

Geospatial Mapping And City Success: Building Bridges And Finding Lost Treasure

**Prepared For
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The CEOs For Cities
Philadelphia, Pennsylvania
April 7-9, 2013**



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Policy Research
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Data... Insight... Impact

Overview

- Cities And The Search For Prosperity
- The Threats To Prosperity
- Our Framework
- Our City
- The Power Of Geospatial Mapping
- Questions



**Prosperity Depends
On Trust And
Human Capital**

**The Gravest Threats To
Albuquerque's Prosperity Are
The Deep Disparities Among
Our Communities And The
Education Achievement Gap
That Wastes Much Of Our
Future Human Capital**



WE NEED BETTER-EDUCATED WORKERS!

WE NEED BETTER-EDUCATED HIGH-SCHOOL GRADS!

WE NEED BETTER-PREPARED MID-SCHOOLERS!

WE NEED BETTER JOBS!

WE NEED FULL-DAY KINDERGARTEN!

WE NEED ELEMENTARY KIDS THAT CAN READ AND DO MATH!

WE NEED BETTER PRE-NATAL CARE!

WE NEED MORE PRE-K PROGRAMS!



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ABUQUERQUE JOURNAL *TRAVELER*

Quality Counts Framework: A Child's Chances For Success

- **Early Foundations**

- Family income: Percent of children in families with incomes at least 200% of poverty level
- Parental education: Percent of children with at least one parent with a postsecondary degree
- Parental employment: Percent of children with at least one parent working full time and year-round
- Linguistic integration: Percent of children whose parents are fluent English speakers

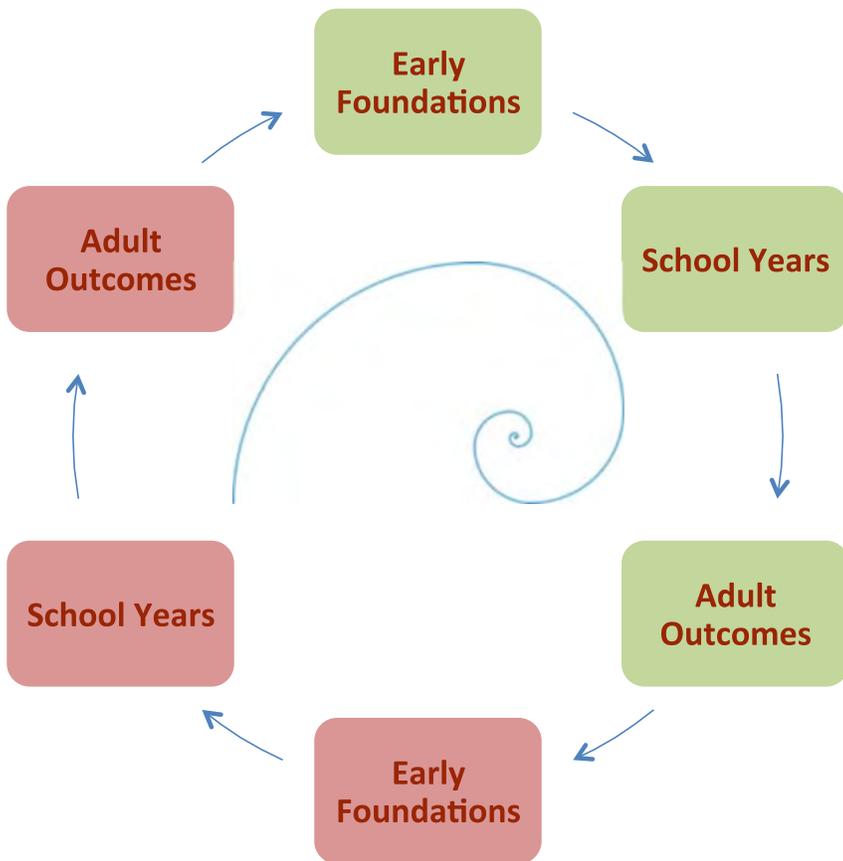
- **School Years**

- Preschool enrollment: Percent of 3- and 4-year-olds enrolled in preschool
- Kindergarten enrollment: Percent of eligible children enrolled in kindergarten programs
- 4th grade reading: Percent of 4th grade public school students “proficient” on NAEP
- 8th grade math: Percent of 8th grade public school students “proficient” on NAEP
- High school graduation: Percent of public high school students who graduate with a diploma
- Young adult (18 – 24) education: Percent of young adults (18 – 24) enrolled in postsecondary education or with a degree

- **Adult Outcomes**

- Adult educational attainment: Percent of adults (25 – 64) with a 2- or 4-year postsecondary degree
- Annual income: Percent of adults (25 – 64) with incomes at or above national median
- Steady employment: Percent of adults (25 – 64) in labor force working full time and year-round

A Child's Chances For Success Impact The Generations That Follow For Better Or Worse



Early Foundations

- Family income
- Parental education
- Parental employment
- Linguistic integration

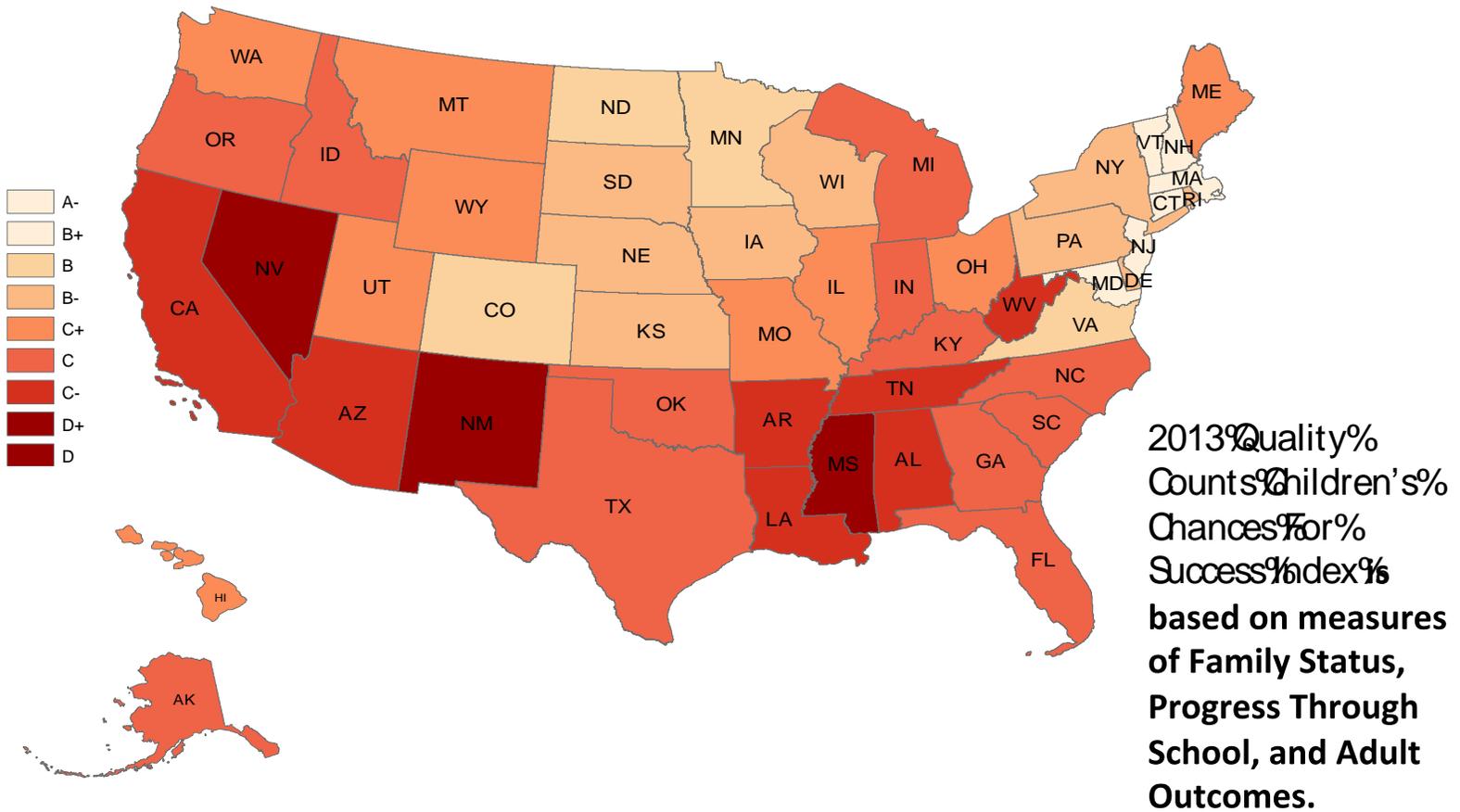
School Years

- Preschool enrollment
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- 8th grade mathematics
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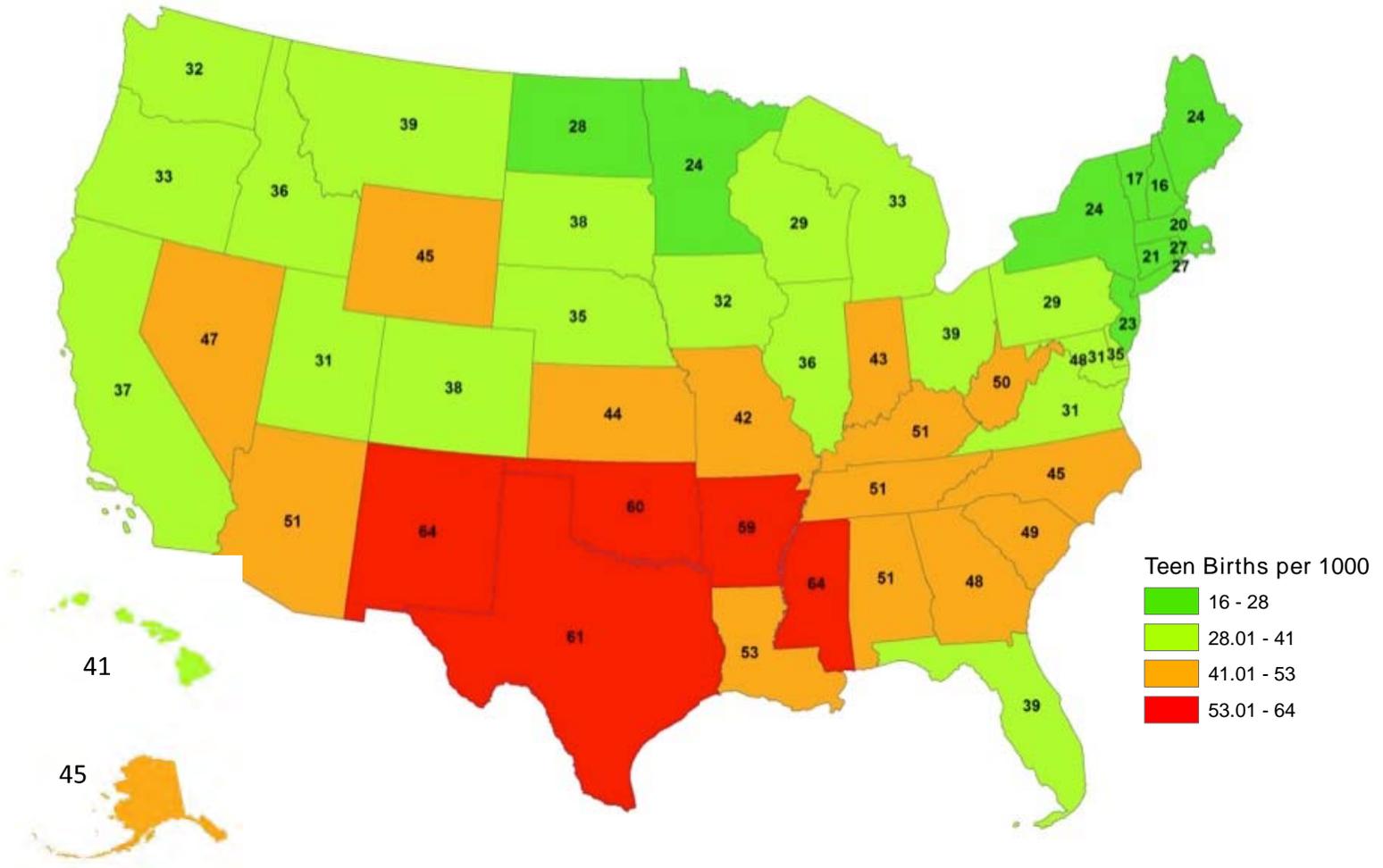
Adult Outcomes

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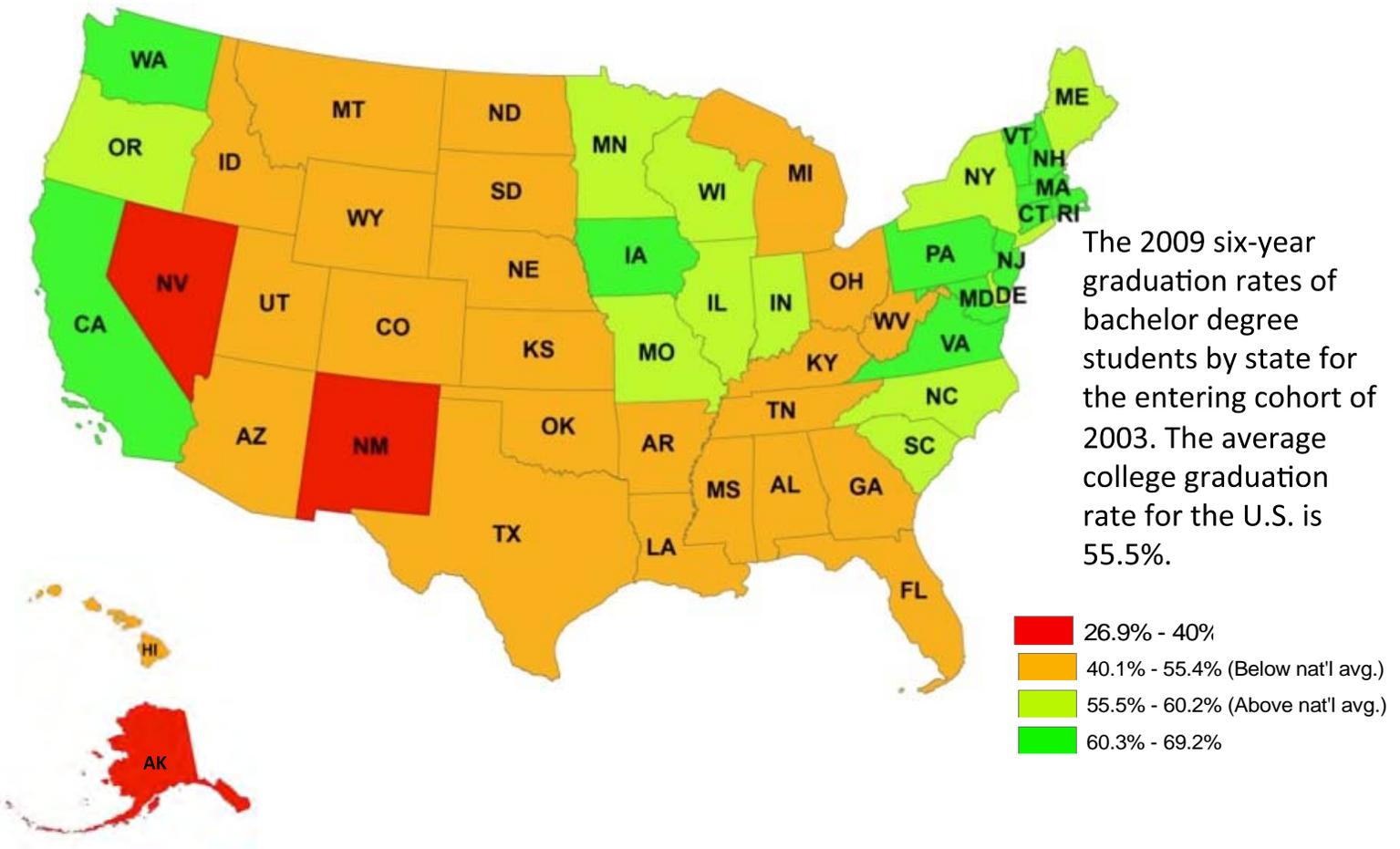
New Mexico Children's Chances For Success Are Among The Worst In The Nation, 2013



Early Foundations: Teen Births Per 1000, 2009



School Years: New Mexico's College Graduation Rates Are Among The Worst In The Nation



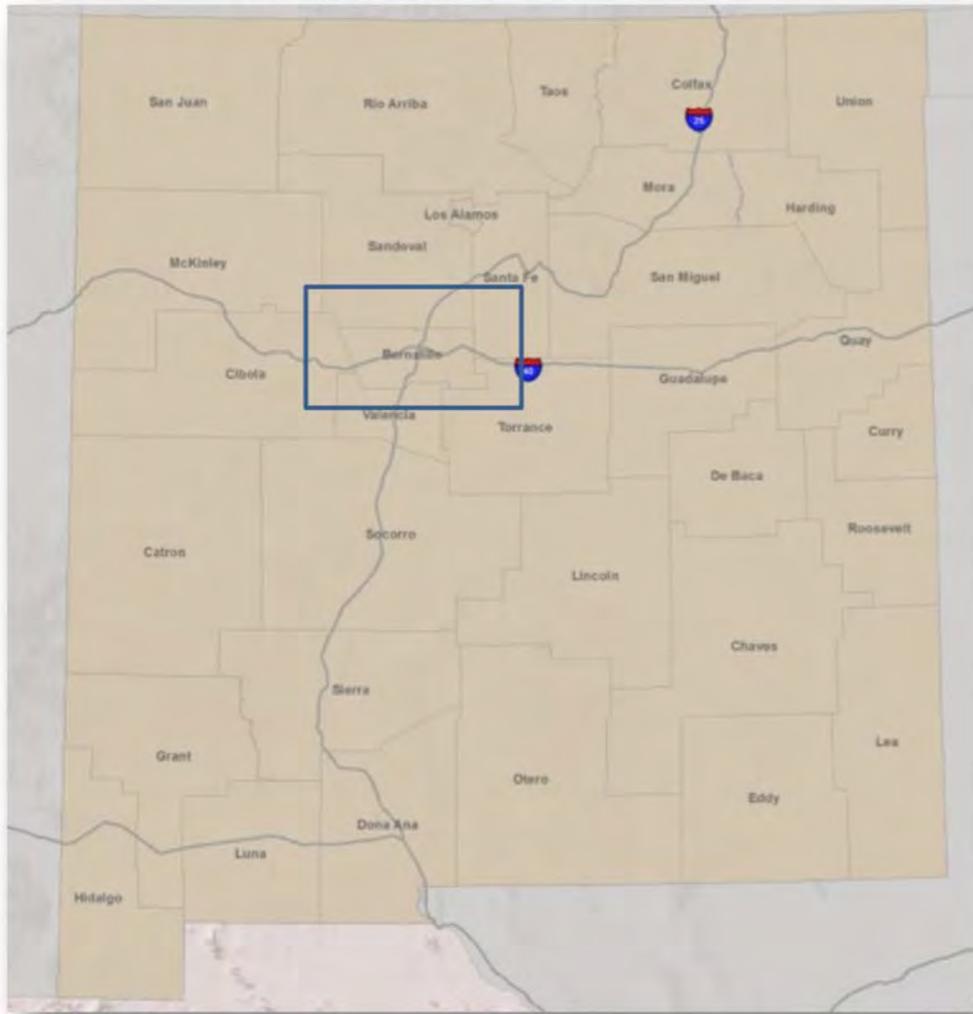
The 2009 six-year graduation rates of bachelor degree students by state for the entering cohort of 2003. The average college graduation rate for the U.S. is 55.5%.

