
Section 4 ACCESS MANAGEMENT

Because of the potential for traffic growth along 4 Mile Road, it is imperative that a proactive approach to maintaining road capacity and safety be undertaken through effective access management strategies and policies.

4.1 What is Access Management ?

The term “Access Management” describes a process that seeks to regulate access to land uses in order to improve traffic flow and safety, while simultaneously maintaining reasonable access to existing properties and future developments.

Access management involves a variety of techniques, including limiting the number of driveway access points, properly spacing driveways, consolidating driveways, construction of parallel service drives to service multiple adjacent land uses, and construction of low-capital road improvements such as turn lanes which separate turning traffic and through traffic.

It is well known that driveways create turbulence in the traffic stream which reduces road capacity. Numerous studies have also shown that the number of traffic crashes increase as the number of driveways increase. Access management strategies can reduce driveway-related crashes by as much as 50 percent by reducing the number of conflict points which lead to crashes.

Access management provides a myriad of benefits to the motoring public. Some of these benefits are listed below:

- Access Management preserves capacity and improves safety by strategically locating driveway access points to locations where they will least impact the flow of “through” traffic.
- Access Management reduces the potential for traffic crashes by limiting the number of driveway access points and improving driveway spacing.
- Access Management maintains reasonable access to homes and businesses, while improving safety for all drivers.
- Access Management increases communication and partnering between the roadway maintaining agency (Kent County Road Commission) and local jurisdictions (Alpine Township and City of Walker) in the review of site plans for proposed new developments and redevelopment of existing land uses.
- Access Management is cost-effective by extending the useful life of roads or requiring only minor capital outlays compared to the cost of constructing more travel lanes and the associated impacts to motorists during such construction.
- Access Management improves air quality and motorist costs by reducing overall travel time and congestion.

Specific recommendations to achieve the above-listed benefits along 4 Mile Road are presented herein.

4.2 Existing Access Issues

Field surveys were conducted to study existing access conditions along 4 Mile Road which could potentially be addressed when the road is widened or when adjacent land is developed or redeveloped. The corridor provides access to numerous residential driveways, Kenowa Hills High School, and various commercial businesses. Existing access-related issues are depicted in **Figure 4-1** through **Figure 4-5**. The figures depict various issues related to existing access along 4 Mile Road, including substandard driveway spacing, substandard intersection corner radii, inade-

quate intersection offset (and associated interlocking left-turn potential), and substandard road geometry. Examples of current deficient access along M-59 include:

- **Insufficient distance** between intersection and nearest driveway at Hendershot Avenue and Walker Avenue.
- **Unnecessary second driveways** at Neal Mast and Sons Greenhouse and Roth Trucking.
- **Substandard driveway spacing** and **poor driveway offset** along 4 Mile Road between Cordes Avenue and M-37.
- **Non-existent deceleration lanes** at most north-south county road intersections.
- **Undesirable roadway offset** at Bristol Avenue
- **Skewed intersection approaches** at Walker Avenue

Poor access management and substandard driveway spacing leads to traffic crashes. The traffic crash history of the 4 Mile Road corridor was presented in Section 2.

4.3 Access Management Techniques

The basic design standards for 4 Mile Road should meet the following general principles that make access management beneficial:

- Driveway design criteria must promote safe and efficient ingress and egress at driveways.
- Conflict areas can be reduced by eliminating driveways, improving driveway spacing, and providing better driveway alignment. Maintaining adequate space between a driveway and the nearest cross-street reduces congestion and traffic crashes, while proper driveway spacing simplifies the driving task by reducing the information the driver must process.
- Storage bays should be provided for turning traffic so as to reduce conflicts with through traffic (e.g. construction of right-turn deceleration lanes at major intersections).
- Reducing the number of conflict points at intersections by eliminating certain turn movements (e.g. converting a driveway to “right-in right-out” operation) improves safety.
- Reasonable access must be provided (albeit less direct access in some cases) with an understanding that all property owners must be allowed access to 4 Mile Road.

The following summarizes the basic design parameters involved with the implementation of access management.

Number of Access Points

No more than one access point to a development should be provided, where possible. Reducing the number of driveways improves traffic flow, reduces the number of conflict points along 4 Mile Road and improves safety. Efforts to consolidate the driveways of multiple parcels into a single shared driveway should be pursued. Access to parcels from side streets (in lieu of access to 4 Mile Road) should also be implemented where possible.

