



LaGrange County Highway Department

LAKE ROAD PLAN

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LaGrange County, Indiana | August 2021

Overview

This plan is to update the existing lake roads within LaGrange County (excluding main county roads which are addressed in the LaGrange County Highway Department – County Road Plan). This plan is to be a resource for funding road improvements in the upcoming ten (10) years. This plan does not predict natural disasters or emergencies, which may alter the documented plan and time frames.

History of LaGrange County Lake Road System

LaGrange County was first settled in 1828, established as a County of Indiana in 1832. The first plat on a LaGrange County lake was recorded in 1916 Pleasant View Resort on Stone Lake. In preceding years, lake property was platted off for lake cottages (typically seasonal fishing cottages). Most early lake roads are platted very narrow, not intended for the current traffic and vehicle sizes. Our records indicate that most of the road paving began around the 1920's.

Roads are maintained, repaired, and improved by the County Highway Department (this excludes private roads that have not been brought up to current highway standards).

Funding

In addition to our County budgeted funding that is allotted each year, the Highway Department is able to apply for funds through the Indiana Department of Transportation (INDOT) and funds through the Federal Highway Administration (FHWA). These funds are awarded through an application and rating process. These funds are able to be applied for only certain times of the year. LaGrange County is currently categorized under 75/25 funding through INDOT and 80/20 funding through FHWA.

Due to the complexity of the applications for road segments, it would benefit the County to keep lake road funding through the yearly budget. The work may still be contracted out due to the narrow nature of lake roads and the fact that our equipment may not be able to fit within the road parameters.

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Road Types and PASER Ratings

Paved Roads

- Either asphalt or concrete (there are no concrete roads in our County maintained system)
- We utilize the Pavement Surface Evaluation and Rating System (PASER) to analyze our paved road conditions with a uniform rating system. This system rates pavement from one to ten (1-10) based on the existing cracking, rutting, raveling, etc. Based on each rating, there are different kinds of road maintenance procedures that can be beneficial to increase the pavement longevity.

Gravel Roads

- Very few lake roads are gravel roads. There are several private roads that are gravel roads, which are not maintained by the County Highway Department.

Private Roads

- The LaGrange County Highway Department does not maintain private roads. Private roads are marked with blue road signs. If the subdivision residents upgrade the road to the highway standards, then the road may be turned over to the County for maintenance upon approval.

Road Maintenance Procedures

Preservation Treatments

- Crack Seal
 - o Asphalt emulsion used to seal cracks in the pavement surface to prevent water infiltration that leads to pavement degradation. Cracks are cleaned of debris prior to sealing. This process is the most beneficial on crack openings less than a quarter inch wide.
- Chip Seal
 - o A layer of asphalt emulsion overlaid with a layer of aggregate, then rolled followed by a broom to remove excess and loose aggregate. This process adds durability and extends the pavement service life by sealing small to moderate surface cracks and improves pavement skid resistance. Our crew comes through ahead of the chip seal treatment to fill potholes and repair road edges.

- Fog Seal
 - o An asphalt emulsion that used to seal the pavement surface and allows the existing pavement to slightly soften and create a better bond. Fog seal application also gives the pavement the black top look.
- Wedge & Level
 - o A layer of asphalt applied for leveling out imperfections within the current pavement before the application of a final asphalt surface layer. This process eliminates the natural bumps in the pavement and reestablishes a crown in the road to allow adequate water runoff.
- Micro Surface (Seal)
 - o A surface treatment for roads that is laid over the existing pavement to seal and protect it. A double pass allows minor wedge and leveling of the road.
- Cold Mix
 - o Also referred to as Pug or Monkey Mix. This material is mixed on site at our gravel pit. The product remains flexible and is able to be used as both a patching material and paving material that can be applied through a paver. Cold Mix adds durability and extends the pavement service life.
- Total Patching
 - o A pothole filling material that consists of asphalt emulsion and aggregate. Total Patch is ideal for sealing pavement edges and filling potholes from failed pavement. The material is applied by using a Total Patcher.
- Extensive (Full Depth) Patching
 - o This treatment involves cutting out the failed pavement areas and removing the failed material down to the road base. The area is then filled with an adhesive material (asphalt emulsion) then asphalt material (cold mix or hot mix) and rolled for compaction.

Rehabilitation Treatments

- Mill & Overlay (Fill)
 - o Milling is preformed to remove the existing asphalt to a certain depth with the millings hauled away and stockpiled for future use. After milling and proper road cleaning, hot mix asphalt (HMA) is applied by a paver to at minimum the depth that was milled. This treatment addresses issues like rutting and wide shallow cracking while providing additional structural stability and utilizing the existing pavement base.
- Hot-in-Place Recycling
 - o The existing asphalt pavement is heated to a certain depth, an application of a rejuvenating agent improves the viscosity and the pavement is then scarified (milled) to a desired depth. The rejuvenated mix is in turn redistributed on the roadway followed by an additional overlay or seal coat.

- Full Depth Reclamation (FDR)
 - o An economical process to construct a new stabilized base. The existing roadway is pulverized to a depth between six to twelve inches mixing the existing surface, base, or subbase materials with a stabilizing agent to produce a new stabilized base. The stabilized base is graded, compacted, and rolled before an overlay is applied to provide a new surface.
- Road Reconstruction
 - o This process removes all existing road material (surface, base, and subbase) all the way down to the subgrade (dirt). The subgrade is treated with a stabilization agent or chemical modifications, then new subbase, base, and surface layers are placed. This process is the most time consuming and expensive.

