ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Form 1600-008 Rev. 7-2006

Department of Natural Resources (DNR)

Region or Bureau
West Central Region

Type List Designation
Type II -

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The attached analysis includes a description of the proposal and the affected environment. The DNR has reviewed the attachments and, upon certification, accepts responsibility for their scope and content to fulfill requirements in s. NR 150.22, Wis. Adm. Code. Your comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by Jordan Weeks, WDNR Fisheries Biologist, 3550 Mormon Coulee Road, LaCrosse, WI 54601, email: Jordan.weeks@wisconsin.gov, phone: 608-785-9002 before 4:30 p.m. on February 9, 2009.

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Address: 3550 Morman Coulee Road, LaCrosse, WI 54601

Title of Proposal: Tomah Lake Restoration Project

Location: County: Monroe City/Town/Village: City of Tomah

Township Range Section(s): T17N, R1W, S5

PROJECT SUMMARY

1. Brief overview of the proposal including the DNR action

Within the last two decades, Lake Tomah (Figure 1) has experienced substantial declines in water quality, loss of aquatic habitat and a depressed fisheries to the point now that water clarity is generally less than 2 feet; the lake is virtually devoid of aquatic plants and the fisheries is dominated by carp. Staff field observations and water quality modeling point to excessive carp population as the major cause of Lake Tomah's decline. A Lake Management Plan was developed by the City of Tomah Lake Committee (2008) in partnership with the Wisconsin Department of Natural Resources and Monroe County Land Conservation Department to rehabilitate Lake Tomah. This Environmental Assessment details the scope of work and associated potential impacts of the Lake Management Plan including the following in-lake management activities. 1) partial drawdown, 2) fisheries reclamation, 3) maintenance dredging, 4) island shoreland protection. In addition to in-lake activities, a comprehensive assessment of the rural watershed nutrient loads and an accompanying plan to installation of nonpoint source pollution best management practices is being conducted.

2. List the documents, plans, studies or memos on which this DNR review is based

2008. Tomah Lake Management Plan. City of Tomah and Wisconsin Department of Natural Resource, Tomah, WI. 21 pp.
2008. Chapter 30 Application Material, Island Shore Protection Project, City of Tomah and Monroe County Conservation Department

2008. Lake Tomah 303d Listing Documentation Memo, C. Koperski, WDNR, LaCrosse, WI
1996. Lake Tomah Sediment Trap Evaluation, Carlton Peterson, Tomah, WI 34 pp.

DNR EVALUATION OF PROJECT SIGNIFICANCE

3. Environmental Effects and Their Significance

a. Discuss which of the primary and secondary environmental effects listed in the supporting documents are long-term or short-term.

1) Partial Drawdown

Lake Tomah will begin to be drawn down in the second week of September of 2009 in order to facilitate the rotenone treatment and promote the reestablishment of aquatic plants. A new bathymetric map was produced in anticipation of the drawdown (Figure 2). The lake will be lowered a maximum of 6 inches per day to an elevation of 953.4 ft (MSL) equating to a 7-foot drawdown. Lowering the water level helps reduce the cost of the rotenone treatment by reducing the volume of water needed to be treated. The lower water levels also helps group the carp into well formed pools of water increasing the effectiveness of the treatment. The eleveation of 953.4 ft (MSL) will maintain a 4 foot hydraulic height at the dam discharge which is planned to keep the discharge velocities fast enough to prevent carp from swimming back upstream into the lake. Immediately following the rotenone treatment, the outflow from the lake will be reduced in order to minimize the volume of water that needs to be detoxicified to prevent unwanted fish mortality downstream of the lake Tomah. The outflow from Lake Tomah will be maintain at either 1) 25% of the 7Q10 (0.675 cfs) or 2) sufficient flows to maintain 5.1 cfs at the point downstream where the City of Tomah wastewater treatment plan effluent is discharged, with ever is greater. The reduced outflow from Lake Tomah will be maintained during the time required for detoxicification of the rotenone or approximately 3 weeks. Downstream monitoring of rotenone residues and/or live fish cages will be used to determine the duration of detoxicification.

After detoxicification is complete, the water level will be maintained at a draw down of 7 feet (953.4 MSL). The lower water level is needed to facilitate the shoreline work and sedimentation basin dredging while still maintaining a flow velocity barrier to movement of carp from downstream. Beginning in April 2010, the lake level will be maintained at 957.4 ft (MSL) restoring the lake to the level of a 3 foot drawdown. The lake will remain at this partial drawdown level until August 2010 to facilitate the growth of native emergent and submergent aquatic plants in the near shore areas of the lake. The City of Tomah will obtain a drawdown permit from WDNR and manage the dam operation to facilitate the drawdown.

The primary environmental effects from the partial drawdown include direct mortality of sessile benethic organisms, sediment compaction and downstream transport and potential for increased nutrient release following hydration. Secondary environmental effects include increases in submergent and emergent aquatic plant growth, reduced hydrology in adjacent riparian wetland complexes and effects on wildlife that use those areas. The drawdown will not affect any shallow wells used for drinking water supplies since the project area is served by the City of Tomah municipal water supply. All of the primary environmental effects are short-term effects and not expected to remain following reestablishment of normal water levels. The reduced wetland hydrology is also a short-term impact that will be restored at normal lake levels. The increased in submergent and emergent aquatic plant growth is expected to be a long-term effect lasting five to 10 year or longer

2) Fisheries Reclamation

Carp are by far the dominant fish currently in the lake and prevent the establishment of a quality sport fishery. Their feeding behavior prevents the growth of valuable aquatic plants and degrades water quality by re-suspending lake sediments and excreting high amounts of nutrients. In the past, DNR fisheries crews have electro-shocked Lake Tomah in attempts to remove carp from the lake. Although truckloads of carp were removed, the removal had a negligible effect on the carp population. In order to effectively remove the excessive carp population, a whole lake and watershed fisheries reclamation is warranted. All waterways and wetland areas expected to hold carp will be treated with rotenone, a chemical that kills all fish species. A late fall treatment is proposed to minimize the impact of dead fish on lake residents. Following treatment, the lake will be re-stocked with native fish species.

Following the public notice and certification of the Environmental Assessment, the DNR will suspend all fishing regulations including size and bag limits and gear restrictions until the time of the carp eradication. This will provide opportunities for anglers to catch game fish that would otherwise be killed during the rotenone treatment. Regulations suspension is expected to go into effect in late January 2009.

Rotenone is a naturally occurring compound extracted from the stems and roots of two species of tropical legumes. The active

ingredients in these plants consist of several rotenoids, including rotenone. Rotenone at toxic levels kills fish by inhibiting biochemical processes and interfering with respiration at the cellular level. Rotenone passes through the gills and into the fishes' blood stream which transports it to the vital organs where it inhibits cellular respiration. Application of rotenone at concentrations that kill fish will also kill aquatic invertebrates, including zooplankton and insects but will not harm mammals, reptiles or amphibian life stages that do not posses gills. The concentrated rotenone product is a milky-white substance that is combined with petroleum distillates to maintain solubility. Once applied the milky-white color rapidly dissipates, while the water, fish and other organisms temporarily take on the petroleum distillate odor and taste.

