

# Wilbur Smith Assoc forecasting record slammed in report for Reston VA group (ENLARGED REPORT)

Posted on Fri, 2012-01-27 16:30 <http://www.tollroadsnews.com/node/5726>

[cdmsmith](#)  
[dulles toll road](#)  
[maynard](#)  
[rail](#)  
[reston](#)  
[traffic and revenue forecasts](#)  
[wilbur smith associates](#)

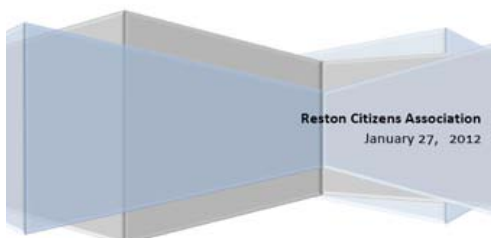
Wilbur Smith Associates (WSA) record of traffic and revenue forecasting is blasted in a study done by a retired federal government economist Terry Maynard for the Reston Citizens Association (CRA) in northern Virginia. The report supports a call for an independent review of the WSA/CDMSmith traffic and revenue forecast of the Dulles Toll Road.

The analysis titled Traffic and Revenue Forecasts: Plenty of Room for Error by Terry Maynard finds that forecasts of revenue by WSA as it then was (just recently merged to form CDMSmith) are on average 2.27 times - or 127% too high - as compared with subsequently realized toll revenues.

This is based on the first five years of 12 toll projects forecast.



Wilbur Smith Associates'  
Traffic and Revenue Forecasts:  
*Plenty of Room for Error*



In addition Maynard finds that WSA had a pattern of understating the sensitive profit maximizing toll initially, then subsequently raising those estimates.

Maynard says that WSA routinely uses the highest population and employment forecasts for forecasting traffic.

Despite poor forecasts tollroads stuck with WSA.

WSA estimates for Dulles Toll Road revenues are suspect, Maynard writes, because they are already using numbers overstating Fairfax County employment by 25%.

What it calls the "pattern of overestimates" in WSA forecasting suggests a "substantial risk" in proceeding with the MWAA financial plan, Maynard writes.

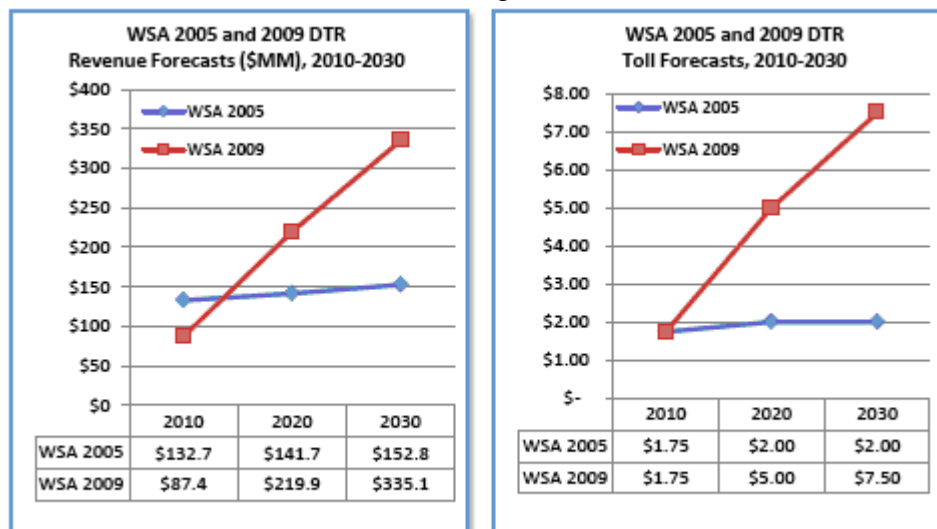
Risks are:

- lenders won't fund the project without state guarantees or at investment grade rates
- tolls much higher than those forecast will emerge
- corridor economic growth will be hampered by the high costs
- MWAA may default and face much higher costs than cited

Terry Maynard: "RCA has long been enthusiastic about Metrorail to Dulles via Reston, but we do not want a rail line at any price, especially one that forces Dulles Toll Road users to absorb most of the financial burden and area communities to absorb added traffic on already crowded local roads. The prospects are even worse if the WSA forecasts overestimate revenues as much as our research suggests. We hope that an independent forecast, combined with 'value engineering' for Phase 2 and restructuring the financial arrangements will lead to a better outcome for everyone."

