Loudoun County Preservation and Conservation Coalition
Budget and Finance Committee

Reducing Single Industry Dependence

June 26, 2022

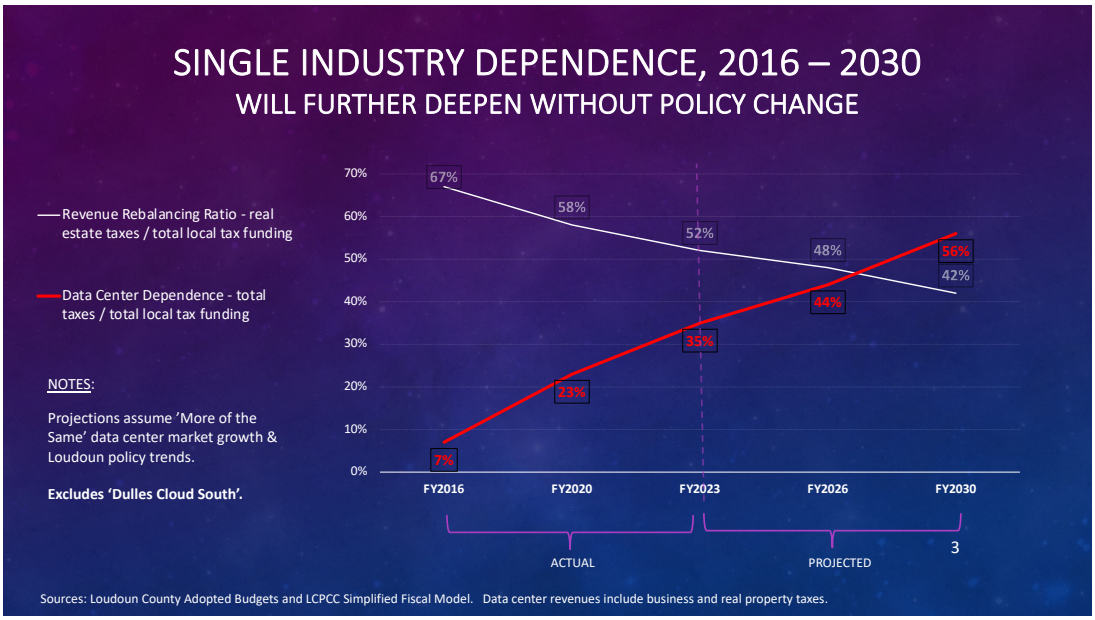
Purpose. This paper is intended to help inform policy-making explore various paths to reducing single industry dependence on the data industry in Loudoun County.

The Problem. Loudoun's data center industry provides County tax revenues partly from the value of the land and structures it owns, and mostly from the computer equipment it utilizes. While its taxes provide very positive support to Loudoun' public services, County staff and its Board of Supervisors have agreed that Loudoun has become *overly dependent* on the size and growth of this resource. This is because it produces:

- Excessive short-term fiscal volatility in County revenues – FY2022 saw a shortfall of $80 million in data center revenues, *comparable to that of the Great Recession in 2009*; and

- Undue longer-term exposure to single industry business risks that *undermines* the "diversified and stable economic base" required by Loudoun's Fiscal Policy and essential to maintain sound and responsible financial management.[1]

Without policy change, this single industry dependence is highly likely to increase sharply.



[1] See Loudoun's Fiscal Policy https://www.loudoun.gov/DocumentCenter/View/158985/E7---Fiscal-Policy.

The Goal. To reduce single industry dependence, mitigate impact concerns and produce a more diversified, predictable County tax base and maintain sound, responsible financial management, the County is undertaking two initiatives:

> (1) setting a goal to rebalance the share of real estate property revenue in total local taxes, which was 66.7% in FY2017, from the current 51.5% to about 60% - the Virginia average – in the next 5-7 years; and
>
> (2) a three-part Data Center Discussion Series conducted by TLUC on targeted revisions to policies and regulations concerning data center uses throughout Loudoun County and their community, environmental, economic and fiscal impacts

Policy Approach. How will this 60% goal be reached? The Committee has employed its Simplified Fiscal Model[2] to explore policy options to achieve this target by 2030 or 2033. [3] It is hereafter referred to as the Revenue Rebalancing Target (RRT) ratio. This search *gives highest priority to arriving at the lowest possible acceptable growth rate in the homeowner tax bill of Loudoun residents* needed in the adjustment process to meet the target, taking into account the benefits and costs of other policy alternatives.

1.0. Loudoun as data center industry host

Comparative advantage. Loudoun has decisive comparative advantages in hosting data centers - its fiber infrastructure, moderate power costs, skilled labor for construction and operation, demonstrated good cooperation with local government, and fiscal incentives on US standards.[4]

Massive concentration. The *"2022 Virginia Data Center Report"* [5] indicates that the industry in Northern Virginia is by far the largest concentration in the world and has:

- Made mega capital investments in data centers totaling $126 billion;
- An operating capacity that exceeds the next 5 largest US markets *combined*; and
- Expanded at a compound rate of 25% annually over 2014-2021 – *far above* the next fastest US market of Dallas-Fort Worth at 10% annually.

As of February 2022, the County data center capacity consisted of about 152 data centers with a total of 27.7 million ft2 of operating space on 95 parcels that occupied 2,600 acres of County land. [6] While designs varied widely, the *average* data center had 171,300 square feet (ft2) of operating space and occupied 35 acres of land.

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[2] See "Envision Loudoun: Break the "Hooked on Growth" Cycle, April 14, 2019 for a description of this model.
[3] Hereafter, the "FY" is dropped, so 2023 = FY2023.
[4] See "Data Center and Manufacturing Incentives", by the Virginia State JLARC (Joint Legislative Audit and Review Commission), June 2019.
[5] See - "The Impact of Data Centers on the State and Local Economies of Virginia", p 10.prepared for the Northern Virginia Technology Council (NVTC).
https://www.nvtc.org/NVTC/Workforce/Resource_Library_Docs/2022_NVTC_Data_Center_Report.aspx
[6] Source - "Loudoun Data Center Census Update" at February 1, 2022, compiled by the Budget and Finance Committee using public Loudoun GEOHUB data. It is compatible with the Loudoun Data Center Land Study, which refers to 'over 90 parcels and 26 million ft2 of data center space.

County benefits – overwhelmingly fiscal. There is a strong County appreciation for the strategic benefits data centers offer in socio-economic life across the US and the globe. As a County host, industry benefits are *overwhelmingly fiscal:* they partner in funding County school and operational spending and moderate the real estate tax burden of residents. In doing so, they have relatively low County service needs. Total data center industry real estate and business property taxes for FY2023 are estimated at $695 million, or 35% of total local tax funding.

2.0. So, then, what are the specific concerns?

2.1 Economic – a mixed impact picture

Beyond tax revenues, the Northern Virginia Technology Council study cited above cites industry contributions to Loudoun as job creation, wages that rise 70% faster than the average private sector employee in Virginia, and related growth of the construction and manufacturing sectors. [7]

Very good. But, here are the industry's economic dimensions in Loudoun's broader context:

- Loudoun data center employment amounted to 6,844 workers, or 4.7% of Loudoun's total of 147,046 workers in the private sector employment economy, a share that has actually *fallen* from past years.[8]

- Average wages for the limited employment in the information sector average $2,957 per week, while the broader Loudoun labor market also offers attractive remuneration:

    - Loudoun's 27,300 workers in the professional, scientific and technical services sector, finance and insurance, and enterprise management sectors - which offer average wages between $2,400 - $3,200 per week, and

    - The 6,500 workers in wholesale trade and arts, entertainment and recreation jobs, which also offer *above average wages* between $1,500 and $2,200.

- While specialty construction trades and computer/electronic manufacturing subsectors in Loudoun have shown disproportionate growth in recent years, they offer around the County average wage ($1,417 per week) and are quite dependent on data center industry trends - especially the construction of new data centers that involves *temporary jobs.*

There is also growing evidence that shorter-term Government revenue gains are at the cost of economic diversification goals, as the data center industry undermine the competitiveness, investment and employment generation of the remaining (particularly smaller) Loudoun business community.

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[7] "The Impact of Data Centers on the State and Local Economies of Virginia", p 10. https://www.nvtc.org/NVTC/Workforce/Resource_Library_Docs/2022_NVTC_Data_Center_Report.aspx

[8] Source - Virginia Employment Commission's Community Profile of April 7, 2022.

