



Chapter 6 Transportation

ROAD CLASSIFICATION

The roadways within Caledonia Township are intended to move traffic and provide access to adjacent property. Most roads serve both of these purposes to a varying degree. Roadways are categorized based on their primary function or purpose and then placed in one of the functional classification categories.

The roads in the Township are ordered into various roadway functional classifications, used to assist the Township, Kent County Road Commission (KCRC), and the Michigan Department of Transportation (MDOT) in determining which improvement projects are necessary. The Township can also use this classification system to help determine appropriate land uses along each roadway.

Freeways

Freeways are a street classification for primarily federal highways which are part of the Interstate Transportation System. This classification of roads is intended to serve high speed traffic with strict limitations on access, which may only occur at highway interchange locations. Although a freeway, the Paul Henry Freeway falls instead under a state highway designation, M-6. Caledonia Township has a major interchange with M-6 at M-37. Specific information regarding planning for this important interchange is found later in this Chapter, and in Chapter 5 (Future Land Use).

Interchange Planning

While access to M-6 presents a number of growth opportunities, careful traffic planning and land use management is necessary to make sure that the interchange remains an asset, rather than a traffic and land use liability. Perhaps the most important planning consideration of interchange planning is the preservation of the function of the interchange.

Interchanges provide access to adjacent communities and lands. In order to ensure this function remains intact it is important that the roadways leading to the interchanges be relatively easy routes on which to travel. This permits a relatively free flow of traffic to the interchanges and permits safe ingress and egress between the interstate highway and the local road.

Interchanges also provide an area for highway services to the traveling public. *Issue Paper #3 – Freeway Interchanges* includes a number of design recommendations which should be implemented to ensure that these functions are well coordinated.

State Routes (Trunklines)

The category includes major highways under state jurisdiction, serving trips between communities and other major activity centers throughout a region. Roadways of this type are designed to provide the highest level of traffic mobility, usually traveling at speeds of 55 miles per hour (mph) (non-interstate). Since the primary function of state trunklines is to provide mobility, access to adjacent land uses should be limited in order to optimize the traffic carrying capacity of the roadway.

M-37 (Broadmoor Avenue/Cherry Valley Avenue) is classified by the KCRC and MDOT as a state trunkline.

County Primary Roads

County Primary roads are those which serve longer trips, sometimes extending beyond municipal boundaries to connect to adjacent population centers or longer arterials. County Primaries are designed for moderate to large traffic volumes and speeds of 35 to 55 mph. Some access to adjacent development is generally permitted from roadways of this type, but on-street parking and curb cuts are regulated to preserve capacity of the street.

The KCRC classifies the following roadways as County Primaries:

East-West Streets

- 60th Street, from Patterson to Thornapple River Drive
- 68th Street/66th Street
- 76th Street, from Patterson Avenue to M-37
- 84th Street
- 92nd Street, from Patterson Avenue to Kraft Avenue
- 100th Street

North-South Streets

- Patterson Avenue
- Kraft Avenue, from 92nd Street to 100th Street
- Kinsey – from 100th Street to M-37
- Egan Avenue
- Cherry Valley Avenue – (includes portion of M-37)
- Whitneyville Avenue

County Local Roads

These roads, which make up the remainder of the roads in the township, collect and distribute traffic to and from the higher classified systems. These roads tend to accommodate slightly shorter trips and are generally designed for moderate traffic volumes and speeds of 30 to 35 mph. Traffic mobility is often sacrificed through additional curb cuts to provide more access to adjacent property.

Natural Beauty Roads

Kent County maintains a classification for Natural Beauty Roads. In 1970, the Michigan Legislature approved the Natural Beauty Road Act (Act 150 of the Public Acts of 1970). Under this Act, road commissions can designate County Local Roads having “unusual or outstanding natural beauty” as Natural Beauty Roads. In order to be designated, a petition must be filed by residents of the township in which the road is located, and a public hearing held within the township to discuss the proposed designation. All residents along the road must be notified and property owners representing more than 51 percent of the road frontage can prevent the road from being designated as a Natural Beauty Road.

The Road Commission has established minimum criteria for designating roads as Natural Beauty Roads and reviews any road so designated on a periodic basis to insure that such criteria is still being satisfied. Once designated, these roads are signed with a special Natural Beauty Road sign. While normal maintenance activities are performed, the Road Commission does carry out such activities in a more sensitive manner, acknowledging the natural beauty along the road.