Road Work ahead of Maintenance Procedures

Berming

- A process to remove the earth build up (berm) alongside the road edge. This berm is accumulated over time from a number of factors such as debris in road runoff, winter maintenance salt, and yard/land reshaping. We place our blade at the same slope as the existing road slope and cut back the berm to a certain distance from the road edge. This process allows the water to run off the road, remain off the travel lanes, and infiltrate into the shoulder.

Roadside Ditch

- In instances when the existing land contour is flat with soils that do not infiltrate well and a road that has minimal crown, it may be needed to dig a roadside ditch to allow the water to flow to existing tiles and open ditches. There are areas with existing roadside ditches. These ditches shall not be filled or reformed by anyone other than the Highway Department or its contractors.

Clear Zone

- The clear zone is outlined in the current LaGrange County Highway Standards in Section X as the obstacle free area outside the pavement area along county roads. The clear zone shall be ten (10) feet (plus the shoulder width) from the edge of the through traffic lane or the right-of-way line. This area shall be free of all obstruction except permitted utilities, Postmaster approved mailboxes, and road signs placed by the Highway Department. The clear zone needs to remain as such to allow the area to be used for adequate road and ditch slopes, water runoff, travel visibility, and road safety.

Intersection Visibility

- Intersection visibility is outlined in the current LaGrange County Zoning Ordinance in Article 5, Section A, Bullet 2. "No fence, wall, hedge, tree, shrub, or other object which obstructs sight lines and elevations between 2½ and 8 feet above the street shall be placed, planted, or permitted to remain on any corner lot within the triangular area formed by the street right-of-way lines and a line connecting points 35 feet from the intersection of said street lines, or in the case of a rounded property corner, from the intersection of the street right-of-way lines extended. The same sight line limitations described above, shall apply to any area within 10 feet of the intersection of a street right-of-way line with the edge of any driveway pavement or alley line. No portion of a private driveway for a corner lot shall be permitted on dedicated rights-of-way within 70 feet of the centerline intersections of streets adjacent to the corner lot." Intersection visibility is important to have a clear view of the oncoming traffic in any direction for the traveling public.

Tree Trimming

- Tree trimming is essential to keep low hanging branches from obstructing and invading the clear zone and intersection visibility area. It is also important to remove dead trees that are in the right-of-way to eliminate the potential of the said trees falling and blocking the roadway.

Culvert Replacement

- When possible (in non-emergency events), it is ideal to replace failing culverts under the road prior to any new maintenance being completed. Culvert work prior to road work allows there to be less pavement joints that are able to fail more quickly. We plan to inspect all culverts along a corridor prior to road maintenance. In coming years, we would like to have all culverts documented and located for adequate information along all LaGrange County roads.
- The Highway Department has been known for make-shift riser manholes. It is planned to locate and replace all of these riser manholes to standard cast concrete manholes with grated manhole covers.

Lakes

Per the PASER ratings: scores of eight or above are considered 'good' and require minimal maintenance. Scores of five through seven are considered 'fair' and are able to be maintained by the LaGrange County Highway Department crew. Scores of four or less will be on our plan to seek outside funds to do major maintenance or reconstruction treatments. Overall, the Highway Department will continue to maintain all the roads. In the coming years it is planned to berm every road, especially before any major road treatment is completed.

It is planned to inspect and replace any deficient culverts along each segment of road prior to any major maintenance treatment. The Highway Department is working on developing GPS locations of all culverts and manholes within the department's jurisdiction.

The right-of-way must remain clear of all unpermitted obstructions for traveler safety. It is planned to reclaim the clear zone and use it to benefit the travelling public and road stability. This task will require numerous resident interactions to move obstructions, but in the grand scheme it will be an asset for the entire County.

In several lake plats there are right-of-ways that span from the roadway to the lake. This land is typically undeveloped. Even though the land is not foreseeable to be developed by the Highway Department, the land is still beneficial for the County. This right-of-way is ideal for drainage that is currently an issue around nearly every lake due to increased runoff from impervious materials. The right-of-way is also ideal to maintain a green space along the lake that allows water infiltration.

When the roadways were developed, as stated before in this document, they were platted narrowly with narrow lots for cottages. Over the years the cottages have been removed and replaced with bigger homes, and the traffic down the lake roads have become more frequent and larger (construction vehicles, etc.). Although it would be best to widen the roadways, the immediate action of berming will help with road runoff and traffic maneuverability.

Reference each corresponding 'Lake Road Map with PASER Ratings' attached in this document for the following information.

Emma Lake (Eden Township)

- Emma Lake is accessed by primarily main County roads. There are a few platted roads that were neither improved nor used as a private road.

Messick Lake (Clearspring Township)

- Messick Lake roads are in need of berming along with proper crown brought back into the roads to help with removing ponding from forming on the roadway. As with most lake roads there is only a thin layer of asphalt surface, therefore any added pavement will benefit the overall stability and strength of the road.

Hackenburg Lake (Clearspring Township)

- County Road 590 South is the only road along Hackenburg Lake that is maintained by the Highway Department. This road is a PASER rating five (5). Similar to Messick Lake, this road also would benefit from berming and an overlay to add asphalt to the roadway crown and structure stability.

Dallas Lake (Clearspring & Johnson Townships)

- The roads surrounding Dallas Lake are rated between five (5) and three (3). Several of the roads are great contenders for micro surfacing. This treatment will add additional asphalt to create a defined crown and a thicker surface layer.

