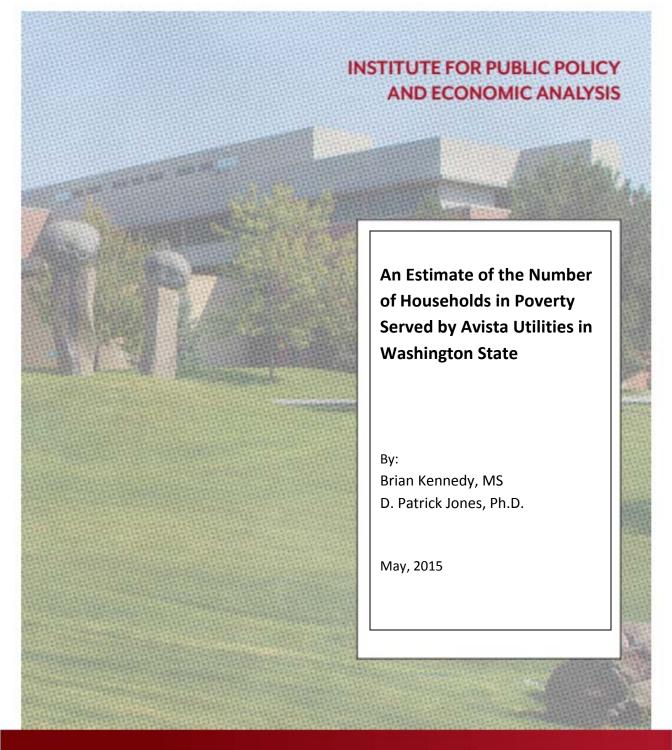
Joint Petition for LIRAP Modifications-Additions (May 2015)

ATTACHMENT D





An Estimate of the Number of Households Served by Avista Utilities in Washington State in Poverty

Ву

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May, 2015

For SNAP, Spokane, Washington

NAP has requested that EWU's Institute of Public Policy & Economic Analysis (the Institute) estimate the number of residential customers of Avista Utility in the state of Washington who live at various levels of poverty. The Avista service territory in the state includes the following counties, ranked by customer count: Spokane, Stevens, Whitman, Asotin, Adams, Lincoln, Klickitat, Skamania, Franklin and Grant.

Since Avista's billing records do not contain information of household income, an additional source was needed. Census, in particular, the American Community Survey, provided this information. Due to the wide variation of incomes within many counties, Institute analysts opted to examine poverty at the smallest level of geography easily available to us, the census tract. A census tract is a unit of measure typically encompassing 4,000 to 8,000 people. While there is undoubtedly some variation of incomes within census tracts, it is undeniably less than at the county level, especially for counties such as Spokane and Stevens.

The first step in the analysis was to learn which census tracts fall into Avista's Washington service territory. Per request, the GIS department of Avista geocoded all their Washington residential customers by census tract and sent the Institute a summary of all tracts with at last one residential household as customers and the customer count. (Thank you, Allen Cousins and Robert Cloward.) The tracts numbered 147.

The remaining steps employed the most recent estimates of households in each census tract. At this level of geography, Census provides 5-year rolling estimates and the most recent period covered 2009-2013. A ratio was developed for each census tract, showing the estimated share of Avista residential customers (households) in the tract. Within each tract, this share was then applied to a count of households with income at or below five levels of the Federal Poverty Level (FPL): 50%, 125%, 150%, 185% and 200%.

The FPL varies by the size of the family, although not by location. Counted are all forms of monetary income, including transfer payments, unemployment compensation and alimony. Not counted, however, are noncash benefits from federal or state programs, such as food stamps, housing subsidies, or Medicaid payments? FPL thresholds increase every year, in direct proportion to the national CPI. For 2013, the (100%) FPLs for various family sizes, assuming adults under the age of 65, were:

One adult: \$12,119Two adults: \$15,600

Two adults and one child: \$18,751Two adults and two children: \$23,624

A five year average for these years would produce lower thresholds.

Once all calculations had been done for each FPL within each tract, the tracts were rolled up into county totals for each of the five FPLs. These are given in the following tables in the shaded column.

For some counties — Asotin, Stevens and Whitman — the household estimate was lower than the Avista county roll. In all but one case, however, the Avista count was less than the upper bound of the ACS estimate. For the case where the Avista count exceeded the upper bound of the confidence interval of the relevant total household estimate, Stevens County,

Institute analysts opted to use the Avista number, as it comes from administrative records.

In a further step, Institute analysts expressed the estimated number of Avista customers (households) at or below a given FPL as a share of all Avista customers. These shares are given by county by FPL in the right-hand column of each table. As one observe, there is substantial variation among the counties of the incidence of poverty among Avista customers. One should, however, treat the results for Whitman County with caution, since poverty rates are typically higher in counties with a substantial percentage of the population who are students living off-campus. This would seem to apply to the Pullman area and to a lesser degree, Spokane.

With these qualifications, one can observe that the estimate of the total number of Avista customers living at or below the 50%, 125%, 150%, 185% & 200% of the FPL were: 18,624, 51,130, 62,946, 79,285 and 85,159, respectively. We emphasize that these counts are not of people, but of households. With the exception of Whitman, average household size for all counties is around 2.5. Consequently, the people count of those living at or below certain FPLs is much higher.

Beyond the following tables, this report contains an appendix of maps of the estimated distribution of Avista-served households for the geographies considered, by the five FPLs. These maps offer the detail of within-county, or in some case, within-counties, variation of poverty, using census tracts as the base unit. Due to the small presence of Avista in several counties, some of the maps consolidate two or more counties.

The maps break out the distribution of households living at or below certain levels of poverty within each census tract into eight brackets. Colors in yellows to red indicate an increasing higher percentage; colors light green green connote a decreasing dark percentage of poverty. As one case readily observe, for those maps portraying the distribution at or below the 50% FPL, most census tracts contain small percentages. The results vary by county or county grouping, however. For Spokane County, 17 census tracts have at least 12.6% of the households living at or below that FPL. In Ferry and Stevens counties, three of thirteen census tracts fall into that category. There is but one census tract in the counties of Adams, Franklin, Grant and Lincoln served by Avista at this FPL; similarly, in the two census tracts of relevance in Klickitat and Skamania counties, none shows up in this look at household poverty.

In contrast, an examination of the incidence of household poverty measured at the 200% FPL reveals few census tracts in any of the counties escape the presence of some poverty. For Spokane, one can find only five with shares in the lowest bracket (0.1-12.5%). For Ferry and Stevens counties, not one tract falls into this low incidence bracket. In the counties covered in south central Washington, only one tract (Lincoln County) shows the lowest incidence of poverty. Finally, neither one of the two census tracts in Klickitat and Skamania Counties demonstrates a low incidence at the 200% FPL.