Rotenone is not persistent in the environment, and degrades rapidly. The degradation rate increases with increasing water temperature, sunlight, and suspended organic matter in the water. Dead and dying fish will be evident within hours of rotenone application and cool temperatures will reduce odor associated with the decay of dead fish. All fish not causing nuisance odors or aesthetics will be left in the lake to decompose naturally. The fish decomposition process should be completed by summer 2010. The City has developed a contingent plan to have City employees and volunteers collect and dispose of dead fish that are causing nuisance conditions using City dump trucks and front-end loaders. All collected fish would be hauled to a properly licensed landfill.

After the lake has reached the maximum drawdown of 7 feet and 2 to 3 weeks before expected freeze up (late October or early November) rotenone will be applied to Lake Tomah, its tributaries and ponds with direct connection to the lake (Figure 3). All rotenone will be delivered in barrels to Lake Tomah City Park just prior to treatment. Barrels will be placed within a containment area and sampled by Department of Agriculture, Trade and Consumer Protection. All areas of Lake Tomah will be posted with chemical treatment signs. Test cages will be placed in the lake prior to treatment. Fish placed in the test cages will be monitored to assess mortality. Drip barrels will be monitored for 2 days after treatment. Upon completion of the treatment all tanks and equipment used to apply rotenone will be triple rinsed at the lake and prepared for transport back to stations. All barrels used to apply powdered rotenone will be taken to a landfill.

The volume of water in Lake Tomah greater than 5 feet deep will be calculated to determine the amount of powdered rotenone required. Approximately 36,210 pounds of 7.4% rotenone will be applied at a concentration of 4 ppm to that part of the lake greater than 5 feet deep. Work boats will be used to apply powdered rotenone below the surface. Powder will be vacuumed from barrels, mixed with water, and pumped into the lake. Barrels with powder will be transferred to application boats using fork lifts or dollies. Spill containment area will be established to prevent any environmental impacts. That part of the lake 5 feet and less in depth will be treated with liquid rotenone. The lake will be treated from boats equipped with holding tanks and pumps. Rotenone will be discharged by spraying and through hoses just beneath the lake’s surface. Isolated pockets of water, wetlands, and otherwise inaccessible areas will be treated by helicopter. Toxicant will be dispensed from the helicopter in large droplet form under low pressure.

Ponds will be treated with liquid rotenone just prior to lake treatment. The volume of water in each pond will be calculated and the appropriate amount of rotenone, approximately 100 gallons, will be applied with backpack sprayers and ATV mounted sprayers to achieve a 5 ppm rotenone concentration. One day prior to treating the lake approximately 200 gallons of liquid rotenone will be applied to all tributaries and connected marshes using drip barrels, backpack sprayers, and helicopter. Drip barrels are equipped with outlet hoses that dispense chemical at a rate that maintains the required concentration over a measured period of time. Streams will be treated for at least as long as it takes to treat the lake (1-3 days). All ponds, streams, and wetlands that will be treated flow into Lake Tomah and no detoxification is necessary. All Lake Tomah water 5 feet and less in depth will be treated with approximately 780 gallons of 2.5% liquid rotenone at a concentration of 5 ppm. Liquid rotenone will be applied below the surface by boats. To avoid sediment suspension, shallow areas will be treated by spray boat or helicopter.

Rotenone treated outflow from Lake Tomah will be detoxicified by the addition of potassium permanganate. A 2.5% potassium permanganate solution drip station will be set up within 100 feet downstream of the Lake Tomah outflow and calibrated to deliver a concentration of 2 to 4 ppm. Live fish cages placed downstream for the potassium permanganate drip station will be used to confirm complete detoxicification. The duration of detoxicification is estimated to be a 2 to 3 weeks based taking into account both dilution and chemical breakdown. However, live fish cages upstream of the potassium permanganate drip station will be use to determine the actual duration of detoxicification.

The restocking of sport fish will begin in the spring of 2010 following the fall 2009 rotenone treatment. Fish species which will be stocked post-treatment include northern pike, largemouth bass, black crappie, and bluegill. The Wisconsin Department of Natural Resources will obtain fry of each species from the Genoa Federal Fish Hatchery to stock in spring post-treatment. Adult bluegill and black crappie may be obtained to supplement this initial stocking. Forage (minnow) species may be stocked based on species found upstream in the watershed. Stocked fish should provide anglers a fishery within 3 to 4 years post treatment.

Permanent protection from excessive harvest of large predator fish is essential in order to produce a natural reproducing fish community. After stocking, restrictive size and bag limits will be proposed via the Spring Conservation Congress Hearings in order to protect fish from harvest. Proposed size and bag limits include northern pike, 32 inch minimum length and a daily bag of one fish, largemouth bass, 18 inch minimum length limit with a daily bag of one fish, panfish, no minimum size limit with a daily bag of 10 fish. The protective regulations will allow fish to grow to adulthood, reproduce, and maintain a healthy fish community without the need for additional stocking into the future. In addition, these protective size and bag limits will allow for a quality fishing experience, allowing harvest of some fish. Supplemental stocking of walleye for a "put-and-take" walleye fisheries by local sportsmans clubs is an option.

The primary environmental effect of the fisheries reclamation project includes direct mortality of all aquatic organisms possessing gills. Secondary environmental effects include regrowth of aquatic plants and the release of nutrients from decaying fish corpses. The direct mortality of aquatic organisms will be a short-term effect with re-establishment of the aquatic life community within 1 to 3 years. The release of nutrients from decaying fish corpses is a short-term effect less than 1 year in duration. The increase in aquatic plant growth is a long-term effect that expected to last 5 to 10 or more years.

3) Sedimentation Basin Dredging

The sediment basin was constructed as part of 1994 lake-wide comprehensive dredging project and was most recently dredged in 1999. The sediment trap controls approximately 70% of larger suspended sediment entering the lake from the watershed (Peterson 1997). A 2008 bathymetric lake map (Figure 2) indicates that sediment trap is effectively trapping sediments from entering the lake. The sedimentation basin has filled up enough to warrant maintenance dredging. Since the lake will be drawdown to facilitate the rotenone treatment, it is also advantageous for the City to remove any sediment built up in the sediment trap. Accordingly, the sediment trap is proposed to be dredged following the rotenone treatment after water levels have been stabilized at 953.4 MSL (7 foot drawdown), probably 2 to 3 months after treatment depending on weather. The proposed dredging of the sedimentation basin will use the same methods and disposal location approved for the 1999 project.

During the maintenance dredging of the sediment trap, up to a maximum of 5,000 cubic yards of material may be removed in order to re-establish original contours within the basin over a 54,000 square foot area (Figure 4). The maximum dredge depth will be 6 feet with 3:1 side slopes. The work will be done with conventional dragline or track excavator equipment during the winter drawdown when shoreline is frozen. If the consistency of the sediment allows, the material will be immediately loaded into dump trucks and hauled to the spoil site. More likely, the dredge material will be temporarily stocked piled on the gravel access road adjacent to the sedimentation basin. The material will be allowed to dewater with the decant water returning to the lake. A tracking pad of 6" rock will be used at the junction of the construction roadway and the paved public roadway. Silt fence or hay bales will be installed on the down gradient slope of the dredge spoil material. All areas disturbed will be seeded in early spring. After 6 to 8 months, the dredged material will be hauled to the permanent disposal site. The permanent disposal site was historically approved for use in 1994 and 1998. The material will be graded and stabilized during the spring of 2010. Based on historical sedimentation rates, it is expected that subsequent dredging will be required approximately every 8 to 10 years.