Westler Lake (Johnson Township)

- Westler Lake has only 'poor' PASER ratings. In particular, towards the end of County Road 720 South the road is caving in due to muskrat burrowing underneath. In the future this road will need an improved solution that will involve Department of Natural Resources (DNR) permitting. These lake roads would also benefit from micro surfacing or asphalt overlays.

Witmer Lake (Johnson Township)

- Witmer Lake has ratings ranging from 'fair' to 'poor'. There are several large stones within the right-of-way placed by residents that will need to be removed, especially before berming. Most of these roads are ideal for an overlay or micro surface.

Atwood Lake (Johnson Township)

- Atwood Lake roads have numerous right-of-way obstructions, including mature trees that will need to be removed or relocated prior to road work. The north road of Atwood Lake is considered a main County road and not included in this document plan. Both the east and west lake roads of Atwood Lake need berming along with extensive rehabilitation treatments.

Oliver Lake (Johnson Township)

- The western and northern most roads around Oliver Lake are main County roads that are included in the LaGrange County Road Plan document. There are numerous right-of-way obstructions that will need to be removed or relocated prior to road work. These lake roads are all contenders for micro surfacing and would be a good solution to improve the road crown and build up the road structure.

Olin Lake (Johnson Township)

- Olin Lake is either owned by DNR or undeveloped. There are no lake roads around this lake.

Martin Lake (Johnson Township)

- The road segments on Martin Lake are all rated four (4). These roads would all benefit from berming and a micro surface or overlay to improve the road crown.

Adams Lake (Johnson Township)

- The majority of Adams Lake roads are a 'fair' rating. There are numerous right-of-way obstructions that will need to be removed or relocated prior to road work. An overlay or micro surface will help with the road crown and pavement structure stability.

Eve Lake (Johnson Township)

- The only road that has access to Eve Lake is classified as a main County road and is addressed in the LaGrange County Road Plan document.

Navoo Lake (Johnson Township)

- Navoo Lake only has one lake road that is private and not maintained by the LaGrange County Highway Department.

Blackman Lake (Milford Township)

- Half of the roads accessing Blackman Lake are private roads that are not maintained by the Highway Department. The remaining roads are rated a four (4), needing berming, and rehabilitation treatments to improve the existing pavement.

Pretty Lake (Milford Township)

- Pretty Lake has roads that are both exposed to frequent sunlight and completely shaded. These exposures allow only certain treatments to work. Overall, the roads collectively need tree trimming, pipe replacement, and berming prior to any road work.

Big Long Lake (Milford Township)

- Big Long Lake is similar to Pretty Lake pertaining to shaded and sunny pavement exposures. Primarily the southern/western subdivisions along the lake are heavily wooded. Collectively, the roads need berming, pipe replacement, and drain improvements before road work.

Lake of the Woods (Milford Township)

- Lake of the Woods has a range of PASER ratings on its lake roads. The north side of the lake is a contender for micro surfacing and the southern roads are contenders for wedge and leveling. Each treatment will improve the overall pavement structure stability.

McClish Lake (Milford Township)

- McClish Lake only has one road segment that is not shared with Lake of the Woods. County Road 1195 East is a gravel road and is maintained by the Highway Department.

Taylor Lake (Milford Township)

- Taylor Lake does not have any public access to the lake shore. LaGrange County Highway Department does not maintain any roads around Taylor Lake.

Mud Lake (Milford Township)

- Mud Lake does not have any public access to the lake shore. LaGrange County Highway Department does not maintain any roads around Mud Lake.

Little Turkey Lake (Milford Township)

- Little Turkey Lake roads are rated 'poor'. Both roads are great candidates for micro surfacing or an asphalt overlay. The road crown needs reestablished and the shoulders need berming to allow water runoff.

Big Turkey Lake (Milford Township)

- The Highway Department maintains three road segments along Big Turkey Lake. Overall, the ratings of these roads range from 'good' to 'fair'. The roads are candidates for micro surfacing or an overlay.

Hayward Lake (Milford Township)

- Hayward Lake only has one lake road that is private and not maintained by the LaGrange County Highway Department.

Cotton Lake (Newbury Township)

- Cotton Lake's only road access is considered a main County road. This road is addressed under the LaGrange County Road Plan.

Rainbow Lake (Newbury Township)

- The only lake road accessing Rainbow Lake is a private road that is not maintained by the LaGrange County Highway Department.

Cass Lake (Newbury Lake)

- The maintained road along the west side of Cass Lake is a three (3) rating. This road needs proper berming and patching before maintenance treatments improve the road crown and overall structure.

Shipshewana Lake (Newbury Township)

- The paved roads around Shipshewana Lake are primarily shaded with drainage issues. Berming around this lake will help with drainage, along with an overlay with wedge and level to build up the pavement and improve water runoff.

Buck Lake (Clay Township)

- Buck Lake only has roads that are considered main County Roads. These roads are addressed under the LaGrange County Road Plan.

Fish Lake (Bloomfield Township)

- Fish Lake roads score between 'fair' and 'poor'. Several tree limbs need trimmed and the shoulders need berming to allow water to infiltrate off the pavement. Maintenance treatments will improve the road crown and strength.

Royer Lake (Bloomfield & Johnson Townships)

- Royer Lake roads rate primarily 'good'. Any treatment that is applied to these roads will increase the road service life.

Wier Lake (Bloomfield Township)

- Wier Lake's only road access is considered a main County road. This road is addressed under the LaGrange County Road Plan.

Cline Lake (Bloomfield Township)

- Cline Lake's only road access is considered a main County road. This road is addressed under the LaGrange County Road Plan.

