

**APPENDIXES**

- A. Illinois Statewide Ozone Precursor Emissions Inventory – 1996 Typical Summer Day Emissions of Oxides of Nitrogen (NO<sub>x</sub>) Chicago Nonattainment Area
- B. Illinois Statewide Ozone Precursor Emissions Inventory – 1996 Typical Summer Day Emissions of Volatile Organic Materials (VOC) Chicago Nonattainment Area
- C. Transformities/Energy Conversions
- D. Urban Fabric Analysis Sector Locations
- E. Urban Fabric Analysis Results

APPENDIX A

ILLINOIS STATEWIDE OZONE PRECURSOR EMISSIONS INVENTORY  
1996 TYPICAL SUMMER DAY EMISSIONS OF OXIDES OF NITROGEN (NO<sub>x</sub>)  
CHICAGO NONATTAINMENT AREA

\* Emissions Stated in Tons Per Day (TPD) \*

SOURCE CATEGORIES	Category NO <sub>x</sub> de	POINT	AREA	ON-ROAD	OFF-ROAD	TOTAL
<b>EXTERNAL FUEL COMBUSTION:</b>						
		227.06	25.78	0.00	0.00	252.84
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Utility Boilers		118.00	0.00	0.00	0.00	118.00
Industrial Boilers		76.25	0.00	0.00	0.00	76.25
Distillate Oil	##	0.00	5.28	0.00	0.00	5.28
Residual Oil	##	0.00	4.59	0.00	0.00	4.59
Natural Gas	##	0.00	0.04	0.00	0.00	0.04
Subtotal		78.60	9.91	0.00	0.00	88.52
Commercial/Institutional		9.44	0.00	0.00	0.00	9.44
Distillate Oil	##	0.00	1.11	0.00	0.00	1.11
Residual Oil	##	0.00	4.62	0.00	0.00	4.62
Natural Gas	##	0.00	0.93	0.00	0.00	0.93
Subtotal		9.88	6.66	0.00	0.00	16.54
Residential						
Distillate Oil	##	0.00	2.44	0.00	0.00	2.44
Natural Gas	##	0.00	6.78	0.00	0.00	6.78
Subtotal		0.00	9.21	0.00	0.00	9.21
<b>STATIONARY INTERNAL COMBUSTION:</b>						
		29.63	0.00	0.00	0.00	29.63
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Reciprocating Engines		20.71	0.00	0.00	0.00	20.71
Gas Turbines		8.92	0.00	0.00	0.00	8.92
<b>OTHER COMBUSTION:</b>						
		0.60	4.17	0.00	0.00	4.77
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<b>Waste Disposal (incineration):</b>						
Industrial		0.17	0.00	0.00	0.00	0.17
Governmental		0.34	0.00	0.00	0.00	0.34
Commercial/Institutional	##	0.08	2.64	0.00	0.00	2.72
Residential	##	0.00	1.20	0.00	0.00	1.20
Total		0.60	3.84	0.00	0.00	4.44
<b>Open Burning:</b>						
Structural Fires	##	0.00	0.12	0.00	0.00	0.12
Forest/Agricultural	##	0.00	0.02	0.00	0.00	0.02
Other	##	0.00	0.19	0.00	0.00	0.19
Total		0.00	0.33	0.00	0.00	0.33
<b>INDUSTRIAL PROCESSES:</b>						
		34.14	0.00	0.00	0.00	34.14
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<b>Chemical Manufacturing:</b>						
Adipic Acid		0.00	0.00	0.00	0.00	0.00
Nitric Acid		0.00	0.00	0.00	0.00	0.00
Other Acid		0.00	0.00	0.00	0.00	0.00

