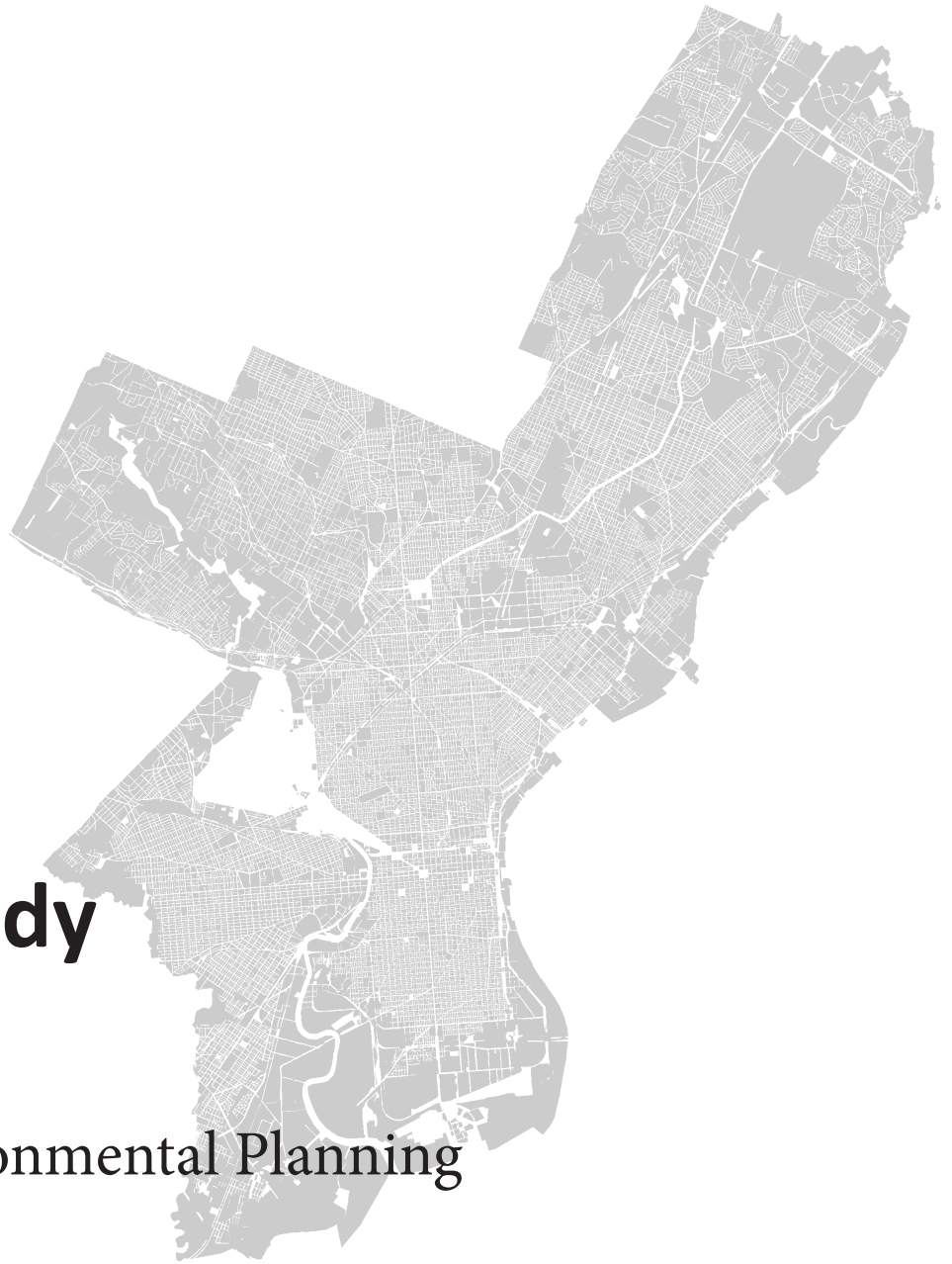


Homework 1_TOD_Study

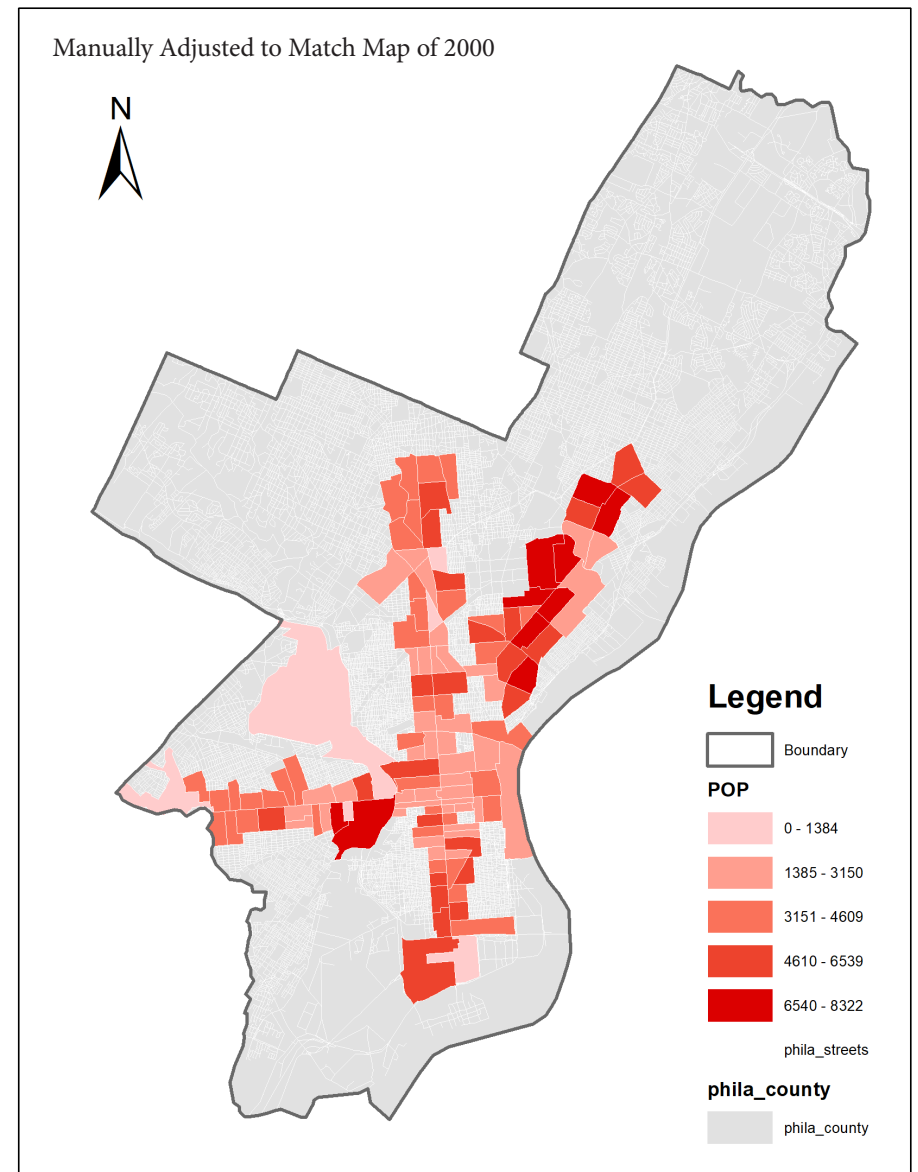
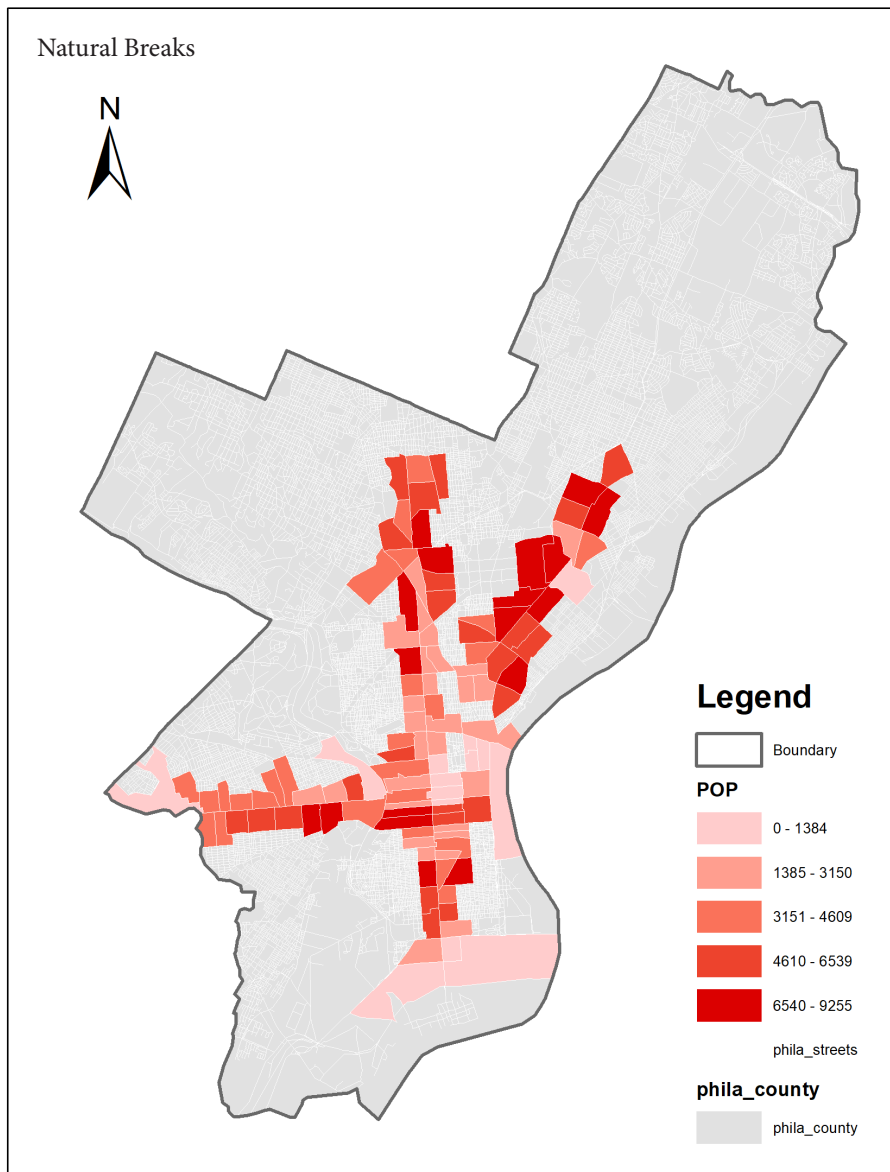
MUSA 507

