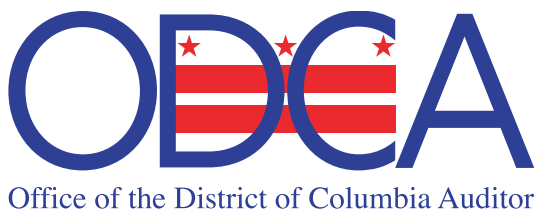


Auditor Certifies Revenue in Support of Two General Obligation Bond Issuances

December 2, 2021

A report by District Economic Group for the Office of the D.C. Auditor



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Introduction

On October 7, 2021, the Deputy Chief Financial Officer and Treasurer of the District of Columbia requested that the Auditor certify the issuance of Series 2021AB bonds, intended to be issued on or about November 12, 2021 and comprised of approximately \$345 million of general obligation (GO) bonds. The District also plans to issue \$350 million in Series 2021C GO bonds as well as \$800 million in Series 2021DE GO bonds on November 30, 2021.¹

This report sets forth the results of the Auditor's analysis performed by the District Economics Group (DEG) of the OCFO's Fiscal Year (FY) 2022 non-dedicated local source General Fund Revenue estimate of \$8,869,045,000.

The objectives of the analysis were to:

Assess the reasonableness and attainability of the OCFO's 2022 non-dedicated local source General Fund Revenue estimate of \$8,869,045,000.

Determine if the issuance of the proposed GO bonds would cause the District to exceed the 17 percent revenue limitation (the "17 percent test"), as outlined in D.C. Official Code § 1-206.03(b)(1).

Changes to the economic forecast

The DEG October 2021 forecast of D.C. Gross Domestic Product (GDP) for Calendar Year (CY) 2021 is \$151.64 billion compared with DEG's April 2021 forecast of \$148.99 billion, \$2.65 billion or 1.78% larger.² Figure 1 on page 3 shows a slightly larger DEG October 2021 forecast (black dashed line) of CY D.C. GDP than the DEG April 2021 forecast (maroon dashed line).

The DEG model of D.C. GDP relies on data from the Bureau of Economic Analysis (BEA) for historical estimates of U.S. and D.C. GDP, forecasts from the OCFO for 2021 D.C. GDP, and projections from the Congressional Budget Office (CBO) for future U.S. GDP. From the three sources, the DEG October forecast of D.C. GDP is larger than the DEG April 2021 forecast. Of the three data sources, only the BEA's revised estimates of historical U.S. GDP show decreases and while these are specific to recent years have minimal impact on the DEG forecast of D.C. GDP.

The DEG model incorporates the BEA calendar year estimates of D.C. GDP through 2020. The BEA's estimates, revised on October 1, 2021, underscore the impact of the COVID-19 pandemic on the District's economy, showing almost negligible growth of 0.10% for nominal D.C. GDP between CY 2019 and CY

1 Notice sent from OCFO's Office of Finance and Treasury to the Office of the D.C. Auditor pursuant to D.C. Official Code, Section 1-206.03(b)(1).

2 For a detailed explanation of the DEG forecast see "Modeling the D.C. Economy, Revenues, and Debt Service Obligations: A Methodology Report by District Economics Group," Office of the District of Columbia Auditor, November 13, 2019. The estimates provided in that report were based upon DEG estimates prepared in October of 2019.

2020 with its estimates for those years at \$144.41 billion and \$144.55 billion, respectively.³ DEG's April 2021 update, incorporated an earlier March 2021 BEA release and while the estimated growth rate for D.C. GDP between CY 2019 and CY 2020 was also 0.10%, the annual estimates of D.C. GDP in the March 2021 BEA release were each slightly lower with CY 2019 D.C. GDP at 143.39 billion (rather than \$144.41 billion) and CY 2020 D.C. GDP at \$143.53 billion (rather than \$144.55 billion). In the DEG model larger estimates of D.C. GDP result in greater revenue forecasts.⁴

The DEG model also incorporates the BEA calendar year estimates of historical U.S. GDP through 2020 to forecast future U.S. GDP, taking into account the CBO's forecasts detailed below. Between DEG's April 2021 and October 2021 model updates, the BEA revised its estimates for each year in CY 2015 - 2020 slightly downward by between -0.21% and -0.41%. For example, it decreased its estimate of CY 2020 U.S. GDP by -0.21% from \$20.94 trillion to \$20.89 trillion. While the BEA's CY 2015 - 2020 estimates were revised downward, its CY 2004-2014 estimates were each revised upward with the largest increase of 0.39% to CY 2008.

