The Economic & Fiscal Implications of Downtown Columbia's Redevelopment

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Sage Policy Group, Inc.
Commissioned by: The Downtown Columbia Partnership

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The Economic and Fiscal Contributions of Downtown Columbia

Executive Summary

The Downtown Columbia Partnership commissioned Sage to study the economic and fiscal implications associated with implementation of the Downtown Columbia Plan (the Plan). In 2010, Howard County adopted the Plan with the goal of revitalizing the downtown area with a diverse assortment of housing and business opportunities and a plethora of cultural, civic, recreational, and educational amenities.

The Plan, which was most recently amended in 2016, encompasses up to 4.3 million square feet of new office space, 1.3 million square feet of new retail space, more than 6,200 new residential units (many of which are below market-rate units), and 640 hotel rooms. Note that this is supplemental to the existing built environment that currently comprises Downtown Columbia.

As part of the Plan, a series of Community Enhancements, Programs and Public Amenities (CEPPA) requirements must be met at specific development milestones. These 27 milestones involve amenities including pedestrian pathways, environmental restoration projects, contribution of school sites, and the development and dedication of a public park.

This report analyzes the economic and fiscal impacts of downtown Columbia's redevelopment to date as well as future impacts associated with rounds of investment to come. The study team used IMPLAN economic modeling software, an industry-leading platform for input-output analysis, to calculate all economic impacts. Fiscal impacts were generated using data sourced from IMPLAN, Howard County, and the Maryland Comptroller's Office.

Downtown Columbia's redevelopment is providing Howard County with a new source of tax base while strengthening public infrastructure and without generating significant burdens on school capacity. This is in large part because residential development in the reimagined downtown Columbia is oriented toward multifamily units, which are associated with much smaller pupil generation factors than single-family dwellings. Below are our key analytical findings:

- Downtown Columbia's redevelopment will support more than 10,300 jobs on an ongoing basis in Howard County at the completion of Merriweather District and more than 43,000 jobs in the County at full-build-out;
- Upon full build-out and occupancy, the income associated with jobs supported in Howard County by the redevelopment will support $2.5 billion in wage/salary/proprietor income;
- Even when accounting for both: 1) the cost of local government service provision and 2) TIF debt service payments, net fiscal impacts remain positive throughout the redevelopment period under the most conservative of assumptions and using two discrete fiscal impact estimation methods. By 2048, the net fiscal benefit to the County will be in the range of $25-$31million/annum.
- **Cumulative positive fiscal impacts for Howard County associated with the redevelopment of downtown Columbia will total $389-$511 million between 2020 and 2048 once one accounts for the cost of local government services and debt service associated with tax increment financing.**

Support for Critical Public Policy Objectives

- Resources to Keep Supporting Howard County Schools without Tax Increases

Howard County has the third highest per pupil expenditures in the state. Given tighter APFO regulations, it is conceivable that a slower growing local economy and tax base could ultimately translate into higher property taxes for Howard County residents due to a dearth of single-family home construction. The redevelopment of Downtown Columbia creates substantial new tax base without adding substantially to the public-school student population, which supports greater community capacity to invest more per pupil going forward even in the context of the new APFO regime.

- Expanded Commercial Tax Base

As of January 1st, 2018, commercial property accounted for approximately 27 percent of Howard County's assessable base. That ranked 8th among Maryland's twenty-four jurisdictions. All things being equal, the more sizeable the commercial tax base, the less reliance there is on the residential tax base to support local government expenditures, including those on public education. Downtown Columbia's redevelopment stands to tilt the County's tax base forcefully toward greater commercial orientation since more than 56 percent of investment in structures is commercial.

- Attracting a Younger Workforce

Between 2010 and 2017, Howard County's population of those aged 55 and older expanded by more than 20,000, or by a bit more than 34 percent. During that same period, the population of Howard County residents under the age of 55 expanded by fewer than 13,000. Downtown Columbia is being redeveloped to appeal to many people, including young knowledge workers looking for amenity-rich multifamily development situated in the context of walkability and bikeability.

- Competing for Cutting Edge Industries

An expanded appeal to young knowledge workers will in turn attract more prestigious employers, which helps propel Downtown Columbia's redevelopment and augments commercial tax base. Downtown Columbia can appeal to cyber-security, biotech, and other firms today because of its contemporary mixed-use plan.

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Introduction

The Downtown Columbia Partnership commissioned Sage Policy Group, Inc. (Sage) to study the economic and fiscal implications associated with implementation of the Downtown Columbia Plan (Plan). The Plan, adopted by Howard County policymakers on February 1st, 2010, called for the redevelopment of approximately 391 acres of land located in Downtown Columbia "into a transformative, urban-oriented business and cultural hub that will include more than 13 million square feet of new building development at completion."[1] The plan also established a policy framework for implementation and called for regular monitoring and evaluation.

As amended in 2016, the Plan stipulates development encompassing up to 4.3 million square feet of new office space and 1.3 million square feet of new retail space, more than 6,200 new residential units, and 640 hotel rooms. This redevelopment is intended to supplement the existing 1.4 million square feet of retail space, 1.6 million square feet of office space, 290 hotel rooms, and 1,340 residential units that comprised Downtown Columbia at the Plan's inception.

In addition to millions of square feet of privately financed commercial space, the Plan allows for the redevelopment of several aging office buildings, new and enhanced pedestrian pathways, and open spaces. It also calls for the formation of the Downtown Columbia Arts and Culture Commission, a nonprofit that has assumed ownership of Merriweather Post Pavilion and seeks to expand and establish cultural and artistic activities in Downtown Columbia.

Development of this magnitude cannot occur without augmented public infrastructure. The cost of these improvements, including streets, roads, sidewalks, water lines, sewage systems, structured parking, and other forms of infrastructure, is estimated at $171 million.

The County considers $149 million of that total as qualified expenditures, meaning that some or all of it can be funded through the issuance of tax increment financing (TIF) bonds. Debt service will be financed by future incremental real property tax revenues generated via redevelopment and, if necessary, special taxes levied on the landowner, The Howard Hughes Corporation in this instance, as the master developer for Downtown Columbia. While there have been economic assessments of Downtown Columbia in the past, this assessment supplies the most up-to-date information regarding what has already been built and occupied as well as detail regarding future impacts.

