Chapter 9
TRANSPORTATION PLAN

This chapter provides specific transportation-related recommendations based on the goals and objectives detailed in Chapter 6 (Goals, Objectives, and Policies). An examination of the local transportation network is an important part of a Master Plan, as land uses and the means of transporting goods and people are interdependent elements of a successful community. The implementation of a functional transportation network depends upon adherence to sound planning principles and an effective collaboration between Township, County and State officials and private landowners.

EXISTING ROAD CONDITIONS

The following is a summary of existing Township conditions related to transportation:

Traffic Volumes

Map TH1 (Existing Road Conditions) shows 24-hour traffic volumes on major roadways, based on data from 1999 obtained from the Washtenaw County Road Commission and Michigan Department of Transportation for the 2001 Master Plan. The highest volume roads in Bridgewater Township are US-12 (Michigan Ave.), Austin Road, and Clinton Road. As part of the 2013 Master Plan update, a general review of the data was conducted by Township consultants, and it was determined that conditions have not changed in a manner that would warrant collection of new traffic counts.

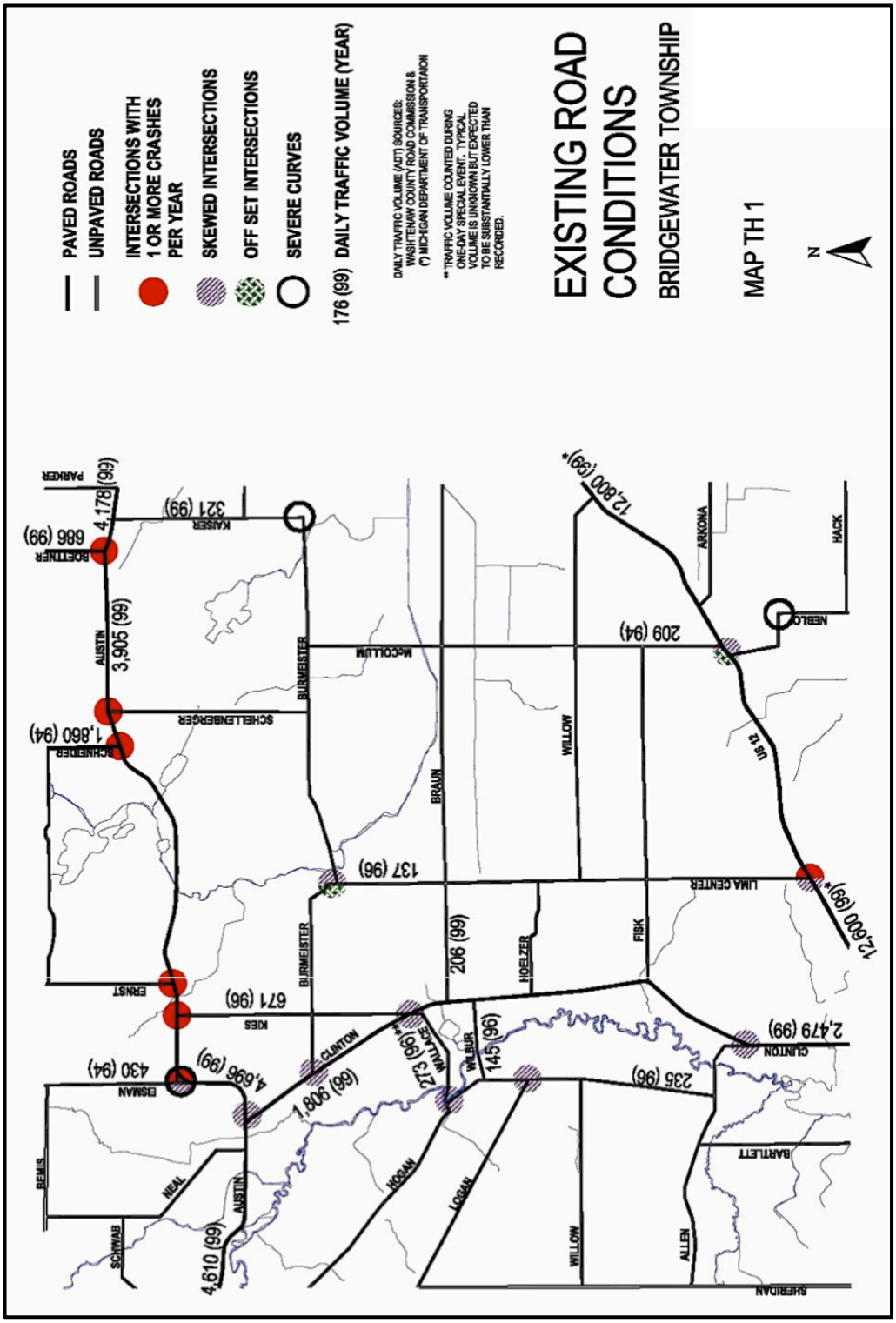
US-12 is a two-lane state highway crossing the southeastern corner of the Township. A 1999 count on US-12, near the Township's eastern boundary, found that it was carrying about 12,800 vehicles per day. The volume on US-12 decreases slightly, to about 12,600 vehicles per day, northeast of the Village of Clinton. Austin Road, which serves as the Township's main east-west travel route, carried between 3,905 and 4,696 vehicles per day in 1999. Clinton Road, running north-south, carried between 1,806 and 2,479 vehicles per day.

