

COOPERATIVE FORECASTING

TPB Technical Committee

March 1, 2013

Cooperative Forecasting Program

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- Provides consistent local and regional household, population and employment projections based on common assumptions about future growth
 - ▣ Established by COG in 1975
 - ▣ Prepared under the direction of the Planning Directors Technical Advisory Committee (PDTAC)
 - ▣ Reviewed and approved by the COG Board
 - ▣ Official local government projections
- Inputs for transportation, water and air quality modeling by COG and TPB, local government planning, and private sector market analysis
- Major series or “Round” approximately every 4 years

Annual Updates

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- **COG Board policy** (*since 1992, ISTEA and CAA*) **which permits – but DOES NOT REQUIRE – annual updates (8.1, 8.2, etc.)**
 - ▣ Local governments review and explicitly consider major federally-funded transportation facilities to document their likely land use impacts
 - ▣ Annual process also captures local land use and comprehensive plan changes

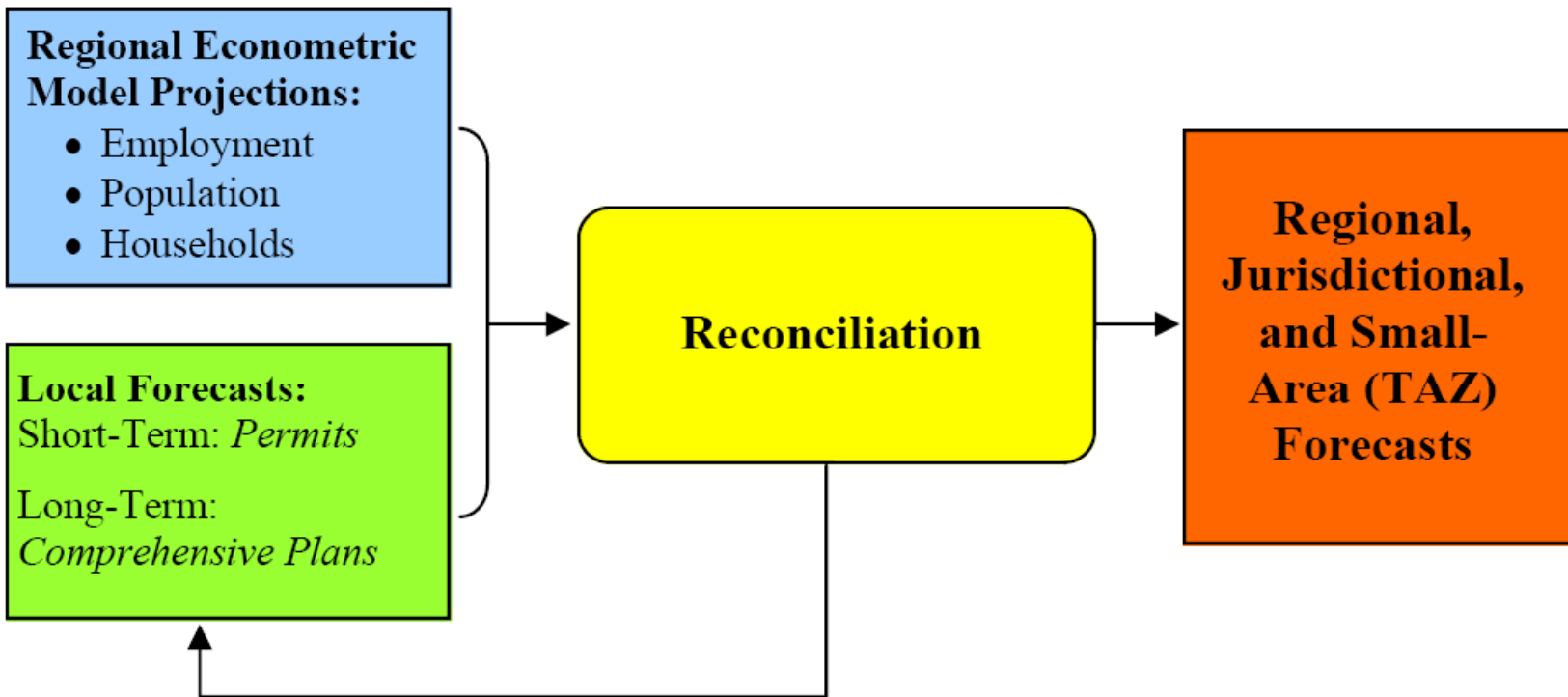
Cooperative Forecasting History

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- **ROUND 1 - 1976**
- **ROUND 2 - 1979**
- **ROUND 3 - 1983**
- Round 3.5 - 1985 Update
- **ROUND 4 - 1987**
- Round 4-1 - 1991
- **ROUND 5 - January 1994**
- Round 5.1 - May 1994
- Round 5.2 - 1995
- Round 5.3 - 1996
- Round 5.4 - 1997
- **ROUND 6a - 1998**
- Round 6.1 - 1999
- Round 6.2 - 2000
- Round 6.3 - 2003
- Round 6.4 - *Never Adopted*
- Round 6.4A - 2004
- **ROUND 7.0 - 2005**
- Round 7.0a - 2006
