URBAN DEVELOPMENT INTENSITIES IN THE WASHINGTON, DC METROPOLITAN AREA

A COMPARATIVE ANALYSIS

Most people, urban planners included, have a difficult time determining a neighborhood's density simply by observation. Perceptions can be deceiving, especially when trying to compare areas with varying building heights, population sizes and geographical size. Density is a complex concept that incorporates measured density, perceived density, and crowding[1]. Each discipline – planners, economists, sociologists, demographers – uses the term to mean, and connote, different concepts. While the term is often described as objective, it is also relative; nearly everyone has a different interpretation of low, medium and high densities. What do measures of jobs per acre, or population per acre, feel like to employees or residents of a neighborhood? How do the places in which we live and work measure up and compare? Can objective, numeric measures really reflect the "urban-ness" of a place?

Regional Activity Centers

The Metropolitan Washington Council of Governments (COG) has developed a typology of regional activity centers – essentially clusters of employment. Starting with the D.C. core and moving outward, they include mixed-use centers, employment centers, and suburban employment centers. Each classification represents a different type and scale of development. There are, however, significant differences within the classifications themselves.

Washington DC Core

The D.C. core includes downtown Washington, D.C., the government center of the nation and the business center of the region. However, the core also includes Georgetown, which along with Alexandria, Virginia constitutes the two 18th century cities that pre-date the formation of Washington itself. The mixed-use centers include the Metrorail-served markets of the Rosslyn-Ballston corridor, Crystal City, Pentagon City, Silver Spring and Bethesda. Employment centers include what have been characterized as "edge cities" such as

[1] See Churchman, Arza. 1999. "Disentangling the concept of density", *Journal of Planning Literature* for a thorough discussion of the complexity of density.

Tysons Corner and Reston as well as developments that are purely government work compounds such as the Pentagon and the National Institutes of Health[2]. The Suburban Employment Centers are the emerging areas of job growth with clearly dispersed suburban patterns.

Measuring Development Intensity

The simplest measures used in this analysis are jobs and population per acre, very common methods of describing density. Separately they do not provide an adequate vision of a place in terms of its form or function. Since most urban development and land use is built for either employment or residential purposes, the combined measure of development intensity derived by adding the two measures together provides a clearer sense of the use of land[3]. The results shown in Table 1 begin to relate the measure of development intensity to certain places in a way that is more easily understood.

Without question, the most intensely developed area or center within the region is Downtown Washington, with an overall intensity measure of 167.5 jobs and residents per acre. Most of this is attributable to jobs, although the population component is roughly equivalent to the higher density Mixed-use Centers. Downtown is developed at an intensity nearly four times that of Tysons Corner and well above areas with much taller development such as Rosslyn and Bethesda.

The next tier in terms of intensity includes the transit-oriented development in the mixed-use centers of the Rosslyn-Ballston Corridor, Crystal City, and Bethesda. These areas have job densities generally above 80 jobs per acre and population densities above 30 persons per acre, the highest

Table 1: Comparitive Densities & Intensities
Selected Regional Activity Centers
Washington DC Metroplitan Area, 2005-2030

Area Name	Acres	2005 Jobs	2005 Job Density	2005 Population Density*	2005 Overall Intensity
Downtown Washington	2,685	371,146	138.2	29.3	167.5
Georegtown	329	16,139	49.0	6.8	55.7
Downtown Alexandria	1,223	39,423	32.2	19.9	52.1
Rosslyn	302	27,744	91.9	41.0	132.9
Ballston/VA Square	534	33,077	62.0	35.4	97.4
Crystal City	391	32,174	82.2	26.7	109.0
Bethesda CBD	407	34,833	85.6	34.7	120.3
Silver Spring CBD	367	29,741	81.0	32.3	113.3
Pentagon	294	19,654	66.9	0.0	66.9
National Institutes of Health	548	23,801	43.4	0.0	43.4
Tysons Corner	2,412	92,603	38.4	6.9	45.3
Reston West	1,009	36,049	35.7	4.3	40.0
Reston East	630	20,161	32.0	0.4	32.4
Fairfax Center	2,577	30,896	12.0	8.5	20.5
Dulles Corner	819	7,899	9.6	4.4	14.1
Dulles East	2,255	25,061	11.1	0.9	12.0
Dulles West	2,740	27,003	9.9	1.1	11.0

DC Core | Historic Cities | Mixed Use Centers | Employment Centers | Emerging Employment Centers

Source: Washington Council of Governments
** approximate*

[2] See Garreau, Joel. 1991. Edge *Cities: Life on the New Frontier*, where Tysons Corner is described as the prototypical edge city.

[3] See Holzheimer, Terry. 2006. *Smart Growth Policies and the Public Sector Costs of Growth* which introduces the concept of development intensity as a better measure of sprawl and smart growth development patterns than density alone.

residential densities in the region[4]. The edge city areas of Fairfax County – Tysons Corner, Reston, and Fairfax Center - have not yet become mixed-use centers due to population densities below 10 persons per acre.

