

**County Forest Aid Program**

This program provides assistance to counties that have eligible roads located within county forests. It is intended to defray the costs for the improvement and maintenance of public roads within a county forest.

**Rural and Small Urban Area Public Transportation Assistance Program - Section 5311**

Allocations to the State are set at the federal level. Funds may be used for operating assistance, and capital assistance. Eligible public transportation services include public transportation service operating or designed to operate in non-urbanized areas (a non-urbanized area is one that has a population of 50,000 or less).

**Specialized Transportation Assistance Program for Counties - Section 85.21**

Allocations under this formula program are based upon the proportion of the State's elderly and disabled population located in each county, subject to two minimums:

- 1) No county can receive less than ½ percent of the total annual appropriation; and,
- 2) No county can receive an allocation smaller than they received in 1992. A local match of 20 percent of the state aid is required. In 2003 the County received \$54,487 for programs providing transportation to the county's elderly and disabled.

Eligible expenditures include:

- Transportation service for the elderly and disabled;
- The purchase of transportation services from any public or private organization;
- User subsidies for the elderly or disabled passenger when using the transportation service;
- Volunteer driver escort reimbursement;
- Performing or purchase planning and/or management studies on transportation;
- Coordinating transportation services;
- Performing or purchasing in-service training relating to transportation services; and/or
- Purchasing capital equipment (buses, vans etc.) for transportation services.

The following provides a brief description of competitive (transportation related) grant programs that are federally and state funded:

**Local Transportation Enhancement Program (TE)**

Administered by WisDOT the TE program provides funding to local governments and State agencies for projects that enhance a transportation project. There are 12 eligible project categories:

- Providing facilities for bicycles and pedestrians;
- Providing safety and educational activities for pedestrians and bicyclists;
- Acquiring scenic easements and scenic or historic sites;
- Sponsoring scenic or historic highway programs; including the provision of tourist and welcome centers;
- Landscaping and other scenic beautification;
- Preserving historic sites;
- Rehabilitating and operating historic transportation buildings and structures;



- Preserving abandoned railway corridors;
- Controlling and removing outdoor advertising;
- Conducting archaeological planning and research;
- Mitigating water pollution due to highway runoff or reducing vehicle caused wildlife mortality; and,
- Establishing transportation museums.

Federal funds will cover up to 80 percent of the project, while the project sponsor is responsible for providing at least a 20 percent match. The County would be the applicant for these funds and acts as a conduit for the Town. Then the 20 percent would come from the Town of Liberty Grove.

### **Surface Transportation Program - Discretionary (STP-D)**

This program encourages projects that foster alternatives to single occupancy vehicle trips, such as rehabilitation and purchase of replacement vehicles for transit systems, facilities for pedestrians and bicycles, system-wide bicycle planning, and a wide range of transportation demand management (TDM) projects. Communities over 5,000 are eligible to apply for the funds through the competitive application process.

### **Transportation Demand Management Programs**

Transportation Demand Management consists of policies and programs designed to reduce the number of single occupant vehicles (SOV) trips in a region, especially during peak travel periods.

There are two grant programs: TDM Grant Program; and Wisconsin Employment Transportation Assistance Program (WETAP).

Transportation Demand Management Program (TDM) provides funding to successful grant recipients to implement projects that encourage innovative solutions and alternatives to reducing SOV trips. WisDOT accepts applications annually. Eligible applicants may include local governments, chambers of commerce, and others as defined by the program. The required local match is 20 percent of the project costs.

The Wisconsin Employment Transportation Assistance Program (WETAP) is a joint program between the Wisconsin Department of Workforce Development (DWD) and WisDOT, it provides funding to help low-income people access, or retain or advance in employment with the goal of meeting the entire population's transportation needs. This program is funded with combined federal and state dollars, and requires a local match.

Application requirements include the development of regional job access plans that identify the need for transportation services and illustrate the alternatives proposed for the program. Plans should be developed between public transit providers, local units of government, transportation planners, human service agencies, low-income individuals and other interested parties.



### **Transportation Economic Assistance (TEA Grant) Program**

This program provides a 50 percent state grant to governing bodies, private businesses, and consortiums for road, rail, harbor and airport projects that are necessary to help attract employers to Wisconsin, or to encourage business and industry to remain and expand in Wisconsin.

### **Federal Highway Administration**

#### **Transportation and Community and System Preservation Pilot Program (TCSP)**

The TCSP program is an initiative that assists communities as they work to solve interrelated problems involving transportation, land development, environmental protection, public safety and economic development. It was established in the Transportation Equity Act for the 21st Century (TEA-21); the six-year surface transportation law was signed into law in 1998.

The TCSP program is administered by the U.S. Department of Transportation's Federal Highway Administration in partnership with the Environmental Protection Agency and the Department's Federal Transit Administration, Federal Railroad Administration, and Research and Special Programs Administration. Funding for this program has been authorized through 2003.

TCSP funds are used to help achieve locally determined goals such as improving transportation efficiency; reducing the negative effects of transportation on the environment; providing better access to jobs, services and trade centers; reducing the need for costly future infrastructure; and revitalizing underdeveloped and brownfield sites. Grants also can be used to examine urban development patterns and create strategies that encourage private companies to work toward these goals in designing new developments. The grants will help communities become more livable by preserving green space, easing traffic congestion and employing smart growth strategies while promoting strong, sustainable economic growth.

Grants may be awarded to improve conditions for bicycling and walking; better and safer operation of existing roads, signals and transit systems; development of new types of transportation financing and land use alternatives; development of new programs and tools to measure success; and the creation of new planning tools and policies necessary to implement TCSP-related initiatives. Implementation activities may include community preservation activities to implement transit oriented development plans, traffic calming measures or other coordinated transportation and community and system preservation practices.