Other		0.66	0.00	0.00	0.00	0.66
Total		0.66	0.00	0.00	0.00	0.66
Iron and Steel Manufacturing		1.29	0.00	0.00	0.00	1.29
Coke Ovens		4.74	0.00	0.00	0.00	4.74
Fugitive	##	0.27	0.00	0.00	0.00	0.27
Mineral Products:						
Cement		8.22	0.00	0.00	0.00	8.22
Glass		6.32	0.00	0.00	0.00	6.32
Other		8.28	0.00	0.00	0.00	8.28
Total		10.71	0.00	0.00	0.00	10.71
Petroleum Refining		13.95	0.00	0.00	0.00	13.95
Other		2.44	0.00	0.00	0.00	2.44
MOBILE SOURCES:		0.00	0.00	520.00	185.20	705.20
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On-highway Vehicles:						
Light-duty Gasoline Autos (LDGV)		0.00	0.00	190.07	0.00	190.07
Light-duty Gasoline Trucks (LDGT1&LDC)		0.00	0.00	112.83	0.00	112.83
Heavy-duty Gasoline Trucks (HDGV)		0.00	0.00	17.95	0.00	17.95
Heavy-duty Diesel Trucks (HDDV)		0.00	0.00	201.33	0.00	201.33
Other Highway Vehicles:						
Motorcycles (MC)		0.00	0.00	1.89	0.00	1.89
Diesel Autos (LDDV)		0.00	0.00	2.19	0.00	2.19
Diesel Trucks (LDDT)		0.00	0.00	0.66	0.00	0.66
Sub-total		0.00	0.00	4.74	0.00	4.74
Inspection & Maintenance Credits		0.00	0.00	6.92	0.00	6.92
TCMs Credits		0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	520.00	0.00	520.00
Non-highway Vehicles:						
Rail	##	0.00	0.00	0.00	23.19	23.19
Aircraft						
Military	##	0.00	0.00	0.00	0.11	0.11
Commercial	##	0.00	0.00	0.00	17.01	17.01
Civil	##	0.00	0.00	0.00	0.18	0.18
Subtotal		0.00	0.00	0.00	17.31	17.31
Airport Service Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.02	0.02
4-Stroke Gasoline	##	0.00	0.00	0.00	0.28	0.28
Diesel	##	0.00	0.00	0.00	14.18	14.18
Subtotal		0.00	0.00	0.00	14.48	14.48
Vessels:						
Commercial Vessels						
Distillate	##	0.00	0.00	0.00	2.22	2.22
Residual	##	0.00	0.00	0.00	0.01	0.01
Subtotal		0.00	0.00	0.00	2.24	2.24
Pleasure Craft						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.21	0.21
4-Stroke Gasoline	##	0.00	0.00	0.00	0.69	0.69
Diesel	##	0.00	0.00	0.00	0.40	0.40
Subtotal		0.00	0.00	0.00	1.30	1.30
Vessels Subtotal		0.00	0.00	0.00	3.54	3.54
Others:						
Recreational Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
4-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
Diesel	##	0.00	0.00	0.00	0.00	0.00
Subtotal		0.00	0.00	0.00	0.00	0.00
Agricultural Equipment						

2-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
4-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
Diesel	##	0.00	0.00	0.00	11.14	11.14
Subtotal		0.00	0.00	0.00	11.14	11.14
Lawn & Garden Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.01	0.01
4-Stroke Gasoline	##	0.00	0.00	0.00	0.63	0.63
Diesel	##	0.00	0.00	0.00	0.50	0.50
Subtotal		0.00	0.00	0.00	1.14	1.14
Industrial Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	5.65	5.65
4-Stroke Gasoline	##	0.00	0.00	0.00	1.91	1.91
Diesel	##	0.00	0.00	0.00	12.18	12.18
Subtotal		0.00	0.00	0.00	19.74	19.74
Light Commercial Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.04	0.04
4-Stroke Gasoline	##	0.00	0.00	0.00	0.32	0.32
Diesel	##	0.00	0.00	0.00	1.72	1.72
Subtotal		0.00	0.00	0.00	2.09	2.09
Logging Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
4-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
Diesel	##	0.00	0.00	0.00	0.00	0.00
Subtotal		0.00	0.00	0.00	0.00	0.00
Construction Equipment						
2-Stroke Gasoline	##	0.00	0.00	0.00	0.00	0.00
4-Stroke Gasoline	##	0.00	0.00	0.00	0.31	0.31
Diesel	##	0.00	0.00	0.00	92.27	92.27
Subtotal		0.00	0.00	0.00	92.57	92.57
Others Subtotal		0.00	0.00	0.00	126.68	126.68
Total Non-Highway		0.00	0.00	0.00	185.20	185.20
Biogenic Sources		0.00	18.68	0.00	0.00	18.68
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SUB-TOTALS ANTHROPOGENIC		291.43	29.95	520.00	185.20	1026.58
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GRAND TOTALS		291.43	48.63	520.00	185.20	1045.26
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APPENDIX B

