



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 With Westown Development, With Ramp & Mainline Tolls											
Daily Traffic Projections											
Roadway Segment			2003 Existing		natives Ret						
US 301 at MDDS State Line			10,300	No-Build 11,900	Yellow 15,200	Purple+Spur 14.400	Brown 16,800	Green+Spor 19,800			
2a	US 301 North of Middetown	19,300	28,900	22,900	23,100	24.000	21,300				
20	Shoass, Noth of Middetown				37,600	\$3,700	\$6,000	56,700			
2a	Boyds Comer Road, West of Cedar Lane		12,100	27,500	20,900	20,400	19,900	19,100			
36	Bygass, West of Cedar Lane				22,400	31,200	34,000	42,200			
4	Cedar Lane, South of SR 896		4,500	9,700	6,100	5,600	5,500	4,500			
5	Choptank Road, North of Middletown	3,100	15,200	12,900	5,300	5,100	5,100				
T	5R 299, West of SR 1	17,300	24,600	19,700	15,900	15,600	13,600				
Peak Hour Operational Analyses											
2030 Projections											
Location Time Period			2003 Existing	Alternatives Retained for Detailed Evaluation					Comments		
1	US 501 at MO/DE State-Line PM		E .	A	A	A A	A	A A	2230 based on 4-lanes.		
Α	US 301 @ SR 299 (Missimum)	AM PM	c c	c c	c c	8	8	8	2030 includes 301 widening to 4-lane due to Westown.		
2a	US 301, North of Middletown	AM PM		-	-	-	-	-			
26	Sypses, North of Middletown	AM PM			B B	C C	C C	C C			
8	US 301 @ SR 896 - "Mount Pleasant"	AM PM	D	D	C D	c c	c c	B C	2030 based on planned intersection improvements. (2nd through lane NB/SB)		
c	SR 896 @ SR 15 (south-of Summit Bridge)										
2a	Royds Corner Road, West of Cedar Lane	AM PM	+	- 1	E .	- 6	<u> </u>	- 6			
36	Bypass, West of Cedar Lane	PM			9	8	8	B B			
4	Cedar Lane, South of SR 899	PM	C C		D D	D D	0	C C			
s	Chaptarix Road, North of Middletown	PM	c	- E	E E	C D	C D	D			
	SR 299, West of SR 1	PM	-	- 6	-	- 6	-	- 6			



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Daily Traffic Projections											
						20					
	Roadway Segment			2003 Existing		natives Ret					
,	7 Summit Bridge, SR HM Access CND Canal			29.300	No-Build 65.500	Yellow 58,100	Purple+Spor 64,000	Brown 64,000	Green+Spur 59,500		
÷	SR 896 north of Poter Road			20,400	59 200	52,400	55,900	55,500	52 700		
÷	60 996 South of Park Baltimore Disa			35,300	54,500	49 100	50,300	49,500	49,500		
10	145 east of SR 996 in transport direction)			117,500	169,900	164,400	165,600	165,000	164,500		
11	195 east of SR 72 (4-lanes per direction)			117 500	199,600	185 700	186 200	186 500	184 900	i	
_			Pe	ak Hour (Operation	al Analy	505				
						20					
Location Time Period			2003 Existing	Alternatives Retained for Detailed Evaluation					Comments		
			414		No-Build	Yellow	Purple+Spur	Brown	Green+Spur	All analyses based on 4-lane	
7	Summit Bridge, SR 999 Across CBD Canal PM			- 8	D	D	D	D	D	bridge.	
D	SR 896 @ Purter Road EM			F					Assumed as an interchange for md.		
	SR 899 north of Porter Road AM		AM PM	9	0	0	0	0	0		
9			AM EM	Č.	-	0	0	0	0	2030 affected due to Newtown Rd and SR 72 interchance	
£	00 000 0 000 0 000 0 000 0 000 0 000 0 0		AU.							Assumed as an interchange to	
		NEEDS WAS LIKE Marye	AM	c	С	C	-0	-0	- 0	2030 due to Newtown Rd and	
F	SR 896 @ HG Interchance	EE LOCK IS DO NOT Drawnge	PM AW	-	C D	C D	C	C	C D	SR 72 interchange. All analyses based on current	
	- Indianage	SS S4 HK over L65 Visual	PU	-	- i	- E	ž.	ž.		interchange.	
10	1-95 east of SR I	tilli (4-lanes per direction)	AM PM	e e	D C	D C	D C	D C	D C	2030 affected due to Newtown Rd and SR 72 interchange.	
9	146 @ 58 72	SETT IN NO. LES Margar	AM		- C	Ċ	Ċ	Ċ	- C		
		SS 100 to SR 72 Dumpe	PM		۵	0	0	D	Ď		
11	146 east of SR	72 (4-lanes per direction)	AM PM	C 8	0 0	0	0	0	0		