Some developments generate sufficient traffic to warrant a second driveway, but additional driveways should only be considered based on the guidance of a formal traffic impact study that demonstrates the need for more access. Every effort should be made to provide this additional access from a side street or through shared access with adjacent parcels.

Shared Driveways

Providing a single driveway for multiple parcels is highly encouraged. Shared driveways become valuable for parcels of narrow width that have no alternative access (such as from a side street). A written easement between each impacted property owner would be required during the site plan approval process.

Driveway Spacing from Intersections

Driveways immediately upstream or downstream of an intersection must provide adequate distance from the intersection to prevent conflicts between driveway traffic and intersection traffic. The recommended spacing of driveways from intersections are based on MDOT guidelines and are depicted in **Table 4-1**. The shaded values in Table 4-1 apply to 4 Mile Road.

TABLE 4-1
RECOMMENDED MINIMUM DRIVEWAY SPACING FROM INTERSECTIONS

Posted Speed (mph)	Minimum Upstream Drive (feet)*	Minimum Downstream Drive (feet)	Minimum Side Street Drive (feet)
Signalized Intersection			
25-35	230	230	230
40-50+	460	460	460
Unsignalized Intersection			
25-35	85	115	115
40-50+	170	230	230

* - For undivided arterial like 4 Mile Road.

Source: Michigan Department of Transportation (T&S Division Note 7.9D)

As shown in Table 4-1, the minimum distance between a signalized intersection along 4 Mile Road and the nearest driveway should be 460 feet. The minimum distance between a stop-controlled intersection along 4 Mile Road and the nearest driveway is 230 feet in the downstream direction and 170 feet in the upstream direction. If the corner parcel size is too small and limits this distance, then the driveway should be located as far from the intersection as possible.

Driveway Spacing from Other Driveways

The space between consecutive driveways should be of sufficient distance to limit turning conflicts. Based on MDOT guidelines, the recommended minimum driveway spacing is dependent on the speed limit as shown in **Table 4-2**. The shaded values in Table 4-2 apply to 4 Mile Road.

TABLE 4-2
RECOMMENDED MINIMUM DRIVEWAY SPACING FROM OTHER DRIVEWAYS

Posted Speed (mph)	Minimum Driveway Spacing (feet)
25	130
30	185
35	245
40	300
45	350
50+	455

Source: Michigan Department of Transportation (T&S Division Note 7.9C, Table 1)

As shown in Table 4-2, the minimum distance between consecutive driveways should be 350 feet along 4 Mile Road. In retrofit areas along 4 Mile Road—particularly near M-37—where existing driveway spacing is much less than the desired spacing, shared driveways should be pursued.

Sight Distance

There are two types of sight distance. Stopping Sight Distance (SSD) is the minimum amount of time necessary for a vehicle traveling at the design speed to stop before reaching a stationary object in its path. Intersection Sight Distance (ISD) is the minimum distance along the arterial road needed by side street drivers who are stopped at the arterial road to either enter or cross the arterial road. The minimum values of SSD and ISD are depicted in **Table 4-3**. The shaded values in Table 4-3 apply to 4 Mile Road.

**TABLE 4-3
MINIMUM VALUES OF SIGHT DISTANCE**

Posted Speed (mph)	Stopping Sight Distance (feet)	Intersection Sight Distance (feet)
30	200	350
35	250	410
40	305	470
45	360	530
50	425	590
55	495	650
60	570	710
65	645	760

Source: AASHTO and Michigan Department of Transportation

As shown in Table 4-3, the minimum SSD along 4 Mile Road must be at least 360 feet while the minimum ISD must be at least 530 feet. Sight distance (or lack thereof) impacts the optimal location of driveways along 4 Mile Road. The issue of adequate sight distance should be coordinated between the Kent County Road Commission and the local unit of government during the site plan review process (either Alpine Township or the City of Walker).

Driveway Alignment

Driveways on opposite sides of 4 Mile Road should also be aligned properly to reduce left-turn conflicts such as “lock-up” situations. The recommended offset distance between consecutive driveways on opposite sides of the road is depicted in **Table 4-4**. The shaded values in Table 4-4 apply to 4 Mile Road.

