

June 19, 2012

TO: Members of the MAG Population Technical Advisory Committee

FROM: Charlie McClendon, Avondale, Chair

SUBJECT: TRANSMITTAL OF MEETING NOTICE AND TENTATIVE AGENDA

Tuesday, June 26, 2012 - **10:00 a.m.**
MAG Office, Second Floor, **Chaparral Room**
302 North 1st Avenue, Phoenix

A meeting of the MAG Population Technical Advisory Committee (POPTAC) will be held at the time and place noted above.

Members of the POPTAC may attend either in person or by telephone conference. If you are attending via audioconference please contact Steve Gross at (602) 254-6300 at least one day prior to the meeting.

If you drive to the meeting, please park in the garage under the building and bring your ticket to the meeting; parking will be validated. For those using transit, the Regional Public Transportation Authority will provide transit tickets for your trip. For those using bicycles, please lock your bicycle in the bike rack in the garage.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Scott Wilken at the MAG office. Requests should be made as early as possible to allow time to arrange the accommodation.

Please be advised that under procedures approved by the MAG Regional Council on June 26, 1996, all MAG committees need to have a quorum to conduct business. A quorum is a simple majority of the membership or 14 people for the MAG POPTAC. If you are unable to attend the meeting, please make arrangements for a proxy from your jurisdiction with Steve Gross at (602) 254-6300.

TENTATIVE AGENDA
MAG Population Technical Advisory Committee
June 26, 2012

1. Call to Order

2. Call to the Audience

An opportunity will be provided to members of the public to address the MAG POPTAC on items not scheduled on the agenda that fall under the jurisdiction of MAG, or on items on the agenda for discussion but not for action. Members of the public will be requested to limit their comments to three minutes. A total of 15 minutes will be provided for this agenda item, unless the Chair of the POPTAC provides for an exception to this limit. Those wishing to comment on action agenda items will be given an opportunity at the time the item is heard.

3. Approval of Meeting Minutes of April 24, 2012

4. State Demographer's Office Update

The Council of Technical Solutions, authorized by Executive Order 2011-04 and staffed by the Arizona Department of Administration, meets every month to discuss technical issues as related to population data, methods and processes for the State of Arizona. An update on current activities will be provided.

5. Assumptions for MAG Socioeconomic Projections

The MAG Socioeconomic projections are based on model assumptions. These assumptions and methods are essential to the AZ-SMART model system and include, but are not limited to: geography used, base and build out housing, population, and employment, occupancy rates and persons

2. For information.

3. For information, discussion and approval of the minutes of April 24, 2012.

4. For information and discussion.

5. For information, discussion and possible action to approve the assumptions for the preparation of the 2012 MAG Socioeconomic Projections.

per household, multiple use land use, single family/multi-family splits, work-at-home, floor area ratios and employment density, and residential development density, cluster size and velocity curves. The MAG POPTAC will be requested to recommend approval of the assumptions. Please see Attachment One.

6. Data Collection, Review and Presentation

Ongoing data collection efforts include land use information such as General Plan amendments and development projects. The land use data collected are used in preparing socioeconomic projections and conducting regional analyses. A schedule for the collection of data for 2012 is included in Attachment Two.

Currently under review with the member agencies are the MAG point database, which includes Apartments, Mobile Home/RV Parks, and Group Quarters. Member agencies should have received spreadsheets listing these features in their respective jurisdictions. Please note any corrections to the data and return it to Peter Burnett. We are asking for your review by Friday June 29th. If you have not received the data for review, or would like to receive a shapefile or digital map in lieu of a spreadsheet, please contact Peter Burnett at (602) 254-6300.

Upcoming data review activities includes a review of the Building and Landmark Inventory (BLI). The BLI is a collection of point data that encompasses notable locations in Maricopa County. The review of the BLI will be conducted by way of an interactive map viewer. MAG staff will provide an update.

6. For information and discussion.

7. Queen Creek Recent Projects

Dave Williams, Senior Planner for the Town of Queen Creek will give a presentation about recent solar projects in the town, the proposed Church Farms development, and the town's use of social media. See Attachment Three.

8. Regional Updates

MAG POPTAC members and MAG staff will have the opportunity to provide an update on development within their jurisdiction, amendments to general plans and any special projects.

9. Next Meeting of MAG POPTAC

Please note that the **July meeting** of the MAG POPTAC will be **cancelled**. The next meeting is scheduled for Tuesday August 28, 2012 at 10:00 a.m.

7. For information and discussion.

8. For information and discussion.

MINUTES OF THE
MARICOPA ASSOCIATION OF GOVERNMENTS
POPULATION TECHNICAL ADVISORY COMMITTEE

April 24, 2012
MAG Offices, Chaparral Room
302 N. 1st Ave, Phoenix

MEMBERS IN ATTENDANCE

Charlie McClendon, Avondale
A-Tracy Clark, ADOT
*Bryant Powell, Apache Junction
A-Andrea Marquez, Buckeye
*DJ Stapley, Carefree
*Usama Abujbarah, Cave Creek
A-David de la Torre, Chandler
A-Mark Smith, El Mirage
*Ken Valverde, Fountain Hills
*Rick Buss, Gila Bend
Patrick Banger, Gilbert
Thomas Ritz, Glendale
Katie Wilken, Goodyear
*Gino Turrubiarres, Guadalupe

*Sonny Culbreth, Litchfield Park
A-John Verdugo for Matt Holm, Maricopa County
A-Wahid Alam, Mesa
*Molly Hood, Paradise Valley
A-Ed Boik, Peoria
Chris DePerro, Phoenix
*Dave Williams, Queen Creek
*Bryan Meyers, Salt River Pima-Maricopa Indian
Community
*Adam Yaron, Scottsdale
A-Lloyd Abrams, Surprise
A-Sherri Lesser for Lisa Collins, Tempe
*Anne McCracken, Valley Metro
*Diane Cordova, Youngtown

** Not in attendance*

A - Participated via audioconference

OTHERS IN ATTENDANCE

Max Enterline, Phoenix
Eric Morgan, Avondale
Tom Ruff, Information Market
Abhishek Dayal, Metro Light Rail
A-Linda Edwards, Gilbert
Scott Wilken, MAG

Jonathan Donie, MAG
Jami Garrison, MAG
Anubhav Bagley, MAG
Shannon Acevedo, MAG
Jason Howard, MAG
Steve Gross, MAG

1. Call to Order

The meeting was called to order at 10:09 am by Chair Charlie McClendon.

2. Call to the Audience

There were no comments.

3. Approval of the Meeting Minutes of February 28, 2012

Katie Wilken moved that the February 28, 2012 draft minutes be approved. Chris DePerro seconded the motion and the Committee unanimously approved the minutes of February 28, 2012.

4. Census Update

Jami Garrison gave an update on Census 2010. She said that on March 26, the Census Bureau released the Urban Areas boundaries. She said that Urbanized Areas have populations of 50,000 or more, and Urban Clusters have populations of at least 2,500 and fewer than 50,000, and both have minimum population density requirements. She provided some statistics about Urbanized Areas in the US: 81% of the US population, 90% of the Arizona population, and 96% of the Maricopa County population lives in an urban area. She said that the MAG region has two Urbanized Areas, the Phoenix-Mesa Urbanized Area and the Avondale-Goodyear Urbanized Area, and six Urban Clusters. She said that the Phoenix-Mesa Urbanized Area has the 12th largest population in the US, and the Avondale-Goodyear Urbanized Area was the second fastest growing in the US between 2000 and 2010.

Chris DePerro asked why the two Urbanized Areas in the region are separate. Jami Garrison said that the Census Bureau defines the criteria for what constitutes an Urbanized Area, and that the two areas were separate in 2000. She said that when the Census Bureau released the 2010 criteria for public comment, most of the comments were about splits like this. She said that staff had hoped that the two would be combined. She said that the Census Bureau could have changed the criteria to allow for Urbanized Areas like this to combine, but this could have created problems in other parts of the country, particularly on the east coast. She said that the final determination was that Urbanized Areas that were separate in 2000 would remain separate in 2010. Charlie McClendon added that the City of Avondale supported keeping the two Urbanized Areas separate, because Urbanized Areas with populations under 200,000 (such as Avondale-Goodyear) are allowed to use some federal transit money for overhead, while Urbanized Areas with populations larger than 200,000 can only use the money for capital.

