Calculation of Affordable Housing Obligations

Mercer County
January 2017

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Outline

- Overview of Calculation
  - Summary of Steps and Results
- Methodology Basis, Principles and Data
- Detailed Review of Methodology and Results
  - Step by Step Calculation and Explanation
- Summary of Updates to Prior Round Methodologies

Overview of Calculation

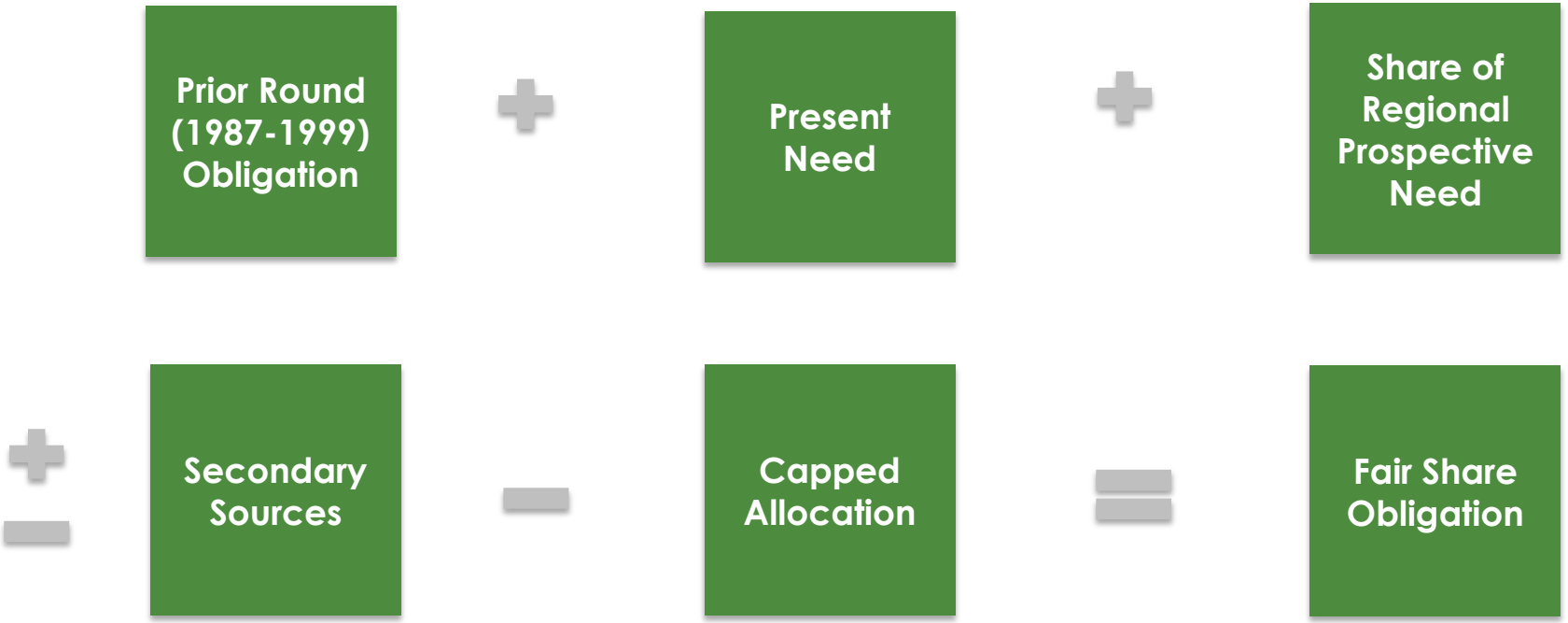
Summary: Methodology Steps

- **Prior Round Obligation**
- **Define the Regions (ch.2)**
- **Present Need (2015) (ch.3)**
  - Measures of Deficiency
  - Account for overlap
  - Extrapolate to July 1, 2015 = Present Need
- **Prospective Need (2015-2025) (ch.4)**
  - Population forecast
  - Household forecast
  - LMI households
  - Eligible LMI Households (Asset Test) = Prospective Need
- **Allocate Prospective Need to Municipalities (ch.5)**
  - Responsibility factors
  - Capacity factors
  - Averaged share = municipal share of region
- **Secondary Sources (ch.6)**
  - Demolitions
  - Residential Conversions
  - Filtering
  - Net impact → Assignment to municipalities
- **Allocation caps (ch.7)**
  - 20% Cap
  - 1,000 unit cap

= Municipal Obligation

Summary: Methodology Steps

- Each municipality's affordable housing obligation is calculated as follows:



Summary: Prior Round (1987-1999) Obligation

Prior Round Need = Unfulfilled portion of municipal obligation assigned by COAH in Round 1 & Round 2 (1987-1999)

- Maintained as calculated by COAH in 1994
  - Incorporates subsequent COAH corrections for errors only
- No reliable, uniform database of applicable adjustments, activity or credits applicable to these obligations exists
  - Determined municipally through compliance process
- Statewide Prior Round Obligation = **85,853**

  Mercer County Prior Round Obligation = **4,924**
  - Less applicable credits

Summary: Present Need (2015)

Present Need = Deficient housing units occupied by an LMI household

- Point in time analysis as of start of Prospective Need period (July 1, 2015)

- Statewide Initial Present Need = **65,034**

  Mercer County Initial Present Need = **2,004**

Summary: Prospective Need (2015-2025)

Prospective Need = Projection of future housing need based on "development and growth which is reasonably likely to occur", as per the Fair Housing Act

1) Project incremental population growth from 2015-2025 (including only population in households)

2) Convert population growth to household growth from 2015-2025

3) Estimate the proportion of these new households that are low or moderate income (LMI)

4) Adjust the need by accounting for LMI households with significant housing assets

- Statewide Prospective Need = **54,140**
  Region 4 (Ocean, Mercer, Monmouth) Prospective Need = **7,430**

Summary: Allocation to Municipalities

Allocation to Municipalities = Share of regional prospective need assigned to each municipality

- Allocation formula based on responsibility factors (employment) and capacity factors (income, developable land)
- Qualifying urban aid municipalities excluded from assignment
- Municipal proportions of the region for each factor are averaged to yield the municipal share (%)
- Municipal share (%) is applied to the region's prospective need to yield the municipal allocation
- Mercer County total allocation = **2,441**

Summary: Secondary Sources

Secondary Sources = Market-based factors impacting affordable housing supply and demand over Prospective Need period (2015-2025)

- Demolitions, Residential Conversions, Filtering
- Net impact of secondary sources on housing need is applied to adjust municipal allocation
- Statewide increase in supply (i.e. decrease in need) = **30,613**
  Mercer County decrease in need = **1,669**

Summary: Allocation Caps

Municipal Allocation Caps = Limit the level of obligation that can be assigned to municipalities

- 20% Cap: Limit based on municipality size to avoid community development pattern being "drastically altered"

- 1,000 Unit Cap: "No municipality shall be required to address a fair share of housing units … beyond 1,000 units within ten years" [FHA 307e]

- Statewide impact of caps (reduction in obligation) = **12,569**

  Mercer County reduction in obligation = **198**

  (Hamilton Township: 1,000 unit cap)

Summary: Results

Initial Summary Obligations

Region	Prior Round (87-99) Initial Obligation (unadjusted)	Capped Present Need	Capped Prospective Need	Initial Summary Obligation
1	12,469	17,273	17,039	46,781
2	9,382	6,182	6,074	21,638
3	13,323	5,585	7,820	26,728
4	27,367	4,552	4,356	36,275
5	14,055	2,481	6,628	23,164
6	9,257	0	0	9,257
State	**85,853**	**36,073**	**41,917**	**163,843**
Mercer	4,924	1,051	1,527	7,502

Mercer County Obligations by Municipality

Municipality	Prior Round (87-99)	Capped Present Need	Capped Prospective Need	Initial Summary Obligation
East Windsor township	367	57	90	514
Ewing township	481	115	262	858
Hamilton township	706	484	516	1,706
Hightstown borough	45	37	0	82
Hopewell borough	29	16	21	66
Hopewell township	520	0	201	721
Lawrence township	891	53	128	1,072
Pennington borough	52	59	0	111
Princeton	641	80	159	880
Robbinsville township	293	18	101	412
Trenton city	0	0	0	0
West Windsor township	899	132	49	1,080
Total	**4,924**	**1,051**	**1,527**	**7,502**

Methodology Basis, Principles and Data

Methodology: Task and Principles

Task

- Develop a complete methodology yielding the **most accurate possible calculation** of affordable housing obligation for each municipality in New Jersey in accordance with Mt. Laurel IV and the Fair Housing Act

Principles

- As accurate as possible
- Clear and transparent in calculations and explanation
- Align allocated municipal obligations with calculated need

Methodology: Basis

Basis

- Not an advocacy approach
- Not a "new method" from scratch
- Consistent with the FHA
- "Similar to" and "based upon" the methodology utilized in the Prior Rounds (1987-1999), with updates reflecting:
  - Updates to relevant laws and regulations, different time periods, newly available data sets, corrections to previous errors, and other changing circumstances

Methodology: Court Guidance

"Similar to" / "Based on": Round 1 and Round 2 methodologies as a framework and not as a straightjacket for the development of an appropriate Round 3 methodology.

2010 Appellate Division:

> Accordingly, we remand to COAII to adopt new third round rules that use a methodology for determining prospective need **similar to** the methodologies used in the first and second rounds.

Did not direct COAH to replicate the round 2 method exactly

2013 Supreme Court:

> We endorse the remedy imposed by the Appellate Division.

2015 Supreme Court:

> Previous methodologies employed in the **First and Second Round Rules** should be used to establish present and prospective statewide and regional affordable housing need. 215 N.J. at 620. The parties should demonstrate to the court computations of housing need and municipal obligations **based on** those methodologies.

Methodology: Data

Data

- Most up to date (as of completion of calculation) and appropriate
- Uniformly available across the state
- Publicly available

Detailed Review of Methodology and Results

Methodology Steps

- **Prior Round Obligation**
- **Define the Regions (ch.2)**
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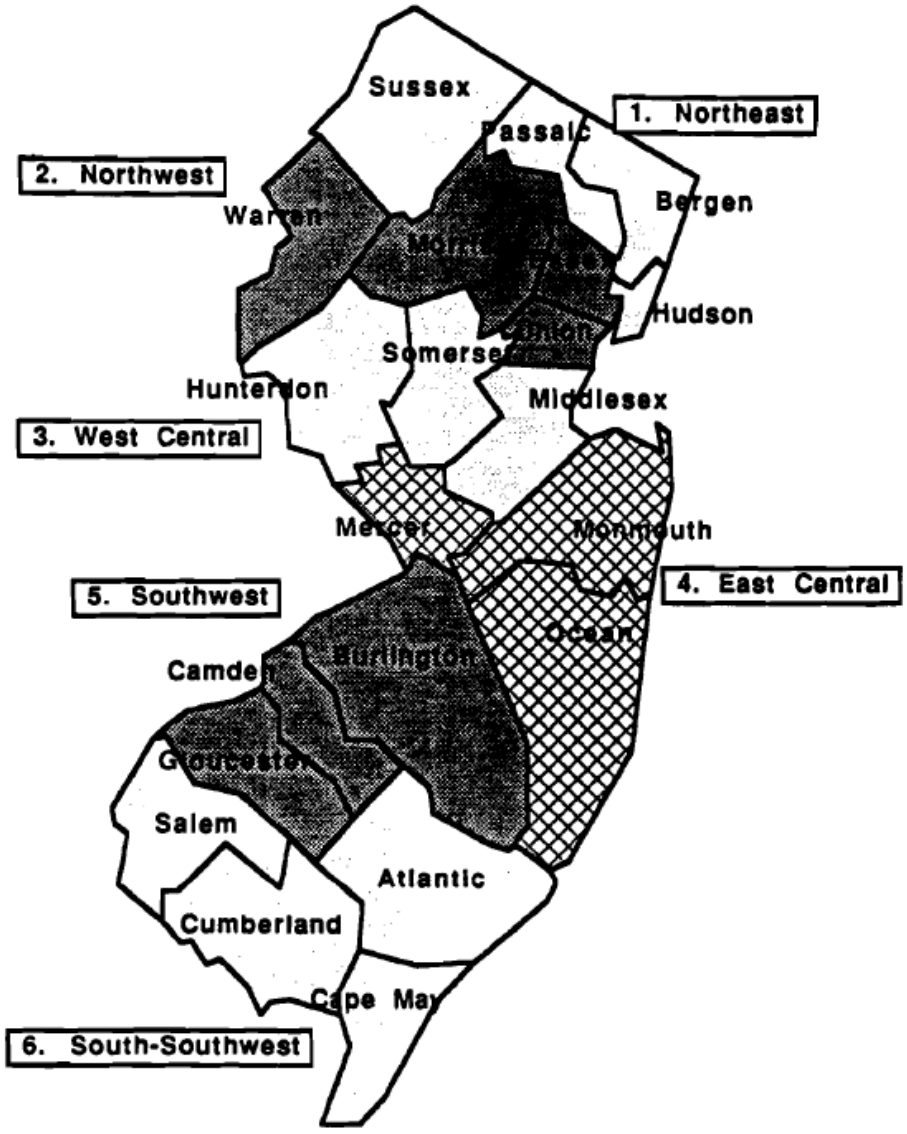
  - 20% Cap
  - 1,000 unit cap

= Municipal Obligation

Defining the Regions (ch.2)



Region	Counties	Live & Work Proportion
1	Bergen, Hudson, Passaic, Sussex	71%
2	Essex, Morris, Union, Warren	64%
3	Hunterdon, Middlesex, Somerset	61%
4	Mercer, Monmouth, Ocean	70%
5	Burlington, Camden, Gloucester	76%
6	Atlantic, Cape May, Cumberland, Salem	76%
State		69%

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= Municipal Obligation

Calculate Present Need (ch.3)

Present Need = Deficient housing units occupied by an LMI household

1. Surrogate Measures of Housing Deficiency (ch.3.1)

2. Account for Overlap to Estimate Unique Deficient Units (ch.3.2)

3. Est. LMI Proportion of Unique Units (ch.3.3)

4. Repeat Procedure for 2000 (ch.3.4.1)

5. Extrapolate 2015 Estimate from 2000 – 2011 Trend (ch.3.4.2)

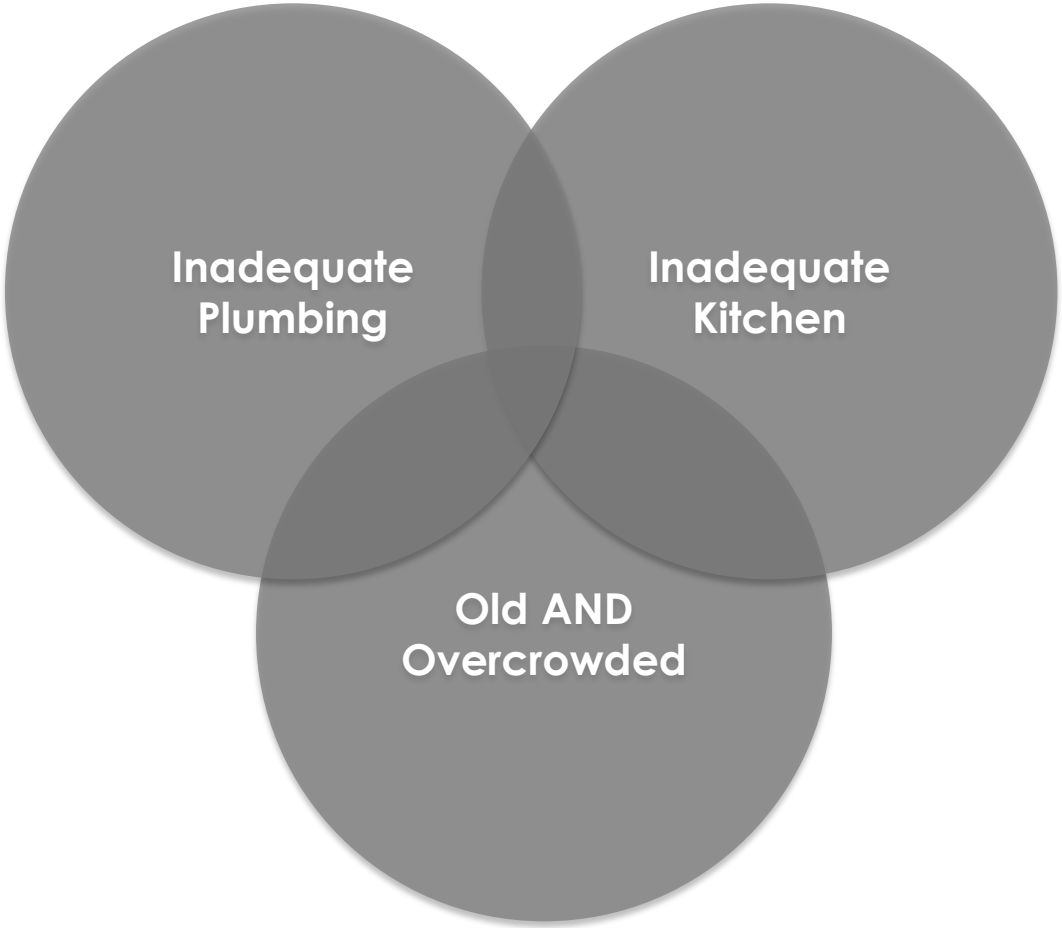
6. Estimate Present Need 2015 (ch.3.5)

Identify Deficient Units

1. Surrogate Measures of Housing Deficiency (ch.3.1)

Identify Unique Deficient Units

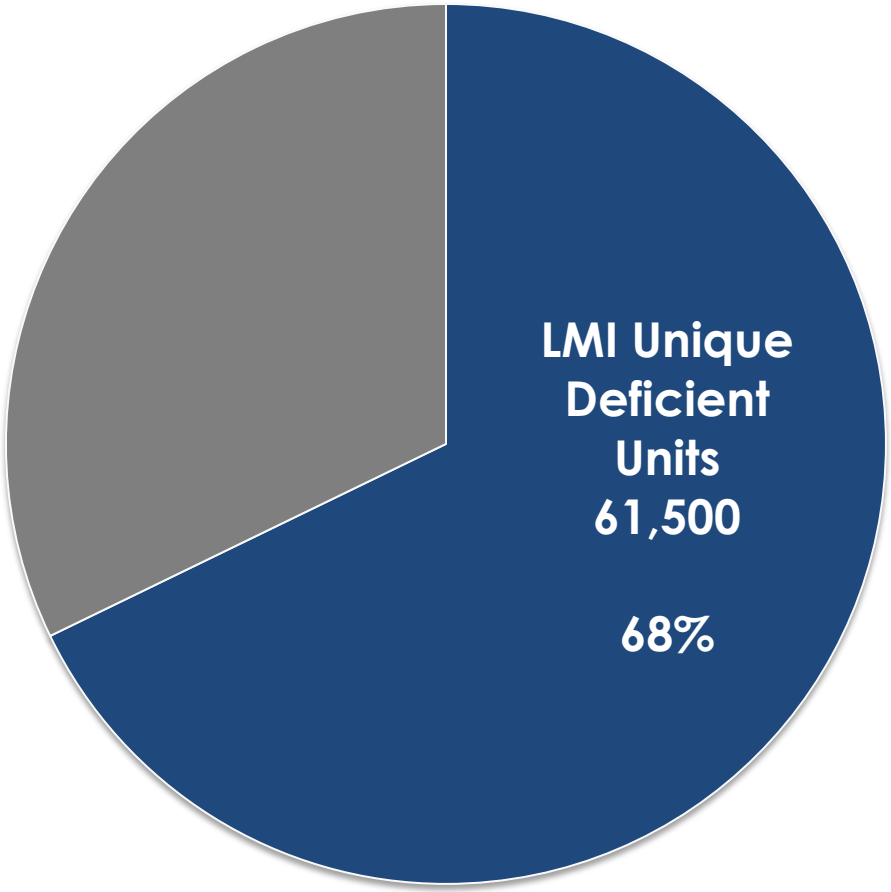
2. Account for Overlap to Estimate Unique Deficient Units (ch.3.2)



Estimate LMI Proportion

3. Est. LMI Proportion of Unique Units (ch.3.3)

Unique Deficient Occupied Units: 90,700



Extrapolate to 2015

4. Extrapolate Trend to 2015 (ch.3.4)

- First three steps (measure deficiency, account for overlap, estimate LMI %) yield the Present Need by municipality as of 2011
  - 2011 = midpoint of 2009-2013 data utilized

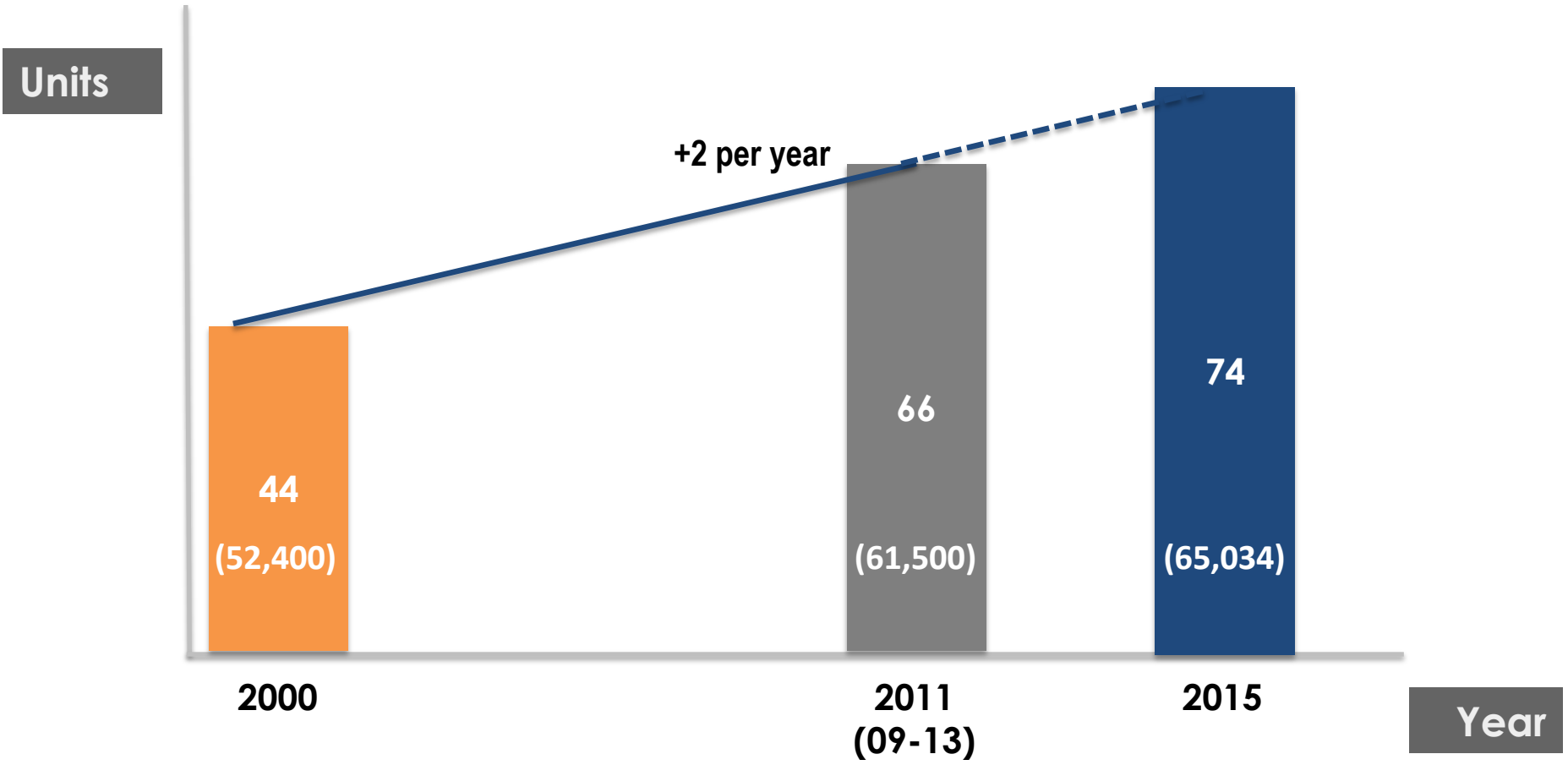
- Present Need should be estimated as of the start of the Prospective Need period (July 1, 2015) so that the calculations align and can be added together
  - Present Need = Current (deficient housing stock)
  - Prospective Need = Future (accommodate growth)

- Method: Calculate change in Present Need by municipality from 2000 to 2011, extrapolate annual change to 2015

Extrapolate Trend to 2015

4. Extrapolate Trend to 2015 (ch.3.4)

Hypothetical Municipality

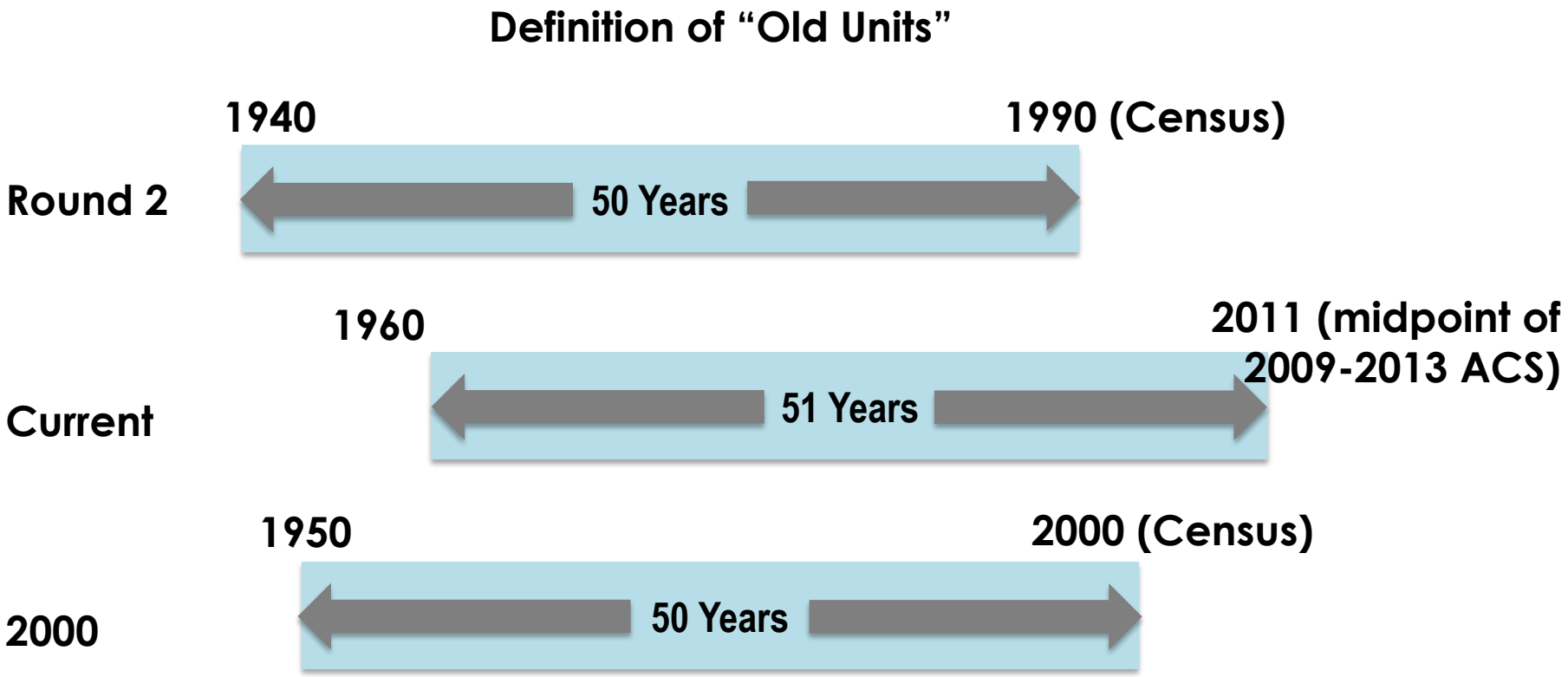


*Statewide numbers are in parentheses

4. Repeat Procedure for 2000 (ch.3.4)

Present Need as of 2000

- Census 2000 data to calculate measures of housing deficiency, overlap, LMI proportion
  - Old Units as of 2000: Defined as those built before 1950



Define the Trend Between 2000 and 2011

5. Extrapolate 2015 Estimate from 2000 – 2011 Trend (ch.3.4)

Deficient LMI Units by Region, 2000 and 2011

Region	2000 Deficient LMI Units	2011* Deficient LMI Units
1	21,100	24,508
2	15,400	18,240
3	4,600	5,693
4	4,700	6,515
5	4,200	3,481
6	2,400	3,063
State	**52,400**	**61,500**
Mercer	1,624	1,914

* 2011 is the midpoint of the 2009-2013 period covered by the data

Calculate 2015 Present Need

6. Estimate Present Need 2015 (ch.3.5)

Present Need by Region (2015)

Region	Present Need
1	25,808
2	19,332
3	6,095
4	7,195
5	3,284
6	3,320
State	**65,034**
Mercer	2,004

Methodology Steps

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  - 1,000 unit cap

= Municipal Obligation

Calculate Prospective Need by Region (Ch. 4)

1. Define Time Period (ch.4.1)

2. Population Projections and Pop in Households (ch.4.2)

3. Headship Rates and Households (ch.4.3)

4. Median Income and LMI Proportion (ch.4.4)

5. Apply Significant Housing Asset Test (ch.4.5)

6. Calculate Increment (i.e. Prospective Need) (ch.4.6)

Prospective Need Period: 10 Years

1. Define Time Period (ch.4.1)

Fair Housing Act, Definitions:

> **"**Prospective need means a **projection** of housing needs based on development and growth which is **reasonably likely to occur** in a region or municipality…"

Fair Housing Act, Duties of COAH:

> "Adopt criteria and guidelines for…municipal determination of its present and prospective fair share of the housing need in a given region **which shall be computed for a 10 year-period."**

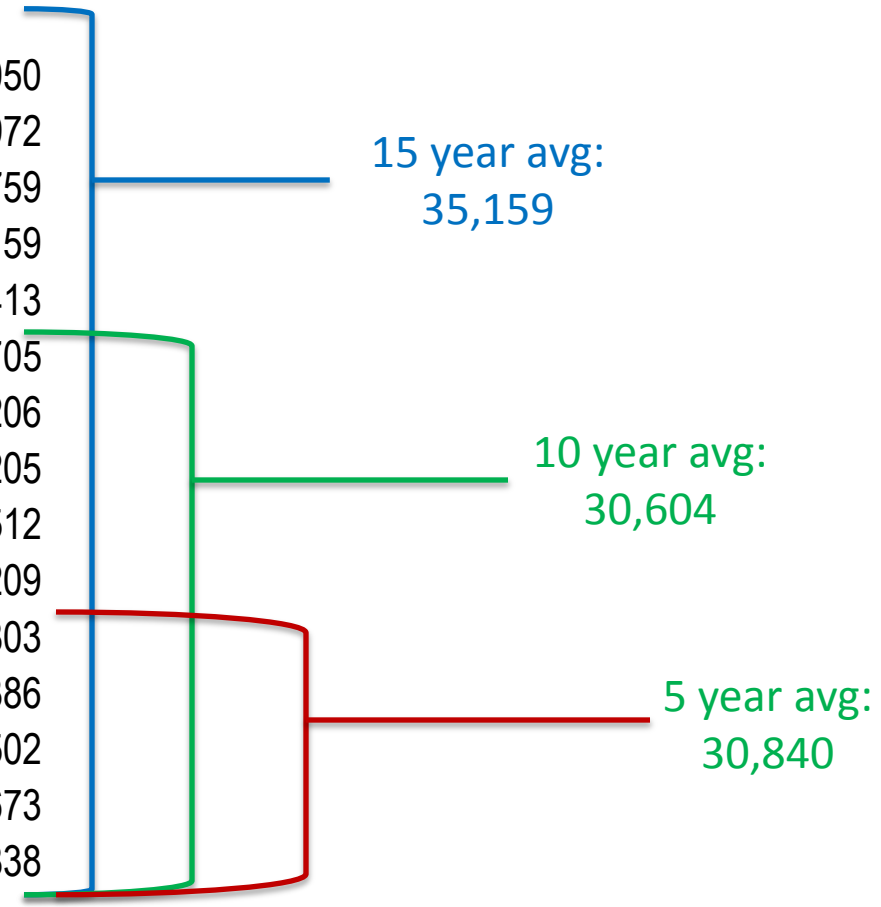
Prospective Need Period: July 1, 2015 to June 30, 2025

First Major Step: Predict Population

- Population Facts
- Population Forecasts and Issues
- ESI Methodology

Statewide Annual Population Growth: 2000 - 2015

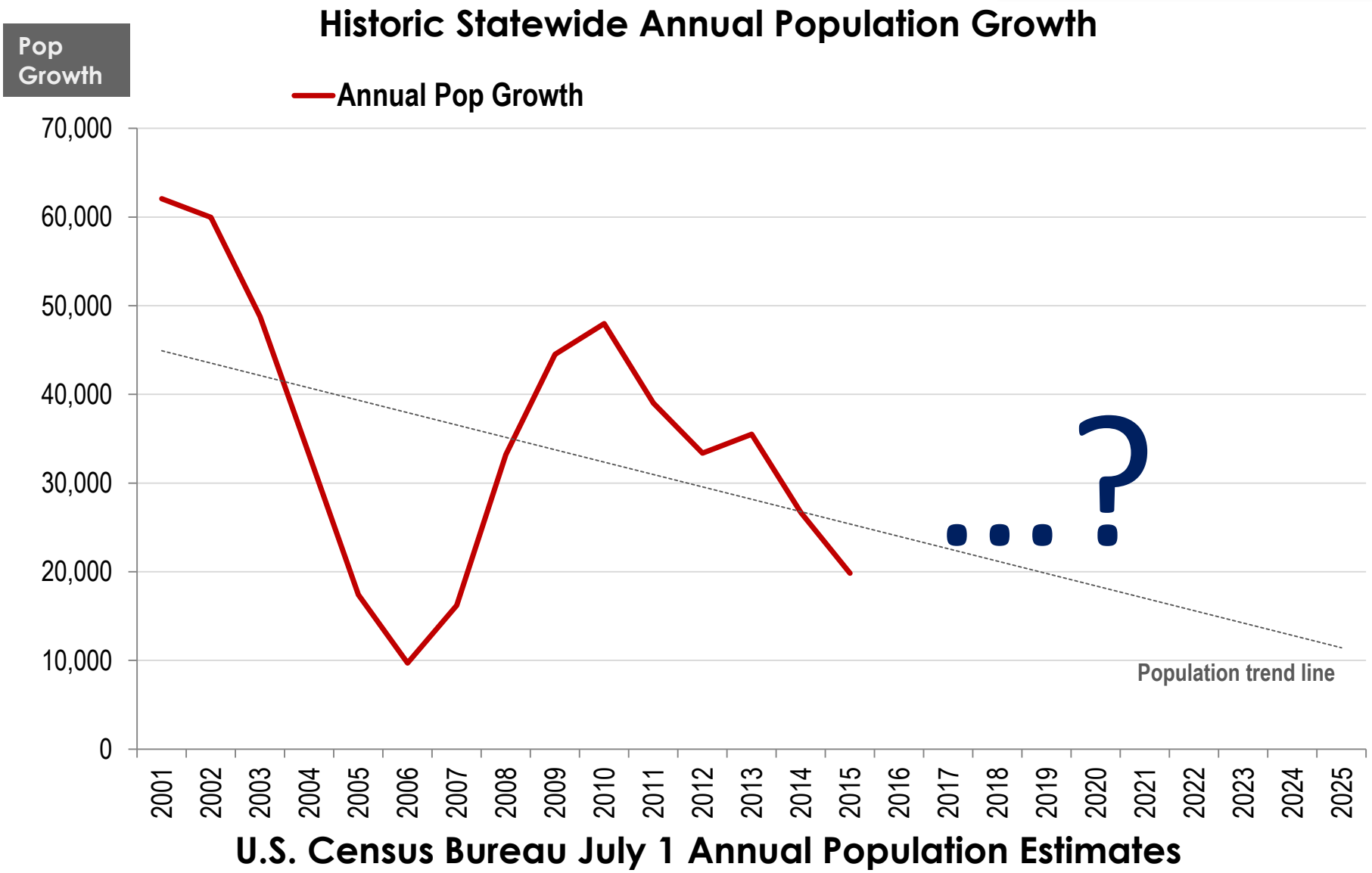
Year	Population	Annual Growth
2000	8,430,621	
2001	8,492,671	62,050
2002	8,552,643	59,972
2003	8,601,402	48,759
2004	8,634,561	33,159
2005	8,651,974	17,413
2006	8,661,679	9,705
2007	8,677,885	16,206
2008	8,711,090	33,205
2009	8,755,602	44,512
2010	8,803,811	48,209
2011	8,842,614	38,803
2012	8,876,000	33,386
2013	8,911,502	35,502
2014	8,938,175	26,673
2015	8,958,013	19,838



