



Market Study and Demand Forecast

June 12, 2017

Durham-Orange Light Rail Corridor
GoTriangle Project #16-015

PRODUCED FOR GOTRIANGLE BY TOYON GROUP AND GATEWAY PLANNING GROUP



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Market Study and Demand Analysis

Durham-Orange Light Rail Corridor

Land Use Planning for Transit-Oriented Development

GoTriangle Project #16-015

EXECUTIVE SUMMARY

May 2017

Executive Summary: Context

BACKGROUND

GoTriangle is conducting a station area planning and economic development study for the Durham-Orange Light Rail project (D-O LRT), connecting Central Durham to central Chapel Hill. The selected alignment for the light rail passes through the local real estate submarkets of Central Durham, Southwest Durham, and Chapel Hill. The selected Consulting Team, led by Gateway Planning Group, includes Toyon Group, who has performed this economic analysis to provide a preliminary forecast of likely future growth rates of real estate development in office, retail, multi-family residential, and hotel categories.

OBJECTIVE

This document provides a preliminary review of economic data concerning the development and supply of building types (office, retail, residential, and hotel). It presents research on historical rates of the delivery of new development each year. This study also projects those growth rates into the future, providing a range of how much new growth may be reasonable to expect. In an effort to provide as accurate a depiction of expected future growth as possible, some assumptions were made to account for current and future market shifts whereby straight-line historical projects are unlikely to properly predict future behavior and outcomes.

Although construction of light rail is unlikely to dramatically alter overall economic and population growth for the Durham-Orange-Wake region as a whole, it is reasonable to expect a significant effect on where within the region residents, employees, developers, and companies choose to allocate new growth via the private real estate market. Future rail service, combined with policies designating station areas for future compact growth, will influence market participants and favor development within station areas. The resulting shifts in where people choose to live and work has further effects on the ongoing costs of infrastructure construction and maintenance to serve growing populations into the future.

PROCESS

The estimates and projections provided in this document are *not* intended to assign certain amounts of new real estate supply to certain station areas. Market estimates are intended to provide general guidance and support for station area plans. These estimates will aide the cities, towns, and counties in scaling plans to the local market; provide evidence that planned developments will attract market interest and ultimately be fully occupied; and inform the phasing and timing of development over the next 10, 20, and 30 years. The Consulting Team will incorporate this report's information provided into future tasks, which include developing station area plans, defining new place types for use in the region's CommunityViz growth model, and estimating potential for future value capture.

Executive Summary: Method

METHODOLOGY

This report does *not* take into account *all* of the ways in which the future may be significantly different from the past. For example, some types of housing or retail product (such as townhomes or live/work lofts) that do not have a history of growth in the region could find a market and grow quickly in the future. Some types of big-box retail may see less demand as online shopping increases in popularity.

Properties were grouped by submarket (i.e., Chapel Hill, Cary, or Downtown Raleigh) and then by year built, to understand the relative size and rate of growth of each submarket. Each submarket's rate of annual growth was averaged over the last 30 years.

- All properties, grouped together, were analyzed by year built to understand the overall rate of growth for the entire Triangle Region (Durham, Orange, and Wake counties). Annual regional growth is measured as a percent increase from the previous year (gross square feet for office and retail, and per unit for apartment and hotel).
- The rate of growth (a percentage) is then converted into an estimate of additional supply (square feet or units) projected to be delivered in each future year. This includes a $\pm 20\%$ margin of error reflecting uncertainty in predicting future growth.
- The regional additional supply is then assigned to each submarket based on each submarket's historical average share of annual growth of the last 30 years.

DATA AND ASSUMPTIONS

Data were sourced from local real estate sources:

- Toyon Group worked with MG Valuation and Mearstone Group to develop databases of local commercial real estate properties in Durham, Orange, and Wake counties. Additional data on hotels was purchased from STR, a hospitality industry research firm.
- City of Durham and Town of Chapel Hill provided additional data on approved projects expected to be constructed between 2017 and 2020.
- Year of construction is assumed to be the year in which new supply was added to the regional market.
- Growth projections are based on the last 30 years of development (since 1987) which include three recessions and three economic recoveries, each of varying strength, depth, and duration.
- The boundaries of local real estate submarkets were published by CoStar, a widely recognized real estate industry research firm. Some boundary adjustments were made to more accurately depict Durham's areas of urban and suburban growth.
- Future trends include the expectation that the average amount of office square feet per employee will continue to shrink in the future, and large-format retail stores will face increasing competition from online sellers.
- More detail is available in the Methodology section of this report.

Executive Summary: Findings

RESULTS

The Triangle Region has consistently grown at 3.5% - 5.0% per year, even through recent recessions. Annual rates of population growth and gross regional product (GRP) have been in this range. Additions to the region's supply of office space, retail space, and hotel rooms have also grown within this range.

Locally, Durham-Chapel Hill has grown at 3% - 5% per year. On average, Central Durham has attracted 5% of each year's new growth; Southwest Durham has attracted 12%, and Chapel Hill has attracted 3%. Continuing to take in that much of the region's growth over the next 50 years would require redeveloping at extreme densities that are considered highly inappropriate. Some of the region's continuing growth will likely be absorbed by exurban expansion into Chatham and Alamance Counties (as well as rural Orange and Durham Counties), while other growth is likely to be absorbed by densification around Downtown Raleigh and Research Triangle Park. However, in order to maintain a diverse tax base and broad cross-section of residents, Durham and Chapel Hill will need to compete for at least some of the new growth expected in the region. Durham and Chapel Hill will continue to grow, and the nature of that growth will both influence and depend on infrastructure investments that are made regionally.

FINDINGS

As noted above, continuing regional growth at 3.5% - 5.0% would generate more than enough demand to fill up new supply on (re)developable acreage around station sites. Local ordinances and limits on building size, zoning density, parking requirements, and other constraints allow buildings and uses lower than what the market would otherwise demand and supply. Planning around station areas may reasonably assume that over a 50-year time horizon, the region as a whole will be growing sufficiently to take up proposed new supply.

With overall regional growth expected to continue, the rail submarkets (Chapel Hill, Central Durham, Southwest Durham) are in a strong competitive position to attract new companies, stores, residents, and hotels. The chief competing submarkets are likely to continue to be RTP/RDU, central Raleigh, and Cary.

If rail transit is not constructed, suburban growth in Orange County, Southwest Durham, and then Chatham County are the most likely alternative markets to supply growing demand.

Executive Summary: Opportunities

Market analysis demonstrates that the Triangle Region will continue to grow (demographically, economically, and geographically), likely at a strong pace. However, how and where that growth will occur is dependent upon local and regional policy decisions. These policy decisions will have significant impacts on the type and location of this growth and the development type that will occur in the future. In maintaining a conservative approach, this report assumes that new light rail service will not attract significant additional in-migration over and above what the region would otherwise capture.

Nonetheless, with appropriate investments and policies, the region's robust growth can be directed away from neighboring rural and exurban areas and towards more walkable and transit-adjacent communities. This approach could leverage sustainable development patterns to attract jobs, expand the local tax base, and enhance existing neighborhoods. Specific outcomes could include:

- Places such as single-use retail at Hamilton Road and NC 54 or Patterson Place can expect redevelopment and reinvestment within the station areas by taking advantage of existing infrastructure, rather than requiring local communities and developers to extend new utilities and roads for growth at the fringes (new infrastructure for which future maintenance may be costly);
- Large tracts of underdeveloped land, such as those found at Gateway and Leigh Village, are likely to develop much sooner and in a more walkable, mixed-use way than they would without light rail service; and
- Orange County can compete for higher quality growth and a greater market share within the Triangle Region without degrading the rural character prevalent in much of the County and valued by many of its residents.

With rail investment, growth is expected to be more focused in compact neighborhoods around rail stations and within other connected nodes throughout the region. Without rail investment, demand for growth in the region would likely manifest in patterns of lower density, auto-oriented development across the region. To take advantage of rail transit, therefore, appropriate policies (explored in the study on D-O LRT Value Capture) can leverage that investment to encourage desired outcomes, such as:

- Additional tax revenue due to accelerated higher-value growth in station areas;
- Accelerated commercial growth including attraction of class "A" office space, global headquarters, and other large corporate users as well as resulting complementary retail and hospitality uses;
- Increased housing choices and commuting options across a range of incomes;
- Reduced costs of associated infrastructure and maintenance required to support new residents and business activity due to fewer linear miles of new water and wastewater lines, roads, and utilities; and
- Expansion of the communities' economic base, facilitating priority policies such as making affordable housing available in accessible, high-quality neighborhoods.

Executive Summary: Office Projections

- Based on regional growth continuing $\pm 4.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be concentrated around light rail stations, generally distributed around auto-oriented office parks, or pushed out to outlying areas along I-40 or I-85, depending on general plans, project approval, zoning, and other future policies

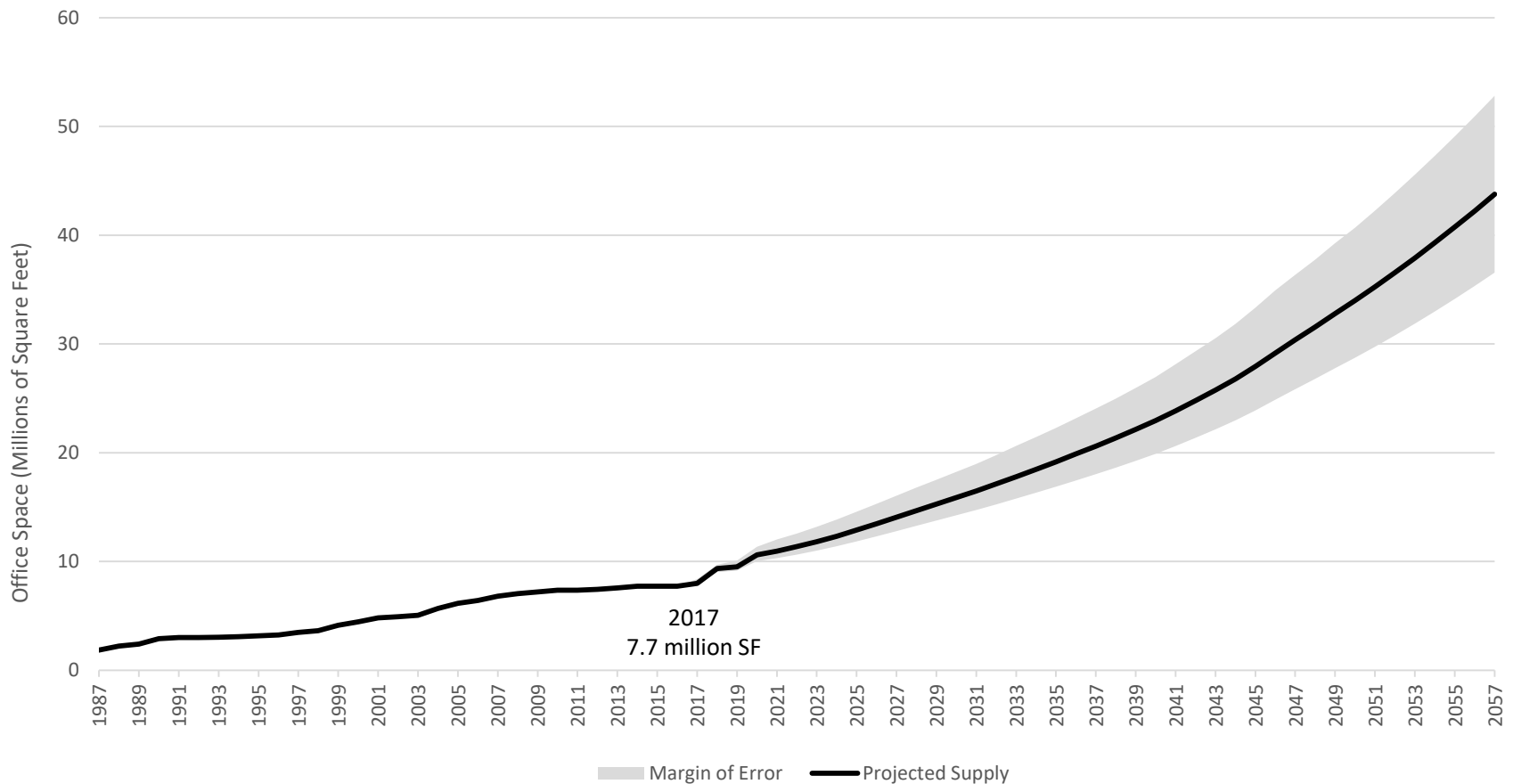
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	3.7 million SF	870,000 to 1.3 million SF	1.2 million to 1.8 million SF	1.5 million to 2.2 million SF	1.7 million to 2.6 million SF	2.1 million to 3.2 million SF	2.7 million to 4.0 million SF	3.5 million to 5.3 million SF	3.5 million to 5.3 million SF
Southwest Durham	2.6 million SF	134,000 to 201,000 SF	435,000 to 652,000 SF	386,000 to 580,000 SF	391,000 to 586,000 SF	421,000 to 631,000 SF	562,000 to 843,000 SF	872,000 to 1.3 million SF	826,000 to 1.2 million SF
Chapel Hill	1.5 million SF	1.7 million to 2.5 million SF	499,000 to 749,000 SF	580,000 to 870,000 SF	669,000 to 1.0 million SF	814,000 to 1.2 million SF	1.2 million to 1.8 million SF	1.5 million to 2.3 million SF	1.4 million to 2.1 million SF
Total	7.7 million SF	2.7 million to 4.0 million SF	2.2 million to 3.2 million SF	2.5 million to 3.7 million SF	2.8 million to 4.2 million SF	3.3 million to 5.0 million SF	4.5 million to 6.7 million SF	5.9 million to 8.9 million SF	5.8 million to 8.7 million SF

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	3.7 million SF	870,000 to 1.3 million SF	2.1 million to 3.1 million SF	3.6 million to 5.4 million SF	5.3 million to 8.0 million SF	7.4 million to 11.1 million SF	10.1 million to 15.1 million SF	13.6 million to 20.4 million SF	17.1 million to 25.7 million SF
Southwest Durham	2.6 million SF	134,000 to 201,000 SF	569,000 to 853,000 SF	955,000 to 1.4 million SF	1.3 million to 2.0 million SF	1.8 million to 2.7 million SF	2.3 million to 3.5 million SF	3.2 million to 4.8 million SF	4.0 million to 6.0 million SF
Chapel Hill	1.5 million SF	1.7 million to 2.5 million SF	2.2 million to 3.3 million SF	2.8 million to 4.1 million SF	3.4 million to 5.2 million SF	4.2 million to 6.4 million SF	5.5 million to 8.2 million SF	7.0 million to 10.5 million SF	8.4 million to 12.7 million SF
Total	7.7 million SF	2.7 million to 4.0 million SF	4.9 million to 7.3 million SF	7.3 million to 11.0 million SF	10.1 million to 15.1 million SF	13.4 million to 20.1 million SF	17.9 million to 26.9 million SF	23.8 million to 35.7 million SF	29.6 million to 44.4 million SF

Executive Summary: Office Projections

- Based on regional growth continuing $\pm 4.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be concentrated around light rail stations, generally distributed around auto-oriented office parks, or pushed out to outlying areas along I-40 or I-85, depending on general plans, project approval, zoning, and other future policies

Projected Supply of Office Space (SF)



Executive Summary: Retail Projections

- Based on regional growth continuing $\pm 3.8\%$ and the Rail Submarkets continuing to attract $\pm 14\%$ of that additional inventory
- Projected growth could be concentrated around light rail stations, distributed over the trade area, or follow residential growth in Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

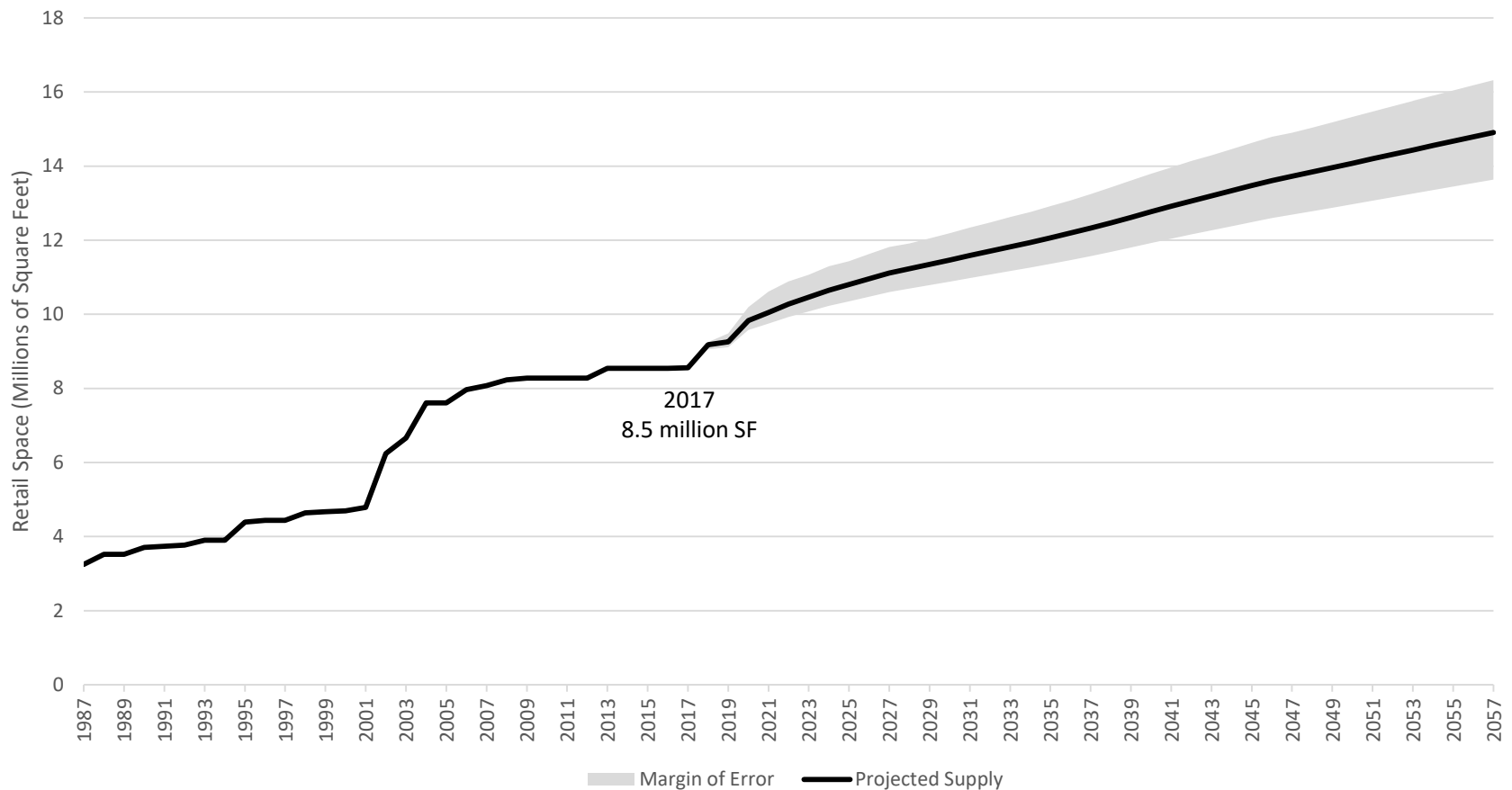
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	1.7 million SF	187,000 to 281,000 SF	242,000 to 363,000 SF	202,000 to 303,000 SF	257,000 to 386,000 SF	318,000 to 477,000 SF	290,000 to 435,000 SF	264,000 to 397,000 SF	232,000 to 347,000 SF
Southwest Durham	5.0 million SF	180,000 to 270,000 SF	313,000 to 470,000 SF	198,000 to 297,000 SF	154,000 to 231,000 SF	164,000 to 246,000 SF	163,000 to 244,000 SF	204,000 to 305,000 SF	163,000 to 244,000 SF
Chapel Hill	1.8 million SF	1.0 million to 1.5 million SF	117,000 to 175,000 SF	72,000 to 108,000 SF	86,000 to 130,000 SF	106,000 to 158,000 SF	80,000 to 120,000 SF	96,000 to 144,000 SF	78,000 to 118,000 SF
Total	8.5 million SF	1.4 million to 2.1 million SF	672,000 to 1.0 million SF	472,000 to 708,000 SF	497,000 to 747,000 SF	588,000 to 881,000 SF	533,000 to 799,000 SF	564,000 to 846,000 SF	473,000 to 709,000 SF

