

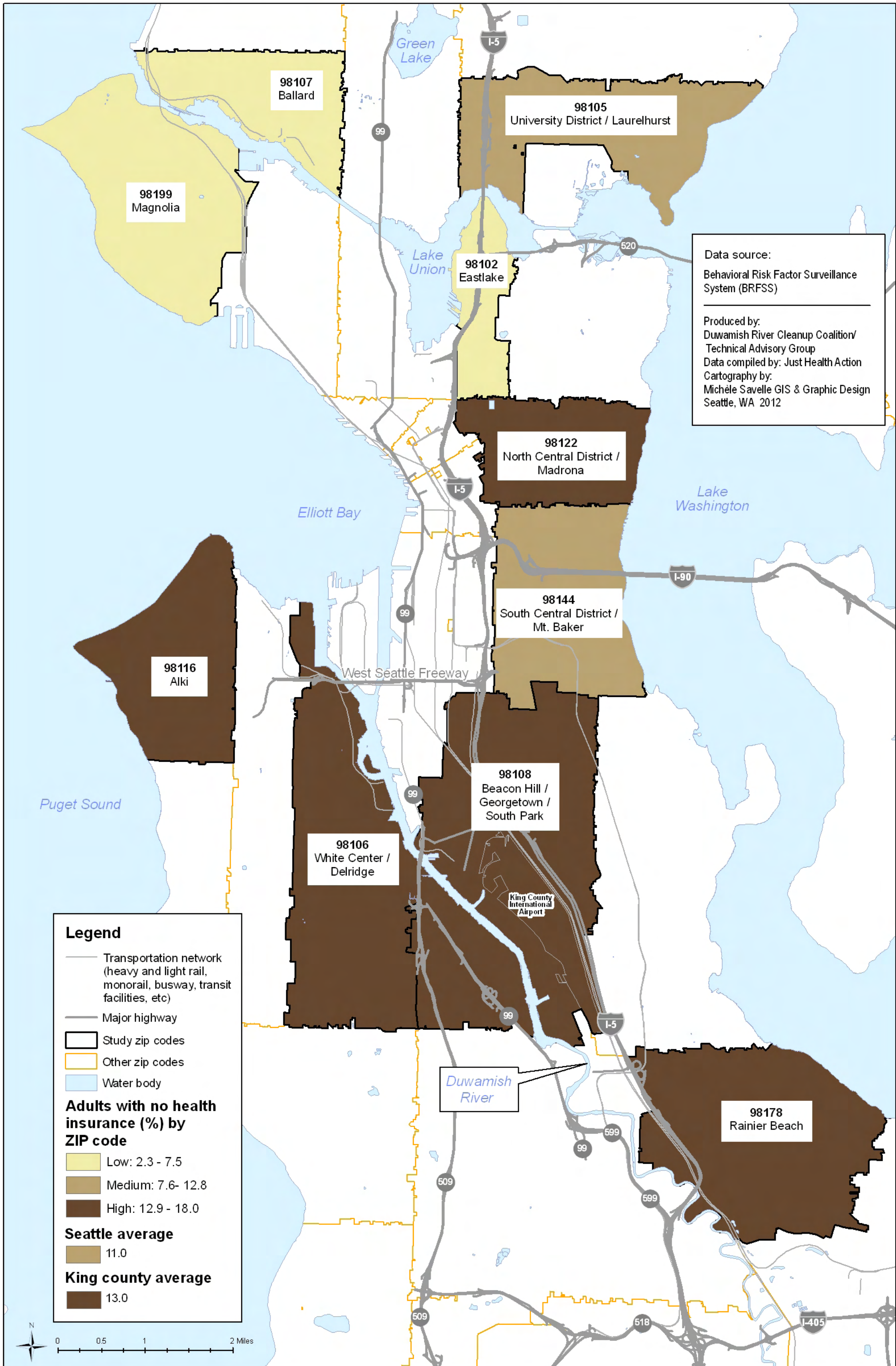
**Duwamish Valley Cumulative Health Impacts Analysis**  
(Gould L, Cummings BJ. 2013)