In general, poverty is concentrated when measured at the most acute measurement levels. At the broadest level (200% FPL), however, very few census tracts escape having a non-trivial percentage of their households in poverty.

Table 1. Estimates of the Number of Households in Avista's Service Area at or Below 50% FPL

Country	American Community	Total Avista	Estimated Avista	Estimated Share of
County	Survey Estimated Households	Customers (Households)	Customers: 50% of Poverty Limit	Avista Customers: 50% Poverty Limit
Adams	5,747	4,540	518	11.4%
Asotin	9,052	9,294	393	4.2%
Ferry	1,669	1,630	197	12.1%
Franklin	2,683	167	14	8.5%
Grant	1,163	10	0	4.6%
Klickitat	3,656	763	67	8.8%
Lincoln	4,463	3,462	180	5.2%
Skamania	764	320	26	8.2%
Spokane	186,259	169,287	12,000	7.1%
Stevens	17,569	19,972	1,584	7.9%
Whitman	16,630	17,437	3,644	20.9%
Total	249,657	226,882	18,624	8.2%

Table 2. Estimates of the Number of Households in Avista's Service Area at or Below 125% FPL

	American Community	Total Avista	Estimated Avista	Estimated Share of
County	Survey Estimated	Customers	Customers:	Avista Customers:
	Households	(Households)	125% of Poverty Limit	125% Poverty Limit
Adams	5,747	4,540	1,425	31.4%
Asotin	9,052	9,294	1,835	19.7%
Ferry	1,669	1,630	480	29.4%
Franklin	2,683	167	47	28.1%
Grant	1,163	10	3	26.6%
Klickitat	3,656	763	229	30.1%
Lincoln	4,463	3,462	714	20.6%
Skamania	764	320	66	20.7%
Spokane	186,259	169,287	35,070	20.7%
Stevens	17,569	19,972	4,596	23.0%
Whitman	16,630	17,437	6,665	38.2%
Total	249,657	226,882	51,130	22.5%

Table 3. Estimates of the Number of Households in Avista's Service Area at or Below 150% FPL

	American Community	Total Avista	Estimated Avista	Estimated Share of
County	Survey Estimated	Customers	Customers:	Avista Customers:
	Households	(Households)	150% of Poverty Limit	150% Poverty Limit
Adams	5,747	4,540	1,692	37.3%
Asotin	9,052	9,294	2,264	24.4%
Ferry	1,669	1,630	667	40.9%
Franklin	2,683	167	61	36.7%
Grant	1,163	10	3	32.1%
Klickitat	3,656	763	263	34.5%
Lincoln	4,463	3,462	866	25.0%
Skamania	764	320	82	25.6%
Spokane	186,259	169,287	43,613	25.8%
Stevens	17,569	19,972	6,113	30.6%
Whitman	16,630	17,437	7,322	42.0%
Total	249,657	226,882	62,946	27.7%

Table 4. Estimates of the Number of Households in Avista's Service Area at or Below 185% FPL

	American Community	Total Avista	Estimated Avista	Estimated Share of
County	Survey Estimated	Customers	Customers:	Avista Customers:
	Households	(Households)	185% of Poverty Limit	185% Poverty Limit
Adams	5,747	4,540	2,046	45.1%
Asotin	9,052	9,294	3,102	33.4%
Ferry	1,669	1,630	783	48.0%
Franklin	2,683	167	78	46.7%
Grant	1,163	10	4	40.8%
Klickitat	3,656	763	345	45.2%
Lincoln	4,463	3,462	1,102	31.8%
Skamania	764	320	91	28.6%
Spokane	186,259	169,287	55,279	32.7%
Stevens	17,569	19,972	8,079	40.5%
Whitman	16,630	17,437	8,375	48.0%
Total	249,657	226,882	79,285	34.9%

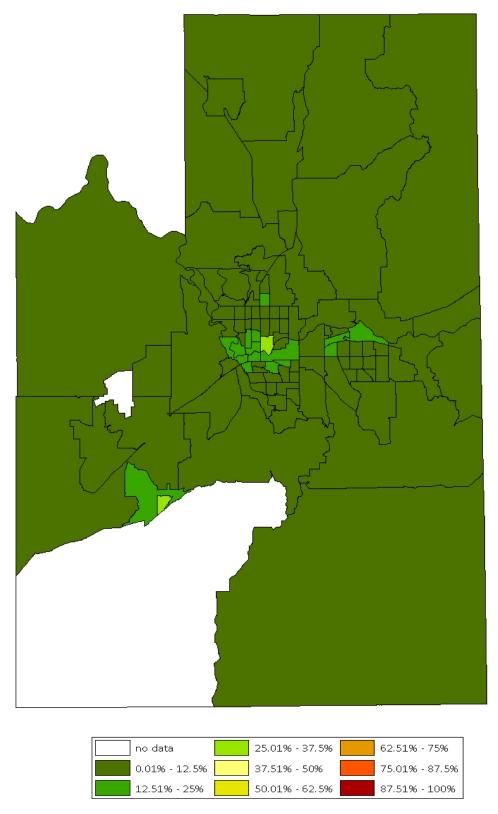
Table 5. Estimates of the Number of Households in Avista's Service Area at or Below 200% FPL

County	American Community Survey Estimated Households	Total Avista Customers (Households)	Estimated Avista Customers: 200% of Poverty Limit	Estimated Share of Avista Customers: 200% Poverty Limit
Adams	5,747	4,540	2,310	50.9%
Asotin	9,052	9,294	3,488	37.5%
Ferry	1,669	1,630	813	49.9%
Franklin	2,683	167	85	51.1%
Grant	1,163	10	5	49.8%
Klickitat	3,656	763	376	49.2%
Lincoln	4,463	3,462	1,242	35.9%
Skamania	764	320	100	31.3%
Spokane	186,259	169,287	59,532	35.2%
Stevens	17,569	19,972	8,412	42.1%
Whitman	16,630	17,437	8,796	50.4%
Total	249,657	226,882	85,159	37.5%

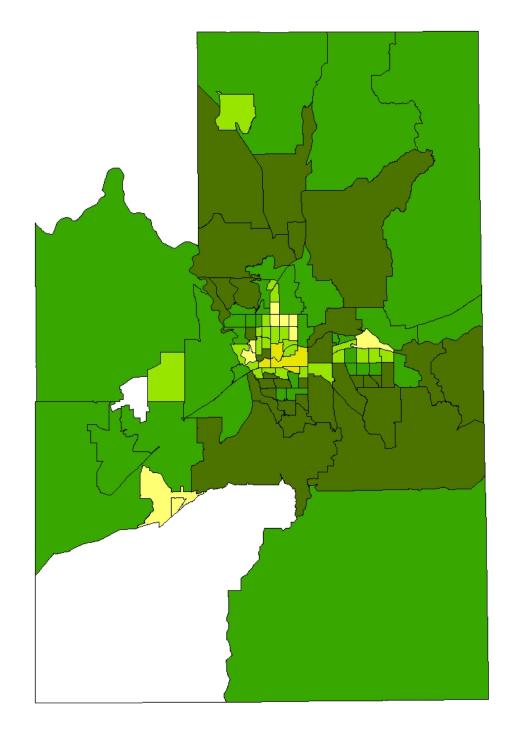
Apendix A.