- Round 7.1 - 2008
- Round 7.2 - 2009
- Round 7.2A - 2009
- **ROUND 8.0 - 2010**
- Round 8.0a - 2011
- Round 8.1 - 2012

Cooperative Forecasting Process

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Regional Econometric Model Projections

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- **Top Down:** Benchmark projections of future growth are generated from an econometric model that predicts the total amount of growth that the region as a whole can expect over a 30-year forecasting period.
 - For Round 8, regional benchmark projections were generated from a comprehensive econometric model developed by IHS Global Insight, a private sector firm that provides economic forecasting and analysis services to more than 3,800 clients in industry, finance and government.
 - The IHS Global Insight econometric model incorporates nearly 2,000 economic, financial, and demographic factors in generating its projections. Each region of the US is modeled individually and then linked into a national system.
 - The IHS Global Insight model provides 5-to-30 year regional projections for:
 - Employment by industry sector (NAICS)
 - Population by age group
 - Households by household head age group
 - Projections of total regional employment are generated by multiplying IHS Global Insight projections of wage and salary employment projections by a factor developed from US Census data to account for self-employed workers who are not included in the econometric model projections

Econometric Model

2005 to 2040 Job Growth Projections by Industry Sector

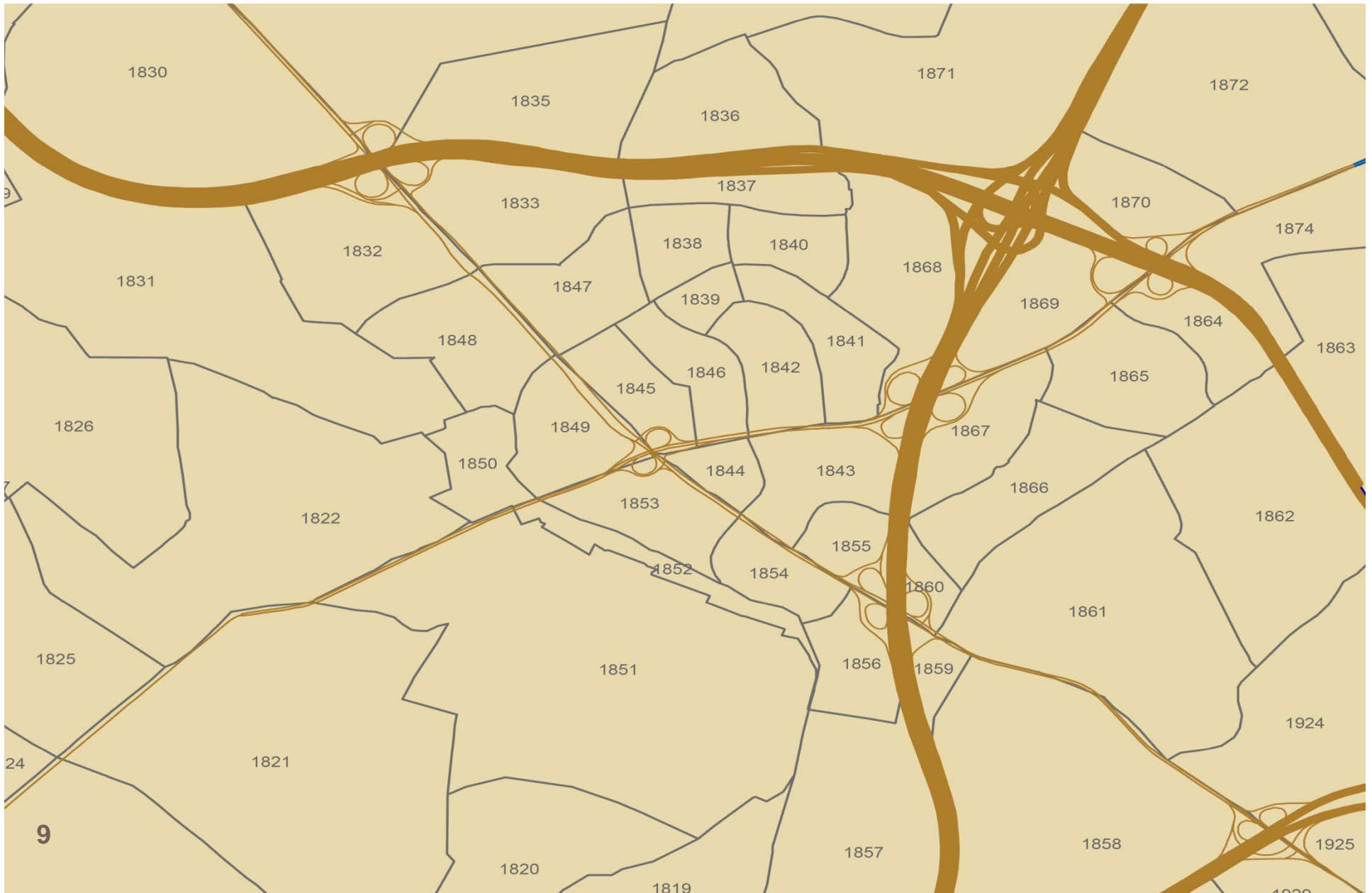
Metropolitan Washington (Thousands of Jobs)