Spatial Analysis for Urban & Environmental Planning

Jiaxon, WU

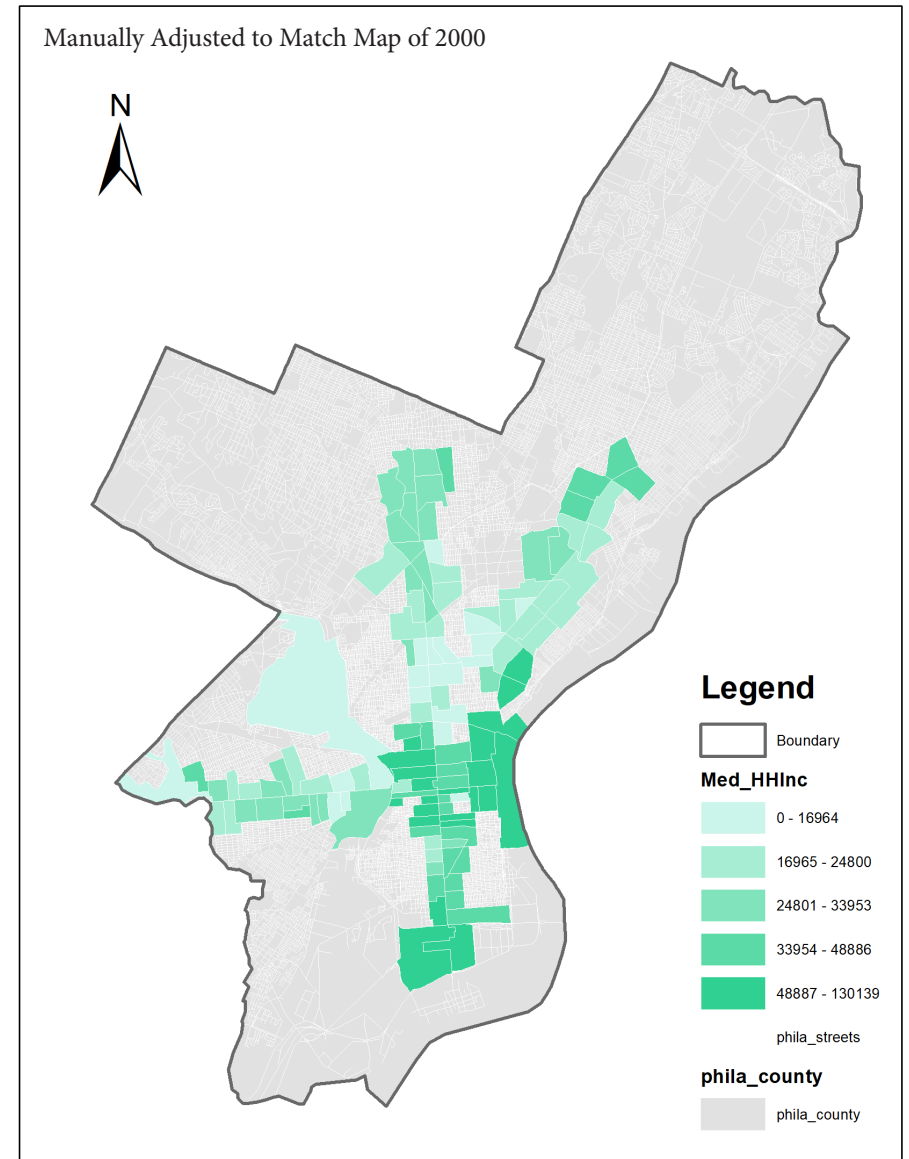
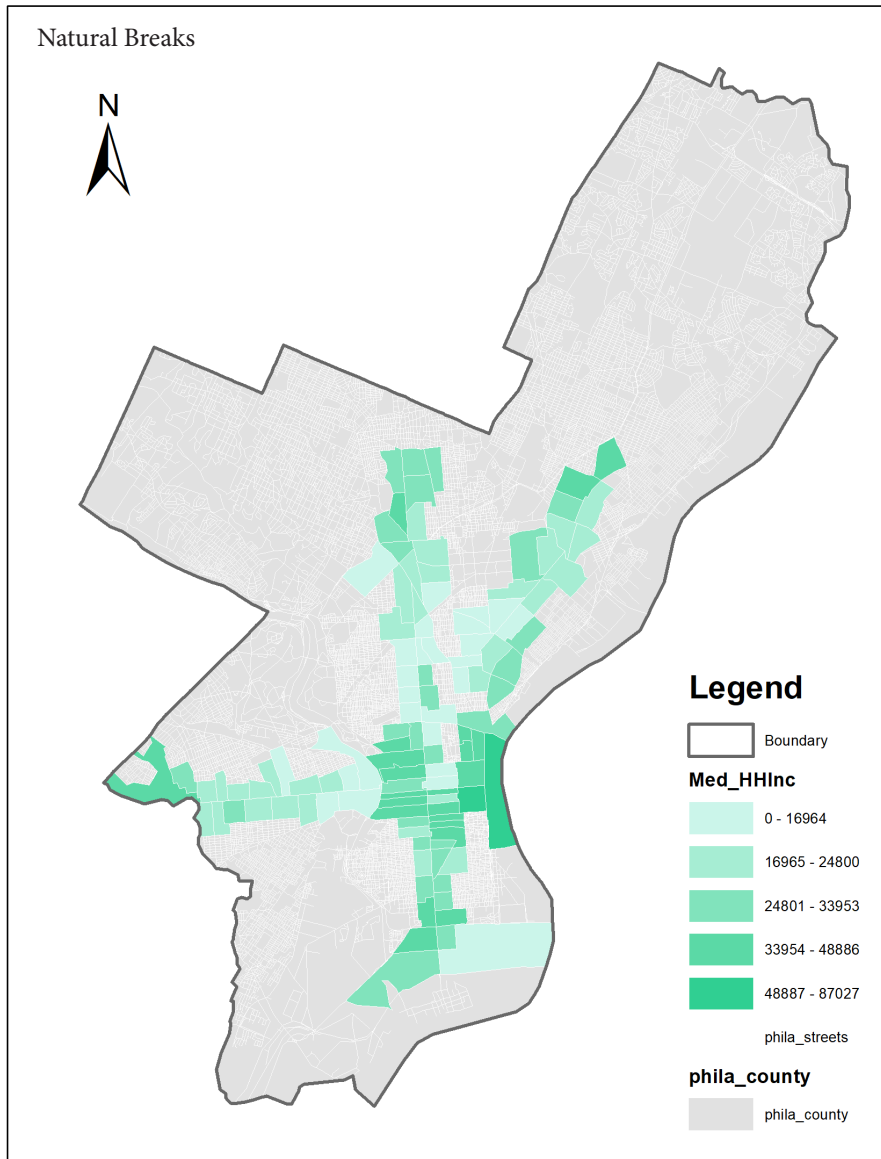


