

#### 4.1 Operational Impacts

Fort Riley generates operational impacts that are typical of Army installations around the country with noise being the most common effect as described below. Other issues could include:

- wild fires in training areas;
- accident potential associated with aircraft use on or around the post;
- rare incidents of off-target weapons fire and stray military vehicles affecting private property;
- water quality and water quantity; and
- electronic interference with communications.

#### 4.2 Installation Compatible Use Zone

The Army's Installation Compatible Use Zone (ICUZ) is a program designed to assess the noise and safety effects caused by proximity to an active military installation. Most of the noise associated with Fort Riley results from the following activities:

- small arms firing;
- large arms weapons firing; and
- demolitions.

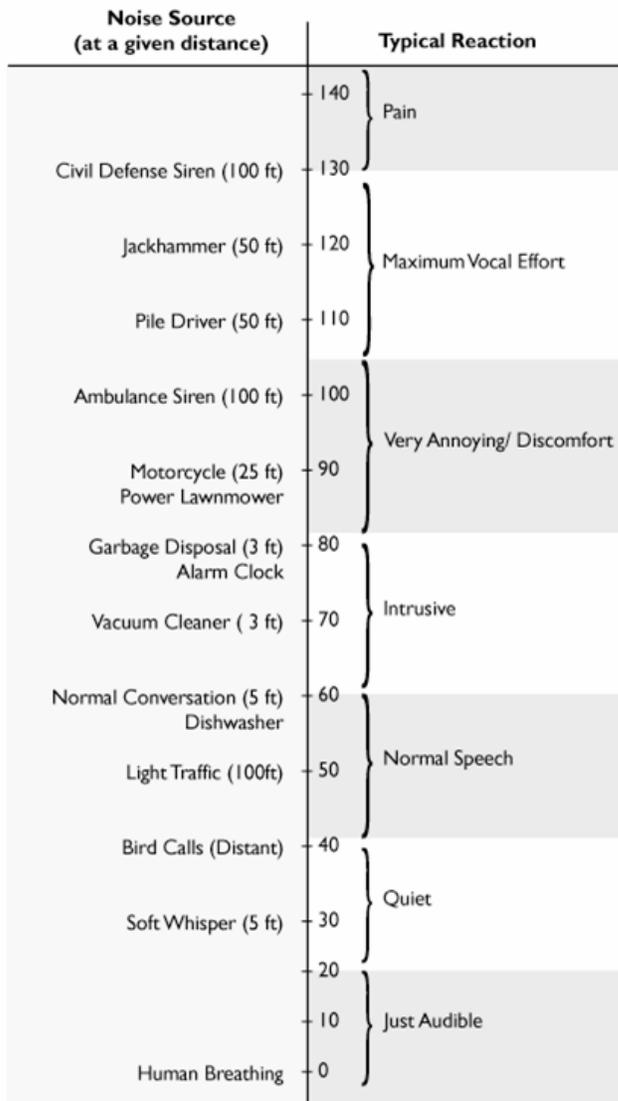
Currently, aircraft are not a major component of the post's noise environment.

The military measures noise in decibels (dB) and assigns a weighting based on the noise frequency and source. A-weighting, expressed as dBA, depicts higher frequency noise caused by small arms firing, aircraft use, and vehicle operations. C-weighting shows the low frequency noise and vibration associated with the firing of larger weapons systems (dBC), the major noise generator at Fort Riley. Though the impulsive noise produced by large arms weaponry can cause vibration and the shaking of nearby buildings, the noise is air-borne. Sound is not transmitted through the ground as a result of mortar or artillery impact on the post, but instead travels through the air.

Noise in excess of 55 dB can become intrusive and continued exposure to noise above the 85 dBA threshold can, over time, cause hearing loss. Figure 9 – Common Sounds and Noise Levels equates decibel levels with the sound of everyday activities.

**Figure 9 Common Sounds and Noise Levels, A-Weighted**

**Common Sounds and Noise Levels (A-weighted)**



The contours around the post reflect an annualized noise measure that converts noise varying from peak bursts to relative quiet into a steady measure of acoustic energy over a 24 hour period. The contours essentially take all operations that occur at Fort Riley over the year and divide by 365 days, producing the average day-night sound level (DNL).

The Army depicts noise based on a computer simulation that processes data such as the type of weapons fired from each range or firing point including demolitions, the number and type of rounds fired from each weapon, the location of targets for

each range or firing point and the amount of propellant used to reach the target (see Figures 10, 11 and 12). The DNL is the standard, accepted methodology for modeling the noise impacts of military activity on surrounding lands. The modeling takes into account variables such as:

- maximum loudness;
- how long the sound lasts; and
- the number of annoying sounds.

The measure further “penalizes” or places a higher decibel value on noise that occurs at night because it is more disruptive to the surrounding population.

In addition to operational characteristics, such as the type of weaponry used, a variety of meteorological factors, including wind, air temperature, humidity and cloud cover, can affect the path and the intensity of noise as it travels from its source. For example:

- wind moves the air and thus carries noise farther;
- humid air has more density, thus carrying noise farther from the source; and
- low, dense cloud cover can reflect more noise back to the ground, thus increasing sound intensity.

Experts at the Environmental Noise Program, US Army Center for Health Promotion and Preventive Medicine, created the noise zones shown below. The zones and corresponding land use guidance as identified by the Army are as follows:

**Noise Zone III.** Noise Zone III (NZ III) consists of the immediate areas around the source of the noise in which the A-weighted DNL (ADNL) is more than 75 decibels, and the C-weighted DNL (CDNL) exceeds 70 decibels. Guidance indicates that noise in this zone is severe enough to cause conflicts with almost all activities, particularly sensitive land uses, such as housing, schools, medical facilities, and places of worship.

**Noise Zone II.** Noise Zone II (NZ II) consists of an area where the A-weighted DNL is between 65 and 75 decibels and the C-weighted DNL is between 62 and 70 decibels. Guidance deems noise exposure within this area to be significant and recommends limiting use of land to non-sensitive activities such as industry, manufacturing, transportation, and agriculture. However, if the community determines that land in NZ II areas must be used for residential purposes, guidance suggests that the design and construction of the buildings incorporate noise level reduction (NLR) features to minimize the annoyance experienced by residents.

**Noise Zone I.** Noise Zone I (NZ I) includes areas around a noise source in which the DNL is less than 65 dBA and less than 62 dBC. Since the noise exposure in this zone is low enough that it does not trigger compatibility with sensitive uses, the figures do not show NZ I contours.

