

# **FINAL ENVIRONMENTAL ASSESSMENT**

Hillsdale Shooting Range  
Hillsdale State Park  
Paola, Kansas

Prepared by:  
Kansas Department of Wildlife, Parks and Tourism  
and  
U.S. Fish and Wildlife Service

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## **CHAPTER 1: PROJECT SUMMARY, PURPOSE AND NEED**

### **1.1 PROJECT SUMMARY**

Location: Hillsdale State Park

County: Miami

Nearest town: Paola, KS

Township/Range/Section: SW ¼ Section 17, T16S, R23E

GPS center of project: N 38 39.481, W 94 53.785 (Appendix 1)

The Kansas Department of Wildlife, Parks and Tourism (KDWPT) proposes to construct a shooting range at Hillsdale State Park (HILP), on land leased from the Corps of Engineers (COE), located immediately below the Hillsdale dam to the east of the outlet (Appendix 1). The shooting range complex will consist of a six position 200 yard range, a 20 position 50/100 yard rifle range, a 24 position 25/50 yard handgun range, a combination skeet/trap shotgun field, a gate house, combination meeting room/storage building, and a CXT pit toilet.

The proposal will also include a Shotgun Skills Training Area. This area will be used to teach a variety of shooting skills including activities similar to the following: how to safely transport firearms in field situations; shooting at targets moving along the ground, like rabbit hunting; test shot patterns at a designated site; and shooting from a variety of shooting scenarios.

All target range areas will be bermed with a minimum of eight foot high side berms and 20 foot high end/impact berms. Material from the berms will come from leveling the ranges. A one percent slope away from the firing line and to the side will be constructed to facilitate drainage. Baffles will be positioned down range to maintain a “no blue sky” view.

Associated amenities will include a sheltered firing line over a concrete pad, perimeter fencing, a gatehouse, 52 space gravel parking area, and a gravel access road.

KDWPT is aware of the growing concern about lead contamination related to shooting ranges. KDWPT will take a proactive approach to the lead issue and a lead management program will be instituted while the range is in operation. Best Management Practices for Lead Outdoor Shooting Ranges as written by the EPA (EPA, 2003) will be implemented. Soil testing will be done for soil alkalinity and the area will be limed to maintain property pH, and water quality monitoring will be done in the ditch that collects all surface runoff. A 30 foot by 30 foot detention pond will be constructed following the recommendations of the Kansas Department of Health and Environment.

The perimeter fencing will be signed, and flag poles will be erected and will fly flags when the range is in use. The total area to be used, plus a safety zone is 30 acres.

Initial funding for this project will come from the Pittman-Robertson Federal Aid in Wildlife Restoration Act administered through the U. S. Fish and Wildlife Service. This project is estimated to cost just over one million dollars. State share will be provided by the Shooting Range project (Wildlife Fee Fund) and about \$10,000 from the Wild Turkey Federation, KS Skeet Shooters Association, KS Trap Shooters Association and the NRA. The Hillsdale Range and Training Facility of East Central Kansas Club (HR & TF) will be contracted to manage the area (Appendix 4).

## 1.2 PURPOSE

The purpose of this range is to provide a safe setting for shooting handguns, rifles and shotguns. Expected results and benefits will be to provide shooting opportunities for the public in an area where such opportunities are limited. The range complex will provide opportunities for marksmanship practice, live-fire exercises in hunter education classes, a safe place for hunters to sight in rifles and shoot clay targets before hunting seasons and extend opportunities for 4-H and other civic groups to shoot. In addition, special events such as NRA Women on Target events will be conducted.

## 1.3 NEED

HILP is located in the most populous area of the state. Although demand for a safe place to shoot is extremely high, opportunities to shoot are extremely limited. The population of Miami County, where the park is located, is 28,904. The population of Johnson County, adjacent to the park is almost two million people, so the need for shooting opportunities is tremendous. Approximately 600,000 people visited Hillsdale State Park last year. The potential exists to have 100 people use the range daily when open to the public.

The park is located on property owned by the U.S. Army Corps of Engineers. The COE is in the formal process of approving the shooting range master plan designed by the firm Schwab-Eaton, P.A. KDWPT and the COE have met on several occasions and to date, COE has expressed support of the project, and has no major objections (Robins, 2010).

There are currently no public outdoor handgun and rifle ranges in this part of Kansas. According to public comments, the nearest ranges are over an hour away in Missouri at Lake City and Parma Woods. Two gun dealers (Bass Pro and Jeff Elliot) support the range, and verify the need of their numerous customers for the shooting range facility.

Shooting sports supporters have voiced a need for this kind of facility which will allow marksmanship practice in addition to the hunter education aspects.

The range and meeting room will be also used for Hunter Education classes. An average of 112 hunter education certificates per year is issued for Miami County. This site will provide a convenient location for those classes, and a location for live-fire hunter education exercises in the Kansas City area.

In addition to the use of the range as a training facility, the range can be used to sight in guns and for marksmanship practice. At the present time, there is no established place for people to go to shoot, and this activity takes place in various settings and safety is a concern. Private land, COE property and state park areas that are undeveloped are often used. This range will provide a safe, confined and controlled environment for this activity.

The Hillsdale Range and Training Facility of East Central Kansas Club (HR & TF) was formed to manage and promote the range once it is built.

#### 1.4 BACKGROUND

Hunting is a very important part of Kansas' economy and is a tradition for many Kansans. The number of licensed hunters declined in 2002 and 2005, but the numbers have increased in subsequent years.