ILLINOIS STATEWIDE OZONE PRECURSOR EMISSIONS INVENTORY  
1996 TYPICAL SUMMER DAY EMISSIONS OF VOLATILE ORGANIC MATERIALS (VOM)  
CHICAGO NONATTAINMENT AREA

\* Emissions Stated in Tons Per Day (TPD) \*

SOURCE CATEGORIES	Cate POINT Code	AREA	ON-ROAD	OFF-ROAD	TOTAL	
<b>STORAGE &amp; MARKETING OF VOC:</b>		16.91	15.12	0.00	0.00	32.03
Oil & Gas Production		0.00	0.00	0.00	0.00	0.00
Natural Gas & Gasoline Processing		0.00	0.00	0.00	0.00	0.00
Other Petroleum Processing		1.24	0.00	0.00	0.00	1.24
Gasoline & Crude Oil Storage:						
Floating Roof Tanks		1.94	0.00	0.00	0.00	1.94
All Other Tanks		2.75	0.00	0.00	0.00	2.75
Total		4.69	0.00	0.00	0.00	4.69
Volatile Organic Liquid Storage		9.76	0.00	0.00	0.00	9.76
VOL Transfer:						
Ship and Barge	#	0.08	0.66	0.00	0.00	0.74
Tanker Ballasting	#	0.00	0.00	0.00	0.00	0.00
Total		0.08	0.66	0.00	0.00	0.74
Barge and Tanker Cleaning	#	0.00	0.30	0.00	0.00	0.30
Bulk Gasoline Terminals		0.90	0.00	0.00	0.00	0.90
Bulk Gasoline Plants		0.25	0.00	0.00	0.00	0.25
Service Station Loading (Stage I)	#	0.00	5.54	0.00	0.00	5.54
Vehicle Refueling (Stage II)	#	0.00	6.75	0.00	0.00	6.75
Gasoline Tank Truck Leaks	#	0.00	1.09	0.00	0.00	1.09
Underground Storage Tank Breathing	#	0.00	0.17	0.00	0.00	0.17
Aircraft Refueling	#	0.00	0.61	0.00	0.00	0.61
<b>INDUSTRIAL PROCESSES:</b>		59.09	0.00	0.00	0.00	59.09
Petroleum Refineries:						
Vacuum Systems		1.75	0.00	0.00	0.00	1.75
Fugitive Leaks	#	1.56	0.00	0.00	0.00	1.56
Wastewater Collection-Process	#	0.27	0.00	0.00	0.00	0.27
Wastewater Collection-Fugitive		0.00	0.00	0.00	0.00	0.00
Total	#	3.58	0.00	0.00	0.00	3.58
Lube Oil Manufacture		0.00	0.00	0.00	0.00	0.00
Organic Chemical Manufacture:		5.60	0.00	0.00	0.00	5.60
SOCMI:						
Polyethylene		0.00	0.00	0.00	0.00	0.00
Polypropylene		0.00	0.00	0.00	0.00	0.00
Polystyrene		0.00	0.00	0.00	0.00	0.00
Fugitive Leaks		0.00	0.00	0.00	0.00	0.00
Air Oxidation		0.34	0.00	0.00	0.00	0.34
Others		1.03	0.00	0.00	0.00	1.03
Total	#	1.37	0.00	0.00	0.00	1.37
Inorganic Chemical Manufacture		1.17	0.00	0.00	0.00	1.17
Fermentation Processes		0.00	0.00	0.00	0.00	0.00
Vegetable Oil Processing		0.04	0.00	0.00	0.00	0.04

