

UPDATING
OF THE
MASTER PLAN

^{FM}
Coralville
Res.

CORALVILLE RESERVOIR
IOWA RIVER
IOWA

U. S. ARMY ENGINEER DISTRICT, ROCK ISLAND
CORPS OF ENGINEERS
CLOCK TOWER BUILDING
ROCK ISLAND, ILLINOIS
1 JUNE 1960

ENGW OM (3 Jun 50)

4th Ind

SUBJECT: Updating of the Master Plan - Coralville Reservoir, Iowa River
Iowa

Office, Chief of Engineers Washington 25, D. C., 24 July 1961

TO: Division Engineer, U. S. Army Engineer Division, North Central,
Chicago, Illinois

1. The updated Master Plan is approved subject to the comments of the Division Engineer as contained in the preceding 3rd Indorsement and to the following additional comment.

2. Reference par. 76. Site layout plans of public use areas not now included in subject plan and an Design Memorandum No. 15A should be added.

FOR THE CHIEF OF ENGINEERS:



MARK S. GURNEE
Chief, Operations Division
Civil Works

1 Incl
w d

NCDED

5th Ind

4 AUG 1961

U. S. Army Engr Div, North Central, Chicago, Ill.

TO: District Engineer, U. S. Army Engineer District, Rock Island, Ill.

For information and appropriate action.

FOR THE DIVISION ENGINEER:



EDWIN W. NELSON
Chief, Engineering Division

1 JUN 1961

NCDEU (3 Jun 60-NCRGM)

3rd Ind

SUBJECT: Updating of the Master Plan - Coralville Reservoir Iowa River, Iowa

U. S. Army Engr Div, North Central, Chicago, Ill.

TO: Chief of Engineers, ATTN: XINGCW-O, DA, Washington, D. C.

1. In accordance with EM 1130-2-302, paragraph 10, there is transmitted herewith an updated Master Plan for Coralville Reservoir, Iowa River, Iowa. The updated Plan replaces the previously approved Master Recreation Plan dated March 1950 which does not meet current requirements for such plans.

2. It is recommended that the updated Master Plan be approved subject to the following comments which were based, in part, on a discussion with Mr. Matt Huppach in this office on 30 March 1961:

a. The title of the plan should be Master Plan for Coralville Reservoir, Iowa River, Iowa Design Memorandum 15 C, in accordance with EM 1130-2-302, appendix A, paragraph 21(4)g.

b. The format of the previously approved Master Recreation Plan is such that it is not practicable to substitute page for page to show revisions in accordance with EM 1130-2-302, paragraph 10 g. However, the two plans can be bound together under one cover if desired for ready reference. Future plans should be prepared so that appropriately numbered and dated revised pages can be inserted from time to time.

c. Plates 1-0 show areas reserved for future development under Priorities 1, 2 and 3. Paragraph 12 states that lands above elevation 715 may be allocated for any of the priority purposes, presumably including Priority 4. It should be clearly stated that no Priority 4 uses will be permitted until it can be fully demonstrated that reserved lands will not be required for higher priority use. A table of acreages assigned to the various Priorities should be included.

d. In accordance with EM 1130-2-302, paragraph 9c(3), Conservation and Forest Management Plans should be prepared as supplements to the Master Plan, paragraphs 40-50.

e. Costs in Design Memorandum No. 15 are no longer valid. Therefore in accordance with EM 1130-2-302, paragraph 9c(5), costs of existing, supplemental and ultimate facilities should be covered in an appendix.

f. Site layout plans and the program for development of facilities should be included in the Master Plan or in a construction design memorandum. (see EM 1130-2-302, paragraph 9c(7)). Since Design Memorandum 15, covered only initial developments constructed with project funds, the updated Master Plan should be followed by a new design memorandum including site layouts

WCDED (3 Jun 60-NCRGM)

3rd Ind (cont'd)

SUBJECT: Updating of the Master Plan - Coralville Reservoir, Iowa River,
Iowa

and a program for development of facilities which are proposed to be built in Fiscal Years 62, 63 and 64 and also a projected ultimate development.

g. Reference is made to paragraph 35 of the updated Master Plan. It has been pointed out to Rock Island District that ownership of land adjacent to the project is not a basis for permitting private exclusive access to the reservoir. Also, where project lands are not required or reserved for higher priority uses, access roads from adjoining private lands, such as subdivisions, should be permitted only if connecting roads through the private lands are also open to the public.

h. Reference is made to paragraph 37, updated Master Plan. Boat permits may be issued free of charge. However, permits for boathouses, landings, docks and moorings should be issued only on payment of an appropriate fee. Also, such permits may be issued only after adequate lands to meet future public needs have been reserved. In certain restricted areas it may be advisable in the public interest to require all boaters to use commercial docks, group facilities or public landings.

i. Reference paragraph 40. When available plans being developed by the Iowa State Conservation Commission should be incorporated in the Master Plan.

j. Reference paragraph 39 and EM 1130-2-302, paragraph 9f(2). In support of the proposals for future development of public use facilities, a report on attendance through calendar year 1960 should be included together with an estimate of future attendance.

k. Section III. The dates of surveys and reports referred to in this section should be inserted.

l. Section VI. On the basis of experience gained from construction and maintenance of launching ramps now in place, consideration should be given to the use of reinforced concrete in future ramps.

m. The color code on Plate 1 should be added to other plates also.

APPROVED DIVISION ENGINEER:

E. G. PATTEN
Colonel, Corps of Engineers
Deputy Division Engineer

1 Incl
1. 1/3 2, 4 & 5
2. 1/3

Copy furnished:
Rock Island Dist

COPY FOR: ROCK ISLAND DIST

NCRGM (3 Jun 60-NCRGM) 2d Ind
SUBJECT: Updating of the Master Plan - Coralville Reservoir,
Iowa River, Iowa

US Army Engr Dist, Rock Island, Ill., 14 Dec 60

TO: Division Engineer, US Army Engr Div, NC, Chicago, Ill.

1. Transmitted herewith are copies of the updated Master Plan revised to conform with the suggestions contained in the 1st indorsement. Also transmitted is one set of revised pages, added photographs, and exhibit A, including the mimeographed copies of the 1st and 2d indorsements hereon for inclusion in the copy of the Plan retained in your files.

2. Replies to comments given in the 1st indorsement are given in the following subparagraphs which correspond to the subparagraphs under paragraph 2 of the 1st indorsement:

- a. Suggestion followed, see section VII.
- b. Photographs were added and appended to the back of the report.
- c. Aerial photographs were added and appended to the end of the report.
- d. Suggestion followed, see paragraph 75.
- e. Suggestion followed, see paragraph 39 and exhibit A.
- f. In connection with layout plans and programs, reference was made in paragraph 76 to Design Memorandum No. 15A, as suggested by Mr. G. Hanson, NCD, during a recent visit to RID.

E. M. FRY
Colonel, Corps of Engineers
District Engineer

2 Incls
#1-Updated Master
Plan (in quint.)
#2-Set, rev. pgs. &
additions (pgs. b &
c of index; pgs. 16,
26 & 27; 2 aerial photos;
4 sheets of photos; ex-
hibit A; and 1st and 2d
Inds.)

NCDGS(3 Jun 60-NCRGM)

1st Ind

SUBJECT: Updating of the Master Plan - Coralville Reservoir,
Iowa River, Iowa

U. S. Army Engr Div, North Central, Chicago 5, Ill., 21 July 60
TO: District Engineer, U. S. Army Engr Dist, Rock Island, Ill.

1. Confirming telephone conversation this date between Mr. Carlson and Mr. Hanson, the updated Master Plan for Coralville Reservoir is returned herewith for further revision.

