

**THE ECONOMIC IMPACT OF THE  
UNIVERSITY/GLENWOOD MIXED USE VILLAGE  
PLAN AT THE UNIVERSITY OF NORTH CAROLINA  
AT GREENSBORO**



THE UNIVERSITY *of* NORTH CAROLINA  
**GREENSBORO**

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## EXECUTIVE SUMMARY

The University of North Carolina at Greensboro is planning a major construction project to accommodate future increases in student enrollment and the goal to house more students on campus. Planned for the south side of the campus, the University Mixed Use Village Plan (“Village Plan”) will include housing for 1400 students, mixed use space, and a 225,000 square foot student recreational center. The project is scheduled to be completed by 2016.

There will be several economic impacts from the Village Plan, including construction of the project, new operating and student spending, additional state spending to support the enrollment expansion, new spending from graduates who remain in the local area, and new tax revenues to local governments.

Over the ten year period 2014-2023, it is estimated the Village Plan will have an aggregate economic impact of over **\$590 million** (in 2011 purchasing power dollars) in new spending in the Greensboro and Guilford County economy. A total of **945 permanent new jobs** will also be added. Also over the period, **local property tax revenues will rise by \$7.5 million** (2011\$). These results show the Village Plan will have both significant educational and economic implications for the region.

## INTRODUCTION

The University of North Carolina at Greensboro (UNCG) is planning a major construction project to accommodate future increases in student enrollment. Planned for the south side of the UNCG campus, the University Mixed Use Village Plan (hereafter termed “Village Plan”) will occur in three phases. Phase 1 will be an 800 bed student housing and mixed use space to be ready for the 2013-2014 academic year, a walking tunnel, and a campus public safety station. Phase 2 will be a 225,000 square foot Student Recreation Center to be constructed by 2015. Phase 3 will be an additional 600 bed student housing and mixed use space to be finished by August 2016. There is the possibility of a Phase 4 construction project for a further 400 to 600 student bed facility.

The objective of this report is to analyze the economic impact of Phases 1, 2, and 3 of the Village Plan on the local economy – here defined as Guilford County and primarily the City of Greensboro<sup>1</sup>. The economic impact will come from several sources, including the construction of the facilities in the Village Plan, the student spending and related spending after occupation of the facilities in the Village Plan, and spending of additional UNCG graduates who remain in the local economy.

This report provides numerical estimates for each of these economic impacts, measured by changes in local spending and changes in local employment over several years. The impact of the Village Plan on local public revenues – primarily property tax revenues – is also calculated. The economic impact estimates will be useful for several audiences, including the

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<sup>1</sup> Greensboro is the dominant city in Guilford County, accounting for 57% of the county’s population in 2009 (North Carolina State Data Center, Office of Management and Budget).

leaders, faculty, and students of UNCG, supporters and alumni of UNCG, and residents and businesses in Greensboro and Guilford County.

## **APPROACH**

Before presenting the estimates, it is helpful for the reader to understand some of the key concepts in measuring economic impact. Economists group economic impact into three categories. The first is the *direct economic impact*. Direct economic impact is the spending and jobs related to the construction and subsequent operation of the Village Plan. Direct economic impact can also be thought of as the “first round” impact because it measures what happens within the confines of the new venture – here the Village Plan.

The *indirect economic impact* calibrates the additional spending and jobs created from the direct spending that is made to local supplier firms and the subsequent spending interactions between local supplier firms. For example, the spending to a local climate control firm to service the Village Plan’s heating and cooling systems would be part of the indirect economic impact, as would payments to the local electric utility to supply the power. Any payments (and associated job creation) which these firms, in turn, make to their own local suppliers would also be included. The indirect economic impacts are often called “second round” impacts.

The third category is the *induced economic impact*. Considered to be the “third round impact”, this impact accounts for spending and job creation resulting from consumer retail spending associated with both the direct and indirect impacts. For example, the household

spending related to jobs created from a local climate control firm's maintenance contract with UNCG would be counted as part of the induced economic impact.

