



To: Project File (60284833.425 Traffic)

Subject: *I-80 Section 17M Reconstruction - Future Traffic Growth Projections*

From: Ed Reagle, PE

Date: June 13, 2013

This technical memorandum has been developed to document a background review and recommendation on the assumptions to be used in development of future traffic volumes for the Interstate 80 (I-80) Section 17M Reconstruction project. The reconstruction project spans from Stroud Township (Exit 303) to the Borough of East Stroudsburg in Monroe County, Pennsylvania. The section of I-80 within the study area is classified as urban interstate and consists of two (2) lanes of traffic in the eastbound and westbound directions.

A variety of sources have been reviewed to determine the range of growth rates that have been previously estimated in transportation studies in the corridor. Table 1 (below) includes an overview of historic growth rates utilized in previous studies along with current data trends observed in traffic data obtained from DRJTBC and PennDOT.

A review of recent transportation studies in the project corridor suggests an expected growth rate of 1.9%-2.5% to the design year (anticipated build year) of 2038. The maximum growth rate of 2.5% was utilized in the 2005 I-80 Corridor Study Technical Memorandum, and is referred to as a value obtained through referencing sources including population estimates, the PennDOT Traffic Data Manual, and other projects within the corridor. Since the time of the I-80 Corridor Study, the yearly growth factors reported by the PennDOT Traffic Manual have decreased. Using an average from the yearly growth factors reported from 2001-2011 in the current PennDOT Traffic Information Report yields a value of 2.1%.

Table 1: Interstate 80 AADT Growth Rate Comparison		
Source	Author	Annual Growth Rate
Technical Memorandum I-80 Corridor Study – Traffic Growth and Future I-80 Mainline LOS (June 29, 2005)	McCormick Taylor	2.5% (assumed annual growth to 2030 between 1.9 – 3.0%)
DRJTBC Northerly Crossing Study (July 31, 2006)	Baker	1.9% (Assumed annual growth to 2030)
Interchange Alternative Comparison/Point of Access Study Interstate I-80, Section 05S East Stroudsburg Interchange (January 2008)	Wilbur Smith Associates	2.0% (Assumed annual growth to 2032)
DRJTBC 2012 Traffic Engineering Report – Year 2013 Toll Bridge Traffic Volume and Revenue Projections (Westbound Traffic Data, February 12, 2013)	Pennoni Associates Inc.	-1.9% (5-year average 2008-2012)
DRJTBC Historic Traffic Count Data (I-80 Delaware Water Gap Bridge, Bi-Directional Data)	Delaware River Joint Toll Bridge Commission	-1.8% (4-year average 2009-2012)
PennDOT Bureau of Planning Traffic Volume Data (I-80 Mainline, Interchange 302-306)	PennDOT	-1.4% (9-year span 2001-2010 growth trend)
PennDOT Bureau of Planning Traffic Volume Data (I-80 Mainline, Interchange 306-309)	PennDOT	-0.7% (9-year span 2001-2010 growth trend)

Current Traffic Data Trend

A review of recent traffic data from the past five years indicates an overall decrease in AADT volumes along the I-80 corridor within the study area. Volume data collected by Tri-State Traffic Data in 2013 along the I-80 mainline suggests this trend has continued into the current year. This pattern is anticipated to be a reflection of the current state of the economy and employment trends within the area, and not a depiction of the overall potential for long-term growth trends.

Planning Perspective

The current population (2012 estimate) for Monroe County is 168,800 in comparison to the Monroe County 2020 Comprehensive Plan estimate of between 177,000 and 221,000 in the year 2020. The overall population growth trend from 2000-2012 suggests the potential for a future traffic growth rate more on course with the rates utilized in the transportation studies listed in Table 1, as opposed to recent traffic growth rates observed in the review of current trends.

As noted, PennDOT Bureau of Planning statewide growth factors for interstates indicates 23% overall growth from 2002 to 2011 (2.1% per year). Statewide traffic trends from 1992-2001 indicate a 20.1% growth and from 2002-2011 a 36.3% growth.