## 2nd stage of Dulles Rail at stake

Future Dulles toll road revenues are being used as the security for selling the debt needed to fund a \$5 billion Dulles Metrorail branch line from West Falls Church through Reston County to Dulles Airport and out into Loudoun County. Over half the capital cost is proposed to be covered by toll revenue bonds of the Dulles Toll Road issued by the Metropolitan Washington Airports Authority (MWAA) that has a 50 year franchise on the tollroad and is building the rail line.



Hugely discrepant WSA forecasts in 2005 for VDOT and in 2009 for MWAA of Dulles tolls

Half of the rail line is a done deal, financed and under construction but the second half remains to be approved and financed. The WSA/CDMSmith investment grade traffic and revenue study to be released any week now will be key to whether the project proceeds.

A cover letter addressed to Governor Bob McDonnell, FHWA administrator Victor Mendez and top officials of MWAA and the two local counties charges that "WSA has made many very large errors in its forecasts that have been costly to investors, bondholders, governments, and toll road users who have relied on them to approve construction of major toll road projects."

It continues: "we believe that it is imperative that a second, independent T&R forecast be completed by another forecasting group before any decision is made to move forward with the construction of Phase 2 of the Silver (Dulles Rail) Line."

The citizens association says that given Wilbur Smith's record of overestimating revenues and the unexplained discrepancies between the first two WSA studies the various parties to the Dulles project - FHWA, MWAA, the two counties Fairfax and Loudoun as well as Virginia DOT - should defer any further commitments until Wilbur Smith's forecasts have been checked against those of an independent forecaster.

VDOT is called to take the lead in having WSA's results checked out.

It calls on FHWA to develop a process of 'best practices' for traffic and revenue forecasts given that the problem of gross exaggeration of traffic and revenue (T&R) prospects is seen across the whole T&R forecasting business.

### **Recommendations**

We believe the significant number of cases in which WSA has made major errors in its traffic and revenue (T&R) forecasts, including errors in its forecasts for the Dulles Toll Road, warrants a series of actions before MWAA, Fairfax County, and Loudoun County move to approve construction of Phase 2 of the Silver line. These recommendations involve actions by federal, state, local, and MWAA officials.

#### **US Department of Transportation/Federal Highway Administration**

- Do not approve TIFIA funding for the Metrorail funding partners until a second independent T&R forecast for the DTR has been prepared by Virginia and any material substantive differences between it and WSA's next forecast have been satisfactorily resolved.
- Longer term, oversee a process involving transportation T&R forecasting practitioners, toll facility operators, toll facility bond financing rating and issuing companies, and appropriate federal, state, and local government transportation officials to develop concrete and transparent national "best practice" standards for the forecasting of toll facility traffic demand and revenue forecasts. Make strict adherence to these "best practices" a requirement for federal funding. If necessary, pursue Congressional legislation to implement these "best practices."

#### **Virginia Department of Transportation**

- Conduct an independent T&R study from another T&R consultant to be completed before approval of Phase 2 of Metrorail construction.
- Resolve any substantive material differences between the outside T&R forecast and the new WSA T&R forecast before authorizing the use of state funds on Phase 2.

#### **Dulles Metrorail Funding Partners (Fairfax County, Loudoun County, & MWAA)**

- Do NOT approve work on Phase 2 of Metrorail until a second Virginia state-sponsored independent T&R forecast has been completed and material substantive issues between it and WSA's forecast have been resolved.
- Present the new (third) WSA DTR T&R forecast to the public as soon as possible for comment and feedback, and well before any consideration of approval of Phase 2 of Metrorail.
- Conduct a public outreach program to elicit community comment on toll, tax, and other issues raised by the possible construction of Phase 2, and adjust the current funding agreement accordingly.