U.S. Census Bureau July 1 Annual Population Estimates

Future Population Growth Trajectory

2. Population Projections (ch.4.2)



Population Forecasts

2. Population Projections (ch.4.2)

Prospective Need = "Growth which is **reasonably likely to occur" (FHA)**

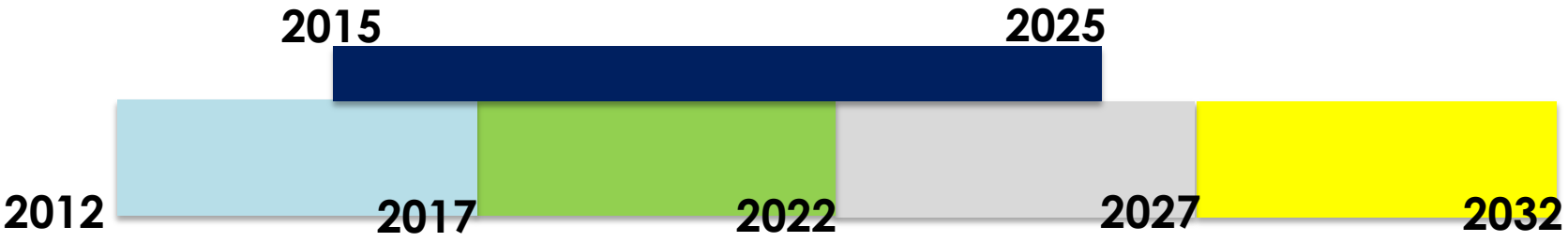
- Projections source: New Jersey Department of Labor and Workforce Development (NJLWD)

- Key Benchmarks
  - Historic performance of NJLWD projections relative to observed growth
  - Performance of NJLWD projections used in the current fair share analysis relative to observed growth

NJLWD Issues 4 Population Models

1. **Economic Demographic**
2. **Historical Migration**
3. Zero Migration
4. Linear Regression

- Projections issued every two years (2014 version: Base year 2012)
- Projections in five year increments
  - Base Year 2012 projections: 2017, 2022, 2027, 2032
  - 2015 and 2025 results interpolated based on 2012-2017 and 2022-2027 annualized growth trend



NJLWD Population Forecast Models

2. Population Projections (ch.4.2)

NJLWD: "Methodology – The Projection Models" Document:

- Economic Demographic and Historical Migration models: "**may be used as a range for possible population change in the future."**

Even though NJLWD has designated the Economic-Demographic Model its "preferred model" since1985:

- Round 1 (1987) – COAH utilized Historical Migration model
- Round 2 (1993) – COAH utilized average of Economic-Demographic and Historical Migration Models

Population Projections: COAH Practice

Component	Round 1	Round 2
Economic Demographic		
Statewide Population		✓
Population Distribution		✓
Historical Migration		
Statewide Population	✓	✓
Population Distribution	✓	✓
Rutgers/CUPR		
Population Distribution		✓

Population Projections: COAH Practice

2. Population Projections (ch.4.2)

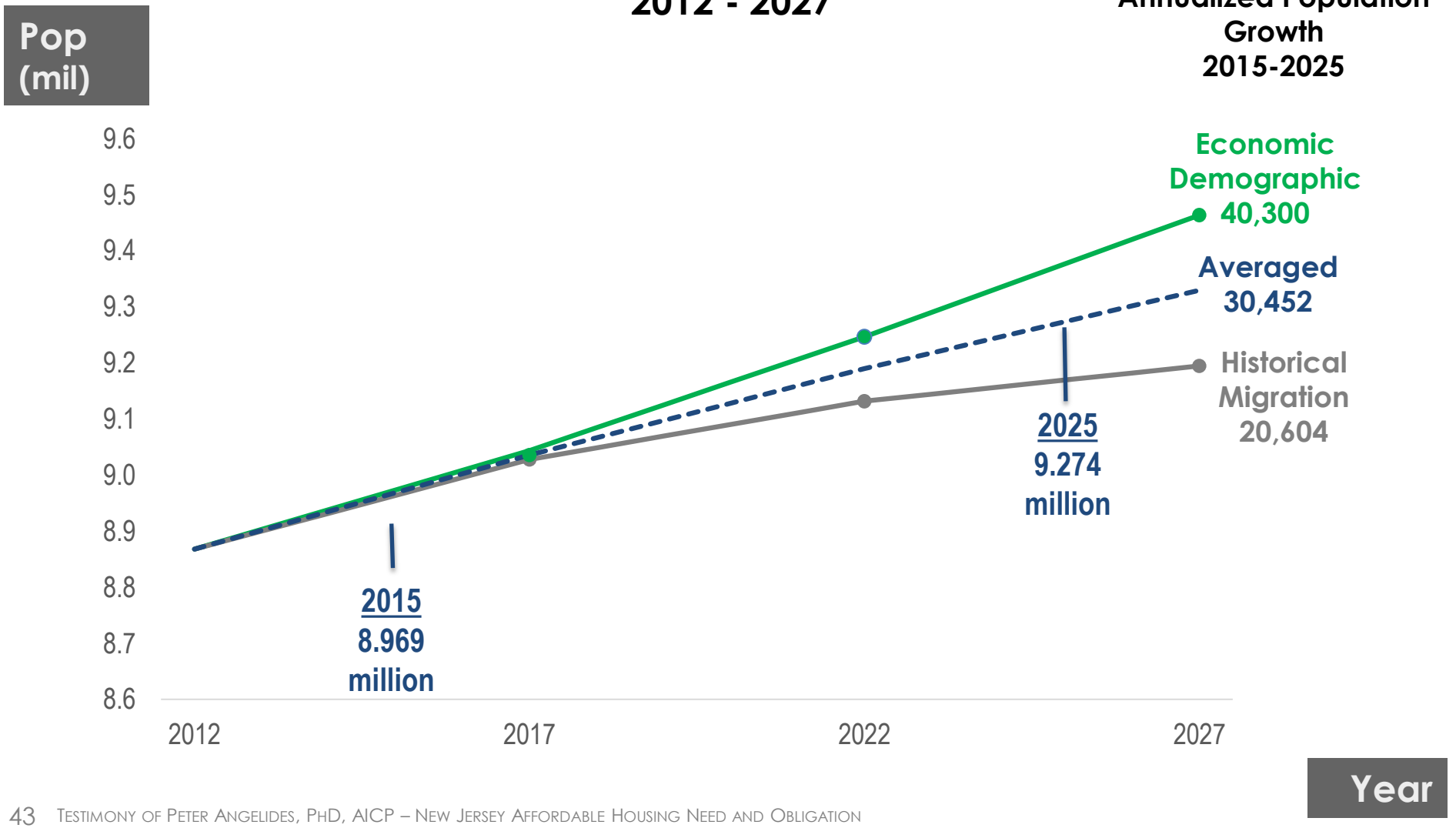
Component	Round 1	Round 2	ESI	FSHC/ Kinsey
Economic Demographic				
Statewide Population		✓	✓	✓
Population Distribution		✓	✓	✓
Historical Migration				
Statewide Population	✓	✓	✓	✗
Population Distribution	✓	✓	Not Avail	Not Avail
Rutgers/CUPR				
Population Distribution		✓	Not Avail	Not Avail

- **ESI uses all available information** in its Population Forecasts
- FSHC Method ignores important information

Current NJLWD Population Forecasts

2. Population Projections (ch.4.2)

NJLWD Population Forecasts 2012 - 2027



Benchmarks of Forecast Accuracy

- Projected annual population growth 2000 – 2015 vs. observed
- Forecast of 2015 population (at different times) vs. observed
- Current forecast period (2012-2015) vs. observed
- Future growth projections vs. historic growth averages (15 year, 10 year, 5 year)

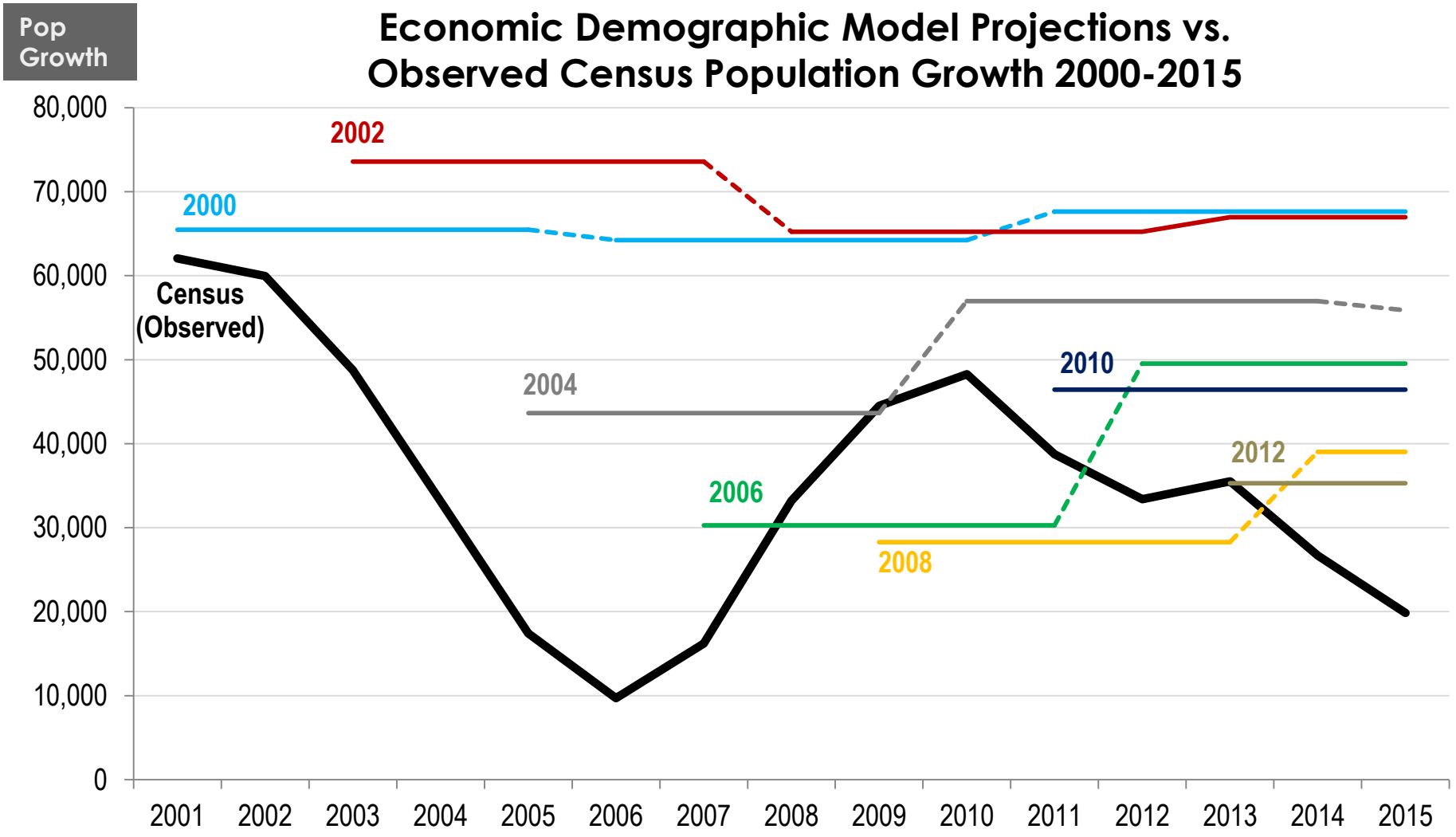
Each of these benchmarks shows that NJDWL population forecasts consistent over-projected population growth from 2000 – 2015

Current projections from the Economic Demographic model significantly exceed observed growth

Historic (in)accuracy of NJLWD Population Models

2. Population Projections (ch.4.2)

- Economic Demographic model over-projects historic growth by an average of 57%
- Over-projects in 10 of 12 available periods (83%)



Historic Over-Projection of 2015 Population

- All 7 Economic Demographic projections for the year 2015 from 2000-2012 were above actual growth levels
  - Average over-projection of annual growth: 55%

Economic Demographic Model Projections of Annualized Statewide Population Growth through 2015

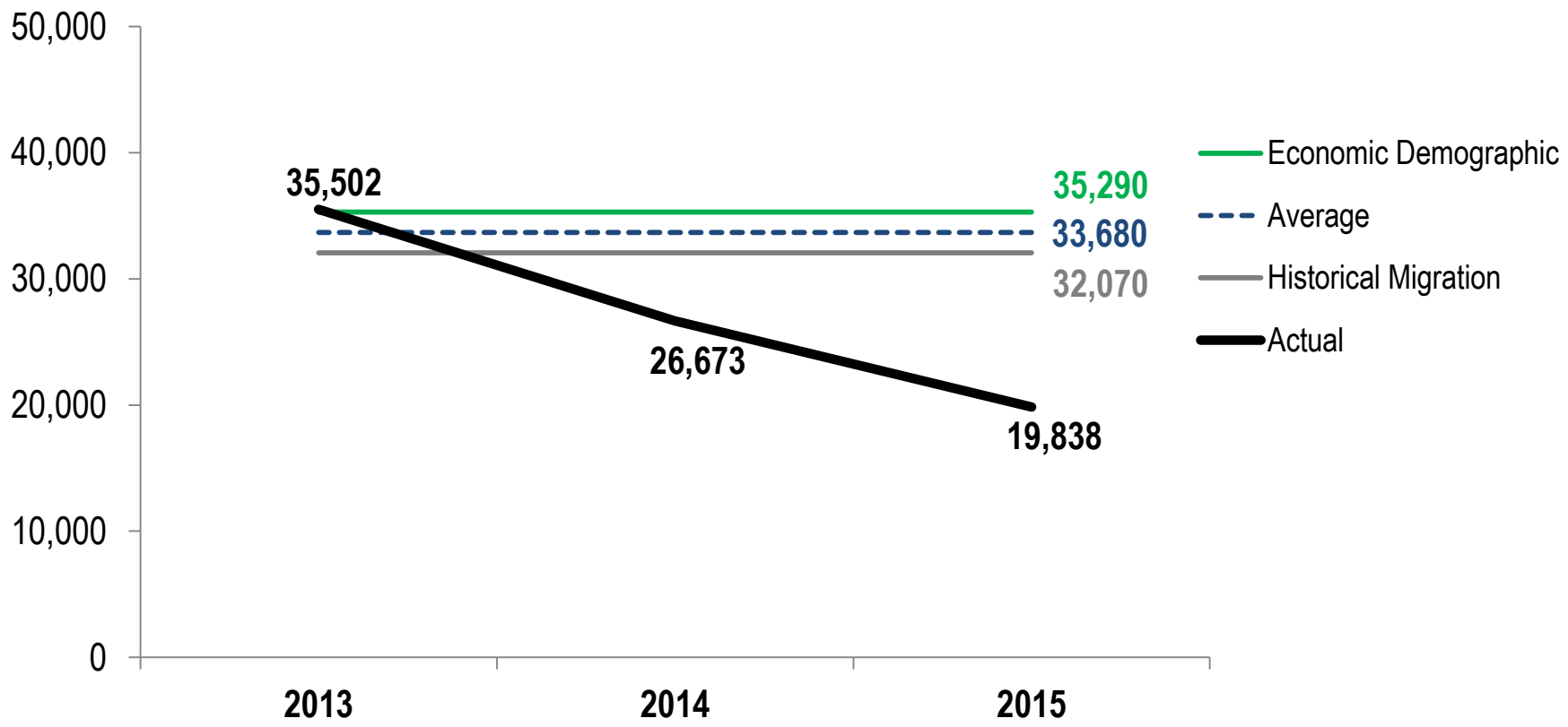
Projection Period	Years to 2015	Annual Population Growth		Over-projection
		Projected	Actual	
2000-2015	15	65,770	35,159	87%
2002-2015	13	68,842	31,182	121%
2004-2015	11	50,811	29,405	73%
2006-2015	9	38,832	32,926	18%
2008-2015	7	31,335	28,916	8%
2010-2015	5	46,421	30,826	51%
2012-2015	3	35,290	27,338	29%

Current Projections Overpredict Growth

2. Population Projections (ch.4.2)

- Projections used in current Prospective Need calculation have significantly exceeded actual growth over the past three years

Pop Growth



Historic Statewide Annual Population Growth vs. Economic Demographic Model Projections

Observed Years	Length	Observed Annual Growth	ED Model Proj. Annual Growth	Net Annual Difference	Net Difference (%)
2000-2015	15	35,159	40,300	**5,141**	**14.6%**
2005-2015	10	30,604	40,300	**9,696**	**31.7%**
2010-2015	5	30,840	40,300	**9,460**	**30.7%**

Historic Statewide Annual Population Growth vs. Averaged Model Projections

Observed Years	Length	Observed Annual Growth	Avg Models Proj Annual Growth	Net Annual Difference	Net Difference (%)
2000-2015	15	35,159	30,452	**(4,707)**	**(13.4%)**
2005-2015	10	30,604	30,452	**(152)**	**(0.5%)**
2010-2015	5	30,840	30,452	**(388)**	**(1.3%)**

ESI Approach: Population Projections

2. Population Projections (ch.4.2)

Statewide Population Projections:

- Interpolate Economic Demographic and Historical Migration Model Projections from 2012-2017 and 2022-2027 to 2015 and 2025

- Average output of two models to yield statewide projections for 2015 and 2025

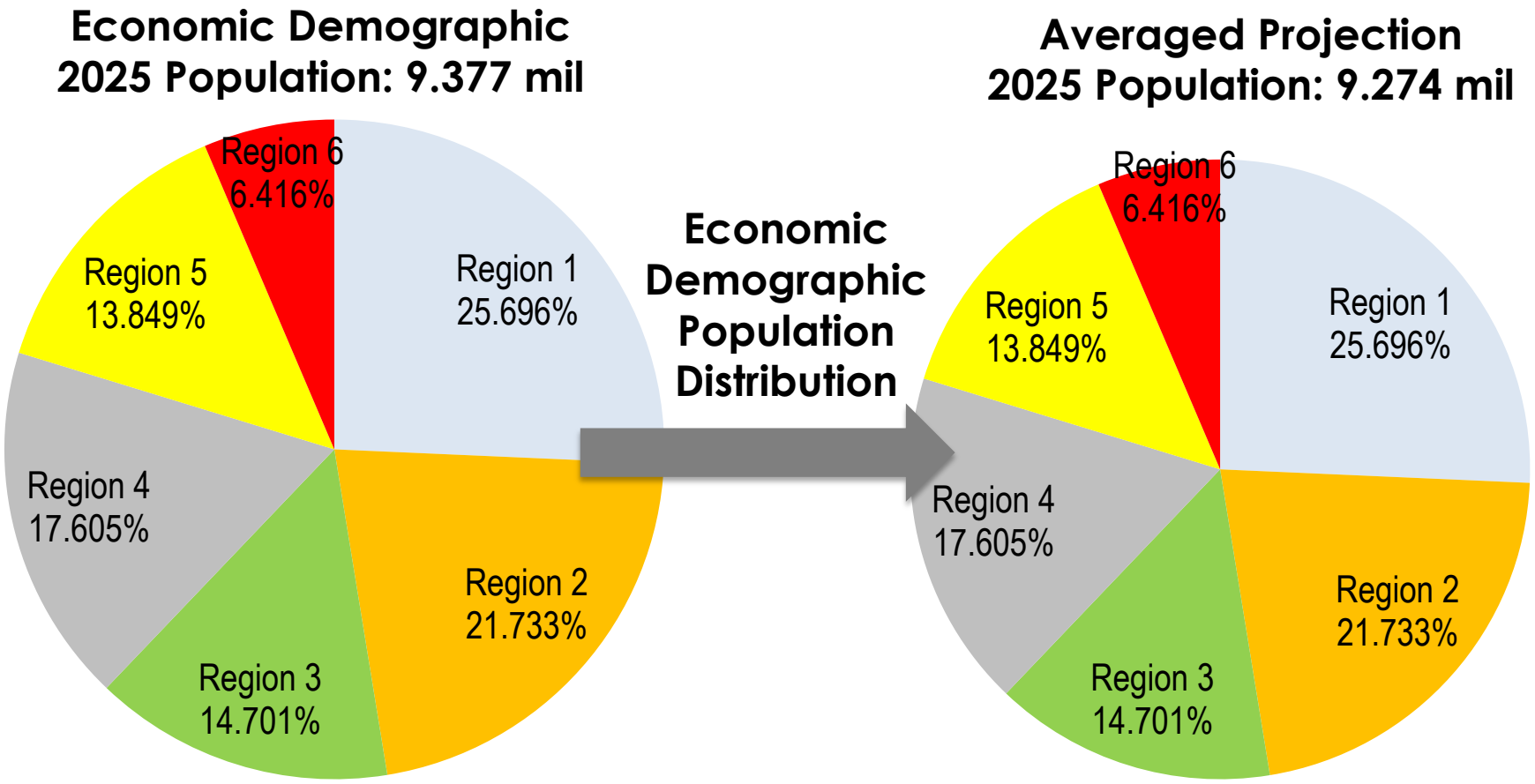
Population Distribution by County and Age Cohort

- Apply proportion of statewide population in each County and age cohort from Economic Demographic model (2015 and 2025) to averaged statewide population (2015 and 2025)

- Statewide population distribution is the same in the ESI method as it is in Economic Demographic-only method

Distribution of Statewide Population Estimate

- ESI projection has the same distribution by county and age group as the Economic Demographic only approach
- Population is lower ("Resize the pie")

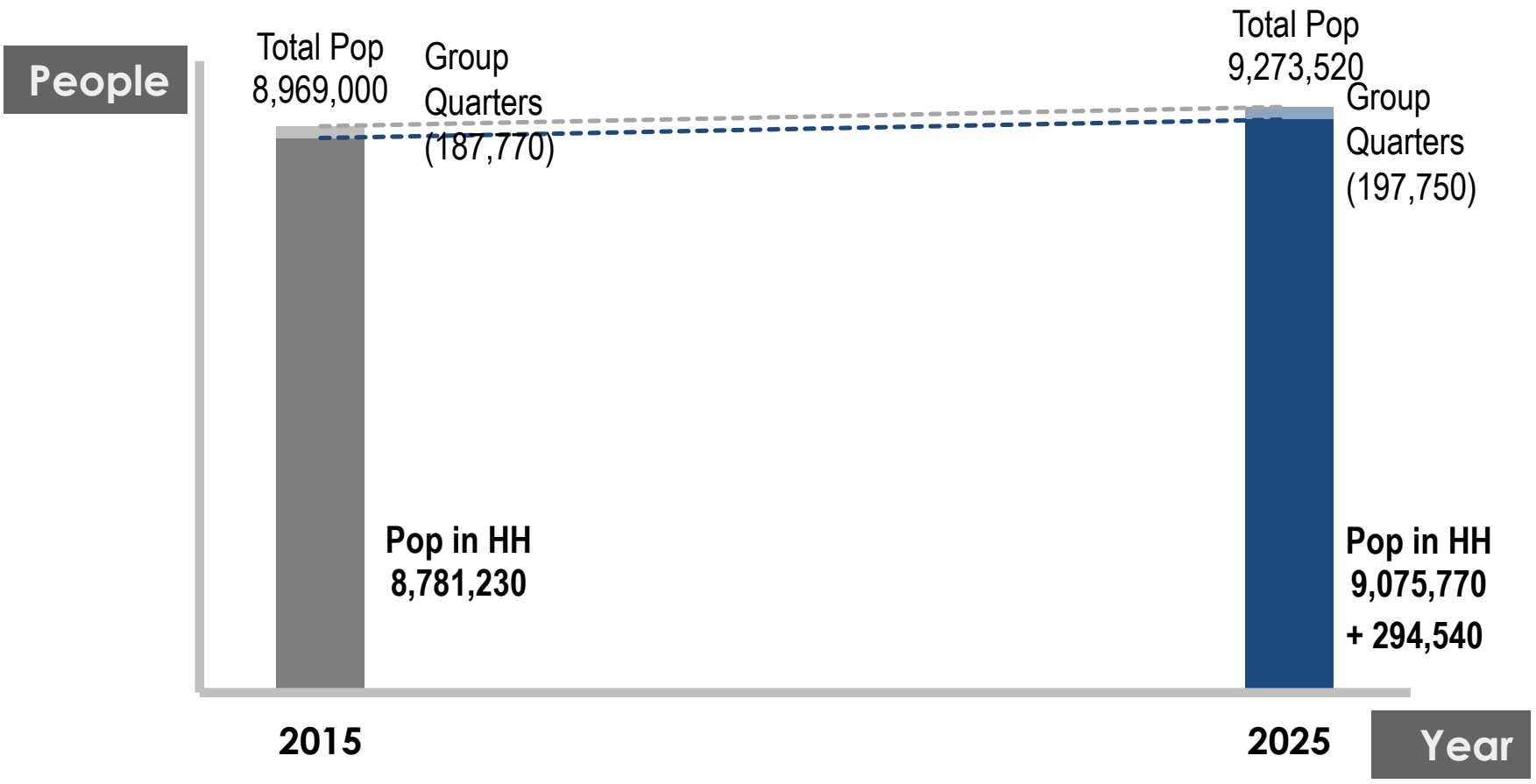


Translate Population to Population in Households

2. Population Projections and Pop in Households (ch.4.2)

- Population in Households = (Population) – (Group Quarters)

Projected Growth in Population in Households 2015-2025



Newly Available Population Data

Newly Available Population Data: Overview

Newly Available Information

- 2016 U.S. Census Bureau New Jersey population estimates
  - Includes revisions to 2010 – 2015 estimates
  - Released in December 2016

- Updated NJLWD population forecasts
  - Base year 2014
  - Released in late 2016

Relevance of New Census Population Estimates

- Updated estimates from the U.S. Census Bureau show:
  - Population growth in New Jersey from 2010 – 2015 has been slower than previously believed
  - 2016 continues the downward trend in the rate of population growth

- This new information **that was not available to the Special Master** bears on the standards used in his analysis
  - Historic population growth tracks more closely with the averaged model projection than the Econ-Demo model projection over 16, 10 and 5 year periods

2016 Census Population Estimates

- New Census Bureau estimates (Dec 2016) include a 2016 statewide population estimate and revisions to 2010 – 2015 estimates
  - Each revision is downward, meaning that population grew more slowly than previously believed
- 2016 data shows growth of just 9,000

New Jersey Annual Population Growth

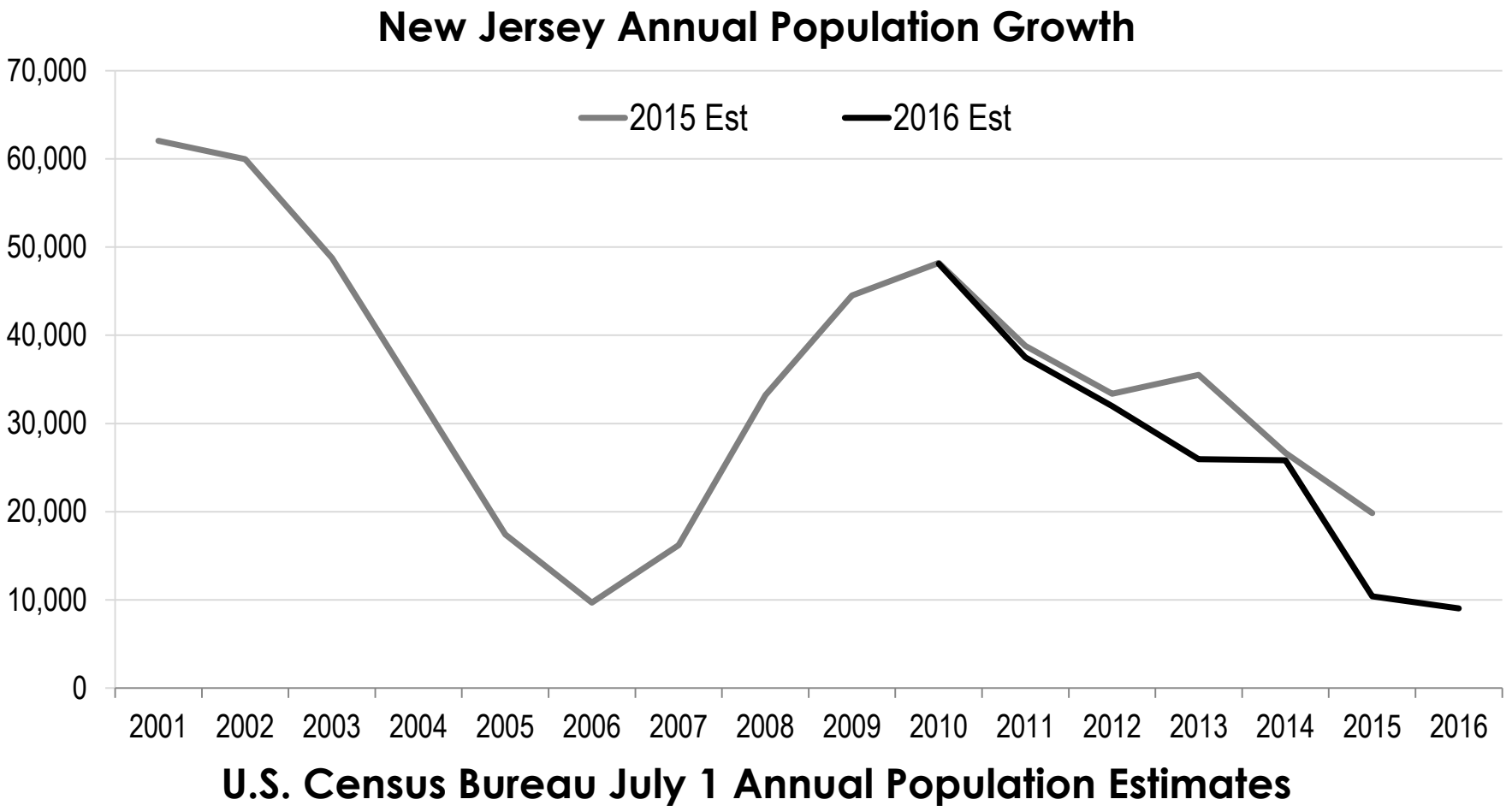
	2015 Estimates		2016 Estimates		
Year	Population	Annual Growth	Population	Annual Growth	Revision (growth)
2009	8,755,602				
2010	8,803,811	48,209	8,803,729	48,127	(82)
2011	8,842,614	38,803	8,841,243	37,514	(1,289)
2012	8,876,000	33,386	8,873,211	31,968	(1,418)
2013	8,911,502	35,502	8,899,162	25,951	(9,551)
2014	8,938,175	26,673	8,925,001	25,839	(834)
2015	8,958,013	19,838	8,935,421	10,420	(9,418)
2016			8,944,469	9,048	

U.S. Census Bureau July 1 Annual Population Estimates

Newly Available Population Data

2016 Census Population Estimates

- Past population growth has been slower than previously believed
- 2016 continues the downward trend in the rate of growth
  - Neighboring states NY and PA lost population in 2016



Newly Available Population Data

Historic Over-Projection of 2016 Population

- Over-projections from NJLWD population models are even larger than previously thought
  - All 7 Economic Demographic projections for the year 2016 from 2000-2012 were above actual growth levels
  - Average over-projection of annual growth: **96%** (nearly 2x)

Economic Demographic Model Projections of Annualized Statewide Population Growth through 2016

Projection Period	Years to 2015	Annual Population Growth		Over-projection
		Projected	Actual	
2000-2016	16	66,409	32,116	107%
2002-2016	14	68,986	27,988	146%
2004-2016	12	51,233	25,826	98%
2006-2016	10	39,903	28,279	41%
2008-2016	8	32,295	23,608	37%
2010-2016	6	45,948	23,457	96%
2012-2016	4	35,290	17,815	98%

Newly Available Population Data

Historic and Projected Annual Population Growth

- Observed population growth tracks far more closely with the averaged result from the Econ-Demo and Historic Migration model projections than the Econ-Demo model alone
  - Average is closer over 16 year period, 10 year period and 5 year period

Historic Statewide Pop Growth vs. Base Year 2012 Averaged Model Projections

Observed Years	Length	Observed Annual Growth	Avg Models Proj Annual Growth	Net Annual Difference	Net Difference (%)
2000-2016	16	32,116	30,452	**(1,664)**	**(5.2%)**
2006-2016	10	28,279	30,452	**2,173**	**7.7%**
2011-2016	5	20,645	30,452	**9,807**	**47.5%**

Historic Statewide Pop Growth vs. Base Year 2012 Econ-Demo Model Projections

Observed Years	Length	Observed Annual Growth	ED Model Proj. Annual Growth	Net Annual Difference	Net Difference (%)
2000-2016	16	32,116	40,300	**8,184**	**25.5%**
2006-2016	10	28,279	40,300	**12,021**	**42.5%**
2011-2016	5	20,645	40,300	**19,655**	**95.2%**

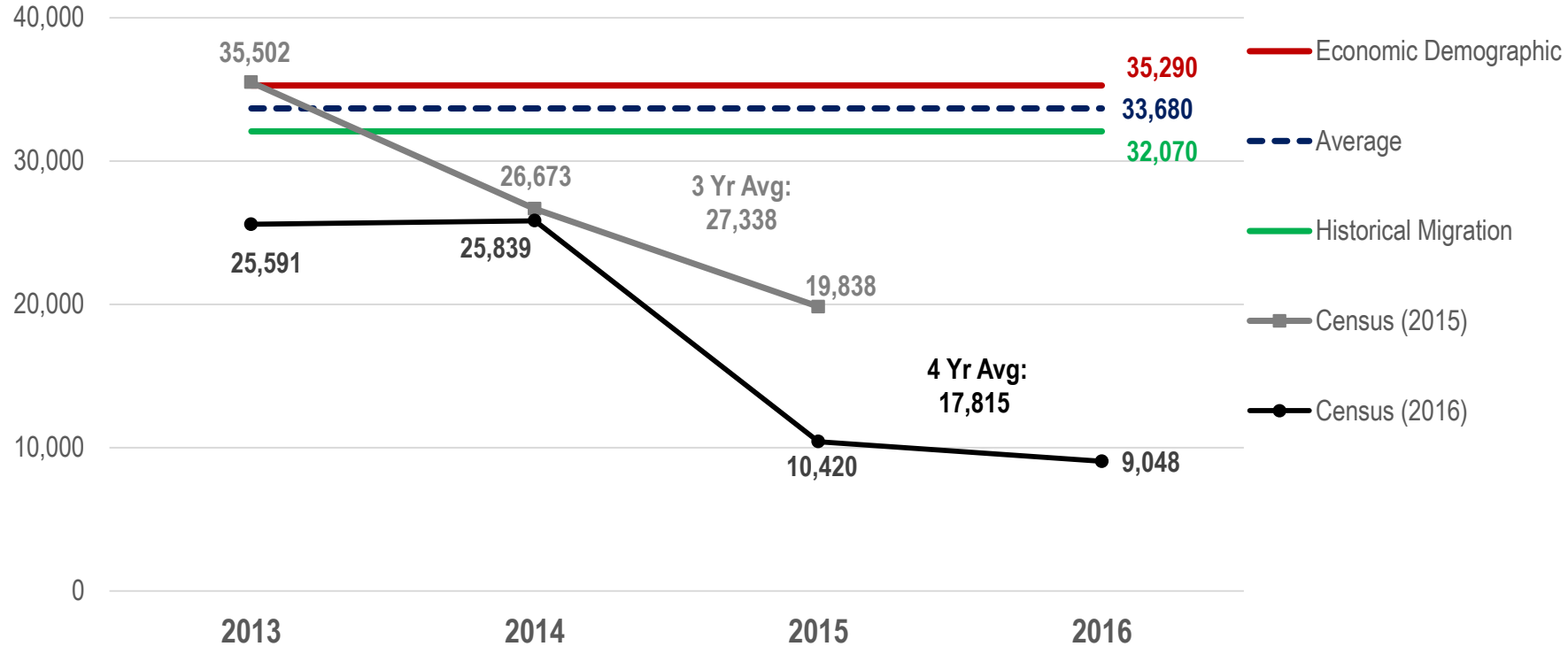
Newly Available Population Data

NJDWL Projections Overpredict Growth

- Projections used in current Prospective Need calculation have significantly exceeded actual growth over the past four years
  - Over-projection is far greater than previously believed

Pop Growth

NJLWD Base Year 2012 Population Forecasts vs. Actual 2013 - 2016



Newly Available Population Data

Relevance of Newly Available Information

- ESI and FSHC models rely on NJDWL population projections released in 2014 (base year 2012)
  - New projections were issued by NJDWL in late 2016 (base year 2014)

- Updated projections show similar growth in Economic-Demographic model and higher growth in Historical Migration (and therefore average) models
  - Averaged approach tracks more closely with observed data
  - However, all projections are well above observed growth levels in recent years

Updated NJLWD Population Projections

- Updated (base year 2014) NJLWD projections show similar growth for Economic Demographic model and higher growth for Historical Migration and averaged models

Annual Population Growth by NJDWL Model and Projection Year

Model	Economic Demographic	Historical Migration	Average
Base Year 2012			
2012-2017	35,290	32,070	33,680
2017-2022	40,620	20,760	30,690
2022-2027	43,260	12,700	27,980
2015-2025	***40,346***	**20,604**	***30,475***
Base Year 2014			
2014-2019	38,900	34,320	36,610
2019-2024	41,060	30,660	35,860
2024-2029	38,640	27,900	33,270
2015-2025	***39,954***	***31,848***	***35,901***
Net Annual Change			
2015-2025	***(392)***	***11,244***	***5,426***

Newly Available Population Data

Historic and Projected Annual Population Growth

- Averaged model is above observed growth over 16 year, 10 year and 5 year period, and is closer to observed growth than Econ-Demo model over all periods

Historic Statewide Pop Growth vs. Base Year 2014 Averaged Model Projections

Observed Years	Length	Observed Annual Growth	Avg Models Proj Annual Growth	Net Annual Difference	Net Difference (%)
2000-2016	16	32,116	35,901	**3,785**	**11.8%**
2006-2016	10	28,279	35,901	**7,622**	**27.0%**
2011-2016	5	20,645	35,901	**15,256**	**73.9%**

