

# **Evaluation of New Data Sources for Operations and Planning**

**By**

**Earl “Rusty” Lee**

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**Delaware Center for Transportation  
University of Delaware  
355 DuPont Hall  
Newark, DE 19716  
(302) 831-1446**



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#### **DCT Staff**

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*Associate Director*

Ellen Pletz  
*Business Admin I*

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Matheu Carter  
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*Scientist*

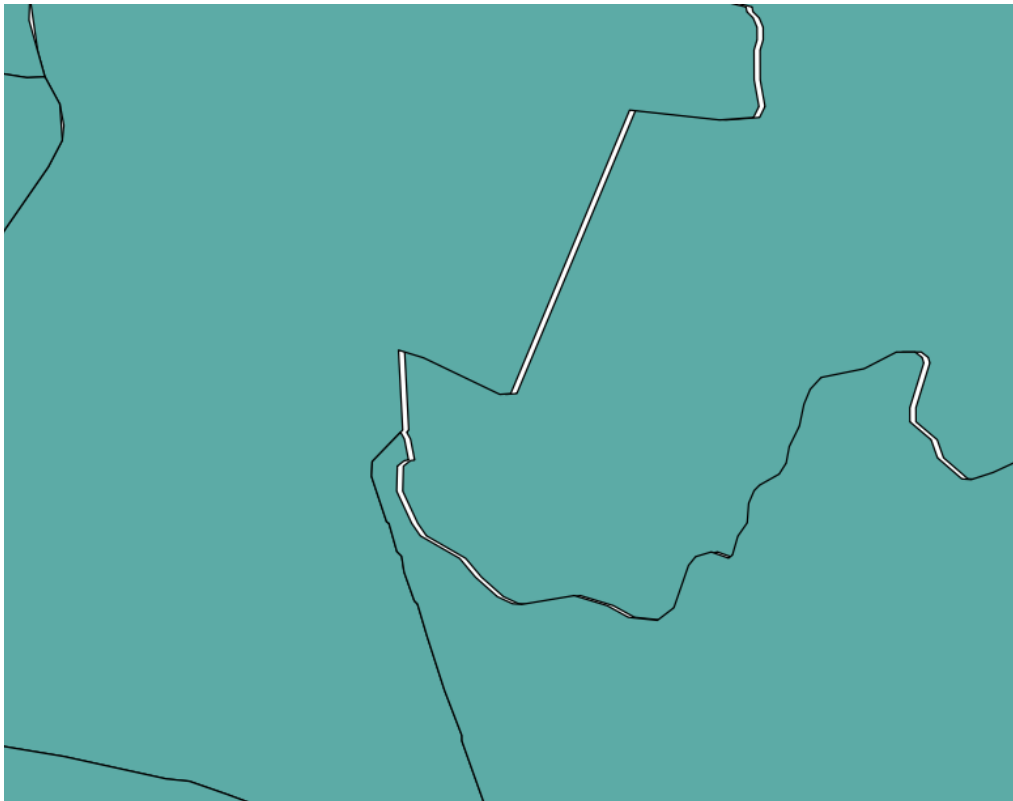
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## Final Report for “Evaluation of New Data Sources for Operations and Planning”, Task 35-1717

The objective of this project was to evaluate the usefulness of cell phone data for use with travel demand models. Specifically, purchase and evaluate 30 days of data from AirSage. Periodically, a cell phone “pings” a tower to let the tower know where it is in the system, so a call to that phone can be routed to the correct tower and then to the cellular phone. AirSage has signed agreements with Sprint and Verizon to be provided sets of those pings. The identifying data from the specific phone was encrypted, but the time and tower location are saved with each ping. For each phone, there would exist a trail of “electronic breadcrumbs” as it moves through the system. AirSage makes this data available to transportation agencies, law enforcement and agencies responsible for homeland security. The University of Delaware proposed to provide DelDOT a demonstration of what the data can provide for information and how it would be useful for both operations and planning.

In order to geo-locate the AirSage data within the DelDOT Peninsula Travel Demand Model, GIS data was provided to AirSage with the 2015 traffic analysis zones (TAZs). However, it was noted by AirSage that the zones in this data contained gaps and overlaps.



DelDOT was contacted about this issue and the response was that they were aware of these minor gaps and overlaps. The Peninsula model was not affected by these minor defects because precise geo-located data was not used, just census and employment data, which is zonal in nature. These minor defects prevented AirSage from developing a data set which would match the DelDOT TAZs. A decision was

made by the project team to ask AirSage to generate a data set at the census tract level. UD would then aggregate DeIDOT zones and data to match to the AirSage set for comparison. This first data set was provided to UD on May 31, 2016. Because of receiving the data after the end of the semester, a student researcher had not been hired for the 2016 summer to work on the data. Methods also had to be developed on how to aggregate the DeIDOT data from TAZ's to census tracts, so it could be most easily compared.

A student began work on the project during the 2016-2017 academic year and their work continued into the summer of 2017. The process that was developed required each TAZ be mapped to a corresponding census tract. The census tracts are much larger than TAZ zones so multiple TAZ's needed to be merged. For example, AirSage zone 1, corresponding to census tract 24015030506, contained DeIDOT TAZ's 179,251,261,1608,1612,1615,1616,1617,1618,1619,1620, and 1623. All of the trips for these 12 zones were merged to a single zone. In all, 730 DeIDOT TAZs were merged into 323 AirSage zones. Organizing and merging all of this data was a slow and careful process. It was also determined later that once the data had been merged, it was nearly impossible for a supervisor to confirm that everything had been done correctly.

