E. A high-quality casement window with high-performance insulating glazing should provide this type of an STC rating.

Step 11. Prepare Acoustical Report: An acoustical report such as that shown in Table 5 should then be completed.

Step 12. Measure Building Performance: Unless changes are made in the plans, no supplementary analysis is submitted to the building inspector for approval, the building inspector may, under the terms of the ordinance, require that actual sound transmission tests be made of the completed structure.

APPENDIX A
NOISE REDUCTION CONCEPTS

Noise is commonly defined as "unwanted sound". Aircraft noise is unwanted sound emanating from aircraft operations.

DEFINITIONS

Decibel: This is a measure of relative sound pressure in the atmosphere referenced to an arbitrary standard pressure. Decibel is abbreviated "dB."

Frequency Spectrum: Sound energy occurs at a wide range of frequencies, with those normally perceptible by the human ear between 20 Hz (cycles per second) and 20,000 Hz. A separate sound level is associated with each of these separate frequencies. Combining these into "weighted" decibel scales provides a measure of overall sound pressure.

A-Weighted Decibel: This is a weighted sum of spectral sound energy in which each frequency is given a weight similar to that perceived by the human ear. Thus, the A-weighted decibel (or dBA) is commonly used as the measure of community noise impact.

Addition of Decibels: Decibels are added on the basis of logarithmic ratios. Thus, the addition of two equal sound levels yields a level 3 decibels higher than each individual sound level. A sound level, which is 10 decibels lower than another, contributes nothing to the overall sound level.

Noise Level Reduction (NLR): This term expresses the effectiveness of a structure in reducing exterior sound level. Generally speaking, it is the difference between noise outside of a building and noise inside a building during the same time period.

EFFECT OF NOISE

Noise can have a wide range of impacts on persons exposed to levels that are not wanted or anticipated. The three primary effects normally used to establish acceptable interior noise levels are:

- sleep interference
- sleep awakening
- annoyance

The acceptable interior levels established by the Metropolitan Council (see Table 1) are intended to provide reasonable protection against these effects.

THE SOUND SPECTRUM

Room absorption differs from sound transmission loss in that it dissipates rather than stops acoustical energy. A material that is excellent for sound-transmission loss (e.g., steel door) is a very poor absorber. A material that is an excellent absorber (e.g., acoustical fiberglass) has a very low sound transmission loss. The effect of absorption in a receiving room is that it increases the effective sound-transmission loss of a partition because the energy passing through the partition is partly absorbed. For example, the same wall located in a living room (with greater than average absorption) and a kitchen

(with less than average absorption) could have a difference in effective sound transmission loss of a s much as 4dB.

DIFFERENCE BETWEEN ACOUSTICAL & THERMAL INSULATION

The Transmission of acoustical and thermal energy does not follow the same physical principals. Acoustical energy flow is more easily retarded by heavy and rigid materials, while thermal energy flow is more easily retarded by materials with low thermal conductivity. An example of a good acoustical barrier but a poor thermal barrier is a solid steel door. While the door is massive and hence minimizes sound penetration, it has a high thermal conductivity and hence does not minimize heat transmission. An example of a good thermal barrier but a poor acoustical barrier is a lightweight but thick thermal insulating panel. This barrier minimizes heat transfer but is generally a poor sound insulation.

Both sound and energy can be transmitted through an open space in the wall, such as a poor seal around a window. Such a crack can increase heat flow through the wall, and can reduce the STC value of the window by up to 5 or more STC units. For this reason, sealing and caulking through the wall penetrations is critical for good noise control.

Thermal energy is diffused through a barrier at a rate determined by the thermal conductivity of the material. This thermal conductivity is strongly affected by the physical and chemical structure of the material. Acoustical energy is transmitted through a barrier in the form of wave or vibration energy. This transmission depends upon the physical and mechanical properties of the material, as well as the structural system itself, which can vibrate in response to sound impinging on the surface. Thermal transmission through a wall can be analyzed separately for each component of the wall; acoustical energy cannot. The method used in this guide is based upon the flow of acoustical energy through a wall/window system and takes into account this difference between thermal and acoustical transmission.

While an adequate thermal treatment may acoustically insulate a residence in Noise Zone 4 (where a 25dBA NLR is required), it is more likely not to do so in the higher noise zones, where special attention should be paid to the nature of acoustical energy transmission.

CONCEPT OF SOUND TRANSMISSION CLASS (STC)

The purpose of single-number acoustical ratings, such as the STC, is to provide a quick and simple method of building-element selection to meet the desired acoustical requirements. The STC was originally established to provide some measure of speech privacy between rooms and is hence based primarily upon frequencies important in human speech. However, by analyzing the transmission loss for each frequency and comparing this with an aircraft noise spectrum it is possible to establish the STC value needed to meet a given A-weighted decibel reduction.

Sound transmission class is defined under the American Society for Testing Materials Standard E413-87. STC is derived from the use of a standard curve that is fitted to the observed laboratory data. STC values are available primarily for interior partitions and acoustically rated windows. These are provided by the manufactures of wall components and partitions or are found in standard reference manuals. For many common building elements, laboratory ratings are not yet available. It may be necessary to contact window and door manufactures or their representatives directly if published test data are not readily available. STC estimates for custom-built windows must be determined by comparing these windows with other manufactured ones for which such data are available.

Detailed test data are generally available for acoustic-rated windows, which are specially constructed to minimize sound transmission. These windows are generally constructed of metal because of the need to build in the sound and vibration isolation details that are essential to achieving a high STC rating. Non-acoustic rated windows, for which STC data are not generally available, are commonly proposed for use in residential construction. For Noise Zones 3 and 4, the careful use of non-acoustical-rated windows may be sufficient to meet the Council guidelines. However, as the need for greater window attenuation increases, it may be necessary to employ only acoustic-rated windows to meet the guidelines. Use of acoustical storm windows and doors can also provide relatively high STC ratings in conjunction with high quality doors and windows.

OTHER SINGLE-NUMBER TRANSMISSION RATINGS

When the first version of this *Builders Guide* was issued in 1980, the Exterior Wall Rating (EWR) was the primary single-number rating that had been developed specifically to address the problem of exterior-interior noise transmission. The EWR standard curve is similar to that of STC except that the lower frequencies, normally associated with transportation noise, are given more emphasis. Since a wide variety of test data on exterior walls were available in terms of EWR, these were converted to approximate STC values that have been used in this Guide. More recently, the OITC (Outdoor-Indoor Transmission Class) is another single-number rating that has been developed (ASTM E1332-90). This rating employs a reference level and is intended primarily as a rank ordering device, with actual source spectra recommended to determine actual noise reduction. Another single-number rating that has been recently developed is the Aircraft Noise Level Reduction (ANLR) which uses a reference level more similar to noise from a departing aircraft. The ANLR and OITC generally differ by 1dB to 2dB for typical exterior walls.

REASONS FOR EMPLOYING STC VALUES IN THIS GUIDE

In the development of the Model Ordinance for aircraft noise, the decision was made to use STC rather than other single or multiple-figure ratings because extensive STC data are available to architects and building code officials. The STC rating was deemed to require the minimum amount of additional effort and cost for builders and that additional laboratory testing should be avoided where possible. Thus, it was decided that STC ratings would provide the simplest alternative.

EXTERIOR BUILDING SHELL NOISE REDUCTION

For purposes of this Guide, the overall exterior building shell has been used as the primary determinant of structural elements, primarily windows and doors. Since total exterior surface area is required for calculation of thermal efficiency and compliance with the Minnesota Energy Code, this information is normally readily available to architects and builders. However, when a large amount of glass is used for a given room, an evaluation of the overall exterior building shell no longer provides an accurate estimate of the level of noise that can be experienced in this room. Therefore, for rooms with greater than 30% or greater window or glass area, the procedures of this Guide should be applied to that room alone. If the room has its own exterior roof, that roof-ceiling combination should have a rating of at least 40 STC.

OVERALL NOISE REDUCTION LEVEL REQUIREMENTS]

The overall noise reduction level (NRL) required within a given noise zone can be determined by subtracting the desired level (45dBA) from the highest noise level within that contour. For example, in Noise Zone 4 (60 to 64dBA), the required reduction is calculated as 64 – 45 = 19dBA. The structure performance standards adopted by the Council are shown in Table A1.

Table A1 **Structure Performance Standards**[1]	
Land Use	**Typical Interior**[2] **Sound Level**
Residential	45 dBA
Educational/Medical/Churches, etc.	45 dBA[3]
Cultural/Entertainment/Recreational	50 dBA
Office/Commercial/Retail	50 dBA
Services	50 dBA
Industrial/Communication/Utility	60 dBA
Agricultural Land/Water Area/Resource Extraction	60 dBA

[1] These performance standards do not apply to buildings, accessory buildings, or portions of buildings that are not normally occupied by people.
[2] The noise description used to delineate the appropriate noise policy zone is an annualized Ldn.
[3] Special attention is required for certain noise sensitive uses, such as concert halls.

Each local government that has land within an airport's noise zones will be responsible for implementing and enforcing these performance standards within its jurisdictions. The Council will review the adequacy of these mechanisms as part of its review of amendments to each community's comprehensive plan. This Guide has been developed to assist in "preventive" treatment; "corrective" treatment can be more complex, but could be addressed with this Guide provided that appropriate simplifying assumptions can be made.

EVALUATION OF COMPOSITE EXTERIOR SURFACES

Since a building is made up of a number of different elements, such as walls, windows, doors, the "composite" noise reduction of this combination must be determined. This evaluation is made in terms of energy passing through the wall. The energy is then summed and converted back into the noise reduction level in dBA. (See Figure A1 for evaluating a wall with two separate elements, each with different transmission loss values.)

OTHER WEIGHTING FACTORS CONSIDERED

The NRL required by the Noise Compatibility Guidelines is specified in dBA, while structural elements are specified in STC. Therefore, a number of factors must be considered to convert the collection of individual building element STC values to an overall building shell NRL that is specified in terms of dBA. These factors are:

1. Noise Source Spectrum: Aircraft
   While actual spectra for takeoff and landing vary with the type of aircraft, operating conditions and meteorology, the aircraft noise spectrum used by Tocci et al. (see references) is an acceptable reference spectrum for purposes of this Guide. The use of an aircraft spectrum to estimate sound transmission through a wall is especially important since the low frequency components are not adequately addressed by the STC methodology.

2. Composite Wall STC Value
   The standard procedures for determining the effective transmission value of a composite wall has been followed here (see Figure A1).

3. Field Installation Loss
   It is common practice to assume that the laboratory-measured value of a partition can be 5dB lower when it is installed in the field.

4. Average Room Absorption/Exterior Surface Area
   The sound pressure level in the receiving (interior) room can be estimated from the following expression: NRL = (TL - 10logS+10logA)-6 Where: NRL = Noise Reduction Level (dBA), where:
   TL = Transmission Loss (measured dBA), S = Wall area (square feet)
   A = Total room absorption (sabines)

   With an exterior wall area of 100 square feet, the effective laboratory-rated transmission loss (or STC here) could be as much as 10 dBA lower than the laboratory value if the receiving room is very hard (reflective) acoustically compared with a very absorptive room. For purposes of standardization, a room with an average absorption of 0.6 was used, making the difference between the Noise reduction level and Wall transmission Loss less than 1 dBA.

5. Number of Walls Exposed
   As noted in the Wyle study for the FHWA (Davy and Skala, 1997), the number of walls can have a significant impact on the effectiveness of any exterior wall. While three or four exterior surfaces could exist in the most unfavorable situation, a single wall was chosen for the standard case.

6. Angle of Incidence
   The angles at which sound from aircraft flights might be expected to hit exterior surfaces can be estimated for particular flight paths. This could raise the effective transmission loss for the wall or its components by as mush as 5 dBA, which is the approximate difference between random and field incidence (Beranek, 1988). However, since the model ordinance is intended to apply to a wide range of locations and structural orientations, a random angle of incidence was selected for determining STC requirements.

AIRPORT NOISE ZONE MAPS

Individual noise zone maps for the regional system airports are depicted in Appendix E of the Council's *Transportation Policy Plan*. The noise zones reflect the latest long-term comprehensive plans approved for the airport or approved environmental analysis that reflects the airport plan. Noise zones are defined using the federal noise descriptor for day/night noise levels (expressed as DNL).

Note: A number of the airport development plans and associated noise impact maps are being updated during 2006 and 2007 and any proposals for development in or near the current noise policy areas should call the Council to clarify the latest status on application of noise contours.

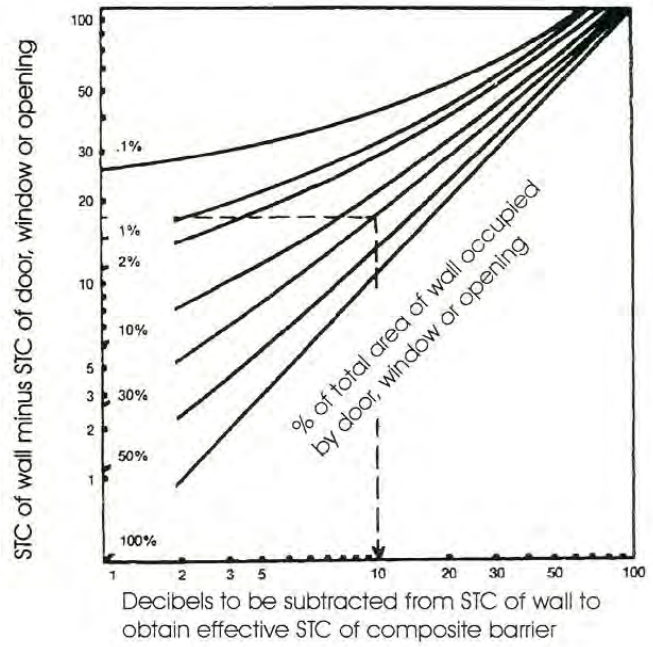
Figure A1

Determination of Composite Wall STC Rating

Instructions on use of graph 100

1. Subtract the STC value of the door, window or opening from the STC value of the wall.
2. Enter the vertical axis of the graph at the point that matches the value from step 1.
3. Read across to the curve that represents the percentage of the total area of the wall that is taken up by the door, window, or opening.
4. Read down to the horizontal axis.
5. Subtract the value on the horizontal axis from the original STC value of the wall. The result is the composite STC value of the wall and the door, window or opening.

Source: The Noise Guidebook
U.S. Dept. of Housing and Urban Development



WALL CONSTRUCTIONS

While a variety of wall construction is available, the most common in new-home construction is the 2x6 wood stud wall with exterior and interior finishes. Until a laboratory or field measurement of this construction has been made, it is assumed here that the basic wall with insulation provides an STC of 45 in the Minnesota climate.

Table A1
STC Estimated Values for Exterior Construction

Exterior	Interior Skin and STC Rating					
	1/2" Gypsum *	3/8" Gypsum	2- 1/2" Gypsum	2- 3/8" Gypsum	1/2" SB** 1/2" GYP	1/2" SB 3/8" GYP
2 x 4 Studs						
Alum. Siding 1/2" Wood	42	40	44	45	42	43
7/8" Stucco 1/2" Wood	50	50	50	50	51	50
1/2" Wood Siding	38	39	43	45	41	42
3/4" Wood Siding	43	42	42	43	39	40
2 x 6 Studs						
Alum. Siding 1/2" Wood	44	42	46	47	44	45
7/8" Stucco 1/2" Wood	52	52	52	52	53	52
1/2" Wood Siding	40	41	45	47	43	44
3/4" Wood Siding	45	44	44	45	41	42
Other						
4-1/2" Brick Veneer	58	57	57	57	58	57
6" Concrete	59	60	62	61	61	62
8" Concrete	61	63	65	64	64	65
6" Hollow Concrete Block	51	52	54	54	53	53
8" Hallow Concrete Block	52	54	56	56	55	56
6" Block With 1/2" Stucco	52	53	55	54	54	55
8" Block with 1/2" Stucco	53	55	55	56	56	57

WINDOWS, GLAZING AND WINDOW ASSEMBLIES

It is important to note that measured STC values of glazing used in a particular window will not necessarily be achieved by the window or window assembly.

Table A2
Estimated STC Ratings for Typical Windows

Type of Window	STC
Picture Window	
Double Glazed	29
1" Insulating Glass	34
Double-Hung Window	
With Insulating Glass	27
With ¾" Insulating Glass	29
With storm window	35
Casement Window	
With Insulated Glass	28
With 1" Insulating Glass	29
With Insulating high-performance Glass	30
With 1" Insulating high-performance Glass	31
With Insulating high-performance Glass & Removable Glass Panel	32

Table A3
Selected STC Ratings for Acoustical Windows

Sliding Metal Windows	STC
1/4", 1/3" laminated, 3/4" airspace	38
1/4", 1/4", 2 - 1/4" airspace	43
3/8", 1/2", 2- 1/2" airspace	46
3/16", 1/4", 4 - 1/4" airspace	48
1/4", 1/4" laminated, 4 - 1/4" airspace	48
1/2", 3/8", 8 - 1/2" airspace	56

GLAZING ONLY
These STC values are for glazing only and do not necessarily represent the window assemblies in which this glazing is used.

Table A4 **STC Values for Glazing Only**	
Type of Glazing	STC
Monolithic	
1/4"	31
1/2"	36
Laminated	
1/8" - 0.030"- 1/8"	35
1/4" - 0.030"- 1/8"	36
3/8" - 0.030"- 1/4"	40
Insulating	
1/8" - 1/4" AS* - 1/8"	28
1/4" - 1/2" AS* - 1/4"	35
1/4" - 1" AS* - 1/4"	37
3/16" - 4" AS* - 3/16"	44
Laminated Insulating	
1/4" Laminated 1/2" AS* - 3/16"	39
1/4" Laminated 1" AS* - 3/16"	42
1/4" Laminated 2" AS* - 3/16"	45
1/2" Laminated 2" AS* - 3/16"	46
1/2" Laminated 4" AS* - 3/16"	49
Double-Laminated Insulating	
1/4" Laminated 1/2" AS* 1/4" Laminated	42
1/2" Laminated 1" AS* 1/4" Laminated	46
1/2" Laminated 4" AS* 1/2" Laminated	50

*AS = air-space

Source: *Acoustical Glazing Design Guide, Monsanto Chemical Company*

STC RATINGS

DOORS AND DOOR ASSEMBLIES

Commonly used exterior doors for homes in the Minnesota climate are solid-core, glazed and sliding.

Table A5 **STC Ratings for Solid & Hollow-Core Doors**	
Types of Doors	STC
Hollow-core wood with brass weather strip	20
French-style wood with 12 lights (single glazing)	26
Solid-core wood with brass weather strip	27
Hollow steel with magnetic weather strip	28
Insulated steel with compression weather strip	28
Solid-core wood with storm door	34

Table A6 **STC Ratings for Doors with Glazing**	
Types of Doors	STC
Sliding glass (3/16" glass)	26
Sliding patio with high-performance glass	28
Swinging patio with 3/4" insulating glass	28
Patio with 1/4" laminating glass and 1/2" airspace	30
Swinging patio doors with 3/4" insulating high-performance glass	30

APPENDIX B
REFERENCES

BIBLIOGRAPHY

Beranek, Leo L., ed. *Noise and Vibration Control*, McGraw-Hill, revised edition, 1988.

Davy, B.A., and S.R. Skale. *Insulation of Building against Highway Noise*, Wyle Research Laboratories, August 1977, FHWA-TS-77-02.

"Guidelines for Land-Use Compatibility with Aircraft Noise," *Metropolitan Development Guide Aviation Policy Plan,* St. Paul: Metropolitan Council, June 1986.

Harris, Davis A. *Noise Control Manual for Residential Buildings*, McGraw-Hill, 1977.

Harris, Cyril M. ed. *Handbook of Noise Control*, 3rd edition, McGraw-Hill, 1991.

Harris, Cyril M. *Noise Control in Buildings*, McGraw-Hill, 1994.

Acoustical Glazing Design Guide, Monsanto Company, 1996.

Raleigh-Durham International Airport: New Construction Acoustical Design Guide, Arlington, VA: Wyle Laboratories, 2001.

"Study of Soundproofing Public buildings Near Airports," Trans Systems Corporation in association with Wyle Research Laboratories, April 1997, DOT-FAA-AEQ-77-9.

Tocci, Gregory C. et al. "Glazing [&] Sound Transmission Loss Studies." Paper presented at 11th Meeting of the Acoustical Society of America, Cleveland, May 1986.

Tocci, Gregory C. "A Comparison of STC and EWR for rating Glazing Noise Reduction," *Sound and Vibration,* 219 No. 10, October 1977.

“Sound Transmission Control,” Chapter 35, *Uniform Building Code,* Whittier CA: International Conference of Building Officials, 1977.

Quieting in the Home, Washington DC: U.S. Environmental Protection Agency, October 1978.

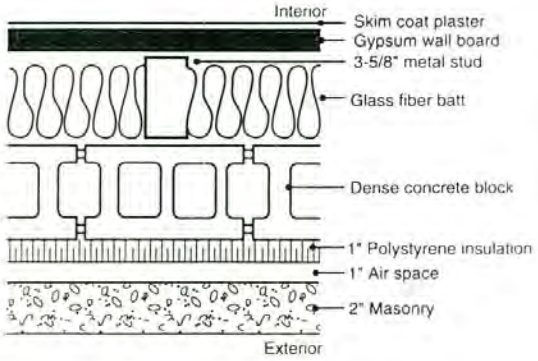
Walker, Kieth W. "Single Number Ratings for Sound Transmission Loss," *Sound and Vibration* 22 No. 7, July 1988.

Standard Guide for Field Measurement of Airborne Sound Insulation of Building Façade and Façade Elements, E966-92, American Society for Testing Materials.

MANUFACTURES AND SOURCES

This partial listing of manufactures of windows and doors is intended to provide the user of this Guide with a representative listing of high quality and acoustically-rated windows. The list, which is based upon previous projects in the Twin Cities metropolitan area, is not intended to be complete or comprehensive.