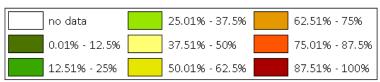
Spokane County:

Share of the population living at or below 50% of the poverty level by census tract

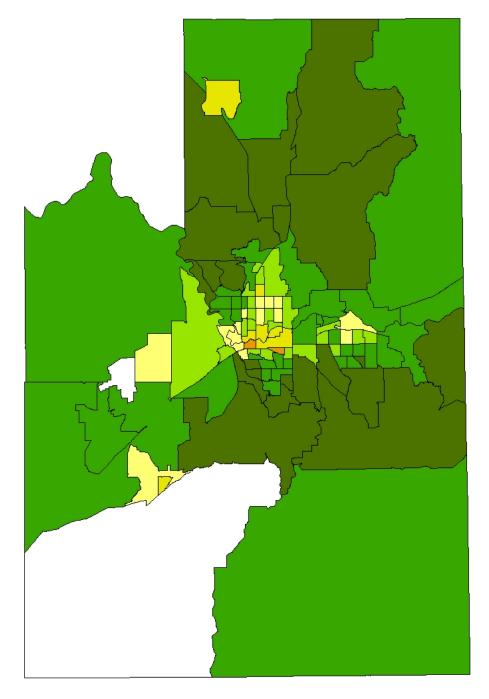


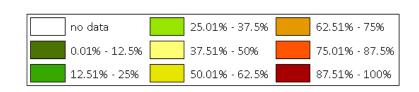
Share of the population living at or below 125% of the poverty level by census tract



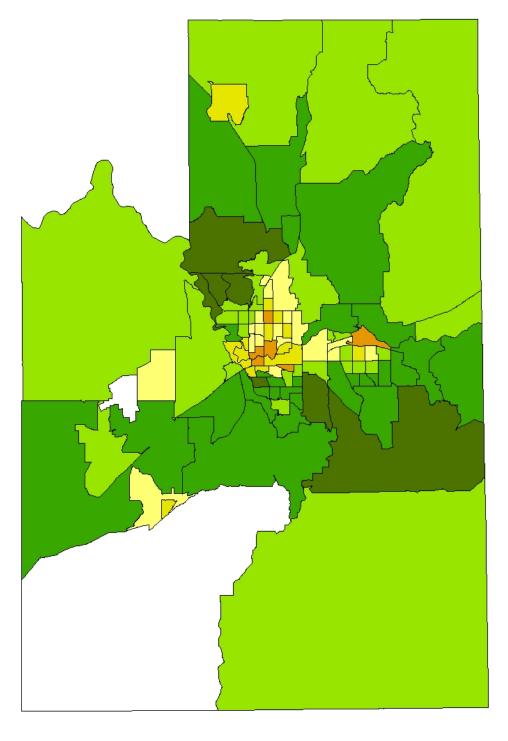


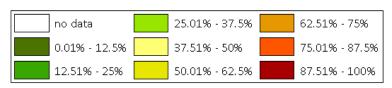
Spokane County:
Share of the population living at or below 150% of the poverty level by census tract



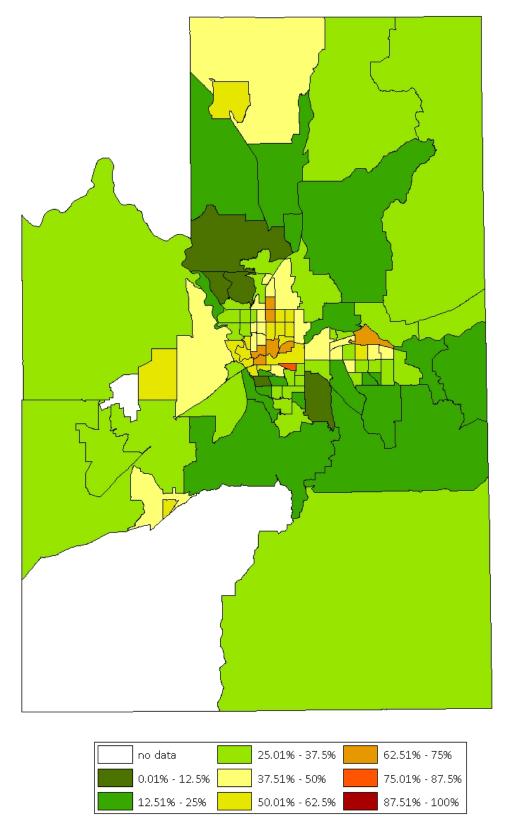


Share of the population living at or below 185% of the poverty level by census tract



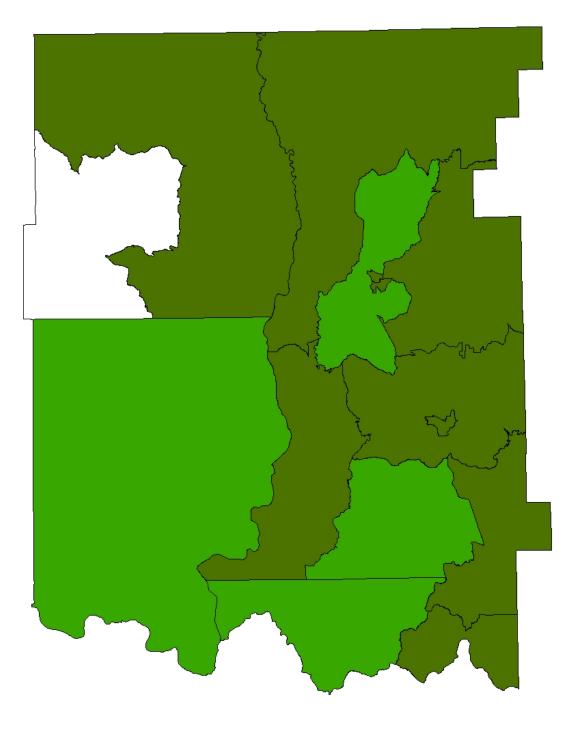


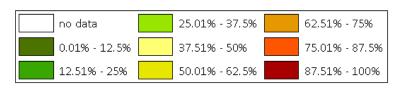
Share of the population living at or below 200% of the poverty level by census tract