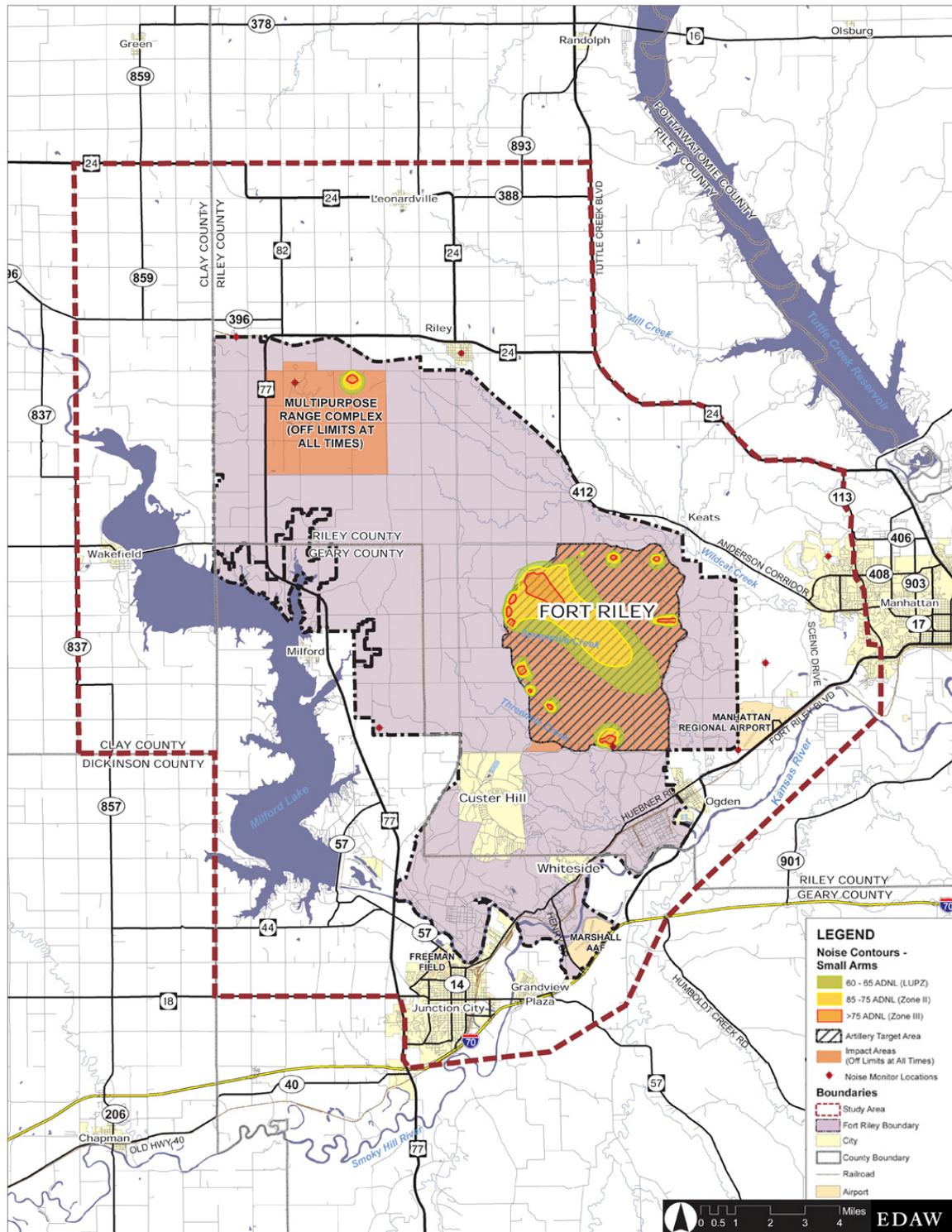
**Land Use Planning Zone.** The noise contours, 65 ADNL and 62CDNL, represent an annual average that separates the Noise Zone II, which has compatibility issues, from the fully compatible NZ I. Since the noise environment at the installation varies daily and seasonally, the Land Use Planning Zone (LUPZ) contour more broadly encompasses off-post lands, where on particularly active days, noise and the resulting community annoyance can approach levels typically associated with NZ II. The LUPZ, thus, gives the installation more flexibility for performing its mission and better reflects actual noise conditions during a period of heightened activity.

These noise contours should be viewed as a planning tool, not as a series of discrete lines that sharply divide noise-affected land from non-noise affected areas. But, contours are a useful framework for identifying those off-post areas in which noise exposure may be high enough to generate annoyance among a certain percentage of people.

Fort Riley also has on-the-ground sensors that collect data on noise generated at the post. Data from the sensors do not feed into the computer modeling of noise contours, but are used instead for purposes, such as investigating noise complaints.

As shown in Figure 10 – 2004 Small Arms Noise Contours, all noise zones associated with small arms firing are contained on post lands and maneuver areas and, therefore, generally do not pose compatibility issues with surrounding civilian uses.

Figure 10 2004 Small Arms Noise Contours



Noise caused by the firing of heavy weaponry or large arms (large arms weapons 20 mm and greater), such as the main guns off of the BFV and the Abrams Tank, at the MPRC and around the Impact Area, however, affect noise levels experienced on off-post lands as shown in Figure 11 – 2004 Large Arms Noise Contours.

The noise zones shown for large weapons firing reflect the latest noise simulation technology, BNOISE2 (Blast Noise Impact Assessment), which includes variables such as an area's topography and surface water. It should be noted that even though these March 2004 contours are larger than contours previously shown in Fort Riley noise management documents, the zones only reflect a more accurate modeling of the current noise environment surrounding the post. These zones do not indicate an increase in noise produced by post operations.

As shown on Figure 11, the LUPZ from heavy weapons firing covers approximately 36,000 acres off post primarily to the north and east. Land within this zone, particularly during periods of more intense activity, can be subject to noise high enough to trigger annoyance. The more severe NZ II caused from large arms firing covers about 2,400 acres to the north of the post, including portions of the city of Riley. Noise exposure in this zone is sufficient to raise compatibility issues with sensitive uses. The most severe of the zones, NZ III, does not cross post boundaries.

As noted earlier, a proposed Automated Multi-purpose Training Range (AMPTR) would affect the noise setting around the post due to increased intensity of range use. Figure 12 shows the noise contours that would result from simultaneous operation of the enhanced existing MPRC and the new AMPTR. NZ II contours would extend farther to the north to encompass the city of Riley, farther to the northeast, and also west over Milford Lake. Since these contours reflect noise in the foreseeable future when the AMPTR begins operation in approximately 2009/2010, analyses of compatibility issues shown later in this section overlay the proposed AMPTR noise contours with land use features.

Figure 11 2004 Large Arms Noise Contours

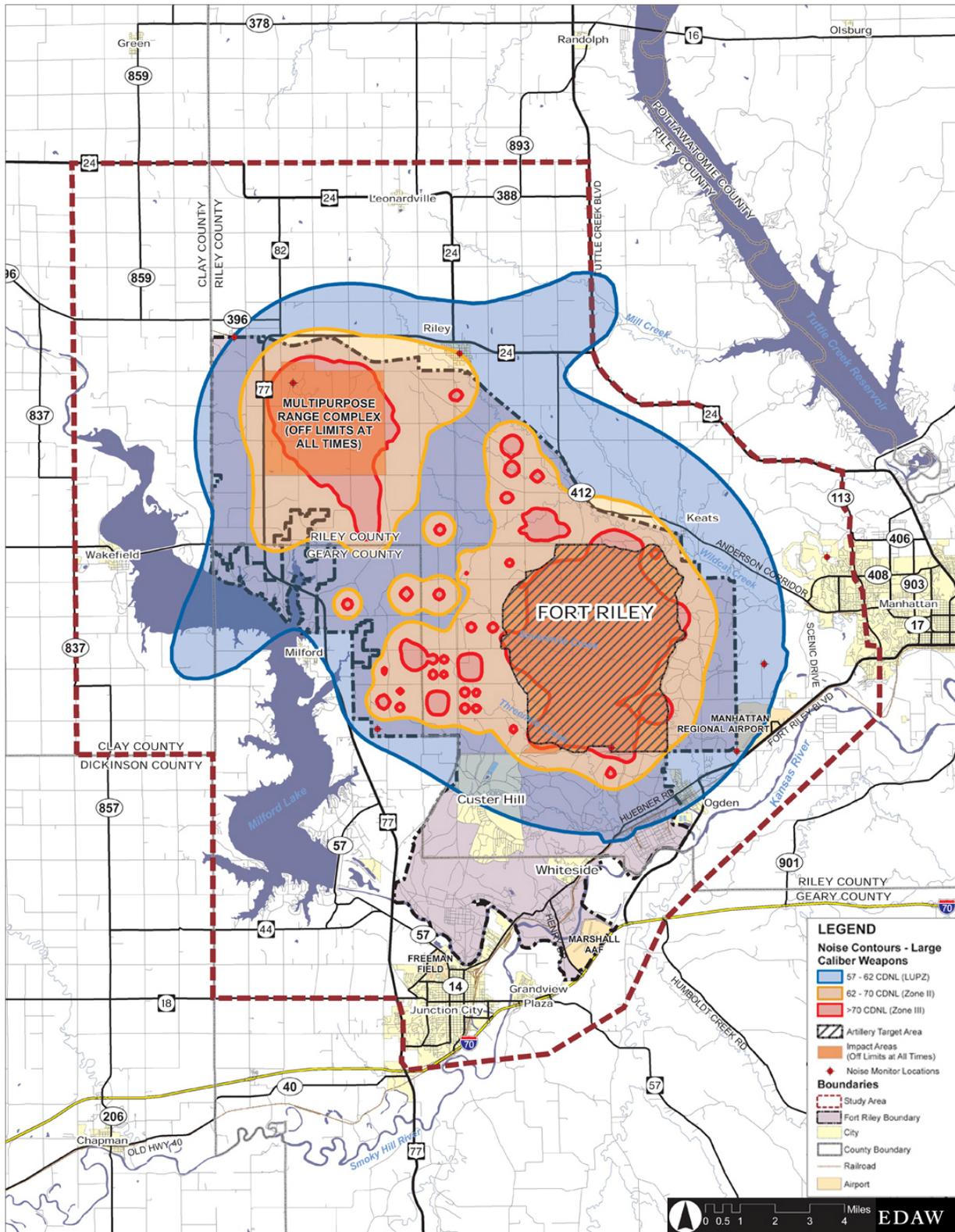
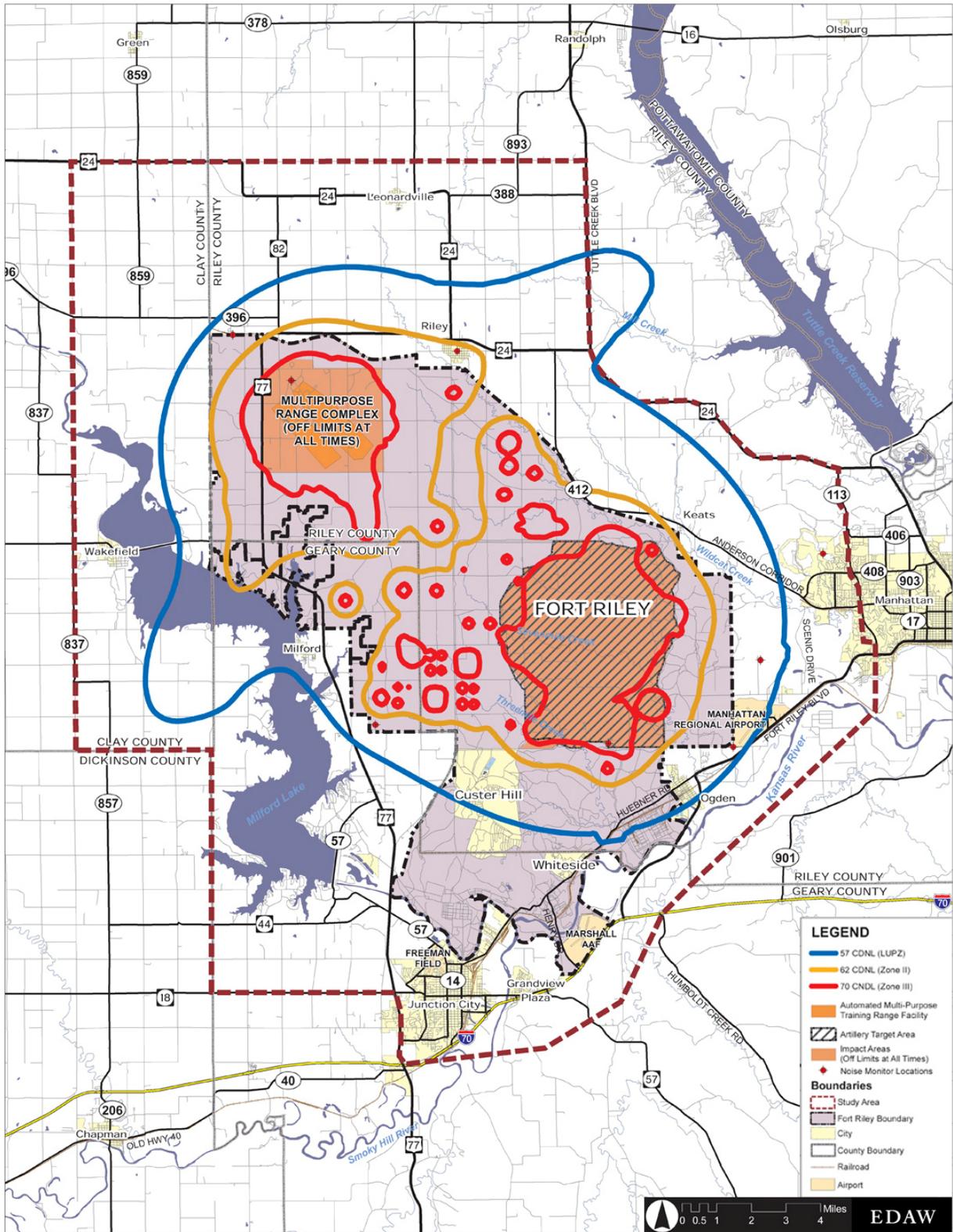