Census Tracts of Total Population



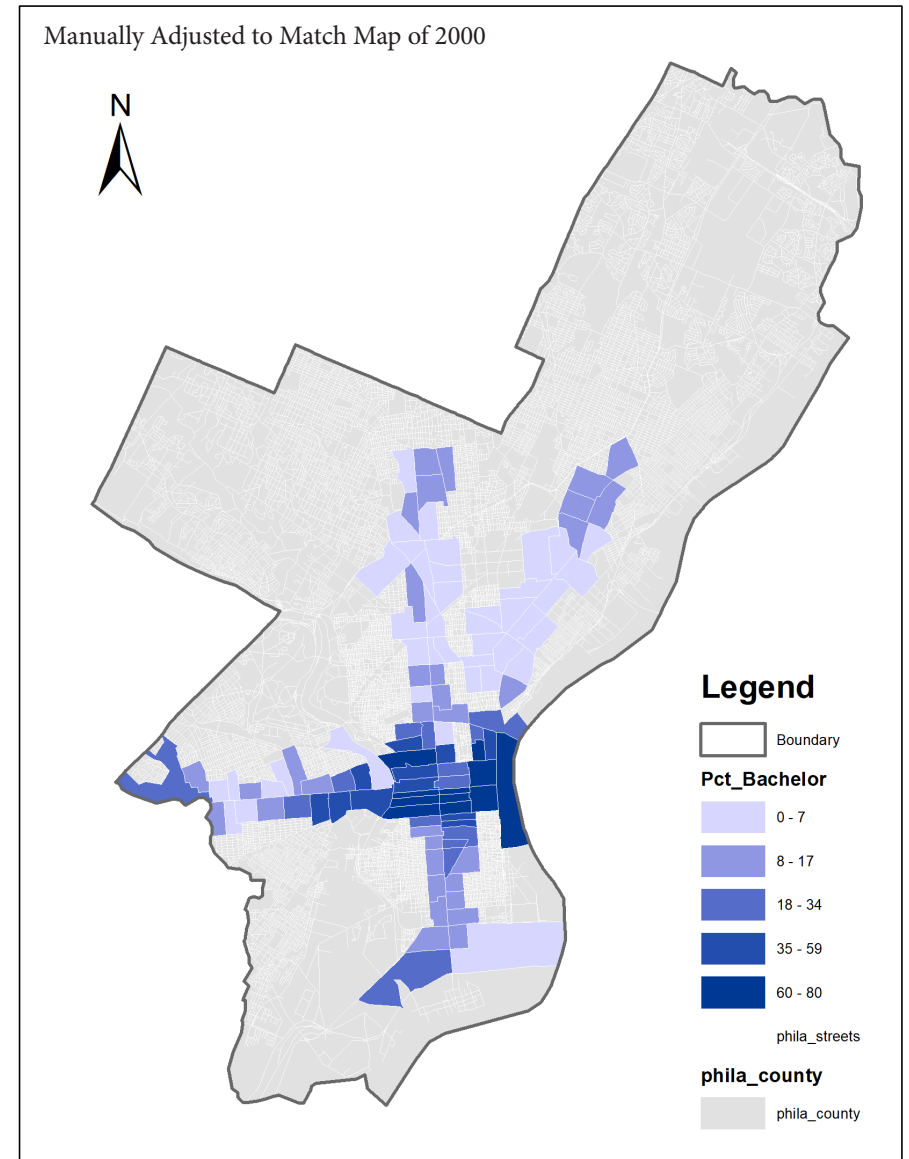
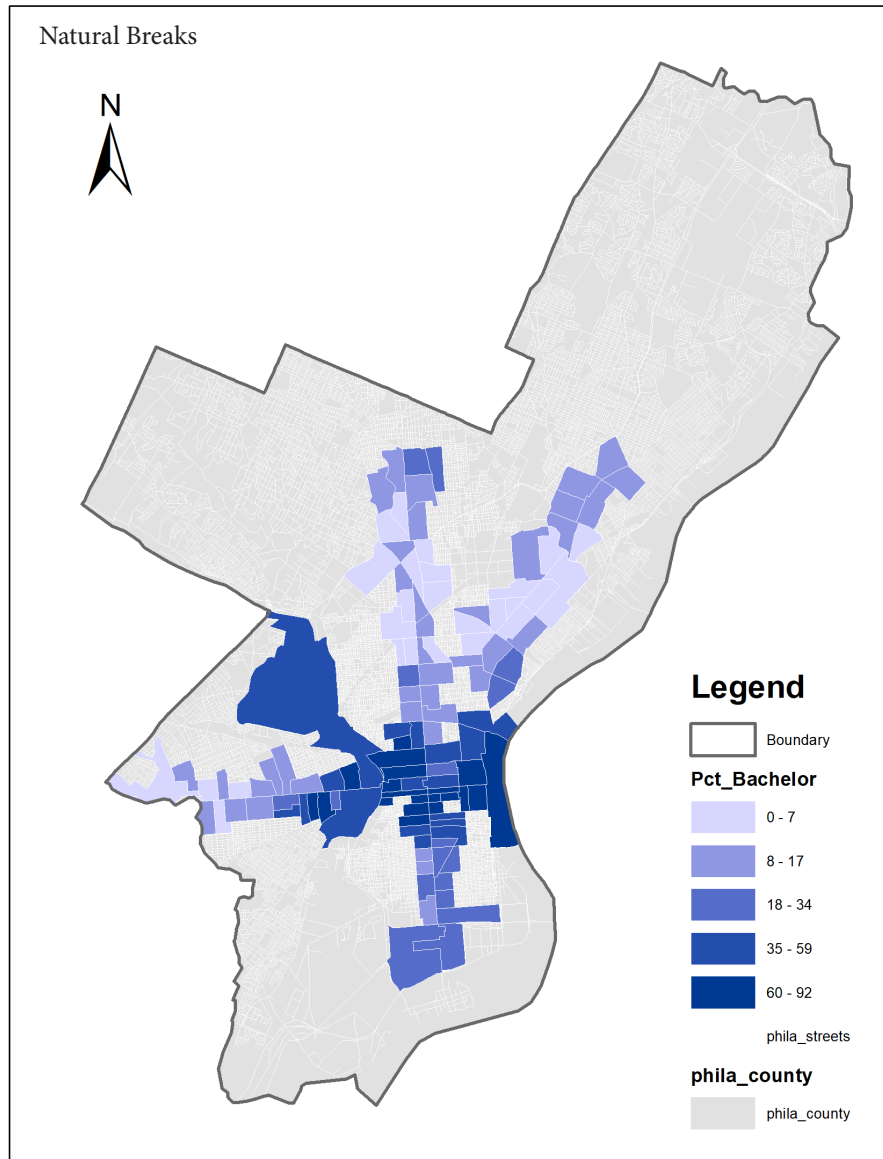
From 2000 to 2010, total population of each tract, total number of population of all tracts increased slightly, but maximum and mean decreased. Considering the length of a decade, the population growth rate is pretty low.

