Appendix 7 - Debt Affordability Study

State of Hawaii
Debt Affordability Study

12/15/2020

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DEBT AFFORDABILITY STUDY

I. Summary

A. Goals and Objectives

The Director of Finance has undertaken a biennial Debt Affordability Study (Study) in order to optimize the use of limited debt capacity while meeting public spending goals and to ensure the prudent use of debt and to preserve sufficient future debt capacity. The Study has been prepared by PFM Financial Advisors LLC on behalf of the State of Hawaii (State) and Department of Budget and Finance (B&F). The Study summarizes and analyzes the current debt outstanding and future capital plans of the State and State Departments as it evolves over time. The Study aims to aid in decision making with respect to the State and State Department multi-year capital plans and to understand trade-offs while evaluating projects and debt alternatives.

The Study seeks to identify affordability metrics to measure debt burden, assess affordability of proposed debt issuances, ensure the State does not over leverage, and assess overall adequacy of revenues to pay for all obligations including pension and other postemployment benefits (OPEB) costs.

B. Scope

On June 26, 2015, Governor David Y. Ige signed Act 149 (15) directing the Director of Finance to submit a debt affordability study to promote both transparency in budget-making and more informed decisions on capital improvement project and debt issuance authorizations. The Director of Finance is charged with the submission of a debt affordability study to the legislature before the convening of the regular session of each odd-numbered year. The Act is now formalized within the Hawaii Revised Statutes §37C on State Debt and the first such report on affordability was submitted in December 2016 before the start of the 2017 legislative session. This is the third report.

C. Summary of Overall State Debt and State Department Debt Programs

The Department of Budget and Finance plans, monitors and manages the issuance of State bonds. B&F oversees the general management of State debt, including reimbursable and non-reimbursable general obligation (GO) bonds, special assessment bonds, refunding bonds, mortgage credit certificates, short-term loans, certificates of participation (COPs), and municipal lease financings. In addition, B&F has oversight responsibility for revenue bonds and special facility revenue bonds issued by State Departments including the Department of Transportation – Airports, Harbors, and Highways Divisions, University of Hawaii, Hawaiian Home Lands, Department of Business, Economic Development, and Tourism, and Hawaii Housing Finance and Development Corporation.

The Study focuses on each financing program to review outstanding debt, discuss legal limitations, summarize callable bonds, project and analyze multi-year capital plans, and measure affordability based on pertinent metrics and credit and peer considerations.

D. General Assumptions

This Study makes certain assumptions and projections about future financial information and bond issuance timing and amount, for the purpose of analyzing debt affordability. In addition, conservative interest rate assumptions were utilized (see Appendix A for details). Actual financial information, bond issuance timing and amounts, interest rates, and metrics may vary from the projections presented in this Study. In addition, this Study does not take into account potential future refundings that may occur and may reduce annual debt service costs. The credit ratings reflected in this report are as of November 1, 2020. The debt outstanding under each financing program is as of November 1, 2020. For DOT-Harbors, the debt and credit profile include the most recent issuance in November 2020. For the latest credit and financial information, please refer to the State's investor relations website: http://investorrelations.hawaii.gov.

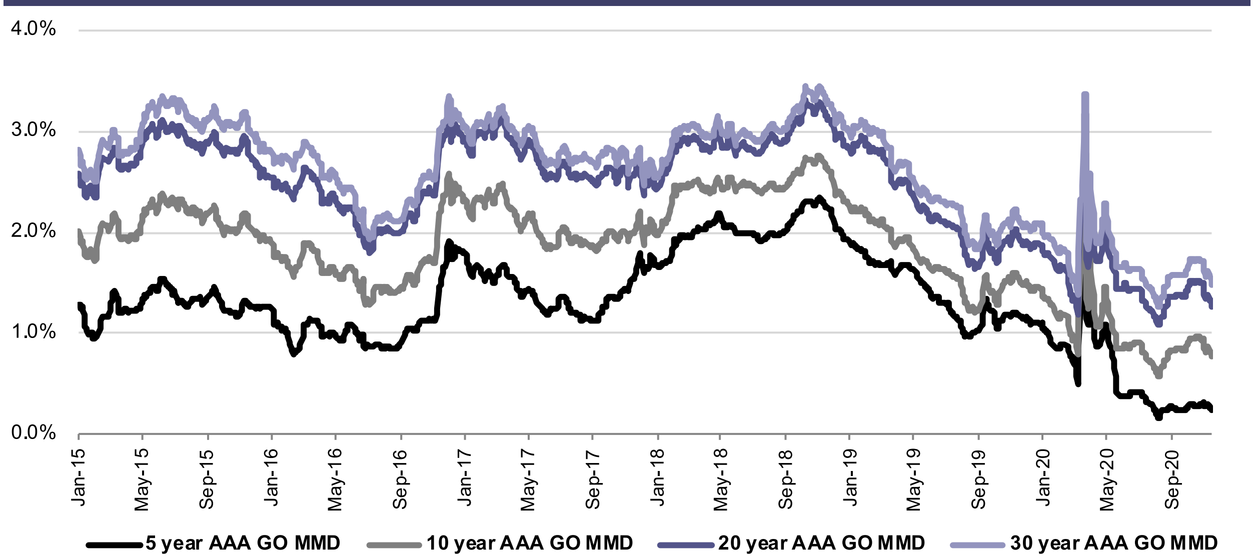
E. Market Conditions

This section highlights the municipal market conditions over the last five years. These factors affect the market for the State's bonds.

Interest Rates

The Refinitiv TM3 Municipal Market Data (MMD) AAA curve is the benchmark for tax-exempt municipal borrowing rates. The chart below depicts the 5-year, 10-year, 20-year and 30-year AAA MMD interest rates. As reflected below, interest rates were extremely volatile in early 2020 when the news of COVID-19 pandemic first broke. The initial shock caused by the pandemic gradually stabilized as Congress and the Fed took various measures to support the economy. Tax-exempt rates are at or near historic lows with the entire AAA MMD yield curve under 1.5%.

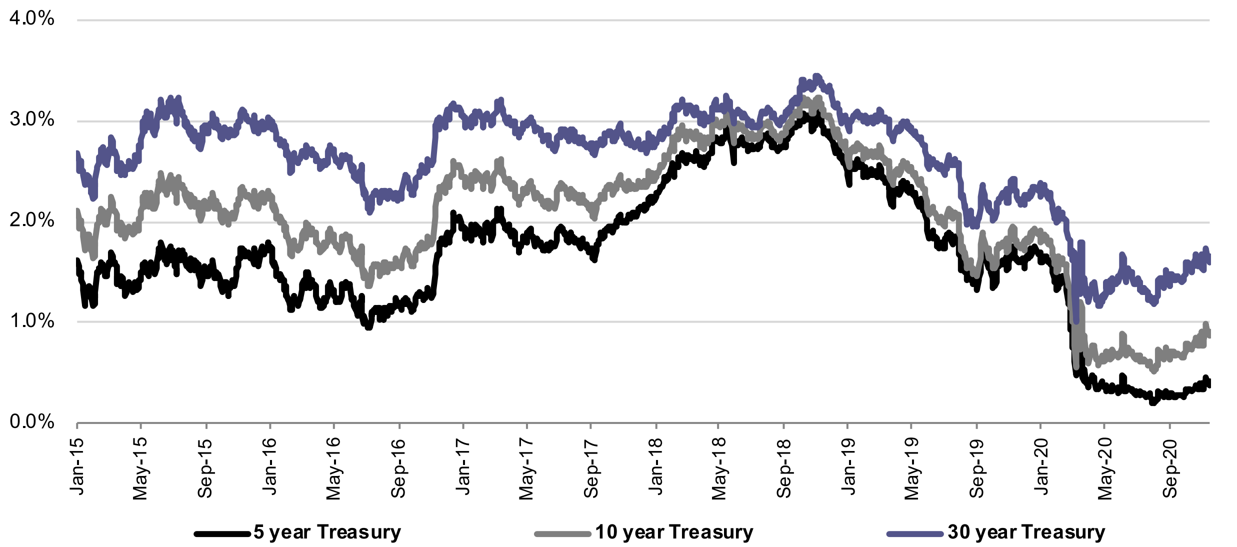
Historical Tax-Exempt Rates



Source: Refinitiv TM3

The US Treasury yield curve is the benchmark for taxable municipal borrowing rates. The chart below depicts the 5-year, 10-year, and 30-year US Treasury rates. As reflected below, Treasury rates plummeted in March as COVID-19 fears sparked flight to quality. Investors flocked to US Treasury bonds, which are considered safe assets. For a brief period, the entire Treasury curve dropped below 1%, a record low. Current rates are slowly ticking up from their all-time lows.

Historical Taxable Rates

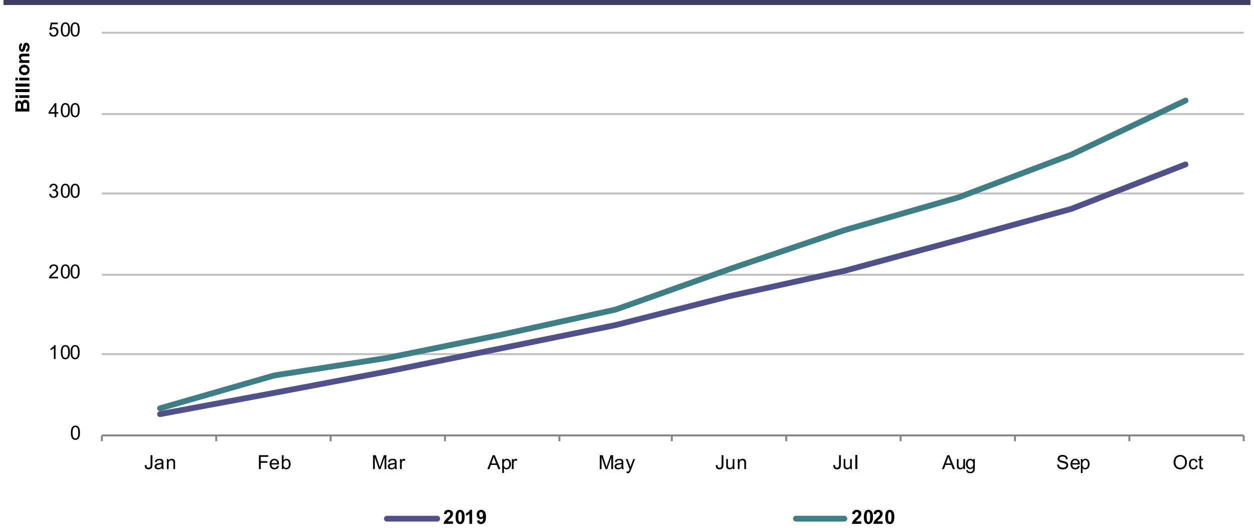


Source: Refinitiv TM3

Bond Volume

Generally, the rates on municipal bonds relative to other fixed-income investments is a function of supply and demand. A good measure of supply is the amount of new issuance occurring relative to prior years. This, as well as the amount of bonds maturing or being redeemed, determines how many municipal bonds are outstanding at any given time.

Nationwide Cumulative Bond Issuance



Source: Refinitiv TM3

Nationally, municipal bond issuance volume year-to-date has been higher in 2020 than in 2019. Cumulative bond issuance for the first ten months through October 2020 was $416.5 billion or 23.8% higher compared to the same period in 2019. A majority of the increase in municipal issuance is attributable to taxable debt and a surge in taxable advance refundings. Fueled by record low taxable rates, taxable issuance volume through October 2020 totaled $129.7 billion, up 165.5% from $48.9 billion in 2019. Issuance volume for March 2020, the first full month after the pandemic, was one of the lowest since 2011. With rapidly contracting demand, issuers pulled scheduled transactions. After a near three-week hiatus, issuances resumed in early April of 2020 with general obligation, schools and utilities leading the way. As investor appetite returned, monthly issuance volume rebounded as several transactions that were put on hold after the pandemic, finally came to market. September and October saw record volumes as issuers rushed to market before the November elections.

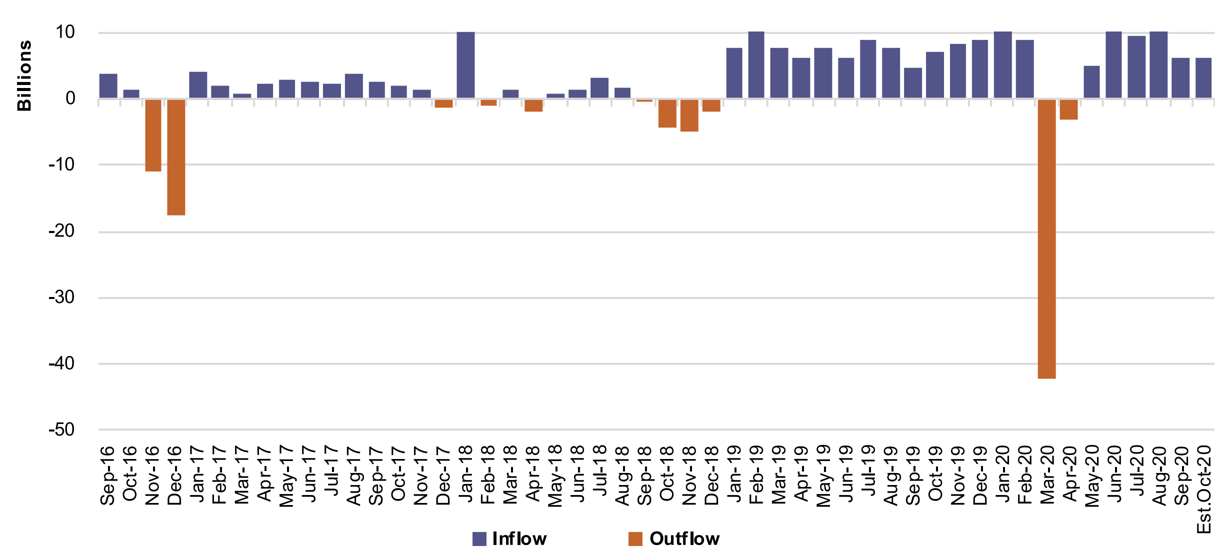
For the State, issuance volume for the first ten months of 2020 totaled $4.3 billion, 90% higher than issuance volume over the same period in 2019.

Municipal Bond Market Monthly Fund Inflows/Outflows

Municipal bond mutual funds specializing in tax advantaged investments represent a significant segment of the investor base for tax-exempt bonds. Asset inflows and outflows of cash for these funds are a good proxy of overall demand for municipal bonds.

Seeking liquidity above all else, investors moved money out of bond funds leaving fund managers no option but to sell-off. Bid-wanted lists flooded the secondary market in March and the municipal market had record net outflows ($42.1 billion) from bond funds unlike any seen before. The pace of outflows slowed in early April and ultimately reversed later in April. Inflows from June 2020 through October 2020 totaled $43.7 billion indicative of very strong investor demand.

Municipal Bond Market Monthly Fund Inflows/Outflows

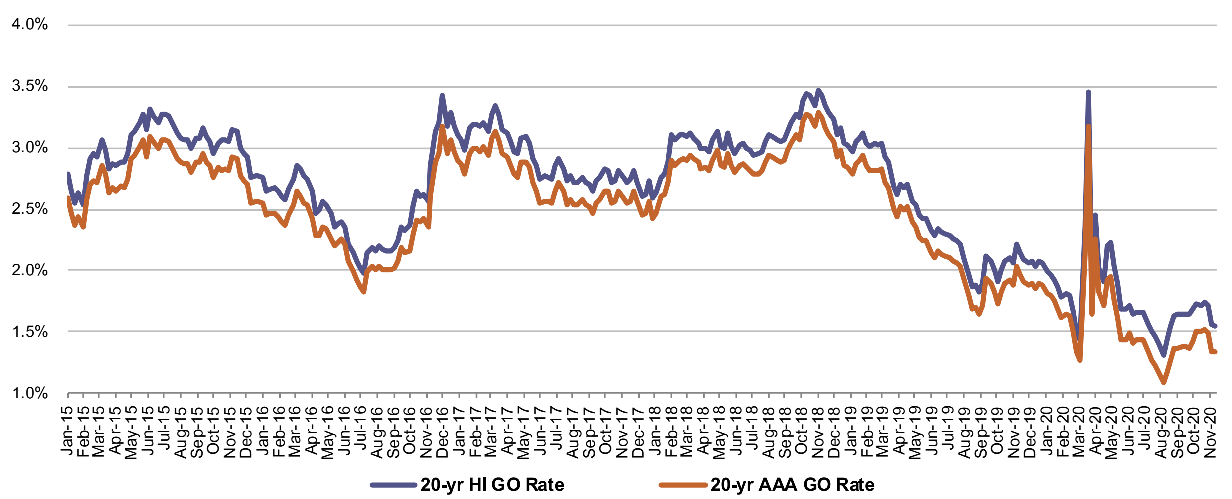


Source: Investment Company Institute

Interest Rates on Hawaii's Bonds

Interest rates on Hawaii's bonds are driven by both State-specific factors such as credit ratings as well as overall market conditions. Given the State's GO credit ratings in the 'AA' category, the State's GO bonds trade close to the AAA benchmark rates. Over the last five years, the State's interest rates have consistently tracked the AAA benchmark, although credit spreads have widened slightly over the last few months.

20-Year Hawaii GO Rate and 20-Year AAA MMD GO Rate Since 2015



Source: Refinitiv TM3

F. Other Considerations

Environmental Natural Disasters:

Given the State's geology and location in the Pacific Ocean, natural disasters such as earthquakes, volcanic eruptions, hurricanes, flooding, mudslides and tsunamis may impact the State. In fact, such geothermal activity as well as storms are not unusual for the State. The State has experienced and managed such events in the past, with most recent being the 2018 earthquake and volcanic eruption of Kilauea. There have not been any sustained adverse effects on tourism following any such natural disaster. Between 1953 and 2020, the State has been exposed to far fewer instances of what Federal Emergency Management Agency (FEMA) defines as "Major Disaster" or "Emergency" situations, relative to other States. These most recent natural disasters in 2018 were not viewed as credit risks to the State's ratings by the rating agencies. The State's strong financial position and funding assistance from FEMA and other federal sources, support these views. In the same vein, there are minimal debt affordability implications for the State and its Departments from the natural disasters on record.

COVID-19 Pandemic:

The COVID-19 pandemic has had a significant impact on the economy and state and local governments. With reduced air travel and tourism, the impact on State finances has been severe. Timing and pace of recovery is difficult to project and will likely vary for different locations and different credits. Ratings agencies have published various revenue and recovery scenarios for different credits along with sensitivities in some cases.

CARES Act funding increased liquidity and supported some State Departments through the first wave and initial shock of such an unprecedented event allowing issuers time to respond and make budgetary adjustments. With the backdrop of the COVID-19 pandemic and the ongoing uncertainty with respect to overall economic recovery timelines, this iteration of the debt affordability study poses unique challenges as it relates to projections and evaluating affordability. As such, the State Department worked diligently to provide current projections but actuals will depend heavily on the status of the COVID-19 pandemic and broader economic recovery.

Overview of Recent Financial Performance and Revenue Projections:

For most of the State Departments, FY2019 revenues were the strongest in recent history. FY2020 finances and revenue collections through the month of February (pre-COVID-19) were outperforming or at least on par with FY2019 levels. However, with various degrees of lockdowns and travel restrictions implemented in February 2020 across the world, most State Departments ended FY2020 with lower revenues compared to FY2019. With a "second wave" or surge in COVID-19 cases in winter of 2020, many of these lockdowns and restrictions are still in place, both domestic and international. For that reason, FY2021 revenue collections for all the State Departments are expected to be lower than FY2020. From there some State Department have projected a recovery starting in FY2022 while others have projected another year or two of minor declines or flat projections before a rebound in revenues. Most State Departments project returning to FY2019 levels sometime between FY2023 and FY2024. To reiterate, the timing and pace of recovery from the COVID-19 pandemic is unknown and will be different for all locations and credits and by extension the various State Departments. Actual performance is likely to vary significantly from projections presented in this report. Given the uncertainty, many State Departments do not expect to issue debt in the next six years and the ones that do will evaluate any future debt in the context of economic conditions and finances at the time.

II. The Department of Budget and Finance and General Fund Debt

The Department of Budget and Finance, headed by the Director of Finance, administers the State budget, develops near-term and long-term financial plans and strategies for the State, conducts reviews of finances, organization, and operations of each department of the State to ensure appropriate and effective expenditure of public funds and provides programs for the improvement of management and financial management of the various departments and agencies. The issuance of all debt issued by Departments of the State is coordinated with and overseen by the Director of Finance and the Department of Budget and Finance. Non-general fund State financing programs are described in the following sections under applicable Departments.

It is important to note that the State has unique characteristics as compared to the other 49 U.S. states by virtue of its location in the Pacific Ocean. Because the State is not physically connected to any other state, it is dependent on air and sea transportation to bring goods and people to and from the islands.

The State has a large military presence as a result of its strategic location. This results in sizeable federal spending in the State which is a significant component of the State economy, particularly in relation to its size and population. Compared to most other states, Hawaii's scenic location promotes tourism and is a source of considerable economic activity and revenues for the State. The State is highly dependent on overnight visitors' spending.

Additionally, the State of Hawaii's general fund supports several functions that are typically supported by regional and local governments in other states across the nation. These additional responsibilities include GO bond funding for the K-12 education system, the university system, the hospital system, and the jail and penitentiary system that are typically supported by cities and counties, school districts, community college districts, hospital districts etc. in other states.

The combination of these economic characteristics that drive the State's revenues in combination with the State's expanded support of more commonly regional/local obligations make the State of Hawaii particularly unique and it is challenging to compare the State with other states. While these programs contribute to the overall debt levels of the State, they are essential to the long-term viability of the State and the welfare of the population. Major State general fund tax revenues include general excise and use tax, income taxes, transient accommodations tax, and other taxes.

B&F administers the issuance of general fund supported debt including GO bonds. While GO bonds are the primary financing program, B&F also issues COPs and enters into financing agreements such a capital leases, as required. All GO bonds are secured by the full faith and credit of the State, and the State must take action to ensure that sufficient revenues will be raised and provided from time to time for the purpose of payment of principal and interest on GO bonds. The State also issues reimbursable GO bonds on behalf of other Departments, and debt service on these bonds is reimbursed by the beneficiary Department from revenues or user taxes, or both, derived from the public undertaking or improvements that were financed by such GO bonds. The State also issues short-term GO debt or bond anticipation notes (BANs) to provide interim financing. These notes are also secured by the State's general fund but are typically repaid from the proceeds of long-term GO bonds. COPs and capital leases are payable from any lawfully available funds of the State including the general fund and are subject to legislative appropriation.

A. Debt Profile

The State currently has 43 series of GO bonds outstanding with a total par amount of $8.58 billion. One of those series are GO bond anticipation notes (GO BANs) with a remaining par of $200 million maturing in October 2021. Also, series GA and GB were issued for working capital purposes as authorized by Act 3, SLH 2020. Act 3 authorized exceeding the constitutional debt limit and the issuance of up to $2.1 billion for working capital indebtedness or as authorized by the federal reserve municipal liquidity facility. $747 million was issued for working capital purposes and the debt limit was not exceeded.

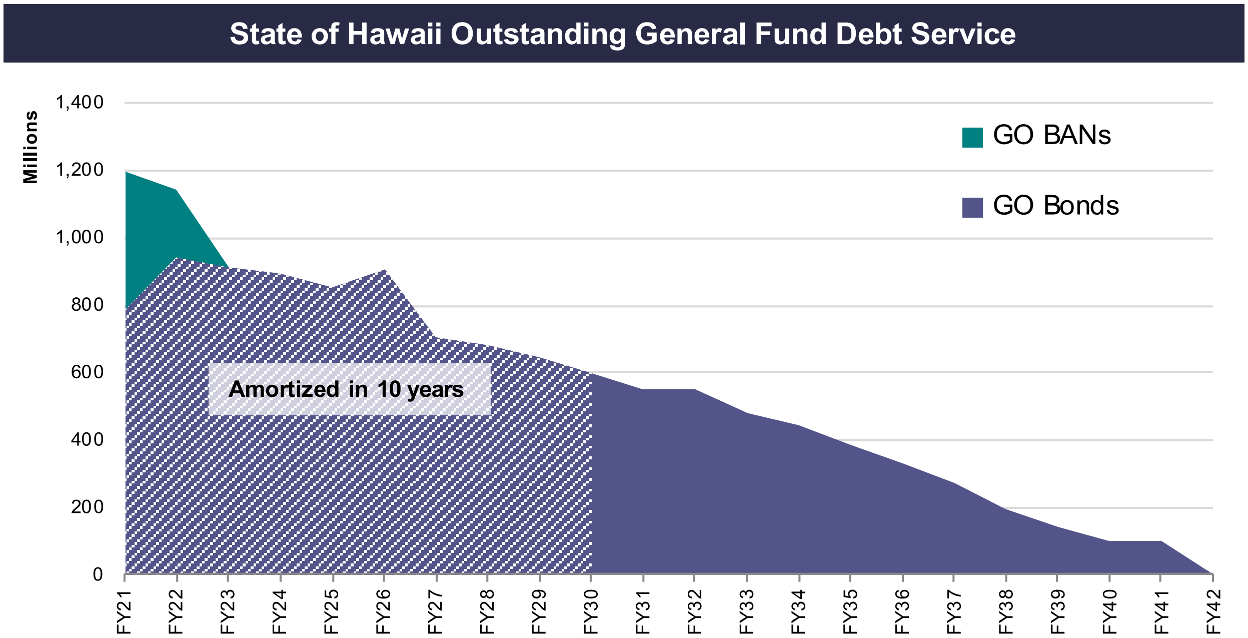
Summary of General Fund Supported Debt			
GENERAL FUND SUPPORTED DEBT	**OUTSTANDING**		
Figures in thousands	Reimbursable	Non-Reimbursable	Total
General Obligation Bonds	$56,457*	$8,540,304	$8,576,538
General Obligation Bond Anticipation Notes	NA	$200,000	$200,000
Capital Lease	NA	$45,301	$45,301
TOTAL GENERAL FUND SUPPORTED DEBT	**$36,234**	**$8,785,605**	**$8,821,839**

*As of July 1, 2020

In addition to GO debt, the State has capital leases outstanding in the amount of $45.3 million, which are payable from the general fund and account for less than 1% of the total debt portfolio. A detailed list of all outstanding series supported by the general fund is included in **Appendix B**.

