AZ-SMART DATA – FACTORS AND METHODS – PART 2: SPECIAL POPULATIONS

Arizona's Socioeconomic Modeling, Analysis, & Reporting Toolbox

MAG POPULATION AND TECHNICAL ADVISORY COMMITTEE - ADHOC

AUGUST 28, 2012

AZ-SMART DATA – FACTORS AND METHODS PART 2

- AZ-SMART – New simulation model system
- Many familiar concepts and datasets
  - Special Populations
- Data, data sources, assumptions, methods used to project special populations for the travel model
- Part 3 (later): more assumptions and methods involved in simulation

AZ-SMART DATA – FACTORS AND METHODS PART 2

#	Method/Dataset/Assumption	Information and Discussion or Approval
1	Airport Originations	Approval
2	School Enrollment	Approval
3	Group Quarters Populations	Approval
4	Transient Population	Approval
5	Seasonal Population	Approval

AIRPORT ORIGINATIONS

- **Definition**: average daily originations for the transportation model
- **Categories**: Sky Harbor, Phoenix-Mesa Gateway
- **Base Year Data**: from airport master plan updates
- **Projections**: from airport master plan updates
  - Sky Harbor: daily enplanements converted to daily originations (used previously recommended factor of 0.6)
  - Phoenix-Mesa Gateway: annual originations converted to daily originations (0.00274 or 1/365)

SCHOOL ENROLLMENT – "TOP DOWN" METHODOLOGY

- Definition: Population enrolled in school, primary activity is a student
- Categories: K-12, Post High School
- Base Year Data: use participation rates by age cohort for population
- Projections: same as base year
  - Apply participation rates by age cohort
  - Allocate to school locations

GROUP QUARTERS POPULATIONS

- Definition: residents not living in households
- Categories: Military, Prisons/Jails, College Dormitories, Nursing Homes, Other
- Base Year Data: from the 2010 Census
- Projections: mostly calculated as a percentage of a particular age cohort of the total population projection
  - Military group quarters: Held constant @927
  - Prison and Jail: 1.4 to 1.8% of the age cohort 20 - 44
  - College dormitory: 11% of the age cohort 18 - 19
  - Nursing home: 3.9 to 3.732% of the age cohort 75+
  - Other (e.g. group homes): 0.3% of the entire population

TRANSIENT POPULATION

- Definition: residents of the region for less than 2 weeks, average daily overnight visitors
- Categories: Hotels/Motels/Resorts, Single/Multi-Family Housing
- Base Year Data: AZ Office of Tourism (AOT) average annual visitors: 14 million
- Projections: Tourism correlated with Food Services, Leisure, and Hospitality Employment
  - See next slide

TRANSIENT POPULATION – PROJECTIONS

- Project Annual Visitors for 2015:
  - (Emp in 2015 / Emp in 2010) * 2010 annual visitation
  - (234,002 / 215,662) * 14,000,000
  - 15,190,567 annual visitors in 2015
- (Annual Visitors in 2015) / 365 * Average Length of Stay (AOT)
  - (15,190,567) / 365 * 3.5
  - 145,663 Average Nightly Visitors in 2015
- Split Average Nightly Visitors by type:
  - Population In Hotels = 145,663 * 63% (AOT) = 91,768
  - Population In Other = 145,663 * 37% (AOT) = 53,895
- Calculate "households" = Pop / Average Party Size from AOT

SEASONAL POPULATION

- **Definition**: residents of the region for 2 weeks to 6 months of the year
- **Categories**: Single/Multi-Family Housing, Mobile Homes, Recreational Vehicle Parks
- **Base Year Data**: #DUs (by type) * Seasonal Vacancy rate (by type) = Seasonal HH * 1.9 PPHH
- **Projections**: same as base, with projected data, see next slide

SEASONAL POPULATION – PROJECTIONS

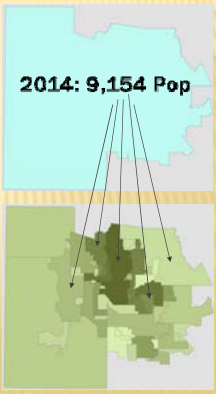
- #HHs = Total Pop / Total PPHH
  - 5000 / 2.67 = 1873 HHs
- #DUs = #HHs / (1 – VR)
  - 1873/(1–.093) = 2065 DUs
- #DUs by type =
  - 2065 – 150 = 1915
  - MHs held constant from base
    - MHs (constant) = 150
  - SFRDUs = #DU * %SFR
    - 1915 * 73.81% = 1413
  - MFRDUs = #DU * %MFR
    - 1915 * 26.19% = 502
- # Seasonal DUs by type =
  - #MHs * MHVR
    - 150 * 12.82% = 19
  - #SFRDUs * SFRVR
    - 1413 * 4.64% = 66
  - #MFRDUs * MFRVR
    - 502 * 2.57% = 13

SEASONAL POPULATION – PROJECTIONS

- # Seasonal DUs by type =
  - #MHs * MHVR
    - 150 * 12.82% = 19
  - #SFRDUs * SFRVR
    - 1413 * 4.64% = 66
  - #MFRDUs * MFRVR
    - 502 * 2.57% = 13
- # Seasonal HHs by type = Seasonal DUs (100% occupied)
- Seasonal Population by type =
  - #MHs * Seas PPHH (1.9)
    - 19 * 1.9 = 36
  - #SFRDUs * Seas PPHH (1.9)
    - 66 * 1.9 = 125
  - #MFRDUs = Seas PPHH (1.9)
    - 13 * 1.9 = 25

SPECIAL POPULATION ALLOCATION MODEL EXAMPLE

- **Data inputs:**
  - forecast of total nursing home population for every year of the forecast period
  - number of nursing home beds and by City
- Proportionally allocate the total number of nursing home population to each City based on the number of nursing home beds in the City
- The model can constrain the allocation by taking into account a capacity



SPECIAL POPULATION ALLOCATION MODEL EXAMPLE - CONTINUED

City Name	# Beds	% of Beds	Allocation
A	675	34.2%	3136
B	320	16.2%	1486
C	216	10.9%	1003
D	242	12.2%	1124
E	158	8.0%	734
F	301	15.2%	1398
G	58	2.9%	269
Total	1970	100%	9154

QUESTIONS?

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