The primary environmental impacts of dredging include increased turbidity and direct mortality on aquatic organisms removed by the dredge. Secondary environmental effects include increased erosion from the disposal site and discharge of sediment by decant of dredged material, and increased in sediment deposition within the sedimentation basin as it continues to trap sediment.

4) Island Shoreland Protection

A City of Tomah boating ordinance designates an extensive no-wake zone across the southwestern portion of the lake (Figure 5) where a number of man-made islands provide important wildlife and fisheries habitat areas. Over time, a large percentage of the islands' shorelines have become unstable and are eroding. Contingent upon the City of Tomah acquiring a DNR lake protection shoreland restoration grant in 2009, the shoreline erosion on the islands is proposed to be corrected with the placement of riprap during the winter drawdown in 2010. A total of 1,973 linear feet of riprap combined with 700 linear feet of rock barriers will protect the shoreline of the existing islands and promote the growth of aquatic plants (Figure 6). The riprap will be placed as a slope to 6:1 to maintain a gentle slope for movement of amphibians, reptiles and other wildlife. The rock barriers will be 2 to 3 feet high with 2:1 side slopes and will protect the area between the barriers and the islands from destructive erosional forces caused by wind and boat traffic. All disturbed areas, estimated at approximately 3 acres, will be seeded in early spring.

The primary environmental effects of the island shoreland restoration include reduction of shoreline erosion, direct mortality of aquatic organisms and increased erosion within the construction zone. Secondary environmental effects include increased aquatic

plant densities and diversity in the rock protection zone, increased use of improved habitat by aquatic organisms and wildlife. The primary environmental effects associated with construction are short-term in nature. The reduction of shoreline erosion and the improvement in aquatic and shoreline habitat will be long-term on the scale of 5 to 10 years or more.

b. Discuss which of the primary and secondary environmental effects listed in the supporting documents are effects on geographically scarce resources (e.g. historic or cultural resources, scenic and recreational resources, prime agricultural lands, threatened or endangered resources, or ecologically sensitive areas).

There is a mapped occurrence of the endangered Blandings Turtle in the area of Lake Tomah. Three of the lake restoration activities that could potentially affect blandings turtles include the drawdown, dredging and the shore protection along the islands. The rotenone treatment is not expected to affect active or hibernating turtle species.

The drawdown has been designed to begin water level manipulations early enough in the season to allow all reptiles and amphibians to find appropriate winter hibernation refuges. Dredging activities may unavoidably remove hibernating blanding turtles and their habitat located within the sedimentation basin area. By starting the drawdown early enough, many of the reptile and amphibians are expected to move out of the shallow areas, such as the sedimentation basin, so direct and indirect affects of the dredging will be minimized to the extent possible. Although necessary to prevent excessive erosion of the islands, the placement of riprap along the island shoreline could impede the movement of some reptiles and amphibians from the water to shore areas. In order to mitigate any movement barrier, the riprap is designed with a slope of 6:1 or flatter to allow for easy exiting of the water for reptiles and amphibians that will use the islands as a basking/nesting site. There will also be an area sloped but not riprapped on each island to provide the Blandings Turtle a place to burrow into the bank for winter hibernation. This area of earth will be a minimum of eight lineal feet on each island.

Starting in October 2009 through the summer of 2010, there will be a loss of recreational use of lake by boaters and anglers due to the lack of access due to the partial drawdown. Angling recreation will also be impacted for up to five years as the Lake Tomah fishery recovers from the rotenone treatment. Special fishing regulations designed to protect the fishery and promote a higher density of larger sized predators effective in 2012.

c. Discuss the extent to which the primary and secondary environmental effects listed in the supporting documents are reversible.

Only two of the primary and secondary environmental effects are expected to be non-reversible: 1) the increase in aquatic vegetation and 2) the improvement in water clarity. How long the improvements in water clarity and aquatic vegetation will be maintained is contingent upon establishing a fisheries community dominated by large predators, reducing the nutrient load originating from the watershed and preventing the introduction of invasive aquatic plant species. The other environmental effects such as potential increases in erosion during construction activities, loss of aquatic habitat and recreation opportunities during the partial drawdown, and the elimination of the existing fisheries will be temporary in nature and present for to 2 to 4 years.

4. Significance of Cumulative Effects

Discuss the significance of reasonably anticipated cumulative effects on the environment (and energy usage, if applicable). Consider cumulative effects from repeated projects of the same type. Would the cumulative effects be more severe or substantially change the quality of the environment? Include other activities planned or proposed in the area that would compound effects on the environment.

The cumulative effects of comprehensive lake restoration projects that include fish reclamation (i.e. rotenone treatment) and a corresponding partial drawdown vary greatly across the state. In southern Wisconsin where there are a greater number of lake systems impacted by excessive carp populations, fish reclamation and partial drawdown projects occur more frequently. Some of those projects include Delavan Lake (1989), Big Muskego (1997), and Eagle Lake (2008). In west-central Wisconsin, there are a smaller number of lakes and accordingly, a few number of lake restoration projects likely to occur. As noted in this document, there are a number of short-term environmental effects associated with this type of lake restoration project. However, the overall environmental benefits of the restoration project justify the short-term effects. The cumulative effects of similar project across the State have overall beneficial result of improving the quality of the environment and the recreational opportunities.

5. Significance of Risk

a. Explain the significance of any unknowns that create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analysis would eliminate or reduce these unknowns?

All of the lake management activities proposed at Tomah Lake have been used at dozens or more lakes in Wisconsin over the past 20 years. Across the nation, the number of similar projects is likely well over a hundred. There are no significant unknowns associated with the technical implementation and the effects of rotenone, dredging, drawdown or shore protection practices.

A number of project components and milestones cannot be accurately predicted due to unknowns created by the weather. The precise date of the rotenone treatment will be contingent on long-term weather patterns in the fall of 2009. The ideal time to apply the rotenone is as close to lake freeze up as possible, yet still provide 2 to 3 weeks of above freezing temperatures to minimize problems with detoxicification procedures. Similarly, the exact date the lake will be completely refilled following the 2010 summer drawdown cannot be accurately predicted and is dependant on late summer and early fall rainfall amounts.

As the lake level is lowered, there will be an increase in sediment transport downstream. The amount of sediment transported downstream is unpredictable and determined by the amount of main channel head cutting and sediment resuspension caused by wind and carp. There are no studies or analysis that would accurately predict the increased sediment that may be resuspended by wind and/or carp and subsequently transported downstream during the drawdown. The downstream channel flows will be too great for turbidity curtains to work properly and there is not sufficient upland areas along the stream corridor to construct a sedimentation basin to trap the transported sediment. Lowering the lake level at a slow rate of 6 inches per day will mitigate some head cutting and maintaining a water depth of 4 feet in the lake basin will also mitigate sediment transport downstream. The sediment discharged will eventually settle in naturally occurring downstream depositional zones.

