

Resource Management & Implementation Plan for Fossil Creek Reservoir Regional Open Space



Larimer County
City of Fort Collins

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EDAW

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Chapter 1 Introduction



Fossil Creek Reservoir occupies a strategic location along the I-25 corridor, approximately midway between the cities of Fort Collins and Loveland. For this reason alone, the reservoir area represents an important open space resource. The area's significance, however, goes far beyond its location. Fossil Creek Reservoir and the adjacent lands provide one of the region's key wildlife habitats, a complex of open waters, wetlands, riparian areas and grassland that attracts large numbers of waterfowl and shorebirds as well as wintering bald eagles. As many as 15 bald eagles have been observed at the same time utilizing the large cottonwoods that serve as night roosts for this rare and much-loved species.

The reservoir's location at the convergence of several rapidly growing communities also underscores its importance as a potential recreational use area. Close in opportunities for wildlife observation and other compatible activities are becoming increasingly rare as northern Colorado continues to urbanize.

Fossil Creek Reservoir's important values have been recognized for many years. As far back as 1988, the *City of Fort Collins Parks and Recreation Master Plan* called for protection of the area as a regional park. The reservoir area was also identified in *Larimer County's Comprehensive Parks Master Plan* (1993) as a key open space resource. This recognition led to further efforts to protect the area, which culminated in the *Fossil Creek Reservoir Area Plan* (1998). As described in more detail in the next chapter, this plan defined a resource management area surrounding the reservoir that will be protected through a combination of land purchases, implementation of a transferable development rights program and other measures.

The vision established in the *Fossil Creek Area Plan* has now moved toward implementation. In 2000 the *Fossil Creek Reservoir Resource Management Plan* was prepared and adopted to specifically define how the important resources at Fossil Creek Reservoir will be managed. That planning effort, which was a joint effort between Larimer County and the City of Fort Collins, addressed how to balance potentially conflicting goals, such as wildlife protection and public access and use, while responding to changing conditions both in terms of adjacent land uses and habitats at the reservoir.

This document is an update to that plan, which is necessary because of additional lands that have since been acquired, as well as changes in the locations of access roads due to increased traffic on County Road 32. These and other issues are addressed in this resource management plan.

Planning Process

The 2000 plan was developed over a period of 12 months and guided through a variety of discussions and meetings with members of the community. These included reference to the visions established in prior planning efforts as well as a community meeting. Comments received at the community meeting are summarized in Appendix A.

The planning team also worked closely with an advisory group. Membership of this group is listed below:

2000 Advisory Group

- Duane Aranci, North Poudre Irrigation Company
- Todd Boldt, USDA, Natural Resources Conservation Service
- Daryl Burkhard, Larimer County, Parks and Open Lands
- K-Lynn Cameron, Larimer County, Parks and Open Lands
- Mike Ditullio, South Fort Collins Sanitation District
- Andre Duvall, Colorado Division of Wildlife
- Stan Everitt, Everitt Enterprises
- Craig Foreman, City of Fort Collins, Parks Planning and Development
- Karen Mancini, City of Fort Collins, Natural Resources
- Steve Ryder, Larimer County, Planning Department
- Rick Shroeder, National Audubon Society

In addition, the planning team had numerous conversations with reservoir area landowners to identify their concerns and interests in developing the plan.

The 2002 update of the plan was conducted over three months, and included reviews by staff and adoption at public meetings with the Larimer County Open Lands Advisory Board and the City of Fort Collins Natural Resources Advisory Board.

The remainder of this report documents the results of the planning effort. Chapter 2 summarizes existing conditions that influenced development of the plan. Chapter 3 presents the plan recommendations.

Chapter 2 Project Setting



Fossil Creek Reservoir has been the subject of several planning efforts. Most recently it was addressed in the *Fossil Creek Reservoir Area Plan*, which was adopted in 1998 by Larimer County and the City of Fort Collins. This plan, which is referred to as the “Area Plan,” stresses the importance of the reservoir and adjacent lands and provides a framework for the protection of these resources. The plan also identifies development areas and established the basis for a transferable development units program. This planning framework, as well as the resources present at the reservoir, are described in the remainder of this chapter.

Land Use, Management and Ownership

The reservoir and immediate shoreline areas are owned by the North Poudre Irrigation Company. In general, North Poudre owns the land extending a minimum of 50 feet beyond the high water line. The width of the North Poudre lands increases at several locations, including the area adjacent to the dam and at the upper end of the reservoir where Fossil Creek enters.

Recreational use at Fossil Creek Reservoir was previously managed by a private recreation concession that leased recreational rights from North Poudre to provide lake access for club members to participate in motorized boating, waterskiing and fishing, as well as camping along the shoreline. When the agreement expired in 2002, the City of Fort Collins signed a new lease, assuming management of the water surface. The lease term is five years, effective January 1, 2002, with the option to renew for two additional five-year terms and one additional four-year term (total of 19 years). The lease includes both the surface recreational rights on the reservoir as well as the land area above high water.

According to the lease, use of the reservoir must be consistent with Chapter 3 of the *Fossil Creek Reservoir Resource Management Plan* and improvements may be constructed in accordance with this plan. Boating, as necessary for maintenance, management, emergency needs and other purposes consistent with the management plan, is permitted. No water contact activities, such as wading or swimming, shall be allowed. Weed control shall be conducted in accordance with Colorado Law, and fences may be added,

removed, changed or rebuilt. Prairie dog management is the responsibility of the lessee. Day use (dawn to dusk) only is permitted, with the exception of specifically scheduled night use by groups for wildlife viewing, educational or interpretive purposes. No motorized vehicles are allowed on the leased premises, except for parking in designated areas and for management or emergency purposes. The lease also requires a comprehensive operations plan, including a patrol plan.

The lease includes the right to use irrigation water from the reservoir to support establishment of shrubs, trees, plants and other habitat enhancements on the reservoir. The right includes three acre-feet of water per year for as long as necessary to establish and maintain the landscaping.

The lands around the reservoir are privately owned, owned by the City of Fort Collins, or jointly owned by the City and Larimer County. Larimer County is the designated manager for all the public lands in joint ownership.

As shown in Map 2.1, the Fossil Creek Reservoir Natural Area is owned by the City of Fort Collins and is located on the west side of Timberline Road (County Road 11). This site is largely a wetland habitat that is managed to benefit wildlife. Approximately 22 acres of this property extend east of Timberline Road near its intersection with County Road 32 (CR32). This piece is included in the *Fossil Creek Reservoir Resource Management Plan* because of its adjacency and relationship to the other publicly managed lands around the reservoir.

Jointly-owned public lands in the reservoir vicinity total approximately 466 acres. The largest is the parcel between CR32 and the reservoir, approximately 233 acres that were historically farmed as dryland wheat. An adjacent 34-acre parcel to the east has been placed under conservation easement and will be in public ownership January 1, 2005. Approximately 168 acres of public land are south of CR32, including Duck Lake and a portion of Mud Lake. This land currently has a few small structures that are not suitable for reuse, and a narrow corridor of land that extends south of Duck Lake to CR30. An isolated 8-acre parcel is located on the southwest corner of CR11 and CR32 between the roads and the railroad, and another 13-acre parcel is located next to residential development northwest of Fossil Creek Reservoir.

Map 2.1



Conservation easements add to the open space lands in the vicinity of the reservoir. These include lands immediately southeast of Duck Lake, which resulted from the transfer of development units program described below, and two parcels along the northern edge of Fossil Creek Reservoir. These lands remain in private ownership and will not be available for public use.

Map 2.1 shows the location of a proposed regional trail that will extend along CR32. This trail, planned by the City of Fort Collins, will be a paved, multi-purpose trail with a width of 10 to 12 feet. This trail will eventually provide a connection to the trail systems in Fort Collins and Loveland.

Also shown on Map 2.1 is a Resource Management Area that extends approximately $\frac{1}{4}$ mile from the shoreline of Fossil Creek Reservoir. Establishment of this area was a key recommendation of the Area Plan. The vision defined in the plan calls for maintaining a continuous wildlife corridor within the Resource Management Area that is largely free from development. Limited development could occur in the resource area if it can be demonstrated that "... there are no negative impacts to wildlife or the integrity of the area." As shown in Map 2.1, the Resource Management Area also includes Duck Lake and overlays both public and private lands.

The applicable zoning designations on lands adjacent to the reservoir are also shown on Map 2.1. The northern and western portions of the reservoir are within the City of Fort Collins Urban Growth Area and subject to City Land Use Code and development review. The southern and eastern portions of the reservoir area remain in unincorporated Larimer County. An additional key concept in the Area Plan is the establishment of a transfer of density units program. The goals of this program are to transfer density units from targeted areas, e.g., the resource management area, to areas where higher density development is appropriate. The areas where density would be transferred from are referred to as "sending areas." The areas where these density units would be transferred to are described as "receiving areas."

Most of the lands north of the reservoir and outside the Resource Management Area are within the designated

receiving area. These areas are anticipated to be developed for residential uses. Those areas immediately adjacent to the Resource Management Area are designated in the Area Plan as estate residential, which includes larger lot residential uses ranging in density from 0.5 to 2 dwelling units per acre. Most of the remaining areas north of the reservoir are designated for low density residential uses, which average approximately 5 dwelling units per acre. This area is currently being developed and is expected to be largely built out in the near future.

The area adjacent to the southeast corner of Fossil Creek Reservoir is in Larimer County and has a combination of zoning designations. This area, along with other reservoir vicinity lands south of the urban growth boundary, is designated as a sending area. As stated earlier, the goal is to transfer development units from these areas to the area north of the reservoir. An agreement was recently made to transfer development units from one commercial parcel in this area. Other agreements may emerge in the future.