**Appendix A: Additional Indicator Maps**

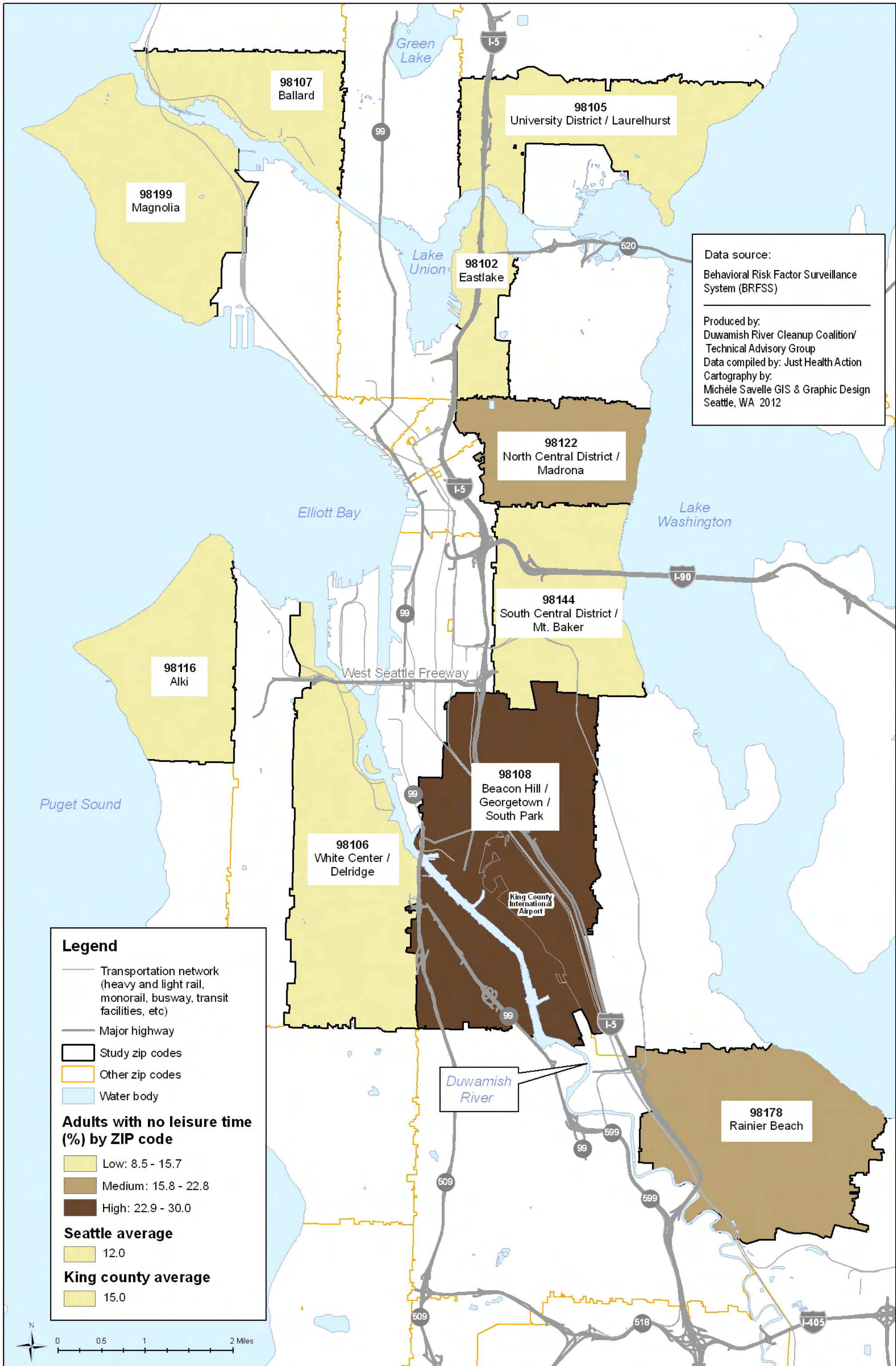
**Figures A1-A9**

**Tables A1-A2**

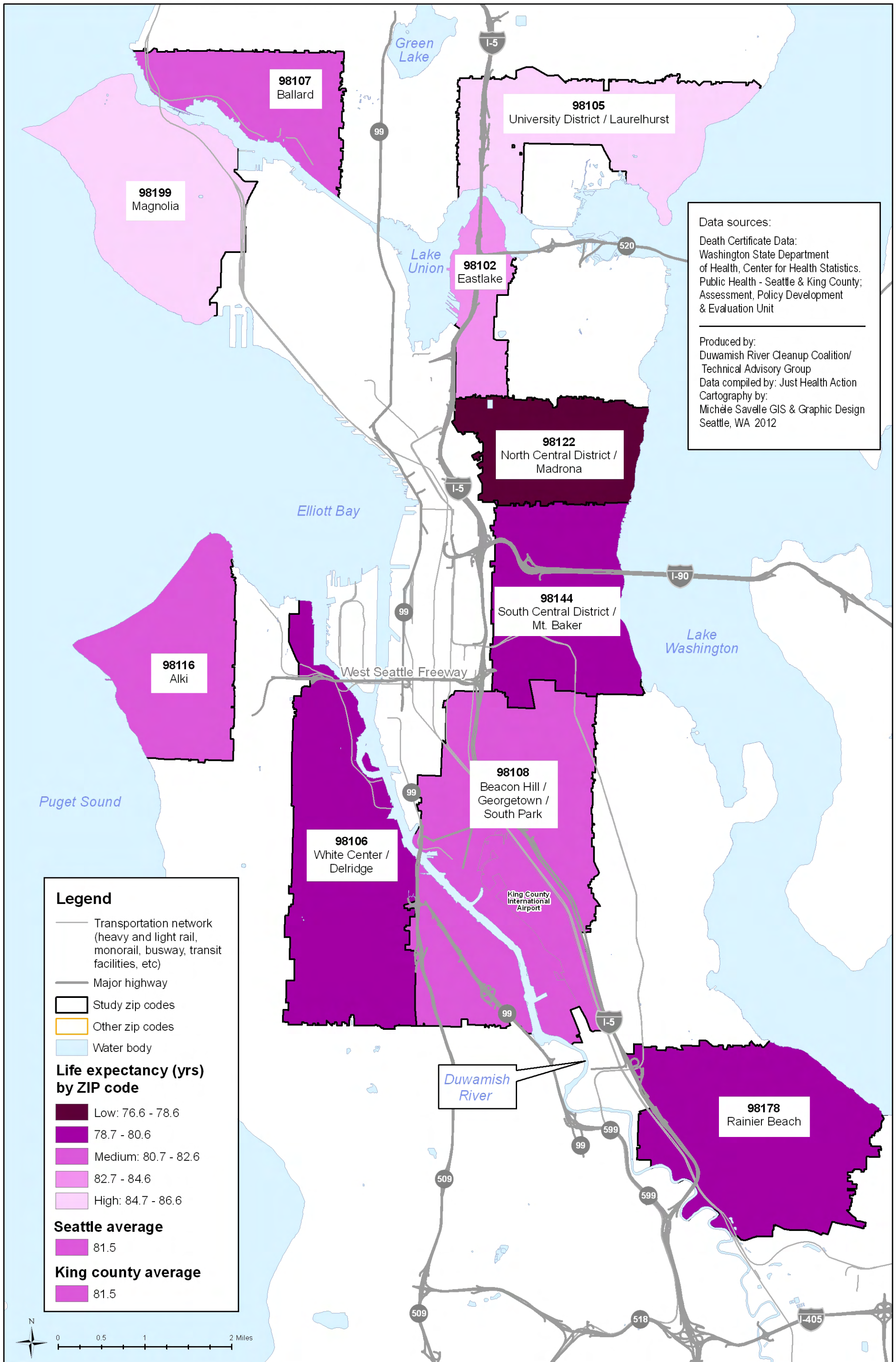
**Figure A1. Percent Adults (18-64 years) With No Health Insurance, by ZIP Code  
Seattle, Washington, 5-year Average 2007-2011**