There is no local match required under this program; projects are fully funded although priority is given to those applications that demonstrate a commitment of non-Federal resources.



## **INVENTORY OF TRANSPORTATION PROGRAMS AND FACILITIES**

### **Elderly and Disabled Transportation System**

Elderly and disabled transportation systems refer to those programs that provide rides through scheduled bus services, and volunteer programs using private vehicles, etc. Current transportation services for elderly and disabled persons living within the Town of Liberty Grove are provided through programs administered by the Door County Commission on Aging. Transportation is provided by wheelchair accessible buses, an eight-passenger van and by volunteer drivers using personal vehicles. The Door County Department of Human Services provides limited transportation service to the county's disabled population. Service is provided by appointment, and involves door-to-door transportation. The Veterans' Service Office provides transportation to medical appointments for the elderly and disabled veterans of Door County.

Medical-related and nutritional-related trip purposes receive priority, followed by work-related and recreational and/or business-related trip needs. A four member advisory committee to the County's Commission on Aging provides coordination of the special transportation services that are available within the Town. The committee sets policy and oversees transportation services. The transportation is provided by paid and volunteer staff utilizing both publicly and privately-owned vehicles. The cost of the special transportation services is borne by State subsidy through the Wisconsin Department of Transportation's Section 85.21 (*Special Transportation for the Elderly and Disabled Transportation*) grant program, County funds (20 percent of the State grant), donations and fares collected from passengers. In 2003, Door County is eligible for \$54,457 in s. 85.21 aid based on a projected elderly and disabled population of 5,823 persons. The County is required to provide a minimum match of 20 percent of the s. 85.21 dollar amount or \$10,891 for transportation services to the County's elderly and disabled population

The following section consists of general operational profiles for the two agencies that are now providing the primary transportation services to the elderly and disabled population of Door County.

### **The Door County Senior Resource Center**

The Door County Senior Resource Center is a public agency which operates a twelve passenger minibus on a fixed schedule, door-to-door, demand responsive basis for elderly persons throughout the county. The program is available to elderly persons who are 55 years or older. Trips are provided for medical appointments, nutrition programs, personal business and to various service agencies (Social Security office, etc.). The bus operates on a dial-a-ride system for people living in Sturgeon Bay and the immediate urban area. The bus provides transportation for those living in or near the City of Sturgeon Bay 3 days a week. Elderly residents of both Northern and Southern Door County are provided service one day a week. Call for schedules and details.

The minibus operates an average of 57,000 miles annually. Donations are requested from riders, although not required. The Center provides service to the most economically



disadvantaged and isolated elderly persons residing in the rural areas of Door County, and primarily to the urban areas of the County.

### **Sunshine House**

The Sunshine House is a sheltered employment facility which is located in the City of Sturgeon Bay. The facility provides services to persons 16 years old or older who have mental and/or physical disabilities. The services provided include sheltered employment, education, recreation therapy, day services, and community support.

Financial support for activities conducted by the Sunshine House is derived from the county, sales of goods manufactured by clients, government service contracts, and United Way donations.

The facility operates two passenger buses, both equipped for wheelchairs and two vans, one of which is wheelchair accessible. The service is provided within the framework of a fixed route system, with the route determined by the home location of the clients. Although the primary area of operations is in the immediate area of the city of Sturgeon Bay, Sunshine House does provide transportation to clients throughout most of the county.

### **Red Cross**

The Red Cross has a transportation service limited to medical trips to Green Bay two days a week and Sturgeon Bay two days a week. An appointment is necessary.

Three more transportation services are available to Northern Door residents:

- Trolley Service
- Scand Bus Service
- Veterans Service Office Transportation

### **Other Related Special Transportation Services**

In addition to the Senior Resource Center and the Sunshine House, there are at least three private (for-profit) entities providing transportation services within Door County. These companies are primarily providing transportation for medical purposes, with the cost of the ride borne by fares and state/federal medical assistance. Northeast Wisconsin Transportation Service Inc (NEW Transport) operates four (wheelchair accessible) vans within Door County and is also under contract with the Door County Senior Resource Center to provide rides to Door County residents to medical facilities and services located in Green Bay. In addition, Medivan of Green Bay operates four (wheelchair accessible) vans, and Para Tran of Sturgeon Bay operates one van and one minivan which is also wheelchair accessible.

Additionally, there are currently two taxicab services operating within the County which provide service in the City of Sturgeon Bay. These companies operate on a minimum per trip and mileage based fare system.



### **Intercity Bus**

In the past, nearly every small community in the state was connected by an intercity bus service which traditionally served the elderly, those who could not drive, students, and those individuals unable to afford alternative forms of transportation. Following World War II, intercity bus systems helped to fill a void for “affordable transportation” that was created by the decline of passenger rail service. Unfortunately, intercity bus service suffered the same fate as passenger rail; as intercity bus ridership decreased, the number of intercity bus routes operating within the State also declined drastically. Currently, intercity bus routes only serve the largest urban centers and those smaller urban areas that just happen to be adjacent to a route that connects two larger cities. Connections to intercity bus service routes can be made in the City of Green Bay.

### **Bicycle Transportation System**

At this time, only the Village of Sister Bay has facilities (bicycle paths or lanes excluding state recreational trails) dedicated solely to the use of bicyclists. However, the *Wisconsin Bicycle Transportation Plan 2020* does identify general bicycling conditions on state and county highways within the Town of Liberty Grove and Door County. The volume of traffic and the paved width of roadway were the two primary variables by which roads were classified for cycling. The state bike plan indicates that STH 42 is classified as “not recommended for bicycling” because of relatively high traffic volumes, moderate to high truck traffic volumes, and narrow road shoulders. CTH ZZ and CTH NP, CTH Q are designated as “suitable for bicycling” based on the light traffic volumes and roadway width. The state’s Bicycle Plan only assesses conditions on state highways and county trunk highways. The Wisconsin plan assumes that all local town roads are suitable for bicycling, basing that assumption on the low traffic volumes present on average town roads.