These changes might have muted the growth rate of the D.C. GDP but we also take into account the CBO forecast of U.S. GDP, and here the CBO increased their forecast of U.S. GDP between their February 2021 and July 2021 forecasts. Notably, between the two releases, the CBO increased its estimates of CY U.S. GDP for each year in the forecast window; for example, it increased its estimate of CY 2021 U.S. GDP by 3.24% from \$22.25 trillion to \$22.97 trillion.⁵ In DEG's modeling, the CBO's stronger U.S. GDP growth outlook contributes to stronger D.C. GDP and revenue stream estimates.

DEG also considers the OCFO's growth outlook for D.C. GDP to inform its calendar and fiscal year estimates for 2021. The OCFO's most recent release, its September 2021 Revised Revenue Estimate, forecasts an annual growth rate of 4.9% for FY 2021 D.C. GDP. The growth rate is notably higher than the corresponding February 2021 estimate of 3.8% which was taken into account in DEG's April 2021 model update.

3 BEA released new statistics for annual and quarterly D.C. GDP for CY 2020 on October 1, 2021. The annual revisions incorporated into DEG's model are available at: [tinyurl.com/42zc8u8m](https://www.bea.gov/news/2021/gross-domestic-product-state-4th-quarter-2020-and-annual-2020-preliminary).

4 The BEA's March 2021 release can be found here: <https://www.bea.gov/news/2021/gross-domestic-product-state-4th-quarter-2020-and-annual-2020-preliminary>. To calculate the CY 2019 D.C. GDP estimate of \$143.39 billion, average over the four 2019 quarterly values provided in Table 3.

5 The CBO's economic projections are available at: <https://www.cbo.gov/data/budget-economic-data#4>. The GDP forecasts are within the "10-Year Economic Projections" files.

