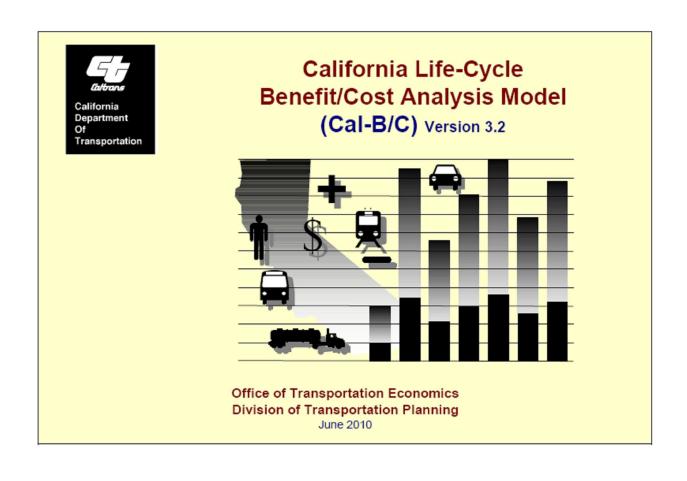
ATTACHMENT C SR-138 BENEFIT-COST ANALYSIS



District:	7
2.00.101.	L

PROJECT: Route 138 Lane Addition-Jct Ave T/Jct Rte 18

EA: PPNO: 127281 3331

1A	PROJE	ECT DATA	
Type of Proje	ect		
Select	project type from list	General Highway	
Project Loca	tion (enter 1 for So. Cal., 2 for	r No. Cal., or 3 for rural)	1
Length of Co	onstruction Period	4 years	
Length of Pe	eak Period(s) (up to 8 hr	rs) 5 hours	

1C HIGHWAY ACCIDENT DATA Actual 3-Year Accident Data for Facility							
Actual 3-Year Accident Data for Facility	Count (No.)	Rate					
Fatal Accidents	21	0.07					
Injury Accidents	159	0.50					
Property Damage Only (PDO) Accidents	169	0.53					
Property Damage Only (PDO) Accidents Statewide Average for Highway Classifications		0.53					
	ation						
Statewide Average for Highway Classifica	ation Existing	New					

Highway Design Number of General Traffic Lanes Number of HOV Lanes HOV Restriction (2 or 3) Exclusive ROW for Buses (y/n) Highway Free-Flow Speed Ramp Design Speed (if aux. lane/off-ramp proj.) Length (in miles) Highway Segment Affected Area	Existing 2 0 2 N 55 35 18.0	New 4 0 0 55 35 18.0
Number of HOV Lanes HOV Restriction (2 or 3) Exclusive ROW for Buses (y/n) Highway Free-Flow Speed Ramp Design Speed (if aux. lane/off-ramp proj.) Length (in miles) Highway Segment	0 2 N 55 35 18.0	55 35
HOV Restriction (2 or 3) Exclusive ROW for Buses (y/n) Highway Free-Flow Speed Ramp Design Speed (if aux. lane/off-ramp proj.) Length (in miles) Highway Segment	2 N 55 35 18.0	55 35
Exclusive ROW for Buses (y/n) Highway Free-Flow Speed Ramp Design Speed (if aux. lane/off-ramp proj.) Length (in miles) Highway Segment	55 35 18.0	35
Highway Free-Flow Speed Ramp Design Speed (if aux. lane/off-ramp proj.) Length (in miles) Highway Segment	55 35 18.0	35
Ramp Design Speed (if aux. lane/off-ramp proj.) Length (in miles) Highway Segment	35 18.0	35
Length (in miles) Highway Segment	18.0	
		100
Affected Area		10.0
· · · · · · · · · · · · · · · · · · ·	18.0	18.0
Average Daily Traffic		
	16,200	
· · · · · · · · · · · · · · · · · · ·	/o Project	w/ Project
	18,426	26,051
	29,000	41,000
Average Hourly HOV Traffic (if HOV lanes)		0
Percent Traffic in Weave (if oper. improvement)	400/	400/
Percent Trucks (include RVs, if applicable)	10%	10%
Truck Speed (if passing lane project)		
On-Ramp Volume	Peak	Non-Peak
Hourly Ramp Volume (if aux. lane/on-ramp proj.)	0	0
Metering Strategy (1, 2, 3, or D, if on-ramp proj.)		
	/o Project	w/Project
IRI (inches/mile) Base (Year 1)		
Forecast (Year 20)		
2000	Existing	New
General Traffic Non-Peak	1.15	1.15
Peak High Occupancy Vehicle (if HOV lanes)	1.10	1.10 2.05