The “Door County Bicycle Transportation Capital Improvement Plan” has been prepared and published by the Door County Highway Committee and Door County Chamber of Commerce. It details the County’s preferred bicycle route through Door County and makes suggestions for Washington Island. The Plan will accommodate the addition of each municipal Bicycle Transportation Plan as it becomes available.

The *Bay-Lake Region - Bicycle Facility Transportation Plan* (in progress) will identify a system of connecting routes and needed improvements connecting all municipalities and major destination points throughout the eight-county region including Door County and the Town of Liberty Grove.

### **Rail Transportation**

There are no operating rail facilities located within the Town of Liberty Grove, or for that matter, in Door County.

### **Port, Harbor and Marina Facilities**

Both private and publicly operated marinas and boat launch facilities, offering a variety of services, are located at the Villages of Ephraim and Sister Bay, at Ellison Bay, Garrett Bay, Gills Rock, Northport, Rowleys Bay, and North Bay. The services provided at these facilities



range from simple boat launches with adjoining picnic or small park facilities, to full service marinas and a large port/dock facilities for a ferry operation.

Ellison Bay is located on the east bay shore. Ellison Bluff forms the southwest boundary of Ellison Bay which opens to the north and northwest, has steep shores, and affords protection from the south and east winds. Located on the bay is the unincorporated community of Ellison Bay. Dock and marina facilities in Ellison Bay include a public marina and the Ellison Bay Town Dock which is owned and operated by the Town. Increasing boating pressures and DNR policies may dictate future expansion of Town marina facilities.

Gills Rock is located on the southeast corner of Hedgehog Harbor at the tip of the peninsula. The harbor is at the northwest point of the southern mainland peninsula which separates Green Bay from Lake Michigan. Hedgehog Harbor is sheltered from the south and enclosed on the east by Table Bluff and on the west by Death Door Bluff.

Northport, is an area at the very tip of the peninsula and consists of a ferry dock facility that is leased from the county by the Washington Island Ferry Line.

Rowleys Bay is located about six miles northeast of Sister Bay on the lake side of the peninsula. The east side of the bay is bordered by Newport State Park. On the northwest corner of Rowleys Bay lies the mouth of the Mink River, a small inlet which extends approximately one mile inland. Rowleys Bay is approximately 1.5 miles in length by 1.25 miles in width. The Wagon Trail Resort maintains boat launch facilities at Rowleys Bay.

#### **Air Transportation**

The inventory of air transportation systems and facilities includes both public airports that service the region and also the private or semi-public airport facilities that service private commercial and recreational interest. The Wisconsin Department of Transportation Bureau of Aeronautics classifies airport facilities according to the function that they serve and the size and type of aircraft that they are capable of handling.

At the regional level, the primary commercial-passenger and air freight service for residents of the Town of Liberty Grove is provided by Austin Straubel International Airport, owned and maintained by Brown County and located near the City of Green Bay. The facility is classified as an Air Carrier/Air Cargo (AC/AC) indicating that the airport can accommodate virtually all sizes and types of aircraft. Austin Straubel International Airport is a full service regional connector that is currently providing direct service flights to four major cities, including Milwaukee, Wisconsin; Chicago, Illinois; Detroit, Michigan; and Minneapolis, Minnesota. Five airlines provide flights on varied schedules.

Door County Cherryland Airport located in Sturgeon Bay provides a seasonal passenger service as well as corporate service for Door County. Cherryland Airport is classified as a Transport/Corporate (T/C) facility indicating that the facility can serve and accommodate corporate jets, small passenger and cargo jet aircraft used in regional service and small



airplanes (piston or turboprop) used in commuter air service. Currently the facility has two asphalt paved runways 4,600 feet and 3,200 feet in length.

Washington Island Airport is classified as a Basic Utility-B (BU-B) airport facility indicating that the facility is designed to accommodate aircraft of less than 12,500 pounds gross weight with approach speeds below 121 knots and wingspans of less than 49 feet. Such aircraft can be either single-engine or twin-engine piston. The facility has two turf runways; 1,840 and 2,230 feet in length.

Ephraim-Gibraltar Airport, located southeast of Eagle Harbor and STH 42 on Maple Grove Road, is classified as a Basic Utility-A (BU-A) airport facility indicating that the facility is designed to accommodate aircraft of less than 6,000 pounds gross weight, with approach speeds below 91 knots and wingspans of less than 49 feet. Such aircraft are typically single-engine piston. The facility has one asphalt runway, 2,700 feet long and one turf runway, 2,364 feet long.

In addition to the three public use airport facilities, there are also eight privately owned airstrips or helicopter landing pads located within Door County. There is one airstrip in Liberty Grove, a privately owned, 2,300 foot turf runway, located on Hill Road. Generally, these small, private airport facilities offer minimal services, and are utilized by recreational fliers, or for emergency medical purposes. Private facilities are typically characterized by short (2,000 to 3,000 feet) turf covered runways which can accommodate small single engine and light twin engine aircraft operating under FAA visual flight rules.

Private air-strip facilities are required to obtain a certificate of approval or permit from the Wisconsin Department of Transportation's Bureau of Aeronautics. The permit is issued if the Department determines that the location of the proposed air-strip is compatible with existing and planned transportation facilities in the area. Generally, permits are granted provided that the proposed air-strip is located so that approaching and departing aircraft clear all public roads, highways, railroads, waterways or other traverse ways by a height which complies with applicable federal standards. The permit is issued upon the applications review by WisDOT, the county and the town in which the facility is located.