Pharmaceutical Manufacture	1.79	0.00	0.00	0.00	1.79
Plastics Products Manufacture	4.10	0.00	0.00	0.00	4.10
Rubber Tire Manufacture	0.01	0.00	0.00	0.00	0.01
SBR Rubber Manufacture	0.23	0.00	0.00	0.00	0.23
Textile, Polymers and Resins Manufacture	0.07	0.00	0.00	0.00	0.07
Synthetic Fiber Manufacture	0.00	0.00	0.00	0.00	0.00
Iron and Steel Manufacture					
Iron and Steel - Process	1.05	0.00	0.00	0.00	1.05
Iron and Steel - Hot/Cold Rolling	0.04	0.00	0.00	0.00	0.04
Coke Ovens - Process	0.29	0.00	0.00	0.00	0.29
Coke Ovens - Fugitive	# 0.01	0.00	0.00	0.00	0.01
Total	1.38	0.00	0.00	0.00	1.38
Other	# 39.73	0.00	0.00	0.00	39.73
<b>INDUSTRIAL SURFACE COATING:</b>	<b>42.25</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>42.25</b>
Large Appliances	0.01	0.00	0.00	0.00	0.01
Magnet Wire	0.20	0.00	0.00	0.00	0.20
Autos and Light Trucks	2.05	0.00	0.00	0.00	2.05
Cans	1.26	0.00	0.00	0.00	1.26
Metal Coils	1.72	0.00	0.00	0.00	1.72
Paper	10.98	0.00	0.00	0.00	10.98
Fabric	0.00	0.00	0.00	0.00	0.00
Metal and Wood Furniture:					
Metal Furniture	0.66	0.00	0.00	0.00	0.66
Wood Furniture	0.93	0.00	0.00	0.00	0.93
Total	1.59	0.00	0.00	0.00	1.59
Miscellaneous Metal Products	3.81	0.00	0.00	0.00	3.81
Flatwood Products	0.07	0.00	0.00	0.00	0.07
Plastic Products	1.03	0.00	0.00	0.00	1.03
Large Ships	0.00	0.00	0.00	0.00	0.00
Large Aircraft	0.00	0.00	0.00	0.00	0.00
Others	19.55	0.00	0.00	0.00	19.55
<b>NON-INDUSTRIAL SURFACE COATING:</b>	<b>0.00</b>	<b>66.12</b>	<b>0.00</b>	<b>0.00</b>	<b>66.12</b>
Architectural Coatings	0.00	53.44	0.00	0.00	53.44
Auto Refinishing	# 0.00	6.50	0.00	0.00	6.50
Others:	#				
Traffic/Maintenance Painting	0.00	6.18	0.00	0.00	6.18
	#				
<b>OTHER SOLVENT USE:</b>	<b>19.34</b>	<b>121.41</b>	<b>0.00</b>	<b>0.00</b>	<b>140.75</b>
Degreasing:					
Cold Cleaners	0.73	33.35	0.00	0.00	34.08
Vapor/Conveyorized	# 2.76	0.00	0.00	0.00	2.76
Total	3.49	33.35	0.00	0.00	36.85
Dry Cleaning:					
Perchloroethylene	0.00	0.00	0.00	0.00	0.00
Petroleum	# 1.19	0.00	0.00	0.00	1.19
Total	# 1.19	0.00	0.00	0.00	1.19
Graphic Arts	14.02	8.93	0.00	0.00	22.95
Adhesives	# 0.00	0.00	0.00	0.00	0.00
-Emulsified Asphalt Paving	0.00	13.41	0.00	0.00	13.41



