

AGENDA ITEM

B-3. UNC System Debt Capacity Study Rick Whitfield and Michael Juby

Situation: The University of North Carolina System Office is required to prepare and submit a Debt Capacity Study to the General Assembly detailing the University's current debt load and capacity to borrow.

Background: The appropriations bill adopted by the General Assembly in the fall of 2015 (SL 2015-241) requires the Board of Governors to annually advise the General Assembly and the Governor on the estimated debt capacity of the UNC System for the upcoming five years. The provision also requires each constituent institution to report current and anticipated debt levels to the Board of Governors by February 1st of each year in order that the Board can prepare a comprehensive report of the UNC System by April 1st of each year.

Assessment: Working with its partners at First Tryon Advisors, the University has prepared the FY2017 Debt Capacity Study in compliance with SL 2015-241. This report shows the financial health of the University and its capacity to borrow.

Action: This item requires a vote by the committee, with a vote by the full Board of Governors through the consent agenda.

The University of North Carolina System Debt Capacity Study



The Debt Capacity Study was prepared by First Tryon Advisors on behalf of the University of North Carolina System

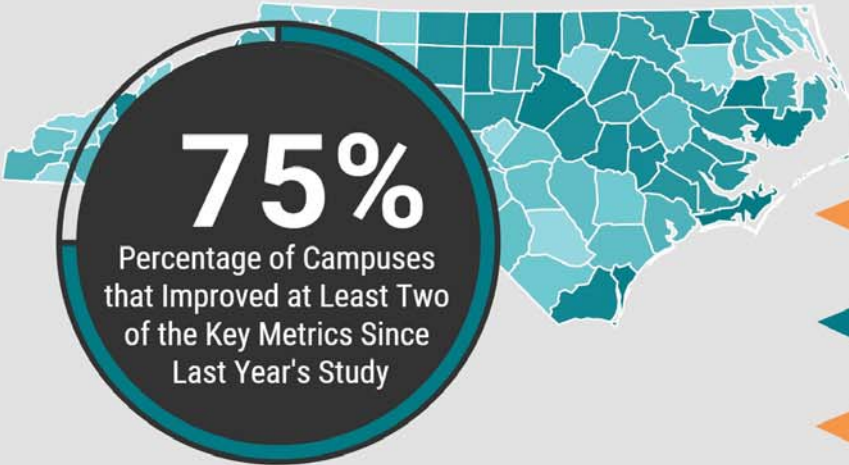
Approved by the UNC Board of Governors on May 24, 2018

2018 Debt Capacity Study (FY 2017)



UNC System Debt Capacity Study

Highlights from the 2017 Study



Ratio Improvement



15
Number of Campuses that Have Developed Debt Policies or Guidelines

12
OUT OF 16

Number of Campuses that Increased Debt Capacity vs. Last Year's Study



Institution	Moody's	S&P	Fitch
ASU	Aa3	-	-
ECSU	Baa2	-	-
ECU	Aa2	AA-	-
FSU	-	A-	A+
NCA&T	A1	-	A+
NCCU	A3	-	-
NCSU	Aa1	AA	-
UNCA	A1	-	-
UNCC	Aa3	A+	-
UNCCH	Aaa	AAA	AAA
UNCG	Aa3	A+	-
UNCP	-	A-	-
UNCSA	-	-	-
UNCW	Aa3	-	-
WCU	Aa3	-	-
WSSU	A3	A-	-

15

Number of Campuses that Maintained their Credit Ratings and Outlooks Since Last Year's Study

Key:

Rating Upgrade

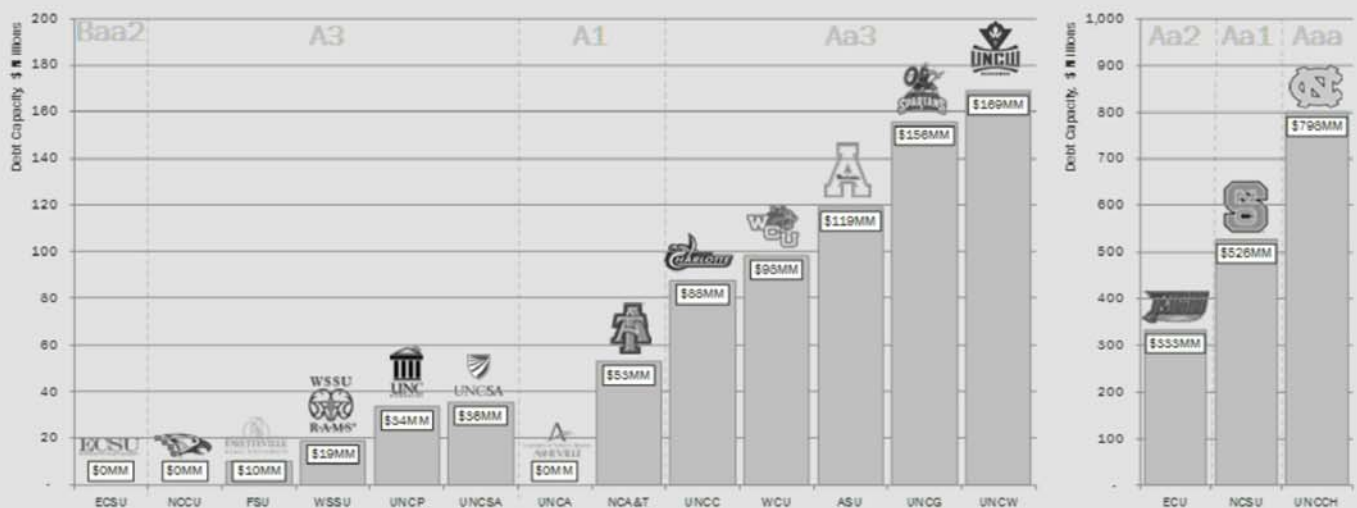
Outlook Improvement

Rating Downgrade

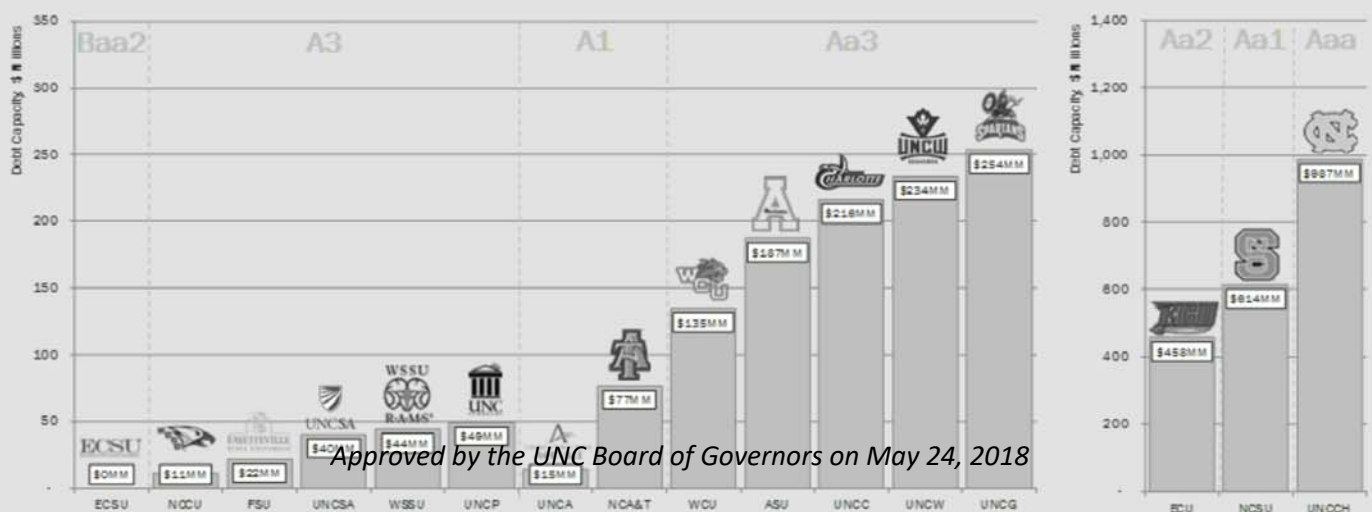
Outlook Deterioration

*Reflects University's Rating on General Revenue Bonds

Current Debt Capacity Across the System



Estimated Debt Capacity Across the System (2021)



Approved by the UNC Board of Governors on May 24, 2018

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2018 Debt Capacity Study

Purpose of the Study

The Current Operations and Capital Improvements Appropriations Act of 2015, which was signed into law on September 18, 2015, added a new Article 5 to Chapter 116D of the General Statutes of North Carolina (the “**Act**”), requiring each constituent institution (collectively, the “**Campuses**”) of The University of North Carolina (the “**University**”) to provide the Board of Governors of the University (the “**Board**”) with an annual report on its current and anticipated debt levels. The Act requires that the University, in turn, submit to the Office of State Budget and Management, the Joint Legislative Commission on Governmental Operations, the State Treasurer and The University of North Carolina System (the “**UNC System**”) an annual study incorporating each Campus report.

This report (the “**Study**”) has been developed to address the Act’s mandate to advise stakeholders “on the estimated debt capacity of The University of North Carolina for the upcoming five fiscal years” and establish “guidelines for evaluating the University’s debt burden.”

The Act also requires the Board to submit a uniform report from each Campus regarding its debt burden and anticipated debt levels, in addition to other data and information relating to each Campus’s fiscal management. Those Campus reports are attached to the Study as **Appendix D**.

Methodology Used

Because the Act defines “debt” for the purposes of the Study to exclude debt serviced with “funds appropriated from the General Fund of the State,” the Study primarily focuses on special obligation bonds issued under Article 3 of Chapter 116D (“**special obligation bonds**” or “**general revenue bonds**”) and other long-term debt issued on behalf of each Campus to finance various capital facilities, including housing and other enterprise projects.

N.C. Gen. Stat. §116D-26(a) prohibits using the obligated resources of one Campus to secure the debt of another campus, meaning the University has no debt capacity independent of its Campuses’ individual ability to issue debt. The Study does not, therefore, aggregate each Campus’s individual debt levels and obligated resources to derive a University-wide debt capacity measure. Instead, the Study offers a comprehensive review of each Campus’s debt capacity using the guidelines presented in the Act, which the System has presented in detail in the Campus reports included as part of **Appendix D**.

The Act expressly requires the University to establish guidelines for two ratios—**debt to obligated resources** and a **five-year payout ratio**. The Study also includes two additional ratios that are more widely used to measure a public university’s debt burden—**expendable resources to debt** and **debt service to operating expenses**. For more details on the ratios, see the information under the caption “[Description of Ratios](#)” below.

The Study is based on a financial model that has been developed to measure four ratios on a pro forma basis over the next five years (the “**Study Period**”). Recognizing the wide diversity in enrollment, funding sources and missions across each Campus, the UNC System has worked with each Campus to establish tailored and meaningful target policies for its respective ratios.

While a Campus’s ultimate debt capacity is affected by numerous quantitative and qualitative factors, for the purposes of the Study, “**estimated debt capacity**” is defined as the maximum amount of debt each Campus could issue without exceeding its ceiling ratio for debt to obligated resources in any single year of the Study Period.

Description of Ratios

The model considers the following four ratios:

Statutory Ratios

Ratio	Explanation	Commentary
Debt to Obligated Resources	Compares each Campus's outstanding debt to the funds legally available to service its debt	<ul style="list-style-type: none"> Provides a general indication of a Campus's ability to repay debt from wealth that can be accessed over time Tied to the statutory framework for Campus debt, so ratio is not used outside the State
Five-Year Payout	Measures the percentage of each Campus's debt to be retired within the subsequent five year period	<ul style="list-style-type: none"> Indicates how rapidly a Campus's debt is amortizing and how much additional debt capacity may be created in the near term Five year horizon is not widely used

Supplementary Ratios

Ratio	Explanation	Commentary
Debt Service to Operations	Measures debt service burden as a percentage of each Campus's total operating expenses	<ul style="list-style-type: none"> Indicates a Campus's operating flexibility to finance existing requirements and new initiatives Uses expenses rather than revenues because expenses tend to be more stable year-over-year Permits comparison to peers outside the State
Expendable Resources to Debt	Measures the number of times each Campus's liquid and expendable net assets covers its aggregate debt	<ul style="list-style-type: none"> Provides a general indication of a Campus's ability to repay debt from wealth that can be accessed over time Permits comparisons to peers outside the State

The first two ratios—**debt to obligated resources** and **five-year payout**—are mandated by the Act. While the ratios provide useful snapshots of each Campus's debt portfolio and fiscal condition, the two ratios are not widely used outside of North Carolina. To provide additional data points and peer comparisons, the Study tracks two additional ratios—**debt service to operations** and **expendable resources to debt**.

Note that the Study uses each Campus's "Available Funds" as a proxy for its obligated resources. "Available Funds" is reported publicly by each Campus with outstanding general revenue bond debt and reflects how Article 3's "obligated resources" concept has been translated into the bond documentation governing each Campus's general revenue bonds. The two concepts are identical for most Campuses, but to the extent there is any discrepancy, "Available Funds" will produce a lower, more conservative figure.

See **Appendix A** for more information on the ratios and the definitions for related terms.

Overview of Target and Policy Ratios

For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—each Campus has set both a target ratio and a floor or ceiling policy, as applicable. Each Campus's target and policy ratios are summarized below. See **Appendix C** for more information on the methodology each Campus used in setting its target and policy ratios.

Debt to Obligated Resources

Institution		
ECSU	Target	2.00
	Ceiling	2.25
UNCG	Target	2.00
	Ceiling	2.50
WSSU	Target	2.00
	Ceiling	3.00
FSU	Target	1.80
	Ceiling	2.10
UNCP	Target	1.70
	Ceiling	2.00
NCCU	Target	1.50
	Ceiling	2.00
UNCA	Target	1.50
	Ceiling	2.00
UNCC	Target	1.50
	Ceiling	1.75
UNCW	Target	1.50
	Ceiling	1.75
WCU	Target	1.50
	Ceiling	2.00
NCA&T	Target	1.10
	Ceiling	1.75
ASU	Target	1.00
	Ceiling	1.50
ECU	Target	1.00
	Ceiling	1.25
NCSU	Target	1.00
	Ceiling	1.25
UNCCH	Target	1.00
	Ceiling	1.00
UNCSA	Target	1.00
	Ceiling	1.50
Median Target		1.50
Median Ceiling		1.88

Target Ratio - Expendable Resources to Debt

Institution	Policy (NLT)
WSSU	0.25
FSU	0.35
NCCU	0.35
UNCP	0.39
UNCA	0.45
WCU	0.45
ECSU	0.50
UNCC	0.60
UNCW	0.60
UNCG	0.65
ASU	0.70
NCA&T	0.70
ECU	0.75
NCSU	1.00
UNCSA	1.25
UNCCH	1.50
Median Target	0.60

5-Year Payout Ratio

Institution		
UNCCH	Target	10%
	Floor	10%
NCA&T	Target	15%
	Floor	10%
NCSU	Target	15%
	Floor	10%
UNCA	Target	15%
	Floor	10%
UNCC	Target	15%
	Floor	12%
WSSU	Target	15%
	Floor	10%
UNCP	Target	17%
	Floor	10%
ECSU	Target	20%
	Floor	10%
FSU	Target	20%
	Floor	10%
UNCG	Target	20%
	Floor	15%
UNCW	Target	20%
	Floor	15%
NCCU	Target	20%
	Floor	15%
ASU	Target	25%
	Floor	10%
ECU	Target	25%
	Floor	12%
UNCSA	Target	25%
	Floor	12%
WCU	Target	25%
	Floor	15%
Median Target		20%
Median Floor		10%

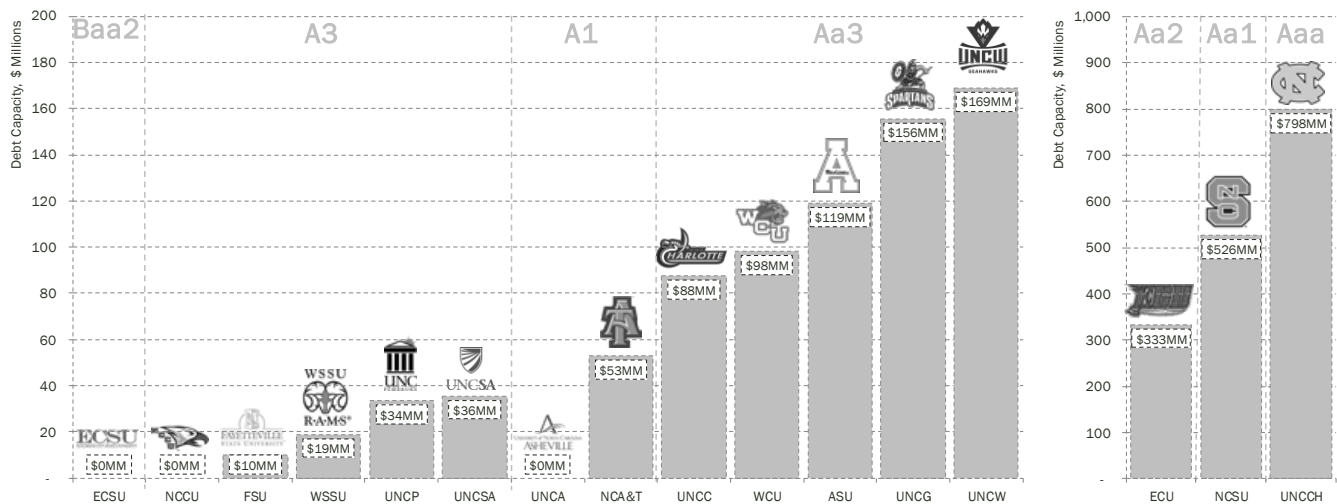
Target Ratio - Debt Service to Operations

Institution	Policy (NTE)
UNCG	8.00%
UNCC	7.00%
UNCP	6.70%
UNCW	6.50%
WSSU	6.50%
UNCA	5.80%
ECSU	5.50%
WCU	5.40%
ASU	5.00%
FSU	5.00%
NCCU	5.00%
ECU	4.00%
NCSU	4.00%
UNCCH	4.00%
NCA&T	3.50%
UNCSA	3.00%
Median Target	5.20%

Conclusions

The following table summarizes each Campus's **current estimated debt capacity** as defined for the purposes of the Study. The numbers in the table reflect the **maximum amount of debt each Campus could issue in fiscal year 2018** without exceeding its ceiling ratio for **debt to obligated resources** during any year of the Study Period, after taking into account any Approved Future Projects. Each Campus's Approved Future Projects, if any, are detailed in its report included as part of **Appendix D**.

Estimated Debt Capacity Across the System (2018)

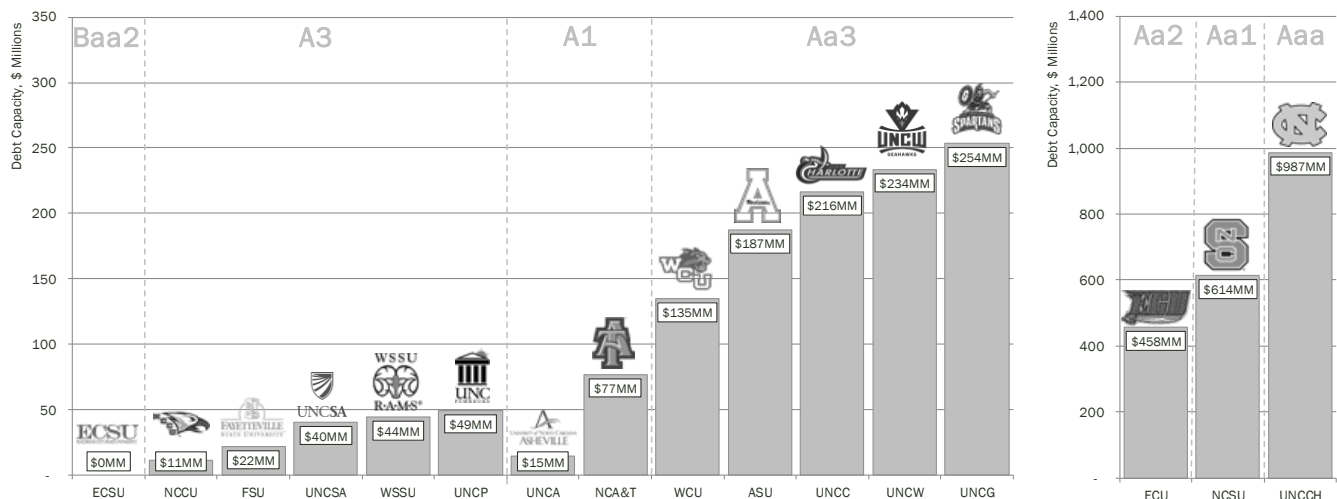


*The estimated debt capacity figures for ECU, NCSU and UNC have been presented in a separate chart using a compressed scale to make the estimated debt capacity figures for the other Campuses easier to interpret.

**FSU, UNCP and UNCSA are not currently rated by Moody's. FSU and UNCP have been grouped based on their corresponding ratings from either Standard and Poor's or Fitch; UNCSA has been grouped based on an estimated Moody's rating of A3.

Generally, debt capacity for each campus will grow over the course of the Study Period. The table below summarizes each Campus's **projected estimated debt capacity for fiscal year 2022**, assuming it issued no debt (other than debt to finance any Approved Future Projects) until the last year of the Study Period.

Estimated Debt Capacity Across the System (2022)



*The estimated debt capacity figures for ECU, NCSU and UNC have been presented in a separate chart using a compressed scale to make the estimated debt capacity figures for the other Campuses easier to interpret.

**FSU, UNCP and UNCSA are not currently rated by Moody's. FSU and UNCP have been grouped based on their corresponding ratings from either Standard and Poor's or Fitch; UNCSA has been grouped based on an estimated Moody's rating of A3.

The range of capacities reflects the diversity among the Campuses, each with its own strengths, challenges and mission. The Study reflects the general health and proactive management of each Campus's balance sheet, much of which is attributable to the State's history of strong support for the University and its Campuses. The general growth in capacity over the course of the Study Period indicates relatively rapid amortization rates for most Campuses.

The limited debt capacity shown for UNC Asheville, Winston-Salem State University and North Carolina Central University reflect recent or future financings that have already been approved by the Board and the General Assembly and are already factored into the debt-related ratios for those Campuses. It is anticipated those Campuses will have relatively modest additional borrowing needs during the Study Period.

A small handful of Campuses are facing significant headwinds in terms of enrollment and revenue growth, which is reflected in their debt capacity results. For those Campuses, improving debt capacity, alone, may not be a priority; instead, their debt capacity will improve as they continue to work with the UNC System to implement new strategies and policies to meet their unique challenges.

While the Study provides useful insight into each Campus's overall fiscal position and capital needs and will help Campuses, policymakers and other stakeholders identify trends and challenges facing each Campus and the University over time, the Study also underscores the unique nature of public higher education debt and the value of General Administration's centralized support and oversight. **The Study's emphasis on aggregate debt and asset levels, then, is valuable, but the current approval process, which is predicated on a collaborative, project-by-project analysis of tailored cost estimates and project-specific sources of repayment, should continue to drive decision-making with respect to any proposed project.**

Recommendations

Recommended Use of the Study

Because the Study is framed broadly to accommodate the complexity and diversity of each Campus's mission, business model, size and infrastructure needs, the Study should be used as a general assessment of each Campus's overall fiscal position and to help Campuses, policymakers and other stakeholders identify trends and challenges facing each Campus and the University system over time. Like any other management tool, the Study is not intended as a substitute for the considered judgment of Campus leadership, the UNC System, the Board or the General Assembly. A Campus may be better served, for example, foregoing a project even when it has significant debt capacity or pursuing a financing even if it would cause the Campus to exceed one of its stated target ratios.

While the Study will help policymakers and stakeholders determine when additional scrutiny for a project may be warranted to ensure Campuses are deploying debt prudently and strategically, Campus debt policies and the University's debt approval process—which is predicated on a project-by-project analysis of tailored cost estimates and identified sources of repayment—should continue to drive decision-making with respect to any proposed financing.

The graphic below summarizes how the Study is intended to be integrated into a comprehensive debt management framework that includes each Campus's debt policy and the University's debt approval process.

Annual Debt Capacity Study

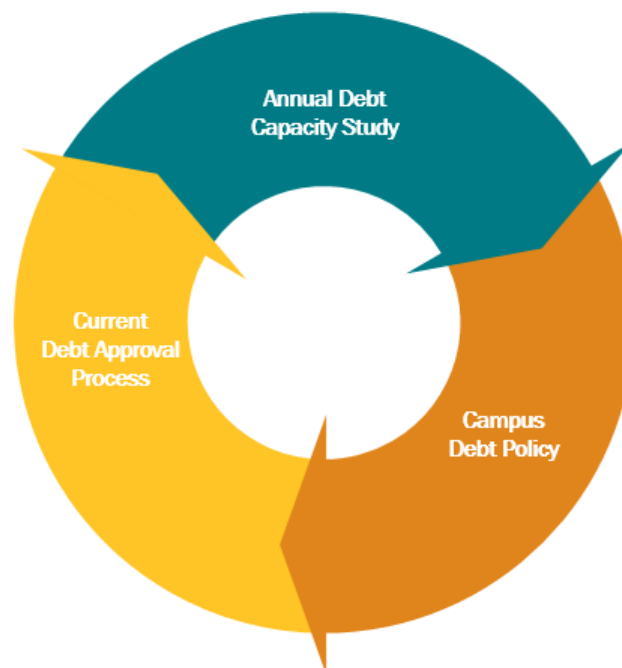
- Provides snapshot of each Campus's current estimated debt capacity
- May indicate when a proposed project requires heightened scrutiny
- Updated annually to reflect (1) newly approved debt, (2) any relevant changes to the Campuses' strategic debt policies and (3) updated Campus financial results and projections

Campus Debt Policy

- Clarifies each Campus's strategic approach to debt and its capital investment needs
- Establishes criteria for evaluating projects and approving debt, including benchmarks to measure prudent debt levels
- Sets guidelines for pursuing strategic exceptions to stated policies, including specific criteria for approving debt in excess of estimated capacity

Current Debt Approval Process

- Evaluates each proposed project's affordability based on identified sources of repayment and projected impact on student cost
- Uses estimated debt capacity results to assess strategic value of proposed project in light of a Campus's overall debt burden, mission and needs
- May request and consider additional evaluation criteria when a Campus's estimated debt capacity is limited



Debt Consolidation Program - Overview

In keeping with the State's constitutional mandate to provide all people of the State with access to the benefits of the University at the lowest practicable cost, the Board and the UNC System are committed to exploring all options that may help the Campuses operate in a more cost-effective manner.

As discussed above and in more detail in **Appendix B**, Campuses generally meet their financing needs by issuing general revenue bonds through the Board under Article 3 of Chapter 116D of the General Statutes of North Carolina, as amended. Under the current approach, the bonds issued on behalf of each Campus are rated and priced based solely on that Campus's ability to repay the debt from its own resources. This siloed approach results in a wide range of borrowing costs across the System, with the smallest Campuses forced to borrow at interest rates that are more than 30% higher than the rates charged to the largest Campuses.

To find a more efficient way for smaller Campuses to access the capital markets, the Board and UNC System are working to develop and implement a new consolidated borrowing structure that would provide credit support to the smallest Campuses without doing harm to any other Campuses in the System. Under the proposed approach, bonds would be issued by the Board and loaned to each participating institution, similar to the pool transactions commonly done in the early 2000s. The bonds would be repaid from each Campus's Available Funds, but they would also be supported by a common reserve fund that the Board would be obligated to replenish using non-appropriated funds, allowing smaller Campus participants to borrow at a single, enhanced interest rate. Before implementing the proposed program, the UNC System is working to ensure the new structure will not negatively impact the credit rating or borrowing capacity of the larger Campuses.

Appendix A: Key Definitions

Debt: Debt incurred under Chapter 116D of the North Carolina General Statutes or any other debt that will be serviced with funds available to the institutions from gifts, grants, receipts, Medicare reimbursements for education costs, hospital receipts from patient care, or other funds, or any combination of these funds, but not including debt that will be serviced with funds appropriated from the General Fund of the State.

Obligated Resources: Any sources of income or receipts of the Board of Governors or the institution at which a special obligation bond project is or will be located that are designated by the Board as the security and source of payment for bonds issued under this Article to finance a special obligation bond project, including, without limitation, any of the following:

- a. Rents, charges, or fees to be derived by the Board of Governors or the institution from any activities conducted at the institution.
- b. Earnings on the investment of the endowment fund of the institution at which a special obligation project will be located, to the extent that the use of the earnings will not violate any lawful condition placed by the donor upon the part of the endowment fund that generates the investment earnings.
- c. Funds to be received under a contract or a grant agreement, including "overhead costs reimbursement" under a grant agreement, entered into by the Board of Governors or the institution to the extent the use of the funds is not restricted by the terms of the contract or grant agreement or the use of the funds as provided in this Article does not violate the restriction.
- d. Funds appropriated from the General Fund to the Board of Governors on behalf of a constituent institution for utilities of the institution that constitute energy savings as that term is defined in G.S. 143-64.17.

Except as provided in subdivision d. of this subdivision, obligated resources do not include funds appropriated to the Board of Governors or the institution from the General Fund by the General Assembly from funds derived from general tax and other revenues of the State, and obligated resources do not include tuition payment by students.

5-Year Payout Ratio: Percentage of each Campus's long-term debt scheduled to be retired during the succeeding five-year period.

Debt Service to Operations: Ratio that measures a Campus's debt service burden as a percentage of its total expenses. Ratio uses aggregate operating expenses as opposed to operating revenues because expenses are generally more stable. Operating Expenses also include an adjustment for any noncash charge relating to the implementation of GASB 68.

Debt Service to Operations = (Annual Debt Service) / (Total Operating Expenses)

**Expendable
Resources
to Debt:**

Ratio that measures the number of times a Campus's liquid and expendable net assets covers the Campus's aggregate funded debt. In calculating the ratio, the Campus's Unrestricted Net Assets has been adjusted to add any non-cash charges for the period (such as adjustments required by GASB 68).

Expendable Resources to Debt =
$$\frac{(\text{Adjusted Unrestricted Net Assets} + \text{Restricted Expendable Net Assets})}{(\text{Debt})}$$

Appendix B: Overview of UNC System Debt

Most debt within the scope of the Study is comprised of special obligation bonds issued by the Board on behalf of each Campus in accordance with Article 3 of Chapter 116D of the General Statutes of North Carolina, as amended (“**Article 3**”). Campuses may use special obligation bonds (or “**general revenue bonds**,” as they are commonly called) to finance any capital facility located at the Campus that supports the Campus’s mission, but only if the Board has specifically designated the project as a “special obligation bond project” in accordance with Article 3.

Article 3 contains procedural safeguards to ensure the thoughtful use of special obligation bonds. For example, before any general revenue bonds are issued, Article 3 requires the approval of the **Campus Board of Trustees**, the **Board of Governors**, the **General Assembly** and the **Director of the Budget** (in consultation, if necessary with the **Joint Legislative Commission on Governmental Operations**).

As part of its approval, the Board of Governors must (1) designate the proposed project as a “special obligation bond project” and the obligated resources that will serve as the source of repayment for the proposed bonds and (2) establish that sufficient obligated resources are reasonably expected to be available to service the proposed bonds. In its report to the General Assembly seeking approval for a proposed Article 3 project, the Board must provide details regarding the project need, expected project costs, expected increases in operating costs following completion (including any contemplated impact on student costs), estimated debt service and the sources and amounts of obligated resources to be used to repay the debt.

Although Article 3 focuses on a Campus’s obligated resources in the aggregate, as a practical matter, the plan of finance for each proposed project is evaluated on a standalone basis. **If a Campus is unable to demonstrate that existing or future revenues associated with a project are sufficient to service the proposed debt, then the financing will generally not move forward unless the project is redesigned to a sustainable and appropriate scale.** Those project-specific revenues may take the form of enterprise system revenues (such as dormitory or dining system revenues) or other dedicated revenue sources (such as capital campaign donations or student fees). Campus debt issued under other legislative authority, including student housing revenue bonds under Article 19 of Chapter 116D, is also subject to procedural safeguards and are evaluated on a project-by-project basis.

This slight disconnect between the statutory framework for evaluating debt capacity—with its focus on **affordability relative to each Campus’s aggregate obligated resources**—and the practical manner in which projects are evaluated and approved—with its focus on **an individual project’s affordability based on a specific source of repayment**—means that the Study presents an inherently conservative picture of each Campus’s debt capacity. While the model’s inherent conservatism encourages prudent planning, the Study’s limitations in evaluating the affordability of any single Campus project should be noted.

Unlike the State of North Carolina’s debt capacity study, for example, where future debt service is paid out of well-defined and relatively predictable revenue streams, Campus projects may be financed through a variety of revenue sources, none of which is easily modeled on a pro forma basis at the aggregate obligated resources level. In addition, the Act establishes a target ratio that compares aggregate debt (which will increase immediately by the full amount of the debt once issued) to obligated resources (which will increase incrementally over time). This means that any new financing will generally reduce the Campus’s debt capacity as reflected in the Study, even if the new project would be entirely supported by new revenues that would not exist but for the project.

None of the Campus debt included in the Study affects the State of North Carolina’s debt capacity or credit rating. Such obligations are payable only from the applicable Campus’s obligated resources (or other pledged revenues) and do not constitute a debt or liability of the State or a pledge of the State’s full faith and credit.

Appendix C: Study Methodology and Background

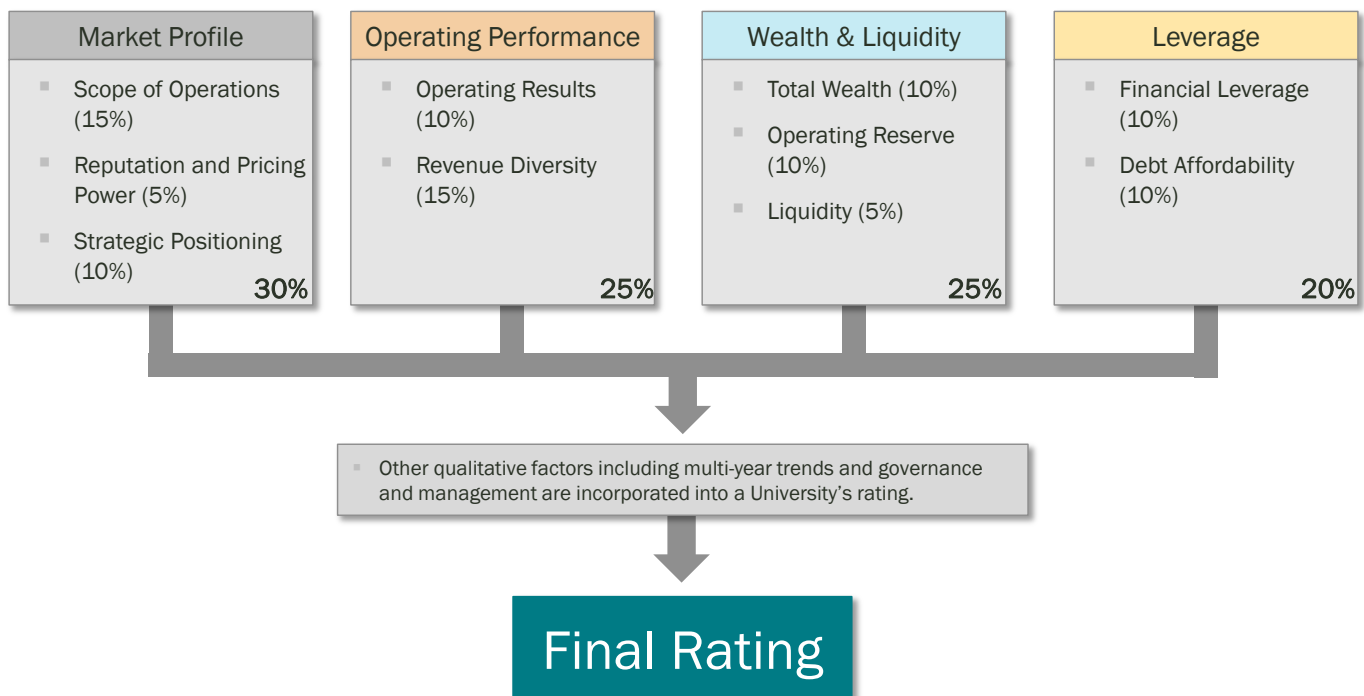
Overview of Strategic Debt Management and Credit Assessment

The prudent use of debt, in service of each Campus's mission, provides several strategic benefits:

- **Achieving intergenerational equity** – Most capital projects will benefit students for decades. Financing a portion of each Campus's planned capital investments enables each Campus to better align the benefits and financial burdens across multiple generations.
- **Enhancing effectiveness** – A Campus may use debt to invest in transformative projects on an accelerated schedule, permitting the Campus to leverage its resources to better scale its programs, serve its stakeholders and meet its mandated mission.
- **Imposing discipline** – Debt can be used to clarify priorities and reduce other spending that may crowd-out investments necessary for the Campus's long-term health.

Burdensome debt levels, however, can undermine an institution's effectiveness and viability. Debt may diminish a Campus's future operational flexibility and may limit its ability to adapt to future developments and trends in the marketplace. In the worst instances, debt levels may hasten a Campus's decline, creating a downward spiral that exerts ever-increasing pressure on the institution's balance sheet.

Each Campus's credit rating (for those with rated debt) serves as a general barometer of how the rating agencies view the Campus's financial strength and its debt management practices, which, in turn, informs the Campus's reputation in the capital markets. In assessing a public university's creditworthiness, rating agencies generally consider three or four broad categories of factors. The table below summarizes the factors that Moody's Investors Service ("**Moody's**") considers as part of its "scorecard," which guides its credit profile analysis in the higher education sector:



*The Study focuses on Moody's methodology, as it rates nearly all of the Campuses.

As part of their criteria, the rating agencies give significant weight to various qualitative factors, such as the strength of the institution's leadership, the quality and responsiveness of its long-range planning and the role

of any centralized oversight. In a rating report issued in February of 2016 in connection with a Campus bond offering, for example, Moody's noted that the Campus **"benefits from being part of the UNC system, which has a demonstrated history of strong oversight of member institutions"** and listed the Campus's **"generous operating and capital support from the State of North Carolina"** as a primary credit strength.

For several reasons, the Study has not attempted to tie "debt capacity" to the predicted impact any new debt may have on a Campus's credit rating. First, each Campus's mission and strategic planning should drive its debt management decisions, not the other way around. Managing a Campus's operations solely to achieve a certain credit rating may distort strategic objectives and lead to unintended consequences. As Moody's states in its current Rating Methodology for Global Higher Education (dated November 23, 2015):

"Strategic positioning depends on effective short- and long-range planning, consistent self-assessment and benchmarking, and ongoing monitoring and accountability. ... Determining the appropriate level of investment is a significant challenge, as too little investment can result in a gradual loss of student demand, research funding, or philanthropy if donors feel that the university is in decline. Overinvesting can saddle a college with an unsustainable business model, with revenue unable to support high fixed costs, including debt service."

Second, projecting the exact amount of debt a Campus could issue during the Study Period without negatively impacting its credit rating is difficult. Any single financial ratio makes up only a fraction of the overall credit analysis, and weak ratios may be ignored or deemphasized in a particular situation based on multi-year trends, projections and other qualitative factors. Further, while the Campuses' financial performance has no impact on the State's credit rating, each Campus's credit rating has historically benefitted from the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category, making comparisons to median ratios challenging. Finally, because median ratios are not perfectly correlated to rating outcomes, a model that attempts to draw a linear relationship between any single ratio and a projected rating outcome would have limited predictive value.

In this context, **it is important to distinguish "debt capacity" from "debt affordability."** Debt capacity provides a general indication of each Campus's ability to absorb debt on its balance sheet during the Study Period. Debt affordability, on the other hand, evaluates the merits of a specific financing (or a specific amount of debt), taking into account a number of quantitative and qualitative factors relating to the projects under consideration, including project revenues and expenses, cost of funds, competing strategic priorities and the "hidden" costs of foregoing the projects entirely.

Development of the Financial Model

To support the Study, a financial model has been developed to analyze four financial ratios for each Campus on a pro forma basis over the course of the Study Period. Because Article 3 does not permit the Campuses to pool their obligated resources to form a common source of funds to support all Campus project financings, the Study focuses on the individual Campus data and does not attempt to aggregate each Campus's capacity to derive a University-wide measure of "debt capacity." The other components of the model are designed to assist each Campus in establishing guidelines for maintaining prudent debt levels and for evaluating capital investment priorities in light of fiscal constraints.

Each Campus's debt capacity reflects the amount of debt each Campus could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**. Each Campus has developed its own target policy for each ratio in consultation with the UNC System to ensure the ratio is tailored and meaningful for that Campus's size, mission, resources and average age of plant.

Methodology for Setting Target Ratios

Because of the differences in each Campus's mission, enrollment, resources and capital needs, imposing a single set of target policies across all Campuses would distort the information produced by the Study—either by generating too much capacity for the larger Campuses or by holding smaller Campuses to unrealistic benchmarks relative to their size and scale. To produce a more meaningful model for each Campus, the Campuses, in consultation with the UNC System, have set their own target policies for the model ratios.

In setting its target policies, each Campus considered many quantitative and qualitative factors, including comparisons to its designated peer institutions, its strategic initiatives, its historical results, its average age of plant, its recent and projected growth and any existing Campus debt policies. As discussed above, the Campuses' credit ratings are bolstered by several favorable qualitative factors, including, most importantly, the State's long history of support. Because the Campuses benefit from those qualitative factors, it follows that many Campuses' quantitative measures are weaker than the median ratios for their assigned rating category. Campuses were not forced, therefore, to set their target ratios directly in line with those median ratios, as that approach would invite quantitative comparisons to larger, wealthier peers. Campuses used median ratios as an important benchmark in setting their policy ratios.

Other Assumptions and Factors Affecting the Model

The Campus financial model is based on each Campus's financial results as of **June 30, 2017**—the most recent period for which audited financials are available. The model includes debt issued to finance new projects since June 30, 2017, but the model excludes any refinancing, redemption or other debt payments that have occurred during the current fiscal year, building an additional element of conservatism into the model.

The financial model also takes into account any legislatively approved project that each Campus plans to finance during the Study Period. Interest rate assumptions for any pro forma debt are based on conservative, fixed rate projections and are adjusted to account for each Campus's credit rating and the expected term of the financing.

The financial model adds back to each Campus's unrestricted net assets any noncash charge taken in connection with the implementation of GASB 68 and will make similar adjustments for the implementation of related accounting policies in the future.

Finally, by default, the financial model assumes that each Campus's Available Funds, expendable resources and operating expenses will grow by an annual rate equal to the Consumer Price Index (2.10% at the time the model was developed). Each Campus was given the option, however, to adjust the growth factor for each of the model components based on its reasonable expectations for its performance over the Study Period. Any such adjustment, and the factors considered in making the adjustment, is described in the individual Campus reports attached as **Appendix D**.

Appendix D: Reports from Constituent Institutions

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

Appalachian State University
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), Appalachian State University (“**ASU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. ASU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, ASU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—ASU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, ASU’s debt capacity reflects the amount of debt ASU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that ASU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- ASU’s current debt profile, including project descriptions financed with, and the sources of repayment for, ASU’s outstanding debt;
- ASU’s current credit profile, along with recommendations for maintaining or improving ASU’s credit rating; and
- A copy of any ASU debt management policy currently in effect.

Overview of ASU

For the fall 2017 semester, ASU had a headcount student population of approximately 18,811 including 17,017 undergraduate students and 1,794 graduate and doctoral students. During the 2017 academic year, ASU employed approximately 1,330 full-time, part-time and temporary instructional faculty.

Over the past 10 years, ASU’s enrollment has increased approximately 19%. ASU expects modest enrollment growth over the Study Period. ASU’s average age of plant (13.86 years) is slightly higher than the median ratio for all Campuses (13.60 years). An average age of plant of less than 14 generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

ASU anticipates incurring approximately \$11.25 million in additional debt during the Study Period, as summarized in Section 3 below. ASU has made no changes to the financial model’s standard growth assumptions, which are based on the consumer price index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on ASU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to ASU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt ASU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below overstates ASU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	178,711,203	-		178,711,203	2018	11,070,000	8,419,162	19,489,162	224,540,000
2014	200,217,789		12.03%	200,217,789	2019	11,530,000	7,934,243	19,464,243	213,010,000
2015	172,255,352	22,273,490	-2.84%	194,528,842	2020	12,255,000	8,330,818	20,585,818	200,755,000
2016	186,032,430	16,955,500	4.35%	202,987,930	2021	12,795,000	7,783,842	20,578,842	187,960,000
2017	205,017,229	19,229,751	10.47%	224,246,980	2022	13,265,000	7,206,574	20,471,574	174,695,000
2018	228,956,167	-	2.10%	228,956,167	2023	13,710,000	6,621,843	20,331,843	160,985,000
2019	233,764,246	-	2.10%	233,764,246	2024	14,370,000	5,985,093	20,355,093	146,615,000
2020	238,673,295	-	2.10%	238,673,295	2025	12,940,000	5,366,153	18,306,153	133,675,000
2021	243,685,434	-	2.10%	243,685,434	2026	13,520,000	4,801,670	18,321,670	120,155,000
2022	248,802,829	-	2.10%	248,802,829	2027	12,065,000	4,285,313	16,350,313	108,090,000
Operating Expenses					2028	11,695,000	3,844,991	15,539,991	96,395,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	10,220,000	3,391,844	13,611,844	86,175,000
2013	345,070,135			345,070,135	2030	10,635,000	3,002,578	13,637,578	75,540,000
2014	362,246,081		4.98%	362,246,081	2031	11,070,000	2,598,447	13,668,447	64,470,000
2015	362,739,731	4,619,801	1.41%	367,359,532	2032	9,660,000	2,204,694	11,864,694	54,810,000
2016	367,993,253	5,331,612	1.62%	373,324,865	2033	8,580,000	1,862,881	10,442,881	46,230,000
2017	394,708,091	(2,248,908)	5.13%	392,459,183	2034	8,945,000	1,537,831	10,482,831	37,285,000
2018	400,700,826	-	2.10%	400,700,826	2035	7,250,000	1,225,019	8,475,019	30,035,000
2019	409,115,543	-	2.10%	409,115,543	2036	6,610,000	939,531	7,549,531	23,425,000
2020	417,706,970	-	2.10%	417,706,970	2037	5,780,000	682,050	6,462,050	17,645,000
2021	426,478,816	-	2.10%	426,478,816	2038	1,930,000	532,031	2,462,031	15,715,000
2022	435,434,871	-	2.10%	435,434,871	2039	2,030,000	467,175	2,497,175	13,685,000
					2040	2,140,000	398,456	2,538,456	11,545,000
					2041	1,380,000	341,644	1,721,644	10,165,000
					2042	1,465,000	297,191	1,762,191	8,700,000
					2043	1,550,000	250,081	1,800,081	7,150,000
					2044	1,640,000	200,238	1,840,238	5,510,000
					2045	1,735,000	147,503	1,882,503	3,775,000
					2046	1,835,000	91,722	1,926,722	1,940,000
					2047	1,940,000	31,525	1,971,525	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	60,661,734	5,352,328	20,570,955	38,895,346	2,216,970		-	123,263,393
2014	60,436,462	8,189,244	23,228,516	46,333,711	2,374,146	10.18%	-	135,813,787
2015	39,511,169	9,463,239	25,279,071	54,999,821	7,040,187	6.39%	22,273,490	144,486,603
2016	51,645,922	10,542,418	27,253,336	49,717,522	2,970,575	5.99%	16,955,500	153,144,123
2017	52,779,465	13,688,945	29,425,315	54,589,623	3,676,733	8.42%	19,229,751	166,036,366
2018	73,521,410	13,976,413	30,043,247	55,736,005	3,753,944	2.10%	-	169,523,130
2019	75,065,359	14,269,918	30,674,155	56,906,461	3,832,777	2.10%	-	173,083,115
2020	76,641,732	14,569,586	31,318,312	58,101,497	3,913,266	2.10%	-	176,717,861
2021	78,251,208	14,875,547	31,975,997	59,321,628	3,995,444	2.10%	-	180,428,936
2022	79,894,483	15,187,934	32,647,493	60,567,383	4,079,348	2.10%	-	184,217,944

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that ASU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** of this Campus Report.

ASU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2021	Convocation Center Parking Deck	11,250,000	30 Years	Parking Revenues
Total		11,250,000		

4. Financial Ratios

Debt to Obligated Resources

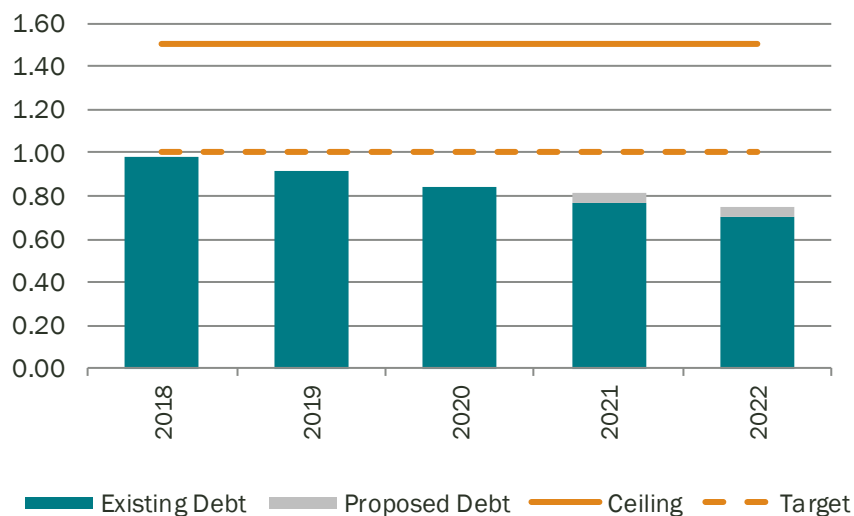
- **What does it measure?** ASU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.00
- Ceiling Ratio: Not to exceed 1.50
- Projected 2018 Ratio: 0.98
- Highest Study Period Ratio: 0.98 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	228,956,167	2.10%	224,540,000	-	0.98	n/a	0.98
2019	233,764,246	2.10%	213,010,000	-	0.91	n/a	0.91
2020	238,673,295	2.10%	200,755,000	-	0.84	n/a	0.84
2021	243,685,434	2.10%	187,960,000	11,250,000	0.77	0.05	0.82
2022	248,802,829	2.10%	174,695,000	11,250,000	0.70	0.05	0.75

Debt to Obligated Resources



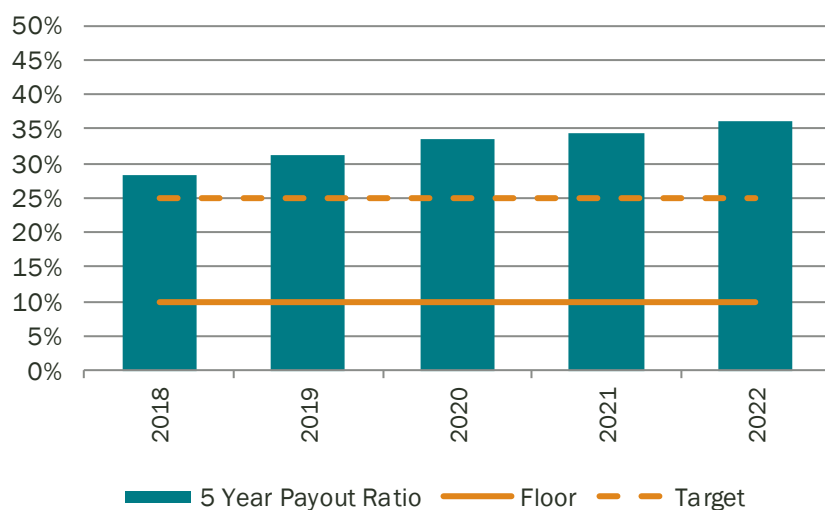
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of ASU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 25%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 28%
- Lowest Study Period Ratio: 28% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	224,540,000	28%	
2019	213,010,000	31%	
2020	200,755,000	33%	
2021	199,210,000	34%	
2022	185,945,000	36%	

5-Year Payout Ratio



Stronger
Weaker

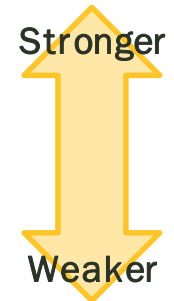
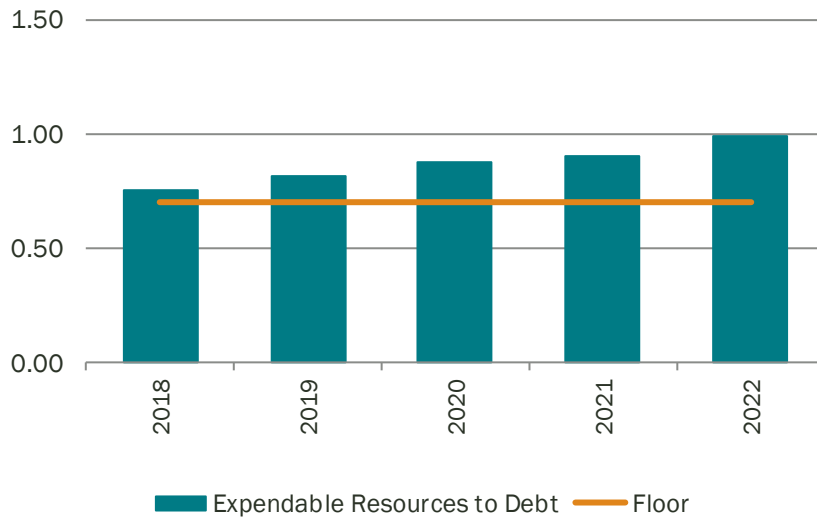
Expendable Resources to Debt

- **What does it measure?** The number of times ASU's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.70x
- Projected 2018 Ratio: 0.75x
- Lowest Study Period Ratio: 0.75x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	169,523,130	2.10%	224,540,000	-	0.75	0.75
2019	173,083,115	2.10%	213,010,000	-	0.81	0.81
2020	176,717,861	2.10%	200,755,000	-	0.88	0.88
2021	180,428,936	2.10%	187,960,000	11,250,000	0.96	0.91
2022	184,217,944	2.10%	174,695,000	11,250,000	1.05	0.99

Expendable Resources to Debt



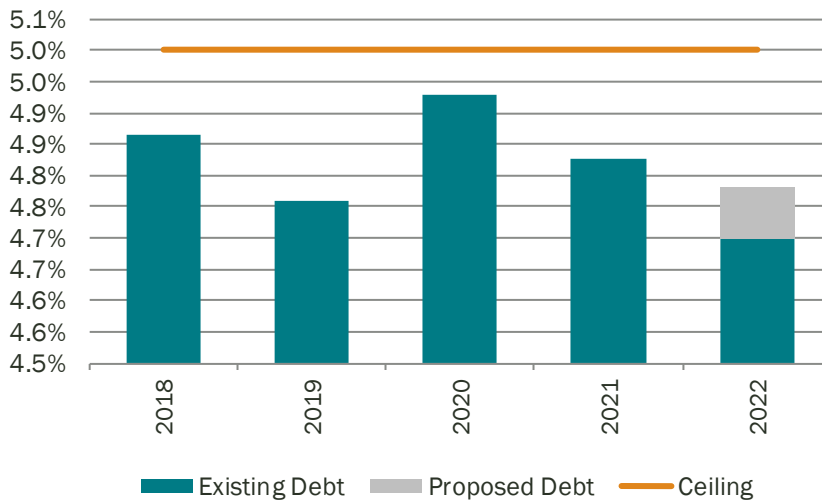
Debt Service to Operating Expenses

- **What does it measure?** ASU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 5.00%
- Projected 2018 Ratio: 4.86%
- Highest Study Period Ratio: 4.93% (2020)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	400,700,826	2.10%	19,489,162	-	4.86%	n/a	4.86%
2019	409,115,543	2.10%	19,464,243	-	4.76%	n/a	4.76%
2020	417,706,970	2.10%	20,585,818	-	4.93%	n/a	4.93%
2021	426,478,816	2.10%	20,578,842	-	4.83%	n/a	4.83%
2022	435,797,346	2.10%	20,471,574	362,475	4.70%	0.08%	4.78%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, ASU's debt capacity is based on the amount of debt ASU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, **the lowest constraint on ASU's debt capacity** in any single year during the Study Period occurs in 2019.
- Based solely on the **debt to obligated resources** ratio, ASU's current estimated debt capacity is **\$118,894,250**. After taking into account any legislatively approved projects detailed in **Section 3** above, if ASU issued no additional debt until the last year of the Study Period, then ASU's debt capacity for 2022 is projected to increase to **\$187,259,243**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	0.98	1.50	118,894,250
2019	0.91	1.50	137,636,369
2020	0.84	1.50	157,254,943
2021	0.82	1.50	166,318,152
2022	0.75	1.50	187,259,243

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of ASU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If ASU were to use all of its calculated debt capacity during the Study Period, ASU's credit ratings may face significant downward pressure.**
- The debt capacity calculation shown above provides a general indication of ASU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities..
- Projecting the exact amount ASU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform"

- relative to the national median ratios for their rating category.
- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

ASU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

Appalachian State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2005	General Revenue and Refunding Bonds	2,000,000	7/15/2017	White Residence Hall Renovation Lovill Residence Hall Renovation Athletic Facilities Athletic Facilities Parking Residence Halls	2000 2000	Housing Revenues Housing Revenues Athletic Revenues Debt Service Fee Parking Revenues Housing Revenues
2008A	UNC System Pool Revenue Bonds	14,510,000	10/1/2023	Steam Utility System Cannon Residence Hall Renovation Parking Improvements Athletic Facilities Athletic Facilities		Steam Utility Revenues Housing Revenues Parking Revenues Athletic Revenues Debt Service Fee
2009B	UNC System Pool Revenue Bonds	1,465,000	10/1/2019	Frank Residence Hall Renovation Athletic Facilities		Housing Revenues Athletic Revenues
2010B-1	UNC System Pool Revenue Bonds	17,670,000	10/1/2035	Cone Residence Hall Renovation Athletic Facilities Athletic Facilities Bookstore	2001	Housing Revenues Athletic Revenues Debt Service Fee Bookstore Revenues
2011	General Revenue Bonds	53,510,000	10/1/2036	Addition to Student Union Honors Residence Hall Student Leadership Annex Steam Utility System		Debt Service Fee Housing Revenues Debt Service Fee Steam Utility Revenues
2011	Utility System Revenue Bonds	1,215,000	12/20/2021	Electric Utility Infrastructure		Electric Utility Revenues
2012	General Revenue Refunding Bonds	20,610,000	5/1/2028	Housing Housing Student Recreation Center Athletic Facilities	2002 2005 2003A 2005	Housing Revenues Housing Revenues Debt Service Fee Athletic Revenues

Approved by the UNC Board of Governors on May 24, 2018

Appalachian State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2014A	General Revenue & Refunding Bonds	20,235,000	7/15/2039	Belk Residence Hall Renovation Anne Belk Hall Renovation Athletic Facilities Residence Halls Athletic Facilities Athletic Facilities Parking	2005 2005 2005	Housing Revenues Debt Service Fee Athletic Revenues Housing Revenues Athletic Revenues Debt Service Fee Parking Revenues
2014B	Taxable Refunding Bonds	11,565,000	7/15/2025	Residence Halls Athletic Facilities Athletic Facilities Parking	2005 2005 2005	Housing Revenues Athletic Revenues Debt Service Fee Parking Revenues
2014C	Refunding Bonds	21,140,000	10/1/2031	Housing Dining	2006A 2006A	Housing Revenues Debt Service Fee
2016A	General Revenue Refunding Bonds	23,965,000	10/1/2033	Steam Utility System Cannon Residence Hall Renovation Parking Improvements Athletic Facilities Athletic Facilities	2008A 2008A 2008A 2008A	Steam Utility Revenues Housing Revenues Parking Revenues Athletic Revenues Debt Service Fee
2016	Utility System Revenue Bonds	3,285,000	5/5/2026	Electric Utility Infrastructure		Electric Utility Revenues
2016B	General Revenue Refunding Bonds	7,700,000	10/1/2026	Doughton Residence Hall Renovation New Dining Hall Hoey Residence Hall Renovation Student Recreation Center Broyhill Inn	2006A 2006A 2006A 2006A 2006A	Housing Revenues Dining Revenues Housing Revenues Debt Service Fee Debt Service Fee
2016C	General Revenue Bonds	25,845,000	10/1/2046	Winkler Hall		Housing Revenues
2016D	General Revenue Refunding Bonds	10,895,000	10/1/2026	Frank Residence Hall Renovation Athletic Facilities		Housing Revenues Athletic Revenues
Total		235,610,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of ASU's current credit ratings, along with (1) a summary of various credit factors identified in ASU's most recent rating report and (2) recommendations for maintaining and improving ASU's credit ratings in the future.

Overview

- Moody's maintains a Aa3 rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Healthy support for operations and capital projects from the Aaa-rated State of North Carolina
- Regional presence with steady demand serving 18,099 full-time equivalent students in fall 2017
- Predictable operating performance reflects the sound financial oversight and close alignment of revenue and expense growth
- Well-funded multiple-employer defined benefit pension plan relative to peers, with total adjusted debt at 1.0 times operating revenue

Credit Challenges

- State-imposed tuition pricing constraints limit pricing flexibility and will likely suppress tuition revenue growth beginning in FY 2017
- Narrow liquidity to operating expenses, with monthly days cash on hand of 77 days compared to the Aa3 median of 159 days
- Moderately high leverage, with spendable cash and investments to debt of 0.5 times

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

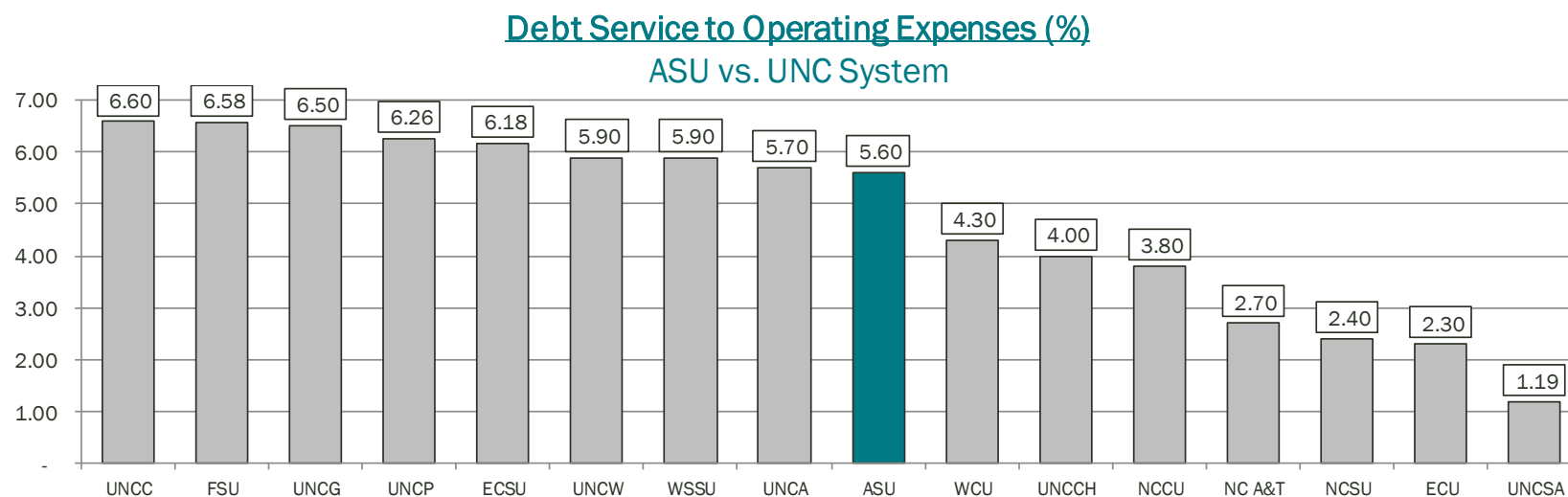
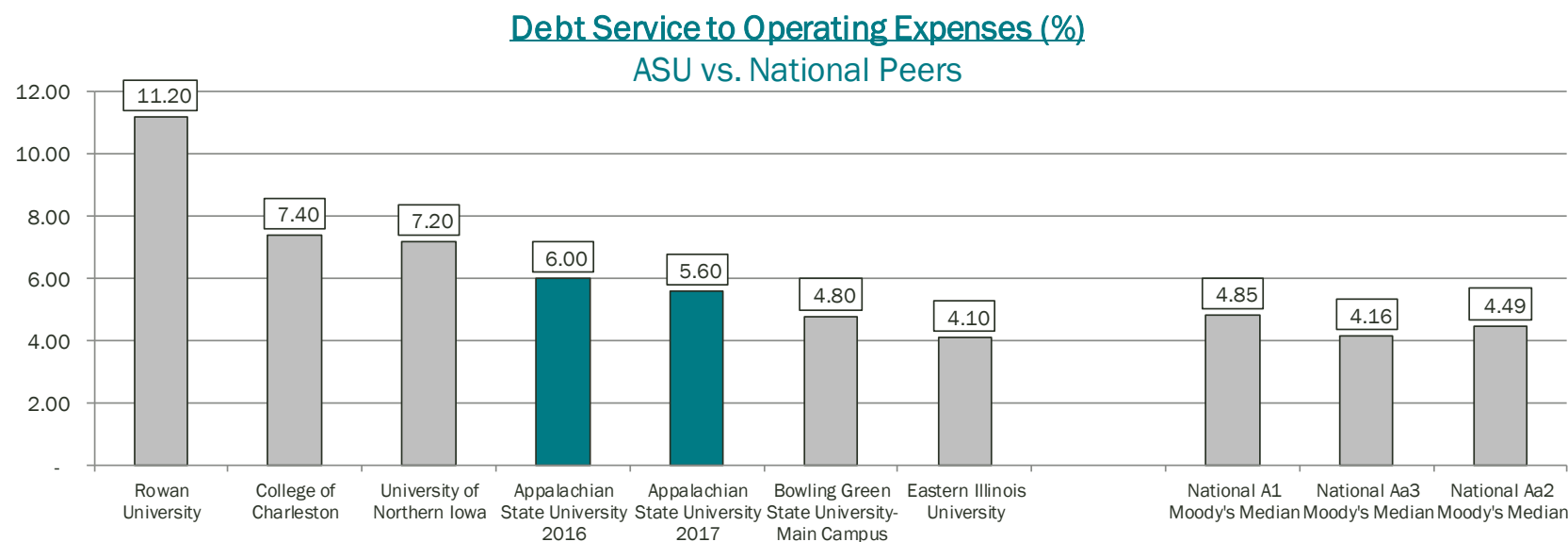
Recommendations & Observations

- Pursue strategies, working within the existing statutory framework relating to reversions, to increase liquidity through growth in cash reserves.

8. Peer Comparison

The following pages compare two measures of ASU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both ASU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)



Notes:

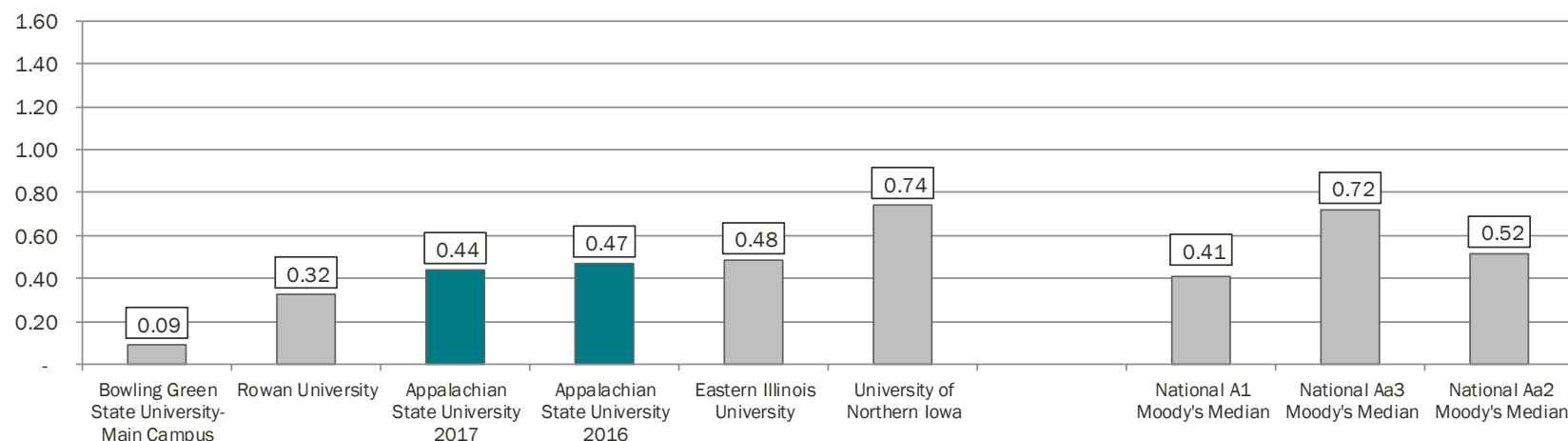
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used by the UNC Board of Governors. Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt

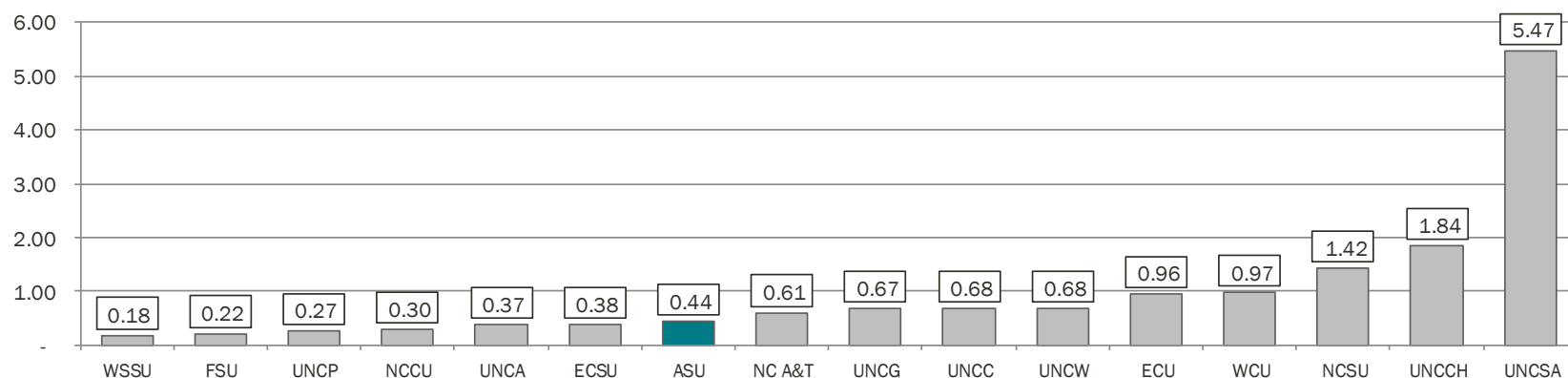
Expendable Financial Resources to Debt

ASU vs. National Peers



Expendable Financial Resources to Debt

ASU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions approved by the UNC Board of Governors on May 24, 2018.

9. Debt Management Policies

ASU's current debt policy is included in the following pages.

Debt Management Policy

Approved by the UNC Board of Governors on May 24, 2018

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1. Introduction

Appalachian State University (“ASU”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the successful implementation of ASU’s strategic vision to prepare its students to lead purposeful lives as engaged global citizens who understand their responsibilities in creating a sustainable future for all. ASU recognizes the important role that debt-related strategies may play as it makes the necessary investments in its infrastructure in order to become and remain the destination institution for dedicated students seeking challenging academic programs, engaged faculty and a vibrant campus culture.

This Policy has been developed to assist ASU’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with ASU’s stated policies, objectives and core values. Like other limited resources, ASU’s debt capacity should be used and allocated strategically and equitably.

Specifically, the objective of this Policy is to provide a framework that will enable ASU’s Board of Trustees (the “Board”) and finance staff to:

- (i) Identify and prioritize projects eligible for debt financing;
- (ii) Limit and manage risk within ASU’s debt portfolio;
- (iii) Establish debt management guidelines and quantitative parameters for evaluating ASU’s financial health, debt affordability and debt capacity;
- (iv) Manage and protect ASU’s credit profile in order to maintain ASU’s credit rating at a strategically optimized level and maintain access to the capital markets; and
- (v) Ensure ASU remains in compliance with all of its post-issuance obligations and requirements.

This Policy is intended solely for ASU’s internal planning purposes. The Vice Chancellor for Business Affairs will review this Policy annually and, if necessary, recommend changes to ensure that it remains consistent with University’s strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Policy are subject to the Board’s approval.

2. Authorization and Oversight

ASU’s Vice Chancellor for Business Affairs is responsible for the day-to-day management of ASU’s financial affairs in accordance with the terms of this Policy and for all of ASU’s debt financing activities. Each University financing will conform to all applicable State and Federal laws.

The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

3. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Only projects that directly or indirectly relate to the mission of ASU will be considered for debt financing.

- (i) Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.
- (ii) Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.
- (iii) Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any projects that will require gift financing or include a gift financing component must be jointly approved by the Vice Chancellor for University Advancement and the Vice Chancellor for Business Affairs before any project-restricted donations are solicited. The fundraising goal for any project to be financed primarily with donations should also include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

4. Benchmarks and Debt Ratios

Overview

When evaluating its current financial health and any proposed plan of finance, ASU takes into account both its debt affordability and its debt capacity. Debt affordability focuses on ASU's cash flows and measures ASU's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between ASU's net assets and its total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including ASU's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, ASU's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

ASU believes, however, that it is important to consider and monitor objective metrics when evaluating ASU's financial health and its ability to incur additional debt. To that end, ASU has identified three key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

- (i) Debt to Obligated Resources
- (ii) Expendable Resources to Debt
- (iii) Debt Service to Operating Expenses

Note that the selected financial ratios are also monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study"), which ASU believes will promote clarity and consistency in ASU's debt management and planning efforts.

ASU has established for each ratio a floor or ceiling target, as the case may be, with the expectation that ASU will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this Policy should align with the ratios used in the report ASU submits each

year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve ASU's financial health and operating flexibility and to ensure ASU is able to access the market to address capital needs or to take advantage of potential refinancing opportunities. Attaining or maintaining a specific credit rating is not an objective of this Policy.

ASU recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of ASU's strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, ASU has developed as part of this Policy specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when ASU has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this Policy. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

- (i) The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.
- (ii) The proposed project would be financed entirely with private donations based on pledges already in hand.
- (iii) The proposed project is essential to the implementation of one of the Board's strategic priorities.
- (iv) The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- (v) Foregoing or delaying the proposed project would result in significant additional costs to ASU or would negatively impact ASU's credit rating.

At no point, however, should ASU intentionally operate outside an established policy ratio without conscious and explicit planning.

Ratio 1 – Debt to Obligated Resources

What does it measure?	ASU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes
Why is it tracked?	The ratio, which is based on the legal structure proscribed by the General Revenue Bond Statutes, provides a general indication of ASU's ability to absorb debt on its balance sheet and is the primary ratio used to calculate ASU's "debt capacity" under the methodology used in the UNC Debt Capacity Study
How is it calculated?	Aggregate debt divided by obligated resources*
Policy Ratio:	Not to exceed 1.50x (UNC Debt Capacity Study Target Ratio = 1.00x)

*Available Funds, which is the concept commonly used to capture each UNC's campus's obligated resources in its loan and bond documentation, has been used as a proxy for obligated resources. The two concepts are generally identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of ASU's obligated resources.

Ratio 2 – Expendable Resources to Debt

What does it measure?	The number of times ASU's liquid and expendable net assets covers its aggregate debt
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, is a basic measure of financial health and assesses ASU's ability to settle its debt obligations using only its available net assets as of a particular date
How is it calculated?	The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
Policy Ratio:	Not less than 0.70x

Ratio 3 – Debt Service to Operating Expenses

What does it measure?	ASU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, evaluates ASU's relative cost of borrowing to its overall expenditures and provides a measure of ASU's budgetary flexibility
How is it calculated?	Annual debt service divided by annual operating expenses
Policy Ratio:	Not to exceed 5.00%

Reporting

The Vice Chancellor for Business Affairs will review each ratio in connection with the delivery of the University's audited financials and will provide an annual report to the Board substantially in the form of **Appendix A** detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

5. Debt Portfolio Management and Transaction Structure Considerations

Generally

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Business Affairs within the context of this Policy and the overall portfolio to ensure that any financial product or structure is consistent with ASU's stated objectives. As part of effective debt management, ASU must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

ASU will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves ASU's strategic plan and financing objectives. In making that determination, ASU will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect ASU's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce ASU's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates ASU's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, ASU should structure its debt to provide for level annual payments of debt service, though ASU may elect alternative structures when the Vice Chancellor for Business Affairs determines it to be in ASU's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

ASU will use maturity structures that correspond with the life of the facilities financed, not to exceed 30 years. Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

ASU recognizes that a degree of exposure to variable interest rates within ASU's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from ASU's assets. ASU's debt portfolio should be managed to ensure that no more than 20% of ASU's total debt bears interest at an unhedged variable rate.

ASU's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. ASU may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. ASU may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

Public Private Partnerships

To address ASU's anticipated capital needs as efficiently and prudently as possible, ASU may choose to explore and consider opportunities for alternative and non-traditional transaction structures (collectively, "P3 Arrangements"). Because rating agencies will generally treat a P3 Arrangement as University debt if the project is located on ASU's campus or if the facility is to be used for an essential University function, the

structure and terms of any P3 Arrangement for a university-related facility to be located on land owned by the State, ASU or a ASU affiliate must be reviewed in advance by the Vice Chancellor for Business Affairs.

P3 Arrangements may be pursued in accordance with applicable State law when (1) the Chancellor has determined that the P3 Arrangement serves a compelling strategic interest and (2) the Vice Chancellor for Business Affairs, in consultation with ASU's advisors, has determined that ASU has sufficient debt capacity to undertake its obligations under the P3 Arrangement after taking into account the P3 Arrangement's likely impact on ASU's debt-related metrics and credit profile.

Refunding Considerations

ASU will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, ASU should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of ASU ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.
- (iv) Refunding Bonds may also be issued to relieve ASU of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

6. Derivative Products

ASU recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit ASU to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. ASU will use derivatives only to manage and mitigate risk; ASU will not use derivatives to create leverage or engage in speculative transactions.

As with underlying debt, ASU's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Business Affairs must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2) ensure that ASU's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

ASU will use derivatives only when the Vice Chancellor for Business Affairs determines, based on the foregoing analysis, that the instrument provides the most effective method for accomplishing ASU's strategic objectives without imposing inappropriate risks on ASU.

Appendix A – Annual Reporting Template

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

East Carolina University
Campus Report

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1. Executive Summary

Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), East Carolina University (“**ECU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. ECU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, ECU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—ECU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, ECU’s debt capacity reflects the amount of debt ECU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that ECU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- ECU’s current debt profile, including project descriptions financed with, and the sources of repayment for, ECU’s outstanding debt;
- ECU’s current credit profile, along with recommendations for maintaining or improving ECU’s credit rating; and
- A copy of any ECU debt management policy currently in effect.

Overview of ECU

For the fall 2017 semester, ECU had a headcount student population of 29,131, including 23,265 undergraduate students, 535 professional dental/medical students, and 5,331 graduate and doctoral students. During the 2017 academic year, ECU employed 2,053 full-time, part-time and temporary instructional faculty.

