

WILDERNESS PARK SUBAREA PLAN

**INTEGRATION OF WILDERNESS PARK STUDIES
WITH
PARK MANAGEMENT RECOMMENDATIONS**

1999

BY

J. KIP HULVERSHORN

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EXECUTIVE SUMMARY

A VISION OF WILDERNESS PARK AS A NATURAL AREA:

- C with the primary purpose of flood protection
- C** with natural arteries into the neighborhoods through the tributaries to Salt Creek incorporating greenways, stormwater protection, wildlife corridors and trails
- C an illusion of wilderness
- C a place to escape the daily activity of the urban landscape
- C a place for nature-related recreation
- C a place to enjoy nature on nature's terms
- C part of a corridor of green extending to Hickman and eventually including the Steven's Creek corridor as an "emerald necklace" or "crescent green" encompassing Lincoln
- C an environment where Park visitors can enjoy a vignette of what the area was like in pre-settlement conditions
- C a place where the elements of nature are allowed to interact on nature's terms
- C a place, though not true wilderness, where one can experience a sense of wildness not commonly available elsewhere in the urban environment

Wilderness Park Study

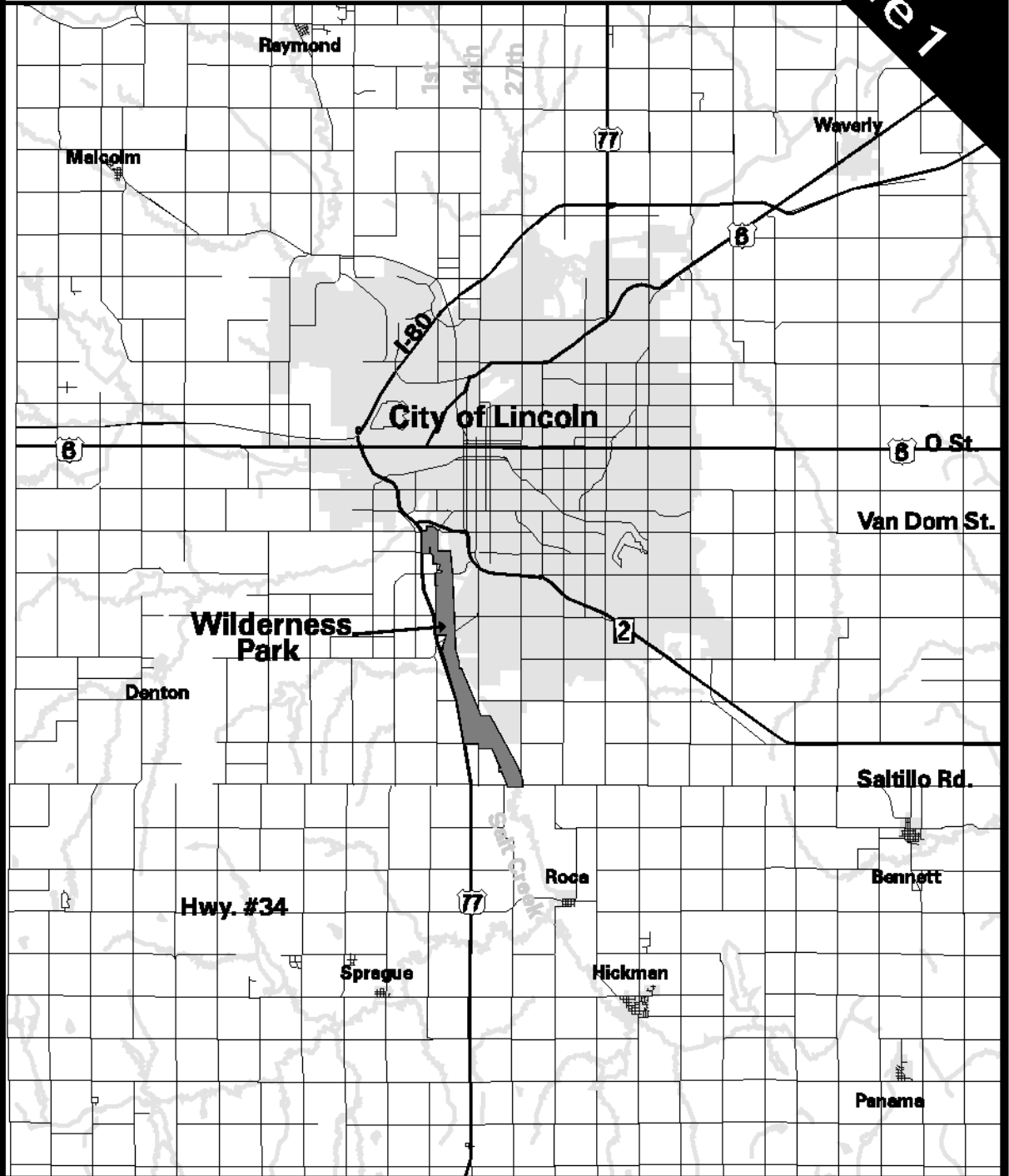


Figure 1

Wilderness Park Vicinity Map Lincoln, Nebraska

This report integrates the findings of a number of recent studies of Wilderness Park and makes recommendations for a first phase park management plan and considerations for the area surrounding the Park. Recent studies include an Ecosystem Report of Wilderness Park, Salt Creek at Wilderness Park Hydrologic Study, S1-S2 Subarea Transportation Study and the Public Involvement Report as well as a number of supplementary reports including History, Attitude Survey, Environmental Conditions, etc. The integrated reports referenced in this study are not intended to be adopted with the action taken on this report, but stand as independent studies done for their unique purpose as specified by their contract.

Wilderness Park is a linear park owned by Lancaster County and managed by the City of Lincoln, located adjacent to Salt Creek in Lancaster County on the southwest edge of Lincoln. The Park consists of approximately 1,475 acres of floodplain with woodland or riparian habitat and some areas of grassland including old agricultural fields. The Park extends for approximately seven miles from Van Dorn Street on the north to Saltillo Road on the south, east of Highway 77 west of the Burlington Northern/Sante Fe railroad and averages approximately 1320 feet (one-fourth mile) in width. The representative of the Lancaster County Board presented the following uses of the Park during the public involvement meetings:

- C Providing low cost flood protection for Lincoln
- C Providing public access to a natural area
- C Providing education regarding the interaction of natural populations with urban development
- C Providing a historical, cultural and archeological record of the area
- C Establishing a model for greenspace areas that could be replicated in other parts of the County

Beginning in 1997, increasing concern about the condition and future of Wilderness Park was becoming evident. Newspaper articles, meetings of environmentalists, and public officials were giving increased attention to the Park. The concern with decreasing funding for the Park and development proposals adjacent to and in the immediate vicinity of the Park raised the concern of citizens and local officials.

The City Council and County Board amended the Comprehensive Plan during the 1998 Annual Review to include the following language:

Develop a subarea plan for Wilderness Park which will address land use, stormwater, transportation, and park use issues in and around the Park. Involve abutting owners, developers, and the public in the study process to enhance communication and ensure discussion of all issues; encourage mitigation measures to respect the sensitivity of the natural environment.

Recommendations from the Wilderness Park Studies

Ecosystem Report

EA Engineering, Science, and Technology, Inc.

- C Continue to manage and restore the native prairie remnant
- C Remove exotic and woody vegetation from prairie areas
- C Open canopy of bur oak communities to promote regeneration
- C Controlled burns should be initiated in bur oak communities
- C Initiate prescribed burns and mowing in grassland areas
- C Continued monitoring and research of plant communities is needed
- C Promote tree regeneration in mature stands to provide habitat for Cooper's Hawks, Barred Owls, and woodland/forest associated birds
- C Conduct management practices such as brush removal and burns in a patchy manner to provide refugia habitat for nesting and foraging of birds
- C Restore grassland and limnic (marshes, rivers, lakes) to maintain and improve bird diversity
- C Do not increase access, human disturbance, or habitat fragmentation (roads, trails, utility corridors) in southern two-thirds of the Park
- C Schedule management practices outside of the breeding bird season
- C Land acquisition
- C Use of Planning Techniques

Salt Creek at Wilderness Park Hydrologic Study
U.S. Army Corps of Engineers

- C Allowing fill in the floodplain and reducing storage volume would cause significant increases in flood flows during peak storm events.
- C Increases in impervious surfaces in the area upstream of Wilderness Park and reductions in the storage capacity of the Salt Creek floodplain along the Park would result in increased flood flows in the Park and downstream.
- C Removing the dense woodland vegetation within Wilderness Park and replacing it with vegetation having low roughness value (such as prairie grass) would increase flood flows.
- C Increasing the roughness value by extending the dense woodland vegetation of Wilderness Park upstream to Roca Road would not cause significant discharge reductions in flood flows.
- C The high impervious alternative (highest stormwater runoff scenario) would cause a significant flow increase and increase flood frequency.
- C A vegetative buffer (approximately 100 feet wide) along tributaries would clearly impact peak stage and discharge locally.
- C Raising roads and reducing bridge openings would not be effective in using channel storage to reduce peak channel flow.
- C The replacement or addition of bridges would not have a systemwide impact on discharge but some localized flood elevation would occur around bridges.
- C The evaluation of the construction of extremely large flood storage facilities indicates this would not be feasible due to the high costs of excavation as compared with the flood reduction benefits.
- C Any future development increasing the impervious area should be required to provide on-site mitigation to limit post-development peak discharge to pre-development levels. Recent changes in design standards for stormwater storage should achieve this recommendation when used with basin master plans to be completed for each basin as part of the Stormwater Basin Planning Project.

- C A model run of urban development with buffers, storage capacity intact, and retention/detention showed minimal hydrological impact on flow.
- C Wilderness Park currently provides effective flood storage and any channel confinement or shortening upstream should be strongly discouraged.
- C Compensation for any fill within the Salt Creek floodplain should be made by providing an equal amount of storage elsewhere on the site.
- C Any large-scale removal of woody growth in the conveyance area should be discouraged.
- C Straightening or shortening of the channel would have a major effect on the quantity and configuration of vegetation.

S1-S2 Subarea Transportation Study
Olsson Associates

The transportation element is not being brought forward at this time but is following the long-range transportation process which will address S1/S2 network improvements.

1. Transportation Network Recommendations:

- C A Yankee Hill bridge connection between 14th Street and Highway 77 with a full access interchange with Highway 77.
- C Closure of Old Cheney Road through Wilderness Park and at the at-grade railroad crossing but with park/property access maintained. Local access issues/roadway connections will require further study.
- C Pioneers Boulevard open across the park with a bridge (and preferably an interchange at Highway 77).
- C Closure of 14th Street through Wilderness Park and the at-grade railroad crossing with park/property access maintained. Local access issues/roadway connections will require further study.
- C No extension of Rokeby Road between 40th and 56th Streets.
- C Elimination of other at-grade intersections along Highway 77 in the study area consistent with the assumed future status of Highway 77.

- C A preliminary evaluation of roads to assess potential environmental impacts of transportation alternatives was completed.
- C Evaluation of environmental issues to satisfy Environmental Impact Statement requirements for such a roadway corridor needs to be completed.

2. Internal Park Circulation Summary:

- C Improve all trails with gravel or wood chip surface to provide all-weather accessibility and grade/widen to accommodate small utility vehicles and rescue equipment.
- C Improve/construct trail bridges to accommodate small utility vehicles and rescue equipment.
- C Provide the missing leg of the bike trail and new bridge structure south of Pioneers Boulevard.
- C Remove the parking lot along 1st Street near Pioneers Boulevard. Provide new parking facility at 1st Street and Old Cheney Road.
- C Close Old Cheney Road across the park; revegetate with nature species and utilize the right of way for trail access. Close the Old Cheney Road at-grade rail crossing.
- C Remove the parking lot along 14th Street at Salt Creek. Provide new parking lots along 14th Street on the north side of the Park and at Rokeby Road or the south side of the Park.
- C Close 14th Street across the park; revegetate with nature species and utilize for trail access. Close the 14th Street at-grade rail crossings.
- C Close the pedestrian bridge structure just south of Yankee Hill Road due to safety concerns and proximity to the railroad tracks.
- C Reconfigure existing hiking trail in the southern portion of the Park (between Yankee Hill Road and Saltillo Road) into loop trails. Connection between these trails is possible in the future with the construction of two new bridges.
- C Eliminate the horseback trail east of 14th Street due to safety concerns, proximity to the railroad, and existing shared use of railroad corridor. Utilized portions of existing horseback trail for hiking and biking loop trails.
- C Delineate and plan for future trail connection locations from adjacent developments as well as from the regional trail system

as development occurs adjacent to Wilderness Park, preserve trail corridors outside of Park.

- C Provide for budget for funding and maintenance of the improved trails and bridges.

3. Environmental Evaluation

The S1/S2 Subarea Transportation Study included a preliminary environmental evaluation assessing impacts of the transportation alternatives on the environment of the Park. The evaluation made analyses of hydrology and the environment of the Park. The evaluation made analyses of hydrology and floodplains, soils, hazardous substances, noise, air quality, vegetation, wildlife, parkland conversion, park expansion area, park continuity, fragmentation, railroads, and aesthetics. Observations include:

- C Non-bridge issues are primarily social and economic relating to the public acceptance of increased traffic, time delays, railroad conflicts, etc. with no significant environmental issues.
- C Park closure alternatives increases safety but does not appear to significantly impact park habitat as reflected by current high plant and animal diversity in the Park, bird nesting activity and a high satisfaction of Park users despite the presence of current road crossings.
- C Significant environmental issues with the Yankee Hill bridge alternative include noise impacts to wildlife, fragmentation impacts on wildlife, aesthetic impacts on park users, and parkland conversion.
- C The report states that it appears that all of the impacts can be mitigated based on the limited impact of existing corridors.

There are no additional impacts associated with the interchange alternative beyond those listed for the Yankee Hill bridge alternative.

Public Involvement Report

Principles:

The issue regarding the future of Wilderness Park is one of protecting the quality of life in Lancaster County by preserving and enhancing the many values the Park contributes to the Community, which include:

- C Habitat
- C Proximity/access
- C Floodplain protection/storm water management
- C Variety of uses
- C Motivation for thoughtful, collaborative planning and durable policies about city growth, safety, and transportation networks
- C Diverse economic benefits
- C Green space
- C History
- C Education resources
- C Recreation resources
- C Residential and park space co-existence
- C Aesthetics
- C Opportunity for attracting outside financial resources

PLAN INTEGRATION RECOMMENDATIONS

By integrating the elements and conclusions of each of the four elements of the study, the following recommendations are made concerning the future planning of Wilderness Park and immediate environs:

- C Maintain the Park as a “natural” environment where ecological processes can be maintained to the extent possible, while protecting flora and fauna.
- C Provide opportunities for “nature-related” recreation such as nature study, and enjoyment, trails for hiking, biking and equestrian use.
- C Maintain the roughness value of the stormwater conveyance area along Salt Creek by protecting the trees (high roughness value), channel irregularity, channel alignment, surface roughness and obstructions.
- C Continued scientific monitoring of the Park and its resources should be established with recommendations to Park managers.
- C Recognize the importance of balancing vegetation for roughness in the creek conveyance area while protecting bur oak complexes and native prairie.

Trails

- C Improve the surface of all hiking trails by applying woodchips or other media.
- C The existing trail alignment is functional in most locations with some modification. The bike-trail south of Pioneers Boulevard needs to be connected to the rest of the southern bike trail entailing the construction of a bridge south of Pioneers. The hiking trail dangerously adjoins the railroad south of Yankee Hill Road. Two bridges across Salt Creek should be constructed in this area for trail re-alignments.

- C All bridges, with the exception of the new bridge near the 14th Street crossing, need to be replaced. New bridges should be wide enough to allow use by utility vehicles for maintenance purposes and emergency services. The bridges should be designed to withstand flooding.
- C If the Park is extended from Saltillo Road to the Roca area, consideration should be given for a trail along the proposed Union Pacific railroad abandonment. The equestrian trail could be relocated to this area to minimize conflicts between trail users, to minimize impact to park resources, and to provide more open vistas and less vegetation impacts for equestrian trail users.
- C Connective links in addition to Bison Trail should be provided to existing and new developments in the area. Utilizing the 100-foot corridors preserved along tributary streams would be an option. The railroad corridors represent a major hazard and future consideration of crossing them with new bridge construction or bridging the former Rock Island corridor should be considered.

Resource Protection

- C Maintain and restore prairie remnants, particularly the unique sandstone prairie, and old fields through vegetation management. Prescribed burns, mowing, and girdling of invading trees are necessary interventions to protect these areas.
- C Manage bur oak communities to ensure regeneration of seedlings through vegetation management including monitoring, burns and girdling when necessary. Care should be taken to maintain the "roughness" values of the flood conveyance area.
- C Noxious weeds need to be monitored and eradicated.
- C Mature tree stands should be maintained to provide habitat for Cooper's Hawks, Barred Owls, and woodland/forest birds.
- C Brush and tree removal should be done in a patchy manner over a period of years to maintain habitat for nesting and foraging, and

to maintain appropriate “roughness” values within the flood conveyance area.

- C Management practices should take place outside of the nesting seasons.
- C Increases in human disturbance such as additional trails, roads, utility corridors should be discouraged especially in the southern two-thirds of the Park. Any disturbance that is allowed should be carefully mitigated to minimize disturbance of natural systems.
- C Salt Creek is a primary influence in the ecology of the Wilderness Park ecosystem. The Creek is to function as a natural system with the maintenance and enhancement of its meanders, ox-bows, wetlands and vernal pools.
- C Channelized portions of the Creek in and adjacent to the park should be restored to natural configurations to protect biological resources and hydrological characteristics. Salt Creek will reassert itself as a result of rainfall events and should be allowed to change as a response to natural phenomena.
- C Land-use regulations and incentives such as Better Management Practices, conservation design, easements, greenways and vegetative stream corridors, construction run-off controls, etc. within the watershed should be employed to the maximum extent possible to prevent increased stormwater run-off and decreased water quality.
- C Manage the Salt Creek floodplain, watershed, and tributaries in conformance with proposed revisions to the floodplain ordinance, the recommendations of the Stormwater Advisory Committee, and proposed stormwater ordinance and design standard revisions.
- C A quantitative, engineering based, analysis of transportation needs in the Wilderness Park area and the broader S1/S2 area has been completed. As noted in the OA Report, these recommendations are made based on future transportation network assumptions which include completion of the arterial roadway network within the S1/S2 subarea, completion of the

south and east Beltways, and freeway status for Highway 77 between the south Beltway and Van Dorn Street. Changes to these futures network assumptions may change the recommendations in this report. The qualitative aspects of the transportation improvements, including standard planning processes such as citizen participation, values determination, community visioning, etc. have not been completed. The timing of the transportation study was such that it did not receive full discussion in the public involvement process and consequently consensus statements were not developed. The Public Involvement Group indicated that the issue needs to be revisited and needs more information. Any additional Park crossings should only be considered if no other feasible alternatives are available and after a thorough community planning process.

Visitor Protection and Services

- C** Bridges and trails should be accessible to small emergency and maintenance vehicles.
- C** Restroom facilities should be available at the north and south end of the Park.
- C** Facilities such as bridges, trails and restrooms should be accessible to the disabled.
- C** Existing parking is adequate.
- C** Existing Park uses such as the day camp and archery area adjacent to the Park are compatible uses and should continue to be encouraged.
- C** Call boxes should be installed at parking areas.
- C** The implementation of the flood warning system by the Natural Resource District/Civil Defense will provide early warning of potential flooding for Park visitors as well as alerting downstream residents.

