

Grand Lake Township Roads Plan

June 2007



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Prepared by:
Arrowhead Regional Development Commission



Funded by:
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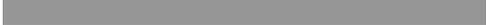


Table of Contents

Section 1: Introduction and Purpose1

Section 2: Community Characteristics3

Section 3: Functional Classification5

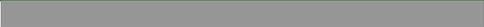
Section 4: Roadway Characteristics9

Section 5: Recommendations17

Appendix A: Road Orders Summary19

Appendix B: Road Maintenance Specifications.....23

What is ARDC?.....25



Section 1: Introduction and Purpose

Grand Lake Township values its rural character and acknowledges that the Township roads contribute to this rural character. With a population now over 2,600 the Township is growing. Increasing growth and development pressures make changes to Township roads inevitable; however, both growth and development can be directed in such a way that does not forfeit the rural character.



It is important for the Township to have a plan that addresses existing problems, as well as establishes precedence for handling issues that arise. Transportation plans address congestion, road safety, and identify ways to preserve the rural character of Grand Lake Township.

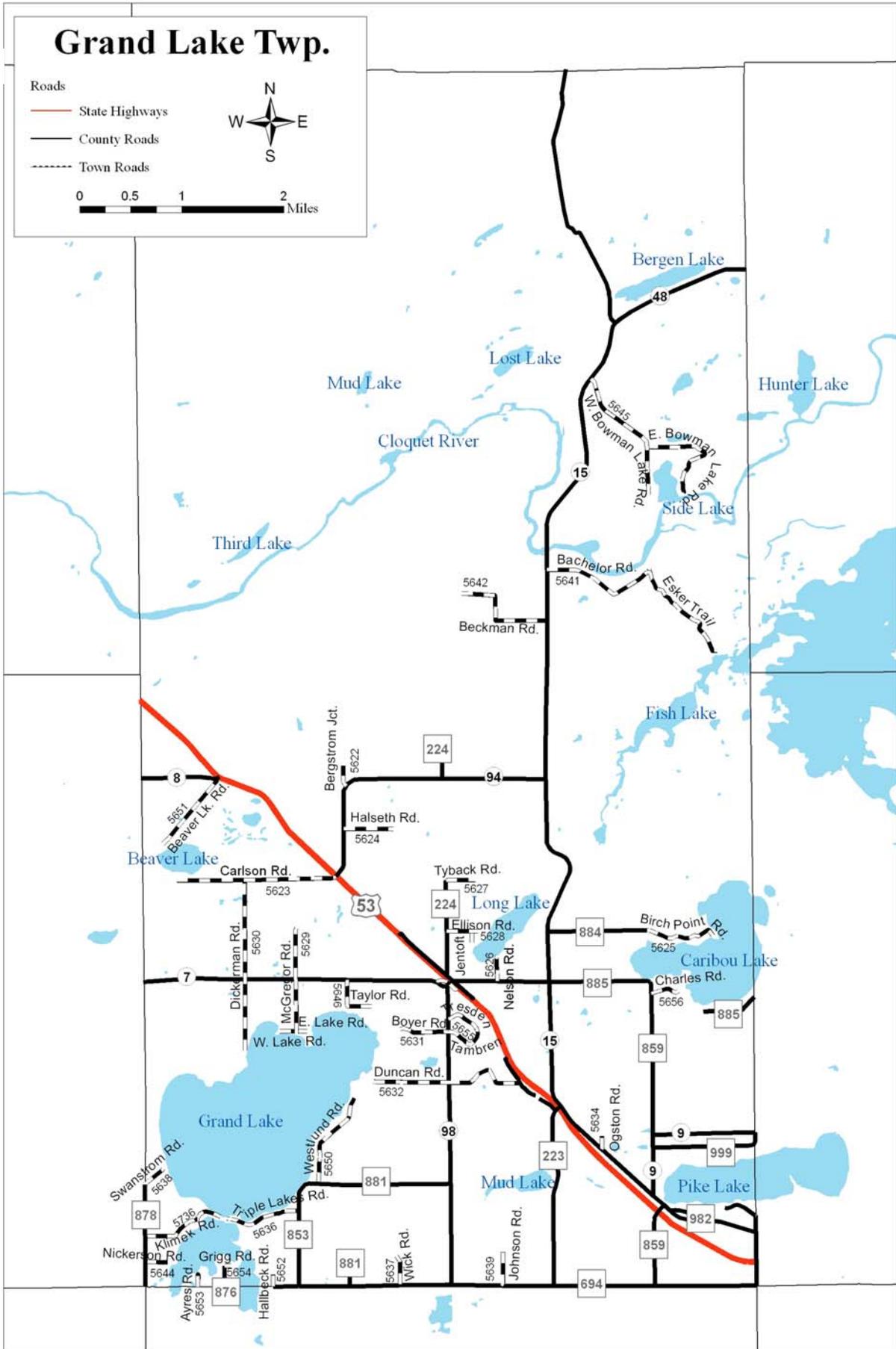
Townships in Minnesota as well as in other states make up a large portion of land. In fact most properties outside of cities are included in a township. Township roads serve not only a local function but also provide connections to local, county, and state. Minnesota townships control approximately 47 percent of the roads in Minnesota, which means they must either provide maintain or contract for maintenance.

The Grand Lake Township Road Plan reviews the current road conditions, discusses concerns identified through the community, and also contains information about ARDC's road inventory. The plan concludes with a discussion of future road improvement needs and a recommended strategy to ensure the long-term integrity of Grand Lake transportation system.

Grand Lake Twp.