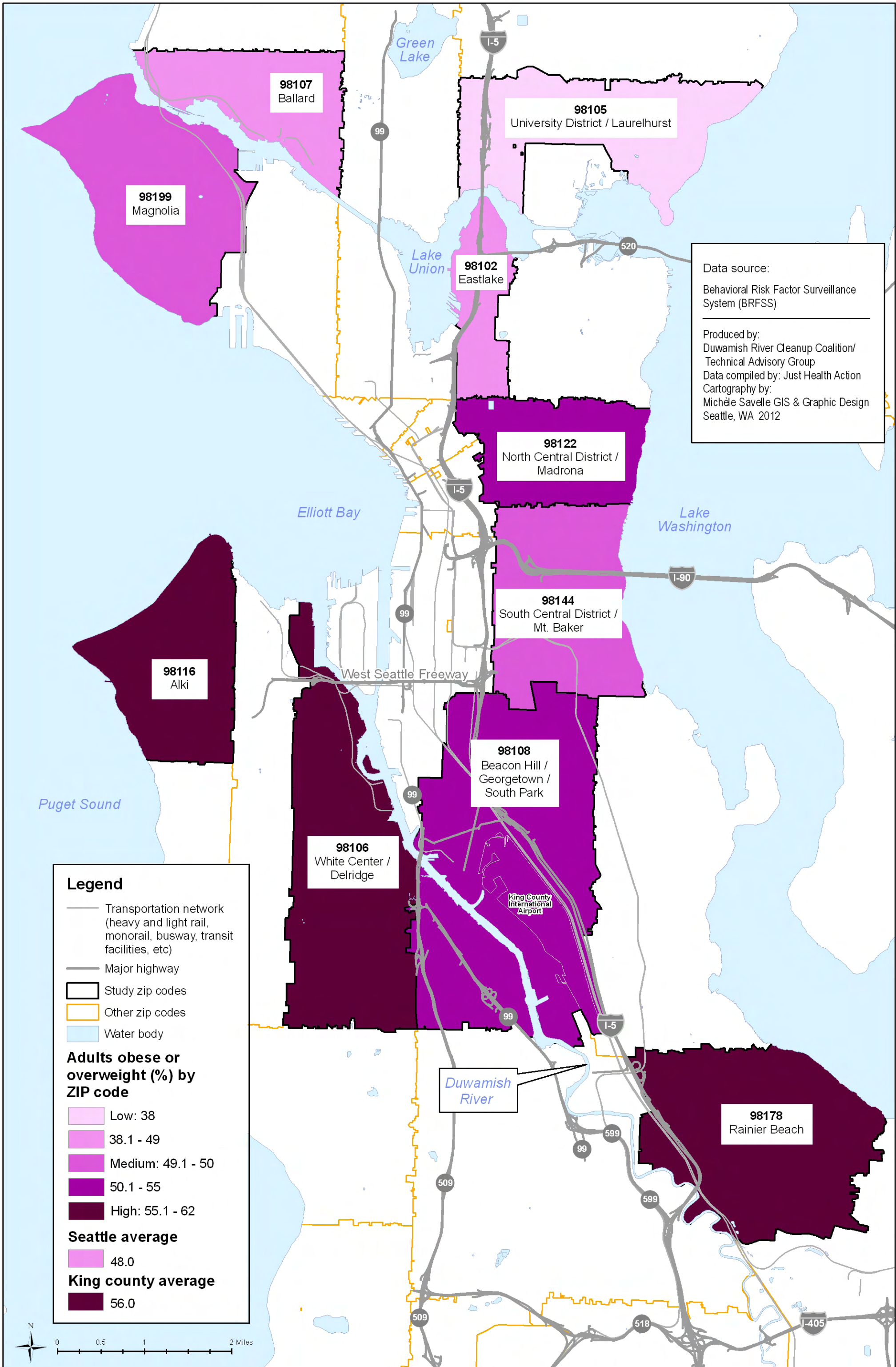
**Figure A2. Percent Adults With No Leisure Time Physical Activity, by ZIP Code  
Seattle, Washington, 5-year Average 2007-2011**



