

Appendix B

LaVonda Walton/USFWS



Interpretive signs help connect visitors with nature.

Findings of Appropriateness and Compatibility Determinations

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Dog Walking in Designated Areas

This exhibit is not required for wildlife-dependent recreational uses, forms of take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use (“no” to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to [b], [c], or [d]) may not be found appropriate. If the answer is “no” to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No .

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Dog Walking in Designated Areas

NARRATIVE:

Dog walking has been authorized on the refuge for many years. We are not aware of any conflicts with other public uses or negative effects on refuge resources from this use. Although dogs can increase disturbance to wildlife, the refuge enforces a 6-foot leash restriction to keep the dog localized and under control at all times with the pedestrian. We believe most dog walkers are local residents, who regularly visit the refuge and understand our policy. Limiting the area for dog walking to access roads and parking lot areas open to public use on the refuge would keep potential disturbance to a minimum and provide a valuable service for the local neighborhood, while increasing understanding and appreciation of both the refuge and Service mission among gateway community residents. Allowing leashed dog walking on access roads and parking areas would not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established.

COMPATIBILITY DETERMINATION

USE:

Dog Walking in Designated Areas

REFUGE NAME:

John Heinz National Wildlife Refuge at Tinicum (John Heinz NWR, refuge)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Public Law 92-326 (as amended)

REFUGE PURPOSE(S):

John Heinz NWR (John Heinz NWR, refuge) was established in 1972 under Special Legislation for the following purposes:

- “Preserving, restoring, and developing the natural area known as Tinicum Marsh....a wildlife interpretative center for the purpose of promoting environmental education, and to afford visitors an opportunity for the study of wildlife in its natural habitat.” (86 Stat. 891, dated June 30, 1972).

Additional refuge lands were acquired under the following authorities:

- To be of “particular value in carrying out the national migratory bird management program.” 16 U.S.C. §667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife);
- “[D]evelopment, advancement, management, conservation, and protection of fish and wildlife resources... (16 U.S.C. §742f (a)(4))...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services....” 16 U.S.C. §742f(b)(1) (Fish and Wildlife Act of 1956); and,
- “[F]or use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. §715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Pub. L. 105-57; 111 Stat. 1252).

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?

The use is dog walking. Dog walking is not a priority public use of National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

(b) Where will the use be conducted?

Dog walking would be permitted only on refuge public use access roads and parking lot areas and prohibited on woodland foot paths or off trails (map B.1). The refuge access roads are located atop low habitat value dike perimeter trail outlining the 145-acre fresh water impoundment and along the edge of Interstate 95 between the impoundment and the west end of the refuge at Hwy 420. Refuge staff uses these areas as maintenance roads for the impoundment and they double function as pedestrian access routes for foot and bicycle use to view the refuge and facilitate other public use activities. With only a 6-foot leash, dogs would not be able to access any sensitive areas or disturb birds or other species except on the dike, where fewer interactions are likely to occur.

(c) When will the use be conducted?

Dog walking would be allowed throughout the entire year, during the refuge’s normal open hours. The refuge is open daily sunrise to sunset.

(d) How will the use be conducted?

Dog walkers would be allowed to walk their dogs only when the dog is attached to a 6-foot (or less) leash and the dog walker is in control of the leash at all times. This leash law and areas open to dog walking would be strictly enforced to minimize wildlife and visitor disturbance. All dog walkers with properly leashed dogs are restricted to the designated refuge access roads and parking areas at all times. Dog owners would be required to pick up after their dogs. The refuge currently provides doggy bags near the main entrance (8601 Lindbergh Blvd.) for visitor convenience but it is the dog walkers responsibility to bring or obtain such materials.

(e) Why is this use being proposed?

John Heinz NWR is a unique urban environment surrounded by apartments, private homes and industrial areas where local neighbors have little or no other nearby areas of green space. We currently allow dog walking on the refuge and have not had significant negative impacts from this use. It has been a long time tradition for residents of the local community to use these portions of the refuge for this activity building strong local support and allowing an excellent opportunity to educate dog walkers about the refuge and the National Wildlife Refuge System. Local dog walkers have been historically very good about keeping their pets on leashes and cleaning up after them. Regulatory signs and brochure information helps reinforce these rules as well. Through the final CCP we would permit dog walking on designated refuge access roads and parking lot areas as an important service to residents of the local community.

AVAILABILITY OF RESOURCES:

Except for maintaining and periodically updating existing signs explaining the new regulations, minimal costs would be involved. Monitoring of the site for compliance would continue, but would not require significantly more resources beyond those already necessary to patrol the area for compliance with current regulations relating to dog walking and other activities within these designated public use areas of the refuge. Permitting this use is within the resources available to administer our Visitor Services Program. There is no additional staff or material costs incurred to the refuge. Compliance with the leash law is within the regular duties of the Station Law Enforcement Officer. The financial and staff resources necessary to provide and administer this use at its current level and at the level described in the final CCP are now available and we expect them to be available in the future. The annualized cost associated with the administration of pedestrian travel on the refuge is estimated below:

Providing information to the public and administration needs	=	\$1,000
Resource impacts/monitoring	=	\$1,000
Maintenance needs	=	\$2,000
Total	=	\$4,000

Based on existing refuge expenditures for managing visitor use, funding is adequate to ensure compatibility at the current level of use and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE:

Because the refuge access roads and adjacent parking areas follow a dike system with limited habitat value, the potential impacts to wildlife and their habitats are minimal.

The presence of dogs may flush incubating birds from nests (Yalden and Yalden 1990), disrupt breeding displays (Baydack 1986), disrupt foraging activity in shorebirds (Hoopes 1993), and disturb roosting activity in ducks (Keller 1991). Many of these authors indicated that people with dogs on a leash, and loose dogs provoked the most pronounced disturbance reactions from their study animals. The greatest stress reaction results from unanticipated disturbance. Animals show greater flight response to humans moving unpredictably than to humans following a distinct path (Gabrielsen and Smith 1995). Despite thousands of years of domestication, dogs still maintain instincts to hunt and chase. The appropriate stimulus can trigger those instincts. Dogs that are unleashed or not under the control of their owners may disturb or threaten the lives of some wildlife. In effect, off-leash dogs increase the radius of human recreational influence or disturbance beyond what it would be in the absence of a dog.

The role of dogs in wildlife diseases is poorly understood. However, dogs host endo- and ecto-parasites, and can contract diseases from or transmit diseases to wild animals. In addition, dog waste is known to transmit diseases that may threaten the health of some wildlife and other domesticated animals. Domestic dogs potentially can introduce various diseases and transport parasites into wildlife habitats (Sime 1999).

There would be no impacts to the hydrology, plants, or soils due to the restricted nature of this use. The use would be confined to existing roads and no new construction or vegetation clearing is required. Impacts on wildlife would be minimal since the trails are not close enough to wildlife concentration areas and the dogs would be leashed. Short-term disturbance may occur to wildlife directly adjacent to this road. The use would be confined to existing public use areas and no new construction or vegetation clearing is required.

User conflicts are unlikely to occur since the open areas authorized for dog walking are wide and can accommodate a variety of users. Dog waste can create an unsightly environment to other refuge visitors. Although these negative impacts exist, they are kept to a minimum by restricting dog walking to designated areas of the refuge and strictly enforcing the leash and pick up after pet policies. Standard pet waste bags and disposal sites are available on the refuge.

It is anticipated that leashed dog walking on the designated routes would not cause any direct or indirect impacts to federally listed, threatened or endangered species. Bald eagles and peregrine falcons are the only former federally listed, threatened or endangered species known to use the refuge for roosting or feeding. While bald eagles now nest on the refuge, both species have been delisted under the Federal Endangered Species Act (ESA).

PUBLIC REVIEW AND COMMENT:

This is an existing use of the refuge. This compatibility determination will be available for public review and comment for at least 30 days, in conjunction with the release of the draft Comprehensive Conservation Plan for the refuge.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- Only leashed dogs would be allowed on the refuge. The leash would be no more than 6 feet long. Dog walkers would be required to maintain control of their animal while on the refuge, thereby reducing the potential and severity of impacts to wildlife and must refrain from entering closed areas.
- Dog walkers must pick up after their dog(s) and remove or properly dispose of pet waste.
- Agency and public awareness would be increased through interpretive or educational materials about responsible pet ownership in the context of wildlife disturbance during all outdoor recreational pursuits. Information would also address the potential role of domestic dogs in disease transmission to wildlife and vice versa in educational materials; information should include endoparasites and ectoparasites.
- Refuge staff and volunteers would monitor uses to ensure compatibility, refine user estimates, and evaluate compliance. Potential conflicts between user groups would also be evaluated.
- If a high number of reports of negative dog-wildlife interactions on the refuge access roads and parking areas are reported, the refuge would reassess the use.
- If a high number of off-leash incidents are documented, we may consider eliminating dog walking from the refuge altogether.
- Restricting dog walking to the designated access roads and parking areas would reduce the potential disturbance of wildlife.
- Dog walking is restricted to designated refuge access roads and parking areas only (map B.1) and prohibited from all woodland foot trails.

JUSTIFICATION:

We currently allow dog walking on the refuge and have not had significant negative impacts from this use. Although dogs can increase disturbance to wildlife, the refuge enforces a leash law to keep the dog localized with the pedestrian. We believe most dog walkers are local residents, who regularly visit the refuge and understand our policy. Limiting the area for dog walking to public use access roads and parking areas of the refuge would keep potential disturbance to a minimum.

