# APPENDIX

## [RE]IMAGINING BROUGHTON

# 1 TEAM MEMBER BIOS

dfi

The project team at the Development Finance Initiative at the UNC School of Government was composed of Tyler Mulligan, Michael Lemanski, Peter Cvelich, Eric Thomas, and Andrew Trump. Additional contributions were made by Christy Raulli, Marcia Perritt, and Julianne Stern.

**Tyler Mulligan, Principal Investigator**
Tyler Mulligan joined the School of Government in 2007, where he counsels state and local government officials and their partner organizations regarding development finance, community economic development, and revitalization efforts. Mulligan launched the School's Development Finance Initiative (DFI), which assists local governments with attracting private investment for transformative development projects, and now serves as faculty advisor for the initiative. Prior to joining the School of Government, he practiced law with Womble Carlyle Sandridge & Rice, PLLC, in Raleigh, where he represented investors and syndicators in structuring investments in real estate and related investment funds, and he represented corporations and local governments in site location and economic development incentive matters. He is a member of the North Carolina State Bar. He earned a BA in public policy studies, summa cum laude, Phi Beta Kappa, from Duke University and a JD from Yale Law School, where he was awarded the Yale University Elm-Ivy Award.

**Michael Lemanski, Director**
Michael Lemanski joined the School of Government in 2011. He has more than 15 years of experience using innovative finance mechanisms to complete complicated real estate development projects. Michael manages a team of development and planning professionals that lead community, economic development, and revitalization projects for state and local governments and their partner organizations. He is the founding director of the Development Finance Initiative (DFI), which assists local governments with attracting private investment for transformative redevelopment projects. His redevelopment portfolio includes over 2 million square feet of vacant real estate where he has attracted over $500 million dollars of new investment into some of the most distressed downtown areas. Michael is also the founder of Greenfire Real Estate Holdings and is a founding member of the Investors' Circle NC local network. He graduated with honors from NC State University with degrees in chemical engineering and environmental science, and received an executive MBA from UNC-Chapel Hill.

**Peter Cvelich, Project Manager**
Peter Cvelich is a Project Manager with the Development Finance Initiative (DFI), which is a program of the School of Government. Peter delivers DFI's market research, financial feasibility modeling, and pre-development advisory services to communities of various sizes. Peter has managed and advised on $130M of revitalization projects in various stages of development. Prior to graduate school, Peter worked at RTI International, where he supported the international development consulting practice through market research, strategic communications, and business development. Peter has also worked in tax credit syndication, underwriting Low-Income Housing, Historic Rehabilitation, and New Markets tax credit transactions on behalf of equity investors. Peter holds an MBA from UNC's Kenan-Flagler Business School and a Master's of City and Regional Planning from UNC-Chapel Hill.

**Eric Thomas, Design Advisor**
Eric Thomas is a Design Advisor and Project Manager with the Development Finance Initiative (DFI), which is a program of the School of Government. Eric works the on the development of mixed-use urban infill and town center projects and advises all DFI projects in site analysis and design. During graduate school, Eric assisted in the conceptual design, program definition and site analysis on DFI projects located in Shallotte, Kannapolis, Kinston and the Broughton State Hospital in Morganton. Prior to graduate school, Eric worked as a Community Planner within Washington DC's Office of Capital Projects and Planning and was involved in the District's first public-private partnership dedicated to the creation of public open space. Eric holds dual Master's degrees in City and Regional Planning from UNC-Chapel Hill and Landscape Architecture from North Carolina State University.

**Andrew Trump, Graduate Fellow**
Andrew Trump is a Project Manager with the Development Finance Initiative (DFI), which is a program of the School of Government. Prior to joining DFI as a Project Manager, Andrew contributed to the Broughton Hospital study as a DFI Graduate Fellow, performing market research, creating financial models, and drafting final report content. His past work includes economic development consulting and managing a community-based education and workforce development program. Andrew holds dual Master's degrees in City and Regional Planning and Public Administration from UNC-Chapel Hill.

STEWART

The project team at STEWART was composed of George Stanziale, Michael Batts, Corey Mason, Scott Simmons, Tim Summerville, and Craig Fisher.

**George Stanziale, PLA, ASLA, CLARB - President | Director of Deisgn**
George is President and Director of Design at Stewart. As President, George has overall responsibility of implementing Stewart's strategic vision and is accountable for the firm's performance and business development. George also oversees the performance and growth of the Charlotte and Richmond offices as well as Corporate Marketing. He also serves as the firm-wide Director of Design, responsible for the marketing and development of significant and unique projects in the areas of higher education, healthcare, mixed use, corporate, commercial and park design. In doing so, George utilizes the diverse resources and talents of the firm to design and implement these projects to meet the goals and objectives of our clients. With 40 years of experience, George has built his reputation on the design and implementation of complex projects for public, private, university and medical center clients. He has earned the reputation for developing consensus between city and county appointed and elected officials, as well as developers and stakeholders, resulting in successful entitlements for complex projects.

**Michael Batts, PLA, LEED AP-**
**Manager of Landscape Architecture**
As Manager of Landscape Architecture, Michael is in charge of the day to day management of Stewart's landscape architects and serves as a design leader for the Land Planning and Design studio. Michael is a landscape architect with experience in a range of project scopes, from master planning to detailed design. Michael utilizes a strategic design approach and an awareness of sustainable principles to create spaces and places that balance the needs of the users, clients and the environment. Michael is based out of the Raleigh office. Michael holds a Bachelor of Landscape Architecture from North Carolina State University.

**Corey Mason, PLA - Project Manager**
Corey is a Landscape Architect with over 12 years of experience in ideation, land analysis and construction. Corey has focused his efforts on the development of complex design projects in resorts, hospitality, arts and transportation sectors. He has completed significant projects which include corridor vision plans as well as hotels and resorts from the Northern skies of Alaska to the Carolinas. As project manager for Stewart, he brings strong design leadership to the firm while implementing the goals of our clients. Corey holds a Masters of Landscape Architecture and a Bachelors of Science in Agricultural Development from Texas A&M University.

**Scott Simmons, EI - Landscape Designer II**
Scott is a landscape designer with seven years of experience including both civil engineering and landscape architecture. He has experience in urban design, master planning, commercial landscape design, university landscape design, neighborhood design, and way finding design. He is an expert in graphic communications including hand graphics, photo-realistic digital graphics, and 3D graphics. Scott has extensive software skills including AutoCAD Civil 3D, the Adobe Creative Suite, SketchUp Pro and an array of other visualization tools. He has served as associate professor for the Site Grading and Development Systems class at North Carolina State University. Scott holds a Master's of Landscape Architecture and a Bachelor of Science in Civil Engineering from North Carolina State Univiersty.

**Timothy Summerville, PE - Civil Project Engineer II**
Timothy is a civil engineer with over eleven years of experience working in both the public and private sectors. His experience includes two years with a municipal Road Commission where he monitored the survey, design, and construction of multiple roadway improvement projects, as well as six years working for private civil engineering and survey firms. Throughout his career, Tim has worked on projects that included surveying, construction inspection, water and sewer design, stormwater analysis and design, site design and roadway improvements design. Tim holds a Bachelor of Science in Civil Engineering from Michigan State.

**J. Craig Fisher, PE - Associate Vice President | Manager of Structural Engineering**
Craig is responsible for the overall management of Structural Engineering to include oversight and management of projects, client development and retention, financial profitability, personnel and general administrative management.

The management and supervision of the staff includes setting overall goals and objectives. Basic operations include determining the appropriate staff mix and developing processes to screen, interview, hire, train, and maintain the technical competency of Structural Engineering staff. The supervision also includes monitoring staff performance, delegating responsibilities to staff, and mentoring staff. Management of the Quality Assurance and Quality Control procedures are also supervised by Craig. Overall supervision of the Standards Committee, Revit/CAD Committee, and Training program help ensure that Quality Assurance and Control procedures are followed. Craig also serves as Project Manager on larger and more complex projects including institutional, educational, and health care buildings. Craig holds a Masters of Civil Engineering and a Bachelor of Science in Civil Engineering from North Carolina State University.

BELK architecture

The project team at Belk Architecture was composed of Eddie Belk and Andy Shull. Additional contributions from Belk Architecture were made by Joe Fitzsimons, Michael Spangenberg, David Cera, Mas Sato, and Chris Bozzelli.

**Eddie Belk, Architect**
G. Edwin Belk (Eddie) FAIA LEED AP is the founder and principal of Belk Architecture, an architectural practice in Durham, North Carolina that specializes in adaptive re-use and tax-credit rehabilitation of historic buildings. Eddie has owned and managed his own architectural practice since 1982, overseeing millions of square feet of adaptive reuse and ground-up construction projects across the Southeastern United States. In addition to addressing the demands of running a successful business, Eddie retains an active role in all aspects of the firm's work, including design, working directly with clients, and overseeing many of the firm's construction projects. Eddie received a Bachelor of Architecture from the School of Design at North Carolina State University in 1972, and in 2010 was elevated as a Fellow within the American Institute of Architects in recognition of his overall body of work.

**Andy Shull, Senior Project Manager**
Andy Shull is a Senior Project Manager and Project Designer with Belk Architecture. Andy joined Belk Architecture in 2006. Since then, Andy has acted as Project Designer and Project Manager on the delivery of numerous projects, guiding many of them through Federal Historic Tax-Credit, Housing and Urban Development, and North Carolina Housing Finance Agency guidelines. Projects range from modest historic home additions to large tenant upfits in some of Belk Architecture's flagship mixed-use adaptive re-use projects in Durham and Greensboro. Currently Andy is acting as Project Architect for the renovation of two Historic North Carolina Textile Mills into multi-family apartments in Hillsborough and Graham. Andy received a Master of Architecture from the North Carolina State University College of Design in 2002.

The project team at CT Wilson was composed of Charles T Wilson, III and Kyle Ramsey.

**Charles T Wilson, III (Charlie)**
**General Contractor Project Executive**
Charles T Wilson, III has been the Vice President of CT Wilson Construction Company since 2005. Charlie started in the construction industry as a field laborer early on in his life, spending summers working for the family business. Charlie received his Engineer in Training Certification after receiving his Bachelor's degree in Civil Engineering from North Carolina State University in 1993. The following year he completed his Master's Degree at the University of Texas at Austin where he worked for a General Contractor specializing in medical facilities. Charlie joined CT Wilson Construction in 1999 and has been managing the company's largest contracts including the $20 million dollar mill renovation and adaptive reuse project at Revolution Mill in Greensboro. In addition to Project Management, his current responsibilities include new client acquisition and managing existing client relationships.

**Kyle Ramsey**
**Estimator**
Kyle Ramsey started at CT Wilson Construction while attending North Carolina State University. In 2008, Kyle graduated with a Bachelor's Degree in Construction Engineering and Management. Prior to transitioning into his current position as an Estimator, Kyle worked in both Superintendent and Project Management roles. His current responsibilities include subcontractor and supplier pricing procurement, material quantifying, preliminary budgeting, comprehensive cost estimating, value engineering, and constructability reviews. Kyle has extensive experience pricing jobs up to $25 million.

# Gensler

The project team at Gensler was composed of Michael Wagner.

**Michael Wagner, Architect**
Michael Wagner is a project architect in the Raleigh, N.C. office of Gensler, a global design firm specializing in architecture and interiors. Michael works across several of the firm's 33 practice areas including retail centers, commercial office building developments, mixed-use, aviation, life sciences, financial services and education. His projects have ranged from 16,000 square foot full building renovations to master planning large-scale mixed-use retail and residential developments. In addition to working as a practicing architect, Michael teaches a second-year architecture studio in the College of Design at North Carolina State University and serves on both graduate and undergraduate design juries. Prior to architecture, Michael worked as a newspaper reporter in New Orleans, New York and Raleigh. He holds a Bachelor of Arts in journalism from American University in Washington, D.C., and a Master's in Architecture from North Carolina State University.

The project team at Crenshaw Consulting Engineers was composed of Brett Mabe, Rick Copeland and Danny Brush.

**Brett Mabe, PE**
**Senior Mechanical Department Manager**
Brett Mabe has been the Senior Mechanical Department Manager for Crenshaw Consulting Engineers (CCE) for the past 14 years and has over 25 years experience in the consulting engineering field. Brett is responsible for the management of CCE's Mechanical Department and for making sure they are meeting customer's needs with cost effective, innovative and cutting edge solutions. Brett has a wide range of experience on commercial, educational, institutional, industrial, military and residential projects. Brett has also been involved in many LEED projects and has extensive energy modeling experience.

**Rick Copeland, PE, LEED AP BD+C, CxA**
**Electrical Project Engineer**
Rick Copeland has been a Electrical Project Engineer for Crenshaw Consulting Engineers (CCE) for the past 11 years. Rick is responsible for Electrical Engineering Design and Project Management and is the lead for CCE's Commissioning Department. Rick has a wide range of experience on commercial, educational, institutional, industrial and residential projects. Rick has extensive knowledge of power distribution, lighting, generator/UPS, photovoltaic, fire alarm and life safety system design.

**Danny Brush, PE, LEED AP BD+C**
**Plumbing Project Engineer**
Danny Brush has been a Project Engineer for Crenshaw Consulting Engineers (CCE) for the past year and has over 13 years experience in the consulting engineering field. Danny is responsible for Plumbing and Mechanical Engineering Design and Project Management. Danny has a wide range of experience on commercial, educational, institutional, industrial, military and residential projects. Danny has extensive knowledge of domestic water, waste and vent, grease waste, medical gas, compressed air and gas piping design.

# 2 PROCESS SUMMARY

## ENABLING LEGISLATION

N.C. Senate Bill 744 (Session Law 2014-100)

STUDY FUTURE USE OF BROUGHTON HOSPITAL FACILITIES

SECTION 15.20. (a) Upon the Department of Commerce's raising the sum of two hundred thousand dollars ($200,000) in non-State funds for the study described in subsection (b) of this section, the Department shall use those funds, together with the sum of two hundred thousand dollars ($200,000) in nonrecurring funds appropriated in this act to the Department of Commerce for the 2014-2015 fiscal year, to conduct the study described in subsection (b) of this section.

SECTION 15.20. (b) The Department of Commerce shall, in conjunction with the Department of Health and Human Services, the Department of Administration, the City of Morganton, and the County of Burke, use the funds described in subsection (a) of this section to study potential uses for vacated Broughton Hospital facilities and potential development or redevelopment of adjoining State-owned properties to ascertain the economic benefits of use, development, and redevelopment.

The study required by this section shall examine all of the following:
(1) Potential uses of vacated Broughton Hospital facilities and development or redevelopment of adjoining State-owned properties.
(2) Benefits to the State, local governments, and the private sector of each potential use identified in the study.
(3) Costs to the State, to the City of Morganton, to the County of Burke, and t the private sector of each potential use identified in the study.
(4) Opportunities to use the properties for public-private partnerships.
(5) Any other matters that the Department of Administration deems relevant to this study of potential economic benefits in the use of vacated Broughton Hospital facilities and properties.

SECTION 15.20.(c) No later than December 31, 2014, the Department of Commerce shall submit an interim report on the study to the Chairs of the Joint Legislative Oversight Committee on Health and Human Services, to the Chairs of the Joint Legislative Committee on Economic Development and Global Engagement, and to the Chairs of the Joint Legislative Commission on Governmental Operations. No later than June 30, 2015, the Department of Administration shall submit a final report on the results of the study to the Chairs of the same committees.

SECTION 15.20.(d) The Department of Administration shall cooperate fully with the performance of the study required by this section and shall provide timely information about the facilities and other properties being evaluated as part of the study to the Department of Commerce.

## SCHEDULE OF STAKEHOLDER MEETINGS

The following meetings were held in the planning, coordination and execution of the study; listed according to date with the location and invited participants noted.

**2014 Meetings**

*March 17 (Morganton City Hall)*
Commerce Sec. Sharon Decker, Asst. Sec. Dr. Patricia Mitchell, Sen. Warren Daniel, Rep. Hugh Blackwell, Golden Leaf Executive Director Dan Gerlach, Burke County Commission Chair Johnny Carswell, Morganton Mayor Mel Cohen, County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, Burke Development, Inc. Director Scott Darnell

*May 6 (Morganton City Hall and Broughton Tour)*
Asst. Sec. Dr. Patricia Mitchell, NC Governor Office Western Representative April Riddle, DHHS - Director of Property/Construction Luke Hoff, Facilities Team Leader Laura White, Acting Broughton Co-CEO Dr. George Krebs, Acting Broughton Co-CEO Vivian Streater, Dixon Byrd, County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, Morganton City Attorney Louis Vinay

*August 28 (Morganton City Hall)*
Asst. Sec. Dr. Patricia Mitchell, County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, Burke Development, Inc. Director Scott Darnell, {Sen. Warren Daniel and Rep. Hugh Blackwell were present for a portion of the meeting)

*September 29 (UNC School of Government )*
Asst. Sec. Dr. Patricia Mitchell, County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, UNC SOG - DFI Director Michael Lemanski, Senior Analyst Christy Raulli, Associate Professor of Public Law and Government Tyler Mulligan

*October 22 (Conference Call on Brownfields possibility)* - Asst. Sec. Dr. Patricia Mitchell, County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson

*November 12 (Conference Call on Golden Leaf application)*

Asst. Sec. Dr. Patricia Mitchell, County Manager Bryan Steen, City Manager Sally Sandy

*December 22 {Assistant Secretary Mitchell's Office)*

Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration, and Asst. Sec. Dr. Patricia Mitchell

**2015 Meetings**

*January 29 (Morganton City Hall)*

County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, Burke Development, Inc. Operations Director Hope Hopkins, DFI – Director Michael Lemanski, Project Manager Peter Cvelich

*February 4 (Department of Commerce)*

Asst. Sec. Dr. Patricia Mitchell, General Counsel John Hoomani; Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*February 20 (Morganton City Council Workshop)*

City of Morganton Council, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, County Manager Bryan Steen, DFI – Director Michael Lemanski, Project Manager Peter Cvelich, Graduate Fellow Julianne Stern; Other City and County public officials and citizens

*March 3 (web conference)*

County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, Burke Development, Inc. Operations Director Hope Hopkins, DFI – Project Manager Peter Cvelich, Graduate Fellow Julianne Stern

*March 5 (DHHS)*

Asst. Sec. Dr. Patricia Mitchell, General Counsel John Hoomani; Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration,; DFI – Director Michael Lemanski, Project Manager Peter Cvelich, Graduate Fellow Julianne Stern

*April 22 (UNC School of Government)*

Asst. Sec. Dr. Patricia Mitchell, General Counsel John Hoomani; Luke Hoff, DHHS Director of Property/Construction; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich, Graduate Fellow Julianne Stern

*April 29 (Dept. of Administration)*

Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration; DFI – Director Michael Lemanski, Project Manager Peter Cvelich

*May 7 (Morganton City Hall)*

County Manager Bryan Steen, City Manager Sally Sandy, Asst. City Manager Scott Hildebran, City Development/Design Director Lee Anderson, City Attorney Louis Vinay, Burke Development Inc. President/CEO Alan Wood, DFI – Director Michael Lemanski, Project Manager Peter Cvelich, Graduate Fellow Andrew Trump

*August 6 (NC School for the Deaf)*

NCSD Advisory Council; DFI Project Manager Peter Cvelich

*August 13 (web conference)*

WPCC President Dr. Michael Helmick, WPCC CFO Sandy Hoilman, DFI Project Manager Peter Cvelich

*August 17 (Department of Public Instruction)*

Deputy State Superintendent Dr. Rebecca Garland, Superintendent NC Governor Morehead School Dr. Barbria Bacon, Director NC School for the Deaf Dr. Audrey Garvin, Chief Financial Officer Philip Price, School Planning Consultant Ken Phelps, DPI Architect Ron Collier; DFI – Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*August 19 (UNC School of Government)*

Office of State Budget & Management Special Projects Director John LaPenta; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*August 24 (Department of Commerce)*

Asst. Sec. Dr. Patricia Mitchell, General Counsel John Hoomani, Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration, Department of Natural and Cultural Resources Director of Historical Resources Ramona M. Bartos, State Historic Preservation Office Environmental Review Coordinator Renee Gledhill-Earley, Office of State Budget & Management Special Projects Director John LaPenta; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*September 2 (Department of Natural and Cultural Resources)*

Department of Natural and Cultural Resources Secretary Susan Kluttz, Director of Historical Resources Ramona M. Bartos; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*November 3 (Morganton; various locations)*

Meetings with local stakeholder groups: County Manager Bryan Steen, Burke Development Inc. President/CEO Alan Wood, NCSD Director Audrey Garvin, NCSD Advisory Council, City Manager Sally Sandy, City Development/Design Director Lee Anderson, City Attorney Louis Vinay, WPCC President Dr. Michael Helmick, WPCC President's Assistant Kathy Durham, WPCC Vice President for Academic Affairs Rhia Crawford, WPCC Vice President for Student Development Atticus Simpson, WPCC Vice President for Administrative Services / Chief Financial Officer Sandy Hoilman, DFI – Director Michael Lemanski, Project Manager Peter Cvelich, Design Advisor Eric Thomas

*November 5 (Department of Commerce)*

Asst. Sec. Dr. Patricia Mitchell, General Counsel John Hoomani; Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration, Superintendent NC Governor Morehead

School Dr. Barbria Bacon, DPI Architect Ron Collier, Office of State Budget & Management Special Projects Director John LaPenta; Director of Historical Resources Ramona M. Bartos, State Historic Preservation Office Environmental Review Coordinator Renee Gledhill-Earley; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich, Design Advisor Eric Thomas

*December 18 (Department of Natural and Cultural Resources)*
Director of Historical Resources Ramona M. Bartos, State Historic Preservation Office Environmental Review Coordinator Renee Gledhill-Earley, State Historic Preservation Office Survey & National Register Branch Supervisor Claudia Brown, State Historic Preservation Office Senior Preservation Architect and Income-producing Tax Credit Coordinator Tim Simmons; DFI Project Manager Peter Cvelich; Belk Architecture Founder/Principal Eddie Belk

*December 28 (Department of Public Safety)*
Asst. Sec. Dr. Patricia Mitchell; DPS Deputy Commissioner of Administration Joseph Prater, NC Correction Enterprises Director Karen Brown, NC Correction Enterprises Director of State Laundries Ron Young; DFI Project Manager Peter Cvelich

**2016 Meetings**

*January 8 (N.C. School for Science and Mathematics)*
NCSSM Chancellor Todd Roberts, NCSSM Vice Chancellor for Student Life Terry Lynch, NCSSM Vice Chancellor of Distance Education and Extended Programs Melissa Thibault; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*January 13 (Morganton)*
County Manager Bryan Steen, Burke Development Inc. President/CEO Alan Wood; City Manager Sally Sandy, Asst. City Manager Sonja Marston, City Development/Design Director Lee Anderson, City Attorney Louis Vinay; DFI – Director Michael Lemanski, Project Manager Peter Cvelich, Design Advisor Eric Thomas