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	1.7 million SF	187,000 to 281,000 SF	429,000 to 644,000 SF	631,000 to 947,000 SF	888,000 to 1.3 million SF	1.2 million to 1.8 million SF	1.5 million to 2.2 million SF	1.8 million to 2.6 million SF	2.0 million to 3.0 million SF
Southwest Durham	5.0 million SF	180,000 to 270,000 SF	493,000 to 740,000 SF	691,000 to 1.0 million SF	845,000 to 1.3 million SF	1.0 million to 1.5 million SF	1.2 million to 1.8 million SF	1.4 million to 2.1 million SF	1.5 million to 2.3 million SF
Chapel Hill	1.8 million SF	1.0 million to 1.5 million SF	1.1 million to 1.7 million SF	1.2 million to 1.8 million SF	1.3 million to 1.9 million SF	1.4 million to 2.1 million SF	1.5 million to 2.2 million SF	1.6 million to 2.3 million SF	1.6 million to 2.5 million SF
Total	8.5 million SF	1.4 million to 2.1 million SF	2.0 million to 3.1 million SF	2.5 million to 3.8 million SF	3.0 million to 4.5 million SF	3.6 million to 5.4 million SF	4.1 million to 6.2 million SF	4.7 million to 7.1 million SF	5.2 million to 7.8 million SF

Executive Summary: Retail Projections

- Based on regional growth continuing $\pm 3.8\%$ and the Rail Submarkets continuing to attract $\pm 14\%$ of that additional inventory
- Projected growth could be concentrated around light rail stations, distributed across the trade area, or follow residential growth in Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Projected Supply of Retail Space (SF)



Executive Summary: Multi-Family Residential

- Based on regional growth continuing $\pm 3.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

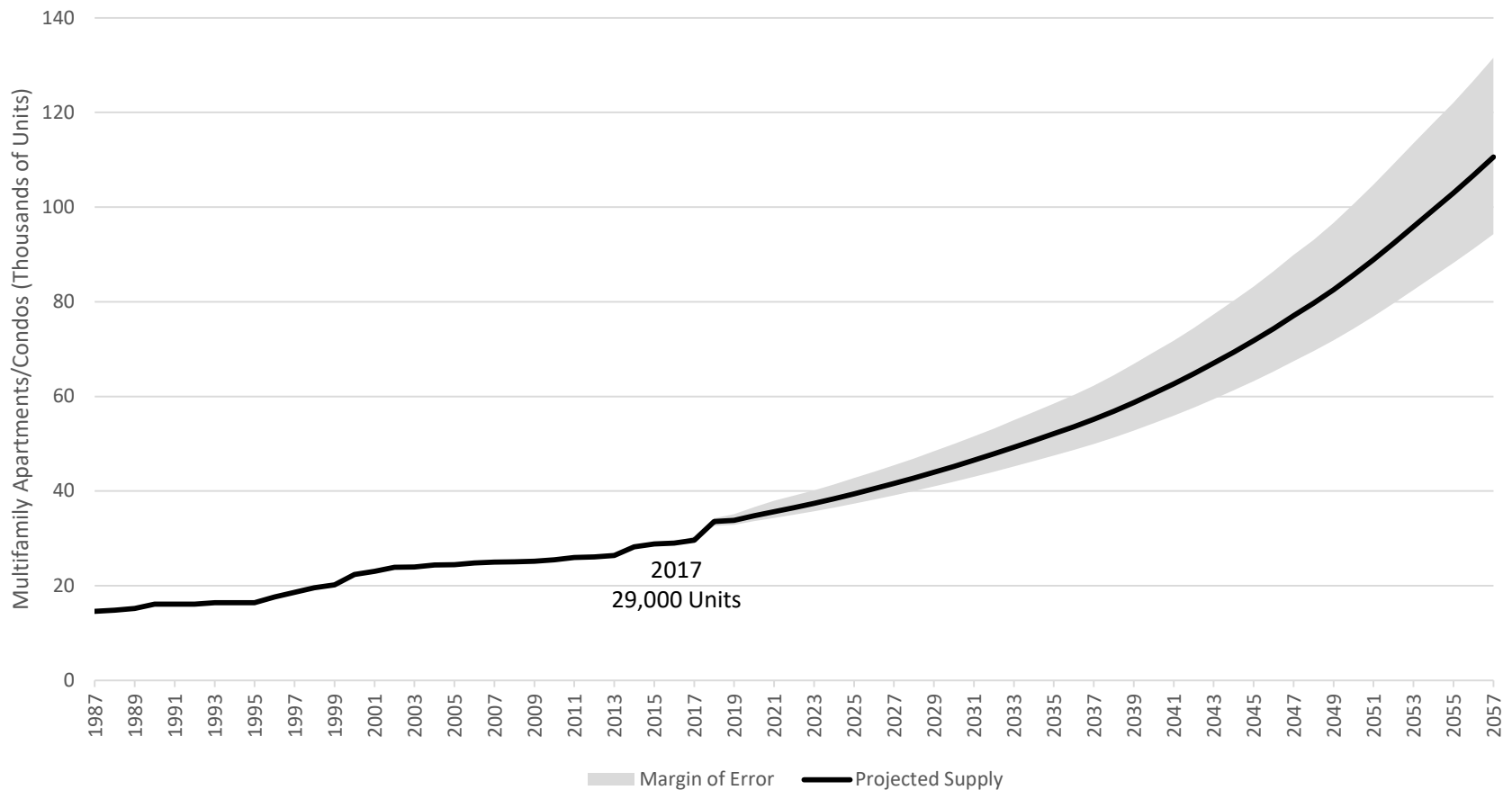
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	6,000 Units	1,300 to 1,900 Units	1,200 to 1,800 Units	1,700 to 2,600 Units	2,300 to 3,400 Units	2,900 to 4,300 Units	3,400 to 5,100 Units	5,000 to 7,400 Units	5,200 to 7,800 Units
Southwest Durham	15,000 Units	700 to 1,100 Units	2,000 to 3,000 Units	2,100 to 3,200 Units	2,100 to 3,100 Units	2,700 to 4,000 Units	3,500 to 5,300 Units	5,700 to 8,500 Units	5,600 to 8,400 Units
Chapel Hill	8,000 Units	3,500 to 5,300 Units	900 to 1,300 Units	1,100 to 1,700 Units	1,500 to 2,300 Units	2,100 to 3,100 Units	2,900 to 4,300 Units	3,800 to 5,700 Units	3,800 to 5,700 Units
Total	29,000 Units	5,500 to 8,300 Units	4,100 to 6,100 Units	4,900 to 7,500 Units	5,900 to 8,800 Units	7,700 to 11,400 Units	9,800 to 14,700 Units	14,500 to 21,600 Units	14,600 to 21,900 Units

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	6,000 Units	1,300 to 1,900 Units	2,500 to 3,700 Units	4,200 to 6,300 Units	6,500 to 9,700 Units	9,400 to 14,000 Units	12,800 to 19,100 Units	17,800 to 26,500 Units	23,000 to 34,300 Units
Southwest Durham	15,000 Units	700 to 1,100 Units	2,700 to 4,100 Units	4,800 to 7,300 Units	6,900 to 10,400 Units	9,600 to 14,400 Units	13,100 to 19,700 Units	18,800 to 28,200 Units	24,400 to 36,600 Units
Chapel Hill	8,000 Units	3,500 to 5,300 Units	4,400 to 6,600 Units	5,500 to 8,300 Units	7,000 to 10,600 Units	9,100 to 13,700 Units	12,000 to 18,000 Units	15,800 to 23,700 Units	19,600 to 29,400 Units
Total	29,000 Units	5,500 to 8,300 Units	9,600 to 14,400 Units	14,500 to 21,900 Units	20,400 to 30,700 Units	28,100 to 42,100 Units	37,900 to 56,800 Units	52,400 to 78,400 Units	67,000 to 100,300 Units

Executive Summary: Multi-Family Residential

- Based on regional growth continuing $\pm 3.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Projected Supply of Apartments/Condos (Units)



Executive Summary: Hotel Projections

- Based on regional growth continuing $\pm 5.3\%$ and the Rail Submarkets continuing to attract $\pm 26\%$ of that additional inventory
- Projected growth could be adjacent to suburban office parks, concentrated around light rail stations, or follow outlying office and medical development on I-85 corridor, depending on general plans, project approval, zoning, and other future policies

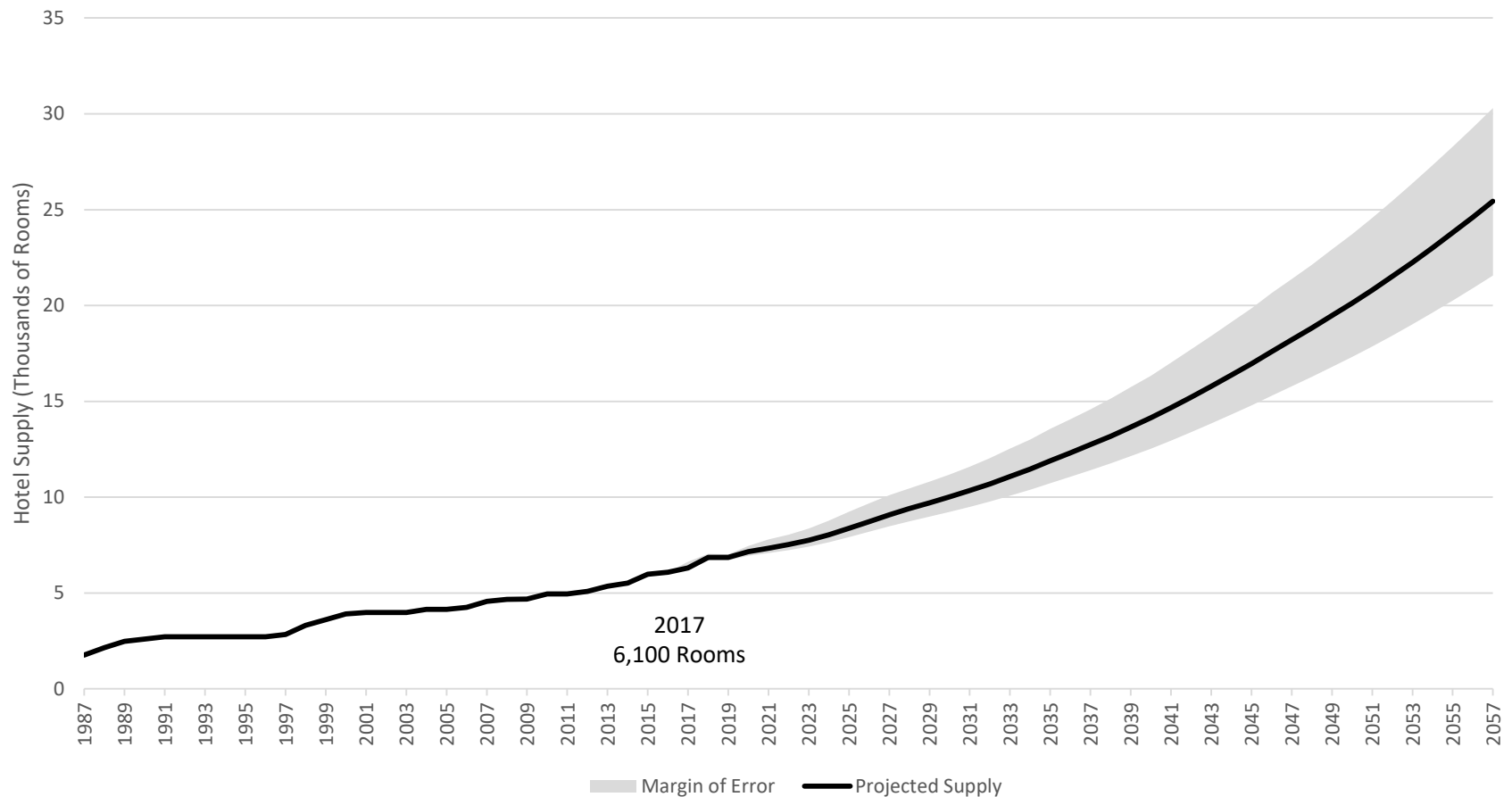
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	2,000 Rooms	300 to 500 Rooms	400 to 600 Rooms	400 to 600 Rooms	600 to 900 Rooms	900 to 1,300 Rooms	1,000 to 1,500 Rooms	1,200 to 1,800 Rooms	1,200 to 1,800 Rooms
Southwest Durham	2,500 Rooms	100 to 200 Rooms	500 to 700 Rooms	500 to 700 Rooms	600 to 900 Rooms	600 to 900 Rooms	700 to 1,100 Rooms	1,100 to 1,600 Rooms	1,000 to 1,600 Rooms
Chapel Hill	1,500 Rooms	500 to 800 Rooms	400 to 600 Rooms	400 to 600 Rooms	400 to 700 Rooms	500 to 800 Rooms	700 to 1,000 Rooms	900 to 1,400 Rooms	900 to 1,300 Rooms
Total	6,100 Rooms	900 to 1,500 Rooms	1,300 to 1,900 Rooms	1,300 to 1,900 Rooms	1,600 to 2,500 Rooms	2,000 to 3,000 Rooms	2,400 to 3,600 Rooms	3,200 to 4,800 Rooms	3,100 to 4,700 Rooms

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	2,000 Rooms	300 to 500 Rooms	700 to 1,100 Rooms	1,100 to 1,700 Rooms	1,700 to 2,600 Rooms	2,600 to 3,900 Rooms	3,600 to 5,400 Rooms	4,800 to 7,200 Rooms	6,000 to 9,000 Rooms
Southwest Durham	2,500 Rooms	100 to 200 Rooms	600 to 900 Rooms	1,100 to 1,600 Rooms	1,700 to 2,500 Rooms	2,300 to 3,400 Rooms	3,000 to 4,500 Rooms	4,100 to 6,100 Rooms	5,100 to 7,700 Rooms
Chapel Hill	1,500 Rooms	500 to 800 Rooms	900 to 1,400 Rooms	1,300 to 2,000 Rooms	1,700 to 2,700 Rooms	2,200 to 3,500 Rooms	2,900 to 4,500 Rooms	3,800 to 5,900 Rooms	4,700 to 7,200 Rooms
Total	6,100 Rooms	900 to 1,500 Rooms	2,200 to 3,400 Rooms	3,500 to 5,300 Rooms	5,100 to 7,800 Rooms	7,100 to 10,800 Rooms	9,500 to 14,400 Rooms	12,700 to 19,200 Rooms	15,800 to 23,900 Rooms

Executive Summary: Hotel Projections

- Based on regional growth continuing $\pm 5.3\%$ and the Rail Submarkets continuing to attract $\pm 26\%$ of that additional inventory
- Projected growth could be adjacent to suburban office parks, concentrated around light rail stations, or follow outlying office and medical development on I-85 corridor, depending on general plans, project approval, zoning, and other future policies

Projected Supply Hotel Rooms (Units)



METHODOLOGY

Approach and Method

Analysis of regional growth and local capture; followed by projecting past rates into the future

REGIONAL HISTORICAL

The Consulting Team developed databases of the current real estate inventory within each land use category. Databases include location (address), size (SF or units as appropriate), and year of construction. By summarizing amount by year by submarket, analysis reveals the relative size, rate of growth, and new real estate that the region produces annually.

Data did not include owner-occupied office buildings or academic offices, urban street-front retail, small apartment buildings (5-10 units), owned multi-family units (condos), or single-family homes (including in-law units)). The approximate amount of these additional buildings and square footage was estimated based on data published by the US Census Bureau.

REGIONAL PROJECTED

Expected growth is estimated by projecting those regional growth forward. Growth in the 2017-2020 period is based on approved and proposed projects in the pipeline. From 2020 onward, growth projections are based on the rolling average of the previous 10 years of growth rates.

SUBMARKETS HISTORICAL

Analysis of historical data, sorted by submarket, shows comparative rates of growth within each submarket as well as the share of regional growth that each submarket typically captures. This step reveals the average share of regional growth that each submarket typically captures.

