

# Employment Forecasting in Fairfax County

For Metropolitan Washington Council of Governments (COG) Cooperative Forecasting and Data Subcommittee

by

Department of Planning and Zoning

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## Fairfax County Employment Forecasting Process

## Methodology

Top-down

Countywide Employment Totals by Employment Sectors

Bottom-up

Small Area, Transportation Analysis Zones (TAZ) Level Employment by COG Land Use Categories

## Components of Top-down process

#### Data sources

- COG Econometric Model Output
- Regional Economic Monitoring System (REMS) Report
- Virginia Employment Commission's (VEC) historic data
- Fairfax Co. Population Growth by Department of Neighborhood & Community Services (DNCS)
- Fairfax County Existing Land Use data and Economic Development Authority's Commercial Activities data

#### Employment type

Grouped into 11 industry sectors

## **Employment Sectors**

- Manufacturing
- Construction
- TCPU (transportation, communication, public utilities)
- Wholesale Trade
- Retail Trade
- F.I.R.E. (finance, Insurance, real-estate)

- Business Services
- Health Services
- Other Services
- Membership Org
- Government

Federal Civilian & Military Govt.
State & Local Govt.

## Top-down process

- Develop trends by employment sectors
  - Based on historic data and assumed future conditions
- Application of trends by type of employment
  - Regional Forecast
    - Fairfax County Market Share
  - Fairfax County Population Ratio
    - Number of Employees per thousand population
- Results
  - Countywide Employment in 5 year increments

# Example of Top-down Forecast for Sectors

- Manufacturing
- Construction
- TCPU
- Wholesale Trade
- Retail Trade
- F.I.R.E.

- Business Services
- Health Services
- Other Services
- Membership Org
- Government

Federal Civilian & Military Govt.
State & Local Govt.

## Top-down Process Second Step Market Share Allocation

#### Construction

Forecast is based on market share of MSA sector employment.

#### **Regional Forecast**

Year	<u>2000</u>	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>
Regional Employment	144400	162709	180693	188784	194331	198294	196822

#### **Fairfax Forecast**

Percent of MSA	21%	21%	19.50%	19.50%	19.50%	19.50%	19.50%
Employment	30364	34169	35235	36813	37895	38667	38380

## Top-down Process Second Step Market Share Allocation

#### Health

Forecast is based employees/1000 population.

#### **Regional Forecast**

<u>Year</u>	2000	<u>2005</u>	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>
Regional Employment	161793	178879	208574	235542	263660	291912	314403
MSA population	4544.9	4737.4	5193.5	5561.4	6000.6	6410.8	6634.8
MSA employees/1000 population	35.6	37.8	40.2	42.4	43.9	45.5	47.4
<b>Growth Percent</b>		1.1	1.1	1.1	1.0	1.0	1.0

#### **Fairfax Forecast**

County Population	969749	1,045000	1,114100	1,149800	1,174600	1,187400	1,197400
Employees/1000 population	30	32	34	36	38	38	40
Employment (county)	29082	33440	37879	41393	44635	45121	45501

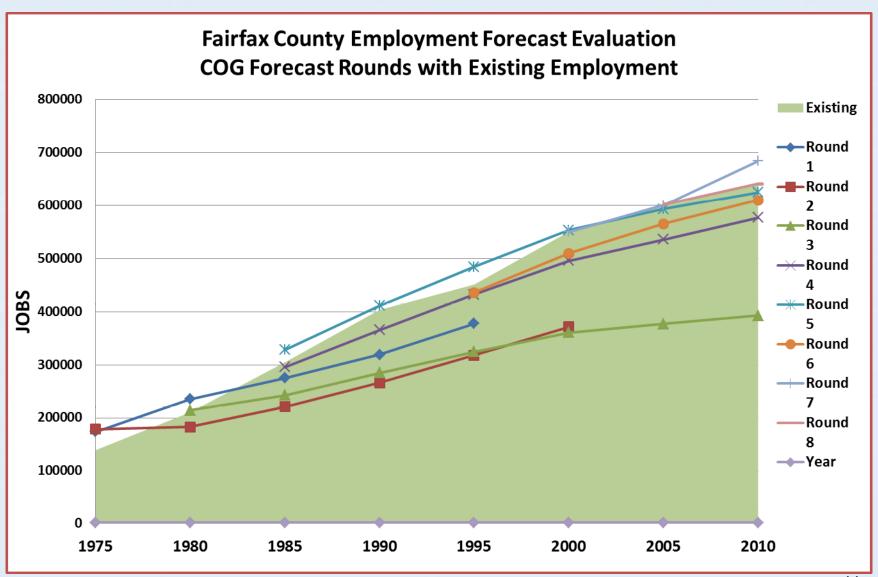
## Bottom-Up Method

- Base Year Employment (2010)
  - Consultant Data (Info USA, Dunn & Bradstreet Employment Data)
  - Existing Development Information (Land Use Map)
  - Direct Information from Institutional Employers (govt., schools, hospitals)
- First Five Years (2010-2015)
  - Existing occupancy/vacancy by market area
  - Absorption rate
- Next Five Years (2015-2020)
  - Under Construction
  - Site Plans Approved/submitted
- Following Five Years (2020-2025)
  - Plans, Rezonings' submitted/approved
- Future Years (2030, 2035, 2040)
  - Comprehensive Plan Potential

