April 1, 2018

A copy of the entire report can be located on the UNC Board of Governors website under the pre-meeting materials tab of May 24, 2018 or at www.northcarolina.edu or at the link below:

http://www.northcarolina.edu/apps/bog/doc.php?id=59880&code=bog

The University of North Carolina System Debt Capacity Study

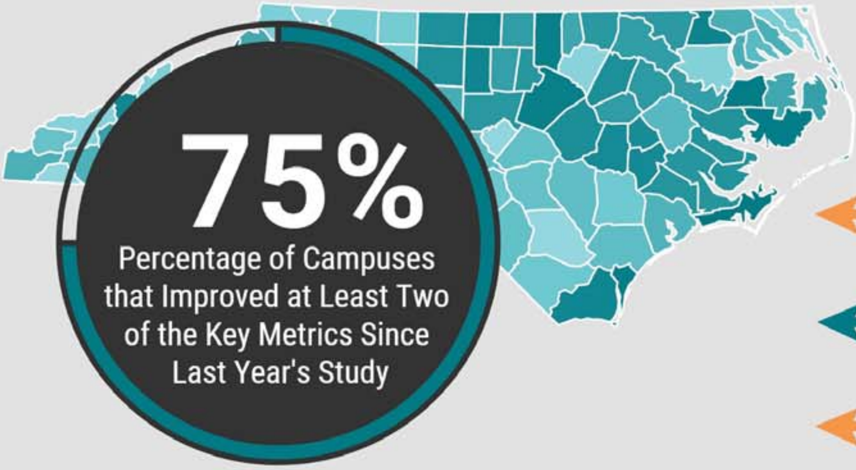
FIRST TRYON ADVISORS

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

2018 Debt Capacity Study (FY 2017)

UNC System Debt Capacity Study

Highlights from the 2017 Study



75%

Percentage of Campuses that Improved at Least Two of the Key Metrics Since Last Year's Study

Ratio Improvement

- Debt to Obligated Resources: 13 Campuses
- Expendable Resources to Debt: 11 Campuses
- Debt Service to Operating Expenditures: **11** Campuses

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-	-

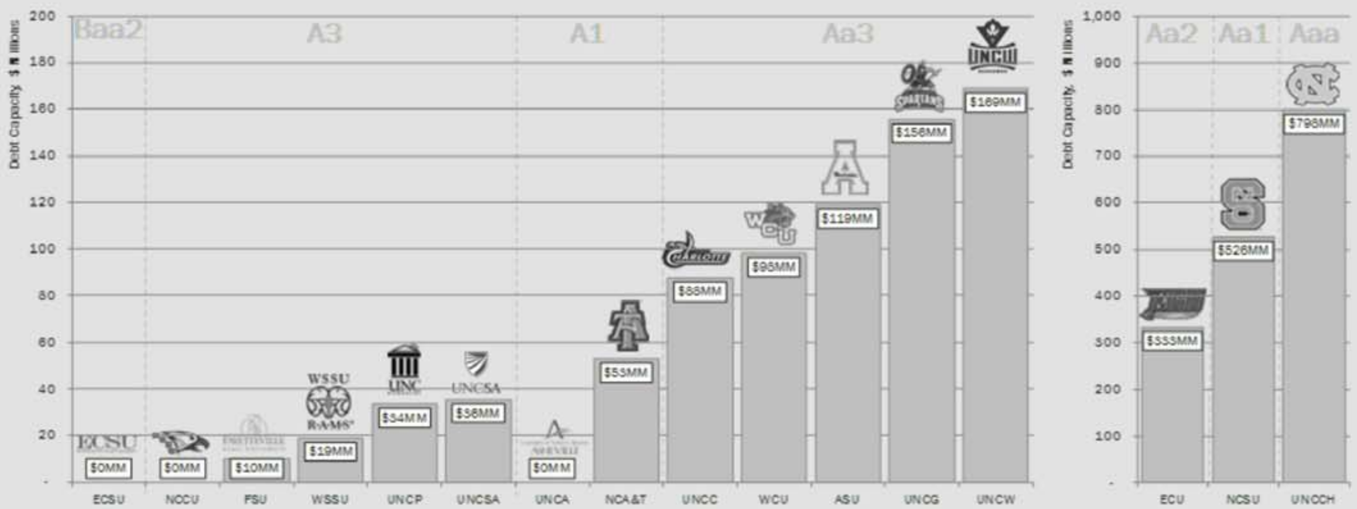
Key:	
Rating Upgrade	Outlook Improvement
Rating Downgrade	Outlook Deterioration