B. Debt Service Chart

Per the Hawaii Constitution, the State is required to structure all GO bonds with annual level principal payments or annual level debt service payments resulting in an overall tapering amortization schedule as seen below. With the State's conservative GO debt structure, the State's debt service amortization is rapid. About 64.8% of GO bonds principal (excluding short-term GO debt) is repaid within ten years. The chart below reflects the State's annual general fund debt service.



C. Credit Ratings

Credit ratings provide an independent opinion regarding the State's ability and willingness to meet its financial commitments. Credit ratings issued by the bond rating agencies are a major factor in determining the cost of borrowed funds in the municipal bond market and are one of the tools used by investors when purchasing municipal obligations. Moody's Investors Service (Moody's), Standard & Poor's (S&P), and Fitch Ratings (Fitch) assign ratings to the State's GO bonds and general fund COPs. As reflected in the table below, the State maintains 'AA' category ratings from Moody's, S&P and Fitch.

State of Hawaii GO Credit Ratings			
	Moody's	**S&P**	**Fitch**
General Obligation Debt	Aa2 Stable	AA+ Negative	AA Stable

This year, Moody's and Fitch downgraded the State's rating by one notch to 'Aa2' and 'AA' respectively. The downgrades were driven by the impact of the coronavirus pandemic on the State and its important tourism industry. The State is experiencing a severe decline in tax revenues as a result of the rapid downturn in visitor arrivals, resulting in a multi-year fiscal imbalance and the need for significant spending adjustments. The State does not expect visitor arrivals and tax revenues to return to pre-crisis levels before 2024. Absent significant additional federal assistance, the State's financial plan will likely include short-term deficit financing, suspending payments to pre-fund its OPEB liability, employee furloughs, drawing down reserves, and spending cuts beyond FY 2021 which have not yet been identified.

As of the date of this report, S&P maintains the ‘AA+’ rating on the State’s GO credit however it has assigned a negative outlook which represents a one-in-three chance that the rating may be lowered over the next two years, if the State is unable to address its revenue shortfalls through sustainable budget adjustments.

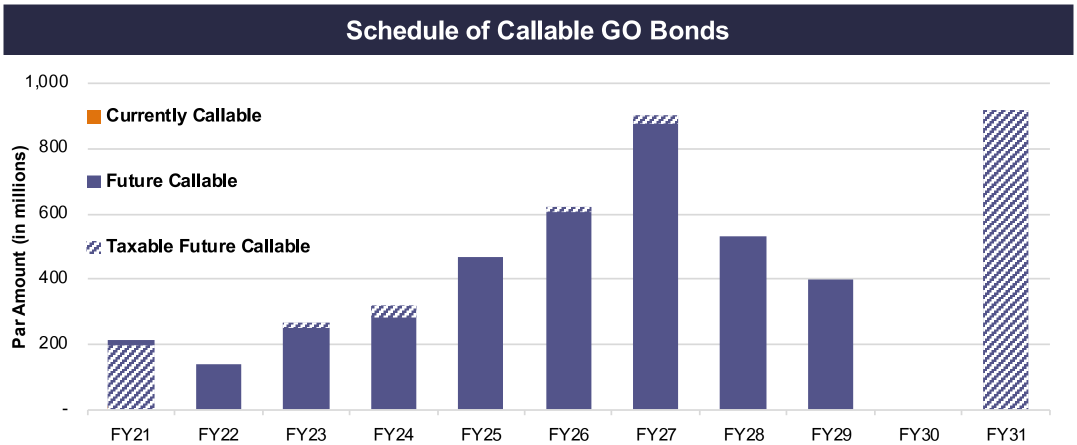
The State’s high credit ratings are a result of its strong financial position, which has weathered several major economic stressors during the last 15 years, strong financial governance practices including multi-year planning, frequent revenue forecast updates from the independent Council on Revenues facilitation prompt identification of budget gaps and alignment needs, and strong executive power to reduce spending, above average reserves and strong liquidity position entering the current economic downturn, and commitment to and progress toward reducing pension and OPEB liabilities. Additional credit strengths include rapid amortization of debt with a conservative all-fixed-rate debt profile, stable military presence and strong liquidity position.

Credit challenges include vulnerability to tourism and to a global downturn as seen during the current coronavirus pandemic, higher-than-average debt ratios because of the State's centralized provision of public-sector services, and large pension and OPEB liabilities.

The State’s GO ratings are largely driven by outside forces. Economic performance continues to be a major driver of the credit picture for the State. Continued sound financial management and proactive measures will contribute to addressing ratings analysts’ cited concerns. Although the State’s debt levels are among the highest in the nation, additional credit factors including historical fiscal conservatism and management’s willingness to utilize the fiscal governance tools at its disposal provide stability to the State’s credit. In addition, this biennial Debt Affordability Study promotes a systematic approach towards prudent use of debt further supporting sound financial management. The State has always strived to obtain the highest possible credit ratings in order to minimize interest costs while maintaining future flexibility and the State continues to work towards that goal despite the current economic challenges.

D. Schedule of Callable Bonds

The State monitors its debt portfolio for refunding opportunities and from time to time, the State has executed refundings, both current and advance, based on market conditions and other factors. Over the last five fiscal years, the State issued $2.05 billion in refunding bonds for total nominal savings of $164.9 million and present value savings of $133.7 million.



The chart above provides a summary of outstanding GO callable par amounts by fiscal year. The State's total outstanding GO callable par is about $4.8 billion including $200 million in GO BANs that are callable April 15, 2021 and mature six months later on October 15, 2021. Of the callable par, $11.9 million in currently callable and the remaining is callable in future years beginning in FY2021. As indicated in the chart, the callable par amounts also include certain portions of taxable bonds that are callable without the make-whole-call (MWC) premium that is typically associated with taxable bonds.

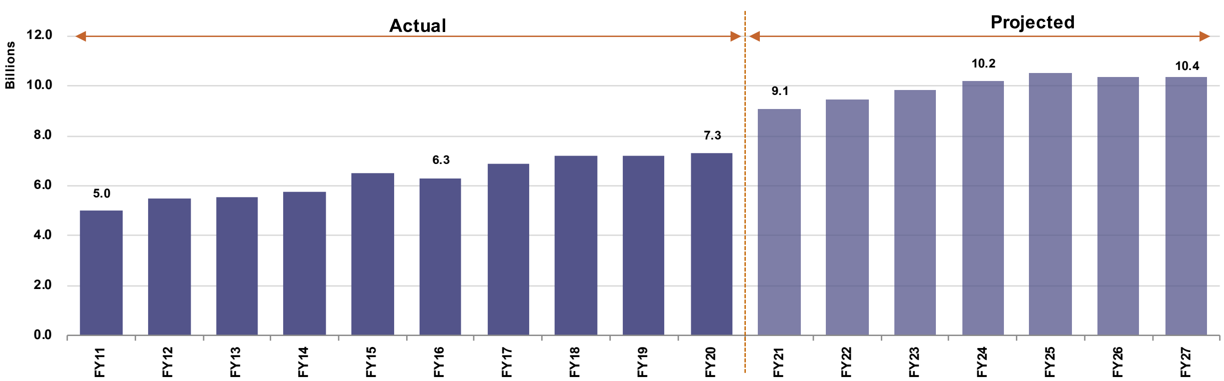
Pursuant to the criteria outlined in its Debt Management Policy, the State may pursue opportunities to refund callable bonds. However, with the elimination of tax-exempt advance refundings, the State may choose to wait until the call date to current refund bonds or explore other options such as a forward refunding on a case-by-case basis.

E. Multi-Year Program Anticipated/Intended Debt Issuance

Existing Debt and Anticipated Issuance

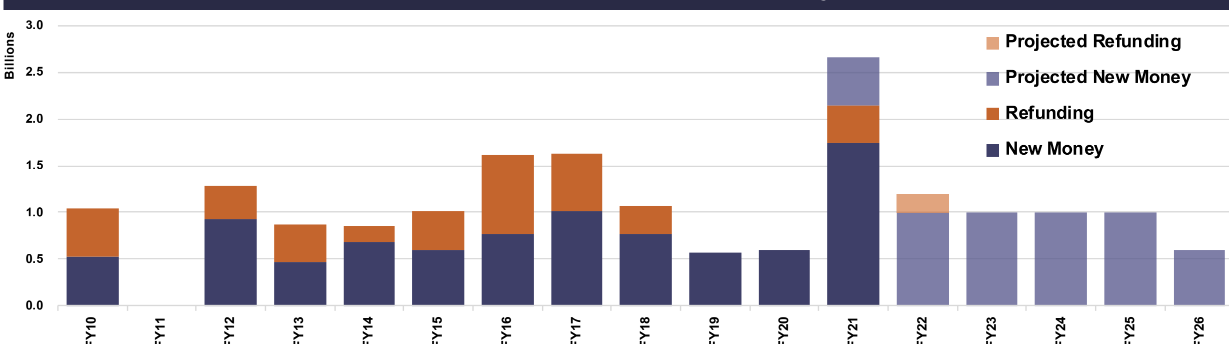
The State's annual issuance, and by relation the amount of GO debt outstanding, has increased significantly since 1990; more rapidly so in recent years. New money issuance in the last five fiscal years totaled $4.7 billion including $1.74 million in FY2021. The amount of debt supported by the general fund increased by 35.5% over the five-year period.

Current and Projected Outstanding General Obligation Bonds



The State tentatively plans to issue at least $200 million in long-term GO bonds to refund the remaining Series 2020 GO BANs. Additionally, the State plans to issue $5.725 billion new money GO bonds through FY2027. These GO bonds are anticipated to fund infrastructure projects throughout the State.

Bond Issuance – Historical and Projected



Unissued but Authorized Debt

The total amount of authorized but unissued State GO bonds as of October 31, 2020 is $3.3 billion.

F. Measuring Debt Burden

Debt ratios form the basis for peer comparison and allow the State to measure and track its debt burden over time. It is important to note that the State is unique in that it funds capital needs that are more typically funded by local municipal entities (as described previously). As such, the State's debt burden metrics are higher in comparison to medians and peers. The State's affordability metrics since FY2015 are provided below. In addition, the State is projected to issue $5.725 billion in new money GO Bonds through FY2027 and the projected impact on affordability metrics is shown in the table as well.

Historical and Projected (six-years) Metrics

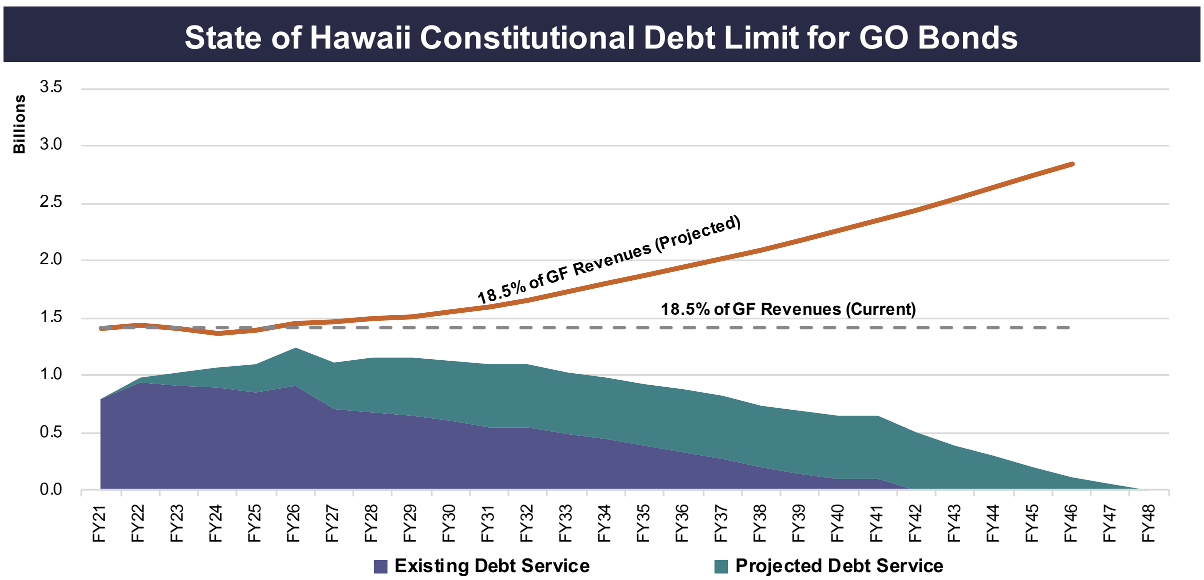
AFFORDABILITY METRICS	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	11.5%	11.0%	10.8%	10.2%	10.5%	10.1%	10.8%	13.9%	13.6%	13.7%	13.7%	15.8%
Pension contribution to annual revenues	6.8%	6.7%	6.7%	6.7%	6.8%	8.0%	9.3%	9.9%	9.6%	9.5%	9.5%	10.0%
OPEB contribution to annual revenues	5.9%	7.9%	9.2%	7.9%	8.9%	8.0%	9.2%	10.0%	9.8%	9.8%	9.8%	10.4%
All annual obligations to annual revenues	24.2%	25.6%	26.7%	24.7%	26.2%	26.1%	29.3%	33.8%	33.0%	33.0%	33.1%	36.1%
Annual debt service to annual appropriations	13.2%	12.5%	12.0%	11.0%	12.0%	10.5%	10.2%	13.1%	13.4%	13.7%	13.5%	14.2%
Pension contribution to annual appropriations	7.8%	7.7%	7.4%	7.1%	7.8%	8.3%	8.7%	9.3%	9.4%	9.5%	9.3%	9.0%
OPEB contribution to annual appropriations	6.7%	9.0%	10.1%	8.4%	10.2%	8.3%	8.7%	9.4%	9.6%	9.8%	9.6%	9.3%
All annual obligations to annual appropriations	27.6%	29.3%	29.5%	26.6%	30.0%	27.1%	27.7%	31.9%	32.4%	33.0%	32.4%	32.5%
Debt per capita	$4,594	$4,934	$4,869	$5,052	$5,120	$5,192	$6,447	$6,690	$6,927	$7,144	$7,346	$7,187
Debt per capita (Adjusted)	$2,799	$3,003	$2,962	$3,070	$3,110	$3,152	$3,911	$4,057	$4,199	$4,329	$4,450	$4,352
Pension UAAL per capita	$3,274	$3,498	$5,299	$5,109	$5,231	$5,640	$5,688	$5,719	$5,732	$5,723	$5,691	$5,645
OPEB UAAL per capita	$5,128	$5,482	$5,485	$5,280	$5,382	$5,500	$5,545	$5,573	$5,583	$5,573	$5,541	$5,497
Debt as a % of state GDP	8.3%	8.5%	8.0%	8.4%	8.4%	9.6%	12.4%	12.4%	12.4%	12.4%	12.4%	11.7%
Debt as a % of state GDP (Adjusted)	5.0%	5.1%	4.9%	5.1%	5.1%	5.8%	7.5%	7.5%	7.5%	7.5%	7.5%	7.1%
Pension UAAL as a % of state GDP	5.9%	6.0%	8.7%	8.5%	8.6%	10.4%	11.0%	10.6%	10.3%	9.9%	9.6%	9.2%
OPEB UAAL as a % of state GDP	9.2%	9.4%	9.1%	8.8%	8.8%	10.2%	10.7%	10.3%	10.0%	9.7%	9.3%	9.0%
Debt as a % of personal income	9.9%	10.0%	9.5%	9.5%	9.1%	8.0%	10.4%	10.4%	10.4%	10.4%	10.4%	9.8%
Debt as a % of personal income (Adjusted)	6.0%	6.1%	5.8%	5.8%	5.5%	4.9%	6.3%	6.3%	6.3%	6.3%	6.3%	6.0%
Pension UAAL as a % of personal income	7.0%	7.1%	10.4%	9.6%	9.3%	8.7%	9.1%	8.9%	8.6%	8.4%	8.0%	7.7%
OPEB UAAL as a % of personal income	11.0%	11.1%	10.7%	9.9%	9.5%	8.5%	8.9%	8.6%	8.4%	8.1%	7.8%	7.5%
Pension UAAL as a % of total GF revenues	78.1%	78.1%	113.7%	103.7%	99.3%	95.9%	108.5%	113.4%	108.0%	104.2%	101.3%	102.7%
OPEB UAAL as % of total GF revenues	122.4%	122.4%	117.8%	107.2%	102.2%	93.6%	105.7%	110.5%	105.2%	101.5%	98.7%	100.0%

Note: Projected metrics assume issuance of $5.725 billion of additional new money GO bonds during the projection period (see anticipated debt above)

Relevant Affordability Metrics

The table on the prior page offers several metrics to measure debt burden and evaluate affordability. Many of the metrics are used for peer/median comparison which constitutes an alternate method to measure debt level and affordability. Some of the most relevant metrics are discussed below.

1. <u>Constitutional Debt Limit for GO Bonds (Per Constitutional Calculation):</u> The State's constitution limits maximum annual debt service on aggregate outstanding GO bonds to 18.5% of the average of general fund revenues for the three preceding years. Current projection of the State's future GO debt reflects capacity under the 18.5% ceiling (orange line in the chart below). Projected debt service is estimated to reach a maximum of 15.9% of projected general fund revenues (average for three preceding years) in FY2026.



2. <u>Annual debt service payments to annual revenues or Annual debt service payments to annual appropriations:</u> Both of these ratios indicate the percentage of the State's general fund budget that is dedicated to fixed costs such as debt service payments. It is a measure of financial flexibility available within the State's general fund. For FY2020, an estimated 10.1% of general fund revenue was utilized to service debt, down from 11.5% in FY2015. Fairly strong growth in State's revenues in the last three years has resulted in the improvement in this ratio. However, with the projected declines in revenue for the next few years owing to the COVID-19 pandemic and additional debt service from the planned new money issuance, this ratio is expected to increase over the projection period to 15.8% by FY2026 before starting to moderate. The State is exploring revenue enhancement measures not reflected in the projections incorporated in this report. If enacted, these will have a favorable impact on the debt service-to-annual revenues ratio in the near-term. In the long-term we anticipate economic and revenue recovery post pandemic.

   Debt service payments account for 10.5 % of FY2020 general fund expenditures, down from 13.2% in FY2015. This ratio is also expected to increase over the projection period to 14.2% by FY2026 before starting to moderate. General fund expenses are higher in FY2020 as well as the upcoming biennium due to sizeable COVID-19 related expenses. These expenses reflect the State's commitment to safety of its residents and tourists, as reviving travel will be the key to financial recovery.

It is reemphasized that forecasting revenue and budgets has been particularly challenging this year due to uncertainty surrounding the COVID-19 pandemic as well as uncertainty regarding stimulus legislation. The revenue and budget projections included in this report are conservative and they may continue to evolve in response to the caseload and situation on the group. The winter 2020 COVID-19 surge on the West coast has hindered reopening plans for the State adding yet another variable to the budgeting challenge in the current environment.

Pension and OPEB Contributions: The general fund's contribution towards pension and OPEB are also categorized as "fixed costs". Accounting for these contributions, approximately 26.1% of the State's general fund revenue for FY2020 supports fixed costs, up from 24.2% in FY2015. Act 17, effective July 1, 2017 enacted substantial increases in employer contribution rates to the State's Employee Retirement System (ERS) which was phased in over a period of four years. Per the Act, employer contributions for police and firefighters will be increased to 41% by FY2021 from 25% in FY2017, and for all other employees to 24% by FY2021 from 17% in FY2017. The State expects to continue to make contribute 100% of required contribution towards these pension plans.

Act 268 which was enacted in 2013 required employer contribution for the State's OPEB plan to be equal to the annual required contribution (ARC) determined by an actuary commencing FY2019. The State has suspended the Act 268 UAAL prefunding payments for all public employers starting in FY2021 in order to help address budget shortfalls resulting from the impacts of the COVID-19 pandemic. Future fiscal years' suspensions will be through legislation proposed during the 2021 session. The duration of the suspensions is currently planned for the period from FY2021 through FY2026 and is subject to change in the future as the State may attempt to restart the full funding sooner, if possible. The impact of the suspension on unfunded OPEB liability and future required contributions has not been determined by the State actuary.

As the State ramps up its pension contributions through FY2021 as planned and continues to fund its OPEB requirements (apart from the prefunding amount), fixed costs are projected to increase to 33.0% in FY2024. Note this is not adjusted for OPEB prefunding amount as revised actuarial report is not available yet.

3. Debt as a percentage of State GDP: This ratio is a measure of financial leverage provided by the State's economy and its ability to repay debt based on the goods and services produced in its economy. Debt-to-GDP is 9.6% for FY2020 which is higher than other states primarily due to State funding of K-12 education that is normally funded at the local level in other states. As B&F executes its borrowing program over the next few years, debt levels are projected to peak at 12.4% of GDP in FY2021.
Although not direct debt, the unfunded actuarial accrued liability (UAAL) for pension and OPEB are mandatory long-term obligations, and as such get treated akin to debt for financial analysis. The pension UAAL and OPEB UAAL account for about 10.4% and 10.2% of the estimated 2020 state GDP. The significant increase in unfunded pension liabilities in FY2017 is attributable to changes in certain

actuarial assumptions – (1) Hawaii Employees' Retirement System Board's decision to reduce future annual earnings rate for assets held in the pension fund to 7.0% from 7.5%, and (2) increased life expectancy for retirees The higher employer contribution schedule for pension adopted by the State in 2017 has enabled it to offset the effects of the lower earnings rate assumption described above and achieve 100% funded ratio for pension liabilities in less than 30 years from now.

The OPEB UAAL was as high as 16.4% of State GDP in FY2013 compared to the 10.2% in FY2020. OPEB reforms (mandating 100% of actuarially determined required contribution including prefunding) adopted by the State over the last few years made a significant impact in addressing these unfunded liabilities to achieve 100% funded ratio in about 30 years. As noted above, the temporary suspension of the prefunding may impact the valuations however the exact impact is not yet known.

4. Debt as a percentage of personal income: Total personal income for a state provides the basis for evaluating its revenue generating ability. The debt-to-personal income metric measures a state's ability to continually generate sufficient revenues to repay debt. For FY2020, B&F's debt-to-personal income ratio is 8.0% and is projected to increase to 10.4% by FY2021. Pension UAAL and OPEB UAAL are 8.7% and 8.5% of the estimated FY2020 total personal income. The ratio is similar to the debt-to-GDP ratio and therefore follows the same trend as discussed above.

5. Debt per capita: This ratio is a measure of the debt burden shared by each resident of a state on average. Since it accounts for all residents with no specificity for age, income or employment, the ratio is not as efficient in measuring ability to repay debt but is still meaningful for peer comparison. The State's debt per capita is $5,192 for FY2020. It is projected to increase to about $7,346 per capita by FY2025 as the State executes the projected borrowing program. On a per capita basis, pension and OPEB UAAL add another $5,700 and $5,500, respectively, to B&F's obligations.

   As discussed in detail in the next section, the State's debt levels are very high. As such, the State needs to carefully monitor its debt issuances in relation to potential credit impact which may lead to borrowing cost increases, especially since rating agencies are taking a very conservative view of future financial performance in light on the COVID-19 pandemic. It is important to note that debt burden is one of several evaluation factors which determine the State's ratings and a holistic review will take into account other pertinent criteria besides leverage.

Median Comparisons

Moody's publishes an annual Debt Median Report including debt ratios for all 50 States and the sector means and medians. The report provides a broader perspective on debt levels and basis for affordability through the comparison of Hawaii's debt burden to other states across the country. The following table summarizes the State's GO debt metrics alongside Moody's 2019 medians data. The 50-state FY2019

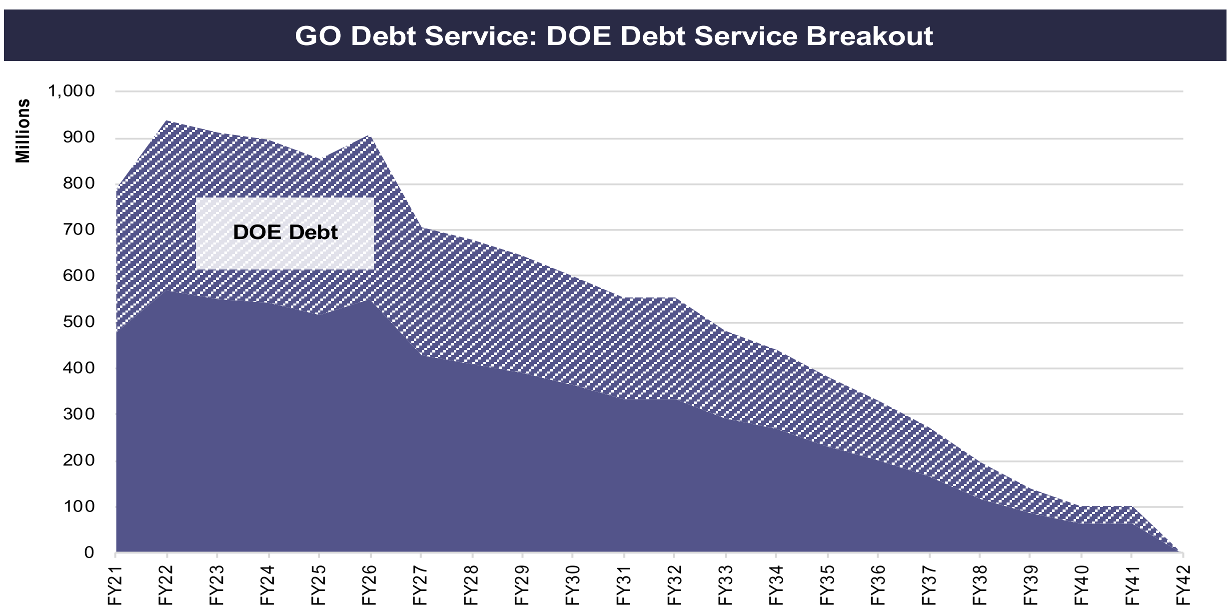
DEBT METRICS	MOODY'S STATES SECTOR DEBT REPORT			STATE OF HAWAII	
2019	Median	Average	Max	Actual	Adjusted*
Debt Service Ratio	3.80%	4.30%	14.70%	12.04%	7.28%
Debt as a % of State GDP	1.91%	2.34%	8.28%	8.42%	5.11%
Debt as a % of Personal Income	2.00%	2.60%	9.60%	9.08%	5.52%
Debt per Capita	$1,071	$1,506	$6,637	$5,120	$3,110

* Adjusted to exclude estimated debt incurred for K-12 school system; According to Moody's, Debt Service Ratio is annual debt service as a % of revenues

median for debt as percentage of state GDP and debt as a percentage of personal income is 1.91% and 2.0%, respectively. On a per capita basis, the 50-state median is $1,071. As discussed previously, the State's general fund supports significant capital needs for local municipalities in contrast to other states in the nation. As such, the State's general fund supported debt metrics are considerably higher than the states medians and are among the highest debt levels seen among states (rank in the top 3).

