

APPENDIX III

AIR QUALITY CALCULATIONS

BACKGROUND DATA

AIR QUALITY CALCULATION

DEMAND FACTORS

FORECAST 1997 GENERAL AVIATION ENGINE DEPARTURES

	<u>Annual</u>	<u>Average Day</u>	<u>Peak Hour</u>
Turboprop	2,190	6.0	4.3
Piston	<u>17,666</u>	<u>48.4</u>	<u>34.2</u>
TOTAL	19,856	54.4	38.5

RUNWAY UTILIZATION - PERCENT

	<u>Landings</u>	<u>Takeoffs</u>	<u>Total</u>
Runway SW	85%	85%	85%
Runway NE	15%	15%	15%

HIGHWAY VEHICULAR TRAFFIC ASSIGNMENT 1997 AVERAGE DAY

177 ADT
89 Trip Ends

Source: PRC-R. Dixon Speas Associates, Inc.
July 1977

AIRCRAFT CHARACTERISTICS

AIRCRAFT TIMES-IN-MODE

<u>AIRCRAFT CLASS</u>	<u>INBOUND TAXI</u>	<u>OUTBOUND TAXI</u>	<u>IDLE</u>	<u>LANDING</u>	<u>TAKEOFF</u>	<u>APPROACH</u>	<u>CLIMBOUT</u>
Turboprop	2.0	4.0	2.0	0.6	0.5	3.9	2.5
Piston	2.0	4.0	2.0	0.6	0.3	5.4	4.98

POLLUTANT EMISSION RATES BY MODE PER ENGINE (KG./HR.)

<u>AIRCRAFT CLASS</u>	<u>ENGINE TYPE</u>	<u>MODE</u>	<u>POLLUTANT</u>			
			<u>CO</u>	<u>HC</u>	<u>NO_x</u>	<u>PT</u>
GA-Turboprop	Airesearch TPE-331	Taxi/Idle	1.600	0.399	0.433	0.14
		Takeoff	0.178	0.025	1.650	0.36
		Climbout	0.258	0.024	1.500	0.27
		Approach	1.170	0.109	0.767	0.27
		Landing	1.190	0.263	0.779	0.21
GA-Piston	Lycoming O-320	Taxi/Idle	5.03	0.161	0.006	NA
		Takeoff	32.20	0.676	0.097	NA
		Climbout	29.80	0.594	0.170	NA
		Approach	11.00	0.225	0.023	NA
		Landing	12.51	0.295	0.031	NA

Source: Environmental Protection Agency OAP Publication AP-42, "Compilation of Air Pollutant Emission Factors", Second Edition, March 1975.