*January 20 (Department of Commerce)*
Asst. Sec. Dr. Patricia Mitchell, General Counsel John Hoomani; Luke Hoff, DHHS Director of Property/Construction, Speros Fleggas, Deputy Secretary Department of Administration, Superintendent NC Governor Morehead School Dr. Barbria Bacon, DPI Architect Ron Collier, Office of State Budget & Management Special Projects Director John LaPenta; Director of Historical Resources Ramona M. Bartos, State Historic Preservation Office Environmental Review Coordinator Renee Gledhill-Earley, DPS Deputy Commissioner of Administration Joseph Prater, NC Correction Enterprises Director Karen Brown; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich, Design Advisor Eric Thomas

*February 4 (web conference)*
WPCC President Dr. Michael Helmick, WPCC President's Assistant Kathy Durham, WPCC Vice President for Academic Affairs Rhia Crawford, WPCC Vice President for Student Development Atticus Simpson, WPCC Vice President for Administrative Services / Chief Financial Officer Sandy Hoilman, DFI Project Manager Peter Cvelich

*February 12 (web conference)*
NCSD Director Audrey Garvin, NCSD Advisory Council, DFI Project Manager Peter Cvelich

*March 7 (Department of Commerce)*
Secretary John Skvarla, Asst. Sec. Dr. Patricia Mitchell, General Counsel David Efird, Chief Economic Development Liaison Susan Fleetwood; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

*March 22 (Department of Commerce)*
Asst. Sec. Dr. Patricia Mitchell, General Counsel David Efird; Luke Hoff, DHHS Director of Property/Construction, Rod Davis, DHHS CFO, Dale Armstrong, Deputy Secretary for Behavioral Health and Developmental Disability Services, Laura White, Hospital Team Leader, Division of State Operated Healthcare Facilities, Vivian Streater, CEO of Broughton Hospital, Trey Hatcher, Facility Engineering Director, Superintendent NC Governor Morehead School Dr. Barbria Bacon, DPI Architect Ron Collier, Deputy Secretary of Administration, Asset Management John LaPenta; State Historic Preservation Office Environmental Review Coordinator Renee Gledhill-Earley, State Historic Preservation Office Senior Preservation Architect and Income-producing Tax Credit Coordinator Tim Simmons, DPS Deputy Commissioner of Administration Joseph Prater, NC Correction Enterprises Director Karen Brown; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

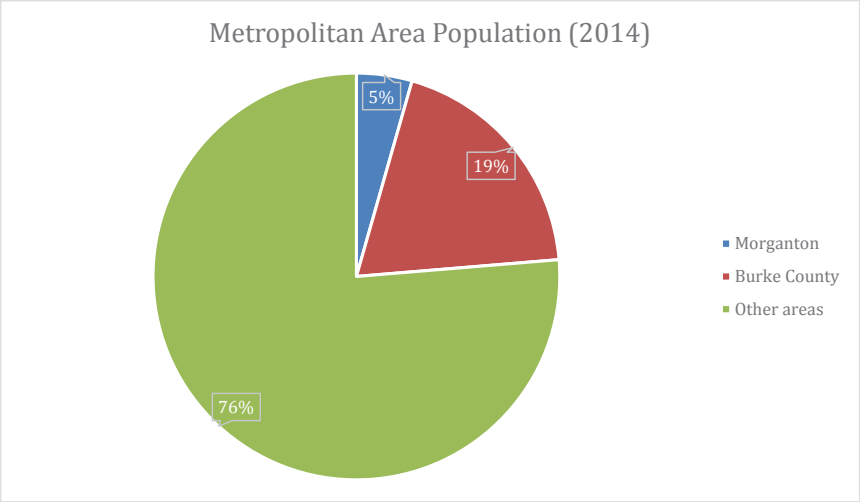
*March 28 (Morganton)*
Asst. Sec. Dr. Patricia Mitchell; Burke County Board of Commissioners; Morganton City Council; County Manager Bryan Steen, Burke Development Inc. President/CEO Alan Wood; City Manager Sally Sandy, Asst. City Manager Sonja Marston, City Development/Design Director Lee Anderson, City Attorney Louis Vinay; DFI Project Manager Peter Cvelich, Graduate Fellow Andrew Trump; members of general public

*May 5 (Department of Commerce)*
Secretary of Commerce John Skvarla, Asst. Sec. Dr. Patricia Mitchell, Chief of Staff Cecilia Holden; Secretary of Health and Human Services Rick Brajer, DHHS Director of Property/Construction Luke Hoff; Secretary of Administration Kathryn Johnston, Deputy Secretary of Administration, Asset Management John LaPenta; State Budget Director Drew Heath; DFI – Director Michael Lemanski, Principal Investigator Tyler Mulligan, Project Manager Peter Cvelich

# 3 DEMOGRAPHIC AND SECTOR ANALYSIS SUMMARY

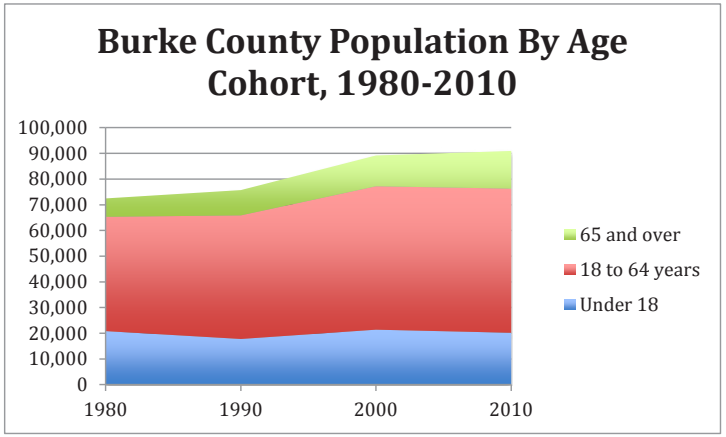
## Demographic Analysis

The City of Morganton is the seat of Burke County and a part of the Hickory-Lenoir-Morganton metropolitan area. As of 2014, Morganton had a population of nearly 17,000 people. The county had an estimated population of 90,000; the metropolitan area over 360,000.



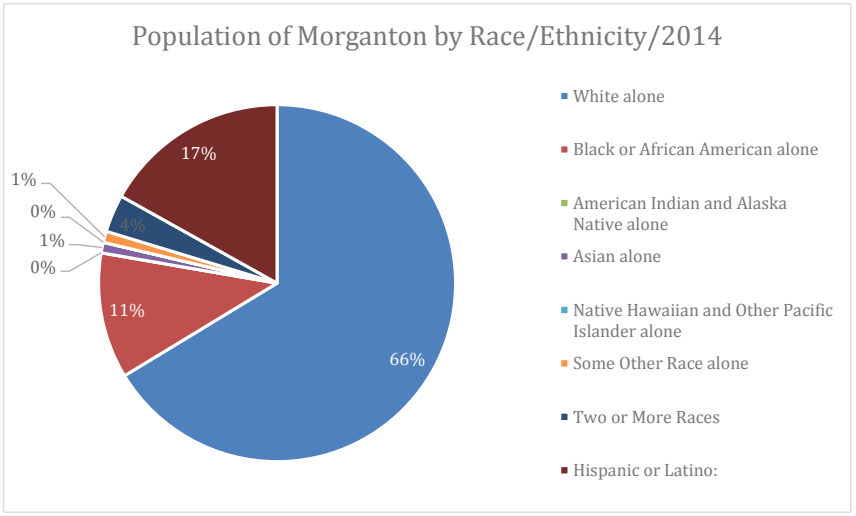

Source: American Community Survey 2014 (5-Year Estimates)

Morganton has a higher proportion of seniors and a slightly lower proportion of adults aged 25 to 64 than North Carolina as a whole. Nineteen percent of the population of Morganton is 65 years or older, compared with approximately 14 percent of North Carolina residents. About 50 percent of the Morganton population is between the ages of 25 and 64, compared with nearly 53 percent of the state as a whole. This area has had a higher proportion of seniors than the state for several decades. While the senior population of Morganton has grown at a similar rate as the senior population of the state, the proportion of seniors in Burke County has steadily increased in recent decades: seniors (65 years and over) made up just under 10 percent of the county population in 1980 and made up slightly over 16 percent in 2010.

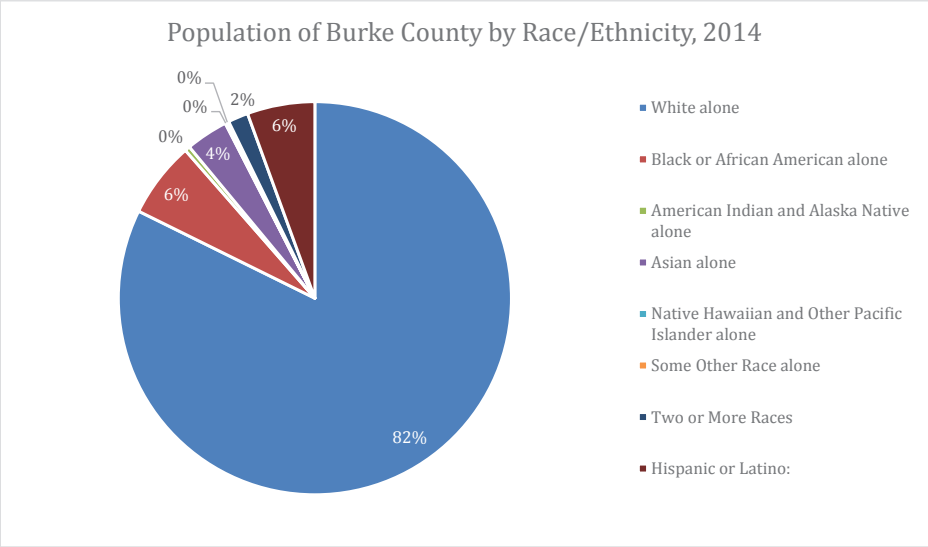



US Census

In 2014, approximately two-thirds of Morganton residents and over eight in ten Burke County residents identified as white (non-Hispanic).

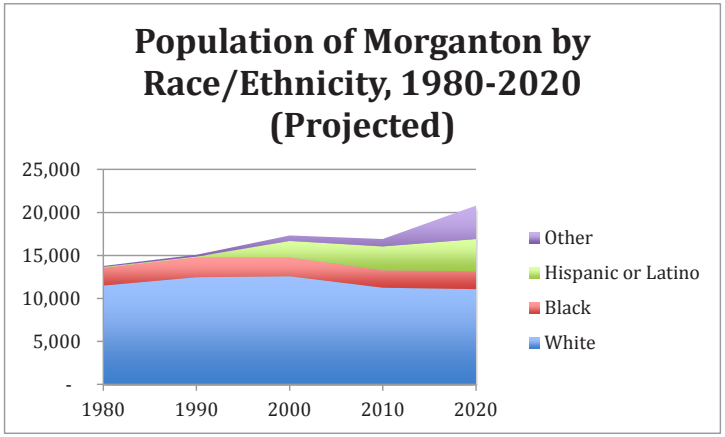



Source: American Community Survey 2014 (5-Year Estimates)



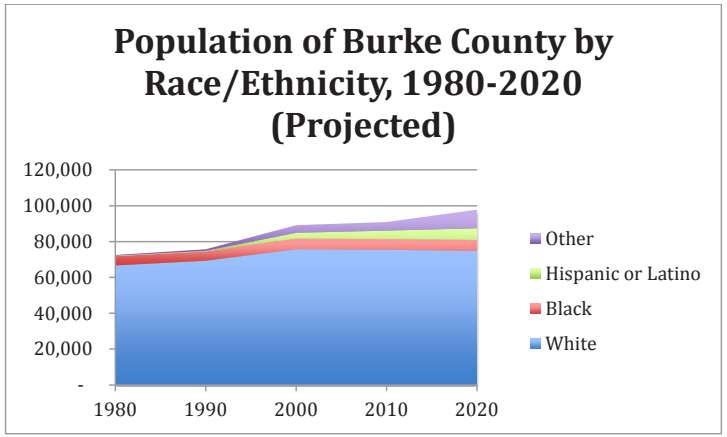

*Source: American Community Survey 2014 (5-Year Estimates)*

In Morganton since 1980, the number of white and black residents has remained relatively stable. Since the 1990s, the Hispanic/Latino population in the city has grown strongly, from less than 100 in 1990 to nearly 3,000 in 2014. The presence of other groups has increased as well, including those identifying as two or more races, a category not available in 1980.



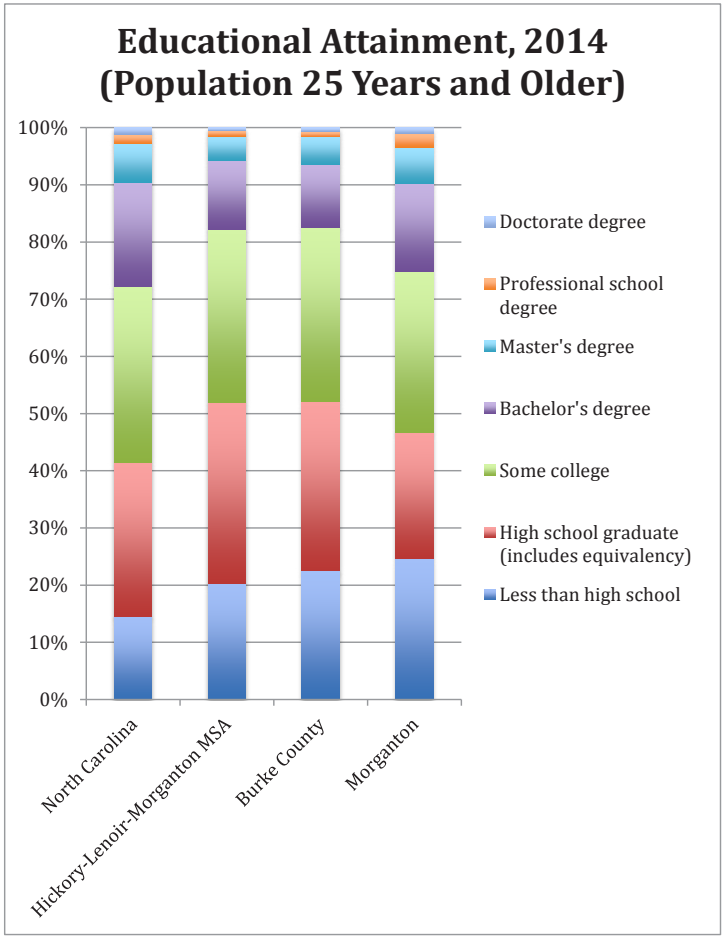

*Census, ACS, Esri BAO projections*

In Burke County, while both the white and black population have grown respectively by only about seven and nine percent since 1990, both the Hispanic/Latino and Asian populations have grown strongly in that time period: the Hispanic/Latino population grew by well over 1300 percent, from less than 500 residents to 5,000; the Asian population grew by nearly 300 percent, from less than 800 to more than 3,000 residents.



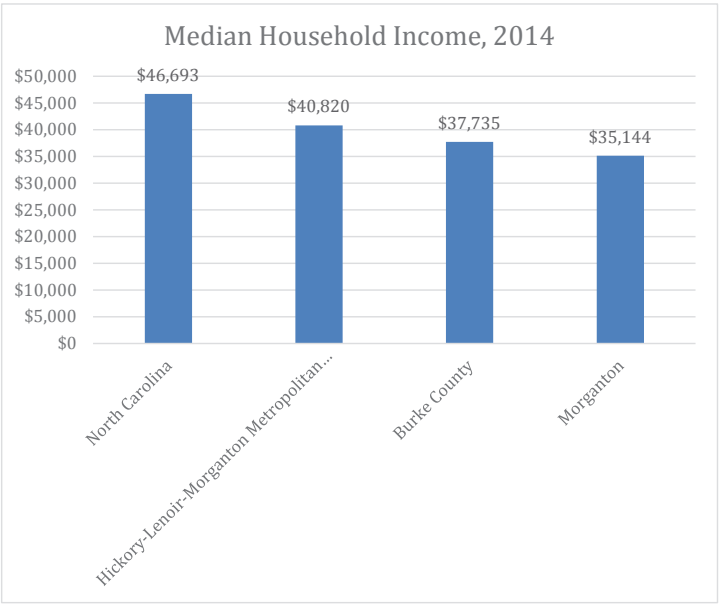

*Census, ACS, Esri BAO projections*

Morganton and Burke County residents have overall lower education attainment levels than statewide residents. Though Morganton has a similar share of residents with undergraduate and graduate degrees as the state as a whole, approximately a quarter of its residents did not finish high school, compared with 15 percent of residents statewide. In Burke County, about 23 percent of residents do not have high school diplomas; only 17 percent of residents have a bachelor's degree or higher, compared to 28 percent statewide.




*Source: American Community Survey 2014 (5-Year Estimates)*

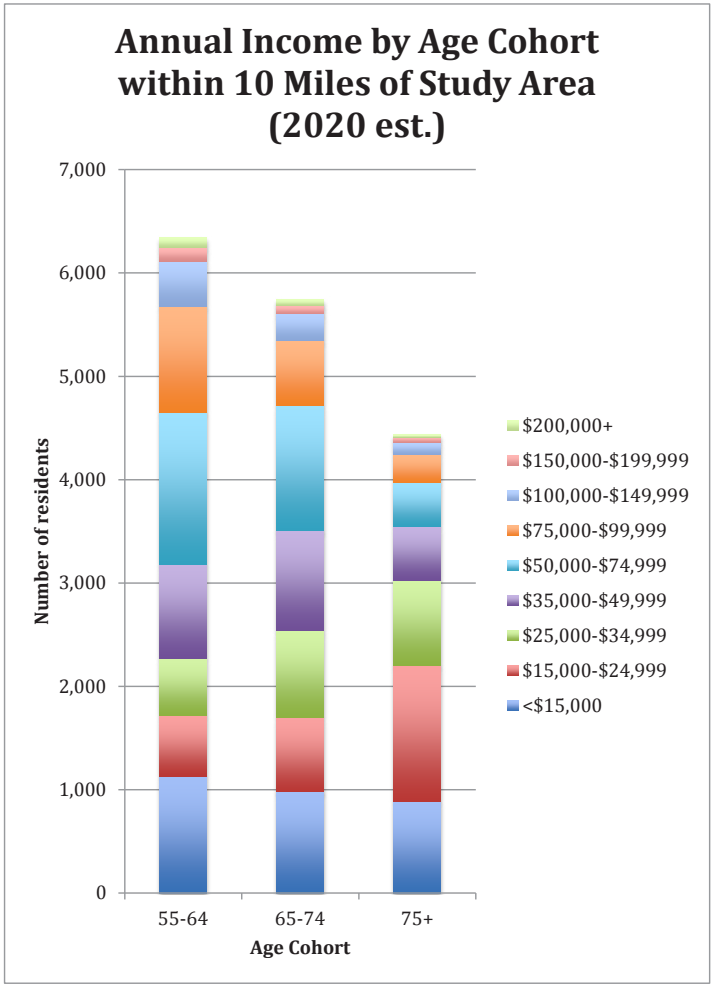
The local median household income is well below the state median. Morganton households had only three-quarters the income of a typical North Carolina household. Household income increases in Burke County and the larger metropolitan area.




*Source: American Community Survey 2014 (5-Year Estimates)*

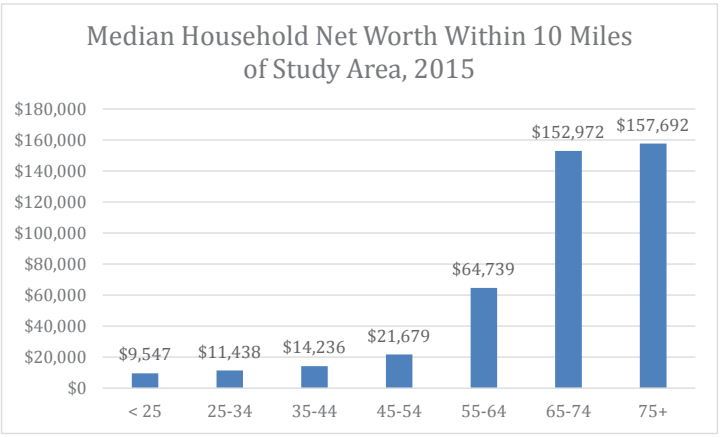
Though median household income is low, there are still many households with considerably higher incomes. In 2015, Esri estimates that over 1,200 households within five miles of the study area had annual incomes exceeding $100,000; that number increases to over 2,500 within 10 miles of the study area.

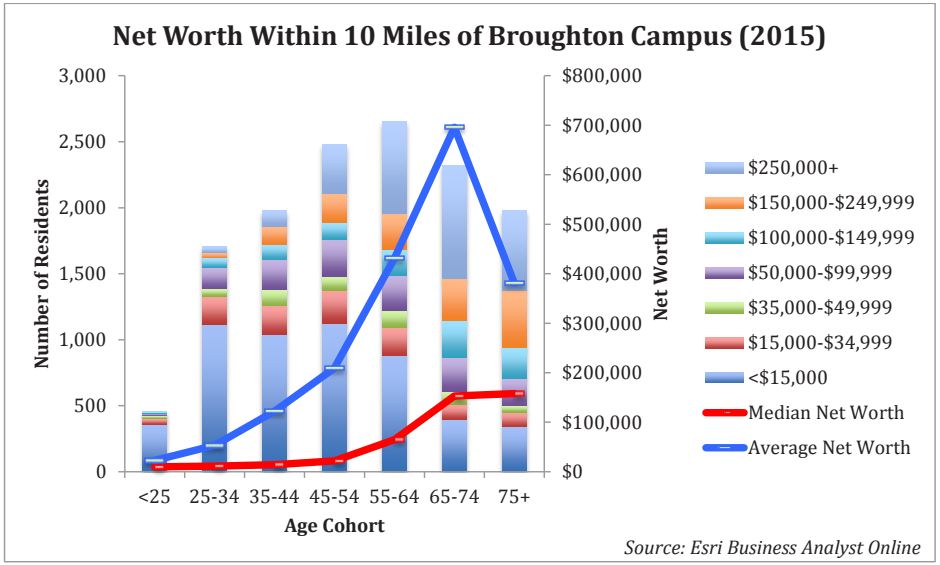
Many senior households near the study area have much higher incomes. Esri estimates that in 2020, nearly 3,200 senior households within 10 miles of the study area will have annual income in excess of $75,000. Over 400 senior households are projected to have annual income of $150,000 or more.