While this data merging process was going on, a new TAZ shapefile was found which corresponded to census boundaries with no gaps or overlaps. A decision was made to purchase a second AirSage data set that would correspond exactly to the DeIDOT zones. Because of limited funds, a set from only New Castle County was purchased.

Before attempting to compare the AirSage and DeIDOT data on too detailed a scale (types of trips, such as journey to work, home-based work, etc.), it was decided that the 349 New Castle County TAZ's would be compared based on total trips originating in each TAZ and total trips with a trip destination within each TAZ. The DeIDOT model is set up for the weekday, PM travel, so the corresponding AirSage data was selected.

At the county level, the DeIDOT OD matrix has 957,854.9 trips originating from all TAZ's. The AirSage set has 386,256.76. Comparing individuals TAZ's, the largest percentage difference was 256040% (TAZ 300 – DeIDOT Originating trips – 1408.77, AirSage - .55). The largest underestimate numerically was TAZ 109 (DeIDOT 9802.33, AirSage 1198.51) and the largest overestimate was TAZ 343 (DeIDOT 158.59; AirSage 2267.84). TAZ's 346,347,348 and 349 did not have any originating trips in the DeIDOT data but AirSage did. This discrepancy could be further investigated.

Analyzing destination zones, AirSage again 386,256.76 trips ending in New Castle County and the DeIDOT Travel Demand Model has 957,854. The largest percentage difference was 18,089% at TAZ 300 again (DeIDOT – 367.42 ; AirSage 2.02. The largest underestimate numerically was TAZ 151 (DeIDOT 37,416.88, AirSage 4349.42) and the largest overestimate was TAZ 233 (DeIDOT 140.28; AirSage 4733.15). TAZ's 346,347,348 and 349 again did not have any originating trips in the DeIDOT data but AirSage did.

Row Label	Airsage Origins	DeIDOT origins	percent difference	numeric difference
1	268.71	4180.75	1456%	3912.04
2	402.74	2898.13	620%	2495.39
3	54.94	347.79	533%	292.85
4	187.11	675.28	261%	488.17
5	448.96	4448.59	891%	3999.63
6	144.84	552.38	281%	407.54
7	197.14	450.54	129%	253.4
8	1327.89	1154.89	-13%	-173
9	1113.63	753.24	-32%	-360.39
10	648.8	1341.93	107%	693.13
11	529.98	2757.92	420%	2227.94
12	742.61	2457.19	231%	1714.58
13	102.98	754.67	633%	651.69
14	536.66	3522.2	556%	2985.54
15	505.75	1496.89	196%	991.14
16	1285.79	3491.59	172%	2205.8
17	741.84	657.38	-11%	-84.46
18	1207.14	3079.58	155%	1872.44
19	1138.19	1475.01	30%	336.82
20	391.81	4333.88	1006%	3942.07
21	63.27	2265.16	3480%	2201.89
22	80.5	2043.05	2438%	1962.55
23	242.71	3666.02	1410%	3423.31
24	817.95	4425.61	441%	3607.66
25	714.55	2019	183%	1304.45
26	399.73	1513.67	279%	1113.94
27	739.68	5719.1	673%	4979.42
28	1939.23	3259.94	68%	1320.71
29	350.01	1416.59	305%	1066.58
30	916.03	2282.5	149%	1366.47
31	18.65	418.91	2146%	400.26
32	1084.18	1165.43	7%	81.25
33	809.02	4475.74	453%	3666.72
34	236.62	2420	923%	2183.38
35	1371.83	3159.69	130%	1787.86
36	955.17	3360.37	252%	2405.2
37	2098.8	4819.98	130%	2721.18
38	1542.69	3694.58	139%	2151.89
39	2271.86	4888.94	115%	2617.08
40	1836.09	4467.35	143%	2631.26
41	2566.89	4383.52	71%	1816.63
42	371.54	1131.75	205%	760.21
43	40.76	1599.84	3825%	1559.08
44	69.03	675.44	878%	606.41
45	77.77	76.34	-2%	-1.43
46	295.14	9.46	-97%	-285.68
47	2957.77	3682.05	24%	724.28
48	2761.83	3553.8	29%	791.97
49	73.95	1092.11	1377%	1018.16
50	762.5	799.91	5%	37.41
51	729.84	428.76	-41%	-301.08
52	368.18	972.25	164%	604.07
53	816.16	797.52	-2%	-18.64
54	1168.73	3429.17	193%	2260.44
55	1299.01	2539.62	96%	1240.61
56	662.32	4655.98	603%	3993.66
57	223.35	2430.13	988%	2206.78

