District of Columbia
Office of Planning

Forecasting the District's Growth

Results & Methodology

June 2023

Introduction

This report presents the results and methodology for the District of Columbia Office of Planning's (OP) Long Range Cooperative Forecast conducted for the Metropolitan Washington Council of Governments (COG). The forecast base year is 2020 and proceeds through 2050. Citywide totals were formally submitted to COG in March 2023. COG approved and adopted the forecasts on May 10, 2023. The forecast used the best data available and the most appropriate assumptions.

Forecast Overview

The Office of Planning prepares a long-range forecast of jobs, households, and population approximately every two years for the Metropolitan Washington Council of Governments' (COG) regional transportation planning efforts. This information also serves as the foundation for the forecasts of growth used for the District's Comprehensive Plan.

The growth forecast starts with a current base year of 2020 and proceeds in five-year intervals out through 2050. The forecast is sub-divided geographically into Transportation Analysis Zones (TAZ – see Figure 4), which tend to be smaller than US census tracts, but vary in size depending on the density of the land uses and the street grid. Figure 1 presents the results of the most recent round of the COG forecast for DC .

The forecasts for population, households, and jobs presented in Figure 1 shows the District's population is expected to grow from about 689,000 in 2020 to more than 844,000 by 2050, representing an annual growth rate around 0.70%. Similarly, the number of households will increase from about 312,000 in 2020 to more than 441,000 total households by 2050, representing an annual growth rate of 1.3%. Finally, the forecast estimates the District will add more than 237,000 jobs for a total of more than one-million jobs by 2050, representing an annual growth rate of 1.0%. The forecasts of population and households suggest that the District's average household size will decrease from 2.08 to 1.82 people per household.

It is important to point out that the forecasts represent OP's best estimate of the most probable growth scenarios that will occur over 30 years. The household forecast does not represent total demand, but the intersection between demand and the supply's ability to deliver built capacity that can absorb the demand. OP errs toward the high side of growth because of the potential negative impacts on overloaded public facilities and infrastructure should growth occur faster than predicted.

Figure 1. Summary of COG 10.0 Cooperative Forecasts (thousands)

District of Columbia Forecast - Round 10.0										
Round 10.0	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**2020-2050**	**Percent Change**	**Annual Rate**
Population	689,546	697,650	728,606	757,186	787,144	816,428	844,411	154,865	22.5%	0.7%
Employment	785,890	846,101	886,263	923,498	954,370	989,020	1,021,568	235,678	30.0%	0.9%
Households	312,452	344,202	366,780	386,590	407,618	426,042	441,415	128,963	41.3%	1.3%
Jobs/Housing Ratio	2.52	2.46	2.42	2.39	2.34	2.32	2.31			
Group Quarters Population	40,682	40,979	41,364	41,645	41,926	42,311	42,785	2,103	5.2%	0.2%
Average Household Size	2.08	1.91	1.87	1.85	1.83	1.82	1.82			

Source: DC Office of Planning

To conduct the forecast, OP uses a supply-side method, which relies on the construction of new square footage of non-residential space and residential units. Newly built space reflects the capacity to absorb net new jobs and household growth that result from both migration to the District and young adults household formation. To these estimates of growth from new jobs and migration, OP adds growth from net natural increase (births minus deaths). The core assumption of a supply-side forecast is that, growth cannot exceed built capacity. However, over time, trends in square feet per job and people per dwelling unit can affect job and population growth within the same built space.

There are several other major qualitative and minor methodological assumptions OP makes to create these long-range forecasts. Significant factors and assumptions for this forecast include:

Households

- Households are expected to grow at a similar rate as previous forecasts
- Decrease in household density due to changing composition of housing stock
- Decrease in household occupancy due to COVID-19 pandemic and lagging effects

Population

- The District's population is expected to grow more slowly through 2050 and not reach 1 million compared to previous forecast.
- Short-term decrease in international migration due to COVID-19 with a return to pre-COVID levels in the long-term
- Increase in domestic out migration to areas with less dense and less costly housing

Employment

- Jobs have been lost due to COVID-19 but they will return at a comparable rate
- Increase in office jobs, while there will be a decrease in retail jobs density due to changing nature of work and e-commerce

- Increase in short-term commercial vacancy due to the macro-economic effects of the COVID-19 pandemic
- Slower GDP/economic growth
- Slower labor force growth/some layoffs
- Lower wage jobs more likely while higher wage jobs less likely

To conduct the forecast, the supply-side method is grouped into two slightly overlapping time periods. The first period runs from 2020 through 2035. The second period starts in 2035 and runs through 2050.

