

TRAFFIC STUDY

Final Report

September, 2008



**Presented to the James City County Board of
Supervisors, Planning Commission and Citizens
Participation Team for Consideration in the JCC 2008
Comprehensive Plan Update.**

**Working together to protect and preserve our
environmental resources and quality of life.**

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JAMES CITY COUNTY CITIZENS' COALITION (J4C)

TRAFFIC STUDY

INTRODUCTION. In 2006, the James City County Citizens Coalition established six (6) major goals for research, including Traffic. This research project was included as a separate study though it will be tied to the Cumulative Impact goal. The traffic study was carried over into 2007 and 2008, since work went more slowly than expected in factoring in the County's efforts and VDOT considerations.

The charge to the committee was as follows:

1. Continue working with County staff on traffic estimates and making these understandable to citizens.
2. Work with VDOT on traffic counts and estimates along Centerville Road, Ironbound Road, Monticello Ave., News Road and Richmond Road and other heavily traveled roads.
3. Work with VDOT on possible solutions to traffic bottle necks, e.g., Monticello Avenue and Ironbound Road cut-off, ramps at 199.
4. Develop and present long-term impact of traffic estimates for at least 10 years, existing traffic (latest counts), estimate for proposed developments, estimate for development potential.
5. Work with cumulative impact committee to ensure cumulative impacts of traffic are considered for new proposed developments.
6. Present long-term impact to the Planning Commission and Board of Supervisors.

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FINDINGS OF THE STUDY COMMITTEE

Problems:

A number of problems led to the establishment of this study.

1. New development is creating traffic nightmares at specific locations in the County. An example is Monticello Avenue through the New Town location.
2. New developments do not pay their way for traffic increases, burdening James City County taxpayers with major unfunded costs for road infrastructure improvement.
3. The traffic impact of each new development is done in isolation. The overall cumulative impact of other developments along the same corridor receives only minimum consideration when applications for rezoning reach the Planning Commission and Board of Supervisors.
4. Traffic studies are done in isolated geographical corridors or areas and do not adequately consider impacts on the community at large. For example, a study of News Road traffic does not consider origin and destination. A commuter to a News Road business might be going/coming from Newport News, impacting traffic on Monticello Avenue, Route 199 and I-64.
5. Traffic counts and estimates have questionable validity and are poorly understood by the citizenry and non-technical County decision makers. Little effort is being made to improve traffic data and facilitate the understanding of the traffic studies assumptions, ground rules and results in a manner understandable to citizens and non-technical county decision makers.
6. Traffic analyses do not always appear to be totally independent since they are frequently done by a small number of firms that may be beholden to developers and the County for future business.
7. Citizens' input is not encouraged early in the decision process on major roads, i.e., Ironbound Road closure to facilitate flow onto 199. Equally important, citizens are not involved in discussions of problems that arise or may arise later, e.g., News Road to Monticello Avenue.
8. Once decisions are made, there seems to be little or no opportunity to correct any problems given the traffic funding crises facing the Commonwealth.
9. Estimates of traffic growth by VDOT and the County (3% per year) are not realistic and historically underestimate real growth. (Refer to Figure 1).

CONSIDERATIONS:

Several factors were considered in determining the need for and direction of the traffic study:

1. The County staff does not have a traffic engineer that can independently verify the assumptions and ground rules used by developers in their analyses or assess the validity of the study results. Current staff resources do not permit a follow-up or verification of counts and projections at a later date.
2. There is a discrepancy between County and VDOT counts that cannot be explained except for the location of counters and the days of the week in which the count is taken. This makes it difficult for anyone to arrive at a clear picture of traffic volumes based on either of these counts. Decisions made based on one or the other, with estimates now applied, will certainly not be valid if later reviewed.
3. Not all new development proposals require a traffic study.
4. All traffic studies should include current counts, and realistic estimates for potential traffic far into the future (at least 10 years). Long-term impacts of traffic increases, including origin and destination impacts, should be required in all traffic studies.
5. Vehicle per day counts are understandable and could be used in lieu of the level of service (LOS) designations in explaining traffic impact to citizens. Level of service could continue to be used by County and VDOT in making decisions on changes in lanes, etc.