- 26.9% - 40%
- 40.1% - 55.4% (Below nat'l avg.)
- 55.5% - 60.2% (Above nat'l avg.)
- 60.3% - 69.2%

**As Goes The Child,
So Goes The City**



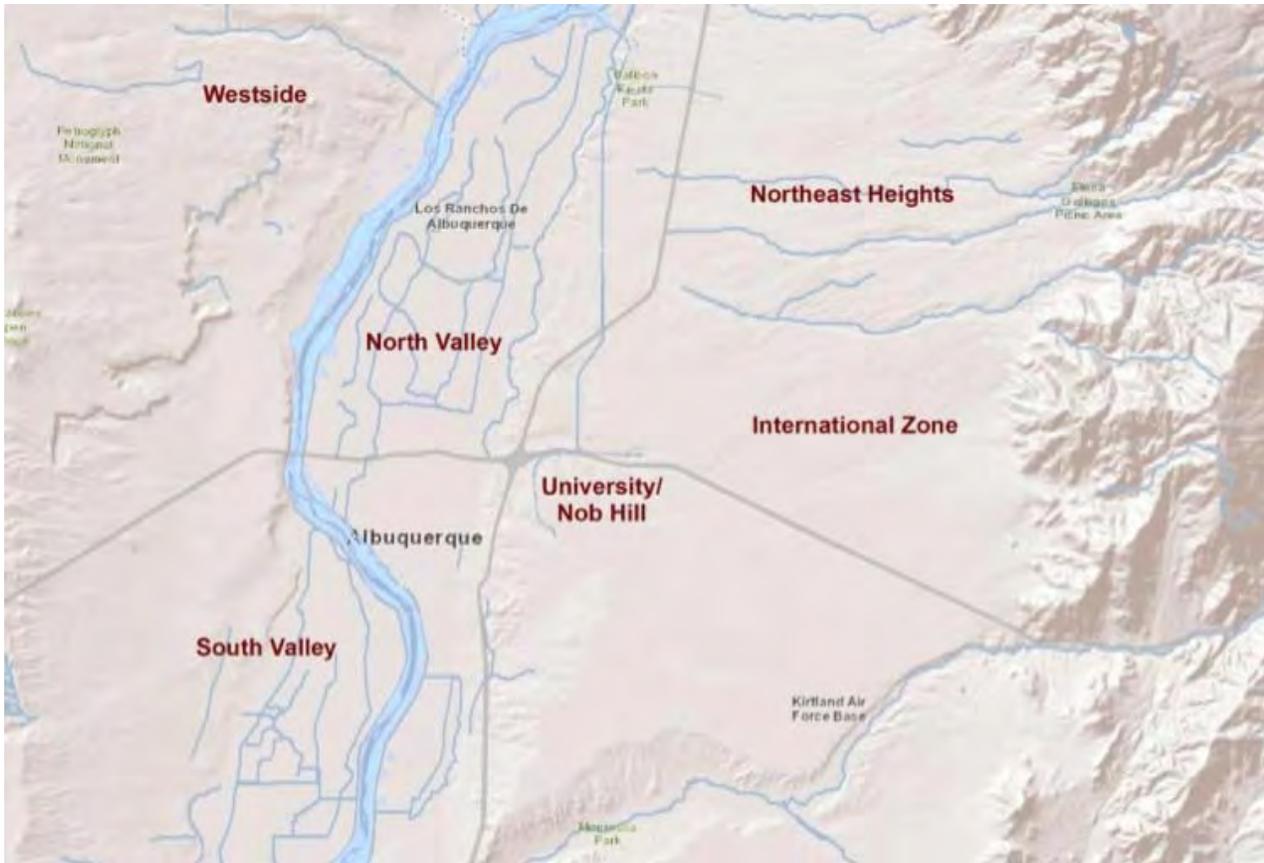
New Mexico Counties



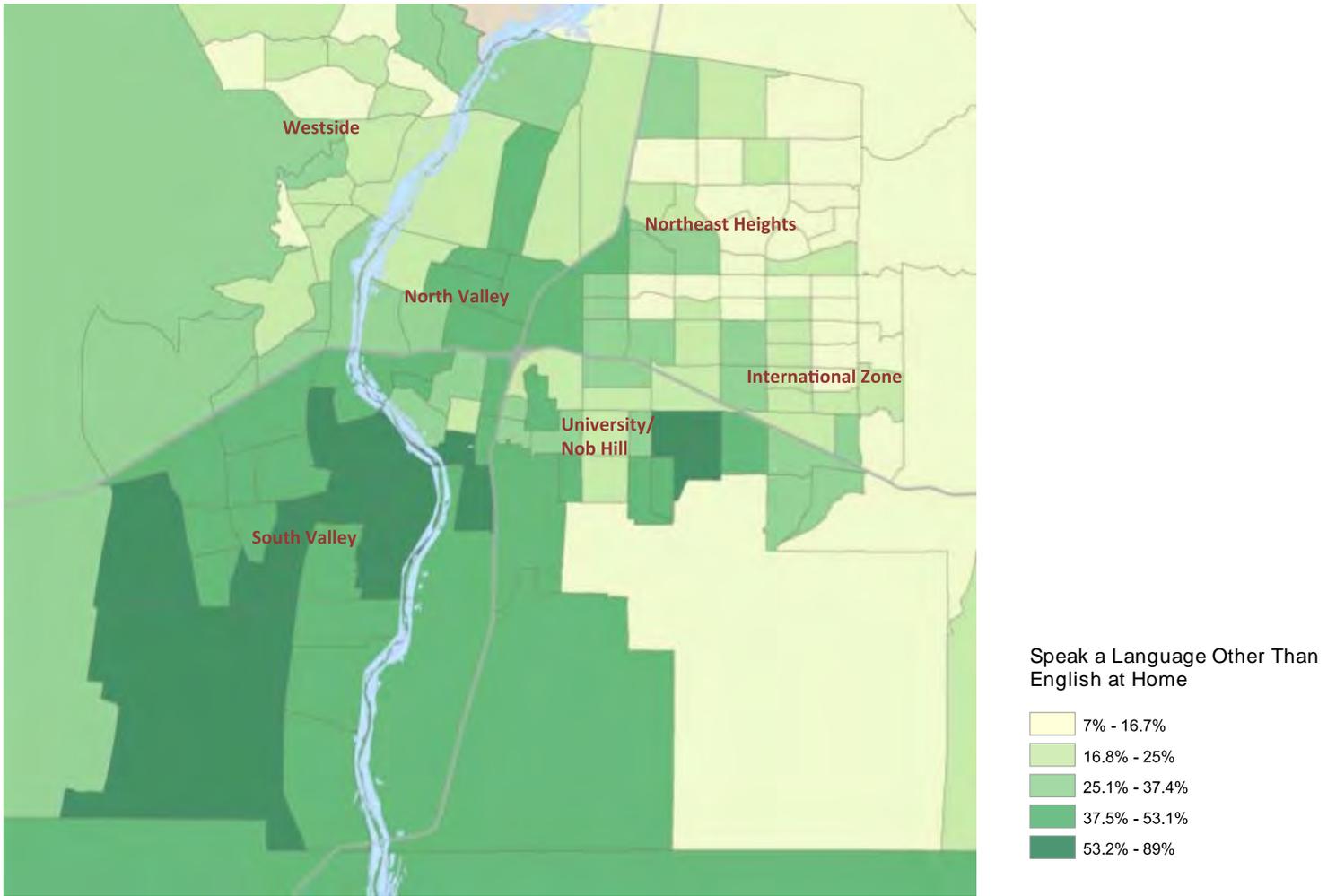
Albuquerque And Local Communities With Census Tracts



Albuquerque Neighborhoods: The Soul Of Our City



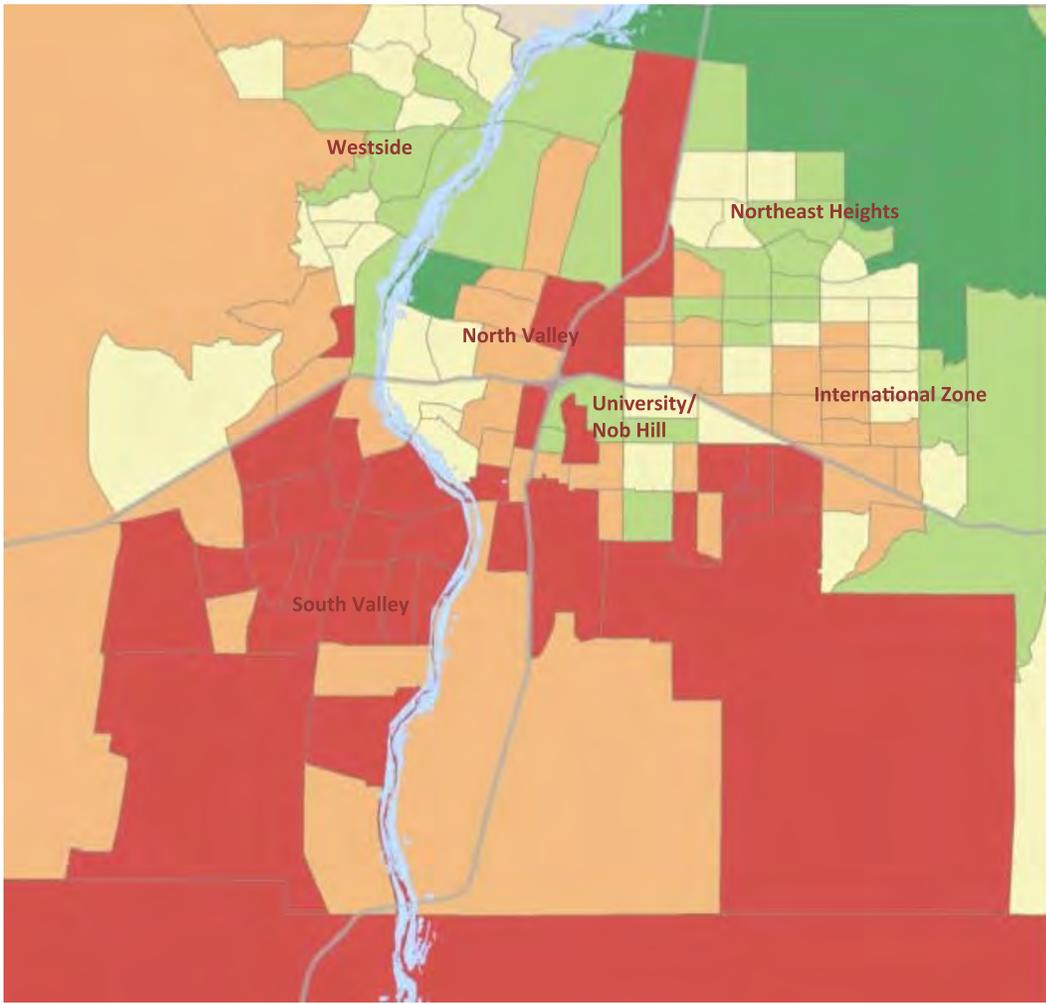
Percent of Individuals Who Speak a Language Other Than English at Home, Bernalillo County



Speak a Language Other Than English at Home

- 7% - 16.7%
- 16.8% - 25%
- 25.1% - 37.4%
- 37.5% - 53.1%
- 53.2% - 89%

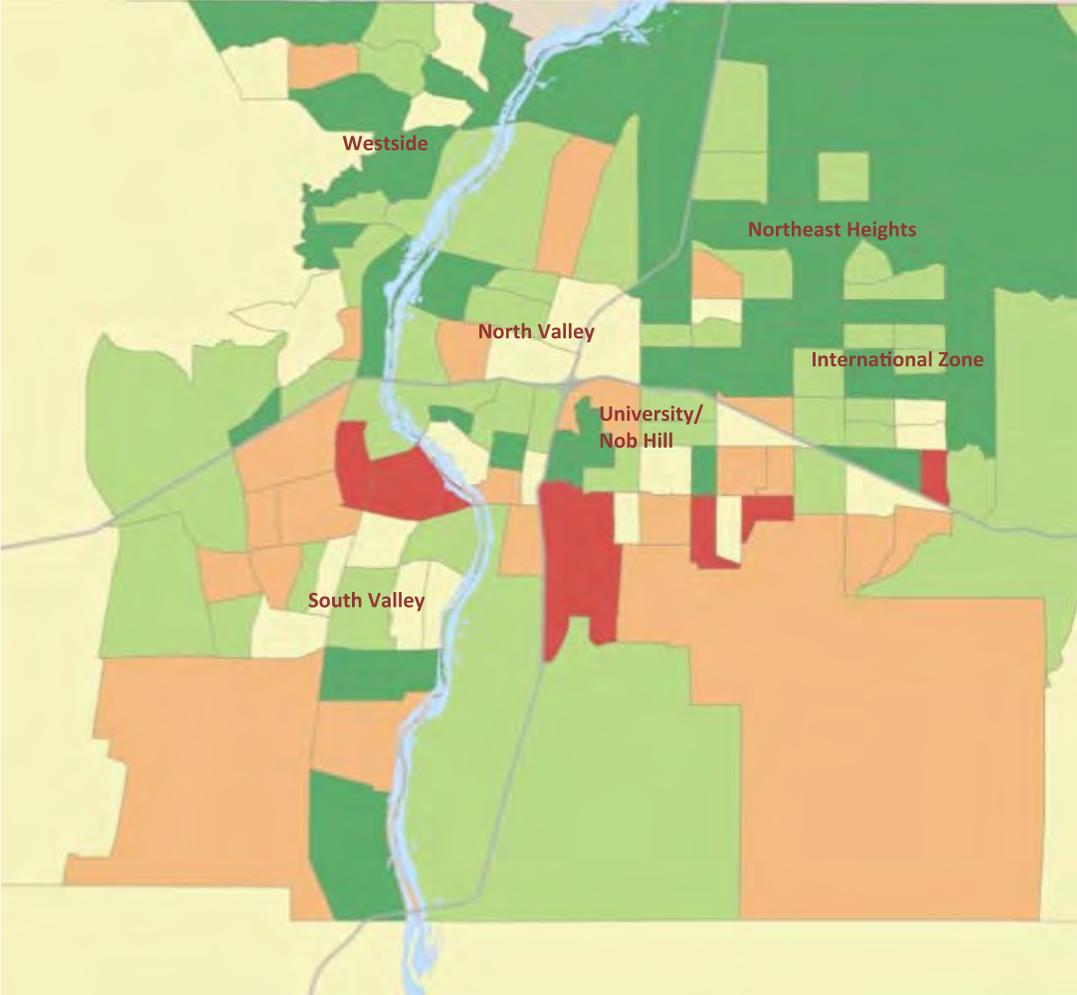
Per Capita Income, Bernalillo County



Per Capita Income (dollars)

- \$10,232.00 - \$18,272.00
- \$18,272.01 - \$25,308.00
- \$25,308.01 - \$33,747.00
- \$33,747.01 - \$46,627.00
- \$46,627.01 - \$69,484.00

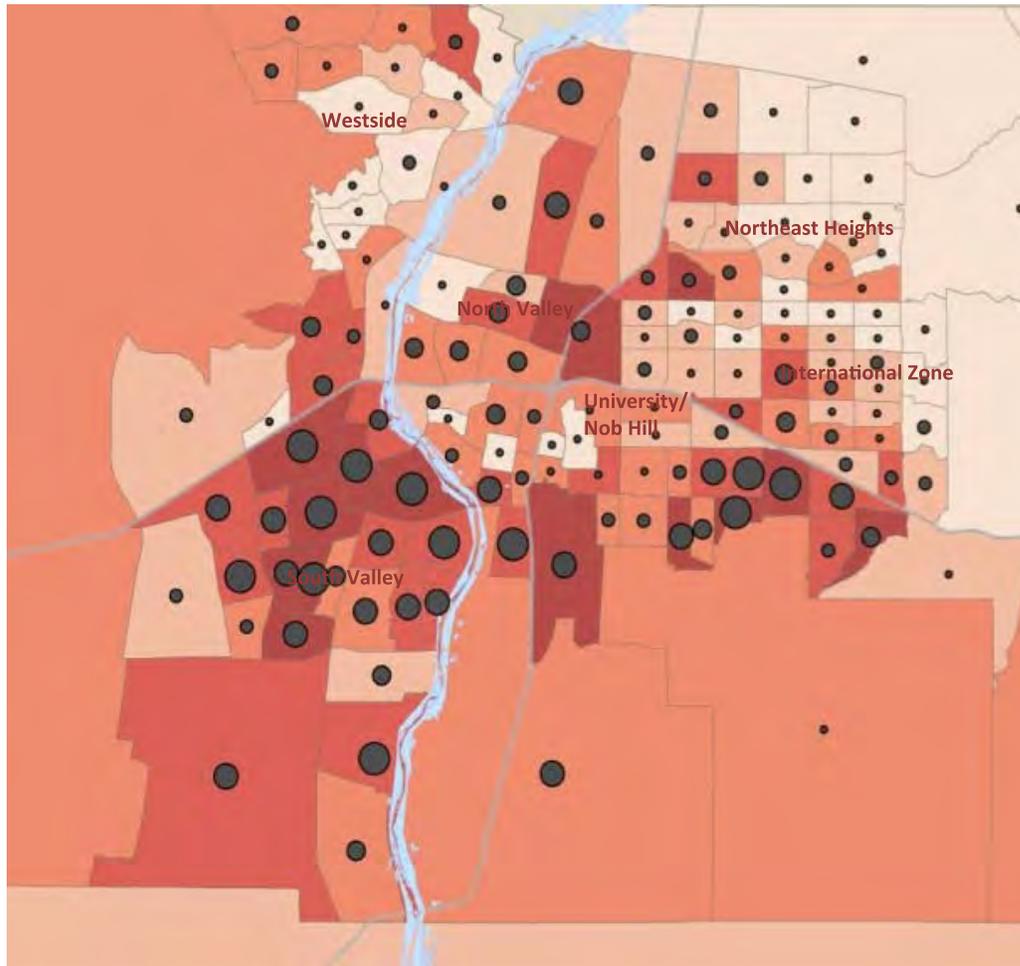
Number of Individuals Who Earn Less than \$10,000 per year, Bernalillo County



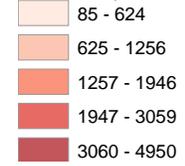
Number of Individuals Earning Less than \$10,000 per Year

- 0 - 26
- 27 - 64
- 65 - 111
- 112 - 188
- 189 - 315

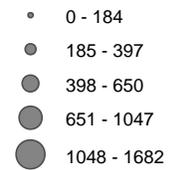
Individuals Living Below 200 Percent of Poverty Level with Less than High School Education



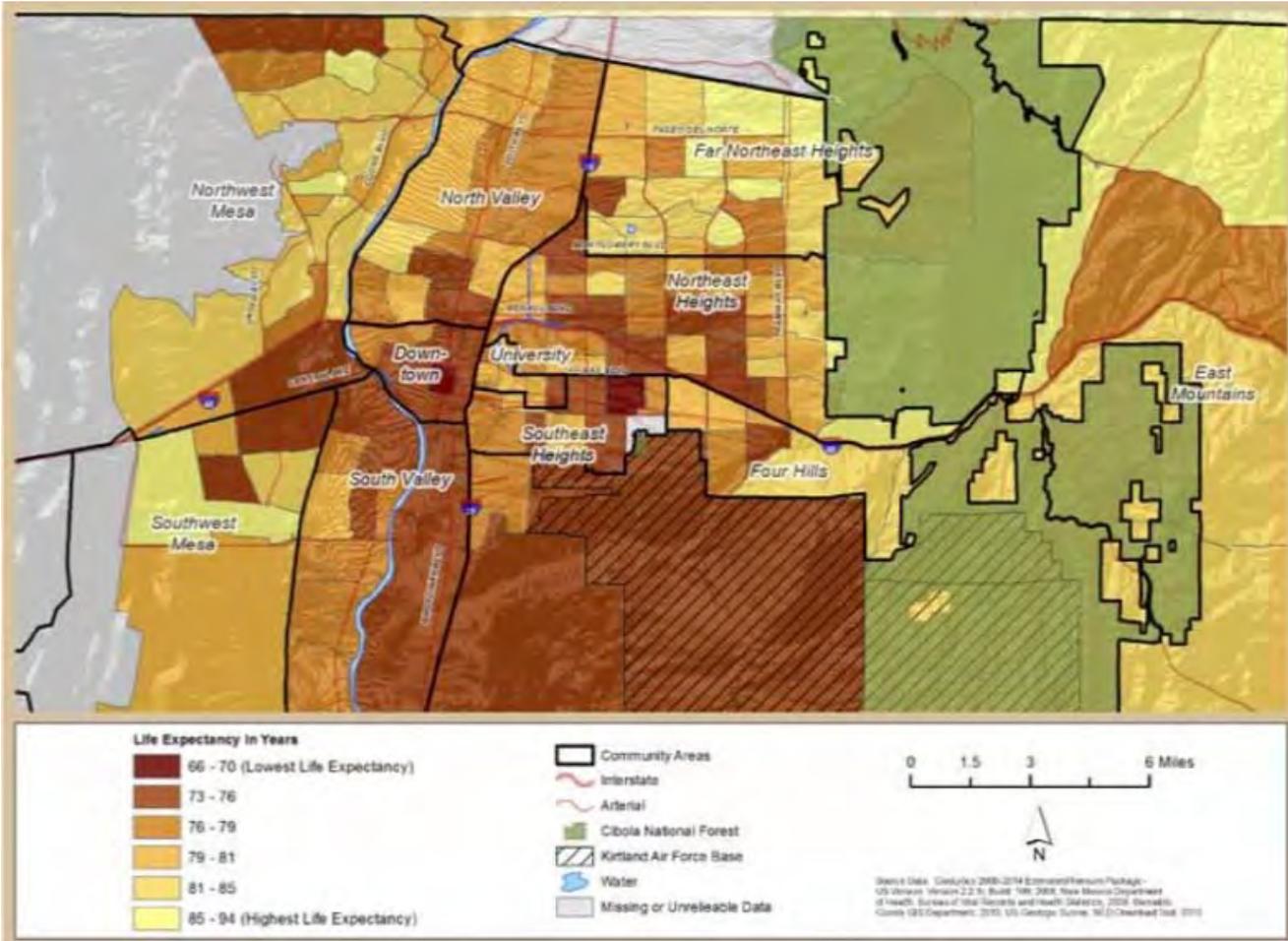
All Individuals Below 200 Percent of Poverty Level



Less than High School Graduate



Life Expectancy By Census Tract, Bernalillo County, NM (2001-2005)



This powerful map by the Joint Center For Political and Economic Studies shows that life expectancy can vary by 28 years depending on where one lives in Bernalillo County.