Census Tracts of Median Household Income



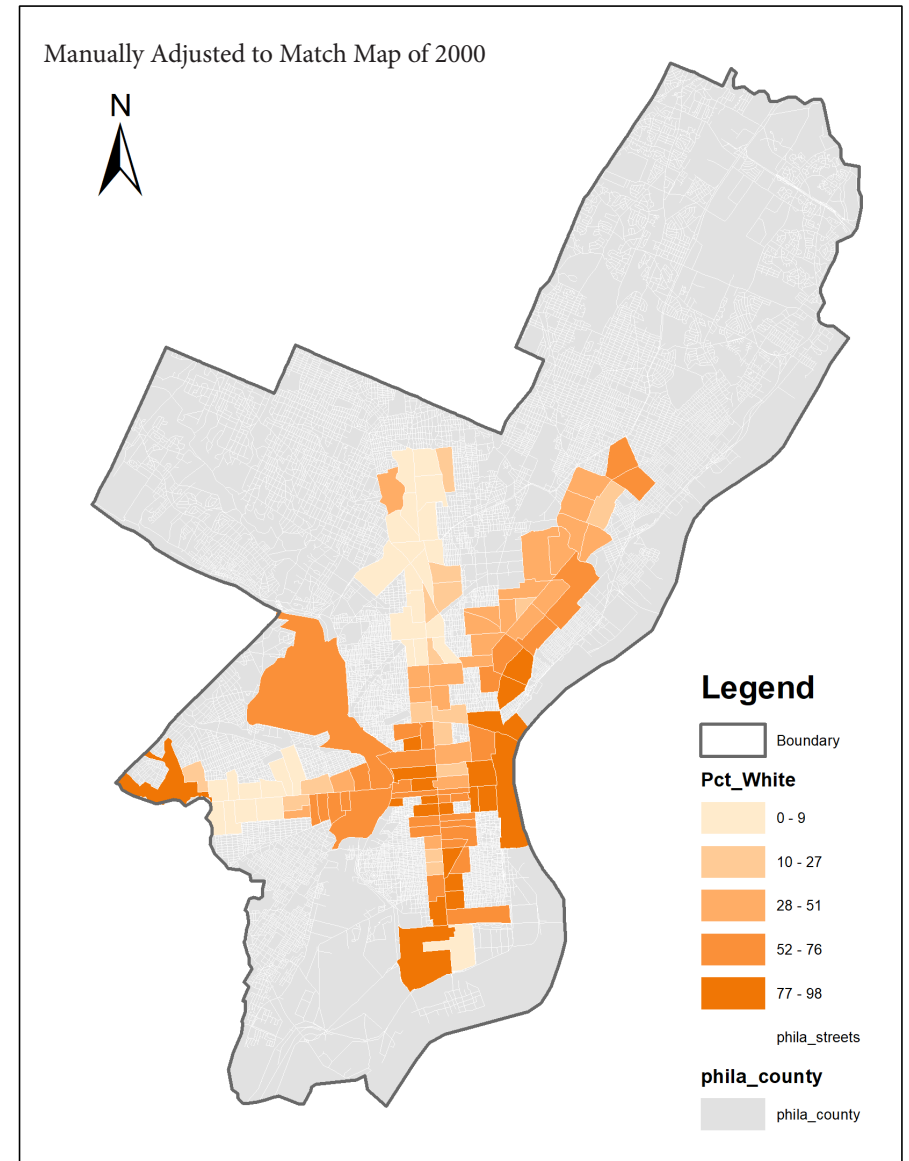
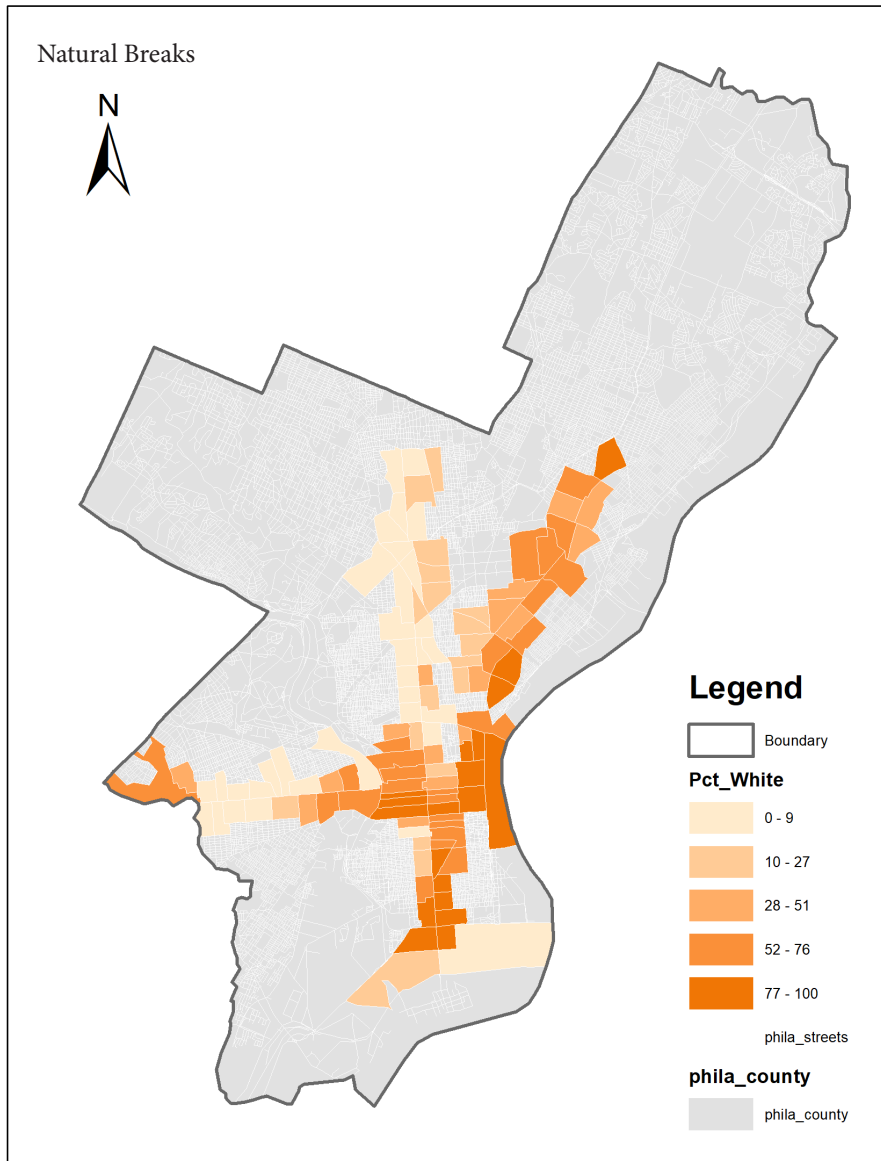
From 2000 to 2010, median household income greatly increased in all respects, demonstrating the development of economics around stations of Broad Street Line & Market/Frankford.