**TABLE 4-4
RECOMMENDED DRIVEWAY OFFSET DISTANCE**

Posted Speed (mph)	Desirable Offset between Driveways on Opposite Sides of an Undivided Road (feet)
25	255
30	325
35	425
40	525
45	630
50+	750

Source: Michigan Department of Transportation (T&S Division Note 7.9C, Table 2)

As shown in Table 4-4, the recommended offset distance between consecutive driveways on opposite sides of 4 Mile Road is 630 feet. Maintaining a proper offset of driveways is more desirable than locating driveways directly opposite each other (i.e. no offset), because driveways opposite each other encourage cross-street movements between drives. But if maintaining proper offset is not practical, then locating drives opposite each other is more desirable than an inadequate offset that creates a left-turn “lock-up” scenario.

Restricted Turns

In cases where existing driveway spacing and offset are poor, restricting certain turn movements can often improve safety by reducing the number of conflict points at the driveway. Proper channelization of the driveway, combined with appropriate signage, is recommended in order to encourage conformance.

Parallel Service Drives

The number of driveways can be minimized (while maintaining reasonable access to properties) through construction of front or rear service drives parallel to 4 Mile Road that connect multiple parcels. Service drives provide particular safety benefits if applied to parcels closer than one-quarter mile to an existing or future signalized intersection.

If a service drive is planned for a currently-undeveloped area, all individual site plans in the area should accommodate the future service drive. Temporary access to 4 Mile Road could be provided to each parcel with an agreement to close the access after construction of the adjacent section of the service drive.

Providing sufficient internal driveway stacking between the service drive and 4 Mile Road would be key to successful operation of the service drive. The amount of internal stacking is dependent on the number of trips that are anticipated to be generated by the various land uses that the service drive connects. Rear service drives are preferred (compared to front service drives) because they typically provide for greater stacking.

Service drives should be constructed to the same design standards as a public road, but the easement for a service drive need not be as wide as the right-of-way for a public road.

4.4 Applying Access Management to 4 Mile Road

The access management techniques described in Section 4.3 were applied to the proposed 3-lane and 5-lane cross-section along 4 Mile Road. The access management improvements for 4 Mile Road are depicted in **Figure 4-6** through **Figure 4-10**. As shown in these figures, the plan includes a myriad of recommendations for undeveloped parcels and “retrofit” improvements to existing substandard access.

The standards described in Section 4.3 can be directly applied to the undeveloped parcels along 4 Mile Road as site plans are submitted for review, while improvements to existing access problems are typically referred to as “retrofit” improvements. Considering the existing spacing of driveways along 4 Mile Road and existing parcel sizes, it is impossible to retrofit 4 Mile Road in such a way as to meet all the guidelines described in Section 4.3. Under these circumstances, the goal is simply to minimize the number of driveways as much as possible and improve driveway spacing and offset as much as possible. Many of the recommended access management improvements cannot be realized until an existing site is redeveloped and requires approval of the revised site.

It should be noted that the proposed access management improvements depicted in Figure 4-6 through Figure 4-10 are for planning purposes only. While the guidelines and parameters described in Section 4.3 do not change, the precise location of driveways, the implementation of service drives, and shared access may be adjusted as future developments and redevelopments come into better focus.

4.5 Overlay Zoning District

A common technique used to formally implement an Access Management Plan is to amend the existing local zoning ordinance with an “overlay zoning district”. An overlay zoning district would be placed “over” existing zoning regulations. The provisions of the overlay zoning district, together with the provisions of the zoning ordinance, would apply to all parcels fronting 4 Mile Road and along intersecting roads within 350 feet of the 4 Mile Road right-of-way.

For example, the zoning ordinance would continue to provide the necessary provisions for building setback, building size and building height, while the overlay zoning district would provide provisions along 4 Mile Road for driveway spacing and access design standards (described earlier).

The access management standards described in Section 4.3 would form the backbone of the overlay zoning district. The overlay zoning district allows the access management standards to be modified on a case-by-case basis during the site plan review process in order to address older sites that cannot satisfy all of the standards. In such cases, the intent would be to minimize the number of access points to the redeveloped site and provide the best driveway spacing possible.