*Source: Esri Business Analyst Online*

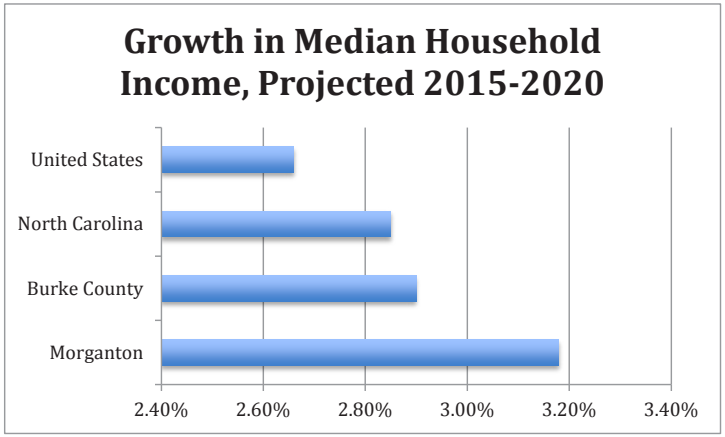
Median household net worth among seniors near the study area is markedly higher than among non-seniors, as well. In 2015, the median net worth of households in which the householder was 65 years and over was over $150,000.



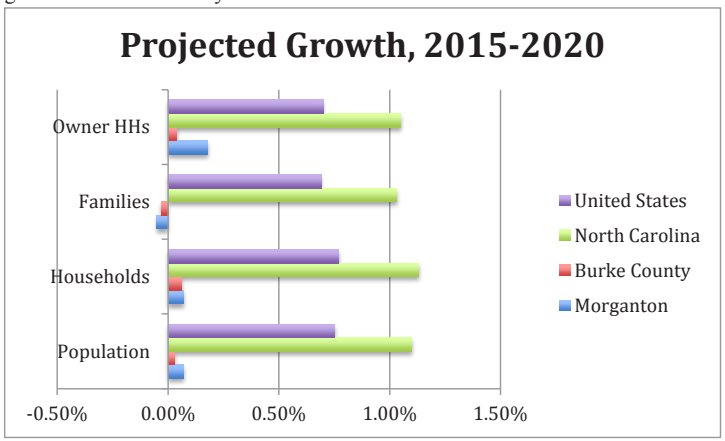




*Source: Esri Business Analyst Online*

Esri projects that median household income will grow at a faster rate locally than at the state or national level between 2015 and 2020.



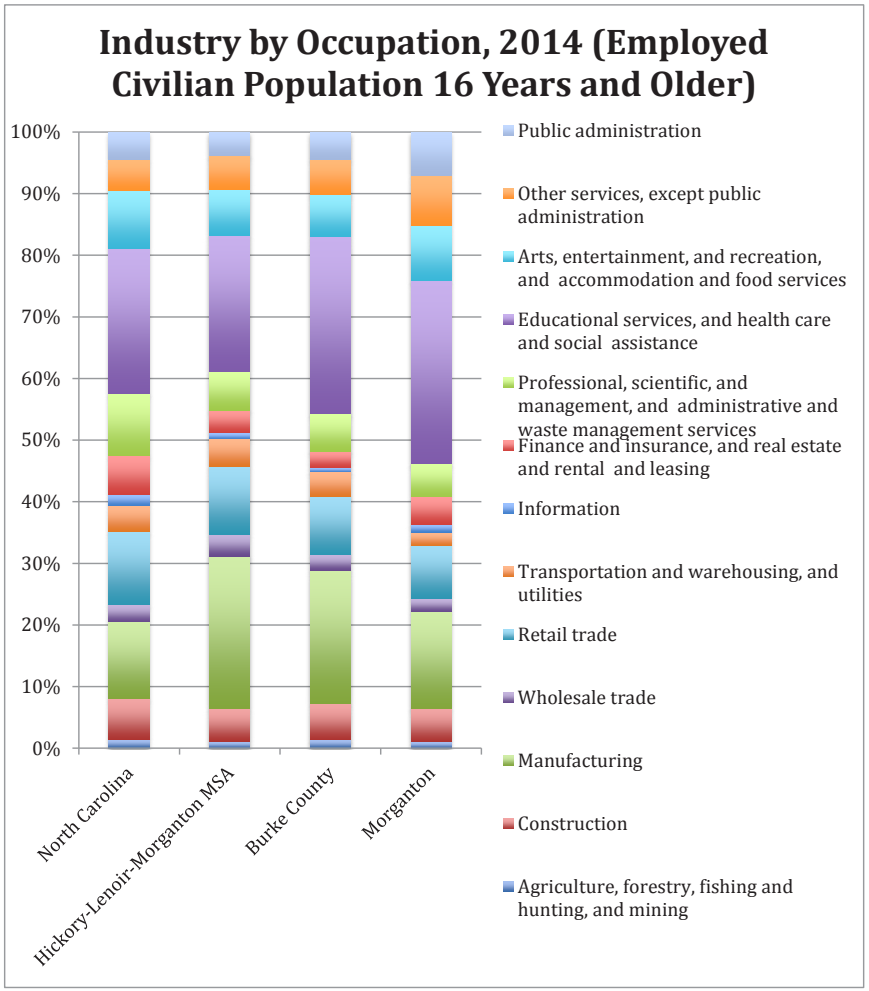

General growth projections are less pronounced: population, as well as households, are projected to barely grow over the next five years.




Esri BAO

## Sector Analysis

Morganton workers were more likely to be employed in public administration and educational services and health care than their statewide counterparts. Residents in the county and metropolitan area were also more likely to work in manufacturing occupations, which was also true, though less pronounced, in Morganton.




ACS

Between 2004 and 2014, Burke County lost 3,600 jobs, or 14 percent. Though some sectors, such as health care and social assistance and accommodation and food services saw slight increases, most saw small decreases. Manufacturing, which was by far the largest industry in the county in 2004, with nearly 11,000 jobs, was the hardest hit: the county lost over one-quarter of these jobs over the next 10 years.

### Specialization

Location quotients (LQs) are ratios that show the relative share of local jobs in an industry or occupation compared to the share of national jobs in that industry/occupation. A location quotient (or LQ) greater than or equal to 1.3 generally means an industry or occupation is highly concentrated (or "specialized") in the study area. Location quotients in the Hickory-Lenoir-Morganton MSA and Burke County—based on employment data from the Bureau of Labor Statistics—reveals that the overwhelming specializations of the MSA and County are in manufacturing, especially furniture and textile manufacturing, although those sectors have experienced employment decline. Metal manufacturing is also highly specialized in the region, and these sectors are experiencing moderate to strong employment growth. Relative to some of the largest employment nodes in the state of North Carolina, Burke County also has high specialization in healthcare industries.

## REGIONAL INDUSTRY SPECIALIZATION: HICKORY-LENOIR-MORGANTON MSA

Focus industries: Healthcare | Metal manufacturing | Textile & furniture manufacturing

| NAICS Code | Industry | 2013 employment | 1993-2013 % change | 2013 LQ |
|---|---|---|---|---|
| 337 | **Furniture and Related Product Manufacturing** | **14,331** | -58% | **37.82** |
| 313 | **Textile Mills** | 3,404 | -74% | **27.56** |
| 335 | **Elec. Equipment, Appliance & Component Mfg.** | 3,027 | -51% | **7.66** |
| 322 | **Paper Manufacturing** | 1,776 | 11% | **4.46** |
| 326 | **Plastics and Rubber Products Manufacturing** | 2,888 | -21% | **4.16** |
| 315 | **Apparel Manufacturing** | 621 | -93% | **4.09** |
| 321 | **Wood Product Manufacturing** | 892 | -47% | **2.38** |
| 327 | **Nonmetallic Mineral Product Manufacturing** | 825 | -16% | **2.10** |
| 484 | **Truck Transportation** | 2,720 | -7% | **1.88** |
| 424 | **Merchant Wholesalers, Nondurable Goods** | 3,713 | -1% | **1.77** |
| 921 | **Executive, Legislative, and Other Gen. Gov't** | 5,136 | 31% | **1.63** |
| 331 | **Primary Metal Manufacturing** | 648 | **71%** | **1.55** |
| 311 | **Food Manufacturing** | 2,159 | 15% | **1.39** |
| 332 | **Fabricated Metal Product Manufacturing** | 1,971 | **15%** | **1.31** |

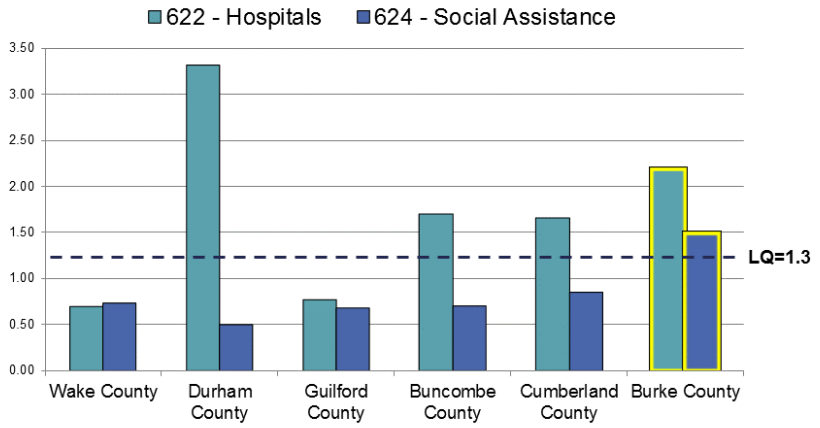
1

## LOCAL INDUSTRY SPECIALIZATION: BURKE COUNTY

Focus industries: Healthcare | Metal manufacturing | Textile & furniture manufacturing

| NAICS Code | Industry | 2013 employment | 1993-2013% change | 2013 LQ |
|---|---|---|---|---|
| 313 | **Textile Mills** | 1,273 | -60% | **41.07** |
| 337 | **Furniture and Related Product Mfg** | 1,433 | -70% | **15.07** |
| 335 | **Electrical Equipment and Appliances** | 827 | -45% | **8.34** |
| 315 | **Apparel Manufacturing** | 240 | -94% | **6.30** |
| 321 | **Wood Product Manufacturing** | 214 | -42% | **2.28** |
| 336 | **Transportation Equipment Manufacturing** | 907 | 8% | **2.21** |
| 622 | **Hospitals** | **3,508** | -5% | **2.18** |
| 332 | **Fabricated Metal Product Manufacturing** | 684 | **38%** | **1.81** |
| 921 | **Executive, Legislative, & Gen Government** | 1,176 | 24% | **1.49** |
| 624 | **Social Assistance** | 1,334 | **313%** | **1.48** |

## HEALTH LQ'S: COMPARISON

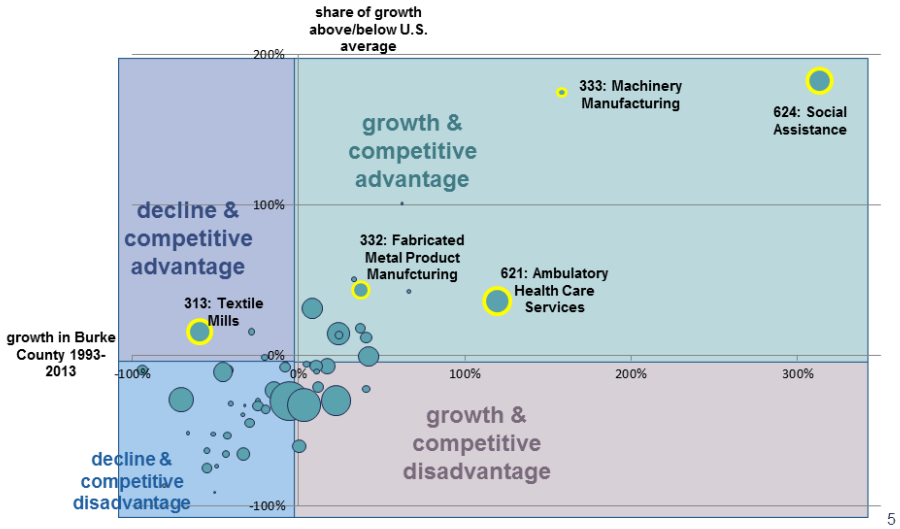



### Competitiveness

Specialization metrics are static and do not give us a picture of which direction employment is moving in those industries, and what might be causing those shifts. A shift-share analysis breaks down regional employment change by industry into three components: a component due to overall employment shift in the United States, a component due to the overall employment shift in that industry, and a residual component that is attributed to effects of the local economy on that industry. We label this last component the competitive component because it explains in some measure the unique characteristics of a region that make it out-perform or under-perform other locations. This is the region's competitive advantage. In Burke County, a shift-share analysis for the period 1993-2013 reveals that Metal Manufacturing and

Healthcare industries are both growing and have a competitive advantage.

## SHIFT SHARE ANALYSIS




5

### Wages

In addition to employment growth and the specialization and relative competitiveness of local industry, the quality of employment for the local workforce is important to the health of the regional economy. For workers, job quality is determined by several factors, but one of the most significant (and easiest to quantify) is the level of pay. A living wage to sustain a family is one threshold for measuring good pay.

## WAGES BY INDUSTRY

**Top-Paying Industries (Employment > 50), Burke County, 2013**

| NAICS Code | Industry | 2013 Employment | 2013 Avg. Weekly Wage |
|---|---|---|---|
| 621 | Ambulatory Health Care Services | 1,560 | $1,028.00 |
| 336 | Transportation Equipment Manufacturing | 907 | $962.00 |
| 333 | Machinery Manufacturing | 155 | $952.00 |
| 522 | Credit Intermediation & Related Activity | 240 | $935.00 |
| 335 | Electrical Equipment and Appliances | 827 | $895.00 |
| 332 | Fabricated Metal Product Manufacturing | 684 | $878.00 |
| 424 | Merchant Wholesalers, Nondurable Goods | 191 | $809.00 |
| 926 | Administration of Economic Programs | 117 | $808.00 |
| 622 | Hospitals | 3,508 | $782.00 |
| 541 | Professional and Technical Services | 405 | $777.00 |
| 313 | Textile Mills | 1,273 | $730.00 |
| 423 | Merchant Wholesalers, Durable Goods | 198 | $711.00 |
| 337 | Furniture and Related Product Mfg | 1,433 | $683.00 |

Adult + 1 child living wage ($735/week)

Single adult living wage ($356/week)

Source: MIT Living Wage Calculator

Focus industries: Healthcare | Metal manufacturing | Textile & furniture manufacturing

6

Both healthcare and metal manufacturing sectors are highly concentrated in Burke County and pay good wages on average (i.e. above the living wage for an adult taking care of one child). Meanwhile, wages in legacy manufacturing in furniture and textiles fall below that same living wage threshold for the County on average.

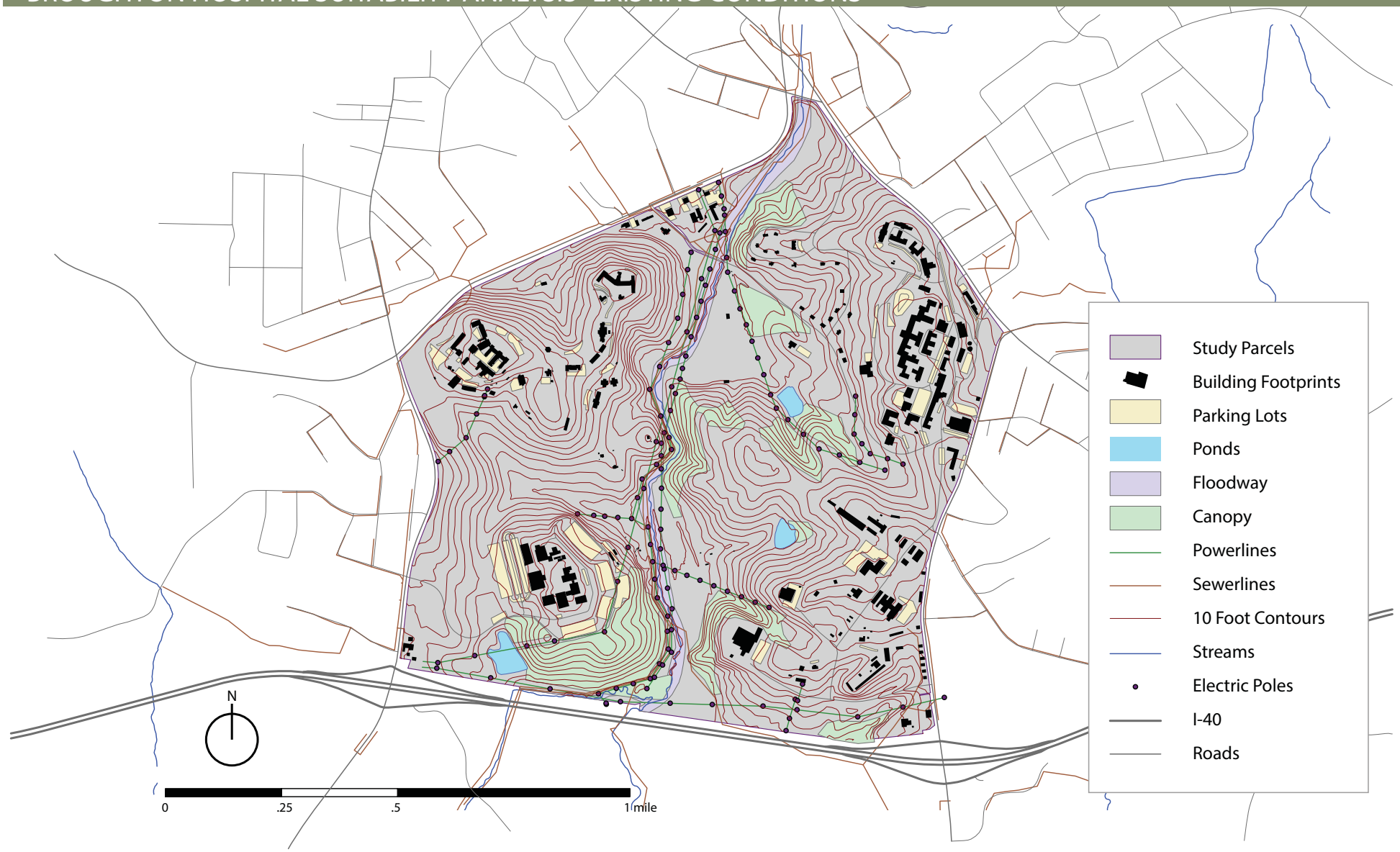
In conclusion, Burke County has a specialization in hospitals, but employment has declined slightly over the last 20 years. Burke County has a competitive advantage and has seen strong growth in ambulatory health care and social assistance. Furniture and textiles manufacturing are shrinking, but are still by far the most specialized industries in the county and MSA. Textile manufacturing has declined but maintains a competitive advantage in Burke County. The emergence of well-paying jobs in the Metal Manufacturing sector represents a source of resilience in the local industrial base. Though this sector currently represents a small portion of total local employment, its growth and competitiveness point to future opportunities for the regional economy.

# 4 SITE AND BUILDING ANALYSES

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS

DEVELOPMENT FINANCE INITIATIVE ERIC THOMAS MARCH 27, 2015

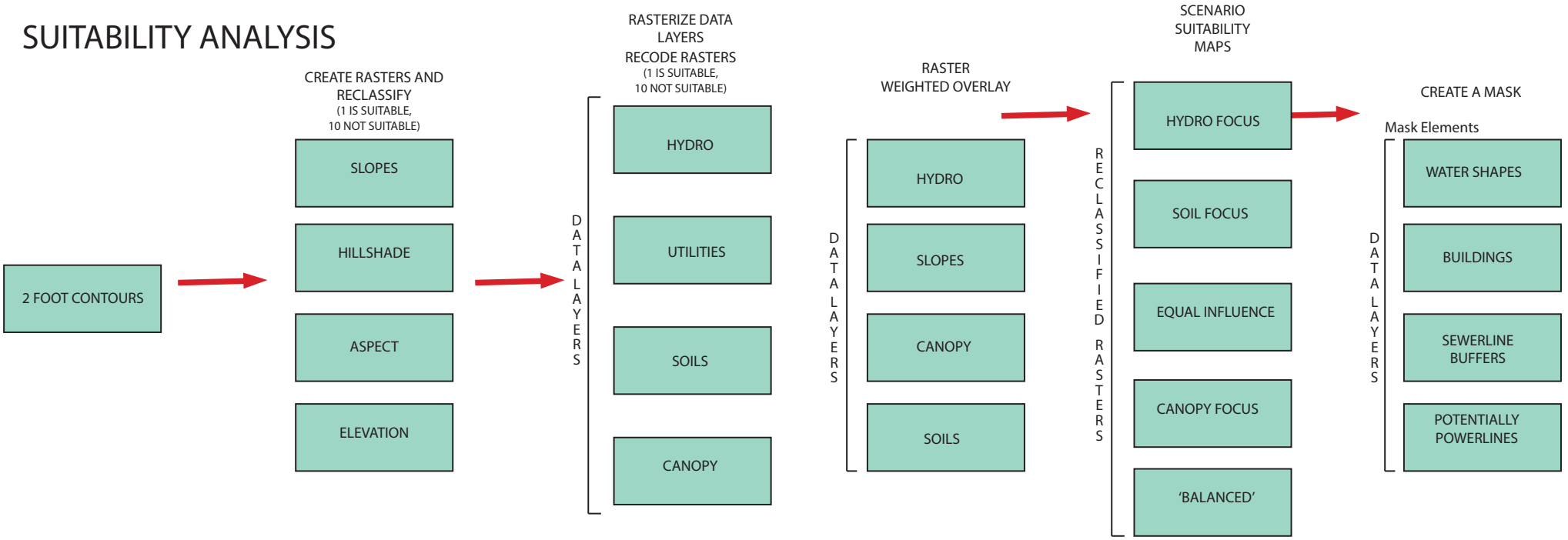
# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- EXISTING CONDITIONS