Ferry & Stevens Counties

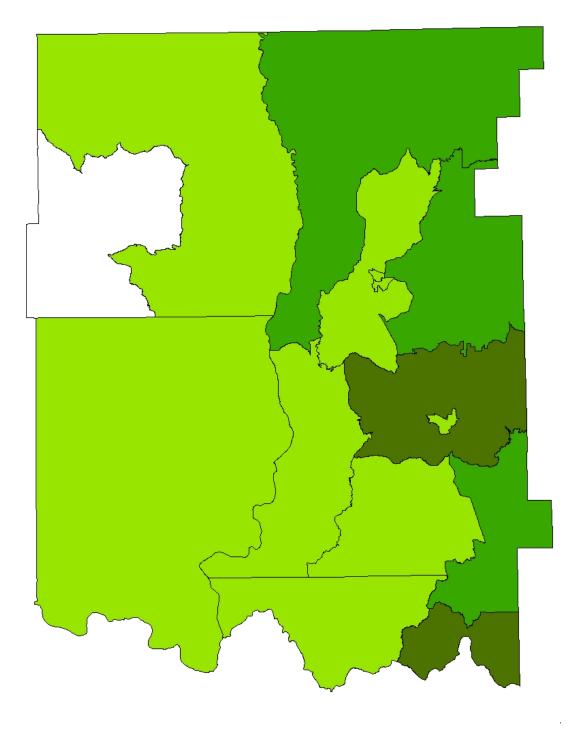
Share of the population living at or below 50% of the poverty level by census tract

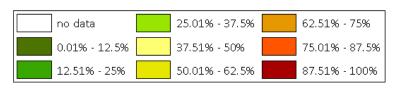




Ferry & Stevens Counties

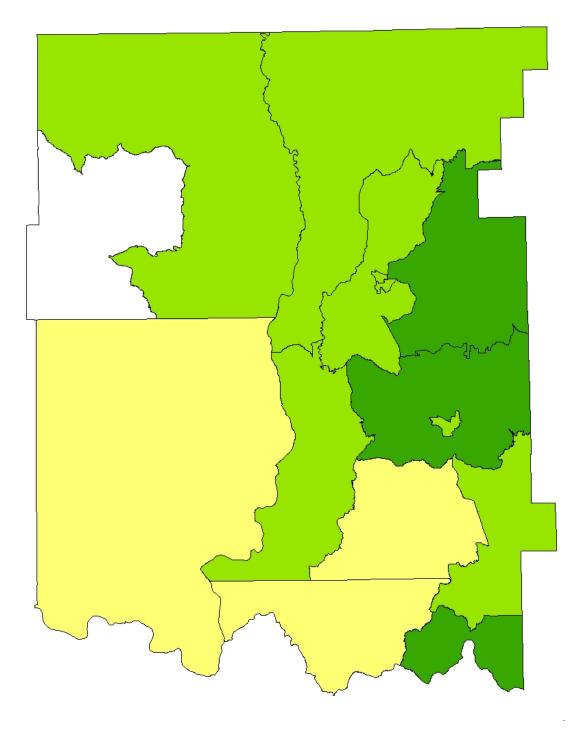
Share of the population living at or below 125% of the poverty level by census tract

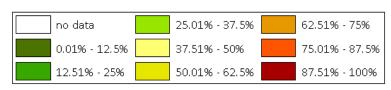




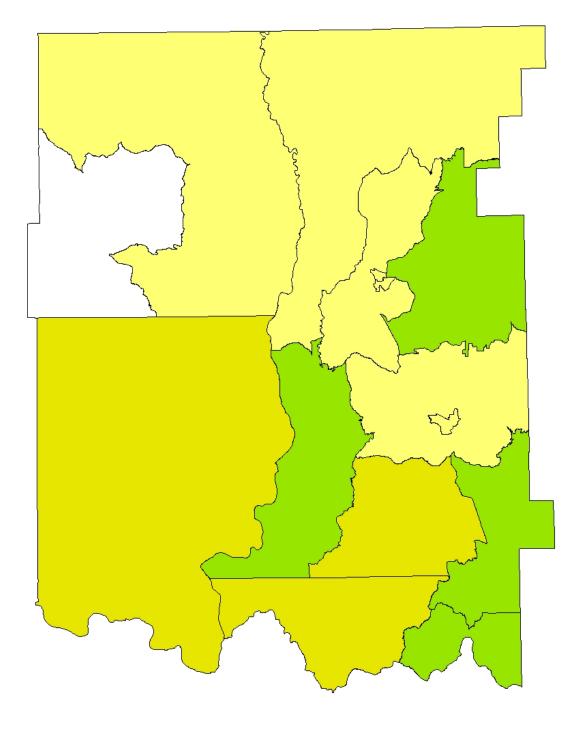
Ferry & Stevens Counties

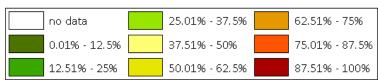
Share of the population living at or below 150% of the poverty level by census tract





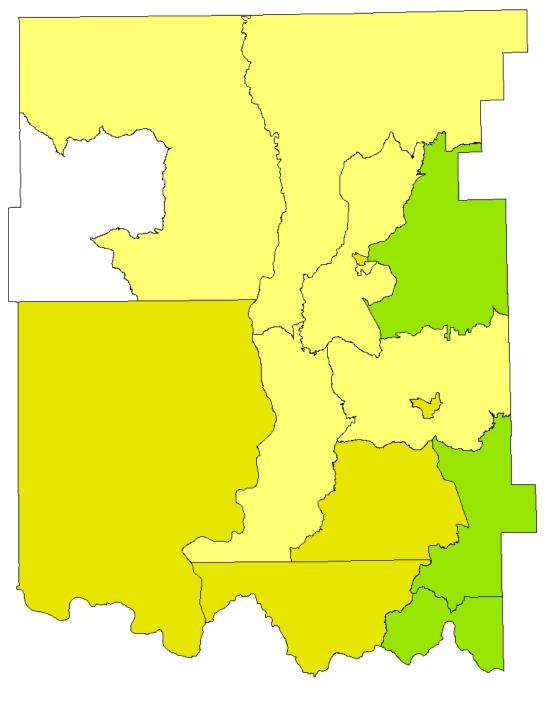
<u>Ferry & Stevens Counties</u>
Share of the population living at or below 185% of the poverty level by census tract

