HAMILTON COUNTY, INDIANA
HAZARDOUS MATERIALS HIGHWAY TRAFFIC
FLOW STUDY FALL-WINTER 2009

	Representative Materials	ERG	SR 13	SR 19	SR 31	SR 32	SRs 32/38	SR 37	SR 38	I-69 NB	I-69 SB	146th ST	ALLISONVILLE	GREENFIELD	TOTALS
Hours of Observation			4	20	69	71	62	64	60	38	36	42	20	16	**502**
T/T Box Van			114	49	5,050	1,372	1,225	1,651	402	6,973	6,480	516	75	48	23,955
Straight truck			91	148	3,093	2,649	2,450	3,177	751	1,328	1,690	3,481	748	283	19,889
Flat bed			14	19	1,232	399	444	397	124	960	941	275	49	19	4,873
Multi Trailers			0	0	77	11	13	11	4	90	130	4	4	1	345
Cryogenic			0	0	11	2	1	0	0	10	9	0	0	0	33
Compressed Gas			0	0	0	0	0	1	0	0	0	0	0	0	1
Molten Sulphur			0	0	0	0	0	0	0	0	0	0	0	0	0
Pneumatic Bulk			2	2	50	11	13	47	8	110	92	88	18	0	441
Atmospheric Tanker (306/406)			0	1	336	184	72	32	5	158	156	16	1	2	963
Atmospheric Tanker			0	0	167	33	24	13	0	157	134	9	1	0	538
Corrosive tanker			1	0	35	2	1	9	0	23	21	0	0	0	92
High Pressure gas			1	0	5	4	3	1	0	8	15	0	0	0	37
Total Qualifying Vehicles			223	219	10,056	4,667	4,246	5,339	1,294	9,817	9,668	4,389	896	353	**51,167**
Vehicles per hour (day light)			**56**	**11**	**146**	**66**	**68**	**83**	**22**	**258**	**269**	**105**	**45**	**22**	1,150
Vehicles per year			**488,370**	**95,922**	**1,276,675**	**575,816**	**599,919**	**730,776**	**188,924**	**2,263,077**	**2,352,547**	**915,420**	**392,448**	**193,268**	**10,073,160**
Explosives: Class 1															
Placard Only		**112**	0	0	2	1	1	4	**0**	**0**	0	0	0	0	8
1.4	No significant blast hazard	**114**	0	0	0	0	0	0	0	1	1	0	0	0	2
1.5	Very insensitive explosion hazard	**112**	0	0	0	0	0	0	0	1	3	1	0	0	5
Explosives Total			**0**	**0**	**2**	**1**	**1**	**4**	**0**	**2**	**4**	**1**	**0**	**0**	15
Gases: Class 2															
Flammable Gas	Acetylene	**118**	0	2	15	8	11	24	2	8	5	11	2	2	90
1049	Hydrogen, compressed	**115**	0	0	0	0	0	1	0	0	0	0	0	0	1
1071	Oil Gas	**119**	0	0	6	5	0	0	0	0	0	0	0	0	11
1075	Propane	**115**	2	6	74	48	33	36	23	9	11	14	4	4	264
3161	Liquefied Gas, flammable	**115**	0	0	0	0	0	0	0	0	1	0	0	0	1
Non Flammable Gas		**121**	0	3	27	16	14	27	7	12	15	12	2	1	136
1005	Anhydrous Ammonia	**125**	0	0	0	1	0	0	0	4	1	0	0	0	6
1013	Carbon Dioxide, compressed	**120**	0	0	0	0	0	0	0	0	1	0	0	0	1
1951	Argon, refrigerated	**120**	0	0	0	1	1	0	0	3	1	0	0	0	6
1956	Compressed gas, nos	**126**	0	0	1	0	0	0	0	0	0	0	0	0	1
1977	Nitrogen cryogenic liquid	**120**	0	0	1	0	0	0	0	0	2	0	0	0	3
2187	Carbon Dioxide, refrigerated	**120**	0	1	16	4	3	0	2	6	4	0	0	0	36
3159	1,1,1,2-Tetrafluoroethane	**126**	0	0	0	0	0	0	0	2	1	0	0	0	3
Inhalation Hazard		**123**	0	0	1	0	0	0	0	0	1	0	0	0	2