Census Tracts of Percent of Residents with Bachelor Degrees



From 2000 to 2010, percentage of residents with bachelor degrees obviously increased, conveying the message that the educational level around transit stops obviously improved.

Census Tracts of Percent of White Residents



From 2000 to 2010, percent of white residents slightly decreased, which means a proportion of white residents left their original residences, that is to say, areas around transit stops of Broad Street Line & Market/Frankford.

Changes between Stations of Market/Frankford in 2000

STATION	Num_of_ Tracts	Population					Medium_Household_Income					Percentage_of_White		Pcentage_of_Bachelors	
		Sum	Avg	Min	Max	SD	Sum	Avg	Min	Max	SD	Min	Max	Min	Max
FRANKFROD TRANSPORTATION CENTER	4	25364	6341	5470	7150	735	132601	33150	23876	39072	6837	32	89	9	16
MARGARET-ORTHODOX CHURCH	4	19330	4833	2898	7150	2094	96593	24148	19205	32224	5713	32	65	4	16
ERIE-TORRESDALE	2	6130	3065	2898	3232	236	40493	20247	19205	21288	1473	37	Y	4	10
TIOGA	4	13941	3485	942	6869	2472	89175	22294	19205	24650	2525	37	65	4	10
ALLEGHENY	5	29249	5850	942	7519	2764	122448	24490	19375	31902	4619	41	69	2	6
SOMERSET	4	30275	7569	6340	9159	1175	72344	18086	14793	22489	3542	31	69	2	5
HUNTINGDON	7	40490	5784	3776	9159	1808	115449	16493	11909	26021	4865	18	74	2	6
YORK-DAUPHIN	6	34440	5740	3776	9159	1976	89428	14905	11909	19098	2687	18	61	2	6
BERKS	3	11653	3884	2442	5435	1499	48796	16265	13833	19098	2655	18	61	2	6
63RD STREET	6	25885	4314	1989	7406	2214	131416	21903	13833	31862	7570	22	95	2	14
60TH STREET	5	17755	3551	40	4535	1966	140047	28009	23171	36094	5534	1	55	6	33
56TH STREET	6	25716	4286	3588	4798	458	137680	22947	17743	26341	3107	0	2	3	9
SPRING GARDEN	5	23405	4681	3588	6539	1153	108722	21744	17743	26341	3073	0	3	3	9
52ND STREET	5	4469	894	231	2091	724	234157	46831	30862	87027	22814	42	95	31	77
46TH STREET	4	21243	5311	3871	6539	1279	80935	20234	17743	22077	1966	0	15	6	24
40TH STREET	5	23162	4632	3150	6733	1702	95392	19078	12794	21772	3614	1	46	7	51
34TH STREET	4	20927	5232	2737	8307	2724	68034	17009	9320	21131	5348	3	58	17	57
30TH STREET	5	19722	3944	0	8307	3096	46923	9385	0	17500	6760	0	62	0	57
15TH STREET	7	22571	3224	0	5335	1752	157278	22468	0	40625	15750	0	83	0	65
13TH STREET	8	26754	3344	1071	8461	2510	225164	28146	8349	42346	13985	13	84	22	80
11TH STREET	8	26754	3344	1071	8461	2510	225164	28146	8349	42346	13985	13	84	22	80
5TH STREET	5	13166	2633	1071	4969	1882	107657	21531	8349	41563	13711	13	76	22	72
2ND STREET	5	12194	2439	1071	5808	1970	181043	36209	8349	72625	27380	13	91	22	75
	3	9002	3001	618	5808	2621	208538	69513	48886	87027	19260	81	95	70	77