58	599.55	1516.58	153%	917.03
59	1639.08	3048.94	86%	1409.86
60	1896.8	2987.06	57%	1090.26
61	1319.3	4858.32	268%	3539.02
62	131.44	1458.94	1010%	1327.5
63	1832.43	5245.66	186%	3413.23
64	699.14	3331.83	377%	2632.69
65	1478.46	2748.4	86%	1269.94
66	3802.77	6090.57	60%	2287.8
67	2065.99	3699.9	79%	1633.91
68	516.77	4422.12	756%	3905.35
69	3117.91	8057.83	158%	4939.92
70	1795.87	3838.69	114%	2042.82
71	315.09	1589.16	404%	1274.07
72	137.23	709.73	417%	572.5
73	177.04	1481.95	737%	1304.91
74	620.69	1365.23	120%	744.54
75	697.28	1191.65	71%	494.37
76	1103.31	1288.2	17%	184.89
77	23.54	505.78	2049%	482.24
78	471.76	1675.48	255%	1203.72
79	2133.46	4572.55	114%	2439.09
80	1043.29	3334.87	220%	2291.58
81	1307.61	1453.93	11%	146.32
82	723.39	2426.37	235%	1702.98
83	1120.56	4138.1	269%	3017.54
84	1013.24	3437.56	239%	2424.32
85	826.33	3909.18	373%	3082.85
86	1028.38	1505.99	46%	477.61
87	428.21	625.08	46%	196.87
88	1378.84	2551.45	85%	1172.61
89	230.35	1990.13	764%	1759.78
90	2285.39	2223.75	-3%	-61.64
91	1595.12	53	-97%	-1542.12
92	2529.54	4835.1	91%	2305.56
93	1102.68	5160.83	368%	4058.15
94	1308.16	1664.15	27%	355.99
95	1167.18	3473.36	198%	2306.18
96	628.89	2253.25	258%	1624.36
97	540.41	1838.94	240%	1298.53
98	3267.28	2490.57	-24%	-776.71
99	1179.37	2946.33	150%	1766.96
100	45.68	946.54	1972%	900.86
101	2011.04	5746.08	186%	3735.04
102	2005.47	4713.56	135%	2708.09
103	1539.78	3174.1	106%	1634.32
104	1650.61	4696.71	185%	3046.1
105	1832.18	3492.26	91%	1660.08
106	3723.27	9901.77	166%	6178.5
107	4752.66	4652.28	-2%	-100.38
108	963.98	8302.14	761%	7338.16
109	1198.51	9802.33	718%	8603.82
110	1636.85	2306.56	41%	669.71
111	749.27	4799.1	541%	4049.83
112	523.81	3895.96	644%	3372.15
113	1301.71	7048.53	441%	5746.82
114	1208.96	3579.33	196%	2370.37
115	1915.5	5299.19	177%	3383.69
116	605.69	2073.95	242%	1468.26
117	3270.37	2895.16	-11%	-375.21
118	3328.42	5829.59	75%	2501.17

119	935.72	4736.52	406%	3800.8
120	1897.82	3850.71	103%	1952.89
121	372.54	3711.46	896%	3338.92
122	774.95	2996.44	287%	2221.49
123	494.44	2454.07	396%	1959.63
124	336.32	2814.19	737%	2477.87
125	1416.7	6627.01	368%	5210.31
126	2035.3	3435.68	69%	1400.38
127	426.63	2415.37	466%	1988.74
128	1061.62	1611.74	52%	550.12
129	952.98	456.31	-52%	-496.67
130	110.75	528.82	377%	418.07
131	584.7	848.91	45%	264.21
132	138.25	539.62	290%	401.37
133	375.78	1641.82	337%	1266.04
134	950.12	2210.89	133%	1260.77
135	1896.68	3112.14	64%	1215.46
136	498.15	2508.24	404%	2010.09
137	4823.14	6711.24	39%	1888.1
138	2183.45	4338.34	99%	2154.89
139	3249.71	7770.49	139%	4520.78
140	3393.25	6508.71	92%	3115.46
141	2788.9	6770.19	143%	3981.29
142	4151.85	8579.75	107%	4427.9
143	4985.23	11209.4	125%	6224.17
144	4400.95	11573.79	163%	7172.84
145	3319.74	5606.57	69%	2286.83
146	5097.75	9986.19	96%	4888.44
147	3827.65	10055.44	163%	6227.79
148	1209.24	6048.13	400%	4838.89
149	2574.72	2048.77	-20%	-525.95
150	796.18	3153.99	296%	2357.81
151	9907.19	9587.84	-3%	-319.35
152	6074.12	8937.27	47%	2863.15
153	2271.61	3320.1	46%	1048.49
154	3706.19	7367.06	99%	3660.87
155	3032.09	2755.94	-9%	-276.15
156	1070.06	2007.42	88%	937.36
157	837.75	3233.94	286%	2396.19
158	3141.79	9968.36	217%	6826.57
159	2118.01	3569.56	69%	1451.55
160	4792.68	4439.96	-7%	-352.72
161	1122.87	3305.43	194%	2182.56
162	1112.28	2364.16	113%	1251.88
163	5312.58	11340.04	113%	6027.46
164	1636.59	8328.97	409%	6692.38
165	715.91	68.64	-90%	-647.27
166	1099.18	1681.48	53%	582.3
167	881.73	6918.26	685%	6036.53
168	1411.01	3915.43	177%	2504.42
169	3310.16	8844.01	167%	5533.85
170	1949.03	4298.46	121%	2349.43
171	2701.67	4853.8	80%	2152.13
172	1375.31	6566.86	377%	5191.55
173	687.92	5585.46	712%	4897.54
174	1123.88	3775.82	236%	2651.94
175	298.78	3640.91	1119%	3342.13
176	1617.81	2100.79	30%	482.98
177	719.11	480.08	-33%	-239.03
178	250.68	2762.63	1002%	2511.95
179	1785.09	2234.24	25%	449.15