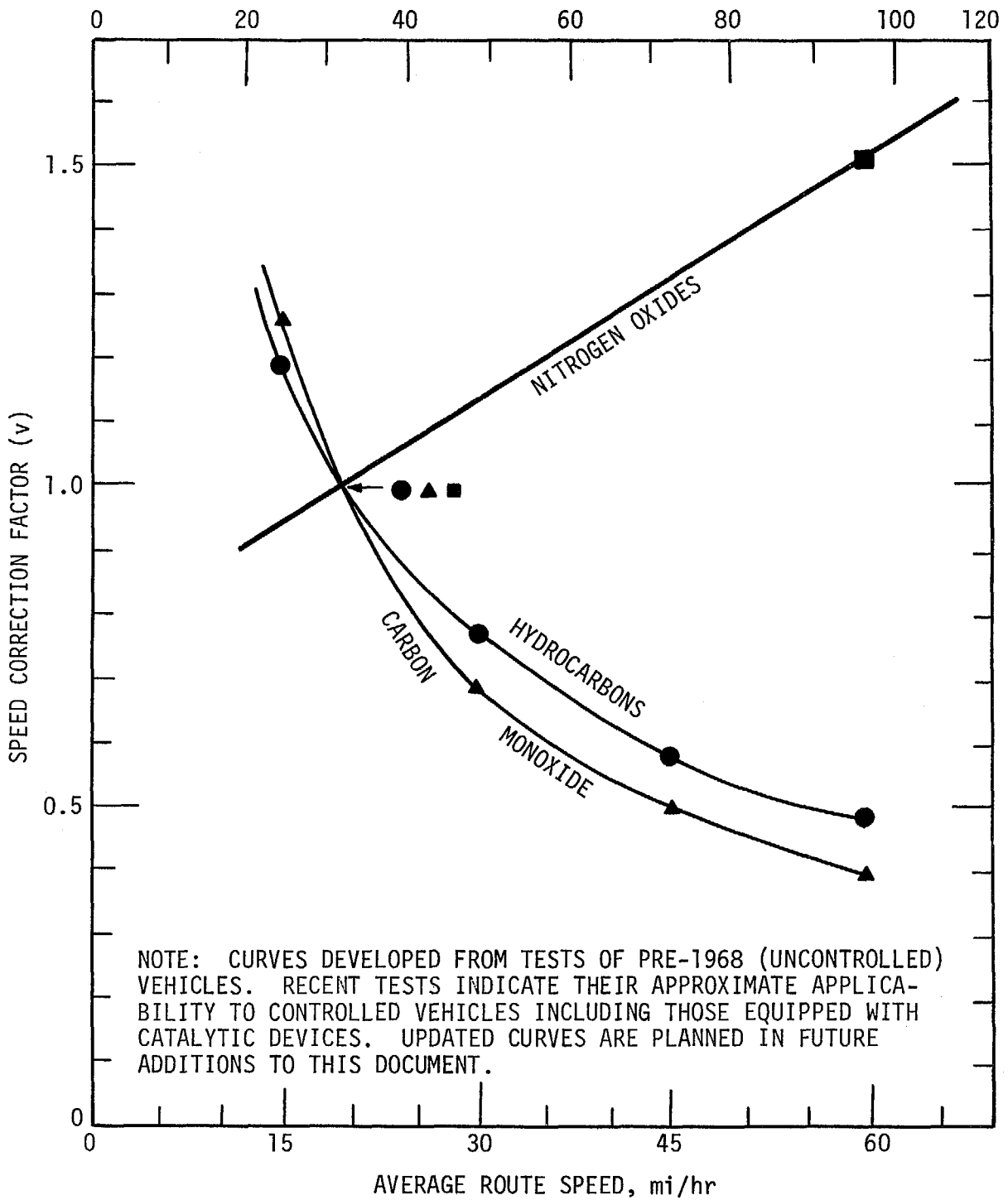
Environmental Protection Agency, APTD-1470, "An Air Pollution Impact Methodology for Airports -- Phase I", 1973.

PRC-R. Dixon Speas Associates, Inc.
July 1977

AVERAGE EMISSION FACTORS FOR HIGHWAY VEHICLES BASED ON NATIONWIDE STATISTICS

YEAR	CARBON MONOXIDE		HYDROCARBONS				NITROGEN OXIDES (NO _x AS NO ₂)		PARTICULATES				SULFUR OXIDES (SO ₂)	
			EXHAUST		CRANKCASE AND EVAPORATION				EXHAUST		TIRE WEAR			
	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM	G/MI	G/KM
1965	89	55	9.2	5.7	5.8	3.6	4.8	3.0	0.38	0.24	0.20	0.12	0.20	0.12
1970	78	48	7.8	4.8	3.9	2.4	5.3	3.3	0.38	0.24	0.20	0.12	0.20	0.12
1971	74	46	7.2	4.5	3.5	2.2	5.4	3.4	0.38	0.24	0.20	0.12	0.20	0.12
1972	68	42	6.6	4.1	2.9	1.8	5.4	3.4	0.38	0.24	0.20	0.12	0.20	0.12
1973	62	39	6.1	3.8	2.4	1.5	5.4	3.4	0.38	0.24	0.20	0.12	0.20	0.12
1974	56	35	5.5	3.4	2.0	1.2	5.2	3.2	0.38	0.24	0.20	0.12	0.20	0.12
1975	50	31	5.0	3.1	1.5	0.93	5.0	3.1	0.38	0.24	0.20	0.12	0.20	0.12
1976	44	27	4.3	2.7	1.3	0.81	4.8	3.0	0.38	0.24	0.20	0.12	0.20	0.12
1977	37	23	3.7	2.3	1.0	0.62	4.3	2.7	0.38	0.24	0.20	0.12	0.20	0.12
1978	31	19	3.2	2.0	0.83	0.52	3.8	2.4	0.38	0.24	0.20	0.12	0.20	0.12
1979	27	17	2.7	1.7	0.67	0.42	3.4	2.1	0.38	0.24	0.20	0.12	0.20	0.12
1980	23	14	2.4	1.5	0.53	0.33	3.1	1.9	0.38	0.24	0.20	0.12	0.20	0.12
1990	12	7.5	1.3	0.81	0.38	0.24	1.8	1.1	0.38	0.24	0.20	0.12	0.20	0.12

Note: This table reflects interim standards promulgated by the EPA Administrator on April 11, 1973 and in July 1973.



Source: Environmental Protection Agency OAP Publication AP-42, "Compilation of Air Pollutant Emission Factors", Second Edition, March 1975.