Figure 1: Revised D.C. GDP Forecast CY 2021-2025 as of October 29, 2021

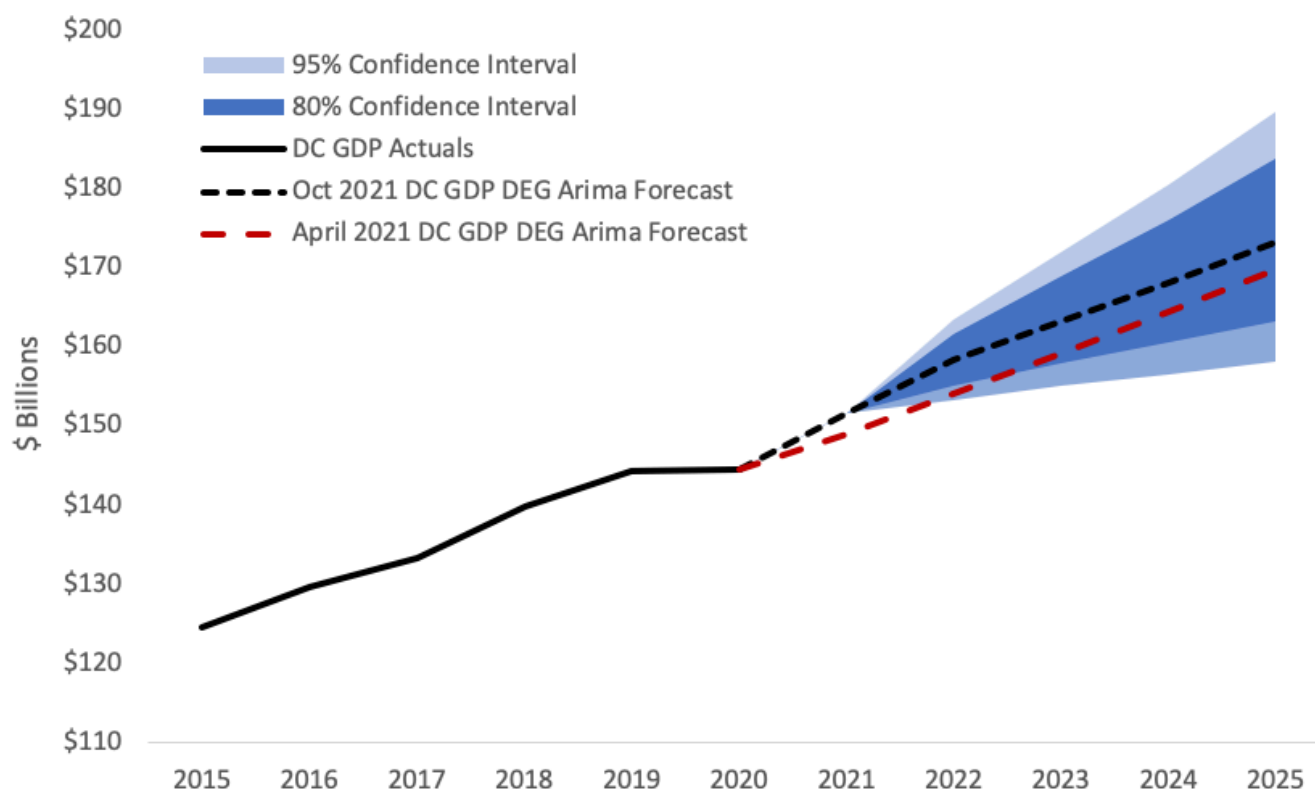


Figure 2 displays the DEG October 2021 D.C. GDP and gross revenue forecasts for FY 2021–2025 next to the D.C. OCFO’s forecasts from its September 2021 Revised Revenue Estimate. While DEG and the OCFO have similar estimates for FY 2021 D.C. GDP, the two greatly diverge in their D.C. GDP forecasts from FY 2022 on, with DEG’s significantly smaller in the remaining fiscal years. The OCFO’s model anticipates high levels of annual growth in future fiscal years as the District’s economy continues to recover from the effects of the COVID-19 pandemic. DEG’s model, however, relies on lower long-run growth trends based upon historical values of D.C. GDP, leading to this divergence. For example, the OCFO forecasts 7.4% annual growth between FY 2021 and FY 2022 and 4.2% growth between FY 2022 and FY 2023 whereas DEG’s model forecasts those annual growth rates at 4.5% and 3.4%, respectively. Furthermore, the DEG and OCFO gross revenue forecasts are similar but DEG’s estimates are slightly lower in magnitude for each year in FY 2022–2025.

Figure 2: Comparison of DEG October 2021 and OCFO September 2021 forecasts for Fiscal Year D.C. GDP and Gross Revenues, as of October 29, 2021.

Fiscal Year	DEG D.C. GDP Forecast (\$billions)	D.C. OCFO GDP Forecast (\$billions)	DEG D.C. Gross Revenues Forecast (\$thousands)	D.C. OCFO Gross Revenues Forecast (\$thousands)
2021	149.9	150.5	9,222,971	9,091,993
2022	156.7	161.6	9,443,481	9,592,773
2023	162.1	168.4	9,829,814	9,934,444
2024	166.9	176.9	10,157,529	10,234,724
2025	171.9	186.5	10,505,239	10,513,187

Changes to the revenue forecast

Figure 3 below highlights the changes in DEG's revenue stream estimates between its October 2021 (blue shaded columns) and its April 2021 (gray shaded columns) forecasts. The white columns show the changes within each revenue stream between the two model revisions. The forecasted gross revenue streams on this table are estimates before dedicated revenues are netted out.

