

Lessard-Sams Outdoor Heritage Council

Fiscal Year 2017 / ML 2016 Request for Funding



Date: August 01, 2015

Program or Project Title: Roseau Lake Rehabilitation

Funds Requested: \$9,500,000

Manager's Name: John Williams, Regional Wildlife Manager, DNR; Tracy Halstengard Roseau River Watershed District

Organization: MN Department of Natural Resources, Roseau River Watershed District

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City: Bemidji, MN 56601

Office Number: (218)-308-2680

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County Locations: Roseau

Regions in which work will take place:

- Northern Forest

Activity types:

- Protect in Easement
- Restore
- Enhance
- Protect in Fee

Priority resources addressed by activity:

- Wetlands
- Habitat

Abstract:

This multi-purpose project will partially restore a large drained lake, provide water level management capacity to substantially improve wildlife habitat conditions and provide flood damage reduction benefits, and will contribute to water quality improvements in the Roseau River.

Design and scope of work:

Roseau Lake was drained in the early 1900s when the Roseau River was channelized and dredged and associated ditch systems were constructed to increase agricultural production in the watershed. Prior to drainage, Roseau Lake provided excellent fish and waterfowl habitat. After drainage, much of the lake basin was farmed for many years and produced crops in drier times, but production was low and unreliable in wetter years. Over time, there has been recognition by local landowners that farming the lake bed would always be tenuous and large portions of the lake basin became part of the Roseau Lake Wildlife Management Area in the 1960s. Interest in a partial restoration of the lake has grown in recent years because the DNR, the watershed district, local governments, and citizens recognize that there are opportunities to develop a multipurpose project with significant wildlife habitat and flood damage reduction benefits (see attached citizen's advisory report).

The project has two primary purposes:

- 1) To improve the quantity and quality of wildlife habitat in and surrounding the Roseau Lake basin area. A key objective of the project is to provide migratory habitat (including an abundance of forage) for waterfowl and shorebirds in spring and in fall.
- 2) To effectively use the water storage capacity of the lake basin to reduce peak flows on the Roseau River downstream of the lake bed by 10% or more compared to current conditions as well as reduce the footprint of the 100-year floodplain.

Wildlife habitat benefits will be achieved by constructing a system of levees and water control structures to provide capacity to actively manage water levels in the lake basin. This infrastructure will allow wildlife managers to manage lake levels throughout the year to achieve wildlife management objectives. Specifically, timely water level management in spring and fall will create conditions to provide

suitable forage in abundance for migratory waterfowl and shorebirds. In addition, better management of water levels in the basin during the growing season will enhance the relative value of surrounding grass cover for nesting and provide brood-rearing cover for waterfowl and other waterbirds. Benefits to aquatic invertebrates, amphibians, reptiles, and aquatic mammals will accrue whenever water is present. Fish habitat on the river will improve as a result of features and operation that improve water quality, hydrologic conditions and the habitat corridor along the Roseau River.

At the same time, this infrastructure will provide water managers the ability to manipulate the timing of flood flows in the area to optimize the water storage capacity of the lake bed to achieve flood damage reduction objectives. In its current state, the Roseau Lake basin area floods in the early portion of the flood hydrograph such that flood storage is unavailable when the flood peak passes through the area. Flood damage reduction benefits will be achieved by altering the timing of water storage in the Lake Basin area so the available storage in the lake bed is more effectively used to reduce peak flows downstream.

The project has secondary benefits including improved hydrologic conditions in the Roseau River which will contribute to improved water quality, stream stability, and fish habitat and will also benefit rare plant communities in the Big Swamp area downstream. The project is consistent with the watershed plan and will compliment other ongoing work in the watershed to improve fish and wildlife habitat, improve water quality, and reduce flood damage.

Crops:

Will there be planting of corn or any crop on OHF land purchased or restored in this program - **No**

How does the request address MN habitats that have: historical value to fish and wildlife, wildlife species of greatest conservation need, MN County Biological Survey data, and/or rare, threatened and endangered species inventories:

Roseau Lake was historically an important wildlife lake providing a diversity of habitats for many aquatic mammals, birds, amphibians, and reptiles. The basin area is now inundated on a nearly annual basis and there are large water level fluctuations which create degraded habitat conditions and minimal shallow lake functions for wildlife. The habitat within the lake and adjacent uplands are degraded due to uncontrolled water level fluctuations. The flashy nature of flooding in the basin has greatly diminished habitat quality and wildlife production (e.g., ground nesting by birds) in and near the basin.

Since the project will reduce downstream peak flows, it will also benefit habitat in the Big Swamp area in western Roseau County. This vast area is characterized by a mosaic of shallow wetlands, wet meadows, lowland brush, and aspen. Over the last few decades, native vegetation in this area has been degraded by excessive duration, frequency, and depth of flooding. Reed canary grass and hybrid cattail have invaded such sites, thus reducing habitat production over a few thousand acres. Moderating such flooding will reduce impacts to existing native plant and animal populations and allow restoration of native vegetation.

What is the nature of urgency and why it is necessary to spend public money for this work as soon as possible:

A watershed team has developed the concept for this multipurpose project. LSOHC funds will ensure that important wildlife habitat elements are incorporated into the project. Also, Laws of Minnesota 2015, First Special Session, Chapter 4, Section 140. WATER RETENTION PROJECTS provides a window of opportunity for this request.

Describe the science based planning and evaluation model used:

DNR wildlife has identified this project as a regional priority. This project is identified in the Roseau River Watershed Comprehensive plan. The RRWMB Distributed Detention Study has identified this project as the most effective place to store water in the RRWD.