The Road Commission has a Natural Beauty Road designation for Caledonia Township on 96th Avenue from Alaska Avenue to Whitneyville Avenue.

Private Streets

The remainder of the roads in the township are classified as private streets. The township is aware of potential problems with private streets that may arise. One problem is the inability to adequately connect private streets into a coherent street network (as described later in this Chapter). Since most developments served by private street are relatively small, there are few, if any, opportunities for designing any true road network within or between individual developments. In the more rural area of the township this is not a significant concern, since isolation of the individual homes is a principle aim of most development.

Access Management

Preserving the traffic carrying capacity of a roadway is essential in order to avoid costly improvements and safety problems. Transportation studies have consistently shown that the number, design, and location of the driveways can have a great affect on the ability of a road to safely move traffic and provide access for adjacent land uses. The number, design, and location of driveways along major roadways will affect traffic flow, ease of driving, and accident potential. Every effort should be made to limit the number of driveways and encourage access from side streets, service drives, frontage roads, and shared driveways.

The most effective means of ensuring proper access management is the site plan review process, enforced through the zoning ordinance. However, in order to properly administer site plan review, the Township should ensure that Future Land Use along major corridors adequately considers the function of the adjacent roadways.

A common misconception is that local communities have no input on driveway locations if the state or county has jurisdiction over the roadway. Although local regulation cannot conflict with the road authority (i.e. be less restrictive), it can control driveway locations through the site plan review process. Local governments do have authority to control the placement and spacing of curb cuts (as long as they are not less restrictive than the road authority).

Lots on Arterial Streets

Lots which face major streets often have no other access but through those streets, particularly if the interior lands are not part of the development. As such, a large number of individual driveways along major streets, often carrying high speed traffic, can create a hazard.

Two solutions are possible. If the interior of the property is also being developed, as many lots as possible should be required to gain access from the interior streets. Rather than stripping lots along the roadway, the interior street should be placed on lot depth into the property and the homes should back up to the major street. Additional landscaping or fencing may be provided for the back yard areas of these homes.

The second solution can be used if interior development is not taking place. Rather than each lot having its own driveway, two or more lots can share a

common driveway for the first several feet of the lot, then split into individual driveways to reach the building sites of each lot. If neither of these solutions prove useful, each lot fronting on a major street should be required to construct a turn-around area to allow vehicles to enter the street facing forward.

Driveway Spacing

Since speed along many major roads within the community is a significant concern, spacing between driveways must be carefully considered. Increasing the distance between each driveway provides a measure of safety by ensuring that drivers are not confused as to the location of driveways, since they may be separated by a wide distance. This also allows for a sufficient distance to slow down to enter the driveway.

The Zoning Ordinance may call for a minimum frontage on major roadways that will be developed for more intensive land uses. Proper spacing will help ease traffic conflicts between driveways and vehicles on the street. Driveway spacing (and lot frontages) will be less on those streets that are developed with land uses that generate less traffic.

Driveway controls are especially important when considering commercial and other nonresidential development. Spacing of drives should be as far from the intersection of public streets as possible. Sharing of drives for adjacent properties should also be required, where feasible. Limiting access points clearly helps provide an added measure of safety for uses that generate higher volumes of traffic.

More specific information may be found in Issue Paper #1 – Highway Corridors and Issue Paper #3 – Freeway Interchanges.

FUTURE ROADWAY IMPROVEMENTS

Even with the predominantly residential character of the township, the rate of growth in some areas of Caledonia Township make it likely that major improvements to some existing roadways will be needed. Continuing maintenance of existing road surfaces, including resurfacing, shoulder, and drainage improvements will also be necessary. In some instances where low intensity land uses are planned along most major roadways, even major arteries may not need major improvements or widening. Some major intersections may require upgrading as traffic increases, but those improvements should be relatively minor.

Unpaved Roads

While it may be desirable to eventually improve some of the unpaved streets in the township, the advantages of paving will have to be evaluated by the residents in the area and a policy decision made as to whether or not paving will occur. Maintaining these roads, while expensive, does tend to slow traffic and some residents will perceive this as contributing to their overall quality of life. Others may view unpaved streets as a nuisance, with the problems of dust control, potholes, poor driving conditions in bad weather, and other difficulties.

