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COMMUNITY PLANNING ASSOCIATION

of Southwest Idaho

Mobility Management Forecast

Mobility Management Strategies

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Mobility Management Forecast

Introduction

Mobility Management is a concept that focuses on using all available resources to improve and advance mobility for all people. The Federal Transit Administration (FTA) has established a policy that tasks state and local governments with meeting the transportation needs of the most vulnerable citizens, including the elderly, transit-dependent, and those with low-incomes. One key to effective mobility management is analyzing service coverage and gaps, understanding the potential demand for transit and other modes of transportation options.[1]

Demographic forces could produce dynamic new demands on transit. Most transit operators believe that the greatest benefit is the mobility provided to those who ride transit today — workers traveling to congested urban centers; transit-dependent groups (e.g., senior citizens, students, individuals with disabilities, and the economically disadvantaged); and discretionary travelers who choose transit as the best mode of travel.[2] Demographic characteristics further relate to transit use, which is highest among those with limited or no access to automobiles because of age, income, or disability.[3]

The mobility management forecast focuses on four groups that benefit from additional mobility options, including sidewalks, bikeways, and public transit. These are the elderly, youth, low-income, and ethnic minorities.

Elderly: The process of aging can limit an individual's ability to take care of many functions that require mobility. Driving, biking, walking, and other modes of transportation can become inhibited if the physical or mental health of an individual deteriorates with aging. Transit opportunities can have a positive impact on the mobility of elderly people, and can assist the elderly in carrying out functions that are vital to independent living.

Youth: Mobility options are essential for the population who is not eligible to obtain drivers licenses or other necessary legal documents to drive. Youth, under the age of 16, are typically not permitted to drive and are reliant on mobility options such as walking, biking, and using public transit. Other users choose not to drive a vehicle for other varying reasons.

Low-Income: Single occupancy vehicle travel continues to be the most prevalent form of transportation in the United States. However, low-income families and individuals may not have the resources to purchase or operate a vehicle. The nature of urban sprawl can further perpetuate these difficulties as more jobs move

[1] http://www.compassidaho.org/documents/prodserv/reports/MobilityManagementDevelopmentGuidebook_finalstandard.pdf

[2] http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_28-a.pdf

[3] Polzin, S.E., Chu, X., and Rey, J.R. (2000) Density and captivity in public transit success: observations from the 1995 nationwide personal transportation study. Transportation Research Record 1735, 10–18.

away from city centers. As a result, transportation becomes a more prominent barrier for access to job opportunities.

Ethnic Minorities: Immigrants have established dense urban neighborhoods; often termed "ethnic enclaves." These neighborhoods contain clusters of immigrant residences, businesses, services, and institutions that cater to the needs of particular ethnic groups.[4]

Methodology

Developing population forecasts can be difficult; developing a population forecast for specific age, ethnic, and income cohorts can be especially problematic. However, gaining a greater understanding of potential transit riders, pedestrians, and other transportation users can be helpful in leveraging scarce funds in locations that would provide the most benefit.

The mobility management forecast was done in a 3-step process: 1) obtain proprietary data from a demographic data development organization, 2) disaggregation to appropriate geographies by Iterative Proportional Fitting, and 3) produce data and maps to identify areas of opportunity.

1. Obtain proprietary data from a demographic data development organization

Nielsen Claritas (Claritas), a provider of demographic data for 35 years, was used for producing population projections. This data contained a 2015 projection of demographic data including, age, ethnicity, housing values, and income. This data was developed at the block group level.

Claritas estimates use both top-down and bottom-up methods to estimate demographics. Claritas identifies growth trends using data sources such as the United States Postal Service (USPS) local government agencies (where available), Advo new construction data, and the Census Bureau's American Community Survey (ACS). Claritas updates the Master Address File annually, which currently contains over 135 million records and is informed by various household level sources such as Equifax, ADVO, InfoUSA, Targus, and TeleAtlas North America.