Which sections of the Minnesota Statewide Conservation and Preservation Plan are applicable to this project:

- H4 Restore and protect shallow lakes
- H7 Keep water on the landscape

Which other plans are addressed in this proposal:

- Long Range Duck Recovery Plan
- North American Waterfowl Management Plan

Which LSOHC section priorities are addressed in this proposal:

Northern Forest:

- Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

Relationship to other funds:

- Environmental and Natural Resource Trust Fund
- Clean Water Fund
- Flood Hazard Mitigation Program

This project will provide funds for permanent habitat protection and enhancement to compliment expected flood hazard mitigation program funding. The watershed district will request funds from this program for this project. In addition, a proposal is being submitted to the LCCMR for a complimentary project which will develop a targeted implementation plan to improve water quality in the lake's watershed. This targeted implementation plan will provide the mechanism to leverage Clean Water funds granted to the local soil and water conservation district.

How does this proposal accelerate or supplement your current efforts in this area:

The watershed team has developed this concept and is at the stage of evaluating various project alternatives which have a range of abilities to meet wildlife habitat objectives. Securing LSOHC funds will accelerate project development and ensure that habitat enhancement components of this project are refined and incorporated into the final project design for implementation. Project partners will continue to seek funding from other sources and securing these state funds will provide match that may be needed.

Describe the source and amount of non-OHF money spent for this work in the past:

Appropriation Year	Source	Amount
FY 15 & 16	Mdtn Wk Grp & RRWD	\$128,000

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended:

The Roseau River Watershed District will be primarily responsible for all future maintenance of this project's infrastructure under a joint agreement with MN DNR. The Watershed District is authorized by law to complete long-term maintenance of this project (Minnesota Statutes 103D). Habitat enhancements within the rehabilitated lake basin will be the responsibility of the Mn DNR Section of Wildlife as part of ongoing habitat maintenance on the Wildlife Management Area.

Explain the things you will do in the future to maintain project outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
2018-2023 Monitoring	Local RRWD Levy & DNR	Monitor & Act as Needed		

Activity Details:

If funded, this proposal will meet all applicable criteria set forth in MS 97A.056 - **Yes**

Will local government approval be sought prior to acquisition - **Yes**

Is the land you plan to acquire free of any other permanent protection - **Yes**

Is this land currently open for hunting and fishing - **Yes**

All state lands (WMA) within the project footprint are open for public hunting. The Roseau River is open to fishing through boat accesses.

Will the land be open for hunting and fishing after completion - **Yes**

Most state lands in the project footprint will likely remain open to public hunting. A portion of the lake basin and some associated uplands may be designated as a waterfowl refuge for feeding and resting to enhance overall opportunities for recreational hunting and bird watching on lands within the area which are open to public hunting. All lands acquired for the project in fee title will be open for

hunting and fishing where applicable. All private lands secured through easements will be open at the discretion of the landowner.

Will the eased land be open for public use - **Yes**

Only if permitted by the landowner.

Is the land you plan to acquire free of any other permanent protection - **Yes**

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program - **Yes**

Is the activity on permanently protected land per 97A.056, subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 - **Yes (WMA, Private Land, Public Waters, Roseau River Watershed District)**

Accomplishment Timeline:

Activity	Approximate Date Completed
Preliminary Engineering	June 2016
Environmental review and permitting	Fall 2016
Final Engineering	Fall 2016 - Spring 2017
Operating plan	2017
Hearings	2016
Construction phase 1	2016 - 17
Construction phase 2	2017 - 18
Post Construction Monitoring	2025
Acquisition	2017

Federal Funding:

Do you anticipate federal funds as a match for this program - **No**

Outcomes:

Programs in the northern forest region:

- Improved availability and improved condition of habitats that have experienced substantial decline *The site will be monitored through a joint 5 year monitoring plan between the RRWD and DNR. Monitoring will include an evaluation of bird species use; plant community condition; water quality; water quantity as measured against project outcomes and current conditions.*

Budget Spreadsheet

Total Amount of Request: \$9,500,000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$0	\$0		\$0
Contracts	\$6,000,000	\$3,000,000	WD; RRWMB; USDA	\$9,000,000
Fee Acquisition w/ PILT	\$0	\$0		\$0
Fee Acquisition w/o PILT	\$2,000,000	\$1,000,000	WD; RRWMB; USDA	\$3,000,000
Easement Acquisition	\$1,000,000	\$1,000,000	WD; RRWMB; USDA	\$2,000,000
Easement Stewardship	\$0	\$0		\$0
Travel	\$0	\$0		\$0
Professional Services	\$500,000	\$500,000	RRWMB	\$1,000,000
Direct Support Services	\$0	\$0		\$0
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$0	\$0		\$0
Other Equipment/Tools	\$0	\$0		\$0
Supplies/Materials	\$0	\$0		\$0
DNR IDP	\$0	\$0		\$0
Total	\$9,500,000	\$5,500,000	-	\$15,000,000

Amount of Request: \$9,500,000
 Amount of Leverage: \$5,500,000
 Leverage as a percent of the Request: 57.89%

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	270	270
Protect in Fee W/O State PILT Liability	0	0	0	1,000	1,000
Protect in Easement	0	0	0	0	0
Enhance	3,000	0	0	1,900	4,900
Total	3,000	0	0	3,170	6,170

Table 2. Total Requested Funding by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
Restore	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$270,000	\$270,000
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$1,000,000	\$1,000,000
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$8,230,000	\$8,230,000
Total	\$0	\$0	\$0	\$9,500,000	\$9,500,000

Table 3. Acres within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	270	270
Protect in Fee W/O State PILT Liability	0	0	0	0	1,000	1,000
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	0	4,900	4,900
Total	0	0	0	0	6,170	6,170