Chris DePerro asked if the Urbanized Area boundary matches up with the metropolitan statistical area (MSA). Jami Garrison said that they are different. Anubhav Bagley said that the local MSA is all of Maricopa County and Pinal County. He said that Casa Grande is now an Urbanized Area with a population larger than 50,000, which makes that area eligible to become a Metropolitan Planning Organization (MPO).

Jami Garrison said that the Census Bureau would be releasing Summary File 2 (SF2) from the 2010 Census, and that this will include over 331 different race categories down to census tract.

5. State Demographer's Office Update

Jami Garrison gave an update on activities of the State Demographer's Office (SDO). She said that Jim Chang is the new State Demographer. She said that the SDO is now part of the Department of Administration, and MAG staff meets with them monthly at the Council for Technical Solutions (CTS). She said that the SDO will provide county control totals for socioeconomic projections by the end of the year, hopefully this summer.

Thomas Ritz said that the Census July 1, 2011 population figure for Maricopa County was roughly 3,880,000, while the MAG July 1, 2011 from the state was 3,843,000. He asked if there has been any discussion about why the Census numbers are coming in higher than the state numbers. Anubhav Bagley said that the two numbers were derived using very different methodologies. He said that the Census Bureau primarily uses residential building permits, while

the state uses residential completions, as well as births and deaths, school enrollment, and other factors. He said that this has been a trend in the past, and that POPTAC sometime in the future should look at ways to enhance the census numbers going forward.

6. 2012 Socioeconomic Projections

Anubhav Bagley gave an update on the 2012 Socioeconomic Projections. He said that staff is working on the model, and is waiting to get the final control total from the SDO. He said that on March 21, staff sent out a review copy of base 2010 population and employment and build-out population and employment. He said that staff met with some member agencies to get feedback, and have received a lot of helpful comments from others. He said that the next step is the production of another set of draft build-out figures to make sure comments have been incorporated correctly. He said that in the May POPTAC meeting, staff will present details about the methodologies and assumptions for the model. Following that, staff will produce sets of draft projection numbers for review.

7. Regional Economic Update

Jonathan Donie gave a regional economic update. He talked about housing construction trends, and indicators for when the housing market may change. He said that historically, the nominal home prices went up, until it came down quickly at the beginning of the current economic downturn. He said that the inflation-adjusted (or real) home prices fluctuated around a static baseline, until it started climbing in the early 2000s and quickly dropped at the beginning of the currently economic downturn. He said that the recent housing bubble is the largest run-up in real home prices in trackable history. He said that there are four major indicators of home price trends: finance, insurance and real estate employment (FIRE), home prices, construction employment, and housing completions. He said that construction employment tracks closely with housing prices, and that FIRE employment grows hand-in-hand with construction employment. He said that an indicator of an up-coming bubble is when construction employment peaks above FIRE employment. He said that housing peaks spread outward from the middle of the region, and different municipalities experienced a housing bubble at different times. He said that residential constructions are a leading indicator of construction employment. He said that the region experienced a major run up and downturn, but within that trend were four different waves of run up and downturn. He said that, due to its size and geography, Phoenix experienced the first three of these waves. He said that the first wave occurred in the interior of the metro area in the early to mid-90s. He said that this wave included Glendale, Fountain Hills, Tempe, and Scottsdale. He said the second wave started around the end of the 20th century, and occurred in cities slightly farther out from the core, including Avondale, Chandler, El Mirage, Mesa, and Peoria. He said the third wave hit the cities on the perimeter of the valley in the mid 2000s, including Buckeye, Gilbert, Goodyear, Queen Creek, and Surprise. He said that the smaller municipalities had a baseline with a lot of fluctuation throughout the first three waves. He said that this trend is likely to repeat in the future. He said that indicators of the next boom are upward turns in residential completions, construction employment, FIRE employment, and housing prices.

Charlie McClendon said that it seems like construction employment is tied to population growth and in-migration, and that if someone is more likely to be able to sell their house in the mid-west they're more likely to move here. Jonathan Donie said that the Case-Shiller 20 is at its trough, and within the next year or two there could be a run-up again.

Thomas Ritz asked if the construction and FIRE employment might deviate due to the nature of the local economy. He said that if the major headquarters of FIRE employers are located in other

parts of the country, could FIRE employment lag behind construction employment in the Phoenix area. Jonathan Donie said that, due to local costs, Phoenix is typically an area that gains FIRE employment, if the rate of growth is tied to construction.

Katie Wilken asked if there is any difference between new and resale prices. Jonathan Donie that smaller municipalities have fewer home sales, so resale prices can be all over the map. He said that the Case-Shiller index, which tracks homes sold twice, tries to avoid those anomalies.

8. Local Real Estate Conditions Update

Tom Ruff of the Information Market gave a presentation on local trends in the real estate market. He said that Information Market tracks the Multiple Listing Service (MLS) inventory levels, all home sales in Maricopa County daily, and all foreclosures daily. He said that it is important not to track population solely on the number of houses built, because when a house is built, it is important that someone lives in it. He said that their data shows that the bottom of the market was hit in September 2011. He said that, since then, home prices have gone up rapidly, and in March 2012 Phoenix saw the greatest appreciation of home values in its history, increasing 8% in one month. He said that April will have a 4% increase, and for the year so far, a 25% increase. He said that currently demand is holding steady, and there isn't any supply. He said that large equity institutional buyers have moved into the foreclosure market. He said that properties are getting bought as quickly as they were in 2005.

Chris DePerro asked if they were seeing mainly a lot of investor purchases, rather than people moving in. Tom Ruff said that it's really both, and that billion dollar investment firms are buying houses and renting them. He said that sales of distressed properties had been as high as 65% of the market, and now they are down to about 45%. Chris DePerro asked if they have tracked unique names buying homes versus corporations buying homes. He said that he was concerned that, while the supply might be low, there might be a lot of corporations owning vacant houses. Tom Ruff said that the corporations are not owning vacant homes, and that these houses are getting rented.

Thomas Ritz asked if they are seeing price appreciating for all sizes of houses, or just those under 100,000 square feet. Tom Ruff said that the numbers are the average for all sizes, but that there is not much inventory of houses under 150,000 or 100,000 square feet. He said that the top of the market is appreciating more slowly than the bottom, and that the supply of smaller houses is depleting faster.

Anubhav Bagley asked, as investors start to sell the houses they're now purchasing, will the market stabilize, or will prices continue to go up. Tom Ruff said that the investors will be selling the homes to the people living in them. He said that the people who were foreclosed on first are now eligible to come back into the market and buy these homes. He said that there is an incredible rising demand made up of the early foreclosed-upon homeowners. He said that the thing that will determine our long term growth is whether or not people are still moving here from other places.

9. Data Collection, Review, and Presentation

a. Data Collection

Jason Howard said that MAG staff currently has general plans and developments out for member agency review, and are incorporating comments from the base and build-out workshops. He said that building and landmark inventory review as well as multiple location

employer review are coming up., most likely sent out in May. Scott Wilken thanked all the members who provided annexation data during the recent review.

Katie Wilken requested that when reviews are sent to both the POPTAC contact and the GIS contact that the emails indicate that it is being sent to more than one person. Jason Howard said that will be done.

b. MAG IS Weblinks

Scott Wilken said that the packet included an information cheat sheet with updated links to various pieces of information that POPTAC members and their coworkers might find useful.

c. Employer Database

Shannon Acevedo gave an update on the 2012 Employer Database. She said that the database tracks employers with 5 or more employees and their location. She said MAG staff is currently working on the draft database and that member agencies will receive their own copy of the database for review soon. She said that the main sources of the database are: the Trip Reduction Program, which looks at all employers with 50 or more employees; public employment; and Dun & Bradstreet, which provides information for most of the private employment. She said that staff also does some data mining on its own, including using the Phoenix Business Journal, working with the Greater Phoenix Economic Council (GPEC), and direct contact with businesses. She said that the current draft of the database includes 47,400 employers and 1,452,000 million employees. She said that over the past 5 years the number of employees grown 5.6% since 2007, but has stagnated in the past three years. She said that members should expect to receive the review copy of the database for their jurisdiction in about a month. She said that after the review, the database will be finalized and incorporated into the online GIS Employer data viewer, sometime around June.

Thomas Ritz commented that a recent Phoenix Business Journal article talked about over 100,000 jobs lost in the Phoenix area between 2008 and 2011, but the employment trend in the database is much flatter. He also asked what kind of turnover Dun & Bradstreet do to account for old employers that should be removed from the list. Shannon Acevedo said that this is part of the internal review that MAG staff does. She says that the process has been refined over the past five years, and that it gets better each year. Anubhav Bagley said that the 2005 Employer Database had 1.7 million jobs listed, so there has been a decrease of over 100,000 since then.