INDUSTRY SECTOR	2005	2040	2005 to 2040 Growth	Share	
TOTAL	2,808.4	4,473.8	1,665.4	59%	100%
CONSTRUCTION	174.1	294.8	120.7	69%	7%
MANUFACTURING	59.4	46.4	(13.0)	-22%	----
SERVICE PROVIDING	1,960.8	3,414.8	1,454.0	74%	87%
Transp., Trade, & Utilities	382.4	461.1	78.7	21%	5%
Information	98.3	178.2	79.9	81%	5%
Financial Activities	155.9	189.6	33.7	22%	2%
Professional & Business Svcs	636.9	1,566.9	930.0	146%	56%
Educational & Health Svcs	294.7	510.4	215.7	73%	13%
Leisure & Hospitality	231.2	300.5	69.2	30%	4%
Other Services	161.4	209.7	48.3	30%	3%
GOVERNMENT	614.1	718.3	104.2	17%	6%
Federal Government	339.1	332.8	(6.3)	-2%	0%
State & Local Government	274.9	385.5	110.6	40%	7%
Military	75.9	77.5	1.6	2%	0%

Local Forecasts

- **Bottom Up:** Jurisdictional and small-area TAZ-level employment, household, and population forecasts are prepared independently by local planning staff in each COG member jurisdiction for the 30-year forecasting period.
 - Short-term local forecast are based on:
 - Current construction, building permits, approved development plans, rezoning applications
 - Longer-term local forecasts are based on:
 - Adopted and approved area master plans, jurisdictional comprehensive or general plans, current zoning capacity and past and current trends in market absorption rates.
 - COG staff also provide local planning staff with current small area employment data files and Census data at the Transportation Analysis (TAZ) level to assist in the development of local jurisdiction base year estimates.
 - Local jurisdictions describe their methodology and the assumptions made in preparing their local forecasts as part of the Cooperative Forecasting process

Example of TAZs in Tysons Virginia



Reconciliation

- **Reconciliation:** Local planners working through COG's Cooperative Forecasting Subcommittee reconcile the regional sum of the independently prepared local forecasts with the regional projections from econometric model.
 - ▣ Subcommittee members carefully review the forecasts of each jurisdiction and have the opportunity to question the reasonableness of methodology and assumptions used to prepare these forecasts.
 - ▣ Assumptions regarding the regional balance of households, workers, jobs and in-commuting from outside the region are reviewed for reasonableness.
 - *In Round 7, an additional 130,000 households were added to the local forecasts*
 - ▣ Reconciliation and modification of the local forecasts continue until the sum of local government forecasts are within about 3 percent of the econometric model projections