Other land uses in the reservoir vicinity include a water treatment plant, rural residential uses and commercial. The water treatment plant is located between Duck Lake and the reservoir's south shoreline, and is considered an industrial use. This facility is operated by the South Fort Collins Sanitation District. Immediately south of Duck Lake is a trucking company. A commercial use is located along the frontage road to I-25 that sells manufactured housing. As shown on Map 2.1, several residences are located in proximity to the reservoir, including some within the Resource Management Area.

Water Resources

As previously mentioned, Fossil Creek Reservoir is owned and operated by the North Poudre Irrigation Company. The company operates the reservoir for the benefit of its shareholders, which include agricultural interests as well as the City of Fort Collins. Water levels in the reservoir fluctuate on a seasonal basis in response to irrigation requirements and other factors. In general, the reservoir fills over the winter and spring and is drawn down during the summer months when irrigation needs are greatest. On average, the reservoir drops (from its high water level) approximately 11 feet during the July-October period.

Water quality in Fossil Creek Reservoir is influenced by the discharge of treated effluent, upstream urban runoff and runoff from surrounding agricultural fields. Although no quantifiable water quality data could be located, casual observation indicates that the reservoir has high nutrient levels that promote algal blooms in summer when much of the water surface is covered with bright green growth. This condition and the associated biological oxygen demand it creates probably limits the fish species present and renders the reservoir unsuitable for primary contact recreational uses. From a recreational use standpoint, the Colorado Department of Health classifies the reservoir as follows:

“Class 2 – Secondary Contact. These surface waters are suitable or intended to become suitable for recreational uses on or about the water which are not included in the primary contact subcategory, including but not limited to fishing and other streamside or lakeside recreation.”

Class 1 waters are defined as being suitable for recreational activities that may result in the ingestion of small quantities of water, such as swimming, rafting, kayaking and waterskiing. Under the reservoir’s current Class 2 classification, it would not be possible to allow swimming or even non-motorized boating uses, such as kayaking. Although waterskiing and other uses previously occurred at the reservoir, a public entity, such as the City of Fort Collins or Larimer County, would not be able to make the reservoir open to general public uses that were not consistent with the applicable water quality classification.

In terms of aquatic life in Fossil Creek Reservoir, the applicable Department of Health classification is defined as follows:

“Class 2 – Cold and Warm Water Aquatic Life. These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.”

Larimer County owns adjudicated water rights in both Duck Lake and Mud Lake, but the lakes lack reliable water sources, potentially resulting in greatly reduced water levels or (in the case of Mud Lake) no water at all at the end of the summer. Both lakes are shallow and also receive water from upstream storm runoff, excess field irrigation and ground water. Recent changes to the hydrologic regime upstream have further affected the lakes, and are discussed in detail in the *Hydrologic Analysis of Mud and Duck Lakes, Anderson Consulting Engineers, Inc., April 23, 2002*.

The water quality in Duck Lake is “extremely poor” according to the draft *Analysis of Physical and Biological Parameters for Duck and Mud Lakes, Miller Ecological Consultants, Inc., August 26, 2002*, with very high phosphorous, ammonia and salinity levels, and very low dissolved oxygen. The lake becomes eutrophic, which when extreme can create unpleasant odors associated with methane, hydrogen sulfide and ammonia. Mud Lake was dry at the time of testing, but the soil samples indicated it would have similarly poor water quality when water is present. The 2002 drought has contributed to desiccation of the two lakes, but even with ample precipitation, “...the water quality in both lakes would likely remain very poor. The input of nutrients into the system from external sources appears to be a dominant factor in the water quality of these two lakes.” The report recommends that the County leave the lakes as they currently are – closed basin systems that are miniature examples of larger systems like the Great Basin with Great Salt Lake in Utah, and other terminal lakes in the west.

Soils

The majority of soils at the proposed Fossil Creek Reservoir Regional Park Preserve site are classified as the Wiley Series, which are deep, well-drained soils formed from uniform, silty, wind-deposited material. These soils occur in uplands with slopes of five percent or less. They are relatively free of constraints that limit their use for agricultural or other uses. The risk of erosion on these soils is moderate.

As classified by the Soil Conservation Service (now Natural Resource Conservation Service), these soils are included in

the Loamy Plains range site, which provides an indication of what the vegetation was like on the site prior to cultivation. Upland areas at Fossil Creek Reservoir were once a shortgrass prairie dominated by blue grama, with scattered areas of western wheatgrass and needle-and-thread. Sideoats grama probably occurred in the steeper areas and just below the crest of ridges. Buffalograss was a minor element, but became increasingly important after prolonged dry periods or overgrazing.

A notable exception to Wiley Series domination on the south side of the reservoir is an area with a higher water table. This area occurs in a subtle draw near the southeastern portion of the site, and is shown on Map 2.2 as an area suited for wetland establishment. Soils here include an area of Longmont Clay, which is included in the Salt Meadow range site. Because of the higher water table, species such as saltgrass, baltic rush, Canada wildrye and prairie cordgrass make up the potential vegetation community. As discussed in the next chapter, revegetation efforts at this site focus on the establishment of wetland and taller grass species.

Soils on the north side of the reservoir are somewhat more diverse, but have similar characteristics to the upland soils on the south side. Exceptions of note include a large area along the western portion of the Fossil Creek inlet, and an extensive area surrounding the northwest arm of the reservoir. Soils in these areas are Longmont Clay, which (as described above) lend themselves to establishment and maintenance of wetland vegetation. This is discussed further in Chapter 3.

Vegetation

Fossil Creek Reservoir and the adjacent areas constitute an important wildlife habitat. In Colorado, this cottonwood/willow habitat has been described as follows:

“On a statewide basis, this habitat is quite scarce and considerably threatened and is highly significant because it is one of the richest habitats in the state in terms of its bird life.” (*Barr Lake Management Plan, 1999*)

Map 2.2

Map 2.2 depicts the location of various habitat features at the reservoir, including the cottonwood/willow areas and wetlands. As shown in the map, the forest community is widely distributed along the shoreline, with the most extensive areas occurring on the north shore. Other pockets of cottonwood/willow also occur on the south shoreline, but these tend to be very narrow and are approaching decadence, becoming increasingly vulnerable to blow down. These large, mature cottonwood stands provide some of the most important habitat at the reservoir, including nesting sites for great blue heron and roosting trees for bald eagles, ferruginous hawks, red-tailed hawks and great horned owls. The understory at these locations, as well as other shoreline areas without trees, consists of a mixture of cattails, reed canary grass, willow and weedy species.

Other areas with wetlands or wetland type vegetation are also shown in Map 2.2. The largest of these areas include the west end of the reservoir where Fossil Creek enters, the southeast shore of the Swede Lake (southeast) arm of the reservoir, the east and south shoreline of Duck Lake, west of Duck Lake, and the drainage between Duck Lake and Mud Lake. Vegetation in these areas is dominated by cattails.

Once away from the shoreline and near vicinity, most areas have little remaining natural vegetation. These areas are either currently under cultivation or were cultivated in the recent past. Although the cultivated areas lack natural vegetation, they provide a valuable food source for migrating waterfowl and other birds. Much of the north shore vicinity remains under cultivation, but these areas are likely to be converted to other uses as planned residential developments proceed.

The southern portion of the reservoir is predominantly fallow land that is being revegetated through the Conservation Reserve Program. This program is managed by the Natural Resource Conservation Service and provides payment to farmers for the retirement of marginal croplands. Retired lands are then revegetated with an appropriate mix of native and other adapted species. Prairie dogs have been isolated to one area of the property until the native vegetation is established and they can be allowed back onto other areas.

Other vegetation communities (shown on Map 2.2) include areas of seeded pasture that contain a mix of native and non-native grasses, an area near the dam that has been seeded to a mixture of grasses, as well as forbs and shrubs.

Map 2.2 also shows selected habitat features, which include bald eagle winter night roosts, a great blue heron rookery and others. Each of these is described in the remainder of this section.

Appendix B provides a list of bird species observed in the reservoir vicinity.

Wildlife

Many species of fish, invertebrates, birds and mammals inhabit the site. Individual species are highlighted below.

Bald Eagle

One of the major habitat values at Fossil Creek Reservoir is its importance as a winter night roost area for bald eagles. Although proposed for removal (delisting) from the federal list of threatened and endangered species, bald eagles remain a fairly rare and much appreciated species. Colorado is an important wintering area for bald eagles. Annual midwinter counts conducted by the Colorado Division of Wildlife show a stable population of 600 to 800 eagles statewide. At Fossil Creek Reservoir, as many as 15 bald eagles have been observed using the large cottonwood trees that serve as night roosts. As shown in Map 2.2, several night roost sites have been identified at the reservoir, most of which are located along the north shoreline.

A substantial amount of research has been conducted on the bald eagle and its vulnerability to disturbance from human activity. Although eagle responses are highly complex and difficult to quantify, a management guideline has emerged that a buffer zone with a minimum of ¼-mile radius should be established around active bald eagle night roosts. The guideline further provides that no activity, e.g., recreational use, should be allowed within the buffer zone during the period November 15 to March 15. This guideline was reflected in establishing the Resource Management Area defined in the *Fossil Creek Reservoir Area Plan*.



Bald eagles mainly feed on fish in the summer; in the winter they eat dead or crippled animals (such as waterfowl or winter-killed deer), as well as small animals (such as prairie dogs). Until recently, only two to three pairs of bald eagles nested in Colorado. This number has increased to eight or nine each year, one of which is located along the Poudre River not far east of Fossil Creek Reservoir. The bald eagle prefers to nest in large trees near water with little human activity.