Anderson Windows, Inc. 100 4th St. N. (PO Box 12) Bayport MN 55003-1096	Mon-Ray 8224 Olson Memorial Highway Minneapolis MN 55427-4713
H Window Company 1324 East Oakwood Dr. Monticello MN 55362	Overly Door company 575 West Otterman St. (PO Box 70) Greensburg PA 15601-0070
Hess Manufacturing Company Box 127, Route 997 Quincy PA 17247	Peerless Products, Inc. 15500 College Blvd. Suite 750 Lenexa KS 66219
Larson Manufacturing Company 2333 Eastbrook Dr. Brookings SD 57006	Pella Corporation 102 Main street Pella IA 50219-2147
Loewen Windows 600 Lakeview Parkway Vernon Hills IL 60061	Republic Window and Doors 930 West Evergreen Ave. Chicago IL 60622
Marvin Windows & Doors Warroad MN 56763	St. Cloud Window, Inc. PO Box 1577 St. Cloud MN 56302-1577



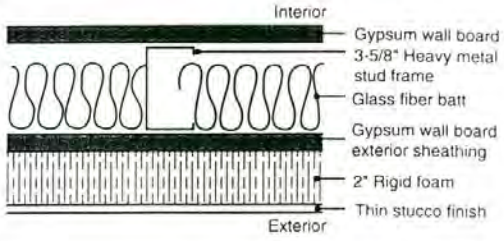
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
67	60	64	66/58

Adjustments

Add one layer GWB to interior side	+2 dB
Delete glass fiber batt	–6 dB
Add loose insulation to block cells	+2 dB
Delete polystyrene insulation	0 dB
Double thickness of exterior masonry	+2 dB

Figure 1.15a



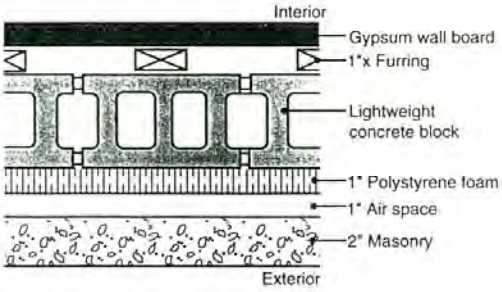
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
49	48	51	52/45

Adjustments

Add one layer GWB to interior side	+5 dB
Delete glass fiber batt	–6 dB
Halve thickness of urethane foam	–3 dB
Double thickness of urethane foam	+1 dB
Add resilient channels between interior GWB and stud	+4 dB

Figure 1.15b



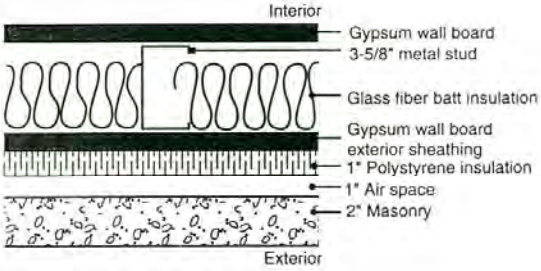
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
58	51	55	57/49

Adjustments

Add one layer GWB to interior side	+2 dB
Replace 1"x furring with 1/2" resilient channels	+3 dB
Delete 1"x furring, adhere GWB to block	–3 dB
Add loose insulation to block cells	+2 dB
Delete polystyrene foam	0 dB
Double thickness of exterior masonry	+2 dB

Figure 1.15c



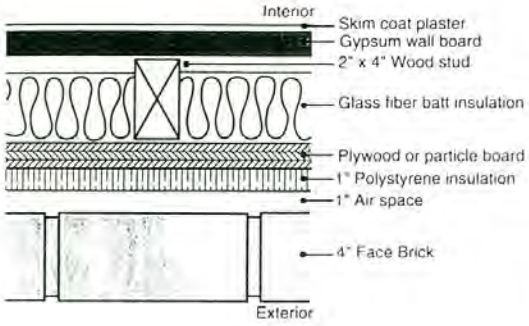
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
52	45	49	51/43

Adjustments

Add one layer GWB to interior side	+2 dB
Delete glass fiber batt	–5 dB
Double masonry thickness	+3 dB
Delete polystyrene insulation	0 dB

Figure 1.15d



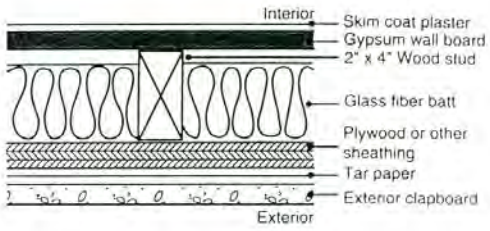
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
54	47	51	53/45

Adjustments

Add resilient channels between interior GWB and stud	+8 dB
Delete polystyrene foam	0 dB
Replace brick with 2" solid masonry	–3 dB
Replace 4" brick with 6" hollow masonry units	–1 dB

Figure 1.15e



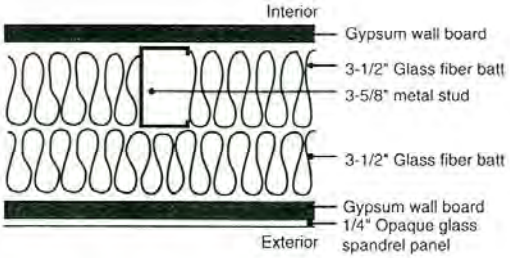
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
40	34	39	41/30

Adjustments

Add resilient channels between interior GWB and stud	+8 dB
Replace tar paper and clapboard with foam insulation and vinyl or aluminum siding	–2 dB
Delete skim coat	–1 dB

Figure 1.15f



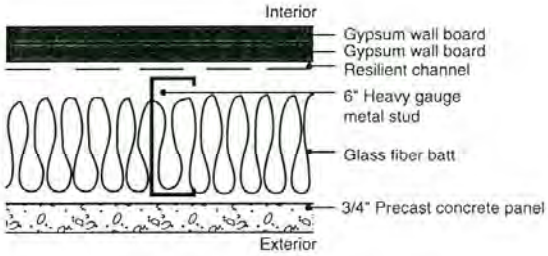
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
55	50	54	55/48

Adjustments

Delete exterior GWB	–3 dB
Delete glass fiber batt	–5 dB
Add interior GWB	+2 dB
Increase glass to 1/2" thickness	+2 dB
Add Saflex® interlayer	+4 dB

Figure 1.15g



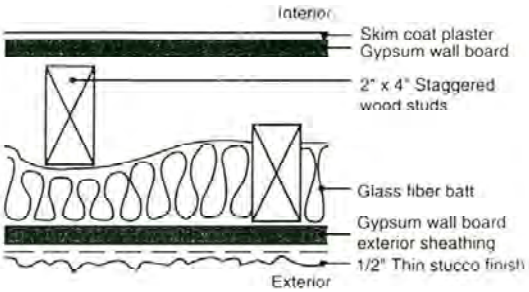
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
63	53	57	58/49

Adjustments

Delete 1 layer GWB	–3 dB
Delete resilient channels	–13 dB
Delete both batt and resilient channels	–15 dB
Delete batt, leave resilient channels in	–8 dB
Double concrete panel thickness	+2 dB

Figure 1.15h



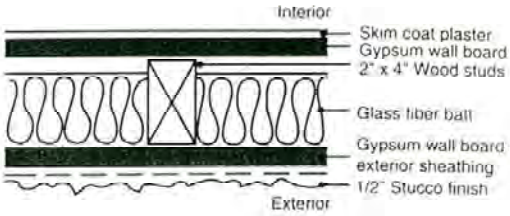
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
53	44	47	48/41

Adjustments

Add resilient channels	0 dB
Add one layer GWB to interior side	+1 dB
Delete exterior GWB sheathing, apply lath and stucco to studs	-5 dB
Substitute equal thickness plywood for GWB	0 dB
Delete glass fiber batt	-6 dB
Change wood studs to metal studs	0 dB

Figure 1.15i



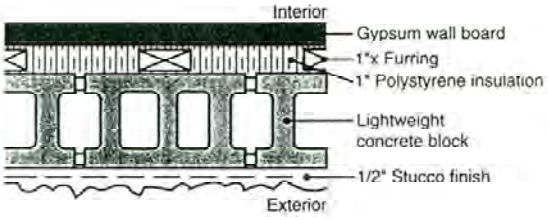
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
40	29	34	36/25

Adjustments

Add one layer GWB to interior	+3 dB
Delete glass fiber batt	-3 dB
Add resilient channels to wood studs with glass fiber in cavity without glass fiber in cavity	 +9 dB +4 dB
Delete exterior GWB sheathing, apply lath and stucco to studs	-5 dB
Substitute equal thickness plywood for GWB	0 dB
Substitute heavy metal studs for wood studs	+5 dB

Figure 1.15j



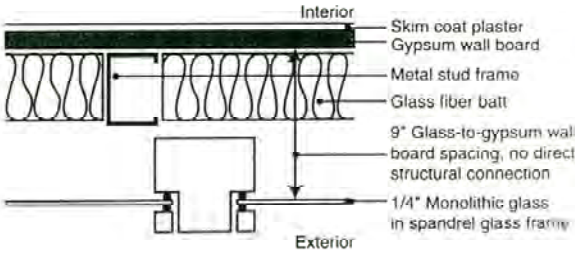
A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
50	48	50	52/46

Adjustments

Add one layer GWB to interior side	+2 dB
Replace 1"x furring with 1/2" resilient channels	+1 dB
Delete 1"x furring, adhere GWB to block	-2 dB
Add loose insulation to block cells	+2 dB
Delete polystyrene insulation	0 dB
Use dense concrete block instead of lightweight	+3 dB

Figure 1.15k



A-Weighted Noise Reduction (dBA)

Estimated STC	Aircraft	Traffic	Rail
50	52	54	53/50

Adjustments

Replace 1/4" monolithic with 1/4" laminated	+4 dB
Increase glass-to-GWB spacing to 12"	+1 dB
Increase glass thickness to 1/2"	+5 dB
Use standard 1" insulating glass in lieu of 1/4" monolithic glass	+1 dB
Add one layer of GWB	+5 dB
Delete skim coat plaster	-1 dB
Delete glass fiber batt	-10 dB

Figure 1.15l

NOTE:

Find the exterior wall construction that most closely resembles that designed.

Use the adjustments to account for differences between actual exterior wall construction and those shown in this figure.

Adjustments are applicable to estimated STC and OITC ratings and R_ws, and to aircraft, traffic and rail noise reductions.

Two noise reduction values are provided for rail transportation noise sources. The first is for rolling stock, electric self-propelled vehicles and non-diesel locomotive trains. The second is for diesel powered locomotive trains.

Laboratory Measured STC and OITC Ratings and RW for Various Glass Configurations

TEST NO.[1]	Nominal Thickness (Configuration)	STC	OITC[2]	Rw	U-Value[3] Summer	Winter
Monolithic						
TL 85-169	1/4"	31	29	32	1.01	1.08
TL 85-198	1/2"	36	33	37	.97	1.03
Laminated						
TL 85-218	1/4" (Lami - 0.030" - Lami.)	35	31	35	1.00	1.06
TL 85-170	1/4" (1/8" - 0.030 - 1/8")	35	31	35	.99	1.05
TL 85-224	1/4" (1/8" -0.060 - 1/8")	35	31	35	.97	1.03
TL-85-234	1/4" (1/8" -0.045"- 1/8")	35	32	35	.98	1.04
TL 85-200	3/8" (3/16" 0.030 3/16")	36	31	36	.97	1.03
TL 85-229	3/8" (1/4" 0.030 1/8")	36	33	36	.97	1.03
TL 85-223	3/8" (1/4" 0.060 1/8")	37	33	37	.95	1.00
TL 85-225	1/2" (1/4" 0.030" 1/4")	38	34	38	.95	1.01
TL 85-232	1/2" (1/4" 0.045" 1/4")	38	34	38	.94	.99
TL 85-228	1/2" (1/4" 0.060" 1/4")	39	34	39	.93	.98
TL 85-222	5/8" (3/8" 0.030" 1/4")	40	36	40	.93	.99
TL 85-230	3/4" (1/2" 0.060" 1/4")	41	36	41	.90	.95
Insulating[4,5]						
TL 85-212	1/2" (1/8" 1/4"AS 1/8") (sealed)	28	26	30	.62	.57
TL 85-213	5/8" (1/8" 3/8"AS 1/8") (sealed)	31	26	32	.57	.52
TL 85-294	1" (1/4" ½"AS 3/16") (sealed)	35	28	35	.54	.48
TL 85-215	1-3/8" (3/16" 1"AS 3/16") (sealed)	35	27	37	.54	.48
TL 85-293	1-1/2" (1/4" 1"AS 1/4") (unsealed)	37	30	37	.52	.48
TL 85-216	4-3/8" (3/16" 4"AS 3/16") (unsealed)	44	35	44	.52	.48
Laminated Insulating[4,5,6]						
TL 95-296	5/8" (1/8" 0.030" 1/8" 1/4"AS 1/8") (sealed)	35	31	35	.61	.56
TL 85-189	13/16" (1/8" 0.030" 1/8" 3/8" AS 3/16") (sealed)	37	31	37	.55	.50
TL 85-238	15/16" (1/8" 0.030" 1/8" 1/2"AS 3/16") (sealed)	39	31	39	.53	.48
TL 85-235	1" (1/8" 0.030" 1/2" 1/2"AS 1/4") (sealed)	39	31	39	.53	.48
TL 85-192	1-1/8" (1/8" 0.030" 1/4" 1/2"AS 1/4") (sealed)	40	31	40	.53	.47
TL 85-239	1-7/16" (1/8" 0.030" 1/8" 1"AS 3/16") (unsealed)	42	33	42	.51	.48
TL 85-173	2-7/16" (1/8" 0.030" 1/8" 2"AS 3/16") (unsealed)	45	35	45	.51	.48
TL 85-194	2-11/16" (1/4" 0.030" 1/4" 2"AS 3/16") (unsealed)	46	38	46	.50	.47
TL 85-196	2-7/8" (1/4" 0.030" 1/4" 2"AS 3/8") (unsealed)	46	42	47	.49	.46
TL 95-298	1-11/16" (1/4" 0.030" 1/4" 1"AS 3/16") (unsealed)	47	36	47	.52	.47
TL 85-174	4-7/16" (1/8" 0.030" 1/8" 4"AS 3/16") (unsealed)	48	39	48	.51	.48
TL 85-195	4-11/16" (1/4" 0.030" 1/4" 4"AS 3/16") (unsealed)	49	41	49	.50	.47
TL 85-197	4-7/8" (1/4" 0.030" 1/4" 4"AS 3/8") (unsealed)	49	44	50	.49	.46
TL 85-240	4-7/8" (1/2" 0.030" 1/4" 4"AS 1/8") (unsealed)	49	40	49	.49	.46
Double Laminated Insulating[4,5,6]						
TL 85-172	1-1/16" (1/8" 0.030" - 1/8" – 1/2"AS - 1/8" 0.030" - 1/8") (sealed)	42	33	42	.52	.47
TL 95-299	1-9/16" (1/8" 0.030" - 1/8" – 1" AS - 1/8" 0.030" 1/8") (unsealed)	46	37	46	.52	.47
TL 85-236	1-13/16" (1/4" 0.030 - 1/4" 1"AS 1/8" 0.060 1/8") (unsealed)	46	34	46	.49	.46
TL 85-221	5-1/16" (1/4" 0.060 1/4" 4"AS 1/4" 0.030 1/4") (unsealed)	50	42	50	.48	.45
TL 85-220	5-5/16" (1/2" 0.060" 1/4" 4"AS 1/4" 0.030 1/4") (unsealed)	50	42	50	.47	.44
TL 85-237	4-13/16" (1/4" 0.030 1/4" 4"AS 1/8" 0.060" 1/8") (unsealed)	51	44	51	.49	.46
TL 95-301A	4-9/16" (1/8" 0.030" 1/8" 4"AS 1/8" 0.030 1/8") (unsealed)	52	38	51	.51	.47
TL 95-302	4-13/16" (1/8" 0.030" 1/8" 4"AS 1/4" 0.060 1/4") (unsealed)	53	45	53	.49	.46
Triple Glazing[4,6,7]						
TL 95-294	1-3/4" (1/4" - 1/2" AS - 1/4" - 1/2" AS - 1/4") (sealed)	39	31	39	.37	.31
TL 95-295	1-9/16" (1/4" Lam-1/2" AS – 1/4" Lam - 1/2" AS - 1/4" Lam)(unsealed)	44	33	44	.36	.30
TL 95-297	2-1/4" (1/4" - 1" AS - 1/4" - 1/2" AS - 1/4") (unsealed)	46	37	47	.36	.30
TL 95-300	2-5/16" (1/4" Lam - 1" AS - 1/4" Lam - 1/2" AS - 1/4" Lam) (unsealed)	49	39	49	.35	.30

NOTE: The data and information set forth are based on samples tested and are not guaranteed for all samples or applications. Riverbank Acoustical Laboratories.

[1] RAL TL85 & TL95 sound transmission loss tests are in accordance with ASTM E90. STC ratings have been determined from TL data using ASTM E413. (See Section 3 for actual TL data.)

[2] Estimated. Computation based on a one-third octave band TL at 80 Hz (which was not measured in a laboratory) that is equal to the 100 Hz one-third octave band TL minus 2dB.

[3] The overall heat transfer coefficient in BTU/hr/sq ft/degree Fahrenheit.

[4] AS = air space.

[5] Unsealed configurations are individual glass panels separated by wood stops and caulked into the laboratory test opening using glazing putty.

[6] 0.030", 0.060" - Salfex interlayer thickness.

[7] The second and third glass panels of the triple glass configurations tested are sealed insulating glass units. After sealed IG units were installed into the laboratory test opening, the first glass panel and wood spacers were used to complete the triple glass configurations.

APPENDIX C
MODEL NOISE ATTENUATION ORDINANCE

BACKGROUND

The Model Noise Attenuation Ordinance was prepared to assist communities in implementing the Land-Use Compatibility Guidelines for Aircraft Noise. These guidelines are contained in Appendix H of the *Transportation Policy Plan* and replace those in the 1996 *Aviation Policy Plan*. The guidelines are used by the Metropolitan Council to review local comprehensive plans and development proposals.

The model ordinance reflects the Metropolitan Area Aircraft Noise Attenuation Act as enacted by the Minnesota Legislature in 1987. This enabling law allows communities to establish aircraft overlay zoning and local building codes stricter than the state uniform building code (MS 473.192). The model ordinance provides for:

- Finds that aircraft noise is a problem for the city and its citizens;
- Establishes aircraft noise overlay zoning districts;
- Identifies exterior noise levels and interior noise performance standards;
- Identifies compatible/incompatible land uses;
- Establishes structure acoustical requirements; and,
- Defines process for inspection and enforcement.

MODEL ORDINANCE

Ordinance _____

An ordinance promoting the health, safety and general welfare of the citizens of [insert name of affected local governmental unit], Minnesota, by amending the zoning ordinance and code and by adopting new sections, requiring compliance with noise reduction standards in building construction.

Section 1 - Statutory Authority

This ordinance is adopted pursuant to MS 473.192 (Supp. 1987), "Metropolitan Area Aircraft Noise Attenuation Act".

Section 2 - Findings of Fact

The City of [insert name of affected local governmental unit] finds that development within certain areas of the city is impacted by aircraft noise; that said noise is beyond the regulatory authority of the city to control; that certain uses of land are inappropriate in areas of high aircraft noise; that some structures do not adequately attenuate aircraft noise resulting in negative impacts on health, safety and welfare of the residents or inhabitants of the structures that, through proper construction methods, the means exist to attenuate aircraft noise to interior levels which alleviate such negative impacts; and that the requirements of this ordinance are necessary to promote and preserve the health, safety and welfare of the citizens of [insert name of local unit of government].

Section 3 - Purpose

The purpose of this ordinance is to require that new or redeveloped buildings within the City of [insert name of local governmental unit] be constructed with materials and in such a manner that aircraft noise is attenuated by the structure to an interior level which has no adverse impact on the health, safety and general welfare of the residents, all in accordance with the Metropolitan Council's Guidelines for Land-Use Compatibility with Aircraft Noise. These guidelines are part of the Transportation Policy Plan of the Metropolitan Development Guide.

Section 4 - Definitions

For purposes of this ordinance the terms defined in this section have the meanings given them in this section.

AIRCRAFT NOISE ZONE - Aircraft Noise Zone means any one of the four zones identified on the maps included under Section 7 and incorporated herein.

DBA - dBA means a unit of sound pressure level weighted by use of the "A" metering characteristics and weighting as specified in the American National Standards Specification for Sound Meters (ANSI S1.4-1983), which is hereby incorporated by reference. DBA is also referred to as an A-weighted decibel.

LDN - LDN means the day-night average level, or the 24-hour equivalent continuous sound time (time-averaged A-weighted sound level) from midnight to midnight, obtained after the addition of 10 dBA to sound levels measured from 10 p.m. to 7 a.m.

LOW-FREQUENCY NOISE - Noise with a frequency of 100 Hz or lower is generally considered low frequency noise, although a number of different metrics are used to represent low-frequency noise levels. This noise can easily penetrate structures and is not attenuated with normal construction practices. A major effect of low frequency noise is perceived vibration and rattling of items within a structure. Measures for addressing low-frequency noise are being assessed by the Federal Aviation Administration.

NOISE-REDUCTION LEVEL – Noise-reduction level means the difference between the exterior and interior sound level, expressed in dBA, which is achieved by the intervening structure.

RECOGNIZED ACOUSTICAL SPECIALIST - A recognized acoustical specialist means a person qualified by education and experience to conduct sound analysis of buildings and approved for such purpose by the city's building inspector. The approved individual shall have at least three years of experience in the field of sound control; a degree from a recognized institute of higher learning in acoustics or a closely related discipline; demonstrated expertise in the process of sound analysis of buildings.

SOUND - Sound means energy that is transmitted by pressure waves in the air or in other materials and is the objective cause of the sensation of hearing. It is commonly called noise if it is unwanted.

SOUND ATTENUATION - Sound attenuation means the reduction in sound level which occurs between the source and receiver.

SOUND LEAK - Sound leak means an opening in a structure through which sound can pass. Sound leaks are often extremely small holes or cracks. In general, an air leak is a sound leak.

SOUND LEVEL - Sound level means the level of sound pressure measured with a sound level meter and one of its weighting (frequency) networks. When A-weighting is used, the sound level is expressed as dBA.

SOUND TRANSMISSION CLASS (STC) - Sound transmission class means a single-number rating for describing the degree of sound transmission loss specified for a wall, window, partition or other building element. The higher the STC, the more attenuation the building element will afford.