Existing Road Network

As indicated on **Map TH1** (Existing Road Conditions), the majority of Bridgewater Township's roads are unpaved. Most of these roads carry very low volumes, under 400 vehicles per day. The capacity of such roads depends on road width, alignment, and condition. **Map TH1** also identifies parts of the Township's road system that may be of concern. Such locations include:

- Severe curves
- Offset intersections
- Skewed intersections (angles less than ninety degrees or other unusual configurations)
- Intersections having more than one crash per year

Austin Road, one of the few paved roads within the Township, serves as a thoroughfare across the Township and between Manchester (M-52) and Saline (US-12). The relatively high intersection-related crash rates along this corridor, as noted on the map, are likely related to both the road's function and the many changes in horizontal alignment (curves in the road).



COMPLETE STREETS IN THE TOWNSHIP

Public Acts 134 and 135 of 2010 give new responsibilities to county and state transportation agencies across Michigan related to implementation of the new "Complete Streets" policy established by the package of laws.

The Washtenaw County Road Commission and Michigan Department of Transportation (MDOT) are required through amendments to the Act 51 program, which governs the funding and prioritization of road projects across the state, to consider all users of the road right-of-way as part of the planning of future road projects.

Why should the Township be concerned with "complete streets" laws when the county and state are responsible for the road network?

These public acts provide the Township with a more powerful mechanism to influence decision-making within county and state road authority bureaucracies, which is this transportation plan.

In the absence of written and adopted road policies, the default county or state standard would apply to any future road improvements, with little regard as to whether a particular road width or design is best for Township residents or the Hamlet's business community.

For example, the intent of the road-related policies and recommendations contained in the Bridgewater Hamlet Area Plan (Chapter 8) are to encourage the county road commission to consider the unique character of the Hamlet, and to incorporate context-sensitive design elements into any future Austin Road improvements.

project planning and coordination

Complete Streets.
A comprehensive approach to transportation networks, which integrates all facilities in the road right-of-way (travel lanes, shoulders, sidewalks and non-motorized pathways, driveway access, etc.) to abutting buildings and land uses.

The intent of the "complete streets" approach to transportation planning is to ensure that all users (motorists, pedestrians, bicyclists, etc.) are safely accommodated as part of transportation improvements along a road corridor.

For the Township, these public acts also included amendments to the Michigan Planning Enabling Act (Public Act 33 of 2008, as amended) intended to ensure that county and state road agencies better coordinate road improvements with the Township, and will cooperate with the Township to implement transportation elements included in this Master Plan.

This transportation plan is intended to conform to the requirements of the Michigan Planning Enabling Act, and to establish Township priorities for improvements to the road network.

TRAFFIC AND CIRCULATION PLAN

One of the goals of this Master Plan is to "maintain a transportation network that facilitates efficient circulation while reinforcing the Township's rural character." However, this plan also recognizes that maintaining the network of unpaved roads helps to ensure the continuation of the Township's rural character and appearance. This section is intended to identify opportunities for improvement to better facilitate traffic circulation and alleviate potential traffic hazards, while retaining unpaved roads where appropriate.