[1] Downtown Columbia Development Memorandum of Understanding. Joint Version, 11/9/2016. https://cc.howardcountymd.gov/LinkClick.aspx?fileticket=iwV1hWFR9YY%3d&portalid=0

Methods

Sage used IMPLAN economic modeling software, an industry-standard input-output modeling platform, to estimate economic impacts. Essentially, the model translates inputs characterizing the types and magnitudes of redevelopment taking place in downtown Columbia into outputs that characterize economic and fiscal implications. Importantly, the model embodies economic multipliers and tax rates specific to the local economy. Economic impact estimates encompass augmented employment, associated income, and economic activity. Fiscal impact estimates encompass augmented taxes and fees, including both property and income taxes.

- Input Data

As updated in 2016, the Plan includes three phases set to occur over approximately three decades. A fourth phase includes any additional work that might occur beyond Phase III to bring the Plan to completion.

There are certain stipulations that must be met during each phase before the subsequent phase begin. For instance, at least 5 percent of Phase I residential units must be affordable units for Phase II to proceed. That threshold rises to 12 percent during Phases II and III.

This analysis examines the economic and fiscal impacts associated with the Plan at two distinct moments: 1) the completion of the initial phase of the Merriweather District in 2020, which coincides with the first phase of TIF funding, and 2) at full build-out, which this analysis assumes will occur by 2040. The Merriweather District, referred to as the Crescent in County planning documents, is a neighborhood overlooking Merriweather-Symphony Woods and forms a critical part of Downtown Columbia's redevelopment.

Exhibit 1: Development Phases Modeled in this Report

Use Type	Merriweather District Phase I	Full Build-out
Retail (SF)	210,731	1,250,000
Office/Conference (SF)	963,000	4,300,000
Hotel Rooms	0	640
Residential Units	1,568	6,250

Source: Downtown Columbia Redevelopment Monitoring Report, Howard Hughes Corporation

The full build-out scenario analyzed in this report assumes that the development will meet all parameters set forth in the Plan. The pace and breadth of development will of course be determined by market forces.

As of August 2018, building permits had been issued for 14 percent of the total planned retail square footage, 15 percent of the office/conference square footage, and 19 percent of residential units.

There have yet to be any building permits issued for hotel space. Exhibit 2 supplies summary detail of the progress as of August 2018.

Exhibit 2: Building Permits Issued through August 2018

Use Type	Issued	Plan Total	Percent of Plan Issued
Retail (SF)	181,116	1,250,000	14%
Office/Conference (SF)	660,966	4,300,000	15%
Hotel Rooms	0	640	0%
Residential Units	1,199	6,250	19%

Source: Downton Columbia Redevelopment Monitoring Report

While building permits have been issued for the renovation of Merriweather Post Pavilion, the relatively small additional square footage encompassed by that renovation is not included in total Plan square footage goals. This square footage is also not presented in Exhibit 2, and has been classified as cultural/community construction for purposes of this analysis.

There has also been a certain level of construction activity in the study area that does not correspond to the Plan. For instance, there has been construction associated with a 119,000 square foot mixed-use building in the Lakefront neighborhood. Any development activity that is not explicitly part of the Plan is not assessed in this analysis.

Affordable Housing

The Plan prioritizes the creation of affordable and moderate-income housing. As part of this commitment, the Plan calls for the establishment of a Downtown Columbia Community Housing Federation (DCCHF) to manage and oversee the affordable housing development. Under Council Resolution 154-2012, which the Council adopted in November 2012, the Columbia Downtown Housing Corporation (CDHC) was recognized as the DCCHF.

As of the 2016 amendment, the Plan calls for a minimum of 12 to 15 percent Moderate Income Housing Units (MIHU)[2], allowing developers an alternative option of proposing their own innovative approach to exceeding the affordability requirements through a Development Rights and Responsibility Agreement. Howard Hughes entered into such an agreement with the County in 2016, agreeing to create 900 affordable units by full build-out, which represents more than 16 percent of the Plan's total remaining residential units. The unit mix will include:

[2] The MIHU program is an inclusionary zoning program that requires a certain portion of sold or rented units be bought or leased by household with an income below a certain threshold. As of 1/1/2019, the MIHU threshold for a family of 4 was $89,178 for purchasing and $66,884 for renting.

- 200 very low-income units;
- 417 low income units supplied with use of Low Income Housing Tax Credits (LIHTC);
- 83 affordable live-where-you-work units; and
- 200 middle income units

The supply of affordable and moderate-income housing units is consistent with the desire to position people to live near their work. It is also consistent with the broader Columbia value of inclusion.

Analytical Parameters

1. Retail sales are estimated at $500 per square foot ($2019).[3] This is consistent with the expected distribution of retail segments in downtown Columbia based on the U.S. Census Bureau's Monthly Retail Trade Report.[4] The Sage study team determined that certain retail subsegments are highly unlikely to lease significant space in Downtown Columbia, including Motor Vehicles and Parts Dealers, Gasoline Stations, Non-store Retailers, and Building Material & Garden Equipment and Supplies Dealers. These categories have been excluded from the input-output model.
2. The occupancy rate for retail space is estimated at approximately 95 percent at steady state.
3. Hotel rooms are modeled using the revenue per average room statistic from the Maryland Office of Tourism Development's Maryland Lodging Monitor report.[5]
4. It is presumed that office tenants will be staffed at a density of one employee per 194 square feet, which represents the 2018 national average across all office-using segments.[6]
5. The occupancy rate for office space is estimated at 90 percent at steady state.
6. The distribution of types of office tenants is modeled to reflect existing office space tenants associated with the Plan and developer expectations of prospective tenants.
7. The study team used U.S. Census Bureau Inflow/Outflow Analysis of County commuting patterns to estimate the number of people who live in surrounding areas and commute into Howard County.

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[3] All dollar value estimates supplied in this report are presented in $2019 unless otherwise specified.
[4] November 2018 Advance Monthly Sales for Retail Trade and Food Service. United States Census Bureau. Released December 14, 2018. Table 1. Estimated Monthly Sales for Retail and Food Services, by Kind of Business
[5] June 2018 Maryland Lodging Monitor. Maryland Office of Tourism Development. Calendar Year to Data January to June 2018 vs 2017 (p. 4).
[6] Space Matters: Key Office Trends and Metrics for U.S. Occupiers. Cushman and Wakefield.