Source: Map produced by Joint Center For Political and Economic Studies (September, 2012) Place Matters For Health In Bernalillo County: Ensuring Opportunities For Good Health For All.

The Power Of Geospatial Mapping

- **Description:** Making the data accessible to all audiences
 - Painting the picture of urgency
 - Identifying risk, needs, and assets
- **Analysis:** Making sense of the data
 - Identifying gaps in resources
 - Setting priorities
 - Measuring impact
- **Action:** Using data for change
 - Providing a basis for advocacy
 - Strengthening public engagement
 - Developing policy

A Few Advantages of Geospatial Mapping

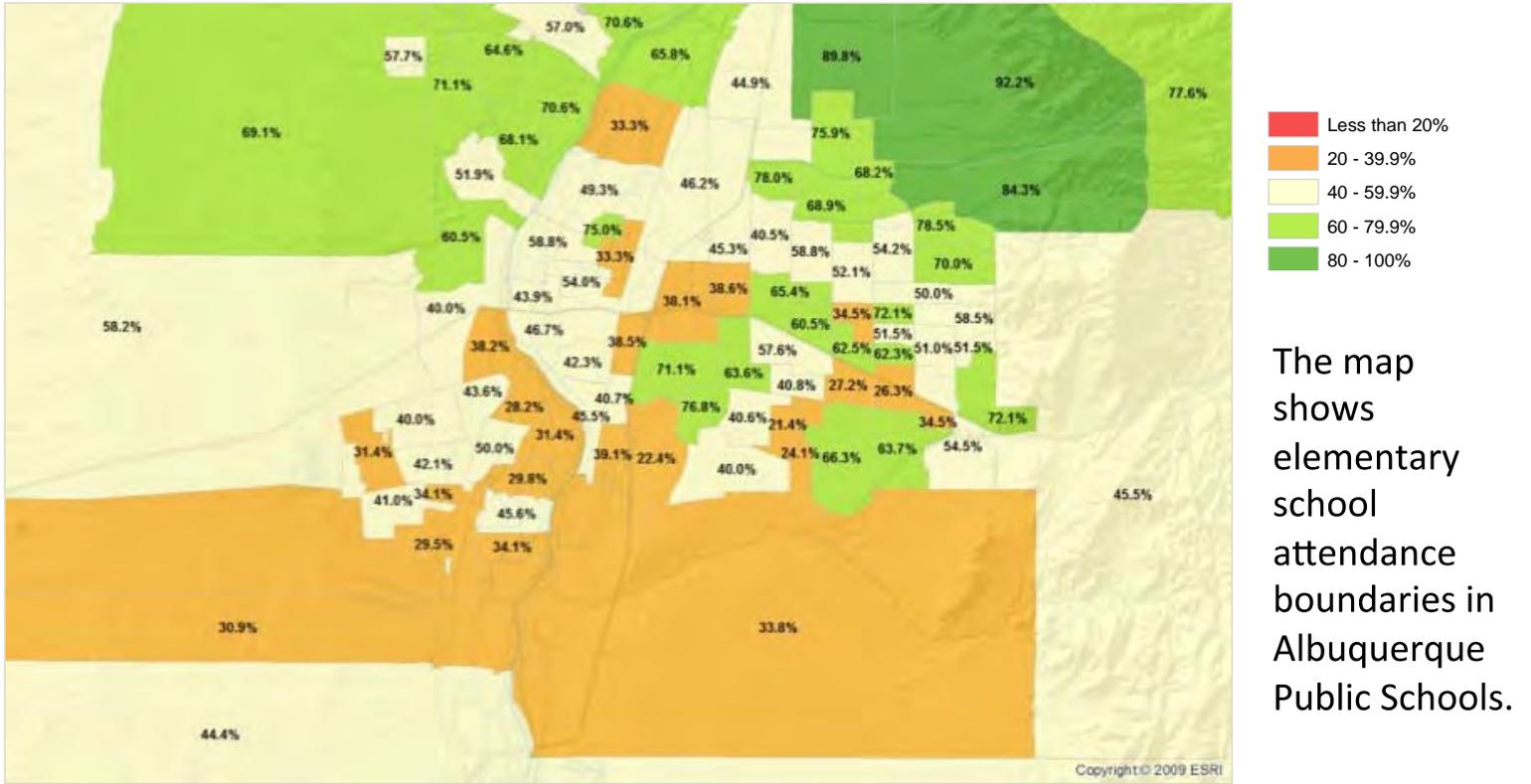
- Geospatial mapping is **used extensively in other fields** including health and human services, natural resources, public safety, defense, and urban and regional planning. Each of these fields has conceptual frameworks and analytical techniques that offer unique insights when applied to educational issues.
- The data in the maps are **immediately accessible to a wide range of audiences** including policy-makers, community members, educators, students, and parents.
- Maps are **powerful conversation starters**. Everybody sees something different in the maps based on their perspectives and experiences.
- Maps **equalize the conversations** among different groups at the table. People want to know what others think.
- Maps can convey the message that **we are one community**, bound together by a sense of place.

DESCRIPTION

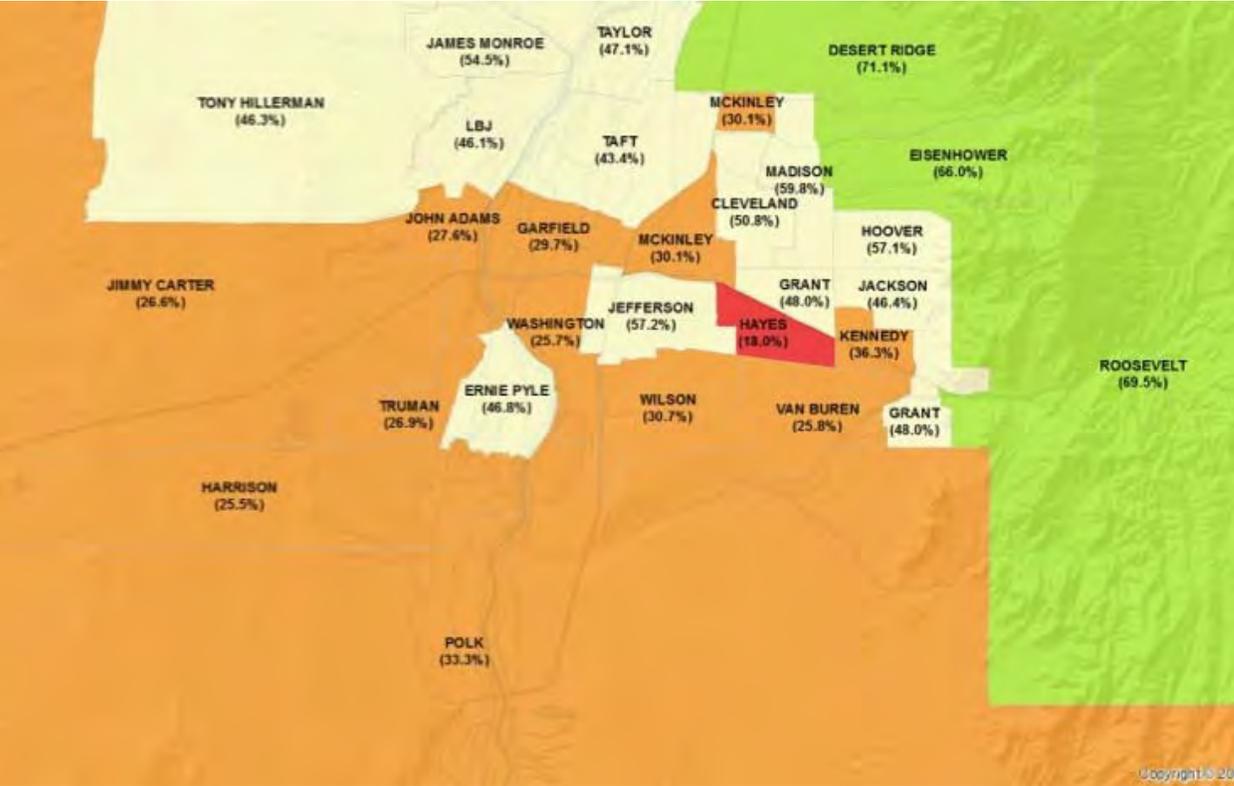
Making The Data Accessible To All Audiences

Story 1: The Path to Graduation

Percentage of Albuquerque Public Schools (APS) 3rd Grade Students Proficient Or Advanced In Reading



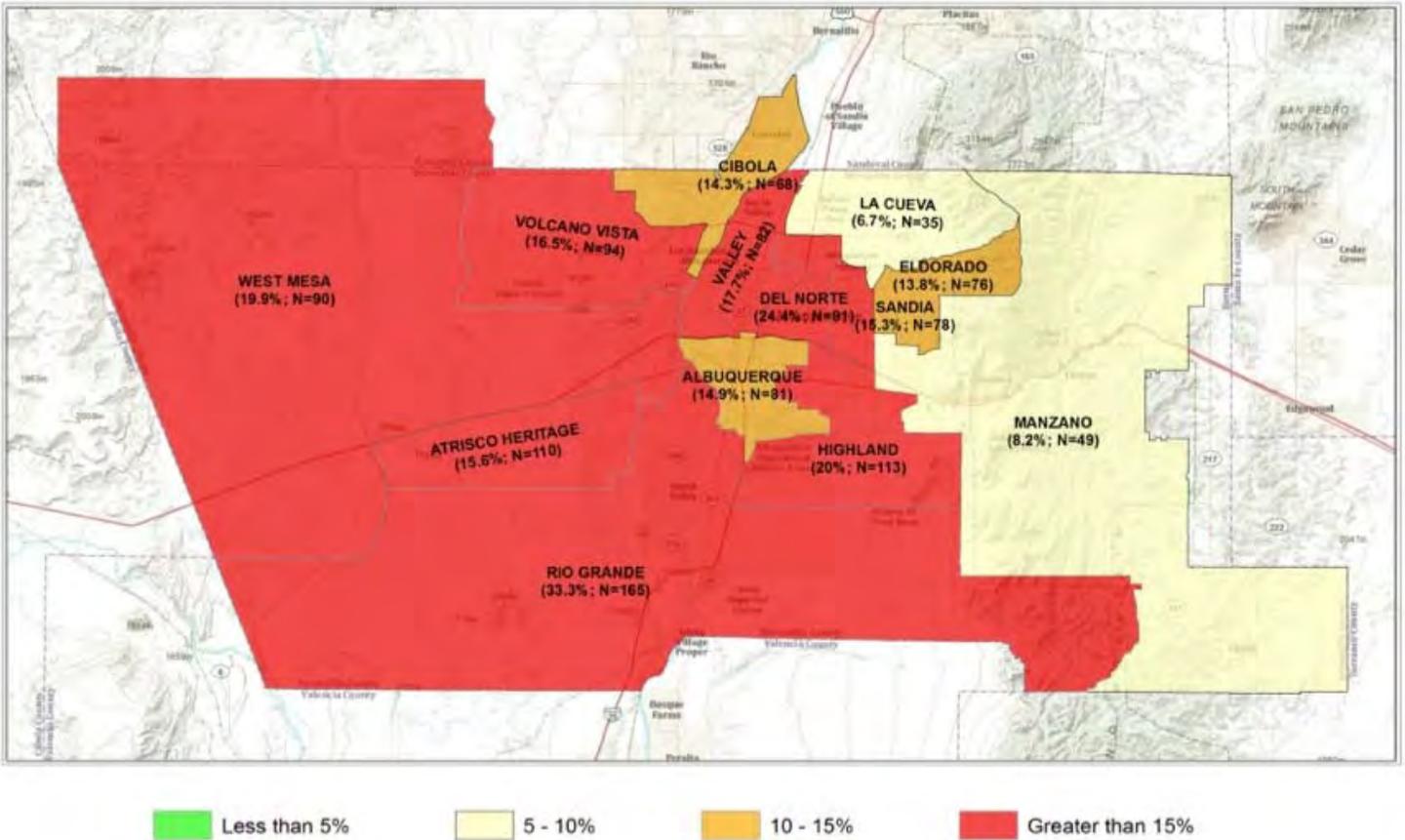
Percentage of APS 8th Grade Students Proficient Or Advanced In Math



- Less than 20%
- 20 - 39.9%
- 40 - 59.9%
- 60 - 79.9%
- 80 - 100%

The map shows middle school attendance boundaries in Albuquerque Public Schools.

Early Warning Indicator: Percentage Of APS Students Entering 9th Grade With **One or More F Grades** And **5 Or More Absences** In 8th Grade Core Courses

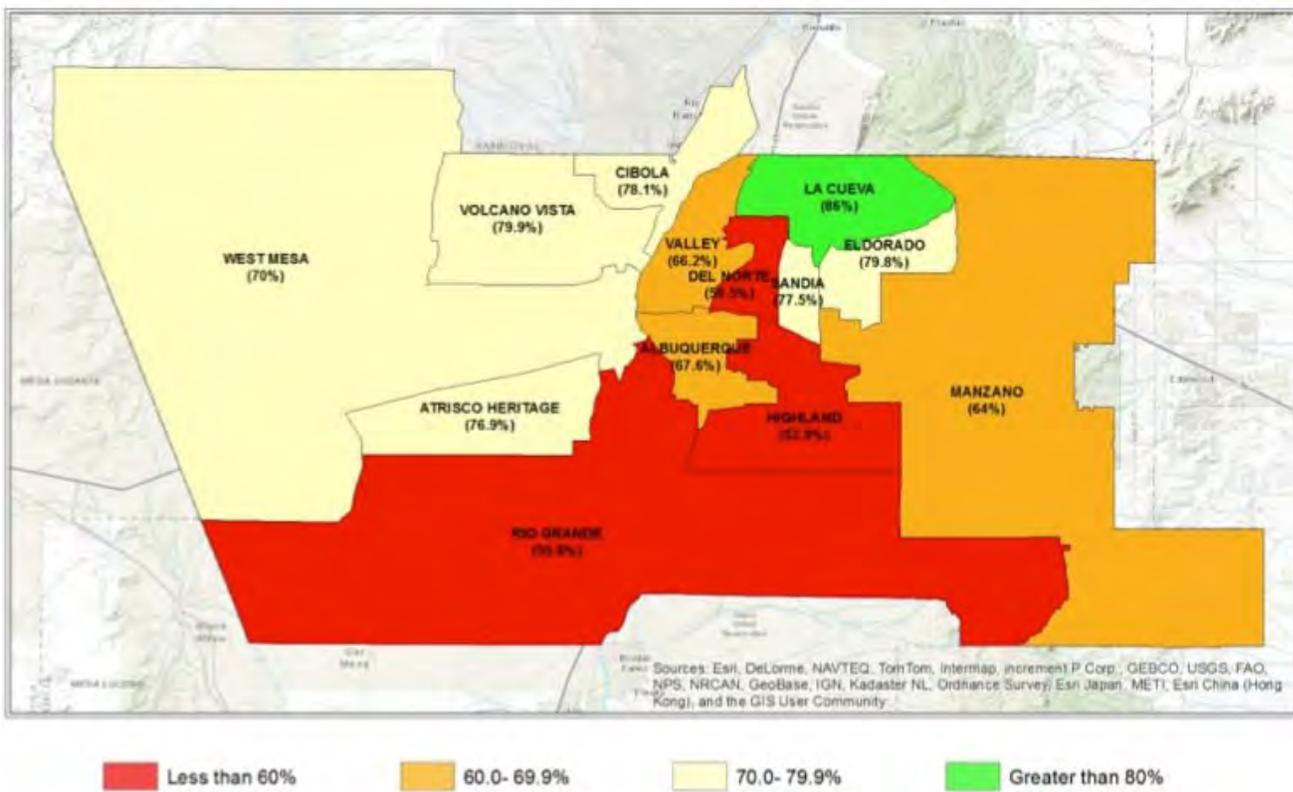


APS Four-Year High School Graduation Rate, All Students, Class of 2012

According to the Alliance for Excellent Education, there are nearly 2000 high schools nationally that graduate less than 60% of their students within four years.

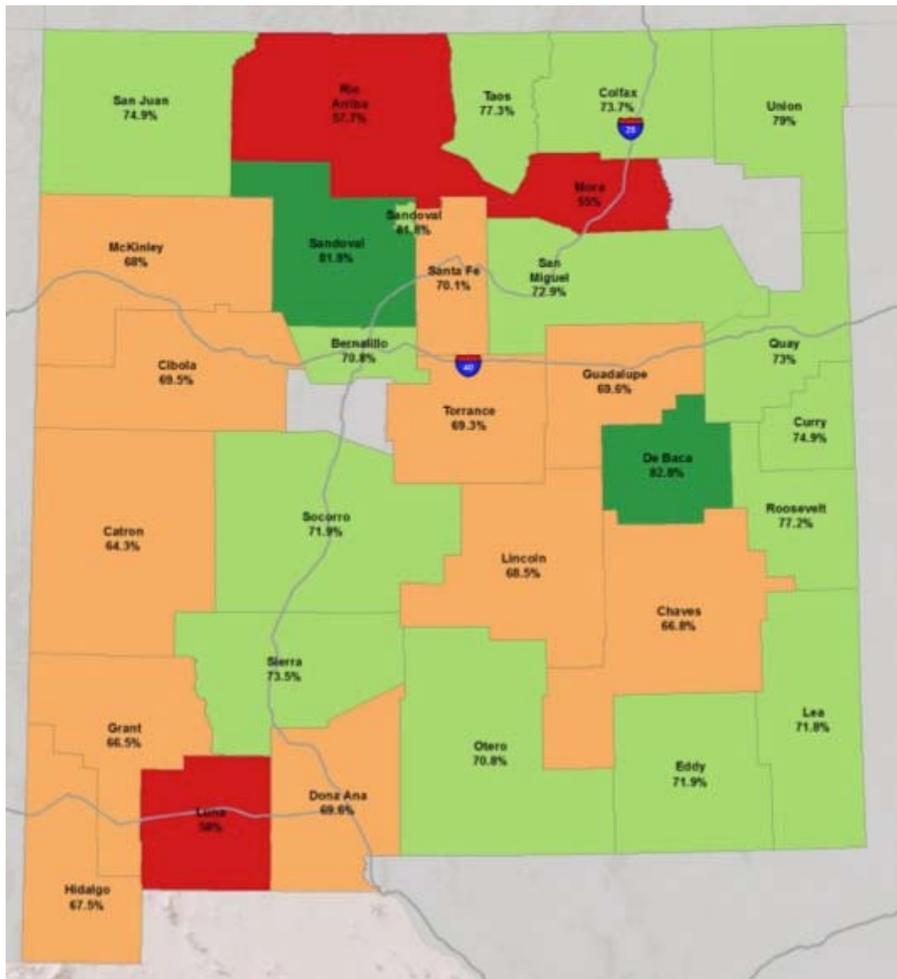
These schools disproportionately produce 51% of the nation's dropouts.

APS has four high schools with less than a 60% graduation rate.



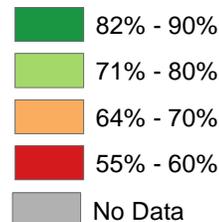
Source: NM Public Education Department, 4-Year Cohort High School Graduation Rate, Class of 2012. Alliance for Excellent Education statistics taken from http://www.all4ed.org/about_the_crisis/schools/dropout.

Measures Of Risk And Resiliency: Educational Aspirations, 2011



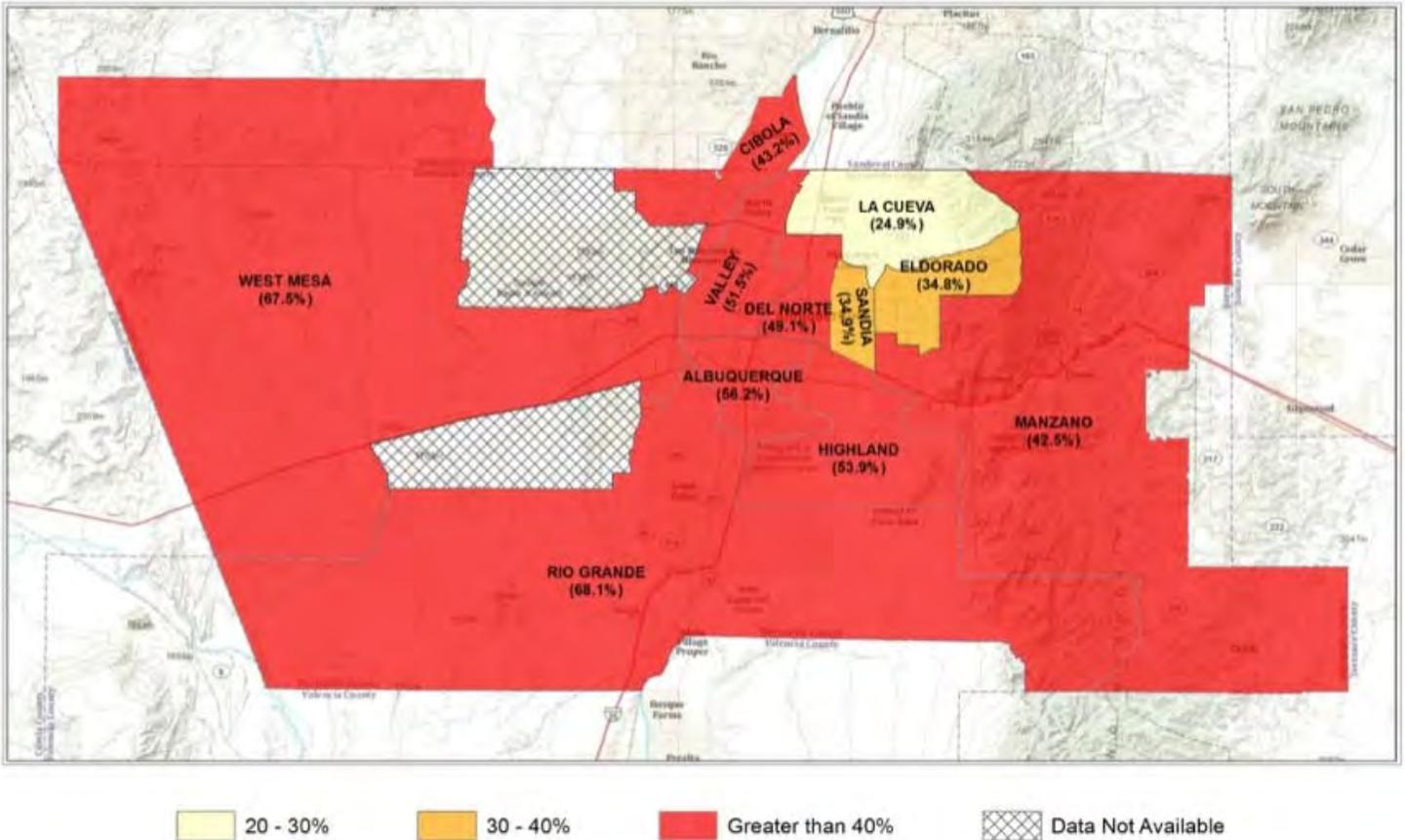
Percentage of high school students who said that they planned to go to college or some other school after high school.