Great Blue Heron

Another important habitat feature at the reservoir is a nest colony, or heronry, for the great blue heron. As shown in Map 2.2, this interesting bird nests in a stand of cottonwood trees located on the north shoreline. As with the bald eagle, human activity in proximity to the heronry can have adverse effects, including nest abandonment, if it occurs during a sensitive period of use. The recommended buffer zone on land for a heronry is 835 feet (250 meters) during the period March 1 to July 31.

Waterfowl

Fossil Creek Reservoir and nearby Duck Lake receive a substantial amount of use by waterfowl, much of it in the winter months. Periodic waterfowl counts at the reservoir have documented nearly 7,000 ducks and geese at the reservoir at one time. Many of the ducks using the area are mallards, but a wide variety of species have been observed. The reservoir has been closed to goose hunting since 1959. This closure serves to *hold* geese at the reservoir, thus reducing disease transmission and conflicts with urban areas.

As shown in Map 2.2, Duck Lake is an area of high migratory waterfowl use. This area is considered one of the *hot* areas in Northern Colorado for waterfowl and shorebird observation.

Although not all waterfowl are equally sensitive to disturbance, some general observations can be noted. *Mallards at the Seney National Wildlife Refuge in Michigan failed to nest in areas open to fishing.* A specific distance was not provided in the literature reviewed, but some indication of the zone of disturbance is provided in the publication, *Planning Trails with*

Wildlife in Mind: A Handbook for Trail Planners, published by Colorado State Parks. This publication noted that eider ducks took flight when approached within 170 feet by someone on foot without a dog; this distance increased to more than 300 feet when a dog was present. The implications of this information are that nesting will generally be limited to those shoreline areas not closely approached by a trail, and that non-breeding waterfowl will tend to avoid open water areas that are in proximity to a trail.

Shorebirds

A variety of shorebirds utilize the reservoir and adjacent areas. American avocet, long-billed curlew and whimbrel are some of the species that have been observed at the reservoir. Studies at Ding Darling National Wildlife Refuge found that shorebirds were displaced when approached on foot at a distance of approximately 260 feet. Golden plovers were reported to take to flight when approached within 200 meters by people on a trail.

White Pelican

As shown in Map 2.2, some areas of the reservoir receive concentrated use by white pelicans. These include the shallow, lee areas on some of reservoir arms, as well as the area adjacent to the heron rookery. The pelican is a species of public interest that is listed as a *species of concern* by the Colorado Division of Wildlife.



Black-Tailed Prairie Dog

Also shown on Map 2.2 are black-tailed prairie dog colonies. This important species is under consideration for listing as threatened under the Endangered Species Act. Although long considered a nuisance species by agricultural interests, this species is a key food source for many predators, including the bald eagles that winter at the reservoir. They also provide habitat for other species, such as the burrowing owl. Prairie dog colonies are located on the southeast portion of the site, including an area just south of the dam. As mentioned earlier, the colony south of the reservoir was contained to a smaller area using silt fencing to allow for revegetation of the previously agricultural lands to a more native condition. An

additional management consideration relative to prairie dogs is that dam safety requirements dictate that burrowing cannot be allowed in proximity to the dam. Prairie dogs that become established in the dam vicinity will have to be removed.

Recreational Uses/Visitation

When open to the public, Fossil Creek Reservoir will become a somewhat unique recreational use area with few, if any, comparable sites in Larimer County. For this reason, it's difficult to predict what visitation patterns will emerge. Some insight may be gained from a review of visitation to Barr Lake State Park, which provides comparable recreational uses and attractions. Visitation to this facility is fairly high throughout the year, with the peak occurring in spring and early summer. Seasonal usage, expressed as a percentage of total annual visitation, is as follows:

Jan-March	17%
April-June	43%
July-Sept	24%
Oct-Dec	16%

High temperatures and an annual algae bloom result in the decline in visitation in the July-September period. A considerable amount of visitation also occurs during the winter months. At Barr Lake, the most important activity is wildlife viewing, followed by hiking and picnicking. A similar pattern may be expected to emerge at Fossil Creek.

In terms of total annual visitation, Barr Lake receives (on average) approximately 115,000 visitors. Barr Lake is closer to the large population base of the Denver metropolitan area and offers some additional attractions, such as boating¹, that will not be available at Fossil Creek Reservoir. For these reasons, Barr Lake visitation levels are probably higher than what can be expected at Fossil Creek. Nevertheless, the visitation numbers at Barr Lake indicate that a wildlife observation based park can become a major regional attraction.

It is also important to keep in mind that the reservoir is located in a rapidly growing region. Larimer County's population is expected to increase by more than 100,000 over the next 20

¹Based on a user survey, boating is somewhat or very important to approximately 30% of the visitors at Barr Lake State Park.

years. The great majority of this growth will occur in the southeastern portion of the county, including the area adjacent to the reservoir. This estimate does not include the rapidly growing community of Windsor, which is mostly located just over the Larimer/Weld County line, approximately 2½ miles east.

Chapter 3 Resource Management Plan



The plan recommendations outlined in this chapter were designed to provide for appropriate public use of the reservoir area, while also protecting and enhancing wildlife habitat and other natural resources. This chapter describes the plan, which consists of the following elements:

- Management Framework
- Recreational Use and Facilities
- Habitat Improvements

It should be emphasized that the plan directly addresses only those lands owned by North Poudre Irrigation Company and lands purchased by Larimer County and the City of Fort Collins. The location of these lands is highlighted in Map 3.1; they include the land along the south shoreline of Fossil Creek Reservoir and lands around Duck Lake.

Although it is anticipated that additional reservoir area lands may be purchased or protected through future conservation easements, on a willing seller basis, the plan does not directly address these private lands. As discussed later in this chapter, the plan identifies a menu of habitat improvements and incentives for their implementation that are appropriate for these privately owned areas. However, any actions or improvements would only be implemented with the full agreement and cooperation of the landowner.

The focus of management activities at the Fossil Creek Reservoir Regional Open Space will be protecting, managing, and enhancing natural, geologic, cultural, and visual resources. In particular, the focus of management will be to regularly monitor wildlife and vegetation to ensure that visitors and other activities on the open space are not having an adverse impact. Regular on-going monitoring at Fossil Creek will occur for wildlife (in particular sensitive bird species such as the great-blue heron and bald eagle and associated species such as prairie dogs), plant communities, and riparian area vegetation. If it is determined that in the process of providing safe and enjoyable recreation opportunities, the resource values at Fossil Creek Reservoir Regional Open Space are adversely impacted, the recreational activities will be evaluated to assess means to minimize the impact. Specifically, altering or extending seasonal trail closures, timing of activities, elimination of specific activities and so

forth would be examined to reduce or minimize impacts. The protection of resource values will take precedence over recreational opportunities.

Therefore, while Larimer County will manage Fossil Creek Reservoir Regional Open Space in concert with this adopted management plan, adaptive management will be applied as new information on natural resources and visitor needs are gained.

Management Framework

In order to support the plan recommendations and provide a framework for their implementation, the lands surrounding the reservoir were classified as one of several management designations based on proposed uses. Map 3.1 delineates the application of these zones, each of which are described below:

- **High Use Area.** These areas include developed facilities, such as parking areas, restrooms, picnic areas, and other use areas and facilities required to accommodate public use of the reservoir area. Although resource protection and enhancement remains a management objective in these areas, it is not the primary objective. Providing opportunities to view wildlife and a safe and enjoyable recreational experience are the primary management objectives.
- **Moderate Use Area.** These areas contain limited facilities, such as trails and wildlife observation sites. Protection of sensitive resources and enhancement of wildlife habitat are emphasized in these areas. If significant conflicts between wildlife and recreational use emerge, they will be resolved in favor of wildlife through seasonal closures or other means. Public use will be limited to the trail.
- **Restoration Area.** These are areas where efforts are needed to restore degraded habitat. The management emphasis in these areas is implementation of measures that will benefit wildlife. Public use will be limited in these areas by requiring visitors to stay on designated trails.

-
- Resource Protection Area. The management emphasis in these areas is resource protection. For the most part, these areas already provide high quality habitat. These areas will be protected and enhanced through selective habitat improvements. No public use will be allowed in these areas.
 - Resource Operations Area. This area is limited to the dam. The operational and maintenance requirements of the dam take priority within this area, and no conflicting uses will be allowed.
 - Resource Management Area. This is the area defined in the *Fossil Creek Reservoir Area Plan* that is intended to remain largely free from development.

Recreational Improvements

As shown in Map 3.2, the plan calls for a limited level of recreational uses and improvements to support these uses. The plan does not provide for recreational use of the reservoir itself. Boating and other water-based uses are not accommodated for several reasons, including the water quality issues that were summarized in Chapter 2. In addition, boating on the reservoir, even if limited to non-motorized uses, would result in increased conflicts with wildlife. Other management issues, such as increased trespass, could also be expected to emerge.

Map 3.3 provides a more detailed look at the primary use area immediately south of Fossil Creek Reservoir, which is the area where most of the recreational improvements would be located.

The design of structures and site improvements will be guided by a *naturalistic* theme, utilizing muted earth tone colors, durable materials and subtle design that is appropriate for the setting. Construction of amenities, such as picnic pads and shelters, should be phased in order to assess demand for additional sites before commencing them.

Access Improvements

A new entry road will be developed that extends from the intersection at Eagle Ranch Estates and County Road 32 (CR32) to a new parking area. The classification of CR 32 as a major arterial prevents the access from being more direct. The road will have two lanes and a paved surface, with an alignment that follows the terrain to minimize site disturbance and visibility from CR32.

A parking area will be developed that provides space for 35-50 cars, and will be designed to accommodate buses bringing in school or other groups. The parking area will also have a paved surface.