Over the past 10 years, ECU’s enrollment has increased approximately 5%. ECU expects modest enrollment growth over the Study Period. ECU’s average age of plant (11.70), which is slightly lower than the median ratio for all Campuses (13.60), is expected to decrease in light of ECU’s recent investments in its facilities. ECU’s average age of plant generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

ECU anticipates incurring approximately \$81.10 million in additional debt during the Study Period, as summarized in **Section 3** below. ECU has made no changes to the financial model’s standard growth assumptions, which are based on the consumer price index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on ECU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to ECU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt ECU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate ECU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	467,939,528	-		467,939,528	2018	14,189,861	13,181,187	27,371,048	328,820,186
2014	504,487,990	-	7.81%	504,487,990	2019	14,791,325	12,702,596	27,493,921	314,028,862
2015	436,214,840	54,009,405	-2.83%	490,224,245	2020	12,758,862	12,149,625	24,908,486	301,270,000
2016	446,816,116	41,698,354	-0.35%	488,514,470	2021	12,610,000	11,602,083	24,212,083	288,660,000
2017	536,354,777	45,890,059	19.19%	582,244,836	2022	12,920,000	11,029,596	23,949,596	275,740,000
2018	594,471,977	-	2.10%	594,471,977	2023	12,470,000	10,500,823	22,970,823	263,270,000
2019	606,955,889	-	2.10%	606,955,889	2024	13,010,000	9,945,962	22,955,962	250,260,000
2020	619,701,962	-	2.10%	619,701,962	2025	12,475,000	9,345,419	21,820,419	237,785,000
2021	632,715,704	-	2.10%	632,715,704	2026	13,130,000	8,761,951	21,891,951	224,655,000
2022	646,002,733	-	2.10%	646,002,733	2027	12,490,000	8,234,838	20,724,838	212,165,000
Operating Expenses					2028	13,190,000	7,709,306	20,899,306	198,975,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	13,715,000	7,162,769	20,877,769	185,260,000
2013	783,350,806	-		783,350,806	2030	14,295,000	6,598,992	20,893,992	170,965,000
2014	820,266,769	-	4.71%	820,266,769	2031	12,720,000	6,067,477	18,787,477	158,245,000
2015	817,708,689	9,809,962	0.88%	827,518,651	2032	12,385,000	5,614,852	17,999,852	145,860,000
2016	825,342,729	12,329,211	1.23%	837,671,940	2033	12,810,000	5,184,352	17,994,352	133,050,000
2017	883,542,900	(4,164,008)	4.98%	879,378,892	2034	13,250,000	4,735,388	17,985,388	119,800,000
2018	897,845,849	-	2.10%	897,845,849	2035	11,735,000	4,307,130	16,042,130	108,065,000
2019	916,700,612	-	2.10%	916,700,612	2036	9,795,000	3,939,785	13,734,785	98,270,000
2020	935,951,325	-	2.10%	935,951,325	2037	9,065,000	3,611,413	12,676,413	89,205,000
2021	955,606,303	-	2.10%	955,606,303	2038	9,405,000	3,275,519	12,680,519	79,800,000
2022	975,674,035	-	2.10%	975,674,035	2039	9,765,000	2,914,628	12,679,628	70,035,000
					2040	10,155,000	2,533,656	12,688,656	59,880,000
					2041	10,545,000	2,128,781	12,673,781	49,335,000
					2042	10,765,000	1,707,175	12,472,175	38,570,000
					2043	11,185,000	1,282,188	12,467,188	27,385,000
					2044	11,620,000	850,563	12,470,563	15,765,000
					2045	8,570,000	459,200	9,029,200	7,195,000
					2046	7,195,000	143,900	7,338,900	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	221,593,385	17,550,455	11,404,507	35,210,815	4,822,813		-	280,936,350
2014	211,148,200	46,712,772	14,632,475	46,382,707	15,600,145	7.95%	-	303,276,009
2015	157,628,074	46,304,086	14,388,438	46,766,048	14,676,235	0.38%	54,009,405	304,419,815
2016	205,681,490	55,828,890	13,501,383	42,092,018	25,363,152	9.53%	41,698,354	333,438,982
2017	209,652,685	68,538,857	15,936,544	49,450,966	33,750,247	6.68%	45,890,059	355,718,863
2018	260,909,141	69,978,173	16,271,211	50,489,436	34,459,003	2.10%	-	363,188,959
2019	266,388,233	71,447,714	16,612,907	51,549,714	35,182,642	2.10%	-	370,815,927
2020	271,982,386	72,948,116	16,961,778	52,632,258	35,921,477	2.10%	-	378,603,062
2021	277,694,016	74,480,027	17,317,975	53,737,536	36,675,828	2.10%	-	386,553,726
2022	283,525,590	76,044,107	17,681,653	54,866,024	37,446,021	2.10%	-	394,671,354

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that ECU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in Section 4 of this Campus Report.

ECU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Housing Residence Hall Renovations Phase 2	26,100,000	30 Years	Housing Receipts
2018	Dowdy-Ficken Stadium Southside Renovation	55,000,000	30 Years	Athletics and Fundraising
Total		81,100,000		

4. Financial Ratios

Debt to Obligated Resources

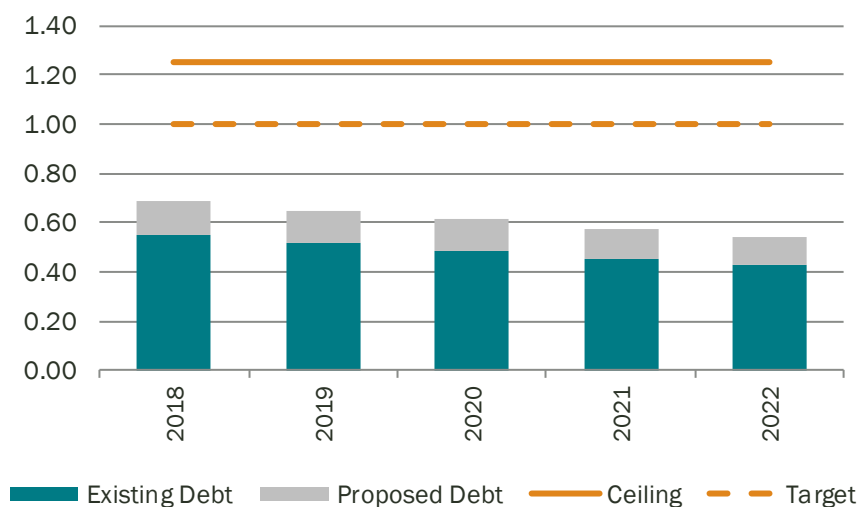
- **What does it measure?** ECU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.00
- Ceiling Ratio: Not to exceed 1.25
- Projected 2018 Ratio: 0.69
- Highest Study Period Ratio: 0.69 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	594,471,977	2.10%	328,820,186	81,100,000	0.55	0.14	0.69
2019	606,955,889	2.10%	314,028,862	79,471,265	0.52	0.13	0.65
2020	619,701,962	2.10%	301,270,000	77,789,107	0.49	0.13	0.61
2021	632,715,704	2.10%	288,660,000	76,051,775	0.46	0.12	0.58
2022	646,002,733	2.10%	275,740,000	74,257,458	0.43	0.11	0.54

Debt to Obligated Resources



Weaker
↓
Stronger

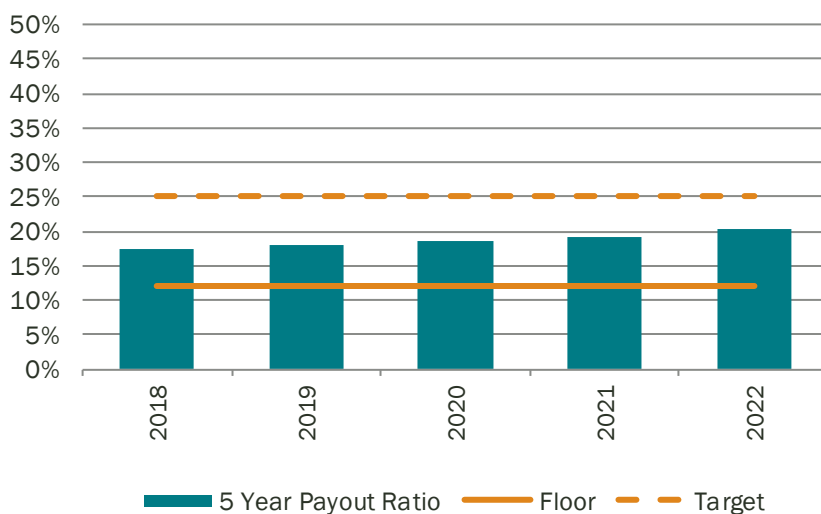
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of ECU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 25%
- Floor Ratio: Not less than 12%
- Projected 2018 Ratio: 17%
- Lowest Study Period Ratio: 17% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	409,920,186	17%	
2019	393,500,126	18%	
2020	379,059,107	18%	
2021	364,711,775	19%	
2022	349,997,458	20%	

5-Year Payout Ratio



Stronger
↑
↓
Weaker

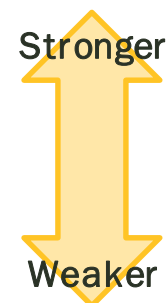
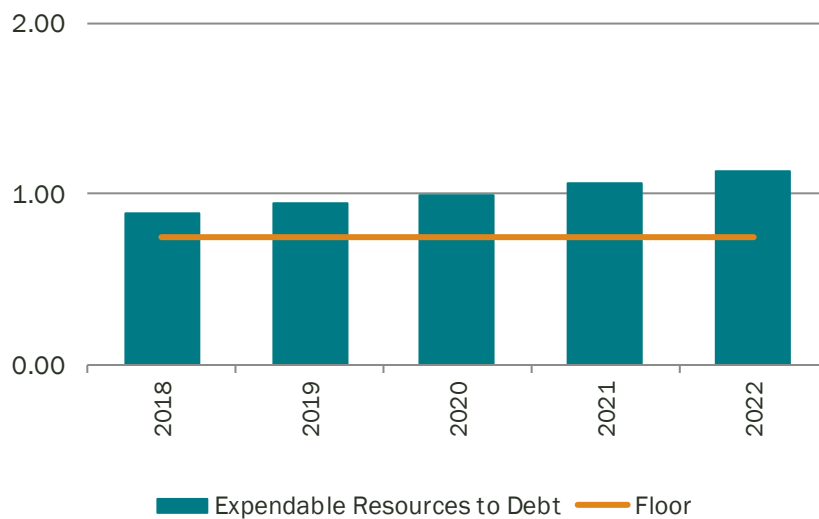
Expendable Resources to Debt

- **What does it measure?** The number of times ECU's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.75x
- Projected 2018 Ratio: 0.89x
- Lowest Study Period Ratio: 0.89x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	363,188,959	2.10%	328,820,186	81,100,000	1.10	0.89
2019	370,815,927	2.10%	314,028,862	79,471,265	1.18	0.94
2020	378,603,062	2.10%	301,270,000	77,789,107	1.26	1.00
2021	386,553,726	2.10%	288,660,000	76,051,775	1.34	1.06
2022	394,671,354	2.10%	275,740,000	74,257,458	1.43	1.13

Expendable Resources to Debt



Debt Service to Operating Expenses

- **What does it measure?** ECU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 4.00%
- Projected 2018 Ratio: 3.05%
- Highest Study Period Ratio: 3.46% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	897,845,849	2.10%	27,371,048	-	3.05%	n/a	3.05%
2019	919,360,692	2.10%	27,493,921	4,288,815	2.99%	0.47%	3.46%
2020	938,557,982	2.10%	24,908,486	4,288,815	2.65%	0.46%	3.11%
2021	958,157,785	2.10%	24,212,083	4,288,815	2.53%	0.45%	2.97%
2022	978,168,533	2.10%	23,949,596	4,288,815	2.45%	0.44%	2.89%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, ECU's debt capacity is based on the amount of debt ECU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, ECU's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, ECU's current estimated debt capacity is **\$333,169,785**. After taking into account any legislatively approved projects detailed in **Section 3** above, if ECU issued no additional debt until the last year of the Study Period, then ECU's debt capacity for 2022 is projected to increase to **\$457,505,958**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	0.69	1.25	333,169,785
2019	0.65	1.25	365,194,734
2020	0.61	1.25	395,568,346
2021	0.58	1.25	426,182,854
2022	0.54	1.25	457,505,958

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of ECU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If ECU were to use all of its calculated debt capacity during the Study Period, ECU's credit ratings may face significant downward pressure.
- Projecting the exact amount ECU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.
 - If "debt capacity" were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
 - Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are

difficult to predict.

- For example, a university's "**strategic positioning**" score, which accounts for 10% of its overall score under Moody's criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.

- **Distortions Across Rating Categories**

- Because quantitative ratios account for only a portion of an issuer's final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
- Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

ECU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

East Carolina University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2009A	UNC System Pool Revenue Bonds	5,025,000	10/1/2019	Croatan Dining Project Scott Residence Hall Softball Field Jarvis Residence Hall	1998	Dining Receipts Housing Receipts Student Fee Housing Receipts
2010A	UNC System Pool Revenue Bonds	17,490,000	10/1/2029	East End Zone College Hill Residence Hall	2004C	Athletic Receipts Housing Receipts
2010B	Taxable General Revenue Bonds (BABs)	24,155,000	10/1/2035	Tyler Residence Hall Wright Place Dining Renovations Olympic Sports Facility		Housing Receipts Dining Receipts Student Fee
2011A	UNC System Pool Revenue Bonds	7,335,000	5/1/2023	Student Recreation Center West End Dining College Hill Residence Hall	2001C 2003A 2004C	Student Fee Dining Receipts Housing Receipts
2012	General Revenue Refunding Bond	8,055,000	4/1/2027	West End Dining College Hill Residence Hall	2003A 2004C	Dining Receipts Housing Receipts
2012	Note Payable (US Bank)	3,715,047	11/1/2019	Auxiliary Gym		Pledge Receipts
2013A	General Revenue Refunding Bonds	10,905,000	10/1/2033	College Hill Residence Hall	2004C	Housing Receipts
2014A	General Revenue Bonds	52,715,000	10/1/2043	Gateway East and West Residence Halls		Housing Receipts
2015A	General Revenue Bonds	64,965,000	10/1/2044	West Campus Student Union Croatan Dining Project Scott Residence Hall Softball Field Project College Hill Residence Hall	2009A 2009A 2009A 2006A	Student Fee Dining Receipts Housing Receipts Student Fee Housing Receipts
2015B	Taxable General Revenue Bonds	5,220,000	10/1/2021	Jones Residence Hall Galley Dining Student Health Renovations and Addition	2006A 2006A 2006A	Housing Receipts Dining Receipts Student Fee
2016A	General Revenue Bonds	139,920,000	10/1/2045	East Campus Student Union Parking Dining White Residence Hall Renovation Clement Residence Hall Renovation Green Residence Hall Renovation		Student Fee Parking Receipts Dining Receipts Housing Receipts Housing Receipts Housing Receipts
2016B	Taxable General Revenue Bonds	3,510,000	10/1/2018	Bookstore & Other		Bookstore Receipts & Other Sources
Total		343,010,047				

Approved by the UNC Board of Governors on May 24, 2018

East Carolina University

FY2017 Debt Capacity Study

Summary of New Money Debt Issued During FYE June 30, 2018

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2017	General Revenue Bond Anticipation Note	5,138,547*	10/26/2019	Dowdy-Ficklen Improvements		Athletics
Total		5,138,547				

* Reflects the amount outstanding as of January 26, 2018. Note will be permanently refinanced with proceeds of the \$55,000,000 general revenue bond financing listed in Section 3 of the Study.

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of ECU's current credit ratings, along with (1) a summary of various credit factors identified in ECU's most recent rating report and (2) recommendations for maintaining and improving ECU's credit ratings in the future.

Overview

- Moody's maintains a Aa2 rating on the University's general revenue bonds. The outlook is stable.
- Standard and Poor's maintains a AA- rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Healthy support from the Aaa-rated State
- Relatively modest leverage
- Strong management of university finances and enrollment translates into steady operating results
- Revenue diversity, including patient care revenue and a small research enterprise, helps insulate ECU from pressure on any one revenue source
- Growing enrollment

Credit Challenges

- Relatively small size and geographic reach compared to Aa2-rated peers
- Financial reserves are narrow relative to peers.

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-
Non Investment Grade		

Recommendations & Observations

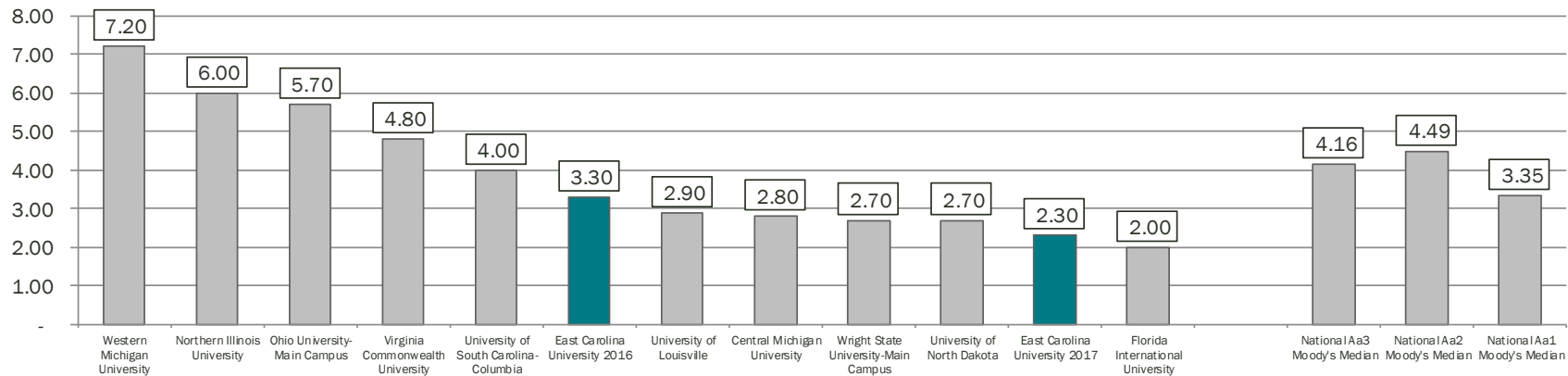
- Pursue strategies, working within the existing statutory framework relating to reversions, to increase liquidity through growth in cash reserves.
- Continue to seek strategies to limit new debt in the near term while addressing critical infrastructure needs, in accordance with the University's existing debt policy and in service of the University's other strategic initiatives.

8. Peer Comparison

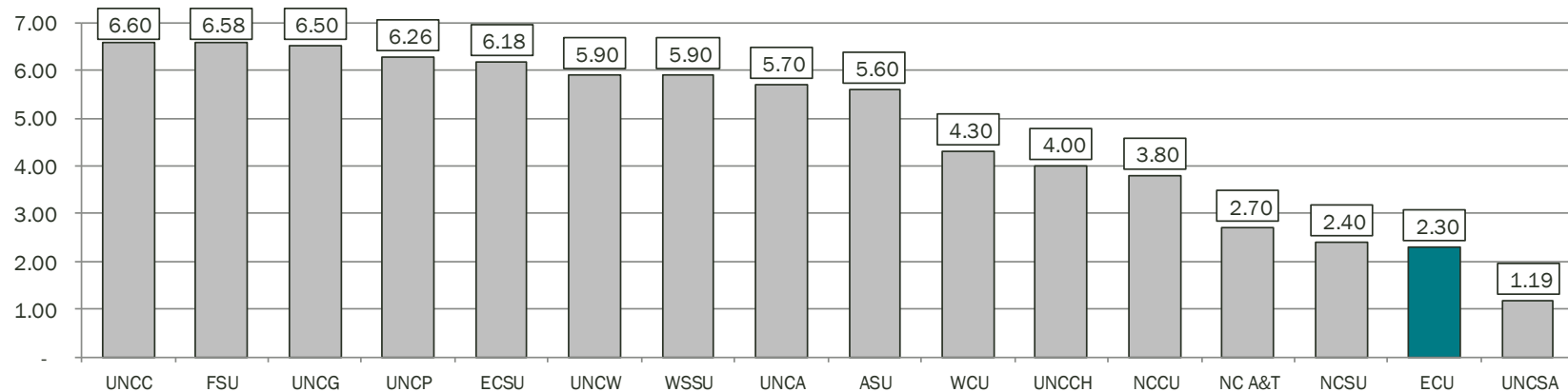
The following pages compare two measures of ECU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both ECU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
ECU vs. National Peers



Debt Service to Operating Expenses (%)
ECU vs. UNC System



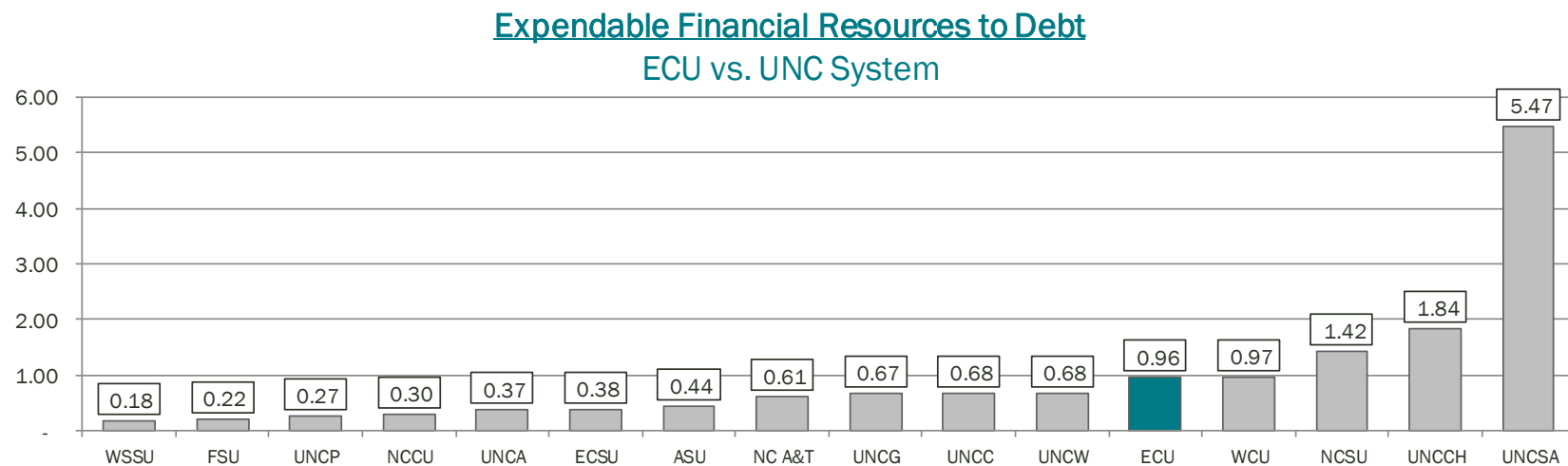
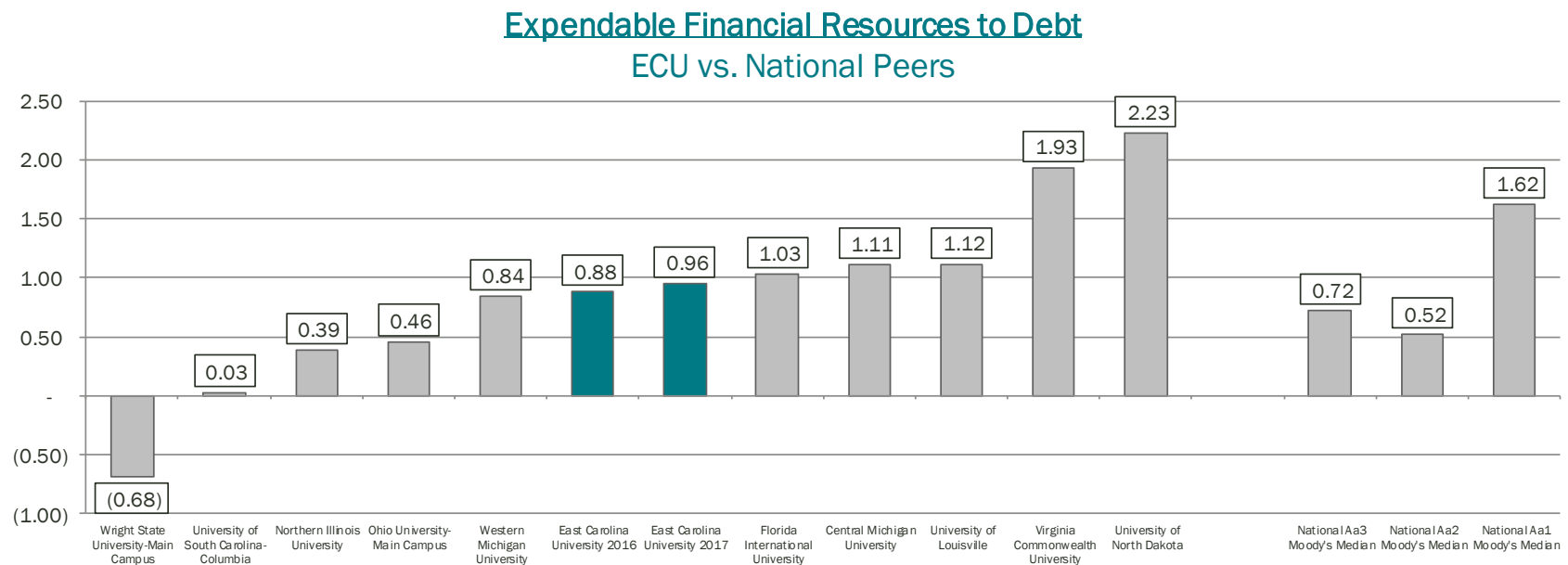
Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

ECU's current debt policy is included in the following pages.

East Carolina University

Debt Management Guidelines

Draft



Last Revised: 3-31-2011

East Carolina University

East Fifth St
Greenville, NC 27858-4353
252.328.6131



East Carolina University

Debt Management Guidelines

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East Carolina University

Debt Management Guidelines

I. Introduction

Purpose

To fulfill its mission, East Carolina University will need to make ongoing strategic capital investments for additional academic, student life, medical, athletic, and other plant facilities using an appropriate mix of funding sources including State bonds and appropriations, University bonds, internal reserves, and private giving.

The purpose of this debt policy is to ensure the appropriate mix of funding sources is used and to provide guidance on the strategic use of debt as a funding source. Debt is a valuable source of capital project financing and its use should be limited to projects that relate to the mission and strategic objectives of the University. The amount of debt incurred affects the financial health of the University and its credit rating. Debt provides a limited low cost source of funding for capital projects and, together with other limited resources, should be used and allocated appropriately and strategically.

This policy provides a discipline and framework that will be used by management to evaluate the appropriate use of debt in capital financing plans.

Objectives of the Debt Policy

The objectives stated below provide the framework by which decisions will be made regarding the use and management of debt. The debt policy and objectives are subject to re-evaluation and change over time.

This Debt Policy is set forth to:

1. Outline a process for identifying and prioritizing capital projects considered eligible for debt financing and assuring that debt-financed projects have a feasible plan of repayment. Projects that relate to the core mission and that have associated revenues will generally be given higher priority for debt financing.
2. Define the quantitative tests that will be used to evaluate the University's overall financial health and present and future debt capacity.
3. Define project specific quantitative tests, as appropriate, that will be used to determine the financial feasibility of an individual project.
4. Manage the University's debt to maintain an acceptable credit rating. The University, consistent with the capital objectives, will limit its overall debt to a level that will maintain an acceptable credit rating with bond rating agencies. Maintaining an acceptable

credit rating will permit the University to continue to issue debt and finance capital projects at favorable interest rates, although the attainment or maintenance of a specific rating is not an objective of this policy.

5. Establish guidelines to limit the risk of the University's debt portfolio. The University will manage debt on a portfolio basis, rather than on a transactional or project specific basis, and will use an appropriate mix of fixed and variable rate debt to achieve the lowest cost of capital while limiting exposure to market interest rate shifts. Various types of debt structures and instruments will be considered, monitored, and managed within the framework established in this policy and according to internal management procedures. Debt instruments covered by this policy include not only bonds, but obligations of the university, such as special obligations, lease purchases, installment purchases, commercial paper, limited obligations, notes, etc.
6. Assign responsibilities for the implementation and management of the University's Debt Policy.

II. Process for Identifying and Prioritizing Capital Projects Requiring Debt

At the current credit rating the University has adequate but limited debt capacity. Additionally, the State of North Carolina adheres to limits on debt issuance provided in its adopted debt affordability policy and the University must compete with all other state agencies for capital projects bonding authority. Therefore it is essential that the University appropriately prioritize capital projects requiring debt.

Management will allocate the use of debt financing within the University to include prioritization of debt resources among all uses, including academic and student life projects, plant and equipment financing, and projects with University-wide impact.

The debt allocation matrix below depicts an approach to prioritizing capital projects requiring debt.

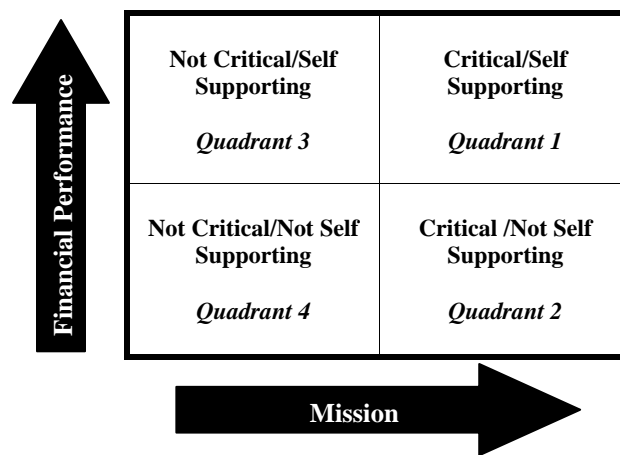


Figure 1 Debt Allocation Matrix

Explanation of debt allocation matrix

Quadrant 1:

Project is critical to the core missions of research, service or instruction **and** has its own funding source (i.e., non-general fund supported).

Quadrant 2

Project is critical to the core missions of research, service or instruction **but does not** have its own funding source (i.e., will require-general fund support).

Quadrant 3

Project is not critical to the core missions of research, service or instruction **but** has its own funding source (i.e., non-general fund supported).

Quadrant 4

Project is not critical to the core missions of research, service or instruction **and does not have** its own funding source (i.e., will require general fund support).

Note that approval of projects in Quadrant 3 and 4 will reduce the ability to issue debt for the mission critical projects identified in Quadrants 1 and 2.

Guidelines for Prioritizing Capital Projects Requiring Debt

Management will use the following guidelines when prioritizing capital projects and making decisions about financing options and use of debt:

1. Only projects related to the mission of the University, directly or indirectly, will be eligible for debt financing.
2. State funding and philanthropy are expected to remain major sources of financing for the University's capital projects. In assessing the possible use of debt, all other financing and revenue sources will be considered. State appropriations and bonds, philanthropy, project-generating revenues, research facilities and administration cost reimbursement, expendable reserves, and other sources are expected to finance a portion of the cost of a project. Debt is to be used conservatively and strategically.
3. The University will consider other funding opportunities (e.g., joint ventures, real estate development, etc.) when appropriate and advantageous to the University. Opportunities and financing sources will be evaluated within the context of the Debt Policy.
4. Federal research projects will receive priority consideration for debt financing due to partial reimbursement of operating expenses (including the interest component of applicable debt service) of research facilities.

5. Every project considered for financing must have a defined, supportable plan of costs (construction and incremental operating) approved by management. A project that has a related revenue stream or can create budgetary savings will receive priority consideration. However, projects may not receive a higher priority simply because they are self-supporting. For example, a project that mitigates life safety issues may be given preferences over a self supporting project.

III. Debt Ratios

The University will establish guidelines for overall debt management using a select number of ratios that are specific to the ability to issue debt and are key determinants used by the rating agencies in rating the University's bonds. The Moody's Investors Service annual Public University Median Report will be used as a guide and the University will review and contrast performance measures that are viewed with more emphasis, including but not limited to: unrestricted resources to debt, expendable resources to debt, and debt burden. The ratios will be calculated and reported annually and when new debt is issued, and revised periodically to reflect any changes in accounting standards. A goal is to measure the total amount of outstanding debt compared to University balance-sheet resources and the annual operating budget. These ratios can be derived from the financial statements and are based on current GAAP requirements, including the GASB 34/35 reporting format and are consistent with ratios used in the higher education industry to permit benchmarking. Furthermore, in light of GASB implemented changes to GAAP accounting rules, any changes made by the rating analysts to ratio methodology will be incorporated accordingly.

IV. Project Specific Quantitative Tests

Consideration of the performance ratios will determine the ability and/or advisability of issuing additional debt from a University-wide perspective. Determination of the prioritization of individual projects to be allocated a portion of available debt capacity is a separate, internal decision that must be made before a project is initiated.

Many factors will influence this internal decision process. First and foremost will be how the project is prioritized with regard to mission criticality as described by the debt allocation matrix (four quadrant model) above. Although debt will be structured to meet the University's comprehensive long-term objectives, each project being financed will be required to provide a sound business plan, including the source of repayment for the debt and appropriate and realistic repayment terms. Among other things, the repayment terms will require that the loan term is no greater than the expected useful life of the asset financed. Additionally, every project considered for debt financing must have a management approved plan of project costs, including incremental operating expenses and revenues. Incremental revenues include revenue increases directly associated with the project (e.g., usage fees) that can only be realized if the project is undertaken. Similarly, incremental expenses include any increase in expected operating costs associated with the project. Revenues and cost savings should be estimated conservatively, especially for high-risk projects.

V. General Debt Management Guidelines

Methods of Sale

The University will use the method of sale that will achieve the lowest cost of capital considering the complexity of the transaction. This can be achieved by using either a competitive or negotiated sale method for the placement of bond offerings. For transactions using new or non-traditional pledges of University revenues, or those involving greater complexity, a negotiated method of sale will be considered, and legislative approval requested, on an individual transaction basis. Bonds may also be sold through a private or limited placement, but only if it is determined that a public offering through either a competitive or negotiated sale is not in the best interests of the university.

Selection of Financial Advisors, Underwriters and Bond Counsel

The University will use a request for proposal process to select Financial Advisors, Underwriters and Bond Counsel. Firms providing financial advisory and bond counsel services are generally selected for a specific period of time rather than for individual transactions. Underwriting firms will be selected on individual transactions and will be selected based upon expertise related to the specific transaction. Additionally, the University may use the Financial Advisors, Underwriters and Bond Counsel selected by General Administration through its own similar competitive process.

Structure and Maturity

Generally, debt should be structured on a level debt basis, i.e., so that the annual debt service repayments will, as nearly as practicable, be the same in each year. A deviation from these preferences is permissible if it can be demonstrated to be in the university's best interest, such as restructuring debt to avoid a default. On projects that are designed to be self sufficient, the debt service may be structured to match future anticipated receipts.

The University will issue bonds to finance capital projects under the provisions of trust indentures approved by the Board of Trustees.

Debt in the form of capitalized lease obligations will be approved by the Board of Trustees and issued on behalf of the University by the ECU Real Estate Foundation, and other financing entities.

The University will employ maturity structures that correspond with the life of the facilities financed, generally not to exceed 30 years. Equipment will be financed for a period up to 120% of its useful life. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

A degree of exposure to variable interest rates within the University's debt portfolio may be desirable in order to:

- (i) take advantage of repayment/restructuring flexibility; and

- (ii) benefit from historically lower average interest costs; and
- (iii) diversify the debt portfolio; and,
- (iv) provide a hedge to short-term working capital balances.

Management will monitor overall interest rate exposure, analyze and quantify potential risks, and coordinate appropriate fixed/variable allocation strategies.

Recognizing the desire to manage interest rate risk, the amount of variable rate debt outstanding shall not exceed 20% of the University's outstanding debt. This limit is based on (i) the University's desire to limit annual variances in its debt portfolio, (ii) provide sufficient structuring flexibility to management, (iii) keep the University's variable rate allocation within acceptable external parameters, and (iv) use variable rate debt (and/or swaps) to optimize debt portfolio allocation and minimize costs.

$$\frac{\text{VARIABLE RATE AND LIQUIDITY EXPOSURE}}{\text{TOTAL LONG-TERM DEBT OUTSTANDING}} < 20\%$$

Budgetary controls for variable rate debt: To avoid a situation in which debt service on variable rate bonds exceeds the annual amount budgeted; the following guidelines should be followed in establishing a variable rate debt service budget:

- i) A principal amortization schedule should be established, with provision made for payment of amortization installments in each respective annual budget;
- ii) Provide for payment of interest for each budget year using an assumed budgetary interest rate that allows for fluctuations in interest rates on the bonds without exceeding the amount budgeted. The budgetary interest rate may be established by:
 - (1) using an artificially high interest rate given current market conditions; or (2) setting the rate based on the last 12 months actual rates of an appropriate index plus a 200 basis point cushion or spread to anticipate interest rate fluctuations during the budget year. The spread should be determined by considering the historical volatility of short-term interest rates, the dollar effect on the budget and current economic conditions and forecasts; or,
 - (3) any other reasonable method determined by the university
- iii) The amount of debt service incurred in each budget year should be monitored monthly by the university to detect any significant deviations from the annual budgeted debt service. Any deviations in interest rates that might lead to a budgetary problem should be addressed immediately; and
- iv) As part of the effort to monitor actual variable rate debt service in relation to the budgeted amounts and external benchmarks, the university should establish a system to

monitor the performance of any service provider whose role it is to periodically reset the interest rates on the debt, i.e., the remarketing agent or auction agent.

Liquidity: One of the features typical of variable rate debt instruments is the bondholder's right to require the issuer to repurchase the debt at various times and under certain conditions. This, in theory, could force the issuer to repurchase large amounts of its variable rate debt on short notice, requiring access to large amounts of liquid assets. Issuers that do not have large amounts of liquid assets may establish a liquidity facility with a financial institution that will provide the money needed to satisfy the repurchase. The liquidity provider should have a rating of A1/P1 or higher. The liquidity agreement does not typically run for the life of long-term debt. Accordingly, there is a risk that the provider will not renew the agreement or that it could be renewed only at substantially higher cost. Similar issues may arise if the liquidity provider encounters credit problems or an event occurs that results in early termination of the liquidity arrangement; in either case the issuer must arrange for a replacement liquidity facility.

Swaps: Should the University participate in the use of Swaps, it must do so in agreement with the Board of Governors of the University of North Carolina "Swap Policy for Constituent Institutions", as shown in Appendix A.

Taxable Debt (without Federal subsidies)

While all the University's capital projects may not qualify for tax-exempt debt, taxable debt should be used only in appropriate cases as it generally represents a more expensive source of capital relative to tax-exempt issuance. Issuing taxable debt reduces the University's overall debt affordability due to higher associated interest expense. When utilized, taxable debt will be structured to provide maximum repayment flexibility and rapid principal amortization.

Capitalized Interest

Capitalized interest from bond proceeds is used to pay debt service until a revenue producing project is completed or to manage cash flows for debt service in special circumstances. Because the use of capitalized interest increases the cost of the financing, it should only be used when necessary for the financial feasibility of the project. In revenue-producing transactions, the University will attempt to structure debt service payments to match the revenue structure in order to minimize the use of capitalized interest.

Credit Ratings

The University will maintain ongoing communication and interaction with bond rating agencies, striving to educate the agencies about the general credit structure and financial performance of the University in order to attain the highest credit rating possible.

Refunding Targets

Generally, refunding bonds are issued to achieve debt service savings by redeeming high interest rate debt with lower interest rate debt. Refunding bonds may also be issued to restructure debt or modify covenants contained in the bond documents. Current tax law limits to one time the issuance of tax-exempt advance refunding bonds to refinance bonds issued after 1986. There is

no similar limitation for tax-exempt current refunding bonds. The University will continuously monitor its outstanding tax-exempt debt portfolio for refunding and/or restructuring opportunities. The following guidelines should apply to the issuance of refunding bonds, unless circumstances warrant a deviation there from:

- a) Refunding bonds should generally be structured to achieve level annual debt service savings.
- b) The life of the refunding bonds should not exceed the remaining life of the bonds being refunded.
- c) Advance refunding bonds issued to achieve debt service savings should have a minimum target savings level measured on a present value basis equal to 2-3% of the par amount of the bonds being advance refunded. The 2-3% minimum target savings level for advance refundings should be used as a general guide to guard against prematurely using the one advance refunding opportunity for post-1986 bond issues. However, because of the numerous considerations involved in the sale of advance refunding bonds, the target should not prohibit advance refundings when the circumstances justify a deviation from the guideline.
- d) Refunding bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling university interest.

For current refundings, the University will consider transactions that, in general, produce present value savings (based on refunded bonds). A refunding will also be considered if it relieves the University of certain limitations, covenants, payment obligations or reserve requirements that reduce flexibility. The University will also consider refinancing certain obligations within a new money offering even if savings levels are minimal in order to consolidate debt into a general revenue pledge, and/or reduce the administrative burden and cost of managing many small outstanding obligations.

VI. Disclosure

Primary Disclosure

The University shall use best practices in preparing disclosure documents in connection with the public offer and sale of debt so that accurate and complete financial and operating information needed by the markets to assess the credit quality and risks of each particular debt issue is provided.

The disclosure recommendations of the Government Finance Officers Association's "Disclosure for State and Local Governments Securities," and the National Federation of Municipal Analysts' "Recommended Best Practices in Disclosure for Private Colleges and Universities" should be followed to the extent practicable, specifically including the recommendation that

financial statements be prepared and presented according to generally accepted accounting principles.

Secondary Disclosure

The University will continue to meet its ongoing disclosure requirements as required under Rule 15c2-12 of the Securities and Exchange Commission. The University will submit financial reports, statistical data, and any other material events as required under outstanding bond indentures.

VII. Tax-Exempt Debt - Post Issuance Considerations

Bond Proceeds Investment

The University will invest bond-funded construction funds, capitalized interest funds, and costs of issuance funds appropriately to achieve the highest return available under arbitrage limitations. When sizing bond transactions, the University will consider funding on either a net or gross basis.

Arbitrage

The University will comply with federal arbitrage requirements on invested tax-exempt bond proceeds, causing arbitrage rebate calculations to be performed annually and rebate payments to be remitted to the IRS periodically as required.

Private Use and Gifts

The University will monitor all arrangements with third parties to use bond-financed property, including the federal government and other colleges and universities, in order to ensure the tax-exempt status of the related debt. The University will monitor any sales of bond-financed property, and any lease management contracts, research arrangements and naming rights agreements to the extent such arrangements impact bond-financed property, and will work closely with bond counsel in determining events/actions that may cause a bond issue to become taxable. The University will also work with the bond counsel to train University personnel in these matters. In order to track arrangements that could potentially result in a loss of tax-exempt status of University debt, a record of financed facilities, including facilities financed by the State will be maintained.

The University will track gifts which are restricted to facilities financed, or to be financed with tax-exempt debt and will work with bond counsel to ensure that such gifts are used in a manner that complies with federal tax law limitations.

VIII. Responsibility

Assignment of Responsibilities

The Vice Chancellor for Administration and Finance is directly responsible for overseeing capital debt management and adhering to advice and guidelines adopted by the Board of Trustees.

Facilities Planning and Facilities Management

The Associate Vice Chancellor for Campus Operations will take the lead role in estimating and defining project costs and in maintaining a list of projects that are being considered. The Associate Vice Chancellor for Campus Operations will take the lead role in developing capital planning documents for the current year, current biennium and the capital plan.

Treasury Management

The Financial Director will maintain a schedule of current and forecasted debt and associated payment of principal, interest and fees. The Associate Vice Chancellor for Financial Services is responsible for the administration of all aspects of debt financing, including accounting, and contracting with financial advisors, underwriters and bond counsel to issue new debt or refinance existing debt.

Management

A Debt/Capital Committee will be established by the Vice Chancellor of Administration and Finance. The committee will consist of no more than 12 individuals from various areas of the University including, but not necessarily limited to: Financial Services, Campus Operations, Academic Affairs, Health Sciences, Research and Graduate Studies, Student Life, and Athletics. The Debt/Capital Committee will meet on a regular basis to review projects being considered and the various financing options available. They will make recommendations to the Vice Chancellor for Administration and Finance who will present the recommendations of this group to the Executive Council and the Chancellor, for further discussion and prioritization.

Board of Trustees

The Board of Trustees will consider for approval each special obligation project of the University, in accordance with State law. The Board of Trustees will consider and approve this Debt Policy and any proposed changes to it.

Review of Debt Policy/Oversight

This debt policy is a living document. The Executive Council will review this policy at least annually and change as needed to reflect changing conditions and practices. However, it is noted that consistent application of the University's debt policy provides evidence of debt management discipline over the long term. This review process is necessary to ensure that the policy remains consistent with the University's objectives/debt philosophy and responsive to evolving practices. In addition, the Debt/Capital Committee will hold periodic meetings in order to review short and intermediate term financing needs, market opportunities, and financial performance. This periodic review will help the University determine appropriate financial decisions as well as review capital investments and the timing of financing plans responsive to market conditions.

Glossary

Annual debt service – the principal and interest due on long-term debt in a fiscal year.

Bridge financing – any type of financing used to “bridge” a period of time. For universities, it generally refers to financings that provide funding in advance of a long-term bond issue or the receipt of gift funding.

Capital project – physical facilities or equipment or software that may be capitalized.

GAAP – Generally Accepted Accounting Principles.

GASB 34/35 – Government Accounting Standards Board Statement Nos. 34 and 35.

Leverage – long-term debt as a component of the total assets of the University. “High leverage” indicates an institution that has a considerable portion of its assets that are debt financed.

Competitive sale – A sale of municipal securities by an issuer in which underwriters or syndicates of underwriters submit sealed bids to purchase the securities. The securities are won and purchased by the underwriter or syndicate of underwriters who submit the best bid according to guidelines in the notice of sale.

Negotiated sale – In a negotiated underwriting the sale of bonds is by negotiation and agreement with an underwriter or underwriting syndicate selected by the issuer before the moment of sale. This is in contrast to a competitive or an advertised sale.

Advance refunding – A financing structure under which new bonds are issued to repay an outstanding bond issue more than ninety (90) days from the date of issuance of the new issue. Generally, the proceeds of the new issue are invested in government securities, which are placed in escrow. The interest and principal repayments on these securities are then used to repay the old issue, usually on the first call date. Advance refundings are done to save interest, extend the maturity of the debt or change existing restrictive covenants.

Current refunding – Sale of a new issue, the proceeds of which are to be used, within ninety (90) days, to retire an outstanding issue by, essentially, replacing the outstanding issues with the new issue. Current refundings are done to save interest cost, extend the maturity of the debt, or change existing restrictive covenants.

Primary disclosure – SEC Rule 15c2-12 obligates underwriters participating in primary (new) offerings of municipal securities (of \$1,000,000 or more; are sold to more than 35 people; and have a maturity greater than 9 months) to obtain, review, and distribute to investors copies of the issuer’s official statement. While previously exempt, as of December 1, 2010, all new Variable Rate Demand Obligations will also be subject to Rule 15c2-12.

Secondary disclosure - At the time bonds are offered, the issuer must outline the type of Annual Financial Information it will provide annually and the terms of its continuing disclosure agreement. Issuers are also required to provide notice of certain events to each NRMSIR or Municipal Securities Rulemaking Board within 10 business days after the occurrence of the event. Certain events require an events notice to be filed, ***regardless of materiality*** as follows:

1. Failure to pay principal and interest;
2. Unscheduled draws on debt service reserves;
3. Unscheduled draws on credit enhancement;
4. Substitution of credit or liquidity providers, or their failure to perform;
5. Adverse tax opinions or events affecting the tax-exempt status of the security;
6. Defeasances;
7. Rating changes;
8. Issuance by IRS of proposed or final determination of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the securities;
9. Tender offers; and,
10. Bankruptcy, insolvency, receivership or similar proceeding.

For other events, an events notice only needs to be filed if ***deemed material***.

1. Non-payment related defaults;
2. Modifications to rights of security holders;
3. Bond calls;
4. Release, substitution, or sale of property securing repayment of the securities;
5. Mergers, consolidations, acquisitions the sale of all or substantially all of the assets of the obligated person or their termination; and,
6. Appointment of a successor or additional trustee or the change of the name of a trustee.

East Carolina University

Financing Schedule

Example

<u>Date</u> <u>[Actual Dates to Be Inserted]</u>	<u>Event</u>	<u>Responsibility</u>
Month 1	Develop/Review financial projections for available revenues to repay debt service	ECU/FA
Month 1	Schedule conference call with UNC-GA staff to discuss the proposed financing and schedule	ECU/FA
Month 1	Select underwriting team	ECU/FA
Month 2	Organizational conference call with the working group to review the plan of finance and the financing schedule	WG
Month 2	Board of Trustees approval	ECU
Month 2	Underwriters Counsel and Bond Counsel receive disclosure/due diligence information from ECU	ECU
Month 2	Distribute Preliminary Official Statement and legal documents to working group	BC/UC
Month 3	Document review meeting/conference call	WG
Month 3	Distribute 2 nd draft of legal documents and POS	BC/UC
Month 3	Board of Governors resolution to General Administration	BC
Month 3	Conference call to review 2 nd draft of documents	WG
Month 3	Distribute information package to Rating Agencies/ Bond Insurers	FA; U
Month 4	Board of Governors Finance Committee approval	S
Month 4	Board of Governors approval	S
Month 4	Rating Agency/Insurer visits or conference calls	ECU, FA; U
Month 4	Receive Bond Insurance bids and select Bond Insurer	ECU, FA, U
Month 5	Receive Ratings	ECU, FA, U
Month 5	Distribute Preliminary Official Statement	UC
Month 5	Bond Sale	ECU, FA, U
Month 5	Sign Bond Purchase Agreement	U, ECU
Month 5	Distribute Final Official Statement	U; UC
Month 5	Pre-closing	WG
Month 5	Closing	WG

Key Working Group Participants

ECU	University staff
WG	Working Group
FA	Financial Advisor
BC	Bond Counsel
S	UNC System
U	Underwriter
UC	Underwriter Counsel
WG	Working Group

Appendix A

BOARD OF GOVERNORS OF THE UNIVERSITY OF NORTH CAROLINA

SWAP POLICY FOR CONSTITUENT INSTITUTIONS

This policy will govern the use by the constituent institutions of the University of North Carolina System of Swap Agreements.

DEFINITIONS

“*Chief Financial Officer*” means the person from time to time serving as the responsible financial person for a Constituent Institution.

“*Constituent Institution*” means one of the constituent institutions of the University of North Carolina System listed in Section 116-4 of the North Carolina General Statutes, as amended.

“*Swap Agreement*” mean a written contract entered into in connection with the debt issued or to be issued by or on behalf of a Constituent Institution in the form of a rate swap agreement, basis swap agreement, forward rate agreement, interest rate option agreement, rate cap agreement, rate floor agreement, rate collar agreement, or other similar agreement, including any option to enter into or terminate any of the foregoing or any combination of such agreements.

THE CONDITIONS UNDER WHICH SWAP AGREEMENTS MAY BE ENTERED INTO

Purposes

A Constituent Institution may use a Swap Agreement for the following purposes only:

- (a) To achieve significant savings as compared to a product available in the debt market.
- (b) To enhance investment returns within prudent risk guidelines.
- (c) To prudently hedge risk in the context of a particular financing or the overall asset/liability management of the Constituent Institution.
- (d) To incur variable rate exposure, such as selling interest rate caps or entering into a swap in which the Constituent Institution’s payment obligation is floating rate.
- (e) To achieve more flexibility in meeting the Constituent Institution’s overall financial objectives than can be achieved in conventional markets.

Legality. The Board must receive an opinion acceptable to the market from a nationally recognized bond counsel law firm acceptable to the Chief Financial Officer of the Constituent Institution that the Swap Agreement is a legal, valid and binding obligation of the Board and entering into the transaction complies with applicable law.

SPECULATION

A Constituent Institution may not use a Swap Agreement for speculative purposes. Associated risks will be prudent risks that are appropriate for the Constituent Institution to take.

ASPECTS OF RISK EXPOSURE ASSOCIATED WITH A SWAP AGREEMENT

Before entering into a Swap Agreement, the Constituent Institution shall evaluate all the risks inherent in the transaction. These risks to be evaluated could include counterparty risk, termination risk, rollover risk, basis risk, tax event risk and amortization risk.

The Constituent Institution shall endeavor to diversify its exposure to counterparties. To that end, before entering into a transaction, it should determine its exposure to the relevant counterparty or counterparties and determine how the proposed transaction would affect the exposure. The exposure should not be measured solely in terms of notional amount, but rather how changes in interest rates would affect the Constituent Institution's exposure.

COUNTERPARTY SELECTION CRITERIA

The Constituent Institution may enter into a Swap Agreement if the counterparty has at least two long term unsecured credit ratings in the double A category from Fitch Ratings, Moody's, or S&P and the counterparty has demonstrated experience in successfully executing a Swap Agreement. The Constituent Institution may enter into a Swap Agreement if the counterparty has at least two long term unsecured credit ratings in the single A category or better from Fitch Ratings, Moody's, or S&P only if (a) the counterparty either provides a guarantor or assigns the agreement to a party meeting the rating criteria in the preceding sentence or (b) the counterparty (or guarantor) collateralizes the Swap Agreement in accordance with the criteria set forth in this Policy and the transaction documents.

If the rating of the counterparty, or if secured, the entity unconditionally guaranteeing its payment obligations not satisfy the requirements of the Counterparty Selection Criteria, then the obligations of the counterparty must be fully and continuously collateralized by direct obligations of, or obligations the principal and interest on which are guaranteed by, the United States of America and such collateral must be deposited with financial institution serving as a custodial agent for the Constituent Institution.

METHODS BY WHICH A SWAP AGREEMENT IS TO BE PROCURED

Negotiated Method. A Constituent Institution may procure a Swap Agreement by a negotiated method under any of the following conditions:

(a) (1) If the Chief Financial Officer of the Constituent Institution makes a determination that, due to the size or complexity of a particular swap, a negotiated transaction would result in the most favorable pricing and terms; or

(2) If a derivative embedded within a refunding issue is proposed and meets the Constituent Institution's savings target; and

(b) If the Constituent Institution receives a certification from an independent financial institution or financial advisor that the terms and conditions of the Swap Agreement provides the Constituent Institution a fair

market value as of the date of its execution in light of the facts and circumstances.

Competitive Method. A Constituent Institution may also procure a Swap Agreement by competitive bidding. The competitive bid can limit the number of firms solicited to no fewer than three. The Constituent Institution may determine which parties it will allow to participate in a competitive transaction. In situations in which the Constituent Institution would like to achieve diversification of counterparty exposure, the Constituent Institution may allow a firm or firms not submitting the bid that produces the lowest cost to match the lowest bid. The parameters for the bid must be disclosed in writing to all potential bidders.

LONG-TERM IMPLICATIONS

In evaluating a particular transaction involving the use of Swap Agreement, the Constituent Institution shall review long-term implications associated with entering into the Swap Agreement, including costs of borrowing, historical interest rate trends, variable rate capacity, credit enhancement capacity, opportunities to refund related debt obligations and other similar considerations.

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

Elizabeth City State University
Campus Report

Elizabeth City State University

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), Elizabeth City State University (“**ECSU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. ECSU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, ECSU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—ECSU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, ECSU’s debt capacity reflects the amount of debt ECSU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that ECSU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- ECSU’s current debt profile, including project descriptions financed with, and the sources of repayment for, ECSU’s outstanding debt;
- ECSU’s current credit profile, along with recommendations for maintaining or improving ECSU’s credit rating; and
- A copy of any ECSU debt management policy currently in effect.

Overview of ECSU

For the fall 2017 semester, ECSU had a headcount student population of approximately 1,411, including 1,368 undergraduate students and 43 graduate and doctoral students. ECSU employs approximately 104 full-time, part-time and temporary instructional faculty.

ECSU has experienced significant challenges in its enrollment trends over the past decade, which may continue throughout the Study Period. ECSU’s average age of plant (15.46 years) is higher than the median ratio for all Campuses (13.60 years) and may indicate the need for increased investment in campus infrastructure in the near term. ECSU anticipates incurring approximately \$10 million in additional debt during the Study Period, as summarized in Section 3 below. ECSU has made no changes to the financial model’s standard growth assumptions for the duration of the Study Period, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on ECSU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to ECSU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt ECSU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate ECSU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	13,819,124	-		13,819,124	2018	1,095,000	1,380,274	2,475,274	25,350,000
2014	12,684,153		-8.21%	12,684,153	2019	1,150,000	1,334,529	2,484,529	24,200,000
2015	2,753,167	7,232,487	-21.27%	9,985,654	2020	900,000	1,284,231	2,184,231	23,300,000
2016	5,132,541	5,538,864	6.87%	10,671,405	2021	975,000	1,243,241	2,218,241	22,325,000
2017	5,819,115	5,179,254	3.06%	10,998,369	2022	980,000	1,194,978	2,174,978	21,345,000
2018	11,229,335	-	2.10%	11,229,335	2023	1,065,000	1,143,781	2,208,781	20,280,000
2019	11,465,151	-	2.10%	11,465,151	2024	1,130,000	1,088,053	2,218,053	19,150,000
2020	11,705,919	-	2.10%	11,705,919	2025	1,195,000	1,028,886	2,223,886	17,955,000
2021	11,951,744	-	2.10%	11,951,744	2026	1,255,000	966,304	2,221,304	16,700,000
2022	12,202,730	-	2.10%	12,202,730	2027	1,315,000	900,580	2,215,580	15,385,000
Operating Expenses					2028	1,280,000	831,714	2,111,714	14,105,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	1,350,000	764,958	2,114,958	12,755,000
2013	81,025,837			81,025,837	2030	1,415,000	694,539	2,109,539	11,340,000
2014	71,859,951		-11.31%	71,859,951	2031	1,490,000	620,729	2,110,729	9,850,000
2015	60,724,158	1,232,478	-13.78%	61,956,636	2032	1,560,000	543,006	2,103,006	8,290,000
2016	57,754,471	1,696,041	-4.04%	59,450,512	2033	1,645,000	461,620	2,106,620	6,645,000
2017	55,896,903	361,648	-5.37%	56,258,550	2034	805,000	374,505	1,179,505	5,840,000
2018	57,439,980	-	2.10%	57,439,980	2035	850,000	329,136	1,179,136	4,990,000
2019	58,646,219	-	2.10%	58,646,219	2036	895,000	281,231	1,176,231	4,095,000
2020	59,877,790	-	2.10%	59,877,790	2037	945,000	230,790	1,175,790	3,150,000
2021	61,135,223	-	2.10%	61,135,223	2038	995,000	177,531	1,172,531	2,155,000
2022	62,419,063	-	2.10%	62,419,063	2039	1,050,000	121,454	1,171,454	1,105,000
					2040	1,105,000	62,277	1,167,277	-
					2041			-	-

Notes

- Expendable Resources equals Unrestricted Net Assets plus Restricted, Expendable Net Assets plus Foundation Unrestricted Net Assets plus Foundation Temporarily Restricted Net Assets minus Restricted, Expendable Net Assets Restricted for Capital Projects.
- Unrestricted Net Assets has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	7,352,615	11,681,123	-	-	2,478,603		-	16,555,135
2014	7,755,484	11,787,108	-	-	1,835,372	6.96%	-	17,707,219
2015	1,720,155	11,725,158	-	-	743,197	12.58%	7,232,487	19,934,604
2016	2,012,754	11,939,669	-	-	1,837,413	-11.44%	5,538,864	17,653,874
2017	1,294,199	12,448,952	-	-	1,888,982	-3.51%	5,179,254	17,033,424
2018	6,609,396	12,710,380	-	-	1,928,651	2.10%	-	17,391,126
2019	6,748,194	12,977,298	-	-	1,969,152	2.10%	-	17,756,339
2020	6,889,906	13,249,821	-	-	2,010,505	2.10%	-	18,129,223
2021	7,034,594	13,528,068	-	-	2,052,725	2.10%	-	18,509,936
2022	7,182,320	13,812,157	-	-	2,095,832	2.10%	-	18,898,645

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that ECSU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in Section 4 of this Campus Report.

ECSU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Demolition of Hugh Cale and Doles Halls	611,294	40 Years	Housing Revenues
2018	Renovation of Bias Hall	4,522,272	40 Years	Housing Revenues
2018	Renovation of Butler Hall	3,790,242	40 Years	Housing Revenues
2018	Demolition of Complex A-G Buildings	576,192	40 Years	Housing Revenues
2018	Update Master Plan	500,000	40 Years	Housing Revenues
Total		10,000,000		

4. Financial Ratios

Debt to Obligated Resources

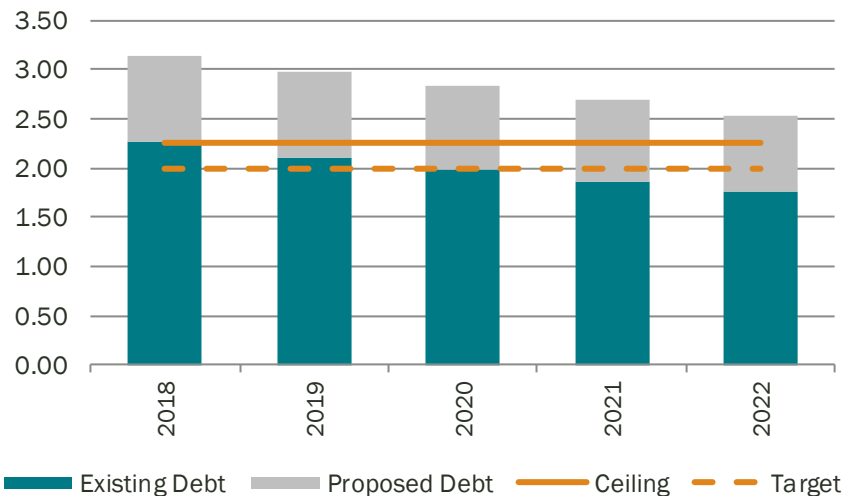
- **What does it measure?** ECSU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 2.00
- Ceiling Ratio: Not to exceed 2.25
- Projected 2018 Ratio: 3.15
- Highest Study Period Ratio: 3.15 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	11,229,335	2.10%	25,350,000	10,000,000	2.26	0.89	3.15
2019	11,465,151	2.10%	24,200,000	10,000,000	2.11	0.87	2.98
2020	11,705,919	2.10%	23,300,000	9,876,122	1.99	0.84	2.83
2021	11,951,744	2.10%	22,325,000	9,747,909	1.87	0.82	2.68
2022	12,202,730	2.10%	21,345,000	9,615,209	1.75	0.79	2.54

Debt to Obligated Resources



Weaker
↓
Stronger

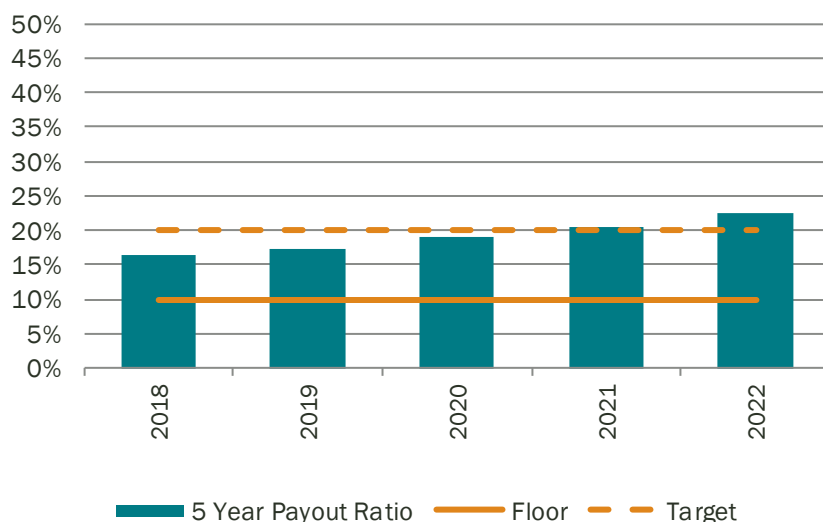
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of ECSU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 20%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 16%
- Lowest Study Period Ratio: 16% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	35,350,000	16%
2019	34,200,000	17%
2020	33,176,122	19%
2021	32,072,909	21%
2022	30,960,209	23%

5-Year Payout Ratio



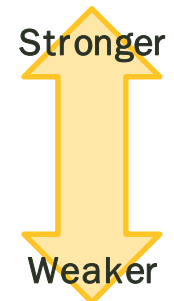
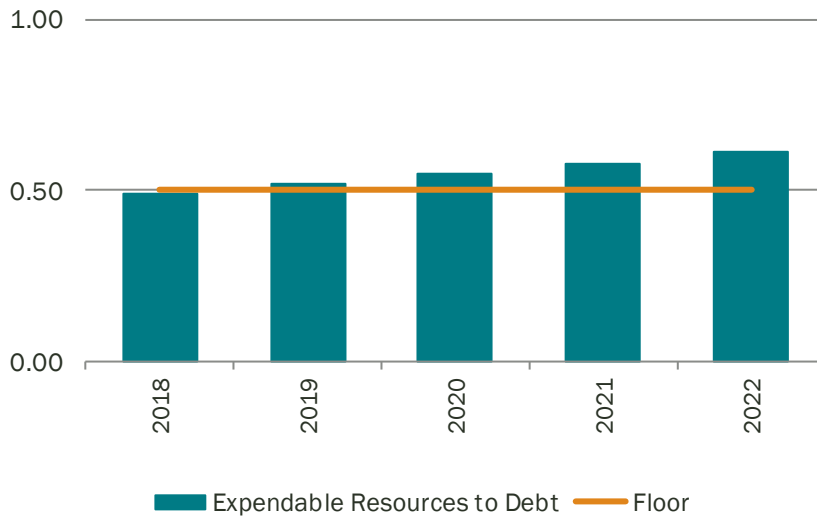
Expendable Resources to Debt

- **What does it measure?** The number of times ECSU's liquid and expendable net assets covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
- Floor Ratio: Not less than 0.50x
- Projected 2018 Ratio: 0.49x
- Lowest Study Period Ratio: 0.49x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	17,391,126	2.10%	25,350,000	10,000,000	0.69	0.49
2019	17,756,339	2.10%	24,200,000	10,000,000	0.73	0.52
2020	18,129,223	2.10%	23,300,000	9,876,122	0.78	0.55
2021	18,509,936	2.10%	22,325,000	9,747,909	0.83	0.58
2022	18,898,645	2.10%	21,345,000	9,615,209	0.89	0.61

Expendable Resources to Debt



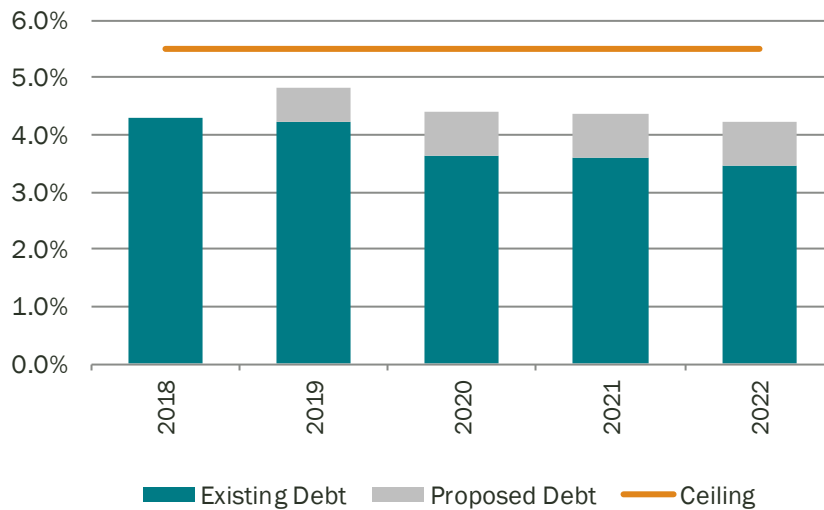
Debt Service to Operating Expenses

- **What does it measure?** ECSU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 5.50%
- Projected 2018 Ratio: 4.31%
- Highest Study Period Ratio: 4.80% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	57,439,980	2.10%	2,475,274	-	4.31%	n/a	4.31%
2019	58,996,219	2.10%	2,484,529	350,000	4.21%	0.59%	4.80%
2020	60,227,790	2.10%	2,184,231	473,878	3.63%	0.79%	4.41%
2021	61,480,888	2.10%	2,218,241	473,878	3.61%	0.77%	4.38%
2022	62,760,240	2.10%	2,174,978	473,878	3.47%	0.76%	4.22%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, ECSU's debt capacity is based on the amount of debt ECSU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, ECSU's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, ECSU has no current estimated debt capacity. After taking into account any legislatively approved projects detailed in **Section 3** above, if ECSU issued no additional debt until the last year of the Study Period, then ECSU would still have no debt capacity in 2022.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	3.15	2.25	(10,083,996)
2019	2.98	2.25	(8,403,410)
2020	2.83	2.25	(6,837,804)
2021	2.68	2.25	(5,181,486)
D 2022	2.54	2.25	(3,504,065)

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of ECSU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- Projecting the exact amount ECSU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.
 - If "debt capacity" were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
 - Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.

- For example, a university's "**strategic positioning**" score, which accounts for 10% of its overall score under Moody's criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer's final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

ECSU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

Elizabeth City State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
1981A	Dormitory System Revenue Bonds	30,000	10/1/2017	Wamack Hall Mitchell-Lewis Hall		Housing Revenues Housing Revenues
1981B	Dormitory System Revenue Bonds	265,000	10/1/2020	Wamack Hall Mitchell-Lewis Hall		Housing Revenues Housing Revenues
2003A	Educational Facilities Revenue Bonds	10,010,000	6/1/2033	Student Housing Project		Housing Revenues
2010A	General Revenue Bonds	1,420,000	4/1/2027	Housing and Dining Facilities	2002B	Housing Revenues
2010B	Taxable General Revenue Bonds (BABs)	14,720,000	4/1/2040	Viking Tower		Housing Revenues
Total		26,445,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of ECSU's current credit ratings, along with (1) a summary of various credit factors identified in ECSU's most recent rating report and (2) recommendations for maintaining and improving ECSU's credit ratings in the future.

Overview

- Moody's downgraded the University's general revenue bonds rating to a Baa2. The outlook is negative.

Key Information Noted in Reports

Credit Strengths

- Very strong financial support from the Aaa-rated state
- Strong budget discipline providing for balanced operations despite years of acute revenue declines
- Limited financial leverage
- Well funded state multiple-employer defined benefit pension plan relative to peers reduces risk of related budgetary burden

Credit Challenges

- Severe market pressures evidenced by very sharp enrollment and tuition declines over the last five years
- Small operating scale, with \$56 million in operating revenues, limits opportunities for additional spending reductions if necessary
- High dependence on availability of federal financial aid, serving a high proportion of Pell-eligible students
- Depressed pledge revenues to pay debt service due to pressured market demand

- Develop a formal debt policy to prioritize capital improvement needs in light of limited resources, including specific criteria for approving new debt financings when key financial ratios may indicate limited debt capacity.
- Continue to develop and implement strategies and policies to meet the University's unique challenges, including strategies to stabilize and improve enrollment and revenue.

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-
----- Non Investment Grade		

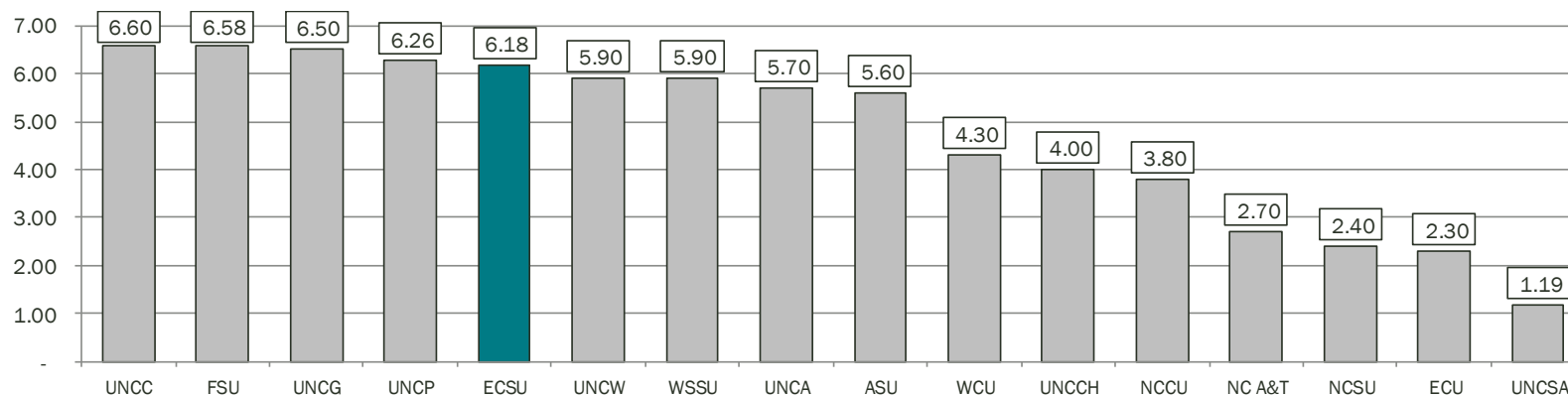
8. Peer Comparison

The following page compares two measures of ECSU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to the Campuses in the UNC System. (None of ECSU's designated national peers were rated by Moody's.) The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%) & Expendable Financial Resources to Debt

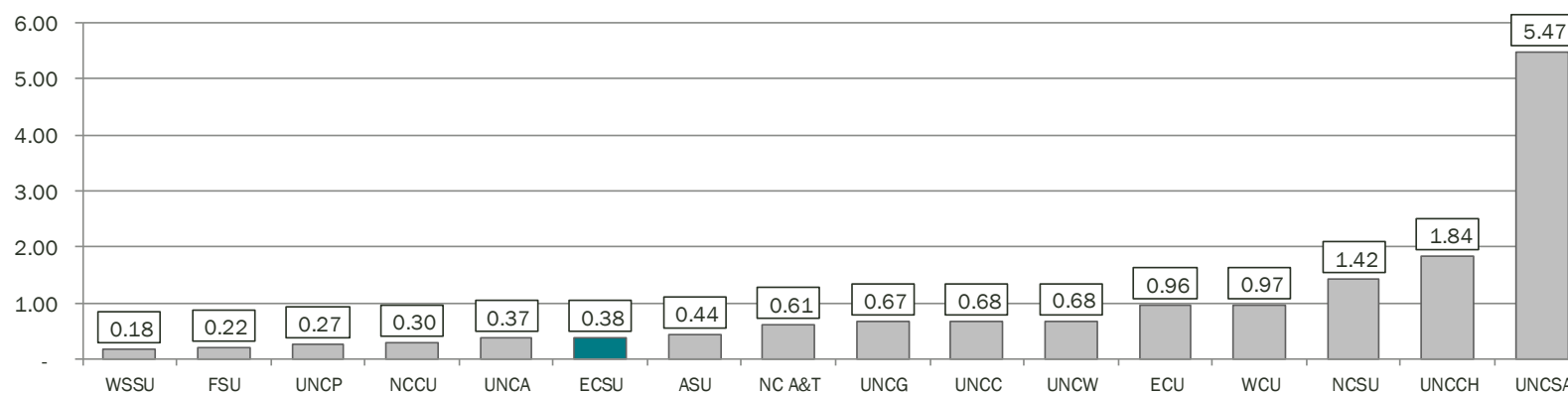
Debt Service to Operating Expenses (%)

ECSU vs. UNC System



Expendable Financial Resources to Debt

ECSU vs. UNC System



Notes:

1. UNC campus ratios are based on FY 2017 results and are subject to change.

9. Debt Management Policies

ECSU does not currently have a debt policy.

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

Fayetteville State University
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), Fayetteville State University (“**FSU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. FSU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, FSU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—FSU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, FSU’s debt capacity reflects the amount of debt FSU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that FSU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- FSU’s current debt profile, including project descriptions financed with, and the sources of repayment for, FSU’s outstanding debt;
- FSU’s current credit profile, along with recommendations for maintaining or improving FSU’s credit rating; and
- A copy of any FSU debt management policy currently in effect.

Overview of FSU

For the fall 2017 semester, FSU had a headcount student population of approximately 6,226, including 5,393 undergraduate students and 833 graduate and doctoral students. FSU employs approximately 333 full-time, part-time and temporary instructional faculty.

Over the past 10 years, FSU’s enrollment has remained relatively constant. FSU expects enrollment to stabilize and grow slightly over the Study Period. FSU’s average age of plant (11.70 years) is slightly lower than the median ratio for all Campuses (13.60 years). An average age of plant of less than 14 generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

FSU does not anticipate significant additional borrowings during the Study Period.

FSU has made no changes to the financial model’s standard growth assumptions, which are based on the consumer price index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on FSU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to FSU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt FSU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate FSU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)*	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	27,038,142	-		27,038,142	2018	924,000	2,321,063	3,245,063	51,915,000
2014	22,051,401		-18.44%	22,051,401	2019	1,470,000	2,284,136	3,754,136	50,445,000
2015	22,953,182	8,711,219	43.59%	31,664,401	2020	1,543,000	2,236,683	3,779,683	48,902,000
2016	19,158,471	6,384,292	-19.33%	25,542,762	2021	1,609,000	2,185,326	3,794,326	47,293,000
2017	22,679,002	6,308,260	13.49%	28,987,262	2022	1,681,000	2,130,883	3,811,883	45,612,000
2018	29,595,994	-	2.10%	29,595,994	2023	1,663,000	2,073,543	3,736,543	43,949,000
2019	30,217,510	-	2.10%	30,217,510	2024	1,531,000	2,015,339	3,546,339	42,418,000
2020	30,852,078	-	2.10%	30,852,078	2025	1,608,000	1,959,481	3,567,481	40,810,000
2021	31,499,971	-	2.10%	31,499,971	2026	1,695,000	1,899,967	3,594,967	39,115,000
2022	32,161,471	-	2.10%	32,161,471	2027	1,778,000	1,836,298	3,614,298	37,337,000
Operating Expenses					2028	1,866,000	1,768,330	3,634,330	35,471,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	1,960,000	1,692,338	3,652,338	33,511,000
2013	108,180,213			108,180,213	2030	2,064,000	1,607,719	3,671,719	31,447,000
2014	107,635,613		-0.50%	107,635,613	2031	2,184,000	1,518,225	3,702,225	29,263,000
2015	109,576,373	1,645,695	3.33%	111,222,069	2032	2,300,000	1,423,182	3,723,182	26,963,000
2016	106,847,885	2,245,747	-1.91%	109,093,632	2033	2,426,000	1,322,475	3,748,475	24,537,000
2017	114,019,260	242,346	4.74%	114,261,606	2034	2,557,000	1,215,955	3,772,955	21,980,000
2018	116,661,100	-	2.10%	116,661,100	2035	1,890,000	1,114,563	3,004,563	20,090,000
2019	119,110,983	-	2.10%	119,110,983	2036	2,015,000	1,018,781	3,033,781	18,075,000
2020	121,612,313	-	2.10%	121,612,313	2037	2,145,000	916,644	3,061,644	15,930,000
2021	124,166,172	-	2.10%	124,166,172	2038	2,275,000	807,906	3,082,906	13,655,000
2022	126,773,662	-	2.10%	126,773,662	2039	2,415,000	692,563	3,107,563	11,240,000
					2040	2,570,000	570,106	3,140,106	8,670,000
					2041	2,725,000	439,775	3,164,775	5,945,000
					2042	2,885,000	301,569	3,186,569	3,060,000
					2043	3,060,000	155,231	3,215,231	-

*FSU has reviewed and changed the manner in which it calculates Available Funds, which resulted in the decline in Available Funds from fiscal year 2015 to 2016.

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projected period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	1,758,295	6,899,832	-	-	220,965		-	8,437,162
2014	3,707,647	12,951,585	-	-	3,737,296	53.16%	-	12,921,936
2015	(2,285,760)	14,576,816	-	-	914,082	55.46%	8,711,219	20,088,192
2016	1,647,554	12,895,520	-	-	1,389,090	-2.74%	6,384,292	19,538,275
2017	2,295,945	12,948,068	-	-	1,551,978	2.36%	6,308,260	20,000,294
2018	8,784,893	13,219,977	-	-	1,584,570	2.10%	-	20,420,300
2019	8,969,376	13,497,597	-	-	1,617,846	2.10%	-	20,849,127
2020	9,157,733	13,781,046	-	-	1,651,821	2.10%	-	21,286,958
2021	9,350,045	14,070,448	-	-	1,686,509	2.10%	-	21,733,985
2022	9,546,396	14,365,928	-	-	1,721,926	2.10%	-	22,190,398

3. Proposed Debt Financings

While FSU evaluates its capital investment needs on a regular basis, FSU currently has no legislatively approved projects that it anticipates financing during the Study Period.