### **Roads and Highways**

There are several basic considerations useful in assessing the road system within a community. Those considerations include the functional classification of the existing road system, the annual average daily traffic on roads within the Town, and an evaluation of the system's capability to handle present and projected future traffic volumes. In addition, vehicle crash data is useful in determining problem areas relative to road safety. This information can provide an indication of the road improvements that may be needed during the planning period.

### **Functional Class**

Roads, which are the principal component of the circulation system, may be divided into three categories: arterial, collector and local. The three categories of roads are determined by



the function that the road serves in relation to traffic patterns, land use, land access needs and traffic volumes. The road system for the Town of Liberty Grove shown in Map 4.1 has been functionally classified based on criteria identified in Table 4.1.

### ***Arterial Roads***

The function of an arterial road is to move traffic over medium to long distances, often between regions as well as between major economic centers, quickly, safely and efficiently. To improve safety and to enhance efficiency, land access from arterial roads should be, as much as is possible, limited. Arterial roads are further categorized into either *principal* or *minor* arterial roads based on traffic volumes. There are two minor two-lane arterial highways located within the Town of Liberty Grove, STH 42 and STH 57.

STH 42 begins at the junction of STH 23 and STH 28 in the city of Sheboygan, travels north 137.76 miles through Sheboygan, Manitowoc, Kewaunee and Door County before terminating at Northport, at the Washington Island ferry dock, two miles east of Gills Rock. In 1977 the Sturgeon Bay bypass routing of STH 42 and STH 57 was completed, removing those highways from the old downtown routing and the historic bridge crossing Sturgeon Bay. At Gills Rock there is a STH 42 spur which is, by far, the shortest state trunk highway in Wisconsin, measuring approximately 1/13th of a mile, or about 400 feet long. It connects STH 42 in Gills Rock with the Island Clipper ferry dock about one block north of where STH 42 turns east toward Northport (and the Washington Island Ferry Line). This route is one of only three "SPUR"-designated state trunk highways in the state.

STH 57 measures 191.73 miles from its southern terminus at STH-59/National Avenue in Milwaukee west of the city's downtown to its northern terminus at STH 42/Bay Shore Drive in Sister Bay. STH 57 is the primary connector between Green Bay and Sturgeon Bay. From its junction north of the City of Sturgeon Bay, STH 57 provides access along the Lake Michigan side of the peninsula through Jacksonport and Baileys Harbor before traversing inland and then terminating at Sister Bay.

### ***Collector Roads***

The primary function of those roads classified as *collectors* is to provide general *area to area* routes for local traffic. Collector roads take traffic from the local roads (and the land based activities supported by the local roads) and provide relatively fast and efficient routes to farm markets, agricultural service centers and larger urban areas. With an overall socioeconomic trend that is characterized by the decline of small and medium agricultural concerns, and a significant increase in the number of rural single-family residential properties, collector roads generally serve the same function but with different trip purposes. Collector roads typically serve low to moderate vehicle volumes and medium trip lengths between commercial centers at moderate speeds. Collector roads serve to distribute traffic between local and arterial roads, between home and the work place, home and the place of worship, home and school and between the home and those places where business and commerce are conducted. Collector roads are further delineated by classification as *major* or *minor* collectors by the State of Wisconsin Department of Transportation.



In the Town of Liberty Grove, CTH ZZ from the Village of Sister Bay to Rowleys Bay is classified as a major collector and CTH Q and CTH NP are classified as a minor collector roads.

The water route between Northport and Washington Island is also classified as a major collector and is considered a Town road under the jurisdiction of the Town of Washington Island.

There are slightly more than 14 miles of county trunk collector roads in the Town of Liberty Grove.

### ***Local Roads***

The primary and most important function of local roads is to provide direct access to land adjacent to the road. Local roads are constructed to serve individual parcels of land and properties. They also tend to serve the ends of most trips within the rural area. All roads that are not classified as arterial or collector facilities within the Town are classified as local roads. In the Town of Liberty Grove the local road system has developed in a pattern that serves the lake and river system located throughout the Town.

Local roads should be designed to move traffic from an individual lot (more often than not, a person's home, cottage or farm) to collector roads that in turn serve areas of business, commerce and employment. Local roads should not be designed or located in such a manner that they would or might be utilized by through traffic. In total, there are more than 99.3 miles of local roads under the jurisdiction of the Town.

There are local roads the Town recognizes as major and minor arterial roads. These are:

- Old Stage Road
- Mink River Road
- Lakeview Road
- Town Line Drive
- Country Lane
- Woodcrest Road
- Flintridge Road
- Garrett Bay Road
- Timberline Road
- Europe Bay Road

The preferred designated heavy traffic/bypass routes in the Town of Liberty Grove are CTH ZZ, Old Stage Road, and Mink River Road.



Table 4.1a: Functional Classification Criteria for Rural Roads and Highways

Rural Principal Arterials						
County Population Density (Rural)	Basic Criteria				Supplemental Criteria	Mileage
	Must meet any 2 of these				OR must meet both of these plus 90% of Traffic Volume	Percent of System Range
	Population Service	Land Use Service	Spacing	Traffic Volume		
>43	Connect Places 50,000 with other places of 50,000	Provide access to major recreation areas of the state.	Maximum 30 Miles	>6,000		2.0-4.0% statewide
<43	Connect Places 5,000 with other places of 50,000			<2,000		
Rural Minor Arterials						
>43	Connect Places 5,000 with other places of 5,000	Service all traffic generating activities with an annual visitation of 300,000 if not served by a principal arterial	Maximum 30 Miles	>2,000	1. Alternate population connection 2. Major river crossing/ restrictive topography	4.0-8.0% statewide
<43	Connect Places 1,150 with other places of 5,000			<1,000		



Table 4.1b: Functional Classification Criteria for Rural Roads and Highways, continued.