## **Bottom-Up Controls**

- TAZ growth stops when Comprehensive Plan Potential is met
- Total does not exceed Countywide target totals (top down) more than 3%

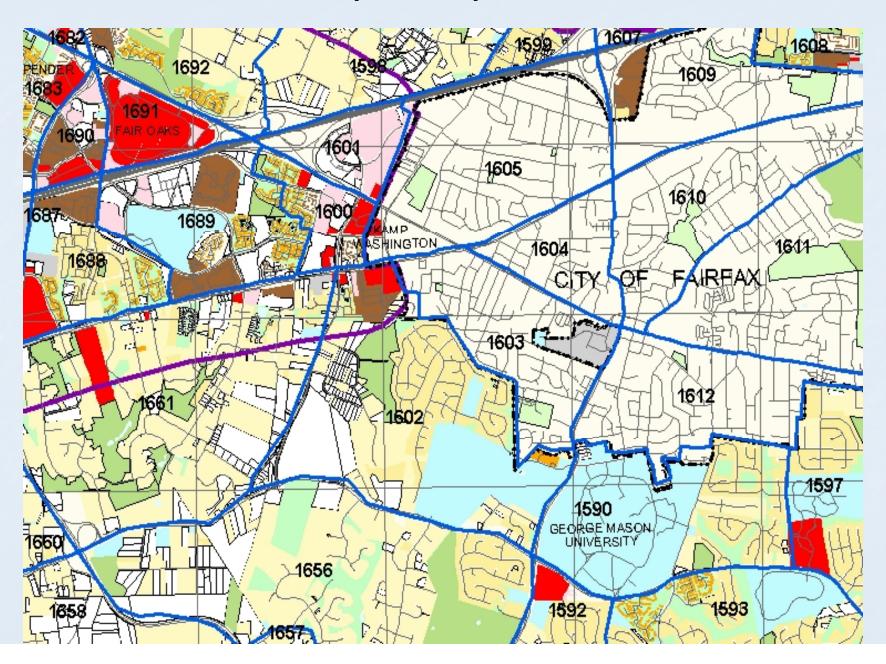
### Past 35 Years Forecast Review



## Questions?

Additional material if needed

## Land Use Map Sample (with TAZ)

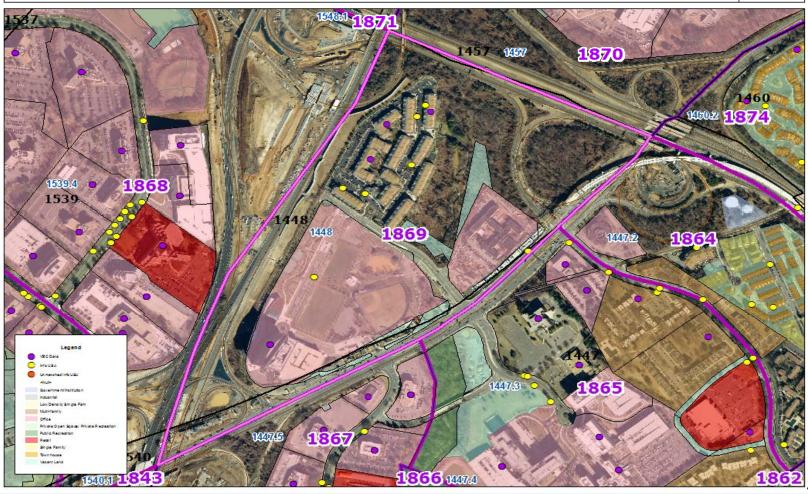


## TAZ Level Search

Traffic Analysis Zone: 1869

**Business Center: TYSONS CORNER URBAN CENTER** 





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# Non-residential Employment Factors Sample

Land Use Code	Description	Use Group	GFA sq ft/Employee						
	Office Buildings and Selected Services								
410	Office Park	Office	300						
421	General low rise office	Office	300						
422	Medical and/or dental low rise office	Office	300						
423	Government leased low rise office	Office	250						
	Industrial Production								
111	Planned industrial park	Industrial	450						
112	Industrial conglomeration	Industrial	450						
	Retail Trade								
311	Neighborhood shopping center	Retail	400						
312	Specialty shopping center	Retail	400						
313	Community shopping center	Retail	<b>400</b>						