4. Financial Ratios

Debt to Obligated Resources

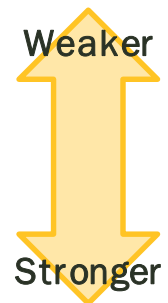
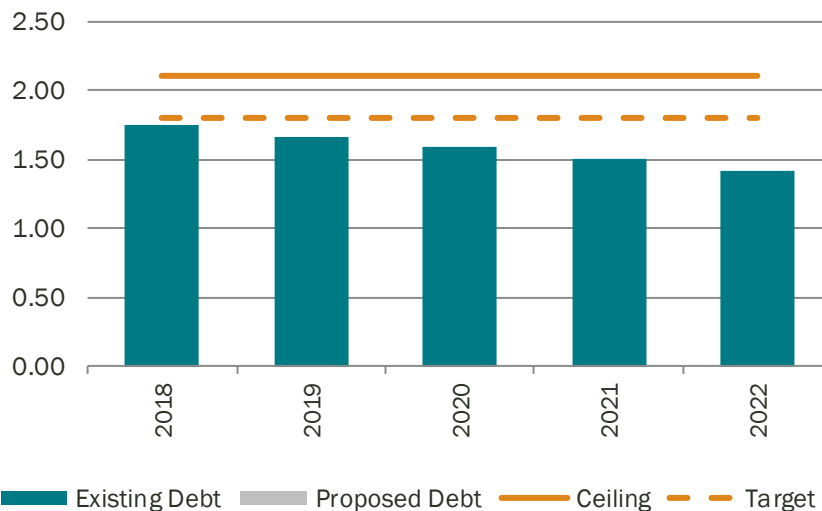
- What does it measure? FSU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- How is it calculated? Aggregate debt divided by obligated resources*
- Target Ratio: 1.80
- Ceiling Ratio: Not to exceed 2.10
- Projected 2018 Ratio: 1.75
- Highest Study Period Ratio: 1.75 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	29,595,994	2.10%	51,915,000	-	1.75	n/a	1.75
2019	30,217,510	2.10%	50,445,000	-	1.67	n/a	1.67
2020	30,852,078	2.10%	48,902,000	-	1.59	n/a	1.59
2021	31,499,971	2.10%	47,293,000	-	1.50	n/a	1.50
2022	32,161,471	2.10%	45,612,000	-	1.42	n/a	1.42

Debt to Obligated Resources



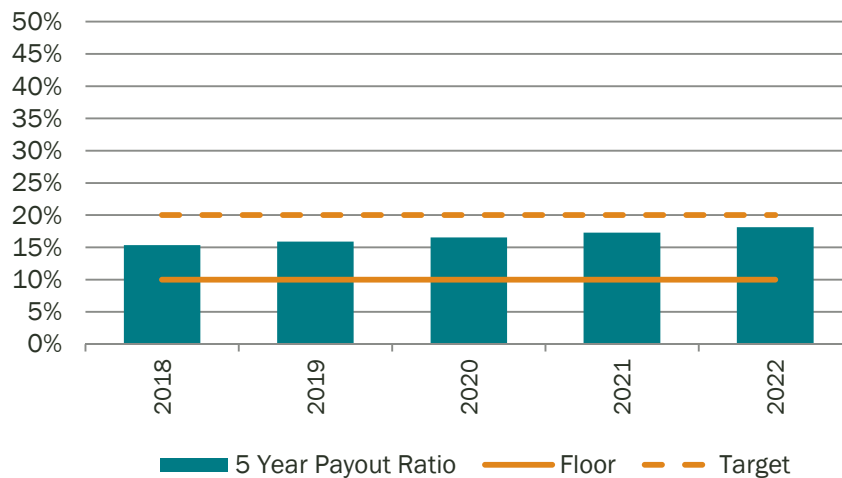
5-Year Payout Ratio Overview

- What does it measure? The percentage of FSU's debt scheduled to be retired in the next five years.
- How is it calculated? Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 20%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 15%
- Lowest Study Period Ratio: 15% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	51,915,000	15%	
2019	50,445,000	16%	
2020	48,902,000	17%	
2021	47,293,000	17%	
2022	45,612,000	18%	

5-Year Payout Ratio



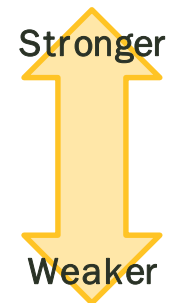
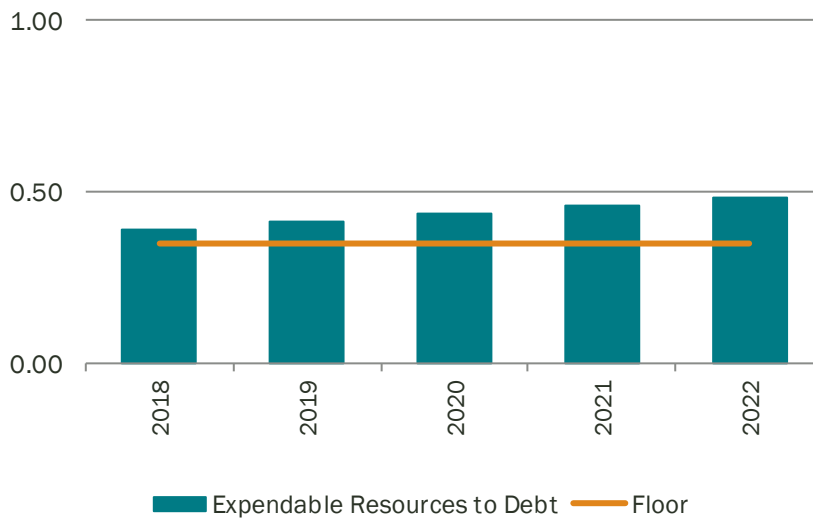
Expendable Resources to Debt

- **What does it measure?** The number of times FSU's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.35x
- Projected 2018 Ratio: 0.39x
- Lowest Study Period Ratio: 0.39x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	20,400,300	2.00%	51,915,000	-	0.39	0.39
2019	20,808,306	2.00%	50,445,000	-	0.41	0.41
2020	21,224,472	2.00%	48,902,000	-	0.43	0.43
2021	21,648,962	2.00%	47,293,000	-	0.46	0.46
2022	22,081,941	2.00%	45,612,000	-	0.48	0.48

Expendable Resources to Debt



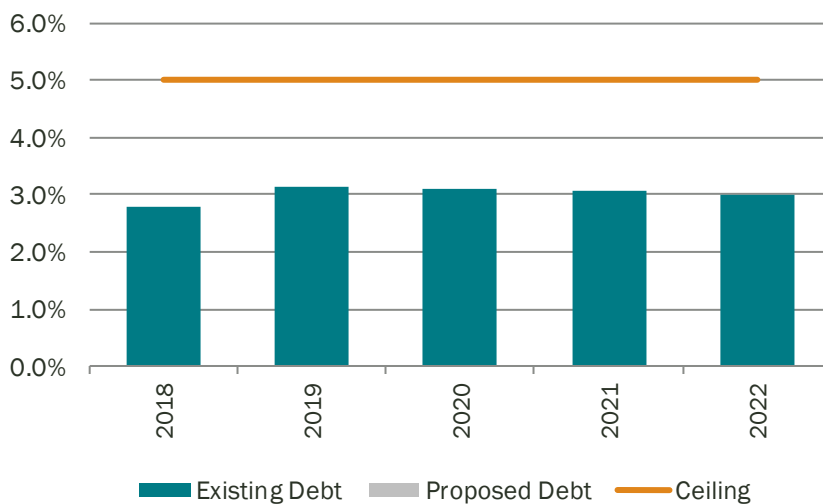
Debt Service to Operating Expenses

- **What does it measure?** FSU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 5.00%
- Projected 2018 Ratio: 2.78%
- Highest Study Period Ratio: 3.15% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	116,661,100	2.10%	3,245,063	-	2.78%	n/a	2.78%
2019	119,110,983	2.10%	3,754,136	-	3.15%	n/a	3.15%
2020	121,612,313	2.10%	3,779,683	-	3.11%	n/a	3.11%
2021	124,166,172	2.10%	3,794,326	-	3.06%	n/a	3.06%
2022	126,773,662	2.10%	3,811,883	-	3.01%	n/a	3.01%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, FSU's debt capacity is based on the amount of debt FSU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, FSU's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, FSU's current estimated debt capacity is **\$10,236,587**. After taking into account any legislatively approved projects detailed in **Section 3** above, if FSU issued no additional debt until the last year of the Study Period, then FSU's debt capacity for 2022 is projected to increase to **\$21,927,088**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.75	2.10	10,236,587
2019	1.67	2.10	13,011,771
2020	1.59	2.10	15,887,363
2021	1.50	2.10	18,856,940
2022	1.42	2.10	21,927,088

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of FSU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If FSU were to use all of its calculated debt capacity during the Study Period, FSU's credit ratings may face significant downward pressure.**
- Projecting the exact amount FSU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

FSU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

Fayetteville State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2011	Limited Obligation Bonds	19,555,000	4/1/2043	Renaissance Hall Student Housing Project		Housing Revenues
2013A	General Revenue Bonds	20,990,000	4/1/2043	Rudolph Jones Student Center Renovation		Debt Service Fee
2013B	Taxable General Revenue Bonds	990,000	4/1/2021	Rudolph Jones Student Center Renovation		Debt Service Fee
2015	Taxable General Revenue Refunding Bonds	1,154,000	4/1/2023	Dining Facilities Renovation	2005	Meal Plan Fee
2017	Student Housing Facilities Revenue Refunding Bond	10,150,000	11/1/2033	University Place Apartments	2001	Housing Revenues
Total		52,839,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of FSU's current credit ratings, along with (1) a summary of various credit factors identified in FSU's most recent rating report and (2) recommendations for maintaining and improving FSU's credit ratings in the future.

Overview

- Standard and Poor's maintains an A- rating on the University's general revenue bonds. The outlook is stable.
- Fitch maintains an A+ rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Substantial operating and capital support from the state of North Carolina
- Stabilized full-time enrollment given the success of the strategic initiatives, and slight growth in headcount for fall 2015
- Moderate MADS burden of 4.1% relative to fiscal 2015 operating expenses

Credit Challenges

- Low level of adjusted UNA relative to expenses and debt
- Operating performance that is balanced on a cash basis but variable on full-accrual basis
- Off-campus competition for housing, with three alternatives in close proximity to campus

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

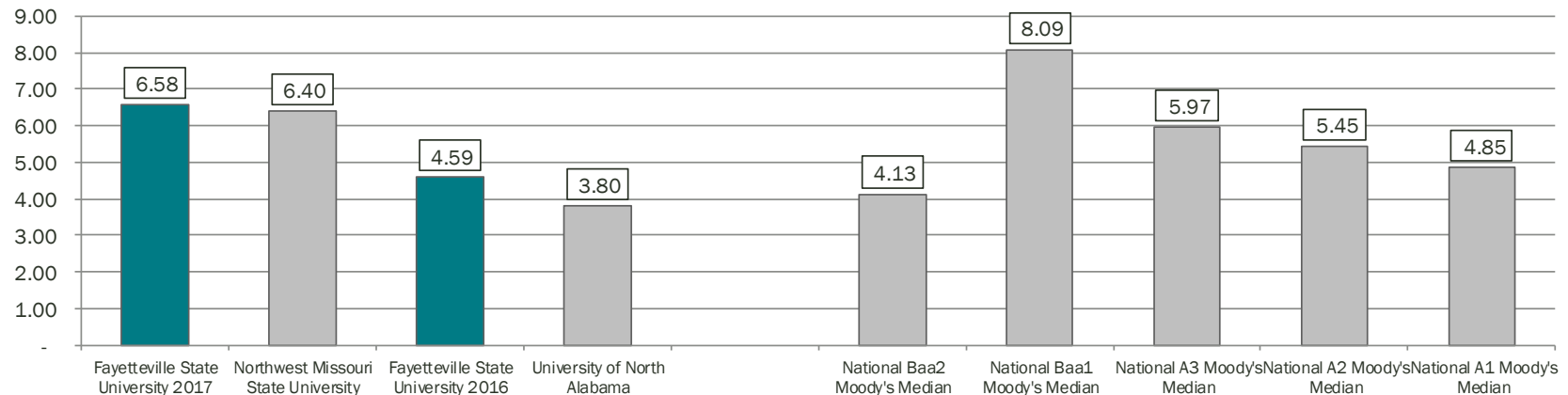
- Continue to develop and implement strategies and policies to meet the University's unique challenges, including strategies to stabilize and improve enrollment and revenue.

8. Peer Comparison

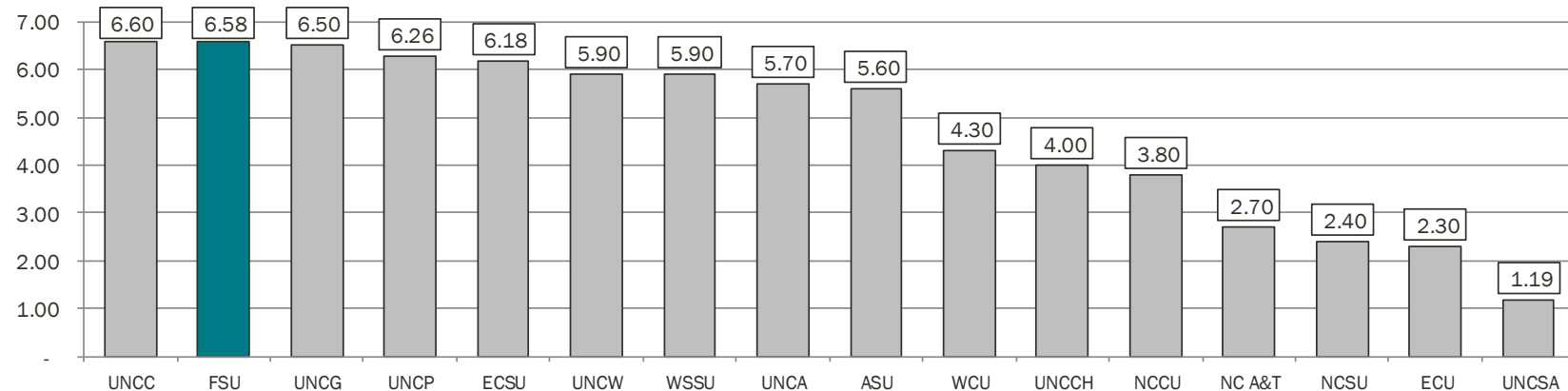
The following pages compare two measures of FSU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both FSU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
FSU vs. National Peers



Debt Service to Operating Expenses (%)
FSU vs. UNC System



Notes:

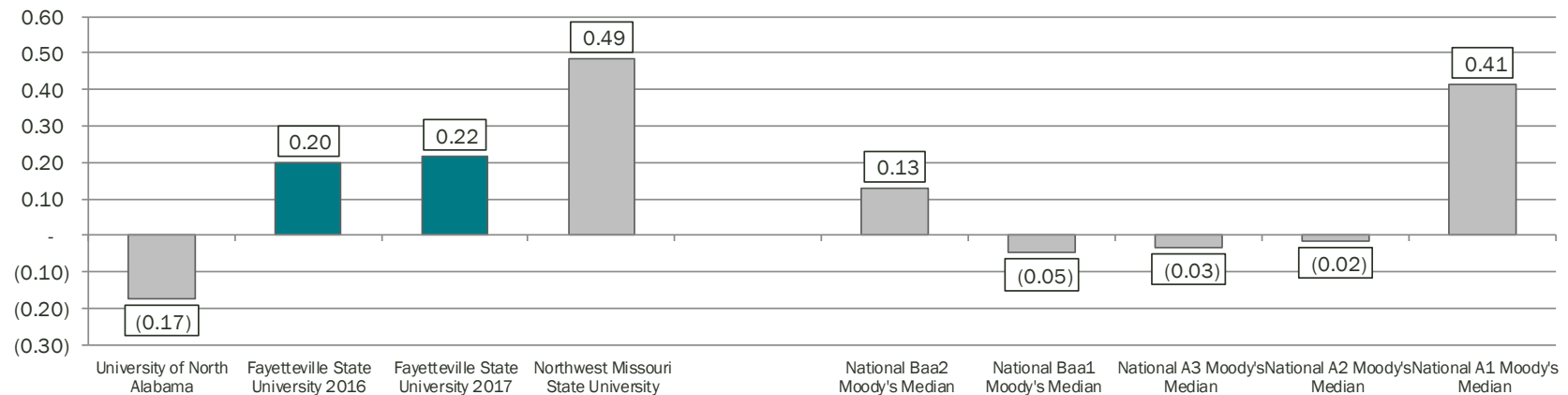
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

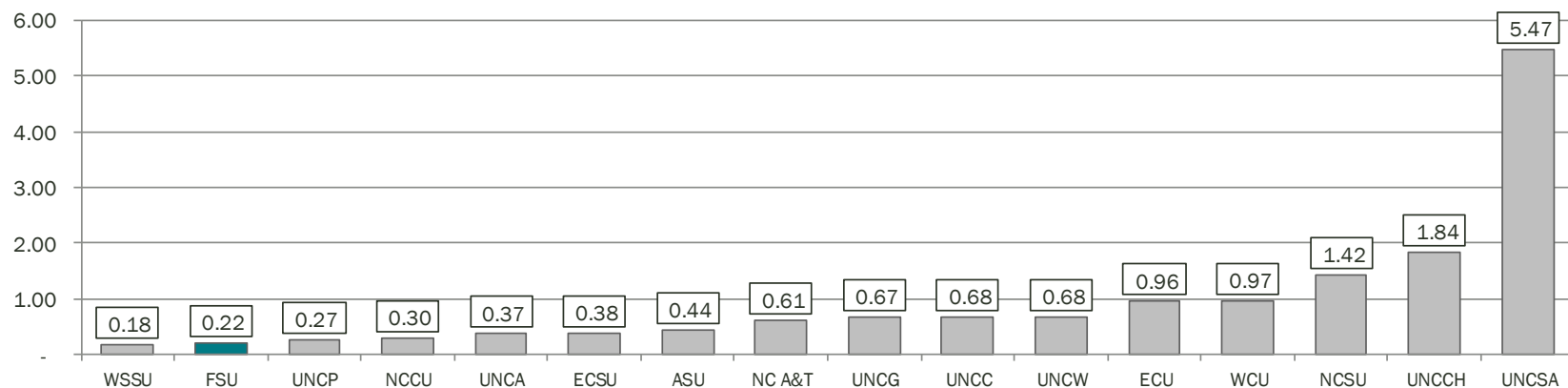
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Expendable Financial Resources to Debt

Expendable Financial Resources to Debt
FSU vs. National Peers



Expendable Financial Resources to Debt
FSU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

FSU's current debt policy is included in the following pages.

Debt Management Policy

Approved by the UNC Board of Governors on May 24, 2018

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1. Introduction

Fayetteville State University (“FSU”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the successful implementation of FSU’s strategic vision to be a leading institution of opportunity and diversity committed to developing learned and responsible global citizens. FSU recognizes the important role that debt-related strategies may play as it makes the necessary investments in its infrastructure in order to become and remain the destination institution for dedicated students seeking challenging academic programs, engaged faculty and a vibrant campus culture.

This Policy has been developed to assist FSU’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with FSU’s stated policies, objectives and core values. Like other limited resources, FSU’s debt capacity should be used and allocated strategically and equitably.

Specifically, the objective of this Policy is to provide a framework that will enable FSU’s Board of Trustees (the “Board”) and finance staff to:

- (i) Identify and prioritize projects eligible for debt financing;
- (ii) Limit and manage risk within FSU’s debt portfolio;
- (iii) Establish debt management guidelines and quantitative parameters for evaluating FSU’s financial health, debt affordability and debt capacity;
- (iv) Manage and protect FSU’s credit profile in order to maintain FSU’s credit rating at a strategically optimized level and maintain access to the capital markets; and
- (v) Ensure FSU remains in compliance with all of its post-issuance obligations and requirements.

This Policy is intended solely for FSU’s internal planning purposes. The Vice Chancellor for Business and Finance will review this Policy annually and, if necessary, recommend changes to ensure that it remains consistent with University’s strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Policy are subject to the Board’s approval.

2. Authorization and Oversight

FSU’s Vice Chancellor for Business and Finance is responsible for the day-to-day management of FSU’s financial affairs in accordance with the terms of this Policy and for all of FSU’s debt financing activities. Each University financing will conform to all applicable State and Federal laws.

The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

3. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Only projects that directly or indirectly relate to the mission of FSU will be considered for debt financing.

- (i) Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.
- (ii) Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.
- (iii) Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any projects that will require gift financing or include a gift financing component must be jointly approved by the Vice Chancellor for Business and Finance and the Foundation Assistant before any project-restricted donations are solicited. The fundraising goal for any project to be financed primarily with donations should also include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

4. Benchmarks and Debt Ratios

Overview

When evaluating its current financial health and any proposed plan of finance, FSU takes into account both its debt affordability and its debt capacity. Debt affordability focuses on FSU's cash flows and measures FSU's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between FSU's net assets and its total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including FSU's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, FSU's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

FSU believes, however, that it is important to consider and monitor objective metrics when evaluating FSU's financial health and its ability to incur additional debt. To that end, FSU has identified three key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

- (i) Debt to Obligated Resources
- (ii) Expendable Resources to Debt
- (iii) Debt Service to Operating Expenses

Note that the selected financial ratios are also monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study"), which FSU believes will promote clarity and consistency in FSU's debt management and planning efforts.

FSU has established for each ratio a floor or ceiling target, as the case may be, with the expectation that FSU will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this Policy should align with the ratios used in the report FSU submits each year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve FSU's financial health and operating flexibility and to ensure FSU is able to access the market to address capital needs or to take advantage of potential refinancing opportunities. Attaining or maintaining a specific credit rating is not an objective of this Policy.

FSU recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of FSU's strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, FSU has developed as part of this Policy specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when FSU has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this Policy. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

- (i) The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.
- (ii) The proposed project would be financed entirely with private donations based on pledges already in hand.
- (iii) The proposed project is essential to the implementation of one of the Board's strategic priorities.
- (iv) The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- (v) Foregoing or delaying the proposed project would result in significant additional costs to FSU or would negatively impact FSU's credit rating.

At no point, however, should FSU intentionally operate outside an established policy ratio without conscious and explicit planning.

Ratio 1 – Debt to Obligated Resources

What does it measure?	FSU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes
Why is it tracked?	The ratio, which is based on the legal structure proscribed by the General Revenue Bond Statutes, provides a general indication of FSU's ability to absorb debt on its balance sheet and is the primary ratio used to calculate FSU's "debt capacity" under the methodology used in the UNC Debt Capacity Study
How is it calculated?	Aggregate debt divided by obligated resources*
Policy Ratio:	Not to exceed 2.10x (UNC Debt Capacity Study Target Ratio = 1.80x)

*Available Funds, which is the concept commonly used to capture each UNC's campus's obligated resources in its loan and bond documentation, has been used as a proxy for obligated resources. The two concepts are generally identical, though

Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of FSU's obligated resources.

Ratio 2 – Expendable Resources to Debt

What does it measure?	The number of times FSU's liquid and expendable net assets covers its aggregate debt
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, is a basic measure of financial health and assesses FSU's ability to settle its debt obligations using only its available net assets as of a particular date
How is it calculated?	The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
Policy Ratio:	Not less than 0.35x

Ratio 3 – Debt Service to Operating Expenses

What does it measure?	FSU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, evaluates FSU's relative cost of borrowing to its overall expenditures and provides a measure of FSU's budgetary flexibility
How is it calculated?	Annual debt service divided by annual operating expenses
Policy Ratio:	Not to exceed 5.00%

Reporting

The Vice Chancellor for Business and Finance will review each ratio in connection with the delivery of the University's audited financials and will provide an annual report to the Board substantially in the form of **Appendix A** detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

5. Debt Portfolio Management and Transaction Structure Considerations

Generally

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Business and Finance within the context of this Policy and the overall portfolio to ensure that any financial product or structure is consistent with FSU's stated objectives. As part of effective debt management, FSU must

also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

FSU will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves FSU's strategic plan and financing objectives. In making that determination, FSU will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect FSU's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce FSU's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates FSU's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, FSU should structure its debt to provide for level annual payments of debt service, though FSU may elect alternative structures when the Vice Chancellor for Business and Finance determines it to be in FSU's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

FSU will use maturity structures that correspond with the life of the facilities financed, not to exceed 30 years. Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

FSU recognizes that a degree of exposure to variable interest rates within FSU's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from FSU's assets. FSU's debt portfolio should be managed to ensure that no more than 20% of FSU's total debt bears interest at an unhedged variable rate.

FSU's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. FSU may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. FSU may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

Refunding Considerations

FSU will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, FSU should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of FSU ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.
- (iv) Refunding Bonds may also be issued to relieve FSU of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

6. Derivative Products

FSU recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit FSU to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. FSU will use derivatives only to manage and mitigate risk; FSU will not use derivatives to create leverage or engage in speculative transactions.

As with underlying debt, FSU's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Business and Finance must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2) ensure that FSU's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

FSU will use derivatives only when the Vice Chancellor for Business and Finance determines, based on the foregoing analysis, that the instrument provides the most effective method for accomplishing FSU's strategic objectives without imposing inappropriate risks on FSU.

Appendix A – Annual Reporting Template

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

North Carolina A&T State University
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), North Carolina A&T State University (“**NCA&T**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. NCA&T has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, NCA&T, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—NCA&T has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, NCA&T’s debt capacity reflects the amount of debt NCA&T could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that NCA&T intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- NCA&T’s current debt profile, including project descriptions financed with, and the sources of repayment for, NCA&T’s outstanding debt;
- NCA&T’s current credit profile, along with recommendations for maintaining or improving NCA&T’s credit rating; and
- A copy of any NCA&T debt management policy currently in effect.

Overview of NCA&T

For the fall 2017 semester, NCA&T had a headcount student population of 11,877, including 10,341 undergraduate students and 1,536 graduate and doctoral students. During the 2017 academic year, NCA&T employed approximately 708 full-time, part-time and temporary instructional faculty.

Over the past 10 years, NCA&T’s enrollment has increased approximately 14%. NCA&T expects enrollment to remain relatively stable over the Study Period. NCA&T’s average age of plant (14.28 years) is slightly higher than the median ratio for all Campuses (13.60 years) but is expected to decrease as result of NCA&T’s recent investments in its facilities. An average age of plant of less than 14 generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

NCA&T does not anticipate significant additional borrowings during the Study Period.

NCA&T has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on NCA&T's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to NCA&T by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt NCA&T expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate NCA&T's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	52,339,156			52,339,156	2018	2,730,000	4,069,520	6,799,520	98,020,000
2014	50,758,492		-3.02%	50,758,492	2019	2,795,000	4,016,906	6,811,906	95,225,000
2015	34,473,502	16,248,283	-0.07%	50,721,785	2020	2,880,000	3,955,069	6,835,069	92,345,000
2016	71,623,591	11,902,719	64.68%	83,526,310	2021	2,955,000	3,883,742	6,838,742	89,390,000
2017	71,816,337	12,649,799	1.13%	84,466,136	2022	2,390,000	3,809,234	6,199,234	87,000,000
2018	86,239,925	-	2.10%	86,239,925	2023	2,465,000	3,735,725	6,200,725	84,535,000
2019	88,050,964	-	2.10%	88,050,964	2024	2,550,000	3,648,238	6,198,238	81,985,000
2020	89,900,034	-	2.10%	89,900,034	2025	2,675,000	3,533,213	6,208,213	79,310,000
2021	91,787,934	-	2.10%	91,787,934	2026	2,795,000	3,405,375	6,200,375	76,515,000
2022	93,715,481	-	2.10%	93,715,481	2027	2,925,000	3,274,384	6,199,384	73,590,000
Operating Expenses					2028	3,215,000	3,132,256	6,347,256	70,375,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	3,345,000	3,005,631	6,350,631	67,030,000
2013	257,670,074			257,670,074	2030	3,445,000	2,899,009	6,344,009	63,585,000
2014	253,752,427		-1.52%	253,752,427	2031	3,560,000	2,785,469	6,345,469	60,025,000
2015	246,294,140	3,734,670	-1.47%	250,028,810	2032	3,710,000	2,634,688	6,344,688	56,315,000
2016	251,810,865	4,345,564	2.45%	256,156,429	2033	3,670,000	2,450,750	6,120,750	52,645,000
2017	268,914,553	(725,974)	4.70%	268,188,579	2034	3,830,000	2,287,850	6,117,850	48,815,000
2018	273,820,539	-	2.10%	273,820,539	2035	3,505,000	2,129,075	5,634,075	45,310,000
2019	279,570,771	-	2.10%	279,570,771	2036	3,685,000	1,949,325	5,634,325	41,625,000
2020	285,441,757	-	2.10%	285,441,757	2037	3,870,000	1,760,450	5,630,450	37,755,000
2021	291,436,034	-	2.10%	291,436,034	2038	4,075,000	1,561,825	5,636,825	33,680,000
2022	297,556,191	-	2.10%	297,556,191	2039	3,570,000	1,370,700	4,940,700	30,110,000
					2040	3,755,000	1,187,575	4,942,575	26,355,000
					2041	3,950,000	994,950	4,944,950	22,405,000
					2042	4,130,000	813,600	4,943,600	18,275,000
					2043	4,300,000	645,000	4,945,000	13,975,000
					2044	4,475,000	469,500	4,944,500	9,500,000
					2045	4,655,000	286,900	4,941,900	4,845,000
					2046	4,845,000	96,900	4,941,900	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	26,459,260	13,533,188	4,369,334	8,988,644	1,027,724		-	52,322,702
2014	29,026,908	17,787,459	4,574,932	8,836,380	-	15.10%	-	60,225,680
2015	17,698,430	19,891,736	5,427,290	8,239,898	-	12.09%	16,248,283	67,505,638
2016	40,014,805	20,412,598	6,227,054	7,623,956	1,479,633	25.47%	11,902,719	84,701,499
2017	42,875,015	27,948,695	9,059,976	9,783,118	3,609,538	16.54%	12,649,799	98,707,065
2018	56,690,835	28,535,618	9,250,235	9,988,563	3,685,338	2.10%	-	100,779,914
2019	57,881,343	29,134,866	9,444,490	10,198,323	3,762,730	2.10%	-	102,896,292
2020	59,096,851	29,746,698	9,642,825	10,412,488	3,841,747	2.10%	-	105,057,114
2021	60,337,885	30,371,379	9,845,324	10,631,150	3,922,424	2.10%	-	107,263,313
2022	61,604,980	31,009,177	10,052,076	10,854,405	4,004,795	2.10%	-	109,515,843

3. Proposed Debt Financings

While NCA&T evaluates its capital investment needs on a regular basis, NCA&T currently has no legislatively approved projects that it anticipates financing during the Study Period.

4. Financial Ratios

Debt to Obligated Resources

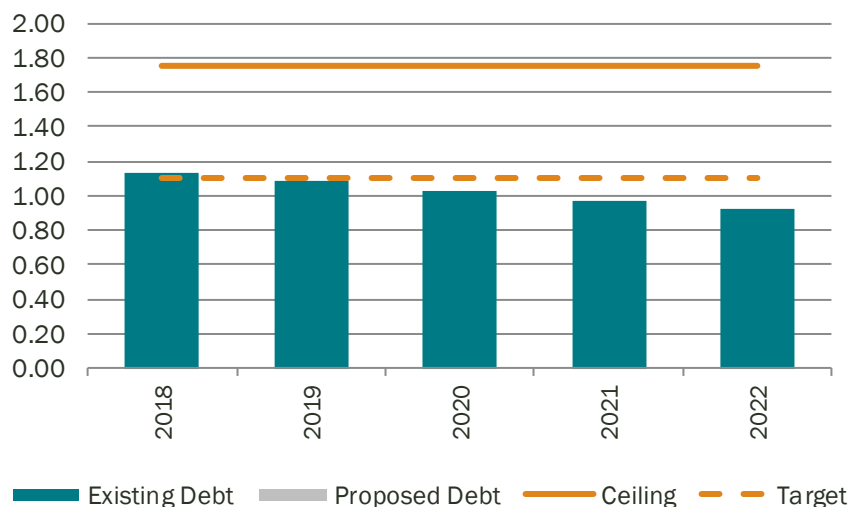
- **What does it measure?** NCA&T's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.10
- Ceiling Ratio: Not to exceed 1.75
- Projected 2018 Ratio: 1.14
- Highest Study Period Ratio: 1.14 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	86,239,925	2.10%	98,020,000	-	1.14	n/a	1.14
2019	88,050,964	2.10%	95,225,000	-	1.08	n/a	1.08
2020	89,900,034	2.10%	92,345,000	-	1.03	n/a	1.03
2021	91,787,934	2.10%	89,390,000	-	0.97	n/a	0.97
2022	93,715,481	2.10%	87,000,000	-	0.93	n/a	0.93

Debt to Obligated Resources



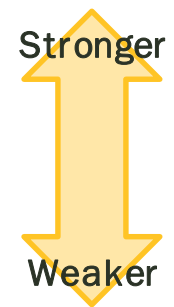
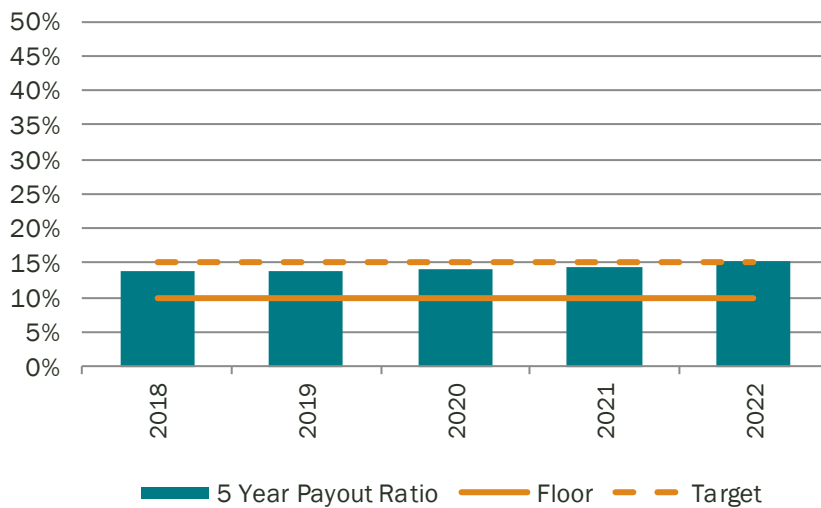
5-Year Payout Ratio Overview

- What does it measure? The percentage of NCA&T's debt scheduled to be retired in the next five years.
- How is it calculated? Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 15%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 14%
- Lowest Study Period Ratio: 14% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	98,020,000	14%
2019	95,225,000	14%
2020	92,345,000	14%
2021	89,390,000	14%
2022	87,000,000	15%

5-Year Payout Ratio



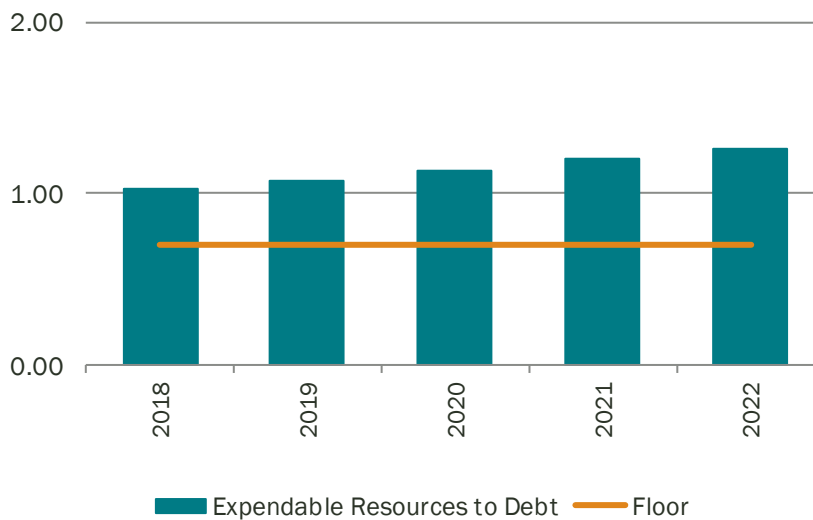
Expendable Resources to Debt

- **What does it measure?** The number of times NCA&T's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.70x
- Projected 2018 Ratio: 1.03x
- Lowest Study Period Ratio: 1.03x (2018)

Expendable Resources to Debt

1	2	3	4	5	6
Expendable Resources to Debt					
Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
100,779,914	2.10%	98,020,000	-	1.03	1.03
102,896,292	2.10%	95,225,000	-	1.08	1.08
105,057,114	2.10%	92,345,000	-	1.14	1.14
107,263,313	2.10%	89,390,000	-	1.20	1.20
109,515,843	2.10%	87,000,000	-	1.26	1.26

Expendable Resources to Debt



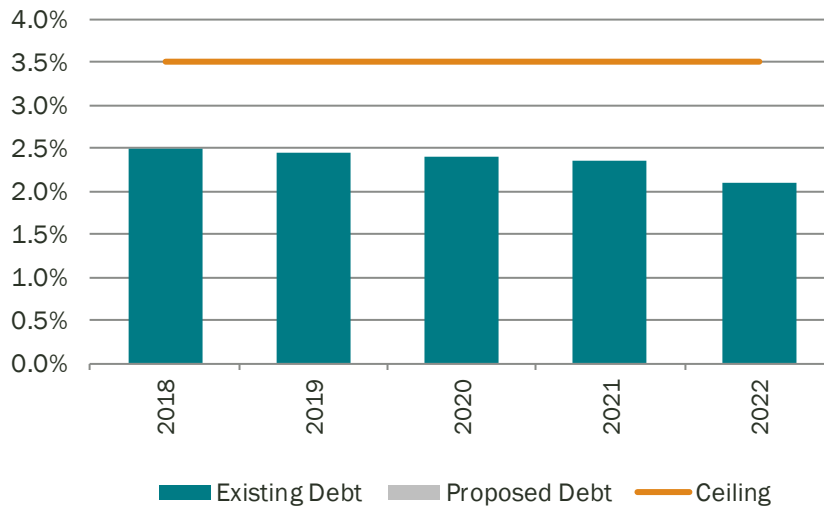
Debt Service to Operating Expenses

- **What does it measure?** NCA&T's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 3.50%
- Projected 2018 Ratio: 2.48%
- Highest Study Period Ratio: 2.48% (2018)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	273,820,539	2.10%	6,799,520	-	2.48%	n/a	2.48%
2019	279,570,771	2.10%	6,811,906	-	2.44%	n/a	2.44%
2020	285,441,757	2.10%	6,835,069	-	2.39%	n/a	2.39%
2021	291,436,034	2.10%	6,838,742	-	2.35%	n/a	2.35%
2022	297,556,191	2.10%	6,199,234	-	2.08%	n/a	2.08%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, NCAT's debt capacity is based on the amount of debt NCAT could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, NCAT's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, NCAT's current estimated debt capacity is **\$52,899,869**. After taking into account any legislatively approved projects detailed in **Section 3** above, if NCAT issued no additional debt until the last year of the Study Period, then NCAT's debt capacity for 2022 is projected to increase to **\$77,002,092**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.14	1.75	52,899,869
2019	1.08	1.75	58,864,186
2020	1.03	1.75	64,980,059
2021	0.97	1.75	71,238,885
2022	0.93	1.75	77,002,092

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of NCAT's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- Projecting the exact amount NCAT could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.
 - If "debt capacity" were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.

- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university's "**strategic positioning**" score, which accounts for 10% of its overall score under Moody's criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer's final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

NCA&T's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

North Carolina A&T State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2011C	UNC System Pool Revenue Bonds	2,575,000	10/1/2031	Stadium Press Bonx		Student Fees
2013	UNC System Pool Revenue Bonds	9,345,000	10/1/2037	Student Health Center		Student Fees
2015A	General Revenue Bonds	76,980,000	10/1/2045	Student Center		Student Fees
2015B	Taxable General Revenue Bonds	9,195,000	10/1/2022	Student Center		Student Fees
				Parking Deck	2006B	Student Fees
2017	General Revenue Refunding Bond	2,655,000	10/1/2020	Parking Deck	2006B	Student Fees
				Improve and Enlarge Dining Facility	2006B	Student Fees
Total		100,750,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of NCA&T's current credit ratings, along with (1) a summary of various credit factors identified in NCA&T's most recent rating report and (2) recommendations for maintaining and improving NCA&T's credit ratings in the future.

Overview

- Moody's maintains an A1 rating on the University's general revenue bonds. The outlook is stable.
- Fitch maintains an A+ rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Market niche as a STEM focused HBCU (Historically black colleges and universities) attracting students from many states
- Large operating and enrollment base at the rating level with diversified revenue
- Prudent fiscal management contributes to consistently positive operating performance

Credit Challenges

- Flexible reserves are limited relative to A1-rated peers
- High leverage following the issuance of Series 2015 bonds limits debt capacity at the current rating
- Demand debt related to foundation financed student housing introduces credit risk

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

- Pursue strategies, working within the existing statutory framework relating to reversions, to increase liquidity through growth in cash reserves.

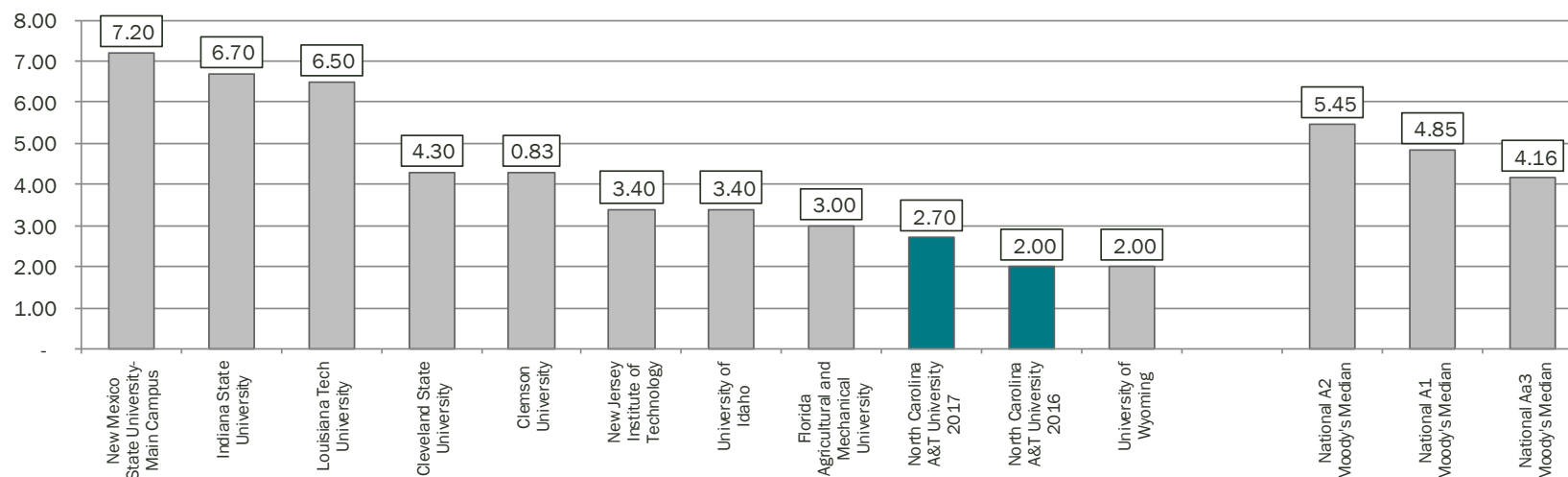
8. Peer Comparison

The following pages compare two measures of NCA&T's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both NCA&T (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

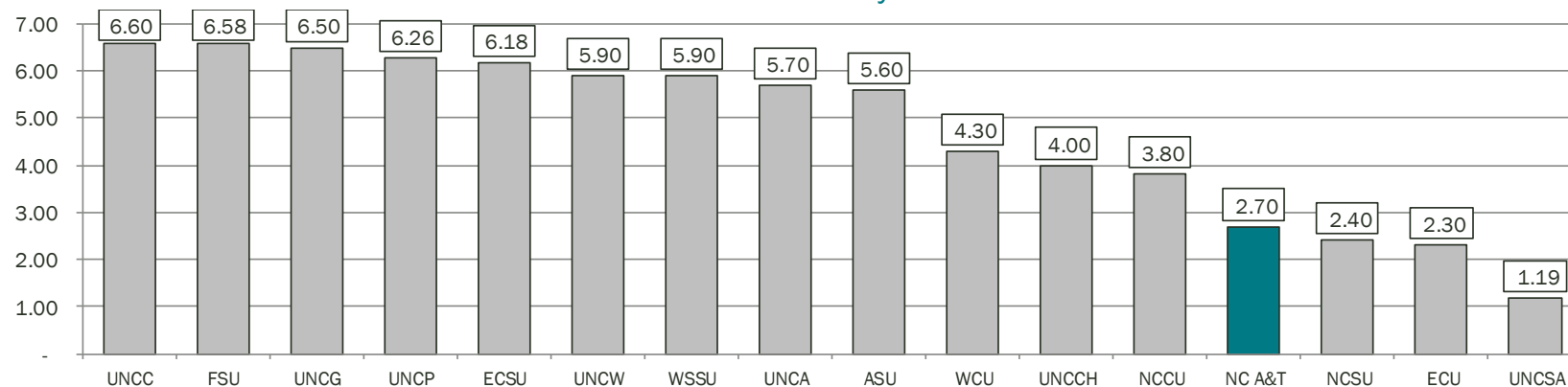
Debt Service to Operating Expenses (%)

NCA&T vs. National Peers



Debt Service to Operating Expenses (%)

NCA&T vs. UNC System



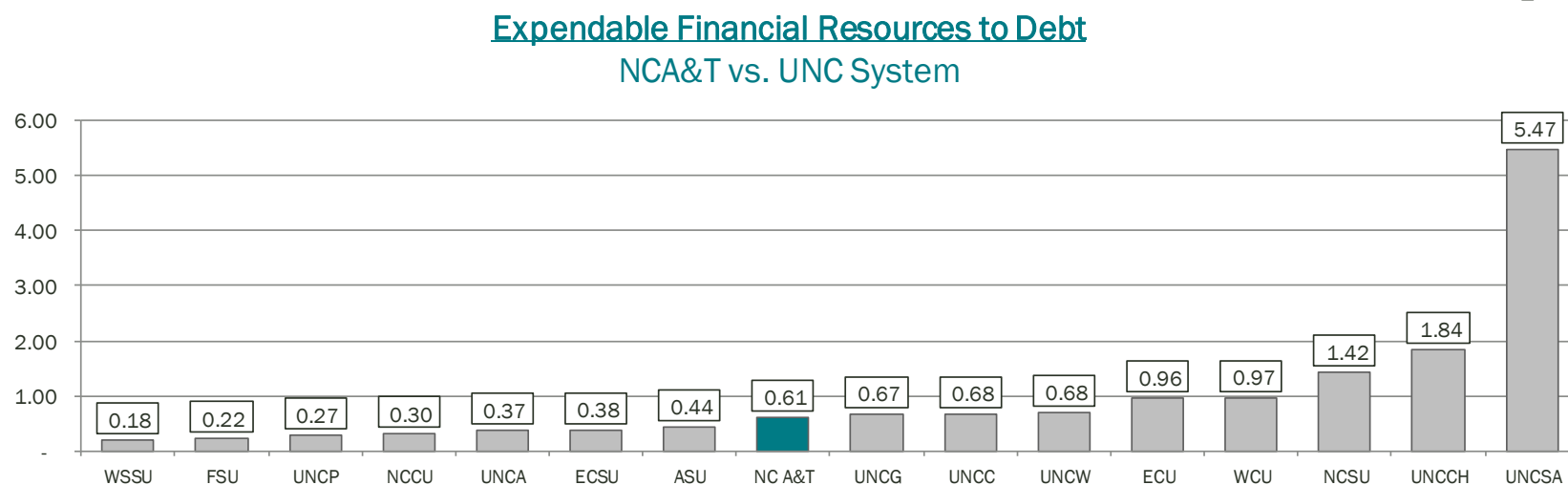
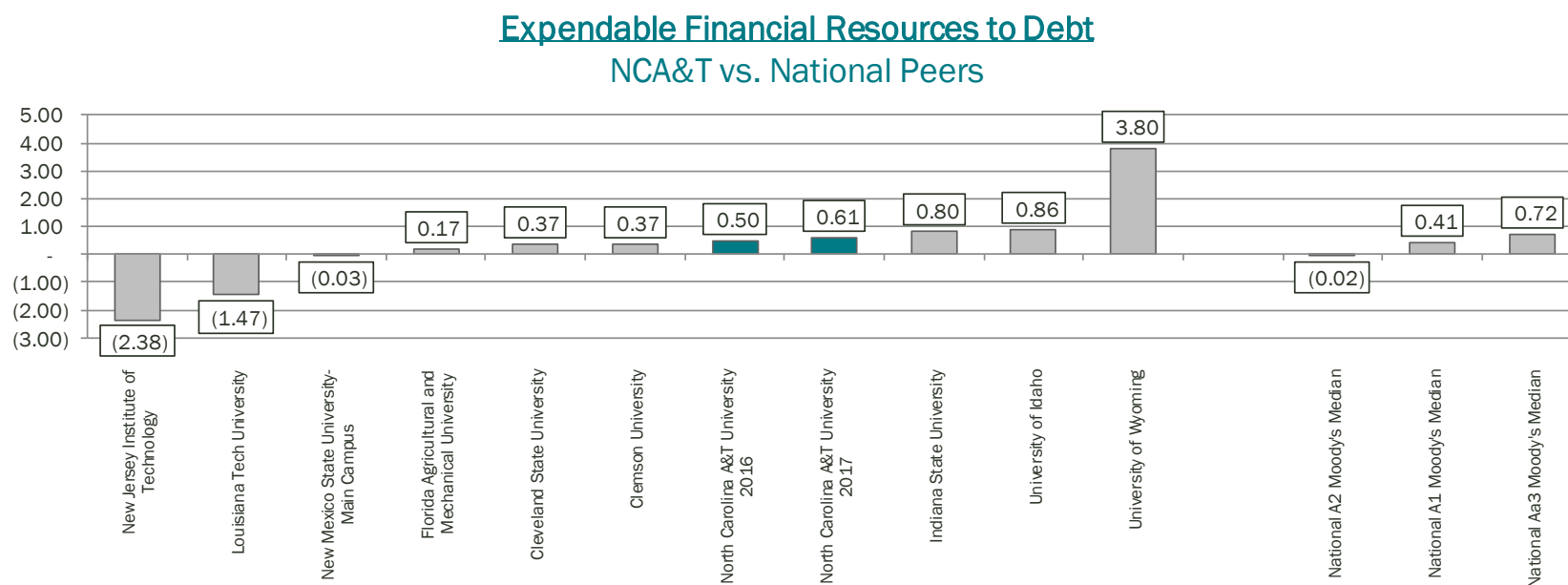
Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

A draft of NCA&T's Strategic Debt Management Policy (pending approval) is included on the following pages.

NEW POLICY: Sets out the general limitations under which A&T will issue debt.



NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY

SEC. VI —FINANCE 1.0

Debt Management

UNIVERSITY POLICY

I. INTRODUCTION

North Carolina Agricultural and Technical State University (“A&T”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the successful implementation of A&T’s strategic vision to provide its students a quality environment of exemplary teaching and learning, scholarly and creative research, and effective community engagement and public service within a diverse and inclusive community, while preserving the operational flexibility and resources necessary to support A&T’s current and future programming. A&T recognizes the important role that the responsible stewardship of its financial resources will play as A&T seeks to invest in its campus and related infrastructure in a manner that is economically, socially, and environmentally sustainable.

This Policy has been developed to assist A&T’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with A&T’s capital improvement plan, stated policies, objectives and core values. Like other limited resources, A&T’s debt capacity should be used and allocated strategically and equitably, taking into account the benefits and burdens for both current and future students.

Specifically, the objective of this Policy is to provide a framework that will enable A&T’s Board of Trustees (the “Board”) and finance staff to:

- Identify and prioritize projects eligible for debt financing;
- Limit and manage risk within A&T's debt portfolio;
- Establish debt management guidelines and quantitative parameters for evaluating A&T's financial health, debt affordability and debt capacity;
- Manage and protect A&T's credit profile in order to maintain A&T's credit rating at a strategically optimized level and maintain access to the capital markets; and
- Ensure A&T remains in compliance with all of its post-issuance obligations and requirements.

This Policy is intended solely for A&T's internal planning purposes. The Vice Chancellor for Business and Finance, in consultation with the Chancellor, will review this Policy annually and, if necessary, recommend changes to ensure that it remains consistent with University's strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Policy are subject to the Board's approval.

II. Authorization and Oversight

A&T's Vice Chancellor for Business and Finance, in consultation with the Chancellor, is responsible for all of A&T's debt financing activities. A&T's Vice Chancellor for Business and Finance is responsible for the day-to-day management of A&T's financial affairs in accordance with the terms of this Policy. Each University financing will conform to all applicable State and Federal laws.

The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

A. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Only projects that directly or indirectly relate to the mission of A&T will be considered for debt financing.

1. **Self-Liquidating Projects**— A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.
2. **Energy Conservation Projects**— Each energy conservation

project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.

3. Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any projects that will require gift financing or include a gift financing component must be jointly approved by the Vice Chancellor for University Advancement and the Vice Chancellor for Business and Finance before any project-restricted donations are solicited. The fundraising goal for any project to be financed primarily with donations should also include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

B. Benchmarks and Debt Ratios

Overview

When evaluating its current financial health and any proposed plan of finance, A&T takes into account both its debt affordability and its debt capacity. Debt affordability focuses on A&T's cash flows and measures A&T's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between A&T's net assets and its total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including A&T's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, A&T's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

A&T believes, however, that it is important to consider and monitor objective metrics when evaluating A&T's financial health and its ability to incur additional debt. To that end, A&T has identified four key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

Note that the selected financial ratios are the same benchmarks monitored as part of the debt capacity study for The University of North Carolina delivered each year under

Article 5 of Chapter 116D of the North Carolina General Statutes (the “UNC Debt Capacity Study”), which A&T believes will promote clarity and consistency in A&T’s debt management and planning efforts.

A&T has established for each ratio a floor or ceiling target, as the case may be, with the expectation that A&T will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this policy should align with the ratios used in the report A&T submits each year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve A&T’s financial health and operating flexibility and to ensure A&T is able to access the market to address capital needs or to take advantage of potential refinancing opportunities. Attaining or maintaining a specific credit rating is not an objective of this policy.

A&T recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of A&T’s strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, A&T has developed as part of this policy specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when A&T has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this policy. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

- The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.
- The proposed project would be financed entirely with private donations based on pledges already in hand.
- The proposed project is essential to the implementation of one of the Board’s strategic priorities.
- The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- Foregoing or delaying the proposed project would result in significant additional costs to A&T or would negatively impact A&T’s credit rating.

At no point, however, should A&T intentionally operate outside an established policy ratio without conscious and explicit planning.

Ratio 1 – Debt to Obligated Resources

What does it measure?	A&T’s aggregate outstanding debt as compared to its obligated resources—the funds legally available to service
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its debt under the General Revenue Bond Statutes

Why is it tracked? The ratio, which is based on the legal structure proscribed by the General Revenue Bond Statutes, provides a general indication of A&T's ability to absorb debt on its balance sheet and is the primary ratio used to calculate A&T's "debt capacity" under the methodology used in the UNC Debt Capacity Study

How is it calculated? Aggregate debt* divided by obligated resources**

Policy Ratio: Not to exceed 1.75x (UNC Debt Capacity Study Target Ratio = 1.50x)

* As used throughout this Policy, "aggregate debt" includes A&T's energy savings contracts, which, in accordance with State law, are excluded from the UNC Debt Capacity Study.

** "Available Funds," which is the concept commonly used to capture each UNC's campus's obligated resources in its loan and bond documentation, has been used as a proxy for "obligated resources." The two concepts are generally identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of A&T's obligated resources.

Ratio 2 – Five-Year Payout Ratio Overview

What does it measure? The percentage of A&T's debt scheduled to be retired in the next five years

Why is it tracked? The ratio measures how aggressively A&T is amortizing its debt and is a ratio that is monitored in the UNC Debt Capacity

How is it calculated? Aggregate principal to be paid in the next five years divided by aggregate debt

Policy Ratio: Not less than 10% (UNC Debt Capacity Study Target Ratio = 15%)

Ratio 3 – Expendable Resources to Debt

What does it measure? The number of times A&T's liquid and expendable net assets covers its aggregate debt

Why is it tracked? The ratio, which is widely tracked by rating agencies and other capital market participants, is a basic measure of financial health and assesses A&T's ability to settle its debt obligations using only its available net assets as of a particular date

How is it calculated? The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt

Policy Ratio: Not less than 0.70x

Ratio 4 – Debt Service to Operating Expenses

What does it measure? A&T's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues

Why is it tracked? The ratio, which is widely tracked by rating agencies and other capital market participants, evaluates A&T's relative cost of borrowing to its overall expenditures and provides a measure of A&T's budgetary flexibility

How is it calculated? Annual debt service divided by annual operating expenses

Policy Ratio: Not to exceed 3.50%

The Vice Chancellor for Business and Finance will review each ratio in connection with the delivery of the University's audited financials and will provide an annual report to the Board detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

C. Debt Portfolio Management and Transaction Structure Considerations

Generally

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Business and Finance, in conjunction with the Chancellor, within the context of this Policy and the overall portfolio to ensure that any financial product or structure is consistent with A&T's stated objectives. As part of effective debt management, A&T must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

A&T will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves A&T's strategic plan and financing objectives. In making that determination, A&T will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect A&T's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce A&T's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates A&T's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, A&T should structure its debt to provide for level annual payments of debt service, though A&T may elect alternative structures when the Vice Chancellor for Business and Finance, in consultation with the Chancellor, determine it to be in A&T's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

A&T will use maturity structures that correspond with the life of the facilities financed, not to exceed the maximum term authorized under applicable State law (currently 30 years). Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

A&T recognizes that a degree of exposure to variable interest rates within A&T's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from A&T's assets. A&T's debt portfolio should be managed to ensure that no more than 20% of A&T's total debt bears interest at an unhedged variable rate.

A&T's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. A&T may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. A&T may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

Debt Related to Public Private Partnerships

To address A&T's anticipated capital needs as efficiently and prudently as possible, A&T may choose to explore and consider opportunities for alternative and non-traditional transaction structures (collectively, "P3 Arrangements").

A&T will pursue P3 Arrangements only when A&T has determined that (1) a traditional financing alternative is not feasible, (2) a P3 Arrangement will likely produce construction or overall operating results that are superior, faster or more efficient than a traditional delivery model or (3) a P3 Arrangement serves one of the Board's broader strategic objectives (e.g., a decision that operating a particular auxiliary function is no longer consistent with A&T's core mission).

P3 Arrangements will receive increased scrutiny if the Vice Chancellor for Business and Finance determines, in consultation with A&T's advisors, that the P3 Arrangement will be viewed as "on-credit" (i.e., treated as University debt) by A&T's auditors or outside rating agencies. When evaluating whether the P3 Arrangement should be viewed as "on-credit," rating agencies consider A&T's economic interest in the project and the level of control it exerts over the project. Further, rating agencies will generally treat a P3 Arrangement as University debt if the project is located on A&T's campus or if the facility is to be used for an essential University function. For this reason, any P3 Arrangement for a university-related facility to be located on land owned by the State, A&T or an A&T affiliate must be approved in advance by the Vice Chancellor for Business and Finance, in consultation with the Chancellor.

Refunding Considerations

A&T will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, A&T should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of A&T ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.

- (iv) Refunding Bonds may also be issued to relieve A&T of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

Financing Team Professionals

A&T will generally select its financial advisors, underwriters, lenders and bond counsel through a request for proposal process. Firms providing financial advisory and bond counsel services are generally selected for a specific period of time rather than for individual transactions, while underwriters and lenders will be selected on a transaction-by-transaction basis. Additionally, A&T may use the financial advisors, underwriters and bond counsel selected by General Administration through its own similar competitive process.

D. Derivative Products

A&T recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit A&T to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. A&T will use derivatives only to manage and mitigate risk; A&T will not use derivatives to create leverage or engage in speculative transactions.

As with underlying debt, A&T's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Business and Finance must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2) ensure that A&T's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

A&T will use derivatives only when the Vice Chancellor for Business and Finance, in consultation with the Chancellor, determine based on the foregoing analysis, that the instrument provides the most effective method for accomplishing A&T's strategic objectives without imposing inappropriate risks on A&T.

E. Post-Issuance Compliance Matters

To the extent A&T adopts any formal policies relating to post-issuance compliance matters after the effective date of this Policy, the Vice Chancellor for Business and Business & Finance will attach each such policy as Appendix A to this Policy.

Appendix A – Post-Issuance Compliance Policies

TBD

Approved by the Board of Trustees
First approved: February 16, 2018
Revised:

Harold L. Martin, Sr.
Chancellor

date signed for final posting

Robert Pompey, Jr.
Vice Chancellor for Business and Finance

date signed for final posting

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

North Carolina Central University
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), North Carolina Central University (“**NCCU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. NCCU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, NCCU, in consultation with UNC System, agreed to certain ceilings and floors for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—NCCU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, NCCU’s debt capacity reflects the amount of debt NCCU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that NCCU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- NCCU’s current debt profile, including project descriptions financed with, and the sources of repayment for, NCCU’s outstanding debt;
- NCCU’s current credit profile, along with recommendations for maintaining or improving NCCU’s credit rating; and
- A copy of any NCCU debt management policy currently in effect.

Overview of NCCU

For the fall 2017 semester, NCCU had a headcount student population of approximately 8,097, including 6,355 undergraduate students and 1,742 graduate and doctoral students. During the 2017 academic year, NCCU employed approximately 564 full-time, part-time and temporary instructional faculty.

Over the past 10 years, NCCU’s enrollment has increased approximately 3%. NCCU expects modest enrollment growth over the Study Period. NCCU’s average age of plant (16.25 years) is higher than the median ratio for all Campuses (13.60 years), which may indicate the need for increased investment in campus infrastructure in the near term.

Rather than using the financial model’s standard growth assumption of 2.10% (which is based on the Consumer Price Index for 2017), NCCU has assumed a growth factor for its operating expenses of 1.00% per year. NCCU anticipates incurring approximately \$47.28 million in additional debt during the Study Period, as summarized in **Section 3** below.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on NCCU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to NCCU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt NCCU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate NCCU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	43,365,401			43,365,401	2018	1,109,000	2,791,177	3,900,177	75,018,000
2014	46,415,864		7.03%	46,415,864	2019	2,943,000	2,735,576	5,678,576	72,075,000
2015	27,257,946	16,507,378	-5.71%	43,765,324	2020	3,628,000	2,630,154	6,258,154	68,447,000
2016	31,935,836	12,196,575	0.84%	44,132,411	2021	3,766,000	2,499,845	6,265,845	64,681,000
2017	39,397,837	12,964,067	18.65%	52,361,904	2022	3,934,000	2,350,746	6,284,746	60,747,000
2018	53,461,504	-	2.10%	53,461,504	2023	4,127,000	2,181,202	6,308,202	56,620,000
2019	54,584,196	-	2.10%	54,584,196	2024	3,695,000	2,009,775	5,704,775	52,925,000
2020	55,730,464	-	2.10%	55,730,464	2025	3,895,000	1,836,075	5,731,075	49,030,000
2021	56,900,803	-	2.10%	56,900,803	2026	4,090,000	1,653,400	5,743,400	44,940,000
2022	58,095,720	-	2.10%	58,095,720	2027	4,310,000	1,461,300	5,771,300	40,630,000
Operating Expenses					2028	4,535,000	1,259,075	5,794,075	36,095,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	4,580,000	1,068,925	5,648,925	31,515,000
2013	185,886,297			185,886,297	2030	4,780,000	892,250	5,672,250	26,735,000
2014	186,207,161		0.17%	186,207,161	2031	4,975,000	727,425	5,702,425	21,760,000
2015	180,635,929	2,449,449	-1.68%	183,085,378	2032	5,150,000	575,550	5,725,550	16,610,000
2016	182,259,189	3,714,462	1.58%	185,973,651	2033	5,335,000	418,275	5,753,275	11,275,000
2017	197,510,330	(896,553)	5.72%	196,613,777	2034	5,535,000	255,225	5,790,225	5,740,000
2018	198,579,915	-	1.00%	198,579,915	2035	5,740,000	86,100	5,826,100	-
2019	200,565,714	-	1.00%	200,565,714	2036			-	-
2020	202,571,371	-	1.00%	202,571,371	2037			-	-
2021	204,597,085	-	1.00%	204,597,085	2038			-	-
2022	206,643,056	-	1.00%	206,643,056	2039			-	-
					2040			-	-
					2041			-	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temporarily Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	3,827,058	13,275,755	1,869,098	1,800,658	1,315,492		-	19,457,077
2014	1,696,645	17,727,085	990,623	4,815,537	2,537,336	16.63%	-	22,692,554
2015	(17,045,957)	18,987,844	793,288	4,429,655	1,868,338	-3.92%	16,507,378	21,803,870
2016	(6,559,192)	17,937,369	694,973	4,380,437	2,138,848	21.59%	12,196,575	26,511,314
2017	583,504	23,832,344	838,797	4,680,905	4,748,276	43.91%	12,964,067	38,151,341
2018	13,832,070	24,332,823	856,412	4,779,204	4,847,990	2.10%	-	38,952,519
2019	14,122,543	24,843,813	874,396	4,879,567	4,949,798	2.10%	-	39,770,522
2020	14,419,117	25,365,533	892,759	4,982,038	5,053,743	2.10%	-	40,605,703
2021	14,721,918	25,898,209	911,507	5,086,661	5,159,872	2.10%	-	41,458,423
2022	15,031,079	26,442,071	930,648	5,193,481	5,268,229	2.10%	-	42,329,050

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that NCCU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** of this Campus Report.

NCCU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2019	New Student Center	47,279,332	30 Years	Student Fees
Total		47,279,332		

4. Financial Ratios

Debt to Obligated Resources

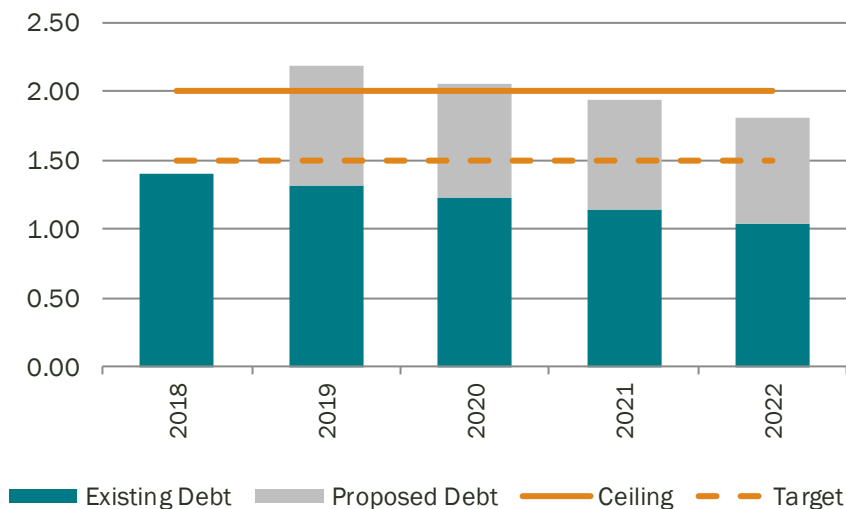
- **What does it measure?** NCCU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.50
- Ceiling Ratio: Not to exceed 2.00
- Projected 2018 Ratio: 1.40
- Highest Study Period Ratio: 2.19 (2019)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	53,461,504	2.10%	75,018,000	-	1.40	n/a	1.40
2019	54,584,196	2.10%	72,075,000	47,279,332	1.32	0.87	2.19
2020	55,730,464	2.10%	68,447,000	46,404,884	1.23	0.83	2.06
2021	56,900,803	2.10%	64,681,000	45,497,382	1.14	0.80	1.94
2022	58,095,720	2.10%	60,747,000	44,555,577	1.05	0.77	1.81

Debt to Obligated Resources



Weaker
↓
Stronger

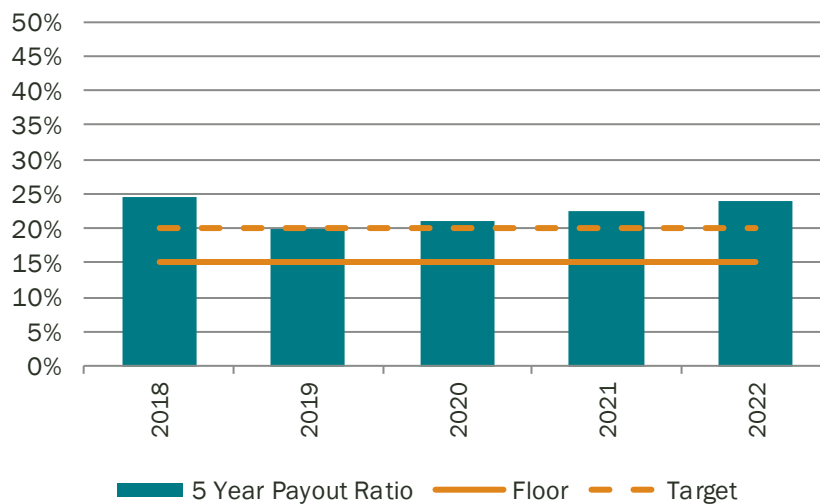
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of NCCU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 20%
- Floor Ratio: Not less than 15%
- Projected 2018 Ratio: 25%
- Lowest Study Period Ratio: 20% (2019)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	75,018,000	25%	
2019	119,354,332	20%	
2020	114,851,884	21%	
2021	110,178,382	23%	
2022	105,302,577	24%	

5-Year Payout Ratio



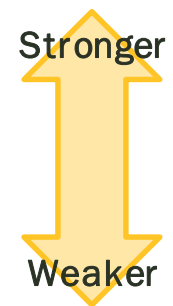
Expendable Resources to Debt

- **What does it measure?** The number of times NCCU's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.35x
- Projected 2018 Ratio: 0.52x
- Lowest Study Period Ratio: 0.33x (2019)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	38,952,519	2.10%	75,018,000	-	0.52	0.52
2019	39,770,522	2.10%	72,075,000	47,279,332	0.55	0.33
2020	40,605,703	2.10%	68,447,000	46,404,884	0.59	0.35
2021	41,458,423	2.10%	64,681,000	45,497,382	0.64	0.38
2022	42,329,050	2.10%	60,747,000	44,555,577	0.70	0.40

Expendable Resources to Debt



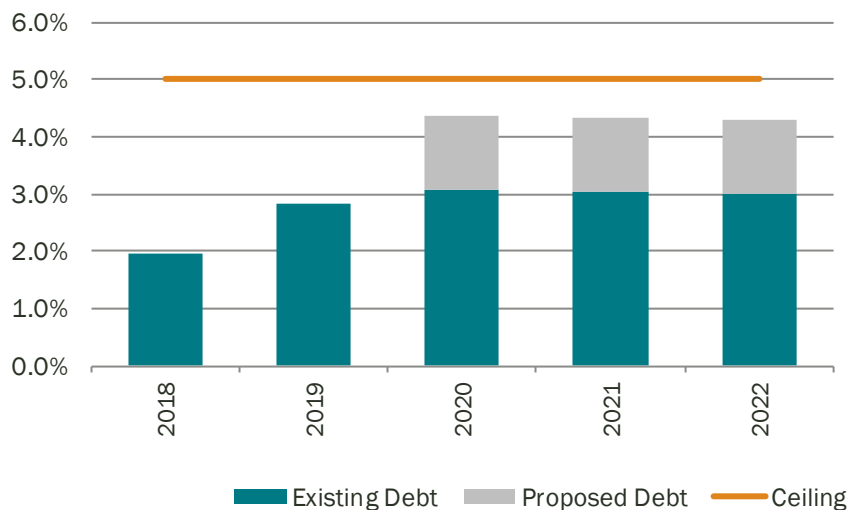
Debt Service to Operating Expenses

- **What does it measure?** NCCU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 5.00%
- Projected 2018 Ratio: 1.96%
- Highest Study Period Ratio: 4.36% (2020)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	198,579,915	1.00%	3,900,177	-	1.96%	n/a	1.96%
2019	200,565,714	1.00%	5,678,576	-	2.83%	n/a	2.83%
2020	204,358,530	1.00%	6,258,154	2,661,606	3.06%	1.30%	4.36%
2021	206,351,189	1.00%	6,265,845	2,661,606	3.04%	1.29%	4.33%
2022	208,362,857	1.00%	6,284,746	2,661,606	3.02%	1.28%	4.29%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, NCCU's debt capacity is based on the amount of debt NCCU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, NCCU's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, NCCU has no current estimated debt capacity. After taking into account any legislatively approved projects detailed in **Section 3** above, if NCCU issued no additional debt until the last year of the Study Period, then NCCU's debt capacity for 2022 is projected to increase to **\$10,888,864**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.40	2.00	31,905,008
2019	2.19	2.00	(10,185,941)
2020	2.06	2.00	(3,390,957)
2021	1.94	2.00	3,623,224
2022	1.81	2.00	10,888,864

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of NCCU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- Projecting the exact amount NCCU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

NCCU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

North Carolina Central University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2003A	Student Housing Facilities Revenue Bonds	16,745,000	10/1/2034	Eagle Landing		Housing Revenues
2014	Revenue Refunding Bonds	3,442,000	4/1/2023	Chidley Hall	2004B	Housing Revenues
2016	General Revenue Refunding Bonds	55,940,000	10/1/2034	Deferred Maintenance Latham Parking Deck Chidley Hall Richmond Hall Residence Hall 2 Walker Sports Complex	 2009C 2009C 2009C 2009C 2009C	 Housing Revenues Parking and Vehicle Registration Revenues Housing Revenues Housing Revenues Housing Revenues Debt Service Fee
Total		76,127,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of NCCU's current credit ratings, along with (1) a summary of various credit factors identified in NCCU's most recent rating report and (2) recommendations for maintaining and improving NCCU's credit ratings in the future.

Overview

- Moody's maintains an A3 rating on the University's general revenue bonds.
- In connection with the issuance of the 2016 General Revenue Bonds, Moody's revised its outlook on the University's general revenue bonds from negative to stable.

Key Information Noted in Reports

Credit Strengths

- Very strong funding from the Aaa-rated State of North Carolina, with state appropriations per student of more than \$11,600 in fiscal 2015
- Demonstrated history of adjusting expenses to align with revenue
- Robust oversight of capital projects from the University of North Carolina System

Credit Challenges

- Very thin liquidity with 57 days cash on hand
- Trend of limited revenue growth; state appropriations will decline 1-2% for the fiscal 2016-2017 biennium, constraining near-term growth
- Competitive niche as one of five historically black colleges and universities (HBCUs) in the UNC system

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

- Continue to develop and implement strategies and policies to meet the University's unique challenges, including strategies to stabilize and improve enrollment and revenue.

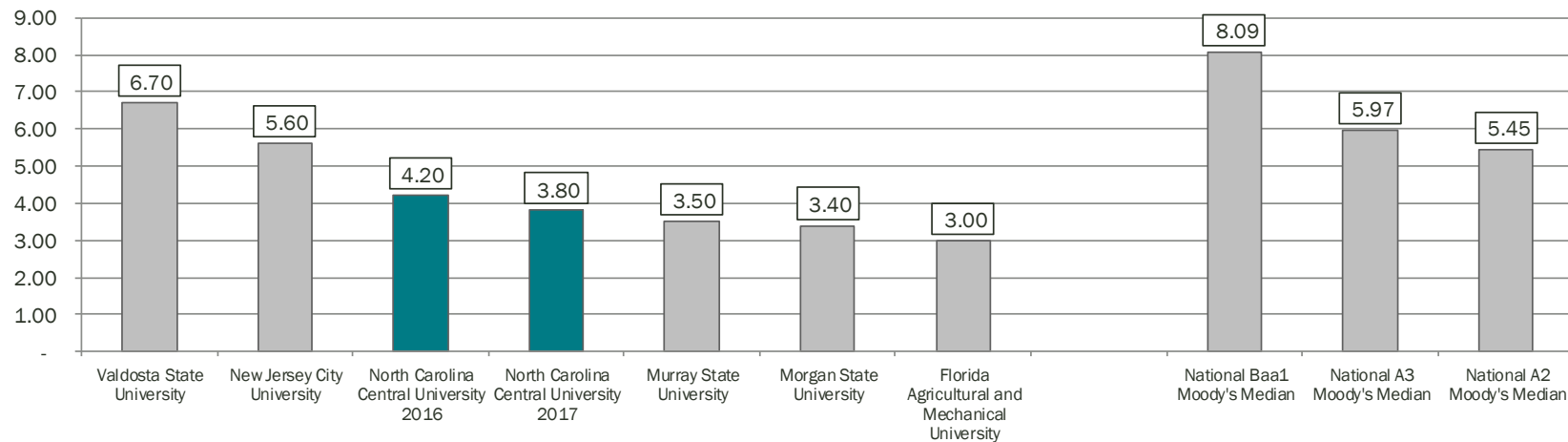
8. Peer Comparison

The following pages compare two measures of NCCU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both NCCU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study

Debt Service to Operating Expenses (%)

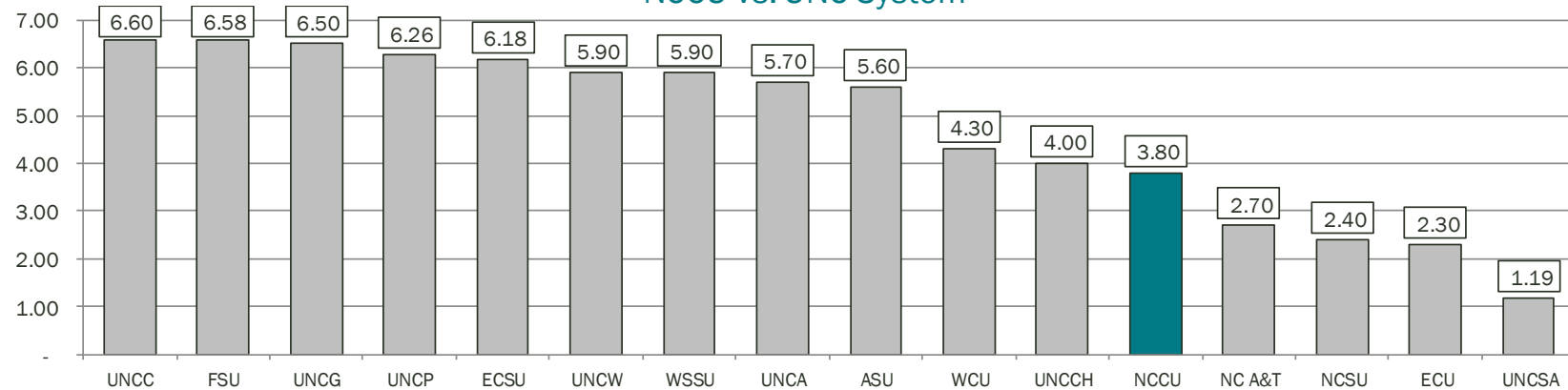
Debt Service to Operating Expenses (%)

NCCU vs. National Peers



Debt Service to Operating Expenses (%)

NCCU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

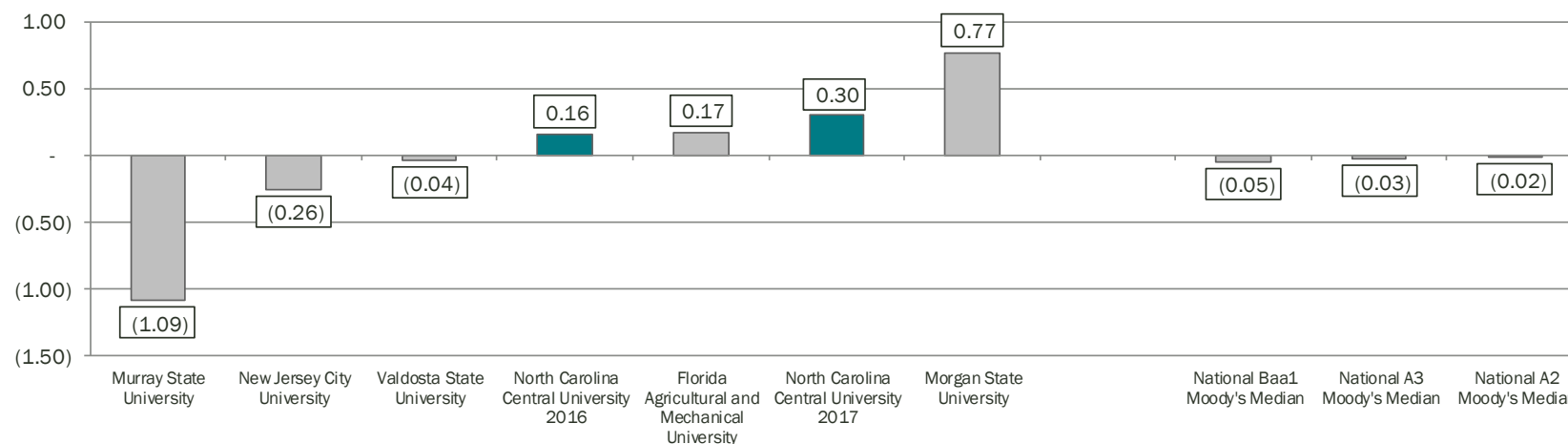
*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

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Expendable Financial Resources to Debt

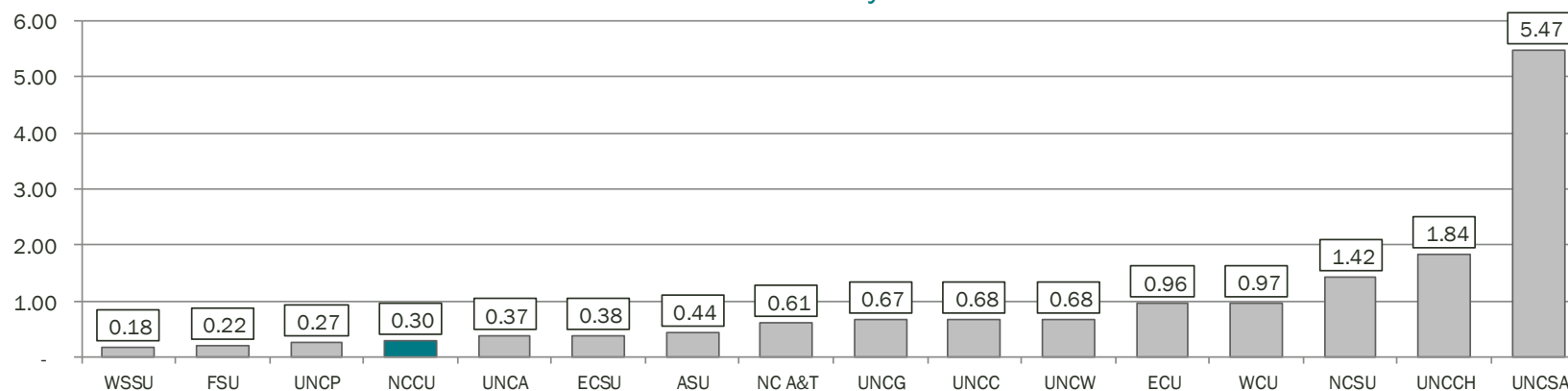
Expendable Financial Resources to Debt

NCCU vs. National Peers



Expendable Financial Resources to Debt

NCCU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

NCCU's current debt policy is included in the following pages.