Consumer & Commercial Solvents	#					
Personal Care Products		0.00	14.60	0.00	0.00	14.60
Household Products	#	0.00	22.95	0.00	0.00	22.95
Auto Aftermarket Products	#	0.00	6.26	0.00	0.00	6.26
Adhesive Products	#	0.00	3.13	0.00	0.00	3.13
Pesticide Products	#	0.00	1.04	0.00	0.00	1.04
Miscellaneous Consumer Products	#	0.00	17.73	0.00	0.00	17.73
Total	#	0.00	65.72	0.00	0.00	65.72
Others	#	0.64	0.00	0.00	0.00	0.64
WASTE DISPOSAL:		10.63	2.99	0.00	0.00	13.62
Municipal Waste:						
Combustion:						
Residential		0.00	0.84	0.00	0.00	0.84
Commercial/Institutional	#	0.00	1.20	0.00	0.00	1.20
Governmental	#	0.00	0.00	0.00	0.00	0.00
Industrial		0.20	0.00	0.00	0.00	0.20
Sub-total		0.20	2.04	0.00	0.00	2.24
Landfills		0.00	0.00	0.00	0.00	0.00
Municipal Waste Total		0.20	2.04	0.00	0.00	2.24
Hazardous Wastes TSDFs:						
Process	#	0.00	0.00	0.00	0.00	0.00
Fugitive		0.03	0.00	0.00	0.00	0.03
Solvent Waste Recovery		0.00	0.00	0.00	0.00	0.00
Sub-Total	#	0.03	0.00	0.00	0.00	0.03
POTWs	#	0.00	0.00	0.00	0.00	0.00
Industrial WWTFs		3.88	0.00	0.00	0.00	3.88
Pretreatment	#	1.59	0.95	0.00	0.00	2.54
Subtotal		5.47	0.95	0.00	0.00	6.42
Industrial Boiler Co-firing		0.00	0.00	0.00	0.00	0.00
Others		4.94	0.00	0.00	0.00	4.94
OTHER MISCELLANEOUS SOURCES:		9.86	186.38	0.00	0.00	196.24
Fuel Combustion (external):						
Utilities		1.26	0.00	0.00	0.00	1.26
Industrial		2.88	0.00	0.00	0.00	2.88
Distillate Oil	#	0.00	0.05	0.00	0.00	0.05
Residual Oil	#	0.00	0.02	0.00	0.00	0.02
Natural Gas	#	0.00	0.00	0.00	0.00	0.00
Subtotal		2.88	0.08	0.00	0.00	2.96
Commercial/Institutional		0.40	0.00	0.00	0.00	0.40
Distillate Oil	#	0.00	0.02	0.00	0.00	0.02
Residual Oil	#	0.00	0.09	0.00	0.00	0.09
Natural Gas	#	0.00	0.22	0.00	0.00	0.22
Subtotal		0.40	0.33	0.00	0.00	0.74
Residential						
Distillate Oil	#	0.00	0.10	0.00	0.00	0.10
Natural Gas	#	0.00	0.36	0.00	0.00	0.36
Subtotal		0.00	0.46	0.00	0.00	0.46
Total		4.54	0.87	0.00	0.00	5.41
Open Burning:						
Structural Fires	#	0.00	1.49	0.00	0.00	1.49
Forest/Agricultural	#	0.00	0.20	0.00	0.00	0.20

Other	#	0.07	0.93	0.00	0.00	0.99
Total		0.07	2.62	0.00	0.00	2.69
Pesticide Applications	#	0.00	12.17	0.00	0.00	12.17
Stationary Internal Combustion Engines:		0.00	0.00	0.00	0.00	0.00
By Utilities		0.74	0.00	0.00	0.00	0.74
By Others		1.68	0.00	0.00	0.00	1.68
Total		2.41	0.00	0.00	0.00	2.41
Bakeries		2.84	0.00	0.00	0.00	2.84
Biogenic Sources		0.00	170.71	0.00	0.00	170.71
MOBILE SOURCES:		0.00	0.00	268.48	145.19	413.67
On-highway Vehicles:						
Light-duty Gasoline Cars (LDGV)		0.00	0.00	156.01	0.00	156.01
Light-duty Gasoline Trucks (LDGT1&2)		0.00	0.00	101.33	0.00	101.33
Heavy-duty Gasoline Trucks (HDGV)		0.00	0.00	10.77	0.00	10.77
Heavy-duty Diesel Trucks (HDDV)		0.00	0.00	15.80	0.00	15.80
Other Highway Vehicles:						
Motorcycles (MC)		0.00	0.00	7.37	0.00	7.37
Light-duty Diesel Cars (LDDV)		0.00	0.00	0.66	0.00	0.66
Light-duty Diesel Trucks (LDDT)		0.00	0.00	0.25	0.00	0.25
Sub-Total		0.00	0.00	8.28	0.00	8.28
Inspection & Maintenance Credits		0.00	0.00	23.72	0.00	23.72
TCMs Credits		0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	268.48	0.00	268.48
Non-highway Vehicles:						
Rail	#	0.00	0.00	5.77	5.77	11.55
Aircraft						
Military	#	0.00	0.00	0.00	0.63	0.63
Commercial	#	0.00	0.00	0.00	4.94	4.94
Civil	#	0.00	0.00	0.00	0.73	0.73
Subtotal		0.00	0.00	0.00	6.30	6.30
Airport Service Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	0.00	0.00
4-Stroke Gasoline	#	0.00	0.00	0.00	0.74	0.74
Diesel	#	0.00	0.00	0.00	1.64	1.64
Subtotal		0.00	0.00	0.00	2.38	2.38
Vessels:						
Commercial Vessels						
Distillate	#	0.00	0.00	0.00	0.43	0.43
Residual	#	0.00	0.00	0.00	0.00	0.00
Subtotal		0.00	0.00	0.00	0.43	0.43
Pleasure Craft						
2-Stroke Gasoline	#	0.00	0.00	0.00	20.60	20.60
4-Stroke Gasoline	#	0.00	0.00	0.00	4.13	4.13
Diesel	#	0.00	0.00	0.00	0.05	0.05
Subtotal		0.00	0.00	0.00	24.78	24.78
Vessels Subtotal		0.00	0.00	0.00	25.21	25.21
Others:						
Recreational Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	1.94	1.94
4-Stroke Gasoline	#	0.00	0.00	0.00	1.29	1.29
Diesel	#	0.00	0.00	0.00	0.00	0.00
Subtotal		0.00	0.00	0.00	3.23	3.23
Agricultural Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	0.00	0.00