Table 4. Total Requested Funding within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
Restore	\$0	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$270,000	\$270,000
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$1,000,000	\$1,000,000
Protect in Easement	\$0	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$8,230,000	\$8,230,000
Total	\$0	\$0	\$0	\$0	\$9,500,000	\$9,500,000

Table 5. Average Cost per Acre by Resource Type

Type	Wetlands	Prairies	Forest	Habitats
Restore	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$1,000
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$1,000
Protect in Easement	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$4,332

Table 6. Average Cost per Acre by Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
Restore	\$0	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0	\$1,000
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0	\$1,000
Protect in Easement	\$0	\$0	\$0	\$0	\$0
Enhance	\$0	\$0	\$0	\$0	\$1,680

Target Lake/Stream/River Feet or Miles

3

Parcel List

Section 1 - Restore / Enhance Parcel List

Roseau

Name	TRDS	Acres	Est Cost	Existing Protection?
State Wildlife Management Area Lands		4,900	\$0	Yes

Section 2 - Protect Parcel List

Roseau

Name	TRDS	Acres	Est Cost	Existing Protection?	Hunting?	Fishing?
Private Parcels - WD Acquisition		1,000	\$0	No	Full	Not Applicable
Private Parcels - WMA acquisition		270	\$0	No	Full	Not Applicable