The state continues to try to capture interest in new hunters by promoting hunter safety courses in communities across the state. KDWP has instituted a hunter recruitment program called "Pass It On," designed to reverse the declining trend in hunter numbers. Pass It On is made up of many different subprograms, such as Outdoor Mentors, Shooting Opportunities, Hunting Access, Special Hunts, and Education and Awareness (KDWP, 2010).

The Kansas Hunter Education Program (HE) began in 1956 when state legislature passed law KSA 32-920 requiring that all persons under the age of 16 years complete a four hour course in "firearms safety" to become eligible to obtain a hunting license.

Over time the HE program has evolved and grown, meeting the requirements for Wildlife and Sport Fish Restoration Program support and implementing recommendations of the International Association of Fish and Wildlife Agencies Hunter Education Study Team as revised in 1990. Since the HE program began, more than 450,000 individuals have been certified through its classes. In 2009, a total of 7,305 individuals were certified.

#### 1.5 FUNDING

Funding for this project will come from the Pittman-Robertson Federal Aid in Wildlife Restoration Act administered through the U. S. Fish and Wildlife Service. Part of the KDWP apportionment is reserved for Hunter Education. This project is estimated to cost \$1,067,100. State share will be provided by the Shooting Range project (Wildlife Fee Fund) and about \$10,000 from the Wild Turkey Federation, KS Skeet Shooters Association, KS Trap Shooters Association and the NRA.

For the first two years of the project, KDWP will support the management of the range by providing \$40,000 per year to hire personnel to run the range. This period of time will

allow the HR & TF club to build membership and amass dues to take over full management of the area.

## 1.6 DECISIONS THAT NEED TO BE MADE

KDWPT and the U.S. Fish and Wildlife Service will select one of the alternatives analyzed in this document and the Fish and Wildlife Service's Regional Director will determine, based on the facts and recommendations herein, whether this Environmental Assessment (EA) is adequate to support a Finding of No Significant Impact (FONSI) decision, or whether an Environmental Impact Statement (EIS) will need to be prepared.

## **CHAPTER 2: ALTERNATIVES**

### 2.1 ALTERNATIVE 1 - PREFERRED ACTION

A shooting range complex would be developed at Hillsdale State Park, on land leased from the COE, located immediately below the dam to the east of the outlet. The complex will consist of a 20 position 50/100 yard rifle range, a 24 position 25/50 yard handgun range, six position 200 yard rifle range, a combination skeet/trap shotgun field, a gate house, combination meeting room/storage building, and a CXT pit toilet (Appendix 2). Each rifle and handgun range would include a minimum of eight foot high side berms and 20 foot high end/impact berms. Material from the berms will come from leveling the ranges. Calculations for the 50/100 yard range are cut 15,681 CY, fill 11,631 CY, including the entrance road and leveling of the shotgun field. The final layer of fill would be screened for rocks before being incorporated into the berm. A road would be placed on the top of the berm for future maintenance purposes (increasing the height, reshaping, lead reclamation, etc). The footprint of the berm would vary to accommodate an interior berm slope of 1.5:1 and exterior slope of 4:1, depending on topography.

Cut and fill calculations for the 200 yard range are cut material of 37,000 CY and fill material of 1900 CY. Loss/shrinkage factor is 25% so the cuts and fills should balance, except for the 200 yard range. Excess cut material will be incorporated into higher berms.

A 24 foot wide, 900 foot long road will start at the turnoff from the paved road below the dam to a turnaround. This road will allow access to the rifle and handgun ranges, and terminate at the shotgun field. Fifty-two head-in parking spaces will be constructed by widening the road to 43 feet to create the parking area, including three Americans with Disabilities Act (ADA) spaces. The turnaround will be 62 feet in diameter. The road and the parking spaces will be a crushed rock surface and will accommodate ingress and egress to the facility.

On the rifle and handgun ranges, baffles will be positioned down range to maintain a "no blue sky" view (Appendix 2). Construction will be contracted through standard Kansas contracting procedures.

The shotgun field will have a trap house and combination high/low skeet house. Pellet size for skeet shooting will be restricted to #9 shot for safety reasons.

The range will allow muzzle-loading firearms, high caliber rifles, air rifles and pistols at appropriate ranges. All shotgun gauges will be allowed at the trap and skeet course. Fifty caliber firearms or larger will not be allowed on the range. Fully automatic firearms and tracer/armor-piercing ammunition will also be prohibited (Appendix 3).

Target frames, target sheets and clay targets will be available on-site, and will be supplied solely through the range facility.

KDWPT is aware of the growing concern about lead contamination relating to shooting ranges. KDWPT will take a proactive stance, and a lead management program will be instituted on the range. The program will be based on Best Management Practices for Lead Outdoor Shooting Ranges written by the EPA (EPA, 2003). Practices implemented will include using earth berms, monitoring soil pH, and remediating as necessary by liming the soils. A lead removal program, based on number of rounds fired, will be carried out by a reclamation contractor. It is estimated that the reclamation will occur about every five years. Water quality monitoring will be done in the ditch that collects all surface runoff by placing a monitoring station on the ditch before it enters the outlet canal. A 30 foot by 30 foot detention pond will be built within the ditch area north of the shotgun range and south of the 50/100 yard rifle range.

The perimeter of the facility will be fenced and signed, and two flag poles will be erected to fly flags when the range is in use. One flag will be located across the road from the gatehouse, and one will be located at the road turnaround. The total area to be used including a safety zone is 30 acres.