A smaller parking area will be established at Duck Lake. This area will have capacity for approximately 10 cars and will be accessed via a two-lane, paved road from CR11. Public access to Duck Lake will be limited to the parking area and a short spur trail to viewing blinds. The parking area will not be visible from Duck Lake as it is below the ridge to the west of the lake.

A small 10 car parking area will also be provided at the Fossil Creek Reservoir Natural Area (City of Fort Collins) located on the northeast corner of County Road 32 and Timberline Road.

Trails

A trail system will be developed at Fossil Creek Reservoir that extends from the parking area. These trails have a combined length of 2.2 miles and will have an accessible gravel surface and a width of 8 feet. Their use will be restricted to foot traffic and wheelchairs only. One element of the system is a partial loop that extends east from the parking area to the shoreline by the Swede Lake arm. This trail has a length of approximately 1.3 miles and provides an opportunity to experience the shoreline and upland grassland habitats present on the site. As discussed later, this trail will be subject to a fall/winter closure in order to avoid disturbance to bald eagle night roosts. A section of fence with a gate will be installed to facilitate enforcement of the seasonal closure.





Map 3.1

Map 3.2



Map 3.3

The other major element of the trail system is a radial segment that extends to the west from the parking area. This portion of the trail system has a length of 0.5 mile. It will also have a natural surface and will also be subject to seasonal closure. In this instance, the closure will occur during the spring and summer in order to minimize disturbance to an area where waterfowl and white pelicans concentrate. A fence and gate will also be installed along the trail to control access to the viewing blind. The trail will be 300 feet or more from the shoreline for most of the distance between the primary use area and the viewing blind. For this reason, most of the trail can remain open year-round, with the closure limited to the final segment leading to the viewing blind on the shoreline.

Although shown as a radial trail in Map 3.2, a portion of the trail leading west from the primary use area may need to be looped at some point in the future. A looped trail has a higher capacity due to the tendency of users to travel the full length of the loop rather than using the same trail for travel out and back. If constructed, the new trail segment required to form a loop would be located in the upland area well back from the shoreline.

The plan also includes a short loop that extends from the parking area to a shoreline observation structure. This loop is 0.4 mile in length and will be paved. It will remain open year-round.

A series of benches will be placed along the trail system for visitor use.

At Duck Lake, a natural surface trail approximately 0.1 mile in length will run north from the parking lot to two viewing areas. The trail will be located just below the ridgeline to minimize disturbance to birds on and around the lake.

Shoreline Observation Area

A focal point of the public use area at Fossil Creek Reservoir is a scenic viewing deck/structure that would be located at the shoreline. The location of this structure is shown in Map 3.3 and a sketch illustrating the concept is shown in Figure 3.1. As shown in the illustration, the structure could extend out over the water and provide a generous viewing area with shade. Although providing a good opportunity to view wildlife, this viewing structure is designed for more casual use by families and others who simply want to spend some time by the edge of the lake. For this reason, the observation area design does not provide for concealed viewing. This feature is included in the wildlife viewing blinds, which are discussed below.

As has been done at Chatfield Reservoir, it may be appropriate to install coin-operated telescopes at the viewing area. These would allow visitors to observe the heronry across the lake as well as other wildlife using the reservoir area. Shoreline observation will also occur in Phase II of the project at Duck Lake.



Long-Billed Curlew

Wildlife Viewing Areas

As shown in Map 3.2, five wildlife viewing areas, or blinds, are included in the plan. The two at Fossil Creek Reservoir are located along the trail system at the edge of the shoreline. Two viewing blinds will also be located at Duck Lake. Public access at Duck Lake will be restricted to the parking area and viewing blinds.

A design concept for these structures is illustrated in Figure 3.2. Viewing blinds will have an enclosed area approximately 8' by 8' with narrow, slit openings for wildlife viewing. The path leading to each blind will be screened, to the extent practical, in order to minimize the view that birds have of approaching humans. This could include the use of plantings or lowering the surface of the trail itself. At Duck Lake, the approaching trail can largely be screened by the ridge. The blinds can be nestled into the ridge by a combination of excavating and berming, providing an excellent opportunity to view wildlife without disturbance. Final design will be determined by actual site conditions.

An additional viewing blind is proposed on the Fossil Creek Reservoir Natural Area owned by the City of Fort Collins. Access to this site would be from CR32. Site improvements include a 10-car parking area and a trail to the edge of the extensive wetlands that have formed near the upper end of the reservoir. The trail would lead to a viewing blind and provide a unique opportunity for viewing a wetland environment and the wildlife it supports. This is considered a separate project from the *Fossil Creek Reservoir Resource Management Plan* and is not budgeted in Table 1.

Picnic Shelters

The plan provides for the development of picnic sites in the primary use area at Fossil Creek Reservoir. A total of nine sites is included, four of which would have shelters. The remaining five would have pads and tables only. As shown in Map 3.3, all of the sites would be located off the loop trail through the primary use area.

Outdoor Classroom

An informal outdoor classroom would be located near the parking area in the primary use area at Fossil Creek Reservoir. This facility would be designed to accommodate any group and provide an opportunity for ranger talks and other interpretive programs. As currently envisioned, the outdoor classroom would provide bench-type seating for approximately 50 people, and would be constructed with rustic materials. It will be partially sheltered and have a low profile.

Other Facilities

The plan includes two restroom buildings - one at Fossil Creek Reservoir and the other at Duck Lake. The restrooms would be located adjacent to the parking areas.

An additional building in the primary use area at Fossil Creek Reservoir would be a small office and maintenance garage for the site manager's use during the day.

As shown in Map 3.3, an informational kiosk would be located adjacent to the parking area. The kiosk would be used to display information for visitors on recreational use opportunities as well as open space rules. The plan also provides for interpretive signage, most of which would be located along the loop trail through the primary use area and in and near the shoreline overlook. Interpretive themes would focus on the wildlife present on site, including the bald eagle and great blue heron. Other themes could include grassland restoration, water use/water quality, and local history. The Overland Stage Route passed through the site.

Near the entry gate outside the fence, a rest stop will be developed for people using the regional trail. The rest stop will include a bench, drinking fountain, and either a structure or tree plantings to provide shade. A future regional transit stop could also be incorporated into this area. Bicyclists will be allowed to the parking areas, but not on the trails beyond.

Landscape Improvements in Primary Use Area

Once away from the shoreline, the site is largely treeless and most of the vegetation is in a disturbed condition. As shown in Map 3.3, a large number of trees would be planted in the primary use area, most of which would be cottonwoods. Trees will be clustered around the primary use area loop to provide shade and visual screening to the parking area and to separate uses.

Native grasslands would also be established, including a mix of shrubs. In some locations (as shown in Map 3.2), the low, swale-like areas that extend from the shoreline back into upland areas would be planted more intensively with shrubs in order to add visual interest and enhance song bird habitat. Revegetation efforts and habitat enhancements are described more fully in the next section.

In addition to plantings, the restoration effort in the primary use area includes the removal of debris and exotic vegetation that is located along the shoreline.

Figure 3.1



Figure 3.2

Fencing

In order to control access to the site, a fence will be installed along CR32. The general location of the fence is shown in Map 3.2. The cost estimate shown in Table 1 assumed the use of a post and pole type fence; however, a final design has not been determined. As shown in Map 3.3, the fence will be set back from the property boundary, providing adequate room for the regional trail to remain outside the fence without being too close to CR32. A lockable entry gate will be installed along the entry road. A similar gate will also be installed at the Duck Lake access road.

Utilities

Proposed site improvements do not require major utility development. Utility improvements would be provided to serve the maintenance/office building and other facilities. Lighting would be provided in the parking area vicinity for security and emergency purposes, but not extended to other areas of the site. The lighting will be designed to minimize glare, and to concentrate only on those areas where illumination is needed. Sanitary sewer connections are not proposed, which means that vault, composting or portable toilet systems will be used.

Costs

A preliminary estimate of development costs is provided in Table 1. A summary of costs in year 2000 dollars for Phase I is provided below:

Revegetation	\$ 188,050
Utilities	\$ 80,000
Roads & Trails	\$ 373,400
Structures & Amenities	\$ 445,700
Demolition & Clean-up	<u>\$ 5,000</u>
Subtotal	\$1,092,150
Contingencies (25%)	<u>\$ 273,037</u>
Total	\$1,365,187

As noted, this estimate is preliminary and likely to change as more detailed design is completed. It should also be noted that the estimate does not include the cost of developing the trail and other facilities at the Fossil Creek Reservoir Natural Area, or Phase II, Duck Lake.