Rural Major Collector						
County Population Density (Rural)	Basic Criteria				Supplemental Criteria	Mileage
	Must meet any 2 of these				OR must meet 2 of these plus 90% of Traffic Volume	Percent of System Range
	Population Service	Land Use Service	Spacing	Traffic Volume		
>43	Connect Places 1,500 with other places 1,150  Connect Places 575 with other places 1,150 or higher function route	Land Use Service Index > or = 16.	Maximum 10 Miles	>1,000  (>4,000)	1. Alternate population connection 2. Major river crossing  3. Restrictive topography 4. Interchanges with a freeway	5.0-18.0% countywide
<43	Connect Places 575 with other places 1,150 or higher function route  Connect Places 115 with other places 575 or higher function route	Land Use Service Index > or = 12.		>400 (>1,600)	5. Parallel to a principal arterial	Most counties should be 7.0- 14.0%

\*Note: Loop routes and stub ended routes less than 5 miles long and meeting the basic criteria for a major collector should be limited to a minor collector classification.



Table 4.1c: Functional Classification Criteria for Rural Roads and Highways, continued.

Rural Minor Collector						
County Population Density (Rural)	Basic Criteria				Supplemental Criteria	Mileage
	Must meet any 2 of these <b>OR</b> the parenthetical Traffic Volume Alone				<b>OR</b> must meet 2 of these plus 90% of Traffic Volume	Percent of System Range
	Population Service	Land Use Service	Spacing	Traffic Volume		
>43	Connect places 115 with other places 115	Land Use Service Index > or = 8.	Maximum 10 Miles	>400  (>1,600)	1. Alternate population connection 2. Major river crossing 3. Restrictive topography 4. Interchanges with a freeway 5. Parallel to a principal arterial	5.0-10.0% countywide
<43	Connect places 60 with other places 115 or with higher function route.	Land Use Service Index > or = 5.		>200    (>800)		
Locals						
All public roads not classified as arterials or collectors						65% to 75% countywide  Most counties should be at 68.0 - 72.0%

\*Note: Loop routes and stub ended routes less than 5 miles long and meeting the basic criteria for a major collector should be limited to a minor collector classification.

Source: Wisconsin Department of Transportation, 2002; and, Bay-lake Regional Planning Commission, 2003



## Traffic Counts

An analysis of past and present traffic volumes is beneficial in determining the traffic conditions in a community. Traffic volumes are usually presented as an *Annual Average Daily Traffic (AADT)* figure, and are calculated for a particular intersection or stretch of roadway. The Wisconsin Department of Transportation, as part of its traffic count program, provides highway traffic volumes from selected roads for all state communities on a rotating basis, providing those counts for a community once every three years. For the Town of Liberty Grove, traffic volumes were last counted in 2001. Counts were also taken in 1995 and 1989. The annual average daily traffic volume on principal and minor arterial roadways within the Town for those years are listed in Table 4.2, and are shown on Map 4.2. The daily rural traffic counts are taken for 48 hours, and are reported as a 24-hour average weekday count for a specific data collection period. Seasonal discrepancies and data collection periods may have introduced statistical bias.

Table 4.2: Annual Average Daily Traffic Counts, 1989, 1995, 1998.

Highway - Counter Location	ADT		Number Increase	Percent Increase	ADT		Number Increase	Percent Increase	ADT		Number Increase	Percent Increase
	1989	1995	1989 to 1995	1989 to 1995	1998	1995 to 1998	1995 to 1998	1995 to 1998	2001	1998 to 2001	1998 to 2001	1998 to 2001
STH 42 - at Sister Bay	7,690	8,300	610	7.3	5,800	-2500	-43.1	5,800	0	0.0		
STH 42 - north of Sister Bay	6,160	6,500	340	5.2	4,400	-2100	-47.7	4,700	300	6.8		
STH 42 - north of Bayview Rd.	3,930	4,300	370	8.6	2,400	-1900	-79.2	2,700	300	12.5		
STH 42 - south of Ellison Bay	na	na			2,900			2,800	-100	-3.4		
STH 42 - east of Ellison Bay	3,260	3,000	-260	-8.7	1,900	-1100	-57.9	1,900	0	0.0		
STH 42 - north of Isle View Rd.	2,200	2,100	-100	-4.8	1,100	-1000	-90.9	1,100	0	0.0		
STH 42 - east of Gills Rock	1,460	1,200	-260	-21.7	560	-640	-114.3	590	30	5.4		
STH 57 - at Sister Bay	3,170	2,200	-970	-44.1	2,000	-200	-10	2,100	100	5.0		
CTH ZZ - at Sister Bay	1,320	1,400	80	5.7	1,300	-100	-7.7	1,300	0	0.0		
CTH NP - south of STH 42	520	320	-200	-62.5	240	-80	-33.3	220	-20	-8.3		
Porcupine Bay Rd. - east of Beach Rd.	370	410	40	9.8	230	-180	-78.3	290	60	26.1		
Garrett Bay Road - north of STH 42	850	950	100	10.5	480	-470	-97.9	820	340	70.8		
Waters End Road - east of CTH ZZ	1,050	970	-80	-8.2	420	-550	-131	470	50	11.9		
Blackberry Road - north of STH 42	290	400	110	27.5	170	-230	-135.3	140	-30	-17.6		

Source: Wisconsin Department of Transportation, *Wisconsin Highway Traffic Volume Data*, 1992, 1995, 1998; Bay-Lake Regional Planning Commission, 2003.