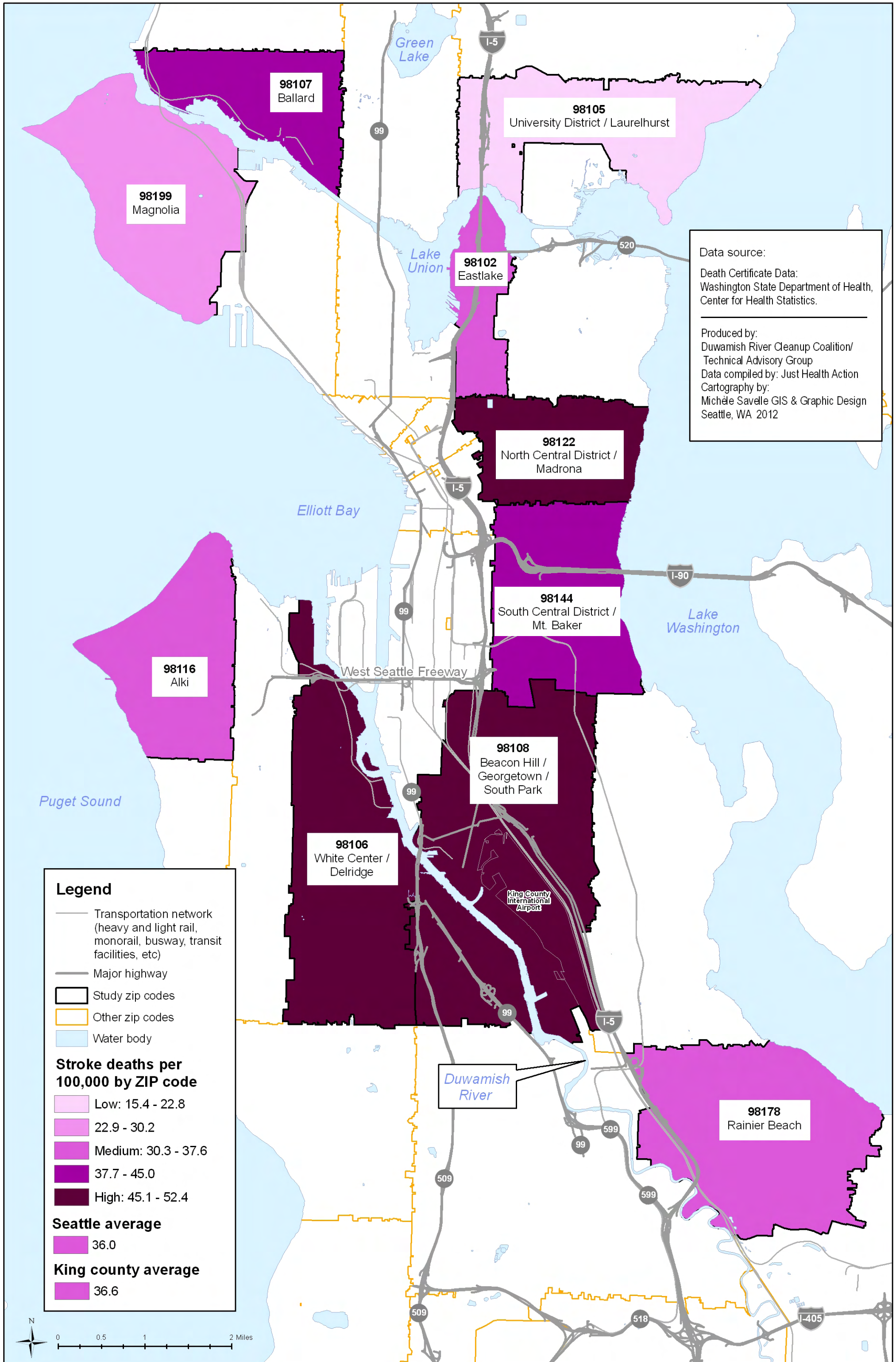
**Figure A3. Life Expectancy at Birth in Years, by ZIP Code  
Seattle, Washington, 5 year average, 2005-2009**