SUBMARKETS PROJECTED

Combining projected regional growth (based on 10-year rolling average) with submarket average capture rate produces an estimate of new growth expected in each forecast year. These estimates have a $\pm 20\%$ margin of error and are summarized into 5-year increments.

REGIONAL RESULTS

Historical graphs display past regional growth rate and how that growth was divided up among the submarkets. Regional projection graphs illustrate how future growth would be allocated among the submarkets at their current shares.

PROJECTIONS BY SUBMARKET

Historical graphs show when real estate supply accumulated historically. Percentage table shows projected high-low forecast growth rates for each 5-year increment. The following tables summarize the projection results.

PROJECTIONS BY LAND USE

Historical graphs show when real estate supply accumulated historically, as well as approved projects in the pipeline. Tables summarize project results in 5-year increments, and the following graph compares historical growth to projected future range.

Submarkets Definition

Submarket boundaries are based on conventional definitions used by commercial real estate industry

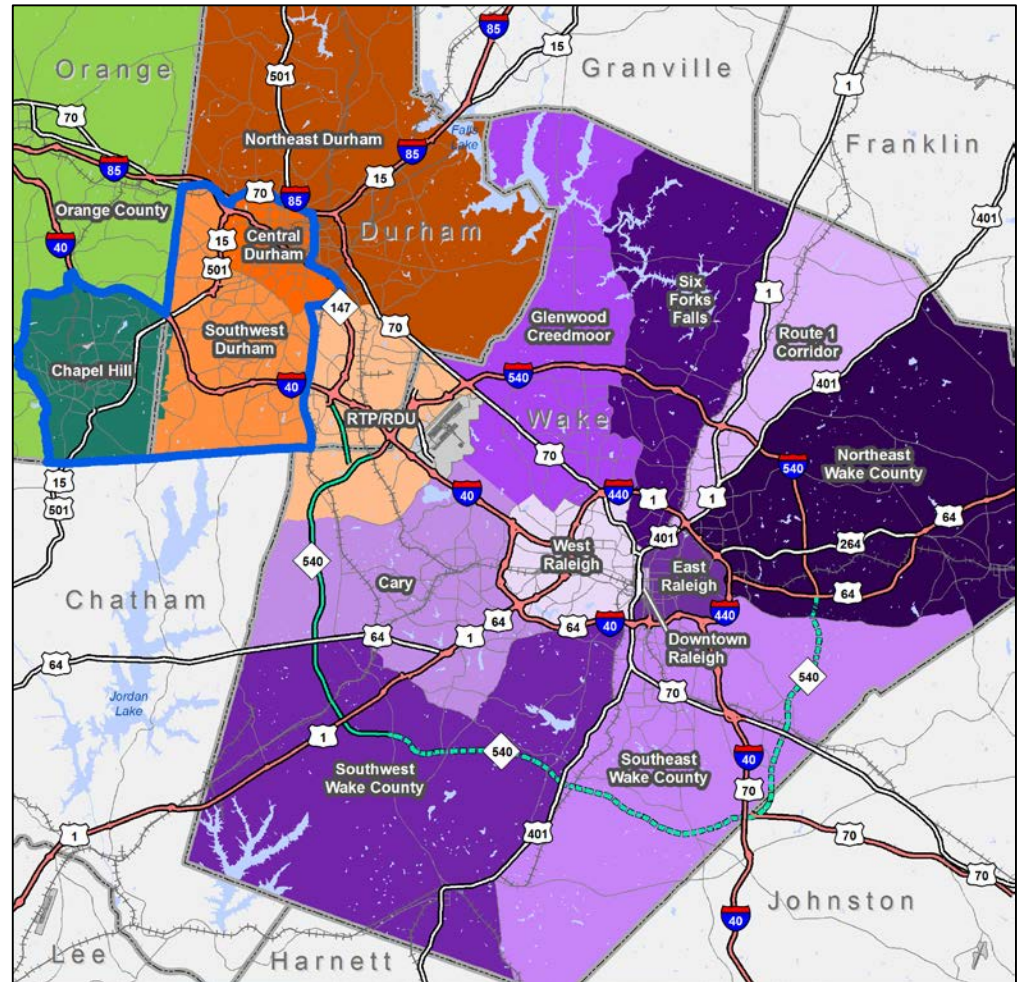
Submarket boundaries provided by CoStar:

- Durham County submarkets (including RTP/RDU portions in Wake) are color-coded in Orange
- Orange County submarkets are color-coded in Green
- Wake County submarkets are color-coded in Purple

The **Rail Submarkets** are Central Durham, Southwest Durham, and Chapel Hill (outlined in blue).

Some edits were made to CoStar's standard boundaries:

- Portions of Durham County to the east of Downtown were transferred from "Durham South" into "Northeast Durham"
- "Downtown Durham" was extended south to Cornwallis Rd and Riddle Rd to better characterize ongoing development south of the Durham Freeway, and renamed "Central Durham"
- Chapel Hill boundary was extended north as the Edge (Eubanks Rd) development is within the Town's zoning jurisdiction



Assumptions: Office and Hotel

Durham and Chapel Hill already offer what twenty-first century businesses and employees are looking for

Both Durham and Chapel Hill are positioned to benefit significantly from a revolution in corporate relocation featuring increasing focus on walkability, transit commute options, and amenity-rich office environments. Increased development of walkable and mixed-use environments resulting from Light Rail investment is directly meeting the needs of today's educated workforce and knowledge worker, as well as business and leisure travelers. Companies seek and demand the presence of mixed-use, live-work-walk environments that provide a range of housing and commute options. International companies highly desire areas that provide a full range of mobility choices including transit, pedestrian connectivity and cycling opportunities. To meet the demand, appropriate policy changes must occur to properly harness the shifting market's potential.

The region's strong economic base has a bright future. Based on several major universities with a research and innovation focus, the Triangle region is heavily invested in industries expected to prosper in the twenty-first century. From a regional perspective, and based upon historical trends and growth assumptions, significant overall growth in the office market is expected to continue. Expecting growth is further supported in Chapel Hill and Durham by the presence of market attractors and amenities that include world class universities and medical research institutions; a highly educated workforce with a strong labor market; and an exceptional quality of life that includes urban, town-oriented and rural living options.

Chapel Hill and Durham are already "ahead of the curve" in providing this "urban village" lifestyle, particularly compared to auto-dependent, sprawling style of other Sun Belt markets with which Durham and Chapel Hill compete. Light rail service is likely to further enhance the competitive positions of Chapel Hill and Durham. Should the city and town align their land use policies with this desire for more active and vibrant mixed-use and transit-rich environments, it could result in a period of increased economic advantage. However, such an advantage cannot be expected to last forever. It is likely that Research Triangle Park (which is currently impacted by lower demand due to an aging product) will adjust new building designs and policies to become more in line with the shift from drivable suburban office parks toward mixed-use commercial environments.

Assumptions: Retail

Global trends in shopping behavior and online retail are expected to impact Durham and Chapel Hill as well

Significant data has emerged that strongly suggests long-term changes in the way Americans shop and how retail space is likely to be reconfigured as online retail continues to expand. As big-box and mall retailers continue to announce major store closings, chain stores and shopping centers continue to close, shrink, and reconfigure. Specifically, retail square footage (on a per capita basis) is expected to level off (if it hasn't already) and enter a consolidation and decline phase. Consumer trends consistently point toward less demand for traditional, large footprint retail shopping experiences such as malls and department stores.

These trends result from a confluence of market forces: increased online shopping, the evolution of brick and mortar stores into smaller footprint retail locations, and co-branding and cross-branding stores that results in more efficient use of space. Perhaps most important of all, rapid delivery of daily goods has caused a shift away from traditional shopping patterns (errands to pick up everyday needs) to a focus on entertainment, novelty, and experience. This has hurt general merchandizers and shopping centers but advantages restaurant, entertainment, and tourism retail.

Retail is unlikely to disappear. Although some older, indoor malls may be facing obsolescence, the marketplace will likely find new, adaptive uses for such properties, as it has in the past. Continuing demand for “third place” experiences, tactile and surprising browsing opportunities, and durable desires for social gathering suggest that shopping isn't going away. However, retail space *per capita* is likely to fall as more people require less retail. The greatest impact is expected to hit large-format and big box retailers, along with smaller chains that rely on those anchors to generate traffic. Restaurant, hospitality, entertainment and more experiential retail outlets are expected to less impact, at least over the next 5-10 years. With retail changing very rapidly at the moment, it is difficult to envision what the retail market may prioritize beyond 10 years.

Our retail forecast takes into account these factors to provide as accurate a depiction of expectations to the extent possible, in an effort to align today's planning exercises with future market conditions. Projected retail growth rates are lower than historical growth rates, but still remain positive. Demand driven by population growth is expected to outweigh consolidation and decline in the retail industry, at least at press time.

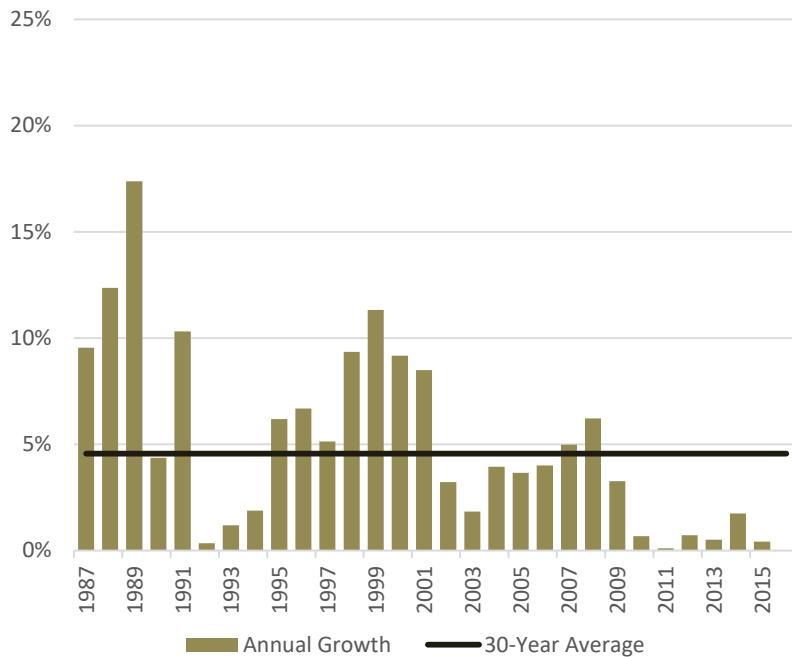
Historical and Projected Growth Rates

REGIONAL ANALYSIS

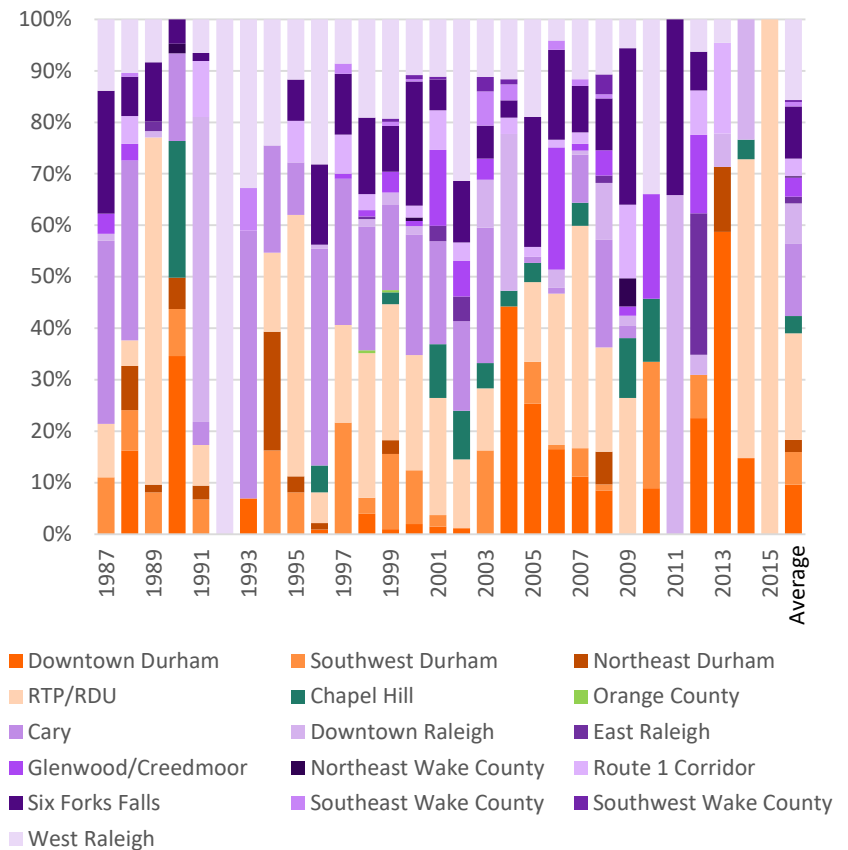
Regional Historical: Office

- Office space supply has grown at an average of 4.6% per year since 1987
- Central Durham, Southwest Durham, and Chapel Hill have captured 19.3% of new supply

Year-on-Year Percent Growth of Office Space



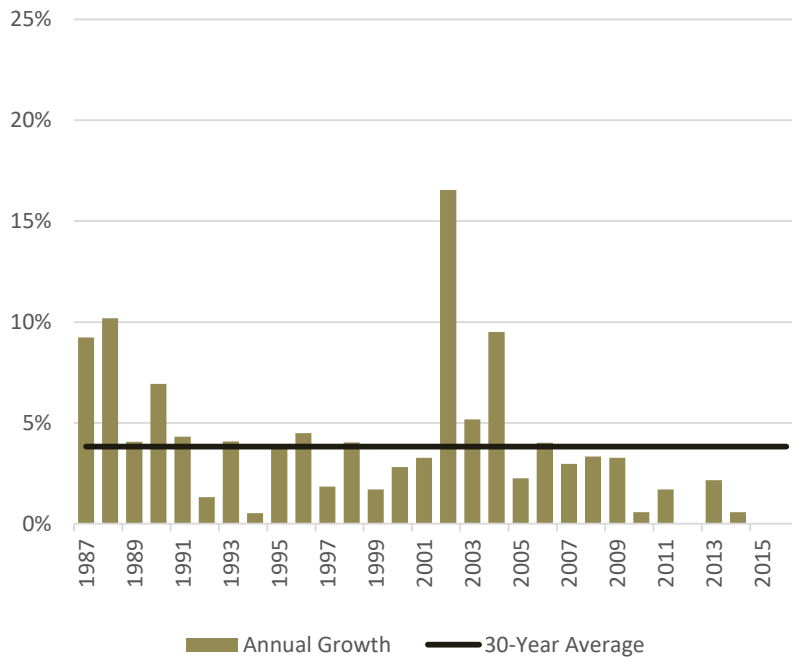
Geographic Distribution of Each Year's New Office Space



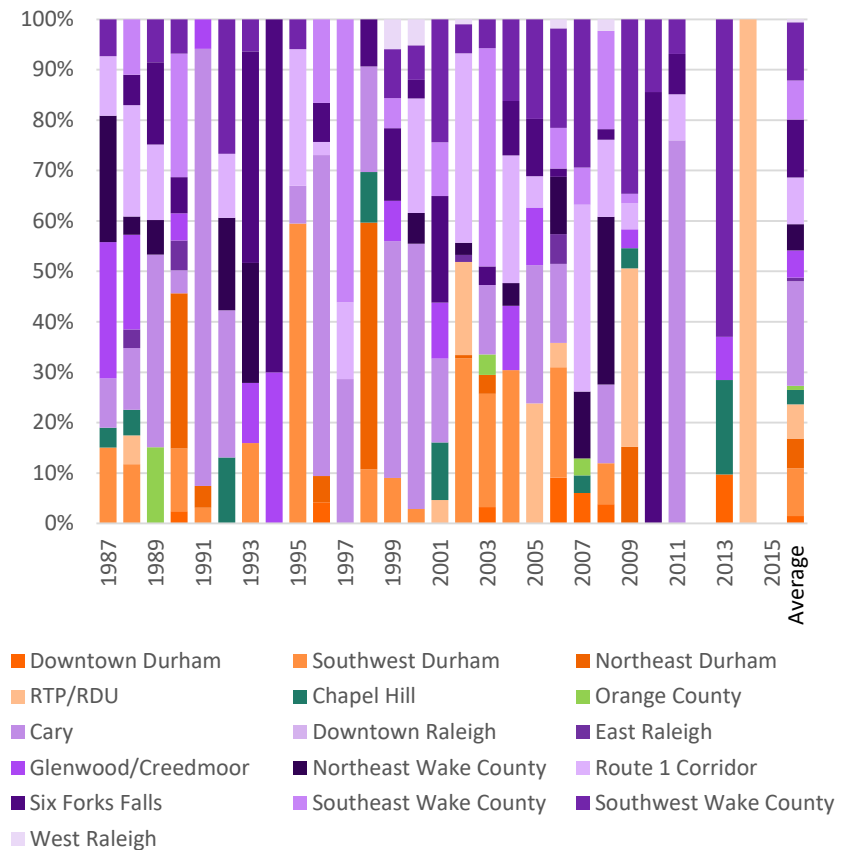
Regional Historical: Retail

- Retail space supply has grown at an average of 3.8% per year since 1987
- Central Durham, Southwest Durham, and Chapel Hill have captured 13.9% of new supply

Year-on-Year Percent Growth of Retail Space



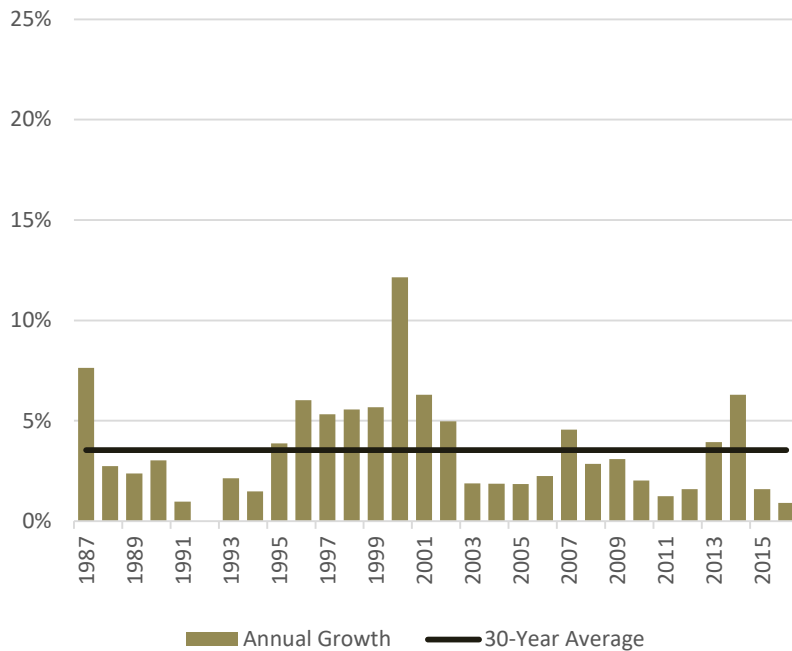
Geographic Distribution of Each Year's New Retail Space