## Traffic Flow Capacity

The roads that serve the state, the region and the local community are designed and engineered to accommodate a maximum level of traffic (Table 4.3). The maximum total capacity of a two-lane, two-way road (such as STH 42 or STH 57, CTH ZZ, CTH NP, and CTH Q) under ideal conditions is 2,000 vehicles per hour, as determined by the Peak Hourly



Traffic (PHT), regardless of traffic distribution by direction. The maximum capacity values given in Table 4.3 should be considered as the average maximum volume on various types of roads under ideal conditions.

Table 4.3: Uninterrupted Traffic Flow Capacities Under Ideal Conditions

Highway Type	Capacity Peak Hourly Traffic
Multi-Lane and Divided Highways	2,000 vehicles per lane
Two-Lane, Two-Way Highways	2,000 vehicles both lanes
Three-Lane, Two-Way Highways	4,000 vehicles both lanes

Source: *Highway Capacity Manual*, Highway Research Board of the Division of Engineering and Industrial Research, 1985; Bay-Lake Regional Planning Commission, 2001.

As the comparison of the recorded annual average daily traffic, peak hourly traffic and the traffic flow capacities indicate, at present, there are no roads or road segments located within the Town that have approached or appear to be approaching the road's design capacity.

### Level of Service

A highway or road's level of service (LOS) is a measure of its capacity to serve the traffic demands placed on it. Traffic and roadway design factors such as Average Daily Traffic (ADT) volumes, peak hour volumes, truck percentages, number of driving lanes, lane widths, vertical grades, passing opportunities, and numbers of access points affect the level of service. Levels of service range from 'LOS A' to 'LOS F' in order of decreasing operational quality.

The LOS for highways and roads are determined by consideration of the following criteria derived from the Wisconsin Department of Transportation's *Field Design Manual*:



Table 4.4: Level of Service Criteria

<b><u>Level of Service 'A'</u></b>	<b><u>Level of Service 'D'</u></b>
· Unrestricted free flow.	· Heavily restricted flow.
· Drivers virtually unaffected by others.	· Driver operation completely affected by others.
· High level of freedom to select speed and maneuver.	· Severe restriction in speed and maneuvering.
· Excellent level of driver comfort and convenience.	· Poor level of driver comfort and convenience.
<b><u>Level of Service 'B'</u></b>	<b><u>Level of Service 'E'</u></b>
· Slightly restricted stable flow.	· Unstable flow (approach greater than discharge flow)
· Drivers aware of use by others.	· Slow speeds and traffic backups; some stoppage.
· Slight restriction in speed and maneuvering.	· Total restriction in vehicle maneuvering.
· Good level of driver comfort and convenience.	· High driver frustration.
<b><u>Level of Service 'C'</u></b>	<b><u>Level of Service 'F'</u></b>
· Moderately restricted stable flow.	· Forced flow (approach greater than discharge flow)
· Driver operation completely affected by others.	· Stop and go movements with long backups and delays.
· Moderate restriction in speed and maneuvering.	· Forced vehicle maneuvers.
· Fair level of comfort and convenience.	· Maximum driver frustration.

Source: Wisconsin Department of Transportation, *Field Design Manual*; and, Bay-Lake RPC, 2002.

Levels of service 'A' and 'B' are most desirable in rural and urban areas, while levels 'D' through 'F' are considered poor and unacceptable. LOS 'A' and LOS 'B' are most often associated with highways designed to freeway standards, where access is completely controlled (no roads or driveways directly access the facility) and appropriately spaced interchanges provide access to the highway. An intermediate level of service 'C' will provide for stable operation, but traffic flow approaches a level at which small increases in traffic and unrestricted access may cause (both temporary and long-term) deterioration in the level of service. Generally, rural two-lane highways and roads fail to meet level 'C' when traffic volumes exceed 7,000 ADT, where there are 12-foot wide driving lanes, and 9 percent truck volumes.

### **Traffic Crashes**

Vehicle crash reports, are filed with the Door County Sheriff's Department and also with the Wisconsin Department of Transportation. The reports provide the detail of the time, location, type and severity of the crash that has occurred. These reports may serve to indicate problems with the road's vertical and horizontal alignment, roadway construction, and the geometric design of the road. The number, location and severity of crashes can often indicate problem areas (in terms of traffic safety) which may be alleviated through a variety of measures. Alterations in the road geometry, enlargement of the intersection turning radii, and placement



of more prominent signs or warning devices, relocation of accesses and/or speed limit changes are just a few of the physical alterations and adjustments that can be made to make a specific intersection or road area safer.

Between January 1, 1998 and October 31, 2000, there were a total of 109 crashes reported in the Town of Liberty Grove. There were three fatalities and a total of 54 persons injured in 32 reported crashes. A total of 57 crashes resulted in property damage only, with no injuries reported.

Table 4.5: Vehicle Crash Severity - Town of Liberty Grove, 1998, 1999, and 2000\*

Town of Liberty Grove	1998	1999	2000*	Total
Intersection Crashes	7	8	5	20
Non-Intersection Crashes	22	36	31	90
Vehicle/Deer Crashes	8	18	15	41
Fixed Object/Tree Crashes	6	6	8	20
Fatalities	1	2	0	3
Injuries	10	24	20	54
Property Damage Only	21	32	25	78
Crashes Causing Injury and or Fatality	8	13	11	32
Multi-Vehicle Crashes	9	11	11	31
Total Reported Crashes	29	44	36	109

Source: Wisconsin Department of Transportation, 2000; Bay-Lake Regional Planning Commission, 2001.

\*Through October 31, 2001.

The crash data are further delineated by non-intersection and intersection crashes and by highway jurisdiction. Non-intersection crashes typically include deer/vehicle crashes, vehicles leaving the road and sliding into a ditch, vehicles striking fixed-objects such as trees, fence post and signs; and crashes between a vehicle traveling on the roadway and another vehicle entering or exiting the roadway at a private property access. Intersection accidents are typically characterized by angle crashes, rear-end accidents and head-on crashes within the immediate area of a particular intersection. Intersection accidents often may be indicators of a problem with the sight triangle at the intersection (visibility), location of and visibility of signs, and/or the geometric configuration of the roadway itself.