Population by Age/Sex

Age/sex distribution is estimated using a modified cohort survival method, which ages population based on age/sex specific survival probabilities, and estimates births over the estimation period. Cohort survival is a major factor in changing age structures, and is driven by the reality that, for example, persons age 35 in 2005 who survive another five years, will be age 40 in 2010. It is this process that has

[4] Logan, J. R., R. D. Alba, and W. Q. Zhang. 2002. Immigrant enclaves and ethnic communities in New York and Los Angeles. American Sociological Review 67(2): 299-322.

swelled the U.S. age structure at progressively older age categories as the baby boom generation (or birth cohort) has aged. The method is applied first at county level, using the United States Census Bureau's most recent estimates of county population by age/sex as a starting point. Tract age/sex estimates are produced next, and controlled to the county estimates, and then block group age/sex estimates are produced and controlled to tract level.

Accounting for Births:
Births are estimated using the child/woman ratio—defined as the population age 0-4 divided by females age 15-44 (childbearing age). The child/woman ratio is an indirect measure of fertility specific to each small area, but more important, it is sensitive to projected changes in the number of women of child bearing age—itself a byproduct of the cohort survival process. An increase in the number of child bearing women will result in an increased number of births even if fertility rates (or child-woman ratios) remain constant. The child/woman ratios applied in the Claritas age/sex estimates and projections are derived from the 2000 census, but reflect slight increases evident in the Census Bureau's post-2000 estimates.

Exceptions to Cohort Survival:
The cohort survival process is at work in all areas, but in some areas its effects are overridden by migration. In the absence of authoritative age-specific migration data for small areas, the Claritas method defaults to the assumption that the age/sex composition gained or lost through migration is similar to the area's "survived" population.

Group Quarters:
Group quarters and other populations that do not age in place are not aged. This includes dormitories, military quarters, prisons, and nursing homes. These facilities have high turnover rates, resulting in age/sex compositions that tend to be stable as a reflection of the nature of the facility. For this reason, cohort survivals are applied only to the population living in households. Group quarters populations are estimated separately and their age/sex compositions held constant with those measured in the census.

<u>Population by Race/Ethnicity</u>
Race by Hispanic ethnicity is estimated for 14 categories reflecting single classification race. County estimates are produced first, based on the Census Bureau's most recent county race/Hispanic estimates. Tract and block group race/Hispanic estimates are produced based on census trends. This method applies the Census Bureau's estimated rates of change for each race category. For example, the census estimates might suggest a 4.2% increase in the percent of a county's population that is (modified) "Asian not-Hispanic." The Claritas estimate is

established by applying this rate of change to “percent Asian not-Hispanic” from the 2000 census.

Household Income

The method starts by estimating rates of change in median household income for each area. Based on this rate of change, household income distributions from the 2000 census are advanced to the forecast year. Income estimates at the county level and above reflect income change indicated by the Bureau of Economic Analysis (BEA) income estimates, income statistics from the Internal Revenue Service (IRS), and in large counties, income estimates from the ACS. As with the population estimates and projections, data was first produced for large areas, then for progressively smaller areas, with successive ratio adjustments ensuring consistency between levels.

Inflation and Income:

Inflation, as commonly measured by the Consumer Price Index, reflects changing prices, and a corresponding change in the value of a dollar. For example, items that would have cost $100 in 1983, would have cost about $147 by 1993—a 47% inflation in prices. Thus, $100 was not the same in 1993 as it was in 1983. Although income tends to follow inflation, it does not move at the same rate. The Claritas income estimates and projections are expressed in current dollar values, which reflect how many dollars are being received at the relevant year. As such, they reflect both real income growth (or decline) and the change due to the effect of inflation. Rather than estimating the effects separately, Claritas measures the combined or net effect through input sources (such as the Bureau of Economic Analysis income estimates), which themselves estimate income change in current dollars. The inflation effect built into these estimates is implicitly incorporated into the Claritas estimates. Note that accounting for inflation in this manner is different from controlling for inflation, which requires removing the effect of inflation, to produce estimates in constant dollar values.

Housing Value:

Housing value is estimated for all owner-occupied housing units. As with income, the method begins with the estimation of a rate of change, which is then used to advance the 2000 census distribution to current and projection year. At the state and national levels, target rates of change in value are based on change in value estimated by the 2006 ACS, as well as change in the House Price Index from the Office of Federal Housing Enterprise Oversight (OFHEO). At county level, the OFHEO data is combined with change in median sales price data from the National Association of Realtors to estimate change. An additional data source contributing to the estimates in counties with large populations, is the annual data from the ACS that is currently available for counties with populations in excess of 65,000. Tract

rates of change are based on a combination of projected inter-censal trends and post-2000 change in average mortgage amounts from the Equifax Consumer Marketing database. As with income, estimated rates of change are used to advance the 2000 census distributions to current year. The national and state rates serve only as targets (not control totals) for the county estimates, while the tract and block group estimates are both controlled to the next higher level.