Appleman Lake (Springfield Township)

- Appleman Lake only has one lake road that is private and not maintained by the LaGrange County Highway Department.

Green Lake (Springfield Township)

- Green Lake only has road access in Steuben County Highway Department jurisdiction.

East Lake (VanBuren Township)

- East Lake only has private road access from Elkhart County.

Brokesha Lake (VanBuren Township)

- Brokesha Lake is accessible from the same road that was platted for the south side of Stone Lake. The other access is a private road that is not maintained by the Highway Department.

Stone Lake (VanBuren Township)

- Stone Lake roads range from highly 'fair' to extremely 'poor' rates. All the roads would benefit from a substantial wedge and level. There are numerous right-of-way obstructions that will need to be removed or relocated prior to road work.

Fish Lake (VanBuren Township)

- Overall Fish Lake roads are 'fair' rated. Immediately, patching will benefit the road to maintain the high rating. A sealing treatment will also help the pavement.

Pigeon Lake (Lima Township)

- County Road 290 West is the only County maintained lake road along Pigeon Lake. This road is rated a three (3). The low rating is accelerated with water pooling along the pavement. Berming, a re-established crown, and pavement build up will highly benefit this road.

North Twin Lake (Lima Township)

- North Twin Lake has had some road maintenance done to most of the roads in the past few years. The remaining roads would benefit from a re-established crown and berming.

South Twin Lake (Lima Township)

- South Twin Lake has several drainage issue locations that can be addressed with culvert placements, berming, and pavement build up. The intersection County Road 210 West with County Road 600 North needs to be raised with a gradual slope for intersection visibility. The majority of these lake roads would benefit the most from wedge and level and a seal coat.

Still Lake (Lima Township)

- Still Lake's only road access is considered a main County road. This road is addressed under the LaGrange County Road Plan.

Lane Lake (Lima Township)

- Lane Lake is completely surrounded by DNR owned land with no road access.

Meteer Lake (Lima Township)

- Meteer Lake only has one lake road that is private and is not maintained by the LaGrange County Highway Department. The majority of the lake is owned and maintained by the LaGrange County Parks Department.

Cedar Lake (Lima & Greenfield Townships)

- Cedar Lake is a highly shaded area on the north side which causes pavement weathering by not allowing standing water to dry out. This issue will be resolved by proper crown re-establishment and berming. The south side of the lake is less shaded and would be a contender for micro surface.

Causey Lake (Greenfield Township)

- Causey Lake is completely surrounded by DNR owned land with no road access.

Troxel Lake (Greenfield Township)

- Troxel Lake is accessed by a main County road. The lake is completely surrounded by DNR owned land. The County road is addressed under LaGrange County Road Plan.

Donaldson Lake (Greenfield Township)

- Donaldson Lake is completely surrounded by DNR owned land with no road access.

Duff Lake (Greenfield Township)

- Duff Lake is completely surrounded by LaGrange County Parks Department owned land with no road access.

Fennell Lake (Greenfield Township)

- Fennell Lake is accessed by a main County road or private roads. The County road is addressed under LaGrange County Road Plan.

Wall Lake (Greenfield Township)

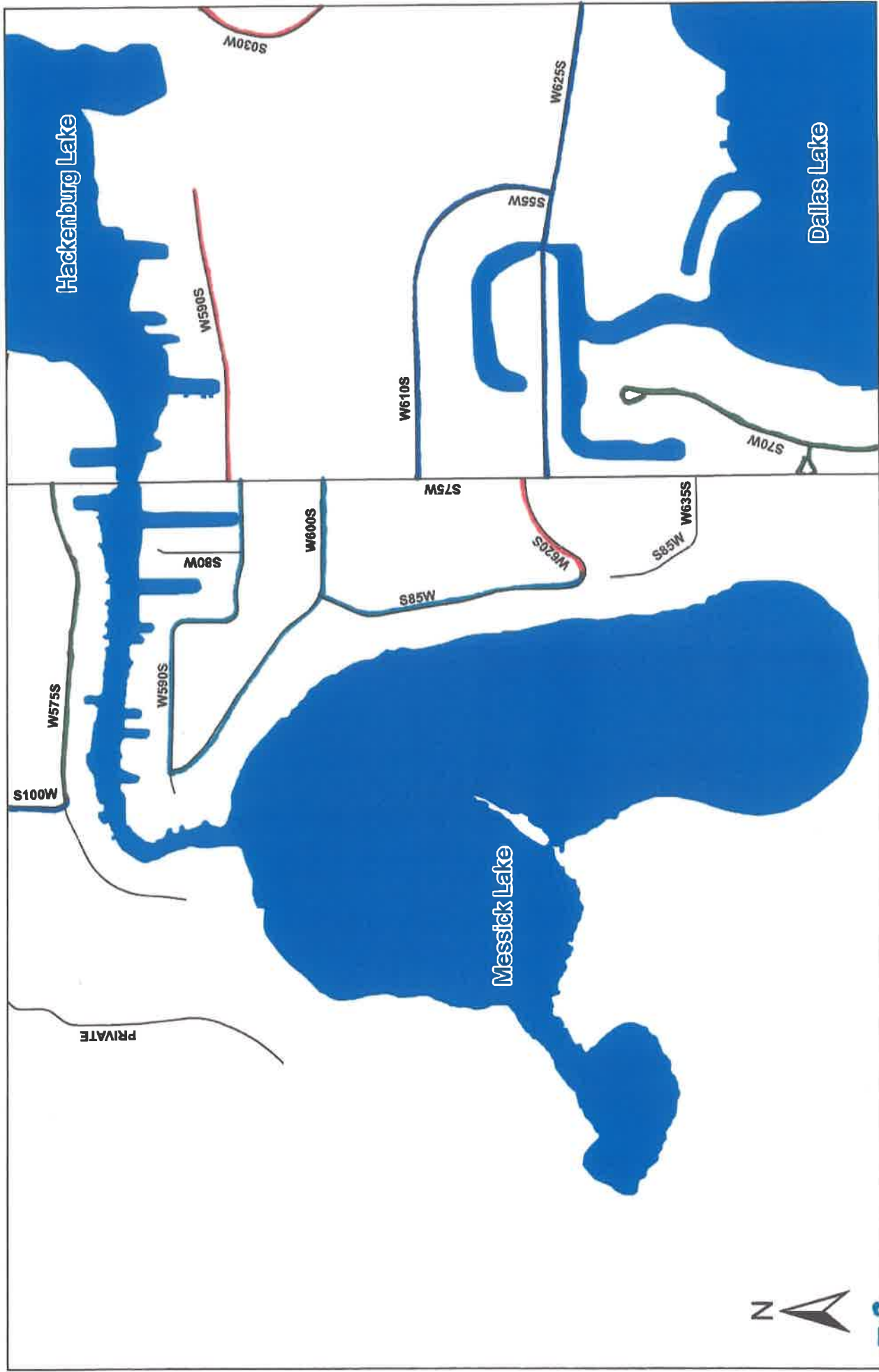
- The majority of Wall Lake's roads are considered main County roads or private roads. County Road 565 North is the only road considered a Highway Department maintained lake road. There are numerous right-of-way obstructions that will need to be removed or relocated prior to road work. This roadway would be a great candidate for micro surface or an overlay to re-establish the crown and increase the pavement service life.