1D TRANSIT DATA								
Annual Person-T	rips	w/o Project	w/Project					
	Base (Year 1)							
	Forecast (Year 20)							
Percent Trips dur	39%							
Percent New Trip		100%						
Annual Vehicle-N	files	w/o Project	w/Project					
	Base (Year 1)							
	Forecast (Year 20)							
Average Vehicles	6/Train (if rail project)							
Reduction in Train Percent Reduct	s/Train (if rail project) nsit Accidents ion (if safety project)							
Reduction in Trai Percent Reduct	nsit Accidents ion (if safety project) Travel Time	Existing	New					
Reduction in Train Percent Reduct	nsit Accidents ion (if safety project) Travel Time Non-Peak (in minutes)	Existing	0.0					
Reduction in Trai Percent Reduct Average Transit	nsit Accidents ion (if safety project) Travel Time Non-Peak (in minutes) Peak (in minutes)		0.0 0.0					
Reduction in Trai Percent Reduct	insit Accidents ion (if safety project) Travel Time Non-Peak (in minutes) Peak (in minutes) Non-Peak (in minutes)	0.0	0.0 0.0 0.0					
Reduction in Trai Percent Reduct Average Transit	nsit Accidents ion (if safety project) Travel Time Non-Peak (in minutes) Peak (in minutes)		0.0 0.0					
Reduction in Train Percent Reduct Average Transit In-Vehicle Out-of-Vehicle	insit Accidents ion (if safety project) Travel Time Non-Peak (in minutes) Peak (in minutes) Non-Peak (in minutes)	0.0	0.0 0.0 0.0					
Reduction in Train Percent Reduct Average Transit In-Vehicle Out-of-Vehicle	nsit Accidents ion (if safety project) Travel Time Non-Peak (in minutes) Peak (in minutes) Non-Peak (in minutes) Peak (in minutes) Peak (in minutes) Peak (in minutes)	0.0	0.0 0.0 0.0 0.0					

1E	PROJECT COSTS									
Col. no.	F (1)	(2)	(3)	(4)	(5)	(6)	(7)			
		DIRECT	PROJECT CO	STS			Transit			
		INITIAL COSTS			NT COSTS	ĺ	Agency	TOTAL	COSTS	
Year	Project			Maint./			Cost	Constant	Present	
	Support	R/W	Construction	Op.	Rehab.	Mitigation	Savings	Dollars	Value	
Constructi	ion Begins									
0	\$29,705,000	\$18,355,000	\$38,338,250					\$86,398,250	\$86,398,250	
1			\$38,338,250					38,338,250	35,830,140	
2			\$38,338,500					38,338,500	33,486,331	
3			\$38,338,500					38,338,500	31,295,636	
4								0	0	
5								0	0	
6								0	0	
7								0	0	
Project O	pens									
1								\$0	\$0	
2								0	0	
3								0	0	
4								0	0	
5								0	0	
6								0	0	
7								0	0	
8								0	0	
9				h				0	0	
10				******************************		•••••••••••••		0	0	
11								0	0	
12								0	0	
13								0	0	
14								0	0	
15								0	0	
16								0	0	
17								0	0	
18								0	0	
19								0	0	
20								0	0	
Total	\$29,705,000	\$18,355,000	\$153,353,500	\$0	\$0	\$0	\$0	\$201,413,500	\$187,010,357	
iotai	Ψ20,700,000	ψ10,333,000	ψ100,000,000	φυ	φ0	φυ	ΨΟ	Ψ201,413,300	ψ101,010,331	

Present Value = Future Value (in Constant Dollars)
(1 + Real Discount Rate) ^Year