180	1945.95	8308.35	327%	6362.4
181	474.48	2269.81	378%	1795.33
182	1194.45	2519.76	111%	1325.31
183	80.77	1435.53	1677%	1354.76
184	738.6	934.47	27%	195.87
185	2303.89	1148.32	-50%	-1155.57
186	216.83	1041.8	380%	824.97
187	551.75	17.33	-97%	-534.42
188	971.28	2785.19	187%	1813.91
189	607.95	1141.52	88%	533.57
190	1049.75	2076.84	98%	1027.09
191	1086.34	2698.18	148%	1611.84
192	743.53	1737.54	134%	994.01
193	390.01	2823.37	624%	2433.36
194	617.96	1918.48	210%	1300.52
195	6.55	551.29	8317%	544.74
196	521.37	1068.59	105%	547.22
197	949.44	2983.96	214%	2034.52
198	735.2	320.86	-56%	-414.34
199	102.83	1781.86	1633%	1679.03
200	2138.07	1953.5	-9%	-184.57
201	217.24	276.27	27%	59.03
202	410.61	710.01	73%	299.4
203	133.86	741.89	454%	608.03
204	380.48	970.56	155%	590.08
205	1234.19	381.2	-69%	-852.99
206	1972.61	3475.97	76%	1503.36
207	1124.94	1842.45	64%	717.51
208	962.4	3532.05	267%	2569.65
209	432.28	3477.42	704%	3045.14
210	1219.08	6696.51	449%	5477.43
211	1405.88	5056.62	260%	3650.74
212	747.77	3343.33	347%	2595.56
213	319.78	1212.38	279%	892.6
214	266.64	409.75	54%	143.11
215	164.07	640.33	290%	476.26
216	147.22	2143.74	1356%	1996.52
217	614.34	493.56	-20%	-120.78
218	253.14	4222.19	1568%	3969.05
219	281.13	1117.26	297%	836.13
220	273.06	1455.63	433%	1182.57
221	1979.59	3331.47	68%	1351.88
222	2375.06	1638.13	-31%	-736.93
223	72.73	327.08	350%	254.35
224	2150.53	1098.46	-49%	-1052.07
225	264.82	215.63	-19%	-49.19
226	1203.81	514.12	-57%	-689.69
227	898.12	1453.53	62%	555.41
228	642.84	302.63	-53%	-340.21
229	57.99	810.7	1298%	752.71
230	990.64	4829.34	387%	3838.7
231	1722.83	223.38	-87%	-1499.45
232	995.1	3114.06	213%	2118.96
233	3731.78	6133.78	64%	2402
234	1673.71	6772.8	305%	5099.09
235	1918.26	1427.53	-26%	-490.73
236	464.25	2809.45	505%	2345.2
237	1485.1	4264.14	187%	2779.04
238	2249.56	1931.51	-14%	-318.05
239	1646.76	1919.39	17%	272.63
240	2196.55	2310.3	5%	113.75



241	810.14	4924.93	508%	4114.79
242	1103.14	3084.66	180%	1981.52
243	994.67	7773.45	682%	6778.78
244	271.01	6107.54	2154%	5836.53
245	1828.41	7411.42	305%	5583.01
246	403.18	4095.61	916%	3692.43
247	104.2	2183.32	1995%	2079.12
248	1456.64	4515.43	210%	3058.79
249	35.65	238.31	568%	202.66
250	109.62	1520.08	1287%	1410.46
251	2434.16	4805.87	97%	2371.71
252	756.18	1220.6	61%	464.42
253	490.03	1370.95	180%	880.92
254	107.87	805.07	646%	697.2
255	120.49	528.13	338%	407.64
256	455.29	3668.41	706%	3213.12
257	237.27	1551.73	554%	1314.46
258	633.78	1297.36	105%	663.58
259	2606.98	3483.54	34%	876.56
260	735.81	3787.4	415%	3051.59
261	758.71	1446.93	91%	688.22
262	290.16	1181.53	307%	891.37
263	3525.41	2513	-29%	-1012.41
264	36.6	843.18	2204%	806.58
265	491.21	1030.3	110%	539.09
266	1810.34	3583.53	98%	1773.19
267	447.48	1279.37	186%	831.89
268	855.34	288.01	-66%	-567.33
269	22.48	936.76	4067%	914.28
270	280.61	1310.85	367%	1030.24
271	237.98	1169.82	392%	931.84
272	28.6	927.83	3144%	899.23
273	575.62	716.75	25%	141.13
274	344.17	4565.6	1227%	4221.43
275	829.88	1291.69	56%	461.81
276	1145.44	1098.36	-4%	-47.08
277	364.71	988.67	171%	623.96
278	1408.41	1748.03	24%	339.62
279	798.71	5323.33	566%	4524.62
280	117.09	3881.92	3215%	3764.83
281	247.67	3065.8	1138%	2818.13
282	18.97	380.91	1908%	361.94
283	153.53	476.03	210%	322.5
284	11.31	2777.21	24455%	2765.9
285	32.74	13.88	-58%	-18.86
286	8.21	0	-100%	-8.21
287	4.88	54.34	1014%	49.46
288	105.15	585.52	457%	480.37
289	1121.23	1255.94	12%	134.71
290	24.07	16.14	-33%	-7.93
291	83.13	1143.67	1276%	1060.54
292	70.72	1020.12	1342%	949.4
293	189.32	1234.71	552%	1045.39
294	217.85	323.3	48%	105.45
295	208.34	9.57	-95%	-198.77
296	159.68	1281.4	702%	1121.72
297	134.21	834.61	522%	700.4
298	207.04	294.19	42%	87.15
299	38.45	231.5	502%	193.05
300	0.55	1408.77	256040%	1408.22
301	32.32	400.92	1140%	368.6