Unlike other states, Hawaii has the responsibility for funding the K-12 school system, hospital system, and penitentiary capital needs which contributes to the State's high debt levels. To account for this unique situation and aid a more accurate comparison with State medians, the affordability metrics table also presents Hawaii's debt metrics as adjusted for the largest of these obligations: Department of Education (DOE) K-12 related obligations.

The following graph reflects the estimated DOE related debt service in relation to the State's overall GO debt portfolio. The *adjusted* debt ratios remain high when benchmarked against states' medians. With the modified metrics, the State still ranks among the top ten states with the highest debt levels. Note that the size and purpose of debt programs vary greatly for each state since they are driven by several different factors and the resulting medians should be viewed as such.



G. Discussion on Debt Affordability, Potential Concerns and Recommendations

The State has planned significant debt issuances totaling $5.725 billion during the multi-year plan. With the additional debt issuances, the State is projected to remain below the constitutional debt limit based on current revenue projections. Taking into account the projected GO bond issuances, general fund revenues would have to decline by more than 11.7% from their current levels or 14.0% from their projected levels, in the year of peak debt service, before the debt limit is breached. Barring any other extraordinary events or prolonged duration of the COVID-19 pandemic, legal limits are unlikely to hinder the State's ability to borrow in accordance with the projected debt plan.

From a broader affordability perspective, projected revenues are sufficient to cover existing and projected debt service and anticipated pension and OPEB contributions. With the projected underperformance in revenues from softness in travel demand and increase in expenses due to COVID-19 these ratios may be adversely impacted. With a lot of uncertainly around future caseload and COVID-19 surges, reopening of economies and resurgence of travel across the local, national and international landscape, future budgetary actions may be needed for the State to support its financial position.

As per projections, an additional 4.3% of general fund revenues is projected to be designated to pension and other benefits through FY2026 to cover the additional contributions. This increase in fixed costs may limit the State's financial flexibility, particularly its ability to devote resources towards debt service on future debt among other operational needs and constraints. That being said, the State's revenue projections, despite some softness for the next 2-3 years, reflects sufficient collections to cover projected debt service and retirement contributions.

From a credit perspective, the State is at the highest level of debt burden under the rating agency methodologies. The State's affordability metrics for general fund debt as evaluated on the basis of economic factors (debt-to-personal income, debt-to-GDP and debt-per-capita) are among the highest in the nation. Given the unique nature of the State's responsibilities, the State will remain at the high end of the debt burden spectrum and there is limited comparability to other states. We note here that all rating analysts acknowledge the State's distinct funding needs when comparing it to other states and sector medians. Given the State's AA-category ratings it does not seem that ratings are penalized for its high debt ratios. Instead, the focus is on the State's ability to manage its operations and budget while funding the high fixed costs related to debt and retiree benefits. Maintaining financial flexibility and preserving liquidity and reserve levels while funding its obligations will be key to future credit ratings.

It is important to note, however, that the historical trend of the State's debt and affordability metrics indicates that borrowing has outpaced economic growth in the State. Given the State's desire to obtain the highest possible credit ratings, the State should continue to monitor its debt levels to proactively avoid negative rating pressure in the future.

As reflected in the analysis above, the State is able to afford the planned additional debt issuances based on projections. As long as new issuances keep pace with economic expansion and revenue recovery and growth, debt affordability concerns are mitigated. However, in the near-to-medium term, it will be crucial to consider revenue generating initiatives and cost-cutting measures in order to maintain contingency in the budget to absorb expected and unexpected increases in general fund expenditures as well as to offset decrease in revenues owing to the COVID-19 pandemic and/or an economic recession. Given the revenue uncertainty for the next few years and the high retiree benefits, prioritizing essential capital projects and evaluating projects that can be deferred until revenues rebound and the full budgetary impact of pension and OPEB costs are absorbed, will preserve financial flexibility during the projection period and will position the State to manage through future financial shocks and economic cycles, just as past fiscal prudence and financial strength has enabled the State to navigate the current pandemic while maintaining its credit quality.

III. Department of Transportation – Airports

The Department of Transportation (DOT) maintains and operates the transportation facilities of the State and are carried out through three primary divisions: Airports, Harbors and Highways. The Department of Transportation, Airports Division (DOT-Airports) supervises and controls all State airways and State owned or managed airports and other air navigation facilities with the exception of private federal facilities. Nearly all non-military passenger traffic throughout Hawaii passes through the Airports System. The System includes five primary and ten secondary airports. The primary airports are Daniel K. Inouye International (on the Island of Oahu), Kahului (on the Island of Maui), Hilo International and Ellison Onizuka Kona International at Keahole (both on the Island of Hawaii), and Lihue (on the Island of Kauai).

Airports system revenues consist of operating revenues which include aeronautical revenues (landing fees, terminal rentals and user fees, aviation fuel tax and airports system support charges) and non-aeronautical revenues (non-aeronautical rentals, concession fees including duty-free, retail, and food and beverage revenues as well as parking revenues and ground transportation). Non-operating revenues include interest income, federal operating grants, passenger facility charges, rental customer facility charges, debt service support charges, and other revenues.

DOT-Airports' primary financing program consists of *airport system revenue bonds* secured by net available revenue. Net available revenue represents, generally, total operating revenues less total operating expenses excluding depreciation. DOT-Airports also issues COPs and enters into financing agreements such as loans and leases, as required. The COPs are also secured by the same net revenues however their claim is subordinated to revenue bonds. The rates and charges prescribed by the DOT-Airports on participating airlines are determined by a cost center residual hybrid rate-setting methodology. Under this methodology, the airlines are charged landing fees to allow DOT-Airports to fully recover operating and capital costs associated with the airfield facilities (runways, taxiways, and other facilities), net of any grant reimbursements. Costs associated with the terminal facilities are recovered through aeronautical rentals and user fees. System-wide deficit, if any, will be recovered via airline system support charges under the Airline Lease Extension Agreement. This provides DOT-Airports the flexibility to set rates such that it is fully compensated for all operating expenses including debt service.

As such, DOT-Airports benefits from relative financial stability in the fact that as operating costs and debt service increase, there is a corresponding increase in operating revenues sufficient to cover the increase in costs. However, as debt service costs increase, the cost to the airlines to operate at the airports will also increase which could eventually lead to airlines reducing service, particularly if those costs are materially higher than at other U.S. airports. This risk is mitigated by the high level of demand to, from, and in-between the islands, and the lack of alternative options for such travel, but airlines will generally deploy resources to their most profitable routes. Under normal circumstances, airline costs are an important measure of the ability of DOT-Airports to afford new debt. However, until the COVID-19 pandemic ends and we return to a new normal of enplanement levels, whatever those may be, cost per enplanement (CPE) may not be the ideal metric to gauge airline cost or affordability. We anticipate CPE to rise for most airports across the country due to the current travel trends.

DOT-Airports is authorized under Act 226, SLH 2008 to impose a Customer Facility Charge (CFC) on car rentals at the airport, effective September 1, 2008. The rate was increased as per Act 104, SLH 2011 and is currently set at $4.5 per day. The CFC has no expiration. Under Section 261-7, HRS, the DOT-Airports has the power to adjust the CFC rate when necessary, without rule-making or legislative approval. The CFC revenues can be used for enhancement, renovation, operation, and maintenance of existing rental car facilities and the development of new rental car facilities and related services to better serve visitors and residents. DOT-Airports initiated its consolidated rental car facilities (ConRACs) program in 2011 funded by a combination of CFC revenues, bond proceeds from *CFC revenue bonds* and other debt secured by CFC revenues. The CFC revenue bonds are issued under a separate Master Trust Indenture and are secured by a pledge of CFC revenues and other payments related to rental car activity at the Airports. The CFC revenue bonds do not have a pledge of general airport revenues. DOT-Airport's ConRAC System consists of a completed ConRAC at Kahului, a ConRAC under construction at Honolulu expected to be completed by April 2022 and a ConRAC in the initial planning stages at Lihue.

DOT-Airports also issues special facility revenue bonds payable from leasing revenues collected from airlines. Given the payment source of special facility revenue bonds, these bonds have been excluded from DOT-Airports' affordability discussion.

A. Debt Profile

Including the most recent issuance in October 2020, DOT-Airports currently has twelve series of senior lien general airport revenue bonds outstanding for a total par amount of $1.61 billion and three series of subordinate lien COPs outstanding for a total par amount of $186.4 million dollars.

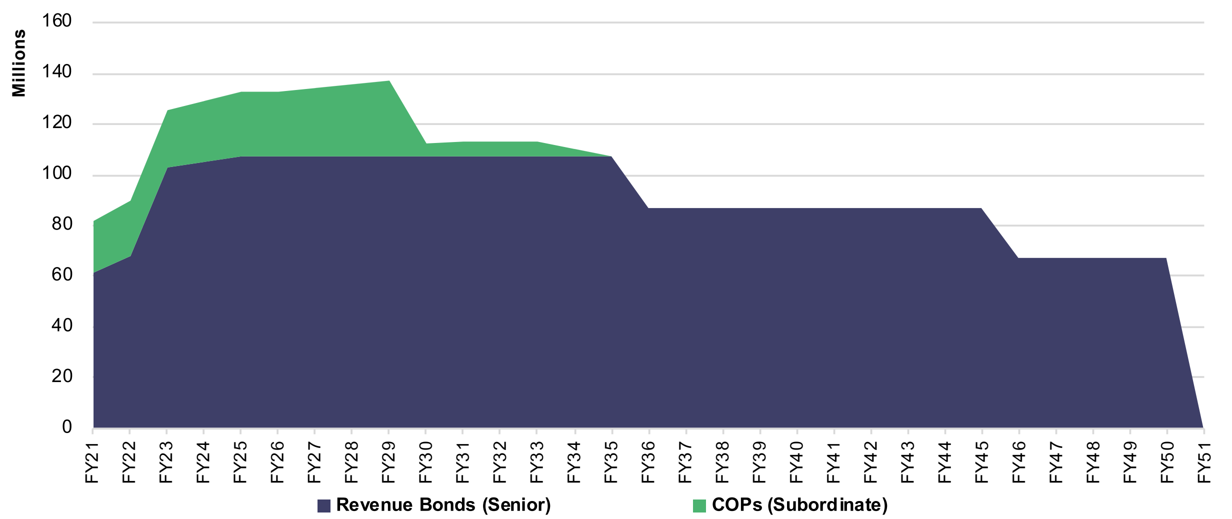
Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Par Call Date	Callable Par
Senior Lien Airport System Revenue Bonds							
Series 2011	AMT	300,885,000	10/4/11	7/1/24	135,080,000	7/1/2021	56,615,000
Series 2015A	AMT	235,135,000	11/18/15	7/1/45	235,135,000	7/1/2025	235,135,000
Series 2015B	Non-AMT	9,125,000	11/18/15	7/1/45	9,125,000	7/1/2025	9,125,000
Series 2018A	AMT	388,560,000	8/22/18	7/1/48	388,560,000	7/1/2028	378,760,000
Series 2018B	Non-AMT	26,125,000	8/22/18	7/1/27	26,125,000	NC	-
Series 2018C	Non-AMT	93,175,000	4/7/20	7/1/28	93,175,000	NC	-
Series 2018D	Non-AMT	142,150,000	4/7/20	7/1/34	142,150,000	7/1/2030	100,030,000
Series 2020A	AMT	113,140,000	10/21/20	7/1/45	113,140,000	7/1/2030	110,220,000
Series 2020B	Non-AMT	165,885,000	10/21/20	7/1/50	165,885,000	7/1/2030	165,885,000
Series 2020C	Taxable	20,295,000	10/21/20	7/1/50	20,295,000	7/1/2030	20,295,000
Series 2020D	Non-AMT	184,855,000	10/21/20	7/1/39	184,855,000	7/1/2030	178,095,000
Series 2020E	Taxable	98,315,000	10/21/20	7/1/30	98,315,000	-	-
Sub-Total	**-**	**-**	**-**	**-**	**1,611,840,000**	**-**	**1,254,160,000**
Subordinate Lien Certificate of Participation							
Series 2013	Non-AMT	167,740,000	12/19/13	8/1/28	133,910,000	8/1/2023	98,215,000
Series 2016	Non-AMT	8,057,000	4/13/16	8/1/25	4,673,919	8/1/2018	4,673,919
Series 2017	Non-AMT	51,500,000	3/31/17	8/1/34	47,847,415	8/1/2019	51,473,427
Sub-Total	**-**	**-**	**-**	**-**	**186,431,335**	**-**	**154,362,346**
Customer Facility Charge Revenue Bonds							
Series 2017	Taxable	249,805,000	7/27/17	7/1/47	234,430,000	7/1/2027	193,770,000
Series 2019	Taxable	194,710,000	8/27/19	7/1/47	189,795,000	7/1/2029	140,860,000
Sub-Total	**-**	**-**	**-**	**-**	**424,225,000**	**-**	**334,630,000**
Total	**-**	**-**	**-**	**-**	**2,222,496,335**	**-**	**1,743,152,346**

The COPs were issued to fund energy conservation projects and in addition to being secured by a subordinate lien on the net revenues of the airport system they are also secured by the improvements funded by these COPs. Energy savings generated from the projects are sufficient to cover debt service related to the COPs. In addition, DOT-Airports has $424.2 million in CFC revenue bonds outstanding.

B. Debt Service Chart

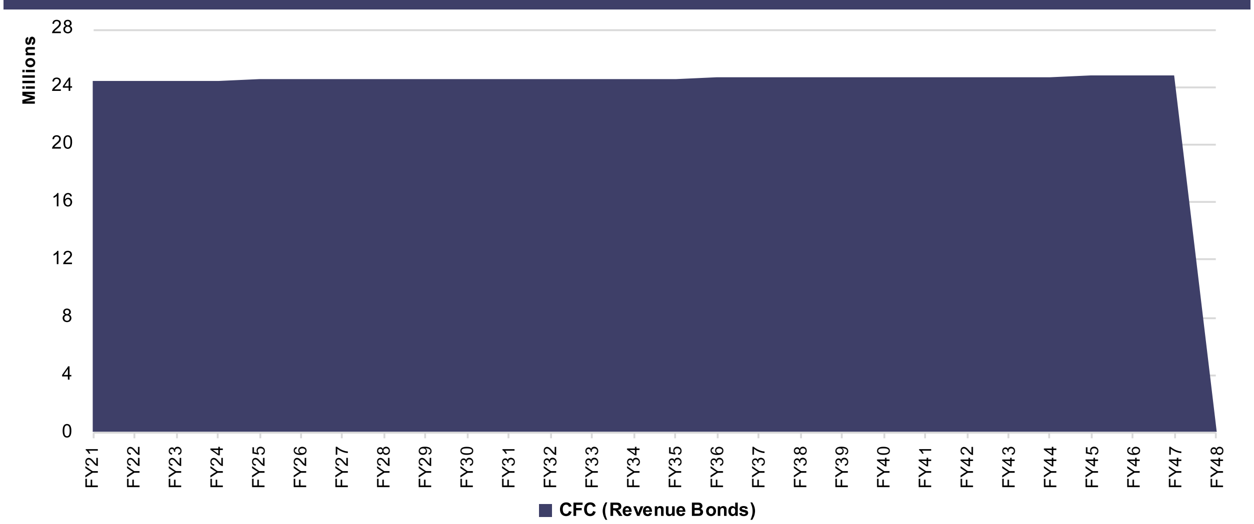
DOT-Airports' debt service profile for debt supported by airport system revenues was restructured with the 2020 bonds to reduce near-term debt service cost. Even after accounting for the new money issuance, the airport was able to reduce annual debt service for FY2021 and FY2022 by $47 million and $40.4 million respectively. Approximately 23% of revenue bond principal is paid down over the next ten years. Total annual debt service on the senior lien revenue bonds is approximately $107.5 million per year through 2035 stepping down to $87.2 million per year through 2045 and $67.2 million thereafter through final maturity in 2050.

DOT-Airports Outstanding Debt Service (Airport System Revenues)



The debt service profile for CFC revenue debt consists of $14.2 million level annual debt service payments until the final maturity in 2047.

DOT - Airports Outstanding Debt Service (CFC Revenues)



C. Credit Ratings

The COVID-19 pandemic had the most immediate and severe impact on air travel resulting in several rating actions across the sector for both airports as well as airlines. S&P lowered DOT-Airports' rating by one notch to 'A+' along with a negative outlook. The downgrade and negative outlook reflect S&P's expectations that air traffic will be materially depressed and unpredictable, pressuring financial metrics over the next several years. Fitch affirmed the ratings owing to the essentiality of air services to the State's island system as well as robust liquidity levels but assigned a negative outlook due to uncertainty in timing and magnitude of recovery from the current traffic levels. Moody's affirmed all ratings and outlooks based on the DOT-Airports' ability to weather continued depressed demand caused by the COVID-19 outbreak from a combination of strong liquidity, federal support from the CARES act, the 2020 debt service restructuring, the expectation that demand for leisure travel to the island remains relatively robust and will translate into stronger recovery when quarantine restrictions are relaxed and the contractual protections provided by the residual hybrid airline agreement. Despite the recent rating actions and outlook changes, DOT-Airports still maintains A-category ratings on all outstanding debt.

Department of Transportation Airport System Credit Ratings			
	Moody's	**S&P**	**Fitch**
Airport System Revenue Bonds	A1 Stable	A+ Negative	A+ Negative
Certificates of Participation	A2 Stable	A Negative	A Negative

Additional leverage to complete ongoing projects as well as new projects, especially if recovery in traffic and economy are slow, could lead to additional pressure on the ratings.

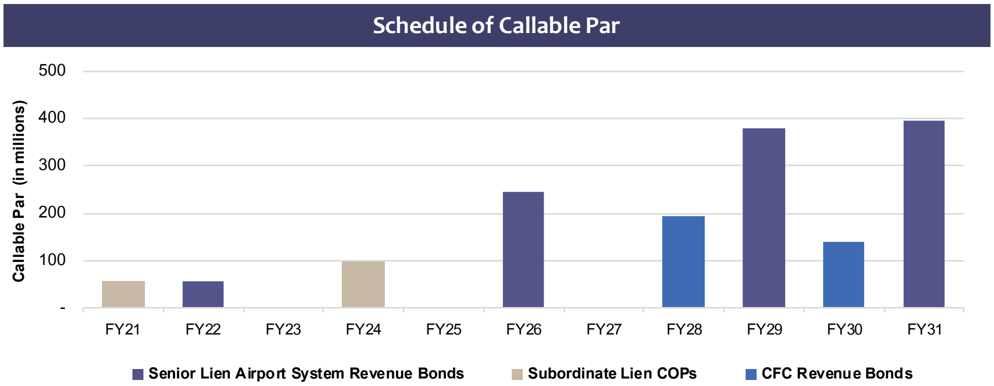
Department of Transportation CFC Credit Ratings			
	Moody's	**S&P**	**Fitch**
CFC Revenue Bonds	A2 Stable	A- Negative	A Stable

Fitch affirmed the CFC revenue bonds rating and Moody's is yet to evaluate the bonds in light of the COVID-19 pandemic. S&P downgraded the bonds by two notches to 'A-' and assigned a negative outlook due to potentially prolonged weak or unpredictable rental car activity as a result of COVID-19 outbreaks and lingering associated effects making effective financial budgeting and planning challenging coupled with a narrow pledged revenue stream and exposure to financially stressed rental car companies. These concerns are somewhat mitigated by limited future capital needs and an experienced and effective management team.

D. Schedule of Callable Bonds

The following chart provides a summary of callable DOT-Airports debt along with the par amounts and call dates. Of the total senior lien revenue bonds outstanding, $1.3 billion represents callable par with future call dates starting 2021. Of this, Series 2011 has the earliest call date of July 1, 2021 with $56.6 million callable at that time. DOT-Airports recently, executed a current refunding of all remaining Series 2010A bonds and a taxable advance refunding of a portion of the Series 2011 bonds.

The CFC revenue bonds were issued with a 10-year par call and will be callable in FY2028 and FY2030.



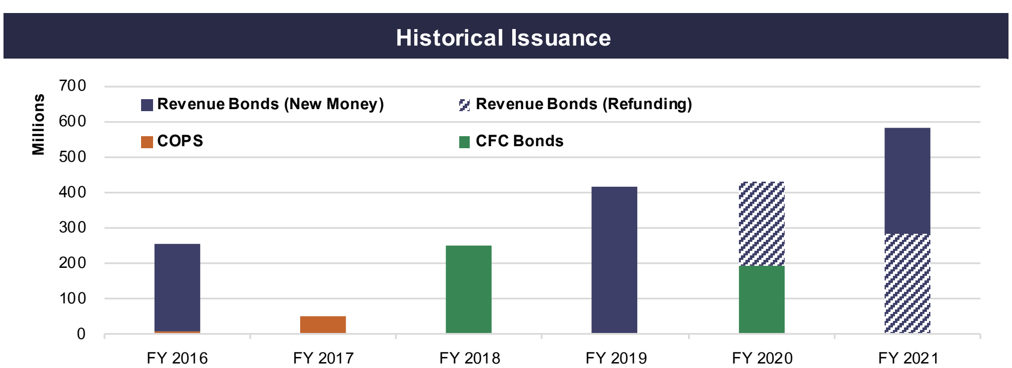
In addition to the above, $56.1 million of the subordinate lien COPs are currently refundable at the option of DOT-Airports and another $98.2 million COPs outstanding may be refundable after the call date in August 2023.

Pursuant to the criteria outlined in its Debt Management Policy, DOT-Airports may pursue opportunities to refund callable bonds.

E. Multi-Year Program Anticipated/Intended Debt Issuance

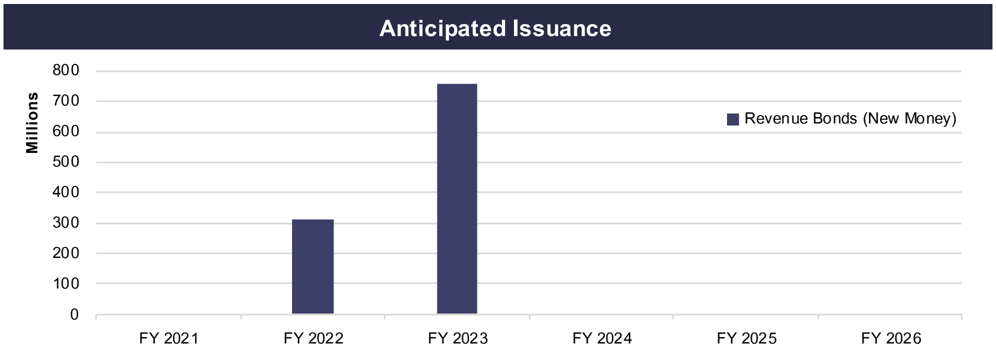
Existing Debt

DOT-Airports currently has $1.61 billion of outstanding senior lien airport system revenue bonds as reflected above. DOT-Airports' most recent Series 2020 airport system revenue bonds were issued to fund capital projects as well as to refund Series 2010 and a portion of Series 2011 bonds. Prior to that, the Series 2018 bonds were also issued to fund capital projects as well as forward refund a portion of Series 2010 bonds. The last COP private placement was executed in FY2017 in relation to energy savings projects. The first series of CFC revenue bonds was issued in FY2018 followed by a second series in FY2020.



Anticipated Debt

As DOT-Airports makes progress on its airport capital program it is anticipated that new debt may need to be issued to fund these capital needs. DOT-Airports may issue approximately $1.07 billion in airport system revenue bonds over the next six years. A portion of that will be used to complete ongoing projects with the remaining attributable to new projects from 2022-2026. These may be deferred depending on traffic and economic conditions.



Unissued but Authorized Debt

DOT-Airports has a total of $1.069 billion in authorized but unissued revenue bonds and $54.0 million in additional authorized but unissued CFC revenue bonds.