Roads

- State Highways
- County Roads
- Town Roads



Section 2: Community Characteristics

Grand Lake Township is located in southern St. Louis County in northeast Minnesota. According to the 2000 Census, Grand Lake has a population of 2,621 people living in 72 square miles, twice the size of a legal-sized township. If the population was evenly distributed throughout the Township there would be approximately 36 people per square mile.

The population has increased by approximately ten percent over the previous ten years. Water bodies

comprise about 7.75% of the area in the Township and most of the population in the township is concentrated around the lakes. The lakes and rivers provide recreation throughout the township. The most prominent water bodies include; Pike Lake, Grand Lake, Little Grand Lake, Fish Lake, Caribou Lake, and Cloquet River.



Grand Lake is a growing area with over 919 households and an average household size of 2.66 persons. The Township has 1,081 housing units, of which 85% of them are occupied. Because of the many lakes in the Township there are a large number of un-occupied seasonal structures. Owner-occupied housing units make up 96% of the housing stock in the township. This is well over the St. Louis County percentage with approximately 75% of owner-occupied housing units.

Grand Lake Township's average family size is 2.97. Approximately one in three households (328) had children under the age of 18 living with them. 70.1% of the households were married couples living together. One hundred-fifty households have individuals that are 65 years of age or older. The racial makeup of the township was; 95.61% White, 0.61% African American, 2.02% Native American, 0.19% Asian, 0.04% Pacific Islander, 0.42% from other races, and 1.11% from two or more races. Hispanic or Latino of any race was 0.84% of the population.

Nearly 77% of the population is 18 years of age and older. For every 100 females there were 111.7 males. For every 100 females age 18 and over, there were 117.1 males.

Age of Residents

Under 5 years	136	5.2
5 to 9 years	162	6.2
10 to 14 years	178	6.8
15 to 19 years	215	8.2
20 to 24 years	124	4.7
25 to 34 years	279	10.6
35 to 44 years	510	19.5
45 to 54 years	466	17.8
55 to 59 years	191	7.3
60 to 64 years	115	4.4
65 to 74 years	141	5.4
75 to 84 years	73	2.8
85 years and over	31	1.2

The median income for a household in the township was \$53,900, and the median income for a family was \$58,992. Males had a median income of \$40,758 versus \$28,421 for females. The per capita income for the township was \$22,334. About 2.5% of families and 4.6% of the population were below the poverty line, including 3.5% of those under age 18 and 4.2% of those aged 65 or over.

In Grand Lake Township, 62.4 % of the population is employed. Sixty-five percent of the residents drive between 20 and 40 minutes to their employment. St. Louis County has about 29 % of the population driving this amount of time to work. This is common for rural areas, because larger populated areas often have more job opportunities.

Commuting Times in Grand Lake Township.

Travel Time 2000	Grand Lake Township		St. Louis County	Minnesota
To Work in Minutes	Count	Percent	Percent	Percent
Under 10	64	5.1%	20.8%	17.8%
10 to 19	233	18.7%	39.5%	31.0%
20 to 44	811	65.1%	29.3%	37.2%
45 or More	99	8.0%	7.0%	9.5%
Worked at Home	38	3.1%	3.5%	4.6%

Travel Time 1990	Grand Lake Township		St. Louis County	Minnesota
To Work in Minutes	Count	Percent	Percent	Percent
Under 10	61	5.9%	22.5%	20.1%
10 to 19	189	18.3%	39.7%	33.0%
20 to 44	702	67.8%	28.7%	34.7%
45 or More	60	5.8%	5.7%	6.9%
Worked at Home	23	2.2%	3.3%	1.0%

Section 3: Functional Classification

Functional classification is the structure by which roadways are grouped into classes, or systems, according to the character of service they are intended to provide. Basic to this process is the recognition that individual roads do not serve travel independently in any major way. Instead, most travel involves movement through a network of roads. It becomes necessary to determine how this road network can be characterized in a logical and efficient manner.



Functional classification defines the role that each roadway plays in the flow of traffic within the road network. The system of functionally classifying roadways was developed by the Federal Highway Administration and is administered at the state level by the Minnesota Department of Transportation.

The Township's thoroughfare system is divided into five different classification fields based on general design and level of traffic usage.

Principle Arterials: These roadways connect major interstate corridors, regions, urban places, and major traffic generators at a high level of service. They are characterized by high mobility with less access to adjacent land than other arterials. They carry the highest traffic volumes and are utilized for the longest trips. Generally, only trunk highways receive this functional classification. Trunk Highway 53 is the only principle arterial in Grand Lake Township.

Minor Arterials: Minor arterials are the main roads providing access into and out of the township. Their primary function is to provide a higher level of land access than principle arterials with minimum interference to through movements. Traffic volumes are usually over 3,000 ADT (average daily traffic) and widths are often greater than 36 feet. Currently none of the roads in Grand Lake Township are classified as minor arterials.

Major Collectors: These roads are used for intra county travel and for funneling traffic from township (local) roads onto higher functionally classed roadways. This classification is given to corridors adjacent to important county traffic generators such as consolidated schools, shipping points, county parks, important mining and agriculture areas, etc. This type of roadway generally

carries traffic volumes around 1,500 ADT, and has pavement widths between 28-40 feet. The Major collectors in Grand Lake Township include Industrial Road, Canosia Road, Helm Road, and Caribou Lake Road.

Minor Collectors: Minor Collectors are functionally similarly to the major collector (distributing traffic to local roadways and travel destinations), but they do not offer the same ease of movement and carry less traffic. The minor collectors in Grand Lake include Bergstrom Road, Munger Shaw Road, and Highway 8.