Five-Year Projections:
Five-year projections are produced with methods similar to those used for the current-year estimates; projecting the current-year estimates to the five-year projection date. Again, projections are made for percent race/ethnicity distributions, and applied to previously completed projections of population. Counties are projected first, followed by tracts and block groups, with adjustments ensuring consistency between geographic levels.

2. Iterative Proportional Fitting

Iterative Proportional Fitting (IPF) methods are an elaborate form of ratio-adjustment, and are used when estimates must be adjusted to conform simultaneously with two sets of marginal control totals—for example, both household income and housing value.

IPF achieves this conformity through a series of ratio adjustments. The resulting estimates not only sum to the desired marginal totals, but preserve the statistical relationship between the two variables (household income and housing value) measured for the area by the census.

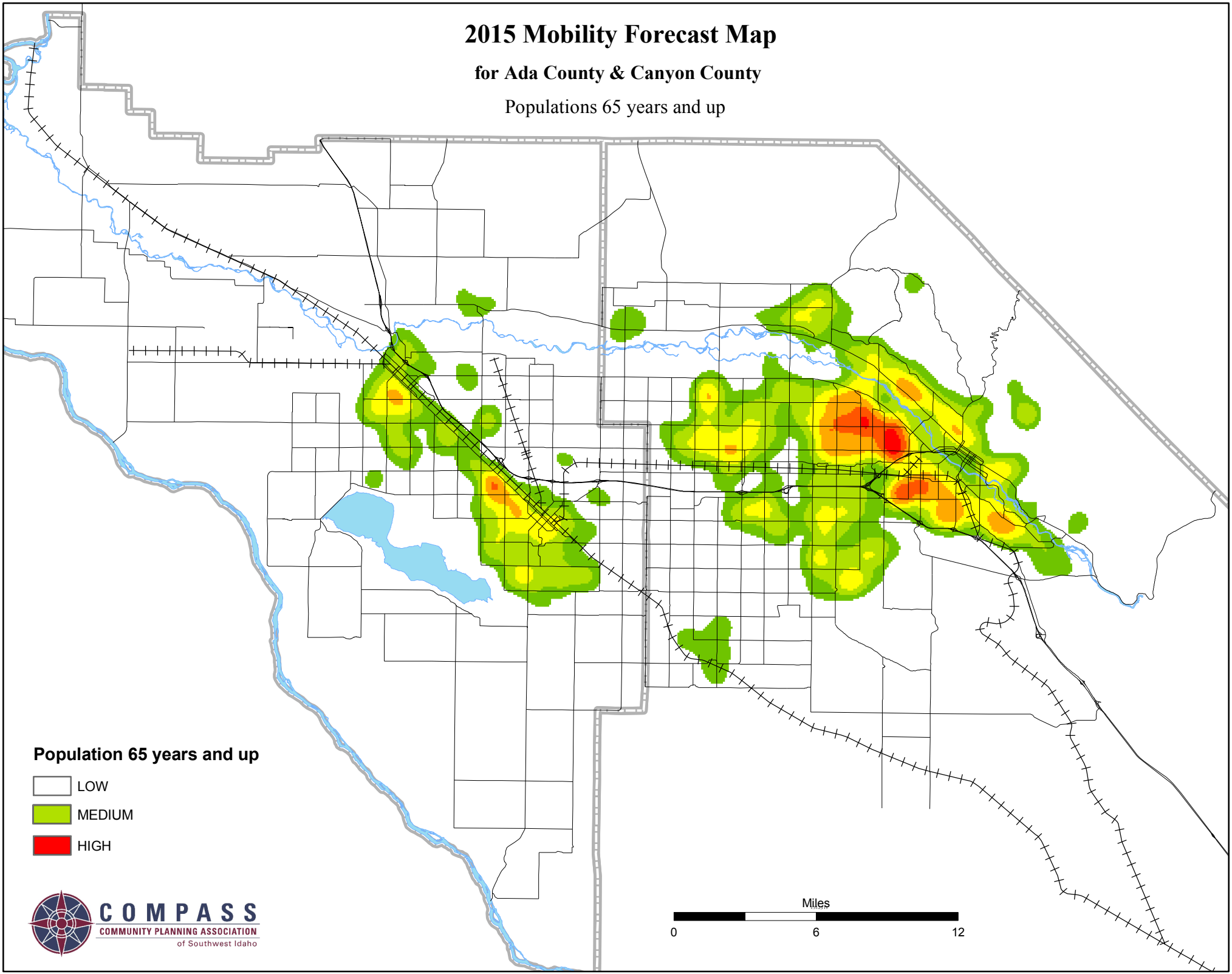
Claritas census block group data was fitted for COMPASS Traffic Analysis Zones (TAZs) to provide small geographic areas which varied in demographic conditions.