F. Measuring Debt Burden

Last Full Fiscal Year and Projected (six-years) Metrics

AFFORDABILITY METRICS (Airport Revenue Debt)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	25.9%	22.0%	21.1%	32.7%	31.7%	33.9%	32.7%
Annual debt service to annual appropriations	28.1%	23.4%	26.0%	35.1%	35.7%	36.2%	35.0%
Senior lien debt service coverage	0.81x	0.02x	1.43x	1.07x	1.26x	1.09x	1.10x
Total debt service coverage	0.65x	0.02x	1.09x	0.92x	1.09x	0.95x	0.95x
Senior lien debt service coverage (Adjusted Net Revenues)	2.05x	2.63x	1.96x	1.39x	1.61x	1.40x	1.39x
Total debt service coverage (Adjusted Net Revenues)	1.64x	1.80x	1.49x	1.20x	1.40x	1.22x	1.21x
Cost per Enplanement	11.09	21.09	17.24	15.77	17.42	16.93	16.99
Debt per Enplanement	103.93	221.21	148.86	162.36	149.63	141.64	133.06
Liquidity – days' cash on hand	575 days	604 days	546 days	517 days	491 days	465 days	441 days

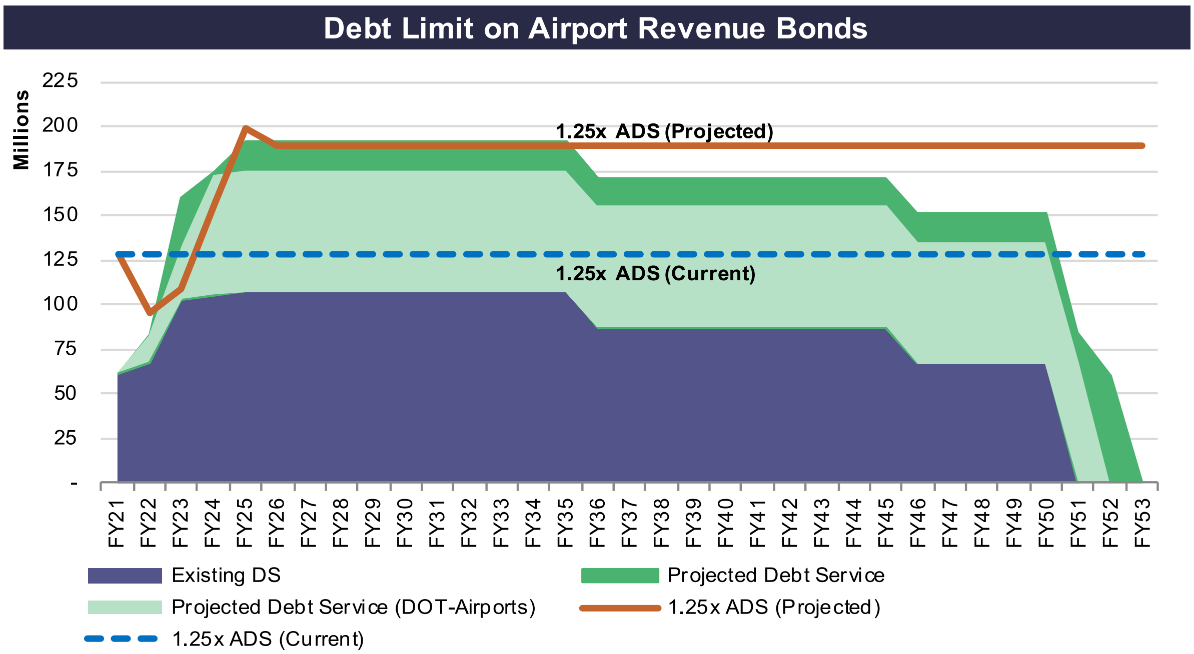
Note: Projected metrics assume issuance of $1.07 billion of additional airport system revenue bonds during the projection period (see anticipated debt above)

AFFORDABILITY METRICS (CFC Revenue Debt)	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Debt service coverage (Indenture)	2.80x	1.56x	2.53x	3.10x	3.28x	3.38x	3.48x
Debt service coverage (excluding rolling coverage fund)	2.36x	1.27x	2.21x	2.75x	2.93x	3.03x	3.13x
CFC Transaction Days ('000)	12,483 days	6,904 days	11,997 days	14,985 days	15,953 days	16,486 days	17,030 days

Note: No new CFC revenue bonds anticipated during the projection period.

Relevant Affordability Metrics

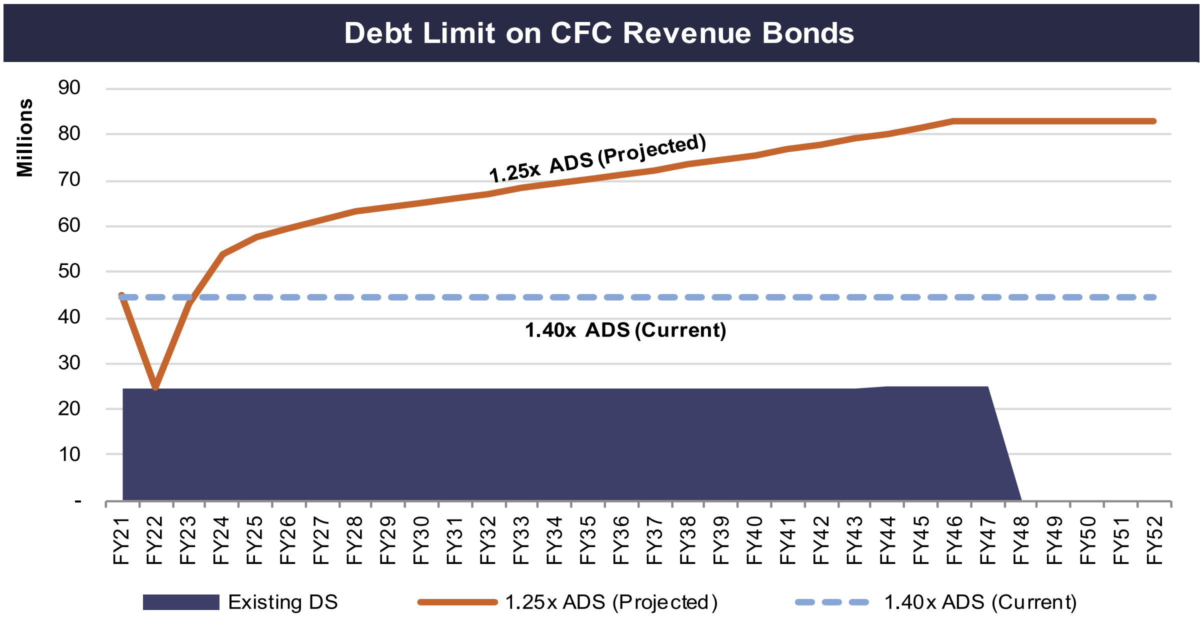
1. Certificate and Indenture Limitations: The Certificate of the Director of Transportation dated May 1, 1969 contains a rate covenant relating to DOT-Airports' airport system revenue bond debt. DOT-Airports shall impose rates and charges, which together with unencumbered funds on deposit in the Airport Revenue Fund at the end of the fiscal year certified as Revenues, should be sufficient to yield net revenues and taxes at least equal to 1.25 times debt service on all revenue bonds. The Certificate allows for the inclusion of the "Funded Coverage Account" in the computation of the rate covenant which is pre-funded at 25% of gross debt service.



DOT-Airports may issue approximately $1.07 billion in revenue bonds to support future capital projects. Any additional bonds are subject to an additional bonds test (ABT) wherein pledged revenues based on most recent audited fiscal year must be at least 1.25 times annual debt service on outstanding debt for the year as well as projected pledged revenues as estimated by a consulting engineer over a three-year period after close of construction must be at least 1.25 times annual debt service on all bonds then outstanding including the additional bonds. As reflected in the following chart, current revenues are expected to be at least equal to 1.25 times current debt service in compliance with the rate covenant (with existing debt service in purple less than the 1.25 times revenue threshold depicted by the blue dotted line). The projected debt service provided by DOT-Airports satisfies the ABT test (with the total debt service falling below the orange line representing the 1.25 times threshold in the chart).

As previously described, DOT-Airports employs a residual hybrid rate-setting methodology: essentially, the airlines fully compensate DOT-Airports for any operating expenses including debt service. Due to cost recovery mechanisms in place, DOT-Airports is anticipated to have sufficient revenues to meet the indenture coverage requirements for any planned debt issuances. To ensure the continued support of airlines, DOT-Airports will get all necessary concurrence and approvals on any new projects before proceeding.

The 1969 Certificate of the Director also permits the construction of special facilities, such as the ConRAC facilities being constructed at the various airports, and provides for the issue of bonds, such as the CFC revenue bonds under the CFC Indenture. All debt secured by CFC revenues, including the EB-5 loan, is issued pursuant to the CFC Indenture of Trust dated August 14, 2014, as amended and supplemented. As per the indenture DOT-Airports must set the CFC rate and collect such CFC revenues as well as any additional "deficiency payments" from the rental car companies so as to provide a 1.40 times debt service coverage including funds available in the rolling coverage fund. The rolling coverage account is pre-funded at 25% maximum annual debt service.



DOT-Airports currently has no plans to issue additional CFC revenue bonds. Any additional bonds are subject to an ABT test wherein projected CFC revenues as estimated by a consulting engineer over three-year period after final expenditure of capitalized interest must be at least 1.25 times maximum annual debt service on all bonds then outstanding including the additional bonds. As reflected in the chart above, current CFC revenues and funds in the rolling coverage account are expected to be at least equal to 1.4 times current debt service in compliance with the rate covenant (with existing debt service in purple less than the 1.4 times revenue threshold depicted by the blue dotted line). Should DOT-Airports plan to issues future CFC revenue bonds for additional ConRACs at Lihue or other airports with the system, the projected CFC revenues will be sufficient to pass the ABT test.

2. <u>Annual debt service payments to annual revenues and Annual debt service payments to annual appropriations:</u> Annual debt service is projected to be consistently, approximately 21% to 34% of annual revenues during the next six years. Annual debt service is projected to be approximately 24% up to 36% of annual expenditures. The ratios peak in the years of projected debt issuance and are stable thereafter as the operating revenue are projected to be flat or grow modestly after recovery from COVID-19 pandemic.

3. Debt service coverage: Debt service coverage is equal to net revenues, as defined in the Certificate, plus certain funds on hand and divided by principal and interest requirements for the fiscal year. Due to DOT-Airports' hybrid rate setting methodology, revenues shall always be sufficient to meet existing and projected debt service requirements on all airport revenue debt as well as pay projected operating expenses. Based on net revenues from operations alone, without including other sources and accounts available for debt service, senior lien coverage is below 1.0 times in FY2020 and FY2021, the two years most impacted by the COVID-19 pandemic. Including interest income, Coverage Account balance, and federal grants including CARES Act funding available for operations and debt service, the debt service coverage on senior lien debt is adequate over the projection period and the total debt service coverage on all senior and subordinate lien debt is also adequate. The projections assume that enplanements will be at their lowest levels in FY2021 (42% of FY2019 enplanements) and will gradually recover to FY2019 levels by FY2026 resulting in improved coverage and financial position over the projection period.

4. Liquidity – days' cash on hand: Days' cash-on-hand, a measure of liquidity, is unrestricted cash and investments plus discretionary reserves, divided by operating and maintenance expenditures and multiplied by 365. DOT-Airports anticipates maintaining current levels of unrestricted cash and investments which provide strong days' cash on hand. For FY2020, DOT-Airports is estimated to have reported 575 days' cash on hand providing significant liquidity to navigate a challenging period and for budgetary shortfalls in future fiscal years. Including balances in the operating reserve and the funded coverage account, DOT-Airports reported 729 days cash on hand for FY2020.

5. Cost per enplanement: CPE is airline-derived revenues (airline payments for the use of airport facilities in accordance with the adopted rates and charges methodology) divided by enplaned passengers. Actual dollar cost to airlines is projected to increase over the next few years as DOT-Airports funds capital projects and layers on additional debt service. The CPE metric, in particular, is projected to increase dramatically, not so much on account of higher debt but more so due to depressed enplanements levels in the next 2-3 years owing to the uncertainty around traffic and recovery from the COVID-19 pandemic. However, DOT-Airports' CPE levels are anticipated to remain competitive in the long run.

6. Debt per enplanement: Debt per enplaned passenger (DPE) is total debt divided by total enplaned passengers. DPE is projected to increase as DOT-Airports funds its capital projects. However, the spike in DPE in the next couple years is attributable to low enplanements levels due to the COVID-19 pandemic and is projected to level off as passengers return to air travel.

7. CFC debt service coverage: Based on FY2020 CFC collections and projected collections through FY2026, projected coverage on CFC revenue bonds is expected to be sufficiently high, that is, in excess of 2.0 times, with the exception of FY2021. The worst impact of the COVID-19 pandemic is expected to occur in FY2021 although the indenture-based coverage is still anticipated to be greater than 1.5 times, in compliance with the Rate Covenant without assessing any "deficiency payments" as described below. DOT-Airport has the authority to increase the CFC rate in the future, if needed. Similar

to airport revenue bonds program, DOT-Airports is made whole by rental car companies. If CFC revenues are insufficient, the rental car agencies must provide "deficiency payments" to cover all of costs under the indenture. Hence revenues are anticipated to be sufficient to meet debt service requirements on CFC bonds.

8. CFC transaction days: At all Hawaii airports, a CFC or user fee is imposed on each rental car user. A $4.5 CFC fee is collected per transaction per day. Transaction days is an estimate of total rental car transactions times the average number of days a car is rented. Transaction days declined by 22% in FY2020 relative to FY2019 and are expected to decline another 45% in FY2021. They are projected to recover to pre-COVID levels by FY2025 and grow at 1.5%-3.3% annually thereafter, in line with anticipated visitor volume.

Peer/Median Comparisons

It is important to note that DOT-Airports is relatively unique in that it is a system of airports rather than a single airport. As such, it is challenging to evaluate DOT-Airports among peer airports. Using Fitch's Analytic Comparative Tool (FACT) for U.S. Airports for FY2018, DOT-Airports compares favorably to the operational and financial medians reflected below.

DEBT AND OPERATING METRICS	DOT Airports FY 2020	DOT Airports FY 2018	FITCH AIRPORTS SECTOR FY2016 MEDIANS				
			All	Large Hub	Regional O&D	AA-Rated	A-Rated
Fitch Rating	A+	A+					
Enplanements	14,392	18,806	5,865	23,075	3,471	23,382	4,834
Largest Carrier Share	49%*	51%	40%	45%	36%	36%	45%
O&D	84%*	82%	95%	71%	96%	78%	95%
CPE	11.09	9.62	9.33	10.64	8.58	10.35	8.88
Days' Cash on Hand	575	712	497	468	524	675	506
Total Debt Service Coverage Ratio(x)	2.05	1.63	1.83	1.72	1.86	2.17	1.73
Net Debt/Cash Flow After Debt Service	6.24	3.50	3.90	6.50	3.10	4.70	3.50
Debt/O&D Enplanement	124	77	83	169	70	119	82
Debt/Enplanement	104	63	79	120	67	93	78

CY 2019 data; Fitch Analytic Comparative Tool for U.S. Airports FY2018. FY2020 data from DOT-Airports.

DOT-Airports' total debt service coverage is in line with other A-rated airports and slightly lower than the median for other large airports. Debt per enplanement is very low for DOT-Airports but this is expected to increase as DOT-Airports layers on additional debt. CPE for DOT-Airports compares favorably with sector medians but is much higher than some of its Florida peers including Broward County and Greater Orlando Aviation Authority but lower than Las Vegas and San Diego. While CPE for DOT-Airports is projected to increase to about $17 in six years after accounting for new money issuance, similar increases in CPE are also expected for some its peers as they execute their capital plans. As noted earlier, until the COVID-19 pandemic ends, CPE may not be a good metric for peer comparison. We anticipate CPE to rise for most airports across the country due to the current travel trends. Nevertheless, DOT-Airports must carefully balance the need to fund infrastructure with maintaining attractive airline cost structure. Given DOT-

Airports' monopolistic position in the service area and strong tourism levels, higher CPE is less of a concern than for other airports that have competing airports nearby.

DEBT AND OPERATING METRICS	DOT Airports FY 2020	DOT Airports FY 2018	FITCH AIRPORTS SECTOR FY2016 MEDIANS				
			All	Large Hub	Regional O&D	AA-Rated	A-Rated
Fitch Rating	A+	A+					
Enplanements	14,392	18,806	5,865	23,075	3,471	23,382	4,834
Largest Carrier Share	49%*	51%	40%	45%	36%	36%	45%
O&D	84%*	82%	95%	71%	96%	78%	95%
CPE	11.09	9.62	9.33	10.64	8.58	10.35	8.88
Days' Cash on Hand	575	712	497	468	524	675	506
Total Debt Service Coverage Ratio(x)	2.05	1.63	1.83	1.72	1.86	2.17	1.73
Net Debt/Cash Flow After Debt Service	6.24	3.50	3.90	6.50	3.10	4.70	3.50
Debt/O&D Enplanement	124	77	83	169	70	119	82
Debt/Enplanement	104	63	79	120	67	93	78

CY 2019 data; Fitch Analytic Comparative Tool for U.S. Airports FY2018. FY2020 data from DOT-Airports.

Moody's also publishes US Airport Medians annually, and sector medians for FY2018 are presented below. DOT-Airports' liquidity is very strong and compares favorably to other A-rated credits. Total and net coverage levels are lower than medians for other A1-rated credits. This is less of a concern given DOT-Airports' ability to raise rates.

DEBT AND OPERATING METRICS	DOT Airports FY 2020	DOT Airports FY 2018	MOODY'S AIRPORTS SECTOR FY2017 MEDIANS			
			Residual	AA Rated	A1 Rated	A2 Rated
Moody's	A1	A1				
Enplanements	14,392	18,806	6,565	23,075	6,625	6,243
Largest Carrier Share	49%*	51%	43%	35%	43%	49%
O&D	84%*	82%	93%	81%	95%	93%
CPE	11.09	9.62	9.38	6.57	8.37	9.01
Days' Cash on Hand	575	712	632	975	628	712
Total Debt Service Coverage (x)	2.05	1.63	1.73	2.52	2.12	1.74
Net Debt Service Coverage (x)	0.81	1.31	1.48	1.67	1.84	1.37
Debt/O&D Enplanement	124	85	133	95	82	123
Debt/Enplanement	104	69	114	76	86	82

CY 2019 data; Moody's Investor Service: US Airport Medians Fiscal 2017. FY2020 data from DOT-Airports.

CFC DEBT METRICS	DOT Airports	PEERS			
		San Diego	Tampa	Anchorage	New Orleans
Rating	A2 / A- / A	A3 / BBB+ / -	A3 / BBB+ / -	Baa2 / - / -	Baa1 / BBB+ / -
CFC Rate	4.5	9.0	5.95	5.25	7.95
Rate Covenant (x)	1.40	1.30	1.50	1.25	1.35
FY 2019 Debt Service Coverage (x)	5.08	2.28	1.68	1.71	6.58

Source: Audit Reports and Continuing Disclosure Reports for FY2019 and latest rating reports

The DOT-Airports' CFC credit is one of the highest rated among airports in the nation. In the adjoining table, we provide a comparison of the DOT Airports' CFC metrics with some of its peers that also support tourism activity. The DOT-Airports' coverage and legal covenants compare favorably to most of its peers and support its A-category ratings which are the highest amongst its peers.

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

As DOT-Airports evaluates funding of significant capital improvements, affordability for DOT-Airports can be assessed by several factors including debt service coverage, liquidity and cash balances, cost per enplanement and debt per enplanement. Often times assessing whether an airport is over-leveraged is difficult because of the cost recovery mechanisms in place through the airline and/or rental car agreements. Forward looking leverage and affordability assessments are even more challenging in the near-term given the uncertainty around travel demand and broader economic conditions.

Enplanements grew by 14.9% between FY2014 and FY2019. DOT-Airports' enplanement forecast assumes annual enplanements will drop to 42% of FY2019 level by FY2021 before starting to recover. Actual pace and trajectory of recovery may be very different from current estimates. Having said that, current enplanement and revenue projections indicate strong liquidity levels and sufficient revenues to pay existing and projected debt service on additional airport revenue debt. Residual airline agreement and ability to adjust rates and charges coupled with extraordinary coverage protection in the form of Airports System Support Charge support adequate coverage levels and compliance with the rate covenant despite enplanement volatility. Future projects should be evaluated in the broader economic context and in close collaboration with signatory airlines. DOT-Airports has already conducted a thorough review of the capital plan to prioritize its capital projects and evaluate opportunities to adjust scope, cost and timing and may further defer projects as required.

Similar to enplanement levels, CFC transactions at Hawaii are expected to return to pre-COVID levels by FY2025. It is noted here that DOT-Airports has the flexibility to raise the CFC rate (which at $4.5 is lower than several other airports) and has contractual protection under the agreements with rental car agencies that must provide for deficiency payments, as needed. There are currently no plans to issue additional CFC Revenue Bonds. The DOT-Airports' overall conservative approach to funding as much of the ConRAC capital cost as possible with pay-go dollars, supports overall affordability of any future CFC Revenue Bonds when contemplated, to fund ConRACs at Lihue or other airports in the system. Any such future debt should be evaluated in the context of rental car activity.

IV. Department of Transportation – Harbors

The Department of Transportation, Harbors Division (DOT-Harbors) manages a commercial harbors system that facilitates safe and efficient operations of commercial cargo, passenger, fishing, and other commercial maritime-related services.

The Harbor System is comprised of ten harbors. DOT-Harbors operates as a landlord port. DOT-Harbors derives its revenues from three major sources: services revenues, rental income and other operating revenue. Services revenues are derived from tariffs assessed on the activities of ships and handling of cargo and include wharfage charges, dockage fees, port entry fees, demurrage, mooring charges and fees for other services. Rental income includes charges for wharf space and land, storage, pipeline usage and automobile parking space. DOT-Harbors operated for many years without any increase in tariffs but it has remedied that in recent years. In 2016, DOT-Harbors adopted a schedule of discrete multi-year tariff increases in consultation and with support from primary harbor system users. Tariffs were increased by 17% in FY2017, followed by 15% in FY2018 and FY2019. In addition to the three increases, rates will be raised annually thereafter by 3% or the Honolulu consumer price index rate, whichever is higher.

DOT-Harbors' primary financing program consists of harbor revenue bonds secured by net available revenue. Net available revenue represents generally, total operating revenues and interest earned on investments (including but not limited to rates and charges assessed in relation with the services provided) deposited into the Harbor Special Fund after payment of any operating costs. DOT-Harbors has the flexibility to adjust the rates and charges prescribed for the services and facilities to ensure sufficiency of revenues. In certain cases, B&F may issue GO bonds on behalf of DOT-Harbors repayment of which is entirely the responsibility of DOT-Harbors. Repayment of reimbursable GO bonds is subordinate to payment on DOT-Harbors' revenue bonds.

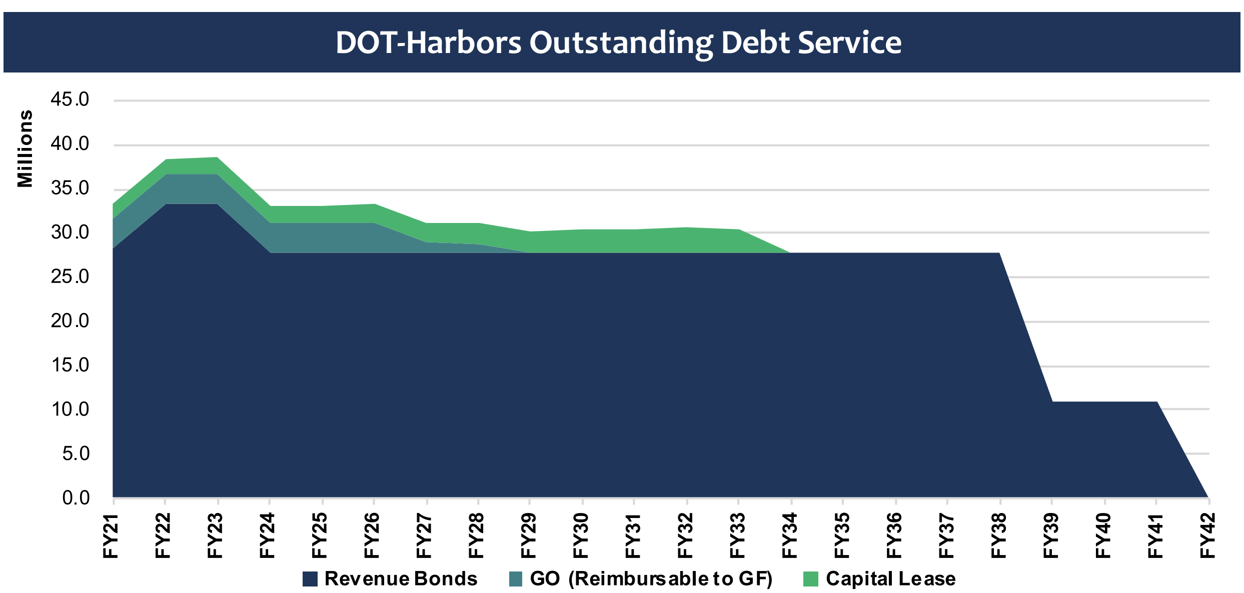
A. Debt Profile

DOT-Harbors currently has seven series of harbor revenue bonds outstanding, including the three series of harbor revenue bonds issued on December 2, 2020, for a total par amount of nearly $367.8 million. In addition, DOT-Harbors is responsible for payments on $18.7 million in reimbursable GO bonds. It also has a $24.5 million capital lease outstanding the proceeds of which were used to fund energy conservation projects. Energy savings generated from the projects are sufficient to cover the lease payments.

