Appendix G

Evaluation Matrix

<u>SR 21 Corridor Study</u>
Phase I Final Report

Appendix C
Evaluation Maxtrix of
Conceptual Build Alternatives

Evaluation Criteria	Measure of Effectiveness (MOE)		MAP ID	2035 No Build	Alternative 3	Alternative 11	Alternative 10	Alternative 4	Alternative 5	Alternative 7	Alternative 8	Alternative 6	Alternative 1	Alternative 2	Alternative 9
					C	K	K	D	E	G	H	F	A	B	I
Congestion Reduction on SR 21	V/C on SR 21: Southern Segment (Brampton Rd - Rommel Ave)	NB	A	0.94	0.62	0.57	0.56	0.60	0.68	0.55	0.79	0.71	0.97	0.97	0.63
		SB		0.92	0.54	0.57	0.49	0.53	0.61	0.57	0.80	0.61	0.97	0.98	0.55
		Average		0.93	0.58	0.57	0.53	0.57	0.65	0.56	0.79	0.66	0.97	0.97	0.59
	V/C on SR 21: Middle Segment (Grange Rd - Cossgate Rd)	NB	B	0.91	0.74	0.72	0.73	0.71	0.63	0.74	0.76	0.66	0.81	0.82	0.69
		SB		0.82	0.69	0.72	0.71	0.67	0.64	0.70	0.73	0.65	0.75	0.76	0.69
		Average		0.86	0.72	0.72	0.72	0.69	0.63	0.72	0.75	0.66	0.78	0.79	0.69
	V/C on SR 21: Northern Segment (I-95 - SR 30)	NB	C	2.05	0.82	0.85	0.81	0.91	1.00	0.99	0.89	1.50	1.42	0.96	0.88
		SB		2.03	0.78	0.82	0.86	1.01	1.02	1.03	0.92	1.43	1.41	1.42	0.91
		Average		2.04	0.80	0.83	0.83	0.96	1.01	1.01	0.90	1.46	1.41	1.19	0.89
	Corridor Average			1.28	0.70	0.71	0.69	0.74	0.76	0.76	0.81	0.93	1.05	0.98	0.72
Improved Travel Times	Network Vehicle Hours Travelled (VHT)			463,200	397,100	397,300	397,900	396,400	398,000	400,200	397,000	402,900	413,800	412,300	397,000
	VHT Savings (Compared to No Build)				66,100	65,900	65,300	66,800	65,200	63,000	66,200	60,300	49,400	50,900	66,200
	VHT Savings %				14.3%	14.2%	14.1%	14.4%	14.1%	13.6%	14.3%	13.0%	10.7%	11.0%	14.3%
	Network Vehicle Miles Travelled (VMT)			11,856,000	11,807,000	11,809,000	11,809,000	11,863,000	11,868,000	11,872,000	11,838,000	11,826,000	11,800,000	11,800,000	11,871,000
	VMT Savings (Compared to No Build)				49,000	47,000	47,000	-7,000	-12,000	-16,000	18,000	30,000	56,000	56,000	-15,000
	VMT Savings %				0.4%	0.4%	0.4%	-0.1%	-0.1%	-0.1%	0.2%	0.3%	0.5%	0.5%	-0.1%
	Travel times (in minutes) from SR 21 at Effingham County Line to Georgia Ports Authority GPA (SR25 @ SR 307)		I-II	68.65	21.24	19.60	19.06	21.61	20.16	20.77	20.75	22.24	31.64	30.91	20.76
	Travel times (in minutes) from SR 21 at Effingham County Line to Downtown (MKL JR Blvd. @ Liberty St.)		I-IV	80.61	27.25	28.05	27.40	27.64	28.27	29.27	32.40	30.49	43.08	42.28	29.10
	Travel times (in minutes) from Gulfstream (Robert Miller Road @ Gulfstream Road) to Downtown (MKL JR Blvd. @ Liberty St.)		III-IV	20.49	15.54	15.90	15.68	15.49	15.25	16.08	17.66	16.46	19.28	19.75	16.38