A one percent slope away from the firing line and to the side will be constructed to facilitate drainage. All disturbed areas will be seeded with rye or other species that are less palatable to wildlife, deer in particular, to minimize erosion. All areas within the ranges and the shot fall area for the shotgun field will be mowed to facilitate lead reclamation. These square areas will be reseeded, as necessary, following the reclamation process. Grading on the shotgun field will be monitored to ensure that buildup of clay targets does not create areas that would hold water.

Shooting area firing lines will be a concrete pad with an overhead shelter and a bench at the rear. The perimeter of the entire area will be fenced (Appendix 2).

A recreational multi-purpose trail that is currently in the proposed boundaries of the range will be relocated. It runs approximately in the same location as the road, and passes through the shotgun field. The route through the shotgun field will be changed to go around the perimeter of the project boundary. This trail is predominantly used for horseback riding and contacts were made with the Saddle Ridge Riders Club and the Eastern Kansas Arabian Horse Association to solicit input on the proposed range. Comment sheets were mailed or handed to the presidents of these associations. Returned

comment sheets are included in Appendix 20. KDWPT also met with the Saddle Ridge Riders Club and the meeting ended with an understanding that KDWPT, HR&TF and the Club will work together to lay out the best path to relocate the trail by the range. Several of the Saddle Ridge Riders Club members are hunters and shooters and support the need for the range. One Saddle Ridge Riders Club member did submit a comment sheet against the project (Appendix 20).

A meeting room/storage building will also be constructed. It will be a 30 foot by 40 foot building, pre-engineered with insulation and rough-ins for toilets and a kitchen. It also includes lighting, AC, heat and a separate outside entrance for 300 square feet of storage. When the building is completed, it will have water and electric run in from the existing State Park Office compound in a corridor approximately 2000 feet long and 50 feet wide (Appendix 5). KDWPT will meet septic system requirements of the Miami County and KDHE. In the phased approach proposed, drinking water may be hauled in, porta-johns used, and a generator used for electricity until funds become available to complete the utilities to the building.

KDWPT also plans on constructing a CXT model Tiago two-stall pit toilet and a 48 square foot gate house with electricity for heating and air-conditioning.

The HR & TF will manage and maintain the area, through a Letter of Agreement with KDWPT (Appendix 4).

## 2.2 ALTERNATIVE 2 - LOOKOUT ROAD SITE

This alternative is located in T16S R23W South half of Section 19. The firing line is parallel to and about 300 feet north of 271<sup>st</sup> Street and is 1200 feet east of Lookout Road. This site is also below the dam, but is approximately one and a half miles southwest of the spillway (Appendix 6).

Plans are for a shotgun only range, with one trap house, one low and one combination high/low skeet house. A 975 foot half-circle posted safety zone would be established around the area since there are no natural berms.

All areas within the shotgun field would be mowed to facilitate lead reclamation, and trees and shrubby vegetation removed. The area with the intermittent channel would be reseeded to grass. Grading on the shotgun field would be monitored to ensure that buildup of clay targets does not create areas that would hold water.

This area has minimal variation in elevation which does not make it conducive to the development of a rifle or handgun range. This location is not ideal for the range because of the large amount of dirt that would need to be trucked in from another site to construct berms. This adds to the expense and could result in additional environmental impacts to the material borrow area. Furthermore, a range would be very visually intrusive in this particular area. This location is further from the Park and COE headquarters, which would lessen the ability of personnel to monitor the area and control access.

### 2.3 ALTERNATIVE 3 – NO ACTION

This area would be allowed to continue succession to a more natural state. Mowing would continue to prevent the encroachment of trees. Recreation would remain unspecified, with one multi-use trail.

With no action, continuation of recreational shooting in informal locations would likely continue, raising safety issues from unintended targets to uncontrolled shooting and shooting related debris left at various locations. Lead would probably not be a concern because of lack of concentrations. The main effect would be a continuation of public dissatisfaction at not having a safe, public, outdoor location for the various types of recreational shooting. Table 1 summarizes the alternatives.

Table 1: Comparison of Alternatives

	<b>Recreation</b>	<b>Safety</b>	<b>Socioeconomic</b>
Alternative 1 (Preferred Action)	Provide rifle, handgun and shotgun ranges for the general public and hunter education students.	Provide safe, controlled area to sight in firearms. Bullet containment with constructed berms and baffles. Hunter Ed facilities.	Bring an additional segment of users to Park and a new flow of revenue direct and indirect from a variety of shooting sportsman.
Alternative 2	Provide shotgun range only.	Provide safe area to shoot and pattern shotguns. Limited use for Hunter Ed	Bring in modest amount of additional users.
Alternative 3 (No Action)	Uncontrolled dispersed shooting would continue with limited shooting opportunities for the general public.	Continued scattered use of back country for sighting in firearms and recreational shooting. Continued safety issue and debris left at sites.	No effect

## **CHAPTER 3: AFFECTED ENVIRONMENT**

### 3.1 PHYSICAL ENVIRONMENT

HILP is located in Miami County in the northeast part of the state. It is located within 45 miles of Kansas City. The site is in the Tall Grass Prairie Ecosystem, and the

surrounding areas are used for farming, haying and grazing. Since it is in a rural location, there are no air quality concerns, nor should the range cause any to arise. Hillsdale Reservoir and dam are to the northwest of the project area, but should not be affected by the project. The only flowing water nearby is in the outlet canal. The canal is 200 feet west of the range fence line with the rifle shooting lines facing east, and the shotgun field facing southeast. With the precautions being taken with lead shot, no impacts are anticipated to the outlet canal.

