

Village of Shorewood Hills Traffic White Paper

Executive Summary

The Village of Shorewood Hills has an established speed limit of twenty miles per hour on all streets except University Avenue. The Village speed limit is more restrictive than the 25 mph generally recognized standard for speed limits on urban residential streets. The Village utilizes one of the most beneficial effective traffic calming measures available, and one that most municipalities are not able to provide on a consistent basis. Namely enforcement and education based on a restrictive 20 mph speed limit. Empirical data shows that Village efforts have reduced 85th percentile speeds on most Village streets to within 5 miles per hour of the posted speed limit and no more than 8 over on the on the most heavily used through streets. Traffic calming is also achieved due to the curving, narrow hilly nature of Village streets as well as numerous offset intersections. Taking all of the above facts into account and additional information that will be discussed more in this policy statement the Village will not consider speed humps, bumps, tables or chicanes on Village streets.

Street Classification Systems

Using industry standards, streets are classified into categories. Local, collector and arterial based on traffic volumes, speed and origin/destination. All Village streets are most closely identified as local using those standards.

However within the Village on a micro level, a system classification of streets can be differentiated as follows based on traffic volumes and speed.

Residential Local Arterial: University Bay Drive, Lake Mendota Drive, Edgehill Drive .
Volumes of over 1,000 vehicles per day but less than 2,000. 85th percentile speed 23 -27 mph.

Residential Local Collector: Oxford, Shorewood Boulevard and Blackhawk Drive Volumes of 600 – 1000 vehicles per day 85th percentile speeds 23- 26 mph.

Residential Local: All other streets. Volumes of less than 600 per day 85th percentile speeds 25 mph or less with many at less than 24 mph.

Industry standards generally provide for increased speed limits as classifications and volumes rise. Speed limit is usually established using the 85th percentile speed of existing traffic and limits are then set within 10 miles per hour of the 85th percentile. The 85th percentile speed is the speed at which 85% of the vehicles are traveling at or below. Generally speaking streets having less than 3,000 vehicles per day are classified as local. In the Village all streets have a twenty mile per hour speed limit and have a volume of less than 2,000 vehicles per day.

Traffic Speed and Volume

All Village streets have traffic volumes of fewer than 1,000 vehicles per day except for Lake Mendota Drive, Oxford, University Bay Drive, Edgehill Drive and Shorewood Boulevard where volumes are all under 2,000 vehicles per day. Most Village streets have volumes of fewer than 500 vehicles per day and several less than 150.

Generally speaking traffic calming is not considered for streets other than local residential and only then if volumes exceed 700 vehicles per day, and the 85th percentile speed is more than 30 mpg with an established speed limit of 25 mph.

The Village has monitored speeds and volume on nearly all of its streets. Prevailing speeds correlate well with the Village hierarchy of streets discussed above. The 85th percentile speed is the industry standard as a basis of establishing speed limits and other regulatory measures such as the need for traffic calming. There are no Village streets with 85th percentile speeds at or above 30 mph.

The data indicates the Village 20 mile per hour speed limit is working well. As expected the more heavily traveled streets University Bay Drive, Oxford, Edgehill Drive and Lake Mendota Drive have higher speeds, but they are all 85th percentile 28 mph or less. It might be more typical to increase the speed limit on the more heavily traveled streets such as University Bay Drive and Lake Mendota Drive to 25mph but that would be extremely unpopular and unnecessary. Speeds also vary at any point on a roadway depending upon placement of monitoring devices, uphill, downhill; on a curve, all make a difference.

When is Calming Used

Traditional traffic calming measures are considered using speed and volume as two of the major criteria using a point factor continuum. The example below is from the City of Seattle.

Points for traffic volumes are assigned according to the number of vehicles per day on an average weekday.