302	334.72	2505.38	649%	2170.66
303	1335.8	3565.94	167%	2230.14
304	686.48	1225.02	78%	538.54
305	27.7	523.61	1790%	495.91
306	54.96	464.41	745%	409.45
307	1286.32	1132.93	-12%	-153.39
308	24.33	125.12	414%	100.79
309	327.2	4311.67	1218%	3984.47
310	450.42	971.92	116%	521.5
311	71.08	463.38	552%	392.3
312	48.87	593.9	1115%	545.03
313	293.29	809.27	176%	515.98
314	357.91	5059.32	1314%	4701.41
315	2433.25	3847.32	58%	1414.07
316	174.65	2527.6	1347%	2352.95
317	482.82	702.07	45%	219.25
318	3342.33	2159.29	-35%	-1183.04
319	509.23	3564.33	600%	3055.1
320	500.86	1710.88	242%	1210.02
321	511.93	3219.77	529%	2707.84
322	624.21	1013.03	62%	388.82
323	486.84	1758.27	261%	1271.43
324	788.05	1960.25	149%	1172.2
325	2005.37	2928.74	46%	923.37
326	337.32	951.35	182%	614.03
327	646.7	2683.55	315%	2036.85
328	1164.05	3854.82	231%	2690.77
329	323.11	0	-100%	-323.11
330	422.74	645.75	53%	223.01
331	134.1	327.46	144%	193.36
332	140.19	380.67	172%	240.48
333	3816.96	9293.92	143%	5476.96
334	180.97	908.74	402%	727.77
335	92.62	626.19	576%	533.57
336	1321.13	1079.89	-18%	-241.24
337	898.05	926.81	3%	28.76
338	1179	1745.13	48%	566.13
339	1417.46	3397.38	140%	1979.92
340	796.55	2286	187%	1489.45
341	305.37	273.87	-10%	-31.5
342	445.07	712.21	60%	267.14
343	2267.84	158.59	-93%	-2109.25
344	349.24	2641.63	656%	2292.39
345	9.71	532	5379%	522.29
346	862.43	0	-100%	-862.43
347	18.29	0	-100%	-18.29
348	620.24	0	-100%	-620.24
349	130.38	0	-100%	-130.38
(blank)				
<b>Grand Total</b>				
	386,256.76	957,854.90	256040%	8603.82
			-100%	-2109.25

<b>Row Label:</b>	<b>Sum of Count</b>	Sum of Count (Destinations)	DeIDOT Destinations	percent difference	numeric difference
1	96.42	96.42	16535.91	17050%	16439.49
2	137.39	137.39	9973.99	7160%	9836.6
3	27.94	27.94	215.52	671%	187.58
4	81.23	81.23	967.58	1091%	886.35
5	129.16	129.16	15437.2	11852%	15308.04
6	110.89	110.89	266.16	140%	155.27
7	100.15	100.15	889.2	788%	789.05
8	495.65	495.65	4284.32	764%	3788.67
9	581.05	581.05	2090.04	260%	1508.99
10	198.97	198.97	5340.15	2584%	5141.18
11	192.28	192.28	11160.21	5704%	10967.93
12	489.04	489.04	7617.15	1458%	7128.11
13	49.62	49.62	2139.51	4212%	2089.89
14	431.48	431.48	5298.66	1128%	4867.18
15	419.96	419.96	1239.61	195%	819.65
16	1092.7	1092.7	2350.66	115%	1257.96
17	528.52	528.52	415.28	-21%	-113.24
18	1323.78	1323.78	1827.92	38%	504.14
19	1093.15	1093.15	1483.05	36%	389.9
20	376.02	376.02	1810.49	381%	1434.47
21	40.13	40.13	1588.2	3858%	1548.07
22	28.84	28.84	2528.49	8667%	2499.65
23	197.19	197.19	660.64	235%	463.45
24	1101.12	1101.12	4221.53	283%	3120.41
25	900.95	900.95	1883.11	109%	982.16
26	519.74	519.74	1247.67	140%	727.93
27	997.16	997.16	5867.6	488%	4870.44
28	1579.84	1579.84	2404.68	52%	824.84
29	357.44	357.44	1242.99	248%	885.55
30	808.16	808.16	1370.67	70%	562.51
31	14.23	14.23	539.8	3693%	525.57
32	749.6	749.6	502.5	-33%	-247.1
33	878.86	878.86	3046.93	247%	2168.07
34	275.14	275.14	3057.82	1011%	2782.68
35	1447.4	1447.4	2844.69	97%	1397.29
36	862.29	862.29	854.83	-1%	-7.46
37	2101.84	2101.84	9667.07	360%	7565.23
38	1432.04	1432.04	981.65	-31%	-450.39
39	2180.57	2180.57	7684.58	252%	5504.01
40	1704.12	1704.12	1965.79	15%	261.67
41	2654.99	2654.99	2308.38	-13%	-346.61
42	376.47	376.47	1471.83	291%	1095.36
43	35.69	35.69	2561.3	7077%	2525.61