The Loudoun Data Center Land Study makes reference in comments on Ridgetop Circle and 28 North to crowding out of economic diversification potential by other Loudoun businesses. In this area, as in the others, the Study does not appear to take into account what are by now the obvious *negative spillover impacts* on both Loudoun business and residential community created by the *drastic rise in land prices.* Data center land purchases have *driven up the costs of land utilized as data center sites by at least 100% over some five years and by some 50% for non-data center industries*.[9] The latest anecdotal reports show that land purchases at $2 - 3 million per acre are being observed. Heavy data center development has also raised prices and tightened the market availability for construction and other building trade services needed by other businesses

A County decision to continue pursuing robust data center development is *likely to only deepen competitive weaknesses* and imbalances in Loudoun's economy, and to support global industrial development over diversified local enterprise by and for its residents.

2.2 Fiscal - high single industry dependence - total, business sector, now real estate taxes

Data center industry revenues over the last six years have shifted from a revenue diversifier to a source of revenue risk:

- Data center revenues jumped at an *average rate of 32.3% per year* over FY2017-2022.

- Its share of Loudoun's total local tax funding climbed *five times over* since 2016, from 7% to 35% of total General Fund local tax funding (LTF).

Loudoun County - Trends in Data Center Real Property and Personal Property Taxes, FY2016-2023 (US$ millions)									
	FY2016	**FY2017**	**FY2018**	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**	**FY17-22**
Data center real property taxes 1/	20	22	25	34	47	70	75	105	
Data center personal property taxes	78	111	153	207	309	391	559	590	
Total data center revenues	98	133	178	241	356	461	634	695	
% Data center - annual growth rate		**35.7%**	**34.1%**	**35.2%**	**48.1%**	**29.1%**	**37.7%**	**9.6%**	**32.3%**
% Data center revenues / LTF	**7%**	**9%**	**13%**	**17%**	**23%**	**27%**	**34%**	**35%**	
Sources: Adopted Budgets of FY2016-2022 and Proposed FY2023 Budget. 1/ Committee estimate.									

- They represented *over three* times those of all other Loudoun business *combined* and about 79% of the total in FY2023.

Loudoun Business – Total FY2023 Estimated Tax Revenues ($ millions)				
	Data Center Industry	All Other Business	Total Loudoun Business	Data Center Share of Total
Total Tax Revenues	Millions of $			Percent
Real Estate Property	$ 105.5	$ 142.4	$ 247.9	42.6%
Business Personal Property	$ 589.2	$ 46.0	$ 635.2	92.8%
Total	$ 694.7	$ 188.4	$ 883.2	**78.7%**
Source: FY2023 Proposed Budget and computations from data of the Loudoun Commissioner of the Revenue. 1/ Represents average of flex industrial, retail, and general office space as recorded by Loudoun GEOHUB.				

[9] Source – Myers Appraisal Services, 2022.

The industry's pace of growth and extraordinary price impacts on the Loudoun real estate market are also progressively transforming Loudoun's business real estate property tax structure:

- Data center total business real estate taxes rose from 13% in FY2017 to 43% in FY2023 – and, at this rate, *will surpass all the rest of Loudoun business in the next 2 years;* and

- Loudoun's equalized tax policy has accelerated this trend, as all other Loudoun business real estate taxes actually *fell* over FY2017- 2023 from $153 million to $ 142 million.

Loudoun Business – Real Estate Property Tax Trends ($ millions)		
	FY2017	**FY2023**
Data center industry	$ 22.1	$ 105.5
All other business	$ 153.2	$ 142.4
Total Loudoun business	$ 175.3	$ 247.9
Data center industry / Total	**12.6 %**	**42.6 %**
Source: FY2023 Proposed Budget and computations from data of the Loudoun Commissioner of the Revenue.		

2.3 Fiscal - exponential growth of the data center tax base

Two strong growth trends combined are driving exponential growth of the data center tax base:

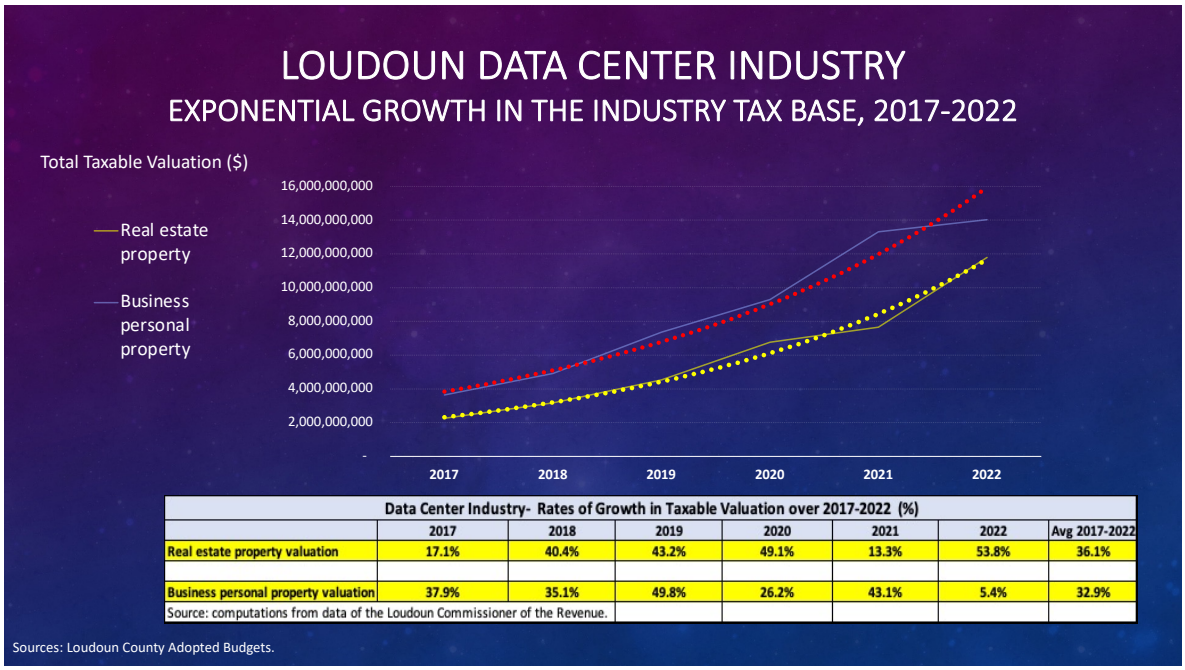
- *The very evident - operating capacity growth* - data center industry space expanded at an average of 21.5% per year, or 3.1 million ft2., ***tenfold*** the 2.1% average rate of all the rest of Loudoun business (see Annex 1)

Data Center Industry Space Capacity Growth over 2017-2022							
	2017	2018	2019	2020	2021	2022	Avg 2017-2022
Total structure capacity (ft2)	10,106,457	13,125,833	18,265,898	21,523,473	26,365,398	27,665,660	
Capacity growth (ft2)	1,304,187	3,019,376	5,140,065	3,257,575	4,841,925	1,300,262	3,143,898
Rate of capacity growth (%)	14.8%	29.9%	39.2%	17.8%	22.5%	4.9%	21.5%
Source: Computations from data of the Loudoun Commissioner of the Revenue. Data as of January 1.							

- *The not so obvious – sharply rising taxable valuation per unit of space* - the industry's taxable valuation per unit of space rose at 13.1% per year (for real estate property) and 9.4% per year (business property), ***over tenfold*** the nearly stagnant 0.9% per year average (for real estate property) of remaining Loudoun business (see Annex 1).

Loudoun Data Center Industry - Growth in Taxable Valuation per Square Foot of Structure Space, 2017-2022							
	2017	2018	2019	2020	2021	2022	Avg 2017-2022
Real estate property valuation ($ / ft2)	223	241	248	314	291	426	
Rate of annual growth (%)	2.0%	8.1%	2.9%	26.5%	-7.5%	46.6%	13.1%
Business personal property valuation ($ / ft2)	360	375	403	432	505	507	
Rate of annual growth (%)	20.1%	4.0%	7.6%	7.1%	16.8%	0.5%	9.4%
Source: Computations from data of the Loudoun Commissioner of the Revenue. Data as of January 1.							

The result is a rising *total* taxable valuation base of the data center industry at an average over 2017-2022 – *per year* - of a whopping 33% (business property) and 36% (real estate property).



Data Center Industry- Rates of Growth in Taxable Valuation over 2017-2022 (%)							
	2017	2018	2019	2020	2021	2022	Avg 2017-2022
Real estate property valuation	17.1%	40.4%	43.2%	49.1%	13.3%	53.8%	36.1%
Business personal property valuation	37.9%	35.1%	49.8%	26.2%	43.1%	5.4%	32.9%
Source: computations from data of the Loudoun Commissioner of the Revenue.							

2.4 Fiscal – high taxes per land acre and wide access to vacant land

Revenues per unit of space. Data centers are not only 'efficient' sources of tax revenue in terms of low County service requirements, but produce very *high tax revenues on very little land* – about $25 per square foot of operating space and $267,300 per acre of land occupied in 2022. This is a massive *tenfold* gap in relation to the remainder of Loudoun business.