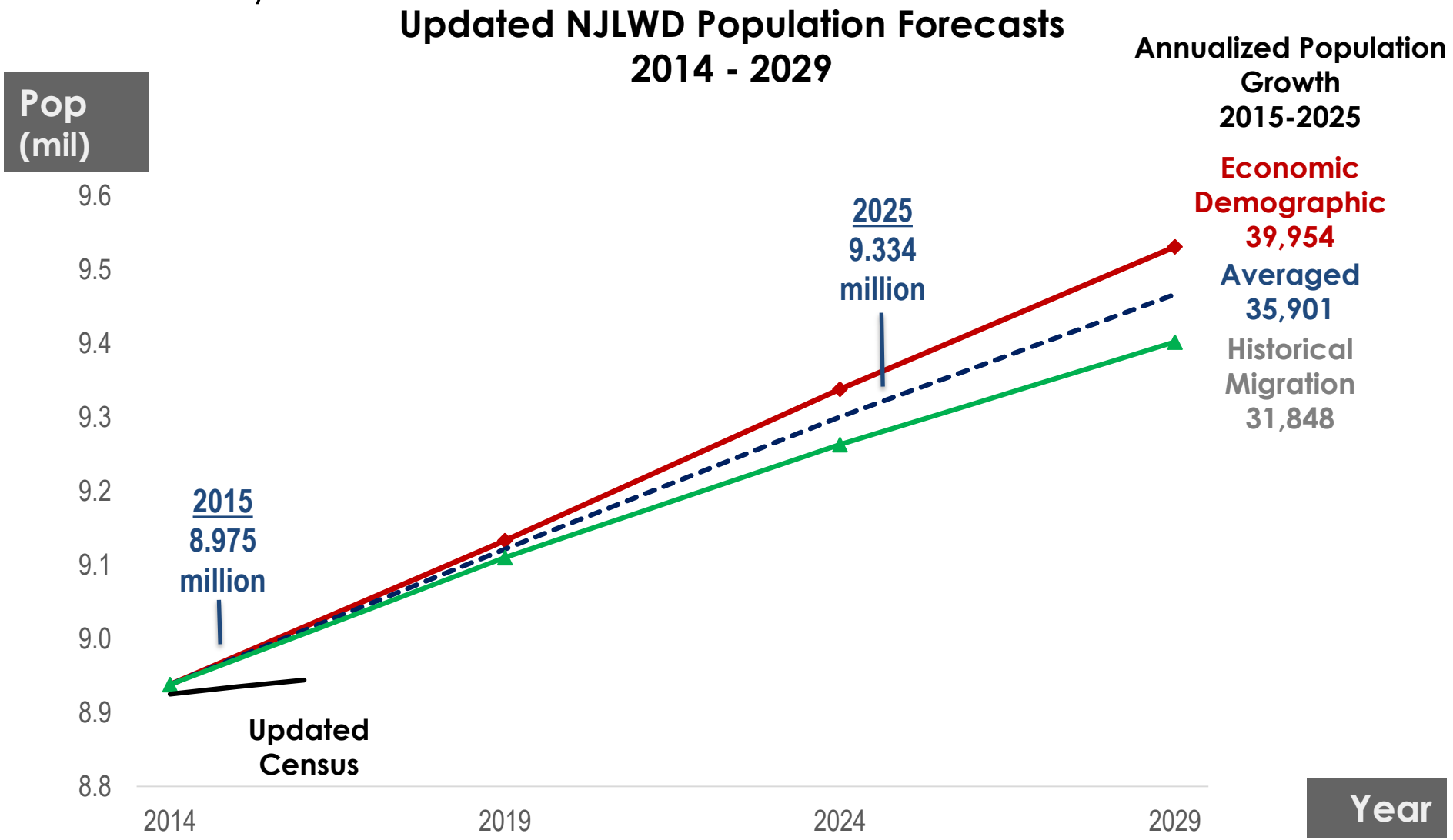
Historic Statewide Pop Growth vs. Base Year 2014 Econ-Demo Model Projections

Observed Years	Length	Observed Annual Growth	ED Model Proj. Annual Growth	Net Annual Difference	Net Difference (%)
2000-2016	16	32,116	39,954	**7,838**	**24.4%**
2006-2016	10	28,279	39,954	**11,675**	**41.3%**
2011-2016	5	20,645	39,954	**19,309**	**93.5%**

Newly Available Population Data

Current NJLWD Population Forecasts

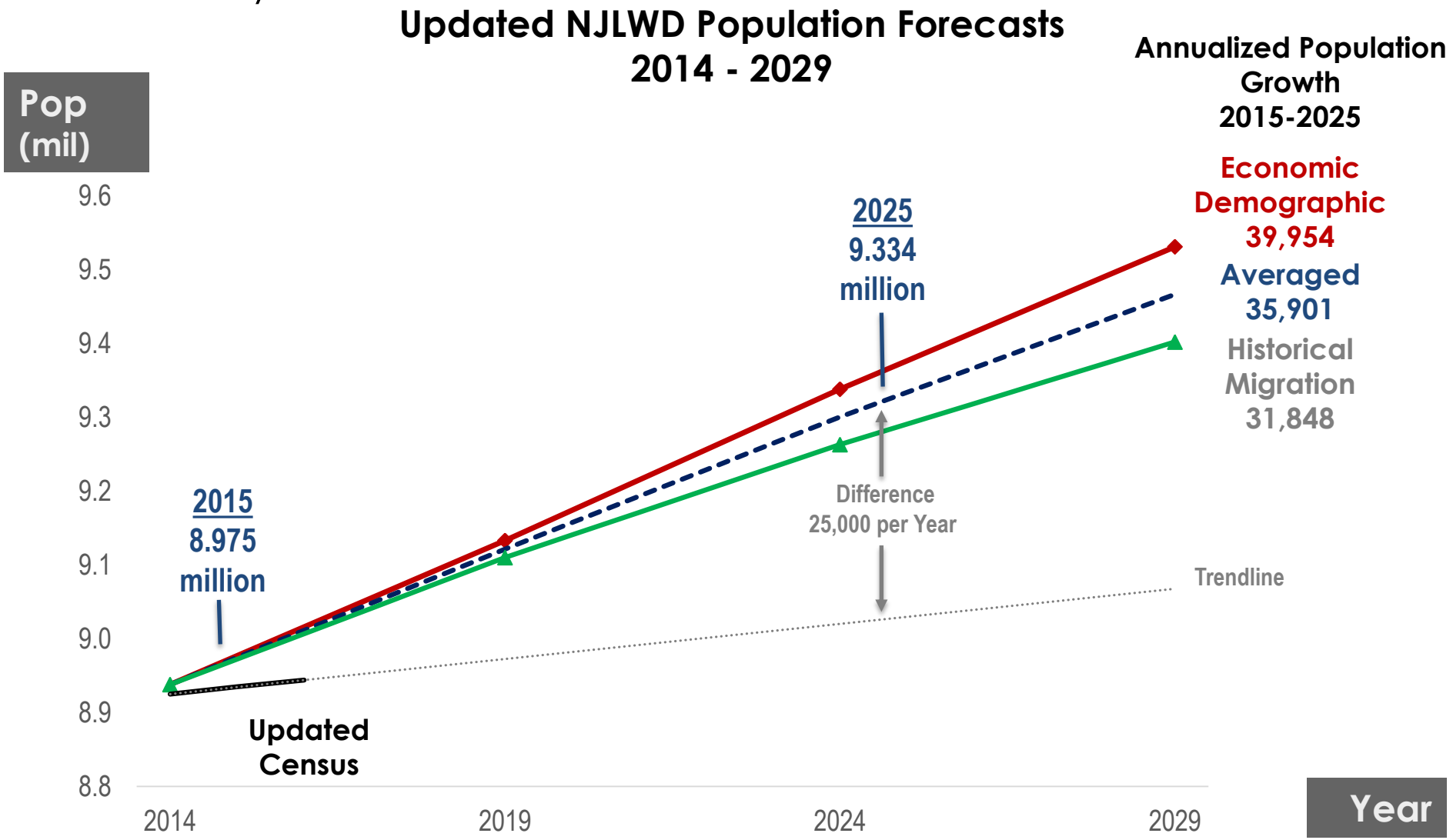
- All NJLWD models are far out of scale with observed growth in recent years



Newly Available Population Data

Current NJLWD Population Forecasts

- All NJLWD models are far out of scale with observed growth in recent years

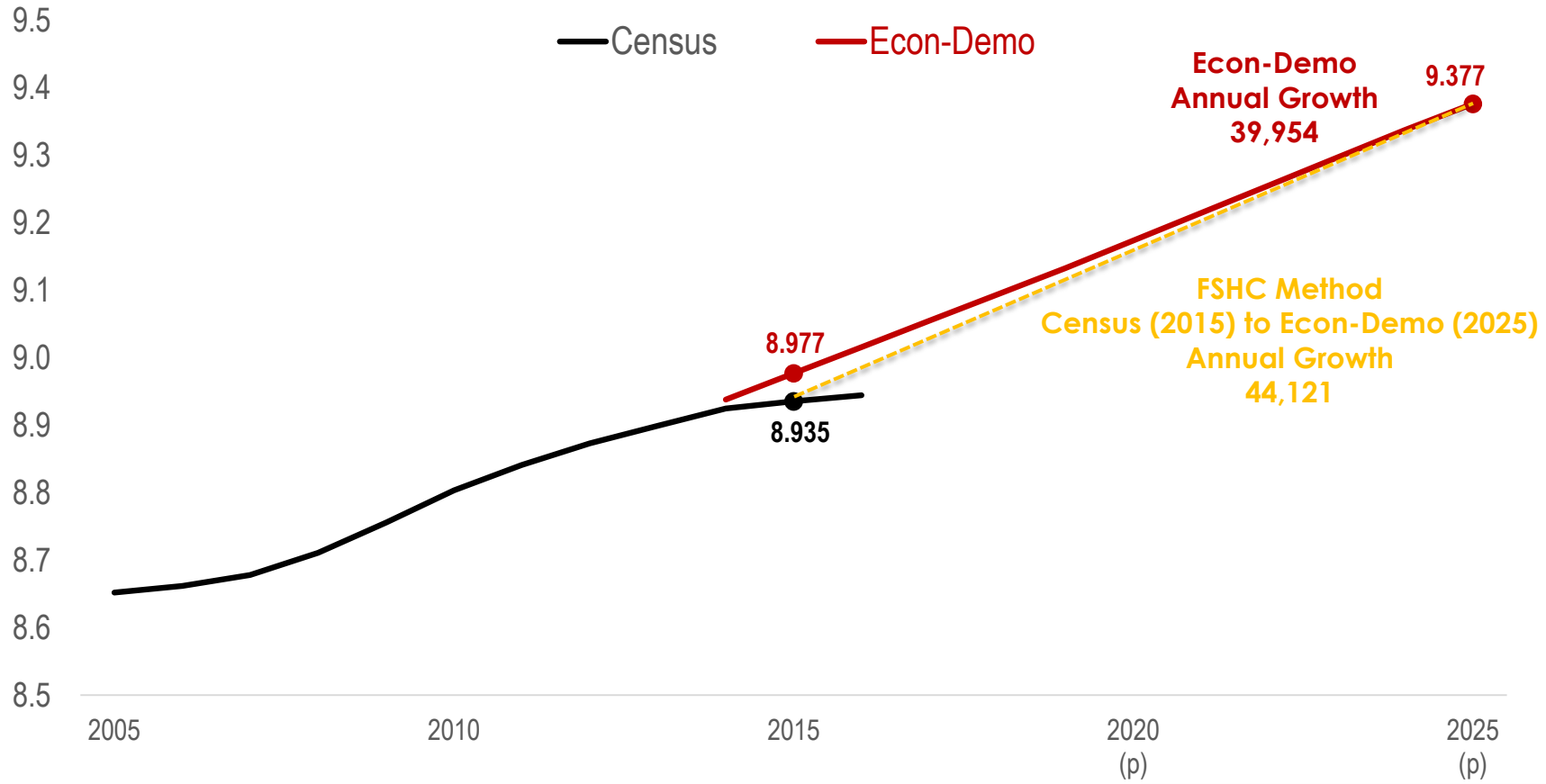


Newly Available Population Data

FSHC Use of Economic Demographic Projection

- FSHC's uses (lower) actual population figures for 2015 compared to unadjusted population projections for 2025
  - This creates even larger incremental pop growth from 2015 to 2025 than projected by the Econ-Demo model

Updated NJLWD Pop Forecasts and Census Estimates as Applied in FSHC Model



Newly Available Population Data

Newly Available Population Data: Summary

- New Jersey's population has been growing more slowly than previously believed
- New Jersey's declining rate of population growth continued in 2016, the first year of the Prospective Need period
- Population growth projected by the updated Economic Demographic model greatly exceeds observed population growth over the past 16, 10 or 5 years.
  - Even under the averaged approach, updated projections also exceed each of these benchmarks
- This new information **was not available to the Special Master** and bears on the standards and analysis set forth in his report

Second Major Step: Calculate Increase in Households During Prospective Need Period

The increase in households over the Prospective Need period is derived through three basic steps:

1) Identify the number of households as of the starting point of the Prospective Need period (July 1, 2015)

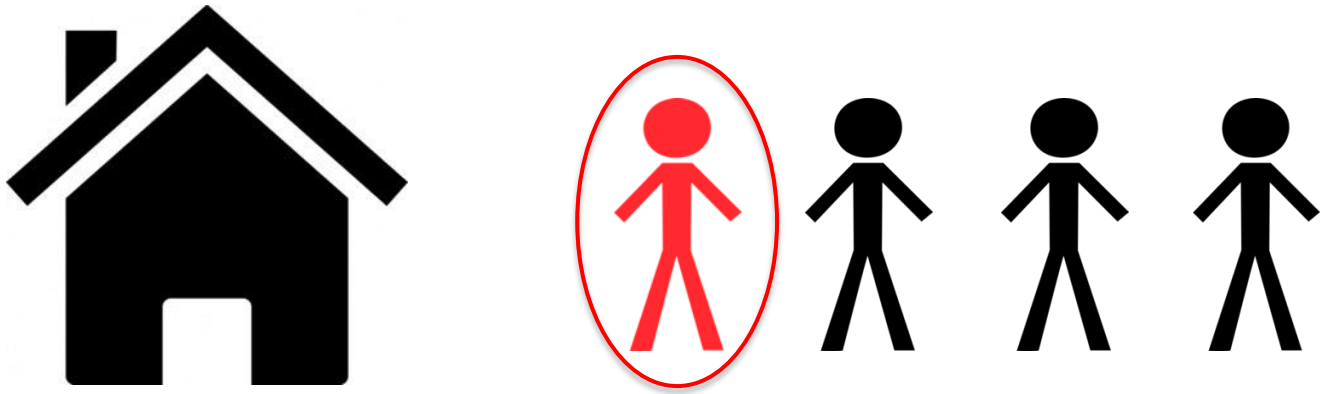
2) Project the number of households that will exist at the end of the Prospective Need period (July 1, 2025)

3) Subtract the 2015 households from the 2025 households to yield the increase in households over the Prospective Need period

Headship Rate: Definition

- Households are calculated by identifying the population and using Headship Rates to convert that population into the number of households.

- The Headship Rate is the percent of the population that is the head of a household ("householder")
  - Headship Rate = (Households) / (Population in Households)
  - Headship Rate = (1) / (Average Household Size)
    - Example: Headship Rate = 25% if Average Household Size is 4



Projecting Headship Rates: Overview

- A determination of the current headship rate is required, as is a projection of future headship rates
- There are two types of Headship Rates:
  1) Aggregate statewide headship rate
  2) Headship rate by age cohort (and County)
- The headship rate projection is performed by age cohort because:
  - Headship rates vary with age
  - Population projections to which headship rates are applied are estimated by age cohort (i.e. aging effects already accounted for in population forecast)

Conflicting Headship Rate Trends

- It is possible for aggregate statewide headship rate to be flat or increasing while the headship rate by age cohort is declining.

HOW?

- Long-term societal trends are driving headship rates down within most age cohorts
    - i.e. people are living longer, marrying later etc. compared to people their same age in the past

BUT

- Headship rates tend to increase with age
    - Older adults more likely to head their household, and tend to live in smaller households (fewer children in HH, more widowed HH)

Conflicting Headship Rate Trends: New Jersey

- NJ population is aging rapidly due to the Baby Boomer bulge

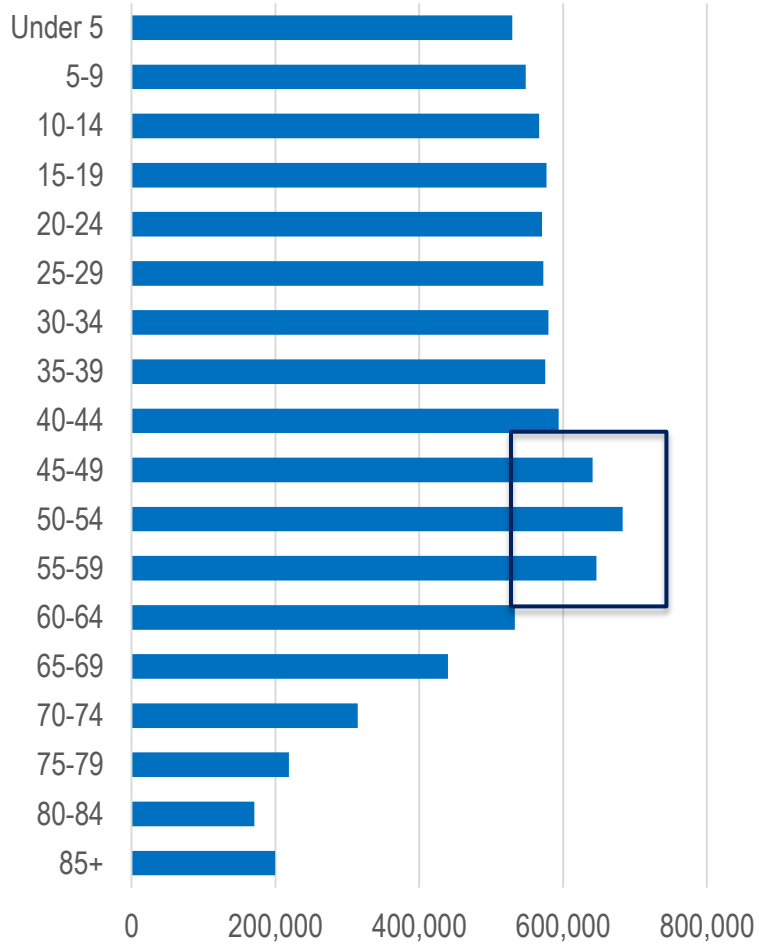
BUT

- Headship rates are declining within age cohorts due to long-term trends

MATHEMATICALLY

- This can lead to a flat or increasing aggregate headship rate despite decreases in the rate for most age cohorts

New Jersey Population by Age Cohort, 2015

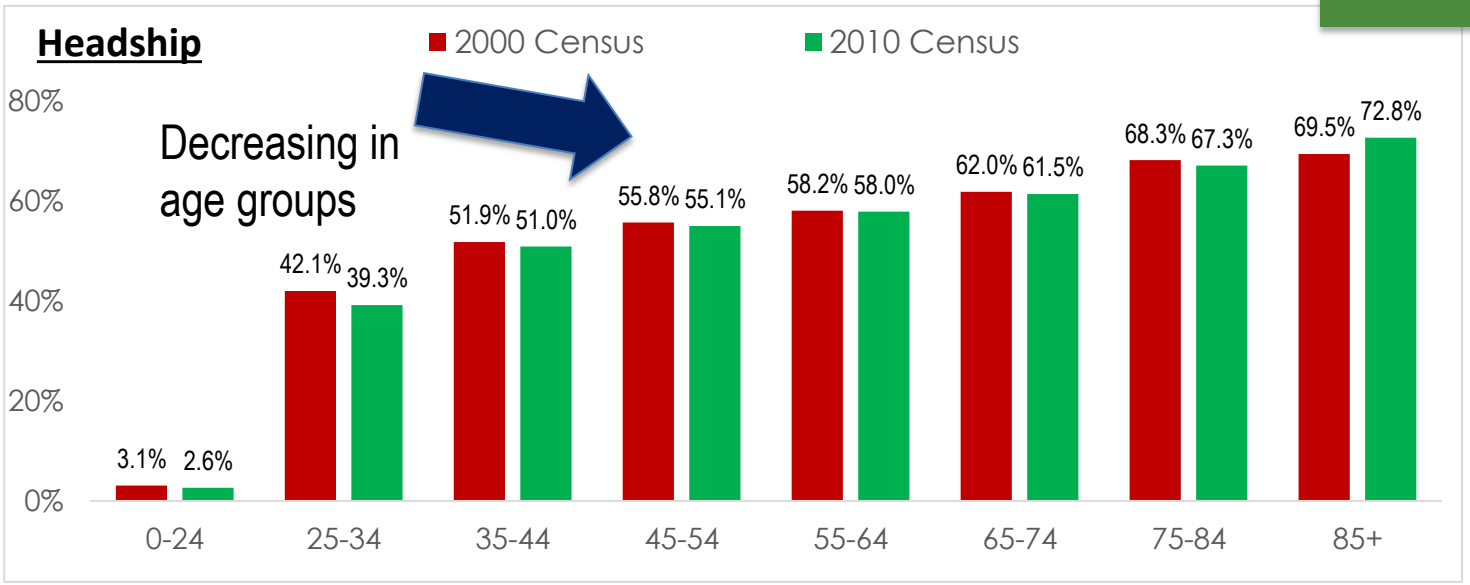


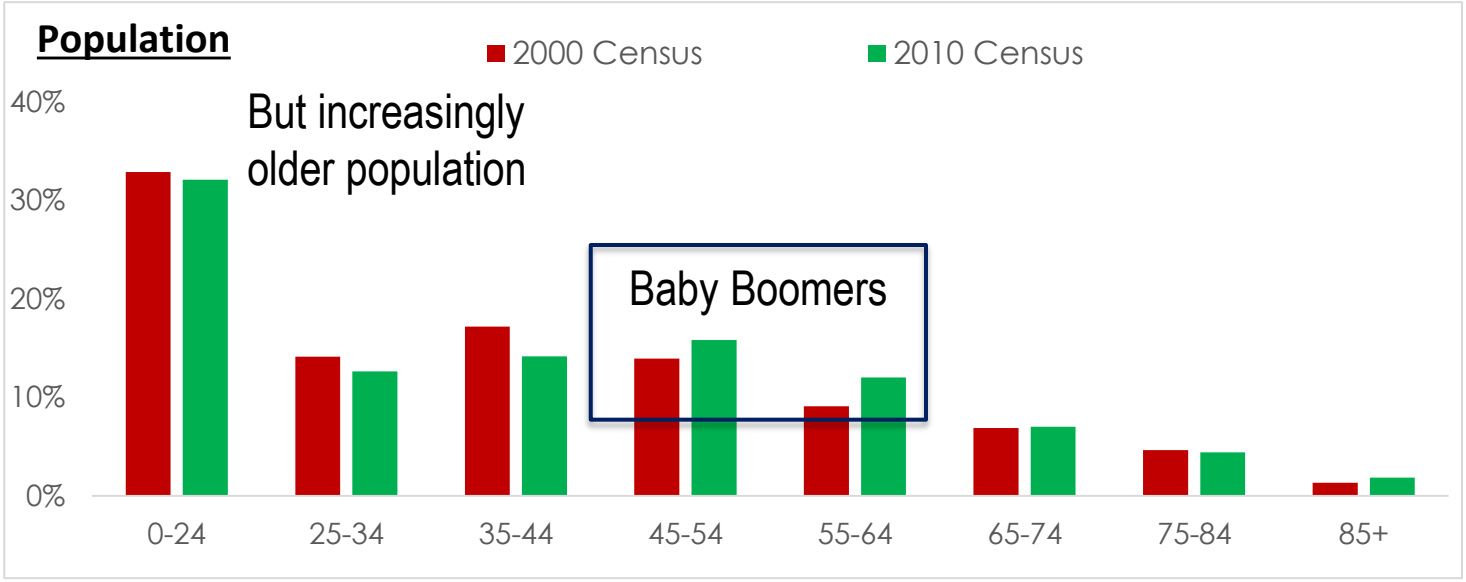
Sample Age Cohort Change

- In this example, the headship rate declines in each age cohort
- Nonetheless, the statewide headship rate increases due to the aging of the population

	2000			2010		
Age Cohort	**Population**	**Headship Rate**	**Households**	**Population**	**Headship Rate**	**Households**
Under 25	100	20%	20	85	19%	16
25-34	100	25%	25	90	24%	22
35-44	100	30%	30	95	29%	28
45-54	100	35%	35	100	34%	34
55-64	100	40%	40	100	39%	39
65-74	100	45%	45	105	44%	46
75-84	100	50%	50	110	49%	54
85+	100	55%	55	115	54%	62
Statewide	**800**	**37.5%**	**300**	**800**	**37.6%**	**301**

New Jersey Headship Rates by Age Group, 2000 - 2010





Net Effect:

- 2000: 37.28%
- 2010: 37.35%

Increase in Statewide Headship Rate despite decrease in 7 of 8 age cohorts

COAH Round 2 Headship Rate Methodology (1993)

- **Part 1: Starting Point** - Census 1990 (most up to date data source – ACS not available in between decennial Census period)

- **Part 2: Trend** - Based on 1/2 change from 1980 to 1990 Census by age/county group(most reliable trend from prior period)
  - Applying 1/2 change "splits the difference" between assuming a continuation of recent trend and assuming a constant rate (inherently conservative approach)

Calculation: Trend is applied to starting point to yield projected rates for end of Prospective Need period (1999)

ESI Headship Rate Approach

- **Part 1: Starting Point** - 2014 ACS/Census (most up to date data point)
- **Part 2: Trend** - 1/2 % change from 2000 to 2010 Census by age group and county (most reliable trend)

Calculation: Trend is applied to starting point to project forward

Statewide Headship Rates, Observed and Projected

Year	Statewide Headship Rate	Source
2000	37.28%	Census
2010	37.35%	Census
2014	36.99%	ACS/Census
2015 (P)	**37.04%**	**ESI Model**
2025 (P)	**37.45%**	**ESI Model**

Headship Rate Projection by Age Cohort: Mercer

Mercer County Headship Rate Calculation – Establish Trend

Metric	U25	25-34	35-44	45-54	55-64	65-74	75-84	85+
2000 Headship	3.54%	43.41%	52.71%	56.48%	59.77%	63.66%	69.67%	69.70%
2010 Headship	3.31%	40.79%	51.91%	56.00%	59.49%	62.99%	68.98%	73.23%
% Chg 2000-2010	(6.41%)	(6.03%)	(1.52%)	(0.85%)	(0.47%)	(1.05%)	(0.99%)	5.07%
1/2 % Chg 2000-2010	**(3.20%)**	**(3.01%)**	**(0.76%)**	**(0.42%)**	**(0.23%)**	**(0.52%)**	**(0.49%)**	**2.53%**

Mercer County Headship Rate Calculation – Project to 2025

Metric	U25	25-34	35-44	45-54	55-64	65-74	75-84	85+
2014 Headship Rate	3.04%	38.45%	49.39%	59.17%	57.47%	61.37%	61.37%	71.10%
Apply Trend 1/2% Chg	(3.20%)	(3.01%)	(0.76%)	(0.42%)	(0.23%)	(0.52%)	(0.49%)	2.53%
= 2025 Headship Rate	**2.94%**	**37.29%**	**49.01%**	**58.92%**	**57.33%**	**61.05%**	**61.07%**	**72.91%**

Household Calculation – Mercer County

3. Headship Rates and Households (ch.4.3)

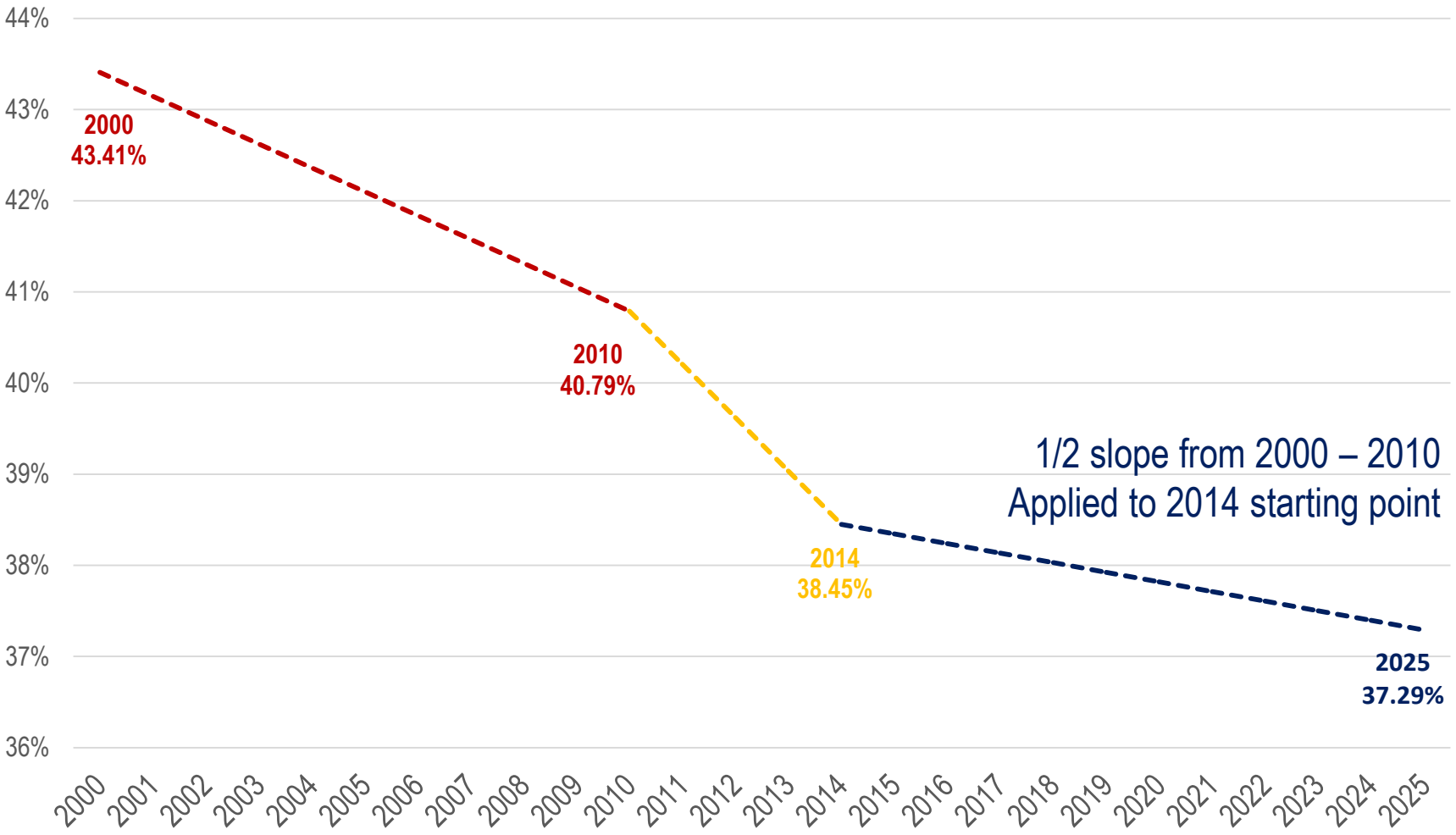
Mercer County Household Calculation - 2025

Metric	U25	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
2025 Population in HH	113,543	44,042	43,702	45,569	48,426	40,273	20,745	7,785	**364,084**
	X	**X**	**X**	**X**	**X**	**X**	**X**	**X**	
2025 Headship Rate	2.94%	37.29%	49.01%	58.92%	57.33%	61.05%	61.07%	72.91%	
	=	**=**	**=**	**=**	**=**	**=**	**=**	**=**	
2025 Households	3,337	16,424	21,420	26,850	27,764	24,586	12,669	5,676	**138,724**

- Same process performed for 2015 (start of Prospective Need period)

Projected Headship Rate by Age Cohort

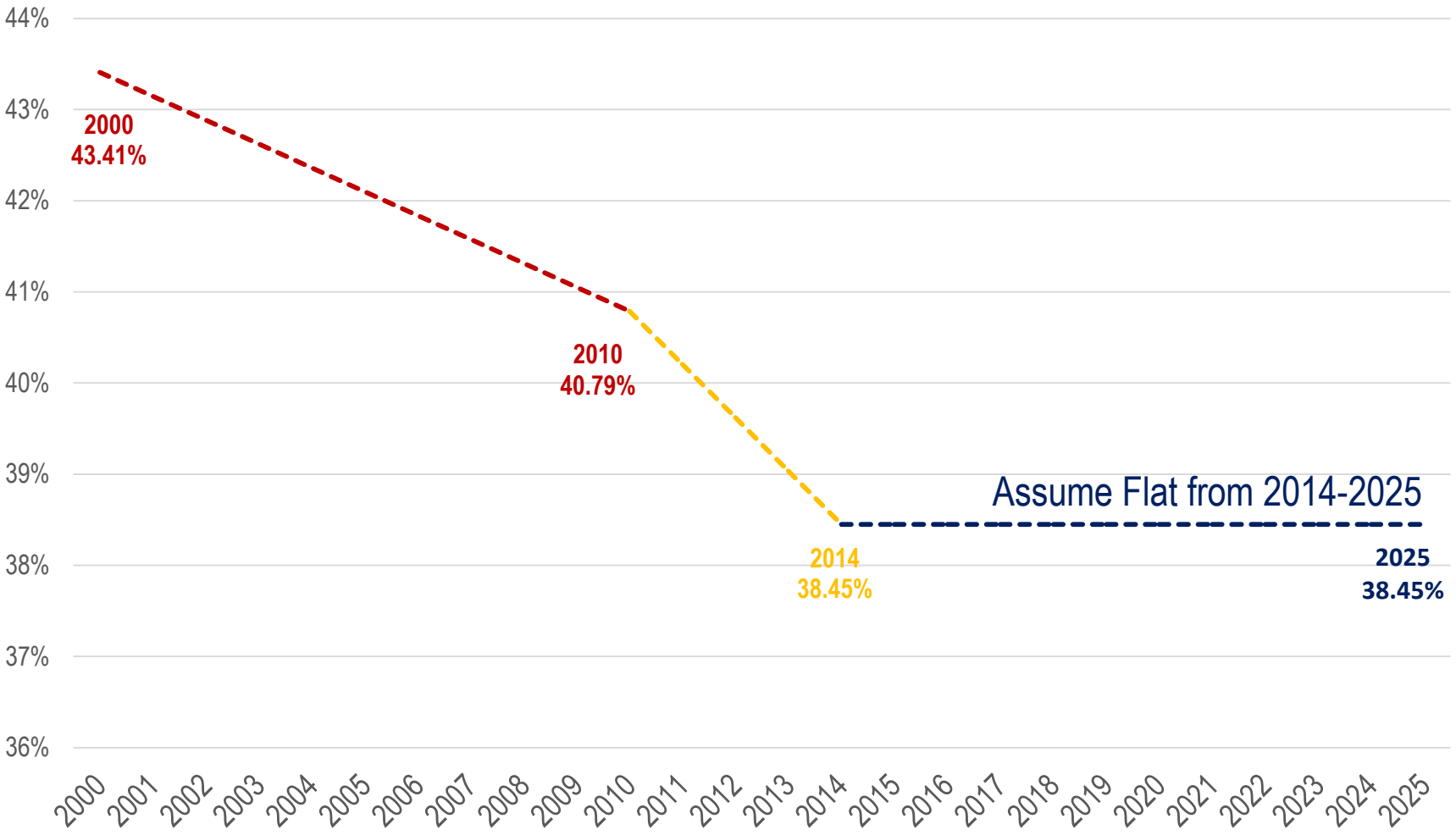
Mercer County Headship Rate by Year: 25-34 Age Group – ESI Method