Section 5 - Scope and Effect

The aircraft noise zones established by this ordinance shall overlay the zoning districts established by Ordinance No.____ adopted [insert date] so that any parcel of land lying in an overlay zone shall also lie in one or more of the established zoning districts. Territory within a given overlay zone shall be subject to the requirements established by the other applicable ordinances and regulations of the city. Within each adopted overlay zone, all uses shall be permitted in accordance with the regulations for the underlying zoning districts, provided, however, that the appropriate building permit is first obtained and provided further that no use designated as incompatible on the Noise Compatibility Table, and incorporated herein, shall be permitted.

This ordinance applies to all construction requiring a building permit after the effective date of this ordinance except decks, patios, swimming pools, breezeways and similar outdoor uses and remodeling or rehabilitation of an existing residential building, nor to the construction of an appurtenance to an existing residential building. In case of conflict between this ordinance and any other applicable codes or ordinances, the more restrictive requirement shall be met.

Section 6 - Prerequisites to Issuance of Building or Occupancy Permit

Any application for a City of [insert name of local governmental unit] building or occupancy permit pertaining to land located in an Aircraft Noise Zone must demonstrate compliance with the provisions of this ordinance prior to the issuance of such permit.

Section 7 - Establishment of Zones

The following aircraft noise zones are hereby established as part of the zoning ordinance of [insert name of local governmental unit].

- *Aircraft Noise Zone 1* — *DNL 75+*
- *Aircraft Noise Zone 2* — *DNL 74 - 70*
- *Aircraft Noise Zone 3* — *DNL 69 - 65*
- *Aircraft Noise Zone 4* — *DNL 64 - 60*
- *Noise Buffer Zone** — *1- Statute Mile (for MSP)*
  DNL 60noise contour for areas outside MUSA (for Reliever Airports)

[* Note: Application of a Noise Buffer Zone is at the discretion of the affected community.]

These zones apply to the following airports:
Minneapolis-St. Paul International, St. Paul Downtown, Airlake, Anoka County-Blaine, Crystal, Flying Cloud, Lake Elmo and South St. Paul Municipal airport.

The boundaries of the Aircraft Noise Zones are as delineated on the diagram attached hereto for the following airport(s) [insert name of airport facility].

Section 8 - Noise Compatibility Tables

The noise compatibility table is adapted from the Metropolitan Council's Guidelines for Land-Use Compatibility with Aircraft Noise. The noise reduction level numbers, expressed in dBA, specify for each type of land use the amount of interior sound level reduction necessary for the use to be compatible in the applicable aircraft noise zone.

All construction or reconstruction requiring a building permit and located within an aircraft noise zone (except remodeling or rehabilitation of an existing residential building), shall be constructed in such a way that the applicable noise level reduction requirements contained in the noise compatibility table is met or exceeded. Where a particular structure contains different land uses, the more stringent requirements of the applicable table shall apply, except where it is architecturally possible to achieve the appropriate noise reduction level for each different use, and the uses are acoustically separated by a wall or partition with a minimum STC of 25.

Section 9 - Enforcement

The City of [insert name of local governmental unit] building inspector is authorized to enforce the provisions of this ordinance pursuant to Sections 10 and 11.

Section 10 - Plans and Specifications

A. *All applicants for a building or occupancy permit shall include with the application all plans, specifications or other information required by this ordinance. The plans and specifications shall describe in sufficient detail all pertinent features of the building, building materials, heating and ventilation systems, including but not limited to the STC ratings of roof-ceilings, walls, window, and doors; and other pertinent data as may be requested by the building inspector to indicate conformance with the applicable noise reduction level requirements as specified in the noise compatibility tables. To assure the elimination of sound leaks, the plans and specifications shall demonstrate compliance with the following standards.*

    1. *All mechanical ventilation systems shall be installed that will provide the minimum air circulation and fresh-air supply requirements as provided in the Uniform building Code for the proposed occupancy without the need to open any exterior doors or windows.*
    2. *The perimeter of all exterior windows and door frames shall be sealed airtight to the exterior wall construction.*
    3. *Fireplaces shall be equipped with well-fitted chimney cap devices.*
    4. *All ventilation ducts, except range hoods, connecting interior space to outdoors shall be provided with a bend such that no direct line of sight exists from the exterior to the interior through the vent duct.*
    5. *Doors and windows shall be constructed so that they are close fitting. Weather-stripping seals shall be incorporated to eliminate all edge gaps.*
    6. *All penetrations through exterior walls by pipes, ducts, conduits and the like shall be caulked airtight to the exterior construction.*

    The building inspector may require that plans and specifications be certified by a Recognized Acoustical Specialist for compliance with the ordinance.

B. *Within 30 days of receipt of appropriate plans and specifications, the building inspector shall approve or reject the plans based upon the ability of the proposed materials and construction techniques to adequately attenuate noise. The building inspector shall approve the plans and specifications if:*

1. *They adequately document the use of construction assembly that meet or exceed the STC ratings required by the following table:*

Table __
STC Ratings required for Building Elements

Specified Noise Level Reduction	Required STC Rating Needed for Compliance*			
dBA	Roof-Ceiling	Walls	Windows	Doors
20	40	40	30	20
25	45	45	35	25
30	50	50	40	30
35	55	55	45	35
40	60	60	50	40

*All values -2 STC. The STC laboratory test of construction materials and assemblies must be conducted according to requirements of the American Society of Testing and Materials (ASTM E90 or ASTM E 336); or

2. *They have been certified by a Recognized Acoustical Specialist as achieving the interior noise level reduction required by the applicable portion of the noise compatibility table.*

   In the event that the drawings are rejected, the reasons for such rejections shall be submitted to the applicant in writing. No construction shall occur prior to the approval of appropriate plans and specifications. All construction shall be performed in accordance with the approved plans and specifications. Construction done in accordance with the approved plans and specifications as determined by the building inspector shall be deemed to meet the noise attenuation requirements of this ordinance.

Section 11 - Inspections

A. *All construction work for which a building permit is required shall be subject to inspection by the building inspector. Inspection of noise attenuation work shall be performed during the required building inspections specified by the City of [insert name of local governmental unit] building code.*

B. *Field Testing. When inspection indicates that the construction is not in accordance with the approved plans, the building inspector may order such corrective action as may be necessary to meet the noise attenuation requirements of this ordinance. In lieu of performing such corrective action, a building owner may submit a test report based upon field tests showing compliance with the noise reduction level requirements contained in the applicable noise compatibility table. The field test shall be performed in accordance with the American Society for Testing Materials (ASTM) Standard E 336-07 Part A.1.2.2. Outside to Inside (Level reduction).*

Section 12 - Fees

The building inspector is authorized to collect fees to cover administrative and enforcement costs. This fee shall be $ _____ .

Section 13 - Severability

If any part of this ordinance is held to be unconstitutional or otherwise illegal, the remainder of this ordinance shall remain in force and effect as if such unenforceable provision had not been included herein.

APPENDIX D
APPLICATION OF THE NOISE BUFFER ZONE

Use of a buffer zone is encouraged; but it is a voluntary effort, and implementation is at the discretion of the affected community. The rational and specific noise designation of each land-use category in the noise buffer zone is described below for guidance in application by the affected community.

MSP BUFFER ZONE

The Aviation Element of the *Transportation Policy Plan* includes a noise policy area designation for the noise contours established at MSP International Airport. The noise policy area includes the [mitigated] 2007 noise exposure map prepared in the FAR Part 150 noise program that has been submitted for FAA review/approval. The noise buffer zone is described as extending one statute mile beyond the noise zone 4 (DNL 60-64) contour line.

RELIEVER AIRPORTS BUFFER ZONE

The buffer zone at the general aviation reliever airports is defined as the DNL 60 noise contour area that falls outside the metropolitan urban service area boundary. Application of the buffer zone is at the discretion of the affected community.

APPLICATION

The land-use compatibility table identifies uses for each noise exposure zone as INCO, COND, PROV, and COMPS. These land-use designations are linked to descending noise levels from Noise Zone 1 to Noise Zone 4. To extend Noise Zone 4 into the buffer zone, the acoustic gradations link needs to be maintained. Thus, for any particular land use in Noise Zone 4, the corresponding designation for the buffer zone would be the next lowest designation. For example, if a land use in Noise Zone 4 is designated as COND, that use in the buffer zone would be designated as PROV.

Under the Model Noise Ordinance (Section 5), it states:

> Territory within a given [noise] overlay zone shall be subject to the requirements established by the other applicable ordinances and regulations of the city. Within each adopted overlay zone, all uses shall be permitted in accordance with the regulations for the underlying zoning districts; provided, that the appropriate building permit is first obtained and provided further that no use designated as inconsistent [INCO] on the Noise Compatibility Table, and incorporated herein, shall be permitted. This ordinance applies to all construction requiring a building permit after the effective date of this ordinance except decks, patios, swimming pools, breezeways and similar outdoor uses and remodeling or rehabilitation of an existing residential building, nor to appurtenance to an existing residential building. In the case of conflict between this ordinance and any other applicable codes or ordinances, the more restrictive requirement shall be met. [Underline added.]

The term "additions" applies to extensions or expansion of the homes foundation footprint, including indoor occupancy and use. The footnote for Table 4 in Appendix H of the 2004 *Transportation Policy Plan* also states, "These performance standards do not apply to

buildings, accessory buildings or portions of buildings that are not normally occupied by people. The term "appurtenance" is defined as "the visible, functional or ornamental objects accessory to and part of a building" (*Planners Dictionary,* American Planning Association, PAS Report No. 521/522).

REVIEW PROCESS

In review of community comprehensive plan updates or amendments, the Council has requested that it be notified if the city has officially adopted a noise buffer zone. If so, the noise zones and buffer area should be included in the comprehensive plan and reflected in local codes/ordinances.

In general, the review of COND projects within the buffer zone would be accomplished by the city; and the Council would review COND projects located within Noise Zones 1 through 4. Within these zones, any land use [project] defined as COND under the compatibility guidelines and that is identified by the city as a PUD or requires a different designation would be processed like a comprehensive plan amendment.

APPENDIX E
AIRPORTS: NOISE POLICY AREA MAPS

Noise contours for MSP International Airport were prepared in the FAR PART 150 noise compatibility program update. This program has been submitted to the Federal Aviation Administration for review and approval. At the other regional airports the contours have been prepared as part of the long-term comprehensive plan (LTCP) and environmental evaluations. The LTCPs are periodically updated, but not necessarily on the same schedule; therefore, the contour dates will vary.

The Council uses the noise contours primarily for review of local community comprehensive plans and plan amendments to improve overall land-use compatibility. The Metropolitan Airports Commission and other airport owners use the contours primarily to address existing incompatible land uses that require corrective mitigation. They also use the contours in conjunction with Noise Abatement Operations Plans at each airport to address day-to-day operational issues.

These various contours are included in the Council's Regional Transportation Policy Plan as part of the *Land-use Compatibility Guidelines for Aircraft Noise* (Appendix H). These guidelines are applied at all communities located around the regions public airports.

Noise policy contours are in effect until a future update is technically reviewed and adopted. A number of airport LTCPs will be updated in 2006 and 2007. Developers/Builders are encouraged to contact the respective community from which a permit is needed for projects located in or near noise policy areas.

CRYSTAL AIRPORT: NOISE POLICY AREA 2013
The Crystal Airport aircraft noise contours were last prepared in 1993 based upon a 2013 planning horizon. The Metropolitan Airports Commission will be updating the airports Long-Term Comprehensive Plan in 2006 and it is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

AIRLAKE AIRPORT: NOISE POLICY AREA 2015
The Airlake Airport aircraft noise contours were last prepared in 1995 based upon a 2015 planning horizon. The Metropolitan Airports Commission will be updating the airport's Long-Term Comprehensive Plan (LTCP) in 2006 and it is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

LAKE ELMO AIRPORT: NOISE POLICY AREA 2010

The Lake Elmo Airport aircraft noise contours were last prepared with a 1989 base year and a 2010 planning Horizon. The Metropolitan Airports Commission will be updating the airport's Long-Term Comprehensive Plan (LTCP) in 2006 and it is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

ST. PAUL DOWNTOWN AIRPORT: NOISE POLICY AREA 2020

The St. Paul Downtown Airport aircraft noise contours were last prepared in 1998 based upon a 2020 planning horizon. The Metropolitan Airports Commission expects to be updating the airport's Long-term Comprehensive Plan (LTCP) by 2007 and it is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

ANOKA COUNTY – BLAINE AIRPORT: NOISE POLICY AREA 2015

The Anoka County-Blaine Airport aircraft noise contours were last prepared in 1995 based upon a 2015 planning horizon. The Metropolitan Airports Commission expects to be updating the airport's Long-term Comprehensive Plan (LTCP) by 2007 and it is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

FLYING CLOUD AIRPORT: NOISE POLICY AREA 2010

The Flying Cloud Airport aircraft noise contours were last prepared in 1999 based upon a 2010 planning horizon. The Metropolitan Airports Commission expects to be updating the airport's Long-term Comprehensive Plan (LTCP) by 2007 and it is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

SOUTH ST. PAUL AIRPORT: NOISE POLICY AREA 1982

The South St. Paul Airport aircraft noise contours were last prepared in 1977 based upon an assumed noise peaking planning horizon by 1982. The City of South St. Paul will be updating its 1998 community comprehensive plan and the 2002 airport layout plan (ALP) by 2008; It is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

FOREST LAKE AIRPORT: NOISE POLICY AREA

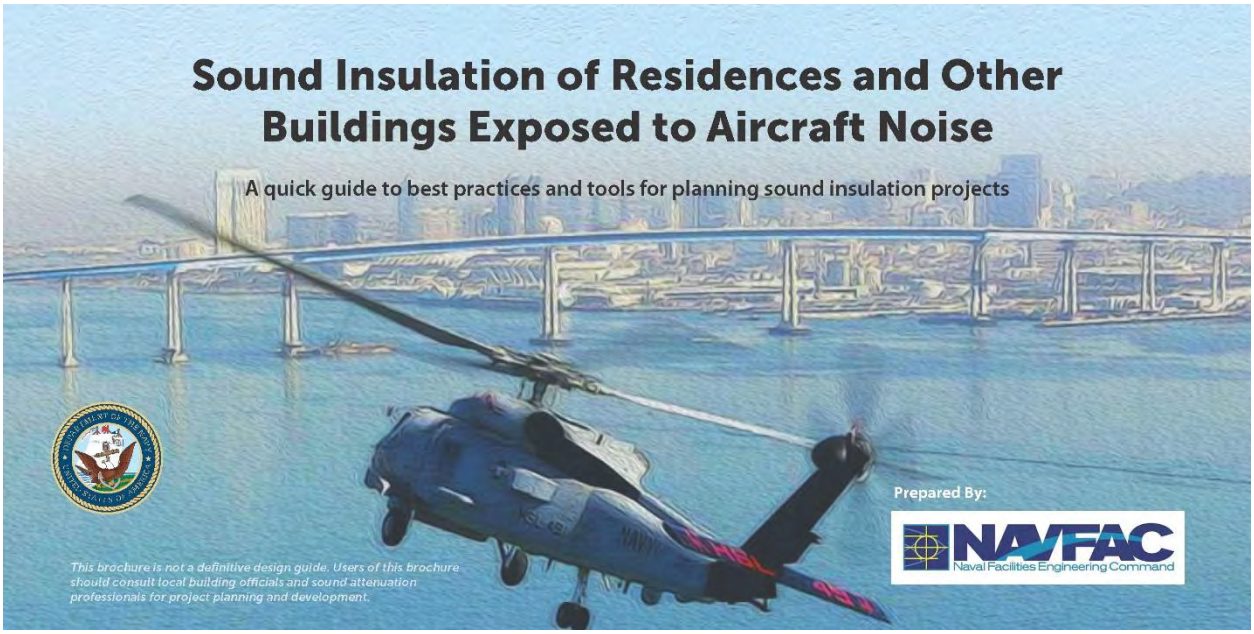
The Forest Lake Airport is a low-activity airfield that has transitioned from a private to a public owned facility. The City will be updating its community comprehensive plan and expected to prepare an airport LTCP by 2008. It is anticipated that new aircraft noise information will be prepared. Update of the *Transportation Policy Plan* and *Builder's Guide* will be made as appropriate for the noise policy area.

Table 5
Typical Land Use By Standard Land-use Coding Manual Codes (SLUCM)

Type of Land Use	Code Numbers and Specific Uses	
Residential		
- Single/Multiplex with Individual Entrance		
	11	Household units
	11.11	Single units - detached
	11.12	Single units - semi detached
	11.13	Single units - attached row
	11.21	Two units - side-by-side
	11.22	Two units - one above the other
- Multiplex/Apartment with Shared Entrance		
	11.31	Apartments - walk-up
	11.32	Apartments - elevator
	12	Group quarters
	13	Residential hotels
	14	Mobile home parks or courts
- Educational and Medical, Schools, Churches, Nursing Homes		
	65.1	Hospital
	68	Nursing homes
Educational Services	69.1	Religious activities
	71	Cultural activities (including churches)
Cultural, Entertainment, Recreational		
- Indoor	72	Public assembly
	72.1	Auditoriums, concert halls
	74	Recreational activities (golf courses, riding stables, water recreation)
- Outdoor		
	75	Resorts and group camps
	76	Parks
Office, Commercial, Retail Services	52	Retail trade - building materials, hardware and farm equipment
	53	Retail trade - general merchandise
	54	Retail trade - food
	55	Retail trade - automotive, marine craft, aircraft and accessories
	56	Retail trade - apparel and accessories
	57	Retail trade - furniture, home furnishings, and equipment
	58	Retail trade - eating and drinking establishments
	59	Other retail trade
Transportation Passenger Facilities	15	Transportation, communication and utilities
Transient Lodging	60	Transient lodging
Other Medical, Health, Educational Services	61	
	62	Services
	63	Finance, insurance and real estate services
	64	Personal services
	65	Business services
	35	Repair services
		Professional services
		Professional, scientific and controlling instruments; photographic and optical goods; watches and clocks manufacturing

Sound Insulation of Residences and Other Buildings Exposed to Aircraft Noise

A quick guide to best practices and tools for planning sound insulation projects



This brochure is not a definitive design guide. Users of this brochure should consult local building officials and sound attenuation professionals for project planning and development.

Prepared By:

NAVFAC
Naval Facilities Engineering Command

NAVFAC
Naval Facilities Engineering Command

For More Information

To obtain a free copy of the Sound Insulation Estimator, contact your Naval Air Installation Community Planning and Liaison Officer (CPLO) below:

February 2018

Compatible Land Use and Sound Insulation

Through the Air Installations Compatible Use Zones (AICUZ) Program, the Department of Defense (DoD) works with neighboring communities to promote land use and development that are compatible with aircraft operations. The AICUZ Program recommends sound insulation of residences and other structures with noise sensitive uses when located within areas of high noise levels near an airfield.

Structures located near military airfields and civilian airports are exposed to aircraft noise that can interfere with people's regular indoor activities. Sound can enter a structure through exterior elements, including walls, roofs, doors, windows, range exhaust ducts, and chimneys. Using proven construction techniques and materials in structures can reduce interior noise to levels that most people would find acceptable. While sound insulation does not guarantee sound elimination, indoor noise levels can be reduced by using proper renovation and construction techniques.

Reducing the level of aircraft noise experienced by occupants of residential and non-residential structures is known by a variety of terms. For consistency, the term "sound insulation" is used throughout this brochure. Sound insulation is defined as reducing the sound level inside a building through the use of specific building construction materials, methods, and component assemblies that provide noise reduction.

Aircraft Noise and Noise Exposure Contours

Aircraft noise levels are measured in A-weighted decibels (dBA), which represent the acoustic energy of sound vibrations expressed in terms of sound pressure. For brevity, the measurements are often expressed as "dB."

Aircraft noise exposure in a community is portrayed using noise contour maps. Noise contour maps can be found within an AICUZ Study. The contour maps are produced by DoD noise models and define areas of average noise levels around military airfields.

The acoustic metric used for noise contour maps is the Day-Night Average Sound Level (DNL); the Community Noise Equivalent Level (CNEL) is used in the state of California. The DNL/CNEL is a cumulative measure of community noise exposure and results from averaging the A-weighted sound pressure level over 24 hours for aircraft operations taking place on an average day. For air installation noise contours, the average day is determined by analyzing flight activity over the period of one full year. The DNL/CNEL gives an indication of the year-round average noise exposure for a community.

The DoD, through the AICUZ Program, recommends compatible land use in areas with a noise exposure level of 65 dB DNL/CNEL and higher. A military airfield's AICUZ Study provides noise contour maps and compatible use recommendations to neighboring communities for planning and zoning and proposed development in the noise contours.

Noise contours are lines or "footprints" of noise levels drawn around a noise source.

Aircraft noise levels are depicted visually as noise contour lines that connect points of equal DNL/CNEL value. AICUZ noise contour maps typically depict contour levels of 65 dB DNL/CNEL and above in 5 dB increments.

Noise Level Reduction (NLR)

By reducing interior noise levels through sound insulation, aircraft noise is less likely to interfere with daily activities, such as talking on the phone, watching TV, or sleeping.

The first step in determining a noise level reduction (NLR) goal is to determine the exterior noise level, typically by finding where the structure is located relative to an AICUZ map of DNL/CNEL contours.

The second step in determining an NLR goal is to establish a desired interior noise level. The DoD AICUZ Program recommends that NLR be at least 25 dB for noise sensitive uses located between the 65 and 70 dB DNL/CNEL noise contours and at least 30 dB for noise sensitive uses located between the 70 and 75 dB DNL/CNEL noise contours. These NLRs would be equivalent to achieving indoor noise levels of less than 45 dB DNL/CNEL.

The final step in determining an NLR goal is to subtract the desired interior noise level from the highest exterior DNL/CNEL value.

Noise Level Reduction (NLR) | **Exterior Day-Night Average Sound Level (DNL/CNEL)** | **Interior Day-Night Average Sound Level (DNL/CNEL)**

Sound travels from the exterior to the interior of a building by penetrating the building perimeter through the building's solid structural elements or via openings. Openings in the building (which provide air infiltration paths through windows, vents, and gaps) allow sound to travel directly into the building's interior. Basically, any place that air enters a home, sound will also enter.