IMPLAN Economic Modeling Software

As noted above, to quantify economic impacts, Sage used IMPLAN economic modeling software and its embodied multipliers to generate estimates of employment, labor income, and output (also referred to as economic activity or business sales). Below is an abbreviated glossary of terms presented as simply and efficiently as possible.[7]

Employment

As defined by IMPLAN, a job that lasts twelve months equals one job, two jobs that last six months equal one job, three jobs that last four months equal one job, etc. Based on this, job-years represents a useful term. For instance, an endeavor that supports 200 jobs for a six-month period would be considered to support 100 jobs.

For construction or capital investment events (one-time-only), for which the economic or fiscal impacts occur only once, the stated number of jobs is the total number of job-years that will be supported across the duration of the capital project. For operational (ongoing) impacts, job figures are annual and will occur every year so long as operations persist.

Note that IMPLAN jobs aren't quite the same thing as full-time equivalents (FTEs). Each of IMPLAN's 536 unique industries has a different conversion rate between jobs and FTEs, although for almost every industry one job is equal to less than one FTE.

Labor Income

Labor income is comprised of wages, benefits, and proprietor income (money accruing to owners of businesses).

Labor income = all forms of employee compensation (wages & benefits) + proprietor income

Output (Business Activity, Economic Activity)

Output equals the value of industry production. It might be easier to conceptualize this as total business sales or economic activity. For retail industries, it is gross margin as opposed to gross sales. For manufacturing, output represents the quantity of total sales plus/minus the change in

[7] These definitions are largely attributable to IMPLAN user Phil Cheney, who, as of this writing, has contributed over 300 articles to the IMPLAN Knowledge Base

inventories. For the service sector, output is directly equal to sales. This is summarized by the following equation:

Output = (Manufacturing sales +/- change in inventories) + (service sector sales) + (gross margin for wholesale and retail trade)

These figures are based on annual production estimates for the year of the dataset. In this instance, the year is 2016, the most recent year for which data are available.

Direct Effects

Direct effects are impacts tightly aligned with the endeavor being analyzed. In this instance, direct effects are produced by: 1) construction spending, 2) operational spending by the development's commercial occupants, and 3) household spending associated with additional residential units embodied by the Plan.

Indirect Effects

Indirect effects stem from business-to-business spending activity within the study area that occurs as a result of the direct effects. These can also be considered broader supply chain effects.

Induced Effects

Induced effects relate to household spending that occurs due to an expanded economy. For instance, if one were modeling a construction project, associated construction worker income spent at local restaurants or gift shops would be included in the induced effects category.

Estimated Economic & Fiscal Impacts

- *Economic Impacts*

Crescent Phase 1 Development

The Crescent (or Merriweather District) Phase 1 Development, which coincides with the first round of TIF-related bond issuance, is set to be completed in 2020. This effectively involves the creation of a new, highly walkable neighborhood. This phase is associated with approximately 1,570 residential units, 127,000 square feet of retail, 83,500 square feet of restaurant space, and 963,000 square feet of office space.

Once complete and occupied, associated development will support more than 4,800 direct jobs in Howard County. The total rises to more than 10,380 jobs countywide once multiplier effects are considered. Associated labor income totals approximately $687 million, while economic activity will be bolstered by roughly $1.9 billion per annum.

Some fraction of impact will leak into surrounding jurisdictions. This is largely because some workers will live in other jurisdictions. Accordingly, much of the associated household spending will occur outside Howard County. Accordingly, induced impacts, which relate to household spending effects, will be meaningfully large in the balance of Central Maryland. Sage's model estimates that this initial phase will support an estimated 2,630 jobs beyond Howard County's boundaries. Exhibit 3 supplies relevant summary detail.

Exhibit 3: Annual Economic Impacts generated by Crescent Phase 1 Development (2020)

	Jobs	Labor Income (Millions $2019)	Economic Output (Millions $2019)
Howard County			
Direct effects	4,864	$372.9	$991.6
Indirect effects	2,151	$147.1	$384.2
Induced effects	3,368	$166.9	$515.3
Total*	**10,383**	**$686.9**	**$1,891.1**
Remainder of Baltimore Region			
Direct effects	-	-	-
Indirect effects	319	$35.8	$61.2
Induced effects	2,280	$204.9	$331.2
Total*	**2,630**	**$244.3**	$398.9
Regional Total*	**13,012**	**$931.3**	**$2,290.0**

Source: IMPLAN, Howard Research & Development Corporation *Totals may not add due to rounding

Full Build-Out

At full build-out, which for purposes of this analysis is presumed to transpire in approximately 2040, the Plan will support more than 24,000 direct jobs with associated labor income exceeding $1.4 billion per annum. Once multiplier effects are considered, the Plan will support in the range of 43,500 jobs associated with more than $2.5 billion in annual labor income. Supported economic activity will exceed $7 billion, and this can be considered the sum total impact of a redeveloped Downtown Columbia on Howard County's economy.

The remainder of the Baltimore Region will gain about 14,600 jobs, more than $1.3 billion in labor income, and approximately $2.2 billion in augmented economic activity. Again, those who work in Howard County and live in another jurisdiction largely support this activity.

Exhibit 4: Annual Economic Impacts generated by the Plan, Full Build-out (2040)

	Jobs	Labor Income (Millions $2019)	Economic Output (Millions $2019)
Howard County			
Direct effects	24,104	$1,426.6	$3,827.7
Indirect effects	8,167	$557.6	$1,467.4
Induced effects	11,232	$557.0	$1,724.7
Total*	**43,503**	**$2,541.2**	**$7,019.8**
Remainder of Baltimore Region			
Direct effects	-	-	-
Indirect effects	1,221	$137.6	$236.3
Induced effects	13,126	$1,179.5	$1,906.6
Total*	**14,629**	**$1,349.1**	**$2,197.7**
Regional Total*	**58,132**	**$3,890.2**	**$9,217.5**

Source: Sage, IMPLAN *Totals may not add due to rounding

- *Fiscal Impacts*

Augmented economic activity produces fiscal benefits. Sage used two discrete methodologies to estimate gross and net fiscal impacts associated with the Plan. The first uses proprietary average cost of local government service estimation techniques to help produce fiscal impact estimates. The second utilizes marginal cost parameters set forth in a fiscal impact study conducted by Urban Analytics under contract to Howard County. Ultimately, both analytical techniques yielded similar outcomes.