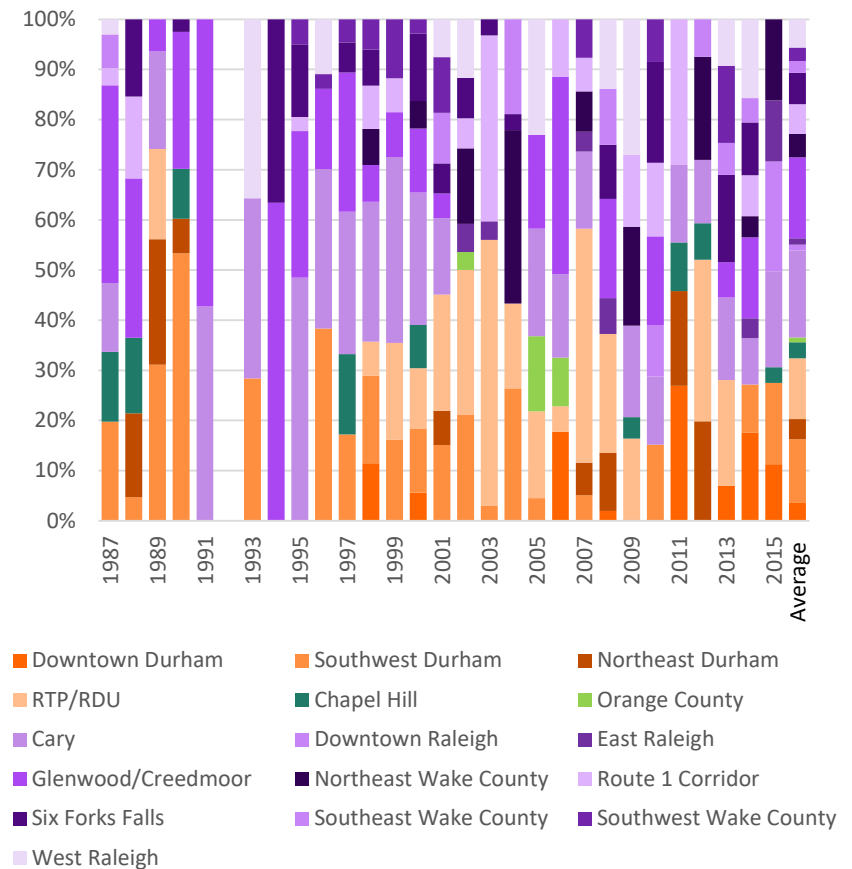
Regional Historical: Residential

- Apartment unit supply has grown at an average of 3.5% per year since 1987
- Central Durham, Southwest Durham, and Chapel Hill have captured 18.7% of new supply

Year-on-Year Percent Growth of Apartment Units



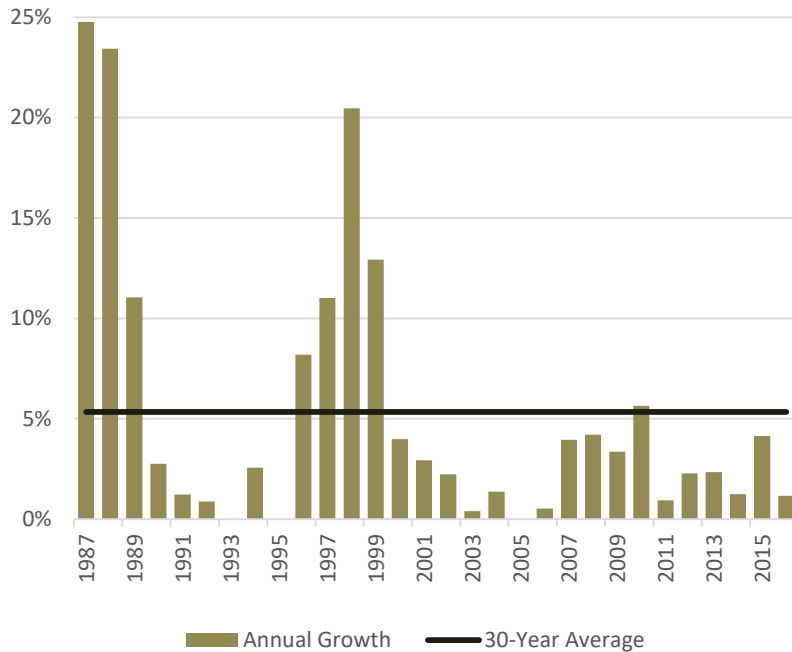
Geographic Distribution of Each Year's New Apartments



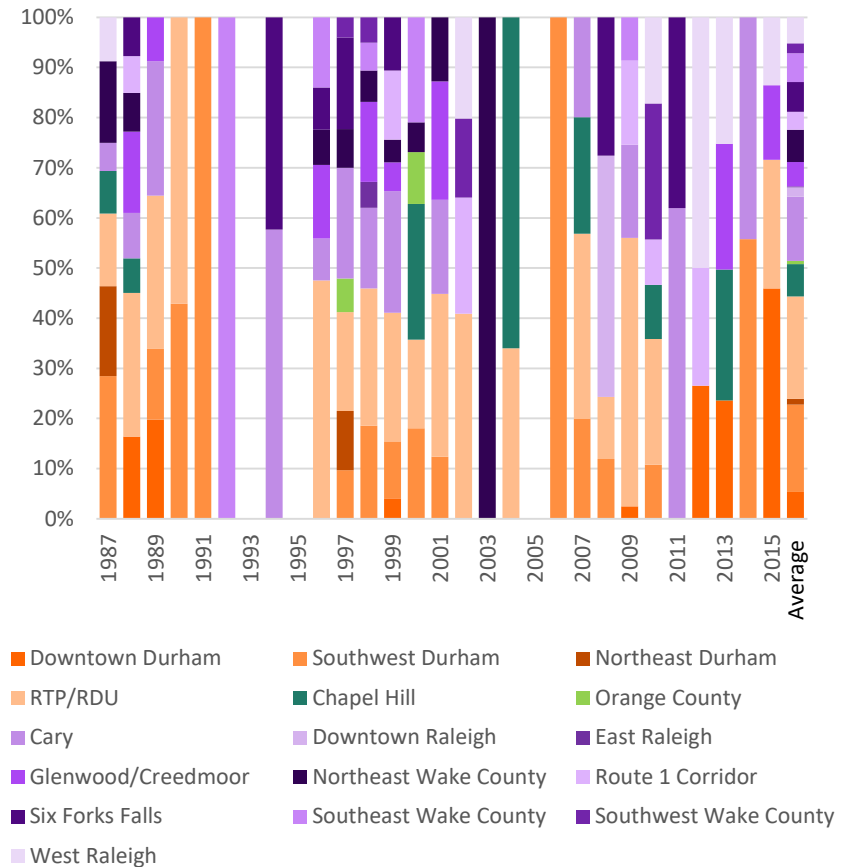
Regional Historical: Hotel

- Hotel room supply has grown at an average of 5.3% per year since 1987
- Central Durham, Southwest Durham, and Chapel Hill have captured 26.3% of new supply

Year-on-Year Percent Growth of Hotel Rooms

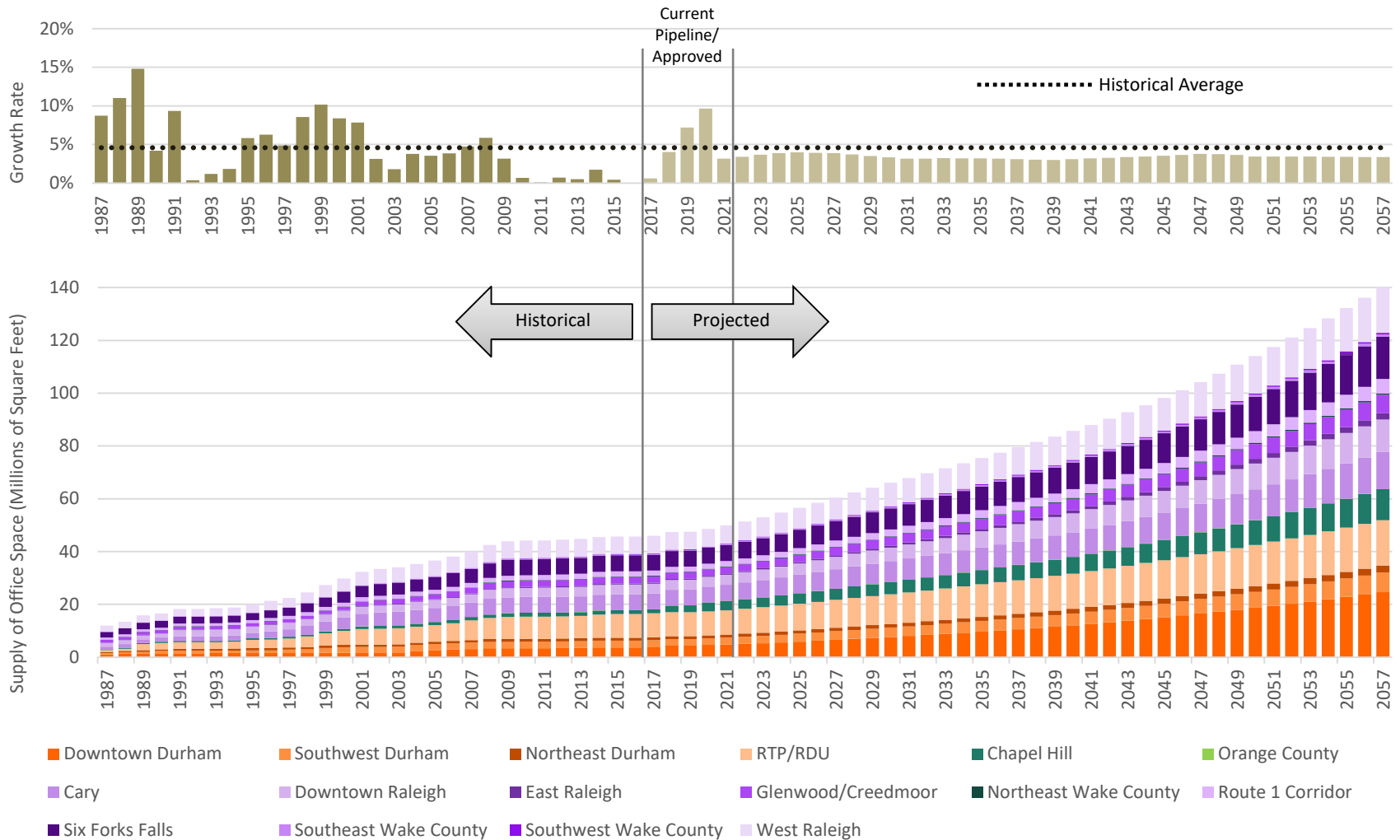


Geographic Distribution of Each Year's New Hotel Rooms



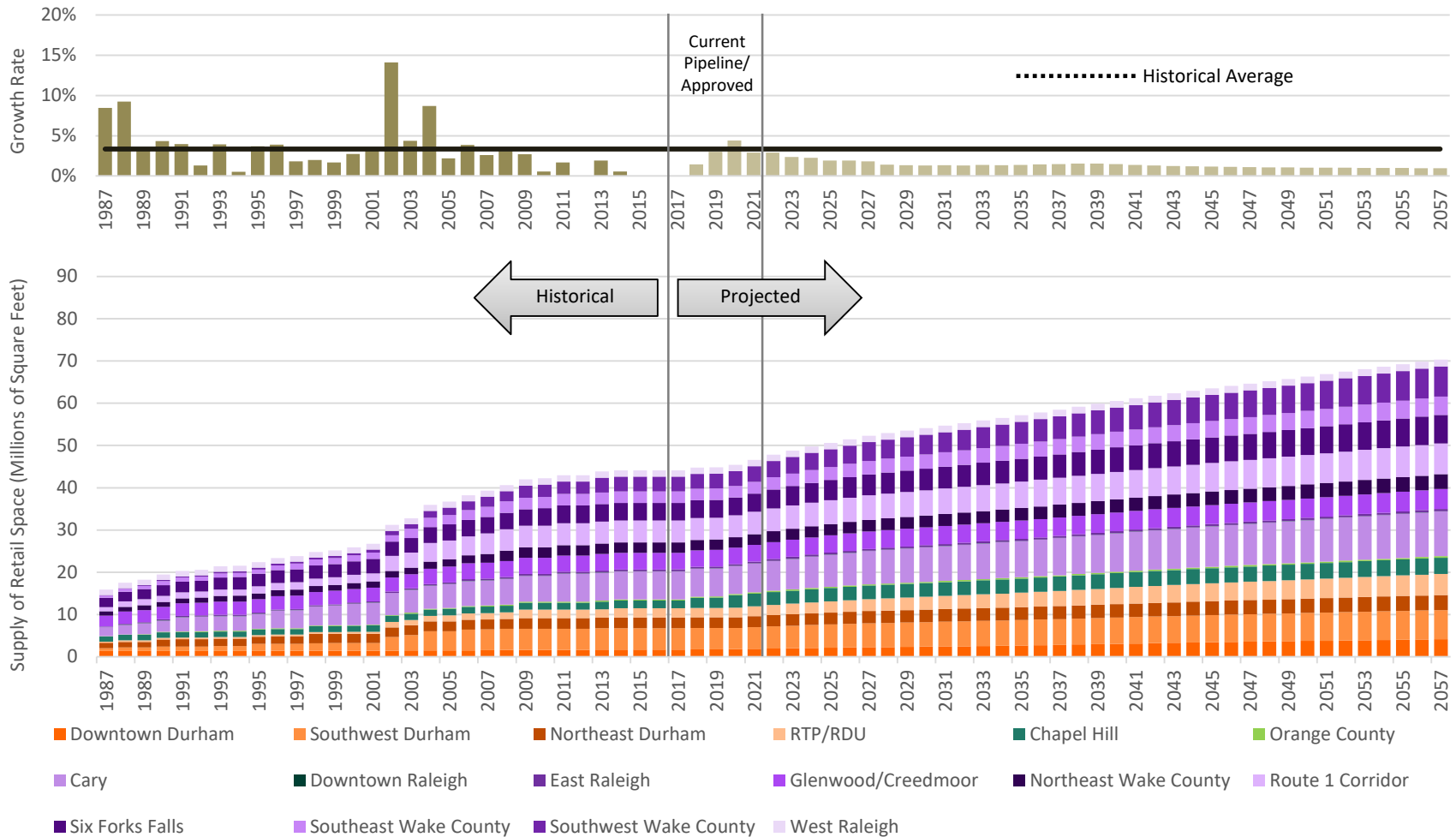
Regional Projections: Office

Based on future growth rates (projected range 3.3% to 3.9%), and historical average share of new growth, new supply would be expected in each submarket according to the chart below.



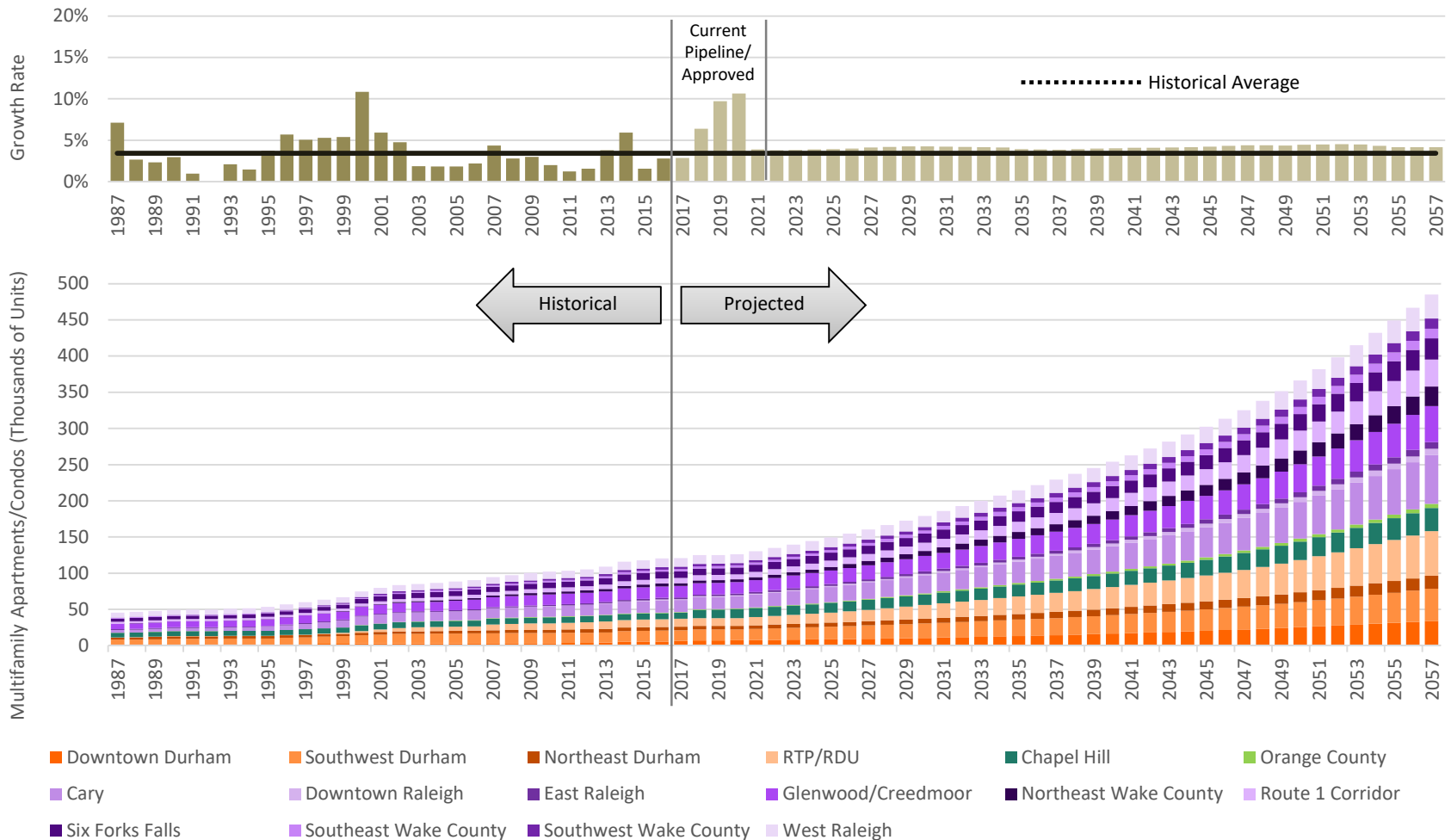
Regional Projections: Retail

Based on future growth rates (projected range 1.0% to 2.3%), and historical average share of new growth, new supply would be expected in each submarket according to the chart below.



