

CEMVS-PM-E

MEMORANDUM THRU

CEMVS-ED (Baldus)
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CEMVS-CO (O'Bryan)
CEMVS- DP (Kellet)

FOR Commander, St. Louis District

SUBJECT: Supplement No. 2 (High Water Access and Recreational Facilities) Design Memorandum No. 10, The Master Plan, Carlyle Lake, Kaskaskia River, Illinois,

1. References:

- a) Carlyle Lake Master Plan, Design Memorandum No. 10, approved 1997
- b) ER 1130-2-550, Chapter 3: Project Master Plans and Operational Master Plans, 15 August 2002
- c) Keyesport Parking Plan Overview and Boat Ramp Plan 2004
- d) Impact of High Water on Carlyle Lake Facilities – January 2006 (attached as Appendix 1)
- e) EM 110-1-400 Engineering and Design, Recreation Planning and Design Criteria July 1987
- f) Letter Report, Subject: Operation Letter Report, Carlyle Reservoir, Illinois, Eldon Hazlet State Park Breakwater Construction and Shoreline Revetment Project, dated August 1998.

2. Purpose: The purpose of this supplement is to request approval for the following Corps actions not addressed in the current Carlyle Lake Master Plan and provide more information on proposed and future actions at the State Areas:

Corps Areas

- a) Rehabilitation and/or provision of high water boat ramps at Boulder, Coles Creek, Dam East, Dam West and Keyesport to permit access during high water events
- b) Provision of adequate breakwater protection at the Boulder main ramp and Dam East high water ramp
- c) Reconfiguration of the Keyesport boat ramp parking area
- d) Realignment and extension of the breakwater to consolidate the harbors at Tradewinds marina
- e) Conversion of 8 picnic sites to campsites, 10 walk-in campsites to drive-up campsites and adding 10 campsites in the campground in the Boulder Recreation Area
- f) Conversion of 10 picnic sites to campsites in the Dam East Spillway

- g) Conversion of 9 Coles Creek picnic sites to campsites and relocation of the picnic shelter to the Coles Creek beach.
- State Areas
- h) Raising the Eldon Hazlet State Park entrance road to provide access during high water events
 - i) Provision of an additional high water boat ramp lane at the Apache Boat Ramp and relocation of the Deer Run boat ramp
 - j) High Water Protection and Improvements at the Carlyle Sailing Association
 - k) Renovation of the Allen Branch area at Hazlet State Park
 - l) Development of a loop road in South Shore State Park to facilitate resort development
 - m) Development of a lodge/resort at South Shore State Park
 - n) Replacement of shower buildings and vault toilets at Hazlet State Park
 - o) Provision of full-service hookups at some Eldon Hazlet campsites.
3. Background Information: High water access issues and the recommended actions to address those issues are included in the attached *Impact of High Water on Carlyle Lake Facilities* (Appendix 1). High water issues and potential solutions were identified at a February 2003 workshop as listed in Appendix B of Appendix 1. Please refer to the study for more detail and a complete description of the problems, issues and alternatives.
4. Project Description: This section describes the problems in abbreviated format and identifies the proposed actions necessary to maintain access and provide recreational facilities for lake visitors during high water events. The descriptions are grouped according to the responsibilities of the direct managing agency, i.e., the Corps of Engineers (Corps) or the State of Illinois Department of Natural Resources (State)

a) **CORPS AREAS**

1.) **High Water Ramps**

High water boat ramps at Boulder, Coles Creek, Dam East, Dam West and the main ramp at Keyesport provide limited access to the lake during high water events (See Plate 3 for ramp locations). Design problems, inadequate size and poor traffic flow have limited their usefulness.

Breakwater protection is needed at the main ramp at Boulder and the high water ramp at Dam East. Corps guidance, as referenced in 1.f., states that breakwater alterations are limited to protecting existing facilities. In addition, expenditures of O&M funds are limited to alteration of the existing or proposed breakwaters to a protection frequency of flooding as was originally designed.

The attached boat ramp study (Appendix 1) describes the problems with the boat ramps and the recommended plan to correct the problems. A brief description of the issues in each area and the proposed plans are summarized below and in Table 1.

All elevations are feet NGVD (National Geodetic Vertical Datum). The numbering for plates showing individual recreation areas is the numbering used in the current (1997) Carlyle Lake Master Plan.

a. Boulder Recreation Area (Plate 6): The Boulder main ramp elevation is 450 and the high water ramp elevation is 460. The main ramp experiences problems with wave action from the north and northwest although it does have a breakwater protecting it from West and Southwest wave action. The four-lane main ramp is inundated at 451.5 and then only the one-lane high water ramp is available. The break over angle at the top of the high water ramp is incorrect and trailers in excess of 20' long have insufficient underside clearance.