2A HIGHWAY SPEED AND VOLUME INPUTS							
	Calculated by	Changed	Used for Proj.				
hout Project	Model	by User	Eval.	Reason for Change			
Year 1							
Peak Period	0		3				
HOV Volume Non-HOV Volume	0 6,468		0 6,468				
Weaving Volume	0,400		0,400				
Truck Volume	719		719				
HOV Speed	55.0		55.0				
Non-HOV Speed	55.0		55.0				
Weaving Speed	55.0	***************************************	55.0				
Truck Speed	55.0		55.0				
Non-Peak Period							
Non-HOV Volume	10,116		10,116				
Weaving Volume	0		0				
Truck Volume	1,124 55.0		1,124 55.0				
Non-HOV Speed Weaving Speed	55.0		55.0				
Truck Speed	55.0	***************************************	55.0				
Year 20							
Peak Period							
HOV Volume	0		0				
Non-HOV Volume Weaving Volume	10,179 0		10,179 0				
rruck Volume	1,131		1,131				
HOV Speed	55.0		55.0				
Non-HOV Speed	55.0	***************************************	55.0				
Weaving Speed	55.0		55.0				
Truck Speed	55.0	***************************************	55.0				
Non-Peak Period Non-HOV Volume	15,921		15,921				
Weaving Volume	13,921		15,921				
Truck Volume	1,769		1,769				
Non-HOV Speed	55.0		55.0				
Weaving Speed	55.0		55.0				
Truck Speed	55.0	••••••	55.0				
h Project Year 1							
Peak Period							
HOV Volume	0		0				
HOV Volume Non-HOV Volume							
	0 9,144 0		9,144 0				
Non-HOV Volume Weaving Volume Truck Volume	9,144		9,144				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed	9,144 0 1,016 55.0		9,144 0 1,016 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed	9,144 0 1,016 55.0 55.0		9,144 0 1,016 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed	9,144 0 1,016 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed	9,144 0 1,016 55.0 55.0		9,144 0 1,016 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed	9,144 0 1,016 55.0 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-Peak Period Non-HOV Volume	9,144 0 1,016 55.0 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-Peak Period Non-HOV Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302		9,144 0 1,016 55.0 55.0 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-Peak Period Non-HOV Volume Weaving Volume Truck Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0		9,144 0 1,016 55.0 55.0 55.0 65.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-Peak Period Non-HOV Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302		9,144 0 1,016 55.0 55.0 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-Peak Period Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-Peak Period Non-HOV Volume Weaving Volume Truck Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 65.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Truck Speed Truck Speed Weaving Speed Truck Speed Year 20 Peak Period	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Year 20 Peak Period HOV Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Speed Truck Volume Non-HOV Volume Non-HOV Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 55.0 0 14,302 0 1,589 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Truck Speed Weaving Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Weaving Speed Truck Speed HOV Volume Non-HOV Volume Weaving Volume Truck Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0 0 14,391 0 0 14,391 0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,301 0 1,599				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Year 20 Peak Period HOV Volume Non-HOV Volume Veaving Volume Truck Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume HOV Volume Weaving Volume Truck Volume HOV Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 1,550		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Volume Non-HOV Volume Weaving Volume Truck Volume Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0 14,391 0 1,599 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Year 20 Peak Period HOV Volume Non-HOV Volume Veaving Volume Truck Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume HOV Volume Weaving Volume Truck Volume HOV Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 1,550		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Year 20 Peak Period HOV Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Non-HOV Speed Non-HOV Speed Weaving Speed Truck Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 0 14,391 0 1,599 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Truck Speed Truck Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume Truck Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume Non-HOV Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 0 14,391 0 1,599 55.0 55.0				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Year 20 Peak Period HOV Volume Non-HOV Volume Weaving Volume Truck Volume Non-HOV Volume Weaving Volume Non-HOV Speed Non-HOV Speed Non-HOV Speed Weaving Speed Truck Speed Non-HOV Volume HOV Speed Non-HOV Speed Weaving Speed Non-Peak Period Non-HOV Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0 55.0 55.0		9,144 0 1,016 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 0 14,391 0 1,599 55.0 55.0 22,509				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Volume Non-HOV Volume Weaving Volume Truck Volume HOV Speed Weaving Speed Truck Speed Mon-HOV Volume Weaving Volume Truck Volume HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Veaving Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 14,391 0 11,599 55.0 55.0 22,500				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Truck Speed Truck Speed Weaving Speed Truck Volume Non-HOV Volume Weaving Volume Truck Volume Non-HOV Volume Weaving Volume Truck Volume HOV Speed Weaving Speed Truck Speed Non-HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Weaving Volume Truck Volume Weaving Volume Weaving Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.		9,144 0 1,016 55.0 55.0 55.0 14,302 0 1,589 55.0 0 14,391 0 1,599 55.0 55.0 22,509 0 2,501				
Non-HOV Volume Weaving Volume Truck Volume HOV Speed Non-HOV Speed Weaving Speed Truck Speed Truck Speed Non-HOV Volume Weaving Volume Truck Volume Non-HOV Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Speed Truck Speed Weaving Volume Non-HOV Volume Weaving Volume Truck Volume HOV Speed Weaving Speed Truck Speed Mon-HOV Volume Weaving Volume Truck Volume HOV Speed Weaving Speed Truck Speed Non-HOV Volume Weaving Volume Veaving Volume Weaving Volume	9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 55.0 55.0 55.0 55.0 55.0 55.		9,144 0 1,016 55.0 55.0 55.0 55.0 14,302 0 1,589 55.0 55.0 14,391 0 11,599 55.0 55.0 22,500				



INVESTMENT ANALYSIS

SUMMARY RESULTS

Life-Cycle Costs (mil. \$)	\$187.0
Life-Cycle Benefits (mil. \$)	\$270.9
Net Present Value (mil. \$)	\$83.9
Benefit / Cost Ratio:	1.4
Rate of Return on Investment:	10.0%
Payback Period:	8 years

ITEMIZED BENEFITS (mil. \$)	Average Annual	Total Over 20 Years						
Travel Time Savings	\$0.0	\$0.0						
Veh. Op. Cost Savings	\$0.0	\$0.0						
Accident Cost Savings	\$13.5	\$270.9						
Emission Cost Savings	\$0.0	\$0.0						
TOTAL BENEFITS	\$13.5	\$270.9						
Person Hours of Delay Save	0	0						

Accident Reduction Benefits

This sheet calculates accident benefits for highway and transit.