Best Practices and Tools for Sound Insulation Planning

Sound Insulation Estimator

Construction varies throughout the country. Sound insulation costs depend on the particular type of construction and structural renovations, the selected indoor noise level reduction goal, and choice of building materials. The Naval Facilities Engineering Command (NAVFAC) has updated the Sound Insulation Estimator CD, the supplement to the 2005 Guidelines for Sound Insulation of Residences Exposed to Aircraft Operations, to enable users to input the style of room construction and determine the recommended scope and approximate cost of sound insulation. To obtain a free copy of the program, contact the nearest Naval Air Installation point-of-contact (POC) or other POC listed on the back of this brochure.

Best Practices for Sound Insulation Planning:

- **Construction Materials** - Understand how to use Sound Transmission Class (STC) ratings to evaluate construction methods and materials. Two different construction methods or components may have identical STC ratings and yet may block aircraft noise differently because of their response to different sound frequencies.
- **Room Characteristics** - Evaluate the sound absorption characteristics of the room finishes and furnishings. Rooms with soft surfaces such as carpeted floors, long curtains, and upholstered furniture, contribute to a lower interior noise level compared with a room with hard surfaces, such as cabinets and hard floor covering.
- **Construction Methods** - Combine building elements for a balanced design. The acoustical performance depends on the combined performances of each of the elements. If any of the components has poor insulation properties then the overall performance can be weakened. As a rule of thumb, if a weaker element will be included in the design, its size should be kept to a minimum.
- **Cost** - Consider the costs and construction requirements for the sound insulation project. Some sound insulation treatments can be inexpensive and implemented by the homeowner, while others are larger in scale, more expensive, and most likely would be completed by a professional.

How Sound Gets In & Sound Insulation Techniques:

Walls, Ceilings, Attics and Roofs

- Add mass to walls and ceilings, insulate wall panel elements, or add absorptive materials between studs and joists. The ceilings of top-floor rooms may need to be modified to provide increased noise protection.
- Consider using brick and concrete block walls, which generally need little to no modifications. Sided wood-framed walls and some stucco wood-framed walls require improvements in higher noise zones.
- The use of cathedral ceilings is strongly discouraged for homes exposed to aircraft noise. Attics provide a more efficient noise buffer than cathedral ceilings or flat built-up roofs.
- Roof improvements could include baffles in the attic vents, extra insulation to absorb sound reverberating in the attic space, and an upgraded roof deck.

Windows and Doors

- Improve the acoustical performance of exterior windows to lower the overall sound transmission into the structure. Design modification options include using thicker glass and wider airspaces between the panes of glass. Specialized acoustical windows provide maximum sound insulation and should be used in the loudest environments. The two most common types of acoustical windows are a double-pane window with a storm unit attached or an assembly of two single- or double-pane windows connected.
- Consider the door composition, door weight, presence/type of fixed window panels, and quality of seals and weather stripping. Also consider how tightly they seal when evaluating doors for sound insulation. Solid core or heavy doors provide better sound insulation than hollow or lightweight doors.

Gaps and Cracks (Openings)

- Seal gaps and cracks. Use weather-stripping. Implementing good weatherization techniques and caulking around window and door openings is crucial to effective sound insulation.
- Reduce the number of openings on exterior walls and roofs. Put baffles on open-air vents.

Energy Efficiencies and Additional Resources

Sound insulation efforts are in line with the general market trend toward better performing buildings. While sound insulation projects are not, by design, energy efficiency projects, minimizing sound transmission through the building exterior can also improve a building's energy performance. Efficiency opportunities for sound insulation treatments include using energy-efficient products, lowering energy usage for ventilation systems, and minimizing air infiltration.

The U.S. Department of Energy recommends that a residential remodeling project begin with a home energy assessment or home energy audit. Both federal and local government agencies offer financial incentives to the property owner to increase energy efficiency. Incentives can range from personal, property sales, and corporate tax credits, to rebates, grants, and loans.

Energy Efficiency Resources:

Energy Star
www.energystar.gov

U.S. Department of Energy
www.energy.gov/eere/wipo/weatherization-assistance-program

LEED
www.usgbc.org/LEED

Content for this brochure was derived from a variety of sources, including:

- Guidelines for Sound Insulation of Residences Exposed to Aircraft Operations, NAVFAC 2005
  Includes a supplemental computer program, Sound Insulation Estimator, which enables the user to input the style of room construction and determine the recommended scope and approximate cost of sound insulation. NAVFAC updated this cost estimator in 2017 in conjunction with this brochure.
- Airport Cooperative Research Program (ACRP), Report No. 89: Guidelines for Airport Sound Insulation Programs, 2013
- Office of the Chief of Naval Operations Instruction (OPNAVINST 11010.36C) "Air Installations Compatible Use Zones Program," dated October 9, 2008

Appendix H

Arkansas Realtors Association Real Estate Disclosure Change Form & Voluntary Landlord Disclosure Provision

ARKANSAS REALTORS® ASSOCIATION
11224 EXECUTIVE CENTER DRIVE, LITTLE ROCK, AR 72211

2024 CHANGE REQUEST

The Risk Reduction Committee of the Arkansas REALTORS® Association welcomes suggestions from members for changes to be considered for the 2024 edition of the ARA Real Estate Forms with **YOUR PRINCIPAL or EXECUTIVE BROKER SIGNING OFF** on your suggestion. Please **complete and save** the following form along with YOUR signature (through eSign) and your PRINCIPAL or EXECUTIVE BROKER'S signature (through eSign) and **email (through eSign) to** ladonna@arkansasrealtors.com no later than March 31, 2023, **please do not fax** as this data needs to be in electronic format. **Due to time constraints, the Risk Reduction Committee cannot consider suggestions for 2024 forms that are received after March 31, 2023.** PLEASE USE ESIGN SESSIONS TO SEND TO ALL PARTIES INCLUDING ARA

Proposed Change in CURRENT Form:

Current Form Name: Seller Property Disclosure **Paragraph #** New Question

(PLEASE USE ONE REQUEST FORM PER FORM AND/OR PARAGRAPH)

Recommendation (Suggested language to either add to or replace current language):

Is the property located within five (5) miles of the boundary of Little Rock Air Force Base, Camp Robinson, Blackjack Drop Zone, Fort Smith, Fort Chaffee Training Center, or Pine Bluff Arsenal?

ALL INFORMATION ON THIS PAGE IS REQUIRED PLEASE USE ESIGN SESSIONS TO SEND TO ALL PARTIES INCLUDING ARA

Rationale PLEASE NOTE: No suggestions can be accepted without full Rationale

FOR A CHANGE IN A CURRENT FORM: List in detail what problem(s) you have incurred with the form or your idea for its improvement, you must include a reason you recommend this change

Recent "compatible use studies," which are conducted at military installations nationwide, including in Arkansas and are funded largely by the Department of Defense, have consistently recommend that property disclosures include notice of military operations in the vicinity of the property for sale. The goal is to ensure properties meet purchaser expectations, reduce potential complaints related to military operations, and therefore, increase the sustainability of the military's ongoing presence in the area over the long-term.

In FY 2020, the economic impact of Little Rock Air Force Base alone was over $1.1 billion. The defense industry – in addition to the aerospace sector – plays an enormous role in the Arkansas economy and jobs outlook, particularly as the economy continues to change to meet current day demands and practices.

The 2021 Little Rock Air Force Base Compatible Use Study (CUS), which was developed by a steering committee of military, government, and private sector stakeholders in the region, included among its "high priority" recommendations that the real estate industry consider revising its disclosure form by making the simple revision of adding the paragraph proposed above. The CUS committee believed – as we do – that this revision will not negatively impact the selling experience and, in fact, will improve customer satisfaction and strengthen the economies of local military communities in Arkansas over the long-run.

The name of the Agent making the suggestion must be filled out and your PRINCIPAL or EXECUTIVE BROKER must sign off on the suggestion as well. This procedure ensures and encourages proper office communication and understanding by the agent of office policy as set forth by the Broker of a firm. This information is held in confidence by the Chairman and is not released without specific permission. **PLEASE USE ESIGN SESSIONS TO SEND TO ALL PARTIES INCLUDING ARA**

Firm Name: RE/MAX Homefinders Realty

City Jacksonville Office Phone: 501-982-2159

Agent's Name: Richard White

Agent's License Number: EB00053990

Agent's Signature: Richard D White

Agent's Email Address: richdwhite@aol.com

Agent's Cell Phone Number: 501-960-0344

Principal/Executive Broker's Name: Richard White

Principal/Executive Broker's License Number: EB00053990

Principal/Executive Broker's Signature: Richard D White

Principal/Executive Broker's Email Address: richdwhite@aol.com

Principal/Executive Broker's Cell Phone Number: 501-960-0344

The Risk Reduction Committee thanks all contributors for their suggestions. Our goal is to protect Buyers, Sellers and Brokers/Agents in real estate transactions.

Andy Meyers

2023 Chairman, Risk Reduction Committee

DISCLOSURE OF INFORMATION REGARDING POSSIBLE MILITARY OPERATIONS NEAR THE PROPERTY

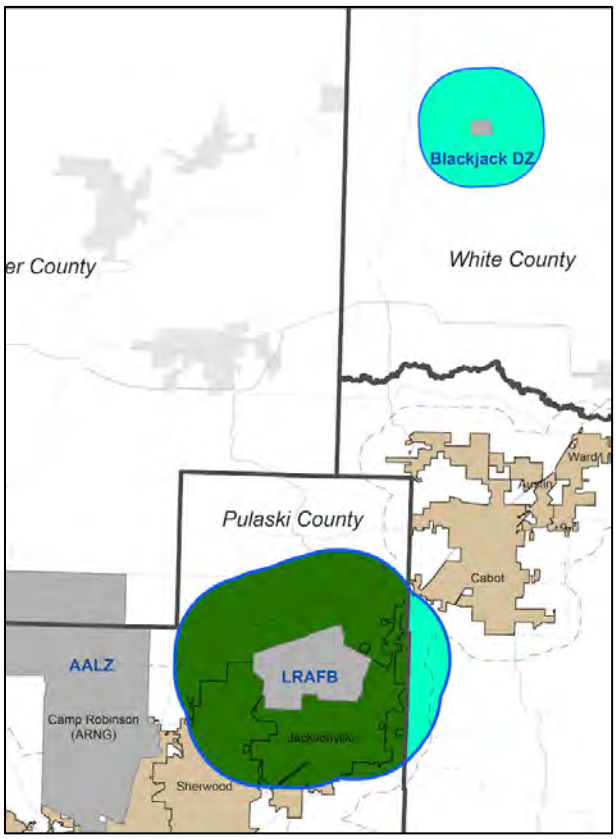
Arkansas has been the proud host of a number of key military installations for decades in our state. These installations are not only important to the state's well-being, but also serve a critical role in the defense of our nation. Property owners and occupants may sometimes experience noise, vibration, or other aspects of these important missions.

This disclosure form/addendum is provided to ensure tenant awareness of whether such military operations may occur near the property or may affect the leased property.

Lessor's Disclosure

The Property subject to this Lease is located in whole or in part within three (3) miles of Little Rock Air Force Base or within two (2) miles of Blackjack Drop Zone, as shown in the Figure below.

_____ No
_____ Yes



Lessee's Acknowledgment (initial)

_____ Lessee acknowledges above Lessor's Disclosure regarding the potential effects of Military Training and Operations in proximity to the Property.

_____ Lessee acknowledges that additional information may be available from the city or county agency with authority over land use and permitting on the Property, as well as Little Rock Air Force Base or the LRAFB Regional Planning Committee, and that further relevant information may be provided by these agencies at Lessee's request.

Certification of Accuracy

The following parties have reviewed the information above and certify, to the best of their knowledge, that the information they have provided is true and accurate.

Lessee

_____

Signature Date

_____

Printed Name

Lessor

_____

Signature Date

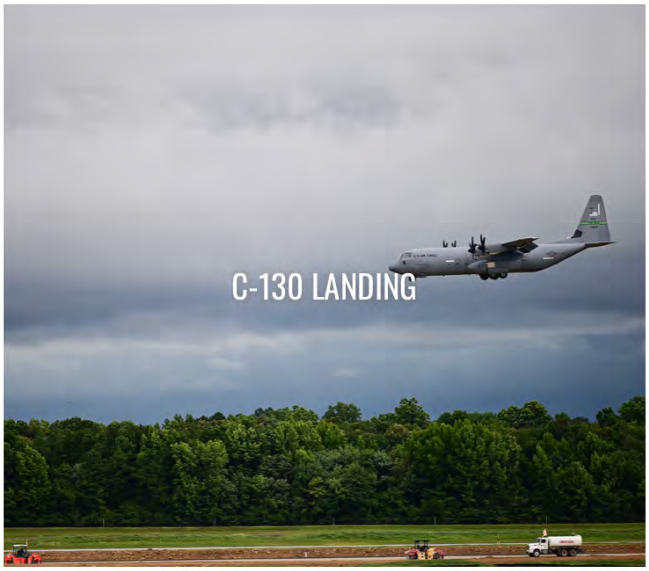
_____

Printed Name

Appendix I

LRAFB Noise Resolution Protocols

NOISE RESOLUTIONS



OPERATION AND NOISE INQUIRES

You can access the 19th Airlift Wing citizen **complaint form** here. Please fill out the form and submit it to our org box, **19aw.pa@us.af.mil**. We will respond as quickly as possible, but please allow up to 3 business days for a response to your formal complaint.

Little Rock AFB values the long-standing support and appreciation shown by our local community neighbors and partners. Your support allows us to continuously train, prepare and operate in support of our nation's defense. At times there may be occasional disruptions to daily schedules due to additional flight operation requirements and aircraft noise.

The Air Force's primary job is national security. Little Rock AFB is The Home of Herk Nation and our primary mission is to provide the Department of Defense mission-ready Airmen and support the largest C-130 fleet in the world. Our collective responsibilities range from supplying humanitarian airlift relief to victims of disasters, to airdropping supplies and troops into the heart of contingency operations in hostile areas as well as supporting base partners as the host unit. We also train C-130 aircrew members from the DoD, U.S. Coast Guard, and 47 allied nations, training more than 1,200 students per year—the DoD's largest international flight training program. Sometimes this training results in low-flying aircraft and noise. Due to the size of the C-130 aircraft, they can appear lower than they actually are.

Appendix J

FAA Drone Response Playbook for Public Safety

DRONE RESPONSE PLAYBOOK FOR PUBLIC SAFETY

September 2020

Federal Aviation Administration

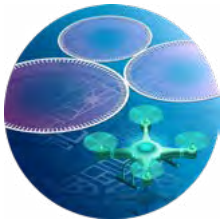
01 OVERVIEW

We are at an exciting time in aviation, where drones are being safely integrated into our national airspace for recreational, commercial, and public safety uses. However, unauthorized operations can cause potential hazards to people and property both in the air and on the ground. This ***Drone Response Playbook for public safety*** is a resource for public safety officials who conduct investigations into drone operations.
The Playbook can help determine the difference between authorized and unauthorized drone operations and what actions public safety agencies may take.
We encourage you to research local rules and regulations and add them to this document (page 13) so that they are available when needed.

02 CONTENTS

03 A QUICK REFERENCE GUIDE TO PROHIBITED DRONE OPERATIONS

UNDER PART 107 (SMALL UAS RULE)

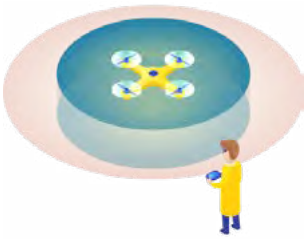


Drone flights within 3.45 miles of a qualifying event at a stadium or sporting venue without an FAA authorization.

Flights over people without an FAA waiver.

Night operations without an FAA waiver.

Failure to give right-of-way to manned aircraft without an FAA waiver.



Operations beyond visual line of sight without an FAA waiver.

- Operation while under the influence of alcohol and/or drugs.

- Hazardous and/or unsafe operations.

- The carriage of illegal narcotics.

- The carriage of hazardous materials.

- Operation of a drone that is equipped or armed with a dangerous weapon (section 363 of the FAA Reauthorization Act of 2018).

04

SECURITY INSTRUCTIONS

Law enforcement may apply their existing authorities to interview and/or detain pilots who conduct prohibited drone operations.

TYPES OF DRONE OPERATIONS:

1. Recreational Flyers

The FAA issued interim safety guidance for recreational flyers that reinforces recent changes to how, when and where users can fly drones for recreational purposes.

Users must comply with the following eight conditions in order to fly under the exception for recreational flyers:

1) Fly strictly for recreational purposes.

2) Follow the safety guidelines of a community based organization.

3) Keep your drone within your visual line of sight, or within the visual line-of-sight of an observer who is co-located and in direct communication with you.

4) Operate in a manner that does not interfere with, and gives way to, any manned aircraft.

5) Do not fly in controlled airspace (such as the airspace around many airports) unless you have an airspace authorization.

6) Fly your drone at or below 400 feet when in uncontrolled or "Class G" airspace.

7) Pass an aeronautical knowledge and safety test, when available (the FAA is currently developing the test).

8) Register and externally mark your drone with the FAA-issued registration number, and carry proof of registration with you.

Note: As the FAA works to implement the provisions listed above, please refer to AC 91-57B (as amended or superceded) for current guidance on compliance. Recreational flyers are required to register drones that weigh more than 0.55 lbs. Part 107 operators must register all drones, regardless of weight.

05

2. Part 107 Operation (also known as the small UAS rule)
Part 107 operations will most likely comprise the majority of operations. This Playbook is a resource for law enforcement on Part 107 operations. See the quick reference guide on page 3.

3. Public Aircraft Operations

Public aircraft operations are conducted by recognized government entities as a function of government. Only those operations that meet specific requirements qualify as public aircraft operations. For further information see **faa.gov/go/dronepublicsafety**

4. Operating a Drone 55 lbs. or Larger

The operation of a drone that is 55 lbs. or heavier requires specific approval from the FAA prior to an operation, or the operation must comply with specific standards and limitations approved by the FAA and be flown at a fixed site. Questions about these operations can be directed to your regional Law Enforcement Assistance Program (LEAP) Special Agent or to the FAA Regional Center (contact information is provided on Page 8 of this document).

06

Operations in the Vicinity of Certain Stadium Events

The FAA issues Temporary Flight Restrictions (TFRs) to limit aircraft operations, including drones, at stadiums that host large sporting events. TFRs are in place starting one hour before the scheduled time of the event until one hour after the end of the event.

Any person who knowingly or willfully violates the rules pertaining to operations in a TFR may be subject to significant civil and criminal penalties under 49 U.S.C. 46307.

The TFR Point of Contact (POC) is listed on the TFR and, in coordination with the FAA, will have control over access to the airspace and should have a list of approved FAA waivers for operations within the TFR.

The TFR applies to all aircraft operations, including unmanned aircraft systems, unless the aircraft operator meets at least one of the following requirements:

A) The aircraft operation has been authorized by Air Traffic Control (ATC) for operational or safety purposes;

B) The aircraft operation is being conducted for operational, safety, or security purposes supporting the qualifying event, and is authorized by an airspace security waiver approved by the FAA;

C) The aircraft operation is enabling broadcast coverage for the broadcast rights holder for the qualifying event and is authorized by an airspace security waiver approved by the FAA;

D) The aircraft operation has been authorized by ATC for national security, homeland security, law enforcement or air ambulance purposes.

07 WHAT IS MY AUTHORITY?

FEDERAL LAWS that may might apply, include, but are not limited to:

If law enforcement comes in contact with a drone pilot/operator, they can:

- Ask the pilot/operator to see proof of registration of the aircraft
- Ask to see the waiver for drone operations within the TFR

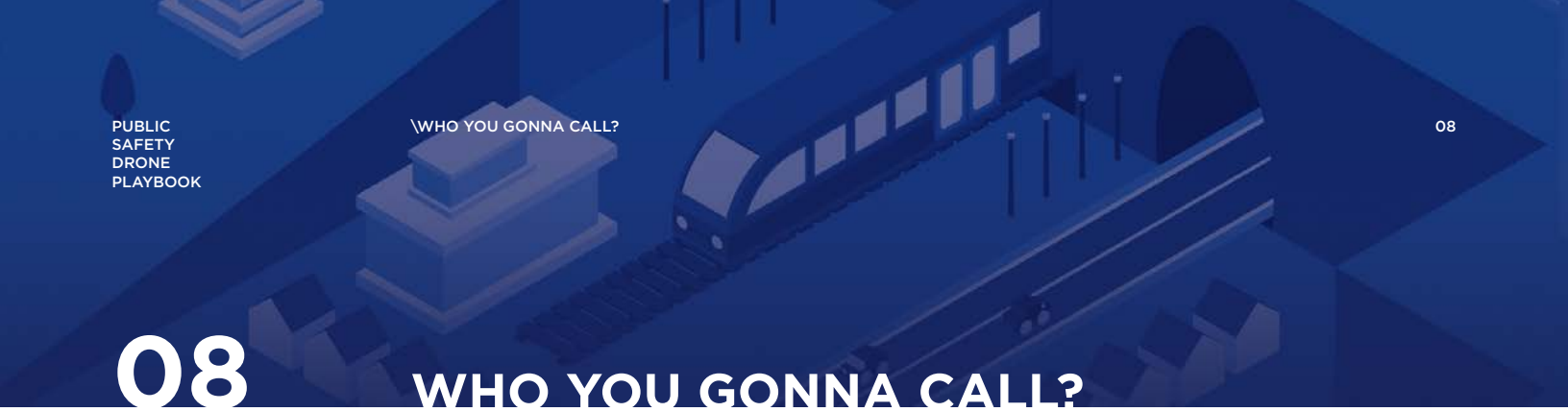
While law enforcement can ask, a UAS or drone pilot IS NOT required by federal regulation to make their UAS FAA Remote Pilot Certificate available.

If law enforcement officials suspect a drone operator of violating any federal law, they should pass the information on to the FAA for investigation. Examples of regulatory violations include reckless operations, operating beyond visual line of sight without approval, operating a drone while under the influence of alcohol or drugs, operating over people without approval, flying at night without approval, failing to yield the right-of-way to manned aircraft without approval, and flying in restricted airspace (including TFRs).

Interfering with first responders during wildfire suppression, law enforcement, or emergency response efforts is a violation of federal law and carries a civil penalty of up to $20,000.