DEVELOPMENT FINANCE INITIATIVE ERIC THOMAS MARCH 27, 2015

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- PROCESS DIAGRAM

## SUITABILITY ANALYSIS

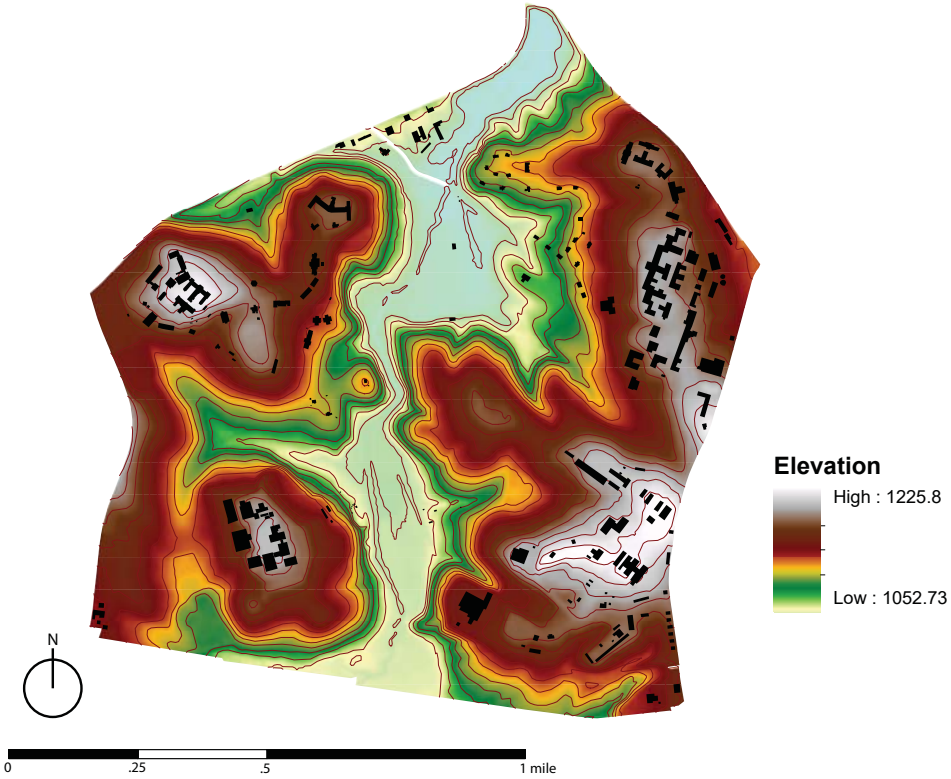



Reclassifcation of Data Based Upon Jenks Natural Breaks Classifcation

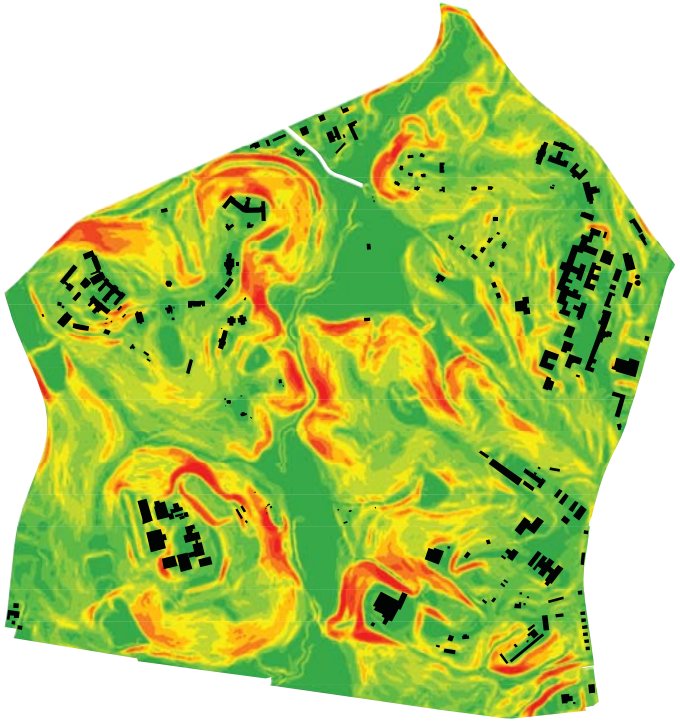
the method seeks to reduce the variance within classes and maximize the variance between classes

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- INDIVIDUAL COMPONENTS

## ELEVATION ANALYSIS

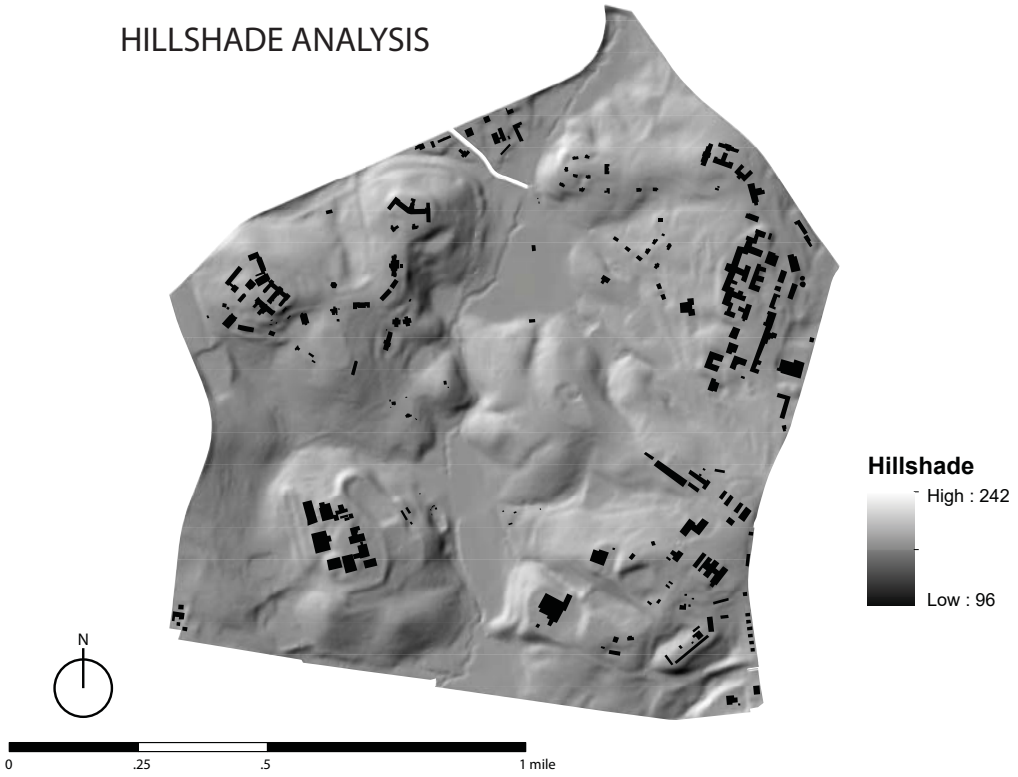



## SLOPE ANALYSIS



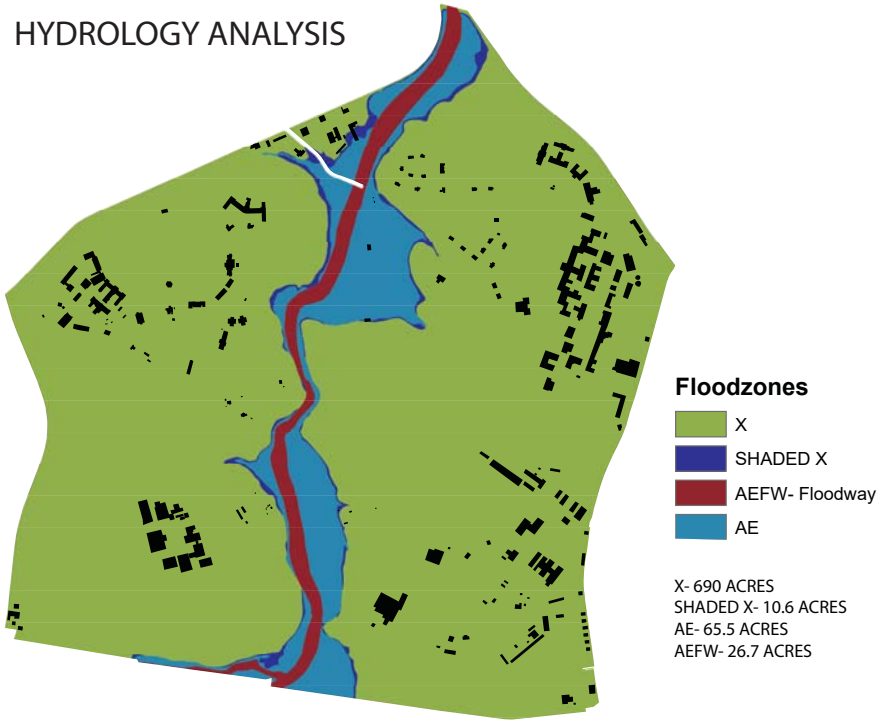
# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- INDIVIDUAL COMPONENTS

## HILLSHADE ANALYSIS




Hillshade values display the intensity of light from a source (the sun) at each raster cell, from 0 (dark) to 255 (light).

## HYDROLOGY ANALYSIS




X- 690 ACRES
SHADED X- 10.6 ACRES
AE- 65.5 ACRES
AEFW- 26.7 ACRES

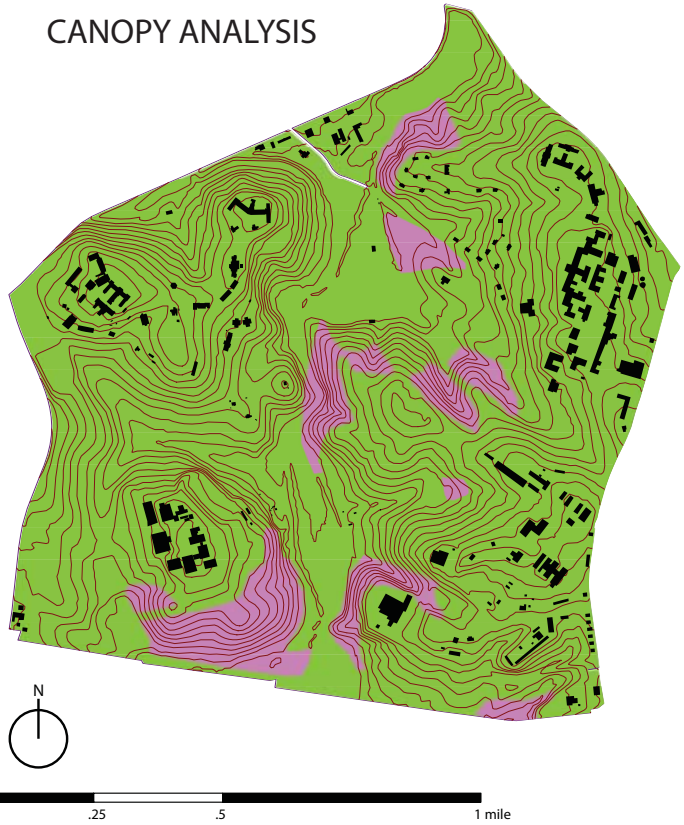
HYDROLOGIC DEFINTIONS

**X-** These properties are outside the high-risk zones.
**SHADED X**- Area of moderate flood hazard. This flood risk is reduced, but not removed. Flood insurance is not required in this zone
**AE**- High flood risk. Base flood elevations have been determined. Flood insurance is mandatory and local floodplain development codes apply.
**AEFW**- Floodway- channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood

Source: http://www.clark.wa.gov/publicworks/flood/documents/zone_definitions.pdf

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- INDIVIDUAL COMPONENTS

## CANOPY ANALYSIS

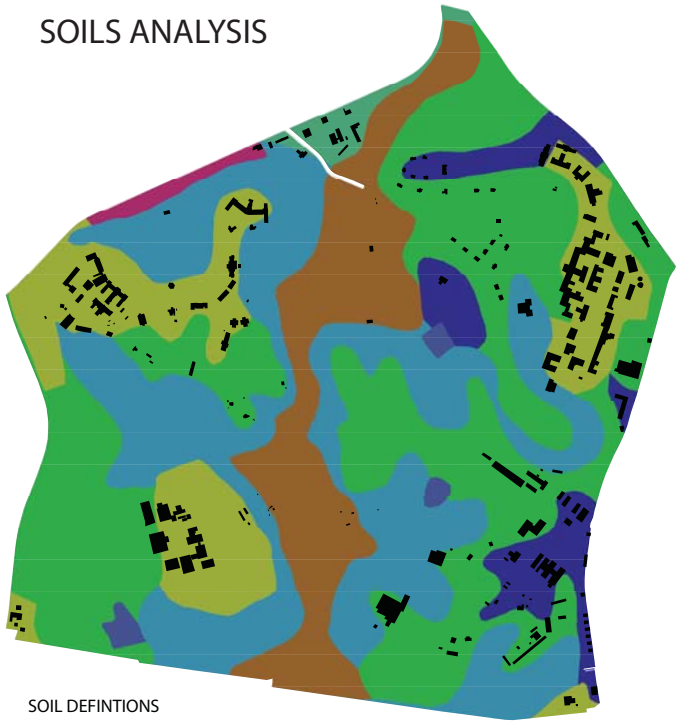



**Canopy**

| | |
|---|---|
| Canopy | 82.8 ACRES |
| No Canopy | 710 ACRES |

Canopy data was geo-referenced using the ArcGIS base-map orthoimagery.

## SOILS ANALYSIS



**Soils**

| | |
|---|---|
| CvA | 103 ACRES |
| FaB2 | 47 ACRES |
| FaC2 | 277.8 ACRES |
| FaD2 | 219.8 ACRES |
| FeC | 6.2 ACRES |
| Ud | 122 ACRES |
| Ur | 11.2 ACRES |
| W | 5.9 ACRES |

SOIL DEFINTIONS

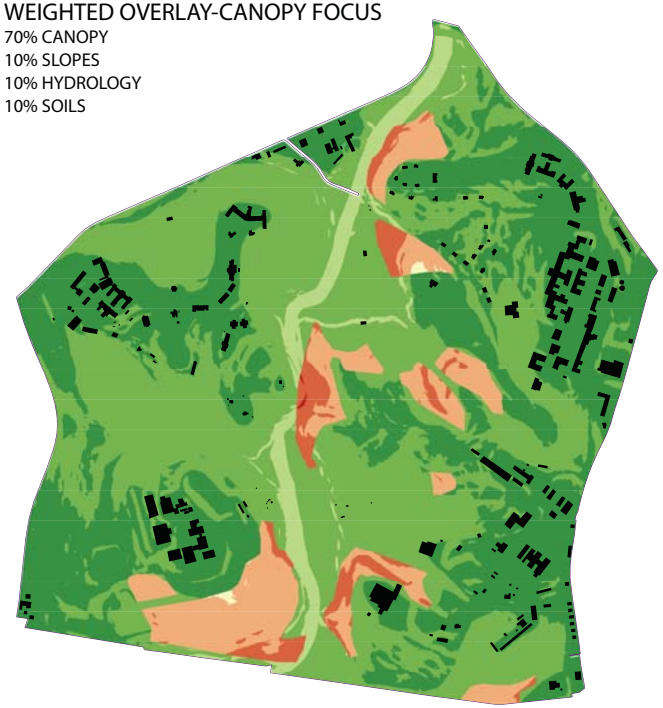
**CvA-** Colvard Sandy Loam- 0-3%, occasionally flooded.
**FaB2**- Fairview sandy clay loam- 2-8% slopes, moderately eroded.
**FaC2**- Fairview Sandy Clay Loam- 8-15 % slopes, moderately eroded.
**FaD2**- Fairview Sandy Clay Loam- 15-25% slopes, moderately eroded
**FeC-** Fairview Urban Land Complex- 8-15% slopes
**Ud-** Udorthents, loamy
**Ur-** Urban Land
**W-** Water

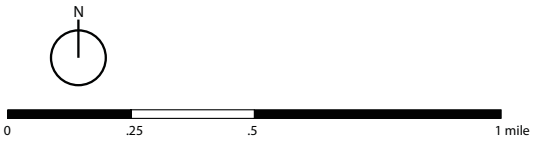
Source: http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/NC023/0/Burke.pdf

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY-CANOPY FOCUS

70% CANOPY
10% SLOPES
10% HYDROLOGY
10% SOILS






**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | 20.1 ACRES |
| 3 | 61.7 ACRES |
| 4 | .9 ACRES |
| 5 | - |
| 6 | - |
| 7 | - |
| 8 | 30.6 ACRES |
| 9 | 366.9 ACRES |
| 10 | 312.6 ACRES |

## WEIGHTED OVERLAY- SOIL FOCUS

10% CANOPY
10% SLOPES
10% HYDROLOGY
70% SOILS

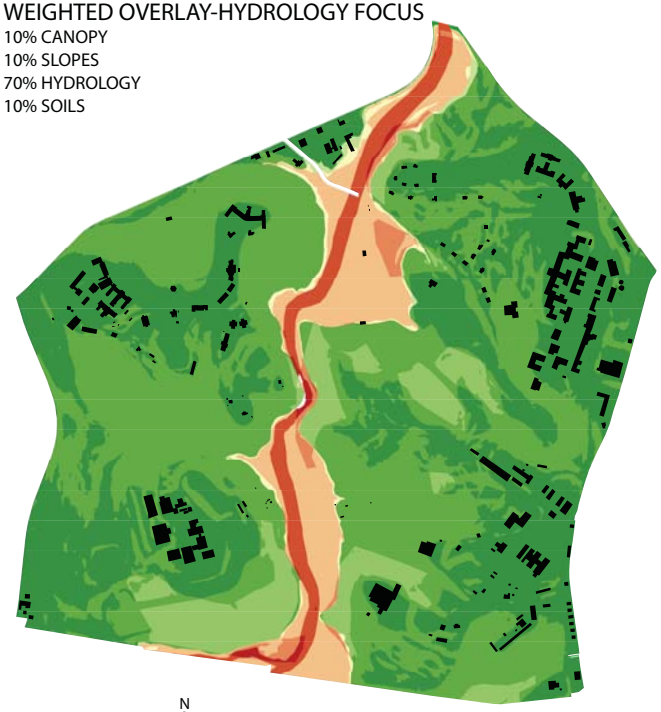
**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | .07 ACRES |
| 3 | .4 ACRES |
| 4 | 3.4 ACRES |
| 5 | 22.8 ACRES |
| 6 | 77.2 ACRES |
| 7 | 181.8 ACRES |
| 8 | 194.4 ACRES |
| 9 | 232.4 ACRES |
| 10 | 80.3 ACRES |

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY-HYDROLOGY FOCUS

10% CANOPY
10% SLOPES
70% HYDROLOGY
10% SOILS

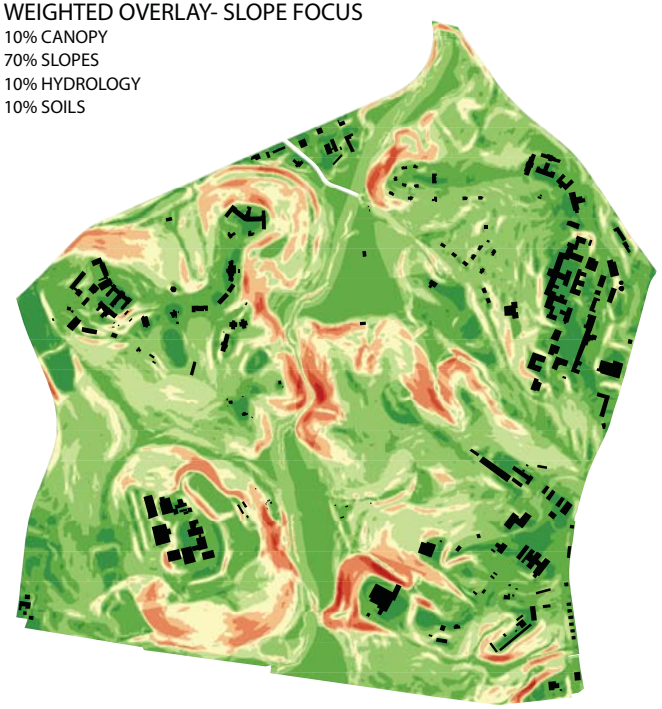



**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | 2.9 ACRES |
| 3 | 23.7 ACRES |
| 4 | 8.2 ACRES |
| 5 | 57.3 ACRES |
| 6 | 8.0 ACRES |
| 7 | 2.8 ACRES |
| 8 | 58.8 ACRES |
| 9 | 319.3 ACRES |
| 10 | 311.8 ACRES |

## WEIGHTED OVERLAY- SLOPE FOCUS

10% CANOPY
70% SLOPES
10% HYDROLOGY
10% SOILS



**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | 1.2 ACRES |
| 3 | 5.9 ACRES |
| 4 | 25.7 ACRES |
| 5 | 49.7 ACRES |
| 6 | 79.4 ACRES |
| 7 | 136.5 ACRES |
| 8 | 222.4 ACRES |
| 9 | 209.2 ACRES |
| 10 | 62.7 ACRES |

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY-EQUAL INFLUENCE

25% CANOPY
25% SLOPES
25% HYDROLOGY
25% SOILS

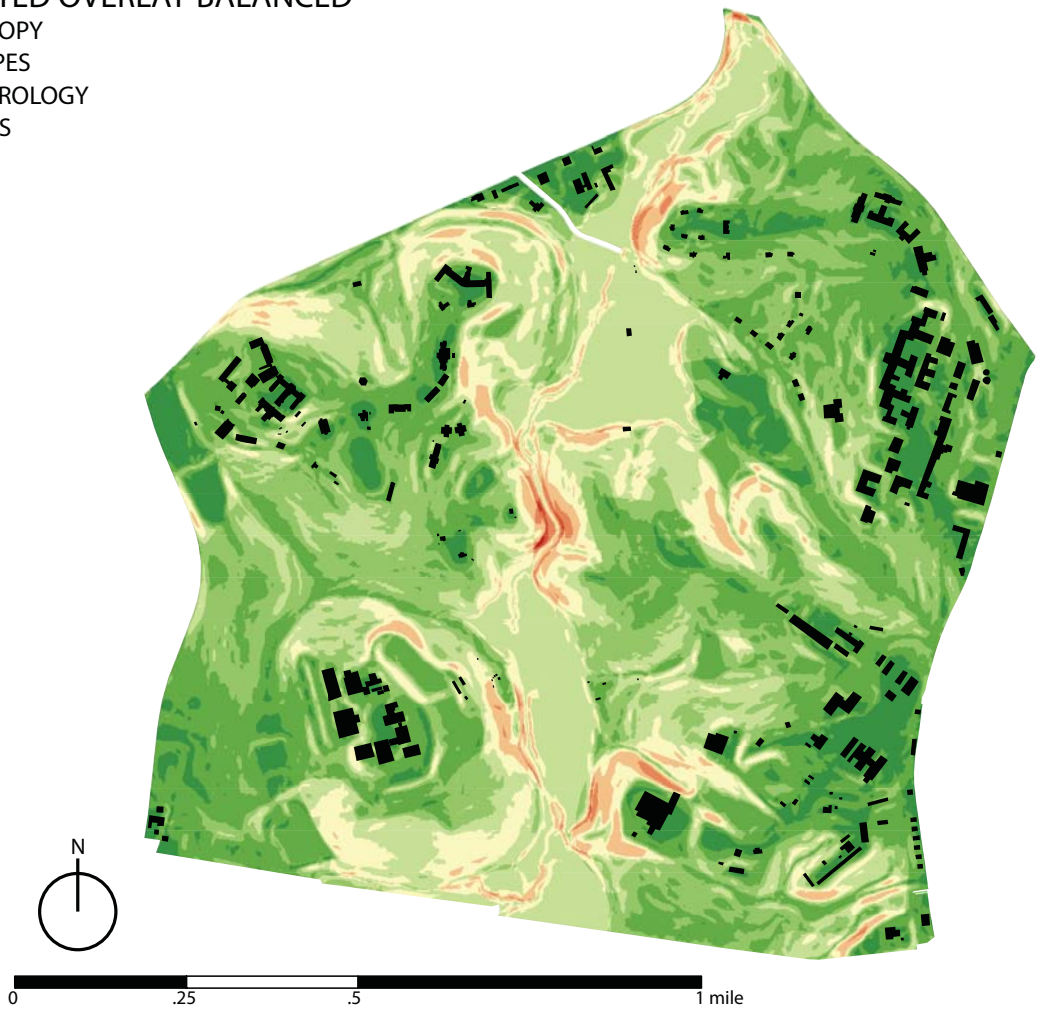

**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | .3 ACRES |
| 3 | 2.8 ACRES |
| 4 | 11.7 ACRES |
| 5 | 45.0 ACRES |
| 6 | 56.8 ACRES |
| 7 | 117.3 ACRES |
| 8 | 175.6 ACRES |
| 9 | 283.0 ACRES |
| 10 | 100.2 ACRES |