Loudoun Business Total Tax Revenues per Space Unit in 2022		
	Data Center Industry	All Other Loudoun Business
Per ft2 of structures		
Real property	$ 3.81	$ 1.73
Business property	$ 21.30	$ 0.56
Total	$ 25.11	$ 2.29
Per acre of land parcel	$267,344	$16,520 1/
Source: Computations from data of the Loudoun Commissioner of the Revenue at January 1. 1/ Represents average of flex industrial, retail, and general office space in Loudoun GEOHUB		

Data center land use – the scope for new development. While industry land use is currently modest, by right access under existing land use policies to commercially zoned land in the County is turning a fortunate source of supplemental tax revenue into a threat to its fiscal stability. According to the Data Center Census at February 1, 2022, [10]

[10] This Census was compiled by the Budget and Finance Committee using public Loudoun GEOHUB data. It is compatible with the Loudoun Data Center Land Study, which refers to 'over 90 parcels and 26 million ft2 of data center space. However, both studies are understated in relation to the 27.7 million ft2 reported by of the Commissioner of the Revenue at January 1, 2022. The Census, which recorded 26.0 million ft2, is understated due to 16 parcel files in which land area was marked as "N/A" for data center area footage is not yet available.

- *Current data center capacity* – occupy about 2,600 acres on 95 parcels, with about 152 data centers totaling 27.7 million ft2 of space;

- *Vacant "land banking'* – another 2,050 acres were recorded as holdings of data center firms or affiliated real estate developers;

- *Other vacant commercial land* – up to another nearly 1,000 acres parcels have vacant land over 10 acres in PDOP, PDGI and PDIP;

- "*Dulles Cloud South*" – consists of 2,270 acres (on 51 parcels) as defined by the Loudoun Data Center Land Study. It is designated as a Transitional Large Lot Neighborhood Place Type (TRNLNN) and zoned for a Transitional Residential Cluster (TR3LF and TR3LBR). It is mostly bordered by mixed use residential SF and MF (PDH3 and PDH4) housing developments.

  The rezoning of TRNLLN Place Type would, on top of continued market growth in data centers of an additional 21 million ft2 of space, generate between 23 and 42 million ft2 more data center space over FY2024 – 2030. With the existing 27.7 million ft2 of space for FY2023, total Loudoun data center capacity in 2030 would be about 80-99 million ft2.

- *Repurposing and replacement* - as suitable vacant space becomes more limited, the industry can be expected as elsewhere to convert an undefined amount of land now existing as flex-industrial, retail and office space. [11]

Intense fiscal impacts. This potent combination was in effect cited in the Loudoun Data Center Land Study (page 3), where it suggests that *the "Dulles Cloud South" alone –*

- Could enable more than 56 million ft of data center space – *an additional two times the entire County data center space inventory as of February 2022;* and

- Could generate a billion dollars of tax revenue annually – *this increment revenue would push data center taxes from 35% to over 65% of total General Fund revenues by 2030!*

The hyper - intensity of fiscal revenues for each acre of land of *existing data centers* provides immense tax benefits to Loudoun. With its existing stock of data centers, o*nly small amounts of land use are needed to sustainably produce and share in the* revenue needed by the County to support its expenditures. The current land available to the industry, however, is incompatible with the 60% revenue rebalancing goal (RRT) recommendation of Staff, and it exposes the County to 'runaway data center development' that will only increase industry single industry dependence and fiscal risk.

[11] See for example, https://www.bizjournals.com/washington/news/2021/09/28/proposed-data-center-deal-slated-for-herndon.html ; https://www.datacenterdynamics.com/en/analysis/recycled-buildings/ ; and https://www.wsp.com/en-ZA/insights/can-we-reboot-office-buildings-as-data-centers

Industry prospects – strong data demand, but data management and cybersecurity issues. Estimates for data center market demand across North America (and globally) generally range from roughly 14% (CBRE) to over 21% (PR Newswire). This is based on an ever-increasing stream of *data* demand, such as from the increasing use of artificial intelligence (AI), the deployment of 5 G networks, and the need for multi-cloud architecture to increase security and manage workload. [12]

But, there is a range of opinion about *how* such data will be managed given the rapid flux in technology and process innovation. The future role of the traditional big box ("hyperscale") data center upon which Loudoun depends is challenged by smaller, distributed and agile data centers [13] and by predictions that "something like 70% of all data generated in the future will never see a traditional data center." [14] Such views perceive a growing emphasis on:

- *Increasing existing space efficiency as available land diminishes* - working to optimize space capacity within the same building footprint, as data centers face paying more, building higher or moving out; [15]

- *New technological innovations for data storage locations and capacities* – submerged data centers under the ocean, innovations in devices and how data is stored; [16] and

- *More enterprise-based data computing* that brings it closer to data origins and reduces latency (such as, for example, when Fedex installs data hubs in distribution facilities). [17]

Industry sources also point out that these trends come with growing risks of cyberattacks against physical data center infrastructure. [18] These may come from clients, with the expansion in cloud-based computing (e.g., smart manufacturing), vulnerabilities from older legacy system, and frequent third-party access. Or they may come from direct attacks on power systems, HVAC cooling systems, and physical security devices of data centers themselves.

3.0 Reducing Single Industry Dependence - The Revenue Rebalancing Target (RRT)

As indicated on page 2, County Staff and the Board of Supervisors have recognized these concerns and taken two policy initiatives to address them:

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[12] See for example, https://www.nytimes.com/2020/12/22/business/data-storage-centers-coronavirus.html
[13] https://www.colocationamerica.com/blog/data-center-of-the-future Smaller, distributed, agile…
[14] See https://www.protocol.com/manuals/new-enterprise/data-centers-hybrid-cloud#:~:text=Rohit%20Dixit%20of%20HPE%2C%20a,data%20center%2C%22%20he%20said.
[15] See https://www.datacenterdynamics.com/en/analysis/covid-and-e-commerce-sees-data-centers-facing-against-retailers-prime-real-estate/ and https://www.datacenterknowledge.com/industry-perspectives/future-proofing-data-centers-expanding-data-needs
[16] See https://www.cbinsights.com/research/future-of-data-centers/
[17] See https://www.protocol.com/manuals/new-enterprise/data-centers-hybrid-cloud
[18] See https://www.datacenterknowledge.com/security/physical-infrastructure-cybersecurity-growing-problem-data-centers ; and https://datacenterfrontier.com/evaluating-data-center-cybersecurity-before-its-too-late/

- *To help produce a more diversified and predictable tax base,* Staff has strongly recommended a policy of rebalancing the share of real estate property revenue in total local taxes to about 60% - the Virginia average – in the next 5-7 years in order to reestablish more a more diversified and stable revenue base essential for sound and responsible County financial management; and

- *A three-part Data Center Discussion Series* conducted by the Transportation and Land Use Committee (TLUC) on targeted revisions to policies and regulations concerning data center uses throughout Loudoun County and their community, environmental, economic and fiscal impacts.

This section explores policy ways and means of reaching the 60% RRT ratio, including integral adjustments to Loudoun's land use policies. It makes use of a simplified fiscal planning model, devised by the Committee to produces a variety of projections and indicators over 2024-2030 and 2024-2033, including County public expenditures and revenues, property valuation, business development by sector, and tax policies and homeowner tax burden. As described below, the model runs three kinds of scenarios: (1) more of the same County fiscal policies of recent years (MOTS), (2) the impact of various individual policies, and (3) a combination of policies and sensitivity analysis to reach the 60% RRT mark.

Please see Annex 1 for detailed scenario results.

3.1 'More of the Same' policies

The Model first postulates continuation of recent trends in six core market and policy parameters over FY2024-30 in the following way -

- **Economic diversification** - annual growth in the "Other Loudoun Business" economy (i.e., all but data center) of about 4% in GDP and taxable valuation;

- **New housing development** - a moderate rate of new housing permits, in comparison with the past two decades, of about 2,000 units per year;

- **Data center industry development** – maintain the current 'open market' rate of growth in industry capacity of about 3.0 million square feet per year, or a total of 21.0 million over 2024-2030 –

  This implies continuing the current by right and other commercial zoning policies which, based on industry land use so far, is likely to need roughly another 2,500 acres of land.