44	68.61	68.61	802.84	1070%	734.23
45	39.43	39.43	310.78	688%	271.35
46	173.12	173.12	35.21	-80%	-137.91
47	1456.37	1456.37	6769.81	365%	5313.44
48	1247.13	1247.13	3560.59	186%	2313.46
49	61.72	61.72	1860.86	2915%	1799.14
50	711.58	711.58	627.54	-12%	-84.04
51	596.53	596.53	1310.97	120%	714.44
52	204.92	204.92	3910.3	1808%	3705.38
53	1099.32	1099.32	3110.87	183%	2011.55
54	1354.13	1354.13	2736.06	102%	1381.93
55	1816.07	1816.07	2015.7	11%	199.63
56	844.52	844.52	1723.71	104%	879.19
57	320.8	320.8	542.07	69%	221.27
58	866.12	866.12	296.41	-66%	-569.71
59	1670.04	1670.04	7205.93	331%	5535.89
60	1897.85	1897.85	3793.64	100%	1895.79
61	747.51	747.51	18341.86	2354%	17594.35
62	127.57	127.57	2402.42	1783%	2274.85
63	1968.67	1968.67	4367.18	122%	2398.51
64	971.74	971.74	513.74	-47%	-458
65	1550.66	1550.66	602.48	-61%	-948.18
66	3576.81	3576.81	6892.86	93%	3316.05
67	2267.98	2267.98	1666	-27%	-601.98
68	569.12	569.12	2522.16	343%	1953.04
69	1674	1674	28605.57	1609%	26931.57
70	1413.38	1413.38	2819.84	100%	1406.46
71	323.37	323.37	944.66	192%	621.29
72	87.2	87.2	2136.4	2350%	2049.2
73	131.32	131.32	1875.28	1328%	1743.96
74	395.37	395.37	3137.48	694%	2742.11
75	563.6	563.6	986.12	75%	422.52
76	760.92	760.92	2699.24	255%	1938.32
77	47.37	47.37	477.9	909%	430.53
78	656.19	656.19	289.87	-56%	-366.32
79	988.22	988.22	13641.57	1280%	12653.35
80	1007.25	1007.25	7873.95	682%	6866.7
81	1092.93	1092.93	1184.16	8%	91.23
82	586.26	586.26	3193.33	445%	2607.07
83	1428.72	1428.72	995.02	-30%	-433.7
84	1214.24	1214.24	1478.4	22%	264.16
85	798.36	798.36	6223.95	680%	5425.59
86	1101.99	1101.99	1005.98	-9%	-96.01
87	519.94	519.94	842.68	62%	322.74
88	1306.81	1306.81	188.91	-86%	-1117.9
89	227.4	227.4	3355.53	1376%	3128.13
90	2063.92	2063.92	1069.36	-48%	-994.56

91	1327.82	1327.82	0	-100%	-1327.82
92	2428.68	2428.68	3779.57	56%	1350.89
93	1380.49	1380.49	677.44	-51%	-703.05
94	1090.34	1090.34	2732.23	151%	1641.89
95	1383.71	1383.71	1597.33	15%	213.62
96	864.31	864.31	2401.42	178%	1537.11
97	574.16	574.16	2902.26	405%	2328.1
98	2874.49	2874.49	2820.04	-2%	-54.45
99	1036.25	1036.25	997.99	-4%	-38.26
100	36.26	36.26	959	2545%	922.74
101	1967.26	1967.26	10449.38	431%	8482.12
102	2173.95	2173.95	5551.73	155%	3377.78
103	1450.08	1450.08	9328.89	543%	7878.81
104	1400	1400	8144.62	482%	6744.62
105	1805.52	1805.52	3688.12	104%	1882.6
106	3517.98	3517.98	10891.6	210%	7373.62
107	4410.8	4410.8	2829.58	-36%	-1581.22
108	1045.02	1045.02	10561.92	911%	9516.9
109	1674.21	1674.21	13413	701%	11738.79
110	1828.86	1828.86	1219.73	-33%	-609.13
111	795.88	795.88	2840.75	257%	2044.87
112	607.84	607.84	798.82	31%	190.98
113	1411.87	1411.87	3291.21	133%	1879.34
114	1364.73	1364.73	186.05	-86%	-1178.68
115	2416.31	2416.31	5266.68	118%	2850.37
116	390.68	390.68	4112.07	953%	3721.39
117	2475.79	2475.79	9273.53	275%	6797.74
118	2508.07	2508.07	17267.05	588%	14758.98
119	1025.51	1025.51	2844.89	177%	1819.38
120	2111.61	2111.61	1036.08	-51%	-1075.53
121	555.09	555.09	2888.05	420%	2332.96
122	809.32	809.32	1563.86	93%	754.54
123	710.52	710.52	476.15	-33%	-234.37
124	562.54	562.54	1353	141%	790.46
125	1713.73	1713.73	1876.28	9%	162.55
126	2376.69	2376.69	159.65	-93%	-2217.04
127	369.43	369.43	2490.11	574%	2120.68
128	639.05	639.05	4174.94	553%	3535.89
129	864.22	864.22	41.91	-95%	-822.31
130	99.29	99.29	279.38	181%	180.09
131	615.38	615.38	318.77	-48%	-296.61
132	154.48	154.48	183.64	19%	29.16
133	273.33	273.33	2022.6	640%	1749.27
134	1267.15	1267.15	70.71	-94%	-1196.44
135	2048	2048	4849.35	137%	2801.35
136	539.98	539.98	1006.42	86%	466.44
137	4781.12	4781.12	4423.05	-7%	-358.07