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Par Call Date	Callable Par
				Revenue Bonds			
Series 2013A	AMT	23,615,000	8/2/13	7/1/29	13,345,000	7/1/2019	13,345,000
Series 2016A	AMT	14,565,000	12/6/16	1/1/24	8,590,000	1/1/2018	8,590,000
Series 2016B	AMT	68,535,000	12/6/16	1/1/31	56,980,000	1/1/2027	50,960,000
Series 2016D	AMT	22,425,000	7/5/17	7/1/27	22,370,000	7/1/2018	22,370,000
Series 2020A	AMT	147,520,000	12/2/20	7/1/37	147,520,000	7/1/2030	102,310,000
Series 2020B	Taxable	15,685,000	12/2/20	7/1/24	15,685,000	-	-
Series 2020C	Non-AMT	103,345,000	12/2/20	7/1/40	103,345,000	7/1/2030	90,245,000
Sub-Total	-	-	-	-	**367,835,000**	-	**287,820,000**
				GO Bonds (Reimbursable)			
GO Bonds	Tax-Exempt	-	-	-	18,689,945	-	-
				Capital Lease			
Capital Lease	Tax-Exempt	26,992,659	9/17/15	10/1/32	24,548,967	-	-
Total	-	-	-	-	**411,073,912**		**287,820,000**

B. Debt Service Chart

DOT-Harbors' has a level debt service profile with periodic step-downs in FY2024 and FY2039. Total debt service including reimbursable bonds and capital lease is approximately $38.4 million in FY2022, gradually decreasing to $27.7 million through FY2034, and finally stepping down to $10.9 million in FY2039. DOT-Harbors has moderate debt amortization with 48% of revenue bond principal paid over the next ten years.



C. Credit Ratings

DOT-Harbors maintains strong ratings as reflected in the table below. This include a one notch upgrade from Moody's in 2019. The upgrade was a direct result of favorable financial performance and improved net revenue coverage higher than 3.0x driven by the enacted tariff adjustments to support rising operating costs. DOT-Harbors' ratings were not affected by the COVID-19 pandemic. It entered the pandemic from a position of strength with very strong debt service coverage (in excess of 4.0 times) and liquidity position (over 1,000 days) that provide adequate margin to absorb near-term loss of cargo and cruise passengers during the COVID-19 recovery.

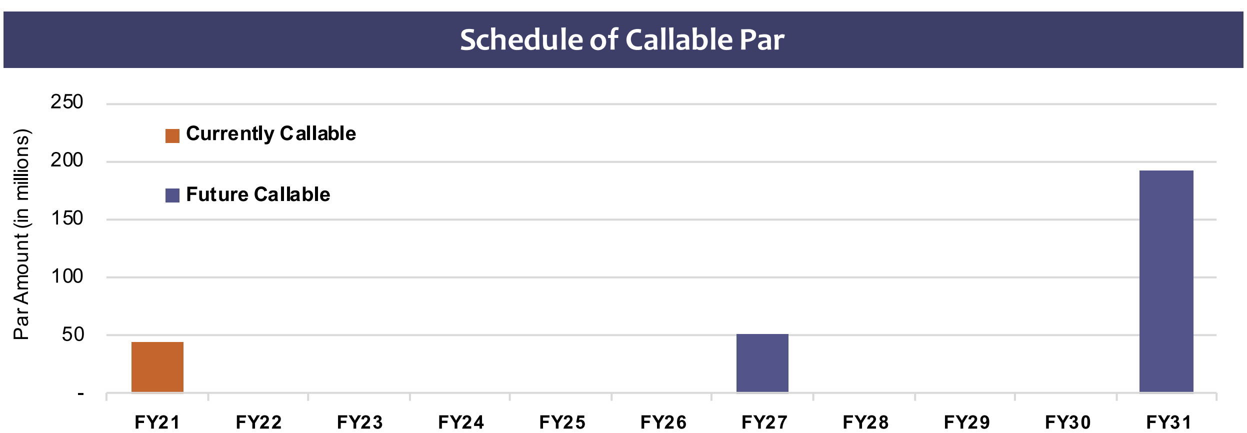
Department of Transportation Harbors Credit Ratings		
	Moody's	**Fitch**
Revenue Bonds	Aa3 Stable	AA- Stable

Credit strengths include DOT-Harbors' monopolistic position and its essentiality to Hawaii's economy, strong financial position in terms of coverage and cash balances, strong management focus on financial performance, demonstrated willingness to leverage its market position with multi-year series of tariff increases and conservative debt structure.

Credit challenges include exposure to economic volatility owing to a significant tourism industry, customer concentration of cargo in one shipping line and relatively weak debt service reserve fund requirement compared to similarly rated credits and peers.

D. Schedule of Callable Bonds

The following chart provides a summary of callable harbor revenue bonds and par amounts. DOT-Harbors has approximately $287.8 million in callable par outstanding. Approximately $44.3 million is currently callable as reflected in FY2021 in the chart (Series 2013A, Series 2016A, and part of Series 2016D).

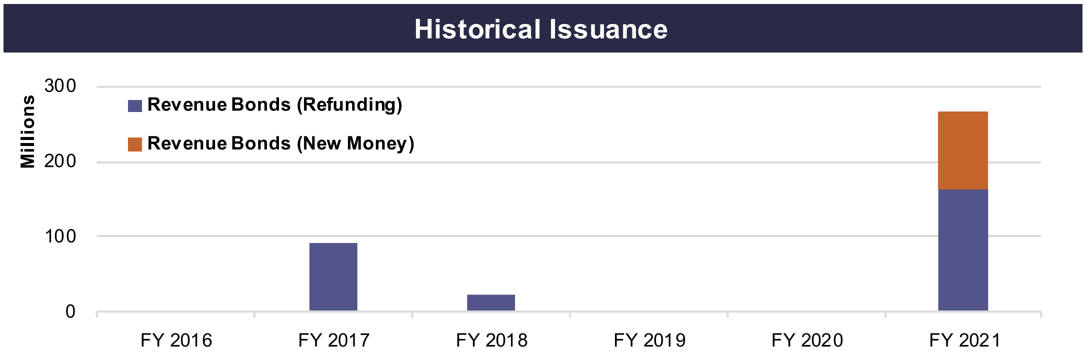


However, since they were issued fairly recently, they are unlikely to be refunded for savings at this time. Approximately $51.0 million is callable several years from now in FY2027 and another $192.6 million callable in FY2031. Pursuant to the criteria outlined in its Debt Management Policy, DOT-Harbors may pursue opportunities to refund callable bonds.

E. Multi-Year Program Anticipated/Intended Debt Issuance

Existing Debt

In the past five years, DOT-Harbors has issued refunding bonds in FY2017, FY2018 and FY2021. DOT-Harbors also issued new money bonds in December 2020, first time since 2010, as a result of limited debt-financed CIP needs.



Anticipated Debt

DOT-Harbors anticipates significant cash-funding of its CIP with no additional debt plans in the next six years.

Unissued but Authorized Debt

DOT-Harbors has approximately $308.27 million in unissued but authorized revenue bonds.

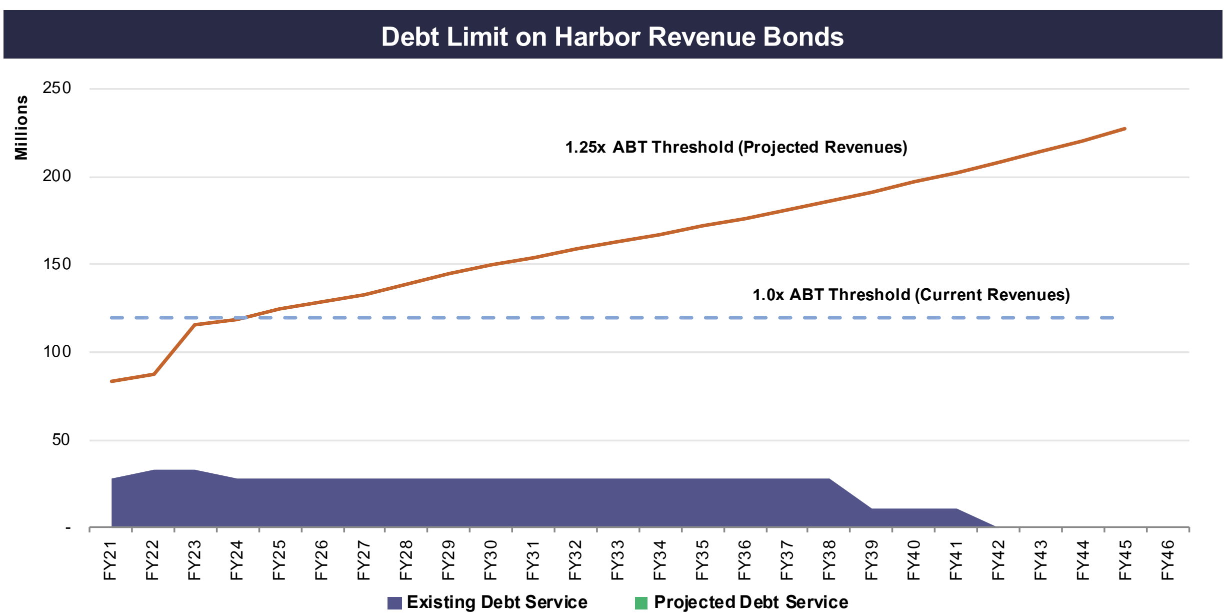
F. Measuring Debt Burden

Last Full Fiscal Year and Projected (six-years) Metrics

AFFORDABILITY METRICS	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	19.3%	20.8%	23.1%	19.1%	16.0%	15.7%	15.4%
Annual debt service to annual appropriations	37.7%	30.9%	34.0%	33.5%	29.9%	30.5%	30.6%
Revenue bonds debt service coverage (Indenture Revenues)	5.06x	3.67x	3.29x	4.35x	5.36x	5.63x	5.81x
Total debt service coverage (Indenture Revenues)	4.31x	3.11x	2.84x	3.75x	4.49x	4.70x	4.84x
Revenue bonds debt service coverage (Net Revenues)	4.15x	3.04x	2.76x	3.77x	4.65x	4.91x	5.09x
Total debt service coverage (Net Revenues)	3.54x	2.57x	2.39x	3.26x	3.90x	4.10x	4.24x
Debt to operating revenues	1.72x	2.55x	2.32x	1.79x	1.66x	1.52x	1.39x
Liquidity – days' cash on hand	1,298 days	1,250 days	1,531 days	1,588 days	1,604 days	1,523 days	1,498 days

Relevant Affordability Metrics

1. Bond Certificate Limitations: As per the Bond Certificate of the Director of Transportation dated March 1, 1997, the DOT-Harbors' revenue bonds are subject to a rate covenant that requires setting appropriate rates, rents, fees, and charges so as to always remain self-supporting, i.e. be sufficient to cover all of DOT-Harbor's obligations including but not limited to operating expenses and debt service on outstanding revenue and reimbursable GO bonds. In other words, DOT-Harbors is required to maintain one times coverage on bonds from net revenues of the system before adjustments. Net revenues when adjusted for balances available in the reserve and contingency are subject to a higher rate covenant of 1.25 times aggregate debt service. Over and above that, should DOT-Harbors want to issue additional



senior lien debt, the Certificate dictates a twofold ABT test - at least one times coverage on all anticipated debt based on historical net revenues (such threshold shown as gray dotted line in the chart) and 1.25 times coverage after inclusion of any projected increases in most recent year's net revenues (such threshold shown as an orange line in the chart). With no plans to issue any additional revenue bonds, DOT-Harbors is projected to maintain very strong debt service coverage levels. Historical revenues, even before incorporating projected increases, provide coverage of over 1.0 times and projected revenues provide a coverage much greater than 1.25 times future debt service with significant capacity under the ABT test.

2. Annual debt service payments to annual revenues and annual debt service payments to annual appropriations: Over the projection period, annual debt service to annual revenues ranges between 15% and 23% (FY2022). A combination of strong demand for the harbors system and scheduled as well as inflation driven increases in various fees and tariffs, have resulted in strong revenue performance for DOT-Harbors in recent years with a favorable impact on the debt service-to-annual revenues ratio. Over the projection period, annual debt service to annual appropriations ranges between 30% and 34% (FY2022). This is a reflection of increasing debt service and its growing share of DOT-Harbors' operating budget.

3. Debt service coverage: Debt service coverage is net revenues, as defined in the Certificate, divided by principal and interest requirements for the fiscal year. Over the projection period, debt service coverage for the revenue bonds (based on net revenues as adjusted based on the Certificate) is projected to remain strong – in excess of 3.0 times. Total debt service coverage including all debt is also projected to remain strong at over 2.0x.

4. Debt-to-operating revenue: The debt-to-operating revenues ratio is calculated by dividing total outstanding debt by total annual operating revenues and is a measure of leverage. DOT-Harbors' leverage ratio for FY2021 is expected to be 2.55 times including the recently issued Series 2020 new money debt. It has steadily declined since it's 2011 peak of 4.9 times to less than 1.8 times in FY2020 in the absence of new debt and healthy increases in operating revenues over the period. With no additional debt plans in the foreseeable future, the ratio is projected to decline to below 1.5 times by FY2026.

5. Liquidity – days' cash on hand: Days' cash on hand, a measure of liquidity, is unrestricted cash and investments plus discretionary reserves, divided by operating and maintenance expenditures and multiplied by 365. Despite DOT-Harbors' planned use of cash on hand to fund capital projects and setting aside certain funds for future projects, liquidity ratios are very strong. DOT-Harbors estimates 1,298 days cash on hand at the end of FY2020. Despite some declines in liquidity levels in FY2020 due to planned use for ongoing capital projects as well as revenue shortfalls attributable to the COVID-19 pandemic, liquidity is anticipated to remain above a 1,000 days cash on hand during the course of the next six years.

Peer/Median Comparisons

Utilizing FACT for U.S. Ports for FY2018, we compare DOT-Harbors against Fitch rated seaports sector medians, Harbor Department of Los Angeles, Port of Long Beach, San Diego Unified Port District, Broward County-Port Everglades, San Francisco Port Commission and Port Miami.

As reflected in the tables, DOT-Harbors' liquidity is extremely strong in comparison to the seaports sector median and DOT-Harbors' peers. The projected cash on hand of over 1,200 days over the next six years is significantly higher than the sector median and in line with its AA-rated peers.

DEBT AND OPERATING METRICS	DOT Harbors FY2020	DOT Harbors FY2018	FITCH SEAPORTS FY2018 MEDIANS		
			Overall Seaports	AA Rated	A Rated
Fitch Rating	AA-	AA-			
Days' Cash on Hand	1,298	1,136	630	1,073	530
Total Debt Service Coverage (x)	5.06	4.40	2.78	3.85	2.49
Net Debt/Cashflow available for debt service	0.50	0.90	1.35	0.74	4.01
Minimum Annual Guarantees as a % of	0%	0%	52%	38%	54%

Fitch Analytic Comparative Tool for U.S. Ports released December 2019. FY 2020 data from DOT-Harbors.

Since the tariff increases were implemented, DOT-Harbors debt service coverage ratio of 4.0-5.0 times is very strong, well above the sector median (2.78 times) and its peers.

DEBT AND OPERATING METRICS	DOT Harbors FY2020	DOT Harbors FY2018	PEERS					
			Harbor Dept. of Los Angeles	Port of Long Beach	San Diego Unified Port District	Broward County-Port Everglades	San Fran. Port Commission	Port Miami
Fitch Rating	AA-	AA-	AA	AA	A+	A	A	A
FY Cargo TEU	-	2.5%	2.2%	3.3%	5.2%	1.8%	NA	4.3%
FY Cargo Tons	-	-3.8%	5.5%	0.8%	2.5%	2.4%	0.0%	NA
FY Cruise Passengers	-	-1.2%	-2.6%	NA	7.3%	-0.7%	1.8%	2.5%
Days' Cash on Hand	1,298	1,136	1,035	1,111	292	850	669	703
Total Debt Service Coverage (x)	5.06	4.40	3.30	2.81	3.99	2.93	3.91	2.22
Net Debt/Cashflow avail. for debt service	0.50	0.90	0.50	1.80	Cash +ve	Cash +ve	Cash +ve	6.20
Minimum Annual Guarantees as a % of Operating Revenues	0%	0%	68%	84%	45%	64%	59%	73%

Fitch Analytic Comparative Tool for U.S. Ports released December 2019. FY 2020 data from DOT-Harbors.

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

DOT-Harbors' modernization plan is being funded primarily from cash and no additional debt is anticipated over the projection period. As reflected in the affordability metrics above, DOT-Harbors is projected to maintain sufficient revenues to support debt service along with very strong coverage levels of over 3.0 times. DOT-Harbors' projected liquidity (as measured by days' cash on hand) is anticipated to remain high (above the 1,200 days' level). While the financial projections are dependent on volume/traffic, inflationary tariff increases as well as certain assumptions regarding general economic recovery from the COVID-19 pandemic, DOT-Harbors' significant liquidity can help mitigate budgetary fluctuations. DOT-Harbors' strong liquidity position continues to be a significant credit positive, and the rating agencies continue to cite DOT-Harbors' ability to utilize its cash on hand to fund significant infrastructure needs as well as provide budgetary relief to weather near-term stresses. DOT-Harbors' projected revenues are sufficient to cover existing bond debt service and comfortably satisfy future ABT tests should additional debt be required. Although, additional debt is not recommended at this time, given the uncertainty surrounding COVID-19 and the importance of preserving strong credit metrics, be it coverage or liquidity, part of which is already planned to be utilized for capital projects.

V. Department of Transportation – Highways

The Department of Transportation, Highways Division (DOT- Highways) supervises the management and maintenance of the State Highway System and the location, design and construction of new highways roads and facilities. The State imposes taxes, fees, and charges relating to the operation and use of motor vehicles on the public highways of the State and these funds are deposited into the State Highway Fund. The major revenue sources of the State Highway Fund include highway fuel license taxes, vehicle registration fees, vehicle weight taxes, and rental motor vehicle, tour vehicle and car-sharing vehicle surcharge taxes.

DOT-Highways' primary financing program consists of highway revenue bonds. These revenue bonds are secured by a gross pledge of revenues in the State Highway Fund, including but not limited to highway fuel license taxes, registration fees, weight taxes rates and rental motor vehicle taxes. The flow of funds requires payment of debt service before operations and maintenance. With legislative approval, DOT-Highways has the flexibility to adjust the rates and allocation of the fees and taxes prescribed to ensure sufficiency of revenues. In certain cases, B&F may issue GO bonds on behalf of DOT-Highways, repayment of which is entirely the responsibility of DOT-Highways. Repayment of reimbursable GO bonds is subordinate to payment on DOT-Highways' revenue bonds. DOT-Highways also issues COPs and Lease Purchase Agreements payable from funds appropriated for DOT-Highways.

A. Debt Profile

DOT-Highways currently has eight series of highway revenue bonds outstanding for a total outstanding par of $423.4 million. In addition, DOT-Highways is also responsible for payment of its share of reimbursable GO debt of which very little remains outstanding. It also has a $56.0 million capital lease outstanding the

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Callable Par
			Revenue Bonds				
Series 2005B	Tax-Exempt	123,915,000	3/15/05	7/1/21	4,425,000	-	-
Series 2011A*	Tax-Exempt	112,270,000	12/15/11	1/1/32	37,605,000	1/1/2022	26,825,000
Series 2011B	Tax-Exempt	5,095,000	12/15/11	1/1/23	5,095,000	1/1/2022	5,095,000
Series 2014A	Tax-Exempt	103,375,000	8/14/14	1/1/34	82,430,000	7/1/2024	64,305,000
Series 2014B	Tax-Exempt	32,285,000	8/14/14	1/1/26	21,105,000	7/1/2024	7,735,000
Series 2016A	Tax-Exempt	103,395,000	9/8/16	1/1/36	90,590,000	7/1/2026	63,520,000
Series 2016B	Tax-Exempt	101,090,000	9/8/16	1/1/30	100,270,000	7/1/2026	52,080,000
Series 2019A	Tax-Exempt	81,835,000	12/11/19	1/1/40	81,835,000	1/1/2029	58,005,000
Sub-Total	-	-	-	-	**423,355,000**	-	**277,565,000**
			GO Bonds (Reimbursable)				
GO Bonds	Tax-Exempt	-	-	-	2,787	-	-
			Capital Lease				
Capital Lease	-	-	7/8/15	8/1/31	56,003,183	-	-
Total	-	-	-	-	**479,360,970**	-	**277,565,000**

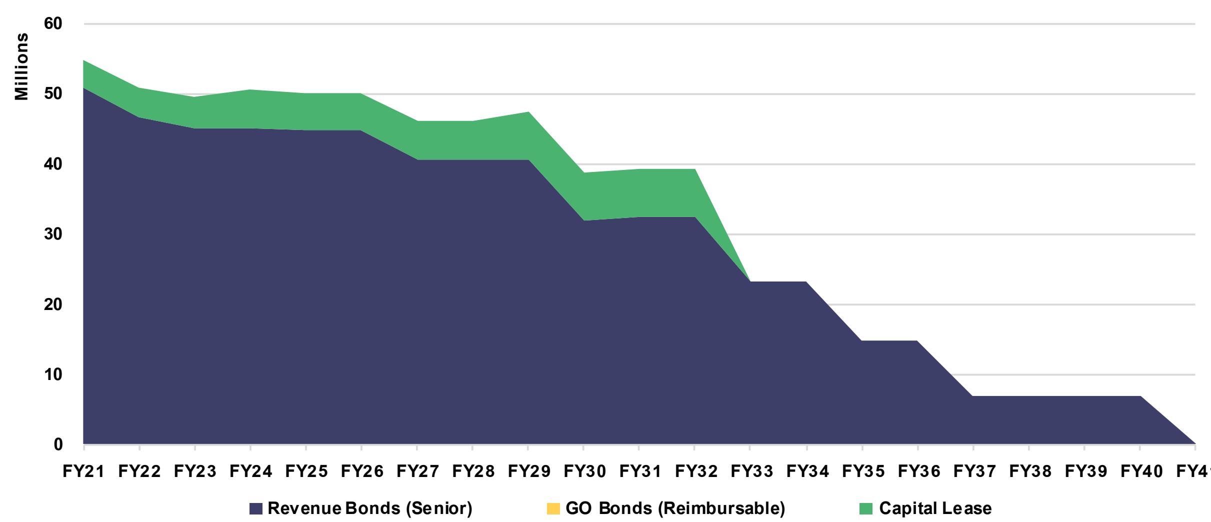
**Series 2011A callable par refunded by Series 2019B forward delivery bonds to be delivered in October 2021* proceeds of which were used to fund energy conservation projects. Energy savings generated from the projects are sufficient to cover the lease payments.

In addition, DOT-Highways entered into a forward delivery contract for State of Hawaii Highway Refunding Revenue Bonds, Series 2019B to refund Series 2011A bonds. The bonds are callable on January 1, 2022 and the Series 2019B bonds will be “delivered” on October 7, 2021 to effectuate a current refunding of the bonds.

B. Debt Service Chart

DOT-Highways’ aggregate debt service structure is tapering with gradually declining debt service payments over time. DOT-Highways structures series with level debt service with the exception of refunding bonds which are structured to generate level savings. The principal amortization of revenue bonds is fairly rapid with nearly 67% of principal being amortized over the next ten years.

DOT-Highways Outstanding Debt Service



C. Credit Ratings

The DOT-Highways’ revenue bonds carry strong credit ratings in the ‘AA’ category from all three rating agencies. DOT-Highways rating is dependent on the State’s rating and is rated the same as the State’s current ‘Aa2’ GO rating by Moody’s. The rating on DOT-Highways revenue bonds was lowered by one notch in July 2020 by Moody’s, following a one-notch downgrade in the State’s GO rating to ‘Aa2’ on account of weakening in the State’s credit quality attributable to the coronavirus pandemic and the impact on the State’s tax revenues and tourism industry.

Department of Transportation Highways Credit Ratings			
	Moody's	**S&P**	**Fitch**
Revenue Bonds	Aa2 Stable	AA+ Stable	AA Stable

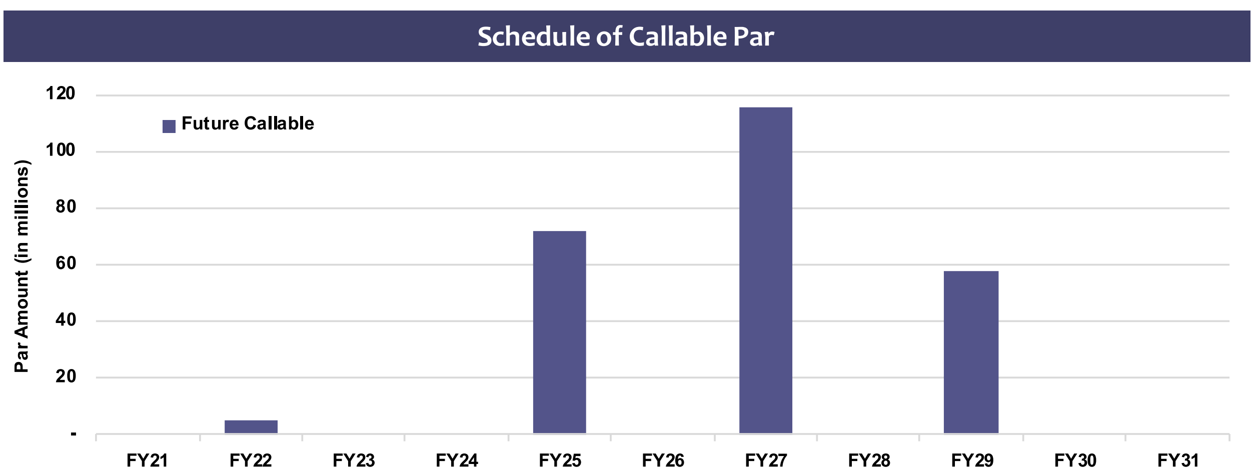
Credit strengths include strong senior lien debt service coverage, the diversity of the pledged revenue stream, the state legislature's demonstrated willingness to add new pledged revenues as needed to fund the state's highway program, 100% fixed-rate debt portfolio, limited future borrowing plan coupled with strong additional bonds test that provides bondholders protection against overleveraging in the future, diverse and robust economy with strong demographics and a healthy rental car market, and prudent management.

Credit challenges include volatility of pledged revenues either driven by economic considerations, dependence on tourism and the significance of car rental surcharges and transfers from the highway fund to the general fund, as had occurred in the past, although none are anticipated at this time.

