Table 1. (A)

Impacts of Selected Individual Transportation Control Measures on Vehicle Kilometers of Travel and Emissions

Control Measure	Percentage Reduction		Area	Reference
	Vehicle Kilometers of Travel[a]	Emissions		
Inspection & Maintenance		8.1 – HC[b] 4.7 – HC[b] 6.4 – 8-h CO 6 – CO 1 – HC	Washington Baltimore Urban area in New York	5 6 7
Improved transit service				
10 percent increase in bus service	0.02		Albany	7
10 percent ($0.05) decrease in fares	0.22		Albany	7
$0.10 decrease in fares	0.70[b]	0.3 – HC[b]	Baltimore	5
Increased frequency of service to CBD	0.1		Washington	8
Express bus service to CBD combined with increased frequency	0.3		Washington	8
Increased frequency of service and extended coverage	1.1-2.2		San Diego	9
HOV preferential lanes	2.5[c]		Albany	7
HOV lane on freeway	0.2[b]	0.1 – HC[b]	Baltimore	6
	0.6		Washington	8
Carpool or Vanpool				
Major employer-based carpool or vanpool program	1.5	1.3 – HC 1.3 – CO	>500,000 population.	4
Carpool matching and promotion	0.4		Washington	8
Carpool cost subsidy				
$0.016/passenger kilometer	0.3		Washington	8
$0.031/passenger kilometer	0.7			
Vanpooling	1.2		Washington	8
Carpool locator	0.4[b]	0.2 – HC[b]	Baltimore	6
Major employer matching	1.0		Chicago	10
Meet and ride program	1.0		Chicago	11
Major employer matching	1.2		Numerous areas	11, 12
Area wide programs	0.12		Numerous areas	11, 12
Automobile-restricted zones				
Automobile-restricted zone	0.4		Washington	8
One-day-a-week driving ban	8.8		Washington	8
Parking management				
$1.00 parking surcharge	0.8[b]	0.3 – 8-h CO 0.3 – HC[b]	Baltimore	6
$2.00 parking surcharge	1.5[b]	0.7 – 8-h CO 0.8 – HC[b]	Baltimore	6
Outlying parking cost	4.8[b]	1.5 – 8-h CO 2.7 – HC[b]	Baltimore	6
Preferential parking for carpools	0.6		Washington	8
Areawide parking cost increase				
$1.00	0.8		Washington	8
$2.00	1.7		Washington	8
$3.00	2.5		Washington	8
CBD parking cost increase				
$1.00	0.3		Washington	8
$2.00	0.6		Washington	8
$3.00	0.9		Washington	8
Reduced parking supply in CBD	0.5		Washington	8

Table 2. (B)

Impacts of Selected Individual Transportation Control Measures on Vehicle Kilometers of Travel and Emissions

Control Measure	Percentage Reduction: Vehicle Kilometers of Travel[a]	Percentage Reduction: Emissions	Area	Reference
Parking management, cont'd				
Increased parking costs in seven high-density areas				
Commercial rates	14–subareas		Washington	13
Commercial rates, $1.00	29–subareas		Washington	13
Commercial rates, $2.00	30–subareas		Washington	13
Park and ride lots, and fringe parking				
Six park-and-ride lots	0.8[c]		Syracuse	7
Six peripheral park-and-ride lots	0.5[c]		Syracuse	7
Pedestrian malls	0.3 – region[c]		Syracuse	7
	+ 1.9 – CBD[c]		Syracuse	7
Staggered work hours				
Flexible working hours	3.7[b]	2.0 – HC[b]	Baltimore	6
	4.0[b]		Washington	5
Pricing strategies				
Increase gasoline prices $0.05 / L	1.5[b]		Baltimore	6
Double gasoline prices	5.1		Washington	8
Triple gasoline prices	9.7			
Quadruple gasoline prices	13.6			
Tolls for single-occupancy automobiles to CBD				
$0.50	0.2		Washington	8
$1.00	0.4			
Vehicle ownership tax				
$100 / vehicle	0.1		Washington	8
$200 / vehicle	0.2			
$400 / vehicle	0.4			
Carpool tax rebates				
$250 / year	0.05		Washington	8
$500 / year	0.1			
Idling controls		3.4 – CO	Upstate New York	7
		1.5 – HC		
Traffic flow improvements				
Preferential traffic control	0.1	1 – HC[b]	Washington	8
Progressive signalization to increase speeds by 1 percent		1 – 8-h CO	Washington	5
Retrofits				
Light-duty vehicle		9.3 – 8-h CO	Baltimore	6
		3.2 – HC[b]		
Light-duty trucks		0.3 – 8-h CO		
		0.2 – 8-h HC		
Heavy-duty gasoline-powered trucks		6.3 – 8-h CO		
		1.6 – HC[b]		

Notes: 1 km = 0.62 mile; 1 L = 0.26 gal.

[a] Percentages apply to weekday areawide vehicle kilometers of travel, except where noted. [b] Peak period. [c] Peak hour.