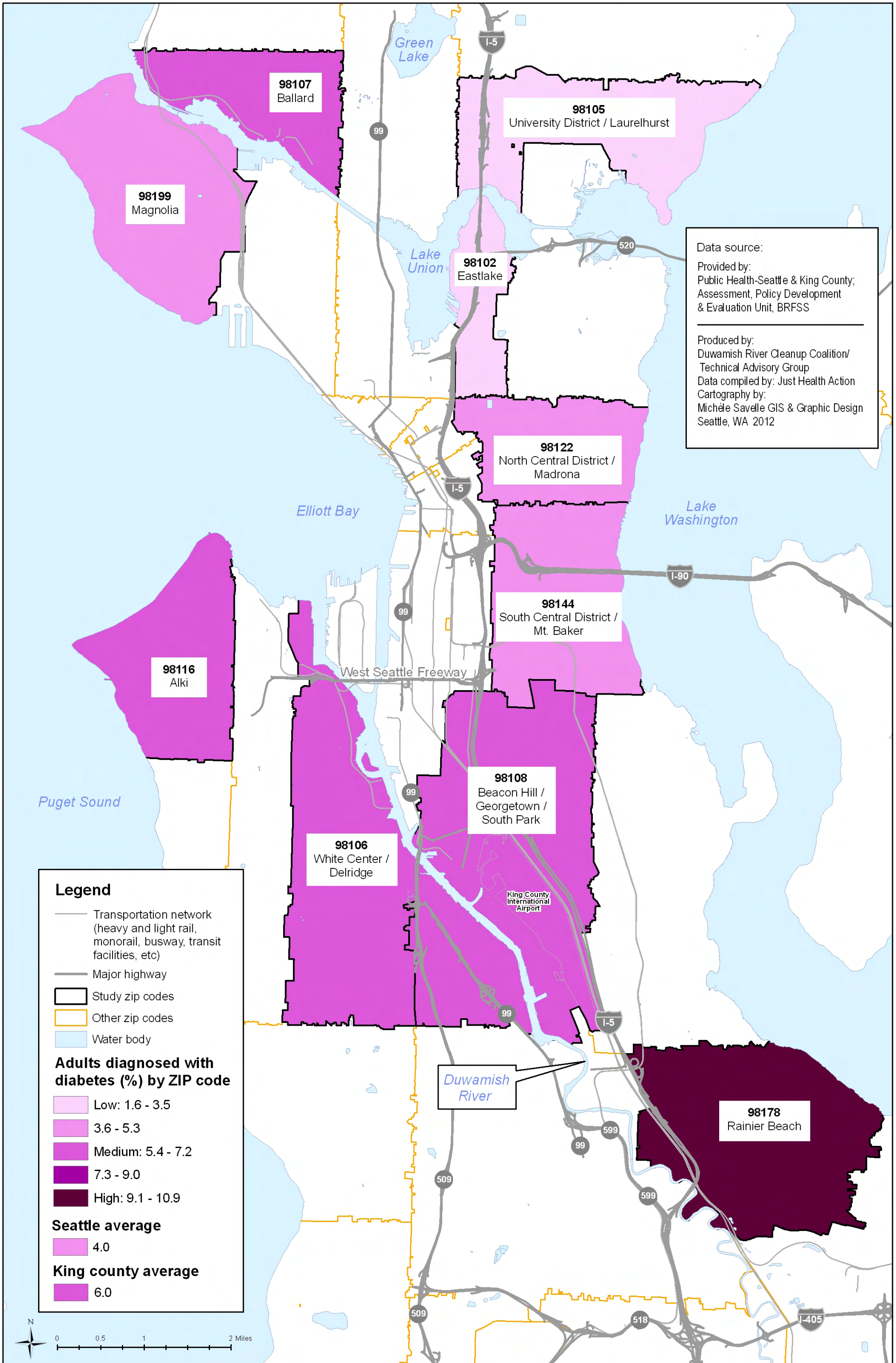
**Figure A4. Percent Adults Overweight or Obese by ZIP Code  
Seattle, Washington, 5-year Average 2007-2011**



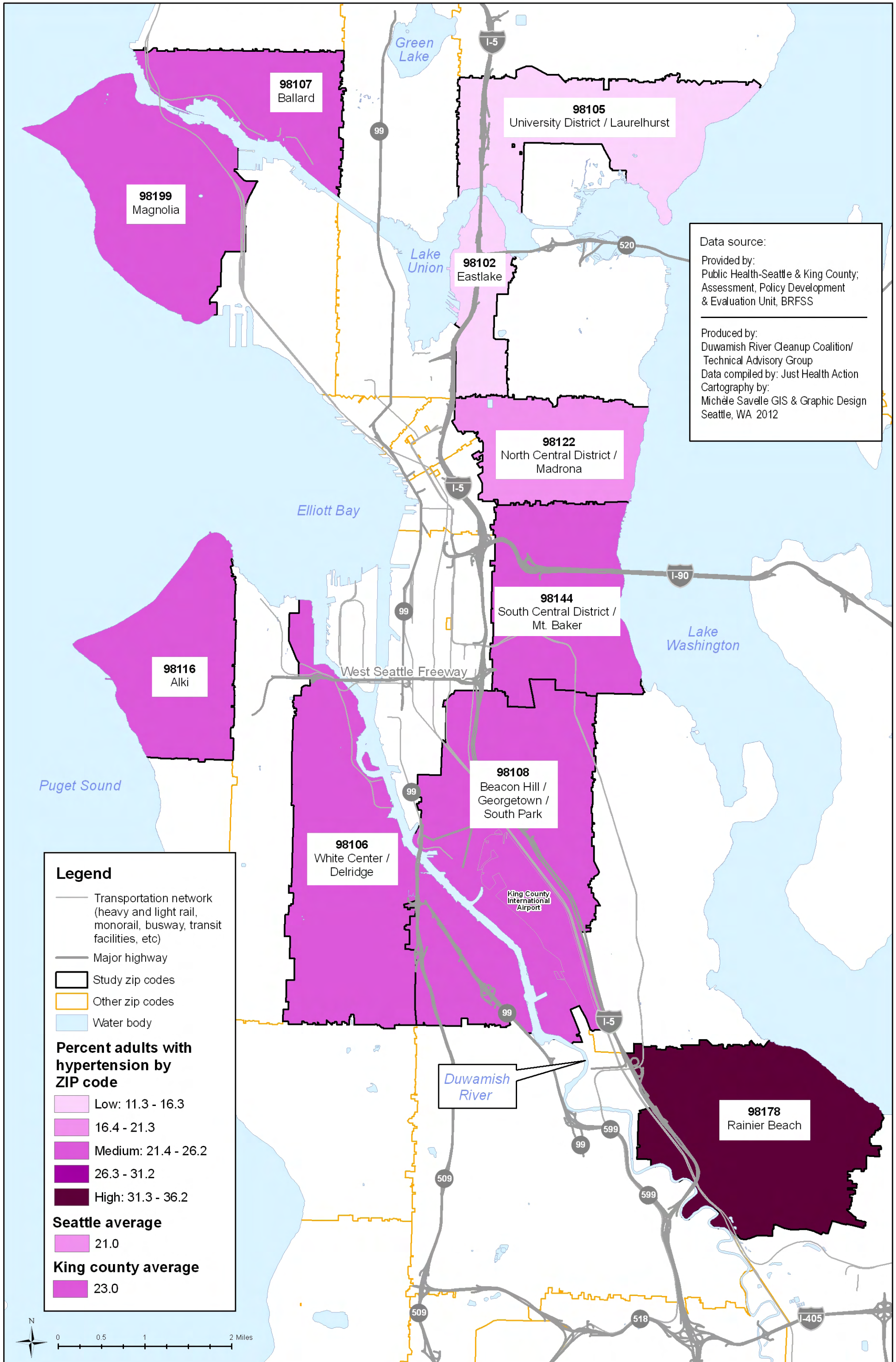
**Figure A5. Stroke Death rate per 100,000, by ZIP Code  
Seattle, Washington, 5-year average, 2006-2010**