We predict the stipulations (listed above) that we would require of dog walkers would negate or minimize any dog-related wildlife impacts as discussed in the potential impacts section. Dogs would be under the direct control of their owners at all times while on the refuge. This should minimize any potential impacts that could result from the use. We would require all dogs to be on leashes of 6 feet or less, which would prevent dogs from interacting with wildlife in the impoundment areas. The access roads and parking lots are located atop low habitat value dikes entrance areas of compacted soils and/or pavement. With only a 6-foot leash, dogs would not be able to access any sensitive areas or disturb birds or other species except on the dike, where fewer

interactions are likely to occur. To date, no negative dog-wildlife interactions have been reported from the sections of the refuge where dogs have been historically allowed.

Dog walking would add to the number of people partaking in wildlife observation and interpretation, contributing to refuge purposes and to providing opportunities for some of the priority public uses. As a result of the stipulations imposed (specified above), this use is expected to result in only minimal impacts to other refuge purposes. The impacts would be limited to the low quality habitat atop access roads and parking lots only. The use is not expected to have any impact on other refuge purposes.

Dog walking has been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented, and the use does not exceed thresholds necessary for visitor safety and resource protection. Dog walking in designated areas of the refuge is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with other public uses of the refuge, nor cause an undue administrative burden.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE: _____

LITERATURE CITED:

Baydack, R. K. 1986. Sharp-tailed grouse response to lek disturbance in the Carberry Sand Hills of Manitoba. Colorado State University, Fort Collins, Colorado.

Gabrielson, G. W. and E. N. Smith. 1995. Physiological responses of wildlife to disturbance. Pages 95-107 in R. L. Knight and K. J. Gutzwiller, ed. *Wildlife and Recreationists: coexistence through management and research*. Island Press, Washington, D. C. 372pp.

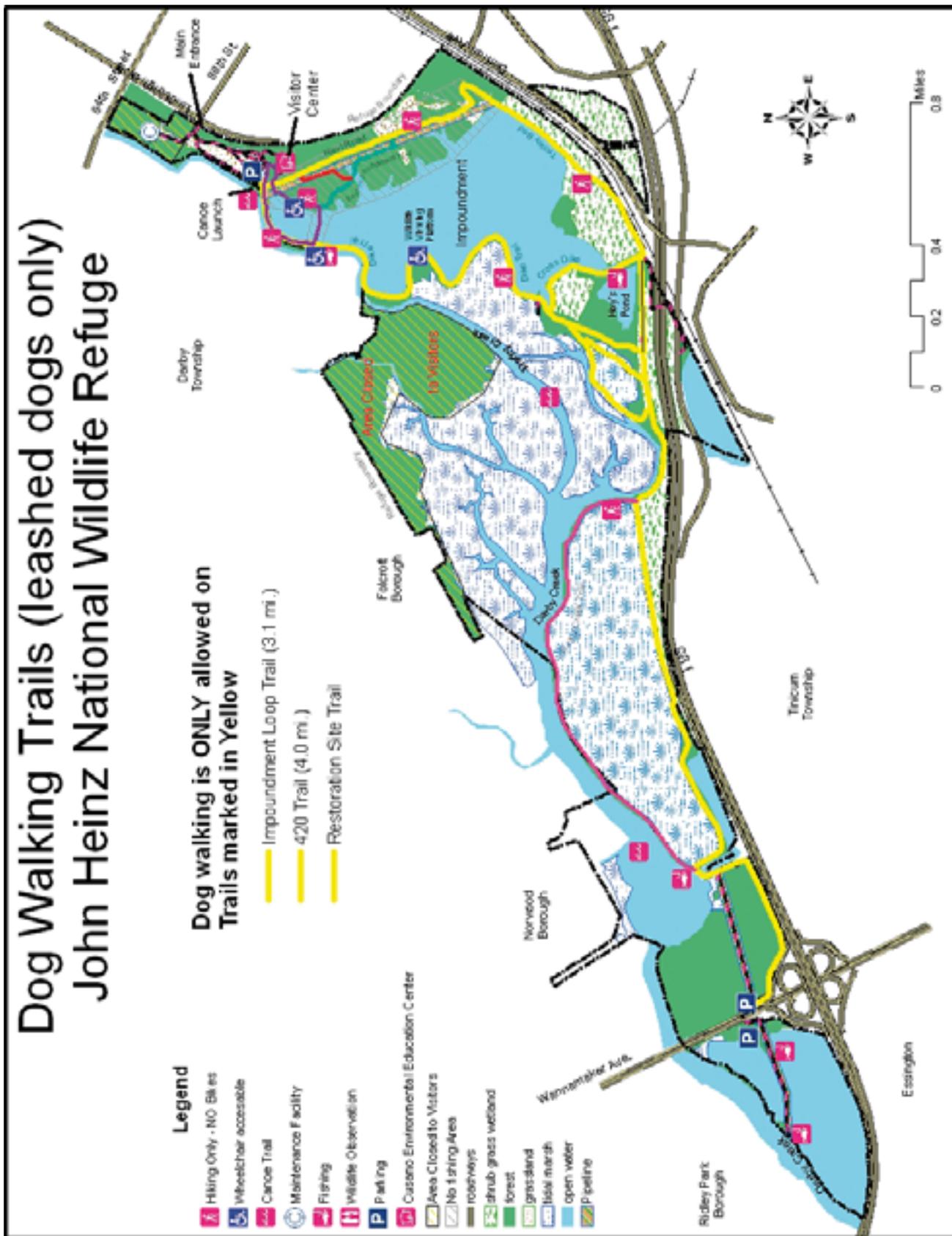
Hoopes, E.M. 1993. Relationships between human recreation and piping plover foraging ecology and chick survival. Thesis, University of Massachusetts, Amherst, Massachusetts.

Keller, V. 1991. Effects of human disturbance on eider ducklings *Somateria mollissima* in an estuarine habitat in Scotland. *Biological Conservation* 58:213-228.

Sime, C. A. 1999. Domestic Dogs in Wildlife Habitats. Pp. 8.1-8.17 in G. Joslin and H. Youmans, coordinators. *Effects of recreation on Rocky Mountain wildlife: A Review for Montana*. Committee on Effects of Recreation on Wildlife, Montana Chapter of The Wildlife Society.

Yalden, P. E., and D. Yalden. 1990. Recreational disturbance of breeding golden plovers (*Pluvialis apricarius*). *Biological Conservation* 51:243-262.

Map B.1. Access roads where dog walking is allowed at John Heinz National Wildlife Refuge at Tinicum.



FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Jogging

This exhibit is not required for wildlife-dependent recreational uses, forms of take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use (“no” to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to [b], [c], or [d]) may not be found appropriate. If the answer is “no” to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No .

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Jogging

NARRATIVE:

Jogging has been authorized on the refuge for many years. We are not aware of any conflicts with other public uses or negative effects on refuge resources from this use. Because refuge access roads and trails are maintained and open for public use, jogging is a low impact activity on the refuge. Cooke (1980) reported that passerine birds in suburban areas where human activity is ubiquitous, habituate to the activities and are not disturbed as often as birds in rural areas. Burger (1986) found that ducks and shorebirds on the mid-Atlantic coast exhibited sensitivity to joggers. However, Carlson and Godfrey (1989) documented that management strategies such as constructing elevated boardwalks, fencing sensitive areas, and educating visitors reduced human impacts. Because of the existing public use on the refuge and the refuge's location in a highly urbanized environment, disturbances to wildlife are expected to be minimal.

We believe most joggers are local residents, who regularly visit the refuge and understand our rules. Limiting the area for jogging to existing access roads and trails already open to public use on the refuge would keep potential disturbance to a minimum while increasing understanding and appreciation of both the refuge and Service mission among gateway community residents. This use is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with public use of the refuge, nor cause an undue administrative burden.

COMPATIBILITY DETERMINATION

USE:

Jogging

REFUGE NAME:

John Heinz National Wildlife Refuge at Tinicum (John Heinz NWR, refuge)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Public Law 92-326 (as amended)

REFUGE PURPOSE(S):

John Heinz NWR (John Heinz NWR, refuge) was established in 1972 under Special Legislation for the following purposes:

- “Preserving, restoring, and developing the natural area known as Tinicum Marsh....a wildlife interpretative center for the purpose of promoting environmental education, and to afford visitors an opportunity for the study of wildlife in its natural habitat.” (86 Stat. 891, dated June 30, 1972).

Additional refuge lands were acquired under the following authorities:

- To be of “particular value in carrying out the national migratory bird management program.” 16 U.S.C. §667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife);
- “[D]evelopment, advancement, management, conservation, and protection of fish and wildlife resources... (16 U.S.C. §742f (a)(4))...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services....” 16 U.S.C. §742f(b)(1) (Fish and Wildlife Act of 1956); and,
- “[F]or use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. §715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Pub. L. 105–57; 111 Stat. 1252).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is jogging on John Heinz NWR. This is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997.

(b) Where will the use be conducted?

Jogging would be permitted on all established roads, foot trails, and parking areas within the refuge which are currently open to public use (see map B.2). There are approximately 10 miles of trails on the refuge.

Refuge roads and trails designated for pedestrian travel are located primarily on already disturbed areas, i.e., old dikes and access roads with compacted soils and fill materials. While direct impact to wildlife and habitat on these trails is very minimal, the roads and trails provide excellent viewing of many of the refuge’s wetland and upland areas and were specifically designed to provide access for visitors with little if any disturbance to wildlife. Wildlife species occurring in the vicinity of roads and trails include migratory birds (waterfowl, songbirds, and others), resident mammals, reptiles, and amphibians.

(c) When will the use be conducted?