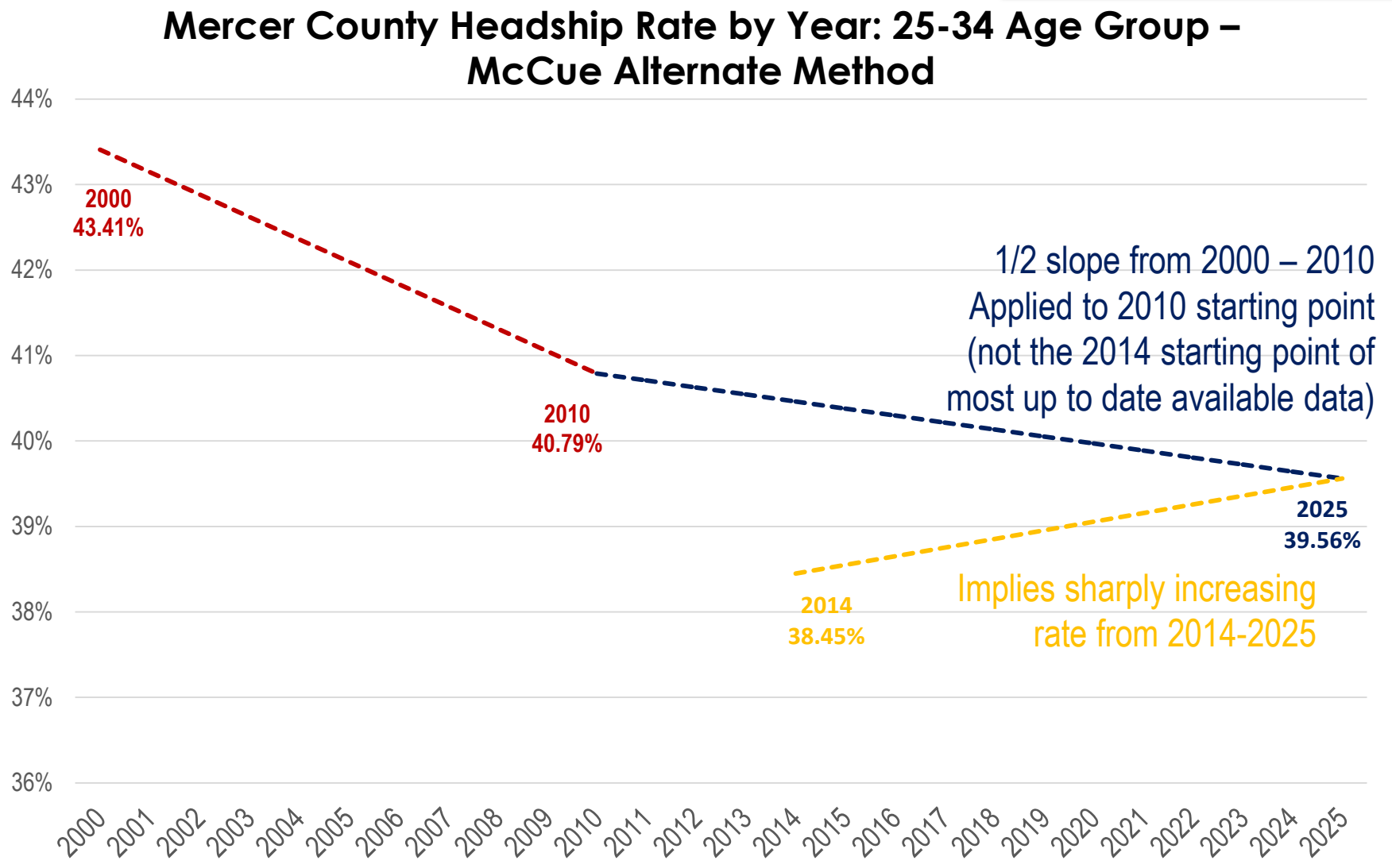
Projected Headship Rate by Age Cohort

3. Headship Rates and Households (ch.4.3)

Mercer County Headship Rate by Year: 25-34 Age Group – Kinsey Method

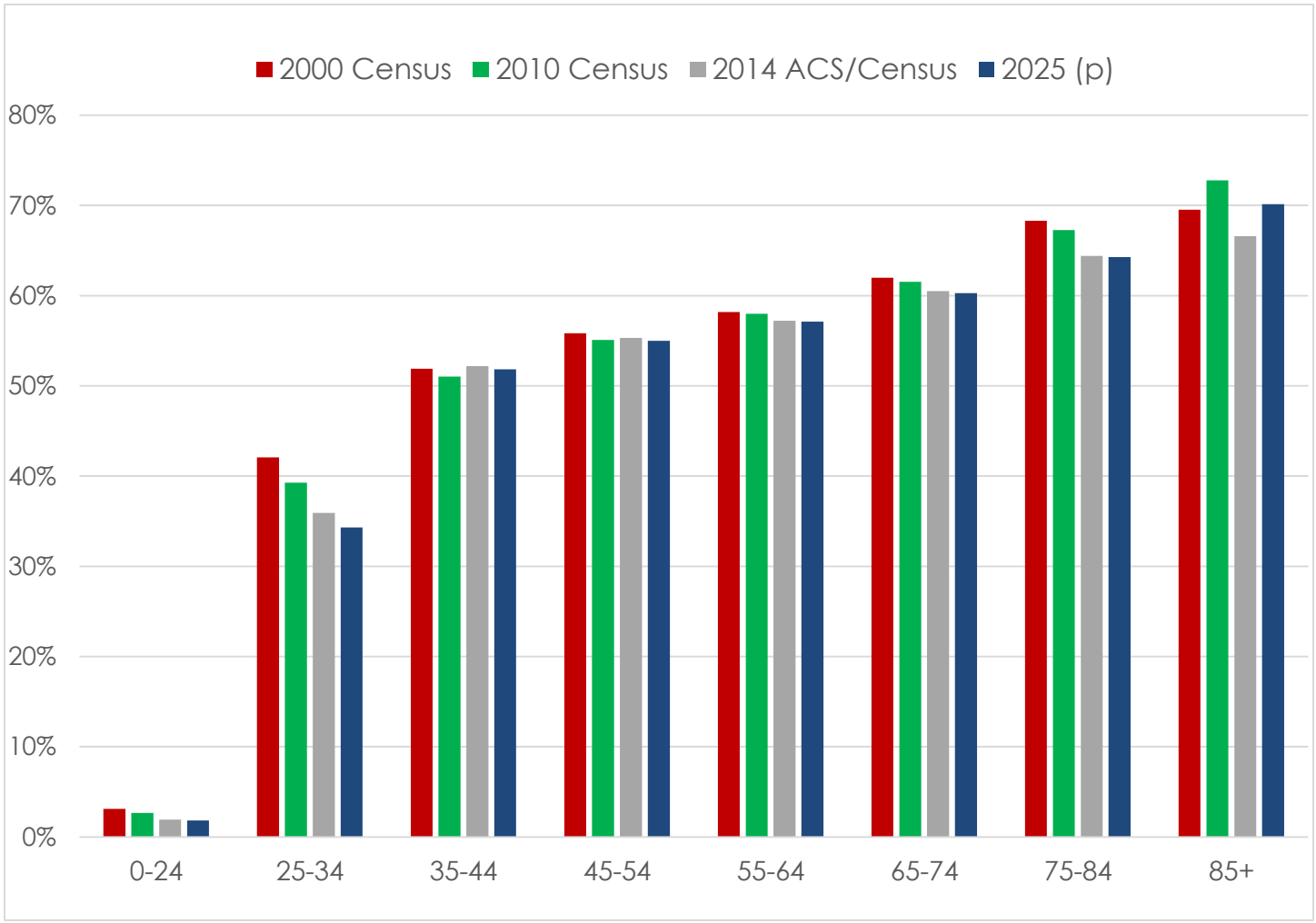


Projected Headship Rate by Age Cohort



Projected Headship Rate by Age Cohort

ESI Model: New Jersey Headship Rates by Age Group



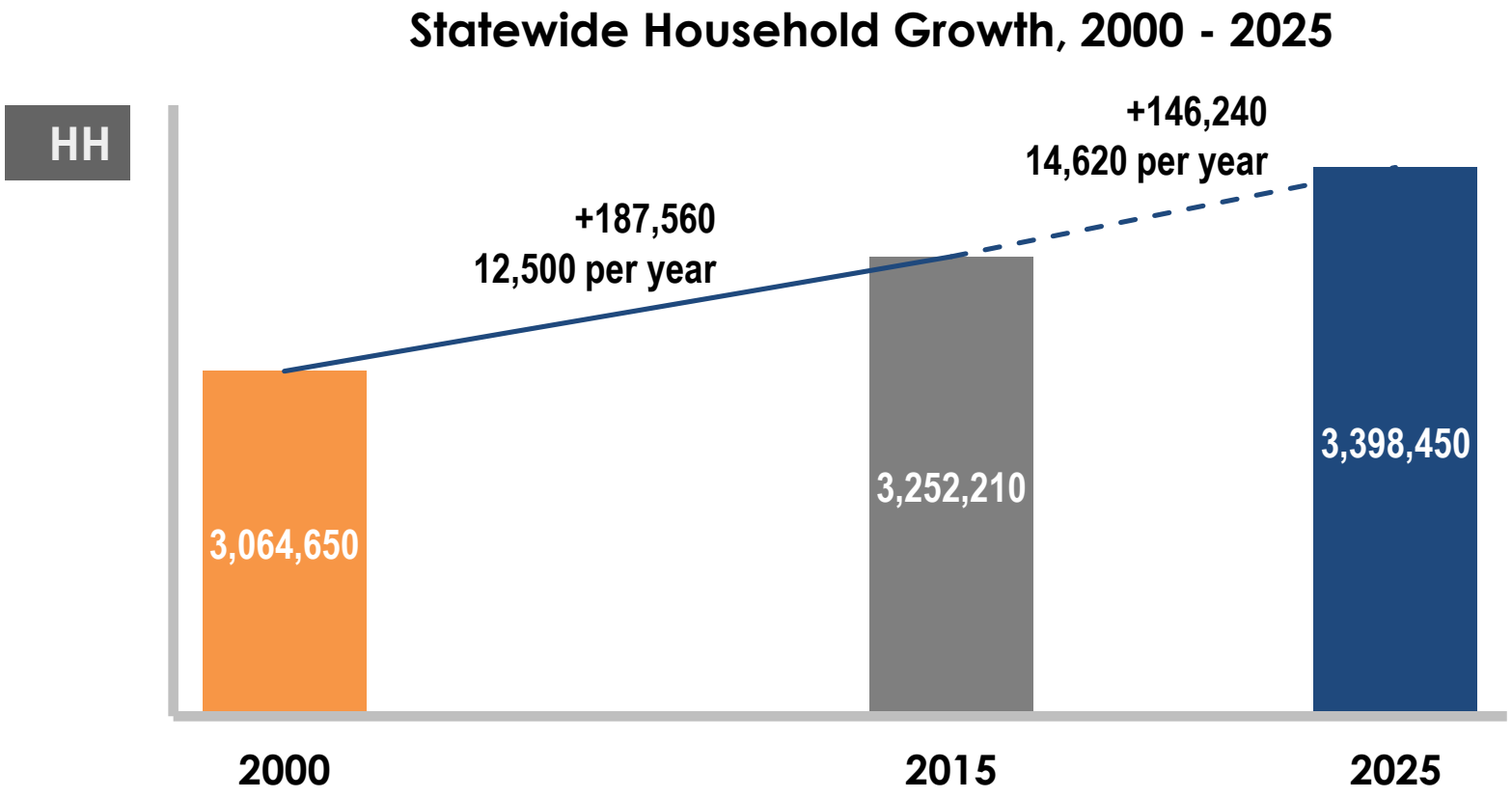
Statewide Rate

- **2000: 37.28%**
- **2010: 37.35%**
- **2014: 36.99%**
- **2025: 37.45%**

Projected Household Growth vs. Observed

3. Headship Rates and Households (ch.4.3)

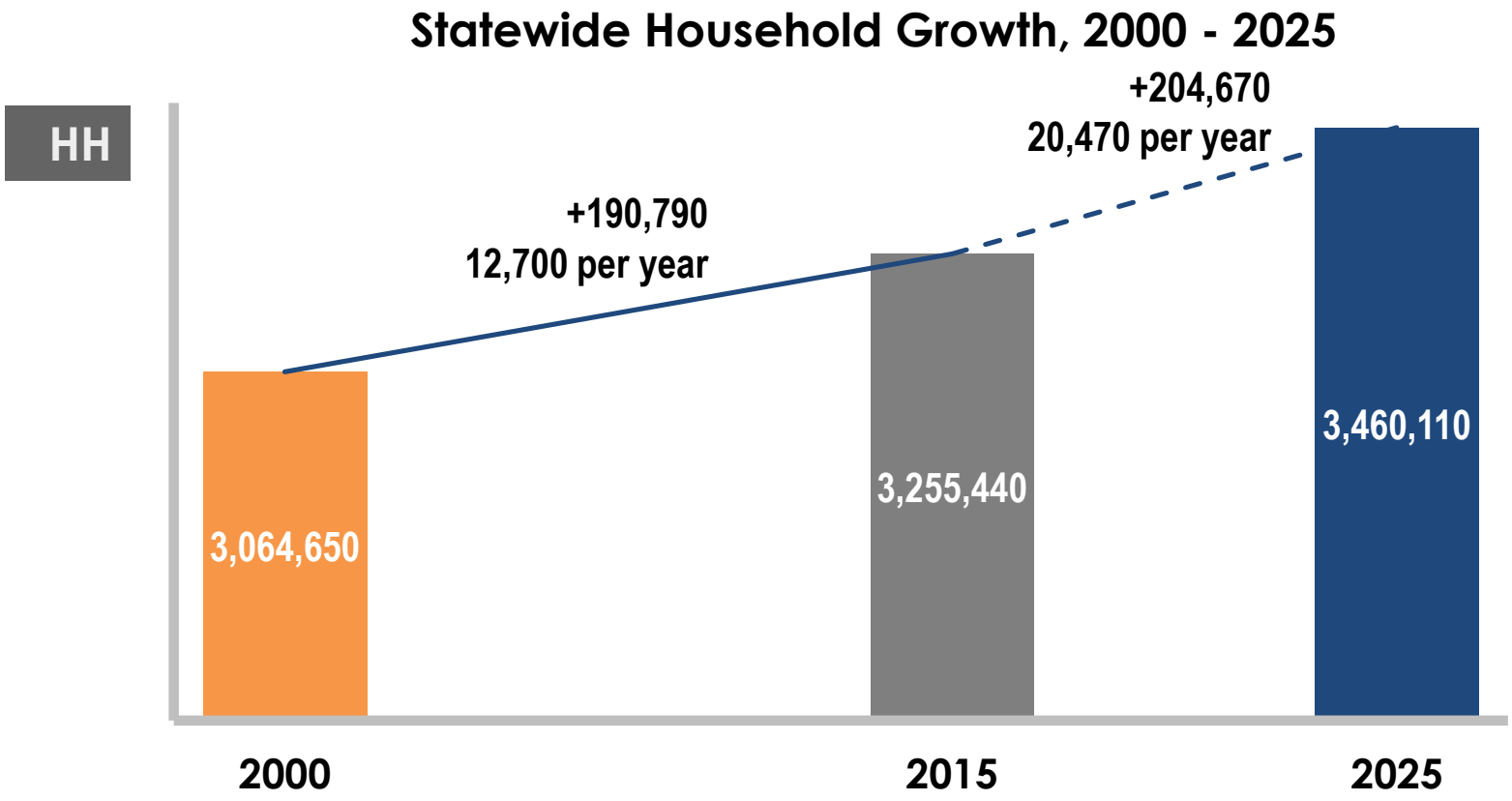
- ESI Projected Growth:14,620 per year
  - 1.17x the observed level of 12,500 from 2000-2015



FSHC Projected Growth vs. Observed

3. Headship Rates and Households (ch.4.3)

- FSHC Projected Growth: 20,470 per year
  - 1.64x the observed level of 12,700 from 2000-2015



Comparison of HH Growth Projections

Observed and Projected Population and Household Growth

	Census Observed (2000 – 2015)	ESI: Prospective (2015 – 2025)	Kinsey/FSHC: Prospective (2015 – 2025)
Annual Population Growth	35,650	30,452	41,903
Headship Rate 2025		37.45%	37.71%
Annual Household Growth	12,511	14,624	20,468
HH Growth vs. Observed		**1.17x**	**1.64x**

Newly Available Headship Data

Updated Headship Rate Data: Relevance

- ESI and FSHC models utilize 2014 ACS data as the "starting point" for projecting headship rates for the 2015-2025 period
  - This data is adjusted for the 2010 Census results based on the approach proposed by Daniel McCue, the expert upon whom Kinsey/FSHC rely ("McCue approach")

- As of September 2016, 2015 ACS data is available to update this analysis
  - Use of 2015 data gives a more accurate starting point for analysis
  - It also provides additional information as to recent trends

- 2015 ACS data (adjusted for Census by the McCue approach) shows a continued decline in statewide headship rates

Newly Available Headship Data

Updated Headship Rate Data

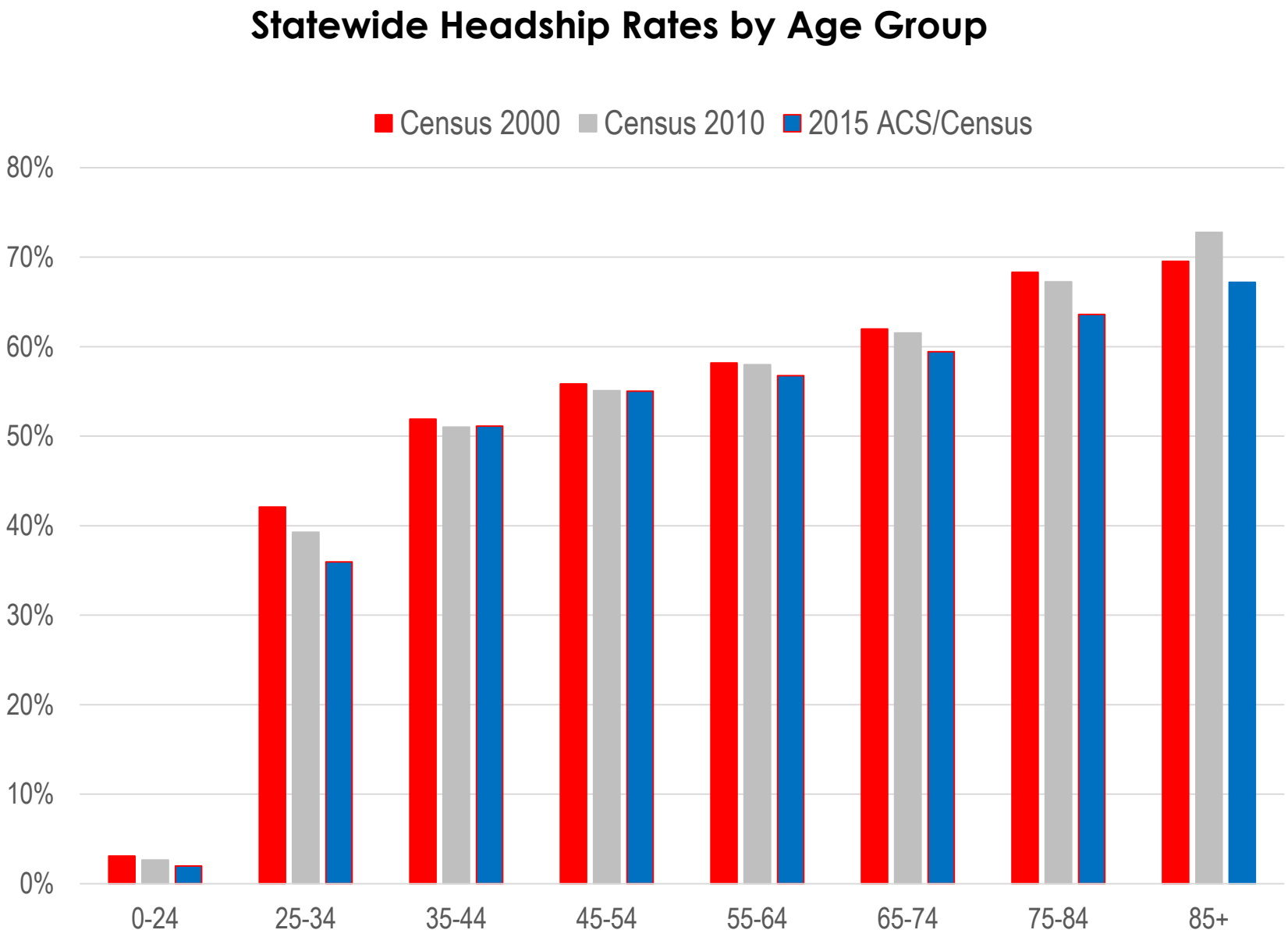
- McCue approach can be applied to 2015 ACS data
- 2015 ACS data shows a drop in statewide headship rate

Observed Statewide Headship Rates

Year	Statewide Headship Rate	Source
2000	37.28%	Census
2010	37.35%	Census
2014	36.99%	ACS/Census
2015	**36.83%**	**ACS/Census**

Newly Available Headship Data

Updated Headship Rate by Age Group



Newly Available Headship Data

Updated Headship Rate Data: Summary

Statewide Headship Rates, Observed and Projected

Year	Census	ACS/Census	ESI	Kinsey/FSHC
2000	37.28%			
2010	37.35%			
2014		36.99%		
2015		36.83%		
2015 (p)			37.04%	37.11%
2025 (p)			37.45%	37.71%

- 2015 data shows continued decline in headship rate by age cohort as well as a decline in the statewide rate
- Both forecasts overstated observed 2015 headship rates
- ESI's more conservative Round 2 approach produces a forecast closer to observed results

Newly Available Headship Data

Third Major Step: Calculate LMI Rates

Defining Low and Moderate Income (LMI) Households:

> "Moderate income housing" means housing affordable according to federal Department of Housing and Urban Development or other recognized standards for home ownership and rental costs and occupied or reserved for occupancy by households with a gross household income equal to more than 50% but **less than 80% of the median gross household income for households of the same size within the region in which the housing is located.**
>
> Fair Housing Act 304(d) – emphasis added

LMI Proportion is Expected to be Close to 40% by Definition

- Median income = 50% of HH above and below
- LMI threshold = 80% of median
  - 80% x 50% = 40%
- COAH 2014 Un-adopted Round 3 LMI Rate: 40.622%

LMI Proportion COAH Round 2 Methodology

- Start with HUD-calculated median family income for a four-person family by County
- Blend medians by County to estimate a regional median family income for a four-person family
- Apply fixed multipliers to calculate median for smaller (lower) and larger (higher) household sizes
- Multiply calculated median by 80% to set LMI threshold by household size
- Compare observed household incomes by region by household size to the threshold to determine the LMI proportion by county and age cohort
- Apply a constant LMI proportion by county and age cohort over the Prospective Need period

COAH Grid: Income Limits by HH Size and Region

4. Median Income and LMI Proportion (ch.4.4)

COAH 2014 Income Limit Grid

		1 Person	*1.5 Person	2 Person	*3 Person	4 Person	*4.5 Person	5 Person	6 Person	7 Person	8 Person
Region 1 Bergen, Hudson, Passaic and Sussex	*Median*	$59,095	$63,317	$67,538	$75,980	$84,422	$87,799	$91,176	$97,930	$104,683	$111,437
	Moderate	$47,276	$50,653	$54,030	$60,784	$67,538	$70,239	$72,941	$78,344	$83,747	$89,150
	Low	$29,548	$31,658	$33,769	$37,990	$42,211	$43,899	$45,588	$48,965	$52,342	$55,719
	Very Low	$17,729	$18,995	$20,261	$22,794	$25,327	$26,340	$27,353	$29,379	$31,405	$33,431
Region 2 Essex, Morris, Union and Warren	*Median*	$63,430	$67,961	$72,492	$81,553	$90,614	$94,239	$97,864	$105,113	$112,362	$119,611
	Moderate	$50,744	$54,369	$57,993	$65,242	$72,492	$75,391	$78,291	$84,090	$89,890	$95,689
	Low	$31,715	$33,980	$36,246	$40,777	$45,307	$47,120	$48,932	$52,556	$56,181	$59,806
	Very Low	$19,029	$20,388	$21,747	$24,466	$27,184	$28,272	$29,359	$31,534	$33,709	$35,883
Region 3 Hunterdon, Middlesex and Somerset	*Median*	$73,500	$78,750	$84,000	$94,500	$105,000	$109,200	$113,400	$121,800	$130,200	$138,600
	Moderate	$58,800	$63,000	$67,200	$75,600	$84,000	$87,360	$90,720	$97,440	$104,160	$110,880
	Low	$36,750	$39,375	$42,000	$47,250	$52,500	$54,600	$56,700	$60,900	$65,100	$69,300
	Very Low	$22,050	$23,625	$25,200	$28,350	$31,500	$32,760	$34,020	$36,540	$39,060	$41,580
Region 4 Mercer, Monmouth and Ocean	*Median*	$64,830	$69,461	$74,091	$83,353	$92,614	$96,319	$100,023	$107,432	$114,841	$122,250
	Moderate	$51,864	$55,568	$59,273	$66,682	$74,091	$77,055	$80,018	$85,946	$91,873	$97,800
	Low	$32,415	$34,730	$37,046	$41,676	$46,307	$48,159	$50,012	$53,716	$57,421	$61,125
	Very Low	$19,449	$20,838	$22,227	$25,006	$27,784	$28,896	$30,007	$32,230	$34,452	$36,675
Region 5 Burlington, Camden and Gloucester	*Median*	$57,050	$61,125	$65,200	$73,350	$81,500	$84,760	$88,020	$94,540	$101,060	$107,580
	Moderate	$45,640	$48,900	$52,160	$58,680	$65,200	$67,808	$70,416	$75,632	$80,848	$86,064
	Low	$28,525	$30,563	$32,600	$36,675	$40,750	$42,380	$44,010	$47,270	$50,530	$53,790
	Very Low	$17,115	$18,338	$19,560	$22,005	$24,450	$25,428	$26,406	$28,362	$30,318	$32,274
Region 6 Atlantic, Cape May, Cumberland and Salem	*Median*	$51,085	$54,734	$58,383	$65,681	$72,979	$75,898	$78,817	$84,656	$90,494	$96,332
	Moderate	$40,868	$43,787	$46,707	$52,545	$58,383	$60,719	$63,054	$67,725	$72,395	$77,066
	Low	$25,543	$27,367	$29,192	$32,841	$36,490	$37,949	$39,409	$42,328	$45,247	$48,166
	Very Low	$15,326	$16,420	$17,515	$19,704	$21,894	$22,769	$23,645	$25,397	$27,148	$28,900
MULTIPLIER		0.7		0.8	0.9	1		1.08	1.16	1.24	1.32

COAH's Method: Calculation Problems

4. Median Income and LMI Proportion (ch.4.4)

COAH's Method has 3 severe calculation problems:

1. Family income is used to set the threshold to which household income is compared
2. Median income calculations (and thus LMI thresholds) by household size are not based on data by household size
3. Methodology fails to adjust for changes in the median due to demographic changes over the Prospective Need period

Issue 1: Family Income vs. Household Income

4. Median Income and LMI Proportion (ch.4.4)

Issue #1 : COAH calculates median and LMI household income thresholds based on family income data

Household income and family income have different definitions and do not cover the same portion of the population.

- Many "households" are not "families" including:
  - 1 person households
  - Unrelated / unmarried roommates living together
- COAH grid is inconsistent with the Fair Housing Act's definition of low and moderate income

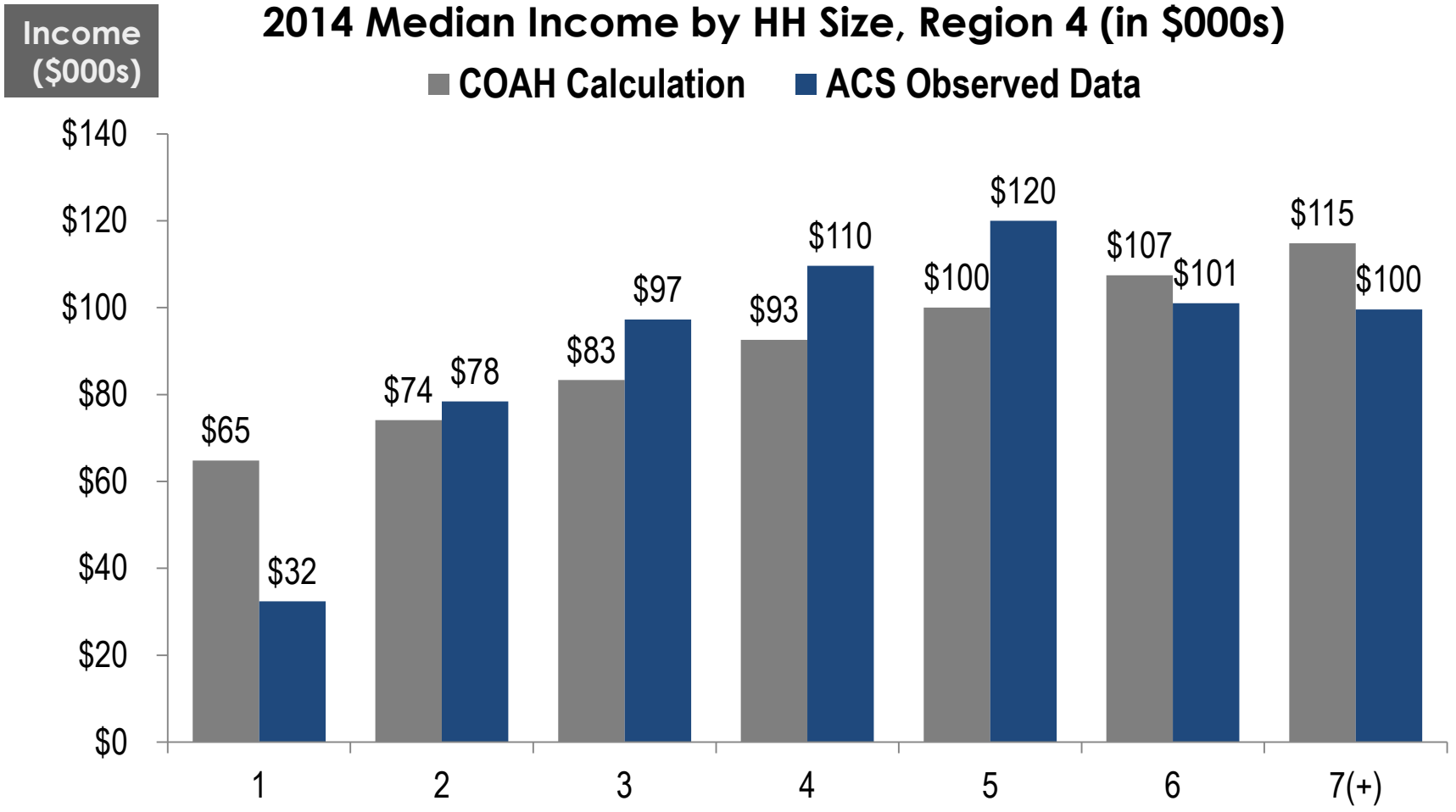
Issue #2 : COAH's calculation based on the HUD grids leads to errors because the median incomes in the COAH grid do not reflect the median incomes observed in the data.

The following slides illustrate this point:

- COAH calculated median ≠ Observed median
  - Median income = 50 percent of households above and below
  - COAH calculated median for Region 4: 41-76 percent of households have income below the "median" (depending on household size)
- Therefore: COAH calculated value is not the median income
- Further: COAH sets LMI threshold based on this flawed median
- Therefore: The percent of households that COAH defines as LMI is not correct
  - How can 67 percent of one-person households be LMI? They can't.

COAH "Median" ≠ Observed Median

- COAH-calculated median by HH size does not align with the median for each HH size based upon observed data

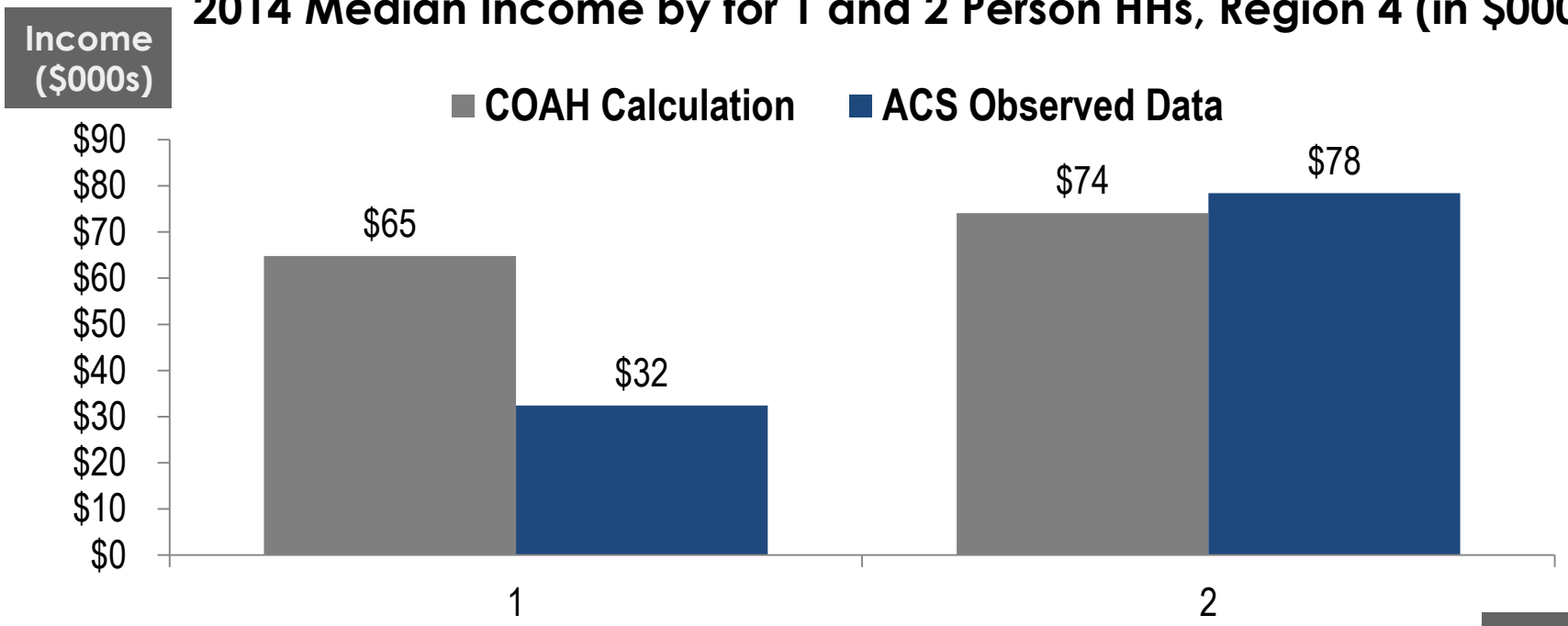


One and Two-Person Households

4. Median Income and LMI Proportion (ch.4.4)

- COAH "multiplier" approach assumes that 1 person HHs make nearly 90% as much as 2 person HH
- Observed data shows otherwise: median 2 person HH makes more than 2x as much as median 1 person HH in Region 4
  - Adding a second HH member often means adding a second salary
  - 1 person HH more likely to be students, retirees, etc.