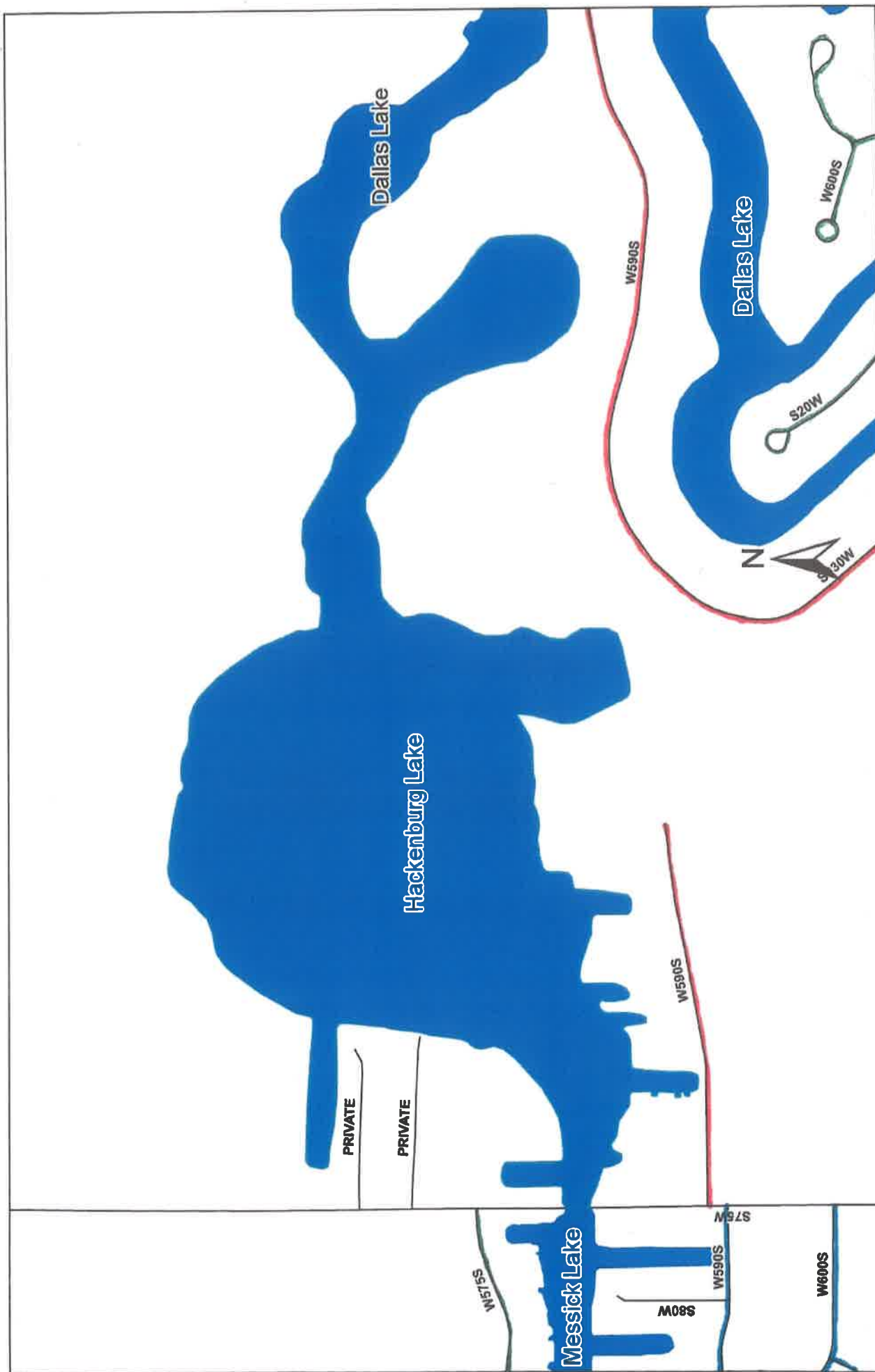
Brown Lake (Greenfield Township)