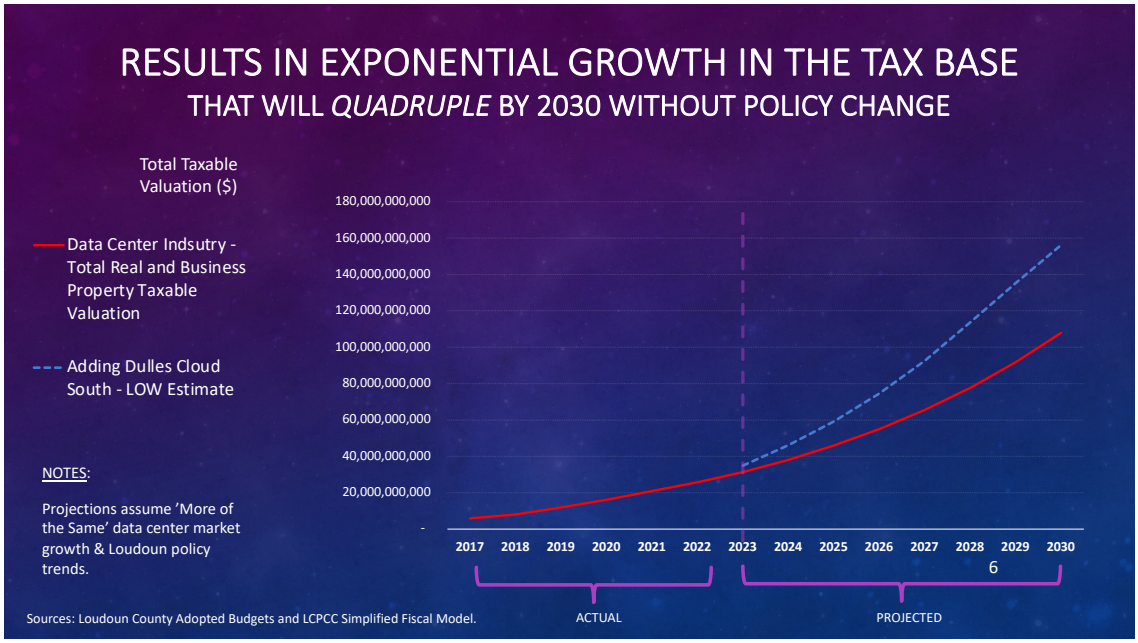
- **Spending growth rates** – continue strong growth in operational and capital expenditures of the County government and LCPS at 7.2% per year;

- **Business personal property tax rates** – maintain the Business Personal Property Tax (BPPT) rate of $4.20 per hundred dollars of valuation; and

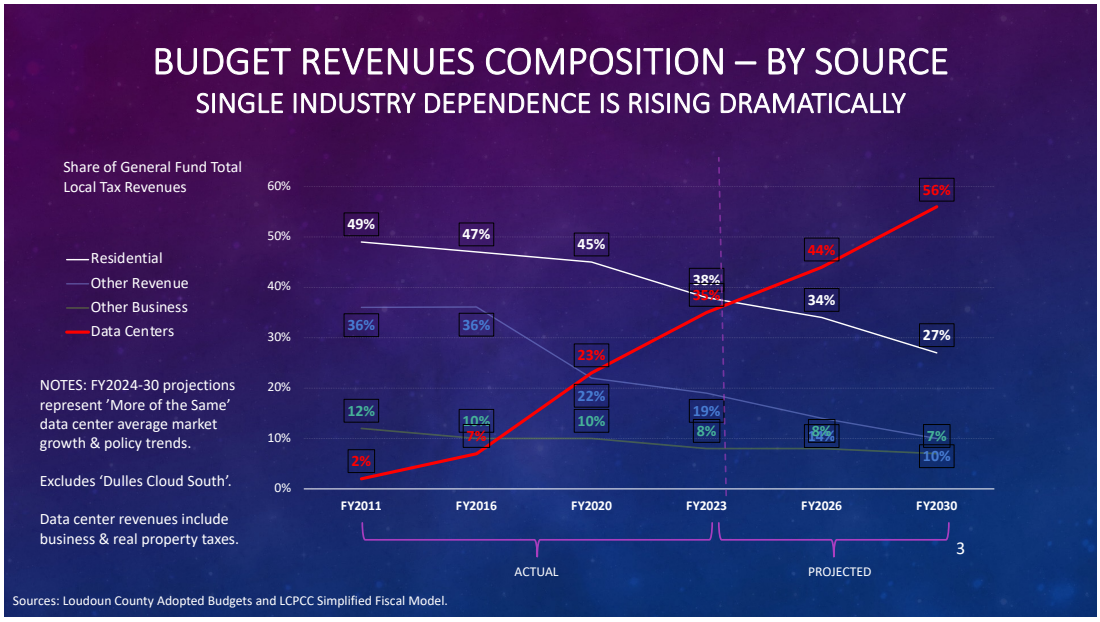
- **Real estate property tax rates** – adjust the Real Property Tax (RPT) rate to produce a rise in the homeowner tax bill of about 3.5% per year – this is the FY2021-23 average.

Conclusions: this policy path will *markedly* increase data center dependence and risk:

- 'More of the Same' policies will dramatically and exponentially increase the data center tax base.



- Data center revenues in total local tax revenues would rise *sharply* from 35% in 2023 to 56% in 2030, and drive the RRT ratio – not up – but *further down to 42% by 2030. This excludes any consideration of rezoning to establish a 'Dulles Cloud South.*

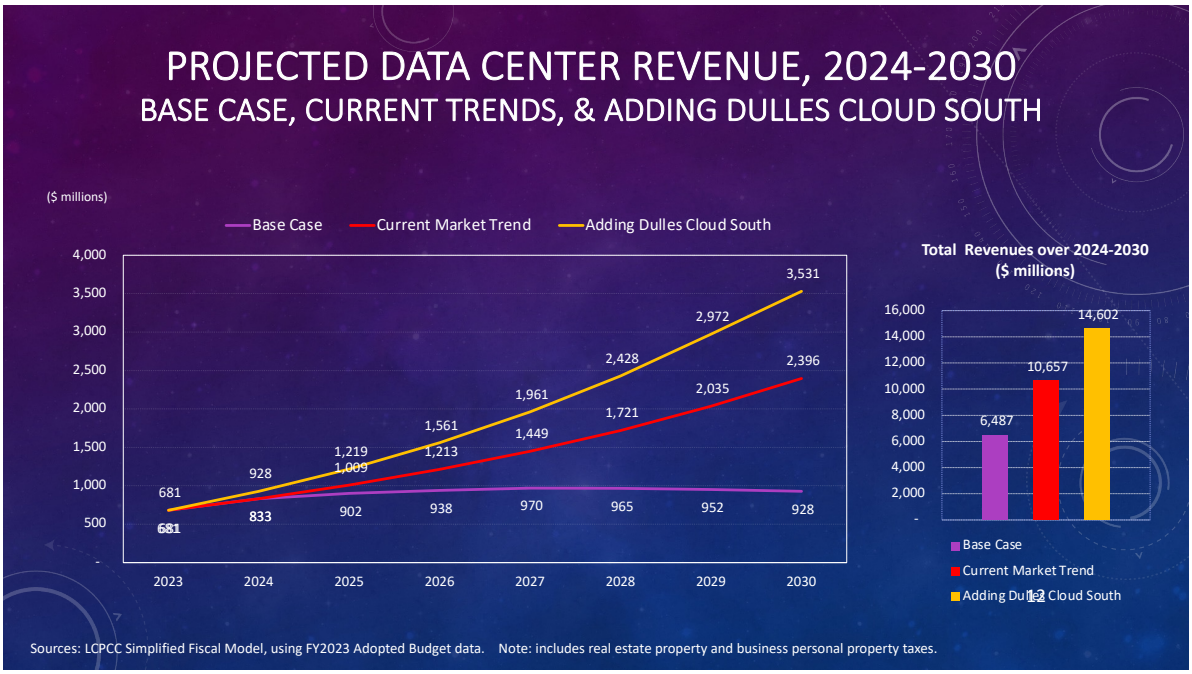


- Higher rates of by right development above the latest five-year average trend would further accentuate this result; and

- It would generate an unmanageable fiscal surplus aggregating about $2.9 billion, from revenues *over and above* the County's traditionally high 7% spending growth rates.

- Adding 'Dulles Cloud South' - Using current model assumptions would yield excess revenues over 2024-2030 of $6.9 – $9.8 billion *in excess of the revenues needed* to continue funding Loudoun's ongoing high 7% spending growth rate over 2024-2030.

  Data center RPT + BPPT as a share of Total Local Tax Revenues would rise to 65% - 70% of the total by 2030 and the RRT ratio falls even further to 32% - 37%.



Without a decisive commitment to reduce single industry dependence, Loudoun is at serious risk of further dramatic exposure to single industry business and fiscal risks – which would also involve further community resistance and environmental impacts, damage to economic diversification, and more land use pressures to place new data center in the TPA and RPA.