Reconciliation of Draft Round 8.2 Forecasts

ROUND 8.0 ECONOMETRIC MODEL RESULTS (1983 MSA)

	<u>2005</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>
TOTAL JOBS	3,145.4	3,231.7	3,656.1	4,045.3	4,428.3
TOTAL POPULATION	4,927.2	5,141.1	5,691.3	6,280.2	6,849.5
TOTAL HOUSEHOLDS	1,845.9	1,917.8	2,150.6	2,379.6	2,604.9

DRAFT ROUND 8.2 - Sum of Local Jurisdiction Forecasts

	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>
TOTAL JOBS	3,152.2	3,643.6	4,093.5	4,500.9
TOTAL POPULATION	5,271.2	5,881.7	6,466.9	6,934.0
TOTAL HOUSEHOLDS	1,955.9	2,217.1	2,460.0	2,650.5

Absolute and Percentage Difference- Draft Round 8.2 and the Round 8.0 Econometric Model (Round 8.2 minus Model Results)

	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>2040</u>
TOTAL JOBS	-79.5 -2.5%	-12.5 -0.3%	48.2 1.2%	72.6 1.6%
TOTAL POPULATION	130.1 2.5%	190.4 3.3%	186.7 3.0%	84.5 1.2%
TOTAL HOUSEHOLDS	38.1 2.0%	66.5 3.1%	80.4 3.4%	45.6 1.8%

For Reconciliation Purposes:

The sum of the local government employment, population, and household forecasts for each forecast year should be within three percent of the regional econometric model projections

Consistency with Transportation

- **Consistency with Transportation Plans:** Federal Air Quality Conformity Regulations require use of the latest planning assumptions derived from the estimates of current and future population and employment. The assumptions [scenarios] of land development and use must also be consistent with the future transportation system alternatives being analyzed.
- TPB staff annually brief the members of the Cooperative Forecasting Subcommittee on major transportation projects newly added to the CLRP and work with local planning staff to see that these major transportation improvements are taken into consideration in the preparation of local forecasts.

Consistency with the TPB Constrained Long Range Plan (CLRP)

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- ▣ In many Rounds the Cooperative Forecasts have been updated and modified to take into account for major transportation projects:
 - In Round 6.2, the local forecasts for the NoMa area in the District were increased when the New York Ave Metrorail Station was added to the CLRP
 - In Round 6.4A, the local forecasts of Montgomery and Prince George's County were increased and the District of Columbia's local forecasts were decreased when the Inter-County Connector (ICC) was added to the CLRP
 - In Round 7.2A, the local forecasts for Light Rail Purple Line corridor connecting Silver Spring and New Carrollton were increased.
 - In Rounds 7 and 8, the local forecasts of Fairfax County and Loudoun County began to include increased development around planned Metrorail Silver Line stations in Fairfax and Loudoun County as the Silver Line proceeded through various stages of approval.
 - In Round 8.2, significant increases in households and population were added to Fairfax County forecasts to reflect the recently adopted Plan for Tysons

**Round 8.2 Employment Forecasts
(Thousands)**

JURISDICTION	2010	2040	2010 to 2040	
			Number	% Change
District of Columbia	783.5	982.6	199.2	25.4%
Arlington County	223.3	308.8	85.5	38.3%
City of Alexandria	106.0	174.2	68.2	64.3%
Central Jurisdictions	1,112.8	1,465.7	352.9	31.7%
Montgomery County	510.3	715.1	204.8	40.1%
Prince George's County	342.6	497.7	155.1	45.3%
Fairfax County	622.9	886.1	263.2	42.3%
City of Fairfax	20.4	25.6	5.2	25.5%
City of Falls Church	11.4	18.3	6.9	60.5%
Inner Suburbs	1,507.6	2,142.8	635.2	42.1%
Loudoun County	145.3	283.2	137.9	94.9%
Prince William County	115.4	240.8	125.4	108.6%
City of Manassas	23.6	32.2	8.6	36.5%
City of Manassas Park	4.5	5.1	0.6	12.6%
Calvert County	35.2	49.0	13.8	39.2%
Charles County	62.2	83.1	20.9	33.6%
Frederick County	98.7	114.9	16.2	16.4%
Stafford County	46.9	84.1	37.2	79.3%
Outer Suburbs	531.9	892.5	360.6	67.8%
Baltimore Area Jurisdictions	618.7	801.7	183.0	29.6%
Fredericksburg Area Jurisdictions	90.7	145.4	54.7	60.4%
Other Jurisdictions	107.2	159.3	52.1	48.6%
TPB Model Region Total	3,968.7	5,607.3	1,638.6	41.3%