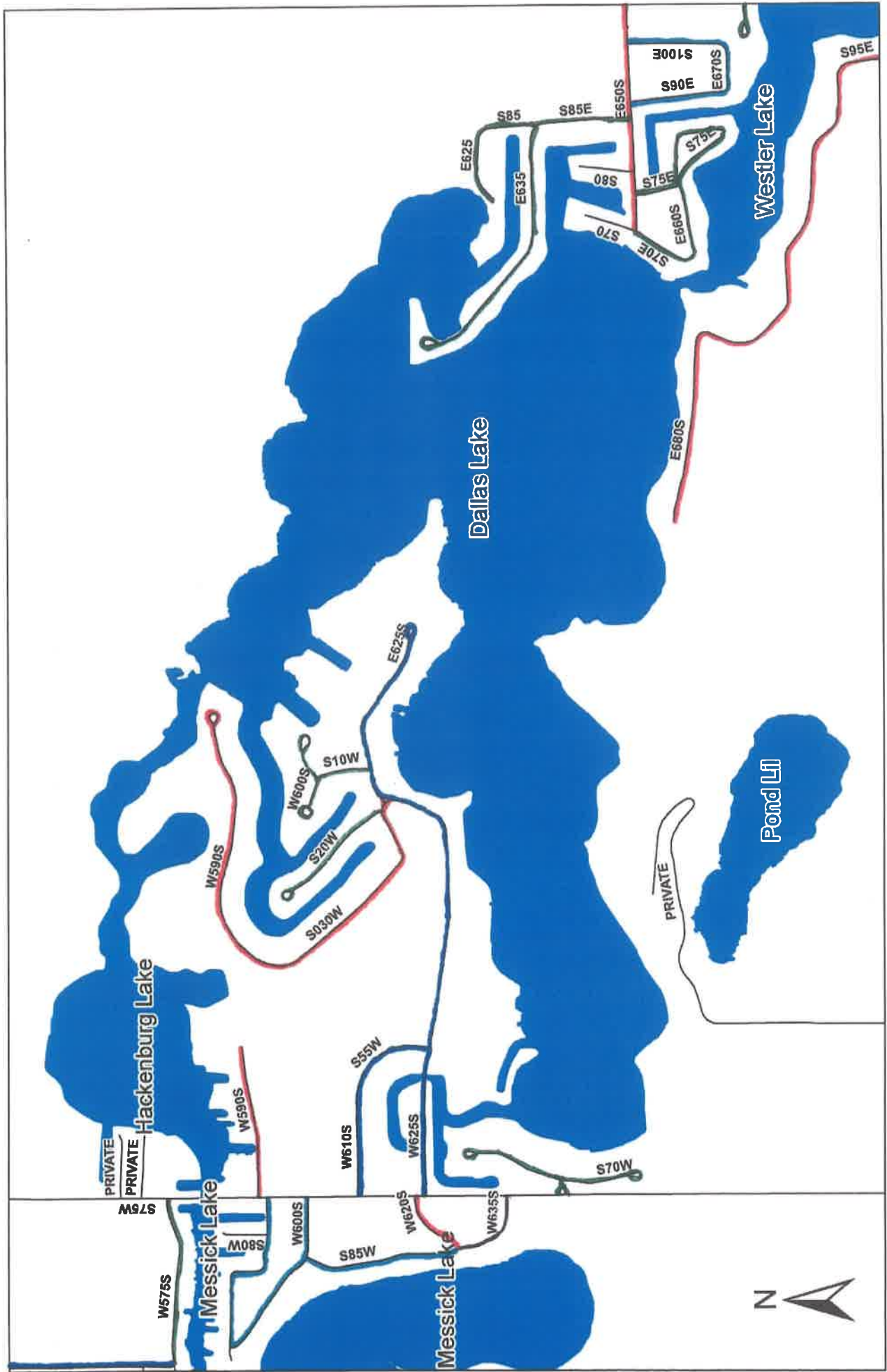
- Brown Lake is primarily accessed through Steuben County and maintained by their Highway Department. The platted access to Brown Lake from LaGrange County is unimproved and therefore not accepted to maintain.