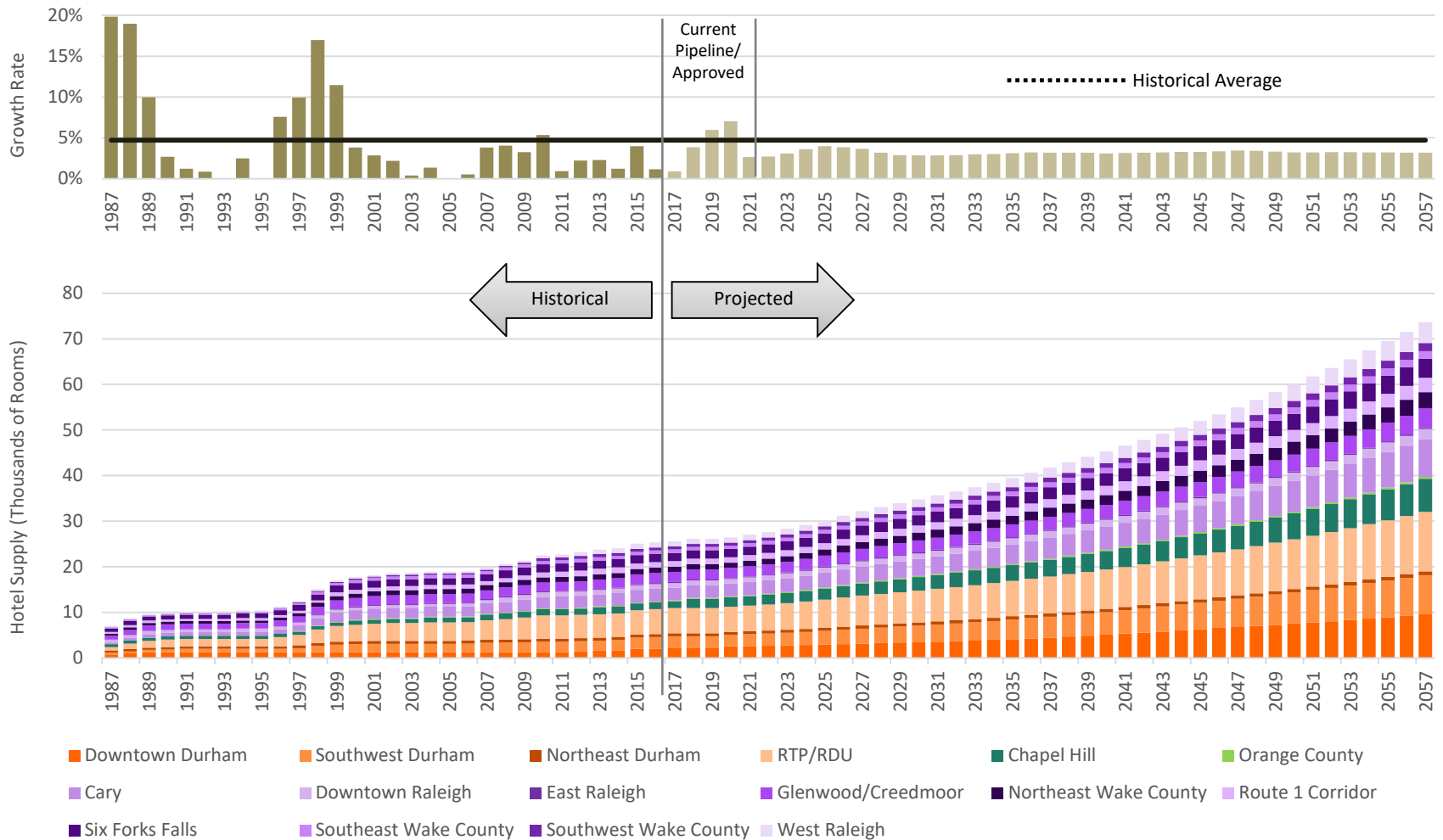
Regional Projections: Residential

Based on future growth rates (projected range 3.5% to 4.5%), and historical average share of new growth, new supply would be expected in each submarket according to the chart below.



Regional Projections: Hotel

Based on future growth rates (projected range 2.7% to 3.2%), and historical average share of new growth, new supply would be expected in each submarket according to the chart below.



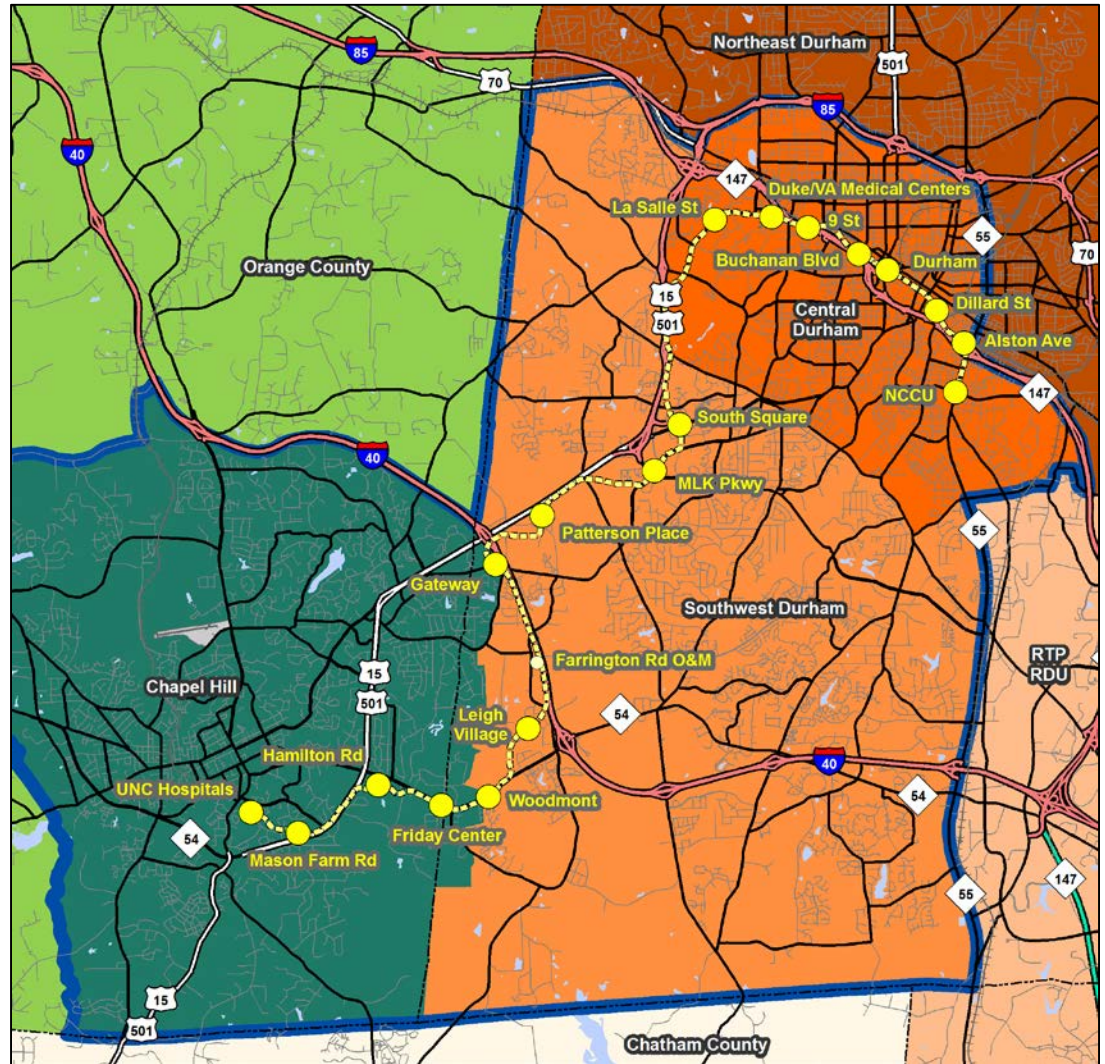
Rail Corridor Real Estate Market Forecast

RESULTS BY SUBMARKET

Rail Submarkets Reference Map

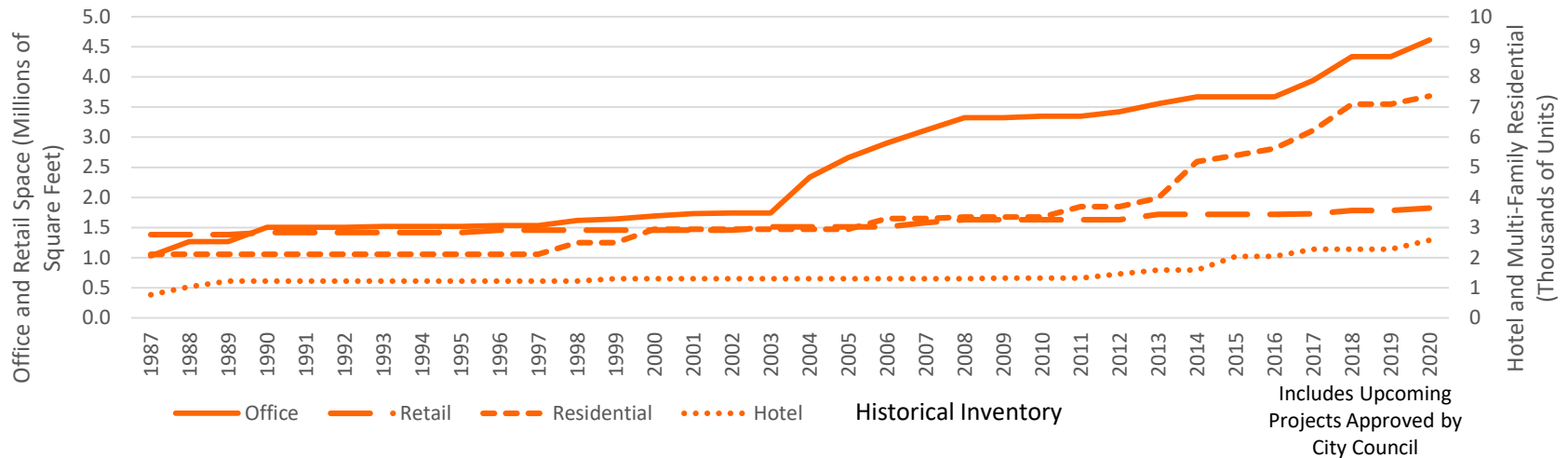
Current DO-LRT alignment within three local submarkets: Central Durham, Southwest Durham, and Chapel Hill

- Locations of stations within submarkets are provided for reference only
- Local submarkets are geographically defined to facilitate analysis of historical growth rates
- Future growth projections are approximate, as boundaries between submarkets are extremely porous
- For example, some amount of future growth is likely to occur in Chatham County. However, the specific amount will depend on the relative attractiveness (including neighborhood amenities and economic factors) of Durham or Chapel Hill, making them better (or worse) places to build
- The approximate amount of new growth that is likely to occur within the combined rail submarkets (outlined in blue) is intended to function as guidance for station area planning workshops



Central Durham: Growth Rates

History of real estate development in Central Durham, with future projects approved by City Council



Projected growth rates in Central Durham, with high-low range for each 5-year period

Percentage	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Office	3.7 million SF	4.3% to 6.3%	4.7% to 6.8%	4.3% to 6.3%	3.9% to 5.7%	3.8% to 5.5%	3.8% to 5.6%	4.0% to 5.7%	3.2% to 4.6%
Retail	1.7 million SF	2.1% to 3.1%	2.4% to 3.5%	1.7% to 2.6%	2.0% to 2.9%	2.2% to 3.2%	1.7% to 2.6%	1.4% to 2.1%	1.2% to 1.7%
Residential	6,000 units	4.2% to 6.0%	3.1% to 4.6%	3.6% to 5.3%	3.9% to 5.6%	3.9% to 5.6%	3.6% to 5.3%	4.2% to 6.1%	3.5% to 5.1%
Hotel	2,000 units	2.8% to 4.5%	3.1% to 4.5%	2.6% to 3.8%	3.2% to 4.7%	3.9% to 5.5%	3.5% to 5.1%	3.4% to 5.0%	2.8% to 4.1%

Central Durham: Projections

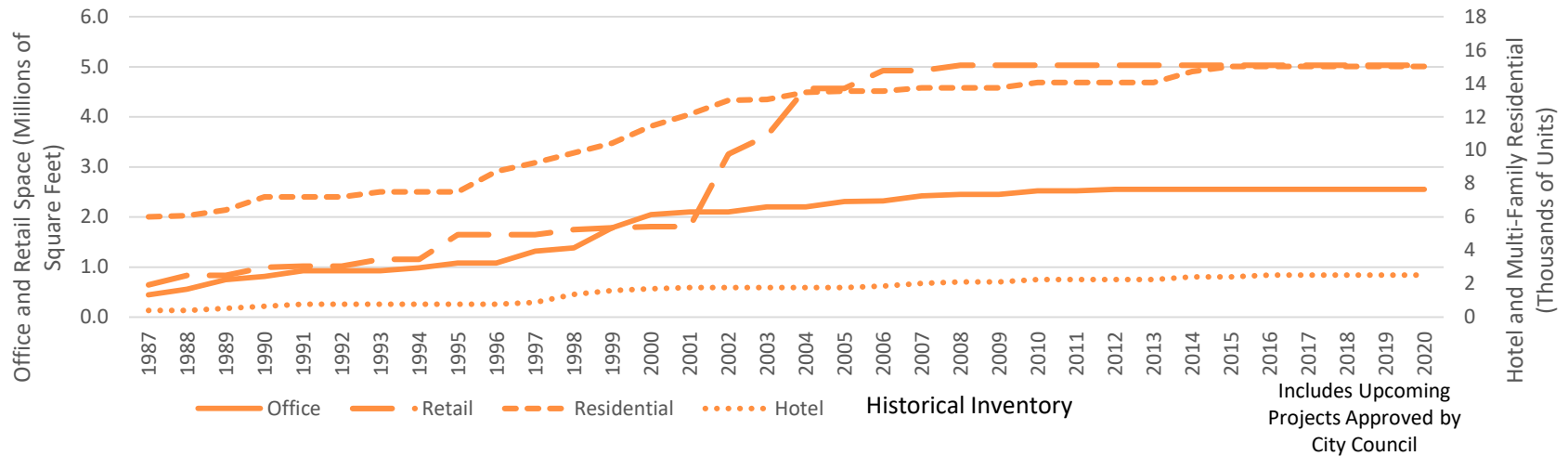
- Based on regional growth continuing within 3.5% - 5.3% range and the Central Durham continuing to attract a similar share
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Office	3.7 million SF	870,000 to 1.3 million SF	1.2 million to 1.8 million SF	1.5 million to 2.2 million SF	1.7 million to 2.6 million SF	2.1 million to 3.2 million SF	2.7 million to 4.0 million SF	3.5 million to 5.3 million SF	3.5 million to 5.3 million SF
Retail	2.2 million SF	144,000 to 216,000 SF	325,000 to 488,000 SF	270,000 to 405,000 SF	317,000 to 476,000 SF	356,000 to 534,000 SF	259,000 to 389,000 SF	306,000 to 458,000 SF	266,000 to 399,000 SF
Residential	11,000 units	900 to 1,400 Units	3,100 to 4,600 Units	4,300 to 6,400 Units	4,100 to 6,200 Units	4,500 to 6,700 Units	5,700 to 8,500 Units	9,700 to 14,600 Units	10,000 to 15,000 Units
Hotel	5,500 units	200 to 300 Rooms	700 to 1,000 Rooms	600 to 900 Rooms	700 to 1,000 Rooms	700 to 1,000 Rooms	900 to 1,300 Rooms	1,300 to 2,000 Rooms	1,300 to 1,900 Rooms

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Office	3.7 million SF	870,000 to 1.3 million SF	2.1 million to 3.1 million SF	3.6 million to 5.4 million SF	5.3 million to 8.0 million SF	7.4 million to 11.1 million SF	10.1 million to 15.1 million SF	13.6 million to 20.4 million SF	17.1 million to 25.7 million SF
Retail	2.2 million SF	144,000 to 216,000 SF	469,000 to 704,000 SF	739,000 to 1.1 million SF	1.1 million to 1.6 million SF	1.4 million to 2.1 million SF	1.7 million to 2.5 million SF	2.0 million to 3.0 million SF	2.2 million to 3.4 million SF
Residential	11,000 units	900 to 1,400 Units	4,000 to 6,000 Units	8,300 to 12,400 Units	12,400 to 18,600 Units	16,900 to 25,300 Units	22,600 to 33,800 Units	32,300 to 48,400 Units	42,300 to 63,400 Units
Hotel	5,500 units	200 to 300 Rooms	900 to 1,300 Rooms	1,500 to 2,200 Rooms	2,200 to 3,200 Rooms	2,900 to 4,200 Rooms	3,800 to 5,500 Rooms	5,100 to 7,500 Rooms	6,400 to 9,400 Rooms

Southwest Durham: Growth Rates

History of real estate development in Southwest Durham, with future projects approved by City Council



Projected growth rates in Southwest Durham, with high-low range for each 5-year period