North Carolina Central University Debt Policy

Executive Summary:

This Policy outlines the University philosophy on debt, establishes the framework for approving, managing, and reporting debt and provides debt management guidelines.

I. Policy Statement

The mission of North Carolina Central University (University) is supported by the development and implementation of the long-term strategic plan. The strategic plan establishes University-wide priorities and programmatic objectives. The University develops a master plan to support these priorities and objectives.

The University's use of debt must be appropriate in support of the master plan. The University will consider its financial resources, debt affordability and capacity, cost of capital, debt mix, and credit rating when determining the need for capital funding.

This Debt Policy is intended to be a fluid document that will evolve over time to meet the changing needs of the University.

A. Scope

This Debt Policy applies to the University and affiliated entities and covers all forms of debt including long-term, short-term, fixed-rate, and variable-rate debt. It also covers other forms of financing including both on-balance sheet and off-balance sheet structures, such as leases, and other structured products used with the intent of funding capital projects.

B. Objectives

The objectives of this policy are to:

- i. Guidelines for the User of Debt
- ii. Establish a control framework for approving and managing debt
- iii. Establish debt management guidelines
- iv. Approval Process

i. Overall Guidelines for the Use of Debt

Debt is a limited resource that must be managed strategically in order to best support University priorities. Under this policy, the University will manage its debt based on the following overall principles:

- a. The University will use debt to maximize the resources available to maintain and enhance the campus physical plant and infrastructure; and to invest in transformative capital improvement projects that advance the University's strategic mission.

- b. The University will target key financial ratios as mandated by Article 5 of Chapter 116D of the North Carolina General Statutes, as well as supplemental financial ratios that are widely used by rating agencies, to measure its debt burden and guide future debt issuance decisions.
- c. The University's decision to issue debt will be guided primarily by its ability to support all of the incremental costs (i.e., principal, interest payments, and annual operating costs of new or expanded space) within the University's operating budget. Generally, the University will not pursue the issuance of new debt without first identifying a new or increased fee to support incremental debt service cost.
- d. The University will maintain the highest acceptable credit worthiness in order to finance capital improvement projects at favorable cost of capital and borrowing terms. While the University's decision to issue additional debt will be primarily focused on the strategic importance of the new capital improvement project, the potential impact of a change in credit rating will be thoroughly reviewed.
- e. The University will manage its debt mix (i.e., short-term and long-term debt, fixed rate versus variable rate debt) to maintain an acceptable balance between interest rate risk and the long-term cost of capital.
- f. The University will manage the structure and maturity profile of its debt to meet liquidity objectives and make funds available to support future capital projects and strategic initiatives;
- g. The University will coordinate debt management decisions with asset management decisions to optimize overall funding and portfolio management strategies.

ii. Control Framework

Roles and Responsibilities; Compliance

The Office of the Vice Chancellor for Administration and Finance ("VCAF") is responsible for implementing this policy and for all debt financing activities. The policy and any subsequent, material changes to the policy must be approved by the Chancellor after consultation with the University's Board of Trustees ("BOT".) The approved policy provides the framework under which debt management decisions are made.

The exposure limits listed in the policy are monitored on a regular basis by the VCAF. The office of the VCAF reports regularly to the Chancellor and the BOT on the University's debt position and plans.

Debt Affordability and Capacity

In assessing its current debt levels and planning for additional debt, the University takes into account both its debt affordability and debt capacity. Debt affordability focuses on the University's ability to service its debt through its operating budget and identified revenue streams and is driven by strength in income and cash flows. Debt capacity focuses on the University's financial leverage in terms of debt funding as a percentage of the University's total capital.

The University considers many factors in assessing its debt affordability and debt capacity including its strategic plan, market position, and alternative sources of funding. The University uses four key quantitative ratios to inform its assessments with respect to debt affordability and debt capacity.

The ratios described below are not intended to track a specific rating, but rather to help the University maintain a competitive financial profile and funding for facilities needs and reserves.

1. Debt Affordability Measures

a. Debt Burden Percentage

This ratio measures the University's debt service burden as a percentage of total university expenses. The target for this ratio is intended to maintain the University's long-term operating flexibility to finance existing requirements and new initiatives.

$$\frac{\text{ANNUAL DEBT SERVICE}}{\text{TOTAL OPERATING EXPENSES}} \leq 5.0\%$$

The measure is based on aggregate operating expenses as opposed to operating revenues because expenses typically are more stable (e.g. revenues may be subject to one-time operating gifts, investment return fluctuations, variability of State funding, etc.) and better reflect the operating base of the University. This ratio is adjusted to reflect any non-amortizing or non-traditional debt structures that could result in significant single year fluctuations including the effect of debt refundings.

b. Debt to Obligated Resources Ratio

This ratio measures the University's ability to cover debt with funds that are legally available to service debt. The target established is intended to ensure that debt does not become too unwieldy and over-consumes available resources.

$$\frac{\text{AGGREGATED DEBT}}{\text{OBLIGATED RESOURCES}} \leq 2.00\%$$

This ratio is adjusted to reflect any non-amortizing or non-traditional debt structures that could result in significant single year fluctuations including the effect of debt refundings.

2. Debt Capacity Measures

a. Viability Ratio (*Expendable Resources to Debt*)

This ratio indicates one of the most basic determinants of financial health by measuring the availability of liquid and expendable net assets to the aggregate debt. The ratio measures the medium to long-term health of the University's balance sheet and debt capacity and is a critical consideration of universities with the highest credit quality.

Many factors influence the viability ratio, affecting both the assets (e.g., investment performance, philanthropy) and liabilities (e.g., timing of bond issues), and therefore the ratio is best examined in the context of changing market conditions so that it accurately reflects relative financial strength.

$$\frac{\text{ADJUSTED UNRESTRICTED NET ASSETS + RESTRICTED EXPENDABLE NET ASSETS}}{\text{AGGREGATE DEBT}} \geq .35x$$

b. 5-Year Payout Ratio

This ratio measures the percentage of University's debt scheduled to be retired in the next five years. A more aggressive rate of payment is a better indication for debt capacity.

$$\frac{\text{AGGREGATE PRINCIPAL TO BE PAID IN THE NEXT FIVE YEARS}}{\text{AGGREGATE DEBT}} \geq 15.0\%$$

Both the Viability and Debt Capitalization Ratios should include any component unit (University-related foundation) balances as disclosed in the University's financial statements.

Financing Sources

The University recognizes that there are numerous types of financing structures and funding sources available, each with specific benefits, risks, and costs. All potential funding sources are reviewed by management within the context of this Debt Policy and the overall portfolio to ensure that any financial product or structure is consistent with the University's objectives. Regardless of what financing structure(s) is (are) utilized, due-diligence review must be performed for each transaction, including (i) quantification of potential risks and benefits; and (ii) analysis of the impact on University creditworthiness and debt affordability and capacity.

1. Tax-Exempt Debt

The University recognizes that tax-exempt debt is a significant component of the University's capitalization due in part to its substantial cost benefits; therefore, tax-exempt debt is managed as a portfolio of obligations designed to meet long-term financial objectives rather than as a series of discrete financings tied to specific projects. The University manages the debt portfolio to maximize its utilization of tax-

exempt debt relative to taxable debt whenever possible. In all circumstances, however, individual projects continue to be identified and tracked to ensure compliance with all tax and reimbursement regulations.

For tax-exempt debt, the University considers maximizing the external maturity of any tax-exempt bond issue, subject to prevailing market conditions and opportunities and other considerations, including applicable regulations.

2. Taxable Debt

In instances where certain of the University's capital projects do not qualify for tax-exempt debt, the use of taxable debt may be considered. The taxable debt market offers certain advantages in terms of liquidity and marketing efficiency; such advantages will be considered when evaluating the costs and benefits of a taxable debt issuance.

3. Commercial Paper

Commercial paper provides the University with interim financing for projects in anticipation of philanthropy or planned issuance of long-term debt. The use of commercial paper also provides greater flexibility on the timing and structuring of individual bond transactions. This flexibility also makes commercial paper appropriate for financing equipment and short-term operating needs.

4. University-issued vs. State-Issued Debt

In determining the most cost effective means of issuing debt, the University evaluates the merits of issuing debt directly vs. participating in debt pools through the UNC System Board of Governors. Periodically, the University performs a cost/benefit analysis between these two options and takes into consideration the comparative funding costs, flexibility in market timing, and bond ratings of each alternative. The University also takes into consideration the future administrative flexibility of each issue such as the ability to call and/or refund issues at a later date, as well as the administrative flexibility to structure and manage the debt in a manner that the University believes to be appropriate and in the University's best interest.

5. Other Financing Sources

Given limited debt capacity and substantial capital needs, opportunities for alternative and non-traditional transaction structures may be considered. The University recognizes these types of transactions often can be more expensive than traditional University debt structures; therefore, the benefits of any potential transaction must outweigh any potential costs.

All structures may be considered only when the economic benefit and the likely impact on the University's debt capacity and credit have been determined. Specifically, for any third-party or developer-based financing, management ensures the full credit impact of the structure is evaluated and quantified.

iii. Portfolio Management of Debt

The University considers its debt portfolio holistically to optimize the portfolio of debt for the entire University rather than on a project-by-project basis while taking into account the University's cash and investment portfolio. Therefore, management makes decisions regarding project prioritization, debt portfolio optimization, and financing structures within the context of the overall needs and circumstances of the University.

1. Variable-Rate Debt

The University recognizes that a degree of exposure to variable interest rates within the University's debt portfolio might be desirable in order to:

- a. take advantage of repayment/restructuring flexibility;
- b. benefit from historically lower average interest costs;
- c. provide a "match" between debt service requirements and the projected cash flows from the University's assets; and
- d. diversify its pool of potential investors.

Management monitors overall interest rate exposure, analyzes and quantifies potential risks, including interest rate, liquidity and rollover risks, and coordinates appropriate fixed/variable allocation strategies. The portfolio allocation to variable-rate debt may be managed or adjusted through (i) the issuance or redemption of debt in the conventional debt market (e.g. new issues and refundings) and (ii) the use of interest rate derivative products including swaps.

The amount of variable-rate debt outstanding (adjusted for any derivatives) shall not exceed 25% of the University's outstanding debt. This limit is based on the University's desire to: (i) limit annual variances in its interest payments; (ii) provide sufficient structuring flexibility to management; (iii) keep the University's variable-rate allocation within acceptable external parameters; and (iv) utilize variable-rate debt (including derivatives) to optimize debt portfolio allocation and minimize costs.

$$\frac{\text{VARIABLE RATE DEBT}}{\text{AGGREGATE DEBT}} \leq 25.0\%$$

2. Refinancing Outstanding Debt

The University monitors its debt portfolio on a continual basis to assure portfolio management objectives are being met and to identify opportunities to lower its cost of funding, primarily through refinancing outstanding debt. The University of North Carolina General Administration prefers a savings of 2% for refinancing current outstanding debt. Savings requirements in excess of 2% may be required from time to time by the Vice Chancellor for Administration and Finance.

The University monitors the prices and yields of its outstanding debt and attempts to identify potential refunding candidates by examining refunding rates and calculating

the net present value of any refunding savings after taking into account all transaction costs. The University may choose to pursue refundings for economic and/or legal reasons. The University reserves the right to not partially refund an issue.

3. Liquidity Requirements

If the University's portfolio includes variable-rate debt and commercial paper, liquidity support is required in the event of the bonds or paper being put back to the University by investors. Generally, the University can purchase liquidity support externally from a bank in the form of a standby bond purchase agreement or line of credit. In addition, the University may consider using its own capital in lieu of or to supplement external liquidity facilities. Alternatively, it may utilize variable-rate structures that do not require liquidity support (e.g. auction-rate products.)

Just as the University manages its debt on a portfolio basis, it also manages its liquidity needs by considering its entire asset and debt portfolio, rather than managing liquidity solely on an issue-specific basis. This approach permits institution-wide evaluation of desired liquidity requirements and exposure, minimizes administrative burden, and reduces total liquidity costs.

A balanced approach may be used to provide liquidity support to enhance credit for variable-rate debt, through a combination of external bank liquidity, auction market or derivative structures. Using a variety of approaches limits dependence on an individual type or source of credit; it also allows for exposure to different types of investors. The University must balance liquidity requirements with its investment objectives and its cost and renewal risk of third-party liquidity providers.

Further, a portfolio-approach to liquidity can enhance investment flexibility, reduce administrative requirements, lower total interest costs, and reduce the need for external bank liquidity.

4. Overall Exposure

The University recognizes that it may be exposed to interest rate, third-party credit, and other potential risks in areas other than direct University debt (e.g., counterparty exposure in the investment portfolio, etc.) and, therefore, exposures are considered on a comprehensive University-wide basis.

Debt Administration and Other Matters

The issuance of tax-exempt debt generally requires the aid and assistance of several outside parties:

- Use of a financial advisor is recommended with a competitive selection process at least once every five years.
- Bond counsel appointments are competitively determined at least once every five years.

- The selection of underwriters is recommended for each debt issuance using a competitive process. Co-managers are recommended for issuances of \$30 million or more and will be selected from the same group of underwriters responding to the competitive bid process.

Debt issuance can be “sized” to include capitalized interest and borrowing costs up to 5% of the debt issuance.

Reimbursement resolutions will be prepared for each debt issuance.

iv. Approval Process

All debt issued is by the authority granted to the UNC System Board of Governors under [N.C.G.S. § 116D, Article 3](#). All debt issue is approved by the NCCU Board of Trustees and then by the UNC System Board of Governors.

When the University participates in bond programs that are administered by the State, including State tax-supported debt, such bonds are issued by the State Treasurer, who also possesses the authority to price such bonds.

Revision History:

Initially Approved:

Authority: Chancellor

Responsible Office: Administration and Finance

Related Resources:

- [N.C.G.S. § 116D, Article 3](#)

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

North Carolina State University
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), North Carolina State University (“**NCSU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. NCSU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, NCSU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—NCSU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, NCSU’s debt capacity reflects the amount of debt NCSU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that NCSU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- NCSU’s current debt profile, including project descriptions financed with, and the sources of repayment for, NCSU’s outstanding debt;
- NCSU’s current credit profile, along with recommendations for maintaining or improving NCSU’s credit rating; and
- A copy of any NCSU debt management policy currently in effect.

Overview of NCSU

For the fall 2017 semester, NCSU had a headcount student population of approximately 34,432, including 24,150 undergraduate students and 10,282 graduate and doctoral students. During the 2016/2017 academic year, NCSU employed approximately 2,380 full-time, part-time and temporary instructional faculty.

Over the past 10 years, NCSU’s enrollment has increased approximately 8.3%. NCSU expects modest enrollment growth over the Study Period. NCSU’s average age of plant (10.48) is lower than the median ratio for all Campuses (13.60) and generally indicates NCSU is taking a sustainable approach to its deferred maintenance and reinvestment programs.

NCSU anticipates incurring approximately \$80.0 million in additional debt during the Study Period, as summarized in **Section 3** below. NCSU has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on NCSU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to NCSU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt NCSU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate NCSU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	598,854,000	-		598,854,000	2018	18,605,636	19,440,035	38,045,671	479,938,316
2014	632,148,426	-	5.56%	632,148,426	2019	18,401,019	18,727,631	37,128,650	461,537,297
2015	594,359,648	91,006,700	8.42%	685,366,348	2020	19,053,469	18,093,143	37,146,612	442,483,828
2016	666,654,687	65,062,173	6.76%	731,716,860	2021	19,541,318	17,425,340	36,966,658	422,942,510
2017	715,431,524	72,917,024	7.74%	788,348,548	2022	20,278,612	16,694,085	36,972,697	402,663,898
2018	804,903,868	-	2.10%	804,903,868	2023	21,033,840	15,949,801	36,983,641	381,630,058
2019	821,806,849	-	2.10%	821,806,849	2024	20,809,012	15,200,505	36,009,517	360,821,046
2020	839,064,793	-	2.10%	839,064,793	2025	21,314,944	14,433,664	35,748,608	339,506,102
2021	856,685,154	-	2.10%	856,685,154	2026	22,008,417	13,632,836	35,641,253	317,497,685
2022	874,675,542	-	2.10%	874,675,542	2027	21,962,845	12,767,511	34,730,356	295,534,840
Operating Expenses					2028	22,937,608	11,841,951	34,779,559	272,597,232
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	23,944,065	10,846,622	34,790,687	248,653,167
2013	1,279,177,823	-		1,279,177,823	2030	24,469,176	9,751,151	34,220,327	224,183,991
2014	1,285,952,770	-	0.53%	1,285,952,770	2031	28,973,912	8,613,384	37,587,296	195,210,079
2015	1,333,767,028	16,786,729	5.02%	1,350,553,757	2032	14,740,079	7,800,100	22,540,179	180,470,000
2016	1,401,497,846	19,972,396	5.25%	1,421,470,242	2033	13,060,000	7,305,419	20,365,419	167,410,000
2017	1,494,274,269	(8,085,244)	4.55%	1,486,189,025	2034	13,660,000	6,761,680	20,421,680	153,750,000
2018	1,517,398,995	-	2.10%	1,517,398,995	2035	14,310,000	6,176,509	20,486,509	139,440,000
2019	1,549,264,373	-	2.10%	1,549,264,373	2036	14,960,000	5,588,851	20,548,851	124,480,000
2020	1,581,798,925	-	2.10%	1,581,798,925	2037	15,645,000	4,937,375	20,582,375	108,835,000
2021	1,615,016,703	-	2.10%	1,615,016,703	2038	16,355,000	4,227,375	20,582,375	92,480,000
2022	1,648,932,053	-	2.10%	1,648,932,053	2039	17,040,000	3,543,450	20,583,450	75,440,000
					2040	17,720,000	2,864,000	20,584,000	57,720,000
					2041	18,445,000	2,140,700	20,585,700	39,275,000
					2042	19,195,000	1,387,900	20,582,900	20,080,000
					2043	20,080,000	502,000	20,582,000	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projected period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	230,802,294	285,752,034	51,085,116	190,873,883	138,957,190		-	619,556,137
2014	256,240,700	241,254,150	63,211,020	245,176,120	70,962,222	18.62%	-	734,919,768
2015	217,106,466	211,507,389	67,699,571	273,815,338	32,523,251	12.75%	91,006,700	828,612,213
2016	240,432,645	217,731,322	65,187,942	271,528,096	59,319,171	-3.38%	65,062,173	800,623,007
2017	236,448,718	271,092,872	68,919,694	315,085,658	84,923,854	9.86%	72,917,024	879,540,112
2018	315,862,423	276,785,822	70,367,008	321,702,457	86,707,255	2.10%	-	898,010,454
2019	322,495,533	282,598,325	71,844,715	328,458,208	88,528,107	2.10%	-	916,868,674
2020	329,267,940	288,532,889	73,353,454	335,355,831	90,387,198	2.10%	-	936,122,916
2021	336,182,566	294,592,080	74,893,876	342,398,303	92,285,329	2.10%	-	955,781,497
2022	343,242,400	300,778,514	76,466,648	349,588,668	94,223,321	2.10%	-	975,852,909

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that NCSU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** below.

NCSU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2020	Commercial Paper - Engineering Oval	38,000,000	26 Years	Gifts
2020	Commercial Paper - Plant Sciences	18,000,000	21 Years	Gifts
2020	Carmichael Gymnasium Renovation	24,000,000	20 Years	Student Debt Fee
Total		80,000,000		

4. Financial Ratios

Debt to Obligated Resources

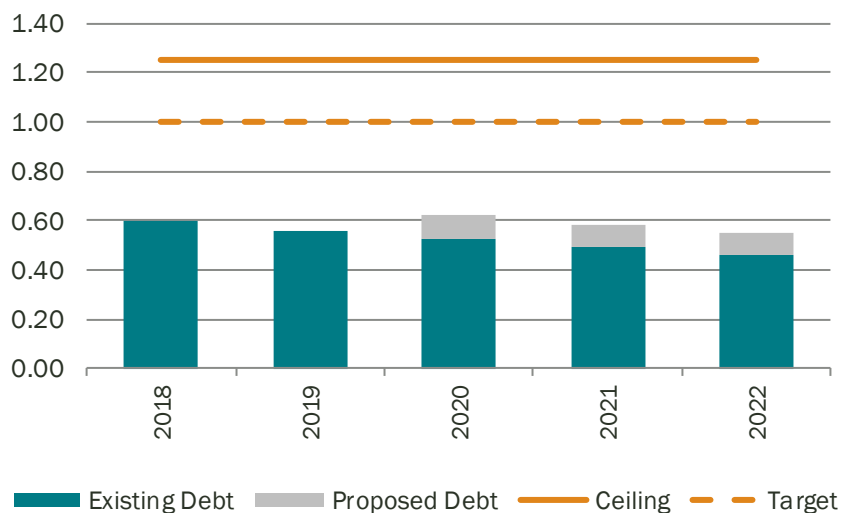
- What does it measure? NCSU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- How is it calculated? Aggregate debt divided by obligated resources*
- Target Ratio: 1.00
- Ceiling Ratio: Not to exceed 1.25
- Projected 2018 Ratio: 0.60
- Highest Study Period Ratio: 0.62 (2020)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	804,903,868	2.10%	479,938,316	-	0.60	n/a	0.60
2019	821,806,849	2.10%	461,537,297	-	0.56	n/a	0.56
2020	839,064,793	2.10%	442,483,828	80,000,000	0.53	0.10	0.62
2021	856,685,154	2.10%	422,942,510	79,123,058	0.49	0.09	0.59
2022	874,675,542	2.10%	402,663,898	76,549,359	0.46	0.09	0.55

Debt to Obligated Resources



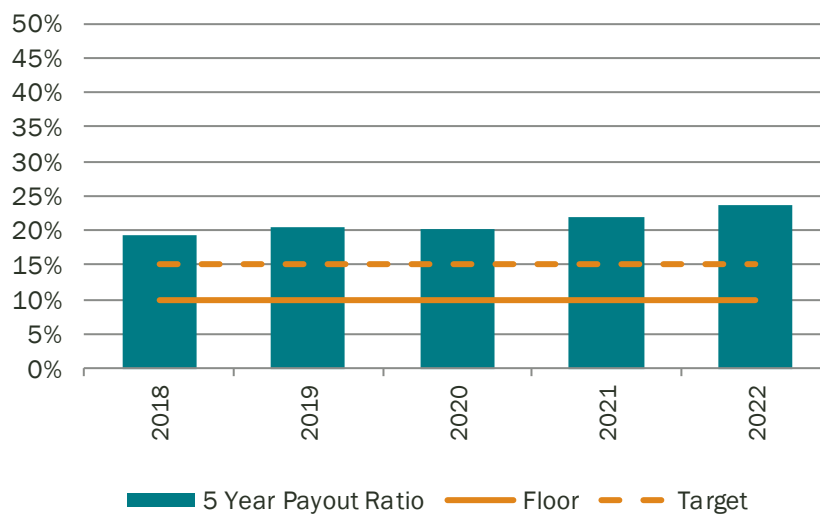
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of NCSU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 15%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 19%
- Lowest Study Period Ratio: 19% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	479,938,316	19%	
2019	461,537,297	20%	
2020	522,483,828	20%	
2021	502,065,568	22%	
2022	479,213,257	24%	

5-Year Payout Ratio



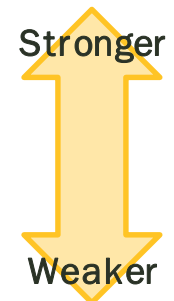
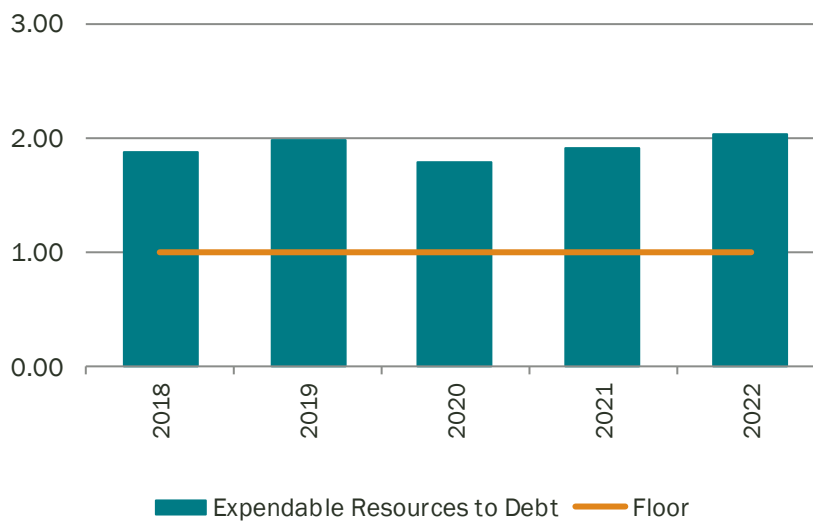
Expendable Resources to Debt

- **What does it measure?** The number of times NCSU's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 1.00x
- Projected 2018 Ratio: 1.87x
- Lowest Study Period Ratio: 1.79x (2020)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	898,010,454	2.10%	479,938,316	-	1.87	1.87
2019	916,868,674	2.10%	461,537,297	-	1.99	1.99
2020	936,122,916	2.10%	442,483,828	80,000,000	2.12	1.79
2021	955,781,497	2.10%	422,942,510	79,123,058	2.26	1.90
2022	975,852,909	2.10%	402,663,898	76,549,359	2.42	2.04

Expendable Resources to Debt



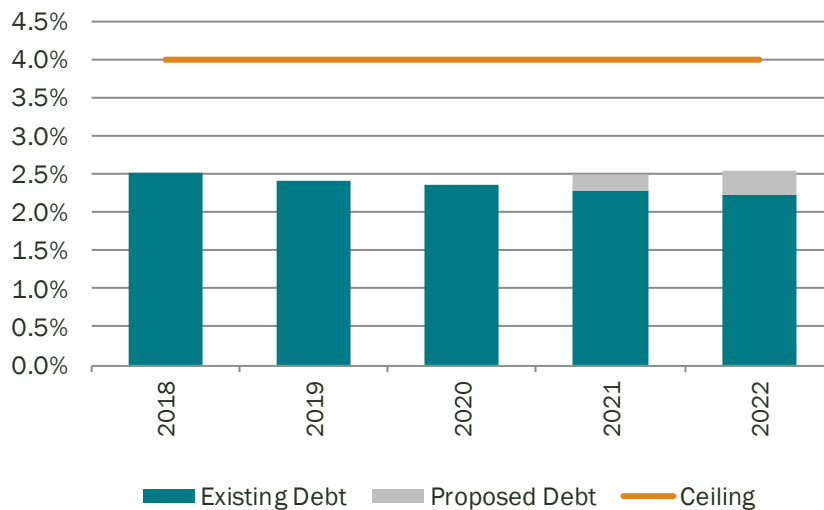
Debt Service to Operating Expenses

- **What does it measure?** NCSU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 4.00%
- Projected 2018 Ratio: 2.51%
- Highest Study Period Ratio: 2.55% (2022)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	1,517,398,995	2.10%	38,045,671	-	2.51%	n/a	2.51%
2019	1,549,264,373	2.10%	37,128,650	-	2.40%	n/a	2.40%
2020	1,581,798,925	2.10%	37,146,612	-	2.35%	n/a	2.35%
2021	1,617,579,703	2.10%	36,966,658	3,439,942	2.29%	0.21%	2.50%
2022	1,651,467,167	2.10%	36,972,697	5,108,812	2.24%	0.31%	2.55%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, NCSU's debt capacity is based on the amount of debt NCSU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, NCSU's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, NCSU's current estimated debt capacity is **\$526,191,519**. After taking into account any legislatively approved projects detailed in **Section 3** above, if NCSU issued no additional debt until the last year of the Study Period, then NCSU's debt capacity for 2022 is projected to increase to **\$614,131,171**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	0.60	1.25	526,191,519
2019	0.56	1.25	565,721,264
2020	0.62	1.25	526,347,163
2021	0.59	1.25	568,790,874
2022	0.55	1.25	614,131,171

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of NCSU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If NCSU were to use all of its calculated debt capacity during the Study Period, NCSU's credit ratings may face significant downward pressure.**
- Projecting the exact amount NCSU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

NCSU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

North Carolina State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2003B	Variable Rate General Revenue Bonds	42,205,000	10/1/2027	Wolf Village Residence Halls Doak Baseball and Tennis Complex Greek Housing Renovations		Housing Revenues Athletics Revenues Housing Revenues
2008B	General Revenue Bonds	1,200,000	10/1/2020	Residence Hall Improvements Housing System Projects Centennial Campus Infrastructure Derr Track Soccer Softball Complex Carmichael Addition Thompson Theater Gold, Welch, Syme Res Halls, First Year College Building North End Zone - CF Stadium Western Manor Carter Finley Concrete Repairs	1998B 2000	Housing Revenues Housing Revenues Centennial Campus Receipts Student Fees Student Fees Student Fees Housing Revenues Athletics Revenues Housing Revenues Student Fees
2010A	General Revenue Bonds	9,870,000	10/1/2022	Centennial Campus Projects Terry Companion Animal Hospital Student Health Addition West Lot Parking Deck Atrium Renovation Athletic Facilities Renovations	1999A	Centennial Campus Receipts Gifts Student Fees Transportation Receipts Dining Receipts Student Fees

Approved by the UNC Board of Governors on May 24, 2018

North Carolina State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2010B	Taxable General Revenue Bonds (BABs)	59,565,000	10/1/2035	Terry Companion Animal Hospital Student Health Addition West Lot Parking Deck Atrium Renovation Athletic Facilities Renovations Carmichael Complex Improvements		Gifts Student Fees Transportation Receipts Dining Receipts Student Fees Student Fees
2012	General Revenue Refunding Bonds	6,950,000	10/1/2018	Wolf Village Residence Halls	2003A	Housing Revenues
2013A	General Revenue Bonds	130,165,000	10/1/2042	Wolf Ridge Residence Halls		Housing Revenues
2013B	Taxable General Revenue Bonds	137,330,000	10/1/2041	Talley Student Union		S & Dining/Bookstore Receipts
2015	General Revenue Bond	60,820,000	10/1/2028	Centennial Campus Infrastructure Derr Track Soccer Softball Complex Carmichael Addition Thompson Theater Gold, Welch, Syme Res Halls, First Year College Building North End Zone - CF Stadium Western Manor Carter Finley Concrete Repairs	2008A 2008A 2008A 2008A 2008A 2008A 2008A 2008A	Centennial Campus Receipts Student Fees Student Fees Student Fees Housing Revenues Athletics Revenues Housing Revenues Student Fees
2017	General Revenue Bond	50,438,952	10/1/2031	Phytotron Carmichael Reynolds Renovation		Energy Savings Student Fees Gifts
Total		498,543,952				

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7. Credit Profile

The following page provides a snapshot of NCSU's current credit ratings, along with (1) a summary of various credit factors identified in NCSU's most recent rating report and (2) recommendations for maintaining and improving NCSU's credit ratings in the future.

Overview

- Moody's maintains a Aa1 rating on the University's general revenue bonds. The outlook is stable.
- Standard and Poor's maintains a AA rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Excellent student market position as land-grant university with diverse degree programs
- Solid support from Aaa-rated state
- Growing sponsored research enterprise
- Large financial resource cushion with total financial resources of \$1.3 billion
- Increasing philanthropic support
- Strong annual fundraising that averages over \$100 million per year
- Good financial management as evidenced by a history of strong operating performance

Credit Challenges

- Limited unrestricted liquidity relative to peers
- Ongoing capital needs will lead to increased debt over time
- Political limits on pricing power for in-state undergraduate students restrain prospects for revenue growth
- Rapid debt issuance in a short period of time

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-
Non Investment Grade		

Recommendations & Observations

- The University sees strategic value in maintaining its current rating levels.
- The University will continue to seek strategies to limit new debt in the near term while addressing the critical infrastructure needs of a growing campus, in accordance with the University's existing debt policy and in service of the University's other strategic initiatives.

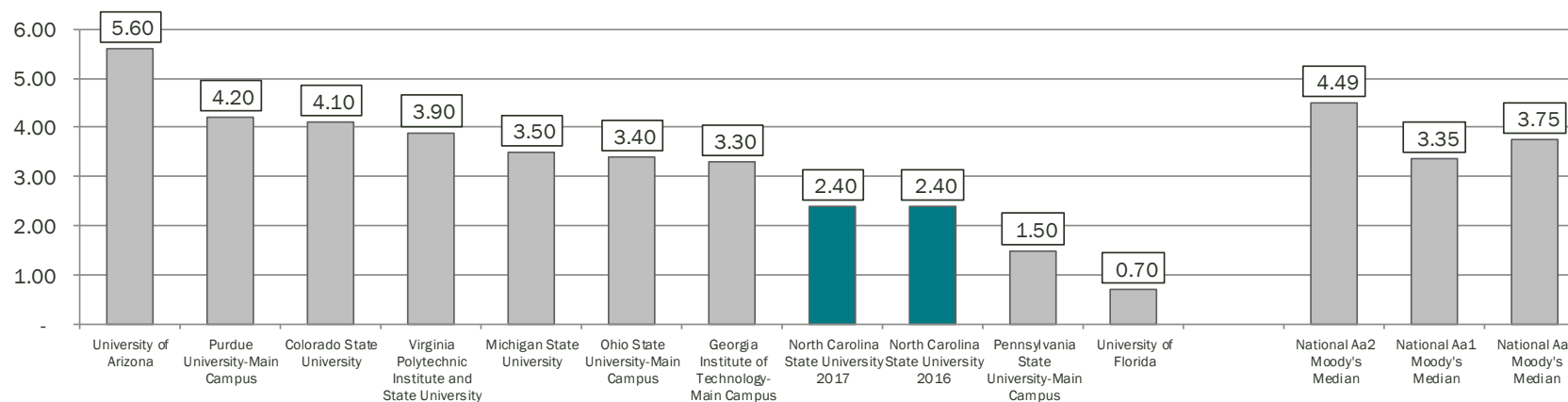
8. Peer Comparison

The following pages compare two measures of NCSU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both NCSU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

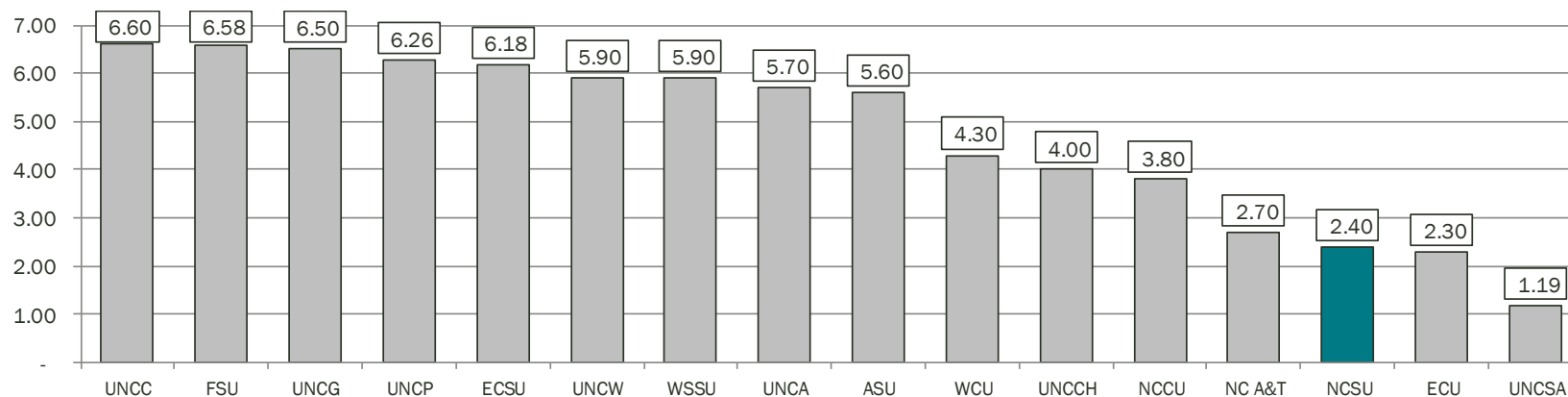
Debt Service to Operating Expenses (%)

NCSU vs. National Peers



Debt Service to Operating Expenses (%)

NCSU vs. UNC System



Notes:

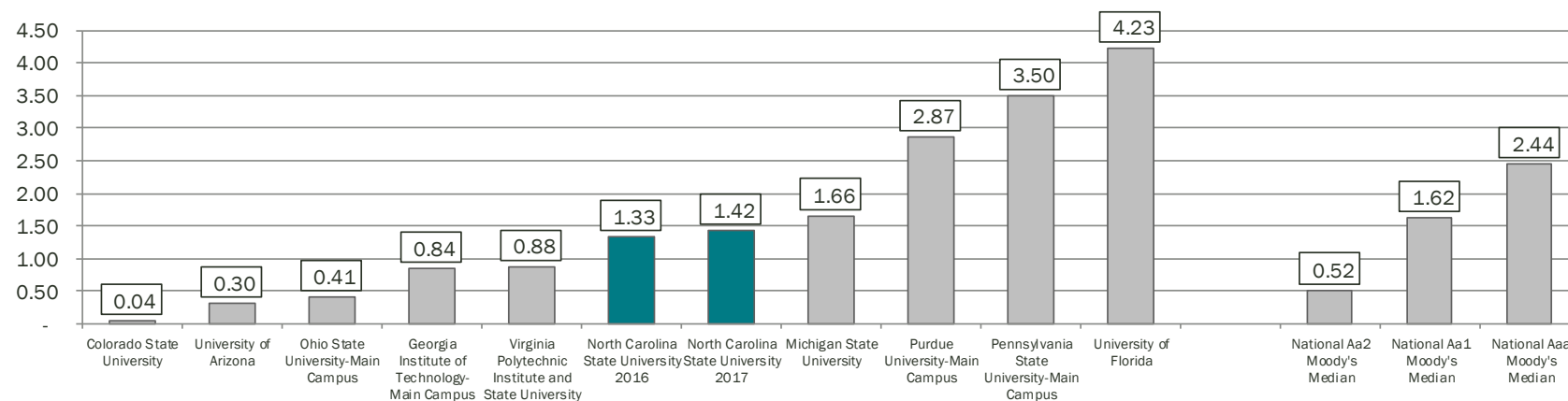
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2016 and 6/30/2015) and its peers (as of June 30, 2015 only). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

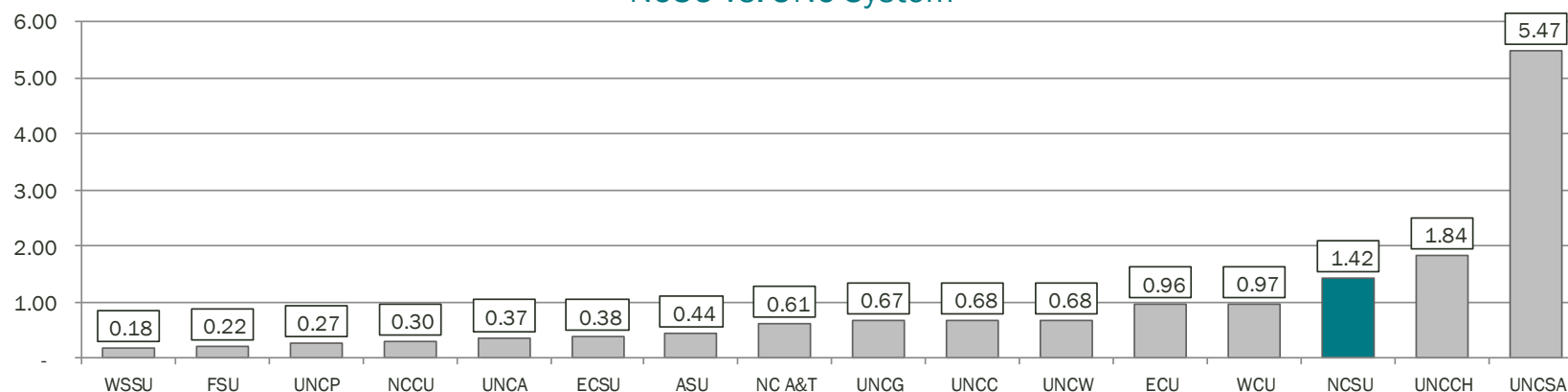
Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt

Expendable Financial Resources to Debt NCSU vs. National Peers



Expendable Financial Resources to Debt NCSU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2016 and 6/30/2015) and its peers (as of June 30, 2015 only). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

NCSU's current debt policy is attached.

North Carolina State University

Debt Management Guidelines

Revised August 2015

Summary

Debt financing, especially tax-exempt debt, provides a low-cost source of capital for the University to fund capital investments to achieve its mission and strategic objectives. Indeed, as the economic landscape continues to evolve and change, the use of debt will become an increasingly important tool that enables our institution to move its strategy forward. In this environment, appropriate financial leverage plays a key role and is considered a long-term component of the University's balance sheet. Given that the University has limited debt repayment resources, the allocation of and management of debt is a limited resource. The guidelines provided in this document are the framework by which decisions will be made regarding the issuance of debt to finance particular capital improvements.

Authority

North Carolina General Statutes Chapter 116D Article 3 authorize the Board of Governors of the University of North Carolina (the Board) to issue special obligation bonds for improvements to the facilities of the University of North Carolina System.

Prior to a bond issue, the Board designates the capital improvements financed as "special obligation bond projects" and the University's Board of Trustees approves the issuance of special obligation bonds for those projects.

The State Energy Conservation Finance Act, Article 8 of Chapter 142 of the North Carolina General Statutes authorizes the Board to solicit and, through G.S. 143-64.17A , finance guaranteed energy conservation measures. These financing agreements must have the approval of the Office of State Budget and Management, the State Treasurer, and Counsel of State prior to closing.

Criteria

The University's debt capacity is a limited resource. Only projects that relate to the mission of the University, directly or indirectly, will be considered for debt financing. In general, projects that will be approved are broader in scope than college, or unit-based projects. However, certain mission-critical school-based projects can also receive approval. Before beginning the planning for fundraising process for any project which might require debt financing, the approval of the Vice Chancellor for Finance and Administration and the Vice Chancellor for University Advancement is required.

Projects financed through a bonding program will have received approval through the NC State Legislature annual non-appropriated capital improvements bill and will have been designated as "special obligation projects" by the North Carolina Board of Governors. Energy conservation measures will have received state agency approval as required.

A project that has a related revenue stream (self-liquidating project) will receive priority consideration. For these projects, the use of debt must be supported by an achievable financial plan that includes servicing the debt, including interest expense, financing related infrastructure and utilities, meeting any new or increased operating costs (including security applications), and providing for appropriate replacement and

renovation costs. Energy conservation measures must show that savings will be adequate to service the debt and all annual monitoring costs. Other projects funded by budgetary savings, gifts, and grants will be considered on a case by case basis. Any projects that will require gift financing, or include a gift financing component, must be jointly approved by the Vice Chancellor for University Advancement and the Vice Chancellor for Finance and Administration before approaching any prospective donors about gifts to the project. Because of the ancillary costs of projects, the amount of gifts raised must also include an associated endowment for any projects that are to be 100% gift financed. In all cases, institutional strategy and not donor capacity must drive the decision to build a project.

Maintenance of Credit Rating

Maintaining a high credit rating will permit the University to continue to issue debt and finance capital projects at favorable interest rates while meeting its strategic objectives. While the University's decision to issue additional debt will be primarily focused on the strategic importance of the new capital improvement(s) the potential impact of a change in credit rating will also be reviewed. The University recognizes that external economic, natural, or other events may from time to time affect the creditworthiness of its debt. Nevertheless, the University is committed to ensuring that actions within its control are prudent. Management will provide the rating agencies with full and timely access to required information.

Methods of Sale

The standard methods of sale are competitive, negotiated and private placement. University management will evaluate each method of sale and determine the best type for each bond issue.

Financing Team Professionals

Selection of financing team professionals will be accomplished based on guidance from UNC General Administration. Bond Counsel, Financial Advisor (if needed) and Underwriter pool will be selected using the RFP (request for proposals) method.

General Revenue Pledge

The University will utilize general revenue secured debt (available funds pledge) for all financing needs, unless for energy conservation measures or other certain projects where management desires to structure specific revenue pledges independent of general revenue projects. The general revenue pledge provides a strong, flexible security that captures the strengths of not only auxiliary and student related revenues, but of the University's research programs. General revenue bonds price better than corresponding auxiliary or facilities and administrative cost recovery bonds. In addition, on general revenue debt, the University has, historically, been subject to fewer operating or financial covenants and coverage levels imposed by the market and external constituents.

Refunding

Refunding and/or restructuring opportunities will be evaluated on a regular basis. Costs incurred by the refunding activity will be taken into consideration with a target of 3% present value savings. The University will also consider refinancing for other strategic

reasons including the elimination of certain limitations, covenants, payment obligations or reserve requirements that reduce flexibility.

Types of Instruments

Tax-exempt debt – The University recognizes the benefits associated with tax-exempt debt, and therefore will manage the tax-exempt portfolio to maximize the use of tax-exempt debt subject to changing conditions and changes in tax law.

Taxable debt – The University will manage its debt portfolio to implement taxable strategies based on private use considerations, tax law, and current market conditions. Taxable debt is likely to be a perpetual component of the University's liabilities. Taxable debt will be utilized to fund projects ineligible for tax-exempt financing.

Commercial paper – The University recognizes that a commercial paper (CP) program can provide low-cost working capital and provide bridge financing for projects. However, as with other debt structures, the level of CP outstanding impacts the University's overall debt capacity.

Variable rate debt – Variable rate debt is a desirable component of a debt portfolio as it provides typically lower rates. The use of variable rate debt does expose the debt portfolio to interest rate fluctuations and often comes with liquidity needs. Therefore, the University will balance the mix of variable and fixed rate debt so that variable is between 20%-50% of the total debt portfolio and will include variable interest rate instruments and products when advantageous.

Derivatives –The use of derivative products can be appropriate and advantageous for the purposes of limiting interest rate exposure and reducing debt service costs. The use of swaps will be employed primarily to enhance the University's financial strategy and to manage variable rate exposure. Derivative products can help the University lock-in a favorable cost of capital for a future project or to ensure a specific level of cash flow savings for a refinancing. The University's strategic objectives would determine the appropriate approach.

The University will evaluate potential derivative instruments through evaluation of its variable rate allocation, market and interest rate conditions, and the compensation for undertaking counterparty exposure. The University will evaluate each transaction relative to counterparty, basis, and termination risk. No derivative transaction will be undertaken that is not fully understood by the University or that imposes inappropriate risk on the University.

Public Private Partnerships - Given limited debt capacity and substantial capital needs, opportunities for alternative and non-traditional transaction structures may be considered, including off- balance sheet financings. These transactions are generally more expensive than traditional debt structures. Because investors view them as inherently riskier transactions, the cost of capital can be higher than traditional University debt and the costs of structuring the transactions are high. Chief considerations in deciding whether to pursue a Public Private Partnership are whether a third party financing model can produce results that are: (1) faster; (2) better; or (3) cheaper. Non-traditional structures can be considered when the economic benefit and likely impact on the University's debt capacity and credit have been determined and the benefits of the potential transaction outweigh the costs. If it is determined that the use of third party financing or public private partnerships is closer to University debt than predicted, or if it is perceived to be University debt by University auditors, we will endeavor to use traditional financing methods. For this reason,

any public private partnership projects that occur on University-or Endowment-owned land must include the involvement of the University Treasurer. Our debt guidelines anticipate that rating agencies will consider any debt that is built on state-owned or university-owned land for purposes similar to that which is typically financed by special obligation debt to be virtually the same as debt of the University. Economic interest and control drive whether a project is considered to be debt of the University. If the university has an economic interest (i.e. gains the net operating income or participates in the income or losses) and control, then the project is considered by most financing professionals to be materially tied to the University. Ultimately, pursuing this type of financing is also a function of regulations—a project may be feasible but may not be allowed under existing regulations.

Maturity and Debt Service

The useful life of the capital project financed will be taken into consideration when determining the length of financing. No capital project will be financed for more than 120% of its useful life. Call features should be structured to provide the highest degree of flexibility relative to cost. Structure of debt service will take into consideration existing debt and future capital plans. In addition, the University's amortization of debt service may be spread along the full yield curve depending on market conditions.

Disclosures and Compliance

Annually, the University will review compliance with covenants and requirements under outstanding bond indentures. The University will continue to meet its ongoing disclosure requirements in accordance with SEC rule 15c2-12. The University will submit financial reports, statistical data, and any other material events as required under outstanding bond indentures. The University will comply with arbitrage requirements on invested bond funds. The University will comply with Internal Revenue Service rules related to private use and use of proceeds on tax-exempt debt.

Use of Benchmarks and Debt Ratios

In order to maintain an understanding of the University's standing in comparison to other like institutions, analysis using standard ratios and benchmarks must be made comparing the University to others in its peer group. This analysis can be used as an ongoing tool in determining trends, weaknesses and target strengths relating to the debt portfolio and the health of the institution. On a regular basis, the University will review its ratios and compare them to published benchmarks from the rating agencies and others in its peer group. The University uses the following key ratios to provide a quantitative assessment of debt affordability and debt capacity.

Debt Service to Operations: This ratio measures the University's debt service burden as a percentage of total university expenses. The target for this ratio is intended to maintain the University's long-term operating flexibility to finance existing requirements and new initiatives. Our current guideline of 4% is designed to preserve inter-generational equity. The Vice Chancellor for Finance and Administration has the ability to approve a higher level of debt service burden on a case-to-case basis. The measure is based on aggregate operating expenses as opposed to operating revenues because expenses typically are more stable and better reflect the operating base of the University. This ratio is

adjusted to reflect any non-amortizing or non-traditional debt structures that could result in significant single year fluctuations including the effect of debt refunding.

$$\frac{\text{Annual Debt Service}}{\text{Total Operating Expenses}}$$

Expendable Resources to Debt: This ratio indicates one of the most basic determinants of financial health by measuring the availability of liquid and expendable net assets to aggregate debt. The ratio measures the medium to long-term health of the University's balance sheet and debt capacity and is a critical consideration of universities with the highest credit quality. The ratios and limits are not intended to track to a specific rating, but rather to help the University maintain a competitive financial profile while funding for capital needs as they arise. Our current guideline of 100% is designed to ensure that the University is maintaining an appropriate level of financial resources, relative to our institutional peers. The Vice Chancellor for Finance and Administration has the ability to override this ratio, should it fall below the 100%, or 1.0 times threshold.

$$\frac{\text{Unrestricted Net Assets} + \text{Restricted Expendable Net Assets}}{\text{Aggregate Debt}}$$

Indirect Debt

The University understands that debt issued by affiliated foundations can have an effect on the University's bond rating. University management will take steps to be aware of, and participate in, debt discussions and new borrowings undertaken by those affiliated entities. As per Operating Guidelines for Associated Entities all debt that exceeds \$500K for major associated entities and \$100K for minor associated entities must be approved by the Vice Chancellor for Finance and Administration.

Centralized Lending and Blended Portfolio

The University has adopted a central loan program under which it provides funding for projects under the guidance of the Vice Chancellor for Finance and Administration and the University Treasurer. The benefits of this program include; (i) structuring of transactions on an aggregate, rather than by project, basis, (ii) continual access to capital for borrowers, (iii) predictable financial terms for borrowers, (iv) minimizing interest rate volatility, (v) permitting prepayment of loans at any time without penalty, and (vi) equity for borrowers through a blended rate.

The University charges a blended rate to its borrowers based on its cost of funding. This interest rate may change periodically to reflect changes in the University's average aggregate expected long-term cost of borrowing. The blended rate may also include a reserve for interest rate stabilization purposes.

Each borrower is responsible for the repayment of all funds borrowed from the central loan program, plus interest, regardless of the internal or external source of funds. The University provides for flexible financing terms in order to accommodate individual entities as determined by the project scope and repayment source. The Director of Strategic Debt Management is the primary contact for divisional and auxiliary loans.

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

University of North Carolina at Asheville
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), University of North Carolina at Asheville (“**UNCA**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNCA has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNCA, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNCA has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNCA’s debt capacity reflects the amount of debt UNCA could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNCA intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNCA’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNCA’s outstanding debt;
- UNCA’s current credit profile, along with recommendations for maintaining or improving UNCA’s credit rating; and
- A copy of any UNCA debt management policy currently in effect.

Overview of UNCA

For the fall 2017 semester, UNCA had a headcount student population of approximately 3,858, including 3,832 undergraduate students and 26 graduate and doctoral students. During the 2017 academic year, UNCA employed approximately 353 full-time, part-time and temporary instructional faculty.

Over the past 10 years, UNCA’s enrollment has increased approximately 24%. UNCA expects modest enrollment growth over the Study Period. UNCA’s average age of plant (16.80 years), which is higher than the median ratio for all Campuses (13.60 years), is expected to decrease in light of UNCA’s recent investments in its facilities.

UNCA does not anticipate significant additional borrowings during the Study Period.

Rather than using the financial model’s standard growth assumption of 2.10%, which is based on the Consumer Price Index for 2017, UNCA has assumed a growth factor for its obligated resources and operating expenses of 1.70% all years except 2019, where 5.95% is used. This 2019 figure is representative of anticipated growth from its new residence hall, among other factors.

UNCA has not altered the standard growth assumptions with respect to expendable resources.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNCA's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNCA by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNCA expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate UNCA's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	36,497,128	-		36,497,128	2018	2,380,300	1,479,556	3,859,856	83,208,100
2014	33,057,890	5,148,140	4.68%	38,206,030	2019	2,031,000	3,427,933	5,458,933	81,177,100
2015	34,521,431	4,312,744	1.64%	38,834,175	2020	2,143,500	3,357,668	5,501,168	79,033,600
2016	35,706,875	3,180,561	0.14%	38,887,436	2021	2,267,700	3,282,614	5,550,314	76,765,900
2017	35,636,978	3,634,302	0.99%	39,271,280	2022	2,387,500	3,213,197	5,600,697	74,378,400
2018	39,938,892	-	1.70%	39,938,892	2023	2,515,700	3,138,401	5,654,101	71,862,700
2019	42,315,256	-	5.95%	42,315,256	2024	2,977,500	3,060,873	6,038,373	68,885,200
2020	43,034,615	-	1.70%	43,034,615	2025	3,153,800	2,939,054	6,092,854	65,731,400
2021	43,766,203	-	1.70%	43,766,203	2026	3,354,600	2,816,661	6,171,261	62,376,800
2022	44,510,229	-	1.70%	44,510,229	2027	3,477,800	2,685,270	6,163,070	58,899,000
Operating Expenses					2028	2,883,000	2,548,618	5,431,618	56,016,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	2,977,000	2,451,510	5,428,510	53,039,000
2013	83,807,134	-		83,807,134	2030	2,994,000	2,347,413	5,341,413	50,045,000
2014	86,488,817	-	3.20%	86,488,817	2031	2,760,000	2,230,743	4,990,743	47,285,000
2015	87,231,505	835,396	1.82%	88,066,901	2032	2,870,000	2,116,889	4,986,889	44,415,000
2016	90,880,057	1,017,561	4.35%	91,897,618	2033	2,985,000	1,995,177	4,980,177	41,430,000
2017	93,853,144	(529,585)	1.55%	93,323,559	2034	3,130,000	1,851,608	4,981,608	38,300,000
2018	94,910,059	-	1.70%	94,910,059	2035	3,280,000	1,701,053	4,981,053	35,020,000
2019	100,557,208	-	5.95%	100,557,208	2036	3,415,000	1,561,962	4,976,962	31,605,000
2020	102,266,681	-	1.70%	102,266,681	2037	3,560,000	1,417,135	4,977,135	28,045,000
2021	104,005,214	-	1.70%	104,005,214	2038	3,705,000	1,266,144	4,971,144	24,340,000
2022	105,773,303	-	1.70%	105,773,303	2039	3,885,000	1,087,940	4,972,940	20,455,000
					2040	4,065,000	901,066	4,966,066	16,390,000
					2041	2,435,000	705,500	3,140,500	13,955,000
					2042	2,555,000	583,750	3,138,750	11,400,000
					2043	2,685,000	456,000	3,141,000	8,715,000
					2044	2,795,000	348,600	3,143,600	5,920,000
					2045	2,900,000	236,800	3,136,800	3,020,000
					2046	3,020,000	120,800	3,140,800	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	13,729,341	5,475,573	2,033,839	9,498,384	2,002,267		-	28,734,870
2014	8,663,716	8,504,277	2,229,102	11,797,821	3,982,167	12.62%	5,148,140	32,360,889
2015	9,225,436	6,604,146	2,117,611	13,680,483	1,190,714	7.38%	4,312,744	34,749,707
2016	10,154,248	7,495,210	2,076,993	11,701,883	1,403,347	-4.44%	3,180,561	33,205,548
2017	9,854,826	10,300,824	2,545,266	12,386,441	2,918,590	7.82%	3,634,302	35,803,069
2018	13,772,400	10,517,142	2,598,717	12,646,556	2,979,881	2.10%	-	36,554,934
2019	14,061,620	10,738,002	2,653,290	12,912,134	3,042,458	2.10%	-	37,322,587
2020	14,356,914	10,963,500	2,709,009	13,183,288	3,106,350	2.10%	-	38,106,362
2021	14,658,410	11,193,733	2,765,898	13,460,137	3,171,583	2.10%	-	38,906,595
2022	14,966,236	11,428,802	2,823,982	13,742,800	3,238,186	2.10%	-	39,723,634

3. Proposed Debt Financings

While UNCA evaluates its capital investment needs on a regular basis, UNCA currently has no legislatively approved projects that it anticipates financing during the Study Period.

4. Financial Ratios

Debt to Obligated Resources

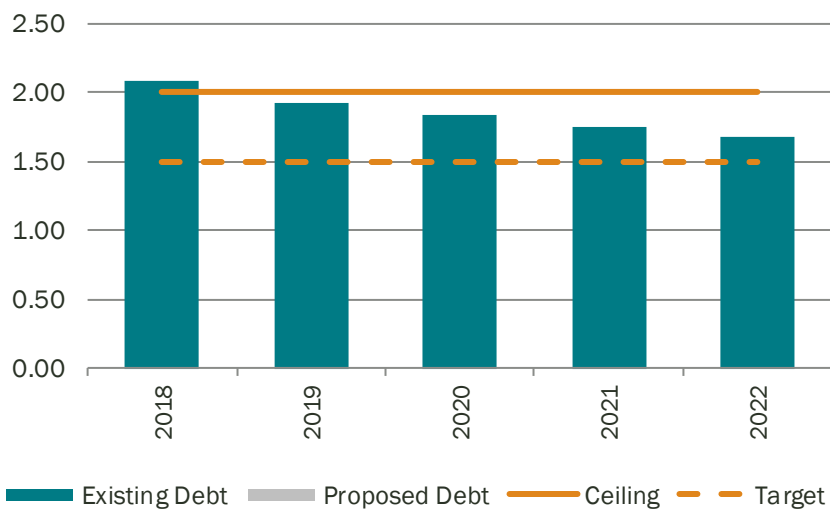
- **What does it measure?** UNCA's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.50
- Ceiling Ratio: Not to exceed 2.00
- Projected 2018 Ratio: 2.08
- Highest Study Period Ratio: 2.08 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	39,938,892	1.70%	83,208,100	-	2.08	n/a	2.08
2019	42,315,256	5.95%	81,177,100	-	1.92	n/a	1.92
2020	43,034,615	1.70%	79,033,600	-	1.84	n/a	1.84
2021	43,766,203	1.70%	76,765,900	-	1.75	n/a	1.75
2022	44,510,229	1.70%	74,378,400	-	1.67	n/a	1.67

Debt to Obligated Resources



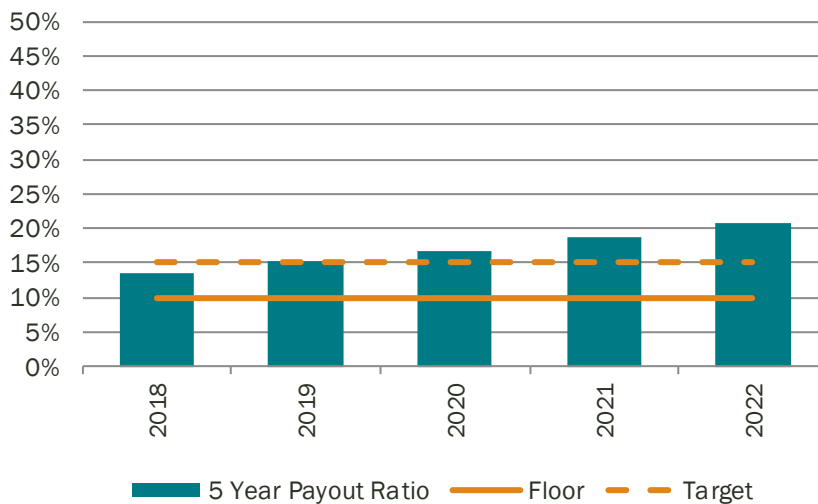
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of UNCA's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 15%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 14%
- Lowest Study Period Ratio: 14% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	83,208,100	14%
2019	81,177,100	15%
2020	79,033,600	17%
2021	76,765,900	19%
2022	74,378,400	21%

5-Year Payout Ratio



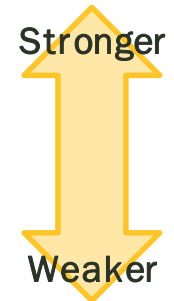
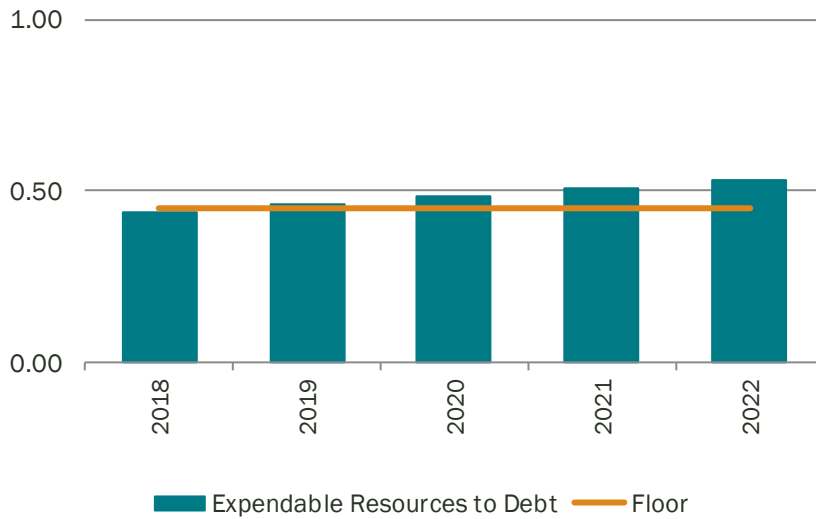
Expendable Resources to Debt

- **What does it measure?** The number of times UNCA's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.45x
- Projected 2018 Ratio: 0.44x
- Lowest Study Period Ratio: 0.44x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	36,554,934	2.10%	83,208,100	-	0.44	0.44
2019	37,322,587	2.10%	81,177,100	-	0.46	0.46
2020	38,106,362	2.10%	79,033,600	-	0.48	0.48
2021	38,906,595	2.10%	76,765,900	-	0.51	0.51
2022	39,723,634	2.10%	74,378,400	-	0.53	0.53

Expendable Resources to Debt



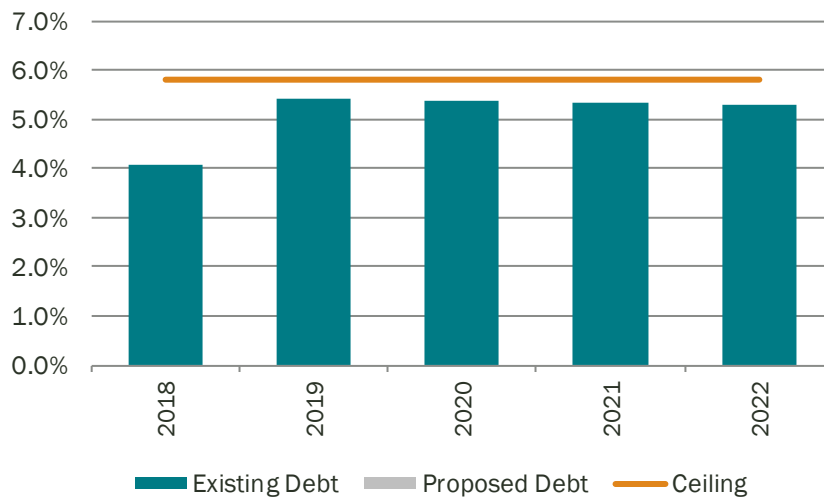
Debt Service to Operating Expenses

- **What does it measure?** UNCA's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 5.80%
- Projected 2018 Ratio: 4.07%
- Highest Study Period Ratio: 5.43% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	94,910,059	1.70%	3,859,856	-	4.07%	n/a	4.07%
2019	100,557,208	5.95%	5,458,933	-	5.43%	n/a	5.43%
2020	102,266,681	1.70%	5,501,168	-	5.38%	n/a	5.38%
2021	104,005,214	1.70%	5,550,314	-	5.34%	n/a	5.34%
2022	105,773,303	1.70%	5,600,697	-	5.30%	n/a	5.30%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNCA's debt capacity is based on the amount of debt UNCA could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNCA's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.¹
- Based solely on the **debt to obligated resources** ratio, UNCA has no current estimated debt capacity. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNCA issued no additional debt until the last year of the Study Period, then UNCA's debt capacity for 2022 is projected to increase to **\$14,642,058**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	2.08	2.00	(3,330,317)
2019	1.92	2.00	3,453,411
2020	1.84	2.00	7,035,630
2021	1.75	2.00	10,766,507
2022	1.67	2.00	14,642,058

¹ UNCA exceeds its Debt Capacity in Fiscal 2018 due to the lag between the issuance of \$46.29 million in general revenue bonds for construction related activities and collection of the associated fees post construction.

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNCA's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If UNCA were to use all of its calculated debt capacity during the Study Period, UNCA's credit ratings may face significant downward pressure.**
- Projecting the exact amount UNCA could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform"

- relative to the national median ratios for their rating category.
 - If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNCA's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina at Asheville

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2005A	UNC System Pool Revenue Bonds	880,000	4/1/2020	Dormitory and Dining Hall Projects	1997C	Housing and Dining Revenues
				Dormitory and Dining Hall Projects	1997D	Housing and Dining Revenues
2010	Taxable General Revenue Bonds (BABs)	24,815,000	6/1/2040	Overlook Hall Construction		Housing and Dining Revenues
				Governor's Village Renovation		Housing and Dining Revenues
2010C	UNC System Pool Revenue Bonds	3,250,000	10/1/2024	New Residence Hall	2002A	Housing and Dining Revenues
2012D	General Revenue Refunding Bonds	3,510,000	6/1/2027	New Residence Hall	2002A	Housing and Dining Revenues
2013A	General Revenue Bond	3,956,000	4/1/2030	Acquisition and Renovation of MAHEC Facility		Health Services Student Fee
				Campus Security Facilities Improvements		Overhead Receipts and Endowment Administrative Fees
2013B	Taxable General Revenue Refunding Bonds	2,008,000	4/1/2023	Dormitory and Dining Hall Projects	2005A	Housing and Dining Revenues
2014	General Revenue Bond	879,000	6/1/2029	Karl Strauss Track Building		Athletics Student Fee
				Student Recreation Center Improvements		Athletics Student Fee
2017	General Revenue Bonds	46,290,000	6/1/2046	New Residence Hall		Housing Revenues
				Highsmith Renovations		Student Fees
Total		85,588,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of UNCA's current credit ratings, along with (1) a summary of various credit factors identified in UNCA's most recent rating report and (2) recommendations for maintaining and improving UNCA's credit ratings in the future.

Overview

- Moody's maintains an A1 rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Strong financial support for operations and capital projects from the Aaa-rated state of North Carolina
- Very good strategic positioning supported by clear strategic direction, favorable location in a vibrant city and market niche as a public liberal arts university
- Solid 0.4x cushion of spendable cash and investments relative to pro-forma debt and operations
- Well-funded multiple-employer defined benefit pension plan relative to peers

Credit Challenges

- Narrow liquidity to operating expenses, with monthly days cash on hand of 82 days
- State-imposed tuition pricing constraints limit pricing flexibility and will likely suppress tuition revenue growth beginning in FY 2017
- Elevated leverage, with pro-forma debt and operations
- High exposure to shifting conditions in North Carolina, with 44% of revenue from state appropriations and 88% of enrollment from in-state students

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

- Continue proactive management of operating cash flow margin, which has improved since FY2014.
- Continue to develop initiatives to highlight and strengthen the University's distinctive market position.

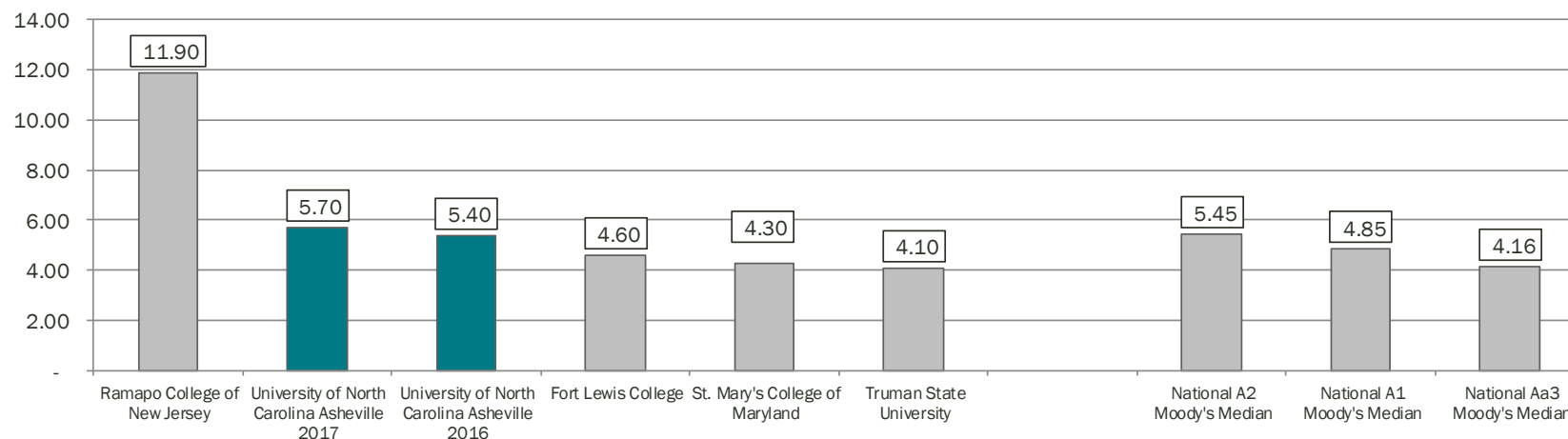
8. Peer Comparison

The following pages compare two measures of UNCA's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNCA (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

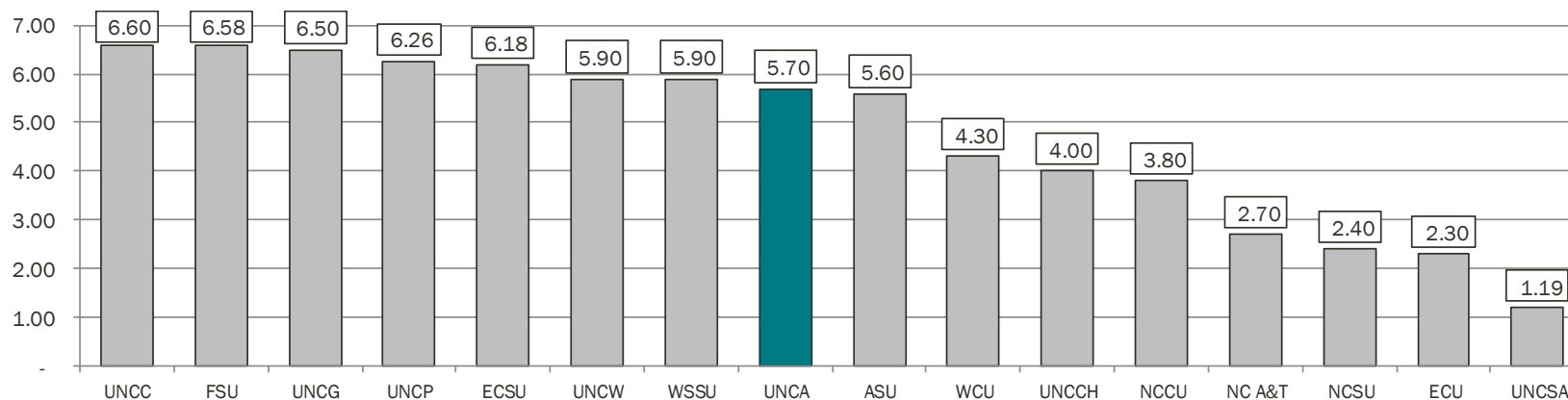
Debt Service to Operating Expenses (%)

UNCA vs. National Peers



Debt Service to Operating Expenses (%)

UNCA vs. UNC System



Notes:

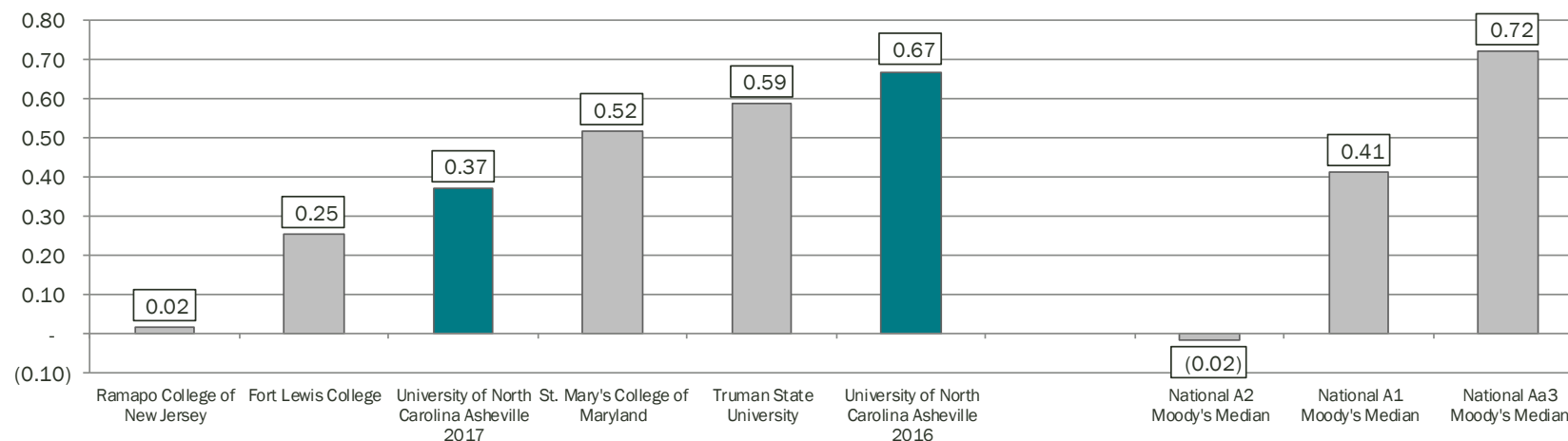
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

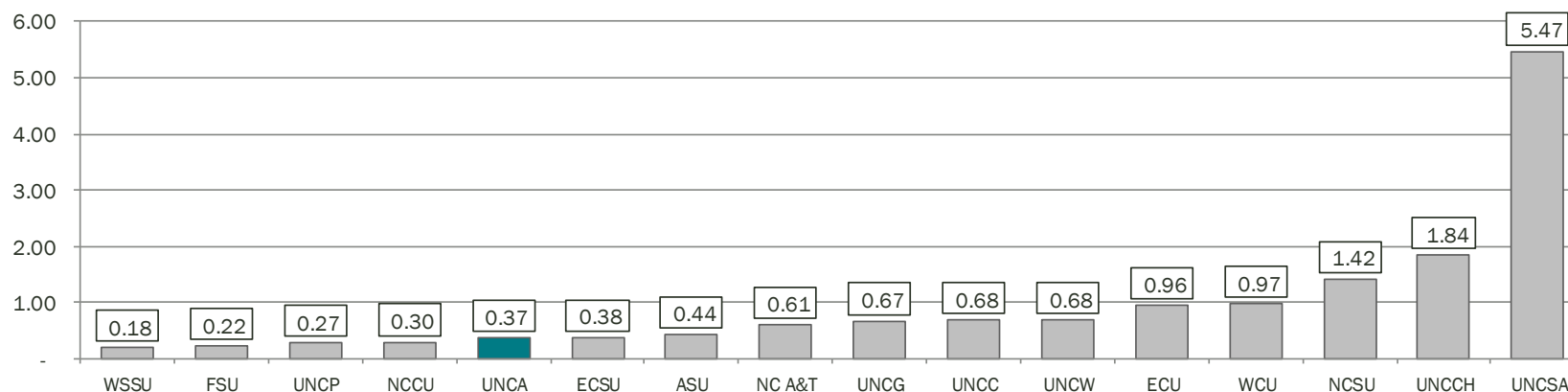
Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt

Expendable Financial Resources to Debt UNCA vs. National Peers



Expendable Financial Resources to Debt UNCA vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

UNCA's current debt policy is attached.

Debt Management Policy

Approved by the UNC Board of Governors on May 24, 2018

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1. Introduction

The University of North Carolina at Asheville (“UNCA”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the successful implementation of UNCA’s strategic vision to provide its students the opportunity, within a diverse and inclusive community, to experience liberal arts education at its best, while preserving the operational flexibility and resources necessary to support UNCA’s current and future programming. UNCA recognizes the important role that the responsible stewardship of its financial resources will play as UNCA seeks to invest in its campus and related infrastructure in a manner that is economically, socially and environmentally sustainable.

This Policy has been developed to assist UNCA’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with UNCA’s capital improvement plan, stated policies, objectives and core values. Like other limited resources, UNCA’s debt capacity should be used and allocated strategically and equitably, taking into account the benefits and burdens for both current and future students.