Formulas:

Vehicle-Miles Traveiled = Affected Length x Ang Volume
whiches by:

Vehicle-Miles Traveiled = Affected Length x Ang Volume
whiches by:

Vehicle-Miles Traveiled = Affected Length x Ang Volume

Vehicle-Miles Traveiled = Cost = Veh-Miles x Acc Cost Mile

Traveil Acc Cost = (VMT x Rate x Cost/Mile) by Acc Type

Traveil Acc Cost/Mile from PARAMETERS

HIGHWAY BENEFITS

Peak Period Non-HOV

	AVERAGE	AVERAGE VOLUME TOTAL VMT		TOTAL VMT		ACCIDENT COSTS		ACCIDENT COSTS		
	(vehicles/yr)		(veh-m	(veh-miles/yr)		(\$/\str)				
Year	Existing	New	Existing	New	Existing	New	Constant	Present		
	Facility	Facility	Facility	Facility	Facility	Facility	Dollars	Value		
. 1	2,360,658	3,337,482	42,491,846	60,074,679	\$11,092,914	\$4,968,704	\$6,124,210	\$4,672,131		
20	3,715,335	5,252,715	66,876,030	94,548,870	\$17,458,645	\$7,820,023	\$9,638,622	\$2,033,237		
2	2,431,957	3,438,284	43,775,224	61,889,110	\$11,427,953	\$5,118,774	\$6,309,179	\$4,498,358		
3	2,503,256	3,539,086	45,058,603	63,703,541	\$11,762,991	\$5,268,843	\$6,494,148	\$4,327,325		
4	2,574,554	3,639,887	46,341,981	65,517,973	\$12,098,030	\$5,418,912	\$6,679,117	\$4,159,419		
5	2,645,853	3,740,689	47,625,359	67, 332, 404	\$12,433,068	\$5,568,982	\$6,864,086	\$3,994,961		
6	2,717,152	3,841,491	48,908,737	69,146,835	\$12,768,106	\$5,719,051	\$7,049,055	\$3,834,219		
7	2,788,451	3,942,293	50,192,115	70,961,266	\$13,103,145	\$5,869,121	\$7,234,024	\$3,677,411		
8	2,859,750	4,043,094	51,475,493	72,775,697	\$13,438,183	\$6,019,190	\$7,418,993	\$3,524,710		
9	2,931,048	4,143,896	52,758,871	74,590,128	\$13,773,222	\$6,169,259	\$7,603,963	\$3,376,250		
10	3,002,347	4,244,698	54,042,249	76,404,559	\$14,108,260	\$6,319,329	\$7,788,932	\$3,232,130		
11	3,073,646	4,345,499	55,325,627	78, 218, 990	\$14,443,299	\$6,469,398	\$7,973,901	\$3,092,416		
12	3,144,945	4,446,301	56,609,005	80,033,421	\$14,778,337	\$6,619,468	\$8, 158, 870	\$2,957,150		
13	3,216,244	4,547,103	57,892,383	81,847,852	\$15,113,376	\$6,769,537	\$8,343,839	\$2,826,347		
14	3,287,542	4,647,905	59,175,761	83,662,283	\$15,448,414	\$6,919,606	\$8,528,808	\$2,700,002		
15	3,358,841	4,748,706	60,459,140	85,476,715	\$15,783,453	\$7,069,676	\$8,713,777	\$2,578,092		
16	3,430,140	4,849,508	61,742,518	87, 291, 146	\$16,118,491	\$7,219,745	\$8,898,746	\$2,460,577		
17	3,501,439	4,950,310	63,025,896	89, 105, 577	\$16,453,530	\$7,369,815	\$9,083,715	\$2,347,405		
18	3,572,737	5,051,112	64,309,274	90,920,008	\$16,788,568	\$7,519,884	\$9,268,684	\$2,238,509		
19	3,644,036	5,151,913	65,592,652	92,734,439	\$17,123,607	\$7,669,953	\$9,453,653	\$2,133,814		

Total \$64,664,462

Peak Period Truck

	AVERAGE	AVERAGE VOLUME		TOTAL VMT		ACCIDENT COSTS		
	(vehic	les/yr)	(veh-m	iles/yr)	(\$/	(yr)		
Year	Existing	New	Existing	New	Existing	New	Constant	Present
	Facility	Facility	Facility	Facility	Facility	Facility	Dollars	Value
1	262,295	370,831	4,721,316	6,674,964	\$1,232,546	\$552,078	\$680,468	\$519,126
20	412,815	583,635	7,430,670	10,505,430	\$1,939,849	\$868,891	\$1,070,958	\$225,915
2	270,217	382,032	4,863,914	6,876,568	\$1,269,773	\$568,753	\$701,020	\$499,818
3	278,140	393,232	5,006,511	7,078,171	\$1,306,999	\$585,427	\$721,572	\$480,814
4	286,062	404,432	5,149,109	7,279,775	\$1,344,226	\$602,101	\$742,124	\$462,158 \$443.885
5	293,984	415,632	5,291,707	7,481,378	\$1,381,452	\$618,776	\$762,676	\$443,885
6	301,906	426,832	5,434,304	7,682,982	\$1,418,678	\$635,450	\$783,228	\$426,024
7	309,828	438,033	5,576,902	7,884,585	\$1,455,905	\$652,125	\$803,780	\$408,601
8	317,750	449,233	5,719,499	8,086,189	\$1,493,131	\$668,799	\$824,333	\$391,634
9	325,672	460,433	5,862,097	8,287,792	\$1,530,358	\$685,473	\$844,885	\$375,139
10	333,594	471,633	6,004,694	8,489,395	\$1,567,584	\$702,148	\$865,437	\$359,126
11	341,516	482,833	6,147,292	8,690,999	\$1,604,811	\$718,822	\$885,989	\$343,602
12	349,438	494,033	6,289,889	8,892,602	\$1,642,037	\$735,496	\$906,541	\$328,572
13	357,360	505,234	6,432,487	9,094,206	\$1,679,264	\$752,171	\$927,093	\$314,039
14	365.282	516.434	6.575.085	9, 295, 809	\$1,716,490	\$768.845	\$947.645	\$300,000
15	373,205	527,634	6,717,682	9,497,413	\$1,753,717	\$785,520	\$968,197	\$286,455
16	381,127	538,834	6,860,280	9,699,016	\$1,790,943	\$802,194	\$988,750	\$273,397
17	389.049	550.034	7.002.877	9.900.620	\$1.828.170	\$818.868	\$1,009,302	\$260.823
18	396,971	561,235	7,145,475	10, 102, 223	\$1,865,396	\$835,543	\$1,029,854	\$248,723
19	404.893	572.435	7.288.072	10.303.827	\$1,902,623	\$852.217	\$1,050,406	\$237.090

