

# I.A.



**DATE:** June 15, 2009

**TO:** Planning & Public Works Committee

**FROM:** *BGM*  
Brian McGownd, PWD\CE

**SUBJECT:** South Woodsmill Road – Speed Limit Study

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At their meeting held on March 19, 2009, the Planning & Public Works Committee directed Staff to review the speed limit on South Woodsmill Road. The posted speed limit varies along the road, and is inconsistent.

Staff performed a detailed speed study on the road, a copy of which is attached. The study indicates that even though the 85<sup>th</sup> percentile speed is over 40 MPH, the actual curvature/alignment of the street dictates that the speed limit should be 35 MPH.

Therefore, the Street Maintenance Division will be erecting 35 MPH speed limit signs along South Woodsmill Road, and will be removing all of the inconsistent speed limit signs. Our current Traffic Code indicates that the speed limit on this road is 35 MPH, thus no revision to the code will be necessary. Also, per the study, horizontal alignment signs will be added to certain sections of the road to alert motorist to the change in alignment of the roadway.

If you need additional information or have any questions please advise.

attachments

cc: Mike Herring, City Administrator  
Mike Geisel, Director of Planning & Public Works

# MEMORANDUM

**Date:** June 10, 2009

**To:** Brian McGownd, PWD/CE

**From:** Benjamin Niesen, Civil Engineer *BN*

**Re:** Speed Limit Study – South Woodsmill Road

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Attached, please find a speed limit and signage study prepared by in-house staff for South Woods Mill Road. Page 7 is the beginning of Findings and Recommendations.

If you have any questions, or need additional information regarding this matter, please advise.

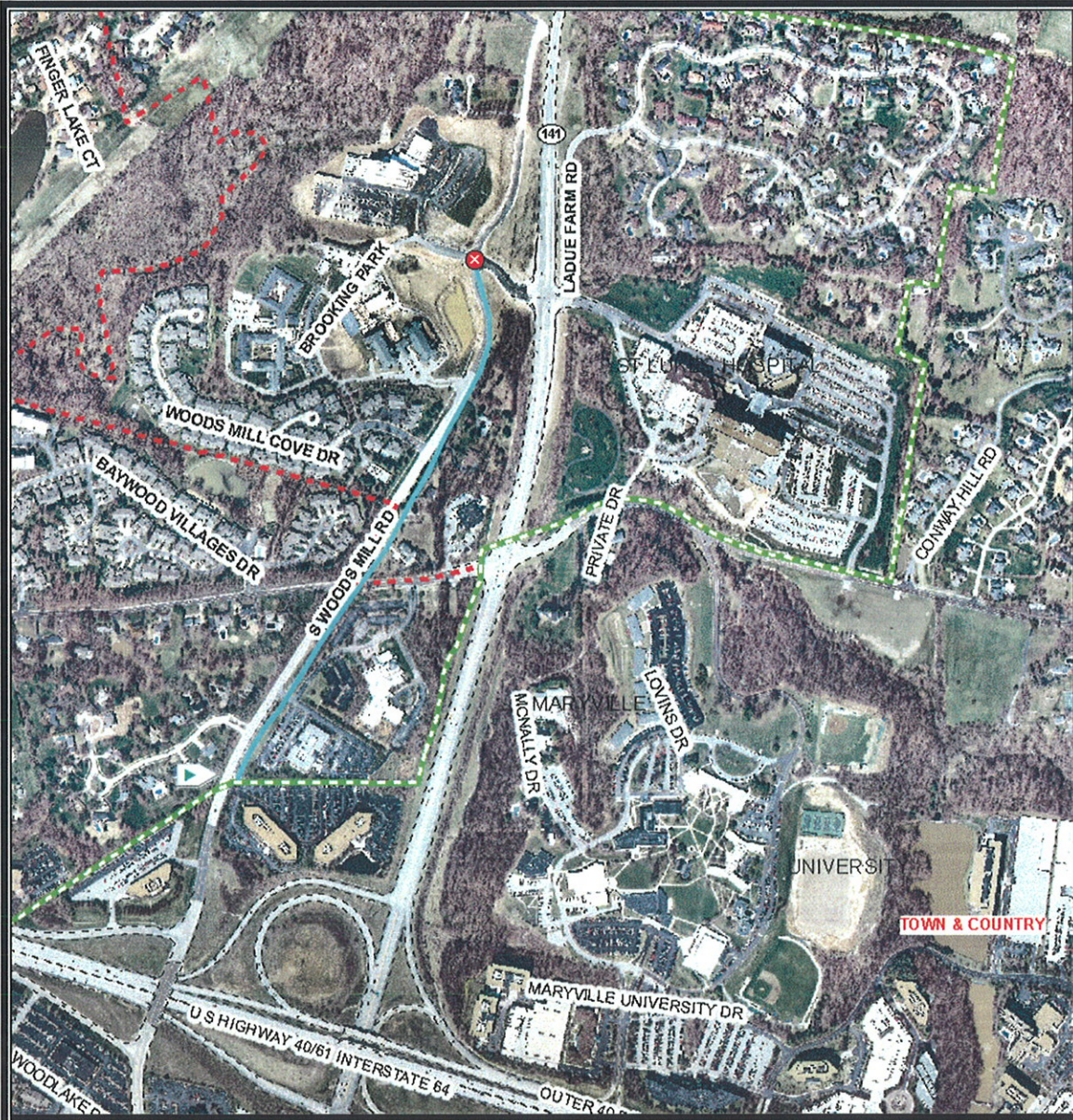
cc: Mike Geisel, Director of Planning & Public Works  
Susan Mueller, Principal Engineer