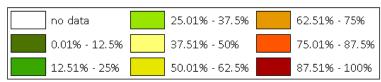




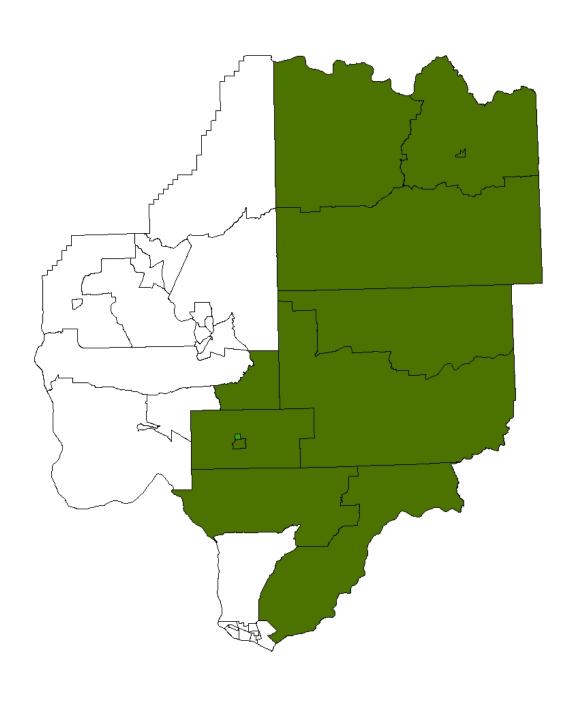
<u>Ferry & Stevens Counties</u>

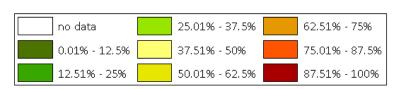
Share of the population living at or below 200% of the poverty level by census tract



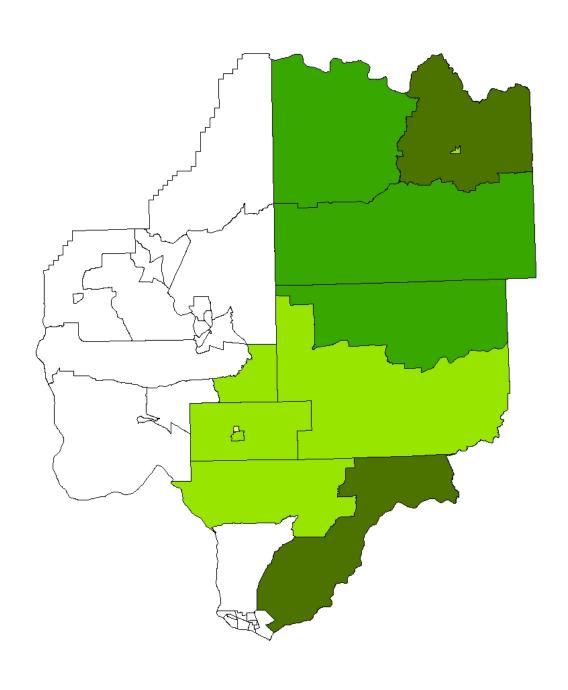


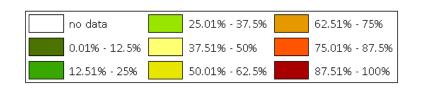
Adams, Franklin, Grant, & Lincoln Counties Share of the population living at or below 50% of the poverty level by census tract



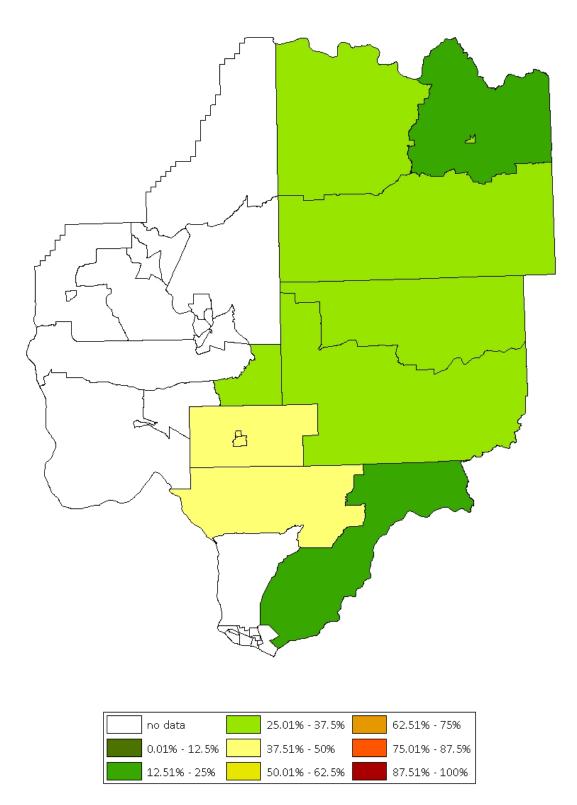


Adams, Franklin, Grant, & Lincoln Counties Share of the population living at or below 125% of the poverty level by census tract

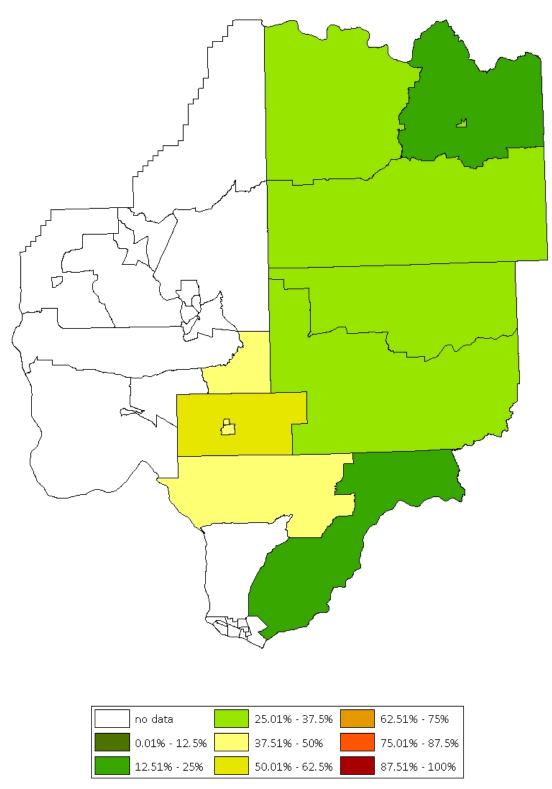




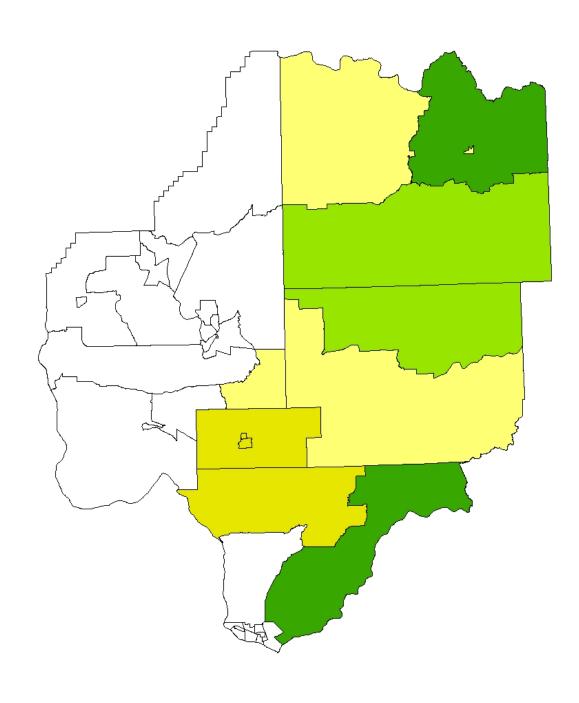
Adams, Franklin, Grant, & Lincoln Counties Share of the population living at or below 150% of the poverty level by census tract