“Multipliers” are commonly used to estimate indirect and induced economic impacts from the direct impact. The multipliers give the additional, or multiple, effects of the indirect and induced impacts over and above the direct effect. In this report, multipliers are taken from IMPLAN (“impact planning”), a software program specifically developed for local economic impact analysis.<sup>2</sup> The multipliers used in the report are specific for Guilford County and for the economic sectors analyzed in the report.

“Capitalization” is an economic concept used to capture the impact of economic development into property values. Capitalization is relevant to the Village Plan because the additional local spending generated from completion of the Village Plan will likely have an effect on local property values, particularly on the south side of UNCG where the Village Plan development will occur. The theory of capitalization states that local property values will respond – that is, increase – to the prospect of additional business activity and spending. Capitalization converts the projected net income to local business owners from this enhanced spending into the market value of local property.

The report also uses the concept of *present value*. Present value is a way of aggregating future dollar amounts into one current year value. However, rather than simply adding the future dollars, present value recognizes that future dollars are worth less than current dollars due to the prospect of future inflation and the fact that current dollars can earn future investment

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<sup>2</sup> IMPLAN is developed by MIG Inc., Minneapolis, MN.

returns. Present value thus converts future dollars to their equivalent current amount by accounting for both of these effects. The technique uses a common current interest rate to “discount” the future amounts to the present.

## **CONSTRUCTION IMPACT**

The construction impact is a one-time impact that spans the period of building of the Village Plan. The construction impact includes three components – the design of the facilities, the building of the facilities, and the equipping of the facilities. Estimates for outlays of the three components are: design, \$16.4 million; building, \$162.6; equipment and furniture, \$8 million. Land acquisition costs are estimated at \$18 million but these are not included because they represent a transfer of ownership which has no economic impact.<sup>3</sup>

These outlays do not constitute the direct effects because there will be some initial “leakage” of part of the outlays to outside sources. Federal and state taxes will be paid by contractors and workers with no assurance the revenues will be subsequently re-spent in the local economy. Leakage can also occur when input providers (contractors) are hired from outside the local economy.

Using data from IMPLAN for Guilford County, leakage rates of 25% for design, 45% for building, and 25% for equipment and furniture are used. Taking the resulting direct effects, applying the associated spending and employment multipliers for design, construction, and

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<sup>3</sup> Cost data are from the Office of Business Affairs, UNCG. The economic impact from the change in land ownership results from changes in how the land is used. This impact is addressed later in the report.

equipment and furniture purchases for Guilford County, and summing the results, the total spending and employment economic impacts during the construction phase are given in Table 1.<sup>4</sup>

**Table 1. Guilford County Economic Impact of the Village Plan Construction Phase**

IMPACT	DIRECT	INDIRECT	INDUCED	TOTAL
Spending (\$ millions)	\$109.3	\$80.6	\$57.3	\$247.2
Employment (jobs)	960	425	279	1664

Source: analysis by author

**OPERATING IMPACT**

Once constructed and occupied, there will be new operating expenses associated with the completed Village Plan. These operating expenses will come with the hiring and payment of personnel and the maintenance of the facilities. The operating costs will be for the student housing, the Student Recreational Center, and the associated parking deck. Estimates for each of these operating expenses were provided by UNCG, and the numbers are used to generate annual operating impacts for the ten-year period 2014 through 2023.<sup>5</sup>

<sup>4</sup> The multipliers used are for “value-added”, meaning they apply only to economic value created within the county.

<sup>5</sup> Cost data are from the Office of Business Affairs, UNCG. Operating costs do not include funds for debt service. Operating costs are funded by student and other user fees.

Again, one of the initial issues confronting the estimation of operating expense impact is that of leakage. Leakage occurs when an expenditure is made to a source outside the local region. Leaked funds therefore are not available for re-spending (or multiplying). Federal and state taxes have already been identified as one of leaked funds. Other examples are payments made to an out-of-region producer and products and parts manufactured in a foreign country.