Net Fiscal Impacts Using Average Cost Fiscal Impact Analysis

Based on the number of net new jobs to be produced for the projected number of people who will live in Howard County, and given the County's 3.2 percent income tax rate, the Plan will augment local piggyback income tax revenues by approximately $10 million/annum at the completion of Merriweather District in 2020 and by approximately $38 million/annum at complete build-out.

Sage produced hotel tax revenue estimates using the average revenue per room across Maryland's Central Region and applying the 5 percent County tax rate. The study team computed property tax revenues using average per square foot project costs as a proxy. The County's property tax rate is $1.014 per $100 of assessed value. Note that property tax impact estimates presented below encompass development created via multiplier effects.

Once the Merriweather District Phase I is completed, it will generate $21.1 million annually in augmented tax revenues for Howard County. Upon full build-out of downtown Columbia's redevelopment, the total gross tax impact will be in excess of $88 million per annum according to Sage estimates. Exhibit 5 supplies summary detail.

Exhibit 5: Annual Fiscal Benefit Estimates

	Income Taxes (Millions $2019)	Property Taxes (Millions $2019)	Hotel Tax Revenues (Millions $2019)	Total Annual New Revenues (Millions $2019)
Merriweather District Phase I	$10.0	$11.1	-	**$21.1**
Full Build-out	$38.3	$48.9	$0.9	**$88.1**

Source: IMPLAN, Maryland Department of Assessment and Taxation

Cost of Local Government Services – Average Cost Analysis

Estimates supplied in the preceding section pertain to gross fiscal benefits. The augmentation of population, whether in the form of workers or residents, creates additional demands on local government that should be considered. Accordingly, this portion of the analysis supplies computations regarding the increase in cost of local government services to serve larger Howard County daytime and nighttime populations.

This portion of the analysis estimates average local government cost per new household generated via the residential portion of the Plan using County FY2017 general fund expenditures. While FY2017 does not represent the most recent County budget, it coincides with the most recent year for which the U.S. Census Bureau provides an estimate of total countywide households. This is important since it positions the study team to assess the average cost of providing local government services to households. This portion of the analysis presumes that residential units will be associated with 95.6 percent occupancy at steady state.[8] Sage sourced relevant public-school attendance figures from Howard County Public School's Official Enrollment Reports.

As indicated in Exhibit 6, in total, per household cost of local government services (excluding education) stands at $3,834 per annum while per pupil cost comes to $10,605 per annum. The next step is to determine the number of pupils associated with housing units developed under the Plan. See Exhibit 6 for summary detail.

Exhibit 6: Residential Cost of Services Calculation Parameters

County Expenditures	FY 2017 Budget	Per Household	Per Pupil
Education	$614,028,846		$10,605
Public Safety	$127,243,293	$1,092	
Public Facilities	$66,646,299	$572	
Community Services	$64,182,304	$551	
Legislative & Judicial	$26,718,911	$229	
General Government	$27,680,419	$238	
Non Departmental Expenses	$134,146,929	$1,152	
Total	**$1,060,647,001**	**$3,834**	**$10,605**

Source: Howard County Public Schools, Howard County FY2017 Approved Budget

Pupil generation factors were used to translate the number of housing units associated with the Plan into augmented public-school population. The study team considered student yield factor based on Montgomery County student generation for multifamily high-rise units, which has been done in prior fiscal impact assessments of the Plan. The need to use a factor from a neighboring jurisdiction reflects the paucity of high-rise multifamily development in Howard County historically. [9]

These student yield factors, however, are significantly higher than what has been observed with respect to completed residential units. To date, the 817 total units delivered have produced 28 elementary school age kids, 14 middle schoolers, and 16 high schoolers, for a total student yield of 0.071 per unit (not accounting for any students who might attend private school), about 40 percent lower than suggested by the Montgomery County parameters. Using a yield factor based on

[8] U.S. Census Bureau, Selected Housing Characteristics for Howard County, MD, 2017.

[9] 2016 Howard County Memorandum from Jeff Bronow, Chief of Research Division, Department of Zoning and Planning

observed results yields an estimate of 106 students at the completion of Merriweather Phase I and 424 students at full build-out.

This study utilizes the average of observed yield factors and ones sourced from Montgomery County. Accordingly, this analysis estimates 142 students at the completion of Merriweather Phase I and 565 students at full build-out. Exhibit 7 supplies a summary of findings regarding pupil generation attributable to Plan residential units.

Exhibit 7: Student Yield from Residential Development at Full Build-Out

Based on Montgomery County Yield Factors			
	Student Yield Factor	Students at Merriweather District Phase I Completion	Students at Full Build-Out (2040)
Elementary School	0.06	90	359
Middle School	0.025	37	149
High School	0.033	49	197
Total Students	**0.118**	**177**	**705**
Based on Montgomery Observed Yield Factors			
	Student Yield Factor	Students at Merriweather District Phase I Completion	Students at Full Build-Out (2040)
Elementary School	0.034	51	205
Middle School	0.017	26	102
High School	0.020	29	117
Total Students	**0.071**	**106**	**424**
Blended Average			
	Student Yield Factor	Students at Merriweather District Phase I Completion	Students at Full Build-Out (2040)
Elementary School	0.047	71	282
Middle School	0.021	32	126
High School	0.026	39	157
Total Students	**0.094**	**142**	**565**

Source: Howard County Department of Planning and Zoning, Howard County Public Schools

As indicated, the Plan's residential component will generate an estimated 565 students at full build-out, of which 142 are associated with Merriweather District Phase I. Applying the average per pupil cost of $10,605, the additional educational cost from the Plan's residential component will total $1.5 million per annum at the completion of Merriweather District Phase I in 2020 and roughly $6 million per annum at full build-out. Exhibits 8 and 9 summarize this aspect of the fiscal assessment.

Exhibit 8: Annual Educational Cost Burden

	Students	Educational Cost Estimate (Millions $2019)
Merriweather District Phase I	142	$1.5
Full Build-out	565	$6.0

Source: Howard County Department of Planning and Zoning

This analysis estimates average local government cost per job created in the commercial component of the development by calculating a per hour cost of services for four distinct segments of government service users: 1) those who work and live in Howard County (intense users of local services on a potentially 24-hour basis); 2) those who work in Howard County but live elsewhere; 3) those who live in Howard County, but work elsewhere; and 4) those who live in Howard County, but who don't work there (also intense users). Effectively, the theory is that in many categories of government service provision, demand for services is a function of the number of hours spent in the community. Those who live and work in Howard County therefore are presumed to be the most intense users of local government services ceteris paribus.