Description of the Road Network

Traffic is concentrated on certain roadways due to the road's physical condition, level of use, and direction of travel, as well as the overall land-use pattern. To set funding priorities for the roads that carry the highest volumes, transportation planners established a street classification system. Roadways are typically divided into those that primarily carry regional or "through" traffic and those that carry local traffic. To function successfully, the overall traffic circulation network must be carefully integrated. In the Township, the five (5) basic types of roads are defined below and on **Map TH 3** (Thoroughfare Plan):

Principal Arterials.

Principal arterials provide travel routes from one city to another, and can traverse one or more states. They are most often used for longer trips, as higher speeds are allowed. When a principal arterial passes through a more populated area, however, the highway functions more like an arterial. The number of intersections increases and speeds decrease. Principal arterials are planned for 150-foot rights-of-way. US-12 is the only principal arterial in the Township.

Arterials.

Arterial roads carry trips of shorter length than do principal arterials. They can provide routes for lengthy trips if a principal arterial or freeway is not available. Arterial roads have dual functions: (1) To provide routes for through traffic, and (2) to also provide access to abutting properties and minor intersecting streets. This can lead to congestion and traffic crashes because of turning vehicles conflicting with through traffic. Arterials are planned for 66-foot rights-of-way, except where limited use of acceleration, deceleration or left hand turn lanes are determined necessary by the county road commission. In order to retain the Hamlet's established character, Austin Road within the Bridgewater Hamlet has been designated as a village arterial that should not be widened for any reason beyond a 66-foot right-of-way. Schneider Road, Clinton Road, and Austin Road are designated as arterials in the Township.

Collectors.

The intent of a collector street is to collect vehicles from the local streets or rural areas and distribute them to either local destinations or to an arterial. The collector street system serves both land access and through traffic. Collector roads are planned for 66-foot rights-of-way. Lima Center Road, McCollum Road, Kaiser Road, Burmeister Road, Braun Road, Parker Road, Hogan Road, Ernst Road, and Logan Road are designated as collectors in the Township.

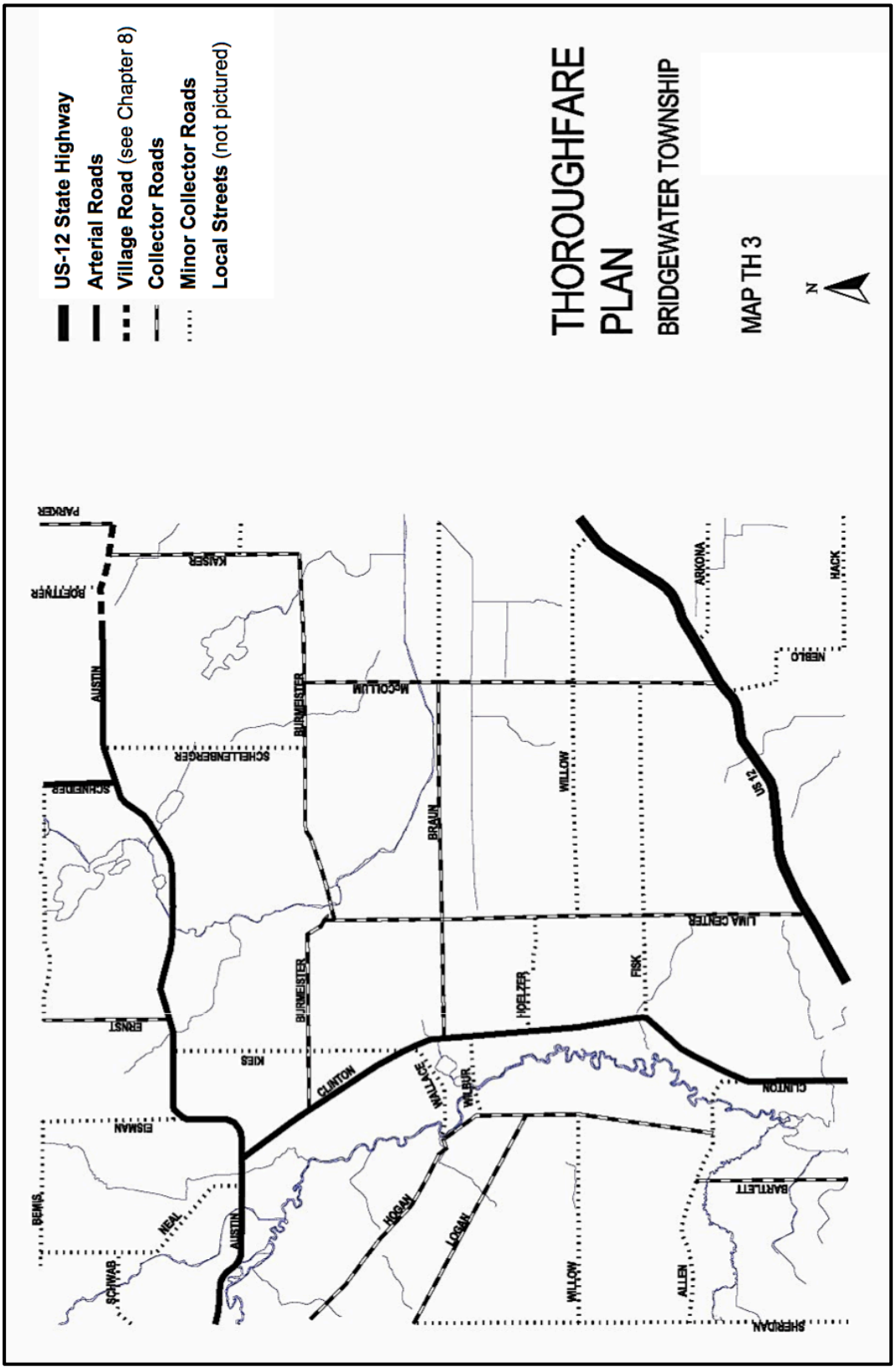
Minor Collector.