Designated public use roads and trails would be open to jogging all year, when the refuge is open. The refuge is usually open daily sunrise to sunset, year-round.

(d) How will the use be conducted?

Jogging is limited to designated roads, trails, parking areas, boardwalks and other visitor service facilities within public use areas of the refuge during the open hours of sunrise to sunset. Brochures and maps depicting the roads and trails open for this use are available at the visitor center and on the refuge’s Web site. Groups of 15 or more would require a special use permit.

Refuge roads and trails area already maintained for priority public uses to minimize environmental effects such as erosion and sedimentation and to provide safe conditions for travel. Existing potholes that promote off-road detours are routinely filled with gravel. Roads and trails would be monitored annually to determine if they remain compatible. As a step down plan, the refuge trail plan would include an inventory of all existing roads and trails.

(e) Why is this use being proposed?

Jogging is a historic use of the refuge. While refuge trails are built on top of lower quality habitat of old dikes or access roads, they provide exceptional opportunities to view wetland communities because they offer unrestricted views and are relatively level for easy pedestrian travel. We believe most joggers are local residents, who regularly visit the refuge and understand our rules. Limiting the area for jogging to existing access roads and trails already open to public use on the refuge would keep potential disturbance to a minimum while increasing understanding and appreciation of both the refuge and Service mission among gateway community residents. At current use levels, allowing jogging and priority public uses on refuge roads and trails is unlikely to be a safety risk.

AVAILABILITY OF RESOURCES:

Permitting this use is within the resources available to administer our Visitor Services Program. Staff time associated with administration of this use is minimal since pedestrian travel is permitted only on existing refuge roads and trails which are maintained for a wide range of maintenance, biological, and priority public uses. The annualized cost associated with the administration of pedestrian travel on the Refuge is estimated below:

Providing information to the public and administration needs	=	\$1,000
Resource impacts/monitoring	=	\$1,000
Maintenance needs	=	\$2,000
Total	=	\$4,000

Based on existing refuge expenditures for managing visitor use, funding is adequate to ensure compatibility at the current level of use and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE:

Because pedestrian travel would take place on routes which are currently cleared, maintained and improved; soil, hydrologic, and plant impacts would be minimal.

In general, the presence of humans disturbs most wildlife, which typically results in a temporary displacement without long-term effects on individuals or populations. Disturbance varies by wildlife species involved and the type, level, frequency, duration, and the time of year activities occur. Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. In this study, common species (e.g. American robins) were found near trails and rare species (i.e. Blackburnian warblers) were found farther from trails. In some cases there is a clear link between the extent of disturbance and either the survival or reproductive success of individuals (e.g. Schulz and Stock 1993), but in many cases disturbance acts in a more subtle way, by reducing access to resources such as food supplies or nesting sites (Gill et al. 1996). Bird flight in response to disturbance can lower reproductive success by exposing individuals and nests to predators. For recreation activities that occur simultaneously (hiking, biking, and horseback riding) there would likely be compounding negative impacts to wildlife (Knight and Cole 1991).

Wildlife disturbance may be compounded by seasonal needs. For example, some species, like warblers, could be negatively affected by disturbance associated with bird watching particularly during the breeding season. When visitors approach nests too closely, they often cause the adult bird to flush exposing the eggs to weather conditions or predators (Banks and Bryant 2007, Miller et al. 2001). The extent of that disturbance along the trail also depends on visibility and the density of vegetation. For songbirds, Gutzwiller et al. (1994) found that low levels of human intrusion altered the singing behavior of some species. Disturbance may also affect the reproductive fitness of males by hampering territory defense, mate selection, and other reproductive functions of vocalizations (Arrese 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents, which are time- and energy-consuming in defending territories (Ewald and Carpenter 1978).

As discussed throughout the refuge's draft Comprehensive Conservation Plan, the refuge is located in a highly urban environment, with substantial baseline disturbance associated with the international airport, I-95, several State routes, and numerous houses, businesses, community buildings, and associated human activity. By limiting the presence of humans to refuge trails and infrastructure, refuge visitors are not expected to add significantly to existing disturbance levels of wildlife in upland habitats. Overall, the direct disturbance from public use is expected to have minimal or no adverse effects on wildlife. We would evaluate the sites and programs periodically to assess whether they are meeting the objectives, and to prevent site degradation. If the use causes evident and unacceptable adverse impacts, the refuge would rotate the activities to secondary sites, or curtail or discontinue them.

Bennett and Zuelke (1999) summarize several studies indicating recreation activities would have at least temporary effects on the behavior and movement of birds using shallow water habitats adjacent to trails and roads through wildlife refuges (Burger 1981, 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers and Smith 1997; Burger and Gochfeld 1998). We would take all necessary measures to mitigate those effects, particularly where group educational activities are involved. We would evaluate the sites and programs periodically to assess whether they are meeting the objectives, and to prevent site degradation. If the use causes evident and unacceptable adverse impacts, the refuge would rotate the activities to secondary sites, or curtail or discontinue them.

As discussed previously, it is important to note that the refuge exists within a highly altered area with substantial baseline levels of disturbance associated with interstate traffic, airport activities, adjacent neighborhoods, and roads. Overall, the effects from public use are expected to have minimal adverse effects on birds utilizing open water and wetland habitats. There are few visitor facilities (e.g., trails) in these habitats due to the presence of open water and saturated soils; therefore, they are relatively inaccessible to the public. The size and dense vegetation supported by freshwater tidal marsh and portions of open water should provide adequate buffers to protect wetland bird species like American bittern against human disturbance (Gibbs and Melvin 1992).

There are no known federally listed species on the refuge; therefore, jogging on the designated access roads and trails would not cause significant impacts to threatened or endangered species. The use would be confined to existing roads and no new construction or vegetation clearing is required. Bald eagles and peregrine falcons are the only former federally listed, threatened or endangered species known to use the refuge for roosting or feeding. Both species have been delisted under the Federal Endangered Species Act (ESA). Bald eagles now nest on the refuge and are still protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668e). To ensure refuge activities and visitors do not disturb nesting bald eagles, we comply with the Service's National Bald Eagle Guidelines (USFWS 2007).

Some impacts such as littering, vegetation disturbance, and wildlife disturbance can be anticipated, but this is not anticipated to be significant. This is an historic use of the refuge, and we are not aware of any conflicts with other public uses or negative effects on refuge resources from this use. Therefore, the use of refuge roads and trails for jogging would not adversely impact refuge purposes and objectives. Public trash receptacles are provided. Problems associated with littering can be countered through an effective law enforcement program and through public education. The roads are maintained for refuge purposes and there should be no consequences from use by jogging. Maintenance of existing interpretative trails would require only minimum attention.

Disturbance of wildlife can be minimized by seasonal or permanent closure of areas if needed to minimize effects of jogging. Interpretive displays and environmental educational programs would be initiated to provide information to visitors of such disturbance issues.

PUBLIC REVIEW AND COMMENT:

This is an existing use of the refuge. This compatibility determination will be available for public review and comment for at least 30 days, in conjunction with the release of the draft Comprehensive Conservation Plan for the refuge.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- Jogging is permitted only on existing refuge roads and trails within areas designated open to the public.
- Signs necessary for visitor information, safety, and traffic control are maintained
- Jogging is allowed year-round, between sunrise and sunset.
- Routine law enforcement patrols would enforce refuge regulations regarding jogging off trail and entrance into closed areas to insure protection of wildlife and habitat.
- Groups of 15 or more joggers would require a special use permit.

JUSTIFICATION:

This use has been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented, and the use does not exceed thresholds necessary for visitor safety and resource protection. This use is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with public use of the refuge, nor cause an undue administrative burden.

Jogging has been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented, and the use does not exceed thresholds necessary for visitor safety and resource protection.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE:

LITERATURE CITED:

Arrese, P. 1987. Age, intrusion pressure and defense against floaters by territorial male Song Sparrows. *Animal Behavior* 35:773-784.

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- Ewald P. W., and F. L. Carpenter. 1978. Territorial responses to energy manipulations in the Anna hummingbird. *Oecologia* 31: 277-292.
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- U.S. Fish and Wildlife Service (USFWS). 2007. National Bald Eagle Management Guidelines May 2007. Accessed online May 2011 <<http://www.fws.gov/midwest/eagle/guidelines/index.html>>.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Non-motorized Boating

This exhibit is not required for wildlife-dependent recreational uses, forms of take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use (“no” to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to [b], [c], or [d]) may not be found appropriate. If the answer is “no” to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No .

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Non-motorized Boating

NARRATIVE:

The use of non-motorized watercraft on Darby Creek and associated tidal marsh channels and lagoons of John Heinz National Wildlife Refuge at Tinicum (refuge) would not materially interfere with or detract from the mission of the National Wildlife Refuge System or the purposes for which the refuge was established. Often refuge visitors using non-motorized watercraft are also engaged in priority public uses such as fishing, wildlife observation and photography, and interpretation.

COMPATIBILITY DETERMINATION

USE:

Non-motorized Boating

REFUGE NAME:

John Heinz National Wildlife Refuge at Tinicum (John Heinz NWR, refuge)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Public Law 92-326 (as amended)

REFUGE PURPOSE(S):

John Heinz NWR (John Heinz NWR, refuge) was established in 1972 under Special Legislation for the following purposes:

- “Preserving, restoring, and developing the natural area known as Tinicum Marsh....a wildlife interpretative center for the purpose of promoting environmental education, and to afford visitors an opportunity for the study of wildlife in its natural habitat.” (86 Stat. 891, dated June 30, 1972).