**Round 8.2 Household Forecasts
(Thousands)**

JURISDICTION	2010	2040	2010 to 2040	
			Number	% Change
District of Columbia	266.7	339.9	73.2	27.4%
Arlington County	98.1	128.6	30.6	31.2%
City of Alexandria	68.1	94.1	26.0	38.2%
Central Jurisdictions	432.8	562.5	129.7	30.0%
Montgomery County	357.1	460.3	103.2	28.9%
Prince George's County	304.0	379.3	75.3	24.8%
Fairfax County (2)	386.1	505.3	119.2	30.9%
City of Fairfax	8.4	10.3	1.9	22.4%
City of Falls Church	5.1	7.9	2.8	54.9%
Inner Suburbs	1,060.8	1,363.1	302.3	28.5%
Loudoun County	104.6	165.3	60.7	58.0%
Prince William County	130.8	207.8	77.0	58.9%
City of Manassas	12.5	17.1	4.6	36.5%
City of Manassas Park	4.5	5.0	0.5	11.7%
Calvert County (3)	32.0	40.3	8.3	25.8%
Charles County (3)	51.2	82.1	30.8	60.2%
Frederick County	84.8	119.6	34.8	41.0%
Stafford County (4)	41.8	87.7	45.9	109.9%
Outer Suburbs	462.3	724.8	262.6	56.8%
Baltimore Area Jurisdictions	371.4	453.6	82.2	22.1%
Fredericksburg Area Jurisdictions	51.5	96.2	44.6	86.6%
Other Jurisdictions	92.2	179.5	87.3	94.6%
TPB Model Region Total	2,471.1	3,379.7	908.7	36.8%

Round 8.2 Forecast - Tysons

2010			2040*			2010 to 2040 Growth		
Households	Population	Employment	Households	Population	Employment	Households	Population	Employment
8,342	17,122	86,304	37,670	74,319	151,925	29,328	57,197	65,621

- *In Round 8.2, forecast 2040 households and population totals for the Tysons area were increased by 20,700 households and 43,000 persons compared to the previous Round 8.1 forecasts.*
- *These increases were added to the Cooperative Forecasts to reflect the recently adopted Fairfax County Plan for Tysons that significantly increased the planned residential density around the Tysons Metrorail Silver Line stations that provides the necessary transportation infrastructure to serve this increased residential growth.*

Typical Schedule for a Cooperative Forecasting Round Update

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- **May/June 2012** – Announcement of the schedule for the Cooperative Forecasting Round update
- **September 2012** - Local jurisdictions submit a Letter of Intent (from the Planning Director) to update the Cooperative Forecasts for their jurisdiction
- **October 2012** - Preliminary local jurisdictional totals are due to COG Staff by the October Cooperative Forecasting meeting.
- **November/December 2012** – Preliminary “sum of local jurisdictional totals” are reconciled with the benchmark econometric regional projections and reviewed by the Cooperative Forecasting Subcommittee and Planning Directors Technical Advisory Committee.
- **January 2013** - The Planning Directors Technical Advisory Committee approves the final reconciled local jurisdictional totals and recommends that the COG Board approve the use of the updated Cooperative Forecasts in the TPB Constrained Long Range Plan (CLRP) Update and Air Quality Conformity Analysis.
- **February 2013** - Round 8.2 TAZ level forecast are due to COG staff by February 1, 2013. COG Board approves Round 8.2 as inputs for TPB’s CLRP Update and Air Quality Conformity Analysis. After the COG Board action, TAZ level forecasts are transmitted to Transportation Planning Staff.
- **July 2013** – The COG Board formally adopts Round 8.2 Forecasts as the official growth forecasts for the region and the TPB adopts the updated CLRP upon determination that the updated CLRP based on the updated Cooperative Forecasts conforms with established regional air quality mobile emissions budgets.