The Township should develop and maintain a priority system for determining which streets should be paved, and when. Eventually, however, the goal should be to pave all major section line or quarter-section line streets that act as distributors of traffic. Some of the factors that should be used to evaluate the paving priorities include:

- Resident desires
- Traffic Volumes
- Roadway condition
- Maintenance expenditures
- Drainage
- Roadway use type
- Adjacent land uses
- Function of roadway in the township's street network

Thornapple River Crossings

The Township generally possesses a well developed street system along major section line roadways, with a balance of major county roads, collector roads, and local streets. Some limitations to east-west travel are created by the limited number of crossings of the Thornapple River. Over half of the Community Survey respondents noted that this was either a "serious problem" or a "problem."

Presently, 68th Street, 84th Street, and 100th Street each cross the River. This allows an even spacing of crossings every two miles in the township. Future Land Use for the southeast area of the township calls for low density development, which generally will mean that existing crossings will likely be adequate for some time.

Major Road Improvements

Compared to many communities in West Michigan, Caledonia Township's traffic conditions are generally manageable. Traffic volumes on most streets other than

those noted, are relatively low, with comparatively few accident problems, reflecting its low density development and lack of major traffic generators, such as shopping centers or industrial parks. The heaviest volumes occur during the morning and afternoon peak hours, since the trips taken by these vehicles are primarily work oriented.

An average two-lane, rural roadway has the ability to safely accommodate up to 16,000 vehicles per day. Apart from M-37, even the heavily traveled roadways had a 1997-98 volume of 8-9,000 vehicles per day, which means that most are under their capacity and will not require major widening.

The Community Survey also indicated little concern with general traffic conditions. With respect to streets and traffic, the only widely recognized problem about traffic and congestion rose when respondents were asked about whether "traffic on my street" was a problem, to which 50 percent responded affirmatively. However, most did not see significant problems with traffic congestion in general, traffic along M-37, traffic around the schools, or traffic on other streets.

However, one of the most often quoted resident concerns with development proposals is traffic. In part, this is because in the rural environment of Caledonia even minor traffic volumes can be noticeable to the residents; even slight increases in volumes can be perceived as major.

A major consideration for road improvements is the ability of roadway intersections to accommodate various traffic movements. These movements are measured in increments known as Level of Service (LOS).

Roadway Level of Service

Traffic operations are typically evaluated by the extent to which motorists are delayed in their travel. Future traffic operations are evaluated by comparing projected traffic volumes to the capacity of the road network. Roadway capacity is defined as the number of vehicles that can travel through an intersection or roadway segment during a specified time period. Generally, traffic operations and capacity analysis is evaluated for the peak hours of traffic.

M-6 Interchange

The M-6 interchange with M-37 is expected to be open to traffic in 2002. This part of the Phase I improvement, which extends from I-96 to M-37. As this project comes closer to fruition additional planning will be needed to ensure that

development and road improvements are coordinated. Some of this may be accomplished through the Southbelt Planning Alliance, which groups all the municipal authorities that are directly responsible for land use and planning decisions close to M-6.

Clearly the M-6 interchange at M-37 will create the need for major road improvements, in addition to those for M-37 itself. In particular, roadways that have the most direct link to the interchange entrance and exit ramps will require improvement. These include 68th and 76th Streets. Accordingly, it will be important to preserve the traffic carrying capacity of these streets by limiting direct access from individual properties to the maximum possible extent.

Kraft Avenue is also affected, which created the need for a realignment of as part of the widening of M-37 south of the interchange to north of 76th Street. Thornapple River Drive/Egan Avenue will also likely need improvements.

Existing Major Streets

Traffic counts obtained for 1997 and 1998 indicate 24 hour traffic volumes at selected points within the township. As may be expected, the most heavily traveled roadways (apart from M-37) are some of the major streets, including 68th Street and 84th Street (especially east of M-37), as river crossing locations, and Whitneyville Road. The other river crossing point, 100th Street, has somewhat higher volumes, but still well below their capacity because of the low density development occurring in the southeastern areas of the township.

As a result, apart from the improvements related to M-6, there does not appear to be a need for major widening of existing major streets, with the following possible exceptions:

- Egan Avenue: As an extension of Thornapple River Drive, Egan may see additional traffic, particularly if the airport access improvements are undertaken (36th Street extension and I-96 interchange). (See later discussion on Airport Access.)
- Related to this (and M-6) is a possible improvement of 68th Street from Egan east to M-37.