2014 Median Income by for 1 and 2 Person HHs, Region 4 (in $000s)

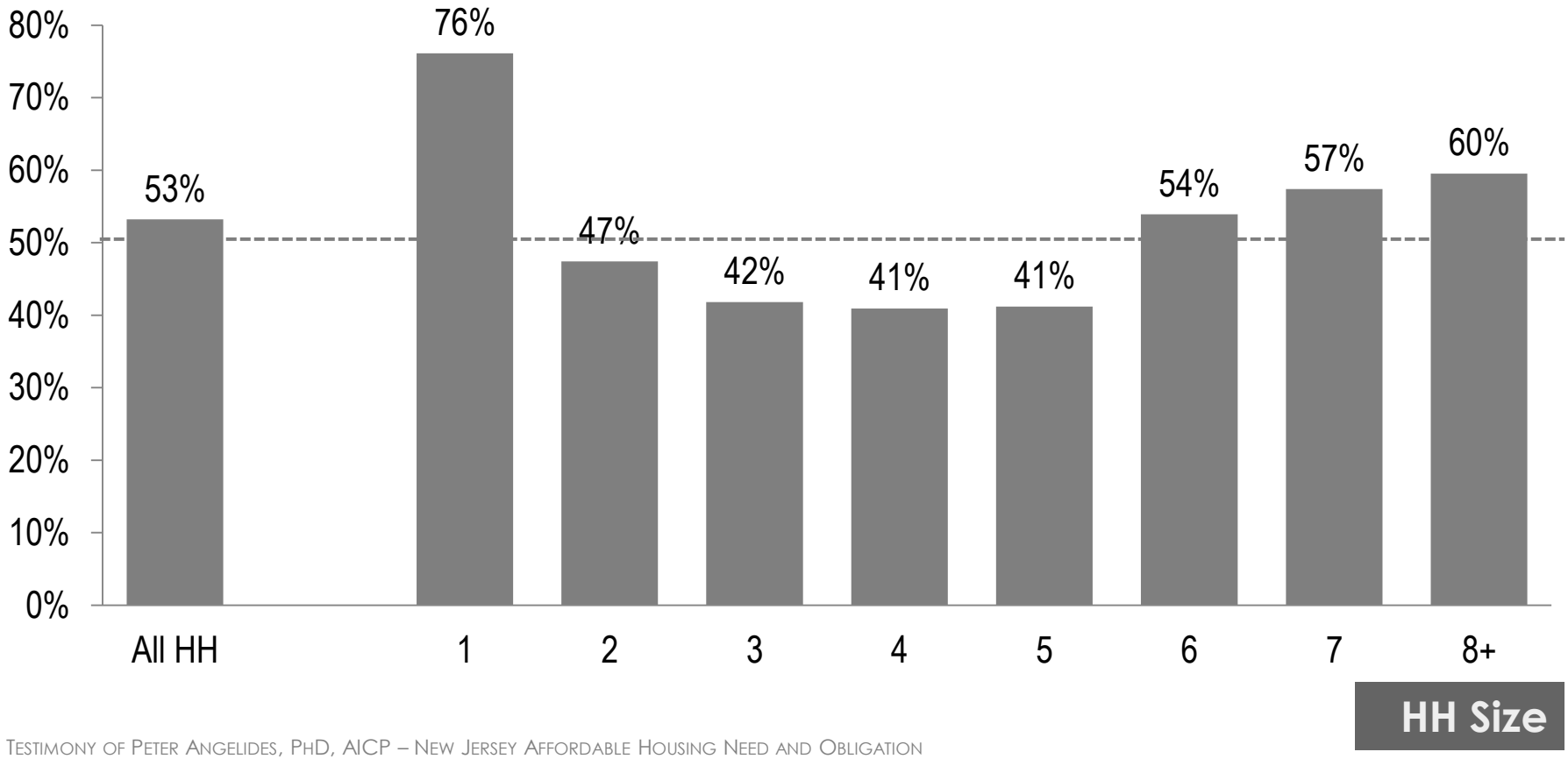


COAH "Median" ≠ 50% of Households

4. Median Income and LMI Proportion (ch.4.4)

- COAH-calculated median therefore is not set so that 50% of HH fall above and below (by HH size or in total)

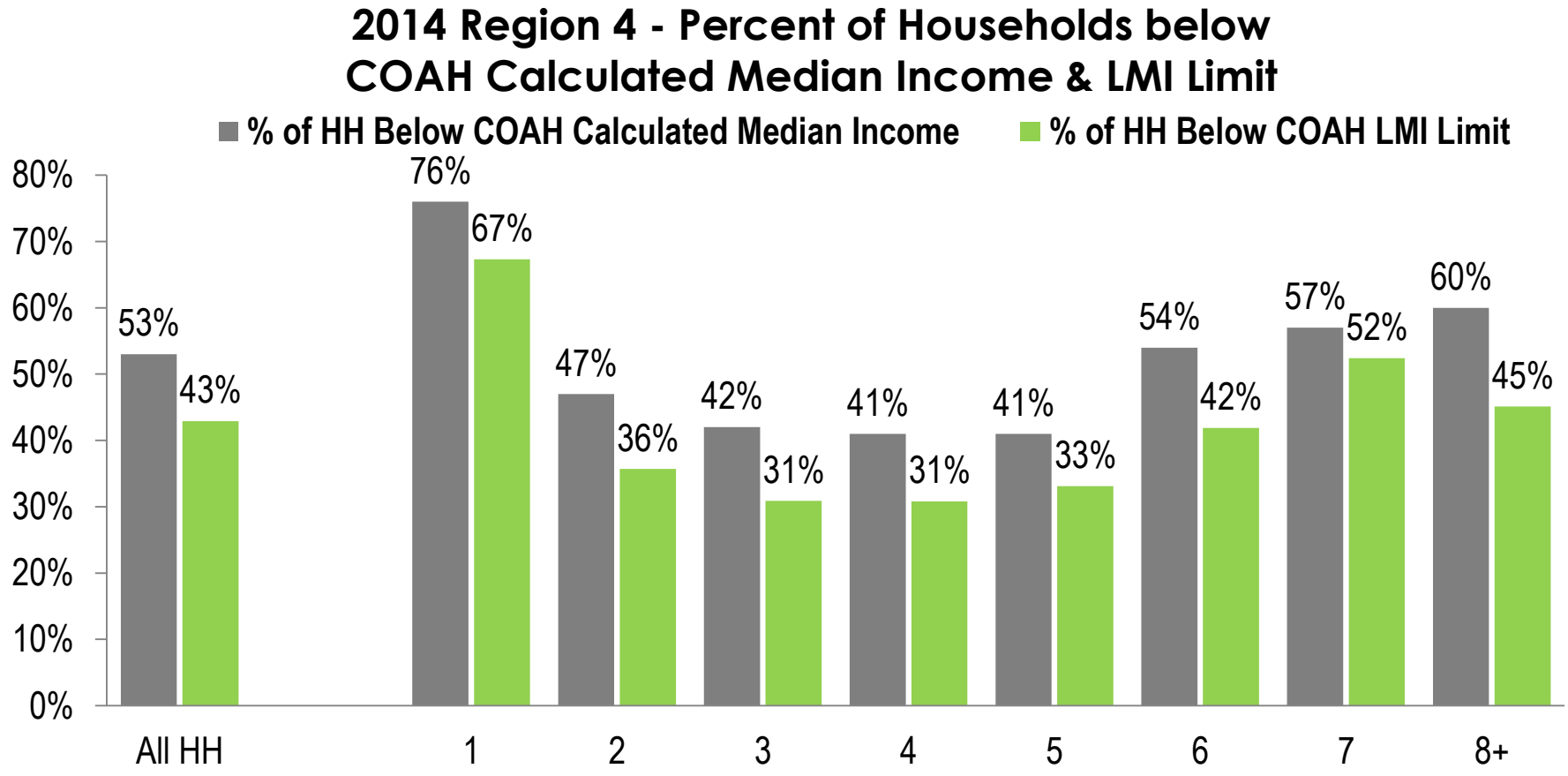
2014 Region 4 - Percent of Households below COAH Calculated Median Income



Incorrect Median → Incorrect LMI Limit

4. Median Income and LMI Proportion (ch.4.4)

- The LMI Limit is set at 80% of the Median, and should therefore be around 40% for each HH size (80% x 50%)
- The incorrect median leads to an incorrect LMI rate in each category (ranging from 31% to 67%)



HH Size

LMI Households: FHA Definition vs. COAH Method

4. Median Income and LMI Proportion (ch.4.4)

FHA Definition of LMI:

> "Moderate income housing" means housing affordable according to federal Department of Housing and Urban Development or other recognized standards for home ownership and rental costs and occupied or reserved for occupancy by households with a gross household income equal to more than 50% but less than 80% of the median gross household income for households of the same size within the region in which the housing is located. [Fair Housing Act 304(d) – emphasis added]

COAH Methodology:

1) Does not utilize household income (Issue #1)
2) Does not compare households to the median income for households of the same size (Issue #2)

The COAH methodology does not meet the definition of LMI households set forth in the Fair Housing Act.

Ignores Changes in Median Income

4. Median Income and LMI Proportion (ch.4.4)

Issue #3 : COAH's method of assuming 2025 LMI proportion by cohort matches 2015 LMI proportion is a mathematical error.

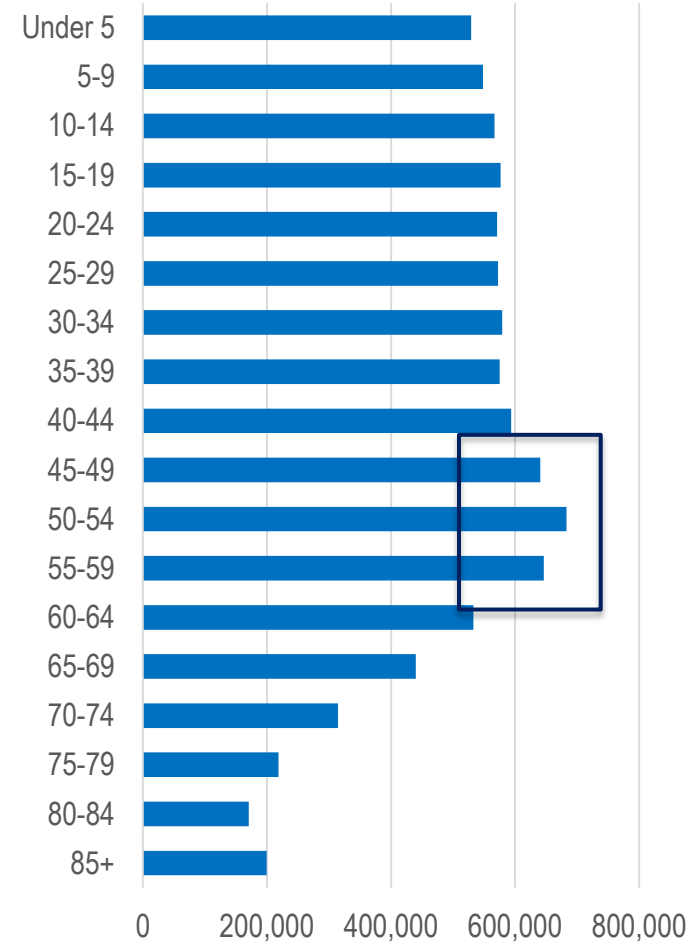
- COAH's method ignores the impact that demographic changes have on median income, leading to inaccurate results.
- Distinction between Issues 1-2 and Issue 3:
  - Issues#1 and #2 are a specification problem, meaning that the LMI proportion is incorrectly defined and calculated **as of today** (relative to the FHA definition of an LMI household)
  - Issue#3 is a projection problem, meaning that even if the current LMI proportion was correctly specified, it would still cause a mathematical error in projecting LMI proportion **over the prospective need period**
- This projection issue was embedded in the methodology in Round 1 and Round 2. However, it has a much larger impact in the current period due to the Baby Boomer "demographic bulge"

The Essence Of The Problem

4. Median Income and LMI Proportion (ch.4.4)

- In the most basic terms, the Prior Round methodology assumes the same median income in 2015 as it does in 2025.
- Under normal circumstances, like in Round 2, this may not present a problem because all or nearly all "baby boomers" were in prime working years.
- Between 2015 and 2025, however, a substantial number of those same baby boomers will reach retirement age.
- As a result, their income will drop as will the median income as natural corollary.

New Jersey Population by Age Cohort, 2015



To Summarize:

- The baby boomer aging phenomenon will drive down the median income relative to the current population distribution
- Failing to account for this dynamic means that too many households will be projected to qualify as LMI in 2025
- This mathematical error leads to an incorrect LMI proportion over the Prospective Need period
    - The FSHC model estimates that 68% of incremental households over the Prospective Need period will be LMI

- The phenomenon of an aging population impacting median income statistics was recently addressed on a nationwide basis in *The Economist*

Ageing and income

Silver-haired in clover

How demography distorts household-income statistics

May 7th 2016 | From the print edition

"Between 2010 and 2014, real median household income grew by 0.3%. But a weighted average of the median income in each age-group, with the weights frozen to reflect the age profile of the population in 2010, is up by 1.9%. This suggests that **aging is a significant drag on the headline measure**."

Median Income Change: Hypothetical Scenario

The following slides illustrate COAH's mathematical error:

- Hypothetical distribution from 2015
  - Shows median income for young, old, and entire region
- Hypothetical distribution from 2025
  - Same median for young and old, but much lower for region
- COAH's method leads to mathematically impossible results
  - COAH's method calculate that **>50%** are LMI (i.e, 80% or less of regional median)
  - By definition, only 50% of the population is below the median. More than 50% of the population below 80% of the median is a mathematically incorrect result
  - Correct answer is 40%

Median Income: 2015 (Hypothetical)

4. Median Income and LMI Proportion (ch.4.4)

Young	Old	Combined
$100	$85	$100
$95	$80	$95
$90	$75	$90
$85	$70	$85
$85	$65	$85
$85	$50	$85
$85	$50	$85
$85	$50	$84
$84	$50	$80
$80	$40	$80
$80	$35	$80
$75	$35	$75
$75	$30	$75
$70	$35	$75
$70	$30	$70
$70		$70
$65		$70
$60		$70
$55		$65
$45		$65
$45		$60
$40		$55
$40		$50
$35		$50
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		$40
		$35
		$35
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		$35
		$30
		$30

	Young	Old	Region
Households	25	15	40
Average Income	$69.4	$52.0	
Median Income	$75	$50	$67.5
80% of Region Median (LMI Threshold)			$54

Median Income - Region

- 2015 Median Income Calculation
  - Total of 40 households region-wide
    - 25 young households with a median income of 75
    - 15 old households with a median income of 50
    - Regional median income of 67.5
  - 80% of the regional median is 54

Median Income: 2025 (Hypothetical)

4. Median Income and LMI Proportion (ch.4.4)

Young	Old	Combined
$100	$95	$100
$100	$90	$100
$96	$85	$96
$95	$85	$95
$95	$75	$95
$95	$65	$95
$85	$60	$90
$75	$55	$85
$65	$55	$85
$60	$50	$85
$40	$50	$75
$35	$50	$75
$35	$50	$65
$35	$48	$65
$30	$40	$60
	$40	$60
	$40	$55
	$35	$55
	$35	$50
	$35	$50
	$35	$50
	$35	$48
	$32	$40
	$30	$40
	$30	$40
		$40
		$35
		$35
		$35
		$35
		$35
		$35
		$35
		$32
		$30
		$30
		$30

	Young	Old	Region
Households	15	25	40
Average Income	$69.4	$52.0	
Median Income	$75	$50	$50
80% of Region Median (LMI Threshold)			$40

Median Income - Region

- 2025 Median Income Calculation
  - Total of 40 households region-wide
    - 25 young households with a median income of 75
    - 15 old households with a median income of 50
    - Regional median income of 50
  - 80% of the regional median is 40

Hypothetical: Population Aging Drives Median Income Down

	2015	2025	Change
Young Population	25	15	(10)
Old Population	15	25	+10
Average Income – Young	$69.4	$69.4	--
Average Income – Old	$52.0	$52.0	--
Median Income – Young	$75.0	$75.0	--
Median Income – Old	$50.0	$50.0	--
Median Income – Combined	$67.5	$50.0	($17.5)
LMI Threshold (80% of Median)	$54.0	$40.0	($14.0)

Median Income: COAH's Incorrect 2025 Calculation

4. Median Income and LMI Proportion (ch.4.4)

	Young	Old	Region
Number of Households in 2015	25	15	40
Number Below 2015 Region LMI Value	6	10	16
Percent Below 2015 Region LMI Value	24.0%	66.7%	40.0%
Number of Households in 2025	15	25	40
Number Below LMI Value According to COAH Method	3.6	16.7	20.3
LMI Percentage According to COAH Method in 2025	24.0%	66.7%	50.7%

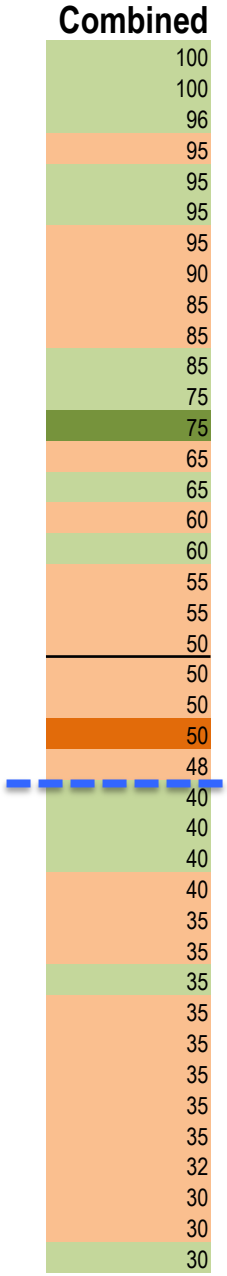
COAH's calculation produces a result that cannot be correct

- COAH 2025 Median Income Calculation
  - 1) Multiply 2015 LMI percentages by the 2025 number of households, by age group. 2) Sum age groups. (3.6+16.7 = 20.3) 3) Calculate percentage (20.3/40 = 50.7%)
  - The calculations fails to account for the change in distribution of young and old households; as a result, **50.7%** of all households are below the 2025 regional LMI value
  - This result is not sensible – how can more than half of households have income 80% or less of median income (when we would expect 40%)? They can't.
  - What's the problem? This method does not refer to 2025 regional median income.

Median Income: Correct 2025 Calculation

4. Median Income and LMI Proportion (ch.4.4)

	Young	Old	Region
Median Income	$75.0	$50.0	$50
2025 LMI Value (80% of region median)			$40
Number Below 2025 Regional LMI Value	5	11	16
Percent of All Households below LMI Value in 2025			40%



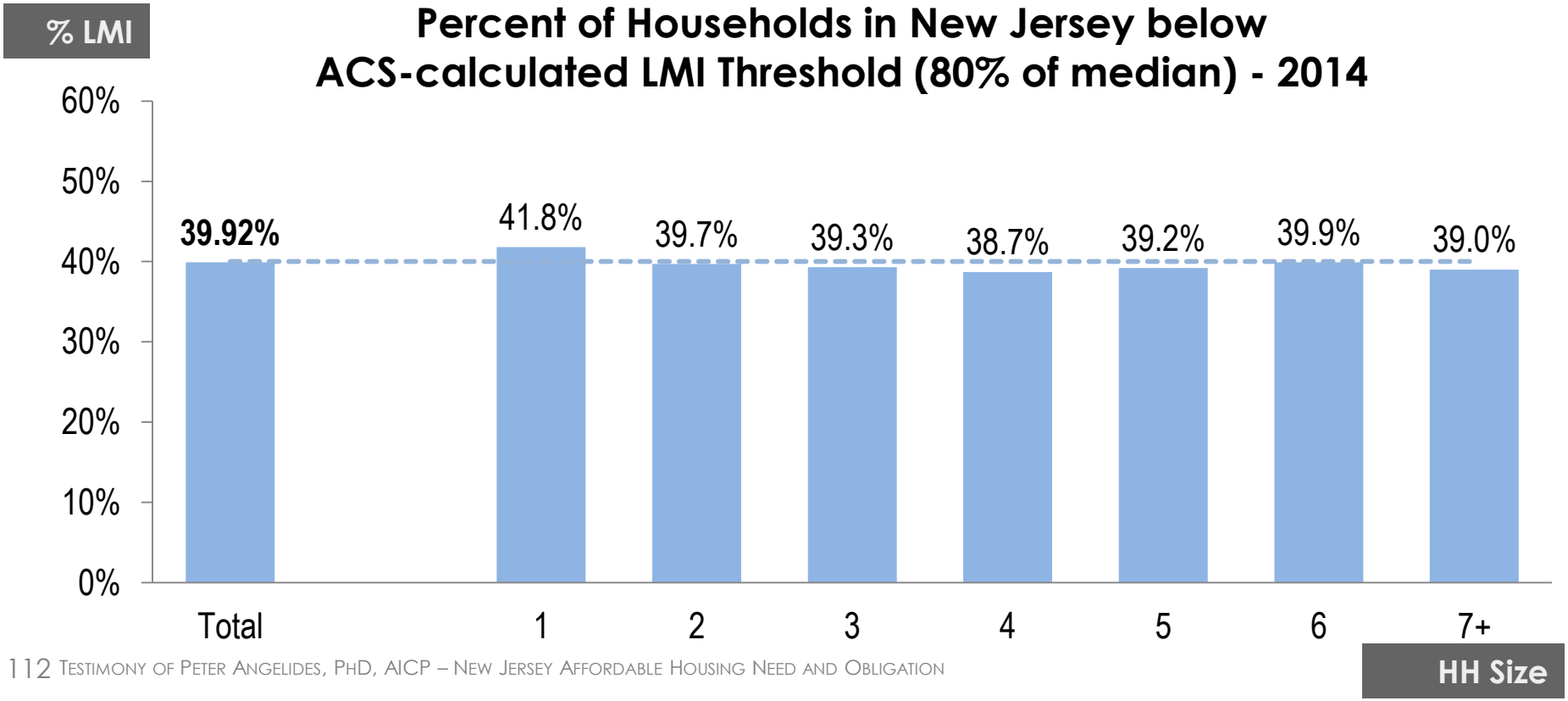
Median Income-Region

80% of Median Income-Region

- Correct 2025 Median Income Calculation
  - Uses the 2025 median income, which takes into account the change in household distribution
  - The LMI limit is 40 and **40%** of all households are below the LMI value in 2025

4. Median Income and LMI Proportion (ch.4.4)

- Calculate LMI limits by HH size and region (not age cohorts) based on observed ACS data
- This approach sets the LMI threshold from the same data source used to determine the % of households above and below it
- Approximately 40% of HH are LMI [40% = 80% of 50% (median)]



Comparison of LMI Household Growth

	ESI	Kinsey/FSHC
Total HHs 2015	3,252,209	3,255,437
LMI HH 2015	1,298,399	1,348,144
LMI % 2015	39.92%	41.4%
Total HHs 2025	3,398,450	3,460,112
LMI HHs 2025	1,357,938	1,486,615
LMI % 2025	39.96%	43.0%
Incremental Total HH Growth	146,241	204,675
Incremental LMI HH Growth	59,539	138,471
Incremental LMI %	**40.7%**	**67.7%**

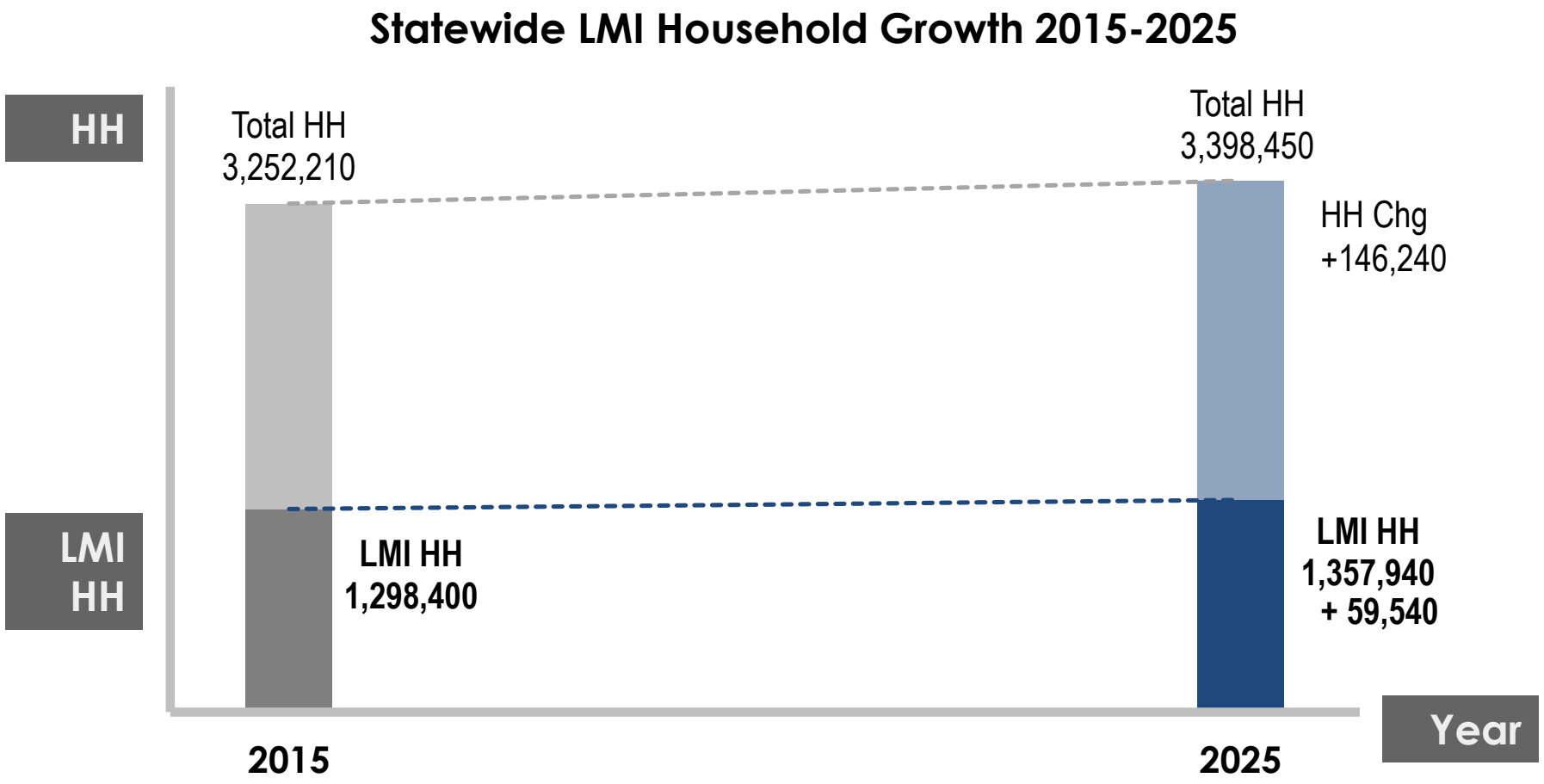
Comparison of LMI Household Growth to Kinsey Gap Period Calculation

	Kinsey/FSHC: Gap (1999 – 2015)	ESI: Prospective (2015 – 2025)	Kinsey/FSHC: Prospective (2015 – 2025)
Annual Total HH Growth	**13,247**	14,624	20,468
Annual LMI HH Growth	5,974	5,954	**13,847**
LMI HH Growth vs. Observed		0.997x	**2.326x**

LMI Proportion of Projected HH Growth

4. Median Income and LMI Proportion (ch.4.4)

- LMI HH = approximately 40% of projected HH growth



Fourth Major Step: Accounting for LMI Households with Significant Housing Assets

- LMI Household ≠ Household Eligible for Affordable Housing

AND

- LMI Household ≠ Household in Need of Affordable Housing
    - Many households that qualify as LMI are retirees that own their home and have a stable retirement income stream. These HH do not need a new house to be built for them

Significant Housing Asset Test

- All three iterations of COAH's Round 3 methodology include a "significant housing asset test" to determine what proportion of incremental LMI HH would be represent affordable housing need

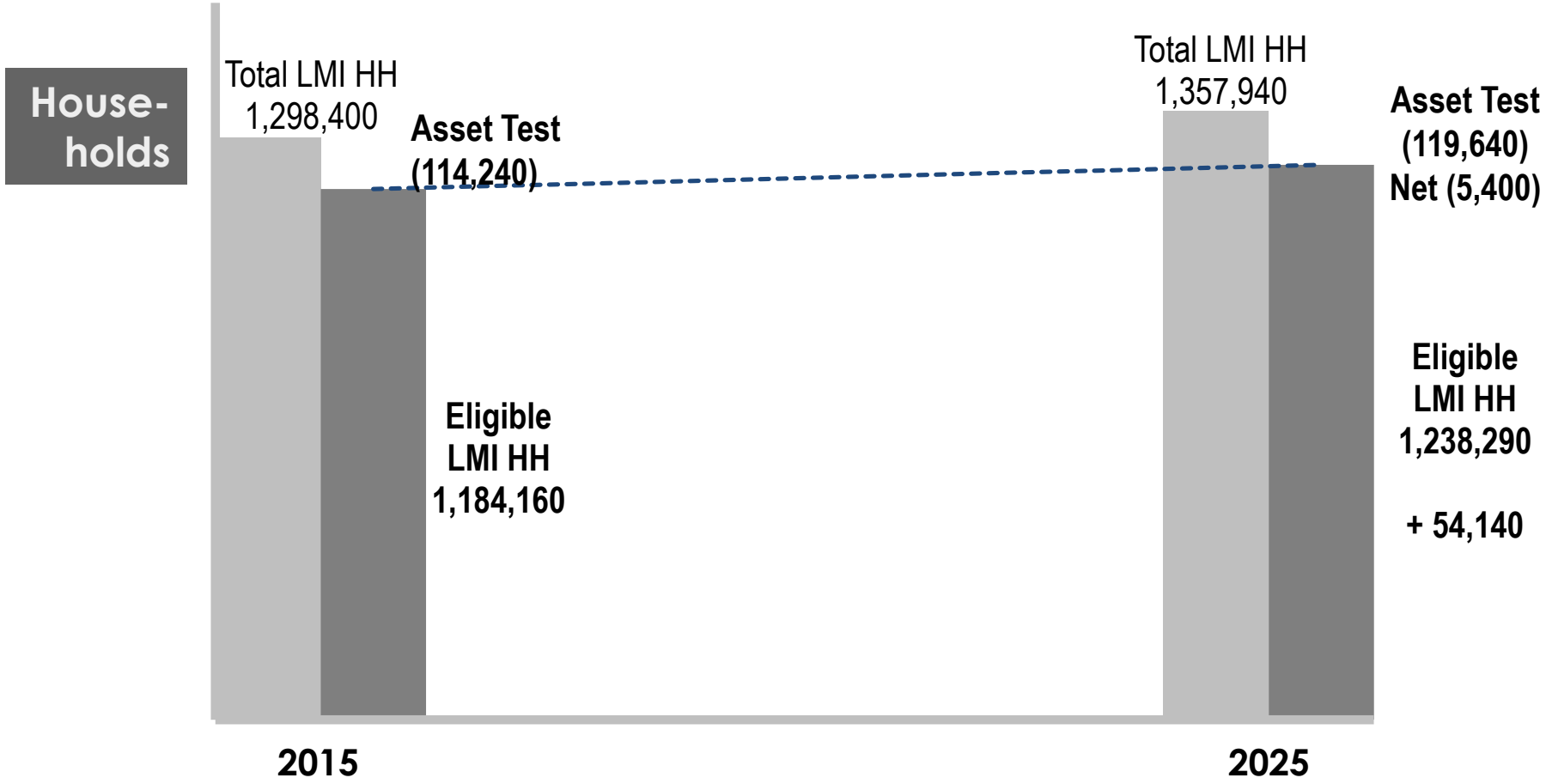
Significant Housing Asset Test

- Proportion of LMI Households that:
  a) Own a primary residence valued at our above the regional asset limit published by COAH with no mortgage; and
  b) Pay less than 38% of eligible monthly income on housing costs
- Proportion of LMI Households that satisfy both conditions are deducted from the LMI HH total at the beginning and end of the Prospective Need period
- [FSHC model does not apply this step]

Calculate Eligible LMI Households

5. Apply Significant Housing Asset Test (ch.4.5)

Statewide Eligible LMI HH Growth 2015-2025



6. Calculate Increment (i.e. Prospective Need) (ch.4.6)

Prospective Need 2015-2025 by Region

Region	Eligible LMI HH 2015	Eligible LMI HH 2025	Prospective Need 2015 - 2025
1	313,490	331,420	17,930
2	265,470	277,820	12,350
3	157,440	166,230	8,780
4	206,520	213,950	7,430
5	163,900	171,150	7,240
6	77,330	77,730	400
State	**1,184,160**	**1,238,290**	**54,140**

Methodology Steps

- **Prior Round Obligation**
- **Define the Regions (ch.2)**
- **Present Need (2015) (ch.3)**
  - Measures of Deficiency
  - Account for overlap
  - Extrapolate to July 1, 2015 = Present Need
- **Prospective Need (2015-2025) (ch.4)**
  - Population forecast
  - Household forecast
  - LMI households
  - Eligible LMI Households (Asset Test) = Prospective Need

→ **Allocate Prospective Need to Municipalities (ch.5)**

- Responsibility factors
- Capacity factors
- Averaged share = municipal share of region

- **Secondary Sources (ch.6)**
  - Demolitions
  - Residential Conversions
  - Filtering
  - Net impact → Assignment to municipalities
- **Allocation caps (ch.7)**
  - 20% Cap
  - 1,000 unit cap

= Municipal Obligation

Allocate Prospective Need to Municipalities (ch.5)

1. Determine Qualifying Urban Aid Municipalities (ch.5.1)

2. Calculate Responsibility Factor Shares (ch.5.2)

3. Calculate Capacity Factor Shares (ch.5.3)

4. Average Shares to Determine Municipal Share of Regional Need (ch.5.4)

5. Allocate Regional Need to Municipalities (ch.5.4)

Identify Qualifying Urban Aid Municipalities

1. Determine Qualifying Urban Aid Municipalities (ch.5.1)

Qualifying Urban Aid Municipality Criteria:

- A level of existing LMI housing deficiency exceeding regional average LMI housing deficiency; OR
- A population density of greater than 10,000 persons per square mile; OR
- A population density of 6,000 to 10,000 persons per square mile AND less than 5 percent of vacant land

42 of 58 urban aid municipalities statewide are "qualifying" and excluded from the allocation of Prospective Need

- 4 qualifying urban aid municipalities in Region 4: Asbury Park, Lakewood, Long Branch, Trenton (Mercer)

Responsibility Allocation Factors: Employment

2. Calculate Responsibility Factor Shares (ch.5.2)

Responsibility Factors (Employment)

- Round 1 considered both employment level and employment change by municipality, using employment data reported to the state of New Jersey
- Round 2 considered only employment change, by municipality, replacing a direct measure of employment with a proxy measure of the growth in non-residential real estate value
- The ESI method considers both employment level and employment change, and utilizes LODES data from the U.S. Census Bureau that was unavailable at the time of Rd 1 and Rd 2

Replacing the "Ratables" Surrogate

- Original intent (Round 1) was to use employment directly
  - Data concerns: "Headquarters problem" and "Zip Code problem"
  - Round 2 replaced municipal employment with non-residential property valuation ("ratables")

- Ratables are a problematic surrogate for employment
  - Jobs ≠ Taxable value
  - Employment intensity of use
  - Real estate market strength varies when employment doesn't
  - Tax-exempt uses
  - Inconsistent assessment regime

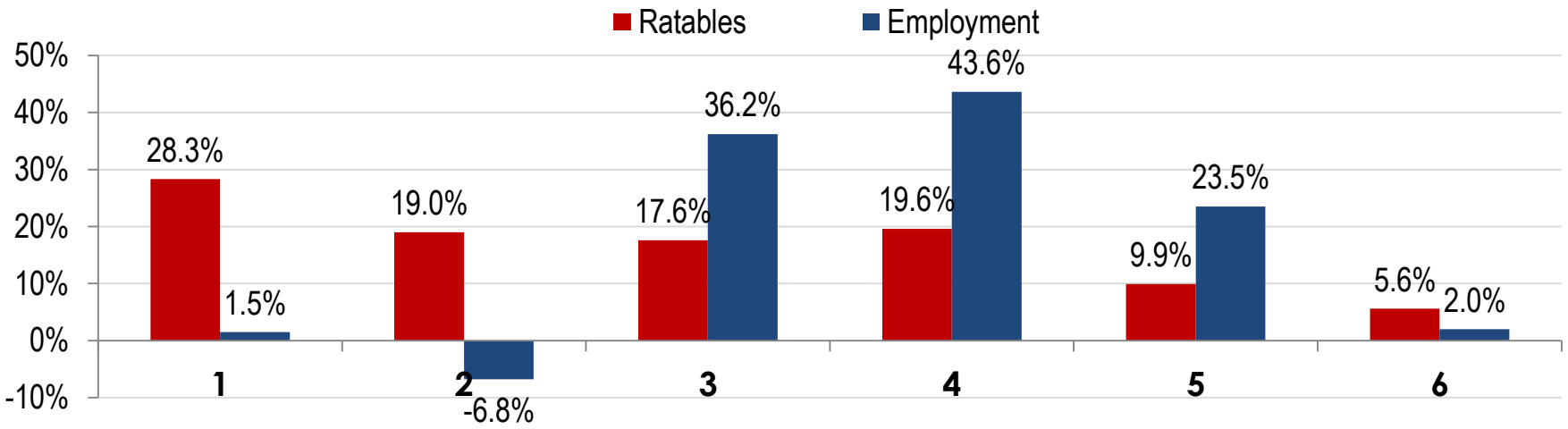
- Historic data shows clear mismatch between ratable growth and employment growth

Misalignment in Ratables and Employment Growth

2. Calculate Responsibility Factor Shares (ch.5.2)

Change in non-Residential Ratables vs. Employment, 1990 - 2015

Region	Non-Residential Valuation Change 1990-2015 ($B)	% of Statewide Change 1990 - 2015	Employment Change 1990-2015	% of Statewide Change 1990-2015
1	27.0	28.3%	4,787	1.5%
2	18.1	19.0%	(21,948)	(6.8%)
3	16.7	17.6%	116,254	36.2%
4	18.6	19.6%	140,119	43.6%
5	9.4	9.9%	75,562	23.5%
6	5.4	5.6%	6,563	2.0%
State	95.2	100%	321,337	100%



Census Bureau LODES Employment Data

- New U.S. Census Bureau data source now available (LODES) to measure employment directly by municipality
- Combines state data, BLS data, Census administrative data
- Commonly utilized by economic analysts to determine employment by geographic location, commute patterns, etc.
    - Employers report each location, addressing "headquarters" problem
    - Census geocodes work location, addressing zip code/municipality mismatch

Addressing the Headquarters Problem

Headquarters problem (Round 1):

When remitting unemployment insurance information to the state, companies with multiple locations sometimes listed all employees at the "headquarters" location

LODES Solution:

Employers are specifically asked on BLS form to distinguish employment by worksite

- Census geocodes work location, addressing zip code/municipality mismatch

Multiple Work Sites Reporting Form

New Jersey Dept of Labor & Workforce Development
Div of Economic & Demographic Research, CET
P.O. Box 934
Trenton NJ 08625-0934
Phone: (609) 292-2633

Multiple Worksite Report - BLS 3020
Form Approved, O.M.B. No. 1220-0134
Expiration Date: 05/31/2016
In Cooperation with the U.S. Department of Labor

BLS

New Jersey

3 WORKSITES

OFFICE USE	BUSINESS NAME (division, subsidiary, etc.) STREET ADDRESS (physical location) CITY, STATE, AND ZIP CODE WORKSITE DESCRIPTION (plant name, store number, etc.)	NUMBER OF EMPLOYEES (subject to UI Laws) During the Pay Period Which Includes the 12th of the Month			QUARTERLY WAGES OF WORKSITES (subject to UI laws) Round to the nearest dollar
		Month 1	Month 2	Month 3	
					.00
					.00

INSTRUCTIONS

Please follow these steps to prepare your Multiple Worksite Report. Contact the Agency listed in Step 6 if you have any questions or if you need additional information, or see **http://www.bls.gov/cew/cewmwr00.htm**

1. Review the business name, contact name, and mailing address and make any necessary corrections (Section 2).

2. The Worksites list (Section 3), shows the individual worksites (business locations) that appear in our files for the U.I. Number.
(a) Please read across the row for each worksite and do the following:
- **NAME/ADDRESS/DESCRIPTION:** Review the name and physical location address for each worksite and make any necessary corrections. Review the description below the physical location to be sure it uniquely identifies each worksite (plant name, store number, etc.). If there is no printed description, please enter a unique identifier for the site.