Max Enterline asked if the complete database is available on the map viewer or if some information is masked out. He asked if it contains names and addresses of employers. Anubhav Bagley said that it does not.

10. Regional Updates

Patrick Banger said that Gilbert has seen a lot of single-family building activity increase. He said that in the first quarter of 2012 they have issued 687 single-family building permits.

11. Next Meeting of the MAG POPTAC

Chair Charlie McClendon said that the next meeting of the MAG POPTAC is scheduled for Tuesday, May 22, 2012 at 10:00 am. The meeting adjourned at 11:14 am.

Assumptions and Methods of MAG Socioeconomic Projections 2012

Part I

Introduction

The purpose of this document is to detail, the methodologies, assumptions, analyses, data collection activities, and data sources to be used in developing a base year database, build-out analysis, and housing, population, and employment projections. This year MAG staff will make use of a brand new model system specifically developed for the MAG region: Arizona's Socioeconomic Modeling Analysis and Reporting Toolbox, hereinafter referred to by its acronym, AZ-SMART. AZ-SMART is a complex model system that requires many more data inputs and assumptions.

This document is organized into 9 topics, each briefly summarized below:

1. MAG Socioeconomic Projection Geographies

This section describes the various geographies (e.g. TAZ, RAZ, and MPA) to which AZ-SMART data can be aggregated, and how those geographies were delineated. This will be for information and discussion only.

2. Base July 1, 2010 Population and Housing Variables

This section describes how the population, households, and dwelling unit data were compiled for the base year target date of July 1, 2010. In brief, Census 2010, American Community Survey (ACS) 2006-2010 Public Use Microdata (PUMS), Maricopa County Assessor's Data, and various special MAG databases (e.g. Group Quarters, Mobile Homes, Apartments, etc.) all served as inputs to a sophisticated data synthesis process to produce the detailed microdata that AZ-SMART requires. It is requested that POPTAC approve these methodologies.

3. Base July 1, 2010 Employment by Land Use Sector and NAICS codes

This section describes how the employment and non-residential built space databases were utilized to synthesize base year jobs and built space for AZ-SMART for July 1, 2010. Bureau of Labor Statistics (BLS) data, Quarterly Census of Employment and Wages (QCEW), military sources, and Census ACS sources were all compiled and synthesized to produce the detailed microdata on employment that AZ-SMART requires. It is requested that POPTAC approve these methodologies.

4. Population and Employment Control Totals

AZ-SMART requires annual, exogenous employment and population totals at the County level to allocate to lower levels of geography. The source of the population and group quarters control totals is the State Demographer's office, and the source of the employment control totals is derived from Moody's Economy.com. It is requested that POPTAC approve these methodologies.

Assumptions and Methods of MAG Socioeconomic Projections 2012

5. AZ-SMART Classifications/Subcategories

This section documents the various classification schemes employed throughout the AZ-SMART model system. This includes land use, building types, employment, amongst others. This will be for information and discussion only.

6. Land Use

In order to create base year databases for AZ-SMART various land use datasets are maintained by MAG staff. These include Existing Land Use (EXLU), General Plan Land Use (GPLU), and the future developments databases. The EXLU is created for POPTAC review annually, while the GP and developments databases are maintained on an on-going basis and reviewed by POPTAC annually. This will be for information and discussion only.

7. Methods and Factors for developing housing, households, and population projections

AZ-SMART requires a wide variety of data to produce detailed housing, population, and land use projections. These include current and projected vacancy rates by built space type, assumptions about persons per household (PPHH), analysis of gross to net densities of developments, the rate at which developments build-out, and so forth. The methodologies used in creating the required data tables for AZ-SMART are also described here. It is requested that POPTAC approve these methodologies.

8. Methods and Factors for developing non-residential built space and employment projections

Similar to section number 7, this section describes the methodologies and assumptions employed to develop the necessary datasets for AZ-SMART to produce detailed projections of employment and related land uses. This section discusses items such as floor to area ratios (FAR), employment density, and development sizes. It is requested that POPTAC approve these methodologies.

9. Build-out methodology

The final section of the document describes the process by which MAG staff produced the build-out analysis. This analysis employed a wide variety of datasets provided by member agencies along with various assumptions and methodologies relating to employment and residential densities, PPHH, and vacancy rates. It is requested that POPTAC approve these methodologies.

Assumptions and Methods of MAG Socioeconomic Projections 2012

I. MAG Socioeconomic Projection Geographies

- Maricopa County is subdivided into 29 Municipal Planning Areas (MPAs), 153 Regional Analysis Zones (RAZs), 2294 Traffic Analysis Zones (TAZs).
- The RAZ and TAZ geographies may be modified through comments by MAG member agencies and by MAG transportation planning/modeling staff.
- Each municipality has its own Municipal Planning Area (MPA), which delineates the area of planning concern for each jurisdiction. The following process is followed to define MPA boundaries:
 - Prior to the development of a new set of socioeconomic projections, MAG reviews the MPA boundaries with each member agency through the MAG Population Technical Advisory Committee (POPTAC). Maps were distributed showing the MPA boundaries from the last set of projections and input is requested.
 - Any area that has been annexed by a jurisdiction which falls outside the current MPA is automatically added to the MPA. Areas which have been de-annexed are removed.
 - Where a jurisdiction requests a change to its MPA, MAG sets up a meeting with the parties involved. Normally this meeting would include the jurisdiction requesting the MPA boundary enlargement, and affected other member agencies if involved and possibly adjoining jurisdictions. The County is always invited to participate.
 - If there are no objections from the other entities involved, the change to the MPA is made.
 - If there are objections to the expansion of the MPA, and no consensus compromise is reached by the jurisdictions, MAG will leave the MPA boundaries as they existed in the last set of projections. Ultimately, whichever jurisdiction annexes the territory, will have it included in its MPA.
 - A jurisdiction is responsible for reviewing and providing input on land use, base data, surveys, assumptions and draft socioeconomic projections for the entire MPA.
- Traffic Analysis Zones (TAZs) are required for transportation planning with input from the MAG POPTAC.
- TAZs are modified as expected growth in a 30-year horizon expands geographically or densities in existing TAZs warrant TAZ splits.
- TAZ boundaries are delineated utilizing existing and future highway corridors, transit network, major arterials, waterways/canals, and other natural features like mountains.
- TAZs and Regional Analysis Zones (RAZs) fall completely within only one MPA, as TAZs add up to RAZs, and RAZs add up to MPAs.
- TAZs used for the 2012 projections will be identified as TAZ2012

POPTAC Recommendation Requested: For information and discussion only.

Assumptions and Methods of MAG Socioeconomic Projections 2012

2. Base July 1, 2010 Population and Housing Variables

AZ-SMART and MAG transportation models require a July 1, 2010 base population, housing, and household total by TAZ2012 along with a detailed synthesized population and housing dataset from which to begin the modeling process.

The following data are available to produce the base July 1, 2010 population and housing variables:

- 2010 Census data by Block, Block Group, Tract, Place and County for April 1, 2010 housing units by type, occupied housing units by type, population, households, and group quarters population
- American Community Survey (ACS) 2006-2010 household and person level characteristics by 2010 Census Block Group
- Arizona Department of Economic Security July 1, 2010 Population Update by 2010 Census Place approved by MAG Regional Council.
- MAG Built Space Database developed by combining and cross checking data from the Maricopa County Assessor's Office Database, US Census Bureau Housing Data, MAG's Residential Completions Database, MAG's Major Group Quarters, Apartment, and Mobile Home/RV Park Database

All data sources are developed and maintained for July 1, 2010, but it is necessary to adjust and reconcile different data sources. MAG staff proposes to use the following methodology to allocate and reconcile the totals to the TAZ 2012 geography:

- The MAG housing inventory is reviewed and adjusted to match Census 2010 dwelling unit counts at the Census Block Group geography. This review was done in conjunction with the Maricopa County Assessor's Department data.
- Arizona State University's SimTRAVEL Research Group has developed an innovative micro-population synthesizer called PopGen (<http://urbanmodel.asu.edu/popgen.html>). PopGen is used to synthesize individually linked household and person records from the Census Public Use Microdata Sample (PUMS) sample records to match modified Census 2010 totals (modification described in the next bullet point) at a specially created geography called "Pseudo-Block Groups." Pseudo-Block Groups are Census Block Groups combined with the Census Place geography. This allows PopGen to use household and person level aggregations from the 2006-2010 5 year average American Community Survey (ACS) at the Block Group geography while synthesizing the output to match the population at the Census Place geography simultaneously.
- It is necessary to adjust the aggregations from Census 2010, which are only available at the Census Block Group level, to both a slightly different geography (Pseudo-Block Group) and timeframe (July 1, 2010). The totals will be updated proportionally based on a ratio of total households and population from April 1, 2010 to July 1, 2010 at the Block Group geography.
- Once the Census 2010 totals are adjusted for both space and time, PopGen can produce individual household and person records at the Pseudo-Block Group geography. This data is then input into AZ-SMART to match the individual household and person records to the MAG housing inventory at the Assessor Parcel geography. Households and persons are matched by comparing and ranking attributes from the PUMS record (e.g. dwelling unit size, household income, etc.) to similar attributes obtained

Assumptions and Methods of MAG Socioeconomic Projections 2012

from the MAG housing inventory (e.g. dwelling unit size, dwelling unit value per square foot, etc.). The end result of this process is a very detailed parcel level database of land, built space, and individual households and person records matching Census totals. While the data are very detailed, it is a synthetic or hypothetical representation of real households that reflects their characteristics.