2. The deficiencies in the Plan furnished this office for review consist primarily of omissions of items required in Master Plans as listed in EM 1130-2-302, paragraphs 9c and 10f. The Plan should be revised to include all items listed in the cited paragraphs, including, but not limited to the following:

a. Statement on economic impact of the project. (10-f-(5))

b. Photographs of public use. (10-f-(6))

c. Aerial photographs after clearing; land and water use capabilities; requirements for development, operation and use of soils and water and forest. (9-c-(1))

d. Cost estimates. (9-c-(4))

e. Plan of administration. (9-c-(5))

f. Site layout plans and programs for development. (9-c-(6))

Reasons for omission of required items from the Plan should be stated in the letter of transmittal.

HARRY O. FISCHER
Colonel, Corps of Engineers
Division Engineer

1 Incl
n/c (ex cy #6 w/d)

U. S. ARMY ENGINEER DISTRICT, ROCK ISLAND
CORPS OF ENGINEERS
CLOCK TOWER BUILDING
ROCK ISLAND, ILLINOIS

ADDRESS REPLY TO
DISTRICT ENGINEER

NCRGM

3 June 1960

SUBJECT: Updating of the Master Plan - Coralville
Reservoir, Iowa River, Iowa

THRU: Division Engineer
U. S. Army Engineer Division, North Central
Chicago, Illinois

TO: Chief of Engineers
Department of the Army
Washington, D. C.

Transmitted herewith are copies of the updated
Master Plan for Coralville Reservoir, in accordance with
paragraph 10, EM 1130-2-302, to supplement the Master Plan
dated March 1950 for the project.

1 Incl (6 cys)
Updated Master Plan
Coralville Res.

E. M. FRY
Colonel, Corps of Engineers
District Engineer

UPDATING OF THE
 MASTER PLAN
 FOR
 CORALVILLE RESERVOIR
 IOWA RIVER, IOWA

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EXHIBITS

Exhibit

A	District Real Estate Circular No. 1, dated 4 August 1960, subject, "Admini- stration of Civil Works Lands and Water Areas"
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UPDATING OF THE
MASTER PLAN
FOR
CORALVILLE RESERVOIR
IOWA RIVER, IOWA

I - GENERAL INFORMATION

1. Project authorization. The Coralville Reservoir project was selected by the Secretary of War and the Chief of Engineers under authority granted in Section 4 of the Flood Control Act of 28 June 1938 (Flood Control Committee Document No. 1, Seventy-fifth Congress, 1st session).

2. Purpose. The Coralville Reservoir will be used to store Iowa River flows temporarily during flood periods. The project will minimize flood damages on the Iowa River from the dam to the mouth of the Cedar River, and will provide a large degree of protection for lands along the Iowa River below the mouth of the Cedar River. The project will effect significant reductions of Mississippi River flows at Keokuk, Iowa, and reduction of flows at Cairo, Ill. Incidental benefits to conservation and recreation will accrue from the project.

3. Justification. The initial Master Plan was prepared under date of March 1950. In the interim, conditions and developments have shown marked changes in potential land utilization in the reservoir. The material given hereafter updates the initial plan and is submitted in conformance with paragraph 10 of EM 1130-2-302 dated 28 April 1959. This report describes existing and potential utilization of project lands and sets out procedures for their development and management.

4. Engineering features of the project. The dam, which is a rolled-fill earth embankment extending across the Iowa River Valley, has a crest length of approximately 1,400 feet and a maximum height of approximately 100 feet above the stream bed. The outlet works for releasing impounded water from the reservoir consist of an approach channel, intake structure, conduit, stilling basin and outlet channel, located near the east end of the dam. The invert of the conduit is at elevation 645.0 corresponding to that of the stream bed. At this time, the project is complete except for several small incidental items, and has

been in effective operation since January 1958. The spillway is located on the right bank and has a length of 500 feet, with the crest at elevation 712.0. The spillway discharge channel, paved with concrete for about 300 feet downstream from the control weir, follows the grade of the natural rock surface to the river, a distance of about 1,200 feet below the toe of the earth dam.

5. The spillway elevation, 712.0, and the surface of the conservation pools, elevations 670.0 and 680.0, are the controlling factors with respect to the recreational development within the Coralville Reservoir. A permanent conservation pool with a maximum depth of about 20 feet and a surface area of 1,820 acres is maintained in the reservoir during the period from 1 March to 1 July of each year. During the remainder of the year, the conservation pool has a maximum depth of about 30 feet and a surface area of 4,900 acres. The project is operated so that 475,000 acre-feet of storage capacity is available during the period of flood danger, and 17,000 acre-feet of water is held in storage for a sustained flow of 150 c.f.s. in the river below the dam. Pertinent engineering data for the dam and reservoir are shown in table 1.

Table 1

Engineering data
Coralville Dam and Reservoir

Length of dam at crest	1,400 feet
Height of dam above stream bed	100 feet
Length of outlet conduit	350 feet
Length of spillway	500 feet
Width of top of dam	22 feet
Elevation of top of dam	743.0 m.s.l.
Elevation of top of flood control pool (spillway crest)	712.0 m.s.l.
Elevation of top of conservation pool, 1 March - 1 July	670.0 m.s.l.
Elevation of top of conservation pool, 1 July - 1 February	680.0 m.s.l.
Storage capacity for flood control	475,000 acre feet
Storage capacity, conservation pool at elevation 670.0	17,000 acre feet
Storage capacity, conservation pool at elevation 680.0	53,750 acre feet
Area of flood control pool	24,800 acres
Maximum width, flood control pool	2.5 miles
Area, conservation pool at elevation 670.0	1,820 acres
Area, conservation pool at elevation 680.0	4,900 acres
Length (river miles) of conservation pool at elevation 670.0	17.4 miles
Length (river miles) of conservation pool at elevation 680.0	21.7 miles
Length of shore line of flood control pool including enlarged Lake Macbride	100 miles
Length of shore line of conservation pool at elevation 680.0	68 miles

6. Plan of operation. The current plan of operation is essentially designed to include operation of the reservoir for reduction of flood crests on the lower Iowa River and on the Mississippi River below the confluence of the two streams without the use of surcharge storage in the reservoir. Insofar as practicable, outflow rates will be adjusted to assure that elevation of water in the reservoir does not exceed 712.0. A conservation pool will be maintained at a minimum elevation of 670.0. At such times when natural flow in the Iowa River below the dam is less than 150 c.f.s., storage in the conservation pool will be released to maintain a minimum flow of 150 c.f.s. Further information on reservoir operation as it pertains to the conservation pool is given in the following paragraph.

7. Conservation pool. The conservation storage pool will be maintained at elevation 670.0, or as near that elevation as practicable, during the period between 1 March and 30 June when maximum storage for flood control is needed. During the period from 30 June to 1 February, when the probability of occurrence of floods is more remote, the conservation pool will be held as nearly as practicable to elevation 680.0. The resulting greater conservation storage is mainly for the purpose of providing for the minimum release of 150 c.f.s. during prolonged periods of natural low flow. Between elevations 670.0 and 680.0, the conservation pool will vary in surface area from 1,820 to 4,900 acres, and in length from about 17 miles to 22 miles.