3. Maps to identify areas of opportunity

2015 Mobility Forecast Map

for Ada County & Canyon County

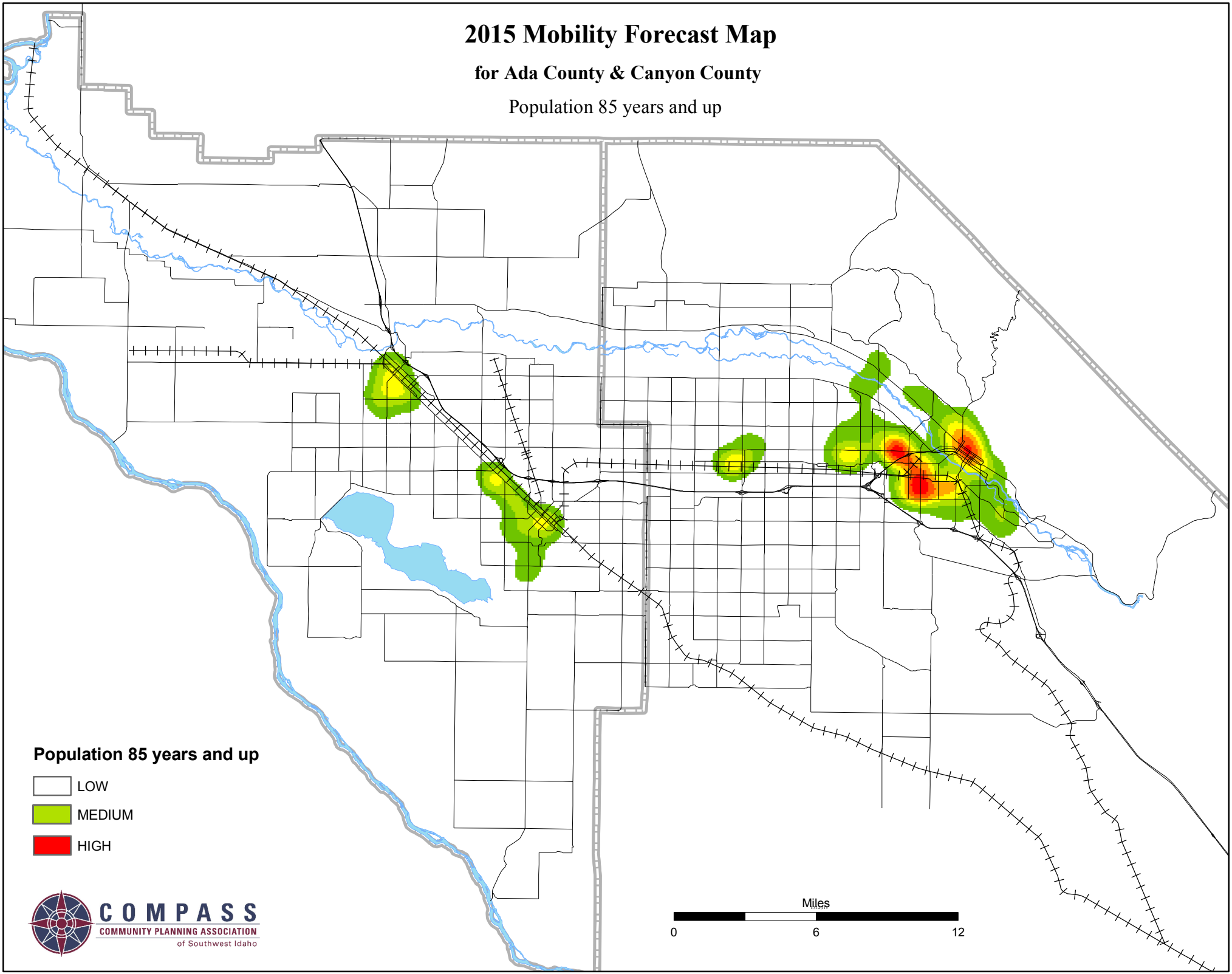
