Outline

• 2020 Census
• GPS Population Estimates
• GPS Population Projections
At Stake are Ten Years of:

* Congressional Apportionment
* Legislative District Boundaries
* Data Quality
* $$$$$$$$$$$$$$
2020 Census

* $400 - 500 Billion in Annual Federal Funds
  * Medicaid, Transportation, Education, Housing, CDBG, CHIP
* Over $3 Billion Annually for New Mexico
* Each New Mexican Not Counted Costs About $1,750 a Year e.g.
  * $1,750 * 20,000 people = $35,000,000

Source: Brookings Institute, Federal Domestic Assistance Allocated on the Basis of Statistics Based on the Decennial Census, U.S. and States, FY2007
New Mexico is Particularly Vulnerable to Undercount

* 2000 Undercount = 1.94%
* 2010 – NM 2nd Lowest Response Rate in US
* Most at Risk –
  * American Indians
  * Hispanics
  * Hard to Count Populations e.g. Colonias

2020 Census

* Census Operations Re-engineering
  * Address Canvassing
  * Administrative Records
  * Self-Response
  * Field Operations

Population Estimates

- Inexpensive Updates to Costly Census Counts
- *Observations* About Current or Past Populations
- Differ from Projections which *Predict* Future Trends
- Methods are Well Established with Known Biases

Demographic Balancing Equation

\[ \text{Pop}_{2015} = \text{Pop}_{2010} + \text{Births} - \text{Deaths} + \text{In Migration} - \text{Out Migration} \]

- \text{Pop}_{2010} – Latest Census
- \text{Births} – From NMDOH Vital Records
- \text{Deaths} – From NMDOH Vital Records
- \text{In Migration} – Harder to Track
- \text{Out Migration} – Much Harder to Track
## Census Bureau Vs. GPS Estimates

<table>
<thead>
<tr>
<th>Census Bureau</th>
<th>GPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starts with the US Total</td>
<td>Starts with NM Total</td>
</tr>
<tr>
<td>2 Indicators of Migration</td>
<td>6+ Indicators of Migration</td>
</tr>
<tr>
<td>Municipal Level</td>
<td>Tract Level</td>
</tr>
<tr>
<td>Rigid Methodology</td>
<td>Flexible Methodologies</td>
</tr>
</tbody>
</table>
San Juan County
2010 - 2015

* 2010 Census Count – 130,000
* 2015 Census Estimate – 119,000
* Population Decrease – 11,000
* 5 Year Natural Increase – 5,000
* Inferred Out Migration – 16,000

Sources: US Census Bureau Population Estimates (factfinder.census.gov);
NM Dept. of Health (ibis.health.state.nm.us)
GPS Estimates
Input Data

- Vital Records from the NM Department of Health
- Migration Tracked Using:
  - IRS Migration Files
  - Medicare Enrollment
  - School Enrollment
  - Driver’s Licenses
  - Voter Registration
  - Residential Building Permits
  - Other e.g. Historical Trends, Group Quarters Survey
GPS Estimates Methods

- Cohort-Component Method
  \[ Pop_{2015} = Pop_{2010} + B - D + \text{Net Migration} \]
- Housing Unit Method
- Multi-indicator Ratio Correlation Method:
  - School Enrollment
  - Licensed Drivers
  - Registered Voters
- Shift-Share Trend Analysis (Hamilton-Perry)
GPS Estimates

Methods

- Primary Steps
  1. State Total
  2. County Totals
  3. Tract Totals
  4. Characteristic Totals
  5. Data Fitting
<table>
<thead>
<tr>
<th>Method</th>
<th>Estimate</th>
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</thead>
<tbody>
<tr>
<td>Cohort Component Method</td>
<td>2,085,109</td>
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<tr>
<td>Housing Unit Method</td>
<td>2,104,953</td>
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<tr>
<td>Ratio Correlation Method (Students/Drivers/Voters)</td>
<td>2,109,506</td>
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<tr>
<td>Average of Three Methods</td>
<td>2,099,856</td>
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</table>
## Estimates Methodology County Totals (Santa Fe)

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Cohort Component Method</td>
<td>148,686</td>
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<tr>
<td>Housing Unit Method</td>
<td>147,701</td>
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<td>Ratio Correlation Method (Students/Drivers/Voters)</td>
<td>148,060</td>
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<tr>
<td>Average of Three Methods</td>
<td>148,149</td>
</tr>
<tr>
<td>Adjustment to Match State Total</td>
<td>148,237</td>
</tr>
</tbody>
</table>
 Estimates Methodology
 Tract Totals

• Limited Data Available Below the County Level:
  • NMDOH Vital Records
  • MVD Driver’s Licenses
  • Building Permits

• 2000-2010 Change Ratios (Hamilton-Perry Method)
• Tract Totals Must Match County Total from Step 2
  • Santa Fe County’s 50 Census Tracts Totaled 148,251
  • All 50 Tracts were “Raked” to 148,237
Characteristics and Data Fitting

- Age/Sex/Race/Ethnicity Characteristics
  - Initial Values Based on 2010 Census
  - Changes Based on
    - NCHS
    - NMDOH Vital Records
    - MVD Data
- Data is Fit using Multi-Dimensional Iterative Proportional Fitting
Data Uncertainty

- Increases as Size of Population Decreases
- Increases Further from the Last Census
- Greatest for American Indians Living on Tribal Lands
- Least for Non-Hispanic Whites
- Increases as Stability of Population Decreases
New Mexico State
Total 2010-2015

Five-Year Growth = 1.68%
2014-2015 Growth = 0.07%

Source: UNM Geospatial and Population Studies (gps.unm.edu)
NM Population 1900 - 2015

Source: US Census Bureau Population Estimates
https://www.census.gov/popest/data/historical/index.html

Source: US Census Bureau Population Estimates
https://www.census.gov/popest/data/historical/index.html
NM State Total 2010-2015 vs. Natural Increase

Five Year Gain = 35,000
Five Year Natural Increase = 52,000
Five Year Out Migration = 16,500

Source: UNM Geospatial and Population Studies (gps.unm.edu)
Population Change by County 2010-2015

Source: UNM Geospatial and Population Studies (gps.unm.edu)
Hispanic/Non-Hispanic Population Change

Sources: UNM Geospatial and Population Studies (gps.unm.edu); NM Dept. of Health (ibis.state.nm.us)
Five Year Growth By Age

Sources: UNM Geospatial and Population Studies (gps.unm.edu); NM Dept. of Health (ibis.state.nm.us)
Projections

• Preliminary Projections are now on our website: gps.unm.edu
• Slow Growth through 2020
• Growth Rates from Previous Decades won't Return Soon
Questions or Comments

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