Land Acquisition and Buffers

- C Lands adjacent to the Park identified in the Ecosystem Study should be protected through purchase or easements and Better Management Practices, and in the application for funding through the FEMA Mitigation Grant Program.
- C Extension of the Park from Saltillo Road to Roca along Salt Creek is recommended with future planning for extension to Hickman.
- C Acquisition of the proposed abandonment of the Union Pacific Railroad from Saltillo to Roca should be initiated.
- C 100 foot buffers along Salt Creek tributaries should be preserved for stormwater control, open space, and potential trail corridors.
- C Potential developments in the Salt Creek basin should incorporate the principles embodied in the proposed revisions to the floodplain ordinance, the recommendations of the Stormwater Advisory Committee, and the proposed stormwater ordinance and design standard changes.

Community Participation

- C Volunteers should be utilized for maintenance and operations tasks such as litter control, vegetation management including girdling trees, prescribed burns, cutting noxious weeds trail maintenance, painting, etc.
- C Technical assistance should be utilized from scientists and environmental specialists on a Science Advisory Committee.
- C Financial support through existing community foundations, planned giving programs and a Wilderness Park Land Trust should be sought.
- C Continued public participation should be encouraged through periodic Park updates, consultation with environmental and Friends groups, and through an annual forum on Wilderness Park.

Summary

Wilderness Park represents a unique resource for Lancaster County and the City of Lincoln, Nebraska with the riparian forest winding through a prairie ecosystem. The original purpose and principle value of flood protection has served the area well and will be even more important as urbanization of the surrounding area occurs. Public support for protecting the Park as a natural area with opportunities for nature related recreation such as nature appreciation and trails continues to be important.

There is concern about land-use changes taking place or proposed outside and adjacent to the Park. The natural world has been compared to a tapestry with great complexity, interdependence, and inter-relationships. By pulling single threads from the tapestry, slowly the natural system unravels. The cumulative effect of single land-use changes, each impacting the Park, needs to be considered as individual decisions are made.

Wilderness Park has been envisioned as an integral part of a "crescent green" or "emerald necklace" enveloping the city. It should be preserved and enhanced by basic management and protection strategies outlined in this report. This "crown jewel" of natural parks near the urbanized area can continue to serve the community of this generation and for future generations to come.


ACTION PLAN

Park Management Priorities	Park Environs Priorities
Trails C Surfacing/woodchip/other media C Loops/linear C Equestrian to south	Floodplain C No net loss of storage C Retention C BMPs C Basin management
Bridges C Replacement C New bridge south of Pioneers C New bridges south of Yankee Hill C Utility vehicle scale for safety and maintenance	Conservation Easements C Flood control C Buffering C Open space C Wildlife habitat C Water quality
Vegetation Management C Prescribe burns in Bur Oak and prairies C Girdling and mowing when fire is not an option	Conservation Design C Clustering C Buffer drainageways (100 feet) C Wetland protection C Preserve existing vegetation C BMPs
Visitor Protection and Services C Bridges accessible by small utility vehicles for safety C Signage C Historical interpretation C Restrooms	Construction BMPs C Silt fences C Soil storage C Mulching C Vegetation protection
Community Participation C Maintenance assistance C Technical/scientific advisors C Financial support C Park friends, support	Land Acquisition/Buffers C Adjacent to Park C To Roca/Hickman C Drainage buffers C Railroad conservation

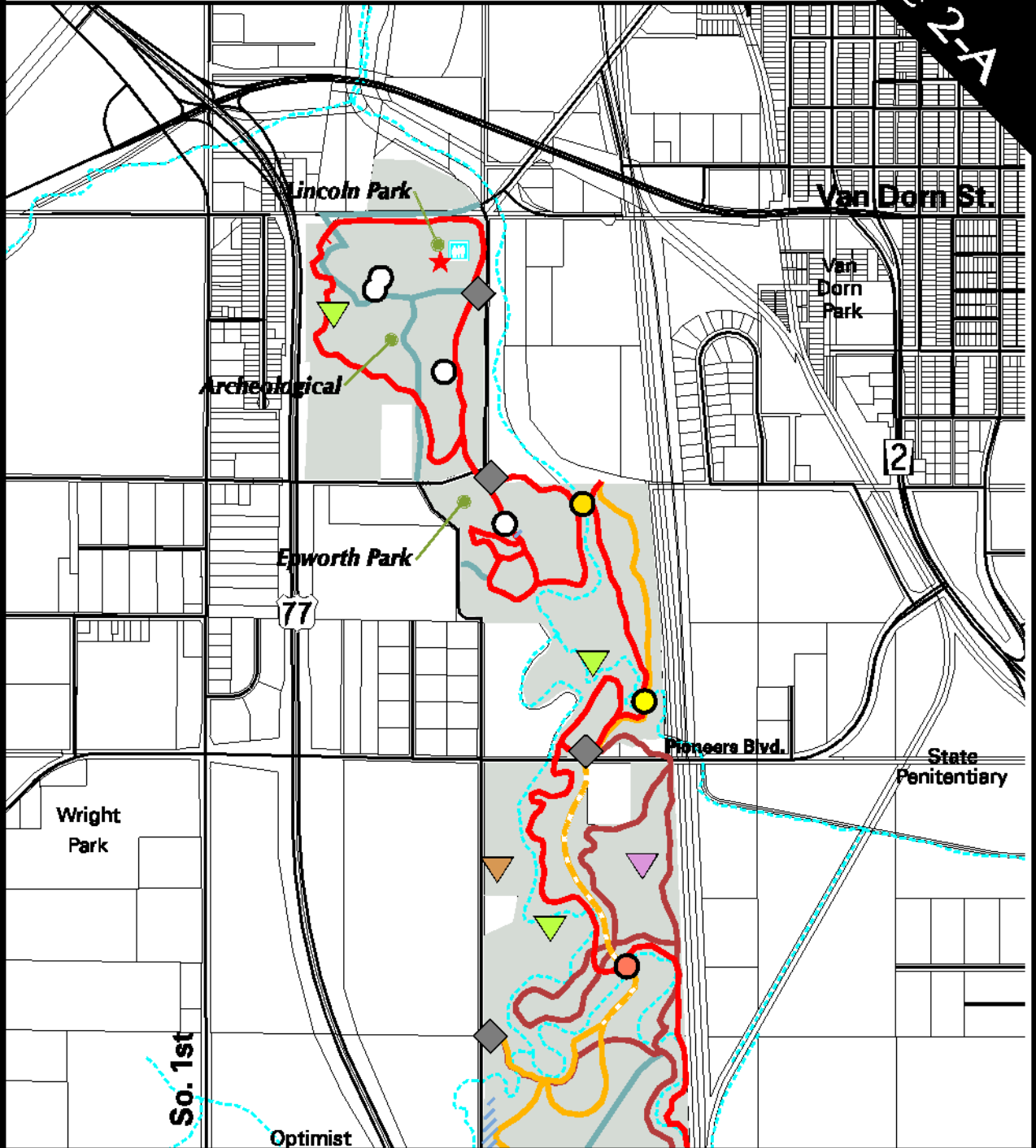
Proposed Park Facilities and Park Resource Protection Areas




















1 inch
equals
1500
ft.

Figure 2-A



Wilderness Park Study



Bridges	Trails	Other Map Elements
○ Existing Bridge	 Walking Trail	 Prop. Interpretive Cntr.
 Replace Existing Bridge	 Bike Trail	 Proposed Restrooms
 Replace Washed Out Bridge	 Horse Trail	 Parking Lots
 New Bridge	 Service Road	 Streams
	<i>(Proposed trails shown as dashed lines.)</i>	 Streets
		 Lot Lines
		Vegetation Management
		 Sandstone Prairie
		 Old Fields
		 Bur Oak
		 Rare Birds (EA)
		 Rare Plants (EA)
		 Historic Site

Legend

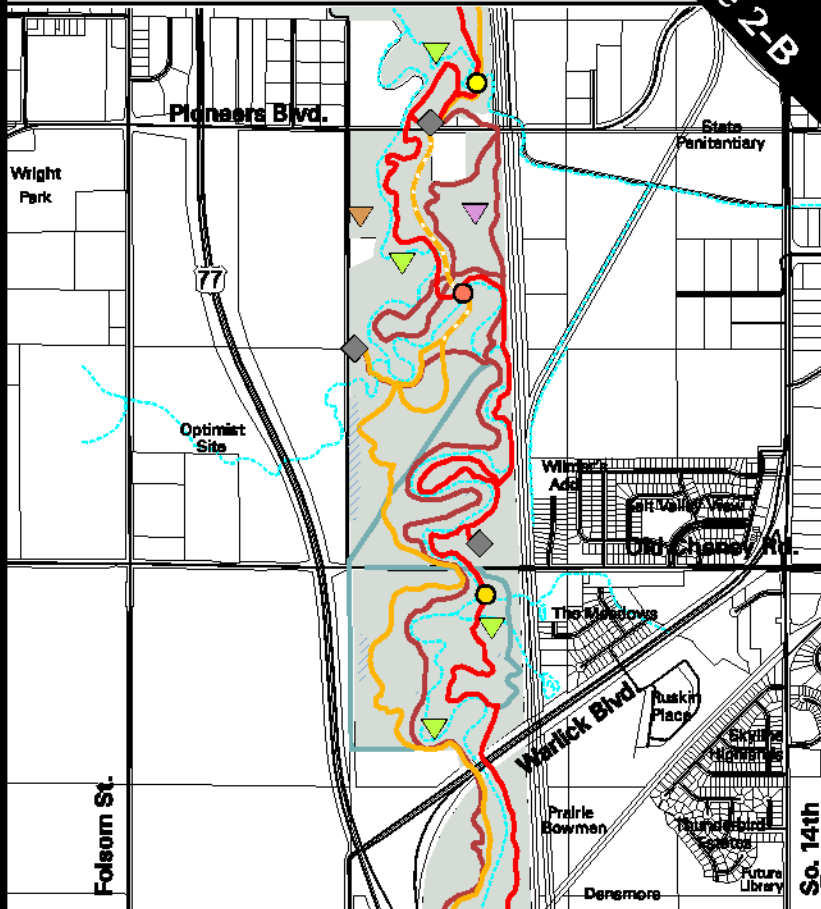
Proposed Park Facilities and Park Resource Protection Areas

1 inch
equals
1500
ft.



Figure 2-B

Wilderness Park Study



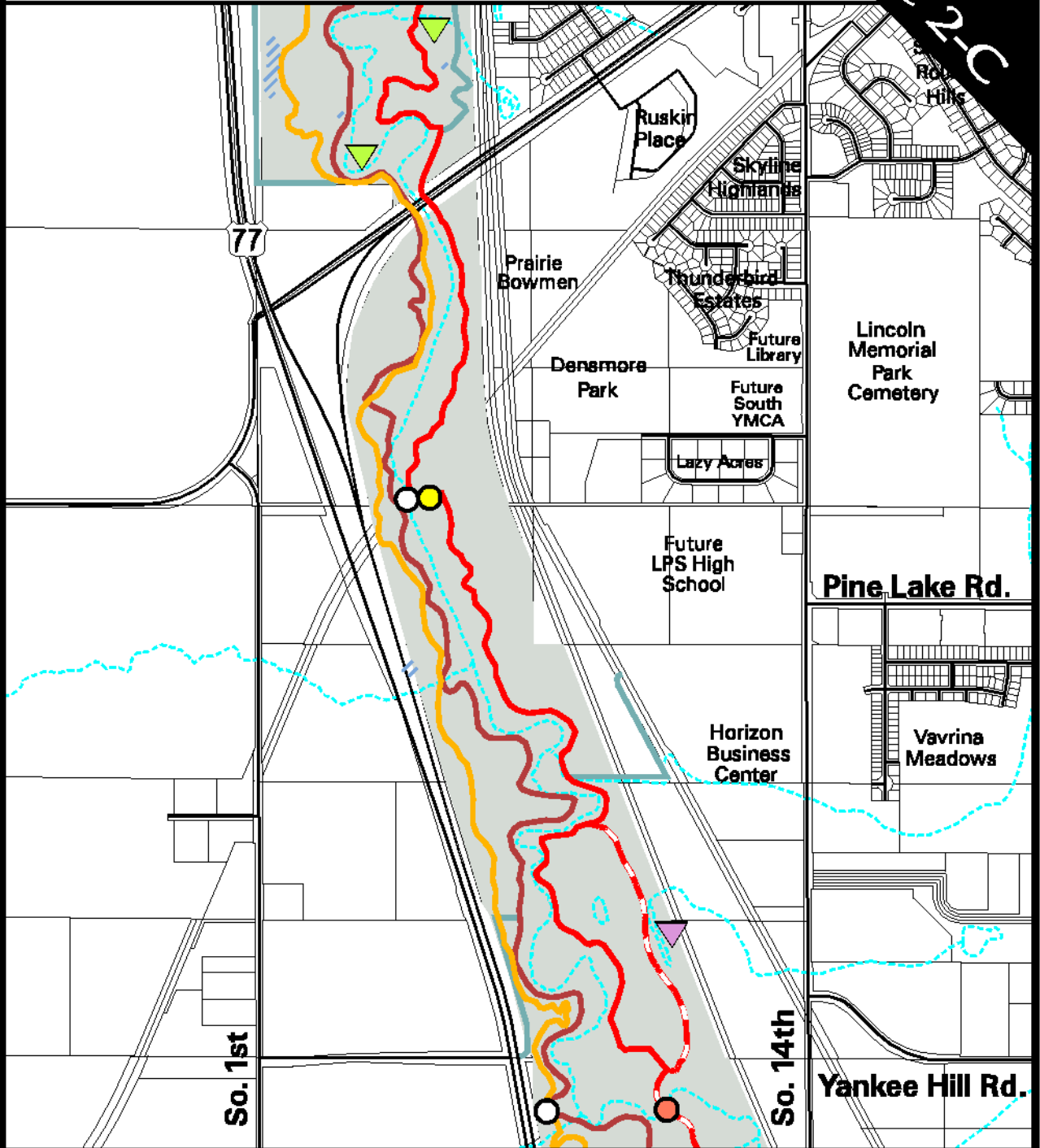
Bridges	Trails	Other Map Elements	Legend
○ Existing Bridge	Walking Trail	Prop. Interpretive Cntr.	Prop. Restrooms
● Replace Existing Bridge	Bike Trail	Sandstone Prairie	Parking Lots
● Replace Washed Out Bridge	Horse Trail	Old Fields	Streams
● New Bridge	Service Road	Bur Oak	Streets
	<i>(Proposed trails shown as dashed lines.)</i>	Rare Birds (EA)	Lot Lines
		Rare Plants (EA)	
		Historic Site	

Figure 2-B

Proposed Park Facilities and Park Resource Protection Areas

1 inch equals 1500 ft.
Figure 2-C

Wilderness Park Study



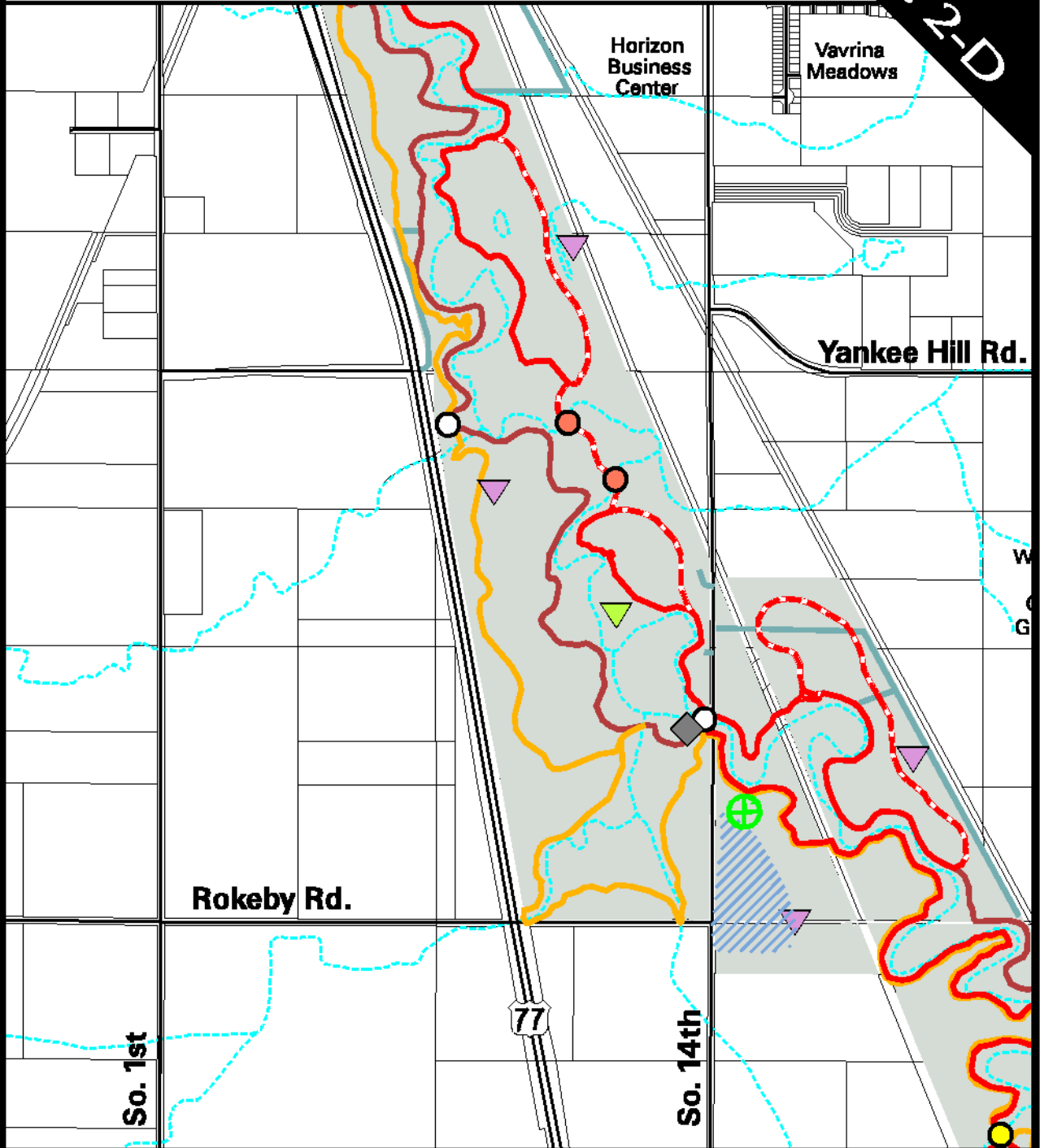
Bridges	Trails	Other Map Elements
○ Existing Bridge	Walking Trail	Vegetation Management
● Replace Existing Bridge	Bike Trail	△ Sandstone Prairie
● Replace Washed Out Bridge	Horse Trail	▽ Old Fields
● New Bridge	Service Road	▽ Bur Oak
	<i>(Proposed trails shown as dashed lines.)</i>	▣ Rare Birds (EA)
		⊕ Rare Plants (EA)
		● Historic Site
		★ Prop. Interpretive Cntr.
		⊞ Proposed Restrooms
		◇ Parking Lots
		--- Streams
		— Streets
		— Lot Lines

