COOPERATIVE FORECASTING

Planning Directors Technical Advisory Committee

February 15, 2013

Cooperative Forecasting Program

- Provides consistent local and regional household, population and employment projections based on common assumptions about future growth
  - Established by COG in1975
  - 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

- **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

- **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
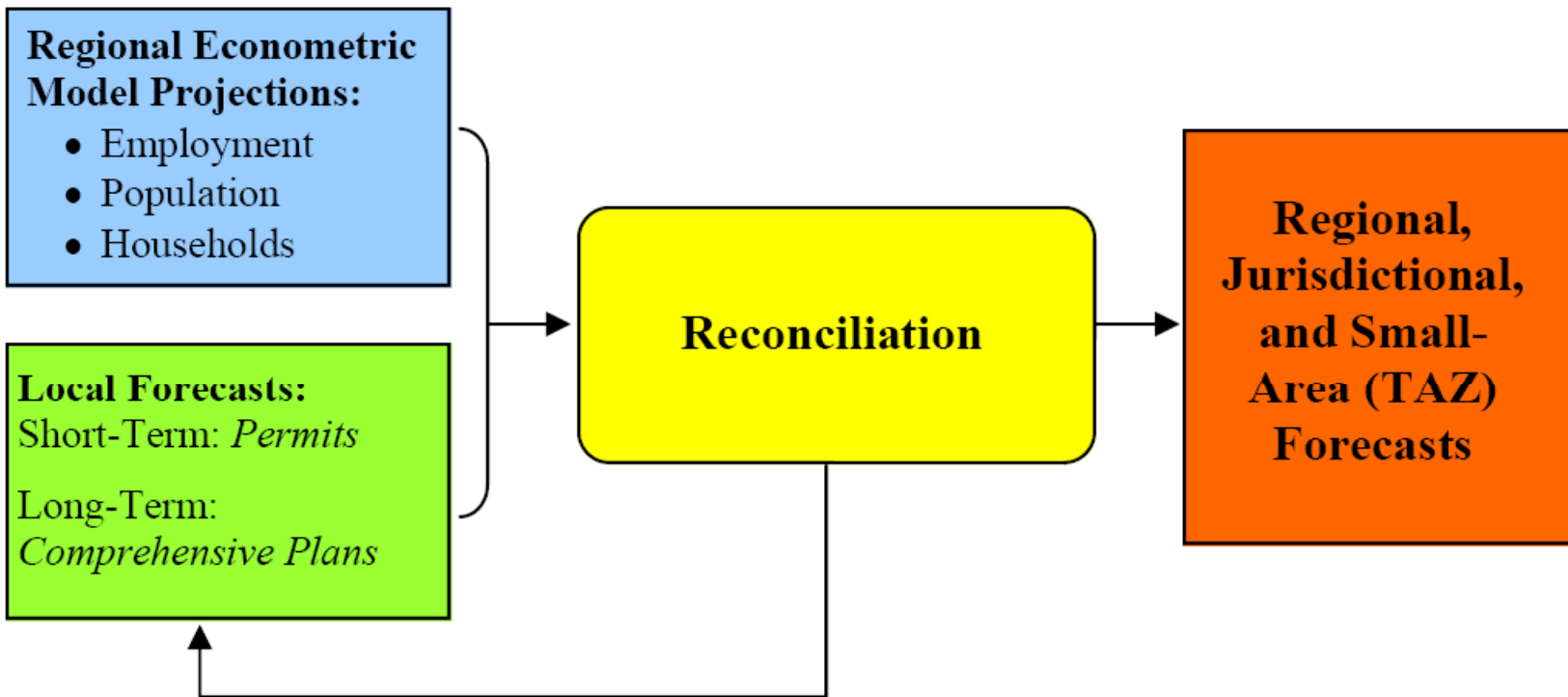
Regional Econometric Model Projections