Table 1 - Master Plan Budgetary Cost Estimate

PHASE I, FOSSIL CREEK RESERVOIR AREA					
ITEM	QUANTITY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clean up allowance	1	Lump sum	\$5,000.00	\$5,000.00	Remove misc. structures, trash and rubble.
	CATEGORY SUBTOTAL			\$5,000.00	
REVEGETATION					
Plow, disc and seed with sterile sorghum	255	ac.	\$140.00	\$35,700.00	Existing road, disturbed shoreline, entire south area
Control weeds with herbicide	1	allow	\$10,000.00	\$10,000.00	Selective spraying
Fall/winter seed native seed mix	255	ac.	\$170.00	\$43,350.00	Native seed cost \$120/ac.
Shrub thickets	2,500	ea.	\$15.00	\$37,500.00	Container or bare root in south area
Tree plantings (1-1/2" cal. cottonwoods, willows)	360	ea.	\$150.00	\$54,000.00	Primary use area and around reservoir edge
Willows and shrubs	500	ea.	\$15.00	\$7,500.00	Container or bare root around lake
	CATEGORY SUBTOTAL			\$188,050.00	
UTILITIES					
Water Line	1,400	l.f.	\$45.00	\$63,000.00	
Sewer Line	0	l.f.	\$20.00	\$0.00	
Electric Service	1	allow	\$10,000.00	\$10,000.00	
Parking Lot Lighting	2	ea.	\$3,500.00	\$7,000.00	
Tap Fees	0	NIC	\$0.00	\$0.00	
	CATEGORY SUBTOTAL			\$80,000.00	
ROADS AND TRAILS					
Entry road grading allowance	2,400	c.y.	\$6.00	\$14,400.00	Cut and fill in place
Asphalt road paving	65,000	s.f.	\$1.80	\$117,000.00	
Entry gate	1	ea.	\$4,000.00	\$4,000.00	
Parking lot grading allowance	1,500	c.y.	\$6.00	\$9,000.00	Cut and fill in place
Asphalt parking lot paving	40,000	s.f.	\$1.80	\$72,000.00	
8' crushed gravel trails					
Primary trail loop	3,000	l.f.	\$10.00	\$30,000.00	
East trail	7,500	l.f.	\$10.00	\$75,000.00	
West trail	3,000	l.f.	\$10.00	\$30,000.00	
Trail closure gate and fencing	2	ea.	\$3,500.00	\$7,000.00	
Regulatory Signs	1	allow	\$10,000.00	\$10,000.00	
Parking lot striping	1	allow	\$5,000.00	\$5,000.00	
	CATEGORY SUBTOTAL			\$373,400.00	
STRUCTURES, SIGNS AND AMENITIES					
Picnic pad and table	5	ea.	\$2,000.00	\$10,000.00	
Picnic shelter and table	4	ea.	\$11,000.00	\$44,000.00	
Wildlife shelter and deck	1	allow	\$45,000.00	\$45,000.00	
Wildlife viewing blind	2	allow	\$20,000.00	\$40,000.00	
Trash receptacles	10	ea.	\$400.00	\$4,000.00	
Benches	10	ea.	\$1,000.00	\$10,000.00	
Restroom	1	ea.	\$20,000.00	\$20,000.00	
Information Kiosk	1	ea.	\$2,500.00	\$2,500.00	
Interpretive Signs	12	ea.	\$2,500.00	\$30,000.00	
Entry Signage	1	ea.	\$700.00	\$700.00	
Office/Maintenance building	1	ea.	\$80,000.00	\$80,000.00	
Amphitheater	1	allow	\$20,000.00	\$20,000.00	
Fencing along CR32	9,000	l.f.	\$15.00	\$135,000.00	
Entry rest stop & drinking fountain	1	allow	\$4,000.00	\$4,000.00	
Bike Rack	1	allow	\$500.00	\$500.00	
	CATEGORY SUBTOTAL			\$445,700.00	
Total				\$1,092,150.00	
Masterplan Contingencies			25.00%	\$273,037.50	
Grand Total Fossil Creek Reservoir Area				\$1,365,187.50	

Table 1, continued

PHASE II, DUCK LAKE AREA					
ITEM	QUANTITY	UNIT	UNIT COST	EXTENDED COST	NOTES
DEMOLITION					
Clean up allowance	1	Lump sum	\$10,000.00	\$40,000.00	Remove misc. structures, trash and rubble.
	CATEGORY SUBTOTAL			\$40,000.00	
REVEGETATION					
Plow, disc and seed with sterile sorghum	10	ac.	\$140.00	\$1,400.00	Existing road, disturbed shoreline, entire south area
	CATEGORY SUBTOTAL			\$1,400.00	
UTILITIES					
Water Line	2,500	l.f.	\$45.00	\$112,500.00	
Sewer Line	0	l.f.	\$20.00	\$0.00	
Electric Service	1	allow	\$10,000.00	\$10,000.00	
Parking Lot Lighting	1	ea.	\$3,500.00	\$3,500.00	
Tap Fees	0	NIC	\$0.00	\$0.00	
	CATEGORY SUBTOTAL			\$126,000.00	
ROADS AND TRAILS					
Entry road grading allowance	2,100	c.y.	\$6.00	\$12,600.00	Cut and fill in place
Asphalt road paving	56,000	s.f.	\$1.80	\$100,800.00	
Entry gate	1	ea.	\$4,000.00	\$4,000.00	
Parking lot grading allowance	370	c.y.	\$6.00	\$2,220.00	Cut and fill in place
Asphalt parking lot paving	10,000	s.f.	\$1.80	\$18,000.00	
8' crushed gravel trails					
Primary trail loop	600	l.f.	\$10.00	\$6,000.00	
Regulatory Signs	1	allow	\$3,000.00	\$3,000.00	
Parking lot striping	1	allow	\$1,500.00	\$1,500.00	
	CATEGORY SUBTOTAL			\$148,120.00	
STRUCTURES, SIGNS AND AMENITIES					
Picnic pad and table	1	ea.	\$2,000.00	\$2,000.00	
Wildlife viewing blind	2	allow	\$20,000.00	\$40,000.00	
Trash receptacles	2	ea.	\$400.00	\$800.00	
Benches	2	ea.	\$1,000.00	\$2,000.00	
Restroom	1	ea.	\$20,000.00	\$20,000.00	
Interpretive Signs	3	ea.	\$2,500.00	\$7,500.00	
Entry Signage	1	ea.	\$700.00	\$700.00	
Drinking fountain	1	allow	\$1,000.00	\$1,000.00	
Bike Rack	1	allow	\$500.00	\$500.00	
	CATEGORY SUBTOTAL			\$74,500.00	
Total				\$390,020.00	
Masterplan Contingencies			25.00%	\$97,505.00	
Grand Total Duck Lake Area				\$487,525.00	
Grand Total Resource Management Plan Area				\$1,852,712.50	

* NOTE: Visitors center cost not included in this estimate; does not include design fees

Management Guidelines

Management of the regional open space will occur through a cooperative agreement between Larimer County and the City of Fort Collins. Larimer County will be the lead and managing agency, with cost sharing support for acquisition and development of open space by the City.

Management and operation of the open space will require the addition of a full-time equivalent position. This may be supplemented with seasonal, temporary staff during periods of peak use, or when special projects are being implemented.

The area has been designed to allow for fee collection, as is currently the practice at Horsetooth Mountain Park. The daily entrance fee at Horsetooth Mountain Park and other county parks is currently \$6.00. Purchasers of a Larimer County annual pass do not have to pay a daily entrance fee. Larimer County Parks and Open Lands regulations will apply.

Other management recommendations are outlined below:

- The open space will be open for day use only. It is anticipated that the open space will close by sundown.
- No fishing will be allowed.
- No swimming or boating use will be allowed.
- The area will be closed to public hunting.
- Use of trails within the open space will be restricted to pedestrian. No bicycles, skate boards or roller blades will be allowed on the trails. These uses will only be allowed on the regional trail along CR32.
- No pets will be allowed.
- Horses will be allowed on the regional trail, but not on the open space trail system.

-
- Seasonal closures will be implemented to protect wildlife at Fossil Creek Reservoir. This will include closure of the east trail and areas within ¼ mile of bald eagle night roosts during the period November 15 to March 15. The west trail will be closed during the period March 15 to June 15 when wetland birds are nesting.
 - No skating or on-ice activities will be allowed.

An additional recommendation is that the County and City continue to work with private landowners, particularly in adjacent areas or on inholdings within the open space, to increase the area of the open space through a willing seller purchase or other appropriate agreement.

It should also be noted that the lease agreement with North Poudre Irrigation Company should provide for long-term use, ability to use reservoir water for plant establishment, and protection of trees and other habitat enhancement located on North Poudre land.

Habitat Improvements

As noted earlier, habitat improvements are an important element of the plan. These improvements are intended to enhance the value of the site for a number of species, such as song birds and small mammals. Equally important is the need to protect some of the critical habitats that are already present, recognizing that roosting and nesting sites may diminish over time if decadent cottonwoods are not replaced.

From a habitat management and enhancement perspective, the site has three distinct zones:

- Uplands
- Salt Meadow
- Shoreline

Upland areas occupy the great majority of the site, and all of this zone has been modified by cultivation practices. No areas of native grassland remain on the site.

The salt meadow sites are also extensive, but most of these areas remain in a generally natural condition. The large wetlands above the Fossil Creek inlet and the shoreline vicinity around the northwest arm of the reservoir are examples of this zone. Although some improvements may be considered in these areas, they do not require large-scale restoration. However, small pockets of the salt meadow zone occur amid the uplands. These areas have been cleared of native vegetation, and offer an important opportunity to add diversity to the upland areas of the site.

The shoreline zone generally occupies a narrow strip located just above the high water line. Shoreline conditions at the reservoir vary substantially, ranging from highly disturbed to stable areas with wetland and riparian vegetation. Enhancement efforts should be targeted at the more disturbed areas, which are concentrated along the south shoreline and other areas exposed to the prevailing winds.

Enhancement and restoration measures are described in the remainder of this chapter. Table 2 details plant species that are appropriate for revegetation and/or enhancement within each zone. These species are native to the region, are adapted to the site, and provide food and cover to a variety of wildlife.

Upland Areas

One of the major efforts that will be required is to restore the extensive areas of upland grassland that were disturbed by prior cultivation. Table 3 provides a list of plant species that will be used in this zone and includes specific varieties and seeding rates.

Existing topsoil should be sufficient for revegetation. Topsoil samples should be analyzed prior to seeding to determine proper fertilizer levels. Seedbed preparation may include disking and harrowing. A firm, weed-free seedbed is needed for successful plant establishment. Weed control can be completed by shallow tillage, planting a cover crop or using an approved herbicide before reseeding. A cover crop (sterile sorghum) is also valuable to decrease evaporation,

retain soil moisture and reduce erosion. Fertilization should be completed at levels recommended by the soil test. If herbicides are used on reseeded areas, the forb component of the seed mix should be omitted.