Figure 12 Proposed AMPTR Noise Contours



In addition to assessing the impacts of noise on surrounding land uses, the Army's ICUZ program examines the relationship among nearby land uses, aircraft accident potential, and possible hazards to air navigation. The air safety component of ICUZ identifies areas around the airfield where a mishap would be most likely to occur and also assesses the likely impact of any single accident.

Figure 4 - Air Safety Zones (shown in Section 3.0) identifies the following ICUZ air safety zones around Marshall Army Airfield.

- **Clear Zone (CZ).** The Clear Zone is an area 1,000 feet wide by 3,000 feet long at the immediate ends of the runway. The accident potential in this area is sufficient to recommend the prohibition of any structures in this zone.
- **Accident Potential Zone I (APZ I).** APZ I is less critical than the CZ, but still possesses significant potential for accidents. A wide variety of industrial, manufacturing, transportation, open space and agricultural uses can exist safely within this 1,000-foot wide by 2,500-foot long area just beyond the CZ. However, uses that concentrate people in small areas, such as higher density housing pose a conflict with the safety risks of this zone.
- **Accident Potential Zone II (APZ II).** APZ II is the least critical of the three air safety zones, but still carries some risk of an accident. APZ II is also 1,000 feet wide and extends 2,500 feet beyond APZ I. Compatible land uses include those of APZ I, as well as low density single family residential, and lower intensity commercial activities. High density functions such as multi-story buildings and places of assembly (e.g., theaters, schools, churches and restaurants), however, raise compatibility issues.

### 4.3 Other Possible Operational Impacts

In addition to noise and safety issues, the JLUS examined possible operational impacts to area water quality and quantity and interference with digital communications.

#### Water Quality and Quantity

Fort Riley and surrounding communities fall within the Kansas-Lower Republican Basin. Major bodies of surface water in the basin include Milford Lake, Tuttle Creek Lake, the Republican River, Smokey Hill River, Kansas River, and Wildcat Creek.

The possible effects of post operations on water quality stem from soil erosion associated with maneuver training activities and explosive ordnance detonation in the Impact Area. Soil erosion at disturbed sites has periodically increased the turbidity (cloudiness of water due to suspended dirt and residue) and sedimentation of some surface waters.

To characterize overall water quality within the basin, the Kansas Department of Health and Environment (KDHE) collects data on Total Maximum Daily Loads (TMDL) for water bodies. A TMDL represents the maximum amount of a pollutant that a water body can receive without violating acceptable water quality standards. Based on the latest available TMDL data, KDHE identifies one water body in the Flint Hills area, Tuttle Creek Lake, as a high priority for action due to eutrophication (excessive algae production), siltation, and pesticides. Milford Lake also shows some lesser water quality impairment due to eutrophication and low levels of dissolved oxygen. These water quality issues are relatively common in reservoirs throughout Kansas and are not related to operations at Fort Riley.

On a more site-specific basis, Kansas State University's Strategic Environmental Research and Development Program began a study in 2003 to identify sources of non-point source pollution resulting from military activities, to assess the water quality effects on surrounding water bodies, and to minimize the impact of training on surface waters. Findings are not yet available.

Hardening the stream crossings over which military vehicles travel is one of the most effective means to protect water quality. A Kansas State University Master's of Science research project collected data on turbidity, total solids, total dissolved solids, total suspended solids, settleable solids, pH, total hardness, calcium hardness, and total alkalinity at eight earthen and nine hardened stream crossings prior to and after vehicle movement. The analysis concluded that water quality associated with hardened stream crossings was better than water quality from areas near earthen fords. It should be noted that Fort Riley maintains hardened stream crossings around its maneuver areas to protect water quality.

In terms of water quantity, Fort Riley has two wellfields with a total pumping capacity of 1,400 gpm or 10.8 million gallons per day (mgd). The wells withdraw groundwater from aquifers recharged by the Republican and Kansas Rivers.

Groundwater is the primary source of drinking water for both the installation and the surrounding communities. Groundwater is plentiful within the sand and gravel in the alluvium associated with the major river systems in the area. Smaller quantities of groundwater also exist in the limestone bedrock in the upland areas. The raw water is relatively clean with low turbidity, though hardness levels vary considerably among the wells.

Overall, available data do not indicate major water quality or water quantity issues associated with Fort Riley activities.

#### Interference with Electronic Communication

With the increasing reliance of the U.S. military on digital communications and information systems, training operations become more vulnerable to electromagnetic interference (EMI). Electromagnetic interference includes any environmental condition, such as weather phenomena, intentional jamming, or

external noise that disrupts the operational capability of military forces, equipment, or systems.

Cordless communication devices, wireless networking, and satellite communication systems use a broad range of the electromagnetic spectrum. As these devices become more numerous, the amount of radiation in the electromagnetic spectrum increases. These emissions can interfere with the normal operation of electronic communication links and systems.