Local Roads: The local street system necessitates direct access to abutting lands and makes connections to higher functionally classed roadways. They offer the lowest level of mobility while attempting to foster a safe and pleasant environment for both automobiles and pedestrians. Speed limits are generally set at 30 mph. These roads are those that the Township is responsible for. Grand Lake Township has three roads that are through roads; Duncan Road, Carlson Road, and Dickerman Road.

Road Jurisdictions

Of the 77.83 miles of roadway in Grand Lake Township 21.64 miles or 27.8 percent are township roads. The township currently contracts with St. Louis County and private contractors for snow removal and other maintenance. These roads are very important for the township to manage, as funding for road maintenance comes from residential property taxes taken in by the township. St. Louis County oversees 47.86 miles of roadway or 61.5 percent of the roads in the Township. Property taxes are also used to maintain these roads. County State Aid Highways (CSAH's) in Grand Lake Township include; Munger Shaw Road, Bergstrom Road, Industrial Road, Highway 8 and Canosia Road. The CSAH's are maintained through a combination of state and federal funding, made possible through gas tax revenue.

Both Trunk Highways and County State Aid Highways are eligible for state and federal dollars for their upkeep. County and Township roads both rely on property tax dollars for their upkeep.

Breakdown of Road Mileage by Jurisdiction

Type	Total Mileage	Percentage
Trunk Highway 53	8.33 mi	10.7%
County Roads	47.86 mi	61.5%
Township Roads	21.64 mi	27.8%
Total:	77.83 mi	100%

Minimum Maintenance Road Designation

Townships are able to designate roads as minimum-maintenance to eliminate the costs to maintain roads that are underutilized. The State of Minnesota allows these roads to be maintained below road standards, and provides protection to the townships and officers from liability if an accident occurs.

Only certain roads are suitable to be designated as minimum maintenance roads. The Minnesota Association of Townships (MAT) recommends that only roads that are used occasionally or intermittently should be designated. MAT also recommends that Town Boards should be very hesitant to designate roads that serve one or more homes as minimum maintenance. School buses and postal carriers can refuse to travel on these roads, and thereby cause hardships to the residents along the roads. Emergency vehicles may also have access problems.

If Grand Lake Township decides to pursue minimum maintenance roads, a resolution must be passed by the Board. Then the road must be signed appropriately at the beginning and at intervals along the roads. The Board must also notify neighboring townships, St. Louis County, and the Minnesota Department of Transportation. After these steps are taken the road may be maintained at a lower level, however it must at least be maintained to serve the occasional or intermittent traffic the entire year. Roads that are considered closed at seasonal times should be blockaded. Currently the western portion of the Beckman Road is designated as minimum maintenance.

Grand Lake Township Road Mileage

Name	Length** (miles)	Road #	Width (feet)	# of Access*
Ayers Road	.18	5653		8
Bachelor Road	1.12	5641	66	8
Beaver Lake Road	.83	5651		7
Beckman Road	.72	5642		18
Bergstrom Jct.	.21	5622		4
Boyer Road	.48	5631		7
Birch Point Road	.72	5625		26
Carlson Road	1.56	5623		31
Charles Road	.29	5656		12
Dickerman Road	1.68	5630		16
Duncan Road	1.55	5632		15
E. Bowman Lake Rd	1.09		unspecified	14
East Lake Road	.11		33	4
Ellison Road	.31	5628		8
Esker Trail	.98			
Grigg Road	.06	5654	66	3
Hallbeck Road	.12	5652	33	3
Halseth Road	.50	5624		10
Jentoft Road	.11			5
Johnson Road	.33	5639		4
Klimek Road	.58	5736	33	15
McGregor Road	1.04	5629		4
Nelson Road	.25	5626		8
Nickerson Road	.22	5644	33	3
Ogston Road	.13	5634		3
Swanstrom Road	.24	5638	66	2
Tambren Road	.26	5655		8
Taylor Road	.50	5646	33	6
Tresdan Road	.48	5655		9
Triple Lakes Road	.58	5636		22
Tyback Road	.29	5627		4
W. Bowman Lake Rd	.48	5645	33	14
West Lake Road	.16			6
Westlund Road	.97	5650	unspecified	35
Wick Road	.29	5637		1

*The # of accesses category is the number of private roads/ driveways that begin from the town roads.

**The Length category provides the approximate lengths of town roads.

Section 4: Roadway Characteristics

Grading

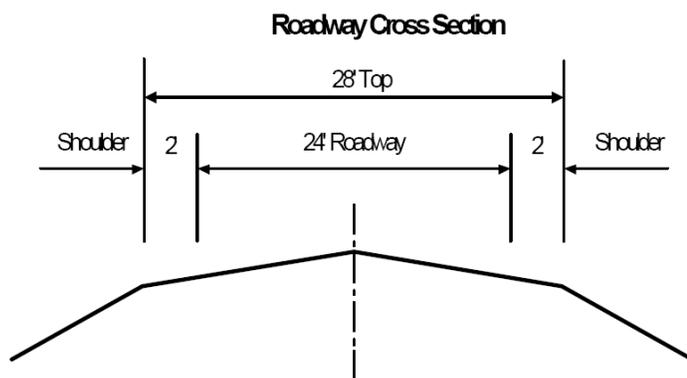
Proper and timely grading of gravel roadways within the Township is absolutely vital to ensure safe and comfortable roads.



The effectiveness of gravel road grading is dependent on a number of things; including the amount of moisture present in the road base, the current weather conditions and the speed of the traffic using the road.