Students Who Plan To Continue Their Education



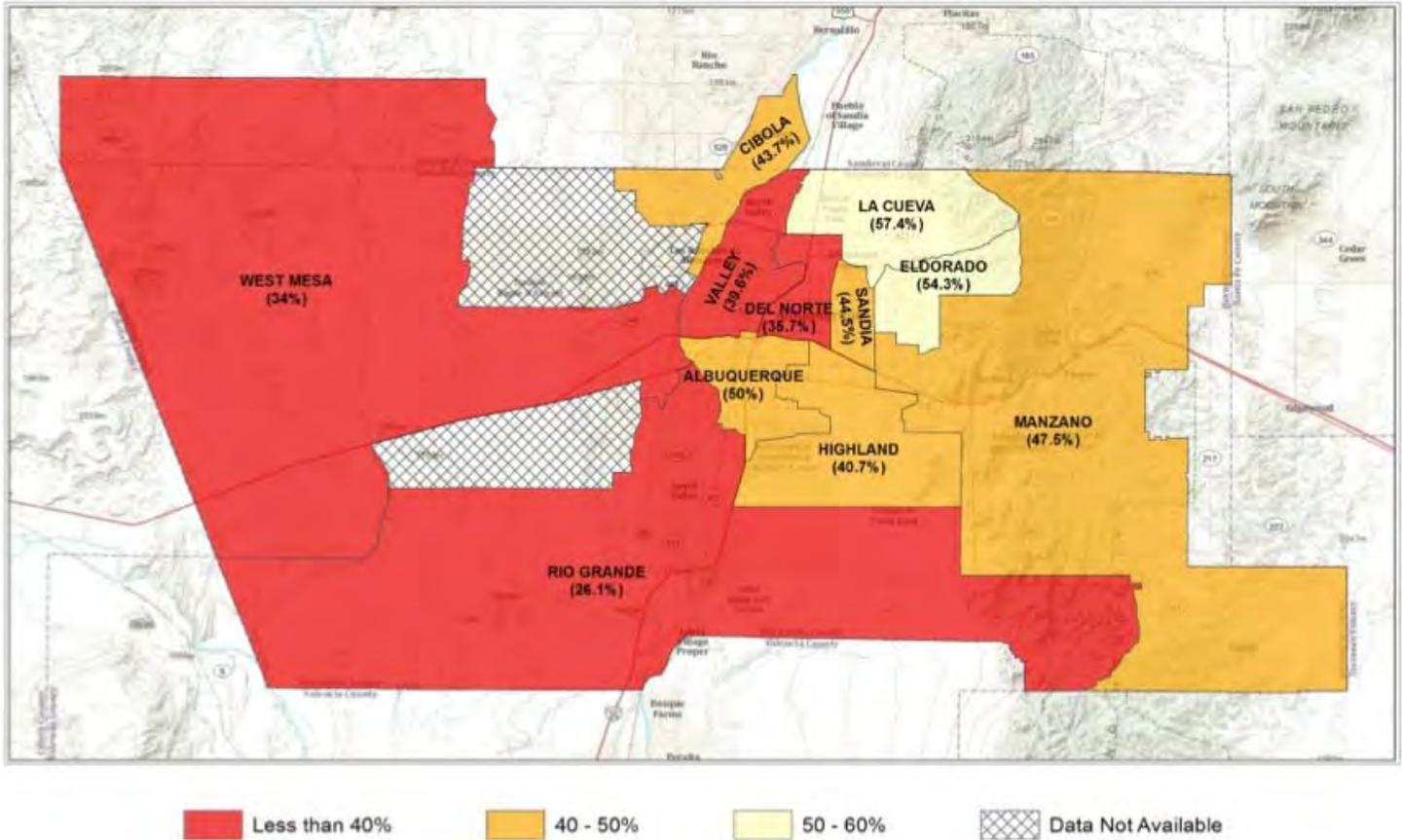
Source: New Mexico Youth Risk and Resiliency Survey, New Mexico Departments of Health and Public Education and U.S. Centers For Disease Control and Prevention, 2011. Students affirmed the statement: "I plan to go to college or some other school after high school." NOTE: Moderately low reliability for Otero, Roosevelt, Sandoval, and Sierra Counties, unreliable data for Chaves County, and very low reliability for Dona Ana and Eddy Counties.

Percentage of APS Students Attending New Mexico Colleges Who Took Remedial Courses, 2000-2009, By Sending High School



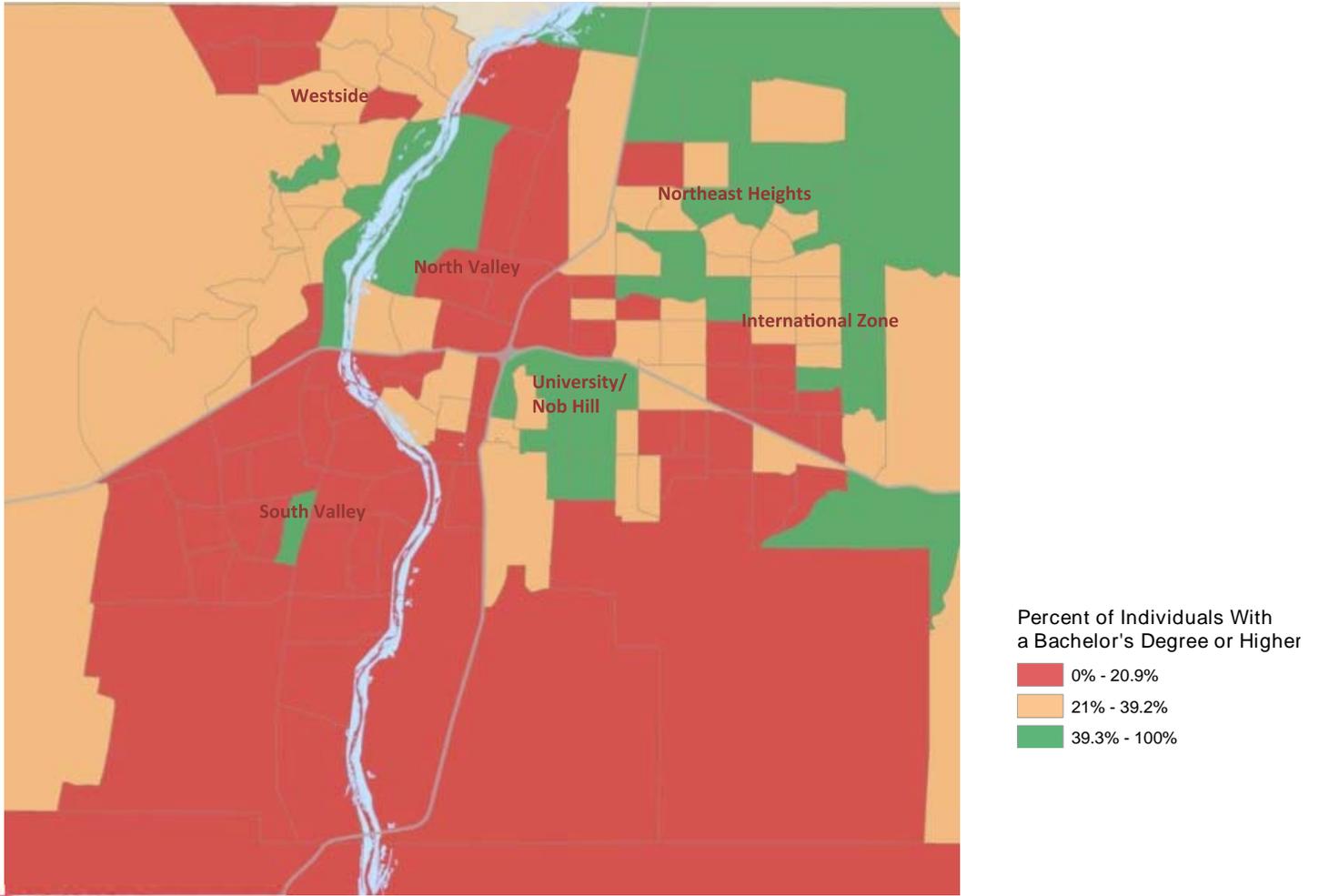
Source: "Ready For College? A Report on New Mexico's High School Graduates Who Take Remedial Courses In College," June 2010, New Mexico Office of Education Accountability. Data were unavailable for Volcano Vista & Atrisco Heritage Academy.

University of New Mexico Six-Year Graduation Rate, by Sending APS High School



Source: UNM Office of Institutional Research. The six-year graduation rate is the percentage of first-time, full-time, degree seeking students each Fall semester who graduate with a Bachelors degree or PharmD degree, or who are enrolled in the fourth fall of the PharmD Program within six years (this is the definition of Graduation Rate as reported to the Federal Department of Education IPEDS system). The data reported here are for the 2004 student cohort.

Percentage of Individuals 25 and Older With a Bachelor's Degree or Higher, Bernalillo County



Story 2: The Challenge Of Truancy

Habitual Truancy Is A Problem Across New Mexico

**51,034
Students
Were
Habitually
Truant In
2011-2012**

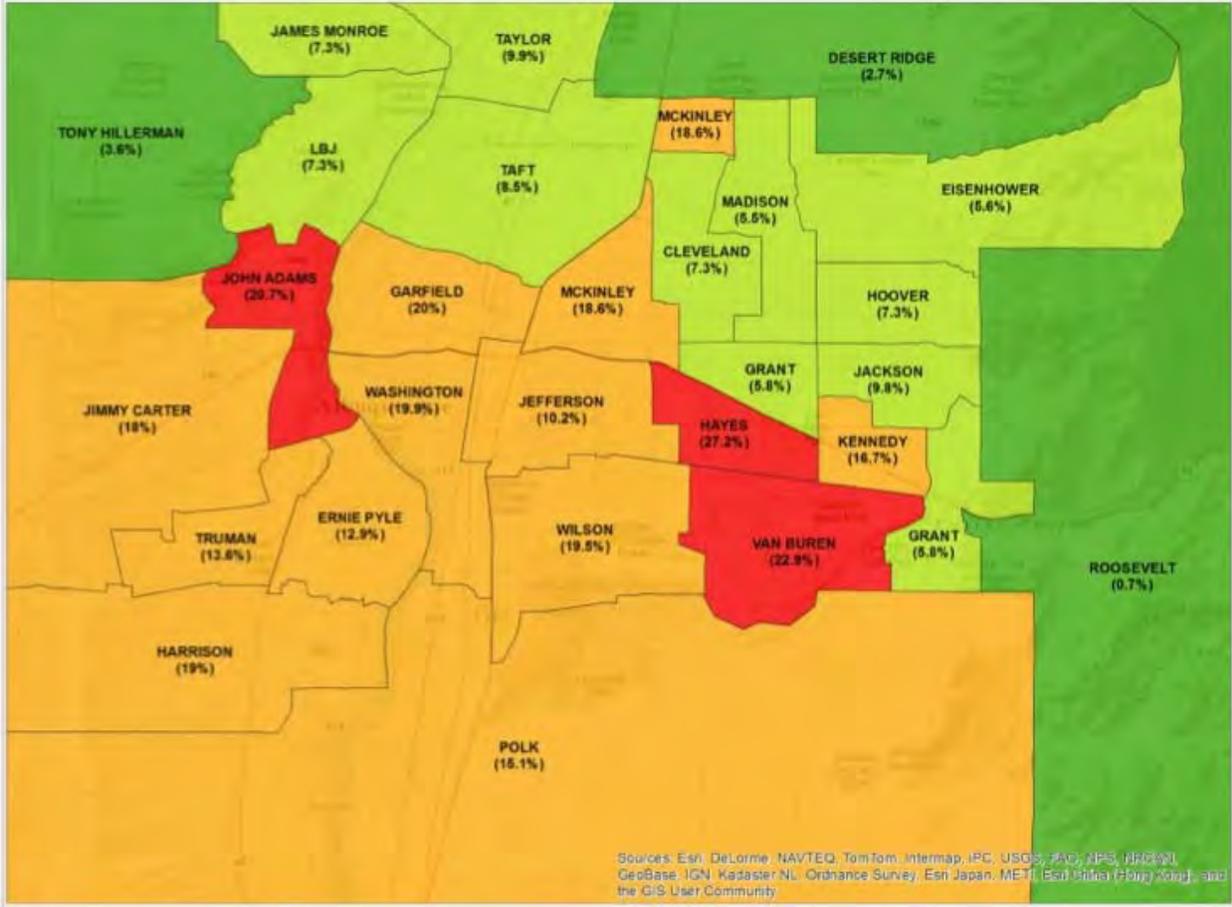


**50,929 Students Enrolled Are
Enrolled In These 66 Of New
Mexico's 89 Districts:**

BERNALILLO, BLOOMFIELD, LOVINGTON, TAOS,
PORTALES, RUIDOSO, POJOAQUE, LAS VEGAS CITY,
SOCORRO, WEST LAS VEGAS, ZUNI, HATCH, TRUTH
OR CONSEQUENCES, COBRE, RATON, TUCUMCARI,
DEXTER, TULAROSA, ESTANCIA, DULCE, CUBA,
PECOS, SANTA ROSA, LORDSBURG, LOVING, EUNICE,
CLAYTON, TEXICO, QUESTA, CAPITAN, PEÑASCO,
MORA, JEMEZ VALLEY, CIMARRON, MAGDALENA,
CLOUDCROFT, HAGERMAN, CHAMA, JAL, MESA
VISTA, JEMEZ MOUNTAIN, MOUNTAINAIR, TATUM,
FT. SUMNER, FLOYD, ANIMAS, DORA, LOGAN,
SPRINGER, MELROSE, QUEMADO, CARRIZOZO,
RESERVE, HONDO, SAN JON, LAKE ARTHUR, ELIDA,
GRADY, VAUGHN, DES MOINES, MAXWELL, CORONA,
HOUSE, WAGON MOUND, ROY, MOSQUERO

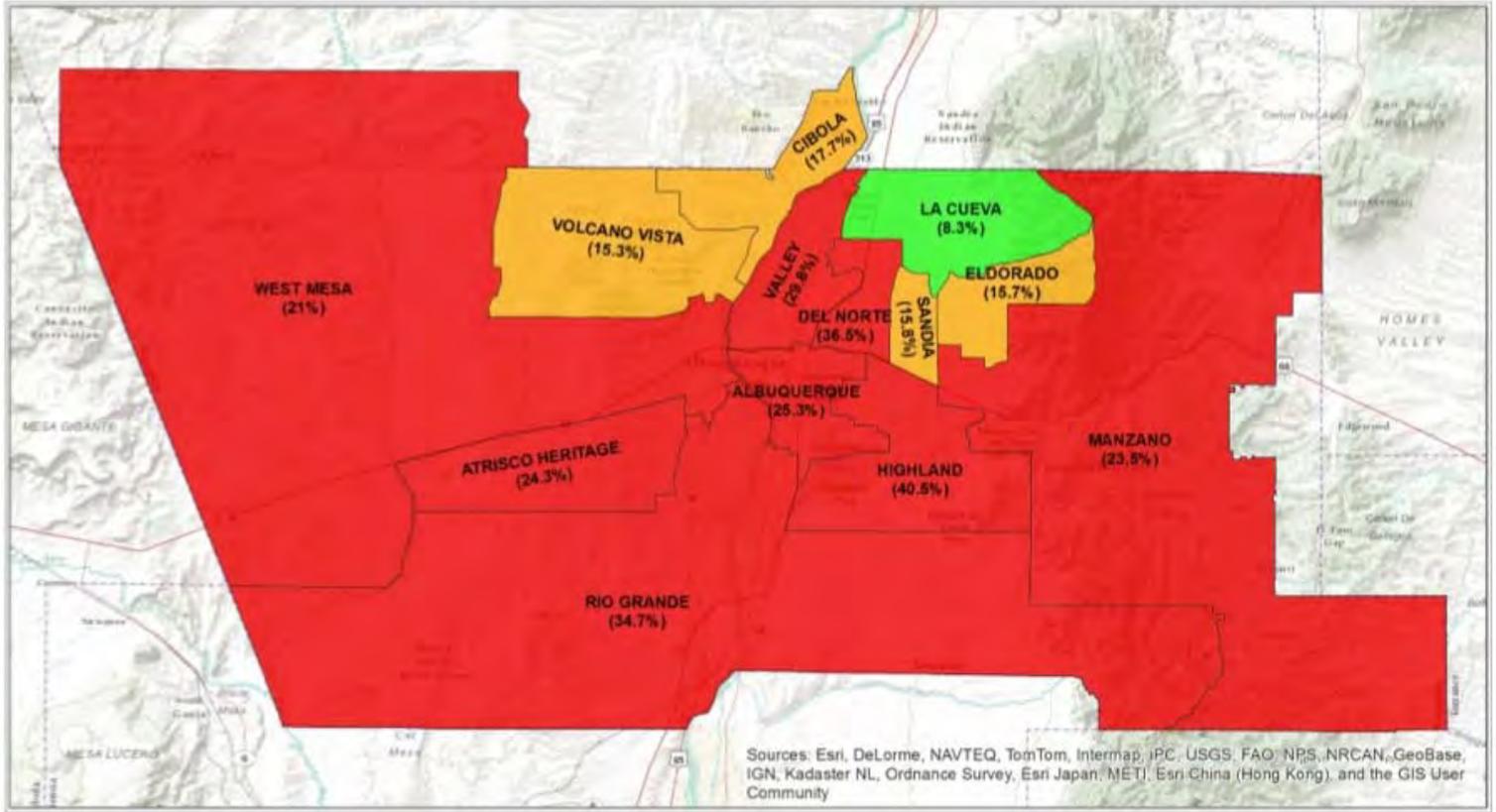
If All These Students Were In One
District, It Would Be The Second
Largest District In New Mexico And
Twice The Size Of Last Cruces

Percentage Of APS Middle School Students Who Were Habitually Truant In 2011-2012



Source: Albuquerque Public Schools, RDA Department, 2011-2012 School Year. A student is identified as a Habitual Truant when the student has accumulated 10 or more days of unexcused absences.