## **Maynard devastating about track record of forecasting**

A key finding of the Maynard Report (named after principal author Terry Maynard) is that "optimism bias" is endemic in the toll forecasting business, and that Wilbur Smith which does about half the industry's forecasts is typical of the industry - driven by sponsors to produce the exaggerated forecasts they want. It cites work by Robert Bain, Bent Flyvbjerg, NCHRP, and ourselves but goes into several forecasts with original work.

Bain using work he started at Standard and Poors found that of 100 tollroad forecasts worldwide the average actual traffic was 77% of forecast or an overestimate of about 30% for year 1 and only minor improvement after that.

NCHRP looked at 26 toll road forecasts in the US over the first five years and found worse results.

Writes Maynard: "The atrocious overestimates of revenue by all the forecasters reflected in this data highlight the difficulty in forecasting demand in the 'ramp-up' period of a new toll road. They are inadequate for planning future revenues, financing, and toll rates."

And there is little indication forecasts improve much over time.

On the Dulles Toll Road forecasting WSA starts with an inflated number for current employment in the major county served (900k vs 700k) and then inflates that faster than others with a higher growth rate (see graph nearby). Similarly on the Knik Arm bridge in Alaska WSA used exaggerated population and employment data, claiming to base them on numbers from a local University institute, which has denied its numbers are used.

Maynard picks up on what we reported (2011-04-11) as huge inconsistency in Dulles forecasting between WSA's modest projections of traffic and revenue for VDOT in 2005 and their highly bullish projections in 2009 for the new concessionaire MWAA. (see graphing of the inconsistency nearby)

Growth prospects declined in that period, and forecasts should have been lowered, not raised. WSA has never explained the basis for their large upward revisions.

"Our examination of vital population and employment input data used by WSA in its forecasts indicates it has almost always used the most optimistic data available to make its forecasts.

## Appendix A: Revenue Forecast Error in NHCRP Data, WSA and Non-WSA, in Percent

Wilbur Smith Associates	Year Opened	Revenue Forecast Error					Average Error
		Year 1	Year 2	Year 3	Year 4	Year 5	
Harris County Toll Road Authority (Texas)/Hardy (6)	1988	242%	261%	320%	339%	348%	302%
Harris County Toll Road Authority (Texas)/Sam Houston (6)	1988	54%	25%	23%	20%	28%	30%
Orlando-Orange Expressway Authority/Central Florida Greenway North Segment	1989	3%	17%	23%	44%	30%	23%
Orlando-Orange Expressway Authority/Central Florida Greenway South	1990	193%	176%	178%	160%		162%
Oklahoma Turnpike Authority/ John Kilpatrick (3)	1991	456%	279%	241%	218%	188%	276%
Oklahoma Turnpike Authority/ Creek (3)	1992	100%	82%	76%	65%	54%	77%
Transportation Corridor Agencies (California)/Foothill North (3)	1995	16%	8%	1%			8%
Transportation Corridor Agencies (California)/San Joaquin Hills (3)	1996	216%	112%	94%	89%	83%	119%
North Texas Tollway Authority/ George Bush Expressway (3)	1998	-34%	9%				-13%
Transportation Corridor Agencies (California)/Foothill Eastern (3)	1999	-16%	27%	26%			12%
Connector 2000 Association (South Carolina)/Greenville Connector (3)	2001	238%					238%
Pocahontas Parkway Association (Virginia)/Pocahontas Parkway (44,45)	2002	147%	148%	97%			128%
Average Error		134%	104%	108%	126%	122%	118%
Non-WSA Forecasts	Year Opened	Revenue Forecast Error					Average Error
		Year 1	Year 2	Year 3	Year 4	Year 5	
Florida's Turnpike Enterprise/Sawgrass Expressway (6)	1986	462%	327%	213%	170%	160%	266%
North Texas Tollway Authority/Dallas North Tollway (6)	1986	35%	10%	6%	1%	1%	10%
Mid-Bay Bridge Authority (Florida)/ Choctawhatchee Bay Bridge (38,39)	1993	25%	5%	-8%	-12%	-14%	-1%
Orlando-Orange Expressway Authority/Central Florida Greenway Southern Connector	1993	264%	173%				218%
Florida's Turnpike Enterprise/ Veteran's Expressway (3)	1994	100%	89%	60%	54%	76%	76%
Florida's Turnpike Enterprise/ Seminole Expressway (3)	1994	119%	72%	41%	28%	43%	61%
Osceola County (Florida)/Osceola County Parkway (3)	1995	668%	97%	160%	148%		268%
Toll Road Investment Partnership (Virginia)/Dulles Greenway (3)	1995	398%	302%	324%	288%	182%	299%
E-470 Public Highway Authority (Colorado)/E-470 (3)	1999	62%	60%		95%		72%
Florida's Turnpike Enterprise/Polk (3)	1999	23%	48%				36%
Santa Rosa Bay Bridge Authority (Florida)/Garcon Point Bridge (42,43)	1999	207%	82%	98%	112%	105%	121%
Northwest Parkway Public Highway Authority (Colorado)/Northwest Parkway	2004	65%	79%				72%
Average Error		202%	112%	112%	98%	79%	127%

