

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4382	4034	312	WATERLOO AVE	COLLECTOR	980	1	12	4	1750	40	88
4383	4035	3238	CONTESTOGA RD	COLLECTOR	1079	1	12	4	1750	45	88
4384	4036	314	MIDLAND AVE	COLLECTOR	1588	1	12	4	1750	40	88
4385	4037	319	GROVE AVE	COLLECTOR	725	1	12	4	1750	40	88
4386	4037	320	BERKELEY RD	COLLECTOR	889	1	12	4	1750	40	88
4387	4038	322	OLD EAGLE SCHOOL RD	COLLECTOR	2044	1	12	4	1750	40	89
4388	4039	321	DRIVEWAY	LOCAL ROADWAY	233	1	12	4	1750	30	89
4389	4040	3163	CONTENTION LN	COLLECTOR	813	1	12	4	1750	40	74
4390	4041	3217	I-76 ON-RAMP	FREEWAY RAMP	190	1	12	4	1750	40	75
4391	4041	3221	I-76 ON-RAMP	FREEWAY RAMP	228	1	12	4	1700	45	75
4392	4042	3216	DEVON PARK DR	MINOR ARTERIAL	342	2	12	4	1750	45	75
4393	4042	3247	DEVON PARK DR	COLLECTOR	4198	1	12	4	1700	40	74
4394	4043	3218	COUNTY LINE RD	COLLECTOR	546	1	12	4	1750	40	75
4395	4044	192	US 202 ON-RAMP	FREEWAY RAMP	490	1	12	4	1700	45	75
4396	4045	1263	I-76 ON-RAMP	FREEWAY RAMP	290	1	12	4	1750	40	75
4397	4046	4047	US 202 SERVICE RD	FREEWAY	2143	3	12	4	2250	65	75
4398	4047	86	US 422 ON-RAMP	FREEWAY RAMP	1009	1	12	4	1700	40	75
4399	4048	186	US 202	FREEWAY	627	4	12	4	2250	70	75
4400	4048	189	US 202	FREEWAY	1350	2	12	4	2250	70	75
4401	4049	186	US 202	FREEWAY	248	3	12	4	2250	70	75
4402	4049	345	US 202	MINOR ARTERIAL	584	4	12	4	1750	40	75
4403	4050	169	I-76 ON-RAMP	FREEWAY RAMP	906	1	12	4	1700	40	75
4404	4050	3129	OFF-RAMP	FREEWAY RAMP	871	1	12	4	1750	40	75
4405	4051	171	I-76 SERVICE RD	FREEWAY	1367	2	12	4	2250	70	75
4406	4051	3748	US 202 ON-RAMP	FREEWAY RAMP	299	2	12	4	1900	40	75
4407	4052	175	I-76	FREEWAY	1074	4	12	4	2250	70	75
4408	4052	176	I-76	FREEWAY	2404	3	12	4	2250	70	75
4409	4053	179	I-76 ON-RAMP	FREEWAY RAMP	302	1	12	4	1575	35	78
4410	4053	1276	I-76 OFF-RAMP	FREEWAY RAMP	1154	1	12	4	1750	40	78
4411	4054	237	I-476	FREEWAY	5132	3	12	4	2250	70	78
4412	4054	238	I-476	FREEWAY	2374	3	12	4	2250	70	78
4413	4055	2	I-76 ON-RAMP	FREEWAY RAMP	986	1	12	4	1350	30	78

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4414	4055	239	I-476 ON-RAMP	FREEWAY RAMP	953	1	12	4	1700	45	78
4415	4056	183	I-76 ON-RAMP	FREEWAY RAMP	877	1	12	4	1700	40	78
4416	4057	246	I-476 ON-RAMP	FREEWAY RAMP	519	1	12	4	1350	30	77
4417	4058	799	CHEMICAL RD	MINOR ARTERIAL	748	2	12	4	1750	40	77
4418	4059	254	I-476 ON-RAMP	FREEWAY RAMP	774	1	12	4	1700	45	77
4419	4059	3055	I-476 ON-RAMP	FREEWAY RAMP	1070	2	12	4	1900	45	77
4420	4060	232	I-276 ON-RAMP	FREEWAY RAMP	402	1	12	4	1350	30	77
4421	4062	4130	SANDY HILL RD	COLLECTOR	2737	1	12	4	1700	40	77
4422	4062	4328	PLYMOUTH RD	COLLECTOR	1163	1	12	4	1700	40	77
4423	4063	3231	KING OF PRUSSIA RD	COLLECTOR	1833	1	12	4	1700	45	75
4424	4063	3233	UPPER GULPH RD	COLLECTOR	1824	1	12	4	1700	40	75
4425	4064	3203	RADNOR RD	COLLECTOR	1394	1	12	4	1750	35	75
4426	4065	3203	UPPER GULPH RD	COLLECTOR	782	1	12	4	1750	40	75
4427	4066	4065	N WAYNE AVE	COLLECTOR	1243	1	12	4	1750	40	75
4428	4067	3204	KING OF PRUSSIA RD	COLLECTOR	4460	1	12	4	1700	40	75
4429	4067	3205	KING OF PRUSSIA RD	COLLECTOR	2029	1	12	4	1750	40	75
4430	4068	1270	BROOKS RD	COLLECTOR	478	1	12	4	1750	40	75
4431	4068	3225	CROTON RD	COLLECTOR	1080	1	12	4	1750	40	75
4432	4069	1272	SHOEMAKER RD	COLLECTOR	774	1	12	4	1750	40	78
4433	4069	4070	SHOEMAKER RD	COLLECTOR	1134	1	12	4	1750	40	78
4434	4070	1274	S HERDERSON RD	COLLECTOR	2283	1	12	4	1750	40	78
4435	4071	4073	ROUTE 23	MINOR ARTERIAL	2081	1	12	4	1700	40	78
4436	4072	4071	GYPSY LN	COLLECTOR	722	1	12	4	1750	40	78
4437	4073	1276	ROUTE 23	MINOR ARTERIAL	481	2	12	4	1750	40	78
4438	4074	1277	ROUTE 23	MINOR ARTERIAL	395	1	12	4	1700	40	78
4439	4075	1269	LONG RD	COLLECTOR	705	1	12	4	1750	40	75
4440	4076	1267	DRIVEWAY	LOCAL ROADWAY	1086	1	12	4	1750	35	75
4441	4077	1268	DRIVEWAY	LOCAL ROADWAY	296	1	12	4	1750	30	75
4442	4078	1266	DRIVEWAY	LOCAL ROADWAY	344	2	12	4	1750	30	75
4443	4079	1261	GODDARD BLVD	COLLECTOR	2953	1	12	4	1750	40	73
4444	4079	3151	GODDARD BLVD	MINOR ARTERIAL	698	2	12	4	1750	40	73
4445	4080	3153	DRIVEWAY	LOCAL ROADWAY	249	2	12	4	1750	30	73

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4446	4081	346	MALL BLVD	MINOR ARTERIAL	699	2	12	4	1750	40	75
4447	4082	4081	DRIVEWAY	LOCAL ROADWAY	401	1	12	4	1750	30	75
4448	4083	345	US 202	MINOR ARTERIAL	533	5	12	4	1750	40	75
4449	4083	346	US 202	MINOR ARTERIAL	410	2	12	4	1750	40	75
4450	4084	3131	DRIVEWAY	LOCAL ROADWAY	214	1	12	4	1750	30	75
4451	4085	1262	DRIVEWAY	LOCAL ROADWAY	226	1	12	4	1750	30	75
4452	4086	1259	FREEDOM BUSINESS CENTER DR	COLLECTOR	263	1	12	4	1750	30	72
4453	4087	85	US 422	FREEWAY	2987	2	12	4	2250	70	74
4454	4087	86	US 422	FREEWAY	1863	3	12	4	2250	70	75
4455	4088	3124	MOORE RD	COLLECTOR	1654	1	12	4	1750	40	73
4456	4088	3125	MOORE RD	MINOR ARTERIAL	1281	2	12	4	1750	40	72
4457	4089	3125	VALLEY FORGE RD/ROUTE 23	MINOR ARTERIAL	544	2	12	4	1750	40	72
4458	4090	3144	GEERDES BLVD	COLLECTOR	723	1	12	4	1750	40	73
4459	4090	3147	GEERDES BLVD	MINOR ARTERIAL	940	2	12	4	1750	40	73
4460	4091	3121	VALLEY FORGE RD/ROUTE 23	MINOR ARTERIAL	1141	2	12	4	1750	40	73
4461	4092	3119	FIRST AVE	COLLECTOR	1782	1	12	4	1750	40	73
4462	4092	3124	FIRST AVE	MINOR ARTERIAL	3112	2	12	4	1750	40	73
4463	4093	4092	AMERICAN AVE	COLLECTOR	421	1	12	4	1750	40	73
4464	4094	3115	VALLEY FORGE RD/ROUTE 23	MINOR ARTERIAL	317	1	12	4	1700	40	73
4465	4094	3142	VALLEY FORGE RD/ROUTE 23	MINOR ARTERIAL	2314	1	12	4	1750	40	73
4466	4095	4094	PRINCE FREDERICK ST	COLLECTOR	620	1	12	4	1750	40	73
4467	4096	349	BRANDYWINE LN	COLLECTOR	361	1	12	4	1750	35	73
4468	4097	350	KING CIR	MINOR ARTERIAL	199	2	12	4	1750	30	73
4469	4098	351	TOWN CENTER RD	COLLECTOR	791	1	12	4	1750	40	73
4470	4099	353	SAULIN BLVD	COLLECTOR	1808	1	12	4	1750	40	76
4471	4099	4592	DRIVEWAY	LOCAL ROADWAY	1080	1	12	4	1750	35	76
4472	4100	379	E FRONT ST	COLLECTOR	582	1	12	4	1750	40	76
4473	4100	4275	MILL ST	COLLECTOR	819	1	12	4	1750	40	76

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4474	4101	785	BARBADOES ST	COLLECTOR	283	1	12	4	1750	30	76
4475	4102	4103	W MAIN ST	COLLECTOR	306	1	12	4	1750	40	76
4476	4103	381	W MAIN ST	COLLECTOR	711	1	12	4	1750	40	76
4477	4104	380	E LAYFEYETTE ST	COLLECTOR	1024	1	12	4	1750	30	76
4478	4104	4102	CHERRY ST	COLLECTOR	286	1	12	4	1750	30	76
4479	4105	4103	SWEDE ST	COLLECTOR	648	1	12	4	1750	30	76
4480	4106	382	E AIRY ST	COLLECTOR	961	1	12	4	1750	40	76
4481	4106	786	ARCH ST	COLLECTOR	609	1	12	4	1750	30	76
4482	4106	4107	E AIRY ST	COLLECTOR	716	1	12	4	1750	40	76
4483	4107	787	WALNUT ST	COLLECTOR	579	1	12	4	1750	30	76
4484	4107	4108	E AIRY ST	COLLECTOR	1038	1	12	4	1700	40	76
4485	4108	788	HIGH ST	COLLECTOR	884	1	12	4	1750	40	76
4486	4108	4555	E AIRY ST	COLLECTOR	768	1	12	4	1750	40	76
4487	4109	4321	NEW HOPE ST	COLLECTOR	1383	1	12	4	1750	35	76
4488	4109	4375	E MARSHALL ST	COLLECTOR	602	1	12	4	1750	35	76
4489	4110	384	E CHESTNUT ST	COLLECTOR	737	1	12	4	1750	35	76
4490	4110	4567	SWEDE ST	COLLECTOR	1030	1	12	4	1750	35	76
4491	4111	790	LUCETTA ST	COLLECTOR	516	1	12	4	1750	35	76
4492	4112	362	W FORNACE ST	COLLECTOR	532	1	12	4	1750	35	63
4493	4112	4568	E FORNACE ST	COLLECTOR	710	1	12	4	1750	35	76
4494	4112	4572	PINE ST	COLLECTOR	658	1	12	4	1575	35	63
4495	4113	364	W JOHNSON HWY	COLLECTOR	1440	1	12	4	1750	35	63
4496	4113	4569	W JOHNSON HWY	COLLECTOR	728	1	12	4	1575	35	63
4497	4114	368	GERMANTOWN PIKE	MINOR ARTERIAL	858	2	12	4	1750	45	63
4498	4115	4114	HILLCREST AVE	COLLECTOR	2470	1	12	4	1750	35	63
4499	4116	370	HILLTOP AVE	COLLECTOR	1151	1	12	4	1750	40	63
4500	4116	4405	MILL RD	COLLECTOR	701	1	12	4	1750	40	63
4501	4117	373	YOST RD	COLLECTOR	2814	1	12	4	1750	35	64
4502	4118	374	JOLLY RD	COLLECTOR	1180	1	12	4	1750	35	64
4503	4119	1579	US 202	MINOR ARTERIAL	1237	1	12	4	1700	45	62
4504	4120	793	BELVOIR RD	MINOR ARTERIAL	901	2	12	4	1750	40	77
4505	4121	796	DRIVEWAY	LOCAL ROADWAY	427	1	12	4	1750	30	77

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4506	4122	3051	HICKORY RD	COLLECTOR	1491	1	12	4	1750	40	77
4507	4123	4126	GERMANTOWN PIKE	MAJOR ARTERIAL	604	3	12	4	1900	45	77
4508	4124	4123	LANDFALL RD	COLLECTOR	362	1	12	4	1750	30	77
4509	4125	4123	GERMANTOWN PIKE	MAJOR ARTERIAL	691	3	12	4	1750	45	77
4510	4126	3052	GERMANTOWN PIKE	MINOR ARTERIAL	452	4	12	4	1750	45	77
4511	4127	3051	GERMANTOWN PIKE	MINOR ARTERIAL	1025	2	12	4	1750	45	77
4512	4128	4127	DRIVEWAY	LOCAL ROADWAY	237	1	12	4	1750	30	77
4513	4129	3050	WALTON RD	MINOR ARTERIAL	2696	2	12	4	1750	40	64
4514	4130	3049	SANDY HILL RD	COLLECTOR	1350	1	12	4	1750	40	77
4515	4130	4062	SANDY HILL RD	COLLECTOR	2735	1	12	4	1750	40	77
4516	4131	3049	GERMANTOWN PIKE	MINOR ARTERIAL	746	2	12	4	1750	45	77
4517	4132	4131	JOLLY RD	COLLECTOR	835	1	12	4	1750	35	64
4518	4133	3048	VIRGINIA RD	COLLECTOR	897	1	12	4	1750	40	64
4519	4134	3047	MILL CREEK RD	COLLECTOR	954	1	12	4	1750	40	64
4520	4135	3046	NEW HOPE ST	COLLECTOR	1056	1	12	4	1750	40	64
4521	4136	3046	GERMANTOWN PIKE	MINOR ARTERIAL	890	2	12	4	1750	45	64
4522	4137	4136	DRIVEWAY	LOCAL ROADWAY	221	1	12	4	1750	30	64
4523	4138	4136	GERMANTOWN PIKE	MINOR ARTERIAL	1140	2	12	4	1750	45	64
4524	4139	390	DRIVEWAY	LOCAL ROADWAY	811	1	12	4	1750	30	64
4525	4139	4138	DRIVEWAY	LOCAL ROADWAY	455	1	12	4	1750	30	64
4526	4140	389	DRIVEWAY	LOCAL ROADWAY	278	1	12	4	1750	30	63
4527	4141	388	US 202	MINOR ARTERIAL	3386	1	12	4	1700	45	63
4528	4142	4556	MARSHALL ST	COLLECTOR	612	1	12	4	1750	40	76
4529	4143	4142	MARSHALL ST	COLLECTOR	496	1	12	4	1700	40	76
4530	4143	4580	STANBRIDGE ST	COLLECTOR	669	1	12	4	1575	35	76
4531	4144	3017	STERIGERE ST	COLLECTOR	1521	1	12	4	1750	35	76
4532	4144	4376	HARDING BLVD	COLLECTOR	2061	1	12	4	1350	30	63
4533	4145	783	STANBRIDGE ST	COLLECTOR	827	1	12	4	1750	30	76
4534	4146	3016	STANBRIDGE ST	COLLECTOR	1410	1	12	4	1750	35	63
4535	4146	4578	W ELM ST	COLLECTOR	1109	1	12	4	1575	35	76
4536	4147	4146	W ELM ST	COLLECTOR	251	1	12	4	1750	35	76
4537	4148	777	RIDGE PKWY	MINOR ARTERIAL	324	2	12	4	1750	45	60

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4538	4149	777	EGYPT RD	COLLECTOR	1793	1	12	4	1750	40	60
4539	4150	4149	SCHOOL LN	COLLECTOR	1126	1	12	4	1750	40	60
4540	4151	4548	MARSHALL ST	COLLECTOR	415	1	12	4	1700	40	76
4541	4152	4143	MARSHALL ST	COLLECTOR	438	1	12	4	1750	40	76
4542	4152	4587	NOBLE ST	COLLECTOR	895	1	12	4	1575	35	76
4543	4153	780	FORREST AVE	COLLECTOR	1175	1	12	4	1750	40	73
4544	4154	4549	MARSHALL ST	COLLECTOR	657	1	12	4	1700	40	76
4545	4154	4582	FORREST AVE	COLLECTOR	1886	1	12	4	1575	35	63
4546	4155	775	S TROOPER RD	COLLECTOR	4574	1	12	4	1750	40	60
4547	4155	3083	S TROOPER RD	MINOR ARTERIAL	702	2	12	4	1750	40	60
4548	4156	3089	PARK AVE	COLLECTOR	171	1	12	4	1700	40	59
4549	4156	3090	PARK AVE	COLLECTOR	2459	1	12	4	1750	40	59
4550	4156	4158	CRAWFORD RD	COLLECTOR	840	1	12	4	1700	40	59
4551	4157	3376	EGYPT RD	COLLECTOR	4432	1	12	4	1750	45	59
4552	4158	4157	CRAWFORD RD	COLLECTOR	1253	1	12	4	1750	40	59
4553	4159	772	EAGLE STREAM DR	COLLECTOR	2275	1	12	4	1750	40	60
4554	4160	771	RIDGE PKWY	MINOR ARTERIAL	1549	1	12	4	1750	45	59
4555	4161	998	ROUTE 73	COLLECTOR	4179	1	12	4	1700	50	24
4556	4161	4162	ROUTE 73	COLLECTOR	652	1	12	4	1700	50	24
4557	4162	999	ROUTE 73 TRAFFIC CIRCLE	LOCAL ROADWAY	195	1	12	4	900	20	24
4558	4162	4161	ROUTE 73	COLLECTOR	652	1	12	4	1700	50	24
4559	4163	1122	ROUTE 29	MINOR ARTERIAL	1222	1	12	4	1700	50	24
4560	4163	4162	ROUTE 73 TRAFFIC CIRCLE	LOCAL ROADWAY	177	1	12	4	900	20	24
4561	4164	640	ROUTE 73	COLLECTOR	1557	1	12	4	1750	45	17
4562	4165	976	ROUTE 73	COLLECTOR	5368	1	12	4	1700	50	17
4563	4165	4164	ROUTE 73	COLLECTOR	632	1	12	4	1700	45	17
4564	4166	1127	ROUTE 29	MINOR ARTERIAL	1026	1	12	4	1700	50	24
4565	4167	572	6TH ST	COLLECTOR	1141	1	12	4	1750	35	11
4566	4168	4114	GERMANTOWN PIKE	MINOR ARTERIAL	1930	2	12	4	1750	45	63
4567	4169	4168	STONE CREEK RD	COLLECTOR	2000	1	12	4	1750	40	63
4568	4169	4460	ROLAND DR	COLLECTOR	1767	1	12	4	1750	40	63
4569	4170	3006	GERMANTOWN PIKE	MINOR ARTERIAL	1697	2	12	4	1750	45	63