Proposed Action: Correct the design of the existing high water ramp and add an additional lane to the high water ramp. Place an additional breakwater north of the main ramp to protect it from north and northwest winds.

b. Coles Creek Recreation Area (Plate 7): The Coles Creek Recreation Area main boat ramp is operational to 450 and the high water ramp to 456. The high water ramp has design problems similar to the Boulder high water ramp: vehicle/trailers greater than 20 feet have limited underside clearance at the top of the ramp due to the incorrect break over angle of the ramp. The entrance road to the ramp is inundated at 456; therefore, no alternatives with higher elevation than 456 are proposed at Coles Creek. **Proposed Action:** Correct the design (break over angle) of the existing high water ramp.

c. Dam East (Plate 9a): The two-lane high water ramp at Dam East is useable to 456 and is partially protected by a breakwater. The issues here are limited parking at the high water ramp and future development of a resort that would require removal of the high water ramp. The main ramp has four-lanes, but it is low (451) and not protected by a breakwater. **Proposed Action:** Add two lanes to the existing high water ramp with a top elevation of 460, extend the high water ramp parking area and raise the existing high water ramp breakwater.

d. Dam West Recreation Area (Plate 4): The Dam West main ramp elevation is 450 and the high water ramp elevation is 456. Recently, a breakwater to the South of the main ramp was improved by extending it to the Northeast and raising it and a docking pier (concrete sea wall) was added North of the ramp. Traffic is congested when the high water ramp is in use. **Proposed Action:** Add an elevated (456) docking pier adjacent to the existing docking pier at an estimated cost of \$20,000 and provide additional staff during high water events to monitor parking and provide visitor assistance.

e. Keyesport Recreation Area (Plate 5): The main boat ramp is closed when the lake level reaches 453, the elevation of the boat ramp apron. **Proposed Action:** Raise existing main ramp boat apron from 453 to 455 and reconfigure parking spaces.

f. Dam West Recreation Area -West Abutment (Plate 4): There is no public or service access to the lake above 460 elevation. **Proposed action:** To provide public and service access to the lake to 472, a new ramp would be constructed at the west abutment of the main dam. A ramp from 450 to 472 could be placed on the embankment and opened when lake levels reach 456. Parking in the area would be limited, but sufficient to accommodate anticipated demand.

2.) Keyesport Recreation Area and Marina Improvements

a. Keyesport Recreation Area (Plate 5). The closure of the north entrance to the Keyesport boat ramp parking lot (to allow sufficient operational area for Tradewinds Marina) has resulted in congested traffic circulation and inadequate parking at the boat ramp. In addition to being heavily used for fishing tournaments, the area has experienced an increase in use by single party users. A proposed plan to reconfigure the parking layout and improve the signage to correct traffic congestion was developed in the Keyesport Parking Plan Overview (see reference 1.c.). According to the Plan, more parking spaces will be created by expanding the beach parking lot, removing a parking island in the main parking lot, and slightly expanding the main parking lot. In addition, the Horseshoe Island parking lot will be rehabbed to accommodate more vehicle/trailer combinations. These changes would result in a potential gain of 32 additional car/trailer parking spaces for the Keyesport area. **Proposed Action:** Implement the Keyesport Parking Plan and rehab the Horseshoe Island ramp parking area. The proposed plan to improve the Horseshoe Island parking area will be implemented at a cost of \$49,200.

b. Keyesport Marina. Tradewinds Marina has added docks to their harbor locations and the harbors have reached their capacities. They have requested that the Corps reconfigure the breakwaters to create one harbor. Presently they have 125 docks and have an 85 percent occupancy rate. In order to be financially viable, they need to add an additional 125 docks. The Corps has performed a harbor bottom survey to determine harbor depths; reconfiguring the breakwaters according to the sketch on Plate 1 will create space for additional docks. Cost estimate for the breakwater reconfiguration is \$93,000.

3.) Boulder Recreation Area

Boulder Recreation Area (Plate 6). Eight campsites at the Boulder Campground are low in elevation and are inundated frequently. Due to a downward trend in picnicking, the Boulder Day Use Area is not heavily used, but it is located on high ground and shaded with large trees. It is proposed to convert 8 picnic sites to campsites in the Boulder Day Use Area. Adding the campsites will permit camping during higher lake elevations and will increase fee collection revenues. An existing comfort station in the picnic area would serve the proposed campsites. The Boulder campsite plan is discussed in detail in Appendix 1. Total cost is \$87,900 and the project's B/C ratio is 1.3.

In addition, 10 primitive walk-in campsites in the Boulder Campground will be converted to drive-up campsites with impact areas and electric. An existing service road would provide access to the campsites. The total cost of the project is estimated at \$48,000; average annual cost is \$3535 and annual benefits total \$10,500. The BCR (benefit cost ratio) for this action is 2.97.