Total \$7,184,940

Non-Peak Period Non-HOV

	AVERAGE	AVERAGE VOLUME TOTAL VMT ACCIDENT COSTS								
	(vehic	(vehicles/yr)		(veh-miles/yr)		(\$/yr)				
Year	Existing	New	Existing	New	Existing	New	Constant	Present		
	Facility	Facility	Facility	Facility	Facility	Facility	Dollars	Value		
1	3,692,311	5,220,164	66,461,606	93,962,960	\$17,350,455	\$7,771,563	\$9,578,893	\$7,307,691		
20	5,811,165	8,215,785	104,600,970	147,884,130	\$27,307,111	\$12,231,318	\$15,075,794	\$3,180,192		
	·									
2	3,803,830	5,377,829	68,468,941	96,800,916	\$17,874,490	\$8,006,287	\$9,868,203	\$7,035,893		
3	3,915,349	5,535,493	70,476,276	99,638,873	\$18,398,525	\$8,241,011	\$10,157,514	\$6,768,380		
4	4,026,867	5,693,157	72,483,611	102,476,829	\$18,922,559	\$8,475,735	\$10,446,824	\$6,505,757		
5	4,138,386	5,850,821	74,490,946	105,314,785	\$19,446,594	\$8,710,459	\$10,736,135	\$6,248,528		
6	4,249,904	6,008,486	76,498,281	108,152,742	\$19,970,628	\$8,945,183	\$11,025,446	\$5,997,112		
7	4,361,423	6,166,150	78,505,616	110,990,698	\$20,494,663	\$9,179,906	\$11,314,756	\$5,751,848		
8	4,472,942	6,323,814	80,512,951	113,828,654	\$21,018,697	\$9,414,630	\$11,604,067	\$5,513,009		
9	4,584,460	6,481,478	82,520,285	116,666,611	\$21,542,732	\$9,649,354	\$11,893,377	\$5,280,802		
10	4,695,979	6,639,143	84,527,620	119,504,567	\$22,066,766	\$9,884,078	\$12,182,688	\$5,055,382		
11	4,807,498	6,796,807	86,534,955	122,342,523	\$22,590,801	\$10,118,802	\$12,471,998	\$4,836,856		
12	4,919,016	6,954,471	88,542,290	125, 180, 479	\$23,114,835	\$10,353,526	\$12,761,309	\$4,625,286		
13	5,030,535	7,112,135	90,549,625	128,018,436	\$23,638,870	\$10,588,250	\$13,050,620	\$4,420,696		
14	5,142,053	7,269,800	92,556,960	130,856,392	\$24,162,904	\$10,822,974	\$13,339,930	\$4,223,080		
15	5,253,572	7,427,464	94,564,295	133,694,348	\$24,686,939	\$11,057,698	\$13,629,241	\$4,032,401		
16	5,365,091	7,585,128	96,571,630	136,532,305	\$25,210,973	\$11,292,422	\$13,918,551	\$3,848,595		
17	5,476,609	7,742,792	98,578,965	139,370,261	\$25,735,008	\$11,527,146	\$14,207,862	\$3,671,582		
18	5,588,128	7,900,457	100,586,300	142,208,217	\$26,259,042	\$11,761,870	\$14,497,173	\$3,501,257		
19	5,699,646	8,058,121	102,593,635	145,046,174	\$26,783,077	\$11,996,594	\$14,786,483	\$3,337,504		