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4570	4171	3005	GERMANTOWN PIKE	COLLECTOR	1379	1	12	4	1750	45	63
4571	4172	4171	SANDRA LN	COLLECTOR	865	1	12	4	1750	30	63
4572	4173	3000	KRIEBEL MILL RD	COLLECTOR	2369	1	12	4	1750	45	58
4573	4174	1620	SMITH RD	COLLECTOR	2293	1	12	4	1700	45	38
4574	4174	4400	CENTENNIAL ST	COLLECTOR	2573	1	12	4	1700	40	38
4575	4175	1780	BRIDGE ST	COLLECTOR	727	1	12	4	1575	35	40
4576	4176	756	TOWNSHIP LINE RD	MINOR ARTERIAL	1961	2	12	4	1750	50	40
4577	4176	1593	TOWNSHIP LINE RD	COLLECTOR	2516	1	12	4	1750	50	40
4578	4177	1575	BERKS RD	COLLECTOR	4306	1	12	4	1750	45	61
4579	4178	456	SHOEMAKER RD	COLLECTOR	330	1	12	4	1750	40	30
4580	4179	457	UPLAND SQUARE DR	MINOR ARTERIAL	501	2	12	4	1750	40	30
4581	4180	459	STATE ST	COLLECTOR	496	1	12	4	1750	40	16
4582	4181	3805	JACKSON RD	COLLECTOR	350	1	12	4	1750	30	17
4583	4182	644	ROUTE 73	MINOR ARTERIAL	354	2	12	4	1750	40	17
4584	4183	469	COUNTY LINE RD	COLLECTOR	974	1	12	4	1750	35	17
4585	4184	472	DRIVEWAY	LOCAL ROADWAY	300	1	12	4	1750	30	7
4586	4185	473	TOWNSHIP LINE RD	COLLECTOR	360	1	12	4	1750	40	7
4587	4186	533	CHURCH RD	COLLECTOR	3446	1	12	4	1700	40	2
4588	4187	1576	ROUTE 73	COLLECTOR	222	1	12	4	1750	50	61
4589	4187	3032	BETHEL RD	COLLECTOR	6205	1	12	4	1700	40	62
4590	4188	3033	PRIMROSE DR	COLLECTOR	588	1	12	4	1750	35	62
4591	4189	4192	SUMNEYTOWN PIKE	MINOR ARTERIAL	791	2	12	4	1900	40	48
4592	4190	4189	PARKSIDE PL	COLLECTOR	2463	1	12	4	1750	40	48
4593	4191	1948	CHURCH RD	COLLECTOR	1490	1	12	4	1750	40	48
4594	4192	1949	SUMNEYTOWN PIKE	MINOR ARTERIAL	1376	1	12	4	1750	40	48
4595	4193	1942	SUMNEYTOWN PIKE	MINOR ARTERIAL	2107	2	12	4	1750	40	48
4596	4194	4193	SUPPLEE RD	COLLECTOR	668	1	12	4	1750	35	48
4597	4195	4193	SUMNEYTOWN PIKE	MINOR ARTERIAL	527	2	12	4	1750	40	48
4598	4196	4189	SUMNEYTOWN PIKE	MINOR ARTERIAL	1157	2	12	4	1750	40	48
4599	4197	4196	DICKERSON RD	COLLECTOR	1812	1	12	4	1750	40	48
4600	4198	1931	ROUTE 363	COLLECTOR	1515	1	12	4	1700	40	46
4601	4199	4198	DRIVEWAY	LOCAL ROADWAY	712	1	12	4	1750	30	47

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4602	4200	4406	ROUTE 363	COLLECTOR	2052	1	12	4	1700	40	46
4603	4201	4200	WHITES RD	COLLECTOR	458	1	12	4	1750	40	46
4604	4202	1930	ALLENTOWN RD	COLLECTOR	2263	1	12	4	1750	40	46
4605	4203	4202	WOODLAWN DR	COLLECTOR	742	1	12	4	1750	40	46
4606	4204	1921	ROUTE 63	MINOR ARTERIAL	1195	1	12	4	1750	40	46
4607	4205	4204	OAK BLVD	COLLECTOR	814	1	12	4	1750	35	46
4608	4206	1920	ROUTE 63	MINOR ARTERIAL	4266	1	12	4	1750	40	45
4609	4207	4206	DRIST MILL DR	COLLECTOR	170	1	12	4	1750	30	45
4610	4208	1906	DRIVEWAY	LOCAL ROADWAY	593	1	12	4	1750	30	45
4611	4209	1901	WAMBOLD RD	COLLECTOR	2788	1	12	4	1750	40	45
4612	4209	1903	FRETZ RD	COLLECTOR	3422	1	12	4	1750	40	45
4613	4210	4209	FRETZ RD	COLLECTOR	1983	1	12	4	1750	40	45
4614	4211	1901	SCHOOLHOUSE RD	COLLECTOR	1688	1	12	4	1750	40	26
4615	4212	4213	DRESTINE RD	COLLECTOR	5380	1	12	4	1700	40	26
4616	4212	4253	CLEMENS RD	COLLECTOR	3945	1	12	4	1750	40	45
4617	4213	1899	BERGY RD	COLLECTOR	2013	1	12	4	1750	40	26
4618	4213	1900	DRESTINE RD	COLLECTOR	1784	1	12	4	1700	40	26
4619	4214	4534	COWPATH RD	COLLECTOR	1817	1	12	4	1700	45	26
4620	4215	4214	BECK RD	COLLECTOR	2830	1	12	4	1750	40	26
4621	4215	4506	ELROY RD	COLLECTOR	2544	1	12	4	1750	35	26
4622	4216	1847	GODSHALL RD	COLLECTOR	2728	1	12	4	1750	40	25
4623	4217	1849	ROUTE 113	COLLECTOR	2450	1	12	4	1750	40	26
4624	4217	4219	COWPATH RD	COLLECTOR	1883	1	12	4	1700	40	26
4625	4218	1862	GODSHALL RD	COLLECTOR	363	1	12	4	1700	45	26
4626	4219	4220	COWPATH RD	COLLECTOR	2195	1	12	4	1700	40	26
4627	4219	4509	W RELIANCE RD	COLLECTOR	2000	1	12	4	1700	40	26
4628	4220	4218	COWPATH RD	COLLECTOR	2458	1	12	4	1700	40	26
4629	4221	4217	COWPATH RD	COLLECTOR	1747	1	12	4	1750	40	26
4630	4222	1887	CHURCH RD	COLLECTOR	882	1	12	4	1750	35	26
4631	4225	4226	ROUTE 113	MINOR ARTERIAL	359	2	12	4	1750	40	26
4632	4226	1867	ROUTE 113	MINOR ARTERIAL	356	2	12	4	1900	40	26
4633	4227	4226	DRIVEWAY	LOCAL ROADWAY	185	1	12	4	1750	30	26

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rage (pcphpl)	Free Flow Speed	Grid Map Number
4634	4229	1860	ALLENTOWN RD	COLLECTOR	2921	1	12	4	1700	40	26
4635	4229	4230	LOWER RD	COLLECTOR	2351	1	12	4	1700	40	26
4636	4230	4218	GODSHALL RD	COLLECTOR	1660	1	12	4	1700	40	26
4637	4230	4229	LOWER RD	COLLECTOR	2351	1	12	4	1750	40	26
4638	4231	4506	ALLENTOWN RD	COLLECTOR	951	1	12	4	1750	40	26
4639	4232	4231	SOUDER RD	COLLECTOR	1546	1	12	4	1750	40	26
4640	4233	4234	TOWAMENCIN AVE	COLLECTOR	694	1	12	4	1750	40	45
4641	4233	4235	TOWAMENCIN AVE	COLLECTOR	1918	1	12	4	1750	40	45
4642	4234	1911	ROUTE 63	MINOR ARTERIAL	681	2	12	4	1750	40	45
4643	4235	1826	ROUTE 63	MINOR ARTERIAL	396	1	12	4	1750	40	45
4644	4235	1910	ROUTE 63	MINOR ARTERIAL	672	2	12	4	1750	45	45
4645	4236	4234	ROUTE 63	MINOR ARTERIAL	1515	2	12	4	1750	40	45
4646	4237	4239	SUMNEYTOWN PIKE	MINOR ARTERIAL	1071	1	12	4	1750	40	45
4647	4238	4237	DRIVEWAY	LOCAL ROADWAY	245	1	12	4	1750	30	45
4648	4239	1928	SUMNEYTOWN PIKE	MINOR ARTERIAL	2962	1	12	4	1750	40	45
4649	4240	4239	GREEN LANE RD	COLLECTOR	2805	1	12	4	1750	40	45
4650	4241	1821	ROUTE 63	MINOR ARTERIAL	652	2	12	4	1900	45	42
4651	4242	4241	ROUTE 63	MINOR ARTERIAL	2217	1	12	4	1700	45	42
4652	4243	4242	RUTH RD	COLLECTOR	2909	1	12	4	1750	40	42
4653	4244	1792	ROUTE 63	MINOR ARTERIAL	996	1	12	4	1750	45	25
4654	4245	4244	ROUTE 63	MINOR ARTERIAL	1910	1	12	4	1750	45	25
4655	4246	1794	CLEMENS RD	COLLECTOR	662	1	12	4	1750	40	42
4656	4247	1793	OAK DR	COLLECTOR	886	1	12	4	1750	40	42
4657	4248	1792	HUNSBERFER LN	COLLECTOR	1432	1	12	4	1750	40	25
4658	4249	4244	KULP RD	COLLECTOR	2223	1	12	4	1750	40	25
4659	4250	1817	OAK DR	COLLECTOR	1538	1	12	4	1750	40	25
4660	4250	4245	MAPLE AVE	COLLECTOR	1848	1	12	4	1750	40	25
4661	4250	4247	OAK DR	COLLECTOR	3303	1	12	4	1700	40	25
4662	4251	1843	ROUTE 113	COLLECTOR	2956	1	12	4	1700	45	25
4663	4252	4251	DRIVEWAY	LOCAL ROADWAY	906	1	12	4	1750	30	25
4664	4252	4507	DRIVEWAY	LOCAL ROADWAY	940	1	12	4	1750	30	25
4665	4253	1907	ROUTE 463	COLLECTOR	3284	1	12	4	1750	40	45

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rage (pcphpl)	Free Flow Speed	Grid Map Number
4666	4254	4253	ROUTE 463	COLLECTOR	659	1	12	4	1750	40	45
4667	4255	1907	ELROY RD	COLLECTOR	1846	1	12	4	1750	40	26
4668	4256	1063	FEIS RD	COLLECTOR	877	1	12	4	1700	40	9
4669	4257	1065	QUAKERTOWN RD	COLLECTOR	3764	1	12	4	1700	40	9
4670	4258	1147	OLD SUMNEYTOWN RD	COLLECTOR	1544	1	12	4	1700	40	22
4671	4258	1148	OLD SUMNEYTOWN RD	COLLECTOR	1688	1	12	4	1700	40	22
4672	4259	447	WEISSTOWN RD	COLLECTOR	3393	1	12	4	1700	45	17
4673	4259	4383	N READING AVE	COLLECTOR	3660	1	12	4	1700	45	7
4674	4260	651	S CHESTNUT ST	COLLECTOR	626	1	12	4	1750	35	17
4675	4261	640	MERKEL RD	COLLECTOR	2748	1	12	4	1750	40	17
4676	4262	609	KULP RD	COLLECTOR	1432	1	12	4	1575	35	21
4677	4263	411	FRIEDENSBURGH RD	COLLECTOR	2113	1	12	4	1750	40	5
4678	4264	3270	SHELBOURNE RD	COLLECTOR	2482	1	12	4	1575	35	14
4679	4264	4265	SHELBOURNE RD	COLLECTOR	1365	1	12	4	1575	35	14
4680	4265	4264	SHELBOURNE RD	COLLECTOR	1366	1	12	4	1575	35	14
4681	4265	4266	SHELBOURNE RD	COLLECTOR	1118	1	12	4	1575	35	14
4682	4266	4265	SHELBOURNE RD	COLLECTOR	1119	1	12	4	1575	35	14
4683	4266	4267	SHELBOURNE RD	COLLECTOR	924	1	12	4	1575	35	14
4684	4267	429	SHELBOURNE RD	COLLECTOR	1772	1	12	4	1750	35	14
4685	4267	4266	SHELBOURNE RD	COLLECTOR	925	1	12	4	1575	35	14
4686	4268	10	SHELBOURNE RD	COLLECTOR	440	1	12	4	1750	35	14
4687	4268	3270	SHELBOURNE RD	COLLECTOR	1949	1	12	4	1575	35	14
4688	4269	10	US 422	MINOR ARTERIAL	476	2	12	4	1750	50	14
4689	4269	11	US 422	MINOR ARTERIAL	1373	2	12	4	1750	50	14
4690	4269	4268	ACCESS RD	COLLECTOR	688	1	12	4	1575	35	14
4691	4270	3505	S WHITEHORSE RD	COLLECTOR	2470	1	12	4	1700	40	70
4692	4270	4271	ASHENFELTER RD	COLLECTOR	5025	1	12	4	1700	40	70
4693	4271	3914	ASHENFELTER RD	COLLECTOR	1886	1	12	4	1700	40	71
4694	4272	4273	HOLLOW RD	COLLECTOR	2951	1	12	4	1700	40	67
4695	4273	3964	HOLLOW RD	COLLECTOR	3108	1	12	4	1700	40	67
4696	4274	4272	HOLLOW RD	COLLECTOR	650	1	12	4	1575	35	67
4697	4275	4276	ROUTE 23	MINOR ARTERIAL	349	1	12	4	1700	40	76

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4698	4278	4279	BALDY HILL RD	COLLECTOR	422	1	12	4	1700	40	1
4699	4279	4280	BALDY HILL RD	COLLECTOR	1196	1	12	4	1700	40	1
4700	4280	4281	BALDY HILL RD	COLLECTOR	550	1	12	4	1575	35	1
4701	4282	691	US-422	COLLECTOR	479	1	12	4	1700	45	14
4702	4283	4282	ROUTE 562	COLLECTOR	1840	1	12	4	1750	45	14
4703	4284	4283	ROUTE 562	COLLECTOR	608	1	12	4	1750	45	14
4704	4284	4300	BINGAMAN ST	COLLECTOR	780	1	12	4	1700	40	14
4705	4285	4288	ROUTE 562	COLLECTOR	2164	1	12	4	1700	45	14
4706	4286	4283	PROSPECT ST	COLLECTOR	1019	1	12	4	1750	40	14
4707	4286	4296	OLEY TURNPIKE RD	COLLECTOR	1119	1	12	4	1750	40	14
4708	4287	4284	S BINGAMAN ST	COLLECTOR	598	1	12	4	1750	40	14
4709	4288	4284	ROUTE 562	COLLECTOR	1833	1	12	4	1750	45	14
4710	4289	4285	ELM ST	COLLECTOR	1345	1	12	4	1750	40	14
4711	4290	3943	US-422	MINOR ARTERIAL	596	2	12	4	1750	40	14
4712	4291	4290	DRIVEWAY	LOCAL ROADWAY	975	1	12	4	1750	30	14
4713	4292	3943	DRIVEWAY	LOCAL ROADWAY	409	1	12	4	1750	40	14
4714	4293	4294	US-422	MINOR ARTERIAL	2159	2	12	4	1750	45	14
4715	4294	4295	US-422	MINOR ARTERIAL	639	2	12	4	1750	45	14
4716	4295	4445	US-422	MINOR ARTERIAL	2344	2	12	4	1900	40	14
4717	4296	4282	US-422	MINOR ARTERIAL	968	2	12	4	1750	40	14
4718	4297	4293	E NEVERSINK RD	MINOR ARTERIAL	845	2	12	4	1750	40	14
4719	4298	4294	E 37TH ST	COLLECTOR	843	1	12	4	1750	40	14
4720	4299	4295	E 36TH ST	COLLECTOR	707	1	12	4	1750	40	14
4721	4301	4302	ALLEGHENYVILLE RD	COLLECTOR	526	1	12	4	1700	40	27
4722	4303	3956	W 1ST ST	COLLECTOR	1577	1	12	4	1700	40	28
4723	4303	4304	JEFFERSON ST	COLLECTOR	2783	1	12	4	1700	40	28
4724	4304	4305	COCALICO RD	COLLECTOR	3488	1	12	4	1700	40	28
4725	4305	4306	COCALICO RD	COLLECTOR	986	1	12	4	1700	40	27
4726	4306	4307	COCALICO RD	COLLECTOR	2205	1	12	4	1575	35	27
4727	4307	4308	COCALICO RD	COLLECTOR	6882	1	12	4	1575	35	27
4728	4308	1507	COCALICO RD	COLLECTOR	3432	1	12	4	1700	40	27
4729	4309	4310	ST ANDREWS LN	COLLECTOR	1391	1	12	4	1700	40	66

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rage (pcphpl)	Free Flow Speed	Grid Map Number
4730	4310	4311	ST ANDREWS LN	COLLECTOR	2794	1	12	4	1700	40	66
4731	4311	4312	ST ANDREWS LN	COLLECTOR	2879	1	12	4	1700	40	66
4732	4312	3791	ST ANDREWS LN	COLLECTOR	1168	1	12	4	1700	40	66
4733	4313	4317	RICE BLVD	COLLECTOR	2091	1	12	4	1700	40	66
4734	4314	4436	DORLAN MILL RD	COLLECTOR	2028	1	12	4	1700	40	82
4735	4315	4316	DORLAN MILL RD	COLLECTOR	2890	1	12	4	1700	40	82
4736	4316	3685	DORLAN MILL RD	COLLECTOR	705	1	12	4	1700	40	82
4737	4317	4318	RICE BLVD	COLLECTOR	1160	1	12	4	1700	40	66
4738	4318	4314	RICE BLVD	COLLECTOR	787	1	12	4	1700	40	82
4739	4319	4313	PENNSLYVANIA DR	COLLECTOR	1335	1	12	4	1700	40	66
4740	4320	4111	FAIRFIELD RD	COLLECTOR	2001	1	12	4	1700	40	76
4741	4320	4325	SANDY HILL RD	COLLECTOR	4469	1	12	4	1750	40	77
4742	4321	4320	E FORNACE ST	COLLECTOR	1186	1	12	4	1750	40	76
4743	4321	4323	NEW HOPE ST	COLLECTOR	3698	1	12	4	1750	40	76
4744	4322	4321	E FORNACE ST	COLLECTOR	2757	1	12	4	1750	40	76
4745	4323	4321	NEW HOPE ST	COLLECTOR	3698	1	12	4	1750	40	76
4746	4323	4380	PLYMOUTH RD	COLLECTOR	2062	1	12	4	1700	40	77
4747	4323	4381	NEW HOPE ST	COLLECTOR	3119	1	12	4	1700	40	64
4748	4324	4322	ARCH ST	COLLECTOR	1222	1	12	4	1750	35	76
4749	4324	4378	ARCH ST	COLLECTOR	2363	1	12	4	1750	35	63
4750	4325	4330	SANDY HILL RD	COLLECTOR	987	1	12	4	1750	40	77
4751	4326	4325	BELVOIR RD	COLLECTOR	1038	1	12	4	1750	40	77
4752	4326	4330	PLYMOUTH RD	COLLECTOR	1476	1	12	4	1750	40	77
4753	4327	3052	PLYMOUTH RD	COLLECTOR	1079	1	12	4	1750	40	77
4754	4328	4327	PLYMOUTH RD	COLLECTOR	2987	1	12	4	1750	40	77
4755	4329	4327	DRIVEWAY	LOCAL ROADWAY	411	1	12	4	1750	30	77
4756	4330	4062	SANDY HILL RD	COLLECTOR	447	1	12	4	1750	40	77
4757	4331	4332	E TOWNSHIP LINE RD	COLLECTOR	979	1	12	4	1700	40	64
4758	4333	1883	BERGY RD	COLLECTOR	6204	1	12	4	1700	40	26
4759	4334	4333	SOUDERTON PIKE	COLLECTOR	2113	1	12	4	1750	40	26
4760	4335	1055	STATE ST	COLLECTOR	479	1	12	4	1575	35	8
4761	4336	1068	ROUTE 2027	COLLECTOR	1008	1	12	4	1700	40	3

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4762	4337	4338	KRAUSSDALE RD	COLLECTOR	1862	1	12	4	1700	40	3
4763	4338	4336	KRAUSSDALE RD	COLLECTOR	174	1	12	4	1575	35	3
4764	4339	4337	KRAUSSDALE RD	COLLECTOR	3464	1	12	4	1700	40	3
4765	4340	264	I-476	FREEWAY	7546	2	12	4	2250	70	12
4766	4340	4341	I-476	FREEWAY	7875	2	12	4	2250	70	4
4767	4341	265	I-476	FREEWAY	2095	2	12	4	2250	70	4
4768	4341	4340	I-476	FREEWAY	7865	2	12	4	2250	70	4
4769	4342	4344	I-476 ON-RAMP	FREEWAY RAMP	627	1	12	4	1700	40	4
4770	4342	4345	ROUTE 663	MINOR ARTERIAL	584	2	12	4	1900	40	4
4771	4343	4342	ROUTE 663	MINOR ARTERIAL	2514	2	12	4	1750	40	4
4772	4344	4342	I-476 OFF-RAMP	FREEWAY RAMP	624	1	12	4	1750	40	4
4773	4344	4372	I-476 TOLL	FREEWAY RAMP	1156	4	12	4	1900	20	4
4774	4345	4346	JUG HANDLE	COLLECTOR	339	1	12	4	1575	35	4
4775	4345	4348	ROUTE 663	MINOR ARTERIAL	1134	2	12	4	1750	40	4
4776	4345	4371	AM DR	COLLECTOR	523	1	12	4	1700	40	4
4777	4346	4347	JUG HANDLE	COLLECTOR	566	1	12	4	1575	35	4
4778	4347	4342	JUG HANDLE	COLLECTOR	333	1	12	4	1750	35	4
4779	4348	4349	ROUTE 663	MINOR ARTERIAL	425	2	12	4	1900	40	4
4780	4349	1064	ROUTE 663	COLLECTOR	1062	1	12	4	1700	40	4
4781	4350	4348	WEISS RD	COLLECTOR	660	1	12	4	1750	40	4
4782	4351	4343	SPINNERSTOWN RD	COLLECTOR	1572	1	12	4	1750	40	4
4783	4352	4343	ROUTE 663	MINOR ARTERIAL	992	2	12	4	1750	40	4
4784	4353	4352	ROUTE 663	COLLECTOR	4594	1	12	4	1700	40	4
4785	4354	4355	HILL RD	COLLECTOR	2102	1	12	4	1575	35	22
4786	4355	614	HILL RD	COLLECTOR	2768	1	12	4	1575	35	22
4787	4356	4357	HENRY RD	COLLECTOR	1230	1	12	4	1575	35	7
4788	4357	610	MILLER RD	COLLECTOR	2289	1	12	4	1575	35	7
4789	4358	4362	SCHWOYER RD	COLLECTOR	1573	1	12	4	1575	35	7
4790	4359	4360	FRUITVILLE RD	COLLECTOR	825	1	12	4	1575	35	8
4791	4360	4361	FRUITVILLE RD	COLLECTOR	2845	1	12	4	1575	35	8
4792	4361	1048	FRUITVILLE RD	COLLECTOR	1924	1	12	4	1575	35	8
4793	4362	608	SCHWOYER RD	COLLECTOR	3115	1	12	4	1575	35	7