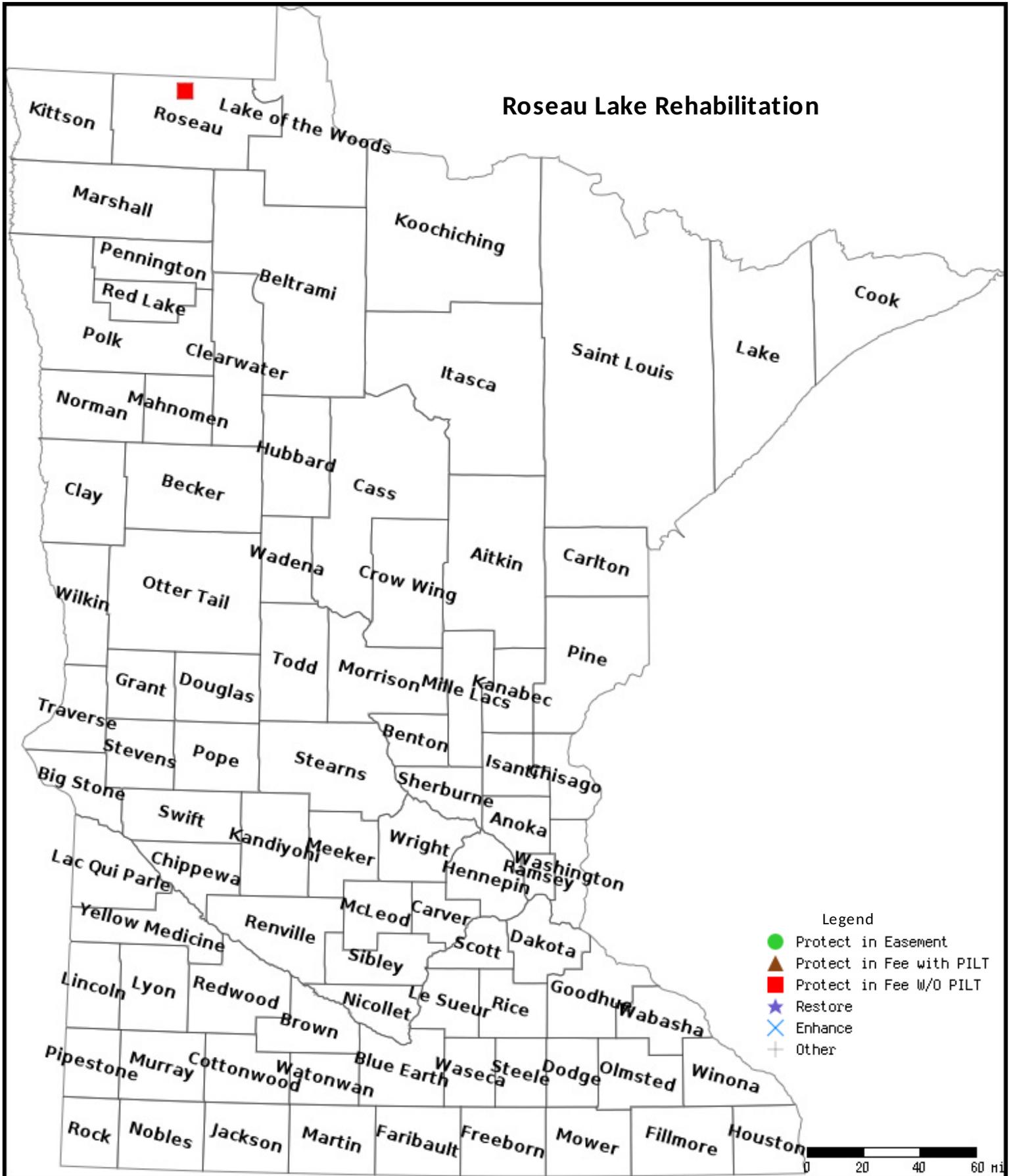
Section 2a - Protect Parcel with Bldgs

No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

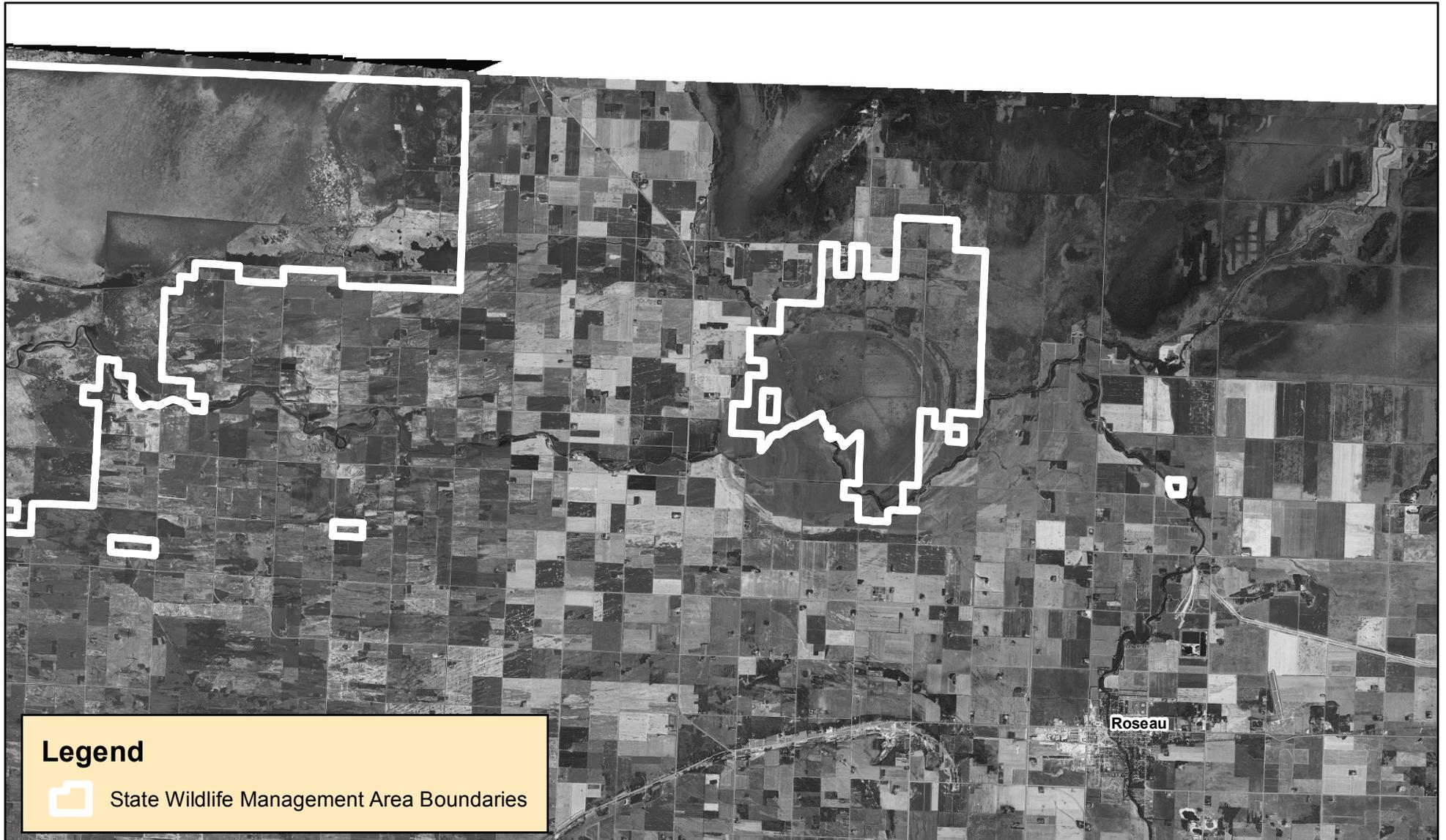
No parcels with an other activity type.