Monroe 2020 Comprehensive Plan Update

The Monroe County Comprehensive Plan Update was recently published. The Plan update includes general population/ employment, Commuter Rail Line project, and significant development information.

The plan update indicates that the population has been stagnate over the past few years and is not anticipated to change until there are significant economic sector improvements. A low and moderate projection was included which would increase population by about 2% and 4% through 2020. The plan update indicates there are several large land developments proposed including the Kalahari Resort (combination water park, hotel and conference center at a site located at Pocono Manor) and Camelback Hotel and Water Park which have the potential to generate additional traffic in the region.

The first section of the passenger rail service proposed from Scranton to Hoboken, NJ is in construction. This section is from Port Morris, NJ to Andover, NJ. The two remaining sections from NJ to Stroudsburg, PA, and from Stroudsburg to Scranton are unfunded at this time. Whether the line will be funded and constructed is unknown at this time. Therefore, no adjustments to the future traffic volumes will be made.

Recommendations

A 2.0% yearly percentage growth rate is recommended to capture the traffic growth potential of the study area to the design year of 2045. Current traffic volumes were projected to the design year 2045. This is based on construction completion in 2025, with 20 years beyond for the design year of 2045.

SUMMARY OF HISTORIC DATA FROM BUREAU OF PLANNING MAINLINE I-80

Source of Data
PennDOT Bureau of Planning

Tri-State Traffic Counts
(2013) - No Seasonal
Adjustment Utilized

Interchange 302-306

	2009 data		2010 data		2011 data		% change
	EB	WB	TOTAL	EB	WB	TOTAL	
ADT	28,304	27,019	55,323	22,713	21,537	44,250	-20.02%
AM peak hour	2142	1496	3,638	1823	1376	3,199	-12.07%
PM peak hour	2189	2509	4,698	1701	2271	3,972	-15.45%

Interchange 306-309

	2009 data		2010 data		2011 data		% change
	EB	WB	TOTAL	EB	WB	TOTAL	
ADT	31,726	32,187	63,913	28,146	31,825	59,971	-6.17%
AM peak hour	2580	1890	4,470	2117	1796	3,913	-12.46%
PM peak hour	3296	2186	5,482	1915	3304	5,219	-4.80%

DRUTBC I-80 BRIDGE (DELAWARE WATER GAP)

	2009 data		2010 data		2011 data		% change
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	
ADT	53,900	55,400	51,800				-6.95%
AM peak hour							
PM peak hour							

Data from DRUTBC website

DRUTBC I-80 BRIDGE (DELAWARE WATER GAP)

	2007 data		2008 data		2009 data		2010 data		2011 data		2012 data
	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	
ADT	27,475	26,617	26,631	26,366	25,225	24,975					
AM peak hour											
PM peak hour											

Data from DRUTBC 2012 Traffic Engineering Report Year 2013 Volume and Revenue Projections - Pennoni

Weekday Vol.

West of Interchange 303

2013 data	4/1/2013		TOTAL	% change
	EB	WB		
ADT	23,727	24,904	48,631	10%
AM peak hour	1508	1379	2,887	-10%
PM peak hour	1340	2061	3,401	-14%

Weekday Vol.

East of Interchange 307

2013 data	4/1/2013		TOTAL	% change
	EB	WB		
ADT	30,103	31,476	61,579	3%
AM peak hour	2022	1745	3,767	-4%
PM peak hour	1717	2206	3,923	-25%

2007-2008	2008-2009	2009-2010	2010-2011
% change	% change	% change	% change
-3.22%	0.05%	-1.00%	-4.52%

AAOT Comparison (Year-To-Year)