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY-BALANCED

10% CANOPY
50% SLOPES
30% HYDROLOGY
10% SOILS




**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | .08 ACRES |
| 3 | .4 ACRES |
| 4 | 3.4 ACRES |
| 5 | 22.8 ACRES |
| 6 | 77.2 ACRES |
| 7 | 181.8 ACRES |
| 8 | 194.4 ACRES |
| 9 | 232.4 ACRES |
| 10 | 80.3 ACRES |

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY- EQUAL INFLUENCE WITH MASK

25% CANOPY
25% SLOPES
25% HYDROLOGY
25% SOILS

MASKED ELEMENTS-
BUILDINGS
FLOODWAY
PONDS
SEWERLINE BUFFERS

TOTAL ACREAGE- 73.2


**Weighted Overlay Rating**
**2 is poor 10 is excellent**

| | |
|---|---|
| 2 | .02 ACRES |
| 3 | 1.2 ACRES |
| 4 | 10.4 ACRES |
| 5 | 39.2 ACRES |
| 6 | 36.2 ACRES |
| 7 | 114.3 ACRES |
| 8 | 167.8 ACRES |
| 9 | 266.5 ACRES |
| 10 | 83.9 ACRES |

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- KEY FINDINGS

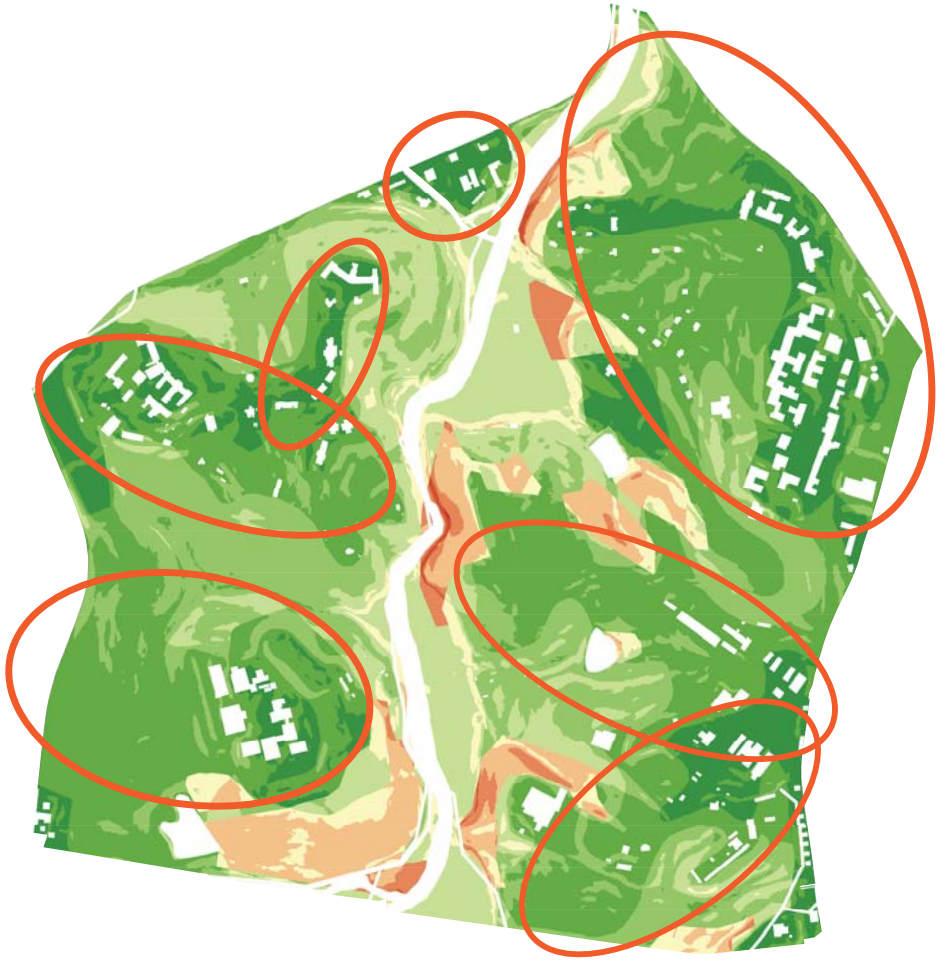
Previous Development on the site focused on the higher elevated portions of the site, and generally those are the optimal locations to build.

Many of the severe slopes on the site are located near the built structures, possibly due from grading of the site for those built structures.

Sewerline and powerline infrastructure is generally located outside of the most suitable land for development.

Undeveloped land is still located near some of the highest elevations on the site.

Most of the Overlay Scenarios identify very similar sections of the site with the highest weights of suitability- roughly circled to the right.



# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY- BUILDING SUITABILITY WITH MASK

33% CANOPY
33% SLOPES
33% HYDROLOGY

MASKED ELEMENTS-
BUILDINGS INCLUDING SURPLUS HOSPITAL PROPERTIES
NEW HOSPITAL BUILDING
PARKING LOTS
FLOODWAY
PONDS
SEWERLINE BUFFERS

TOTAL ACREAGE- 117.2 acres

**Weighted Overlay Rating**
**suitable acreage**

| | | |
|---|---|---|
| | Poor | 76.1 ACRES |
| | Secondary | 156.7 ACRES |
| | Primary | 444.6 ACRES |

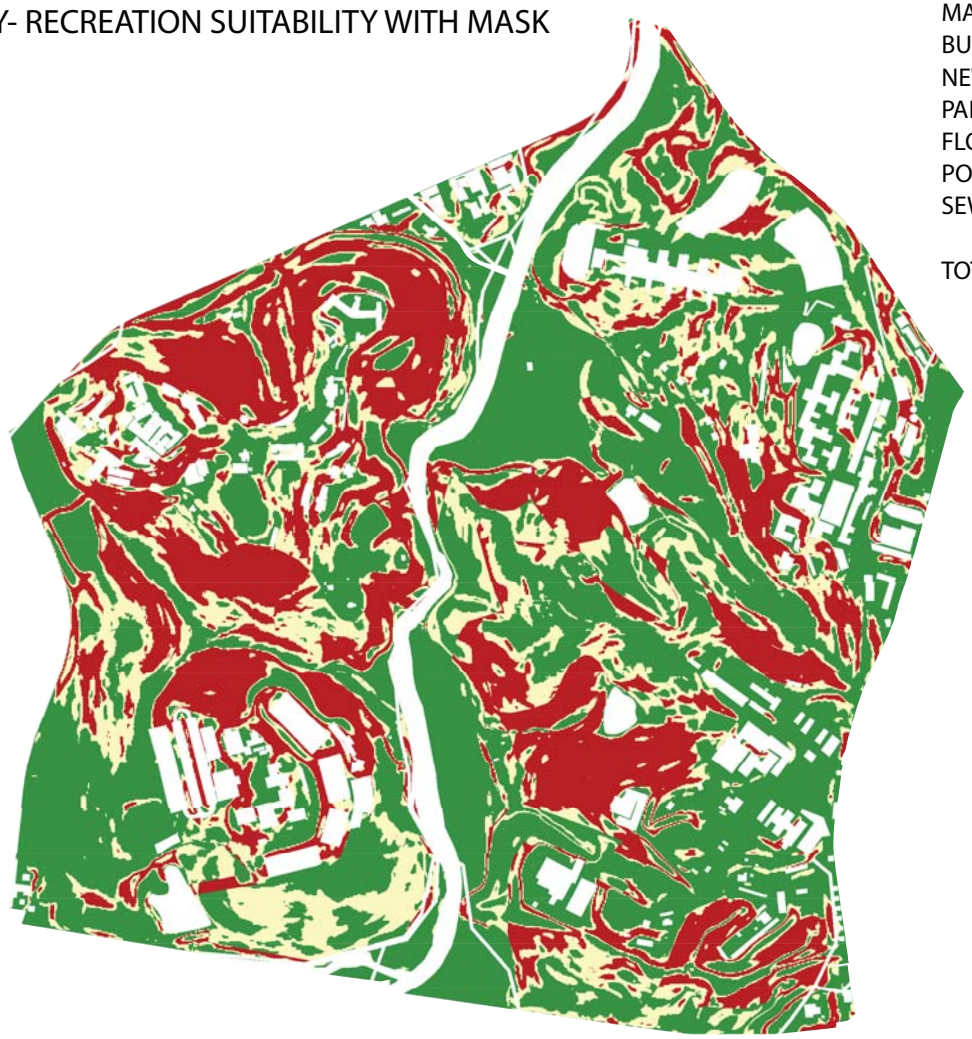
N

0 .25 .5 1 mile

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY- RECREATION SUITABILITY WITH MASK

45% SLOPES
35% CANOPY
10% HYDROLOGY
10% SOILS



MASKED ELEMENTS-
BUILDINGS INCLUDING SURPLUS HOSPITAL PROPERTIES
NEW HOSPITAL BUILDING
PARKING LOTS
FLOODWAY
PONDS
SEWERLINE BUFFERS

TOTAL ACREAGE- 117.2 acres

**Weighted Overlay Rating**
**suitable acreage**

| | | |
|---|---|---|
| | Poor | 188.1 ACRES |
| | Secondary | 155.8 ACRES |
| | Primary | 333.5 ACRES |

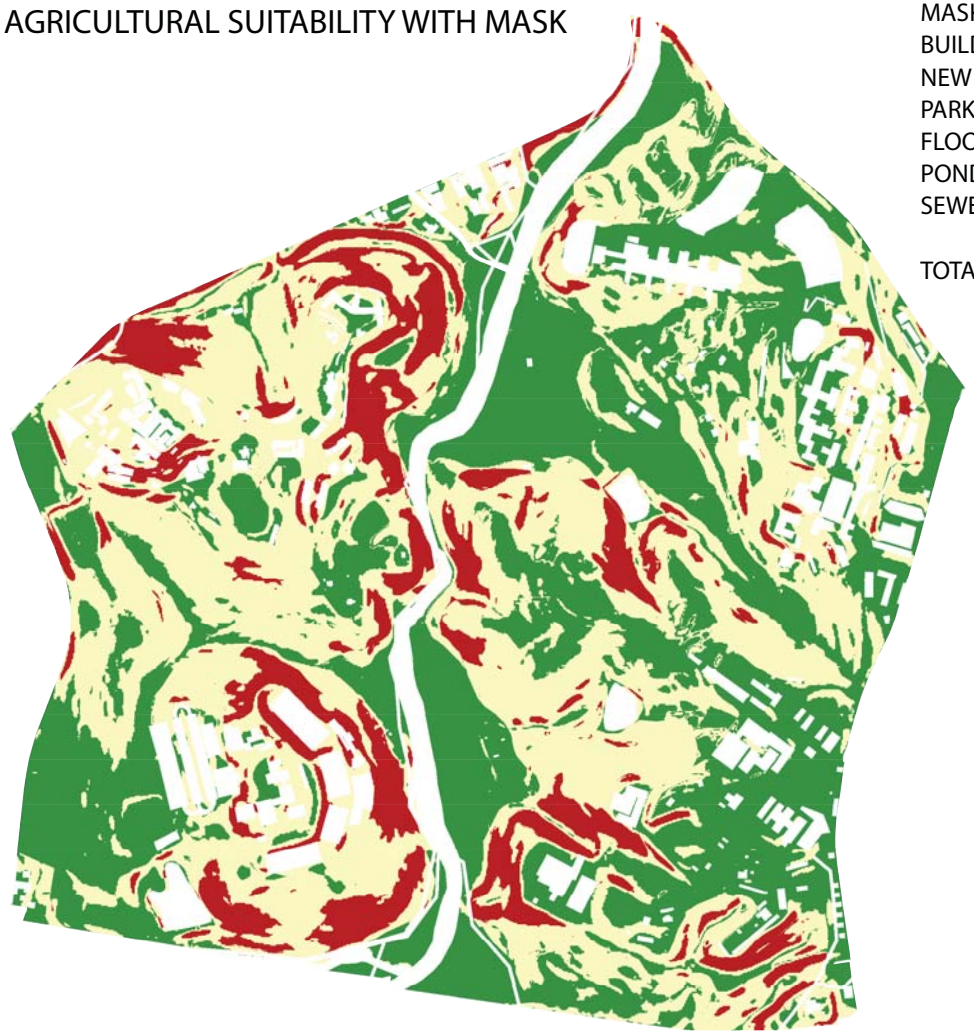
N

0 .25 .5 1 mile

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY- AGRICULTURAL SUITABILITY WITH MASK

30% HILLSHADE
30% SLOPES
30% SOILS
10% HYDROLOGY



MASKED ELEMENTS-
BUILDINGS INCLUDING SURPLUS HOSPITAL PROPERTIES
NEW HOSPITAL BUILDING
PARKING LOTS
FLOODWAY
PONDS
SEWERLINE BUFFERS

TOTAL ACREAGE- 117.2 acres

**Weighted Overlay Rating**
**suitable acreage**

| | | |
|---|---|---|
| | Poor | 86 ACRES |
| | Secondary | 314.6 ACRES |
| | Primary | 276.5 ACRES |

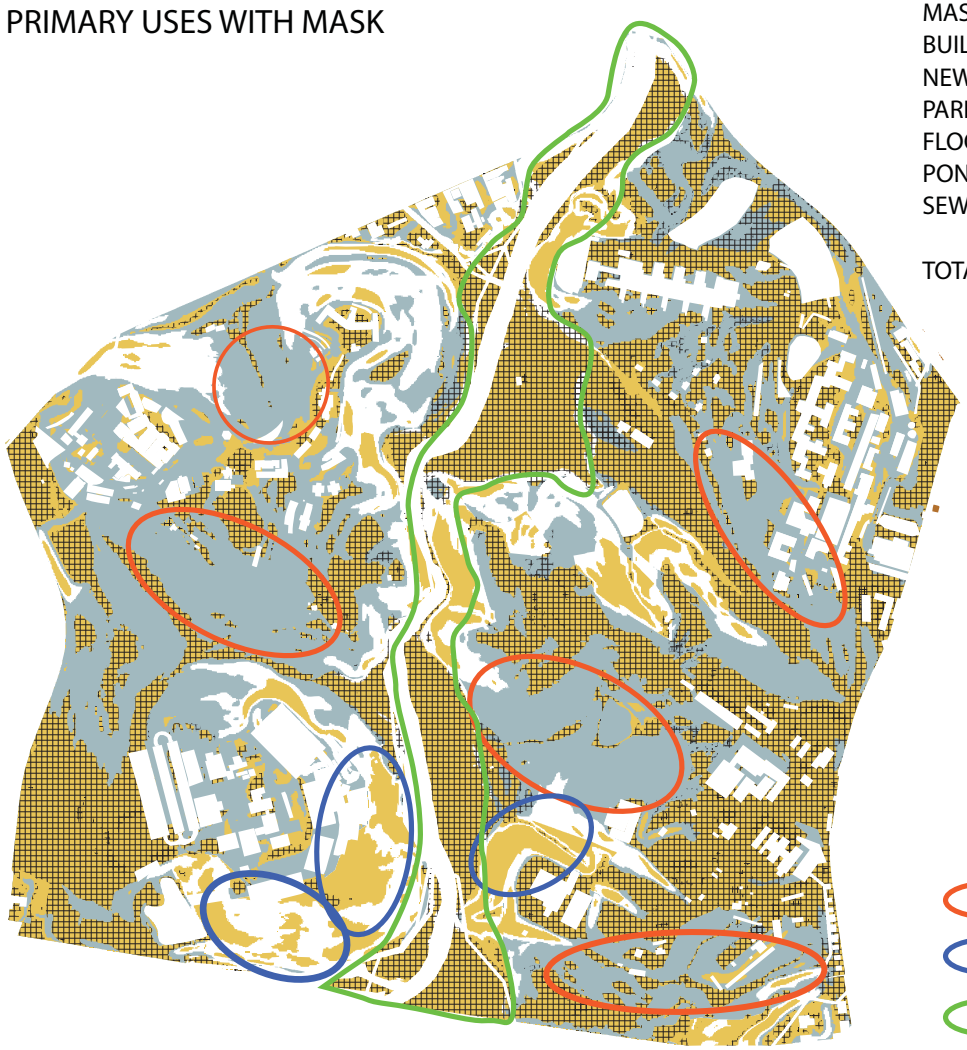
N

0 .25 .5 1 mile

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- WEIGHTED OVERLAY

## WEIGHTED OVERLAY- PRIMARY USES WITH MASK

AGRICULTURE
BUILDABILITY
RECREATION



MASKED ELEMENTS-
BUILDINGS INCLUDING SURPLUS HOSPITAL PROPERTIES
NEW HOSPITAL BUILDING
PARKING LOTS
FLOODWAY
PONDS
SEWERLINE BUFFERS

TOTAL ACREAGE- 117.2 acres

**Primary Use Legend**

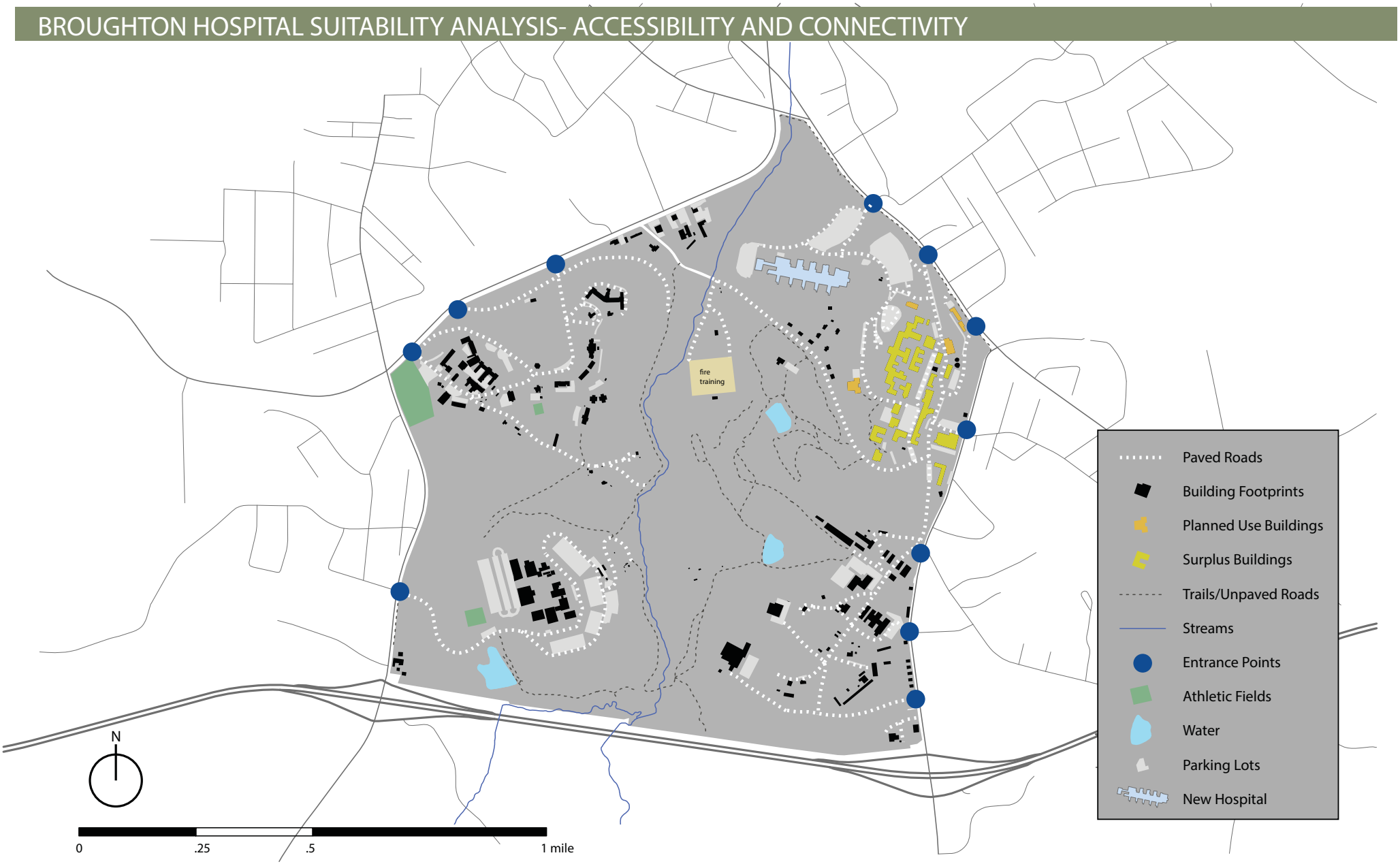
- Primary Buildable Land
- Primary Recreation Land
- Primary Agriculture Land
- Buildable Land with Little Conflicting Primary Uses
- Recreation Land with Little Conflicting Primary Uses
- *Agriculture and Recreation Land with Little Conflicting Primary Uses

* The agriculture and Recreation Primary land overlaps for much of the site with little to no conflict with the Primary Buildable Land.