Percentage	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Office	2.6 million SF	1.0% to 1.5%	3.0% to 4.4%	2.3% to 3.3%	2.0% to 2.9%	1.9% to 2.8%	2.3% to 3.3%	3.0% to 4.4%	2.4% to 3.5%
Retail	5.0 million SF	0.7% to 1.1%	1.2% to 1.7%	0.7% to 1.0%	0.5% to 0.8%	0.5% to 0.8%	0.5% to 0.8%	0.6% to 0.9%	0.5% to 0.7%
Residential	15,000 units	0.9% to 1.4%	2.4% to 3.5%	2.2% to 3.3%	1.9% to 2.8%	2.2% to 3.2%	2.5% to 3.7%	3.4% to 4.9%	2.8% to 4.0%
Hotel	2,500 units	0.8% to 1.5%	3.5% to 4.8%	2.9% to 4.0%	2.9% to 4.3%	2.5% to 3.7%	2.5% to 3.8%	3.3% to 4.7%	2.5% to 3.9%

Southwest Durham: Projections

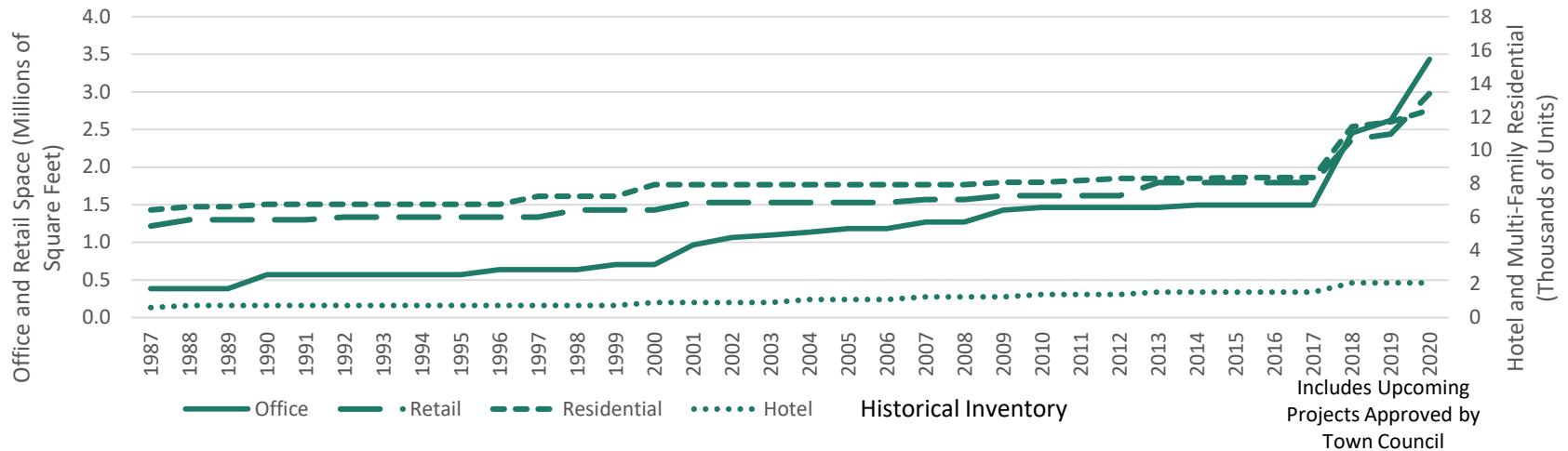
- Based on regional growth continuing within 3.5% - 5.3% range and the Southwest Durham continuing to attract a similar share
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Office	2.6 million SF	134,000 to 201,000 SF	435,000 to 652,000 SF	386,000 to 580,000 SF	391,000 to 586,000 SF	421,000 to 631,000 SF	562,000 to 843,000 SF	872,000 to 1.3 million SF	826,000 to 1.2 million SF
Retail	5.0 million SF	180,000 to 270,000 SF	313,000 to 470,000 SF	198,000 to 297,000 SF	154,000 to 231,000 SF	164,000 to 246,000 SF	163,000 to 244,000 SF	204,000 to 305,000 SF	163,000 to 244,000 SF
Residential	15,000 units	700 to 1,100 Units	2,000 to 3,000 Units	2,100 to 3,200 Units	2,100 to 3,100 Units	2,700 to 4,000 Units	3,500 to 5,300 Units	5,700 to 8,500 Units	5,600 to 8,400 Units
Hotel	2,500 units	100 to 200 Rooms	500 to 700 Rooms	500 to 700 Rooms	600 to 900 Rooms	600 to 900 Rooms	700 to 1,100 Rooms	1,100 to 1,600 Rooms	1,000 to 1,600 Rooms

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Office	2.6 million SF	134,000 to 201,000 SF	569,000 to 853,000 SF	955,000 to 1.4 million SF	1.3 million to 2.0 million SF	1.8 million to 2.7 million SF	2.3 million to 3.5 million SF	3.2 million to 4.8 million SF	4.0 million to 6.0 million SF
Retail	5.0 million SF	180,000 to 270,000 SF	493,000 to 740,000 SF	691,000 to 1.0 million SF	845,000 to 1.3 million SF	1.0 million to 1.5 million SF	1.2 million to 1.8 million SF	1.4 million to 2.1 million SF	1.5 million to 2.3 million SF
Residential	15,000 units	700 to 1,100 Units	2,700 to 4,100 Units	4,800 to 7,300 Units	6,900 to 10,400 Units	9,600 to 14,400 Units	13,100 to 19,700 Units	18,800 to 28,200 Units	24,400 to 36,600 Units
Hotel	2,500 units	100 to 200 Rooms	600 to 900 Rooms	1,100 to 1,600 Rooms	1,700 to 2,500 Rooms	2,300 to 3,400 Rooms	3,000 to 4,500 Rooms	4,100 to 6,100 Rooms	5,100 to 7,700 Rooms

Chapel Hill: Growth Rates

History of real estate development in Chapel Hill, with future projects approved by Town Council



Projected growth rates in Chapel Hill, with high-low range for each 5-year period

Percentage	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Office	1.5 MSF	16.3% to 21.9%	2.6% to 3.9%	2.6% to 3.8%	2.6% to 3.8%	2.7% to 3.9%	3.4% to 4.9%	3.4% to 5.0%	2.6% to 3.9%
Retail	1.8 MSF	9.3% to 13.0%	0.8% to 1.1%	0.4% to 0.7%	0.5% to 0.8%	0.6% to 0.9%	0.4% to 0.7%	0.5% to 0.8%	0.4% to 0.6%
Residential	8,000 units	7.2% to 10.3%	1.4% to 2.0%	1.5% to 2.3%	1.9% to 2.8%	2.3% to 3.4%	2.8% to 4.0%	3.1% to 4.5%	2.6% to 3.8%
Hotel	1,500 units	5.9% to 8.8%	3.4% to 5.0%	2.9% to 4.2%	2.4% to 4.1%	2.6% to 4.0%	3.0% to 4.2%	3.2% to 4.9%	2.7% to 3.8%

Chapel Hill: Projections

- Based on regional growth continuing within 3.5% - 5.3% range and the Chapel Hill continuing to attract a similar share
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Office	1.5 million SF	1.7 million to 2.5 million SF	499,000 to 749,000 SF	580,000 to 870,000 SF	669,000 to 1.0 million SF	814,000 to 1.2 million SF	1.2 million to 1.8 million SF	1.5 million to 2.3 million SF	1.4 million to 2.1 million SF
Retail	1.8 million SF	1.0 million to 1.5 million SF	1.1 million to 1.7 million SF	1.2 million to 1.8 million SF	1.3 million to 1.9 million SF	1.4 million to 2.1 million SF	1.5 million to 2.2 million SF	1.6 million to 2.3 million SF	1.6 million to 2.5 million SF
Residential	8,000 units	3,500 to 5,300 Units	4,400 to 6,600 Units	5,500 to 8,300 Units	7,000 to 10,600 Units	9,100 to 13,700 Units	12,000 to 18,000 Units	15,800 to 23,700 Units	19,600 to 29,400 Units
Hotel	1,500 units	500 to 800 Rooms	400 to 600 Rooms	400 to 600 Rooms	400 to 700 Rooms	500 to 800 Rooms	700 to 1,000 Rooms	900 to 1,400 Rooms	900 to 1,300 Rooms

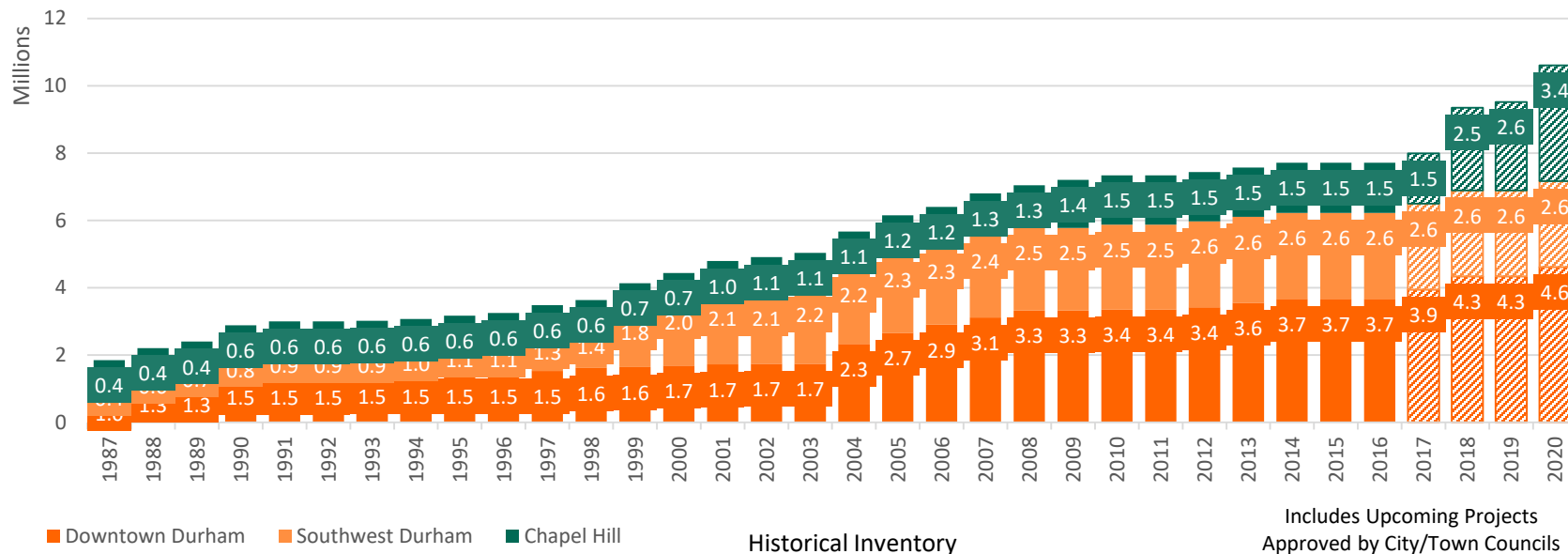
Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Office	1.5 million SF	1.7 million to 2.5 million SF	2.2 million to 3.3 million SF	2.8 million to 4.1 million SF	3.4 million to 5.2 million SF	4.2 million to 6.4 million SF	5.5 million to 8.2 million SF	7.0 million to 10.5 million SF	8.4 million to 12.7 million SF
Retail	1.8 million SF	1.0 million to 1.5 million SF	1.1 million to 1.7 million SF	1.2 million to 1.8 million SF	1.3 million to 1.9 million SF	1.4 million to 2.1 million SF	1.5 million to 2.2 million SF	1.6 million to 2.3 million SF	1.6 million to 2.5 million SF
Residential	8,000 units	3,500 to 5,300 Units	4,400 to 6,600 Units	5,500 to 8,300 Units	7,000 to 10,600 Units	9,100 to 13,700 Units	12,000 to 18,000 Units	15,800 to 23,700 Units	19,600 to 29,400 Units
Hotel	1,500 units	500 to 800 Rooms	900 to 1,400 Rooms	1,300 to 2,000 Rooms	1,700 to 2,700 Rooms	2,200 to 3,500 Rooms	2,900 to 4,500 Rooms	3,800 to 5,900 Rooms	4,700 to 7,200 Rooms

Rail Corridor Real Estate Market Forecast

RESULTS BY LAND USE

Office Growth Rates

Office Space (Historic and Approved) D-O LRT Submarkets



Office	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Downtown Durham	3.7 million SF	4.3% to 6.3%	4.7% to 6.8%	4.3% to 6.3%	3.9% to 5.7%	3.8% to 5.5%	3.8% to 5.6%	4.0% to 5.7%	3.2% to 4.6%
Southwest Durham	2.6 million SF	1.0% to 1.5%	3.0% to 4.4%	2.3% to 3.3%	2.0% to 2.9%	1.9% to 2.8%	2.3% to 3.3%	3.0% to 4.4%	2.4% to 3.5%
Chapel Hill	1.5 million SF	16.3% to 21.9%	2.6% to 3.9%	2.6% to 3.8%	2.6% to 3.8%	2.7% to 3.9%	3.4% to 4.9%	3.4% to 5.0%	2.6% to 3.9%
Total	7.7 million SF	6.2% to 8.8%	3.6% to 5.3%	3.3% to 4.8%	3.1% to 4.5%	3.1% to 4.5%	3.4% to 5.0%	3.7% to 5.3%	2.9% to 4.2%

Office Projections

- Based on regional growth continuing $\pm 4.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

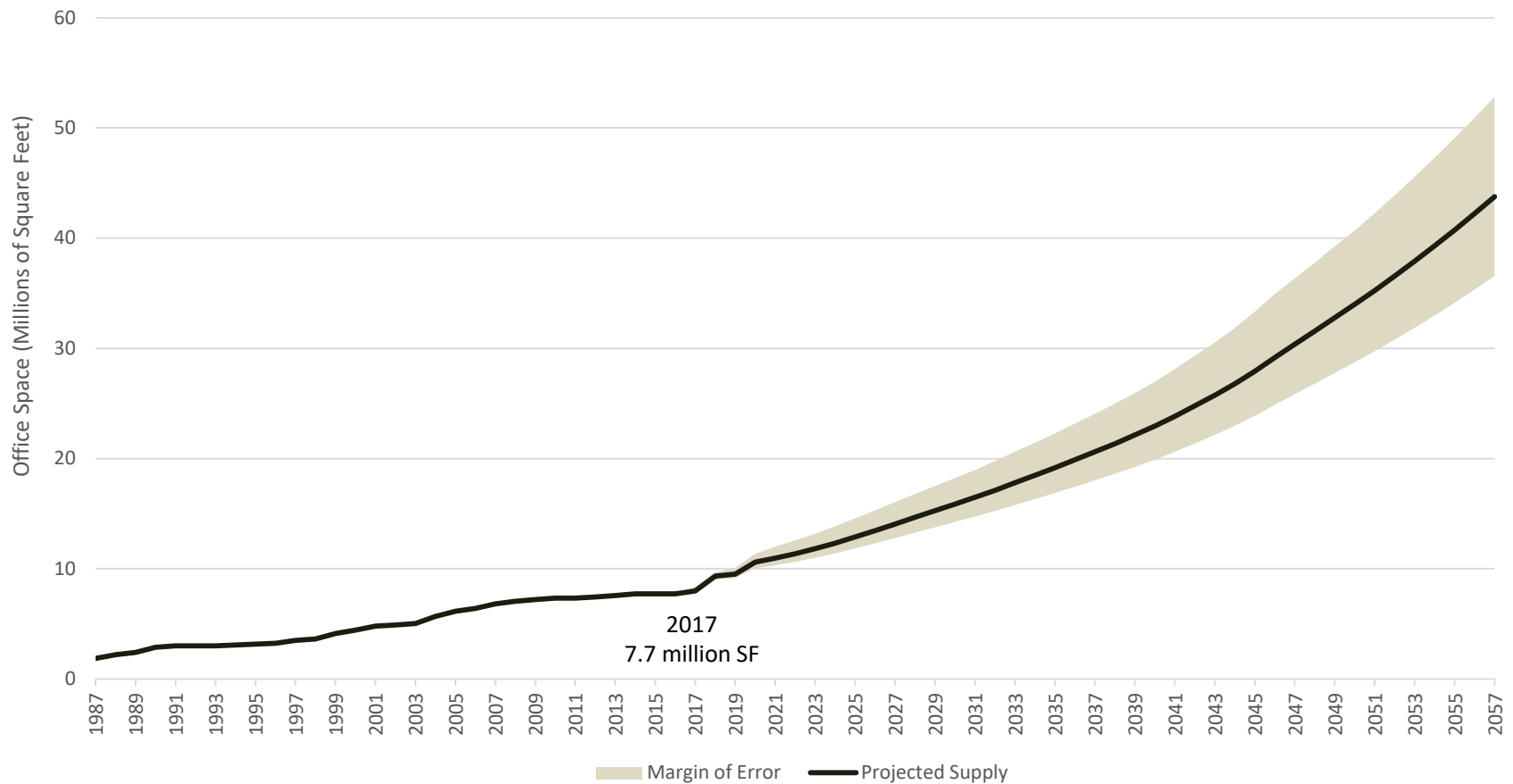
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	3.7 million SF	870,000 to 1.3 million SF	1.2 million to 1.8 million SF	1.5 million to 2.2 million SF	1.7 million to 2.6 million SF	2.1 million to 3.2 million SF	2.7 million to 4.0 million SF	3.5 million to 5.3 million SF	3.5 million to 5.3 million SF
Southwest Durham	2.6 million SF	134,000 to 201,000 SF	435,000 to 652,000 SF	386,000 to 580,000 SF	391,000 to 586,000 SF	421,000 to 631,000 SF	562,000 to 843,000 SF	872,000 to 1.3 million SF	826,000 to 1.2 million SF
Chapel Hill	1.5 million SF	1.7 million to 2.5 million SF	499,000 to 749,000 SF	580,000 to 870,000 SF	669,000 to 1.0 million SF	814,000 to 1.2 million SF	1.2 million to 1.8 million SF	1.5 million to 2.3 million SF	1.4 million to 2.1 million SF
Total	7.7 million SF	2.7 million to 4.0 million SF	2.2 million to 3.2 million SF	2.5 million to 3.7 million SF	2.8 million to 4.2 million SF	3.3 million to 5.0 million SF	4.5 million to 6.7 million SF	5.9 million to 8.9 million SF	5.8 million to 8.7 million SF