After site preparation, the recommended seed mix will be drill seeded at recommended rates. Mulch (straw or native hay) should be applied at a rate of around 2,000 pounds per acre after seeding. Mulch can be applied by hand or by a mechanical blower. Straw mulch should be crimped into the seedbed to prevent erosion and wind loss. Mulch should not be required if a cover crop is used. If a cover crop is used, the seed mix should be drilled directly into the cover crop stubble.

Generally, seeding should be completed between November 1 and May 1.

Selective weed control can be completed, as needed, after seeding. Approved herbicides may need to be applied to control noxious weeds and allow grasses to establish. Weed control with herbicides will remove the forb component of the seed mix. If extensive weed control is required, forbs can be replanted by interseeding, or planting bare root or container stock after the grasses are established. Establishment of forbs is more difficult and unpredictable than grasses. To improve forb establishment, it may be necessary to selectively use root or container stock after grass establishment. Forb plantings should initially concentrate on areas near trails or public use areas.

Shrub and tree thickets will also be planted in portions of this zone, mostly within the primary use area. Shrub and tree species to be planted include those listed for uplands and shoreline zones in Table 2. Shrubs and trees will be planted as bare root or container stock.

Table 2. Plant List by Management Zones				
Common Name	Scientific Name	Shoreline	Salt Meadow	Upland
		Trees		
Cottonwood, Plains	<i>Populus deltoides (sargentii)</i>			•
Peachleaf Willow	<i>Salix amygdaloides</i>	•	•	
Hackberry, Netleaf	<i>Celtis reticulata</i>			•
		Shrubs		
Chokecherry, Western	<i>Prunus virginiana ssp. melanocarpa</i>	•	•	
Currant, Golden	<i>Ribes aureum</i>	•	•	
Plum, American	<i>Prunus americana</i>	•	•	
Rabbitbrush, Rubber	<i>Chrysothamus nauseosus</i>			•
Rose, Wood's	<i>Rosa woodsii</i>			•
Sage, Fringed	<i>Artemisia frigida</i>			•
Saltbush, four-winged	<i>Atriplex canescens</i>			•
Skunkbush, Three-leaved sumac	<i>Rhus trilobata aromatica</i>			•
Yucca	<i>Yucca glauca</i>			•
		Grass		
Alkali Sacaton	<i>Sporobolus airoides</i>	•	•	
Blue Grama	<i>Chondrosium gracile</i>			•
Bluestem, Big	<i>Andropogon garardii</i>			•
Bluestem, Little	<i>Schizachyrium scoparium</i>	•		•
Buffalo Grass	<i>Buchloe dactyloides</i>			•
Cordgrass, Prairie	<i>Spartina pectinata</i>	•	•	
Gramma, Sideoats	<i>Bouteloua curtipendula</i>		•	•
Needlegrass, Green	<i>Stipa viridula</i>			•
Switchgrass	<i>Panicum virgatum</i>	•	•	•
Wheatgrass, Western	<i>Agropyron smithii</i>	•	•	•

Table 3. Recommended Seed Mixes for Upland Areas			
Species	Scientific Name	Variety	PLS Seeding Rate Lbs./ Acre (drill seeded)
-Western Wheatgrass	<i>Pascopyrum smittii</i>	Arriba	4.8
-Sideoats Grama	<i>Bouteloua curipendula</i>	Vaugh, El Reno, Niner	1.8
-Green Needlegrass	<i>Stipa viridula</i>	Lodorm	2.0
-Blue Grama	<i>Chondrosum gracile</i>	Lovington	0.3
-Big Bluestem	<i>Andropogon garardii</i>	Kaw, Pawnee	0.55
-Switchgrass	<i>Panicum virgatum</i>	NEB 28, Pathfind- er, Trailblazer	0.23
-Yellow Indiangrass	<i>Sorghastrum nutans</i>	Holt, Cheyenne Llano	0.5
-Little Bluestem	<i>Schizachyrium scoparium</i>	Pastura, Cimarron	0.35
-Purple Prairie Clover	<i>Petalostemon purpureum</i>	-----	0.5
-Blue Flax	<i>Linum lewisii</i>	-----	0.5
-Blanket Flower	<i>Gaillardia aristata or G. pulchella</i>	-----	0.5
-Buffalo Grass	<i>Buchloe dactyloides</i>	-----	0.5
PLS= Pure Live Seed			

Table 4. Recommended Seed Mixes for Salt Meadow Sites			
Species	Scientific Name	Variety	PLS Seeding Rate Lbs./Acre (drill seeded)
-Western Wheatgrass	<i>Pascopyrum smittii</i>	Arriba	4.8
-Sideoats Grama	<i>Bouteloua curipendula</i>	Vaugh, El Reno, Niner	1.8
-Alkali Sacaton	<i>Sporobolus airoides</i>	Salado	0.3
-Switchgrass	<i>Panicum virgatum</i>	NEB 28, Pathfinder, Trailblazer	0.68
-Prairie cordgrass	<i>Spartina pectinata</i>	-----	1.5
PLS= Pure Live Seed			

Table 5. Recommended Seed Mixes for Wet Meadow Sites, Shoreline Zone Above Water Line			
Species	Scientific Name	Variety	PLS Seeding Rate Lbs./Acre (drill seeded)
-Western Wheatgrass	<i>Pascopyrum smittii</i>	Arriba	3.2
-Prairie Cordgrass	<i>Spartina pectinata</i>	-----	2.0
-Big Bluestem	<i>Andropogon garardii</i>	Kaw, Pawnee	2.2
-Switchgrass	<i>Panicum virgatum</i>	NEB 28, Pathfinder, Trailblazer	0.68
-Yellow Indiangrass	<i>Sorghastrum nutans</i>	Holt, Cheyenne Llano	1.5
-Canada Wildrye	<i>Elymus canadensis</i>	-----	1.6
-Blue Flag Iris	<i>Iris missouriensis</i>	-----	0.25
PLS= Pure Live Seed			

Salt Meadows

As noted earlier, only a small portion of the site will be revegetated to this plant community. The seed mix for this zone is shown in Table 4. Shrub thickets will also be planted in this zone. Shrub species to be planted include those listed for uplands in Table 2. Shrubs will be planted as bare root or container stock.

Shoreline Areas

Disturbed areas along the shoreline would be planted with the seed mix shown in Table 5. In addition to the grasses and forbs shown in the table, the shoreline zone would be heavily planted with cottonwoods and willow at selected locations. The general locations of these plantings are shown in Map 3.2. An important goal of these plantings is to provide long-term assurance that mature cottonwoods will emerge to replace the trees that are currently being used by wintering eagles and as nesting sites for great blue heron. In addition, dead trees that do not pose a significant safety hazard should be kept standing to provide roost sites for raptors and habitat for other birds.

Other Habitat Management/Improvement Recommendations

Exotic Species Control

Exotic species will be managed as part of Larimer County Parks and Open Lands integrated weed management plan. Although not a major issue at present, Russian olives have become established at several locations, particularly along the north shoreline. Russian olive-dominated communities provide inferior wildlife habitat to that of native riparian vegetation and can be highly invasive. In Idaho, willow habitats had a significantly higher density of breeding birds than Russian-olive habitats. Ducks may avoid wetlands rimmed by dense stands of Russian olive.

Once established, Russian olive is difficult to control. The most effective control efforts have included cutting the trees down, followed by either spraying or burning the stumps. Russian olives that have become established on future public or North Poudre lands should be removed in this manner.

Tamarisk (salt cedar) has also been identified in very limited numbers, and should be eradicated immediately while it is still controllable.

Nest Boxes

Although Fossil Creek Reservoir provides a variety of habitats, some species would benefit from the installation of additional nesting boxes. Installation of these boxes could benefit cavity nesting birds as well as other species.

Prairie Dog Management

As mentioned earlier, portions of the site are occupied by prairie dogs. This species is a valuable food source for wintering bald eagles and other raptors, and has been proposed for listing as an endangered species. It is therefore appropriate to maintain this species on the site, but its presence poses a number of management issues. One of these is the complications they present to revegetation efforts. Traditionally, prairie dogs are removed prior to a revegetation effort and then allowed to become re-established if their presence fits in with other established management goals. At Fossil Creek Reservoir, the resource management plan proposes maintaining prairie dogs at the site, with the exception of the dam vicinity. This will require phasing the revegetation effort so that prairie dogs can be excluded (with vinyl barriers or other appropriate means) from portions of the site that have been reseeded, which has been occurring on site over the past year. After vegetation is established, prairie dogs could be allowed to select their own locations on site, except where colonies pose problems in high use areas. Natural-appearing raptor roosts can also be installed near the perimeter of prairie dog colonies to help control their populations.

Adjacent Lands

As discussed in Chapter 2, the *Fossil Creek Reservoir Area Plan* recognizes the importance of the lands surrounding the reservoir through establishment of a Resource Management Area that generally extends ¼ mile from the shoreline. Much of this land, particularly in the north shoreline vicinity, remains in private ownership and is likely to remain privately owned. Given the provisions of the Area Plan, the ¼-mile buffer area can be expected to remain generally undeveloped. Adjacent lands where urban development is proposed can anticipate the need to place a conservation easement on that portion of their property located within the Resource Management Area. Some of the provisions of a conservation easement, which would be placed on these lands, are outlined in Appendix C.

On private lands not proposed for development, other conservation strategies will be implemented. A goal of this resource management plan is to promote consistency between the management of the reservoir lands. Specific recommendations include:

- Work with willing adjacent property owners to develop a more comprehensive approach to wildlife management. This would occur on a cooperative basis with those landowners interested in maintaining and improving the wildlife habitat on their property. In general, the improvements would focus on increasing the amount of riparian habitat in the shoreline vicinity. This would include planting additional cottonwoods to provide roosting sites and additional or replacement nesting sites for the great blue heron. Creation of continuous forest cover across one or more of the peninsulas that extend into the reservoir would be a significant habitat improvement.