II - GENERAL CHARACTERISTICS OF PROJECT AREA

8. Location.- Coralville Reservoir is located on the Iowa River in southeastern Iowa. The dam is located about one-fourth mile below the mouth of Turkey Creek, a tributary of the Iowa River, and approximately 83.3 miles upstream from the confluence of the Iowa and Mississippi Rivers. Its location is 9.0 river miles upstream from Iowa City, Iowa, the nearest large population center. The reservoir lies chiefly in Johnson County but extends also into Iowa County, with one tributary extending a very short distance into Linn County. The region surrounding the project throughout the extent of the conservation pool is scenic and characterized by narrow ridges between deeply cut valleys of small tributaries, the slopes of which, have a vegetative cover of deciduous trees and shrubs. The location of the project with respect to nearby existing recreational areas is shown on plate 2.

9. Accessibility.- Two railroads serving the project area are the Chicago, Milwaukee, St. Paul and Pacific Railroad to the west and the Rock Island Lines to the east of the reservoir. The Cedar Rapids and Iowa City Railway crosses the reservoir near the upper end of the conservation pool. The main east-west line of the Rock Island Lines between Chicago and Denver passes through Iowa City. Highways serving the area are U. S. No. 6, U. S. No. 218, and Iowa No. 261, the latter two being west and east of the conservation pool, respectively. U. S. Highway No. 218 between Iowa City and Cedar Rapids crosses the Iowa River near the upper end of the conservation pool. Several secondary or county roads lead from these highways into the reservoir area.

10. Description of project area.- Approximately 33,700 acres were acquired in fee and easement for the project. Of this total, 23,700 acres were acquired in fee. Eighteen thousand eighty acres lie between elevation 680.0, the maximum conservation pool, and elevation 712.0, the top of the flood control pool, all of which will be subject to inundation to a varying extent at infrequent intervals during the operation of the reservoir for flood control. Approximately 1,117 acres of land were acquired at Lake Macbride State Park, of which some 660 acres were flooded permanently by raising the spillway of the present park dam to elevation 712.0. The remaining land between the new lake at elevation 712.0 and the taking line is an irregularly shaped strip varying in width from a few feet to several thousand feet.

11. The perimeter of the reservoir throughout most of the conservation pool is studded with high ridges, as well as points whose slopes vary from gentle to steep. The irregular shoreline is indented with bays and coves of varying size at all stages of reservoir level. Nearly all the shore line of the conservation pool is wooded, the predominant species being soft maple, elm, cottonwood, red oak, and birch. Some of the ridges have a good grass cover.

12. Approximately 350,000 people reside within a 50-mile radius of the dam, about 160,000 in 65 cities and towns. The largest communities in easy reach of the reservoir are Cedar Rapids and Iowa City, cities of 72,296 and 27,212 population, respectively, according to the 1950 census.

13. Water characteristics and sedimentation.- The average slope of the uncontrolled river in the reach of the reservoir is 1.5 feet per mile. That portion of the Iowa River upstream from the dam drains an area of 3,084 square miles and has an average yearly discharge of approximately 343 acre-feet per square mile. The greatest flows occur in the months of March, April, May, and June. Sedimentation will not seriously impair the effectiveness of the primary purpose of the reservoir at the end of the first fifty-year period. On the basis of siltation studies, more than one-half of the original capacity of the reservoir will be available at the end of 500 years. In order to enhance the efficiency of the project and extend its life, all attempts through programs of the soil conservation agencies or of individuals to reduce the amount of silt and industrial wastes carried into the river are encouraged.

14. Climate, rainfall, and vegetation.- The area has a moderate climate. The mean annual temperatures average 48 degrees with an extreme range from -37 degrees to 112 degrees Fahrenheit. The average summer temperature is about 72 degrees, and the average winter temperature is about 22 degrees Fahrenheit. Rainfall averages about 33 inches annually, with almost half of this amount occurring during the growing season, May through August. The broad upper reaches of the site support farming, the major crop being corn. The area is highly productive as are the adjoining farms. The hillsides, the steeper valley portions of the project area, and a fringe of bottom land adjacent to the river are covered with stands of mixed hardwood trees which, due to grazing, are in only fair state of productivity. The season for recreation activities, in general, extends over approximately a six-month period with most of the activity taking place from the first of June through September.

15. Fish and wildlife resources.- The Iowa River is a silt-laden stream subject to extreme fluctuations in water level. Because of this fact, rough fish predominate over the more desirable game species throughout the river proper and in the oxbow lakes and sloughs in the upper reaches of the reservoir. Channel catfish and bullheads are currently most favored by the anglers, although carp and other rough fish are frequently taken. Survey reports submitted by the U. S. Fish and Wildlife Service predict a substantial increase in fisheries benefits as a result of the reservoir. The prediction of future increased benefits is based on several factors that are now apparent or will be in the near future. Such factors that will enhance the sport fishery of the area are: (1) clear water and a sustained discharge of 150 c.f.s. downstream from the dam, (2) clear water and increased littoral zone in the reservoir area, (3) abundance of forage fishes, (4) better access and (5) applied fish management. Since, many of the aforementioned oxbows and sloughs will be intensively managed by the Iowa Conservation Commission, the sport fishery should be enhanced therein. Modern fisheries management practices, such as standing crop analyses, are currently being conducted by the Commission. Initial stocking of game fish has been carried out in the reservoir.

16. Upland game species of wildlife in the project area consist of fox and gray squirrels, cottontail rabbits, bobwhite quail, and pheasants. The U. S. Fish and Wildlife Service predicts that upland game values above the dam will be somewhat reduced as a result of inundation of habitat and fluctuation in water levels. Such losses will be partially offset in view of the fact that approved conservation practices for soil, forest, water and wildlife will be applied to agricultural and grazing leases within the reservoir area. Additional benefits to upland game will be derived by a fire control program throughout the project. Planned management for upland game by the Iowa Conservation Commission in the upper reaches of the reservoir should also help alleviate any losses.

17. The Iowa River, its small tributaries, and the surrounding area support a number of furbearers; namely, muskrat, mink, beaver, raccoon, opossum, fox, skunk, and weasel. The U. S. Fish and Wildlife Service estimates that the impoundment of water will result in a small net loss to these species. This small loss will be more than offset by fire control, and other game management practices put into effect on the area by the Corps and the Iowa Conservation Commission.

18. The U. S. Fish and Wildlife Service predicts that the existing waterfowl habitat in the upper reaches of the reservoir will be destroyed by inundation or silting. The Service predicts, nevertheless, that over-all benefits to waterfowl as a result of the reservoir will be slightly increased. Evidence of water fowl usage during the migration periods since impoundment of the reservoir, has indicated greater benefits to waterfowl than formerly anticipated. Planned waterfowl management by the Iowa Conservation Commission on a large segment of land and water in the upper reaches of the reservoir will improve existing habitat and create new habitat. It is the recommendation of the U. S. Fish and Wildlife Service that during the fall migration the conservation pool be raised by two feet. It is their contention that such operational procedure would increase waterfowl benefits by approximately 80 percent and produce incidental benefits to furbearers. An evaluation of the recommendation is currently being made by the Iowa Conservation Commission and Corps personnel. It is estimated that substantial waterfowl benefits will also be derived from the improvement of Lake Macbride.

19. Existing recreational areas.- Lake Macbride State Park, owned and operated by the State of Iowa under the supervision of the Iowa Conservation Commission, is the only existing public recreational development in the vicinity of the Coralville Reservoir. The park lies adjacent to the reservoir on the left bank of the Iowa River, about 9.5 miles above the dam. The park originally had a lake of about 138 acres in size, surrounded by a wooded area of about 636 acres. The construction of the Coralville dam made it necessary to raise the height of the existing dam forming the lake to an elevation of 712.0 feet. This resulted in an increase in size of Lake Macbride from 138 acres to about 935 acres and necessitated the acquisition of additional land area adjacent to the existing park. Approximately 1,120 acres of land area was acquired for the remedial work, of which 660 acres have been inundated and the remaining 460 acres of land has been licensed to the Iowa Conservation Commission for development and expansion of park facilities. The new lake level of 712.0 feet was reached in January of 1960.