Smoothing out bumpy roads requires grading with a blade truck or a motor grader. This grading is usually done after a rain because the road is soft enough to smooth it out. When dry, the clay binder becomes compacted and blades are not able to cut down to the bottom of the pot-holes. This will result in failure to fully remove the pot-holes and roads will remain rough. Grading can be more difficult to do during the normally dry summer months when 'wash-boarding' is a concern. Corrugation, or washboarding, is caused by the oscillation of shock absorbers or improper grading and is made more severe with dry weather. Washboarding is just one issue that can be prevented with grading.

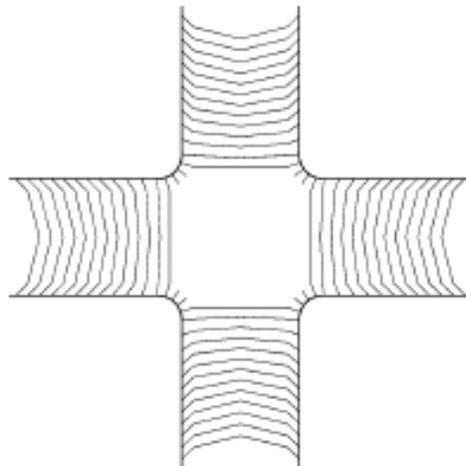
Occasionally in the spring, clay material can make the roads slippery. It is challenging to get the right balance of clay, stone and sand on a gravel road. Too little clay and the roads quickly develop sand holes and soft spots, too much clay and the road is slippery every time it rains. Heavily traveled roads can be difficult to maintain.



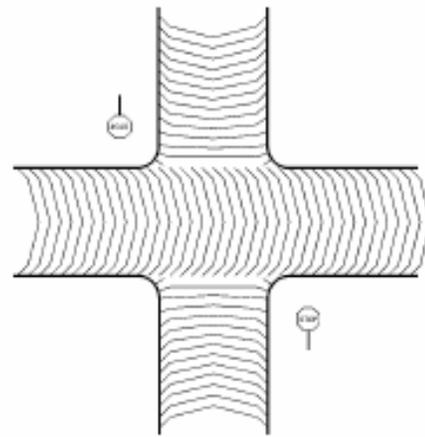
Grand Lake Road Grading Specifications can be found in Appendix B.

Grading schedules are usually based on the volume of traffic using the gravel roads:

- Gravel roads with high traffic volumes are graded at least once a month or as needed
- Gravel roads with lower traffic volumes are graded once a month
- Low usage roads are graded seasonally as conditions permit
- Generally a gravel road will hold up well with up to 100 cars per day



Uncontrolled Intersection



Controlled Intersection

Intersections must also be properly graded as well. On intersections that are uncontrolled the crown should be removed. This allows for the two roads to intersect each other on a level surface. On intersections that are controlled the primary road through the intersection maintains its crown and the other road is blended into it. The road that is forced to stop should do so at a level surface.

Width and Scale

The average cost of gravel is approximately \$12.50 per cubic yard. By keeping the road base well maintained it saves money later on by lessening the amount of gravel to be added to the road surface. A standard gravel road of twenty feet in width should feature a crown of four percent. Crowns of this size and shape adequately drain water and retain shape properly.

Right of Way

The Right of Way (ROW) on Grand Lake Township roads vary widely. ROWs are measured from the centerline of the road and is standard for townships across the country. If a ROW is recorded at 33 feet it doesn't mean that this width is driving surface. Local governments are allowed to maintain the roads

and the road ditches within the ROW distance. Townships should continue to maintain the roads at the ROW width. This keeps the roads safe and clear and also can help in identifying where the property lines begin.

Dust Control

In dry conditions, dust from gravel roads should be addressed. Dusty roads cause safety and health issues, as well as undesirable conditions for residents. One method of controlling dust is the application of calcium chloride. This chemical when properly applied serves as a bonding agent that aids in keeping the dust down by keeping the road surface moist. It also stabilizes the road base by regulating moisture. The chemical is usually applied in a time frame spanning late spring and into the early summer. Grand Lake currently sprays their roads with calcium chloride once a year and this keeps the dust down and reduces roadway degradation.

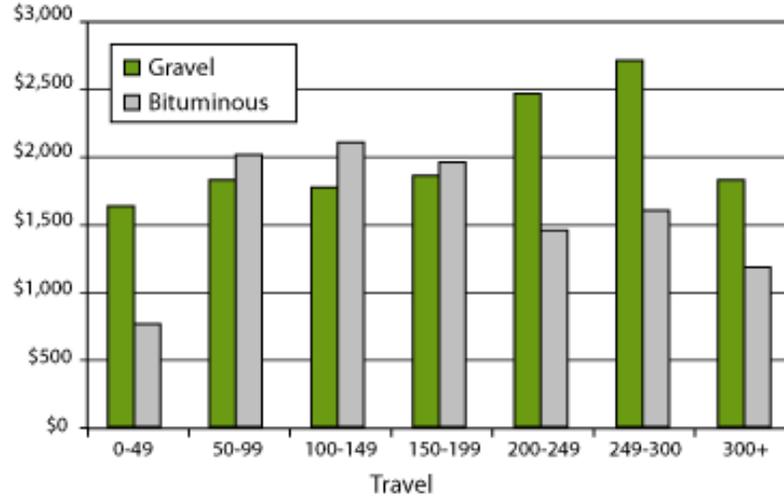


Average Daily Traffic Counts, ADT

Although Average Daily Traffic Counts (ADTs) have not been performed on the township roads it is recommended that once every five years this be completed on the through roads that are not dead-ends, to ensure if roads are in need of upgrading. Roads that should be considered for a future ADT include:

1. Bachelor Road
2. Westlund Road
3. Carlson Road
4. Dickerman Road
5. Duncan Road

These roads are currently gravel, and are not in need of paving at this time. If the traffic on these roads were to increase heavily the Township might want to explore paving these roads.