*Reflects University's Rating on General Revenue Bonds

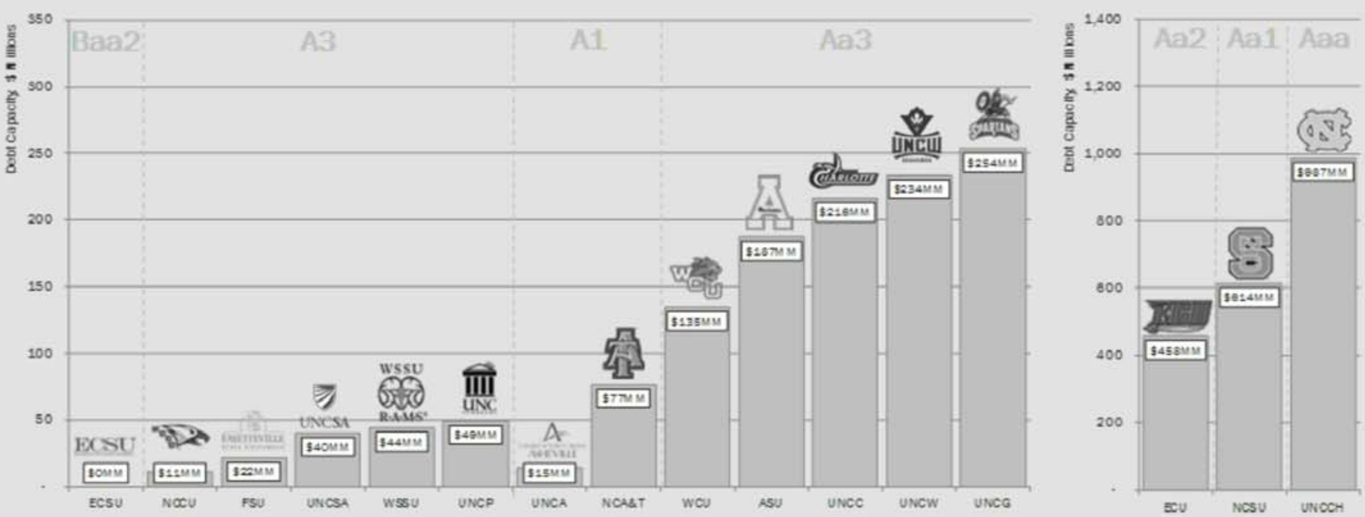
15

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

Current Debt Capacity Across the System



Estimated Debt Capacity Across the System (2021)



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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	▪ 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	▪ 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	▪ 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	▪ 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.

APPENDIX I

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

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 - 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

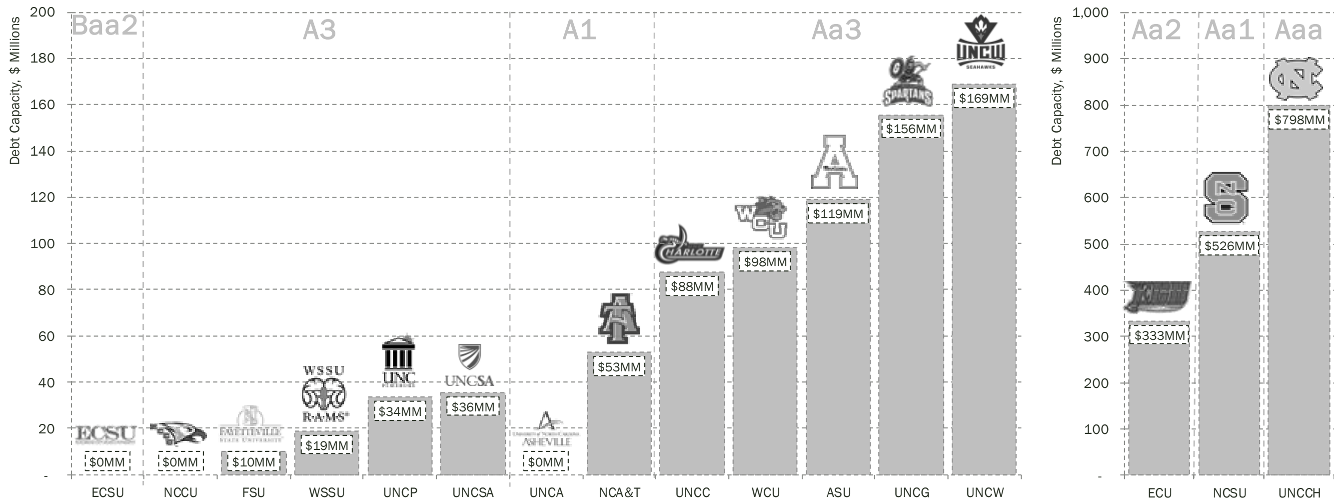
Target Ratio - Debt Service to Operations