One perhaps surprising conclusion that can be reached from the data is that the development intensity of Tysons Corner and its edge city comparables is below that of the two 18th century cities of Georgetown and Alexandria. While both of these older cities have increased their development intensity over the past two hundred years, it has been within generally the same development envelope prescribed by the street grid and height and scale of the original buildings. Furthermore, their street grids have accommodated traffic levels associated with 21st Century America. With development intensities above 50 jobs and residents per acre, it is perhaps surprising how intensely developed older American cities actually were. Georgetown and Alexandria are generally perceived as pedestrian oriented, moderate scale urban places, without significant height. It is worthwhile to note that development intensities of 50 or higher do not need to be uncomfortable environments for walking and can easily accommodate activities of daily living.

Ballston in Arlington is an example of a Mixed-use Center.

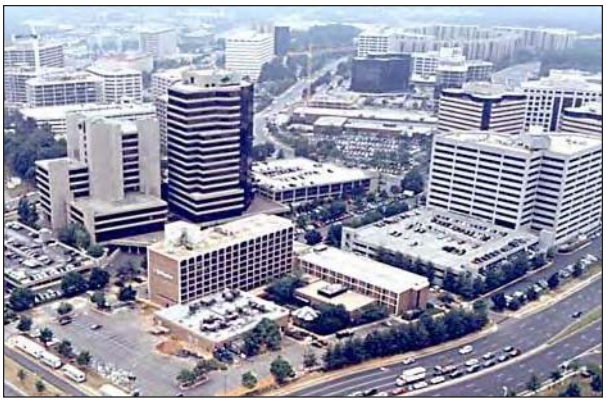

Photo courtesy of BeyondDC.com

Tyson's Corner is one of the regions Employement Centers.

Job densities in suburban employment centers such as the Dulles Corridor are below 10 per acre with overall development intensities below a level of 15. In 2005 they are far from being urban places by any measure.

Projected Regional Growth

How will development proceed over the next 25 years? Dr. Chris Nelson with Virginia Tech's Metropolitan Center suggests that by 2030 the entire built environment that has taken more than 200 years to develop will need to be replicated by a like amount of new construction[5]. Based on the COG Round 7 forecasts, which are provided by the constituent jurisdictions, densities and intensities

[4] It is important to remember that these densities are averaged over the entire land area of the Activity Centers and should not be confused with other measures of density such as floor area ratios (FAR). For example, an FAR of 4.0 on a one acre site could be expected to accommodate 700 jobs or 365 residents.

[5] Nelson, Arthur C. 2004. *Toward a New Metropolis: The Opportunity to Rebuild America,* A discussion paper prepared for the Brookings Institution metropolitan policy program.

Table 2: Comparitive Densities & Intensities
Selected Regional Activity Centers
Washington DC Metroplitan Area, 2005-2030

Area Name	2005 Overall Intensity	2030 Overall Intensity	2005-2030 Intensity Change
Downtown Washington	167.5	202.5	20.9%
Georegtown	55.7	59.9	7.5%
Downtown Alexandria	52.1	63.0	20.8%
Rosslyn	132.9	210.9	58.7%
Ballston/VA Square	97.4	140.7	44.5%
Crystal City	109.0	174.5	60.1%
Bethesda CBD	120.3	168.9	40.4%
Silver Spring CBD	113.3	174.5	54.0%
Pentagon	66.9	66.9	0.0%
National Institutes of Health	43.4	51.6	18.9%
Tysons Corner	45.3	74.6	64.9%
Reston West	40.0	57.7	44.2%
Reston East	32.4	50.1	54.8%
Fairfax Center	20.5	28.9	41.0%
Dulles Corner	14.1	46.1	227.2%
Dulles East	12.0	23.5	95.4%
Dulles West	11.0	17.3	56.9%

Source: Washington Council of Governments

are expected to increase significantly (see Table 2). Every regional activity center is projected to gain. The transit-oriented mixed-use centers will achieve true urban level development intensities, approaching or eclipsing 200 persons per acre with growth rates above 40 percent. These areas will also continue to have the highest residential densities. The edge city communities will grow at about that same rate and will finally feature development intensities approaching those of Georgetown and Alexandria. As might be expected, the suburban employment centers will show the greatest percentage growth, especially those in the Dulles Corridor receiving a Metrorail extension. Even then, however, their development densities will fall short of today's edge cities. Despite the continued intensification of the D.C. core, mixed-use centers, and employment centers, the great majority of the region's projected job growth over the next 25 years (73%) will be outside of these activity areas and will result in development patterns that are low density and suburban in character.

Conclusions

Several conclusions can be reached from the data presented. First, with few exceptions, development intensities found today fall far short of the intensity levels of those of the 18th Century cities around which Washington was developed. Relatively high intensity development can be achieved within constraints posed by the height, form and texture of traditional communities as is demonstrated in places such as Georgetown and Alexandria. Second, transit will focus growth in mixed-use centers which will likely grow at rates equivalent to the suburban edge cities. These places, such as the Rosslyn-Ballston corridor and Crystal City, will become truly urban, with development intensities three or more times that of the 18th Century model, while downtown Washington will truly remain the central city of the region.

Even at substantially increased development densities, the DC Core and transit-oriented mixed-use centers cannot begin to accommodate a substantial portion of the overall growth projected for the region. New and more intense development will be needed in today's suburban districts to meet the rather sobering projections that suggest nearly doubling the built environment by 2030.

Georgetown, located in Washington, D.C. is one of the region's Historic Cities.

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