Salaries paid to staff and energy purchases are the two largest components of operating expenses. A leakage rate of 50% is used for these categories and applied to total operating expenditures. Therefore, total operating expenses are reduced by 50% to become direct operating economic impacts. Multipliers are then applied to these direct economic impacts to estimate indirect and induced economic impacts.

Table 2 gives the estimated direct, indirect, induced, and total economic impacts for the Village Plan operating expenditures for years 2014 to 2023. The calculations assume the initial 800 bed student housing is available in 2014, the Student Recreation Center opens in 2014, and the second 600 bed student housing is ready for use in August 2016. The annual impacts rise from \$1.4 million in 2014 to \$4.8 million when the three phases of the Village Plan are complete. The unadjusted cumulative impact over the ten years is also given along with the discounted present value total. The present value total in 2011 dollars – the correct value to use in current dollars – is almost \$33 million for the decade.<sup>6</sup> Table 3 gives the components as well as the total impact on employment of the Village Plan operations. When the three phases are complete, the total impact of the operations will be 73 jobs annually.

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<sup>6</sup> The present value total is based on an interest rate of 3.5% - the rate for 10 year Treasury notes in the spring of 2011.



**Table 2. Economic Impact of Village Plan Operations (\$ millions)**

<b>YEAR</b>	<b>DIRECT</b>	<b>INDIRECT</b>	<b>INDUCED</b>	<b>TOTAL</b>
2014	0.9	0.3	0.2	<b>1.4</b>
2015	2.5	0.8	0.5	<b>3.8</b>
2016	2.9	0.9	0.5	<b>4.3</b>
2017	3.2	1.0	0.6	<b>4.8</b>
2018	3.2	1.0	0.6	<b>4.8</b>
2019	3.2	1.0	0.6	<b>4.8</b>
2020	3.2	1.0	0.6	<b>4.8</b>
2021	3.2	1.0	0.6	<b>4.8</b>
2022	3.2	1.0	0.6	<b>4.8</b>
2023	3.2	1.0	0.6	<b>4.8</b>
Unadjusted total	-	-	-	<b>43.1</b>
Present value total (2011 \$)	-	-	-	<b>32.9</b>

Source: analysis by author

**Table 3. Economic Impact of the Village Plan Operations (jobs)**

<b>YEAR</b>	<b>DIRECT</b>	<b>INDIRECT</b>	<b>INDUCED</b>	<b>TOTAL</b>
2014	15	2	2	<b>19</b>
2015	44	5	7	<b>56</b>
2016	51	6	8	<b>65</b>
2017	57	7	9	<b>73</b>
2018	57	7	9	<b>73</b>
2019	57	7	9	<b>73</b>
2020	57	7	9	<b>73</b>
2021	57	7	9	<b>73</b>
2022	57	7	9	<b>73</b>
2023	57	7	9	<b>73</b>

Source: analysis by author

## STUDENT SPENDING IMPACT

Although UNCG does not require first-year undergraduate students to live in campus housing, 85% of them choose to do so.<sup>7</sup> Therefore, it can be argued the construction of the Village Plan will directly facilitate the enrollment expansion of UNCG by 85% of the new 1400 beds, for a total of 1190 students. These students will bring additional spending to the Greensboro/Guilford County region, especially in the area surrounding the Village Plan development. The new spending will have significant economic impacts.

For the purposes of this study, new spending for students residing in the Village Plan housing will be restricted to expenditures outside of tuition, fees, and housing (“room”). The reason for the exclusion of tuition and fees is that these monies would be used to fund the operations of UNCG, and the economic impact of the additional operating expenditures associated with the Village Plan have already been counted in the previous section. In a later section the impact of the enrollment expansion on additional funding from the state will be addressed and calculated. Payments for students to live at the new residence halls (“room”) are excluded because these monies compensate for the cost of the residence hall construction – the economic impacts of which have already been counted. Current information from UNCG and The College Board suggest non-tuition, non-fee, and non-room undergraduate student spending – for “board” (meals), books and supplies, transportation, and other expenses – totals approximately \$7900 annually.<sup>8</sup>

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<sup>7</sup> Data are from the Office of Business Affairs, UNCG.