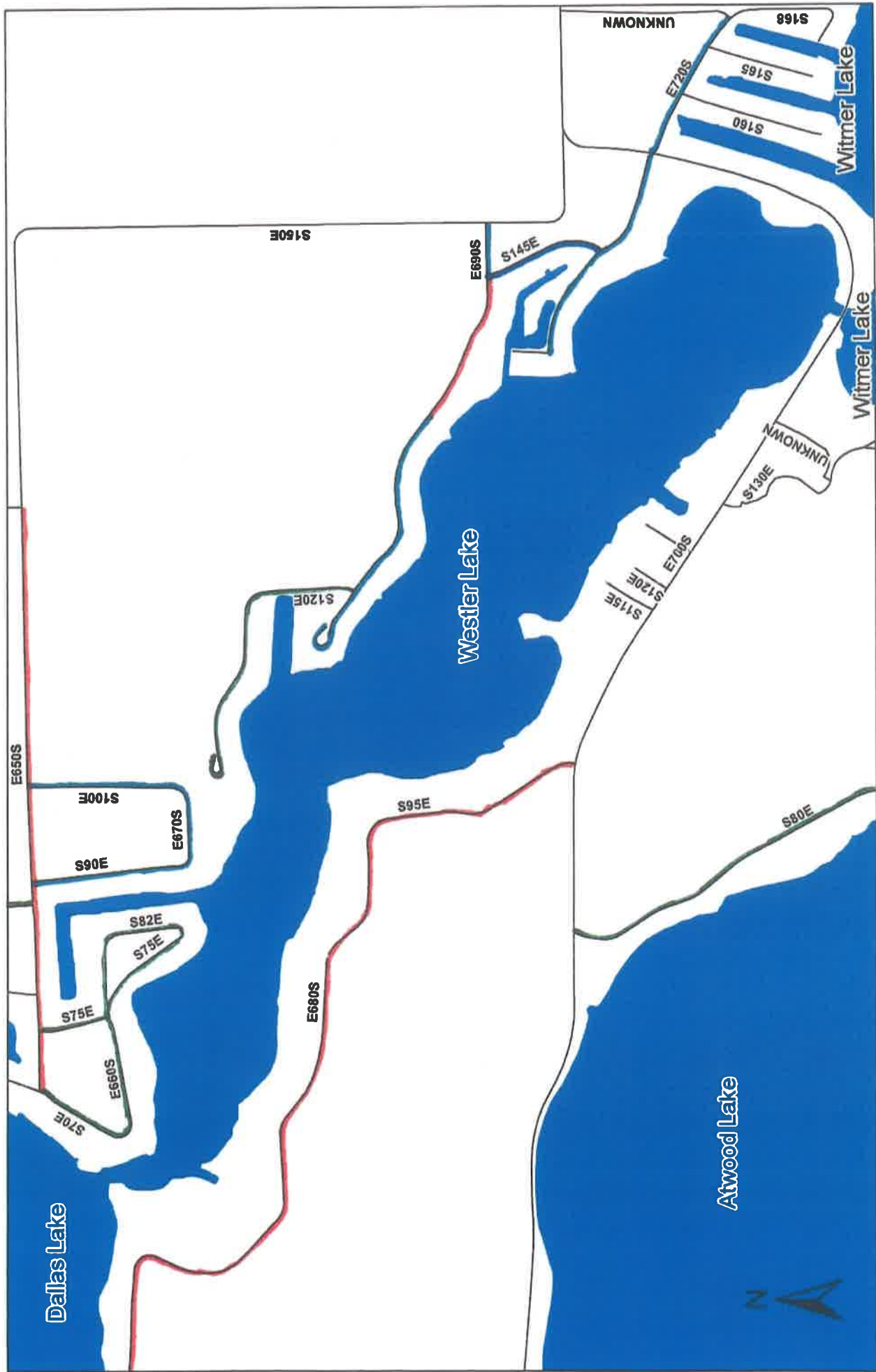
Conclusion

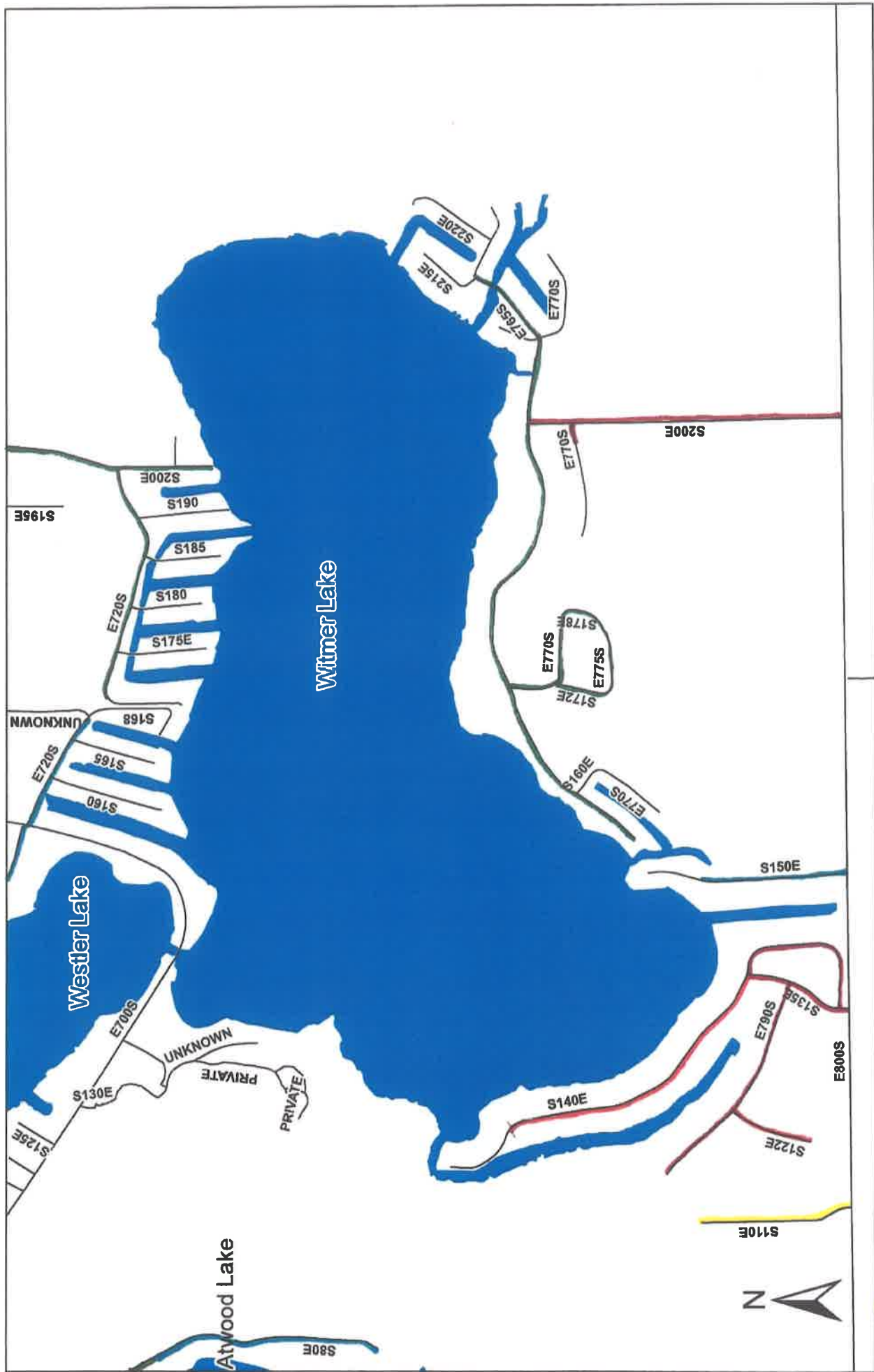
This is a proactive approach that the Highway Department plans to pursue. To bring all roads to a higher PASER rating, there will need to be a grouping of lake roads treated every year. Grouping lakes with neighboring lakes will increase the lane miles addressed and allow the Highway Department to get the most out of their funds. This process will take several years to be completed. This plan does not predict natural disasters or emergencies, which may alter the documented plan and time frames.