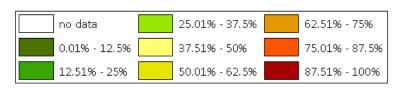


Adams, Franklin, Grant, & Lincoln Counties Share of the population living at or below 185% of the poverty level by census tract

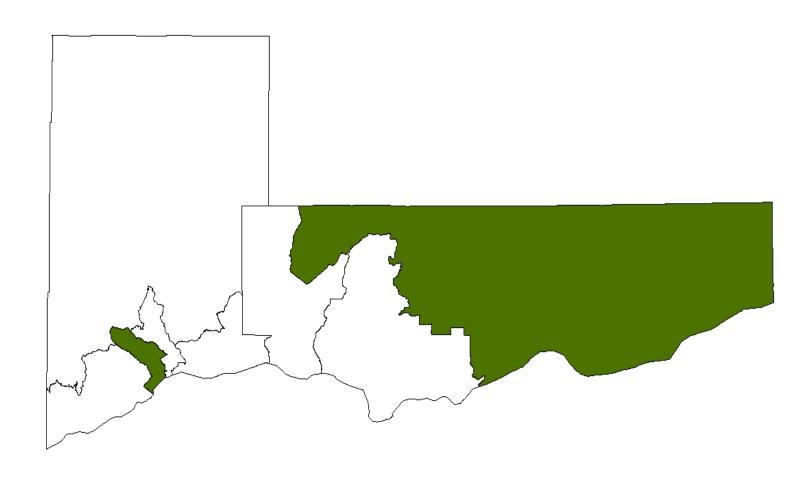


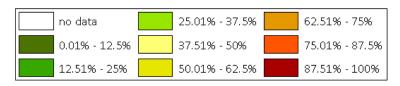
Adams, Franklin, Grant, & Lincoln Counties Share of the population living at or below 200% of the poverty level by census tract



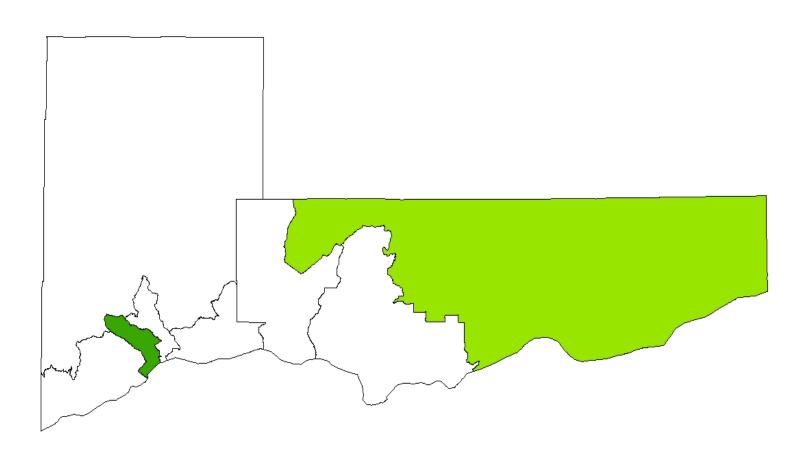


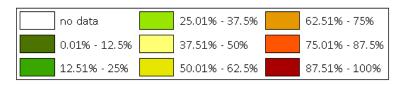
Klickitat & Skamania Counties: Share of the population living at or below 50% of the poverty level by census tract



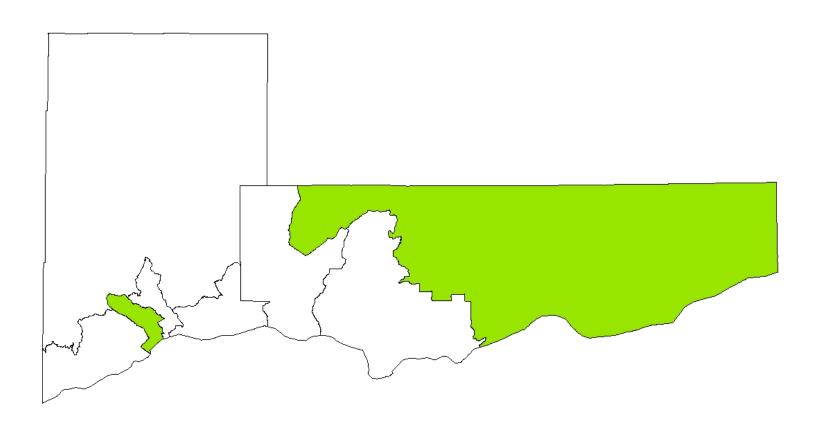


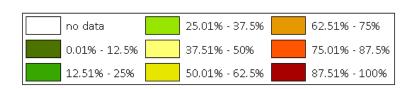
Klickitat & Skamania Counties: Share of the population living at or below 125% of the poverty level by census tract



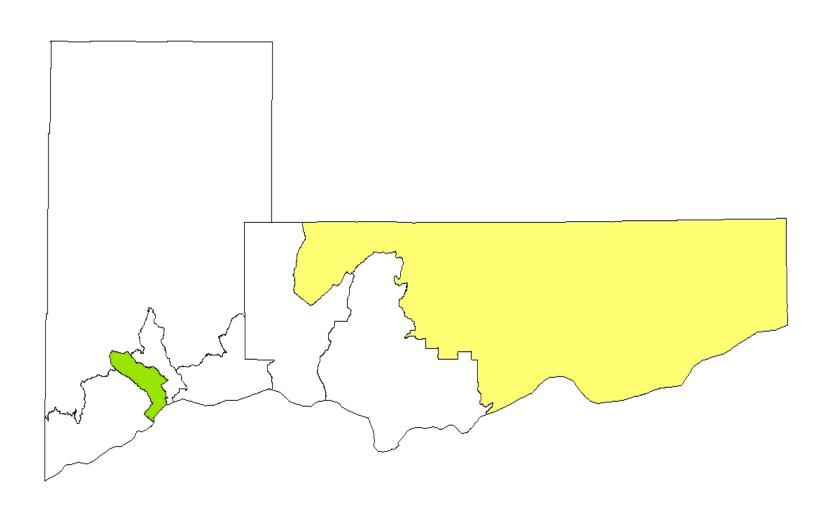


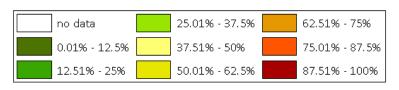
Klickitat & Skamania Counties Share of the population living at or below 150% of the poverty level by census tract