# SPEED LIMIT STUDY

FOR

South Woodsmill Road  
Chesterfield, Missouri



Prepared by: **City of Chesterfield Planning & Public Works Department**

Revised: May 14, 2009

May 4, 2009

April 20, 2009

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- NB @ Brooking Park
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- Stopping Site Distance Calculations
- AASHTO Geometric Design of Highways and Streets Pages 657-660 – Case B1 – Intersections with Stop Control on The Minor Road
- AASHTO Green Book 1994 Edition Table 941.19 Site Distance Requirements
- St. Louis County Department of Highways and Traffic Drawing 40.25-1 Site Distance at Intersections

## Appendix I – Radius Design and Speed Limit

- Minimum Radius Calculations
- AASHTO Geometric Design of Highways and Streets Pages 146-147 – Minimum Radius
- Improvement Plan Sheet 12 & 13 Stock & Associates
- Improvement Plan Sheet 11 Stock & Associates



## Existing Conditions

The City of Chesterfield Planning and Public Works Department performed a Speed Limit Study for South Woodsmill Road beginning on the south at Town and Country City Limits and ending on the north at Brooking Park Drive intersection at St. Luke's Center. South Woodsmill Road is designated as a collector for its entirety through the City of Chesterfield City Limits as depicted in *Appendix A*. It carries commercial traffic for private commercial business south of Conway Road and into Town and Country as well as residential traffic along the City of Chesterfield portion of the road. St. Luke's Center traffic is primarily supported by Brooking Park with some indirect traffic or local traffic contained on South Woodsmill Road.

Traffic control exists at all intersections involving City of Chesterfield Rights of Way. The intersection of Conway Road and South Woodsmill Road is controlled by a traffic signal. All other intersections of Brooking Park, Woods Mill Cove Drive, and Conway Springs Drive are controlled by regulatory signs, being STOP signs. A 4-way STOP sign is located at Brooking Park and a minor road STOP is located at both Woods Mill Cove Drive and Conway Springs Drive. There is one private commercial entrance on the east side of the road between the intersections of Conway Springs Drive and Conway Road. There are five private residential entrances, all being on the east side of the road between the intersections of Conway Road and Brooking Park.

Traffic regulatory signage exists throughout the South Woodsmill Road corridor. Locations are depicted in *Appendix B*. The signage includes various speed limits both north and south bound; 40 MPH, 30 MPH, and 25 MPH. The Code of the City of Chesterfield Section 300, Schedule III. Special Speed Limits on Highways, Roads, or Streets, indicates that the speed limit is 35 MPH along the corridor. *Appendix C* includes the original Schedule III and the Current Schedule III following a number of amendments. On this document the street is called out as Old Woods Mill Road.

## Analysis

### Traffic Counts

To begin the speed limit study a collection of traffic data was needed to calculate existing conditions along South Woodsmill Road. Traffic counters were placed along the corridor at locations depicted in *Appendix D*. The traffic counters were placed at four locations, two for each the northbound and the southbound traffic. The data collection started on a Thursday morning and ran through the peak hours at an interval of fifteen minutes. This information provided average daily traffic (ADT) numbers as well as peak hour volumes and speed traveled along the corridor. This information provides a baseline for how the roadway currently operates and is depicted in *Appendix E*. The traffic collection summary shows the ADT, average speed, and the 85<sup>th</sup> percentile speed.