4-Stroke Gasoline	#	0.00	0.00	0.00	0.24	0.24
Diesel	#	0.00	0.00	0.00	2.18	2.18
Subtotal		0.00	0.00	0.00	2.42	2.42
Lawn & Garden Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	29.61	29.61
4-Stroke Gasoline	#	0.00	0.00	0.00	30.54	30.54
Diesel	#	0.00	0.00	0.00	0.05	0.05
Subtotal		0.00	0.00	0.00	60.21	60.21
Industrial Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	2.69	2.69
4-Stroke Gasoline	#	0.00	0.00	0.00	5.07	5.07
Diesel	#	0.00	0.00	0.00	1.38	1.38
Subtotal		0.00	0.00	0.00	9.14	9.14
Light Commercial Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	5.75	5.75
4-Stroke Gasoline	#	0.00	0.00	0.00	9.78	9.78
Diesel	#	0.00	0.00	0.00	0.24	0.24
Subtotal		0.00	0.00	0.00	15.76	15.76
Logging Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	0.35	0.35
4-Stroke Gasoline	#	0.00	0.00	0.00	0.00	0.00
Diesel	#	0.00	0.00	0.00	0.00	0.00
Subtotal		0.00	0.00	0.00	0.35	0.35
Construction Equipment						
2-Stroke Gasoline	#	0.00	0.00	0.00	1.15	1.15
4-Stroke Gasoline	#	0.00	0.00	0.00	1.76	1.76
Diesel	#	0.00	0.00	0.00	11.50	11.50
Subtotal		0.00	0.00	0.00	14.41	14.41
Others Subtotal		0.00	0.00	0.00	105.53	105.53
Total Non-Highway		0.00	0.00	0.00	145.19	145.19
SUB-TOTALS ANTHROPOGENIC		158.08	221.31	268.48	145.19	793.06
GRAND TOTALS		158.08	392.02	268.48	145.19	963.77

APPENDIX C

Transformities (EMERGY conversions) for energies, resources, and commodities related to the built environment.

MATERIAL	TRANSFORMITIES (Refer to notes 1 and 2 unless noted otherwise)
Aluminum inguts (g)	1.60E10
Asphalt (J)	3.47E5
Asphalt concrete (g)	1.78E9 (Refer to note 3.)
Coal (J)	3.98E4
Concrete (g)	9.99E8 (Refer to note 4.)
Copper (g)	6.80E10
Electricity (J)	1.59E5
Glass (g)	8.40E8
Grain (J)	6.80E4
Iron (g)	1.80E9
Machinery (g)	6.70E9
Natural gas (J)	4.80E4
Nitrogen fertilizer (J)	1.69E6
Oil (J)	5.30E4
Paper (J)	2.15E5
Petroleum product (J)	6.60E4
Plastic (g)	3.80E8
Rubber (g)	4.30E9
Service, labor (US \$)	2.00E12 (Refer to note 5.)
Steel (g)	1.80E9
Stone, mined (g)	1.00E9
Stone, natural state (g)	8.50E8
Topsoil (J)	6.30E4
Water, consumer (J)	6.66E5
Water, waste (J)	4.10E4
Wood (J)	3.49E4
Zinc Alloys (g)	6.80E10

Notes:

1. Transformity units are solar emjoules/Joule, solar emjoules/gram or solar emjoules/US \$.
2. Source: Dr. Howard T. Odum, Department of Environmental Engineering Sciences, University of Florida, Gainesville, Florida.
3. Transformity calculations are given in Appendix G.
4. Transformity calculations are given in Appendix F.
5. Units in 1990 U. S. dollars.