Figure 3: Revised Gross Fiscal Year Revenue Stream Forecasts for October 2021 (in blue) and April 2021 (in gray) as of October 29, 2021 (\$ Thousands)

Fiscal Year	Income tax revenue			Property tax revenue			Sales and excise tax revenue		
	April '21	Oct '21	Difference	April '21	Oct '21	Difference	April '21	Oct '21	Difference
2021	\$3,205,829	\$3,231,552	\$25,723	\$3,061,561	\$3,089,763	\$28,202	\$1,208,702	\$1,381,855	\$173,153
2022	\$3,334,602	\$3,393,563	\$58,962	\$2,924,391	\$2,989,024	\$64,634	\$1,578,336	\$1,465,384	-\$112,952
2023	\$3,458,339	\$3,522,210	\$63,871	\$3,044,885	\$3,115,564	\$70,679	\$1,648,398	\$1,531,711	-\$116,687
2024	\$3,586,215	\$3,638,080	\$51,865	\$3,169,409	\$3,228,036	\$58,626	\$1,720,803	\$1,591,451	-\$129,352
2025	\$3,718,985	\$3,757,307	\$38,322	\$3,298,700	\$3,343,657	\$44,957	\$1,795,979	\$1,652,921	-\$143,059
Fiscal Year	Other taxes revenue			Gross receipts revenue			Non-tax and lottery revenue		
	April '21	Oct '21	Difference	April '21	Oct '21	Difference	April '21	Oct '21	Difference
2021	\$501,699	\$524,005	\$22,305	\$395,099	\$395,099	\$0	\$476,928	\$600,698	\$123,769
2022	\$539,456	\$586,709	\$47,253	\$387,867	\$387,867	\$0	\$490,876	\$620,933	\$130,058
2023	\$572,507	\$622,369	\$49,862	\$400,959	\$400,959	\$0	\$504,277	\$637,002	\$132,724
2024	\$609,425	\$647,673	\$38,249	\$400,815	\$400,815	\$0	\$518,127	\$651,474	\$133,347
2025	\$650,915	\$675,698	\$24,783	\$409,291	\$409,291	\$0	\$532,507	\$666,366	\$133,859

Source: OCFO's September 2021 Revised Revenue Estimate; DEG estimates based upon OCFO revenue collections data.

Due to rounding, numbers presented in this table may not total to the difference indicated.

In contrast with the April 2021 model estimates, DEG's October 2021 estimates show consistently greater income tax, property tax, other tax, and nontax and lottery revenues for FY 2021 – FY 2025. In DEG's model, this is attributable to the improved growth outlook for the D.C. economy driven by the improved outlook for the U.S. economy. In contrast, DEG's model forecasts lower sales and excise tax revenue for the forecast period. This is not the result of a change in DEG's ARIMA modeling; rather it is the result of no longer using an off-model adjustment to sales and excise tax revenues for the October forecast. These off-model adjustments are discussed in the "Issue with forecast revision" section of this report.⁶ DEG has not made any "off-model" modifications to sales and excise tax revenue for its October 2021 forecasts, instead maintaining its ARIMA model without adjustments and its forecasted recovery path.

Using the revised revenue stream forecasts in Figure 3 and netting out any dedicated revenues from the gross amounts, an updated version of the D.C. Auditor Certification Table is shown below in Figure 4.⁷ DEG's October 2021 estimate of the District's Total Local Source, General Fund Revenue for FY 2022 is \$8.72 billion. Figure 5 details the District's potential debt service for FY 2022 on GO and income tax secured (ITS) bonds, incorporating into the District's current outstanding principal and interest payments its plans to issue the Series 2021AB GO bonds on November 12, 2021 as well as the Series 2021C and Series 2021DE GO bonds on November 30, 2021.

As shown in Figure 5, DEG's estimate of the 17 percent test statistic - the ratio of the District's FY 2022 principal and interest payments on GO and ITS bonds, including the planned GO Series 2021AB, to DEG's FY 2022 General Fund Revenue Estimate – is 10.21%. After inclusion of the GO Series 2021C and Series 2021DE bonds, the test statistic actually decreases to 9.62%. This is a result of a decrease in the District's existing FY 2022 ITS bond debt service between the series' two dates of issuance, as noted at the bottom of Figure 5.