The proposed location for the Preferred Action is T16S R23E, NW quarter, SW quarter, Section 17. It is below the Hillsdale dam and east of the outlet canal.

The location of Alternative 2 is T16E R23E, SE ¼, SW ¼, Section 19 and T16E R23E, SW ¼, SE 1/4, Section 19. It is below the Hillsdale dam and to the west of the outlet canal.

The location of No Action is T16S R23E, NW quarter, SW quarter, Section 17. It is below the Hillsdale dam and east of the outlet canal, the same as the Preferred Action.

### 3.1.1 Soils

Preferred Action and No Action - Soils are predominantly Summit silty clay loam (90%) and Woodson silt loam (10%) with some Bucyrus silty clay loam in the safety zone (Appendix 7). These soils are generally rated for percent clay as 36%, 23% and 28% respectively (Appendix 8). Ratings on the pH scale are 6.6, 6.1 and 6.2 (Appendix 9). For the Preferred Action, most of the shot in the shotgun range shotfall zone will fall on the Summit soils, due to the layout of the field.

Alternative 2 - Soils are Kenoma silty loam (40%), Summit silty clay loam (50%), and Bucyrus silty clay loam (10%) (Appendix 10). These soils are generally rated for percent clay as 23%, 36% and 28% respectively (Appendix 11). Ratings on the pH scale are 5.8, 6.6 and 6.2 (Appendix 12).

### 3.1.2 Topography

Preferred Action and No Action – The slope ranges from one percent at the west end of the project area, to eight percent as it approaches the northeastern reaches of the safety zone. An old ditch and terrace, left over from the original use of the area as a hay field, passes either just outside, or within the outer edges of the safety zone on the east side. It is located 300 to 400 feet from the shooting line of the shotgun field. It will intercept most storm runoff before it can enter the project area. Two other terrace remnants exist within the project area. A ditch also parallels the outlet canal, between the project area and the canal itself.

The ranges are laid out in a gently sloping field. Beyond the proposed berms of the rifle ranges to the east-northeast (direction of fire), the land rises sharply to form a natural berm. The same holds true for most of the shotgun range. To the south, the land

continues to slope gently, and a large (900 feet) shotfall and safety zone is established, and will be enclosed by a fence.

The field where the rifle and handgun ranges are proposed vary in slope from three to eight percent. The shotgun field slope varies from one to five percent.

Alternative 2 – The range and surrounding area is a flat, low field, adjacent to the emergency uncontrolled spillway. A small, intermittent tributary to Bull Creek runs through the site. There are no natural berms in the area.

## 3.2 BIOLOGICAL ENVIRONMENT

### 3.2.1 Vegetation

Preferred Action and No Action - The rifle and handgun ranges will be constructed on an old “go-back” field (formerly managed, but now natural succession is allowed, with an emphasis towards keeping woody vegetation out by occasional mowing). This site had not been hayed for at least 20 years and the predominant vegetation (99%) is brome with a scattering of cedar. Other species observed in very low densities were oxeye daisy, annual ragweed, Illinois bundleflower, milkweed spp., willow sunflower, daisy fleabane, sweet clover, ground cherry, dogbane, ironweed, parson’s pea, mullein, cottonweed, buck brush, fire on the mountain and wild grape. These plants are native or naturalized species. Two individual plants of *Sericea lespedezia* (a noxious weed) were observed. A small prairie remnant, about 700 feet on a side is located in the northeast corner of the project area. It is dominated by little bluestem. A few individual plants of eastern gamagrass, giant foxtail and fringe-leaf ruellia were observed. None of these are considered noxious or invasive.

The shotgun field is about 40% pre-disturbed and 60% containing sparsely scattered trees. The area is currently mowed to prevent tree encroachment.

Alternative 2 – The shotgun only range will be constructed on a pre-disturbed hayfield. Vegetation is similar to the Preferred Action with trees and other riparian vegetation along the course of an intermittent stream running through it. There is approximately one and a half miles of riparian corridor, ranging from 50 to 800 feet in width running through the half section. This area is also mowed to prevent tree encroachment. No construction is planned for the riparian area, but it is within the shotfall safety zone.

### 3.2.2 Federal Threatened and Endangered Species

For all sites, no Federal Threatened or Endangered species, or species of concern are known to exist on the specific area for the shooting range. However, in Miami County, Mead’s Milkweed (*Asclepias meadii*) is listed as Threatened (USFWS, 2011).

### 3.2.3 State Wildlife Species

For all sites, a partial listing of potential species can be found in Appendix 14. At the end of the overall list, species that prefer wet habitats could possibly be found at the Alternative 2 site. There is a potential for spotted skunk, classified as a Kansas Threatened species to occur in the riparian corridor, its historic range (Appendix 13).

### 3.3 LAND USE

Hillsdale State Park is a multiuse recreational area. Camping, fishing, boating and sailing, hunting, beach use and swimming, horseback riding, and model airplane flying are offered. The park consists of about 13,000 acres and the lake covers approximately 4,500 acres.