Addressing the Zip Code Problem

Zip Code problem (Round 1):

Multiple jurisdictions can be within the same zip code, meaning that zip code sorting may be insufficient to match employment correctly to a specific municipality

LODES Solution:

The Census Bureau geocodes work location to specific longitude/latitude coordinates, which can be correctly matched to a municipality

Census Bureau Geo-coded Address List

LEHD INFRASTRUCTURE FILES IN THE CENSUS RDC – OVERIEW

Lars Vilhuber
U.S. Census Bureau

Kevin McKinney
U.S. Census Bureau

Chapter 8.
Geo-coded Address List (GAL)

8.1 OVERVIEW

The Geocoded Address List (GAL) is a data set containing unique commercial and residential addresses in a state geocoded to the Census Block and latitude/longitude coordinates. It consists of the address list (GAL) and a crosswalk for each processed file-year. The GAL contains each unique address, identified by a GAL identifier called `galid`, its geocodes, a flag for each file-year in which it appears, data quality indicators, and data processing information, including the release date of the Geographic Reference File (GRF). The GAL Crosswalk contains the ID of each input entity and the ID of its address (`galid`).

ESI Method: Employment Level and Change

2. Calculate Responsibility Factor Shares (ch.5.2)

ESI Municipal Employment Methodology

- ESI methodology utilizes on LODES data by municipality for employment level and change
- Employment change measured 2002 – 2013 (earliest and latest available years of dataset as of the time of the calculation)
- Both measures calculated as share of the region (net of urban aid municipalities)
- Based on current and past observed data – not a projection

Capacity Factors: Income and Developable Land

3. Calculate Capacity Factor Shares (ch.5.3)

3. Income Differences (ch.5.3.1) → **ACS Data**

4. Undeveloped Land (ch.5.3.2) → **Property Tax Data** → **Planning Area Weights**

Capacity Allocation Factors: Employment

2. Calculate Capacity Factor Shares (ch.5.3)

Capacity Factors (Income and Developable Land)

- Rd 1 and Rd 2 calculate municipal income relative to the regional average as a measure of fiscal capacity to absorb affordable housing development
  - ESI updates this calculation using ACS data

- Rd 1 and Rd 2 calculate developable land as a measure of the physical capacity to absorb affordable housing development
  - ESI updates this calculation using property assessment data and state planning GIS information

Regional Income Difference

- Based on the average of two measures:

  a. Municipal share of the regional sum of the difference between the median municipal household income from the 2009-2013 Five-Year ACS and an income floor ($100 below the lowest median income in the region), and

  b. Municipal share of the regional sum of the differences between average (i.e. mean) municipal household incomes and an income floor ($100 below the lowest average (mean) household income in the region) weighted by the number of households in the municipality. Average income and the number of households by municipality are drawn from the 2009-2013 Five-Year ACS.

Capacity Factor: Developable Land

3. Calculate Capacity Factor Shares (ch.5.3)

Developable Land

- The proportion of undeveloped land that can accommodate development
- Accounts for known environmental and planning constraints based on state-issued GIS layers
- Two potential approaches:
  - "Top down" – use aerial imagery to identify developable land (used by COAH in Rd 1 and Rd 2)
  - "Ground up" – use parcel level assessment data to identify developable parcels

Aerial Photography Approach is Problematic

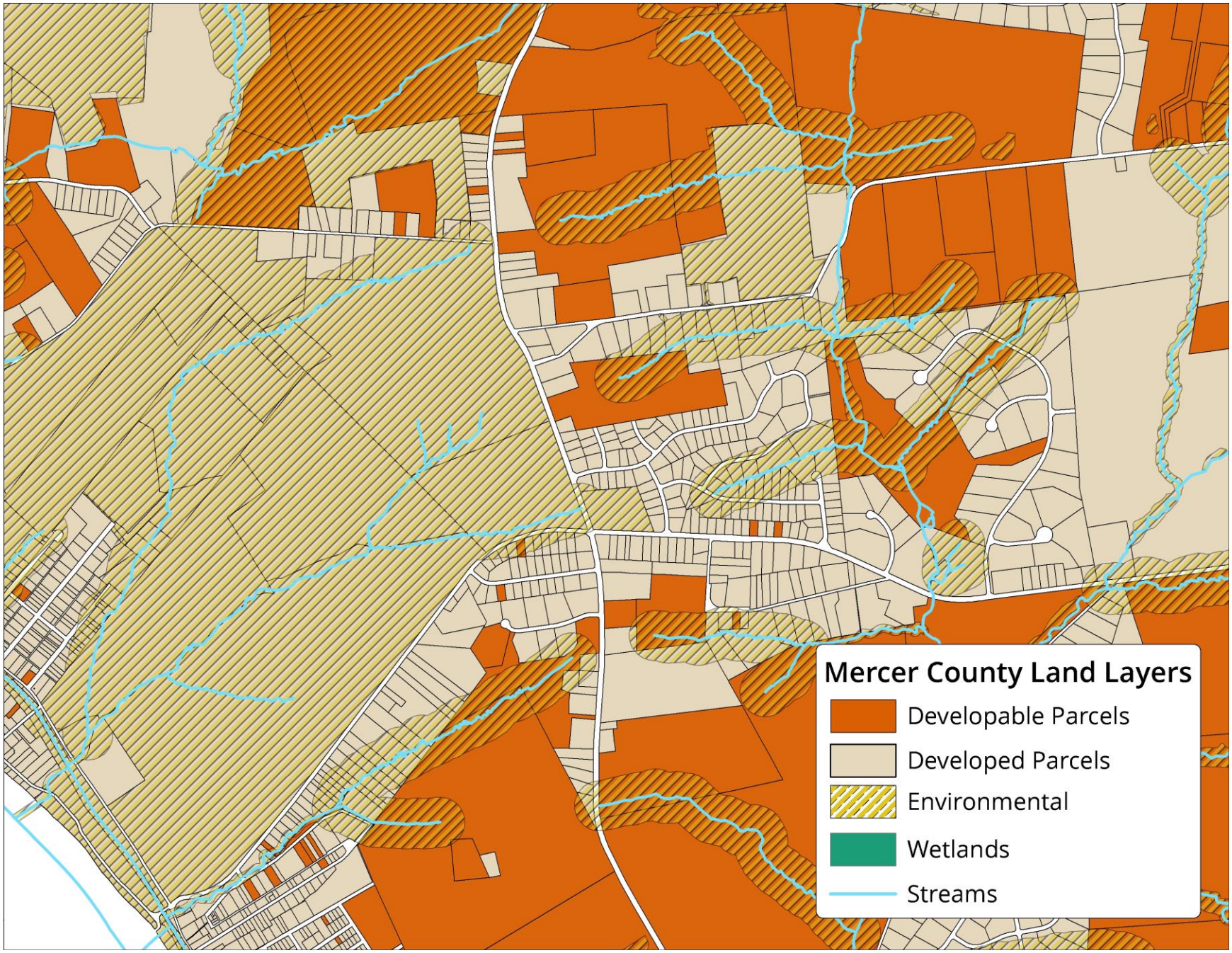
- Available analysis is based on 2007 photography: 8-9 years old
- Available analysis is performed by Rutgers/ Rowan and is not reproducible
  - Cannot verify analysis or rules used to generate values
- One acre resolution limits precision
  - Parcel boundaries cannot be accurately incorporated

3. Calculate Capacity Factor Shares (ch.5.3)

ESI Approach Calculation of Developable Land

- Property tax data used to identify potentially developable land
  - Property classified as Vacant Land or Farmland OR
  - Property classified as Residential, Commercial, Industrial, Apartment with Improvement Value of $0
- Eliminate undevelopable land on these parcels
  - Stream buffers, environmentally protected land, etc.
- Apply weights by Planning Area
  - Planning areas 1 (Metropolitan) and 2 (Suburban) = 1
  - Planning area 3 (Fringe) = 0.5
  - Others = 0
  - Additional adjustments for Meadowlands, Pinelands, Highlands
- For each parcel: Acres x Weight = Developable Land Factor
  - Aggregated for each municipality

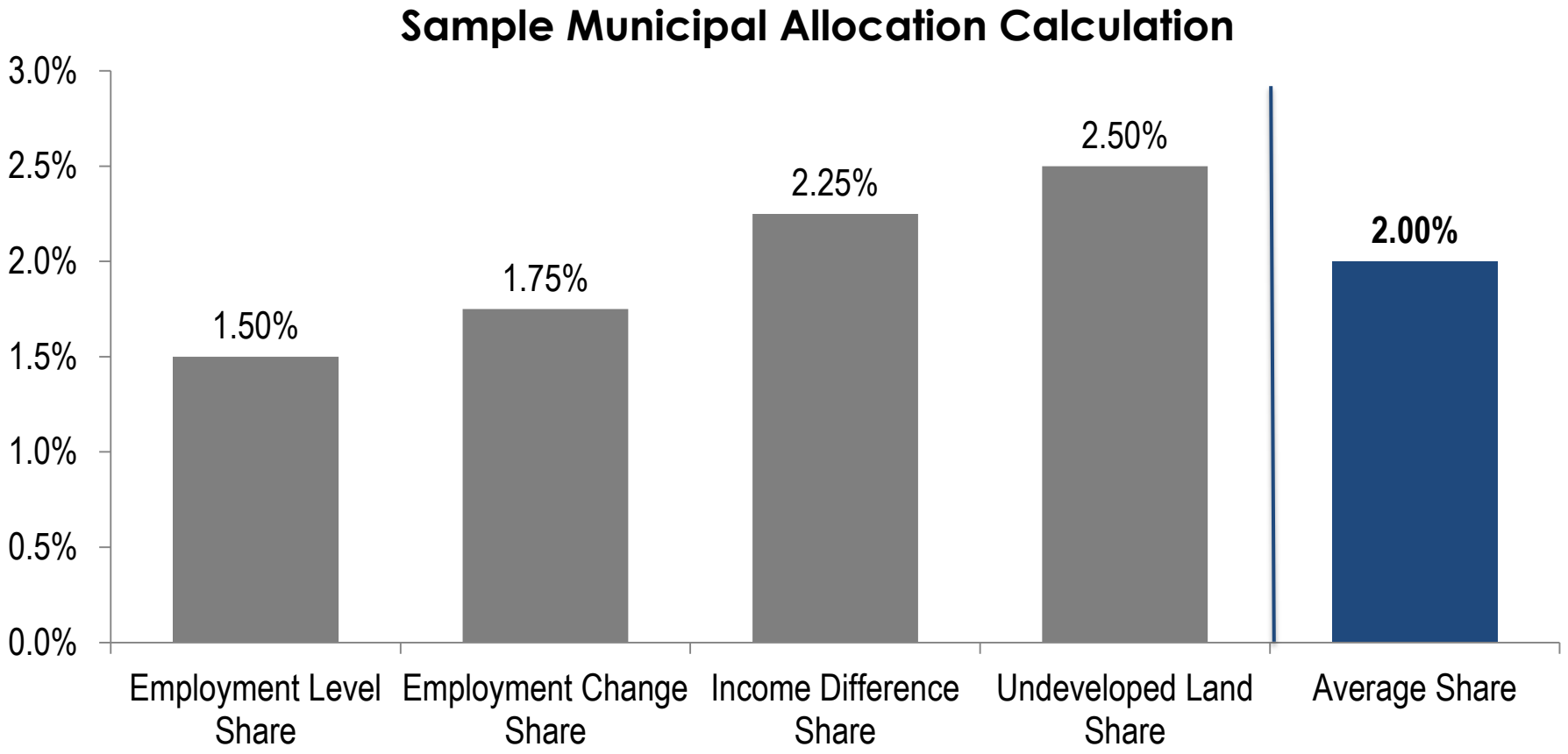
Developable Land: ESI Approach



Average Allocation Factors for Municipal Share

4. Average Shares to Determine Municipal Share of Regional Need (ch.5.4)

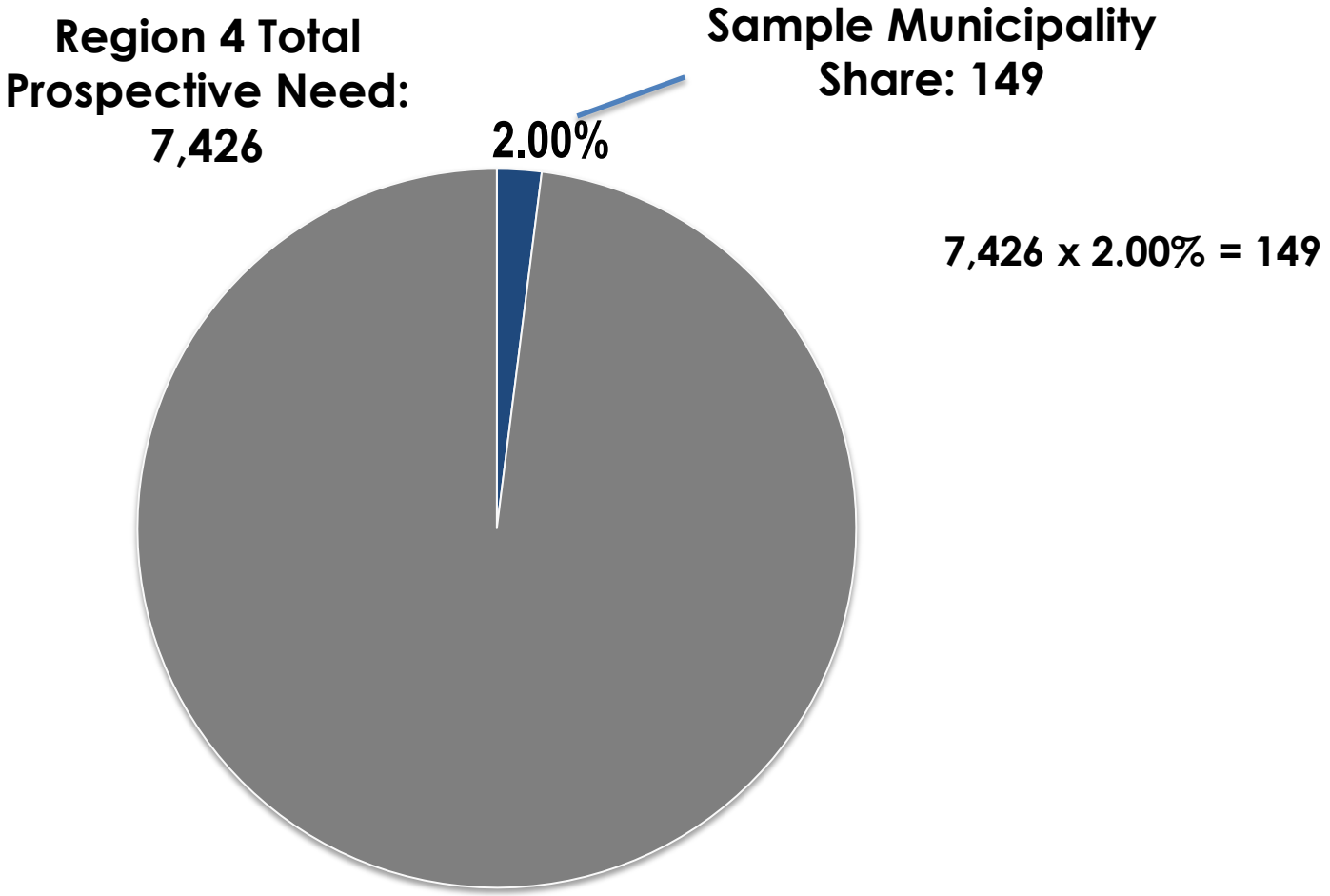
- Municipal Share = Averaged Share of Each Factor



(1.50% + 1.75% + 2.25% + 2.50%) / (4) = 2.00%

5. Allocate Regional Need to Municipalities (ch.5.4)

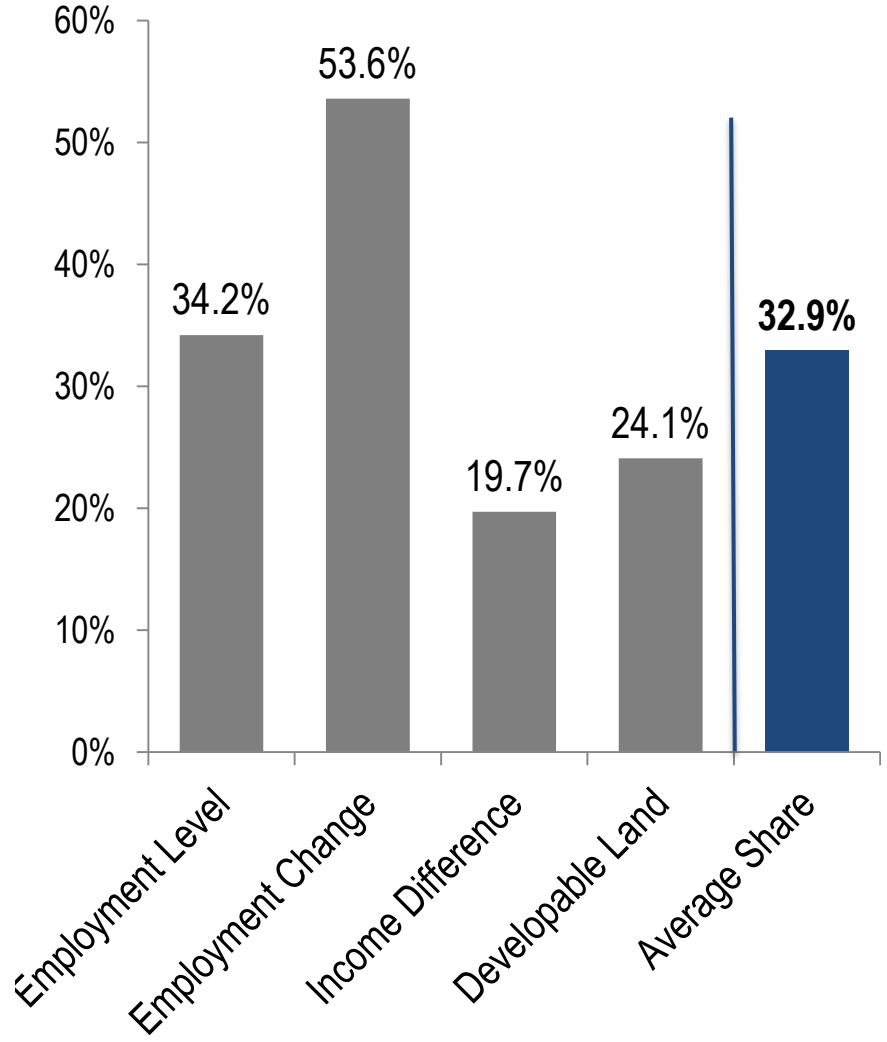
- Municipal % Share is applied to regional Prospective Need



Allocate Prospective Need to Municipalities (ch.5)

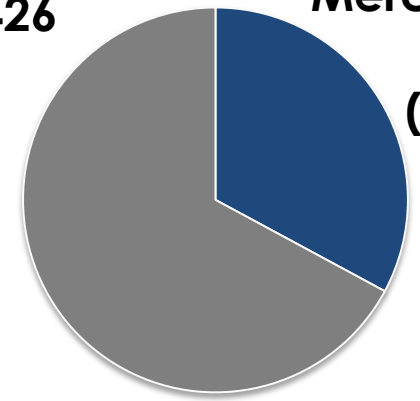
5. Allocate Regional Need to Municipalities (ch.5.4)

Mercer County Aggregate Allocation (Proportion of Region 4)



Region 4 Total Prospective Need: 7,426

Mercer County: 2,441 (32.9%)



Methodology Steps

- **Prior Round Obligation**
- **Define the Regions (ch.2)**
- **Present Need (2015) (ch.3)**
  - Measures of Deficiency
  - Account for overlap
  - Extrapolate to July 1, 2015 = Present Need
- **Prospective Need (2015-2025) (ch.4)**
  - Population forecast
  - Household forecast
  - LMI households
  - Eligible LMI Households (Asset Test) = Prospective Need
- **Allocate Prospective Need to Municipalities (ch.5)**
  - Responsibility factors
  - Capacity factors
  - Averaged share = municipal share of region

→ **Secondary Sources (ch.6)**

- Demolitions
- Residential Conversions
- Filtering
- Net impact → Assignment to municipalities

- **Allocation caps (ch.7)**
  - 20% Cap
  - 1,000 unit cap

= Municipal Obligation

Adjust for Secondary Sources (ch.6)

1. Estimate LMI Demolitions (ch.6.1)

2. Estimate LMI Residential Conversions (ch.6.2)

3. Estimate Filtering of Housing Stock (ch.6.3)

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

Spontaneous Rehabilitation

- Round 1 and Round 2 calculate "spontaneous rehabilitation," which represents the returning of deficient housing units to adequate status

- This component adds to the supply of affordable housing, therefore reducing the need. Excluding spontaneous rehabilitation increases the need.

Demolitions Increasing Affordable Housing Need

1. Estimate LMI Demolitions (ch.6.1)

Demolitions

- Start with count of annual demolitions from NJ DCA
- Determine the proportion that adds to LMI housing need
  - Account for demos of vacant housing (no displacement)
  - Apply LMI Proportion
  - Account demos of deficient LMI housing (already captured in Present Need calculation)
- Result: **Demolitions of occupied, non-deficient LMI units** (increases need)

Estimated Demolitions, 2015-2025

1. Estimate LMI Demolitions (ch.6.1)

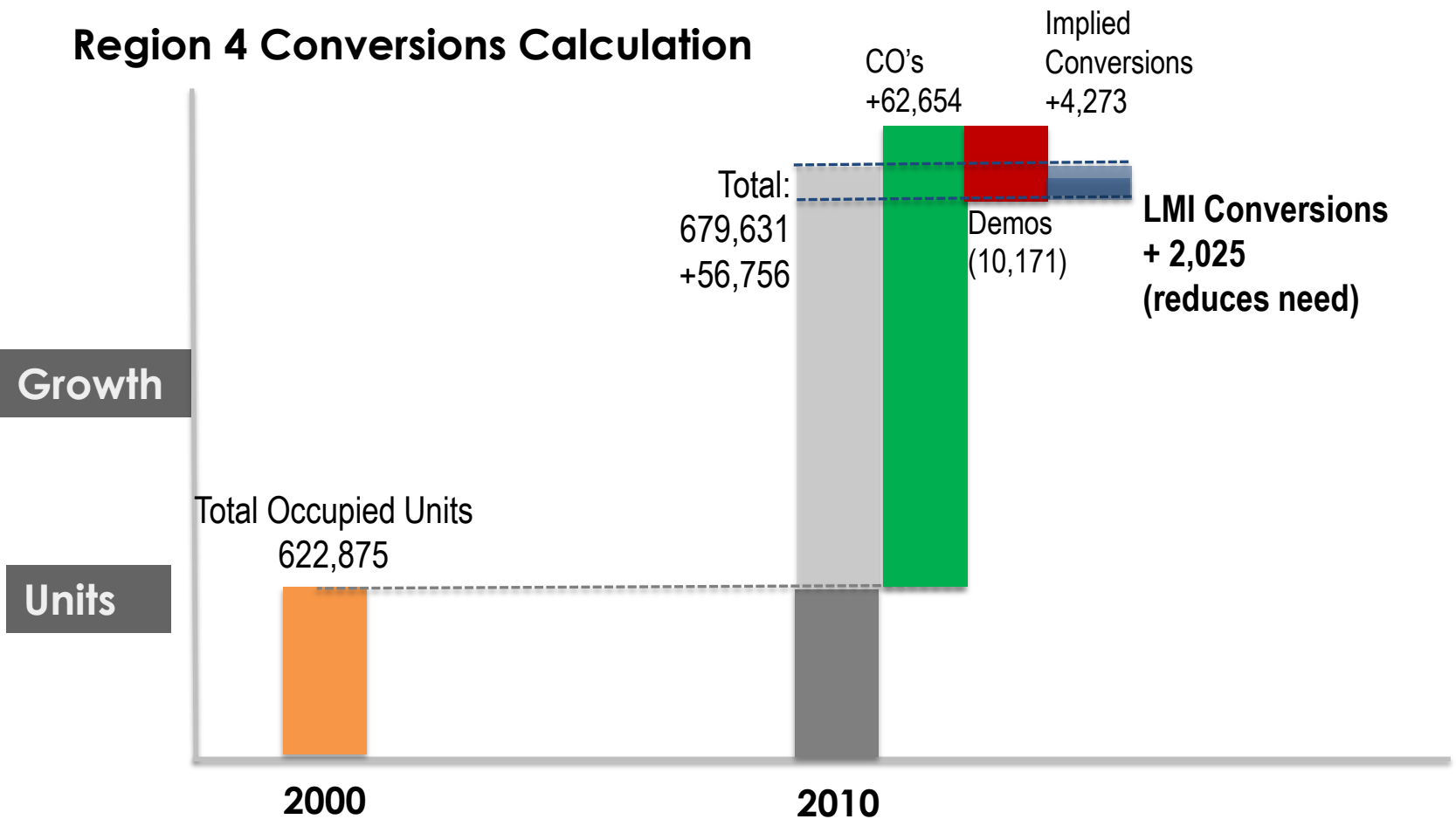
LMI Occupied non-Deficient Demolitions, 2015-2025

Region	Annualized Demolitions (2000-2011, 2014)	Projected Residential Demolitions (10 year)	LMI, Occupied (41.6%)	LMI, Occupied and Deficient (8.9%)	LMI, Occupied, non-Deficient Demolitions
1	1,000	9,995	4,161	(372)	3,788
2	996	9,963	4,147	(371)	3,771
3	314	3,138	1,306	(117)	1,189
4	1,099	10,992	4,576	(409)	4,168
5	511	5,108	2,127	(190)	1,937
6	1,003	10,032	4,176	(374)	3,800
State	**4,923**	**49,230**	**20,493**	**(1,834)**	**18,653**
Mercer	119	1,194	497	(44)	453

Residential Conversions = Unexplained Change

2. Estimate LMI Residential Conversions (ch.6.2)

- Residential Conversions = Residual calculation
  - Observed change in occupied units not accounted for by demolitions or construction activity

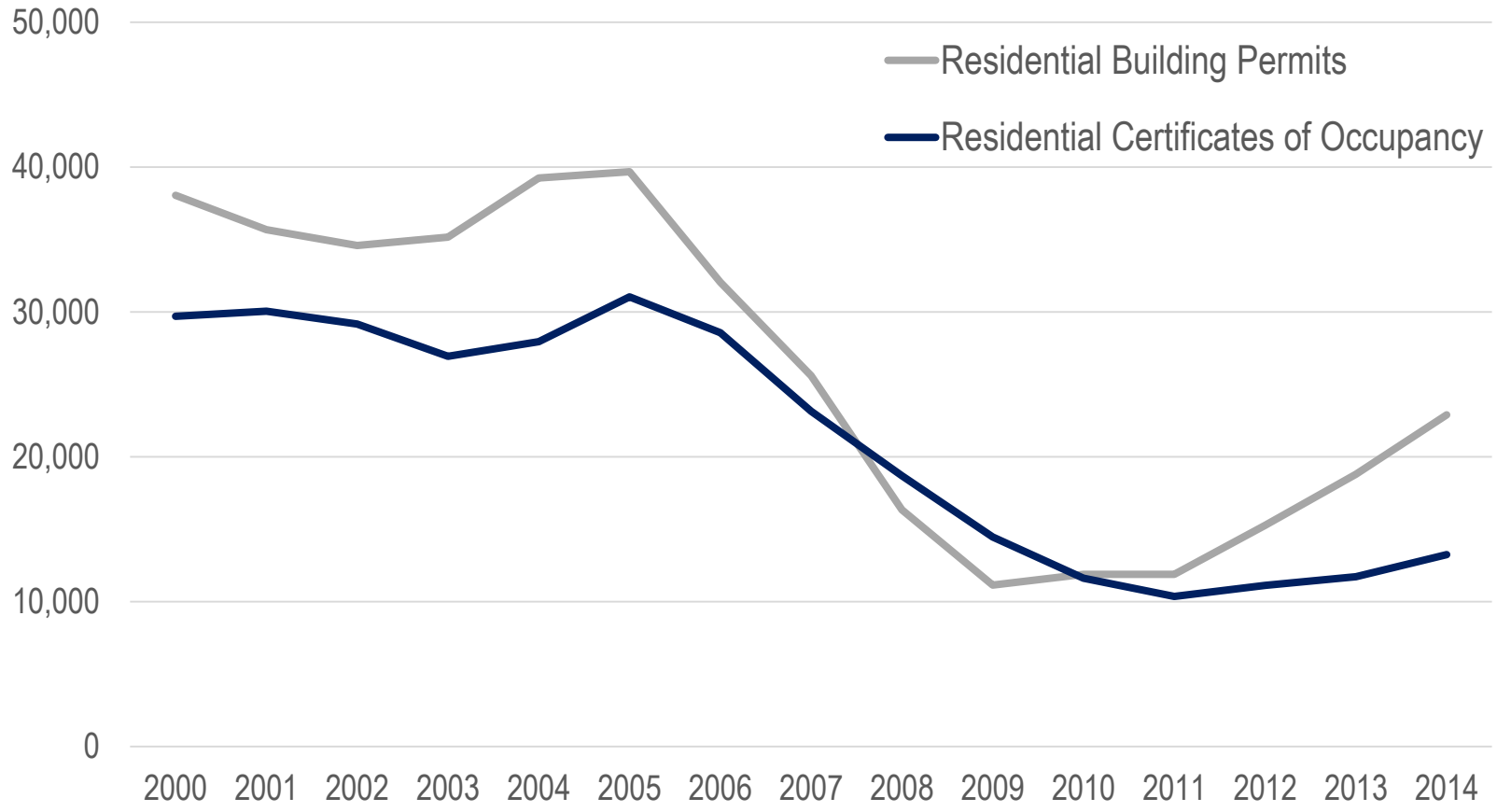


Certificates of Occupancy vs. Building Permits

2. Estimate LMI Residential Conversions (ch.6.2)

- 82% as many COs as building permits from 2000 - 2014

Statewide Residential Building Permits & Certificates of Occupancy, 2000 – 2014



Estimated LMI Conversions, 2015-2025

2. Estimate LMI Residential Conversions (ch.6.2)

LMI Residential Conversions, 2015-2025

Region	Est. Residential Conversions (Apr 2000 – Apr 2010)	Effective LMI Rate	Projected LMI Residential Conversions, 2015-2025
1	6,924	52.4%	3,630
2	5,225	54.2%	2,833
3	5,071	48.3%	2,451
4	4,273	47.4%	2,025
5	222	44.6%	99
6	2,499	44.6%	1,115
State	**24,213**	**50.2%**	**12,153**
Mercer	1,215	48.6%	591

Net Filtering of Affordable Housing Units, 2015-2025

Region	Units Filtering Down	Units Filtering Up	Net Filtering (Supply Change)
1	19,121	16,852	2,269
2	30,621	13,249	17,372
3	15,429	15,306	123
4	28,124	20,347	7,777
5	25,088	21,624	3,464
6	17,132	10,533	6,599
State	**135,515**	**97,911**	**37,604**
Mercer	3,880	3,949	(69)

Filtering: Outline

3. Estimate Filtering of Housing Stock (ch.6.3)

- How do we know there is filtering?
  - What is / what causes filtering?
  - Literature
  - COAH's previous use of filtering
  - Ignoring filtering is not correct
- Appellate Division's ruling and guidance
  - Data and method must have a rational basis
  - Downs Factors
- ESI's filtering model
- FSHC's filtering model
- Differences between ESI and FSHC
- Summary

Filtering: Overview

3. Estimate Filtering of Housing Stock (ch.6.3)

Filtering in General

- Market forces make housing stock affordable (or sometimes not affordable) to LMI households
  - Filtering (downward filtering): Houses decrease in price (relative to income) and thus become affordable to LMI families
  - Upward filtering: previously affordable units become unaffordable (e.g. gentrification)
  - Downward filtering is more common than upward filtering (i.e. reduces affordable housing need)
- Filtering is a well understood, widely observed phenomenon
- Most housing affordable to LMI households filtered from housing that is not affordable.

Normal Operation of Housing Markets

- As housing units age, they lose value for several reasons:
  - Physically older – entropy
  - Design becomes dated
  - Location is no longer in favor
- Housing units decrease in value relative to incomes, become more affordable
- Analogous to a conveyor belt:
  - New housing starts at one end and as it travels down the belt, it decreases in value (relative to income)
  - At some point, it passes the "affordable to LMI" line
  - Then it has filtered

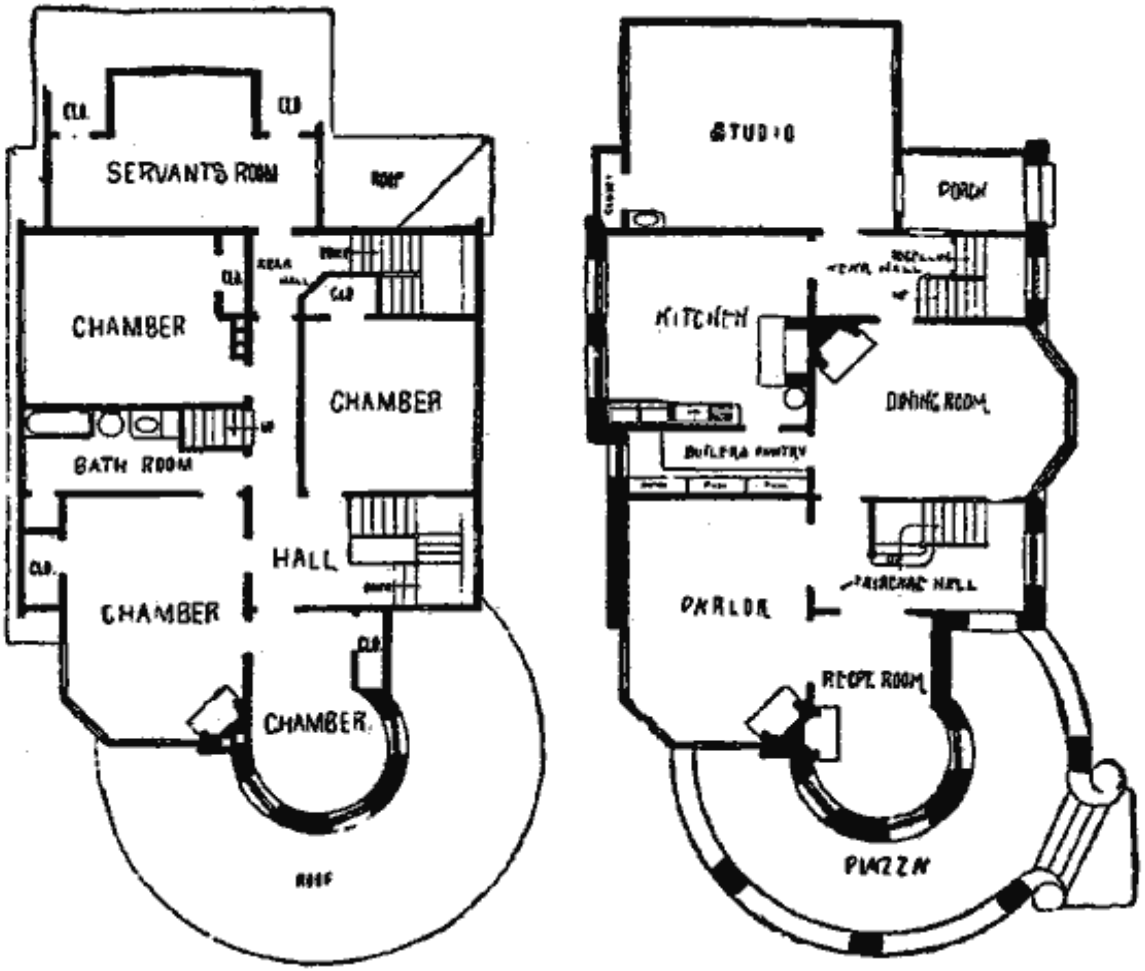
Physical Decay

3. Estimate Filtering of Housing Stock (ch.6.3)

Houses decay due to age

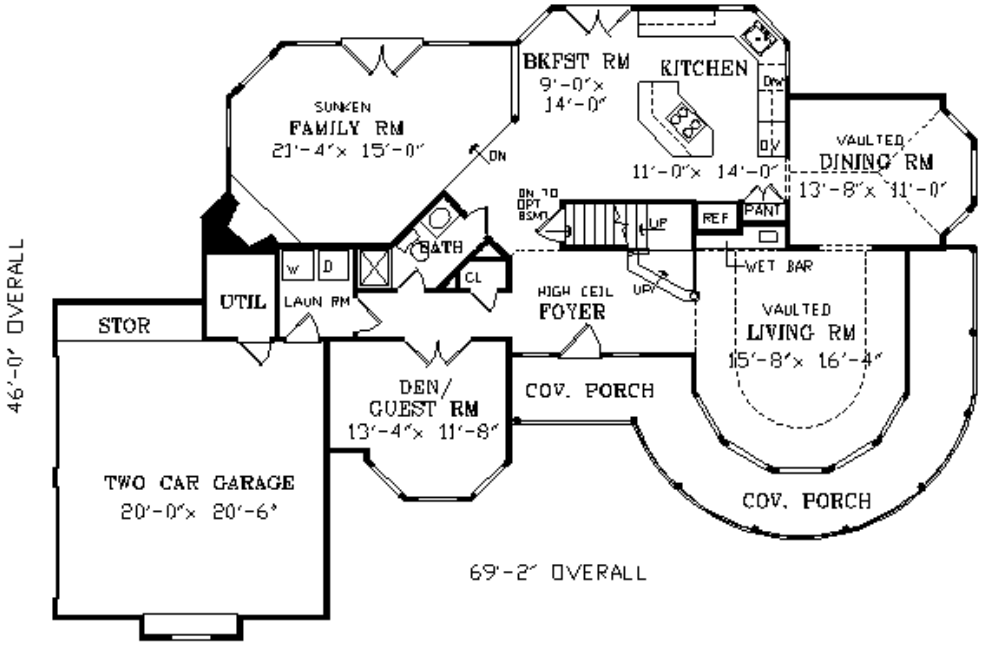
- Systems need replacement
- Damage and wear and tear

Authentic Victorian



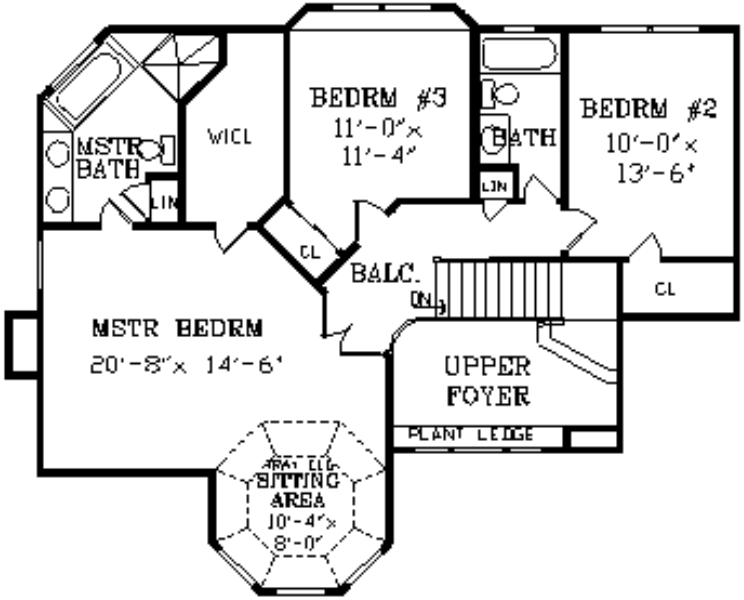
A Traditional Victorian Floor Plan

Modern Victorian



Updated design reflects modern preferences

Modern "Victorian" Floor Plan



Internal design is very different

Characteristic	Authentic Victorian	2010's Victorian
Bedrooms	3	3
Bathrooms (full / half)	1 / 0	2 / 1
Servant's Quarters	Yes	No
Kitchen	Enclosed	Open
Butler's Pantry	Yes	No
Garage	No	Yes
Closets	Few	Many
Air Conditioning	No	Yes

All else being equal, modern Victorian is worth more because it reflects modern preferences and lifestyles

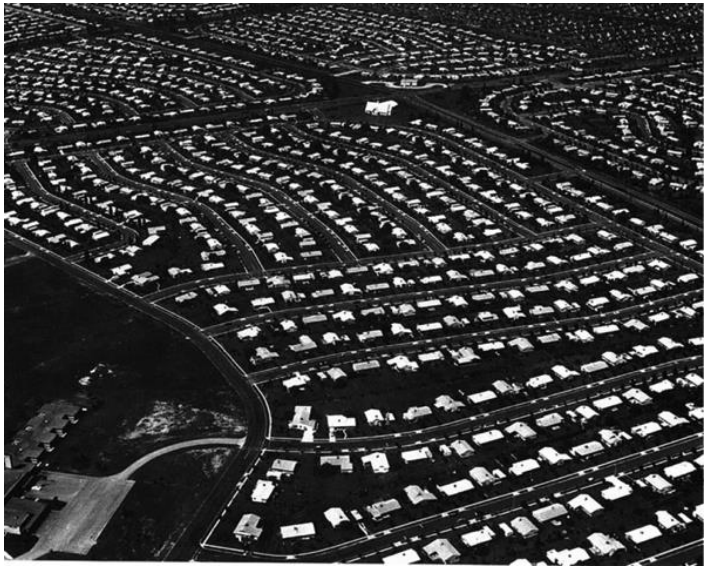
Design / Appearance is dated

3. Estimate Filtering of Housing Stock (ch.6.3)

Location Obsolescence

3. Estimate Filtering of Housing Stock (ch.6.3)

- Locations fall out of favor
  - Newly built houses are in "good" neighborhoods – valuable enough to support new development
  - Jobs move
  - New transportation becomes available
  - Newer neighborhoods / investment occurs elsewhere
- Gentrification occurs when locations come back into favor
  - Not as common, and needs to overcome physical decay and obsolescence



Summary of Filtering

Filtering is the Normal State of Affairs

- Housing units decrease in value relative to incomes, become more affordable – ie, they filter
- Filtering Supplies most housing affordable to LMI households across the country
- Analogous to a conveyor belt:
  - New housing starts at one end and as it travels down the belt, it decreases in value (relative to income)
  - At some point, it passes the "affordable to LMI" line
  - Then it has filtered
- Based on COAH's experience, there is downward filtering
- "Filtering" in the literature means "downward filtering." However, filtering occasionally occurs upward, which on net is expected to occur in Mercer County in 2015-2025, albeit slightly

Academic Literature

3. Estimate Filtering of Housing Stock (ch.6.3)

"Filtering has long been considered the primary mechanism by which markets supply low-income housing…the nation's housing stock filters down at a rate of roughly 1.9 percent per year in real terms"

– Rosenthal in *American Economic Review (2014)*

"Filtering does occur in housing markets, and it is important quantitatively…"

– Weicher and Thibodeau in *Journal of Urban Economics (1985)*

"The bottom third of families or thereabouts…are accommodated through the process that housing experts know as "filtering"…By default and to some extent by the design of policy makers, it has long been the process that has delivered shelter to tens of millions of North Americans."