Traffic Volumes			
(Vehicles per Day—Average Weekday Traffic)			
Points	Residential Streets	Collector Arterial	Minor/Principal Arterial
0.5	500 - 1100	500 - 1500	2000 - 4000
1.0	1101 - 1700	1501 - 3000	4000 - 8000
1.5	1701 - 2300	3001 - 4000	8000 – 12,000
2.0	2300+	4000+	12,000+

6.5.8c Traffic Speeds

Points for traffic speeds are allocated based on the 85th percentile speed in miles per hour. Speed limits for residential streets are 25 miles per hour, unless otherwise marked. Speed limits for arterial streets are 30 miles per hour unless otherwise marked.

Points	Traffic Speeds (85th Percentile Speed—miles per hour)	
	Residential Streets	Collector/Minor/ Principal Arterial
0.5	26 - 29	31 - 33
1.0	29.1 - 32	33.1 - 36
1.5	32.1 - 35	36.1 - 39
2.0	35.1+	39.1+

If the above criteria were utilized there are no streets in the Village that would receive more than 1 point total using the residential classification and most would receive 0 points.

Speed humps and bumps

Typical speed humps and traffic tables make travel uncomfortable at speeds over 25 mpg and then act to slow people down to 25 mph as they prepare to go over the hump. To construct a hump that will cause an uncomfortable enough ride to reduce speeds below 25 mpg is too severe to consider given that emergency vehicles must be able to travel the streets at higher rates of speed if an emergency arises. A hump designed to reduce speeds to 20 mph would put vehicle occupants heads into the roof at speeds of 25.

The calming effect of Village Streets

Many streets in the Village are hilly, curving or narrow and many times have all these attributes. These features have the effect of traffic calming and are in and themselves used as standard traffic calming techniques.

A standard residential street is 32 feet wide. Village streets range from 20 – 28 feet wide. Streets are rebuilt in consultation with residents and widths are determined at that time. In general streets have been rebuilt at widths of between 22- 28 feet depending upon parking configuration desired.

Parking standards

Parking two sides – 28 feet or wider

Parking one side – 24 -28 feet

No parking 24 feet or under

The above street widths and parking standards are below generally accepted street engineering standards for widths and parking accommodation. Narrow traffic lanes coupled with allowances for on street parking also provide for traffic calming.

Other village traffic calming activities

The Village also regularly utilizes a portable trailered speed board and will continue to do so. On University Bay Drive and Lake Mendota Drive multiple speed radar boards are in place that flash when speeds exceed 22 mph. The above devices are also able to capture speed and volume data for analysis.

In addition the Village also owns speed and volume counting equipment (tubes) that are regularly deployed.

When the Village becomes aware of a traffic concern on a specific street it can respond with increased police presence, deploy the speed board and also engage in data collection in order to ascertain if there is a problem. Generally we engage in data collection before any deterrent action is taken in order to see if there is actually a problem and to get good initial data that will not be skewed. Often we find that perceived speeds are more than what we actually find to be the case. There are also outliers that are almost impossible to prevent.

Conclusion

Physical traffic calming measures such as speed humps and tables will not be considered on Village streets due to low prevailing traffic volumes and speeds that severely limit or eliminate the calming effect they will have. Enforcement and education will be utilized as well as existing street attributes such as width, curvature, intersection triangles and offset intersections.

When Village streets are reconstructed an evaluation of the need to consider traffic calming will be made as part of the project and street width and parking accommodations will be examined as part of the process. Efforts will also be made to create more right angle intersections with a decrease in the sweeping wide radii at many intersections that discourage full stops and the ability to use intersections as on off ramps encouraging higher rates of speed. The Village will also conduct traffic volume and speed counts on streets before reconstruction.

Data from a 1985 Village traffic study done by Mead and Hunt compared to recent data collected using Village owned speed and volume counters shows the Village has very successfully reduced median speeds since implementing a 20 mpg speed limit through enforcement and education. The data also shows that traffic volume on Village through streets has generally decreased over the last twenty years.

The Village is in much better position than most municipalities to use the best traffic calming techniques available, namely enforcement. Due to overall low crime rates and the ability to regularly patrol streets, the Village can enforce and educate motorists to comply with the twenty mile per hour speed limit. The close knit nature of the Village also helps get the word out that traffic laws are enforced and the Village also has a “speed trap” reputation for those who cut or commute through the Village.