Preferred Action and No Action – Currently the sites have no specialized recreational use, except for the multiuse trail on the west boundary. It is no longer used for haying, and is being allowed to go back to a natural state. It is mowed to discourage tree encroachment, and patrolled for *Sericea lespedeza* invasion. This area is within the state park, and is visible from the road across the Hillsdale dam, and from the parking lot on the other side of the outlet canal as part of the viewscape.

Alternative 2 – The proposed range would be located about 300 feet north of the park boundary and an existing road. It is a low area, adjacent to the uncontrolled emergency spillway with no specialized recreational use. It also is mowed and being allowed to go back to a more natural state. It also is within the park, and is part of open space on the south side of the lake.

### 3.4 CULTURAL/HISTORIC RESOURCES

No known cultural/historic resources are known to exist on any of the alternative sites. The State Historic Preservation Office has reviewed the project and has no objection to the project (Appendix 19).

### 3.5 NOISE

Noise levels for all sites are low, since the area is undeveloped. A siren is in place that is sounded when high releases are made at the outlet of Hillsdale dam. Hunting does occur on the reservoir, and gunfire may be occasionally heard at this site. A model airplane field may also generate some noise when it is in operation. There is also traffic noise from vehicles using the paved road across the dam.

### 3.6 RECREATION

Preferred Action and No Action – A multiuse trail exists on the western edge of the site. The area is used predominantly by horseback riders. Fishing occurs along the outlet canal and the rest of the area is undesignated recreational use.

Alternative 2 – At this site, nearby recreational uses include a dog field trial area and remote control aircraft field.

### 3.7 SAFETY

There are no current safety concerns on either of the alternatives. These areas are part of open space within the park boundaries, and, having no specific recreational use assigned, have only extremely light dispersed use. Neither area is remote and both are close to roads.

### 3.8 LOCAL SOCIOECONOMIC CONDITIONS

Preferred Action and No Action – These alternatives contribute indirectly to the local economy. The site lies within the Hillsdale State Park boundaries, and thus not subject to development without permission from KDWPT/COE. Park users in general consume gas, food and lodging, as do hunters during hunting seasons; all adding to the local economy.

The closest towns are Paola, Hillsdale and Lento, which are all agricultural communities. A horse rental business exists on the east side of the reservoir that provides camping for horse owners as well as horses for rent. About 10 homeowners reside in the area, approximately a half mile or further from the site.

Alternative 2 – This site also contributes indirectly to the local economy in similar ways to the Preferred Action and No Action.

About 30 homeowners reside within a quarter mile of the Alternative 2 site. These homeowners were not directly contacted because this is not the preferred site. Landowners were allowed the opportunity to comment on the Preferred Action, but no comments were submitted on this site at the public meetings. Alternative 2 had already been eliminated from detailed consideration because it was determined to be unsuitable for many reasons. Landowner comments were encouraged and requested throughout the public information meetings and public review opportunities. The Preferred Action has been the subject of most of the public review process.

## **CHAPTER 4: ENVIRONMENTAL CONSEQUENCES**

### 4.1 PHYSICAL ENVIRONMENT

#### 4.1.1 Soils

Preferred Action – Shooting Range - More than half the soils on the proposed site will be disturbed to level the range. Soil type is 100% Summit silty clay loam. Cut material will be piled and compacted into the side and end berms. Dirt to be used as top layer will be screened for rocks. Topsoil will be stockpiled, and returned to the finished surface of the

floor of the range and the berms. The area will then be seeded. Depth to groundwater averages two feet near the firing line, so care will be taken to dig down to the water table and create wet areas.

Shotgun range – No berms will be built at the shotgun range, and no soil disturbance is anticipated, except in the construction of the firing line and trap/skeet houses. All areas not covered in concrete or structures will be reseeded.

KDWPT and HR &TF are aware that concerns about lead bullets and shot contamination might arise during operation, and if the area were eventually closed. In order to be proactive, and to lessen the potential of lead, and based on information contained within Best Management Practices for Lead at Outdoor Shooting Ranges (EPA, 2003), HR & TF has chosen the following for lead management.

1. The pH level in the shot fall and bullet impact areas of the berms on the rifle and pistol ranges will be checked once a year. Lime will be added to the soil to maintain a pH of 6.5 to 8.5.
2. Two retention ponds with stop-log structures will be constructed to catch run-off from the rifle/handgun range and from the trap/skeet area so that it can be tested and appropriate action can be taken if necessary.
3. Records will be kept on the number of clay targets thrown. After approximately 800,000 targets thrown in the shot fall area will be reclaimed, by a contractor. It is estimated that the reclamation will occur about every five years.
4. Records will be kept of the approximate number of rounds fired per firing lane on the rifle and pistol range. After approximately 80,000 rounds have been fired per firing lane, the lead in the berm will be reclaimed.

Two water monitoring stations will be placed where the two ditches identified in Section 3.1.2 (one on the west side of the area and the other that runs on the east side) meet and be tested for lead concentrations. One water monitoring station will be located by the skeet/trap range and the other by the 50/100/200 yard ranges.

No Action – No soil disturbance will occur.

Alternative 2 – Construction of the firing line and placement of the skeet and trap houses will be the only soil disturbance that will occur. Disturbed areas not covered by concrete or the building footprint will be seeded to grass.

Depth to groundwater is 14 inches in the area of the firing line and at least two feet in most of the shotfall zone. No disturbance is anticipated.

#### 4.1.2 Topography

Preferred Action – Areas within the ranges will be leveled, or finished at a one percent slope away from the firing line, and eight foot side berms and a 20 foot end berm will be constructed. Drainage within the berms will be through a culvert from the rifle range to

the handgun range and hence to the existing ditch on the west side of the site. Drainage around the safety zone would remain the same.