TRAFFIC ANALYSIS:

(2007) Traffic Counts

For purposes of this study, the 2003, 2005 and 2007 County and Commonwealth counts are used as the basis of traffic volume per day. Comparison of same year counts show discrepancies between the two including:

1. The County's traffic counts were taken on Tuesday, Wednesday and Thursday with the exception of Monticello when a five day count was taken. The three days counted by the County are arguably the three least traveled days of the week and therefore understate the weekly traffic volume that citizens encounter. The County must consider a seven day count or as an alternative develops a factor to translate the Tuesday, Wednesday, Thursday count into a realistic weekly count.

2. In comparing traffic counts in this study, we chose to use 2003, 2005 and 2007 because we had county data for those three years and wanted to be able to compare County data with VDOT data.
3. VDOT has indicated that they will be counting in 2010 and 2013 on their three year cycle. At this time we believe that the County will continue counting on a two year cycle.
4. As new developments are proposed developers hire traffic engineers to assess the impact of the traffic from the new development but rarely are the cumulative impacts from all approved development effectively considered.
5. New regulations currently being implemented by VDOT (24 VAC 30-155) commonly referred to as “Chapter 527” may be the most powerful tool that has been given to VDOT and the local governments to date, provided that there is the political will to use these regulations. These regulations are based upon legislation passed in 2006 by the Virginia General Assembly and require local governments to submit a traffic impact study to VDOT for review and comment on any development proposal that significantly impacts the state transportation system. It also establishes uniform standards for traffic impact analysis so that consistent information will be provided.

Both County and developers use the Institute of Traffic Engineers (ITE) guide to trips per day in estimating traffic generated by various types of development/buildings, e.g., single family, condominiums, etc.

Traffic Estimates

The Commonwealth and County use 3% growth per year in estimating the traffic increase of specific corridors. This study found that the 3% estimate was not realistic based on actual counts (Refer to Figure 1). As part of the 2003 Comprehensive Plan an estimate of traffic growth through the year 2026 was developed; in the current Comprehensive Plan update, estimates to 2030 will be made. Our study indicates that a 3% growth rate is too low for some heavily traveled roads and that 3.8% to 4% would be more appropriate in these circumstances.

Vehicle Registrations

In an effort to verify annual increases, the Committee examined County vehicle registrations (Refer to Figure 2). These records reflect an average yearly increase of 3.94% from 2000 to 2007 tax years.

Additional Traffic Impact

Using the County's GIS, real estate data, the 2007 traffic counts and the Institute of Traffic Engineers (ITE) estimated traffic per day by type of development, an effort was made to show the additional traffic impact at build out for already approved developments on the 5 roads included in this traffic study. Due to uncertainties as to final build out in some locations (i.e., Colonial Heritage), the Committee does not guarantee the complete accuracy of these numbers. The impact would be lessened if certain approved developments were not fully built out however the numbers are based upon housing units currently approved for development. Our data is provided in an effort to show how County data and the ITE estimates could be used as a tool to estimate the cumulative impact of new development on any specific road.

The following data (Refer to Figure 3) provides a summary of the data and results developed by the Committee comparing current traffic volumes to what traffic volumes may be when already approved but not completed residential development is built out. The data provided in Figure 3 reflects primarily residential development. Centerville Road and Richmond Road in particular, will have substantial additional impact from school traffic. Students driving to Warhill High School (this is the first year for seniors at Warhill) and Thomas Nelson Community College (which opens soon) will have a tremendous impact on the Lightfoot area of Richmond Road and the northern most section of Centerville Road. In fact representatives of Warhill High have expressed very serious concerns to the committee about the possibility of major traffic problems on Richmond Road and particularly Centerville Road and Opportunity Way. Numbers have been provided to the committee by both of these facilities but have not been mixed in with the residential development numbers for these roads.

Major shopping areas, government offices and businesses are reached via the five roads selected for study. As further commercial and office uses are added to the existing centers, traffic can be expected to grow at a rapid rate.