Annual performance within 10% of forecast is in bold.

Revenue Forecast Error = 1/((Revenues/Forecast) - 1) as presented in NHCRP 364 in Table 1 which reports (Revenues/Forecast).

"This includes its 2005 and 2009 forecasts for the Dulles Toll Road. In its 2005 study, it utilized population and employment forecasts provided by GMU CRA which characterized official MWCOC forecasts as understating the area's growth potential. Then, in 2009, it discarded the conclusions of the contractor it hired to do its socio-economic forecast, Linden Street Associates, Inc., of Alexandria, which had discounted the official MWCOC forecasts as overreaching.

"Instead, it used forecast data provided by Woods & Poole, Inc., another local demographic analysis shop, which was much more aggressive. As we have noted, in the one data point from those two studies we were able to check for Fairfax County—data from the US Census Bureau in 2010—the 2005 WSA forecast overstated county employment by 25% and the 2009 study overstated it by 52%. In both cases, all the population forecasts we examined were within a reasonable five percentage points of the US Census 2010 count."

### Detroit

In Detroit Michigan Maynard writes that an independent study by Halcrow found that WSA had used population and employment projections that were "far too high" and traffic was likely to be "about half" of WSA forecasts. He has an appendix commenting on the Detroit-Windsor DRIC/NITC bridge project.

Maynard says some of WSA's numbers are wrong, and that Halcrow's modeling is more convincing because it performs well in backward testing - not attempted by WSA.

Full copy of Maynard report:

<http://www.scribd.com/doc/79582705/RCA-Study-Wilbur-Smith-Traffic-and-Revenue-Forecasts-012712>

Maynard is contactable at:

[terrmayn@yahoo.com](mailto:terrmayn@yahoo.com)

<http://www.tollroadsnews.com/node/5726>



NOTE: we're fully open to any response from WSA or any other forecasters. So far no response from WSA to the invitation to defend their work.