Specifically, the objective of this Policy is to provide a framework that will enable UNCA’s Board of Trustees (the “Board”) and finance staff to:

- (i) Identify and prioritize projects eligible for debt financing;
- (ii) Limit and manage risk within UNCA’s debt portfolio;
- (iii) Establish debt management guidelines and quantitative parameters for evaluating UNCA’s financial health, debt affordability and debt capacity;
- (iv) Manage and protect UNCA’s credit profile in order to maintain UNCA’s credit rating at a strategically optimized level and maintain access to the capital markets; and
- (v) Ensure UNCA remains in compliance with all of its post-issuance obligations and requirements.

This Policy is intended solely for UNCA’s internal planning purposes. The Vice Chancellor for Administration & Finance will review this Policy annually and, if necessary, recommend changes to ensure that it remains consistent with University’s strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Policy are subject to the Board’s approval.

2. Authorization and Oversight

UNCA’s Vice Chancellor for Administration & Finance is responsible for the day-to-day management of UNCA’s financial affairs in accordance with the terms of this Policy and for all of UNCA’s debt financing activities. Each University financing will conform to all applicable State and Federal laws.

The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

3. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Only projects that directly or indirectly relate to the mission of UNCA will be considered for debt financing.

- (i) Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.
- (ii) Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.
- (iii) Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any projects that will require gift financing or include a gift financing component must be jointly approved by the Vice Chancellor for University of Advancement and the Vice Chancellor for Administration & Finance before any project-restricted donations are solicited. The fundraising goal for any project to be financed primarily with donations should also include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

4. Benchmarks and Debt Ratios

Overview

When evaluating its current financial health and any proposed plan of finance, UNCA takes into account both its debt affordability and its debt capacity. Debt affordability focuses on UNCA's cash flows and measures UNCA's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between UNCA's net assets and its total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including UNCA's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, UNCA's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

UNCA believes, however, that it is important to consider and monitor objective metrics when evaluating UNCA's financial health and its ability to incur additional debt. To that end, UNCA has identified four key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

- (i) Debt to Obligated Resources
- (ii) Five-Year Payout Ratio
- (iii) Expendable Resources to Debt
- (iv) Debt Service to Operating Expenses

Note that the selected financial ratios are the same benchmarks monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study"), which UNCA believes will promote clarity and consistency in UNCA's debt management and planning efforts.

UNCA has established for each ratio a floor or ceiling target, as the case may be, with the expectation that UNCA will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this Policy should align with the ratios used in the report UNCA submits each year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve UNCA's financial health and operating flexibility and to ensure UNCA is able to access the market to address capital needs or to take advantage of potential refinancing opportunities. Attaining or maintaining a specific credit rating is not an objective of this Policy.

UNCA recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of UNCA's strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, UNCA has developed as part of this Policy specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when UNCA has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this Policy. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

- (i) The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.
- (ii) The proposed project would be financed entirely with private donations based on pledges already in hand.
- (iii) The proposed project is essential to the implementation of one of the Board's strategic priorities.
- (iv) The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- (v) Foregoing or delaying the proposed project would result in significant additional costs to UNCA or would negatively impact UNCA's credit rating.

At no point, however, should UNCA intentionally operate outside an established policy ratio without conscious and explicit planning.

Ratio 1 – Debt to Obligated Resources

What does it measure? UNCA's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes

Why is it tracked? The ratio, which is based on the legal structure proscribed by the General Revenue Bond Statutes, provides a general indication of UNCA's ability to absorb debt on its balance sheet and is the primary ratio used to calculate UNCA's "debt capacity" under the methodology used in the UNC Debt Capacity Study

How is it calculated? Aggregate debt* divided by obligated resources**

Policy Ratio: Not to exceed 2.0x (UNC Debt Capacity Study Target Ratio = 1.50x)

* As used throughout this Policy, "aggregate debt" includes UNCA's energy savings contracts, which, in accordance with State law, are excluded from the UNC Debt Capacity Study.

** "Available Funds," which is the concept commonly used to capture each UNC's campus's obligated resources in its loan and bond documentation, has been used as a proxy for "obligated resources." The two concepts are generally identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of UNCA's obligated resources.

Ratio 2 – Five-Year Payout Ratio Overview

What does it measure?	The percentage of UNCA's debt scheduled to be retired in the next five years
Why is it tracked?	The ratio measures how aggressively UNCA is amortizing its debt and is a ratio that is monitored in the UNC Debt Capacity
How is it calculated?	Aggregate principal to be paid in the next five years divided by aggregate debt
Policy Ratio:	Not less than 10% (UNC Debt Capacity Study Target Ratio = 15%)

Ratio 3 – Expendable Resources to Debt

What does it measure?	The number of times UNCA's liquid and expendable net assets covers its aggregate debt
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, is a basic measure of financial health and assesses UNCA's ability to settle its debt obligations using only its available net assets as of a particular date
How is it calculated?	The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
Policy Ratio:	Not less than 0.45x

Ratio 4 – Debt Service to Operating Expenses

What does it measure?	UNCA's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, evaluates UNCA's relative cost of borrowing to its overall expenditures and provides a measure of UNCA's budgetary flexibility
How is it calculated?	Annual debt service divided by annual operating expenses
Policy Ratio:	Not to exceed 5.80%

Reporting

The Vice Chancellor for Administration & Finance will review each ratio in connection with the delivery of the University's audited financials and will provide an annual report to the Board detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

5. Debt Portfolio Management and Transaction Structure Considerations

Generally

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Administration & Finance within the context of this Policy and the overall portfolio to ensure that any financial product or structure is consistent with UNCA's stated objectives. As part of effective debt management, UNCA must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

UNCA will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves UNCA's strategic plan and financing objectives. In making that determination, UNCA will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect UNCA's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce UNCA's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates UNCA's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, UNCA should structure its debt to provide for level annual payments of debt service, though UNCA may elect alternative structures when the Vice Chancellor for Administration & Finance determines it to be in UNCA's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

UNCA will use maturity structures that correspond with the life of the facilities financed, not to exceed the maximum term authorized under applicable State law (currently 30 years). Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

UNCA recognizes that a degree of exposure to variable interest rates within UNCA's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from UNCA's assets. UNCA's debt portfolio should be managed to ensure that no more than 20% of UNCA's total debt bears interest at an unhedged variable rate.

UNCA's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. UNCA may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. UNCA may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

Debt Related to Public Private Partnerships

To address UNCA's anticipated capital needs as efficiently and prudently as possible, UNCA may choose to explore and consider opportunities for alternative and non-traditional transaction structures (collectively, "P3 Arrangements").

UNCA will pursue P3 Arrangements only when UNCA has determined that (1) a traditional financing alternative is not feasible, (2) a P3 Arrangement will likely produce construction or overall operating results that are superior, faster or more efficient than a traditional delivery model or (3) a P3 Arrangement serves one of the Board's broader strategic objectives (e.g., a decision that operating a particular auxiliary function is no longer consistent with UNCA's core mission).

P3 Arrangements will receive increased scrutiny if the Vice Chancellor for Administration & Finance determines, in consultation with UNCA's advisors, that the P3 Arrangement will be viewed as "on-credit" (i.e., treated as University debt) by UNCA's auditors or outside rating agencies. When evaluating whether the P3 Arrangement should be viewed as "on-credit," rating agencies consider UNCA's economic interest in the project and the level of control it exerts over the project. Further, rating agencies will generally treat a P3 Arrangement as University debt if the project is located on UNCA's campus or if the facility is to be used for an essential University function. For this reason, any P3 Arrangement for a university-related facility to be located on land owned by the State, UNCA or a UNCA affiliate must be approved in advance by the Vice Chancellor for Administration & Finance.

Refunding Considerations

UNCA will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, UNCA should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of UNCA ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.
- (iv) Refunding Bonds may also be issued to relieve UNCA of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

Financing Team Professionals

UNCA will generally select its financial advisors, underwriters, lenders and bond counsel through a request for proposal process. Firms providing financial advisory and bond counsel services are generally selected for a specific period of time rather than for individual transactions, while underwriters and lenders will be selected

on a transaction-by-transaction basis. Additionally, UNCA may use the financial advisors, underwriters and bond counsel selected by General Administration through its own similar competitive process.

6. Derivative Products

UNCA recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit UNCA to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. UNCA will use derivatives only to manage and mitigate risk; UNCA will not use derivatives to create leverage or engage in speculative transactions.

As with underlying debt, UNCA's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Administration & Finance must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2) ensure that UNCA's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

UNCA will use derivatives only when the Vice Chancellor for Administration & Finance determines, based on the foregoing analysis, that the instrument provides the most effective method for accomplishing UNCA's strategic objectives without imposing inappropriate risks on UNCA.

7. Post-Issuance Compliance Matters

To the extent UNCA adopts any formal policies relating to post-issuance compliance matters after the effective date of this Policy, the Vice Chancellor for Administration & Finance will attach each such policy as **Appendix A** to this Policy.

Appendix A – Post-Issuance Compliance Policies

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

The University of North Carolina at Chapel Hill
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), The University of North Carolina at Chapel Hill (“**UNC**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNC has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNC, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNC has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNC’s debt capacity reflects the amount of debt UNC could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNC intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNC’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNC’s outstanding debt;
- UNC’s current credit profile, along with recommendations for maintaining or improving UNC’s credit rating; and
- A copy of any UNC debt management policy currently in effect.

Overview of UNC

For the fall 2017 semester, UNC had a headcount student population of approximately 29,911, including 18,862 undergraduate students and 11,049 graduate and doctoral students. During the 2017 academic year, UNC employed approximately 3,589 permanent full-time faculty.

Over the past 10 years, UNC’s enrollment has increased approximately 5%. UNC anticipates incurring approximately \$163.7 million in additional debt during the Study Period, as summarized in **Section 3** below.

UNC has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNC's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNC by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNC expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below overstate UNC's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	1,816,332,000			1,816,332,000	2018	29,795,000	41,730,235	71,525,235	1,284,125,000
2014	1,945,934,000		7.14%	1,945,934,000	2019	30,370,000	41,242,925	71,612,925	1,253,755,000
2015	1,588,613,000	130,260,685	-11.67%	1,718,873,685	2020	29,890,000	40,675,573	70,565,573	1,223,865,000
2016	1,740,519,537	99,242,931	7.03%	1,839,762,468	2021	29,660,000	40,071,601	69,731,601	1,194,205,000
2017	1,972,239,599	106,146,356	12.97%	2,078,385,955	2022	31,335,000	39,426,957	70,761,957	1,162,870,000
2018	2,122,032,060	-	2.10%	2,122,032,060	2023	31,330,000	38,645,396	69,975,396	1,131,540,000
2019	2,166,594,733	-	2.10%	2,166,594,733	2024	32,285,000	37,722,851	70,007,851	1,099,255,000
2020	2,212,093,223	-	2.10%	2,212,093,223	2025	33,300,000	36,740,518	70,040,518	1,065,955,000
2021	2,258,547,180	-	2.10%	2,258,547,180	2026	36,275,000	35,659,851	71,934,851	1,029,680,000
2022	2,305,976,671	-	2.10%	2,305,976,671	2027	38,000,000	34,489,045	72,489,045	991,680,000
Operating Expenses					2028	39,210,000	33,274,277	72,484,277	952,470,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	40,465,000	32,011,051	72,476,051	912,005,000
2013	2,552,476,058			2,552,476,058	2030	41,840,000	30,639,193	72,479,193	870,165,000
2014	2,983,049,251		16.87%	2,983,049,251	2031	43,310,000	29,150,007	72,460,007	826,855,000
2015	2,924,683,602	24,378,611	-1.14%	2,949,062,213	2032	44,840,000	27,608,184	72,448,184	782,015,000
2016	2,827,248,586	30,967,249	-3.08%	2,858,215,835	2033	126,390,000	24,491,756	150,881,756	655,625,000
2017	3,013,411,532	(6,758,965)	5.19%	3,006,652,567	2034	131,050,000	19,757,775	150,807,775	524,575,000
2018	3,069,792,271	-	2.10%	3,069,792,271	2035	131,090,000	15,001,690	146,091,690	393,485,000
2019	3,134,257,909	-	2.10%	3,134,257,909	2036	63,515,000	11,562,357	75,077,357	329,970,000
2020	3,200,077,325	-	2.10%	3,200,077,325	2037	65,710,000	9,354,474	75,064,474	264,260,000
2021	3,267,278,948	-	2.10%	3,267,278,948	2038	10,995,000	8,018,035	19,013,035	253,265,000
2022	3,335,891,806	-	2.10%	3,335,891,806	2039	11,415,000	7,582,482	18,997,482	241,850,000
					2040	11,850,000	7,130,312	18,980,312	230,000,000
					2041	-	6,900,000	6,900,000	230,000,000
					2042	230,000,000	3,900,000	233,900,000	-

*The University's 2016 and 2017 Available Funds calculations have been normalized to account for non-cash adjustments in the fair market valuation of certain endowment assets.

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	972,888,373	1,193,821,304	40,074,656	307,146,573	110,950,326		-	2,402,980,580
2014	766,194,202	1,390,715,023	46,701,200	362,694,561	127,289,735	1.50%	-	2,439,015,251
2015	753,406,878	1,453,007,591	50,783,894	401,177,179	149,572,848	8.20%	130,260,685	2,639,063,379
2016	763,369,586	1,372,331,559	54,445,888	368,556,753	210,214,543	-7.25%	99,242,931	2,447,732,174
2017	684,476,213	1,548,370,142	60,884,766	425,424,033	86,534,071	11.89%	106,146,356	2,738,767,439
2018	807,225,643	1,580,885,915	62,163,346	434,357,938	88,351,286	2.10%	-	2,796,281,555
2019	824,177,381	1,614,084,519	63,468,776	443,479,454	90,206,664	2.10%	-	2,855,003,468
2020	841,485,106	1,647,980,294	64,801,621	452,792,523	92,101,003	2.10%	-	2,914,958,541
2021	859,156,294	1,682,587,880	66,162,455	462,301,166	94,035,125	2.10%	-	2,976,172,670
2022	877,198,576	1,717,922,226	67,551,866	472,009,490	96,009,862	2.10%	-	3,038,672,296

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that UNC expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** below.

UNC Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Media and Communication Studio (Athletics) (CP)	10,000,000	32 Years	Athletics
2018	DLAM Renovations (swing space for Berry Hall) & AAALAC Certification (CP)	21,890,000	32 Years	F&A
2018	Kenan Labs - Renovations to Labs 7A, 7B, 7C, 8B, & 8C for Applied Physics (CP)	7,683,000	32 Years	F&A
2019	Indoor Practice Facility and Fetzer Field	30,000,000	30 Years	Athletics and Fundraising
2019	Medical Education Building (CP)	22,600,000	31 Years	F&A
2020	Utility Infrastructure (NM)	71,500,000	30 Years	Energy Services Operations
Total		163,673,000		

4. Financial Ratios

Debt to Obligated Resources

- **What does it measure?** UNC's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.00
- Ceiling Ratio: Not to exceed 1.00
- Projected 2018 Ratio: 0.62
- Highest Study Period Ratio: 0.63 (2020)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	2,122,032,060	2.10%	1,284,125,000	39,573,000	0.61	0.02	0.62
2019	2,166,594,733	2.10%	1,253,755,000	92,173,000	0.58	0.04	0.62
2020	2,212,093,223	2.10%	1,223,865,000	163,019,626	0.55	0.07	0.63
2021	2,258,547,180	2.10%	1,194,205,000	159,436,807	0.53	0.07	0.60
2022	2,305,976,671	2.10%	1,162,870,000	155,754,386	0.50	0.07	0.57

Debt to Obligated Resources



Weaker
Stronger

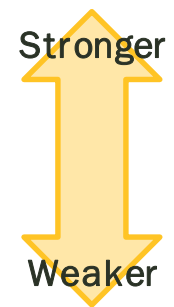
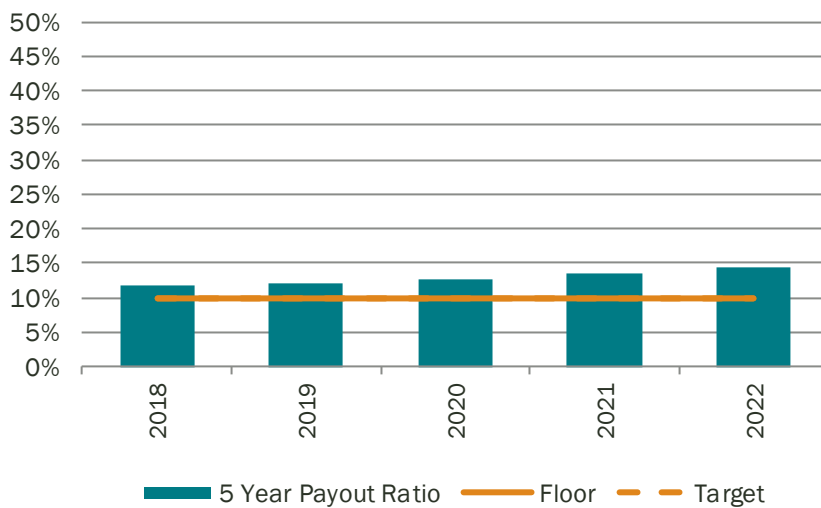
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of UNC's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 10%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 12%
- Lowest Study Period Ratio: 12% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	1,323,698,000	12%	
2019	1,345,928,000	12%	
2020	1,386,884,626	13%	
2021	1,353,641,807	14%	
2022	1,318,624,386	14%	

5-Year Payout Ratio



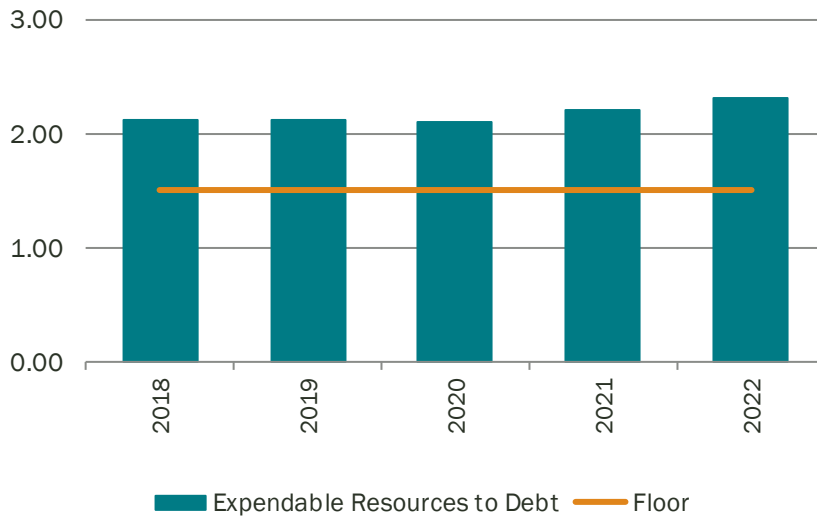
Expendable Resources to Debt

- **What does it measure?** The number of times UNC's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 1.50x
- Projected 2018 Ratio: 2.11x
- Lowest Study Period Ratio: 2.10x (2020)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	2,796,281,555	2.10%	1,284,125,000	39,573,000	2.18	2.11
2019	2,855,003,468	2.10%	1,253,755,000	92,173,000	2.28	2.12
2020	2,914,958,541	2.10%	1,223,865,000	163,019,626	2.38	2.10
2021	2,976,172,670	2.10%	1,194,205,000	159,436,807	2.49	2.20
2022	3,038,672,296	2.10%	1,162,870,000	155,754,386	2.61	2.30

Expendable Resources to Debt



Debt Service to Operating Expenses

- **What does it measure?** UNC's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 4.00%
- Projected 2018 Ratio: 2.33%
- Highest Study Period Ratio: 2.38% (2021)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	3,069,792,271	2.10%	71,525,235	-	2.33%	n/a	2.33%
2019	3,135,358,038	2.10%	71,612,925	1,100,129	2.28%	0.04%	2.32%
2020	3,202,639,734	2.10%	70,565,573	3,215,783	2.20%	0.10%	2.30%
2021	3,271,810,894	2.10%	69,731,601	8,114,765	2.13%	0.25%	2.38%
2022	3,340,324,150	2.10%	70,761,957	8,114,765	2.12%	0.24%	2.36%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNC's debt capacity is based on the amount of debt UNC could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNC's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, UNC's current estimated debt capacity is **\$798,334,060**. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNC issued no additional debt until the last year of the Study Period, then UNC's debt capacity for 2022 is projected to increase to **\$987,352,285**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	0.62	1.00	798,334,060
2019	0.62	1.00	820,666,733
2020	0.63	1.00	825,208,597
2021	0.60	1.00	904,905,373
2022	0.57	1.00	987,352,285

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNC's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- Projecting the exact amount UNC could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university's **"strategic positioning"** score, which accounts for 10% of its overall score under Moody's criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
 - Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer's final rating, the national median for any single ratio is not perfectly correlated to rating outcomes,

meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.

- Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNC's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina at Chapel Hill

2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
1997	Utility System Revenue Refunding Bonds	42,060,000	8/1/2021	Utilities		Utilities Receipts
2001B	General Revenue Bonds (VRDB)	19,690,000	12/1/2025	Housing Athletic Facilities Parking Kenan Stadium Dental School Carolina Inn Ambulatory Care Clinic	2000 1998 1997C 1996 1995 1995 1990	Housing Receipts Athletics Receipts Parking Receipts Athletics Receipts Dental Receipts Carolina Inn Receipts Faculty Practice Receipts
2001C	General Revenue Bonds (VRDB)	19,690,000	12/1/2025	Housing Athletic Facilities Parking Kenan Stadium Dental School Carolina Inn Ambulatory Care Clinic	2000 1998 1997C 1996 1995 1995 1990	Housing Receipts Athletics Receipts Parking Receipts Athletics Receipts Dental Receipts Carolina Inn Receipts Faculty Practice Receipts
2009A	General Revenue Bonds	69,610,000	12/1/2028	Genome Sciences Building Carmichael Auditorium Carmichael Residence Hall Fetzer Gym Genetic Medicine Building Lenoir Hall Old East Residence Hall Old West Residence Hall Residence College Rizzo Center Rosenau Hall Chapman Hall (Science Complex) Caudill Labs (Science Complex) Sitterson Hall (Science Complex) Kenan Labs (Science Complex) New Venable (Science Complex) Murray Hall (Science Complex) Sports Medicine (Stallings-Evans) Student Union Utility Infrastructure		F&A Athletics Receipts Housing Receipts Athletics Receipts F&A Dining Receipts Housing Receipts Housing Receipts Housing Receipts Rizzo Center Operations F&A F&A F&A F&A F&A F&A F&A Fundraising Student Debt Fee Utilities Receipts
2009B	Taxable General Revenue Bonds (BABs)	112,805,000	12/1/2039	Genome Sciences Building Carmichael Auditorium Fetzer Gym Kenan Stadium New Venable Murray Hall Utility Infrastructure		F&A Athletics Receipts Athletics Receipts Athletics Receipts F&A F&A Utilities Receipts

Approved by the UNC Board of Governors on May 24, 2018

University of North Carolina at Chapel Hill

2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2012B	General Revenue Bonds (FRN)	100,000,000	12/1/2041	Genome Sciences Building Bell Tower Chilled Water Bell Tower Parking Deck Carmichael Auditorium Craig Deck Expansion Dental Sciences Building Enterprise Resource Planning Fetzer Gym Lenoir Hall Research Building at CN New Venable Murray Hall Sports Medicine (Stallings-Evans) Student Union Woollen Gym Utility Infrastructure		F&A Utilities Receipts Parking Receipts Athletics Receipts Parking Receipts F&A Unrestricted Trust Funds Athletics Receipts Dining Receipts F&A F&A F&A Fundraising Student Debt Fee Athletics Receipts Utilities Receipts
2012C	Taxable General Revenue Refunding Bonds	111,130,000	12/1/2033	Bioinformatics Biomolecular Research Bldg Neurosciences 1700 Airport Rd. Dining Carolina Inn Administrative Office Building Carrington Hall CAW Dorms Development Bldg (208 W. Franklin) MKA Dorms RamsHead (Parking) RamsHead (Dining) RamsHead (SRC) RamsHead (Utilities) Public Health (Hooker Bldg) Stone Center	2001A 2001A 2001A 2001A 2001A 2003 2003 2003 2003 2003 2003 2003 2003 2003 2003 2003	F&A F&A F&A F&A Dining Receipts Carolina Inn Receipts F&A F&A Housing Receipts Unrestricted Trust Funds Housing Receipts Parking Receipts Dining Receipts Student Debt Fee Utilities Receipts F&A Unrestricted Trust Funds
2012D	General Revenue Bonds (Bank)	30,000,000	6/1/2042	Kenan Stadium Phase II		Foundation/Fundraising

Approved by the UNC Board of Governors on May 24, 2018

University of North Carolina at Chapel Hill

2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2014	Taxable General Revenue Refunding Bonds	262,545,000	12/1/2034	Bioinformatics	2001A	F&A
				Biomolecular Research Bldg	2001A	F&A
				Neurosciences	2001A	F&A
				1700 Airport Rd.	2001A	F&A
				Dining	2001A	Dining Receipts
				Carolina Inn	2001A	Carolina Inn Receipts
				Burnett Womack	2005A	F&A
				Carrington Hall (SON)	2005A	F&A
				Caudill Labs (Science Complex)	2005A	F&A
				Chapman Hall (Science Complex)	2005A	F&A
				Cobb Parking Deck (NE Chiller Deck)	2005A	Parking Receipts
				Cobb Residence Hall	2005A	Housing Receipts
				Fields 3&4	2005A	Student Debt Fee
				Genetic Medicine Building	2005A	F&A
				Jackson Parking Deck	2005A	Parking Receipts
				NE Chiller Plant	2005A	Utilities Receipts
				Public Health (Hooker Bldg)	2005A	F&A
				RamsHead (Dining)	2005A	Dining Receipts
				Utility Infrastructure	2005A	Utilities Receipts
2016A	Variable Rate General Revenue Refunding Bonds	100,000,000	12/1/2041	Commercial Paper Refunding	CP	

Approved by the UNC Board of Governors on May 24, 2018

University of North Carolina at Chapel Hill

2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2016B	Variable Rate General Revenue Refunding Bonds	50,000,000	12/1/2034	Bioinformatics	2005A	F&A
				Biomolecular Research Bldg	2005A	F&A
				Neurosciences	2005A	F&A
				1700 Airport Rd.	2005A	F&A
				Dining	2005A	Dining Receipts
				Carolina Inn	2005A	Carolina Inn Receipts
				Student Union	2005A	Student Debt Fee
				Housing	2005A	Housing Receipts
				Parking	2005A	Parking Receipts
				Burnett Womack	2005A	F&A
				Carrington Hall (SON)	2005A	F&A
				Cobb Parking Deck (NE Chiller Deck)	2005A	Parking Receipts
				Cobb Residence Hall	2005A	Housing Receipts
				Fields 3&4	2005A	Student Debt Fee
				Genetic Medicine Building	2005A	F&A
				Jackson Parking Deck	2005A	Parking Receipts
				Public Health (Hooker Bldg)	2005A	F&A
				RamsHead (Dining)	2005A	Dining Receipts
				Residence College	2005A	Housing Receipts
				Chapman Hall	2005A	F&A
				Caudill Labs	2005A	F&A
				Student Family Housing	2005A	Housing Receipts
				Utility Infrastructure	2005A	Utilities Receipts

Approved by the UNC Board of Governors on May 24, 2018

University of North Carolina at Chapel Hill

2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2016C	Taxable General Revenue Refunding Bonds	396,390,000	12/1/2036	Bioinformatics	2005A	F&A
				Biomolecular Research Bldg	2005A	F&A
				Neurosciences	2005A	F&A
				1700 Airport Rd.	2005A	F&A
				Dining	2005A	Dining Receipts
				Carolina Inn	2005A	Carolina Inn Receipts
				Student Union	2005A	Student Debt Fee
				Housing	2005A	Housing Receipts
				Parking	2005A	Parking Receipts
				Burnett Womack	2005A	F&A
				Carrington Hall (SON)	2005A	F&A
				Cobb Parking Deck (NE Chiller Deck)	2005A	Parking Receipts
				Cobb Residence Hall	2005A	Housing Receipts
				Fields 3&4	2005A	Student Debt Fee
				Genetic Medicine Building	2005A	F&A
				Jackson Parking Deck	2005A	Parking Receipts
				Public Health (Hooker Bldg)	2005A	F&A
				RamsHead (Dining)	2005A	Dining Receipts
				Residence College	2005A	Housing Receipts
				Chapman Hall	2005A	F&A
				Caudill Labs	2005A	F&A
				Student Family Housing	2005A	Housing Receipts
				Utility Infrastructure	2005A	Utilities Receipts
				Carmichael Residence Hall	2007	Housing Receipts
				Food Service Facility (The Beach)	2007	Dining Receipts
				Global Education	2007	F&A
				Global Education (parking)	2007	Parking Receipts
				Morrison Residence Hall	2007	Housing Receipts
				Park and Ride Lot	2007	Parking Receipts
				Residence College	2007	Housing Receipts
				Old East Residence Hall	2007	Housing Receipts
				Old West Residence Hall	2007	Housing Receipts
				Rizzo Center	2007	Rizzo Center Operations
				Chapman Hall (Science Complex)	2007	F&A
				Caudill Labs (Science Complex)	2007	F&A
				Student Stores	2007	Student Stores Receipts
				Utility Infrastructure	2007	Utilities Receipts
Total		1,313,920,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of UNC's current credit ratings, along with (1) a summary of various credit factors identified in UNC's most recent rating report and (2) recommendations for maintaining and improving UNC's credit ratings in the future.

Overview

- Moody's, Standard and Poor's, and Fitch all maintain triple-A ratings with stable outlooks on the University's general revenue bonds.

Key Information Noted in Reports

Credit Strengths

- Excellent student demand and deep program diversity will continue to support measured enrollment growth
- Superior financial flexibility through \$3.6 billion of total cash and investments for university and related foundations
- State and donor support for capital needs will continue to limit the university's financial leverage
- Ongoing research prowess with considerable scale as indicated by research expenses of \$546 million in fiscal 2016

Credit Challenges

- Political limits on tuition pricing and financial aid policies underscore the importance of strong state operating support for maintaining credit quality
- Exposure to more volatile patient care revenue through the university's faculty practice plan and related hospitals
- Ongoing capital needs will continue to limit the growth of flexible reserves

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-
----- Non Investment Grade		

Recommendations & Observations

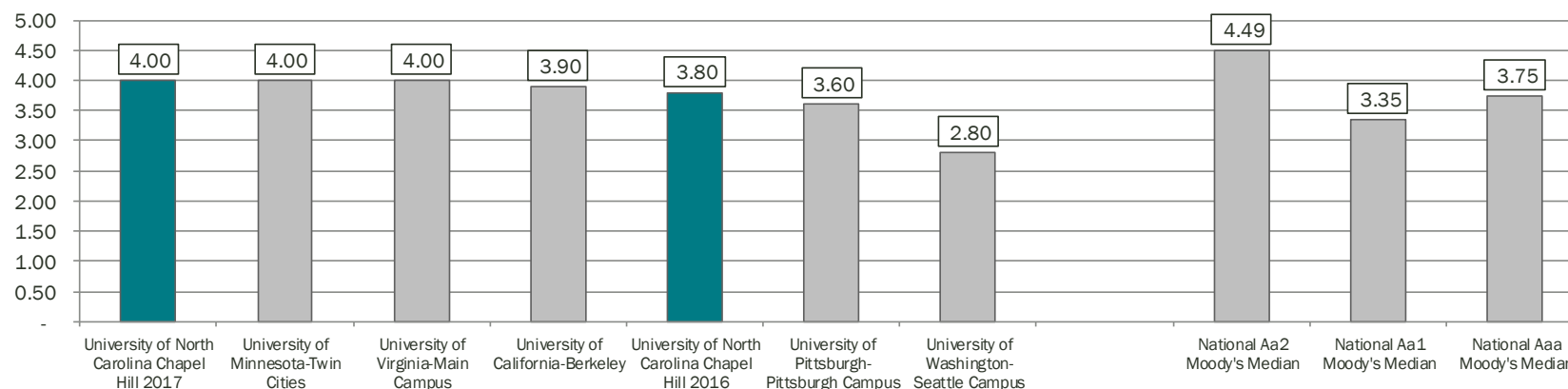
- Continue to proactively manage capital investment program and debt portfolio in accordance with the University's existing debt policy and in service of the University's broader strategic mission.

8. Peer Comparison

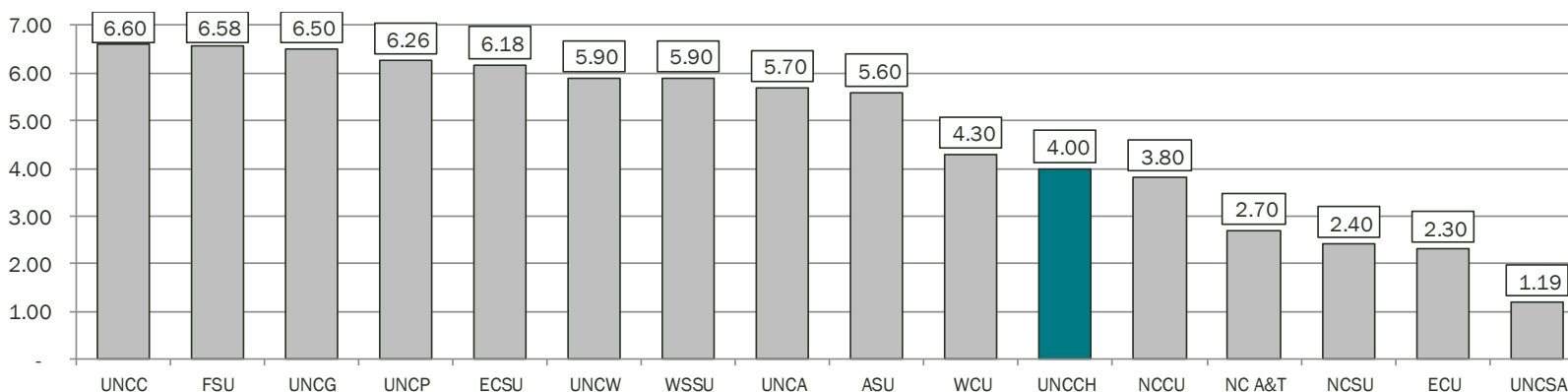
The following pages compare two measures of UNC's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNC-CH (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
UNCCH vs. National Peers



Debt Service to Operating Expenses (%)
UNCCH vs. UNC System



Notes:

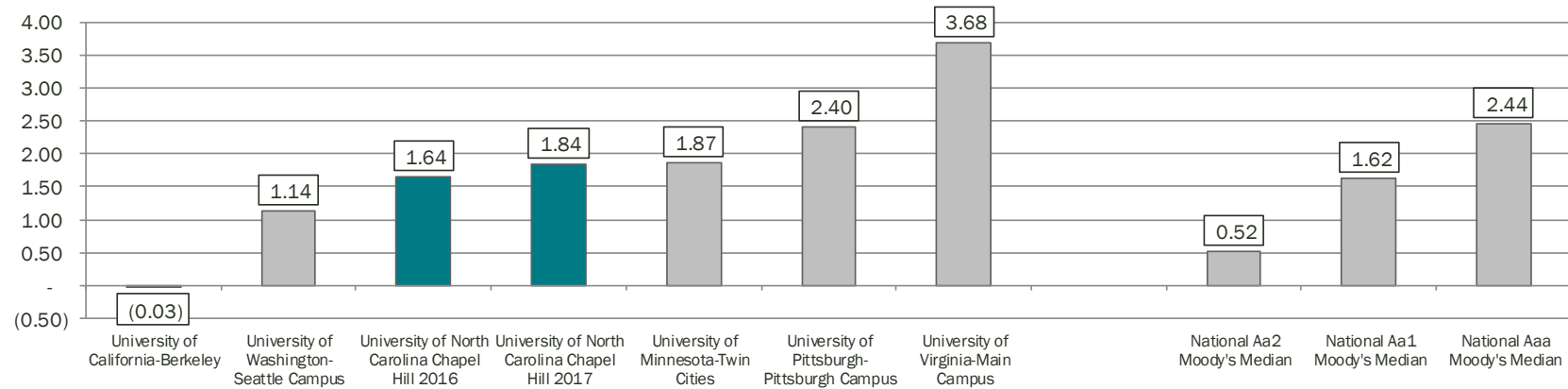
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study and in the manner certain ratios are presented in UNCCH's financial statements.

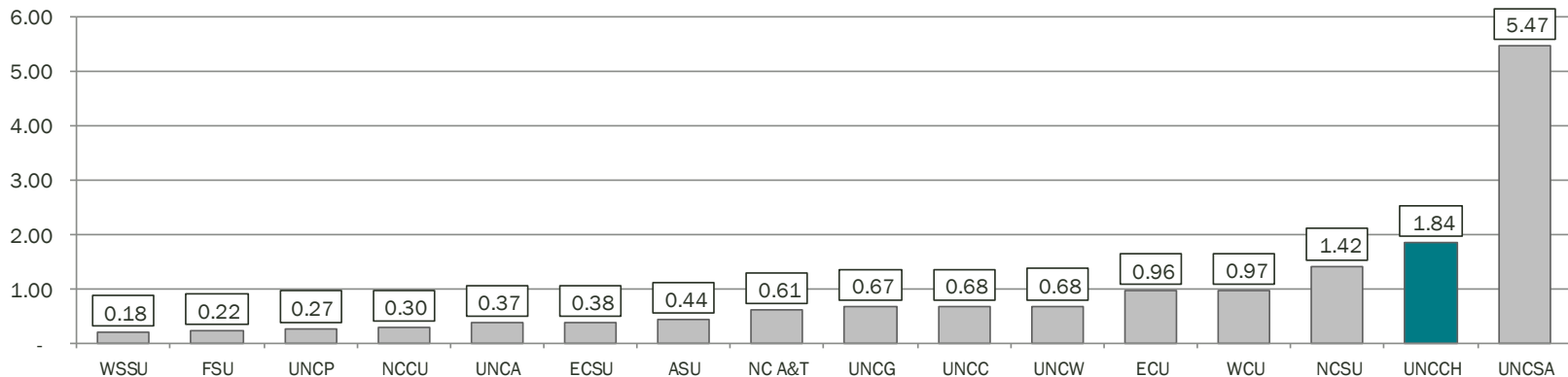
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Expendable Financial Resources to Debt

Expendable Financial Resources to Debt UNCCH vs. National Peers



Expendable Financial Resources to Debt UNCCH vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study and in the manner certain ratios are presented in UNCCH's financial statements.

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9. Debt Management Policies

UNC's current debt policy is included in the following pages.

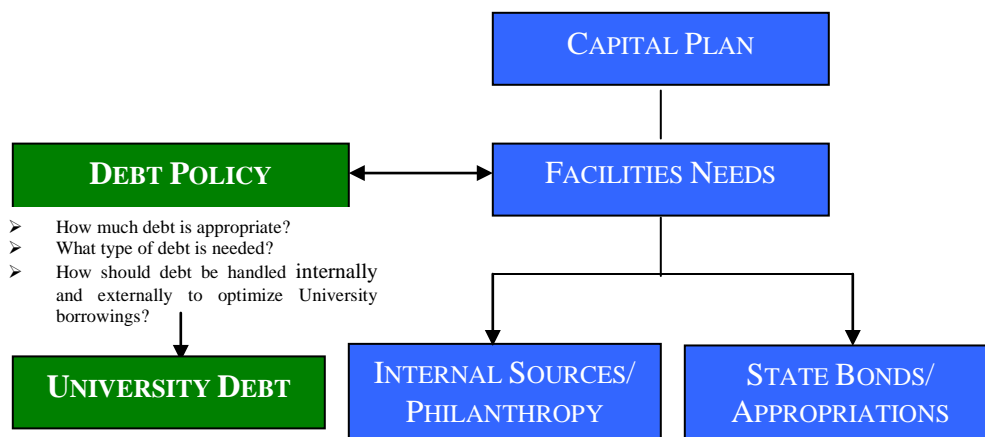
PREFACE

PURPOSE

The University of North Carolina at Chapel Hill's ("the University") strategic and capital planning is a long-term process that is continuously reevaluated. To support the funding of its capital plan, the University has and will utilize a mix of funding sources including State funds (bonds and appropriations), University bonds, internal reserves, and philanthropy.

To ensure the appropriate mix of funding sources is utilized, the University periodically reviews this debt policy. This policy is continuously used by management as a tool to evaluate the University's organizational and capital funding structure, the appropriate use of leverage, and internal lending mechanisms. Maintaining the debt policy is a long-term process.

FIGURE 1. DEBT POLICY FRAMEWORK



CONTENTS

- I. INTRODUCTION
- II. DEBT STRATEGIES
 - 1. MISSION-BASED CAPITAL PLANNING
 - 2. CORE RATIOS
 - 3. DEBT INSTRUMENTS
 - 4. INTERNAL AND EXTERNAL DEBT REPAYMENT
- III. MANAGEMENT PRACTICES



I. INTRODUCTION

APPROACH

To fulfill its mission, the University will need to make ongoing strategic capital investments, driving capital decisions that impact the University's credit. Appropriate financial leverage serves a useful role and should be considered a long-term component of the University's balance sheet. Just as investments represent an integral component of the University's assets, debt is viewed to be a continuing component of the University's liabilities. Debt, especially tax-exempt debt, provides a low cost source of capital for the University to fund capital investments in order to achieve its mission and strategic objectives.

University Mission

"To serve all the people of the State, and indeed the nation, as a center for scholarship and creative endeavor. The University exists to teach students at all levels in an environment of research, free inquiry, and personal responsibility; to expand the body of knowledge; to improve the condition of human life through service and publication; and to enrich our culture."

The debt objectives below, combined with management judgment, provide the framework by which decisions will be made regarding the use and management of debt. The debt policy and objectives are subject to re-evaluation and change over time.

OBJECTIVES

1. Identify projects eligible for debt financing. Using debt to fund mission critical projects will ensure that debt capacity is optimally utilized to fulfill the University's mission. Projects that relate to the core mission will be given priority for debt financing; projects with associated revenues will receive priority consideration as well.
2. Maintain the University's favorable access to capital. Management's determination of the timing of capital projects will not be compromised by the University's access to capital sources, including debt. Management will utilize and issue debt in order to ensure timely access to capital.
3. Limit risk of the University's debt portfolio. The University will manage debt on a portfolio, rather than a transactional or project-specific, basis. The University's continuing objective to achieve the lowest cost of capital will be balanced with the goal of limiting exposure to market shifts.
4. Manage the University's credit to maintain the highest acceptable credit rating. Maintaining the highest acceptable credit rating will permit the University to continue to issue debt and finance capital projects at favorable interest rates while meeting its strategic objectives. The University will limit its overall debt to a level that will maintain an acceptable credit with the bond rating agencies; however, the attainment or maintenance of a specific rating is not an objective of this policy.



I. INTRODUCTION

For the University to achieve the above objectives, it will adopt debt strategies and procedures relating to both the external and the internal management of debt and interest. It is intended for these strategies to be reviewed and reassessed periodically by management.

DEBT STRATEGIES

1. **MISSION BASED CAPITAL PLANNING.** Provide framework with link to mission to evaluate and prioritize projects eligible for debt financing.
2. **CORE RATIOS.** Adopt a set of core financial ratios to guide capital planning and ensure central oversight of University-wide leverage levels.
3. **FINANCIAL INSTRUMENTS.** Provide the University with access to appropriate financing sources, including debt and liability management strategies debt based on borrowing and portfolio management needs.
4. **EXTERNAL AND INTERNAL DEBT REPAYMENT.** De-link external and internal debt repayment, including adoption of internal lending policies.

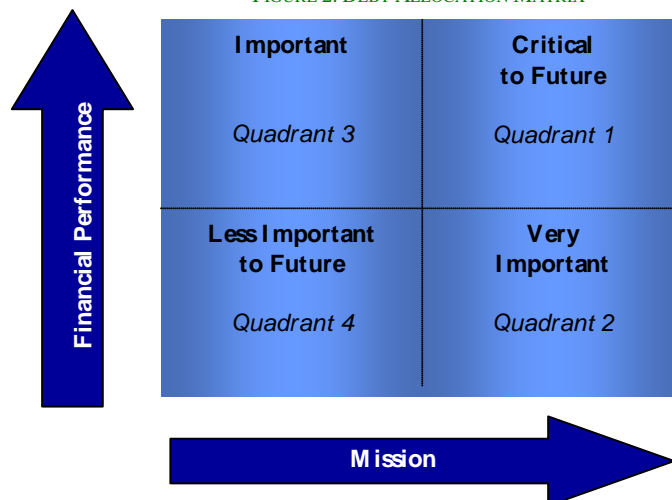
In addition to the debt strategies the University has adopted to support its objectives, the University will also incorporate debt management practices. These practices will be updated periodically and are intended to be resource for management in determining structuring, marketing, and administrative elements of the debt program.



II. DEBT STRATEGIES – 1. MISSION BASED CAPITAL PLANNING

Generally, the following guidelines, although not intended to be all-inclusive, will be considered in the prioritization of the use of debt.

FIGURE 2. DEBT ALLOCATION MATRIX



1. Only projects that relate to the mission of the University, directly or indirectly, will be considered for debt financing.
2. A project that has a related revenue stream or can create budgetary savings will receive priority consideration. Every project considered for financing must have a defined, supportable plan of costs approved by management.
3. In assessing the possible use of debt, all funding sources will be considered. Some combination of State appropriations/bonds, philanthropy, project-generating revenues, research facilities and administrative cost reimbursements, expendable reserves, and other sources are expected to fund a portion of the cost of a project. Debt is to be used prudently and strategically.
4. The University will consider alternative funding opportunities (e.g., joint ventures, real estate development, etc.) when appropriate and advantageous to the University. Opportunities and financing sources will be evaluated within the context of the Debt Policy.
5. Federal research projects will receive priority consideration for external debt financing due to partial reimbursement of operating expenses (including the interest component of applicable debt service) of research facilities.



II. DEBT STRATEGIES – 2. CORE RATIOS

The University will establish guidelines for overall debt using a select number of financial ratios. These ratios will be derived from the financial statements, and should be consistent with some of the measures used by the marketplace. Following are the ratios and corresponding guidelines. They will be calculated and reported annually and when new debt is issued, and will be revised to reflect any changes in accounting standards.

BALANCE SHEET RATIO - EXPENDABLE RESOURCES TO DEBT (X COVERAGE)

POLICY LIMIT. The Expendable Resources to Debt Ratio indicates one of the key determinants of near- to medium-term financial health by measuring the availability of intermediate-term funds to cover debt should the University be required to repay all its outstanding obligations. Although numerous balance sheet measures exist, this ratio is the most appropriate and utilized by the marketplace and credit analysts to evaluate leverage versus funds that could be expended by the University.

$$\frac{\text{UNRESTRICTED AND EXPENDABLE NET ASSETS}}{\text{TOTAL ADJUSTED UNIVERSITY DEBT}}^1$$

The target ratio is established to maintain the University's comparative debt coverage level among peer institutions and provide sufficient buffer against possible declines in coverage from decreases in quasi endowment and temporary investment pool balances. The ratio is also a key determinant of the University's credit rating. *The guideline for this ratio is to be no less than 1.5 times coverage.*

STATEMENT OF ACTIVITIES RATIO – DEBT TO OPERATIONS (%)

POLICY LIMIT. This ratio measures the University's ability to repay debt service associated with all outstanding debt and the impact on the overall budget. The target for this ratio is intended to maintain the University's long-term operating flexibility to fund new initiatives.

$$\frac{\text{PRINCIPAL AND INTEREST ON NOTES AND BONDS}}{\text{TOTAL EXPENDITURES}}$$

The measure is based on aggregate expenses as opposed to revenues because expenses typically are more stable and better reflect the operating size of the University. Management recognizes that a growing expense base would make this ratio appear more attractive. *The guideline for this ratio is not to be greater than 4.0%. If more than 4.0% of the University's annual budget were committed to debt service expense, flexibility to devote resources to fund other objectives could be reduced.*

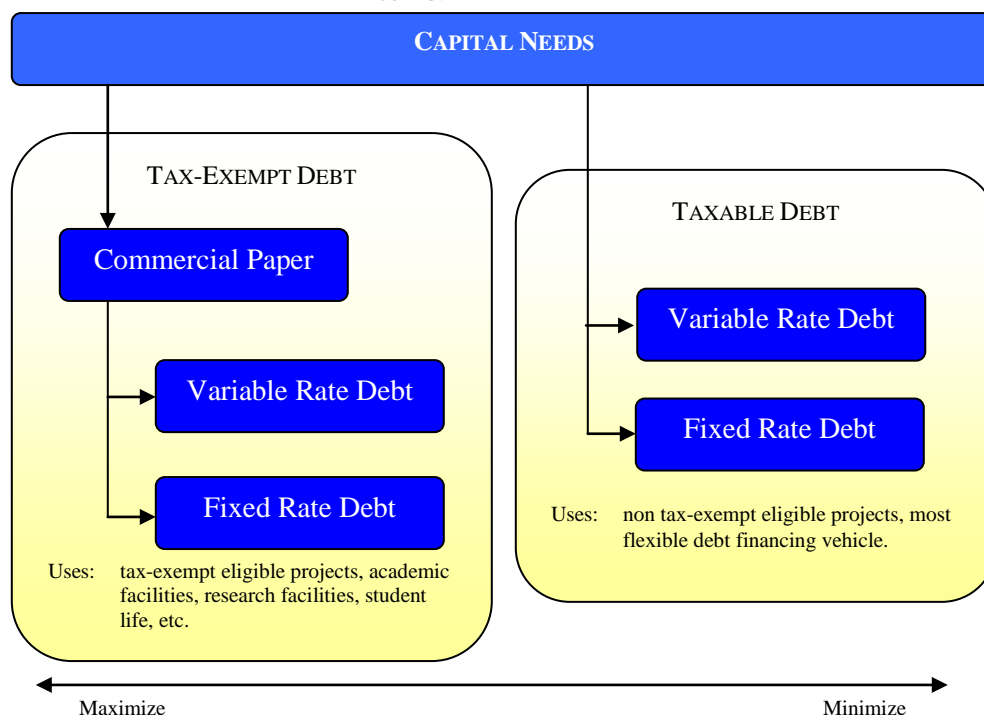
¹ Excludes EPA.



II. DEBT STRATEGIES – 3. DEBT INSTRUMENTS

Under the guidance of Treasury and Risk Management Services, the University will pool debt and in doing so, manage debt on a portfolio basis to minimize cost and manage volatility.

FIGURE 3. TAX-EXEMPT AND TAXABLE DEBT



TAX-EXEMPT DEBT

The University recognizes the benefits associated with tax-exempt debt, and therefore will manage the tax-exempt portfolio to maximize the portion of tax-exempt debt outstanding under the Debt Policy.

COMMERCIAL PAPER

The University recognizes that a commercial paper (CP) program can provide low-cost working capital and provide bridge financing for projects; however, as with other debt structures, the level of CP outstanding impacts the University's overall debt capacity.

Commercial paper can provide the University with interim financing for projects before gifts are received or in anticipation of an external bond issue. Project-related CP provides the Central Bank (see Debt Strategies 4 – External and Internal Debt Repayment) with an easily accessible low-cost source of funding to manage its cash balances and provide continuous access to capital to the divisions, regardless of whether an external financing is imminent. Project-related CP will be treated as any other form of debt and subject to the Debt Policy guidelines.

TAXABLE DEBT

The University will manage its debt portfolio to minimize its taxable component. Unlike tax-exempt debt, taxable debt will not be considered a perpetual component of the University's liabilities. Taxable debt will be utilized to fund projects ineligible for tax-exempt financing or for those projects for which the University wants to preserve maximum operating flexibility; however, the University will manage its overall debt portfolio and total financing sources in order to minimize (or eliminate) the need for taxable debt. Periodically and when any new



II. DEBT STRATEGIES – 3. DEBT INSTRUMENTS

debt is issued, the University will determine its aggregate taxable needs and manage the taxable debt portfolio, if any based on the aggregate need and desired flexibility.

INTEREST RATE SWAPS

The use of swaps will be employed primarily to manage the University's variable rate exposure. The University will utilize a framework to evaluate potential derivative instruments through evaluation of its variable rate allocation, market and interest rate conditions, and the compensation for undertaking counterparty exposure. In addition, the University will incorporate the cost/benefit of any derivative instrument. Under no circumstances will a derivative transaction be utilized that is not fully understood by the University or that imposes inappropriate risk on the University.

FIXED VERSUS VARIABLE ALLOCATION

Due to the financing flexibility and typically low interest cost associated with variable-rate debt, it is desirable to maintain a portion of the University's aggregate debt on a floating-rate basis. However, variable-rate debt introduces volatility to the University's debt service obligations and typically requires liquidity support. The University will utilize variable-rate debt on a prudent basis after careful consideration of the cost/benefits of this interest rate mode.



II. DEBT STRATEGIES – 4. EXTERNAL AND INTERNAL DEBT REPAYMENT

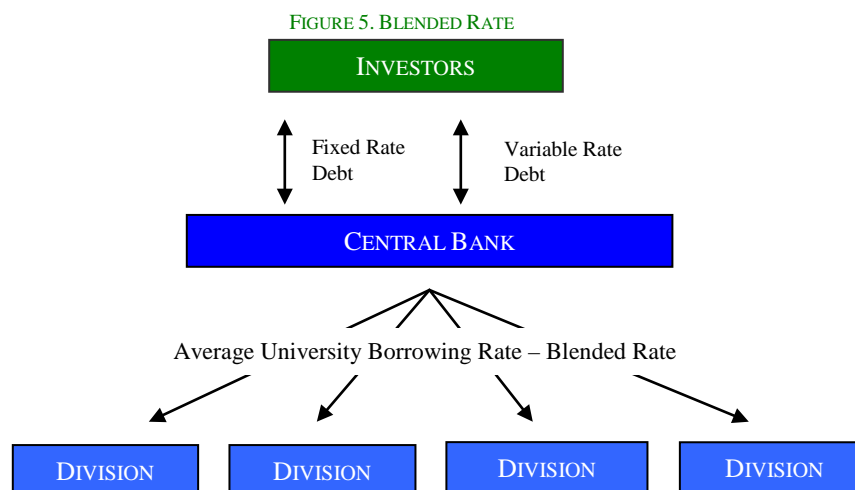
TREASURY AND RISK MANAGEMENT SERVICES (“TRMS”) AS A CENTRAL BANK

Since it is acknowledged that debt will remain a perpetual component of the University’s capitalization, the Office of TRMS will execute transactions, provide funds and develop repayment schedules for individual units. In this regard, TRMS is viewed as a central bank for financing of projects for and across divisions. The University will pool all debt and act as a central source of funds that borrows from the markets and receives capital funds from other sources and makes funds available to the divisions to achieve their objectives.

As mentioned above, debt will remain a long-term component of the University’s balance sheet and division leaders will seek funding for projects from the central bank subject to the debt policy. Deans and Vice Chancellors are not concerned about the source of funds to finance their projects; they are interested in the access to capital, the project ranking criteria, the impact on the current budget, and the predictability of future payments. Therefore, it is desirable to decouple the source of financing (e.g., prevailing fixed or variable rates, synthetic debt, etc) from the use of funds to finance capital projects to the greatest extent possible. Project financing decisions will be made based on the Mission Based Capital Planning strategy continued in the Debt Policy, and not based on the timing of specific transactions.

SINGLE UNIVERSITY-WIDE INTEREST RATE – BLENDED RATE

The University will charge a single interest rate for loaned proceeds regardless of use or source. The single University-wide rate will be adjusted periodically based on the University’s blended cost of capital on all external debt.



The blended interest rate will achieve the following objectives:

- Provide a consistent source of capital to divisions with a predictable and consistent cost of capital. A single interest rate for divisions will make year-to-year budgeting easier for the divisions, since the cost of capital is established at the beginning of the year and is somewhat insulated from changes in market interest rates.
- Align the interests of the University with the divisions. Since debt will be managed on a portfolio basis under debt policy guidelines, transactions will be structured to benefit the entire University, which will benefit the blended rate charged to all divisions.
- Timing of borrowing for projects will not impact the rate borne by the division. The University will time and pool debt issuance for multiple projects to achieve the most economic transactions.



II. DEBT STRATEGIES – 4. EXTERNAL AND INTERNAL DEBT REPAYMENT

The blended interest rate will be influenced by a number of factors:

- Any savings derived from refinancing of existing debt will lower the blended rate, benefiting all borrowers.
- For purposes of the University's variable rate debt, the blended rate will assume a variable rate based on a multi-year moving average of the University's external short-term borrowing cost.
- The University may elect to reserve funds collected in order to minimize year-to-year adjustments in the blended rate. The University's current blended rate is 5.03%.



III. MANAGEMENT PRACTICES

GENERAL REVENUE PLEDGE

The University will utilize general revenue secured debt for all financing needs, unless for certain projects management desires to structure specific revenue pledges independent of general revenue projects. The general revenue pledge provides a strong, flexible security which captures the strengths of not only auxiliary and student related revenues, but of the University's research programs. General revenue bonds price better than corresponding auxiliary or indirect cost recovery bonds. In addition, on general revenue debt the University is not subject to operating or financial covenants and coverage levels imposed by the market and external constituents.

The University will use revenue-specific bonds for those projects that are subsidized externally or not funded by unrestricted current funds of the University. These bonds (e.g. EPA bonds) will be structured to accommodate requirements of the pledged revenue stream or management desires to keep a project independent from other general revenue funded projects.

STRUCTURE (MATURITY, ETC.)

The University will employ maturity structures that correspond with the life of the facilities financed, subject to System and State limitations. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

METHODS OF SALE

The University will consider any method of sale. Negotiated and competitive bond offerings will be considered on an individual transaction basis. For those transactions that represent a new or non-traditional pledge of University revenues, the University generally will consider negotiated methods of sale over competitive sales.

REFUNDING TARGETS

The University will continuously monitor its outstanding tax-exempt debt portfolio for refunding and/or restructuring opportunities.

For a stand-alone refunding, the University will enter into a transaction that produces at least 3-5% present value savings (based on refunded bonds), with this threshold higher for those transactions with a long escrow.

The University also will consider a refinancing if it relieves the University of certain limitations, covenants, payment obligations or reserve requirements that reduce flexibility. The University will also consider refinancing certain obligations within a new money offering even if savings levels are minimal in order to consolidate debt into the general revenue pledge, and/or reduce the administrative burden and cost of managing many small outstanding obligations.

DISCLOSURE

The University will continue to meet its ongoing disclosure requirements in accordance to SEC rule 15c2-12. The University will submit financial reports, statistical data, and any other material events as required under outstanding bond indentures. The University will attempt to provide all relevant investor information on its website.



III. MANAGEMENT PRACTICES

ARBITRAGE

Annually, the University will comply with arbitrage requirements on invested bond funds. The implementation of tax-exempt CP will reduce the University's ongoing investment of earnings restricted bond funds.

BOND PROCEED INVESTMENT

The University will continue to invest bond-funded construction funds, capitalized interest funds, and costs of issuance funds appropriately to achieve the highest return available under arbitrage limitations. When sizing bond transactions, the University will consider funding on either a net or gross basis.

LIQUIDITY

The University will provide liquidity support for variable rate debt and commercial paper by purchasing external support from a third-party or parties or from internal liquid reserves. While providing internal liquidity support is most economic, the University should not be constrained from investing funds long-term in order to maintain liquidity requirements. The University regularly will review its liquidity requirements and sources make any adjustments as necessary or desired.



The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

The University of North Carolina at Charlotte
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), The University of North Carolina at Charlotte (“**UNCC**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNCC has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNCC, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNCC has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNCC’s debt capacity reflects the amount of debt UNCC could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNCC intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNCC’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNCC’s outstanding debt;
- UNCC’s current credit profile, along with recommendations for maintaining or improving UNCC’s credit rating; and
- A copy of any UNCC debt management policy currently in effect.

Overview of UNCC

For the fall 2017 semester, UNCC had a headcount student population of approximately 29,317, including 23,914 undergraduate students and 5,403 graduate and doctoral students. UNCC employs approximately 1,666 full-time and part-time instructional faculty.

Over the past 10 years, UNCC’s enrollment has increased approximately 31%. UNCC expects modest enrollment growth over the Study Period. UNCC’s average age of plant (9.51 years) is lower than the median ratio for all Campuses (13.60 years). If an institution’s average age of plant is less than 14, then it generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

UNCC anticipates incurring approximately \$76.38 million in additional debt during the Study Period, as summarized in **Section 3** below.

UNCC has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNCC's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNCC by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNCC expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate UNCC's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	256,659,251			256,659,251	2018	15,965,000	21,376,594	37,341,594	482,425,000
2014	291,924,932		13.74%	291,924,932	2019	16,565,000	20,762,422	37,327,422	465,860,000
2015	306,131,839	26,512,905	13.95%	332,644,744	2020	17,205,000	20,132,032	37,337,032	448,655,000
2016	291,179,452	19,955,060	-6.47%	311,134,512	2021	17,910,000	19,417,099	37,327,099	430,745,000
2017	340,623,010	21,128,002	16.27%	361,751,012	2022	16,330,000	18,664,458	34,994,458	414,415,000
2018	369,347,783	-	2.10%	369,347,783	2023	17,050,000	17,955,205	35,005,205	397,365,000
2019	377,104,086	-	2.10%	377,104,086	2024	17,750,000	17,228,066	34,978,066	379,615,000
2020	385,023,272	-	2.10%	385,023,272	2025	17,535,000	16,470,557	34,005,557	362,080,000
2021	393,108,761	-	2.10%	393,108,761	2026	16,850,000	15,725,690	32,575,690	345,230,000
2022	401,364,045	-	2.10%	401,364,045	2027	17,760,000	14,997,510	32,757,510	327,470,000
Operating Expenses					2028	17,910,000	14,309,272	32,219,272	309,560,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	18,315,000	13,572,310	31,887,310	291,245,000
2013	476,644,366			476,644,366	2030	19,080,000	12,818,835	31,898,835	272,165,000
2014	508,214,964		6.62%	508,214,964	2031	19,865,000	12,024,754	31,889,754	252,300,000
2015	522,325,266	5,251,911	3.81%	527,577,177	2032	20,690,000	11,195,550	31,885,550	231,610,000
2016	542,160,000	6,602,236	4.02%	548,762,236	2033	21,605,000	10,256,792	31,861,792	210,005,000
2017	586,249,328	(1,145,093)	6.62%	585,104,235	2034	22,515,000	9,347,452	31,862,452	187,490,000
2018	597,391,424	-	2.10%	597,391,424	2035	23,475,000	8,381,452	31,856,452	164,015,000
2019	609,936,644	-	2.10%	609,936,644	2036	23,490,000	7,362,089	30,852,089	140,525,000
2020	622,745,313	-	2.10%	622,745,313	2037	23,860,000	6,364,056	30,224,056	116,665,000
2021	635,822,965	-	2.10%	635,822,965	2038	21,500,000	5,344,878	26,844,878	95,165,000
2022	649,175,247	-	2.10%	649,175,247	2039	22,495,000	4,363,649	26,858,649	72,670,000
					2040	20,040,000	3,358,796	23,398,796	52,630,000
					2041	18,555,000	2,454,311	21,009,311	34,075,000
					2042	10,825,000	1,586,576	12,411,576	23,250,000
					2043	11,315,000	1,089,681	12,404,681	11,935,000
					2044	7,650,000	569,975	8,219,975	4,285,000
					2045	4,285,000	214,250	4,499,250	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	181,930,159	33,444,528	17,279,800	54,299,721	13,005,261		-	273,948,947
2014	181,239,349	43,232,066	20,474,492	66,822,395	22,218,093	5.69%	-	289,550,209
2015	161,240,735	46,295,365	21,701,113	74,075,976	17,745,568	7.78%	26,512,905	312,080,526
2016	207,528,508	45,911,148	19,879,411	67,646,909	20,216,006	9.17%	19,955,060	340,705,030
2017	210,654,443	49,770,635	33,729,604	67,840,816	18,913,623	6.90%	21,128,002	364,209,877
2018	236,649,876	50,815,818	34,437,926	69,265,473	19,310,809	2.10%	-	371,858,284
2019	241,619,524	51,882,951	35,161,122	70,720,048	19,716,336	2.10%	-	379,667,308
2020	246,693,534	52,972,492	35,899,506	72,205,169	20,130,379	2.10%	-	387,640,322
2021	251,874,098	54,084,915	36,653,395	73,721,478	20,553,117	2.10%	-	395,780,769
2022	257,163,454	55,220,698	37,423,117	75,269,629	20,984,733	2.10%	-	404,092,165

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that UNCC expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** below.

UNCC Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Elm Maple Pine	16,934,932	30 Years	Housing Revenues
2018	Health and Wellness Center	44,342,525	30 Years	Student Fees
2018	Scott Hall Renovation	15,102,542	30 Years	Housing Revenues
Total		76,380,000		

Note: On October 12, 2017, UNCC closed on its Series 2017 General Revenue Bonds which funded each of the projects shown above. Actual borrowing amounts and debt service is shown throughout the model.

4. Financial Ratios

Debt to Obligated Resources

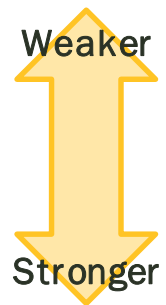
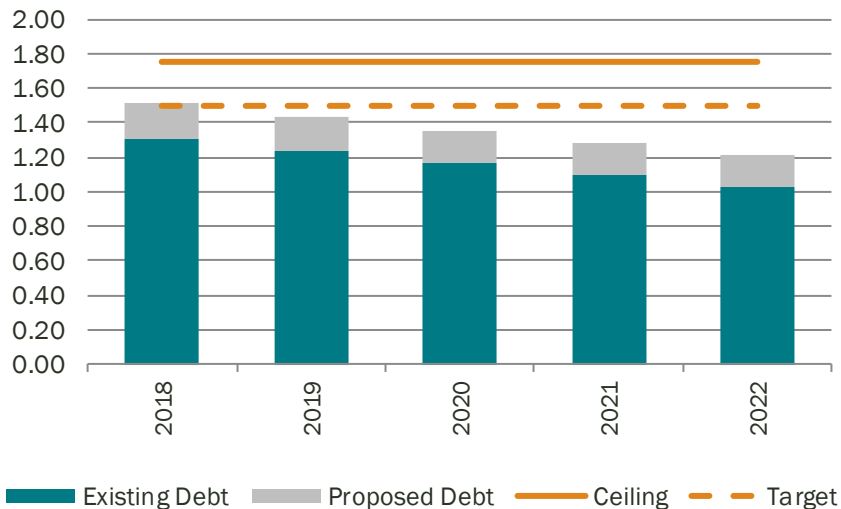
- What does it measure? UNCC's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- How is it calculated? Aggregate debt divided by obligated resources*
- Target Ratio: 1.50
- Ceiling Ratio: Not to exceed 1.75
- Projected 2018 Ratio: 1.51
- Highest Study Period Ratio: 1.51 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	369,347,783	2.10%	482,425,000	76,380,000	1.31	0.21	1.51
2019	377,104,086	2.10%	465,860,000	75,460,000	1.24	0.20	1.44
2020	385,023,272	2.10%	448,655,000	74,240,000	1.17	0.19	1.36
2021	393,108,761	2.10%	430,745,000	72,960,000	1.10	0.19	1.28
2022	401,364,045	2.10%	414,415,000	71,610,000	1.03	0.18	1.21

Debt to Obligated Resources



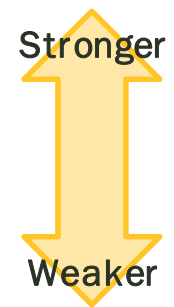
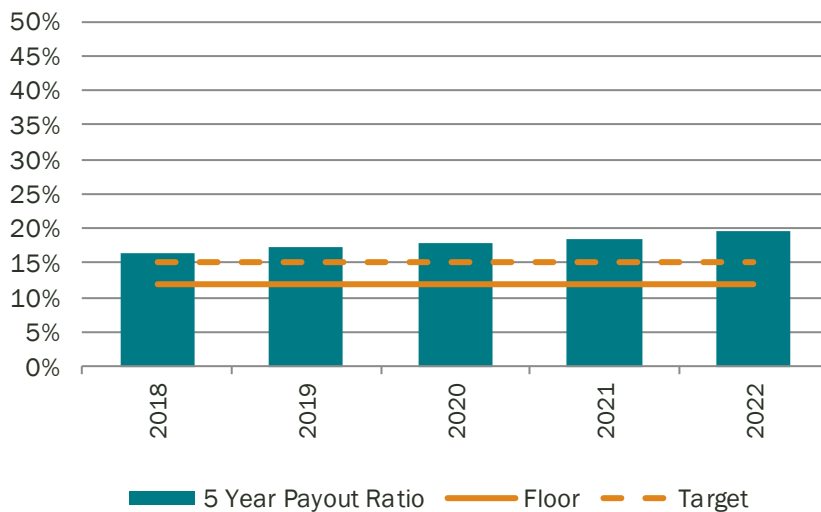
5-Year Payout Ratio Overview

- What does it measure? The percentage of UNCC's debt scheduled to be retired in the next five years.
- How is it calculated? Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 15%
- Floor Ratio: Not less than 12%
- Projected 2018 Ratio: 16%
- Lowest Study Period Ratio: 16% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	558,805,000	16%
2019	541,320,000	17%
2020	522,895,000	18%
2021	503,705,000	18%
2022	486,025,000	20%

5-Year Payout Ratio



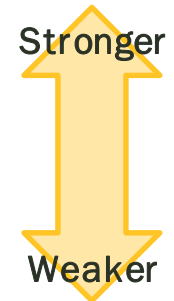
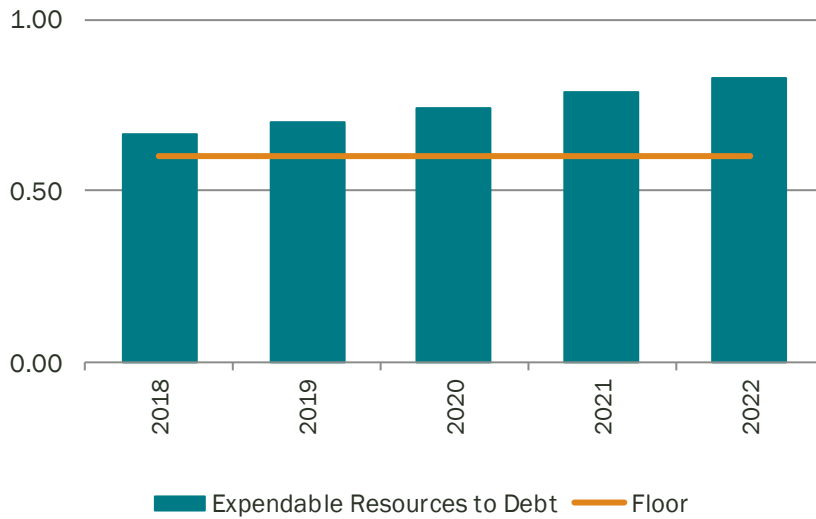
Expendable Resources to Debt

- **What does it measure?** The number of times UNCC's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.60x
- Projected 2018 Ratio: 0.67x
- Lowest Study Period Ratio: 0.67x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	371,858,284	2.10%	482,425,000	76,380,000	0.77	0.67
2019	379,667,308	2.10%	465,860,000	75,460,000	0.81	0.70
2020	387,640,322	2.10%	448,655,000	74,240,000	0.86	0.74
2021	395,780,769	2.10%	430,745,000	72,960,000	0.92	0.79
2022	404,092,165	2.10%	414,415,000	71,610,000	0.98	0.83

Expendable Resources to Debt



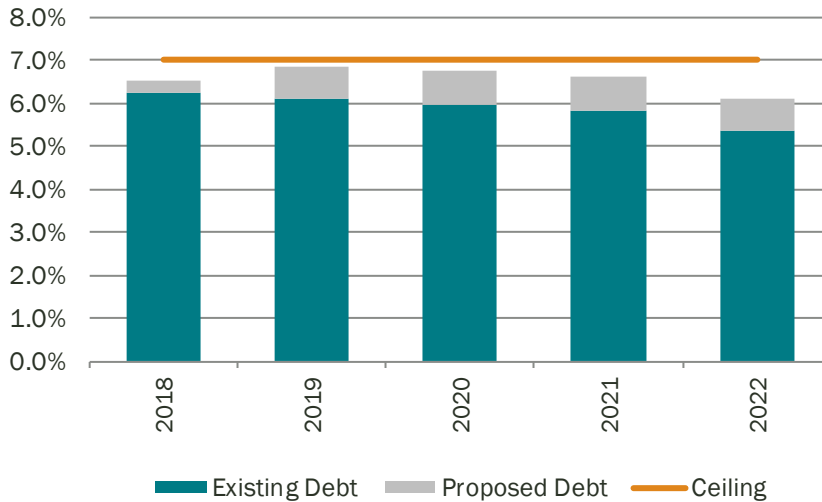
Debt Service to Operating Expenses

- **What does it measure?** UNCC's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 7.00%
- Projected 2018 Ratio: 6.52%
- Highest Study Period Ratio: 6.83% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	599,118,862	2.10%	37,341,594	1,727,438	6.23%	0.29%	6.52%
2019	613,593,394	2.10%	37,327,422	4,576,750	6.08%	0.75%	6.83%
2020	626,348,563	2.10%	37,337,032	4,823,250	5.96%	0.77%	6.73%
2021	639,363,715	2.10%	37,327,099	4,820,750	5.84%	0.75%	6.59%
2022	652,650,247	2.10%	34,994,458	4,825,000	5.36%	0.74%	6.10%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNCC's debt capacity is based on the amount of debt UNCC could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNCC's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, UNCC's current estimated debt capacity is **\$87,553,620**. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNCC issued no additional debt until the last year of the Study Period, then UNCC's debt capacity for 2022 is projected to increase to **\$216,362,078**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.51	1.75	87,553,620
2019	1.44	1.75	118,612,151
2020	1.36	1.75	150,895,726
2021	1.28	1.75	184,235,331
2022	1.21	1.75	216,362,078

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNCC's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If UNCC were to use all of its calculated debt capacity during the Study Period, UNCC's credit ratings may face significant downward pressure.**
- Projecting the exact amount UNCC could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNCC's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina at Charlotte

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2005A	UNC System Pool Revenue Bonds	6,715,000	4/1/2021	SAC Refinancing	SAC	Debt Fee
2007A	Taxable General Revenue Bonds	8,060,000	4/1/2023	Student Union		Debt Fee
2009B	UNC System Pool Revenue Bonds	3,385,000	10/1/2020	Partial Refund of Phase 7 Apartments		Housing Rentals
2009B	Taxable General Revenue BABs	49,770,000	4/1/2039	Parking Deck H Housing Phase 9		Parking Revenues Housing Rentals
2010B-1	UNC System Pool Revenue Bonds	14,075,000	10/1/2026	Housing Phase 7 1st Partial Refunding of Phase 8 Parking	1998B 2002	Housing Rentals Housing Rentals Parking Revenues
2010	Taxable General Revenue BABs	35,090,000	4/1/2040	Football Stadium		Debt Fee
2012A	General Revenue Bonds	90,685,000	4/1/2041	Portal Building South Village Dining Regional Utility Plant Refi-Sprinkler Loan Parking Deck I Parking Deck J Residence Hall Phase 10 Residence Hall Phase 11 2012 Sprinkler Project Final Refi of Phase 8 2002-A bonds	2002A	Overhead Receipts Dining Revenues Overhead Receipts Housing Rentals Parking Revenues Parking Revenues Housing Rentals Housing Rentals Housing Rentals Housing Rentals
2012B	Taxable General Revenue Bonds	33,200,000	4/1/2041	Portal Building South Village Dining Regional Utility Plant		Overhead Receipts Dining Revenues Overhead Receipts
2013A	General Revenue Bonds	39,925,000	4/1/2043	Residence Hall Phase 12 Refinancing of 2003-A Pooled Bonds	2003A	Housing Rentals Debt Fee
2013B	Taxable General Revenue Bonds	33,225,000	4/1/2043	Campus Infrastructure Parking	2004A	Debt Fee Parking Revenues
2014	General Revenue Bonds	56,665,000	4/1/2044	Housing Phase 13 Oak Hall Renovations Holshouser Hall Renovations		Housing Rentals Housing Rentals Housing Rentals
2015	General Revenue Bonds	114,945,000	4/1/2045	Residence Hall Phase 14 CID 2 Parking Deck G Student Union	2006 2007B	Housing Rentals Debt Fee Parking Revenues Debt Fee
2015	Taxable Refunding Limited Obligation Bonds	12,650,000	3/1/2035	Student Housing Project	2005	
Total		498,390,000				

Approved by the UNC Board of Governors on May 24, 2018

Summary of New Money Debt Issued During FYE June 30, 2018

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2017	General Revenue Bonds	76,380,000	10/1/2047	Health and Wellness Center Scott Hall Elm Maple Pine		Student Fees Housing Revenues Housing Revenues
Total		76,380,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of UNCC's current credit ratings, along with (1) a summary of various credit factors identified in UNCC's most recent rating report and (2) recommendations for maintaining and improving UNCC's credit ratings in the future.

Overview

- Moody's maintains a Aa3 rating on the University's general revenue bonds. The outlook is stable.
- Standard and Poor's maintains an A+ rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- » Favorable location in a major urban center supports ongoing student demand and tuition revenue growth
- Close financial, capital, and enrollment planning supports its excellent strategic positioning
- Strong operating and capital support from the Aaa-rated State of North Carolina
- Consistently solid operating performance, with cash flow averaging 15.5% over the last five years (fiscal 2012-2016)

Credit Challenges

- Modest cushion of financial reserves relative to debt at the Aa3, with 0.6x spendable cash and investments to pro forma debt

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

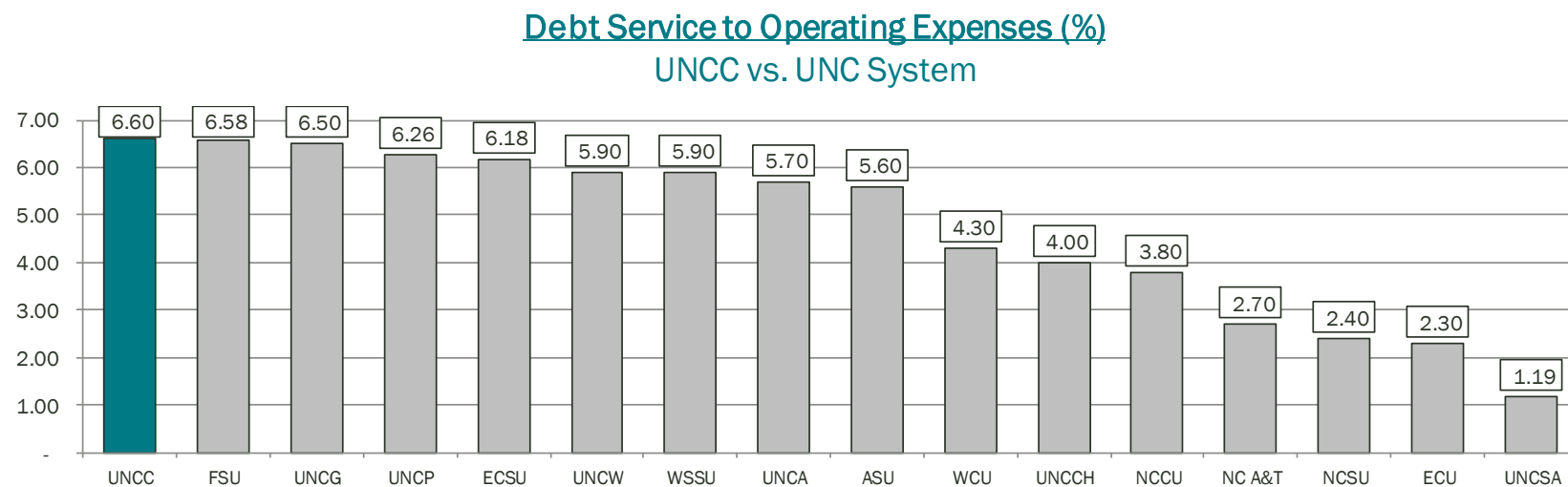
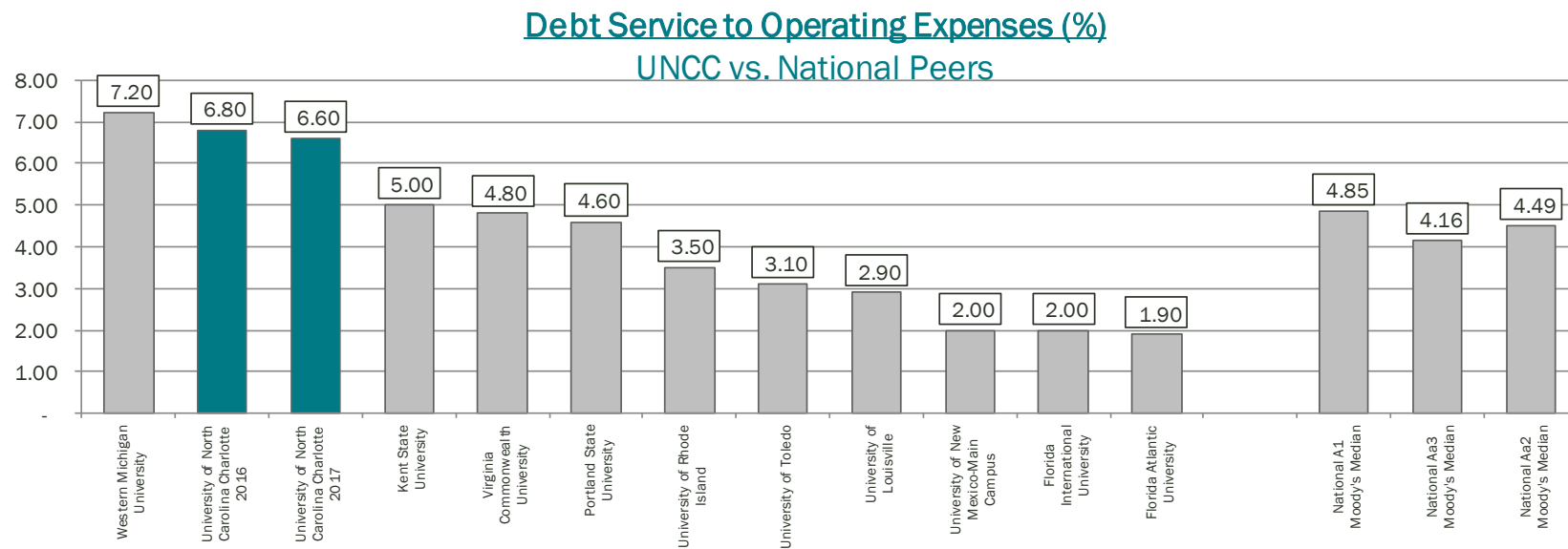
Recommendations & Observations

- Continue to develop initiatives to highlight and strengthen the University's distinctive market position.
- Continue to seek strategies to limit new debt in the near term while addressing critical infrastructure needs, in accordance with the University's existing debt policy and in service of the University's other strategic initiatives.