Legend

Wilderness Park Study

Proposed Park Facilities and Park Resource Protection Areas

1 inch equals 1500 ft.
Figure 2-D



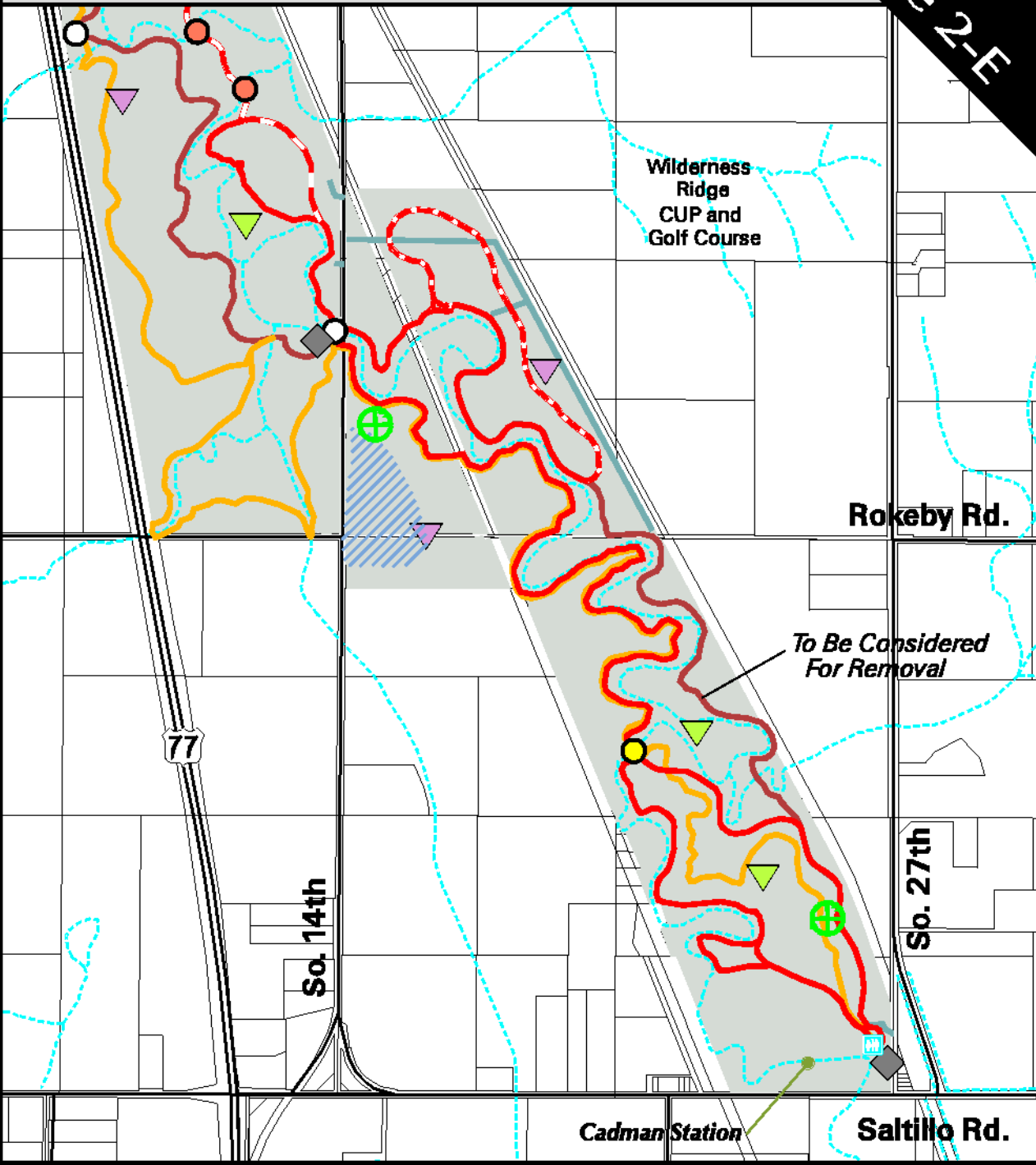
Bridges	Trails	Other Map Elements
○ Existing Bridge	Walking Trail	Vegetation Management
● Replace Existing Bridge	Bike Trail	△ Sandstone Prairie
● Replace Washed Out Bridge	Horse Trail	▽ Old Fields
● New Bridge	Service Road	▽ Bur Oak
	<i>(Proposed trails shown as dashed lines.)</i>	▨ Rare Birds (EA)
		⊕ Rare Plants (EA)
		● Historic Site
		★ Prop. Interpretive Cntr.
		⊞ Proposed Restrooms
		◇ Parking Lots
		--- Streams
		— Streets
		— Lot Lines

Legend

Wilderness Park Study

Proposed Park Facilities and Park Resource Management Areas

1 inch equals 1500 ft.
Figure 2-E



Bridges	Trails	Other Map Elements
○ Existing Bridge	Walking Trail	★ Prop. Interpretive Cntr.
● Replace Existing Bridge	Bike Trail	☒ Proposed Restrooms
● Replace Washed Out Bridge	Horse Trail	◆ Parking Lots
● New Bridge	Service Road	--- Streams
	<i>(Proposed trails shown as dashed lines.)</i>	— Streets
		— Lot Lines
		Vegetation Management
		△ Sandstone Prairie
		▽ Old Fields
		▽ Bur Oak
		▨ Rare Birds (EA)
		⊕ Rare Plants (EA)
		● Historic Site

Legend

Figure 2-E

2. INTRODUCTION

Wilderness Park is located adjacent to Salt Creek in Lancaster County on the southwest edge of Lincoln. The Park was established by the County in 1972 with operational and maintenance responsibility accepted by the City of Lincoln Department of Parks and Recreation.

The Park consists of approximately 1,475 acres of floodplain with woodland or riparian habitat and some areas of grassland including old agricultural fields. The Park extends for approximately seven miles from Van Dorn Street on the north to Saltillo Road on the south, east of Highway 77 and averages approximately 1320 feet in width. The Park is crossed by Pioneers Boulevard, Old Cheney Road, and Warlick Boulevard.

The working group representative from the Lancaster County Board presented the following uses of the Park during the public involvement meetings:

- C Providing low cost flood protection for Lincoln*
- C Providing public access to a natural area*
- C Providing education regarding the interaction of natural populations with urban development*
- C Providing a historical cultural and archeological record of the area*
- C Establishing a model for greenspace areas that could be replicated in other parts of the County*

Salt Creek is closely tied to the history of Lincoln and Lancaster County. Since trees could survive in the meandering ox-bows and floodplain habitat of the Creek, early settlers were attracted to the area. The first permanent homesteaders settled on the west branch of Salt Creek in 1856.

Early transportation corridors included a route between Nebraska City and Fort Kearney crossing Salt Creek in the Saltillo and Pioneers Street areas in the mid-1800's and served as a link to both the Oregon and Mormon trails. The Atchison and Nebraska Railroad laid tracks

just east of Salt Creek in 1872 followed by parallel tracks laid by the Union Pacific in 1877. Highway 77 used south 14th Street following the path of an old Pawnee Indian trail. The highway was later realigned to its current location forming a western barrier to the Park.

Several townsites were established in the area but some platted towns never materialized. Lancaster (now Lincoln) became the established community in the area. Because of the frequent flooding, the riparian woodlands remained essentially intact and became a recognized recreation area. An amusement park called Lincoln Park was established in 1888 and in 1897 the Methodist Church affiliated with Nebraska Epworth League began holding assemblies called "chautauquas" in part of what is now Wilderness Park. These summer schools, or family education programs, were devoted to lectures on religion and the arts and recreational activities. In 1903 Epworth purchased land south of Lincoln Park and built camp sites for 1,500 people, a Great Hall and a 4,000 seat auditorium. Famed speakers of the era such as William Jennings Bryan, Billy Sunday, Carrie Nation and Booker T. Washington spoke at events held at Epworth Park.

Flooding continued to reassert itself in the area and in 1942 a major flood wiped out the buildings. At the time, channelization of Salt Creek was seen to be the best preventative measure for flooding along with dams, flood control levees, and other structural devices. The portion of Salt Creek at the northern reaches of the Park through Lincoln was channelized. The stretches of Salt Creek through most of Wilderness Park and south were left to meander and retain vegetation to provide natural flood protection.

Comprehensive plans as early as 1961 recommended a park area along Salt Creek and in 1966 the City of Lincoln, Lancaster County and Salt Valley Watershed District joined to purchase what is now Wilderness Park with support from the federal Open Spaces Act. A Master Plan for Wilderness Park was completed for the Lincoln Parks and Recreation Department in 1972 by Clark and Enerson, Hamersky, Schlaeitz, Burroughs and Thomsen, Rand and Harter. This plan represents a framework for the basic natural system of the Park and

served as the basis for development, although the recommendations were not totally carried out.

Beginning in 1997 increasing concern about the condition and future of Wilderness Park was becoming evident. Newspaper articles, meetings of environmentalists, and public officials were giving increased attention to the Park. Decreasing funding for the Park and development proposals adjacent to and in the immediate vicinity of the Park raised the concern of citizens and local officials.

The City Council and County Board amended the Comprehensive Plan during the 1998 Annual Review to include the following strategy:

Develop a subarea plan for Wilderness Park which will address land use, stormwater, transportation, and park use issues in and around the Park. Involve abutting owners, developers, and the public in the study process to enhance communication and ensure discussion of all issues encourage mitigating measures to respect the sensitivity of the natural environment.

The Ecosystem Study, Hydrological Study, and Transportation Study were completed by consultants in 1999 with summaries in the appendix of this subarea plan. A comprehensive community consensus process conducted by Lincoln-Lancaster Mediation Center over a 12 month period represented substantial community participation in generating principles, goals, and options for the Park.

This study integrates the recommendations and research of the technical studies with the consensus process and recommends park management strategies as well as generalized compatibility land uses around the Park. It is envisioned that these recommendations will be incorporated into the LLC Comprehensive Plan.

3. RECOMMENDATIONS

3a. PARK MANAGEMENT RECOMMENDATIONS

The key principles embodied in the Park plan are developed as a result of the community consensus process and from the Ecosystem, Hydrology, Transportation and related studies. They are as follows:

- C Maintain the Park as a “natural” environment where ecological processes can be maintained to the extent possible while protecting flora and fauna.
- C Provide opportunities for “nature-related” recreation such as nature study and enjoyment, trails for hiking, biking and equestrian use.
- C Maintain the roughness value of the stormwater conveyance area along Salt Creek by protecting the trees (high roughness value), channel irregularity, channel alignment, surface roughness and obstructions.
- C Continued scientific monitoring of the Park and its resources should be established with recommendations to Park Managers.

The extant resources of the Park should be maintained with little additional development of facilities. Park enhancements recommended are:

Trails

Improve the surface of the hiking trails by applying woodchips or other media. Brush adjacent to the trails should be chipped to provide a natural surface to relieve muddy conditions, to allow the chips to biologically recycle into the natural system, to better define trail edges and areas appropriate for use, and to provide sight lines for safety adjacent to trails. Trails need to be regularly re-chipped to provide drainage.

The optimum condition to minimize user conflicts and provide increased safety would be to move the equestrian trail to the proposed acquired park area south of Saltillo Road. This area would receive less use due to distance from the urban concentration and provide a more appropriate area for horse trails. Trailhead parking at Saltillo Road would be provided for horse trailers.

Trail re-alignment is needed in several places depending upon bridge placement. The bike trail link south of Pioneers Boulevard needs to be connected to the rest of the southern bike trail. The hiking trail dangerously adjoins the railroad south of Yankee Hill. As funding permits, two bridges across Salt creek should be built in this location to minimize rail/trail conflicts.

A trail should be constructed along Salt Creek to Roca in the area proposed for acquisition of additional Park land. It should be noted if the property is not acquired in fee title, easements should have a trail use provision. The proposed abandonment of the Union Pacific line from Jamaca (Saltillo Road) to the Roca area offers an opportunity for a trail corridor.

Connective links to the Wilderness Park trails in addition to the Bison Trail connection should be part of the site plan approval for existing new developments in the area. Rail corridor crossings represent a major hazard and future consideration of crossing them with new bridge construction or bridging the former Rock Island corridor should be considered.

Resource Protection

Through a variety of forums and research reports, including the Public Involvement Report, the Ecosystem Report, the Hydrology Study, the Wilderness Park Attitude Survey, among others, the protection of the unique natural values of the Park has emerged as the highest value of Wilderness Park. It is recommended the Park be maintained as a natural area with the protection of natural attributes, with an opportunity for nature-related recreation such as trail use and nature study and appreciation. Specific management practices include:

- C The bur-oak hackberry and bur-oak hackberry-bitternut hickory woodland should be preserved. Monitoring is necessary to confirm that regeneration of seedlings is occurring. If not, restoration processes such as prescribed burns, mechanical pruning and removal of debris and understory trees will be necessary. Judicious use of management practices is necessary to maintain the roughness values important for stormwater discharge reduction.
- C If prescribed burning is conducted, technical assistance from experts in fire ecology should be utilized in developing the burn plan and in its implementation. Burning should be done at a season to avoid nesting birds and under appropriate weather conditions, in consideration of fuel moisture conditions, and with appropriate consideration for smoke impacts on Highway 77 and the urbanized area.
- C Although there are uncertainties within the scientific community, the bur oak complexes appear to have some savanna characteristics. Savannas are generally defined as having 10-40% tree canopy. Grasslands are less than 10% tree canopy, woodland with 40-80% and forest with essentially a closed canopy. The selective prescribed burn policies well protect these savanna-like complexes.
- C Unique prairie remnants, reestablished grasslands and old fields also warrant specific protection and restoration. The sandstone prairie area south of Pioneers Boulevard offers an important opportunity for protection and restoration. The invasion of numerous woody plants and exotics could be controlled through prescribed burns as a preferred technique. If not feasible, mechanical removal or chemicals could be utilized. The smooth sumac, Siberian elms, eastern red cedar, bur oak saplings and osage orange need removal to preserve this prairie. Mowing the prairie in the absence of fire will control growth of unwanted species.
- C The presence of noxious weeds needs to be regularly monitored with immediate removal when discovered. The Lancaster County Noxious Weed Control Authority indicates there are currently

three problem areas: on the west side of Salt Creek just south of West Calvert Street, south of Pioneers on the eastern Park boundary, south of Yankee Hill Road and west of Salt Creek. Spring and fall control of all noxious weeds should be implemented in the maintenance program.

- C Additional research into faunal populations and inter-relationships in the Park needs to be done but investigation and recommendations for the woodland bird species have been completed. To provide habitat for Cooper's Hawks, Barred Owls, and woodland/forest birds, tree regeneration in mature stands should be promoted through burning or mechanical controls. Brush and tree removal should be done in a patchy manner over a period of years to maintain habitat for nesting and foraging. The restoration of prairies and grasslands as well as limnic areas (marshes, rivers, lakes, wetlands, etc.) will maintain and improve bird diversity. Management practices should take place outside of the nesting season. No increase of human disturbance such as additional roads, trails, utility corridors, etc., should be permitted, especially in the southern two thirds of the Park.
- C Recent studies of the Park have indicated hydrology and other water related effects on the Park. The Hydrology Study recommended the roughness value be protected to provide discharge reduction. Specifically, the study recommended no large-scale removal of woody growth in the conveyance area. Further roughness values to be protected include surface roughness, channel irregularity, channel alignment, silting and scouring and obstructions.
- C Salt Creek is the primary reason for the existence of Wilderness Park and the characteristics of the ecosystem. To maintain a natural area, the Creek needs to function as a natural system. The stream meanders, ox-bows, wetlands and vernal pools are part of the system and should be maintained in a natural state with mitigative actions for human interference. To the extent possible, channilized portions should be restored to natural configurations to protect biological resources and hydrological characteristics of the Park. Salt Creek will reassert itself as a result of rainfall events and should be allowed to change in response to natural

phenomena. The limnic ecosystem is ever changing and to the extent the change is not human-induced, this change should be accommodated. Land-use regulations should be strictly enforced to prevent hydrologic changes as a result of urban development.

A quantitative, engineering based, analysis of transportation needs in the Wilderness Park area and the broader S1/S2 area has been completed. As noted in the OA Report, these recommendations are made based on future transportation network assumptions which include completion of the arterial roadway network within the S1/S2 subarea, completion of the south and east Beltways, and freeway status for Highway 77 between the south Beltway and Van Dorn Street. Changes to these future network assumptions may change the recommendations in this report. The qualitative aspects of the transportation improvements, including standard planning processes such as citizen participation, values determination, community visioning, etc. have not been completed. The timing of the transportation study was such that it did not receive full discussion in the public involvement process and consequently consensus statements were not developed. The Public Involvement Group indicated that the issue needs to be revisited and needs more information. Any additional Park crossings should only be considered if no other feasible alternatives are available and after a thorough community planning process.

Visitor Protection and Services

Visitor protection and accommodation requires a minimal amount of disturbance to the Park. As bridges are built or replaced, accommodation should be made for emergency vehicles. A bridge width, approximately eight feet, should be provided for utility vehicle for emergencies and maintenance. Hiker/biker trail surfacing with woodchips or other media would provide an appropriate surface during wet weather.

Restroom facilities are needed for visitor comfort and sanitation. Minimal impact and intrusion on the natural environment are important values of the Park so considerations for composting or portable units should be considered. The lack of sewer and water access contribute to the need for these types of facilities. Potential

sites include at Saltillo Road, Pioneers Boulevard, and the existing facility at the day camp area off of Van Dorn Street. Facilities should be located in a highly visible area with clear views and access for police park patrols. Call boxes can be installed at parking lots if deemed necessary by park and law enforcement officials.

Facilities developed in the Park such as restrooms, bridge ramps, etc. should be designed to be accessible to the disabled. Trail maintenance objectives should be to keep the trail as even and as level as possible, given limitations of indigenous materials such as woodchips.

Existing parking lots adequately serve visitors and have capacity as future visitation increases. If road closures are made at such locations as Old Cheney and south 14th Street, provisions should be made to continue Park access and parking at these locations.

Signs are needed at all trailheads and junctions. A signage system of standard, uniform design preferably of routed signs to distinguish between types of trails and to give orientation should be developed.

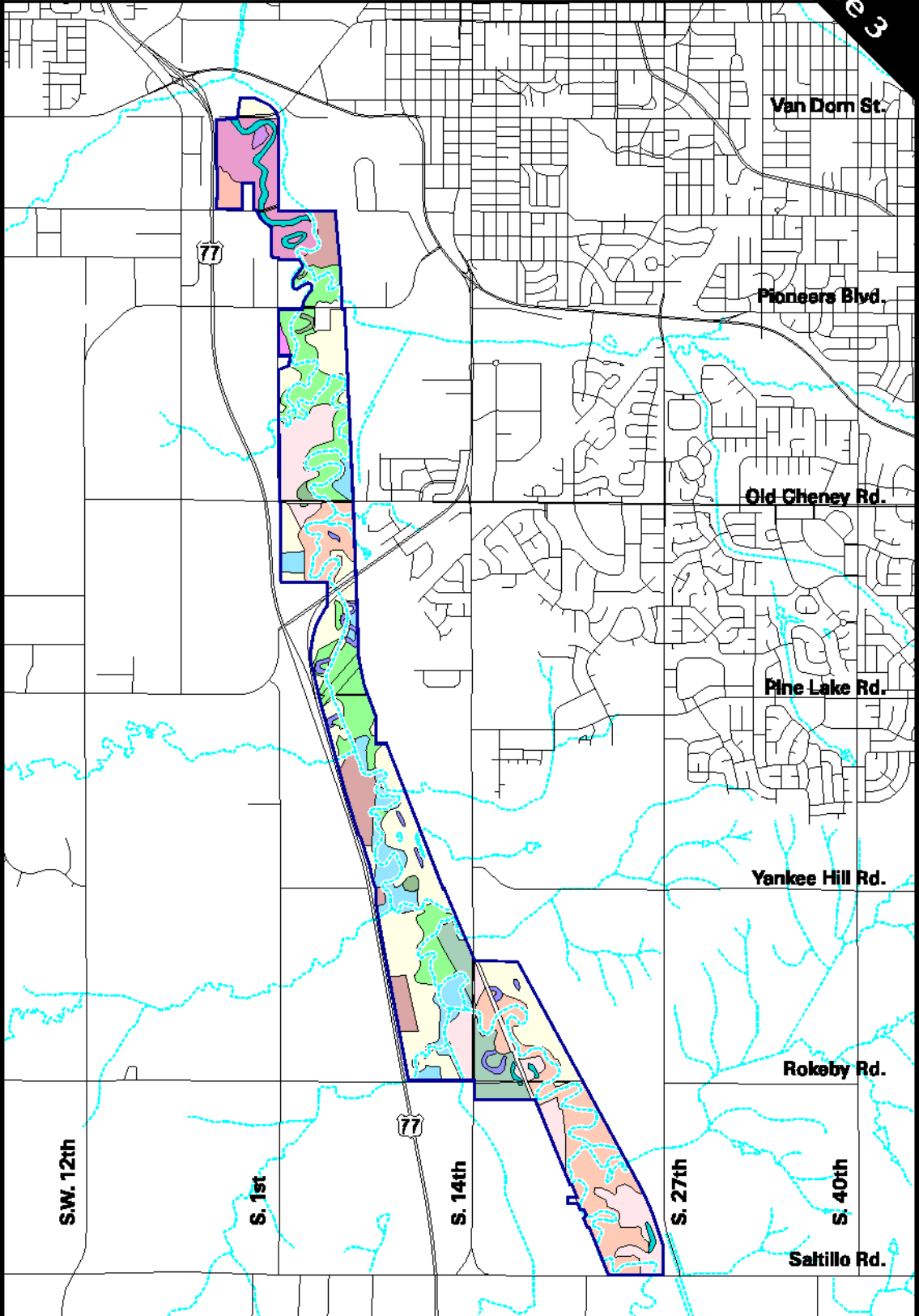
Interest has been expressed in a future nature center for Wilderness Park. Although not a high priority at this time, a center would serve as an informational station as well as an opportunity for educational programs on the natural and cultural history of the Park. It is proposed that if such a facility is considered, it could be developed in the northern area of the Park in the day camp area.