Additional refuge lands were acquired under the following authorities:

- To be of “particular value in carrying out the national migratory bird management program.” 16 U.S.C. §667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife);
- “[D]evelopment, advancement, management, conservation, and protection of fish and wildlife resources... (16 U.S.C. §742f (a)(4))...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services....” 16 U.S.C. §742f(b)(1) (Fish and Wildlife Act of 1956); and,
- “[F]or use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. §715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Pub. L. 105-57; 111 Stat. 1252).

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?

The use is non-motorized boating (canoes and kayaks) on John Heinz NWR including maintenance of a canoe trail on the tidal waters of Darby Creek and Tinicum Marsh and the tidal lagoons within the boundaries of the refuge. Non-motorized boating is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997. However, many boaters engage in viewing, photographing, or interpreting wildlife, which are priority public uses.

(b) Where will the use be conducted?

Non-motorized boating would be allowed in tidal waters of the refuge including the main channels of the Tinicum Marsh, and lagoons at the west end of the refuge adjacent to Highway 420 (map B.3).

(c) When will the use be conducted?

Non-motorized boating would be permitted when the refuge is open to visitors, usually daily, year-round, from sunrise to sunset.

(d) How will the use be conducted?

Non-motorized boaters enter the refuge at the main entrance on Lindbergh Boulevard and launch at the established canoe launch dock adjacent to the lower parking lot. All boaters would be required to operate their craft and possess all safety equipment in accordance with Pennsylvania State and U.S. Coast Guard regulations. As these areas are shallow and tidal, non-motorized boaters are encouraged through the refuge brochures, Web page, and visitor center information to do their canoeing or kayaking within a 2 hour window on either side of peak high tides for best access. Tide charts are distributed at the refuge visitor center for visitor convenience.

(e) Why is this use being proposed?

Interpretation and wildlife oriented recreation are primary purposes for which the refuge was established. Canoeing and kayaking are traditional means of outdoor recreation which is enhanced by the opportunity to view wildlife. Maintenance of a canoe trail and providing visitors with a canoe trail brochure enables the refuge to interpret refuge specific issues and the goals of the Fish and Wildlife Service.

Continued implementation of the refuge recreational boating program would help the Service meet the goal of the National Wildlife Refuge System "... to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreation experiences oriented toward wildlife...."

AVAILABILITY OF RESOURCES:

We estimate the annual cost of non-motorized boating to be minimal as refuge staff would respond to public inquiries about the program, perform law enforcement patrols, and assist partners with the maintenance of the canoe access site as part of other duties. Refuge staff would continue to receive assistance from the Pennsylvania Fish and Boat Commission and Pennsylvania Department of Environmental Protection who have jurisdiction over navigable portions of these waterways.

We provide a small dock and canoe/kayak launching facility on Darby Creek adjacent to the main visitor center parking lot. There are also nearby off refuge improved launches at commercial marinas further downstream on Darby Creek and Delaware River. We charge no fees for using the refuge canoe launch access area. The annualized cost associated with the administration of non-motorized boating on the refuge is estimated below:

Providing information to the public and administration needs	=	\$3,000
Resource impacts/monitoring	=	\$2,000
Maintenance needs	=	\$1,000
Total	=	\$6,000

Based on existing refuge expenditures for managing visitor use, funding is adequate to ensure compatibility at the current level of use and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE:

Non-motorized boating can affect refuge resources in a number of ways. Studies show that canoes and rowboats disturb wildlife (Bouffard 1982; Kaiser and Fritzell 1984; Knight 1984; Kahl 1991). They may affect waterfowl broods, wintering waterfowl, shorebirds, raptors, and long-legged waders, but their low speed and their use primarily during the warmer months would mitigate those impacts, especially on wintering waterfowl and raptors. The size and dense vegetation supported by freshwater tidal marsh and portions of open water should provide adequate buffers to protect wetland bird species, like American bittern, against human disturbance (Gibbs and Melvin 1992). Boaters also may try to access closed portions of the refuge, causing additional disturbance of wildlife. Due to the shallowness of refuge waters, which can only be physically floated during high tide windows of non-ice seasons, it is anticipated that this use would most likely remain very limited in scope.

The impacts of non-motorized boating on wildlife include temporary disturbances to species using habitat on Darby Creek and adjacent portions of Tinicum Marsh. These disturbances are likely to be short-term and infrequent based on current levels of use.

There are no anticipated impacts on cultural resources.

Non-motorized boating use of the refuge would not cause significant impacts to threatened or endangered species. The use would be confined to Darby Creek, the main channels of the Tinicum Marsh, and lagoons at the west end of the refuge adjacent to Hwy 420. No new construction or vegetation clearing is required.

Problems associated with littering can be countered through an effective law enforcement program and through public education.

Darby Creek itself is considered to be a navigable waterway. As such, we do not have jurisdiction boating in this creek.

PUBLIC REVIEW AND COMMENT:

This is an existing use of the refuge. This compatibility determination will be available for public review and comment for at least 30 days, in conjunction with the release of the draft Comprehensive Conservation Plan for the refuge.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- Boaters must comply with all Pennsylvania State and U.S. Coast Guard requirements. Law enforcement efforts on the refuge would ensure compliance with State laws and refuge-specific regulations.
- Parts of the refuge may be closed by management as needed to provide wildlife sanctuary or prevent habitat damage.
- No boats are permitted on the nontidal waters and ponds of the refuge. Boat traffic in the large lagoon is restricted to “Slow No Wake” speed.

- Boaters must restrict their activity to daylight hours only.
- Boaters must report all accidents and injuries to refuge personnel as soon as possible, but before leaving the refuge.
- For other than emergency purposes, boaters are prohibited from landing or launching on refuge lands other than at the canoe launch by the visitor center parking lot.

JUSTIFICATION:

The use of non-motorized watercraft on the Darby Creek and associated tidal marsh channels and lagoons on John Heinz NWR is unlikely to interfere with the primary purposes for which the refuge was established. Refuge visitors use non-motorized watercraft to participate in such priority public uses as fishing, wildlife observation, photography and interpretation. Non-motorized boating on the refuge has been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented, and the use does not exceed thresholds necessary for visitor safety and resource protection. Non-motorized boating is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with other public uses of the refuge, nor cause an undue administrative burden.

SIGNATURE:

Refuge Manager: _____ (Signature) _____ (Date)

CONCURRENCE:

Regional Chief: _____ (Signature) _____ (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE:

LITERATURE CITED:

Bouffard S.H. 1982. Wildlife values versus human recreation: Ruby Lake National Wildlife Refuge. Trans. North American Wildlife and Natural Resources Conference 47:553-558.

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FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Bicycling

This exhibit is not required for wildlife-dependent recreational uses, forms of take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision criteria:	YES	NO
(a) Do we have jurisdiction over the use?	✓	
(b) Does the use comply with applicable laws and regulations (Federal, State, Tribal, and local)?	✓	
(c) Is the use consistent with applicable Executive orders and Department and Service policies?	✓	
(d) Is the use consistent with public safety?	✓	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	✓	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	✓	
(g) Is the use manageable within available budget and staff?	✓	
(h) Will this be manageable in the future within existing resources?	✓	
(i) Does the use contribute to the public’s understanding and appreciation of the refuge’s natural or cultural resources, or is the use beneficial to the refuge’s natural or cultural resources?	✓	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D. for description), compatible, wildlife-dependent recreation into the future?	✓	

Where we do not have jurisdiction over the use (“no” to [a]), there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe (“no” to [b], [c], or [d]) may not be found appropriate. If the answer is “no” to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes No .

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor’s concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate **Appropriate**

Refuge Manager: _____ Date: _____

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.

If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.

If found to be **Appropriate**, the refuge supervisor must sign concurrence:

Refuge Supervisor: _____ Date: _____

A compatibility determination is required before the use may be allowed.

JUSTIFICATION FOR A FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: John Heinz National Wildlife Refuge at Tinicum

Use: Bicycling

NARRATIVE:

Bicycling is an historical recreational use in John Heinz NWR that occurred long before the refuge was created, and it has occurred on the refuge since its establishment.

Bicycle travel is limited to approximately 7 miles of designated access roads and parking areas only, where road width can accommodate the safe passage of bicyclists and other users. Designated roads also have sufficient viewing distance for bicyclists to detect the approach of other users and maneuver to accommodate them. Because of these accommodations, bicycling occurs concurrently and without conflict with other public uses including priority public uses.

Bicycle travel is an ecologically friendly means of green transportation in line with the conservation mission of the Service. Bicycle travel to and through the refuge (in designated areas) is also consistent with local trail and access partnerships including the Philadelphia Planning Department and East Coast Greenways Coalition, connections to city green space corridors, directional signage, community outreach, and educational programs aimed at reconnecting citizens to the outdoors and nature. Both the refuge and the above partner organizations emphasize that bicycles are encouraged as a citywide green transportation initiative to get to the refuge, where visitors are then also encouraged to park their bicycles and walk on refuge trails.

In addition, because bicycling provides easier and quicker access for many visitors who may not otherwise visit the refuge's habitats and other resources, bicycling can contribute to the public's understanding and appreciation of the refuge's natural and cultural resources. Refuge personnel and volunteers have observed bicyclists with binoculars, cameras, and fishing poles showing that they are used to help facilitate priority public uses of the National Wildlife Refuge System.

This use has been determined to be compatible, as stipulated in the associated compatibility determination. This use is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with public use of the refuge, nor cause an undue administrative burden.