6 In DEG's April 2021 model update, DEG utilized the OCFO's forecasts for FY 2021 and FY 2022 sales and excise tax revenue to capture the pandemic's impacts on the hard-hit revenue stream, and then DEG forecasted out using its ARIMA model's forecasted growth rates for the following fiscal years. By increasing the FY 2022 estimate to \$1.58 billion as seen in Figure 3, and then applying DEG's forecasted growth rates, that effectively raised the magnitude of DEG's estimates through the rest of the forecast window, explaining why the DEG October 2021 sales and excise tax revenue forecast, which incorporates no off-model changes, is notably lower than the DEG April 2021 forecast.

7 DEG nets out the District's dedicated revenues for FY 2022 which are detailed in Table 1 of the OCFO's September 2021 Revised Revenue Estimates: under each individual revenue source, any dedicated revenues are titled as "Dedicated to other funds."

**Figure 4: FY2022 Total Local Source, General Fund Revenue Estimate
(Net of Dedicated Taxes) as of October 29, 2021 (\$ Thousands)**

Revenue Source	DEG's FY 2022 Total Local Source, General Fund Revenue Estimate (Net of Dedicated Taxes)
Property Taxes	\$2,940,656
Sales Taxes	\$1,020,108
Income Taxes	\$3,393,563
Gross Receipts Taxes	\$244,789
Other Taxes	\$499,704
Total Taxes	\$8,098,821
Total Non-Tax and Lottery Revenues	\$620,933
Total Local Source, General Fund Revenue Estimate	\$8,719,754

Sources: DEG FY 2022 revenue stream estimates and OCFO September 2021 estimates of dedicated revenues, detailed in footnote 7.

Figure 5: FY 2022 Debt Service, Comprised of Principal and Interest Payments, on the District's Current GO and ITS Bond Obligations and Planned GO Series 2021AB, Series 2021C, and Series 2021DE Issuances, as of October 29, 2021

Principal and Interest From:	FY 2022 Payments Including Series 2021AB	Payments Including Series 2021AB as Percent of General Fund Revenue Estimate	FY 2022 Payments Including Series 2021C and 2021DE	Payments Including Series 2021C and 2021DE as Percent of General Fund Revenue Estimate
General Obligation, ITSB	\$890,272,194	10.21%	\$838,674,249	9.62% (1)

Sources: Fiscal year debt service payments on current GO and ITS bond obligations, as well as the planned GO bond issuances, provided by the Treasurer of the District of Columbia.

Notes: General Obligation and ITS Bond Outstanding Debt Service updated through October 29, 2021. The 17% test statistics reflect the inclusion of the maximum GO 2021AB, 2021C, and 2021DE bond issuances to the District's current FY 2022 debt service payments.

(1) Between the two dates of issuance, November 12 for the Series 2021AB bonds and November 30 for the Series 2021C and 2021DE bonds, there is a decrease of approximately \$69.1 million in the District's FY 2022 ITS bond debt service.

Issues with forecast revision

For the DEG October 2021 model update, DEG sourced revenue collections data from the OCFO's September 2021 Revised Revenue Estimate. DEG's April 2021 model update, which is referenced for comparison throughout this report, sourced collections data from the OCFO's February 2021 Revised Revenue Estimate. At that time approximately 15 percent of the population had received the Covid-19 vaccine in the U.S. The OCFO's September 2021 Revised Revenue Estimate increased the estimate of FY 2021 local source revenue by \$311.4 million from the OCFO's May 2021 Revised Revenue Estimate due to year-to-date collections data showing higher than expected income tax revenue, as well as stronger than anticipated deed tax and non-tax revenue. Additionally, the OCFO revised its estimates upward for FY 2022-2025, citing strong income tax revenues boosted by the accelerated growth in the stock market and corporate gains.