Average County Surface Related Maintenance Cost/Mile VS AADT

From: Jahren, Charles T. & Johnson, Greg. "Economics of Upgrading an Aggregate Road" MnDOT & LRRB. January 2005

The graph above came from a document that was published by the Minnesota Department of Transportation (Mn/DOT) and the Minnesota Local Road Research Board (LRRB). The goal of the report was to help the public understand why counties and townships choose their policies and use certain construction and maintenance techniques.



According to the report, gravel roads with an ADT of 100 should begin planning for an upgrade if future growth in traffic is expected. Gravel roads with an ADT of 200 should seriously consider the upgrade as soon as possible. What the graph above shows is how with increased use of a road gravel costs increase due to the higher maintenance required. At the 200 ADT level is where this is illustrated in the graph.

Roads that service lake properties are going to continue to produce traffic and even increase traffic counts, as lakes continue to be developed. These roads service areas with increased densities. This land is in high demand and will continue to see high traffic volumes.

Speed Limits

Speed limits are determined by the state through traffic/speed studies . Township officials should be included and involved with any speed studies reviewed. Although, township officials are usually the first to be approached by concerned citizens, the township does not have the authority to determine speed limits. If the Township feels that the speed limit on a road should be increased or decreased they can request a speed study to be done by Minnesota Department of Transportation through resolution. Speed studies are usually done in the summer months and will result in the certification of a speed limit. The appropriate road authority can then post signs for the certified limit. Townships need to understand that although they may want speeds to decrease, speed studies could result in speeds being raised, regardless of the local government's position.

Non-Motorized Travel

Pedestrian and bicycle paths are effective ways of encouraging non-motorized travel. These forms of transportation encourage a healthy lifestyle and provide recreational opportunities. The Township should support the construction of safe and accessible pedestrian paths and bikeways in the future.

Culverts

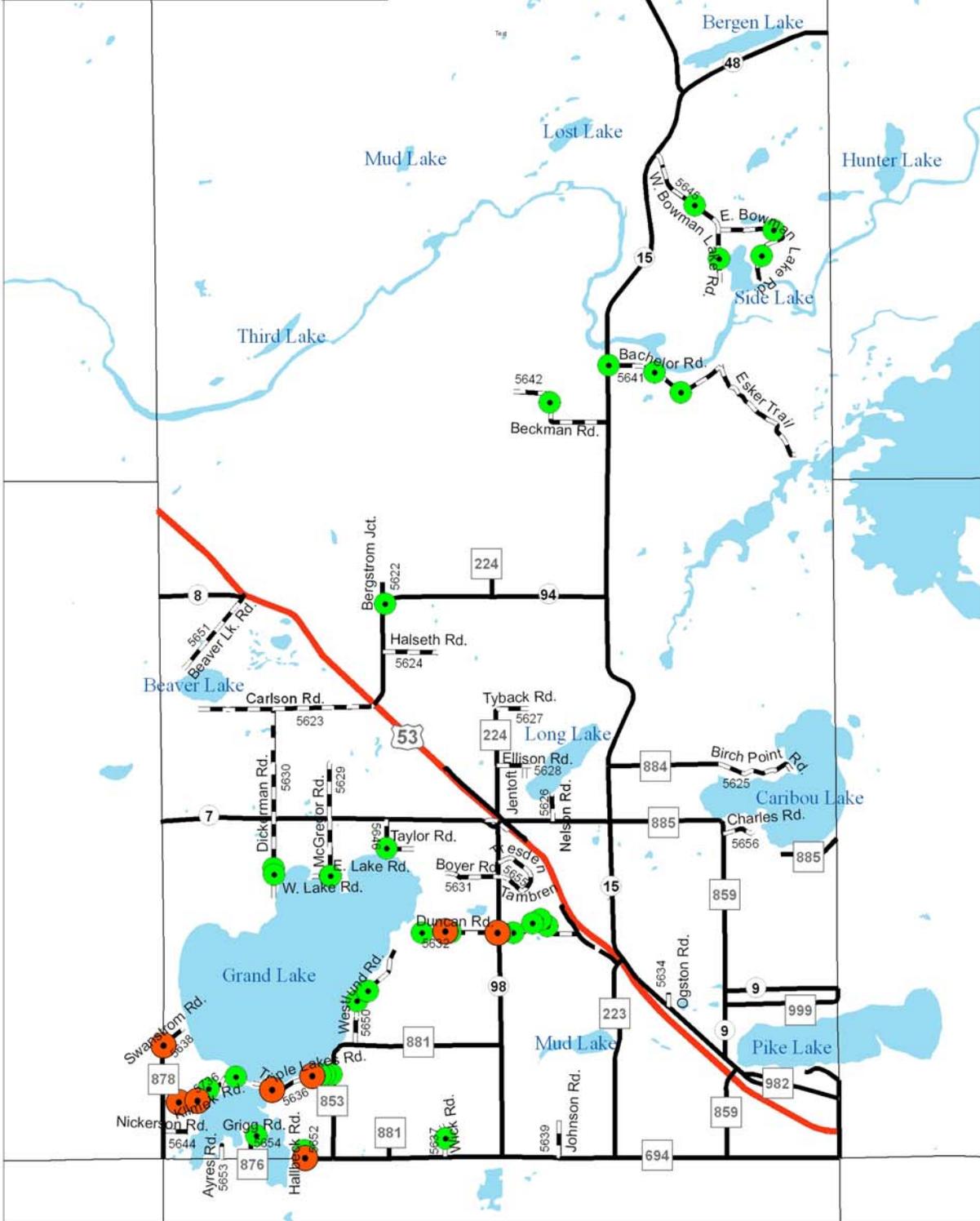
Culverts are an essential part of allowing the passage of water underneath a roadway; they prevent erosion from washing out the road and also from flooding the surface of the road. Culverts must be maintained and monitored to ensure they are performing as expected. Proper gradient and elevation are essential to keep culverts functioning properly. The Department of Natural Resources recommends that fish-friendly culverts be considered. Standard culverts often hinder or prevent fish migrating with high drops or shallow water. Larger, lower culverts allow for better fish migration. When constructing roads, officials should consider these types of culverts especially those servicing larger streams.