Populations 65 years and up



2015 Mobility Forecast Map

for Ada County & Canyon County

Population 85 years and up



2015 Mobility Forecast Map

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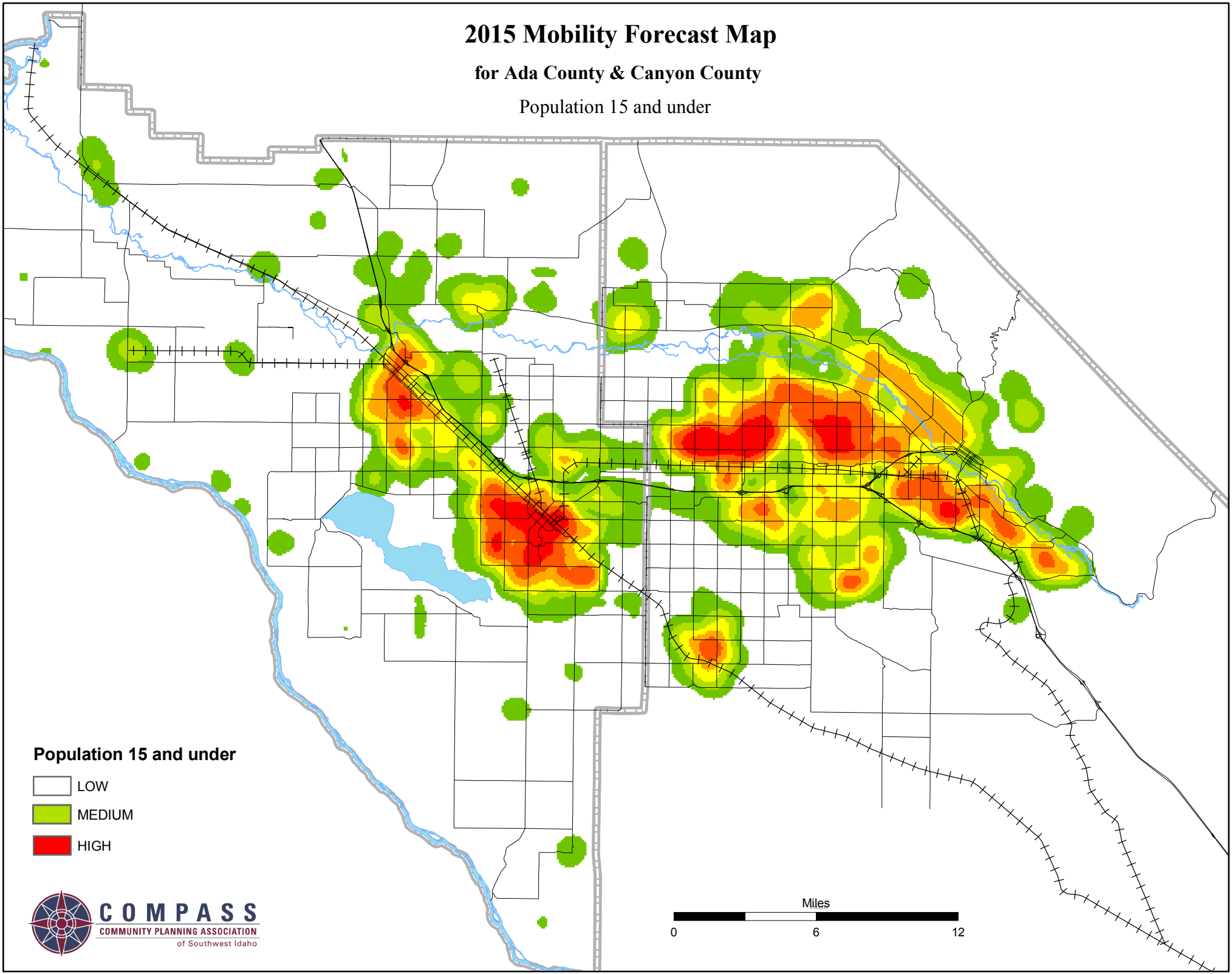
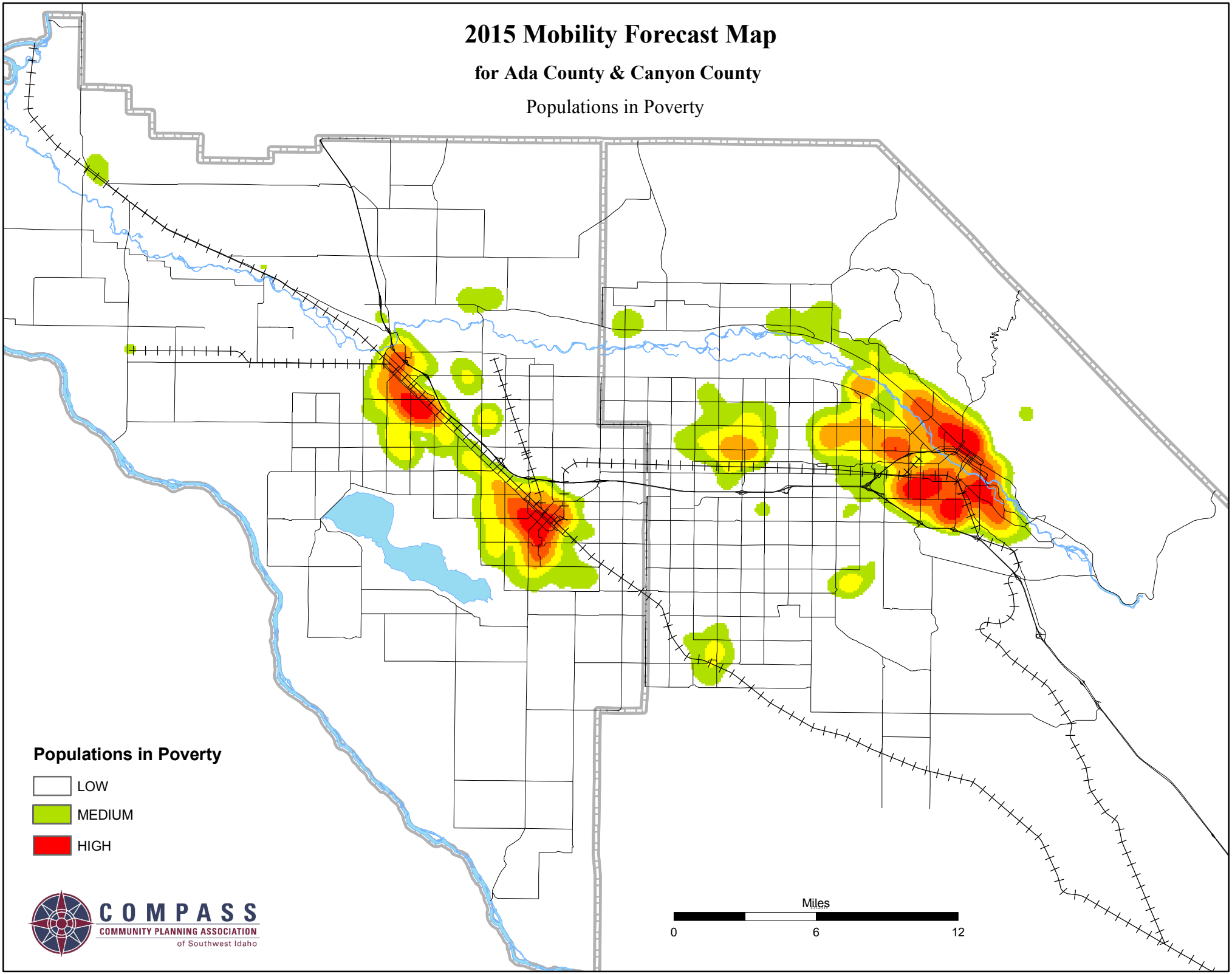
Population 15 and under