COMPATIBILITY DETERMINATION

USE:

Bicycling

REFUGE NAME:

John Heinz National Wildlife Refuge at Tinicum (John Heinz NWR, refuge)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Public Law 92-326 (as amended)

REFUGE PURPOSE(S):

John Heinz NWR (John Heinz NWR, refuge) was established in 1972 under Special Legislation for the following purposes:

- “Preserving, restoring, and developing the natural area known as Tinicum Marsh....a wildlife interpretative center for the purpose of promoting environmental education, and to afford visitors an opportunity for the study of wildlife in its natural habitat.” (86 Stat. 891, dated June 30, 1972).

Additional refuge lands were acquired under the following authorities:

- To be of “particular value in carrying out the national migratory bird management program.” 16 U.S.C. §667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife);
- “[D]evelopment, advancement, management, conservation, and protection of fish and wildlife resources... (16 U.S.C. §742f (a)(4))...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services....” 16 U.S.C. §742f(b)(1) (Fish and Wildlife Act of 1956); and,
- “[F]or use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. §715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Pub. L. 105–57; 111 Stat. 1252).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is bicycling on John Heinz National Wildlife Refuge (NWR) at Tinicum (refuge). Priority public uses of the National Wildlife Refuge System (Refuge System) are hunting, fishing, wildlife observation and photography, environmental education, and interpretation. Bicycling is not a priority public use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997. However, many bicyclists engage in viewing, photographing, or interpreting wildlife, which are priority public uses.

(b) Where will the use be conducted?

Bicycling would be permitted on paved and gravel roads and parking lots within the refuge which are currently open to public use. This is limited to the following road and areas:

- Dike Road
- Haul Road
- Trolley Bed
- PennDOT Access Road
- Refuge Entrance Roads and Parking Areas

These roads total about 7 miles. Roads open for bicycling are shown in map B.4. Refuge roads designated for bicycling are located on the upland areas adjacent to many of the refuge's wetland areas and were specifically designed to provide access.

(c) When will the use be conducted?

Designated roads would be open to bicycling all year. The refuge is open daily sunrise to sunset.

(d) How will the use be conducted?

Bicycling is currently permitted on the refuge. Bicyclists can enter the refuge at public entry points or transport bicycles by vehicle and park at designated parking sites. Visitors accessing the refuge on bicycles are then encouraged to park the bicycles and walk on trails to participate in priority public uses like environmental interpretation and wildlife observation. The use mainly occurs in groups with an average group size of 2 to 4 riders. Bicyclists may gather in larger groups for seasonal events like the viewing of fall colors. Formal groups of 10 or more would need special use permits (SUP) and bicycle races are prohibited on the refuge.

Bicycle travel is limited to designated access roads with paved or gravel surfaces and would not be allowed on woodland foot trails or boardwalks. Designated roads have sufficient viewing distance for bicyclists to detect the approach of other users and maneuver to accommodate them.

Safety and information signs are located at refuge entry points and at appropriate sites on designated bicycling trails and roads. Brochures depicting the roads open for this use are available at the refuge visitor center and on the refuge's Web site. Bicycle racks may be added.

(e) Why is this use being proposed?

Bicycling is an historic use of the refuge and there is a high demand for bicycling opportunities locally. In addition, it is the objective of the refuge to facilitate bicycles as a green transportation method for visitors to reach the refuge. Ongoing partnerships with the with Pennsylvania Clean Air Council, East Coast Greenway Coalition, and other partners would help promote and facilitate green transportation and public access to the refuge.

Lastly, because bicycling provides easier and quicker access for many visitors who may not otherwise visit the refuge's habitats and other resources, bicycling can contribute to the public's understanding and appreciation of the refuge's natural and cultural resources, to goals and objectives presented in John Heinz NWR Draft Comprehensive Conservation Plan, and participation in priority public uses. Refuge personnel and volunteers have observed bicyclists with binoculars, cameras, and fishing poles showing that bicycling is used to help facilitate participation in priority public uses of the Refuge System on the refuge.

AVAILABILITY OF RESOURCES:

Permitting this use is within the resources available to administer our Visitor Services Program. Staff time associated with administration of this use is relatively minimal since bicycling is permitted only on existing refuge roads which are maintained for a wide range of maintenance, biological, and public uses. The most significant cost associated with this public use is associated with enforcing regulations, placing and updating signs, and maintenance of refuge facilities. The annualized cost associated with the administration of bicycling travel on the refuge is estimated below:

Providing information to the public and administration needs	=	\$3,000
Resource impacts/monitoring	=	\$1,000
Maintenance needs	=	\$2,000
Total	=	\$6,000

Based on existing refuge expenditures for managing visitor use, funding is adequate to ensure compatibility at the current level of use and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE:

The presence of people bicycling on refuge roads can lead to displacement of animals from the road, although disturbance usually is a negligible influence on large mammal distributions and movements (Boyle and Samson 1985, Purdy et al. 1987). The effects on other forms of wildlife appear to be short term with the exception of breeding bird communities. A study by Miller et al. (1998) indicates that species composition and nest predation was altered adjacent to trails in both forested and grassland habitats. It appears that species composition changes are due to the presence of humans and not the trail or roadway itself. On the other hand, nest predation does appear to be a function of the trail which allows access to mammalian nest predators. Several studies showed that in areas where human activity was common and frequent, birds were less disturbed than those in areas where humans were uncommon (Miller et al. 2001). The refuge would continue its proven management strategies of educating trail users regarding how their activities affect wildlife and how to modify their use to minimize impacts on wildlife (Klein 1993, Miller et al. 1998).

The use of trails and gravel roads could lead to soil compaction, exposure of tree roots, and the modification of plant species 3 to 6 feet on either side of the trail which is a function of soil compaction, invasive species, and direct trampling of plants (Kuss 1986). The refuge would continue its road maintenance and erosion control, and user education to protect plant species and habitats along trails and roadways. Use of the access roads could pose a threat to endangered or threatened species if such were found utilizing habitat near the road location. In this case, the road use would be monitored and evaluated for such threats and management action would be taken to ensure habitat protection. There are no federally listed species along designated bicycle trails at this time. Potential conflict with priority public uses would be minimized by using information/orientation signs, other media, and personal communication with visitors to inform the various users about current public uses. At current levels of use and restricted to designated roads with hardened and modified surfaces, bicycling would cause minimal surface disturbance. and the sharing of designated roads with other users is unlikely to be a safety risk.

The refuge believes that with proper management bicycling would not result in any short-term or long-term impacts that would adversely affect the purpose of the refuge or the mission of the National Wildlife Refuge System.

Roads would be monitored annually to determine if bicycling would remain a compatible use. Bicycling routes and/or other restrictions may be modified if needed with development of a refuge trail plan as a step- down plan to follow the refuge’s Comprehensive Conservation Plan. In the interim, the refuge is conducting an inventory of all existing roads and trails.

PUBLIC REVIEW AND COMMENT:

This is an existing use of the refuge. This compatibility determination will be available for public review and comment for at least 30 days, in conjunction with the release of the draft Comprehensive Conservation Plan for the refuge.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- Bicycling is permitted only on existing paved and gravel roads and parking lots within areas designated as open to bicycling.
- Parts of the refuge may be closed by management as needed to provide wildlife sanctuary and prevent damage to habitat.
- Bicycling is not permitted on foot trails or boardwalks.
- Signs necessary for visitor information, safety, and traffic control are maintained
- Bicycling is allowed between sunrise and sunset.
- Routine law enforcement patrols would enforce refuge regulations on bicycling.
- Groups of 10 or more bicyclists would require a special use permit.
- Bicycle racing and races are prohibited.
- East Coast Greenway Bicycle Trail overlay would be clearly marked and limited to Dike Road to I-95 and along I-95 corridor to the west entrance of Hwy 420. Partnership publications would clearly define open areas to bicycles and the above refuge specific stipulations.
- Bicycle racks may be added at east and west refuge parking lots as well as appropriate trail heads to foot trails if needed in future.

JUSTIFICATION:

This use has been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented for visitor safety and resource protection. This use is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with public use of the refuge, nor cause an undue administrative burden.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