- The resulting database is then aggregated to the TAZ 2012 geography for review by POPTAC members.

Another segment of the base population that needs to be properly accounted for is Group Quarters population. Group Quarters populations are split into 5 categories based on the living facilities: dorms, prisons, nursing homes, military, and other. It is proposed to use the following methodology to estimate the control totals and allocate to the parcel level database:

- Military totals are obtained by calling and confirming the total by directly contacting the individual agencies (e.g. Luke AFB).
- The allocation will begin by comparing the MAG Major Group Quarters inventory with the MAG built space database. New built space records are added to the built space inventory as needed to accommodate Group Quarters population.
- When the 2010 Census Block Group contains Group Quarters population, and there is one or more built space record of Group Quarters type to accommodate the population, the Group Quarters population is assigned there.
- When the 2010 Census indicates there is Group Quarters population in a Block Group where the built space inventory does not have an appropriate record for allocation, allocate the total to vacant housing units from the housing inventory. It is expected that these records indicate the presence of small group homes

The resulting database of Group Quarters at the parcel level is then aggregated to the 2012 TAZ geography.

POPTAC Recommendation Requested: Approval of methodology to produce population and housing variables for July 1, 2010.

Assumptions and Methods of MAG Socioeconomic Projections 2012

3. Base July 1, 2010 Employment by Land Use Sector and NAICS codes

AZ-SMART and the current MAG transportation models require employment classified by both land use categories, including work-at-home and construction, and North American Industry Classification System (NAICS) sector based employment.

The following data sources are available for the creation of the required employment databases: Bureau of Labor Statistics (BLS) and the Quarterly Census of Employment and Wages (QCEW) annual totals by 3-digit NAICS categories, the MAG employment database (with spatial locations built from various public and private sources), the Department of Defense Statistical Information Analysis Division for military employment, and the 5 year average American Community Survey (2006-2010 ACS) data for unincorporated self-employed (USE) totals.

Detailed analysis of the MAG employer database against the build space database has indicated a presence of non-site-based jobs. These include workers that are not located at one site, examples include temporary workers, and workers involved in construction, landscape, and janitorial services. To develop Base July 1, 2010 employment control totals for Maricopa County, it is proposed to make some adjustments to the county employment totals both within NAICS categories and to split some proportion of each NAICS category to include work-at-home (WAH) employment and non-site-based (NSB) employment utilizing the following methodology:

- Compare BLS-QCEW and military county totals to the MAG employer database and adjust to a new county total based on this analysis.
- Allocate USE county total employment to NAICS categories based on estimates provided by a MAG Consultant white paper (Applied Economics, 2009).
- In 2009, MAG Consultant conducted an analysis of the employer database by NAICS categories and suggested the proportions of each sector that are work at home and non site based.
- Re-allocate some larger public employment categories to new NAICS codes to better reflect the purpose of the employment. For instance, move some large State employment (e.g. ASU) to the education category and some local employment (e.g. Maricopa Integrated Health Systems) to the appropriate medical category.
- Estimate WAH and NSB employment totals for the county by NAICS categories by analyzing the MAG employer database. Employment points falling onto parcels with a residential land use are split into WAH and NSB categories:
 - up to 2 employees on a residential land use in the NAICS code as WAH
 - additional employees beyond 2 on a residential land use as NSB

Once an adjusted total employment for Maricopa County by NAICS categories is complete it is next necessary to allocate the totals sub-regionally and convert them to land use based employment totals. MAG staff proposes to rely upon the MAG employer, existing land use, and built space databases for this spatial allocation and conversion:

Assumptions and Methods of MAG Socioeconomic Projections 2012

- Compute the difference between total employment by category in the MAG employer database and the total employment control totals by category for the county.
- Factor up (or down) this difference in employment by category utilizing the existing MAG employer database points to match the county level control totals.
- Check the number of jobs in each built space record and compute the number of square feet each job occupies. If this number falls below the number set in a previously estimated "building square foot per job" table (which specifies for each building type how much floor space each job requires) then expand the built space record's square footage and value to accommodate the number of jobs assigned to it.

After all of the employment by category is assigned to built space records at the parcel level of geography, the jobs must be summed up by land use category and TAZ 2012 for review by POPTAC members:

- Generalize MAG's 2010 existing land use database into 5 categories: Retail, Office, Industrial, Public, and Other.
- Overlay the modified employer database onto the generalized land use database and compute the total employment by the 5 land use categories and 2 additional categories of work-at-home and non-site-based.

Aggregate the land use based employment totals to the TAZ 2012 geography.

POPTAC Recommendation Requested: Approval of methodology to produce employment variables for July 1, 2010.

Assumptions and Methods of MAG Socioeconomic Projections 2012

4. Population and Employment Projections Control Totals

A. Population

- The Arizona State Demographer created a cohort-component population projection model to be consistent with the results of the 2010 Census. The cohort-component model was created with input from the Council for Technical Solutions.
- MAG develops its sub-regional resident population projections to be consistent with population control totals for Maricopa County developed by the Arizona State Demographer.
- Arizona State Demographer Population Projections have prescribed age, sex, and ethnic distributions, which affect household formation and size and labor force control totals.

B. Employment

- The Arizona State Demographer does not produce employment projections therefore it is necessary to obtain employment projections from another source.
- MAG staff, along with a consultant (Jeff Tayman from University of California, San Diego) have conducted an analysis of commercial long term socioeconomic projections for purchase.
- Based on the analysis and consultant recommendations, it is recommended that MAG purchase population and employment projections from Moody's Economy.com. These will be annual projections of employment by NAICS code for Maricopa County.
- Derive employment to population factors from the Moody's projections and adjust Moody's Economy.com employment totals to match the Arizona State Demographers forecasted population at the county level.

POPTAC Recommendation Requested: Approval of methodology to produce population and employment control totals.

Assumptions and Methods of MAG Socioeconomic Projections 2012

5. AZ-SMART Classifications/Subcategories

- AZ-SMART requires a number of classification types for data
- These AZ-SMART classifications are utilized internally for simulation purposes only
- Classifications can be modified through comments by MAG member agencies

A. Building Types

- AZ-SMART requires a classification of building types.
- The following is a list of the building types for use in the model.
 - Single Family Residential
 - Multi-Family Residential
 - Mobile Home Residential
 - Retail
 - Mini Storage
 - Warehouse
 - Industrial
 - Office
 - Medical
 - Hotel
 - Civic
 - Education
 - Group Quarters
 - Public – Federal and State
 - Public – Local
 - Agriculture
 - Transportation
 - Other/Open Space

B. Employment Sectors

- AZ-SMART requires a classification of NAICS employment sectors.
- The following is a table of the employment sectors for use in the model.

Assumptions and Methods of MAG Socioeconomic Projections 2012

AZ-SMART Employment Sectors

Employment Sector	NAICS Code
Agriculture, Forestry, Fishing and Hunting	11
Mining, Quarrying, and Oil and Gas Extraction	21
Utilities	22
Construction	23
Manufacturing	31-33
Wholesale Trade	42
Retail Trade	44-45
Transportation and Warehousing	48-49
Information	51
Finance and Insurance	52
Real Estate and Rental and Leasing	53
Professional, Scientific, and Technical Services	54
Management of Companies and Enterprises	55
Administrative and Support and Waste Management and Remediation Services	56
Educational Services	61
Health Care and Social Assistance	62
Arts, Entertainment, and Recreation	71
Accommodation	721
Food Services and Drinking Places	722
Other Services (except Public Administration)	81
Public - Federal and State	Part of 92
Public - Local	Part of 92

Source: US Census Bureau 2007 NAICS

POPTAC Recommendation Requested: For information and discussion only.