Changes between Stations of Broad Street Line in 2000

STATION	Number_of_ Covered_Trac	Population					Medium_Household_Income					Percentage_of_White		Pcentage_of_Bachelors	
		Sum	Avg	Min	Max	SD	Sum	Avg	Min	Max	SD	Min	Max	Min	Max
FERN ROCK TRANSPORTATION CENTER	3	14203	4734	3932	5448	762	94411	31470	29142	33953	2409	3	23	8	12
OLNEY	4	18298	4575	3932	5448	715	122277	30569	25690	36129	4371	3	14	7	11
LOGAN	3	16769	5590	4051	7270	1614	89996	29999	24725	36129	5750	5	14	6	11
WYOMING	5	26677	5335	3398	7270	1779	138826	27765	19877	36129	6039	2	19	3	8
HUNTING PARK	6	30963	5161	3147	7732	2111	130309	21718	16213	29814	4569	2	19	3	9
ERIE	5	23876	4775	1756	7732	2382	103971	20794	16780	23277	2568	2	19	3	9
ALLEGHENY	6	23430	3905	1756	7732	2153	120060	20010	15050	23277	3363	1	19	1	9
NORTH PHILADELPHIA	6	23858	3976	1630	7732	2676	110620	18437	14250	22786	3662	0	19	1	9
SUSQUEHANNA-DAUPHIN	5	16997	3399	1630	6947	2083	94330	18866	14250	31923	7382	0	41	2	10
CECIL B MOORE	5	14233	2847	2316	3382	467	102913	20583	13458	31923	8101	1	41	5	15
FAIRMOUNT	6	18451	3075	2190	5386	1228	142272	23712	12165	41536	12117	4	74	5	57
SPRING GARDEN	5	14973	2995	801	5386	1851	151715	30343	14375	41536	10021	5	74	5	61
RACE-VINE	6	14570	2428	801	4387	1631	152446	25408	8349	40625	13430	13	76	22	61
CITY HALL	8	26754	3344	1071	8461	2510	225164	28146	8349	42346	13985	13	84	22	80
WALNUT-LOCUST	8	36895	4612	1071	8461	2839	254754	31844	9620	42346	11800	40	86	28	80
LOMBARD-SOUTH	9	42636	4737	2192	8461	2359	299029	33225	20725	42346	8166	2	86	11	80
ELLSWORTH-FEDERAL	7	26402	3772	2135	8160	2098	199471	28496	20294	36458	6008	2	86	8	40
TASKER-MORRIS	5	31693	6339	4036	9255	2366	121998	24400	20294	26744	2782	15	92	8	25
SNYDER	6	36717	6120	4036	9255	2183	153043	25507	20294	31045	3681	15	98	8	25
OREGON	4	19895	4974	3049	6192	1369	130199	32550	26347	36472	4846	75	98	8	14
PATTISON	4	3630	908	0	2540	1119	102952	25738	0	44080	18514	0	100	0	27

Changes between Stations of Market/Frankford in 2010

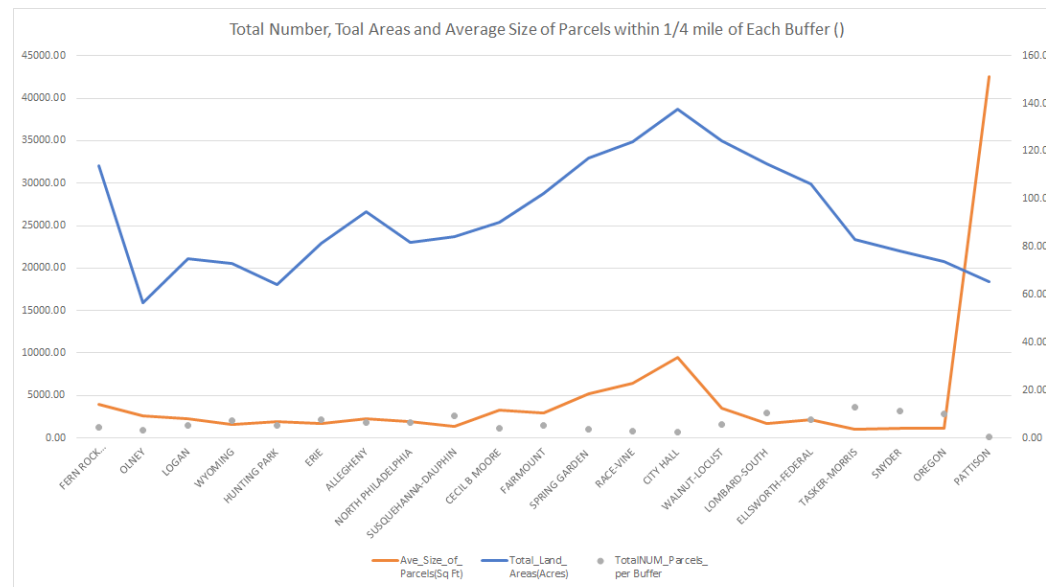
STATION	Number_of_ Covered_Trac	Population					Medium_Household_Income					Percentage_of_White		Pcentage_of_Bachelors	
		Sum	Avg	Min	Max	SD	Sum	Avg	Min	Max	SD	Min	Max	Min	Max
FRANKFROD TRANSPORTATION CENTER	4	25887	6472	4971	7478	1179	139818	34955	24448	41906	7544	23	63	8	11
MARGARET-ORTHODOX CHURCH	4	19379	4845	2891	7478	2214	105848	26462	21444	36270	6662	23	40	2	14
ERIE-TORRESDALE	4	16206	4052	2631	7543	2337	97683	24421	21444	29140	3301	32	69	2	10
TIOGA	5	34405	6881	2631	8322	2392	117785	23557	18780	29140	4068	32	69	2	9
ALLEGHENY	4	26703	6676	3705	8322	2099	75524	18881	15141	20824	2669	26	39	2	6
SOMERSET	8	40112	5014	3248	6704	1266	147783	18473	10754	23875	4458	26	56	2	15
HUNTINGDON	6	30094	5016	3248	6704	1251	108767	18128	10754	21384	4430	33	56	2	15
YORK-DAUPHIN	3	11063	3688	2225	5590	1725	48376	16125	12449	21384	4673	29	56	5	15
BERKS	5	23142	4628	2225	7002	2086	162196	32439	12449	53967	18233	29	94	8	33
63RD STREET	5	16998	3400	6	4366	1900	115295	23059	0	43262	15394	1	83	0	15
60TH STREET	6	24254	4042	3313	4488	421	138779	23130	19516	27313	3116	1	4	5	10
56TH STREET	5	22162	4432	3313	6313	1141	119131	23826	19516	27313	3810	1	5	5	14
SPRING GARDEN	3	7755	2585	1643	3570	964	261268	87089	63254	130139	37354	76	82	53	75
52ND STREET	4	17371	4343	3010	6313	1407	99265	24816	19917	26963	3328	2	12	5	32
46TH STREET	7	23102	3300	2884	4147	478	195562	27937	19247	45250	8736	4	63	9	67
40TH STREET	5	16694	3339	988	6983	2202	88865	17773	12077	27297	5996	14	63	17	76
34TH STREET	5	16934	3387	601	6966	2804	96027	19205	9286	33631	9499	43	72	31	62
30TH STREET	8	28291	3536	601	6966	2190	321520	40190	9286	79000	23517	55	84	56	92
15TH STREET	8	22325	2791	1781	3609	602	398714	49839	38750	65577	10182	25	85	33	85
13TH STREET	9	25098	2789	1781	3609	563	415143	46127	16429	65577	14654	25	85	33	85
11TH STREET	5	12096	2419	1781	2937	455	198207	39641	16429	53938	14043	25	73	33	74
5TH STREET	6	16740	2790	1781	3612	698	391432	65239	43218	90699	20565	25	91	33	79
2ND STREET	3	8733	2911	1643	3612	1100	293879	97960	73041	130139	29233	81	90	72	79