Data Center Capacity and Land Use over 2024-2030 – Three Options					
	Feb 2022	**Base Case**	**'Open Market'**	**+ DCS - Low**	**+ DCS - Hi**
Annual capacity growth (millions ft2)		1.0	3.0	6.3	9.0
Total capacity growth (millions ft2)		7.0	21.0	44.1	63.0
Total capacity in 2030 (millions ft2)	27.7	36.0	57.0	80.1	99.0
Total number of data centers	152	179	286	421	490
Total land area occupied (acres)	2,550	2,941	4,696	6,966	6,966
Data center revenue dependence	**35%**	**28%**	**56%**	**65%**	**70%**
Risk Mitigation Target (RMT)	**51.5%**	**60%**	**42%**	**37%**	**32%**
Sources: LCPCC Simplified Fiscal Model and Data Center Census Update at Feb. 1, 2022. DCS = Dulles Cloud South					

3.2 Individual policy responses

3.21 Expand the real estate property tax base (Option 2.1)

- *Accelerating new residential housing development exacerbates fiscal imbalance* - factoring in associated County costs, produces net negative tax revenues – if anything, *new housing approvals should be slowed to positively contribute to the RRT.*

- *Diversifying the Loudoun business economy has a marginal tax impact* - while an essential long-term aim, adds only about 0.5% percentage points toward the RRT ratio by 2030, as data center industry taxes (real and business) now account for an overwhelming *four times* those of the rest of Loudoun business *combined.*

3.22 Make changes only in tax rate policy (Option 2.2).

- *Applying the equalized RPT rate alone further raises data center dependence* – its revenues rise to 59% of total local taxes and the RRT ratio plunges to 37% by 2030.

- *Cutting the BPPT rate alone to $2.75 by 2030 only stabilizes the RRT ratio at 49.9% –* though raising the RRT by reducing taxes on computer equipment, impact is limited by rising data center capacity and results in a cumulative surplus of $2,050 million.

  This step could offer residents some relief on vehicle taxes. It would be viewed by some as augmenting Loudoun's competitiveness as data center host; unnecessary by others.

- *Combining this BPPT rates cut with a 4% per year RPT rate hike only marginally improves the resulting RRT ratio: 50.6% in 2030.*

  A simultaneous decrease in BPPT rates and increase in RPT rates would likely be viewed as a loss of 'efficient' source of tax revenue and a big tech subsidy by Loudoun residents.

3.23 Reduce only operational and capital spending growth rates (Option 2.3).

- Reducing expenditure growth levels plays a vital role in minimizing the rise in homeowner tax burdens and in residential acceptance of other adjustments.

- *Reducing spending growth rates reduces the real estate tax rate needed to help achieve the RRT.* For example, assuming adequate cuts in the scope of data center industry development and the BPPT rates (see Combo 1 and Combo 3):

  - If spending growth trends continued at 7.0% each year, the hike in the average homeowner tax bill would be about 4.9% per year to meet the 60% RRT by 2030.

  - However, with annual spending growth moderated to 5.3%, the required increase the homeowner tax bill would drop to 3.5% per year.

3.24 Freeze future data center development only (Option 2.4).

- *Even the extreme step of freezing new data center development would only maintain Loudoun's current heavy reliance on data center BPPT revenues*; and

- *It would actually further increase industry exposure* - with the RRT ratio falling from 51.7% to 49.2% in 2030 due to the rate of growth in the data center taxable valuation which is much higher than both residential and other business rates.

Conclusion: single policy adjustments are found to be either counterproductive, ineffective or inadequate to raise the real estate tax share above the FY2023 level toward the RRT.

3.3 Adopt a coordinated and balanced policy response (Option 3) – A Base Case

There are a number of specific policy change combinations that will achieve the 60% RRT.

The basic approach, however, has the following five common elements: (1) rely mainly on Loudoun's existing data center industry going forward, reduce residential community impacts and accelerate sustainability; (2) moderate the BPPT rate progressively over 2024-2030; (3) moderate the growth of total public expenditures; (4) continue to apply recent real estate property tax policy; and (5) increase reserves against revenue volatility.

1 ***Promote a 'grow in place' data center industry development policy going forward***.

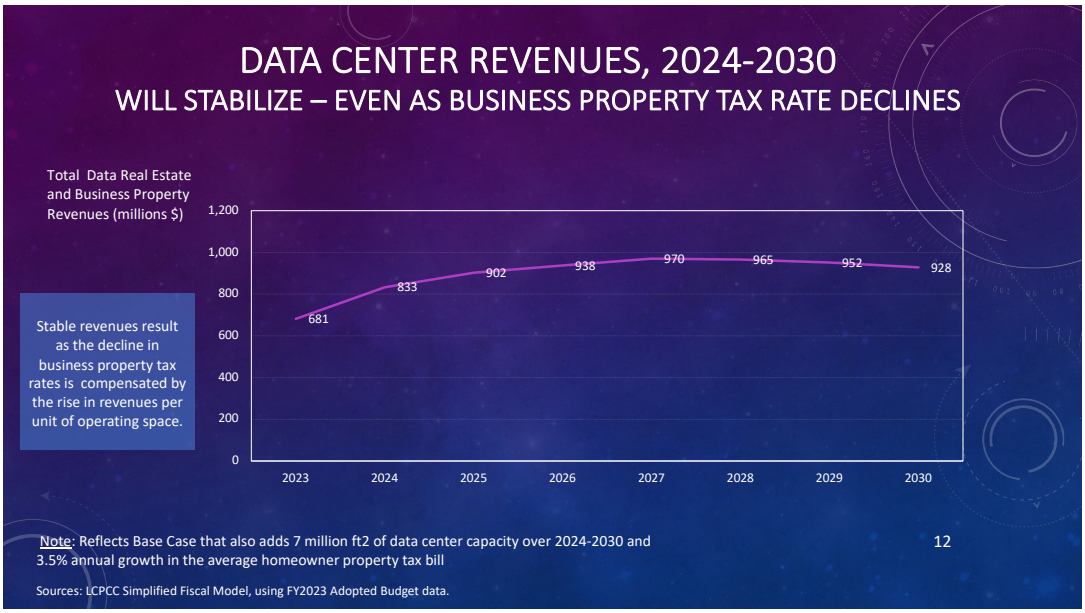
- This would mean building additional stories on existing structures and increasing 'densification' of computing equipment per unit of space, rather than using more land;

- Downsize the scope of data center land use with Place Types and zoning regulations that would help to reach the County's revenues rebalancing goal – the model tests 7 million ft2 of additional space (about one-third the current development rate). More restrictive land use is also needed to establish guardrails against 'runaway' industry development that would threaten fiscal stability;

- Expand existing use-specific design standards to reduce residential community impacts and encourage stronger standards to accelerate environmental sustainability; and

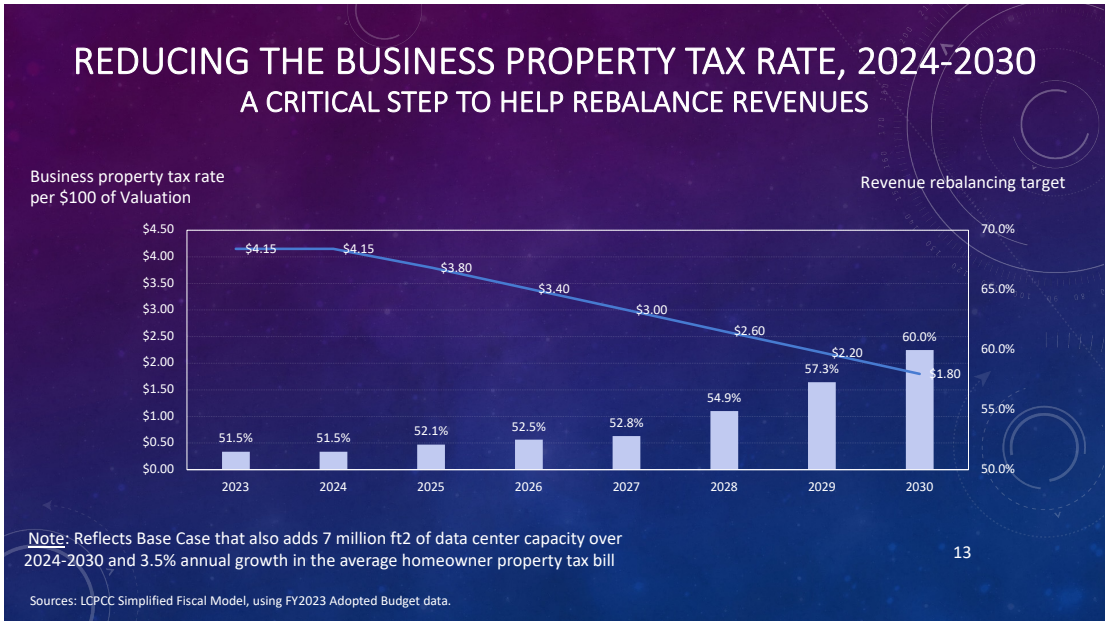
- Proceeding with a 'Dulles Cloud South' would be fiscally unnecessary and counterproductive to County objectives for economic diversification. The TLUC Data Center Discussion Series should examine other economic development options by requesting the Department of Economic Development to provide develop alternatives to advance Loudoun's economic diversification, and assess their fiscal implications.