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4794	4362	4366	JACOBS SAWMILL RD	COLLECTOR	462	1	12	4	1575	35	7
4795	4363	4364	JACOBS SAWMILL RD	COLLECTOR	3029	1	12	4	1575	35	8
4796	4364	4365	JACOBS SAWMILL RD	COLLECTOR	2515	1	12	4	1575	35	8
4797	4365	1050	JACOBS SAWMILL RD	COLLECTOR	494	1	12	4	1575	35	8
4798	4366	604	JACOBS SAWMILL RD	COLLECTOR	3153	1	12	4	1575	35	7
4799	4367	604	KUTZTOWN RD	COLLECTOR	3437	1	12	4	1700	50	7
4800	4367	605	KUTZTOWN RD	COLLECTOR	2574	1	12	4	1700	50	7
4801	4368	563	ROUTE 29	MINOR ARTERIAL	424	1	12	4	1700	40	22
4802	4368	4369	HOPPENVILLE RD	COLLECTOR	589	1	12	4	1575	35	22
4803	4369	4370	HOPPENVILLE RD	COLLECTOR	1141	1	12	4	1700	40	22
4804	4370	1163	HOPPENVILLE RD	COLLECTOR	6418	1	12	4	1700	40	11
4805	4371	4344	PROGRESS DR	COLLECTOR	843	1	12	4	1700	40	4
4806	4372	4341	I-476 TOLL	FREEWAY RAMP	860	1	12	4	1700	45	4
4807	4373	3627	I-76 TOLL	FREEWAY RAMP	1202	4	12	4	1900	20	66
4808	4374	3511	COLDSTREAM RD	COLLECTOR	1543	1	12	4	1700	40	67
4809	4375	4320	SANDY HILL RD	COLLECTOR	1099	1	12	4	1750	40	76
4810	4376	363	HARDING BLVD	COLLECTOR	1108	1	12	4	1350	30	63
4811	4376	4377	COOLIDGE BLVD	COLLECTOR	2107	1	12	4	1350	30	63
4812	4377	364	W JOHNSON HWY	COLLECTOR	500	1	12	4	1750	30	63
4813	4378	4323	E JOHNSON HWY	COLLECTOR	2075	1	12	4	1750	40	63
4814	4378	4379	ARCH ST	COLLECTOR	4579	1	12	4	1575	35	63
4815	4379	4135	OLD ARCH RD	COLLECTOR	143	1	12	4	1750	35	64
4816	4380	4326	PLYMOUTH RD	COLLECTOR	992	1	12	4	1700	40	77
4817	4381	4135	NEW HOPE ST	COLLECTOR	1120	1	12	4	1750	40	64
4818	4382	1042	ROUTE 663	COLLECTOR	2168	1	12	4	1700	40	10
4819	4383	473	TOWNSHIP LINE RD	COLLECTOR	298	1	12	4	1750	40	7
4820	4383	4490	TOWNSHIP LINE RD	COLLECTOR	2717	1	12	4	1700	40	7
4821	4384	763	RIDGE PKWY	MINOR ARTERIAL	1701	1	12	4	1750	40	54
4822	4385	1708	N LEWIS RD	COLLECTOR	2245	1	12	4	1750	45	53
4823	4386	4385	DRIVEWAY	LOCAL ROADWAY	509	1	12	4	1750	30	53
4824	4387	1032	N LEWIS RD	COLLECTOR	387	1	12	4	1750	35	39
4825	4387	1033	N LEWIS RD	COLLECTOR	2116	1	12	4	1575	35	39

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4826	4388	1604	N LEWIS RD	COLLECTOR	344	1	12	4	1750	45	39
4827	4389	999	ROUTE 73	COLLECTOR	710	1	12	4	1700	45	24
4828	4389	4390	ROUTE 73	COLLECTOR	734	1	12	4	1700	45	24
4829	4390	1626	ROUTE 73	COLLECTOR	2399	1	12	4	1700	45	38
4830	4390	4389	ROUTE 73	COLLECTOR	766	1	12	4	1700	45	24
4831	4391	807	HIGH ST	COLLECTOR	2991	1	12	4	1750	45	34
4832	4392	768	GERMANTOWN PIKE	COLLECTOR	2585	1	12	4	1750	45	57
4833	4392	1997	GERMANTOWN PIKE	COLLECTOR	2189	1	12	4	1750	45	57
4834	4393	3084	S TROOPER RD	COLLECTOR	425	1	12	4	1700	45	72
4835	4394	1156	ROUTE 63	MINOR ARTERIAL	1505	1	12	4	1700	40	22
4836	4394	1157	ROUTE 63	MINOR ARTERIAL	2472	1	12	4	1700	40	22
4837	4395	562	ROUTE 63	MINOR ARTERIAL	1113	1	12	4	1750	40	22
4838	4395	1156	ROUTE 63	MINOR ARTERIAL	1879	1	12	4	1700	40	22
4839	4396	830	HIGH ST	MINOR ARTERIAL	782	2	12	4	1750	40	30
4840	4397	4398	PERKIOMEN AVE	COLLECTOR	371	1	12	4	1575	35	38
4841	4398	1555	PERKIOMEN AVE	COLLECTOR	389	1	12	4	1750	35	38
4842	4399	1532	PARK AVE	COLLECTOR	257	1	12	4	1750	45	38
4843	4400	1621	CENTENNIAL ST	COLLECTOR	720	1	12	4	1750	40	38
4844	4400	1622	WALNUT ST	COLLECTOR	769	1	12	4	1750	40	38
4845	4401	893	E MOYER RD	COLLECTOR	4887	1	12	4	1575	35	19
4846	4401	4402	E MOYER RD	COLLECTOR	2008	1	12	4	1575	35	19
4847	4402	3798	E MOYER RD	COLLECTOR	1255	1	12	4	1750	35	19
4848	4402	4401	E MOYER RD	COLLECTOR	2004	1	12	4	1575	35	19
4849	4403	4404	HIGH ST	MINOR ARTERIAL	437	2	12	4	1750	45	30
4850	4404	831	HIGH ST	MINOR ARTERIAL	1753	2	12	4	1750	45	30
4851	4405	391	GERMANTOWN PIKE	MINOR ARTERIAL	967	2	12	4	1750	45	64
4852	4406	1921	ROUTE 363	COLLECTOR	785	1	12	4	1750	40	46
4853	4407	4198	ROUTE 363	COLLECTOR	569	1	12	4	1750	40	47
4854	4408	1932	SUMNEYTOWN PIKE	MINOR ARTERIAL	2696	1	12	4	1750	40	47
4855	4409	3126	ALLENDALE RD	MINOR ARTERIAL	1501	2	12	4	1750	40	73
4856	4410	4409	ELLIOT DR	COLLECTOR	1415	1	12	4	1750	35	73
4857	4411	4088	CONTINENTAL DR	COLLECTOR	944	1	12	4	1575	35	73

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rage (pcphpl)	Free Flow Speed	Grid Map Number
4858	4413	1409	ROUTE 23	MINOR ARTERIAL	2075	1	12	4	1700	50	51
4859	4414	4415	HARNOMYVILL RD	COLLECTOR	385	1	12	4	1575	35	51
4860	4415	4421	HARNOMYVILL RD	COLLECTOR	2072	1	12	4	1700	40	51
4861	4416	4417	HARNOMYVILL RD	COLLECTOR	817	1	12	4	1700	40	51
4862	4416	4420	ST PETERS RD	COLLECTOR	2088	1	12	4	1575	35	51
4863	4417	4418	HOPEWELL RD	COLLECTOR	1261	1	12	4	1700	40	50
4864	4418	3967	HOPEWELL RD	COLLECTOR	5750	1	12	4	1700	40	50
4865	4419	4413	ST PETERS RD	COLLECTOR	3116	1	12	4	1750	35	51
4866	4420	4419	ST PETERS RD	COLLECTOR	2169	1	12	4	1575	35	51
4867	4421	4422	HARNOMYVILL RD	COLLECTOR	2974	1	12	4	1700	40	51
4868	4422	4416	HARNOMYVILL RD	COLLECTOR	813	1	12	4	1700	40	51
4869	4423	3700	SR 29	MINOR ARTERIAL	489	2	12	4	1750	50	87
4870	4424	1228	ROUTE 724	COLLECTOR	2520	1	12	4	1700	50	52
4871	4425	4424	ROUTE 724	COLLECTOR	2441	1	12	4	1700	50	52
4872	4426	3395	SR 29	MINOR ARTERIAL	2455	1	12	4	1750	40	68
4873	4427	3389	GAY ST	COLLECTOR	307	1	12	4	1350	30	68
4874	4428	3390	S MAIN ST	COLLECTOR	366	1	12	4	1350	30	68
4875	4429	3354	STARR RD	COLLECTOR	1570	1	12	4	1750	35	55
4876	4429	3391	STARR RD	COLLECTOR	373	1	12	4	1575	35	55
4877	4430	4426	SR 29	MINOR ARTERIAL	1247	1	12	4	1700	40	68
4878	4431	3503	S WHITEHORSE RD	COLLECTOR	546	1	12	4	1750	40	68
4879	4432	3891	CHARLESTOWN RD	COLLECTOR	2589	1	12	4	1700	40	68
4880	4433	1290	CADMUS RD	COLLECTOR	1257	1	12	4	1750	35	51
4881	4434	1290	ROUTE 100	MINOR ARTERIAL	1823	1	12	4	1750	40	51
4882	4435	1227	NEW ST	COLLECTOR	1657	1	12	4	1750	40	52
4883	4436	4315	DORLAN MILL RD	COLLECTOR	1040	1	12	4	1700	40	82
4884	4437	1308	ROUTE 100	MINOR ARTERIAL	450	1	12	4	1750	45	66
4885	4438	400	OLD AIRPORT RD	COLLECTOR	513	1	12	4	1750	45	15
4886	4438	4485	WEAVERTOWN RD	COLLECTOR	4068	1	12	4	1700	45	15
4887	4439	394	ROUTE 662	COLLECTOR	932	1	12	4	1700	45	29
4888	4439	395	ROUTE 662	COLLECTOR	2442	1	12	4	1700	45	29
4889	4440	23	US 422	MINOR ARTERIAL	1547	2	12	4	1750	50	28

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rage (pcphpl)	Free Flow Speed	Grid Map Number
4890	4441	3945	N TWIN VALLEY RD	COLLECTOR	907	1	12	4	1700	40	49
4891	4442	4441	N TWIN VALLEY RD	COLLECTOR	184	1	12	4	1700	40	49
4892	4443	447	ROUTE 562	COLLECTOR	371	1	12	4	1700	45	17
4893	4444	418	ROUTE 562	COLLECTOR	2043	1	12	4	1750	45	16
4894	4445	4296	US-422	MINOR ARTERIAL	336	2	12	4	1750	40	14
4895	4446	4447	MAIN ST	COLLECTOR	2219	1	12	4	1700	40	5
4896	4448	477	HOFFMANSVILLE RD	COLLECTOR	1768	1	12	4	1700	40	7
4897	4449	610	GEHMAN RD	COLLECTOR	3234	1	12	4	1700	40	7
4898	4449	611	GEHMAN RD	COLLECTOR	481	1	12	4	1700	40	7
4899	4450	4452	WEBER RD	COLLECTOR	1957	1	12	4	1750	45	48
4900	4451	4450	SULLIVAN DR	COLLECTOR	384	1	12	4	1750	30	48
4901	4452	1942	WEBER RD	COLLECTOR	741	1	12	4	1750	45	48
4902	4453	4452	DRIVEWAY	LOCAL ROADWAY	245	1	12	4	1750	30	48
4903	4454	3083	EGYPT RD	MINOR ARTERIAL	1011	2	12	4	1750	45	60
4904	4455	4454	WEDGEWOOD WAY	COLLECTOR	1163	1	12	4	1750	35	60
4905	4456	4458	EGYPT RD	COLLECTOR	669	1	12	4	1750	40	60
4906	4457	4456	HESSON AVE	COLLECTOR	1697	1	12	4	1750	40	60
4907	4458	3097	EGYPT RD	COLLECTOR	1830	1	12	4	1700	40	60
4908	4459	4458	WILLOWBROOK DR	COLLECTOR	360	1	12	4	1750	30	60
4909	4460	371	TOWNSHIP LINE RD	COLLECTOR	3609	1	12	4	1750	45	63
4910	4461	4170	EINSTIEN DRIVEWAY	COLLECTOR	614	1	12	4	1750	30	63
4911	4462	3001	GERMANTOWN PIKE	COLLECTOR	4324	1	12	4	1750	40	58
4912	4463	762	RIDGE PKWY	MINOR ARTERIAL	1838	1	12	4	1750	40	54
4913	4464	4463	TRAPPE CENTER RD	COLLECTOR	300	1	12	4	1750	30	54
4914	4465	3122	VALLEY FORGE RD/ROUTE 23	MINOR ARTERIAL	633	2	12	4	1750	45	72
4915	4466	1283	ROUTE 100	MINOR ARTERIAL	1114	1	12	4	1750	40	32
4916	4467	3526	SR 401	MINOR ARTERIAL	946	1	12	4	1750	40	84
4917	4468	4467	DRIVEWAY	LOCAL ROADWAY	365	1	12	4	1750	30	84
4918	4469	3406	I-76 ON-RAMP	FREEWAY RAMP	182	1	12	4	1750	40	70
4919	4469	4470	I-76 ON-RAMP	FREEWAY RAMP	1475	1	12	4	1700	40	70
4920	4470	4471	I-76 TOLL	FREEWAY RAMP	861	4	12	4	1900	20	70

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4921	4471	152	I-76 ON-RAMP	FREEWAY RAMP	1462	1	12	4	1700	45	70
4922	4471	4472	I-76 ON-RAMP	FREEWAY RAMP	1044	1	12	4	1700	40	70
4923	4472	151	I-76 ON-RAMP	FREEWAY RAMP	439	1	12	4	1350	30	70
4924	4473	4470	I-76 ON-RAMP	FREEWAY RAMP	461	1	12	4	1575	35	70
4925	4474	1238	GAY ST	COLLECTOR	779	1	12	4	1750	30	68
4926	4475	931	ARMAND HAMMER BLVD	COLLECTOR	865	1	12	4	1750	35	35
4927	4476	4475	DRIVEWAY	LOCAL ROADWAY	393	1	12	4	1750	30	35
4928	4477	4182	ROUTE 73	COLLECTOR	663	1	12	4	1700	40	17
4929	4478	4477	DRIVEWAY	LOCAL ROADWAY	282	1	12	4	1750	30	17
4930	4479	444	MAIN ST	COLLECTOR	2292	1	12	4	1700	40	5
4931	4480	4481	PINE FORGE RD	COLLECTOR	4334	1	12	4	1575	35	16
4932	4481	4482	PINE FORGE RD	COLLECTOR	954	1	12	4	1575	35	16
4933	4482	398	PINE FORGE RD	COLLECTOR	1956	1	12	4	1575	35	16
4934	4483	425	DANIEL BOONE RD	COLLECTOR	3826	1	12	4	1700	40	15
4935	4483	3283	DANIEL BOONE RD	COLLECTOR	6220	1	12	4	1700	40	15
4936	4484	4483	WEAVERTOWN RD	COLLECTOR	4015	1	12	4	1700	40	15
4937	4484	4498	LIMEKILN RD	COLLECTOR	3442	1	12	4	1700	40	15
4938	4485	4484	WEAVERTOWN RD	COLLECTOR	6316	1	12	4	1700	40	15
4939	4486	687	OLEY TURNPIKE RD	COLLECTOR	502	1	12	4	1700	45	15
4940	4487	4486	LIMEKILN RD	COLLECTOR	11431	1	12	4	1700	40	15
4941	4489	4488	LIMEKILN RD	COLLECTOR	2899	1	12	4	1700	40	15
4942	4490	495	MAIN ST	COLLECTOR	2315	1	12	4	1575	35	7
4943	4491	608	W BRANCH RD	COLLECTOR	1979	1	12	4	1575	35	8
4944	4492	4491	W BRANCH RD	COLLECTOR	4002	1	12	4	1575	35	7
4945	4493	933	BEECH ST	COLLECTOR	574	1	12	4	1750	35	30
4946	4494	4493	WASHGINTON ST	COLLECTOR	506	1	12	4	1350	30	33
4947	4495	932	BEECH ST	COLLECTOR	1760	1	12	4	1575	35	33
4948	4496	811	BEECH ST	COLLECTOR	877	1	12	4	1750	35	33
4949	4496	913	BEECH ST	COLLECTOR	688	1	12	4	1575	35	33
4950	4497	3298	BEECH ST	COLLECTOR	779	1	12	4	1575	35	30
4951	4498	422	LIMEKILN RD	COLLECTOR	1647	1	12	4	1700	40	15
4952	4499	4500	MOOREWOOD RD	COLLECTOR	557	1	12	4	1350	30	25

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4953	4500	4501	MOOREWOOD RD	COLLECTOR	4731	1	12	4	1575	35	25
4954	4501	4502	MOOREWOOD RD	COLLECTOR	3352	1	12	4	1575	35	25
4955	4502	1855	MOOREWOOD RD	COLLECTOR	2232	1	12	4	1750	35	25
4956	4503	1850	COUNTY LINE RD	COLLECTOR	2574	1	12	4	1750	40	26
4957	4503	1866	COUNTY LINE RD	COLLECTOR	2115	1	12	4	1750	40	26
4958	4504	1865	SCHOOL LN	COLLECTOR	1984	1	12	4	1750	40	26
4959	4504	1886	SCHOOL LN	COLLECTOR	2519	1	12	4	1700	40	26
4960	4504	4503	CENTRAL AVE	COLLECTOR	915	1	12	4	1575	35	26
4961	4505	1864	ROUTE 113	COLLECTOR	1522	1	12	4	1750	40	26
4962	4506	1902	ALLENTOWN RD	COLLECTOR	2787	1	12	4	1700	40	26
4963	4506	4215	ELROY RD	COLLECTOR	2540	1	12	4	1575	35	26
4964	4507	1791	ROUTE 63	MINOR ARTERIAL	1076	1	12	4	1750	50	25
4965	4508	1844	SCHOOLHOUSE RD	COLLECTOR	1726	1	12	4	1750	40	25
4966	4509	1849	W RELIANCE RD	COLLECTOR	729	1	12	4	1750	40	26
4967	4510	1864	ROUTE 113	COLLECTOR	285	1	12	4	1750	35	26
4968	4511	4510	WASHINGTON ST	COLLECTOR	2246	1	12	4	1750	40	26
4969	4511	4536	CHURCH ST	COLLECTOR	4040	1	12	4	1750	40	26
4970	4512	1917	BUSTARD RD	COLLECTOR	653	1	12	4	1700	45	45
4971	4513	4512	RITTENHOUSE RD	COLLECTOR	840	1	12	4	1750	40	45
4972	4514	4515	RIDGE PKWY	MINOR ARTERIAL	2654	1	12	4	1700	50	57
4973	4515	770	RIDGE PKWY	MINOR ARTERIAL	2526	2	12	4	1900	50	57
4974	4516	348	US 202	MINOR ARTERIAL	320	3	12	4	1750	45	75
4975	4516	349	US 202	MINOR ARTERIAL	2459	2	12	4	1750	45	73
4976	4517	3675	SR 282	MINOR ARTERIAL	512	1	12	4	1700	40	82
4977	4517	4519	US 30B	MINOR ARTERIAL	936	1	12	4	1700	45	82
4978	4518	279	US 30	FREEWAY	1163	2	12	4	2250	65	82
4979	4518	3996	US 30	FREEWAY	6068	2	12	4	2250	65	82
4980	4519	344	US 30B	MINOR ARTERIAL	555	1	12	4	1700	45	82
4981	4519	4527	US 322	COLLECTOR	532	1	12	4	1750	40	82
4982	4520	4517	SR 282	MINOR ARTERIAL	852	1	12	4	1750	40	82
4983	4520	4527	E PENNSYLVANIA AVE	COLLECTOR	1711	1	12	4	1750	40	82
4984	4521	4517	US 30B	MINOR ARTERIAL	993	1	12	4	1750	45	82