The primary sources of unintentional interference of electronic signals include devices such as broadcast television, VHF transmitters, personal electronic devices, Mobile Satellite Service (MSS) communications systems, and ultra-wideband (UWB) radar systems. Incidental interference is a particular concern for the operation of aircraft electronics.

The Department of Defense's Joint E3 (Electromagnetic Environmental Effects) Program conducts research to develop, design, and operate military systems that minimize electromagnetic environmental effects. Currently, there is no evidence of major electromagnetic interference issues either on the post or in surrounding areas.

#### **4.4 Analysis of Current Land Use**

The following analysis assesses the compatibility of existing civilian land uses around the installation. When compatible, land uses can exist next to each other without causing interference or exposing people to undue safety risks or nuisance. In this JLUS context, Army training activities raise compatibility issues when next to the following nearby land uses:

- Noise sensitive uses, such as housing, schools, medical facilities or places of worship;
- Uses that tend to concentrate people (certain higher residential densities, schools, churches, hospitals); and
- Uses that can interfere with safe air navigation, such as tall structures, or activities that throw off excessive lighting, smoke or dust and may impair vision.

For purposes of evaluating compatibility, the JLUS draws guidance from The Federal Interagency Committee on Urban Noise (FICUN) land use guidelines (FICUN 1980). FICUN's land use compatibility guidelines are standards only and do not determine acceptable uses of land within communities. Only local governments have the authority to establish permissible land uses and to define the relationship between specific properties and noise or safety contours.

Table 8 assesses the compatibility of various land uses relative to levels of noise exposure. The guidelines below are based on the A-weighting function, which

evaluates noise from transportation (vehicle and aircraft), small arms, and continuous noise sources. Most of the noise from post operations is impulsive and, therefore, better expressed with a C-weighting that captures the effects of low frequency sound. As noted earlier, the impulsive sound pressure from the firing of large weapons and the detonation of explosive charges can cause structures to vibrate and, therefore, tends to be more annoying than A-weighted noises of the same decibel level. (see Appendix 5 for a full listing of land use compatibility guidelines)

**Table 8. Land Use Compatibility Guidelines, A-Weighting**

FICUN	NZ I		NZ II		NZ III	
	< 55 DB	55 to 65 DB	65 to 70 DB	70 to 75 DB	75 to 80 DB	80 to 85 DB
Households	Y	Y	Y	Y	N	N
Manufacturing	Y	Y	Y	Y	Y	Y
Retail – General	Y	Y	Y	Y	Y	N
Restaurants	Y	Y	Y	Y	Y	N
Personal Services	Y	Y	Y	Y	Y	N
Hospitals	Y	Y	Y	Y	N	N
Government	Y	Y	Y	Y	Y	N
Education	Y	Y	Y	Y	N	N
Public Assembly	Y	Y	Y	N	N	N
Parks	Y	Y	Y	Y	N	N
Agriculture	Y	Y	Y	Y	Y	Y

Source: FICUN 1980

In general, guidance states that housing is compatible (shown in green) with noise exposure up to DNL 55 dB. Standards indicate that with exposure between DNL 65–75 dB, additional protective measures, such as indoor noise reduction, for residential uses may be warranted (shown in yellow). For conditionally compatible residential land uses, guidelines suggest consideration of the following factors:

- Is there a demonstrated community need for residential use that would not be met if development were prohibited in these zones?
- Where the community determines that residential uses are desired, structures should incorporate noise level reduction measures of at least 25 dB (65-70 ADNL) and 30 dB (70-75 ADNL).
- Noise level reduction criteria will not eliminate outdoor noise problems. However, building location and site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level transportation sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

Guidelines deem noise exposure that exceeds DNL 75 dB to be “incompatible” (shown in red) with all residential uses. Many uses, such as manufacturing, retail, government facilities, and agriculture, however, can be suitable even within a relatively high noise setting.

As shown in Figure 13 – Existing Land Use and Proposed AMPTR Contours, land surrounding the post is predominantly agricultural. While the general character of adjacent communities is rural, a review of existing land use patterns around the post identifies three main areas of possible concern due to noise exposure from current and foreseeable post operations:

- city of Riley
- Keats area
- city of Ogden and areas east of the post

For purposes of compatibility analysis, Figures 14, 15 and 16 focus more closely on these areas to identify existing land use conflicts. The city of Riley is the most noise affected of any of the communities surrounding the post. As shown in Figure 14, foreseeable NZ II impacts generated from post operations raise compatibility issues with housing and other noise sensitive uses, such as schools, in the city of Riley. Similarly, housing in the Keats community of unincorporated Riley County is adjacent to the installation and very close to an off-post NZ II (see Figure 15). The city of Ogden and areas east of the post sit within the LUPZ and are, therefore, subject to nuisance-inducing noise levels during periods of more intense training (see Figure 16).