The overlay zoning district includes a flow chart (**Figure 4-11**) that depicts a site plan review process containing the necessary coordination between the city of Walker, Alpine Township, and the Kent County Road Commission. The site plan review process depicted in Figure 4-11 insures that the review of the site plan by Alpine Township or the city of Walker and the Road Commission’s review of the driveway permit are coordinated processes that enforce the access management standards. The overlay zoning district and corresponding site plan review process provides the mechanism by which access management standards are applied to new developments and redeveloped properties along 4 Mile Road.

Beginning of Project

Fruit Ridge Ave.

George Hofacker
Equipment

Legend

Existing Sidewalks

Existing ROW

Less than desired spacing between road and driveway

Less than desired spacing between driveways

Parcel Lines

Existing Traffic Signal

No Offset

Inadequate Offset

Left-Turn Lockup

A
A

Kenowa Hills
High School

Hendershot Ave.

Roth
Trucking

B
B





Legend

Existing Sidewalks	Existing Traffic Signal
Existing ROW	No Offset
Less than desired spacing between road and driveway	Inadequate Offset
Less than desired spacing between driveways	Left-Turn Lockup
Parcel Lines	

0 250 500 Feet

Prepared by:

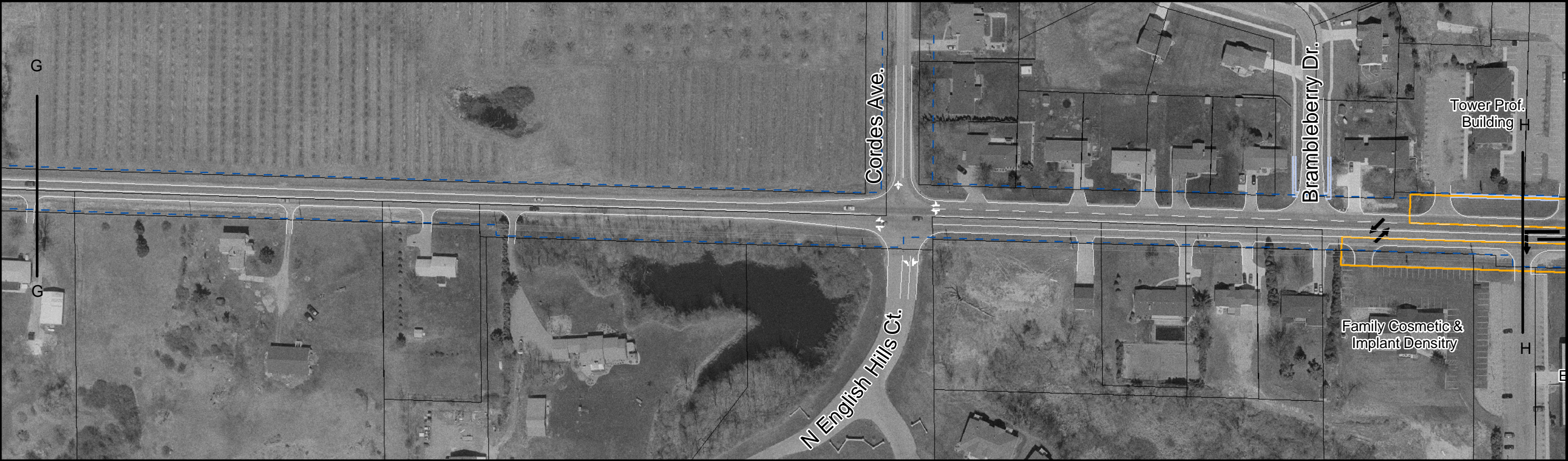
4 MILE ROAD CORRIDOR STUDY

EXISTING ACCESS ISSUES

FIGURE
4-2

Draft November 2006





Legend			
	Existing Sidewalks		Existing Traffic Signal
	Existing ROW		No Offset
	Less than desired spacing between road and driveway		Inadequate Offset
	Less than desired spacing between driveways		Left-Turn Lockup
	Parcel Lines		