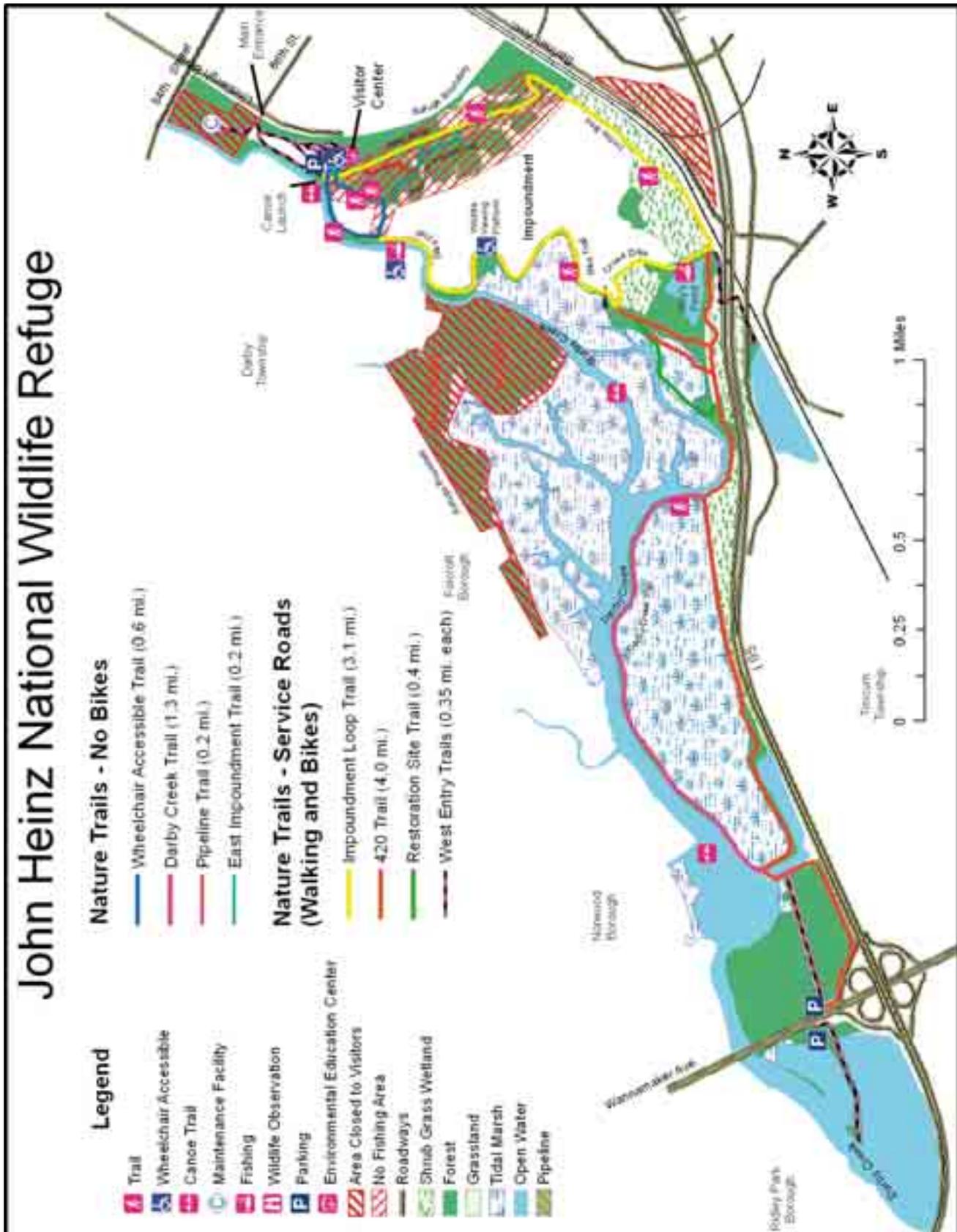
Regional Chief: _____
(Signature) (Date)

MANDATORY 10 YEAR RE-EVALUATION DATE: _____

LITERATURE CITED:

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Kuss, F. 1986. A review of major factors influencing plant responses to recreation impacts. Environmental Management 10:638-650.
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—.2001. Wildlife Responses to Pedestrians and Dogs. Wildlife Society Bulletin 29(1): 124-132.
Purdy, Goff, Decker, Pomerantz, Connelly. 1987 A Guide to Managing Human Activity on a National Wildlife Refuge. New York Cooperative Fish and Wildlife Research Unit.

Map B.4. Access roads and trails where bicycling is authorized on John Heinz National Wildlife Refuge at Tinicum.



COMPATIBILITY DETERMINATION

USE:

Recreational Fishing

REFUGE NAME:

John Heinz National Wildlife Refuge at Tinicum (John Heinz NWR, refuge)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Public Law 92-326 (as amended)

REFUGE PURPOSE(S):

John Heinz NWR (John Heinz NWR, refuge) was established in 1972 under Special Legislation for the following purposes:

- “Preserving, restoring, and developing the natural area known as Tinicum Marsh....a wildlife interpretative center for the purpose of promoting environmental education, and to afford visitors an opportunity for the study of wildlife in its natural habitat.” (86 Stat. 891, dated June 30, 1972).

Additional refuge lands were acquired under the following authorities:

- To be of “particular value in carrying out the national migratory bird management program.” 16 U.S.C. §667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife);
- “[D]evelopment, advancement, management, conservation, and protection of fish and wildlife resources... (16 U.S.C. §742f (a)(4))...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services....” 16 U.S.C. §742f(b)(1) (Fish and Wildlife Act of 1956); and,
- “[F]or use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. §715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Pub. L. 105–57; 111 Stat. 1252).

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?

The use is recreational fishing. Recreational fishing is a priority use of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997.

(b) Where will the use be conducted?

Recreational fishing access would be allowed in Darby Creek, the Darby Creek side of the 145-acre freshwater impoundment, Long Hook Creek, the main channels of the Tinicum Marsh and the lagoons at the west end of the refuge adjacent to Hwy 420. Recreational fishing would also be allowed at Hoy's Pond and the 16-Acre Pond (map B.5). There is a handicap accessible fishing site located at the northwest section of the Impoundment Loop Trail, and a fishing pier at Hoy's Pond (see map B.5).

A canoe launch and small dock facility on Darby Creek, adjacent to the main visitor center parking lot, allows fishing access on the water. There are also nearby off refuge improved launches at commercial marinas further downstream on Darby Creek and the Delaware River.

(c) When will the use be conducted?

Recreational fishing would be permitted when the refuge is open to visitors, daily, year-round, from sunrise to sunset.

(d) How will the use be conducted?

Anglers enter the refuge at the main entrance on Lindbergh Boulevard or at the Hwy 420 west entrance areas for pedestrian traffic and or bicycle access to areas open for public use activities including fishing. Anglers are allowed to fish from stream banks along established trails and access roads, as well as accessing designated fishing areas by boat. The two fishing facilities identified in section (b) are accessible on foot and the handicap accessible fishing facility can also be accessed with wheelchairs and other mobility assistance devices.

As Darby Creek is shallow and tidal, those anglers using non-motorized boats in Darby Creek are encouraged through the refuge brochures, Web page, and visitor center information, to limit use to the 2-hour window on either side of peak high tides for best access. Tide charts are distributed at the refuge visitor center for visitor convenience.

Anglers must comply with applicable State regulations and any refuge-specific regulations if implemented. There is a State consumption advisory on fish from Darby Creek, and signs are posted encouraging catch and release only.

(e) Why is this use being proposed?

Continued implementation of the refuge fishing program would help the U.S. Fish and Wildlife Service (Service) meet the goal of the National Wildlife Refuge System "... to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreation experiences oriented toward wildlife...."

The refuge fishing program would also help the Service meet the goals of the newly proposed Branch of Recreational Fisheries as stated by Service Director Beattie, "...to provide fishing and aquatic education opportunities to our nation's increasingly urban population...to give children in urban area more opportunities to fish and to learn about aquatic resources."

AVAILABILITY OF RESOURCES:

The resources necessary to provide and administer this use are available within current and anticipated refuge budgets. Staff time associated with administration of this use would be directly related to responding to public inquiries about the program; perform law enforcement patrols; provide signage, environmental education, and Interpretation related to this use; maintenance of parking areas, access roads, and trails to facilitate this public use; and to continue to provide a fishing tackle loaner program for visitors that do not have fishing equipment. The refuge staff annually hosts a Family Fishing Days event that promotes fishing as a family oriented recreational activity as well as introducing intercity youth to the value of fishing as a healthy pastime. Refuge staff would continue to receive assistance from the Pennsylvania Fish and Boat Commission and Pennsylvania Department of Environmental Protection, who have jurisdiction over navigable portions of these waterways.

A canoe launch and small dock facility on Darby Creek, adjacent to the main visitor center parking lot allows fishing access on the water. There are also nearby off refuge improved launches at commercial marinas further downstream on Darby Creek and the Delaware River. We charge no fees for using the refuge canoe

launch access area. A pedestrian access fishing pier is available at Hoy’s Pond and an accessible fishing deck is available on Darby Creek by the main impoundment water structure. Other open areas are available for bank fishing. The annualized cost associated with the administration of pedestrian travel on the refuge is estimated below:

Providing information to the public and administration needs	=	\$7,000
Resource impacts/monitoring	=	\$2,000
Maintenance needs	=	\$8,000
Total	=	\$17,000

Based on existing refuge expenditures for managing visitor use, funding is adequate to ensure compatibility at the current level of use and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE:

Fishing can affect refuge resources in a number of ways. Studies show that canoes and rowboats disturb wildlife (Bouffard 1982; Kaiser and Fritzell 1984; Knight 1984; Kahl 1991). They may affect waterfowl broods, wintering waterfowl, shorebirds, raptors, and long-legged waders, but their low speed and their use primarily during the warmer months would mitigate those impacts, especially on wintering waterfowl and raptors. Boaters while fishing also may try to access closed portions of the refuge, causing additional disturbance of wildlife. Due to the shallowness of Darby Creek, which can only be physically floated during high tide windows of non-ice seasons, it is anticipated that this use would most likely remain very limited in scope.

The impacts of fishing from non-motorized boating on wildlife include temporary disturbances to species using habitat on Darby Creek and adjacent portions of Tinicum Marsh. These disturbances are likely to be short term and infrequent based on current levels of use.

Waterfowl, wading birds, shorebirds and other wildlife may be disturbed by human activities. Klein (1993), in a study conducted at J. N. “Ding” Darling National Wildlife Refuge, observed that individuals fishing and crabbing showed the lowest disturbance of wildlife compared to other refuge visitors, presumably because they did not attempt to approach wildlife for photography or observation.

Korschgen and Dahlgren (1992) reported that mallards at Seney National Wildlife Refuge failed to nest in areas open to fishing. Fishing on the refuge is restricted to certain areas to provide adequate nesting sites for waterfowl and other birds. No boats are permitted on the nontidal waters and ponds of the refuge in order to prevent disturbance of nesting birds in remote locations.

Kaiser and Fritzell (1984) found that the number of green-back herons negatively correlated to the number of recreational boaters on water systems. The refuge impoundment where a wading bird colony (including green-backed herons) is located is closed to boating. Most of the small tidal creeks on the refuge are only passable for an hour or two before and after high tide and are rarely frequented by fisherman.

