

## Appendix B – Data Sources and Issues

### Census Block Data

A brief understanding of how the Census geography changes should be understood with regard to interpreting the data presented. Over time the boundary and number of individual Census blocks can change. This can result in some issues with comparison of data at this level of detail. Because our study area buffers do not necessarily correspond to the delineations of individual blocks, the number of blocks within each buffer zone will change over time. See Table 24. The increase of

**Table 24 US Census Blocks in Buffer Zones**

US CENSUS BLOCKS, CENTROID SELECTION METHOD						
	1 MILE		5 MILE		10 MILE	
COUNTY	1990	2010	1990	2010	1990	2010
BULLITT	108	94	445	587	769	1,117
HARDIN	339	430	861	1,180	1,652	2,115
JEFFERSON	7	10	121	146	846	1,228
MEADE	44	122	206	313	437	531
NELSON	0	0	25	34	127	165
TOTAL	498	656	1,658	2,260	3,831	5,196

granularity of the block increases the validity of the data counts that are extracted by the intersections of the buffer zones with the block level data. Thus the 2010 data count can be presumed to be more accurate than the 1990 due the increase of the blocks that cover the same geography of a particular county. Over the 20 year period the increase in the total number of Census blocks for each buffer was over 30%. The selection method used for this study involved including a Census block when its centroid lay within a particular buffer zone.

## Building Permits

The data for building permits was primarily sourced from the permitting agencies in each jurisdiction.

**Table 25 Building Permit Sources**

RESIDENTIAL BUILDING PERMITS	PRIMARY SOURCE DATA RANGE			
	FROM	TO	NOTE	
Bullitt County	1/1/2010	12/31/2019	1/28/2020	32 thru Jan 2020
Hardin County	1/1/20009	12/31/2019		
Elizabethtown	1/1/2010	12/31/2019	1/22/2020	8 thru Jan 2020
Radcliff	1/1/2017	12/31/2019		
Vine Grove	1/1/20009	12/31/2019		
West Point	nda	nda		
Meade County	7/1/2010	6/30/2020		
Brandenburg	nda	nda		
Muldraugh	1/1/2010	12/31/2019		
Nelson County	1/1/20009	12/31/2019		

Bullitt County Joint Planning Commission, export from their permit tracking database. Includes all incorporated cities and unincorporated county.

Hardin County Planning & Development, export from their permit tracking database.

Elizabethtown Planning Commission, export of constructing permit file.

Radcliff Planning Commission, export of new building data file. Some data was extracted from available media accounts as follows.

### The News-Enterprise

Jan. 14, 2018,  
[https://www.thenewsenterprise.com/news/local/local-construction-sees-uptick-in-2017/article\\_46aa844e-ac3a-5c7a-8448-3c74b1042ab4.html](https://www.thenewsenterprise.com/news/local/local-construction-sees-uptick-in-2017/article_46aa844e-ac3a-5c7a-8448-3c74b1042ab4.html)

July 22, 2011,  
[https://www.thenewsenterprise.com/news/local/housing-market-leveling-off-after-banner-year/article\\_36a84046-149c-502f-9e51-f1d7ea067e45.html](https://www.thenewsenterprise.com/news/local/housing-market-leveling-off-after-banner-year/article_36a84046-149c-502f-9e51-f1d7ea067e45.html)

Feb. 24, 2014,  
[https://www.thenewsenterprise.com/news/local/local-construction-healthy-in-2013/article\\_55298520-b394-58ac-a187-e9567a062b45.html](https://www.thenewsenterprise.com/news/local/local-construction-healthy-in-2013/article_55298520-b394-58ac-a187-e9567a062b45.html)

Vine Grove Planning & Zoning Commission, export of building permit file.

West Point Planning & Zoning Commission, no data available.

Meade County Planning Commission, export from permit info file.

Brandenburg Planning & Zoning Commission, no data available.

Muldraugh Planning & Zoning Commission, building permit list provided.

Nelson County Joint Planning Commission, export from permit file.