Ten campsites and a loop road are proposed for the former dredge placement area at the southern end of the campground. These sites will be a replacement for existing campsites in the Boulder Campground that are too close together and will be removed. Estimated cost would be approximately \$70,000. Average annual cost is \$5155 and annual benefits total \$7350; the BCR is 1.43.

4.) East Spillway Recreation Area

East Spillway Recreation Area (Plate 9). Located on the east side of the Kaskaskia River, the East Spillway Recreation Area offers a variety of recreational opportunities including fishing, camping and picnicking. Demand for camping in the area is high. **Proposed Action:** The proposed action consists of converting ten picnic sites to ten campsites. Campsite plans include impact sites, picnic tables, grills and electrical services. Comfort stations are available in the immediate area and the McNair shower building is located approximately 1 mile to the east. The estimated cost of conversion is \$40,000. Annual revenues would be \$7350 and annual cost \$2946, the BCR is 2.50

5.) Coles Creek Recreation Area

Coles Creek Recreation Area (Plate 7). Located on the east side of Carlyle Lake, the Coles Creek Recreation Area offers a variety of recreational opportunities. Camping at Coles Creek is extremely popular and there is a high demand for campsites, while picnicking demand has trended downward. **Proposed Action:** The proposed action consists of converting 9 picnic sites to 9 campsites and construction of a 14' x 600' paved road to provide access to campsites. This would include impact sites, picnic tables, grills and electrical services. In addition, the Coles Creek picnic shelter would be relocated to the Coles Creek beach. Comfort stations are available in the immediate area and the Coles Creek Beach shower building is within a short walking distance. The estimated cost of conversion is \$36,000 for the campsites and \$8000 for the paved road. Average annual costs are \$3240 with annual revenues of \$9450 and a BCR of 2.92.

b) **STATE AREAS** – The State or the Carlyle Sailing Association (CSA) will be responsible for implementing the following actions except where noted.

1.) **High Water Ramps**

a. Eldon Hazlet State Park Apache Ramp (Plate 14): The Apache boat ramp is operable to 450. A separate one-lane high-water ramp adjacent to the main ramp is operable to 459.9. **Proposed Action:** If the entrance road is raised as discussed in section 4.b.3., adding an additional high water ramp at this location would be beneficial to meet potential demand.

b. South Shore State Park - Deer Run (Plate 15): Located on a small inlet on the east end of South Shore State Park, this ramp has three problems: the channel to the open water is silted in at the entrance to the lake, it has a low elevation (447) and the entrance road floods at 452. **Proposed Action:** Relocate the boat ramp to the cove entrance when the park loop road is developed as discussed in section 4.b.4.a.

2.) **Carlyle Sailing Association (Plate 14)**

The following actions address high water impacts at the Carlyle Sailing Association:

a. Breakwater/Levee. A breakwater was constructed to 456 ft. NGVD to protect the Carlyle Sailing Association (CSA) during flood damage reduction operations. However, at the north end of the breakwater there is an area where the CSA is not protected. Corps hydraulics branch personnel indicated that damage to the CSA would occur. It is proposed to complete the breakwater by extending it 330 feet to protect the CSA from high water wave action. This would be completed and funded by the Corps in accordance with Corps guidance as referred to in 1.f. and 4.a 1. A CSA engineering report indicates the cost of the extension would be \$154,500. A high water boat ramp will be constructed on the proposed breakwater. The ramp will be useable to elevation 456 ft. NGVD and will be the responsibility of the CSA to construct, operate and maintain. The cost of the boat ramp and access road is estimated at \$130,862.

b. High Water Improvements. The Carlyle Sailing Association is essentially shut down at lake elevations above 450 ft. NGVD; therefore, the following improvements are needed to insure operation of the harbor and marina above 450 ft NGVD. The CSA will be responsible for these improvements.

- Raising the catamaran field to slope from the present 445 ft. NGVD at normal pool up to 456 ft. NGVD. This can be done with dirt fill and would make the field operational up to elevation 455 ft. NGVD.
- Providing a high water ramp and parking area for the cabin boats with keels. At water elevation 452 ft. NGVD, the existing ramp is inoperable for cabin boats. See paragraph 4.b.)2.)a. for more detail.
- Adding vertical “Whaler” boards on the sea wall to prevent boats from ramming the metal sea wall. The existing “whaler” board is horizontal at elevation 445 ft. NGVD. The vertical boards would provide protection to

boats from 446 to 450 ft. NGVD water levels. The boards, whether 4" x 6" or 2" x 6", would be attached with sections of 4" x 4" angle iron brackets welded to the sea wall. About 15 boards on 10-foot centers would be required.