- The existing data center portfolio, combined with rising valuation per unit of space, can be expected to *still yield a stable and sustainable tax revenue stream through 2030*.



2 Moderate progressively the Business Property Tax rate over 2024-2030.

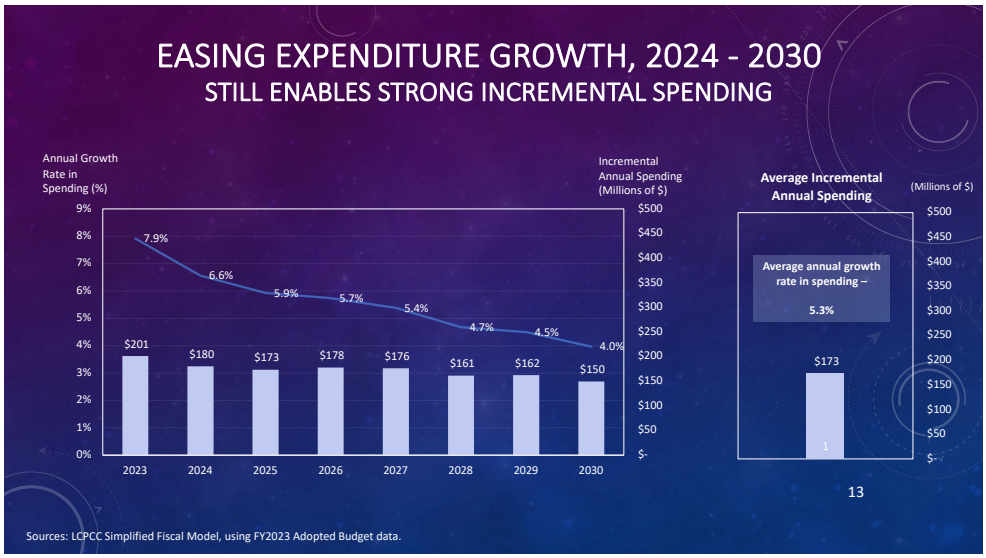
- This is an important step to help rebalance revenues – the model base case tests regular reductions from today's $4.20 to about $1.80 by 2030.
- This step would also implicitly constitute outreach to Loudoun's existing data center industry that recognizes a more limited growth horizon than originally planned.
- Further, it would regularly reinforce Loudoun's comparative advantage and competitive position as data center host.



3 – Moderate growth of total public expenditures.

- Easing the growth rate in County service and school spending – from the current annual average of 7.2% - which is inordinately above the current 1.8% population growth rate - to about 5.3% – would directly reduce to a minimum the rise in the average homeowner tax bill required in this adjustment process.

- This growth rate would generate an average of $173 million in new spending each year over 2024-2030 and enable Loudoun to continue to provide its residents with the kind of expansion of services that it seeks.



4 – Continue to apply a real estate property tax policy practiced over the past three years that is inclusive of the revaluation of existing property

- Continuing adjustments in the average homeowner tax bill in keeping with the past three years– on average about 3.5% per year or $221 annually over 2024-2030 (before vehicle tax savings)– ensures a balanced budget along with the achievement of the 60% RRT.

- It continues the County's recent step toward greater reliance on *existing* residential and other business property assets rather than only on development.

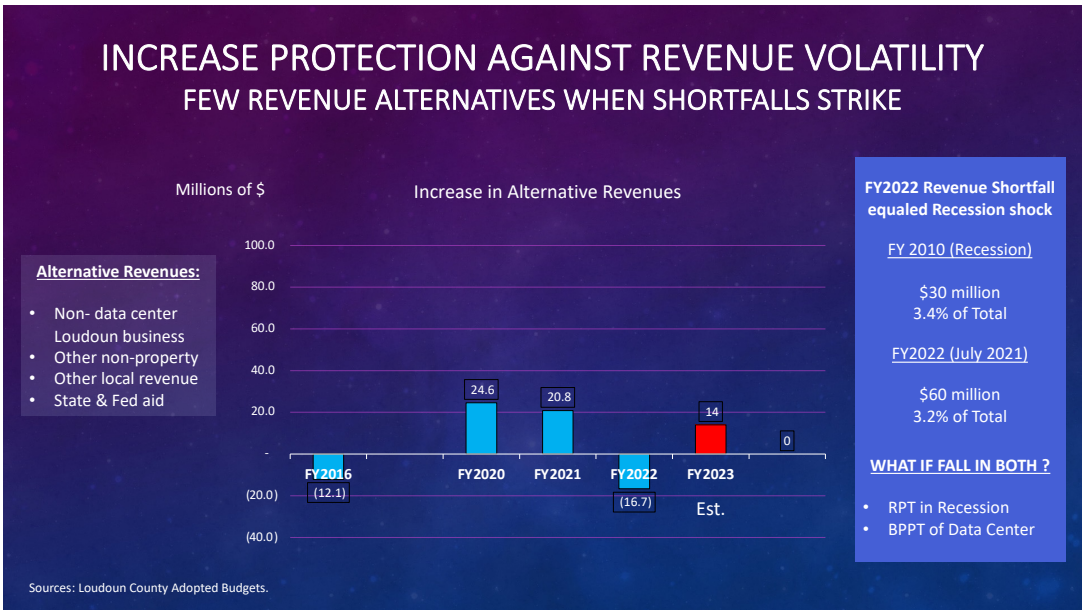
- It helps to fuel ongoing growth in County and LCPS services and to rebuild the more stable residential involvement in budget funding that is needed.

- And it signals the maturing stage of Loudoun's development that is consistent with other mature jurisdictions in the DC region.

Increase in the Average Homeowner Tax Bill								
2023	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**Avg 2024-2030**
$ 257	$ 199	$ 206	$ 213	$ 221	$ 229	$ 237	$ 245	$ 221
Source – LCPCC Simplified Fiscal Model.								

5 – Increase protection against short-term revenue volatility

Despite careful County forecasting,[19] data center industry tax revenues are very hard to predict accurately. With this comes significant vulnerability to short-term resource gaps, as there is a strong imbalance at any given time between the large downside data center revenue potential and the meager compensating revenue available from other non-data center revenue sources.



It is essential to anticipate such gaps as a recurring issue. *The County risk management strategy should include in the FY2024 budget an additional liquid buffer against possible shortfalls in future data center revenues above the 10% reserve provisions called for in the County's Fiscal Policy - a level established long ago based on real estate not business property tax risks*. Budget stabilization funds (BSFs), also known as "rainy day" funds, help mitigate budget ups and downs, allowing jurisdictions to set aside surplus revenue for times of unexpected revenue shortfall or budget deficit. BSFs are found in nearly all U.S. states, including Revenue Stabilization Funds at both the Virginia State level and right next door in Fairfax County.[20] There is abundant experience with such funds to draw on in its design that would cover:

- *Deposit rules* - the mechanism would define rules for revenue intake, such as how much revenue to contribute and maintain in the BSF annually, whether to do so as an automatic or discretionary share of general fund balances, whether to earmark specific revenue streams, and how the balance should be capped; and

- *Use mechanisms* - the fund would delineate clear withdrawal rules to determine what level of funds can be spent, under what conditions, through what process they can be approved for use, and the conditions for replenishment.