– Harris in *Social Science History (2013)*

"For more than 60 years, housing economists and urban geographers have empirically researched filtering and shown that filtering is an important process through which housing demand is met."

– Clark in *Encyclopedia of Geography (2010)*

COAH: Filtering is a source of Housing Supply

3. Estimate Filtering of Housing Stock (ch.6.3)

COAH used filtering as a source of supply in all previous rounds

"filtering causes a reduction in total need based on the recognition that the housing needs of low and moderate income households are partially met by sound housing units formerly occupied higher income segments of the housing market.

- COAH Round 1 Methodology

"filtering causes a reduction in municipal need based on the recognition that **the housing needs of low- and moderate-income households are partially met by sound housing units formerly occupied by the higher-income sector of the housing market**"

- COAH Round 2 Methodology

Filtering is a source of supply in all previous iterations of the fair share calculations:

-Round 1: 8,501 units per year
-Round 2: 3,364 units per year
-Round 3.1: 3,944 units per year (2004)
-Round 3.2: 2,490 units per year (2008)
-Round 3.3: 2,493 units per year (2013)

-ESI model: 3,760 units per year
-FSHC model: –3,005 units per year (decrease in supply: net upward filtering)

Why Excluding Filtering is Not Correct

3. Estimate Filtering of Housing Stock (ch.6.3)

Net Filtering is the major driver of housing affordable to LMI HH

- Excluding filtering from the fair share analysis is the same thing as assuming there is zero filtering.
- Assuming zero filtering contradicts history, the literature, data and common sense
- Real question: How best to measure filtering?

Appellate Division invalidated COAH's 2007 filtering calculation

- Fewer new housing units than new households
- Old data (1990-1999, extrapolated to 2004)
- Other data suggested that "housing is becoming more expensive"
  - Note: Filtering is possible even if housing becomes more expensive (increases in price)
- Analysis did not recognize dynamic housing market
- Also – Appellate Division decision was issued in 2007, the height of the housing market. Subsequent years saw significant housing price declines (i.e. – filtering).

Filtering Calculation Approach

- "If the data and methodology have a **rational basis**, then COAH remains free to incorporate filtering and other secondary sources into its overall calculation of statewide housing need."
- In order for it to pass the rational basis test, the calculation "must be based on the **most recent and reliable data** available to the agency" and "must account for the **dynamic housing market** . . ."
- "The number used by COAH **need not be precise**, but **it must be reasonably based**."
- Should consider "more recent data . . . as well as any other data supplied by the interested parties" "relevant to whether the [Downs] five conditions for filtering currently exist in New Jersey".
- The decision forces the filtering model to be complex.

Filtering: Downs Factors

3. Estimate Filtering of Housing Stock (ch.6.3)

Downs Factors are not a bright line

- AD required use of the Downs Factors, but they are NOT a formula used to calculate filtering.
- Filtering can still occur even if all factors are not satisfied. E.g.,
  - Surplus of new housing construction over new households – If there are 100 new LMI households and 100 new high-end units, there will be filtering in the fair share sense.
  - Limited mobility – There can still be filtering, but maybe not as extensive as with full mobility
  - Limited number of poor households – Units can still filter, and provide housing for LMI households
- Notwithstanding the foregoing, all Downs Factors are satisfied.

Filtering Conditions Cited in 2007 Appellate Court Decision "Downs Factors"

#	Condition
1	Overall housing surplus
2	Surplus of new housing construction over new household formation
3	No major non-price barriers, such as discrimination, that limit mobility among lower-income households
4	Moderate operating costs for newly built units
5	Limited number of poor households

1) Overall Housing Surplus

- There are currently approximately 250,000 non-seasonal vacant units in New Jersey, according to the 2014 ACS, which means that there is a surplus.

2) A Surplus of New Housing Construction over New Household Formation

- Net new units exceeded new households by nearly 60,000 units.

Surplus of New Housing Construction 2000-2014

Category	Value
New housing stock (COs)	303,652
- Demolitions	70,828
- New households	172,950
Surplus of new housing construction	59,874

- Note: This was not the case in 2007 when the Appellate Division made its ruling, and the failure to satisfy this condition was cited by the Appellate Division.

3) No major non-price barriers, such as discrimination, that limit mobility among lower-income households

- There is no measure to indicate that there are major non-price barriers that limit low-income households.

- COAH did an analysis in 2004 to determine that there was no non-price barrier. Applying COAH's approach, there is no non-price barrier because the non-white population, as a percentage of the municipality, increased in 500 of New Jersey's 565 municipalities between 2000 and 2010. *(US Census, 2000, 2010)*

4) Moderate Operating Costs for Newly Built Units

- New units are expected to have moderate operating costs because they require relatively little maintenance, and are constructed with modern, efficient appliances and HVAC systems. There is no evidence that newly built units have anything other than moderate operating costs.

- 359,922 units built from 2000 to 2015 *(ACS)*
  - 140,691 rental units (39%)
  - 219,231 owner occupied units (61%)

- 75,000-92,000 more rental units affordable to LMI families in 2015 than in 2005 *(ACS, 2005, 2014)*

Increase of Occupied Rental Units Affordable to LMI Households 2005-2014

	Contract Rent			Gross Rent		
Unit Size	2005	2014	Increase	2005	2014	Increase
Studio	18,492	24,068	5,576	16,343	20,779	4,436
1 BR	363,407	349,921	-13,486	356,792	339,974	-16,818
2 BR	343,096	376,102	33,006	327,579	352,780	25,201
3 BR	148,458	199,744	51,286	137,515	186,328	48,813
4 BR	33,791	49,727	15,936	28,318	41,891	13,573
Total	907,244	999,562	92,318	866,547	941,752	75,205

Contract Rent excludes utilities. Gross Rent includes utilities

Source: American Community Survey, 2005, 2014

5) A Limited Number of Poor Households

- The number of LMI households is expected to grow approximately in proportion to the population.
  - 2015: 39.92% LMI *(2014 ACS, ESI calculation)*
  - 2025: 39.96% LMI *(ESI calculation)*

3. Estimate Filtering of Housing Stock (ch.6.3)

How Does ESI Calculate Filtering

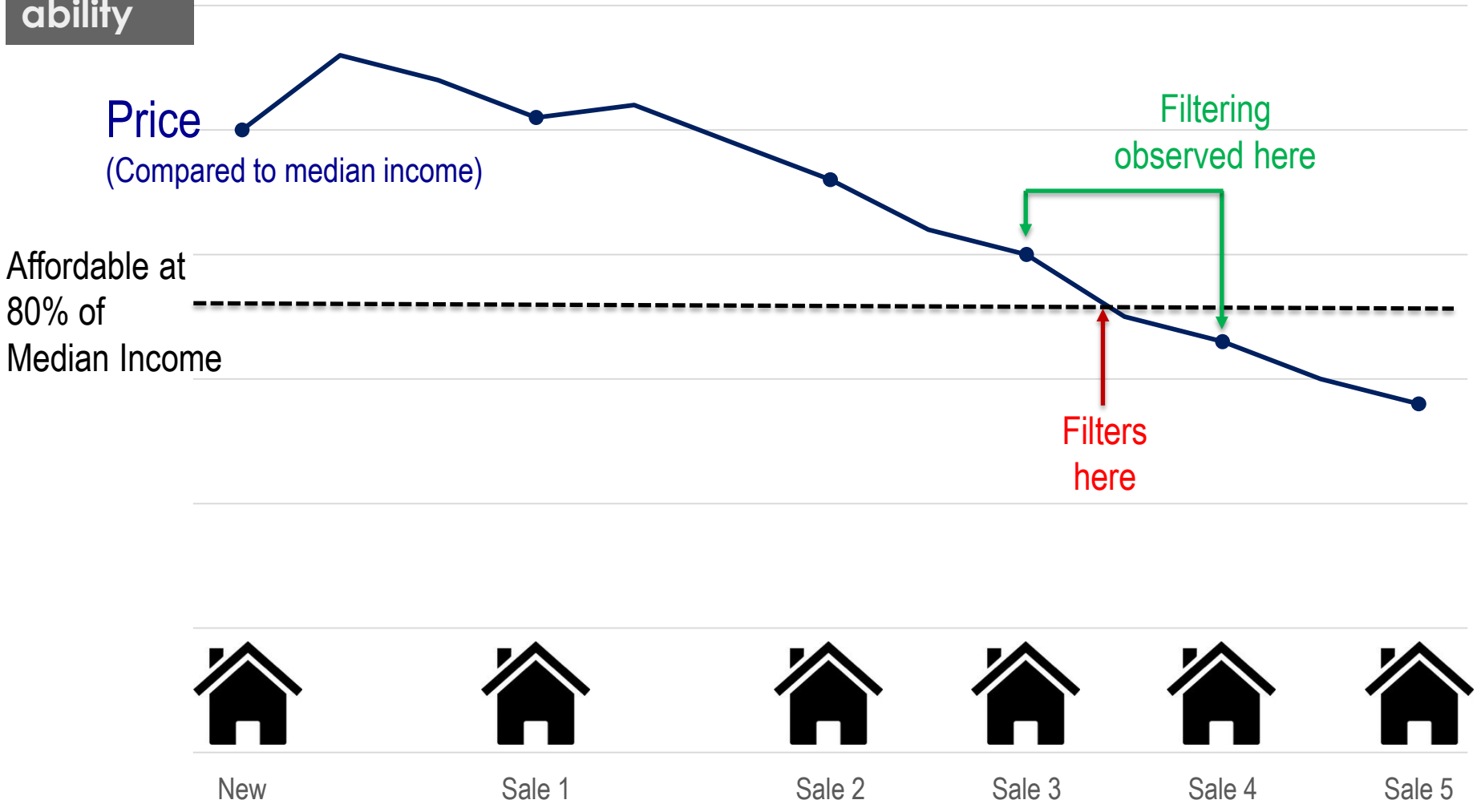
- What does Filtering mean in the Fair Share Context?
  - When does a housing unit transition from being not affordable to a LMI household to being affordable to a LMI household?
  - How to project how many units will become affordable to LMI households in the prospective need period?
- ESI has a three step process:
  - Identify historical filtering in data
  - Create a statistical model to understand drivers of filtering
  - Apply the model to future conditions to project future filtering

Filtering Projection Method

3. Estimate Filtering of Housing Stock (ch.6.3)

Housing Afford-ability

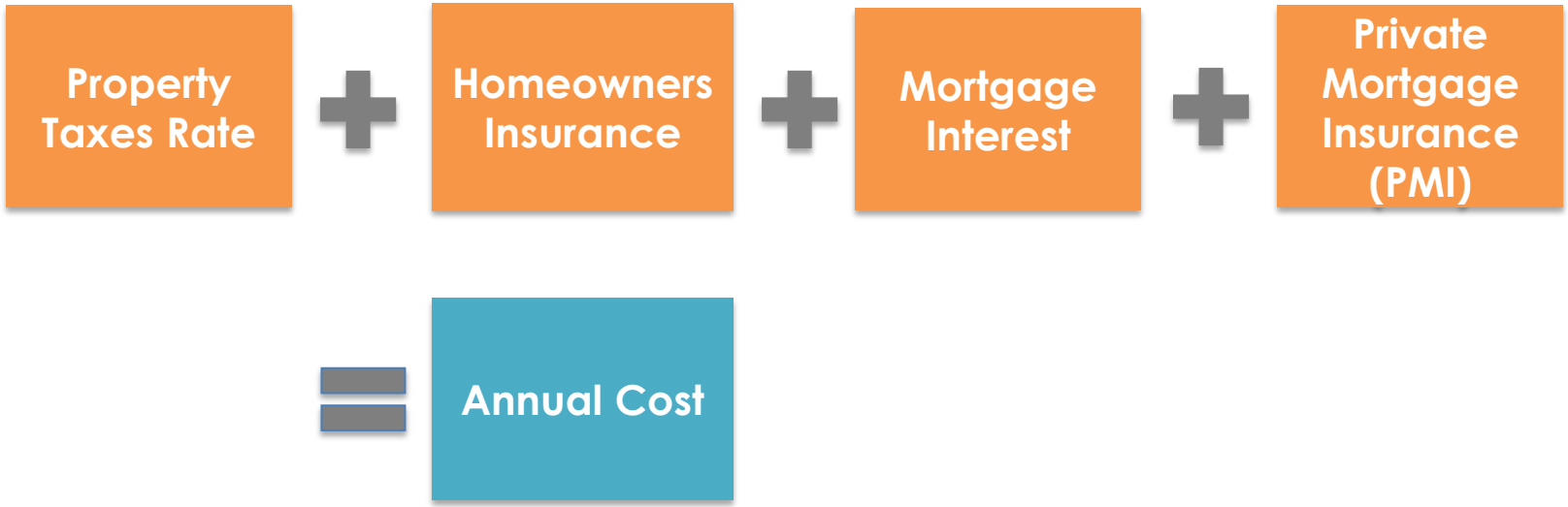
Example Housing Affordability Change Over Time



Affordability

- A unit is affordable if Annual cost <= 28% of LMI income threshold for 4 person HH

Annual Cost Calculation



Affordability

- A unit is affordable if Annual cost <= 28% of LMI income threshold for 4 person HH

Annual Cost	Rate	Amount
Purchase Price		$175,000
Mortgage Interest	3.50%	$6,125
Property tax	2.10%	$3,670
PMI	0.78%	$1,365
Homeowners Insurance		$981
Annual Cost		**$12,141**

Affordability	Rate	Amount
LMI Income Threshold		$87,728
Affordability Threshold	28%	**$24,564**

$12,141 ≤ $24,564 ✓

3. Estimate Filtering of Housing Stock (ch.6.3)

Paired Transactions

- Data: All housing transactions in New Jersey 2000-2014
- Compare the price of the same unit sold at different times
  - Controls for variation in building stock and quality
  - Identifies specifically when a unit crosses between affordable and not affordable
- If the first sale price is not affordable to a LMI household, and the second sale price is affordable to a LMI household, then the unit has filtered down

First sale price is not affordable	Second sale price is affordable	Downward filtering
First sale is affordable	Second sale price is not affordable	Upward filtering (gentrification)

Statewide Observed Filtering of Owner Occupied Units by Price Band, 2000-2014

Second Sale: Sale Price	Number of Paired Sales	Filtered Down	Filtered Up
$0-$100,000	24,088	897	120
$100,000-$200,000	104,824	15,340	6,371
$200,000-$300,000	123,886	25,925	31,944
$300,000-$400,000	92,814	11,538	9,992
$400,000-$500,000	51,859	1,413	1,446
> $500,000	82,026	0	598
TOTAL	**479,497**	**55,113**	**50,471**

- Includes only units that sold more than once within time period
- Note that regional median income of $100,000 and more, coupled with low interest rates and low effective tax rates, yield 1,413

Observed Data: Filtered Unit

3. Estimate Filtering of Housing Stock (ch.6.3)

- Address: 47 Gedney Rd. Lawrence, NJ
- First Sale (2005): $318,000
- Second Sale (2014): $163,000

Observed Data: Filtered Unit

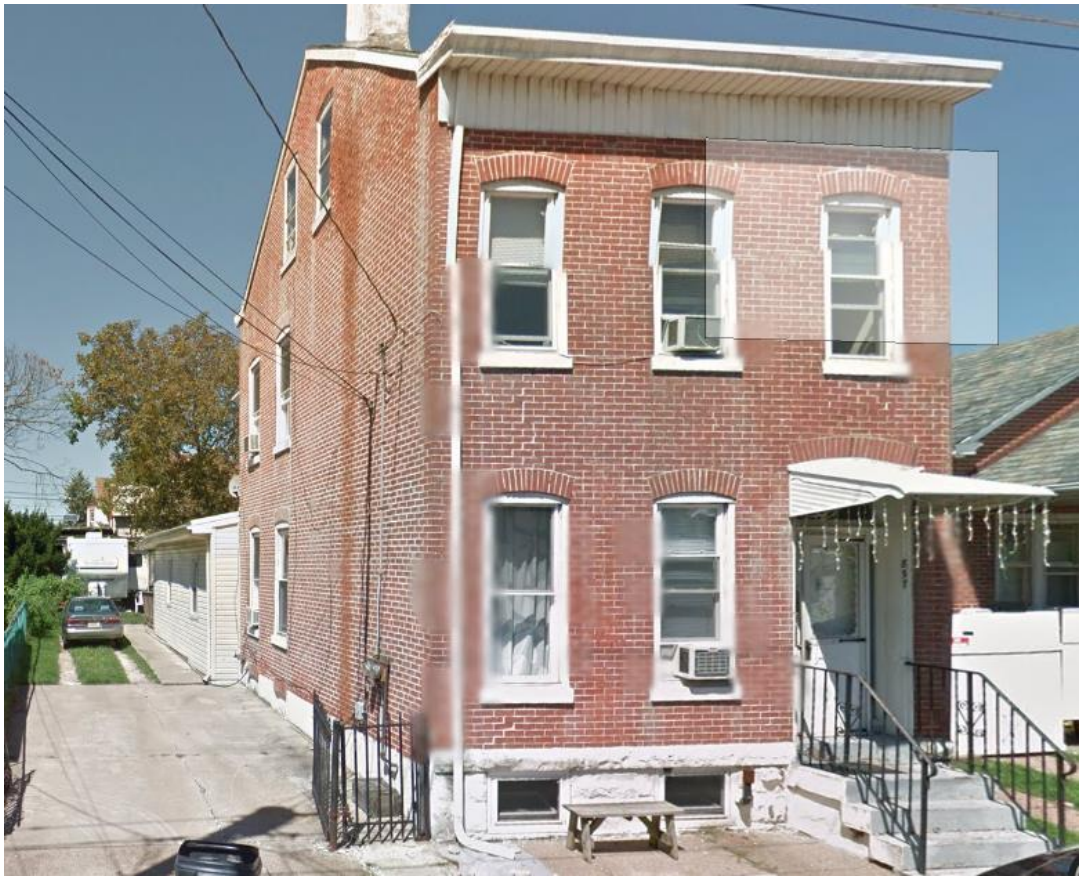
3. Estimate Filtering of Housing Stock (ch.6.3)

- Address: 11 Carey St. Pennington, NJ
- First Sale (2006): $361,900
- Second Sale (2014): $225,000

Observed Data: Filtered Unit

3. Estimate Filtering of Housing Stock (ch.6.3)

- Address: 857 Indiana Ave, Trenton, NJ
- First Sale (2006): $250,000
- Second Sale (2014): $100,000



Observed Data: Filtered Unit

3. Estimate Filtering of Housing Stock (ch.6.3)

- Address: 126 Morrison Ave., Hightstown, NJ
- First Sale (2003): $296,000
- Second Sale (2014): $210,000

Econometric Modeling

- An Econometric (statistical) model:
  - Uses observed data on the outcome (eg, units that filter)
  - Uses observed data on explanations for the outcome. (eg, what characteristics of municipalities make filtering likely)
  - Figures out what relationship between explanatory variables best predict / explain the observed result. (ie – what characteristics of towns, and what relationship between the characteristics, best explain the observed filtering?)

- Models can tell you how well they explain the observed data

3. Estimate Filtering of Housing Stock (ch.6.3)

Filtering Model

- Statistical relationship between the characteristics of a community and the likelihood that a unit will filter up, down, or not at all
- Using the paired transaction data, the filtering model explains how these community characteristics cause filtering
- This methodology is supported by academic literature, and builds upon the work of Somerville, C. Tsuriel, and Christopher J. Mayer
- Identify variables to use as community characteristics in filtering model

3. Estimate Filtering of Housing Stock (ch.6.3)

Variables used in the analysis

TABLE 6.4: INDEPENDENT VARIABLES USED IN MULTINOMIAL LOGIT REGRESSION

Variable	Definition	Source
HGrowth00to14	Change in housing stock from 2000 to 2014, per municipality	US Census
hhmedinc	Median Household Income, per census tract	US Census
hhmedincsquared	Squared median income term	US Census
Hunits	Number of Housing Units, per municipality	US Census
medianmunisalesprice	Median value of a sale in the municipality	SRIA
medianpricesquared	Squared median sales value	SRIA
density	Density of municipality housing stock	US Census
pctbuiltout	Percent of estimated "Build Out" limit, per municipality	Econsult Solutions
NJpricepctchg	change in real estate prices in the State of New Jersey	FHFA
NJsquaredpricepctchg	Squared real estate price term	FHFA
county	County geographic fixed effect	NJ COAH

3. Estimate Filtering of Housing Stock (ch.6.3)

Forecast Method

- Uses the statistical relationship between the community characteristics (listed in Table 6.4 on the previous slide) and filtering
- Forecasts filtering in each municipality by estimating future values for those community characteristics and applying the model results.
- Separate forecasts for owner-occupied units and for rental units

3. Estimate Filtering of Housing Stock (ch.6.3)

ESI's Filtering Model Satisfies Appellate Division's Tests

Rational basis: The data and methodology must have a rational basis

- Data has a rational basis because it is reliable and recent
  - The analysis is based on state supplied transaction data for all real estate transactions
  - Data cover 2000-2014, which was the most recent data when the analysis was conducted.

- The methodology has a rational basis in that it recognizes dynamic housing market
  - Explicitly accounts for housing cycle (price and quantity)
  - Rental model and Owner Occupied model have different housing cycle characteristics, reflecting observed patterns

Filtering: Model is conservative

3. Estimate Filtering of Housing Stock (ch.6.3)

The ESI Model is conservative for several reasons

- Mortgage is based on 100% of purchase price
  - 95% or less is typical. 80% or less is ideal.
- Assumes everyone pays PMI
  - Many do not. Mortgage < 80%, veterans, etc.

Modeled payment is greater than actual payment – means we are assuming less affordable than it actually is.

- Affordability threshold is limited to 28% of income
  - Higher percentages are often used
  - FHA
    - < 31% of income – no credit score
    - < 40% of income – good credit

Modeled affordability is less than other standards – means we are assuming less affordable than it actually is.

- Rental Model excludes rent controlled units:
- Assumes only 1/15 of rental units are available to filter each year

Net Filtering of Affordable Housing Units, 2015-2025

Region	Units Filtering Down	Units Filtering Up	Net Filtering (Supply Change)
1	19,121	16,852	2,269
2	30,621	13,249	17,372
3	15,429	15,306	123
4	28,124	20,347	7,777
5	25,088	21,624	3,464
6	17,132	10,533	6,599
State	**135,515**	**97,911**	**37,604**
Mercer	3,880	3,949	(69)

COAH 2004 Model Compared to ESI model

3. Estimate Filtering of Housing Stock (ch.6.3)

Model Step	COAH 2004 Model	Current ESI Model
Data Source	American Housing Survey (1989-1999)	SR1A – Transaction Data (2000-2014)
Filtering Definition	Occupied by LMI/non-LMI. No information on sales price	Affordable/Non-Affordable based on sales price
Filtering Calculation	Net Percent of households in survey that filter, allocated from region to municipality	Modeled relationships between filtering and community characteristics, for each municipality

Filtering: FSHC Model

3. Estimate Filtering of Housing Stock (ch.6.3)

FSHC Model: (Owner occupied only)

- Step 1 – For 2000-2014, calculate the percentage of all transactions that filtered up or down, by municipality
  - Filtered unit must be occupied by a LMI household
- Step 2 - Apply percentage to housing units that have been moved in to/out of since 2000 to estimate 1999-2015 filtering
- Step 3 - Pro-rate 1999-2015 estimate to forecast 2015-2025
  - Assumes that 2015-2025 housing cycle is the same as 2000-2014. This approach does not take into account the "dynamic housing market" unless you assume the same boom and bust cycle, which is not likely. Thus, FSHC does exactly what the Appellate Division said not to do.

Filtering: FSHC Model

3. Estimate Filtering of Housing Stock (ch.6.3)

FSHC Model does not follow Appellate Division Guidance

- COAH's 2004 method extrapolated 10 years to 15 years:

  "The figure obtained … is multiplied by 1.5 to result in a 15-year filtering number"

- Appellate Division disallowed that approach:

  "…rather than relying on actual data, COAH obtained the ten-year (1989-99) number of estimated and filtered units and multiplied that figure by 1.5 to obtain the adjusted number of filtered units for fifteen years (1989-2004)."

- FSHC method uses substantially the same approach as COAH, and effectively assumes that the 2015-2025 housing cycle will be the same as 2000-2014.

  "Multiplying the 1999-2015 estimated totals by 10/16, we estimate a net loss of 14,309 affordable units from 2015-2025"

- FSHC uses substantially the same approach as that specifically disapproved by the Appellate Division.

Issues with FSHC Model

- There is no reason that a unit must be occupied by a LMI household. If it is affordable to a LMI family then by definition is is available to a LMI HH and thus is part of the supply.
- The FSHC model inappropriately assumes that 2015-2025 housing cycle is the same as 2000-2014. Thus, the FSHC model does not take into account the "dynamic housing market," unless you assume the same boom and bust cycle as 1999-2014. There is no evidence to suggest a repeat of the housing bubble.
- FSHC model excludes newer unit that filter.
- FSHC model results contradict theory and history.

FSHC Model Compared to ESI Model

3. Estimate Filtering of Housing Stock (ch.6.3)

Data and Definitions

	FSHC Model	**ESI Model**
Data Source	SR1A – Transaction Data (owner-occupied units) Census - American Community Survey(rental units)	SR1A – Transaction Data
Ownership Costs	Mortgage interest, principal, PMI, homeowners Insurance, property tax	Mortgage interest, PMI, homeowners Insurance, property tax
Filtering Definition	Affordable/Non-Affordable based on Sales Price, Occupied by LMI/non-LMI	Affordable/Non-Affordable based on Sales Price

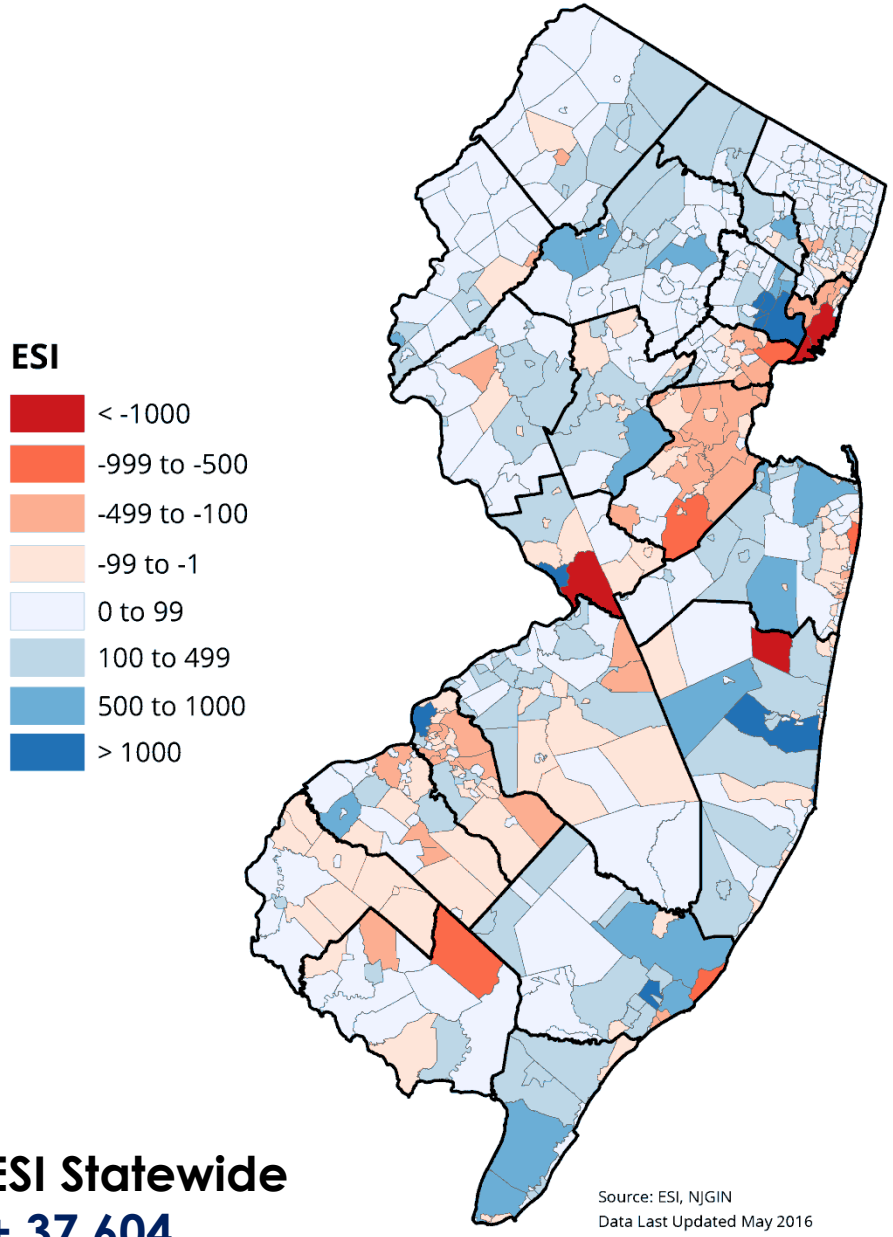
FSHC Model Compared to ESI Model

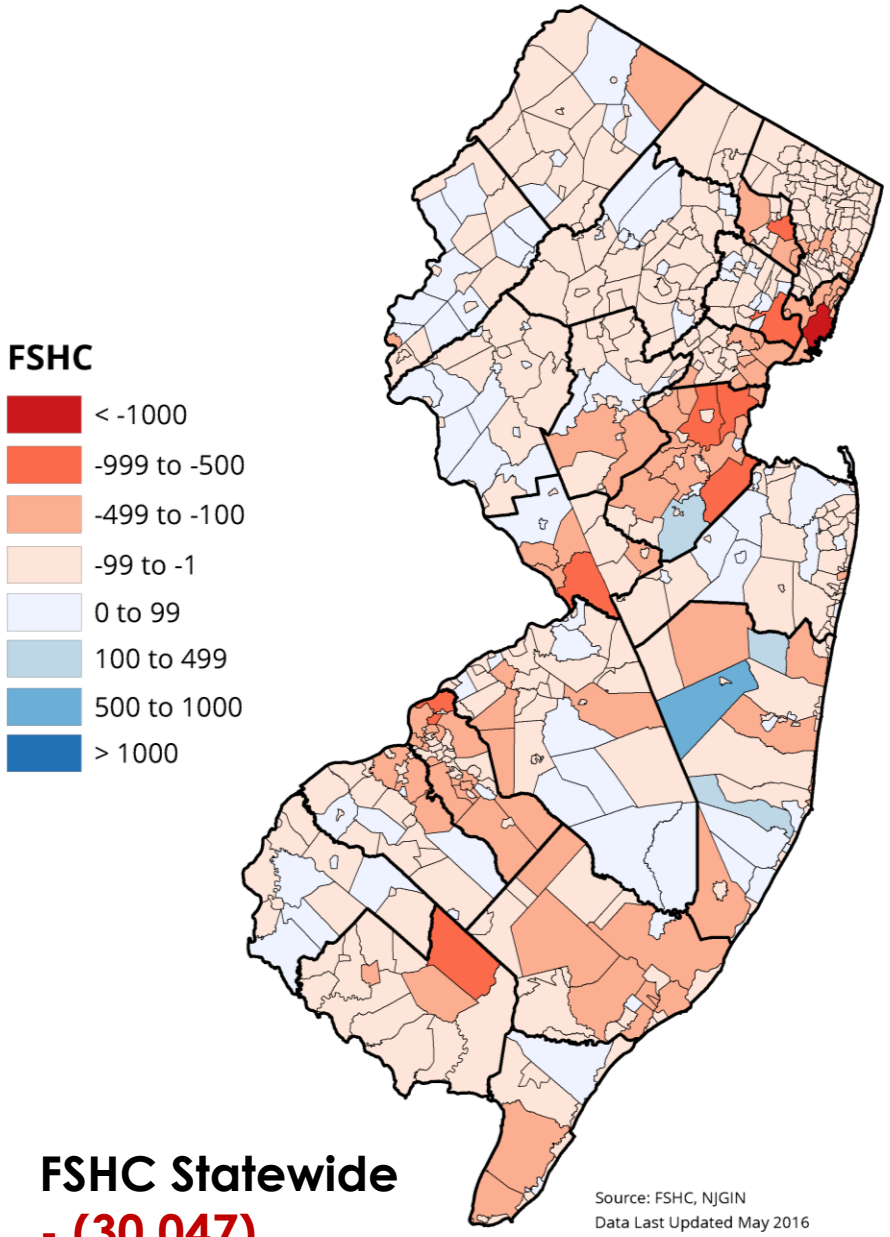
3. Estimate Filtering of Housing Stock (ch.6.3)