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
4985	4522	3462	SR 113	MINOR ARTERIAL	832	1	12	4	1750	50	82
4986	4523	4520	E PENNSYLVANIA AVE	COLLECTOR	549	1	12	4	1750	40	82
4987	4523	4521	GREEN ST	COLLECTOR	836	1	12	4	1750	40	82
4988	4523	4522	E PENNSYLVANIA AVE	COLLECTOR	2112	1	12	4	1750	40	82
4989	4524	4518	US 30 ON-RAMP	FREEWAY RAMP	989	1	12	4	1350	30	82
4990	4525	4524	US 322	COLLECTOR	1903	1	12	4	1700	40	82
4991	4526	4525	ROCK RAYMOND RD	COLLECTOR	1046	1	12	4	1750	40	82
4992	4527	4519	US 322	COLLECTOR	532	1	12	4	1700	40	82
4993	4527	4525	US 322	COLLECTOR	3927	1	12	4	1750	40	82
4994	4528	4530	SR 282	MINOR ARTERIAL	1230	1	12	4	1700	40	82
4995	4529	4520	SR 282	MINOR ARTERIAL	1807	1	12	4	1750	40	82
4996	4530	4529	SR 282	MINOR ARTERIAL	1840	1	12	4	1700	40	82
4997	4532	4533	BETHLEHEM PIKE	COLLECTOR	1087	1	12	4	1750	40	26
4998	4533	1882	BETHLEHEM PIKE	COLLECTOR	1513	1	12	4	1700	40	26
4999	4534	1900	COWPATH RD	COLLECTOR	1904	1	12	4	1700	45	26
5000	4534	4535	E TOWNSHIP LINE RD	COLLECTOR	3074	1	12	4	1700	40	26
5001	4535	4533	E TOWNSHIP LINE RD	COLLECTOR	4965	1	12	4	1750	40	26
5002	4536	4532	S COUNTY LINE RD	COLLECTOR	1749	1	12	4	1700	40	26
5003	4537	3613	E TOWNSHIP LINE RD	COLLECTOR	1949	1	12	4	1575	35	66
5004	4538	1767	ROUTE 113	COLLECTOR	1257	1	12	4	1750	45	40
5005	4539	347	LONG RD	COLLECTOR	686	1	12	4	1750	40	75
5006	4540	4396	HIGH ST	MINOR ARTERIAL	795	2	12	4	1750	40	30
5007	4541	4540	DALE ST	COLLECTOR	158	1	12	4	1750	30	30
5008	4542	3753	PUGHTOWN RD	COLLECTOR	4136	1	12	4	1700	40	52
5009	4543	4544	S 4TH AVE	COLLECTOR	386	1	12	4	1575	35	53
5010	4544	4545	S 4TH AVE	COLLECTOR	779	1	12	4	1575	35	53
5011	4545	3331	S 4TH AVE	COLLECTOR	1888	1	12	4	1700	40	53
5012	4546	3862	S MAIN ST	COLLECTOR	770	1	12	4	1750	30	68
5013	4547	4546	S MAIN ST	COLLECTOR	328	1	12	4	1350	30	68
5014	4548	4152	MARSHALL ST	COLLECTOR	416	1	12	4	1700	40	76
5015	4549	4151	MARSHALL ST	COLLECTOR	463	1	12	4	1700	40	76
5016	4550	4551	E MARSHALL ST	COLLECTOR	649	1	12	4	1575	35	76

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
5017	4551	4552	E MARSHALL ST	COLLECTOR	710	1	12	4	1575	35	76
5018	4552	4107	WALNUT ST	COLLECTOR	535	1	12	4	1750	30	76
5019	4552	4553	E MARSHALL ST	COLLECTOR	888	1	12	4	1575	35	76
5020	4553	4554	E MARSHALL ST	COLLECTOR	750	1	12	4	1575	35	76
5021	4554	4109	E MARSHALL ST	COLLECTOR	530	1	12	4	1575	35	76
5022	4554	4555	TREMONT AVE	COLLECTOR	462	1	12	4	1750	35	76
5023	4555	4375	E AIRY ST	COLLECTOR	1148	1	12	4	1750	40	76
5024	4556	359	MARSHALL ST	COLLECTOR	1076	1	12	4	1750	40	76
5025	4556	4579	GEORGE ST	COLLECTOR	691	1	12	4	1350	30	76
5026	4557	358	W MAIN ST	MINOR ARTERIAL	1109	2	12	4	1750	40	76
5027	4558	795	DRIVEWAY	LOCAL ROADWAY	196	1	12	4	1750	30	77
5028	4559	4071	ROUTE 23	MINOR ARTERIAL	686	1	12	4	1750	40	78
5029	4560	4559	CROOKED LN	COLLECTOR	788	1	12	4	1750	35	78
5030	4561	194	US 202 ON-RAMP	FREEWAY RAMP	953	1	12	4	1700	45	74
5031	4561	3247	VALLEY RD	COLLECTOR	1416	1	12	4	1700	40	74
5032	4562	3865	QUEST DIAGNOSTICS	MINOR ARTERIAL	379	2	12	4	1750	40	56
5033	4563	4564	SCHUYKILL RIVER RD	COLLECTOR	1998	1	12	4	1700	40	69
5034	4564	3093	SCHUYKILL RIVER RD	COLLECTOR	2574	1	12	4	1700	40	72
5035	4565	3918	VALLEY PARK RD	COLLECTOR	1907	1	12	4	1700	40	69
5036	4566	1247	VALLEY PARK RD	COLLECTOR	1863	1	12	4	1700	40	69
5037	4567	4568	POWEL ST	COLLECTOR	2015	1	12	4	1750	35	76
5038	4568	386	E FORNACE ST	COLLECTOR	658	1	12	4	1750	35	76
5039	4568	4574	POWEL ST	COLLECTOR	632	1	12	4	1575	35	76
5040	4569	387	W JOHNSON HWY	COLLECTOR	662	1	12	4	1750	35	63
5041	4570	4573	PINE ST	COLLECTOR	619	1	12	4	1575	35	63
5042	4571	4570	PINE ST	COLLECTOR	611	1	12	4	1575	35	63
5043	4572	4571	PINE ST	COLLECTOR	610	1	12	4	1575	35	63
5044	4573	4113	PINE ST	COLLECTOR	741	1	12	4	1750	35	63
5045	4574	4575	POWEL ST	COLLECTOR	636	1	12	4	1575	35	63
5046	4575	4576	POWEL ST	COLLECTOR	617	1	12	4	1575	35	63
5047	4576	4577	POWEL ST	COLLECTOR	642	1	12	4	1575	35	63
5048	4577	4569	POWEL ST	COLLECTOR	831	1	12	4	1575	35	63

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
5049	4578	361	W ELM ST	COLLECTOR	1095	1	12	4	1750	35	76
5050	4579	4578	GEORGE ST	COLLECTOR	659	1	12	4	1350	30	76
5051	4580	4146	STANBRIDGE ST	COLLECTOR	695	1	12	4	1750	35	76
5052	4581	4583	STERIGERE ST	COLLECTOR	1520	1	12	4	1700	40	63
5053	4582	4581	FORREST AVE	COLLECTOR	945	1	12	4	1575	35	63
5054	4583	3016	STERIGERE ST	COLLECTOR	851	1	12	4	1750	40	63
5055	4584	4556	GEORGE ST	COLLECTOR	689	1	12	4	1750	30	76
5056	4585	784	HAWS AVE	COLLECTOR	332	1	12	4	1750	35	76
5057	4585	4586	W AIRY ST	COLLECTOR	467	1	12	4	1750	35	76
5058	4586	4143	STANBRIDGE ST	COLLECTOR	915	1	12	4	1750	35	76
5059	4587	782	NOBLE ST	COLLECTOR	361	1	12	4	1750	35	76
5060	4588	781	HAMILTON ST	COLLECTOR	370	1	12	4	1750	40	76
5061	4589	4590	PIKELAND AVE	COLLECTOR	1406	1	12	4	1575	35	53
5062	4590	1228	PIKELAND AVE	COLLECTOR	2737	1	12	4	1575	35	52
5063	4591	1415	W BRIDGE ST	COLLECTOR	6849	1	12	4	1700	40	52
5064	4592	4595	S HERDERSON RD	COLLECTOR	1731	1	12	4	1750	40	78
5065	4593	4592	S HERDERSON RD	COLLECTOR	811	1	12	4	1750	40	76
5066	4594	4593	MONROE BLVD	COLLECTOR	343	1	12	4	1750	35	76
5067	4595	4070	S HERDERSON RD	COLLECTOR	1667	1	12	4	1750	40	78
5068	4596	4595	W CHURCH RD	COLLECTOR	469	1	12	4	1750	40	78
5069	4597	884	BUCHERT RD	COLLECTOR	1049	1	12	10	1575	35	33
5070	4598	1156	UPPER RIDGE RD	COLLECTOR	2487	1	12	10	1700	40	22
5071	4599	4598	UPPER RIDGE RD	COLLECTOR	1222	1	12	10	1700	40	22
5072	4600	1124	FAUST RD	COLLECTOR	1701	1	12	10	1700	40	24
5073	8090	90	US 422	FREEWAY	476	2	12	4	2250	70	14
5074	8112	112	I-76	FREEWAY	1281	2	12	4	2250	70	49
5075	8167	228	I-276	FREEWAY	783	3	12	4	2250	70	80
5076	8185	185	I-76	FREEWAY	941	2	12	4	2250	70	79
5077	8227	3989	US 202	FREEWAY	394	2	12	4	2250	70	86
5078	8237	237	I-476	FREEWAY	624	3	12	4	2250	70	90
5079	8265	265	I-476	FREEWAY	1196	2	12	4	2250	70	4
5080	8279	279	US 30	FREEWAY	736	2	12	4	2250	65	82

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
5081	8375	4119	US 202	MINOR ARTERIAL	621	1	12	4	1700	45	62
5082	8868	1868	ROUTE 309	FREEWAY	725	2	12	4	2250	60	13
5083	8884	1884	ROUTE 309	MINOR ARTERIAL	1366	2	12	4	1900	50	26
5141	979	551	CHURCH RD	COLLECTOR	2258	1	12	10	1575	35	18
5142	551	4601	CHURCH RD	COLLECTOR	2014	1	12	10	1575	35	18
5143	4601	4602	CHURCH RD	LOCAL ROADWAY	361	1	12	10	1125	25	21
5144	4602	1098	CHURCH RD	COLLECTOR	1218	1	12	10	1575	35	21
5145	1098	1099	CHURCH RD	COLLECTOR	664	1	12	10	1575	35	21
5146	497	4603	COUNTY LINE RD	COLLECTOR	5648	1	12	10	1575	35	7
5147	4603	634	COUNTY LINE RD	COLLECTOR	1759	1	12	10	1575	35	7
5148	612	4604	S 7TH ST	COLLECTOR	2388	1	12	4	1700	40	7
5149	482	4604	S 7TH ST	COLLECTOR	1856	1	12	4	1700	40	7
5150	634	4605	PINE ST	COLLECTOR	2451	1	12	10	1575	35	7
5151	4605	480	2ND ST	COLLECTOR	1720	1	12	4	1575	35	7
5152	480	4605	2ND ST	COLLECTOR	1720	1	12	4	1575	35	7
5153	4605	4604	PINE ST	COLLECTOR	2574	1	12	10	1575	35	7
5154	4449	605	SCHWENKENFELDER RD	COLLECTOR	5062	1	12	10	1700	40	7
5155	843	4606	CONSTITUTION AVE	COLLECTOR	1408	1	12	10	1700	40	30
5156	4606	3937	QUARRY RD	COLLECTOR	1731	1	12	10	1700	40	30
Exit Link	1868	8868	ROUTE 309	FREEWAY	725	2	12	4	2250	60	13
Exit Link	4302	8302	ALLEGHENYVILLE RD	COLLECTOR	556	1	12	4	1700	40	27
Exit Link	4281	8281	BALDY HILL RD	COLLECTOR	324	1	12	4	1700	40	1
Exit Link	4300	8300	BINGAMAN ST	COLLECTOR	609	1	12	4	1700	40	14
Exit Link	3662	8662	CORNER KETCH LYNDELL RD	COLLECTOR	531	1	12	4	1700	40	81
Exit Link	1909	8898	COWPATH RD	COLLECTOR	581	1	12	4	1700	45	26
Exit Link	3991	8991	E BOOT RD	COLLECTOR	942	1	12	4	1700	40	86
Exit Link	4332	8332	E TOWNSHIP LINE RD	COLLECTOR	693	1	12	4	1700	40	64
Exit Link	4531	8531	E WALNUT ST	COLLECTOR	436	1	12	4	1700	40	48
Exit Link	228	8167	I-276	FREEWAY	783	3	12	4	2250	70	80
Exit Link	237	8237	I-476	FREEWAY	624	3	12	4	2250	70	90
Exit Link	265	8265	I-476	FREEWAY	1196	2	12	4	2250	70	4

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rate (pcphpl)	Free Flow Speed	Grid Map Number
Exit Link	112	8112	I-76	FREEWAY	1281	2	12	4	2250	70	49
Exit Link	185	8185	I-76	FREEWAY	941	2	12	4	2250	70	79
Exit Link	3231	8231	KING OF PRUSSIA RD	COLLECTOR	1039	1	12	4	1700	45	75
Exit Link	4488	8489	LIMEKILN RD	COLLECTOR	725	1	12	4	1700	40	5
Exit Link	4447	8447	MAIN ST	COLLECTOR	1212	1	12	4	1700	40	5
Exit Link	3719	8719	PHEONIXVILLE RD	COLLECTOR	585	1	12	4	1700	40	86
Exit Link	800	8800	RIDGE PKWY	MINOR ARTERIAL	418	2	12	4	1900	50	77
Exit Link	4228	8228	RIDGE RD	COLLECTOR	397	1	12	4	1700	40	13
Exit Link	3264	8264	ROUTE 10	COLLECTOR	734	1	12	4	1700	45	27
Exit Link	487	8487	ROUTE 100	MINOR ARTERIAL	1604	1	12	4	1700	60	2
Exit Link	540	8540	ROUTE 1022/HUFFS CHURCH RD	COLLECTOR	1278	1	12	4	1700	40	2
Exit Link	4224	8224	ROUTE 113	MINOR ARTERIAL	282	2	12	4	1900	40	26
Exit Link	3035	8035	ROUTE 2001	COLLECTOR	923	1	12	4	1700	40	62
Exit Link	1068	8068	ROUTE 2027	COLLECTOR	705	1	12	4	1700	40	3
Exit Link	1277	8277	ROUTE 23	MINOR ARTERIAL	319	1	12	4	1700	40	78
Exit Link	1449	8449	ROUTE 23	MINOR ARTERIAL	1031	1	12	4	1700	50	49
Exit Link	4276	8276	ROUTE 23	MINOR ARTERIAL	339	1	12	4	1700	40	76
Exit Link	3176	8176	ROUTE 252	MINOR ARTERIAL	528	1	12	4	1700	45	87
Exit Link	4412	8413	ROUTE 29	MINOR ARTERIAL	630	1	12	4	1700	45	2
Exit Link	1884	8884	ROUTE 309	MINOR ARTERIAL	1366	2	12	4	1900	50	26
Exit Link	1501	8501	ROUTE 568	COLLECTOR	482	1	12	4	1700	45	27
Exit Link	1923	8923	ROUTE 63	MINOR ARTERIAL	539	1	12	4	1700	40	46
Exit Link	412	8412	ROUTE 662	COLLECTOR	1612	1	12	4	1700	55	5
Exit Link	1064	8064	ROUTE 663	COLLECTOR	647	1	12	4	1700	40	4
Exit Link	4277	8278	ROUTE 73	COLLECTOR	662	1	12	4	1700	50	62
Exit Link	3725	8725	S POTTSTOWN PIKE	COLLECTOR	563	1	12	4	1700	40	85
Exit Link	3734	8734	S WARREN AVE	COLLECTOR	697	1	12	4	1700	40	87
Exit Link	3488	8488	S WHITFORD RD	COLLECTOR	337	1	12	4	1700	40	85
Exit Link	3675	8675	SR 282	MINOR ARTERIAL	542	1	12	4	1700	40	82
Exit Link	3710	8710	SR 352	MINOR ARTERIAL	576	1	12	4	1700	40	87
Exit Link	1221	8221	SR 724	MINOR ARTERIAL	521	1	12	4	1700	45	14

Link #	Up-Stream Node	Down-Stream Node	Roadway Name	Roadway Type	Length (ft)	No. of Lanes	Lane width (ft)	Shoulder Width (ft)	Saturation Flow Rage (pcphpl)	Free Flow Speed	Grid Map Number
Exit Link	1466	8466	SR 82	MINOR ARTERIAL	1024	1	12	4	1700	40	65
Exit Link	4223	8223	STATE RD	COLLECTOR	395	1	12	4	1700	40	13
Exit Link	3739	8739	SUGARTOWN RD	COLLECTOR	841	1	12	4	1700	40	87
Exit Link	3036	8949	SUMNEYTOWN PIKE	MINOR ARTERIAL	969	1	12	4	1700	40	48
Exit Link	1182	8182	TRUMBAUERSVILLE RD	COLLECTOR	913	1	12	4	1700	40	12
Exit Link	3233	8233	UPPER GULPH RD	COLLECTOR	823	1	12	4	1700	40	75
Exit Link	3989	8227	US 202	FREEWAY	394	2	12	4	2250	70	86
Exit Link	4119	8375	US 202	MINOR ARTERIAL	621	1	12	4	1700	45	62
Exit Link	279	8279	US 30	FREEWAY	736	2	12	4	2250	65	82
Exit Link	323	8323	US 30B	MINOR ARTERIAL	776	2	12	4	1900	45	89
Exit Link	344	8344	US 30B	MINOR ARTERIAL	399	1	12	4	1700	45	82
Exit Link	90	8090	US 422	FREEWAY	476	2	12	4	2250	70	14
Exit Link	691	8429	US-422	COLLECTOR	499	1	12	4	1700	45	14
Exit Link	4061	8061	W GERMANTOWN PIKE	MINOR ARTERIAL	325	2	12	4	1900	40	77

Table K-2. Nodes in the Link-Node Analysis Network which are Controlled

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
6	2495694	359896	Actuated	14
7	2496780	359175	Actuated	14
8	2497724	358400	Actuated	14
10	2499314	357500	Actuated	14
11	2500985	356705	Actuated	14
13	2507009	353785	Actuated	15
15	2511726	352073	Actuated	15
16	2511072	350969	Actuated	15
20	2519080	348319	TCP - Actuated	28
21	2526018	345695	TCP - Actuated	28
23	2528456	345419	Actuated	28
24	2528622	345206	Actuated	28
25	2531984	343823	Actuated	29
26	2532422	344282	Actuated	29
27	2533237	343428	TCP - Actuated	29
29	2533866	342367	Actuated	29
30	2533959	342579	Actuated	29
86	2623641	281235	TCP - Uncontrolled	75
160	2624117	285250	TCP - Uncontrolled	73
168	2623625	284450	TCP - Uncontrolled	75
229	2661123	293937	TCP - Uncontrolled	77
234	2655899	292523	TCP - Uncontrolled	77
280	2563946	257363	Actuated	85
288	2575063	262360	Actuated	84
289	2576422	262630	Actuated	84
290	2577888	263030	Actuated	84
291	2578650	263245	Actuated	84
292	2581694	264037	Actuated	84
293	2582631	264270	Actuated	84
294	2584399	264708	Actuated	87
295	2587340	265496	Actuated	87
296	2588450	265837	Actuated	87
297	2590125	266314	Actuated	87
298	2591762	266690	Actuated	87
299	2593118	266636	Actuated	87
300	2598519	266158	Actuated	87
301	2598948	266129	Actuated	87
302	2600418	266041	Actuated	87