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[19] See Staff Paper #16 of October 13, 2020 on the analysis of business tangible personal property taxes at https://loudoun.granicus.com/MetaViewer.php?view_id=77&clip_id=6434&meta_id=183635

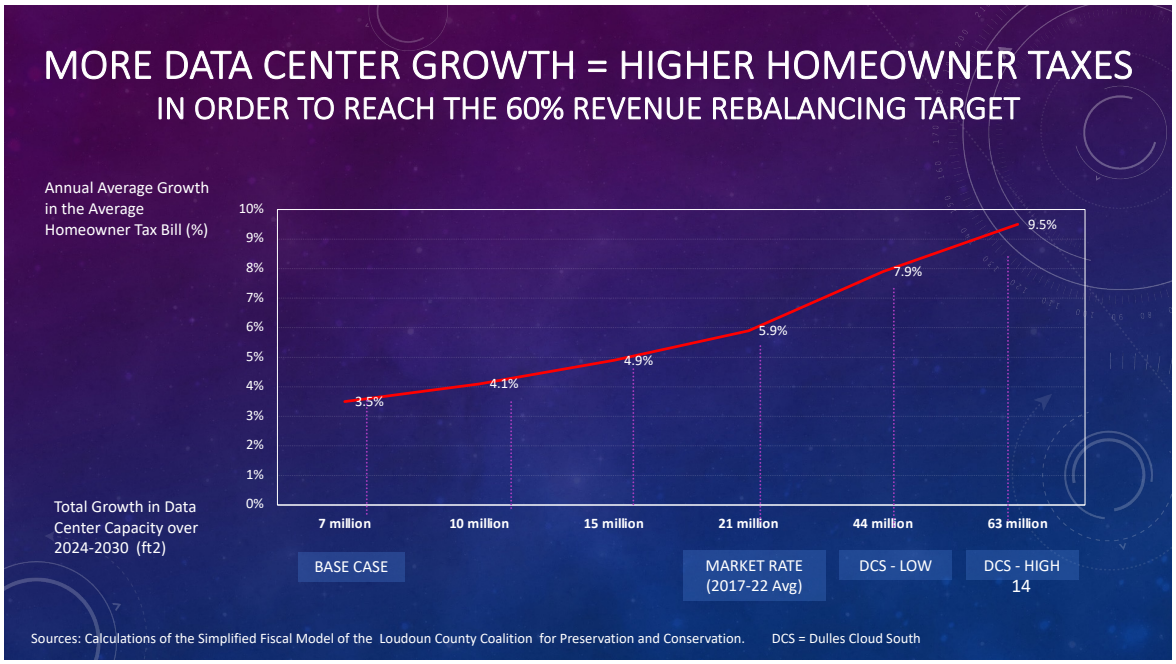
[20] https://www.fairfaxcounty.gov/budget/sites/budget/files/assets/documents/fy2022/adopted/volume2/10010.pdf

Base Case Sensitivity Analysis

Changing the target date - changes little. Using a date of 2033 instead of 2030 to reach the 60% RRT only marginally eases the adjustment process. For example, holding other policy steps constant, expenditure growth over 2024 – 2033 rises to 5.4% per year rather than 5.3%.

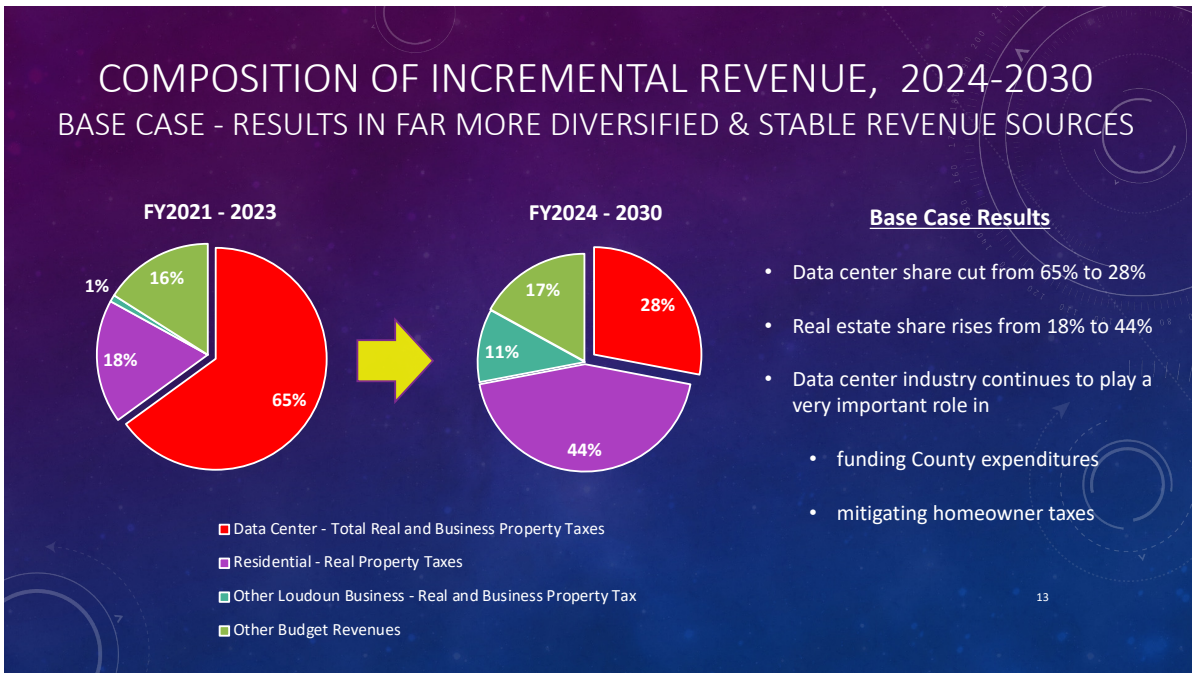
Easing land use constraints on data center capacity – means that homeowner tax bills must rise to achieve the revenue rebalancing goal. The Model shows that, as data center capacity is permitted to grow over 2024-2030, real estate tax rates must be increased to achieve the RRT.

For example, continuing to allow the current 'market growth' of data center growth (adding 21 million ft2 over the period) would require an average homeowner tax bill hike of 5.9% each year, *nearly double the Base Case rate*.



Conclusions: Unlike individual policy actions, *fostering compromise on a combination of adjustments* - in land use, business and real property tax rates, and spending policies - would clearly enable Loudoun to

- meet its revenue rebalancing goal,
- generate far more diversified and stable sources of revenue over the long-term to ensure sound and responsible financial management in support of Loudoun's future, and
- *still yield* a substantial and stable long-term data center industry participation in funding County services - estimated at about 28% of total incremental revenues – over 2024-2030 and in moderating homeowner tax bills.



Next Step Recommendations

We are grateful to the Transportation and Land Use Committee (TLUC) of the Board of Supervisors for organizing the Data Center Discussion Series. It has generated a badly needed focus on the role to be played by the industry in Loudoun's future managed growth strategy. We believe that it represents a solid basis upon which the following additional steps need to be taken.

1. **Adopt an integrated Data Center Development Policy Guide.** Debate in TLUC over April -June has focused on all four areas of concern identified in this paper: (1) land use, (2) environmental impact, (3) economic diversification, and (4) fiscal impact. As discussions and this paper reflect, these areas are *not separate, but highly interdependent and require more integrated attention at both policymaking and transactional levels*. We recommend that:

    - TLUC be the coordinating anchor to formulate a Data Center Development Policy Guide comprising the above-mentioned four area for the consideration and approval of the Board. We encourage TLUC in its upcoming July 18 meeting to organize this effort and to schedule additional meetings in the Data Center Discussion Series for this purpose.

2. **Land use – reduce single industry dependence, foremost by reducing approvals of new data centers.** Adjusting where data centers can and cannot go in County Place Types is a necessary but insufficient first step. We recommend that the TLUC Data Center Discussion Series:

    - (a) promote "growth in place" by incentivizing existing data centers to build additional stories on their structures and to increase 'densification' of computing equipment per unit of space; (b) reduce the total vacant land available for data center development, including by changing as possible permissibility for unvested parcels; and (c) expand existing use-specific design standards to reduce data centers' proximity to residential communities, noise from cooling and onsite backup power, and other impacts so as to lower local resistance and ensure a sound community-industry partnership over the long term.

3. **Environmental impact – accelerate data center sustainability.** Sustainability is an important priority in the data center industry. Nevertheless, its concentration and growth in Loudoun demand that the highest priority be given to slowing the rise in the County's extraordinary greenhouse gas emission levels in the DC Metropolitan area. We recommend that the TLUC Data Center Discussion Series:

    - (a) encourage strong self-regulating environmental standards by Loudoun's data center industry,[21] (b) establish standards for offsite renewable energy use to progressively reach 100%; (c) promote data center sustainability performance standards and certifications that provide proof of energy efficiency, water efficiency and clean back-up power; and (d) establish a mechanism for TLUC to track and review regularly progress in these areas.

4. **Economic diversification – say 'no' to Dulles Cloud South' and strengthen steps to develop and evaluate options.** The proposal and consideration of a 'Dulles Cloud South' (DCS) reflects the need to strengthen the approach to economic diversification. Rezoning this large area for data center development is fiscally unnecessary and would foreclose on important options for County economic diversification if the Board decides to change its current TPA Neighborhood Place Type. We recommend that the TLUC Data Center Discussion Series:

    - adopt steps by which, for all data center development proposals coming before it, the Department of Economic Development also presents alternative concepts and comparative analyses of their economic, community, environmental and fiscal impacts for its deliberation to help advance economic diversification in Loudoun. For example, in relation to a 'Dulles Cloud South' initiative, this might mean considering alternative uses to satisfy the large pent-up demand for flex-industrial space, or to enable a 'green' business zone' for a variety of energy intensive industries, or to generate commercial-scale renewable energy.