Per the indenture, DOT-Highways funds a debt service reserve sized at one-half of maximum annual debt service for its revenue bonds. However, DOT-Highways, through a supplemental indenture, may eliminate the debt service reserve fund requirement pending consent of 100% of bondholders. Rating agencies are aware of the potential change and have not indicated any potential impact to DOT-Highways' credit ratings given their methodologies placing minimal value in reserve funds for special tax credits like DOT-Highways.

D. Schedule of Callable Bonds

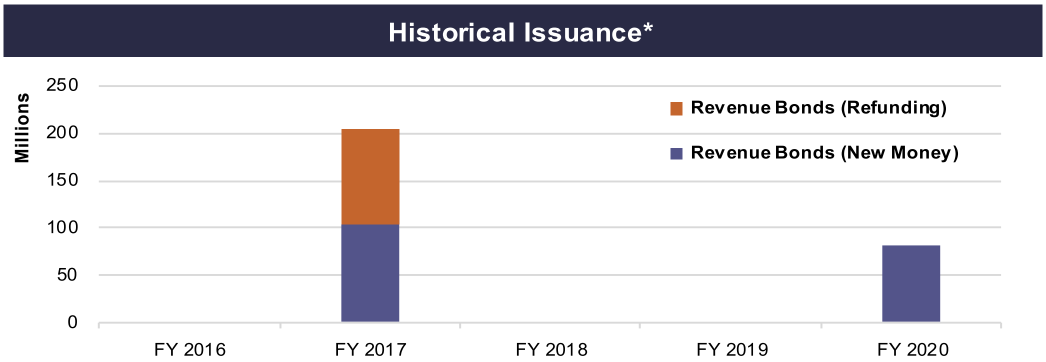
The following chart provides a summary of callable highway revenue bonds. Of the $423.4 million in highway revenue bonds outstanding (excluding the Series 2019B forward delivery bonds and Series 2011A to be refunded by the Series 2019B bonds), about $250.7 million represents callable par (excluding Series 2011A) that can be refunded at the call date in advance of final maturity. DOT-Highways does not have any currently callable bonds. The next call date is in January 2022 with $5.1 million callable at the time (excluding Series 2011A). Future call dates for the remaining par are in FY2025, FY2027 and FY2029. Pursuant to the criteria outlined in its Debt Management Policy, DOT-Highways may pursue opportunities to refund callable bonds.



E. Multi-Year Program Anticipated/Intended Debt Issuance

Existing Debt

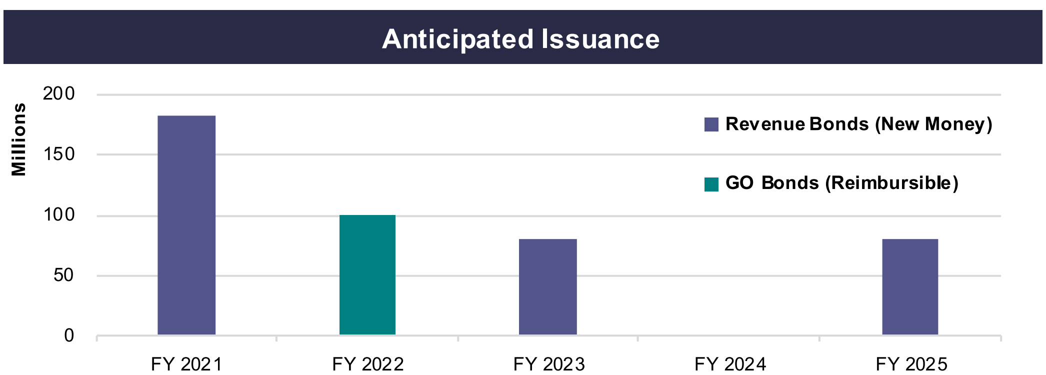
DOT-Highways has accessed capital markets for both new money and refunding bonds every two to three years in the past with the last issuance in December 2019. New money issuance has consistently been in the range of $80 million to $100 million with the latest issuance par of $81.2 million in FY2020.



*Excludes Series 2019B

Anticipated Debt

Consistent with the historical trend, DOT-Highways anticipates total $442 million additional new money issuances for capital projects (maintenance and preservation of the system) in FY2021, FY2022, FY2023 and FY2025 in the par amount of about $80 million to $180 million in each of those years.



Unissued but Authorized Debt

DOT-Highways has $1.83 billion authorized but unissued revenue bonds.

F. Measuring Debt Burden

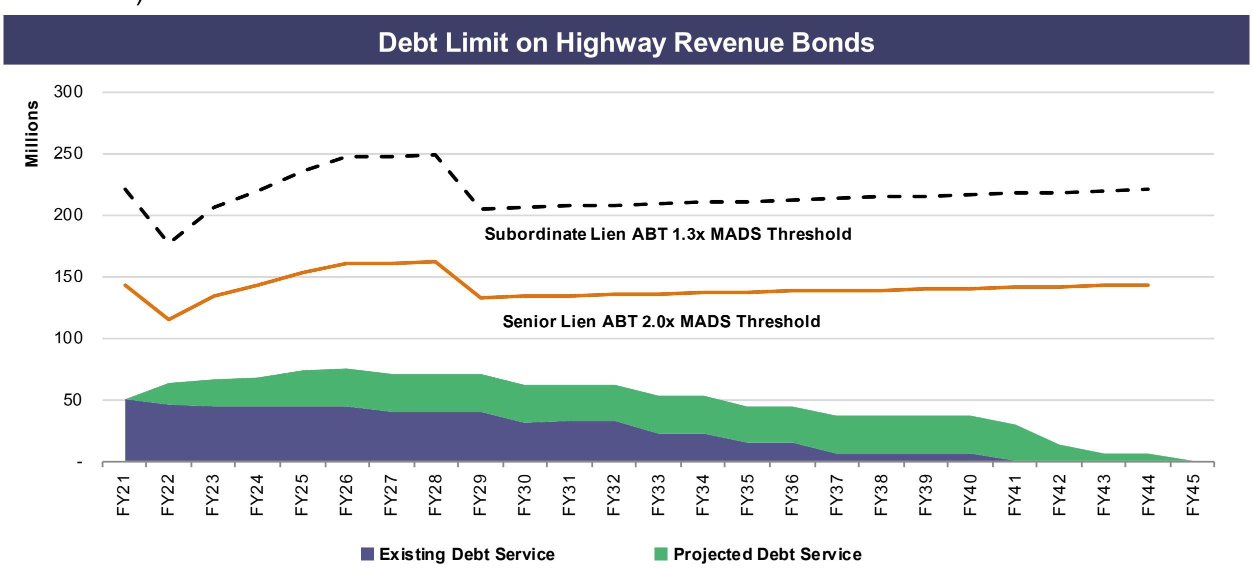
Last Full Fiscal Year and Projected (six-years) Metrics

AFFORDABILITY METRICS	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	16.5%	22.1%	24.0%	25.5%	24.3%	25.9%	26.3%
Annual debt service to annual appropriations	14.3%	17.5%	19.3%	20.4%	19.5%	20.8%	20.6%
Debt service coverage (Gross)	6.07x	4.53x	4.26x	4.28x	4.48x	4.37x	4.28x
Debt service coverage (Net)	0.05x	-0.19x	-0.02x	0.03x	0.00x	0.05x	-0.05x
Liquidity – days' cash on hand	118 days	129 days	118 days	112 days	103 days	100 days	95 days

Note: Projected metrics assume issuance of $442 million of additional bonds (see anticipated debt above)

Relevant Affordability Metrics

1. Master Certificate Limitations: As per the Master Certificate of the Director of Transportation dated August 1, 1993, DOT-Highways' revenue bonds are subject to a rate covenant that requires setting appropriate rates, rentals, fees, and charges so as to generate sufficient revenues to cover all of DOT-Highway' obligations including but not limited to operating expenses and debt service on outstanding bonds. In other words, the DOT-Highways is required to maintain one times coverage on revenue bonds. Over and above that, should the DOT-Highways want to issue additional senior lien debt, the Certificate dictates an ABT test of 2.0 times coverage (orange line in the chart) on projected maximum annual debt service (MADS) payment from pledged revenues for any twelve consecutive calendar month period out of the last eighteen consecutive calendar month preceding the date of issuance. If DOT-Highways were to issue new bonds on a subordinated lien to currently outstanding debt which are all senior lien bonds, the ABT requirement is slightly less stringent at 1.3 times MADS (black line in the chart).



As reflected in the chart, there is significant capacity under senior lien ABT limitations and DOT-Highways can fund its projected capital needs within indenture limits. Although DOT-Highways has sufficient senior lien capacity and does not intend to leverage the subordinate lien at this time, that option is also available to DOT-Highways and provides additional borrowing capacity. These legal limits are based on gross revenues before payment of operating expenses which is typical for state highway DOTs.

2. Annual debt service payments to annual revenues or annual debt service payments to annual appropriations: These ratios measure the financial flexibility available to DOT-Highways by analyzing the fixed costs embedded in the budget. Debt service which is a fixed cost accounts for 22%-26% of revenues or 18%-21% of expenditures over the next six years. This affords DOT-Highways flexibility to make budgetary adjustments, if required. These metrics include the impact of DOT-Highways planned new issuances. The ratios are expected to increase over the projected horizon, on account of the additional debt service on anticipated debt issuances but also conservative revenue projections, wherein revenues are not expected to recover to pre-COVID levels for several years.

3. Gross debt service coverage: Gross debt service coverage is computed based on gross pledged revenues before payment of any operating expenses. Based on conservative revenue estimates for FY2020, the coverage on *revenue bonds* was very strong at 6.07 times. Despite conservative revenue projections over the next six years, the coverage including new debt issuance is expected to remain over 4.0 times, well above the 2.0 times ABT requirement discussed above. It should be noted that while there is capacity to increase leverage based on indenture limitations and affordability considerations, lower coverage levels may result in credit implications.

4. Net debt service coverage: Legally, debt service is payable before operating expenses reflecting the strength of the gross revenue pledge. However, it is important to evaluate debt service coverage based on net revenues (after operating expenses) and all debt including debt service on the planned GO reimbursable bonds, as a measure of self-sustainability and overall affordability. Net debt service coverage is based on net revenues which are available for debt service after payment of necessary operating costs. Over the next six years DOT-Highways is projecting breakeven operation with small negative net revenues in some years.

5. Liquidity – days' cash on hand: DOT-Highways' liquidity levels are adequate with an estimated 118 days' cash on hand in FY2020. DOT-Highways is expected to utilize a portion of the cash balance in FY2021 to balance the roughly 20% revenue shortfall attributable to the COVID-19 pandemic but the cash balance is projected to remain stable thereafter.

Peer Comparisons

We compare DOT-Highways with other similarly rated state transportation agencies across the nation, namely, Arizona Transportation Board, Missouri Highways and Transportation Commission, Kansas DOT, Oregon DOT and Nevada DOT. As reflected in the table on the following page, the gross coverage of MADS maintained by DOT-Highways on its senior lien bonds is in line with peers in the sector.

Despite lower coverage levels relative to others, Oregon DOT and Nevada DOT have been able to achieve the same or higher ratings than DOT-Highways on account of their stricter ABT covenant at 3.0 times MADS. Since DOT-Highways projects coverage levels, including new money issuances, to stay above 4.0x, there is potential for achieving higher ratings similar to peers by modifying the legal covenant for ABT while still maintaining capacity for additional bonds over and above what is currently planned. A stronger ABT will also help address rating agencies' concerns to some degree over DOT-Highways' exposure to general fund operations and performance. DOT-Highways' debt service as a percentage of operating expenditures is at 13%, on par with peer agencies.

DEBT METRICS FY2019	DOT-Highways	STATE DEPARTMENT OF TRANSPORTATION PEERS				
		Arizona	Missouri	Kansas	Oregon	Nevada
Lien	Senior	Subordinate	Third	Senior	Subordinate	Senior
Credit Ratings	Aa2/AA+/AA	Aa1/AA+/--	Aa1/AA+/AA+	Aa2/AA/AA-	Aa1/AAA/AA+	Aa2/AAA/AA+
Par Outstanding	$461.3 million	$1.28 billion	$1.02 billion	$2.1 billion	$2.53 million	$850 million
Additional Bonds Test	2x MADS	3x MADS	2x MADS	3x MADS	3x MADS	3x MADS
Gross Coverage	4.64x	4.60x	4.64x	7.37x	4.00x	4.17x
Debt Service to OpEx*	13.4%	11.5%	13.0%	14.6%	14.5%	6.3%

Source: Audit Reports for FY 2019 and 2020 OS **Operating Expenditures*

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

Based on the affordability metrics, DOT-Highways is projected to fund its projected capital needs while maintaining strong coverage levels based on gross revenues. For DOT-Highways along with its state transportation agency peers, debt service coverage is a critical affordability metric. DOT-Highways' gross coverage levels are projected to remain strong. When taking into account operational needs and debt service on anticipated revenue bonds and GO reimbursable bonds, projected net revenues are close to zero of slightly negative. DOT-Highways' good liquidity position is viewed favorably by credit agencies as an additional source of repayment and financial flexibility, particularly given near-term budgetary stresses. Although not a recommended or preferred, DOT-Highways has back-end capacity and it could utilize that by structuring new money bond par slightly longer and limit near-term principal repayment on the upcoming new issuances. Deferring principal repayment for 2-3 years is a common structure adopted by several municipal issuers since COVID-19 pandemic began and B&F also typically defers principal repayment on its GO bonds for 3 years. This can help boost near-term net debt service coverage during the six-year projection period. DOT-Highways' projected gross revenues are sufficient to pass the ABT test but net revenues after accounting for operating expenses are insufficient to cover existing and projected revenue bond debt service. From an affordability stand point, DOT-Highways should evaluate future issuance in the context of total debt service on all bonds (including anticipated GO debt) as well as operating costs. Less than 1.0x net debt service coverage for a prolonged period and/or erosion of liquidity can impact credit ratings. As such, each future issuance should be evaluated on a case-by-case basis based on the general economy and revenue expectations.

VI. University of Hawaii

The State of Hawaii University System (UH) is a multi-institutional system comprised of a major research university (the University of Hawaii at Manoa), two baccalaureate campuses (Hilo and West Oahu), seven community colleges (Hawaii Honolulu, Kapiolani, Kauai, Leeward, Maui, and Windward) and nine educational centers distributed across the State. UH is the sole public higher education system within the State and, therefore, has a unique competitive position and value in Hawaii. Furthermore, the UH system is the only truly integrated higher education system in the country that seamlessly arranges its universities and community colleges into one system. Other public higher education systems in the country are typically separate and distinct systems defined by the type of system (community colleges, junior colleges and universities).

In addition to being an integrated higher education system, the UH system distinguishes itself through its Hawaiian, Asian and Pacific orientation and its position as one of the world's foremost multicultural centers for global and indigenous studies. Students are members of a population in which no one ethnic group constitutes a majority, and the educational experience is enriched by the diversity of cultures represented. UH's fall 2019 enrollment totaled 49,977 (89% undergraduate and 11% graduate students). Hawaii residents comprised 83% of all enrolled students, nearly 11% were from the U.S. mainland, and the remaining 6% of students were international students from over 100 countries.

Major UH operating revenue sources include State operating support, net tuition and fee revenue, and federal funding of research. UH also receives significant State capital support. Net tuition revenue has either declined or improved modestly over the last three audited fiscal years as a result of enrollment declines during the period. Increase in tuition fees somewhat offset the impact on tuition revenues. Enrollment has been declining for the last few years and measures have been taken to stabilize the trend including focus on underserved regions and population and scholarship programs. As a result, the rate of decline has slowed and over the next few years, enrollment is projected to remain strong since UH offers a strong local opportunity for Hawaii residents to remain close to home to advance their education offering both 4-year and community college formats. After several years of moderate tuition increases, in May 2019 the Board of Regents approved a three-year freeze of undergraduate tuition rates at all ten campuses beginning with 2020-2021 academic year to retain affordability for students and improve retention. As such, net tuition revenue is expected to be flat over the projection period.

UH's primary financing program consists of university revenue bonds which are generally secured by income derived by UH from its ownership and management of the Network including housing and auxiliary activities and moneys in any special fund or revolving fund, which include tuition and fees. Certain revenue bonds series are additionally secured by other revenues such as cigarette tax revenues or appropriations from the Hawaii Tobacco Settlement Special Fund.

In certain cases, B&F may issue reimbursable GO bonds on behalf of UH, repayment of which is entirely the responsibility of UH. Repayment of reimbursable GO bonds is subordinate to payment of UH's revenue bonds. As described above, UH receives significant operating and capital support from the State's general fund – including non-reimbursable GO bond funding.

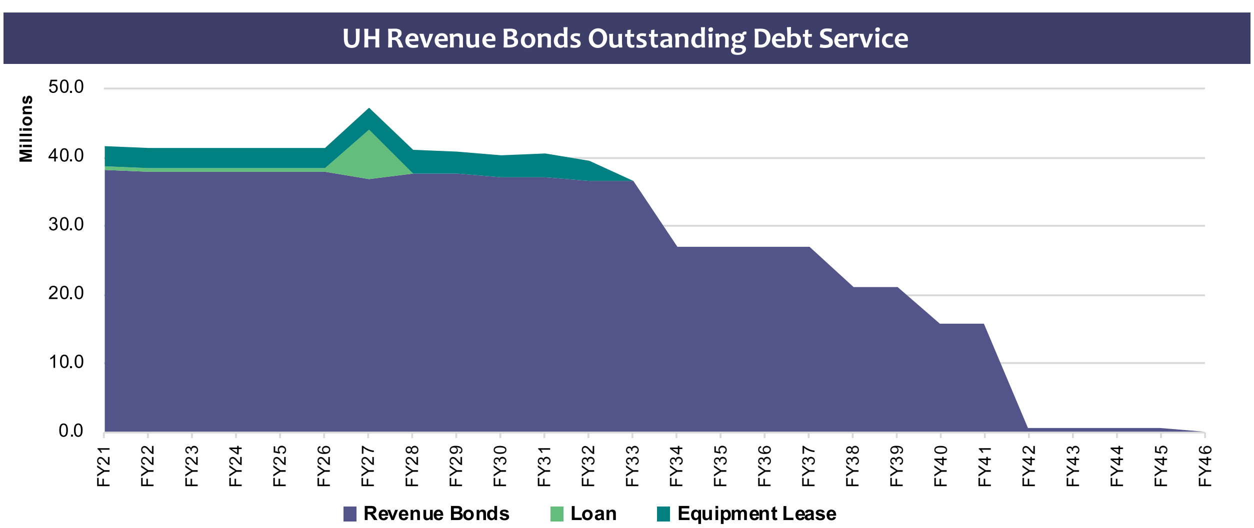
A. Debt Profile

After accounting for the issuance of Series 2020 Bonds, UH currently has 17 series of bonds outstanding for a total par amount of $454 million. UH also has a loan and a couple of equipment finance leases outstanding in the amount of $8.2 million and $30.2 million, respectively.

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Callable Par
				Revenue Bonds			
Series 2015A	Taxable	8,575,000	9/24/15	10/1/44	7,665,000	10/1/2025	
Series 2015B	Tax-Exempt	47,010,000	9/24/15	10/1/36	47,010,000	10/1/2025	34,610,000
Series 2015C	Taxable	17,585,000	9/24/15	10/1/22	4,055,000	MWC	-
Series 2015D	Taxable	25,715,000	9/24/15	10/1/21	4,105,000	MWC	-
Series 2015E	Tax-Exempt	67,400,000	4/20/16	10/1/32	67,400,000	10/1/2026	34,200,000
Series 2017A	Tax-Exempt	3,990,000	12/28/17	10/1/32	3,375,000	10/1/2027	1,610,000
Series 2017B	Tax-Exempt	12,040,000	12/28/17	10/1/28	12,040,000	10/1/2027	6,110,000
Series 2017C	Taxable	4,110,000	12/28/17	10/1/28	4,110,000	10/1/2027	2,090,000
Series 2017D	Tax-Exempt	13,185,000	12/28/17	10/1/30	13,185,000	10/1/2027	3,250,000
Series 2017E	Taxable	4,450,000	12/28/17	10/1/30	4,450,000	10/1/2027	3,390,000
Series 2017F	Tax-Exempt	52,275,000	12/28/17	10/1/38	50,095,000	10/1/2027	33,110,000
Series 2017G	Taxable	20,745,000	12/28/17	10/1/38	19,350,000	10/1/2027	12,325,000
Series 2020A	Taxable	10,045,000	10/28/20	10/1/40	10,045,000	10/1/2030	5,575,000
Series 2020B	Tax-Exempt	44,555,000	10/28/20	10/1/31	44,555,000	10/1/2030	4,655,000
Series 2020C	Taxable	54,300,000	10/28/20	10/1/40	54,300,000	10/1/2030	54,300,000
Series 2020D	Tax-Exempt	77,135,000	10/28/20	10/1/36	77,135,000	10/1/2030	35,190,000
Series 2020E	Taxable	31,130,000	10/28/20	10/1/40	31,130,000	10/1/2030	31,130,000
Sub-Total	-	-	-	-	**454,005,000**	-	**261,545,000**
				Other Obligations			
Loan	-	13,200,000	4/20/2017	7/1/2027	8,184,051	-	-
Equipment Lease	-	36,800,860	2018	2031	30,198,713	-	-
Total	**-**	**-**	**-**	**-**	**492,387,764**	**-**	**261,545,000**

B. Debt Service Chart

UH's debt service is fairly level with $37-38 million annual payments through FY2033. Thereafter, debt service gradually steps down until all debt is repaid in FY2045. A majority of the loan outstanding is payable in FY2028. The annual payment on the lease ranges from about $2.2 million to $3.2 million through FY2032.



UH typically issues 30-year revenue bonds. Approximately 47.5% of outstanding principal will be paid down in the next ten years.

C. Credit Ratings

UH's credit ratings are split among the rating agencies on account of different methodologies and evaluation of UH's credit profile. UH's revenue bonds carry AA-category ratings as reflected below.

University of Hawaii Credit Ratings		
	Moody's	**Fitch**
Revenue Bonds	Aa3 Stable	AA Stable

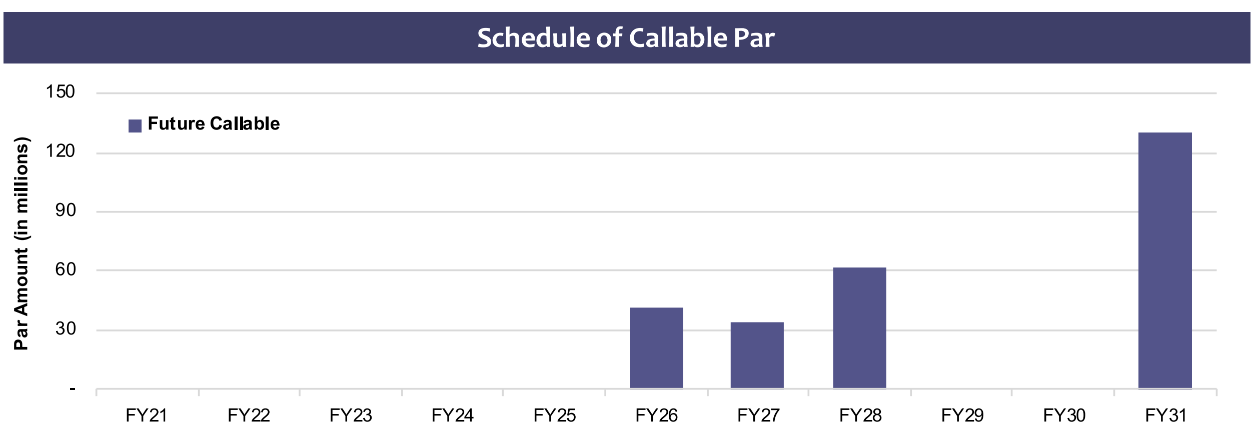
Moody's recently downgraded the rating by one notch to Aa3 driven by UH's exposure to likely material reductions in State support over the next several years which will be difficult to accommodate given already thin operating performance and limited autonomy to reduce expenses. As mentioned earlier UH relies on the State for operating and capital support in addition to post-retirement benefit contributions and is preparing for a 10% reduction in State funding as the State grapples with the effects of the coronavirus.

Credit strengths include UH's essential role as the State's only public system of higher education and an economic driver within the State, continued support from the State for capital and operations and GO debt issuances, large scale and scope of operations with strategically important research enterprise, diverse revenue sources, reserve and liquidity levels that have grown over time proving operating cushion and a manageable debt profile.

Credit challenges include declining enrollment and rising capital needs across UH's multi-campus system, weak operations and flat projected net tuition revenues, rigidity in labor structure lacking flexibility to make independent budget reductions, large backlog of deferred maintenance and very high pension and OPEB obligations.

D. Schedule of Callable Bonds

The following chart provides a summary of callable university revenue bonds and par amounts along with their call dates. The total callable par in UH's debt portfolio is $268.2 million. UH does not have any currently callable bonds. The earliest call date is in FY2025 at which time $41.24 million is refundable. These are

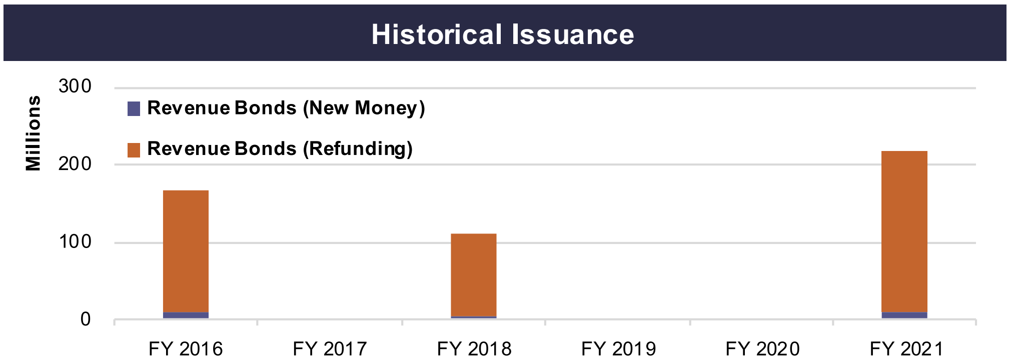


Series 2015A and Series 2015B Bonds. Pursuant to the criteria outlined in its Debt Management Policy, UH may pursue opportunities to refund callable bonds.