- Filling the low area on the boat parking lot with asphalt. The parking lot (dry storage area for trailered sailboats) slopes down to the sea wall and then rises. This area is under water at water elevation 450 ft. NGVD, causing pavement damage and unsafe footing. Another alternative would be to raise the parking lot and ramp to 456 with fill and pave at an estimated cost of 1.25 million.

Total estimated cost for these facilities would range between \$120,000 to 1.5 million.

3.) **Eldon Hazlet State Park (Plate 14)**

Several actions are proposed to address high water impacts at Eldon Hazlet State Park:

a. Entrance Road: During high water events, portions of the Eldon Hazlet State Park entrance road are inundated (approximately 1.2 miles of roadway at higher lake elevations), preventing staff and visitor access to all park and concession facilities even though most of the interior road system is unaffected. Major facilities closed by high water conditions include the Carlyle Sailing Association; all concession facilities (camp store, the Carlyle Lakefront Cottages, swimming pool), boat ramps, the 364-site Illini campground, and the administration office/service area. Entrance road improvements are needed so this large recreation area can remain open during regularly occurring high water conditions in order to serve Carlyle Lake visitors.

The State is proposing to raise the entrance road in partnership with the Corps. If the entrance road was raised to 460 or above, approximately 80% of facilities would be open for use including loop roads, comfort stations, campsites, a high water ramp, the Carlyle Lakefront Cottages, a swimming pool and a store. Further engineering study by the Corps and the State will determine the cost and extent of the road raise necessary to provide optimum access during high water events. .

b. Allen Branch Boat Ramp: Allen Branch boat ramp is operable to 450.4. Renovations are planned in 2006 that will include rehabbing the boat ramp (to 5-lanes with a transfer station), courtesy docks, parking areas, and riprap areas. New items include a fish cleaning station and universally accessible provisions for boat access. Construction is scheduled for 2006.

Additional proposed projects within the park include replacement of 20 vault toilets, rehabilitation of 3 shower buildings and converting 50-75 campsites to full service hookup sites within the park.

4.) South Shore State Park (Plate 15)

South Shore State Park. South Shore State Park is located on the southeast side of Carlyle Lake approximately three miles east of the city of Carlyle and is being developed and managed by the IDNR via a park and recreation lease. Annual attendance averages over 380,000 visitors at this 305-acre site that is primarily managed for the preservation of its natural and cultural resources while also providing compatible resource oriented recreational activities. Proposed actions include development of a loop road and a resort lodge.

a. Loop Road Rehabilitation: Plans have been developed to rehabilitate the South Shore State Park road system. Proposed actions include realigning a portion of the existing road, a new road loop, a new 20-foot wide paved roadway with aggregate shoulders (2-foot wide in the open and 1-foot wide through wooded areas), roadway removal, upgrading and resurfacing of all existing use area roadways, parking lot redesign and paving, pedestrian trail crossings, site grading and ditching, clearing, culverts, metal vehicular gates, concrete wheel stops, striping, seeding and mulching of all disturbed areas, and landscaping.

The plan shown on Plate 2 is the preferred alternative because it will provide for the greatest utilization of the area by the public. It will provide the best wildlife viewing opportunity and will allow for greater future development of South Shore State Park. The plan provides a more scenic view of the lake, greater site security and visitor safety, protection from road mortality for the area's population of eastern massasauga and would provide high water access to the Deer Run boat ramp or alternative ramp location in the same general area.

Cost of this plan is estimated at \$3,000,000. Acquisition of adjacent property and the vacation of the existing County/Township roadway (from Saddle Dam 3 to the existing site roadway system) are necessary for complete project implementation.

b. Lodge Development: A lodge/resort development is proposed and would include construction of both cabins and a separate 100-room lodge with restaurant facilities. Also included in this project would be all site infrastructure/ utilities necessary, paved access road & parking lots, information board/kiosk, roads and parking lot pavement, boat docking facilities for the visitors boats, riprap shoreline protection, public phone service, site/ security lighting, fencing/ vehicular barriers, the seeding & mulching of all disturbed areas, prairie seeding, and all landscaping necessary. The estimated cost of this facility could range between 1.5 to 16 million depending on the level of development. An EA would be required for the resort/lodge when plans are finalized. The lodge resort is shown in the current Master Plan as future.