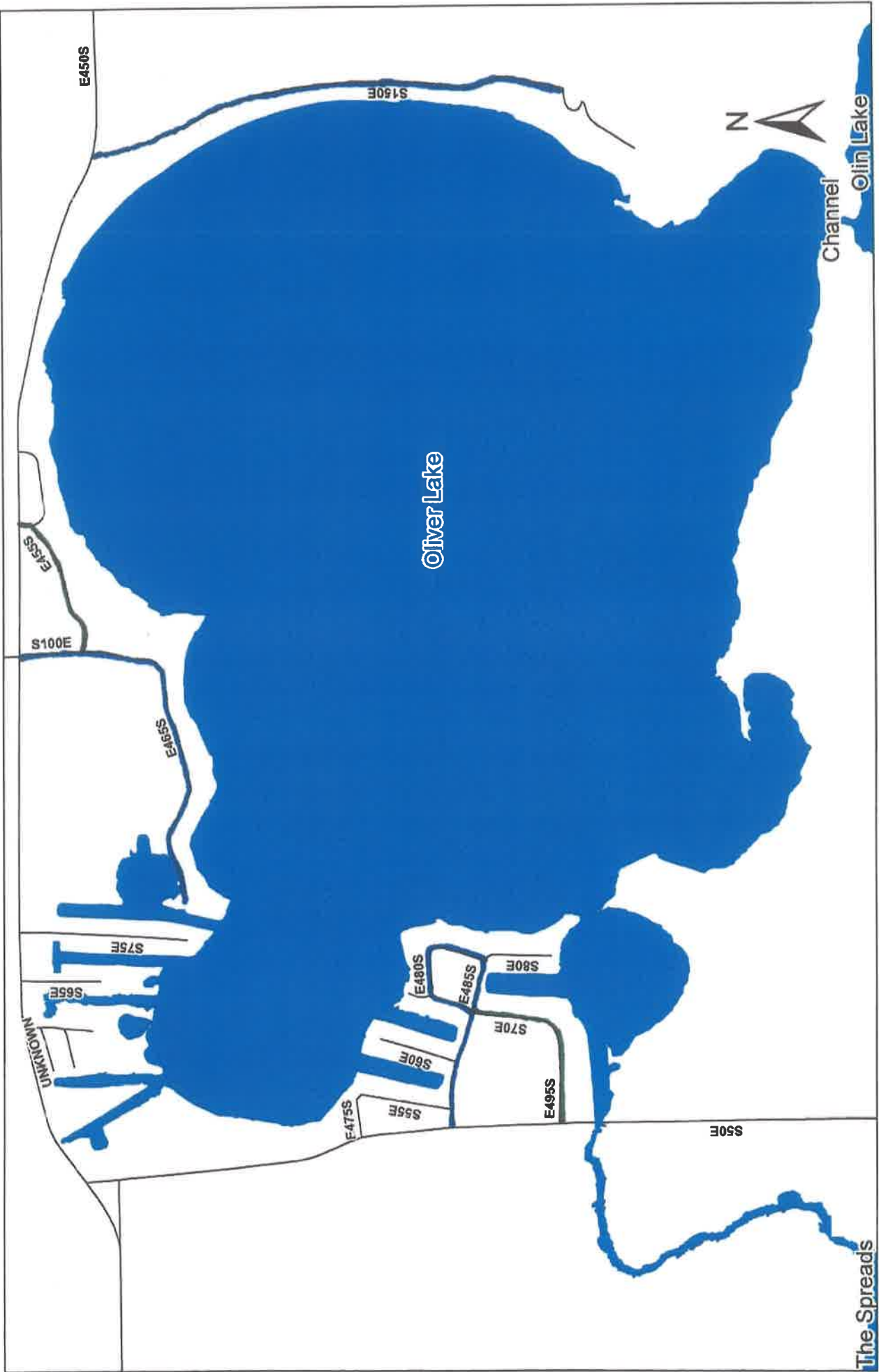












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The Spreads