The historical significance of the Park should be interpreted through signage, brochures and interpretive walks and talks. Of particular note are the Epworth Park and Lincoln Park areas for which a historical marker is recommended. Additional signage could detail specific sites in these areas. Other sites worthy of signage and interpretation include the John Prey homestead, the Cadman Stage Station site, the relationship to the Steam Wagon Road and potential archeological sites. The appended history provides detail and a timeline of human activity in the Wilderness Park area. Additional historical and archeological study of the area should be encouraged.

Plant Community Types In Wilderness Park (Source: EA Ecosystem Report, January 1999)

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Figure 3

Wilderness Park Study



Map Items		Plant Communities			
	Park Boundary		Woodland (A-BO-HB-BNH)		Upland Sandstone Prairie (P)
	Streams		Reestablished Grassland (B)		Silver Maple/Cottonwood (S)
	Streets		Old Field-Brome-Shrub-Cedar (C)		Woodland-Highly Modified (Da-HB-BO)
			Old Field-Smooth Brome Grassland (Cb)		Elm, Scattered BQ, HB, HL (E)
			Tree-Shrub Plantings, Old Field (Cf)		Mowed Grass (M)
			Old Field-Woodland-Elm-Honey Locust (Ca)		Wetland-Emergent (Wc)
			BO-HB Woodland (D)		Wetland-Forest (Wf)

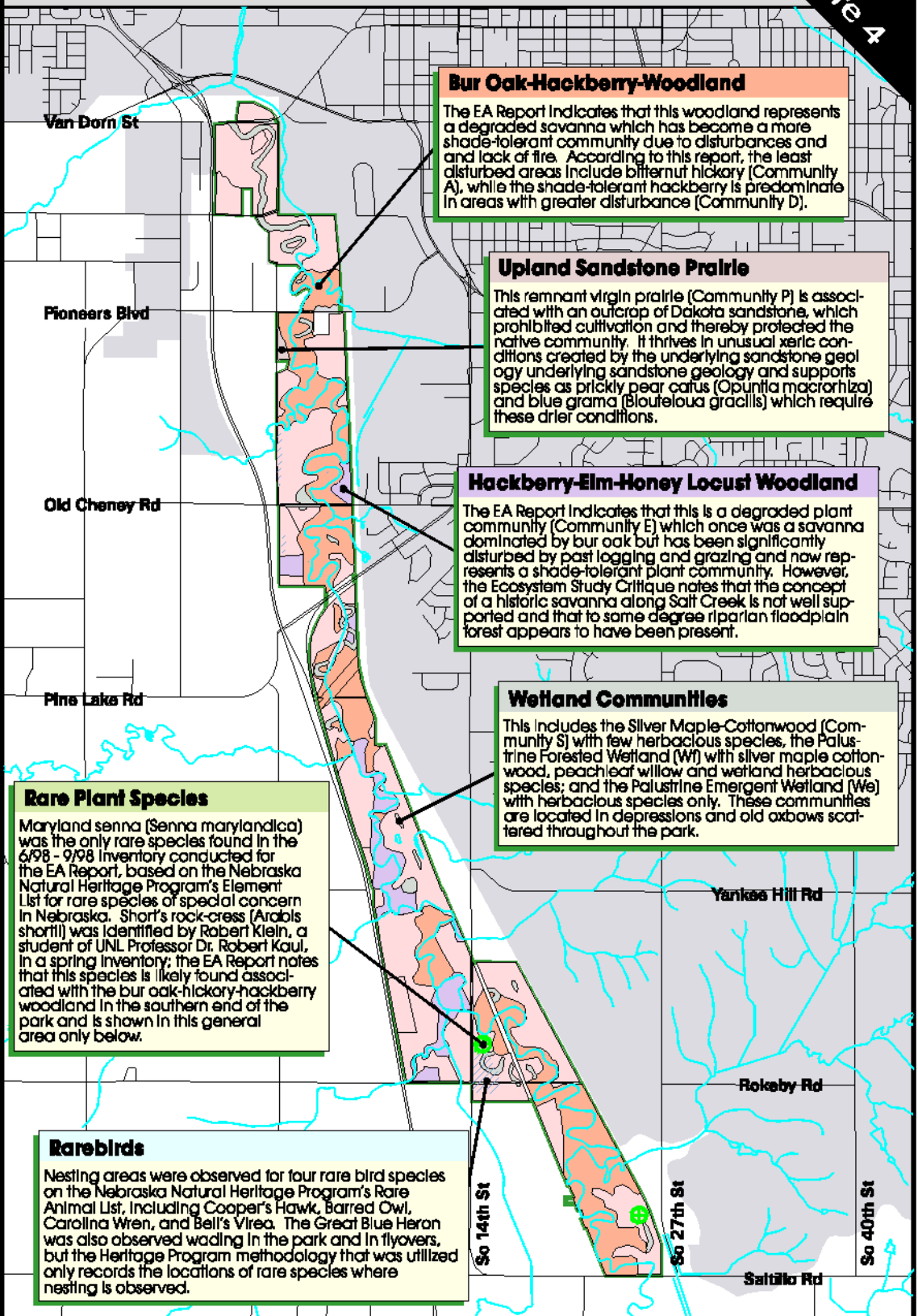
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Figure 3

Resource Protection

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Figure 4

Wilderness Park Study



Map Elements

	Park Boundary
	Streams
	Streets
	Future Service Limit

Source: Compiled from the EA Ecosystem Report and Ecosystem Critique

Legend

Figure 4

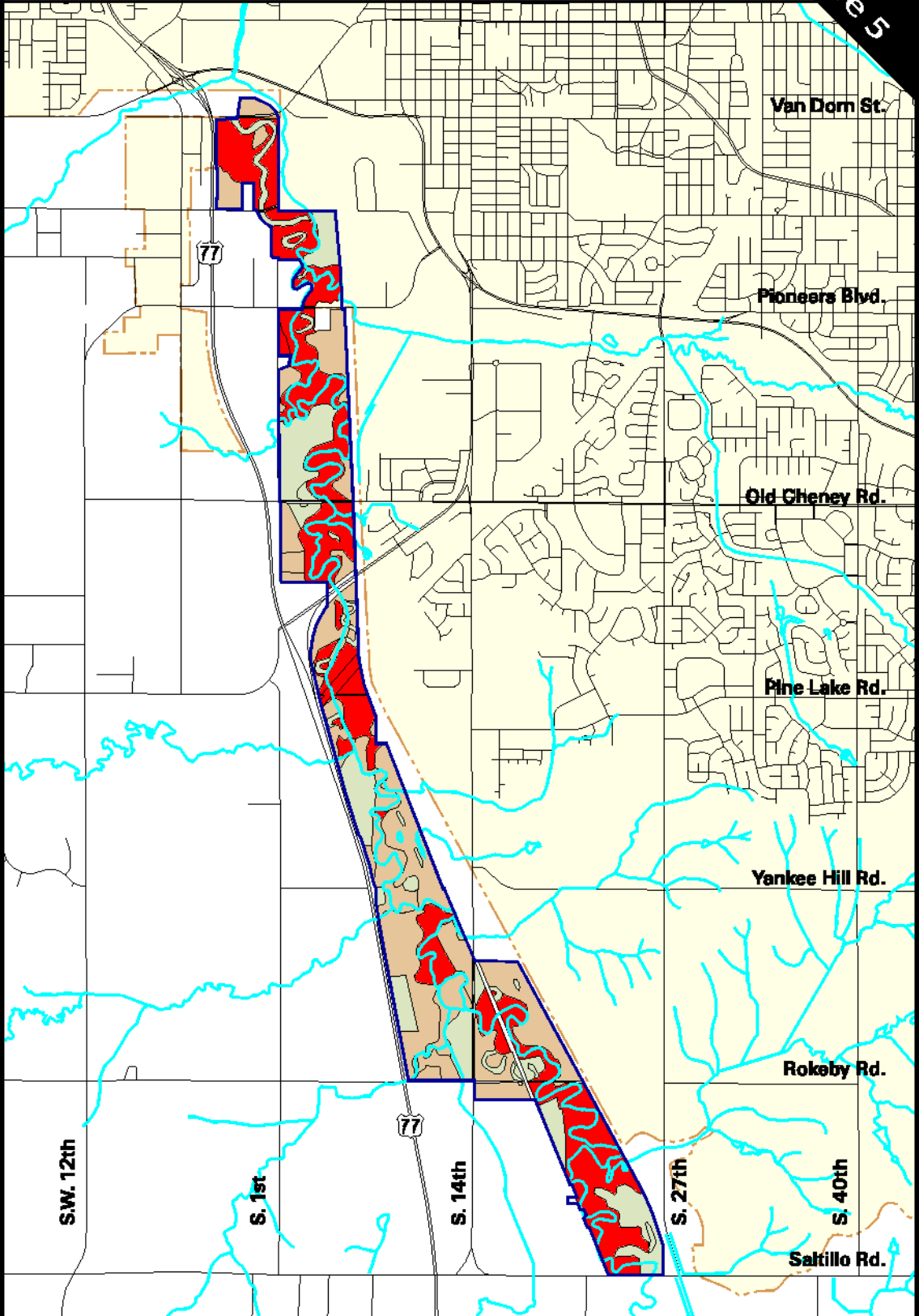
Habitat Management Priority Areas

(Source: EA Ecosystem Report, January 1999)

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Figure 5

Wilderness Park Study



Map Items	Habitat Management
Park Boundary	Priority 1 (High)
Streams	Priority 2 (Moderate)
Streets	Priority 3 (Low)
Future Svc. Lim.	

Legend

TABLE 5-1 PARK HABITAT MANAGEMENT RECOMMENDATION, WILDERNESS PARK ECOSYSTEM STUDY, 1998

HABITAT	MAP ID	NUMBER OF AREAS	MANAGEMENT PRACTICE	PURPOSE	PRIORITY
Bur Oak, Bitternut Hickory, Hickory	A	3	Burning, cutting	Open canopy, remove understory. Maintain refuge habitat and forage areas for birds	1
Re-established Grasslands	B	3	Burning, mowing	Control wood plant invasion, simulate native grasses. Improve bird species diversity	2
Old Field-Brome-Shrub-Cedar	C	14	Burning, mowing	Control wood plant invasion, stimulate native grasses. Improve bird species diversity	2
Old-Field-Smooth Brome	Cb	1	Burning, mowing	Control wood plant invasion, stimulate native grasses. Improve bird species diversity	2
Tree-Shrub Plantings	Cf	4	Burning, selective cutting and girdling	Open canopy, promote regeneration	3
Old-Field-Woodland-Elm	Cs	8	Burning, selective cutting and girdling	Open canopy, promote regeneration	3
Burr Oak-Hackberry Woodland	D	10	Burning, selective cutting and girdling	Open canopy, promote regeneration. Aid Cooper's Hawk and Barred Owl nesting	1
Hackberry-Burr-Oak-Woodland	Da	2	Burning, selective cutting and girdling	Open canopy, promote regeneration	1
Hackberry-HL-Elm-Scattered Bur Oak	E	7	Burning, selective cutting and girdling	Open canopy, promote regeneration	2
Mowed Grasses	M	1	Burning, mowing	Control woody plant invasion, stimulate native grasses. Improve bird species diversity	2

3b. PARK ENVIRONS RECOMMENDATIONS

The Park Environs are generally considered to be the tributary streams and lands surrounding the tributary streams to Salt Creek from Wilderness Park to the east, west and south. More specific environs include the S1/S2 Subarea to the east and the sub-basins extending to south west 72nd Street to the west, and to Roca Road on the south.

Protection of Park resources can be optimized by utilizing the land protection tools and conservation practices indicated. These goals should be part of the Comprehensive Plan and Subdivision Ordinances.

Land Protection Tools

LAND PROTECTION TOOL	PRO	CON
Donated Conservation Easements	<p>C Permanently protects land from development pressures.</p> <p>C Landowners may receive income, estate, and property tax benefits.</p> <p>C No or low cost to local government.</p> <p>C Land remains in private ownership and on the tax rolls.</p>	<p>C Tax incentives may not provide enough compensation for many landowners.</p> <p>C Little local government control over which areas are protected.</p>
Purchase of Development Rights	<p>C Permanently protects land from development pressures.</p> <p>C Landowner is paid to protect their land.</p> <p>C Landowner may receive estate and property tax benefits.</p> <p>C Local government can target locations effectively.</p> <p>C Land remains in private ownership and on the tax rolls.</p>	<p>C Can be costly for local unit of government.</p>

LAND PROTECTION TOOL	PRO	CON
Transfer of Development Rights	<ul style="list-style-type: none"> C Permanently protects land from development pressures. C Landowner is paid to protect their land. C Landowners may receive estate and property tax benefits. C Local government can target locations effectively. C Low cost to local unit of government. C Utilizes free market mechanisms. C Land remains in private ownership and on the tax rolls. 	<ul style="list-style-type: none"> C Can be complex to manage. C Receiving area must be willing to accept higher densities. C Most successful programs typically require a strong real estate market.
Land Acquisition	<ul style="list-style-type: none"> C Provides maximum flexibility for local unit of government to determine future use of land. C Financial incentive for landowner. C Local government can target locations effectively. 	<ul style="list-style-type: none"> C Can be costly for local unit of government. C Government takes on the costs and liability of land management.

Comprehensive Land Use Planning - Each of these land protection tools has pros and cons which must be weighed by the local unit of government. To most effectively utilize a combination of these tools, the government should develop a new comprehensive land use plan, or amend an existing plan, to ascertain its unique needs and apply the most appropriate tools for the situation. Comprehensive plan changes should always be undertaken with a maximum level of citizen participation from throughout the community. Land protection tools can complement effective zoning to carry out the goals of the comprehensive plan.

(Source: Green Corridor Project - 1000 Friends of Minnesota)

Conservation Practices

The Comprehensive Plan should have language added that specifically addresses potential development in the Wilderness Park environs including:

Floodplain

- C No net loss of flood storage
- C Alluvial soils as indicators in unmapped areas
- C Utilize stormwater retention/detention facilities in new development
- C Implement recommendations from the Stormwater Basin Planning Project, including the recommended ordinance and design standard changes relative to stormwater quality and quantity.

Conservation Easements

- C On lands adjacent to Park identified in Ecological Study
- C Salt Creek floodplain from Saltillo Road to Roca
- C FEMA - flood hazard mitigation program

Conservation Design Techniques

- C Cluster Development
- C Preservation of drainages with buffers of 100 feet
- C Greenways utilizing 100 foot buffers for native vegetation and potential trail corridors.
- C Wetland and water body protection by assessing sites to determine wetland status (hydric soils, etc.) or water characteristics (pond, vernal pools, etc.) and protection.
- C Vegetation protection by preserving existing tree masses along drainageways, protecting existing native vegetation and planting native species along drainages, open space, etc.

Best management practices such as terraces, farm ponds, preservation of natural drainages, buffers and filter strips along drainageways and 100 foot buffer along drainageways should be addressed for farm lands as well as in new developments.

Construction monitoring and supervision should include BMP's such as sensitivity to drainageways, silt fences for sediment control, protection and proper location of soil storage stockpiles, seeding and mulching of bare soil as quickly as possible, and protection of existing vegetation whenever possible.

An environmental overlay district should be considered for the area considered the Wilderness Park environs to ensure these conservation practices.

Land Acquisition and Buffers: Protection within the Context of Urban Growth

In order to protect the biological integrity of the Park, to provide stormwater relief, and to protect and enhance the human enjoyment of the natural area it is recommended that additional lands be acquired or protected in the Park environs. Two basic land acquisitions strategies are needed. First, the land immediately adjacent to the Park needs to be protected. Secondly, the Park should be extended from Saltillo Road to Roca along and adjacent to Salt Creek as currently indicated in the Comprehensive Plan. Additional study of the area along Salt Creek from Roca to Hickman should be made with indication in the Comprehensive Plan for future open space.

The Ecosystem Report of Wilderness Park provides a map and description of key parcels adjacent to the Park for land acquisition. These are described by Habitat/Property type, a general description, potential park use and the approximate size. The EA report recommends consideration of these properties to provide:

physical buffers to encroachment on park grounds, transitional areas for species diversity and softening of Park boundaries, and as a buffer area for management of surface water sheet flows, for protection of plant communities as well as improved water quality in the Park. Other considerations include areas that improve or allow for easier Park maintenance, control of excessive noise and light conditions, floodway control, and as a general buffer from adjacent properties.

Although no single land-use development in the Park environs may be injurious to the Park, the cumulative impact of many changes in the area may result in Park degradation. By buffering the Park boundary, the Park values can be protected and development impacts to the ecological functions of the area can be minimized.

It is recommended that specific attention be paid to the Wilderness Park environs in the Comprehensive Plan. Optimally, a prohibition of all development in the 100-year floodplain adjacent to Wilderness Park would be preferred to protect Park values and to retain flood storage capacity. Due to the high cost of land acquisition and the protection of property rights, a policy of protecting flood plain storage may be more practical. This could be accomplished by adopting proposed floodplain ordinance revisions requiring that proposed construction or development in the floodplain be certified by a qualified engineer to demonstrate that the development will cause no rise in the water surface elevation of the 100 year flood.

There is a difference in the land use planning potential on the east and west sides of the Park. The urban planning zones on the east (S1/ S2, S5, etc.) will develop most readily due to infrastructure and being contiguous to the city. The basic imprint due to development patterns and infrastructure is already set. The regulations will encourage new developments to be compatible with the Park.

On the west side (S4-S9) opportunities exist relatively unimpeded by prior development patterns. As this area urbanizes, the stream corridors should receive maximum corridor protection and conservation design techniques can be implemented from the beginning. This area could serve as a model for conservation design in the other watersheds of the county.