Figure 13 Existing Land Use and Proposed AMPTR Noise Contours

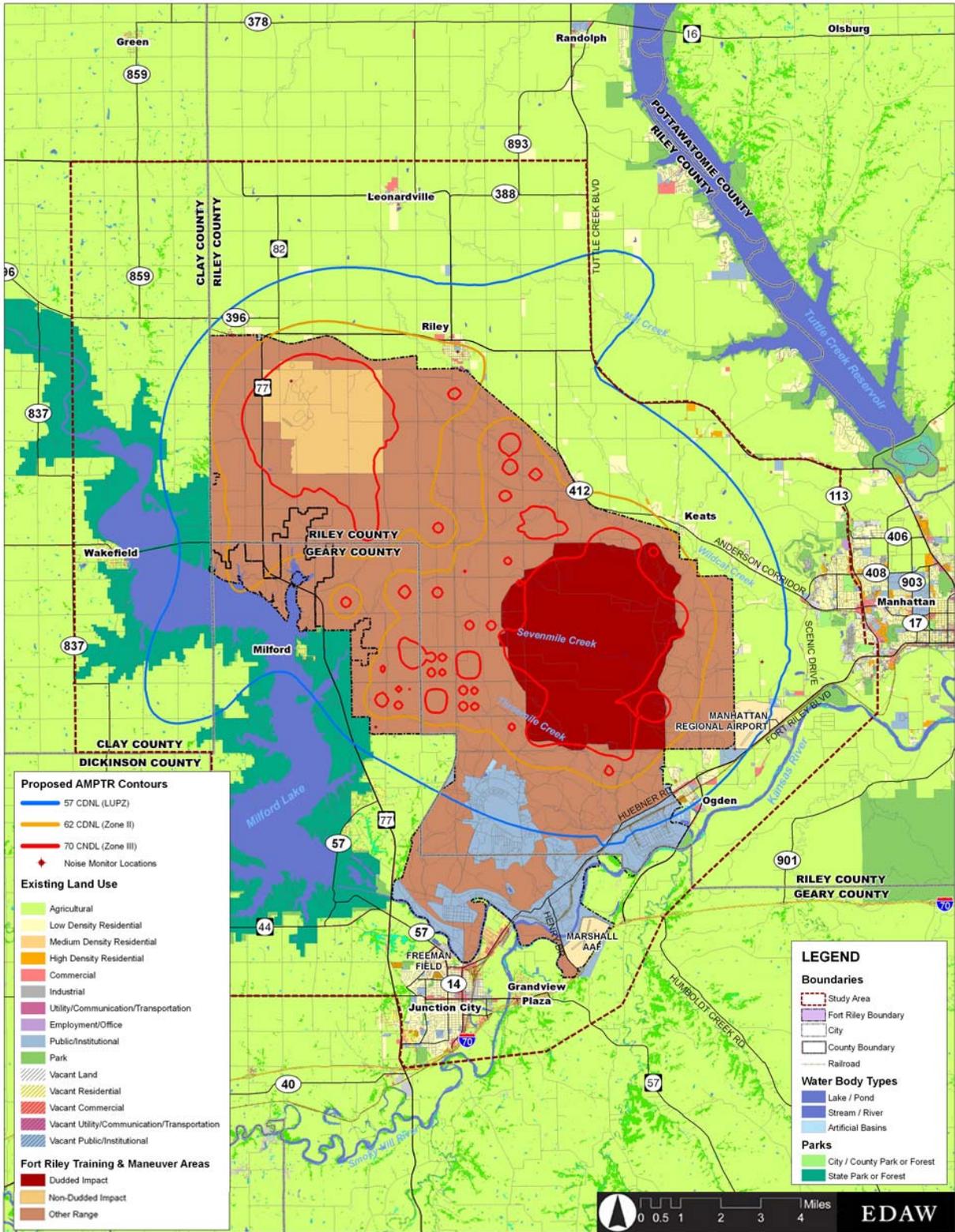


Figure 14 Existing Land Use and Proposed AMPTR Contours, City of Riley

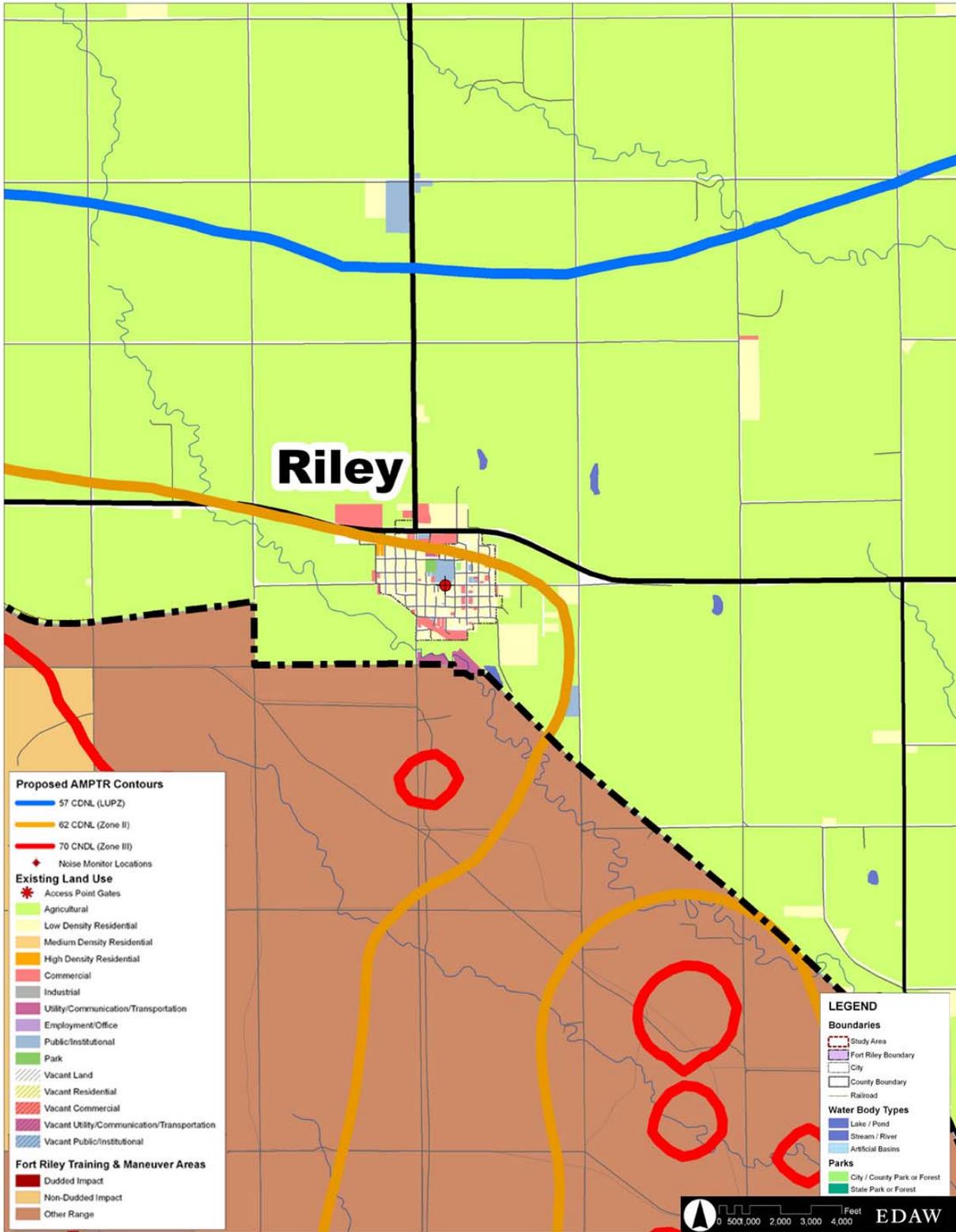


Figure 15 Existing Land Use and Proposed AMPTR Noise Contours, Keats

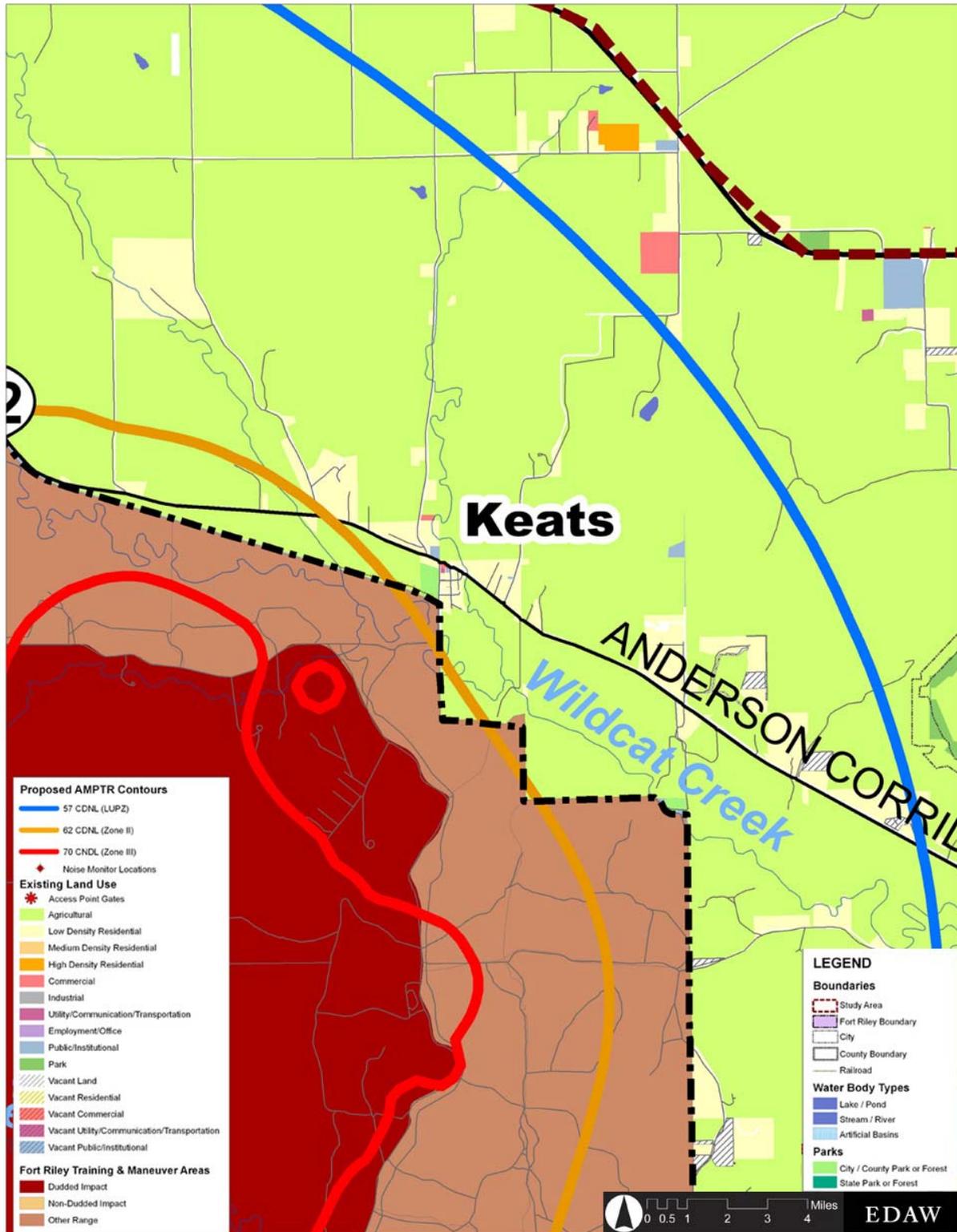
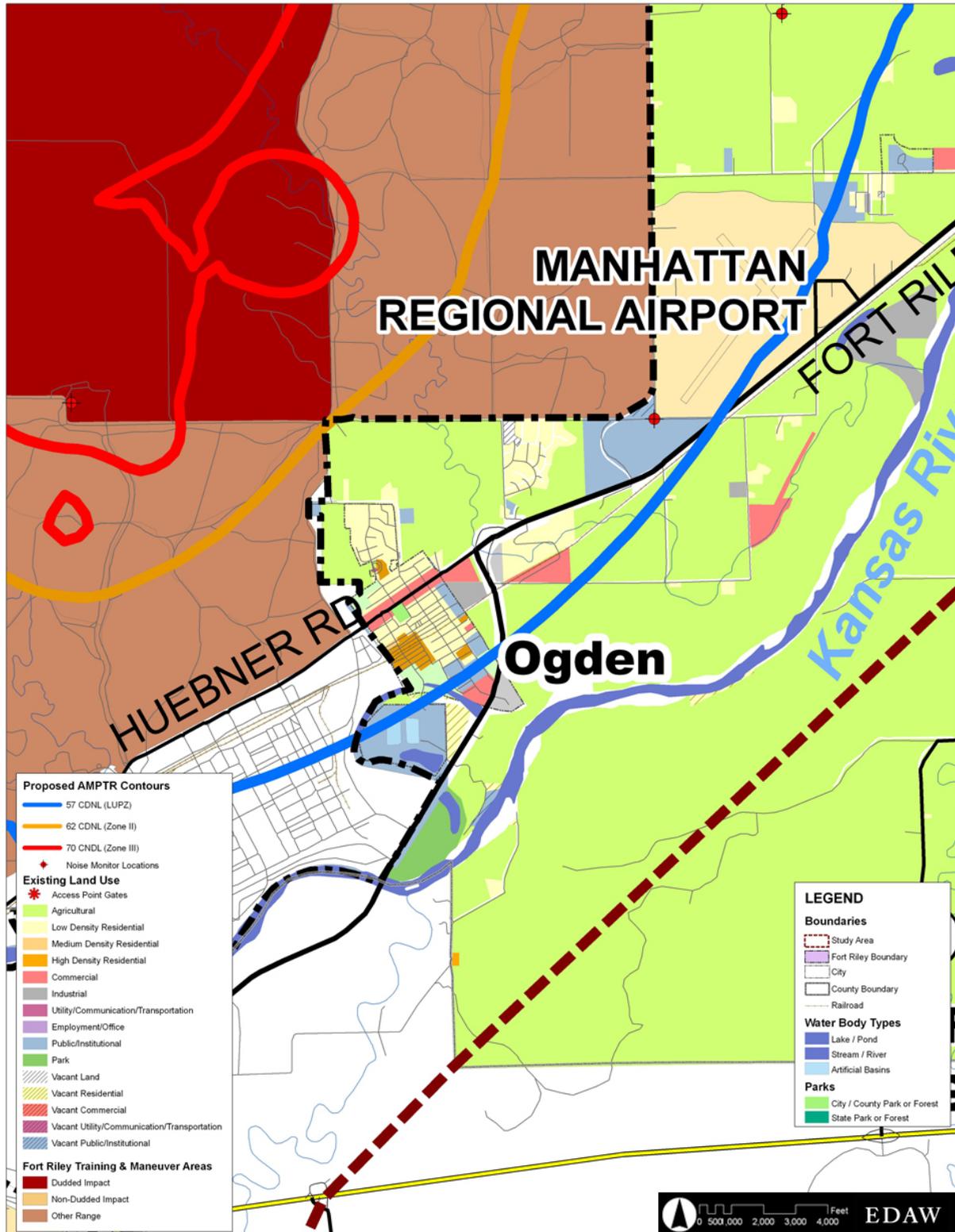