<sup>8</sup> From the Financial Affairs Office of UNCG and The College Board, *Trends in College Pricing, 2010*.

However, students will not live in the residence halls during their entire time at UNCG. Therefore, as students leave the residence halls, additional students can enter. This means each residence bed, over a four year period, can effectively accommodate more than one student. Countering this “expansive” effect will be the fact that not all students will remain in college and graduate. There will be some attrition of students each year.

Using the most recently available data on student attrition rates at UNCG, and assuming half the students in the residence halls leave in the succeeding year, the second and third columns of Table 4 give the estimated number of students attracted to UNCG as a result of the Village Plan student housing (recall, this is 85% of the residence hall capacity) and the other students who live off-campus as they leave the Village Plan student housing.<sup>9</sup> The sum of the two columns is limited in each year by the UNCG annual enrollment projections.<sup>10</sup> The spending of off-campus students will include funds for housing, and this annual total (again exclusive of tuition and fees) is set at \$13,000.<sup>11</sup>

IMPLAN data for Guilford County suggest a leakage rate of 35% for general consumer expenditures. Applying this rate to the annual spending (\$7900 for residence hall students and \$13,000 for off-campus students) of students in Table 4 together with appropriate spending and

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<sup>9</sup> UNCG attrition rates are from the University of North Carolina Board of Governors, *Retention, Graduation, and Persistence Rates*, 2009 ([www.northcarolina.edu/ira/ir/analytics/retgrper.htm](http://www.northcarolina.edu/ira/ir/analytics/retgrper.htm)).

<sup>10</sup> The University of North Carolina General Administration, *UNC-GA, IRA/SDF.GR200B3.G/14FEB08*. The student number in 2014 is lower than 85% of the dorm capacity due to the limit imposed by the enrollment projection. Off-campus students beginning in 2016 as upperclassmen are not eligible for residing in the dorms.

<sup>11</sup> Financial Affairs Office, UNCG, and The College Board, *Trends in College Pricing*, 2010.

**Table 4. Economic Impact of Student Spending**

YEAR	DORM STUDENTS	OFF-CAMPUS STUDENTS	SPENDING IMPACT (\$ MILLIONS)	JOB IMPACT
2014	347	-	\$2.6	40
2015	680	-	\$5.2	81
2016	1190	477	\$15.0	230
2017	1190	1556	\$28.5	437
2018	1190	1556	\$28.5	437
2019	1190	1556	\$28.5	437
2020	1190	1556	\$28.5	437
2021	1190	1556	\$28.5	437
2022	1190	1556	\$28.5	437
2023	1190	1556	\$28.5	437
Unadjusted total	-	-	\$222.3	-
Present value total (2011 \$)	-	-	<b>\$166.1</b>	-

Source: analysis by author

employment multipliers, columns four and five give the spending and employment impacts related to student spending. The annual spending impact gradually increases to \$28.5 million by 2017, with a corresponding annual employment impact of 437 jobs. The present value – in 2011 dollars – of the ten year impact from 2014 to 2023 is near \$166 million.

## **STATE FUNDING AND ALUMNI IMPACTS**

The University of North Carolina at Greensboro is an institution of the University of North Carolina System, and, as such, it receives financial support from the State of North Carolina. Much of this financial support is tied to enrollment. Therefore, as UNCG enrollment rises as a result of the Village Plan, additional financial support should be forthcoming from the State. This financial support will be used for faculty, staff, and other services supporting the education of the students.