Changes between Stations of Broad Street Line in 2010

STATION	Number_of_ Covered_Trac	Population					Medium_Household_Income					Percentage_of_White		Pcentage_of_Bachelors	
		Sum	Avg	Min	Max	SD	Sum	Avg	Min	Max	SD	Min	Max	Min	Max
FERN ROCK TRANSPORTATION CENTER	3	12988	4329	3600	4899	664	102337	34112	30078	39032	4542	5	13	13	18
OLNEY	5	20442	4088	3589	4899	580	152667	30533	25038	33699	3453	2	46	6	17
LOGAN	3	14661	4887	3589	6173	1292	92885	30962	25959	33699	4339	4	5	6	13
WYOMING	5	17084	3417	0	6173	2245	116916	23383	0	33699	13553	0	5	0	9
HUNTING PARK	6	18186	3031	0	6195	1971	130912	21819	0	31782	11632	0	22	0	9
ERIE	6	21548	3591	1265	6195	1650	146248	24375	18250	30769	5624	4	22	1	11
ALLEGHENY	6	17584	2931	1265	4419	1069	132622	22104	17535	30577	5207	3	19	1	11
NORTH PHILADELPHIA	7	17845	2549	1265	3547	795	129072	18439	12500	30577	6137	3	17	1	11
SUSQUEHANNA-DAUPHIN	6	21101	3517	1788	5635	1465	91267	15211	10848	26466	5657	3	48	1	19
CECIL B MOORE	5	21835	4367	3010	5635	999	75796	15159	9666	22656	5691	16	48	7	19
FAIRMOUNT	7	20002	2857	2094	3222	357	265112	37873	14583	75639	22112	11	78	7	73
SPRING GARDEN	5	16886	3377	2854	5210	1026	230323	46065	14946	75639	21668	11	78	7	74
RACE-VINE	6	19773	3296	2329	5210	986	301879	50313	43218	65577	7943	25	82	33	74
CITY HALL	8	22325	2791	1781	3609	602	398714	49839	38750	65577	10182	25	85	33	85
WALNUT-LOCUST	9	27715	3079	1781	5137	985	411897	45766	16429	62589	13843	43	87	38	85
LOMBARD-SOUTH	9	31989	3554	2276	5137	1040	474690	52743	39080	62591	9762	51	87	42	85
ELLSWORTH-FEDERAL	7	23027	3290	2281	5129	1000	260765	37252	20789	58968	14396	20	87	10	57
TASKER-MORRIS	6	27865	4644	3200	6062	1029	212349	35392	21910	43828	7922	20	87	10	32
SNYDER	7	35170	5024	4141	6062	715	279956	39994	31243	49517	5839	22	98	16	32
OREGON	4	20811	5203	4244	6062	773	171671	42918	39000	49517	4742	69	98	16	21
PATTISON	2	5137	2569	0	5137	3632	140579	70290	50423	90156	28095	0	83	20	27

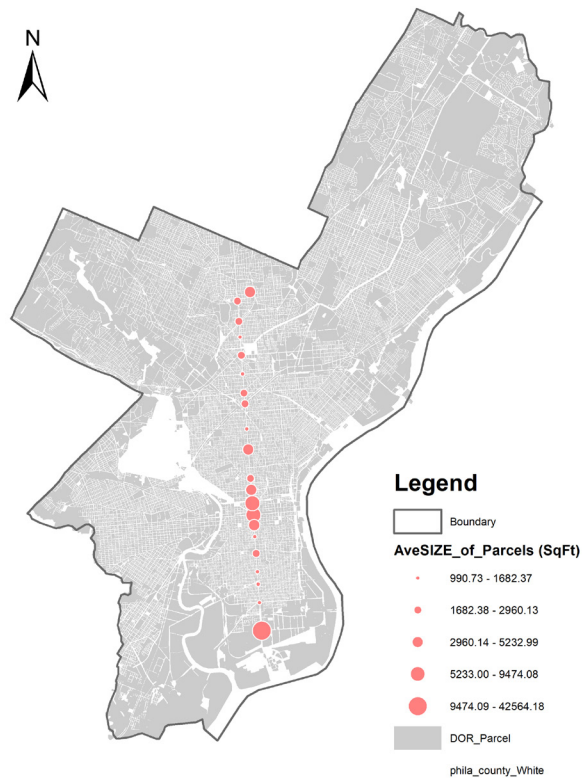
Statistics of Parcels per Station Buffer of Broad Street Line

STATION	Total_Land_Areas (Acres)	Ave_Size_of_Parcels (Sq Ft)	TotalNUM_Parcels_per Buffer
FERN ROCK	113.92	3938.36	1260
TRANSPORTATION CENTER			
OLNEY	56.40	2575.22	954
LOGAN	74.98	2215.96	1474
WYOMING	72.89	1558.70	2037
HUNTING PARK	64.38	1973.53	1421
ERIE	81.30	1660.39	2133
ALLEGHENY	94.78	2259.71	1827
NORTH PHILADELPHIA	81.91	1958.18	1822
SUSQUEHANNA-DAUPHIN	84.33	1418.29	2590
CECIL B MOORE	90.11	3312.24	1185
FAIRMOUNT	102.34	2960.13	1506
SPRING GARDEN	117.13	5232.99	975
RACE-VINE	123.79	6450.33	836
CITY HALL	137.46	9474.08	632
WALNUT-LOCUST	124.43	3458.83	1567
LOMBARD-SOUTH	114.94	1682.37	2976
ELLSWORTH-FEDERAL	106.47	2106.17	2202
TASKER-MORRIS	82.90	990.73	3645
SNYDER	78.40	1091.12	3130
OREGON	74.00	1152.09	2798
PATTISON	65.47	42564.18	67



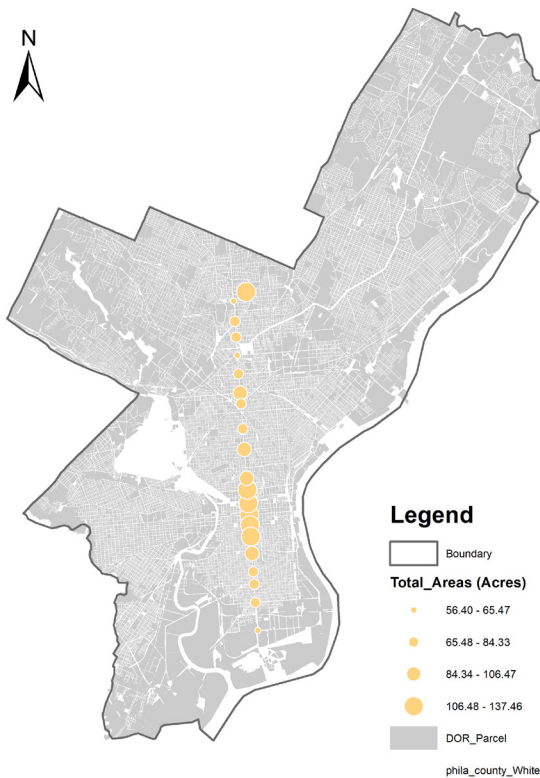
Statistics of Parcels per Station Buffer of Broad Street Line