#### NAICS to Land Use Sectors Conversion Table

TABLE 1
PERCENTAGE OF
EMPLOYMENT BY LAND USE CATEGORY

Agriculture 01-73 100% Veterinary 074-075 10% 90 Farms, Landscaping 076-078 100	INDUSTRY	SIC	OFFICE	RETAIL	INDUSTRIAL	OTHER
Veterinary 074-075 10% 90 Farms, Landscaping 076-078 100 Forestry 08 100 Fishing 09 100 Mining 10-12 100 011 & Gas Wells 138 100 100 011 & Gas Wells 138 100 100 Mining 14 100 100 Mining 15-17 100 100 Manufacturing 201-274 100 100 Manufacturing 201-275 50 50 100 Commercial Printing 275 50 50 100 100 Motor Freight 42 5 95 100 100 Motor Freight 42 5 95 100 Communication 48 100 100 Communication 48 100 100 Wholesale Trade 50-51 10 80 10 Banking & Credit 60-61 50 50 108 Banking & Credit 60-61 50 50 108 Banking & Credit 60-61 50 50 100 Banking & Credit 60-61 50 50 100 Banking & Credit 60-61 50 50 50 10	The second secon					100%
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Mining	Fishing	09				
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## Top-down Process: First Step Historic Trends

CONSTRUCTION	HEALTH SERVICES
Due to exceptional job growth and low vacancy rate since 1997 (under 5%) in office market, there was a modest increase in this sector between 1999-2000. It is expected to maintain at this	Employment in this sector responds to the growth in population.  Although the major head offices are not located in the county, there has been a steady growth in the health sector.
level till 2005 and decrease slightly in 2010 and remain steady there after because of shortage of vacant land.	Based on employment per 1000 population.
Based on percentage of MSA Construction sector	1980: 12.8 employees/1000 population
employment.	1985: 15.9 employees/1000 population
1980: 22.4% of MSA Construction sector employment	1990: 20.8 employees/1000 population
1985: 18.6% of MSA Construction sector employment	1995: 26 employees/1000 population
1990: 21.1% of MSA Construction sector employment	1996: 25 employees/1000 population
1995: 20.6 of MSA Construction sector employment	1997: 26.6 employees/1000 population
1996: 20.6% of MSA Construction sector employment	1998: 27.2 employees/1000 population
1997: 22% of MSA Construction sector employment	1999: 29.4 employees/1000 population
1998 18.9% of PMSA Construction sector employment	2000: 30 employees/1000 population
1999 23.1% of PMSA Construction sector employment	2001: 30.7 employees/1000 population
2000 21.6% of PMSA Construction sector employment	2000: 30 employees/1000 population
2001 19.3% of PMSA Construction sector employment	2010: 34 employees/1000 population
2000-2005: 21% of PMSA Construction sector employment	2015: 36 employees/1000 population
2010-2030: 19.5% of PMSA Construction sector employment	2020: 38 employees/1000 population
	2025-2030: 40 employees/1000 population

## Round 8 Econometric Model

Round 8 Econometric Totals: 1983 MSA - Adjusted for Household Constraint								
Employment by NAICS Category								
(Thousands)	2005	2010	2015	2020	2025	2030	2035	2040
Total Nonfarm	2,808.4	2,892.1	3,085.0	3,280.5	3,454.2	3,636.9	3,812.0	3,988.3
Non-Manufacturing	2,749.0	2,842.3	3,033.1	3,229.8	3,406.1	3,591.6	3,769.1	3,945.1
Service Providing Private	1,960.8	2,048.7	2,210.2	2,382.6	2,545.6	2,715.1	2,881.5	3,042.8
Construction, Natural Resources, and Mining	174.1	152.5	175.3	194.0	207.0	224.4	244.0	262.7
Manufacturing	59.4	49.8	51.9	50.7	48.1	45.3	42.9	41.4
Trade	382.4	381.1	391.4	402.5	412.2	416.6	417.9	410.9
Retail	252.6	255.7	259.3	263.1	267.6	270.2	272.3	266.5
Wholesale Trade	66.9	65.5	68.2	71.2	73.7	74.4	73.5	72.4
Transportation, Warehousing, Utilities	62.9	60.0	63.9	68.1	70.9	72.0	72.1	72.0
Information	98.3	83.0	87.4	93.6	104.6	118.6	138.7	158.7
Financial Activities	155.9	148.2	154.4	157.4	160.2	163.0	167.4	169.0
Professional & Business Svcs	636.9	674.0	790.8	907.7	1,013.9	1,137.0	1,254.2	1,396.2
Educational & Health Svcs	294.7	341.8	370.7	398.3	420.5	436.6	451.4	454.8
Leisure & Hospitality	231.2	236.5	243.2	252.0	258.6	264.0	267.9	267.7
Other Services	161.4	184.0	172.3	171.2	175.4	179.3	184.0	186.8
Government	614.1	641.1	647.6	653.2	653.5	652.1	643.7	640.1
Federal Government	339.1	340.6	335.2	330.4	322.9	316.0	304.7	296.6
State & Local Government	274.9	300.4	312.4	322.8	330.6	336.1	339.0	343.5
Military	75.9	70.7	70.3	70.5	70.6	70.2	69.5	69.1
Self Employed (Non-Farm x 0.093)	261.2	269.0	286.9	305.1	321.2	338.2	354.5	370.9
Total (Including Military)	3145.4	3231.7	3442.2	3656.1	3846.1	4045.3	4236.0	4428.3