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.**

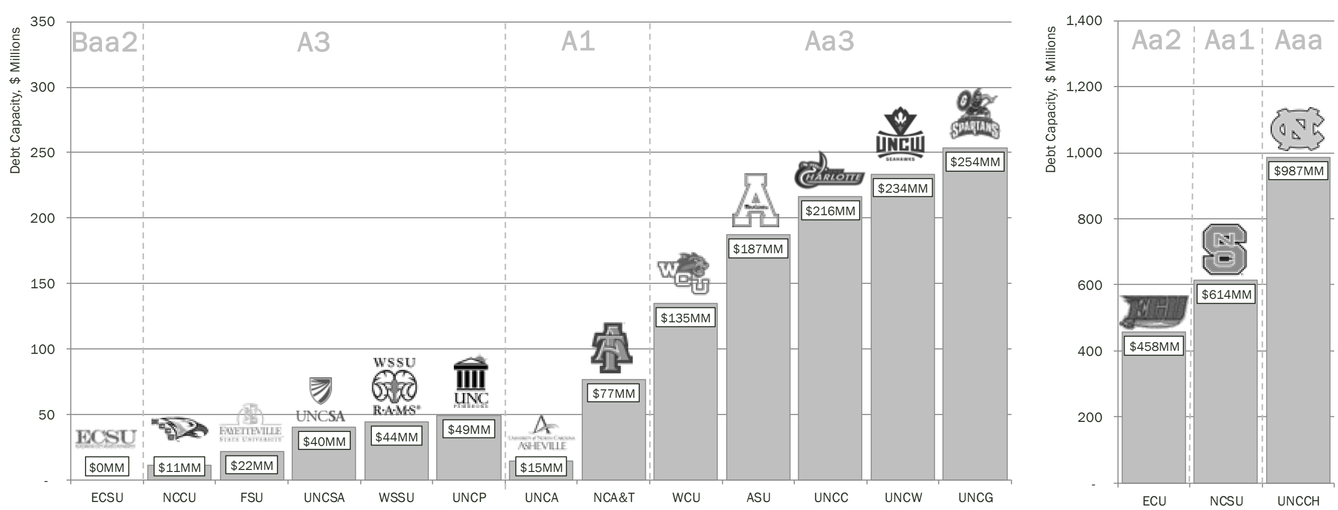
Estimated Debt Capacity Across the System (2018)