LOCAL REGULATIONS that may apply, include, but are not limited to:

- Trespassing on property from which the drone is operated
- Disorderly and/or unsafe conduct
- Interfering with public safety operations
- Privacy/harassment laws



08 WHO YOU GONNA CALL?

CONTACT YOUR FAA LAW ENFORCEMENT ASSISTANCE PROGRAM SPECIAL AGENT FOR ASSISTANCE

Special agents from the FAA's Law Enforcement Assistance Program (LEAP) are your point of contact for federal, state, local, tribal, territorial, and international law enforcement agencies. LEAP special agents can provide information on drone enforcement and registration matters. Providing a LEAP special agent with reports of suspected unauthorized UAS incidents in a timely manner increases the FAA's ability to take enforcement action when appropriate. (NOTE: You may contact any LEAP agent if your assigned agent is not available.) You can contact either a LEAP special agent (they are responsible for public safety coordination) or one of the FAA's regional operation centers (they are responsible for aviation safety in the region).

DOCUMENT AND PROVIDE THE FOLLOWING INFORMATION TO FAA

- Identity of operators and witnesses (name, contact information)
- Type of operation (recreational, commercial, public/governmental)
- Type of device(s) and registration information (number/certificate)
- Event location and incident details (date, time, place)
- Other evidence (photos, video, device confiscation)

Your local LEAP Special Agent's Name & Number: _____

** Note: You may contact any LEAP agent if your assigned agent is not available.*

CONTACT YOUR FAA LEAP AGENT OR AN FAA REGIONAL OPERATIONS CENTER FOR ASSISTANCE

Regional Operations Centers (ROCs) are staffed 24/7 and should be contacted if you observe a drone that may potentially interfere with the safety or security of the National Airspace System. The ROC will ensure notification is made to manned air traffic in the vicinity as well as appropriate FAA offices.

FACILITY	STATES	PHONE NUMBER	EMAIL
Western ROC	AK, AZ, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY	206-231-2089	9-WAS-OPSCTR@FAA.GOV
Central ROC	AR, IA, IL, KS, LA, MI, MN, MO, ND, NE, NM, OH, OK, SD, TX, WI	817-222-5006	9-CSA-ROC@FAA.GOV
East ROC	AL, CT, FL, GA, KY, MA, ME, MS, NC, NH, PR, RI, SC, TN, VI, VT	404-305-5180	9-ESA-ROC@FAA.GOV
	DC, DE, MD, NJ, NY, PA, VA, WV	404-305-5150	9-ESA-ROC@FAA.GOV

09

REMOTE PILOT CERTIFICATE SAMPLE

Law enforcement and public safety officials may ask pilots operating under Part 107 (typically aircraft weighing under 55 lbs and not operated as a recreational or public/government aircraft) for their FAA Remote Pilot Certificate. However, they are not currently required by federal regulation to make their certificate available.

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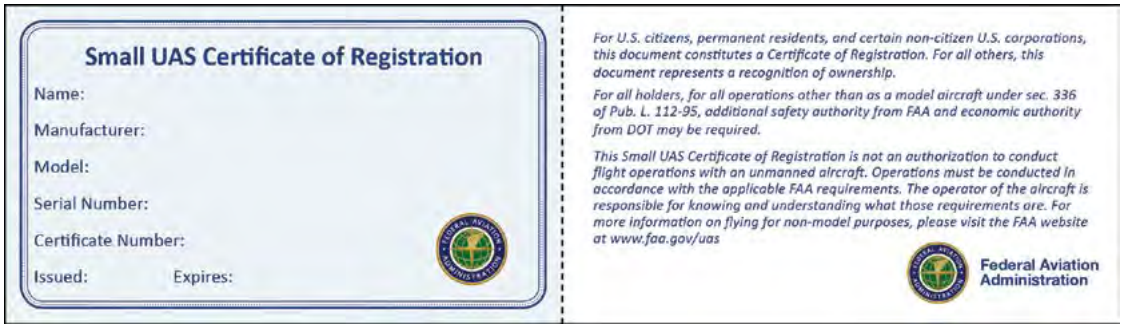
REGISTRATION SAMPLE

Law enforcement officials may ask drone operators for the aircraft's registration documentation. Failure to provide the document for inspection is unlawful and the operation or proposed operation should cease. Generally, FAA registration numbers for drones start with "FA" and have eight additional numbers. For example: FA12345678. An aircraft over 55 lbs may have a number that starts with the letter "N".



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COA SAMPLE

Law enforcement may ask to see a UAS operator's FAA approved Certificate of Waiver or Authorization (COA).

The COA must be specific to the type of operation and the event. The second standard provision of a Certificate of Waiver or Authorization is, "This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any state or municipal official charged with the duty of enforcing local laws or regulations."

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

CERTIFICATE OF WAIVER OR AUTHORIZATION

ISSUED TO *(self-explanatory)*

ADDRESS *(self-explanatory)*

This certificate is issued for the operations specifically described hereinafter. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.

OPERATIONS AUTHORIZED

(Indicate in detail all operations authorized. Use a separate sheet of paper if necessary.)

LIST OF WAIVED REGULATIONS BY SECTION AND TITLE

(This section not used for Unmanned Air Vehicle authorizations.)

STANDARD PROVISIONS

1. A copy of the application made for this certificate shall be attached to and become a part hereof.
2. This certificate shall be presented for inspection upon the request of any authorized representative of the Administrator of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations.
3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein.
4. This certificate is nontransferable.

Note: - This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.

SPECIAL PROVISIONS

Special Provisions Nos. 1 to 4, inclusive, are set forth on the reverse side hereof.

This certificate is effective from *(Beginning date/time)* to *(Ending date/time)*, inclusive, and is subject to cancellation at any time upon notice by the Administrator or his authorized representative.

BY DIRECTION OF THE ADMINISTRATOR

(self-explanatory)	*(Signed by Appropriate Waiver Authority)*
(Region)	(Signature)
(Enter date the waiver was signed)	*(self-explanatory)*
(Date)	(Title)

FAA Form 7711-1 (7-74) ***1975 - G.P.O. - 1703-M/674-862/199**

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WEB RESOURCES

+ faa.gov/go/DronePublicSafety

+ www.faa.gov/uas/resources/policy_library/section_352_responses/

13 INVESTIGATIVE NOTES AND/OR LOCAL STATUES

If your county or state has developed regulations specific to the operation of drones, please list here:

Suggested questions you can ask a drone operator:

1. Ask to see License and Registration (you can document and/or photograph the information).

- For the registration document, it should have a registration number that should also be legibly marked on the exterior of the drone.
- For the license, they should have either a paper temporary airman certificate or a plastic remote pilot certificate from the FAA. (Note: While law enforcement can ask, a UAS or drone pilot IS NOT required by federal regulation to make their UAS FAA Remote Pilot Certificate available.)

2. "What was the purpose of the flight?"

   If the operator says the purpose was public aircraft operation or commercial/business, (or any other nexus to commercial operations,) skip to question 3.

   2A. If the operator says modeler/hobby/recreation, ask what they were doing specifically.

   Answers should be along the lines of: practicing, just flying for fun, taking pictures/video, showing my friend how it works, etc...

3. "Who was the remote pilot in command?"

   If there is only one individual, the answer can be presumed and therefore skipped.

4. "What company do you work for or what is the name of your company?"

   The person may be operating in a freelance capacity, on a contract basis, or something similar. In most of these cases, the person who hired them is less likely to be the subject of an investigation, but they may provide evidence.

   4A. Ask if there is a copy of the contact/work order.

   4B. Ask the name and contact information for the person who hired them.

   4C. Ask if they have done other work, have a website, etc...

5. Visual line-of-sight (VLOS) of the aircraft and Visual Observers.

   5A. Make note of operators using first-person Point of View (POV) technologies, operating the UAS on the opposite side of buildings, or down other streets obstructed from view, etc. (something other than standing there looking at the UAS, essentially).

   5B. If there are other individuals assisting (Visual Observers), ask how they assisted or how they were in communication with the operator.

6. Ask how high and where they flew the UAS. If law enforcement observed the flight, include descriptors or estimation of the altitude, when possible. Examples: aircraft was approximately level with the 10th floor of the building at 1400 Main Street; the aircraft flew over the stadium as it returned to the operator, etc.

7. Make note of operations at night or of unlit drone operated after sunset to before sunrise.

8. Document all operations conducted while the operator was under the influence.

9. Document interference with law enforcement/emergency response efforts. Provide impacts, when applicable.

10. If any of the following situations may have occurred, inquire/document:

- Operating from a moving vehicle (may be allowed in certain instances, but the FAA investigation can make that determination)
- Operation of multiple unmanned aircraft by the same individual
- Carriage of hazardous material
- Operation over human beings (most likely, crowds of people; estimate/use descriptors to illustrate crowd density)
- Temporary Flight Restriction (TFR) violations
- Object dropped from the drone

11. Note any other characteristics of the operation that were not in the interest of public safety. Examples include:

- Operating low over the heads of non-participating persons (notably if individuals moved out of the way to avoid the drone)
- Flying between vehicles or operating over a roadway in use
- Chasing people or pets
- Attaching a firearm or weapon to the drone
- Injuries to people or damage to property

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INTERFERING WITH WILDFIRE SUPPRESSION, LAW ENFORCEMENT OR EMERGENCY RESPONSE EFFORTS IS A VIOLATION OF FEDERAL LAW

Flying a drone near a wildfire is dangerous and can cost lives. When drones are flown near wildfires, fire response agencies often have to ground their aircraft due to the risk of a midair collision. This can delay the airborne response and pose a threat to firefighters on the ground and residents and property in nearby communities, as well as allow wildfires to spread. Sadly, these incidents occur on a regular basis. In recent years, there have been more than 100 documented cases of unauthorized drones flying near wildfires.

Federal law (18 U.S.C. 40A.(a) prohibits drone flyers from knowingly or recklessly interfering with wildfire suppression or related law enforcement or emergency response efforts. Federal law (49 U.S.C. 46320) also prohibits interference with wildfire suppression, law enforcement, or emergency response effort. Individuals who violate these regulations are subject to up to two years of imprisonment and a civil penalty of not more than $20,000.

What can you do?

- Report non-authorized drone flights to the FAA with the information provided in this guide.
- Use your agency's social media to warn your community about the impact of UAS or drone flights on public safety operations and amplify FAA messages on @FAADroneZone.
- Work with your local media outlets (TV, Radio, Newspapers) to promote this safety message.
- Questions? Please contact your regional Law Enforcement Assistance Program (LEAP) special agent at LEAP@faa.gov or via the contact information provided in this guide.

Federal Aviation Administration

Appendix K

Comprehensive Plan Revisions - City of Jacksonville

February 2023

City of Jacksonville

Master Street and Land Use Plan Supplement
Little Rock AFB & Military Land Use Compatibility

This document was prepared under contract with White & Smith, LLC, with financial support from the Office of Local Defense Community Cooperation (OLDCC), Department of Defense (DoD). The content reflects the views of White & Smith and its subconsultants Benchmark Planning and Marstel-Day, and the input of the local steering committees and does not necessarily reflect the views of the OLDCC or the DoD.

Table of Contents

Section 1: Introduction

A. Background

The purpose of this supplement to the City of Jacksonville Master Street and Land Use Plan is to provide jurisdiction-specific information and recommendations regarding land use compatibility in the City and its planning area as it relates to the military training and operational missions of Litle Rock Air Force Base (LRAFB). The City of Jacksonville was the lead jurisdictions in a Compatible Use Study (CUS) sponsored by the Department of Defense's Office of Local Defense Community Cooperation (OLDCC) that was completed in 2021. The Compatible Use Study explored military land use compatibility at the regional scale and included a set of recommendations for the study participants to consider implementing following the conclusion of the study.

The City of Jacksonville led CUS participants again in late 2021 through a process of implementing the study's recommendations, with funding once again provided by OLDCC. Since the CUS was prepared at the regional scale and implementation is dependent on local actions, the CUS recommended that the participating jurisdictions prepare and adopt locally-specific documents to supplement their existing comprehensive / land use plans or serve as a standalone area plan, as applicable. These supplemental plans were prepared for the cities of Sherwood, Jacksonville, Cabot, and North Little Rock, as well as Pulaski County, with the intent that each adopt and integrate them into their local planning framework at the conclusion of the formal OLDCC sponsored implementation process.

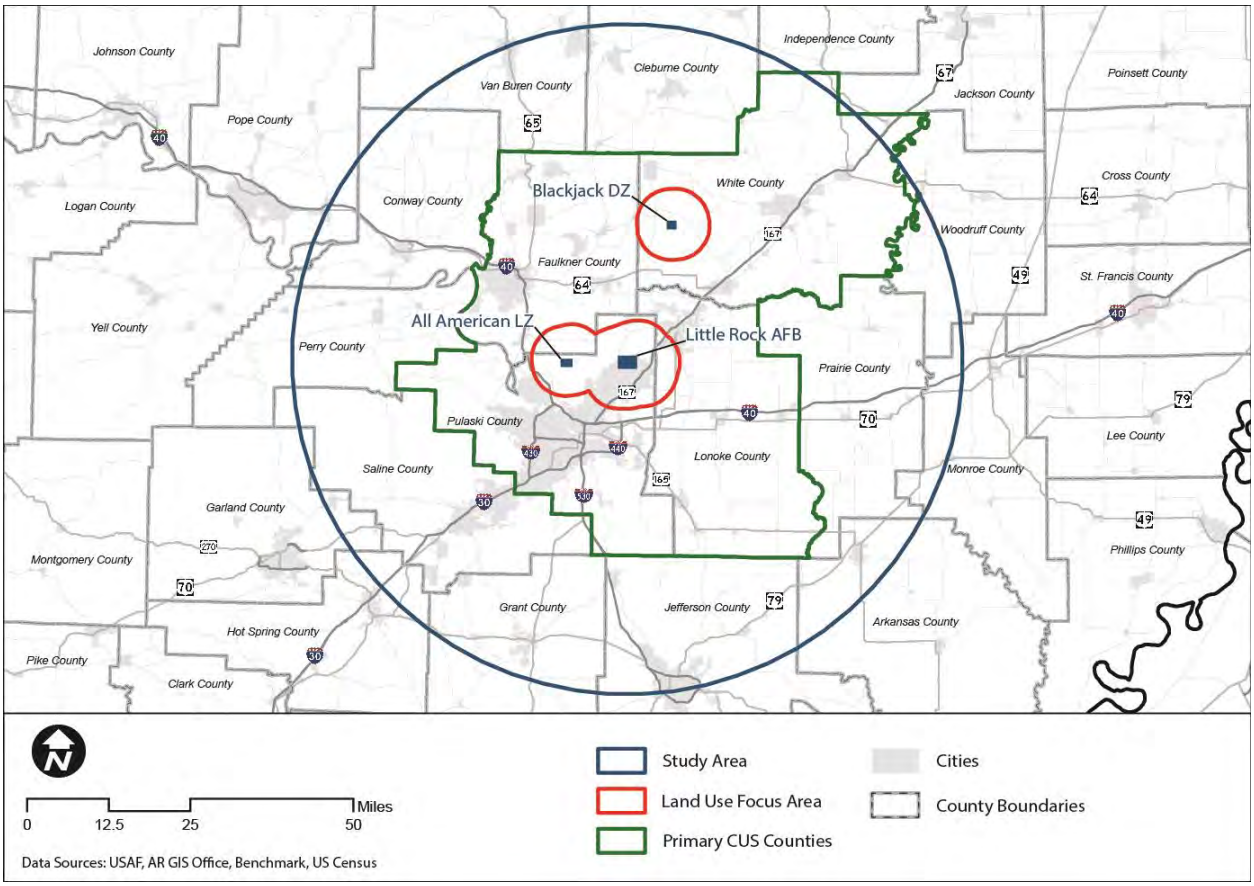
The intent of this aspect of the implementation effort is to both inform the City of Jacksonville, as well each of the other jurisdictions with significant military training and operational impacts, about the locally relevant compatibility concerns identified in the CUS. It is also intended to provide additional support for the implementation of the CUS recommendations – particularly the regulatory recommendations that are intended to enhance local consistency with Air Force land use compatibility and aviation safety guidance.

B. 2021 Little Rock AFB Compatible Use Study

The 2021 Little Rock Air Force Base Compatible Use Study (previously known as Joint Land Use Studies) was a regional initiative managed by the City of Jacksonville that included local

government participation from the four-county area surrounding Little Rock Air Force Base. Study participants included the Counties of Pulaski, Lonoke, White, and Faulkner, along with the Cities of Jacksonville, Sherwood, North Little Rock, Cabot, Austin, Ward, and Maumelle. A map from the 2021 CUS showing the overall study area is shown below. The study was initiated by Little Rock Air Force Base and the participating local governments to identify and mitigate land use compatibility concerns, with the goal of securing and sustaining LRAFB's economically significant military training and operational missions while promoting compatible growth.

Map 1.1: 2021 Compatible Use Study Area and Focus Area Map



The 2021 study was the first Compatible Use Study undertaken jointly by the installation and its host communities, and was the first local study that included direct community participation in the identification of compatible land use issues related to Little Rock Air Force Base. Previous studies had been conducted for Little Rock Air Force Base through the Air Force's Air Installation Compatible Use Zone (AICUZ) process, which is mandated by the Department of Defense. AICUZ studies are used to help identify potential compatibility issues, and typically serve to inform Compatible Use Studies, as the AICUZ will typically include a thorough analysis of both

military impacts and areas of potential compatibility concern in the surrounding communities. Since 1992, Little Rock Air Force Base has been the subject of three separate AICUZ studies – 1992, 2003, and 2011, which have informed both state and local policy related to compatible growth around the base. The 2021 Compatible Use Study, though removed by a decade from the last completed AICUZ, represented the first significant opportunity for the region's local governments to respond to LRAFB's compatibility concerns through an organized and deliberate process.

The 2021 Compatible Use Study contains 30 separate recommendations on a wide range of topics, including planning for compatible growth, adopting and updating compatible use regulations, enhancing public awareness of compatible use issues, and intergovernmental cooperation. While many of the recommendations have regional applicability, the differences in geographic scope of military impacts and past actions to plan for and implement compatible use regulation mean that each community has a set of unique recommendations in addition to those that apply region-wide.

C. Geographic Scope of Military Compatible Land Use Impacts

Based on the extent of the compatible use factors related to military training and operations identified in the Compatible Use Study, the entirety of the City of Jacksonville and its planning area is subject to some form of military compatible use concern. The northeaster portion of the City's planning area is subject to the greatest concentration of compatible use concerns, with its proximity to off-base impacts associated with the northeastern end of LRAFB's runway. Those portions of the City and its planning area that are more distant from the installation and its runway tend to have fewer military land use compatibility concerns, with tall structures and similar potentially incompatible development being the most common compatible use consideration. This plan supplement is intended to guide the City's policies related to land use regulation in the areas currently in the City and its planning area subject to the identified compatibility concerns, as well as any areas that it may annex or extend its planning jurisdiction into in the future.

Section 2: Little Rock Air Force Base

A. Mission

Little Rock AFB is the home of C-130 Combat Airlift—the largest fleet of C-130s and the primary C-130 Hercules training base for the Department of Defense (DoD), training C-130 pilots, navigators, flight engineers, and load masters from all branches of the US military in tactical airlift and aerial delivery. The 19th Airlift Wing is assigned to the 18th Air Force of AMC, which is headquartered out of Scott AFB, Illinois. It is home to C-130H and C-130J aircraft, as well as the C-130 Center of Excellence (i.e., schools for C-130H and C-130J crews). In addition to training over 1,200 students each year, 314th Airlift Wing, a tenant unit, has the DoD's largest international flying training program with more than 150 international students. The 373rd Training Squadron (TRS) Detachment 4 is a tenant unit on Little Rock AFB and supports over 808 Active, Guard, and Reserve C-130 units worldwide. The 373 TRS Det. 4 at Little Rock AFB trains approximately 1,600 maintainers annually in C-130 maintenance career fields.

B. Installation and Association Facilities

The installation, located in the City of Jacksonville, is situated on just over 6,200 acres of land. The base currently hosts over 3,000 residents and has a workforce of approximately 7,200 service members and civilian employees. Comprising roughly the northern third of the installation, the base's airfield includes a 12,000-foot east-west runway and associated aircraft operations and maintenance areas. At the time the CUS was completed, the base estimated that it was currently supporting approximately 385 daily flight operations.

In addition to the main installation, Little Rock Air Force Base also has local operations at All American Landing Zone (AALZ) located just west of the base on Camp Robison in northern Pulaski County and Blackjack Drop Zone, in nearby White County. All American Landing Zone is a 471-acre assault landing strip in the northern portions of the 32,000-acre Camp Robinson, which is owned by the Arkansas National Guard. According to the CUS, the landing zone sees approximately 100 daily flight operations. Blackjack Drop Zone is situated on just over 300 acres in a rural agricultural area of White County. In addition to the premises of Blackjack Drop Zone, the Air Force also holds compatible use easements to limit encroachment. Per the CUS, Blackjack sees close to 90 aviation operations on a busy day.

C. Historic Context

Little Rock AFB opened on January 24, 1955 on land acquired and donated by the Pulaski County Citizens Council to facilitate the siting of an Air Force Base in the community. Construction of Little Rock AFB began on November 6, 1953, and the installation was officially activated by Strategic Air Command (SAC) on 1 August 1955, hosting SAC's 384th Bombardment Wing (384 BW). In 1960, the Air Force (AF) announced that Little Rock AFB would house 18 Titan II Intercontinental Ballistic Missiles that were to be located throughout the state of Arkansas.

In the 1970s, the installation experienced significant changes, with the first C-130 Hercules aircraft arriving in March 1970. The installation officially transferred from SAC to Tactical Air Command (TAC), with TAC's 314th Tactical Airlift Wing (314 TAW) taking over host wing responsibilities. During the 1991 Gulf War, the 314 TAW's two operational C-130 squadrons and the 189 TAG's C-130 squadron supported operations from both the Middle East and European theaters. Later that year, the 314 TAW was designated as the 314th Airlift Wing (314 AW) and, following the disestablishment of TAC in 1992, the installation and the 314 AW were transferred to the new Air Mobility Command (AMC). The 189 TAG was also designated as the 189th Airlift Group (189 AG) the same year, followed by designation as the 189th Airlift Wing (189 AW) in 1995.1

In 1993, the 314 AW was transferred to Air Combat Command (ACC), as part the US Air Force's (USAF's) decision to transfer continental US-based C-130s from AMC to ACC. In 1997, the USAF reversed this decision, returning most C-130 airlift back to AMC. However, given the 314 AW's primary training mission as the Formal Training Unit (FTU) for C-130s, the 314 AW was transferred to the Air Education and Training Command (AETC), and the installation's two operational Regular Air Force C-130 squadrons were organized under the 463d Airlift Group, an AMC unit. In 2008, the 19th Airlift Wing (19 AW) was activated at Little Rock AFB and took over the duties, personnel, and aircraft of the inactivating 463rd Airlift Group. The 19 AW, part of AMC, took over host wing duties at Little Rock AFB.