The study team assigned each segment a value for the number of hours they likely/theoretically spend per day in Howard County from which a per hour cost of services parameter was calculated for each of the four discrete populations. Using County-specific worker in-flow out-flow patterns from the U.S. Census Bureau, the newly created jobs were divided into two segments: those who work and live in Howard County and those who work in Howard County but live elsewhere. Those who live elsewhere are presumed to consume no public-school services in Howard County.

Applying these parameters yields cost of services estimates pertaining to the commercially supported employee base of $6.2 million per annum at the completion of Merriweather District Phase I and $27.1 million at full-built-out. The total annual cost of services estimates (including the residential component) are $13.7 million per annum at the completion of Merriweather District Phase I and $57.1 million per annum at full-build-out. Exhibit 9 summarizes these findings.

Exhibit 9: Total Annual Cost of Services

	Educational (Millions $2019)	Other Household CoS (Millions $2019)	Employee-Related CoS (Millions $2019)	Total Annual Cost of Services (Millions $2019)
Merriweather District Phase I	$1.5	$6.0	$6.2	**$13.7**
Full Build-out	$6.0	$24.0	$27.1	**$57.1**

Source: Sage *Note: totals may not add due to rounding

TIF Debt Service Payments

From February 15th, 2020 through February 15th, 2047, incremental property tax revenues generated by the Plan will have to at least countervail approximately $161.2 million in debt service related to $90 million in bonds issued to support public infrastructure improvements. This bond issuance tally encompasses $48.2 million that was issued in 2017 as well as a remaining issuance of $41.8 million. The net present value of that debt service is approximately $111 million measured in $2019 and assuming an inflation rate of 2.5 percent/annum.

TIF-funded infrastructure enables the development to approach its full potential. The developer is responsible for paying interest and principal on the bonds, but these funds come out of property tax payments that would otherwise inure to the benefit of Howard County's General Fund. Annual debt service will peak at $7.7 million in nominal terms during the one-year period ending February 15th, 2046. By comparison, annual property tax collections attributable to downtown Columbia's redevelopment will reach $11.1 million upon completion of Merriweather Phase I in 2020 and $48.6 million upon full build-out (estimated 2040). This analysis presumes that incremental property taxes increase on a linear basis between 2020 and 2040 as the marketplace accommodates investment.

Exhibit 10: Debt Service and Incremental Property Tax Payments

Period Ending	Debt Service				Incremental Annual Property Tax Revenues ($2019)	Incremental Annual Surplus Net of Debt Service ($2019)
	From 2017 Bond Issuance	Remaining Bond Issuance	Total Debt Service	NPV of Total Debt Service ($2019)		
02/15/2020	$2,102,219	$1,687,988	$3,790,206	$3,697,762	$11,121,611	**$7,423,849**
02/15/2021	$2,302,219	$1,558,143	$3,860,361	$3,674,347	$12,997,313	**$9,322,966**
02/15/2022	$2,194,219	$2,178,143	$4,372,361	$4,060,172	$14,873,015	**$10,812,843**
02/15/2023	$2,190,219	$2,223,613	$4,413,831	$3,998,713	$16,748,717	**$12,750,004**
02/15/2024	$2,571,219	$2,267,035	$4,838,254	$4,276,312	$18,624,419	**$14,348,107**
02/15/2025	$2,531,819	$2,308,410	$4,840,229	$4,173,714	$20,500,120	**$16,326,406**
02/15/2026	$2,923,219	$2,352,738	$5,275,956	$4,438,478	$22,375,822	**$17,937,344**
02/15/2027	$3,113,219	$2,399,860	$5,513,079	$4,524,841	$24,251,524	**$19,726,683**
02/15/2028	$3,144,219	$2,441,740	$5,585,959	$4,472,836	$26,127,226	**$21,654,390**
02/15/2029	$3,172,219	$2,486,033	$5,658,251	$4,420,217	$28,002,928	**$23,582,711**
02/15/2030	$3,195,656	$2,527,565	$5,723,221	$4,361,923	$29,878,629	**$25,516,706**
02/15/2031	$3,216,000	$2,571,338	$5,787,338	$4,303,209	$31,754,331	**$27,451,122**
02/15/2032	$3,233,250	$2,617,178	$5,850,428	$4,244,020	$33,630,033	**$29,386,013**
02/15/2033	$3,272,406	$2,657,173	$5,929,579	$4,196,524	$35,505,735	**$31,309,211**
02/15/2034	$3,282,438	$2,703,883	$5,986,320	$4,133,348	$37,381,437	**$33,248,089**
02/15/2035	$3,314,375	$2,746,943	$6,061,318	$4,083,055	$39,257,138	**$35,174,083**
02/15/2036	$3,337,813	$2,791,353	$6,129,165	$4,028,057	$41,132,840	**$37,104,783**
02/15/2037	$3,331,875	$2,831,930	$6,163,805	$3,952,022	$43,008,542	**$39,056,520**
02/15/2038	$3,372,656	$2,879,935	$6,252,591	$3,911,169	$44,884,244	**$40,973,075**
02/15/2039	$3,957,969	$2,923,320	$6,881,289	$4,199,451	$46,759,946	**$42,560,495**
02/15/2040	$4,013,750	$2,962,085	$6,975,835	$4,153,316	$48,635,648	**$44,482,332**
02/15/2041	$4,108,250	$3,006,230	$7,114,480	$4,132,550	$48,635,648	**$44,503,098**
02/15/2042	$4,192,625	$3,050,370	$7,242,995	$4,104,585	$48,635,648	**$44,531,063**
02/15/2043	$4,291,875	$3,096,818	$7,388,693	$4,085,026	$48,635,648	**$44,550,622**
02/15/2044	$4,379,875	$3,137,538	$7,517,413	$4,054,822	$48,635,648	**$44,580,826**
02/15/2045	$4,481,625	$3,182,530	$7,664,155	$4,033,144	$48,635,648	**$44,602,504**
02/15/2046	$3,821,000	$3,226,400	$7,047,400	$3,618,133	$48,635,648	**$45,017,515**
02/15/2047	$156,750	$103,950	$260,700	$130,579	$48,635,648	**$48,505,069**
Total	**$89,204,978**	**$70,920,242**	**$160,125,212**	**$111,462,325**	**$967,900,754**	**$856,438,429**

Source: Sage, Piper Jafray & Co., Howard Hughes

Net Average Fiscal Benefit

As reflected in Exhibit 11, the net fiscal benefit to Howard County upon completion of Merriweather District Phase I will total approximately $3.7 million per annum once all revenues sources (e.g. property taxes, income taxes) are considered. Upon full build-out in 2040, net fiscal benefit will be approximately $27 million/annum ($2019). Note that these figures include deductions for debt service payments related to tax increment financing. Once TIF-related debt service is paid off in 2047, annual net fiscal benefit will equal $31 million ($2019), which represents net new funds that Howard County can utilize each year to elevate shared quality of life countywide. The cumulative net impact from 2020 to 2048 will be approximately $511 million using the average cost of government services method. Note that these estimates assume a linear rate of increase for all components (except for debt service) from 2020 to 2040.