20. The original recreational facilities at Lake Macbride State Park consisted of a bathing beach, combination bath house and canteen, boat livery, stone walks and trails and picnic areas. Due to raising the water level approximately 29 feet, existing facilities had to be relocated at higher elevations. A new sewer system was

built, as were the canteen, bath house, bathing beach, boat livery and the park custodian's home and office. The south public entrance to the park has been abandoned and a new entrance has been constructed on the north side of the park. Existing picnic areas on high ground were not affected by the changes. Plans are being formulated by the Iowa Conservation Commission for the development and expansion of recreational facilities on lands licensed from the Corps.

III - COOPERATION WITH GOVERNMENTAL AGENCIES AND PUBLIC INTERESTS

21. U. S. Public Health Service.- The U. S. Public Health Service reported on malaria control in the reservoir area. Their findings indicated that the incidence of malaria was very low in Johnson County. These findings were further substantiated by investigations during the summer of 1959 by the Rock Island District biologist. A preimpoundment mosquito survey was made of the Coralville Reservoir and surrounding area. Malaria-carrying type (Anopheles) mosquitoes were found to be present. However, it was believed that the comparatively small number found were not sufficient to indicate a definite health menace. The U. S. Public Health Service recommended several mosquito control measures, such as water fluctuation, reduction of aquatic growth, clearing of dead timber, removal of flotage and use of larvicides. Several of the recommended practices, such as timber removal from the reservoir basin, water fluctuation during the mosquito breeding season, and deposit of flotage well above the normal water line, are now, or will be practiced in the future. Biological control of mosquito larvae by the introduction of certain species of top-feeding minnows is being considered. Upon approval from the State Conservation Agency where the minnows will be collected, and from the Iowa Conservation Commission, which has control over the introduction of exotic fish, this method of mosquito control will be instigated. From the results of a post-impoundment mosquito study conducted in 1959, it is believed that the mosquito population in the Coralville Reservoir area is not above the normal. The mosquito species collected and identified were of the nuisance type and are known to have a very limited flight range. Recreational area development has been limited to the lower portion of the reservoir where conditions will be less favorable for mosquito breeding. Annual entomological surveys of the reservoir area will be made to monitor the mosquito population in regard to species composition, and relative abundance.

22. Possible industrial or domestic pollution of the reservoir waters appears to be rather negligible since the nearest industry is approximately seven miles from the conservation pool and no privately-owned lands border the pool. All boats, barges, or other vessels are prohibited from discharging sewage, garbage, or other pollutants in the reservoir and will be inspected for proper sanitation facilities.

23. National Park Service.- The National Park Service made a recreational reconnaissance survey of the area surrounding the conservation pool, and the recommendations of that agency concerning potential recreational sites conform quite closely with those outlined in Section VI of this report. As the proposed recreational areas were comparatively small, the National Park Service was not interested in taking over the responsibility of their development, but was willing to give technical advice.

24. Smithsonian Institution.- A preliminary archaeological reconnaissance survey of the reservoir was made by a representative of the Smithsonian Institution. The Institution's report states that the archaeology of the Iowa River is known only through surface finds or artifacts collected by local residents. The survey was limited to an inspection of the dam site and to spot checks of the reservoir area. Nine archaeological sites were located, three of these having been reported previously. Ten other sites were recorded prior to the survey. Seven of the latter could not be found and three could not be reached at the time the survey was made. Of the nine sites located, eight are mound sites and one is an occupation site of a native Indian village. During the summer and fall of 1956 a Smithsonian Institution archaeological team made excavations in the Coralville Reservoir which included examination of rock shelters, burial mounds, village sites and camps. Most of the work was done downstream from the old Mehaffey Bridge site under a rock shelf along the left bank of the Iowa River. Some work was also accomplished downstream from Lake Macbride State Park. No archaeological sites were discovered in the vicinity of the dam site.

25. U. S. Fish and Wildlife Service.- As stated in paragraph 16, Fish and wildlife resources, the U. S. Fish and Wildlife Service reports that the over-all effect of Coralville Reservoir will be beneficial to fish and wildlife. It is expected that increased fisheries benefits and a gain in waterfowl values will far outweigh a small loss to furbearers and a somewhat greater loss to upland game. The enlargement of Lake Macbride is expected to produce additional fish and waterfowl benefits and furbearer benefits great enough to offset furbearer losses in the reservoir. No evaluation was made of downstream benefits to furbearers, upland game, and waterfowl from stabilized low flows and greatly reduced flooding.

26. The Fish and Wildlife Service reports indicate that upland game is the only wildlife group which will suffer a net loss in value as a result of the Coralville Reservoir. The Service suggested ways and means of compensating for that loss and of producing additional fish and wildlife benefits. Those recommendations have been adopted insofar as they do not conflict with the primary purpose of the project.

27. Iowa Conservation Commission - Wildlife Management Area. - An area of 3,595 acres lying westerly of the Cedar Rapids and Iowa City Railroad and U. S. Highway 218 is being made available to the State Conservation Commission for wildlife conservation and management. A General Plan for the area which, in general, lies below the 690-foot contour was signed by the Secretary of the Army, the Secretary of the Interior, and the Director of the State Conservation Commission. The license to the State of Iowa for the State Conservation Commission for use of the area for 25 years has been processed and contains the following statement: "In the event that the Secretary of the Interior finds that the Iowa Conservation Commission has withdrawn from or otherwise relinquished such management and administration, then the said Secretary of the Interior shall have the right to assume the management and administration of the above-described lands and waters in behalf of the National migratory bird management program, in accordance with an instrument issued by the Secretary of the Army covering the necessary details of agreement between the two agencies". The area licensed to the State will be named the Hawkeye Wildlife Area. It is shown on plates 4 and 5. A small tract of land containing 6.1 acres lying north of County Road "E" and west of a road branching off to the north is being leased to the State as a site for erecting administration headquarters buildings for administering reservoir lands by the State, principally in connection with the above-described wildlife management area.

28. Local interest. - Contacts have been made and cooperation continued with various local Governmental agencies in regard to recreational development in the Coralville Reservoir area. Approximately 150 acres of land is being considered for licensing to Iowa City, and a license for 40 acres has been consummated for the town of North Liberty. Other communities in the general vicinity of the reservoir have expressed an interest in varying degrees for land to be used for recreational development. Interest in leasing reservoir lands for recreational purposes has been expressed by scout groups, church organizations, civic groups and private clubs. Action on these requests for land has been deferred until priority I needs have been determined.

29. U. S. Forest Service.- Assistance was obtained from the Central States Forest Experiment Station on determination of timber clearing and management policies for the reservoir area. A program of forest management will be a feature of the reservoir management program since approximately 25 percent of the area above the conservation pool is wooded.

30. U. S. Soil Conservation Service.- Erosion control of the areas to be leased will be effected by incorporating land use plans as developed by the Soil Conservation Service in the leases and requiring the lessee to adopt such conservation practices as are set forth in the land use plan. Such conservation practices as contour farming, strip cropping, terracing, grassed waterways, stock water ponds, and gully control structures will not only save valuable top soil, but also increase the wildlife potentialities of the area by the juxtaposition of food and cover crops in narrower fields.