E. Multi-Year Program Anticipated/Intended Debt Issuance

Existing Debt

UH's last sizeable new money issuance was in FY2011 with the most recent issuance in October 2020 largely being refunding bonds.



Anticipated Debt

UH issued Series 2020 revenue bonds that had a small new money component of $10 million. Over the next six years, UH does not plan to issue additional revenue bonds. UH's 6-yr $1.6 billion capital improvement plan for FY2020-25 will be revised by the end of 2020. UH will continue to prioritize funding deferred maintenance projects which currently total $778 million. UH received $329.8 million of capital appropriations for FY2020 and FY2021. At this time, any additional spending in the revised capital plan is expected to be funded from State sources including GO Bonds (subject to approval) and is not anticipated to be funded with UH revenue bonds.

Unissued but Authorized Debt

UH has $137.6 million in authorized but unissued revenue bonds remaining.

F. Measuring Debt Burden

Last Full Fiscal Year and Projected (six-years) Metrics

AFFORDABILITY METRICS	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	5.4%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Pension pay-go to annual revenues	15.1%	15.0%	15.0%	15.0%	15.0%	14.9%	14.9%
OPEB pay-go annual revenues	15.7%	15.7%	15.6%	15.6%	15.6%	15.6%	15.5%
All annual obligations to annual revenues	36.2%	35.9%	35.8%	35.7%	35.7%	35.7%	35.6%
Annual debt service to annual appropriations	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%
Pension pay-go to annual appropriations	6.7%	6.9%	6.9%	6.8%	6.7%	6.6%	6.5%
OPEB pay-go annual appropriations	6.9%	7.1%	7.1%	7.0%	6.9%	6.8%	6.7%
All annual obligations to annual appropriations	15.9%	16.3%	16.3%	16.1%	15.9%	15.6%	15.4%
Debt service coverage	1.56x	1.46x	1.75x	1.81x	1.85x	1.88x	1.93x
Operating margin(1)	-126.5%	-119.2%	-118.8%	-121.5%	-124.5%	-127.3%	-130.4%
Operating margin(2)	-11.8%	-12.4%	-11.0%	-10.6%	-10.4%	-10.2%	-9.9%
Liquidity – days' cash on hand	89 days	92 days	92 days	90 days	89 days	88 days	87 days
Debt to operating revenues	0.31x	0.33x	0.32x	0.30x	0.28x	0.26x	0.24x
Debt to net cash flow from operations	(0.52x)	(0.58x)	(0.56x)	(0.52x)	(0.48x)	(0.45x)	(0.41x)

(1) Excluding State support for operations *(2) Including State support for operations*

Relevant Affordability Metrics

1. Indenture Limitations: UH's revenue bonds do not have legal covenants limiting the issuance of additional bonds nor a rate covenant required to maintain revenues at a certain level.
2. Annual debt service payments to annual revenues or annual debt service payments to annual appropriations: This ratio is a measure of budgetary flexibility afforded to UH by evaluating how much of UH's budget is tied up in fixed costs such as debt service. UH's debt service payments account for 5% of revenues and 2% of UH expenditures. However, including pension and OPEB contributions UH's fixed costs are anticipated to be a sizeable 36% of revenues.
3. Debt service coverage: While legally only a part of UH operating revenue defined as 'network revenues' are pledged for any specific series; in the context of affordability we look to all available revenues of the university system to evaluate debt service coverage. Debt service coverage after payment of all operating expenses is projected to remain adequate at or above 1.4 times. Additionally, about 41% of the debt service is covered by cigarette tax and tobacco securitization funds.
4. Operating margin: This is a ratio of net income from operating activities to operating revenue. It's a basic ratio used to gauge profitability of operations. UH's operating margin is negative as it relies on grants, contributions and State support for its operations. UH reports near break-even operations, after accounting for the State support it receives for operations. UH's reliance on State support for operations is largely attributable to its broader scope and functions which include community colleges.
5. Liquidity – days' cash on hand: For FY2020, UH estimates having adequate liquidity with about 89 days' cash on hand.

6. Balance sheet leverage – expendable resources to debt: The ratio measures the resources available to UH to repay debt in case of short-to-medium term volatility in operations. UH's expendable resources are negative limiting its ability to respond to operational volatility.
7. Income statement leverage – expendable resources to operations: This ratio evaluates the ability to operate relying on wealth that can be accessed over time without earning additional revenue and is discussed in the following section on peer comparison.
8. Debt to operating revenues: The ratio is a balance sheet ratio which measures the coverage of debt from annual revenues. UH's debt-to-operating ratio is 0.31 times for FY2020 which is considered low. It has been gradually decreasing over the last five years and is projected to continue to decrease over the six-year planning horizon indicative of limited borrowing as compared to revenue growth allowing the ratio to moderate overtime.
9. Debt to cashflow: This ratio measures the ability of UH to repay its debt from the profitability of its current operations and is a good measure of debt affordability. UH's operating margin has been negative for several years resulting in a negative debt-to-cashflow. It is reflective of UH's reliance on State transfers for operations.

Peer/Median Comparisons

It is important to note that UH is unique in that it is a system of university campuses, community colleges, and educational centers. As such, it is challenging to compare UH against peer universities and university systems based on UH's specific characteristics. Moody's publishes a median ratios report for public universities analyzing various financial metrics relevant to the sector, some of which were discussed in the affordability metrics section.

DEBT AND OPERATING METRICS (2019)	UH*	MOODY'S UNIVERSITY MEDIANS			
Rating Level	**Aa3****	**Aa1**	**Aa2**	**Aa3**	**A1**
Capital Ratios					
Spendable Cash & Investments to Total Debt (x)	**1.4**	1.16	1.41	1.35	1.24
Total Cash & Investments to Total Debt (x)	**1.9**	1.62	1.99	1.78	1.69
Total Debt to Operating Revenue (x)	**0.3**	0.38	0.58	0.57	0.60
Debt Service to Operating Expenses (%)	**2.6**	3.10	4.30	4.40	4.80
Balance Sheet Ratios					
Spendable Cash & Investments to Operating Expenses (x)	**0.4**	0.95	0.76	0.71	0.70
Operating Ratios					
Moody's Operating Margin (%)	**-2.7**	4.00	3.60	2.40	1.20
Annual Debt Service Coverage (x)	**2.4**	4.09	2.93	2.65	2.17

*US Public Universities 2019 Moody's Medians; *UH data from Moody's Financial Ratios Analysis*
***UH is currently rated Aa3 as discussed above. UH was rated Aa2 in 2019.*

In the adjoining tables, in addition to comparing UH's metrics to FY2019 sector medians, we analyze UH against specific credits rated in the 'Aa' category like UH. These peers include the University of Utah, Texas Tech University System, University of Colorado, University of Kentucky, University of New Mexico and Washington State University.

DEBT AND OPERATING METRICS (FY 2019)	Univ. of Hawaii	Univ. of Utah	Texas Tech Univ. Sys.	Univ. of Colorado	Univ. of Kentucky	Univ. of New Mex.	WA State Univ.
Rating	Aa3**	Aa1	Aa1	Aa1	Aa2	Aa3	Aa3
Capital Ratios							
Spendable Cash & Investments to Total Debt (x)	**1.4**	2.7	2.4	2.2	1.6	1.8	0.6
Total Cash & Investments-to-Total Debt (x)	**1.9**	3	3.5	2.8	2.1	2.4	2.2
Total Debt to Operating Revenue (x)	**0.3**	0.2	0.4	0.4	0.3	0.2	0.5
Debt Service to OpEx* (%)	**2.6**	2.1	4.5	3.1	2.7	2.1	4.9
Balance Sheet Ratios							
Spendable Cash & Investments to OpEx* (x)	**0.4**	0.6	0.9	0.9	0.5	0.4	0.3
Operating Ratios							
Moody's Operating Margin (%)	**-2.7**	6.7	2.4	5.8	2.9	2.5	0.9
Annual Debt Service Coverage (x)	**2.4**	6	2.4	4.1	3.6	3.7	2.6

Moody's Financial Ratios Analysis *Operating Expenditure

**UH is currently rated Aa3 as discussed above. UH was rated Aa2 in 2019.

UH's debt service coverage levels, although adequate are weaker compared to other similarly rated credits. Its operating margin, at negative 2.7%, is much lower than the 2.4% sector medians for 'Aa2' rated universities. This is indicative of UH's significant reliance on State support. Some of its capital ratios which compare liquidity and spendable resources against debt burden as well as income statement leverage are in line with or better than 'Aa2' sector medians and similarly rated peers. UH's debt service expenditure is low, accounting for about 2.6% of operations and compares favorably with 'Aa2' medians and peers.

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

UH's revenues and coverage levels are adequate, stabilized by State support received for operations and capital purposes. However, net tuition revenue growth is projected to be limited given the desire to maintain affordable tuition rates for students. In addition, State support is also expected to be constraint due to the COVID-19 pandemic with a 10% reduction anticipated in FY2021. As reflected in the affordability metrics, projected revenues are sufficient to cover existing debt service over the projection period and no new revenue bonds are anticipated at this time.

On a broad level, UH's debt affordability is constrained by – declining enrollment, budgetary fixed costs including labor and post-retirement benefits, and its reliance on State support for operations and capital. Pension and OPEB contribution make up a significant portion of UH's expenses. As the funding requirements for these liabilities ramp up, UH should preserve budgetary flexibility and financial capacity in consideration of any future debt issuances. While state support for university systems across the nation is not atypical, it will be crucial for UH to secure necessary appropriations to fulfill debt obligations, address the capital backlog, and maintain operations during the projection period. Increased fixed costs (pension and OPEB) pressure UH's budgetary requirements and continued reliance on State support limit progress towards department self-sustainability.

As UH addresses its capital plan needs, it is essential for UH to continue to seek solutions and funding strategies which minimize reliance on UH operating revenues. A strategic focus on securing funding or partnerships with stakeholders will improve financial metrics and gradually enhance debt affordability and regain higher credit ratings over time.

VII. Hawaiian Home Lands

The Department of Hawaiian Home Lands (DHHL) is responsible for the management and disposition of the 'Hawaiian Home Lands' which are lands set aside for rehabilitation of native Hawaiians by the Hawaiian Home Commission Act (HHCA). DHHL's primary mission is to provide qualified native Hawaiians the opportunity to own homes on the trust's lands. DHHL performs various functions including administering the homestead lease program, providing direct loans to lessees for construction and repairs, undertaking infrastructure development for the homestead lands, administering other general leases, licenses and permits and managing the overall land inventory system. Major DHHL revenue sources include general lease revenues, and income derived from DHHL's loans made to native Hawaiian lessees.

DHHL primarily issues revenue bonds and COPs. The revenue bonds are secured by a gross pledge on general lease and license and permit fee revenues with debt service having priority over operating costs. DHHL has the flexibility to revise rates, rentals, fees and charges to ensure sufficiency of revenues for payment of debt service on its revenue bonds. DHHL's COPs are payable from funds appropriated by the State for DHHL.

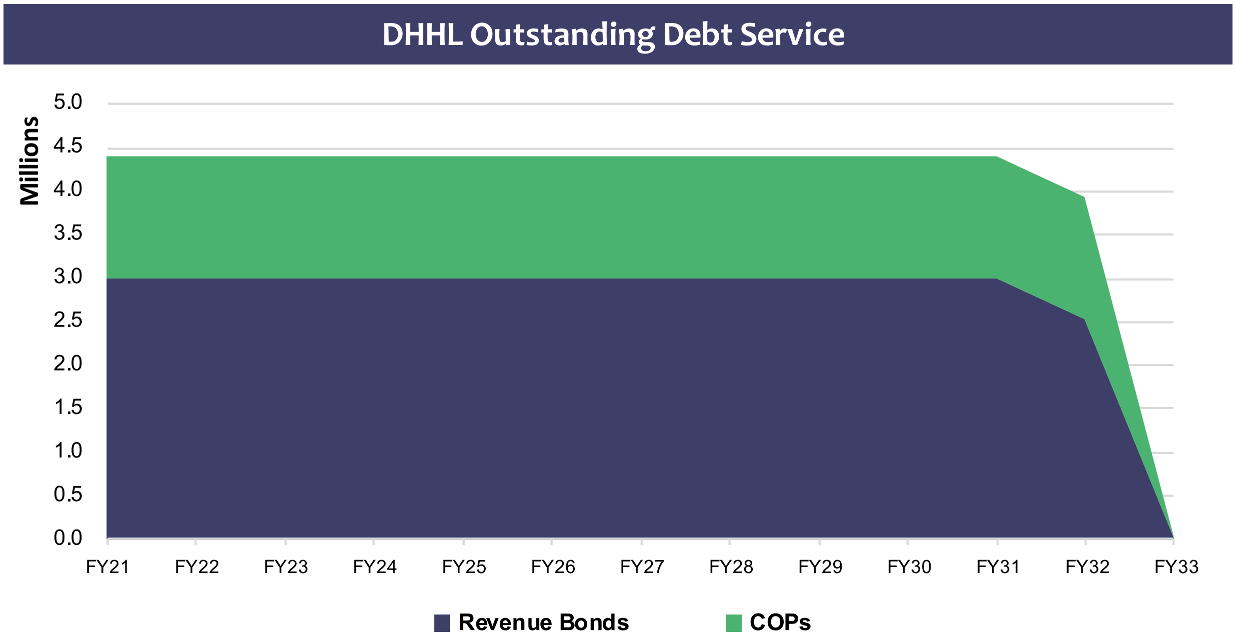
A. Debt Profile

DHHL currently has one revenue bond series outstanding for a total par of $26.6 million. DHHL also has COPs outstanding in the amount of $11.8 million. For the purpose of this Study, only the "available lands" (as defined in Section 207(a) of the Hawaiian Homes Commission Act, 1920) related debt is evaluated.

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Par Call Date	Callable Par
				Revenue Bonds			
Series 2017	Tax-Exempt	30,940,000	8/25/17	4/1/32	26,610,000	4/1/2027	12,755,000
				COPs			
Series 2017A	Tax-Exempt	15,125,000	8/25/17	11/1/31	11,840,000	11/1/2027	5,065,000
Total	-	-	-	-	**38,450,000**	-	**17,820,000**

B. Debt Service Chart

DHHL's debt service structure consists of level annual debt service payments on both the revenue bonds and COPs. Annual debt service is approximately $4.4 million through final maturity in FY2032. Approximately 80% of the total principal will be repaid within the next ten years.



C. Credit Ratings

DHHL's revenue bonds and COPs are rated at or above 'A1'.

Department of Hawaiian Home Lands Credit Ratings			
	Moody's	**S&P**	**Fitch**
Revenue Bonds	A1 Stable	NR	NR
Certificates of Participation	Aa3 Stable	NR	NR

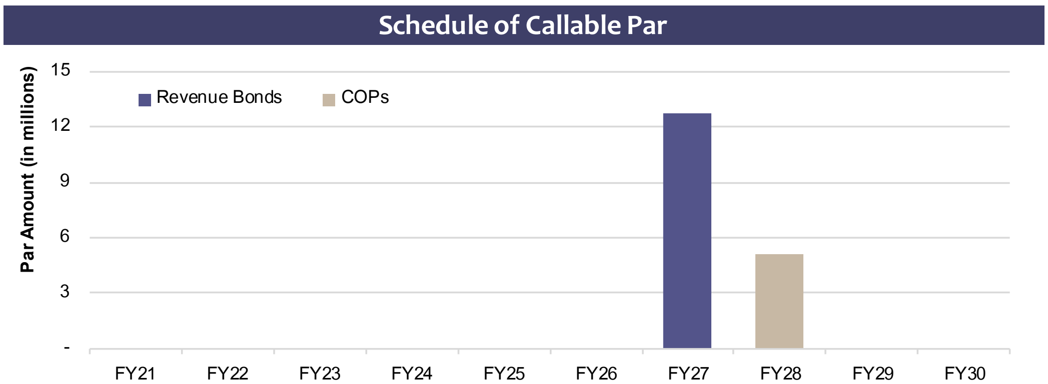
The rating on these bonds was lowered by one notch in July 2020 by Moody's, following a one-notch downgrade in the State's GO rating to 'Aa2' on account of weakening in the State's credit quality attributable to the coronavirus pandemic and the impact on the State's tax revenues and tourism industry.

For the revenue bonds, credit strengths include DHHL's, Office of Hawaiian Affairs (OHA) and the State's commitment to develop homesteads for native Hawaiians, increasing income from non-homestead trust lands, adequate debt service coverage supported by availability of OHA payments and no future debt plans. Credit challenges include concentration of revenues from top lessees and non-payment risk from lessees. The rating is dependent on the State's economy and rating and is two notches below the State's current 'Aa2' GO rating.

The COP rating is driven by the State's GO rating and is one notch below the State's 'Aa2' reflecting the limited, subject-to-appropriation nature of a lease security; the essentiality of the leased asset; and the State's obligation to fund administrative and operating costs of the department, including lease payments, from its general fund. As such the strengths and weaknesses for the credit are also driven by the State's credit characteristics.

D. Schedule of Callable Bonds

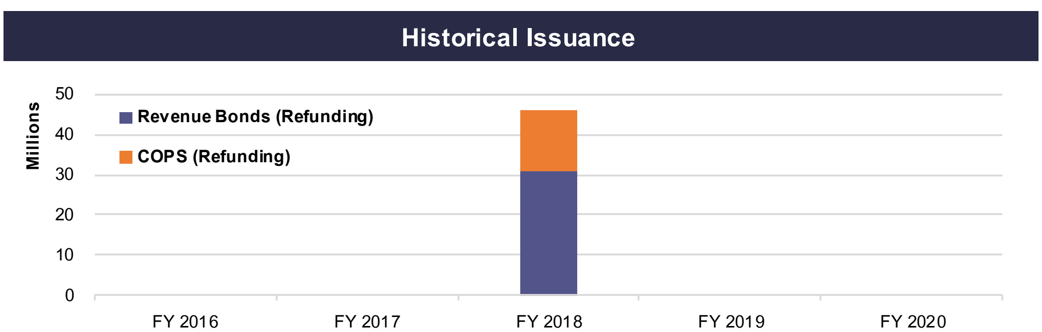
Both the revenue bonds and COPs have a 10-year call option. Approximately $12.8 million of the revenue bonds outstanding and $5.0 million of the COPs outstanding are callable in April and November of 2027 respectively.



E. Multi-Year Program Anticipated/Intended Debt Issuance

Existing Debt

DHHL has not issued any new money debt in the last five years. Its latest issuance of revenue bonds and COPs in FY2018 was for refunding prior debt.



Anticipated Debt

DHHL does not have any plans for additional debt over the next six years.

Unissued but Authorized Debt

DHHL does not have any unissued bond authorization remaining.

F. Measuring Debt Burden

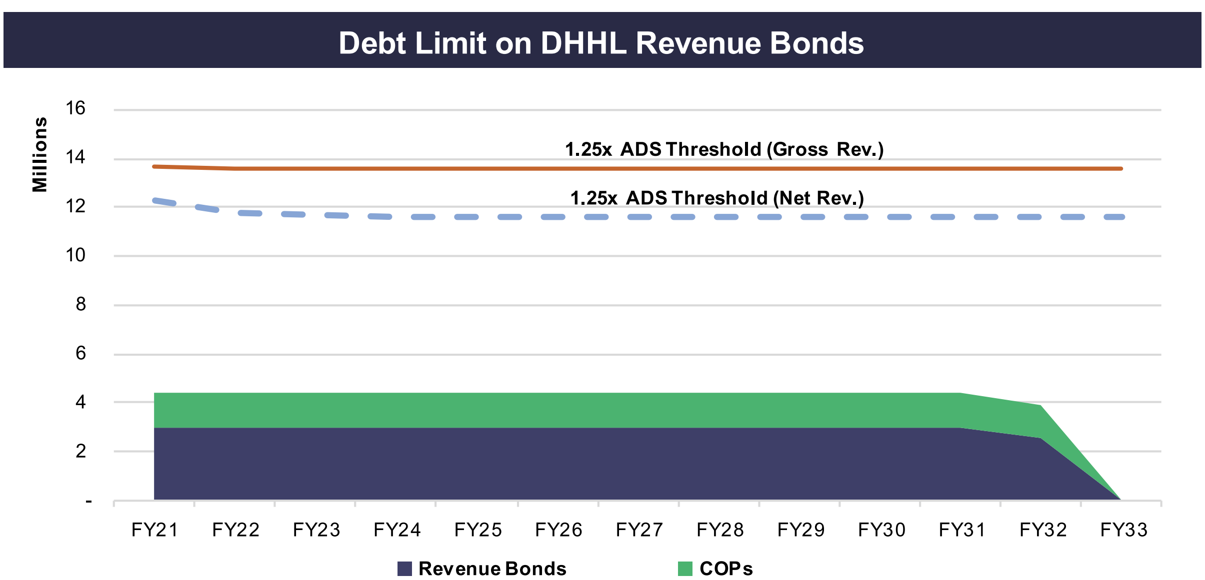
Last Full Fiscal Year and Projected (six-years) Metrics

AFFORDABILITY METRICS	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	6.7%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%
All annual obligations to annual revenues	12.5%	13.4%	13.4%	13.4%	13.4%	13.4%	13.4%
Annual debt service to annual appropriations	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%
All annual obligations to annual appropriations	16.9%	16.9%	16.9%	16.9%	16.9%	16.9%	16.9%
Gross Debt Service Coverage (Revenue Bonds)	5.66x	5.67x	5.65x	5.65x	5.65x	5.65x	5.65x
Net Debt Service Coverage (Revenue Bonds)	5.06x	4.90x	4.85x	4.82x	4.82x	4.82x	4.82x
Liquidity – days' cash on hand	2,137 days	2,139 days	2,138 days	2,138 days	2,138 days	2,138 days	2,138 days

Note: Projected metrics assume no additional debt issuances.

Relevant Affordability Metrics

1. Indenture Limitations: DHHL's revenue bonds are subject to a rate covenant to maintain rates, rentals, fees, and charges of at least 1.25 times aggregate annual debt service. In addition the indenture includes a twofold ABT test – a forward looking test requiring projected revenues for the next six years to provide a coverage of at least 1.25 times on projected debt service including debt service on the proposed issuance and a historical test requiring revenues in the most recent fiscal provide a coverage of at least 1.25 times on the maximum aggregate debt service including the debt service on the proposed issuance. The COPs are lease obligations payable from appropriations and such structures typically do not have debt limitations in the indenture as with revenue bonds. DHHL's revenue bonds follow the rate covenant reflected in the following chart. The debt service on outstanding revenue bonds is significantly lower than the legal maximum allowable debt service while maintaining 1.25 times coverage (orange line in the chart). The legal requirements are based on gross revenues pledged in the indenture (instead of net revenues after operating expenditures) and exclude COPs.



However, the rate covenants are met even on a net revenue basis after incorporating debt service on COPs. There is significant capacity under the legal limits to issue additional debt, if required. None is anticipated at this time.

2. Annual debt service payments to annual revenues or annual debt service payments to annual appropriations: Both of these ratios give an indication of the amount of fixed costs that are built into the budget and are a measure of financial/operational flexibility. For FY2020, the estimated debt service on all outstanding debt to total DHHL revenues was 6.7% and debt service compared to total DHHL expenditures was 9.7%. The ratios are expected to remain stable over the projected horizon through FY2026 despite the pandemic as the lease revenues supporting the revenue bonds are not expected to be impacted significantly from the pandemic and the State is expected to continue to make appropriations towards the repayment of the COPs.

3. Gross debt service coverage: Gross debt service coverage is computed based on gross pledged revenues before payment of any operating expenses. Gross coverage has been very strong historically and is projected to remain above 5.0 times.

4. Net debt service coverage: Legally, debt service is payable before operating expenses reflecting the strength of the gross revenue pledge. However, it is important to evaluate debt service coverage based on net revenues (after operating expenses) as a measure of self-sustainability and overall affordability. Current and future net debt service coverage on DHHL's revenue bonds is also strong at over 4.0 times for the next six years.

5. Liquidity – days' cash on hand: The unrestricted cash balance accessible to DHHL is very strong at approximately 2,137 days of cash in FY2020.

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

As reflected in the affordability metrics above, DHHL is projected to generate more than sufficient revenues to pay debt service on all of its obligations. Furthermore, its finances are buoyed by its exceptionally strong cash balances. Current debt service is well under the legal limits dictated by the indenture with capacity for more debt should DHHL require it. From a broader affordability perspective, net debt service coverage is very strong on existing debt. However, the high coverage levels help balance the risk from the narrow revenue stream. In light of the pandemic and the recent downgrade in the State's rating and DHHL's bonds, maintaining sufficiently high coverage levels will be paramount to maintaining long-term credit quality. At this time, DHHL has no borrowing plans over the next six years and affordability metrics are expected to remain stable.

VIII. Hawaii Housing Finance and Development Corporation

The Hawaii Housing Finance and Development Corporation (HHFDC) was established with the purpose of amalgamating other housing corporations, authorities and trust funds of the State under one corporation. HHFDC's mission is to increase the supply of workforce and affordable homes by providing tools and resources to facilitate housing development. Tools and resources include housing tax credits, low interest construction loans, equity gap loans, developable land and expedited land use approvals.

HHFDC manages three financing programs: Hawaii rental housing system revenue bonds (RHS Program), single family mortgage purchase revenue bonds (SF Program), and the multifamily housing revenue bonds. On July 1, 2019, HHFDC defeased all bonds under the RHS Program and there are no plans to issue additional debt under the program in the foreseeable future. The multifamily housing revenue bonds are conduit issuances and not direct obligations of HHFDC. As a result, detailed affordability discussions on the RHS Program and the multifamily housing revenue bonds program are excluded from this Study. The affordability discussion is limited to the SF Program.