The extent and form of the aquatic plant community response to the partial drawdown and carp removal cannot be fully predicted. Preliminary field work with carp enclosures, historical aquatic surveys and experience at other lakes, suggest that a number of native aquatic species will germinate and spread in Tomah Lake. Historically, at least 15 to 19 species of aquatic plants were well established in Lake Tomah. Pioneer plant species expected to do well the first 2 or 3 years include sago pondweed, floating-leaf pondweed, cattails, bulrush, coontail and possibly chara. Plant growth is expected to be limited to water depths of less than 5 feet. However, it is not feasible to accurately predict the species that will re-colonize the lake nor predict their densities and distribution. There are no studies that could be conducted that would reduce or eliminate the unknowns associate with the re-colonization of aquatic plants in Tomah Lake.

There is an unknown risk that invasive aquatic species like Eurasian watermilfoil or zebra mussels become established in Lake Tomah following the drawdown and fish reclamation. Boats and boat trailers are the most likely way for aquatic invasive species to be introduced into the lake. With support from a DNR Invasive Species Grant, the City of Tomah will place educational signs that clearly identify the threats of aquatic invasive species and associated regulations at all boat launches. The signage will be in place by early 2010. Educational materials and newspaper articles will be prepared to explain the importance of preventing aquatic invasive species from colonizing the lake. Local volunteers plan to act as citizen lake monitors and monitor the lake for aquatic invasive species especially zebra mussels, Eurasian water milfoil, curlyleaf pondweed and purple loosestrife. The City will participate in the Clean Boats Clean Waters program for Lake Tomah beginning in 2011.

b. Explain the environmental significance of reasonably anticipated operating problems such as malfunctions, spills, fires or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

Given the long history and wide spread use of the proposed lake management activities (i.e. rotenone, dredging, drawdown, riprap), the significant hazards are well known and occur infrequently. Human health and safety risks associated with dam operation (e.g. bodily injury, falls, etc.) during the partial drawdown will be minimized by following the City of Tomah's Department of Public Works safety procedures. During the use of hydraulically operated equipment during dredging and riprap construction there is possibility of bodily injury, hose ruptures or mechanical fires among other hazards. Following industry and department standards and the City of Tomah contract requirements for the operation of heavy equipment will minimize the likelihood of operating problems.

The use of rotenone is regulated by DNR, DATCP and EPA human and environmental safety requirements. Rotenone use procedures are also covered by the Fisheries Management Handbook. Prior to the rotenone treatment, all equipment will be field tested and calibrated. Back up equipment will be on-site in the event of any failures. Rotenone will be dispensed from semi - tractor-trailers to

application tanks on barges and boats using chemically resistant hoses and clamps. A containment area will be constructed in the pumping area to contain any spills. If a spill occurs the chemical will be washed into the lake in an approved manner. First aid kits, eye wash bottles, and emergency telephone numbers will be available in case of medical injuries. Employees involved with handling the concentrated rotenone will all be certified and licensed to apply aquatic pesticides, and will be equipped with respirators, eye protection, coveralls, and rubber gloves. Local emergency officials including county sheriff, town constable, town fire chief and local hospital will be notified of project hazards.

6. Significance of Precedent

Would a decision on this proposal influence future decisions or foreclose options that may additionally affect the quality of the environment? Describe any conflicts the proposal has with plans or policy of local, state or federal agencies. Explain the significance of each.

The decision to move forward with restoration activities at Tomah Lake does not set any precedent that would limit future decisions that would affect the quality of the environment. The activities outlined in this Environmental Assessment are consistent with local, state and federal regulations, plans and agency mission statements.

7. Significance of Controversy over Environmental Effects

Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

There is strong local support as documented in the community survey results and the unanimous vote by the City of Tomah Council to support the project. The Department and the Lake Tomah Management District worked together to write the Lake Tomah Management Plan. That plan recommends a multi-pronged approach to address water quality, aquatic vegetation, and fisheries problems in Lake Tomah.

The clear water condition will encourage aquatic plant growth in shallow areas and growth in areas of deeper water where light previously could not penetrate. Some plants that have previously not been at nuisance level conditions for boat navigation may grow up. The challenge on Lake Tomah will be to keep an adequate level of overall plant density and diversity to maintain a clear water stable state, while reducing navigational nuisances caused by some of these species. The City of Tomah will participate in an aquatic invasive species monitoring and assessment program funded by a DNR Lakes grant. This will include educational posting and monitoring boat launching to prevent the introduction of invasive species like Eurasian Watermilfoil or Zebra mussels. If nuisance aquatic plant densities cause nuisance condition, aquatic plant management methods may be considered including manual remove, mechanical harvesting or chemical treatment.

The drawdown and rotenone treatment will result in some inconvenience for lake property owners and anglers in the short term. Some members of the public will have concern about the use of rotenone. These concerns are likely to relate to potential toxic effects on human health and the odors caused by decaying fish. Millions of dollars have been spent on research to determine the safety of rotenone before approval for use from the EPA. Much of this research has been directed toward potential effects on public health. This research has established that rotenone does not cause birth defects, reproductive dysfunction, gene mutations, or cancer. When used according to label instructions for the control of fish, rotenone poses little, if any, hazard to public health. The EPA has concluded that the use of rotenone for fish control does not present a risk of unreasonable adverse effects to humans and the environment.

Proposed fishing regulations with reduced bag limits and larger legal size limits may be controversial for some anglers who desire a keep a greater number of fish bag limit. The proposed fishing regulations are designed to promote and maintain a fisheries comprised of larger, predatory fish, and therefore will reduce the number of legally harvestable fish. However, it is expected a properly balanced fisheries will provide more opportunities to catch a good number of larger sized fish, even if those fish are not big enough to legally harvest.

ALTERNATIVES

8. Briefly describe the impacts of no action and of alternatives that would decrease or eliminate adverse environmental effects. (Refer to any appropriate alternatives from the applicant or anyone else.)

The environmental and social impacts of no action maintain the status quo for Lake Tomah. The lake will continue to have poor water quality, a fisheries dominated by carp and sparse aquatic habitat. The lake would continue to be considered impaired and exceed narrative standards for nuisance algae blooms and occasionally exceed the pH standard of 9 su due to excessive.

1) Fish Management Alternatives

A number of different fisheries management alternatives were evaluated including mechanical removal, chemical spot treatment and fish treatment with no drawdown. None of these alternatives could achieve the project goals as set forth in the Tomah Lake Management Plan. The intensive effort in time, equipment, and manpower that would be needed to mechanically remove significant numbers of fish would be impractical and not succeed in eradicating the population. None of these alternatives include a partial drawdown which is a primary management tool for re-establishing native aquatic plants within the lake.

Mechanical removal to thin carp populations on other local lakes was not effective. Although mechanical removal is often publicly acceptable, it's effectiveness in achieving significant habitat and water quality improvements is limited due to the following factors: 1) removal effort is often not intensive enough to reduce the biomass of target fish, in this case carp; 2) The compensatory growth and reproductive response of target fish often outpace removal, therefore no significant reductions in their populations occur; 3) The method is extremely labor intensive and expensive; and 4) Benefits are of a short duration.