N

0 .25 .5 1 mile

# BROUGHTON HOSPITAL SUITABILITY ANALYSIS- ACCESSIBILITY AND CONNECTIVITY




DEVELOPMENT FINANCE INITIATIVE ERIC THOMAS APRIL 12, 2015

BELK architecture
Adaptive Reuse • Historic Preservation • Master Planning • Interior Architecture • Environmental Graphics • Sustainable Design
735 Ninth Street Durham, NC 27705 p: 919 .286 .2575 f: 919 .286 .1906 www.belkarchitecture.net

## Broughton Campus Building Survey

*Note: Building areas are calculated using materials provided by Broughton Facilities and are not field verified*

**AVERY (CONTRIBUTING)**
Existing use: patient rooms
Existing building is in excellent condition. Multiple wing building with 3-4 full stories with large attic spaces over most wings. Central wing has 5 stories plus attic. Lower floor of all wings is partially below grade. Load bearing exterior masonry walls with load bearing interior corridor walls (18" thickness). Corridor widths are 11'-12' throughout building, with perimeter patient rooms averaging 10'-11' depths and 8' widths. Windows are single glazed, majority of floors are terrazzo with turned up terrazzo base. Building height exterior sun porch elements have been built onto rear facades of 2 wings. Most ceilings have been lowered to accommodate hvac (but pulled back from windows), historic ceilings are at 11'-12' with the exception of the lower level which is 9'. Building has partial sprinkler system. Potential for adaptability (residential, small office, educational) is good but will have some challenges, due to exceptionally wide historic corridor width and small patient room sizes.

**BATES (CONTRIBUTING)**
Existing use: storage, sewing, office
Existing building is in excellent condition, 1 primary floor with 2 sections having a second entire story. Building is built into hill with partial walk out lower level on east facade. Load bearing exterior masonry walls, few interior load bearing elements, mixed floor finishes, and single glazed windows. Many ceilings have been lowered to accommodate hvac (but pulled back from windows), historic ceilings are generally at 10'-12'. Patchwork of distinct buildings and intermediate connector elements. Sun porches (some enclosed) are on both the east and west facades of the building. Building does not have sprinkler system. Potential for adaptability (residential, office, assembly, retail) is good.

**DINING (CONTRIBUTING)**
Existing use: dining, recreation
Existing building is in excellent condition, 1-story, and is connected to the Thomas Building on its eastern façade and has a 1-story ramped addition (not ADA compliant) to Scroggs on its north façade. The primary volume is 48'x92', has interior columns, and is subdivided with non-structural partial height partitions. Historic ceiling height is 13'-6". Potential for building adaptability (office, retail, assembly) is good due to open plan of structural system and number of exterior windows.

**HARPER (CONTRIBUTING)**
Existing use: patient rooms
Existing building is in excellent condition. 3 full stories with a 4th smaller story. Building is built into hill with walk-out lower level on west façade. A 1-story addition on its northeast wing connects it with the dining building. Load bearing exterior masonry walls with load bearing interior corridor walls (18" thickness). Corridor widths are 11'-12' throughout building, with perimeter patient rooms averaging 10'-11' depths and 8' widths. Windows are single glazed, majority of floors are terrazzo with turned up terrazzo base. Building height exterior sun porch elements have been built onto perimeter facades. Most ceilings have been lowered to accommodate hvac (but pulled back from windows), historic ceilings are at 11'-6" on floors 2 and 3, and 9'-10' on floors 1 and 4. Building does not have sprinkler system. Potential for adaptability (residential, small office, educational) is good but will have some challenges, due to exceptionally wide historic corridor width and small patient room sizes.

**HOOPER (NON CONTRIBUTING)**
Existing use: storage, campus kitchen
Existing building is in excellent condition. 1-2 stories set into hill, lower story is walk-out.
F1 slab on grade, F2 cast concrete beams and joists, roof structure open web steel joists supported by steel beams, primarily open plan w/ columns, with the exception of some office area and a large



BELK architecture
Adaptive Reuse • Historic Preservation • Master Planning • Interior Architecture • Environmental Graphics • Sustainable Design
735 Ninth Street Durham, NC 27705 p: 919 .286 .2575 f: 919 .286 .1906 www.belkarchitecture.net

commercial kitchen. Deep floor plan with windows and/or door openings on all elevations. Bottom of floor and/or roof deck is 12'-15' depending on location. Building has a partial sprinkler system. Potential for adaptability (educational, office, storage) is good but will have some challenges, due to the depth of floor plan and difficulty getting natural light into center of building.

**SAUNDERS (TB Ward) (did not tour) (CONTRIBUTING)**

**SCROGGS**
Existing use: patient rooms
Existing building is in excellent condition. 3 stories (1st is partially below grade) with a smaller 4th story mechanical attic (36'x60') over central core of building. A 1-story addition on its south end connects it with the dining building. Load bearing exterior masonry walls with load bearing interior corridor walls (13" thickness). Corridor widths are 11'-12' throughout building, with central core patient rooms averaging 10'-11' depths and 7' widths, and larger activity rooms (22'x61') on the north and south ends of the building. Windows are single glazed, majority of floors are terrazzo with turned up terrazzo base. Exterior sun porch elements have been built onto central patient room facades on stories 2 and 3. Ceiling portions have been lowered to accommodate hvac (but pulled back from windows), historic ceilings are between 9' and 10' depending on floor. Building does not have sprinkler system. Potential for adaptability (residential, small office, educational) is good but will have some challenges, due to exceptionally wide historic corridor width and small central patient room sizes.

**SOUTH (CONTRIBUTING)**
Existing use: abandoned, could not gain access.
Existing building is in fair condition. 2-stories built into hillside with lower story walkout. Historic roof is collapsed in some areas due to water infiltration and wood rot. Exterior masonry walls appear to be in good condition, most historic windows remain intact. Location of building and apparent rationality of plan make potential adaptability very good, despite roof repairs (and likely some floor/structural) that would be required with a renovation.

**THOMAS (CONTRIBUTING)**
Existing use: wellness center, pharmacy
Existing building is in good condition, 1-story, and is connected to the dining building at its northwest corner. Historic roof has been removed and replaced with a flat roof, many historic windows have been replaced with modern window systems, only historic masonry walls and some historic windows remain. Interior consists of a wellness center (66'x40', 10'-6" hard ceiling ht.), a collection of smaller restroom and shower rooms, and a pharmacy (88'x40', 10' lay-in ceiling ht.). Potential for building adaptability (office, retail, assembly) is good due to open plan of structural system and number of exterior windows. Could have potential conflicts with site design (sits in potential campus axis). Much of building's historic fabric has been lost, making historic rehabilitation of this building potentially difficult.

**JONES (NON CONTRIBUTING)**
Existing use: Patient medical support, staff offices and limited patient rooms.
The existing building is in structurally sound shape with a flat rubber roof in good condition. The building is 104,000 SF and seven stories tall with the upper stories stepping back on the wings. The building is ca. 1950 and has outdated MEP systems. There is not a fire sprinkler system. The center corridor is 8 feet wide and has a low concealed spline ceiling with utilities above. This corridor ceiling chase is similar to the building's original design. The structure is steel frame with concrete floors and clay tile w/plaster interior partitions. The low floor to floor height will hamper new system installation. ADA code improvements will be required throughout. The exit stairs are not compliant with modern code requirements. Although reasonably adaptable to dormitory residential and/or office use, the building is non-contributing within the National Register Listing and sits tightly within the courtyard area at the center of Avery and hampers flexible improvements of the site core.

**MARSH (CONTRIBUTING)**
Existing use: Not currently in use.
The existing building is structurally sound and ca. 1920 with a flat rubber roof in good condition. The building is 15,800 sf and the original (load bearing) layout included a center core (original kitchen) with a monitor roof with clerestory windows. The center core is wrapped by a 24 feet wide open use room on three sides. A large screened porch is on the left side. All MEP systems appear outdated and the building does not have a fire sprinkler system. The floor layout provides flexible future use potential as event, recreational, support spaces.

**REECE (CONTRIBUTING)**
Existing use: Currently used as art, music, craft and other special activities.
The existing building is structurally sound and ca. 1913 with a hipped, slate tile roof. The floor layout has (within the original load bearing plans) large open rooms at each end of the building with smaller rooms (9 ft. x 11 ft.) lining the connecting 10 ft. wide corridors. The structural system is load bearing masonry walls with steel framing and concrete floors. All MEP systems need replacement and the building does not have a fire sprinkler system. Full ADA accessibility improvements must be put into place. The layout's large end room potential would allow adaptability as educational, office, and small event/training spaces.

**LAUNDRY (CONTRIBUTING)**
Existing use: Currently used by the NC Department of Corrections as an operating laundry/sewing facility
The existing one and one half floor, ca. 1939 building is structurally sound with functional MEP systems for the light industry activities. All new systems would be needed for any change of use. The laundry is fully equipped with relatively new equipment. The laundry and sewing operations are staffed with correctional department inmates. The building would be relatively adaptable for a range of uses and future site uses may find this operation of concern.

**STEAM PLANT (CONTRIBUTING)**
Existing use: This facility provides all steam needs for the full campus.
The existing ca. 1939 building is structurally sound and features art-deco details and very large multi-lite steel hopper windows. The interior is occupied by four ca. 1950 boilers within an open three story high room. If this facility is decommissioned and separate systems be installed across the campus, this dramatic space lends itself to a destination hospitality/recreation use.



BELK architecture
Adaptive Reuse • Historic Preservation • Master Planning • Interior Architecture • Environmental Graphics • Sustainable Design
735 Ninth Street Durham, NC 27705 p: 919 .286 .2575 f: 919 .286 .1906 www.belkarchitecture.net

# Broughton Preliminary Areas

| | floor | GSF est. | NSF est. | Built |
|---|---|---|---|---|
| **Avery** | 0 | 90,049 | 47,250 | 1875 |
| | 1 | 90,049 | 47,250 | |
| | 2 | 88,462 | 46,268 | |
| | 3 | 57,955 | 31,765 | |
| | 4 | 5,970 | 3,513 | |
| | 5 | 4525 | 2356 | |
| **Bates** | 1 | 32,657 | 26,125 | 1924 |
| | 2 | 15,062 | 11,171 | |
| **F2 Dining** | 1 | 7,347 | 5,877 | |
| **Harper** | 1 | 13,000 | 6,203 | 1903 |
| | 2 | 13,000 | 6,203 | |
| | 3 | 13,000 | 6,203 | |
| | 4 | 7,752 | 2,915 | |
| **Hooper** | 1 | 24,967 | 19,973 | 1960 |
| | 2 | 24,967 | 19,973 | |
| **Laundry** | b | 8,787 | 7,028 | 1939 |
| | 1 | 11,685 | 9,384 | |
| **Machine Shop** | 1 | 5,190 | 4,152 | 1939 |
| **Marsh** | 1 | 13,740 | 10,992 | 1935 |
| **Moran** | b | 8,621 | 6,896 | 1940 |
| | 1 | 8,621 | 6,896 | |
| **Nurses Dorm** | 1 | 12,377 | 7,180 | 1950 |
| | 2 | 12,377 | 7,180 | |
| | 3 | 12,377 | 7,180 | |
| **Reece** | 1 | 7,761 | 3,783 | 1913 |
| | 2 | 7,761 | 3,783 | |
| **Saunders** | b | 3,460 | 2,700 | 1939 |
| | 1 | 7,312 | 4,892 | |
| | 2 | 7,312 | 4,892 | |
| **Scroggs** | 1 | 6,292 | 3,714 | 1896 |
| | 2 | 6,292 | 3,714 | |
| | 3 | 6,292 | 3,714 | |
| | 4 | 2,215 | 969 | |
| **South** | b | 5,830 | 4,664 | 1906 |
| | 1 | 5,830 | 4,664 | |
| **Steam Plant** | 1 | 9,309 | 7,231 | 1939 |
| **TOTAL** | | 658,203 | 398,653 | |

# North Carolina School for the Deaf Campus Building Survey

*Note: Building areas provided by NCSD and are not field verified*

**MAIN BUILDING (CONTRIBUTING)**

| 86,167 | 52,259 | 1894 |
|---|---|---|
| gross | net | built |

SPRINKLERS

Similar to Goodwin. 4 story, load bearing masonry walls, interior columns, classroom subdivisions. Could be adapted to residential, corridors 7'-8', not as wide as Avery, better efficiency. Large Auditorium in central wing that would need to be preserved.

**HOEY BUILDING (CONTRIBUTING)**

| 22,620 | 14,150 | 1939 |
|---|---|---|
| gross | net | built |

SPRINKLERS

3 story, load bearing exterior masonry walls, interior columns, classroom subdivisions. No major impediments outside of typical historical guidelines to repurposing as residential, generous large windows.

**OLD GYM AND POOL (CONTRIBUTING)**

11,692 10,800 1924

NO SPRINKLERS

3 story, load bearing exterior masonry walls, some subdivision for offices on floors 0 and 1, large room w/ existing pool. Plans in works to renovate into Therapy Rooms and support offices. Could be somewhat problematic renovating into all residential due to large pool room (should not subdivide in tax credit scenario).

**RONDTHALER HALL (CONTRIBUTING)**

| 12,765 | 11,165 | 1928 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS

3 story, load bearing exterior masonry walls, interior column structure, non-bearing block partitions. Subdivided into large classrooms and support rooms. Would adapt well to residential, large windows. Cast concrete floor system could be problematic w/ introduction of apartments.

**SERVICE BUILDING (LAUNDRY) (CONTRIBUTING)**

| 27,054 | 24,699 | 1916 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS

1 story (2-3-story wings on ends), load bearing exterior masonry walls, interior column and load bearing wall structure, some large open span rooms. Array of distinct structural bays (Laundry, IT, offices, boilers) and large mechanical attics. Could be repurposed into residential, flats and townhomes.

**CATTLE BARN (CONTRIBUTING)**

| 10,296 | 9,128 | 1940 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS

Large gambrel roofed barn, 2 stories (basement typical ht, barn story 25-30' high). No plans, appears to be a mixture of masonry and wood structure with regular window openings on first level. Wood structure appears to be intact, some siding replacement needed. Roof overdue for replacement.



BELK architecture
Adaptive Reuse • Historic Preservation • Master Planning • Interior Architecture • Environmental Graphics • Sustainable Design
735 Ninth Street Durham, NC 27705 p: 919 .286 .2575 f: 919 .286 .1906 www.belkarchitecture.net

**Infirmary (ContributinG)**

| 7,230 | 3,813 | 1969 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS

No Plans, 2 stories w/ partial basement. Load bearing exterior masonry walls with mixture of load bearing interior walls and columns. Currently Audiology labs and offices, small to medium sized rooms off a central corridor. Would adapt well to residential or wellness center. Generous windows, but piecemeal floorplan may impact efficiency of residential due to lack of repetition.

**JOINER HALL (CONTRIBUTING)**

| 20,873 | 11,648 | 1930 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS

3 story, no plans. Likely load bearing masonry walls, interior columns, classroom subdivisions. Large generous windows, would adapt well to residential use. Some exterior envelope damage due to water infiltration, will require some wall and window repair/replacement.

**GOODWIN HALL (CONTRIBUTING)**

| 41,237 | 27,731 | 1911 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS

3 story, Load bearing exterior masonry walls with interior load bearing walls and columns. Apartment and large multi-bed dormitory rooms, support spaces, would adapt well to residential use.

**RUSMISELL HOUSE (CONTRIBUTING)**

| 7,495 | 7,227 | 1880 |
|---|---|---|
| gross | net | built |

No plans, unable to get inside, large residential house. Appears to be in good shape from outside inspection. Likely could preserve residential use w/ subdivision, or adaptable into wellness program.

**STAFF HOUSE (CONTRIBUTING)**
**STORAGE 1 (CONTRIBUTING)**
**Storage 2 (ContributinG)**

These small contributing buildings (south of Barn Road) are in poor shape and are likely beyond the point of successful rehabilitation.

***NON-CONTRIBUTING BUILDINGS:***

**JOINER WAREHOUSE**

| 4,469 | 4,034 | 1961 |
|---|---|---|
| gross | net | built |

No plans, 2 story. Likely load bearing masonry walls, interior columns. No windows.

**MCCORD BUILDING**

| 16,654 | 13,904 | 1967 |
|---|---|---|
| gross | net | built |

No Plans, Likely load bearing exterior masonry walls with mixture of load bearing interior walls and columns. No window openings, 300 spectators.

735 Ninth Street Durham, NC 27705 p: 919 .286 .2575 f: 919 .286 .1906 www.belkarchitecture.net

**CHAPEL**

| 7,238 | 5,235 | 1974 |
|---|---|---|
| gross | net | built |

Load bearing exterior masonry walls with interior open span glulam beam structure and support spaces. Seating for 200.

**UNDERHILL GYM**

| 22,821 | 18,402 | 1953 |
|---|---|---|
| gross | net | built |

2 story, no plans. Likely load bearing exterior masonry walls with mixture of load bearing interior walls and columns, with large free-span gymnasium area.
400 spectators

**NORTHCOTT HALL**

| 16,766 | 12,756 | 1973 |
|---|---|---|
| gross | net | built |

NO SPRINKLERS
2 story, no plans. Load bearing exterior masonry walls with mixture of load bearing interior walls and columns. Relatively few window openings, garage bay doors opening to south.

**CRUTCHFIELD HALL**

| 13,766 | 8,991 | 1971 |
|---|---|---|
| gross | net | built |

Open floor plan with interior columns, some smaller perimeter rooms. 1 story masonry, windowless

**HOFFMEYER HALL**

| 38,780 | 26,584 | 1959 |
|---|---|---|
| gross | net | built |

3 story residence hall. Load bearing exterior masonry walls, interior column structure. Subdivided into dorm rooms support rooms.

# STRUCTURAL ASSESSMENT

STEWART

**Structural Narrative**

**Overview**

Construction of the Broughton Hospital complex spanned several decades, and a multitude of buildings comprise those targeted for reuse. Accordingly, there is variation in framing techniques and materials used to construct the buildings. The key, contributing buildings to the Broughton Campus, however, are similar in composition.

Because of the number of buildings present, only general recommendations and observations can be made. Uniformly, all reuse of the current buildings must conform to the *2015 North Carolina Existing Building Code*, which extensively references the *2012 North Carolina State Building Code*. The *Existing Building Code* establishes tiers for addition, alteration, or change in use based on the magnitude of changes contemplated. The tier that a building is grouped into determine the level of conformity that the existing structure must achieve with the current building code. Where changes are extensive, the buildings' structures will need to meet all requirements of current codes. Conversely, where changes are minimal, all that may be required are repairs to damaged members.

**Existing Construction**

The majority of structures present on site that are slated for reuse were originally constructed with masonry bearing walls and wood floors. During the middle years of the Twentieth Century, the wood framing was largely replaced by concrete floors. The concrete was cast on metal lathe over open webbed, steel bar joists. It is unclear why this change was made. It is possible that the wood framing deflected downward in the five decades from the time of construction to the time of the reframing, and the wood was replaced for serviceability concerns. The State of North Carolina also adopted its first building code contemporaneously with the switch from wood to steel, and the change may have been an effort to house the hospitals' clients in, modern, non-combustible construction that met the newly adopted building code.

**Suitability of Gravity Load Resisting Systems**

Regardless of the rationale for the change in framing, the concrete and bar joist floors represent a relatively modern method of floor framing. While most areas are covered by finish materials, where it is possible to observe the floor system, the properties of the floors are determinable, and it's apparent that the structure was designed to accommodate those loads found in the first edition of the North Carolina Statewide Building Code. The visible portions of structure display few signs of distress or deterioration.

Building codes have advanced in the intervening years, but the gravity loads have remained largely consistent. Except for proposed areas of unusually heavy loading, it is likely that the existing steel and concrete floors are sufficiently robust to accommodate new uses.

Portions of the earliest buildings also contain some remnants of wood framing. Where extensive renovations are anticipated within a building, the wood framing will need to come into compliance with current building codes. Extensive investigations will be required to determine the framing geometry, the connection details, and appropriate material values for the woods used in the buildings. Portions of deficient framing will require augmentation.

**Suitability of Lateral Load Resisting Systems**

Where building codes have evolved most significantly is in the area of lateral force resistance. Lateral forces are generally generated from either wind loads or seismic events. As recently as 1991 when the State transitioned from the *1976 North Carolina State Building Code*, lateral loads were given only cursory attention in North Carolina.

Currently the buildings rely upon plain, meaning unreinforced, masonry shear walls. These shear walls have adequately resisted lateral loads to present. However, pending a site specific geotechnical investigation, these walls may not be a permissible lateral force resisting system under the current building code.

The masonry shear walls are also spaced very closely together. In Avery Building for example, the walls occur between each client room. The frequency of these walls would tend to make space difficult to allocate within the buildings, and removal of some of the walls should be anticipated.

Where alterations to the buildings are planned or where walls will be removed, the entire lateral system will need to be examined and brought up to current building codes. Although to date the shear walls have successfully served these buildings, it is unlikely that the walls could resist the forces prescribed by modern design codes.

New shear walls or braced frames may be inserted into the buildings' framing systems to accommodate the code loads. Allowance for new micro-piles foundations should be made below the new lateral force resisting elements. Micro piles should are anticipated because any new foundations must be unyielding, since the surrounding building is unlikely to settle further.

**Summary**

Although new lateral force resisting systems are anticipated, this is not an unusual occurrence where existing buildings are renovated. Each of the buildings will require extensive structural investigation and analysis, should the project advance. However, no condition observed to date would preclude the reuse of the buildings on the Broughton site.



421 FAYETTEVILLE ST. SUITE 400 RALEIGH, NC 27601 **T** 919.380.8750 **F** 919.380.8752

421 FAYETTEVILLE ST. SUITE 400 RALEIGH, NC 27601 **T** 919.380.8750 **F** 919.380.8752

## Broughton Hospital - PME Site Investigation

Site Visit: Monday, October 19, 2015
Mechanical: Brett Mabe, P.E.
Electrical: Rick Copeland, P.E.
Plumbing: Danny Brush, P.E.

## General Campus Findings:

- Mechanical: The central steam plant serves the majority of the buildings on the Broughton Campus. Steam lines extend out from the plant through a network of tunnels to the buildings. Tunnel routing is well represented in the Fire Protection Waterline Project drawing set from 1984. There are three main chiller plants on campus. The first chiller plant is located between the steam plant and the Jones Building and it is dedicated to the Jones Building. The second is located at the North end of the Avery Building and it is dedicated to the Avery Building. The first two chiller plants have interconnecting piping in the tunnel between Avery and Jones which allows them to switch over if needed. The third chiller plant is located at the rear of F-2 Dining and it serves F-2 Dining, Thomas, Scroggs and Harper Buildings. Several buildings have stand alone systems that will be discussed under each building description.
- Plumbing: Buildings on Broughton Campus have similar plumbing systems throughout. Most systems are dated, including fixtures. Domestic cold water is distributed throughout the campus below grade and separate from the fire service. Domestic water pressure appears to be ample. 83 psi was displayed on a gage at the cooling tower adjacent to Saunders. Also, Jones, the tallest building on campus, does not have any pressure boosting system, indicating sufficient pressure to serve the highest fixtures. All buildings receive independent domestic cold water service, but not all buildings are currently served by a backflow preventor. Those that are have not been regularly tested and serviced. Domestic hot water is centrally produced at the steam plant and distributed to all buildings via the campus tunnel system. Sanitary waste serves all buildings separately and no grease interception exists. Fixtures generally are institutional or health care type fixtures with flush valves and manual faucets. Many of the fixtures would not meet today's ADA requirements. Piping that was accessible to observe was copper for water service and cast iron for sanitary waste. Insulation types varied, likely dependant on era of installation.