Morton et al. (1989) suggested that human disturbance of wintering black ducks impairs their physiological conditions, thereby reducing winter survival and nutrient reserves carried to the breeding grounds. Because of the climate, little fishing activity occurs on the refuge from the middle of November through the middle of March.

Concern has been expressed over the potential for lead poisoning of waterfowl and wading birds from lead fishing weights. No indication of lead poisoning has been observed at the refuge during more than 20 years of recreational fishing. Implementation of the U.S. Environmental Protection Agency’s proposed regulations on the manufacture of lead fishing weights would virtually eliminate the potential for any impact of lead poisoning resulting from fishing.

Sport fishing should not have any adverse impacts on the fisheries resource at the refuge. Problems associated with site compaction and denuding of vegetation can be addressed by area closures as necessary to protect sensitive areas. Problems associated with littering can be countered through an effective law enforcement program and through public education.

Fishing from shore or non-motorized boats at the refuge would not cause significant impacts to federally listed, threatened or endangered species. The use would be confined to Darby Creek, Darby Creek side of impoundment, Hoy's Pond, 16-Acre Pond, Long Hook Creek, the main channels of the Tinicum Marsh, and lagoons at the west end of the refuge adjacent to Hwy 420. No new construction or vegetation clearing is required. Bald eagles and peregrine falcons (now both delisted) were the only federally listed, threatened or endangered species known to regularly use the refuge for roosting or feeding. Bald eagles are now known (2010) to nest on the refuge. Bald eagles are still protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). To ensure refuge activities and visitors do not disturb nesting bald eagles, we comply with the Service's National Bald Eagle Guidelines (USFWS 2007).

Anglers fishing along refuge trails have the potential to impact vegetation through trampling and soil compaction. We anticipate that allowing this use would cause some minor loss of vegetation. However, by restricting visitors to designated trails and roads, we expect these impacts would be negligible. Carlson and Godfrey (1989) documented that management strategies such as constructing elevated boardwalks, fencing sensitive areas, and educating visitors all helped in reducing human impacts to vegetation. Refuge staff would continue to monitor trails and, if any problem areas are identified, would take the appropriate restoration and protection measures.

There are no anticipated impacts on cultural resources.

PUBLIC REVIEW AND COMMENT:

This is an existing use of the refuge. This compatibility determination will be available for public review and comment for at least 30 days, in conjunction with the release of the draft Comprehensive Conservation Plan for the refuge.

DETERMINATION (CHECK ONE BELOW):

- Use is not compatible
- Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- The refuge is closed to all fishing for turtles and frogs to protect the State threatened red-bellied turtle and State endangered coastal plains leopard frog.
- Law enforcement efforts on the refuge would ensure compliance with State laws and refuge-specific regulations including all State fishing license requirements.
- Commercial fishing including crabbing and any take of reptiles or amphibians is prohibited on the refuge.
- Fishing is allowed only during hours when the refuge is open for public use (between sunrise and sunset).
- Parts of the refuge are closed to fishing and additional areas may be closed to provide wildlife sanctuary or prevent habitat damage.

- Vehicle use is limited to parking lot areas. Access to the interior of the refuge (except for designated areas for access for people with disabilities) is limited to foot traffic or bicycling.
- No boats are permitted on the nontidal waters and ponds of the refuge. Boat traffic in the large lagoon and Darby Creek is restricted to “Slow No Wake” speed.

JUSTIFICATION:

Sport fishing is a traditional form of outdoor recreation on the refuge and in the region. Sport fishing on the refuge provides substantial recreational opportunities to the public. A survey conducted by the Service’s Gloucester Point, Virginia Fisheries Assistance Office in June 1994 indicated that the refuge presently has a fisheries resource capable of supporting sustained public use. Refuge staff currently recommends that anglers practice catch and release fishing due to the contaminant warnings issued by the Commonwealth of Pennsylvania for the Delaware River Watershed from the mouth of Delaware Bay to Trenton, New Jersey.

Recreational fishing has been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented, and the use does not exceed thresholds necessary for visitor safety and resource protection. Recreational fishing is a priority public use on the refuge and it is not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with other public uses of the refuge, nor cause an undue administrative burden.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE: _____

LITERATURE CITED:

Bouffard S.H. 1982. Wildlife values versus human recreation: Ruby Lake National Wildlife Refuge. Trans. North American Wildlife and Natural Resources Conference 47:553-558.

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COMPATIBILITY DETERMINATION

USE:

Wildlife Observation, Photography, Environmental Education, and Interpretation

REFUGE NAME:

John Heinz National Wildlife Refuge at Tinicum (John Heinz NWR, refuge)

ESTABLISHING AND ACQUISITION AUTHORITY(IES):

Public Law 92-326 (as amended)

REFUGE PURPOSE(S):

John Heinz NWR (John Heinz NWR, refuge) was established in 1972 under Special Legislation for the following purposes:

- “Preserving, restoring, and developing the natural area known as Tinicum Marsh....a wildlife interpretative center for the purpose of promoting environmental education, and to afford visitors an opportunity for the study of wildlife in its natural habitat.” (86 Stat. 891, dated June 30, 1972).

Additional refuge lands were acquired under the following authorities:

- To be of “particular value in carrying out the national migratory bird management program.” 16 U.S.C. §667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife);
- “[D]evelopment, advancement, management, conservation, and protection of fish and wildlife resources... (16 U.S.C. §742f (a)(4))...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services....” 16 U.S.C. §742f(b)(1) (Fish and Wildlife Act of 1956); and,
- “[F]or use as an inviolate sanctuary, or for any other management purpose, for migratory birds....” 16 U.S.C. §715d (Migratory Bird Conservation Act).

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (Pub. L. 105–57; 111 Stat. 1252).

DESCRIPTION OF USE:

(a) What is this use? Is it a priority public use?

The use is to permit wildlife observation, photography, environmental education and interpretation (formal and non-formal, personal and non-personal) within the boundaries of John Heinz NWR as activities which increase the public’s knowledge, understanding, and appreciation of wildlife while contributing to conservation of natural resources. Activities include traditional environmental education activities (teacher-led or staff-led onsite field trips); nature study, such as teacher and student workshops; and interpretation of the wildlife resource and

support facilities such as the visitor center, boardwalks, observation decks, photography blinds, interpretive displays, guided walks, and programs. Wildlife observation, photography, environmental education, and interpretation are all priority public uses of the National Wildlife Refuge System under the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997.

(b) Where will the use be conducted?

Wildlife observation, photography, environmental education, interpretation programs, and activities would be allowed along refuge roads, trails, parking areas, and other areas open to public use (e.g., Darby Creek). This also includes facilities such as the visitor center, classrooms, pavilion, boardwalks, wildlife viewing decks, fishing piers, photo blinds, and other onsite facilities that are developed (see map B.6) along with offsite programs within scope of available staff, volunteers and budgets.

(c) When will the use be conducted?

Wildlife observation, photography, environmental education and interpretation would be permitted when the refuge is open to visitors, daily, year-round, from sunrise to sunset. Occasional guided evening programs (some coupled with wildlife population counts) are also offered to include staff or trained volunteer-led, citizen science activities such as surveys for vocalizing anurans and nocturnal avian fauna. Cross-country skiing and snowshoeing occur in winter when there is sufficient snow to allow these activities.

(d) How will the use be conducted?

Visitors are allowed to participate in these activities by walking or hiking, cross-country skiing, snowshoeing, and volunteer or staff-led tours on designated roads and trails. Visitors with limited mobility may also participate using approved mobility assistance devices (i.e., wheelchairs, scooters). Cross-country skiing and snowshoeing are limited to winter when there is sufficient snow to allow these activities. Refuge staff does not groom trails in the winter, so access may be limited.

(e) Why is this use being proposed?

Wildlife observation, photography, environmental education, and interpretation are all priority public uses as authorized under the Refuge Improvement Act, and are included or support the primary purposes for which the refuge was established. Continued implementation of the refuge wildlife observation, photography, environmental education and interpretation programs would help the Service meet the goal of the National Wildlife Refuge System "... to provide refuge visitors with high quality, safe, wholesome, and enjoyable recreation experiences oriented toward wildlife...."

Providing opportunities for wildlife observation, photography, environmental education and interpretation is included within the refuge's primary purposes in its establishing legislation (see section entitled "Purpose(s) for which Established" above). Contact with refuge visitors engaged in these activities also provides opportunities for the refuge to interpret refuge-specific issues and the goals of the U.S. Fish and Wildlife Service (Service). Visitors need to access areas of the refuge to participate in these activities, usually by foot (walking, skiing, snowshoeing), or mobility assistance equipment (scooters, wheelchairs etc.).

Continued implementation of these programs would help the Service meet the goal of the National Wildlife Refuge System, "...to provide an understanding and appreciation of fish and wildlife ecology and man's role in his environment...."

AVAILABILITY OF RESOURCES:

Wildlife observation, photography, environmental education and interpretation are all priority public uses directly supporting primary purposes for which the refuge was established. The resources necessary to provide and administer this use are available within current and anticipated refuge budgets. Staff time associated with administration of this use would be directly related to responding to public inquiries about the program; law enforcement patrols; maintenance and construction of adequate facilities for these uses; develop and implement environmental education and interpretive programs; maintenance of parking areas, access roads, and trails

to facilitate this public use; and continuing to provide a binocular loaner program for visitors that do not have necessary equipment. Refuge personnel directly coordinate and maintain these priority public use programs and facilities and are supplemented by numerous volunteers and partner agencies and organizations. We charge no fees for using the refuge facilities. The annualized cost associated with the administration of pedestrian travel on the refuge is estimated below:

Providing information to the public, program development and implementation, and administration needs	=	\$250,000
Resource impacts/monitoring	=	\$5,000
Maintenance needs	=	\$25,000
Total	=	\$280,000

Based on existing refuge expenditures for managing visitor use, funding is adequate to ensure compatibility at the current level of use and to administer and manage the subject use.