Cumulative Impact of Traffic

Before making decisions on new developments, it is important to know the cumulative impact of these and previous decisions. Traffic is a major factor/impact to be considered, particularly for already stressed corridors and the designated community corridors. Currently, a traffic study submitted by a developer covers only the situation at the current time, with the addition of the proposed development. It does not include the cumulative impact of what is there now (current counts), plus what will be generated by already approved but not built units, and what the potential development might be for that corridor. These data need to be provided by the developer and independently verified by the County staff or an unbiased contractor for the County to assist in recommending approval or denial of the project. Once approved these decisions cannot be corrected or undone.

Safety Issues

1. Though this concern was not part of the original charge to the Committee, it was decided to incorporate safety issues in the examination of specific corridors. Bicycles, motor scooters and motorcycles on several of the heavily traveled corridors represent a safety concern. These concerns are multiplied where bike lanes and trails either do not exist or start and stop near intersections.
2. The County's infrastructure may not be sufficient to safely handle the current volumes of traffic and the increased use of non-automotive vehicles for transportation in efforts to save on fuel costs.
3. In order to have some understanding of the safety factor in this traffic study, the Committee obtained accident data from the James City County Crime Analyst, the State Police, the Division of Motor Vehicles (DMV) and VDOT. The data from DMV is only at the City, County and State level and is not at specific road levels. It is safe to assume that an increase in traffic leads to an increase in traffic accidents. For example, this is borne out in the data for Monticello Avenue, where traffic has experienced an annual increase of approximately 6 % while accidents increased 7% from 2006 to 2007. However, data we received did not always show this trend for the roads studied.

RECOMMENDATIONS:

While these recommendations were developed by the Traffic Committee from the data in this report, many of the recommendations were also included in the Cumulative Impact Update.

1. Establish an ongoing review of traffic on the major community corridors. This would permit VDOT to make changes early enough to prevent serious accidents and congestion.
2. Require a realistic traffic study for ALL new development proposals on Community Character Corridors. These would include current counts and realistic estimates for at least 10 years.
3. With ever-increasing traffic congestion, the County needs to hire a traffic engineer. This position would be responsible to review the adequacy of submitted traffic studies that are expected to increase as VDOT Chapter 527 Traffic Impact Regulations go into effect. The traffic engineer would also be responsible for recommending improvements in traffic flow on existing roadways, standardizing the County's procedure for periodic collection of traffic data and disseminating this traffic data to the public in an easily understood manner.

4. Conduct a review that compares historical traffic estimates and projections with actual traffic experienced. Adjust traffic increase projections to more accurately reflect experience.
5. Require that traffic analyses account for trip origin and destination so that traffic impacts on other roads beyond the immediate road under study may be factored into regional traffic counts and road infrastructure costs.
6. Develop a traffic count system (understandable by lay individuals) for displaying counts used in presentations to the public.
7. In traffic reports, the complete information on the location of the counting site and the dates of the count should be included and coordinated with other agencies.
8. Apply cumulative traffic impact when deciding on a new project, particularly on community corridors. Unacceptable traffic impacts, including a specified safety threshold, would need a mitigation plan before any development could go forward.
9. Differences in traffic counting methodology and site selection make calculating traffic trends and comparisons difficult. The County and VDOT should coordinate dates, times and locations for counting traffic and assure that there is an adequate basis for year to year analysis and comparisons. For example, a count for an entire week in one year is difficult to compare to a count for a three day period in a subsequent year. Determine the consequence of taking counts on certain days, as well as at a consistent time of the year,
10. The County should strengthen and enforce the filing of reports under the new Chapter 527.
11. Though general transportation issues were not addressed in this study, it is recommended that a survey be conducted to determine the need for light rail or bus transportation for the County.