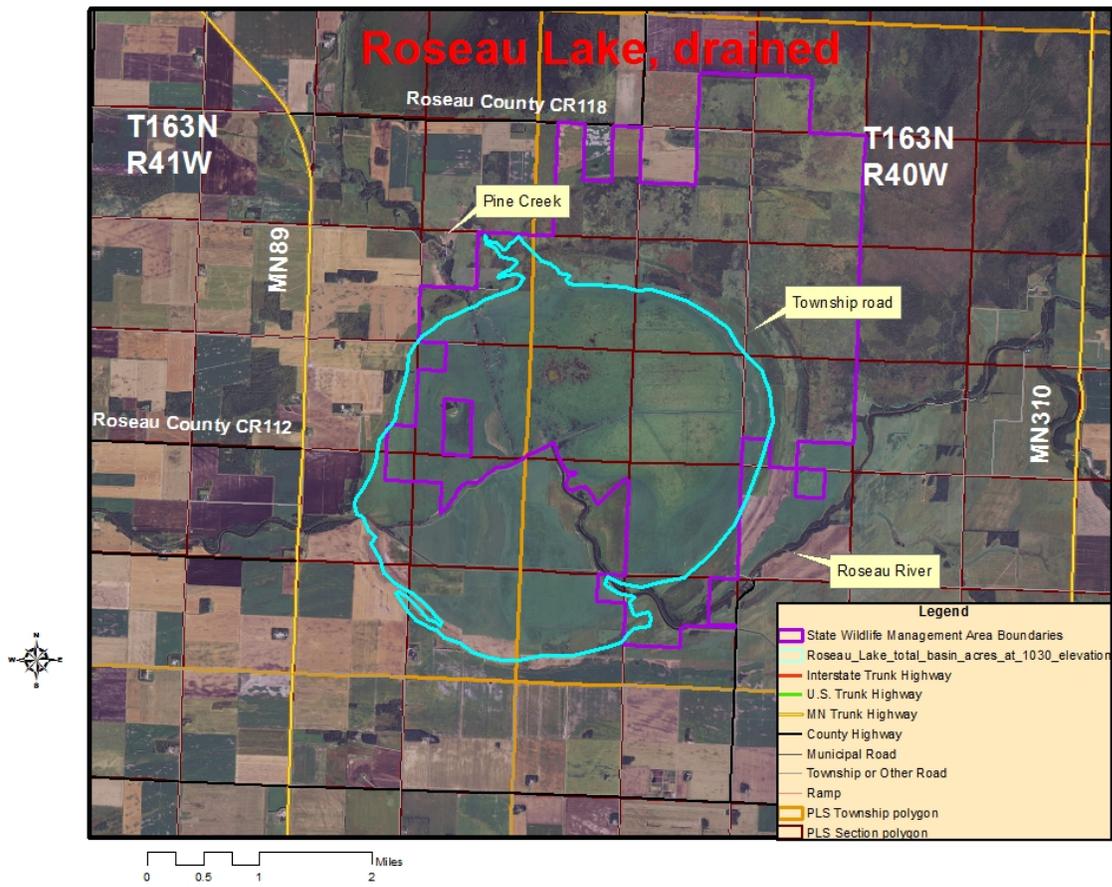
Parcel Map



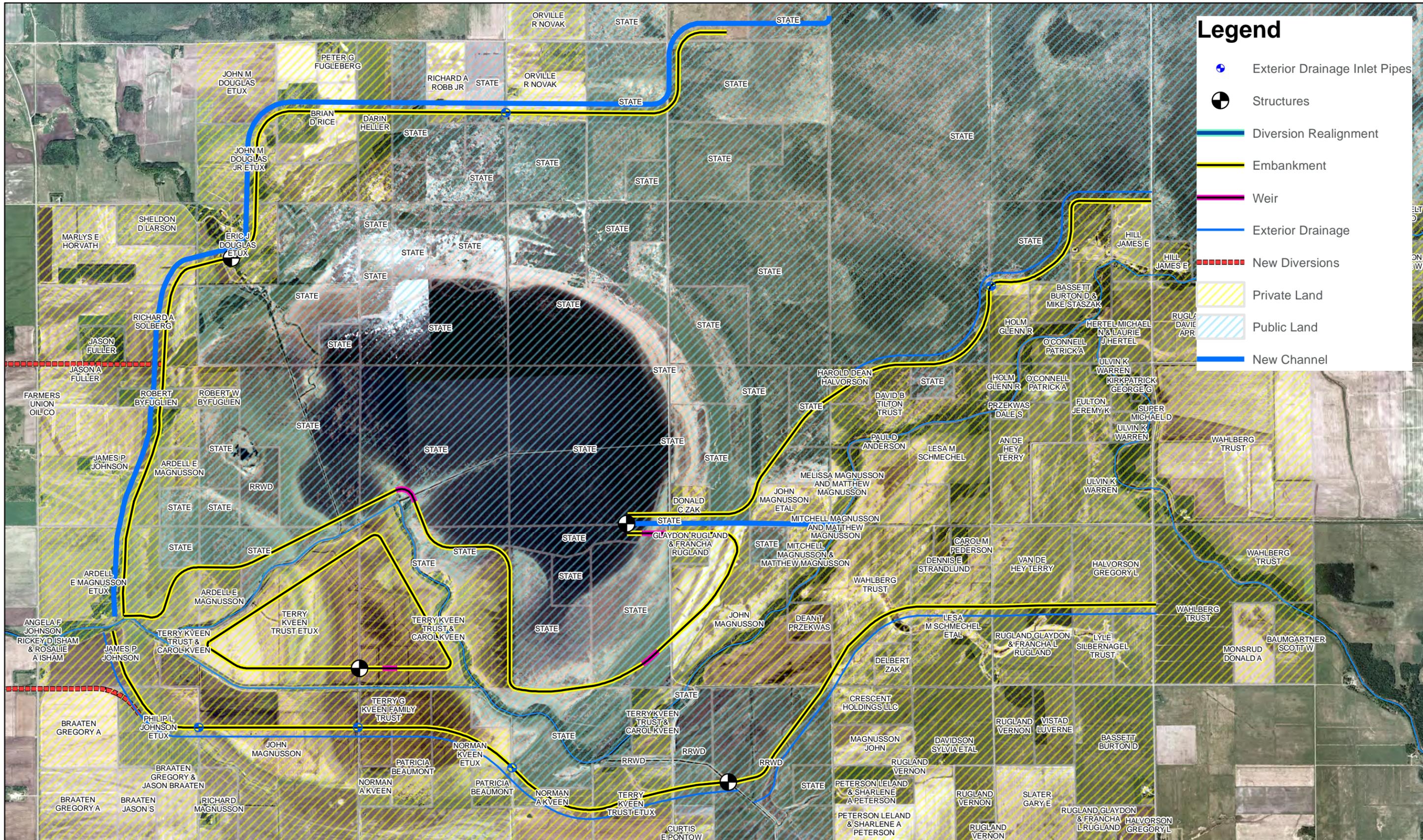
Data Generated From Parcel List

Roseau Lake Rehabilitation Project Area Map



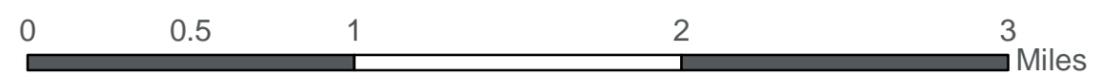


Air photo illustrating the condition of the Roseau Lake basin when completely dry.