Exhibit 11: Annual & Cumulative Fiscal Revenue/Expense Comparison (Average Cost Method)

	Revenues (Millions $2019)	Cost of Services (Millions $2019)	Debt Service (Millions $2019)	Net Fiscal Benefit (Millions $2019)
Annual				
Merriweather District Phase I (2020)	$21.1	$17.5	$3.7	**$3.7**
Full Build-out (2040)	$88.1	$64.1	$4.2	**$26.8**
Steady State (2048)	$88.1	$64.1	-	**$31.0**
Cumulative 2020-2048				
Fiscal Impacts (2020-2048)	**$1,764.3**	**$1,141.8**	**$111.5**	**$511.0**

Source: Sage *Note: totals may not add due to rounding

Net Fiscal Impacts Using Marginal Cost Fiscal Impact Analysis

A 2019 fiscal impact analysis conducted by Urban Analytics sets forth marginal fiscal impact parameters for various types of development.[10] These parameters can be used to determine the net operating fiscal surplus or deficit generated by different types of development on a per unit, per square foot, or per unit of revenue basis, depending on the type of development. This portion of the analysis uses Bureau of Labor Statistics inflation data to adjust Urban Analytics' report findings into 2019 dollars. Exhibit 12 below indicates parameters relevant to this part of the analysis.

Exhibit 12: Fiscal Impact Parameters: Annual Net Operating Fiscal Surplus

Land Use	Per Unit[11]	Per Square Foot
Rental Apartment	$3,114.16	-
Condo	$6,744.89	-
Retail	-	$1.33
Office/Service Providing	-	$0.69

Source: Urban Analytics, University of Baltimore, Jacob France Institute, Artemel & Associates

This analysis presumes that there will be 280 condominiums at full build-out while the remaining 6,250 residential units included in the Plan will be rental apartments. On an annual basis, condominiums generate a net fiscal surplus of $6,745/unit according to Urban Analytics, while apartments are associated with an estimated net per unit fiscal surplus of $3,114.16/unit. Sage's analysis also incorporates an average of approximately 650 square feet per hotel room, meaning that the 640 hotel rooms associated with the plan will encompass approximately 415,000 square feet.[12]

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[10] Urban Analytics, Inc., University of Baltimore, Jacob France Institute, Artemel & Associates, Inc. The Fiscal Impact of New Development in Howard County, Maryland Under Two Scenarios: General Plan Without Amended APFO and with Amended AFPO 2018-2038. July 10, 2019. Commissioned by Howard County.

[11] The residential marginal cost parameters are specific to Columbia, while the retail and office parameters are for the entirety of Howard County

[12] DeRoos, J. A. (2011). Planning and programming a hotel[Electronic version]. Retrieved September 27th from Cornell University, School of Hospitality Administration site: http://scholarship.sha.cornell.edu/articles/310

Exhibit 13: Annual Fiscal Revenue/Expense Comparison (Marginal Cost Method)

Use Type	Merriweather District Phase I		Full Build-out	
	SF/Units	Annual Fiscal Surplus (millions $2019)	SF/Units	Annual Fiscal Surplus (millions $2019)
Retail (SF)	210,731	$0.3	1,250,000	$1.7
Office/Conference (SF)	963,000	$0.7	4,300,000	$3.0
Hotel Rooms (SF)	0	-	267,130	$0.3
Apartments	1,568	$4.9	5,970	$18.6
Condominiums	0	-	280	$1.9
Annual Fiscal Surplus		**$5.8**		**$25.1**

Source: Urban Analytics, University of Baltimore, Jacob France Institute, Artemel & Associates

Importantly, authors of the Urban Analytics report caution that their fiscal impact findings pertain to a given point in time, indicating that marginal costs of local government service provision fluctuate from year to year. Accordingly, estimates of fiscal surplus can best be understood as what the annual fiscal surplus of the development would have been had it existed in FY2018. That said, given the relatively stable nature of the types of services provided and the structure of government, there is likely a limit to the degree of fluctuation from fiscal year to fiscal year.

Exhibit 14: Debt Service and Incremental Property Tax Payments, Marginal Cost Method