Assumptions and Methods of MAG Socioeconomic Projections 2012

6. Land Use

A. Existing Land Use

- The existing land use database identifies the current land use pattern in the urban area. MAG maintains more than 100 classifications of land use, which were established by MAG in concert with its member agencies. This table of MAG land use codes is updated by MAG staff periodically and approved by POPTAC members.
- The existing land use database was created by MAG staff based on an analysis of the Maricopa County Assessor Parcels, aerial photo interpretation, Arizona State Land Department data, MAG databases and input from MAG member agencies and then circulated to the agencies for review and verification. Changes were made based on comments provided.
- The existing land use dataset is important to the projections process because it establishes areas that have already been developed or are not suitable for further development. The developed areas become ineligible for the allocation of population and employment growth, except where the area is planned for redevelopment. Non-developable areas include open space or environmentally sensitive lands, or areas where the relief makes construction infeasible.

B. General Plan Land Use

- The General Plan Land Use Database is based upon the plans of MAG member agencies and identifies both the type of development that is anticipated to occur in the future and the density of that development. For example, rural residential land use allows for up to 1 unit per acre. In those areas designated rural residential, a maximum is established so that the projections model does not exceed the 1 unit per acre density authorized.
- The General Plan Land Use database uses the standard MAG land use categories that allows for a direct comparison between existing and planned land use. The difference between the existing and planned land use databases helps determine where development may take place.
- MAG tracks general plan land use data for all member agencies. Member agency land use codes are translated into a common region wide land use category system through a lookup table. The lookup table tracks minimum, target and maximum development densities for both dwelling units and employment land uses. Land use lookup values can be modified through comments by MAG member agencies.
- Selected attributes in the General Plan Land Use dataset are
 - *MPA Land Use Code* – Land use category created by jurisdiction
 - *MAG Land Use Code* – MAG land use categories create a common coding system for the region
 - *Density Range* – Derived from general plan descriptions.

Assumptions and Methods of MAG Socioeconomic Projections 2012

- *Minimum* – Least dense development allowed by land use
- *Target* – Expected development density by land use
- *Maximum* – Most dense development allowed by land use
- *Mixed Use Split* – Further definition of mixed use, defines mixed use as percentages of single land use types. For example, Business Park mixed use could be 70% industrial and 30% office.

C. Developments

- The Development Database was developed in conjunction with MAG member agencies. Information is collected on residential and non-residential developments including number of units or square footage by land use parcel. An estimated start date for the development is also determined at the same time. Member agencies review the Development Database regularly for completeness and accuracy. The Development Database includes redevelopment and age restricted projects as well.
- Major Attributes in the Developments Database are
 - *MAG Land Use Code* - MAG land use typology creates common coding system for region
 - *Age Restricted Project Flag* – Denotes a development restricted to people age 55+
 - *Redevelopment Project Flag* – Denotes a project that will replace existing development
 - *Development Status* – Defines how close a project is to completion
 - *Conceptual* – Project has not started jurisdiction review
 - *Anticipated* – Project is going through jurisdiction review
 - *Final Plat* – Project has been approved by jurisdiction. This category also includes non-residential site plans.
 - *Active* – Project is under construction
 - *Start Year* – Estimated year project will start construction
 - *End Year* – Estimated year project will be completed
 - *Total Units* – Amount of units to be built in project
 - *Mixed Use Split* - Further definition of mixed use, defines mixed use as percentages of single land use types. For example, Business Park mixed use could be 70% industrial and 30% office.

D. Multiple Use Definitions by Geographic Location

- The MAG projections are consistent with member agency General Plans and Planned Area Developments.
- Many of these plans, however, have areas defined as multiple use areas that can generate various types and densities of housing or employment.
- In order to use these designations in socioeconomic modeling, the multiple use categories must ultimately be converted to one or more of the standard land use categories.

Assumptions and Methods of MAG Socioeconomic Projections 2012

- The MAG socioeconomic models have been enhanced to accommodate such multiple use categories. The models are flexible enough to allow for each individual area to have different proportions of standard land use categories.
- In many cases MAG Member Agencies have provided the multiple use categories. In some cases MAG has estimated the multiple use categories based on descriptions in the general plan or used default multiple use categories.
- Default categories are consistent with past local multiple use development but can be modified, area by area, by member agencies.

E. Future Land Use

- Future Land Use is the combination of the Existing Land Use, General Plan Land Use and the Development Database. The Future Land Use shows what the buildout conditions will be based on current plans. Developable lands in the Existing Land Use are replaced by land uses in the General Plan and Developments. Redevelopment of existing structures is possible when a development project has been proposed for existing built structures.

POPTAC Recommendation Requested: For information and discussion only

Assumptions and Methods of MAG Socioeconomic Projections 2012

7. Methods and Factors for developing housing, households and population projections

A. Residential Density

- In developing TAZ population projections, the MAG socioeconomic models project residential dwelling units from parcels identified for residential uses in the General Plans or areas anticipated to be residential in the Development database. Households and Population by TAZ are subsequently calculated from the dwelling unit projections.
- Three General Plan Residential Density figures (dwelling units/acre) have been collected from the member agencies. These include the minimum, maximum and target residential density anticipated for each residential land use type in the General Plan. The models use Target Density as the base for new residential growth. The Maximum density set by the MPA caps the residential density. These densities may be changed, polygon-by-polygon by the member agencies if desired.
- Areas covered by the Development database have the number of dwelling units being built/planned and thus do not need to use the densities identified in the General Plan.

B. Gross to Net Density

AZ-SMART residential modeling assumes the use of net residential density. Net density means that land area has been taken out for transportation, right of way, and open space areas as part of the density given in the general plan document. An analysis of gross acres and net acres by different residential land use types has been conducted. The results are the basis for converting gross residential density to net residential density as needed.

Net Residential Density				
LUCODE	Land Use	Description	Gross Acres	Net Acres
110	Rural Residential	<= 1/5 du per acre	50	50
120	Estate Residential	1/5 du per acre to 1 du per acre	50	50
130	Large Lot Residential (SF)	1 du per acre to 2 du per acre	50	50
140	Medium Lot Residential (SF)	2-4 du per acre	50	38
150	Small Lot Residential (SF)	4-6 du per acre	50	37.5
160	Very Small Lot Residential (SF)	>6 du per acre (includes mobile home parks)	50	37.5
170	Medium Density Residential (MF)	5-10 du per acre	50	38.5
180	High Density Residential (MF)	10-15 du per acre	50	41
190	Very High Density Residential (MF)	> 15 du per acre	50	36

Source: Arizona State University, 2001

MAG GIS and Database Enhancement Project (Scaled values to a common 50 Gross Acres)

Assumptions and Methods of MAG Socioeconomic Projections 2012

C. Persons per household (PPHH):

Persons per household was derived from the 2010 Census by dividing the population in households by the number of occupied housing units. Total housing units, total occupied housing units and population in households was identified by Census block. These variables were then allocated to the TAZ 2012 geography using the data from Census 2010. PPHH is derived at the lowest level of geography possible then refined at the TAZ 2012 level. This refinement is important since figures resulting from a sparsely developed TAZ may not adequately reflect future trends in the TAZ. The PPHH refinement is as follows:

- For TAZs where existing development in 2010 is less than 50% of the buildout number, PPHH from the Regional Analysis Zone (RAZ) will be used instead.
- Similarly, for RAZs where the existing development in 2010 is less than 50% of the buildout number, PPHH from the Municipal Planning Area (MPA) will be used.
- A maximum PPHH at buildout will be set at 5.0.