Table 4.6: Intersection/Non-Intersection Crashes by Highway Jurisdiction, 1998, 1999, and 2000 Intersection/Non-Intersection

Crash Location	Crashes	Intersection		Non-Intersection	
		Crashes	Percent	Crashes	Percent
State Highway 42	14	8	7.3%	6	5.5%
State Highway 57	10	8	7.3%	2	1.8%
County Highways	7	0	0	7	6.4%
Local Town Roads	78	4	3.6%	74	67.9%
Total	109	20	18.2%	89	81.6%

Source: Wisconsin Department of Transportation, 2000; Bay-Lake Regional Planning Commission, 2001.



The crash data indicates very few intersection crashes, with a significant majority of the reported crashes (81.6 percent) occurring as single vehicle crashes at mid-points on the local road system. The preponderance of non-intersection crashes may be attributed to the design attributes of the local road system which is generally characterized by a curvilinear road pattern that follows the natural features (lake shoreline and escarpment) present within the Town. Five of the reported crashes occurring at intersections were single vehicle crashes with the vehicle leaving the road at the intersection and hitting a fixed object.

### **Access Controls**

Access management is a means to maintain the safe and efficient movement of traffic along arterial highways by controlling the number and location of intersecting roads and driveways. State statutes allow counties, cities and villages (through an adopted ordinance) to control access on county highways that have traffic counts in excess of 1,000 vehicles daily.

At this time, Door County does not have nor does it plan to adopt a Controlled Access Ordinance.

### **Driveway Permits**

Driveways to local Town roads may also impair vehicle safety, if improperly sited and/or designed.

Wisconsin State Statutes allow Towns to issue permits for all new driveways which can allow the Town to prohibit driveways which due to location (at the base or top of hills, within a specified distance from an intersection, etc.) are unsafe. The permit process can also regulate the size and design of driveway culverts. Improperly designed and sized culverts can pose traffic safety problems, and impede drainage from the road surface. The Town of Liberty Grove requires permits for all new driveways per statutory requirements and Town ordinances. Contact the Clerk/Administrator for application forms. For driveways accessing county or state roads, permits are obtained through the County Highway Department.

### **Speed Limit Controls**

Local units of government can change speed limits for their roads under authority and guidelines in the Wisconsin Statutes. Local officials play a key role in setting speed limits. They must balance the competing concerns and the opinions of a diverse range of interests, law enforcement agencies with statutory requirements, and engineering study recommendations. Interested parties include drivers, who tend to choose speeds that seem reasonable for conditions, land owners and residents, who frequently prefer and request lower speed limits than those posted.

The prevailing speed, the one which most drivers choose - is a major consideration in setting appropriate speed limits. Engineers recommend setting limits at the 85th percentile speed, where 85 percent of the freely flowing traffic travels at or below that speed. An engineering study measuring average speeds is required to determine the 85th percentile speed limit. Other considerations include the roads design limit. This is the highest and safest speed for



which the road was designed, and takes into account the road type, geometry, and adjoining land use.

Speeds should be consistent, safe, and reasonable; and enforceable. When 85 percent of the drivers voluntarily comply with posted speed limits, it is possible and reasonable to enforce the limits with the 15 percent who drive too fast. Unreasonably low speed limits, tend to promote disregard for the posted limits and make enforcement much more difficult. They may also promote a false sense of security among residents and pedestrians who may expect that posting lower limits will change driver's speed behavior.

#### **EVALUATION OF CURRENT INTERNAL TRAFFIC CIRCULATION SYSTEM**

The Town's internal traffic circulation system is greatly influenced by the existing natural resource base and its coastal features including bays and estuaries of Lake Michigan. The major arterials include STH 42 and STH 57, which provide essential north to south access through the county and the Town. For the most part, the county trunk system, including CTH ZZ, CTH Q, and CTH NP serve as east to west collectors, funneling local traffic from the Town roads to the State Highway System. The Town road system tends to be somewhat circuitous and consists primarily of non-through roads serving areas of development along the shoreline.

#### **INVENTORY AND ANALYSIS OF APPLICABLE TRANSPORTATION PLANS**

The following section of this chapter presents information on existing state, regional, county, and local transportation related plans that apply within the town.

##### **State Highway Plan**

*The Wisconsin State Highway Plan 2020* states that, "Wisconsin's State Trunk Highway system, consisting of approximately 11,800 miles of roads, is aging and deteriorating at the same time traffic congestion is increasing." In response to this critical issue, WisDOT, in partnership with its stakeholders, has developed the *State Highway Plan 2020*, a 21-year strategic plan which considers the highway system's current condition, analyzes future uses, assesses financial constraints and outlines strategies to address Wisconsin's preservation, traffic movement, and safety needs. The plan will be updated every six years to reflect changing transportation technologies, travel demand and economic conditions in Wisconsin.

The *Wisconsin State Highway Plan 2020* addresses three key elements or issues of concern relative to the State Highway System;

1. Preserving the system by improving or replacing aging pavements and bridges;
2. Facilitating movement of people and goods through an efficiently designed system, and with programs that reduce traffic congestion; and
3. Improving highway safety through combined strategies of engineering, education and enforcement.



### **Six-Year Highway Improvement Plan**

The Wisconsin Department of Transportation develops a *Six-Year Highway Improvement Plan* which addresses the *rehabilitation* of Wisconsin's state highways. Rehabilitation falls into three major categories (*resurfacing, reconditioning and reconstruction*) giving it the often used abbreviation "3-R Program".