Forecasting 2020 - 2035

The forecast for the first period through 2035 is created by tracking development projects of at least ten residential units, or 10,000 square feet of non-residential space that are in various stages of development including:

- **Completed** since 2020 and occupied by 2025;
- **Under Construction** with estimated delivery by 2025 with 100% occupied by 2030;
- **Planned** projects that have received a pre-development approval such as a Planned Unit Development (PUD) or a funding commitment from a District agency. A portion of these projects is expected to be occupied by 2025 and the majority fully occupied by 2030.
- **Conceptual** projects, which have applied for, but not yet received a pre-development approval or a funding commitment from a District agency, and projects where limited information is known. Some of these projects are expected to deliver by 2030, with the rest fully occupied by 2035;

Projects are grouped into dominant land-uses, the type of project (new construction vs. demolition, or change of use), and the net number of units/hotel rooms, and square feet of non-residential space is tracked.

Using the pipeline of development activity as a source of data to forecast growth requires several basic assumptions including:

- Net new supply represents net growth;
- Any vacancy created elsewhere in DC is back filled within the five-year increment;
- Growth from smaller projects (that are not tracked by OP) is comparatively small and is canceled out by demolitions of existing buildings;
- Projects within the pipeline that fail to reach completion during a forecast interval are replaced by previously unknown projects that did reach completion within the appropriate time interval. This has proven to be an accurate assumption at the citywide level.

To estimate net new jobs to the District, non-residential land uses are assigned occupancy rates and square feet per job created in order to estimate the total number of permanent jobs located at the development. Figure 2 below is a table of the land uses and the job density for each non-residential use. OP validated these numbers by cross-referencing the square feet per job with the number of jobs and the total amount of square feet of existing uses in the District's major job centers.

Figure 2. Non-Residential Land Uses, Job Density, and Occupancy Rates

Land Use	SqFt. per Employee	Occupancy
Office	300	92%
Hospitality	1,000	100%
Retail	400	89%
Industrial	500	80%
Public/ Institution	500	100%
Mixed-Use	500	95%
Retail	400	89%

Source: DC Office of Planning

To estimate the impacts of household migration to and from the District, and residential uses are similarly given occupancy rates to calculate the number of households that will occupy units within the developments. To estimate the population of those households, OP uses US Census data from the American Community Survey (ACS) on average household size by the type and tenure of the unit. The table in Figure 3 provides the occupancy rates and the average household sizes used in OP's forecast.

Figure 3. Residential Occupancy Rates and People per Household

Housing Type	Ave. Household Size		Occupancy Rates		
	Ownership	Rental	2025	2030	2035-2050
Single Family	2.45	2.43	97%	97%	97%
Multi-Family					
<50 units	1.56	1.91	92%	94%	95%
50+ units	1.39	1.52	92%	94%	95%

Source: US Census, DC Office of Planning

OP then adds an estimate of the impact of natural increase (births minus deaths) on the District's population. OP's State Data Center uses actual births and deaths data by address over the past 5-10 years from the District's Department of Health. Births are not keeping pace with the rise in the number of women, especially those between 15 and 44 years old. The continuing shift toward later and later births has significant implications for future population growth.

Natural increase District-wide and for each transportation analysis zone (TAZ) is projected forward to 2050 by applying the actual proportion of the natural increase by area that occurred during the 2016 - 2020 period in the District, using birth and death records obtained from the District's Department of Health. This analysis resulted in an average of 2.7% net natural increase annually and the proportions by area were kept throughout the forecasted period.

Forecasting 2040 - 2050

The second major stage of the forecast starts with the 2040 interval and runs to the end in 2050. This stage relies on a land use capacity analysis that identifies vacant and underutilized parcels throughout the District that do not have proposed development activity tracked as part of the forecast's first stage. Potential jobs and households are estimated based on the tables in Figures 3 & 4 and assigned to each vacant/underutilized parcel identified, based on the parcel's split of zoning constraints between permitted residential and non-residential uses. For instance, zoning may permit up to a total of 30,000 square feet of residential uses for a specific property but limit non-residential uses of this property to only 15,000 square feet. In this situation, the forecast would allocate growth to this property equal to 15,000 square feet of non-residential (jobs) and 15,000 square feet of residential (approximately 15 units). The growth is proportionally divided to areas across the District based on remaining capacity, i.e. growth will occur in areas of the city that have the most remaining capacity. OP weights a portion of the growth based on recent land use and infrastructure decisions such as expanded support for housing in high density commercial areas of Central Washington and along street car/transit infrastructure corridors.