Total \$101,141,85

Non-Peak Period Truck

	AVERAGE	VOLUME	TOTAL	LVMT	ACCIDEN	TCOSTS		
	(vehicl	les/yr)	(veh-m	iles/yr)	(\$/	yr)		
Year	Existing	New	Existing	New	Existing	New	Constant	Present
	Facility	Facility	Facility	Facility	Facility	Facility	Dollars	Value
1	410,257	580,018	7,384,623	10,440,329	\$1,927,828	\$863,507	\$1,064,321	\$811,966
20	645,685	912,865	11,622,330	16,431,570	\$3,034,123	\$1,359,035	\$1,675,088	\$353,355
2	422,648	597,537	7,607,660	10,755,657	\$1,986,054	\$889,587	\$1,096,467	\$781,766
3	435,039	615,055	7,830,697	11,070,986	\$2,044,281	\$915,668	\$1,128,613	\$752,042
4	447,430	632,573	8,053,735	11,386,314	\$2,102,507	\$941,748	\$1,160,758	\$722,862
5	459,821	650,091	8,276,772	11,701,643	\$2,160,733	\$967,829	\$1,192,904	\$694,281
6	472,212	667,610	8,499,809	12,016,971	\$2,218,959	\$993,909	\$1,225,050	\$666,346
7	484,603	685,128	8,722,846	12,332,300	\$2,277,185	\$1,019,990	\$1,257,195	\$639,094
8	496,994	702,646	8,945,883	12,647,628	\$2,335,411	\$1,046,070	\$1,289,341	\$612,557
9	509,384	720,164	9,168,921	12,962,957	\$2,393,637	\$1,072,150	\$1,321,486	\$586,756
10	521,775	737,683	9,391,958	13,278,285	\$2,451,863	\$1,098,231	\$1,353,632	\$561,709
11	534,166	755,201	9,614,995	13,593,614	\$2,510,089	\$1,124,311	\$1,385,778	\$537,428
12	546,557	772,719	9,838,032	13,908,942	\$2,568,315	\$1,150,392	\$1,417,923	\$513,921
13	558,948	790,237	10,061,069	14,224,271	\$2,626,541	\$1,176,472	\$1,450,069	\$491,188
14	571,339	807,756	10,284,107	14,539,599	\$2,684,767	\$1,202,553	\$1,482,214	\$469,231
15	583,730	825,274	10,507,144	14,854,928	\$2,742,993	\$1,228,633	\$1,514,360	\$448,045
16	596,121	842,792	10,730,181	15, 170, 256	\$2,801,219	\$1,254,714	\$1,546,506	\$427,622
17	608,512	860,310	10,953,218	15,485,585	\$2,859,445	\$1,280,794	\$1,578,651	\$407,954
18	620,903	877,829	11,176,256	15,800,913	\$2,917,671	\$1,306,874	\$1,610,797	\$389,029
19	633,294	895,347	11,399,293	16,116,242	\$2,975,897	\$1,332,955	\$1,642,943	\$370,834

Total \$11,237,9

	PF	RESENT VALUE O	OF USER BENEFI	TS	PR	ESENT VALUE (OF USER BENEF	ITS	Present	Present	
						(on oth	er road)	_	Value	Value	
	Travel	Vehicle		Vehicle	Travel	Vehicle		Vehicle	of Total	of Total	NET
Year	Time	Op. Cost	Accident	Emission	Time	Op. Cost	Accident	Emission	User	Project	PRESENT
	Savings	Savings	Reductions	Reductions	Savings	Savings	Reductions	Reductions	Benefits	Costs	VALUE
Construc	ction Begins										
0									\$0	\$86,398,250	(\$86,398,250)
1									\$0	\$35,830,140	(\$35,830,140)
2									\$0	\$33,486,331	(\$33,486,331)
3									\$0	\$31,295,636	(\$31,295,636)
4									\$0	\$0	\$0
5									\$0	\$0	\$0
6									\$0	\$0	\$0
7									\$0	\$0	\$0
Project (
1	\$0	***************************************	\$13,310,913	\$0		vr.v.r.v.r.v.r.v.r.v.r.v.r.v.r.v.r.v.r.	\$4,679,687		\$17,990,600	\$0	\$17,990,600
2	\$0		\$12,815,833	\$0			\$4,691,117		\$17,506,950	\$0	\$17,506,950
3	\$0		\$12,328,562	\$0			\$4,690,847		\$17,019,409	\$0	\$17,019,409
4	\$0		\$11,850,195	\$0			\$4,679,965		\$16,530,161	\$0	\$16,530,161
5	\$0		\$11,381,654	\$0			\$4,659,483		\$16,041,138	\$0	\$16,041,138
6	\$0		\$10,923,701	\$0			\$4,630,340		\$15,554,041	\$0	\$15,554,041
7	\$0		\$10,476,955	\$0			\$4,593,406		\$15,070,361	\$0	\$15,070,361
8	\$0		\$10,041,910	\$0			\$4,549,490		\$14,591,400	\$0	\$14,591,400
9	\$0		\$9,618,947	\$0			\$4,499,341		\$14,118,287	\$0	\$14,118,287
10	\$0		\$9,208,347	\$0			\$4,443,651		\$13,651,998	\$0	\$13,651,998
11	\$0		\$8,810,302	\$0			\$4,383,063		\$13,193,365	\$0	\$13,193,365
12	\$0		\$8,424,928	\$0			\$4,318,169		\$12,743,097	\$0	\$12,743,097
13	\$0		\$8,052,270	\$0			\$4,249,516		\$12,301,786	\$0	\$12,301,786
14	\$0	***************************************	\$7,692,314	\$0		vr.v.r.v.r.v.r.v.r.v.r.v.r.v.r.v.r.v.r.	\$4,177,609		\$11,869,923	\$0	\$11,869,923
15	\$0		\$7,344,992	\$0			\$4,102,915		\$11,447,907	\$0	\$11,447,907
16	\$0		\$7,010,192	\$0	***************************************		\$4,025,862		\$11,036,054	\$0	\$11,036,054
17	\$0		\$6,687,762	\$0			\$3,946,843		\$10,634,606	\$0	\$10,634,606
18	\$0		\$6,377,517	\$0			\$3,866,221		\$10,243,738	\$0	\$10,243,738
19	\$0		\$6,079,242	\$0			\$3,784,328		\$9,863,570	\$0	\$9,863,570
20	\$0		\$5,792,699	\$0			\$3,701,467		\$9,494,166	\$0	\$9,494,166
Total	\$0	\$0	\$184,229,236	\$0	\$0	\$0	\$86,673,319	\$0	\$270,902,556	\$187,010,357	\$83,892,199