- *Resurfacing* entails provision of a new surface for a better ride and extended pavement life.
- *Reconditioning* entails addition of safety features such as wider lanes, or softening of curves and steep grades.
- *Reconstruction* entails complete replacement of worn roads including the road base and rebuilding roads to modern standards.

### **State Airport Plans**

The Wisconsin State Airport System Plan 2020 (SASP 2020) provides a framework for the preservation and enhancement of the system of public-use airports adequate to meet current and future aviation needs of Wisconsin. The plan determines the number, location and type of aviation facilities required to adequately serve the State's aviation needs over a 21-year planning period, 2000 through 2020. The plan defines the State Airport System and establishes the current and future role of each airport in the system.

### **Wisconsin State Railroad Plans**

An update of the State Rail Plan is in progress. Due to the increased utilization of inter-modal shipment of goods, manufacturers can locate virtually anywhere within a short driving distance of a rail facility and still benefit from the reduced costs afforded by rail transportation.

### **State, Regional and Local Bicycle Plans**

#### **State Bicycle Plan**

The Wisconsin Bicycle Transportation Plan 2020 has as its two primary goals

- Increase levels of bicycling throughout Wisconsin, doubling the number of trips made by bicycles by the year 2010 (with additional increases achieved by 2020).
- Reduce crashes involving bicyclists and motor vehicles by at least 10 percent by the year 2010 (with additional increases achieved by 2020)

Recommended actions include:

- 1) Developing local bicycle transportation plans
- 2) Providing suitable space for bicyclists when designing roadway projects
- 3) Following accepted bikeway guidance and standards
- 4) Routinely considering bicyclists when developing roadway projects.



### **Regional Bicycle Plan**

The *Bicycle Facility Transportation Plan for the Bay-Lake Region* identified a system of connecting routes and needed improvements connecting all municipalities and major destination points throughout the eight-county region including Door County and the Town of Liberty Grove. The regional plan proposes transportation facility improvements (paving road shoulders to a width of four or five feet) to provide safe and efficient travel paths between communities located within Door County including the Village of Sister Bay and nearby communities. The Regional plan recommends paving road shoulders (four to five feet in width) on STH 42, STH 57, CTH ZZ and CTH N. The plan does note that due to physical constraints on STH 42 between Ellison Bay and Northport that four to five foot paved road shoulders may not be possible.

### **Funding the Town Road System**

The cost of constructing, maintaining and operating roads under local jurisdiction (Town roads) is defrayed through the provision of General Transportation Aids (authorized in Section 86.30 of the Wisconsin Statutes). General Transportation Aids are distributed to all Wisconsin Towns through a highway aids formula administered by the Wisconsin DOT. Under the formula, local aid is distributed either as a share of eligible highway-related expenditures incurred by the Town, or on a per-mile basis, whichever is higher.

Eligible expenditures generally include all road construction and maintenance within the right-of-way, as well as a percentage of eligible law enforcement, street lighting maintenance and construction, and storm sewer construction. The share of cost rate is determined by the available funding and the average costs reported by the Town. The 2001 funding level has resulted in a share of cost percentage of 20.8 percent for towns. Each town's share of costs is determined by multiplying the six-year average costs by the percentage rate.

The 2001 flat rate has been set at \$1,740 per mile. Transportation Aids for Towns, as well as all other local units of government and counties, are derived primarily from motor fuel taxes and vehicle registration fees

## **TRANSPORTATION RECOMMENDATIONS**

### **Initiate A Pavement Management Program**

Town roads are rehabilitated, repaired and maintained with funds provided by the State's Local Roads Program (LRP) and Town property tax assessment. The LRP program provides each local unit of government in the State with financial support derived from State taxes on gasoline and other transportation related surcharges for local road maintenance and repair.

The Town has a pavement management system that is reviewed annually by the Town's Highway Committee. The system provides a detailed inventory and description of all roads within the Town, provides a detailed surface condition survey of those roads, defines the goals and objectives of the Town with respect to its road maintenance and repair, and establishes a long-term maintenance schedule which would prioritize the road maintenance and repair needs.



A Pavement Management Program is simply a Capital Improvement Program geared specifically to the Town's roads. The Pavement Management Program provides the Town with a detailed, defensible document, which will assist elected and appointed officials in making informed decisions regarding road maintenance and repair.

#### **Employ Adequate Design Standards**

New highways and roads, in the optimum setting, shall be designed for their projected and desired use. State and Town road design standards shall be applied to all new construction and, where possible, existing roads which are to undergo major repair and reconstruction shall undergo this work according to the standards set forth in this plan.

In examining the design of Town roads, the "road-scape" of these facilities also should be considered as well. The "road-scape" includes the area adjacent to the road and within the established right-of-way or the ditch that serves as a vegetative buffer between the road and the adjacent lots, a location for traffic signs and for utility lines.

#### **Assess Special Transportation Needs**

The Town should play as active a role as possible in the support, development and maintenance of special transportation services for the elderly and disabled population of the Town.

#### **Bicycle Transportation**

Develop and identify a system of bicycle trails, paths and road accommodations to facilitate safe and efficient travel between population centers (villages and unincorporated nodes of development), and other important destination points such as State parks and natural areas. Although most typical local roads (10 to 12 foot paved travel lanes and three foot gravel shoulders) can be safely used by bicyclists, those roads that tend to have higher volumes of vehicle and bicycle traffic should be considered for improvements or accommodations to enhance safety and efficiency.

#### **Assess Rural Transit Needs**

Alternate systems of transportation are needed due to the lack of accessible and affordable housing coupled with the demand for high school and college age students who may not have access to reliable transportation. An economical and efficient transportation system is essential to the attraction of a sufficient workforce. The Town should explore with the County the development of a rural transit (bus) system to provide service between the city, villages and population centers located within the County.