Section 3: Land Use Compatibility Factors

A. Overview

There are four primary military land use compatibility factors that have a nexus with the corporate limits and / or extraterritorial planning area of the City of Jacksonville located outside of the Little Rock AFB installation boundary. These factors of concern are directly related to aviation operations originating at Little Rock Air Force Base, and include areas of increased aircraft accident potential, areas of exposure to high levels of aviation noise, areas where tall structures may interfere with safe aerial navigation, and areas where certain uses of land may create external impacts that could affect safe aerial navigation. The following is a discussion of each of these compatible use concerns and their relationship to the City of Jacksonville and its environs.

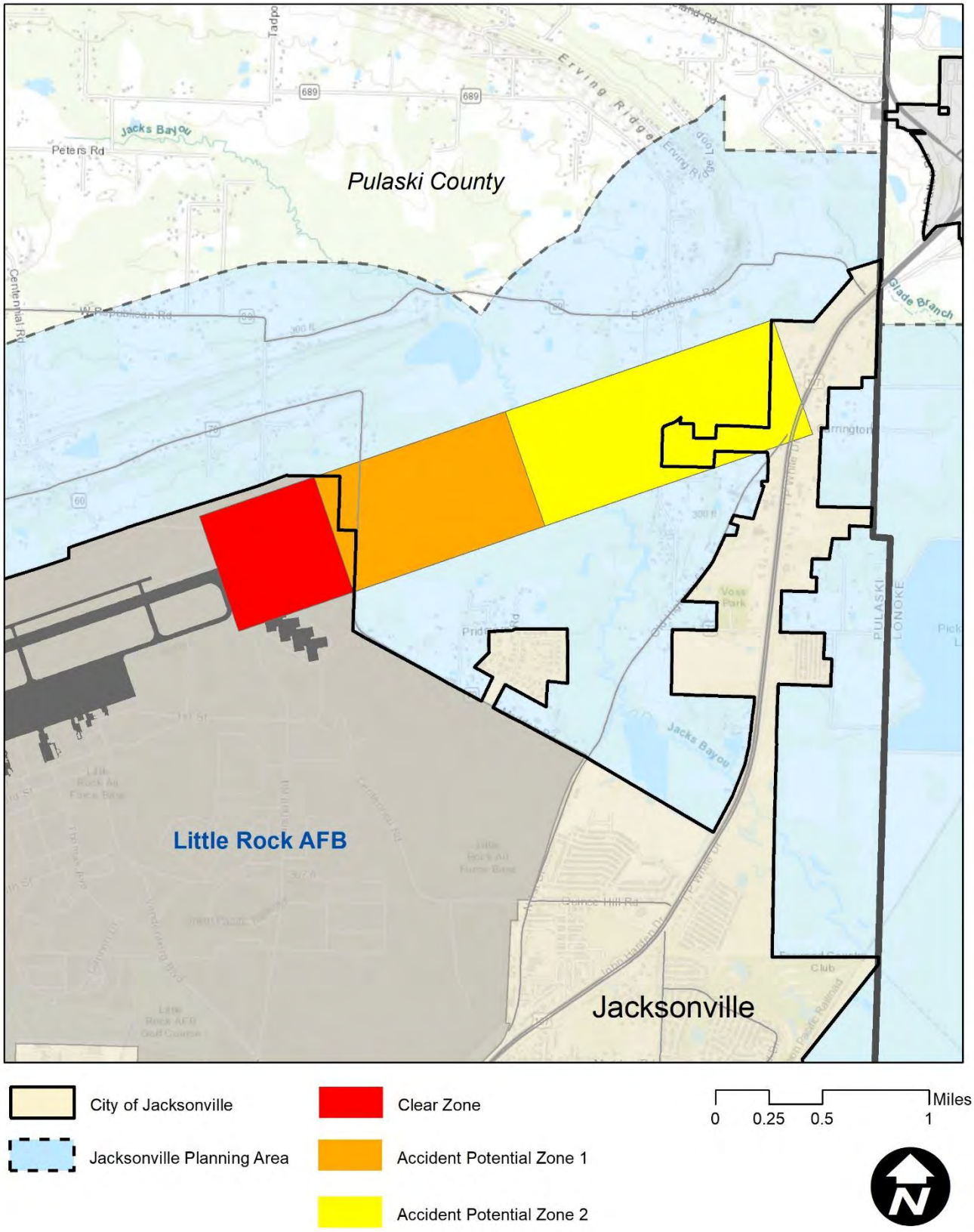
B. Aircraft Accident Potential

The Little Rock Air Force Base AICUZ and the Compatible Use Study identified areas of heightened aircraft accident potential that extend from each end of the runway on the installation. These areas, known as accident potential zones (APZs), have a defined length and width based on the type of runway they are associated with. Once established, accident potential zones tend to remain static, with any changes likely occurring only due to modifications of the official specifications for their dimensions or as a result of the extension or alteration of a runway that would change their geographic applicability.

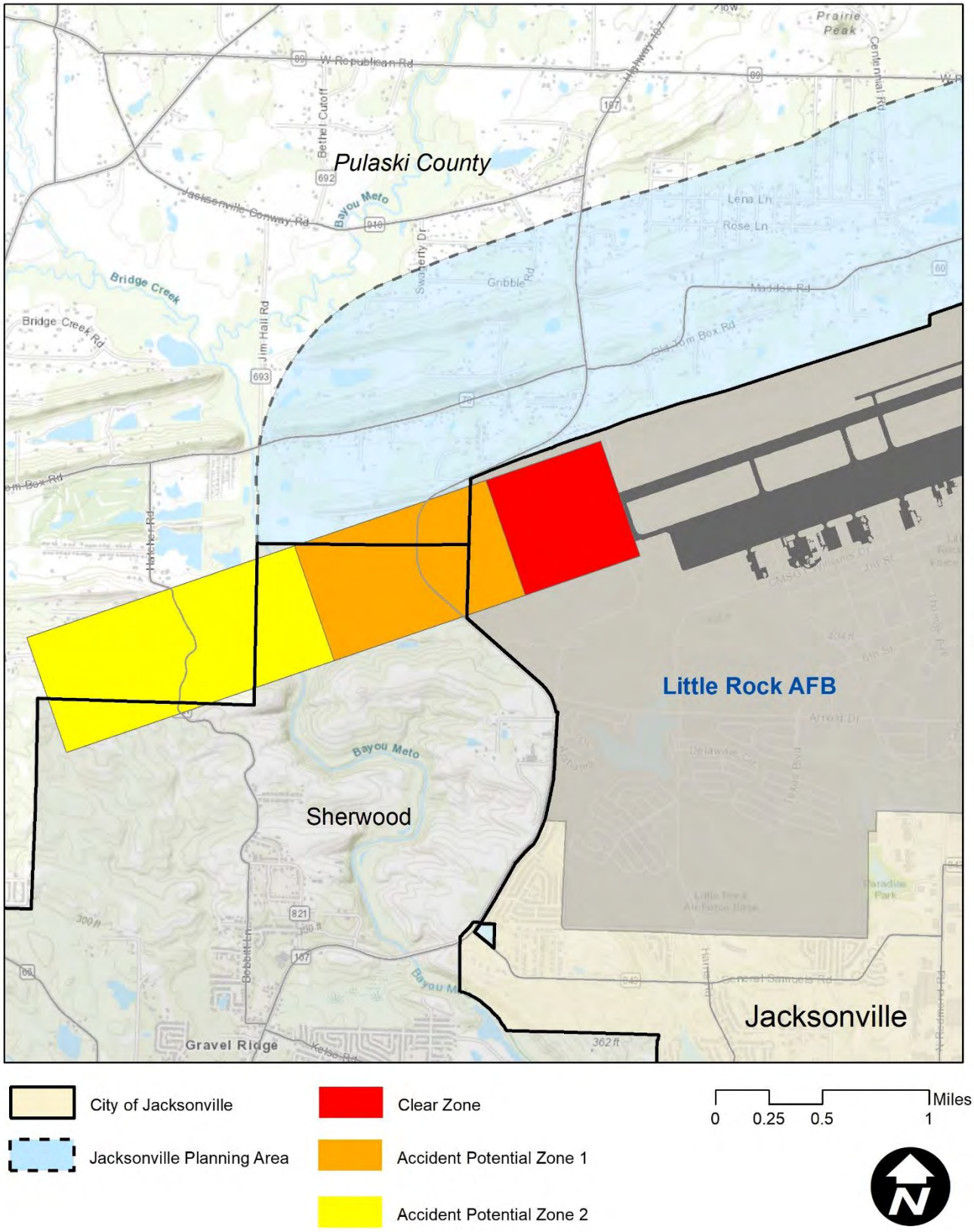
APZs are divided into three categories of decreasing potential for aviation incidents: the Clear Zone (CZ) which occupies the area closest to the end of the runway, APZ 1, which extends outward from the Clear Zone, and finally, APZ 2, which extends out from APZ 1. The Compatible Use Study established that the City of Jacksonville and its planning area contains the majority of APZ 1 and the entirety of APZ 2 associated with the northeast end of the runway at Little Rock Air Force Base, as shown in Map 3.1. There is also a small portion of APZ 1 associated with the southwester end of the runway that falls within the City's planning area north of Sherwood, as shown in Map 3.2.

Given the inherent risk of loss of life and damage to property within APZs, the compatible use recommendations published by the Air Force for accident potential zones (see Figure 6.1) are

Map 3.1: Little Rock AFB Aircraft Accident Potential Zones (East)



Map 3.2: Little Rock AFB Aircraft Accident Potential Zones (West)



intended to minimize the exposure of civilian populations to the inherent dangers present on the ground in close proximity to a military runway. In the Clear Zone, which has the highest risk potential, virtually no active uses of land are recommended, with the exception of agricultural activities (excluding livestock) and, under certain circumstances, similar "open" uses of land that do not include structures and limit the number of people present within the area.

While there are a larger number of potentially compatible land uses recommended in APZ 1, the guidance continues to promote restrictions on both the intensity of allowed land uses and limits on the concentrations of people within the zone. Examples of potential compatible uses in APZ 1 include parks, certain manufacturing uses, and limited commercial activities, such as wholesaling, that tend to have few employees compared to the area of the structure and supporting facilities.

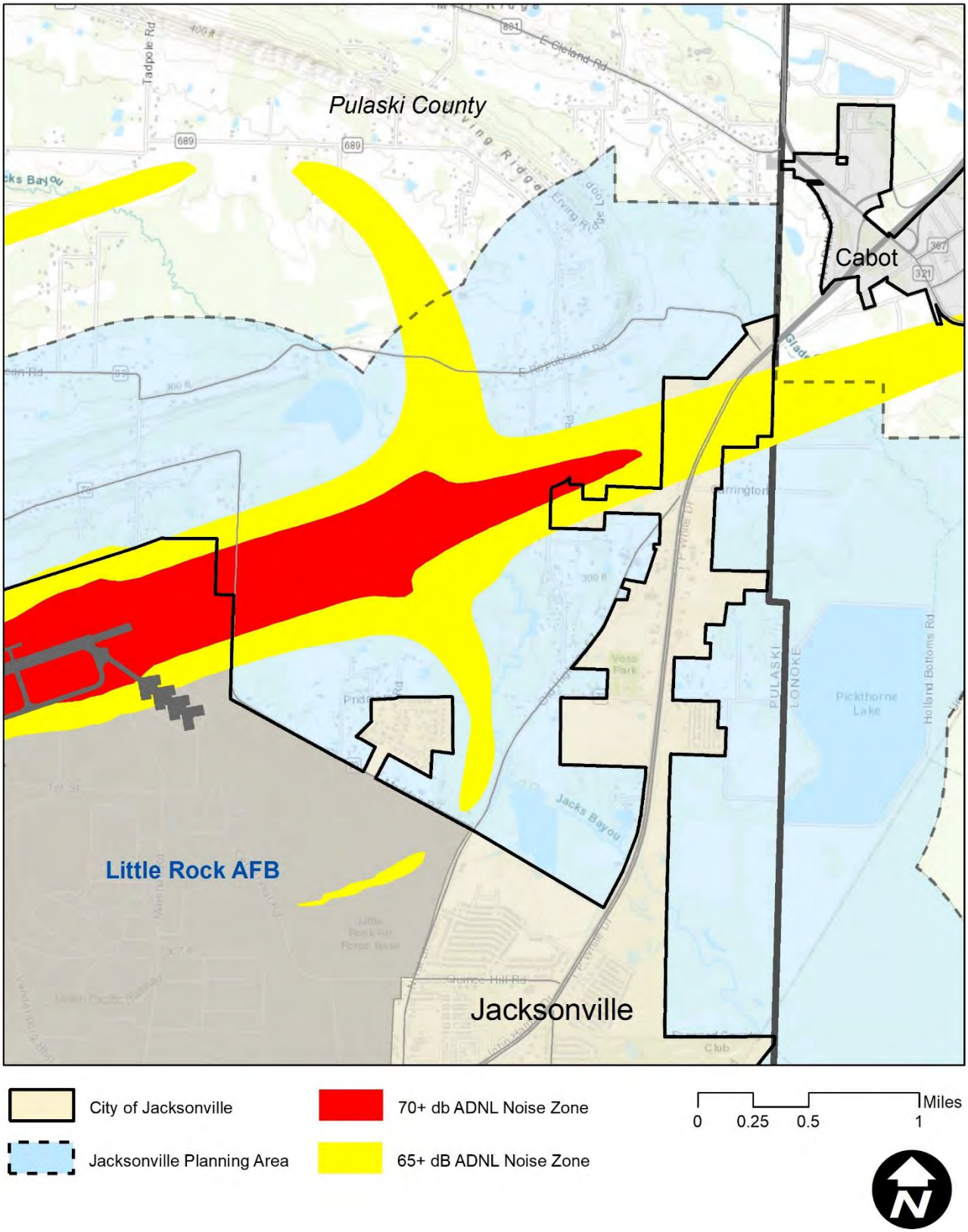
In APZ 2, the compatible use recommendations expand to allow more dense and intensive uses, but still recommends against permitting uses where large concentrations of people are gathered, such as churches, schools, hospitals, and multi-family dwellings. Permitted use recommendations in APZ 2 include single family dwellings at a density of 2 dwelling units per acre or less, most retail trade uses, business and personal services, and a larger number of manufacturing uses.

C. Aviation Noise

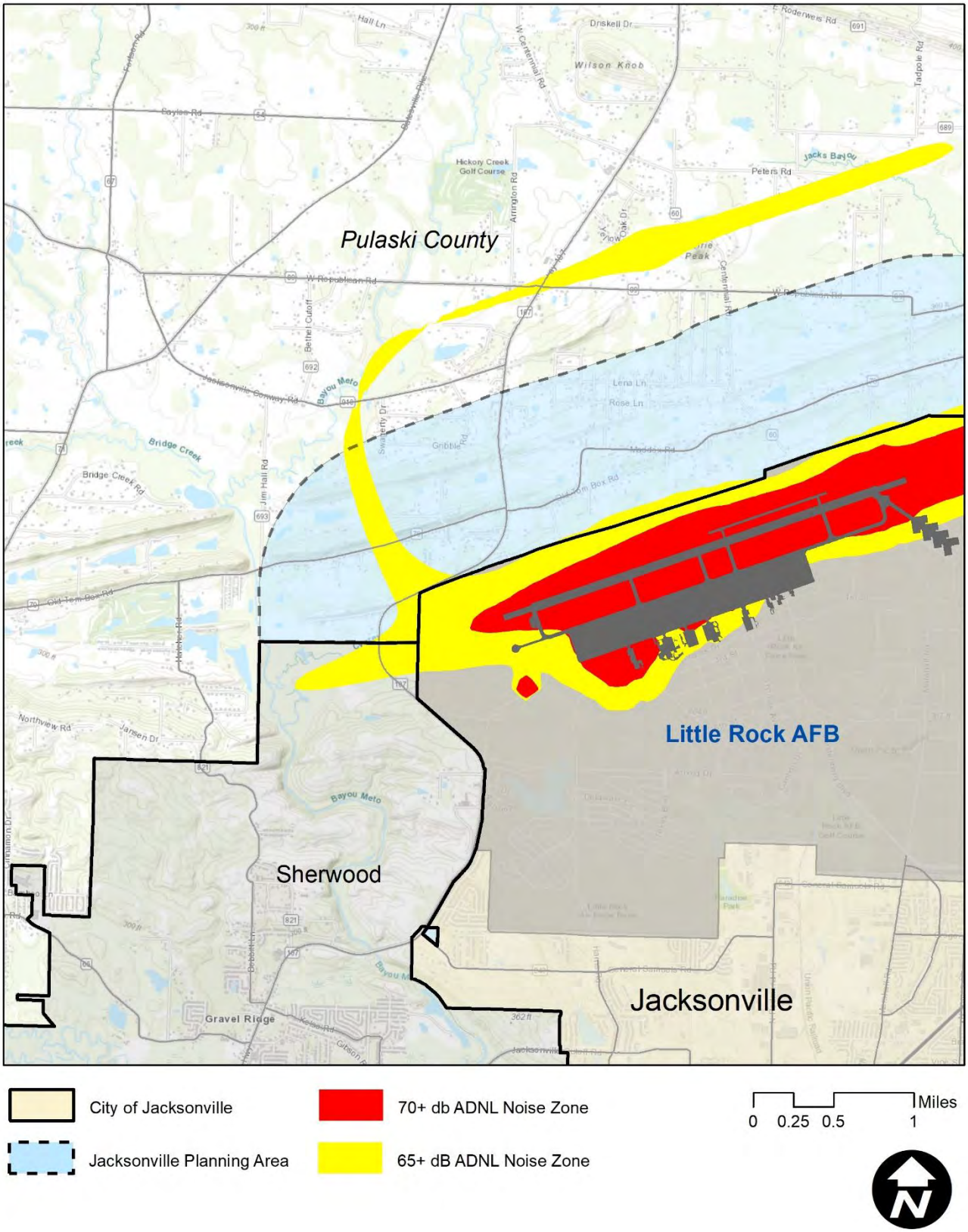
The Compatible Use Study included a review of the current noise environment associated with aviation operations at Little Rock Air Force Base, and the study found that the majority of the highest noise levels generated by aviation operations at the base remained within the installation boundary. The Air Force identifies average annual weighted noise levels (ADNL) exceeding 65 decibels (dB) as being potentially incompatible with certain noise sensitive land uses, such as residences, churches, schools, and hospitals. Through consultations with the community partners in the CUS process, it was determined that, locally, noise levels exceeding 70 dB was an appropriate threshold for establishing a compatibility concern.

Little Rock AFB's 70+ dB ADNL noise zone extends northeast from the runway through the City's planning area toward the US Highway 167 corridor – affecting a small portion of the incorporated area of the City before terminating just west of the highway (see Map 3.3). The remainder of the 70+ dB ADNL noise zone is confined within the installation boundary. Areas

Map 3.3: Little Rock AFB Aviation Noise – 65+ dB ADNL and 70+ dB ADNL Noise Zones (East)



Map 3.4: Little Rock AFB Aviation Noise – 65+ dB ADNL and 70+ dB ADNL Noise Zones (West)



subject to 65+ dB ADNL noise levels, while not locally determined to pose compatibility concerns, are found along the outside edge of the 70+ dB noise zone – extending northeastward from the higher-level noise zone across the incorporated portion of the US 167 corridor toward Cabot, as well as extending to the north and south of the core noise zone along prevailing flight routes. At the southwestern end of the runway, the 65+ dB noise zone affects a small portion of the City's planning area just north of Sherwood's city limits and extends along a narrow path northward through the planning area. This noise zone then parallels the runway and the City's planning area in a narrow arc running southwest-northeast as it follows the prevailing flight route in the area (see Map 3.4).

Land use compatibility with activities that generate high noise levels is generally measured along a continuum of intensity of the land use and noise, with inversely proportional impacts and susceptibility to high noise levels based on the intensity of the use. For instance, a single-family home, among the lowest intensity "developed" land uses, is also one of the most susceptible to high noise levels when located in an area subject to high noise levels. Conversely, an industrial use situated in a similar high noise area would likely be much more compatible given the greater intensity of the use.

In addition to the specific type of land use, the density of development plays a major role in determining noise compatibility. Permitting dense concentrations of residential dwellings (such as smaller lots or multi-family developments) to encroach into high noise areas exposes a larger population to the potential noise impact. In areas where it is feasible, restricting certain types of noise sensitive uses, such as churches, schools, and daycares, from encroaching into a high noise area can help to mitigate noise impacts on an affected community.

While high noise levels can pose a safety issue with prolonged exposure to extreme noise levels, the most common issue with noise compatibility is the degree of annoyance experienced by people who reside, work or recreate in areas that are located in areas subject to these impacts. To aide in assessing the degree of potential concern regarding noise sensitive civilian land uses within areas of increased noise exposure, the Air Force has developed compatibility guidance, which is included in Figure 6.2 for reference.