Comparison of a 3% Annual Traffic Increase to Actual Increases at 6 selected sites from 1992 to 2007												
	Centerville Road Rt.60 to Ruth Rd.		Centerville Road Longhill Rd to News Rd.		John Tyler Hwy. St Georges 100 to Ironbound Rd.		Ironbound Rd. Hickory Signpost to John Tyler Hwy.		News Road Springhill to Powhatan Sec.		Longhill Road Olde Towne Rd. To R. 199	
Year	3% Projected yearly increase	Actual Count	3% Projected yearly increase	Actual Count	3% Projected yearly increase	Actual Count	3% Projected yearly increase	Actual Count	3% Projected yearly increase	Actual Count	3% Projected yearly increase	Actual Count
1992	x	5,831	x	2,981	x	6,458	x	4,986	x	984	x	12,748
1994	6,186	6,005	3,163	3,122	6,851	9,009	5,290	5,565	1,044	1,108	13,524	14,398
1998	6,963	9,840	3,559	4,068	7,711	13,888	5,954	8,432	1,175	1,528	15,222	11,773
1999	7,171	12,144	3,666	9,552	7,943	14,534	6,132	7,730	1,210	3,863	15,678	9,786
2000	7,387	7,069	3,776	4,644	8,181	14,697	6,316	7,227	1,247	4,804	16,149	15,479
2001	7,608	9,154	3,890	5,429	8,426	14,425	6,506	7,553	1,284	5,918	16,633	16,188
2002	7,836	8,933	4,006	4,759	8,679	10,689	6,701	7,746	1,322	4,871	17,132	18,098
2003	8,071	9,279	4,126	5,073	8,939	10,821	6,902	8,336	1,362	4,207	17,646	24,259
2005	8,563	10,364	4,378	6,400	9,484	10,336	7,322	8,219	1,445	6,096	18,721	20,916
2007	9,085	10,174	4,644	6,441	10,061	11,303	7,768	8,299	1,533	6,547	19,861	20,055
	Actual yearly increase from 1992:	3.8%	Actual yearly increase from 1992:	5.3%	Actual yearly increase from 1992:	3.8%	Actual yearly increase from 1992:	3.5%	Actual yearly increase from 1992:	13.5%	Actual yearly increase from 1992:	3.1%

Sites were selected at random but chosen to show comparisons where the measurement site was in approximately the same location for the entire period.

FIGURE 1

James City County Vehicle Registration for 2000 through 2007 Tax Years

Registered Vehicles			Registered Vehicles		
	Registered Vehicles	% Increase		Registered Vehicles	% Increase
2000	45,876		2004	54,841	5.19 %
2001	47,576	3.70 %	2005	57,710	5.23 %
2002	50,364	6.42 %	2006	57,268	- 0.07 %
2003	52,136	2.96 %	2007	59,635	4.13 %

Vehicle registration data was obtained from the Commissioner of the Revenue for James City County and was not available prior to 2000. The average yearly increase for the available years is 3.94 %.

This data provides some indication that the 3 % annual increase in traffic volume used by James City County for traffic projections may be understated and that the more accurate figure could be as much as a 4 % annual increase. This would make a very significant difference in projections over longer periods of time. These traffic count numbers which are higher than projections are possibly the result of the higher rate of growth in James City County. These higher traffic counts have occurred even with the completion of major traffic improvements such as Route 199 and Monticello Avenue.

Figure 2

ROAD GROWTH PROJECTIONS *

Road	Centerville Rd.	Ironbound Rd.	Monticello Ave.	News Rd.	Richmond Rd.
From	News Road	RT. 5	Powhatan Secondary	Centerville Road	Anderson's Corner
To	Richmond Road	News Road	Route 199	Monticello Ave.	Centerville Road
2007 Traffic **					
Count	10,174	10,967	41,348	8,133	26,018
Units Approved					
In process	141	147	290	77	726
Units Approved ***					
not started	319	0	1,208	739	1,497
TOTAL units					
Approved	460	147	1,498	816	2,223
Traffic generated ****					
by approved units	4,600	1,066	11,940	2,979	18,082
TOTAL Traffic *****					
at build out	14,774	12,033	53,288	11,112	28,997

* Detailed data supporting these numbers is available from the J4C Traffic Committee.

** 2007 traffic count shown is taken from the highest volume segment of the particular road and is meant to show the impact that approved but not yet built development will have on area traffic.

*** The units shown for News Road were approved in 2008.

**** In reaching the estimated traffic resulting from approved and in process or not started development, data on the type of housing and estimated vehicles per day were taken from the ITE numbers.

***** To determine traffic growth projections at build out, the Committee selected one 2007 James City County traffic counting locations for each of the five roads studied. The selections were based on the highest potential for growth as shown in this report.

Figure 3