US 301 Project Development Traffic Forecasts and Analyses <u>With</u> Westown Development, <u>With</u> Ramp & Mainline Tolls												
	Daily Traffic Projections											
			2003	2030 Projections								
Roadway Segment			Existing	Alter	natives Ret							
	-			No-Build	Yellow	Purple+Spor	Brown	Green+Spur				
12	SR 1, South of SR 896	28,900	63,000	54,600	\$3,000	\$3,100	\$1,300					
13	Lt9 13, South of SR 899		26,500	42,600	29,400	29,400	39,200	37,700				
54	Biddles Bridge, SR 1 Across Canal		55,200	89,500	100,500	58,000	99,900	104,300				
15	St. Georges Bridge, US-13 Aproes C&D Canal		10,500	21,600	21,500	21,500	20,800	19,600				
19	SR 1 north of SR 72		62,000	99,000	109,200	107,000	107,300	111,400				
17	SIR 1 south of LSI 40	47,300	\$6,100	93,600	92,200	92,100	99,000					
18	SR 1 south of SR 273	65,800	164,200	110,300	108,900	109,900	111,800					
Peak Hour Operational Analyses 2020 Projections												
		2003										
Location Period												
	Location	Time Period	Existing		natives Ret	ained for De			Comments			
		Period	Existing	No-Build	Yellow	Purple+Spur	Brown	Green+Spur				
н	Location SR 1 @ SR 299								Comments Worst LCS of the diamond intersection.			
н	SR1@SR289	Period AM PM	Existing	No-Build	Yellow A A	Purple=Spur A A	Brown A A	Green+Spur	Worst LOS of the diamond			
		Period AM PM AM PM	Existing B B B	No-Build R II D C	Yellow A A C	Purple=Spur A A C C	Brown A A C C	Green+Spur	Worst LOS of the diamond			
	SR1@SR289	Period AM PM	Existing B B	No-Build B	Yellow A A	Purple=Spur A A	Brown A A	Green+Spur	Worst LOS of the diamond			
12	\$R 1 @ \$R 298 \$R 1, South of \$R 896	Period AM PM AM PM AM PM	Existing B B B	No-Build R II D C	Yellow A A C C	Furgle=Spur A C C	Brown A C C	Green+Spur	Worst LOS of the diamond			
12	SR 1 @ SR 299 SR 1, South of SR 896 US 13, South of SR 896	Period AM PM AM PM AM PM AM PM	Existing B B B	No-Build R II D C	Yellow A A C C	Purple=Spur A C C C	Brown A A C C C	Green+Spur	Worst LOS of the diamond intersection.			
12 13	SR 1 @ SR 289 SR 1, South of SR 896 US 13, South of SR 896 SR 896 @ US 13	Period AM PM	Existing B B B B B C C B B B B B B B B B B B B	No-Build B B C C D C	Yellow A A C C C	PurplexSpur A A C C C C D C D C	Brown A A C C C C D C	Green+Spur A C C C C C C	Worst LOS of the diamond intersection.			
12 13 1	SR 1 @ SR 288 SR 1, @ SR 288 SR 1, @ SR 288 US 13, South of SR 886 SR 886 @ US 13 Bisdes Bissge, SR 1 Across CAD Canal	Period AM PM A	Existing R R R R R R R R R R R R R R R R R R	No-Build B B C C D C	Yellow A C C C C D C D C C D C C C C C C C C C	Purples Spur A C C C C C C C	Brown A C C C C D C C C C C C C C C C C C C C	Green*Spur A C C C C C C C C C C C C C C C C C C	Worst LOS of the diamond intersection.			
12 13 1 14	SR 1 g SR 298 SR 1, South of SR 898 US 13, South of SR 898 US 13, South of SR 898 SR 998 g US 13 Biddler Binlage, SR 1 Amost CALD Catall St Georges Bidge, US 13 Amost CALD Catall	Period Au Pu Au Au Pu Au	Existing B B B C C B A A	No-Build in a control of the control	Yellow A A C C C D C D D C D D D D D D D D D D	Purple Spur A A C C C C D C C D C C C C C C C C C C	Brown A A C C C C D C C D C C E B D C C C C C C C C C C C C C C C C C C	Green+Spur A A C C C C C C C C C	Worst LOS of the diamond intersection.			

 53 key intersections, interchanges and roadway segments (including the locations listed on the panel 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%	43%	63%	64%	64%	66%						
LOS E	15%	24%	21%	18%	18%	20%						
LOS F (Failing)	10%	33%	16%	18%	18%	14%						



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
- Twice as many locations will approach or exceed capacity;
- ▶ 24% will be approaching failure (LOS E)
- ▶ 33% will fail (LOS F)

TELLOW ALTERNATIVE (2030)

- 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 (2030)







- 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

- Traffic Safety is a component of Purpose and Need (see Display Board #3)
- Accident predictions were made for each alternative

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:



► SR 299 ► SR 15





- 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)