## Power House Building Findings:

Crenshaw Consulting Engineers, Inc.
3516 Bush St. Suite 200
Raleigh, NC 27609 P:919.871.1070
www.crenshawconsulting.com F: 919.871.5620

Crenshaw Consulting Engineers, Inc.
3516 Bush St. Suite 200
Raleigh, NC 27609 P:919.871.1070
www.crenshawconsulting.com F: 919.871.5620

- Mechanical: This building houses the steam boilers for the campus. There are four duel fuel, water tube boilers. The primary fuel source is natural gas and the secondary fuel source is #2 fuel oil. There are two existing fuel storage tanks with plans for a third. Two of the boilers were manufactured in 1950 and two were manufactured in 1953. One of the boilers is no longer in operation. Facilities personnel stated that one boiler could carry the campus unless outdoor conditions were extremely cold. Steam and condensate piping are aging and condensate piping has significant leaks.
- Electrical: This building is served by a 225 kVA, 480 V, PMT. There is an existing 800 amp service. A portion of this building is backed up by an optional standby Generator. The Generator is a Cummings, 275 kW, 480V unit that has a 400 amp output breaker. We understand that the state maintains the generator and ATS well and would assume these components would be fine for reuse. The existing main electrical panel and interior meter are relatively new and could easily be reused in the future. Most of the downstream equipment is old and we would likely recommend it be replaced- depending on the future use.
- Plumbing: This building is served by domestic cold water for steam makeup and domestic hot water production. The domestic hot water is produced via two steam powered hot water generators. Two end suction pipes serve the hot water system. The pumps and hot water generators appear to be advanced in age and likely at the end of their expected service life. Fixtures observed included floor drains, sinks, and water coolers.

## Chiller Building (Jones) Findings:

- Mechanical: This building houses a single, water-cooled chiller manufactured by Carrier in 2013. The chiller has screw compressors, R-134a refrigerant and has a nominal capacity of 265 tons. Chilled water is distributed to the building in a primary/secondary pumping scheme with lead/lag pumps for each loop. Condenser water pumps are also lead/lag. All pumps were manufactured in 1999. The cooling tower for the chiller is located on a ground mounted pad at the rear of the Saunders building. The cooler tower is a crossflow, two-cell open tower manufactured by Marley in 1999. The tower has a nominal capacity of 600 tons. It appears that the tower was sized for a possible addition of a second chiller. There are also piping connections and space for a second chiller and pumps in the chiller building. All equipment appears to be in good working order.
- Electrical: This building is served by a 1000 kVA, 480 V, PMT. Meter number 077551417. There is an existing 1200 amp service panel, a 75 kva step-down transformer, a 500 amp motor control center, and 2-225A distribution panels. The existing electrical equipment is relatively new and could easily be reused in the future- depending on the future use. The

cooling tower has a 600 amp, 480 V, electrical service. We assume this is fed underground from one of the nearby PMTs- possibly shared with the Power House.

- Plumbing: Domestic water in this building serves makeup to the chilled water system. The building is served by an RPZ type backflow preventor. A pressure gage on the incoming domestic water displayed 55 psi. There are a number of domestic water drops to below slab that appear to prime the traps of various floor drains in the space. Fixtures observed include a service sink and floor drains.

## Chiller Building (Avery) Findings:

- Mechanical: This building houses two, water-cooled chillers manufactured by Carrier. The first chiller was manufactured in 2002 and has centrifugal compressors, R-11 refrigerant and a nominal capacity of 454 tons. The second chiller was manufactured in 1983 and has centrifugal compressors, R-11 refrigerant and a nominal capacity of 250 tons. Chilled water is distributed to the building in a primary only pumping scheme. Condenser water pumps are dedicated to each chiller. Each chiller has it's own dedicated cooling tower located on the roof of the building. The first tower was manufactured by Baltimore Aircoil Company in 1989 and serves the 2002 chiller. The second tower was manufactured by Marley in 1983 and serves the 1983 chiller. Most equipment is well into or beyond it's normal service life with the possible exception of the 2002 chiller.
- Electrical: The Avery Chiller appears to be served by the nearby 1000 kVA, 480 V, PMT. Meter number 077551420.There is an existing 1200 amp, 480 V electrical service. The existing electrical equipment is old.
- Plumbing: Domestic water in this area serves makeup to the chilled water system.

## Chiller Building (F-2 Dining) Findings:

- Mechanical: This building houses a single, water-cooled chiller manufactured by Carrier in 1973. The chiller has centrifugal compressors, R-11 refrigerant and has a nominal capacity of 250 tons. Chilled water is distributed to the building in a primary only pumping scheme. The cooling tower for the chiller is located on the roof of the chiller building. The cooler tower is a crossflow, single-cell, open tower manufactured by Evapco in 2002. The tower has a nominal capacity of 256 tons. The tower is in good shape but all other equipment is well beyond its service life.
- Electrical: There is a chiller plant near the building that has its own 600 amp, 480V service. We assume this is fed underground from one of the nearby PMTs.
- Plumbing: Domestic water in this area serves makeup to the chilled water system.

## Avery Building Findings:





CRENSHAW CONSULTING engineers www.crenshawconsulting.com

- Mechanical: The Avery Building appears to have undergone a major mechanical renovation in 1989. The building is served by air handling units located in mechanical rooms on each floor. The units have ducted supply and return air. The units have chilled water and hot water coils. All units are provided with ventilation air. There are steam to hot-water converters located throughout the building along with chilled and hot water pumps. Facilities noted that they have significant moisture issues in the basement areas and several dehumidifiers were present in the unoccupied portions. Most systems appear to be in good working order.
- Electrical: The Avery Building has 3 electrical services: South, Central, and North electrical services as well as a separate service for the Avery Chiller. There is an existing Edwards fire alarm system in the building. The system is very old and fire alarm in the building does not meet today's code. We would recommend replacing the system.
  *The South electrical* service is served by a 300 kVA, 480 V, PMT. Meter number 077551414. There is an existing 1000 amp service, and ATS, and a 400 kva and a 150 kva step-down transformers. A portion of this building is backed up by a Generator. The Generator is a Cummings, 600 kW, 480V unit. We understand that the state maintains the generator and ATS well and would assume these components would be fine for reuse. The existing electrical equipment is old and we would likely recommend it be replaced-depending on the future use.
  *The Central electrical* service seemed to be fed from the South electrical service, though Bruce said it was a separate service. Further investigation would be required to be sure either way.
  *The North electrical* service is served by a 300 kVA, 208 V, PMT. There is an existing 1000 amp service, and ATS, and a 300 amp disconnect for the generator. A portion of this building is backed up by a Generator. The Generator is a Kohler, 80 kW, 208V unit. We understand that the state maintains the generator and ATS well and would assume these components would be fine for reuse. The existing main electrical equipment is relatively new and could easily be reused in the future.
- Plumbing: Plumbing fixtures were generally in fair condition, in occupied spaces, and varied from fair to poor in unoccupied areas. Fixtures included typical bathroom and break room type fixtures with tamper proof trim; flush valve water closets, urinals, lavatories, floor drains, sinks, and water coolers.

## Employee Cafeteria Building Findings:

- Mechanical: We did not survey this building. We assume that it is conditioned similar to the Avery Building.

Crenshaw Consulting Engineers, Inc.
3516 Bush St. Suite 200
Raleigh, NC 27609 P:919.871.1070
www.crenshawconsulting.com F: 919.871.5620

- Electrical: We did not survey inside the Employee Cafeteria building but assume that the building is fed (electrically) from the Avery Building. We assume from Avery Central.
- Plumbing: We did not survey this building. Facilities personnel stated that there is no grease interception serving the commercial kitchens.

## Commissary/Marsh Building Findings:

- Mechanical: The Marsh Building is served by a multi-zone air handling unit with steam and chilled water coils. The unit is not in operation and is in poor shape.
- Electrical: There is an existing 225 amp service panel and a 75 kva step-down transformer The existing main electrical equipment is relatively new and could easily be reused in the future- depending on the future use.
- Plumbing: The Marsh Building was not in service during the MEP walkthrough. Plumbing fixtures were generally in poor condition. Fixtures included typical bathroom and break room type fixtures, as well as group showers to suggest a locker room function at some time; flush valve water closets, urinals, lavatories, group showers, floor drains, sinks, and water coolers.

## Bates Building Findings:

- Mechanical: This building has steam heat and chilled water cooling. Steam is provided from the central plant and chilled water is provided by a stand-alone, air-cooled, chiller. The chiller was manufactured by Trane in 1998 and has screw compressors, R-22 refrigerant and a nominal capacity of 80 tons. Multi-zone air handling units are located on each floor in mechanical rooms. There is an individual split-system unit for one portion of the building. The unit was manufactured by Trane in 2006 and has a nominal capacity of 10 tons.
- Electrical: The Bates Building has 2 electrical services: one is located in the center and one to the north: we will call these Bates Central and Bates North for purposes of this report. The building has 2 existing Pyrotronics fire alarm control panels. These are old, conventional systems that we would like recommend replacing. It is possible that they could be reused. Pyrotronics was bought out by Siemens in the late 90's.
  *The Central electrical* service is comprised of an existing 350 amp disconnect, a 112.5 kva step-down transformer, a 400 amp normal panel, a 400 amp ATS, and a 400 amp emergency panel. It is likely that this "service" is fed from the north electrical service. The main electrical equipment is relatively new and could easily be reused in the future- depending on the future use.
  *The North electrical* service is served by a 300 kVA, 480 V, PMT. Meter number 077551416. There is an existing 600 amp service panel, 400 amp disconnect, a 112.5 kva step-down transformer, a 400 amp ATS, and a 400 amp emergency panel. A portion of this service appears to be backed up by a Generator. The Generator is a Cummings, 230 kW, 480V unit. We understand that the state maintains the generator and ATS well and would assume these components would be fine for reuse. The main electrical equipment is old and we would likely recommend replacement. Some of the gear in the main electrical room is relatively new and could easily be reused in the future- depending on the future use. Again, it is likely that the North electrical service feeds the Central electrical "service" but further investigation would be required.
- Plumbing: Plumbing fixtures were generally in fair condition. Fixtures included typical bathroom and break room type fixtures; flush valve water closets, urinals, lavatories, floor drains, sinks, and water coolers.

## Reece Building Findings:

- Mechanical: We did not survey this building. The building has steam radiators and no central cooling. Window mounted air conditioning units are used for cooling.
- Electrical: We did not survey inside the Reece building but were told by Bruce that the Reece building is fed (electrically) from the Avery Building. We assume from Avery South.
- Plumbing: We did not survey this building.

## Harper Building Findings:

- Mechanical: This building is served by multi-zone air handling units with steam and chilled water coils. Units are located in mechanical rooms on each floor. Units are provided with ventilation air.
- Electrical: This building is served by a 500 kVA, 480 V, PMT. Meter number 077551384. There is an existing 400 amp disconnect, a 112.5 kva step-down transformer, a 400 amp ATS, and a 400 amp emergency panel. The service appears to be backed up by a Generator. The Generator is a Cat, 335 kW, 480V unit. We understand that the state maintains the generator and ATS well and would assume these components would be fine for reuse. The main electrical equipment is old and we would likely recommend replacement.
  The building has an existing Pyrotronics fire alarm control panel. This is an old, conventional systems that we would like recommend replacing. It is possible that it could be reused. Pyrotronics was bought out by Siemens in the late 90's.
- Plumbing: Plumbing fixtures were generally in fair condition. Fixtures included typical bathroom and break room type fixtures with tamper proof trim as well as healthcare type fixtures; flush valve water closets, urinals, lavatories, floor drains, sinks, water coolers, bath/shower systems, etc.


Crenshaw Consulting Engineers, Inc.
3516 Bush St. Suite 200
Raleigh, NC 27609 P:919.871.1070
www.crenshawconsulting.com F: 919.871.5620

## Scroggs Building Findings:

- Mechanical:This building is served by multi-zone air handling units with steam and chilled water coils. Units are located in a central penthouse. Units are provided with ventilation air.
- Electrical: This building is served by a 75 kVA, 208 V, PMT. Meter number 077551418. There is an existing 600 amp service. The building has an existing Pyrotronics fire alarm control panel. This is an old, conventional systems that we would like recommend replacing. It is possible that it could be reused. Pyrotronics was bought out by Siemens in the late 90's.
- Plumbing: Plumbing fixtures were generally in fair condition. Fixtures included typical bathroom and break room type fixtures with tamper proof trim as well as healthcare type fixtures; flush valve water closets, urinals, lavatories, floor drains, sinks, water coolers, bath/shower systems, etc.

## Jones Building Findings:

- Mechanical:This building is served by multi-zone air handling units with steam and chilled water coils. Units are located in mechanical rooms on each floor. Units are provided with ventilation air. Units utilize a return air plenum.
- Electrical: This building is served by a 500 kVA, 208 V, PMT. Meter number 077551422. There is an existing 2000 amp service main panel, a 1200 amp panel, a 600 amp ATS (delayed transfer), and a 400 amp ATS (emergency). The existing 1200 amp panel and ATSs are relatively new and could easily be reused in the future- depending on the future use. The 2000 amp panel is old and we would recommend replacement. There is an existing Caterpillar generator (225 kva?) that backs up portions of this building. The generator could also be reused. The building has an existing Simplex 4100 fire alarm control panel. This is an old, conventional systems that we would like recommend replacing. It is possible that it could be reused. The fire alarm system is proprietary.
- Plumbing: Jones, the tallest building on campus, does not have any active pressure boosting system, indicating sufficient pressure to serve the highest fixtures. The lowest level of Jones housed legacy pressure tanks and pumps for both domestic cold water and hot water systems. The tanks and pumps were no longer in service. In the same area, there is access to utility tunnels used for the domestic hot water system distribution. Plumbing fixtures were generally in fair condition. Fixtures included typical bathroom and break room type fixtures with tamper proof trim as well as healthcare and laboratory type fixtures; flush valve water closets, urinals, lavatories, floor drains, sinks, water coolers, stainless steel lab sinks, bath/shower systems, etc.



## Hooper Building Findings:

- Mechanical: This building has steam heat but no central air conditioning system. Steam unit heaters are used for the storage areas. The kitchen is served by ventilation units with steam heat located in a penthouse. Individual split-system units are used to condition several office spaces.
- Electrical: This building is served by a 500 kVA, 208 V, PMT. Meter number 077551385. There is an existing 2500 amp service, an ASCO 7000 ATS, and a 1200 amp distribution section. This building is at least partially backed up by a generator. The enclosure was locked and we were unable to get an additional information on the generator. We understand that the state maintains the generator and ATS well and would assume these components would be fine for reuse. The main electrical panels are relatively new and could easily be reused in the future- depending on the future use. The building has an existing Simplex fire alarm control panel. This is an old, conventional systems that we would like recommend replacing. The fire alarm system is proprietary.
- Plumbing: Hooper houses the main kitchens on campus, and as such, has many commercial kitchen grade plumbing fixtures. All fixtures in use appear to be in good condition. Fixtures included typical bathroom and break room type fixtures as well as commercial kitchen type fixtures; flush valve water closets, urinals, lavatories, floor drains, floor sinks, sinks, water coolers, stainless steel stand alone work surfaces with integral kitchen sinks, three bowl sink, pre-rinse sprayer, commercial grade dish machines (both conveyor and hood type), bath/shower systems, etc.

## Laundry Building Findings:

- Mechanical: This building has steam heat but no central air conditioning system. Steam unit heaters are used throughout. The building has it's own natural gas service.
- Electrical:This building is served by a 225 kVA, 208 V, PMT. There is an existing 800 amp service. Meter number 077551413. The existing electrical equipment is old and we would likely recommend replacing it. The building has an existing Simplex 4010 fire alarm control panel and 2080-9024 booster panel that could be reused. The fire alarm system is proprietary.
- Plumbing: The laundry building has significant plumbing systems serving the commercial washers. The laundry has a steam to hot water generator. There appears to be a preheat system utilizing waste heat from the laundry process. This preheats water fed into the hot water generator. Fixtures included typical bathroom and break room type fixtures as well as commercial laundry fixtures; flush valve water closets, urinals, lavatories, floor drains, service sinks, water coolers.

Crenshaw Consulting Engineers, Inc.
3516 Bush St. Suite 200
Raleigh, NC 27609 P:919.871.1070
www.crenshawconsulting.com F: 919.871.5620

## Gym Building Findings:

- Mechanical: This building has steam heat but no central air conditioning system. Steam is provided through a stand-alone, steam boiler located in the basement. The steam boiler was manufactured by Peerless Boiler in 2011. The gym is served by steam unit heaters and ventilation fans. The classroom area are served by steam radiators.
- Electrical: This building is served by a 75 kVA, 208 V, PMT. Meter number 077551386. There is an existing 600 amp service that is old and we would likely recommend replacement.
- Plumbing: The domestic water service is protected by an RPZ type backflow preventor. Make-up water is provided to a dedicated boiler, including water conditioning. Plumbing fixtures were generally in poor to fair condition. Existing showers were not observable, as they have been blocked off to avoid patient use/tampering. Fixtures included typical bathroom and break room type fixtures with tamper proof trim; flush valve water closets, urinals, lavatories, floor drains, sinks, water coolers, bath/shower systems, etc.

## PME Systems Matrix:

| Building | Electrical Service | Fire Alarm Panel | Plumbing Systems | HVAC Systems |
|---|---|---|---|---|
| Power House | O | X | X | X |
| Chiller Building (Avery) | O | N/A | O | O |
| Chiller Building (F-2) | O | N/A | X | X |
| Avery | O | X | O | O |
| Employee Cafeteria | N/A | N/A | N/A | X |
| Marsh | O | X | X | X |
| Bates | O | O | O | O |
| Reece | N/A | N/A | N/A | X |
| Harper | X | O | O | X |
| Scroggs | O | O | O | X |
| Jones | O | O | O | O |
| Hooper | Y | O | Y | X |
| Laundry | X | O | O | X |
| Gym | X | X | O | O |

X - System needs to be replaced
* For Electrical this means everything except the underground feeder into the building, the PMT, and Generator if applicable. For Fire alarm this means all equipment would need to be replaced.

O - Potential reuse of some system components is possible
* For Electrical this means some of the main distribution equipment and underground feeder into the building, the PMT, and Generator (if applicable) can be reused. All wiring devices and fixtures would be replaced. For Fire alarm this means the main panel could be reused (more information in write up) but likely all notification and SLC devices would need to be replaced.

Y - System easily adapted for reuse
* For Electrical this means all distribution equipment and underground feeder into the building, the PMT, and Generator (if applicable) can be reused. Some/All wiring devices and fixtures could be reused.



Crenshaw Consulting Engineers, Inc.
3516 Bush St. Suite 200
Raleigh, NC 27609
www.crenshawconsulting.com
P:919.871.1070
F: 919.871.5620

# CIVIL ASSESSMENT

STEWART

**Civil Narrative**

**Historic Broughton Campus (Residential School)**

The existing buildings to be rehabilitated in the Broughton Area are serviced by an existing 8-inch water main that provides fire protection and potable water. The existing building water supply will be used to provide potable water and the existing hydrants will provide fire projection.

The Broughton Area is serviced by an existing sanitary sewer network that outlets into the City of Morganton main located in S. Sterling Street. The existing sewer system will be utilized to provide sewer service to the rehabilitated buildings.

The existing stormwater infrastructure will be used or modified as necessary to collect stormwater and direct it away from roads and buildings. The site will be required to meet NPDES Phase II requirements and the City of Morganton Code of Ordinances in place at the time of development.

All existing roadways within the Broughton Area to be milled and overlaid with 1.5-inchs of asphalt. The proposed road connecting the Broughton Area to W Fleming Drive is to be designed and constructed per AASHTO and NCDOT specifications.

**Southeast Site (Hotel)**

New and existing buildings in the County Services area will be serviced by a new water main that will connect to the existing main in College Drive. Both domestic and fire services will be provided off of the new main. The existing fire hydrants along College Drive will be used for fire protection as well as new hydrants as necessary.

Sanitary Sewer service will be provided by extending the existing City of Morganton Sewer main located in Enola Road with a new 8-inch sewer main through the County Services Area.

There is some existing stormwater infrastructure located in the County Services Area but it is not adequate enough for the new development. The stormwater system will need to be upgraded and expanded to accommodate the development. The site will be required to meet NPDES Phase II requirements and the City of Morganton Code of Ordinances in place at the time of development.

The existing College Drive needs to be widened to accommodate two-way traffic. Proposed roads are to be designed and constructed to meet AASHTO and NCDOT specifications.

**Northwest Site (Senior Living)**

Water for the new Senior Living area is to be provided by extending the existing 12-inch that enters the site from W Fleming Dr. The City of Morganton does not have installation information on file and this line may need to be replaced after further investigations. The new waterline will extend through the Senior Living area to provide potable water and fire protection services.

The existing City of Morganton sewer main that is located adjacent to the stream is to be extended northward through the Senior Services area with a new 8-inch sewer main. The new buildings will be provided sewer service through the new main.

New stormwater infrastructure will be provided to collect runoff from the new impervious areas and directed to the existing creek. The site will be required to meet NPDES Phase II requirements and the City of Morganton Code of Ordinances in place at the time of development.

The existing drive off of W Fleming St. will need to be widened to accommodate two-way traffic and turn lanes. All new roads within the Senior Living Area will be designed and constructed to meet AASHTO and NCDOT specifications.



