



## TRAFFIG ANALYSES FOR ALTERNATIVES RETAINED FOR DETAILED EVALUATION





301

# Comparison of Traffic Volumes and Analyses for Retained Alternatives



	US 301 Project Development Traffic Forecasts and Analyses <u>With</u> Westown Development, <u>With</u> Ramp & Mainline Tolls										
			Daily Tr	affic Pro	ections						
	2030 Projections										
	Roadway Segment	2003 Existing	Alternatives Retained for Detailed Evaluation								
			No-Build	Yellow	Purple+Spur	Brown	Green+Spor				
1	US 301 at MD/DE State Line		10,200	17,400	18,200	19,400	19,800	19,800			
2a	US 201, North of Middletown		18,300	28,900	32,900	23,100	24,000	21,300			
25	Bygass, North of Middletown	Bygass, North of Middetown			37,600	\$2,700	\$4,000	\$4,700			
3a	Boyds Corner Road, West of Cedar Lane		12,100	27,500	20,900	20,400	19,900	18,100			
35	Bypass, West of Cedar Lane				22,400	31,200	34,000	42,200			
4	Cedar Lane, South of SR 899		4,500	9,700	6,100	5,600	5,500	4,500			
5	Choptank Road, North of Middletown		3,100	15,200	12,800	5,300	5,100	5,100			
-	SR 299, West of SR 1	17,300	26,600	16,700	15,900	15,600	12,600				
	<u> </u>	Pea	k Hour (	peration	al Analy	ses					
			2003		20	35 Projectio	ena.				
	Location Time			Alternatives Retained for Detailed Evaluation					Comments		
				No-Build	Yellow	Purple+Spur	Brown	Green+Spur			
1	US 301 at MD/DE State Line	PM	-	À	Â	A	^	^	2030 based on 4-lane		
		AM	c	c	- C	8	8	8	2000 indudes 301 wideni		
A	US 301 @ SR 299 (Middletown)	PM	c	c	c	Β.	9		4-lane due to Westow		
2a	US 301. North of Middletown	AM	-	-	-	-	-	-			
23	US 301, Noth of Middletowil	PM	Ē	Ē	E	Ē	E .	- E			
20	Sypass, North of Middetown	AM			8	0	C	C			
							С	С	2020 based on planne		
	US 301 @ SR 896 - "Mount Pleasant"	AM PM	D	0	C D	C C	c c		intersection improvemen		
		PM	0			c		С	(2nd through lane NR/S		
c	SR 896 @ SR 15 (south of Summit Bridge)	PM	A A	- 6	C D	C Intersections become  intershanges					
2a	Royds Corner Road, West of Cedar Lane	AM	E	E	E	E	- E	E			
	any or a second control of the second contro	PM			E	_ =		_ =			
39	Bypass, West of Cedar Lane	PM			9	8	9	9			
4	Cedar Lane. South of SR 899 AM		С	-	D	D	D	c			
•	Cetar Lane, south or six like	PM	c	Ē	۵	D	c	c			
5	Choptank Road, North of Middletown	AM	- C	- 5	- 5	e 0	C 0	e 0			
		All	- 0	+	÷		_ D				
	SR 299. West of SR 1	AM DW									