Percentage Of APS High School Students Who Were Habitually Truant In 2011-2012



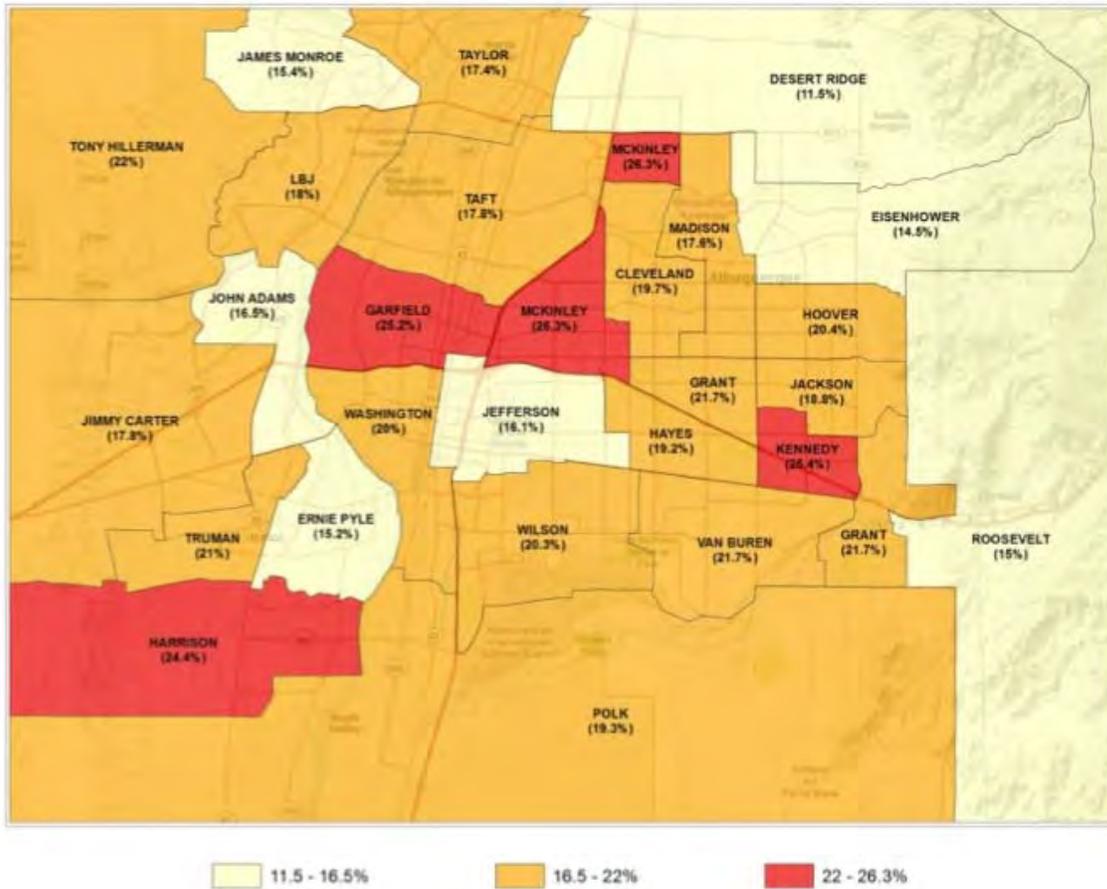
Story 3: Risk And Resiliency

The New Mexico Youth Risk & Resiliency Survey (YRRS)

- The YRRS is part of the CDC Youth Risk Behavior Surveillance System (YRBSS) and is conducted by the New Mexico Departments of Health and Public Education with the assistance of the Prevention Research Center in the UNM School of Medicine.
- The YRRS is an important survey that examines risk behaviors and resiliency (protective) factors of New Mexico high school and middle school students.
- The **RISK** behaviors covered include alcohol and drug use, unintentional injury, violence, suicidal ideation, tobacco use, sexual activity, physical activity and nutrition.
- The **RESILIENCY** factors covered include relationships in the family, school, community, and with peers; participation in sports, clubs, other group activities, and hobbies; and health status issues.

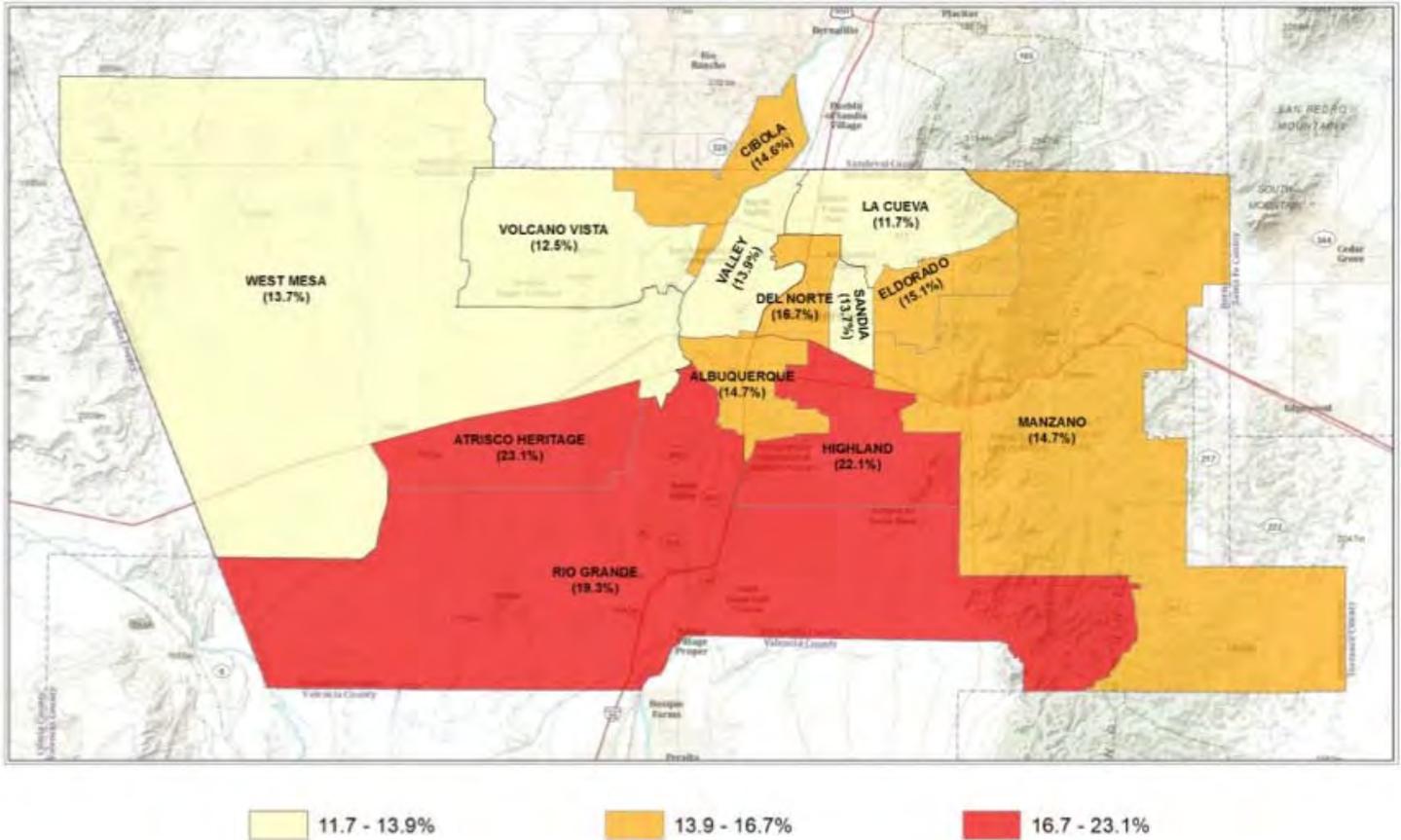
Sources: www.youthrisk.org. Green D, Peñalosa L, and FitzGerald C. 2012. New Mexico Youth Risk & Resiliency Survey: High School Survey Results 2011. Epidemiology and Response Division, New Mexico Department of Health, School and Family Support Bureau, New Mexico Public Education Department, and University of New Mexico Prevention Research Center.

Percentage Of Middle School Students Who Seriously Considered Attempting Suicide



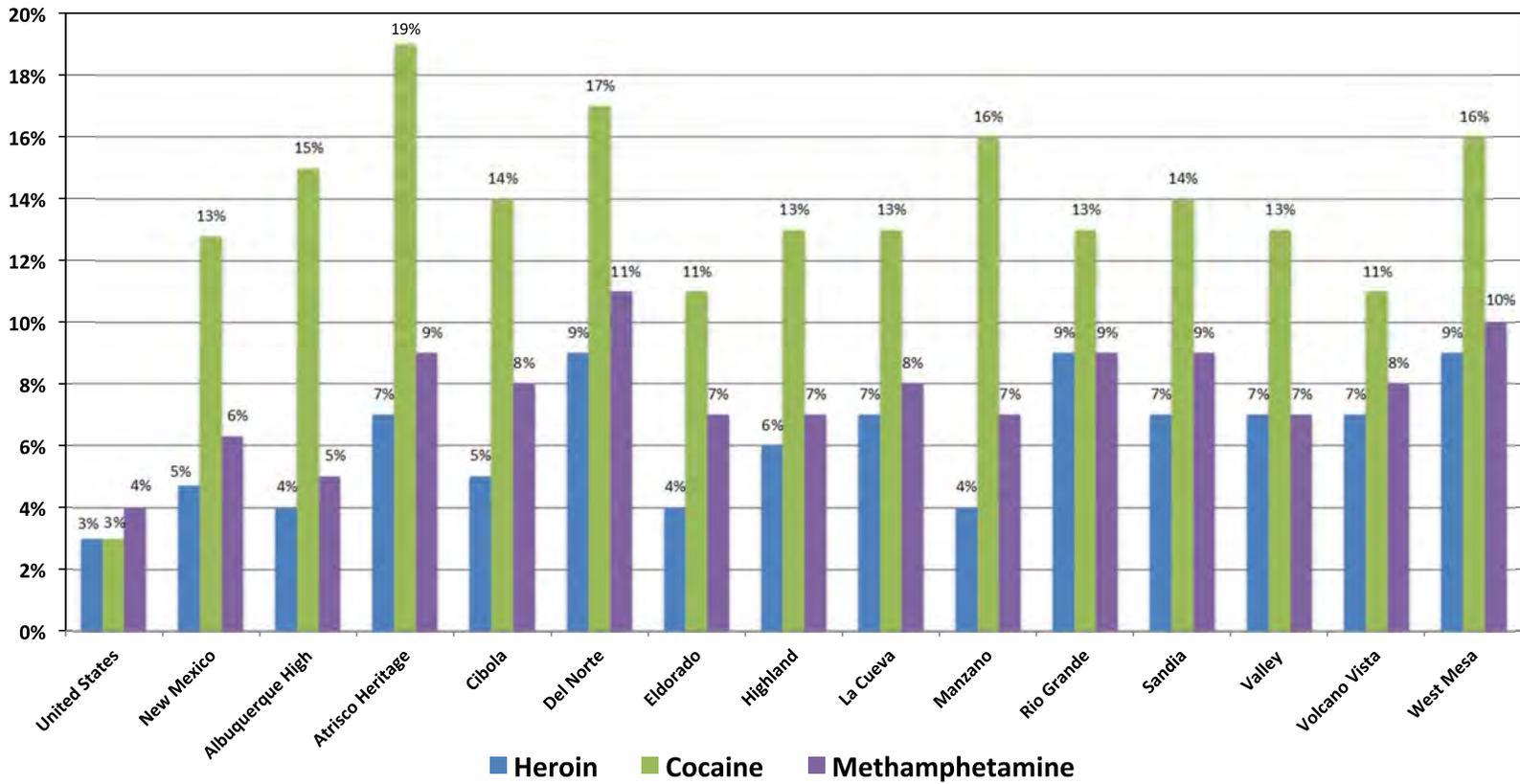
Source: New Mexico Youth Risk and Resiliency Survey, 2009, New Mexico Departments of Health and Public Education and U.S. Centers for Disease Control and Prevention (CDC). Students were asked, "During the past 12 months, did you ever seriously consider attempting suicide?" The percentage reported here reflects respondents who answered "Yes."

Percentage Of High School Students Who Were In A Physical Fight On School Property



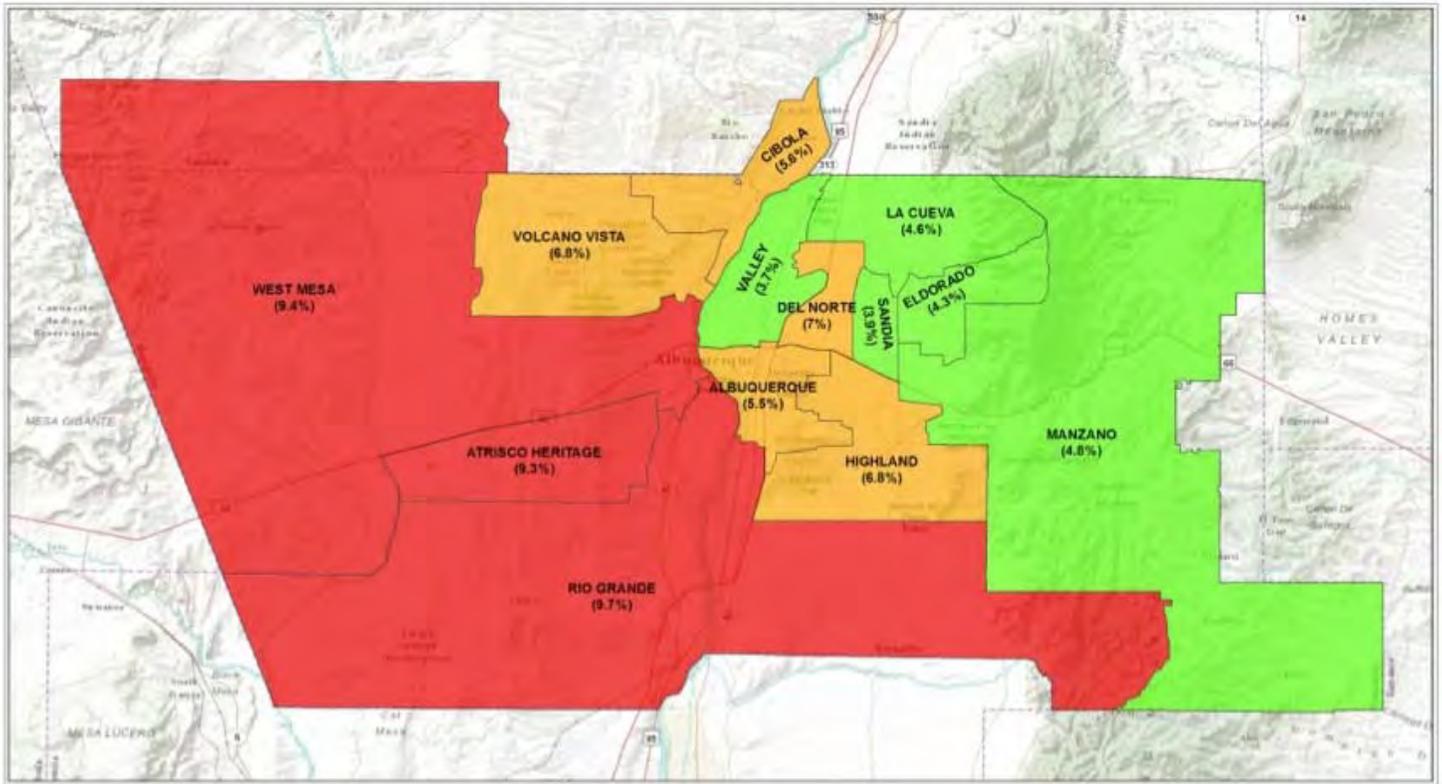
Source: New Mexico Youth Risk and Resiliency Survey, 2009, New Mexico Departments of Health and Public Education and U.S. Centers for Disease Control and Prevention (CDC). Students were asked, "During the past 12 months, how many times were you in a physical fight on school property?" The percentage reported here reflects respondents who answered one or more times.

Percentage Of APS High School Students Who Reported Using Heroin, Cocaine, Or Meth At Least Once In Their Lives



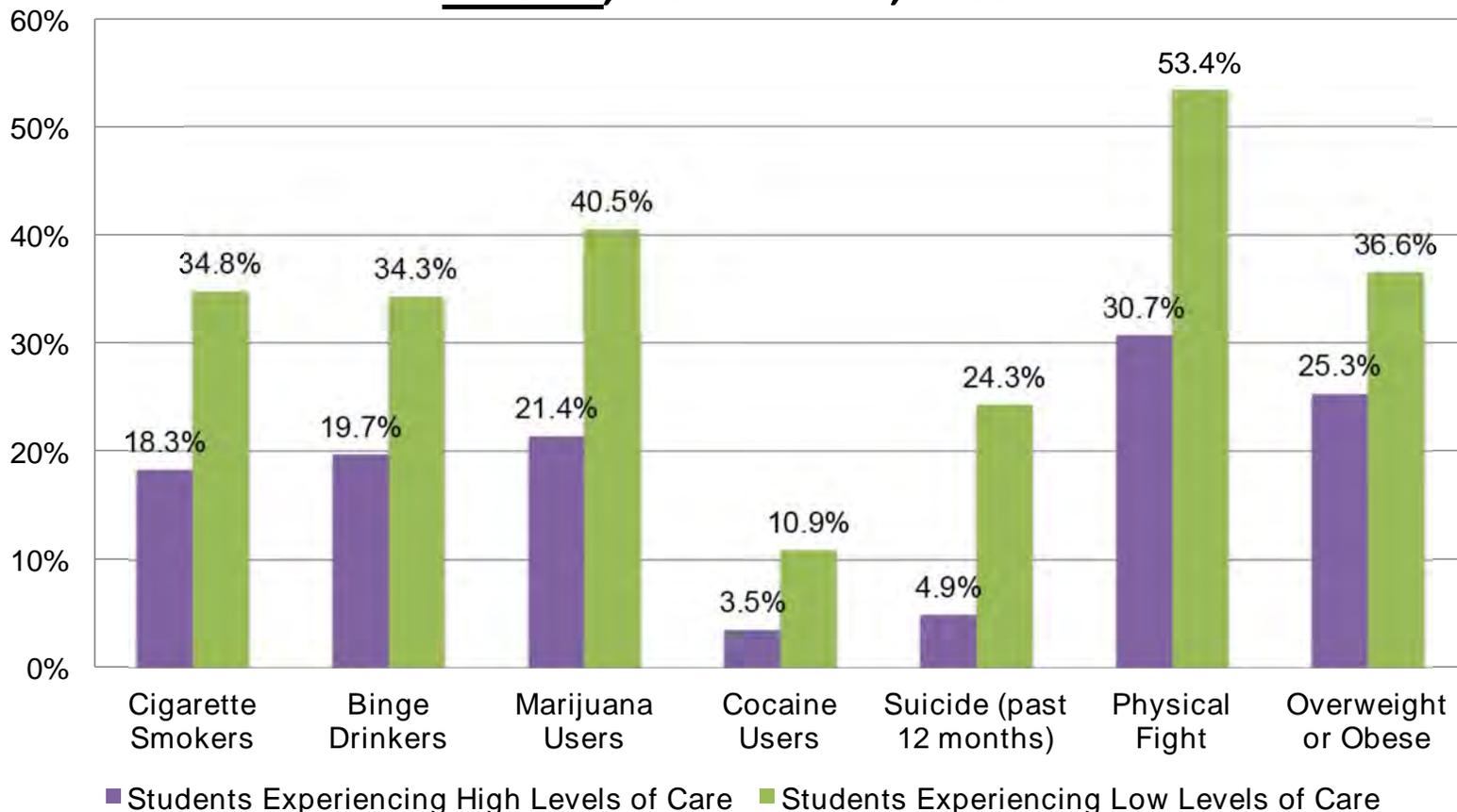
Source: APS and state high school data taken from New Mexico Youth Risk and Resiliency Survey, 2009. Students were asked the following three questions: “During your life, how many times have you used any form of cocaine, including powder, crack, or freebase?” “During your life, how many times have you used heroin (also called smack, junk, or China White)?” “During your life, how many times have you used methamphetamines (also called speed, crystal, crank, or ice)?” The percentages reported here reflect respondents who reported using the given drug one or more times. National data taken from High School Youth Risk Behavior Survey, 2009, Centers for Disease Control & Prevention.

Percentage of Students Who Report Not Having A Parent Or Adult At Home Who Is Interested In Their School Work



Source: New Mexico Youth Risk and Resiliency Survey, 2009. Students were asked to comment on the statement, "In my home, there is a parent or some other adult who is interested in my school work." The percentage reported here reflects respondents who answered, "Not true at all."