Minor collector streets also collect traffic from local streets, but they generally carry shorter trips and the routes are less traveled than collector streets. Minor collectors are also planned for 66-foot rights-of-way and include all of the remaining roads within the Township.

Local Streets.

Providing access to adjacent land is the sole function of local streets. These streets make up a large percentage of total street mileage in urban areas and a small percentage in rural areas, but they almost always carry a small portion of vehicle miles

traveled. The aim of local streets is to provide access to collector streets and through routes, but in such a manner that through traffic is not encouraged to use the local streets as a shortcut route. Local streets are planned for 66-foot rights-of-way.



Access Management Recommendations

A well-designed and maintained road network is needed to provide access to property, mobility for citizens, and conduits for local economic activity. However, the pattern of land uses and number and type of access points onto roads impact the function of the road system. The function of the road system and its ability to move traffic in an efficient and convenient manner has a significant impact on the viability of land uses and the overall quality of life in a community.

The access management techniques described below primarily apply to more intensive, non-residential land uses. However, the standards for shared access driveways are appropriate for individual residential home sites. Access management is usually implemented through the site plan review process, and these techniques are suggested as guidelines in that process. Each case will require an individual analysis to determine the appropriate action given the characteristics of the site and use.

Restricting the Number and Spacing of Access Points.

Limiting the number of driveways permitted for each land use can help preserve the traffic movement function of a roadway. Proposed and existing land uses should provide the minimum number of driveways needed to provide access to a development site.

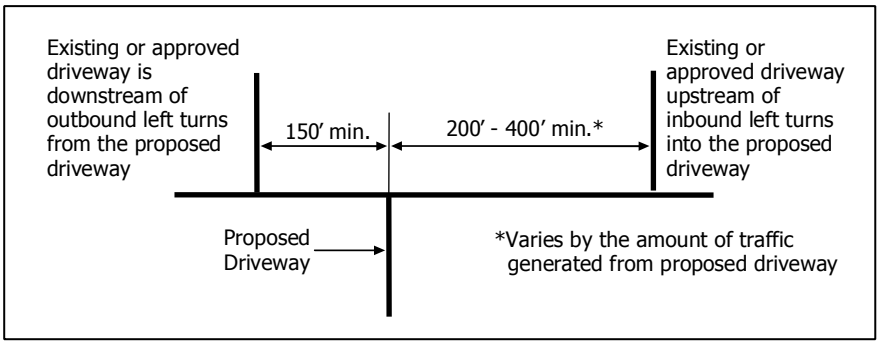
If additional driveways are proposed, additional street frontage for the subject site and appropriate spacing between existing driveways should be provided.