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- Further back from the shoreline, it would be appropriate to maintain land currently or recently cultivated in agricultural use. Corn and other grain crops provide a good food source for waterfowl. As adjacent areas develop, however, it may become difficult to keep these lands in production. If cultivated land goes out of production, it would be appropriate to return it to a grassland using the same type of seed mix and procedures previously described for reservoir lands.
 - Fencing should be provided to prevent unauthorized access to the reservoir and reduce potential trespass on private land. The location of the fence should be coordinated with adjacent landowners. In most instances, the fence will be located at the edge of the Resource Management Area boundary. In some cases, however, it may be more appropriate to locate a fence closer to the reservoir, or not fence at all.
 - Given the voluntary and cooperative nature of implementing habitat improvements of private lands, it would be appropriate to offer incentives to landowners to make these improvements. Both Larimer County and the City of Fort Collins have small grants programs that are available to landowners for habitat improvements. Adjacent landowners should be encouraged to participate in these programs. Other cooperative agreements should also be developed with funding provided by the County and/or City for larger scale projects, such as grassland restoration of multiple acres.

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Appendix A

Appendix A

Public Meeting - Conducted in 1999

The purpose of the public open house was to review the preliminary guidelines developed for the resource management plan. A questionnaire was handed out to all participants. Below are some of the comments received.

1. Which concept do you like the most? Why?

- #2. Better balance of use. Better preservation and protection of wildlife.
- #3. Most year-round access. Would prefer #1 with no closures.
- Doesn't matter to me personally.
- I like them all – no preference.
- #2. Best wildlife protection.
- #3. Protects resources and allows recreational use.
- #2. Protects natural resources while providing recreation opportunities. Concept #1 is promising but trail closure to that extent will require intense patrolling.
- #2. Optimal bald eagle habitat protection and suitable recreation opportunities.
- #1. I like the idea of protecting more habitats and having less human intrusion. I also like having a trail that loops rather than dead ends.
- #3. Summer trail more interesting.
- #1. I want to see as little intrusion as possible but still be able to view wildlife.
- #1. Less impact on wildlife.
- #2. Good access for viewing and walking but still limited to provide enhanced wildlife habitat. This will be a very relaxing place to take a quiet walk and view wildlife.
- #3. Most trails.
- All three are OK.
- #2. Trails are set back further from wildlife habitat, plus trails that would be subject to seasonal closure.
- #3. Because it provides the most flexibility and access to the area.
- None. I would like to see #2 with a trail closer to the reservoir that is open only in the summer. Concept #3 is way too confusing and will be a management problem.
- #3. Really no difference between concepts. I like the trail loops.

-
- 2. Do you agree with seasonal trail closures in order to prevent potential disturbance to wildlife?**
 - Yes – 17 participants. Comments: As long as they are effective.
 - No – 2 participants

 - 3. Do you think that allowing dogs only if they are on a leash is appropriate?**
 - Dogs on leash – 10 participants. Comment: Only on trails.
 - No dogs in Park Preserve – 9 participants

 - 4. Would you be opposed to an entrance fee to help offset the cost of managing this park for people and wildlife?**
 - Yes – 5 participants. Comments: Open space dollars; park is small scale and should be part of local system. Any fee should be nominal if any.
 - No – 14 participants. Comments: With season pass; no, but the fees are a real nuisance for users.

 - 5. What elements of the plans would you use most?**
 - Wildlife, especially waterfowl viewing.
 - Nature watch.
 - Trails.
 - The trail system.
 - Birding. Blinds/walking lookouts.
 - Bird observation.
 - Wildlife viewing, bird watching.
 - Trails – to be used for wildlife viewing.
 - Eastern trail in fall and spring.
 - Bird watching from viewing areas.
 - Trails.
 - Bird watching, hiking, picnic shelters.
 - Bike path/walking path
 - Trails to access bird watching viewpoints.
 - Trails.
 - Hiking trails and nature talks.
 - Hiking trails, wildlife habitat, removing trailers.

 - 6. Would you use the western wetlands boardwalk?**
 - Yes – 17 participants.
 - No – 2 participants.

7. Would you use the Duck Lake observation area?

- Yes – 13 participants.
- No – 5 participants.

8. How did you find out about tonight's meeting?

- Newspaper – 6 participants.
- Mailing – 10 participants.
- Word of Mouth – 1 participant.

9. Please write any other comments or suggestions below. Use the back of this page if necessary.

- Rather good choice on plans. Keep it as simple as possible for enforcement of regulations.
- Develop fishery in Fossil Creek Reservoir. We oppose “active” use on current sludge farm – would encourage wildlife/wetlands use.
- I think this is a wonderful plan, and we are very supportive of it.
- Good plans.
- I understand the need for recreation trails, but bald eagle habitat is much more rare in Fort Collins (there are many trails). I would support some trail development (as in #2), but think habitat protection is more important.
- I understand that citizens want recreation, however I feel it is more important to improve quality of life by enhancing wildlife areas. Keep up the good work.
- I would like to be as close as possible to the birds without disturbing them. Facilities are not important to me.
- Keep developed recreational use to a minimum.
- I don't see a need to allow dogs in this area since it is primarily devoted to wildlife protection and wildlife viewing.
- You're making progress.
- You should have (retain) a private accountant and attorney to be sure your negotiations with North Poudre Irrigation have a sound financial base – not a city/county person.

-
- This reservoir is a somewhat unique, natural feature in this region with relatively minimal development near it. The wildlife there is already abundant but could possibly diversity and increase with the removal of boating. Consequently, let's provide a public access that enhances the primary objective of viewing wildlife in an unspoiled landscape. If we have minimal trails now, we can preserve the environment. More trails could be added later, but it's very hard to take trails away. I support Option #2 for this reason. Looks great! Can't wait!
 - The alternatives should be a wider range from pure wildlife habitat to intense recreation, from paved trails to bird watching. Put the parking lot near CR32 to save open space.

10. Attendee List

- | | |
|------------------------|-------------------------|
| 1. Duane Hanson | 11. R.H. Riddell |
| 2. Brad Bischoff | 12. Kerrie & Gary Drehr |
| 3. Chris Montz | 13. Richard Vail |
| 4. David Walker | 14. Mark Sears |
| 5. Bruce Douglas | 15. Gina Janett |
| 6. Rick Inglis | 16. Bob & Betty Hall |
| 7. May & Jack McCabe | 17. Jim Nichols |
| 8. Cheryl & Jim Leflar | 18. Chris Monz |
| 9. Luther Harris | 19. Rick Schroeder |
| 10. Wayne Leistikow | 20. Duane Aranci |

Appendix B



BIRDS OBSERVED IN THE FOSSIL CREEK RESERVOIR AREA (1990-2000)



186 SPECIES: 1 FEDERAL THREATENED SPECIES; 1 FEDERAL ENDANGERED SPECIES; 1 COLORADO THREATENED SPECIES; 5 COLORADO SPECIES OF CONCERN; 11 FROM THE COLORADO NATURAL HERITAGE PROGRAM'S SPECIES OF CONCERN LIST (THE 8 FEDERAL/STATE SPECIES ARE ALSO ON THIS LIST)

KEY:

B=Breeds in FCR Area.

S=Summer resident; not known to breed in FCR Area.

M=Migrates through FCR Area (spring, late summer-fall).

W=Winters (late fall-winter) in FCR Area.

Y=Occurs throughout the year in FCR Area.

U=Unusual occurrence in FCR Area.

FES= Federal Endangered Species.

FTS= Federal Threatened Species.

CTC=Colorado Threatened Species.

CSC=Colorado Species of Concern.

CNH=Colorado Natural Heritage Program Species of Special Concern List, May 1999

GREBES

Pied-billed grebe B,M
Horned grebe M
Eared grebe M
Western grebe B,M
Clark's grebe M,S

PELICANS

American white pelican S,M (CSC)

CORMORANTS

Double-crested cormorant S,M

BITTERNS AND HERONS

American bittern B,U
Great blue heron B,Y
Great egret M,U
Snowy egret M (CNH)
Little blue heron S,U
Cattle egret S,M,U
Green heron M,S,U
Black-crowned night-heron M,S

IBISES AND SPOONBILLS

White-faced ibis M (CNH)
Glossy ibis M,U

VULTURES

Turkey vulture M

SWANS, GEESE & DUCKS

Tundra Swan W,U
Greater white-fronted goose M,W,U
Snow goose M,W
Canada goose B,Y
Wood duck Y
Green-winged teal M,W
Mallard B,Y
Northern pintail M,W
Blue-winged teal M
Cinnamon teal M
Northern shoveler M,W
Gadwall M
American wigeon M,W
Canvasback M,W
Redhead M,W
Ring-necked duck M,W
Lesser scaup M,W
Surf scoter W,U

Common goldeneye M,W

Barrow's goldeneye W,U (CSC)

Bufflehead M,W

Hooded merganser M,S

Common merganser Y

Ruddy duck M,W,S

KITES, EAGLES & HAWKS

Osprey S,M

Bald eagle M,W (FTS; CTS)

Northern harrier M,W,B

Sharp-shinned hawk M,W

Swainson's hawk M,S

Red-tailed hawk B,Y

Ferruginous hawk M,W (CSC)

Rough-legged hawk W

Golden eagle Y

FALCONS

American kestrel B,Y

Merlin M,W

Prairie falcon M,W (CNH)

Peregrine falcon M,U (FES; CSC)