Figure 16 Existing Land Use and Large Arms Noise Contours, Ogden



#### 4.5 Future Land Use

Most of the land surrounding the post remains designated for rural/agricultural purposes in the future (see Figure 17 – Future Land Use and Proposed AMPTR Noise Contours). As noted earlier, two trends could raise compatibility issues with post operations in the foreseeable future—the spread of Manhattan’s expanding population west along the West Anderson corridor toward the post and the emergence of dispersed residential uses within rural areas north of the installation.

The Manhattan Urban Area (MUA) Comprehensive Plan identifies areas outside of its Urban Service Area Boundary (USAB) for rural residential use with tracts typically between 2 and 20 acres in size. The MUA Comprehensive Plan identifies the West Anderson Corridor, which runs along the northern side of Wildcat Creek westward to within one mile of the northeastern boundary of the post, as an area for future potential urban growth. The Plan states that the area will remain primarily rural in the near-term with transition to a more developed character dependent upon the timing and availability of infrastructure. The western end of this corridor extends into the LUPZ.

A second special planning area in the MUA that could affect compatibility with the post is the West of Scenic Drive Area, just east of the installation, in which the Plan urges rural development that is sensitive to the scenic qualities of the landscape and promotes clustered site design. At the northern edge of the West of Scenic Drive Area, the MUA Comprehensive Plan identifies an urban high-density residential growth corridor just south of Wildcat Creek along both sides of Scenic Drive. However, this identified urban growth corridor is outside of the LUPZ.

The MUA plan also designates areas around the city of Ogden both to the south and the east of the post for low density residential growth (see Figure 18). The Junction City Future Land Use plan sets aside land to the southwest of the installation near Junction City and Milford Lake for future low density housing. The city of Riley, north of the post, does not have a Future Land Use Plan at this time.