Traffic Collection Summary

	<i>Street</i>	<i>Nearest Intersection</i>	<i>Drive Lane</i>	<i>ADT</i>	<i>Average Speed (MPH)</i>	<i>85th Percentile Speed (MPH)</i>
1	South Woodsmill Road	500' North of Conway Road	NB	1096	41.01	47.63
2	South Woodsmill Road	500' North of Conway Road	SB	1207	37.32	43.57
3	South Woodsmill Road	Brooking Park	NB	881	38.65	45.46
4	South Woodsmill Road	Brooking Park	SB	939	35.63	41.46
5	South Woodsmill Road	Conway Springs	NB	1822	41.35	48.04
6	South Woodsmill Road	Conway Springs	SB	2782	39.52	47.16

Following all of the traffic and data collection, two types of graphs were created for visual representation of the traffic data, time verse traffic volume and time verse average speed, *Appendix F*.

### Accident History

Accident historic data was collected from the City of Chesterfield Police Department, *Appendix G*. From January, 2000 through April 10, 2009, accident severity and collision summary information was collected for all intersections and the South Woodsmill Road corridor.

### Site Distance

A site survey was made to collect site distance information for a number of critical movements on to South Woodsmill Road. *Appendix H* shows photographs and aerials of all the critical movements and the measured site distance. Also in the appendix are stopping site distance calculations, site distance requirements of the AASHTO Green Book, and drawing 40.25-1 *Site Distance at Intersections* from St. Louis County Department of Highways and Traffic. All were used to compare the existing conditions of South Woodsmill Drive with county and state standards.

### Design Speed for Radius

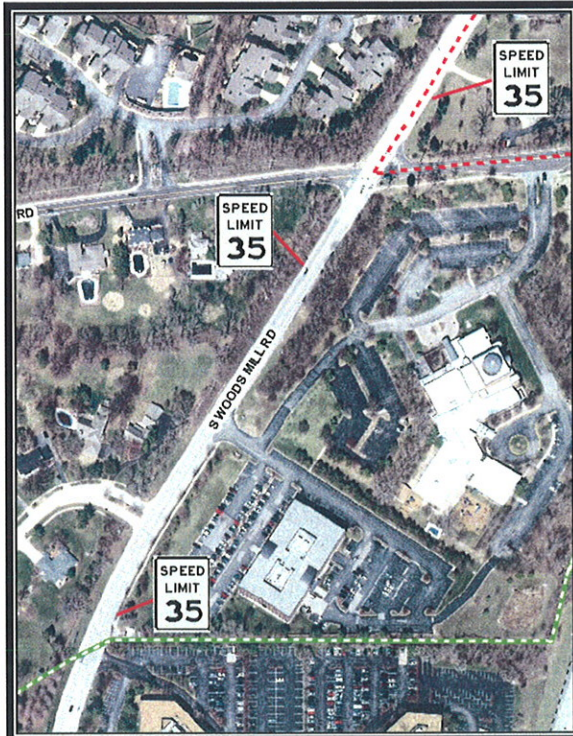
Calculations were made for the radius south of Brooking Park Drive and South Woodsmill Road to see what the safe driving speed is. *Appendix I* includes calculations, geometric design information from AASHTO Green Book, and improvement plans for South Woodsmill Road showing design geometrics.



## Findings & Recommendations

### 35 MPH Speed Limit

Due to design geometrics and sight distance restrictions it is recommended that the speed limit remain 35 MPH per Ordinance 035. While the 85<sup>th</sup> percentile speed may represent a speed limit in excess of 40 MPH, the street conditions and alignment restrict the speed limit to 35 MPH. This will maintain a safe travel speed for all drivers on and around South Woodsmill Rd. Signs stating otherwise need to be removed. Placement of new signs shall be per MUTCD.