Spot treatments of only portions of Lake Tomah with rotenone would require several applications over several years. This technique kills only those fish that are concentrated in shallow areas during certain times of the year. Fish distributed in other deeper parts of the lake not exposed to the chemical survive. The goals of creating a fish community capable of maintaining large predators and improving water quality would not be realized. Costs for periodic purchase of chemical over several years and stocking costs would probably be higher than for the project as proposed.

The application of rotenone at full pool without a drawdown would have less impact on aquatic recreation but would increase chances for survival of fish and require more chemical increasing the cost by 60%. Similarly, the construction costs associated with the dredging and the island shore protection would increase dramatically because conventional track equipment could not be used and machinery would have to work from barges.

2) Water Quality Management Alternatives

There are a number of alternative lake management technologies that were evaluated to address the excessive suspended solid, phosphorus levels and elevated pH. The technologies include aluminum sulfate (alum) treatment, extensive sediment dredging and installation of watershed best management practices. Neither an alum treatment nor extensive dredging of Lake Tomah will achieve the water quality goals set forth in the lake management plan.

Alum is a common lake management practice when applied to bottom sediments, reduces the release of nutrients by tightly binding to phosphorus. An alum treatment is generally used in stratified lakes where water depths are great enough to prevent resuspension of the bottom sediments. An alum treatment at Lake Tomah would be ineffective because the not only wind, but also carp and motorboats, would constantly re-suspend the bottom sediments over a large portion of the basin (lake areas with water depths less than 10 feet) reducing the ability of alum to bind the phosphorus.

In many cases, lake residents perceive that large scale dredging project can "restore" a lake's water quality. Except in very rare instances, dredging is not a cost effect means of removing phosphorus and improving water clarity. Dredging the lake basin deep enough to ensure temperature stratification (greater than 10 to 20 feet deep) and therefore preventing sediment phosphorus release from causing surface water quality problems is cost prohibited. For example, to dredge even half of Lake Tomah five feet deeper would cost an estimated 10 million dollars.

Watershed best management practices is a feasible alternative that will enhance the duration and effectiveness of the fish reclamation and drawdown since agricultural runoff is the largest contributor of nutrient inputs to Lake Tomah. Agricultural nutrient inputs can be minimized by managing soil phosphorus levels to optimum levels for crop production, using conservation practices which minimize stormwater runoff and soil erosion, by managing manure to minimize nutrient losses in stormwater runoff. The Monroe County Land

Conservation Department is in the process of conducting a watershed assessment of all agricultural lands which are currently not inventoried to determine where nutrient and sediment inputs can be reduced. Use of existing Local, State and Federal grants programs will be utilized to design and install best management practices at agricultural facilities identified as major sources of sediments and nutrients identified in the watershed assessment currently underway.

3) Dredging Alternatives

Mechanical dredging was selected as the appropriate alternative to sediment removal from the sedimentation trap since it requires less engineering, does not require a construction of a containment basin and is overall less costly than hydraulic dredging. Direct access with conventional mechanical equipment to the sedimentation basin and to the disposal area was part of the initial basin design. Although hydraulic dredging would reduce the potential for resuspension of sediment since the lake will drawdown during the mechanical dredging the resuspension is anticipated to comparable to hydraulic dredging operations.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

9. List agencies, citizen groups and individuals contacted regarding the project (include DNR personnel and title) and summarize public contacts, completed or proposed.

Date	Contact	Comment Summary
2007-2008	Tomah Lake Committee 7 citizen membership	Monthly meetings to develop plan and support project
2007 – 2008	DNR Staff Buzz Sorge – Lake Planner Jordan Weeks – Fisheries Biologist Dave Vetrano – Fisheries Supervisor Dan Helsel – Watershed Supervisor Cindy Koperski – Water Quality Biologist Armund Bartz – ET Biologist Jason Gazdecki – Chapter 30 permitter	Technical assistance for plan development
2007 - 2008	Ken Patterson – DPW Director, City of Tomah	Technical assistance for plan development and support of project
2007 – 2008	Al Hoff, Director, Monroe County LCD Bryce Richardson Monroe County LCD	Technical assistance for plan development and support of project
12 Aug 2008	Tomah City Council	Public meeting and unanimous vote in support of the project

10. ☐ On-site inspection or past experience with site by evaluator.

11. Figures

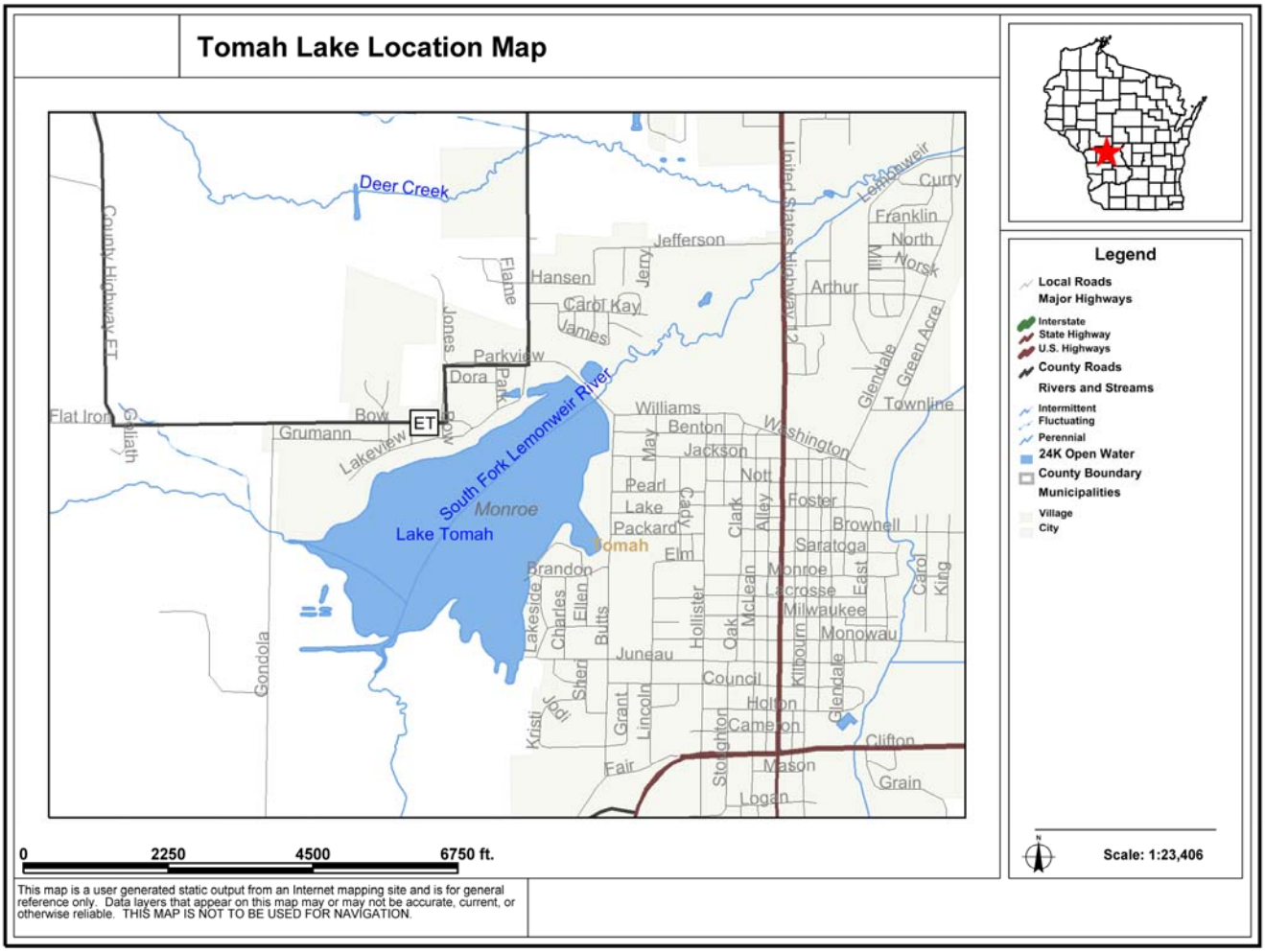

Figure 1. Lake Tomah Location Map

Figure 2. 2007 Bathymetric map.