8. Peer Comparison

The following pages compare two measures of UNCC's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNCC (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 or 6/30/2017, whichever is available), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)



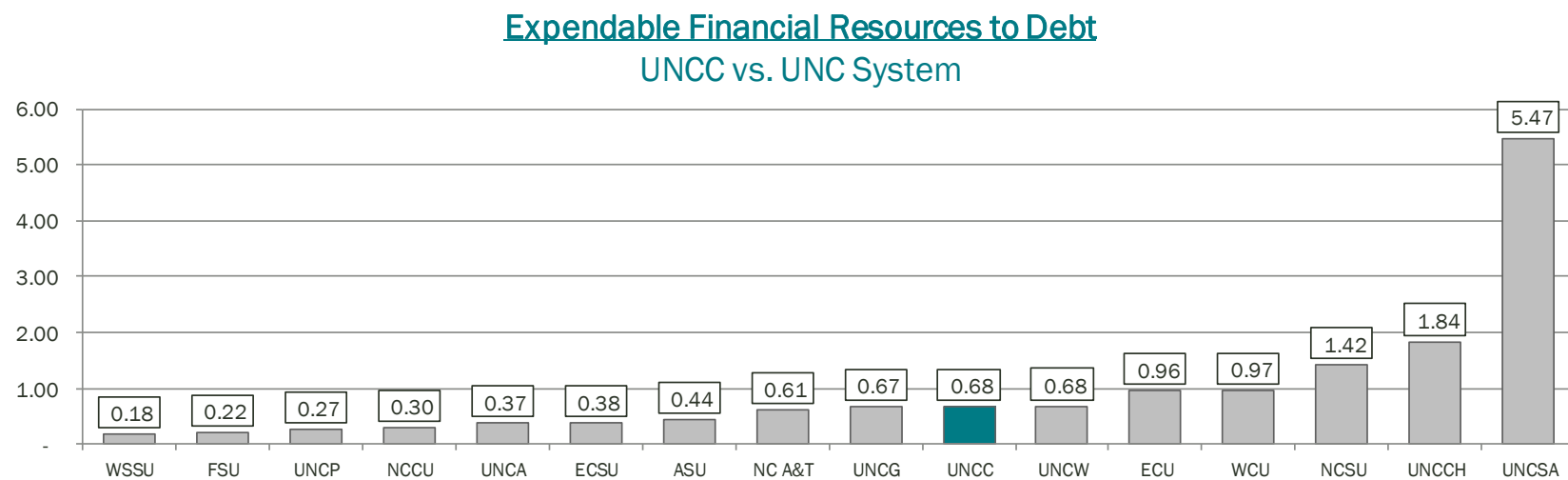
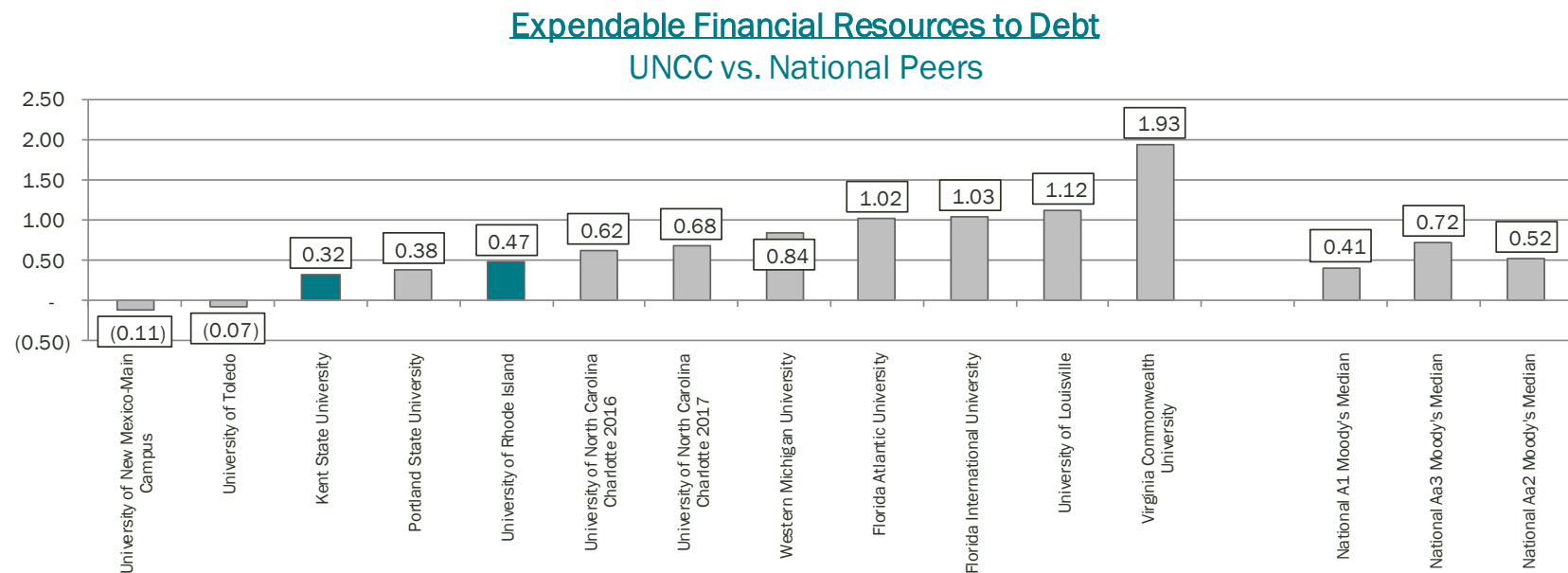
Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2016 and 6/30/2015) and its peers (as of June 30, 2015 only). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2016 and 6/30/2015) and its peers (as of June 30, 2015 only). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

UNCC's current debt policy is included in the following page

University Policy 601.18, Debt Policy

Executive Summary:

This Policy outlines the University philosophy on debt, establishes the framework for approving, managing, and reporting debt and provides debt management guidelines.

I. Policy Statement

The mission of The University of North Carolina at Charlotte (University) is supported by the development and implementation of the long-term strategic plan. The strategic plan establishes University-wide priorities and programmatic objectives. The University develops a capital plan to support these priorities and objectives.

The University's use of debt plays a critical role in ensuring adequate and cost effective funding for the capital plan. By linking the objectives of its Debt Policy to its strategic objectives, the University ultimately increases the likelihood of achieving its mission.

This Debt Policy is intended to be a dynamic document that will evolve over time to meet the changing needs of the University.

A. Scope

This Debt Policy applies to the University and affiliated entities and covers all forms of debt including long-term, short-term, fixed-rate, and variable-rate debt. It also covers other forms of financing including both on-balance sheet and off-balance sheet structures, such as leases, and other structured products used with the intent of funding capital projects.

The use of derivatives is not covered under this policy. When the use of derivatives is being considered a separate Interest Rate Risk Management policy will be drafted.

B. Objectives

The objectives of this policy are to:

- (i) Outline the University's philosophy on debt
- (ii) Establish a control framework for approving and managing debt
- (iii) Define reporting guidelines
- (iv) Establish debt management guidelines

This Debt Policy formalizes the link between the University's Strategic Plan and the issuance of debt. Debt is a limited resource that must be managed strategically in order to best support University priorities.

The policy establishes a control framework to ensure that appropriate discipline is in place regarding capital rationing, reporting requirements, debt portfolio composition, debt servicing, and debt authorization. It establishes guidelines to ensure that existing and proposed debt

issues are consistent with financial resources to maintain an optimal amount of leverage, a strong financial profile, and a strategically optimal credit rating.

Under this policy, debt is being managed to achieve the following goals:

- (i) Maintaining access to financial markets: capital, money, and bank markets.
- (ii) Managing the University's credit rating to meet its strategic objectives while maintaining the highest acceptable creditworthiness and most favorable relative cost of capital and borrowing terms;
- (iii) Optimizing the University's debt mix (i.e., short-term and long-term, fixed-rate and floating-rate) for the University's debt portfolio;
- (iv) Managing the structure and maturity profile of debt to meet liquidity objectives and make funds available to support future capital projects and strategic initiatives;
- (v) Coordinating debt management decisions with asset management decisions to optimize overall funding and portfolio management strategies.

The University may use debt to accomplish critical priorities by more prudently using debt financing to accelerate the initiation or completion of certain projects, where appropriate. As part of its review of each project, the University evaluates all funding sources to determine the optimal funding structure to achieve the lowest cost of capital.

II. Roles and Responsibilities; Compliance

The Office of the Vice Chancellor for Business Affairs ("VCBA") is responsible for implementing this policy and for all debt financing activities. The policy and any subsequent, material changes to the policy must be approved by the Chancellor after consultation with the University's Board of Trustees ("BOT".) The approved policy provides the framework under which debt management decisions are made.

The exposure limits listed in the policy are monitored on a regular basis by Treasury Services. The office of the VCBA reports regularly to the Chancellor and the BOT on the University's debt position and plans.

III. Procedures

A. Debt Affordability and Capacity

In assessing its current debt levels and when planning for additional debt, the University takes into account both its debt affordability and debt capacity. Debt affordability focuses on the University's ability to service its debt through its operating budget and identified revenue streams and is driven by strength in income and cash flows. Debt capacity focuses on the University's financial leverage in terms of debt funding as a percentage of the University's total capital.

The University considers many factors in assessing its debt affordability and debt capacity including its strategic plan, market position, and alternative sources of funding. The University

uses four key quantitative ratios to inform its assessments with respect to debt affordability and debt capacity.

The ratios described below are not intended to track a specific rating, but rather to help the University maintain a competitive financial profile and funding for facilities needs and reserves.

This Debt Policy is shared with external credit analysts and other parties to provide them with background on the University's philosophy on debt and management's assessment of debt capacity and affordability.

1. Debt Affordability Measures

a. Debt Burden Percentage

This ratio measures the University's debt service burden as a percentage of total university expenses. The target for this ratio is intended to maintain the University's long-term operating flexibility to finance existing requirements and new initiatives.

$$\frac{\text{ANNUAL DEBT SERVICE}}{\text{TOTAL OPERATING EXPENSES}} \leq 6.0\%$$

The measure is based on aggregate operating expenses as opposed to operating revenues because expenses typically are more stable (e.g. revenues may be subject to one-time operating gifts, investment return fluctuations, variability of State funding, etc.) and better reflect the operating base of the University. This ratio is adjusted to reflect any non-amortizing or non-traditional debt structures that could result in significant single year fluctuations including the effect of debt refundings.

b. Average Debt Service Coverage Ratio

This ratio measures the University's ability to cover debt service requirements from adjusted net operating income. This calculation is a three-year average of income compared to actual debt services on capital debt. The target established is intended to ensure that operating revenues are sufficient to meet debt service requirements and that debt service does not consume too large a portion of income.

$$\frac{\text{THREE YEARS ANNUAL OPERATING SURPLUS (DEFICIT) + NON-OPERATING REVENUE} + \text{DEPRECIATION}}{\text{THREE YEARS ANNUAL DEBT SERVICE}} > 2X$$

This ratio is adjusted to reflect any non-amortizing or non-traditional debt structures that could result in significant single year fluctuations including the effect of debt refundings.

2. Debt Capacity Measures

a. Average Viability Ratio

This ratio indicates one of the most basic determinants of financial health by measuring the three year average availability of liquid and expendable net assets to the three year average aggregate debt. The ratio measures the medium to long-term health of the University's balance sheet and debt capacity and is a critical consideration of universities with the highest credit quality.

Many factors influence the viability ratio, affecting both the assets (e.g., investment performance, philanthropy) and liabilities (e.g., timing of bond issues), and therefore the ratio is best examined in the context of changing market conditions so that it accurately reflects relative financial strength.

$$\frac{\text{THREE YEARS UNRESTRICTED NET ASSETS} + \text{RESTRICTED EXPENDABLE NET ASSETS}}{\text{THREE YEARS AGGREGATE DEBT}} \geq .6x$$

b. Debt Capitalization Ratio

This ratio measures the percentage of University capital that comes from debt. A university that relies too heavily on debt capital may risk being over-leveraged and potentially reduce its access to capital markets. Conversely, a university that does not strategically utilize debt as a source of capital may not be optimizing its funding mix, thereby sacrificing access to low-cost funding to invest in mission objectives.

$$\frac{\text{AGGREGATE DEBT}}{\text{TOTAL NET ASSETS + AGGREGATE DEBT}} \leq 35\%$$

Both the Viability and Debt Capitalization Ratios include any component unit (University-related foundation) balances as disclosed in the University's financial statements.

B. Financing Sources

The University recognizes that there are numerous types of financing structures and funding sources available, each with specific benefits, risks, and costs. All potential funding sources are reviewed by management within the context of this Debt Policy and the overall portfolio to ensure that any financial product or structure is consistent with the University's objectives. Regardless of what financing structure(s) are utilized, due-diligence review must be performed for each transaction, including (i) quantification of potential risks and benefits; and (ii) analysis of the impact on University creditworthiness and debt affordability and capacity.

1. Tax-Exempt Debt

The University recognizes that tax-exempt debt is a significant component of the University's capitalization due in part to its substantial cost benefits; therefore, tax-exempt debt is managed as a portfolio of obligations designed to meet long-term financial objectives rather than as a series of discrete financings tied to specific projects. The University manages the debt portfolio to maximize its utilization of tax-exempt debt relative to taxable debt whenever possible. In all circumstances, however, individual projects continue to be identified and tracked to ensure compliance with all tax and reimbursement regulations.

For tax-exempt debt, the University considers maximizing the external maturity of any tax-exempt bond issue, subject to prevailing market conditions and opportunities and other considerations, including applicable regulations.

2. Taxable Debt

In instances where certain of the University's capital projects do not qualify for tax-exempt debt, the use of taxable debt may be considered. The taxable debt market offers certain advantages in terms of liquidity and marketing efficiency; such advantages will be considered when evaluating the costs and benefits of a taxable debt issuance.

3. Commercial Paper

Commercial paper provides the University with interim financing for projects in anticipation of philanthropy or planned issuance of long-term debt. The use of commercial paper also provides greater flexibility on the timing and structuring of individual bond transactions. This flexibility also makes commercial paper appropriate for financing equipment and short-term operating needs. The University recognizes that the amount of commercial paper is limited by this Debt Policy ratios, the University's variable-rate debt allocation limit, and the University's available liquidity support.

4. University-issued vs. State-Issued Debt

In determining the most cost effective means of issuing debt, the University evaluates the merits of issuing debt directly vs. participating in debt pools through the UNC System Board of Governors. On a regular basis, the University performs a cost/benefit analysis between these two options and takes into consideration the comparative funding costs, flexibility in market timing, and bond ratings of each alternative. The University also takes into consideration the future administrative flexibility of each issue such as the ability to call and/or refund issues at a later date, as well as the administrative flexibility to structure and manage the debt in a manner that the University believes to be appropriate and in the University's best interest.

5. Other Financing Sources

Given limited debt capacity and substantial capital needs, opportunities for alternative and non-traditional transaction structures may be considered. The University recognizes these types of transactions often can be more expensive than traditional University debt structures; therefore, the benefits of any potential transaction must outweigh any potential costs.

All structures may be considered only when the economic benefit and the likely impact on the University's debt capacity and credit have been determined. Specifically, for any third-party or developer-based financing, management ensures the full credit impact of the structure is evaluated and quantified.

C. Portfolio Management of Debt

The University considers its debt portfolio holistically to optimize the portfolio of debt for the entire University rather than on a project-by-project basis while taking into account the University's cash and investment portfolio (see Appendix A). Therefore, management makes

decisions regarding project prioritization, debt portfolio optimization, and financing structures within the context of the overall needs and circumstances of the University.

1. Variable-Rate Debt

The University recognizes that a degree of exposure to variable interest rates within the University's debt portfolio might be desirable in order to:

- (i) take advantage of repayment/restructuring flexibility;
- (ii) benefit from historically lower average interest costs;
- (iii) provide a "match" between debt service requirements and the projected cash flows from the University's assets; and
- (iv) diversify its pool of potential investors.

Management monitors overall interest rate exposure, analyzes and quantifies potential risks, including interest rate, liquidity and rollover risks, and coordinates appropriate fixed/variable allocation strategies. The portfolio allocation to variable-rate debt may be managed or adjusted through (i) the issuance or redemption of debt in the conventional debt market (e.g. new issues and refundings) and (ii) the use of interest rate derivative products including swaps.

The amount of variable-rate debt outstanding (adjusted for any derivatives) shall not exceed 10% of the University's outstanding debt. This limit is based on the University's desire to: (i) limit annual variances in its interest payments; (ii) provide sufficient structuring flexibility to management; (iii) keep the University's variable-rate allocation within acceptable external parameters; and (iv) utilize variable-rate debt (including derivatives) to optimize debt portfolio allocation and minimize costs.

$$\frac{\text{VARIABLE-RATE DEBT (INCLUDING SYNTHETIC DEBT)}}{\text{TOTAL DEBT OUTSTANDING}} \leq 10\%$$

2. Refinancing Outstanding Debt

The University monitors its debt portfolio on a continual basis to assure portfolio management objectives are being met and to identify opportunities to lower its cost of funding, primarily through refinancing outstanding debt. The University of North Carolina General Administration prefers a savings of 2% for refinancing current outstanding debt. Savings requirements in excess of 2% may be required from time to time by the Vice Chancellor for Business Affairs.

The University monitors the prices and yields of its outstanding debt and attempts to identify potential refunding candidates by examining refunding rates and calculating the net present value of any refunding savings after taking into account all transaction costs. The University may choose to pursue refundings for economic and/or legal reasons. The University reserves the right to not partially refund an issue.

3. Liquidity Requirements

If the University's portfolio includes variable-rate debt and commercial paper, liquidity support is required in the event of the bonds or paper being put back to the University by investors. Generally, the University can purchase liquidity support externally from a

bank in the form of a standby bond purchase agreement or line of credit. In addition, the University may consider using its own capital in lieu of or to supplement external liquidity facilities. Alternatively, it may utilize variable-rate structures that do not require liquidity support (e.g. auction-rate products.)

Just as the University manages its debt on a portfolio basis, it also manages its liquidity needs by considering its entire asset and debt portfolio, rather than managing liquidity solely on an issue-specific basis. This approach permits institution-wide evaluation of desired liquidity requirements and exposure, minimizes administrative burden, and reduces total liquidity costs.

A balanced approach may be used to provide liquidity support to enhance credit for variable-rate debt, through a combination of external bank liquidity, auction market or derivative structures. Using a variety of approaches limits dependence on an individual type or source of credit; it also allows for exposure to different types of investors. The University must balance liquidity requirements with its investment objectives and its cost and renewal risk of third-party liquidity providers.

Further, a portfolio-approach to liquidity can enhance investment flexibility, reduce administrative requirements, lower total interest costs, and reduce the need for external bank liquidity.

4. Overall Exposure

The University recognizes that it may be exposed to interest rate, third-party credit, and other potential risks in areas other than direct University debt (e.g., counterparty exposure in the investment portfolio, etc.) and, therefore, exposures are considered on a comprehensive University-wide basis.

D. Strategic Debt Allocation

Recognizing that financial resources are not sufficient to fund all capital projects, management must allocate debt strategically, continuing to explore alternate sources of funding for projects. External support, philanthropy, and direct State investment remain critical to the University's facilities investment plan.

Management allocates the use of debt financing internally within the University to reflect the prioritization of debt resources among all uses, including plant and equipment financing, academic projects, and projects with institutional impact. Generally, the University favors debt financing for those projects critical to the attainment of its strategic goals and those projects with identified revenue streams for the repayment of debt service and incremental operating costs.

Each capital project is analyzed at its inception to ensure that capital is used in the most effective manner and in the best interests of the University. There is an initial institutional review of each project, prior to its inclusion in the capital plan, to determine if debt leveraging would be desirable even if not requested by the project sponsor.

As part of this initial institutional review, the University also will assess, based on the project's business plan, the sufficiency of revenues to support any internal loans. If the University determines that collateral is necessary, it may require the entity to segregate unrestricted funds for this purpose.

E. Debt Administration and Other Matters

The issuance of tax-exempt debt generally requires the aid and assistance of several outside parties:

- Use of a financial advisor is recommended with a competitive selection process at least once every five years.
- Bond counsel appointments are competitively determined at least once every five years.
- The selection of underwriters is recommended for each debt issuance using a competitive process. Co-managers are recommended for issuances of \$30 million or more and will be selected from the same group of underwriters responding to the competitive bid process.

Debt issuance can be “sized” to include capitalized interest and borrowing costs up to 5% of the debt issuance.

Reimbursement resolutions will be prepared for each debt issuance.

F. Approval Process

All debt issued is by the authority granted to the UNC System Board of Governors under [N.C.G.S. § 116D, Article 3](#). All debt issue is approved by the UNC Charlotte Board of Trustees and then by the UNC System Board of Governors.

When the University participates in bond programs that are administered by the State, including State tax supported debt, such bonds are issued by the State Treasurer, who also possesses the authority to price such bonds.

Revision History: Initially approved February 2, 2015

Authority: Chancellor

Responsible Office: Business Affairs

The University of North Carolina System Debt Capacity Study - Fiscal Year 2017

University of North Carolina at Greensboro
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), University of North Carolina at Greensboro (“**UNCG**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNCG has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNCG, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNCG has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNCG’s debt capacity reflects the amount of debt UNCG could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNCG intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNCG’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNCG’s outstanding debt;
- UNCG’s current credit profile, along with recommendations for maintaining or improving UNCG’s credit rating; and
- A copy of any UNCG debt management policy currently in effect.

Overview of UNCG

For the fall 2017 semester, UNCG had a headcount student population of approximately 19,922, including 16,439 undergraduate students and 3,483 graduate and doctoral students. UNCG employs approximately 1,077 full-time, part-time and temporary instructional faculty.

Over the past 10 years, UNCG’s enrollment has increased approximately 15%. UNCG expects modest enrollment growth over the Study Period. UNCG’s average age of plant (11.25 years) is lower than the median ratio for all Campuses (13.60 years) and generally reflects a sustainable approach to its deferred maintenance and reinvestment programs.

UNCG anticipates incurring approximately \$46.0 million in additional debt during the Study Period, as summarized in **Section 3** below.

UNCG has made no changes to the financial model’s standard growth assumption, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNCG's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNCG by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNCG expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate UNCG's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	148,730,815			148,730,815	2018	11,765,991	14,183,740	25,949,730	281,585,009
2014	158,204,999		6.37%	158,204,999	2019	11,911,810	13,258,836	25,170,646	269,673,199
2015	132,651,462	22,653,227	-1.83%	155,304,689	2020	12,437,286	12,589,743	25,027,029	257,235,913
2016	153,067,113	17,181,012	9.62%	170,248,125	2021	13,016,898	12,020,363	25,037,261	244,219,015
2017	171,993,830	17,318,421	11.20%	189,312,251	2022	13,576,649	11,459,450	25,036,099	230,642,366
2018	193,287,808	-	2.10%	193,287,808	2023	14,194,543	10,847,993	25,042,536	216,447,823
2019	197,346,852	-	2.10%	197,346,852	2024	13,375,583	10,206,938	23,582,520	203,072,240
2020	201,491,136	-	2.10%	201,491,136	2025	14,030,772	9,559,795	23,590,568	189,041,468
2021	205,722,450	-	2.10%	205,722,450	2026	14,665,116	8,914,351	23,579,467	174,376,352
2022	210,042,621	-	2.10%	210,042,621	2027	13,048,616	8,251,336	21,299,952	161,327,736
Operating Expenses					2028	13,270,278	7,671,043	20,941,320	148,057,458
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	13,902,105	7,041,293	20,943,397	134,155,354
2013	366,090,459	-		366,090,459	2030	13,364,101	6,363,293	19,727,393	120,791,253
2014	365,213,917	-	-0.24%	365,213,917	2031	14,006,271	5,736,093	19,742,363	106,784,982
2015	350,207,094	4,298,787	-2.93%	354,505,881	2032	14,623,618	5,123,205	19,746,823	92,161,364
2016	359,530,904	5,479,604	2.96%	365,010,508	2033	15,296,148	4,466,405	19,762,553	76,865,216
2017	391,641,862	(129,813)	7.26%	391,512,049	2034	16,003,864	3,753,455	19,757,319	60,861,352
2018	399,733,802	-	2.10%	399,733,802	2035	14,776,772	3,071,118	17,847,890	46,084,580
2019	408,128,212	-	2.10%	408,128,212	2036	15,479,876	2,375,818	17,855,694	30,604,704
2020	416,698,904	-	2.10%	416,698,904	2037	10,373,181	1,647,068	12,020,248	20,231,523
2021	425,449,581	-	2.10%	425,449,581	2038	8,316,692	1,199,668	9,516,359	11,914,832
2022	434,384,023	-	2.10%	434,384,023	2039	8,690,414	832,818	9,523,231	3,224,418
					2040	369,352	449,318	818,670	2,855,066
					2041	378,512	449,318	827,830	2,476,554
					2042	387,899	449,318	837,217	2,088,655
					2043	397,519	449,318	846,837	1,691,136
					2044	407,377	449,318	856,695	1,283,758
					2045	417,480	449,318	866,798	866,278
					2046	427,834	449,318	877,151	438,444
					2047	438,444	449,318	887,762	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	85,193,065	111,022,683	-	-	2,600,716		-	193,615,032
2014	80,944,569	132,976,324	-	-	-	10.49%	-	213,920,893
2015	70,602,615	129,017,041	-	-	-	3.90%	22,653,227	222,272,883
2016	84,727,871	122,156,867	-	-	8,348,136	-2.95%	17,181,012	215,717,614
2017	87,510,902	146,993,613	-	-	12,928,838	10.74%	17,318,421	238,894,098
2018	107,030,739	150,080,479	-	-	13,200,344	2.10%	-	243,910,874
2019	109,278,384	153,232,169	-	-	13,477,551	2.10%	-	249,033,002
2020	111,573,230	156,450,044	-	-	13,760,579	2.10%	-	254,262,695
2021	113,916,268	159,735,495	-	-	14,049,552	2.10%	-	259,602,212
2022	116,308,510	163,089,941	-	-	14,344,592	2.10%	-	265,053,859

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that UNCG expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** below.

UNCG Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Spartan Village Phase II Take Out	46,000,000	25	Housing Revenues
Total		46,000,000		

Note: As of June 30, 2017, \$44,588,990 was outstanding on the Spartan Village Phase II Note, which was issued through the University's Capital Facilities Foundation. The Spartan Village Phase II Note will be refinanced in 2018 with the above referenced issue.

4. Financial Ratios

Debt to Obligated Resources

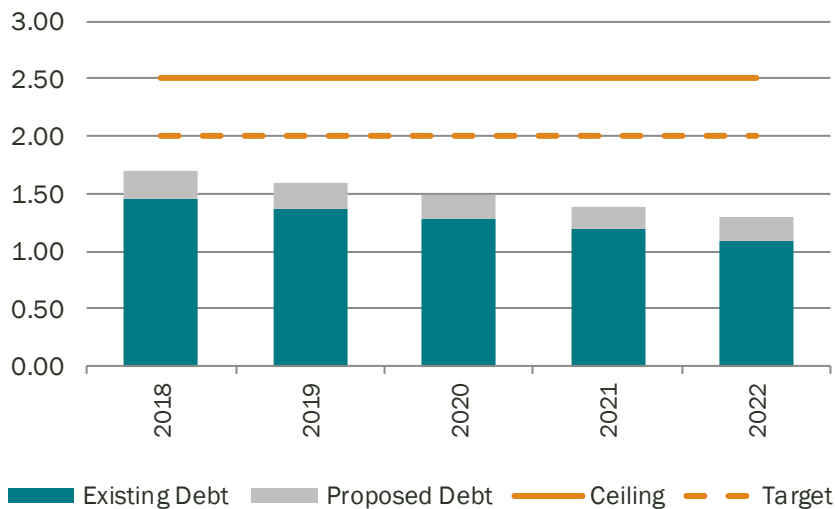
- **What does it measure?** UNCG's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 2.00
- Ceiling Ratio: Not to exceed 2.50
- Projected 2018 Ratio: 1.70
- Highest Study Period Ratio: 1.70 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	193,287,808	2.10%	281,585,009	46,000,000	1.46	0.24	1.69
2019	197,346,852	2.10%	269,673,199	44,775,961	1.37	0.23	1.59
2020	201,491,136	2.10%	257,235,913	43,512,385	1.28	0.22	1.49
2021	205,722,450	2.10%	244,219,015	42,207,996	1.19	0.21	1.39
2022	210,042,621	2.10%	230,642,366	40,861,475	1.10	0.19	1.29

Debt to Obligated Resources



Weaker
↓
Stronger

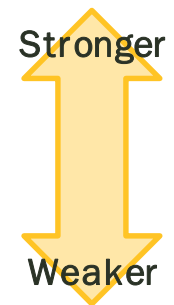
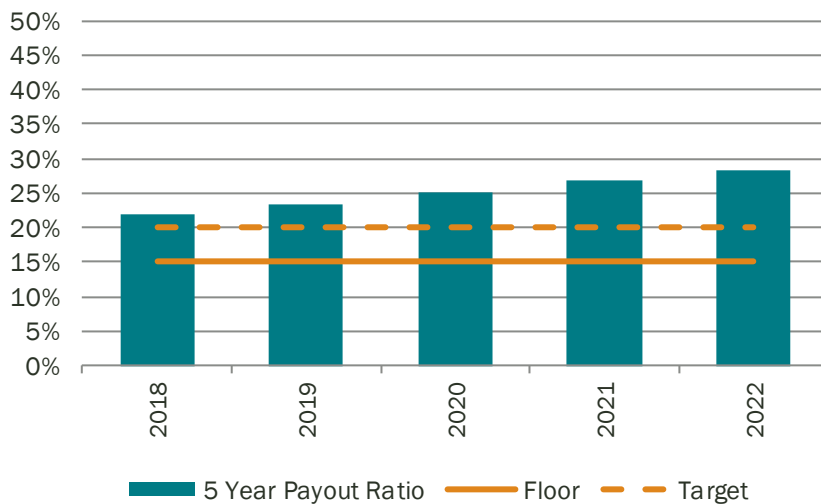
5-Year Payout Ratio Overview

- What does it measure? The percentage of UNCG's debt scheduled to be retired in the next five years.
- How is it calculated? Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 20%
- Floor Ratio: Not less than 15%
- Projected 2018 Ratio: 22%
- Lowest Study Period Ratio: 22% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	327,585,009	22%
2019	314,449,160	23%
2020	300,748,298	25%
2021	286,427,011	27%
2022	271,503,840	28%

5-Year Payout Ratio



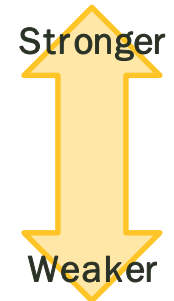
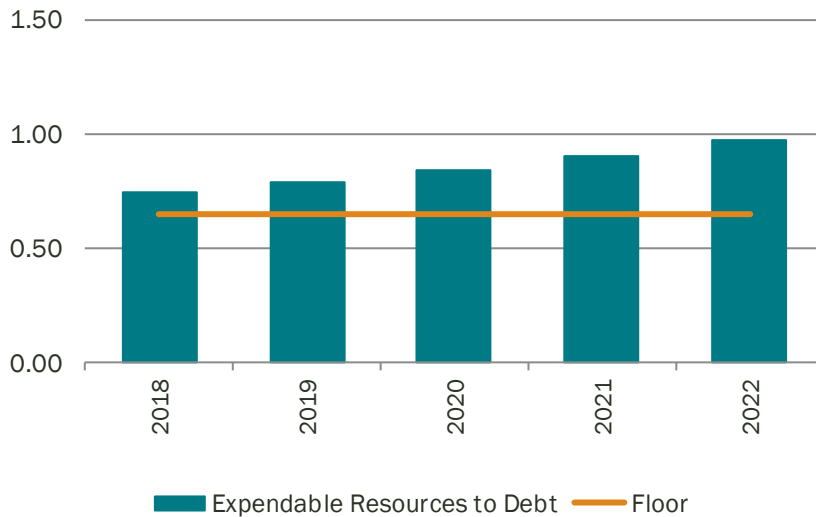
Expendable Resources to Debt

- **What does it measure?** The number of times UNCG's liquid and expendable net position cover its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.65x
- Projected 2018 Ratio: 0.74x
- Lowest Study Period Ratio: 0.74x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	243,910,874	2.10%	281,585,009	46,000,000	0.87	0.74
2019	249,033,002	2.10%	269,673,199	44,775,961	0.92	0.79
2020	254,262,695	2.10%	257,235,913	43,512,385	0.99	0.85
2021	259,602,212	2.10%	244,219,015	42,207,996	1.06	0.91
2022	265,053,859	2.10%	230,642,366	40,861,475	1.15	0.98

Expendable Resources to Debt



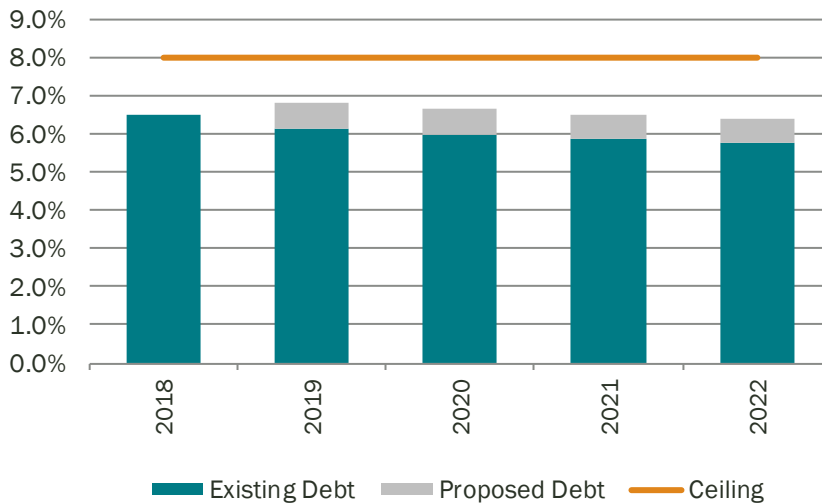
Debt Service to Operating Expenses

- **What does it measure?** UNCG's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 8.00%
- Projected 2018 Ratio: 6.50%
- Highest Study Period Ratio: 6.80% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	399,733,802	2.10%	25,949,730	-	6.49%	n/a	6.49%
2019	409,614,012	2.10%	25,170,646	2,709,839	6.14%	0.66%	6.81%
2020	418,145,168	2.10%	25,027,029	2,709,839	5.99%	0.65%	6.63%
2021	426,855,031	2.10%	25,037,261	2,709,839	5.87%	0.63%	6.50%
2022	435,747,341	2.10%	25,036,099	2,709,839	5.75%	0.62%	6.37%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNCG's debt capacity is based on the amount of debt UNCG could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNCG's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, UNCG's current estimated debt capacity is **\$155,643,511**. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNCG issued no additional debt until the last year of the Study Period, then UNCG's debt capacity for 2022 is projected to increase to **\$253,602,713**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.69	2.50	155,634,511
2019	1.59	2.50	178,917,971
2020	1.49	2.50	202,979,542
2021	1.39	2.50	227,879,114
2022	1.29	2.50	253,602,713

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNCG's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If UNCG were to use all of its calculated debt capacity during the Study Period, UNCG's credit ratings may face significant downward pressure.**
- Projecting the exact amount UNCG could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNCG's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina at Greensboro

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2005A	UNC System Pool Revenue Bonds	3,150,000	4/1/2020	Baseball Stadium Phillips-Hawkins Renovation Residence Hall Wiring Walker/Mclver Parking Decks	1997B 1997C 1997D 2000G	Student Facilities Housing System Housing System Parking System
2009A	General Revenue Bonds	1,905,000	4/1/2019	Spring Garden Apts Spring Garden Apts Parking Deck		Housing System Parking System
2010B-2	UNC System Pool Revenue Bonds	13,340,000	4/1/2026	EUC Addition and Renovation Soccer Stadium Student Recreation Center Oakland Parking Deck EUC Addition - Dining Facilities	2001A 2001B 2001B 2001B 2001B	Student Facilities Student Facilities Student Facilities Parking System Dining System
2011	General Revenue & Refunding Bonds	74,010,000	4/1/2036	Highrise Roofs Quad Renovations Dining Hall Renovations	2002A	Housing System Housing System Dining System
2012A	General Revenue and Revenue Refunding Bonds	44,015,000	4/1/2037	Track Softball Stadium Residence Hall Bath HVAC Jefferson Suites Residence Hall Moore/Strong Renovation Jefferson Suites Dining Dining Hall Roof Campus Police Building	2004C 2004C 2002A 2004C 2004C 2004C 2004C	Student Facilities Student Facilities Housing System Housing System Housing System Dining System Dining System Auxiliary Administration
2014	General Revenue Bonds	117,430,000	4/1/2039	Student Recreation Center Spartan Village Phase I		Student Facilities Housing System
2015	General Revenue Refunding Bond	8,466,000	4/1/2026	Baseball Stadium Phillips-Hawkins Renovation Residence Hall Wiring Walker/Mclver Parking Decks	2005A 2012B 2005A 2012B 2005A 2012B 2005A 2012B	Student Facilities Housing System Housing System Parking System
2015	PNC Bank Advance	44,588,990	9/1/2018	Interim Financing for Spartan Village Phase II		Housing System
2016	General Revenue Refunding Bonds	21,575,000	4/1/2034	Spring Garden Apts Spring Garden Apts Parking Deck		Housing System Parking System
2017	CFF Advances	9,460,000	4/1/2047	Theater Project Administrative Support Project		Student Facilities Student Facilities
Total		337,939,990				

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7. Credit Profile

The following page provides a snapshot of UNCG's current credit ratings, along with (1) a summary of various credit factors identified in UNCG's most recent rating report and (2) recommendations for maintaining and improving UNCG's credit ratings in the future.

Overview

- Moody's maintains a Aa3 rating on the University's general revenue bonds. The outlook is stable.
- Standard and Poor's maintains an A+ rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Healthy support for operations and capital projects from the Aaa-rated State of North Carolina
- Strategic, central location in a state with favorable high school demographics, serving 18,154 full-time equivalent students
- Solid financial management and planning supports continued favorable operating performance
- Well-funded state multiple-employer defined benefit pension plan

Credit Challenges

- State-imposed tuition pricing constraints limit pricing flexibility and will likely suppress tuition revenue growth beginning in fiscal 2018
- Moderately elevated financial leverage, with spendable cash and investments cushioning debt 0.8x
- Geographic concentration of enrollment and primarily undergraduate focus increases exposure to conditions within North Carolina

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

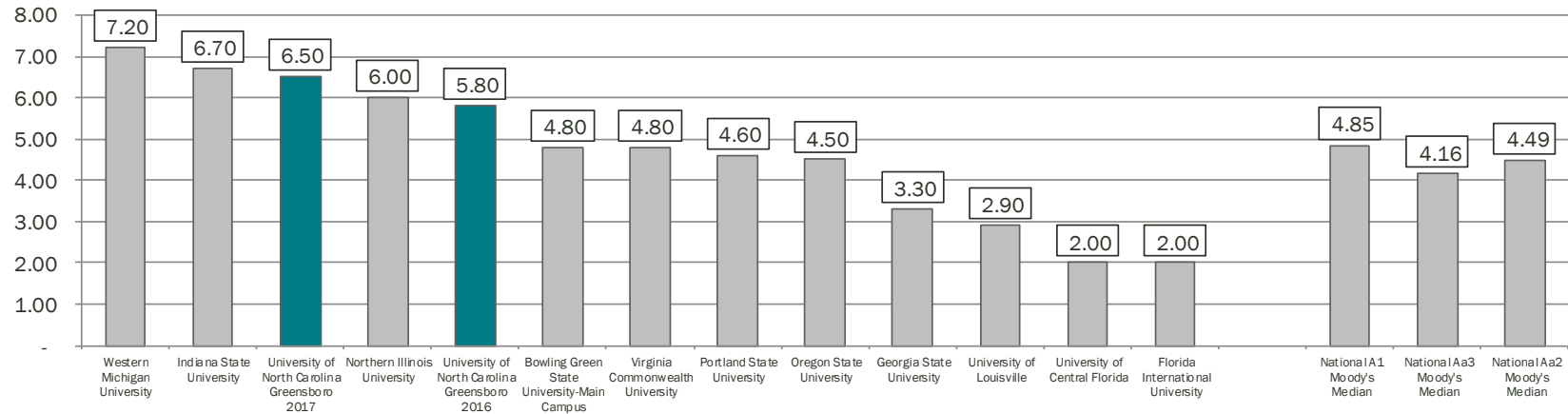
- Pursue strategies, working within the existing statutory framework relating to reversions, to increase liquidity through growth in cash reserves.
- Continue to seek strategies to limit new debt in the near term while addressing critical infrastructure needs, in accordance with the University's existing debt policy and in service of the University's other strategic initiatives.

8. Peer Comparison

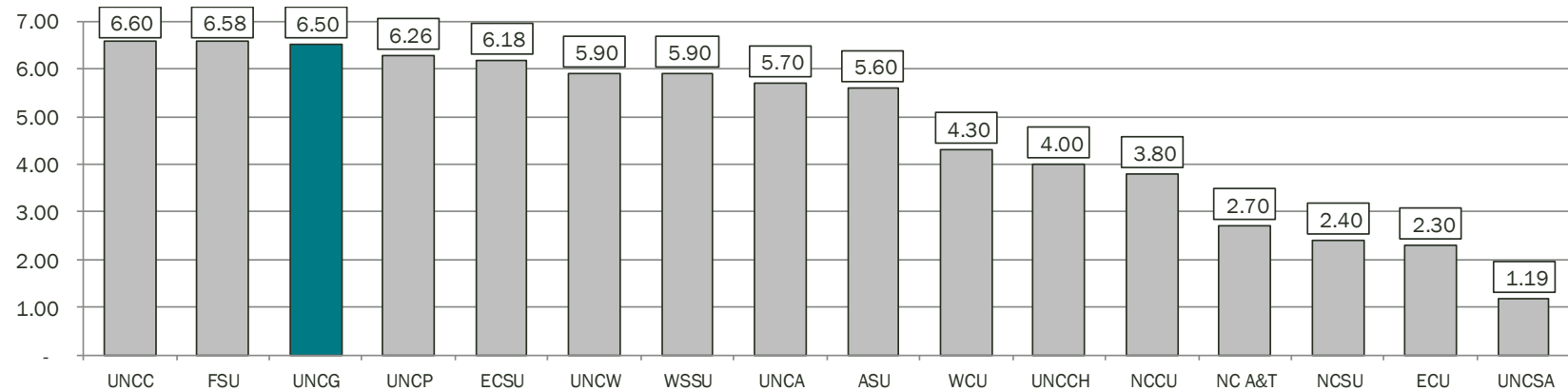
The following pages compare two measures of UNCG's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNCG (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
UNCG vs. National Peers



Debt Service to Operating Expenses (%)
UNCG vs. UNC System



Notes:

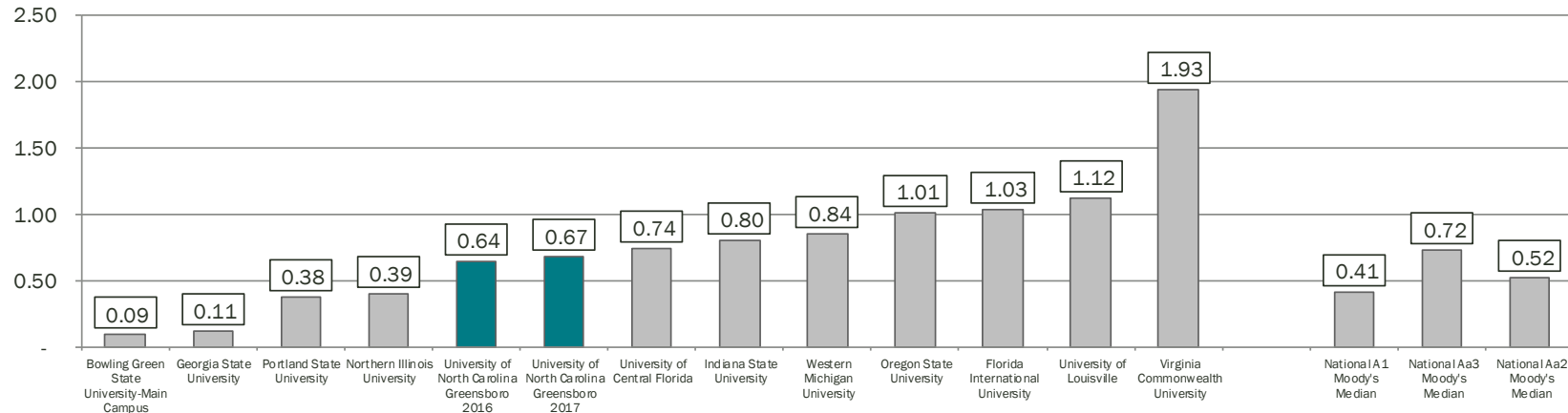
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

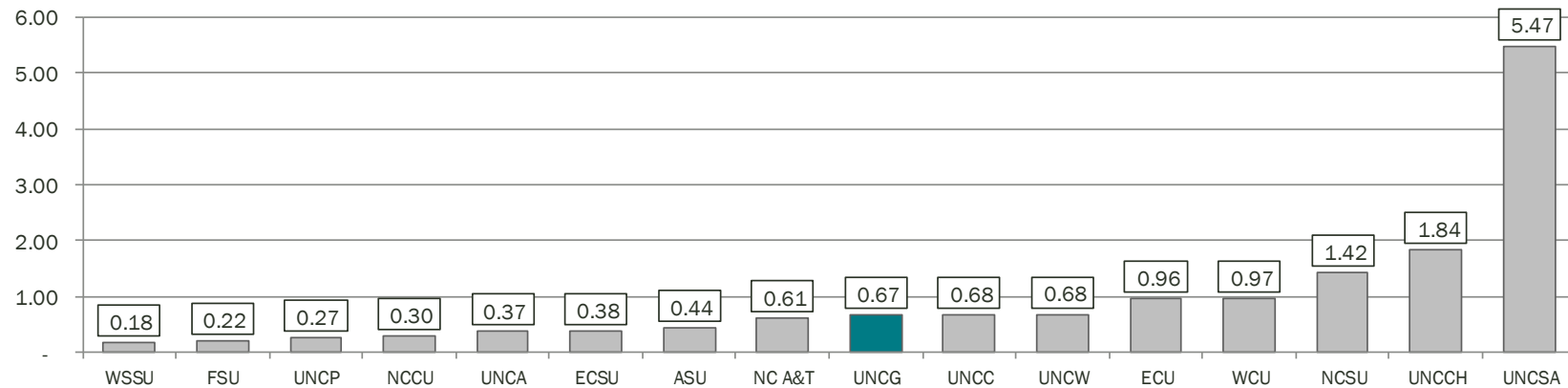
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Expendable Financial Resources to Debt

Expendable Financial Resources to Debt UNCG vs. National Peers



Expendable Financial Resources to Debt UNCG vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

UNCG's current debt policy is included in the following pages.

Financial Services Policy 13 – Debt Policy

A. Objectives:

1. Prudent utilization of debt to provide a low cost source of capital to fund capital projects and other strategic initiatives in order to achieve the University's mission and strategic objectives.
2. Management of the University's overall debt level in order to provide appropriate access to capital and to maintain a credit rating deemed acceptable by the Board. The minimum acceptable underlying rating for a University issue is the single "A" category by the major rating agencies.
3. Management of the University debt portfolio by balancing the goal of attaining the lowest cost of capital with the goal of minimizing interest rate risk.
4. Management of outstanding debt over time to achieve a low cost of capital and to take advantage of interest rate cycles and refunding opportunities.
5. Assure projects financed have a feasible plan of repayment.

B. Legal Authority for Financings

University financings will conform to the authority granted by North Carolina and Federal laws.

1. General Revenue Bonds

The Board of Governors of the University of North Carolina is authorized under Chapter 116 of the General Statutes of North Carolina as amended, to issue, subject to the approval of the Director of Budget, at one time or from time to time, special obligation bonds of the Board, for the purpose of paying all or any part of the cost of acquiring, constructing or providing one or more capital facilities at UNCG or refunding any bonds issued under any provision of any Article of Chapter 116 for the benefit of UNCG.

2. Energy Savings Performance Contracts

UNCG has the power, pursuant to Chapter 142, Article 8 of the General Statutes of North Carolina, to enter into installment financing contracts to finance the purchase of personal property, including equipment for energy savings projects. For energy savings projects, approval is required by the Office of State Budget and Management, the State Treasurer, the State Energy Office, and the Council of State.

3. Interest Rate Swaps

Interest rate swaps and other derivative products are authorized under Chapter 159 of the General Statutes of North Carolina. In general, interest rate swaps are utilized to reduce the cost and/or risk of existing or planned University debt. By using swaps in a prudent manner, the University can take advantage of market opportunities to reduce debt service cost and/or interest rate risk. The use of swaps must be tied directly to University debt instruments. Swaps may not be utilized for speculative purposes.

C. Assignment of Responsibilities

1. The University takes a comprehensive team approach relative to managing debt. The “Debt Management Team” consists of the Vice Chancellor for Business Affairs (VC – Business Affairs), the Associate Vice Chancellor for Finance (AVC – Finance), the Director of Financial Planning & Budgets (Budget Director), the University Controller (Controller), the Bond Legal Counsel (Bond Counsel), and the Financial Advisor.
2. The VC – Business Affairs participates in the executive level capital planning for all University Facilities. For Self-liquidating Capital Projects, the VC – Business Affairs coordinates through the Associate Vice Chancellor for Facilities, the development and periodic updating of the self-liquidating capital projects multi-year plan, which is the basis for defining the debt needs.
3. The AVC – Finance works closely with the VC – Business Affairs and the Budget Director in the selection of the primary advisors on debt. These primary advisors are the Bond Counsel and the Financial Advisor, who are engaged for a period of years, upon approval by the Vice President for Finance of the University of North Carolina. It is the AVC – Finance’s role to work with the Financial Advisor and assess debt capacity based on the current outstanding debt and any planned issues, including the multi-year Self-Liquidating Capital Projects plan. If it is determined that the University will reach its debt capacity from issuing debt on the proposed projects, then priorities and timing will be addressed with the VC – Business Affairs and the project owners to best meet the overall needs of the University. During the year, the Associate Vice Chancellor for Finance meets periodically with the Financial Advisor and/or Bond Counsel other members of the Management Team to discuss debt needs, opportunities and options, including any upcoming debt issues and/or refundings. If action is warranted, the entire team is pulled together to decide upon the merits and, if justified, to define a plan to accomplish the debt issuance, refunding, swap, liquidation or other initiative.
4. It is the Budget Director’s primary role to assemble the project description and required financial and statistical information, review the official statements and to do the reporting required by the SEC (NRMSIR).
5. It is the role of the Financial Advisor and Bond Counsel to recommend the approach and financing instrument to best meet the needs of the University and to coordinate the RFP and selection of financial institutions and/or underwriters. The Bond Counsel secures the most favorable terms and covenants, and coordinates the preparation of legal documents with input and review by the Debt Management Team. The Financial Advisor coordinates the preparation of the details of the financing and insurance or other credit enhancements. The Financial Advisor also coordinates review and rating by the appropriate rating agencies.
6. It is the Controller’s primary role to coordinate receipt and distribution of proceeds, payments to fiscal agents, allocations of debt service payments to project owners, arbitrage calculations and reporting, and financial reporting.

D. Debt Management Strategies

1. Fixed versus variable rate allocation

The University will assess prevailing market interest rates and the current debt mix to determine whether to issue fixed or variable rate debt. Variable rate debt can provide a lower cost of capital, but introduces additional risks. To limit this risk, variable rate debt will be no more than 40% of the overall debt outstanding.

Variable rate exposure may be achieved directly through debt issuance or indirectly by entering into an interest rate swap contract.

2. Methods of Sale

The University will consider various methods of sale. Negotiated and competitive sales will be considered on an individual transaction basis. Issue size and complexity will be factors in determining which method of sale to pursue. A retail sales approach may be implemented if deemed appropriate for the particular transaction.

3. Purchase of Insurance or Credit Enhancement

The University will evaluate insurance and credit enhancement opportunities and utilize them if they are deemed cost effective.

4. Refunding Targets

The University will monitor its debt portfolio for refunding and/or restructuring opportunities. Advance refunding transactions must weigh the current opportunity against possible future refunding opportunities. In general, for a stand-alone refunding, the University will enter into a transaction that produces greater than 3% net present value savings, with this threshold higher for those transactions with a long escrow, such as advance refundings. The savings threshold can be less for refundings combined with new issues or other refundings, or for business reasons such as freeing up a reserve fund.

5. Selection of Underwriters and Participants on the Selling Team

The University will utilize a request for proposal process to select senior and co-managing underwriters for University debt issuance. The University will reserve the right to utilize a competitive process for any debt issue.

6. Efficiency of Issuance

The University will combine capital projects within a reasonable time horizon into a single issuance to save costs, to the extent that it is feasible. For small issues even after combining, the University of North Carolina bond pool will be utilized if the timing meets UNCG's needs and it is cost effective and efficient for UNCG. For larger issues, the bond pool will be utilized if significant cost savings can be realized as well as being efficient and timely for UNCG. Stand alone issues will be utilized when in the best interest of UNCG upon approval of the Vice President for Finance.

7. Integrity of Revenue Streams

The revenue system (housing & dining, or parking, or student fees, etc.) for each self-liquidating capital project must stand on its own bottom line, supported by a revenue stream that can fully liquidate the debt

over the amortization period in a fiscally sound manner. Debt service costs will be allocated to the capital project owners in proportion to the projects participation in the borrowing.

8. Debt Service Leveling and Reserve for Variable Rate Debt Fluctuations

The University will allocate debt service costs on capital projects funded with variable rate debt to the capital project owners on a fixed rate basis, effective at the time of issue, over the course of the amortization period. The differences between the allocation and the actual debt service will be placed in a reserve and returned to the project owners at the end of the amortization period. This is effectively an internal hedge to protect business operations from wide fluctuation in variable rates over the life of the debt with a leveling factor. Interest income will be allocated to the reserve.

E. Debt Compliance and Reporting

1. Continuing Disclosure Compliance

The University will meet the ongoing disclosure requirements in accordance with SEC Rule 15c2-12 (NRMSIR). The University will submit all reporting required with respect to outstanding bonds or certificates of participation to which such Rule is applicable.

2. Arbitrage Rebate Compliance

The University will comply with arbitrage requirements on invested tax-exempt bond proceeds. Arbitrage calculations will be performed as needed.

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

University of North Carolina at Pembroke
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), University of North Carolina at Pembroke (“**UNCP**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNCP has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNCP, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNCP has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNCP’s debt capacity reflects the amount of debt UNCP could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNCP intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNCP’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNCP’s outstanding debt;
- UNCP’s current credit profile, along with recommendations for maintaining or improving UNCP’s credit rating; and
- A copy of any UNCP debt management policy currently in effect.

Overview of UNCP

For the fall 2017 semester, UNCP had a headcount student population of approximately 6,252, including 5,481 undergraduate students and 771 graduate and doctoral students. UNCP employs approximately 387 full-time, part-time and temporary instructional faculty.

Over the past 10 years, UNCP’s enrollment has increased approximately 6%. UNCP expects modest enrollment growth over the Study Period. UNCP’s average age of plant (13.09 years) is lower than the median ratio for all Campuses (13.60 years). If an institution’s average age of plant is less than 14, then it generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

UNCP does not anticipate significant additional borrowings during the Study Period.

UNCP has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNCP's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNCP by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNCP expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate UNCP's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	37,348,755			37,348,755	2018	2,450,000	1,599,605	4,049,605	46,970,000
2014	37,193,989		-0.41%	37,193,989	2019	2,170,000	1,572,649	3,742,649	44,800,000
2015	26,674,316	6,888,881	-9.76%	33,563,197	2020	2,175,000	1,506,278	3,681,278	42,625,000
2016	31,301,966	5,138,782	8.57%	36,440,748	2021	2,210,000	1,442,806	3,652,806	40,415,000
2017	33,813,637	5,641,926	8.27%	39,455,563	2022	2,275,000	1,377,599	3,652,599	38,140,000
2018	40,284,129	-	2.10%	40,284,129	2023	2,380,000	1,308,369	3,688,369	35,760,000
2019	41,130,096	-	2.10%	41,130,096	2024	2,345,000	1,238,455	3,583,455	33,415,000
2020	41,993,828	-	2.10%	41,993,828	2025	3,675,000	1,168,935	4,843,935	29,740,000
2021	42,875,699	-	2.10%	42,875,699	2026	2,145,000	1,058,206	3,203,206	27,595,000
2022	43,776,088	-	2.10%	43,776,088	2027	2,245,000	991,431	3,236,431	25,350,000
Operating Expenses					2028	2,335,000	921,893	3,256,893	23,015,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	2,445,000	849,684	3,294,684	20,570,000
2013	112,090,440			112,090,440	2030	2,555,000	774,111	3,329,111	18,015,000
2014	110,163,671		-1.72%	110,163,671	2031	2,675,000	695,295	3,370,295	15,340,000
2015	113,351,360	1,437,592	4.20%	114,788,952	2032	2,795,000	612,661	3,407,661	12,545,000
2016	119,081,763	1,752,526	5.27%	120,834,289	2033	1,940,000	530,564	2,470,564	10,605,000
2017	122,942,369	(497,303)	1.33%	122,445,066	2034	1,650,000	452,790	2,102,790	8,955,000
2018	125,016,412	-	2.10%	125,016,412	2035	1,575,000	388,732	1,963,732	7,380,000
2019	127,641,757	-	2.10%	127,641,757	2036	1,140,000	325,630	1,465,630	6,240,000
2020	130,322,234	-	2.10%	130,322,234	2037	935,000	277,122	1,212,122	5,305,000
2021	133,059,001	-	2.10%	133,059,001	2038	975,000	235,712	1,210,712	4,330,000
2022	135,853,240	-	2.10%	135,853,240	2039	1,015,000	192,531	1,207,531	3,315,000
					2040	1,060,000	147,577	1,207,577	2,255,000
					2041	1,105,000	100,631	1,205,631	1,150,000
					2042	1,150,000	51,320	1,201,320	-

Notes

- Expendable Resources equals Unrestricted Net Assets plus Restricted, Expendable Net Assets plus Foundation Unrestricted Net Assets plus Foundation Temporarily Restricted Net Assets minus Restricted, Expendable Net Assets Restricted for Capital Projects.
- Unrestricted Net Assets has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	14,978,932	11,296,536	-	-	704,925		-	25,570,542
2014	13,380,928	15,899,562	-	-	3,309,839	1.56%	-	25,970,652
2015	3,065,037	15,801,611	-	-	3,665,378	-14.94%	6,888,881	22,090,152
2016	3,786,104	14,063,150	-	-	3,419,547	-11.42%	5,138,782	19,568,489
2017	5,005,661	12,854,724	-	-	2,955,461	5.00%	5,641,926	20,546,850
2018	10,871,187	13,124,673	-	-	3,017,526	2.10%	-	20,978,334
2019	11,099,482	13,400,291	-	-	3,080,894	2.10%	-	21,418,879
2020	11,332,571	13,681,698	-	-	3,145,593	2.10%	-	21,868,675
2021	11,570,555	13,969,013	-	-	3,211,650	2.10%	-	22,327,918
2022	11,813,536	14,262,362	-	-	3,279,095	2.10%	-	22,796,804

3. Proposed Debt Financings

While UNCP evaluates its capital investment needs on a regular basis, UNCP currently has no legislatively approved projects that it anticipates financing during the Study Period.

4. Financial Ratios

Debt to Obligated Resources

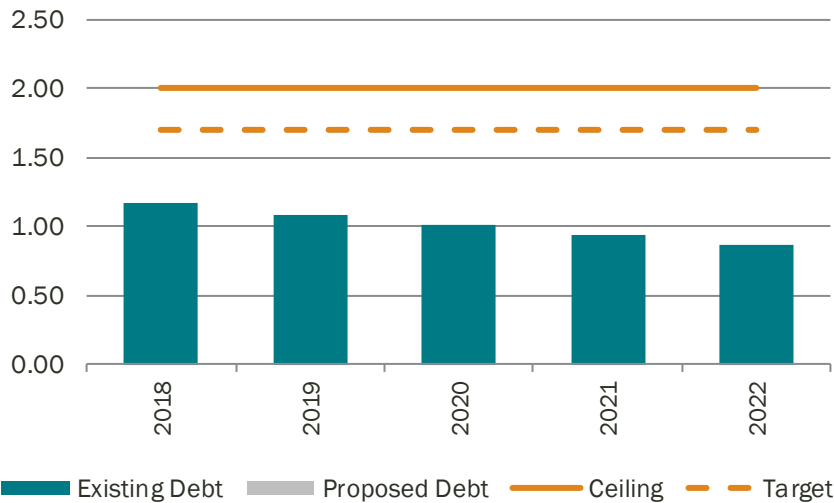
- What does it measure? UNCP's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- How is it calculated? Aggregate debt divided by obligated resources*
- Target Ratio: 1.70
- Ceiling Ratio: Not to exceed 2.00
- Projected 2018 Ratio: 1.17
- Highest Study Period Ratio: 1.17 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	40,284,129	2.10%	46,970,000	-	1.17	n/a	1.17
2019	41,130,096	2.10%	44,800,000	-	1.09	n/a	1.09
2020	41,993,828	2.10%	42,625,000	-	1.02	n/a	1.02
2021	42,875,699	2.10%	40,415,000	-	0.94	n/a	0.94
2022	43,776,088	2.10%	38,140,000	-	0.87	n/a	0.87

Debt to Obligated Resources



Weaker
Stronger

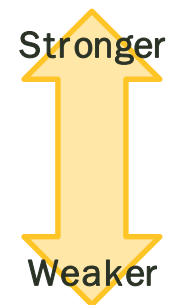
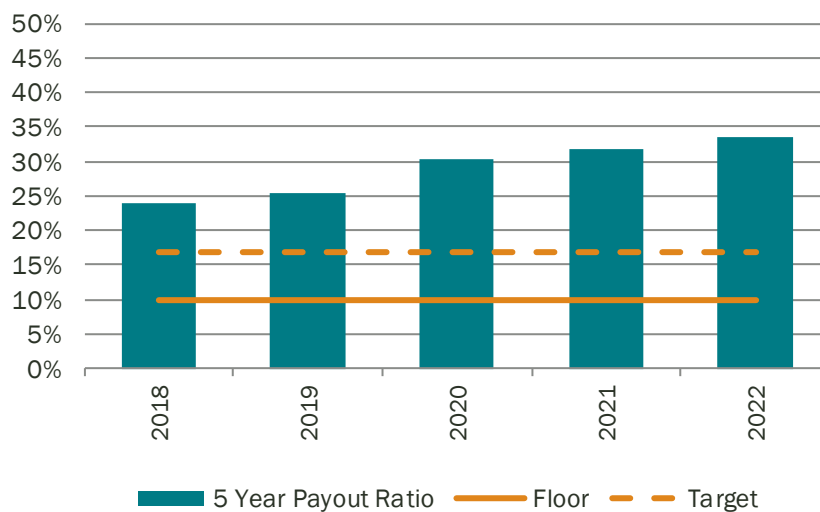
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of UNCP's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 17%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 24%
- Lowest Study Period Ratio: 24% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	46,970,000	24%
2019	44,800,000	25%
2020	42,625,000	30%
2021	40,415,000	32%
2022	38,140,000	34%

5-Year Payout Ratio



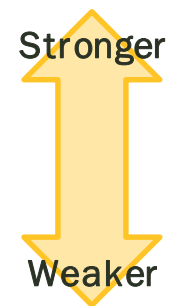
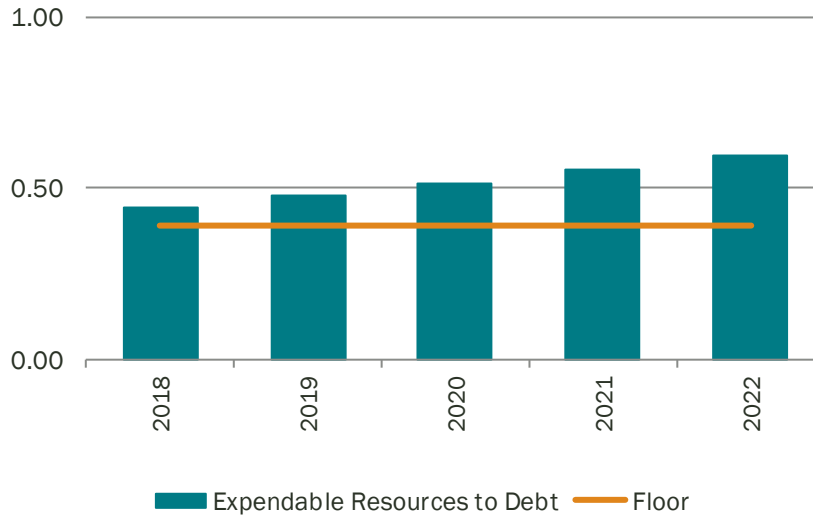
Expendable Resources to Debt

- **What does it measure?** The number of times UNCP's liquid and expendable net assets covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
- Floor Ratio: Not less than 0.39x
- Projected 2018 Ratio: 0.45x
- Lowest Study Period Ratio: 0.45x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	20,978,334	2.10%	46,970,000	-	0.45	0.45
2019	21,418,879	2.10%	44,800,000	-	0.48	0.48
2020	21,868,675	2.10%	42,625,000	-	0.51	0.51
2021	22,327,918	2.10%	40,415,000	-	0.55	0.55
2022	22,796,804	2.10%	38,140,000	-	0.60	0.60

Expendable Resources to Debt



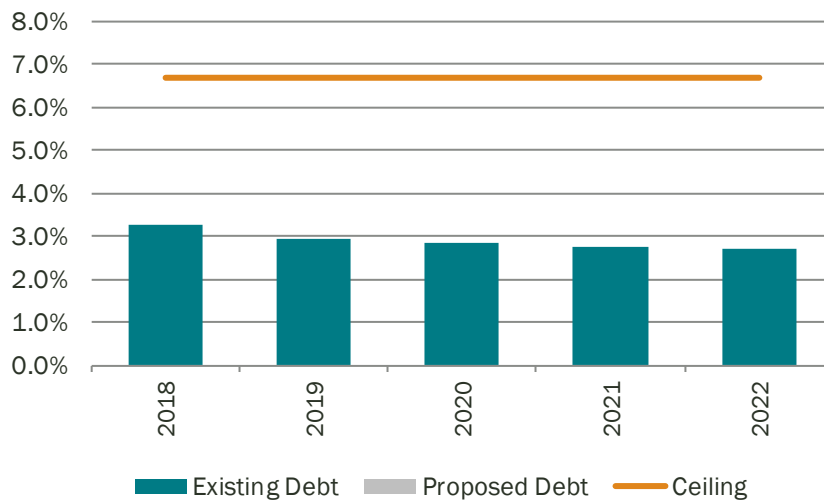
Debt Service to Operating Expenses

- **What does it measure?** UNCP's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 6.70%
- Projected 2018 Ratio: 3.24%
- Highest Study Period Ratio: 3.24% (2018)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	125,016,412	2.10%	4,049,605	-	3.24%	n/a	3.24%
2019	127,641,757	2.10%	3,742,649	-	2.93%	n/a	2.93%
2020	130,322,234	2.10%	3,681,278	-	2.82%	n/a	2.82%
2021	133,059,001	2.10%	3,652,806	-	2.75%	n/a	2.75%
2022	135,853,240	2.10%	3,652,599	-	2.69%	n/a	2.69%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNCP's debt capacity is based on the amount of debt UNCP could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNCP's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, UNCP's current estimated debt capacity is **\$33,598,259**. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNCP issued no additional debt until the last year of the Study Period, then UNCP's debt capacity for 2022 is projected to increase to **\$49,412,177**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.17	2.00	33,598,259
2019	1.09	2.00	37,460,192
2020	1.02	2.00	41,362,656
2021	0.94	2.00	45,336,397
2022	0.87	2.00	49,412,177

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNCP's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If UNCP were to use all of its calculated debt capacity during the Study Period, UNCP's credit ratings may face significant downward pressure.**
- Projecting the exact amount UNCP could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNCP's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina at Pembroke

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2001A	Student Housing Revenue Bonds	8,525,000	7/1/2031	Courtyard Project		Housing Lease Revenues
2003B	UNC System Pool Revenue Bonds	150,000	4/1/2018	Auxiliary Services Building Recreational Facilities University Center Renovations		Auxiliary Revenues Auxiliary Revenues Auxiliary Revenues
2006B	UNC System Pool Revenue Bonds	690,000	10/1/2022	Dining System Recreational Facilities University Center Expansion		Auxiliary Revenues Auxiliary Revenues Auxiliary Revenues
2008A	UNC System Pool Revenue Bonds	1,630,000	10/1/2033	Athletic Fieldhouse		Auxiliary Revenues
2010B	Taxable Limited Obligation Bonds	18,435,000	3/1/2042	Cypress Hall		Housing Lease Revenues
2012	Promissory Note	470,000	10/1/2018	Pine Hall		Housing Revenues
2015	Promissory Note	4,045,000	4/1/2025	Student Health Services Building Auxiliary Services Building		Auxiliary Revenues
2017	Refunding Limited Obligation Bond	15,475,000	3/1/2036	University Village Apartments Oak Hall	2004 2006	Housing Lease Revenues Housing Lease Revenues
Total		49,420,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of UNCP's current credit ratings, along with (1) a summary of various credit factors identified in UNCP's most recent rating report and (2) recommendations for maintaining and improving UNCP's credit ratings in the future.

Overview

- Standard and Poor's maintains an A- issuer credit rating for the University of North Carolina at Pembroke. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Historically strong, albeit recently reduced, state operating and capital support from North Carolina
- Average maximum annual debt service (MADS) burden of 4.1% compared to fiscal 2013 operating expenses with limited additional debt plans

Credit Challenges

- Modest demand profile with historical enrollment fluctuations – Enrollment, however, has stabilized recently
- Adequate financial resources for the rating category with adjusted fiscal 2013 unrestricted net assets equal to approximately 13% of operating expenses and 31% of outstanding debt
- Operating performance that is generally negative on a full-accrual basis, albeit positive on a cash basis.

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

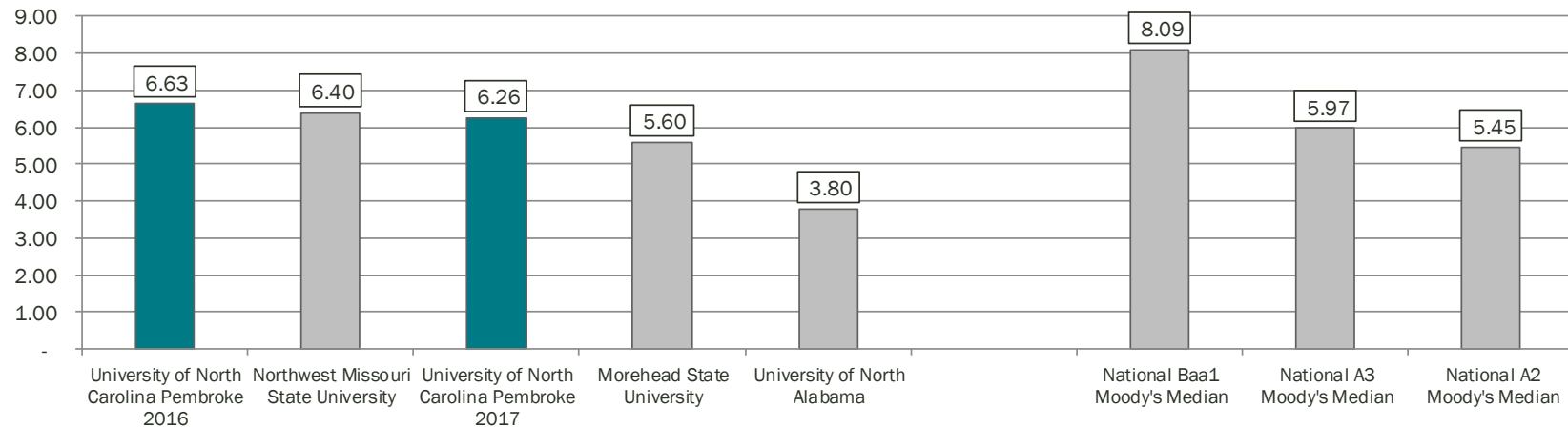
- Continue to develop and implement strategies and policies to meet the University's unique challenges, including strategies to stabilize and improve enrollment and revenue.

8. Peer Comparison

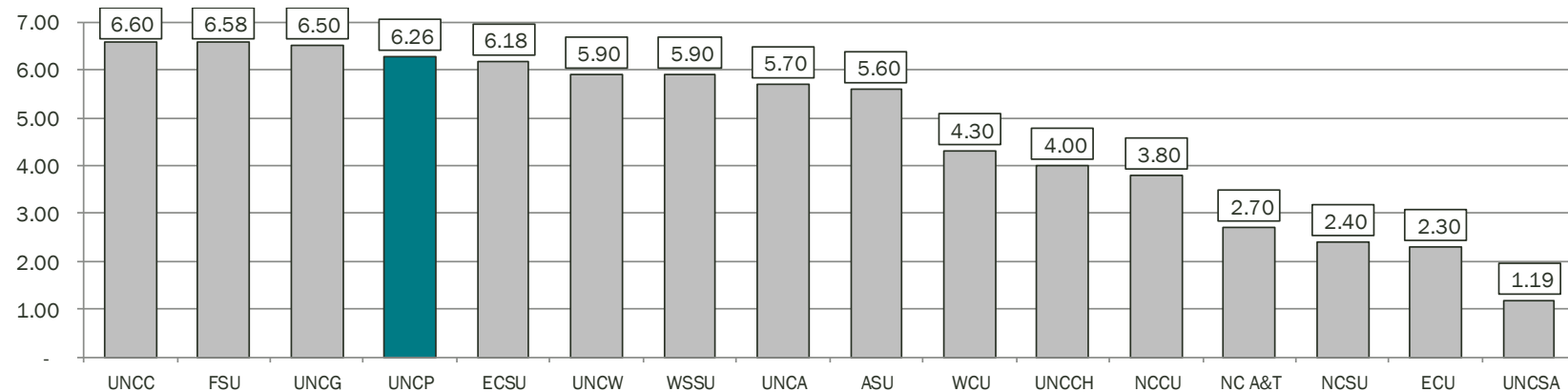
The following pages compare two measures of UNCP's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNCP (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
UNCP vs. National Peers



Debt Service to Operating Expenses (%)
UNCP vs. UNC System



Notes:

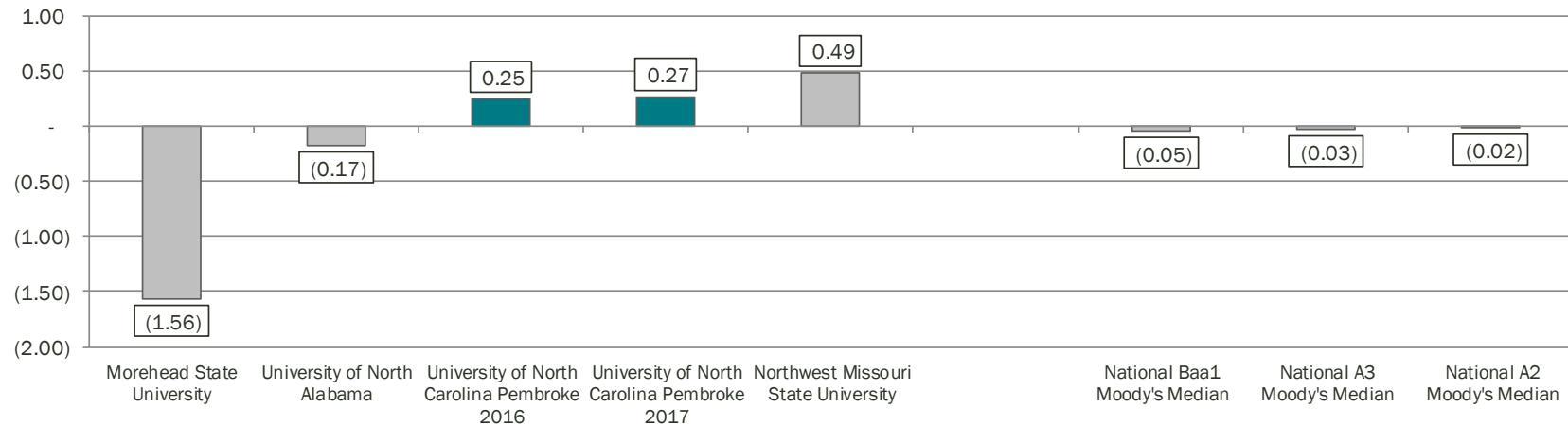
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

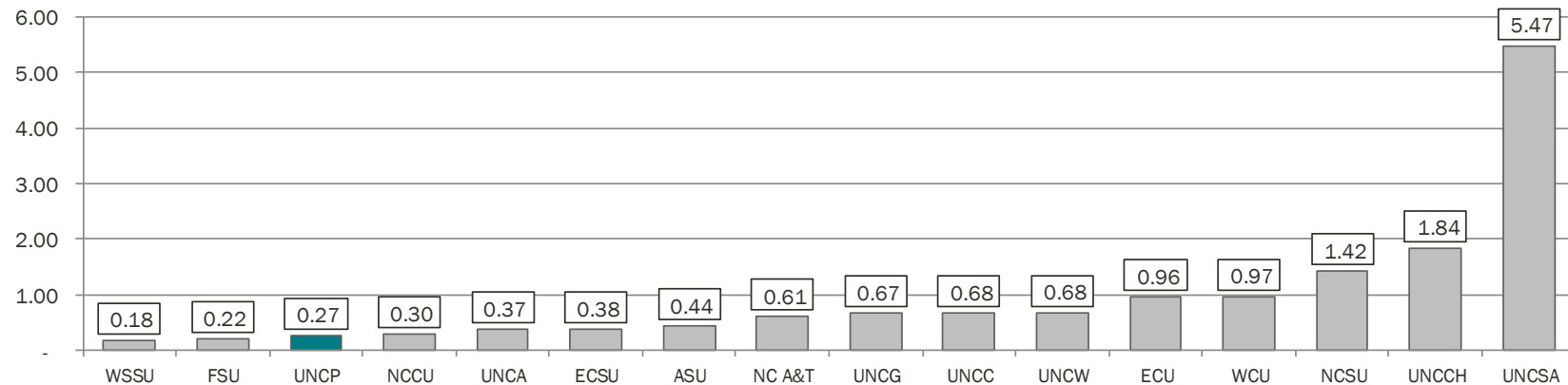
Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt

Expendable Financial Resources to Debt UNCP vs. National Peers



Expendable Financial Resources to Debt UNCP vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

UNCP's current debt policy is included in the following pages.