The most recent data from the Fiscal Research Division of the North Carolina General Assembly show the per student payment from the State to constituent institutions is \$8000 annually.<sup>12</sup> Applying this amount to the student totals in Table 4 and further using a leakage rate of 35% and appropriate spending and employment multipliers gives the results in Table 5. These totals represent the economic impact on the local community of the additional spending by new faculty and staff and other entities made possible by the increased state funding of UNCG following the enrollment expansion. The impacts rise to \$21.1 million in additional spending

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<sup>12</sup> Bostic, Richard and Andrea Poole, “Higher Education Overview”, February 11, 2009. Fiscal Research Division, North Carolina General Assembly.

**Table 5. Economic Impact of Additional State Funding**

YEAR	TOTAL STUDENTS	SPENDING IMPACT (\$ MILLIONS)	JOB IMPACT
2014	347	\$2.7	41
2015	680	\$5.2	81
2016	1667	\$12.8	200
2017	2746	\$21.1	329
2018	2746	\$21.1	329
2019	2746	\$21.1	329
2020	2746	\$21.1	329
2021	2746	\$21.1	329
2022	2746	\$21.1	329
2023	2746	\$21.1	329
Unadjusted total	-	\$168.4	-
Present value total (2011 \$)	-	<b>\$126.3</b>	-

Source: analysis by author

and 329 jobs by 2017. The ten year present value total of the spending is \$126.3 million.

An additional economic impact can result from new alumni that remain in the local area upon graduation. These alumni will add to the spending power and economic activity of the region (Guilford County). There is no rigorous way of determining how many alumni will choose to live and work in the area. Alumni records are not comprehensive and do not account for relocations. A reasonable assumption is that the proportion of alumni remaining in the area will be equal to the proportion of the state population currently in the area (Guilford County).<sup>13</sup> This proportion is 5.1%.<sup>14</sup> Therefore, 5.1% of the students in the first column of Table 5 are assumed to graduate and stay in Guilford County. An annual salary of \$50,000 is used for these graduates.<sup>15</sup> Using a 35% leakage rate and appropriate spending and employment multipliers, Table 6 shows the impact of the alumni spending (beginning in 2018) through 2023. The annual spending amount rises to \$6.7 million by 2021 with 106 corresponding jobs. The present value, in 2011 dollars, of the annual spending amounts from 2018 to 2023 total \$18.8 million.

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<sup>13</sup> This assumption was used in a recent economic impact report for the proposed Pharmacy School at UNCG (Andrew Brod, *The Economic Impact of UNCG's Proposed School of Pharmacy*, Center for Business and Economic Research, UNC-G, March 2010).

<sup>14</sup> From July 2009 certified data from the North Carolina State Data Center

<sup>15</sup> Average annual salary for young (ages 18-34) workers with a bachelor's degree (U.S. Census Bureau, *Statistical Abstract of the U.S., 2011*).



**Table 6. Economic Impact of Alumni Spending**

YEAR	NUMBER OF ALUMNI	SPENDING IMPACT (\$ MILLIONS)	JOB IMPACT
2018	18	\$0.9	14
2019	35	\$1.7	25
2020	85	\$4.1	64
2021	140	\$6.7	106
2022	140	\$6.7	106
2023	140	\$6.7	106
Unadjusted total	-	\$26.8	-
Present value total (2011 \$)	-	<b>\$18.8</b>	-

Source: analysis by author

## **LOCAL PUBLIC REVENUE IMPACTS**

The final analytical section of the report estimates the impact of The Village Plan on local public revenues. Two local public revenue sources are important for purposes of the project: the local sales tax and the local property tax.

The State of North Carolina levies a sales tax but localities (counties and municipalities) receive a portion of the revenues. The portion returned to localities is based on a complex

formula using population and property taxes.<sup>16</sup> While the allocation procedure could be replicated, a more direct approach to estimating the forthcoming sales tax revenues is to multiply an average proportion of local sales tax revenue to personal income by the estimate of the increase in local personal income as a result of the Village Plan. This method is followed by applying the latest proportion of local sales tax revenue to personal income for Guilford County (0.02%) to the sum of estimated increases in local spending from Tables 1, 2, 4, 5, and 6. The results are displayed in the second column in Table 7. With the exception of the construction period, the additional local sales tax revenues are modest. The ten year present value total, including the construction period, is \$115,879.