D. Airfield Imaginary Surfaces

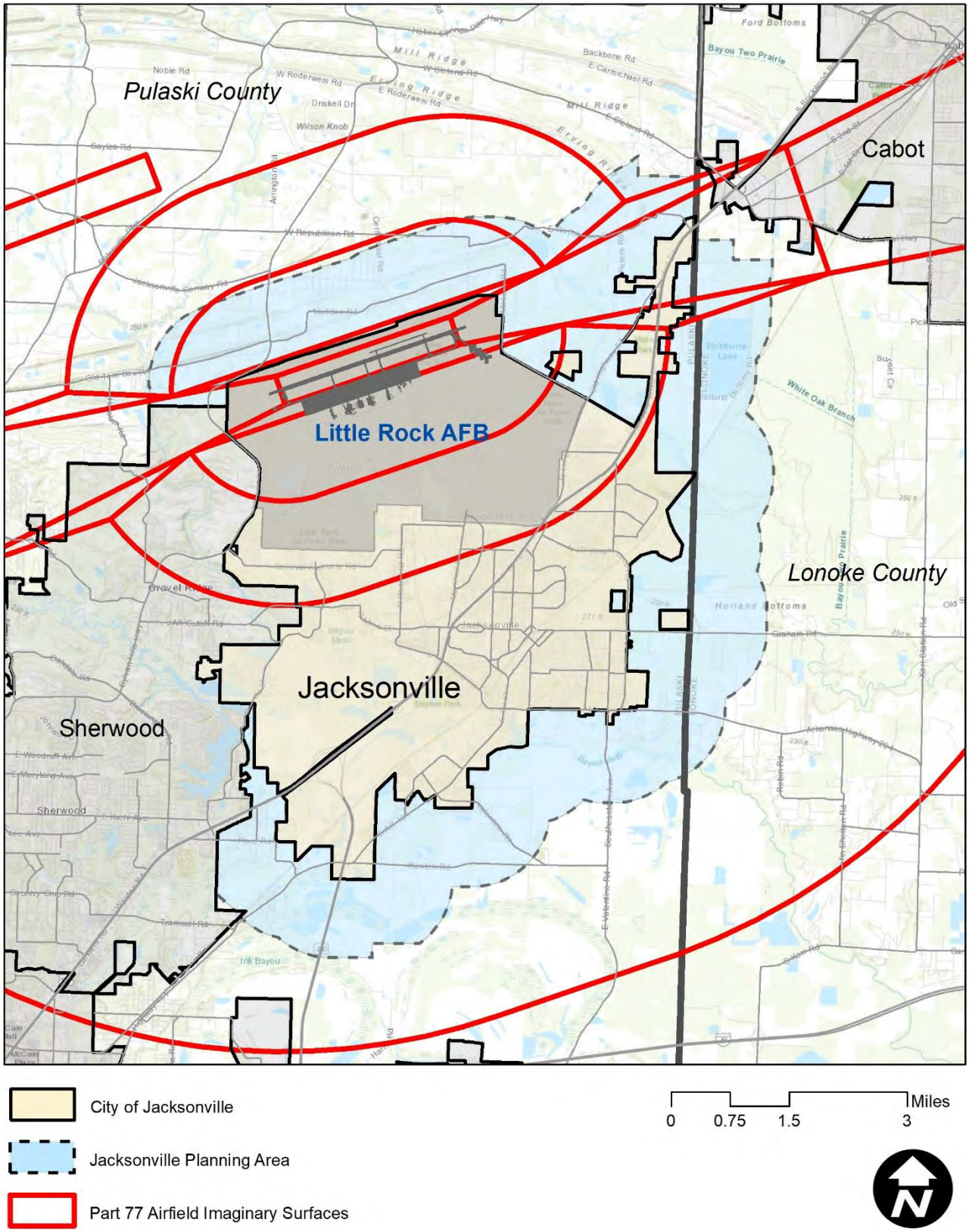
The ability of pilots undergoing training at Little Rock Air Force Base to navigate in an environment free of vertical obstructions that can pose a safety hazard is a critical compatibility factor that affects both the Air Force and civilian communities within low-level flight area. Typical obstructions include tall structures, such as telecommunications towers, water towers, wind turbines, and similar man-made features, which, if not properly reviewed before siting, can pose a danger to low-flying aircraft. The FAA has primary responsibility for coordinating the siting of such structures with aviation facilities, including those operated by the military. This is accomplished through the FAA's Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) and the Department of Defense Siting Clearinghouse.

While the OE/AAA has review authority for potential obstructions, as a federal agency, it does not have land use regulatory authority, which is a power reserved by the states and generally delegated to local governments. The reviews performed by OE/AAA are technical and advisory in nature, with a focus on determining whether a tall structure poses a hazard to safe aerial navigation. If a review determines that a hazard exists, that is communicated to the applicant and the affected aviation facility, but the final approval or denial of such a structure is left for a final decision by the applicable state or local agency.

The areas of greatest concern for potential vertical obstructions fall within areas known as "imaginary surfaces" associated with runways. The surfaces associated with Little Rock Air Force Base are established in 14 CFR Part 77, Subpart C. The elevation of the surfaces is tied to the reference elevation of the runway (indicated by LRAFB to be 311 feet above MSL), and, thus, changes in topography can affect the height at which a structure may pose a hazard. Generally speaking, the surfaces closest to the runway have the lowest elevation, then extend upward to an altitude of 500 feet above the runway surface and outward from the runway to a distance of just under 10 miles. Diagrams and descriptions of military imaginary surfaces are provided in Figure 6.3.

The Compatible Use Study established that the imaginary surfaces associated with the runway at Litte Rock AFB extend over the entirety of the City of Jacksonville and its planning area (see Map 3.5). The outer horizontal surface, which has an elevation of 500 feet above the runway reference elevation, is the most prevalent imaginary surface impacting the City of Jacksonville.

Map 3.5: Little Rock AFB 14 CFR Part 77 Airfield Imaginary Surfaces



Those parts of the City and its planning area closest to the base fall beneath several lower elevation imaginary surfaces, including the conical surface, inner horizontal surface, sloped approach-departure surfaces, and transitional surfaces. The protection of these surfaces from encroachment / penetration by tall structures is a critical component of maintaining safe airspace for the installation's pilots to operate within.

E. Additional Compatible Use Factors for Aviation Safety

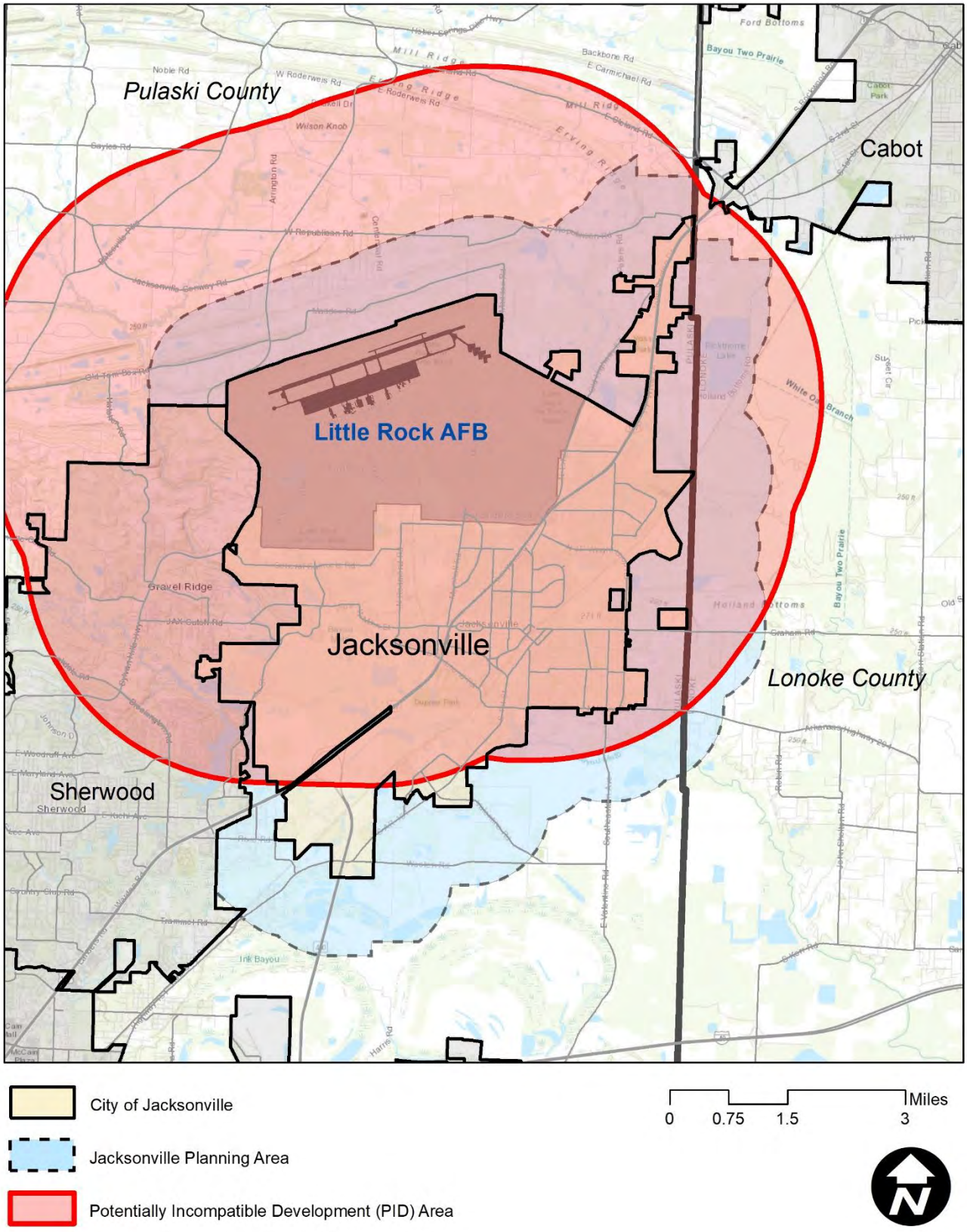
In addition to vertical obstructions, there are a range of other land uses that may pose a hazard to safe aerial navigation when they are located within close proximity to an airfield or low-level flight area, such as beneath an imaginary surface or other operational area. These "potentially incompatible developments" or PIDs, come in a number of different forms, including land uses that attract birds, have emissions that obscure visibility, create glare, or emit electromagnetic interference. Although identified in general in the Compatible Use Study, the implementation process led to a refined definition of both the nature of the uses and the geographic extent of the area of highest concern in the region for the establishment of such uses.

During implementation discussions regarding PIDs, installation representatives determined that the area within three miles of the installation boundary was the area of greatest concern (see Map 3.4). In consultation with local government representatives, it was determined that additional coordination with the base was necessary to assess compatibility concern for uses that fall within the general definition of a PID, such as:

- Aviation facilities (airport, helistop, etc.)
- Landfills
- Renewable energy facilities
- Open pit mining
- Large manmade water impoundments

Given the potentially expansive range of PIDs that might create hazards to aviation, it was also established that local discretion in determining the need to coordinate on any particular use or development proposal would be necessary, as every conceivable hazard could not be predetermined.

Map 3.6: Potentially Incompatible Development Coordination Area



Section 4: Land Use Compatibility Tools

A. Local Government Land Use Policy

Planning for compatible growth, consistent with the potential hazards to both the community and the military training and operational mission of Little Rock Air Force Base, is within the realm of authority granted to local governments, as is the implementation of such plans through the adoption of policies that support compatible development. Most commonly, local governments utilize zoning, subdivision, and similar regulations to enact land use policy.

Local governments in Arkansas are authorized to adopt planning documents applicable to their established territorial jurisdiction and enact zoning and subdivision regulations to promote military land use compatibility within such areas, as authorized by statute. Examples of locally adopted military compatible use regulations currently exist in both Sherwood and Jacksonville. Both cities have adopted regulations to address military land use compatibility concerns within the geographic extent of the Accident Potential Zones that fall within their jurisdictions, in partial compliance with the provisions of A.C.A. § 14-56-426.

As noted in the discussion of military land use compatibility factors in Section 3, the Air Force has prepared compatibility guidance that can inform local land use regulations with regard to use, density, and other factors in areas subject to military training and operational impacts. Tables from AFH 32-7084 (AICUZ Program Manager's Guide) that establish this compatibility guidance are included for reference in Section 6 for use when evaluating the consistency of local land use plans and policy with Air Force recommendations.

In addition to consistency with Air Force recommendations on land use and development patterns, local governments need to ensure that they are regulating for compatibility within the appropriate geographic extent. As AICUZ studies and other military planning studies are prepared or updated, changes in the geographic extent of impacts or compatibility concern should be updated and incorporated into local plans and regulations. Local governments should also maintain awareness of the presence of compatible use concerns in areas that they annex or extend their territorial jurisdiction to cover to ensure that appropriate and consistent regulations are in place throughout a community's jurisdiction.

Beyond the regulation of land use and development for the purpose of maintaining military land use compatibility, local governments also have the ability to adopt and fund infrastructure plans that direct growth-inducing infrastructure (road improvements, utilities, etc.) away from areas of compatibility concern. Such plans can be coupled with policies for utility extensions that take into account the presence of compatible use issues within an area where utility service is desired.

B. Joint Planning Activities

The Office of Local Defense Community Cooperation makes funds available on a regular basis for military host communities to prepare and update a variety of compatible use planning products, including additional studies recommended in Compatible Use Studies. As new issues arise, or as new military sponsored studies are completed, local governments, in coordination with a military installation, can seek funding to prepare updates to a compatible use study or address an emerging issue in the community. In addition to cooperative planning activities through OLDCC, local governments can also extend invitations for military installation representatives to serve as technical advisors or steering committee members as new community-based plans (such as comprehensive or land use plans) are prepared.

C. Coordination

Establishing open lines of communication to coordinate with a military installation can help to ensure that potential compatibility issues are identified and mitigated early in the planning and development process. Coordination activities, such as including military representatives as ex officio members of a planning commission or including the installation on distribution lists for development review, ensure that the installation has situational awareness of current planning issues. Formal coordination between local governments on military compatible land use issues can also improve compatibility outcomes by providing a forum for the discussion of matters of common concern and the development of common solutions to address potential compatible growth issues in a unified manner.

D. Public Awareness

Building public awareness of military operations and the need to maintain a high degree of compatibility between operational requirements and civilian land use and development

patterns is an important factor in ensuring positive outcomes when implementing plans and policies at the local level. When the reasons behind the adoption of restrictions on the use or development of land in furtherance of military land use compatibility are effectively communicated, they tend to garner a higher degree of acceptance. The same is true for a community's acceptance of the impacts of military operations when communicated effectively and in advance of exposure, such as noise from aircraft conducting training late at night, or even additional traffic congestion around a base during a security exercise. Effective means of maintaining awareness can include:

- The use of real estate disclosures can help to ensure that property purchasers are aware of the potential to experience impacts from military operations or potential restrictions on the use of their property.

- Signage warning of high noise levels or low flying aircraft in areas subject to military training impacts can also help to alert people unfamiliar with a community about the presence of potentially disruptive military operations.

- Requiring notice on subdivision plats or within covenants / deed restrictions of the potential exposure to military training and operational impacts can help to increase awareness for both the development community and property purchasers.

- Inviting installation representatives to provide regular updates on upcoming training activities or other matters of community interest at public meetings can also help to maintain awareness by providing opportunities for media exposure and interaction with elected and appointed officials who can help to disseminate important information about

- Establishing and maintaining a web presence that contains information on local military compatible land use issues, including maps and other reference materials can serve as an authoritative source of information for a community.

Section 5: Recommendations

A. Overview

This Section contains recommendations for the City of Jacksonville to consider as it moves forward with its regional partners in the implementation of the Little Rock AFB Compatible Use Study. These recommendations are based on the findings of the Compatible Use Study as well as through the refinement of local and regional needs and preferences through the subsequent implementation process.

B. Compatible Use Regulation

1. Prepare and adopt revised use and density regulations for APZ 1 and APZ 2 that are consistent with Air Force compatibility guidance.

2. Prepare and adopt zoning regulations to establish a prohibition on tall structures that pose a threat to safe aerial navigation within the Little Rock Air Force Base Part 77 imaginary surfaces.

3. In coordination with the Regional Planning Committee, conduct regular reviews of Air Force compatible land use guidance documents and update local regulations, as needed, to maintain consistency.

4. Apply military compatible land use regulations to land that is annexed into the City.

5. Amend subdivision regulations to require a plat notation acknowledging the presence of military training and operational impacts, where applicable.

6. Amend zoning regulations to include compatibility with military operations as a review factor for uses defined as Potentially Incompatible Development within 3 miles of the installation.

C. Planning for Compatible Growth

1. Prepare a full update to the Master Street and Land Use Plan that provides future land use designations for the entirety of the City's planning area.

2. Consider adding the extent of the 65+ dB ADNL noise contour to the Master Street and Land Use Plan map to ensure that it is being considered alongside other potential quality of life factors when reviewing zoning cases.

3. Consider adding the extent of the accident potential zones to the Master Street and Land Use Plan map to ensure that it is being evaluated as a safety factor when zoning map amendments are being considered.

4. Incorporate an evaluation of compatible use factors into reviews of annexation and utility extension requests to ensure that growth inducing infrastructure is not extended into areas that do not support higher density / intensity growth from a compatible use perspective.

5. Extend invitations to Little Rock AFB to participate as technical experts and / or steering committee members when preparing updates to the land use plan or other local plans with relevance to the installation or that have compatible use implications.

6. Participate in future Compatible Use Study updates and related military planning projects.

D. Coordination

1. Enter into the *Intergovernmental Agreement Creating the Little Rock Air Force Base Regional Planning Committee* (RPC).

2. Appoint a representative to the RPC and actively participate in the activities of the committee.

3. Establish formal procedures for coordinating the review of land use and development proposals with the RPC for projects with military land use compatibility implications in the area subject to the Military Zoning Overlay.

4. Invite the RPC to review and comment on City plans for growth inducing infrastructure projects in areas of potential compatibility concern.

5. Ensure that the City maintains current contact information on its website for residents to use to contact Little Rock Air Force Base regarding noise complaints and other matters of concern.

E. Public Outreach and Awareness

1. Add links on the City's website to the RPC website and Compatible Use Study.

2. Consider adding a military impact notice on local permit approvals for projects within areas of potential compatibility concern.

3. Support efforts to update real estate disclosure documents to include notice of military impacts.

4. Host public outreach materials developed by the RPC in City offices and on the City's website.

Section 6: Compatible Use Resources

A. Resources

This Section contains reference materials for use in conjunction with this planning document, including Air Force compatibility recommendations for accident potential and noise zones, as well as diagrams providing additional context for Part 77 imaginary surfaces.

Figure 6.1a: Air Force Compatibility Recommendations for Accident Potential Zones

Attachment 2

LAND USE COMPATIBILITY RECOMMENDATIONS FOR APZS

A2.1. Suggested land use compatibility guidelines in the Clear Zone and APZs are shown in Table A2.1. Additions to some land use categories have been incorporated into Table A2.1 subsequent to issuance of the SLUCM to reflect additional land uses and to clarify the categorization of certain uses. The compatible land use recommendations for the Clear Zone and APZ are provided for local governments as well as AF personnel for on-base planning.

Table A2.1. Land Use Compatibility in APZs.

LAND USE		SUGGESTED LAND USE COMPATIBILITY[1]			
SLUCM NO.	LAND USE NAME	CLEAR ZONE	APZ-I	APZ-II	DENSITY
10	Residential				
11	Household Units				
11.11	Single units: detached	N	N	Y[2]	Maximum density of 2 Du/Ac
11.12	Single units: semi-detached	N	N	N	
11.13	Single units: attached row	N	N	N	
11.21	Two units: side-by-side	N	N	N	
11.22	Two units: one above the other	N	N	N	
11.31	Apartments: walk-up	N	N	N	
11.32	Apartment: elevator	N	N	N	
12	Group quarters	N	N	N	
13	Residential hotels	N	N	N	
14	Mobile home parks or courts	N	N	N	
15	Transient lodgings	N	N	N	
16	Other residential	N	N	N	
20	Manufacturing [3]				
21	Food and kindred products; manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
22	Textile mill products; manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	N	N	N	
24	Lumber and wood products (except furniture); manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
25	Furniture and fixtures; manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
26	Paper and allied products; manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
27	Printing, publishing, and allied industries	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II

Figure 6.1b: Air Force Compatibility Recommendations for Accident Potential Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY[1]			
SLUCM NO.	LAND USE NAME	CLEAR ZONE	APZ-I	APZ-II	DENSITY
28	Chemicals and allied products; manufacturing	N	N	N	
29	Petroleum refining and related industries	N	N	N	
30	Manufacturing[2] (continued)				
31	Rubber and miscellaneous plastic products; manufacturing	N	N	N	
32	Stone, clay, and glass products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
33	Primary metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
34	Fabricated metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	N	N	N	
39	Miscellaneous manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
40	Transportation, communication, and utilities[3, 4]				
41	Railroad, rapid rail transit, and street railway transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
42	Motor vehicle transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
43	Aircraft transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
44	Marine craft transportation	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
45	Highway and street right-of-way	Y[5]	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
46	Automobile parking	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
47	Communication	N	Y[6]	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48	Utilities[7]	N	Y[6]	Y[6]	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48.5	Solid waste disposal (landfills, incinerators, etc.)	N	N	N	
49	Other transportation, communication, and utilities	N	Y[6]	Y	See Note 6 below
50	Trade				

LAND USE		SUGGESTED LAND USE COMPATIBILITY[1]			
SLUCM NO.	LAND USE NAME	CLEAR ZONE	APZ-I	APZ-II	DENSITY
51	Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I & .56 in APZ II
52	Retail trade – building materials, hardware and farm equipment	N	Y	Y	See Note 8 below
53	Retail trade – including, discount clubs, home improvement stores, electronics superstores, etc.	N	N	Y	Maximum FAR of 0.16 in APZ II
53.	Shopping centers-Neighborhood, Community, Regional, Super-regional[9]	N	N	N	
54	Retail trade – food	N	N	Y	Maximum FAR of 0.24 in APZ II
55	Retail trade – automotive, marine craft, aircraft, and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail trade – apparel and accessories	N	N	Y	Maximum FAR of 0.28 in APZ II
57	Retail trade – furniture, home, furnishings and equipment	N	N	Y	Maximum FAR of 0.28 in APZ II
58	Retail trade – eating and drinking establishments	N	N	N	
59	Other retail trade	N	N	Y	Maximum FAR of 0.16 in APZ II
60	Services[10]				
61	Finance, insurance and real estate services	N	N	Y	Maximum FAR of 0.22 in APZ II
62	Personal services	N	N	Y	Office uses only. Maximum FAR of 0.22 in APZ II.
62.4	Cemeteries	N	Y[11]	Y[11]	
63	Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y	Maximum FAR of 0.22 in APZ II
63.7	Warehousing and storage services[12]	N	Y	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional services	N	N	Y	Maximum FAR of 0.22 in APZ II
65.1	Hospitals, nursing homes	N	N	N	
65.1	Other medical facilities	N	N	N	
66	Contract construction services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Maximum FAR of 0.24 in APZ II
68	Educational services	N	N	N	