Accumulation of broken and intact clay targets may result in formation of small unintentional receptacles that could retain water. As part of maintenance on the area, concentrated piles of clay targets will be removed.

No Action – Topography would not change and storm water drainage would remain the same.

Alternative 2 – Topographic change will only be at the actual construction sites of the firing line and trap/skeet houses, and is so slight over the site that no changes would be anticipated.

#### 4.1.3 Cumulative Effects

Since this area is in Hillsdale State Park, and overall development will continue to maintain a park-like setting for outdoor recreation, the cumulative effects within the park should be minimal. Any additional development will take place within the 30 acre footprint of the shooting range. In the future, more development could occur surrounding the park, increasing the value of the open space, natural topography, settings, and recreational values offered by the park. Minimal impacts are anticipated to the physical environment in the immediate area.

## 4.2 BIOLOGICAL ENVIRONMENT

### 4.2.1 Vegetation

Preferred Action – All trees would be cleared from the rifle and handgun ranges. Areas within the berms would be reseeded to permanent vegetation conducive to mowing and lead reclamation, and to a species that is least palatable to wildlife in the area, with deer as a priority. The shotgun range will also be cleared of all trees within the shot fall area, and reseeded in the same manner. Vegetation in the safety zone will not be disturbed, unless tree removal is necessary in the future for operation and maintenance.

Mowing will occur on all ranges, and the areas of the safety zone that are currently free of woody vegetation. Grass on these areas will be cut regularly during the breeding seasons (April 15 - July 15) to ensure that the site does not attract migratory or non-migratory birds. Monitoring of the area for *Sericea lespedeza* will continue.

Alternative 2 – All trees would be cleared from the site. Approximately 3000 feet of riparian corridor averaging 50 feet wide would be cleared and reseeded to an appropriate tall grass species. Mowing will occur to maintain the shot zone to keep it free of woody vegetation.

No Action – Vegetation will not be disturbed, except for *Sericea lespedeza* control and natural succession will occur. The small area of remnant prairie should expand over time and act as a seed source to the succession of the rest of the area.

#### 4.2.2 Federal Threatened and Endangered Species

Preferred Action and No Action – There should be no affect to any Federal threatened and endangered species from any of the alternatives because no species occupy the area since the area does not provide suitable habitat.

#### 4.2.3 State Wildlife Species

Preferred Action – A fence will be constructed around the perimeter of the project area, primarily for safety reasons, but it will also act as a deterrent to wildlife, mainly deer, from entering the area. Fencing will be a standard height (four to five feet). Effects of the loss of this habitat should be minimal, since similar areas totaling over 650 acres are available in the immediate area within the park, with a similar or lesser disturbance factor.

No Action – As the field goes back to a more natural state, wildlife use may change. Some native grasses and perennial vegetation may be more palatable to deer and other species, and wildlife use may increase. However, due to its location near traffic by the dam and a paved road, this additional wildlife use may not occur.

Alternative 2 – Minimal loss of “go-back” hay meadow habitat will occur for the same reason described under the Preferred Action. The riparian corridor will be converted to grass. About 18 acres of habitat loss for riparian species would occur. About 200 acres of riparian habitat will remain intact on the State Park. There is low potential for effect to the spotted skunk (State Threatened status), since it historically occupies riparian areas in Miami county.

#### 4.2.4 Cumulative Effects

The Preferred Action and Alternative 2 would result in minimal impacts since this area is in Hillsdale State Park, and overall development will continue to maintain a park-like setting for outdoor recreation. In the future, more development could occur surrounding the park, increasing the value of the open space, natural habitats and large contiguous areas of undeveloped land within the park. The No Action alternative would result in no expected changes in impacts from the current activities.

### 4.3 LAND USE

Preferred Action – A net positive impact is anticipated. Use of the area will change from non-specialized use to much more intensive use as a shooting range. This project will provide shooting opportunities for the public in a very populous area of the state where shooting opportunities are limited.

The Multiuse trail will be relocated, and a warning system will be installed for when the range is in use, but no overall change in trail use is anticipated.

No Action – Land use will remain the same.

Alternative 2 – A net positive impact is also anticipated. However, since it does not include the rifle ranges, it would be less than the Preferred Action.

#### 4.4 CULTURAL/HISTORIC RESOURCES

Preferred Action and Alternative 2 – No impacts are anticipated. If historic/archeological resources are encountered during construction or operation, all operations will cease, and the State Historic Preservation Office will be consulted before any work or operation is resumed.

No Action – No impacts will occur.

No cumulative impacts are anticipated.

#### 4.5 NOISE

Preferred Action – Noise levels will increase with the construction of the shooting range. A sound level check of firearms and sources of sound was conducted by Virgil Corbin, Natural Resource Officer, HILP on April 29, 2008 with a Radio Shack model 33-2055 sound level meter. He tested various sources of noise from approximately 30 feet behind the firing line, outlet parking lot on the west side near the existing vault toilet, gatehouse at the entrance to Jayhawk boat ramp, parking lot at the Park Office, and on Harmony Road (Table 2). Eight different guns were used in the check including: .22 caliber handgun, 9mm handgun, .45 caliber handgun, .22 caliber rifle, .223 caliber rifle, .308 caliber rifle, 30-06 caliber rifle, 12 gauge shotgun.