*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

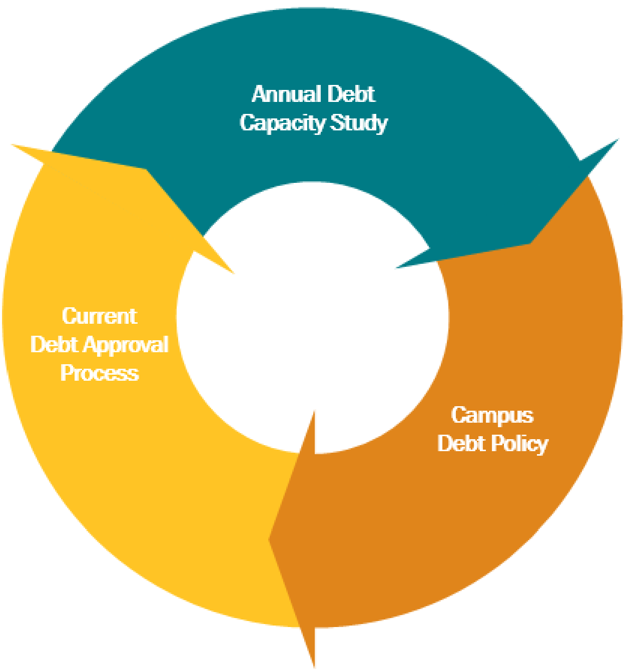
- Provides snapshot of each Campus's current estimated debt capacity
- May indicate when a proposed project requires heightened scrutiny
- Updated annually to reflect (1) newly approved debt, (2) any relevant changes to the Campuses' strategic debt policies and (3) updated Campus financial results and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

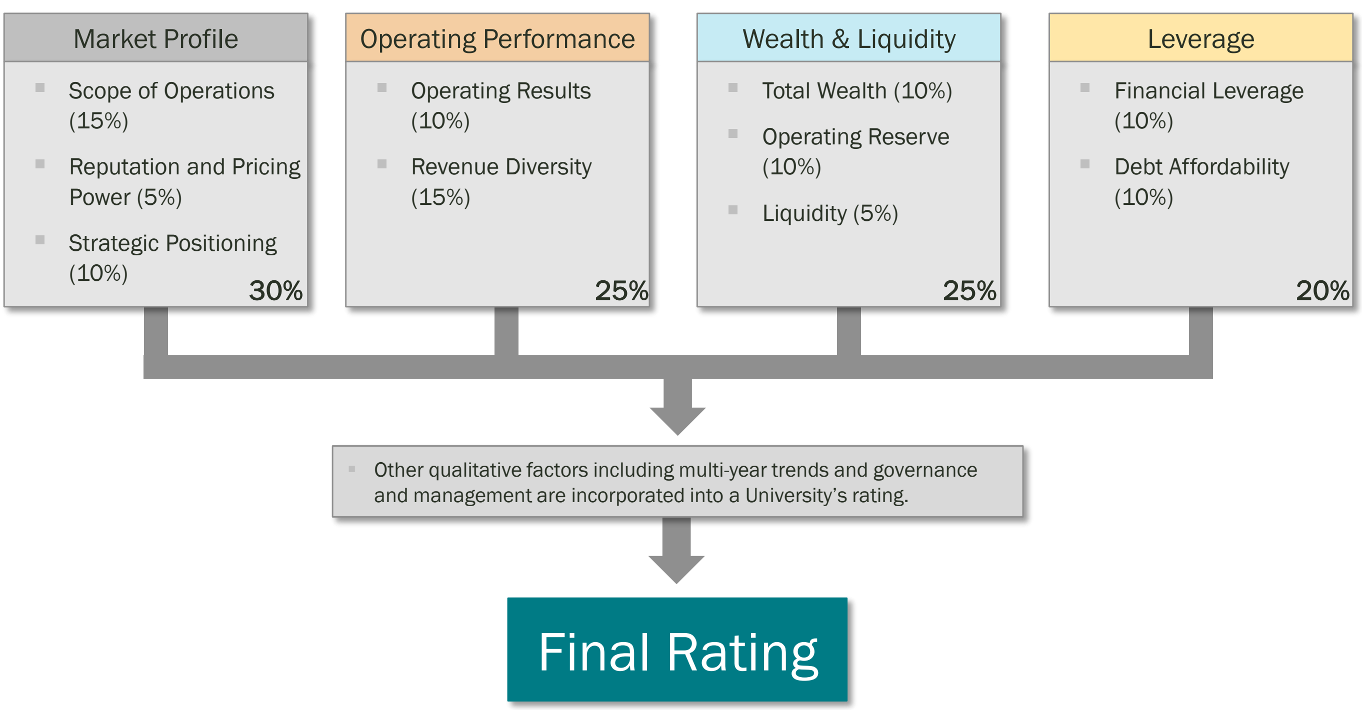
Overview of Strategic Debt Management and Credit Assessment

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.