Year	PennDOT Bureau of Planning 302-306 Interchange	% Increase	Interchange 306-309	% Increase	DRITBC Traffic Counts (I-80 Toll Bridge Location)	% Increase	Traffic Counts (2013) - No Seasonal Adjustment Utilized	DRITBC 2012 Traffic Engg Report - WB Toll Volumes	% Increase
2001	50,637		64,182					27,475	
2005	57,895	14.3						26,617	-3.1
2006	49,368	-14.7						26,631	0.1
2007	49,018	-0.7	68,750	7.1	53,700	0.4		26,365	-1.0
2008	54,122	10.4			53,900	-7.0		25,225	-4.3
2009	55,323	2.2	63,913	-7.0	55,400	-6.2		24,975	-1.0
2010	44,250	-20.0	59,971	-6.2	51,800	-6.5			
2011					49,900	-3.7			
2012							48,631		
2013									
		-0.13		-0.1		-0.07			-0.09
		-0.04		-0.2		-0.09			

Ramps AADT Comparison

Census Data Trends

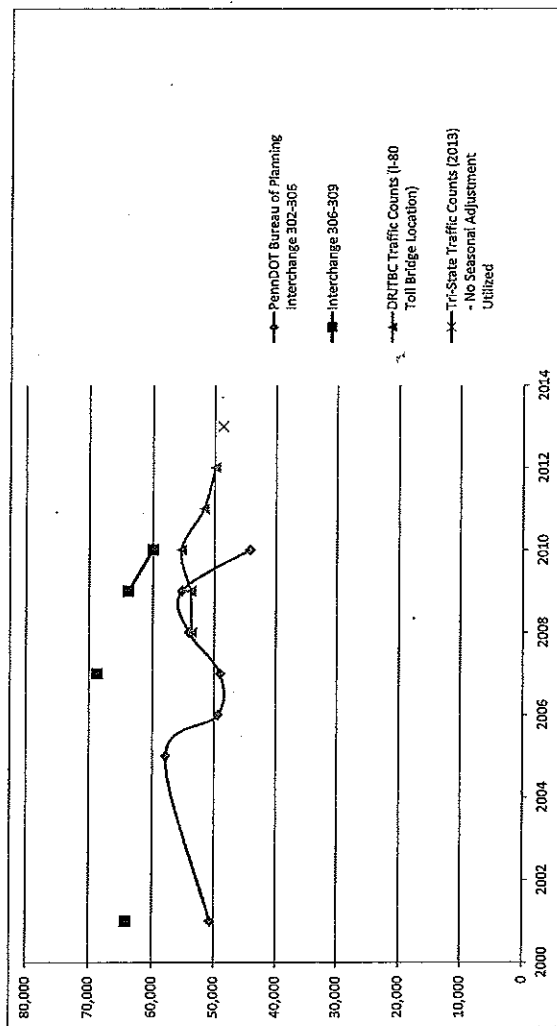


Table 370
Yearly Growth Factors

The yearly growth factors (shown in the following tables) are used to compute the current estimated average daily traffic for count data that is older than the current year. The factor application is applied by Traffic Pattern Group (TPG) and is used to calculate total vehicles and truck estimates. A limited amount of count data is processed through the Yearly Growth Factor table, since most traffic counts are for the current year.

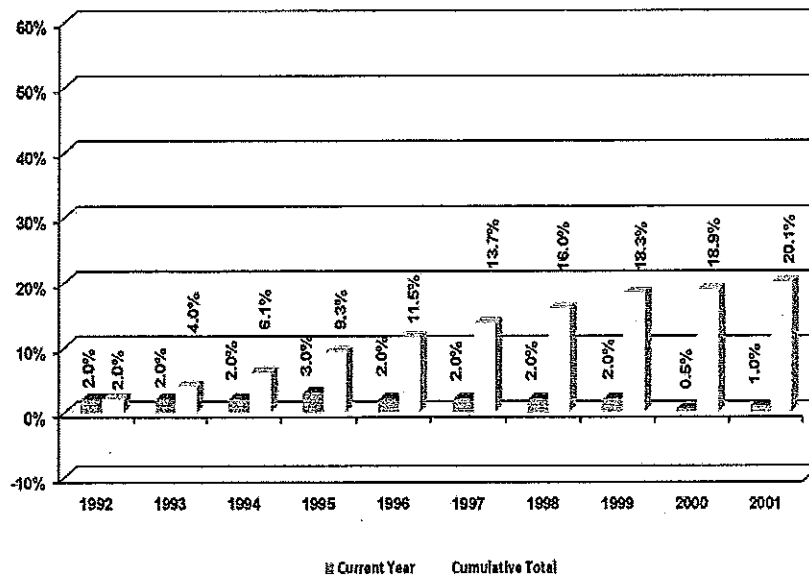
To use this table, select the base year of the count from the "YEAR" column and multiply it by the percentage under the corresponding "TPG" row.