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Table 1 – Comparison of Proposed Alternatives and Recommended Plan

Boat Ramp	Alternative 1	Alternative 2	Alternative 3	Recommended Plan	Other
Corps Areas					
Boulder	Raise main ramp(450) to 454 Cost: \$165,300. BCR is 0.64	Replace high water ramp (460 el.) and add a second high water ramp. Cost: \$51,500 BCR = 1.14	Raise main ramp and parking lot to 460 Cost:\$842,264 BCR = 0.78	Alternative 2 & breakwater protection	Add breakwater to protect main ramp. Cost: 90,000 Add campground sites to picnic area and camping area Cost::\$205,900
Coles Creek	Replace high water ramp (456) with correct design. Cost:\$12,900 BCR = 2.28	Raise main ramp (451) and parking lot to 455. Cost:\$688,867 BCR = 1.03		Alternative. 1	
Dam East	Construct new ramp in NE corner of main ramp parking lot (no breakwater). Cost: \$38,845 BCR = 3.85	Raise main ramp to 460 Cost: \$231,230 BCR = 1.94	Add 2 new ramps adjacent to existing high water ramp and elevate ramp to 460 Cost:\$117,354 BCR = 2.31	Alternative 3 & break-water protection	Dam East High Water Breakwater Cost: \$122,198
Dam West	Raise main ramp and parking lot to 460 Cost:\$1,578,750 BCR = 2.49	Add new docking pier with 456 max. elevation adjacent to existing pier and the existing high water ramp. Cost is \$20,000.	Raise main ramp and parking lot to 456 Cost:\$1,087,125 BCR = 2.81	Alternative 2	
Keyesport Main	Raise main ramp apron to 455. Cost:\$119,770 BCR = 4.22	Raise parking area and ramp to 457. Cost:\$597,523 BCR = 1.06	Raise ramp and parking lot to 460 Cost:\$978,615 BCR =0.77	Alternative 1	
Dam West Recreation Area - West Abutment:	Provide high water ramp from 450 to 472 Cost:\$16,610 BCR = 1.20			Alternative 1	

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Boat Ramp	Alternative 1	Alternative 2	Alternative 3	Recommended Plan	Other
Horseshoe Is.	Rehab parking lot to accommodate 6 more car/trailer parking spaces. Cost: \$49,201			Alternative 1	
State Areas					
Eldon Hazlet State Park Entrance Rd.	Raise entrance road to 460 or higher. Cost: TBD			Further engineering study needed	
Apache High Water, IDNR	Add additional high water ramp adjacent to existing high water ramp (460). Cost:\$30,050			Alternative 1	
Allen Branch, IDNR	Rehab parking lot and ramp area. Cost: 1.1 million			Construction is scheduled for 2006	
Eldon Hazlet	Replace vault toilets, shower buildings and add full-service hookups. Cost 2 million			Alternate 1	
Carlyle Sailing Association	Construct high water ramp (455) and access road on proposed breakwater Cost: \$131,000	Raise ramp and parking lot to 456. Estimated cost is 1.25 million.		Alternative 1	
	Complete breakwater protection of CSA facilities. Cost 154,500			Alternative 1	
	Complete high water improvements. Cost: \$120,000			Alternative 1	
Deer Run	Relocate ramp to cove entrance at el. 456 when park loop road is completed. Cost:\$90,766 BCR = 1.85	Raise ramp to 452 at same location and dredge mouth of inlet. Cost:\$124,900 BCR = 0.8		Alternative 1	

c) **SUMMARY**

Summary of Proposed Actions. The following table summarizes proposed actions, funding sources, cost and actions required to satisfy environmental compliance requirements.

Table 2 – Summary of Proposed Actions

Location	Proposed Action	Funding Source	Cost	Environmental Compliance
Corps Areas				
Dam West	Add docking pier	Corps	\$20,000	Sec 404 permit will address NEPA considerations as well.
	Add high water ramp at west abutment of dam	Corps	\$16,610	Categorically excluded
Boulder	Rehab and expand high water ramp	Corps	\$51,500	Categorically excluded.
	Convert 8 picnic sites to campsites in Boulder picnic area.	Corps	\$87,900	Categorically excluded.
	Convert 10 walk-in campsites to drive-up sites	Corps	\$48,000	Categorically excluded.
	Relocate 10 campsites and construct loop road to dredge placement area	Corps	\$70,000	Categorically excluded.
	Construct breakwater to protect the main ramp.	Corps	\$90,000	Sec 404 permit will address NEPA considerations as well.
Coles Creek	Rehab high water ramp	Corps	\$12,900	Categorically excluded.
	Convert 9 picnic sites to campsites and relocate picnic shelter to beach	Corps	\$44,000	Categorically excluded.