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
303	2601693	266139	Actuated	87
304	2602401	266195	Actuated	87
305	2602858	266218	Actuated	87
306	2603265	266243	Actuated	87
307	2604273	266330	Actuated	87
308	2605006	266394	Actuated	87
309	2609307	266665	Actuated	87
311	2613749	268149	Actuated	88
312	2614217	268534	Actuated	88
314	2615473	268884	Actuated	88
317	2619772	268075	Actuated	88
319	2622034	269151	Actuated	88
320	2623093	268916	Actuated	89
321	2623819	268748	Actuated	89
322	2624928	268305	Actuated	89
324	2574197	262200	Actuated	84
325	2572739	261932	Actuated	84
326	2570413	261433	Actuated	84
327	2567800	260976	Actuated	83
328	2564544	260504	Actuated	83
329	2563711	260371	Actuated	83
330	2562641	260201	TCP - Actuated	83
331	2561256	259792	Actuated	83
333	2557910	258974	Actuated	83
334	2556603	258634	Actuated	82
335	2554851	258209	Actuated	82
336	2553831	257928	Actuated	82
338	2552545	257530	Actuated	82
339	2550936	257003	Actuated	82
341	2549393	256511	Actuated	82
342	2548931	256391	Actuated	82
343	2547725	255970	Actuated	82
345	2629066	282637	TCP - Actuated	75
346	2629828	283198	TCP - Actuated	75
347	2630401	283538	Actuated	75
348	2630939	283854	Actuated	75
349	2633433	285083	Actuated	73
350	2634147	285423	Actuated	73
351	2634920	285774	Actuated	73
352	2636247	286352	Actuated	76

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
353	2637654	286915	Actuated	76
354	2638522	287811	Actuated	76
358	2639931	294413	Actuated	76
359	2640548	295287	Actuated	76
361	2641386	296412	Actuated	76
362	2642788	298336	Actuated	63
363	2643396	299266	Stop	63
364	2644310	301052	Actuated	63
368	2648162	305126	TCP - Actuated	63
370	2648841	305910	Actuated	63
371	2650504	306911	Actuated	64
372	2651746	307679	Actuated	64
373	2652682	308931	Actuated	64
374	2653424	309938	Actuated	64
376	2639295	288126	Actuated	76
378	2640628	290538	Actuated	76
379	2641054	291440	Actuated	76
380	2641667	293175	Actuated	76
381	2641791	293459	Actuated	76
382	2642060	294028	Actuated	76
383	2642286	294458	Actuated	76
384	2642438	294798	Actuated	76
386	2644110	296970	Actuated	76
387	2646602	299393	Actuated	63
389	2649187	302954	Actuated	63
390	2649506	303387	Actuated	64
391	2649834	303909	Actuated	64
392	2651165	306447	Actuated	64
393	2533350	344714	Actuated	29
394	2533228	345298	TCP - Uncontrolled	29
398	2531690	356186	Stop	16
400	2530021	358703	TCP - Actuated	15
405	2524856	366869	TCP - Actuated	15
410	2515895	388525	Stop	5
411	2513433	389742	Actuated	5
413	2557365	371469	TCP - Actuated	17
415	2556299	370786	TCP - Actuated	16
416	2554274	368728	TCP - Uncontrolled	16
417	2552998	367642	Stop	16
418	2548158	365434	TCP - Actuated	16

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
421	2531843	364946	TCP - Actuated	16
422	2519931	366835	Stop	15
425	2513977	364287	Stop	15
429	2498245	366815	Actuated	14
431	2555314	371565	TCP - Uncontrolled	16
436	2546805	381668	TCP - Uncontrolled	6
441	2530435	389225	Pre-timed	5
444	2517215	388521	Stop	5
446	2558410	372918	Stop	17
447	2560106	375231	Stop	17
449	2561035	376773	TCP - Actuated	17
450	2562964	379876	Stop	7
455	2551446	340456	TCP - Actuated	30
456	2551899	342223	Actuated	30
457	2554646	346619	Actuated	30
459	2555606	351157	TCP - Actuated	16
462	2557836	357656	TCP - Actuated	19
465	2558253	363042	TCP - Actuated	19
469	2561944	371878	TCP - Actuated	17
472	2559801	378143	Actuated	7
473	2559829	380909	Actuated	7
475	2560915	384522	TCP - Uncontrolled	7
476	2562702	385874	TCP - Uncontrolled	7
477	2564649	387740	Stop	7
478	2566507	390136	Stop	7
479	2568814	393082	Actuated	7
480	2569975	394812	Stop	7
482	2571103	396961	Stop	7
483	2574330	402464	Stop	7
486	2580029	413825	TCP - Actuated	2
489	2563898	393126	Stop	7
494	2559471	386313	Stop	7
495	2559219	386014	Stop	7
496	2569142	384264	TCP - Uncontrolled	7
497	2568411	384821	TCP - Actuated	7
513	2549902	405286	Stop	1
532	2560595	413047	Stop	2
533	2573455	406440	Stop	2
541	2564680	394151	Stop	7
547	2552339	372622	TCP - Actuated	16

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
548	2585009	363778	TCP - Actuated	21
552	2579561	369874	Actuated	18
556	2572030	377992	Stop	7
562	2603530	374580	Actuated	22
563	2602918	375286	Stop	22
572	2599951	388477	TCP - Actuated	11
573	2598577	391074	TCP - Actuated	9
574	2597372	393365	Actuated	9
576	2595909	396017	TCP - Actuated	8
577	2595208	397498	Stop	8
578	2594902	398033	Stop	8
579	2594385	398847	Actuated	8
580	2594088	399305	Actuated	8
581	2593230	400553	Actuated	8
582	2592899	401019	Actuated	8
583	2592415	401741	Actuated	8
584	2588310	404687	Actuated	3
601	2590886	387488	TCP - Actuated	10
602	2586199	391730	Stop	8
604	2583326	396554	Stop	7
608	2584564	391681	Stop	8
610	2578582	393669	Stop	7
611	2575387	395565	TCP - Uncontrolled	7
614	2602229	374457	Stop	22
625	2586666	380571	TCP - Actuated	10
627	2582911	382890	Stop	7
630	2579284	384918	Stop	7
635	2572255	359400	TCP - Actuated	20
639	2566143	365040	TCP - Actuated	17
640	2565115	366587	TCP - Actuated	17
644	2561787	369189	TCP - Actuated	17
645	2561515	369262	TCP - Actuated	17
647	2559590	369933	Actuated	17
650	2558046	370816	TCP - Actuated	17
651	2557713	371149	Actuated	17
652	2562072	371989	Stop	17
667	2563528	374703	Stop	17
683	2575358	388049	TCP - Actuated	7
700	2539037	352357	Stop	16
703	2540760	356110	TCP - Uncontrolled	16

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
715	2538085	346854	TCP - Uncontrolled	29
717	2536887	341505	TCP - Actuated	29
720	2549282	347305	TCP - Uncontrolled	30
723	2543347	352587	Stop	16
730	2553589	360784	Stop	16
737	2572687	334837	Stop	36
738	2574652	337307	Actuated	34
739	2575091	337997	TCP - Actuated	34
740	2575937	338598	TCP - Actuated	34
744	2582995	338734	Actuated	34
745	2584457	338213	TCP - Actuated	37
746	2586244	336936	Actuated	39
748	2588557	335642	Actuated	39
749	2589041	335448	TCP - Actuated	39
750	2589767	335205	TCP - Actuated	39
751	2590488	334903	TCP - Actuated	39
753	2592425	332853	TCP - Actuated	39
754	2593006	331968	Stop	39
755	2596424	329530	Actuated	40
756	2596869	329165	TCP - Actuated	40
757	2597706	328499	Actuated	40
759	2602285	324179	TCP - Actuated	54
760	2603447	323549	Stop	54
761	2605067	322706	TCP - Actuated	54
762	2607504	321463	TCP - Actuated	54
763	2609344	320539	TCP - Actuated	54
764	2610554	318991	Actuated	57
765	2610817	318700	TCP - Actuated	57
766	2611239	318540	Actuated	57
768	2612321	318208	TCP - Actuated	57
769	2615037	315426	TCP - Actuated	57
770	2619535	312026	Stop	57
771	2622955	309714	TCP - Actuated	60
772	2624144	308883	Actuated	60
773	2626087	306253	Stop	60
774	2626736	305077	TCP - Actuated	60
775	2628280	303481	TCP - Actuated	60
776	2630625	301079	Stop	60
777	2631573	300068	Actuated	60
778	2632518	299388	Actuated	60

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
779	2633344	298824	Actuated	60
780	2636059	296883	Actuated	73
781	2636985	296228	Actuated	76
782	2637680	295740	Actuated	76
783	2638040	295511	Actuated	76
784	2638473	295307	Actuated	76
785	2640379	294120	Actuated	76
786	2642773	293030	Actuated	76
787	2643378	292790	Actuated	76
788	2644427	292315	Actuated	76
790	2648014	291507	Actuated	76
793	2650248	290233	Actuated	77
795	2652680	288936	Actuated	77
796	2653089	288634	Actuated	77
799	2654924	287396	Actuated	77
803	2570811	336108	TCP - Uncontrolled	36
807	2569414	339407	TCP - Actuated	33
808	2568093	339184	Actuated	33
809	2565995	338990	Actuated	33
810	2564844	338970	TCP - Actuated	33
811	2564330	338976	TCP - Actuated	33
812	2563913	338810	Actuated	33
813	2563235	338650	Actuated	33
814	2560897	338962	TCP - Actuated	33
815	2558882	338727	Actuated	33
816	2557788	338861	Actuated	33
817	2556829	338966	Pre-timed	30
818	2556213	339070	Actuated	30
819	2555781	339151	Pre-timed	30
820	2555351	339225	Actuated	30
821	2554926	339256	Actuated	30
822	2554532	339311	TCP - Actuated	30
823	2553852	339380	Actuated	30
824	2553111	339532	Actuated	30
825	2553178	339901	Pre-timed	30
827	2549255	340984	Stop	30
828	2549288	340619	TCP - Actuated	30
830	2547017	339768	TCP - Actuated	30
831	2543978	339272	TCP - Actuated	30
832	2542778	339684	Actuated	29

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
833	2540997	340075	Actuated	29
834	2572820	339291	TCP - Uncontrolled	34
835	2575892	339175	TCP - Actuated	34
836	2543281	338096	Stop	29
837	2546690	343667	Stop	30
838	2548312	347363	TCP - Actuated	30
841	2548463	342711	Stop	30
842	2547180	340726	TCP - Uncontrolled	30
846	2551663	345374	Stop	30
856	2557077	344532	Actuated	33
857	2556225	344970	Actuated	30
858	2554665	345555	TCP - Actuated	30
861	2556874	353785	TCP - Actuated	16
862	2556276	355082	TCP - Uncontrolled	16
869	2554759	340754	TCP - Actuated	30
870	2554581	339693	TCP - Actuated	30
871	2555376	339595	Actuated	30
872	2554973	339621	Actuated	30
873	2555509	340637	TCP - Actuated	30
874	2556336	342026	Actuated	30
875	2556832	342774	Stop	30
877	2558169	343890	Pre-timed	33
878	2558956	344402	Pre-timed	33
880	2560328	346215	Actuated	33
881	2558773	347351	Stop	33
883	2561523	347787	TCP - Uncontrolled	33
887	2559881	351591	Stop	19
888	2562088	348574	Stop	33
892	2567031	352132	TCP - Actuated	19
893	2568567	354573	Stop	19
894	2554368	338330	TCP - Actuated	30
896	2553647	334860	TCP - Actuated	32
898	2552064	334808	TCP - Actuated	32
900	2561151	345625	Stop	33
902	2562472	345419	Stop	33
904	2564763	344641	TCP - Actuated	33
909	2559866	342638	TCP - Actuated	33
912	2562031	340472	TCP - Actuated	33
914	2561488	339811	Pre-timed	33
918	2556585	337125	Stop	32

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
920	2556017	337401	Stop	30
921	2553912	339796	Stop	30
922	2558816	336244	TCP - Actuated	35
925	2559309	335995	TCP - Uncontrolled	35
927	2558731	334404	TCP - Actuated	35
929	2561724	335877	TCP - Actuated	35
931	2563917	335455	Actuated	35
932	2558583	340179	Stop	33
933	2556454	340498	Actuated	30
938	2572995	345255	Stop	34
943	2578059	351067	Stop	20
950	2587642	361072	Stop	23
953	2576778	352889	Actuated	20
962	2569487	349871	Stop	33
968	2565976	350656	TCP - Actuated	19
974	2576284	366135	TCP - Actuated	18
977	2577443	366794	TCP - Uncontrolled	18
982	2569622	351620	Stop	19
984	2572270	354543	Stop	20
986	2574683	356213	Stop	20
987	2569736	356102	Actuated	19
989	2590201	358960	Stop	23
990	2591561	357607	Stop	23
999	2601761	352007	TCP - Uncontrolled	24
1002	2588318	339026	Stop	37
1003	2586928	340759	TCP - Actuated	37
1013	2584297	344733	Stop	37
1019	2577989	343660	Stop	34
1023	2576076	344996	Stop	34
1031	2583716	333422	TCP - Uncontrolled	39
1032	2585788	331873	TCP - Actuated	39
1035	2582003	373510	Stop	18
1038	2585066	386201	Stop	10
1042	2589627	386191	Stop	10
1046	2591424	396046	Stop	8
1048	2589232	399150	Stop	8
1050	2588813	401929	Stop	8
1051	2593888	393252	TCP - Actuated	8
1053	2597707	399970	Stop	9
1054	2597316	401196	Stop	9

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1061	2602295	400671	TCP - Actuated	9
1063	2607382	403350	Stop	9
1065	2601913	402144	Stop	9
1067	2599878	406295	Stop	3
1085	2586573	375771	Stop	21
1086	2586971	380333	Stop	10
1094	2599641	371315	Stop	22
1107	2600738	367607	TCP - Uncontrolled	22
1108	2600647	369071	TCP - Actuated	22
1113	2597051	365079	Stop	22
1117	2589558	366558	Stop	21
1119	2593614	362183	Stop	23
1126	2603096	360718	Stop	24
1127	2601392	359146	Stop	24
1128	2601476	361911	Stop	24
1129	2601414	354241	TCP - Actuated	24
1142	2609944	364195	Stop	25
1143	2601721	369244	TCP - Actuated	22
1148	2608616	364820	Stop	22
1149	2609988	364660	Stop	25
1152	2611387	367925	TCP - Actuated	25
1156	2606261	373357	TCP - Uncontrolled	22
1163	2607347	381835	Stop	11
1169	2603906	392143	Stop	9
1171	2607995	376163	Stop	22
1178	2613345	391517	Stop	12
1179	2616734	394693	Stop	12
1180	2617412	395139	Stop	12
1189	2568853	327750	Stop	35
1190	2562467	332667	TCP - Uncontrolled	35
1191	2560904	333786	Actuated	35
1195	2537313	338876	Stop	29
1197	2533620	340170	TCP - Uncontrolled	29
1199	2530661	341652	Stop	29
1203	2521805	342428	TCP - Actuated	28
1206	2513157	345424	Stop	28
1207	2510291	345804	Actuated	28
1208	2510247	346207	Actuated	28
1210	2507097	346426	Stop	28
1213	2493387	351697	Actuated	14

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1214	2492087	352207	Actuated	14
1224	2573536	323155	TCP - Actuated	52
1226	2578154	316906	Actuated	52
1227	2580685	314178	TCP - Actuated	52
1228	2582187	309087	Stop	52
1229	2583937	302820	TCP - Actuated	55
1230	2584399	301668	TCP - Actuated	55
1231	2585833	299879	Actuated	55
1232	2586026	299705	Actuated	55
1233	2587821	298729	TCP - Actuated	55
1234	2590041	297695	TCP - Actuated	68
1237	2592472	296571	TCP - Actuated	68
1238	2593107	296266	TCP - Actuated	68
1239	2594141	295754	Actuated	68
1240	2595295	295203	TCP - Actuated	68
1241	2596815	294574	TCP - Actuated	69
1244	2601194	293797	Actuated	69
1245	2602880	291890	Actuated	69
1247	2605650	287338	Stop	69
1249	2608561	287542	TCP - Actuated	69
1255	2619709	289262	TCP - Uncontrolled	72
1256	2620126	288055	Actuated	72
1258	2621039	286029	TCP - Actuated	72
1259	2621416	285163	Actuated	72
1260	2622182	284214	Actuated	74
1261	2623630	283749	TCP - Actuated	75
1262	2624081	283585	Actuated	75
1263	2625167	282947	Actuated	75
1264	2625709	282670	Actuated	75
1265	2627033	282734	TCP - Actuated	75
1266	2628228	282795	Actuated	75
1267	2630285	282161	Actuated	75
1268	2630981	281919	Actuated	75
1269	2631510	281768	Actuated	75
1270	2632858	281390	Actuated	75
1272	2637613	279883	Actuated	78
1274	2639248	279579	Actuated	78
1276	2642155	276574	Actuated	78
1282	2551673	332935	Actuated	32
1283	2552012	330949	Actuated	32

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1284	2552069	326943	TCP - Uncontrolled	32
1285	2552122	325916	Actuated	32
1290	2552035	315191	TCP - Actuated	51
1292	2551692	313430	TCP - Actuated	51
1294	2550855	310481	Stop	51
1306	2544161	296933	TCP - Uncontrolled	66
1308	2543405	291647	TCP - Actuated	66
1312	2543291	284283	TCP - Uncontrolled	66
1313	2544037	282249	TCP - Actuated	66
1314	2545124	278902	Actuated	66
1315	2545681	277726	TCP - Actuated	66
1316	2546829	276355	Actuated	66
1317	2547490	275725	Actuated	66
1318	2548005	275241	TCP - Actuated	66
1319	2549018	274392	Actuated	66
1320	2550425	272926	TCP - Uncontrolled	66
1321	2550693	272633	TCP - Uncontrolled	66
1322	2552553	270870	Actuated	82
1323	2554280	270418	TCP - Actuated	82
1324	2557032	270199	TCP - Actuated	83
1325	2558650	269841	Actuated	83
1326	2560342	268057	TCP - Actuated	83
1328	2561473	263852	Actuated	83
1329	2561658	261945	Actuated	83
1330	2562081	261150	Actuated	83
1331	2561034	264679	Actuated	83
1332	2563662	258026	TCP - Actuated	85
1338	2541449	321297	Stop	51
1344	2543417	312813	Stop	51
1346	2541081	312952	TCP - Actuated	51
1347	2543984	312484	TCP - Uncontrolled	51
1350	2520122	337826	TCP - Uncontrolled	28
1356	2519653	327868	Stop	28
1358	2519925	340169	Stop	28
1361	2513891	337918	Stop	28
1369	2520191	326959	TCP - Uncontrolled	28
1391	2498957	311766	Stop	49
1394	2503907	310085	Stop	49
1399	2504258	305753	TCP - Actuated	50
1402	2516166	307497	TCP - Actuated	50

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1404	2517945	309098	Stop	50
1410	2534039	311995	TCP - Uncontrolled	51
1412	2558451	314217	TCP - Uncontrolled	52
1414	2564105	313875	Stop	52
1415	2569234	310767	Stop	52
1418	2498371	311897	Stop	49
1428	2502618	323836	Stop	49
1442	2499892	305268	TCP - Actuated	49
1443	2498016	305627	TCP - Actuated	49
1444	2492740	305190	Actuated	49
1445	2491105	305612	Actuated	49
1446	2488381	304888	TCP - Actuated	49
1447	2486212	304106	TCP - Actuated	49
1448	2485210	303551	Actuated	49
1451	2515378	302500	TCP - Actuated	50
1455	2510041	295825	Stop	65
1460	2511027	288880	Stop	65
1463	2510150	282937	Stop	65
1467	2481478	338582	Stop	27
1471	2483066	327925	Stop	27
1482	2489381	308032	Stop	49
1497	2479167	346620	Actuated	27
1507	2493497	334504	Stop	27
1508	2489580	332222	Stop	27
1519	2490384	347867	Stop	27
1520	2589549	343074	Stop	37
1527	2597334	344241	Stop	38
1532	2606197	345953	TCP - Actuated	38
1533	2606204	346088	Actuated	38
1537	2614091	353529	Stop	25
1540	2619913	360944	Actuated	25
1542	2619090	353326	Stop	25
1545	2596525	338958	Stop	38
1551	2603121	341090	Stop	38
1552	2604557	341721	Stop	38
1555	2606626	343160	TCP - Actuated	38
1556	2607345	342671	Actuated	38
1559	2609840	339524	Actuated	41
1560	2610236	339394	Stop	41
1561	2613870	339797	Actuated	41