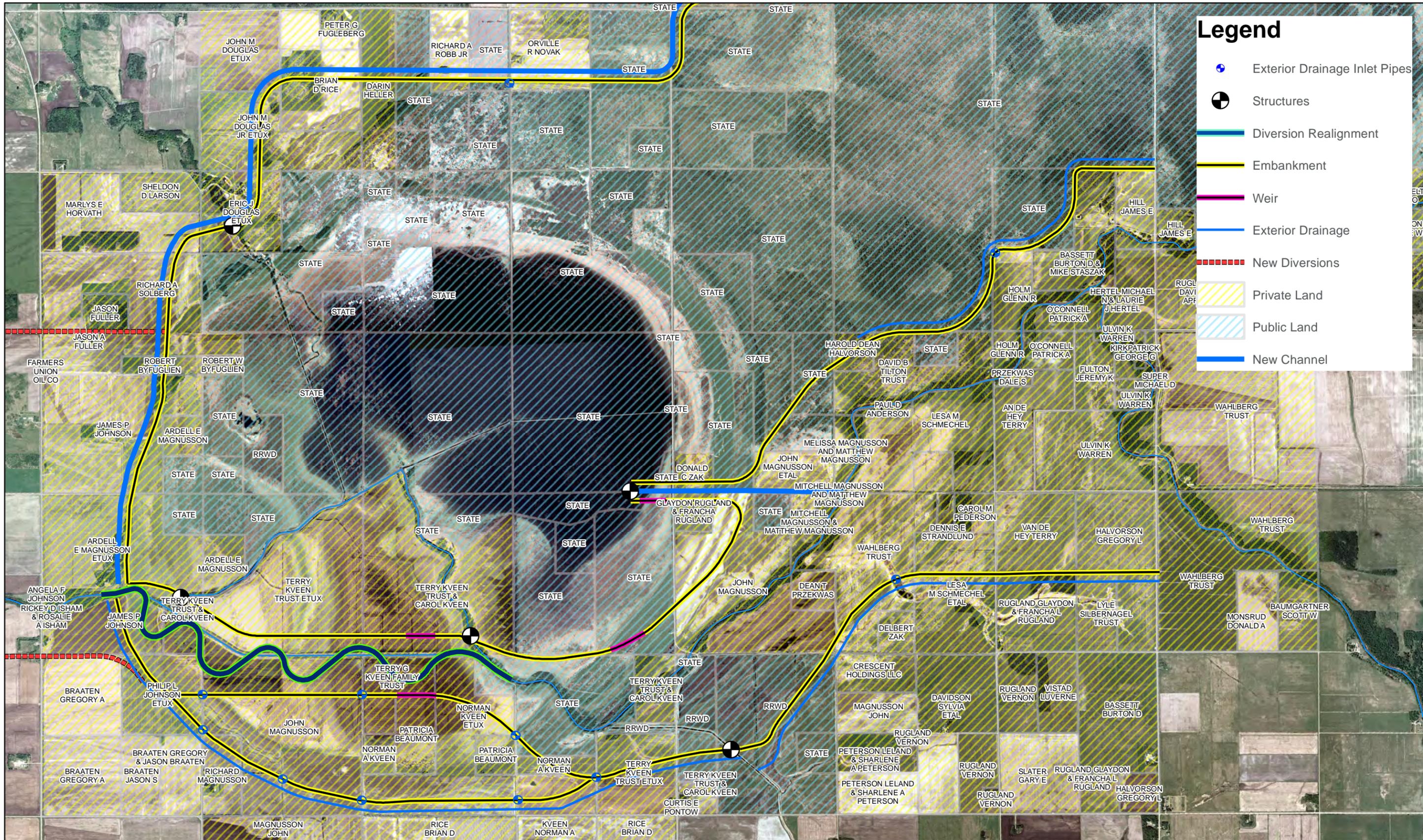
Legend

- Exterior Drainage Inlet Pipes
- Structures
- Diversion Realignment
- Embankment
- Weir
- Exterior Drainage
- New Diversions
- Private Land
- Public Land
- New Channel