APPENDIX D

Sector #	Location	Corners							
		NW		NE		SW		SE	
		Latitude	Longitude	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
1	Stony Island - Burnside Industrial Corridor	41°44.43'	87°35.59'	41°44.43'	87°34.42'	41°43.57'	87°35.59'	41°43.57'	87°34.42'
2	Stockyards - International Amphitheater	41°49.39'	87°39.92'	41°49.39'	87°38.76'	41°48.52'	87°39.92'	41°48.52'	87°38.76'
3	Interchange 55/90/94	41°51.14'	87°38.78'	41°51.14'	87°37.63'	41°50.28'	87°38.78'	41°50.28'	87°37.63'
4	Kennedy Interchange 90/94	41°58.28'	87°45.45'	41°58.28'	87°44.29'	41°57.41'	87°45.45'	41°57.41'	87°44.29'
5	Cicero	41°51.50'	87°45.83'	41°51.50'	87°44.67'	41°50.63'	87°45.83'	41°50.63'	87°44.67'
6	Lincolnwood	42°00.26'	87°43.73'	42°00.26'	87°42.56'	41°59.39'	87°43.73'	41°59.39'	87°42.56'
7	Schaumburg - Woodfield Mall	42°03.17'	87°03.02'	42°03.17'	87°01.85'	42°02.31'	87°03.02'	42°02.31'	87°01.85'
8	Garfield Park	41°53.38'	87°43.23'	41°53.38'	87°42.06'	41°52.52'	87°43.23'	41°52.52'	87°42.06'
9	Lincoln Park	41°55.57'	87°38.95'	41°55.57'	87°37.79'	41°54.70'	87°38.95'	41°54.70'	87°37.79'
10	Rogers Park	42°01.17'	87°41.43'	42°01.17'	87°40.26'	42°00.30'	87°41.43'	42°00.30'	87°40.26'
11	Wrigleyville	41°57.03'	87°40.73'	41°57.03'	87°39.56'	41°56.16'	87°40.73'	41°56.16'	87°39.56'
12	Oak Lawn	41°43.18'	87°45.61'	41°43.18'	87°44.44'	41°42.31'	87°45.61'	41°42.31'	87°44.44'
13	Blue Island - Pilson	41°51.60'	87°41.11'	41°51.60'	87°39.95'	41°50.73'	87°41.11'	41°50.73'	87°39.95'
14	Naperville	41°46.43'	88°08.38'	41°46.43'	88°07.21'	41°45.56'	88°08.38'	41°45.56'	88°07.21'

APPENDIX E



<b>Area</b>	<b>Category</b>	<b>Total Roof</b>	<b>White/Light Roof (% of total roof)</b>	<b>Total Paved</b>	<b>Alley (% of paved)</b>	<b>Vegetative</b>	<b>Water</b>
Rogers Park	Residential - Low/Med Density	32.57%	44.32%	25.83%	14.78%	41.60%	x
Rogers Park	Residential - Low/Med Density (with school/fields)	30.56%	40.33%	24.39%	13.01%	45.05%	x
Rogers Park	Residential - Low/Med Density	30.95%	40.35%	26.95%	15.95%	42.10%	x
Kennedy - 90/94	Residential	29.46%	43.64%	15.54%	22.23%	55.00%	x
Garfield Park	Residential - Med Density	26.05%	13.10%	22.77%	10.41%	51.19%	x
Wrigleyville	Residential - Med Density	35.44%	55.09%	15.80%	23.45%	48.76%	x
Wrigleyville	Residential - Low/Med Density	38.89%	49.04%	14.60%	16.53%	46.51%	x
Wrigleyville	Residential - Med Density	51.07%	31.94%	15.57%	19.44%	33.36%	x
Lincoln Park	Residential - Med Density	34.78%	59.59%	16.37%	23.51%	48.85%	x
Blue Island - Pilsen	Residential	38.19%	19.73%	28.02%	8.96%	33.79%	x
Stony Island	Residential - Low/Med Density	31.52%	23.53%	22.76%	20.33%	45.72%	x
Stony Island	Residential - Low/Med Density	33.55%	21.45%	16.99%	27.70%	49.46%	x
		34.42%	36.84%	20.47%	18.02%	45.12%	x
Lincolnwood	Residential - Low Density	27.17%	36.39%	25.32%	10.24%	47.50%	x
Cicero	Residential - ???	35.64%	19.48%	22.08%	18.46%	42.27%	x
Oak Lawn	Residential - ???	24.51%	38.92%	24.40%	6.35%	51.09%	x
Oak Lawn	Residential - ???	21.36%	46.41%	20.84%	x	57.80%	x
		27.17%	35.30%	23.16%	11.69%	49.67%	x