IV - GENERAL POLICIES AND ADMINISTRATION

31. Policies. - The policies in regard to the administration of the Coralville Reservoir project are designed to make the lands available for general public use to the fullest extent compatible with the purpose for which the project is operated and to preserve and enhance the natural resources inherent to the area for the greatest benefit to the general public. The reservoir created by the project presents sites for recreational development and will make possible the conservation of fish and wildlife. Facilities to be provided by the Government will be limited to those which are for the use of the public and not normally operated for a profit. Such facilities will include access roads and trails, parking areas, picnic areas, including benches, fireplaces, refuse containers, water supply and sanitary facilities.

32. The priority for the allocation of lands for recreational purposes are: Priorities 1, 2, 3, 4, as outlined in EM-1130-2-302, 28 April 1959. The allocation of lands below elevation 696, the 5-year flood frequency elevation, will be permitted for Priority 1 uses. The allocation of lands between elevations 696 and 715 will be made for Priority 1, 2, and 3 uses. Lands above elevation 715 may be allocated for any of the priority purposes. Lands retained for project purposes or for future recreational uses and wildlife management may be leased for agricultural and grazing purposes as an interim use until such time as the areas are required for use by the public. Agricultural leases will ordinarily be granted for periods of 5 years. Seventy-five percent of the revenue derived from leasing will be returned to the counties in which the land lies and will compensate in whole, or in part, for the loss in taxes to the county after the land was acquired by the Federal Government.

33. Leases or licenses will be granted to Federal, State, or local Governmental agencies without advertising, preference being given these agencies in the order named. Leases to non-profit organizations may be granted at reduced or nominal rentals in recognition of the public service to be rendered in utilizing the leased premises.

34. Leases or licenses for commercial-recreational purposes to individuals or groups of individuals will be rented only after advertising or otherwise giving all interested parties an equal opportunity to obtain the same privilege. Preference for this type of lease will not be

given to former owners, their heirs, legal representatives or lessees, or to the owners or lessees of adjoining property. Commercial enterprises will be operated by the lessees in a manner to meet the reasonable needs of the public. Prices to be charged for facilities and services provided by concessioners will be fair and subject to approval of the District Engineer.

35. The public will have access to and use of the lake. However, ownership of land adjacent to the Government-owned land surrounding the lake is not considered sufficient reason to allow adjacent owners private and exclusive access to the lake. Access roads and docks of a quasi-public nature may be permitted provided that the nature and extent of the facilities are such that they can be considered as fulfilling a demand that is harmonious with the over-all development and not in conflict with the public interest.

36. The lake shore will be retained in its present natural state insofar as consistent with making ample facilities available to the public, and the interest of the general public will be safeguarded by adequate control over the use of Government-owned land in the reservoir area. Pedestrian access will be maintained along the entire shore line, except in special cases, as determined by the District Engineer.

37. Boats of all classes will be operated under rules and regulations supplied and approved by the District Engineer considered necessary to insure safe boating practices. Boats may be temporarily anchored at any point along the shore of the lake, except in certain restricted areas, but boat docks or mooring devices will be permitted only at approved locations. Permits will be issued free of charge and will be required for each boat placed on the lake for any one period longer than three days. Permits will be required for all boathouses, landings, docks, and moorings placed in the project area and will be valid for only those areas designated in the permit. Permits for boats used for commercial purposes will be provided for in the lease or license contract under which all commercial activities will be authorized and will be for the terminal period of the lease or contract.

38. The enforcement of civil and criminal laws within the reservoir area will remain the responsibility of the duly constituted officers of Federal, State, and local Governments. The Corps of Engineers is cooperating fully with all local law enforcement officers, and lease holders and licensees will be required to do likewise. Particular

attention is being given to cooperation with officers of the State of Iowa responsible for the enforcement of laws relative to fish and game, public health and sanitation, and prevention of stream pollution. Provision of police and fire protection for private property on Government-owned lands will be the responsibility of the lessees. It will be the responsibility of the lessee to permit no infraction of the terms of his lease by others. Enforcement of Departmental rules and regulations will be effected in all cases where practicable without resorting to force.

39. Administration.- Administration of Government-owned lands of the Coralville project will be carried out in accordance with existing legislative authority, policies, and regulations. Reference is made to District Real Estate Circular No. 1 dated 4 August 1960, subject, "Administration of Civil Works Lands and Water Areas," a copy of which is inclosed herein as exhibit A.

V - LAND MANAGEMENT

40. Land use maps.- Land use maps, plates 1 to 7 inclusive, made a part of this report, show all lands acquired by the Government for the Coralville Reservoir. All fee lands shown by symbols on the Interim Legend are classified for those uses shown until superseded by the uses shown in color by the actual and long-range utilization legend. The index map shows the complete reservoir area and the outline of plates 1 through 7 which show the land use.

41. Agriculture and grazing.- Lands for the Coralville Reservoir project were acquired either in fee or by flowage easements. In connection with the acquisition of agricultural lands for the project, commitments were made to owners and/or tenants in possession to lease back available lands for agricultural purposes without limitation as to the duration of their continued leasing. When former owners and tenants are not interested, the land is offered for lease by issuance of an invitation for bids, and the lease awarded to the highest bidder. However, when such lands are needed for planned use by the Government the lease is revoked.

42. Soil conservation practices are followed in leasing all agricultural lands. Technical personnel of the local Soil Conservation District office prepare or render assistance and advice in the preparation of land use plans for all leases. A statement of crop rotation, plat of the rental unit, schedule of yearly crop rotation, and a detailed statement of land use regulations are a part of each lease. The land use regulations delineate areas by fields and specify the amounts, kind, and methods of application, where necessary, for seed, fertilizer, lime, and other conservation practices or special requirements of the lease.

43. Cooperation is also maintained with the local Agricultural Stabilization and Conservation Committee. The growing of price-supported crops in surplus supply is kept to a minimum on all commitment leases to former owners and tenants. Under present regulations, no price-supported crops in surplus supply are grown on advertised lease tracts. Lessees are not permitted to receive payments from the local A.S.C. Committee for lime, fertilizer, or other conservation practices since the practices, when required in the lease, are considered in the rental value. Also, the lessees are no longer permitted to enter into any Soil Bank agreements to receive payments for not growing certain crops on Government land.

44. Tracts of land acquired in fee are being combined where feasible into economical farming units for leasing and will ordinarily be leased for a period of five years. Approval may be requested for some special 10-year grazing leases involving unusual expense to the lessee, which cannot be justified under a shorter-term lease.

45. Grazing will be controlled in all grazing and agricultural leases to prevent damage to the stand of grass, either by limiting the number of animal units grazed, limiting the grazing season, or, by land use regulations, prohibiting overgrazing and reserving to the District Engineer the right to limit the grazing at any time the leased area is considered to be overgrazed. Also, consideration is being given to following pasture improvement practices recommended by the Soil Conservation Service where practicable.

46. The regulation relating to the leasing of lands for agricultural and grazing purposes under Title 10, United States Code, Section 2667, as issued by the Office, Chief of Engineers, will be followed until amended or rescinded. The leases contain the following condition pertaining to hunting and fishing: "That the lessee will cooperate in programs for the management and improvement of fish and wildlife and in the furtherance thereof, the leased premises will be subject to free public use for fishing and hunting. Hunting and fishing are permitted in accordance with all applicable Federal, State, and local laws and for the protection of fish and game, except in prohibited areas designated by the District Engineer".

47. Leasing for agricultural and/or grazing will generally be limited to elevation 685 m.s.l. and above, and this lower limit may be changed as experience to the frequency and duration of flooding dictates. Leasing for agricultural and/or grazing will be permitted on lands classified for future public use as an interim practice where such utilization will be of benefit to the areas.