Average Size of Parcels



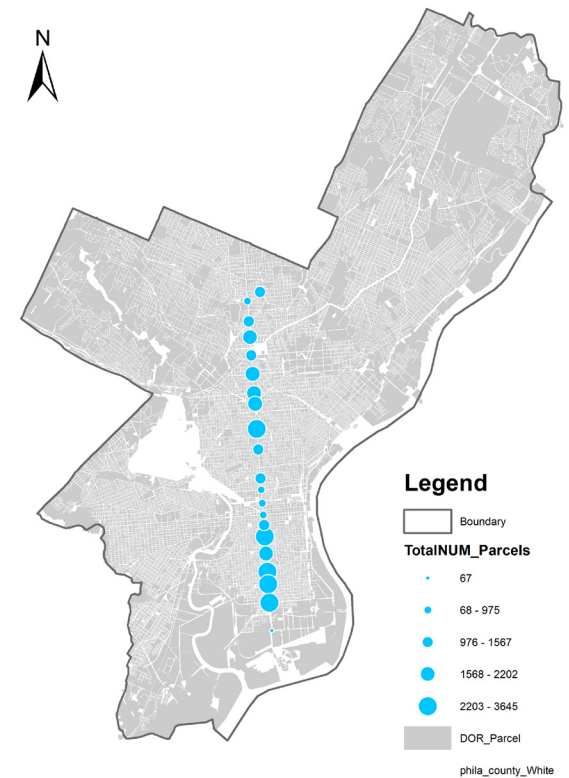
The average sizes of parcels per buffer distribute unevenly.

Total Areas



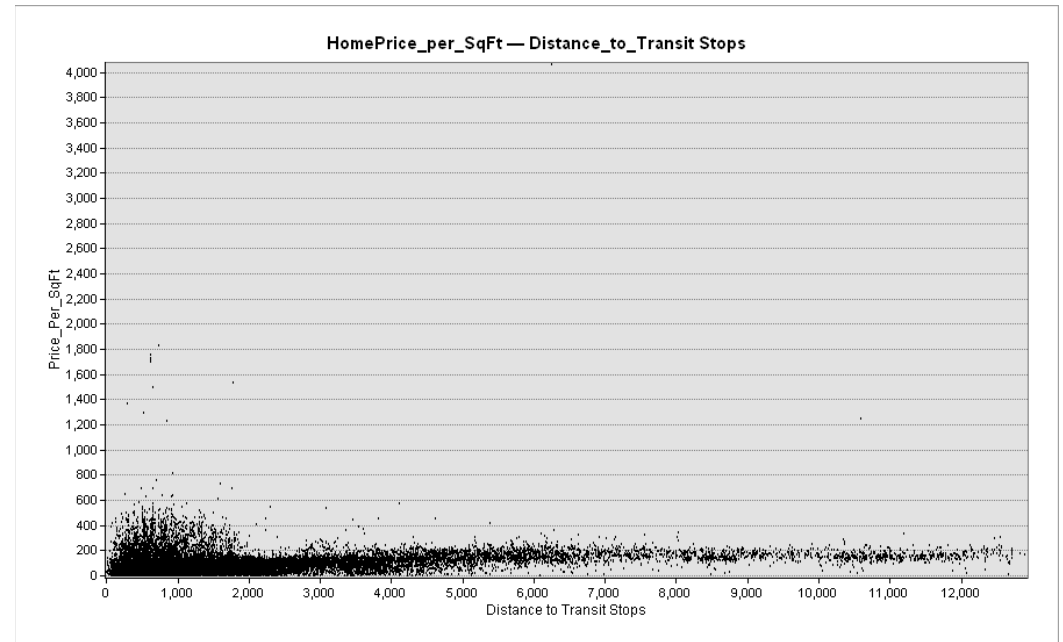
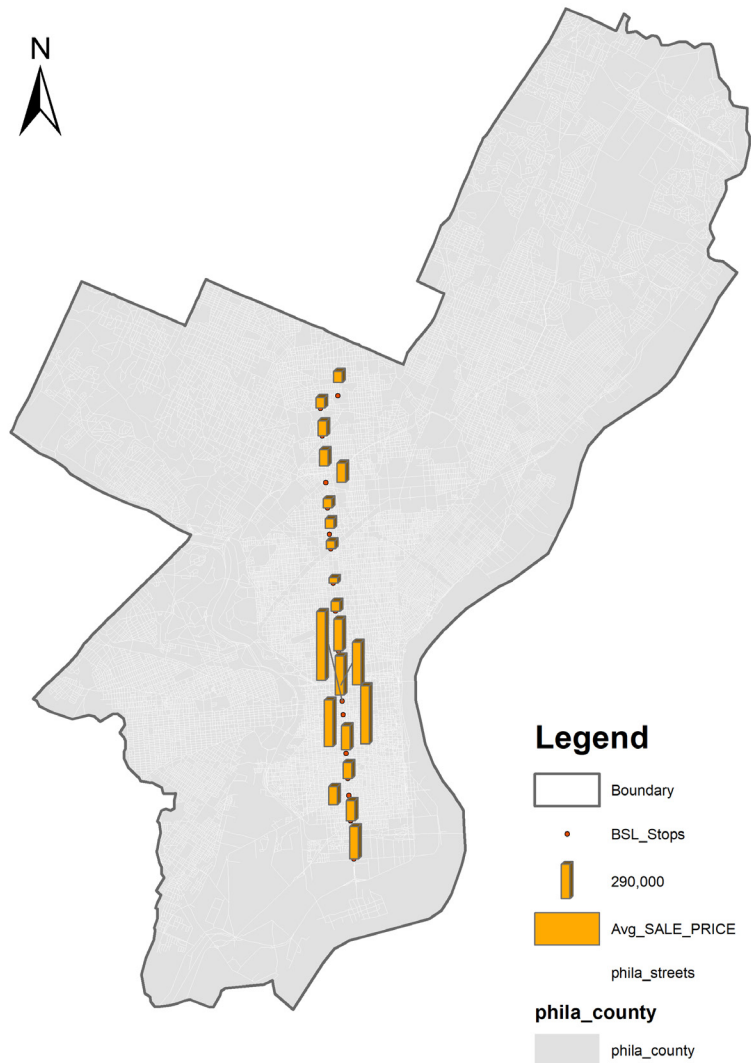
The larger parts of total areas of parcels per buffer mainly locate in the center of Broad Street Line.

Total Number



The larger parts of total number of parcels per buffer mainly locate at both ends of Broad Street Line.

Relationship between Home Price & Distance to Transit Stops



It seems that there doesn't exist a statistic relationship between Home Price and Distance to Transit Stops, because home price doesn't obviously vary with distance to stations. Instead, it remains still round a level of about 250 dollars/SqFt.

Thus, we can draw a rough conclusion that it's tough to develop TOD model in Philadelphia, since the home-sale market doesn't have such a preference for areas near stations.