## Noise and Encroachment Complaints

The data used to map and analyze in Section IV, Compatibility Issues was obtained from the Fort Knox Garrison Command/Public Affairs Office (PAO). It is a collection of complaints filed through the PAO from the years 2007 – 2019. It contained the location the issue occurred, the complaint itself and the resulting action of the PAO. It is not to be considered a complete list of all complaints since many other units on post are also contacted by the public with these types of issues. This is a concern that is addressed in the implantation plan; to create a collection form and clearing house for these issues, regardless of how they are received.

The data is reported to be more comprehensive in the last three years of the collection. There are 96 complaints recorded over the 13 years of data. Of those, 95 were applicable and 87 were geolocated with some certainty. Of remaining 8, where the location could not be determined with specificity, 7 were noise and 1 vibration. Two of those were in Bullitt County.

The time-frame charts presented here are for information purposes only and any determination of trends from these would be considered a stretch. The consideration of air temperature and leaf canopy could provide some seasonal variation but that would have to be validated through training records to match with specific complaints. The location and type of the complaints are, however, felt to be data that is of value in consideration of any implementation strategies.

The complaints and responses take many forms. They were all reviewed to attempt to provide some insight regarding people's concerns. The information recorded the type of complaint, an address

location, a textual description, and the response. In some cases, particularly if damage was an issue, the complaint was referred to Claims 4-6913. Because of the nature of the complaints, many have a combination of issues. Helicopters are both too low and too noisy for example. In reviewing the data, a best attempt was made to isolate the primary concern for each individual complaint and the "Type" of complaint reflects this analysis. The following are a sample of the types of issues raised and the concerns expressed via direct quotes from either emails or the comments as documented by the PAO processing the complaint. An additional item of interest is that the form also charted if it was a "Repeat Caller". The original dataset contained 27 - Yes, 61 - No, and the remaining 8 no record.

**Chart 17 PAO Noise Complaint by Year**



### Noise/Vibration

*"Noise lasted for three days, shakes entire house, cracks in walls. She is not in good health and can't sleep anyway. In the*

*mornings the noise returns around 0900 & 1100. It is very, very loud. Cannot afford to move. It gets really scary.”*

*“Said yesterday afternoon noise started and went on into the evening up until 1:30 in the morning. Kept her family up and her dog barked all night.”*

**Chart 18 PAO Noise Complaint by Month**



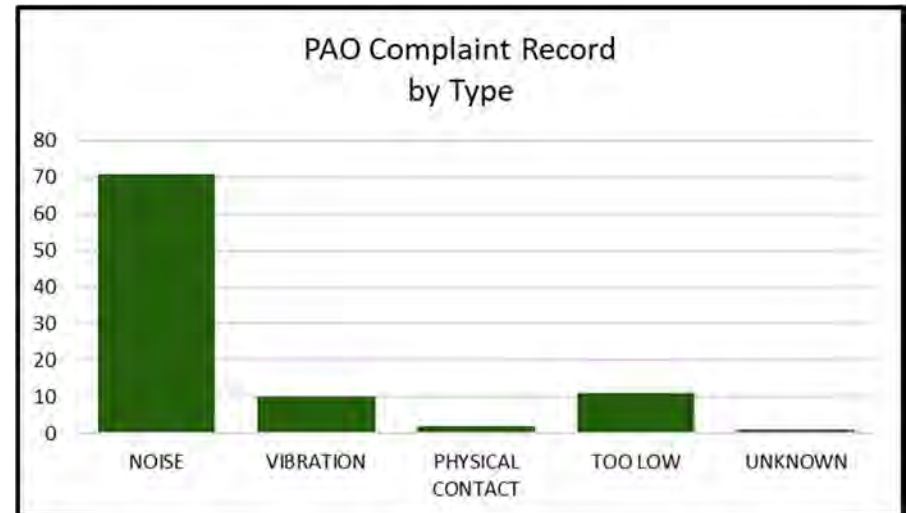
*“Him and his wife have lived in this location for 1 1/2 yrs. When they looked at the house they were aware of the proximity to Ft Knox but were assured by the realtor that Ft. Knox was not going to be a training base and most of the training exercises would leave but they have not seen a decrease in the activity. The house shook all weekend. He thinks the noise is getting lousder [sic] and the whole house shudders now.”*