D. Vacancy Rates:

Vacancy rates are used in the buildout analysis and in the simulation model. An analysis of vacancy rates by Census Place was conducted and used to make a determination about the long-term or "structural" vacancy rate due to the normal migration and relocation of population within the region. This structural vacancy rate (roughly 5% for single-family and ranging up to approximately 9% for larger multi-family developments) is used as a target that drives new residential development in the simulation model. For buildout analysis, the vacancy rates were calculated at the Census Block geography for Single Family (SF) and Multi Family (MF) residential types. A Census Block to TAZ2012 lookup file was created to re-calculate the vacancy rates by TAZ2012. Vacancy rates were then applied to buildout dwelling units as follows:

- For TAZs where existing development in 2010 is less than 50% of the buildout number, use a 5% vacancy rate for this TAZ. The reasoning is that at the present time we do not know how this TAZ is going to look, so we assume a longer term average vacancy rate of 5%.
- For TAZs where existing development in 2010 is greater than 50% of the buildout number, use the minimum of either 5% or the current vacancy rate minus the percentage of the current DUs that are considered seasonal use only (from the 2010 Census) then adding the percentage seasonal units back to arrive at a final vacancy rate. The reasoning here is that since the TAZ is mostly built out already, we have a good idea of how many seasonal units there will be in the TAZ and we want to maintain that in the calculation of vacancy rate.

E. County-wide Single Family / Multi-family Proportions

- An analysis of Future Land Use shows that approximately 71% of residential lands at buildout will be single family.

Assumptions and Methods of MAG Socioeconomic Projections 2012

- An analysis of Census data from 1960 to 2010 shows the single family / multi-family split in Maricopa County remaining relatively stable.

MARICOPA COUNTY HOUSING UNITS TYPE PERCENTAGE			
Census Year	Single Family Unit Percentage	Multi-Family Unit Percentage	Mobile Home Unit Percentage
1960	88%	12%	N/A
1970	73%	20%	7%
1980	67%	25%	8%
1985	66%	26%	9%
1990	65%	27%	8%
1995	68%	27%	6%
2000	68%	26%	6%
2010	72%	23%	5%

Sources

1960, 1970, 1980, 1990, 2000 - U.S. Census Bureau - Decennial Census

1985, 1995 - MAG Special Census

2010 - U.S. Census Bureau - American Community Survey 3 year average 2008-2010

MAG Residential Completions Database

MAG Future Land Use Database

F. Age Restricted Communities

- MAG transportation models require TAZs to have identifiers for Age Restricted Areas.
- A survey of the existing age restricted communities was conducted and a GIS dataset of the communities was created.
- All developments are reviewed with member agencies to identify additional age restricted communities.
- TAZs with fifty percent or more of their residential land area under communities with deed restrictions on age of residents are flagged as Age Restricted TAZs.
- These age-restricted flags are utilized only as an input for the transportation model and do not impact the projection series.

POPTAC Recommendation Requested: Approval of methodology for developing housing, households and population.

Assumptions and Methods of MAG Socioeconomic Projections 2012

8. Methods and Factors for developing non-residential built space and employment projections

- **Employment Density and Floor Area Ratios (FAR)**
 - FAR represents the ratio of the square footage of the building to the square footage of the parcel of land.
 - Employment Density represents the floor space required by employees. This is calculated as building floor space per employee.
 - The MAG models convert a parcel of land to the square feet of employment space and then to the number of employees on that parcel. This requires an understanding of average employment areas.
 - FAR and Employment Density differ for each non-residential land use type.
 - An analysis of employment density ranges by land use type was conducted by analyzing data in the MAG built space database and the MAG employer database. Jobs by land use type were compared to building square footage by land use type.
 - This analysis was compared to employment density ranges used in the 2003 and 2007 Socioeconomic Projections and found to be in line with employment density data ranges from those projections series.
 - This analysis expands employment density ranges for more land use types as required by AZ-SMART and reflects the most current data available for the MAG region.
 - The following table shows the results of this analysis.

Assumptions and Methods of MAG Socioeconomic Projections 2012

Employment Density - Square Feet Per Job by Building Type			
Building Type	Minimum Square Feet Per Job	Target Square Feet Per Job	Maximum Square Feet Per Job
Mobile / Manufactured Home	150	250	350
Single Family Detached Home	150	250	350
Multi Family Attached Home	4410	16,700	31,930
Retail	330	640	2,060
MiniStorage	3370	11,760	36,310
Warehouse	240	740	2,090
Industrial	300	700	1,650
Office	140	330	990
Medical	130	330	400
Hotel	420	1,470	3,560
Civic	400	1,410	3,400
Education	240	830	2,000
Group Quarters	400	1,410	3,400
Public - Federal	70	250	610
Public - State	70	250	610
Public - Local	70	250	610
Agriculture	1240	4,350	10,510
Transportation	0	0	0
Other	1240	4,350	10,510
Open Space	0	0	0

Source: MAG 2010 Built Space Database

- An analysis of FAR ranges by land use type was conducted by analyzing data in the MAG built space database by comparing building square footage to parcel square footage by land use type.
- This analysis was compared to FAR ranges used in the 2003 and 2007 Socioeconomic Projections and found to be in line with FAR data ranges from those projections series.
- This analysis expands FAR ranges for more land use types as required by AZ-SMART and reflects the most current data available for the MAG region.
- The following table shows the results of this analysis.

Assumptions and Methods of MAG Socioeconomic Projections 2012

Floor Area Ratio by MAG Land Use				
MAG Land Use	Land Use Description	Minimum FAR	Target FAR	Maximum FAR
210	Low Density Commercial	0.01	0.33	5.50
220	Greenhouse Commercial	0.01	0.07	0.71
230	Specialty Commercial	0.01	0.16	7.57
240	Neighborhood Commercial	0.01	0.29	4.91
250	Community Commercial	0.03	0.23	5.44
260	Regional Commercial	0.02	0.26	0.84
270	Super-Regional Commercial	0.08	0.64	3.49
310	Storage Facilities	0.01	0.53	3.26
320	Warehouse	0.01	0.31	1.97
330	Light Industrial	0.01	0.32	3.63
340	Heavy Industrial	0.01	0.25	1.31
410	Office Low Rise	0.01	0.35	8.26
420	Office Mid Rise	0.02	2.40	13.05
430	Office High Rise	3.43	11.12	24.00
510	Hotel/Motel	0.01	0.57	10.02
511	Resorts	0.01	0.26	0.82
520	Educational	0.07	0.26	0.95
521	Preschool / Daycare	0.01	0.20	1.00
522	Schools K-12	0.01	0.18	6.59
523	Post High School	0.01	0.28	2.35
524	ASU	0.01	0.82	3.80
525	Dorms	0.01	1.35	5.15
530	Institutional	0.01	0.26	3.87
531	Religious	0.01	0.17	1.75
532	Medical Offices	0.02	0.28	4.32
533	Hospitals / Medical Centers	0.01	0.67	5.63
534	Nursing Homes	0.01	0.25	1.18
540	Cemeteries	0.01	0.13	0.78
551	Public Offices	0.03	0.94	7.66
552	Public Services	0.01	0.34	7.27
810	Business Park	0.06	0.21	0.32
820	Mixed Use	0.04	2.13	10.35

Source: MAG 2010 Built Space Database

Assumptions and Methods of MAG Socioeconomic Projections 2012

- **Non-Residential Vacancy Rates.**

A projection of non-residential vacancy rates by building type is required for the simulation model to develop new non-residential real estate. MAG Staff obtained data on the commercial real estate market from the vendor COSTAR. COSTAR data and reports contain longitudinal data going back as far as 2001 on non-residential vacancy rates in the "Phoenix Metropolitan Area" (which includes parts of Pinal County) and the United States as a whole. COSTAR provides these rates for broad classes of non-residential building types: retail (back to 2007), office (back to 2001), industrial (back to 2001). The average for each building type in the Phoenix area was compared with the same data at the national level. Where the rates met is where it was assumed that the Phoenix market was similar to the national market, and that rate was used as the long-term structural vacancy rate for the simulation model. The rates are as follows: retail 6.5%, industrial 8%, and office 10.5%.

POPTAC Recommendation Requested: Approval of methodology for developing non-residential built space and employment.

Assumptions and Methods of MAG Socioeconomic Projections 2012

9. Buildout Methodology

A. Buildout Population and Housing Variables

The purpose of the buildout analysis is to examine the implications of each of the datasets that feed into the projections model. The buildout analysis calculates a theoretical maximum amount of housing and population implied by the existing development, the approved developments and the general land use plan datasets. Two types of buildout numbers can be calculated: net and gross buildout. Gross buildout assumes all land is filled to the maximum carrying capacity with dwelling units and each dwelling unit occupied by a household. An average persons per household assumption is applied to the households to calculate a maximum gross population. The net buildout applies a vacancy rate to the dwelling units and households so that there is not 100% occupancy. While still a theoretical exercise, it provides a more realistic vision of maximum households and population. A gross buildout has been created for this analysis.