POL 07.35.01
Debt Management Policy

Authority: Board of Trustees

History:

- First Issued: 2017

Related Policies:

Additional References:

- [NCGS §116D-55 - Managing Debt Capacity](#)
- [NCGS §116D-56 - Debt affordability study required](#)

Contact Information: Vice Chancellor for Finance and Administration, 910-775-6209

1. INTRODUCTION

1.1 The University of North Carolina at Pembroke (“UNCP”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the realization of UNCP’s mission and, consequently, the successful implementation of UNCP’s strategic vision to challenge students to embrace difference and adapt to change, think critically, communicate effectively, and become responsible citizens. UNCP recognizes the important role that debt-related strategies may play as it makes the necessary investments in its infrastructure in order to become and remain the destination institution for dedicated students seeking challenging academic programs, engaged faculty and a vibrant campus culture.

1.2 This Policy has been developed to assist UNCP’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with UNCP’s stated policies, objectives and core values. Like other limited resources, UNCP’s debt capacity should be used and allocated strategically and equitably.

1.3 Specifically, the objective of this Policy is to provide a framework that will enable UNCP’s Board of Trustees (the “Board”) and finance staff to:

1.3.a. Identify and prioritize projects eligible for debt financing;

1.3.b. Limit and manage risk within UNCP’s debt portfolio;

1.3.c. Establish debt management guidelines and quantitative parameters for evaluating UNCP’s financial health, debt affordability and debt capacity;

1.3.d. Manage and protect UNCP’s credit profile in order to maintain UNCP’s credit rating at a strategically optimized level and maintain access to the capital markets; and

1.3.e. Ensure UNCP remains in compliance with all of its post-issuance obligations and requirements.

1.4 This Policy is intended solely for UNCP's internal planning purposes. The Vice Chancellor for Finance and Administration will review this Policy annually and, if necessary, recommend changes to ensure that it remains consistent with University's strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Policy are subject to the Board's approval. Attaining or maintaining a specific credit rating is not an objective of this Policy.

2. AUTHORIZATION AND OVERSIGHT

2.1 UNCP's Vice Chancellor for Finance and Administration is responsible for the day-to-day management of UNCP's financial affairs in accordance with the terms of this Policy and for all of UNCP's debt financing activities. Each University financing will conform to all applicable State and Federal laws.

2.2 The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

3. PROCESS FOR IDENTIFYING AND PRIORITIZING CAPITAL PROJECTS REQUIRING DEBT

3.1 Only projects that directly or indirectly relate to the mission and vision of UNCP will be considered for debt financing.

3.1.a. Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies, sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.

3.1.b. Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.

3.1.c. Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any projects that will require gift financing or include a gift financing component must be jointly approved by the Vice Chancellor for Finance and Administration and the Vice Chancellor for Advancement before any project-restricted donations are solicited. The fundraising goal for any project to be financed primarily with donations should also include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

4. BENCHMARKS AND DEBT RATIOS

4.1 Overview

4.1.1 When evaluating its current financial health and any proposed plan of finance, UNCP takes into account both its debt affordability and its debt capacity. Debt affordability focuses on UNCP's cash flows and measures UNCP's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between UNCP's net assets and its total debt outstanding.

4.1.2 Debt capacity and affordability are impacted by a number of factors, including UNCP's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, UNCP's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

4.1.3 UNCP understands, however, that it is important to consider and monitor objective metrics when evaluating UNCP's financial health and its ability to incur additional debt. To that end, UNCP has identified three key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

4.1.3.a. Debt to Obligated Resources

4.1.3.b. Expendable Resources to Debt

4.1.3.c. Debt Service to Operating Expenses

4.1.4 Note that the selected financial ratios are also monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study"), which UNCP believes will promote clarity and consistency in UNCP's debt management and planning efforts.

4.1.5 UNCP has established for each ratio a floor or ceiling target, as the case may be, with the expectation that UNCP will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this Policy should align with the ratios used in the report UNCP submits each year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve UNCP's financial health and operating flexibility and to ensure UNCP is able to access the market to address capital needs or to take advantage of potential refinancing opportunities.

4.1.6 UNCP recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of UNCP's strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, UNCP has developed as part of this Policy specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when UNCP has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this Policy. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

4.1.6.a. The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.

4.1.6.b. The proposed project would be financed entirely with private donations based on pledges already in hand.

4.1.6.c. The proposed project is essential to the implementation of one of the Board's strategic priorities.

4.1.6.d. The proposed project addresses life and safety issues or addresses other critical infrastructure needs.

4.1.6.e. Foregoing or delaying the proposed project would result in significant additional costs to UNCP or would negatively impact UNCP's credit rating.

At no point, however, should UNCP intentionally operate outside an established policy ratio without conscious and explicit planning.

4.2 Ratio One – Debt to Obligated Resources

4.2.1 The ratio, which is based on the legal structure proscribed by the General Revenue Bond Statutes, provides a general indication of UNCP's ability to absorb debt on its balance sheet and is the primary ratio used to calculate UNCP's "debt capacity" under the methodology used in the UNC Debt Capacity Study

4.2.2 Policy Ratio: Not to exceed 2.00x (UNC Debt Capacity Study Target Ratio = 1.50x)

4.3 Ratio Two – Expendable Resources to Debt

4.3.1 The ratio, which is widely tracked by rating agencies and other capital market participants, is a basic measure of financial health and assesses UNCP's ability to settle its debt obligations using only its available net assets as of a particular date

4.3.2 Policy Ratio: Not less than 0.39x

4.4 Ratio Three – Debt Service to Operating Expenses

4.4.1 The ratio, which is widely tracked by rating agencies and other capital market participants, evaluates UNCP's relative cost of borrowing to its overall expenditures and provides a measure of UNCP's budgetary flexibility

4.4.2 Policy Ratio: Not to exceed 6.70%

4.5 Reporting

4.5.1 The Vice Chancellor for Finance and Administration will review each ratio in connection with the delivery of the University's audited financials and will provide an annual report to the

Board detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

5. DEBT PORTFOLIO MANAGEMENT AND TRANSACTION STRUCTURE CONSIDERATIONS

5.1 Generally

5.1.1 Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Finance and Administration within the context of this Policy and the overall portfolio to ensure that any financial product or structure is consistent with UNCP's stated objectives. As part of effective debt management, UNCP must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

5.2 Method of Sale

5.2.1 UNCP will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves UNCP's strategic plan and financing objectives. In making that determination, UNCP will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect UNCP's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

5.3 Tax Treatment

5.3.1 When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce UNCP's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates UNCP's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

5.4 Structure and Maturity

5.4.1 To the extent practicable, UNCP should structure its debt to provide for level annual payments of debt service, though UNCP may elect alternative structures when the Vice Chancellor for Finance and Administration determines it to be in UNCP's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-

producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

5.4.2 UNCP will use maturity structures that correspond with the life of the facilities financed, not to exceed 30 years. Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

5.5 Variable Rate Debt

5.5.1 UNCP recognizes that a degree of exposure to variable interest rates within UNCP's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from UNCP's assets. UNCP's debt portfolio should be managed to ensure that no more than 20% of UNCP's total debt bears interest at an unhedged variable rate.

5.5.2 UNCP's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. UNCP may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. UNCP may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

5.6 Public-Private Partnerships (P3)

5.6.1 To address UNCP's anticipated capital needs as efficiently and prudently as possible, UNCP may choose to explore and consider opportunities for alternative and non-traditional transaction structures (collectively, "P3 Arrangements").

5.6.2 Due to the higher perceived risk and increased complexity of P3 Arrangements, and because the cash flows for the project must satisfy the private partner's expected risk-adjusted rate of return, the financing and initial transaction costs for projects acquired through P3 Arrangements are generally higher than projects financed with proceeds of traditional debt instruments. P3 Arrangements should therefore be pursued only when UNCP has determined that (1) a traditional financing alternative is not feasible, (2) a P3 Arrangement will likely produce construction or overall operating results that are superior, faster or more efficient than a traditional delivery model or (3) a P3 Arrangement serves one of the Board's broader strategic objectives (e.g., a decision that operating a particular auxiliary function is no longer consistent with UNCP's core mission).

5.6.3 Absent a compelling strategic reason to the contrary, P3 Arrangements should not be considered if the Vice Chancellor for Finance and Administration determines, in consultation with UNCP's advisors, that the P3 Arrangement will be viewed as "on-credit" (i.e., treated as University debt) by UNCP's auditors or outside rating agencies. When evaluating whether the P3 Arrangement should be viewed as "on-credit," rating agencies consider UNCP's economic

interest in the project and the level of control it exerts over the project. Further, rating agencies will generally treat a P3 Arrangement as University debt if the project is located on UNCP's campus or if the facility is to be used for an essential University function. For this reason, any P3 Arrangement for a university-related facility to be located on land owned by the State, UNCP or a UNCP affiliate must be approved in advance by the Vice Chancellor for Finance and Administration.

5.7 Refunding Considerations

5.7.1 UNCP will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, UNCP should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of UNCP ("Refunding Bonds") using the following general guidelines:

5.7.1.a. The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.

5.7.1.b. Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.

5.7.1.c. Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.

5.7.1.d. Refunding Bonds may also be issued to relieve UNCP of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

6. DERIVATIVE PRODUCTS

6.1 UNCP recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit UNCP to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. UNCP will use derivatives only to manage and mitigate risk; UNCP will not use derivatives to create leverage or engage in speculative transactions.

6.2 As with underlying debt, UNCP's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Finance and Administration must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2) ensure that UNCP's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

6.3 UNCP will use derivatives only when the Vice Chancellor for Finance and Administration determines, based on the foregoing analysis, that the instrument provides the most effective method for accomplishing UNCP's strategic objectives without imposing inappropriate risks on

UNCP.

7. DEFINITIONS

7.1 Debt to Obligated Resources - UNCP's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes. It is calculated by taking Aggregate debt and dividing it by obligated resources¹

7.2 Expendable Resources to Debt - The number of times UNCP's liquid and expendable net assets covers its aggregate debt. It is calculated as follows: The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt

7.3 Expendable Resources to Debt - UNCP's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.

¹ Available Funds - a concept commonly used to capture each UNC campus's obligated resources in its loan and bond documentation, has been used as a proxy for obligated resources. The two concepts are generally identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of UNCP's obligated resources.

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

University of North Carolina at Wilmington
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), University of North Carolina at Wilmington (“**UNCW**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNCW has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNCW, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNCW has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNCW’s debt capacity reflects the amount of debt UNCW could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNCW intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNCW’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNCW’s outstanding debt;
- UNCW’s current credit profile, along with recommendations for maintaining or improving UNCW’s credit rating; and
- A copy of any UNCW debt management policy currently in effect.

Overview of UNCW

For the fall 2017 semester, UNCW had a headcount student population of approximately 16,487, including approximately 14,502 undergraduate students and 1,985 graduate and doctoral students. UNCW employs approximately 1,067 full-time, part-time and temporary instructional faculty.

Over the past 10 years, UNCW’s enrollment has increased approximately 30%. UNCW expects modest enrollment growth over the Study Period. UNCW’s average age of plant (18.51 years), which is higher than the median ratio for all Campuses (13.60 years), is expected to decrease in light of UNCW’s recent investments in its facilities.

No additional borrowings have been approved during the Study Period, though UNCW is currently evaluating capital investments needed to realize its strategic plan.

UNCW has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNCW's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNCW by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNCW expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below overstate UNCW's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	154,714,685	-		154,714,685	2018	6,585,461	8,614,956	15,200,416	193,977,007
2014	169,927,162	-	9.83%	169,927,162	2019	7,237,580	8,334,915	15,572,495	186,739,427
2015	171,253,177	15,441,922	9.87%	186,695,099	2020	6,873,593	8,068,149	14,941,742	179,865,834
2016	174,716,226	11,657,030	-0.17%	186,373,256	2021	9,181,532	7,808,375	16,989,908	170,684,302
2017	190,889,259	12,189,121	8.96%	203,078,380	2022	9,956,431	7,418,502	17,374,933	160,727,871
2018	207,343,026	-	2.10%	207,343,026	2023	10,209,176	7,024,266	17,233,442	150,518,695
2019	211,697,230	-	2.10%	211,697,230	2024	9,615,594	6,680,194	16,295,788	140,903,101
2020	216,142,871	-	2.10%	216,142,871	2025	10,005,423	6,267,347	16,272,770	130,897,678
2021	220,681,872	-	2.10%	220,681,872	2026	10,390,678	5,860,707	16,251,385	120,507,000
2022	225,316,191	-	2.10%	225,316,191	2027	9,999,000	5,471,397	15,470,397	110,508,000
Operating Expenses					2028	10,177,000	5,083,021	15,260,021	100,331,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	8,610,000	4,632,852	13,242,852	91,721,000
2013	267,913,557	-		267,913,557	2030	9,003,000	4,219,917	13,222,917	82,718,000
2014	273,027,510	-	1.91%	273,027,510	2031	9,324,000	3,842,550	13,166,550	73,394,000
2015	277,216,966	3,213,518	2.71%	280,430,484	2032	9,708,000	3,416,229	13,124,229	63,686,000
2016	287,627,942	3,789,853	3.92%	291,417,795	2033	10,097,000	2,971,231	13,068,231	53,589,000
2017	300,800,609	(524,109)	3.04%	300,276,500	2034	10,519,000	2,507,615	13,026,615	43,070,000
2018	306,582,307	-	2.10%	306,582,307	2035	10,395,000	2,005,887	12,400,887	32,675,000
2019	313,020,535	-	2.10%	313,020,535	2036	10,805,000	1,527,427	12,332,427	21,870,000
2020	319,593,966	-	2.10%	319,593,966	2037	9,305,000	1,028,441	10,333,441	12,565,000
2021	326,305,439	-	2.10%	326,305,439	2038	6,910,000	605,202	7,515,202	5,655,000
2022	333,157,854	-	2.10%	333,157,854	2039	2,765,000	302,220	3,067,220	2,890,000
					2040	2,890,000	119,360	3,009,360	-
					2041			-	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projected period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	83,087,026	27,596,752	1,679,843	1,113,956	3,154,183		-	110,323,394
2014	82,066,755	38,085,095	817,894	2,231,760	8,372,658	4.08%	-	114,828,846
2015	84,318,325	34,838,427	874,725	2,320,336	3,807,417	16.68%	15,441,922	133,986,318
2016	97,181,998	32,356,514	786,722	2,233,892	3,207,437	5.24%	11,657,030	141,008,719
2017	103,453,532	43,703,885	900,714	2,435,831	6,844,438	10.52%	12,189,121	155,838,645
2018	118,071,149	44,621,667	919,629	2,486,983	6,988,171	2.10%	-	159,111,257
2019	120,550,643	45,558,722	938,941	2,539,210	7,134,923	2.10%	-	162,452,593
2020	123,082,206	46,515,455	958,659	2,592,534	7,284,756	2.10%	-	165,864,097
2021	125,666,933	47,492,279	978,791	2,646,977	7,437,736	2.10%	-	169,347,243
2022	128,305,938	48,489,617	999,345	2,702,563	7,593,929	2.10%	-	172,903,536

3. Proposed Debt Financings

While UNCW evaluates its capital investment needs on a regular basis, UNCW currently has no legislatively approved projects that it anticipates financing during the Study Period.

4. Financial Ratios

Debt to Obligated Resources

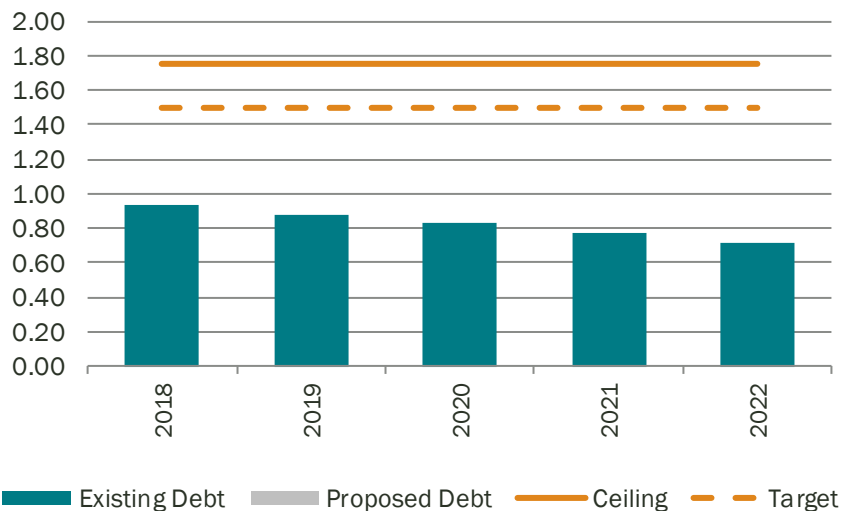
- **What does it measure?** UNCW's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.50
- Ceiling Ratio: Not to exceed 1.75
- Projected 2018 Ratio: 0.94
- Highest Study Period Ratio: 0.94 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	207,343,026	2.10%	193,977,007	-	0.94	n/a	0.94
2019	211,697,230	2.10%	186,739,427	-	0.88	n/a	0.88
2020	216,142,871	2.10%	179,865,834	-	0.83	n/a	0.83
2021	220,681,872	2.10%	170,684,302	-	0.77	n/a	0.77
2022	225,316,191	2.10%	160,727,871	-	0.71	n/a	0.71

Debt to Obligated Resources



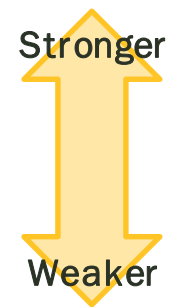
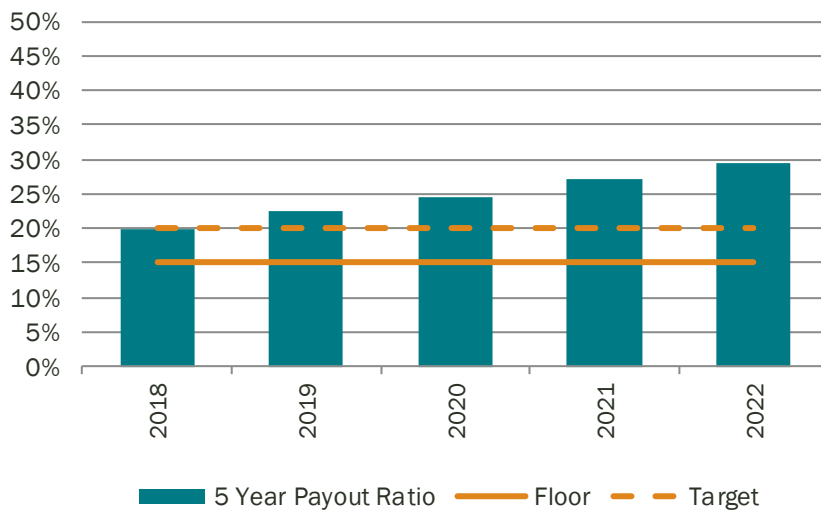
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of UNCW's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 20%
- Floor Ratio: Not less than 15%
- Projected 2018 Ratio: 20%
- Lowest Study Period Ratio: 20% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	193,977,007	20%
2019	186,739,427	22%
2020	179,865,834	25%
2021	170,684,302	27%
2022	160,727,871	29%

5-Year Payout Ratio



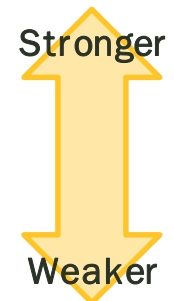
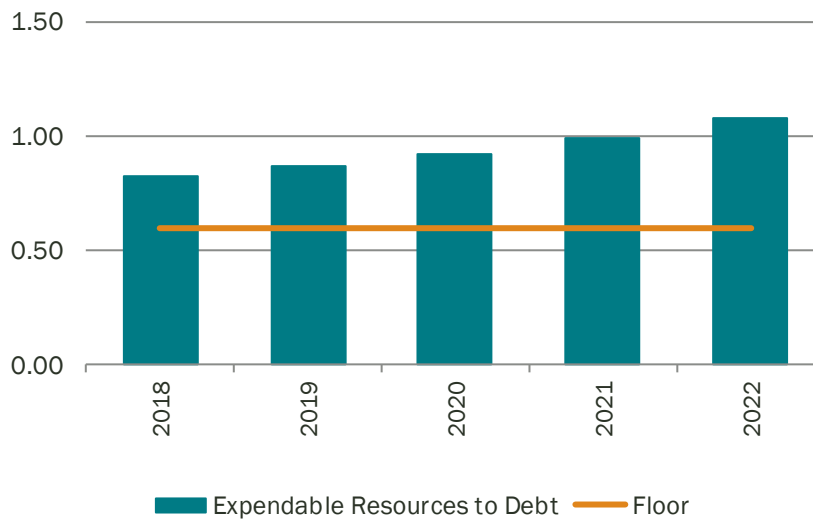
Expendable Resources to Debt

- **What does it measure?** The number of times UNCW's liquid and expendable Net Position cover its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.60x
- Projected 2018 Ratio: 0.82x
- Lowest Study Period Ratio: 0.82x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	159,111,257	2.10%	193,977,007	-	0.82	0.82
2019	162,452,593	2.10%	186,739,427	-	0.87	0.87
2020	165,864,097	2.10%	179,865,834	-	0.92	0.92
2021	169,347,243	2.10%	170,684,302	-	0.99	0.99
2022	172,903,536	2.10%	160,727,871	-	1.08	1.08

Expendable Resources to Debt



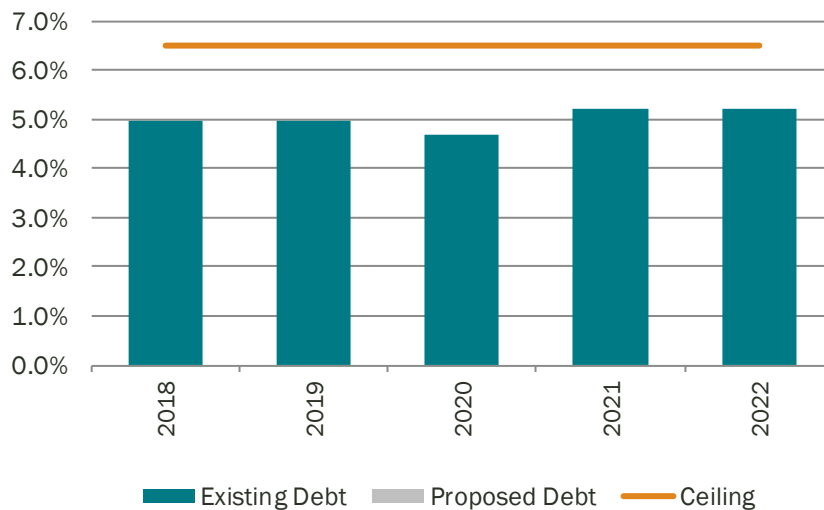
Debt Service to Operating Expenses

- **What does it measure?** UNCW's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 6.50%
- Projected 2018 Ratio: 4.96%
- Highest Study Period Ratio: 5.22% (2022)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	306,582,307	2.10%	15,200,416	-	4.96%	n/a	4.96%
2019	313,020,535	2.10%	15,572,495	-	4.97%	n/a	4.97%
2020	319,593,966	2.10%	14,941,742	-	4.68%	n/a	4.68%
2021	326,305,439	2.10%	16,989,908	-	5.21%	n/a	5.21%
2022	333,157,854	2.10%	17,374,933	-	5.22%	n/a	5.22%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNCW's debt capacity is based on the amount of debt UNCW could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNCW's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, UNCW's current estimated debt capacity is **\$168,873,288**. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNCW issued no additional debt until the last year of the Study Period, then UNCW's debt capacity for 2022 is projected to increase to **\$233,575,463**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	0.94	1.75	168,873,288
2019	0.88	1.75	183,730,724
2020	0.83	1.75	198,384,190
2021	0.77	1.75	215,508,973
2022	0.71	1.75	233,575,463

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNCW's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If UNCW were to use all of its calculated debt capacity during the Study Period, UNCW's credit ratings may face significant downward pressure.**
- Projecting the exact amount UNCW could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNCW's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina at Wilmington

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2005A	UNC System Pool Revenue Bonds	1,255,000	4/1/2019	Student Dorms Student Recreation Center	1997J 1998	Housing Rents Rec Center Debt Fee
2010	Taxable General Revenue Bonds (BABs)	13,475,000	1/1/2040	MARBIONC Facility		General Revenues
2010C	UNC System Pool Revenue Bonds	20,655,000	10/1/2026	Student Recreation Center Student Dorms Student Union Student Recreation Center	2002A 2002A 2003A 2003A	Rec Center Debt Fee Housing Rents Union Debt Fee Rec Center Debt Fee
2010D	UNC System Taxable Pool Revenue Bonds (BABs)	20,660,000	10/1/2039	Student Recreation Center		Rec Center Debt Fee
2011	Schwartz & Wagner Renovation Projects	5,951,478	3/1/2026	Student Dorm Renovations Wagoner Dining Hall Renovation		Housing Rents Dining Revenues
2012	General Revenue Refunding Bond	11,550,000	1/1/2028	Student Union	2003A	Union Debt Fee
2015	Refunding Limited Obligation Bonds	57,515,000	6/1/2037	Seahawk Village Seahawk Landing	2005 COPs 2006 COPs	Net Revenues of Seahawk Projects, Dorm, Dining, and Parking Revenues
2016	General Revenue Refunding Bonds	11,484,000	10/1/2033	Student Union Parking Wagoner Dining Hall Westside Student Health Center Student Dorms	2006A 2006A 2006A 2006A 2006A	Union Debt Fee Parking Fees Dining Revenues Westside Debt Fee Housing Rents
2016	Refunding Limited Obligation Bonds	57,235,000	6/1/2038	Seahawk Crossing Parking Deck	2008 COPs	Net Revenues of Seahawk Projects, Dorm, Dining, & Parking Revenues
BB&T Note	College Station, LLC	781,990	11/5/2022	Osher Life Long Learning Center		Dining Revenues
Total		200,562,468				

*The 2015 and 2016 Limited Obligation Bonds are obligations of the UNCW Corporation, and the BB&T notes payable are obligations of the UNCW Corporation II. Both corporations are associated entities of UNCW whose financials are blended into UNCW's statements.

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of UNCW's current credit ratings, along with (1) a summary of various credit factors identified in UNCW's most recent rating report and (2) recommendations for maintaining and improving UNCW's credit ratings in the future.

Overview

- Moody's upgraded the University's general revenue bonds to an Aa3 rating in 2016. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Very good strategic positioning, with a favorable, coastal North Carolina location and growing student demand
- Strong financial support from Aaa-rated North Carolina, with state funding representing 35% of FY 2015 operating revenue
- Strong fiscal management, reflected by a strong 15% cash flow margin and 2.2 times debt service coverage in FY 2015
- Solid unrestricted liquidity, with \$110 million or 159 days cash on hand, adds financial flexibility

Credit Challenges

- Modest wealth relative to Aa3 peers, with \$159 million spendable cash and investments cushioning debt by just 0.7 times
- Elevated, but diminishing debt burden relative to operating revenue, at 0.8 times in FY 2015
- Limited pricing power due to cap on out-of-state student enrollment and state tuition setting authority

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

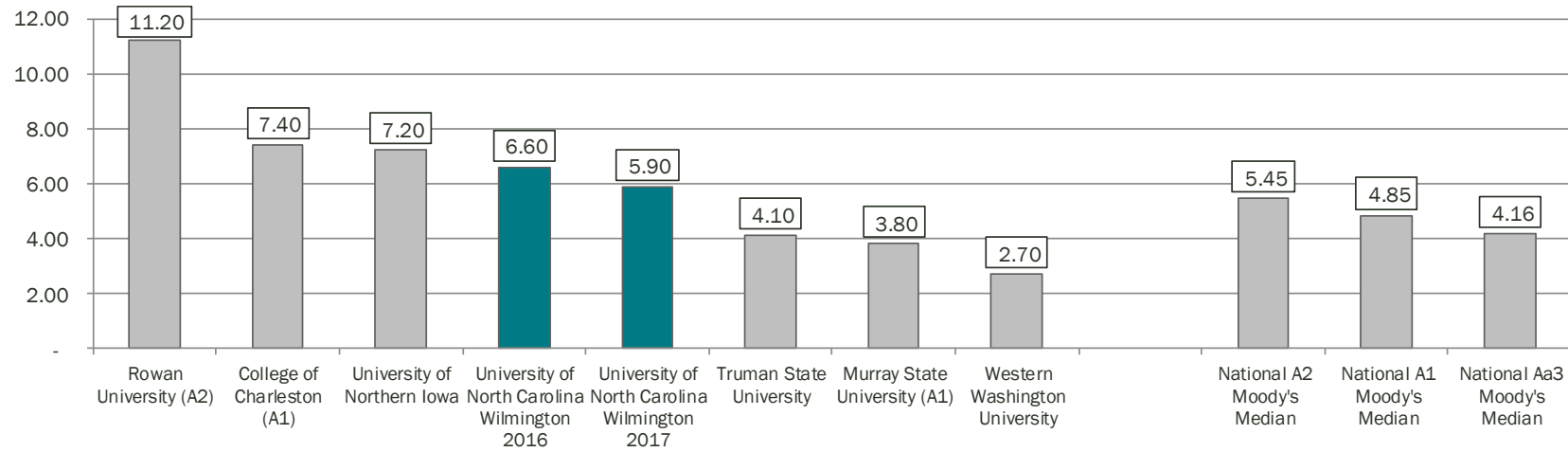
- Continue to develop initiatives to highlight and strengthen the University's distinctive market position.

8. Peer Comparison

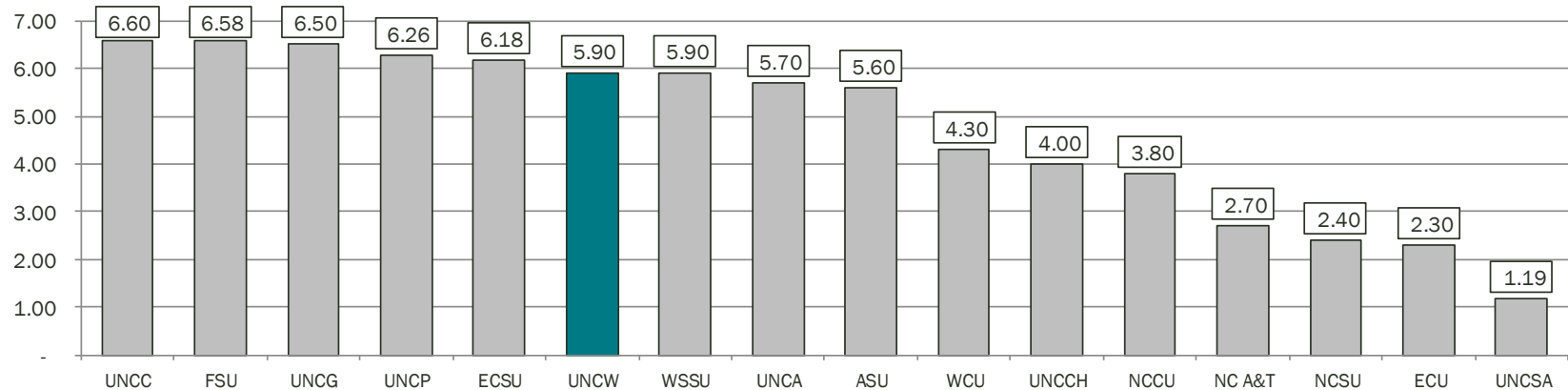
The following pages compare two measures of UNCW's debt burden--**expendable resources to debt** and **debt service to operating expenses**--to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNCW (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
UNCW vs. National Peers



Debt Service to Operating Expenses (%)
UNCW vs. UNC System



Notes:

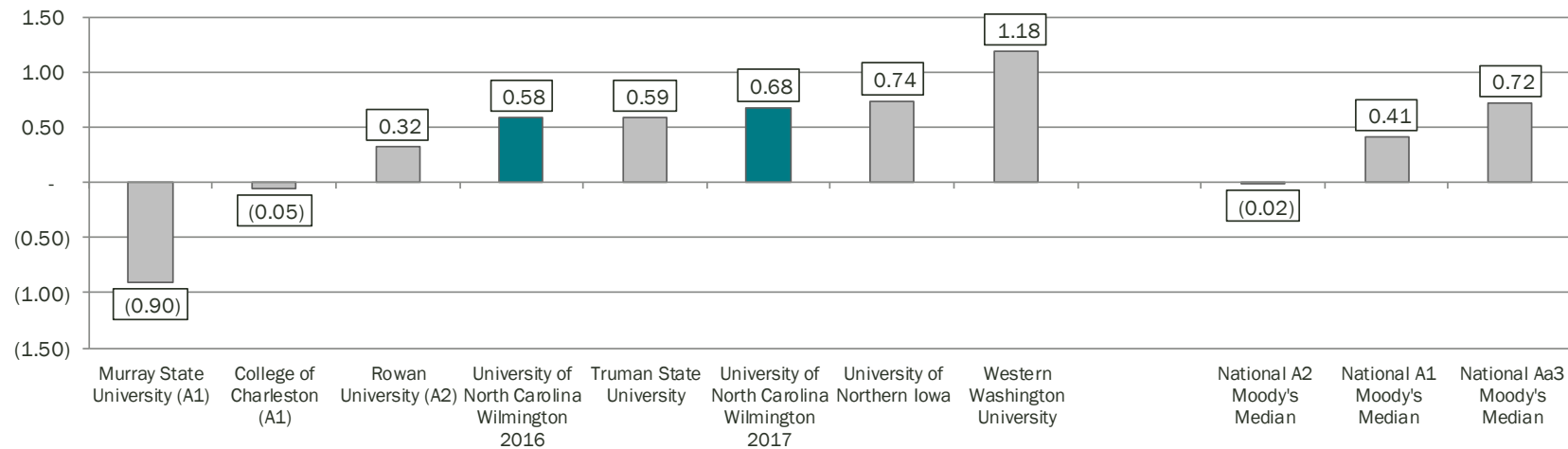
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

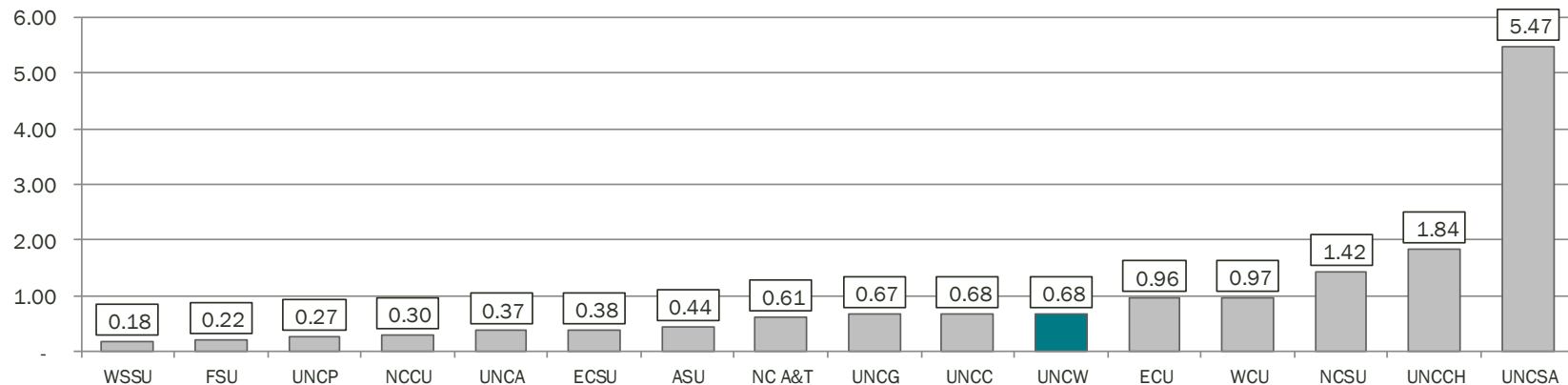
Approved by the UNC Board of Governors on May 24, 2018

Expendable Financial Resources to Debt

Expendable Financial Resources to Debt UNCW vs. National Peers



Expendable Financial Resources to Debt UNCW vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

UNCW's current debt policy is attached.

University of North Carolina Wilmington

Debt Management Guidelines

1. Introduction

University of North Carolina Wilmington (“UNCW”) views its debt capacity as a resource that should be used, when appropriate, to help fund the capital investments necessary to successfully implement UNCW’s strategic plans and to preserve the operational flexibility and resources necessary to support UNCW’s current and future programming. UNCW recognizes its important financial stewardship role to invest in campus infrastructure in order to meet anticipated demand. These Debt Management Guidelines (“Guidelines”) have been developed as a framework to assist UNCW’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with UNCW’s stated policies, objectives and core values.

These Guidelines are intended solely for UNCW’s internal planning purposes. The Vice Chancellor for Business Affairs will revisit these Guidelines as needed and recommend changes to ensure they remain consistent with the University’s strategic objectives and the evolving demands and accepted practices of the public higher education marketplace.

These Guidelines cover all forms of debt including long-term, short-term, fixed-rate, and variable-rate. They also cover other forms of financing including both on-balance sheet and off-balance sheet structures, such as leases, and other structured products used to fund capital projects.

The use of derivatives or public private partnerships is not covered under these Guidelines. If these options are considered, they will be managed under a separate guideline.

2. Authorization and Oversight

UNCW’s Vice Chancellor for Business Affairs is responsible for the day-to-day management of UNCW’s financial affairs and for all of UNCW’s debt financing activities. All financing arrangements will comply with all applicable state and federal laws. The Board of Trustees approves applicable financing activities in compliance with state law.

3. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Projects that directly or indirectly relate to the mission of UNCW will be considered for debt financing.

Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.

Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.

Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis.

4. Target Debt Ratios

When evaluating its current financial health and any proposed plan of finance, UNCW takes into account both debt affordability and debt capacity. Debt affordability focuses on UNCW's cash flows and measures UNCW's ability to service debt through its operating budget and identified revenue streams. Debt capacity focuses on the relationship between UNCW's net assets and total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including UNCW's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, UNCW's debt capacity cannot be calculated using any single ratio or even a small handful of ratios.

UNCW believes that it is important to consider and monitor objective metrics when evaluating UNCW's financial health and its ability to incur additional debt. To that end, UNCW will use three key financial ratios to assess its ability to absorb additional debt based on its current and projected financial condition:

- (i) Debt to Obligated Resources *
- (ii) Spendable Cash and Investments to Debt **
- (iii) Debt Service to Operating Expenses *

* Monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study").

** Considered relevant indicators of Leverage and Debt Affordability by Moody's Investor Service (Global Higher Education Rating Methodology, November 2015).

Target ratios have been established to help preserve UNCW's financial health and operating flexibility and to ensure UNCW is able to access the market to address capital needs and to take advantage of potential refinancing opportunities.

UNCW recognizes that the target ratios, while helpful, have limitations and should be viewed together with UNCW's strategic plan or other planning tools. UNCW has developed specific criteria for evaluating and approving critical infrastructure projects even if UNCW reaches its debt capacity as calculated by the UNC Debt Capacity Study or the Guidelines' target ratios. In such instances, it may be appropriate to issue debt with respect to a proposed project based on one or more of the following findings:

- (i) The proposed project would generate additional revenues (including, if applicable, dedicated student fees, rents, or grants) sufficient to support the financing that are not currently captured in the benchmark ratios.
- (ii) The proposed project is essential to the implementation of one of the University's strategic priorities.
- (iii) The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- (iv) Foregoing or delaying the proposed project would result in significant additional costs to UNCW or would negatively impact UNCW's credit rating.

The University will review each ratio by February 1st of each year and will provide a report to the Vice Chancellor for Business Affairs detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated target ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning with the Guidelines or (b) the rationale for any recommended

changes to any such stated target ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

Ratio 1 – Debt to Obligated Resources

What does it measure? Aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes. Each UNC constituent institution is required to report this target ratio under the provisions of the Debt Study). This ratio is not used outside the state and is only included due to the Debt Study.

How is it calculated? Aggregate debt divided by obligated resources. Obligated resources is defined as Available Funds plus an adjustment for non-cash expenses related to the implementation of GASB 68. Available funds is a concept commonly used to capture each UNC's campus's obligated resources in loan and bond documentation.

Target Ceiling Ratio: Not to exceed 1.75x

Ratio 2 – Spendable Cash and Investments to Debt

What does it measure? This leverage ratio highlights the ability of the university to repay debt from wealth that can be accessed over time for a specific purpose. It measures the number of times liquid and expendable resources cover aggregate debt

How is it calculated? Cash and investments (at the university and affiliated foundations) plus funds held in trust by others plus pledges receivable reported in permanently restricted net assets, less permanently restricted net assets, divided by operating expenses

Target Floor Ratio: Not less than 0.6x

Ratio 3 – Debt Service to Operating Expense

What does it measure? Debt service burden as a percentage of total expenses, which is used as the denominator because it is typically more stable than revenues

How is it calculated? Annual debt service divided by annual operating expenses

Target Ceiling Ratio: Not to exceed 6.5%

5. Debt Portfolio Management and Transaction Structure Considerations

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Business Affairs within the context of these Guidelines and the overall portfolio to ensure that any financial product or structure is consistent with UNCW's stated objectives. As part of effective debt management, UNCW must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

UNCW will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves UNCW's strategic plan and financing objectives. In making that determination, UNCW will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect UNCW's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce UNCW's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates UNCW's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, UNCW should structure its debt to provide for level annual payments of debt service, though UNCW may elect alternative structures when the Vice Chancellor for Business Affairs determines it to be in UNCW's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

UNCW will use maturity structures that correspond with the life of the facilities financed, not to exceed 30 years. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

General Revenue Pledge

UNCW will utilize general revenue secured debt for all financing needs, unless there is compelling reason to structure specific revenue pledges independent of general revenue projects. The general revenue pledge provides a strong, flexible security which captures the strengths of auxiliary and student related revenues as well as research programs. In addition, general revenue debt does not subject the University to operating or financial covenants and coverage levels imposed by the market or external constituents.

Variable Rate Debt

While fixed rate debt is preferable, UNCW recognizes that a degree of exposure to variable interest rates within UNCW's debt portfolio may be desirable as part of a short-term bond anticipation note or in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs or (3) provide a "match" between debt service requirements and the projected cash flows from UNCW's assets. UNCW's debt portfolio should be managed to ensure that no more than a minimum amount of UNCW's total long-term debt bears interest at an unhedged variable rate.

UNCW will monitor overall interest rate exposure. UNCW may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. UNCW may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

Refunding Considerations

UNCW will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, UNCW should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of UNCW ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed thirty years beyond the original issue date.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 2% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.
- (iv) Refunding Bonds may also be issued to relieve UNCW of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

6. Post-Issuance Compliance Matters

UNCW will develop a separate guideline on post-issuance compliance matters.

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

University of North Carolina School of the Arts
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), University of North Carolina School of the Arts (“**UNCSA**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. UNCSA has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, UNCSA, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—UNCSA has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, UNCSA’s debt capacity reflects the amount of debt UNCSA could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that UNCSA intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- UNCSA’s current debt profile, including project descriptions financed with, and the sources of repayment for, UNCSA’s outstanding debt;
- UNCSA’s current credit profile, along with recommendations for maintaining or improving UNCSA’s credit rating; and
- A copy of any UNCSA debt management policy currently in effect.

Overview of UNCSA

For the fall 2017 semester, UNCSA had a headcount student population of 1,268, including 259 High school students, 868 undergraduate students and 141 graduate students. During the 2017 academic year, UNCSA employed approximately 192 full-time, part-time and temporary instructional faculty.

Over the past 10 years, UNCSA’s enrollment has increased approximately 11%. UNCSA expects modest enrollment growth over the Study Period. UNCSA’s average age of plant (13.34 years) is slightly lower than the median ratio for all Campuses (13.60 years). An average age of plant of less than 14 generally indicates the institution is taking a sustainable approach to its deferred maintenance and reinvestment programs.

UNCSA does not anticipate significant additional borrowings during the Study Period.

UNCSA has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on UNCSCA's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to UNCSCA by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt UNCSCA expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below overstate UNCSCA's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	18,586,292	-		18,586,292	2018	308,000	143,699	451,699	4,498,000
2014	20,131,371	-	8.31%	20,131,371	2019	317,000	134,490	451,490	4,181,000
2015	20,123,677	3,184,245	15.78%	23,307,922	2020	327,000	125,012	452,012	3,854,000
2016	20,351,907	2,332,230	-2.68%	22,684,137	2021	336,000	115,235	451,235	3,518,000
2017	23,759,354	2,409,474	15.36%	26,168,828	2022	346,000	105,188	451,188	3,172,000
2018	26,718,374	-	2.10%	26,718,374	2023	357,000	94,843	451,843	2,815,000
2019	27,279,460	-	2.10%	27,279,460	2024	368,000	84,169	452,169	2,447,000
2020	27,852,328	-	2.10%	27,852,328	2025	378,000	73,165	451,165	2,069,000
2021	28,437,227	-	2.10%	28,437,227	2026	390,000	61,863	451,863	1,679,000
2022	29,034,409	-	2.10%	29,034,409	2027	401,000	50,202	451,202	1,278,000
Operating Expenses					2028	413,000	38,212	451,212	865,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	426,000	25,864	451,864	439,000
2013	48,187,758	-		48,187,758	2030	439,000	13,126	452,126	-
2014	53,617,684	-	11.27%	53,617,684	2031			-	-
2015	58,920,287	669,042	11.14%	59,589,329	2032			-	-
2016	58,377,605	786,080	-0.71%	59,163,686	2033			-	-
2017	63,101,303	(153,584)	6.40%	62,947,719	2034			-	-
2018	64,269,621	-	2.10%	64,269,621	2035			-	-
2019	65,619,283	-	2.10%	65,619,283	2036			-	-
2020	66,997,288	-	2.10%	66,997,288	2037			-	-
2021	68,404,231	-	2.10%	68,404,231	2038			-	-
2022	69,840,720	-	2.10%	69,840,720	2039			-	-
					2040			-	-
					2041			-	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projected period.

11	12	13	14	15	16	17	18	19
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	12,847,500	4,949,455	335,295	5,432,325	246,511		-	23,318,063
2014	11,779,653	7,064,252	510,524	8,138,594	-	17.90%	-	27,493,023
2015	12,224,133	9,018,787	566,484	11,781,428	1,217,161	29.33%	3,184,245	35,557,916
2016	14,627,902	9,743,032	565,028	15,656,053	3,522,147	10.81%	2,332,230	39,402,099
2017	16,725,073	14,911,627	707,985	15,502,396	7,129,343	9.45%	2,409,474	43,127,212
2018	19,536,372	15,224,771	722,853	15,827,946	7,279,059	2.10%	-	44,032,883
2019	19,946,636	15,544,491	738,033	16,160,333	7,431,919	2.10%	-	44,957,574
2020	20,365,516	15,870,925	753,531	16,499,700	7,587,989	2.10%	-	45,901,683
2021	20,793,191	16,204,215	769,355	16,846,194	7,747,337	2.10%	-	46,865,618
2022	21,229,848	16,544,503	785,512	17,199,964	7,910,031	2.10%	-	47,849,796

3. Proposed Debt Financings

While UNCSA evaluates its capital investment needs on a regular basis, UNCSA currently has no legislatively approved projects that it anticipates financing during the Study Period.

4. Financial Ratios

Debt to Obligated Resources

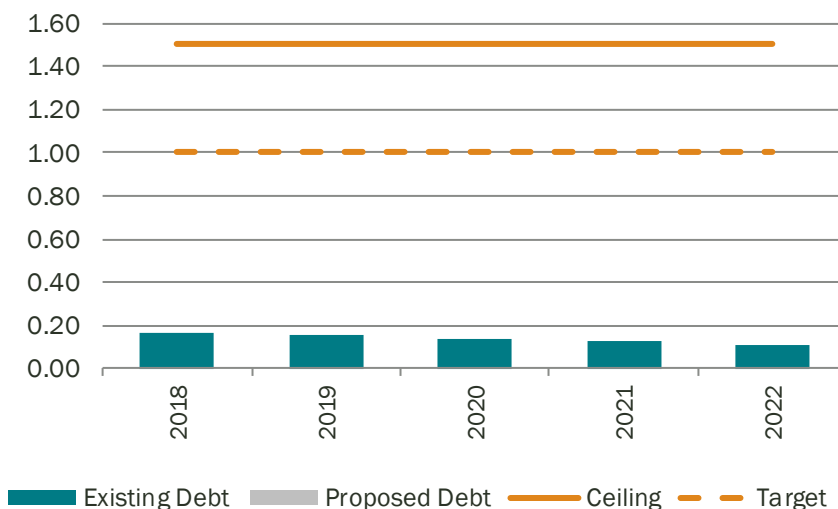
- **What does it measure?** UNCSA's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.00
- Ceiling Ratio: Not to exceed 1.50
- Projected 2018 Ratio: 0.17
- Highest Study Period Ratio: 0.17 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	26,718,374	2.10%	4,498,000	-	0.17	n/a	0.17
2019	27,279,460	2.10%	4,181,000	-	0.15	n/a	0.15
2020	27,852,328	2.10%	3,854,000	-	0.14	n/a	0.14
2021	28,437,227	2.10%	3,518,000	-	0.12	n/a	0.12
2022	29,034,409	2.10%	3,172,000	-	0.11	n/a	0.11

Debt to Obligated Resources



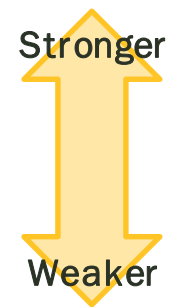
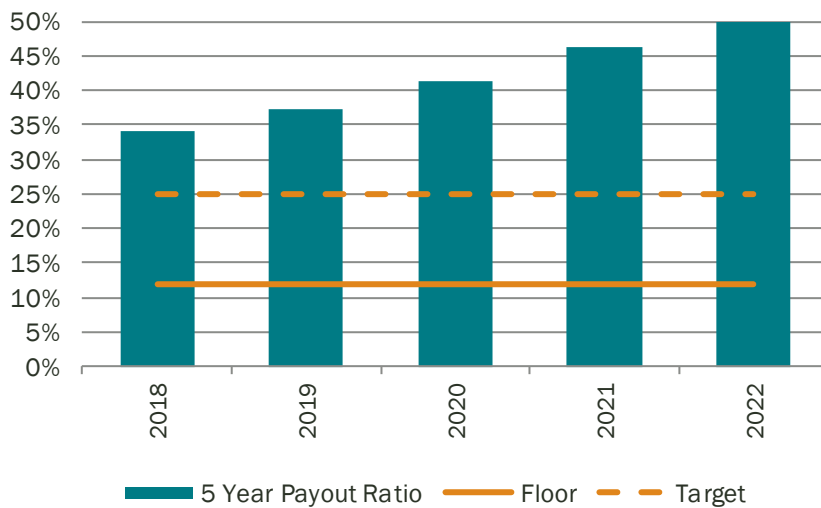
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of UNCSA's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 25%
- Floor Ratio: Not less than 12%
- Projected 2018 Ratio: 34%
- Lowest Study Period Ratio: 34% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio	
2018	4,498,000	34%	
2019	4,181,000	37%	
2020	3,854,000	41%	
2021	3,518,000	46%	
2022	3,172,000	52%	

5-Year Payout Ratio



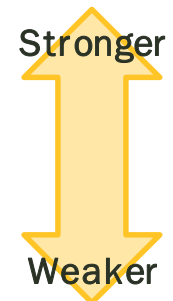
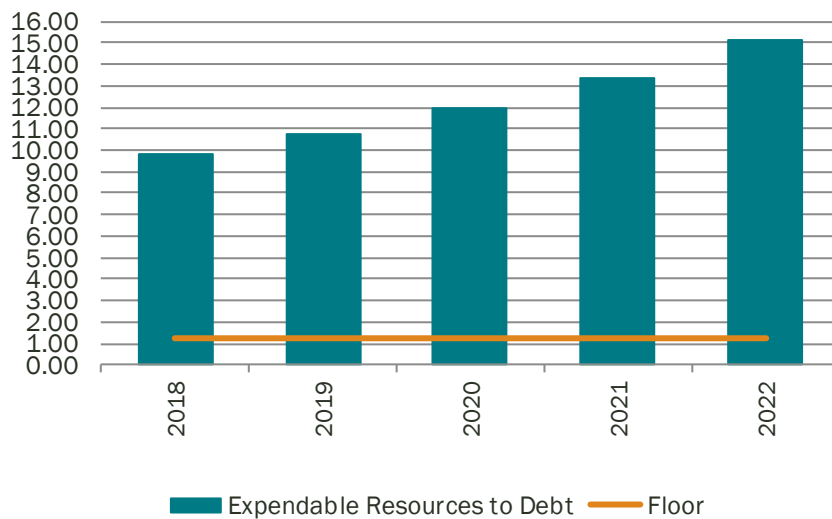
Expendable Resources to Debt

- **What does it measure?** The number of times UNCSA's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 1.25x
- Projected 2018 Ratio: 9.79x
- Lowest Study Period Ratio: 9.79x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	44,032,883	2.10%	4,498,000	-	9.79	9.79
2019	44,957,574	2.10%	4,181,000	-	10.75	10.75
2020	45,901,683	2.10%	3,854,000	-	11.91	11.91
2021	46,865,618	2.10%	3,518,000	-	13.32	13.32
2022	47,849,796	2.10%	3,172,000	-	15.09	15.09

Expendable Resources to Debt



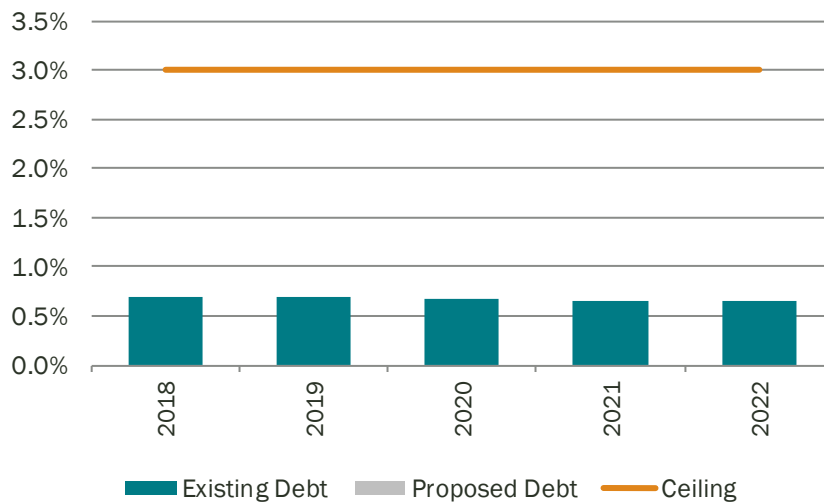
Debt Service to Operating Expenses

- **What does it measure?** UNCSA's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 3.00%
- Projected 2018 Ratio: 0.70%
- Highest Study Period Ratio: 0.70% (2018)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	64,269,621	2.10%	451,699	-	0.70%	n/a	0.70%
2019	65,619,283	2.10%	451,490	-	0.69%	n/a	0.69%
2020	66,997,288	2.10%	452,012	-	0.67%	n/a	0.67%
2021	68,404,231	2.10%	451,235	-	0.66%	n/a	0.66%
2022	69,840,720	2.10%	451,188	-	0.65%	n/a	0.65%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, UNCSA's debt capacity is based on the amount of debt UNCSA could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, UNCSA's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, UNCSA's current estimated debt capacity is **\$35,579,561**. After taking into account any legislatively approved projects detailed in **Section 3** above, if UNCSA issued no additional debt until the last year of the Study Period, then UNCSA's debt capacity for 2022 is projected to increase to **\$40,379,613**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	0.17	1.50	35,579,561
2019	0.15	1.50	36,738,189
2020	0.14	1.50	37,924,492
2021	0.12	1.50	39,137,841
2022	0.11	1.50	40,379,613

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of UNCSA's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If UNCSA were to use all of its calculated debt capacity during the Study Period, UNCSA's credit ratings may face significant downward pressure.**
- Projecting the exact amount UNCSA could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

UNCSA's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

University of North Carolina School of the Arts

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2015	Certificates of Participation	4,806,000	6/1/2030	Student Housing Project	2005	Student Fees
Total		4,806,000				

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7. Credit Profile

The following page provides a snapshot of UNCSA's historical key credit metrics, along with (1) a summary of various observations and (2) recommendations for maintaining and improving UNCSA's credit profile in the future.

Overview

- The University currently has no public rating on its debt outstanding. Below is a historical trend analysis of UNCSCA's credit ratios:

	UNC School of the Arts					Moody's National Medians	
	2013	2014	2015	2016	2017	2016	
Senior Most Rating	N/A	N/A	N/A	N/A	N/A	A2	A3
RATIOS							
Expendable Financial Resources to Operating Expenses	0.49	0.52	0.56	0.65	0.66	0.14	0.01
Total Financial Resources to Operating Expenses	1.32	1.32	1.35	1.51	1.64	0.32	0.11
Expendable Financial Resources to Total Debt	3.00	3.79	3.93	5.32	5.47	0.15	0.01
Total Cash & Investments to Total Debt	4.67	5.63	5.73	6.71	6.50	0.92	0.82
Debt service to Operating Expenses (%)	1.84	1.62	12.00	2.54	1.19	5.50	5.70
METRICS							
Total Cash & Investments (\$, in millions)	36.34	40.88	47.22	46.78	48.37	69.00	27.50
Total Financial Resources (\$, in millions)	62.32	69.60	78.50	86.33	101.51	25.00	6.50
Expendable Financial Resources (\$, in millions)	23.32	27.49	32.37	37.07	40.72	11.00	0.50
Total Debt (\$, in millions)	7.78	7.26	8.23	6.97	7.44	75.00	33.50

Credit Strengths and Challenges

Credit Strengths

- Strong operating and capital support from the State of North Carolina
- Financial metrics trending in a positive direction

Credit Challenges

- Small enrollment size

Observations

- Since 2013, UNCSCA's key credit ratios have strengthened.
- Due to the University's low leverage (only \$7 million of debt vs. median levels of \$75 to \$34 million for A2 and A3 rated public institutions), the credit ratios are strong.
 - Given its relatively small size, however, UNCSCA's key credit ratios are more sensitive to changes in any single underlying factor, meaning its ratios may deteriorate quickly if either enrollment or revenues decline.

Recommendations

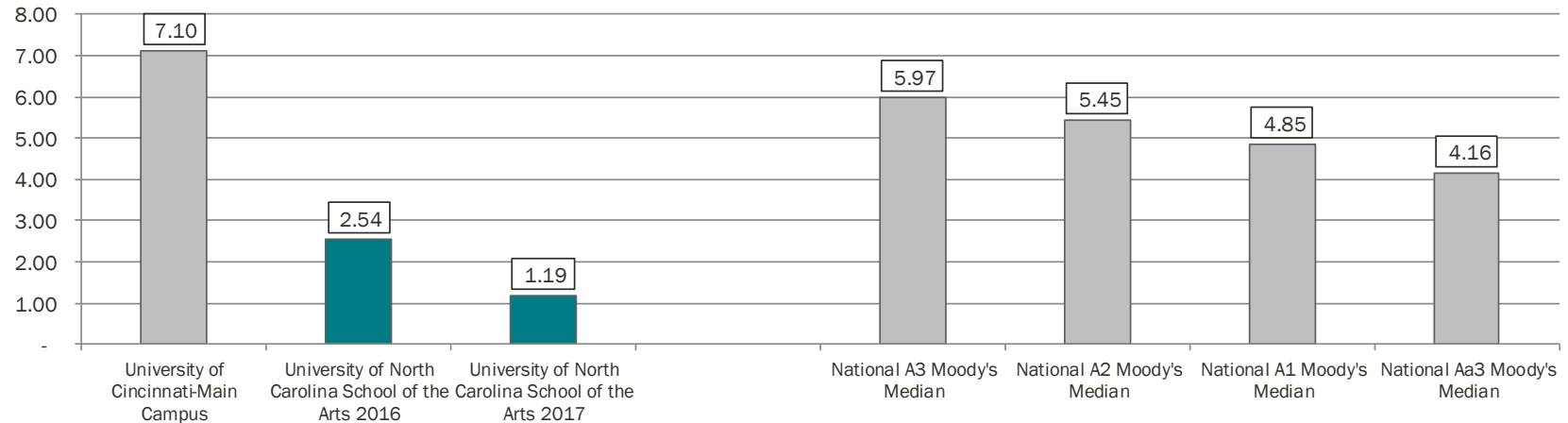
- Continue trend of strengthening balance sheet metrics (Expendable Financial Resources, Total Financial Resources, Total Cash and Investments)

8. Peer Comparison

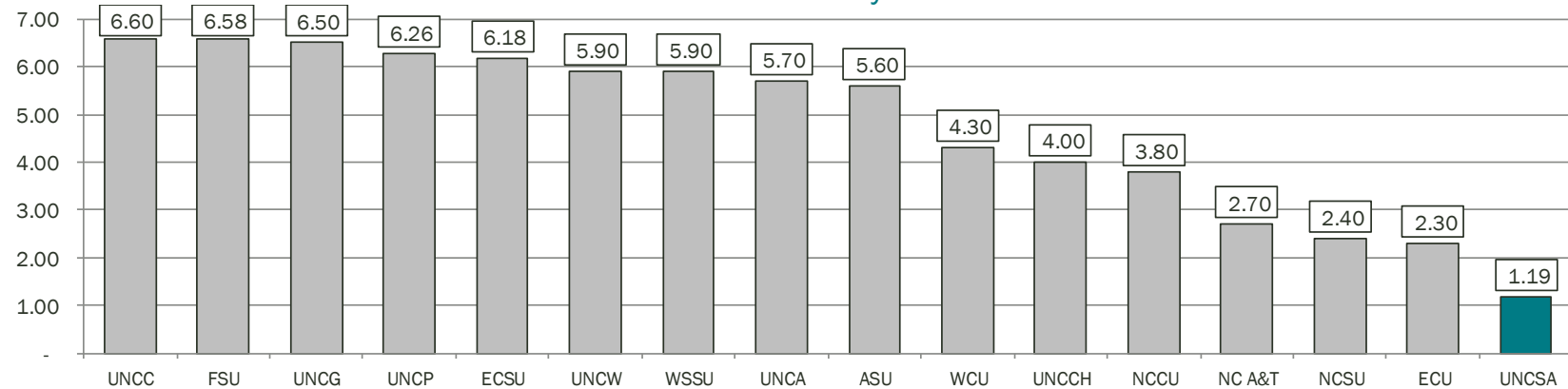
The following pages compare two measures of UNCSA's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both UNCSA (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

Debt Service to Operating Expenses (%)
UNCSA vs. National Peers



Debt Service to Operating Expenses (%)
UNCSA vs. UNC System



Notes:

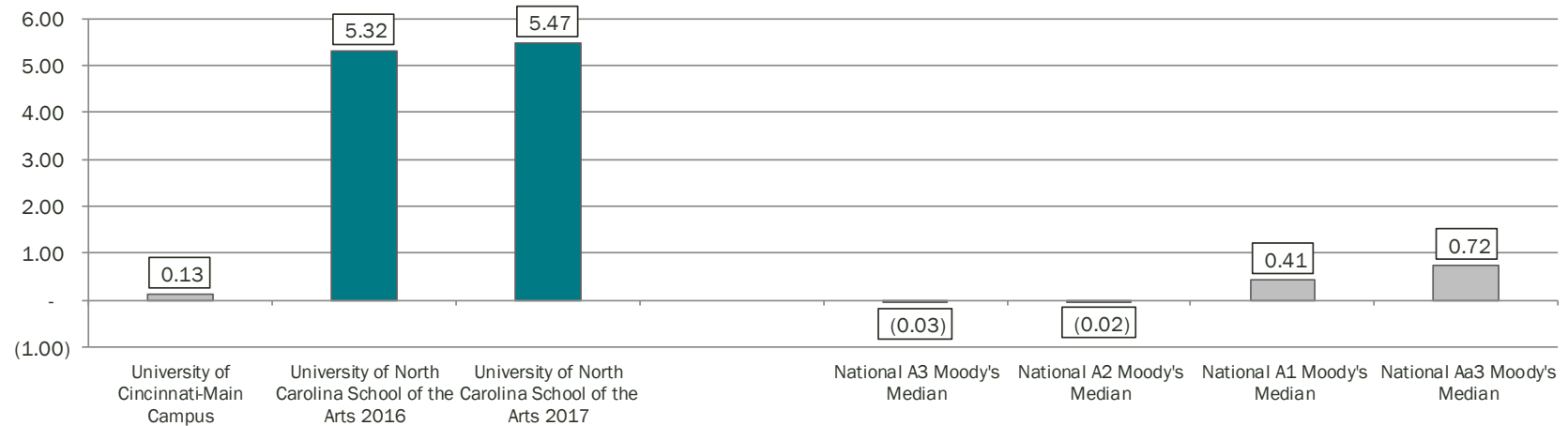
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

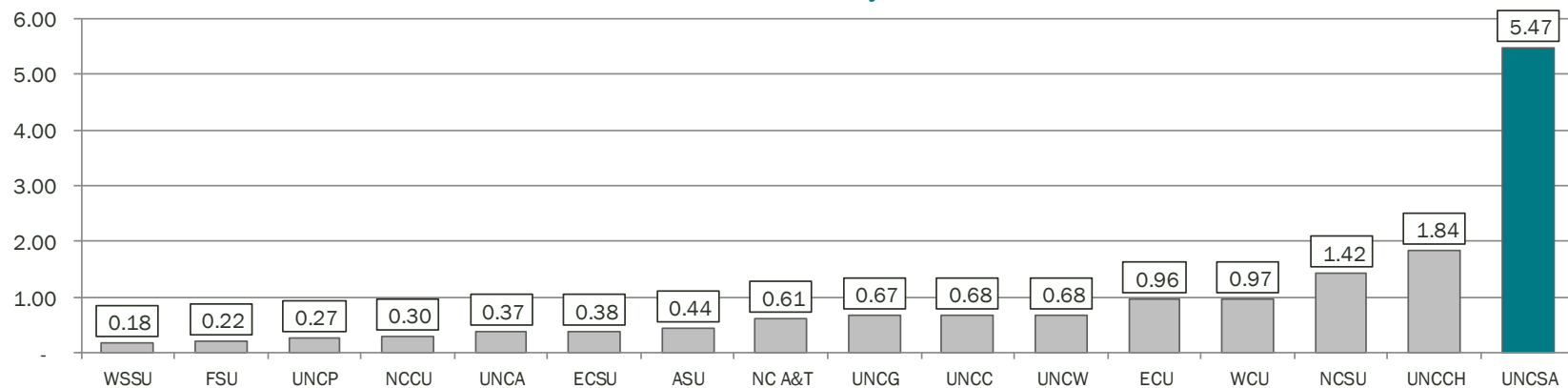
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Expendable Financial Resources to Debt

Expendable Financial Resources to Debt UNCSA vs. National Peers



Expendable Financial Resources to Debt UNCSA vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

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9. Debt Management Policies

UNCSA's current debt policy is included in the following pages.

Debt Management Manual

Approved by the UNC Board of Governors on May 24, 2018

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1. Introduction

The University of North Carolina School of the Arts (“UNCSA”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the successful implementation of UNCSA’s strategic vision to prepare its gifted emerging artists with the experience, knowledge, and skills needed to excel in their disciplines and in their lives, and it serves and enriches the cultural and economic prosperity of the people of North Carolina and the nation. UNCSA recognizes the important role that debt-related strategies may play as it makes the necessary investments in its infrastructure in order to become and remain the destination institution for dedicated students seeking challenging academic programs, engaged faculty and a vibrant campus culture.

This Manual has been developed to assist UNCSA’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with UNCSA’s stated policies, objectives and core values. Like other limited resources, UNCSA’s debt capacity should be used and allocated strategically and equitably.

Specifically, the objective of this Manual is to provide a framework that will enable UNCSA’s Board of Trustees (the “Board”) and finance staff to:

- (i) Identify and prioritize projects eligible for debt financing;
- (ii) Limit and manage risk within UNCSA’s debt portfolio;
- (iii) Establish debt management guidelines and quantitative parameters for evaluating UNCSA’s financial health, debt affordability and debt capacity;
- (iv) Manage and protect UNCSA’s credit profile in order to maintain UNCSA’s credit rating at a strategically optimized level and maintain access to the capital markets; and
- (v) Ensure UNCSA remains in compliance with all of its post-issuance obligations and requirements.

This Manual is intended solely for UNCSA’s internal planning purposes. The Vice Chancellor for Business Affairs and/or the Associate Vice Chancellor for Finance and Controller will review this Manual annually and, if necessary, recommend changes to ensure that it remains consistent with University’s strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Manual are subject to the Chancellor’s approval.

2. Authorization and Oversight

UNCSA’s Associate Vice Chancellor for Finance and Controller is responsible for the day-to-day management of UNCSA’s financial affairs in accordance with the terms of this Manual and for all of UNCSA’s debt financing activities. Each University financing will conform to all applicable State and Federal laws.

The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

3. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Only projects that directly or indirectly relate to the mission of UNCSA will be considered for debt financing.

- (i) Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.
- (ii) Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.
- (iii) Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any projects that will require gift financing or include a gift financing component must be approved by the Vice Chancellor for Business Affairs before any project-restricted donations are solicited. The fundraising goal for any project to be financed primarily with donations should also include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

4. Benchmarks and Debt Ratios

Overview

When evaluating its current financial health and any proposed plan of finance, UNCSA takes into account both its debt affordability and its debt capacity. Debt affordability focuses on UNCSA's cash flows and measures UNCSA's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between UNCSA's net assets and its total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including UNCSA's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, UNCSA's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

UNCSA believes, however, that it is important to consider and monitor objective metrics when evaluating UNCSA's financial health and its ability to incur additional debt. To that end, UNCSA has identified three key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

- (i) Debt to Obligated Resources
- (ii) Expendable Resources to Debt
- (iii) Debt Service to Operating Expenses

Note that the selected financial ratios are also monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study"), which UNCSA believes will promote clarity and consistency in UNCSA's debt management and planning efforts.

UNCSA has established for each ratio a floor or ceiling target, as the case may be, with the expectation that UNCSA will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this Manual should align with the ratios used in the report UNCSA

submits each year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve UNCSA's financial health and operating flexibility and to ensure UNCSA is able to access the market to address capital needs or to take advantage of potential refinancing opportunities. Attaining or maintaining a specific credit rating is not an objective of this Manual.

UNCSA recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of UNCSA's strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, UNCSA has developed as part of this Manual specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when UNCSA has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this Manual. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

- (i) The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.
- (ii) The proposed project would be financed entirely with private donations based on pledges already in hand.
- (iii) The proposed project is essential to the implementation of one of the Board's strategic priorities.
- (iv) The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- (v) Foregoing or delaying the proposed project would result in significant additional costs to UNCSA or would negatively impact UNCSA's credit rating.

At no point, however, should UNCSA intentionally operate outside an established policy ratio without conscious and explicit planning.

Ratio 1 – Debt to Obligated Resources

What does it measure?	UNCSA's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes
Why is it tracked?	The ratio, which is based on the legal structure proscribed by the General Revenue Bond Statutes, provides a general indication of UNCSA's ability to absorb debt on its balance sheet and is the primary ratio used to calculate UNCSA's "debt capacity" under the methodology used in the UNC Debt Capacity Study
How is it calculated?	Aggregate debt divided by obligated resources*
Policy Ratio:	Not to exceed 1.50x (UNC Debt Capacity Study Target Ratio = 1.50x)

*Available Funds, which is the concept commonly used to capture each UNC's campus's obligated resources in its loan and bond documentation, has been used as a proxy for obligated resources. The two concepts are generally identical, though *Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of UNCSA's obligated resources.*

Ratio 2 – Expendable Resources to Debt

What does it measure?	The number of times UNCSA's liquid and expendable net assets covers its aggregate debt
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, is a basic measure of financial health and assesses UNCSA's ability to settle its debt obligations using only its available net assets as of a particular date
How is it calculated?	The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
Policy Ratio:	Not less than 1.25x

Ratio 3 – Debt Service to Operating Expenses

What does it measure?	UNCSA's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues
Why is it tracked?	The ratio, which is widely tracked by rating agencies and other capital market participants, evaluates UNCSA's relative cost of borrowing to its overall expenditures and provides a measure of UNCSA's budgetary flexibility
How is it calculated?	Annual debt service divided by annual operating expenses
Policy Ratio:	Not to exceed 3.00%

Reporting

The Vice Chancellor for Business Affairs and/or the Associate Vice Chancellor for Finance and Controller will review each ratio in connection with the delivery of the University's audited financials and will provide an annual report to the Board substantially in the form of **Appendix B** detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

5. Debt Portfolio Management and Transaction Structure Considerations

Generally

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Business Affairs and/or Associate Vice Chancellor for Finance and Controller within the context of this Manual and the overall portfolio to ensure that any financial product or structure is consistent with UNCSA's stated objectives. As part of effective debt management, UNCSA must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

UNCSA will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves UNCSA's strategic plan and financing objectives. In making that determination, UNCSA will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect UNCSA's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce UNCSA's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates UNCSA's ongoing administrative and compliance risks. When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, UNCSA should structure its debt to provide for level annual payments of debt service, though UNCSA may elect alternative structures when the Vice Chancellor for Business Affairs determines it to be in UNCSA's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

UNCSA will use maturity structures that correspond with the life of the facilities financed, not to exceed 30 years. Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

UNCSA recognizes that a degree of exposure to variable interest rates within UNCSA's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from UNCSA's assets. UNCSA's debt portfolio should be managed to ensure that no more than 20% of UNCSA's total debt bears interest at an unhedged variable rate.

UNCSA's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. UNCSA may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. UNCSA may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

[Public Private Partnerships]

To address UNCSA's anticipated capital needs as efficiently and prudently as possible, UNCSA may choose to explore and consider opportunities for alternative and non-traditional transaction structures (collectively, "P3 Arrangements").

Due to their higher perceived risk and increased complexity, and because the cash flows for the project must satisfy the private partner's expected risk-adjusted rate of return, the financing and initial transaction costs for projects acquired through P3 Arrangements are generally higher than projects financed with proceeds of traditional debt instruments. P3 Arrangements should therefore be pursued only when UNCOSA has determined that (1) a traditional financing alternative is not feasible, (2) a P3 Arrangement will likely produce construction or overall operating results that are superior, faster or more efficient than a traditional delivery model or (3) a P3 Arrangement serves one of the Board's broader strategic objectives (e.g., a decision that operating a particular auxiliary function is no longer consistent with UNCOSA's core mission).

Absent a compelling strategic reason to the contrary, P3 Arrangements should not be considered if the Vice Chancellor for Business Affairs determines, in consultation with UNCOSA's advisors, that the P3 Arrangement will be viewed as "on-credit" (i.e., treated as University debt) by UNCOSA's auditors or outside rating agencies. When evaluating whether the P3 Arrangement should be viewed as "on-credit," rating agencies consider UNCOSA's economic interest in the project and the level of control it exerts over the project. Further, rating agencies will generally treat a P3 Arrangement as University debt if the project is located on UNCOSA's campus or if the facility is to be used for an essential University function. For this reason, any P3 Arrangement for a university-related facility to be located on land owned by the State, UNCOSA or a UNCOSA affiliate must be approved in advance by the Chancellor.

Refunding Considerations

UNCOSA will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, UNCOSA should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of UNCOSA ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.
- (iv) Refunding Bonds may also be issued to relieve UNCOSA of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

6. Derivative Products

UNCOSA recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit UNCOSA to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. UNCOSA will use derivatives only to manage and mitigate risk; UNCOSA will not use derivatives to create leverage or engage in speculative transactions.

As with underlying debt, UNCOSA's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Business Affairs and/or Associate Vice Chancellor for Finance and Controller must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2)

ensure that UNCSA's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

UNCSA will use derivatives only when the Vice Chancellor for Business Affairs and/or Associate Vice Chancellor for Finance and Controller determines, based on the foregoing analysis, that the instrument provides the most effective method for accomplishing UNCSA's strategic objectives without imposing inappropriate risks on UNCSA.

7. Post-Issuance Compliance Matters

On their adoption, the Associate Vice Chancellor for Finance and Controller will attach as **Appendix A** to this Strategy any policies relating to post-issuance compliance.

Appendix A – Post-Issuance Compliance Policies

Appendix B – Annual Reporting Template

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

Western Carolina University
Campus Report

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), Western Carolina University (“**WCU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. WCU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, WCU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—WCU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, WCU’s debt capacity reflects the amount of debt WCU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that WCU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- WCU’s current debt profile, including project descriptions financed with, and the sources of repayment for, WCU’s outstanding debt;
- WCU’s current credit profile, along with recommendations for maintaining or improving WCU’s credit rating; and
- A copy of any WCU debt management policy currently in effect.

Overview of WCU

For the fall 2017 semester, WCU had a headcount student population of approximately 11,034, including 9,406 undergraduate students and 1,628 graduate and doctoral students. WCU employs approximately 704 full-time, part-time and temporary instructional faculty.

Over the past 10 years, WCU’s enrollment has increased approximately 22%. WCU expects modest enrollment growth over the Study Period. WCU’s average age of plant (14.54 years) is higher than the median ratio for all Campuses (13.60 years) but will likely decrease as the result of recent investments.

WCU anticipates incurring approximately \$71.62 million in additional debt during the Study Period, as summarized in **Section 3** below.

WCU has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on WCU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to WCU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt WCU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate WCU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	92,995,849	-		92,995,849	2018	4,400,000	4,597,460	8,997,460	112,950,000
2014	95,239,071	-	2.41%	95,239,071	2019	4,675,000	4,438,503	9,113,503	108,275,000
2015	94,028,817	11,090,756	10.37%	105,119,573	2020	4,845,000	4,267,775	9,112,775	103,430,000
2016	103,731,266	8,392,304	6.66%	112,123,570	2021	5,005,000	4,107,418	9,112,418	98,425,000
2017	124,119,134	9,231,867	18.93%	133,351,001	2022	5,200,000	3,919,028	9,119,028	93,225,000
2018	136,151,372	-	2.10%	136,151,372	2023	5,405,000	3,699,550	9,104,550	87,820,000
2019	139,010,551	-	2.10%	139,010,551	2024	5,585,000	3,519,801	9,104,801	82,235,000
2020	141,929,773	-	2.10%	141,929,773	2025	5,825,000	3,285,663	9,110,663	76,410,000
2021	144,910,298	-	2.10%	144,910,298	2026	5,980,000	3,032,321	9,012,321	70,430,000
2022	147,953,414	-	2.10%	147,953,414	2027	5,895,000	2,766,681	8,661,681	64,535,000
Operating Expenses					2028	5,620,000	2,507,106	8,127,106	58,915,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	5,110,000	2,281,931	7,391,931	53,805,000
2013	188,457,923	-		188,457,923	2030	5,315,000	2,072,828	7,387,828	48,490,000
2014	194,683,028	-	3.30%	194,683,028	2031	5,525,000	1,864,656	7,389,656	42,965,000
2015	204,282,358	2,407,818	6.17%	206,690,176	2032	5,750,000	1,646,469	7,396,469	37,215,000
2016	207,002,819	2,702,905	1.46%	209,705,724	2033	5,320,000	1,444,459	6,764,459	31,895,000
2017	217,409,367	(1,037,574)	3.18%	216,371,793	2034	4,800,000	1,255,141	6,055,141	27,095,000
2018	220,915,601	-	2.10%	220,915,601	2035	3,520,000	1,113,988	4,633,988	23,575,000
2019	225,554,828	-	2.10%	225,554,828	2036	3,645,000	990,106	4,635,106	19,930,000
2020	230,291,480	-	2.10%	230,291,480	2037	3,775,000	858,725	4,633,725	16,155,000
2021	235,127,601	-	2.10%	235,127,601	2038	3,925,000	703,825	4,628,825	12,230,000
2022	240,065,280	-	2.10%	240,065,280	2039	4,090,000	542,775	4,632,775	8,140,000
					2040	1,565,000	374,975	1,939,975	6,575,000
					2041	1,640,000	303,550	1,943,550	4,935,000
					2042	890,000	224,500	1,114,500	4,045,000
					2043	935,000	178,875	1,113,875	3,110,000
					2044	985,000	130,875	1,115,875	2,125,000
					2045	1,035,000	80,375	1,115,375	1,090,000
					2046	1,090,000	27,250	1,117,250	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	57,685,982	28,995,469	-	-	2,244,124		-	84,437,326
2014	65,576,701	37,970,993	-	-	5,572,267	16.03%	-	97,975,427
2015	61,189,878	38,491,125	-	-	5,607,353	7.34%	11,090,756	105,164,406
2016	77,326,718	38,661,630	-	-	9,605,091	9.14%	8,392,304	114,775,562
2017	81,341,429	40,531,293	-	-	6,477,309	8.58%	9,231,867	124,627,281
2018	92,475,336	41,382,450	-	-	6,613,332	2.10%	-	127,244,454
2019	94,417,318	42,251,482	-	-	6,752,212	2.10%	-	129,916,588
2020	96,400,082	43,138,763	-	-	6,894,009	2.10%	-	132,644,836
2021	98,424,483	44,044,677	-	-	7,038,783	2.10%	-	135,430,377
2022	100,491,397	44,969,615	-	-	7,186,597	2.10%	-	138,274,415

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that WCU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** below.