## Physical Contact/Too Low

*“I have called many times about you being over the BUFFER ZONE BROKEN GLASS PICTURES FALLING OFF WALL Going to court house file complaints...”*

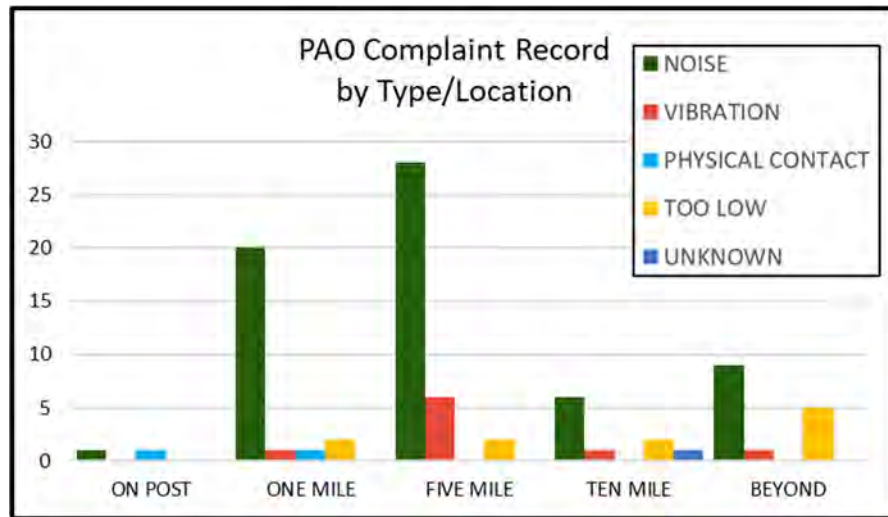
*“Speed limit is 25 mph through subdivision. Military [sic] vehicles are speeding through every day, early morning until about 1400. They are coming from Yano, he said, and he'll call State Police to catch them if they don't stop.”*

**Chart 19 PAO Noise Complaint by Type**



*“On wednesday [sic] night 23 Oct at around 1 a.m. helicopters were flying very low above our house. They were below 100 feet and they rattled my house. Fort Knox has 109,000 acres, why do they have to fly over residential areas.”*

Chart 20 PAO Noise Complaint by Type & Location



*“Tues. night (10/22) at around 11 p.m. helicopters were flying about 200 ft. above our house. There is no need to fly over a subdivision that low, that late at night. I understand at 3 in the afternoon, but not at night. That is what the restricted airspace on Fort Knox is for.”*

An issue raised are people’s concept that there is a “buffer” or “zone” that is being violated. This buffer has been expressed as both an area and an altitude. This is a consideration for the communication aspect in the Implementation Strategy, Section VI.

In support of “Table 14 Risk of Noise Complaints by Level of Noise” in Section II, Fort Knox, the legend is included following. Note “NLR” is Noise Level Reduction. Bold, underlined portions highlighted for emphasis by LTADD.

1 Although local conditions regarding the **need for housing may require noise-sensitive land uses in Noise Zone II, on or off post, this type of land use is strongly discouraged.** 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 noise-sensitive land use would not be met if development were prohibited in Noise Zone II.

2 **Where the community determines that these uses must be allowed, measures to achieve an outdoor to indoor noise level reduction (NLR) of at least 25 dB to 30 dB in Noise Zone II, from small arms and aviation noise, should be incorporated into building codes and be in individual approvals.** The NLR for communities subject to large caliber weapons and weapons system noise is lacking scientific studies to accomplish the recommended NLR. For this reason it is strongly discouraged that noise-sensitive land uses be allowed in Noise Zone II from large caliber weapons.

3 Normal permanent construction can be expected to provide a NLR of 20 dB, for aircraft and small arms, 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 (STC) 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.