Total Gases			**2**	**12**	**141**	**83**	**62**	**88**	**34**	**44**	**43**	**37**	**8**	**7**	561
Total Flammable Gas			2	8	95	61	44	61	25	17	17	25	6	6	367
Flammable Gas% of Gases			100.00%	66.67%	67.38%	73.49%	70.97%	69.32%	73.53%	38.64%	39.53%	67.57%	75.00%	85.71%	
Flammable Liquids: Class 3															
Flammable		**127**	0	0	15	12	6	7	4	55	12	1	0	0	112
1090	Acetone	**127**	0	0	1	0	0	0	0	0	0	0	0	0	1
1093	Acrylonitrile, stabilized	**131P**	0	0	0	1	0	0	0	0	0	0	0	0	1
1120	Butanols	**129**	0	0	0	0	0	0	0	1	0	0	0	0	1
1133	Adhesives, flammable	**128**	0	0	1	0	0	0	0	0	0	0	0	0	1
1134	Chlorobenzene	**130**	0	0	0	0	0	0	0	1	0	0	0	0	1
1150	Dichloroethylene	**130P**	0	0	0	0	0	0	0	1	0	0	0	0	1
1159	Diisopropyl Ether	**127**	0	0	0	0	0	0	0	1	0	0	0	0	1
1170	Ethyl Alcohol	**127**	0	0	1	0	0	0	0	1	1	0	0	0	3
1202	Fuel Oil	**128**	0	0	0	0	0	0	0	1	0	0	0	0	1
1203	Gasoline	**128**	2	4	299	302	111	47	31	101	60	27	15	6	1005
1210	Printer's Ink	**129**	0	0	1	0	0	0	0	2	1	0	0	0	4
1220	Isopropyl Acetate	**129**	0	0	1	1	0	0	0	0	0	0	0	0	2
1222	Isopropyl Nitrate	**130**	0	0	0	0	0	0	0	1	0	0	0	0	1
1230	Methanol	**131**	0	0	2	0	0	0	0	0	2	0	0	0	4
1247	Metyl Methacrylate monomer	**129P**	0	0	0	0	0	0	0	1	1	0	0	0	2
1263	Paint related material	**128**	0	0	3	1	0	0	0	5	1	2	1	0	13
1265	Isopentane	**128**	0	0	0	0	0	0	0	0	1	0	0	0	1
1266	Purfumery solvents	**127**	0	0	0	0	0	0	0	1	0	0	0	0	1
1268	Petroleum Products	**128**	0	0	1	0	0	0	0	3	2	0	0	0	6
1270	Petroleum Oil	**128**	0	0	2	0	0	0	0	0	0	0	0	0	2
1289	Sodium methylate in alcohol	**132**	0	0	1	0	0	0	0	0	0	0	0	0	1
1294	Toluene	**130**	0	0	0	0	0	0	0	1	0	0	0	0	1
1648	Acetonitrile	**127**	0	0	0	0	0	0	0	3	0	0	0	0	3
1863	Aviation Fuel	**128**	0	0	34	0	0	0	0	4	7	0	0	0	45
1865	Propyl Nitrate	**131**	0	0	0	0	0	0	1	0	0	0	0	0	1
1866	Resin Solution	**127**	0	0	3	0	2	1	0	3	2	0	0	0	11
1950	Aerosols	**126**	0	0	1	0	0	0	0	0	1	0	0	0	2
1966	Hydrogen, cryogenic	**115**	0	0	1	0	0	0	0	1	2	0	0	0	4
1986	Denatured Alcohol poisonous	**131**	0	0	0	0	0	0	0	0	1	0	0	0	1
1987	Denatured Alcohol	**127**	0	0	23	15	0	0	0	1	24	0	0	0	63
1993	Combustible Liquid, nos	**128**	0	0	15	8	9	17	0	15	29	16	1	0	110
1999	Asphalt	**130**	0	0	0	0	0	0	0	0	2	0	0	0	2
2219	Allyl Glycidyl Ether	**129**	0	0	0	0	0	0	0	1	0	0	0	0	1
2924	Flammable Liquid, corrosive	**132**	0	0	0	0	0	0	0	0	1	0	0	0	1
3256	Elevated temp liquid flammable	**128**	0	0	0	0	0	0	0	4	2	0	0	0	6
3295	Hydrocarbons, liquid, nos	**128**	0	0	1	0	0	0	0	9	2	0	0	0	12
3475	Gasoline Ethanol mixture	**127**	0	0	0	0	0	0	0	1	1	0	0	0	2
Flammables Total			**2**	**4**	**406**	**340**	**128**	**72**	**36**	**218**	**155**	**46**	**17**	**6**	**1,430**