Period Ending	Debt Service				Incremental Annual Property Tax Revenues	Incremental Annual Surplus Net of Debt Service
	From 2017 Bond Issuance	Remaining Bond Issuance	Total Debt Service	2019 NPV of Total Debt Service		
02/15/2020	$2,102,219	$1,687,988	$3,790,206	$3,697,762	$6,330,049	**$2,632,287**
02/15/2021	$2,302,219	$1,558,143	$3,860,361	$3,674,347	$7,420,949	**$3,746,602**
02/15/2022	$2,194,219	$2,178,143	$4,372,361	$4,060,172	$8,511,849	**$4,451,677**
02/15/2023	$2,190,219	$2,223,613	$4,413,831	$3,998,713	$9,602,749	**$5,604,036**
02/15/2024	$2,571,219	$2,267,035	$4,838,254	$4,276,312	$10,693,649	**$6,417,337**
02/15/2025	$2,531,819	$2,308,410	$4,840,229	$4,173,714	$11,784,548	**$7,610,834**
02/15/2026	$2,923,219	$2,352,738	$5,275,956	$4,438,478	$12,875,448	**$8,436,970**
02/15/2027	$3,113,219	$2,399,860	$5,513,079	$4,524,841	$13,966,348	**$9,441,507**
02/15/2028	$3,144,219	$2,441,740	$5,585,959	$4,472,836	$15,057,248	**$10,584,412**
02/15/2029	$3,172,219	$2,486,033	$5,658,251	$4,420,217	$16,148,148	**$11,727,931**
02/15/2030	$3,195,656	$2,527,565	$5,723,221	$4,361,923	$17,239,047	**$12,877,124**
02/15/2031	$3,216,000	$2,571,338	$5,787,338	$4,303,209	$18,329,947	**$14,026,738**
02/15/2032	$3,233,250	$2,617,178	$5,850,428	$4,244,020	$19,420,847	**$15,176,827**
02/15/2033	$3,272,406	$2,657,173	$5,929,579	$4,196,524	$20,511,747	**$16,315,223**
02/15/2034	$3,282,438	$2,703,883	$5,986,320	$4,133,348	$21,602,647	**$17,469,299**
02/15/2035	$3,314,375	$2,746,943	$6,061,318	$4,083,055	$22,693,547	**$18,610,492**
02/15/2036	$3,337,813	$2,791,353	$6,129,165	$4,028,057	$23,784,446	**$19,756,389**
02/15/2037	$3,331,875	$2,831,930	$6,163,805	$3,952,022	$24,875,346	**$20,923,324**
02/15/2038	$3,372,656	$2,879,935	$6,252,591	$3,911,169	$25,966,246	**$22,055,077**
02/15/2039	$3,957,969	$2,923,320	$6,881,289	$4,199,451	$27,057,146	**$22,857,695**
02/15/2040	$4,013,750	$2,962,085	$6,975,835	$4,153,316	$28,148,046	**$23,994,730**
02/15/2041	$4,108,250	$3,006,230	$7,114,480	$4,132,550	$28,148,046	**$24,015,496**
02/15/2042	$4,192,625	$3,050,370	$7,242,995	$4,104,585	$28,148,046	**$24,043,461**
02/15/2043	$4,291,875	$3,096,818	$7,388,693	$4,085,026	$28,148,046	**$24,063,020**
02/15/2044	$4,379,875	$3,137,538	$7,517,413	$4,054,822	$28,148,046	**$24,093,224**
02/15/2045	$4,481,625	$3,182,530	$7,664,155	$4,033,144	$28,148,046	**$24,114,902**
02/15/2046	$3,821,000	$3,226,400	$7,047,400	$3,618,133	$28,148,046	**$24,529,913**
02/15/2047	$156,750	$103,950	$260,700	$130,579	$28,148,046	**$28,017,467**
Total	**$89,204,978**	**$70,920,242**	**$160,125,212**	**$111,462,325**	**$559,056,315**	**$447,593,994**

Source: Sage, Piper Jaffray & Co., Howard Hughes

Using real estate tax-specific parameters provided in the Urban Analytics report, the study team estimated property tax revenues generated by the Plan for both Merriweather District Phase I ($6.3 million per annum) and full build-out ($28.1 million per annum). Comparing the result to estimated debt service payments indicates that property tax revenues remain well above the level of debt service payments from 2020 to 2040, which should among things represent a source of comfort for those purchasing and holding these bonds.

The Urban Analytics report provides Columbia specific parameters for residential development, but not commercial development. Columbia-specific fiscal surplus estimates for residential development are substantially higher than corresponding countywide figures. It may be the case that commercial fiscal surplus impacts in Columbia are also more significant, but since commercial parameters are only available on a countywide basis, fiscal surplus estimates supplied below may represent a meaningful underestimate of the fiscal benefits to come.

Using marginal cost of local government service parameters (as opposed to average cost) still yields incremental property tax revenues well above annual TIF debt service payments, with an incremental surplus from property tax payments ranging from $2.1 million in 2020 to $25.1 million once debt service is paid off in 2048. Note that these figures incorporate total net fiscal benefits (see Exhibit 13) by including all revenues and associated cost of services rather than simply incremental property tax revenues as shown in Exhibit 14.

Fiscal Benefit Analysis Conclusions

The two fiscal impact analytical methods used in this report yield similar results, with the average cost method producing somewhat higher estimates of total fiscal benefit. One reason for this relates to differential computations of commercial real estate value under the two methods, with Sage's average cost method using estimated construction/development costs as a proxy for value, while the marginal cost method embodies countywide commercial real estate values. Note that the figures in Exhibit 15 also account for TIF debt service payments[13]

Exhibit 15: Net Fiscal Surplus (Annual & Marginal Cost Methods)

Annual Net Fiscal Benefit (millions $2019)	Annual Impacts			Cumulative (2020-2048)
	Merriweather District Phase I (2020)	Full Build-out (2040)	Steady State (2048)	
Average Cost Method	$3.7	$26.8	$31.0	**$511.0**
Marginal Cost Method	$2.1	$21.0	$25.1	**$389.1**

Source: Sage, IMPLAN, Urban Analytics, University of Baltimore, Jacob France Institute, Artemel & Associates, Piper Jafray & Co

[13] The net fiscal impacts include all categories of impacted revenues and service costs. Note that Exhibits 10 and 14 only incorporate property tax revenues.

Policy Considerations

- ***Resources to Keep Supporting Howard County Schools without Tax Increases***

Based on the economic and fiscal impact analysis detailed above, the redevelopment of Downtown Columbia has created and will create significant positive economic and net fiscal impacts. Among the primary beneficiaries are those who own single-family residences in Howard County. Many of these people moved to Howard County for its award-winning school system.

Over time, the people of Howard County have taken enormous pride in their school system and supplied significant financial support as reflected in Exhibit 16. Given tighter APFO regulations, it is conceivable that a slower growing local economy and tax base could ultimately translate into higher property taxes for Howard County residents. Pertinently, the redevelopment of downtown Columbia creates substantial new tax base without adding substantially to the population of public school students, which supplies greater capacity to invest more per pupil going forward.

Exhibit 16: Per Pupil Expenses for Public Schools in Fiscal 2018, Local, Maryland

Jurisdiction	Local	Jurisdiction	Local
Worcester	$13,256	Harford	$6,472
Montgomery	$10,599	Frederick	$6,384
Howard	$10,321	St. Mary's	$5,957
Kent	$9,236	Prince George's	$5,812
Talbot	$8,621	Cecil	$5,525
Anne Arundel	$8,431	Washington	$4,426
Calvert	$7,808	Dorchester	$4,220
Carroll	$7,492	Allegany	$3,714
Garrett	$7,483	Baltimore City	$3,645
Queen Anne's	$7,364	Somerset	$3,596
Baltimore	$7,208	Wicomico	$2,925
Charles	$6,728	Caroline	$2,596
Maryland	**$7,323**		

Source: Maryland State Department of Education; Local School Budgets; Department of Legislative Services, Maryland Association of Counties

- ***Expanded Commercial Tax Base***

Another way to view this is to consider the impact of Downtown Columbia's redevelopment on the size of Howard County's commercial tax base. All things being equal, the more sizeable a given commercial tax base, the less reliance there is on the residential tax base to support local government expenditures, including those on public education.