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Location	Proposed Action	Funding Source	Cost	Environmental Compliance
Dam East	Rehab high water ramp	Corps	\$117,350	Categorically excluded.
	Elevate breakwater.	Corps	\$122,198	Sec 404 permit will address NEPA
Dam East Spillway	Convert 10 picnic sites to campsites	Corps	\$40,000	Categorically excluded.
Keyesport	Raise main ramp apron to 455	Corps	\$119,770	Categorically excluded.
	Reconfigure boat ramp parking lot spaces	Corps	nominal	Categorically excluded.
	Realign harbor breakwater	Corps	\$93,000	Sec 404 permit will address NEPA
Horseshoe Island	Rehab parking area to accommodate 6 additional car/trailers spaces	Corps	\$49,200	Categorically excluded.
State Areas				
Eldon Hazlet State Park	Raise Entrance Road	State	TBD	Sec 404 permit will address NEPA considerations as well.
	Rehab Allen Branch boat ramp to 5-lanes, pave parking lot, transfer station, courtesy docks, and fish cleaning station	State	\$1.1 million	Categorically excluded Sec 404 permit, if necessary, will address NEPA considerations as well.
	Replace 20 vault toilets	State	\$765,000	Categorically excluded.
	Replace 3 shower bldgs. Convert 50-75 standard campsites to full service hook-up sites.	State	\$1,250,000	Categorically excluded.

Location	Proposed Action	Funding Source	Cost	Environmental Compliance
Eldon Hazlet State Park	Add additional high water lane at Apache Boat Ramp	State	\$30,050	Categorically excluded.
Carlyle Sailing Association	Complete breakwater protection	Corps	\$154,500	Sec 404 permit will address NEPA considerations as well.
	High water improvements	CSA	\$120,000 to 1.5 million	
	High water ramp on breakwater	CSA	\$130,862	Categorically excluded
South Shore State Park	Add resort/lodge	State	\$1.5 to 16 million.	Impacts were addressed in EA.
	Loop road	State	\$ 3,000,000	An EA will be required.
	Relocate Deer Run ramp to cove entrance	State	\$191,000	Sec 404 permit will address NEPA

5. Environmental Compliance: Environmental impacts are being addressed as stated in Table 2.
6. Cost Estimate: Cost estimates and funding sources for each project are included in Table 2. Economic justifications for projects are presented in Appendix 1.
7. Public Involvement, Coordination and Technical Review: An initial kickoff meeting to identify issues related to high water was conducted on 3 Feb 2003. See Appendix 1 for a list of concerns, issues and solutions identified at that meeting. The final draft supplement will be presented at a workshop on 16 February 2006. Comments received at these meetings will be considered and incorporated into this supplement as appropriate. A independent technical review was performed by operations personnel and is on file.
8. Conclusions: The proposed projects address the impact of high water on Carlyle Lake facilities and makes efficient, cost-effective proposals to meet the demand for recreational high water access and facilities at Carlyle Lake.
9. Recommendations: The proposed actions are in accordance with the Carlyle Lake Master Plan and Corps regulations. Approval of this supplement is recommended.