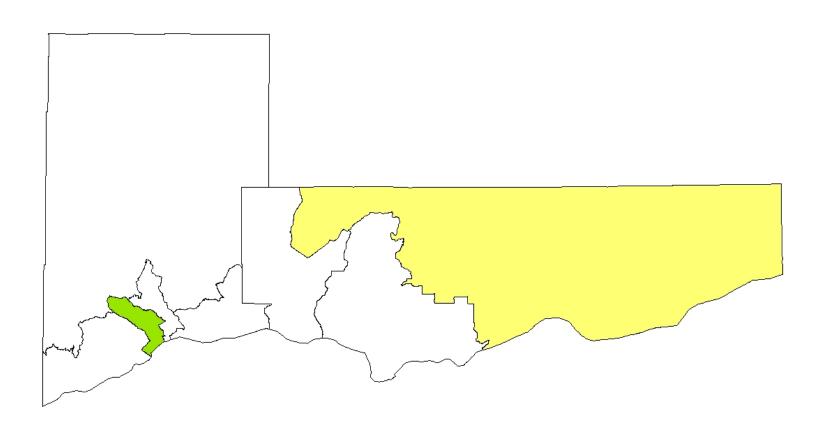


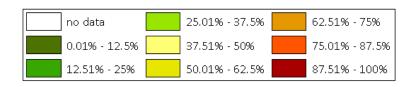
Klickitat & Skamania Counties Share of the population living at or below 185% of the poverty level by census tract





Klickitat & Skamania Counties Share of the population living at or below 200% of the poverty level by census tract





Apendix B.

Northern Counties by Avista Census Tract and Poverty Level

County	Census Tract	American Community Survey Estimated Households	Total Avista Customers	Estimated Avista Customers: 50% of Poverty Limit	Estimated Avista Customers: 125% of Poverty Limit	Estimated Avista Customers: 150% of Poverty Limit	Estimated Avista Customers: 185% of Poverty Limit	Estimated Avista Customers: 200% of Poverty Limit
Ferry	9400	637	862	112	276	386	453	482
Ferry	9701	1032	768	85	204	282	330	331
Stevens	9410	789	829	128	292	339	463	483
Stevens	9501	3289	4219	232	1041	1501	1685	1754
Stevens	9502	1470	1963	261	548	651	856	858
Stevens	9503	1253	1239	82	310	412	599	621
Stevens	9505	1024	1041	124	367	389	483	490
Stevens	9506	968	1461	113	270	274	396	396
Stevens	9507	1167	786	79	242	290	366	398
Stevens	9508	1290	1798	94	206	343	689	736
Stevens	9509	708	1102	76	281	353	412	434
Stevens	9511	1338	2000	257	553	784	1107	1122
Stevens	9513	1561	1960	80	335	506	619	710
Stevens	9514	2714	1574	59	151	269	405	409

Southern Counties by Avista Census Tract and Poverty Level

County	Census Tract	American Community Survey Estimated Households	Total Avista Customers	Estimated Avista Customers: 50% of Poverty Limit	Estimated Avista Customers: 125% of Poverty Limit	Estimated Avista Customers: 150% of Poverty Limit	Estimated Avista Customers: 185% of Poverty Limit	Estimated Avista Customers: 200% of Poverty Limit
Asotin	9601	1611	1487	66	173	281	396	413
Asotin	9602	1992	2166	19	132	185	323	441
Asotin	9603	1500	1628	131	498	591	784	842
Asotin	9604	951	999	66	268	327	431	480
Asotin	9605	1550	1475	67	493	547	701	738
Asotin	9606	1448	1539	44	271	335	467	574
Franklin	207	518	6	0	1	1	1	2
Franklin	208	2165	161	14	46	60	77	84
Klickitat	9501	3656	763	67	229	263	345	376
Skamania	9503	764	320	26	66	82	91	100

Central Counties by Avista Census Tract and Poverty Level

County	Census Tract	American Community Survey Estimated Households	Total Avista Customers	Estimated Avista Customers: 50% of Poverty Limit	Estimated Avista Customers: 125% of Poverty Limit	Estimated Avista Customers: 150% of Poverty Limit	Estimated Avista Customers: 185% of Poverty Limit	Estimated Avista Customers: 200% of Poverty Limit
Adams	9501	1013	879	54	211	236	325	329
Adams	9502	658	441	42	114	140	153	168
Adams	9503	1821	1218	126	384	499	621	743
Adams	9504	911	767	151	301	328	366	411
Adams	9505	1344	1235	145	415	489	580	659
Grant	113	1163	10	0	3	3	4	5
Lincoln	9601	740	745	46	208	213	275	312
Lincoln	9602	1239	618	12	73	96	148	151
Lincoln	9603	1119	967	68	203	257	323	387
Lincoln	9604	1365	1132	53	229	300	356	392
Whitman	1	1271	1388	779	1204	1230	1265	1272
Whitman	2	2602	2988	269	637	752	901	1014
Whitman	3	2061	2126	188	439	489	604	626
Whitman	4	1701	1645	241	445	473	539	552
Whitman	5	338	300	164	252	258	283	283
Whitman	6	3063	3845	1747	2811	3001	3239	3334
Whitman	7	1488	1528	96	254	336	465	477
Whitman	8	1531	1474	73	280	309	396	478
Whitman	9	1683	1486	54	259	363	515	572
Whitman	10	892	657	32	84	110	168	187