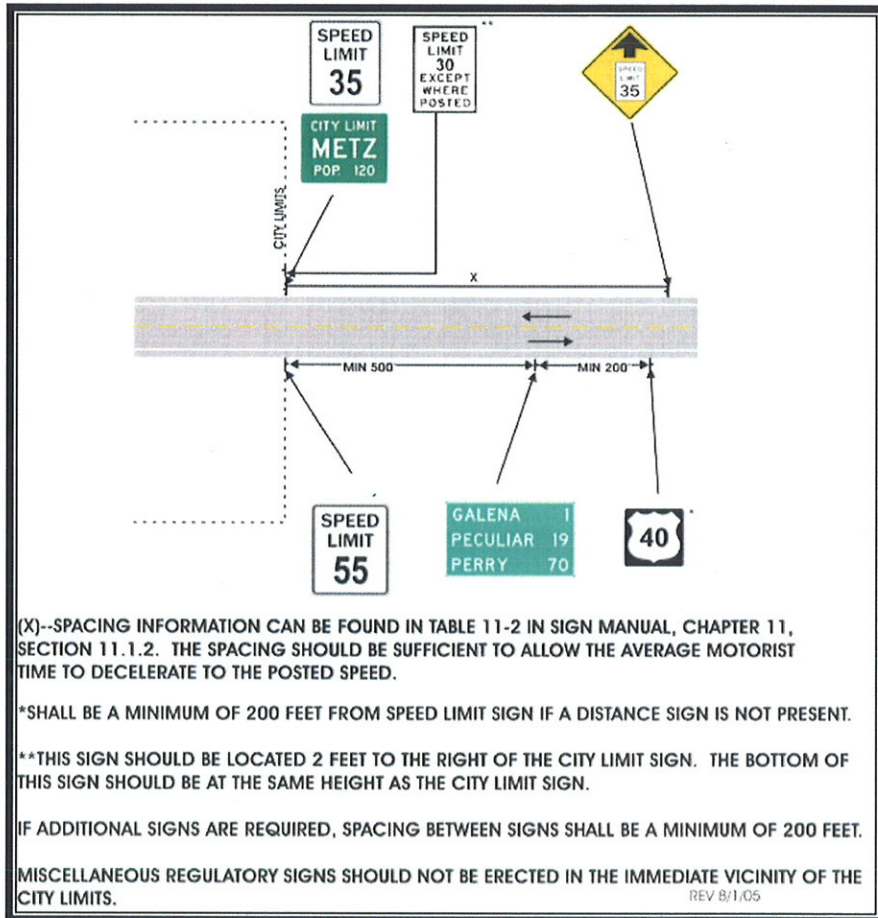
*SOUTH*



*NORTH*

Dual Signage at City Limits

Installation of dual signage at the south City of Chesterfield limit is also recommended. This will instruct drivers of the city wide speed limit upon entering the City of Chesterfield. The speed limit designation should be 35 MPH with a "SPEED LIMIT 25 EXCEPT WHERE POSTED" immediately to the right. This will direct traffic to travel at 35 MPH along South Woodsmill Road and 25 MPH along any corridor not regulated with signage.

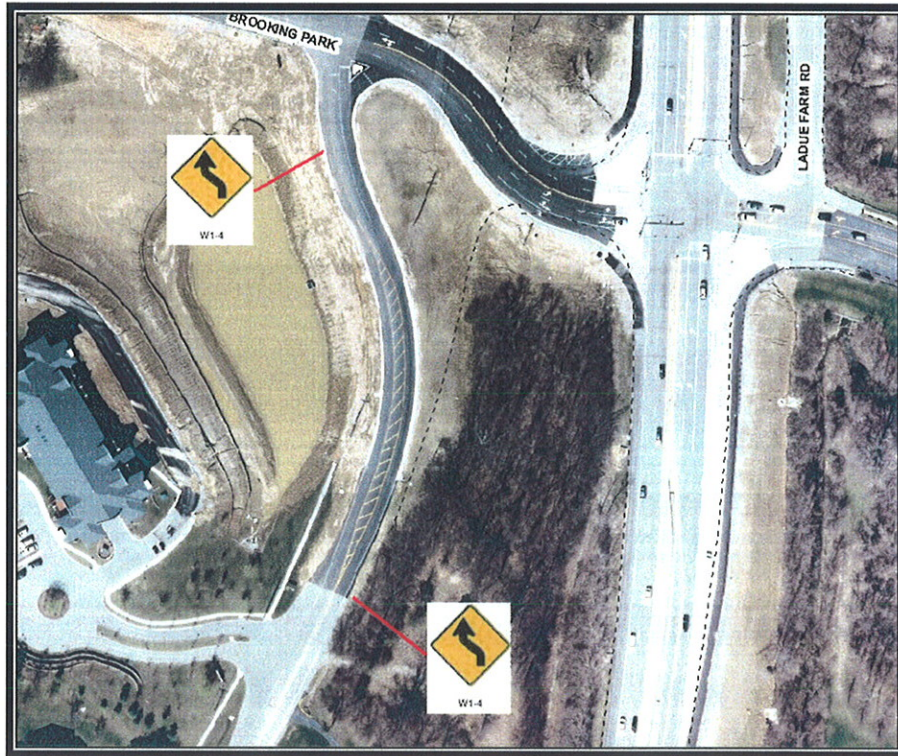
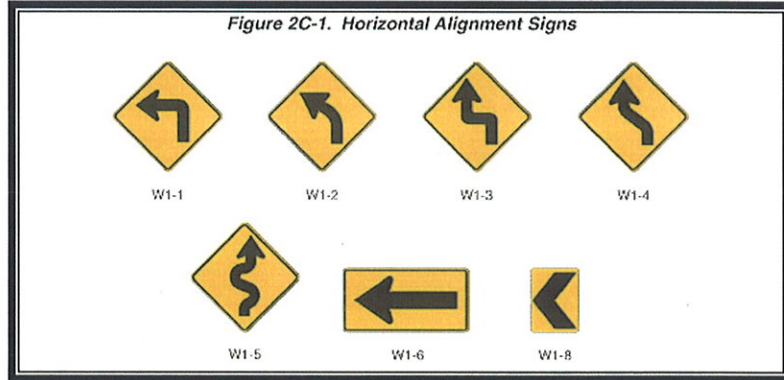