Reduced Traffic and Truck Volumes on SR21	Traffic Volume on SR 21: Southern Segment (Brampton Rd - Rommel Ave)		A	50,803	21,171	31,134	19,085	20,525	23,315	30,317	43,107	23,763	52,795	53,173	21,337
	Reduction			-	-29,632	-19,669	-31,718	-30,278	-27,488	-20,486	-7,696	-27,040	1,992	2,370	-29,466
	Traffic Volume on SR 21: Middle Segment (Grange Rd - Cossgate Rd)		B	30,984	25,391	25,476	25,976	24,638	22,380	25,491	26,601	22,943	42,304	42,804	24,298
	Reduction			-	-5,593	-5,508	-5,008	-6,346	-8,604	-5,493	-4,383	-8,041	11,320	11,820	-6,686
	Traffic Volume on SR 21: Northern Segment (I-95 - SR 30)		C	71,927	40,926	42,756	43,601	32,534	34,636	34,546	30,948	34,546	73,990	74,329	30,559
	Increase/Decrease			-	-31,001	-29,171	-28,326	-39,393	-37,291	-37,381	-40,979	-37,381	2,063	2,402	-41,368
	Truck Volume on SR 21: Southern Segment (Brampton Rd - Rommel Ave) Total		A	890	410	780	400	410	580	720	890	600	970	960	510
	Increase/Decrease			-	-480	-110	-490	-480	-310	-170	0	-290	80	70	-380
	Truck Volume on SR 21: Middle Segment (Grange Rd - Cossgate Rd.) Total		B	910	1110	1170	1070	1080	1120	1210	1110	1320	1170	1160	1270
	Increase/Decrease			-	200	260	160	170	210	300	200	410	260	250	360
	Truck Volume on SR 21: Northern Segment (I-95 - SR 30) Total		C	1,780	3,350	3,570	3,590	2,130	1,860	1,930	1,540	1,790	1,790	1,970	840
	Increase/Decrease			-	1,570	1,790	1,810	350	80	150	-240	10	10	190	-940
Volumes on Nearby Arterials	I-16: I-95 to SR 307		a	66,605	63,504	62,498	63,769	63,923	63,929	63,056	62,306	64,219	65,236	65,081	64,360
	Increase/Decrease			-	-3,102	-4,107	-2,836	-2,682	-2,676	-3,550	-4,299	-2,387	-1,370	-1,524	-2,245
	I-16 between SR 307 and Chatham Pkwy.		b	65,183	62,676	62,192	62,826	62,982	62,897	62,490	76,593	63,069	63,785	63,721	63,203
	Increase/Decrease			-	-2,507	-2,991	-2,357	-2,200	-2,285	-2,692	11,411	-2,113	-1,398	-1,462	-1,980
	I-16 between I-516 and Stiles Ave		c	68,265	68,076	71,874	68,125	68,100	68,067	71,428	68,569	68,212	68,210	68,190	68,188
	Increase/Decrease			-	-189	3,609	-140	-165	-198	3,163	304	-53	-55	-75	-77
	I-516: Louisville Rd - Augusta Rd		d	47,578	51,825	34,616	51,849	51,840	51,907	34,408	40,919	51,739	49,161	49,196	51,748
	Increase/Decrease			-	4,247	-12,962	4,271	4,262	4,329	-13,170	-6,659	4,161	1,583	1,618	4,170
	I-516 between US 80 and W, Lathrop Ave.		e	55,121	63,696	38,122	64,344	63,672	63,733	38,193	49,303	63,253	57,232	57,603	62,971
	Increase/Decrease			-	8,576	-16,999	9,223	8,551	8,612	-16,928	-5,818	8,133	2,111	2,483	7,850
	Last Mile Facility: Grange-Crossgate		f	35,195	22,129	50,566	23,953	23,918	54,397	49,753	46,230	53,239	28,420	27,024	51,521
	Increase/Decrease			-	-13,065	15,371	-11,242	-11,277	19,202	14,558	11,035	18,044	-6,775	-8,171	16,327