**Figure A6. Percent Adults With Doctor Diagnosed Diabetes by ZIP Code  
Seattle, Washington, 5-year Average 2007-2011**

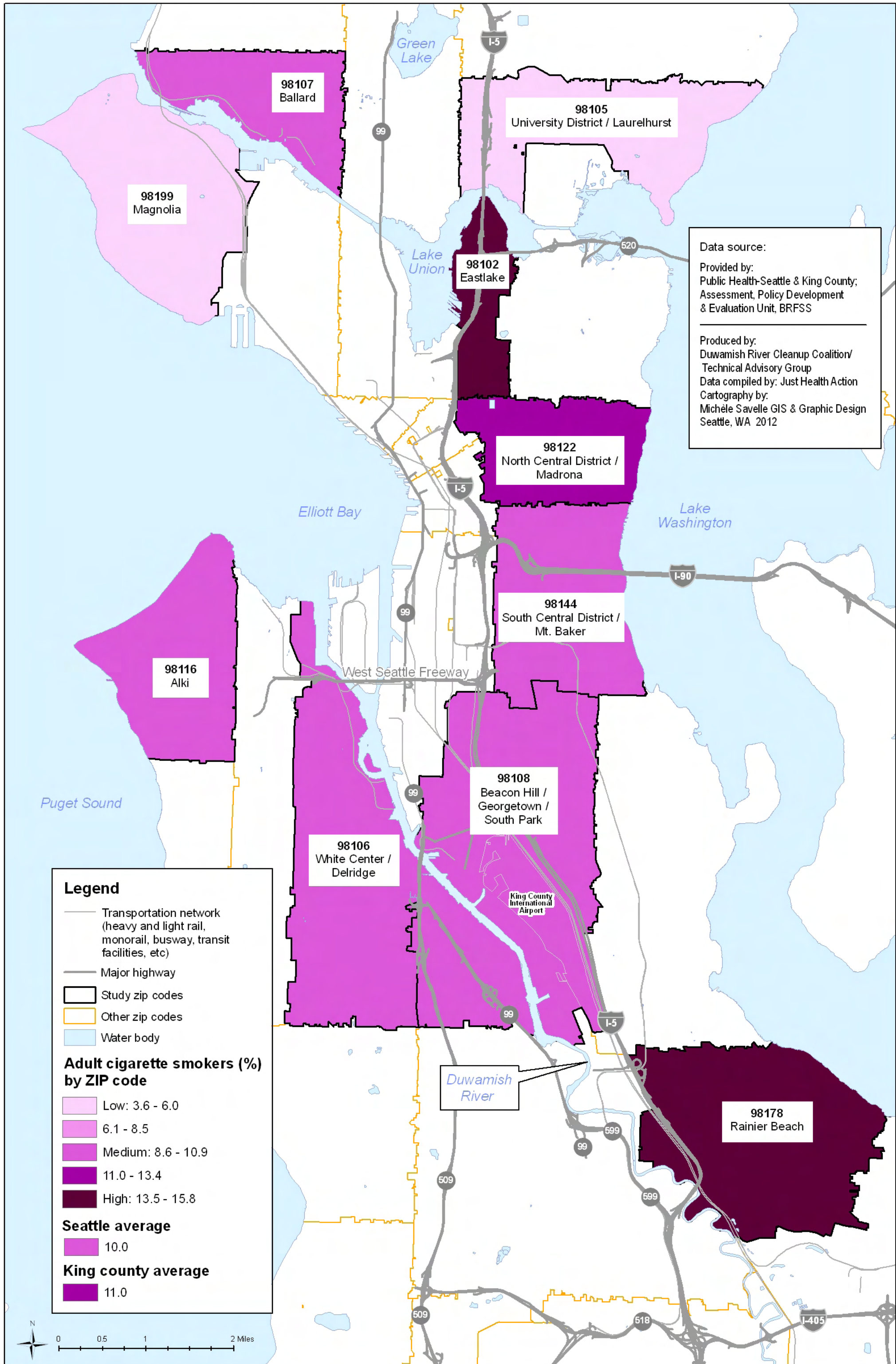


**Figure A7. Percent Adults with Hypertension, by ZIP Code  
Seattle, Washington, 2003-2011 odd years**





**Figure 15. Percent Adult Cigarette Smokers, by ZIP Code  
Seattle, Washington, 5-year Average 2007-2011**



**Figure A9. Assault Hospitalization Rate Per 100,000, by ZIP Code  
Seattle, Washington, 5-year average, 2006-2010**

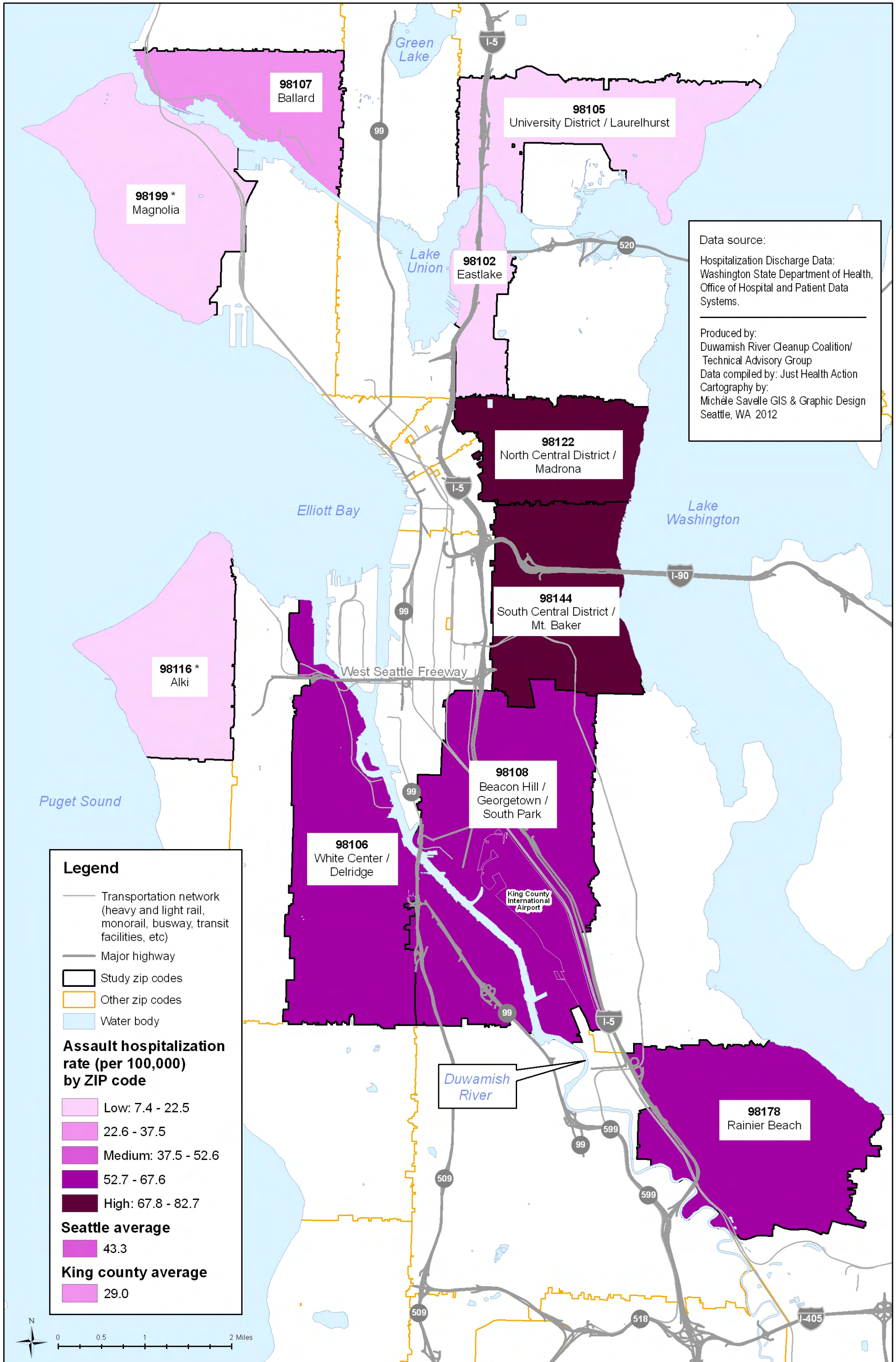


Table A-1: Cumulative Health Impacts Analysis using All Indicators, by ZIP code, Seattle, Washington (Scenario 2)

Component	Indicator	98108 Beacon Hill Georgetown South Park	98144 South Central District Baker Mt	98178 Rainier Beach	98106 White Center Delridge	98122 North Central District Madrona	98102 Eastlake	98116 Alki	98107 Ballard	98105 University District Laurelhurst	98199 Magnolia
<b>Socioeconomic factors (Rank 1-3)</b>	No College Education (percent)	3	3	3	3	2	1	2	2	1	1
	Below 200% poverty level (percent)	3	3	3	2	3	2	1	1	3	1
	Non-white minority population (percent)	3	3	3	2	2	1	1	1	1	1
	Adults no health insurance(percent)	3	2	3	3	3	1	3	1	2	1
	Adults with no leisure time (percent)	3	1	2	1	2	1	1	1	1	1
<b>Socioeconomic Factors</b>	<b>AVERAGE</b>	3	2	3	2	2	1	2	1	2	1
<b>Sensitive Populations (Rank 1-3)</b>	Presence of Children under 5 years (percent)	3	3	3	3	2	1	2	2	1	2
	Presence of Elderly 65 years and older (percent)	3	3	3	1	1	1	3	2	1	3
	Foreign born (percent)	3	2	3	2	1	1	1	1	1	1
<b>Sensitive Populations</b>	<b>AVERAGE</b>	3	3	3	2	1	1	2	2	1	2