As of January 1st, 2018, there were seven jurisdictions in Maryland with a commercial share of the real property assessable base higher than Howard County's. In terms of assessable base, the commercial share in Howard County is in the range of 27 percent. Downtown Columbia's redevelopment stands to boost the relative size of the commercial base since more than 56 percent of investment capital being directed to structures will be invested in commercial structures.

Exhibit 17: Commercial Share of Assessable Base, Reassessment Group 3, as of 1/1/2018

Jurisdiction	Commercial Share of Assessable Base	Jurisdiction	Commercial Share of Assessable Base
Baltimore City	43.5%	Somerset	24.0%
Washington	40.2%	Carroll	23.1%
Montgomery	35.6%	Wicomico	22.6%
Allegany	34.6%	Caroline	21.2%
Prince George's	33.6%	Anne Arundel	17.8%
Harford	30.6%	Dorchester	15.9%
Kent	28.5%	Calvert	13.8%
Howard	27.2%	Queen Anne's	13.2%
St. Mary's	26.6%	Garrett	11.7%
Frederick	25.9%	Worcester	11.3%
Baltimore	25.3%	Charles	10.7%
Cecil	24.9%	Talbot	4.1%
TOTAL	**28.3%**		

Source: State Department of Assessments and Taxation

- ***Attracting Millennials***

Between 2010 and 2017, Howard County's population of those aged 55 and older expanded by more than 20,000, or by a bit more than 34 percent. During that same period, the population of Howard County residents under the age of 55 expanded by fewer than 13,000.

This is part of a national phenomenon as the very youngest of the Baby Boomers turns 55 this year. Still, this results in an increasingly complex demographic environment as more residents move toward retirement and fixed incomes. This seems inconsistent with economic vibrancy or at least may prove to be. Downtown Columbia is being redeveloped to appeal to many people, including young knowledge workers looking for amenity-rich multifamily development situated in the context of walkability and bikeability.

Exhibit 18: Howard County Population by Age, 2010-2017

	0-24	25-54	55+
2010	94,271	126,080	59,015
2011	94,854	127,033	61,768
2012	95,701	128,354	64,621
2013	97,245	129,089	67,487
2014	98,552	130,229	70,488
2015	99,797	130,792	73,526
2016	101,112	130,827	76,508
2017	102,157	131,126	79,212
2010-2017 Change	**7,886**	**5,046**	**20,197**
% Change	**8.4%**	**4.0%**	**34.2%**

Source: U.S. Census Bureau

- ***Competing for Cutting Edge Industries***

The expanded appeal to young knowledge workers, in turn, attracts more prestigious employers, which helps propel downtown Columbia's redevelopment forward while augmenting commercial tax base. Downtown Columbia can appeal to cyber-security, biotech, and other firms today because of its contemporary mixed-use setup.

The need to compete more effectively for cutting-edge industries was rendered apparent by recent events. Howard County's proximity to the National Security Agency, the Cyber Command headquarters, and half of Amazon's HQ2 render it a natural candidate to emerge as a hotbed of cyber-security. Nationally, cyber-security sales are expanding 13 percent per annum. Domestic sales are expected to exceed $10 billion in just a few years.

Today, the industry is largely concentrated in Howard and Anne Arundel counties. But other communities are endeavoring to gain market share. Recently, a group of cyber entrepreneurs left Howard County for Baltimore City's Port Covington development, which among other things has attracted the interest of Goldman Sachs and other prominent financiers. Those leading Port Covington's development have embraced the moniker "Cyber Town USA". The effort gained momentum when Fulton-based DataTribe and Evergreen Advisors, a Columbia-based investment banking and corporate advisory firm to cybersecurity enterprises announced moves to Baltimore in late-2018.

Conclusion

The redevelopment of downtown Columbia will produce the following impacts:

- More than 10,300 jobs in Howard County on an ongoing basis at the completion of Merriweather District and more than 43,000 jobs in the county at full-build-out;
- Those jobs will be associated with more than $2.5 billion in wage/salary/proprietor's income at full build-out and occupancy;
- County tax revenues will be augmented by approximately $17 million at the end of Merriweather District and $69 million at full-build-out;
- Even when accounting for both: 1) the cost of local government service provision and 2) TIF debt service payments, net fiscal impacts remain positive throughout the redevelopment period under the most conservative of assumptions and using two discrete fiscal impact estimation methods. By 2048, the net fiscal benefit to the County will be in the range of $25-$31million/annum;
- Cumulative positive fiscal impacts for Howard County associated with the redevelopment of downtown Columbia will total $389-$511 million between 2020 and 2048 once accounting for the cost of local government services and debt service associated with tax increment financing.

Perhaps the most appealing aspect of the redevelopment is its capacity to create significant tax base without generating substantial pupil generation. Many Howard County stakeholders remain concerned about over-burdened, over-crowded schools. Downtown Columbia's redevelopment adds to County tax base, including its commercial tax base, without generating significant numbers of pupils due to its emphasis on high-rise multifamily units (low pupil generation factors) and impactful commercial structures.

In the context of stricter adequate public facilities regulations that will tend to reduce residential development elsewhere in Howard County, including single-family homes, Downtown Columbia's redevelopment is especially important to the continued growth of a County tax base capable of supporting educational and other outlays at levels consistent with broadly shared quality of life. The Plan's commercial component is large. Presently, about 27 percent of the County's assessable tax base is commercial, the balance residential. The redevelopment of Downtown Columbia will tilt in the other direction. This is because the redevelopment will focus an estimated 56 percent of structural investment on commercial structures.

There is at least one other important consideration. Downtown Columbia stands to be appealing to a younger workforce, which often seeks areas that are walkable and bikeable. This is not only important for supporting the ongoing development of amenity-rich apartment structures, but also attracts the employers who would employ them. This will render Howard County more economically competitive, including in key industries like cyber-security, life sciences, and defense contracting.