		US 301 P With		Develop	nent, With	Ramp &				
				Daily Tr	affic Proj	ections				
						25	30 Projectio	ca		
	Reso	lway Segment		2003 Existing	Alten	natives Ret				
				Existing	No-Build	Yellow	Purple+Sour	Brown	Green#Spar	
7	Summit B	Summit Bridge, SR 899 Across CBD Canal			65,500	\$8,100	64,000	64,000	59,500	
1	SR 896 north of Porter Road			30,400	59,200	\$2,400	\$5,800	\$5,900	52,700	
9	SIR 896 South of Old Baltimore Pike			25,200	\$4,500	49,100	\$0,200	49,500	49,900	
10	HIS east of SR 896 (4-tanes per director)			117,500	166,800	164,400	165,600	165,000	194,500	
11	1-95 east	117,500	189,600	185,700	189,200	189,300	194,600			
			Per	ak Hour (	Operation	al Analy	505			
					_	20	30 Projectio	ca		
Location Time Period				2003 Existing	Alternatives Retained for Detailed Evaluation					Comments
			AM	- 0	No-Build	Yellow	Purple+Spur	Brown	Green/Spur	All analyses based on 4-lan
7	Summit Bridge, S	Summit Bridge, SR 899 Across C&D Canal		- 0	0	0	0	0	0	bridge.
D	SR 896 @ Porter Road		AM PM	E	- F					Assumed as an interchange to red.
	SR 896 n	oth of Porter Road	AM PM	B B	0	D C	0	0	0	
9	SR 896 South	of Old Baltimore Pike	AM PM	C B	6	D C	0	0	0	2030 affected due to Newtow Rd and SR 72 interchange
E	SR 894 @	Old Saltimore Pike	AM PM	-	- F		-	-	-	Assumed as an interchange fi red.
		NE DE SECULIA LE LE Marge	AM	C	C	e	e	e e	e	2000 due to Newtown Rd an
F	SR 896 @ I-65 Interchange	SE 100 to 32 ST 800 Dungs	PM AM	8	00	0	0	0	0	SR 72 interchange. All analyses based on current
	- Annual of	III DE RE over 100 Vinave	PM	-	Ĕ	- E	ě	- E	ě	interchange.
10	HG east of SR 896 (6-lanes per direction) PM			0	0	0	0	0	0	2000 affected due to Newtow Rd and SR 72 interchange.
9	196 @ SR 72	SR 73 to NE 146 Marge	AM		c	c	C D	e e	c	
	PAG Q AR 72 BLISS to SR 72 Dungs		PM		٥			0	0	
11	145 east of SR	72 (4-lanes per direction)	AM	C	00	- 0	0	0	0	1

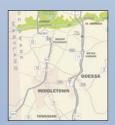


	US 301 Project Development Traffic Forecasts and Analyses <u>With</u> Westown Development, <u>With</u> Ramp & Mainline Tolls										
	Daily Traffic Projections										
	Roadway Segment	2003 Existing	Alternatives Retained for Detailed Evaluation								
12	***			No-Build	Yellow	Purple+Spur	Brown	Green#Spur			
12	SH 1, SOUR OF SK 899 US 13, South of SR 899		38,900	42,000	39,400	39,400	39,100	17 700			
13	Us 13, South of six line Biddles Bridge, SR 1 Across Canal		24,500 55,300	89,500	100,500	99,000	99,200	154 300			
15	St. Georges Bridge, US 13 Across CBD Canal		10,500	21,600	21,500	21,500	20,800	19,600			
16	CO 1 sorts of CO 72		62.000	99,000	100 000	107,000	127,000	111,400			
17	SR 1 south of US 40		47.000	84.100	93,600	92 200	92 100	96,000			
- 12	SR 1 south of SR 273			104,200	110,300	109,900	109,900	111,800			
	Peak Hour Operational Analyses										
-	2039 Projections										
	Location Time Period			Alternatives Retained for Detailed Evaluation					Comments		
_				No-Build	Yellow	Purple#Spar	Brown	Green/Spur			
н	SR 1 @ SR 299	AM PM	9	- 0	Â	A	^	۸.	Wont LOS of the diamond intersection.		
12	SR 1. South of SR 899	AM	9	0	c	c	e	c			
	SR 1, 30001 Ut 3R 689	PM	9	٥	c	C	- 0	C			
13	US 13, South of SR 896	PM	- 8	00	0	0	0	C C			
-	SR 896 @ US 13	AM PM	Č.	- 6		Ę.	E	- E	Analyses assumes no improvements.		
14	Biddles Bridge, SR 1 Across CED Canal	AM PM	9	0	0	0	0	0			
15	St. Georges Bridge, US 13 Across CED Canal Phil		Å	C B	C B	C B	C B	C B			
16	SR 1 north of SR 72	AM PM	C B	0	0	0	0	0			
17	SR 1 south of US 40	AM PM	C H	C C	0	C C	C U	D C			
- 11	9R 1 south of 9R 273	AM Esu	0	۵	-	- 5	- 6	- 5			