- **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 then linked into a national system. This approach enables a focus on internal growth dynamics and differential business cycle response in the different regions of the US.
  - 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%**	**-1%**
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 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.
  - Local forecasts must also be consistent with major transportation projects in the TPB's Constrained Long Range Plan (CLRP).
  - 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
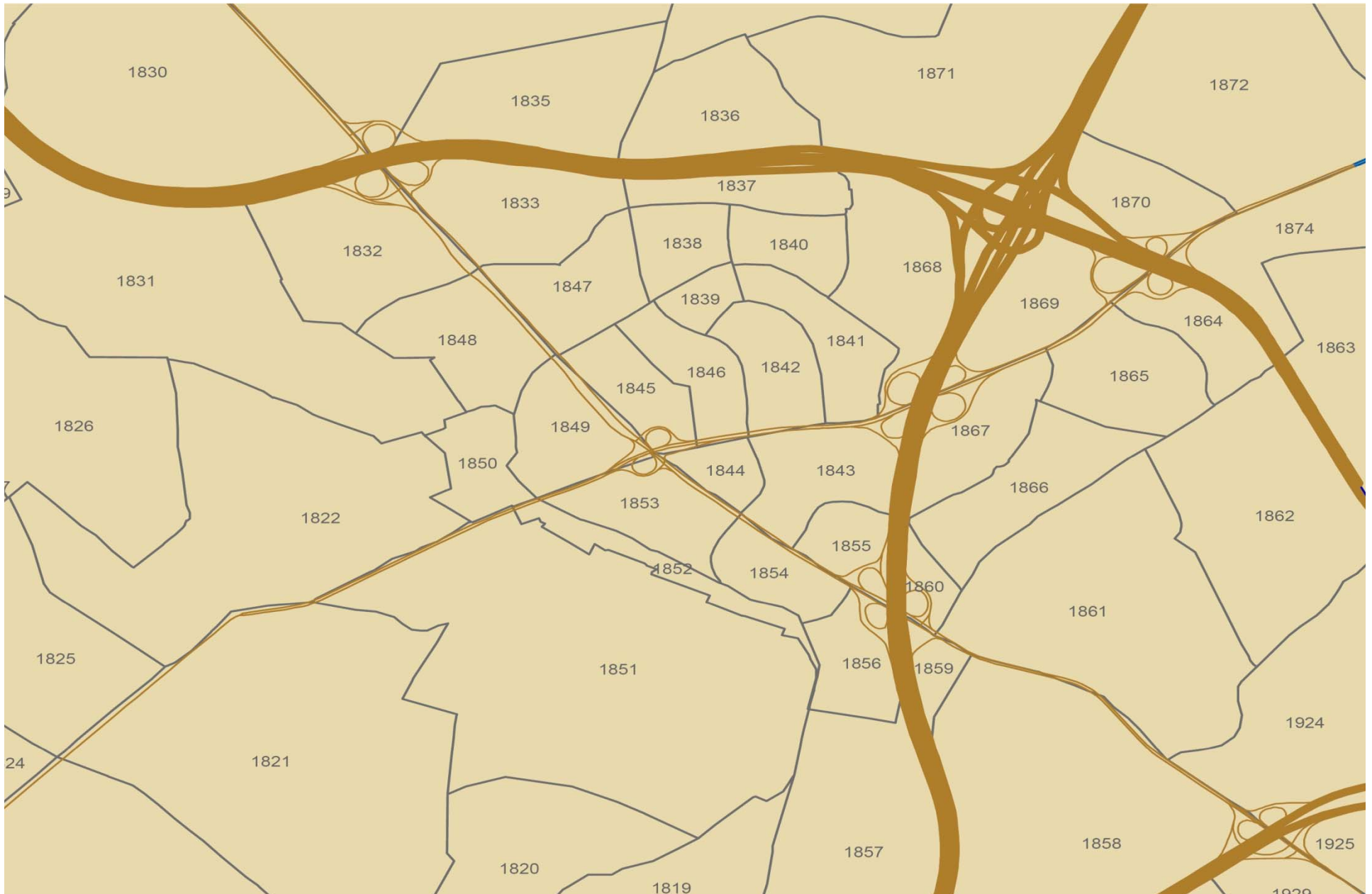
Reconciliation

- **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*
  - Consistency of local forecasts with major transportation projects newly added to the CLRP is also examined.
    - In two Round 6 updates, local forecasts were modified when the New York Ave Metro station and the ICC were added to the CLRP
  - 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

	2005	**2010**	**2020**	**2030**	**2040**
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

	2010	**2020**	**2030**	**2040**
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)

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

Typical Schedule for a
Cooperative Forecasting Round Update

- **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.

Comparison of Round 4.1 Cooperative Forecasts of Households, Population, and Employment for 2010 with Current (Round 8.1) 2010 Estimates

Jurisdiction:	Households			Population			Employment		
	Round 4.1 2010	Round 8.1 2010	Ratio (8.1:4.1)	Round 4.1 2010	Round 8.1 2010	Ratio (8.1:4.1)	Round 4.1 2010	Round 8.1 2010	Ratio (8.1:4.1)
District of Columbia	264.8	266.7	1.01	627.7	601.7	0.96	886.0	783.5	0.88
Arlington Co., VA	95.9	98.1	1.02	178.8	207.6	1.16	263.6	223.3	0.85
City of Alexandria, VA	72.0	68.1	0.95	135.0	140.0	1.04	145.2	106.0	0.73
Montgomery Co., MD	371.0	361.0	0.97	820.0	971.6	1.18	670.0	510.1	0.76
Prince George's Co., MD	337.0	304.0	0.90	840.9	863.4	1.03	473.0	342.6	0.72
Fairfax Co., VA	448.2	399.5	0.89	1,028.4	1,091.5	1.06	625.4	680.0	1.09
Loudoun Co., VA	77.4	104.6	1.35	210.9	312.3	1.48	98.3	143.7	1.46
Prince William Co., VA	142.7	147.8	1.04	390.2	454.1	1.16	142.9	143.6	1.00
Frederick Co., MD	92.5	84.8	0.92	243.6	233.4	0.96	117.5	98.7	0.84
Charles Co., MD	58.5	51.0	0.87	161.5	144.6	0.90	43.0	62.2	1.45
Total	1,960.0	1,885.6	0.96	4,637.0	5,020.2	1.08	3,464.9	3,093.7	0.89

Round 4.1 Cooperative Forecasts were adopted in 1991
Round 8.1 Cooperative Forecasts were adopted in 2012