Key Outcomes Of High School Students Experiencing High & Low Levels Of Caring And Supportive Relationships With Parents, New Mexico, 2009



ANALYSIS

Making Sense Of The Data

Change Across The Cradle-To-Career Continuum

Habitual Truancy In APS Elementary, Middle, And High Schools

Elementary School



Middle School



Percent Habitually Truant Students

- 0.4% - 5%
- 5.1% - 10%
- 10.1% - 20%
- Greater than 20%

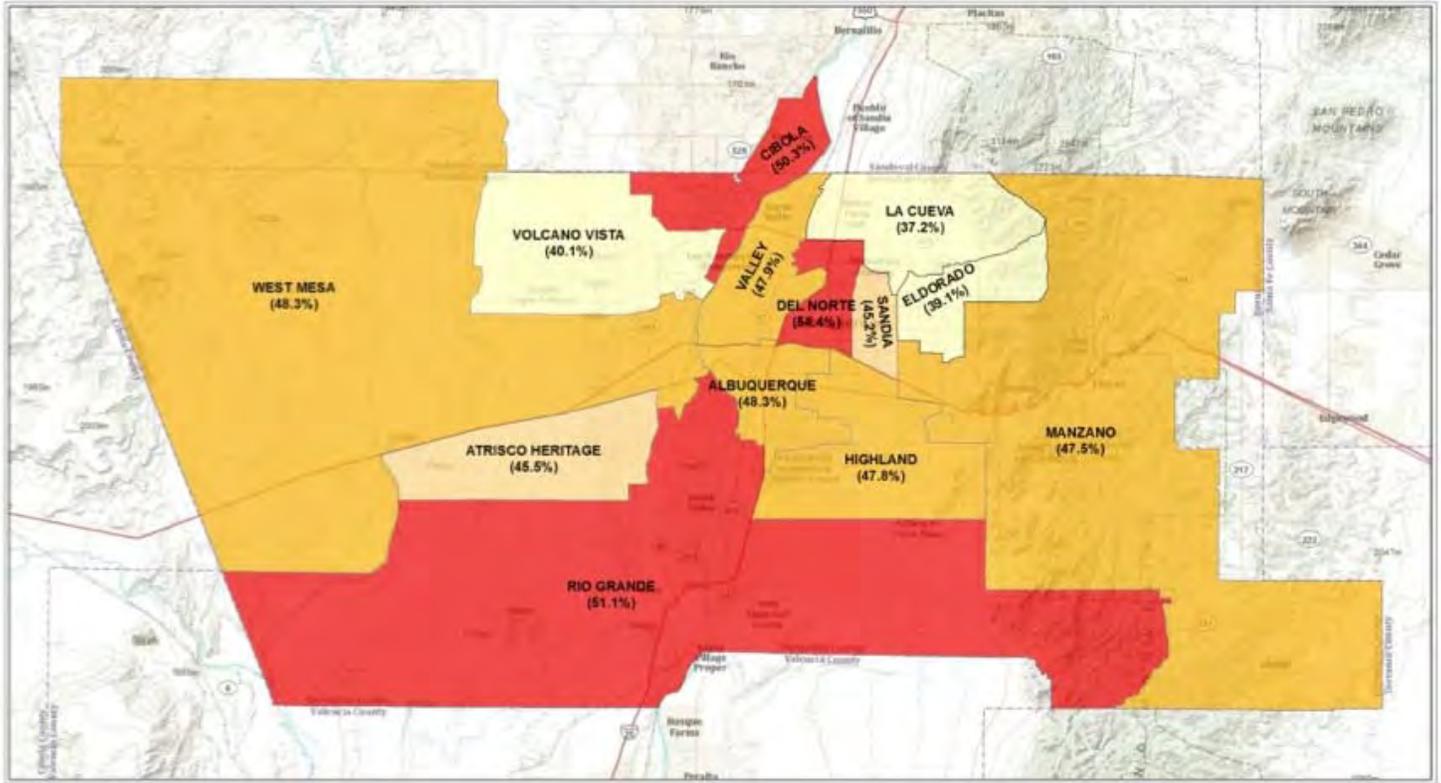
High School



These maps show truancy moving like a red tide that engulfs Albuquerque Public Schools students by the time they are in high school.

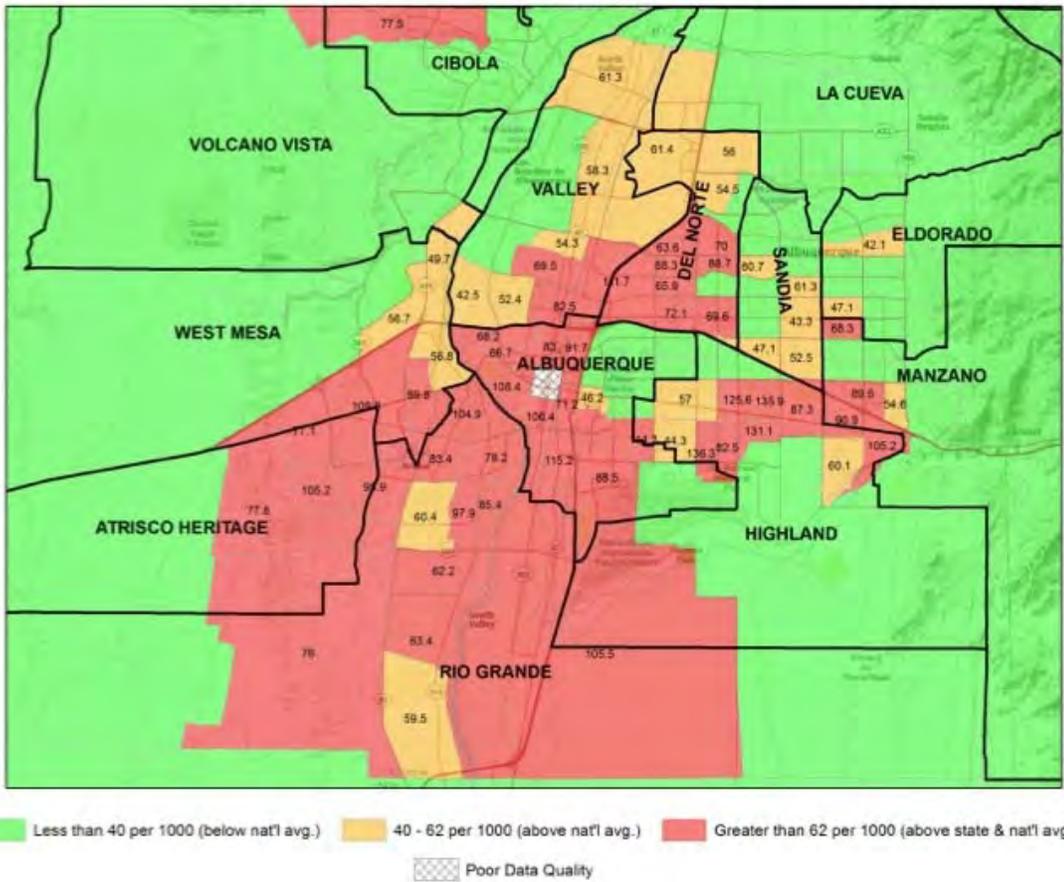
Identifying Gaps In Resources

Percentage Of High School Students Who Have Had Sexual Intercourse



Source: New Mexico Youth Risk and Resiliency Survey, 2009, New Mexico Departments of Health and Public Education and U.S. Centers for Disease Control and Prevention (CDC). Students were asked, "During your life, with how many people have you had sexual intercourse?" The percentage reported here reflects respondents who answered one or more people.

Teen Birth Rate, Ages 15-19

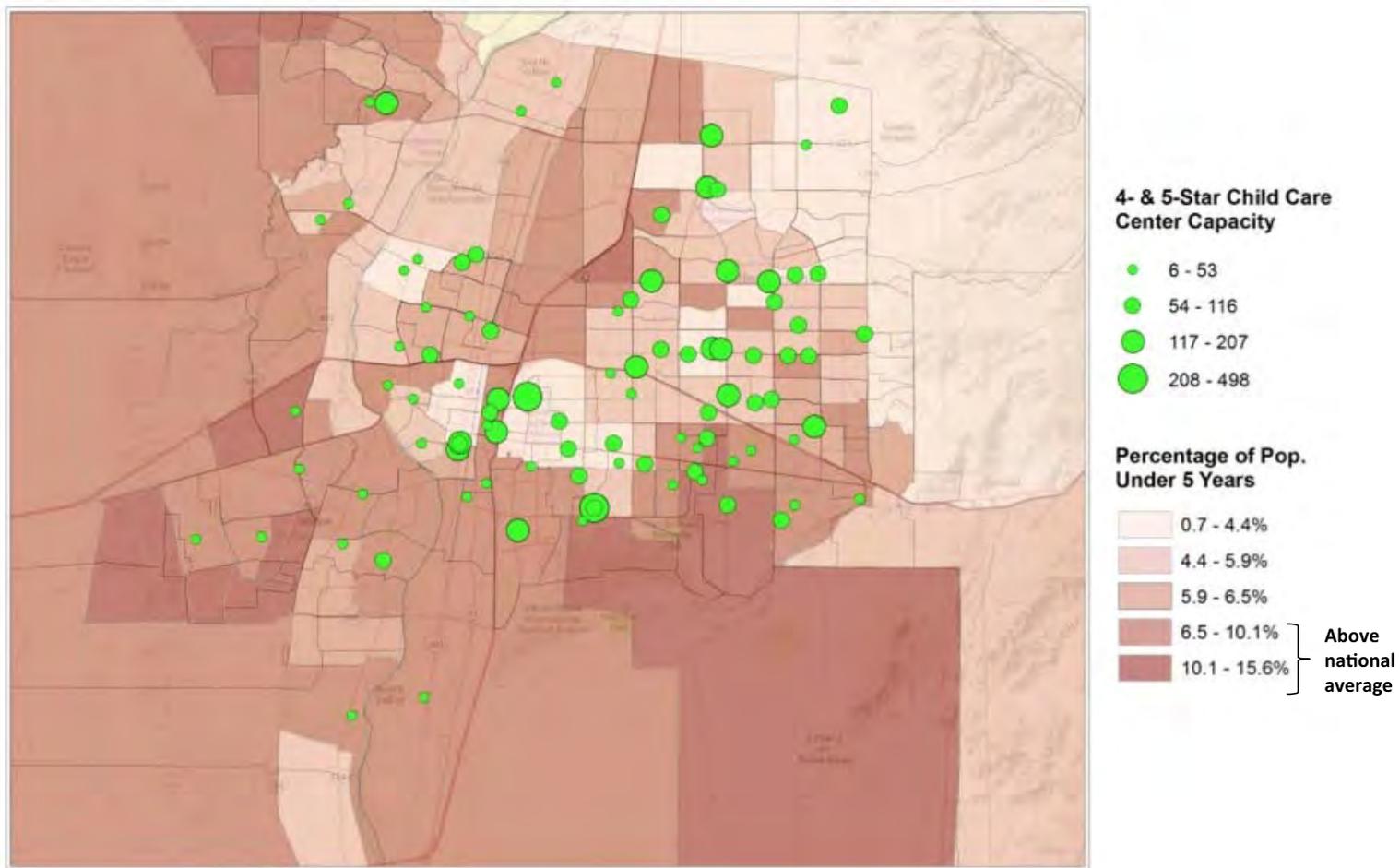


The data point in each census tract represents the number of live births to teen women per 1000 teen women, over the period 2001-2005.

For example, the census tract in the center with a teen birth rate of 106.4 means that there were 106 live births to teen women for every 1000 teen women who live in the census tract.

Source: New Mexico Community Data Collaborative. The rates shown here reflects the average number of children per 1000 women born to teen mothers (ages 15-19) between 2001 and 2005. Rates are reported by census tract; high school boundaries are overlaid to provide perspective. In 2005, the statewide teen birth rate was 62 per 1000, and the nationwide rate was 40 per 1000 (Kids Count Data Center, <http://datacenter.kidscount.org>).

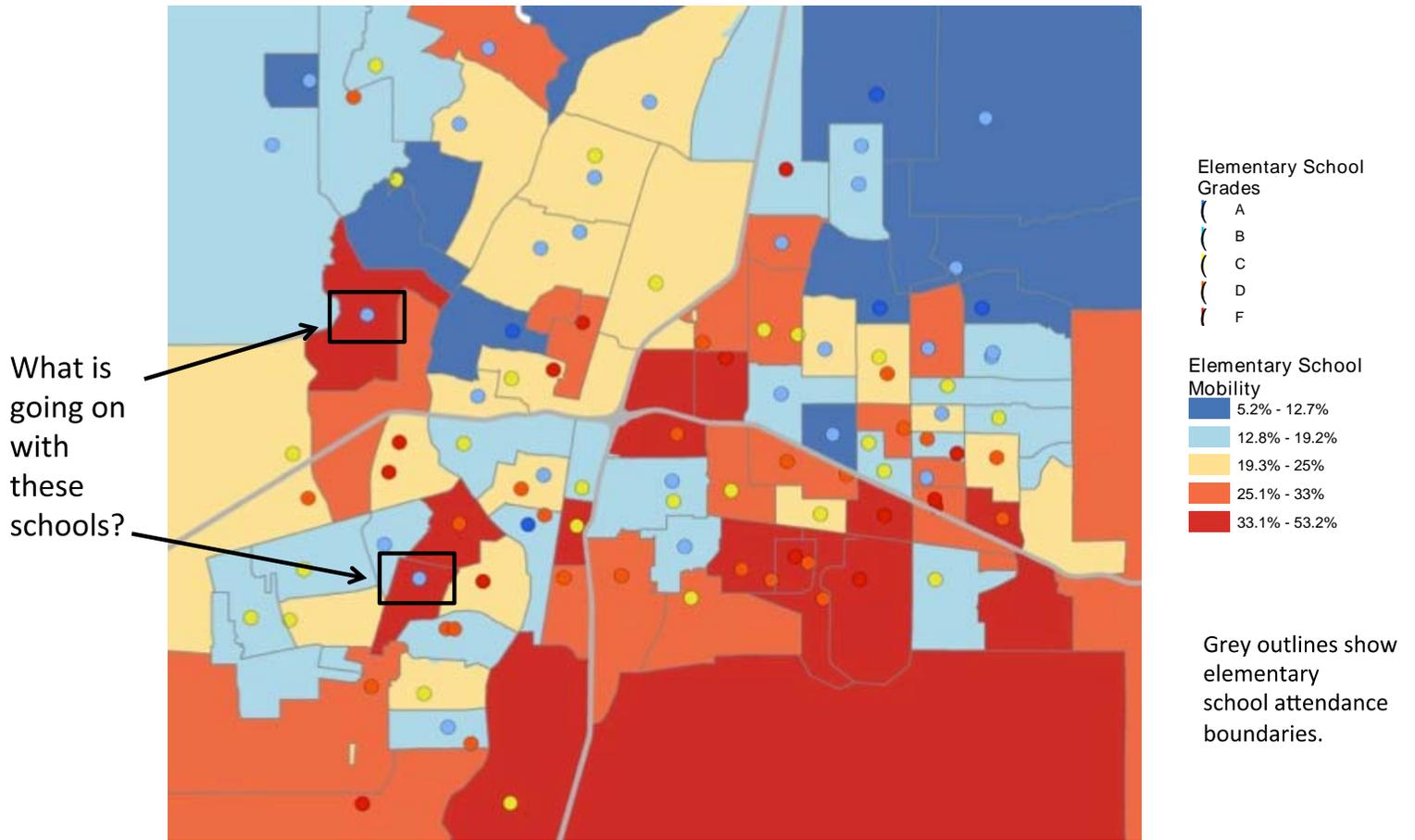
Capacity Of 4- And 5-Star Licensed Child Care Centers



Source: New Mexico Community Data Collaborative, December 2010. Enrollment data are reported by program site. Elementary school boundaries are overlaid to provide perspective.

Exploring Visual Correlations

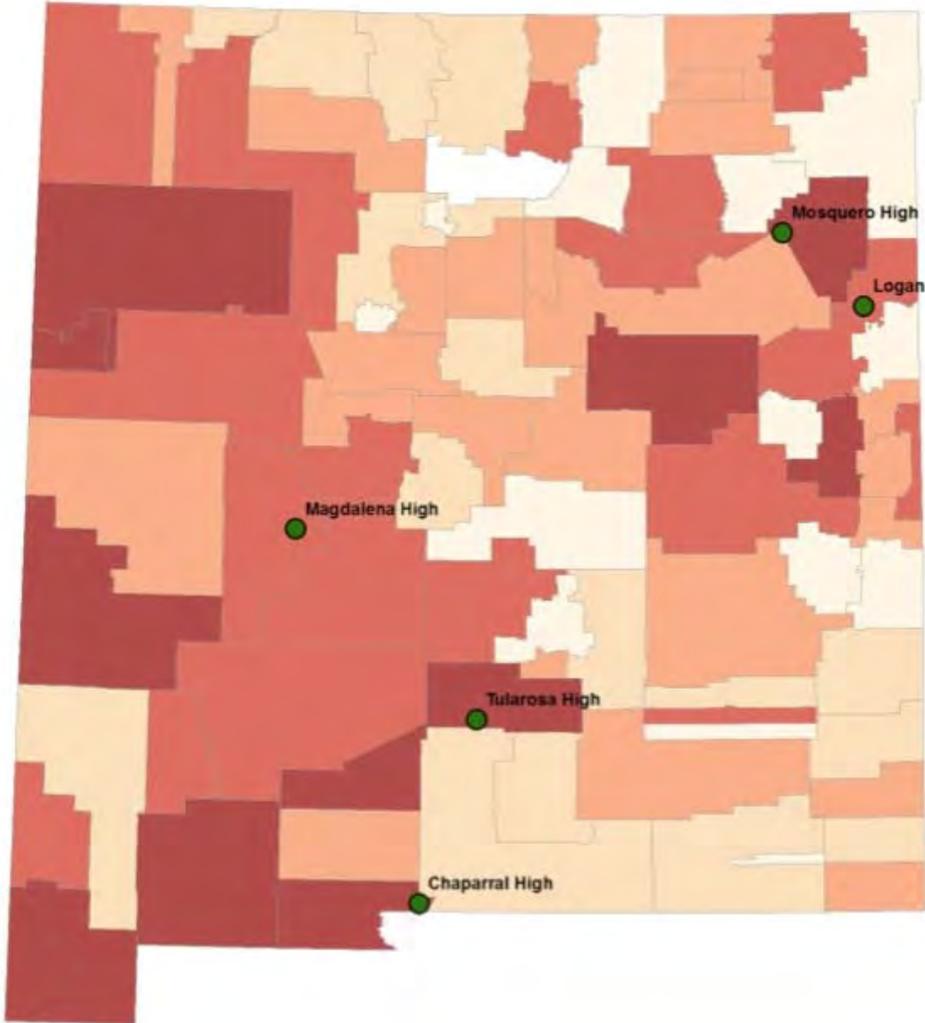
Relationship Between Elementary Grades And Elementary Student Mobility



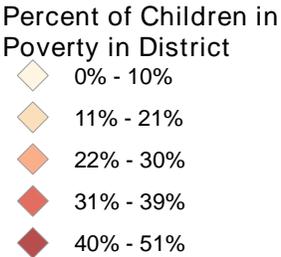
Source: School grades from New Mexico Public Education Department website <http://webapp2.ped.state.nm.us/SchoolData/SchoolGrading.aspx>.

Are These Schools Beating the Odds?

**Graduation Rate > 70%,
Remediation Rate At UNM < 30%,
Child Poverty > 30%**



High School	Total School Enrollment (2011-2012)	Graduation Rate	Remediation Rate
Chaparral High	1,080	77.8%	25.0%
Logan High	127	86.6%	16.7%
Magdalena High	127	72.9%	28.6%
Mosquero High	27	98.0%	0.0%
Tularosa High	273	86.5%	14.3%



Setting Priorities

Creating Indices

- The previous maps have demonstrated the power of viewing single and multiple variables on a map. An **index** combines multiple variables and provides a means of ranking these in an objective way.
- Indices can support decisions about where to allocate funds and focus resources.
- Indices can focus attention on negative (risk) factors, or positive (opportunity) factors.
- The Kirwan Institute¹ at Ohio State University and The Trust for Public Land² have both used index mapping to compel community conversation and action in relation to urban planning issues.

¹Reece, Jason, Christy Rogers, Matt Martin, Liz Colombo, Dwight Holley, Melissa Lindsjo (2012), *Neighborhoods and Community Development in Franklin County*, Kirwan Institute, Ohio State University.

²Trust for Public Land, <http://oregonexplorer.info/deschutes/MappingTools/GreenprintMaps>

Child Maltreatment Risk Factors And Opportunity Mapping In Bernalillo County

The CDC has identified several factors related to high risk for child maltreatment. The following maps show areas where risks for these factors are lower and higher in Bernalillo County. The goal is to introduce a possible technique for identifying neighborhoods that may benefit from resources.

- The best opportunity for children to grow up without becoming victims of maltreatment include:
 - Having parents with higher education levels;
 - Living in a household with 2 parents;
 - Living in a household with income above poverty level;
 - Living in a household with fewer dependent children;
 - Living in neighborhoods with low unemployment;
 - Living in neighborhoods where people have lived at least a year in the same house;
 - Living in neighborhoods with a lower density of alcohol outlets.

Where are these areas in Bernalillo County?