Rural and agricultural lands surrounding the post

Figure 17 Future Land Use and Proposed AMPTR Noise Contours

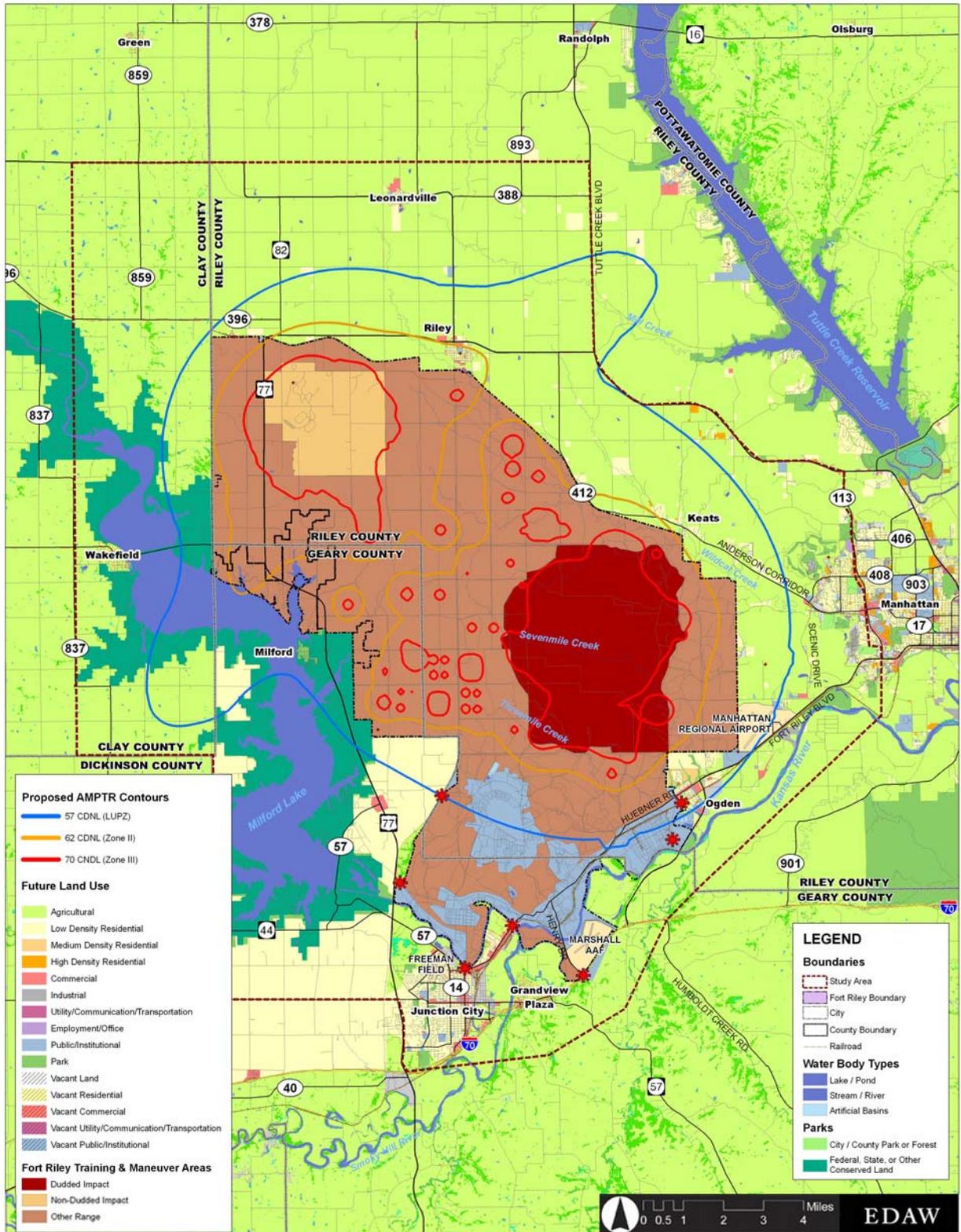
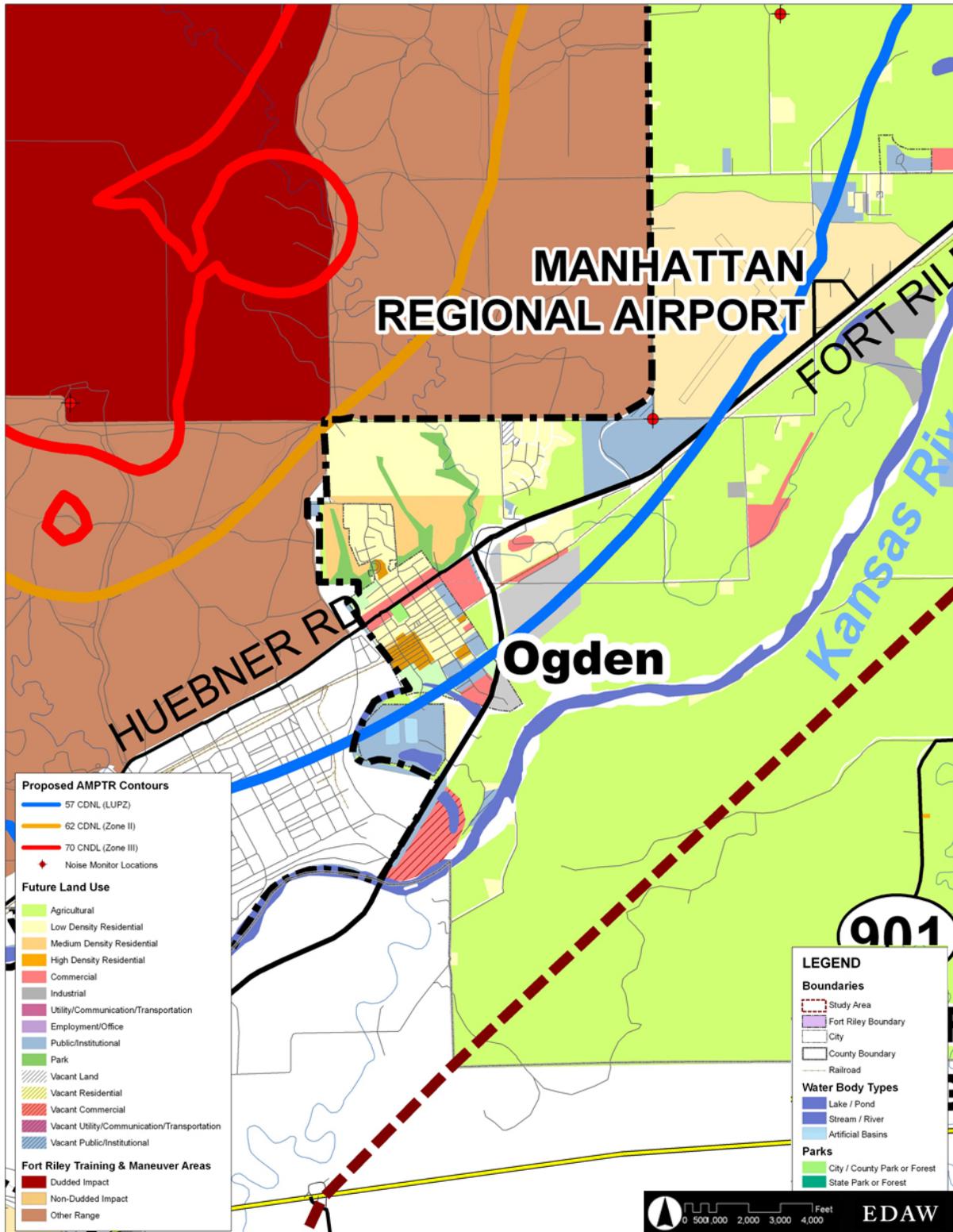


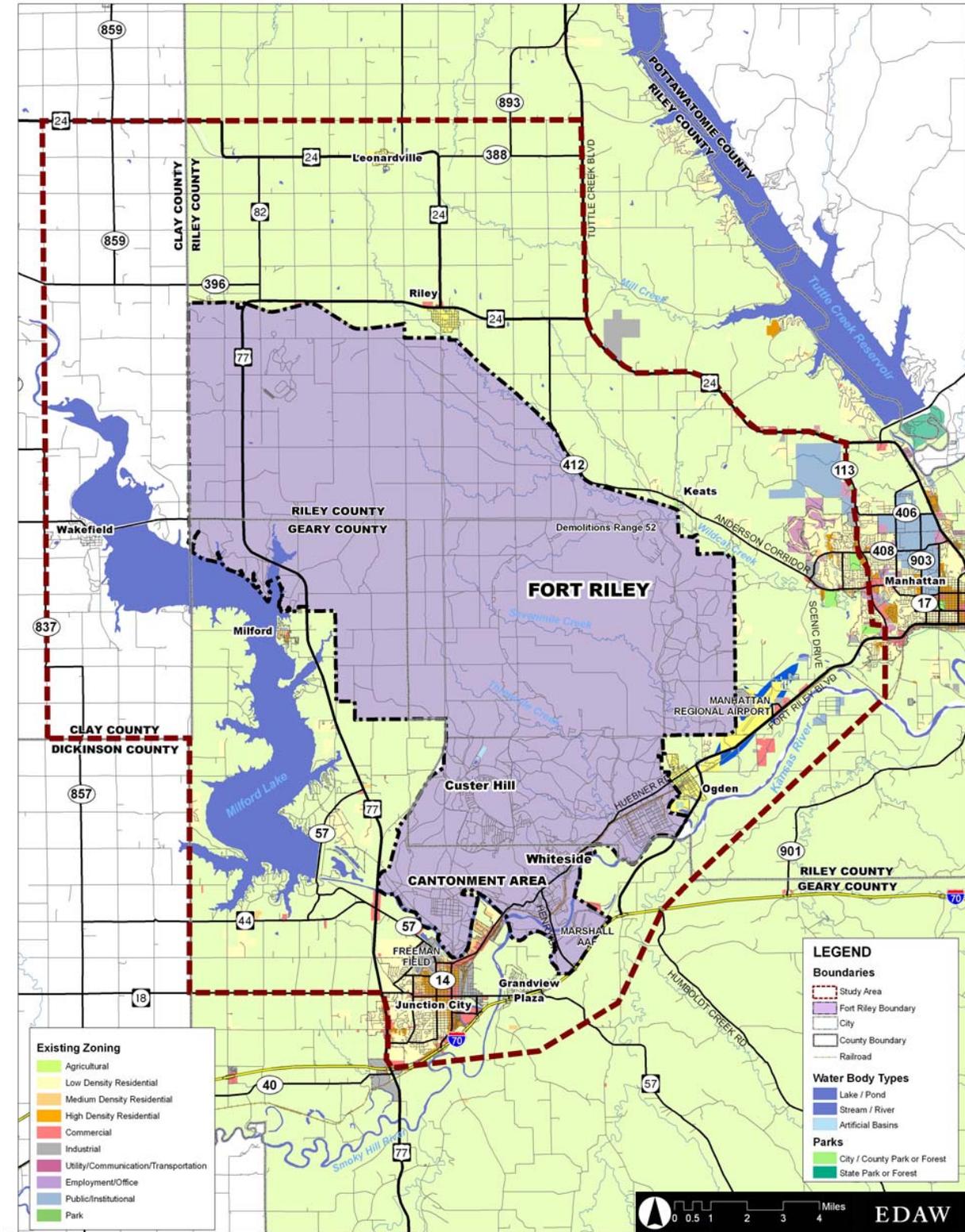
Figure 18 Future Land Use and Proposed AMPTR Noise Contours, Ogden



#### 4.6 Analysis of Zoning

As shown in Figure 19 – Zoning, unincorporated Clay County, west of the post, zones land mainly for agricultural purposes, requiring a minimum tract size of 5 acres for each residence. The city of Milford is zoned for single family uses, along with duplex and multi family housing, and commercial/industrial activities. The predominant zoning of unincorporated Riley County north and east of the post is agricultural with a minimum lot size of 20 acres for a single family dwelling unit. The zoning pattern of Ogden east of the post is mainly single family residential. The city of Riley is zoned primarily for low to medium single family residential uses with commercial activity near the intersection of Highways 24 and 77. Geary County to the south is zoned primarily for agricultural uses, while Junction City contains a mix of commercial, industrial and medium to high density residential zoning.