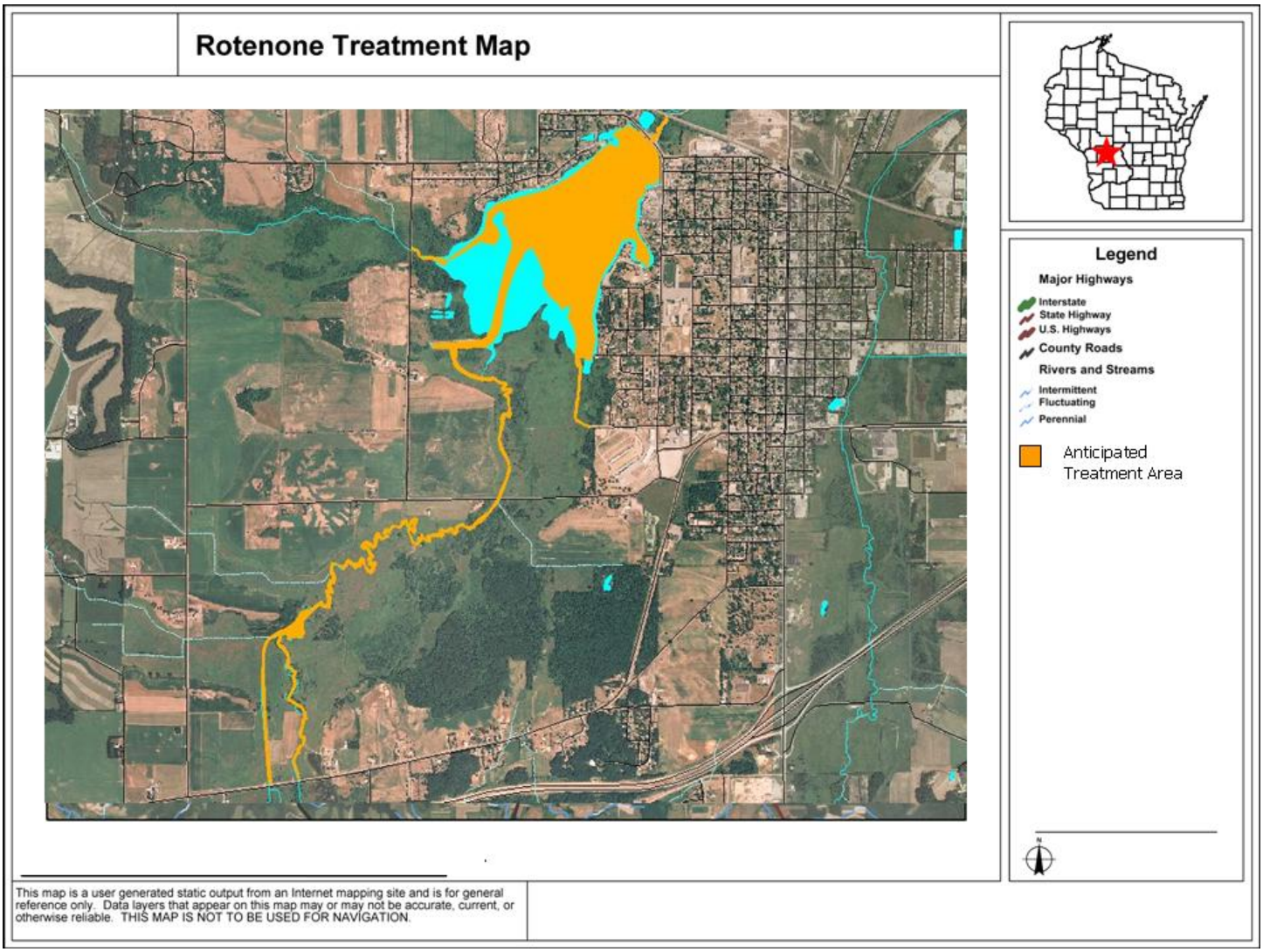

Figure 3 – Proposed Rotenone Treatment Areas based upon Fall 2008 distribution of carp. Final treatment areas will be determined based upon field verified carp distribution maps developed just prior to the October 2009 rotenone treatment.