The following datasets are available to MAG staff to prepare the population and housing buildout analysis:

- Base 2010 Population and housing variables analysis
- MAG Existing Land Use Database: current as of 2010
- MAG General Plan Database: current as of 2010
- MAG Development Database: current as of 2010 or later
- TAZ 2012 zone system
- 2010 vacancy rate analysis for single and multi-family households by TAZ 2012, RAZ 2012, and MPA 2012

MAG staff, in collaboration with a consultant, has developed several specialized data development tools within the AZ-SMART system to accept the above datasets as inputs, and along with the following assumptions will output the buildout analysis:

- Existing Development: Existing built land use is considered to be undevelopable unless it is flagged as a redevelopment property. Only agricultural and vacant lands are allowed to be converted to new developments by AZ-SMART.
- Density Assumptions: In developing TAZ buildout projections, AZ-SMART tools project residential dwelling units from parcels identified as residential in the General Plans or areas anticipated to be residential in the Development database. Households and Population by TAZ are subsequently calculated from the dwelling unit projections. Three General Plan Residential Density figures (dwelling units/acre) are collected from the member agencies, the minimum, maximum and target residential density anticipated for each residential land use type in the General Plan. Thus, three buildout scenarios may be generated for the Minimum, Target, and Maximum densities. These densities may be changed at very detailed levels by the member agencies if desired. Some areas covered by the Development database have the actual number of planned dwelling units and therefore do not need to use the densities identified in the General Plan. Additionally, some Development database projects may be identified as redevelopment projects. In these cases AZ-

Assumptions and Methods of MAG Socioeconomic Projections 2012

SMART is allowed to construct new projects as replacement for existing built structures.

- Persons per household (PPHH): Persons per household was derived from the 2010 Census by dividing the population in households by the number of occupied housing units. Total housing units, total occupied housing units and population in households were identified by Census block. These variables were then allocated to the TAZ 2012 geography using the data from Census 2010. PPHH is derived at the lowest level of geography possible then refined at the TAZ 2012 level. This refinement is important since figures resulting from a sparsely developed TAZ may not adequately reflect future trends in the TAZ. The PPHH refinement is as follows:
 - For TAZs where existing development in 2010 is less than 50% of the buildout number, PPHH from the Regional Analysis Zone (RAZ) will be used instead.
 - Similarly, for RAZs where the existing development in 2010 is less than 50% of the buildout number, PPHH from the Municipal Planning Area (MPA) will be used.
 - A maximum PPHH at buildout will be set at 5.0.
- Vacancy Rates: Vacancy rates were calculated at the Census Block geography for Single Family (SF) and Multi Family (MF) residential types. A Census Block to TAZ2012 lookup file was created to re-calculate the vacancy rates by TAZ2012. Vacancy rates were then applied to buildout dwelling units as follows:
 - For TAZs where existing development in 2010 is less than 50% of the buildout number, use a 5% vacancy rate for this TAZ.

For TAZs where existing development in 2010 is greater than 50% of the buildout number, use the minimum of either 5% or the current vacancy rate minus the percentage of the current DUs that are considered seasonal use only (from the 2010 Census) then adding the percentage seasonal units back to arrive at a final vacancy rate. The reasoning here is that since the TAZ is mostly built out already, we have a good idea of how many seasonal units there will be in the TAZ and we want to maintain that in the calculation of vacancy rate.

Methodology: AZ-SMART's buildout tool uses the following methodology to produce the output:

1. Use the TAZ allocation of housing units and population for July 1, 2010 as the base (existing) data.
2. If the land is not identified as a planned development from the Developments database, determine additional housing units and population from the General Plan. Calculate developable residential acres by land use category (land use codes 100 – 199, 820, 821, 830 and 840) by TAZ. For this scenario, acreage is considered developable residential if it meets all of the following criteria:
 - a. The 2010 land use was either agriculture or vacant.
 - b. The General Plan land use was residential or mixed use - land use codes 100-199, 820-840. In the case of mixed use, apply the percentages identified previously.

Assumptions and Methods of MAG Socioeconomic Projections 2012

3. Calculate additional housing units by land use category as developable residential acres * net density (minimum/target/maximum) for the residential category. Sum categorized residential housing units to obtain total additional housing units by SAZ.
4. If the area is identified as a Planned Development, then allocate the new residential units from the development database to the parcel. Apply the mixed-use proportions in cases where the development is mixed use. Sum categorized residential housing units to obtain total additional housing units by TAZ.
5. Using TAZ persons per household from the 2010 Census, calculate additional population by TAZ as total additional housing units * TAZ occupancy rate (1 - vacancy rate) * TAZ persons per household.
6. Add additional housing units and population to the 2010 base housing units and population to obtain total buildout figures.

B. Buildout Employment Variables

The purpose of the buildout analysis is to examine the implications of each of the datasets that feed into the projections model. The buildout analysis calculates a theoretical maximum amount of employment implied by the approved developments and the general land use plan datasets. The buildout analysis will produce the maximum amount of employment by land use type implied by the approved developments and the general land use plan datasets. In contrast to the case of population and housing buildout, less information is available to assume vacancy rates for non-residential land use types, so a single vacancy rate is applied to the gross buildout number to provide a theoretical net buildout for employment. The following datasets are available to MAG staff to prepare the employment buildout analysis:

- Base 2010 Employment by land use analysis
- MAG Existing Land Use Database: current as of 2010
- MAG General Plan Database: current as of 2010
- MAG Development Database: current as of 2010 or later
- TAZ 2012 zone system
- MAG analysis of employees per square foot and floor to area ratios

MAG staff, in collaboration with a consultant, has developed several specialized data development tools within the AZ-SMART system to accept the above datasets as inputs, and along with the following assumptions will output the buildout analysis.

Employment Densities: In developing TAZ buildout projections, the MAG socioeconomic models project employment from parcels identified as employment-based in the General Plans or areas anticipated to be non-residential in the Development database. As part of the buildout analysis, Floor Area Ratios (FAR) and Employment Density (employees per square foot by built space type) factors were developed internally by MAG staff. Thus:

Total square feet of employment space = FAR * Area of polygon in square feet

Number of employees = Total square feet of employment space * Employees per square foot of building type in question

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Generally, areas covered by the Development database have the square feet of employment areas being built or planned. Thus to derive the employment only the Employees per square feet value need to be used. In cases where the planned square footage was not available, the FAR factors for the particular land use is used.

Methodology: AZ-SMART's buildout tool uses the following methodology to produce the output:

1. Use the TAZ allocation of July 1, 2010 employment by land use sector as the base (existing) data.
2. Determine additional employment from the General Plan and Development database. Calculate developable employment-based acres by land use category (land use codes 200 - 850) by TAZ. For these scenarios, acreage is considered developable for employment if it meets all of the following criteria:
 - a. The 2010 land use was either agriculture or vacant.
 - b. The General Plan land use was employment use or mixed use - land use codes 200 – 850. In the case of mixed use, apply the percentages identified previously.
3. Calculate additional employment by land use category as developable employment use acres * Floor Area Ratio * Building square feet per employee for the appropriate employment land use. Sum employment by sector by TAZ.

Add additional employment by sector to the 2010 base employment by sector to obtain total buildout figures.

POPTAC Recommendation Requested: Approval of methodology for producing Buildout Population and Employment Variables.

DRAFT MAG POPTAC Timeline From June 2012 to December 2012		
MAG Due Date	Member Agency Due Date	Activity
	Submit when the latest Plan or update is complete.	Submit General Plans for 60 day review.
	Submit when Amendment is ready for review.	Submit Major General Plan Amendments for 60 day review.
Ongoing	Ongoing	Submit Minor General Plan Amendments, Area Plans and Development Master Plans/Community Master Plans and Amendments.
Ongoing	Ongoing	Submit Planned Area Developments/Planned Community Developments/Planned Residential Developments/Unit Planned Development/Final Plats and Reports.
Ongoing	Ongoing	Submit copy of C404 Form to MAG.
Ongoing	Ongoing	Submit Annexations to MAG as they occur.
January - March 2012	January - April 2012	Review of 2012 Socioeconomic Projection input data, buildout/capacity, and methods
June, 2012	July, 2012	Building Landmark Inventory (BLI) and Multiple Location Employer (MLE).
June, 2012	July, 2012	Review MAG point databases including hotel/motels, major group quarters, RV parks/Mobile homes, and apartments.
July, 2012		MAG begins collection of 2012 Employer data.
	July, 2012	Submit public employment data for MAG Employer Database 2012.
	July, 2012	Submit Q2 residential completions to MAG.
July, 2012	July, 2012	MAG sends jurisdictions draft annexations between April 1, 2012 to June 30, 2012 for July 1 Estimates. Jurisdictions verify and provide number of units.
July, 2012	August, 2012	Review job centers.
August, 2012		MAG submits annexations that take place from April 1, 2012 thru June 30, 2012 to ADOA for July 1 Estimates.
	October, 2012	Submit Q3 residential completions to MAG.
November/December, 2012		Review of County and Sub-county 2012 population updates dependent upon State Demographer's Office schedule.