Flammable Solids: Class 4															
Flam Solid		**134**	0	0	1	0	2	0	0	2	2	0	0	0	7
1325	Flammable solid nos	**133**	0	0	0	0	0	0	0	1	1	0	0	0	2
1384	Sodium Hydrosulfite	**135**	0	0	1	0	0	0	0	0	0	0	0	0	1
Water reactive	Dangerous When Wet	**139**	0	0	4	1	0	0	1	2	2	0	0	0	10
1402	Calcium Carbide	**138**	0	0	0	0	0	0	0	1	4	0	0	0	5
1869	Magnesium	**138**	0	0	1	0	0	0	0	0	0	0	0	0	1
3170	Aluminum dross	**138**	0	0	1	0	0	0	0	0	3	0	0	0	4
Flammable Solids Total			**0**	**0**	**8**	**1**	**2**	**0**	**1**	**6**	**12**	**0**	**0**	**0**	**30**
Oxidizer: Class 5															
Division 5.1		**143**	0	0	1	0	0	4	0	4	2	0	0	0	11
Oxygen		**122**	0	0	11	6	5	9	3	7	7	6	1	3	58
1073	Oxygen	**122**	0	0	7	6	2	4	1	7	7	1	0	0	35
1473	Magnesium Bromate	**140**	0	0	0	0	0	0	0	0	1	0	0	0	1
1942	Ammonium nitrate	**140**	0	0	0	0	0	1	0	0	0	0	0	0	1
Division 5.2	Organic Peroxides	**148**	0	0	3	0	0	0	0	0	0	0	0	0	3
3109	Organic peroxide type F, liquid	**145**	0	0	0	0	0	1	0	1	1	0	0	0	3
Oxidizer Total			**0**	**0**	**22**	**12**	**7**	**19**	**4**	**19**	**18**	**7**	**1**	**3**	**112**
Toxic/Infection Risk: Class 6															
Infectious Substance		**158**	1	0	1	0	6	6	1	0	**0**	**0**	**0**	**1**	16
Poison		**153**	0	0	0	0	0	0	0	2	0	0	0	0	2
Toxic		**153**	0	0	0	0	0	1	0	0	0	1	0	0	2
1017	Chlorine	**124**	0	0	4	0	1	0	1	0	0	0	0	0	6
1079	Sulphur Dioxide	**125**	0	0	1	0	0	0	0	0	0	0	0	0	1
2078	Toluene Diisocyanate	**156**	0	0	0	0	0	0	0	1	1	0	0	0	2
2505	Ammonium Flouride	**154**	0	0	1	0	0	0	0	0	0	0	0	0	1
2810	Poisonous liquid, inhal haz	**153**	0	0	0	0	0	0	0	4	1	0	0	0	5
2874	Furfuryl Alcohol	**153**	0	0	0	0	0	0	0	1	0	0	0	0	1
2929	Poisonous liquid, flammable	**131**	0	0	0	0	0	0	0	1	2	0	0	0	3
3277	Chloroformates	**154**	0	0	1	0	0	0	0	1	0	0	0	0	2
Toxic Total			**1**	**0**	**7**	**0**	**1**	**1**	**1**	**10**	**4**	**1**	**0**	**0**	**26**
Radioactive: Class 7		**163**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**
Corrosive: Class 8															
Corrosive		**153**	0	0	26	13	7	7	2	42	26	3	0	0	126
1719	Caustic alkali liquid nos	**154**	0	0	0	0	0	0	0	2	0	0	0	0	2
1744	Bromine	**154**	0	0	0	0	0	0	0	0	1	0	0	0	1
1760	Cleaning Compound	**154**	0	0	4	1	1	2	0	2	2	0	0	0	12
1789	Hydrochloric acid	**157**	0	0	0	0	0	0	0	2	3	0	0	0	5
1790	Hydrofluoric Acid	**157**	0	0	1	0	0	0	0	0	0	0	0	0	1
1791	Sodium Hypochlorite	**154**	0	0	3	0	0	0	0	0	2	0	1	0	6
1805	Phosphoric acid	**154**	0	0	0	0	0	0	0	1	1	0	0	0	2
1814	Potassium Hydroxide	**154**	0	0	0	0	0	0	0	0	1	0	0	0	1
1819	Sodium Aluminate solution	**154**	0	0	1	0	0	0	0	0	0	0	0	0	1