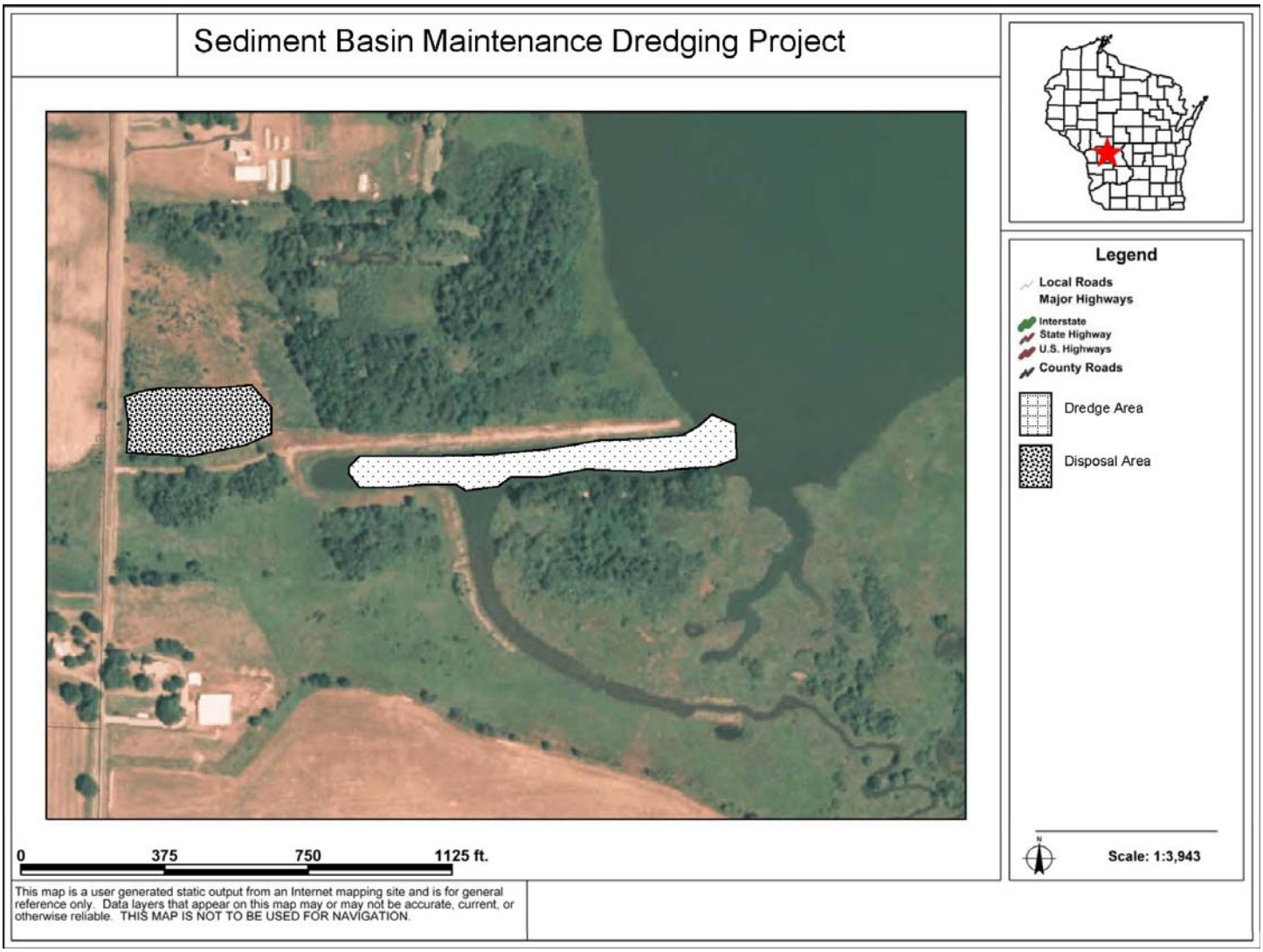

Figure 4. Maintenance Dredging and Disposal Site Location Map

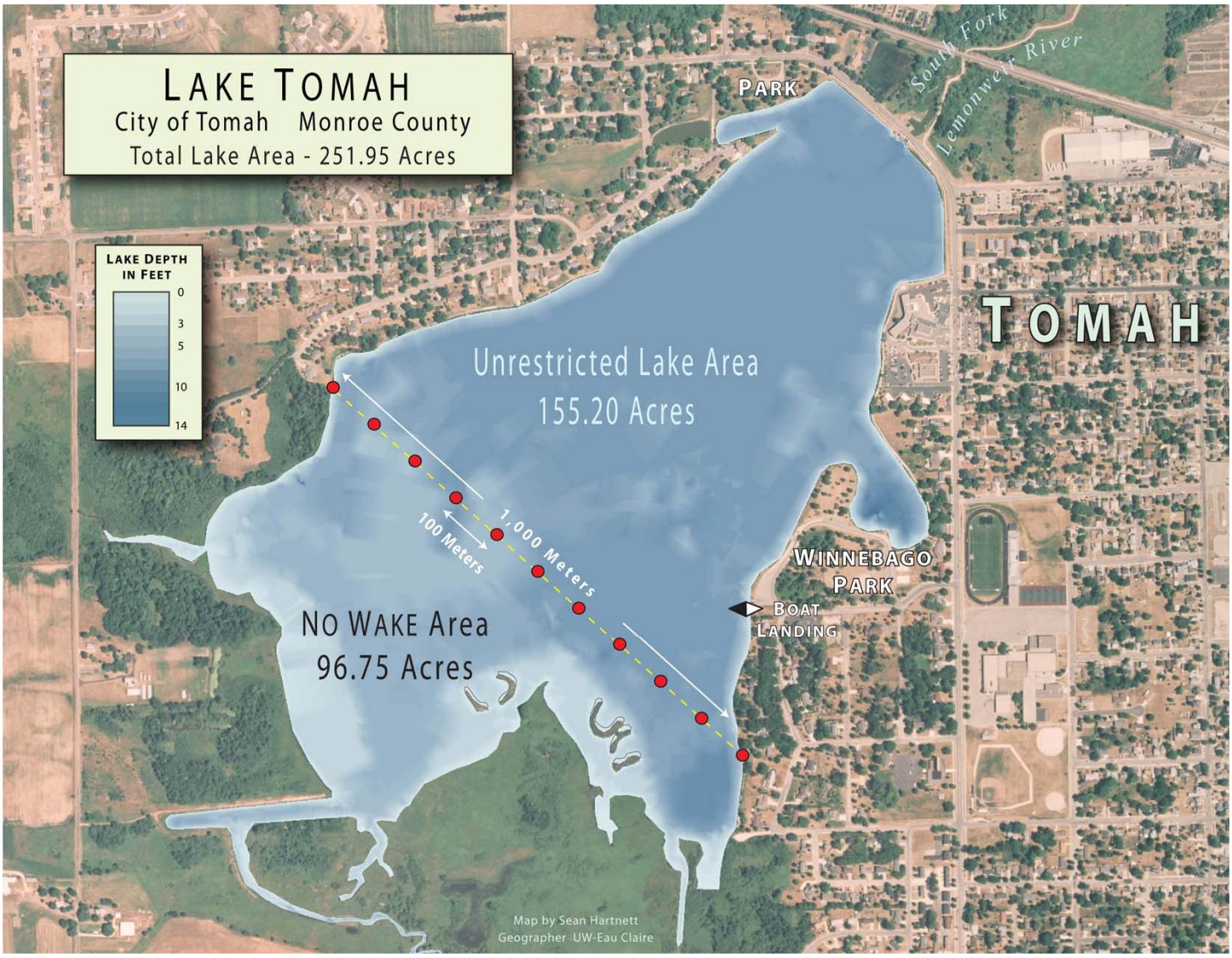

Figure 5. Lake Tomah No Wake Zone

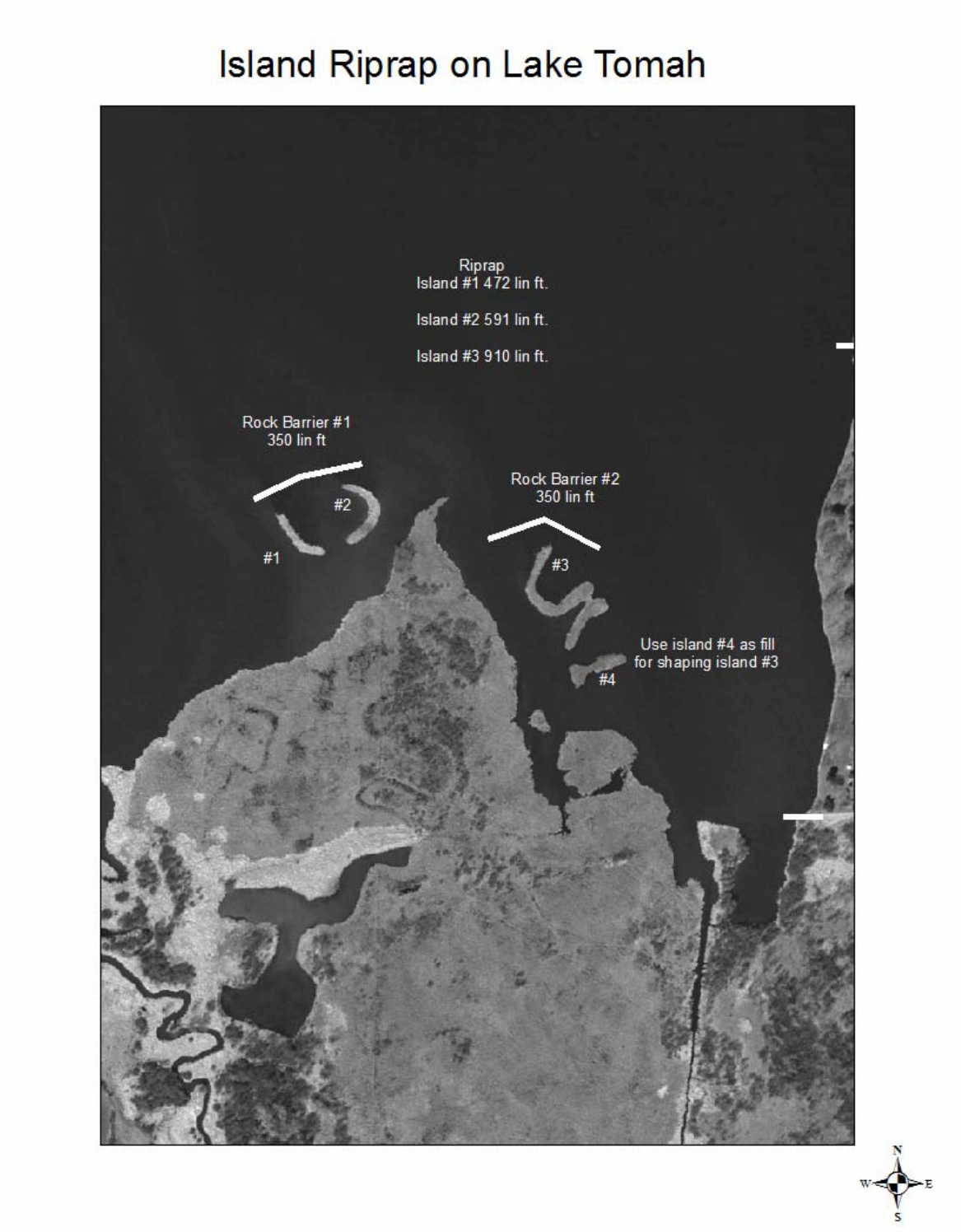

Figure 6. Shoreline Protection Project

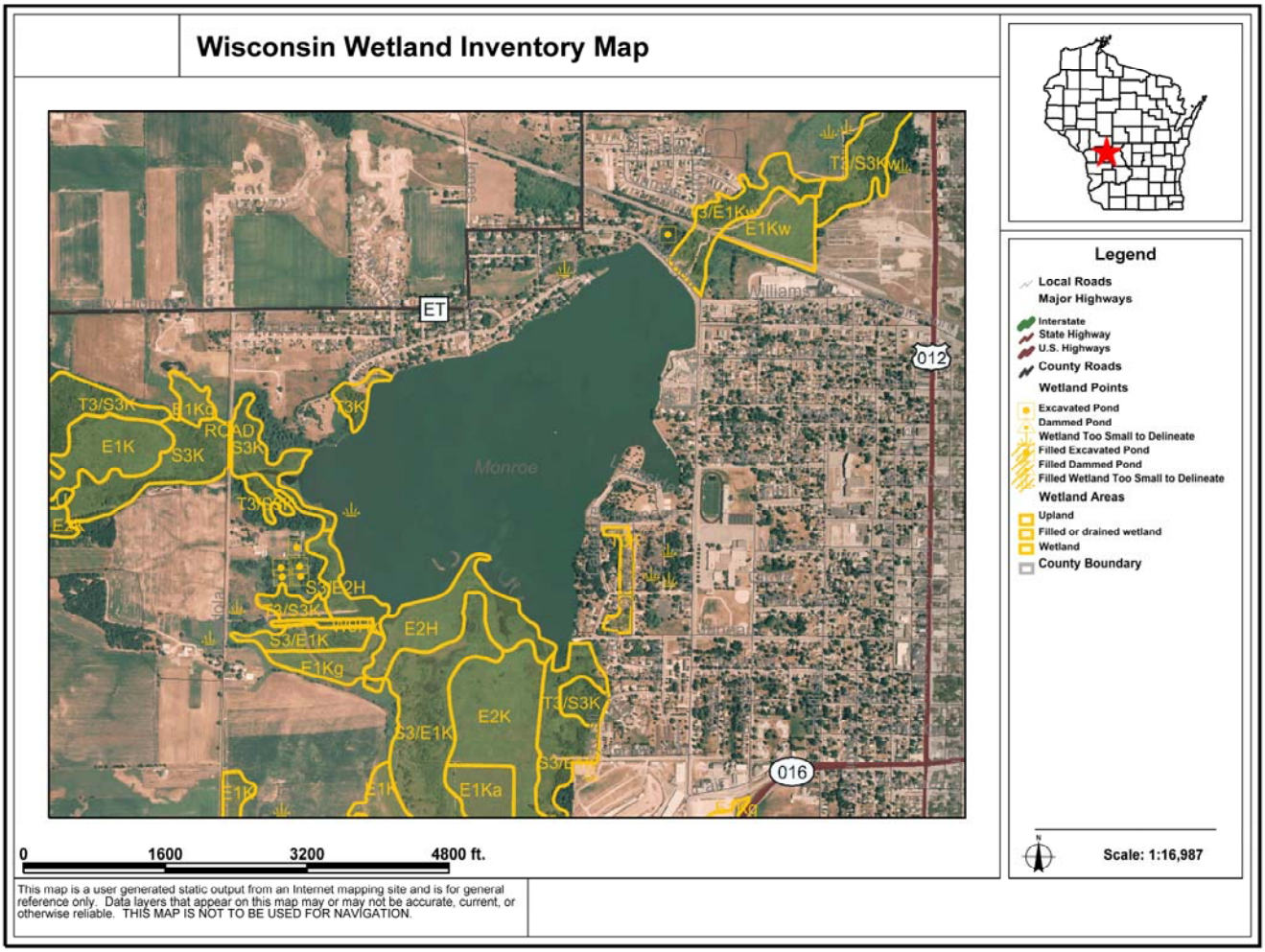

Figure 7. Wisconsin Wetland Inventory Map

Project Name: Tomah Lake Restoration Plan County: Monroe

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Adm. Code, the Department is authorized and required to determine whether it has complied with s.1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

Complete either A or B below:

A. EIS Process Not Required ☐

The attached analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion, therefore, an environmental impact statement is not required prior to final action by the Department.

B. Major Action Requiring the Full EIS Process ☐

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator	Date Signed

Number of responses to news release or other notice:

Certified to be in compliance with WEPA	
Environmental Analysis and Liaison Program Staff	Date Signed

NOTICE OF APPEAL RIGHTS

If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes, administrative codes and case law establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, ss. 227.52 and 227.53, Stats., establish criteria for filing a petition for judicial review. Such a petition shall be filed with the appropriate circuit court and shall be served on the Department. The petition shall name the Department of Natural Resources as the respondent.