Trees and Vegetation

Trees and vegetation growing alongside the roads within the Township can greatly enhance driving experiences. Vegetation along roadsides provides visual interest and shade, especially tree canopies. The cutting and trimming of trees and vegetation along roads should be done so to achieve a balance between preserving the beauty of the trees and also making the roadway visible enough for safe travel. The Township should continue to maintain the road right-of-ways by keeping the small trees and brush clear, which includes trees up to 6" in diameter. Keeping the vegetation clear allows for better access for maintenance vehicles and snowplows.

Grand Lake Twp.

- Culverts in need of maintenance
- Functioning Culverts
- State Highways
- County Roads
- - - Town Roads



Culvert Data on Grand Lake Township Roads.

Road	Diameter (inches)	Length (feet)	Material	Condition
Duncan	24	30	metal	new
Duncan	14	34	steel	good
Duncan	22	30	metal	new
Duncan	14	28	metal	good
Duncan	14	51	metal	good
Duncan	14	52	metal	good (needs cleaning)
Duncan	20	32	metal	good
Duncan	16	30	metal	poor (north end damaged)
Duncan	16	20	metal	good
Wick (x4)	60	40	concrete	good
Hallbeck	16	40	metal	poor (west end damaged)
Hallbeck	14	20	metal	poor
Grigg	12	28	metal	good
Swanstrom	22	25	metal	good (positioned too high)
Klimek	14	30	metal	poor (north end damaged)
Klimek	16	28	metal	good (needs cleaning)
Klimek	14	24	metal	good
Klimek	72	36	concrete	good
Triple Lakes	24	40	metal	good
Triple Lakes	32	31	metal	good
Triple Lakes (x2)	32	30	metal	good
Triple Lakes	n/a	32	metal	poor (needs cleaning)
Triple Lakes	12	26	metal	good (needs cleaning)
Westlund	14	28	metal	good
Westlund	16	30	metal	good
Westlund	16	28	metal	good
Taylor	16	29	metal	new
W. Lake	16	36	metal	good
E. Lake	16	41	metal	new
Dickerman	14	30	metal	new
Dickerman	18	24	metal	new
Bachelor	16	44	metal	fair
Bachelor	48	50	metal	good
Bachelor	16	42	metal	good
W. Bowman	16	26	metal	good
E. Bowman (x2)	24	28	metal	good
E. Bowman	14	28	metal	good
W. Bowman	24	30	metal	good
Beckman	40	37	metal	good
Berstrom Jct.	24	62	concrete	good



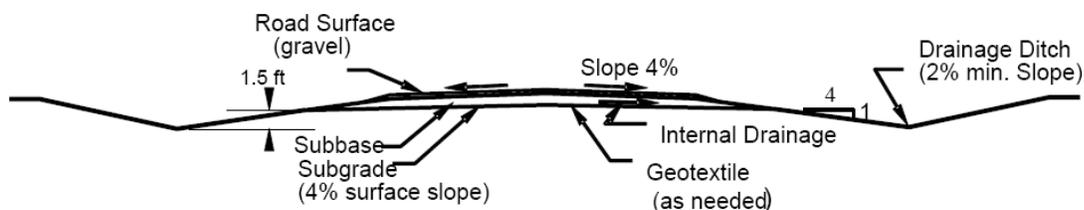
Section 5: Recommendations

Through examining the roads within the Grand Lake Township these key projects were identified and are recommended for future improvements.

1. Specific Road Issues

The following is a list of roads that had issues or perceived problems.

- a. Duncan Road. This road has trees and vegetation very close to the travel surface of the road. The right of way for Duncan Road should be maintained to keep the road clear for easy maintenance and safe for travelers.
- b. Swanstrom Road. Brush and vegetation are crowding the road. It is also unclear when traveling the road, when the public road ends and when the private road begins. Maintaining the road becomes more difficult when it is narrow. The township should also seek adequate turn-around area for plows, school buses, and other maintenance vehicles.
- c. McGregor Road and Industrial Road Intersection. While traveling North on McGregor Road and approaching the intersection of Industrial Road there is little warning of the intersection which is not visible because of the steep grade. Advanced warning like a "Stop Ahead" sign could easily solve this safety hazard.
- d. Carlson Road. The recent construction of Carlson Road has exposed the steep shoulder edge. The current slope could be a safety hazard and should be addressed. The road ditch is currently staying filled with water. Either further ditching or added culverts should be reviewed to solve the standing water problem.