OWEN D. DUTT
 Chief, Environmental Analysis Branch

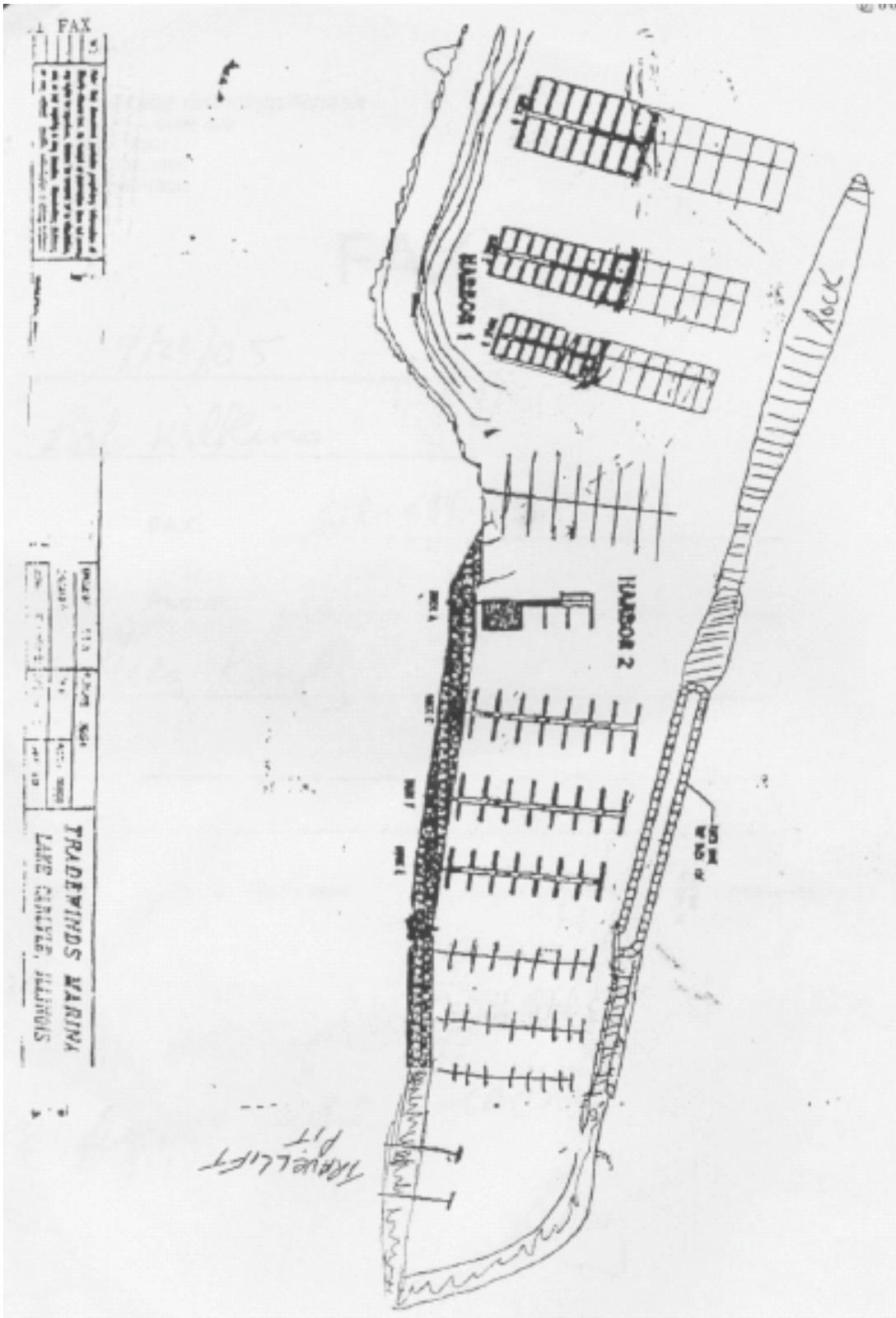
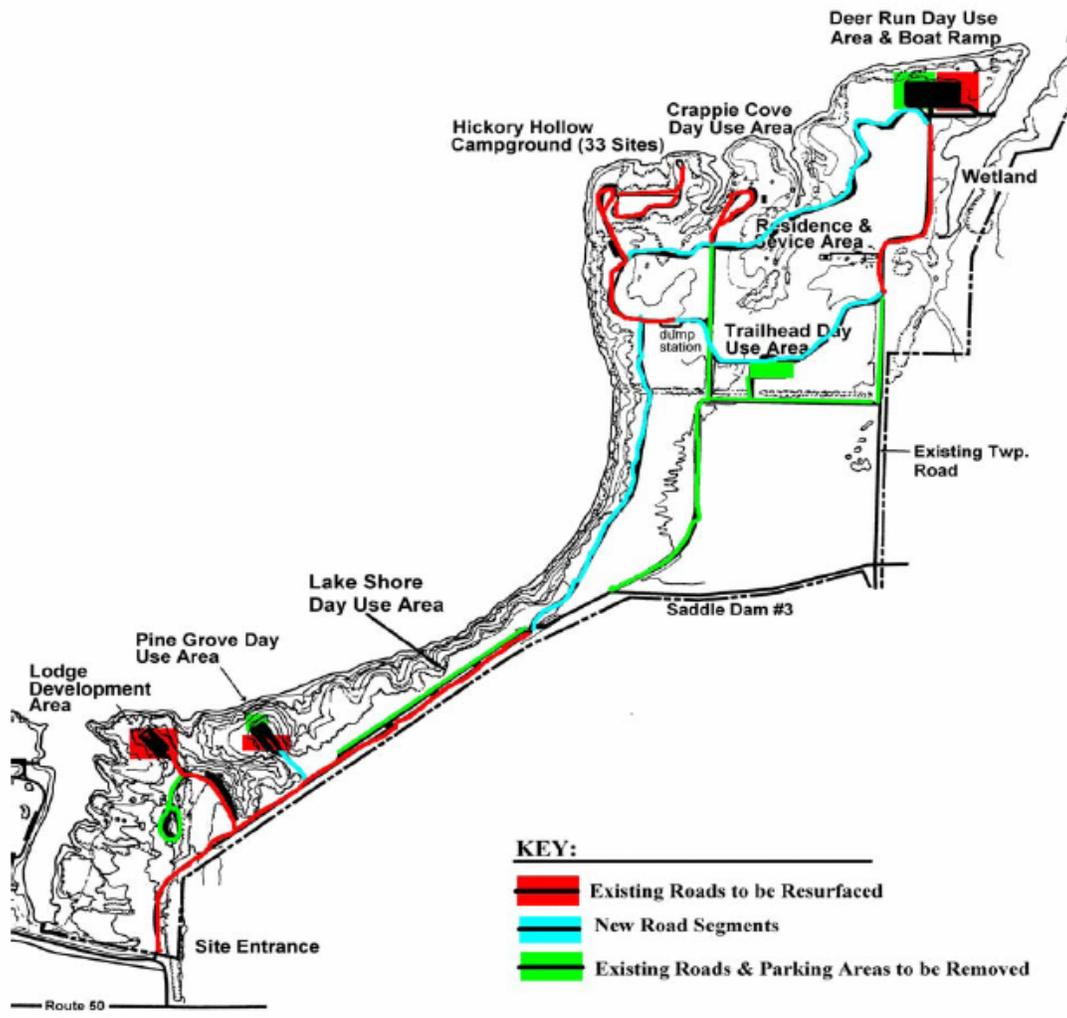