0

250

500

Feet

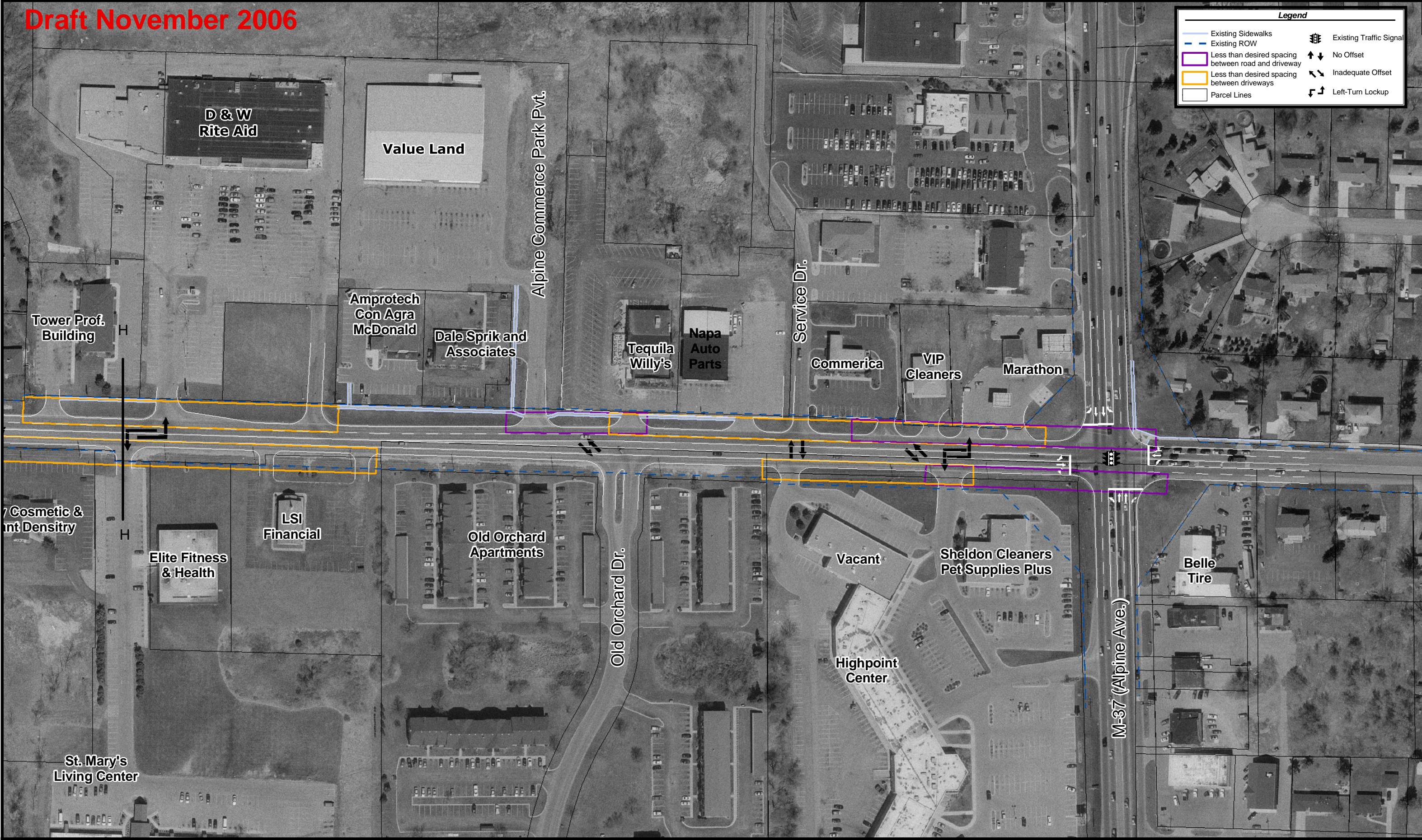
Prepared by:

4 MILE ROAD CORRIDOR STUDY

EXISTING ACCESS ISSUES

FIGURE

4-4





Legend

	Existing Sidewalks		Suggested service roads and driveway locations
	Existing ROW		Proposed Road Improvements
	Existing Traffic Signal		Suggested Driveway Closures
	Parcel Lines		Proposed Traffic Signal Locations

Legend

	Existing Sidewalks		Suggested service roads and driveway locations
	Existing ROW		Proposed Road Improvements
	Existing Traffic Signal		Suggested Driveway Closures
	Parcel Lines		Proposed Traffic Signal Locations