<b>Social Vulnerability</b>	<b>SUM (Socioeconomic + Sensitive Populations)</b>	6	5	6	4	4	2	4	3	3	3
<b>Environmental Exposures (Rank 1-10)</b>	Diesel Particulate matter (ug/m <sup>3</sup> annual av)	10	6	3	5	6	10	2	1	4	1
	Benzene (ug/m <sup>3</sup> annual av)	9	7	1	2	5	10	2	1	3	1
	Confirmed and suspected contaminated sites (ISIS)	10	2	1	4	3	2	1	3	2	2
<b>Environmental Exposures</b>	<b>AVERAGE</b>	10	5	2	4	5	7	2	2	3	1
<b>Environmental Effects (Rank 1-5)</b>	Tree Canopy (percent)	5	4	4	4	2	5	2	5	2	1
	Park Area Per Resident	4	4	5	3	5	5	5	5	5	1
	Number of Toxic Release Inventory sites	5	2	1	3	1	2	1	4	1	2
<b>Environmental Effects</b>	<b>AVERAGE</b>	5	3	3	3	3	4	3	5	3	1
<b>Public Health Effects (Rank 1-5)</b>	Life Expectancy at Birth (yrs)										
	Adults overweight or obese (percent)	4	3	5	5	4	2	5	2	1	3
	Heart Disease Death rate per 100,000	2	2	3	4	5	1	2	3	1	2
	Stroke Death rate per 100,000	5	4	3	5	5	3	3	4	1	2
	Adults with doctors diagnosed diabetes (percent)	3	2	5	3	2	1	3	3	1	2
	Adults hypertension (percent)	3	3	5	3	2	1	3	3	1	3
	Childhood (0-17) Asthma Hospitalization rate per 100,000	5	3	2	4	4	2	1	2	5	1
	Adult cigarette smokers (percent)	3	3	5	3	4	5	3	3	1	1
Lung cancer death rate per 100,000	3	3	5	3	4	1	1	4	1	2	
<b>Public Health Effects</b>	<b>AVERAGE</b>	4	3	4	4	4	2	3	3	2	2
<b>Environmental Vulnerability</b>	<b>SUM (Environmental Exposures + Environmental Effects + Public Health Effects)</b>	18	11	9	11	11	13	7	9	7	5
<b>CUMULATIVE IMPACT SCORE</b>	<b>CUMULATIVE IMPACT = Social Vulnerability x Environmental Vulnerability</b>	107	57	53	45	41	29	25	27	19	14