Table TH 1: Recommended Spacing Standards for Driveways on Same Side of Street

Road Speed (miles per hour)	**Minimum Driveway Spacing** (feet)
25	105
30	125
35	150
40	185
45	230
50	275
55	350
Spacing standards are based on established state and federal guidelines, which may be updated from time to time.	

Even if only one access point is proposed, the most appropriate location should be selected to preserve the function of the roadway and maximize public safety. Driveways located too close together are safety hazards and they can negatively impact road capacity. Recommended spacing standards between non-residential driveways on the same and opposite sides of the roadway are provided below.

Driveways on Opposite Side of Street

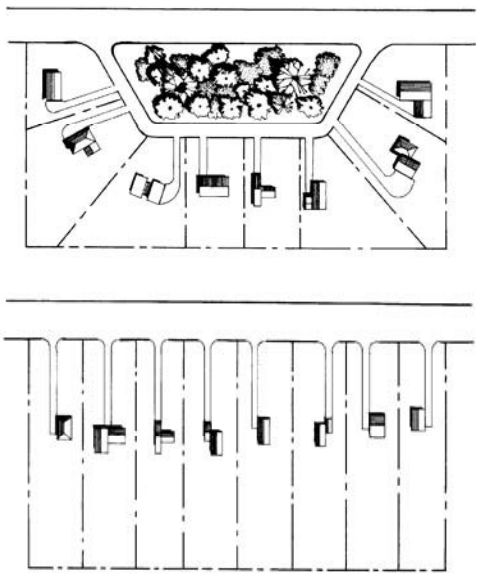


Encouraging Shared Access.

Providing shared access to a site reduces the number of access points, preserves the capacity of the road, and can even help to maintain the character of the community. Shared access can be achieved through a variety of techniques including frontage roads, service roads and internal connections between sites.

As illustrated in the graphics below, individual driveways serving residential acreage parcels can reduce the capacity of the roadway and the rural character of the community. For example, as new houses are developed on acreage parcels, shared access via a frontage road may be a desirable alternative.

Shared access example:

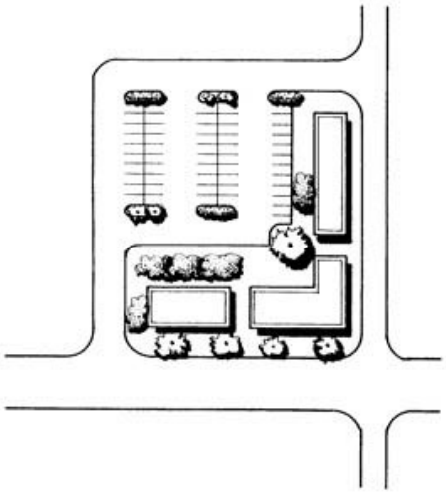


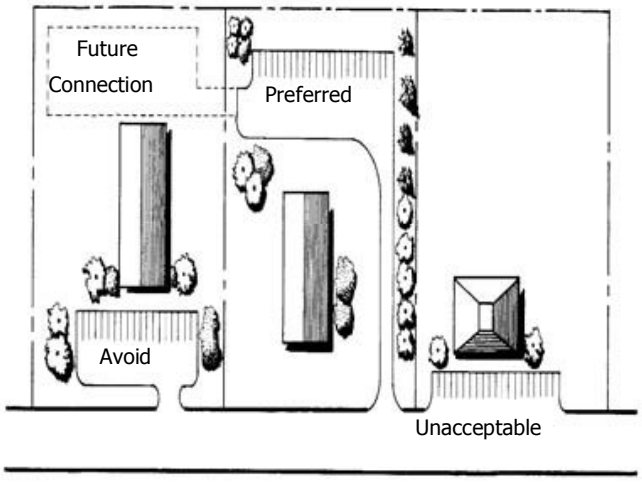
Multiple driveways impact road function.

Such shared access alternatives to multiple individual driveways and "curb cuts" into the public road right-of-way can preserve roadway capacity and views from the road, and provide a buffer area for the houses.