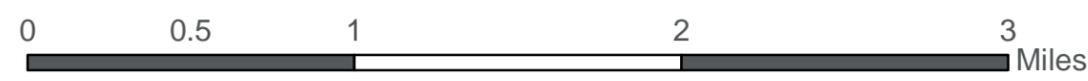
OPTION 1

ROSEAU LAKE BOTTOM CONCEPT MAP



Legend

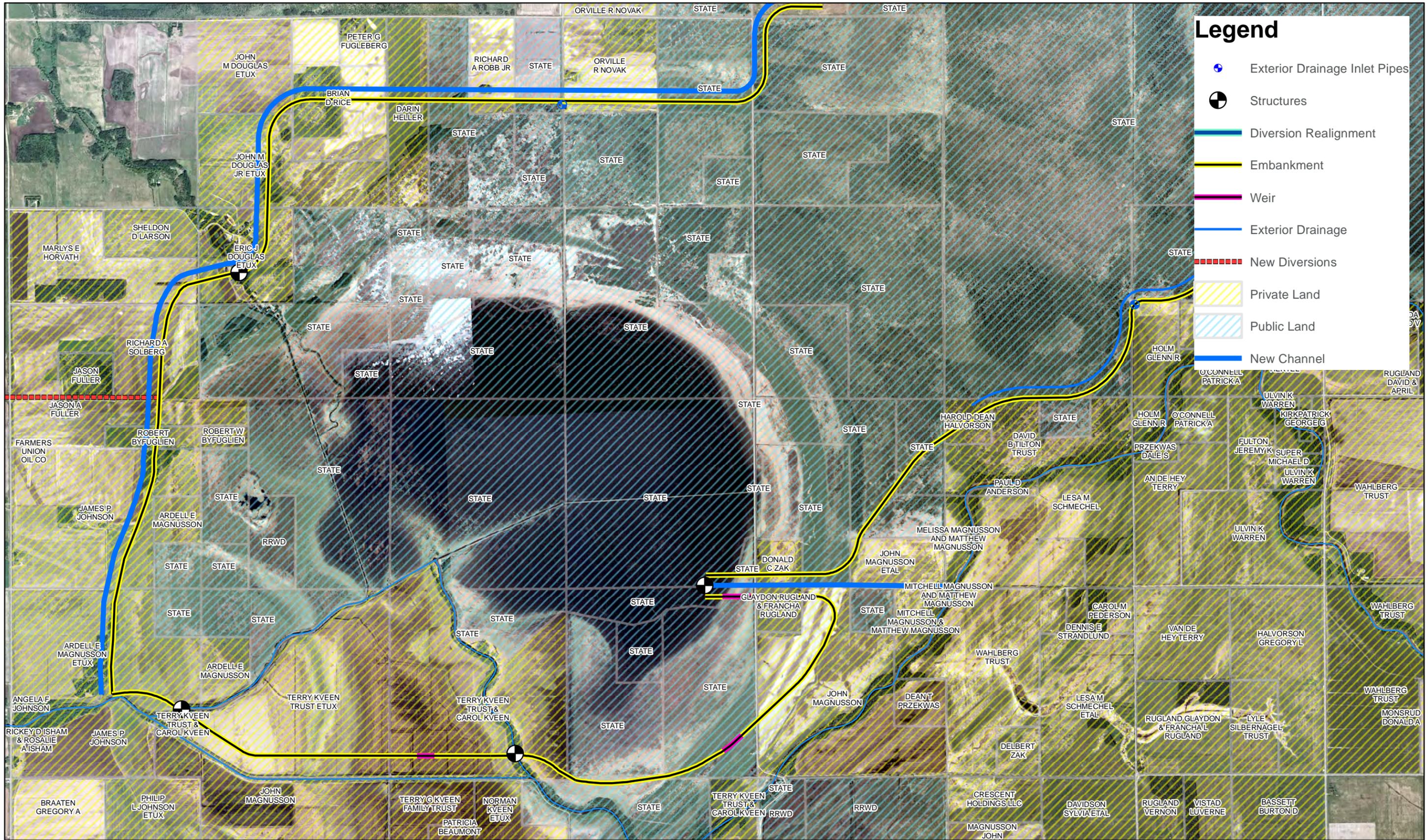
- Exterior Drainage Inlet Pipes
- Structures
- Diversion Realignment
- Embankment
- Weir
- Exterior Drainage
- New Diversions
- Private Land
- Public Land
- New Channel



OPTION 4

ROSEAU LAKE BOTTOM CONCEPT MAP

PATH: \\TRF-SRV11\GIS\PROJECTS\RRWD_GENERAL\LAKE_BOTTOM\MAP_DOCS\XMAPS_FOR_TEAM_MEETINGS\16_15_MEETING_MAP.MXD - USER: CGIESEKE - DATE: 7/20/2015