Individual Child Maltreatment Risk Mitigation Factors



Education Greater Than AA Degree



Few Single Parent Households



Few Families Living Under Poverty Level



Low Residential Mobility



Low Unemployment

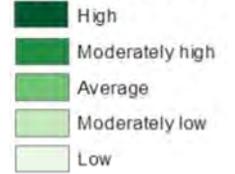


Smaller Family Size



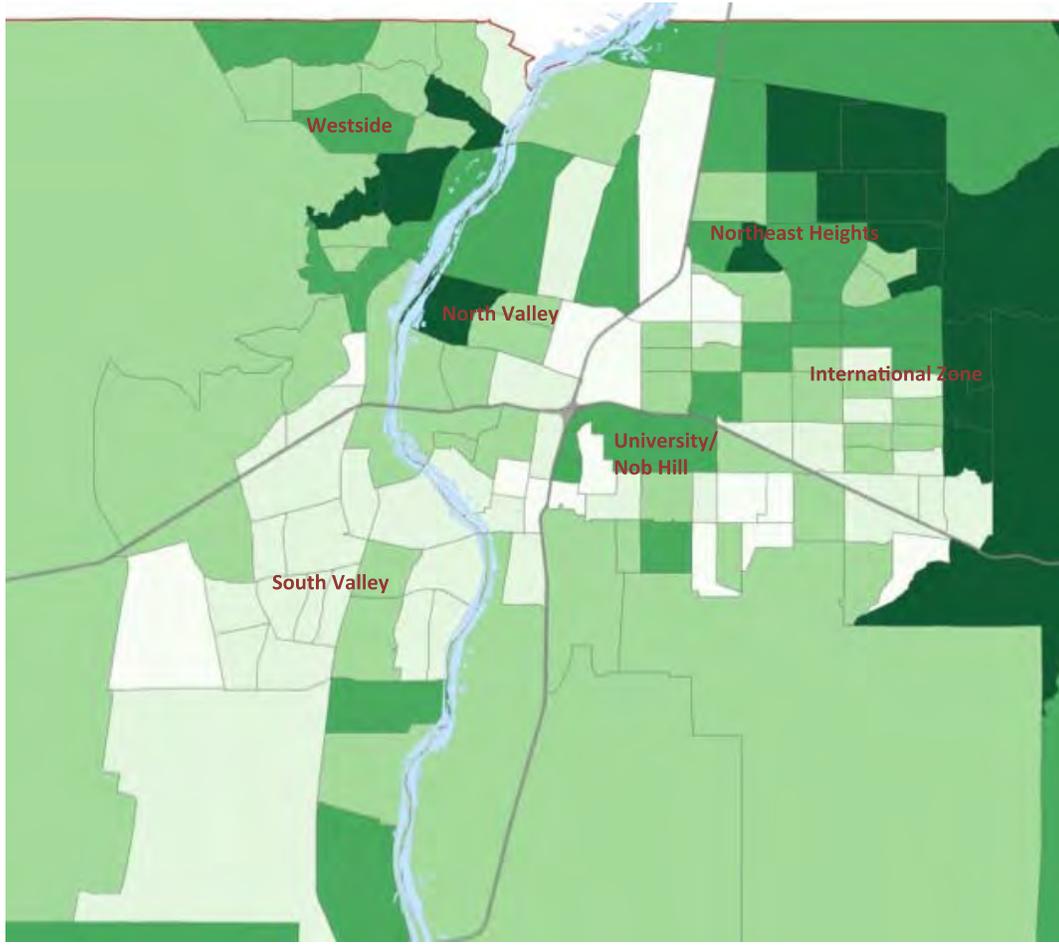
Few Alcohol Licenses

Opportunity Score



Source: Unemployment, family size, single parent household, household mobility, family poverty model input layers from the U.S. Census Bureau, 2010 Decennial Census, census tract level. Alcohol license data from New Mexico Community Data Collaborative, compiled by New Mexico Department of Health.

Opportunity For A Safe Childhood

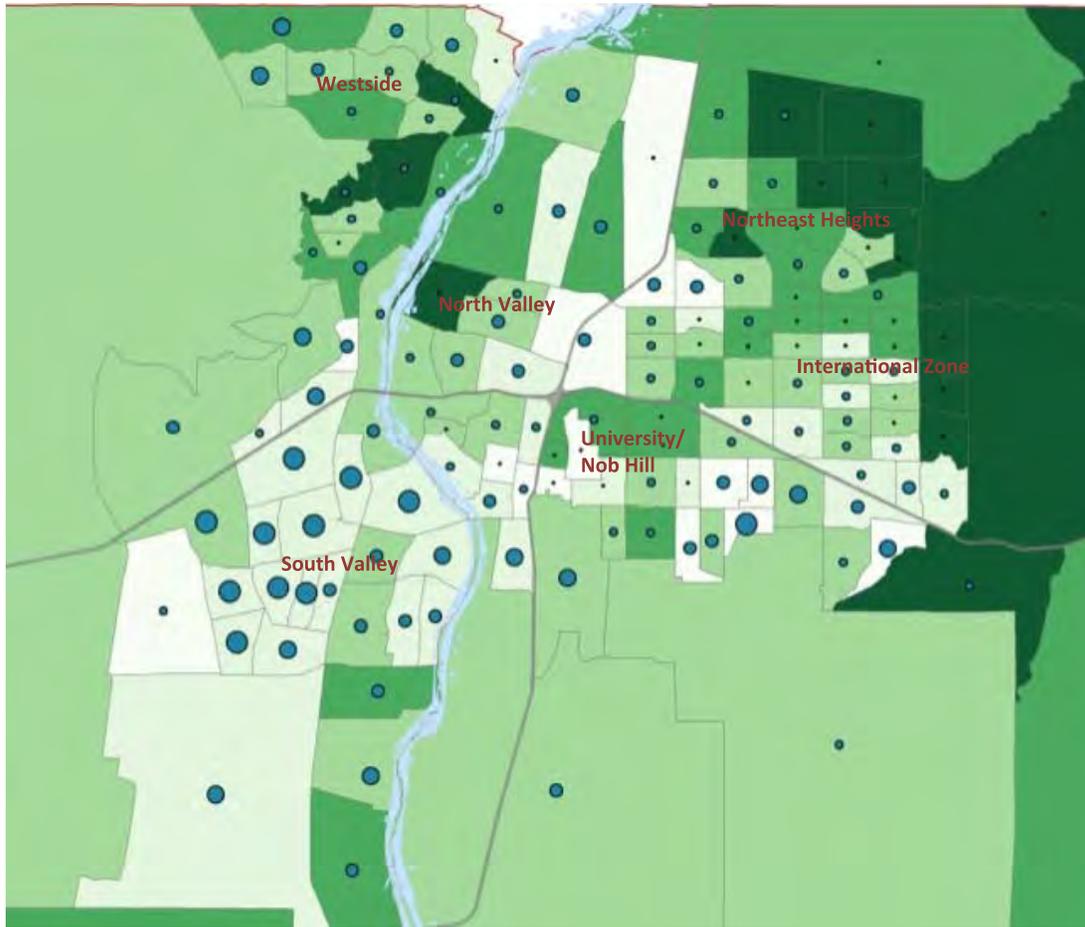


Based on the CDC factors, tracts with a higher score have fewer child maltreatment indicators.



Source: Unemployment, family size, single parent household, household mobility, family poverty model input layers from the U.S. Census Bureau, 2010 Decennial Census, census tract level. Alcohol license data from New Mexico Community Data Collaborative, compiled by New Mexico Department of Health.

Using The Maps To Address Issues Of Community Equity: Where Are The Hispanic Children In Relation To Opportunity?



This map clearly shows the concentration of Hispanic children under the age of 5 in lower opportunity areas.

Opportunity Score

- High
- Moderately high
- Average
- Moderately low
- Low

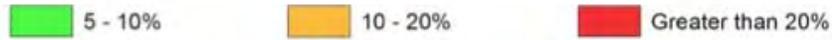
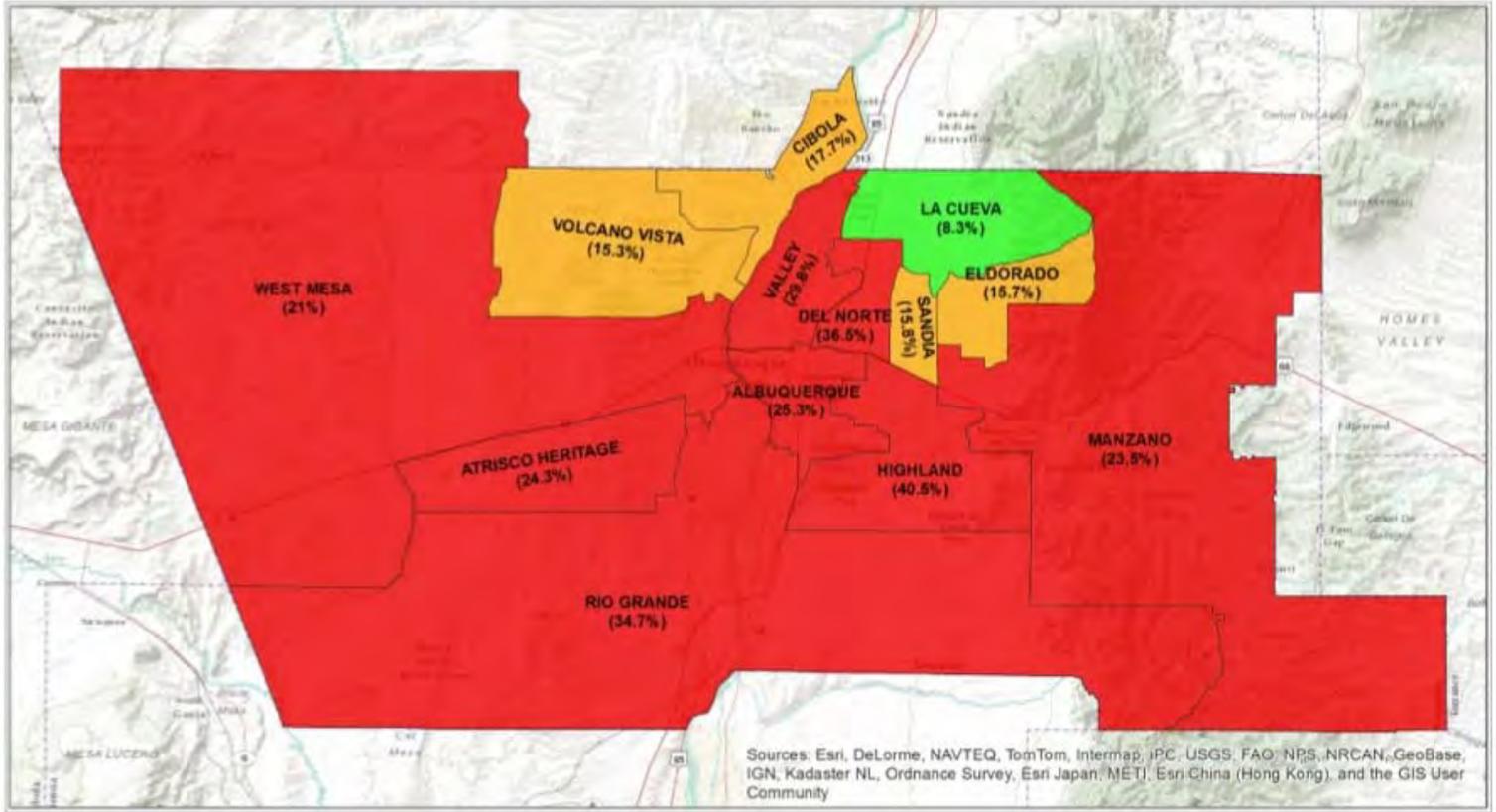
Number of Hispanic Children Under Age 5

- 4 - 85
- 86 - 185
- 186 - 325
- 326 - 525
- 526 - 761

Source: Unemployment, family size, single parent household, household mobility, family poverty model input layers from the U.S. Census Bureau, 2010 Decennial Census, census tract level. Alcohol license data from New Mexico Community Data Collaborative, compiled by New Mexico Department of Health.

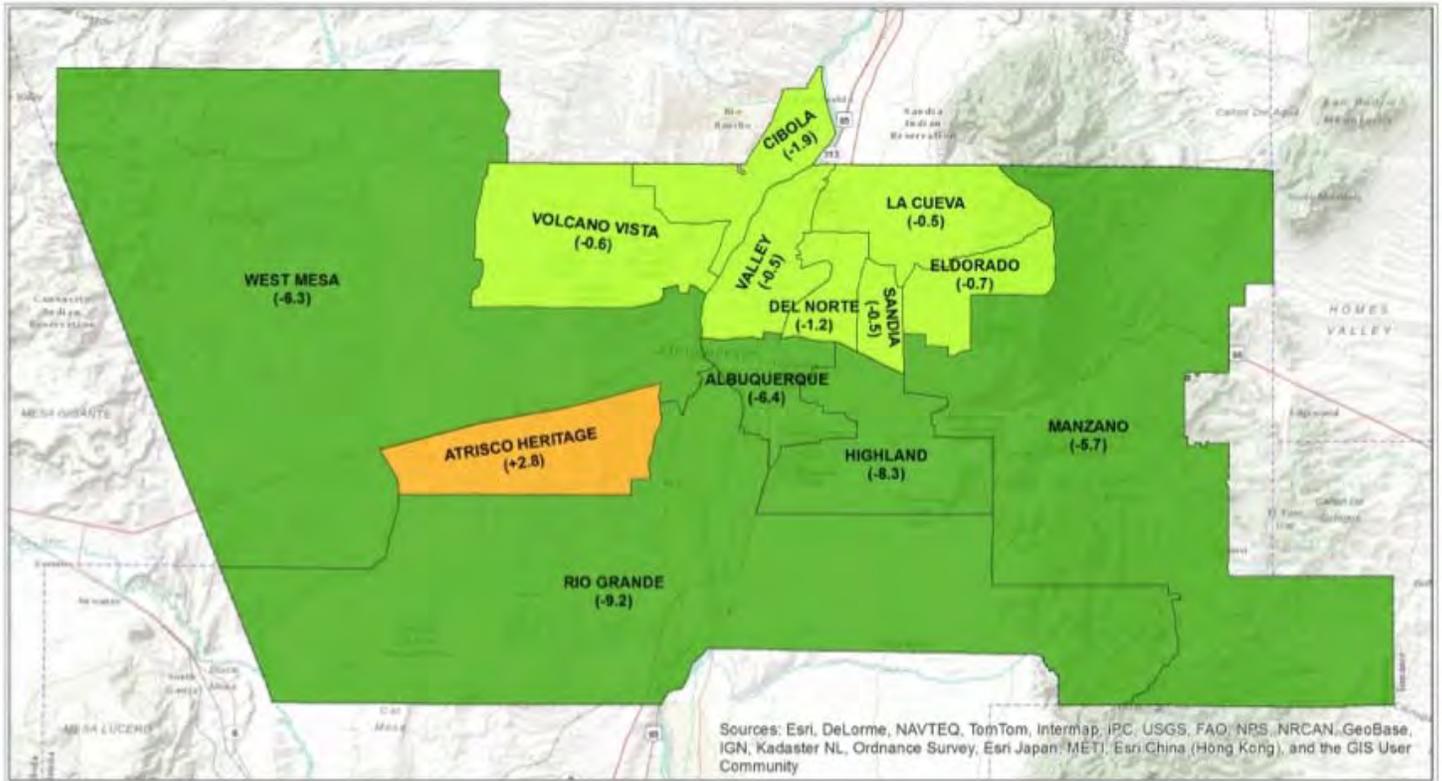
Measuring Impact

Percentage Of APS High School Students Who Were Habitually Truant In 2011-2012



Source: Albuquerque Public Schools, RDA Department, 2011-2012 School Year. A student is identified as a Habitual Truant when the student has accumulated 10 or more days of unexcused absences.

Change In Percentage Of APS High School Students Who Were Habitually Truant 2010-2011 To 2011-2012



Greater than 5 point decrease
 0 - 5 point decrease
 0 - 5 point increase

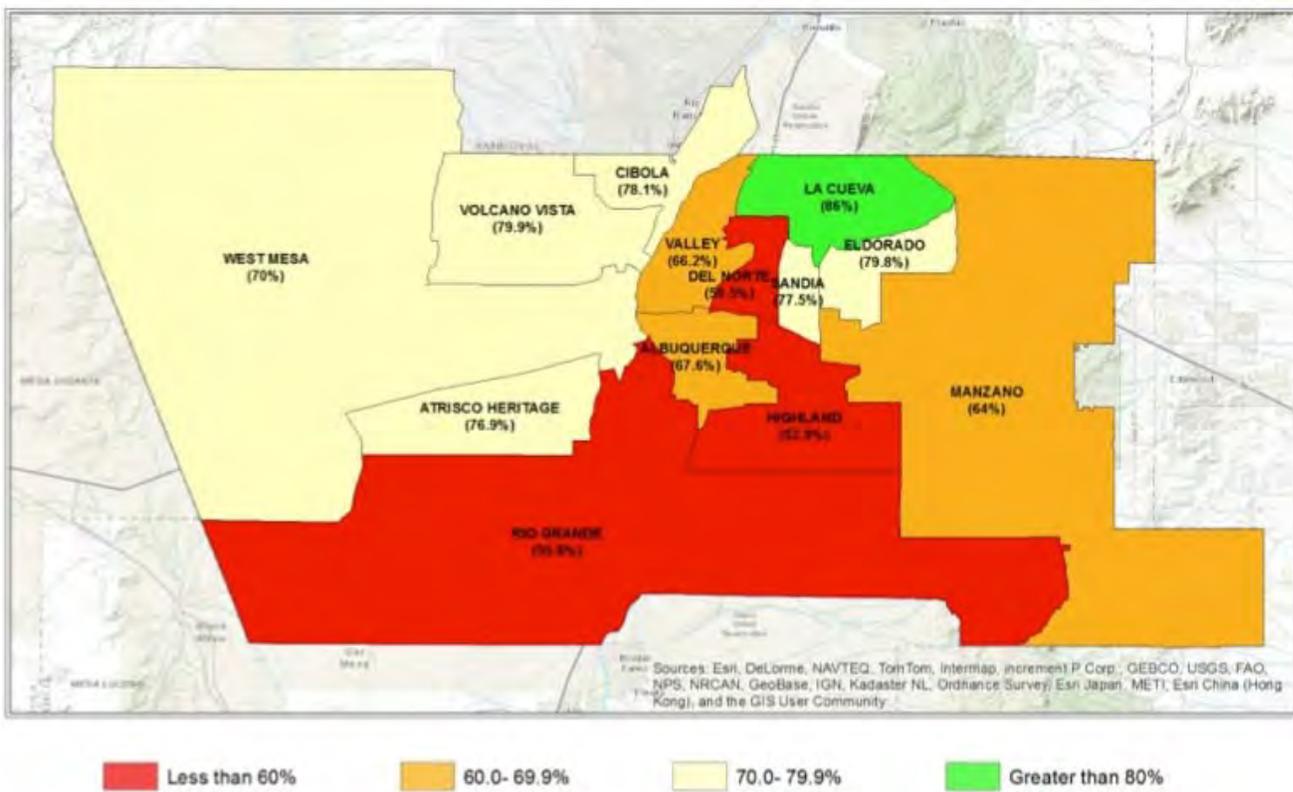
Source: Albuquerque Public Schools, RDA Department. A student is identified as a Habitual Truant when the student has accumulated 10 or more days of unexcused absences.

APS Four-Year High School Graduation Rate, All Students, Class Of 2012

According to the Alliance for Excellent Education, there are nearly 2000 high schools nationally that graduate less than 60% of their students within four years.

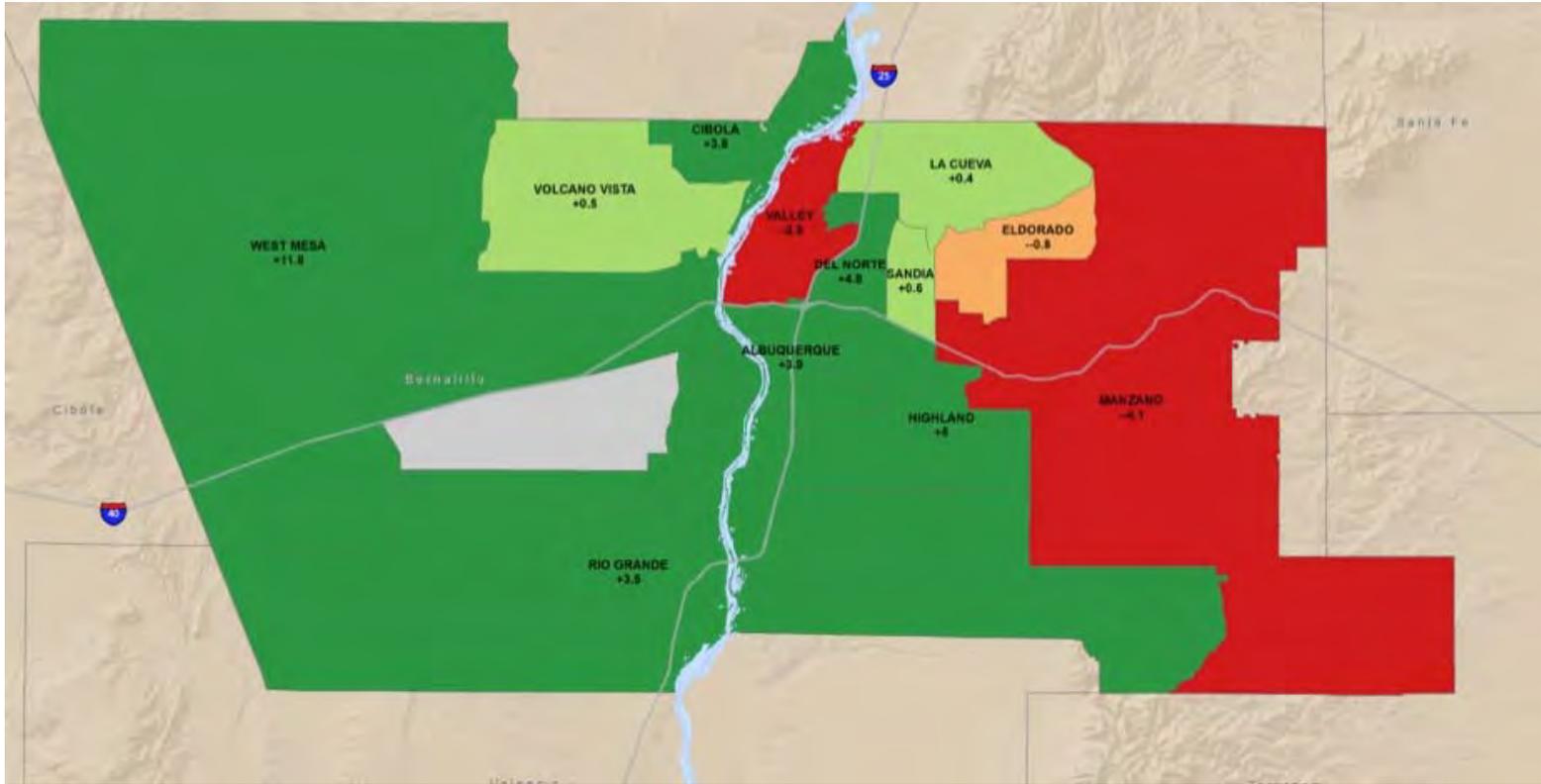
These schools disproportionately produce 51% of the nation's dropouts.