1824	Sodium Hydroxide	**154**	0	0	3	0	0	1	0	4	4	0	0	0	12
1830	Sulfuric acid	**137**	0	0	2	1	0	0	0	1	1	0	0	0	5
1840	Zinc Chloride, solution	**154**	0	0	0	0	0	0	0	1	0	0	0	0	1
2031	Nitric acid, other than red fuming	**157**	0	0	0	0	0	0	0	0	2	0	0	0	2
2051	Dimethylaminoethanol	**132**	0	0	0	0	0	0	0	0	0	1	0	0	1
2209	Formaldehyde solution	**132**	0	0	0	0	0	0	0	6	6	0	0	0	12
2289	Isophoronediamine	**153**	0	0	0	0	0	0	0	1	0	0	0	0	1
2582	Ferric Chloride solution	**154**	0	0	0	0	0	0	0	1	0	0	0	0	1
2672	Ammonium Hydroxide	**154**	0	0	7	0	0	0	0	0	0	0	0	0	7
2693	Bisulfites, aqueous solution	**154**	0	0	1	0	1	1	0	5	0	0	0	0	8
2789	Acetic acid	**132**	0	0	0	0	0	0	0	1	1	0	0	0	2
2794	Batteries, wet, filled w/ acid	**154**	0	0	0	0	0	0	0	8	1	0	0	0	9
2922	Corrosive liquid poisonous	**154**	0	0	0	0	0	0	0	2	0	0	0	0	2
3264	Corrosive liquid acidic inorganic	**154**	0	0	0	0	0	0	1	2	1	0	0	0	4
3265	Corrosive liquid acidic organic	**153**	0	0	0	0	0	0	0	1	2	0	0	0	3
3266	Corrosive liquid basic inorganic	**154**	0	0	1	0	0	0	0	1	2	0	0	0	4
3267	Corrosive liquid basic organic	**153**	0	0	0	0	0	0	0	1	1	0	0	0	2
Corrosive Total			**0**	**0**	**49**	**15**	**9**	**11**	**3**	**84**	**57**	**4**	**1**	**0**	**233**
Misc Dangerous Substance: Class 9															
Placard only		**171**	0	0	1	1	1	4	2	1	2	0	0	0	12
1845	Carbon Dioxide, solid	**120**	0	0	0	0	0	0	0	1	0	0	0	0	1
2211	Polymeric Beads, expandable	**133**	0	0	0	0	0	0	0	0	2	0	0	0	2
3077	Hazardous waste solid	**171**	0	0	1	0	0	0	0	15	9	0	0	0	25
3082	Hazardous waste liwuid	**171**	0	0	6	1	0	0	0	5	3	0	0	0	15
3257	Elevated temperature liquid	**128**	0	0	18	2	1	4	0	6	13	8	0	1	53
3258	Elevated temperature solid	**171**	0	0	1	0	0	0	0	0	1	0	0	0	2
3268	Air Bag Inflator, pyrotechnic	**171**	0	0	0	0	0	0	0	1	0	0	0	0	1
Hot			0	0	17	2	0	1	0	4	6	2	0	0	32
Marine Pollutant		**171**	0	0	0	0	0	0	0	2	0	0	0	0	2
Dangerous		**111**	0	0	10	8	1	3	1	12	16	2	0	0	53
Misc Total			**0**	**0**	**54**	**14**	**3**	**12**	**3**	**47**	**52**	**12**	**0**	**1**	**198**
			SR 13	**SR 19**	**SR 31**	**SR 32**	**SRs 32/38**	**SR 37**	**SR 38**	**I-69 NB**	**I-69 SB**	**146th ST**	**ALLISONVILLE**	**GREENFIELD**	
Total Placards			**5**	**16**	**689**	**466**	**213**	**207**	**82**	**431**	**346**	**108**	**27**	**17**	**2,607**
Per cent Hazmat			**2.24%**	**7.31%**	**6.85%**	**9.99%**	**5.02%**	**3.88%**	**6.34%**	**4.39%**	**3.58%**	**2.46%**	**3.01%**	**4.82%**	**5.10%**
Class per centage															
Explosives			0.00%	0.00%	0.29%	0.21%	0.47%	1.93%	0.00%	0.46%	1.16%	0.93%	0.00%	0.00%	0.58%
Gases			40.00%	75.00%	20.46%	17.81%	29.11%	42.51%	41.46%	10.21%	12.43%	34.26%	29.63%	41.18%	21.52%