Conservation design techniques such as protection of natural drainageways with vegetative buffers and prohibition of development, "no net loss" of flood storage, cluster developments, transfer of development rights, and the preservation and restoration of native planting should be enforced in areas adjacent to the Park. An environmental overlay district or similar specific zoning restrictions should be considered for the Park environs. This

environmental overlay district should utilize the conservation techniques and require more detailed review of site plans with consideration for floodplain, stormwater runoff, wetlands, sensitive natural areas, visual impact and potential conflicts with Park values as established in the community consensus process.

In July of 1999 the City of Lincoln submitted an application for funding through the Nebraska State Hazard Mitigation Grant Program to purchase conservation easements to protect five properties totaling 242 acres near and adjacent to Wilderness Park. These properties were identified as priorities because of an interest on the part of property owners, the location of the properties in the 100-year floodplain, and their potential to benefit Wilderness Park. Whether or not this funding is received, the properties remain a priority for the acquisition of conservation easements or other methods of protection.

A minimum 100-foot buffer corridor should be considered for Salt Creek tributary streams in the Park environs. The June 1997 Corps of Engineers 404 permit regional condition requirements for minimum flood corridor width are as follows: minimum width equals the channel bottom width plus 60 feet plus six times the channel depth. The 100 foot buffer recommended in this report would satisfy this requirement plus allow provision for future trails, scenic corridors, wildlife habitat and other amenities. Protecting these corridors would provide stormwater relief, biological corridors, promote improved water quality, and provide potential access for people utilizing Wilderness Park. Future trail networks could utilize these corridors for recreational purposes. Open space amenities would accrue to adjacent developments.

A Park impact fee could be established to mitigate any adverse environmental, park value, or recreational impact to Wilderness Park. The fees could be maintained in a revolving account to benefit park maintenance and protection efforts. Adverse impacts might include reduction in biological corridors or transition zones, floodplain impacts, stream geomorphology changes as a result of increased stormwater, air, noise, odor impacts, etc. As a special environmental resource zone, negative environmental impacts would be dealt with more severely than in traditional land-use changes.

The second category of Park expansion would be to extend the Park to the south. As conceptualized in the Comprehensive Plan, the Park should be extended from Saltillo Road to the Roca area. The wide floodplain in the area makes a logical zone for protection. Fee-title acquisition would be preferred for perpetual protection whenever possible. Conservation easements along the riparian zone would preserve the land for open space and provide the biological, hydrological, ecological and recreational benefits. If easements are acquired, provision should be made for public access through a trail along the creek area. This expansion would protect the riparian resources and ecological interactions as well as unique resources such as a heron rookery.

The potential for an abandoned railroad conversion to trail use exists between Saltillo Road to south of the Roca vicinity. The Union Pacific Railroad Company has issued a "Notice of Intent to Abandon or to Discontinue Service" on a line from Jamaica (near Saltillo Road) to Marietta, Kansas. This has great potential for a trail corridor for Eastern Nebraska but specific to a Wilderness Park expansion, the corridor could provide public access without the need for fee-title acquisition of adjacent lands. Conservation easements should still be considered but the need for public access is limited if the corridor can be acquired.

The area south of Saltillo Road to the Roca vicinity has historic interest as well as the unique natural attributes associated with Salt Creek. Numerous riparian habitats including a heron rookery are worthy of protection in this area. Protection from development enhances flood storage. A potential Olathe-Roca Historic District includes nineteen sites of historic, archeological, or architectural significance. Particularly noteworthy are the following sites:

- C Schrader site, a 15 acre Native American site dating from A.D. 1000-1500
- C Nebraska City-Fort Kearney cut-off trail passing through what is now the town of Roca
- C Pioneer graves believed to have been from the Nebraska City-Fort Kearney cut-off trail

- C Keys Mansion
- C Olatha townsite
- C Prey Farmstead, settled in 1857 and believed to be the first European-American settlement in Lancaster County

Community Participation

Numerous opportunities exist and are essential for public support of the Park. By involving the community in a meaningful way, greater public support and appreciation of a park evolves. Group and individual participation needs to be orchestrated such as environmental groups (The Audubon Society, Friends of Wilderness Park, The Nature Conservancy, etc.), youth groups such as Scouts, 4-H, Campfire Girls, science and environmental clubs, community service clubs, and unaffiliated individuals. Specific examples of Park enhancement activities include:

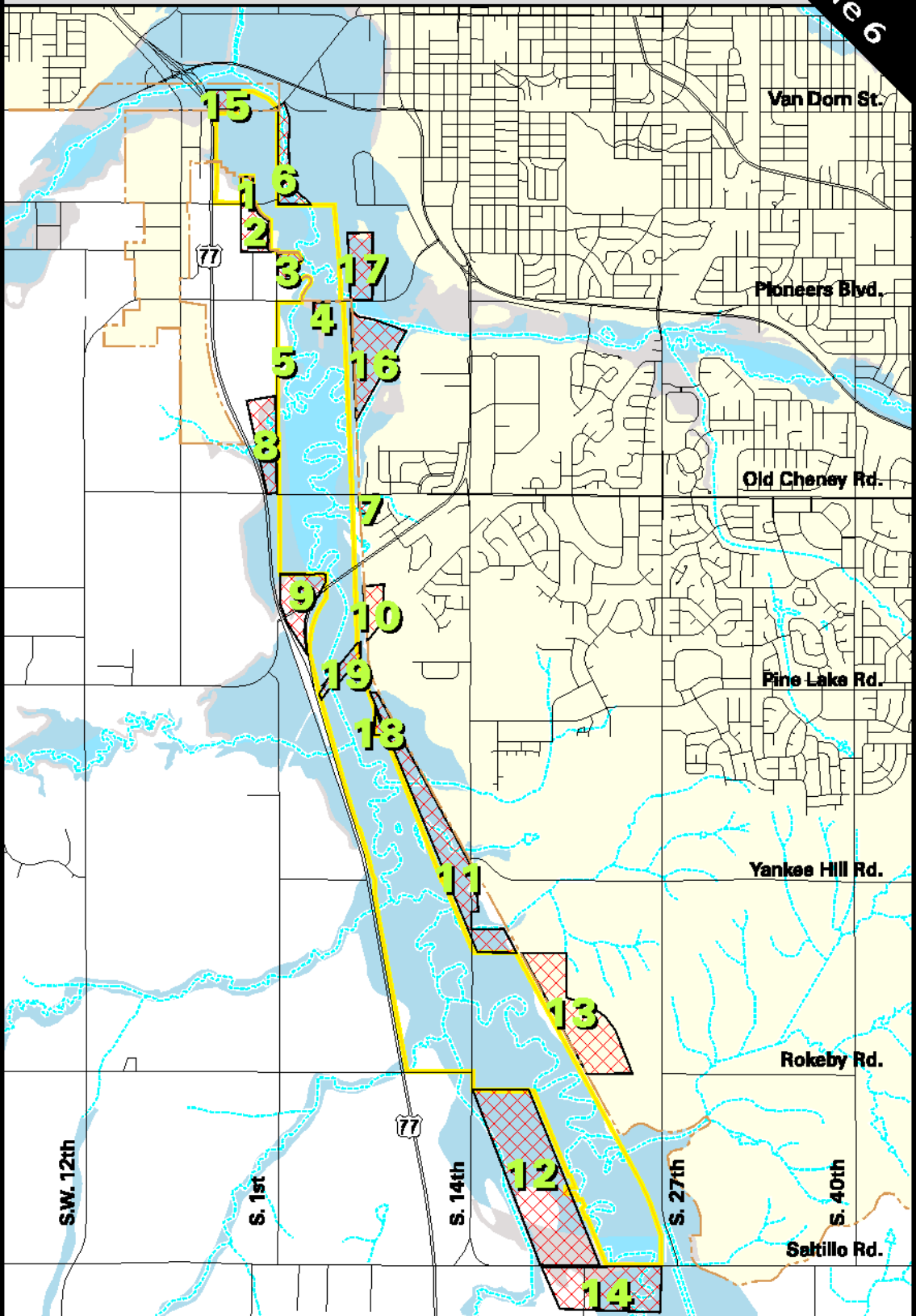
- C Maintenance activities such as Park litter removal, girdling trees in prairie or areas that need thinning, cutting noxious weeds, raking woodchips on trails, painting bridges and/or signs, assisting with prescribed burns (for trained volunteers only), identifying and reporting maintenance problems, etc.
- C Technical assistance by scientists and environmental specialists on a science committee or for specialized study, scientific studies by scientists, university classes, or as thesis or dissertation projects. Scientists could help identify specific topics needing research.
- C Financial support through contributions, by the development of a foundation to support Wilderness Park, development of a land trust for the Wilderness Park environs or county-wide open space, by developing, contributing or promoting land easements and donations.
- C Public policy support through participation, acknowledgment of participation and strategies, testifying, and representation at public hearings, Park and Recreation Advisory Board, Planning Commission, City Council and County Board meetings.








Potential Areas of Acquisition or Management (Source: EA Ecosystem Report, January 1999)

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Figure 6

Wilderness Park Study



Map Items		Flood Plain Areas	
	Park Boundary		Floodway
	Streams		100 Year Flood Plain
	Streets		500 Year Flood Plain
	Future Svc. Lim.		

Map Purpose and Overview
 This map displays areas adjacent to Wilderness Park that were identified by EA for potential acquisition or other land management considerations. These areas could serve as physical buffers to encroachment on Park grounds, transitional areas for species diversity and softening of Park boundaries, and as a buffer area for surface water sheet flows. Management techniques can include purchase of conservation easements or use of other management agreements with adjacent properties.

Legend

TABLE 6-1 LAND ACQUISITION/PLANNING CONSIDERATIONS

LOCATION	HABITAT/ PROPERTY TYPE	DESCRIPTION	POTENTIAL PARK USE	APPROXIMATE SIZE (acres)
1	Developed land, commercial, residential	Riding stable area north of Calvert	Extend corridor north. Tie in with adjacent Park land. Preserve the floodplain.	5
2	Agricultural, row crop, pasture	Portions of E ½, SW ¼ of Sec. 3	Adds buffer, planting areas, and edge transition zone.	20
3	Agricultural, commercial, grassland	Portions of W ½, SW, SW ¼ Sec. 2	Widens Park, adds buffer and planting area. Preserve the floodplain.	8
4	Residential, open space	Residential property south of Pioneers Portions of NW, NW, NW ¼ of Sec. 11	Buffer area, open land provides planting/management area. Preserve the floodplain.	6
5	Residential, grassland	Residential. East of 1 st north of abandoned maintenance yard. SW, NW, NW ¼ of Sec. 11	Completes west edge of Park. Adds buffer to upland sandstone prairie.	2
6	Salt Creek Floodway	Floodway along Salt Creek-east of Park, south of Van Dorn. W ½NW & SW, NW ¼ of Sec. 2	Buffer, grassland, and possible aquatic zones. Already acquired by the City. Preserve the floodplain.	22

TABLE 6-1 (continued)

LOCATION	HABITAT/ PROPERTY TYPE	DESCRIPTION	POTENTIAL PARK USE	APPROXIMATE SIZE
7	Oak-Wetland area	Wetland - Oak tree area south of Pioneers NW, NW ¼ Sec. 6.	Add wetland to managed area. Protects oak tree grouping. Could expand further south.	6
8	Open ground, commercial, clay removal	North of Old Cheney, west of 1 st Street. Optimist property E ½ NW & SE ¼, SE ¼ of Sec. 10.	Adds buffer zone, planting area and extends Park edge for transition zone.	32
9	Transportation corridor	Highway corridor at US 77 and Lincoln exit. NW, SW ¼ of Sec. 14.	Adds noise buffer area, wildlife planting and wildlife corridor. Preserve the floodplain.	34
10	Red Oak Timber area	Lincoln Prairie Bowman Area E ¼, 4NW, SW ¼ of Sec. 14.	Adds timber area, expands Park edge east, protects area and acts as buffer.	15
11	Agricultural land, row crops	Land between UPRR and BNSF E ½ of Sec. 23 and W ½ of Sec. 25.	Widens corridor, provides edge transition zone, planting and management area. Preserve the floodplain.	91
12	Agricultural land, row crops, wetland	Land north and west of Wilderness Kennels east of 1 st . Sec. 36.	Widens corridor, provides edge transition zone, planting and management area, and wetlands. Preserve the floodplain.	175
13	Agricultural land, pasture, row crops	North of Rokeby road, east of Railroad right-of-way.	Adds wetland area, grasslands and buffer area.	87

TABLE 6-1 (continued)

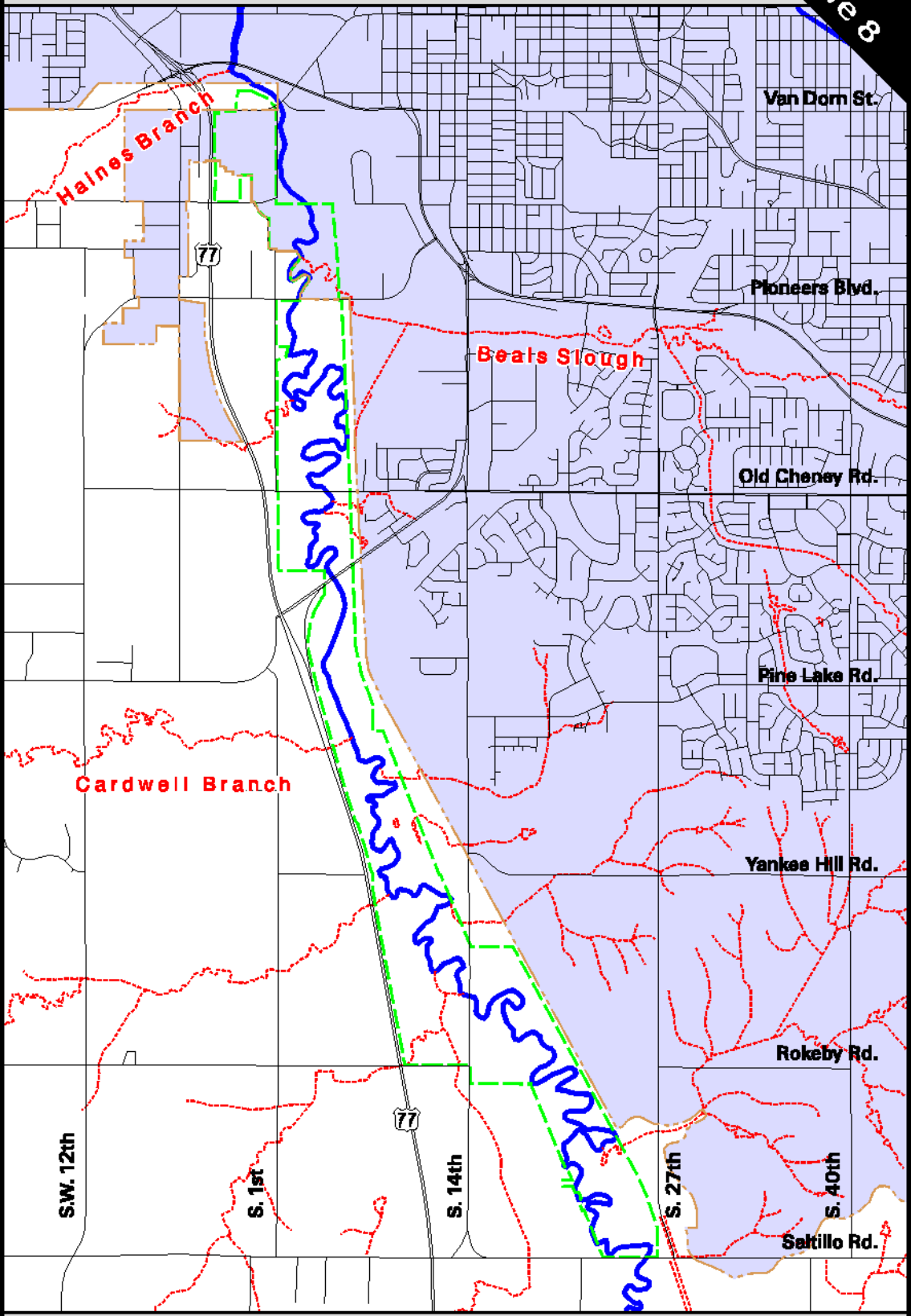
LOCATION	HABITAT/ PROPERTY TYPE	DESCRIPTION	POTENTIAL PARK USE	APPROXIMATE SIZE
14	Floodway	South of Saltillo Road	Extends Park to south. Adds grasslands, floodway and wildlife corridor areas. Preserve the floodplain.	84
15	Floodway, timber area	North of Van Dorn	Adds timber land and grassland buffer to Park. Preserve the floodplain.	10
16	Agricultural land, grassland	E½ NW ¼ & W ½ NE¼ of Sec. 11.	Widens Park. Adds edge transition area and grassland buffer. Preserve the floodplain.	51
17	Agricultural land, grassland	East of Railroad right-of- way. E½ SW ¼ & W ½ SE ¼ of Sec. 2.	Widens Park, adds edge transition area and grassland buffer. Preserve the floodplain.	28
18	Timber area	West of railroad right-of- way.	Complete east edge of Park adjacent to railroad right-of-way. Tie in with adjacent Park.	3
19	Abandoned railroad right- of-way, timber area	Privately owned (formerly Rock Island RR Bridge ROW) SW ¼ of Sec. 14.	Creates a contiguous element of the Park south of Warlick Road. Tie in with adjacent Park.	12
20	Agricultural land, grassland	Approximately follows the 100-year Floodplain.	Planning Consideration zone for buffer, grasslands, and aquatic zones. Preserve the floodplain.	approximately 1,600 acres

Salt Creek and Adjacent Tributaries: Wilderness Park and Park Environs

1 Inch
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2750
ft.

Figure 8

Wilderness Park Study



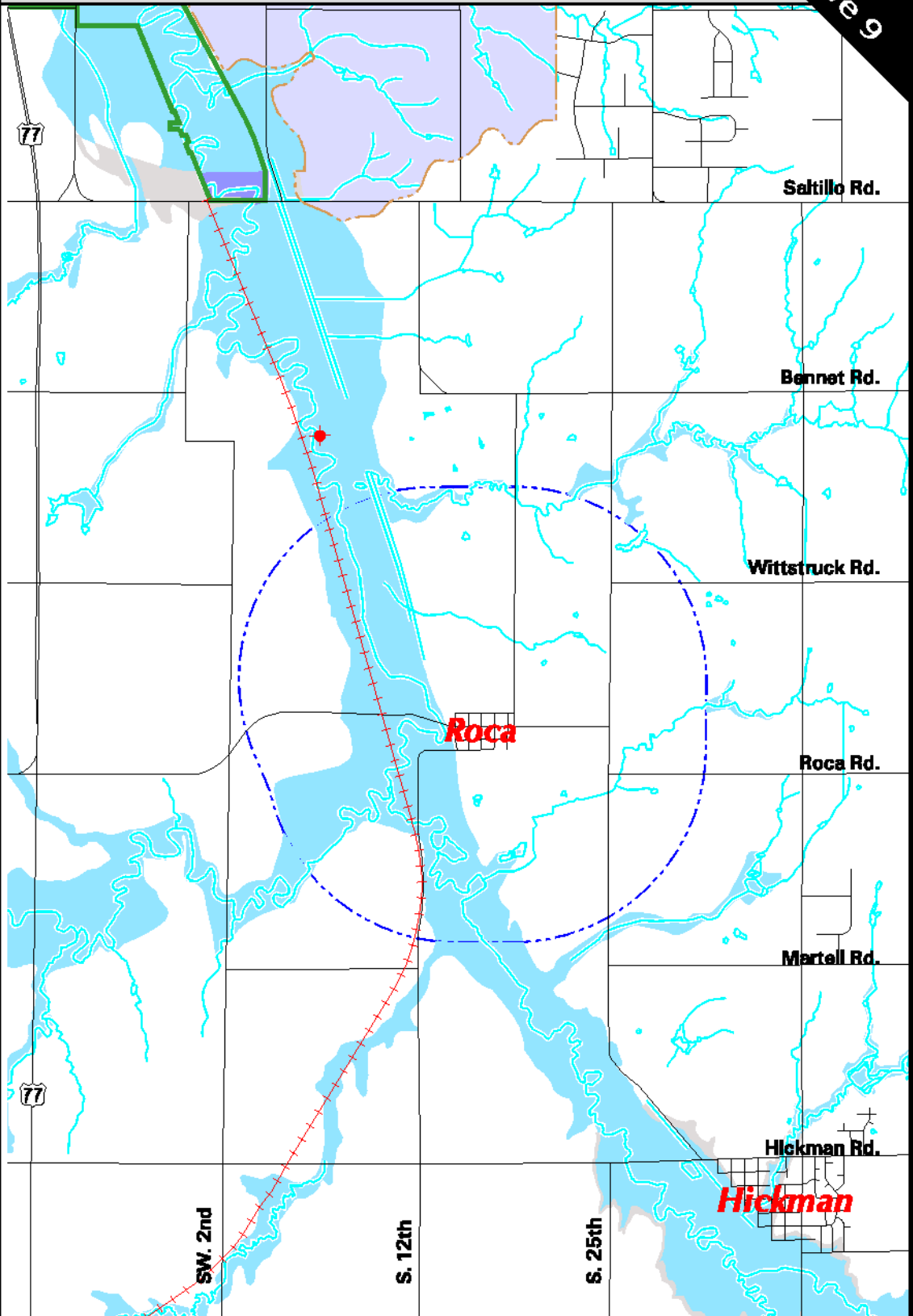
- Map Items**
- Park Boundary
 - Salt Creek
 - Tributaries
 - Streets
 - Future Svc. Lim.