SF Program

The SF Program assists eligible borrowers to finance the purchase of single-family homes. HHFDC uses proceeds of these bonds to purchase mortgage loans. The SF Program revenue bonds are pledged by payments on mortgage-backed pass-through securities guaranteed by Ginnie Mae and Fannie Mae.

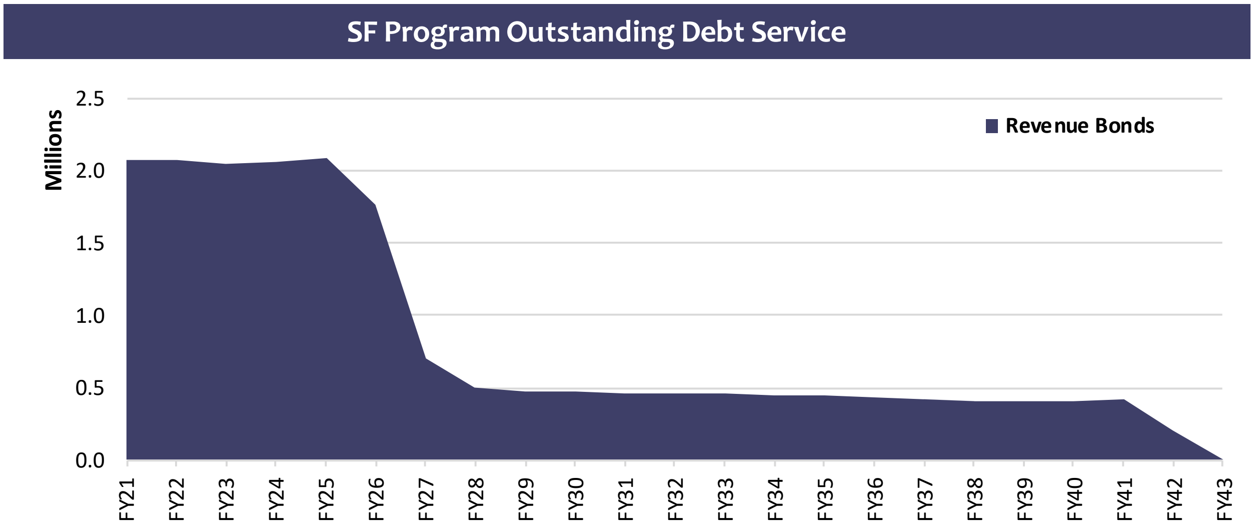
A. Debt Profile

The SF Program has three series of bonds outstanding for a total par value of $16.4 million.

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Callable Par
Series 2009A-1	Tax-Exempt	30,000,000	12/1/11	7/1/41	4,960,000	Current	4,960,000
Series 2011B	Tax-Exempt	12,995,000	12/1/11	1/1/26	3,240,000	7/1/2021	3,240,000
Series 2013A	Taxable	26,309,825	3/28/13	7/1/37	6,199,394	Current	6,199,394
Total	-	-	-	-	**14,399,394**	-	**14,399,394**

B. Debt Service Chart

For the SF Program, annual debt service is about $2.1 million through FY2026 and steps down thereafter to about $400,000 until the final maturity in FY2042. Aggregate principal amortization is rapid with over 70% of debt being retired over the next ten years.



C. Credit Ratings

The SF Program carries the ratings and outlook of the U.S. government as shown in the table below. Credit strengths include high level of security provided by pledged indenture assets consisting of mortgage-backed pass-through securities guaranteed by Ginnie Mae and Fannie Mae, sound legal structure including a debt service reserve fund and a mortgage loan reserve fund and fixed-rate debt portfolio. Fitch recently affirmed the U.S. Sovereign rating at AAA but revised the outlook to negative. Consequently, all ratings related to U.S. Sovereign ratings, including HHFDC's bonds now carry a negative outlook.

Hawaii Housing Finance and Development Corporation SF Program Credit Ratings			
	Moody's	**S&P**	**Fitch**
Revenue Bonds	Aaa Stable	AA+ Stable	AAA Negative

D. Schedule of Callable Bonds

The total callable par under the SF Program is approximately $14.4 million. The SF Program has a complex structure including various timing of loan repayments and as such refunding evaluations are driven by factors other than savings. The portfolio is monitored for refunding opportunities internally by HHFDC.

E. Multi-Year Program Anticipated/Intended Debt Issuance

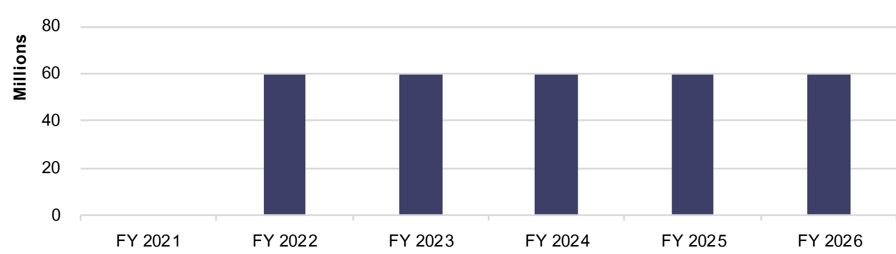
Existing Debt

No new money debt has been issued under the SF Program in the last five years; however, HHFDC has issued refunding bonds on occasion. The last refunding series was issued in FY2013.

Anticipated Debt

HHFDC issues revenue bonds under the SF program when market conditions are favorable. For the purpose of this Study, HHFDC has assumed the following schedule of issuances; however, market conditions will dictate the actual issuance.

Anticipated Issuance SF Program



Unissued but Authorized Debt

HHFDC has $326.95 million in revenue bonds authorized but unissued under the SF Program.

F. Measuring Debt Burden

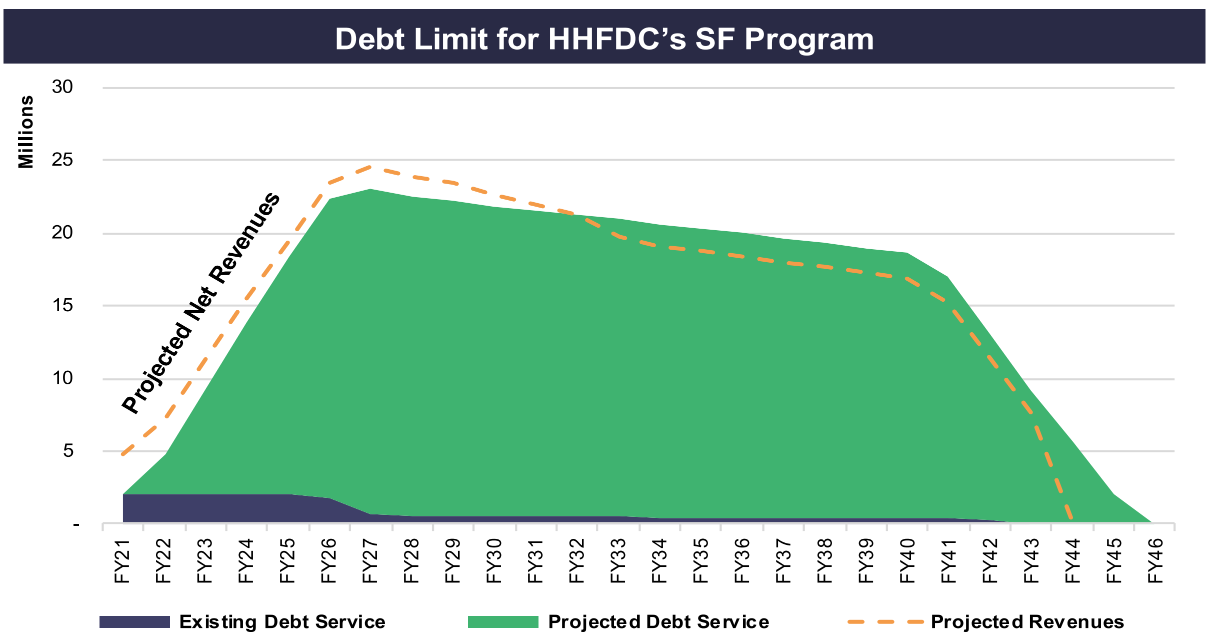
Last Full Fiscal Year and Projected (six-years) Metrics: SF Program

AFFORDABILITY METRICS	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Annual debt service to annual revenues	57.0%	38.0%	60.4%	76.8%	85.3%	90.7%	92.6%
Annual debt service to annual appropriations	88.6%	76.5%	87.8%	93.1%	95.1%	96.1%	96.7%
Debt service coverage (Net)	1.62x	2.33x	1.52x	1.23x	1.12x	1.06x	1.05x

Note: Projected metrics assume issuance of $300 million of additional revenue bonds during the projection period (see anticipated debt above)

Relevant Affordability Metrics

1. Indenture Limitations: There are no legal limitations in the bond indenture for SF Program revenue bonds. However, if market conditions are conducive to additional borrowings, HHFDC would need to conduct the program such that sufficient revenues are available to pay debt service. At this time, projected net revenues (orange line in the following chart) are approximately in line with future additional debt service on anticipated borrowings. It is noted here that, while the projected net revenues appear to increase significantly in a short period of time, this is in line with mortgage-backed passed-through security income that would correspond with additional debt issuances. Additional debt is strictly contingent on market conditions and may not materialize both in terms of timing and amount.



It is noted here that the slight mismatch in the net revenues and debt service in the later years is attributable to anticipated prepayment of debt. In prior years, HHFDC has used excess revenues to redeem debt sooner than the scheduled maturity date. As such, the existing and any new debt is anticipated to be paid off earlier than the scheduled final maturity in FY2045. The revenues are projected assuming such early redemption of debt. Therefore, as depicted, projected revenues trail off slightly as the corresponding debt is gradually repaid in advance of stated maturity.

2. Annual debt service payments to annual revenues and annual debt service payments to annual appropriations: These ratios are used to measure the fixed costs in a budget to evaluate the degree of flexibility in the budget. These metrics are more meaningful when evaluated for a department as a whole. Usually at a program level, a majority of the revenues are dedicated towards debt service, with little being assigned to ongoing costs and administrative expenses. For this reason, the high debt service ratios (debt service of about 77% to 97% of the program budget) for the SF Program are not atypical.
3. Net debt service coverage: The net debt service coverage on SF Program revenue bonds, taking into account additional debt, is expected to be adequate at or above one times.

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

For the SF Program, the projected revenues are sufficient to pay debt service on existing bonds. The bonds are secured by payments on mortgage-backed pass-through securities guaranteed by Ginnie Mae and Fannie Mae. While projected revenues are expected to be sufficient to pay corresponding debt service relating to the SF Program, in the event of non-payment by borrowers, the program will continue to receive its principal and interest payments from the Ginnie Mae insurance or Fannie Mae guaranty. During the projection period, HHFDC may issue new money debt under the SF Program. HHFDC considers interest rates in the bond and mortgage markets to determine if a bond issue is financially feasible. HHFDC also assesses the local housing and mortgage markets to ascertain adequate demand for a proposed mortgage lending program. Additionally, any future debt should be evaluated in the context of COVID-19 crises and impact on the national housing sector, general economic conditions and the credit strength of the U.S. government which forms the basis for Ginnie Mae and Fannie Mae’s credit ratings.

IX. Department of Business, Economic Development, and Tourism

The Department of Business, Economic Development, and Tourism (DBEDT) is Hawaii's resource center for economic and statistical data, business development opportunities, energy and conservation information, and foreign trade advantages. DBEDT's mission is to achieve a Hawaii economy that embraces innovation and is globally competitive, dynamic and productive, providing opportunities for all Hawaii's citizens. Through its attached agencies, DBEDT fosters planned community development, creates affordable workforce housing units in high-quality living environments, and promotes innovation sector job growth.

The State acting through DBEDT issued its first Green Infrastructure Bond, the Green Energy Market Securitization (GEMS) Bonds, to finance the purchase or installation of green infrastructure equipment for clean energy technology, energy use reduction, demand side management infrastructure among other related purposes as authorized by the public utilities commission highlighted in the statute (HRS §39A, HRS §196 Part IV and HRS §269 Part X).

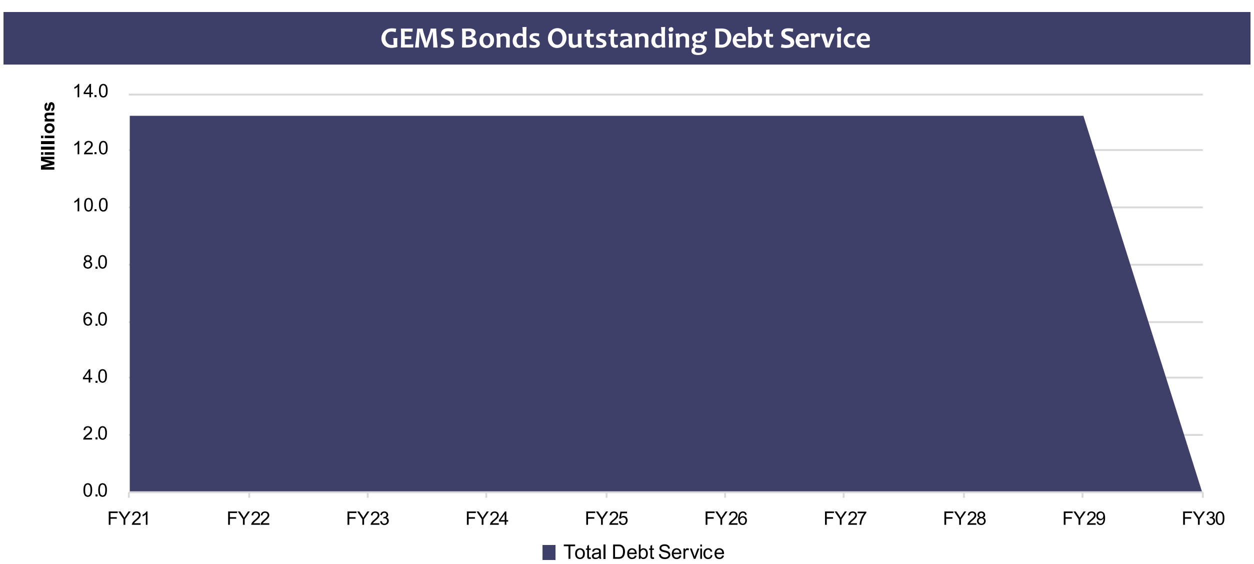
A. Debt Profile

The GEMS Bonds 2014 Series A were issued in two tranches totaling $150 million in paramount; the A-1 tranche has been retired and $97.5 million is currently outstanding under the A-2 tranche.

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par
Series 2014 A-2	Taxable	100,000,000	11/1/14	1/1/29	97,454,007
Total	-	-	-	-	97,454,007

B. Debt Service Chart

GEMS Bond annual debt service is approximately $13.2 million through FY2029.



C. Credit Ratings

The GEMS Bonds carry the highest credit ratings.

Department of Business, Economic Development & Tourism Credit Ratings			
	Moody's	**S&P**	**Fitch**
Green Energy Market Securitization Bonds	Aaa Stable	AAA Stable	AAA Stable

Credit strengths include the State's legislative non-impairment pledge, the size, stability and diversity of the service area, and the statutory true-up mechanism which adjusts the charges to ensure sufficient collections for payment of debt service.

D. Schedule of Callable Bonds

The GEMS Bonds are not subject to optional redemption prior to maturity. As such, there are no refunding opportunities associated with the GEMS Bonds.

E. Multi-Year Program Anticipated/Intended Debt Issuance

Existing Debt

DBEDT issued $150 million of GEMS Bonds 2014 Series A as reflected in the debt profile above.

Anticipated Debt

DBEDT does not have any plans for additional Green Infrastructure debt over the next six years.

Unissued but Authorized Debt

DBEDT does not have any unissued but authorized Green Infrastructure debt.

F. Measuring Debt Burden

The GEMS Bond structure is unique in the strength of the security and pledge to bondholders. Per the Certificate of the Director of the DBEDT, the GEMS bonds are supported by green infrastructure property and DBEDT's irrevocable right to impose, collect, and adjust non-by-passable securitization charges from all existing and future electric service customers of Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc. and Maui Electric Company, Limited. A statutorily uncapped true-up mechanism mandatorily adjusts the securitization charges to ensure sufficient collections for timely payments on the bonds.

The GEMS Bond's unique structure ensures that sufficient revenues will be generated, along with available funds, to cover all operating expenses and debt service payments. As such current year and projected years' coverage (revenues plus available funds) is greater than or equal to 1.00 times debt service in every year.

G. Discussion on Debt Affordability, Potential Concerns and Recommendations

The GEMS Bond true-up mechanism adjusts the securitization charges to ensure sufficient collections for timely payments on the bonds. With the strength of the credit and structure in place, it is clear that sufficient revenues will be available to pay existing debt service on the GEMS Bonds.

Appendix

A. Debt Service Assumptions

New Money Assumptions

Department	Credit Ratings	Coupon	First Principal	Final Maturity
B&F	Aa2/AA+(N) /AA	5.75%	year 3	20
DOT-Airports (GARB)	A1/A+(N)/A+(N)	Debt service provided by DOT-Airports		
DOT-Airports (CFC)	A2/A-(N)/A	n/a - no bonds anticipated		
DOT-Harbors	Aa3/--/AA-	n/a - no bonds anticipated		
DOT-Highways	Aa3/AA+/AA	6.50%	year 1	20
University of Hawaii	Aa3/--/AA	n/a - no bonds anticipated		
DHHL (Revenue Bonds)	A1/--/--	n/a - no bonds anticipated		
DHHL (COPs)	Aa3/--/--	n/a - no bonds anticipated		
HHFDC - Single Family	Aaa/AA+/AAA (N)	Debt service and MBS assumptions provided by HHFDC		
DBEDT (GEMS)	Aaa/AAA/AAA	n/a - no bonds anticipated		

N: Negative Outlook

B. General Fund Debt Outstanding by Series

Series Name	Tax Status	Issue Size	Delivery Date	Final Maturity	Outstanding Par	Next Call Date	Callable Par
			GO Bonds				
Series DQ	Tax-Exempt	500,000,000	6/23/09	6/1/29	11,930,000	Current	11,930,000
Series DS	Taxable	32,000,000	11/5/09	9/15/24	11,960,000	-	-
Series DX	BAB	500,000,000	2/18/10	2/1/30	353,285,000	MWC	-
Series DZ	Tax-Exempt	800,000,000	12/7/11	12/1/31	56,740,000	12/1/2021	22,010,000
Series EA	Tax-Exempt	403,455,000	12/7/11	12/1/23	220,555,000	12/1/2021	115,430,000
Series EE	Tax-Exempt	444,000,000	12/4/12	11/1/32	157,625,000	11/1/2022	135,350,000
Series EF	Tax-Exempt	396,990,000	12/4/12	11/1/24	218,285,000	11/1/2022	114,595,000
Series EG	Taxable	26,000,000	12/4/12	11/1/32	20,410,000	11/1/2022	17,460,000
Series EH	Tax-Exempt	635,000,000	11/21/13	8/1/33	316,095,000	8/1/2023	283,290,000
Series EL	Tax-Exempt	50,860,000	11/21/13	8/1/23	23,595,000	-	-
Series EM	Taxable	25,000,000	11/21/13	8/1/33	21,345,000	8/1/2023	17,355,000
Series EN	Taxable	29,795,000	11/21/13	8/1/33	24,200,000	8/1/2023	18,605,000
Series EO	Tax-Exempt	575,000,000	11/25/14	8/1/34	496,015,000	8/1/2024	406,320,000
Series EP	Tax-Exempt	209,015,000	11/25/14	8/1/26	164,320,000	8/1/2024	60,330,000
Series EQ	Taxable	25,000,000	11/25/14	8/1/34	22,510,000	MWC	-
Series ET	Tax-Exempt	190,000,000	10/29/15	10/1/35	166,965,000	10/1/2025	122,415,000
Series EU	Tax-Exempt	35,000,000	10/29/15	10/1/35	30,285,000	10/1/2025	21,600,000
Series EX	Tax-Exempt	25,035,000	10/29/15	10/1/25	18,415,000	-	-
Series EY	Tax-Exempt	212,120,000	10/29/15	10/1/27	190,010,000	10/1/2025	61,230,000
Series EZ	Tax-Exempt	215,590,000	10/29/15	10/1/28	180,640,000	10/1/2025	76,325,000
Series FA	Taxable	25,000,000	10/29/15	10/1/35	21,730,000	10/1/2025	15,695,000
Series FB	Tax-Exempt	500,000,000	4/14/16	4/1/36	462,150,000	4/1/2026	323,515,000
Series FC	Taxable	25,000,000	4/14/16	4/1/21	5,140,000	MWC	-
Series FE	Tax-Exempt	219,690,000	4/14/16	10/1/28	184,000,000	10/1/2026	53,095,000
Series FF	Taxable	119,730,000	4/14/16	10/1/28	97,765,000	10/1/2026	26,345,000
Series FG	Tax-Exempt	375,000,000	10/13/16	10/1/36	347,385,000	10/1/2026	246,845,000
Series FH	Tax-Exempt	379,295,000	10/13/16	10/1/31	379,295,000	10/1/2026	197,840,000
Series FI	Tax-Exempt	2,710,000	10/13/16	10/1/33	2,710,000	10/1/2026	1,800,000
Series FJ	Taxable	25,000,000	10/13/16	10/1/22	10,215,000	-	-
Series FK	Tax-Exempt	575,000,000	5/24/17	5/1/37	553,325,000	5/1/2027	374,315,000
Series FN	Tax-Exempt	229,355,000	5/24/17	10/1/31	229,355,000	10/1/2027	98,275,000
Series FO	Taxable	37,500,000	5/24/17	5/1/21	18,920,000	-	-
Series FP	Taxable	7,500,000	5/24/17	5/1/37	7,175,000	5/1/2027	4,685,000
Series FR	Tax-Exempt	15,090,000	12/21/17	10/1/21	3,890,000	-	-
Series FS	Tax-Exempt	275,363,064	12/21/17	10/1/33	275,363,064	10/1/2028	125,201,985
Series FT	Tax-Exempt	631,215,000	2/14/18	1/1/38	631,215,000	1/1/2028	430,720,000
Series FU	Taxable	50,000,000	2/14/18	1/1/21	17,000,000	-	-
Series FW	Tax-Exempt	431,665,000	2/21/19	1/1/39	431,665,000	1/1/2029	271,915,000
Series FX	Taxable	75,000,000	2/21/19	1/1/22	50,500,000	-	-
Series FZ	Taxable	995,000,000	8/12/20	8/1/40	995,000,000	8/1/2030	653,280,000
Series GA	Tax-Exempt	147,555,000	10/29/20	10/1/21	147,555,000	-	-
Series GB	Taxable	600,000,000	10/29/20	10/1/25	600,000,000	-	-
Series GC	Taxable	400,000,000	10/29/20	10/1/40	400,000,000	10/1/2030	264,610,000
Sub-Total	**-**	**11,471,528,064**	**-**	**-**	**8,576,538,064**	**-**	**4,572,381,985**
			Bond Anticpation Notes (Short-Term GO Debt)				
Series 2020	Taxable	600,000,000	4/14/20	10/15/21	200,000,000	4/15/2021	200,000,000
			Capital Lease				
DAGS Facilities I	-	12,377,000	9/3/09	6/1/26	8,950,069	NA	NA
DAGS Facilities II	-	25,512,000	4/14/11	11/1/30	19,934,608	NA	NA
Public Safety Div.	-	18,835,000	8/1/13	9/20/33	16,416,000	NA	NA
Sub-Total	**-**	**56,724,000**	**-**	**-**	**45,300,677**	**-**	**-**
Grand Total	**-**	**12,128,252,064**	**-**	**-**	**8,821,838,741**	**-**	**4,712,626,985**

Glossary

Advance Refunding: When bonds are refunded more than 90 days prior to their express call date, the refunding is said to be an advance refunding. It should be noted that not all callable bonds are eligible for advance refunding. Only bonds, the proceeds of which are applied to projects, or bonds issued for current refundings may be advance refunded. Tax-exempt advance refundings were eliminated in December 2017.

Build America Bonds or BABs: BABs are taxable municipal securities issued through December 31, 2010 under the American Recovery and Reinvestment Act of 2009 (ARRA). BABs may be direct pay subsidy bonds, wherein the issuer would receive a direct payment from federal government equal to about 35% of the interest costs or they may be tax credit bonds wherein the issuer may offer a tax credit to the buyer.

Current Refunding: When bonds are refunded no sooner than 90 days before their call date, the refunding is said to be a current refunding.

Forward Refunding: When bonds are priced to refund bonds more than 90 days prior to their express call date, with delivery within 90 days of the call date, the refunding is said to be a forward refunding.

Make Whole Call (MWC): A type of call option that is designed to protect the investor from losses as a result of the earlier call. In order to exercise the call, the issuer must make a lump sum payment (referred to as a "make-whole-call premium") derived from a formula based on the net present value of future interest payments that will not be paid as a result of the call. Because the cost can often be significant, such a call option is rarely exercised.

Net Revenues: Net Revenues, are the total operating revenues net of any operations and maintenance cost for the department, program, project or undertaking as the case may be.

Optional Call or Redemption: The terms of the bond contract, sometimes referred to as "call or prepayment provisions," giving the issuer the right to redeem or call, all or a portion of an outstanding issue of bonds prior to its stated date of maturity. Optional redemptions often can be exercised only on or after a specified date (referred to as the "call date"), typically for a municipal security beginning approximately ten years after the issue date.

Present Value Savings: It is the difference, expressed in current dollars, between the debt service on a refunded bond (or maturity) and debt service on the refunding bond (or maturity). It is calculated by discounting the difference in the future debt service payments at an appropriate discount rate.