2. Road Signage

The roads in Grand Lake Township are well-signed in some areas and poorly signed in others. Whenever possible, town roads should be signed with the corresponding road number. This is often how these roads are identified on road maps and it would make navigation for visitors as well as residents, easier. Speed limits should be posted whenever the limit is less than 55 mph, so as to avoid confusion. Some road/name signs are faded or otherwise

dilapidated. Improved signage greatly increases navigability and the appearance of the Township.

3. Continued Maintenance

Grand Lake Township should continue to maintain roadways at their rights-of-way. This provides legitimate access for future projects and makes for easy maintenance. At the very least the township should continue to maintain all roads at their current maintenance width, to ensure that access will not be denied in the future.

4. Traffic Awareness

Grand Lake Township should pay close attention to road traffic volumes. If traffic on certain roads increases, the Township should acquire ADT counts and see if the current road structure and surface is holding up and will continue to withstand this amount of traffic. If traffic increases heavily, paving should be investigated to determine if it is cost effective.

Roads that are severely decreasing in traffic should be reviewed to determine if they are suitable for “minimum maintenance road” designation. Such designation can save maintenance costs for the Township.

5. Road Priorities

Grand Lake Township should develop a priority system that identifies roads as the most critical to the Township road system. Roads should be considered if they provide access to multiple homes or major thoroughfares through the Township. The following roads would be maintained to the highest level possible and should be the first to be paved if determined necessary. An initial list of priority roads should include:

- Bachelor Road
- Westlund Road
- Carlson Road
- Dickerman Road

Appendix A: Road Orders Summary

When a road is created and made public, the Township should file this information with St. Louis County. In the past it was not customary to send in the road order to the County. There are several roads, in which original road orders are never filed with the St. Louis County Auditor's Office. The roads are still legal, however determining their correct placement could be difficult. When this plan was completed there were 13 road orders legalizing roads that are still being maintained, on file with the St. Louis County Auditor. Several road orders were undeterminable or the roads have since been vacated.

Some of the road orders go in to great detail about road locations while others give a more general description.

Bachelor Road

This road order does not go into great detail but identifies that Bachelor Road begins at Munger Shaw Road and travels about a mile eastward.

Beginning at the Munger Shaw road, thence running east about one mile, there terminating, and known as the Batchelor Road (now spelled Bachelor). We assume that the so-called Batchelor is at present the town road beginning at the Munger Shaw road at the section corner common to Sec 26, 27, 34, and 35, T.52, R.16. Thence running east one mile, more or less. (November 12, 1937)

East Bowman Lake Road

East Bowman Lake Road begins at the above location of West Bowman Lake Road traveling eastward 1500 feet, then running south an unspecified distance. The only exact location given is the start of the road. The road travels through the properties in the South 1/2 of the S.W. ¼ of Sec 24, and not along the sixteenth line.

Beginning at approximately 200 feet south of the N.W. corner of the S.W. ¼ of the S.W. ¼ of Sec 2 T.52 R.16 thence running along the route following, to-wit: approximately 1500 feet east thence south across the S.E. ¼ of S.W. ¼ of Sec. 24 T. 52 R. 16 thence south across Gov. lot 2 Sec 25 T.52 R.16. (March 6, 1935)

East Lake Road

This road begins 100 feet south of the intersection of the Sec 20 quarter line and McGregor Road. From this point, the road travels eastward 200 feet, staying parallel with the quarter line.

Beginning at the McGregor Road, thence running along the route following, to-wit: east about 200 feet, point of beginning 100 feet south of the east and west quarter line Sec 20 T.51 R.16. (May 5, 1937)

Grigg Rd

The road order does not give specific beginning point, except that it originates from a point along the Dow Road and travels 453 feet eastward.

Beginning at Daw (now called Dow) Road and running easterly at 453 feet.

Hallbeck Road

The road begins from the Seville Road and north a quarter mile. The road order states specifically that the road not be build on the sixteenth line but directly west of the line. The road should travel on the eastern 33 feet of the lots in the SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Sec 32.

Beginning at the Seville Road $\frac{1}{4}$ mile west of the Kroll road; thence running northerly $\frac{1}{4}$ mile, and there terminating; this road to be built west of the sixteenth line and to be two rods wide. (August 19, 1935)

Klimek Road

The Klimek Road begins at the Crosby Road on the quarter line and travels east to a point 450 feet from the western shore of Little Grand Lake. It then runs northeasterly following the lakeshores contour and keeping approximately 450 feet from the shore, terminating at the Triple Lakes Road.

Beginning at Crosby Road on the quarter line of Sec 31 T.51 R.16 at said quarter line intersects the said Crosby Road; thence along said quarter line in a general easterly direction to a point approximately 450 feet from the lake shore ; thence in a general northeasterly direction following the line of the lake shore across lot 6, said road across lot 6 to run approximately 450 feet from the lake shore; thence easterly through lot 7 to the Triple Lake Road; there terminating. (August 17, 1935)

Nickerson Road

Nickerson Road begins at the Crosby Road and travels eastward $\frac{1}{4}$ mile. This road should follow the sixteenth line.

Beginning one fourth of a mile north of Seville Road thence running along the route following , to-wit: east $\frac{1}{4}$ thence terminating. Said road to be know as Little Grand Road (now Nickerson Road). (February 3, 1934)

Swanstrom Road

The Swanstrom Road begins at the end of the Crosby Road traveling northeastward 1267 feet.

Beginning at the SW Corner of Sec 30 T.51 R.16 West thence running Northeast 1267 feet from the point of beginning, thence running along the route following to-wit: said road to be known as the Swanstrom Road. (March 4, 1931)

Taylor Road

The Taylor Road begins at the Industrial Road on the section line between Sections 20 and 21. It travels south $\frac{1}{4}$ mile to the sixteenth line and then east on the north line of the lot and terminating in the corner of Lot 1.