	USER	BENEFITS IN C	CONSTANT DOLL	ARS	USE	R BENEFITS IN C	CONSTANT DOLL	ARS		Total		
						(on oth	er road)			Project	ANNUAL	CUMULATIVE
	Travel	Vehicle		Vehicle	Travel	Vehicle		Vehicle	Total	Costs in	RETURNS	RETURNS
Year	Time	Op. Cost	Accident	Emission	Time	Op. Cost	Accident	Emission	User	Constant	ON	AFTER
	Savings	Savings	Reductions	Reductions	Savings	Savings	Reductions	Reductions	Benefits	Dollars	INVESTMENT	PROJ OPENS
Construc	tion Begins											
0									\$0	\$86,398,250	(\$86,398,250)	
1									\$0	\$38,338,250	(\$38,338,250)	
2									\$0	\$38,338,500	(\$38,338,500)	
3									\$0	\$38,338,500	(\$38,338,500)	
4									\$0	\$0	\$0	
5									\$0	\$0	\$0	
6									\$0	\$0	\$0	
7									\$0	\$0	\$0	
Project 0	Opens											
1	\$0		\$17,447,892	\$0			\$5,688,188		\$23,136,080	\$0	\$23,136,080	\$23,136,080
2	\$0		\$17,974,869	\$0			\$5,987,186		\$23,962,055	\$0	\$23,962,055	\$47,098,136
3	\$0		\$18,501,847	\$0			\$6,286,184		\$24,788,030	\$0	\$24,788,030	\$71,886,166
4	\$0		\$19,028,824	\$0			\$6,585,181		\$25,614,005	\$0	\$25,614,005	\$97,500,171
5	\$0		\$19,555,801	\$0			\$6,884,179		\$26,439,980	\$0	\$26,439,980	\$123,940,151
6	\$0		\$20,082,779	\$0			\$7,183,177		\$27,265,955	\$0	\$27,265,955	\$151,206,107
7	\$0		\$20,609,756	\$0			\$7,482,174		\$28,091,930	\$0	\$28,091,930	\$179,298,037
8	\$0		\$21,136,734	\$0			\$7,781,172		\$28,917,905	\$0	\$28,917,905	\$208,215,942
9	\$0		\$21,663,711	\$0			\$8,080,169		\$29,743,880	\$0	\$29,743,880	\$237,959,823
10	\$0		\$22,190,688	\$0			\$8,379,167		\$30,569,855	\$0	\$30,569,855	\$268,529,678
11	\$0		\$22,717,666	\$0			\$8,678,165		\$31,395,830	\$0	\$31,395,830	\$299,925,508
12	\$0		\$23,244,643	\$0			\$8,977,162		\$32,221,805	\$0	\$32,221,805	\$332,147,313
13	\$0		\$23,771,620	\$0			\$9,276,160		\$33,047,780	\$0	\$33,047,780	\$365,195,094
14	\$0		\$24,298,598	\$0			\$9,575,157		\$33,873,755	\$0	\$33,873,755	\$399,068,849
15	\$0		\$24,825,575	\$0			\$9,874,155		\$34,699,730	\$0	\$34,699,730	\$433,768,579
16	\$0		\$25,352,553	\$0			\$10,173,153		\$35,525,705	\$0	\$35,525,705	\$469,294,284
17	\$0		\$25,879,530	\$0			\$10,472,150		\$36,351,680	\$0	\$36,351,680	\$505,645,965
18	\$0	***************************************	\$26,406,507	\$0			\$10,771,148		\$37,177,655	\$0	\$37,177,655	\$542,823,620
19	\$0		\$26,933,485	\$0			\$11,070,145		\$38,003,630	\$0	\$38,003,630	\$580,827,250
20	\$0		\$27,460,462	\$0			\$11,369,143		\$38,829,605	\$0	\$38,829,605	\$619,656,855
	,		,				,	,		,		
Total	\$0	\$0	\$449,083,540	\$0	\$0	\$0	\$170,573,315	\$0	\$619,656,855	\$201,413,500	\$418,243,355	