Model and Analysis

	FSHC Model	**ESI Model**
Owner Occupied Analysis	Step 1 – Calculate filtered transactions as a percent of all paired transactions. Step 2 - Apply percentage to housing units that have been moved in to/out of since 2000 to estimate 1999-2015 filtering. Step 3 – Pro-rate 1995-2015 estimate to forecast 2015-2025	Step 1 – Econometric model of relationships between filtering and community characteristics, for each municipality. Step 2 – Applied results to owner occupied forecast model
Renter Occupied Analysis	Step 1 – Determine occupied "affordable" rental units, and use move in/out data to estimate 1999-2015 filtering. Step 2 – Pro-rate 1995-2015 estimate to forecast 2015-2025	Step 1 – Uses same model as owner-occupied Step 1. Step 2 – Applied results separately to rental units forecast model

New Supply from Filtering in New Jersey: ESI & FSHC

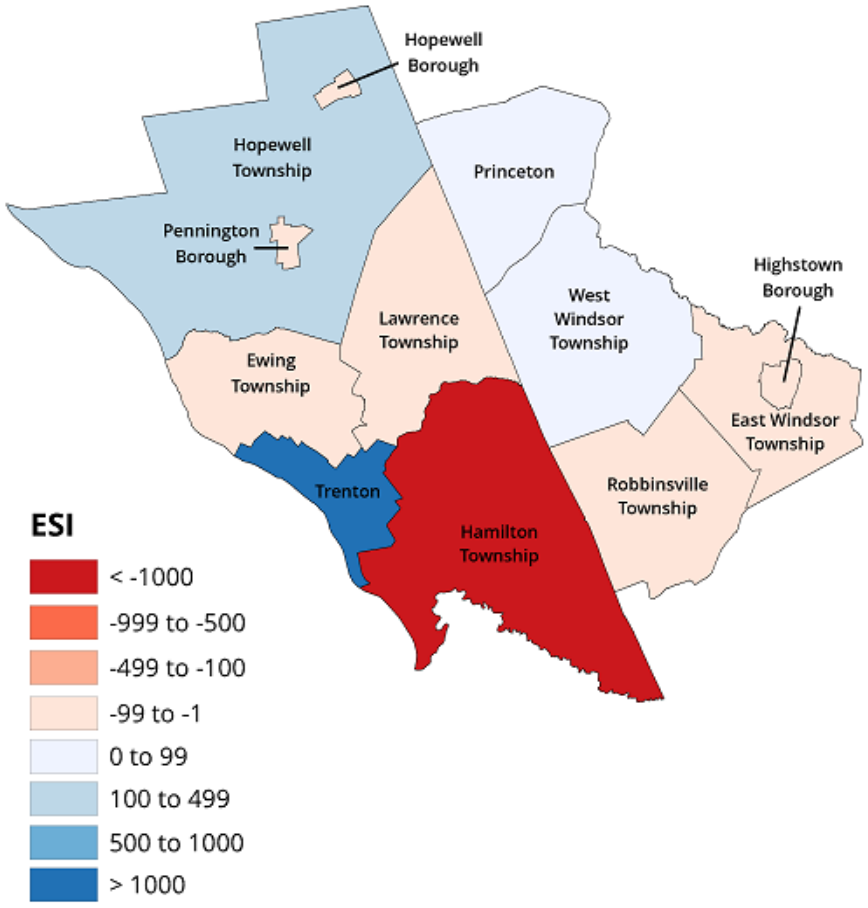




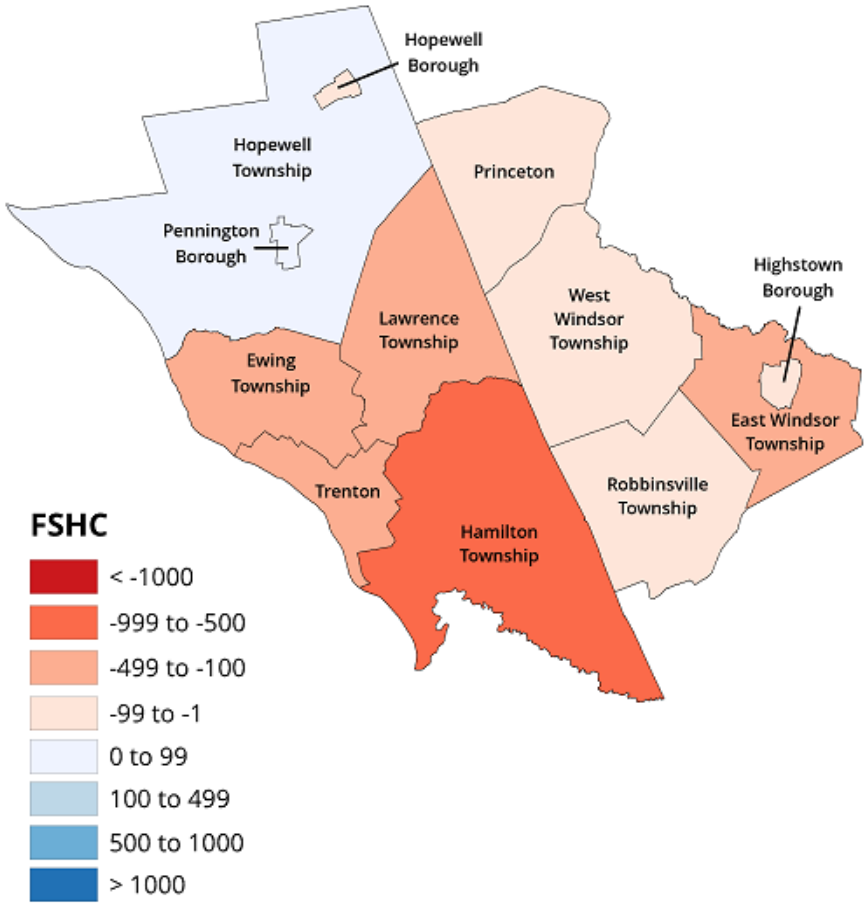
ESI Statewide
+ 37,604

FSHC Statewide
- (30,047)

New Supply from Filtering in Mercer County: ESI & FSHC



Source: ESI, NJGIN
Data Last Updated May 2016



Source: FSHC, NJGIN
Data Last Updated May 2016

ESI Mercer County
-(69) units

FSHC Mercer County
-(1,855) units

Recap of Important Differences between Approaches

- Principal
- Occupancy
- Deteriorated Units
- Data Accuracy
- Model and Analysis

Detail on Important Differences between Approaches

- Principal – ESI model does not treat principal as a housing cost
  - Owner keeps principal – enforced saving
  - Rental model equivalence requires no principal
  - Other conservative assumptions limit filtering
  - Supported in the literature. For example:
    - Robert Gillingham, "Measuring the Cost of Shelter for Homeowners: Theoretical and Empirical Considerations." *Review of Economics and Statistics*, 1983, Vol. 65, No. 2, pp. 254-65.
    - Garner, Thesia I., and Randal Verbrugge. "Reconciling user costs and rental equivalence: Evidence from the US consumer expenditure survey." *Journal of Housing Economics* 18, no. 3 (2009): 172-192

Detail on Important Differences between Approaches

- Occupancy – ESI model does not require unit to be occupied by a LMI household
  - Unit was by definition available.
  - Requiring occupancy artificially limits filtering
  - Transaction data has a rational basis
  - Data on the market value of properties is more relevant than county-wide survey estimates of income and occupancy

3. Estimate Filtering of Housing Stock (ch.6.3)

Detail on Important Differences between Approaches

- Deteriorated Units – Sample of real estate transactions should not be reduced for "deteriorated units"
  - Transactions in real estate market receiving mortgages are not likely to be significantly deteriorated.
  - Rental units being occupied are not likely to be significantly deteriorated
  - Deterioration beyond sound condition most likely to happen after the point of filtering

Detail on Important Differences between Approaches

- Data Accuracy – The manner in which ACS is used is problematic for owner-occupied and renter-occupied analysis
  - 2000 ACS PUMS data on rents cannot be directly compared to ACS PUMS data after 2004
  - ACS data is analyzed at the county level and shared down to municipality. This creates serious issues between urban and suburban municipalities.
  - The statistical accuracy of applying data cross-sections (occupancy, income, deterioration, etc.) at extremely small geographies (municipalities, which are not covered by the ACS PUMS) is problematic.

Detail on Important Differences between Approaches

- Model and analysis– FSHC makes no attempt to estimate or project conditions over the 2015 – 2025 period
  - FSHC prorates the exact operation of the housing market from 2000 – 2014 over the 2015-2025 period
  - Not modeling the dynamic housing market directly defies Appellate Division decision
  - Prorating the 2000-2014 implies the same severe housing crisis just observed will happen again over the next 10 years.

Filtering Summary

3. Estimate Filtering of Housing Stock (ch.6.3)

Summary

- Filtering is a critical supplier of housing affordable to LMI households
- Theory, data, experience point to downward filtering
- ESI's model is credible
  - The data used has a rational basis: it is current
  - The method has a rational basis: it accounts for the dynamics of the marketplace
  - The number generated by the formula is reasonably based
- FSHC's model is not credible
  - It is contrary to what COAH did in Rounds 1 and 2
  - Results are contrary to the literature
  - It does not take into account the dynamics of the marketplace

Secondary Sources: Consistency with Prior Round

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

- ESI's secondary source calculations are consistent with COAH's annualized secondary source projections

	Round 1	Round 2	Unadopted Rd 3	ESI	Kinsey/ FSHC	Reading Recommend
Projection Period	1987-1993	1993-1999	2014-2024	2015-2025	2015-2025	2015-2025
Years	6	6	10	10	10	10
Filtering	51,004	20,185	24,925	37,604	(30,047)	0
Annualized	*8,501*	*3,364*	*2,493*	*3,760*	*(3,005)*	*0*
Demolitions	(13,367)	(8,037)	(9,974)	(18,653)	(19,262)	(18,653)
Annualized	*(2,228)*	*(1,340)*	*(997)*	*(1,865)*	*(1,926)*	*(1,865)*
Conversions	12,102	8,143	6,790	11,662	(2,068)	11,662
Annualized	*2,017*	*1,357*	*679*	*1,166*	*(207)*	*1,166*
Spontaneous Rehab	4,520	2,116	--	--	--	--
Annualized	*753*	*353*	--	--	--	--
Net Supply Change	**54,259**	**22,407**	**21,741**	**30,613**	**(51,377)**	**(6,991)**
Annualized	***9,043***	***3,735***	***2,174***	***3,061***	***(5,138)***	***(699)***

ESI Secondary Source Allocation Approach

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

ESI Approach

- Sources of market-based supply changes are estimated:
  - Demolitions, Residential Conversions, Filtering
- The net effect may increase or decrease need for a given municipality
- Adjustment is made to Present Need and Prospective Need
  - Similar to the Round 2 methodology

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

- Regional effects from secondary sources should match aggregate municipal effects from secondary sources

Regional:	**Present Need$_r$**	**+**	**Prospective Need$_r$**	**±**	**Secondary Sources$_r$**	**=**	**Need$_r$**
Municipalities:	**Present Need$_{m1}$**	**+**	**Prospective Need$_{m1}$**	**±**	**Secondary Sources$_{m1}$**	**=**	**Need$_{m1}$**
+	**Present Need$_{m2}$**	**+**	**Prospective Need$_{m2}$**	**±**	**Secondary Sources$_{m2}$**	**=**	**Need$_{m2}$**
+	**Present Need$_{m3}$**	**+**	**Prospective Need$_{m3}$**	**±**	**Secondary Sources$_{m3}$**	**=**	**Need$_{m3}$**
+	⋮						
+	**Present Need$_{mx}$**	**+**	**Prospective Need$_{mx}$**	**±**	**Secondary Sources$_{mx}$**	**=**	**Need$_{mx}$**
Total:	**Present Need$_r$**	**+**	**Prospective Need$_r$**	**±**	**Secondary Sources$_r$**	**=**	**Need$_r$**

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

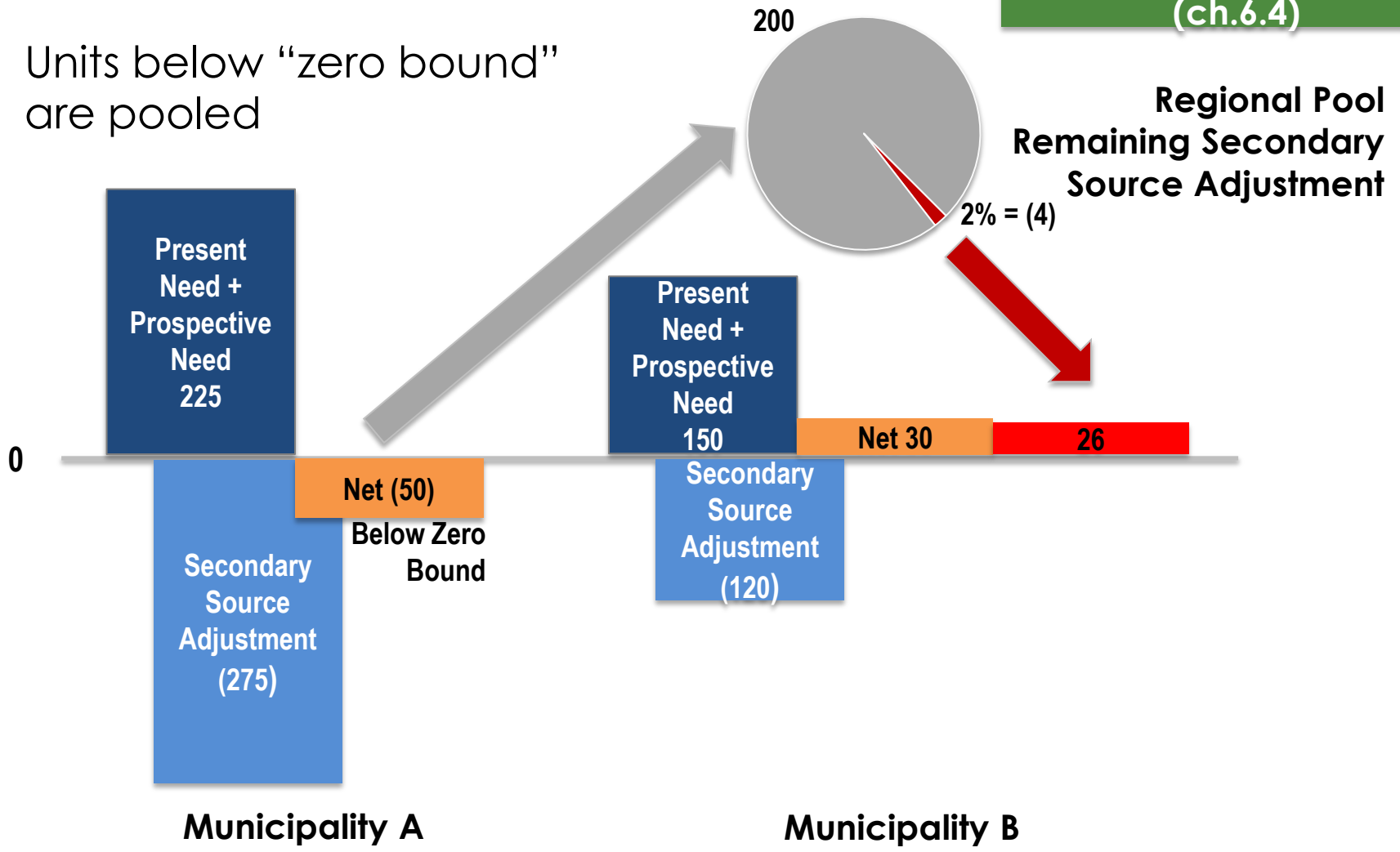
- Excess secondary sources in a municipality can be lost to the region absent a mechanism to capture them

- ESI method creates a regional re-allocation pool to capture units of anticipated supply
  - Example: Present + Prospective Need = 225 units
  - Net Secondary Sources: 275 units of supply
  - Adjusted Municipal Obligation = 0
  - Excess = 50 units

- What happens to these units?
  - These units are supply to fill the demand generated in the region
  - These units are lost unless there is a mechanism for assigning them
  - Round 2 assigned them to the Prior Round need for a municipality
    - Round 2 method can still result in lost units
  - ESI method: Aggregate Municipal Obligation = Regional Need

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

- Units below "zero bound" are pooled



Aggregate Secondary Source Adjustments

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

Secondary Source Adjustments to Present Need and Prospective Need

Region	Present Need	Allocated Prospective Need	LMI Demo-litions	LMI Conver-sions	Net Filtering	Secondary Sources Net Supply	Adjusted Present Need	Adjusted Prospective Need	Aggregate Need Adjustment
1	25,808	17,928	(3,788)	3,139	2,269	1,620	23,292	18,822	(1,622)
2	19,332	12,345	(3,771)	2,833	17,372	16,434	9,190	6,056	(16,431)
3	6,095	8,784	(1,189)	2,451	123	1,385	5,188	8,307	(1,384)
4	7,195	7,427	(4,168)	2,025	7,777	5,634	4,409	4,577	(5,636)
5	3,284	7,245	(1,937)	99	3,464	1,626	2,309	6,593	(1,627)
6	3,320	393	(3,800)	1,115	6,599	3,914	0	0	(3,713)
State	**65,034**	**54,122**	**(18,653)**	**11,662**	**37,604**	**30,613**	**44,388**	**44,355**	**(30,413)**

Relevance of Zero-Bound Adjustment

4. Allocate Net Secondary Source Effects to Municipalities (ch.6.4)

- Absent zero bound adjustment, aggregate municipal adjustment does not accurately reflect housing market impacts
    - In aggregate, secondary sources at the municipal level increase rather than decrease regional need absent this step because units below zero in a municipality are "lost" from the regional housing supply
- An alternate approach is to follow the Round 2 method of applying secondary sources to prior round obligation

Methodology Steps

- **Prior Round Obligation**
- **Define the Regions (ch.2)**
- **Present Need (2015) (ch.3)**
  - Measures of Deficiency
  - Account for overlap
  - Extrapolate to July 1, 2015 = Present Need
- **Prospective Need (2015-2025) (ch.4)**
  - Population forecast
  - Household forecast
  - LMI households
  - Eligible LMI Households (Asset Test) = Prospective Need
- **Allocate Prospective Need to Municipalities (ch.5)**
  - Responsibility factors
  - Capacity factors
  - Averaged share = municipal share of region
- **Secondary Sources (ch.6)**
  - Demolitions
  - Residential Conversions
  - Filtering
  - Net impact → Assignment to municipalities

→ **Allocation caps (ch.7)**
  - 20% Cap
  - 1,000 unit cap

= Municipal Obligation

Assign Municipal Housing Obligations (ch.7)

1. Categories of Affordable Housing Need (ch.7.1)

2. Prior Round vs. Gap Period Obligations (ch.7.2)

3. Reconciling Prior Round Obligation (ch.7.3)

4. 20% Cap (ch.7.4.1)

5. 1,000 Unit Cap (ch.7.4.2)

6. Initial Summary Obligations (ch.7.5)

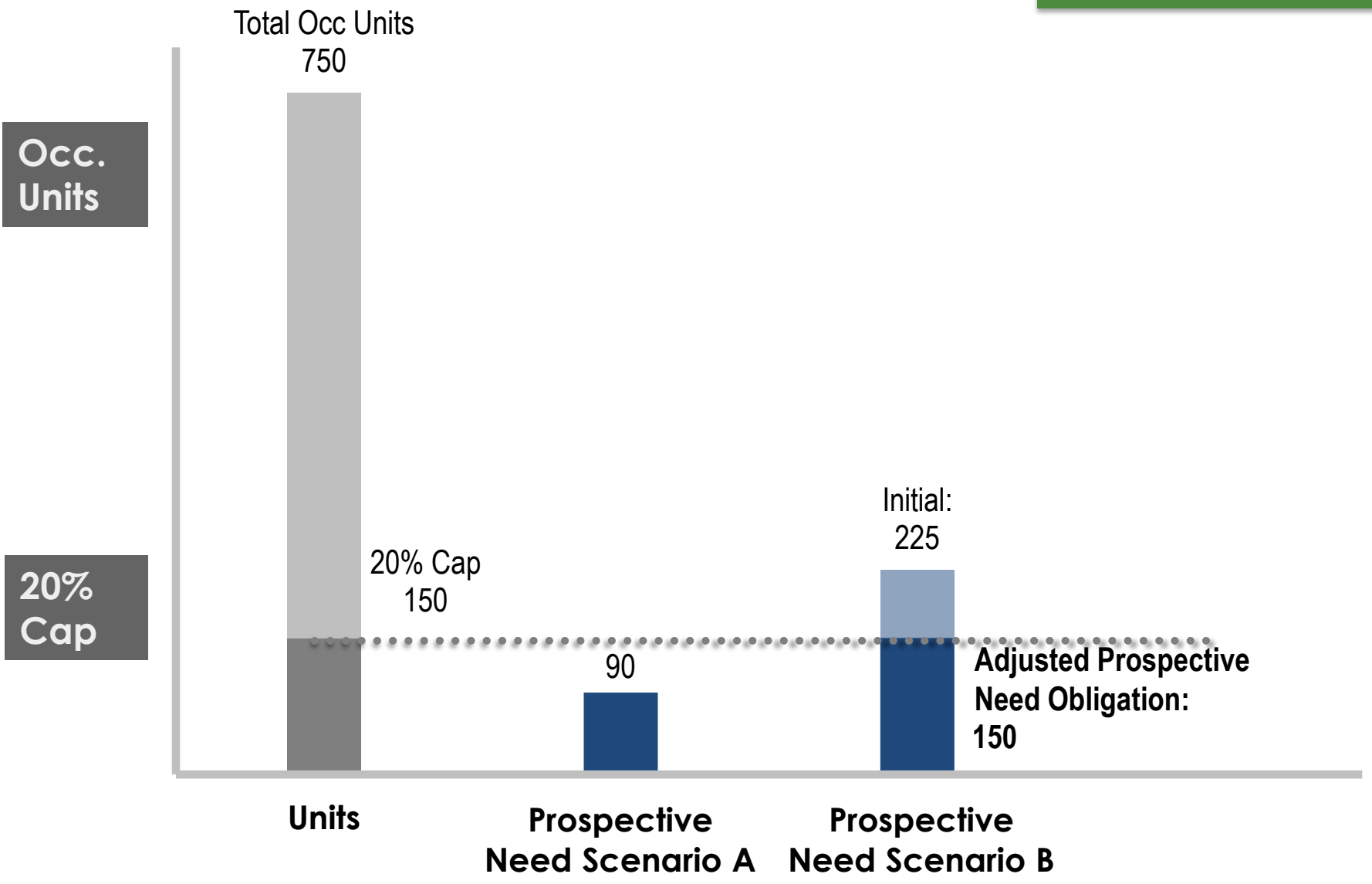
Municipal Allocation Caps

- The **20% cap** applies to "new construction" need (i.e. Prospective Need) and was included in both the Round 1 and Round 2 methodologies
    - Implements the Legislature's desire to avoid fair share obligations resulting in "the established pattern of development in a community (being) drastically altered" (FHA 307c.2(b)).
- The **1,000 unit cap** applies to a municipality's "fair share of housing units" (i.e. both Present and Prospective Need).
    - Enshrined legislatively to Section 307 e of the Fair Housing Act in 1993 after it was invalidated as part of the Round 1 rules by the Appellate Court in 1990

      "no municipality shall be required to address a fair share of housing units…beyond 1,000 within ten years." (FHA 307e.)

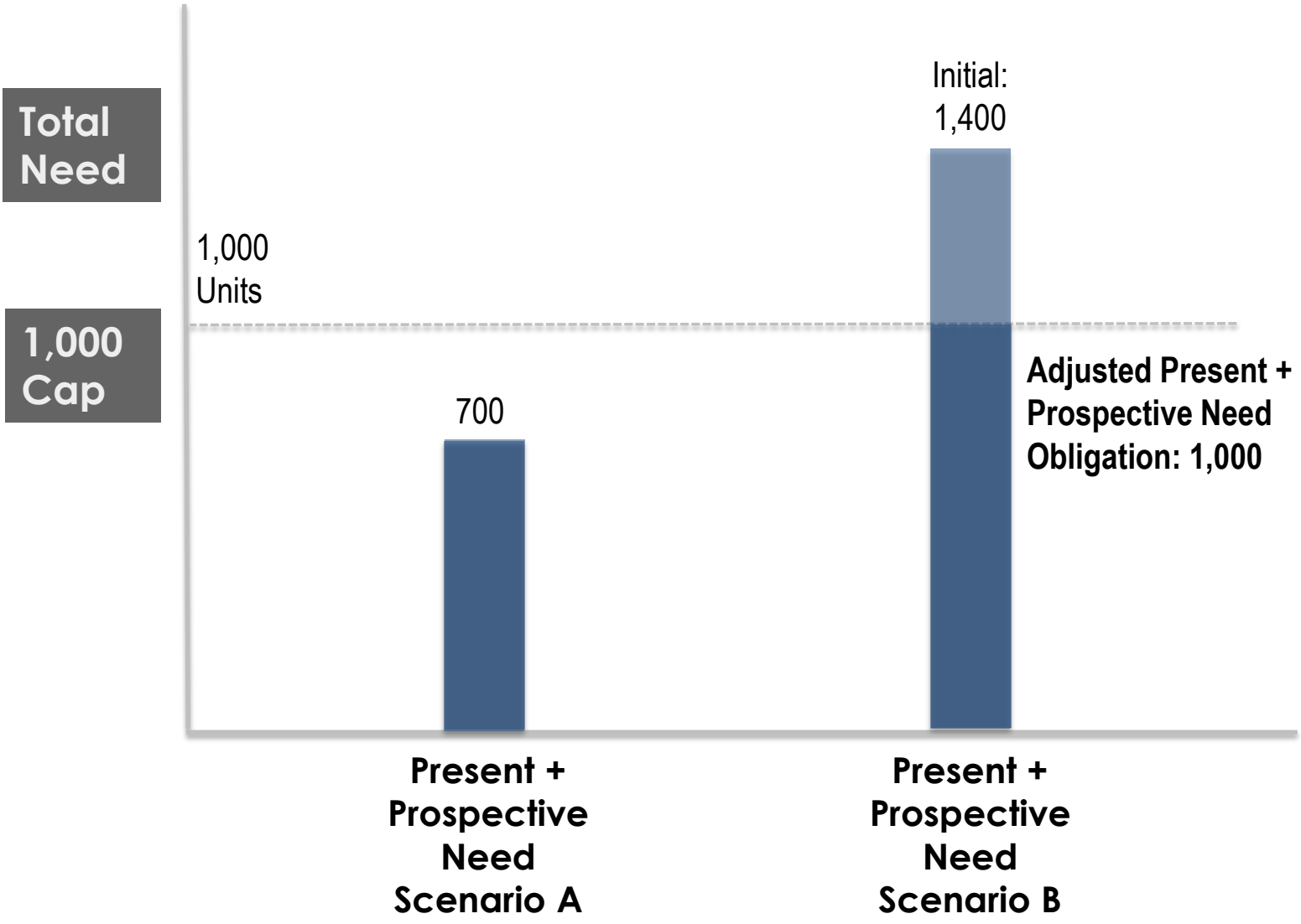
20% Cap: Example

4. 20% Cap (ch.7.4.1)



1,000 Unit Cap: Example

5. 1,000 Unit Cap (ch.7.4.2)



COAH Round 2 Comment on Reallocation of capped units

COMMENT: Because some of the ***municipal need will be reduced*** during the adjustment process, the Council should ***reallocate the adjusted need*** and/or inflate the original fair share allocation.

RESPONSE: It would be most difficult to fairly ***reallocate adjusted need***. The Council has determined not to inflate the ***original need estimate*** of all municipalities to compensate for potential downward adjustments on some towns. ***Such a practice would be inconsistent with the municipal obligation to provide [a realistic] opportunity to meet its fair share and would compel municipalities to bear an additional obligation beyond its own fair share.***

- Source: 18 N.J.R 1529 (emphasis added)

Calculate Summary Obligations

6. Initial Summary Obligations (ch.7.5)

Initial Summary Obligations

Region	Prior Round (87-99) Initial Obligation (unadjusted)	Capped Present Need	Capped Prospective Need	Initial Summary Obligation
1	12,469	17,273	17,039	46,781
2	9,382	6,182	6,074	21,638
3	13,323	5,585	7,820	26,728
4	27,367	4,552	4,356	36,275
5	14,055	2,481	6,628	23,164
6	9,257	0	0	9,257
State	**85,853**	**36,073**	**41,917**	**163,843**
Mercer	4,924	1,051	1,527	7,502

Mercer County Obligations by Municipality

Municipality	Prior Round (87-99)	Capped Present Need	Capped Prospective Need	Initial Summary Obligation
East Windsor township	367	57	90	514
Ewing township	481	115	262	858
Hamilton township	706	484	516	1,706
Hightstown borough	45	37	0	82
Hopewell borough	29	16	21	66
Hopewell township	520	0	201	721
Lawrence township	891	53	128	1,072
Pennington borough	52	59	0	111
Princeton	641	80	159	880
Robbinsville township	293	18	101	412
Trenton city	0	0	0	0
West Windsor township	899	132	49	1,080
Total	**4,924**	**1,051**	**1,527**	**7,502**

Summary of Updates to Prior Round Methodologies

ESI Updates to Round 2 Methodology
Present Need

Methodology Step	Change From Round 2	Impact on Obligation
Measures of Housing Deficiency (3.1)	Three measures utilized (from COAH 2004 methodology) rather than seven (explicitly sanctioned by Mt. Laurel IV). ACS data utilized	Unknown
Unique Deficient Units (3.2)	Overlap estimated for each combination of deficiency, using municipal data to the greatest extent possible. ACS data utilized	Increase
LMI Proportion (3.3)	ACS data utilized	Unknown
Extrapolation of Present Need to 2015 (3.4)	Extrapolation method not used in Prior Round	Increase

ESI Updates to Round 2 Methodology
Regional Prospective Need

Methodology Step	Change From Round 2	Impact on Obligation
Population Projections (4.2)	Population distribution based on Economic Demographic model only (not Historical Migration or Rutgers models)	None
Population in HH (4.2.1)	Combination of Census and ACS data utilized, trend applied to group quarters rate	Increase
Headship Rate (4.3)	Combination of Census and ACS data utilized	Decrease
LMI Proportion/Definition (4.4)	Defined and calculated based on ACS data by HH size	Decrease
Asset Test (4.5)	Asset test calculated	Decrease
Regional Re-Allocation Under 65 HH (4.6)	Did not re-allocate (following Rd 1 methodology)	None

ESI Updates to Round 2 Methodology
Municipal Allocation of Regional Prospective Need

Methodology Step	Change From Round 2	Impact on Obligation
Urban Aid Qualification (5.1)	ACS data utilized	None
Employment (5.2)	Factors for both level and change in employment (following Rd 1 methodology) Replace non-residential ratables surrogate with employment data from LEHD	None
Income Differences (5.3)	Usage of median and means for statistical soundness. ACS Data utilized	None
Developable Land (5.3)	Utilized tax assessment data as basis for determining developable land Added weights for Highlands municipalities	None

ESI Updates to Round 2 Methodology
Secondary Sources and Allocation Assignment

Methodology Step	Change From Round 2	Impact on Obligation
Demolitions (6.1)	Account for demolitions of vacant and deteriorated using HUD data. Adjustment for impact of Hurricane Sandy on data	Varies by Region
Conversions (6.2)	Utilize COs rather than building permits for construction activity. ACS Data utilized	Decrease
Filtering (6.3)	Updated model and data	Unknown
Spontaneous Rehabilitation	Not included in ESI methodology	Increase
Prior Round Obligation (7.2)	Updated 1994 Round 2 obligations (from DCA)	N/A
20% Cap (7.4)	Utilized ACS data, extrapolated to 2015 using demolitions and COs	Unknown
1,000 Unit Cap (7.4)	No Update	None

Kinsey/FSHC Updates to Round 2 Methodology
Present Need

Methodology Step	Change From Round 2	Impact on Obligation
Measures of Housing Deficiency	Three measures utilized (from COAH 2004 methodology) rather than seven (explicitly sanctioned by Mt. Laurel IV). ACS data utilized	Unknown
Unique Deficient Units	ACS data utilized, overlap methodology updated	Increase
LMI Proportion	ACS data utilized	Unknown
Extrapolation of Present Need to 2015	Extrapolation method not used in Prior Round	Decrease

Kinsey/FSHC Updates to Round 2 Methodology
Regional Prospective Need

Methodology Step	Change From Round 2	Impact on Obligation
Population Projections (Step 3)	Utilizes only Economic-Demographic model	Increase
Population in HH (Step 4)	Combination of Census and ACS data utilized	Increase
Headship Rate (Step 5)	Combination of Census and ACS data utilized Replaces Headship rate trend with assumption	Increase
LMI Proportion (Step 6)	ACS data utilized	Unknown
Regional Re-Allocation Under 65 HH (Step 7)	Calculation not performed (no growth in under 65 HH)	N/A

Kinsey/FSHC Updates to Round 2 Methodology
Municipal Allocation of Regional Prospective Need

Methodology Step	Change From Round 2	Impact on Obligation
Urban Aid Qualification (Step 12)	ACS data utilized	None
Employment (Step 13)	Uses 25 years of growth (1990-2015) as proxy	None
Income Differences (Step 14)	Usage of median and means ACS Data utilized	None
Developable Land (Step 15)	Satellite data analysis from Rowan Added weights for Highlands municipalities	None

Kinsey/FSHC Updates to Round 2 Methodology
Secondary Sources and Allocation Assignment

Methodology Step	Change From Round 2	Impact on Obligation
Demolitions (Step 18)	Adjustments for Hurricane Sandy. ACS data utilized	Decrease
Conversions (Step 20)	Intercensal housing unit count utilized. ACS data utilized	Increase
Filtering (Step 19)	Updated model and data	Increase
Spontaneous Rehabilitation	Not included in FSHC methodology	Increase
Prior Round Obligation	1994 Round 2 Obligations	N/A
20% Cap	Utilized ACS data, extrapolated to 2015 using demolitions and building permits, adjusted for Sandy	Unknown
1,000 Unit Cap	Does not apply cap	N/A

Special Master Reading Recommendations

Special Master Reading Recommendations: Summary

Methodology Step	Special Master: Recommended Approach	Special Master: Analytically-Superior Approach
Present Need	ESI	ESI
Population Projections	FSHC	FSHC
Household Projections	FSHC	Not specified
LMI Proportion	ESI	ESI
Asset Test	FSHC	ESI
Urban Aid Qualification	FSHC	Not specified
Employment / Ratables	FSHC	ESI
Income Differences	FSHC	Not specified
Developable Land	FSHC	ESI
Demolitions	ESI	ESI
Conversions	ESI	ESI
Filtering	None	Not specified

Special Master Reading Recommendations
Present Need

Methodology Step	Recommend-ed Approach	Superior Approach	Special Master Comments
Present Need	ESI	ESI	The truncated cut-off date in the FSHC's calculation…is contrary to the procedures for determining housing deficiencies and undermines the reliability of the FSHC estimates

Special Master Reading Recommendations
Regional Prospective Need

Methodology Step	Recommend-ed Approach	Superior Approach	Special Master Comments
Population Projections	FSHC	FSHC	"The projected population increment with the "averaged" model is below the increment observed over the past fifteen years. Accordingly, the population projection based on the Economic-Demographic model used by the FSHC, along the with the accompanying constant headship rate recommendations, are recommended"
Household Projections	FSHC	Not specified	
LMI Proportion	ESI	ESI	"The determination of the LMI share by using actual household incomes undertaken by Econsult is a more accurate and reasonable methodology and is thus recommended"
Asset Test	FSHC	ESI	"An adjustment to account for older (65+) households with significant assets…would be appropriate but is not specifically authorized by the Prior Rounds and is therefore not recommended"

Special Master Reading Recommendations
Municipal Allocation of Regional Prospective Need

Methodology Step	Recommend-ed Approach	Superior Approach	Special Master Comments
Urban Aid Qualification	FSHC	Not specified	
Income Differences	FSHC	Not specified	
Employment	FSHC	ESI	"The greater potential accuracy of the employment based allocations as well as the property-based vacant land determinations used by Econsult would represent improvements over the use of the non-residential valuation as a proxy for employment as would the use of municipal property classifications compared to GIS surveys. These improvements, however, represent a deviation from the sources utilized in Round 2 and, thus are not recommended"
Developable Land	FSHC	ESI	

Special Master Reading Recommendations
Secondary Sources

Methodology Step	Recommend-ed Approach	Superior Approach	Special Master Comments
Demolitions	ESI	ESI	"The degree to which the procedures utilized by FSHC have achieved the objective of determining the number of demolitions of non-vacant, non-seasonal, non-deficient, recently occupied, occupied and affordable to LMI households is not readily apparent"
Conversions	ESI	ESI	"The use of certificates of occupancy…would be more accurate and is the recommended approach"
Filtering	None	Not specified	"There is no obvious consensus of even the direction of the impact of filtering and, absent a clear and convincing demonstration of their accuracy, it is recommended that filtering not be included"