



## AZ-SMART DATA – FACTORS AND METHODS – PART 1

Arizona’s Socioeconomic Modeling, Analysis, & Reporting Toolbox

MAG POPULATION AND TECHNICAL ADVISORY COMMITTEE – AD-HOC  
JUNE 26, 2012

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## AZ-SMART DATA – FACTORS AND METHODS PART 1

- AZ-SMART – New simulation model system
- Many familiar concepts and datasets
- Data, data sources, assumptions, methods used for base year database and the build-out analysis
- Part 2 (later): assumptions and methods involved in simulation

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## AZ-SMART DATA – FACTORS AND METHODS PART 1

#	Method/Dataset/Assumption	Information and Discussion or Approval
1	Official Geographies (TAZ, RAZ, MPA)	Information and Discussion
2	July 1, 2010 Base Population and Housing	Approval
3	July 1, 2010 Base Employment	Approval
4	Population and Employment Control Totals	Approval
5	Base and Build-out Classifications	Information and Discussion
6	Land-Use Datasets (EXLU, GPLU, Developments)	Information and Discussion
7	Population and Housing Projection Factors	Approval
8	Employment and Built-Space Projection Factors	Approval
9	Build-Out Analysis Methodology	Approval

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### 1. SOCIOECONOMIC PROJECTION GEOGRAPHIES

**Purpose:** AZ-SMART can aggregate projections to any geography, however, there are 3 geographies at which projections are approved.

- Socioeconomic projections released at various geographies:
  - TAZ 2012
  - RAZ 2012
  - 29 MPAs

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### 2. JULY 1, 2010 BASE POPULATION AND HOUSING – ASSEMBLE DATA AND GEOGRAPHY

**Purpose:** Create detailed tables containing individual households, persons, and housing units at a micro-level geography that match official totals at larger geographies

1. Micro-persons and households tables
2. PopGen requires Census totals at small geographies
3. Micro-persons and households must sum up to **Census Place**

**Problem:** Block Groups do not nest into Census Places, we created a new geography for PopGen

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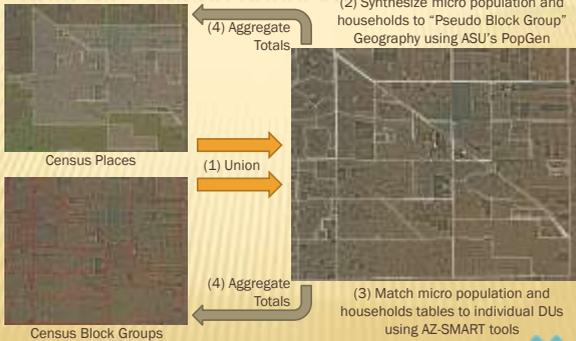
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### 2. JULY 1, 2010 BASE POPULATION AND HOUSING – MICRO POPULATION SYNTHESIS



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### 3. JULY 1, 2010 BASE EMPLOYMENT AND BUILT-SPACE

**Purpose: detailed tables containing individual jobs by NAICS categories and non-residential space at a micro-level geography that match official totals at larger geographies**

1. County level employment control totals
2. Adjust MAG Employer DB to match County controls
3. Match MAG employer points to non-residential built-space
4. Adjust built-space as necessary
5. Aggregate totals

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### 4. POPULATION AND EMPLOYMENT CONTROL TOTALS

**Purpose: AZ-SMART simulation requires annual control totals for the forecast horizon (2011-2040) of population and employment at the county-level for allocation to smaller geographies**

1. Population Control Totals – AZ State Demographer
  - Annual “cohort-component” model
2. Employment Control Totals – Moody’s Economy.com
  - Annual employment by NAICS and population
  - Adjust employment using population to employment factor

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### 5. AZ-SMART CLASSIFICATION TABLES

**Purpose: AZ-SMART requires many different systems of classification. Share with POPTAC the classification systems used in the base data development and build-out analysis.**

1. Built-Space Types (a.k.a. “building types”)
2. Employment Sectors – primarily 2 digit NAICS
  - Aggregations: Manufacturing 31-33, Retail Trade 44-45, Transportation and Warehousing 48-49
  - Dis-aggregations: Accommodation and Food Services (72) split in 2 (721 and 722), Public (92) split into Federal/State and Local

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## 6. LAND USE DATASETS

**Purpose:** AZ-SMART makes use of all of the standard MAG Land Use datasets: Existing, Developments, and General Plan Land Use.

1. Existing Land Use (EXLU)
2. General Plan Land Use (GPLU)
3. Developments (Devs)

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## 7. METHODS AND FACTORS: POPULATION AND HOUSING PROJECTIONS

**Purpose:** To produce projections of population and housing, AZ-SMART requires a variety of assumptions and factors concerning densities, persons per household, vacancy rates, etc.

1. Density Factors
2. Persons Per Household (PPHH)
3. Vacancy Rates
4. County-Wide Single-Family vs. Multi-Family Proportions
5. Age Restricted Communities

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## 8. METHODS AND FACTORS: EMPLOYMENT AND NON-RESIDENTIAL BUILT-SPACE PROJECTIONS

**Purpose:** To produce projections of employment and non-residential space, AZ-SMART requires a variety of assumptions and factors concerning employment densities, floor to area ratios, vacancy rates, etc.

1. Employment Density
2. Non-Residential Vacancy Rates
  - Data preparation, build-out, and simulation
  - COSTAR historical data

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## 9. BUILD-OUT ANALYSIS METHODOLOGY

**Purpose:** MAG Staff conducted a build-out analysis to examine the implications of each of the datasets that feed the simulation model.

□ **Population and Housing Build-Out:**

1. MAG 2010 built space DB to TAZ and to allocate as base.
2. General Plan for undeveloped, unplanned land
3. Planned developments: use the unit count if available.
4. Assume 100% occupancy then use PPHH table for population

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## 9. BUILD-OUT ANALYSIS METHODOLOGY

□ **Employment Build-out Analysis**

1. MAG 2010 employer database to TAZ as base.
2. Developable acres from the General Plan and Developments:
3. Build-out employment: developable acres \* FAR \* sqft per employee
4. Aggregate employment by land use to TAZ.

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# QUESTIONS?

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