**MUTCD Section 2J - Figure 903.13.1**



Horizontal Alignment Sign

It is recommended that a Horizontal Alignment Sign W1-4 be installed for northbound and southbound traffic approaching the horizontal curves south of the intersection of Woods Mill Cove Drive and Brooking Park. The radius of curvature is such that a warning sign prior to entering the alignment is recommended to inform drivers that a possible decrease in speed is suggested to maneuver the curves. Location of sign to be per MUTCD specifications.



MUTCD Section 2C.06 Horizontal Alignment Signs (W1-1 through W1-5, W1-11,15)

**Table 2C-5. Horizontal Alignment Sign Usage**

Number of Alignment Changes	Advisory Speed	
	≤ 50 km/h (≤ 30 MPH)	> 50 km/h (> 30 MPH)
1	Turn (W1-1) <sup>1</sup>	Curve (W1-2) <sup>1</sup>
2 <sup>2</sup>	Reverse Turn <sup>3</sup> (W1-3)	Reverse Curve <sup>3</sup> (W1-4)
3 or more <sup>2</sup>	Winding Road <sup>3</sup> (W1-5)	



Tree Trimming with in Right of Way

It is recommended that trees with in the right of way be trimmed to improve sight distance for private driveways with entrances north of Conway Road and on the east side of the South Woodsmill Road.





## **STAFF REPORT**

**Mara Perry, Senior Planner**, presented the recorded site development plan for the YMCA and the location of the property line which is the subject of the ordinance amendment. Ms. Perry stated the following:

Sachs Properties, on behalf of the YMCA, is requesting an amendment to the City of Chesterfield Ordinance 1496 to modify the building and parking setbacks of a 9.00 acre parcel located on the south side of Burkhardt Place and west of the Chesterfield Parkway and Burkhardt Place intersection.

The Petitioner is requesting an amendment to the parking and building setbacks associated with the southeastern property line which abuts a parcel of right-of-way which is being dedicated to the City of Chesterfield. The setback line would be reduced to zero along the property line as a part of an existing agreement to the City to help facilitate the construction of the park road. The zero setback line would allow the possibility of future parking in that location.

The Committee had no issues or concerns with this Ordinance Amendment.

**Chair Hurt** made a motion to forward **P.Z. 01-2009 West County YMCA (Young Men's Christian Association of Greater St. Louis)** to City Council with a recommendation to approve. The motion was seconded by **Councilmember Geiger** and **passed** by a voice vote of 3 to 0.

**Note: One bill, as recommended by the Planning Commission, will be needed for the April 22, 2009 City Council Meeting.  
See Bill #**

[Please see the attached report prepared by Mike Geisel, Director of Planning & Public Works, for additional information on **P.Z. 01-2009 West County YMCA (Young Men's Christian Association of Greater St. Louis)**].



### **B. South Woods Mill Road – Speed Limit – Councilmember Schenberg**

**Councilmember Schenberg** stated that along Old Woods Mill Road there is an existing 40 MPH speed limit between Conway Road and St. Luke's Hospital and the residents that live along that stretch of the road feel that the speed limit should be reduced. He recommends that Staff look into the matter with the possibility of reducing the speed.

**Councilmember Schenberg** made a motion to direct Staff to look into the matter and make a recommendation on whether the speed limit should be changed and if so, to what speed. The motion was seconded by **Chair Hurt** and **passed** by a voice vote of 3 to 0.