	I-95 between Jimmy DeLoach Pkwy. and Monteith Rd.		g	126,104	119,271	117,544	120,253	117,704	117,234	117,246	117,009	117,866	121,161	121,444	117,525
	Increase/Decrease			-	-6,833	-8,560	-5,851	-8,400	-8,870	-8,858	-9,095	-8,238	-4,943	-4,660	-8,579
	US-80 between I-95 and Pine Barren Rd.		h	26,646	24,179	25,975	24,413	24,241	24,384	26,008	27,539	24,710	25,865	26,009	24,795
	Increase/Decrease			-	-2,467	-671	-2,233	-2,405	-2,262	-638	893	-1,936	-781	-637	-1,851
	SR 307 between Robert B. Miller Rd. and Louisville Rd.		i	20,567	21,631	19,683	21,361	21,685	21,813	20,264	14,147	22,162	20,480	20,358	21,841
	Increase/Decrease			-	-5,015	-884	794	-4,961	-4,832	-6,382	-12,499	-4,484	-6,166	-6,288	-4,805
	Jimmy DeLoach Pkwy. between Augusta Rd. and I-95		j	24,076	19,311	20,387	18,427	20,128	21,049	20,191	18,892	20,688	21,466	22,013	20,360
	Increase/Decrease			-	-7,335	-3,689	-5,649	-6,518	-5,597	-6,455	-7,754	-5,958	-5,180	-4,633	-6,286
Volumes on New Location Facilities (South End)	Elevated Lanes on SR 21 at Smith Avenue		1	-	43,617	-	43,330	43,273	40,035	-	-	39,398	-	-	-
	Trucks			-	700		690	700	560			550			
	Elevated Lanes on SR 25		2	-	-	-	-	-	-	-	-	-	-	-	42,686
	Trucks														650
	New Location A: SR307 to US 80 (Closer to I-516)		3	-	-	35,431	-	-	-	34,978	-	-	-	-	-
	Trucks					1,940				1,940					
	New Location B: SR 307 to US 80 (Closer to Dean Forrest Rd.)		4	-	-	-	-	-	-	-	24,309	-	-	-	-
	Trucks										5,760				
Volumes on New Location Facilities (North End)	Elevated Lanes on SR 21: south of I-95 Ramps		5	-	44,377	42,132	40,650	-	-	-	-	-	-	-	-
	Trucks				630	2,810	2,820								
	New Location to South: south of SR 21 ramps		6	-	-	-	-	31,242	24,693	24,256	26,435	-	-	-	27,327
	Trucks							300	1,040	1,060	1,080				1,100
	New Location to North: south ofSR 21 ramps		7	-	-	-	-	-	-	-	-	33,934	-	-	-
	Trucks											2,000			

		Alternative 3	Alternative 11	Alternative 10B	Alternative 4	Alternative 5	Alternative 7	Alternative 8	Alternative 6	Alternative 1	Alternative 2	Alternative 9
Cost	ROW	$ 4,900,000	$ 24,700,000	$ 16,100,000								
	Construction	$ 506,900,000	$ 481,200,000	$ 404,300,000								
	Total	$ 511,800,000	$ 505,900,000	$ 420,400,000								
	Annualized Project Cost	$ 29,390,000	$ 29,050,000	$ 24,140,000								
	Annualized Project Benefit	$ 278,050,000	$276,980,000	$274,710,000								
	Benefit/Cost Ratio	9.5	9.5	11.4								
Number of Displacements	Commercial	0	9	10	8	16	19	17	11			
	Residential	5	57	54	0	48	53	88	48			
Number of Parcels Impacted		68	109	92	72	86	106	83	73			
Required ROW (acres)		20	145	69	135	162	260	255	87			
Acres of Wetlands/Marshlands Impacted		3	42	18	30	50	90	112	40			
Redevelopment Opportunites		yes	no	yes	yes	yes	no	no	yes	no	no	yes