48. Timber management.- The timber management plan recommended for Coralville Reservoir provides for harvesting only larger mature trees or selective cutting for stand improvement where this practice is considered practical. An ample number of den trees and mast or nut producing species will be left standing to provide for wildlife requirements. Timber cutting contracts will be let by the Government to the highest responsible bidder.

49. Tree planting.- Areas proposed for tree planting in Coralville Reservoir were designated by the Soil Conservation Service and checked and revised by the U. S. Forest Service in connection with the Iowa Conservation Commission and personnel from the Rock Island District. Generally, the areas selected were considered to be marginal agricultural lands, under reservoir operation. They include light, sandy, unproductive soil areas, steep or eroded hill land, and poorly drained areas not suitable for cultivation. Some of the sub-marginal lands designated for wildlife use may eventually produce timber under natural conditions.

50. No definite plan has been worked out for these plantings and only a few high priority erosion-control and planting research areas have been developed. It is expected that some planting may be accomplished by tenants in connection with conservation practices or agricultural leases, and that more may be done by, or in cooperation with, other agencies, or by using funds from sale of mature timber now growing in the area. Until such time as these areas can be planted they will be used for agriculture and grazing.

51. Clearing.- Clearing has been completed to elevation 681, or one foot above conservation pool elevation, in the reservoir area downstream from relocated U. S. Highway 218 and to elevation 713, or one foot above the spillway crest of the new Lake Macbride dam, for the Lake Macbride area. If additional trees on higher levels are killed after the project is in operation they can be removed, to prevent further damage to the project.

52. Fire control.- The Coralville Reservoir does not lie within any of the State fire protection areas administered by the Iowa Conservation Commission. Local organization set-ups consist of Township districts, local farm owners or tenants being members of the organization within the township. Government land is included in the township but the Government is not at present a member of any organization. Non-members obtaining service from fire-fighting organizations are requested to contribute to defray the expense incurred in meeting an emergency. There are five fire districts in the vicinity of the Coralville Reservoir, any or all of which might be called upon to assist in an emergency. It is planned that agreements will soon be consummated between the Corps and these fire districts to pay them a stated amount per call or per hour of service.

53. It is believed that almost all forest and grass fires, which are discovered at an early stage of development, can be handled by well organized and equipped Government

forces. As a result, a fire-suppression plan is being considered for the Coralville Reservoir. This plan consists of an organizational structure consisting of a supervisor, chief dispatcher, crew foreman and a standby labor crew. In this plan, certain permanent employees would be assigned specific positions and duties during periods of fire suppression. Under the plan, available power units would be equipped with certain specialized attachments, and made highly mobile by transportation on truck or freight trailer. A number of back-pack water pumps would be located at each end of the reservoir area where proper use and care could be made of the pumps. A supply of fire rakes, beaters and perhaps other suitable hand tools would be located at four strategic locations throughout the area. Such equipment would be stored in well-marked weatherproof tool cabinets and used for fire use only. All vehicles assigned to the area would be supplied with such fire-suppression tools as axes, shovels and small chemical extinguishers. In conjunction with radio equipment now available, additional two-way mobile equipment and a fixed station would complete the communications system. This system would be indispensable in fire suppression. Miscellaneous equipment such as available boats equipped with small portable power pumps and hose to fight shore-line fires in inaccessible spots is also included in the plan. Under the plan presuppression activities would consist of inspection and maintenance of power equipment and hand tools, preparation of fire lanes in strategic locations, training of fire-fighting crews, and public relations work to warn of fire danger. The fire plan also includes certain fire suppression techniques.

VI - RECREATIONAL DEVELOPMENT

54. Authority for recreational development.- The legislation relating to the development and utilization of reservoir areas under the control of the Department of the Army, for recreation and related purposes, is contained in Section 4 of the Flood Control Act approved 22 December 1944, (Public Law 534, 78th Congress) as amended by Section 4 of the Flood Control Act approved 24 July 1946 (Public Law 526, 79th Congress).

55. Developments required.- The rapid increase in boating, fishing, hunting, picnicking, camping, and other recreational activities in recent years has created a demand for development of points of access to the impounded waters and for related recreational areas of the reservoir. Such facilities under way, or planned for the near future, and the areas reserved in the public interest over the life of the project are shown on plates 1 through 7. A description of the currently planned recreational areas and facilities, some of which have been partially developed, follows in their order upstream.

56. Boat-launching area below dam.- Facilities here consist of a boat-launching ramp of crushed rock, 40 feet wide, providing access to the waters below the dam, required for fishing and boating. The ramp is located at the lower end of the spillway discharge channel where it enters the Iowa River. Access to the ramp is over the existing service road from the West Access Road to the toe of the concrete spillway. Further access is across the toe of the spillway, then down the east side of the spillway discharge channel on a crushed-rock surfaced road. The area is shown on Plate 1.

57. Turkey Creek Heights.- This area lies at the easterly end of the dam. There is a high ridge some 60 feet above maximum pool level, south of Turkey Creek at its confluence with the Iowa River. The high ridge commands a good view of the reservoir and surrounding territory. A parking area with a crushed-rock surface has been constructed which provides an overlook where visitors may view the reservoir, dam, and river valley downstream.

58. West Overlook.- Two crushed-rock parking areas, one for 25 cars and another for 35 cars, an overlook of the dam, and an observation point at the head of the spillway, have been constructed on high ground near the abutment end of the dam. Park benches have been provided at the overlook.

The west end of the spillway may be reached by a crushed-rock-surfaced walk from one of the parking areas. This area is shown on Plate 1.

59. West Overlook picnic and boat-launching area.- A picnic area has been located to the west of a boat-launching area and adjacent to a parking area which provides space for 44 cars with trailers, in addition to 20 without trailers. Picnic and sanitary facilities and a water supply have been provided. A road leading north about 1,000 feet from West Overlook ends at the boat ramp. The ramp with turn-around and the road are surfaced with crushed rock. The area is shown on Plate 1.

60. Linder Point Park.- This area is a fine large wooded area about one mile upstream from the dam on the right bank of the river. The conservation pool extends into a large ravine about in the center of the area. This ravine at conservation pool elevation will provide a temporary harbor for small boats. The easterly part of the park area may be reached from the West Access Road to the dam, while the westerly part may be reached from a road leading easterly from former U. S. Highway 218, now State Highway 153, north of Iowa City. The terrain is rugged in places and much of the land is covered with native shrubs and trees. The area is considered to be one of the most attractive in the reservoir area. A part of the northern section of the area is a treeless pastured ridge providing a good view of the reservoir with possibilities for development for parking and picnicking and construction of a boat-launching ramp. The area has been requested by the city of Iowa City, Iowa for park development sometime in the future. Linder Point Park is shown on Plate 1.

61. Picnic point.- A possible recreational area for public use as a picnic area, designated as Picnic Point, lies on the wooded point of a ridge. This area is on the right bank of the river about one mile downstream from the former river crossing of County Road "Y" at the site of Mehaffey Bridge, now removed. As no public road leads to the area, it will be used as a stopping-off picnic spot for boaters only, until a road can be built to it over privately-owned land from County Road "Y". The area is shown on plate 1. Several other small stopping off picnic spots for boaters only, are indicated on the Land Use maps accompanying this report. Limited development is planned to accommodate the current demand by boaters.

62. County Road "Y" Picnic Area.- This area is situated along County Road "Y" at the top of a hill leading a short distance down to the proposed West Boat-Launching area. The latter is at the river crossing at the site of the Mehaffey Bridge, now removed. This area is shown on plate 2.