Years After Construction Begins	ANNUAL RETURNS ON INVESTMENT
0	(\$86,398,250)
1	(\$38,338,250
	(\$38,338,500
3	(\$38,338,500
4	\$23,136,080
5	\$23,962,055
6	\$24,788,030
7	\$25,614,005
8	\$26,439,980
9	\$27,265,955
10	\$28,091,930
11	\$28,917,905
12	\$29,743,880
13	\$30,569,855
14	\$31,395,830
15	\$32,221,805
16	\$33,047,780
17	\$33,873,755
18	\$34,699,730
19	\$35,525,705
20	\$36,351,680
21	\$37,177,655
22	\$38,003,630
23	\$38,829,605
24	\$0
25	\$0
26	\$0
27	\$0

Total Construction Costs \$201,413,500

Parameters

General Economic Parameters

Year of Current Dollars for Model Economic Update Factor (Using GDP Deflator) 2003 1.00

Real Discount Rate

7.0%

ighway Operations Parameters			11.5
Maximum V/C Ratio		Value	Units
Percent ADT in Average Peak Hour		7 99/	1
Capacity per Lane (general)		7.8% 2000	% veh/hr
. , ,			
Capacity per HOV Lane		1500	veh/hr
ravel Time Parameters			
Average Hourly Wage			
Transportation and Warehousing	\$	18.74	\$/hr
Statewide	\$	20.92	\$/hr
Value of Time			
Automobile	\$	10.46	\$/hr/person
Truck	\$	27.83	\$/hr
Transit	\$	10.46	\$/hr/person
Out-of-Vehicle Travel		2	times
Incident-Related Travel		3	times
Non-Fuel Cost Per Mile			
Non-Fuel Cost Per Mile Automobile Truck	\$	0.173	\$/mi
	\$	0.173 0.299	\$/mi \$/mi
Automobile Truck	~~		\$/mi
Automobile Truck ccident Cost Paramters	\$	0.299	\$/mi
Automobile Truck ccident Cost Paramters Cost of a Fatality	\$	0.299	\$/mi
Automobile Truck ccident Cost Paramters Cost of a Fatality Cost of an Injury	\$	0.299	\$/mi \$/event
Automobile Truck ccident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe)	\$ \$	0.299 2,847,668 157,357	\$/mi \$/event \$/event
Automobile Truck ccident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate)	\$ \$ \$ \$	0.299 2,847,668 157,357 42,505	\$/mi \$/event \$/event \$/event
Automobile Truck ccident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor)	\$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459	\$/mi \$/event \$/event \$/event \$/event \$/event
Automobile Truck Cocident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident Injury Accident	\$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960	\$/mi \$/event \$/event \$/event \$/event
Automobile Truck Ccident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident	\$ \$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459 85,716 7,198	\$/event \$/event \$/event \$/event \$/accident \$/accident \$/accident
Automobile Truck Cocident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident Injury Accident	\$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459 85,716	\$/event \$/event \$/event \$/event \$/event \$/accident \$/accident
Automobile Truck Cocident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident Injury Accident PDO Accident	\$ \$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459 85,716 7,198	\$/event \$/event \$/event \$/event \$/accident \$/accident \$/accident
Automobile Truck Cocident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident Injury Accident PDO Accident Average Cost	\$ \$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459 85,716 7,198 61,509	\$/event \$/event \$/event \$/event \$/accident \$/accident \$/accident
Automobile Truck Cocident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident Injury Accident PDO Accident Average Cost Statewide Highway Accident Rates	\$ \$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459 85,716 7,198 61,509 0.009	\$/event \$/event \$/event \$/event \$/accident \$/accident \$/accident \$/accident
Automobile Truck Cocident Cost Paramters Cost of a Fatality Cost of an Injury Level A (Severe) Level B (Moderate) Level C (Minor) Cost of Highway Accident Fatal Accident Injury Accident PDO Accident Average Cost Statewide Highway Accident Rates Fatal Accident	\$ \$ \$ \$ \$	0.299 2,847,668 157,357 42,505 22,960 3,262,459 85,716 7,198 61,509 0.009 0.343	\$/event \$/event \$/event \$/event \$/accident \$/accident \$/accident \$/accident

Sources: 1) Highway Capacity Manual, 2) Statewide Travel Survey 1991, 3) Bureau of Labor Statistics (BLS) Covered Wages and Employment Program, 4) AAA Daily Fuel Gauge Report, 5) OPIS Energy Group and Wright Express, 6) Jack Faucett Associates, 7) Paccar, Inc. 8) National Safety Council, 9) Urban Institute, 10) TASAS summary for 2000