138	2279.95	2279.95	3973.35	74%	1693.4
139	3352.09	3352.09	5529.89	65%	2177.8
140	3496.41	3496.41	4732.52	35%	1236.11
141	3797.74	3797.74	5692.15	50%	1894.41
142	4164.3	4164.3	5099.15	22%	934.85
143	4934.79	4934.79	13029.19	164%	8094.4
144	5756.56	5756.56	4989.87	-13%	-766.69
145	4067.02	4067.02	2407.44	-41%	-1659.58
146	5555.49	5555.49	7931.12	43%	2375.63
147	4858.99	4858.99	1086.37	-78%	-3772.62
148	1309.65	1309.65	1926.32	47%	616.67
149	1852.31	1852.31	8009.92	332%	6157.61
150	638.06	638.06	428.12	-33%	-209.94
151	4349.42	4349.42	37416.88	760%	33067.46
152	4494.75	4494.75	7045.56	57%	2550.81
153	3074.8	3074.8	21.59	-99%	-3053.21
154	4291.31	4291.31	5679.35	32%	1388.04
155	2696.42	2696.42	1878.36	-30%	-818.06
156	972.07	972.07	6126.8	530%	5154.73
157	1152.37	1152.37	3949.54	243%	2797.17
158	3505.27	3505.27	1633.49	-53%	-1871.78
159	1902.41	1902.41	15174.56	698%	13272.15
160	2778.44	2778.44	18957.73	582%	16179.29
161	1264.91	1264.91	2570.52	103%	1305.61
162	1291.23	1291.23	1528.68	18%	237.45
163	5815.72	5815.72	4174.56	-28%	-1641.16
164	1783.96	1783.96	5729.33	221%	3945.37
165	827.39	827.39	166.24	-80%	-661.15
166	1419.61	1419.61	67.34	-95%	-1352.27
167	1240.83	1240.83	2009.3	62%	768.47
168	1190.08	1190.08	5846.78	391%	4656.7
169	2812.23	2812.23	25377.44	802%	22565.21
170	1783.52	1783.52	12431.37	597%	10647.85
171	2337.02	2337.02	7491.77	221%	5154.75
172	2012.95	2012.95	4878.42	142%	2865.47
173	726.53	726.53	7686.48	958%	6959.95
174	1191.64	1191.64	11839.23	894%	10647.59
175	484.46	484.46	704.58	45%	220.12
176	2190.2	2190.2	15.21	-99%	-2174.99
177	555.39	555.39	123.76	-78%	-431.63
178	422.19	422.19	42.34	-90%	-379.85
179	2174.11	2174.11	468	-78%	-1706.11
180	2135.34	2135.34	10428.84	388%	8293.5
181	742.73	742.73	198.16	-73%	-544.57
182	1532.95	1532.95	30.94	-98%	-1502.01
183	149.73	149.73	678.64	353%	528.91
184	682.51	682.51	3319.31	386%	2636.8

185	2660.26	2660.26	86.98	-97%	-2573.28
186	358.81	358.81	54.2	-85%	-304.61
187	506.49	506.49	43.87	-91%	-462.62
188	1059.93	1059.93	2227.93	110%	1168
189	709.89	709.89	717.61	1%	7.72
190	910.4	910.4	3454.36	279%	2543.96
191	1131.13	1131.13	100.91	-91%	-1030.22
192	903.75	903.75	0	-100%	-903.75
193	471.32	471.32	0	-100%	-471.32
194	774.88	774.88	452.43	-42%	-322.45
195	10.81	10.81	22.49	108%	11.68
196	671.33	671.33	62.61	-91%	-608.72
197	1004.73	1004.73	918.15	-9%	-86.58
198	832.3	832.3	315.59	-62%	-516.71
199	155.98	155.98	37.08	-76%	-118.9
200	2528.8	2528.8	3625.44	43%	1096.64
201	258.93	258.93	71.87	-72%	-187.06
202	240.82	240.82	2793.49	1060%	2552.67
203	241.61	241.61	43.84	-82%	-197.77
204	245.06	245.06	3915.04	1498%	3669.98
205	1635.72	1635.72	266.47	-84%	-1369.25
206	2123.05	2123.05	3312.6	56%	1189.55
207	1136.93	1136.93	2939.8	159%	1802.87
208	1559.99	1559.99	378.74	-76%	-1181.25
209	475.81	475.81	262.89	-45%	-212.92
210	1412.7	1412.7	3028.27	114%	1615.57
211	1365.99	1365.99	3567.65	161%	2201.66
212	673.93	673.93	4809.99	614%	4136.06
213	435.51	435.51	0	-100%	-435.51
214	341.09	341.09	101.9	-70%	-239.19
215	224.38	224.38	0	-100%	-224.38
216	172.38	172.38	84.03	-51%	-88.35
217	743.62	743.62	540.55	-27%	-203.07
218	349.7	349.7	13.64	-96%	-336.06
219	287.78	287.78	3110.39	981%	2822.61
220	385.92	385.92	49.39	-87%	-336.53
221	2446.79	2446.79	2840.52	16%	393.73
222	1725.59	1725.59	4961.27	188%	3235.68
223	74.07	74.07	1288.7	1640%	1214.63
224	1408.95	1408.95	1243.56	-12%	-165.39
225	284.75	284.75	6.41	-98%	-278.34
226	998.12	998.12	2027.51	103%	1029.39
227	594.88	594.88	6344.8	967%	5749.92
228	478.24	478.24	1191.62	149%	713.38
229	80.38	80.38	3179.27	3855%	3098.89
230	1530.16	1530.16	667.51	-56%	-862.65
231	1411.95	1411.95	560.26	-60%	-851.69

232	1269.76	1269.76	735.04	-42%	-534.72
233	4733.15	4733.15	140.28	-97%	-4592.87
234	1957.59	1957.59	839.03	-57%	-1118.56
235	2070.47	2070.47	453.55	-78%	-1616.92
236	574.94	574.94	155.32	-73%	-419.62
237	1475.59	1475.59	1783.36	21%	307.77
238	1947.53	1947.53	5624.86	189%	3677.33
239	2176.38	2176.38	1128.2	-48%	-1048.18
240	2573.46	2573.46	971.66	-62%	-1601.8
241	1312.86	1312.86	403.57	-69%	-909.29
242	1352.99	1352.99	330.17	-76%	-1022.82
243	1036.83	1036.83	1080.71	4%	43.88
244	408	408	1152.69	183%	744.69
245	2341.1	2341.1	552.73	-76%	-1788.37
246	422.15	422.15	1713.31	306%	1291.16
247	171.04	171.04	573.06	235%	402.02
248	2107.92	2107.92	825.88	-61%	-1282.04
249	60.17	60.17	727.23	1109%	667.06
250	174.54	174.54	0	-100%	-174.54
251	3013.54	3013.54	1993.96	-34%	-1019.58
252	1021.64	1021.64	9.76	-99%	-1011.88
253	675.27	675.27	953.54	41%	278.27
254	166.23	166.23	304.98	83%	138.75
255	166.6	166.6	1157.83	595%	991.23
256	649.91	649.91	123.22	-81%	-526.69
257	347.96	347.96	1545.58	344%	1197.62
258	797.6	797.6	0	-100%	-797.6
259	2867.97	2867.97	1493.48	-48%	-1374.49
260	1108.42	1108.42	588	-47%	-520.42
261	940.75	940.75	25.32	-97%	-915.43
262	419.84	419.84	0	-100%	-419.84
263	2972.14	2972.14	5315.5	79%	2343.36
264	50.83	50.83	943.31	1756%	892.48
265	481.16	481.16	1440.51	199%	959.35
266	1444.42	1444.42	4671.56	223%	3227.14
267	512.31	512.31	510.86	0%	-1.45
268	974.9	974.9	0	-100%	-974.9
269	30.92	30.92	190.51	516%	159.59
270	356.52	356.52	180.41	-49%	-176.11
271	309.13	309.13	154.67	-50%	-154.46
272	37.39	37.39	10.61	-72%	-26.78
273	766.62	766.62	10.65	-99%	-755.97
274	380.07	380.07	664.53	75%	284.46
275	1051.75	1051.75	548.6	-48%	-503.15
276	1650.4	1650.4	0	-100%	-1650.4
277	496.37	496.37	253.25	-49%	-243.12
278	1645.16	1645.16	140.47	-91%	-1504.69