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1566	2622977	334856	TCP - Actuated	44
1567	2623810	333762	TCP - Uncontrolled	44
1568	2625395	332812	TCP - Actuated	44
1569	2628166	332388	TCP - Actuated	44
1571	2633447	329241	Actuated	44
1573	2639750	325312	TCP - Actuated	47
1575	2645682	320772	Actuated	61
1576	2647999	319047	Actuated	61
1577	2650632	317116	Actuated	62
1578	2655833	313277	TCP - Actuated	62
1580	2594766	336106	Stop	39
1581	2592369	337798	Stop	37
1587	2586522	328037	Stop	39
1588	2589127	327597	Stop	39
1593	2599500	332788	TCP - Actuated	40
1595	2591731	326737	Stop	39
1597	2587594	321169	Stop	53
1599	2586164	323939	TCP - Actuated	53
1600	2590957	322910	TCP - Actuated	53
1601	2588068	320231	TCP - Actuated	53
1602	2584704	330344	Actuated	39
1603	2584494	329965	TCP - Actuated	39
1604	2584067	329179	TCP - Actuated	39
1605	2584027	328970	Actuated	39
1606	2594802	326280	TCP - Actuated	39
1607	2593584	324611	Actuated	39
1609	2590222	322044	TCP - Actuated	53
1610	2589840	321649	TCP - Actuated	53
1611	2589296	321233	Actuated	53
1612	2594465	330900	Stop	39
1619	2604127	339345	TCP - Actuated	38
1620	2604672	345596	Stop	38
1621	2606549	344524	TCP - Actuated	38
1622	2606525	344732	TCP - Actuated	38
1625	2604893	348930	TCP - Actuated	38
1626	2604409	349296	Stop	38
1627	2604271	349021	Stop	38
1636	2608283	351448	Stop	24
1641	2612232	350515	Stop	41
1644	2614777	358453	Stop	25

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1647	2617487	361700	Stop	25
1657	2613190	359415	Stop	25
1664	2614110	365364	TCP - Actuated	25
1665	2614999	366974	Stop	25
1674	2628578	379150	Actuated	12
1676	2631069	379932	Actuated	12
1680	2616500	357233	TCP - Actuated	25
1686	2577403	327032	Stop	36
1694	2583822	321629	TCP - Uncontrolled	53
1697	2585958	319124	Stop	53
1698	2586577	318559	TCP - Actuated	53
1699	2586169	318087	TCP - Actuated	53
1701	2584692	317164	TCP - Actuated	53
1702	2583555	316621	TCP - Actuated	53
1707	2588238	319823	TCP - Actuated	53
1708	2590711	317778	TCP - Actuated	53
1713	2597913	319945	Stop	54
1715	2599939	321499	Stop	54
1716	2602701	319466	Stop	54
1721	2600958	325341	Stop	40
1722	2599424	324671	Stop	40
1724	2588144	314273	TCP - Uncontrolled	53
1727	2592038	309814	Stop	55
1728	2593308	309639	TCP - Uncontrolled	55
1730	2597733	312286	TCP - Actuated	54
1731	2601420	307767	Actuated	56
1732	2602416	309148	Actuated	56
1733	2603065	310027	TCP - Actuated	56
1734	2605543	311901	Actuated	54
1736	2607196	314048	Stop	54
1737	2609036	316463	TCP - Actuated	54
1739	2601546	317834	Actuated	54
1754	2609042	316660	Stop	54
1758	2601679	331623	Stop	40
1763	2609312	333428	Stop	40
1764	2609781	333139	TCP - Actuated	43
1766	2609772	330530	Stop	43
1767	2609923	327556	TCP - Actuated	43
1769	2610384	323877	Stop	57
1771	2607870	326569	TCP - Actuated	40

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1773	2607553	329776	Stop	40
1777	2602854	337479	TCP - Uncontrolled	38
1779	2604785	335017	Stop	40
1781	2606843	335225	Stop	40
1783	2608738	338898	Stop	38
1784	2608726	338780	TCP - Uncontrolled	38
1789	2618638	361899	Stop	25
1791	2626223	354582	TCP - Actuated	25
1792	2629791	351699	Actuated	25
1793	2629897	350062	Actuated	42
1794	2630795	349175	Actuated	42
1795	2632423	347975	Stop	42
1796	2629806	344453	Stop	42
1799	2626412	345743	Stop	42
1801	2625520	344855	Stop	42
1805	2621381	347659	Stop	41
1806	2622409	346898	TCP - Actuated	41
1807	2622374	346733	Stop	41
1817	2625073	352967	Actuated	25
1819	2623921	337050	Actuated	44
1820	2623541	341641	Stop	42
1823	2636877	345069	Actuated	45
1824	2638548	343314	Stop	45
1825	2638735	342987	Actuated	45
1826	2640407	341781	TCP - Actuated	45
1830	2611473	333559	Stop	43
1835	2612894	327386	Stop	43
1836	2611568	327359	Stop	43
1837	2614951	326864	Stop	43
1844	2630819	359242	Actuated	25
1846	2635601	364078	TCP - Actuated	25
1847	2636645	365436	Actuated	26
1849	2642865	367121	TCP - Actuated	26
1850	2644748	369781	Actuated	26
1852	2642629	372229	Stop	26
1855	2631381	368612	Actuated	25
1864	2645827	364926	TCP - Actuated	26
1865	2647846	366335	Actuated	26
1866	2648499	366966	Actuated	26
1883	2654188	362721	Stop	26

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1885	2649375	368044	TCP - Actuated	26
1886	2644205	368984	Stop	26
1887	2642203	371652	Actuated	26
1889	2646195	376986	Actuated	26
1890	2646489	377183	Actuated	13
1895	2641760	386191	Actuated	13
1896	2642195	385907	Actuated	13
1897	2642513	385691	Actuated	13
1898	2652085	354267	Actuated	26
1899	2649259	356417	Actuated	26
1900	2648592	356928	Stop	26
1901	2641325	351330	Actuated	26
1902	2642557	352267	Stop	26
1903	2642816	349918	Actuated	45
1905	2645312	346705	Actuated	45
1906	2646753	348017	Actuated	45
1907	2649352	351574	Actuated	26
1910	2641260	341137	Actuated	45
1911	2642944	343506	Actuated	45
1912	2638017	346767	Actuated	45
1914	2637496	335288	Stop	47
1918	2645291	341889	Stop	45
1919	2647641	344662	Stop	45
1920	2650884	344913	Actuated	46
1921	2653632	342928	TCP - Actuated	46
1924	2649149	343737	Actuated	45
1927	2646434	340133	Stop	45
1928	2645013	338389	Actuated	45
1929	2647875	339597	Stop	45
1930	2651692	340250	Actuated	46
1931	2650092	338105	Stop	46
1932	2648457	335865	TCP - Actuated	47
1937	2644243	329982	Actuated	47
1940	2647696	327620	Actuated	47
1942	2651731	333093	Actuated	48
1943	2649534	329906	Actuated	48
1945	2653520	335717	Actuated	48
1947	2653406	332032	Actuated	48
1948	2654782	331289	Actuated	48
1949	2658739	329387	Actuated	48

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
1953	2638062	337275	Stop	45
1962	2628575	334165	Stop	44
1970	2619588	322737	Stop	57
1974	2626904	327252	Stop	44
1977	2616234	324223	Stop	43
1978	2617969	325981	Stop	43
1988	2628472	326392	Stop	44
1993	2635479	317479	Actuated	58
1994	2639791	314444	Stop	61
1995	2643122	312079	Actuated	61
1996	2645644	310329	Actuated	63
1997	2616951	317234	TCP - Actuated	57
1999	2622026	315576	Stop	57
3000	2625396	314255	Actuated	58
3001	2630877	310644	TCP - Actuated	60
3002	2632579	309444	Actuated	60
3003	2635554	308536	Actuated	60
3004	2636562	308309	Actuated	63
3005	2639700	307439	TCP - Actuated	63
3006	2643562	306381	TCP - Actuated	63
3007	2634458	316024	Actuated	58
3013	2631600	301629	Stop	60
3014	2634047	299840	Actuated	60
3015	2635776	302245	Actuated	60
3016	2640361	298800	Actuated	63
3017	2641621	296729	Actuated	76
3018	2637405	304557	TCP - Uncontrolled	63
3021	2637763	311549	Stop	61
3031	2651326	325108	Actuated	48
3033	2653213	323855	Actuated	62
3034	2654475	322673	Actuated	62
3037	2594770	313606	Stop	53
3041	2604413	311397	Actuated	54
3042	2603976	311000	TCP - Actuated	54
3046	2651989	302004	Actuated	64
3047	2653202	300451	Actuated	64
3048	2653679	299221	Actuated	64
3049	2656254	297242	Actuated	77
3050	2656752	296866	Actuated	77
3051	2657522	295328	Actuated	77

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3052	2657809	293233	Actuated	77
3063	2607035	308556	Actuated	56
3065	2609459	306916	Stop	56
3070	2612915	300137	TCP - Actuated	59
3075	2609974	307084	Stop	59
3079	2617513	305566	Actuated	59
3083	2625135	299245	TCP - Actuated	60
3084	2619926	292311	TCP - Uncontrolled	72
3085	2613628	299895	Stop	59
3089	2618249	300257	Stop	59
3090	2616729	298092	TCP - Actuated	59
3091	2615292	296209	TCP - Actuated	72
3093	2610013	292667	Stop	72
3097	2628214	299603	Stop	60
3106	2623840	290036	Stop	73
3118	2627858	287092	Actuated	73
3119	2627375	287518	Actuated	73
3120	2626273	288597	Actuated	73
3121	2625632	289149	Actuated	73
3122	2620349	288205	TCP - Actuated	72
3124	2622802	286129	Actuated	73
3125	2622349	289016	Actuated	72
3126	2630284	284851	Actuated	73
3127	2629134	284195	Actuated	75
3128	2627084	284620	TCP - Actuated	73
3129	2626735	284030	Actuated	75
3131	2630745	284337	Actuated	75
3132	2634842	288115	Actuated	73
3135	2640526	290268	Actuated	76
3136	2639765	290575	Stop	76
3142	2634142	289131	Actuated	73
3143	2632152	292911	Actuated	73
3144	2626302	291218	Actuated	73
3147	2625849	289637	Actuated	73
3151	2626603	284869	Actuated	73
3153	2627773	284697	Actuated	73
3155	2625742	281705	Stop	75
3156	2625170	281452	Actuated	75
3157	2622384	280738	Actuated	74
3158	2621448	280149	Actuated	74

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3159	2618354	278399	Actuated	74
3160	2615601	277576	Actuated	74
3161	2615878	277142	Actuated	74
3162	2615020	277225	Actuated	74
3163	2613036	276555	Actuated	74
3166	2608541	273921	Actuated	71
3167	2606751	272899	Actuated	71
3170	2605233	267565	Actuated	87
3171	2605013	265831	Actuated	87
3173	2606577	264003	Actuated	87
3181	2610206	283003	TCP - Uncontrolled	74
3182	2612261	283003	TCP - Uncontrolled	74
3183	2614942	278625	Actuated	74
3184	2615165	278276	Actuated	74
3185	2615402	277912	Actuated	74
3189	2620188	270081	Actuated	88
3190	2620121	269576	Stop	88
3191	2619591	268825	Stop	88
3196	2618844	270148	Actuated	88
3197	2619087	269576	Stop	88
3200	2624168	271600	Stop	75
3201	2624519	271842	Actuated	75
3202	2626412	272964	Stop	75
3203	2628557	273390	Actuated	75
3204	2633715	273822	Stop	75
3205	2630812	279609	Actuated	75
3212	2620032	275207	Stop	74
3215	2624114	276953	Actuated	75
3216	2623183	279105	Actuated	75
3217	2623640	279496	Actuated	75
3218	2624673	279827	Actuated	75
3220	2625643	280660	Actuated	75
3225	2634001	281075	Actuated	75
3230	2627275	278074	Stop	75
3238	2612991	268956	Actuated	88
3239	2613385	268325	Stop	88
3241	2611480	267708	Stop	88
3246	2605037	266703	Stop	87
3247	2619275	276793	Stop	74
3248	2609013	275991	Actuated	71

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3249	2609319	276313	Actuated	71
3255	2608683	274503	Actuated	71
3256	2608769	275156	Stop	71
3257	2615836	270055	Stop	88
3260	2488552	307956	Actuated	49
3274	2503779	355492	Stop	14
3281	2513392	351344	Actuated	15
3293	2521124	342438	Stop	28
3296	2552076	339828	Actuated	30
3298	2553299	340932	Stop	30
3299	2554295	337754	Actuated	30
3303	2553291	332883	TCP - Actuated	32
3304	2549624	334795	TCP - Actuated	32
3312	2564336	337059	Actuated	35
3317	2575656	338459	TCP - Uncontrolled	34
3320	2575181	325246	Stop	36
3325	2588776	321070	Actuated	53
3326	2587007	322295	Actuated	53
3327	2588127	321766	Stop	53
3330	2586455	317838	Stop	53
3331	2589047	315529	Stop	53
3333	2598495	313625	TCP - Actuated	54
3334	2596039	315142	Stop	53
3335	2593051	315585	Stop	53
3339	2603629	312166	Actuated	54
3345	2593278	302729	TCP - Uncontrolled	55
3346	2593455	302141	TCP - Uncontrolled	55
3347	2592094	301583	Stop	55
3348	2592385	299457	TCP - Actuated	55
3353	2595636	300471	Actuated	55
3354	2594120	299718	TCP - Actuated	55
3355	2594840	296802	Actuated	68
3360	2611730	300039	TCP - Actuated	59
3361	2608709	302857	Actuated	56
3362	2611136	303143	Stop	59
3364	2600846	301952	Actuated	56
3365	2609694	299591	Actuated	56
3366	2604378	301110	Stop	56
3367	2612538	300155	TCP - Actuated	59
3368	2610823	299769	Actuated	59

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3369	2611110	299856	Actuated	59
3373	2620549	293138	TCP - Actuated	72
3374	2622292	295513	Actuated	72
3376	2623615	299056	Actuated	60
3377	2624184	297979	Actuated	60
3383	2615670	298535	Actuated	59
3388	2593004	299576	TCP - Actuated	55
3389	2592817	297394	Stop	68
3390	2593568	297571	Stop	68
3391	2594547	297822	Stop	55
3395	2591547	292155	TCP - Actuated	68
3404	2587207	278836	TCP - Actuated	70
3405	2588197	277278	Actuated	70
3406	2587872	275680	Actuated	70
3407	2588306	273813	Actuated	70
3408	2590145	271430	Actuated	70
3409	2590659	269766	Actuated	87
3410	2591814	267595	Actuated	87
3411	2584643	297717	TCP - Actuated	68
3412	2584090	297758	Actuated	68
3413	2583267	297816	Actuated	52
3414	2581850	297882	Actuated	52
3415	2581505	297849	Actuated	52
3416	2579002	296702	Stop	67
3417	2577593	296152	TCP - Actuated	67
3418	2575110	295340	TCP - Actuated	67
3421	2569151	289422	Stop	67
3422	2566788	286587	TCP - Uncontrolled	67
3427	2560481	278543	TCP - Actuated	67
3429	2556448	273678	Actuated	66
3430	2555720	272552	TCP - Actuated	66
3431	2555170	271734	Actuated	66
3432	2557742	274748	Actuated	67
3441	2566057	263742	Actuated	83
3443	2563436	262400	Actuated	83
3445	2576955	265765	Actuated	84
3447	2573457	265392	Stop	84
3448	2571366	265007	Actuated	84
3451	2553923	269930	Actuated	82
3453	2553140	268093	Actuated	82

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3454	2552971	267008	Actuated	82
3455	2552769	265956	Actuated	82
3458	2548739	261600	Actuated	82
3459	2547094	260380	Actuated	82
3462	2543869	253574	Actuated	82
3464	2551784	257286	Actuated	82
3467	2557681	259385	Actuated	83
3476	2554900	265585	Stop	82
3480	2553683	265533	Actuated	82
3484	2558624	257748	Actuated	85
3485	2559464	256257	Actuated	85
3489	2562970	259481	Actuated	83
3494	2563508	258306	Actuated	83
3497	2587123	295378	TCP - Actuated	68
3498	2591535	298936	Actuated	55
3499	2591294	298249	TCP - Uncontrolled	55
3503	2594412	290784	TCP - Actuated	68
3506	2589877	280931	Stop	70
3508	2587409	278641	Actuated	70
3510	2584389	297343	Stop	68
3514	2566820	272860	Actuated	67
3517	2578409	270011	TCP - Actuated	84
3522	2587590	267605	Actuated	87
3523	2570513	270648	TCP - Actuated	84
3524	2580085	269395	Actuated	84
3525	2582497	271504	Stop	67
3526	2582958	268819	Actuated	84
3529	2623932	281203	Actuated	75
3530	2622939	280955	Actuated	75
3541	2617639	278059	Actuated	74
3548	2605558	273747	Actuated	71
3549	2605191	274028	Actuated	71
3551	2601179	273982	Stop	71
3552	2592424	270609	Actuated	87
3553	2593285	271009	Actuated	87
3554	2594994	271752	Actuated	70
3562	2568985	317230	TCP - Uncontrolled	52
3563	2566773	315535	Stop	52
3566	2544244	291142	Actuated	66
3568	2548538	289215	TCP - Uncontrolled	66

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3569	2550962	288064	TCP - Actuated	66
3592	2503434	303608	Stop	49
3595	2575677	297879	Stop	52
3603	2546641	277955	Actuated	66
3605	2546160	279256	Actuated	66
3610	2548364	287066	Stop	66
3625	2558296	294245	Stop	67
3630	2548113	273294	Actuated	66
3634	2552015	270202	Actuated	82
3635	2552418	269328	Actuated	82
3638	2526747	277072	Stop	65
3648	2520928	282505	Stop	65
3670	2537618	266683	TCP - Actuated	82
3684	2529781	279459	TCP - Uncontrolled	65
3686	2552462	268664	Actuated	82
3690	2590360	270468	Actuated	87
3692	2589935	270341	Actuated	87
3693	2589769	269772	Actuated	87
3699	2592307	268988	Actuated	87
3700	2591328	268761	Actuated	87
3702	2580633	274396	Actuated	67
3707	2585143	256356	Actuated	87
3716	2574767	257440	Stop	86
3718	2573221	253373	Actuated	86
3722	2575486	252377	Actuated	86
3724	2566293	253537	Actuated	85
3732	2596594	260126	Actuated	87
3735	2600781	265328	Actuated	87
3738	2592611	257809	Actuated	87
3759	2571703	264454	Actuated	84
3763	2584295	260180	Actuated	87
3766	2599520	266061	Actuated	87
3775	2559882	308147	Stop	52
3776	2559031	307129	Stop	52
3782	2577366	300479	Stop	52
3788	2576381	297692	TCP - Actuated	67
3790	2576141	297395	Stop	67
3793	2531628	280429	TCP - Uncontrolled	66
3798	2560838	356754	TCP - Actuated	19
3801	2563328	361266	Stop	19

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3804	2539356	331021	Stop	31
3805	2559255	364578	TCP - Actuated	17
3816	2560463	338343	Stop	33
3820	2562177	338789	Actuated	33
3824	2555983	340582	Stop	30
3826	2555833	339534	Stop	30
3828	2554469	338976	Actuated	30
3829	2550656	334730	Actuated	32
3833	2567868	311699	Stop	52
3839	2587125	312426	Stop	53
3841	2586852	308539	Stop	55
3844	2582930	306608	Actuated	52
3845	2581824	305063	Stop	52
3848	2592271	300982	TCP - Actuated	55
3850	2587127	301239	Stop	55
3855	2587107	299104	Actuated	55
3857	2592485	299039	Actuated	55
3858	2593139	299141	Actuated	55
3859	2592624	298075	Actuated	55
3860	2593359	298291	Stop	55
3861	2593662	297231	Stop	68
3862	2594037	295816	TCP - Actuated	68
3863	2594053	295644	Yield	68
3864	2610428	299668	Actuated	59
3865	2601906	308388	Actuated	56
3867	2609843	316686	Actuated	57
3869	2608002	315180	Actuated	54
3872	2608405	315723	Actuated	54
3874	2610843	317955	Actuated	57
3884	2596533	328720	Actuated	40
3901	2586817	278424	Actuated	70
3904	2587970	277863	Actuated	70
3912	2601844	288357	Actuated	69
3914	2599084	281201	Stop	71
3916	2599165	278950	Stop	71
3919	2594346	290326	Actuated	68
3922	2623328	296827	Actuated	73
3924	2636778	344259	Actuated	45
3935	2546339	339416	Actuated	30
3940	2534752	342346	TCP - Uncontrolled	29

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
3942	2494374	360462	Actuated	14
3943	2493918	361354	Actuated	14
3946	2496356	305497	Actuated	49
3948	2495003	305396	Actuated	49
3954	2510543	344905	Pre-timed	28
3959	2492479	313814	Stop	49
3964	2577869	276466	Stop	67
3965	2522264	324592	Stop	28
3977	2546372	276853	Actuated	66
3980	2544675	278356	Actuated	66
3990	2575807	252142	Actuated	86
3993	2576499	251664	Actuated	86
4000	2546489	255253	Actuated	82
4002	2545688	254774	Actuated	82
4024	2596013	266431	Actuated	87
4028	2599316	262980	Actuated	87
4032	2607565	273390	Actuated	71
4048	2627728	282057	TCP - Uncontrolled	75
4062	2653057	295215	Actuated	77
4065	2627783	273314	Actuated	75
4068	2632936	280919	Actuated	75
4070	2638109	281557	Actuated	78
4071	2641486	278712	Actuated	78
4081	2629301	283667	Actuated	75
4088	2622558	287752	TCP - Uncontrolled	72
4092	2625868	286568	Actuated	73
4094	2631852	288960	Actuated	73
4102	2640862	293871	Actuated	76
4103	2641143	293749	Actuated	76
4107	2643584	293331	Actuated	76
4112	2643149	297945	Stop	63
4113	2645472	300201	Actuated	63
4114	2647331	305339	Actuated	63
4123	2657647	294277	Actuated	77
4127	2657105	296261	Actuated	77
4131	2655654	297687	Actuated	77
4135	2651376	301144	Actuated	64
4136	2651339	302608	Actuated	64
4138	2650474	303350	Actuated	64
4142	2639156	296242	Stop	76