APS has four high schools with less than a 60% graduation rate.



Source: NM Public Education Department, 4-Year Cohort High School Graduation Rate, Class of 2012. Alliance for Excellent Education statistics taken from http://www.all4ed.org/about_the_crisis/schools/dropout.

Change In APS High School Graduation Rate 2010-2011 To 2011-2012



ACTION

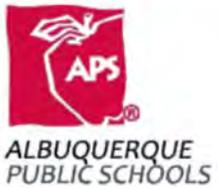
Using Data For Change

How The Maps Have Supported Action

- Developing State Policy
 - Early Childhood
 - Truancy
 - Dual Credit
 - Afterschool
- Engaging Community, Building Relationships & Mapping Assets
 - Mission: Graduate
 - The Unidos Project for Latino Student Success



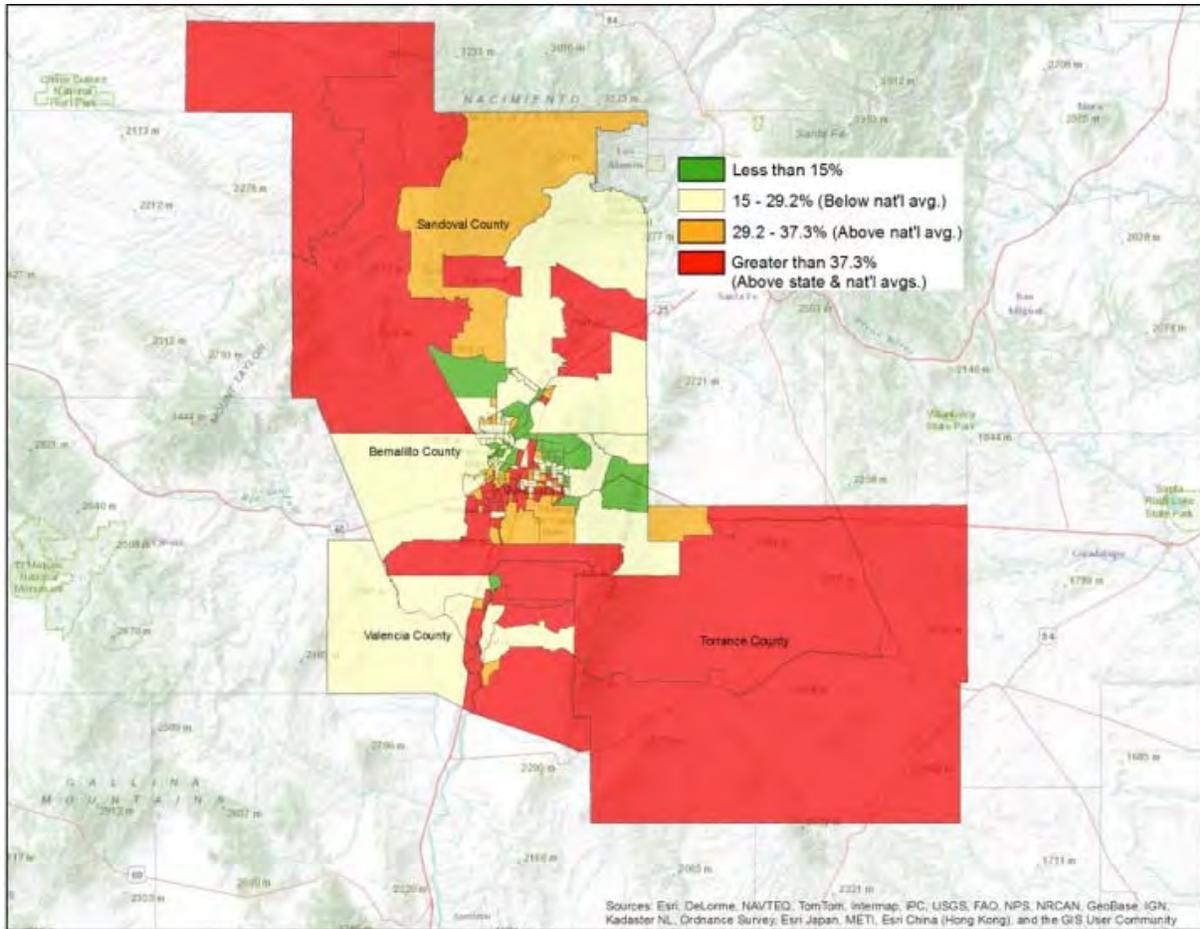
60,000 NEW DEGREES BY 2020



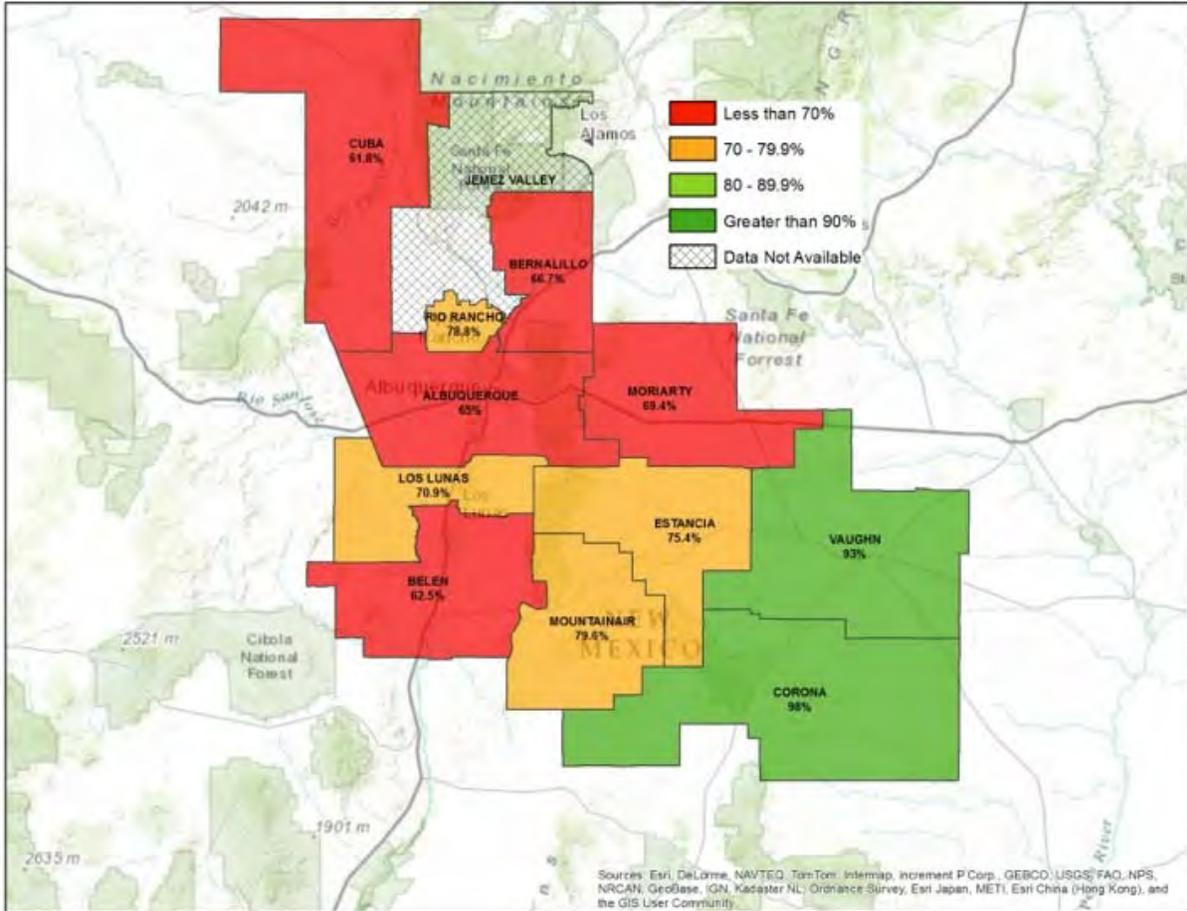


- **Goal:** To add **60,000** new associate's, bachelor's, or graduate degrees by 2020.
- **Objectives:**
 1. Eliminate achievement gaps.
 2. Increase high school graduation rates.
 3. Increase college and university enrollment.
 4. Increase college and university graduation rates.
 5. Align these education objectives with economic growth and ensure that all graduates have local opportunities for gainful employment.

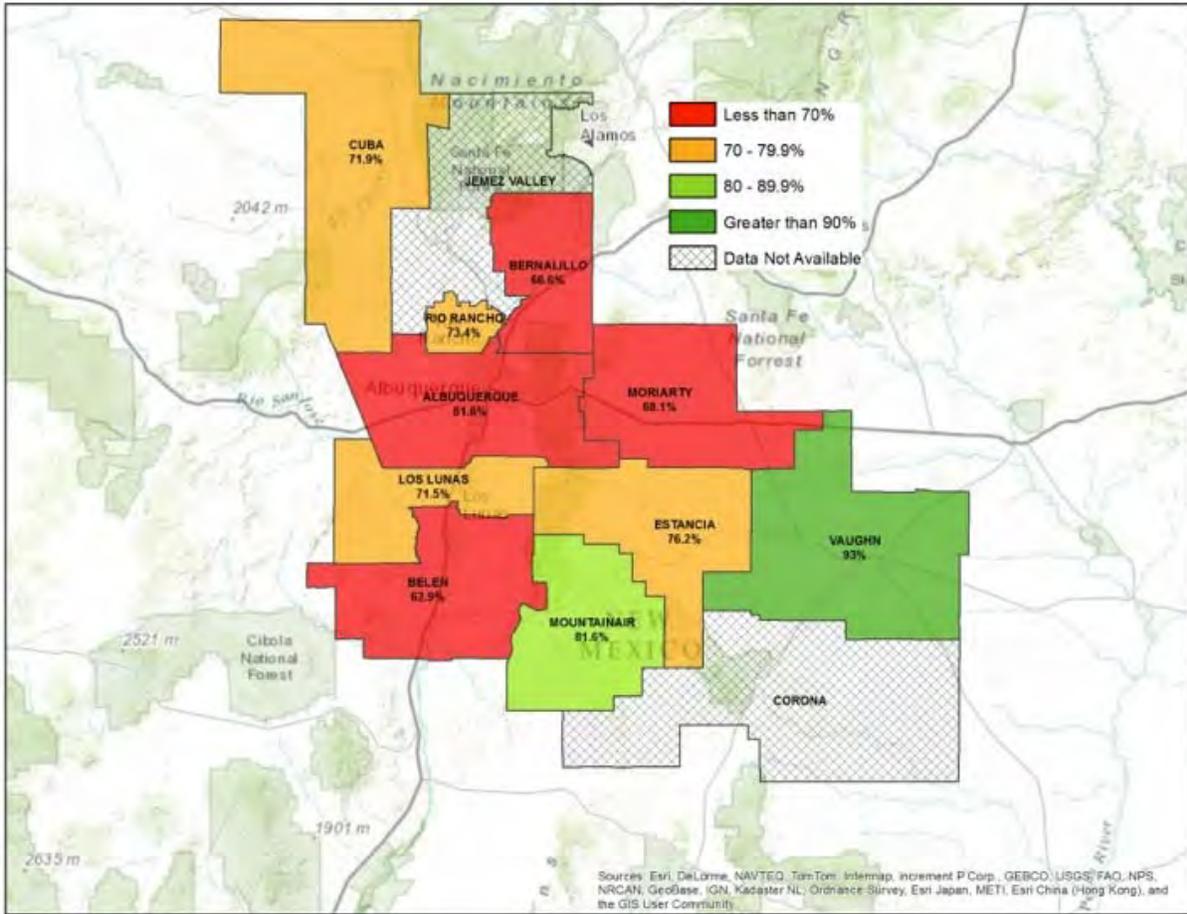
Percentage of Individuals with Income Less than 185% of the Federal Poverty Level



Four-Year High School Graduation Rate, All Students

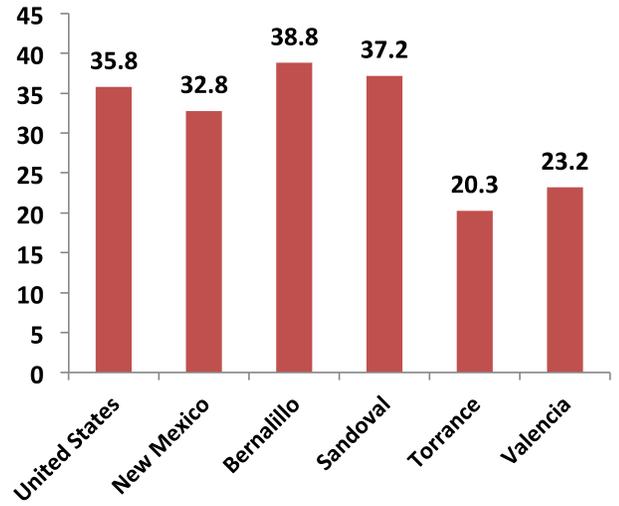
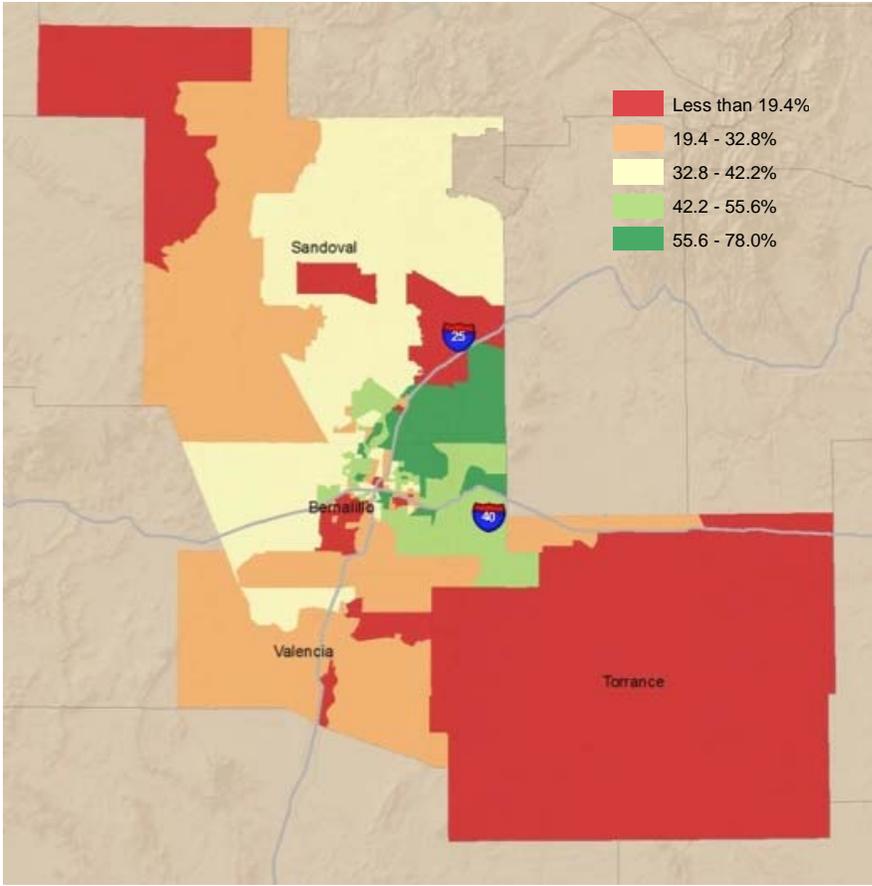


Four-Year High School Graduation Rate, Hispanic Students



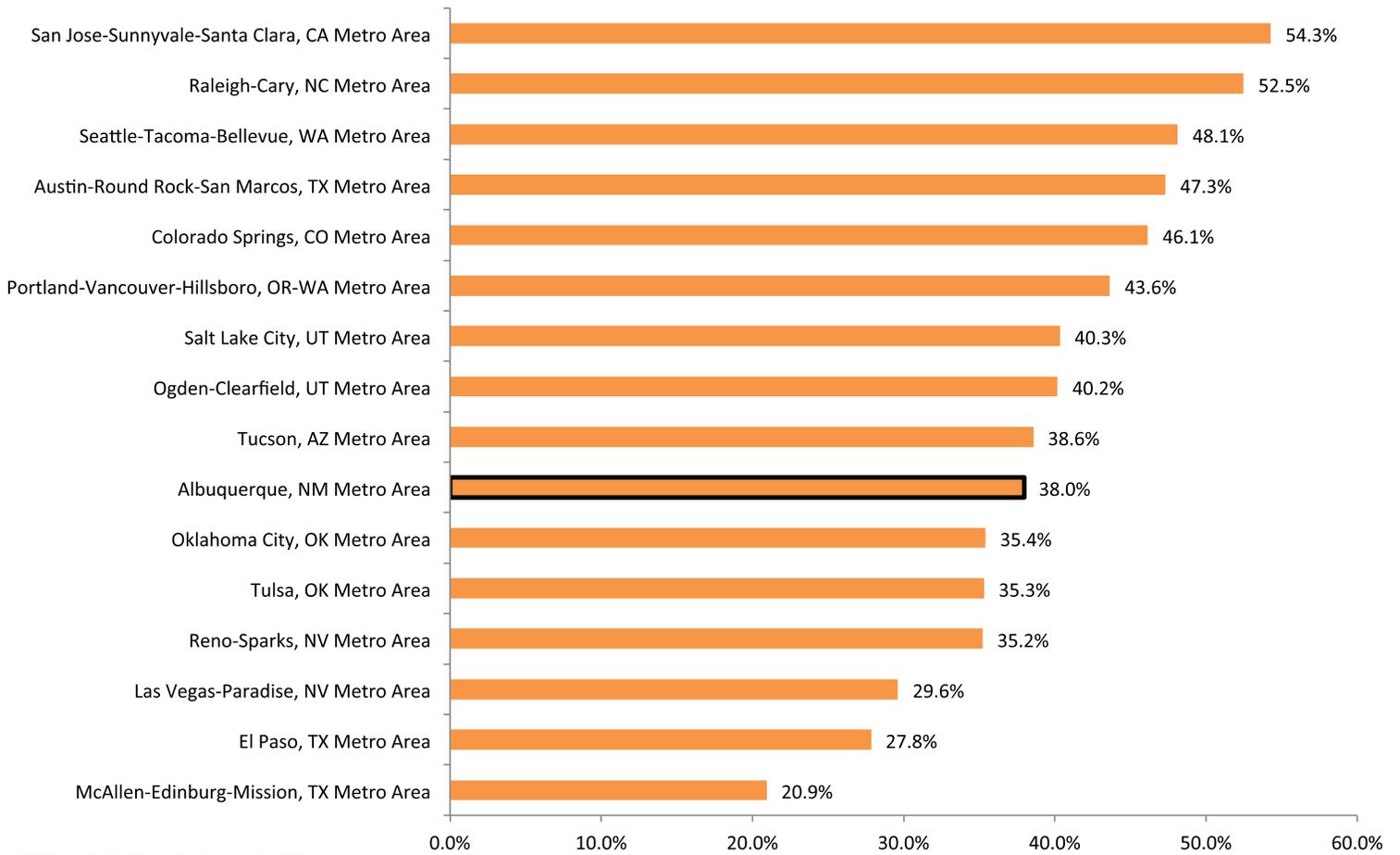
Educational Attainment In Central New Mexico

Adults 25 And Over, With An Associate's, Bachelor's, Or Graduate Degree, 2011



How Does Albuquerque Compare to Other Communities?

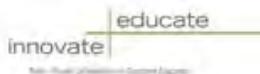
Percentage of the Population, 25-64 Years of Age, With an Associate's Degree or Higher



Source: U.S. Census, American Community Survey 2010, 5-Year Estimates.

The Unidos Project for Latino Student Success

Getting to the Big Goal in Albuquerque by 2025



The Unidos Acequia Metaphor: Four Strategic Focus Areas

1. □ Opening the Gate: Redefining and Scaling Up Services to Support Students and Families (**Abriendo La Compuerta**)
2. □ Increasing the Flow: Helping Students and Families Understand the Transformational Power of Education (**Aumentando La Corriente**)
3. □ Reclaiming the Flow: Bringing Students Back (**Recuperando La Corriente**)
4. □ Removing Barriers: Institutional Development to Facilitate Seamless Transitions (**La Limpia**)



Photo credit: New Mexico Acequia Association, <http://www.lasacequias.org/>!

A bronze sculpture of a man, likely a Black man, leaning over a dark, curved wall. He is wearing a simple rectangular garment. Water flows from the bottom of the wall through a series of vertical channels, creating a waterfall effect. The sculpture is set in a modern interior space with a curved ceiling and a stone-tiled floor. The lighting is warm and focused on the sculpture.

**Our Prosperity
Depends On Our
City's Ability To
Cultivate Its Most
Precious Resources**

QUESTIONS?

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