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	3.7 million SF	870,000 to 1.3 million SF	2.1 million to 3.1 million SF	3.6 million to 5.4 million SF	5.3 million to 8.0 million SF	7.4 million to 11.1 million SF	10.1 million to 15.1 million SF	13.6 million to 20.4 million SF	17.1 million to 25.7 million SF
Southwest Durham	2.6 million SF	134,000 to 201,000 SF	569,000 to 853,000 SF	955,000 to 1.4 million SF	1.3 million to 2.0 million SF	1.8 million to 2.7 million SF	2.3 million to 3.5 million SF	3.2 million to 4.8 million SF	4.0 million to 6.0 million SF
Chapel Hill	1.5 million SF	1.7 million to 2.5 million SF	2.2 million to 3.3 million SF	2.8 million to 4.1 million SF	3.4 million to 5.2 million SF	4.2 million to 6.4 million SF	5.5 million to 8.2 million SF	7.0 million to 10.5 million SF	8.4 million to 12.7 million SF
Total	7.7 million SF	2.7 million to 4.0 million SF	4.9 million to 7.3 million SF	7.3 million to 11.0 million SF	10.1 million to 15.1 million SF	13.4 million to 20.1 million SF	17.9 million to 26.9 million SF	23.8 million to 35.7 million SF	29.6 million to 44.4 million SF

Office Projections

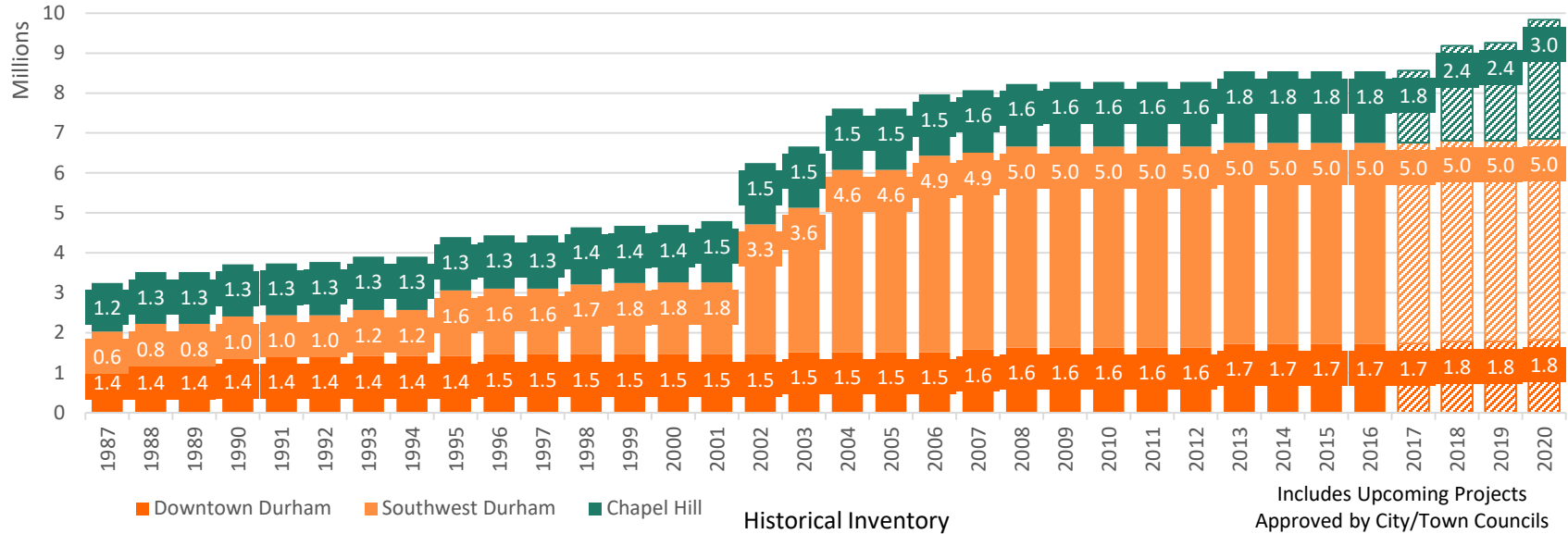
- Based on regional growth continuing $\pm 4.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be concentrated around light rail stations, generally distributed around auto-oriented office parks, or pushed out to outlying areas along I-40 or I-85, depending on general plans, project approval, zoning, and other future policies

Projected Supply of Office Space (SF)



Retail Growth Rates

Retail Square Feet (Historic and Approved) D-O LRT Submarkets



Office	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Downtown Durham	1.7 million SF	2.1% to 3.1%	2.4% to 3.5%	1.7% to 2.6%	2.0% to 2.9%	2.2% to 3.2%	1.7% to 2.6%	1.4% to 2.1%	1.2% to 1.7%
Southwest Durham	5.0 million SF	0.7% to 1.1%	1.2% to 1.7%	0.7% to 1.0%	0.5% to 0.8%	0.5% to 0.8%	0.5% to 0.8%	0.6% to 0.9%	0.5% to 0.7%
Chapel Hill	1.8 million SF	9.3% to 13.0%	0.8% to 1.1%	0.4% to 0.7%	0.5% to 0.8%	0.6% to 0.9%	0.4% to 0.7%	0.5% to 0.8%	0.4% to 0.6%
Total	8.5 million SF	3.0% to 4.4%	1.3% to 1.9%	0.8% to 1.2%	0.8% to 1.2%	0.9% to 1.4%	0.8% to 1.2%	0.8% to 1.2%	0.6% to 1.0%

Retail Projections

- Based on regional growth continuing $\pm 3.8\%$ and the Rail Submarkets continuing to attract $\pm 14\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

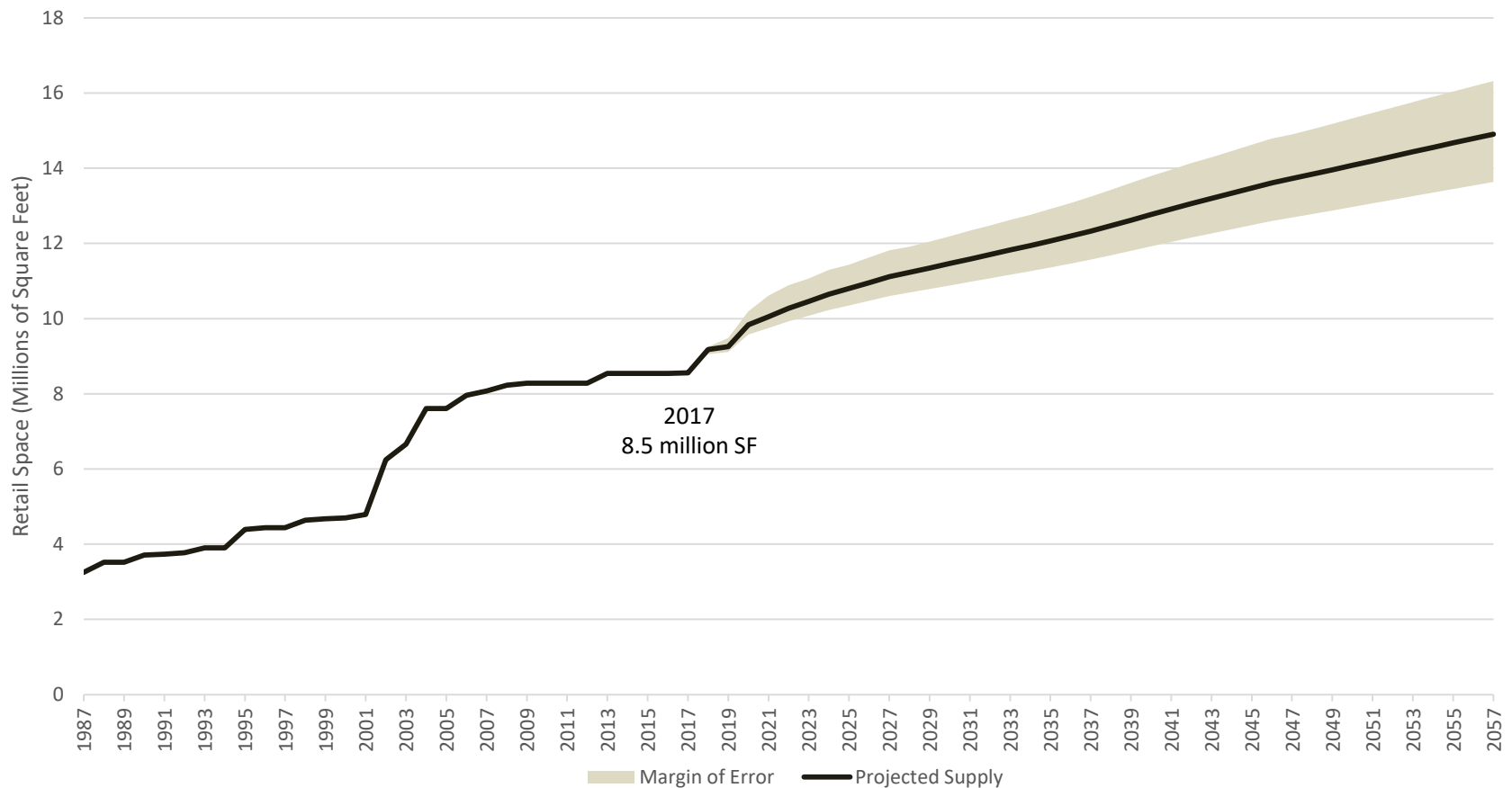
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	1.7 million SF	187,000 to 281,000 SF	242,000 to 363,000 SF	202,000 to 303,000 SF	257,000 to 386,000 SF	318,000 to 477,000 SF	290,000 to 435,000 SF	264,000 to 397,000 SF	232,000 to 347,000 SF
Southwest Durham	5.0 million SF	180,000 to 270,000 SF	313,000 to 470,000 SF	198,000 to 297,000 SF	154,000 to 231,000 SF	164,000 to 246,000 SF	163,000 to 244,000 SF	204,000 to 305,000 SF	163,000 to 244,000 SF
Chapel Hill	1.8 million SF	1.0 million to 1.5 million SF	117,000 to 175,000 SF	72,000 to 108,000 SF	86,000 to 130,000 SF	106,000 to 158,000 SF	80,000 to 120,000 SF	96,000 to 144,000 SF	78,000 to 118,000 SF
Total	8.5 million SF	1.4 million to 2.1 million SF	672,000 to 1.0 million SF	472,000 to 708,000 SF	497,000 to 747,000 SF	588,000 to 881,000 SF	533,000 to 799,000 SF	564,000 to 846,000 SF	473,000 to 709,000 SF

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	1.7 million SF	187,000 to 281,000 SF	429,000 to 644,000 SF	631,000 to 947,000 SF	888,000 to 1.3 million SF	1.2 million to 1.8 million SF	1.5 million to 2.2 million SF	1.8 million to 2.6 million SF	2.0 million to 3.0 million SF
Southwest Durham	5.0 million SF	180,000 to 270,000 SF	493,000 to 740,000 SF	691,000 to 1.0 million SF	845,000 to 1.3 million SF	1.0 million to 1.5 million SF	1.2 million to 1.8 million SF	1.4 million to 2.1 million SF	1.5 million to 2.3 million SF
Chapel Hill	1.8 million SF	1.0 million to 1.5 million SF	1.1 million to 1.7 million SF	1.2 million to 1.8 million SF	1.3 million to 1.9 million SF	1.4 million to 2.1 million SF	1.5 million to 2.2 million SF	1.6 million to 2.3 million SF	1.6 million to 2.5 million SF
Total	8.5 million SF	1.4 million to 2.1 million SF	2.0 million to 3.1 million SF	2.5 million to 3.8 million SF	3.0 million to 4.5 million SF	3.6 million to 5.4 million SF	4.1 million to 6.2 million SF	4.7 million to 7.1 million SF	5.2 million to 7.8 million SF

Retail Projections

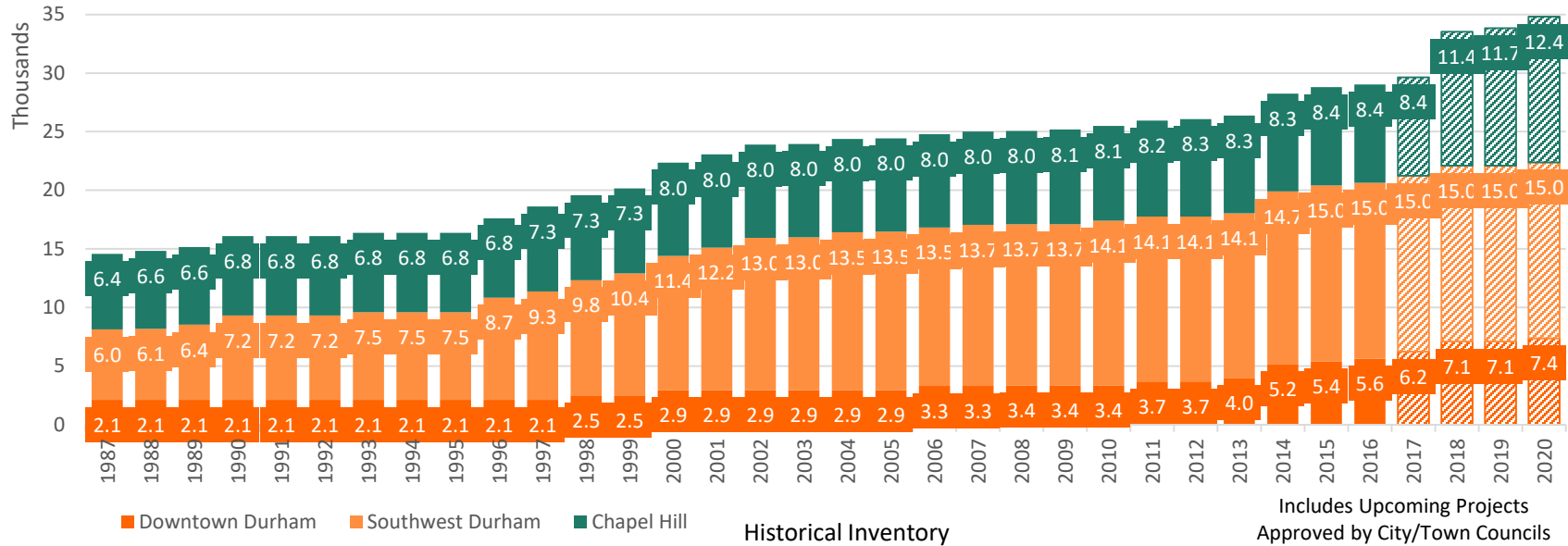
- Based on regional growth continuing $\pm 3.8\%$ and the Rail Submarkets continuing to attract $\pm 14\%$ of that additional inventory
- Projected growth could be concentrated around light rail stations, distributed across the trade area, or follow residential growth in Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Projected Supply of Retail Space (SF)



Multi-Family Residential Growth Rates

Multi-Family Residential Units (Historic and Approved) D-O LRT Submarkets



Office	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Downtown Durham	6,000 Units	4.2% to 6.0%	3.1% to 4.6%	3.6% to 5.3%	3.9% to 5.6%	3.9% to 5.6%	3.6% to 5.3%	4.2% to 6.1%	3.5% to 5.1%
Southwest Durham	15,000 Units	0.9% to 1.4%	2.4% to 3.5%	2.2% to 3.3%	1.9% to 2.8%	2.2% to 3.2%	2.5% to 3.7%	3.4% to 4.9%	2.8% to 4.0%
Chapel Hill	8,000 Units	7.2% to 10.3%	1.4% to 2.0%	1.5% to 2.3%	1.9% to 2.8%	2.3% to 3.4%	2.8% to 4.0%	3.1% to 4.5%	2.6% to 3.8%
Total	29,000 Units	3.5% to 5.2%	2.2% to 3.2%	2.3% to 3.4%	2.4% to 3.5%	2.7% to 3.9%	2.9% to 4.2%	3.5% to 5.1%	2.9% to 4.3%

Multi-Family Residential Projections

- Based on regional growth continuing $\pm 3.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