The OCFO's September 2021 Revised Revenue Estimates notes that particularly for FY 2021, the weakness in hospitality sales tax revenue due to the pandemic has largely been offset by the aforementioned surge in income tax revenue.⁸ DEG's model, which is based on an autoregressive moving average of GDP, forecasts future estimates for D.C. GDP based off of historical values. Therefore, it does not fully capture the divergence among the District's revenue streams directly impacted by the pandemic as a result of the loss of hospitality and office-worker and tourist-traffic from those that are less impacted, like income taxes. To account for this, DEG has previously made "off-model" adjustments to reflect annual changes in expected revenues consistent with the impacts of the pandemic. DEG's April 2021 "off-model" adjustments relied upon the OCFO's February 2021 Revised Revenue Estimates' annual growth rate projections for property taxes, sales and excise taxes, and nontax and lottery revenues – the three revenue sources forecasted to be most impacted by the pandemic. For the October 2021 revision, DEG makes one "off-model" adjustment. We apply the nominal amount of adjustment to the property tax revenue forecast in the April 2021 update to the property tax revenue forecast in the October 2021 model update. This adjustment accounts for the delay between when real property tax assessments are made and when the revenues based on those assessments are collected.⁹

Economic damage from the pandemic has created an uncertain outlook for the District. As the OCFO notes in its September 2021 Revised Revenue Estimate, although the federal relief enacted since December 2020 and the continued deployment of vaccines have helped the District remain on its path to recovery, significant risks remain regarding the containment of the virus given the surge of the Delta variant and a high degree of vaccine hesitancy. Additionally, there is uncertainty surrounding the pandemic's long-term impacts on the D.C. economy. Long-term, there could be less appetite for entertainment activities such as performances and sports if consumers lose confidence in their ability to safely participate, and office workers may decide to permanently work from home, reducing the need, and

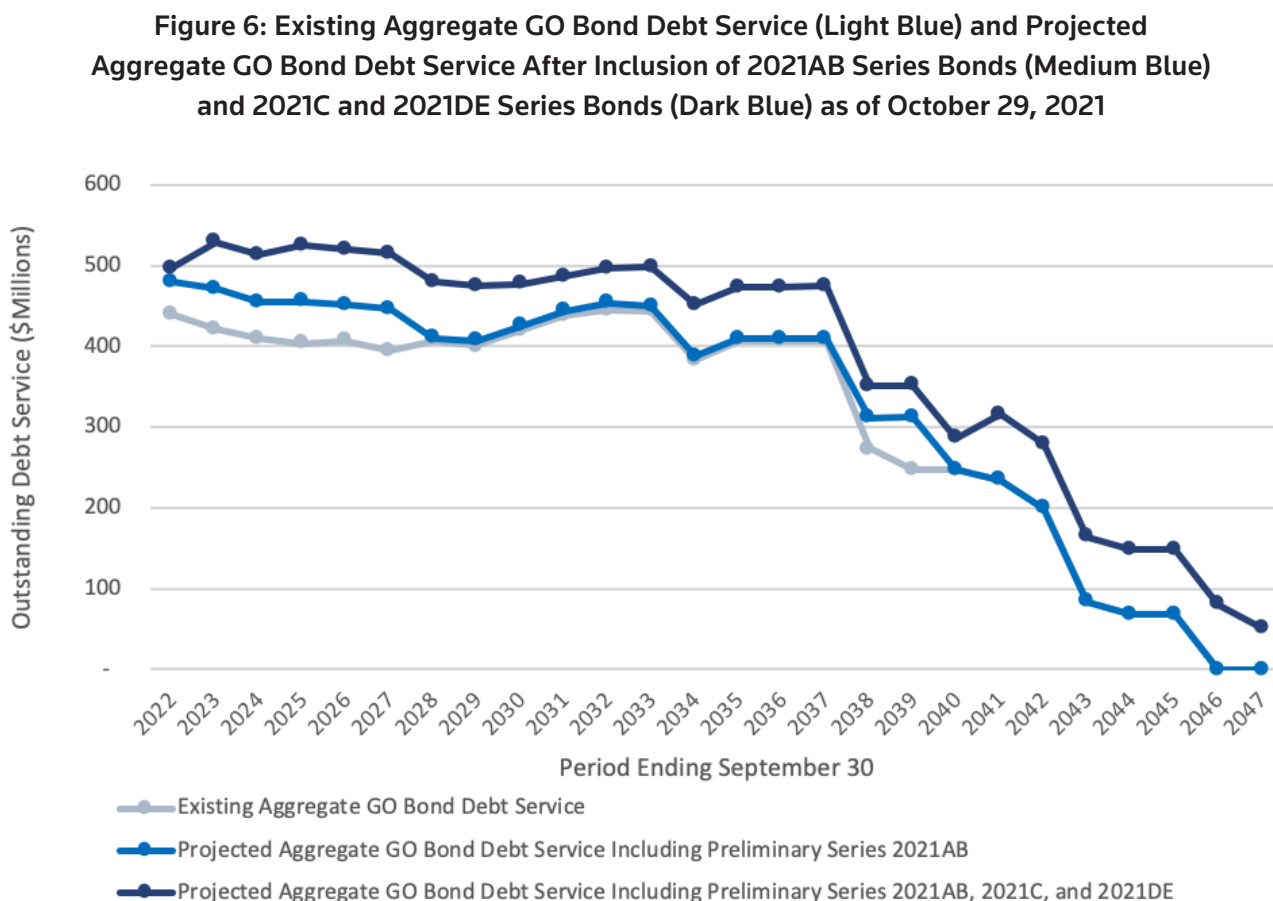
8 See page 2 of the OCFO's September 2021 Revenue Estimates found here: https://cfo.dc.gov/sites/default/files/dc/sites/ocfo/publication/attachments/Sept_2021%20Revenue%20Estimate%20Letter.pdf