Table 2. Summary of Estimated Impacts of the Localized Prototype Scenarios

μ

Prototype Scenario	Impact on Morning Peak-Hour Corridor Vehicle Volume[a]		Impact on Morning Peak-Hour CO Concentration at Reference Receptor, from Affected Facility Emissions (μg /m 3)[b]				Program Costs[c] ($000s)	
			Typical, Good Dispersion[d]		Typical, Poor Dispersion[d]			
	Base Peak-Hour Volume	Change %	Base Value	Change %	Base Value	Change %	Capital (One-time Implementation)[e]	Operating per Year[f]
1. Expanded express bus service in mixed freeway traffic; favorable impacts	19 667	-1.47	5756	- 2.4	8210	- 2.5	3168-4788	1447
2. Freeway lane reserved for buses and carpools, favorable impacts	19 667	- 6.30	5756	- 11.4	8210	- 9.3	3720-5350	1839
3. Ramp metering and bus bypass lanes; favorable impacts	19 667	- 3.06	5756	- 6.7	8210	- 6.5	5224-6844	1703
4. Reserved bus and pool lane, ramp metering, and bus bypass lanes; modest impacts	19 667	- 3.97 [c]	5756	- [g]	8210	- [g]	4862-6482	1751
5. Reserved bus and pool lane, ramp metering, and bus bypass lanes; favorable impacts	19 667	- 6.98	5756	- 8.7	8210	- 10.1	6248-7868	2266
6. Contraflow freeway lane reserved for buses; favorable impacts	14 750	- 1.69	4798	+ 4.7	6759	+ 3.4	962	541
7. Contraflow bus lane, expanded express bus service, and park-and-ride lots; favorable impacts	14 750	- 3.72	4798	+ 2.3	6759	+ 1.5	3668-5288	1818
8. Contraflow bus lane, expanded express bus service, and lots, assuming 70%-80% directional split; favorable impacts	13 500	- 4.07	4066		5748	-2.7	3668-5288	1818
9. Reserved arterial median lane for express buses; favorable impacts	3 750	- 15.47	4964	-15.7	6485	- 15.3	3594-4134	1130
10. Contraflow curb lane for local buses on pair of one-way arterials; favorable impacts	5 000	- 4.40	3992 [h] 3349 [i]	- 13.3 [h] + 10.9 [i]	4992 [h] 4793 [i]	- 13.7 [h] + 9.9 [i]	468	123

Note: 1 μg /m 3 CO = 870 ppm

a. Volume is for freeway or arterial segments approximately 0.6 km (1 mile) out from the CBD (adjacent to the CBD in the case of scenario 10).
b. CO concentration 15 m (50 ft) from downwind edge of primary corridor facility, based on vehicular emissions from affected facilities only. Uninterrupted traffic flow conditions are also assumed.
c. Costs are in 1976 dollars.
d. This value includes the vehicles originally using the corridor freeway, but estimated as being unable to pass through during peak hour because of flow breakdown caused by congestion.
e. The two capital cost entries represent the range in costs depending on whether existing parking facilities (e.g., shopping center) or newly constructed facilities are required for park-and-ride lots.
f. Represents incremental operating costs.
g. CO concentration impacts for scenario 4 could not be reliably estimated.
h. Inbound arterial
i. Outbound arterial

Table 3. Summary of Estimated Impacts of the Regional Prototype Scenarios

Prototype Scenario [a]	Change to Regional Weekday Vehicle Kilometers of Travel		Change to Regional Weekday Highway Emissions		Change to Annual Highway Fuel Consumption	Program Costs [b] ($ 000,000s)	
	Percentage of Total	Percentage of Work Trip	HC (%)	CO (%)	(L000 000's)	Capital (One-time Implementation)	Incremental Operating per Year
11. Carpool or vanpool program, medium-sized city, favorable impacts	- 1.5	- 5.0	- 1.2	- 1.3	- 9.8	-	76
12. Carpool or vanpool program, large-sized city, favorable impacts	- 1.5	- 5.0	- 1.4	- 1.3	- 43.9	-	404
13. Reserved bus and pool lanes, ramp metering, and bus bypass lanes on all appropriate freeways; modest impacts	- 0.25	- 0.8	- 0.1	+ 0.1	+ 5.7	14,586-19,446	5253
14. Reserved bus and pool lane, ramp metering, and bus bypass lanes on all appropriate freeways; favorable impacts	- 0.44	- 1.5	- 0.4	- 0.4	- 10.2	18,744-23,604	6798
15. Reserved median lane for express buses on appropriate arterials; modest impacts	- 0.23	- 0.8	+ 0.4	+ 0.8	- 6.1	18,868-21,704	5984
16. Reserved median lane for express buses on appropriate arterials; favorable impacts	- 0.38	- 1.3	- 0.1	+ 0.2	- 11.0	18,868-21,704	5984
17. Carpool or vanpool program and freeway reserved lanes; modest impacts	- 1.0	- 3.3	- 0.4	- 0.6	- 27.3	9,804-14,664	5408
18. Carpool or vanpool program and freeway reserved lanes; favorable impacts	- 1.9	- 6.3	- 1.8	- 1.7	- 53.4	11,190-16,050	5921
19. Carpool or vanpool program and freeway reserved lanes, ramp metering, and bus bypass lanes; modest impacts	- 1.0	- 3.3	- 0.8	- 0.6	- 27.6	14,586-19,446	5957
20. Carpool or vanpool program and freeway reserved lanes, ramp metering, and bus bypass lanes; favorable impacts	- 1.9	- 6.5	- 0.8	- 1.8	- 53.8	18,744-23,604	7202

Note: 1 L = 0.26 gal.

[a] All scenarios except 11 are for a large-sized city 1 000 000 + standard metropolitan statistical area (SMSA) population. Scenario 11 is set in a medium-sized city (500 000 – 1 000 000 SMSA population).

[b] Costs are in 1976 dollars.