Table A-2: Scenario 3 - Cumulative Health Impacts Analysis using Fifteen Indicators , by ZIP code, Seattle, Washington (Environmental Exposures Ranking Changed From 10 To 5)

Component	Indicator	98108 Beacon Hill Georgetown South Park	98144 South Central District Baker Mt	98178 Rainier Beach	98106 White Center Delridge	98122 North Central District Madrona	98107 Ballard	98102 Eastlake	98105 University District Laurelhurst	98116 Alki	98199 Magnolia
<b>Socioeconomic factors (Rank 1-3)</b>	No College Education (percent)	3	3	3	3	2	2	1	1	2	1
	Below 200% poverty level (percent)	3	3	3	2	3	1	2	3	1	1
	Non-white minority population (percent)	3	3	3	2	2	1	1	1	1	1
	Adults no health insurance(percent)										
	Adults with no leisure time (percent)										
<b>Socioeconomic Factors</b>	<b>AVERAGE</b>	3	3	3	2	2	1	1	2	1	1
<b>Sensitive Populations (Rank 1-3)</b>	Presence of Children under 5 years (percent)	3	3	3	3	2	2	1	1	2	2
	Presence of Elderly 65 years and older (percent)	3	3	3	1	1	2	1	1	3	3
	Foreign born (percent)	3	2	3	2	1	1	1	1	1	1
<b>Sensitive Populations</b>	<b>AVERAGE</b>	3	3	3	2	1	2	1	1	2	2
<b>Social Vulnerability</b>	<b>SUM (Socioeconomic + Sensitive Populations)</b>	6	6	6	4	4	3	2	3	3	3
<b>Environmental Exposures (Rank 1-10)</b>	Diesel Particulate matter (ug/m <sup>3</sup> annual av)	5	3	2	3	3	1	5	2	2	1
	Benzene (ug/m <sup>3</sup> annual av)	5	4	1	1	3	1	5	2	1	1
	Confirmed and suspected contaminated sites (ISIS)	5	2	1	2	2	2	1	1	1	1
<b>Environmental Exposures</b>	<b>AVERAGE</b>	5	3	1	2	3	1	4	2	1	1
<b>Environmental Effects (Rank 1-5)</b>	Tree Canopy (percent)	5	4	4	4	2	5	5	2	2	1
	Park Area Per Resident	4	4	5	3	5	5	5	5	5	1
	Number of Toxic Release Inventory sites	5	2	1	3	1	4	2	1	1	2
<b>Environmental Effects</b>	<b>AVERAGE</b>	5	3	3	3	3	5	4	3	3	1
<b>Public Health Effects (Rank 1-5)</b>	Life Expectancy at Birth (yrs)										
	Adults overweight or obese (percent)										
	Heart Disease Death rate per 100,000	2	2	3	4	5	3	1	1	2	2
	Stroke Death rate per 100,000										
	Adults with doctors diagnosed diabetes (percent)										
	Adults hypertension (percent)										
	Childhood (0-17) Asthma Hospitalization rate per 100,000	5	5	2	4	4	2	2	5	1	1
Adult cigarette smokers (percent)											
Lung cancer death rate per 100,000	3	3	5	3	4	4	1	1	1	2	
<b>Public Health Effects</b>	<b>AVERAGE</b>	3	3	3	4	4	3	1	2	1	2
<b>Environmental Vulnerability</b>	<b>SUM (Environmental Exposures + Environmental Effects + Public Health Effects)</b>	13.0	9.7	8.0	9.0	9.7	9.0	9.0	6.7	5.3	4.0
<b>CUMULATIVE IMPACT SCORE*</b>	<b>CUMULATIVE IMPACT = Social Vulnerability x Environmental Vulnerability</b>	78	55	48	39	35	27	21	18	18	12

NOTE: The cumulative impact score range is 1-90

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