Spokane County by Avista Census Tract and Poverty Level

County	Census Tract	American Community Survey Estimated Households	Total Avista Customers	Estimated Avista Customers: 50% of Poverty Limit	Estimated Avista Customers: 125% of Poverty Limit	Estimated Avista Customers: 150% of Poverty Limit	Estimated Avista Customers: 185% of Poverty Limit	Estimated Avista Customers: 200% of Poverty Limit
Spokane	2	1937	1881	195	722	830	925	947
Spokane	3	1842	2114	212	841	1014	1242	1296
Spokane	4	1681	1759	154	770	854	1134	1166
Spokane	5	1379	1519	59	415	490	640	676
Spokane	6	1198	1278	24	171	254	342	390
Spokane	7	2041	2206	112	350	495	586	651
Spokane	8	1881	1959	86	279	433	550	623
Spokane	9	2360	2505	153	394	497	660	732
Spokane	10	2371	2452	116	335	476	603	665
Spokane	11	1466	1436	19	171	260	380	394
Spokane	12	892	983	64	264	381	432	446
Spokane	13	1576	1598	137	455	569	692	739
Spokane	14	2828	2723	252	910	1114	1410	1463
Spokane	15	1944	2191	140	610	756	1023	1116
Spokane	16	1352	1460	171	630	686	778	828
Spokane	18	1191	1207	84	321	432	562	706
Spokane	19	1385	1654	215	523	590	712	759
Spokane	20	1391	1942	253	614	693	836	892
Spokane	21	977	1079	113	450	495	548	548
Spokane	23	2027	2360	306	998	1106	1285	1341
Spokane	24	1055	1021	254	52	553	643	668
Spokane	25	2300	2136	619	1159	1193	1339	1401
Spokane	26	2162	2173	186	726	1170	1310	1408
Spokane	29	1284	1225	36	334	369	422	447
Spokane	30	954	1006	141	541	646	714	777
Spokane	31	1992	2046	362	703	737	796	796
Spokane	32	1584	1293	121	401	472	661	689
Spokane	35	1705	193	32	109	121	133	135
Spokane	36	2538	2605	482	976	1173	1328	1347
Spokane	38	861	939	54	233	249	328	349
Spokane	39	1012	1112	21	87	127	230	255
Spokane	40	2744	2822	398	991	1256	1442	1494
Spokane	41	1062	1022	32	123	147	176	219
Spokane	42	1913	2046	84	139	186	233	237
Spokane	43	1372	1458	62	115	161	216	222

Spokane County (continued) by Avista Census Tract and Poverty Level

County	Census Tract	American Community Survey Estimated Households	Total Avista Customers	Estimated Avista Customers: 50% of Poverty Limit	Estimated Avista Customers: 125% of Poverty Limit	Estimated Avista Customers: 150% of Poverty Limit	Estimated Avista Customers: 185% of Poverty Limit	Estimated Avista Customers: 200% of Poverty Limit
Spokane	44	1971	1982	142	303	341	461	567
Spokane	45	1495	1581	88	188	229	303	325
Spokane	46.01	1888	1678	129	336	396	488	515
Spokane	46.02	1114	1231	29	143	189	294	343
Spokane	47	2790	2734	207	417	520	626	848
Spokane	48	1590	1812	22	142	175	241	252
Spokane	49	2508	2476	157	300	401	649	683
Spokane	50	1802	1432	72	127	169	341	390
Spokane	101	2422	946	20	124	234	245	255
Spokane	102.01	1474	223	6	28	27	56	60
Spokane	102.02	2480	1716	35	135	208	229	263
Spokane	103.01	1581	1780	213	621	914	1076	1107
Spokane	103.03	1083	493	4	51	55	68	77
Spokane	103.04	2090	1174	35	198	225	417	440
Spokane	103.05	2049	2075	16	112	152	299	331
Spokane	104.01	1450	1328	155	462	526	619	687
Spokane	104.02	2548	876	10	120	182	234	235
Spokane	105.01	2998	3095	159	629	697	872	911
Spokane	105.03	2486	2587	69	164	195	276	315
Spokane	105.04	1274	985	15	93	116	149	161
Spokane	106.01	1350	1377	19	74	86	164	189
Spokane	106.02	2748	2909	27	197	208	307	307
Spokane	107	2101	2359	31	76	125	180	231
Spokane	108	937	858	101	258	293	338	368
Spokane	109	1499	1536	81	276	365	442	472
Spokane	110	1487	1478	62	272	383	521	555
Spokane	111.01	2627	2456	556	1120	1278	1444	1536
Spokane	111.02	1522	1430	78	474	527	620	631
Spokane	112.01	3453	3267	256	694	880	1321	1441
Spokane	112.02	1626	1569	90	308	375	508	560
Spokane	113	2934	3180	189	328	424	611	655
Spokane	114	2132	2185	74	332	369	541	592
Spokane	115	592	631	37	129	147	225	228
Spokane	116	755	800	66	139	188	227	269

Spokane County (continued) by Avista Census Tract and Poverty Level

County	Census Tract	American Community Survey Estimated Households	Total Avista Customers	Estimated Avista Customers: 50% of Poverty Limit	Estimated Avista Customers: 125% of Poverty Limit	Estimated Avista Customers: 150% of Poverty Limit	Estimated Avista Customers: 185% of Poverty Limit	Estimated Avista Customers: 200% of Poverty Limit
Spokane	117.01	1000	784	123	219	272	328	361
Spokane	117.02	2457	2540	415	1031	1159	1596	1627
Spokane	118	2262	564	53	188	208	261	264
Spokane	119	1753	796	91	285	303	413	422
Spokane	120	1787	986	60	153	192	310	353
Spokane	121	1127	1199	200	407	438	491	544
Spokane	122	988	1055	28	124	172	464	499
Spokane	123	2317	2589	192	686	761	867	959
Spokane	124.01	1626	1726	47	149	211	285	316
Spokane	124.02	2240	1879	25	161	209	262	268
Spokane	125	1509	1240	96	251	313	389	473
Spokane	126	1552	1072	77	146	215	340	362
Spokane	127.01	1618	763	12	128	191	252	266
Spokane	127.02	813	612	10	45	48	78	81
Spokane	128.01	1556	1619	75	197	256	328	362
Spokane	128.02	1266	1196	31	104	225	266	351
Spokane	129.01	1211	683	62	183	231	249	312
Spokane	129.02	2527	1535	67	188	314	376	428
Spokane	130	2721	1856	119	305	369	432	494
Spokane	131	3864	4675	104	553	603	769	866
Spokane	132.01	2838	2895	138	374	413	835	925
Spokane	132.02	3497	4055	95	229	460	610	619
Spokane	133	958	454	12	28	38	53	66
Spokane	134.01	1743	1913	37	63	87	142	172
Spokane	135	3082	2075	14	128	214	276	284
Spokane	136	1685	1439	74	242	301	334	411
Spokane	137	1509	1137	106	189	292	414	455
Spokane	139	1929	1926	71	314	417	599	660
Spokane	140.01	1810	460	117	217	237	263	271
Spokane	140.02	1949	650	139	260	277	312	317
Spokane	141	2164	1549	56	211	319	379	406
Spokane	143	1186	993	42	175	229	321	372
Spokane	144	1752	1850	72	379	566	754	816
Spokane	145	846	880	138	475	489	529	531