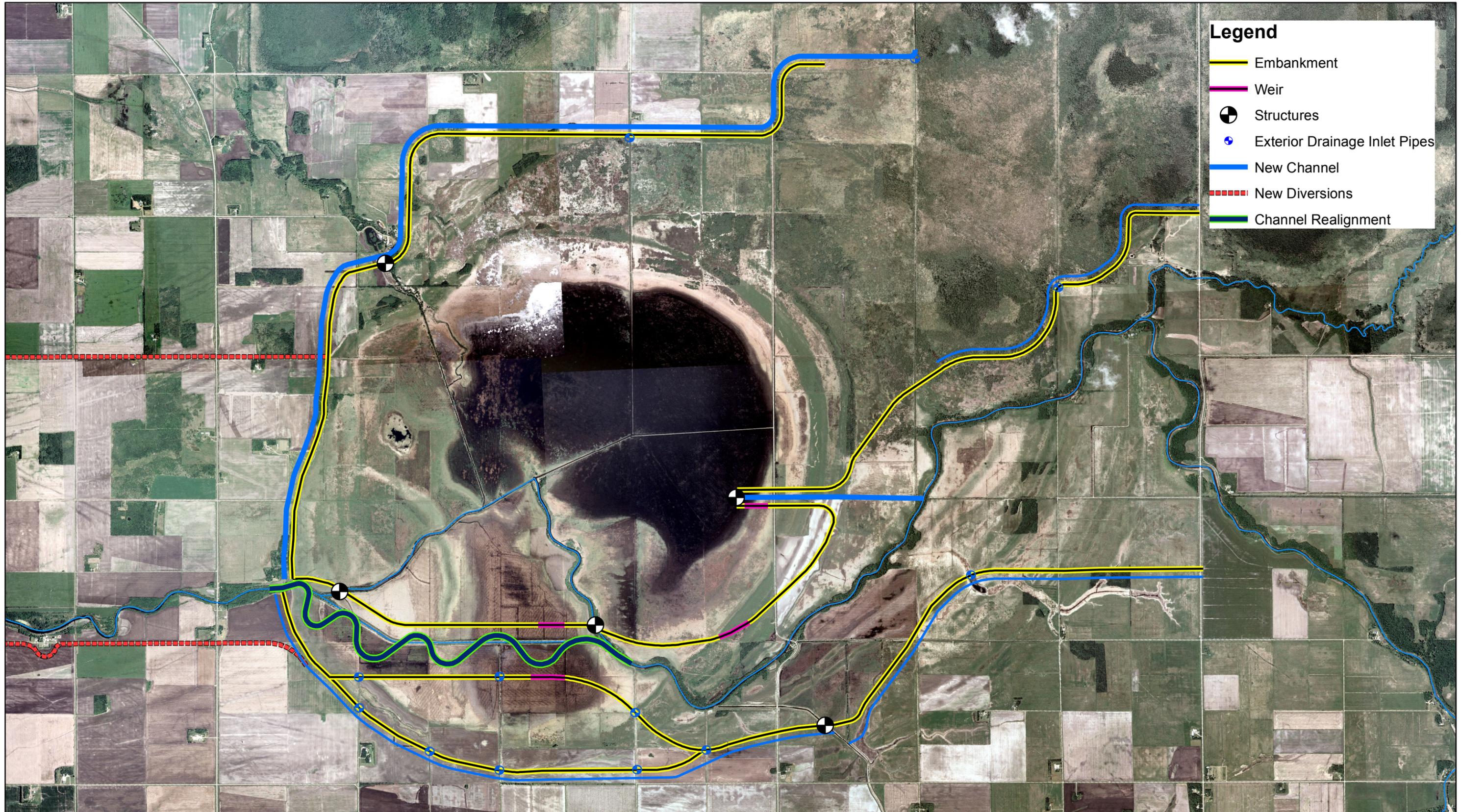
Legend

- Exterior Drainage Inlet Pipes
- Structures
- Diversion Realignment
- Embankment
- Weir
- Exterior Drainage
- New Diversions
- Private Land
- Public Land
- New Channel



OPTION 5

ROSEAU LAKE BOTTOM CONCEPT MAP



Legend

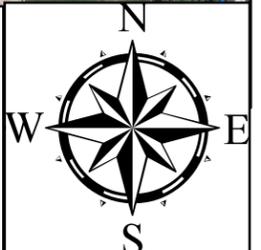
- Embankment
- Weir
- Structures
- +
 Exterior Drainage Inlet Pipes
- New Channel
- New Diversions
- Channel Realignment

HDR
 324 2nd Street East
 Thief River Falls, MN 56701

Project Manager:
 N. Dalager
 Drawn:
 C. Gieseke
 Date: June 2015

**Roseau Lake Bottom
 Concept Map**

0 0.5 1 2 3 4
 Miles



ROSEAU LAKE CITIZEN'S ADVISORY COMMITTEE REPORT: ISSUE IDENTIFICATION AND PRIORITIZATION

INTRODUCTION AND BACKGROUND

Roseau Lake is a drained lake basin located northwest of the City of Roseau in northwestern Minnesota (Fig. 1). Within the 1030 ft msl elevation, the lake bottom comprises approximately 6000 acres (Fig. 2). The Minnesota Department of Natural Resources (DNR) has a longstanding interest in Roseau Lake for waterfowl habitat development, the tangible evidence of which is the creation of Roseau Lake Wildlife Management Area in the 1960s and a continuing program of acquisition of properties associated with the lake bed.

Roseau Lake was drained in the early 1900s, at the same time that the Roseau River was channelized and dredged and ditch systems were formed, to increase the reliability and quantity of the surrounding landscape that is suitable for agricultural production. The lake originally had an inlet and outlet. When water level is at the 1030 elevation (commonly known as the shoreline elevation of the historical lake), the deepest point in the lake is approximately 6.5 feet. Historically, Pine Creek flowed into the lake bed from the northwest. Most of the water in Pine Creek was diverted away from Roseau Lake in 1950 on the Canadian side of the border into what is now the Roseau River WMA where 3 large impoundments exist. Prior to drainage, Roseau Lake was home to excellent fish and waterfowl habitat. After drainage, the lake bed itself produced good crops in dry times, but production was unreliable in moderately wet-to-wet years. Through time, there has been recognition that agricultural uses of the lake bed would always be tenuous, and interest in the natural resources potential of the lake bed has increased.

Most recently, interest in a joint wildlife/flood control project has peaked. Reasons for this interest include: (1) A determination by the DNR that a permanent body of water is not necessary in the lake bed to provide optimal waterfowl habitat; (2) a continuing wet cycle which has, at times, crippled agricultural production in the surrounding landscape, (3) flood damage developments (e.g., West Interceptor) on the local landscape and increased efficiency of upstream drainage has overwhelmed the capabilities of the Roseau River; (4) the sheer potential of the lake bed to provide significant flood damage abatement; and (5) concerns expressed from both agricultural and conservation interests located downstream of Roseau Lake about the amount, frequency, and duration of flooding.

To better identify the issues important to the management of the lake bed for conservation and flood control, the Roseau County Board of Commissioners, Minnesota DNR, and the Roseau River Watershed District (RRWD) collaborated in a series of 3 facilitated meetings of local citizens (see appendix for list of participants). In these meetings, citizens reviewed pertinent information regarding

water in the lake bed and the Roseau River, identified multiple issues associated with water management in and around Roseau Lake, and prioritized those issues in an advisory capacity to the Roseau County Board, DNR, and RRWD.

Some important details of how the meetings were conducted are: (1) DNR indicated a desire to emphasize spring- and fall-migration habitat for waterfowl at Roseau lake instead of nesting season and brood-rearing habitat. They also emphasized maintaining the Roseau River fishery, improving water quality on the river, and avoiding situations where fish might be trapped behind water control structures in the lake bed. Some of the issue prioritization regarding wildlife/fish issues may have been influenced by this information; it may also reflect a certain degree of "buy-in" to those ideas, especially where they do not conflict with agricultural concerns. (2) At the 3-10-11 meeting, all 11 members of the CAC voted on all of the issues, not just in the areas of their primary interest. This forced members to consider their neighbor's issues. Thus, a type of overall consensus may be implied in the results. (3) To preserve the integrity of the process, DNR and RRWD members of the committee were in *ex officio* status. As such, they fully participated in discussions but did not vote. Eleven (11) members participated in the 3/10/11 survey of issues prioritization. What follows is a summary of the proceedings of the Roseau Lake Citizens Advisory Committee (CAC) meetings.