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
4143	2638757	296537	Actuated	76
4144	2641249	298192	Stop	63
4146	2639557	297641	Actuated	76
4149	2629794	299874	Actuated	60
4151	2637730	297280	Stop	76
4152	2638390	296776	Stop	76
4154	2636795	297898	Actuated	63
4157	2619219	298489	Actuated	59
4162	2601577	352032	Yield	24
4164	2565995	365303	Yield	17
4168	2645482	305892	Actuated	63
4170	2641908	306758	Actuated	63
4171	2638375	307827	Actuated	63
4174	2603355	343720	TCP - Uncontrolled	38
4175	2605282	335000	Stop	40
4187	2647813	319168	TCP - Actuated	61
4189	2656656	329979	Actuated	48
4193	2650102	334431	Actuated	48
4195	2649712	334784	TCP - Uncontrolled	48
4196	2655674	330586	Actuated	48
4198	2649215	336870	TCP - Actuated	47
4200	2651974	340626	Actuated	46
4202	2650789	342327	Actuated	46
4204	2652635	343589	Actuated	46
4206	2647481	347486	Actuated	45
4209	2639688	349073	Actuated	45
4214	2645400	358831	Actuated	26
4217	2640463	366636	TCP - Actuated	26
4218	2642498	360454	Stop	26
4219	2641246	364923	Stop	26
4226	2648898	367481	Actuated	26
4229	2639683	359428	Actuated	26
4230	2641087	361315	Stop	26
4231	2641515	355851	Actuated	26
4234	2642536	342961	Actuated	45
4235	2640728	341548	Actuated	45
4237	2641749	340760	Actuated	45
4239	2642619	340135	Actuated	45
4242	2633095	347343	Actuated	42
4244	2629044	352356	Actuated	25

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
4245	2627513	353500	Actuated	25
4250	2626330	352081	Stop	25
4251	2626903	355453	Actuated	25
4253	2647411	348924	Actuated	45
4256	2608131	402903	Stop	9
4268	2499459	357919	Stop	14
4274	2582384	280606	Stop	67
4275	2641293	290477	Actuated	76
4282	2489671	367749	Actuated	14
4283	2491369	368284	Actuated	14
4284	2491976	368212	Actuated	14
4285	2495635	366762	Actuated	14
4290	2494360	360953	Actuated	14
4293	2493002	362417	Actuated	14
4294	2491749	364174	Actuated	14
4295	2491387	364701	Actuated	14
4296	2490464	367217	Actuated	14
4314	2543658	270959	Stop	82
4320	2647503	293810	Actuated	76
4321	2646767	294683	Actuated	76
4322	2644640	296432	Actuated	76
4323	2648901	297703	Actuated	76
4325	2651626	295315	Actuated	77
4327	2656759	293399	Actuated	77
4328	2654068	294667	Stop	77
4330	2652610	295242	Actuated	77
4331	2653860	304504	Actuated	64
4333	2650527	357692	Actuated	26
4336	2598907	408280	Stop	3
4342	2616818	409863	Actuated	4
4343	2614345	409436	Actuated	4
4344	2616512	410400	Stop	4
4348	2618519	410098	Actuated	4
4357	2576646	392484	Stop	7
4373	2550543	273394	TCP - Uncontrolled	66
4375	2646514	293331	Actuated	76
4377	2643921	301366	Stop	63
4378	2647220	298920	Actuated	63
4381	2650730	300230	Stop	64
4385	2588978	319200	TCP - Actuated	53

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
4387	2586042	332167	TCP - Uncontrolled	39
4388	2584170	329513	TCP - Uncontrolled	39
4389	2602348	351607	TCP - Uncontrolled	24
4390	2602919	351146	TCP - Uncontrolled	24
4391	2572400	339321	TCP - Uncontrolled	34
4392	2614894	317962	TCP - Uncontrolled	57
4394	2607199	372218	TCP - Uncontrolled	22
4395	2604542	374114	TCP - Uncontrolled	22
4396	2547712	340126	Actuated	30
4397	2606017	342705	TCP - Uncontrolled	38
4398	2606328	342906	TCP - Uncontrolled	38
4399	2605944	345904	TCP - Uncontrolled	38
4400	2605822	344451	TCP - Uncontrolled	38
4403	2546071	339302	TCP - Uncontrolled	30
4405	2649099	304537	Actuated	63
4406	2653202	342270	TCP - Uncontrolled	46
4407	2648892	336399	TCP - Uncontrolled	47
4408	2646272	337444	TCP - Uncontrolled	45
4409	2629191	285881	TCP - Actuated	73
4413	2533797	311809	TCP - Actuated	51
4423	2591048	269162	TCP - Uncontrolled	87
4425	2580821	313840	TCP - Uncontrolled	52
4426	2592958	294164	TCP - Uncontrolled	68
4427	2592713	297683	TCP - Uncontrolled	68
4428	2593468	297923	TCP - Uncontrolled	55
4430	2593683	295180	TCP - Uncontrolled	68
4431	2594565	291308	TCP - Uncontrolled	68
4437	2543341	292096	TCP - Uncontrolled	66
4438	2529888	358208	Stop	15
4439	2533317	346227	TCP - Uncontrolled	29
4440	2530004	345337	TCP - Uncontrolled	28
4442	2498560	308004	TCP - Uncontrolled	49
4443	2559881	374936	TCP - Uncontrolled	17
4444	2550151	365867	TCP - Uncontrolled	16
4445	2490605	366911	TCP - Uncontrolled	14
4446	2514012	390584	Stop	5
4448	2566050	386661	TCP - Uncontrolled	7
4450	2650210	330864	Actuated	48
4452	2651327	332472	Actuated	48
4454	2624134	299090	Actuated	60

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
4456	2625736	299362	Actuated	60
4458	2626394	299452	Actuated	60
4460	2647543	308976	Actuated	63
4462	2627365	313167	Actuated	58
4463	2605860	322285	Actuated	54
4465	2620931	288456	Actuated	72
4467	2582005	268781	Actuated	84
4474	2592919	297022	Stop	68
4475	2564116	336297	Actuated	35
4477	2562600	368587	Actuated	17
4484	2520305	362153	Stop	15
4486	2510602	373959	Stop	15
4493	2557027	340448	Stop	33
4495	2560331	339973	Stop	33
4496	2563628	339505	Stop	33
4503	2646802	368229	Stop	26
4506	2641784	354938	TCP - Actuated	26
4507	2625442	355326	Actuated	25
4509	2642440	366528	Stop	26
4510	2645649	364700	Actuated	26
4512	2640161	340186	Actuated	45
4517	2541819	251873	Actuated	82
4520	2541864	252719	Actuated	82
4521	2542718	252263	Actuated	82
4522	2543881	254405	Actuated	82
4525	2536986	253274	Actuated	82
4527	2540551	251628	Actuated	82
4532	2650901	365186	Stop	26
4533	2651735	364490	Actuated	26
4535	2648802	360484	Stop	26
4536	2649482	366209	Actuated	26
4540	2548446	340444	Actuated	30
4543	2586755	317548	Stop	53
4544	2587043	317292	Stop	53
4545	2587615	316763	Stop	53
4546	2593828	296557	Stop	68
4547	2593744	296874	Stop	68
4548	2638056	297024	Stop	76
4549	2637333	297521	Stop	76
4550	2642535	294347	Stop	76

Node	X Coordinate (ft)	Y Coordinate (ft)	Control Type	Grid Map Number
4551	2643145	294124	Stop	76
4552	2643789	293825	Stop	76
4553	2644666	293686	Stop	76
4554	2645410	293592	Stop	76
4555	2645377	293131	Actuated	76
4556	2639654	295885	Actuated	76
4559	2640879	279036	Actuated	78
4561	2618580	278026	Actuated	74
4567	2642166	296058	Actuated	76
4568	2643640	297432	Actuated	76
4569	2646055	299765	Stop	63
4570	2644494	299257	Stop	63
4571	2644061	298826	Stop	63
4572	2643621	298404	Stop	63
4573	2644937	299689	Stop	63
4574	2644098	297868	Stop	63
4575	2644556	298309	Stop	63
4576	2645010	298726	Stop	63
4577	2645469	299176	Stop	63
4578	2640446	296979	Stop	76
4579	2640066	296440	Stop	76
4580	2639147	297080	Stop	76
4581	2638446	300198	Stop	63
4582	2637859	299455	Stop	63
4583	2639645	299263	Stop	63
4586	2638240	295783	Actuated	76
4587	2637860	296054	Stop	76
4589	2584488	312486	Stop	53
4592	2637185	284760	Actuated	76
4593	2636771	285458	Actuated	76
4595	2637821	283199	Actuated	78

¹Coordinates are in the North American Datum of 1983 Pennsylvania South State Plane Zone

APPENDIX L

Sub-area Boundaries

L. SUB-AREA BOUNDARIES

Amity	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Amity Township boundary to the north, east, and south. Bounded to the west by Old Airport Rd to Weavertown Rd to Geiger Rd to Monocacy Hill Rd to Limekiln Rd to Monocacy Creek Rd to Main St to the southern boundary to Amity Township.
Boyertown	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Borough of Boyertown boundary.
Charlestown	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Charlestown Township boundary to the west, north, and east. Bounded by Interstate-76 to the south.
Colebrookdale	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Colebrookdale Township boundary.
Collegeville	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Borough of Collegeville boundary.
Douglass (Berks)	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Douglass Township boundary.
Douglass (Montgomery)	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Douglass Township boundary.
Earl	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Earl Township boundary to the north, east, and south. Bounded by Powder Mill Hollow Rd to the west.
East Coventry	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> East Coventry Township boundary.
East Nantmeal	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> East Nantmeal Township boundary to the north, east, and south. Bounded to the west by Route 345 to Route 401 to Marsh Rd to the southern boundary of East Nantmeal Township.
East Pikeland	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> East Pikeland Township boundary.

East Vincent	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> East Vincent Township boundary.
Green Lane	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Borough of Green Lane boundary.
Limerick	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Limerick Township boundary.
Lower Frederick	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Lower Frederick Township boundary.
Lower Pottsgrove	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Lower Pottsgrove Township boundary.
Lower Providence	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Lower Providence Township boundary.
Lower Salford	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Lower Salford Township boundary to the north, west, and south. Bounded to the east by Route 113 to Old Skippack Rd to Groff Mill Rd to Salfordville Rd to the northern boundary of Lower Salford Township
Marlborough	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Marlborough Township boundary to the south, west, and north. Bounded to the east by Route 63.
New Hanover	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> New Hanover Township boundary.
North Coventry	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> North Coventry Township boundary.
Perkiomen	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Perkiomen Township boundary.
Phoenixville	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Borough of Phoenixville boundary.

Pottstown	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Borough of Pottstown boundary.
Royersford	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Borough of Royersford boundary.
Schuylkill	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Schuylkill Township boundary.
Schwenksville	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Borough of Schwenksville boundary.
Skippack	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Skippack Township boundary.
South Coventry	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> South Coventry Township boundary.
Spring City	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Borough of Spring City boundary.
Trappe	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Borough of Trappe boundary.
Union	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Union Township boundary to the north, east, and south. Bounded to the west by Main St to Shed Rd to Route 345 to the southern boundary of Union Township.
Upper Frederick	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Upper Frederick Township boundary.
Upper Pottsgrove	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Upper Pottsgrove Township boundary.
Upper Providence	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Upper Providence Township boundary.
Upper Salford	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> Upper Salford Township boundary.

Upper Uwchlan	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Upper Uwchlan Township boundary to the west, north, and east. Bounded by Interstate-76 to the south.
Uwchlan	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Uwchlan Township boundary to the west, north, and east. Bounded by Interstate-76 to the south.
Warwick	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> Warwick Township boundary to the north, east, and south. Bounded by Route 345 to the west.
Washington	<u>County:</u> Berks <u>Defined as the area within the following boundary:</u> Washington Township boundary to the south and east. Bounded by Route 100 to the west and Hoffmansville Rd to the north.
West Pikeland	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> West Pikeland Township boundary to the west, north, and east. Bounded by Interstate-76 to the south.
West Pottsgrove	<u>County:</u> Montgomery <u>Defined as the area within the following boundary:</u> West Pottsgrove Township boundary.
West Vincent	<u>County:</u> Chester <u>Defined as the area within the following boundary:</u> West Vincent Township boundary.

APPENDIX M

Evacuation Sensitivity Studies

M. EVACUATION SENSITIVITY STUDIES

This appendix presents the results of a series of sensitivity analyses. These analyses are designed to identify the sensitivity of the ETE to changes in some base evacuation conditions.

M.1 Effect of Changes in Trip Generation Times

A sensitivity study was performed to determine whether changes in the estimated trip generation time have an effect on the ETE for the entire EPZ. Specifically, if the tail of the mobilization distribution were truncated (i.e., if those who responded most slowly to the Advisory to Evacuate, could be persuaded to respond much more rapidly), how would the ETE be affected? The case considered was Scenario 8, Region 3; a winter, midweek, midday, snow evacuation of the entire EPZ. Table M-1 presents the results of this study.

Table M-1. Evacuation Time Estimates for Trip Generation Sensitivity Study

Trip Generation Period	Evacuation Time Estimate for Entire EPZ	
	90 th Percentile	100 th Percentile
2 Hours 15 Minutes	5:35	7:40
2 Hours 45 Minutes	5:35	7:40
3 Hours 15 Minutes (Base)	5:35	7:40

As discussed in Section 7.3, traffic congestion persists within the EPZ for more than 7 hours. Thus, the ETE for both the 90th and 100th percentiles are not affected by the trip generation time because even if evacuees mobilize faster, ETE are dictated by the time needed to clear traffic congestion.

M.2 Effect of Changes in the Number of People in the Shadow Region Who Relocate

A sensitivity study was conducted to determine the effect on ETE of changes in the percentage of people who decide to relocate from the Shadow Region. The case considered was Scenario 8, Region 3; a winter, midweek, midday, with snow evacuation of the entire EPZ. The movement of people in the Shadow Region has the potential to impede vehicles evacuating from an Evacuation Region within the EPZ. Refer to Sections 3.2 and 7.1 for additional information on population within the Shadow Region.

Table M-2 presents the evacuation time estimates for each of the cases considered. The results show that reducing the shadow evacuation to 0% reduces both the 90th and 100th percentile ETE by 10 minutes. Tripling the shadow percentage increases the ETE by 30 minutes and 40 minutes for the 90th and 100th percentiles, respectively – a significant change. Full evacuation of the Shadow Region increases the ETE by 1 hour and 1 hour and 25 minutes for the 90th and 100th percentiles, respectively – also a significant change.

Table M-2. Evacuation Time Estimates for Shadow Sensitivity Study

Percent Shadow Evacuation	Evacuating Shadow Vehicles	Evacuation Time Estimate for Entire EPZ	
		90 th Percentile	100 th Percentile
0	0	5:25	7:30
20 (Base)	29,200	5:35	7:40
60	87,600	6:05	8:20
100	146,000	6:35	9:05

M.3 Effect of Changes in EPZ Resident Population

A sensitivity study was conducted to determine the effect on ETE of changes in the resident population within the study area (EPZ plus Shadow Region). As population in the study area changes over time, the time required to evacuate the public may increase, decrease, or remain the same. Since the ETE is related to the demand to capacity ratio present within the study area, changes in population will cause the demand side of the equation to change.

As per the NRC's response to the Emergency Planning Frequently Asked Question (EPFAQ) 2013-001, the ETE population sensitivity study must be conducted to determine what percentage increase in permanent resident population causes an increase in the 90th percentile ETE of 25 percent or 30 minutes, whichever is less. The sensitivity study must use the scenario with the longest 90th percentile ETE (excluding the roadway impact scenario and the special event scenario if it is a 1 day per year special event).

Thus, the sensitivity study was conducted using the following parameters:

1. The percent change in population within the study area was increased by up to 13%. Changes in population were applied to permanent residents only (as per federal guidance), in both the EPZ area and in the Shadow Region.
2. The transportation infrastructure remained fixed; the presence of new roads or highway capacity improvements was not considered.
3. The study was performed for the 2-Mile Region (R01), the 5-Mile Region (R02) and the entire EPZ (R03).
4. The scenario (excluding special event and roadway impact) with the highest 90th percentile ETE values was selected as the case to be considered in this sensitivity study (Scenario 8 – winter, midweek, midday with snow).

Table M-3 presents the results of the sensitivity study. Section IV of Appendix E to 10 CFR Part 50, and NUREG/CR-7002, Section 5.4, require licensees to provide an updated ETE analysis to the NRC when a population increase within the EPZ causes ETE values (for the 2-Mile Region, 5-Mile Region or entire EPZ) to increase by 25 percent or 30 minutes, whichever is less. Note that all of the base ETE values are greater than 2 hours; 25 percent of the base ETE is always greater than 30 minutes. Therefore, 30 minutes is the lesser and is the criterion for updating.

Those percent population changes which result in 90th percentile ETE changes greater than 30 minutes are highlighted in red below – a 13% increase or greater in the EPZ population. Exelon will have to estimate the EPZ population on an annual basis. If the EPZ population increases by 13% or more, an updated ETE analysis will be needed.

Table M-3. ETE Variation with Population Change

Resident Population + 20% Shadow Population	Population Change			
	Base	5%	10%	13%
	347,939	365,336	382,733	393,171
ETE for 90 th Percentile				
Region	Base	Population Change		
		5%	10%	13%
2-MILE	2:25	2:25	2:25	2:25
5-MILE	3:30	3:40	3:45	3:45
FULL EPZ	5:35	5:45	5:55	6:05
ETE for 100 th Percentile				
Region	Base	Population Change		
		5%	10%	13%
2-MILE	4:45	4:50	4:50	4:50
5-MILE	5:05	5:05	5:10	5:15
FULL EPZ	7:40	7:55	8:05	8:25

M.4 Pennsylvania Turnpike Sensitivity Study

According to the Pennsylvania State Plan – Annex E, Attachment B, Appendix 20 – the access ramps to/from the Pennsylvania Turnpike at Exits 312 and 320 are to be closed for the duration of the evacuation. The intent of this closure is to eliminate the potential of vehicles exiting the turnpike and traveling north into the area being evacuated.

A sensitivity study was conducted on the 2-mile region, 5-mile region, and full EPZ for a summer, midweek, midday, good weather scenario (Scenario 1) to examine the impact on ETE if these access ramps were to remain open to evacuees. As shown in Table M-4, opening these ramps to evacuees has little to no impact on ETE. The ETE for the 2 and 5-Mile Regions remains unchanged for the 90th and 100th percentiles. The ETE for an evacuation of the full EPZ decreases by 5 minutes at the 90th percentile and 20 minutes at the 100th percentile with the turnpike open – not a significant change. Although the turnpike is a high-speed, high capacity roadway, the ramps to access the turnpike are low-speed with significantly less capacity. As such, the ramps to the turnpike are congested and limit the number of vehicles that can use the turnpike to evacuate. There are alternate routes (Route 29 south near Exit 320 and Route 100 south near Exit 312) to leave the area that operate at higher capacity than the access ramps to the turnpike, which further limits the utilization of the turnpike if it is open.

Table M-4. Turnpike Sensitivity Results

ETE for 90 th Percentile		
Region	Base	Turnpike Open
2-MILE	1:45	1:45
5-MILE	3:10	3:10
FULL EPZ	5:10	5:05
ETE for 100 th Percentile		
Region	Base	Turnpike Open
2-MILE	3:25	3:25
5-MILE	4:20	4:20
FULL EPZ	7:25	7:05

M.5 Enhancements in Evacuation Time

This appendix documents sensitivity studies on critical variables that could impact ETE.

- Reducing the trip generation time has no impact on ETE because traffic congestion persists well beyond trip generation time (Section M.1). Thus, public outreach encouraging evacuees to mobilize more quickly will not impact ETE.
- Shadow evacuation has a significant impact on ETE (Section M.2). Public outreach could be considered to inform those people within the EPZ (and potentially beyond the EPZ) that if they are not advised to evacuate, they should not, as they may delay those who are most at risk.
- Population growth results in more evacuating vehicles which could significantly increase ETE (Section M.3). Public outreach to inform those people within the EPZ to evacuate as a family in a single vehicle would reduce the number of evacuating vehicles and could reduce ETE or offset the impact of increased population.
- According to the state traffic management plans, the Pennsylvania Turnpike is closed during evacuation. Opening the turnpike does not significantly decrease ETE (Section M.4). Thus, the existing traffic management plans are adequate.