[21] See, for example, the Climate Neutral Data Centre Pact in Europe - https://www.climateneutraldatacentre.net/

5. **Budget management – articulate a medium-term fiscal direction to help moderate single industry dependence and secure more diversified and stable revenues.** The County's current annual budget development process is a sound short-term financial management vehicle. However, additional fiscal tools are needed in concert with land use changes to navigate toward the RRT over the medium-term. We recommend that the Board:

   - hold a one-day meeting between July-September 2022 to lay out a fiscal path to help reduce single industry dependence over the next five years. It would articulate the main lines of tax policy (business property and real estate) and aggregate spending policy needed to reach the RRT - we urge Staff to prepare a note on such policy options over the next five years to support the discussion;

   i. utilize the results of this meeting as the basis for the Board's formal adoption of the RRT and as input to its Preliminary Budget Guidance to Staff in October 2022;

   - at a transactional level, require that each data center development application coming before TLUC and the Board for review include Staff estimates of its real property and business property tax revenues and its impact on the RR; and.

   - request staff to prepare an analysis of revenue risk probabilities and appropriate additional reserve levels to help enable the Board to adopt a policy to reinforce the current 10% reserve levels and to fund it beginning in the FY2024 budget.

This paper is submitted by the Budget and Finance Committee of the Loudoun County Preservation and Conservation Coalition.

Chair - Jim Hanna
Members – Al Van Huyck, Mitch Diamond and Robert Pollard

- Contacts - comments and questions on this paper should be addressed by email to jimhanna12@gmail.com.economic growth in Loudoun

Annex 1

Reducing Single Industry Dependence [22]

Exploring Policy Options

Model Trial Results

Rebalancing Fiscal Revenues - Finding a Path to the 60% Target for Real Property Tax / Total General Fund Revenues by 2030											
	FY2023	MOTS 1 5/			Single Policy Actions to Reach 60% (yellow + bold = policy change]						
POLICY OPTIONS		No Change	+ DCS-LO	+ DCS-HI	ECO DIV	DEC RPT	INC RPT	DEC BPPT	RPT + BPPT	DEC SPEND	DEC DC CAP
Trial		0.0	0.1	0.2	1.0	1.1	1.2	1.3	1.4	1.5	1.6
1. Increase GDP / taxable valuation of non-data center business by: 1/		**4.5%**	**4.5%**	**4.5%**	**6.1%**	6.1%	6.1%	6.1%	6.1%	**6.1%**	6.1%
2. Increase new housing units per year by: 2/		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Estimated average annual increase in population		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
3. Total data center capacity growth over FY2024 - 2030 (millions ft2)		21.0	44.0	63.0	21.0	21.0	21.0	21.0	21.0	21.0	**0.0**
Number of data centers 3/	163	286	421	490	286	286	286	286	286	286	179
Total data center land area (acres) 3/	2,671	4,696	6,914	6,914	4,696	4,696	4,696	4,696	4,696	4,696	2,941
4. Progressively lower BPPT rate by 2030 to:		$ 4.20	$ 4.20	$ 4.20	$ 4.20	$ 4.20	$ 4.20	**$ 2.75**	**$ 2.75**	$ 4.20	**$ 4.20**
5. Lower the annual average County gov & LCPS spending rate to:		7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	5.5%	7.2%
6. Raise the average annual homeowner tax bill by:		3.5%	3.5%	3.5%	3.5%	**0.0%**	**4.0%**	3.5%	**4.0%**	3.5%	3.5%
Cumulative budget balance - +/- over FY 2023 - 2030 ($ millions)		2,944	6,898	9,843	3,049	1,596	3,256	1,050	1,273	4,904	(412)
Data Center RPT + BPPT / Total Local Tax Revenues (%)	33.9%	55.9%	65.0%	70.2%	55.5%	58.7%	55.1%	47.6%	47.2%	55.5%	41.5%
Progress toward Revenue Rebalancing Target (RRT) by 2030 4/	**51.5%**	**42.2%**	**37.3%**	**32.4%**	**41.9%**	**36.6%**	**42.6%**	**49.9%**	**50.6%**	**41.9%**	**49.2%**

1/ This step is vital but higher tax revenue impacts will be slow to materialize and have in any case a very small impact. Assumption is also likely to be optimistic
2/ This step is not a viable option to reduce risk - e.g., +500 housing units/yr increases cumulative deficit by $150 million by 2030 . It is held constant in each scenario.
3/ Based on - "Loudoun Data Center Census at February 1, 2022" that uses Loudoun GEOHUB data, and average parameters derived therefrom.
4/ FY2023 RPT / Total GF Local Tax Revenue ratio. Numbers under MOTS and each change scenario are for FY2030, except where noted
5/ MOTS = More Of The Same = recent average rates of growth in each policy. MOTS + DCS = More of the Same PLUS Dulles Cloud South (DCS) low and high estimates. NOTE - Excludes any repurposing and demolition for replacement.
Source: LCPCC Budget Committee Simplified Fiscal Model

Reducing Fiscal Risk - Finding a Path to the 60% Target for Real Property Tax / Total General Fund Revenues by 2030													
					Combinations of Policy Actions to Reach 60% (yellow + bold = policy change]								
	FY2023	MOTS 1 5/			COMBO 1				COMBO 2	COMBO 3	COMBO 4	COMBO 5	COMBO 6
POLICY OPTIONS		No Change	+ DCS-LO	+ DCS-HI	BY 2030			BY 2033	BY 2030	BY 2030	BY 2030	BY 2030	BY 2030
Trial		0.0	0.1	0.2	Step 1	Step 2	Step 3						
1. Increase GDP / taxable valuation of non-data center business by: 1/		**4.5%**	**4.5%**	**4.5%**	**6.1%**	**6.1%**	**6.1%**	**6.1%**	**6.1%**	**6.1%**	**6.1%**	**6.1%**	**6.1%**
2. Increase new housing units per year by: 2/		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Estimated average annual increase in population		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
3. Total data center capacity growth over FY2024 - 2030/2033 (millions ft2)		21.0	44.0	63.0	**7.0**	**7.0**	**7.0**	**7.0**	**10.0**	**15.0**	**21.0**	**40.0**	**60.0**
Number of data centers 3/	163	286	421	490	179	179	179	179	222	251	286	398	516
Total data center land area (acres) 3/	2,671	4,696	6,914	6,914	2,941	2,941	2,941	2,941	3,635	4,118	4,696	6,519	8,463
4. Progressively lower BPPT rate by 20302033 to:		$ 4.20	$ 4.20	$ 4.20	$ 4.20	**$ 1.80**	**$ 1.80**	**$ 1.80**	**$ 1.80**	**$ 1.80**	**$ 1.80**	**$ 1.80**	**$ 1.80**
5. Lower the annual average County gov & LCPS spending rate to:		7.2%	7.2%	7.2%	7.2%	7.2%	**5.3%**	**5.4%**	**6.2%**	**7.0%**	**8.3%**	**12.0%**	**15.4%**
6. Raise the annula average homeowner tax bill by:		3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	4.1%	**4.9%**	**5.9%**	**7.9%**	**9.5%**
Cumulative budget balance - +/- over FY 2023 - 2030/2033 ($ millions)		2,944	6,898	9,843	1,142	(1,197)	43	(36)	(1)	(3)	(3)	28	9
Data Center RPT + BPPT / Total Local Tax Revenues (%)	33.9%	55.9%	65.0%	70.2%	47.0%	32.8%	32.8%	32.8%	34.3%	35.9%	39.3%	46.1%	51.8%
Progress toward Revenue Rebalancing Target (RRT) by 2030 4/	**51.5%**	**42.2%**	**37.3%**	**32.4%**	**46.3%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**	**60.0%**

1/ This step is vital but higher tax revenue impacts will be slow to materialize and have in any case a very small impact. Assumption is also likely to be optimistic
2/ This step is not a viable option to reduce risk - e.g., +500 housing units/yr increases cumulative deficit by $150 million by 2030 . It is held constant in each scenario.
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5/ MOTS = More Of The Same = recent average rates of growth in each policy. MOTS + DCS = More of the Same PLUS Dulles Cloud South (DCS) low and high estimates. NOTE - Excludes any repurposing and demolition for replacement.
Source: LCPCC Budget Committee Simplified Fiscal Model

[22] Revenue Rebalancing Target (RRT) is defined as the percentage of annual Real Property Taxes in Total General Fund local tax revenues. A 60% RRT represents the average found in Virginia counties.