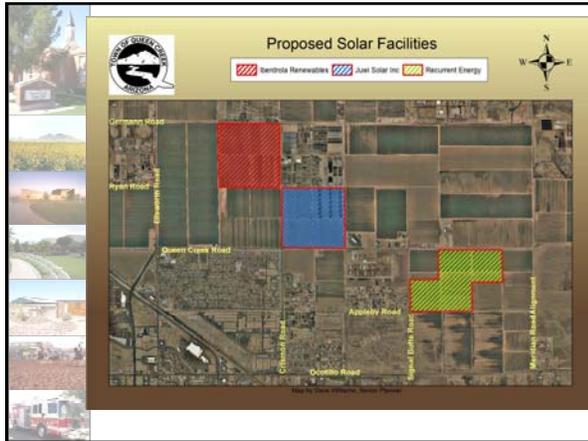
Recent Development in Queen Creek + Social Media Outreach

Presented by
Dave Williams



Solar Facilities

- 3 Solar Facilities Proposed (Photovoltaic, tracking system)
- Only 1 approved by SRP (Siete Solar)
 - 160 acres, 20MW facility
 - 20 year SRP agreement to buy back power, 25 year land lease
 - Rezoned from R1-43 to C-2 and I-1 + a Use Permit to allow for the solar.



Solar Facilities

- Created about 400 jobs for 9 months
- 1-2 full time maintenance jobs after completion
- Completion slated for fall of 2012





Church Farm



William Lyon Homes
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Church Farm

- Rezoning (PAD) from R1-43 to;
 - C-2 General Commercial
 - R1-4, R1-5, R1-7 and R1-9
 - Recreation / Conservation
 - Public / Quasi-Public
- Preliminary Plat for 2,310 residential lots.
- 879 Total Acres



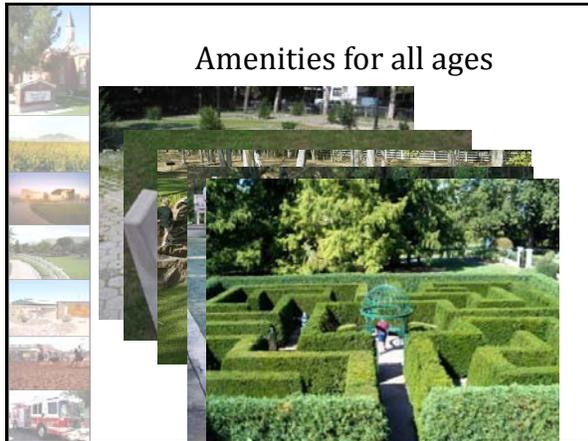
Free play is spontaneous, creative activity; experiences that are created based on what is provided in one's immediate environment. It is critical to the developmental and sensory needs of children and promotes imaginative thinking as a creative way of learning about the world.



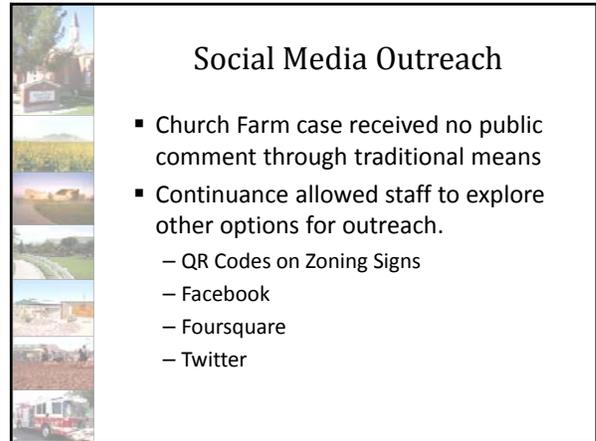
The Standard



Free Play Design



Amenities for all ages

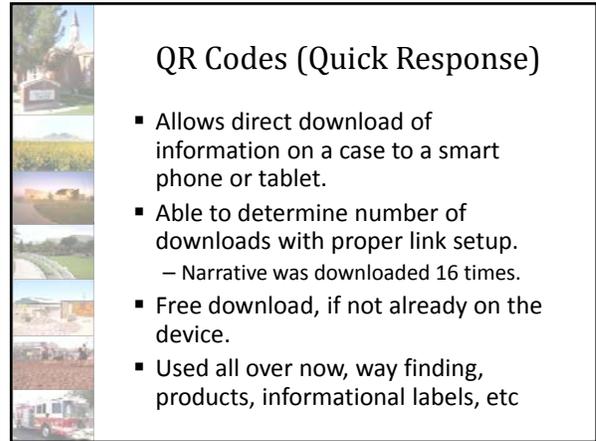


Social Media Outreach

- Church Farm case received no public comment through traditional means
- Continuance allowed staff to explore other options for outreach.
 - QR Codes on Zoning Signs
 - Facebook
 - Foursquare
 - Twitter



QR Codes (Quick Response)



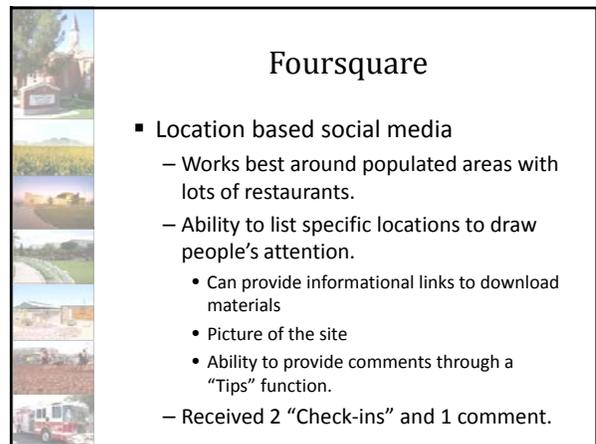
QR Codes (Quick Response)

- Allows direct download of information on a case to a smart phone or tablet.
- Able to determine number of downloads with proper link setup.
 - Narrative was downloaded 16 times.
- Free download, if not already on the device.
- Used all over now, way finding, products, informational labels, etc



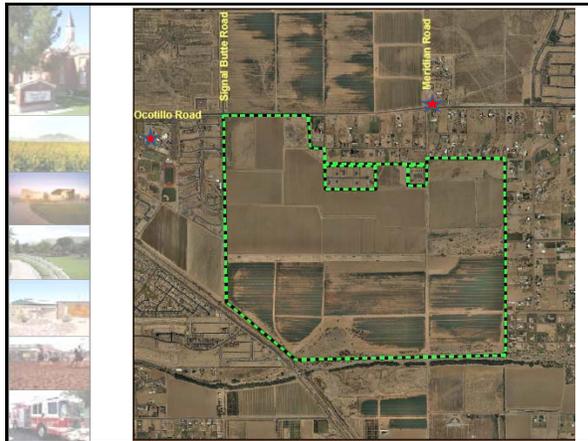
Facebook

- Pushed out through the Town’s Facebook page with link to narrative and pictures.
 - Able to receive comments directly
 - Also able to see “Likes”
 - Received 2 positive comments on the case + 4 Likes
 - With proper link setup, downloads can be tracked.



Foursquare

- Location based social media
 - Works best around populated areas with lots of restaurants.
 - Ability to list specific locations to draw people’s attention.
 - Can provide informational links to download materials
 - Picture of the site
 - Ability to provide comments through a “Tips” function.
 - Received 2 “Check-ins” and 1 comment.



Twitter

- Twitter message sent out with downloadable link for materials.
- Able to reply back with hashtag (#qcchurchfarm)
 - Hash tag is then searchable to retrieve comments back easily.

Benefits

- Ability to gather some comments where none had been received through traditional means.
- Creative ways to involve the public in the development process.
- You can determine how many downloads of materials occurred.
- It makes it easy to comment on cases.

Potential Problems

- Comments from non-residents
- Anonymous users
- Location based services in a rural area

Thank you very much

Church Farm Materials
Download link