GROUSE, TURKEYS & QUAIL

Ring-necked pheasant B,Y

Northern bobwhite Y,U

RAILS, GALLINULES & COOTS

Virginia rail B,Y

Sora B,M

American coot B,Y

CRANES

Sandhill crane M (CSC)

PLOVERS

Black-bellied plover M,U

Semipalmated plover M,U

Killdeer B,Y

STILTS & AVOCETS

Black-necked stilt B,U (CNH)

American avocet B,M

SANDPIPERS & PHALAROPES

Greater yellowlegs M

Lesser yellowlegs M

Solitary sandpiper M

Willet M (CNH)

Spotted sandpiper M,B

Whimbrel M,U

Long-billed curlew M,U (CSC)

Hudsonian godwit M,U

Marbled godwit M,U

Semipalmated sandpiper M

Western sandpiper M

Least sandpiper M

Baird's sandpiper M

Stilt sandpiper M

Long-billed dowitcher M

Pectoral sandpiper M

Red knot M,U

Sanderling M,U

Dunlin M,U

Common snipe Y

Wilson's phalarope M (CNH)

Red-necked phalarope M,U

Red phalarope M,U

JAEGERS, GULLS & TERNS

Franklin's gull M

Bonaparte's gull M

Ring-billed gull Y

California gull S,M

Herring gull W

Thayer's gull W,U

Glaucous gull W,U

Caspian tern M,U

Common tern M,U

Forster's tern M (CNH)

Black tern M

PIGEONS & DOVES

Rock dove B,Y

Mourning dove B,Y

CUCKOOS

Yellow-billed cuckoo M,S (CNH)

BARN OWLS

Barn owl B

OWLS

Eastern screech-owl B,W
 Great horned owl B,Y
 Burrowing owl B,M,U (CTS)
 Long-eared owl M,W,U
 Short-eared owl W,U (CNH)

GOATSUCKERS

Common nighthawk B,M

SWIFTS

White-throated swift S,M

HUMMINGBIRDS

Broad-tailed hummingbird M
 Rufous hummingbird M

KINGFISHERS

Belted kingfisher B,Y

WOODPECKERS

Downy woodpecker B,Y
 Hairy woodpecker B,Y
 Northern flicker B,Y

TYRANT FLYCATCHERS

Western wood-pewee B,M
 Willow flycatcher M (CNH)
 Say's phoebe M
 Western kingbird M
 Eastern kingbird M

LARKS

Horned lark B,Y

SWALLOWS

Tree swallow M
 Violet-green swallow M
 Northern rough-winged swallow M
 Bank swallow M
 Cliff swallow M
 Barn swallow B,M

JAYS, MAGPIES & CROWS

Blue jay B,Y
 Black-billed magpie B,Y

American crow B,Y

Common raven Y

TITMICE

Black-capped chickadee B,Y

WRENS

Rock wren W,U
 House wren B,Y
 Marsh wren B,Y,U

KINGLETS

Ruby-crowned kinglet W,U

SOLITAIRES & THRUSHES

Eastern bluebird M,U
 Western bluebird M
 Mountain bluebird M
 Veery M,U (CNH)
 Swainson's thrush M
 Hermit thrush M
 American robin B,Y

MOCKINGBIRDS & THRASHERS

Gray catbird B

PIPITS

American pipit M

WAXWINGS

Bohemian waxwing W
 Cedar waxwing Y

SHRIKES

Northern shrike W
 Loggerhead shrike M

STARLINGS

European starling B,Y

VIREOS

Warbling vireo S,M

WOOD-WARBLERS

Yellow warbler M
 Yellow-rumped warbler M
 Common yellowthroat B,M
 Wilson's warbler M

TANAGERS

Western tanager M

CARDINALS, GROSBEAKS & BUNTINGS

Blue grosbeak S,U

TOWHEES, SPARROWS & LONGSPURS

American tree sparrow W
 Chipping sparrow M
 Clay-colored sparrow M
 Brewer's sparrow M
 Vesper sparrow M
 Lark sparrow M
 Lark bunting M,U
 Savannah sparrow M
 Grasshopper sparrow S,U
 Song sparrow B,Y
 Lincoln's sparrow M,W
 Swamp sparrow W,U
 White-crowned sparrow M,W
 Dark-eyed junco M,W

BLACKBIRDS & ORIOLES

Red-winged blackbird B,Y
 Western meadowlark B,Y
 Yellow-headed blackbird B
 Brewer's blackbird S,M
 Great-tailed grackle W,U
 Common grackle B,Y
 Brown-headed cowbird B,M
 Bullock's oriole B

FINCHES

House finch B,Y
 Pine siskin W
 American goldfinch B,Y
 Evening grosbeak W

WEAVER FINCHES

House sparrow B,Y



This checklist conforms to the American Ornithologists' Union, Checklist of North American Birds, 41st supplement, 1997. Kevin Cook, Rick Schroeder, Colorado Field Ornithologists, and Natural Resources Department staff provided observations in the Fossil Creek Reservoir Area.

The City of Fort Collins Natural Resources Department would appreciate receiving any additional observations (including records of birds at feeders!) to enhance this bird list. These can be either additional species to add to the list or known nesting by a species not yet documented nesting in this area. We would also appreciate any observations of mammals, amphibians, reptiles, or insects that you may have. Please submit your observations in writing and include your name, dates (month, year), and site (address or general location within Fossil Creek Reservoir Area). Observations can be mailed: Karen Mancini, City of Fort Collins, Natural Resources Department, P.O. Box 580, Fort Collins, CO 80522-0580, Phone: 221-6310.



Appendix C

Appendix C

Sample Conservation Easement

1. Adequate buffers to mitigate disturbance of bald eagles and herons.

It is recognized that the presence of bald eagles and great blue herons is important in the regional environmental and wildlife dynamic. It is also recognized and discussed in much literature that these birds are sensitive to the encroachment of human activity. Therefore, the property under discussion has been characterized as a “buffer,” creating a minimally used expanse of land between the residential development and the primary habitat. This “buffer” will be owned by a private party, possibly but not necessarily, a homeowner or association. The property will be encumbered by a conservation easement held by Larimer County or the City of Fort Collins. If the strategies of this plan are followed, it is acknowledged that this “buffer” is adequate to mitigate the disturbance of bald eagles and herons.

2. Limited human activity on the buffer area.

To help protect wildlife and habitat, human activity on the buffer area should be limited and approximate the type of activities currently occurring, i.e., agriculture or farming. It is recognized that the bald eagles and great blue herons have adapted to these present practices and higher levels of activity or modified types of activity may disturb the nesting and roosting behavior of the birds. Therefore, uses on this land should be limited to farming, grazing and open space. No public access will be allowed, including trails, parks, bike paths or other means of access.

3. Appropriate controls for discouraging trespassing on buffer area lands.

The entire parcel will be fenced using the existing 4-strand barbed wire fence on the Reservoir Company property line, a new 4' high open rail fence with a wire mesh attached along the adjoining lot lines of all lots in the development, and a new wire strand fence along the west property line. The west line will be more temporary because of the potential link of agricultural use and/or open space use with the adjoining property. It is desirable to ultimately have wood rail fencing in the area to avoid dangerous conflicts with the birds and wire fencing. Penetrations through the fence from the development neighborhood will be restricted by a locked gate, as

well as the adjoining property owners controlling trespassing across their property. In addition to the fencing, there will be signs posted stating “Sensitive Habitat – No Trespassing.”

Applicable laws regarding loose pets will be posted.

4. Visual screening of improvement on lots adjacent to buffer area and on the buffer area.

A landscaping plan will be prepared for the buffer area, including the planting of seedlings along the north fence to enhance the screening on adjacent lots. Furthermore, requirements will be imposed to assure replacement of screening trees that die or are destroyed.

5. Crop planting and livestock uses.

Crops that may be planted and harvested on the property shall be those commonly grown in and around Northern Colorado. These include, but are not limited to, corn, alfalfa, barley, wheat, cane, beans, peas, other truck farm produce, trees, and/or any mixture of these or other crops. It is acknowledged that crop farming requires certain activities that may be incompatible with residential subdivisions and may also be periodically disruptive to wildlife. Best management practices will be employed to help minimize and mitigate these possible conflicts.

Livestock that may be grazed on the property include, but are not limited to, cattle, horses and other large animals. Sheep and swine are excluded from allowable livestock. If grazing is a use that the owner desires, a limit on the amount of animal units must be employed to avoid overgrazing the land. Coordination of animal units per acre grazed will follow Larimer County Extension Service guidelines. Any grazing must be kept a minimum of 100' from any adjoining lot.

Combining livestock and farming is allowed. In any agricultural or open space use, all noxious weeds must be fully controlled.

6. Revegetation of areas to address dynamic future habitat needs.

Due to the short life of cottonwood trees, especially when serving as nesting areas for large birds, it is probable that strategic revegetation will be desirable. Presently, all nesting habitat is on property owned by North Poudre Irrigation Company and it is anticipated that cooperation between them and Larimer County, Division of Wildlife and the City of Fort Collins will result in a plan to address the long-term needs of habitat. If it is deemed desirable and necessary by these entities to enlarge the area of planting onto the buffer area property, accommodations of this habitat enhancement plan by the property owner will be given, provided that compensation for lost revenue from the elimination of plantable land is made to the owner.

7. Timing of construction in relation to wildlife.

Construction of development infrastructure, such as sewer, water, grading and roadways should be timed to avoid excessive disruption to wildlife in the vicinity of the heron rookery. It is advised that any construction activity within 850' of the rookery be kept to a minimum, particularly between March 1 and August 1 of each year, the nesting period.

8. Plantings within 1/8th mile of shoreline.

Woody vegetative plantings (i.e., shrubs, trees, etc.) within 1/8th mile of the shoreline should be appropriate species native to the Fort Collins area.