Legend

Potential Extension of Wilderness Park: Areas to the South Along Salt Creek

1 Inch
equals
2750
ft. 
Figure 9

Wilderness Park Study



Map Items	Flood Plain Areas	Map Notes
Park Boundary	Floodway	Great Blue Heron Rookery
Streams	100 Year Flood Plain	Potential Abandonment (UP)
Streets	500 Year Flood Plain	<i>(Note: The Roca flood plain area illustrated on the above map is an approximation based on best available information. The Roca one-mile jurisdiction is also illustrated.)</i>
Future Svc. Lim.		

Legend

4. IMPLEMENTATION

4b. LAND PROTECTION

Park Operation and Maintenance

C Vegetation Management

Control of exotic weeds
Prescribed burns on sandstone prairie and "old fields"

Insure regeneration of bur oak stands trough girdling and prescribed burning

Trim trees bordering trails for safety and visual access

C Rebuild all bridges to width (8') to accommodate small maintenance and emergency vehicles and to withstand flooding.

C Hiking trail surfacing with woodchips or other media, giving priority to low-lying areas, higher-use northern end of park, and in approach to bridges.

C All signage needs replacement with routed wood signs with standardized international symbols. Signs need to be placed at each trailhead and at all trail junctions; bicycle, equestrian and hiking trail sign should be color coded.

C Composting-type restrooms should be considered for the north and south ends of the Park with additional facilities added if Park use increases.

C Budget for a program of on-going studies of Park ecosystem, particularly additional faunal studies, Salt Creek limnology, historical and archeological research.

Land Protection Strategies

C Buffer the Park through the prohibition of development in the 100-year floodplain adjacent to the Park; preserve a 100 foot corridor

on all tributary waterways flowing into Salt Creek in the watershed surrounding Wilderness Park; utilize compensation programs for landowners including fee-simple purchase, conservation easements, tax credits and penalties, and tradable/transfer or purchase of development rights.

- C Conservation easements, by limiting development to protect the natural features of the land, offer an opportunity on lands adjacent to the Park and in proposed extension area from Saltillo to Roca; fee-simple acquisition is preferred when funds are available and there is land owner acceptance but easements offer an opportunity to afford protection to the land while it remains in private ownership; in some areas, particularly the proposed acquisition south of the existing Park, public access may be needed as a provision in the easement.
- C Public and non-governmental-organizations (such as trails and environmental groups) efforts should be mobilized immediately to negotiate the acquisition of the proposed abandoned Union Pacific Railroad line from Jamaica to Roca.
- C During the regulatory process, property owners of adjacent lands and lands in the immediate vicinity of the Park should be encouraged to consider potential waivers to zoning, subdivision, or design standards requirements including, but not limited to, height and density requirements, design standards for roads, etc. in exchange for conservation design techniques and best management practices such as cluster development, "no net loss" of flood storage, preservation of drainageways with vegetative buffers, and provision of open space.
- C A Land Trust should be established for Wilderness Park to accommodate gifts of land or easements, mitigation fees, donations and contributions of money, with the assets used resource fund for the preservation and management of the Park.
- C An Environmental Overlay District could be established on lands surrounding the Park that would require conservation design techniques with a requirement for a more detailed site plan indicating the compatibility of the proposal with Wilderness Park

including mitigation for floodplain impacts, stormwater runoff, wetlands, noise, visual impact, water quality, etc.

- C The Lancaster County Ecological Advisory Committee could be utilized as a formal part of the review process for proposals in environmental sensitive areas including Wilderness Park.

Community Participation

- C Involve the community through meetings and an annual forum on Wilderness Park including the Friends of Wilderness Park, environmental and conservation organizations, participants in the community consensus process, city/county/ staff, and elected officials.
- C Utilize volunteers through coordination with the Department of Parks and Recreation for basic maintenance activities such as vegetation management (girdling trees, brush removal, prescribed burns, etc.) and litter control, and for technical and scientific advice.
- C Establish a Wilderness Park Science Advisory Committee consisting of credentialed ecologists, wildlife biologists, fire ecologists, limnologists, botanists, geologists, historians, etc., to provide technical advice to park managers on a regular basis; utilize this group to establish and evaluation and monitoring program of the natural features of the Park.
- C Establish a land trust to accept gifts of land, easements and money to protect and restore Wilderness Park; utilize community foundations to solicit contributions for the Park.

4b. FUNDING STRATEGIES

Operating Budget Estimates

Personnel:

2 additional FTE park maintenance workers @ \$20,000 each per year \$40,000

seasonal park workers \$15,000

Equipment:

pro rata per FTE @ \$4,000 per year \$ 8,000

Signage: \$1,000 per year \$ 1,000

Restroom rental: 2 @ \$600 per year \$ 1,200

Research: Contracts for Scientific Study \$15,000

Total: Annual Expenses \$80,200

Re-opening Wilderness Shop

Start-up equipment costs
(including truck, tractor/mowers,
riding mowers, line trimmers,
chain saws, trailer, supplies) \$100,000

Capital Improvement Estimates

Bridge replacement:

4 to 6 new bridges replacement based on
on trail alignment and design specifications
(\$80,000 to \$100,000)

\$600,000

Call Boxes:

Emergency phones @ \$3,500 each

\$ 7,000

Land Acquisition

The optimum land protection would be to acquire in fee-title the lands recommended for acquisition including parcels 1-19, "Potential Areas of Acquisition" from the EA Ecosystem Report. It should be noted 17 acres of area 11 have already been acquired and a conservation easement on approximately 2.60 acres in area 7 and zoning action completed to eliminate the potential of the other 3.40 acres from consideration. The acquisition of an approximately one-half mile wide corridor of Salt Creek in the floodplain from Saltillo Road to Hickman is recommended. This would involve approximately 1,760 acres.

It is stressed that a survey of property boundaries, land survey and appraisal is needed, but given a review of land assessments in the area, it appears that an average of \$2,000 per acre is a reasonable estimate for land values in the area. Lands adjacent to urban growth may, of course, see inflated prices. The majority of the parcels, with the exception of area 13, are located in the 100 year floodplain with limitations on development potential. Given these approximate land areas and values at \$2000 per acre the following land costs could be estimated:

Parcels adjacent to Wilderness Park: 668 acres \$1,336,000
Parcels from Saltillo Road to Hickman: 1,760 acres \$3,520,000

If purchase of these lands is not feasible, conservation easements could be purchased for a lesser negotiable rate. Conservation easements should be written to provide potential public access to the property. The purchase of the proposed abandoned Union Pacific Railroad Line could substitute or be in addition to public access to the Salt Creek floodplain area.

Grant Funding Sources

Federal Sources:

Land and Water Conservation Fund:

Five bills pending in Congress fall/1999 for reauthorization with varying priorities.
Funds park acquisition and development on matching basis (15.916)

Lands Legacy:

Administration proposal for open space acquisition to counteract urban sprawl.

Urban Park and Recreation Recovery Program:

Rehabilitation of urban parks (15.919)

Federal Emergency Management Agency:

floodplain protection and easements

Federal Highway Administration:

(TEA-21) Transportation Equity Act for the 21st Century
Recreational Trails Program (20.219)

State Sources:

Nebraska State Hazard Grant Program:

floodplains and easements

Nebraska Environmental Trust Fund:

Funding for environmental enhancement projects on a competitive basis.

Nebraska Natural Resources Development Fund:

flood control project assistance

Nebraska Statewide Arboretum:

landscape design and development assistance

Local Sources:

General obligation bonds

Special funds:

keno receipts, lottery, etc.

Wilderness Park Land Trust (proposed):

receipt of gifts and donations

Community foundation support

Lincoln City budget

Lancaster County budget

Lower Plate South NRD budget

5. REPORT MATRIX

The matrix was constructed by analyzing each study of Wilderness Park (the horizontal axis) and comparing them with the principles adopted by the community consensus process (the vertical axis). The principles were then rated as very important (x+), important (x), having negative impact (0), or not addressed (blank). The matrix is to be used as a tool for cross-reference, not to dismiss any qualitative/subjective elements of the studies.

The participants in the community consensus process spent significant time developing Principles as follows:

Principles

The issue regarding the future of Wilderness Park is one of protecting the quality of life in Lancaster County by preserving and enhancing the many values the Park contributes to the community, which include:

- C habitat
- C proximity/access
- C floodplain protection/storm water management
- C variety of uses
- C motivation for thoughtful, collaborative planning and durable policies about city growth, safety, and transportation networks
- C diverse economic benefits
- C green space
- C history
- C education resources
- C recreational resources

- C residential and park space co-existence
- C aesthetics
- C opportunity for attracting outside financial resources

Analysis

- C Protection of the floodplain was ranked very important or important by all the reports that addressed it. It was considered very important by more reports than any other principle. Floodplain protection should be the primary objective of Wilderness Park.
- C The preservation and protection of habitat was ranked important or very important by all reports that addressed it. The habitat principle has high value in each of the reports. The habitat value of the Park should be maintained through any development activity or Park changes.
- C Residential development and park space co-existence impacts had the most significant negative impacts in the reports. Impacts such as: habitat fragmentation, potential fragmentation through corridor intrusions, siltation and water quality deterioration, increased traffic, loss of fringe area buffers for plants and wildlife, rail and highway safety issues with increased numbers of people are examples as possible negative effects.
- C The transportation recommendation, particularly a potential Yankee Hill crossing of the Park, had negative impacts on green space, aesthetics, and nearby residences. Although the preliminary environmental analysis shows no measurable direct effect on habitat/wildlife, the cumulative impacts of development has impacts on Park values such as green space, quiet and solitude, and an escape from urban influences.
- C The reports recognize the value for public collaboration and participation the decision-making process particularly in the

areas of transportation, ecology, environmental factors and hydrology.

- C Education and historical significance were given scant attention in the reports but this probably reflects the fact they were not major objectives of the reports more than a lack of importance. These were important objectives during the deliberations of the community consensus process.
- C The primary economic benefit of the Park in the reports is to protect life and property from flooding and stormwater damage.
- C Although the ability to attract financial resources was not substantially addressed in the reports, the opportunities for Federal transportation assistance and stormwater protection assistance is implied. The public attitude survey indicated public willingness to support local taxes for the maintenance and protection of the Park.
- C The opportunity for recreation, particularly nature-related recreation such as nature study and appreciation and trail use, was important in the reports that addressed it.

In summary, a review of the reports in comparison with the principles reveals strong support for the maintenance of the flood protection aspects of the Park, the protection of habitat values, the provision of community green space, and the value of the aesthetics of the Park. There are concerns with development external to the Park and the impact they will have on the Park principles.

REPORT MATRIX

REPORTS^{3/4}®

Principles	Ecological Report	Ecological Critique	Transport	Trails	Hydrology	Environmental Factor	Attitude Survey	History	Safety
Habitat	X+	X	X	X	X+	X+	X+	X	
Proximity	X	X	X+	X			X		
Flood plain	X+	X+	X		X+	X+	X+	X	X+
Uses	X	X	X	X	X		X+	X+	
Collaboration	X+	X	X+		X+	X	X+		X
Economic Benefit			X		X+	X			
Green Space	X+	X+	O	X	X+	X	X+	X	
History								X+	
Education	X+	X+					X+	X+	
Recreation	X	X	X	X+			X+	X	
Residence/Park	O	O	O	X	O	O	O		X+
Aesthetics	X+	X+	O		O		X+	X	
Finance/Resource			X		X	X+	X+		

x+ = Very Important
 x = Important
 O = Negative Impact
 Blank = Not Addressed

Differences in Integration Report and Other Studies

In general, this report draws upon and integrates the recommendations of the other studies and reports as listed in the matrix. In the following instances the reports differ or other recommendations are made in this report. Such differences are as follows:

1. Ecosystem Report:

The extent of the Savanna ecosystem is inconclusive. Prescribed burns of the sandstone prairie and selected prairie remnants is recommended.

In consideration of the smoke conflicts of prescribed burning or in the event of natural prescription constraints such as moisture, wind conditions, fuel loads, etc. mowing, girdling, or chemical controls may need to be substituted for fire.

Selected management of the bur oak stands, concentrating on the stands indicated on the park management map should be undertaken using girdling, mowing and fire when conditions and resources are appropriate.

This restriction is necessary because many of the bur oak areas are in the flood conveyance area for which roughness is a positive value in reducing flood impacts.

2. Stormwater Study:

Protecting the roughness value of the flood conveyance area is consistent with other recommendations. For the most part, bur oak areas north of Pioneers Boulevard and south of Rokeby should be managed for regeneration to help preserve a remnant of the Oak ecosystem. Timber reduction of 20% or less would maintain roughness values in the moderate vegetation range indicated in the Hydrologic Study.

3. Transportation Study:

A compelling case has not yet been made for a crossing (bridge) over Wilderness Park. Additional research is needed for this consideration.

The closure of Old Cheney Road would improve Park continuity.

Further alternative improvements to 14th Street, 27th Street and Highway 2 corridors should be completed before further consideration of a Park crossing.

Community reaction to the visual and aesthetic damage to the Park if a crossing is proposed has not been adequately assessed.

The proposed loop trails are a useful addition to the Park trail system but the linear trail component should be maintained eventually linking to trails north and south of the Park.

If the park crossing and road closures in the Transportation Study are not implemented, the Park trail system and parking lots/trailheads will remain the same with the exception of the addition of the loop trails to the trail system.

There would be differences in the impacts on Wilderness Park depending upon whether or not alternatives in the transportation plan are adopted. If no Park road closures and no bridging of the Park alternatives are pursued, there will be little impact on existing conditions of the Park other than increased noise and air pollution due to higher traffic volumes adjacent to the Park.

If alternatives such as bridging at Yankee Hill Road, closing south 14th Street and closing Old Cheney Road are adopted the following impacts will be noted:

- C Increased habitat fragmentation at Yankee Hill
- C Park continuity at Old Cheney
- C Re-alignment of parking on west side of Park at Old Cheney
- C Increased noise, pollution and decreased visual quality at Yankee Hill
- C Traffic elimination at 14th Street with decreased noise, pollution and unimpeded corridor for wildlife and humans.

4. Public Involvement Report:

An Interpretive Center was suggested to be "possible" in the southern portion of the Park as was also indicated in the 1972 park plan. Although further evaluation is needed, the activity center with the day camp in the Van Dorn Street area concentrates high activity, traffic, parking and day camp use of the facility. This is also an area of significant historical interest. Therefore, this seems an appropriate area for the interpretive center.

Trails should be utilized for emergency access with woodchip or other media surface on hiking trails and bridge width to accommodate small utility-type vehicles.

A science/technical advisory group with Parks and Recreation Department staff can provide sufficient guidance to manage the Park ecologically.

Increased usage and health considerations will necessitate restrooms facilities at key parking/trailheads, particularly at the north and south reaches of the Park.

6. REPORT SUMMARIES

6a. ECOSYSTEM REPORT

A study of the ecosystem of Wilderness Park was completed by EA Engineering, Science and Technology, Inc. between May 1998 and September 1998 with a report submitted in January 1999 (Appendix C). The study was designed to "identify, describe and map the major plant, bird and butterfly/beetle communities within the Park and to document any other significant species observed."

The report built on previous studies of the Wilderness Park area by focusing on selected plant and animal resources. Included in the review of literature were such studies as the section line survey notes from the original General Land Office section surveys, Pound and Clements (1900) description of the area as a transition zone between a bur oak-elm-walnut type community and the red oak- hickory type community, the Enerson-Clark (1972) Master Plan of Wilderness Park documenting the successional changes in the plant communities of the park and Harrison and Kaul (1983) reporting on the biodiversity of the park environs.

The present plant community types include woodlands, grasslands, old fields and wetlands. Included in the woodland category are bur oak-hackberry-bitternut hickory, bur oak-hackberry-elm-honey locust and successional woodland. Native remnant reestablished grassland comprised the grassland category. The old fields vary from early successional fields to more fully successional fields and more recent tree and shrub plantings. The wetlands are associated with old channels and oxbows and scattered through the park.

The EA report suggests the woodlands have shifted from an open canopy to a more closed canopy with a change to more shade tolerant species such as hackberry. The report further suggests that the bur oak-hackberry and bur oak-hickory woodlands are degraded oak savanna.

Senna marylandica (Maryland senna) from the Nebraska Natural Heritage Program Element list was found in the reestablished

grassland east of 14th street and north of Saltillo Road. The study found no federal/state threatened or endangered plant species.

In the EA Report each plant community was given a qualitative rank to provide a benchmark for future assessments. The ranking represents a comparative valuation with pristine condition summarizing several factors:

quality - native species composition

present condition - damaged or altered conditions

viability - long term prospects for continued existence

future conditions - long term protection, management considerations

Ranks assigned from A to D were based on the following criteria:

- C A-Excellent: A-rank communities are nearly undisturbed by humans or have recovered from early human disturbance.
- C B-Good: B-rank communities show evidence of disturbance including invasion by exotic species or alteration of native vegetation structure. With proper management this community will recover to reach A-rank.
- C C-Fair: C-rank communities show increased evidence of alteration including fewer native species and more exotic species. These communities with proper management could recover to reach B-ranking.
- C D-Poor: D-ranked communities are severely disturbed with heavy alteration of native plant community structure and composition. Recovery to original conditions is not possible, although given time and proper management, this community could more closely resemble native natural areas.

The following are the specific woodland communities ranked according to this system.

Bur-Oak-Hackberry-Bitternut Hickory Woodland:

This woodland which is primarily located in the southern portion of the park was rated C+ . The EA report indicated it is the most undisturbed woodland and has been cited as an exemplary example of bur oak forest.

