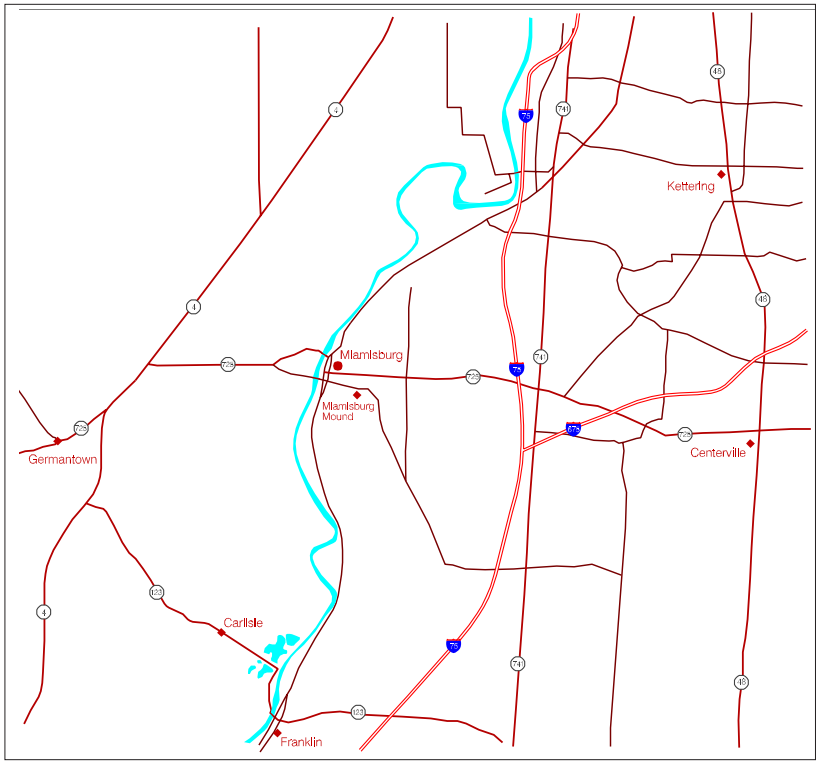
Regional and Local Traffic Overview

Downtown Miamisburg is located at the crossing of two regional thoroughfares – old U.S. 25 in the north-south direction and S.R. 725 in the east-west direction. North-south traffic is served through Miamisburg by a one-way couplet – Main Street southbound and First Street northbound. S.R. 725 utilizes Sycamore Street to the west of downtown and Central Avenue to the east.



Regional transportation network

Even though vehicular travel previously on old U.S. 25 is now on nearby Interstate 75, the old route still carries significant regional arterial traffic – primarily north during the morning peak toward Dayton and south from Dayton in the afternoon. The 24-hour volumes in the downtown area are approximately 8,200 southbound on Main Street and approximately 8,500 northbound on First Street. Two-way volume north of the downtown area is approximately 22,000 per day.

S.R. 725 carries east-west traffic between Miamisburg and points west of the city and Interstate 75 and the Dayton Mall area east of the city. Typical two-way 24-hour volumes on this thoroughfare are approximately 12,300 on Sycamore Street west of Main Street and approximately 14,200 on Central Avenue east of First Street. Between these points, S.R. 725 traffic overlaps old U.S. 25 traffic.

Linden Avenue, which passes through Miamisburg just south of the downtown, also serves east-west traffic through and within the city. Mound Road, at the south end of central Miamisburg, serves as a connector with the Mound Advanced Technology Center.

Downtown Area Traffic Patterns

As noted previously, the predominant flow of traffic on old U.S. 25 is north toward Dayton in the morning peak and south from Dayton in the afternoon. On S.R. 725, it is predominantly east toward Interstate 75 in the morning and west in the afternoon. However, there is also a significant movement of traffic between these two thoroughfares as a considerable volume of eastbound traffic on S.R. 725 turns north on old U.S. 25 toward Dayton in the morning and a large volume of southbound traffic on old U.S. 25 turns west on S.R. 725 in the afternoon.

The flow of traffic between old U.S. 25 and S.R. 725 as well as the offset of S.R. 725 between Central Avenue and Sycamore Street and its overlap on First Street and Main Street (old U.S. 25) creates significant turning patterns at certain key locations:

- Main Street & Sycamore Street – southbound right turn & eastbound right turn
- Main Street & Central Avenue – southbound left turn & westbound left turn

- First Street & Central Avenue – westbound right turn & northbound right turn
- First Street & Sycamore Street – northbound left turn & eastbound left turn

Other intersections with significant turning movements are:

- Main Street & Linden Avenue – southbound left turn & westbound left turn
- First Street & Linden Avenue – northbound right turn & westbound right turn
- First Street & Mound Road – westbound right turn

Current Levels of Service

The quality of the existing traffic flow on the downtown Miamisburg network was determined by a program entitled NETSIM (Network Simulation) which generates a level of service and average vehicle delay for each intersection. The concept of Level of Service (LOS) and the delay ranges for each LOS are explained below. In effect, capacity of a signalized intersection is not a finite value but a range where numerical capacity increases with a delay increase and a decrease in quality of flow to a point where traffic literally breaks down.

Signalized Intersection Level of Service

Level of Service is an indicator of the quality of flow through a signalized intersection. It is measured by average delay per vehicle since delay is quantifiable and is a measure of the frustration and discomfort of motorists.

LOS	Delay per Vehicle in Sec.	Characteristics
A	≤ 10	Only a few vehicles stop. Short cycles.
B	> 10 and ≤ 20	Progression still good. Cycles short.
C	> 20 and ≤ 35	Significant number of vehicles stopping. Some cycle failures. Only fair progression. More arrive on red.
D	> 35 and ≤ 55	More vehicles stopped. More cycle failures. Longer cycles, high v/c* ratios. Unfavorable progression.
E	> 55 and ≤ 80	Frequent cycle failures. Limit of acceptable delay. High v/c ratios. Poor progression. Long cycle lengths.
F	> 80	Unacceptable delay. Oversaturation; arrival flow rates exceed capacity. Poor progression. Long cycles.

* "v/c" is a ratio of volume (*demand*) to available capacity

A Level of service C during peak hours is the goal of highway designers and traffic engineers.

Current LOS values for AM and PM peaks in downtown Miamisburg are generally B's and A's. The reason for the good quality of flow is attributable to the relatively low volumes of traffic on the street system.

Traffic count maps and tables showing the current AM and PM peak hour levels of service as well as average delays for 48 locations (intersections) in the downtown Miamisburg area are located in Appendix 4: Traffic Data. These values, of course, relate to the operation of Main Street and First Street as a one-way couplet. Also shown are the LOS values and average delays for the operation of Main Street and First Street as two two-way streets. There is very little "congestion" difference in their operation, primarily because volumes today are low.

Intersection of Main Street and Linden Avenue

Conflicts and Concerns

Although traffic generally flows well and congestion is almost lacking, there are some conflicts and concerns that precipitated the evaluation of the one-way couplet of Main Street and First Street as two-way streets.

- One concern was the negative impact of one-way streets on the economic vitality of abutting businesses because of indirect travel patterns either to or from a business.
- A second concern is the perception that one-way travel reduces visibility, and therefore opportunities.
- The amount of heavy truck traffic through the business area is also seen as a detriment, and the southbound left turn from Main Street to Central Avenue by large trucks does create significant conflicts with local businesses.

These concerns, as well as traffic issues, were addressed in the analyses described in the next section.