4 NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers, can help mitigate outdoor noise exposure NLR particularly from ground level aircraft sources. Barriers are generally not effective in noise reduction for large arms such as artillery and armor, large explosions, or from high-level aircraft sources.<sup>186</sup>

## Land Use and Zoning Data

The data used

### BULLITT COUNTY

Bullitt County Joint Planning Commission

*Bullitt County Comprehensive Plan*, 2015.

Bullitt County Zoning Map, March 7, 2013.

<https://bullittcountky.us/documents/zoning-maps/>

*Bullitt County Future Land Use Map*, 2020

-GIS Layers

Bullitt County Land Use with zoning, c.2006. Data may only be current to 2002 per BCJPC.

Land Use 2019\_KYTC4\_version, from ArcGIS Online, 2/5/2019 downloaded Oct 20, 2020.

### HARDIN COUNTY

Hardin County Planning and Development Commission

*Planning for Growth – Comprehensive Development Guide 2019*

-GIS Layers

Master Zone, Dec 4, 2019, Contains polygon groupings based on the 28 planning areas in the county as defined by the 2019 comprehensive plan.

## APPENDICES

Hardin Parcel Zoning Layer, c. 2011, Zoning as assigned at the parcel level. Note some issues as described in Section I – Region and Community Profiles would apply to this data also as a PVA base layer of prior date is presumed to be the source of these polygons.

Radcliff Planning Commission

*City of Radcliff Comprehensive Plan*, August 1, 2019

While dated 2019 most of the data and analysis included is only current through 2003 with a few mentions to 2013. Many events have occurred in the interim that have not be reviewed such as BRAC infrastructure developments and mission and infrastructure changes at Fort Knox.

*City of Radcliff Zoning Map*, March 5, 2014

-GIS Layers

ZONE, c. 2013, Zoning as assigned at the parcel level. Note some issues as described in Section I – Region and Community Profiles would apply to this data also as a PVA base layer of prior date is presumed to be the source of these polygons. There have been some annexations since the date of this layer. These include several areas that fall within the one-mile buffer in the northwest portion of the city and along KY 434 in the southeastern area.

West Point Planning & Zoning Commission

*Code of Ordinances, Title XV: Land Usage*, 2005



City of West Point, *Comprehensive Plan*, July 2004

*Zoning Map*, West Point, Kentucky, 2010. Based on 2008 Zoning data.

-GIS Layers

Zoning, c. 2005 with updates in 2008. Based on parcel level polygons. Created by LTADD for Comprehensive Plan update and subsequent zoning maps.

## MEADE COUNTY

### Meade County Planning Commission

*Meade County Comprehensive Plan*, 2013

*Meade County Subdivision Regulations*, 1999, Amendments thru 31 May, 2011.

-GIS Layers

Zoning, 10 Oct. 2019. Created and maintained by the Commission.

### Muldraugh Planning & Zoning Commission

*Comprehensive Plan for Muldraugh, Kentucky*, 2013

*Code of Ordinances, Title XV: Land Usage*, 2015

-GIS Layers

Muldraugh Land Use & Zoning, 2014. Digitized from USDA/NAIP/FSA imagery, 2012 by LTDD and verified by city.

## NELSON COUNTY

### APPENDICES

### Joint City-County Planning Commission

Annual Reports – 2009-2020 (support source for building permit data).

Following online @ <https://ncpz.com/ordinances>

*Nelson County 2035: A Comprehensive Plan for the Cities of Bardstown, Bloomfield, Fairfield, and New Haven and Nelson County*. (re-adopted October 25, 2016).

*Zoning Regulations for All of Nelson County*, Considered current 2021.

*Subdivision Regulations*, Considered current 2021.

-GIS Layers

Nelson Existing & Future Land Use, 2019. Based on parcel level data. Created by LTADD in 2005 and maintained by LTADD and/or JCCPC to date.

## City of Hopkinsville, Ky. – Special Use District

### Section 158.406 Special Standards

Source:

[https://codelibrary.amlegal.com/codes/hopkinsville/latest/hopkinsville\\_ky/0-0-0-14408](https://codelibrary.amlegal.com/codes/hopkinsville/latest/hopkinsville_ky/0-0-0-14408)

(F) Additional restrictions within SUD 41A. An overlay zone is created and shall be designated on the official zoning map as follows:

- (1) APZ, Accident Potential Zone;
- (2) DNL-II, Day-Night Noise Level Zone II; and
- (3) DNL-III, Day-Night Noise Level Zone III.