(plant community "A")

Bur Oak-Hackberry Woodland:

This community was rated C as it changes to a more shade-tolerant community. The oak is not regenerating and has weather related damage. The oak-hackberry woodland south of Warlick Boulevard was cited for potential restoration.
(plant community "D")

Hackberry-Elm-Honey Locust Woodland:

Rated C, this community has had agricultural disturbance and is located along Salt Creek in the central portion of Wilderness Park. (plant community "E")

Hackberry-Bur Oak-Modified Woodland:

Dominated by hackberry, this plant community is found in the Epworth Park and Day Camp areas near First and Calvert Streets. It is rated D due to recreation disturbance and invasion of exotics. (plant community "Da")

Silver Maple-Cottonwood Community:

Rated C+ , this community is located in areas that flood and in the oxbows and old channels of Salt Creek.
(plant community "S")

The following represent grassland communities in the park.

Upland Sandstone Prairie:

This virgin prairie site is unusual because of the underlying sandstone geology resulting in xeric condition. The area supports plants that are more common in Western Nebraska but survive in the site due to the drier conditions. EA rated the site C+ , noting sensitive prairie plants such as purple prairie clover, prairie gentian and prickly pear cactus. The site would have been rated higher if it was not threatened by exotic species and woodland encroachment.
(plant community "P")

Reestablished Grasslands:

These fields located near 14th and Rokeby Roads were planted to native grasses in the late 1960s and early 1970s. They were rated D due to invasion by wood species and evaluated as not having the native species dominant.

(plant community "B")

The following plant communities were described by EA as Old Field Successional Communities.

Old Field Successional Woodland:

Species represented in the type include Siberian elm, green ash, cottonwood, red elm with the understory dominated by smooth brome and goldenrod.

(plant community "Cs")

Old Field (Brome Field):

Few trees are represented in these fields dominated by brome grass. (plant community "Cb")

Old Field (Brome-Scattered shrubs/trees):

Invading trees in fields of smooth brome characterized these areas. They have much more woody growth than "C".

Plantings:

A variety of areas planted to trees and shrubs characterize these areas. Species planted include autumn-olive, russian olive, black locust, white swamp oak, pin oak, cottonwood, silver maple, austrian pine, sycamore, ash and willow.

(plant community "Cf")

The old successional fields are collectively ranked D. They are the result of past agricultural practices, exotic plant invasion and plantings.

Wetland communities include the following.

Paulustrine emergent:

These freshwater wetlands are related to Salt Creek's old oxbows and swales scattered throughout the park. They are ranked C due to relatively low species diversity.

(plant community "We")

Paulustrine forested:

Also associated with the oxbows, these wetlands are predominantly silver maple, cottonwood, and peachleaf willow. They are also ranked C due to lack of diversity.

(plant community "Wf")

Fauna

The EA Ecosystem Report analyzed selected fauna including bats, migratory birds, and fish. Field Surveys were conducted on breeding birds and butterflies/beetles.

A literature review indicates 100 bird species in Wilderness Park. The type of habitat in which they were found are as follows:

71% associated with woodland/forest habitat, 11% with limnic habitat, 7% associated with woodland/forest habitat, 11% with limnic habitat, 6% with grassland, 1% with xeric/scrub habitat and 4% introduced.

Mammals were represented by 37 species potentially in the Park with 19 confirmed in the Park. Amphibian and reptile species include 26 potential species confirmed in the park. Potential species are those that are known to occur in Lancaster County and for which the Park has appropriate habitat.

Six species of bats occur in the Park including evening bat, big brown bat, northern myotis, red bat, hoary bat the silver-haired bat. All appear to be breeding in the Park and are associated with trees. Roost sites include loose bark, in hollow trees, and manmade structures.

A literature review of fisheries data in the Park indicate a total of 15 species taken from three sampling locations. The more common fish include carp, minnows, red shiner, river carpsucker, and green sunfish.

Field surveys of breeding birds were conducted by EA during the spring of 1998. A total of 58 native species and three introduced species were observed during three observations. The majority, 75.8%, of the species were identified with the woodland/forest

habitats. The sampling areas north and south of Warlick Boulevard accounted for the highest number bird species at 34.

Five species on the Nebraska Natural Heritage Program rare animal list were found in the Park. Great Blue Herons were seen flying over or wading in the Park.

A Cooper's Hawk was seen south of Old Cheney east of Salt Creek. Barred Owls were observed north of Old Cheney along the west bank of Salt Creek and at the confluence of Cardwell Branch with Salt Creek. On both sites the birds were nesting in large deciduous trees.

Carolina Wrens were observed north of Highway 77 along the west bank of Salt Creek and near the dry creek bed south of Calvert. Both sightings were in brushy habitat in deciduous woodland.

Bell's Vireos were observed north of Old Cheney near the gravel road and south of a parking lot, in grassland by 14th Street and west of Salt Creek, and adjacent to a maintenance road south of Old Cheney. The birds were in plum and/or dogwood tree thickets.

Butterfly species numbered 58 with eight species of tiger beetles during the survey period. The most commonly observed butterfly was the Cloudless Sulphur while the commonly observed tiger beetle was *Cicindela sexgutta*. The sampling areas from Old Cheney to Yankee Hill Road had the most reported numbers of butterflies and tiger beetles.

Management Recommendations From Ecosystem Report

The EA Report indicates that the past Wilderness Park management practices have not recreated the processes that would have maintained the oak-prairie ecosystems. A more intensive management strategy will be needed to mimic the natural processes.

The Park habitat management recommendation from the Ecosystem Study are in Figure 2. Guidelines cited in the report are as follows:

- C Continue to manage and restore the native prairie remnant. The pre-European prairie evolved under a number of biotic and abiotic*

- C interactions that affected the plant community composition. Fire and grazing by large grazers (bison) were two important components of the disturbance regime. Historical records indicated the fire frequency in the region was high (2-5 year return interval). The effects of fire included control of woody vegetation, increased vigor of native plants and increased seedling establishment.*
- C The small remnant prairie in Wilderness Park, south of Pioneers Boulevard, has been invaded by numerous woody plants (smooth sumac, buckthorn, Siberian elm) as well as exotic species such as smooth brome, St. John's wort, and leafy spurge. Restoration should include control/elimination of these species as well as removal of the trees and shrubs within the prairie boundaries. At a minimum this should include cutting and judicious herbicide application of the smooth sumac thicket, the Siberian elms, eastern red cedar, bur oak saplings, and osage orange. Suggested activities also include expansion of the prairie on the east side by removing the encroaching bur oak, elm and cedar trees. Timely prescribed burns will also help to control and inhibit smooth brome. In addition to fire, grazing was also an important influence on the pre-European grassland. Most small remnants lack grazing because the remnants are too small to make this component economical. This is certainly the case at Wilderness Park, however, mowing which may have potential use as a replacement for grazing could be incorporated into the management plan.*
- C Open canopy of bur oak-hackberry woodland and bur oak-hackberry-bitternut hickory woodland by initiating a prescribed regime and/or selectively cutting or girdling many of the individuals of the shade tolerant species such as hackberry. Utilize both thinning of select trees and fire to restore savannas. The public could also be included in the selective cutting by taking the wood for firewood. This reduction will aid in preparing the site for controlled burns. Bur oak is intolerant of shade and needs the openings for seedling establishment. Today many of the oak woodlands are not regenerating, but are being replaced by more shade-tolerant species.*

- C Controlled burns should be initiated within selected areas of the Park. These areas include the bur oak-hackberry woodland and the bur oak-hackberry bitternut hickory woodland. Oak communities are dependent upon frequent fires (annual to once every 10 years) to prevent fuel buildup and to control woody plant invasion. Bur oaks are a fire-tolerant species due to their thick bark, their ability to resprout, as well as their resistance to rotting. Open conditions induced by fire are also conducive to seed germination. Burning may be the most important management tool restoring oak ecosystems. The use of fire will remove accumulated debris, allow more light to penetrate the ground lay and open the canopy. Removal of many of the understory trees can in most cases restore the structure and allow for stimulation of the herbaceous understory. Without some kind of management, the oak will eventually die out and will be replaced by more shade tolerant trees.*
- C Initiate a prescribed burning regime for the reestablished grasslands and old fields (with protection of the planted areas). Woody plants will continue to invade fields without a burning regime. In addition, burning will help to invigorate the native prairie grasses (i.e. big bluestem, switchgrass, Indian grass and little bluestem) as well as other prairie species. If burning is not an option, timely mowing is another tool that can be used in place of prescribed burns. Control of Woody plants by mowing is documented in a number of grassland ecosystems. Mowing may be a more appropriate option due to the proximity of these reestablished grasslands and old fields to major roadways such as Highway 77. Smoke management will be necessary if prescribed burning is used as a management tool. This is easily accomplished if a burn prescription is prepared prior to initiating burning. For example, a burn prescription for the re-establishment located east of 14th Street would require a west wind. Extension personnel with the University of Nebraska-Lincoln can aid in the development of a prescribed burn plan.*
- C Monitoring and continued research of the plant communities is strongly recommended. The success of the recovery/management plan will not be known if a monitoring program is not in place.*

Recommended future studies include quantitative assessment of the woody vegetation and the herbaceous understory.

- C Oak ecosystems are of such regional and national significance to justify the expenditure for monitoring and continued studies. Following the guidelines outlined in the document: Midwest Oak Ecosystem Recovery Plan: a Call to Action (Leach and Ross, 1995) will aid in recovery and preservation of the valuable oak communities present in Wilderness Park.*

Management for the woodland bird species which dominate Wilderness Park contain the following recommendations in the EA Ecosystem Report:

- C To provide habitat for Cooper's Hawks, Barred Owls, and woodland/forest associated birds: promote tree regeneration in mature tree stands.*
- C For Cooper's Hawk use, some tree stands should be left with densities of at least 243 trees/hectare and at least 4-9 hectares in size. For Cooper's Hawk and Barred Owl nesting, at least some trees should be left in areas larger than 59 cm diameter at breast-height.*
- C Conduct management practices (i.e. tree/brush removal, controlled burns, etc.) in a patchy manner, over a period of years, to maintain refugia habitat for nesting and/or foraging rare birds.*
- C Restore grassland and limnic (marshes, rivers, lakes or other surface water habitats) habitats to maintain and/or improve bird diversity.*
- C Do not increase access, human disturbance, or habitat fragmentation (additional roads, trails, power line or gas line corridors) in the southern two thirds of the Park.*
- C Whenever possible schedule management practices outside of the breeding bird season (particularly in known nesting locations for rare birds).*

6b. ECOSYSTEM REPORT CRITIQUE

An analysis of the Ecosystem Report of Wilderness Park was done by the Mediation Ecosystem Study Critique Committee, a sub-committee of the Wilderness Park Subarea Study. The group thoroughly analyzed the report and identified strengths, weaknesses and areas for further study.

The Critique Committee concluded that there are certain weaknesses in the Ecosystem report, such as:

1. The ecosystem study was done in a short time frame with insufficient funding for a complete study; too few researchers in too few subject matter areas.
2. The study is not truly an ecosystem study but a series of reports covering certain aspects of the Park. Consequently, it is not possible to draw ecological conclusions from the reports.
3. The biology of the stream component was not studied.
4. Physical factors of the environment such as soils and climate are not addressed.
5. The report does not study the dynamics of the system.
6. The study is basically confined to the boundaries of the Park with insufficient attention given to the surrounding land uses and ecosystem components.
7. The Critique Committee concludes that the qualitative system to rate the plant communities is inappropriate.
8. There is insufficient quantitative data about the biological resources of the Park to develop baseline data for future study.
9. The critique questions the assumptions of the Ecosystem Report that the area comprising Wilderness Park was once a savanna; scattered trees in a grassland matrix. Additional research is

recommended to investigate the riparian forest characteristics of the area.

The Critique Committee agrees with several conclusions in the report including the following:

1. The “cumulative effect” of development external to the Park “may invite the decline in number of species” inside the Park.
2. The Park would benefit from protective devices such as acquisition of additional parkland, conservation easements on lands surrounding the Park, and management agreements of neighboring lands.
3. There should be limits on the number of trails and corridors both within the Park and adjacent to it.
4. The report suggests a number of research projects that need to be conducted, including:
 - a. Ecological Studies
 - b. Inventories of plants and animals in the Park including mammals, snakes, amphibians, lichens, mosses, ferns, etc.
 - c. Study of the vernal pools and other wetland areas.
 - d. Limnological study of the stream ecosystem.
 - e. Study of the water cycles including stream terraces and vegetation, flooding, drought, etc.
 - f. Human impact on the natural system, including dogs, trampling, off-trail use, pollution, noise, wildlife disturbance, etc.
 - g. Determine public goals for the Park and public participation.

- h. The Committee recommends a body of citizens should be empowered to acquire and manage natural areas in the County. This group should be comprised of elected officials, agency staff and citizens. Provisions should be made for membership from such disciplines as hydrology, biology, sociology, planning, etc., for technical guidance.

The Critique Committee report recommends an "ecosystem management" approach using a definition from the Ecological Society of America:

"...management driven by explicit goals, executed by policies, protocols and practices, and made adaptable by monitoring and research based on our best understanding of ecological interactions and processes necessary to sustain ecosystem structure and function."

6c. LAND ACQUISITION

The Ecosystem Report conducted by EA made recommendations on potential land acquisition based on the enhancement of Wilderness Park habitats and to serve as buffers to the Park. The recommendations are based on consideration of buffers to encroachment on park grounds, transitional areas for species of diversity and for the management of surface water sheet flows both for biological as well as water quality reasons. Noise and light control, floodway control, and easier park maintenance were also considered.

The report suggests acquisition by land purchase as well as the purchase of conservation easements or management agreements. The City/County can also control adjacent uses through land use regulations and covenants during the planning process.

The cumulative effects of many external changes to land use adjacent to the Park was pointed out by the report as having a potential effect on the decline of the park resources. Transition and buffer zones around the park were suggested as ways to offset the negative impacts of these cumulative effects. Buffer strips within the floodplain and along drainage ways are important to reduce soil and pesticide runoff and to provide biological corridors. Reducing the edge effects on woodland species will help to eliminate bird parasitism and can be effected by limiting the number of trails adjacent to and inside the Park.

Some adjacent property uses can be compatible with park principles. For example, the property used by the Lincoln Prairie Bowman has a permanent ecological use easement or covenant restriction. Other suggested examples include:

- a. Requiring developments in the area to have green spaces using native vegetation.
- b. A softening of transition zones adjacent to the Park, particularly along transportation corridors.

- c. A succession of habitats flowing towards the Park edge would be aesthetically and ecologically beneficial as well as providing habitat diversity.

Areas adjacent to the park could also include drainage way management by requiring native vegetation in wider buffer strips on alluvial soils and drainage ways. This would help control surface water runoff and sediment runoff while providing wildlife movement corridors.

The EA Report (map 6) identified properties immediately adjacent to the Park for future land acquisition or protection. The properties were selected based on their potential to enhance the park resource without consideration of availability, cost or future plans for the property. The property west of the Highway 77 corridor was not considered because of the significant barrier of the highway creating potential harm for wildlife and humans.

6d. HYDROLOGIC STUDY

A hydrologic study of the Wilderness Park area along Salt Creek was conducted by the U.S. Army Corps of Engineers beginning in August 1998. The study's purpose was to evaluate alternatives to determine their effects on peak flows (discharges) and stages (water surface elevations) on Salt Creek through Wilderness Park and downstream from the Park in Lincoln.

Seventeen alternatives were examined for each of four flow events, the 10, 50, 100 and 500 year storm events. Nearly 70 simulations were made including comparing the alternatives to the existing (baseline) conditions to determine their effect in reducing Salt Creek stages and peak flows.

The study concluded that significant Park discharge/stage reduction would be limited for most of the alternatives but that for some of the alternatives, significant increases would be possible.

Impacts of the various alternatives compared with existing conditions are as follows:

- C Wilderness Park Storage Changes:
For the 100-year flood event, many of the storage alternatives would significantly impact peak discharge in the Park but impacts at the 10-year event would be much less. However, a reduction in the storage area within the floodplain outside of the conveyance area would cause an increase in peak discharge for all events. None of the storage increase alternatives appear cost-effective given the large excavation costs and slight reduction in discharge and stage.
- C Stormwater Runoff Changes:
the highest stormwater scenario occurs the flood frequency would be increased for many areas.
- C Conveyance Area Roughness Changes:
Reducing the density of the woodland vegetation through the Park would decrease the "roughness" value through the conveyance area and increase flood flows at all locations and

for all storm events. Roughness values are based on such factors as surface roughness, vegetation type and density, channel irregularity, channel alignment, silting and scouring, and obstructions. Extending the dense woodland vegetation of the Park upstream would result in higher roughness values within the conveyance area. Peak discharges would be reduced within the Park but changes downstream from Haines Branch would be insignificant.

C Bridge Removal/Addition:

No significant reduction in peak discharge would result from any of the bridge removal or addition alternatives. At the location of the bridge structures, peak flood stages would be effected but systemwide effects would not occur. This is also true of a potential crossing at Yankee Hill Road. From a systemwide hydrological standpoint, a causeway-type structure would not be necessary if a bridge were constructed at Yankee Hill Road. If constructed, the bridge span width and section design should limit localized stage increases upstream from the bridge.

C Bridge Opening Reduction Alternatives:

The bridge reduction and road raise alternatives showed no significant reduction in peak discharge. Reducing bridge openings and raising roads would not be effective in reducing downstream discharges according to the study.

C Channel Confinement:

The study modeled the effects of confining the Salt Creek channel through Wilderness Park to demonstrate the value of the Park's natural flood storage capacity. The confined channel would reduce flow area and confine the channel to a narrow section. The results indicated that confining the channel would increase discharge at all locations and for all events. This confinement would result in the largest peak discharge and the largest increase in flooded area in the Park among all alternatives that were examined. Peak stages would also increase within the Park under the confined channel alternative.

C Channel Alignment Modification:

This alternative analyzed conditions if the natural meanders of Salt Creek through the Park had not been preserved. Channel shortening would cause increases in Salt Creek flows both in the Park and particularly downstream from Haines Branch. Removal of meanders shortens the channel, increases channel slope and reduces flow length.