279	802.35	802.35	1343.79	67%	541.44
280	134.63	134.63	0	-100%	-134.63
281	254.73	254.73	0	-100%	-254.73
282	26.43	26.43	1083.31	3999%	1056.88
283	182.59	182.59	23.53	-87%	-159.06
284	13.28	13.28	11.46	-14%	-1.82
285	54.59	54.59	0	-100%	-54.59
286	7.61	7.61	0	-100%	-7.61
287	1.64	1.64	23.29	1320%	21.65
288	129.76	129.76	212.67	64%	82.91
289	1406.43	1406.43	2.34	-100%	-1404.09
290	19.23	19.23	22.87	19%	3.64
291	115.45	115.45	17.88	-85%	-97.57
292	92.15	92.15	0	-100%	-92.15
293	268.6	268.6	168.48	-37%	-100.12
294	262.85	262.85	803.23	206%	540.38
295	227.01	227.01	2.37	-99%	-224.64
296	158.11	158.11	1021.32	546%	863.21
297	171.88	171.88	259.12	51%	87.24
298	250.76	250.76	231.98	-7%	-18.78
299	40.24	40.24	61.25	52%	21.01
300	2.02	2.02	367.42	18089%	365.4
301	70.7	70.7	107.46	52%	36.76
302	433.67	433.67	10.96	-97%	-422.71
303	1673.24	1673.24	0	-100%	-1673.24
304	976.24	976.24	1234.75	26%	258.51
305	46.22	46.22	212.28	359%	166.06
306	96.84	96.84	0	-100%	-96.84
307	1222.66	1222.66	761.98	-38%	-460.68
308	16.66	16.66	488.6	2833%	471.94
309	388.99	388.99	1038.12	167%	649.13
310	508.5	508.5	159.68	-69%	-348.82
311	92.97	92.97	38.32	-59%	-54.65
312	70.14	70.14	932.32	1229%	862.18
313	354.22	354.22	285.26	-19%	-68.96
314	475.43	475.43	948.33	99%	472.9
315	1910.17	1910.17	7064.07	270%	5153.9
316	267.23	267.23	1656.66	520%	1389.43
317	610.11	610.11	83.4	-86%	-526.71
318	2249.75	2249.75	7163.74	218%	4913.99
319	690.19	690.19	2784.01	303%	2093.82
320	535.02	535.02	1044.33	95%	509.31
321	644.19	644.19	42.32	-93%	-601.87
322	843.43	843.43	31.26	-96%	-812.17
323	560.41	560.41	5645.95	907%	5085.54
324	798.35	798.35	344.94	-57%	-453.41
325	1178.97	1178.97	3652.8	210%	2473.83

326	206.37	206.37	3418.67	1557%	3212.3
327	477.56	477.56	10061.51	2007%	9583.95
328	1118.68	1118.68	8706.61	678%	7587.93
329	375.92	375.92	0	-100%	-375.92
330	469.28	469.28	0	-100%	-469.28
331	163.93	163.93	1237.99	655%	1074.06
332	151.88	151.88	1240.9	717%	1089.02
333	4466.88	4466.88	10582.15	137%	6115.27
334	247.6	247.6	286.64	16%	39.04
335	104.24	104.24	2764.01	2552%	2659.77
336	1372.46	1372.46	389.14	-72%	-983.32
337	968.94	968.94	2.33	-100%	-966.61
338	1495.19	1495.19	1298.29	-13%	-196.9
339	1747.58	1747.58	1848.42	6%	100.84
340	462.22	462.22	7321.12	1484%	6858.9
341	232.16	232.16	1170.65	404%	938.49
342	409.39	409.39	271.32	-34%	-138.07
343	967.76	967.76	25.45	-97%	-942.31
344	438.33	438.33	1953.38	346%	1515.05
345	13.8	13.8	385.17	2691%	371.37
346	1094.05	1094.05	0	-100%	-1094.05
347	18.56	18.56	0	-100%	-18.56
348	634.09	634.09	0	-100%	-634.09
349	143.41	143.41	0	-100%	-143.41
(blank)					
<b>Grand Total</b>	<b>386256.76</b>		957,854.90	Max	33067.46
				Min	-4592.87

# Delaware Center for Transportation University of Delaware Newark, Delaware 19716

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titleixcoordinator@udel.edu

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