63. East and West Boat-launching areas.- These boat-launching areas are proposed on or adjacent to County Road "Y" at the former site of the Mehaffey Bridge. Ramps and parking areas for cars with trailers are planned on each side of the river. The areas are shown on plate 2.

64. Moseman boat launching area.- Facilities at the site of the old Moseman Bridge, which has been removed, would provide access to the river from the north. The access road to a proposed ramp begins at an existing crushed-rock surfaced road which connects with the pavement of former U. S. Highway 218. The area is shown on Plates 2.

65. Organized Group Camp.- This is a very fine area for an organized group camp. A heavily wooded area of rugged terrain lies on the westerly side of the area bordering the river, while the easterly part is an open field which would provide a play area. Additional area, when needed, would be available to the north. The area borders a public gravel road. Development of the area could be accomplished perhaps by a combination of various character-building youth groups, but will not be done until policies for its use are established. Many groups have made application for leasing areas in the reservoir if suitable areas are made available. However, this will not be accomplished until the full pattern of general public use has been established. The area is shown on Plate 2.

66. Mid River Park.- The area is on a high, beautifully wooded bluff overlooking the Iowa River from the right bank. It is located approximately halfway between Iowa City and Cedar Rapids, the nearest cities having considerable populations. A portion of the abandoned crushed-rock-surfaced by-pass road used during construction of the relocated U. S. Highway 218 will be utilized in gaining access to picnic grounds in the area. The park is reached by trails from a parking area adjacent to the by-pass road. Picnic facilities, consisting of tables and fireplaces, in addition to toilets and water supply, have been provided. The area is shown on plate 4.

67. Curtis Boat-Launching area.- This area is adjacent to the concrete pavement of former U. S. Highway 218 at the site of Curtis where the highway crossed the river. The highway bridge has been removed. A 40-foot crushed-rock boat-launching ramp has been built on the easterly side of the highway on the right bank of the river. A parking area accommodating 40 cars is built on the westerly side of the highway. The location of this improvement is shown on plate 4.

68. State of Iowa - State University of Iowa.- A large area in the reservoir area has been licensed to the State of Iowa primarily for development for recreational and related activities by the State University of Iowa, but also for field study or outdoor laboratory work in connection with the Departments of Botany, Engineering, Geology, Geography, Pharmacy and Zoology. The State of Iowa was granted a 25-year lease on 620 acres of land in three separate locations, as shown on plates 1 and 2. Part of the area will be kept in as nearly a natural state as possible for nature-study courses. Part of the large area desired by the University includes a wooded area bordering Lake Macbride State Park. The areas are shown on plates 1 and 2.

69. Iowa Conservation Commission - Enlarged Lake Macbride State Park.- The State of Iowa through the State Conservation Commission requested a license covering all of the land surrounding the enlarged Lake Macbride and certain other tracts adjacent to it, comprising approximately 1,120 acres, to be made available for its supervision and jurisdiction for park and recreational purposes. It is considered that the best interests of the public will be served by such use and a license to the State has been processed.

70. Concession Recreational leases.- The demand for boating and fishing opportunities for the public on the reservoir has necessitated the concession leasing of recreational areas. One such area now being developed by a concessioner where boats, motors, fishing equipment and bait will be available to the public is located along the by-pass road of former U. S. Highway 218 adjacent to Mid River Park. This area is readily accessible from the new U. S. Highway 218 and lies about halfway between the cities of Cedar Rapids and Iowa City. Two other concession sites have been leased in the reservoir area. These areas are indicated on the land use maps and are located in the vicinity of Turkey Creek and the Moseman Bridge area.

71. Camping areas.- Several areas have been selected and are designated on the land use maps as potential public overnight camping sites. These are for future development by the Corps of Engineers or by various organizations or agencies for use by the public. Some cities or towns are interested in developing small areas for park, picnic, or camping purposes if legally permitted to develop the areas for such recreational purposes outside their corporate limits. A water supply, parking area, and sanitary facilities are considered necessary at these camping sites. Due to public pressure, a camping site located south of the east access road to the dam in the Turkey Creek Heights vicinity has been partially developed.

72. Long-range recreational use.- Areas for progressive development in the general public interests over the life of the project are shown on plates 1 to 6, inclusive, where lands were acquired in fee. No initial development is planned but lands are reserved for long-range recreational use. Areas presently shown for long-range recreational use will be made available to qualified applicants for development of recreational facilities under the established priority basis and leased for this purpose as required to obtain maximum benefit from the project area. In the 1959 boating season, extensive use beyond their capacities was made of all available boat-launching ramps and adjacent parking areas on the peak days, such as Sundays and holidays.

73. Operation of recreational project areas.- Facilities developed and provided by the Corps of Engineers will be operated by Corps personnel. State and local Governmental agencies will be encouraged to assume responsibility for the administration, maintenance, and further development of these areas.

74. Rules and regulations for public use.- Rules and regulations governing the use of reservoir areas as specified in the Federal Code of Regulations under Title 36 - Parks and Forests, Chapter III - Corps of Engineers, Department of the Army, Part 311 - Rules and Regulations, and amendments thereto, have been made applicable to the Coralville Reservoir.

75. Cost estimates. Total expenditures to date for development of recreational facilities at Coralville Reservoir were \$104,000. Expenditures for construction of the east and west overlooks have been reflected in construction cost of the project. In order to insure adequate and safe facilities to meet public requirements, \$110,000 has been requested for a 3-year period starting with fiscal 1962 through fiscal 1964.

76. Site layout plans. Several of the access areas and overlooks were completed during construction of the project. Plans of these and other recreational features are detailed in Design Memorandum No. 15A, dated 6 October 1958, with the title, "Recreational Development." Photographs showing several completed sites are appended hereto following the plates.

VII - ECONOMIC SURVEY

77. Economic impact. The year 1960 is considered to be the initial year of operation for Coralville Reservoir in respect to recreation and the resulting economic effects of the general area. In order to evaluate such effects, a limited economic survey was conducted in the vicinity of the reservoir. The survey was of a random nature and conducted within a radius of from 5 to 15 miles of the reservoir proper. Spot checks were made with owners and operators of various business establishments that were believed to have been affected either directly or indirectly by recreational activities at the reservoir.

78. Estimated benefits. In summary, evaluation of reported economic benefits that could be attributed to the reservoir are given the following monetary values:

	<u>Sales</u>	<u>Land and/or Improvements</u>
(a) Estimated increase in annual sales (gross)	\$ 89,000	
(b) Estimated improvements (commercial)		\$ 40,000
(c) Increased land values (areas specifically developed or proposed - includes roads and utilities)		285,000
1. Improvements (cabins or perma- nent dwellings)		250,000
(d) Commercial concessions on Government leased lands		
1. Improvements (all types)		150,000
2. Sales (initial year - 1960)	<u>87,000</u>	<u> </u>
Totals	\$176,000	\$725,000

UPDATING OF THE MASTER PLAN

CORALVILLE RESERVOIR
IOWA RIVER
IOWA

EXHIBIT A

DISTRICT REAL ESTATE CIRCULAR NO. 1
4 AUGUST 1960

U. S. Army Engineer District, Rock Island
Corps of Engineers
Clock Tower Building
Rock Island, Illinois

ADDRESS REPLY TO
DISTRICT ENGINEER

DISTRICT CIRCULAR
REAL ESTATE
NO. 1

4 August 1960

ADMINISTRATION OF CIVIL WORKS LANDS AND WATER AREAS

1. Purpose.

To implement the policies, procedures and regulations for the planning, operation, administration and utilization of civil works project land and water areas.

2. References.

- a. EM 1130-2-302; EM 405-2-835.
- b. NCD Circular Real Estate No. 5 dated 14 June 1960.