Specific conclusions from the Corps of Engineers study comparing alternatives versus existing conditions are as follows:

C *Had channel confinement and shortening occurred historically as it did downstream through Lincoln, significant increases in discharge would have resulted.*

C *Allowing fill within the flood plain and reducing storage volume would cause significant peak discharge increases.*

C *The alternatives that would cause the most significant computed changes are undesirable. Alternatives involving increases in impervious area and reductions in storage would result in discharge increases within Wilderness Park and downstream from the Haines Branch confluence.*

C *Reducing the roughness value along Salt Creek in the conveyance area by removing the dense Wilderness Park vegetation and replacing it with vegetation having a low roughness value (such as prairie grass) is not desirable and would increase discharge. Extending park boundaries upstream to Roca Road and adding woodland vegetation similar to that within the existing Wilderness Park area would not cause a significant discharge reduction.*

C *The future high impervious alternative (highest stormwater runoff scenario) would cause a significant flow increase--one that is not uniform for the events that were modeled. Since the 10-year flow increase is much larger than the 100-year flow increase, the flood frequency is not altered uniformly. This alternative would also increase the flood frequency in many areas.*

- C Implementing a vegetative buffer (approximately 100 feet wide) along tributaries would clearly impact peak stage discharge locally. However, these changes become insignificant from a modeling standpoint when applied to the extensive Salt Creek floodplain. This study did not take into consideration other potential environmental benefits of this practice, such as water quality and habitat enhancement.*
- C The moderate stormwater runoff scenario that includes detention/retention storage was not modeled in SWMM (Storm Water Management Model) because of insufficient time and resources to perform a detailed analysis to optimize the location, size, outlet works, and downstream impacts of the detention/retention storage. This analysis is being completed through the Stormwater Basin Planning Project master planning process. Analysis for this study assumed that the future peak discharges from the tributaries would be no greater than the existing (base) conditions.*
- C Within the Salt Creek Wilderness Park area, raising roads and reducing bridge openings would not be an effective method of using channel storage to reduce peak channel flow.*
- C Adding or replacing bridges would not have a systemwide impact on discharge; however, a rise in the flood elevation would occur locally around the bridges. If some localized increase in flood elevation is acceptable adjacent to the bridges, then it would not be necessary from a purely hydraulic standpoint to employ a causeway structure for new bridge crossings.*
- C Extremely large storage areas were evaluated to provide an indication of the magnitude of storage that would be required to achieve a noticeable reduction in peak discharge. The minimal discharge reductions that would result from the large off-channel storage areas evaluated in the study indicate that this alternative may not be feasible for the Wilderness Park area.*

According to the analyses conducted, the impact of any one modification is largely dependent upon its location. The alternatives that modified conditions upstream from Saltillo Road, for example,

had minimal impact downstream from Haines Branch. The study concluded with the following recommendations in regard to the hydrologic impacts of the alternatives that were examined in this study:

- C Any future development that would increase the impervious area should be required to provide on-site mitigation and/or structures to limit post-development peak discharge to pre-development peak levels. The recent change in design standards for stormwater storage should achieve this recommendation when used in concert with a basin master plan (anticipated to be completed for each basin as part of the Stormwater Basin Planning Project).*
- C Channel confinement or shortening within the upstream areas should be strongly discouraged. Wilderness Park currently provides effective flood storage in its existing condition.*
- C Any fill within the Salt Creek flood plain should be compensated for by providing an equal amount of storage elsewhere on the site. The location and elevation of any fill should be carefully addressed so as not to have an adverse impact on the flood plain.*
- C Wilderness Park vegetation should be maintained to provide discharge reduction. Large-scale removal of woody growth from within the conveyance areas should be discouraged.*
- C A feasible Salt Creek storage site within the Wilderness Park area that significantly reduces peak discharge was not identified. However, the evaluation of many of the alternatives indicates that hydrograph timing is an important factor. Any regional detention proposal must include a basinwide analysis to thoroughly evaluate impacts. This supports the importance of master planning for basins being conducted as part of the Stormwater Basin Planning Project.*

6e. TRANSPORTATION STUDY

Olsson Associates prepared a transportation study entitled "S1-S2 Subarea Transportation Study". The report investigates the current and future roadway needs for south Lincoln in an area generally bounded by Pine Lake Road on the north, Saltillo Road on to south, Wilderness Park on the west, and 56th Street on the east. The border stretches from Highway 2 and Van Dorn Street, the proposed South Beltway, 84th Street and SW 12th Street. The Wilderness Park element of the study reports on the movement of people and vehicles around, through, and within Wilderness Park and the impacts of new growth on the area and the Park.

The study evaluated a broad range of transportation network alternatives. As noted in the OA report, these recommendations are made based on future transportation network assumptions which include completion of the arterial roadway network within the S1/S2 subarea, completion of the south and east Beltways, and freeway status for Highway 77 between the south Beltway and Van Dorn Street. Changes to these future network assumptions may change the recommendations in this report. Based on this analysis, the following transportation network recommendations were made:

- C A Yankee Hill bridge connection between 14th Street and Highway 77 with full access interchange with Highway 77.*
- C Old Cheney Road closed across Wilderness Park and the at-grade railroad crossing but with par/property access maintained.*
- C Pioneers Boulevard open across the Park with a bridge and preferably an interchange at Highway 77.*
- C Potential closure of 14th Street through Wilderness Park and the at-grade railroad crossing with park/property access maintained.*
- C No extension of Rokeby Road between 40th and 56th Streets.*
- C Elimination of other at-grade intersections along Highway 77 in the study area consistent with the assumed future freeway status of Highway 77.*

Overall recommendations of the transportation component of the S1/S2 Subarea study are outlined below:

1. *Do not eliminate an additional crossing of Wilderness Park between Saltillo Road and Warlick Boulevard from consideration at this time.*
2. *Incorporate further evaluation of this potential transportation corridor into the Comprehensive Planning process including:*
 - C Corridor level transportation study of a crossing in the vicinity of Yankee Hill Road.*
 - C Environmental Impact Statement to fully evaluate potential environmental issues associated with such a crossing.*
 - C Further traffic operational level analysis of key intersections and roadways (such as 14th/Warlick Boulevard./Old Cheney Road, 14th/Highway 2, 27th/Old Cheney Road, and 27th/Highway 2) adjacent to determine potential future improvements with or without a Yankee Hill crossing of Wilderness Park.*

Internal Park Circulation

The Olsson Associates Transportation Study also analyzed the trail system within Wilderness Park. The Park contains linear trail opportunities for hiking, biking and horseback riding. The trails are accessed from trail heads with parking lots at Saltillo Road, 14th Street, Old Cheney Road, 1st Street and Calvert Street.

Trail deficiencies identified in the report include:

1. Inaccessibility for maintenance and emergency vehicles.
2. Lack of linkage to Lincoln or regional trail networks.
3. Most bridge structures are in need of repair.

4. On some trails, trail users are forced onto the railroad corridor as part of the trail.
5. The Park is not "zoned" for various uses.
6. Sensitive or restricted-use areas have not been designated with appropriate trail restrictions.

Specific recommendations from the Transportation study include:

1. *Improve all trails with gravel or wood chip surface to provide all-weather accessibility and grade/widen to accommodate small utility vehicles and rescue equipment.*
2. *Improve/construct trail bridges to accommodate small utility vehicles and rescue equipment.*
3. *Provide the missing leg of the bike trail and new bridge structure south of Pioneers Boulevard.*
4. *Remove the parking lot along 1st Street near Pioneers Boulevard. Provide a new parking facility at 1st and Old Cheney Road.*
5. *Close Old Cheney Road across the Park, revegetate with nativespecies and utilize the right of way for trail access. Close the Old Cheney Road at-grade crossing*
6. *Remove the parking lot along 14th Street at Salt Creek. Provide new parking lots along 14th Street on the north side of the Park and at Rokeby Road on the south side of the Park.*
7. *Close 14th Street across the Park, revegetate with native species and utilize for trail access. Close the 14th Street at-grade rail crossings.*
8. *Close the Pedestrian bridge structure just south of Yankee Hill Road due to safety concerns and proximity to the railroad tracks.*
9. *Reconfigure existing hiking trails in the southern portion of the Park (between) Yankee Hill Road and Saltillo Road) into small loop*

trails. Connection of these trails is possible in the future with construction of two new bridges.

10. *Eliminate the horseback trail east of 14th Street due to safety concerns, proximity to the railroad, and existing shared use of railroad corridor. Utilize portions of existing horseback trail for hiking and biking loop trails.*
11. *Delineate and plan for future trail connection locations from adjacent developments as well as from the regional trail system as development occurs adjacent to Wilderness Park, preserve trail corridors outside of the Park.*
12. *Provide for funding/maintenance of the improved trails and bridges. If the trail improvements cannot be maintained in the future, they probably should not be improved.*

Environmental Evaluation

As part of the S1/S2 Subarea Transportation Study a preliminary environmental analysis was done assessing impacts of the transportation alternatives on the environment of the Park. This analysis was complete for four alternatives including:

The evaluation made analyses of the following environmental areas:

- C Soils
- C Hydrology and floodplains
- C Hazardous substances
- C Noise
- C Air quality
- C Vegetation
- C Wildlife
- C Parkland conversion

- C Park expansion area
- C Park continuity/fragmentation
- C Railroads
- C Aesthetics

The report analyzed each of the following alternatives with respect to the above environmental topic areas:

- C Base Network Alternative
- C Park Closure Alternatives (Non-Bridge)
- C Yankee Hill Bridge Alternatives
- C Interchange Alternatives

The environmental evaluation provides planning level information with the understanding that if roadway improvements are implemented, additional environmental documentation will be necessary to comply with the National Environmental Policy Act and local requirements. General observations which will need further research include:

1. Non-bridge issues are primarily social and economic relating to the public acceptance or increased traffic, time delays, railroad conflicts, etc. with no significant environmental issues.
2. Park closure alternatives increases safety but does not appear to significantly impact part habitat as reflected by current high plant and animal diversity in the Park, bird nesting activity, and a high satisfaction of Park users despite the presence of current road crossings.
3. Significant environmental issues with the Yankee Hill Bridge alternative include noise impacts to wildlife, fragmentation impacts on wildlife, aesthetic impacts on Park users, and parkland conversion.

4. The report states that it appears that all of the impacts can be mitigated based on the limited impact of existing corridors.
5. There are no additional impacts associated with the interchange alternative beyond those listed for the Yankee Hill bridge alternative.

6f. OPINION SURVEY

During the fall of 1998 a survey of a sample of Lancaster County residents was conducted under the supervision of Professor Al Williams of the University of Nebraska-Lincoln Sociology Department. A questionnaire asked opinions regarding park use, attitudes about natural-area parks, views on urban growth and impact on Wilderness Park, support and planning for Wilderness Park through public funding. There was a comparison of local responses to a national sample on a question of environmental quality.

The following summarize the basic findings of the survey:

- C A majority of households (74.7%) contain persons who have visited a park or recreational area in Lancaster County.*
- C Favorite parks or recreational areas in the county are Pioneers Park, the Salt Valley Lakes, Wilderness Park, Holmes Park, and Antelope Park.*
- C Persons from more than half of all households say they have visited Wilderness Park and a majority have visited within the last year.*
- C Walking, bicycling, and observing and enjoying nature are the major activities of visitors to Wilderness Park.*
- C A large majority of county residents (92.1%) say that a natural-area park like Wilderness Park has value and nearly 6 in 10 respondents say that it is very valuable.*
- C All of the original objectives for Wilderness Park are believed to be important and those involving nature--a place to experience nature, and a place to learn about nature--lead the list.*
- C A large majority of respondents believe that city growth will affect Wilderness Park and urban expansion and protecting the Park are seen by respondents as the critical issues.*

- C A majority of respondents indicate they would support additional public funding, if needed, to make improvements at Wilderness Park and about 4 in 10 say they would support funding for acquiring additional property. A sizable percentage, 26.9%, say they are not sure.*
- C A majority of respondents said that it is important to them to be able to influence decisions about Wilderness Park, but there is little consensus about the best way to accomplish it.*
- C A much higher percentage of Lancaster County residents believe the environmental quality of the county is very good compared to a national sample of Americans asked to rate their local communities.*

In answer to a question on how park and recreational areas in Lincoln and Lancaster County can be improved, the most frequent suggestion was improved maintenance of park trails, bridges, and facilities and the second most frequent suggestion was to “preserve, keep development away and okay as it is”.

The Survey reveals that Wilderness Park is important to local residents and that they believe it is important to have natural area parks. Walking, bicycling and nature-related activities are the primary uses by visitors to the Park. There is interest in supporting increased funding for maintenance and potential land acquisition. There is concern about increasing development lessening the values associated with the Park.

6g. ENVIRONMENTAL FACTORS

The Lincoln-Lancaster County Health Department prepared a study entitled "Environmental Factors Affecting Wilderness Park". The study discusses Tier Two facilities, Title V facilities, domestic well test data, soils analysis, and railroad noise and safety data. Current or potential threats to public health are indicated by Tier Two or Title V sites. Tier Two sites deal with the storage of hazardous materials and Title V sites emit substances into the atmosphere above EPA thresholds.

Possible Contamination Sites

Tier Two sites in the area include the Lincoln Products Terminal, Lincoln Oil Products, and Williams Pipeline Company. Spills from the above ground tanks and drums could enter the groundwater. The monitoring wells should identify groundwater contamination. The Rokeby Generation Station of the Lincoln Electric System stores Ethylene Glycol in above ground tanks and could be a method of possible Park contamination.

Three Title V sites near the Park are regulated due to their continuous emission of air pollutants, however current air emissions are at a low impact on the Park. The risk to the Park or people nearby from these sources is negligible. The Title V sites are William's Pipeline Co., LES Rokeby Generation Station, and the Conoco Products Terminal.

Wells near the Park were tested for potential groundwater contamination. As detailed in the report, no wells have positive Volatile Organic Compound contamination. Four wells tested higher than five ppm for Nitrates. Two wells northeast of the Park have been found with VOC contamination but the impact on the park is likely minimal according to the report. Due to the large salt deposits in the area, several wells near the ppm Park have a Chloride concentration above the 100 ppm drinking water standard.

Soil Characteristics

The predominant soil types in the Wilderness Park area are Kennebec silt loam, Nodaway silt loam, Wymore silty clay loam and Zook silt loam. The Wymore silty loam is most common in the uplands on either side of the Salt Creek valley while the other three are in the lowlands.

High water capacity, shrink-swell potential and runoff are characteristics of all of the soil types present. Due to potential for wetness and flooding, the soils along the creek are poorly suited for building sites and septic fields. With the high-water table, the concern with development on the soils is the large potential for erosion. Salt Creek will see an increase in turbidity and silt if erosion increases.

Railroad Accidents

The Burlington Northern and Santa Fe Railroad reports approximately 25 trains each day along the tracks bordering the east boundary of Wilderness Park. Based on Federal Railroad Administration data, a train accident adjacent to the Park could be expected once every five years. Trains with hazardous materials could be expected to have an accident only every 126 years on this section of track.

Noise

A noise survey was performed with the highest background noise approximately 100 yards north of Old Cheney. Lower levels were measured farther north of Old Cheney and slightly higher values near the eastern boundary. The highest sound levels for trains were near the east boundary with the horn noise before the approach to Old Cheney.

Conclusions

No section of Salt Creek upstream of Wilderness Park is currently classified as impaired. Ground and surface water quality may be affected if residences are built near the Park on wells and septic

systems. Urban residential districts will most likely increase storm runoff. Methods of discharge from storm water sewer should be investigated. Contamination from automotive fluids, lawn care chemicals, and domestic waste could increase. Buffer areas are recommended between areas of discharge and reception to decrease the amount of pollutants entering ground and surface water.

Increased development will likely increase the threats of roads, pipelines, cables and sewers due to the linear nature of the Park. This could result in increased soil erosion from digging and construction, increase noise, deter wildlife movement, and detract from the natural state of the area.

Based on the Health Department Study,

...risks to human health in Wilderness Park area is very low. Railroad accidents, Tier Two and Title V sites represent a very small risk to humans. The soil types inside Wilderness Park are being utilized for their best potential, which is providing excellent areas for wildlife cover.

Additional development in the area will create some detrimental effects to the Park including highway-rail accidents, increased background noise, increased illumination, and the potential for erosion leading to increased turbidity and silt in Salt Creek.

6h. PUBLIC INVOLVEMENT REPORT

The Lincoln-Lancaster Mediation Center facilitated a consensus building process over a twelve month period. Fifty-one stakeholder interview meetings were held with 79 groups choosing to participate in the Study Working Group.

The Study Working Group was provided with information from the City Information website as well as technical reports and presentations. The group established principles about the Park, generated a variety of solutions about the future of the Park and tested the feasibility of those solutions with the principles.

Principles

The issue regarding the future of Wilderness Park is one of protecting the quality of life in Lancaster County by preserving and enhancing the many values the Park contributes to the community, which include:

- C habitat
- C proximity
- C floodplain protection/stormwater management
- C variety of uses
- C motivation for thoughtful, collaborative planning and durable policies about city growth, safety, and transportation networks
- C diverse economic benefits
- C green space
- C history
- C education resources
- C residential and park space co-existence

C aesthetics

C opportunity for attracting outside financial resources

Consensus Development

The consensus statements were developed during the public involvement process by evaluating options generated through small group sessions leading to large group discussion for refinement of the statements.

1. Stormwater/floodplain Strategies:

Primary Park value is as a natural green space for floodwater storage.

Continuity of Salt Creek flood storage must be maintained.

Best uses in floodplain are flood control, habitat, agriculture and low impact recreation.

2. Park Use Strategies:

Support non-consumptive recreation, research, education and wildlife observation.

Interpretive center

Limit use in environmentally sensitive areas such as wetlands and native prairies.

Have a strategic plan for use.

Limit additional picnic areas; locate at trail heads without lights.

3. Ecological/Environmental Strategies:

Maintain as a wild or natural area with non-consumptive recreation.

Maintain biological diversity.

Sandstone prairie area should be maintained and enhanced.

4. Land Acquisition Strategies:

Expand Park south to Roca or Hickman.

Make any necessary utility crossing in an ecologically sensitive manner.

Acquire buffer areas to protect flood storage, reduce runoff, and protect environmentally sensitive areas.

The Park should be a cornerstone of a "green crescent" or "green belt" of natural areas around Lincoln. Integrate the Park into other natural areas locally and statewide.

Acquire land recommended for acquisition in the Ecosystem Report.

Protect floodplain first by conservation easements, zoning, and voluntary sale.

Work to solve present Park problems and not use park expansion solely to postpone dealing with these issues.

5. Fiscal Strategies:

Apply for grants from sources such as the Natural Resources Development Fund, Environmental Trust Fund, Statewide Arboretum, Federal Emergency Management Agency, Transportation Equity Act for the 21st Century through the Department of Roads.

Use community resources such as volunteers, resource professionals, university research and create mechanisms for contributions through volunteerism and charitable foundations, etc.

Increase money allocated to Wilderness Park through the Parks Department budget

Look for private donations for land acquisition and public sources of funding such as the Land and Water Conservation Fund

Explore bond issues to fund land acquisition

1. Development/"Park Context" Strategies:

Growth east of the Park (S1-S2) is acknowledged but should be sensitive to community and environmental concerns.

Important tributaries to Salt Creek should be left natural allowing for road and utility crossings.

Maintain the two and one half mile area that has not been encroached upon (~~south of Warlick and west of 14th~~) allowing for road and utility crossings. (south of Warlick and west of 14th, within existing Park).

2. Internal Transportation Network Strategies:

Develop external hiker/biker trails to take pressure off existing internal trails and to link to existing trail systems.

Develop internal plan of the Park that redesigns trail systems relative to usage, nature study, wildlife, safety, recreation use and maintenance with separate trails for hikers/bikers/horses and minimizes the number of bridges.

Utilize UNL Engineering for design contest on low-cost efficient bridges.

Trails should have permeable surfaces that are maintained and cleared.

Three separate trails uses include bikers (linear), hikers (loops and woodchips), equestrian and maintenance combined.

No additional trail mileage in the current Park

8. External Transportation Network Strategies:

Revisit/need more information.

Transportation networks must not compromise or adversely affect the flood control purposes of the Park and must be ecologically sensitive to habitat by maintaining a wildlife corridor and avoiding significant habitat areas.

If additional east-west capacity is needed, an existing crossing should be used rather than a new crossing such as Yankee Hill Road.

Option #6 from the Transportation Study (use of south Beltway and Warlick Blvd.) is preferred.

An overpass bridge spanning Wilderness Park is not justified at this time.

If the Park is expanded south, a provision for an east-west crossing should be made.

If there is a new crossing of the Park, a flyover is preferable to an at-grade crossing.

9. Historical Preservation Strategies:

By preserving the Park, history is preserved

Historical preservation has intrinsic value beyond its education value

10. Safety Strategies:

Patrol by horse (on horse-only trails or bikes or on foot)

Consider call boxes if warranted by police

Do not let safety issue drive decisions

11. Park Management/Maintenance Strategies:

Develop and adequately fund park maintenance, utilize ecological expertise, utilize ecological management techniques

Employ minimal maintenance principles at this time

Enlist volunteers for trail maintenance

Park should be model for natural area management

Park needs to be actively managed to attain ecologically-based objectives

12. Policy Making Strategies:

Need to integrate the Park with the Comprehensive Plan

Promote sensitive development with incentives and rigid enforcement of zoning and code requirements

Maintain on-going Park study with citizens, academic, and government

Encourage design standard changes to minimize ecological impact

Consider changing the name of the Park to more accurately reflect values

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