**ACTUAL REVENUE AS PERCENTAGE OF PROJECTED RESULTS OF OPERATION**

Authority/Facility	Year of Opening	Year 1	Year 2	Year 3	Year 4	Year 5
Florida's Turnpike Enterprise/Sawgrass Expressway (6)	1986	17.8%	23.4%	32.0%	37.1%	38.4%
North Texas Tollway Authority/Dallas North Tollway (6)	1986, 1987	73.9%	<b>91.3%</b>	<b>94.7%</b>	<b>99.3%</b>	<b>99.0%</b>
Harris County Toll Road Authority (Texas)/Hardy (6)	1988	29.2%	27.7%	23.8%	22.8%	22.3%
Harris County Toll Road Authority (Texas)/Sam Houston (6)	1988, 1990	64.9%	79.7%	81.0%	83.2%	78.0%
Illinois State Toll Highway Authority/ Illinois North South Tollway (6)	1989	<b>94.7%</b>	<b>104.3%</b>	112.5%	116.9%	115.3%
Orlando-Orange Expressway Authority/ Central Florida Greenway North Segment (6)	1989	<b>96.8%</b>	85.7%	81.4%	69.6%	77.1%
Orlando-Orange Expressway Authority/ Central Florida Greenway South Segment (6)	1990	34.1%	36.2%	36.0%	50.0%	NA
Oklahoma Turnpike Authority/ John Kilpatrick (3)	1991	18.0%	26.4%	29.3%	31.4%	34.7%
Oklahoma Turnpike Authority/ Creek (3)	1992	49.0%	55.0%	56.8%	59.2%	65.5%
Mid-Bay Bridge Authority (Florida)/ Choctawhatchee Bay Bridge (38,39)	1993	79.8%	<b>95.5%</b>	<b>108.9%</b>	113.2%	116.7%
Orlando-Orange Expressway Authority/ Central Florida Greenway Southern Connector (6)	1993	27.5%	36.6%	NA	NA	NA
State Road and Tollway Authority (Georgia)/GA 400 (3)	1993	117.0%	133.1%	139.8%	145.8%	141.8%
Florida's Turnpike Enterprise/ Veteran's Expressway (3)	1994	50.1%	52.9%	62.5%	65.0%	56.8%
Florida's Turnpike Enterprise/ Seminole Expressway (3)	1994	45.6%	58.0%	70.7%	78.4%	70.1%
Transportation Corridor Agencies (California)/Foothill North (3)	1995	86.5%	<b>92.3%</b>	<b>99.3%</b>	NA <sup>1</sup>	NA <sup>1</sup>
Osceola County (Florida)/Osceola County Parkway (3)	1995	13.0%	50.7%	38.5%	40.4%	NA
Toll Road Investment Partnership (Virginia)/Dulles Greenway (3)	1995	20.1%	24.9%	23.6%	25.8%	35.4%
Transportation Corridor Agencies (California)/San Joaquin Hills (3)	1996	31.6%	47.5%	51.5%	52.9%	54.1%
North Texas Tollway Authority/ George Bush Expressway (3)	1998	152.2%	<b>91.8%</b>	NA	NA	NA
Transportation Corridor Agencies (California)/Foothill Eastern (3)	1999	119.1%	79.0%	79.2%	NA <sup>1</sup>	NA <sup>1</sup>
E-470 Public Highway Authority (Colorado)/E-470 (3)	1999	61.8%	59.6%	NA	<b>95.4%</b> <sup>2</sup>	NA <sup>3</sup>
Florida's Turnpike Enterprise/Polk (3)	1999	81.0%	67.5%	NA	NA	NA
Santa Rosa Bay Bridge Authority (Florida)/Garcon Point Bridge (42,43)	1999	32.6%	54.8%	50.5%	47.1%	48.7%
Connector 2000 Association (South Carolina)/Greenville Connector (3)	2001	29.6%	NA	NA	NA	NA
Pocahontas Parkway Association (Virginia)/Pocahontas Parkway (44,45)	2002	41.6% <sup>4</sup>	40.4%	50.8%	NA	NA
Northwest Parkway Public Highway Authority (Colorado)/Northwest Parkway (46,47)	2004	60.5%	56% <sup>5</sup>	NA	NA	NA

Sources are cited in parentheses.

Notes: Bold type reflects actual within 10% of projected. NA = traffic and revenue report not available or not provided.

TOLLROADSnews 2012-01-27 ENLARGED 2012-01-31

TOLLROADSnews is a journalistic venture of Peter Samuel, 102 West Third Street Unit 1, Frederick MD 21701 USA tel 301 631 1148 email [editor@tollroadsnews.com](mailto:editor@tollroadsnews.com).