Figure 19 Zoning



## 4.7 Current Army Compatibility Tools

The Army has a variety of tools in place to address operational impacts, such as noise, on off-post lands. The primary tool for mitigating noise is the Installation Operational Noise Management Plan, which includes identification of the Installation Compatible Use Zone (ICUZ) noise contours discussed earlier, education and outreach components, noise complaint management procedures, and noise/vibration mitigation. Fort Riley has taken the following specific actions to limit noise exposure on nearby communities:

**Firing Restrictions.** Fort Riley prohibits active Army units from conducting live fire training between the hours of Midnight and Noon on Sundays. Though the restriction is not applicable to the Reserve Component and National Guard, the installation discourages firing by those units between these hours.

**Fly Neighborly Program.** Fort Riley has adopted a "Fly Neighborly Program," which trains Army helicopter pilots on ways to reduce noise impacts when flying in developed areas. Significant aspects of the Fort Riley program include:

- Investigation of Noise Complaints.
- Designation of Noise-sensitive Areas.
- Requiring military aviators to avoid residences, buildings, and farm-related facilities by at least 500 feet slant range while maintaining appropriate altitude; to avoid towns and cities except when operating in approved corridors; to avoid livestock and recreational areas; and to use established traffic patterns, corridors, and routes at designated altitudes.

**Airspace Corridor/Route System.** Fort Riley has developed a system of corridors and visual flight rule (VFR) routes to promote the safe and efficient flow of air traffic and to minimize the effect of aircraft noise.

**Aircraft Control Procedures.** Control procedures designed to mitigate noise include: avoidance of residences, buildings, and farm related facilities; avoidance of towns, cities, and villages; and use of designated traffic patterns and altitudes.

Fort Riley also notifies the public in advance of an unusually extensive training event.

As noted earlier, the Army participates in the Fort Riley Tallgrass Prairie Partnership, an initiative to preserve the remaining grasslands surrounding the post. The post also leases options on installation land for agricultural purposes. These efforts support a broader strategy to create land use compatibility through environmental/agricultural conservation on lands adjacent to the post.

## 4.8 Current Local Compatibility Tools

This section assessed local government policy to determine what tools are currently available to communities seeking more compatible land use patterns around the post. The review looked for the following specific tools among existing plans, ordinances, and regulations:

**Plan Coordination.** *Does the jurisdiction have a Comprehensive Plan with specific language promoting land use coordination with Fort Riley and identifying areas subject to possible encroachment near the post?*

**Growth Management.** *Does the jurisdiction have a stated policy to guide growth away from areas in proximity to the post or from areas likely to be affected by post operations?*

**Conservation.** *Does the jurisdiction have an established set of environmental criteria to preserve rural/undeveloped lands that may be in proximity to the post?*

**Flexible Land Use.** *Does the jurisdiction permit flexible land use patterns, such as cluster zoning or planned unit developments that can reduce post impacts through innovative site design?*

**Civilian Airport Zoning.** *Does the jurisdiction have specific zoning that recognizes airspace hazard prevention and other land use compatibility goals around existing airports?*

**Noise Reduction.** *Does the jurisdiction require indoor noise reduction for new residential construction within high noise areas?*

**Disclosure.** *Does the jurisdiction require that real estate transactions in noise or safety affected areas include a release of information on possible impacts to prospective buyers or renters?*

As shown in Table 9 below, the local governments surrounding Fort Riley currently have access to relatively few specific tools to promote compatible, flexible land use around the post.

**Table 9. Existing Local Government Compatibility Tools**

Tool	Purpose/Intent	Application
<b>City of Manhattan – Manhattan Urban Area</b>		
Plan Coordination	To promote coordinated land use planning with Fort Riley.	Contains specific language on land use coordination:  <i>The City and County shall work closely with Fort Riley to coordinate on issues of mutual concern, particularly as it relates to growth and development issues in the western portions of the Planning Area, to minimize land use conflicts and encroachments and insure that development is mutually compatible with the goals and objectives of this Comprehensive Plan and the mission of Fort Riley.</i>
Growth Management	To promote a pattern of orderly, contiguous growth from the city, to minimize low density dispersed growth and to conserve environmentally sensitive areas.	The Urban Service Area Boundary (USAB) sets the boundary inside which urban scale uses are appropriate, calling for very low density living areas, open space, and agricultural activities outside of the USAB and clustering to preserve cohesive blocks of open space/agriculture.
Conservation	To identify and protect environmentally sensitive resources as part of the development review process.	The Development and Environmental Constraints Map identifies the 65 decibel noise contour around the Manhattan Airport, sensitive habitat, prime agricultural land, and flood prone areas as constraints to be considered in proposals.

<b>Tool</b>	<b>Purpose/Intent</b>	<b>Application</b>
Flexible Zoning and Land Use	To promote the progressive development of land and Construction.	The Planned Unit Development District provides for flexibility in the mixing of compatible uses and the location and type of structures, while setting aside perpetual common use open space and facilities.
Airport Overlay	To promote the use and development of land in a manner that is compatible with the continued operation of the Manhattan Municipal Airport and to protect public health, safety, convenience, and general welfare.	Special zoning within the air safety zones of the Manhattan Regional Airport establishes permitted and conditional uses.
Avigation Easements	To grant the right to fly airplanes over private property.	The Manhattan Urban Area Subdivision Regulations establish avigation easements in the vicinity of flight paths and noise areas of publicly owned or controlled airports to protect navigable airspace.
Noise Reduction	No	No
Real Estate Disclosure	No	No
<b>Riley County</b>		
Plan Coordination	No	No (county plan is being updated)
Growth Management	To encourage a land use pattern that is more compact, to protect natural resources, to minimize infrastructure costs, and to maintain the efficiency of agriculture.	Comprehensive Plan sets policies to reduce the intrusion of scattered urban uses that are incompatible with a rural environment.
Conservation	No	No
Flexible Zoning and Land Use	To promote more flexible and progressive land use patterns.	Planned Unit Development
Airport Overlay	To prevent the obstruction of air navigation.	Airport Noise Hazard District sets height and use restrictions.
Noise Reduction	No	No (county does not currently have building codes)

<b>Tool</b>	<b>Purpose/Intent</b>	<b>Application</b>
Real Estate Disclosure	No	No
<b>City of Riley</b>		
Plan Coordination	No	No
Growth Management	No	No
Conservation	No	No
Flexible Zoning and Land Use	To give flexibility on the size, siting, and types of dwelling units permitted, while setting aside common open space.	Planned Unit Development District
Airport Overlay	No	No
Noise Reduction	No	No
Real Estate Disclosure	No	No
<b>Junction City and Geary County</b>		
Plan Coordination	No	No
Growth Management	To lay out general policies to protect environmental resources and to promote orderly growth.	Comprehensive Plan sets a policy to encourage a land use pattern that protects natural resources, minimizes infrastructure costs, and maintains the efficiency of agricultural uses.
Conservation	No	No
Flexible Zoning and Land Use	To permit modification to the zoning or other applicable regulations contingent upon the site development plan, the amenities incorporated within the project, and the public interest that is met.	Planned Development District
Airport Overlay	To prevent the obstruction of air navigation around Freeman Field.	An Airport Zone regulates the height of structures, requires hazard markings within airport approach zones and transition zones, and prohibits uses that may interfere with pilot vision or the operation of electrical systems.
Noise Reduction	No	No
Real Estate Disclosure	No	No
<b>City of Ogden</b>		
Plan Coordination	No	No
Growth Management	To promote orderly and efficient growth.	Comprehensive Plan sets goals to reinforce the existing city grid with new growth and to cluster uses to preserve open space.

Tool	Purpose/Intent	Application
Conservation	No	No
Flexible Zoning and Land Use	No	No
Airport Overlay	No	No
Noise Reduction	No	No
Real Estate Disclosure	No	No
<b>City of Milford</b>		
Plan Coordination	No	No
Growth Management	No	No
Conservation	No	No
Flexible Zoning and Land Use	No	No
Airport Overlay	No	No
Noise Reduction	No	No
Real Estate Disclosure	No	No
<b>Clay County</b>		
Plan Coordination	No	No
Growth Management	No	No
Conservation	No	No
Flexible Zoning and Land Use	No	No
Airport Overlay	No	No
Noise Reduction	No	No
Real Estate Disclosure	No	No