Plate 1 – Tradewinds Marina



KEY:

- Existing Roads to be Resurfaced
- New Road Segments
- Existing Roads & Parking Areas to be Removed

NORTH
SCALE: 1" = 1000'

SOUTH SHORE STATE PARK ROAD IMPROVEMENTS

Plate 2 – South Shore State Park Road improvements

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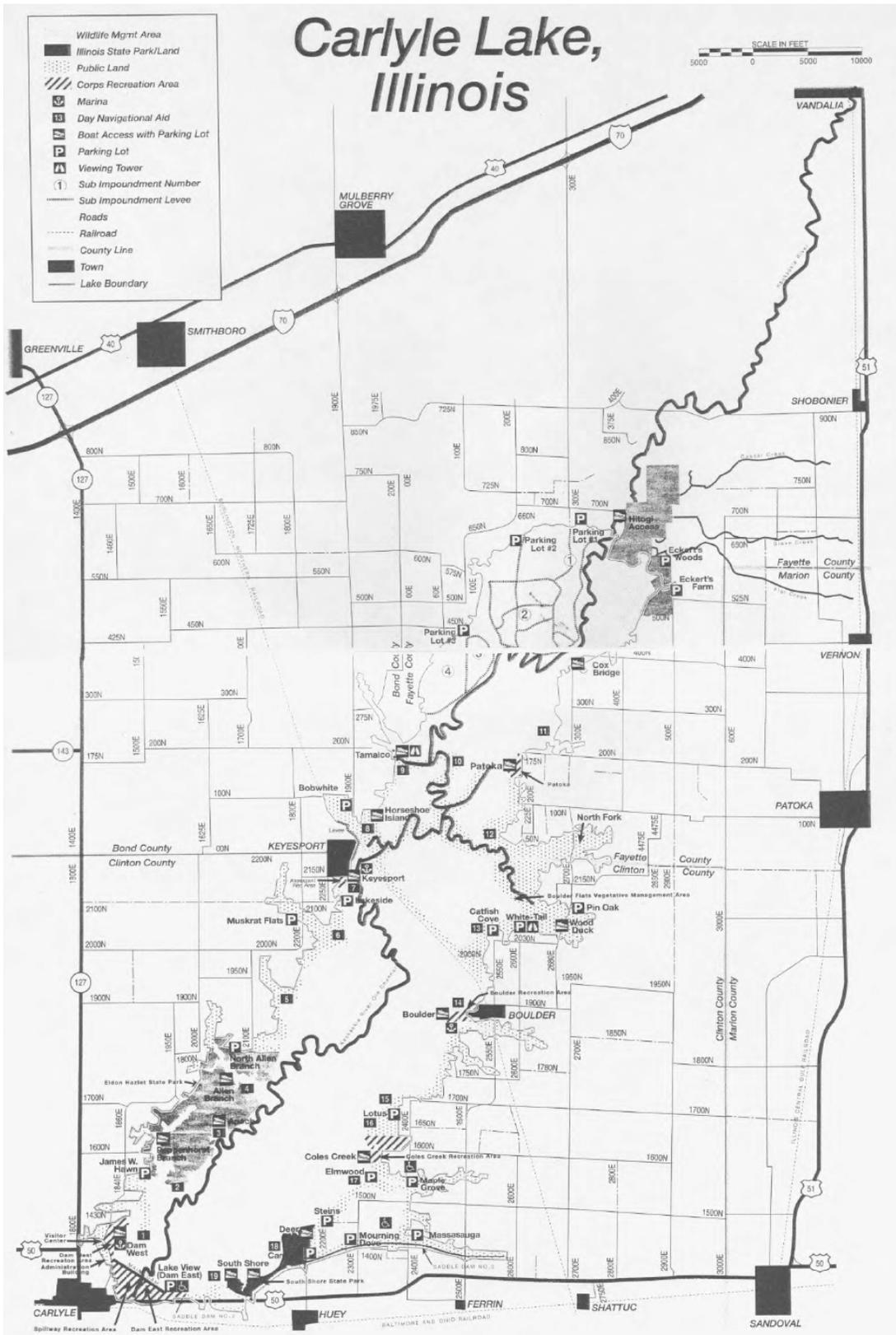


Plate 3 – Carlyle Lake Boat Access Sites