ANTICIPATED IMPACTS OF THE USE:

The use of onsite, hands-on, action-oriented activities by groups of up to 200 students and teachers to accomplish environmental education objectives may impose a low level of impact on the sites used for these activities.

Effects on Soils and Vegetation: Visitors engaged in these uses along refuge trails have the potential to impact vegetation through trampling and soil compaction. We anticipate that allowing this use would cause some minor loss of vegetation. However, by restricting visitors to designated trails and roads, we expect these impacts would be negligible. Carlson and Godfrey (1989) documented that management strategies such as constructing elevated boardwalks, fencing sensitive areas, and educating visitors all helped in reducing human impacts to vegetation. In addition, cross-country skiing and snowshoeing are limited to winter months and require sufficient snow cover to allow access. Surface water and soils are often frozen for at least a portion of this time, most vegetation is dormant, and sensitive habitat would be protected by a layer of snow. Skis and snowshoes are also designed to distribute weight, decreasing the risk of erosion near waterways. Refuge staff would continue to monitor trails and, if any problem areas are identified, would take the appropriate restoration and protection measures.

Effects on Wildlife: Wildlife observation, photography, environmental education and interpretation use within designated areas open to public use would not cause significant impacts to threatened or endangered species. There are currently no known federally listed species on the refuge. Two recently delisted species, the bald eagle and peregrine falcon, use the refuge for roosting and feeding. Bald eagles also now nest on the refuge.

In general, the presence of humans disturbs most wildlife, which typically results in a temporary displacement without long-term effects on individuals or populations. Disturbance varies by wildlife species involved and the type, level, frequency, duration and the time of year activities occur. Disturbance can cause shifts in habitat use, abandonment of habitat, and increased energy demands on affected wildlife (Knight and Cole 1991). Miller et al. (1998) found bird abundance and nesting activities (including nest success) increased as distance from a recreational trail increased in both grassland and forested habitats. In this study, common species (e.g. American robins) were found near trails and rare species (e.g., Blackburnian warblers) were found farther from trails. In some cases there is a clear link between the extent of disturbance and either the survival or reproductive success of individuals (e.g. Schulz and Stock 1993), but in many cases disturbance acts in a more subtle way, by reducing access to resources such as food supplies or nesting sites (Gill et al. 1996). Bird flight in response to disturbance can lower reproductive success by exposing individuals and nests to predators. For recreation activities that occur simultaneously (hiking, biking, and horseback riding) there would likely be compounding negative impacts to wildlife (Knight and Cole 1991).

Wildlife disturbance may be compounded by seasonal needs. For example, some species such as warblers, could be negatively affected by disturbance associated with bird watching particularly during the breeding season. When visitors approach nests too closely, they often cause the adult bird to flush, exposing the eggs to weather conditions or predators (Banks and Bryant 2007, Miller et al. 2001). The extent of that disturbance along the trail also depends on visibility and the density of vegetation. For songbirds, Gutzwiller et al. (1994) found that low levels of human intrusion altered the singing behavior of some species. Disturbance may also affect the reproductive fitness of males by hampering territory defense, mate selection, and other reproductive functions of vocalizations (Arrese 1987). Disturbance, which leads to reduced singing activity, would make males rely more heavily on physical deterrents to defend territories, which consume more time and energy than singing (Ewald and Carpenter 1978).

The refuge is located in a highly urban environment, with substantial baseline disturbance associated with the international airport, I-95, several State routes, and numerous houses, businesses, community buildings, and associated human activity. By limiting the presence of humans to refuge trails and infrastructure, refuge visitors are not expected to add significantly to existing disturbance levels. Overall, the direct disturbance from public use is expected to have minimal or no adverse effects on wildlife. We would evaluate the sites and programs periodically to assess whether they are meeting the objectives, and to prevent site degradation. If the use causes evident and unacceptable adverse impacts, the refuge would rotate the activities to secondary sites, or curtail or discontinue them.

Bennett and Zuelke (1999) summarize several studies indicating recreation activities would have at least temporary effects on the behavior and movement of birds using shallow water habitats adjacent to trails and roads through wildlife refuges (Burger 1981, 1986; Klein 1993; Burger et al. 1995; Klein et al. 1995; Rodgers and Smith 1997; Burger and Gochfeld 1998). We would take all necessary measures to mitigate those effects, particularly where group educational activities are involved. We would evaluate the sites and programs periodically to assess whether they are meeting the objectives, and to prevent site degradation. If the use causes evident and unacceptable adverse impacts, the refuge would rotate the activities to secondary sites, or curtail or discontinue them.

It is important to note that the refuge exists within a highly altered area with substantial baseline levels of disturbance associated with interstate traffic, airport activities, adjacent neighborhoods and roads. Overall, the effects from public use are expected to have minimal adverse effects on birds utilizing open water and wetland habitats. There are few visitor facilities (e.g., trails) in these habitats due to the presence of open water and saturated soils; therefore, they are relatively inaccessible to the public. The size and dense vegetation supported by freshwater tidal marsh and portions of open water should provide adequate buffers to protect wetland bird species like American bittern against human disturbance (Gibbs and Melvin 1992). Boaters that access the refuge from Darby Creek could disturb species using these habitats. The refuge does not own or control access for most of Darby Creek. We do post speed limits for motorized boats within refuge waters to minimize disturbance to wildlife and habitats.

Effects of cross-country skiing and snowshoeing on wildlife are also considered to be minimal. Most mammal species are less active during winter months, and it is not breeding season for any of the wildlife that may be present. Many of the sensitive migratory bird species have already left the refuge, those that remain. Also, while we do not count the number of participants in these activities, refuge staff have observed few visitors skiing or snowshoeing on the refuge. Lastly, annual snowfall averages 20.5 inches in Philadelphia (NOAA 2008). Consequently, disturbance to wildlife associated with these activities is limited to only a few days on the refuge with sufficient snow cover to allow skiing and snowshoeing.

Pedestrian use of the designated access roads and trails would not cause significant impacts to threatened or endangered species. The use would be confined to existing roads and no new construction or vegetation clearing is required. Bald eagles and peregrine falcons are the only former federally listed, threatened or endangered species known to use the refuge for roosting or feeding. Bald eagles now nest on the refuge and both species

have been delisted under the Federal Endangered Species Act (ESA). Bald eagles are still protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). To ensure refuge activities and visitors do not disturb nesting bald eagles, we comply with the Service's National Bald Eagle Guidelines (USFWS 2007).

Disturbance of wildlife can be minimized by seasonal or permanent closure of areas, interpretative displays, and inclusion in all visitor service programs and publications provided. Impacts to vegetation and soils can be alleviated by rotation of the areas used for educational activities, scheduling of groups, and providing teachers with information on a variety of activities.

Effects on Cultural Resources: There are no anticipated impacts to cultural resources.

PUBLIC REVIEW AND COMMENT:

These are existing uses of the refuge. This compatibility determination will be available for public review and comment for at least 30 days, in conjunction with the release of the draft Comprehensive Conservation Plan for the refuge.

DETERMINATION (CHECK ONE BELOW):

Use is not compatible

Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- Access to the refuge (other than parking areas) is restricted to foot, non-powered transportation, or powered scooters or wheelchairs.
- A limitation of 200 students per day should be retained.
- Impacts must be monitored to identify problems and areas may be closed to provide wildlife sanctuary or prevent habitat damage.
- Other than refuge-specific programs led by staff or volunteers, wildlife observation, photography, environmental education and interpretation would only be allowed on designated trails, roads, and facilities. Activities beyond these facilities would only be allowed by individuals that have been issued a special use permit.
- Impacts would be monitored to identify problems and areas may be closed to provide wildlife sanctuary or prevent habitat damage.
- To counter associated problems, we would include enforcing refuge trash disposal guidelines in our law enforcement program and would include information about proper trash disposal in all visitor services programs and publications.

JUSTIFICATION:

Wildlife observation, photography, environmental education and interpretative programs are a primary purpose for which John Heinz NWR was established; therefore, they must be compatible with the purpose for which the refuge was established.

These activities are low impact activities on the refuge. Cooke (1980) reported that passerine birds in suburban areas where human activity is ubiquitous habituate to the activities and are not disturbed as often as birds in rural areas. Waterfowl, wading birds, shorebirds and other wildlife may be disturbed by human activities; however, portions of the refuge are not readily accessible to visitors and provide sanctuary from human activities for wildlife.

Wildlife observation, photography, environmental education and interpretation have been determined to be compatible provided the stipulations necessary to ensure compatibility are implemented, and the use does not exceed thresholds necessary for visitor safety and resource protection. Wildlife observation, photography, environmental education and interpretation are priority public uses on the refuge and are not expected to materially interfere with or detract from the mission of the National Wildlife Refuge System nor diminish the purposes for which the refuge was established, would not pose significant adverse effects on refuge resources, would not interfere with other public uses of the refuge, nor cause an undue administrative burden.

SIGNATURE:

Refuge Manager: _____
(Signature) (Date)

CONCURRENCE:

Regional Chief: _____
(Signature) (Date)

MANDATORY 15 YEAR RE-EVALUATION DATE:

LITERATURE CITED:

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