53 key intersections, interchanges and roadway segments (including the locations listed on the panels
to the left) were analyzed in both the AM and PM peak hours to determine Level of Service (LOS)

- What is Level of Service (LOS)?
  - A grading system for evaluating traffic operations
- Grades range from LOS A (best) to LOS F (worst)
- Influenced by traffic volumes, truck percentages, roadway characteristics, traffic signals, etc.

Summary of Traffic Analyses for 50+ Key Intersections, Interchanges, and Roadway Segments throughout the Study Area										
	2003	2030								
	No-Build	No-Build	Yellow	Purple+SPUR	Brown	Green+SPUR				
LOS A-D (Acceptable)	75%	55%	70%	71%	73%	75%				
LOS E	15%	21%	16%	17%	15%	15%				
LOS F (Failing)	10%	24%	14%	12%	12%	10%				



#### EXISTING CONDITIONS (2003)

- 75% of key locations operate "acceptably" (LOS A-D)
- 15% are approaching failure (LOS E)
- The remaining 10% are already failing (LOS F)

#### NO BUILD ALTERNATIVE (2030)

- Projected volumes will exceed the capacity of US 301, causing traffic to increase on several other nearby roads
- Nearly twice as many locations will approach or exceed capacity as in 2003;
- ▶ 21% will be approaching failure (LOS E)
- ▶ 24% will fail (LOS F)

#### YELLOW ALTERNATIVE (2080)

- Operations are improved from the No-Build Alternative
- Does not reduce traffic volumes on the north-south roadways
- Similar level of traffic reduction as the other Retained Alternatives on the east-west roadways
- Carries the lowest volume on new US 301 north of Middletown

### **PURPLE + Spur, BROWN and GREEN + Spur Alternatives (203)**

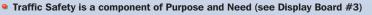






- All three alternatives have similar traffic volumes and similar operational results
- All three alternatives result in a substantial reduction of traffic on existing US 301.
- Compared to the other Retained Alternatives, Green+Spur carries the highest volume of traffic on new US 301 between SR 896 and SR 1
- Green+Spur in 2030 has less failing key intersections and interchanges than all other alternatives
- Green+Spur in 2030 has more acceptable key intersections and interchanges than all other alternatives

#### **Safety Analysis**



Accident predictions were made for each alternative

**US 301** 

▶ SR 896

SR 299SR 15

#### **Accidents - Existing Roadways**

• The number of future accidents was estimated for four (4) existing roads based on existing accident rates and existing and future traffic volumes:





- Since traffic volumes on these 4 roadways are reduced by each of the build alternatives, it follows that each of the build alternatives would be expected to reduce the number of accidents on existing roads compared to the No-Build Alternative
- The Yellow Alternative is projected to have the least reduction in traffic volumes on these 4 roadways and, therefore, would be expected to result in a lower reduction in accidents than the other 3 Build Alternatives

#### **Accident Rates - Entire Study Area**

- Accident rates were developed for each alternative, including the new roadway alignments:
  - Future accident rates for existing roads were based on existing accident rates and future traffic volumes
- ► Future accident rates for the new alignments were based on statewide average rates for similar facilities
- Since the statewide average accident rate for freeway-type facilities with interchanges (i.e., New US 301) is lower than the statewide average accident rate for two lane arterials with intersections and traffic signals (existing 301), the Build Alternatives are all expected to reduce the overall accident rate in the study area compared to the No-Build Alternative

#### Results

- All of the Build Alternatives are expected to have lower overall accident rates than the No-Build Alternative in 2030
- All of the Build Alternatives are expected to have lower overall accident rates in 2030 than those being experienced today (2003)