Access management is also critical for non-residential land uses because of their intensive nature and tendency to demand a higher number of access points. The graphics illustrate ways in which nonresidential uses can utilize access management techniques related to off-street parking facilities.

Shared access for a number of non-residential uses preserves the road capacity, which is especially important near intersections. Shared parking at the rear of the buildings also helps preserve the aesthetic appearance and character of the community. If shared access drives are not feasible, internal service roads or internal parking lot connections between uses should be provided to preserve roadway capacity.



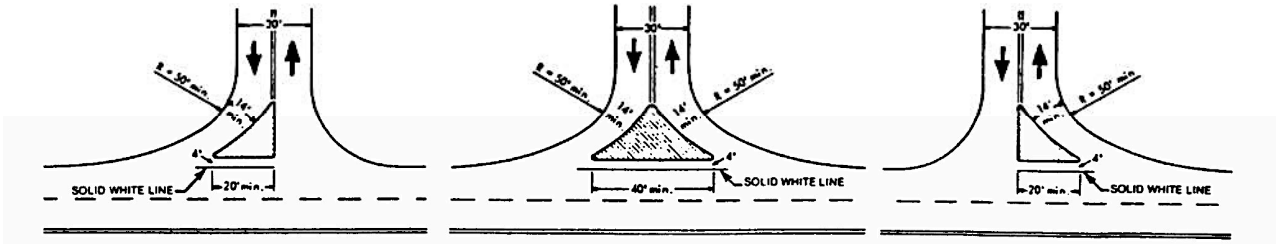


Access/Driveway Design.

Another access management technique involves proper driveway and intersection design. Driveways should be designed with adequate width, turning radius, and depth to allow automobiles and large trucks to enter and exit a site safely and efficiently. A clear vision area at the corners of all driveways and intersection is also needed for safe driver visibility. Uses that generate high volumes of traffic may warrant the construction of deceleration and acceleration lanes adjacent to driveways and intersections. Left turn passing lanes or center left turn lanes may also be necessary. Such improvements are often identified through the completion of a traffic impact study.

Restricted turning movement at a driveway or a channelized driveway access design may be warranted by high traffic volumes or poor spacing of proposed access points to existing driveways or adjacent intersections. For example, when an existing driveway is too close to an intersection, it is possible to improve access and safety by restricting turning movements to right turns in and out of a proposed or existing development site.

Examples of channelized or limited driveway access:



PREVENTS LEFT-TURN EGRESS | PREVENTS LEFT-TURN EGRESS AND INGRESS | PREVENTS LEFT-TURN INGRESS

US-12 CORRIDOR PLAN

US-12 is a regional state highway, and a primary traffic route from metro Detroit and Ann Arbor into the Irish Hills and to the Michigan International Speedway (MIS). Over the past two decades, significant safety improvements have been completed by the Michigan Department of Transportation (MDOT, including paved shoulders, passing lanes, and improved signage.

The portion of the road corridor in Bridgewater Township is planned to remain rural and agricultural in character. The following are the policy preferences of the Township with regards to future road improvements along the US-12 corridor:

- ❑ To maintain the rural character, capacity improvements along US-12 should be limited to additional passing lanes where determined necessary by MDOT. Widening to a four or five lane configuration or a divided boulevard should be avoided.

- Access management techniques should be applied to new development along the US-12 corridor from the City of Saline to the Village of Clinton to preserve traffic capacity.

- Facilities for bicyclists should be maintained along US-12 within the road right-of-way.

AUSTIN ROAD – CLINTON ROAD – SCHNEIDER ROAD CORRIDOR PLAN

Austin Road and Clinton Road in Bridgewater Township are likely to increase in importance because of their roles in the area-wide road network, and Schneider Road is an important connector road to the north. Speeds and accident rates along Austin Road in particular are too high. Measures are needed to slow traffic and correct safety deficiencies along these paved roads. These road corridors are planned to remain primarily rural in character. The following are the policy preferences of the Township with regards to future road improvements along the these road corridors:

- To maintain the rural character, capacity improvements along these road corridors should be limited to acceleration/deceleration lanes and left hand turn lanes where determined necessary by the Washtenaw County Road Commission.