WCU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Residence Hall	48,000,000	30 Years	Housing Revenues
2019	Parking Deck Facility	23,615,185	30 Years	Parking Permit Fees
Total		71,615,185		

4. Financial Ratios

Debt to Obligated Resources

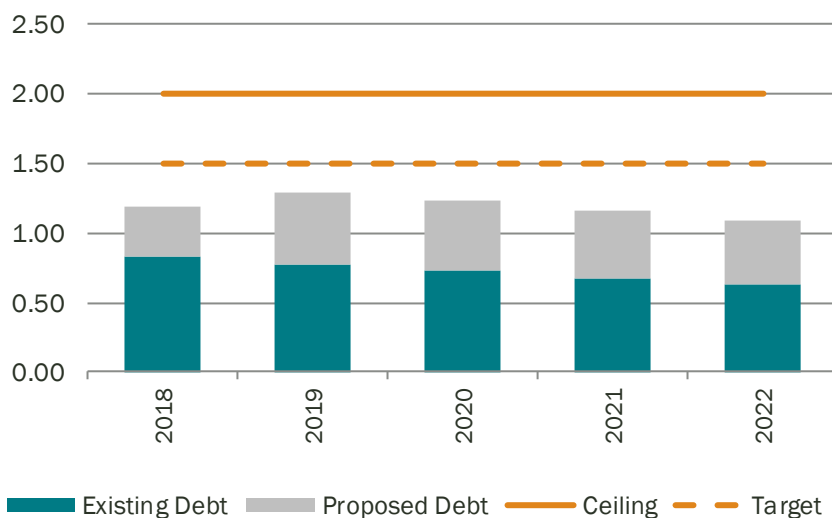
- **What does it measure?** WCU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 1.50
- Ceiling Ratio: Not to exceed 2.00
- Projected 2018 Ratio: 1.18
- Highest Study Period Ratio: 1.29 (2019)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	136,151,372	2.10%	112,950,000	48,000,000	0.83	0.35	1.18
2019	139,010,551	2.10%	108,275,000	71,615,185	0.78	0.52	1.29
2020	141,929,773	2.10%	103,430,000	71,140,920	0.73	0.50	1.23
2021	144,910,298	2.10%	98,425,000	69,579,073	0.68	0.48	1.16
2022	147,953,414	2.10%	93,225,000	67,965,998	0.63	0.46	1.09

Debt to Obligated Resources



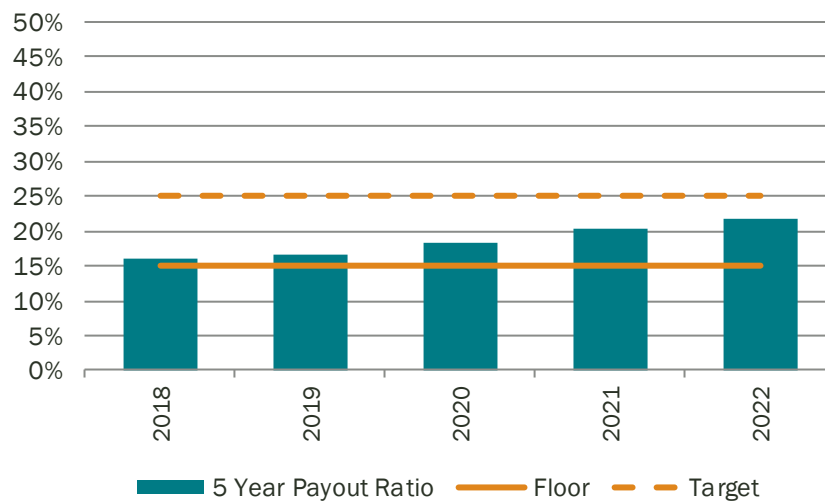
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of WCU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 25%
- Floor Ratio: Not less than 15%
- Projected 2018 Ratio: 16%
- Lowest Study Period Ratio: 16% (2018)

5-Year Payout Ratio

	1	2	3
	5 Year Payout Ratio		
Fiscal Year	Principal Balance		Ratio
2018	160,950,000		16%
2019	179,890,185		16%
2020	174,570,920		18%
2021	168,004,073		20%
2022	161,190,998		22%

5-Year Payout Ratio



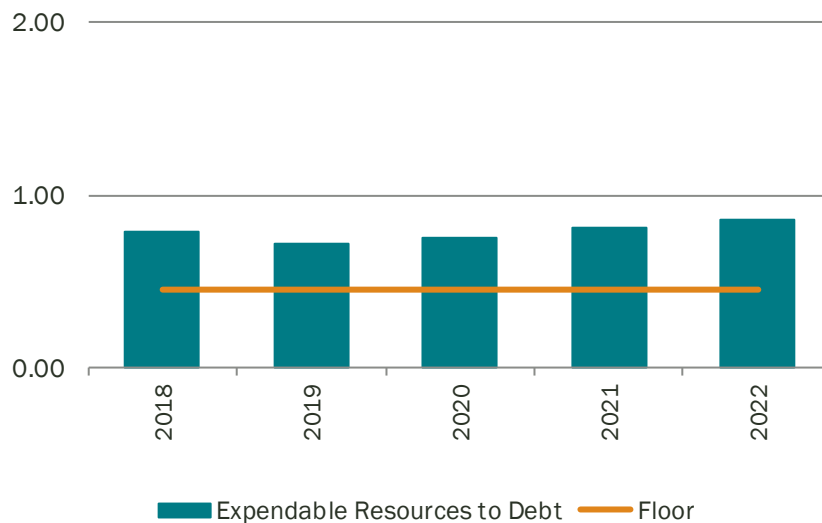
Expendable Resources to Debt

- **What does it measure?** The number of times WCU's liquid and expendable Net Position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.45x
- Projected 2018 Ratio: 0.79x
- Lowest Study Period Ratio: 0.72x (2019)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	127,244,454	2.10%	112,950,000	48,000,000	1.13	0.79
2019	129,916,588	2.10%	108,275,000	71,615,185	1.20	0.72
2020	132,644,836	2.10%	103,430,000	71,140,920	1.28	0.76
2021	135,430,377	2.10%	98,425,000	69,579,073	1.38	0.81
2022	138,274,415	2.10%	93,225,000	67,965,998	1.48	0.86

Expendable Resources to Debt



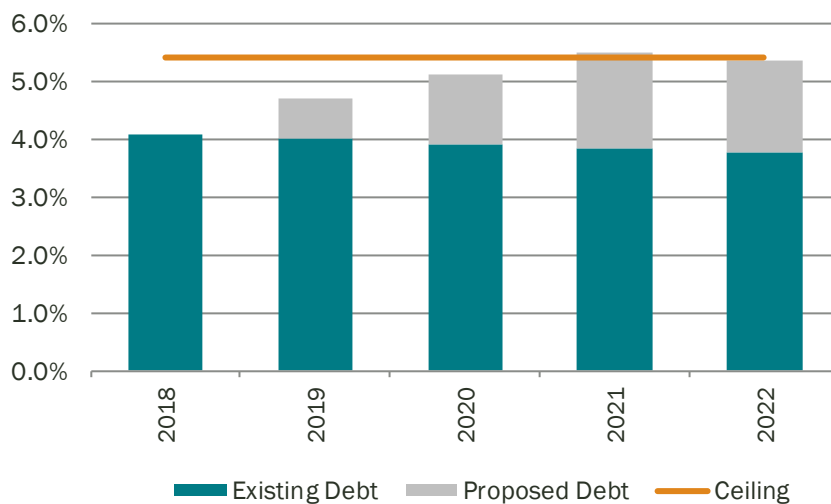
Debt Service to Operating Expenses

- **What does it measure?** WCU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 5.40%
- Projected 2018 Ratio: 4.07%
- Highest Study Period Ratio: 5.48% (2021)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	220,915,601	2.10%	8,997,460	-	4.07%	n/a	4.07%
2019	227,129,228	2.10%	9,113,503	1,574,400	4.01%	0.69%	4.71%
2020	232,640,458	2.10%	9,112,775	2,823,243	3.92%	1.21%	5.13%
2021	237,461,023	2.10%	9,112,418	3,895,269	3.84%	1.64%	5.48%
2022	242,347,474	2.10%	9,119,028	3,895,269	3.76%	1.61%	5.37%

Debt Service to Operating Expenses



↑ Weaker
↓ Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, WCU's debt capacity is based on the amount of debt WCU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, WCU's current debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, WCU's current estimated debt capacity is **\$98,130,917**. After taking into account any legislatively approved projects detailed in **Section 3** above, if WCU issued no additional debt until the last year of the Study Period, then WCU's debt capacity for 2022 is projected to increase to **\$134,715,830**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	1.18	2.00	111,352,745
2019	1.29	2.00	98,130,917
2020	1.23	2.00	109,288,625
2021	1.16	2.00	121,816,523
2022	1.09	2.00	134,715,830

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of WCU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- If WCU were to use all of its calculated debt capacity during the Study Period, WCU's credit ratings may face significant downward pressure.**
- Projecting the exact amount WCU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.

- If “debt capacity” were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.
- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university’s “**strategic positioning**” score, which accounts for 10% of its overall score under Moody’s criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer’s final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

WCU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

Western Carolina University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2008	Certificates of Participation	1,045,000	6/1/2018	Student Housing Projects		Housing Revenues
2008A	UNC System Pool Revenue Bonds	1,405,000	10/1/2018	Student Recreation Center Dining Hall Facility	BoA Loan	Student Fees Student Fees
2011B	UNC System Pool Revenue Bonds	17,240,000	4/1/2041	Student Housing - Harrill Athletic Facilities Student Recreation Center	2003A 2003A	Housing Revenues Student Fees Student Fees
2013	Refunding Limited Obligation Bonds	8,025,000	6/1/2033	Student Housing Projects		Housing Revenues
2015	Refunding Limited Obligation Bonds	7,320,000	6/1/2032	Student Housing Projects	2005	Housing Revenues
2015A	General Revenue and Revenue Refunding Bonds	36,615,000	10/1/2045	Athletic Facilities Student Recreation Center Student Recreation Center Dining Hall Facility Brown Renovation	2003A 2003A 2008A 2008A	Student Fees Student Fees Student Fees Student Fees
2015B	Taxable General Revenue Refunding Bonds	7,325,000	10/1/2026	Student Center Athletic Facilities	2006A 2006A	Student Fees Student Fees
2016	Refunding Limited Obligation Bonds	38,375,000	6/1/2039	Student Housing Projects	2008	Housing Revenues
Total		117,350,000				

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7. Credit Profile

The following page provides a snapshot of WCU's current credit ratings, along with (1) a summary of various credit factors identified in WCU's most recent rating report and (2) recommendations for maintaining and improving WCU's credit ratings in the future.

Overview

- Moody's maintains a Aa3 rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Consistently positive operating performance
- Strong financial support from the State of North Carolina (Aaa stable)
- Stable student demand

Credit Challenges

- Relatively small size
- Narrow geographic reach compared to similarly rated peers
- Elevated leverage
- Highly competitive student market.

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

- In light of the University's (1) relatively small size for its current rating category and (2) its projected capital investment needs in the coming years, evaluate whether it may be in the University's best interests to seek a strategic downgrade.

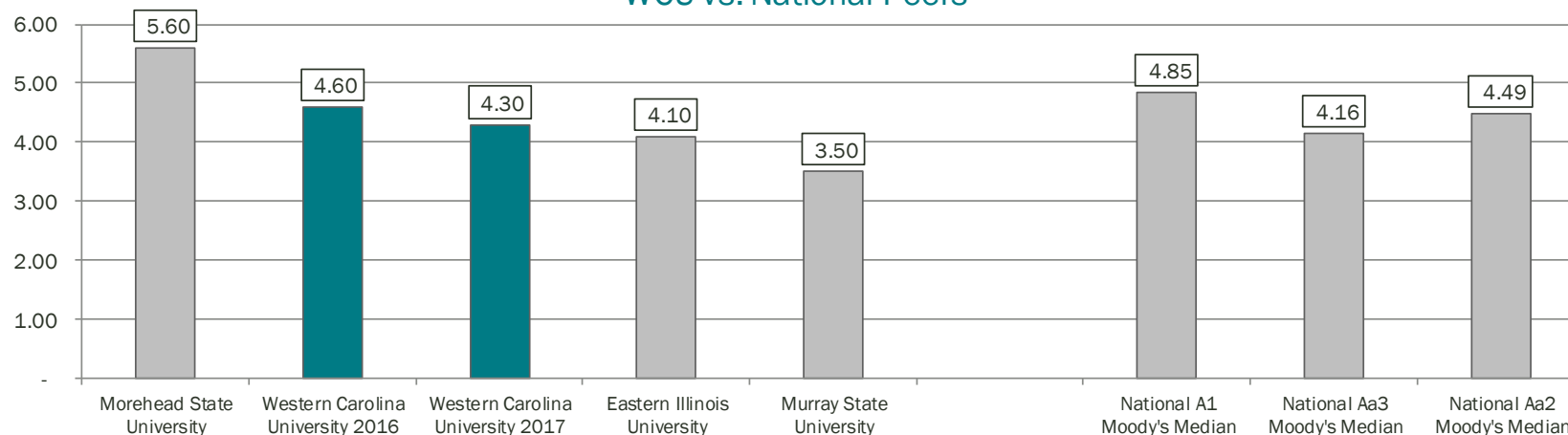
8. Peer Comparison

The following pages compare two measures of WCU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both WCU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

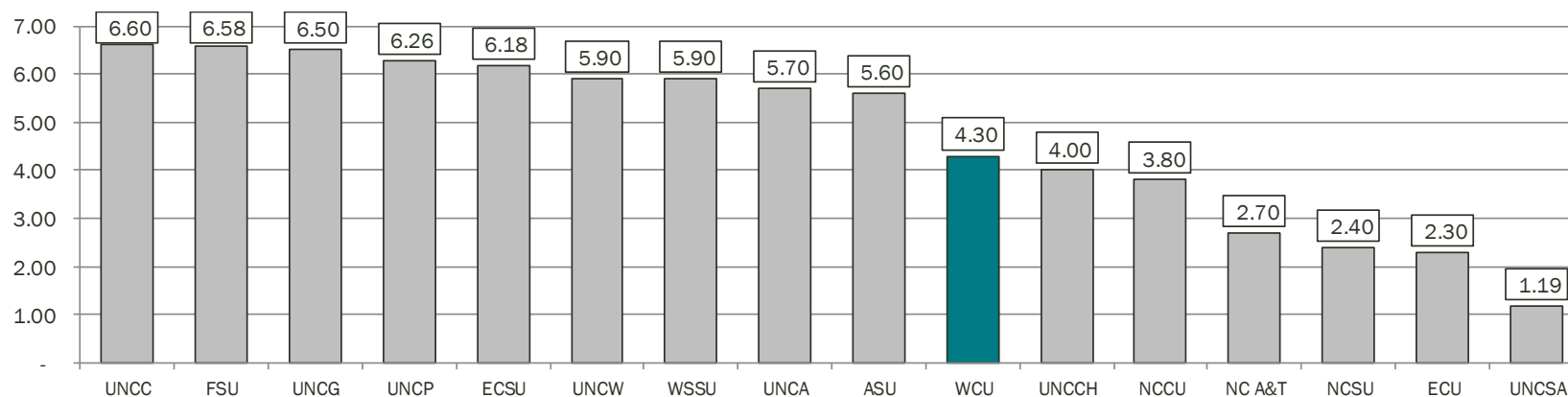
Debt Service to Operating Expenses (%)

WCU vs. National Peers



Debt Service to Operating Expenses (%)

WCU vs. UNC System



Notes:

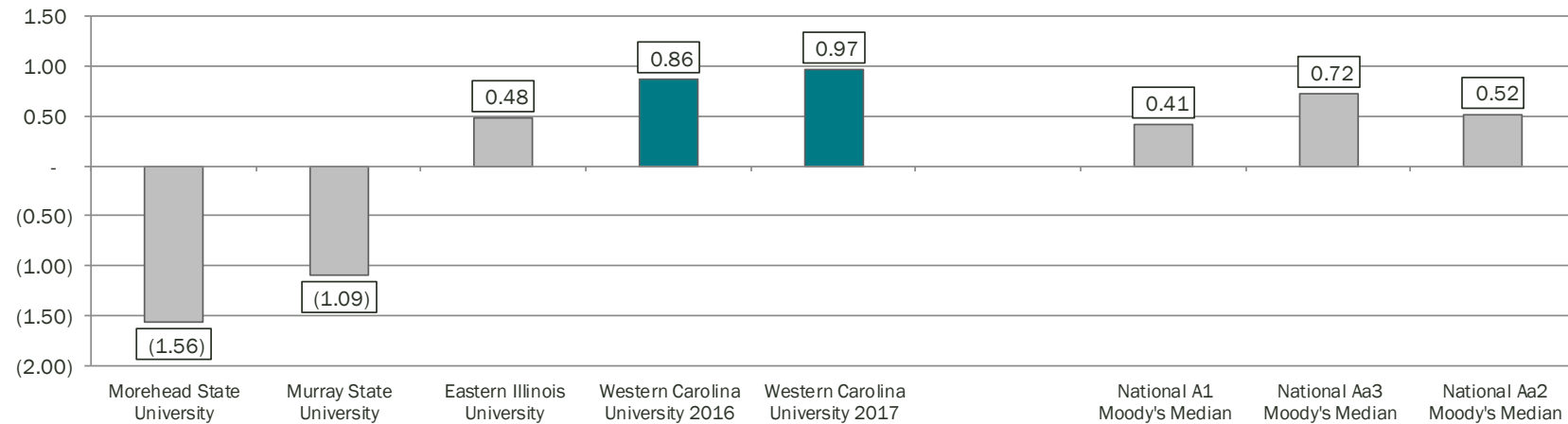
1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

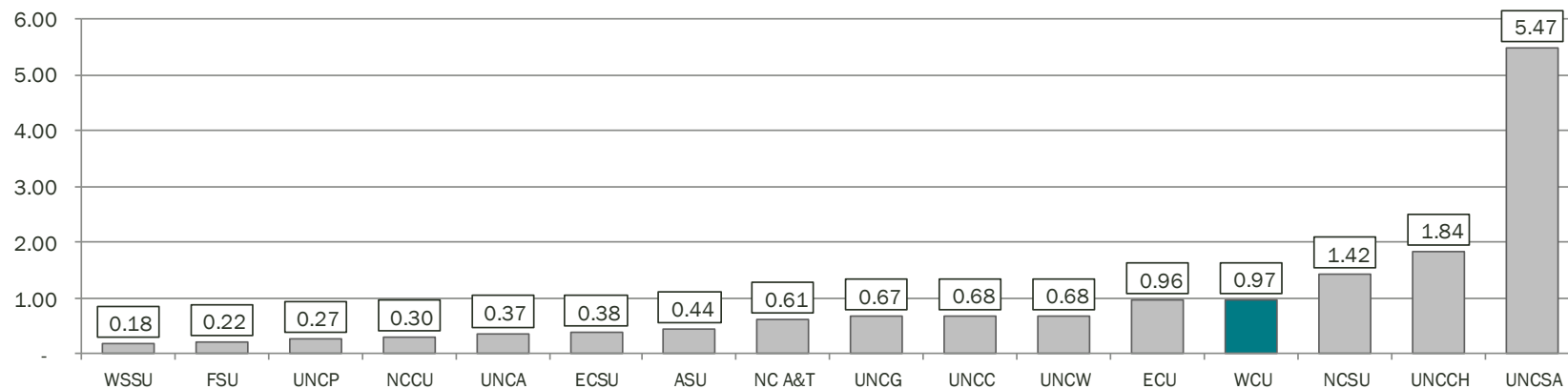
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Expendable Financial Resources to Debt

Expendable Financial Resources to Debt
WCU vs. National Peers



Expendable Financial Resources to Debt
WCU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

WCU's current debt policy is attached.

Debt Management Strategy

Approved by the UNC Board of Governors on May 24, 2018

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1. Introduction

Western Carolina University (“WCU”) views its debt capacity as a limited resource that should be used, when appropriate, to help fund the capital investments necessary for the successful implementation of WCU’s strategic vision to serve the people of North Carolina and beyond, while preserving the operational flexibility and resources necessary to support WCU’s current and future programming. WCU recognizes the important role that the responsible stewardship of its financial resources will play as WCU seeks to invest in its campus and related infrastructure in order to meet anticipated demand.

This Strategy has been developed to assist WCU’s efforts to manage its debt on a long-term, portfolio basis and in a manner consistent with WCU’s stated policies, objectives and core values. Like other limited resources, WCU’s debt capacity should be used and allocated strategically and equitably.

Specifically, the objective of this Strategy is to provide a framework that will enable WCU’s Board of Trustees (the “Board”) and finance staff to:

- (i) Identify and prioritize projects eligible for debt financing;
- (ii) Limit and manage risk within WCU’s debt portfolio;
- (iii) Establish debt management guidelines and quantitative parameters for evaluating WCU’s financial health, debt affordability and debt capacity;
- (iv) Manage and protect WCU’s credit profile in order to maintain WCU’s credit rating at a strategically optimized level and maintain access to the capital markets; and
- (v) Ensure WCU remains in compliance with all of its post-issuance obligations and requirements.

This Strategy is intended solely for WCU’s internal planning purposes. The Vice Chancellor for Administration & Finance will review this Strategy annually and, if necessary, recommend changes to ensure that it remains consistent with the University’s strategic objectives and the evolving demands and accepted practices of the public higher education marketplace. Proposed changes to this Strategy are subject to the Board’s approval.

2. Authorization and Oversight

WCU’s Vice Chancellor for Administration & Finance is responsible for the day-to-day management of WCU’s financial affairs in accordance with the terms of this Strategy and for all of WCU’s debt financing activities. Each University financing will conform to all applicable State and Federal laws.

The Board will consider for approval each proposed financing in accordance with the requirements of any applicable State law.

3. Process for Identifying and Prioritizing Capital Projects Requiring Debt

Only projects that directly or indirectly relate to the mission of WCU will be considered for debt financing.

- (i) Self-Liquidating Projects – A project that has a related revenue stream (self-liquidating project) will receive priority consideration. Each self-liquidating project financing must be supported by an achievable plan of finance that provides, or identifies sources of funds, sufficient to (1) service the debt associated with the project, (2) pay for any related infrastructure improvements, (3) cover any new or increased operating costs and (4) fund appropriate reserves for anticipated replacement and renovation costs.
- (ii) Energy Conservation Projects – Each energy conservation project financing must provide annual savings sufficient to service the applicable debt and all related monitoring costs.
- (iii) Other Projects – Other projects funded through budgetary savings, gifts and grants will be considered on a case-by-case basis. Any project requiring financing to be repaid primarily with gift receipts (a “Gift-Financed Project”) must be approved by the Chancellor with consultation from the Vice Chancellor for Development and Alumni Relations and the Vice Chancellor for Administration & Finance before any project-restricted donations are solicited. In all cases, institutional strategy, and not donor capacity, must drive the decision to pursue any proposed project.

The fundraising goal for any Gift-Financed Project should include, when feasible, an appropriately-sized endowment for deferred maintenance and other ancillary ownership costs. When such endowment is not feasible, the plan of finance for the Gift-Financed Project must identify other sources of funds sufficient to cover incremental increases in operating costs and to fund appropriate reserves for anticipated replacement and renovation costs relating to the Gift-Financed Project.

The University recognizes that it will begin to incur (1) significant soft costs for any Gift-Financed Project when an architect is selected and (2) significant hard costs for a project when construction actually begins. For any Gift-Financed Project, therefore, the University must have raised (1) at least 25% of the applicable fundraising goal in gifts and pledges before selecting an architect and (2) 100% of such fundraising goal in gifts before beginning construction. If less than 100% of the fundraising goal has been met, the University may still begin construction for a Gift-Financed Project if it has developed an achievable plan of finance that identifies sources of funds (other than gifts) sufficient to support a permanent financing for any difference between the applicable fundraising goal and the amount of gifts actually received to date. This Strategy recognizes that extraordinary circumstances may warrant strategic exceptions to the policies outlined in this paragraph, but any such exception must be approved by the Board of Trustees.

4. Benchmarks and Debt Ratios

Overview

When evaluating its current financial health and any proposed plan of finance, WCU takes into account both its debt affordability and its debt capacity. Debt affordability focuses on WCU's cash flows and measures WCU's ability to service its debt through its operating budget and identified revenue streams. Debt capacity, on the other hand, focuses on the relationship between WCU's net assets and its total debt outstanding.

Debt capacity and affordability are impacted by a number of factors, including WCU's enrollment trends, reserve levels, operating performance, ability to generate additional revenues to support debt service, competing capital improvement or programmatic needs, and general market conditions. Because of the number of potential variables, WCU's debt capacity cannot be calculated based on any single ratio or even a small handful of ratios.

WCU believes, however, that it is important to consider and monitor objective metrics when evaluating WCU's financial health and its ability to incur additional debt. To that end, WCU has identified four key financial ratios that it will use to assess its ability to absorb additional debt based on its current and projected financial condition:

- (i) Debt to Obligated Resources
- (ii) Debt Service Coverage Ratio
- (iii) Expendable Resources to Debt
- (iv) Debt Service to Operating Expenses

Note that the selected financial ratios are the same benchmarks monitored as part of the debt capacity study for The University of North Carolina delivered each year under Article 5 of Chapter 116D of the North Carolina General Statutes (the "UNC Debt Capacity Study"), which WCU believes will promote clarity and consistency in WCU's debt management and planning efforts.

WCU has established for each ratio a floor or ceiling target, as the case may be, with the expectation that WCU will operate within the parameters of those ratios most of the time. To the extent possible, the policy ratios established from time to time in this Strategy should align with the ratios used in the report WCU submits each year as part of the UNC Debt Capacity Study. The policy ratios have been established to help preserve WCU's financial health and operating flexibility and to ensure WCU is able to access the market to address capital needs or to take advantage of potential refinancing opportunities. Attaining or maintaining a specific credit rating is not an objective of this Strategy.

WCU recognizes that the policy ratios, while helpful, have limitations and should not be viewed in isolation of WCU's strategic plan or other planning tools. In accordance with the recommendations set forth in the initial UNC Debt Capacity Study delivered April 1, 2016, WCU has developed as part of this Strategy specific criteria for evaluating and, if warranted, approving critical infrastructure projects even when WCU has limited debt capacity as calculated by the UNC Debt Capacity Study or the benchmark ratios in this Strategy. In such instances, the Board may approve the issuance of debt with respect to a proposed project based on one or more of the following findings:

- (i) The proposed project would generate additional revenues (including, if applicable, dedicated student fees or grants) sufficient to support the financing, which revenues are not currently captured in the benchmark ratios.

- (ii) The proposed project would be financed entirely with private donations based on pledges already in hand.
- (iii) The proposed project is essential to the implementation of one of the Board's strategic priorities.
- (iv) The proposed project addresses life and safety issues or addresses other critical infrastructure needs.
- (v) Foregoing or delaying the proposed project would result in significant additional costs to WCU or would negatively impact WCU's credit rating.

At no point, however, should WCU intentionally operate outside an established policy ratio without conscious and explicit planning.

Ratio 1 – Debt to Obligated Resources

What does it measure?	WCU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt under the General Revenue Bond Statutes
How is it calculated?	Aggregate debt divided by obligated resources*
Policy Ratio:	Not to exceed 2.00x

*Available Funds, which is the concept commonly used to capture each UNC's campus's obligated resources in its loan and bond documentation, has been used as a proxy for obligated resources. The two concepts are generally identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of WCU's obligated resources.

Ratio 2 – Debt Service Coverage Ratio Overview

What does it measure?	WCU's ability to service its annual debt service obligations from WCU's operating cash flows
How is it calculated?	Operating cash flow divided by annual debt service
Policy Ratio:	Not less than 2.00x

Ratio 3 – Expendable Resources to Debt

What does it measure?	The number of times WCU's liquid and expendable net assets covers its aggregate debt
How is it calculated?	The sum of (1) Adjusted Unrestricted Net Assets and (2) Restricted Expendable Net Assets divided by aggregate debt
Policy Ratio:	Not less than 0.45x

Ratio 4 – Debt Service to Operating Expenses

What does it measure?	WCU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues
How is it calculated?	Annual debt service divided by annual operating expenses
Policy Ratio:	Not to exceed 5.40%

Reporting

In an instance where the University falls outside a stated policy ratio, the Vice Chancellor for Administration & Finance will review each ratio in connection with the delivery of the University's audited financials and will provide a report to the Board detailing (1) the calculation of each ratio for that fiscal year and (2) an explanation for any ratio that falls outside the University's stated policy ratio, along with (a) any applicable recommendations, strategies and an expected timeframe for aligning such ratio with the University's stated policy or (b) the rationale for any recommended changes to any such stated policy ratio going forward (including any revisions necessitated by changes in accounting standards or rating agency methodologies).

5. Debt Portfolio Management and Transaction Structure Considerations

Generally

Numerous types of financing structures and funding sources are available, each with specific benefits, risks, and costs. Potential funding sources and structures will be reviewed and considered by the Vice Chancellor for Administration & Finance within the context of this Strategy and the overall portfolio to ensure that any financial product or structure is consistent with WCU's stated objectives. As part of effective debt management, WCU must also consider its investment and cash management strategies, which influence the desired structure of the debt portfolio.

Method of Sale

WCU will consider various methods of sale on a transaction-by-transaction basis to determine which method of sale (i.e., competitive, negotiated or private placement) best serves WCU's strategic plan and financing objectives. In making that determination, WCU will consider, among other factors: (1) the size and complexity of the issue, (2) the current interest rate environment and other market factors (such as bank and investor appetite) that might affect WCU's cost of funds, and (3) possible risks associated with each method of sale (e.g., rollover risk associated with a financing that is privately placed with a bank for a committed term that is less than the term of the financing).

Tax Treatment

When feasible and appropriate for the particular project, the use of tax-exempt debt is generally preferable to taxable debt. Issuing taxable debt may reduce WCU's overall debt affordability due to higher rates but may be appropriate for projects that do not qualify for tax-exemption, or that may require interim funding. For example, taxable debt may be justified if it sufficiently mitigates WCU's ongoing administrative and compliance risks.

When used, taxable debt should be structured to provide maximum repayment flexibility and rapid principal amortization.

Structure and Maturity

To the extent practicable, WCU should structure its debt to provide for level annual payments of debt service, though WCU may elect alternative structures when the Vice Chancellor for Administration & Finance determines it to be in WCU's best interest. In addition, when financing projects that are expected to be self-supporting (such as a revenue-producing facility or a facility to be funded entirely through a dedicated fundraising campaign), the debt service may be structured to match future anticipated receipts.

WCU will use maturity structures that correspond with the life of the facilities financed, not to exceed 30 years. Equipment should be financed for a period not to exceed 120% of its useful life. Such determinations may be made on a blended basis, taking into account all assets financed as part of a single debt offering. As market dynamics change, maturity structures should be reevaluated. Call features should be structured to provide the highest degree of flexibility relative to cost.

Variable Rate Debt

WCU recognizes that a degree of exposure to variable interest rates within WCU's debt portfolio may be desirable in order to (1) take advantage of repayment or restructuring flexibility, (2) benefit from historically lower average interest costs and (3) provide a "match" between debt service requirements and the projected cash flows from WCU's assets. WCU's debt portfolio should be managed to ensure that no more than 20% of WCU's total debt bears interest at an unhedged variable rate.

WCU's finance staff will monitor overall interest rate exposure and will analyze and quantify potential risks, including interest rate, liquidity and rollover risks. WCU may manage the liquidity risk of variable rate debt either through its own working capital/investment portfolio, the type of instrument used, or by using third party sources of liquidity. WCU may manage interest rate risk in its portfolio through specific budget and central bank management strategies or through the use of derivative instruments.

Public Private Partnerships

To address WCU's anticipated capital needs as efficiently and prudently as possible, WCU may choose to explore and consider opportunities for alternative and non-traditional transaction structures (collectively, "P3 Arrangements").

Due to their higher perceived risk and increased complexity, and because the cash flows for the project must satisfy the private partner's expected risk-adjusted rate of return, the financing and initial transaction costs for projects acquired through P3 Arrangements are generally higher than projects financed with proceeds of traditional debt instruments. P3 Arrangements should therefore be pursued only when WCU has determined that (1) a traditional financing alternative is not feasible, (2) a P3 Arrangement will likely produce construction or overall operating results that are superior, faster or more efficient than a traditional delivery model or (3) a P3 Arrangement serves one of the Board's broader strategic objectives (e.g., a decision that operating a particular auxiliary function is no longer consistent with WCU's core mission).

Absent a compelling strategic reason to the contrary, P3 Arrangements should not be considered if the Vice Chancellor for Administration & Finance determines, in consultation with WCU's advisors, that the P3 Arrangement will be viewed as "on-credit" (i.e., treated as University debt) by WCU's auditors or outside rating agencies. When evaluating whether the P3 Arrangement should be viewed as "on-credit," rating agencies consider WCU's economic interest in the project and the level of control it exerts over the project. Further, rating

agencies will generally treat a P3 Arrangement as University debt if the project is located on WCU's campus or if the facility is to be used for an essential University function. For this reason, any P3 Arrangement for a university-related facility to be located on land owned by the State, WCU or a WCU affiliate must be approved in advance by the Vice Chancellor for Administration & Finance.

Refunding Considerations

WCU will actively monitor its outstanding debt portfolio for refunding or restructuring opportunities. Absent a compelling economic or strategic reason to the contrary, WCU should evaluate opportunities to issue bonds for the purpose of refunding existing debt obligations of WCU ("Refunding Bonds") using the following general guidelines:

- (i) The life of the Refunding Bonds should not exceed the remaining life of the bonds being refunded.
- (ii) Refunding Bonds issued to achieve debt service savings should have a target savings level measured on a present net value basis of at least 3% of the par amount refunded.
- (iii) Refunding Bonds that do not achieve debt service savings may be issued to restructure debt or provisions of bond documents if such refunding serves a compelling interest.
- (iv) Refunding Bonds may also be issued to relieve WCU of certain limitations, covenants, payment obligations or reserve requirements that reduce operational flexibility.

6. Derivative Products

WCU recognizes that derivative products may provide for more flexible management of the debt portfolio. In certain circumstances, interest rate swaps and other derivatives permit WCU to adjust its mix of fixed- and variable-rate debt and manage its interest rate exposures. Derivatives may also be an effective way to manage liquidity risks. WCU will use derivatives only to manage and mitigate risk; WCU will not use derivatives to create leverage or engage in speculative transactions.

As with underlying debt, WCU's finance staff will evaluate any derivative product comprehensively, taking into account its potential costs, benefits and risks, including, without limitation, any tax risk, interest rate risk, liquidity risk, credit risk, basis risk, rollover risk, termination risk, counterparty risk, and amortization risk. Before entering into any derivative product, the Vice Chancellor for Administration & Finance must (1) conclude, based on the advice of a reputable swap advisor, that the terms of any swap transaction are fair and reasonable under current market conditions and (2) ensure that WCU's finance staff has a clear understanding of the proposed transaction's costs, cash flow impact and reporting treatment.

WCU will use derivatives only when the Vice Chancellor for Administration & Finance determines, based on the foregoing analysis, that the instrument provides the most effective method for accomplishing WCU's strategic objectives without imposing inappropriate risks on WCU.

7. Post-Issuance Compliance Matters

To the extent WCU adopts any formal policies relating to post-issuance compliance matters after the effective date of this Strategy, the Vice Chancellor for Administration & Finance will attach each such policy as **Appendix A** to this Strategy.

Appendix A – Post-Issuance Compliance Policies

[See attached.]

The University of North Carolina System Debt Capacity Study – Fiscal Year 2017

Winston Salem State University
Campus Report

Winston Salem State University

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1. Executive Summary

Overview of the Campus Report

Pursuant to Article 5 of Chapter 116D of the North Carolina General Statutes (the “**Act**”), Winston Salem State University (“**WSSU**”) has submitted this report (this “**Campus Report**”) as part of the annual debt capacity study (the “**Study**”) undertaken by The University of North Carolina (the “**University**”) in accordance with the Act. Each capitalized term used but not defined in this Campus Report has the meaning given to such term in the Study.

This Campus Report details the historical and projected financial information incorporated into the financial model developed in connection with the Study. WSSU has used the model to calculate and project the following four financial ratios:

- Debt to Obligated Resources
- Five-Year Payout Ratio
- Expendable Resources to Debt
- Debt Service to Operating Expenses

See **Appendix A** to the Study for more information on the ratios and related definitions.

To produce a tailored, meaningful model, WSSU, in consultation with UNC System, has set its own policies for each model ratio. For the two statutorily-required ratios—**debt to obligated resources** and the **five-year payout ratio**—WSSU has set both a target policy and a floor or ceiling policy, as applicable.

For the purposes of the Study, WSSU’s debt capacity reflects the amount of debt WSSU could issue during the Study Period without exceeding its ceiling ratio for **debt to obligated resources**, after taking into account debt the General Assembly has previously approved that WSSU intends to issue during the Study Period. Details regarding each approved project are provided in Section 3.

This Campus Report also includes the following information required by the Act:

- WSSU’s current debt profile, including project descriptions financed with, and the sources of repayment for, WSSU’s outstanding debt;
- WSSU’s current credit profile, along with recommendations for maintaining or improving WSSU’s credit rating; and
- A copy of any WSSU debt management policy currently in effect.

Overview of WSSU

For the fall 2017 semester, WSSU had a headcount student population of approximately 5,098, including 4,688 undergraduate students and 410 graduate and doctoral students. During the 2017 academic year, WSSU employed approximately 325 full-time, part-time and temporary instructional faculty.

Over the past 10 years, WSSU’s enrollment has decreased approximately 21%. WSSU expects enrollment to remain relatively stable over the Study Period. WSSU’s average age of plant (14.25 years) is higher than the median ratio for all Campuses (13.60 years) and may indicate the need for increased investment in campus infrastructure in the near term.

WSSU anticipates incurring approximately \$15.0 million in additional debt during the Study Period, as summarized in **Section 3** below.

WSSU has made no changes to the financial model’s standard growth assumptions, which are based on the Consumer Price Index for 2017.

2. Campus Data

Notes

- Obligated Resources equals Available Funds plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Operating Expenses equals Operating Expenses plus an adjustment for any noncash charge relating to the implementation of GASB 68.
- Outstanding debt service is based on WSSU's outstanding debt **as of June 30, 2017**, excluding state appropriated debt (such as energy savings contracts). Debt service is net of any interest subsidies owed to WSSU by the federal government (discounted by an assumed 7.2% sequestration rate) and uses reasonable unhedged variable rate assumptions.
- New money debt issued **after June 30, 2017**, together with any legislatively approved debt WSSU expects to issue during the Study Period, **are included** in the model as "proposed debt service" and are taken into account in the projected financial ratios shown in this Campus Report.
- Repayments, redemptions or refundings that have occurred **after June 30, 2017** are not included in the model, meaning the debt service schedules reflected below may overstate WSSU's current debt burden.

1	2	3	4	5	6	7	8	9	10
Obligated Resources					Outstanding Debt				
Fiscal Year	Available Funds (Reported)	GASB 68 Adjustment	AF Growth	Total Available Funds	Fiscal Year	Principal	Net Interest	Debt Service	Principal Balance
2013	29,168,864			29,168,864	2018	2,500,000	4,664,573	7,164,573	94,380,000
2014	38,707,855		32.70%	38,707,855	2019	2,935,000	4,574,197	7,509,197	91,445,000
2015	24,595,285	9,632,772	-11.57%	34,228,057	2020	3,070,000	4,447,469	7,517,469	88,375,000
2016	29,086,951	7,361,483	6.49%	36,448,434	2021	3,220,000	4,308,160	7,528,160	85,155,000
2017	33,966,030	7,964,039	15.04%	41,930,069	2022	3,340,000	4,159,586	7,499,586	81,815,000
2018	42,810,600	-	2.10%	42,810,600	2023	3,515,000	3,991,986	7,506,986	78,300,000
2019	43,709,623	-	2.10%	43,709,623	2024	3,710,000	3,815,656	7,525,656	74,590,000
2020	44,627,525	-	2.10%	44,627,525	2025	3,905,000	3,640,110	7,545,110	70,685,000
2021	45,564,703	-	2.10%	45,564,703	2026	4,115,000	3,444,183	7,559,183	66,570,000
2022	46,521,562	-	2.10%	46,521,562	2027	4,315,000	3,243,990	7,558,990	62,255,000
Operating Expenses					2028	4,550,000	3,041,717	7,591,717	57,705,000
Fiscal Year	Operating Exp.	GASB 68 Adjustment	Growth	Operating Exp.	2029	4,775,000	2,828,487	7,603,487	52,930,000
2013	142,378,656			142,378,656	2030	5,005,000	2,589,002	7,594,002	47,925,000
2014	138,228,632		-2.91%	138,228,632	2031	5,250,000	2,350,098	7,600,098	42,675,000
2015	133,136,951	1,946,911	-2.28%	135,083,862	2032	5,265,000	2,099,450	7,364,450	37,410,000
2016	133,168,052	2,278,481	0.27%	135,446,533	2033	5,515,000	1,848,188	7,363,188	31,895,000
2017	141,152,759	(602,355)	3.77%	140,550,404	2034	5,785,000	1,571,063	7,356,063	26,110,000
2018	143,501,963	-	2.10%	143,501,963	2035	4,465,000	1,289,925	5,754,925	21,645,000
2019	146,515,504	-	2.10%	146,515,504	2036	4,150,000	1,067,775	5,217,775	17,495,000
2020	149,592,330	-	2.10%	149,592,330	2037	2,045,000	862,131	2,907,131	15,450,000
2021	152,733,769	-	2.10%	152,733,769	2038	1,545,000	757,331	2,302,331	13,905,000
2022	155,941,178	-	2.10%	155,941,178	2039	1,620,000	678,206	2,298,206	12,285,000
					2040	1,705,000	595,038	2,300,038	10,580,000
					2041	1,790,000	507,700	2,297,700	8,790,000
					2042	1,885,000	415,938	2,300,938	6,905,000
					2043	1,980,000	319,244	2,299,244	4,925,000
					2044	1,140,000	217,750	1,357,750	3,785,000
					2045	1,200,000	159,250	1,359,250	2,585,000
					2046	1,260,000	97,750	1,357,750	1,325,000
					2047	1,325,000	33,125	1,358,125	-

Notes

- Expendable Resources equals Unrestricted Net Position plus Restricted, Expendable Net Position plus Foundation Unrestricted Net Position plus Foundation Temporarily Restricted Net Position minus Restricted, Expendable Net Position Restricted for Capital Projects.
- Unrestricted Net Position has been adjusted for any noncash charge relating to the implementation of GASB 68 during the projection period.

1	2	3	4	5	6	7	8	9
Expendable Resources								
Fiscal Year	Unrestricted Net Position	Restricted, Expendable Net Position	Foundation Unrestricted Net Position	Foundation Temp Restricted Net Position	Less: Restricted, Expendable Net Position Restricted for Capital Projects	Growth	GASB 68 Adjustment	Expendable Resources
2013	6,747,229	13,274,841	1,787,594	9,120,084	2,477,541		-	28,452,206
2014	1,302,897	12,471,527	1,521,865	10,343,572	-	-9.88%	-	25,639,861
2015	(8,366,880)	16,493,922	691,722	11,603,010	2,895,367	5.93%	9,632,772	27,159,179
2016	(3,732,269)	14,971,560	1,211,884	9,193,727	2,569,134	-2.66%	7,361,483	26,437,251
2017	(6,322,184)	18,461,527	509,227	10,118,981	3,718,523	2.18%	7,964,039	27,013,067
2018	1,676,334	18,849,219	519,921	10,331,480	3,796,612	2.10%	-	27,580,341
2019	1,711,537	19,245,053	530,839	10,548,441	3,876,341	2.10%	-	28,159,529
2020	1,747,479	19,649,199	541,987	10,769,958	3,957,744	2.10%	-	28,750,879
2021	1,784,176	20,061,832	553,368	10,996,127	4,040,857	2.10%	-	29,354,647
2022	1,821,644	20,483,131	564,989	11,227,046	4,125,715	2.10%	-	29,971,095

3. Proposed Debt Financings

The table below summarizes any legislatively approved projects that WSSU expects to finance during the Study Period. Using the assumptions outlined in the table below, the model has developed a tailored, but conservative, debt service schedule for each proposed financing and incorporated each pro forma debt service schedule into its calculations of the financial ratios as detailed in **Section 4** below.

WSSU Proposed Debt Financings

Year	Use of Funds	Borrowing Amount	Term	Source of Repayment
2018	Restore the Core II - Hauser Renovation	6,000,000	30 Years	Debt Service Fee
2018	Restore the Core II - Physical Plant Renovation	9,000,000	30 Years	Debt Service Fee
Total		15,000,000		

4. Financial Ratios

Debt to Obligated Resources

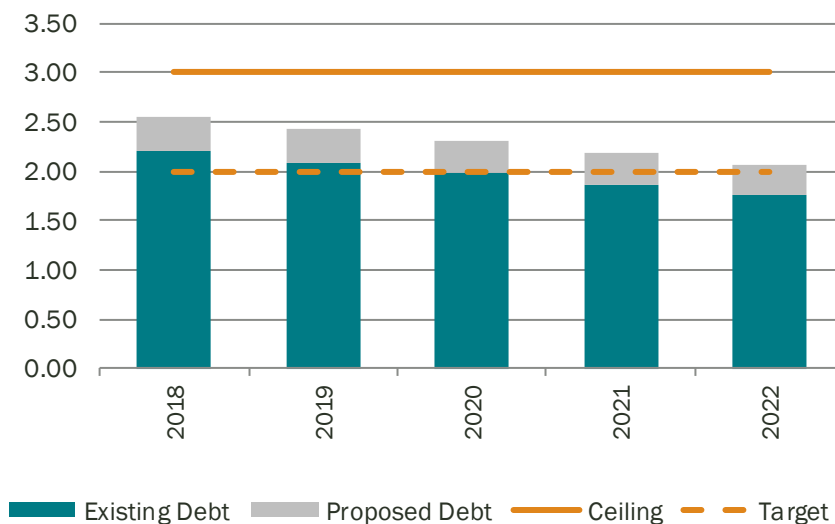
- **What does it measure?** WSSU's aggregate outstanding debt as compared to its obligated resources—the funds legally available to service its debt.
- **How is it calculated?** Aggregate debt divided by obligated resources*
- Target Ratio: 2.00
- Ceiling Ratio: Not to exceed 3.00
- Projected 2018 Ratio: 2.55
- Highest Study Period Ratio: 2.55 (2018)

*Available Funds, which is the concept commonly used to capture a Campus's obligated resources in its loan and bond documentation, has been used in the model as a proxy for obligated resources. For most Campuses, the two concepts are identical, though Available Funds may include additional deductions for certain specifically pledged revenues, making it a conservative measure of a Campus's obligated resources.

Debt to Obligated Resources

1	2	3	4	5	6	7	8
Debt to Obligated Resources							
Fiscal Year	Obligated Resources	Growth	Existing Debt	Proposed Debt	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	42,810,600	2.10%	94,380,000	15,000,000	2.20	0.35	2.55
2019	43,709,623	2.10%	91,445,000	14,722,570	2.09	0.34	2.43
2020	44,627,525	2.10%	88,375,000	14,434,653	1.98	0.32	2.30
2021	45,564,703	2.10%	85,155,000	14,135,852	1.87	0.31	2.18
2022	46,521,562	2.10%	81,815,000	13,825,757	1.76	0.30	2.06

Debt to Obligated Resources



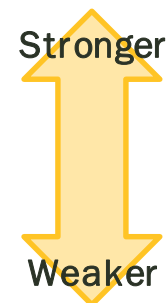
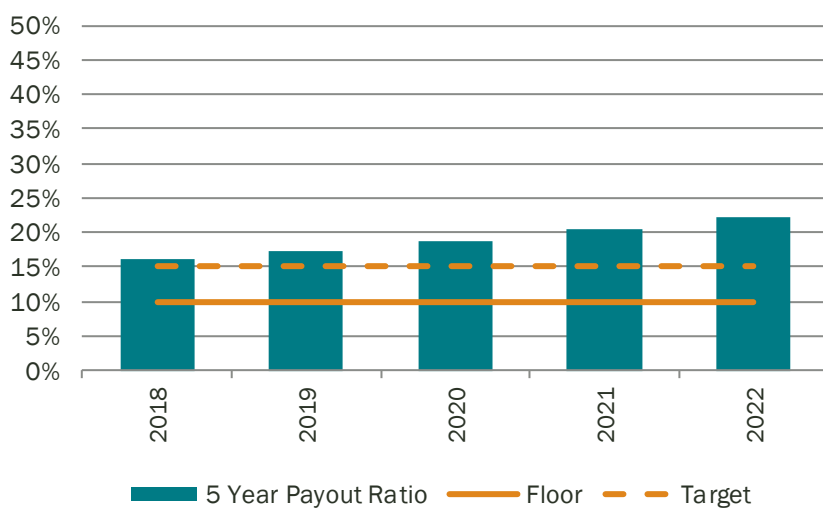
5-Year Payout Ratio Overview

- **What does it measure?** The percentage of WSSU's debt scheduled to be retired in the next five years.
- **How is it calculated?** Aggregate principal to be paid in the next five years divided by aggregate debt
- Target Ratio: 15%
- Floor Ratio: Not less than 10%
- Projected 2018 Ratio: 16%
- Lowest Study Period Ratio: 16% (2018)

5-Year Payout Ratio

1	2	3
5 Year Payout Ratio		
Fiscal Year	Principal Balance	Ratio
2018	109,380,000	16%
2019	106,167,570	17%
2020	102,809,653	19%
2021	99,290,852	20%
2022	95,640,757	22%

5-Year Payout Ratio



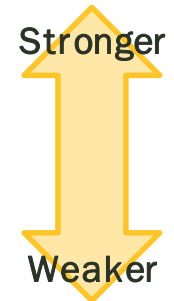
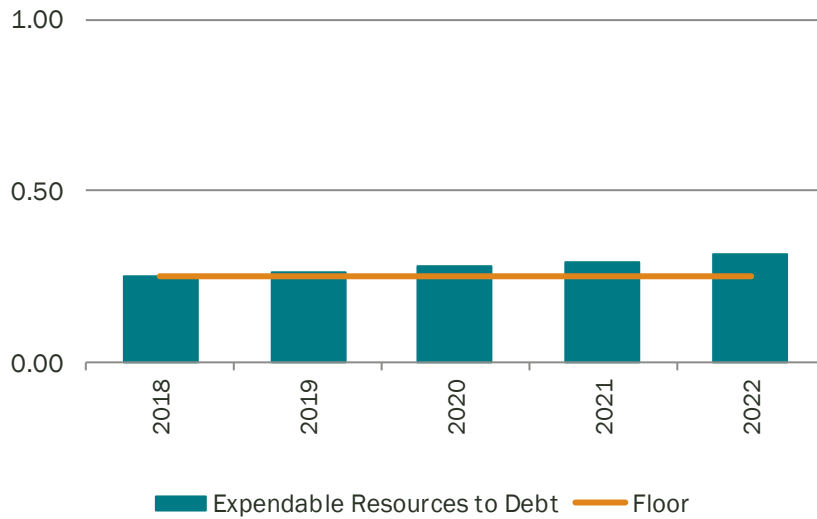
Expendable Resources to Debt

- **What does it measure?** The number of times WSSU's liquid and expendable net position covers its aggregate debt.
- **How is it calculated?** The sum of (1) Adjusted Unrestricted Net Position and (2) Restricted Expendable Net Position divided by aggregate debt
- Floor Ratio: Not less than 0.25x
- Projected 2018 Ratio: 0.25x
- Lowest Study Period Ratio: 0.25x (2018)

Expendable Resources to Debt

1	2	3	4	5	6	7
Expendable Resources to Debt						
Fiscal Year	Expendable Resources	Growth	Existing Bal.	Proposed Bal.	Existing Debt	Existing & Proposed Debt
2018	27,580,341	2.10%	94,380,000	15,000,000	0.29	0.25
2019	28,159,529	2.10%	91,445,000	14,722,570	0.31	0.27
2020	28,750,879	2.10%	88,375,000	14,434,653	0.33	0.28
2021	29,354,647	2.10%	85,155,000	14,135,852	0.34	0.30
2022	29,971,095	2.10%	81,815,000	13,825,757	0.37	0.31

Expendable Resources to Debt



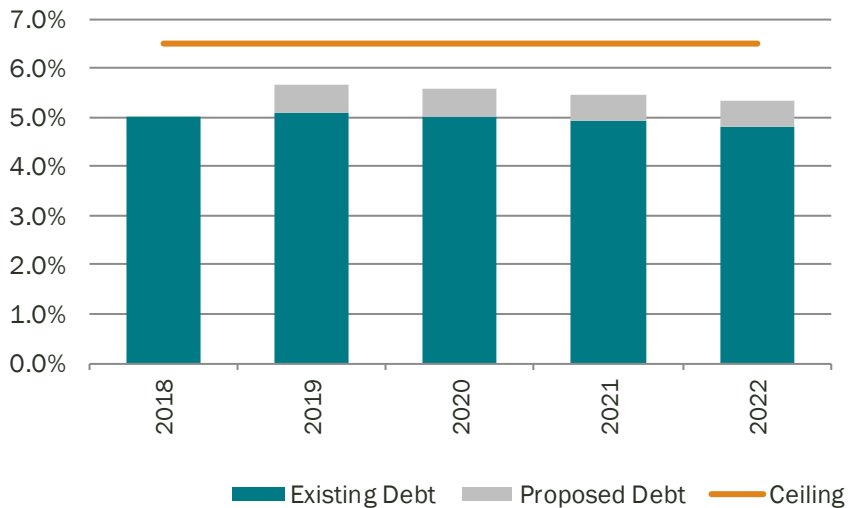
Debt Service to Operating Expenses

- **What does it measure?** WSSU's debt service burden as a percentage of its total expenses, which is used as the denominator because it is typically more stable than revenues.
- **How is it calculated?** Annual debt service divided by annual operating expenses (as adjusted to include interest expense of proposed debt)
- Policy Ratio: Not to exceed 6.50%
- Projected 2018 Ratio: 4.99%
- Highest Study Period Ratio: 5.68% (2019)

Debt Service to Operating Expenses

1	2	3	4	5	6	7	8
Debt Service to Operating Expenses							
Fiscal Year	Operating Expenses	Growth	Existing DS	Proposed DS	Ratio - Existing	Ratio - Proposed	Ratio - Total
2018	143,501,963	2.10%	7,164,573	-	4.99%	n/a	4.99%
2019	147,082,504	2.10%	7,509,197	844,430	5.11%	0.57%	5.68%
2020	150,148,843	2.10%	7,517,469	844,430	5.01%	0.56%	5.57%
2021	153,279,399	2.10%	7,528,160	844,430	4.91%	0.55%	5.46%
2022	156,475,513	2.10%	7,499,586	844,430	4.79%	0.54%	5.33%

Debt Service to Operating Expenses



Weaker
↑
↓
Stronger

5. Debt Capacity Calculation

Debt Capacity Calculation

- For the purposes of this Campus Report and the Study, WSSU's debt capacity is based on the amount of debt WSSU could issue during the Study Period (after taking into account any legislatively approved projects detailed in **Section 3** above) without exceeding its ceiling ratio for **debt to obligated resources**.
- As presented below, WSSU's 2017 debt capacity equals **the lowest constraint on its debt capacity** in any single year during the Study Period.
- Based solely on the **debt to obligated resources** ratio, WSSU's current estimated debt capacity is **\$19,051,800**. After taking into account any legislatively approved projects detailed in **Section 3** above, if WSSU issued no additional debt until the last year of the Study Period, then WSSU's debt capacity for 2022 is projected to increase to **\$43,923,927**.

1	2	3	4
Debt Capacity Calculation			
Fiscal Year	Debt to Obligated Resources (Current Ratio)	Debt to Obligated Resources (Ceiling)	Debt Capacity Calculation
2018	2.55	3.00	19,051,800
2019	2.43	3.00	24,961,298
2020	2.30	3.00	31,072,922
2021	2.18	3.00	37,403,256
2022	2.06	3.00	43,923,927

Limitations on Debt Capacity and Credit Rating Implications

- The debt capacity calculation shown above provides a general indication of WSSU's ability to absorb debt on its balance sheet during the Study Period and may help identify trends and issues over time.
- "Debt capacity" does not** necessarily equate to **"debt affordability,"** which takes into account a number of quantitative and qualitative factors, including project revenues and expenses, cost of funds and competing strategic priorities.
- Projecting the exact amount WSSU could issue during the Study Period without negatively impacting its credit rating is difficult for a number of reasons.
 - Use of Multiple Factors**
 - Any single financial ratio makes up only a fraction of the "scorecard" used by rating agencies to guide their credit analysis.
 - Under Moody's approach, for example, the **financial leverage ratio** accounts for only **10%** of an issuer's overall score.
 - The State's Impact**
 - In assessing each Campus's credit rating, rating agencies also consider the State's credit rating and demographic trends, the health of its pension system, the level of support it has historically provided to the Campus, and any legislation or policies affecting Campus operations.
 - Historically, each Campus's credit rating has been bolstered by the State's strong support and overall financial health. As a result, many Campuses "underperform" relative to the national median ratios for their rating category.
 - If "debt capacity" were linked to those national median ratios, many Campuses would have limited debt capacity for an extended period of time.

- **Factor Interdependence**
 - The quantitative and qualitative factors interact with one another in ways that are difficult to predict.
 - For example, a university's "**strategic positioning**" score, which accounts for 10% of its overall score under Moody's criteria, could deteriorate if a university either (1) issued excessive debt or (2) failed to reinvest in its campus to address its deferred maintenance obligations.
- **Distortions Across Rating Categories**
 - Because quantitative ratios account for only a portion of an issuer's final rating, the national median for any single ratio is not perfectly correlated to rating outcomes, meaning the median ratio for a lower rating category may be more stringent than the median ratio for a higher rating category. For the highest and lowest rating categories, the correlation between any single ratio and rating outcomes becomes even weaker.
 - Tying capacity directly to ratings may also distort strategic objectives. For example, a Campus may be penalized for improving its rating, as it may suddenly lose all of its debt capacity because it must now comply with a much more stringent ratio.

6. Debt Profile

WSSU's detailed debt profile, including a brief description of each financed project and the source of repayment for each outstanding debt obligation, is reflected in the table on the following page.

Winston-Salem State University

FY2017 Debt Capacity Study

Summary of Debt Outstanding as of FYE June 30, 2017

Series	Description	Par Outstanding	Final Maturity	Use of Funds	Refunding	Source of Repayment
2006D	Certificates of Participation	2,355,000	5/25/2031	Bowman-Gray Fieldhouse		Student Debt Service Fee
2008A	UNC System Pool Revenue Bonds	990,000	10/1/2021	Brown Hall Renovations Civitan Park Athletic Upgrade		Housing Revenues Student Debt Service Fee
2013	General Revenue Bonds	30,315,000	4/1/2043	Housing Renovations Martin-Shexnider Residence Hall Wilson Hall Student Success Center North Campus Project Donald Reaves Center	2002 1998	Housing Revenues Housing Revenues Housing Revenues Student Debt Service Fee Student Debt Service Fee Student Debt Service Fee
2014	Refunding Limited Obligation Bonds	25,355,000	6/1/2036	Rams Commons Hairston Gleason Residence Hall	2004	Housing Revenues Housing Revenues
Total		96,880,000				

Approved by the UNC Board of Governors on May 24, 2018

7. Credit Profile

The following page provides a snapshot of WSSU's current credit ratings, along with (1) a summary of various credit factors identified in WSSU's most recent rating report and (2) recommendations for maintaining and improving WSSU's credit ratings in the future.

Overview

- Moody's maintains an A3 rating on the University's general revenue bonds. The outlook is stable.
- Standard and Poor's maintains an A- rating on the University's general revenue bonds. The outlook is stable.

Key Information Noted in Reports

Credit Strengths

- Healthy operating and capital support from State of North Carolina; state funding represents 52% of FY 2015 operating revenue
- Metropolitan location and low-cost tuition pricing supports ongoing student demand
- Very good strategic positioning aided by state support that includes capital investment and fiscal oversight

Credit Challenges

- Very thin \$8 million in unrestricted monthly liquidity, which provides only 24 days cash on hand in FY 2015
- Increasing pro-forma debt, with debt to operating revenue moving to >1.0x
- High geographic concentration, with over 90% of students in-state, creates exposure to shifting conditions within North Carolina
- Near break even operating performance provides narrow cushion to increasing debt service commitments

Moody's	S&P	Fitch
Aaa	AAA	AAA
Aa1	AA+	AA+
Aa2	AA	AA
Aa3	AA-	AA-
A1	A+	A+
A2	A	A
A3	A-	A-
Baa1	BBB+	BBB+
Baa2	BBB	BBB
Baa3	BBB-	BBB-

Non Investment Grade

Recommendations & Observations

- Continue to develop and implement strategies and policies to meet the University's unique challenges, including strategies to stabilize and improve enrollment and revenue.

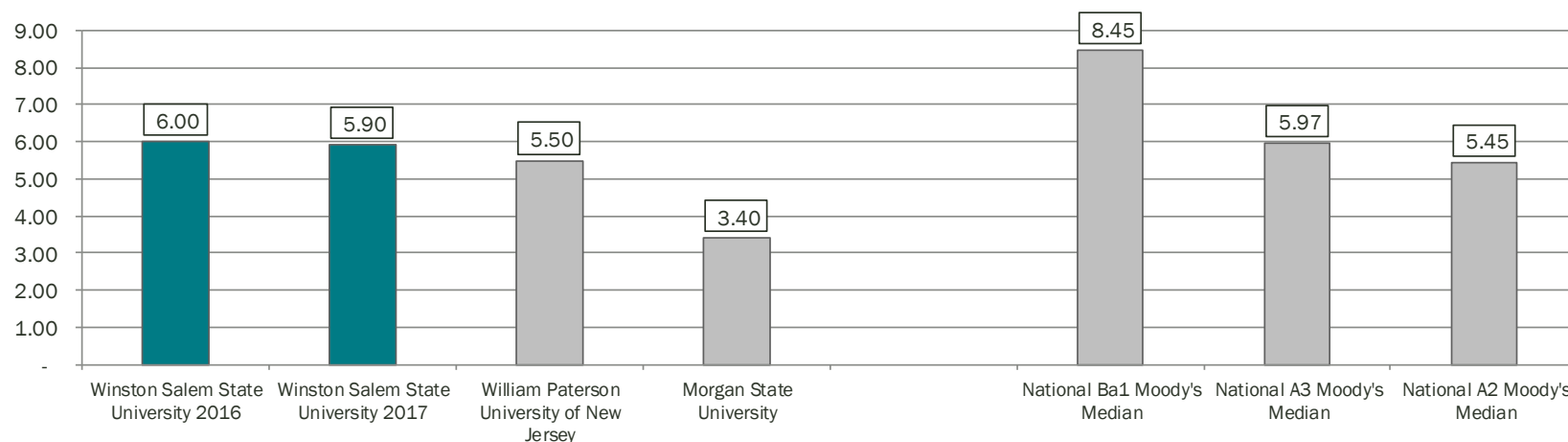
8. Peer Comparison

The following pages compare two measures of WSSU's debt burden—**expendable resources to debt** and **debt service to operating expenses**—to selected peers, to median ratios for similarly rated institutions, and to the Campuses in the UNC System. The peer comparisons are based on Moody's data for both WSSU (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2016 and 6/30/2017), which is the most recent data available. The ratios for any Campus not rated by Moody's have been calculated using Moody's methodology. Note that Moody's methodology differs slightly from the assumptions used in the financial model developed for this Study.

Debt Service to Operating Expenses (%)

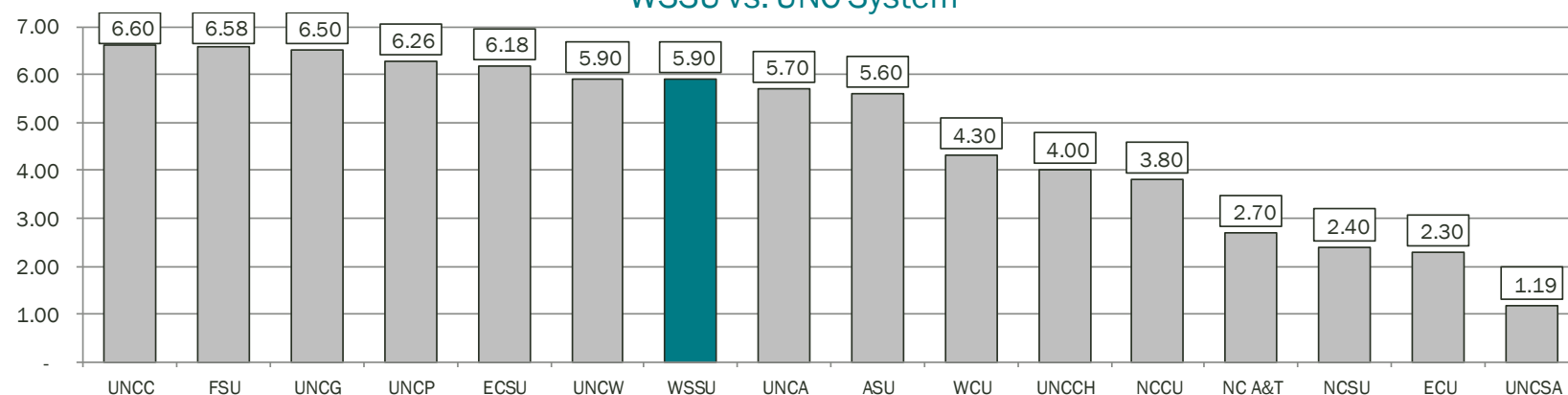
Debt Service to Operating Expenses (%)

WSSU vs. National Peers



Debt Service to Operating Expenses (%)

WSSU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

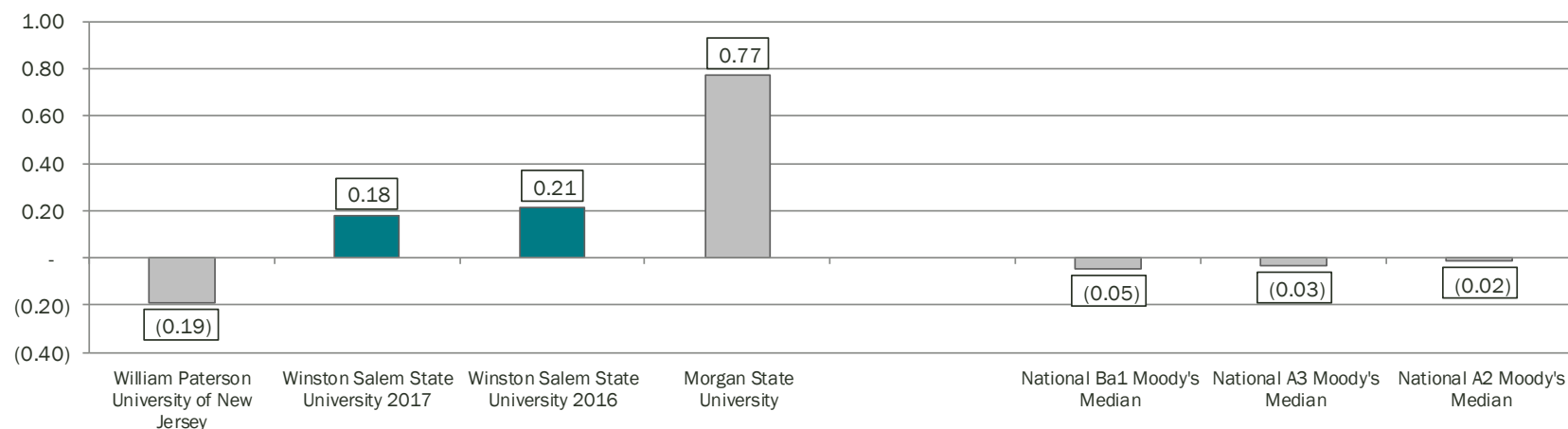
*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

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Expendable Financial Resources to Debt

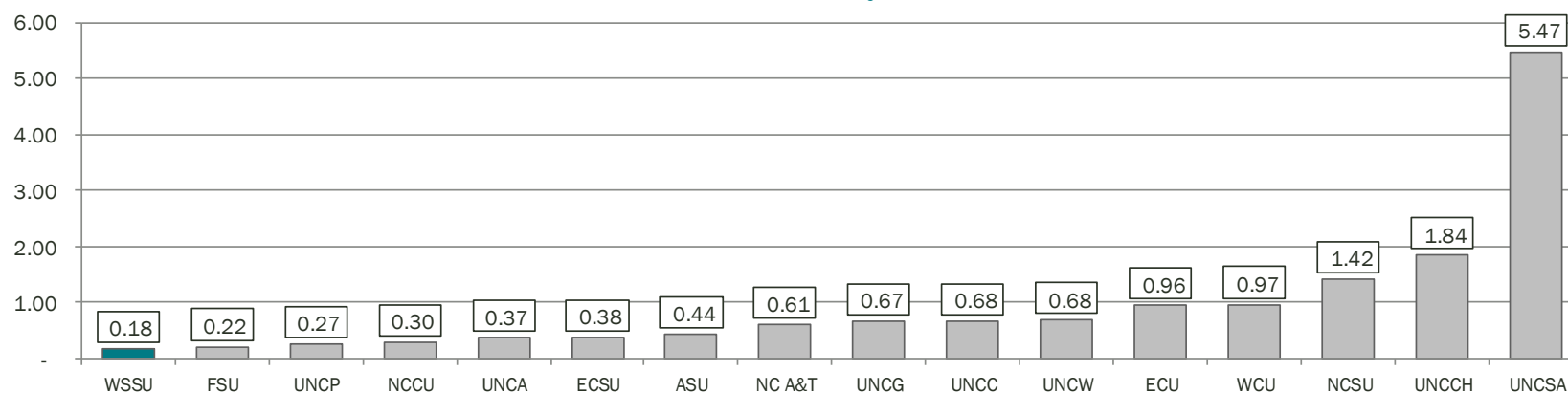
Expendable Financial Resources to Debt

WSSU vs. National Peers



Expendable Financial Resources to Debt

WSSU vs. UNC System



Notes:

1. National peer ratios are calculated by Moody's as of the end of FY 2016/2017 (most recent available).
2. UNC campus peer ratios are based on FY 2017 results and are subject to change.

*Peer comparisons reflect Moody's data for the Campus (as of 6/30/2017 and 6/30/2016) and its peers (as of 6/30/2017 and 6/30/2016). Moody's methodology differs slightly from the assumptions used in the financial model developed for the Study.

Approved by the UNC Board of Governors on May 24, 2018

9. Debt Management Policies

WSSU's current debt policy is attached.



WINSTON-SALEM STATE UNIVERSITY

DEBT CAPACITY POLICY

I. SUMMARY

Debt financing, especially tax-exempt debt, provides a low cost source of capital for the Winston-Salem State University (University) to fund capital investments to achieve its mission and strategic objectives. Indeed, as the economic landscape continues to evolve and change, the use of debt will become an increasingly important tool that enables the University to move its strategy forward. In this environment, appropriate financial leverage plays a key role and is considered a long-term component of the University's balance sheet. Given that the University has limited debt repayment resources, the allocation of and management of debt is a limited resource. The guidelines provided in this document are the framework by which decisions will be made regarding the issuance of debt to finance particular capital improvements.

II. AUTHORITY

North Carolina General Statutes Chapter J 160 Article 3 authorize the Board of Governors of the University of North Carolina (the Board) to issue special obligation bonds for improvements to the facilities of the University of North Carolina System.

Prior to a bond issue, the Board designates the capital improvements financed as "special obligation bond projects" and the University's Board of Trustees approves the issuance of special obligation bonds for those projects.

The State Energy Conservation Finance Act. Article 8 of Chapter 142 of the North Carolina General Statutes authorizes the Board to solicit and through G.S. 143-64.J 7A. finance guaranteed energy conservation measures. These financing agreements must have the approval of the Office of State Budget and Management, the State Treasurer, and Counsel of State prior to closing.

III. CRITERIA

The University's debt capacity is a limited resource. Only projects that relate to the mission of the University, directly or indirectly, will be considered for debt financing. In general, projects that will be approved are broader in scope than college, or unit-based projects. However, certain mission-critical school-based projects can also receive approval.

State funding and philanthropy are expected to remain major sources of financing for the University's capital projects. In assessing the possible use of debt, all other financing and revenue sources will be considered. State appropriations and bonds, philanthropy, project-generating revenues, research facilities and administration cost reimbursement, expendable reserves, and

other sources are expected to finance a portion of the cost of a project. Debt is to be used conservatively and strategically.

Projects financed through a bonding program will have received approval through the NC State Legislature annual non-appropriated capital improvements bill and will have been designated as "special obligation projects" by the North Carolina Board of Governors. Energy conservation measures will have received state agency approval as required.

A project that has a related revenue stream (self-liquidating project) will receive priority consideration. For these projects, the use of debt must be supported by an achievable financial plan that includes servicing the debt, including interest expense, financing related infrastructure and utilities, meeting any new or increased operating costs (including security applications), and providing for appropriate replacement and renovation costs. Energy conservation measures must show that savings will be adequate to service the debt and an annual monitoring costs. Other projects funded by budgetary savings, gifts, and grants will be considered on a case by case basis. Any projects that will require gift financing, or include a gift financing component, must be jointly approved by the Vice Chancellor for University Advancement and the Vice Chancellor for Finance and Administration before approaching any prospective donors about gifts to the project. In all cases, institutional strategy and not donor capacity must drive the decision to build a project.

IV. MAINTENANCE OF CREDIT RATING

Maintaining a high credit rating will permit the University to continue to issue debt and finance capital projects at favorable interest rates while meeting its strategic objectives. While the University's decision to issue additional debt will be primarily focused on the strategic importance of the new capital improvements, the potential impact of a change in credit rating will also be reviewed. The University recognizes that external economic, natural, or other events may from time to time affect the creditworthiness of its debt. Nevertheless, the University is committed to ensuring that actions within its control are prudent. Management will provide the rating agencies with full and timely access to required information. The University currently receives credit ratings from Standard and Poor's Financial Services and Moody's Investor Services.

V. METHODS OF SALE

The standard methods of sale are competitive, negotiated and private placement. University management will evaluate each method of sale and determine the best type for each bond issue.

VI. FINANCING TEAM PROFESSIONALS

Selection of financing team professionals will be accomplished based on guidance from UNC General Administration, Bond Counsel, Financial Advisor (if needed) and Underwriter pool will be selected using appropriate contractual processes.

VII. REFUNDING

Refunding and/or restructuring opportunities will be evaluated on a regular basis. Costs incurred by the refunding activity will be taken into consideration with a target of 3% present value savings. The University will also consider refinancing for other strategic reasons including the elimination of certain limitations, covenants, payment obligations or reserve requirements that reduce flexibility.

VIII. ARBITRAGE

The University will comply with federal arbitrage requirements on invested tax-exempt bond proceeds, causing arbitrage rebate calculations to be performed annually and rebate payments to be remitted to the IRS periodically as required. The University currently uses Bingham Arbitrage Rebate Services (third party) to compute any arbitrage liability.

IX. TYPES OF INSTRUMENTS

Tax-exempt debt - The University recognizes the benefits associated with tax- exempt debt, and therefore will manage the tax-exempt portfolio to maximize the use of tax-exempt debt subject to changing conditions and changes in tax law.

Construction Bridge Loans – Due to timing, the need to begin a project and receipt bond proceeds does not always coincide. Therefore, there may be a need for temporary financing (normally a note payable) until the bond proceeds are received. The University will solicit bids from financial institutions and will accept the bid that offers the lowest costs (interest, fees, etc.) that also provides the most flexibility in repayment.

X. MATURITY AND DEBT SERVICE

The useful life of the capital project financed will be taken into consideration when determining the length of financing. No capital project will be financed for more than 120% of its useful life. Call features should be structured to provide the highest degree of flexibility relative to cost. Structure of debt service will take into consideration existing debt and future capital plans. In addition, the University's amortization of debt service may be spread along the full yield curve depending on market conditions.

XI. DISCLOSURES AND COMPLIANCE

Annually, the University will review compliance with covenants and requirements under outstanding bond indentures. The University will continue to meet its ongoing disclosure requirements in accordance with SEC rule 15c2-12. The University will submit financial reports, statistical data, and any other material events as required under outstanding bond indentures. The University will comply with arbitrage requirements on invested bond funds. The University will comply with Internal Revenue Service rules related to private use and use of proceeds on tax-exempt debt.

XII. USE OF BENCHMARKS AND DEBT RATIOS

The Current Operations and Capital Improvements Appropriations Act of 2015, which was signed into law on September 18, 2015 added a new Article 5 to Chapter 116D of the General Statutes of North Carolina (the “Act”), requiring the University to provide to the UNC Board of Governors with an annual report on its current and anticipated debt levels. The Act expressly requires the University to report on two ratios – **debt to obligated resources** and a **five-year payout ratio**. The UNC Board of Governors has also required the University to provide two supplementary ratios to measure the University’s debt burden – **expendable resources to debt** and **debt service to operating expenses**. In setting its target, the University considered a number of quantitative and qualitative factors, including comparisons to its designated peer institutions, its strategic initiatives, its historical results, its average age of plant and its recent and projected growth.

The **debt to obligated resources** compares outstanding debt to the funds legally available to service its debt. This provides a general indication of the University’s ability to repay debt from wealth that can be accessed over time. This ratio is tied to the statutory framework for University debt. *The target ratio for the University is 2.0 with a ceiling of 3.0.*

The **five-year payout** measures the percentage of University debt to be retired within the subsequent five year period. This ratio indicates how rapidly the University’s debt is amortizing and how much additional debt capacity may be created in the near term. *The target ratio for the University is 15% with a floor of 10.0%.*

The **debt service to operations** measures debt service burden as a percentage of University total operating expenses. This ratio indicates the University’s operating flexibility to finance existing requirements and new initiatives. Expenses are used rather than revenues because expenses tend to be more stable year-over-year. *The target ratio for the University is 6.5%.*

The **expendable resources to debt** measures the number of times the University’s liquid and expendable net assets covers its aggregate debt. This ratio provides a general indication of the University’s ability to repay debt from wealth that can be accessed over time. *The target ratio for the University is 0.25.*

Effective Date: This policy becomes effective upon adoption by the Board of Trustees.

Adopted: December 9, 2016



William U. Harris

Chairman, Board of Trustees

Winston-Salem State University



Scott F. Wierman

Secretary, Board of Trustees

Winston-Salem State University