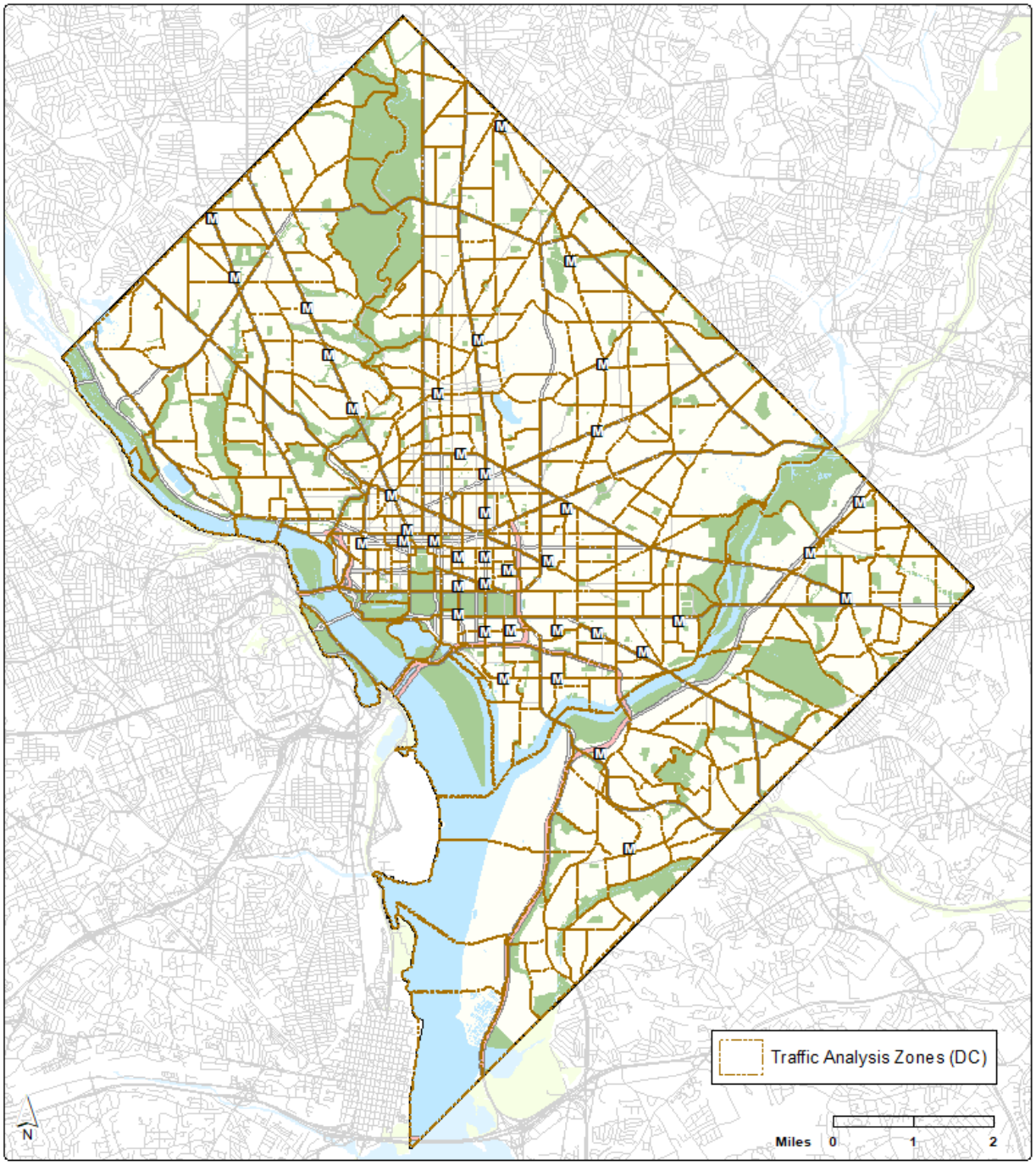
> Underutilized parcels are defined as non-historic, privately owned, non-institutional properties with 70 percent or more remaining developable capacity under current zoning and/or Comprehensive Plan Land Use Designation.

To allocate the underutilized capacity between the remaining forecast intervals, OP applies a decreasing marginal trend over the forecast period. This approach is consistent with COG's overall methodology given increasing uncertainty of the assumptions over time. The decreasing marginal trend results in a portion of growth allocated to New Neighborhoods and vacant/underutilized capacity during the 2035-2040 period and the remainder evenly split over the 2040-2045 and 2045-2050 intervals. **Review and Validation**

OP takes several steps to review and validate the forecast. First, OP starts by reviewing the decreasing marginal trend mentioned above and compares it to historic growth patterns.

Second, OP reviews national factors and competitive regional supply to validate that the proposed growth is not likely to be either significantly slower or faster. Third and final, OP works with COG to review the forecast and how it fits into their regional econometric growth model. COG is tasked with reviewing the forecasts of all member jurisdictions and ensuring their quality and consistency within the regional context. In conclusion, OP considered all of the data and qualitative assessment and is confident that the growth forecasts represent the most probable (optimistic) scenario for continued significant growth over the next 20 to 30 years.

Figure 4. Traffic Analysis Zone (TAZ) Boundaries within the District of Columbia



Source: DC Office of Planning