<b>Area</b>	<b>Category</b>	<b>Total Roof</b>	<b>White/Light Roof (% of total roof)</b>	<b>Total Paved</b>	<b>Alley (% of paved)</b>	<b>Vegetative</b>	<b>Water</b>
Naperville	Residential - Low Density (Suburban)	11.99%	41.73%	11.86%	x	76.15%	x
Naperville	Residential - Low Density (Suburban)	13.42%	13.17%	21.72%	x	64.86%	x
		12.70%	27.45%	16.79%	x	70.51%	x
Rogers Park	Recreational - school/ fields	9.62%	29.06%	24.67%	x	65.71%	x
Garfield Park	Recreational - Garfield Park	2.82%	27.17%	17.36%	x	79.82%	x
Lincoln Park	Recreational - North Lincoln Park (with zoo)	7.84%	32.10%	26.70%	x	56.49%	8.97%
Lincoln Park	Recreational - South Lincoln Park (w/o zoo)	6.36%	41.14%	17.70%	x	66.75%	9.18%
		6.66%	32.37%	21.61%	x	67.19%	9.08%
Kennedy - 90/94	Transportation - Highway Exchange (w/o surrounding area)	0.00%	0.00%	69.11%	x	30.89%	x
Downtown - 55/90/94	Transportation - Highway Exchange (w/o surrounding area)	0.00%	0.00%	76.45%	x	23.55%	x
Downtown - 55/90/94	Transportation - Highway Exchange (w/o surrounding area)	0.00%	0.00%	59.23%	x	40.77%	x
		0.00%	0.00%	68.26%	x	31.74%	x
Kennedy - 90/94	Transportation - Highway Exchange (with surrounding area)	9.52%	25.19%	57.44%	x	33.05%	x
Downtown - 55/90/94	Transportation - Highway Exchange (with surrounding area)	16.59%	13.27%	67.12%	x	16.29%	x
Downtown - 55/90/94	Transportation - Highway Exchange (with surrounding area)	15.12%	10.70%	55.75%	x	29.13%	x
		13.74%	16.39%	60.10%	x	26.16%	x

<b>Area</b>	<b>Category</b>	<b>Total Roof</b>	<b>White/Light Roof (% of total roof)</b>	<b>Total Paved</b>	<b>Alley (% of paved)</b>	<b>Vegetative</b>	<b>Water</b>
Kennedy - 90/94	Urban Commercial	46.95%	44.39%	32.07%	2.61%	20.99%	x
Wrigleyville	Urban Commercial	30.14%	100.00%	58.07%	4.90%	11.79%	x
Stony Island	Urban Commercial	22.32%	53.75%	62.17%	8.26%	15.51%	x
		33.14%	66.05%	50.77%	x	16.10%	x
Schaumburg - Woodfield Mall	Commercial - North Woodfield Mall (suburban)	17.88%	100.00%	72.58%	x	9.55%	x
Schaumburg - Woodfield Mall	Commercial - South Woodfield Mall (suburban)	21.43%	100.00%	68.45%	x	10.12%	x
Schaumburg - Woodfield Mall	Commercial - Other (suburban)	30.22%	100.00%	52.44%	x	17.33%	x
Lincolnwood	Commercial (suburban)	35.44%	59.00%	52.97%	x	11.59%	x
		26.24%	89.75%	61.61%	x	12.15%	x
Cicero	Industrial	40.73%	33.18%	51.01%	x	8.25%	x
Stockyards - International Amphitheater	Industrial	35.22%	0.00%	43.80%	x	20.98%	x
Blue Island - Pilsen	Industrial - Corridor	50.20%	10.00%	48.09%	x	1.71%	x
		42.05%	14.39%	47.63%	x	10.32%	x

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