Figure 6.1d: Air Force Compatibility Recommendations for Accident Potential Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY[1]			
SLUCM NO.	LAND USE NAME	CLEAR ZONE	APZ-I	APZ-II	DENSITY
68.1	Child care services, child development centers, and nurseries	N	N	N	
69	Miscellaneous Services	N	N	Y	Maximum FAR of 0.22 in APZ II
69.1	Religious activities (including places of worship)	N	N	N	
70	Cultural, entertainment and recreational				
71	Cultural activities	N	N	N	
71.2	Nature exhibits	N	Y[13]	Y[13]	
72	Public assembly	N	N	N	
72.1	Auditoriums, concert halls	N	N	N	
72.11	Outdoor music shells, amphitheaters	N	N	N	
72.2	Outdoor sports arenas, spectator sports	N	N	N	
73	Amusements – fairgrounds, miniature golf, driving ranges, amusement parks, etc.	N	N	Y[20]	
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y[13]	Y[13]	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
75	Resorts and group camps	N	N	N	
76	Parks	N	Y[13]	Y[13]	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
79	Other cultural, entertainment and recreation	N	Y[11]	Y[11]	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
80	Resource production and extraction				
81	Agriculture (except live-stock)	Y[4]	Y[14]	Y[14]	
81.5-81.7,	Agriculture-Livestock farming, including grazing and feedlots	N	Y[14]	Y[14]	
82	Agriculture related activities	N	Y[15]	Y[15]	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
83	Forestry activities[16]	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
84	Fishing activities[17]	N[17]	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56

Figure 6.1e: Air Force Compatibility Recommendations for Accident Potential Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY[1]			
SLUCM NO.	LAND USE NAME	CLEAR ZONE	APZ-I	APZ-II	DENSITY
					in APZ II, no activity which produces smoke, glare, or involves explosives
85	Mining activities[18]	N	Y[18]	Y[18]	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
89	Other resource production or extraction	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
90	Other				
91	Undeveloped land	Y	Y	Y	
93	Water areas[19]	N[19]	N[19]	N[19]	

NOTES:

1. A "Yes" or a "No" designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist air installations and local governments, general suggestions as to FARs are provided as a guide to density in some categories. In general, land use restrictions that limit occupants, including employees, of commercial, service, or industrial buildings or structures to 25 an acre in APZ I and 50 an acre in APZ II are considered to be low density. Outside events should normally be limited to assemblies of not more than 25 people an acre in APZ I, and maximum assemblies of 50 people an acre in APZ II. Recommended FARs are calculated using standard parking generation rates for various land uses, vehicle occupancy rates, and desired density in APZ I and II. For APZ I, the formula is FAR = 25 people an acre/ (Average Vehicle Occupancy x Average Parking Rate x (43560/1000)). The formula for APZ II is FAR = 50/ (Average Vehicle Occupancy x Average Parking Rate x (43560/1000)).
2. The suggested maximum density for detached single-family housing is two Du/Ac. In a planned unit development (PUD) of single family detached units, where clustered housing development results in large open areas, this density could possibly be increased slightly provided the amount of surface area covered by structures does not exceed 20 percent of the PUD total area. PUD encourages clustered development that leaves large open areas.
3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air-pollution, electronic interference with aircraft, height of structures, and potential glare to pilots.
4. No structures (except airfield lighting and navigational aids necessary for the safe operation of the airfield when there are no other siting options), buildings, or above-ground utility and

Figure 6.1f: Air Force Compatibility Recommendations for Accident Potential Zones

communications lines should normally be located in Clear Zone areas on or off the air installation. The Clear Zone is subject to the most severe restrictions.
5. Roads within the graded portion of the Clear Zone are prohibited. All roads within the Clear Zone are discouraged, but if required, they should not be wider than two lanes and the rights-of-way should be fenced (frangible) and not include sidewalks or bicycle trails. Nothing associated with these roads should violate obstacle clearance criteria.
6. No above ground passenger terminals and no above ground power transmission or distribution lines. Prohibited power lines include high-voltage transmission lines and distribution lines that provide power to cities, towns, or regional power for unincorporated areas.
7. Development of renewable energy resources, including solar and geothermal facilities and wind turbines, may impact military operations through hazards to flight or electromagnetic interference. Each new development should to be analyzed for compatibility issues on a case-by-case basis that considers both the proposal and potentially affected mission.
8. Within SLUCM Code 52, maximum FARs for lumberyards (SLUCM Code 521) are 0.20 in APZ-I and 0.40 in APZ-11; the maximum FARs for hardware, paint, and farm equipment stores, (SLUCM Code 525), are 0.12 in APZ I and 0.24 in APZ II.
9. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, or managed as a unit. Shopping center types include strip, neighborhood, community, regional, and super-regional facilities anchored by small businesses, a supermarket or drug store, discount retailer, department store, or several department stores, respectively.
10. Ancillary uses such as meeting places, auditoriums, etc. are not recommended.
11. No chapels or houses of worship are allowed within APZ I or APZ II.
12. Big box home improvement stores are not included as part of this category.
13. Facilities must be low intensity, and provide no playgrounds, etc. Facilities such as clubhouses, meeting places, auditoriums, large classes, etc., are not recommended.
14. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.
15. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
16. Lumber and timber products removed due to establishment, expansion, or maintenance of Clear Zone lands owned in fee will be disposed of in accordance with applicable DoD guidance.
17. Controlled hunting and fishing may be permitted for the purpose of wildlife management.
18. Surface mining operations that could create retention ponds that may attract waterfowl and present bird/wildlife aircraft strike hazards (BASH), or operations that produce dust or light emissions that could affect pilot vision are not compatible.
19. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are pre-existing, nonconforming land uses. Naturally occurring water features that attract waterfowl present a potential BASH. Actions to expand naturally occurring water features or construction of new water features should not be encouraged. If construction of new features is necessary for storm water retention, such features should be designed so that they do not attract waterfowl.
20. Amusement centers, family entertainment centers or amusement parks designed or operated at a scale that could attract or result in concentrations of people, including employees and visitors, greater than 50 people per acre at any given time are incompatible in APZ II.

Attachment 3

RECOMMENDED LAND USE COMPATIBILITY FOR NOISE ZONES

A3.1. Suggested land use compatibility guidelines for noise zones are shown in Table A3.1. Additions to some land use categories have been incorporated into Table A3.1 subsequent to issuance of the SLUCM to reflect additional land uses and to clarify the categorization of certain uses. Tables A3.2 and Table A3.3 provide land use compatibility recommendations in relation to ground training noise sources such as small arms and blast noise from large caliber munitions and explosives. The land use compatibility recommendations are provided for local governments as well as AF for on-base planning.

Table A3.1. Land Use Compatibility in Aircraft Noise Zones.

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
10	Residential					
11	Household units	N[1]	N[1]	N	N	N
11.11	Single units: detached	N[1]	N[1]	N	N	N
11.12	Single units: semidetached	N[1]	N[1]	N	N	N
11.13	Single units: attached row	N[1]	N[1]	N	N	N
11.21	Two units: side-by-side	N[1]	N[1]	N	N	N
11.22	Two units: one above the other	N[1]	N[1]	N	N	N
11.31	Apartments: walk-up	N[1]	N[1]	N	N	N
11.32	Apartment: elevator	N[1]	N[1]	N	N	N
12	Group quarters	N[1]	N[1]	N	N	N
13	Residential hotels	N[1]	N[1]	N	N	N
14	Mobile home parks or courts	N	N	N	N	N
15	Transient lodgings	N[1]	N[1]	N[1]	N	N
16	Other residential	N[1]	N[1]	N	N	N
20	Manufacturing					
21	Food and kindred products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
22	Textile mill products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
23	Apparel and other finished products; products made from fabrics, leather, and similar materials; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y[2]	Y[3]	Y[4]	N
25	Furniture and fixtures; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
26	Paper and allied products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
27	Printing, publishing, and allied industries	Y	Y[2]	Y[3]	Y[4]	N
28	Chemicals and allied products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N

Figure 6.2b: Air Force Compatibility Recommendations for Aviation Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
29	Petroleum refining and related industries	Y	Y[2]	Y[3]	Y[4]	N
30	Manufacturing (continued)					
31	Rubber and misc. plastic products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
32	Stone, clay and glass products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
33	Primary metal products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
34	Fabricated metal products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y[2]	Y[3]	Y[4]	N
40	Transportation, communication and utilities					
41	Railroad, rapid rail transit, and street railway transportation	Y	Y[2]	Y[3]	Y[4]	N
42	Motor vehicle transportation	Y	Y[2]	Y[3]	Y[4]	N
43	Aircraft transportation	Y	Y[2]	Y[3]	Y[4]	N
44	Marine craft transportation	Y	Y[2]	Y[3]	Y[4]	N
45	Highway and street right-of-way	Y	Y	Y	Y	N
46	Automobile parking	Y	Y	Y	Y	N
47	Communication	Y	25[5]	30[5]	N	N
48	Utilities	Y	Y[2]	Y[3]	Y[4]	N
49	Other transportation, communication and utilities	Y	25[5]	30[5]	N	N
50	Trade					
51	Wholesale trade	Y	Y[2]	Y[3]	Y[4]	N
52	Retail trade – building materials, hardware and farm equipment	Y	25	30	Y[4]	N
53	Retail trade – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	Y	25	30	N	N
54	Retail trade – food	Y	25	30	N	N
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	25	30	N	N
56	Retail trade – apparel and accessories	Y	25	30	N	N
57	Retail trade – furniture, home, furnishings and equipment	Y	25	30	N	N
58	Retail trade – eating and	Y	25	30	N	N

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
	drinking establishments					
59	Other retail trade	Y	25	30	N	N
60	Services					
61	Finance, insurance and real estate services	Y	25	30	N	N
62	Personal services	Y	25	30	N	N
62.4	Cemeteries	Y	Y[2]	Y[3]	Y[4,11]	Y[6,11]
63	Business services	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y[2]	Y[3]	Y[4]	N
64	Repair services	Y	Y[2]	Y[3]	Y[4]	N
65	Professional services	Y	25	30	N	N
65.1	Hospitals, other medical facilities	25	30	N	N	N
65.16	Nursing homes	N[1]	N[1]	N	N	N
66	Contract construction services	Y	25	30	N	N
67	Government services	Y[1]	25	30	N	N
68	Educational services	25	30	N	N	N
68.1	Child care services, child development centers, and nurseries	25	30	N	N	N
69	Miscellaneous Services	Y	25	30	N	N
69.1	Religious activities (including places of worship)	Y	25	30	N	N
70	Cultural, entertainment and recreational					
71	Cultural activities	25	30	N	N	N
71.2	Nature exhibits	Y[1]	N	N	N	N
72	Public assembly	Y	N	N	N	N
72.1	Auditoriums, concert halls	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y[7]	Y[7]	N	N	N
73	Amusements	Y	Y	N	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	Y	25	30	N	N
75	Resorts and group camps	Y	25	N	N	N
76	Parks	Y	25	N	N	N
79	Other cultural, entertainment and recreation	Y	25	N	N	N
80	Resource production and extraction					
81	Agriculture (except live-stock)	Y[8]	Y[9]	Y[10]	Y[10,11]	Y[10,11]
81.5-81.7	Agriculture-Livestock farming including grazing and feedlots	Y[8]	Y[9]	N	N	N

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
82	Agriculture related activities	Y^{8}	Y^{9}	Y^{10}	$Y^{10,11}$	$Y^{10,11}$
83	Forestry activities	Y^{8}	Y^{9}	Y^{10}	$Y^{10,11}$	$Y^{10,11}$
84	Fishing activities	Y	Y	Y	Y	Y
85	Mining activities	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y

KEY:

SLUCM – Standard Land Use Coding Manual, U.S. Department of Transportation

Y (Yes) – Land use and related structures compatible without restrictions.

N (No) – Land use and related structures are not compatible and should be prohibited.

Y^{X} – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

N^{X} – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

25, 30, or 35 – The numbers refer to noise level reduction (NLR) levels. NLR (outdoor to indoor) is achieved through the incorporation of noise attenuation into the design and construction of a structure. Land use and related structures are generally compatible; however, measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.

DNL – Day-Night Average Sound Level.

CNEL – Community Noise Equivalent Level (normally within a very small decibel difference of DNL)

Ldn – Mathematical symbol for DNL.

NOTES:

1. General

a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones. Existing residential development is considered as pre-existing, non-conforming land uses.

b. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 decibels (dB) in DNL 65-69 and 30 dB in DNL 70-74 should be incorporated into building codes and be considered in individual approvals; for transient housing, an NLR of at least 35 dB should be incorporated in DNL 75-79.

c. Normal permanent construction can be expected to provide an NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded sound transmission class ratings in windows and doors, and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

Figure 6.2e: Air Force Compatibility Recommendations for Aviation Noise Zones

d. NLR criteria will not eliminate outdoor noise problems. However, building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

2. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

4. Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

5. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.

6. Buildings are not permitted.

7. Land use is compatible provided special sound reinforcement systems are installed.

8. Residential buildings require an NLR of 25

9. Residential buildings require an NLR of 30.

10. Residential buildings are not permitted.

11. Land use that involves outdoor activities is not recommended, but if the community allows such activities, hearing protection devices should be worn when noise sources are present. Long-term exposure (multiple hours per day over many years) to high noise levels can cause hearing loss in some unprotected individuals.

Figure 6.3a: 14 CRR Part 77 Military Airfield Imaginary Surface Diagrams

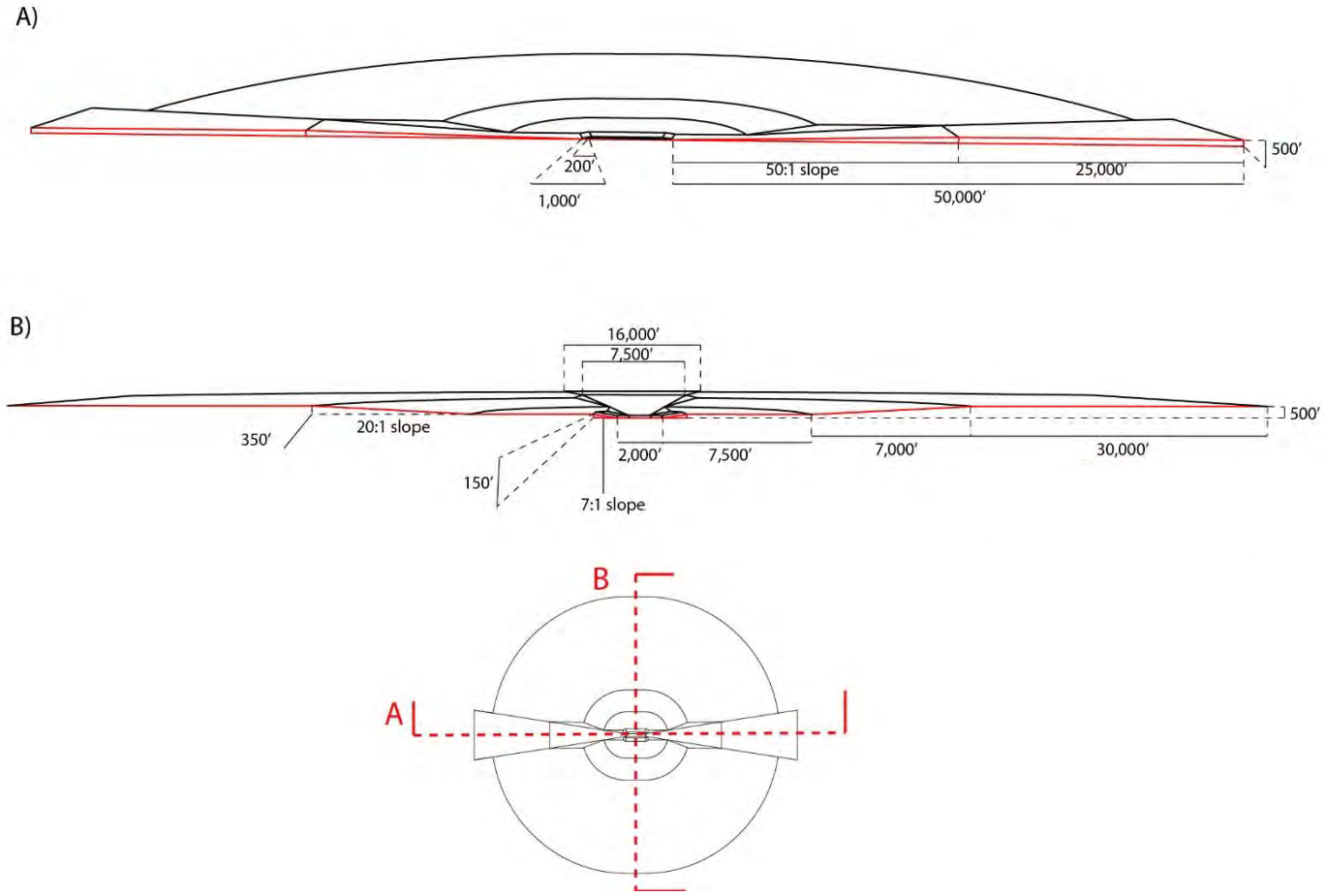
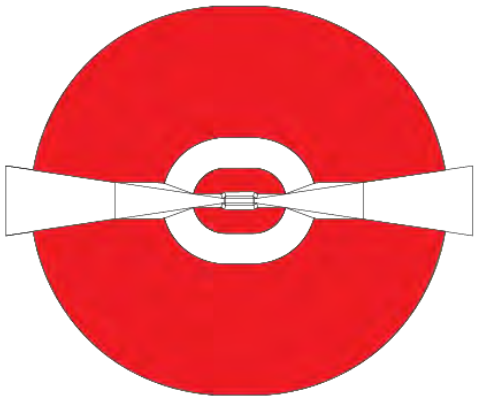


Figure 6.3b: 14 CRR Part 77 Military Airfield Imaginary Surface Diagrams

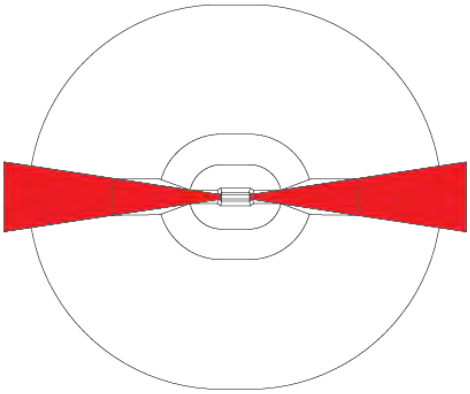
HORIZONTAL SURFACES



Inner Horizontal Surface: a horizontal plane, the perimeter of which is constructed by swinging arcs of a specified radii (defined in each section) from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by tangent lines

Outer Horizontal Surface: a plane located above the established airfield extending outward from the outer periphery of the conical surface

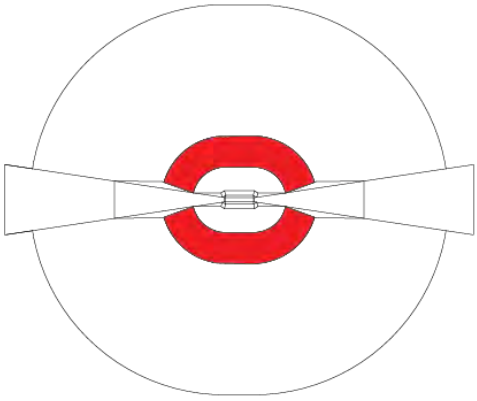
APPROACH SURFACES



Approach Surface: a surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of a primary surface. Applied to each end based upon the type of approach available or planned for that runway end

**The inner edge is the same width as the primary surface and expands uniformly to a specified width*

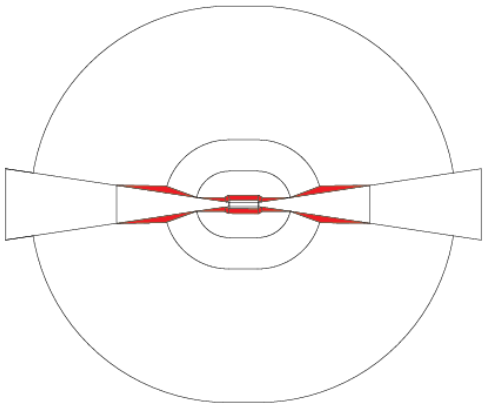
CONICAL SURFACES



Conical Surface: a surface extending up and out from the periphery of the horizontal surface

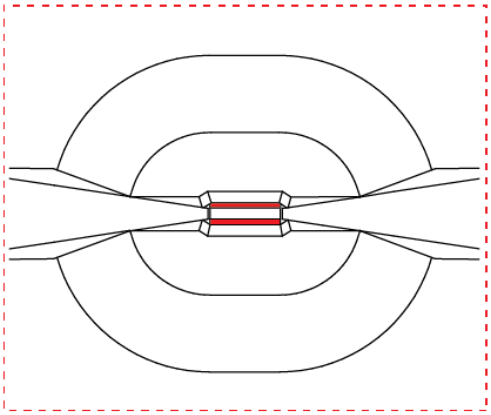
Figure 6.3c: 14 CRR Part 77 Military Airfield Imaginary Surface Diagrams

TRANSITIONAL SURFACES



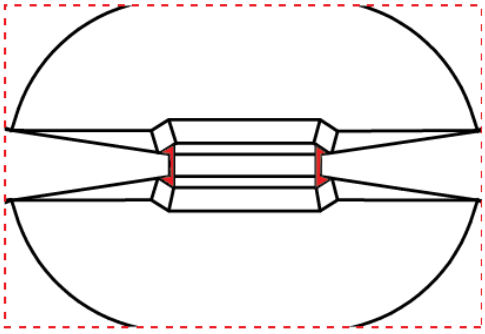
Transitional Surface:These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended from the sides of the primary surface and the approach surfaces.Transitional surfaces on the precision approach surface which project through and beyond the limits of the conical surface extend a distance of 5,000' horizontally from the edge of the approach surface and at right angles of the runway centerline

PRIMARY SURFACES



Primary Surface: a surface longitudinally centered on a runway;. The elevation at any point is the same as the elevation on the nearest point of the runway centerline

CLEAR ZONE SURFACES



Clear Zone Surface: a surface located on the ground or water at each end of the primary surface


Jacksonville
Soaring Higher


Little Rock AFB
Compatible Use Study
Implementation