Beginning at Industrial Road and thence running along the route following, to-wit: South on section line between Sections 20 and 21, Town 51, Range 16 to 16th line or N.W. corner of Lot 1, thence east on north line of Lot 1 to the N.E. corner of Lot 1 and there terminating. (December 19, 1933)

West Bowman Lake Road

The West Bowman Lake Road begins at the Munger Shaw Road and travels southeast to the section line between Sections 23 and 24 then following the section line south to a point $\frac{1}{4}$ mile south of the Section 23, 24, 25, and 26 corner.

Beginning at Munger Shaw Road about one mile south of Taft at the D.W. & P. Railway crossing, thence running along the route following, to-wit: Southeasterly to the section line between Sections 23 and 24, following this section line about $\frac{3}{8}$ of one mile south and terminating at section corner between Sections 23, 24, 25, and 26, approximately $1\frac{1}{4}$ miles. (April 1, 1933) Road extended to: beginning at Southeast corner of Section 23, Township 52, Range 16, thence running along the route following, to-wit: South on the section line between Section 25 and 26, for a distance of one quarter of a mile, said highway being an extension of the Hayes Road (now West Bowman Lake Rd). (March 10, 1934)

Westlund Road

The Westlund Road begins at the Grand Lake Road (1595 west of the section road) traveling northward and northwestward until reaching the section line of Section 29 then traveling on that line 550 feet in the northward direction.

*Beginning at a point 33 feet North and 1595 feet West of the Southeast corner of Section 29, thence running along the route following, to-wit: T 51 N. E. thence North 1° 25" West for a distance of 2064 feet; thence North 46° 43" East for a distance 2031.3 feet more or less to the east line of said section 29, thence North 2° 29' 17" west along said East line for a distance of 550 feet to a point at the rear of Lot 43 according to the plat of record of Westlund Grand Lake Homesites and there terminating.
(September 17, 1947)*

Appendix B: Grand Lake Road Maintenance Specifications

1. Roads shall be graded to provide a minimum of 1/2" of crown per foot of road width (approximately 4%) with due diligence to ensure that a parabolic profile is avoided. Crown is to be provided from the center of the road sloping toward both shoulders of road. Monthly maintenance grading shall include doubling of road (i.e. two passes of each side of road with material laid out so as to establish crown as per Manual illustrations).
2. Operator shall configure his blade to ensure an adequate mixing of gravel material within the road surface. Roadway surfaces shall be cut to a sufficient depth to ensure that all potholes and corrugations are dug out, not merely filled in.
3. Grading shall be performed in a manner so as to avoid secondary ditches (windrows) that impede drainage. Gravel shall not be allowed to accumulate at the edge of the graded surface, but, rather shall be mixed and integrated within the roadway surface. Initial spring grading program shall include pulling in of material that may have accumulated at the shoulder of the road so as to provide proper drainage of water off the driving surface.
4. Grading at intersections shall be performed so as to ensure a smooth transition.
5. Contractor shall maintain grading equipment to ensure that cutting edges are straight.
6. Operator shall maintain appropriate speed of equipment so as to ensure that work performed is done to standards herein stated.
7. Contractor shall perform grading in a manner as to ensure the safety of the motoring public and shall be responsible for appropriate warning signage as may be required.
8. Every effort shall be made to perform grading operations with regard to rain events to ensure that optimum benefit will be attained with minimum disruption to road.
9. This contract shall be for the period of one year with provision for annual renewals for two additional years providing work performed is satisfactory to the Town Board.
10. U.S. Department of Transportation, Federal Highway Administration publication GRAVEL ROADS, *Maintenance and Design Manual* shall be used as the reference regarding proper grading techniques and standards. Failure to grade roads to specifications and profile as stated in the aforementioned text, and after notice of said failure and failure to cure within ten (10) days, may result in cancellation of contract.
11. Successful bidder will work with contractor retained by Grand Lake Township with the Township annual gaveling program.
12. Preference will be given to bidders who have grader blades equipped with scarifier teeth.
13. All grading operations of Township roads shall be performed between sunrise and sunset.

Revised 11/17/06



What is ARDC?

The Arrowhead Regional Development Commission (ARDC) is a multi-disciplined planning and development organization whose jurisdiction encompasses the Northeast Minnesota counties of Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, and St. Louis.

In accordance with the Minnesota Regional Development Act, the Commission serves as an advocate for local governments in Northeast Minnesota, provides leadership in the development of projects that benefit the Arrowhead Region and serves as a catalyst to identify needs and seek solutions to issues of regional significance. This role is especially important with regard to problems and opportunities that are multi-jurisdictional in scope or impact. Throughout its existence, ARDC has developed numerous planning and implementation programs aimed at meeting the needs of the Arrowhead Region.

ARDC also serves as an umbrella agency for a wide variety of local, state, and federal initiatives. These Programs include services to aging, human services, transit transportation, metropolitan planning, economic development, community development, and natural resources. Other responsibilities of ARDC include the development and maintenance of resource data to support the preparation of comprehensive development plans for units of government.



ARDC holds many public forums a year.

Grand Lake Township Road Plan

June 2007

Facilitated by:
Arrowhead Regional Development Commission

ARDC's Mission:

"To serve the people of the Arrowhead Region by providing local units of government and citizens groups a means to work cooperatively in identifying needs, solving problems, and fostering local leadership".

If you have any questions regarding ARDC or the Grand Lake Township Road Plan, please contact:

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