- Austin Road within the Bridgewater Hamlet area should be improved consistent with the recommendations of Chapter 8 (Bridgewater Hamlet Area Plan).

- Widening to a three, four or five lane configuration should be avoided.

- Intersections along these corridors with a non-standard (90-degree) configuration should be high priorities for traffic safety modifications by the Road Commission.

- Facilities for bicyclists, including paved shoulders or bicycle lanes at least four (4) feet in width, should be provided along these road corridors within the road right-of-way as part of future improvements.

- Improvement of the intersections of Austin Road with Clinton Road and Schneider Road to incorporate non-signalized intersection design elements that have been shown in other local or regional applications to improve traffic safety and reduce the frequency and severity of vehicle crashes. Such improvements should be consistent with the Township's rural character. The intent of such improvements would be to help reduce speeding along this corridor, and to better define these important intersections from a wayfinding perspective.

BRIDGEWATER HAMLET TRANSPORTATION PLAN

See Chapter 8 (Bridgewater Hamlet Area Plan) for transportation plan policies and recommendations associated with the Hamlet area.

BRIDGE MAINTENANCE RECOMMENDATIONS

Bridgewater Township, like many rural Michigan communities, is experiencing the effects of aging and outmoded road infrastructure. As of this 2013 plan update, one bridge on Bemis Road in Section 3 of the Township is under a strict weight restriction (maximum five tons) imposed by the Washtenaw County Road Commission. Other older bridges in the Township may be outmoded in width or design.

- It is recommended that the Road Commission maintain an inventory (location, age, condition) of all bridges in the Township with the assistance of the Township Board.

- The Road Commission should be encouraged to implement a more proactive program of maintenance and inspections to preserve the capacity of older bridges.

- The Road Commission should be encouraged to replace outmoded bridges with structures of sufficient width and capacity to support modern farm equipment.

NON-MOTORIZED TRANSPORTATION PLAN

An increasing number of bicyclists and others are using Township roads for non-motorized transportation. The needs of all potential users of the Township's transportation network should be adequately addressed as road improvement projects are planned and implemented. The following are the policy preferences of the Township with regards to the non-motorized transportation needs of the Township:

- The Township will work with the Washtenaw County Road Commission to seek road improvements that include striped on-street bicycle paths along Austin Road, Clinton Road, and Schneider Road.

- The long-term development of a safe system of multi-use pathways (pedestrian, bicycles, snowmobiles, etc.) within existing road rights-of-way to connect areas of the Township and adjoining communities should be investigated by the Township.

- No trails should be developed in the Township along river or stream corridors, in backcountry property behind or adjacent to rural residences, or in isolated sections not connected to an existing network.

- No trails should be developed in the Township without a comprehensive plan and financing mechanism acceptable to the Township Board to provide for regular public safety patrols and long-term maintenance and improvement.

PUBLIC TRANSPORTATION

The Township does not have the density of housing units to support a public transportation system, but senior citizens in the Township may access to a "Dial-A-Ride" service through the Manchester Area Senior Citizens Council, Inc. to be able to access medical services, shopping, and other necessary activities to support independent living. Opportunities to collaborate with the City of Saline and/or Villages of Clinton and Manchester to expand such services to other Township residents who no longer can drive themselves or have limited access to private transportation should be investigated.

NATURAL BEAUTY ROAD PLAN

Under the state Natural Beauty Road Act (Public Act 451 of 1994), the Washtenaw County Road Commission (WCRC) can, upon request by Township residents and a public hearing, designate a county public road having "unusual or outstanding natural beauty" as a "natural beauty road." All residents along the road must be notified of the hearing, and property owners representing more than fifty-one percent (51%) of the road frontage can prevent the road from being designated this way.

As of 2013, there are nine natural beauty roads designated in the county.

Natural Beauty Road Recommendations

Many of the Township's roadways offer beautiful views of natural features and vegetation. Natural vegetation along these roads should be maintained, provided safety concerns are addressed.

- ❑ Natural beauty road status for Bemis Road, Schwab Road, and Sheridan Road should be explored through the Washtenaw County Road Commission.
- ❑ The Township should continue to evaluate other roads within the Township in order to identify others that may be appropriate for this designation.