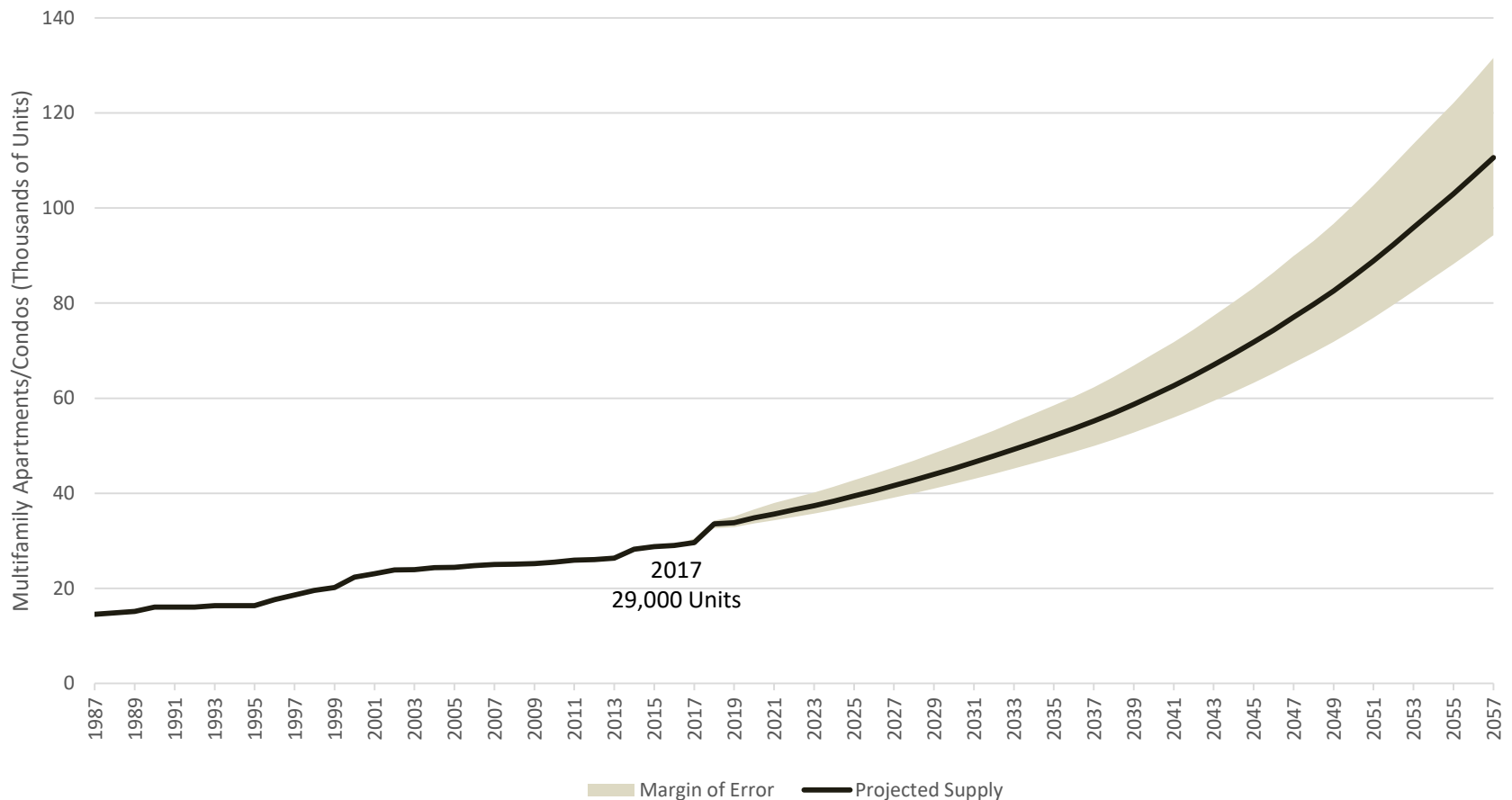
Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	6,000 Units	1,300 to 1,900 Units	1,200 to 1,800 Units	1,700 to 2,600 Units	2,300 to 3,400 Units	2,900 to 4,300 Units	3,400 to 5,100 Units	5,000 to 7,400 Units	5,200 to 7,800 Units
Southwest Durham	15,000 Units	700 to 1,100 Units	2,000 to 3,000 Units	2,100 to 3,200 Units	2,100 to 3,100 Units	2,700 to 4,000 Units	3,500 to 5,300 Units	5,700 to 8,500 Units	5,600 to 8,400 Units
Chapel Hill	8,000 Units	3,500 to 5,300 Units	900 to 1,300 Units	1,100 to 1,700 Units	1,500 to 2,300 Units	2,100 to 3,100 Units	2,900 to 4,300 Units	3,800 to 5,700 Units	3,800 to 5,700 Units
Total	29,000 Units	5,500 to 8,300 Units	4,100 to 6,100 Units	4,900 to 7,500 Units	5,900 to 8,800 Units	7,700 to 11,400 Units	9,800 to 14,700 Units	14,500 to 21,600 Units	14,600 to 21,900 Units

Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	6,000 Units	1,300 to 1,900 Units	2,500 to 3,700 Units	4,200 to 6,300 Units	6,500 to 9,700 Units	9,400 to 14,000 Units	12,800 to 19,100 Units	17,800 to 26,500 Units	23,000 to 34,300 Units
Southwest Durham	15,000 Units	700 to 1,100 Units	2,700 to 4,100 Units	4,800 to 7,300 Units	6,900 to 10,400 Units	9,600 to 14,400 Units	13,100 to 19,700 Units	18,800 to 28,200 Units	24,400 to 36,600 Units
Chapel Hill	8,000 Units	3,500 to 5,300 Units	4,400 to 6,600 Units	5,500 to 8,300 Units	7,000 to 10,600 Units	9,100 to 13,700 Units	12,000 to 18,000 Units	15,800 to 23,700 Units	19,600 to 29,400 Units
Total	29,000 Units	5,500 to 8,300 Units	9,600 to 14,400 Units	14,500 to 21,900 Units	20,400 to 30,700 Units	28,100 to 42,100 Units	37,900 to 56,800 Units	52,400 to 78,400 Units	67,000 to 100,300 Units

Multi-Family Residential Projection

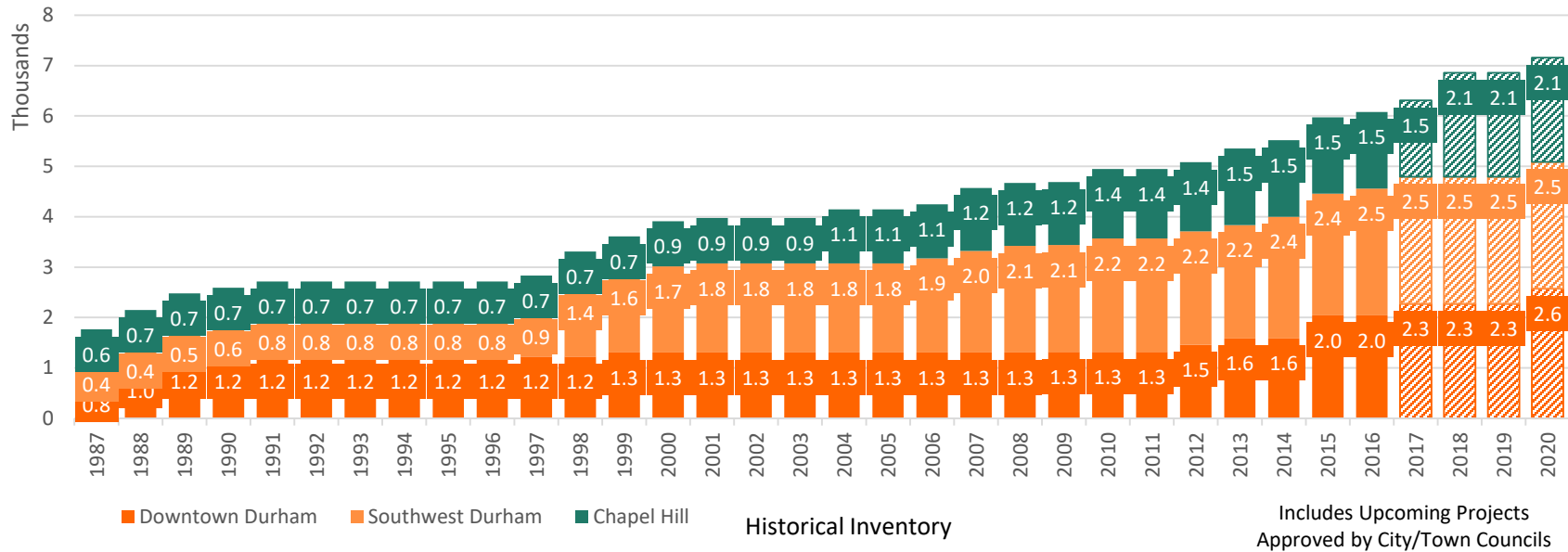
- Based on regional growth continuing $\pm 3.5\%$ and the Rail Submarkets continuing to attract $\pm 19\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Projected Supply of Apartments/Condos (Units)



Hotel Growth Rates

Hotel Units (Historic and Approved) D-O LRT Submarkets



Office	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Downtown Durham	2,000 Rooms	2.8% to 4.5%	3.1% to 4.5%	2.6% to 3.8%	3.2% to 4.7%	3.9% to 5.5%	3.5% to 5.1%	3.4% to 5.0%	2.8% to 4.1%
Southwest Durham	2,500 Rooms	0.8% to 1.5%	3.5% to 4.8%	2.9% to 4.0%	2.9% to 4.3%	2.5% to 3.7%	2.5% to 3.8%	3.3% to 4.7%	2.5% to 3.9%
Chapel Hill	1,500 Rooms	5.9% to 8.8%	3.4% to 5.0%	2.9% to 4.2%	2.4% to 4.1%	2.6% to 4.0%	3.0% to 4.2%	3.2% to 4.9%	2.7% to 3.8%
Total	6,100 Rooms	2.8% to 4.5%	3.3% to 4.7%	2.8% to 4.0%	2.9% to 4.4%	3.0% to 4.4%	3.0% to 4.4%	3.3% to 4.8%	2.7% to 4.0%

Hotel Projections

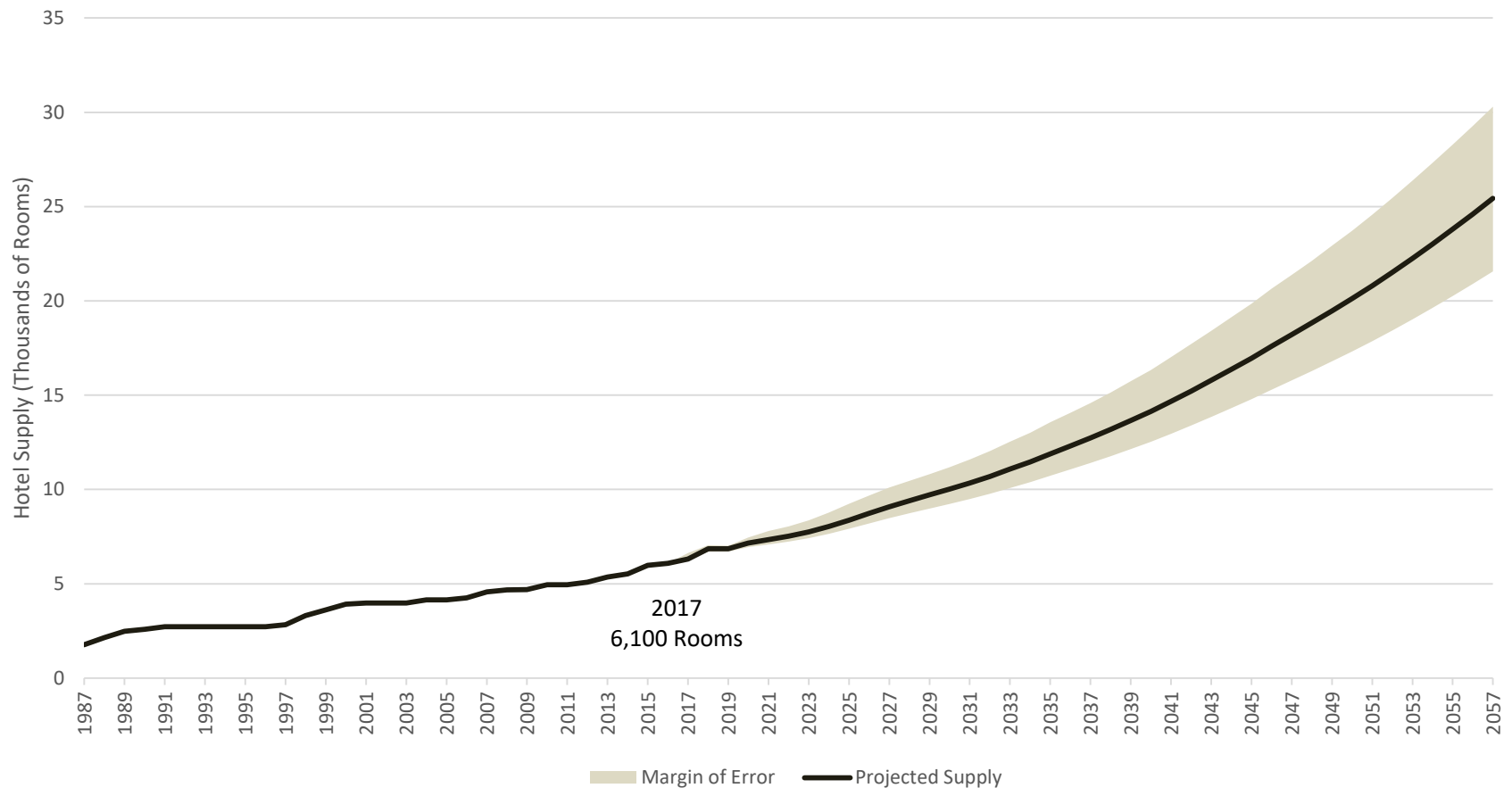
- Based on regional growth continuing $\pm 5.3\%$ and the Rail Submarkets continuing to attract $\pm 26\%$ of that additional inventory
- Projected growth could be distributed across the trade area (sprawl), concentrated around light rail stations, or pushed out into rural Orange and Chatham Counties, depending on general plans, project approval, zoning, and other future policies

Incremental	Current Inventory	2018 - 2022	2023 - 2027	2028 - 2032	2033 - 2037	2038 - 2042	2043 - 2047	2048 - 2052	2053 - 2057
Central Durham	2,000 Rooms	300 to 500 Rooms	400 to 600 Rooms	400 to 600 Rooms	600 to 900 Rooms	900 to 1,300 Rooms	1,000 to 1,500 Rooms	1,200 to 1,800 Rooms	1,200 to 1,800 Rooms
Southwest Durham	2,500 Rooms	100 to 200 Rooms	500 to 700 Rooms	500 to 700 Rooms	600 to 900 Rooms	600 to 900 Rooms	700 to 1,100 Rooms	1,100 to 1,600 Rooms	1,000 to 1,600 Rooms
Chapel Hill	1,500 Rooms	500 to 800 Rooms	400 to 600 Rooms	400 to 600 Rooms	400 to 700 Rooms	500 to 800 Rooms	700 to 1,000 Rooms	900 to 1,400 Rooms	900 to 1,300 Rooms
Total	6,100 Rooms	900 to 1,500 Rooms	1,300 to 1,900 Rooms	1,300 to 1,900 Rooms	1,600 to 2,500 Rooms	2,000 to 3,000 Rooms	2,400 to 3,600 Rooms	3,200 to 4,800 Rooms	3,100 to 4,700 Rooms
Cumulative	Current Inventory	Thru 2022	Thru 2027	Thru 2032	Thru 2037	Thru 2042	Thru 2047	Thru 2052	Thru 2057
Central Durham	2,000 Rooms	300 to 500 Rooms	700 to 1,100 Rooms	1,100 to 1,700 Rooms	1,700 to 2,600 Rooms	2,600 to 3,900 Rooms	3,600 to 5,400 Rooms	4,800 to 7,200 Rooms	6,000 to 9,000 Rooms
Southwest Durham	2,500 Rooms	100 to 200 Rooms	600 to 900 Rooms	1,100 to 1,600 Rooms	1,700 to 2,500 Rooms	2,300 to 3,400 Rooms	3,000 to 4,500 Rooms	4,100 to 6,100 Rooms	5,100 to 7,700 Rooms
Chapel Hill	1,500 Rooms	500 to 800 Rooms	900 to 1,400 Rooms	1,300 to 2,000 Rooms	1,700 to 2,700 Rooms	2,200 to 3,500 Rooms	2,900 to 4,500 Rooms	3,800 to 5,900 Rooms	4,700 to 7,200 Rooms
Total	6,100 Rooms	900 to 1,500 Rooms	2,200 to 3,400 Rooms	3,500 to 5,300 Rooms	5,100 to 7,800 Rooms	7,100 to 10,800 Rooms	9,500 to 14,400 Rooms	12,700 to 19,200 Rooms	15,800 to 23,900 Rooms

Hotel Projections

- Based on regional growth continuing $\pm 5.3\%$ and the Rail Submarkets continuing to attract $\pm 26\%$ of that additional inventory
- Projected growth could be adjacent to suburban office parks, concentrated around light rail stations, or follow outlying office and medical development on I-85 corridor, depending on general plans, project approval, zoning, and other future policies

Projected Supply Hotel Rooms (Units)



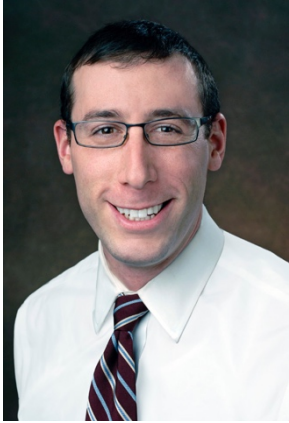
CONTACT

Contact Information



Durham-Orange Light Rail Transit Initiative	Station Area Planning Project	Station Area Planning Project	Market Analysis
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Charles Warren, PhD



Charles Warren, PhD is Principal Consultant of Toyon Group LLC. Dr. As an experienced project manager and subject matter specialist, Dr. Warren combines an academic background in city planning with ten years of corporate real estate experience. His professional mission is to bridge the gap between public agencies and private real estate by empirically demonstrating the mutually beneficial outcomes of transit-oriented development.

Dr. Warren has specialized experience working on projects where multiple and overlapping transit providers, municipalities, and other agencies are seeking to monetize assets in a manner that increases ridership and adds new sources of capital. He specializes in helping to define the appropriate structure and policies for public-private partnerships and value-capture finance. He is a trusted advisor on methods of leveraging increasing land value increase to attract capital investment, via value-capture taxation, public-private development partnership, and/or issuing bonds against future tax revenues.

In association with DWH Strategic Advisors, Dr. Warren's recent projects include a global analysis of transit agency funding of capital replacement and expansion; evaluation of the impact of Millennials on office space, transit use, and urban design; and developing a pilot program for on-platform and in-station retail kiosks on a rapid-transit system. He has also led projects including a market feasibility study on the first office space proposed for Downtown Los Angeles since 1992; strategic market positioning plan and demand forecast for an 1,100-acre surplus industrial site in Toronto, Ontario; a mixed-use feasibility study for a downtown Chicago redevelopment; and strategic planning for developing rail yards and air rights, attracting private capital to invest in station renovation.

Dr. Warren has worked with passenger railroads across the United States: former clients include Amtrak, Long Island Railroad, MTA New York City Transit, MARTA, and Sound Transit. Additionally, Dr. Warren has advised private-sector clients on strategic real estate investment, including Beacon Capital Partners, WeWork, Crate & Barrel, Nike, Ann Taylor, Martin Property Management, and Exelon.

Prior to founding the Toyon Group, Dr. Warren was Director of Cushman & Wakefield's Retail Consulting practice, focusing on strategic locating of stores, outlets, and distribution networks for retailers. Dr. Warren is a graduate of the University of California Berkeley, where he received a Ph.D. in City and Regional Planning from the College of Environmental Design. He also studied real estate finance, securities, and capitalization at the Haas School of Business. He received his Master of Arts degree in Urban Studies from the John W Draper Interdisciplinary Program at New York University.

AVAILABLE AS SEPARATE DOCUMENT

APPENDIX