Table 2: Sound Level Readings in Decibels (dB)

LOCATION	SOURCE OF SOUND	dB reading	DISTANCE FROM FIRING LINE	COMMENTS
behind firing line	.22 caliber handgun	63	30"	lowest reading
	.223 caliber rifle	68	30'	highest reading
Outlet parking lot, W side, near vault toilet	.22 caliber handgun	51	500'	lowest reading
	30-06 cal rifle	63	500'	highest reading
Outlet canal	release water in canal	80	250'	
Entrance to Jayhawk boat ramp	all weapons	0	3/4 mi to west	shots could be heard, but did not register on meter
	vehicles on dam	52-57	immediate vicinity	
Park Office	all weapons	0-52	1/2 mi to east	
	passing vehicles		immediate vicinity	
N 255 St and Harmony Road	all weapons	0	1 mi +	shots could be heard, but did not register on meter
S 255 St and Harmony Road	all weapons	0	1 mi +	shots could be heard, but did not register on meter
	passing vehicle	77	immediate vicinity	
	small plane	67-69	unknown	plane flying over the area

No Action – Noise levels at the site would not change.

Alternative 2 – No sound tests were run, but levels from shots fired would be expected to be higher than those heard at the office for the Preferred Action, since there is no intervening topography. Approximately 30 residences are within a distance that shots could be heard.

The sound from shots fired may be heard by the users at the remote model aircraft field.

#### 4.6 RECREATION

Preferred Action – The range will be open to the public approximately 40 hours per week. Daily hours of operation will be adjusted according to daylight hours and majority user preferences.

The population base to the north is much larger, and includes Johnson County. Several of the commenters come from that area. They expressed support of the range and desire to use it.

Because of the large population base surrounding the project and the fact that it will have rifle, handgun and shotgun use, it is estimated that there will be 100 people using the range on some of the public use days (Robins, 2010).

No Action – Recreational use will remain non-specific and diversified. The multipurpose trail will continue to be used in its present location.

Alternative 2 – The remote controlled aircraft field will be screened by trees from the shotgun range, so it should experience less negative impacts from the noise

Since this range will be shotgun only, usage would be much less than that projected for the Preferred Action.

Due to the location in Hillsdale State Park, and overall development will continue to maintain a park-like setting for outdoor recreation, cumulative effects within the park should be minimal. In the future, more development could occur surrounding the park, increasing the value of the open space, natural topography, settings, and recreational values offered by the park.

#### 4.7 SAFETY

Preferred Action – The shooting range will provide a positive impact to safety in the area. It will provide a safe location to sight in rifles and shotguns and marksmanship practice. This range will provide a safe, confined and controlled environment for this activity. The range will also be used for Hunter Education classes, and the live-fire portion of classes.

On-site, precautions will be taken by relocating the multiuse trail and flags will be flown to alert users when the range is in use. A large safety zone will be established and the entire area will be fenced.

No Action – There would be no change from the current condition and dispersed shooting will continue. Complaints and concerns from adjoining property owners regarding safety and trash/debris issues will continue.

Alternative 2 – This range would also provide a positive impact, but those impacts would be limited to shotgun users. Rifle and handgun users would continue to lack a safe place to practice marksmanship and sight in guns.

A negative impact would be that patrol and control of use on this range would have to be increased, since it is close to a road (300 feet north of the road), and there are no plans to fence the area. The seven houses to the east of the range are at least 400 feet away from the shotfall zone (approximately 1350 feet from the firing line), but may still have concerns, since no natural berms exists.

A group similar to the HR & TF would be formed to manage the range. Firing direction would be to the north, so road users would not be affected.

#### 4.8 LOCAL SOCIOECONOMIC CONDITIONS

Preferred Action – The shooting range will provide a positive impact due to increased use of the area. Locally, shooters will increase sales of gas, food, and lodging. More dispersed increases in sales of ammunition, guns and accessories should occur for area sporting goods and gun stores.

No Action – There would be no change from the current condition.

Alternative 2 – This range would also provide a positive impact due to increased use of the area, and consumption of gas, food and lodging by the shooters. However, since the range only accommodates shotgun users, the positive gains would be less than that of the Preferred Action.

### **CHAPTER 5: COORDINATION AND CONSULTATION - AGENCIES**

KDWPT is required to submit a letter of request for approval of the shooting range to the COE, and has worked closely with them (James D. Bell as lead contact) on this project, incorporating their suggestions and requirements. The latest meeting was held on July 12, 2010 at the COE office at Hillsdale Reservoir. To date, they have no objections to the project.

KDWPT contacted the Miami County Planning Department inquiring about regulations that may be applicable. No concerns were expressed at this time. If a septic system is installed, further coordination with Miami County Planning will be made (Appendix 15).

KDWPT contacted Steve Samuelson, Kansas Department of Agriculture, Division of Water Resources in regard to floodplain mapping. Mr. Samuelson provided a Floodplain Insurance Rate Map (FIRM) showing floodplain delineations. The project does not fall into any floodplain zones (Appendix 16).

KDWPT has a letter of inquiry to Kansas Department of Agriculture, Division of Water Resources (DWR) as recommended by Steve Samuelson, DWR, for any other

requirements that office may have. DWR has determined that the project is not within their jurisdiction, and “a state permit will not be required...unless special public interest issues are identified” (Appendix 17).

KDWPT has submitted a letter of inquiry to the SHPO. Action on historic/archeological sites will be coordinated with the COE. SHPO has determined that their office has no objection to the implementation of the project (Appendix 19).