APPENDIX N

ETE Criteria Checklist

N. ETE CRITERIA CHECKLIST

Table N-1. ETE Review Criteria Checklist

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
1.0 Introduction		
a. The emergency planning zone (EPZ) and surrounding area should be described.	Yes	Section 1
b. A map should be included that identifies primary features of the site, including major roadways, significant topographical features, boundaries of counties, and population centers within the EPZ.	Yes	Figure 1-1
c. A comparison of the current and previous ETE should be provided and includes similar information as identified in Table 1-1, "ETE Comparison," of NUREG/CR-7002.	Yes	Table 1-3
1.1 Approach		
a. A discussion of the approach and level of detail obtained during the field survey of the roadway network should be provided.	Yes	Section 1.3
b. Sources of demographic data for schools, special facilities, large employers, and special events should be identified.	Yes	Section 2.1 Section 3
c. Discussion should be presented on use of traffic control plans in the analysis.	Yes	Section 1.3, Section 2.3, Section 9, Appendix G
d. Traffic simulation models used for the analyses should be identified by name and version.	Yes	Section 1.3, Table 1-3, Appendix B, Appendix C

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
e. Methods used to address data uncertainties should be described.	Yes	Section 3 – avoid double counting Section 5, Appendix F – 5% sampling error at 95% confidence interval for telephone survey
1.2 Assumptions		
a. The planning basis for the ETE includes the assumption that the evacuation should be ordered promptly and no early protective actions have been implemented.	Yes	Section 2.3 – Assumption 1 Section 5.1
b. Assumptions consistent with Table 1-2, “General Assumptions,” of NUREG/CR-7002 should be provided and include the basis to support their use.	Yes	Sections 2.2, 2.3
1.3 Scenario Development		
a. The ten scenarios in Table 1-3, Evacuation Scenarios, should be developed for the ETE analysis, or a reason should be provided for use of other scenarios.	Yes	Tables 2-1, 6-4
1.3.1 Staged Evacuation		
a. A discussion should be provided on the approach used in development of a staged evacuation.	Yes	Sections 5.4.2, 7.2
1.4 Evacuation Planning Areas		
a. A map of EPZ with emergency response planning areas (ERPAs) should be included.	Yes	Figure 3-1, Figure 6-1
b. A table should be provided identifying the ERPAs considered for each ETE calculation by downwind direction in each sector.	Yes	Tables 6-1 through 6-3, 7-5 through 7-7, H-1 through H-3

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
c. A table similar to Table 1-4, "Evacuation Areas for a Staged Evacuation Keyhole," of NUREG/CR-7002 should be provided and includes the complete evacuation of the 2, 5, and 10 mile areas and for the 2 mile area/5 mile keyhole evacuations.	Yes	Table 7-7
2.0 Demand Estimation		
a. Demand estimation should be developed for the four population groups, including permanent residents of the EPZ, transients, special facilities, and schools.	Yes	Permanent residents, employees, transients – Section 3, Appendix E Special facilities, schools – Section 8, Appendix E
2.1 Permanent Residents and Transient Population		
a. The US Census should be the source of the population values, or another credible source should be provided.	Yes	Section 3.1
b. Population values should be adjusted as necessary for growth to reflect population estimates to the year of the ETE.	Yes	2010 used as the base year for analysis. No growth of population necessary.
c. A sector diagram should be included, similar to Figure 2-1, "Population by Sector," of NUREG/CR-7002, showing the population distribution for permanent residents.	Yes	Figure 3-2
2.1.1 Permanent Residents with Vehicles		
a. The persons per vehicle value should be between 1 and 2 or justification should be provided for other values.	Yes	2.10 persons per vehicle – Table 1-3
b. Major employers should be listed.	Yes	Appendix E – Table E-4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
2.1.2 Transient Population		
a. A list of facilities which attract transient populations should be included, and peak and average attendance for these facilities should be listed. The source of information used to develop attendance values should be provided.	Yes	Sections 3.3, 3.4, Appendix E
b. The average population during the season should be used, itemized and totaled for each scenario.	Yes	Tables 3-4, 3-5 and Appendix E itemize the transient population and employee estimates. These estimates are multiplied by the scenario specific percentages provided in Table 6-5 to estimate transient population by scenario – see page 6-1.
c. The percent of permanent residents assumed to be at facilities should be estimated.	Yes	Sections 3.3, 3.4
d. The number of people per vehicle should be provided. Numbers may vary by scenario, and if so, discussion on why values vary should be provided.	Yes	Sections 3.3, 3.4
e. A sector diagram should be included, similar to Figure 2-1 of NUREG/CR-7002, showing the population distribution for the transient population.	Yes	Figure 3-6 – transients Figure 3-8 – employees
2.2 Transit Dependent Permanent Residents		
a. The methodology used to determine the number of transit dependent residents should be discussed.	Yes	Section 8.1, Table 8-1
b. Transportation resources needed to evacuate this group should be quantified.	Yes	Section 8.1, Tables 8-5, 8-10
c. The county/local evacuation plans for transit dependent residents should be used in the analysis.	Yes	Sections 8.1, 8.4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
d. The methodology used to determine the number of people with disabilities and those with access and functional needs who may need assistance and do not reside in special facilities should be provided. Data from local/county registration programs should be used in the estimate, but should not be the only set of data.	Yes	Section 8.5
e. Capacities should be provided for all types of transportation resources. Bus seating capacity of 50% should be used or justification should be provided for higher values.	Yes	Section 2.3 – Assumption 10 Sections 3.5, 8.1, 8.2, 8.3
f. An estimate of this population should be provided and information should be provided that the existing registration programs were used in developing the estimate.	Yes	Table 8-1 – transit dependents Section 8.5 – special needs
g. A summary table of the total number of buses, ambulances, or other transport needed to support evacuation should be provided and the quantification of resources should be detailed enough to assure double counting has not occurred.	Yes	Sections 8-3, 8.4 – page 8-5 Table 8-5
2.3 Special Facility Residents		
a. A list of special facilities, including the type of facility, location, and average population should be provided. Special facility staff should be included in the total special facility population.	Yes	Appendix E, Tables E-1 through E-3 – list facilities, type, location, and population
b. A discussion should be provided on how special facility data was obtained.	Yes	Sections 8.2, 8.3

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
c. The number of wheelchair and bed-bound individuals should be provided.	Yes	Section 8.3, Table 8-4
d. An estimate of the number and capacity of vehicles needed to support the evacuation of the facility should be provided.	Yes	Section 8.3 Tables 8-4, 8-5
e. The logistics for mobilizing specially trained staff (e.g., medical support or security support for prisons, jails, and other correctional facilities) should be discussed when appropriate.	Yes	Section 8.4 – Medical facilities only Jail shelters in place
2.4 Schools		
a. A list of schools including name, location, student population, and transportation resources required to support the evacuation, should be provided. The source of this information should be provided.	Yes	Table 8-2 Section 8.2
b. Transportation resources for elementary and middle schools should be based on 100% of the school capacity.	Yes	Table 8-2
c. The estimate of high school students who will use their personal vehicle to evacuate should be provided and a basis for the values used should be discussed.	Yes	Section 8.2
d. The need for return trips should be identified if necessary.	Yes	There are sufficient resources to evacuate schools in a single wave. However, Section 8.4 – page 8-8 and Figure 8-1 discuss the potential for a multiple wave evacuation

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
2.5.1 Special Events		
a. A complete list of special events should be provided and includes information on the population, estimated duration, and season of the event.	Yes	Section 3.7 – only one event suggested by offsite agencies
b. The special event that encompasses the peak transient population should be analyzed in the ETE.	Yes	Section 3.7
c. The percent of permanent residents attending the event should be estimated.	Yes	Section 3.7
2.5.2 Shadow Evacuation		
a. A shadow evacuation of 20 percent should be included for areas outside the evacuation area extending to 15 miles from the NPP.	Yes	Section 2.2 – Assumption 5 Figure 2-1 Section 3.2
b. Population estimates for the shadow evacuation in the 10 to 15 mile area beyond the EPZ are provided by sector.	Yes	Section 3.2 Figure 3-4 Table 3-3
c. The loading of the shadow evacuation onto the roadway network should be consistent with the trip generation time generated for the permanent resident population.	Yes	Section 5 – Table 5-9
2.5.3 Background and Pass Through Traffic		
a. The volume of background traffic and pass through traffic is based on the average daytime traffic. Values may be reduced for nighttime scenarios.	Yes	Sections 3.6, 6 Table 3-6, 6-5, and 6-6

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. Pass through traffic is assumed to have stopped entering the EPZ about two hours after the initial notification.	Yes	Section 2.3 – Assumption 5 Section 3.6 Table 6-5 – External Through Traffic footnote
2.6 Summary of Demand Estimation		
a. A summary table should be provided that identifies the total populations and total vehicles used in analysis for permanent residents, transients, transit dependent residents, special facilities, schools, shadow population, and pass-through demand used in each scenario.	Yes	Tables 3-7, 3-8
3.0 Roadway Capacity		
a. The method(s) used to assess roadway capacity should be discussed.	Yes	Section 4
3.1 Roadway Characteristics		
a. A field survey of key routes within the EPZ has been conducted.	Yes	Section 1.3, Appendix D
b. Information should be provided describing the extent of the survey, and types of information gathered and used in the analysis.	Yes	Section 1.3, Appendix D
c. A table similar to that in Appendix A, "Roadway Characteristics," of NUREG/CR-7002 should be provided.	Yes	Appendix K, Table K-1
d. Calculations for a representative roadway segment should be provided.	Yes	Section 4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
e. A legible map of the roadway system that identifies node numbers and segments used to develop the ETE should be provided and should be similar to Figure 3-1, "Roadway Network Identifying Nodes and Segments," of NUREG/CR-7002.	Yes	Appendix K, Figures K-1 through K-91 present the entire link-node analysis network at a scale suitable to identify all links and nodes
3.2 Capacity Analysis		
a. The approach used to calculate the roadway capacity for the transportation network should be described in detail and identifies factors that should be expressly used in the modeling.	Yes	Section 4
b. The capacity analysis identifies where field information should be used in the ETE calculation.	Yes	Section 1.3, Section 4
3.3 Intersection Control		
a. A list of intersections should be provided that includes the total number of intersections modeled that are unsignalized, signalized, or manned by response personnel.	Yes	Appendix K, Table K-2
b. Characteristics for the 10 highest volume intersections within the EPZ are provided including the location, signal cycle length, and turn lane queue capacity.	Yes	Table J-1
c. Discussion should be provided on how signal cycle time is used in the calculations.	Yes	Section 4.1, Appendix C.

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
3.4 Adverse Weather		
a. The adverse weather condition should be identified and the effects of adverse weather on mobilization time should be considered.	Yes	Table 2-1, Section 2.3 – Assumption 9 Mobilization time – Table 2-2, Section 5.3 (page 5-6)
b. The speed and capacity reduction factors identified in Table 3-1, “Weather Capacity Factors,” of NUREG/CR-7002 should be used or a basis should be provided for other values.	Yes	Table 2-2 – based on HCM 2010. The factors provided in Table 3-1 of NUREG/CR-7002 are from HCM 2000.
c. The study identifies assumptions for snow removal on streets and driveways, when applicable.	Yes	Section 5.3 – page 5-9 Appendix F – Section F.2.3 – page F-8
4.0 Development of Evacuation Times		
4.1 Trip Generation Time		
a. The process used to develop trip generation times should be identified.	Yes	Section 5
b. When telephone surveys are used, the scope of the survey, area of survey, number of participants, and statistical relevance should be provided.	Yes	Appendix F
c. Data obtained from telephone surveys should be summarized.	Yes	Appendix F
d. The trip generation time for each population group should be developed from site specific information.	Yes	Section 5, Appendix F

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.1.1 Permanent Residents and Transient Population		
a. Permanent residents are assumed to evacuate from their homes but are not assumed to be at home at all times. Trip generation time includes the assumption that a percentage of residents will need to return home prior to evacuating.	Yes	Section 5 discusses trip generation for households with and without returning commuters. Table 6-5 presents the percentage of households with returning commuters and the percentage of households either without returning commuters or with no commuters. Appendix F presents the percent households who will await the return of commuters. Section 2.3, Assumption 3
b. Discussion should be provided on the time and method used to notify transients. The trip generation time discusses any difficulties notifying persons in hard to reach areas such as on lakes or in campgrounds.	Yes	Section 5.4.3
c. The trip generation time accounts for transients potentially returning to hotels prior to evacuating.	Yes	Section 5.4.3, Figure 5-1
d. Effect of public transportation resources used during special events where a large number of transients should be expected should be considered.	Yes	Section 3.7
e. The trip generation time for the transient population should be integrated and loaded onto the transportation network with the general public.	Yes	Section 5, Table 5-9

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.1.2 Transit Dependent Residents		
a. If available, existing plans and bus routes should be used in the ETE analysis. If new plans should be developed with the ETE, they have been agreed upon by the responsible authorities.	Yes	Section 8.4 – page 8-6. Pre-established bus pick-up points exist and are distributed annually through public information – see Figures 8-2 through 8-4, Table 8-10
b. Discussion should be included on the means of evacuating ambulatory and non-ambulatory residents.	Yes	Section 8.4, 8.5
c. The number, location, and availability of buses, and other resources needed to support the demand estimation should be provided.	Yes	Section 8.4, Table 8-5
d. Logistical details, such as the time to obtain buses, brief drivers, and initiate the bus route should be provided.	Yes	Section 8.4, Figure 8-1
e. Discussion should identify the time estimated for transit dependent residents to prepare and travel to a bus pickup point, and describes the expected means of travel to the pickup point.	Yes	Section 8.4
f. The number of bus stops and time needed to load passengers should be discussed.	Yes	Section 8.4, Tables 8-11 through 8-13
g. A map of bus routes should be included.	Yes	Figure 8-2 through 8-4
h. The trip generation time for non-ambulatory persons includes the time to mobilize ambulances or special vehicles, time to drive to the home of residents, loading time, and time to drive out of the EPZ should be provided.	Yes	Section 8.5

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
i. Information should be provided to supports analysis of return trips, if necessary.	Yes	Sections 8.4, 8.5 Figure 8-1 Tables 8-11 through 8-13
4.1.3 Special Facilities		
a. Information on evacuation logistics and mobilization times should be provided.	Yes	Section 8.4 Tables 8-7 through 8-9, and Tables 8-14 through 8-16
b. Discussion should be provided on the inbound and outbound speeds.	Yes	Sections 8.4
c. The number of wheelchair and bed-bound individuals should be provided, and the logistics of evacuating these residents should be discussed.	Yes	Section 8.4 Tables 8-4, 8-14 through 8-16
d. Time for loading of residents should be provided	Yes	Section 8.4
e. Information should be provided that indicates whether the evacuation can be completed in a single trip or if additional trips should be needed.	Yes	Section 8.4
f. If return trips should be needed, the destination of vehicles should be provided.	Yes	Section 8.4
g. Discussion should be provided on whether special facility residents are expected to pass through the reception center prior to being evacuated to their final destination.	Yes	Section 8.4

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
h. Supporting information should be provided to quantify the time elements for the return trips.	Yes	Section 8.4 Tables 8-7 through 8-9 and Tables 8-14 through 8-16
4.1.4 Schools		
a. Information on evacuation logistics and mobilization time should be provided.	Yes	Section 8.4
b. Discussion should be provided on the inbound and outbound speeds.	Yes	School bus routes are presented in Table 8-7. School bus speeds are presented in Tables 8-7 (good weather), 8-8 (rain) and 8-9 (snow). Section 8.4 discusses inbound and outbound speeds
c. Time for loading of students should be provided.	Yes	Tables 8-7 through 8-9 Discussion in Section 8.4
d. Information should be provided that indicates whether the evacuation can be completed in a single trip or if additional trips are needed.	Yes	Section 8.4 – page 8-5 Table 8-5
e. If return trips are needed, the destination of school buses should be provided.	Yes	Return trips are not needed. Sufficient resources to evacuate in single wave – page 8-5

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
f. If used, reception centers should be identified. Discussion should be provided on whether students are expected to pass through the reception center prior to being evacuated to their final destination.	Yes	Table 8-3. Students are evacuated to receiving schools where they will be picked up by parents or guardians.
g. Supporting information should be provided to quantify the time elements for the return trips.	Yes	Return trips are not needed. Tables 8-7 through 8-9 provide time needed to arrive at host school, which could be used to compute a second wave evacuation if necessary
4.2 ETE Modeling		
a. General information about the model should be provided and demonstrates its use in ETE studies.	Yes	DYNEV II (Ver. 4.0.17.0). Section 1.3, Table 1-3, Appendix B, Appendix C.
b. If a traffic simulation model is not used to conduct the ETE calculation, sufficient detail should be provided to validate the analytical approach used. All criteria elements should have been met, as appropriate.	No	Not applicable as a traffic simulation model was used.
4.2.1 Traffic Simulation Model Input		
a. Traffic simulation model assumptions and a representative set of model inputs should be provided.	Yes	Appendices B and C describe the simulation model assumptions and algorithms Table J-2 – model inputs

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. A glossary of terms should be provided for the key performance measures and parameters used in the analysis.	Yes	Appendix A Tables C-1, C-2
4.2.2 Traffic Simulation Model Output		
a. A discussion regarding whether the traffic simulation model used must be in equilibration prior to calculating the ETE should be provided.	Yes	Appendix B
b. The minimum following model outputs should be provided to support review: 1. Total volume and percent by hour at each EPZ exit node. 2. Network wide average travel time. 3. Longest queue length for the 10 intersections with the highest traffic volume. 4. Total vehicles exiting the network. 5. A plot that provides both the mobilization curve and evacuation curve identifying the cumulative percentage of evacuees who have mobilized and exited the EPZ. 6. Average speed for each major evacuation route that exits the EPZ.	Yes	1. Table J-5. 2. Table J-3. 3. Table J-1. 4. Table J-3. 5. Figures J-1 through J-14 (one plot for each scenario considered). 6. Table J-4. Network wide average speed also provided in Table J-3.
c. Color coded roadway maps should be provided for various times (i.e., at 2, 4, 6 hrs., etc.) during a full EPZ evacuation scenario, identifying areas where long queues exist including level of service (LOS) "E" and LOS "F" conditions, if they occur.	Yes	Figures 7-3 through 7-9

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
4.3 Evacuation Time Estimates for the General Public		
a. The ETE should include the time to evacuate 90% and 100% of the total permanent resident and transient population	Yes	Tables 7-1, 7-2
b. The ETE for 100% of the general public should include all members of the general public. Any reductions or truncated data should be explained.	Yes	Section 5.4 – truncating survey data to eliminate statistical outliers Table 7-2 – 100 th percentile ETE for general public
c. Tables should be provided for the 90 and 100 percent ETEs similar to Table 4-3, “ETEs for Staged Evacuation Keyhole,” of NUREG/CR-7002.	Yes	Tables 7-3, 7-4
d. ETEs should be provided for the 100 percent evacuation of special facilities, transit dependent, and school populations.	Yes	Section 8.4 Tables 8-7 through 8-9 Tables 8-14 through 8-16
5.0 Other Considerations		
5.1 Development of Traffic Control Plans		
a. Information that responsible authorities have approved the traffic control plan used in the analysis should be provided.	Yes	Section 9, Appendix G
b. A discussion of adjustments or additions to the traffic control plan that affect the ETE should be provided.	Yes	Section 9, Appendix G
5.2 Enhancements in Evacuation Time		
a. The results of assessments for improvement of evacuation time should be provided.	Yes	Appendix M, Section M.5

NRC Review Criteria	Criterion Addressed in ETE Analysis	Comments
b. A statement or discussion regarding presentation of enhancements to local authorities should be provided.	Yes	The local authorities were engaged in the ETE development and informed of the study results. In particular, sensitivity study information was provided to show potential impacts of selected ETE variables.
5.3 State and Local Review		
a. A list of agencies contacted and the extent of interaction with these agencies should be discussed.	Yes	Table 1-1
b. Information should be provided on any unresolved issues that may affect the ETE.	Yes	There are no outstanding issues
5.4 Reviews and Updates		
a. A discussion of when an updated ETE analysis is required to be performed and submitted to the NRC.	Yes	Appendix M, Section M.3
5.5 Reception Centers and Congregate Care Center		
a. A map of congregate care centers and reception centers should be provided.	Yes	Figure 10-1 through 10-4
b. If return trips are required, assumptions used to estimate return times for buses should be provided.	Yes	Section 8.4 discusses a multi-wave evacuation procedure. Figure 8-1
c. It should be clearly stated if it is assumed that passengers are left at the reception center and are taken by separate buses to the congregate care center.	Yes	Congregate care centers are not considered –Section 10

Technical Reviewer _____

Date _____

Supervisory Review _____

Date _____