Flammables			40.00%	25.00%	58.93%	72.96%	60.09%	34.78%	43.90%	50.58%	44.80%	42.59%	62.96%	35.29%	54.85%
Flam Solid			0.00%	0.00%	1.16%	0.21%	0.94%	0.00%	1.22%	1.39%	3.47%	0.00%	0.00%	0.00%	1.15%
Oxidizer			0.00%	0.00%	3.19%	2.58%	3.29%	9.18%	4.88%	4.41%	5.20%	6.48%	3.70%	17.65%	4.30%
Toxic/Infection Risk			20.00%	0.00%	1.02%	0.00%	0.47%	0.48%	1.22%	2.32%	1.16%	0.93%	0.00%	0.00%	1.00%
Radioactive			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%	0.29%	0.00%	0.00%	0.00%	0.08%
Corrosive			0.00%	0.00%	7.11%	3.22%	4.23%	5.31%	3.66%	19.49%	16.47%	3.70%	3.70%	0.00%	8.94%
Misc Dangerous Substance			0.00%	0.00%	7.84%	3.00%	1.41%	5.80%	3.66%	10.90%	15.03%	11.11%	0.00%	5.88%	7.59%
TOTAL			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
															TOTALS
Per cent by vehicle type															
T/T Box Van			51.12%	22.37%	50.22%	29.40%	28.85%	30.92%	31.07%	71.03%	67.03%	11.76%	8.37%	13.60%	46.82%
Straight truck			40.81%	67.58%	30.76%	56.76%	57.70%	59.51%	58.04%	13.53%	17.48%	79.31%	83.48%	80.17%	38.87%
Flat bed			6.28%	8.68%	12.25%	8.55%	10.46%	7.44%	9.58%	9.78%	9.73%	6.27%	5.47%	5.38%	9.52%
Multi Trailers			0.00%	0.00%	0.77%	0.24%	0.31%	0.21%	0.31%	0.92%	1.34%	0.09%	0.45%	0.28%	0.67%
Cryogenic			0.00%	0.00%	0.11%	0.04%	0.02%	0.00%	0.00%	0.10%	0.09%	0.00%	0.00%	0.00%	0.06%
Comprd' Gas			0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Molten Sulphur			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pneumatic Bulk			0.90%	0.91%	0.50%	0.24%	0.31%	0.88%	0.62%	1.12%	0.95%	2.01%	2.01%	0.00%	0.86%
Atmospheric Tanker, large			0.00%	0.46%	3.34%	3.94%	1.70%	0.60%	0.39%	1.61%	1.61%	0.36%	0.11%	0.57%	1.88%
Atmospheric Tanker			0.00%	0.00%	1.66%	0.71%	0.57%	0.24%	0.00%	1.60%	1.39%	0.21%	0.11%	0.00%	1.05%
Corrosive tanker			0.45%	0.00%	0.35%	0.04%	0.02%	0.17%	0.00%	0.23%	0.22%	0.00%	0.00%	0.00%	0.18%
High Pressure gas			0.45%	0.00%	0.05%	0.09%	0.07%	0.02%	0.00%	0.08%	0.16%	0.00%	0.00%	0.00%	0.07%
TOTAL			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

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& ASSOCIATES LLC
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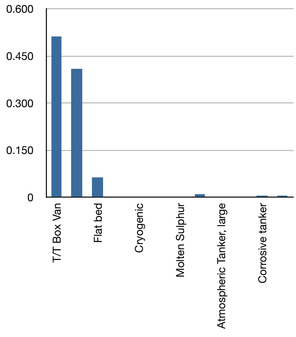
0.600
0.450
0.300
0.150
0
T/T Box Van
Flat bed
Cryogenic
Molten Sulphur
Atmospheric Tanker, large
Corrosive tanker

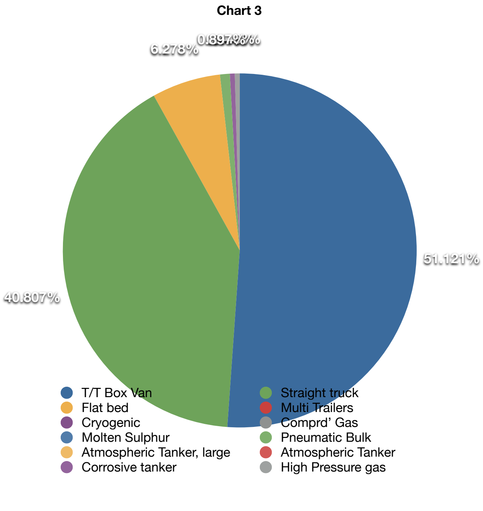
Chart 3
6.278%
0.139%
51.121%
40.807%
T/T Box Van
Flat bed
Cryogenic
Molten Sulphur
Atmospheric Tanker, large
Corrosive tanker
Straight truck
Multi Trailers
Comprd' Gas
Pneumatic Bulk
Atmospheric Tanker
High Pressure gas