3. Procedures.

- a. As prescribed in above regulations.
- b. The inclosed linear responsibility chart defines the responsibilities for the various interrelated aspects of planning and administration.

1 Incl.
Linear Responsibility Chart



E. M. FRY
Colonel, Corps of Engineers
District Engineer

DISTRIBUTION: "A"
Plus Opn Div. (5)
Engr Div. (5)
RE Div. (5)

LINEAR RESPONSIBILITY CHART

X - Primary responsibility

O - Required coordination

<u>Function</u>	<u>Opn</u>	<u>RE</u>	<u>Engr</u>
1. Determine elevation of controlling contours.	O	O	X
2. Determine areas required for project structures and operational purposes.	O	O	X
3. Secure views of interested Federal, State, and local agencies incident to planning for use of project lands and encourage them to participate in development and use.	O	O	X
4. Prepare and review public use site layout and development plans.	O	O	X
5. Prepare land use plan for Priority 1 lands.	O	O	X
6. Prepare land use plan for lands available for Priority 2, 3, and 4, and excess to Priority 1 needs.	O	X	O
7. Prepare and review preliminary master plan.	O	O	X
8. Review preliminary and final master plan for sound real estate management and utilization practices, and endorse concurrence.		X	
9. Establish construction standards, including those required of coordinating agencies and the public.	O	O	X
10. Prepare and review plans for management and administration of fish and wildlife resources.	O	O	X
11. Prepare plan for management of forest resources as supplement to master plan.	O	X	O
12. Manage all forest areas not required for Priority 1 use (exclusive of police and protection).	O	X	O
13. Administer the fish and wildlife plan.	X	O	O

Incl to District Circular Real Estate No. 1 dtd 4 August 1960

	<u>Function</u>	<u>Opn</u>	<u>RE</u>	<u>Engr</u>
27.	Cooperate with Federal and State agencies in carrying out archaeological and historical investigations.	0	0	X
28.	Maintain appropriate liaison necessary for adequate security and safety measures in connection with the project.	X		
29.	Administer rules and regulations for public use.	X		0
30.	Exercise operational control of such functions as fire protection, debris removal, erosion control, shoreline maintenance, and mosquito control on all project lands.	X		0
31.	Issue permits, leases, or licenses for access by adjoining landowners where consistent with approved development plans.	0	X	0
32.	Maintain reports and statistics of public use activities on lands and waters of projects.	X		0
33.	Update and revise master plan (including changes made by Real Estate in plans for Priority 2, 3, and 4 lands, and disposal actions).	0	0	X
34.	Perform utilization inspections of all civil works lands (except operational structures).	0	X	



Photo Courtesy - Iowa City Press Citizen by C. D. Greele

ROCK ISLAND DISTRICT.

CORPS OF ENGINEERS, U. S. ARMY.

ROCK ISLAND, ILLINOIS.

Updated Master Plan - Coralville Reservoir - Iowa River, Iowa

Coralville Dam and Reservoir, view to the north-northwest with approximate pool elevation of 680

Dec. 1959

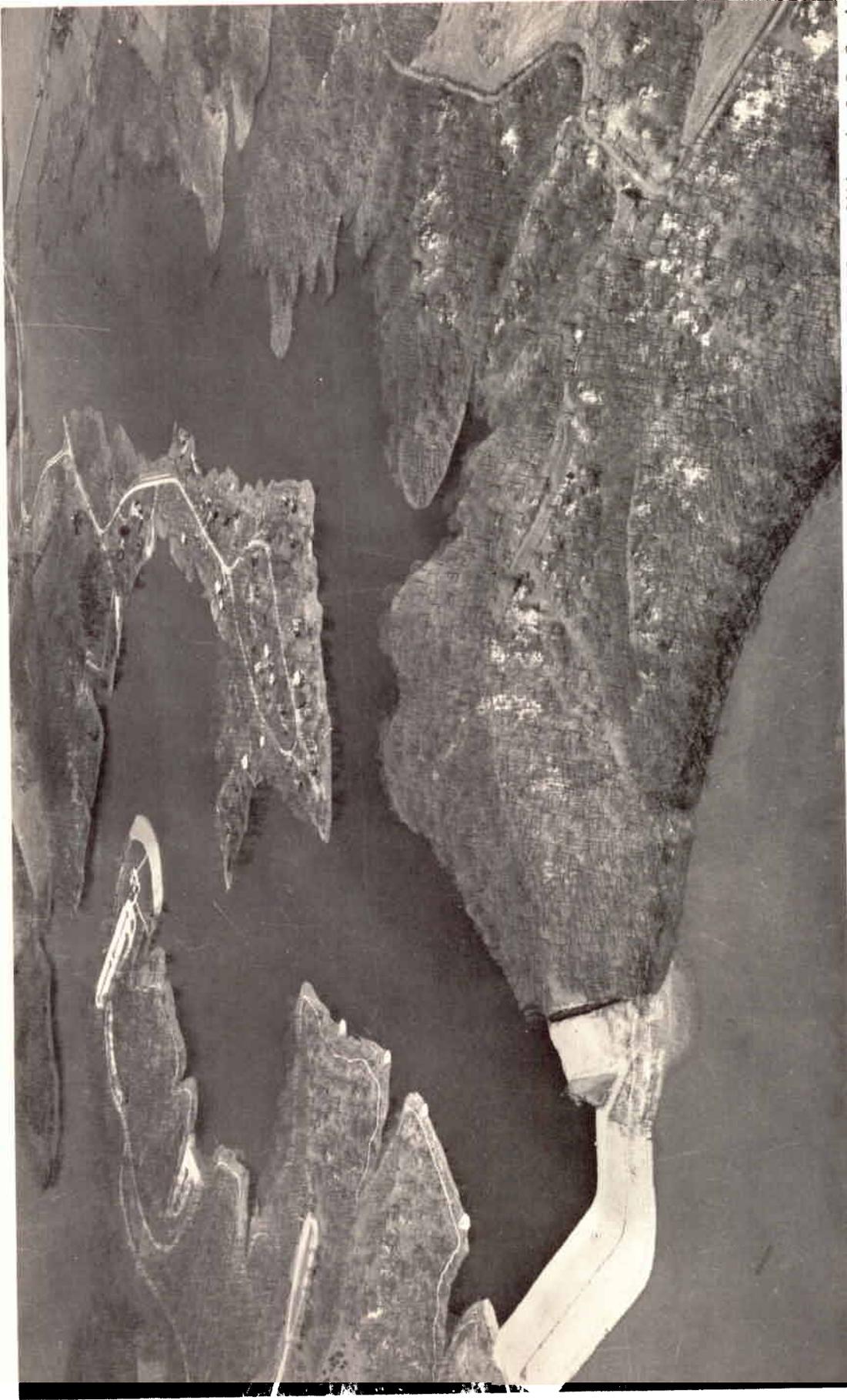


Photo Courtesy - Iowa City Press Citizen by C. D. Grede

ROCK ISLAND, ILLINOIS.

CORPS OF ENGINEERS, U. S. ARMY.

ROCK ISLAND DISTRICT.

Updated Master Plan - Coralville Reservoir - Iowa River, Iowa

Enlarged Lake Macbride and Macbride State Park, view to the east-northeast showing Macbride Dam and re-constructed recreational facilities.

Dec. 1959



Recreational Site Below Coralville Dam



Tailwater Fishing - Coralville Dam



West Overlook Boat Launching Area



Curtiss Boat Launching Area



West Overlook Picnic Area



Boat-in Picnic Site



Commercial Recreational Concession



Camping and Boating Activities - Coralville Reservoir