2015 Mobility Forecast Map

for Ada County & Canyon County

Populations in Poverty



2015 Mobility Forecast Map

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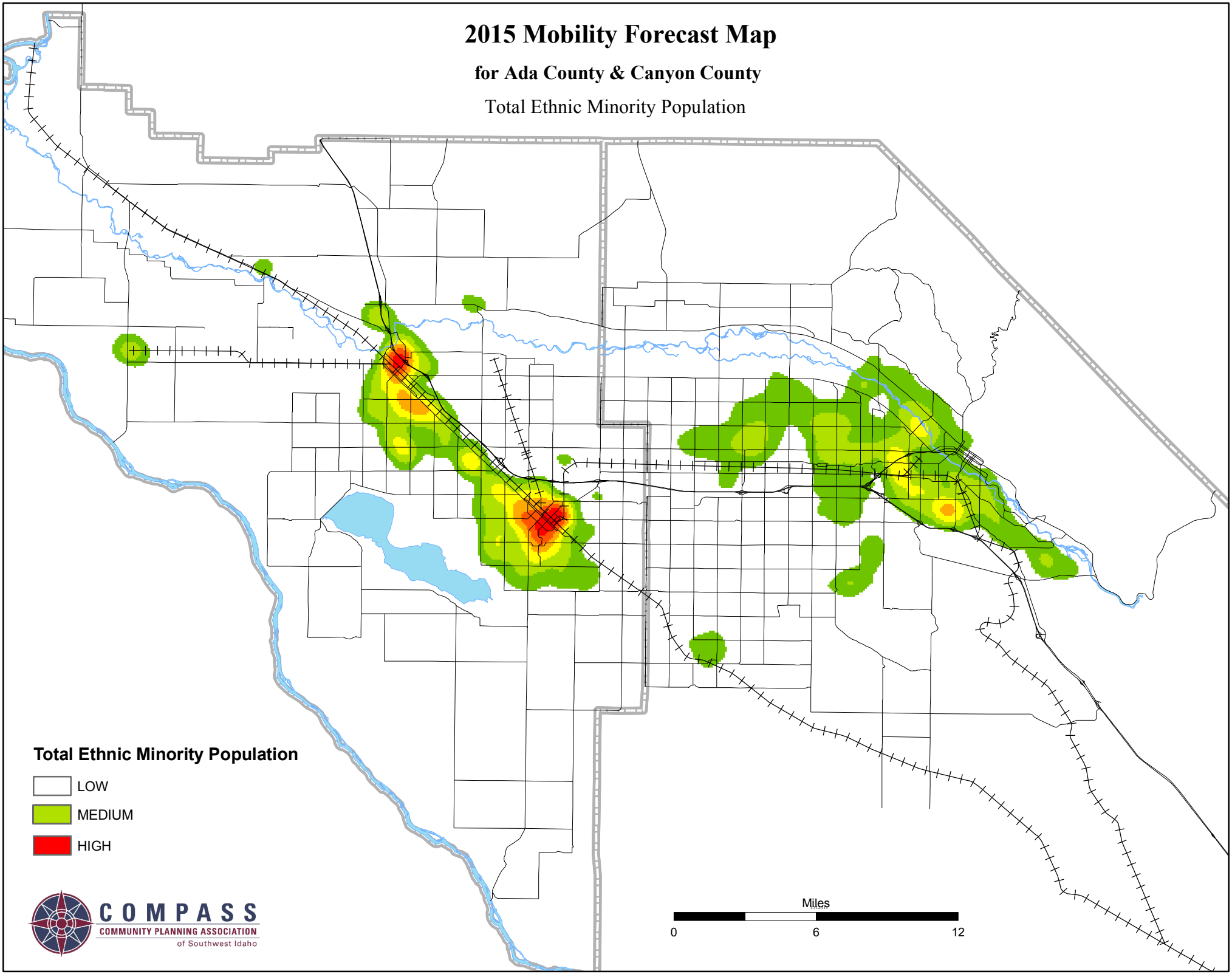
Total Ethnic Minority Population



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2015 Mobility Forecast Map

for Ada County & Canyon County

Hispanic Populations