(G) Table. The table below lists the specific restrictions with the overlay zones of the SUD 41A.

TABLE II Specific Development Restrictions Within SUD 41A			
Land Use Classification	APZ-2 (Allowable)	DNL Zone II (Allowable)	DNL Zone III (Allowable)
#1	NO	YES (DNL 45)	YES (DNL 45)
#2	NO	YES (DNL 45)	YES (DNL 45)
#3	NO	YES (DNL 45)	YES (DNL 45)
#4	YES	YES	YES
#5	YES/NO(1,2)	YES	YES
#6	YES/NO(1,2)	YES	YES
#7	YES/NO(1,2)	YES	YES
#8	YES	YES	YES
I-1/I-2	YES/NO(1,2)	YES	YES
RMH-1/RMH-2	NO	NO	NO
<b>Notes to table:</b>			
(1) Use is not allowable if it involves the lodging of people (transient lodging, hotels, motels, recreational vehicle parks, camp grounds).			
(2) Use is not allowable if it involves a large concentration of people. A large concentration of people is defined as a gathering of individuals in an area that would result in an average density of greater than 25 people per acre per hour during a 24-hour period, or a single event that would result in the gathering of 50 or more individuals per acre at any one time. Density averages shall be calculated per Ft. Campbell JLUS, Joint Land Use Study, dated January 1996.			
DNL < 45 Interior Day Night Noise Level of < 45dB. Noise attenuation measures incorporated into the construction of the building to bring the interior DNL to < (less than or equal to) 45dB.			

(H) Land within the overlay zone APZ, DNL-II or DNL-III may not be used for any purpose other than those indicated by the approved development plan and under the conditions attached thereto. Property owners should consult both the text of this chapter, the Official Zoning Map and the Fort Campbell Joint Land Use Study (JLUS), January 1996, to determine the location of properties in question and the limitations imposed thereon by this chapter.

(1) All construction must meet the minimum requirements of the Kentucky Building Code. Residential developments shall be designed and constructed to provide, wherever possible, for the location of outdoor activity areas, such as balconies and patios, on the side of the building which is sheltered from the aircraft flight path. In the



designated DNL-II and DNL-III, residential dwellings may be constructed provided.

(a) Sound attenuation features are built into the dwelling to bring the interior DNL of the living unit to 45 decibels or below. The architect and the contractor shall provide certification of compliance for sound attenuation features and construction; and

(b) The contents and covenants of deeds identifies the property as being located near an airport and in a DNL-II or DNL-III zone, and the aircraft noise may affect normal livability, value and marketability of the property.

(2) In the APZ, residential developments and limited high density uses are prohibited due to the high probability of aircraft accidents occurring (See Table II, this section).

(3) All lights or illumination used in conjunction with street, parking signs or use of land and structures shall be arranged and operated in such a manner that is not misleading or dangerous to aircraft operating in the vicinity.

(4) No allowable, proposed, transitional or special use of any type shall produce smoke, glare or other visual hazards within three miles of any useable runway.

(5) No allowable, proposed, transitional or special use of any type shall produce electronic interference with navigation signals or radio.

(6) No allowable, proposed, transitional or special use shall promote the gathering, feeding or roosting of birds within 10,000 feet of any runway.

(7) Notwithstanding the provisions of this chapter or any other ordinance, property owners or their agent proposing to erect or alter any structure that may affect the navigable airspace shall notify the Federal Aviation Administration in accordance with FAA Advisory Circular # 70/7460-2 (Appendix 1) and amendments thereto. Structure lighting shall be installed on the structure in accordance with the specific standards established in FAA Advisory Circular #70/7460-1 (Appendix 2) and Amendments thereto.

(Ord. 33-99, passed 11-2-1999; Ord. 10-2006, passed 3-23-2006)