Natural Beauty Road Criteria

The WCRC has established minimum criteria for such designations, which are summarized below from the WCRC website (2014):

1. **Character of the road.** To qualify as a natural beauty road, a road must have outstanding natural features along its borders, including native trees and other native vegetation such as shrubs, wildflowers, grasses, and ferns, and open areas with scenic or natural vistas, which, singly or in combination, set this road apart from other roads as being something unique and distinct.

2. **Length.** A minimum of one-half mile will be considered for designation as a natural beauty road, with some exceptions. Stretches will be continuous except where broken by a non-qualifying portion, which should normally not exceed one-half mile in length.

3. **Roadside Development.** Qualifying roads should preferably have no development along them, but such development as exists at the time the road is designated should be compatible with the surroundings, and should not detract from the natural unspoiled character and visual impact of the road area.

4. **Roadbed.** Natural beauty roads may be dirt, gravel, or hard surface.

5. **Function of the road.** The road should function as a local street or minor collector road. Collector and arterial roads are typically not considered for this designation.

6. **Roadway condition.** Condition of roadway should be reviewed and found to be adequate in terms of drainage, design and safety.

7. **Volume.** The current average daily traffic on an unpaved roadway should not exceed 500 vehicles for consideration as a natural beauty road.

8. **Vegetation.** A minimum of 90% of the lineal footage of the road right-of-way should include native vegetation.

Benefits of a Natural Beauty Road Designations

Once designated, normal maintenance activities are carried out with more sensitivity to the special character of the road, as summarized below from the WCRC website (2014):

- **Mowing.** Mowing should be limited to one swath (maximum of five feet) on either side except at public road intersections.

- **Grading.** Grading should continue as normally provided and be kept to a minimum to avoid disturbance of vegetation. Grading should be pulled back to avoid trees or unusual sites which have been designated.

- **Herbicides.** Under no circumstances will herbicides be used to control or eliminate roadside vegetation.

- **Signage.** Natural beauty roads will be identified with signage at key entrances.

- **Trees and shrubs.** Tree and shrub trimming and removal, where necessary for safety or visibility reasons, should be done judiciously and with proper tools so as not to leave unsightly scars.

Designation as a natural beauty road does not preclude the WCRC from implementing necessary safety improvements, including those affecting horizontal and vertical alignment. If changes are required in road surface to improve safety, drainage, etc., consideration may be given to rescinding the natural beauty road designation where such changes would disturb or destroy the characteristics for which the road was originally designated.

COLLABORATION FOR ROAD IMPROVEMENTS

Because Bridgewater Township does not have direct control over the roads in the Township, it is important that the Washtenaw County Road Commission (WCRC) and the Michigan Department of Transportation be kept aware of the plans of the Township. Because land use and thoroughfare elements are closely interrelated, and any change in one may have a marked effect upon the other. The following are the policy preferences of the Township with regards to collaboration with outside agencies and developers with regards to road improvements and construction of new roads in the Township:

- Information regarding the transportation plans of the State, County and Township should be exchanged on a regular basis.
- As new development and redevelopment is proposed, it should be examined with regard to impact on the road system.
- When a site plan for any type of use is submitted, access management techniques should be utilized, where appropriate.
- Where topography, vegetation, curvature of the road or other factors restrict road access or would potentially reduce the level of safety for motorists if new driveways and access points were to be constructed, new development in such areas should be encouraged to provide access via a local street, shared access drive or frontage road.
- Roadways in new developments shall meet appropriate WCRC standards and specifications, as well as those in the Zoning Ordinance.
- Plans for new development should provide for extension of roadways into new development areas where such extension is determined by the Township to be necessary for the continuity of the local road system.
- Residential developments intended to be isolated from the rest of the community by a system of private streets and absence of street connections with adjacent parcels should be discouraged.
- New residential developments shall be served by at least two means of regular public ingress and egress, except where natural conditions prevent such access.
- Plans for new residential development should provide for new collector roads or extension of existing collector roads through the development and connecting into the Township's public road network.
- Private roads should be limited to Planned Unit Development (PUD) projects.
- Private roads should not be approved unless a maintenance agreement conforming to Township ordinances has been approved, and a financing mechanism acceptable to the Township has been provided for long-term maintenance and improvement.