A four lane cross section would likely be adequate to accommodate traffic volumes and provide for turning movements. Obviously, a traffic study would be necessary to determine both the need for and the design of such improvements.

M-37

The Township's Future Land Use provides for an extensive commercial strip on the east side of M-37 south of the Cherry Valley intersection to 100th Street. Commercial development of this magnitude will require not only a capacity improvement, but protection for traffic movements in and out of these developments. Accordingly, one noteworthy improvement for M-37 will be a widening to at least a three lane cross section. As noted earlier, development in this area should adhere closely to access management principles in order to preserve both capacity and safety.

Ultimately, the whole of M-37 will require substantial improvements. As this occurs the following need to be included in planning for road projects:

- Preservation of the tree canopy from 76th Street to the power lines north of 84th Street, either through reduced right-of-ways, narrower median, or narrower lane cross sections, or a combination of these.
- Strict access management to preserve the safety and capacity of the roadway.
- Consideration of the effect on adjacent land uses, particularly residential uses.
- Periodic interruption of traffic with signals (where warranted) to ensure that gaps are available in the traffic stream for access to and from adjacent properties. This should not be taken to mean that an excessive number of signals should be placed along the roadway.
- Inclusion of bike paths either as separate facilities or through widened shoulders.

New Roadways

As the township develops opportunities may present themselves through various development proposals for the completion of existing segments of section line streets or the development of new streets collecting traffic to channel to existing major streets.

In addition to the access management considerations noted earlier, there are two important factors to be reviewed when determining when and where new streets are needed.

Street Networks

As new subdivisions, site condominium, or other residential projects are considered by the community, it is important to implement a street network to ensure that adequate circulation is provided between abutting development projects. Rather than having each development provide only access to the major public street, project approvals should include provisions for stub streets to vacant properties that may be available for future development. These street networks improve overall traffic flow by allowing residents to access nearby residential areas without traveling on the main streets of the community. In addition, circulation between projects improves access for emergency vehicles. Finally, maintenance and snow removal costs are reduced and efficiency improved.

Section Line Streets – Continuation

Since most of the traffic is channeled to the major section line streets, it is necessary to provide as many continuous connections as possible. These include the following:

- 92nd Street Kraft to M-37
- 100th Street Kraft to M-37

OTHER TRANSPORTATION ISSUES

Airport Access

The Kent County Road Commission and Michigan Department of Transportation are examining various options with respect to improving access to the Gerald R. Ford International Airport. Some of the options would have some affect on the township.

36th Street Extension

This improvement extends 36th Street between Kraft Avenue and Thornapple River Drive. The extension would run east from Kraft Avenue toward the freeway, then parallel I-96 forming an at-grade intersection with Thornapple River Drive. It then extends south over the railroad to connect with Thornapple River Drive. One effect of this improvement would be to improve airport access from the township to the airport using Thornapple River Drive/Egan Avenue.

36th Street Interchange

This alternative includes an interchange constructed to connect the 36th Street extension with I-96. In addition to improving airport access, this alternative would provide more direct connection to the freeway network for many employment centers in the area as well as the new air cargo facility. Originally, this alternative including a direct connection to the airport terminal, which has since been removed from consideration. This improvement would also have a significant effect on Thornapple River Drive/Eagan Avenue, and 84th Street, providing access from I-96 directly to the township.

Transit

It is unlikely that widespread mass transit bus service by the Grand Rapids Area Transit Authority (GRATA) will be available in the township. As development around the M-6 interchange increases, it may be serviced by GRATA, depending on the service limits and resources available to GRATA at that time.

Pedestrian/Bike Paths

Although the Community Survey did not indicate a high level of concern about the lack of sidewalks or bike paths (only about a third of respondents indicated the lack of these facilities as a problem), the Township should be in a position to take advantage of these facilities where needed. Some likely locations where sidewalks may be useful include:

- The commercial development strip on the west side of M-37, near the Village of Caledonia.
- As connections from developments near the existing South Kent bike path along the abandoned rail right-of-way.
- Along major roadways (this may take the form of widened shoulders to accommodate pedestrian and bike movements).

Other locations may become apparent as development of the township proceeds.