For example, to determine the current year estimate (2011) of a 2002 base year count having a TPG 5, multiply 1.074 (7.4%) by the AADT of the 2002 count.

Yearly Growth Factors: 2001-2011										
TPG	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
TPG 1	3.0%	3.0%	3.2%	3.2%	2.9%	3.0%	2.4%	1.0%	0.0%	-0.7%
TPG 2	3.0%	3.0%	3.3%	3.2%	3.0%	3.0%	2.4%	2.2%	1.6%	1.7%
TPG 3	1.8%	1.0%	1.4%	1.1%	0.7%	1.1%	0.2%	0.3%	0.2%	-0.6%
TPG 4	1.8%	1.3%	1.7%	1.6%	1.2%	1.3%	0.8%	0.5%	0.3%	-0.3%
TPG 5	1.8%	1.0%	1.4%	1.1%	0.7%	1.1%	0.2%	0.3%	0.2%	-0.6%
TPG 6	1.9%	1.3%	1.7%	1.6%	1.2%	1.3%	0.8%	0.5%	0.3%	-0.3%
TPG 7	1.9%	1.3%	1.7%	1.6%	1.2%	1.3%	0.8%	0.5%	0.3%	-0.3%
TPG 8	1.9%	1.3%	1.7%	1.6%	1.2%	1.3%	0.8%	0.5%	0.3%	-0.3%
TPG 9	1.9%	1.3%	1.7%	1.6%	1.2%	1.3%	0.8%	0.5%	0.3%	-0.3%
TPG 10	1.0%	1.0%	1.7%	1.6%	1.2%	1.3%	0.8%	0.5%	0.3%	-0.3%

The table below shows yearly growth percentages by TPG for 2001 through 2011.

Yearly Growth Factors: 2001-2011										
TPG	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11
TPG 1	23.0%	19.4%	15.9%	12.3%	8.8%	5.8%	2.7%	0.3%	-0.7%	-0.7%
TPG 2	29.7%	26.0%	22.3%	18.4%	14.7%	11.4%	8.1%	5.6%	3.3%	1.7%
TPG 3	7.4%	5.5%	4.5%	3.0%	1.9%	1.2%	0.1%	-0.1%	-0.4%	-0.6%
TPG 4	10.7%	8.7%	7.3%	5.5%	3.9%	2.6%	1.3%	0.5%	0.0%	-0.3%
TPG 5	7.4%	5.5%	4.5%	3.0%	1.9%	1.2%	0.1%	-0.1%	-0.4%	-0.6%
TPG 6	10.8%	8.7%	7.3%	5.5%	3.9%	2.6%	1.3%	0.5%	0.0%	-0.3%
TPG 7	10.8%	8.7%	7.3%	5.5%	3.9%	2.6%	1.3%	0.5%	0.0%	-0.3%
TPG 8	10.8%	8.7%	7.3%	5.5%	3.9%	2.6%	1.3%	0.5%	0.0%	-0.3%
TPG 9	10.8%	8.7%	7.3%	5.5%	3.9%	2.6%	1.3%	0.5%	0.0%	-0.3%
TPG 10	9.5%	8.4%	7.3%	5.5%	3.9%	2.6%	1.3%	0.5%	0.0%	-0.3%

**STATEWIDE TRAFFIC TRENDS
1992-2001****Statewide Traffic Trends 1992-2001**

STATEWIDE TRAFFIC TRENDS 2002-2011

Statewide Traffic Trends 2002-2011