9 This is why the lower income from hotel, apartment, and office properties in CY 2020 will affect the District's property tax revenue for FY 2022. See page 2 of the OCFO's February 2021 Revenue Estimates found here: <https://cfo.dc.gov/sites/default/files/dc/sites/ocfo/publication/attachments/February%202021%20Revenue%20Estimate%20Letter.pdf>

over time the demand, for office space. These risks render modeling future D.C. revenues difficult, relying on assumptions about the District's path toward recovery, taking into account these sustained risks and the pandemic's possible long-term effects.

Existing and projected outstanding GO bond debt service

Figure 6 shows the maximum increase in General Obligation (GO) bond debt that the District plans to issue with the Series 2021AB, Series 2021C, and Series 2021DE bonds. Under the District's three GO issuances, there will be an additional \$2.01 billion in debt service throughout the life of these bonds: approximately \$439.84 million from the Series 2021AB bonds, \$537.98 million from the Series 2021C bonds, and \$1.04 billion from the Series 2021DE bonds.



Conclusion

DEG's estimate for the District's FY 2022 non-dedicated Local Fund Revenue is \$8,719,754,000, or 98.3% of the OCFO's estimate of \$8,869,045,000. Given the similarity, DEG finds the OCFO's estimate to be both reasonable and attainable.

Additionally, based on the analysis performed by DEG, the Auditor can certify that after issuance of the Series 2021AB, 2021C, and 2021DE General Obligation bonds, the District will comply with statutory debt limitations.

The Auditor only certifies that the revenue estimate, at the time of certification, appears sufficiently supported and achievable. As the OCFO frequently revises projections throughout the fiscal year after gathering additional information, we stress that our report is based on the information available at the time of our review.

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About ODCA

The mission of the Office of the District of Columbia Auditor (ODCA) is to support the Council of the District of Columbia by making sound recommendations that improve the effectiveness, efficiency, and accountability of the District government.

To fulfill our mission, we conduct performance audits, non-audit reviews, and revenue certifications. The residents of the District of Columbia are one of our primary customers and we strive to keep the residents of the District of Columbia informed on how their government is operating and how their tax money is being spent.

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