The impact of The Village Plan on local property tax revenues is estimated in the following way. The theory of capitalization states the capital value of a property will be related to the long-run net revenue generated from that property. In each of Tables 2, 4, 5, and 6, the additional annual spending from various impacts of the Village Plan can be identified and summed. However, these are not net revenues (profits). Therefore, rather than attempting to estimate the net revenues from the revenues and capitalizing the result, an alternative method is used. Public data for Guilford County consistently show \$2 of real property value for every \$1 of personal income.<sup>17</sup> Using the aforementioned total annual spending amounts as a proxy for personal income, these annual spending totals can be multiplied by 2 to derive the estimated additional property values. From these values must be subtracted the \$18.5 million UNCG will pay for the private property, a sum which represents the capitalized value of the property in its

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<sup>16</sup> Office of State Budget and Management. *North Carolina Tax Guide 2010*, at [www.osbm.state.nc.us](http://www.osbm.state.nc.us).

<sup>17</sup> North Carolina State Data Center, Office of Management and Budget.

**Table 7. Additional Local Tax Revenues as a Result of the Village Plan (\$).**

<b>YEAR</b>	<b>SALES TAX REVENUE</b>	<b>PROPERTY TAX REVENUE TO GREENSBORO</b>	<b>PROPERTY TAX REVENUE TO GUILFORD COUNTY</b>
Construction period	\$49,440	-	-
2014	\$1340	-	-
2015	\$2840	\$62,385	\$73,235
2016	\$6420	\$289,871	\$340,283
2017	\$10,880	\$569,029	\$667,991
2018	\$11,060	\$580,372	\$681,306
2019	\$11,220	\$590,454	\$693,142
2020	\$11,760	\$624,483	\$733,088
2021	\$12,220	\$653,470	\$767,116
2022	\$12,220	\$653,470	\$767,116
2023	\$12,220	\$653,470	\$767,117
Unadjusted total	\$141,620	\$4,677,004	\$5,490,393
Present value total (2011 \$)	<b>\$115,879</b>	<b>\$3,467,830</b>	<b>\$4,070,930</b>

Source: analysis by author

current use. The result is the enhanced value of the property as a result of the Village Plan. Applying current property tax rates for Greensboro and Guilford County gives the additional property tax revenues in columns three and four of Table 7.

The additional property tax revenues are significant, rising to over \$650,000 annually for Greensboro and \$760,000 for Guilford County when the Village Plan is totally complete. Present value totals over the ten year period are almost \$3.5 million for Greensboro and near \$4 million for Guilford County.

## **SUMMARY**

Table 8 gives a summary of the estimated local economic impacts of the Village Plan. The impacts are presented in two ways for each component. First is the cumulative present value impact in 2011 dollars. A total is also given for the combined components. Second is the impact on local employment as measured by the peak year employment for each component. The final category is the impact of local public revenues.

The economic impacts are significant. Through 2023, the present value total of the components is an increase of \$591.3 million in local spending and peak year employment (excluding employment for construction) of 945 jobs.

The Village Plan will allow UNCG to expand and facilitate an increase in students attaining a college degree. At the same time, the Plan will have a major positive impact on the economies of Greensboro and Guilford County.

**Table 8. Summary of the Village Plan Economic Impacts**

Impact Category	Spending Impact (Present value total in 2011 \$, millions)	Peak Employment Impact
Construction	\$247.2 (current)	1664
Operations	\$32.9 (2014-2023)	73
Student spending	\$166.1 (2014-2023)	437
State funding	\$126.3 (2014-2023)	329
Alumni spending	\$18.8 (2018-2023)	106
<b>Total</b>	<b>\$591.3</b>	<b>945 (excluding construction)</b>
Local sales tax revenue	<b>\$0.1</b> (2014-2023)	-
Local property tax revenue	<b>\$7.5</b> (2014-2023)	-

Source: previous tables