KDWPT has a Letter of Agreement with and a Special Use Permit for the HR &TF Club to manage and maintain the range once it is built (Appendices 4 and 18).

KDWPT, Parks Division submitted an Environmental Services Review Checklist to the Environmental Services Section of KDWPT. The review resulted in the determination that no possible impacts will occur in areas of their concern.

## **CHAPTER 6: PUBLIC INVOLVEMENT PROCESS**

A public meeting was held on May 8, 2008 at the Miami County Commissioners Chambers on Paola, and comments solicited. The meeting was announced on April 25 and May 2 of that year in the Miami County Republic newspaper. Approximately 40 people attended. Comments were decidedly favorable, and in support of the need for the range as planned. A second public meeting was also held on June 12 in Paola (Appendix 20).

In addition to the public meetings, personal contacts were made with Carl Courtney, President of the Saddle Ridge Riders Club. A presentation was given to the club members on May 20, 2008. Seventeen members attended, and moving the multipurpose trail and the flags for signaling was discussed. The meeting ended with everyone wanting to continue working together on planning (Appendix 20).

Contact was also made with J.R. Kendall, President of the Eastern Kansas Arabian Horse Association. His concern about losing part of the trail was discussed and, in the end, he had no major objections to the project (Appendix 20).

Mary McDivette, a member of both horse associations was also individually contacted. She later expressed concern about noise levels, lead contamination and liability (Appendix 20).

KDWPT contacted Brad Goodarte, a property owner adjoining HILP. He felt the skeet/trap ranges were too limited in scope. He had no other objections to the project, and offered to help acquire additional funding, and donate concrete for the shotgun range walkways (Appendix 20).

KDWPT also contacted six homeowners on North and South Harmony Road, adjacent to HILP. Two of the six did not want the range, but only one submitted a comment sheet.

The other four were in favor of the range. Contact was attempted at four other homes, but was unsuccessful (Appendix 20).

Nineteen comment sheets, one typed note and 14 e-mails were submitted, and are included in Appendix 20. One comment sheet expressed cautions against the project. The rest were in support of the project.

KDWPT has a Letter of Agreement with, and a Special Use Permit for the HR &TF Club to manage and maintain the range once it is built (Appendices 4 and 18). This club was developed by interested parties, and is working cooperatively with KDWPT.

## **CHAPTER 7: PUBLIC COMMENTS ON DRAFT EA**

The availability of the draft Environmental Assessment was announced in a news release, distributed in eastern Kansas to all newspapers. A notice was also mailed to individuals who had already participated in the previous public comment meetings. The draft Environmental Assessment was made available online at <http://www.fws.gov/mountain-prairie/federalassistance/nepa/index.html>.

Three letters and two e-mails were received that were in support of this project while two letters were received that were not in support of the construction of the range. Responses to the two letters are found in Table 3, Appendix 20.

## **CHAPTER 8: PREPARERS**

This document was prepared by Laurel Yasui (Parks Division) and Ross Robins (Chief, Education) with assistance from Gary Lucas, Manager HILP, and Virgil Corbin (Ranger HILP), all with KDWPT for the Parks Division, under Linda Lanterman (Acting Division Director). Schwab-Eaton P. A. was contracted by KDWPT to do the engineering and design work. KDWPT Federal Aid Coordinator, Carl Magnuson submitted the document to the USFWS, where it was reviewed and commented upon by Otto Jose and Amanda Horvath.

## **CHAPTER 9: WORKS CITED**

Environmental Protection Agency. Best Management Practices for Lead at Outdoor Shooting Ranges, Third Printing, EPA-902-B-01-001. Washington DC, 2003.

Frye, Andy. Personal correspondence by email to Ross Robins. July 23, 2010.

Kansas Department of Wildlife and Parks: Eastern Spotted Skunk . Kansas Department of Wildlife and Parks, <<http://www.kdwp.state.ks.us/news/Other-Services/Threatened-and-Endangered-Species/Threatened-and-Endangered-Species/Species-Information/EASTERN-SPOTTED-SKUNK>>. July 25, 2010.

Kansas Department of Wildlife and Parks. Kansas Department of Wildlife and Parks. <<http://www.kdwp.state.ks.us/news/Hunting/Hunting-Programs/Hunter-Recruitment-and-Retention-Effort>> July 20, 2010.

Robins, Ross, Chief of Education. “Kansas Department of Wildlife and Parks, Shooting Range Construction Grant for Hillsdale Shooting Range”, prepared for submission for USFWS Pittman-Robertson Grant. Kansas Department of Wildlife and Parks, 2010.

Samuelson, Steve. E-mail and Appendix 16.

The Research Center. Hillsdale State Park Master Plan. Wichita, KS 1996.f

U.S. Fish and Wildlife Service. <<http://www.fws.gov/mountain-prairie/endspp/CountyLists/Kansas.pdf>> July 8, 2011.

Web Soil Survey. U. S. Department of Agriculture, Natural Resources Conservation Service, <<http://websoilsurvey.nrcs.usda.gov>>. July 17, 2010.

Kansas Department of Wildlife and Parks: Eastern Spotted Skunk . Kansas Department of Wildlife and Parks, <<http://www.kdwp.state.ks.us/news/Other-Services/Threatened-and-Endangered-Species/Threatened-and-Endangered-Species/Species-Information/EASTERN-SPOTTED-SKUNK>>. July 25, 2010.