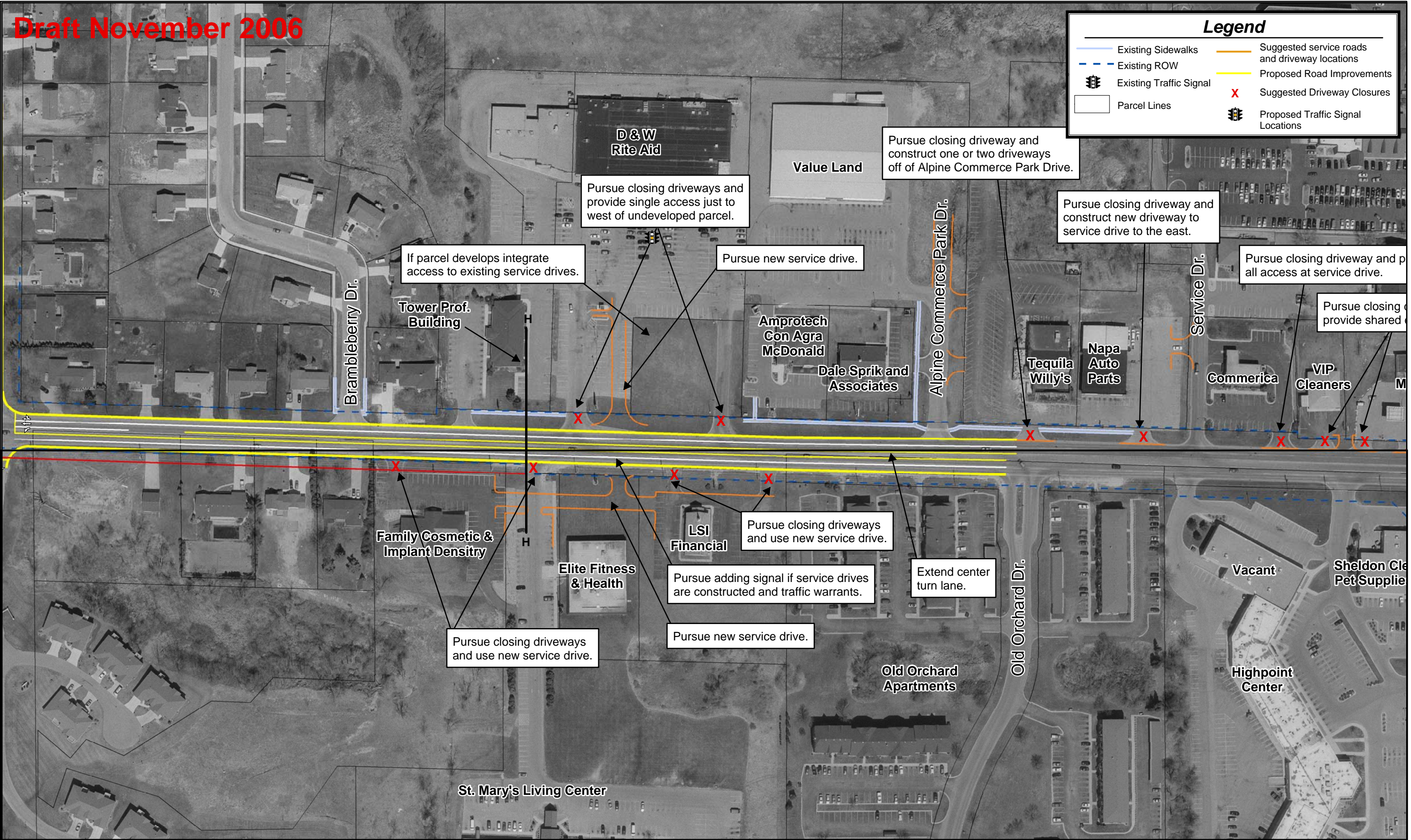






Legend

Existing Sidewalks	Suggested service roads and driveway locations
Existing ROW	Proposed Road Improvements
Existing Traffic Signal	Suggested Driveway Closures
Parcel Lines	Proposed Traffic Signal Locations



**FIGURE 4-11
PROPOSED SITE PLAN REVIEW PROCESS FOR 4 MILE ROAD**