421 FAYETTEVILLE ST. SUITE 400 RALEIGH, NC 27601 **T** 919.380.8750 **F** 919.380.8752

421 FAYETTEVILLE ST. SUITE 400 RALEIGH, NC 27601 **T** 919.380.8750 **F** 919.380.8752

STEWART

**MEMORANDUM**

**DATE:** 3/30/16

**FROM:** Michael Batts, Stewart
Brett Mabe, Crenshaw
Kyle Ramsey, CT Wilson
Eddie Belk, Belk Architecture

**TO:** Peter Cvelich, DFI

**PROJECT:** Broughton Master Plan

**SUBJECT:** Operating Expenses Clarification

---

1. **Operating expenses of the historic Broughton campus as a mothballed, vacant campus**

   - Mothballing assumptions
     - Existing utility systems to remain moderately operational to provide ventilation and minor conditioning of interior space
     - All existing buildings would remain
   - Utility Operating Costs
     - **$0.33/SF per year to carry vacant buildings**
       - data provided by the NC Department of Energy Building Data Book
         - Chapter 3 - Chart shows the energy intensity average (EIA) by building activity.
         - The average for Education / Lodging / Office would be close to 92 kBtu/sf and the average for vacant is 21 kBtu/sf.
         - This leads us to using 21/92 or 23% of the current energy usage for a "mothballed" number.
       - utilities included in operating costs
         - gas
         - electric
         - water
   - Repairs/Maintenance Operating Costs
     - $0.12/SF which is 20% of operating costs for an operational school
     - Data provided by AS&U's 38th Annual Maintenance & Operations Cost Study for Schools

2. **Post-rehab operating expenses of the historic Broughton campus as a boarding school**

   - Utility Operating Costs
     - **$1.51/SF per year**
       - data provided by the NC Department of Energy Building Data Book
         - Chapter 3 - Table 3.3.10 - pg 131 - Chart breaks down energy expenditures by building vintage. May be good to estimate percentage changes from remodel / new.
         - A 5% additional cost was added due to the existing older building's inefficiencies in air-tightness
       - utilities included in operating costs
         - gas
         - electric
         - water
   - Repairs/Maintenance Operating Costs
     - **$0.57/SF per year**
     - Data provided by AS&U's 38th Annual Maintenance & Operations Cost Study for Schools

3. **New construction operating expenses of a boarding school**

   - Utility Operating Costs
     - **$1.43/SF per year**
     - data provided by the NC Department of Energy Building Data Book
       - Chapter 3 - Table 3.3.9 - pg 131 - Chart shows average energy expenditures per building type in dollars/sf
       - utilities included in operating costs
         - gas
         - electric
         - water
   - Repairs/Maintenance Operating Costs
     - **$0.57/SF per year**
     - Data provided by AS&U's 38th Annual Maintenance & Operations Cost Study for Schools



STRONGER BY DESIGN

421 FAYETTEVILLE ST. SUITE 400 RALEIGH, NC 27601 **T** 919.380.8750 **F** 919.380.8752

# 5 BROUGHTON HOSPITAL HISTORY

# HOSPITAL HISTORY

North Carolina opened its first asylum, in Raleigh, in 1856.[1] That first asylum, which had been proposed by Governor John Motley Morehead in 1842, was not realized until Dorothea Dix appealed to state legislators in 1848, following 10 weeks observing the conditions of the mentally ill around the state.[2]

The Raleigh facility was soon overcrowded, and legislators voted in 1875 to construct a new asylum—the Western North Carolina Insane Asylum—to serve the western part of the state.[3] Though the cities of Statesville, Hickory, Asheville, and Morganton all tried to secure the facility, it was Morganton's offer of sufficient money and as much land as might be required that swayed the joint committee of the General Assembly into locating the asylum in Morganton.[4]

The main building, now known as Avery Building, was designed by Samuel Sloan. Sloan was an architect of national prominence who, in addition to several asylums around the country, designed the North Carolina executive mansion and the University of North Carolina at Chapel Hill's Memorial Hall. Sloan was personally recommended for the job by Thomas Kirkbride,[5] a pioneer in the design of psychiatric facilities.

Kirkbride designed asylums to facilitate such therapeutic treatment, and his plans valued both siting and layout. His asylums were to be grand buildings in beautiful areas. He favored building in rural, instead of urban, areas to give patients access to better airflow and cleaner air than they would have in congested cities. A rural setting, he believed, could also positively influence the spiritual and physical health of patients: siting an asylum atop a hill would encourage exercise and exertion.[6] All this counteracted the pressure inherent in urban living, which he and many other doctors saw as a cause of mental illness.

"Kirkbrides," as hospitals designed by Thomas Kirkbride have come to be called—and of which the Avery Building is one—had a linear layout. They featured a central building, often of five stories, with two wings, often of three stories each. The wings, laid out with double-loaded corridors, cascaded back from the center. The wards—each ward was one floor of a wing—were short to allow for ventilation, and also to allow the division of patients by degree of insanity. In addition, the loudest patients could be placed furthest from the central area. Men's and women's wards were typically in opposing wings.[7] One benefit of the layout was its ability to expand indefinitely; wings could be added to the facility without interfering with the daily management of the hospital.[8] Though the Kirkbride plan called for no more than 250 patients, many hospitals quickly grew beyond this number. Central to Kirkbride's design was the belief that insanity was often a temporary affliction cured in part by predictable routines and kind caregivers. [9]

Kirkbride's influence on Sloan's design is evident in the Avery Building, with its five-floor central area flanked by cascading, three-story wings. The main wing was finished in late 1882 and patients were admitted by the end of March 1883. The admittance of more than 250 patients between 1883 and 1885—most sent from Raleigh to relieve overcrowding there—soon overwhelmed the new building, and construction of an additional wing, to house another 150 patients, was completed in October 1886. It was designed by AG Bauer, a former assistant of Sloan's, who also went on to design the nearby School for the Deaf. The asylum officially became a hospital in 1890, and in 1959 was renamed for former governor Melville Broughton.[10]

Dr. Patrick Murphy, asylum superintendent for the institution's first 25 years,[11] strongly believed that work and exercise were effective forms of therapy for patients,[12] even as they beliefs lost broader appeal in the medical community and hospitals shifted to more custodial roles, often permanently housing large numbers of patients. [13] In Morganton, though, Murphy put patients to work: by 1886, 70 percent of patients worked on the grounds.[14] Females, who Murphy believed were not safe outdoors, cooked, cleaned, did laundry, and made clothing, mattresses, curtains, and other items for the hospital.[15] Males, owing to their largely agricultural backgrounds, worked on the farm and on the grounds. Those few with mechanical skills worked in shops on the site.[16]

In addition to the farm and shops that grew out of Murphy's emphasis on patient labor, several other elements of the hospital's current footprint are a result in changing views of patient care. As the patient population surged around the turn of the 20th century, Murphy believed that the continued growth of the main building would fail to effectively serve patients and staff. As a result, Murphy called for a "colony farm" of detached buildings away from the main building, which would provide house-like accommodations for patients that needed to be institutionalized but did not need medical care or close supervision. The idea had been used in Europe and elsewhere in the United States.[17]

Murphy envisioned patients keeping house, cultivating their own gardens, and relaxing. This would hasten their recuperation as well as ease the strain on the main hospital building. The first colony building was completed in 1903.[18] Ultimately, there were three colony groups, with a total of 10 buildings and 350 patients. Several colony-era buildings and barns exist south of the main hospital campus, on what is now the property of Western Piedmont Community College. Due to a more rigid shift in focus from custodial care to intensive treatment, the colony system was abandoned fully by 1950.[19]

Around the turn of the century, as the colony buildings grew to the south, the main campus expanded, as well. Many buildings from this time still stand, such as Harper, South, Reece, and F2 Dining. Several

[1]. Getz, "A Strong Man of Large Human Sympathy," 32.
[2]. National Register, "Broughton Hospital: Main Building."
[3]. Getz, "A Strong Man of Large Human Sympathy," 32.
[4]. CK Avery, "Broughton: New Ideas in Treating Mentally Ill," *News Herald* (Morganton, NC), May 1964.
[5]. National Register, "Broughton Hospital: Main Building."
[6]. Yanni, *Architecture of Madness*, 58.
[7]. Ibid., 59-61.
[8]. Ibid., 56.
[9]. Lynne Getz, "A Strong Man of Large Human Sympathy," 37.
[10]. National Register, "Broughton Hospital: Main Building."
[11]. Avery, "Broughton: New Ideas in Treating Mentally Ill."
[12]. Getz, "A Strong Man of Large Human Sympathy," 46.
[13]. Getz, "A Strong Man of Large Human Sympathy," 35.
[14]. Report of the Board of Directors of the Western North Carolina Insane Asylum at Morganton (From December 1, 1884 to November 30, 1886), 1887, Lynne Getz's Broughton Hospital Student Project, Appalachian State University Belk Library.
[15]. Ibid., 46.
[16]. Report of the Board of Directors of the Western North Carolina Insane Asylum at Morganton (From December 1, 1886 to November 30, 1888), 1889, Lynne Getz's Broughton Hospital Student Project, Appalachian State University Belk Library.
[17]. Ibid.
[18]. Ibid.
[19]. Avery, "Broughton: New Ideas in Treating Mentally Ill."

buildings went up in the early 20th century that still stand in what is no longer part of the hospital campus. This includes ten residences on Bickett Street and Sterling Street.

Between the 1920s and 1940s, the hospital's main campus grew even more dense, with the addition of buildings such as the Art Deco-influenced power house and its smoke stack, the machine shop, Bates, Saunders, Marsh, and Thomas. Several staff houses and frame barns from this era no longer stand. Construction of the new hospital led to the demolition of several large buildings from this era, as well, including Hoey, Morrison, and McCampbell.

Little construction, other than additions to older buildings, has occurred on the site since the mid-20th century. Exceptions include the gymnasium and chapel, built in 1960 and 1975, respectively. This is due in part to a continuing trend of deinstitutionalization, which has limited the need for expanded facilities.

This page intentionally left blank.

# 6 CASE STUDIES OF PSYCHIATRIC HOSPITAL REDEVELOPMENTS

# CASE STUDIES

| COMMUNITY PROFILE (2014) | MORGANTON, NC | HICKORY-LENOIR-MORGANTON METRO AREA |
|---|---|---|
| POPULATION | 16,816 | 363,936 |
| POPULATION DENSITY (PER SQ. MILE) | 878 | 222.3 |
| TOTAL LAND AREA (SQ. MILES) | 19.15 | 1637.38 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | $35,144 | $40,820 |

## TRAVERSE CITY, MI

The case of the Village of Grand Traverse Commons illustrates how a large hospital site can be redeveloped over time by a master developer that has access to public tools and incentives and a vision that respects the historic nature of the site and includes a mix of uses.

| COMMUNITY PROFILE (2014) | TRAVERSE CITY, MI | TRAVERSE CITY MICRO AREA | MORGANTON, NC |
|---|---|---|---|
| POPULATION | 15,006 | 145,374 | 16,816 |
| POPULATION DENSITY (PER SQ. MILE) | 1,802.3 | 86 | 878 |
| TOTAL LAND AREA (SQ. MILES) | 8.33 | 1,691.07 | 19.15 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | $47,836 | $50,817 | $35,144 |

The Northern Michigan State Hospital was a Kirkbride-plan facility that opened in 1885. The wings of the 387,000 main building were abandoned in 1970 and the entire facility closed in 1989. It was vacant until 1998 when a local nonprofit convinced a city redevelopment board not to demolish it.[1]

The Minervini Group acquired the 27-building, 63-acre site for $1 in 2002. By 2005, the 150,000 square foot opened as residential, office, and independent shops/restaurants. At build-out, the Village of Grand Traverse Commons will have 1,000 residents and 800 workers. Residential units range from 300 square foot studios to 3,800 square foot luxury condos. As of spring 2013, total development cost for 700,000 square feet of the site was $60 million.[2] The gradual development was intentional, according to Raymond Minervi: "I knew that to be successful it would take a long time for the concept to evolve. This is a small city and only capable of absorbing so much residential and commercial space."[3]

As of 2016, the site contains:[4]

- Residential units, including 68 affordable housing apartments and vacation rentals;
- A senior living community;
- 14 retail shops, mostly in the 100,000 square foot "Mercato," an "indoor street" of shops;
- Nine food and beverage establishments, including a winery and a coffee roastery;
- 33 professional offices, including attorneys, counseling, yoga, and a salon.

The redevelopment process had several elements:[5]

- The local redevelopment board made an agreement with Minervini Group that the former would gain clear title to the land and buildings for $1 in return for putting a roof on developing 20,000 square feet of the main building;
- The project received $2 million in state brownfield grants;
- The site received state renaissance zone designation, meaning that residents and businesses will pay no state income taxes or property taxes until the benefit expires in 2017;
- The majority of the buildings on the site are eligible for historic tax credits;
- Minervini Group is a comprehensive developer and manager of the site: they will finance, supply, design, construct, sell, lease, rent, maintain, and manage everything on the site.

The site has a trail network and arboretum. The campus has a weekly farmer's market and several festivals.[6]

## DANVERS, MA

The Danvers project is an example of a development that was successful, in part, because of favorable growth trends and massive demolition that allowed for less costly redevelopment, but left only a small part of the Kirkbride's façade intact. By leaving only a section of the front wall standing, and completely demolishing most of the wards, the developers angered some and partially appeased other preservationists and local community members who feared losing the iconic building. The project also tapped into a growing residential market, as Danvers is located just 20 miles outside of Boston and the development is only a mile from I-95.

[1] Berger, Chris, "Nothing Crazy About Living in this Former Insane Asylum," *Curbed*, 12 March 2013.

[2] Berger.

[3] Schneider, Keith, "From Ex-Mental Hospital to a New Mixed-Use Life," *New York Times*, 9 November 2010.

[4] The website of the Village of Grand Traverse Commons, http://www.thevillagetc.com.

[5] Schneider.

[6] Berger.

| COMMUNITY PROFILE (2014) | DANVERS, MA | MORGANTON, NC |
|---|---|---|
| POPULATION | 27,075 | 16,816 |
| POPULATION DENSITY (PER SQ. MILE) | 2,039.4 | 878 |
| TOTAL LAND AREA (SQ. MILES) | 13.28 | 19.15 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | $77,404 | $35,144 |

The State Lunatic Hospital at Danvers opened in 1878 on nearly 200 acres of land in Danvers, Massachusetts. Architect Nathaniel Bradlee designed a building influenced by the Kirkbride plan: it had a large, central administrative building with three step wings on each side. The building was constructed of granite[7] and was more than 700,000 square feet.[8]

According to a report prepared by Danvers Town Archivist Richard B Trask in 1981, the gradual phase-out of patients began in the 1970s.[9] The Kirkbride building was closed in 1989 and patients were moved to another facility. The entire hospital was closed in 1992.[10]


Original 1875 architect drawing (Source: Danvers State Insane Asylum)

Following the hospital's closure, the State's Division of Capital Asset Management (DCAM) mothballed the building, and reports from the time indicate that local officials were frustrated to see the building sit idle, unable to be sold until the legislature passed a bill allowing it. In 1997, the House and Senate approved such a bill, and also allowed the State to issue a bond for up to $5 million to prepare the site for disposition.[11]

DCAM issued a request for proposals and received 11 responses. The Citizens Advisory Council, a group formed through the enabling legislation, considered five of those responses substantial, and recommended that DCAM choose Archstone Communities as the buyer and developer, because Archstone had promised to preserve the entire Kirkbride. Archstone then reneged and proposed a plan in which they would preserve less than one third of the Kirkbride, which DCAM accepted. Archstone ultimately withdrew, at which point DCAM chose AvalonBay as the buyer and developer without soliciting public input.[12]

AvalonBay Communities purchased the property for $18.1 million in 2005.[13] Its residential development sits on approximately 51 acres of hilltop space; the total site is approximately 500 acres, most of which is protected agricultural land.[14] The firm spent $72 million turning the hospital into luxury apartments over the next three years.[15] AvalonBay demolished six of the eight wards and all but the façade of the remaining two wards and main administrative building.[16] Preservationists tried, unsuccessfully, to save more of the original building.[17] Ultimately, Avalon Bay's development preserved only one ninth of the Kirkbride.[18]

The original plan was to have 433 rental apartments that would start at $1,350 per month and 64 condos that would range from $390,000 to $500,000.[19] Fifteen percent of the 433 units were to remain affordable.[20]

By leaving only a partial façade, the company may have mitigated some of its potential buyers' fears of inhabiting a psychiatric hospital. According to AvalonBay's vice president of development, Scott Dale, "We were attracted to the site because of the quality of the real estate…It is, quite simply, a beautiful piece of land that overlooks Boston."[21]

Avalon sold 8.2 of the 17.2 low-lying acres it owned to Northeast Health System, the parent company of Beverly Hospital, which in 2007 opened a medical and day-surgery center. Avalon planned to sell the remaining low-lying acreage for development as a skilled nursing center.[22]

Avalon also gave the Town of Danvers $2.35 million to "mitigate the effect on the town," according to the *Boston Globe.* This included "money for the schools, affordable housing, historic preservation, and athletic fields."[23]

Avalon Danvers was sold in 2014 for $108.5 million.[24] It is now called Halstead Danvers.

[7] Trask, Richard, "Danvers State Hospital," from the website of the Danvers Archival Center at the Peabody Institute Library, March 1981, http://www.danverslibrary.org/archive/?page_id=1096.
[8] Brooks, Rebecca Beatrice, "History of Danvers State Hospital," History of Massachusetts, 19 September 2012, http://historyofmassachusetts.org/history-of-danvers-state-hospital.
[9] Trask.
[10] Brooks.
[11] Ramseur, Michael, *Haunted Palace: Danvers Asylum as Art and History*, Artship, 2005, 211.
[12] Ibid.
[13] Castelluccio, John, "Boston Group Buys Avalon Danvers for $108.5M," *Salem News* (MA), 3 July 2014.
[14] Laidler, John "Despite Slow Economy, Danvers State Project Forges Ahead," *Boston Globe*, 10 June 2010.
[15] Greenfield, Beth, "At Home in Infamous Surroundings," *New York Times*, 14 October 2007.
[16] Brooks.
[17] Greenfield.
[18] Ramseur, 212.
[19] Greenfield.
[20] Laidler.
[21] Greenfield.
[22] Laidler.
[23] Ibid.
[24] Castelluccio.

## NEWTOWN, CT

The case of Fairfield State Hospital in Newtown, Connecticut illustrates how local residents who fear the effects of residential growth and a local government that attempts to singlehandedly control the future of a site without seeking other public partners (such as the state government) or accommodating the needs of potential private partners can face a long, slow pre-development process. In the twenty years since the hospital closed, little private development has occurred on the site, local costs continue to accrue, and almost all the historic buildings have deteriorated beyond the point at which development is feasible. Not only can they not be redeveloped, but until they are demolished, their condition represents a significant deterrent to private development.

| COMMUNITY PROFILE (2014) | NEWTOWN, CT | MORGANTON, NC |
|---|---|---|
| POPULATION | 2,027 | 16,816 |
| POPULATION DENSITY (PER SQ. MILE) | 878.7 | 878 |
| TOTAL LAND AREA (SQ. MILES) | 2.31 | 19.15 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | 124,688 | $35,144 |

Fairfield State Hospital in Newtown admitted its first patients in 1933.[25] The hospital sits on one of the highest points in town, on a 186-acre campus of rolling hills. The site contains 16 primary buildings. The State Department of Mental Health closed the facility in 1996 and in 1999 the State issued a request for qualifications from master development entities. Four development entities were invited to submit proposals after the RFQ stage, and three did. The State's review of development entities was suspended when the Town of Newtown exercised its right of first refusal and the Town's board submitted a letter of intent to purchase the site in early 2000. This LOI was issued following the newly formed Fairfield Hills Authority's review of the three proposals and its determination that only by purchasing the property, which sits in the geographic center of the town, could the local community, not the State or a private developer, ensure the campus redevelopment served the local community's interests.[26] Specifically, by voting to purchase the property, residents were trying to keep the site out of the control of residential developers.[27] The Town of Newtown closed on the property for $3.9 million.[28]

Newton voters had approved a bond for $48 million ahead of the purchase: this included $3.9 million for the purchase, an unspecified amount for demolition, abatement, and the creation of athletic fields, and $27 million for a new intermediate school which opened in 2003.

Image: Bing Maps

The Authority made a master plan in 2003, which it has updated at least every five years since. The plan called for open space, recreation, municipal, educational, cultural, and commercial uses, including restaurants, medical offices, corporate offices, spas, banks, a performing arts center, museums, and art galleries.[29] It specifically prohibited residential development as a way to limit the growth that was putting pressure on schools and other public services.

Public disagreement about the future of the site surrounded the creation of the first plan. One controversial element of the plan was the allocation of $8.5 million to build a new town hall on the site. In addition, a community group formed to oppose the sale of any property on the site, and proposed that the entire site be used for public purposes, with very little commercial use. Residents interviewed by the *New York Times* in 2003 indicated that they believed the process was moving too quickly and they feared losing a public resource.[30] By the time the first master plan was presented to the public, it included a provision that land should only be leased, not sold, to private entities. [31] It also removed references to the idea of a corporate office park on one part of the site.[32]

Eventually, the Town decided to relocate municipal offices to an existing building on the site, and spent $6 million renovating Bridgeport Hall.[33]

[25] From FairfieldStateHospital.com, Accessed 3 March 2016.

[26] "Background Information," from the website of the Town of Newtown, Accessed 3 March 2016, http://www.newtown-ct.gov/public_documents/NewtownCT_FFHills/background.

[27] Prevost, Lisa, "Warily, Newtown Weights New Housing," *New York Times*, 20 January 2011.

[28] Hutson, Nanci G., "Fairfield Hills Leaders See 2015 as a Year to Market the Campus," *CTPost.com*, 26 December 2014.

[29] Hutson.

[30] Doniger, Nancy, "In Newtown, A Master Plan Creates a Stir," *New York Times,* 9 February 2003.

[31] "Fairfield Hills Master Plan (Amendment) 2013," from the website of the Town of Newtown, http://www.newtown-ct.gov/public_documents/NewtownCT_FFHMPRC/index.

[32] Doniger.

[33] Hutson.

Even boarded up, the hospital was a draw: a newspaper article from 2004 detailed the 15 trespassing violations local police had issued to young people on the hospital grounds in three separate incidents in the preceding 10 days. Town officials described how people regularly broke into the buildings, going as far as tearing plywood off windows and doors and cutting holes in chain link fences. Officials worried about the implications of someone getting hurt or killed while in a closed building, and as one said at the time, "All it takes is a half-decent lawyer to call it an attractive nuisance."[34]

Six years in, the only private activity that had occurred on the site was an 86,000 square foot sports and fitness academy. The 2013 update to the plan states that private developers have found the current buildings, due to deterioration and configuration, infeasible. The plan states that the presence of the buildings "likely represents a substantial barrier to realizing the economic development potential as well as the recreation and public use themes desired by residents." The plan states that as of 2012, only four buildings appeared salvageable, and eight other major buildings had likely deteriorated beyond being reusable.[35]

The 2013 plan amendment allows some rental housing on the upper floors of commercial buildings, which it previously did not allow. Still, all buildings would remain in Town ownership. The plan acknowledges that the active discouragement of development proposals that included housing "may have resulted in a loss of development that would have benefitted the community." The plan stipulates that housing must be ancillary and not a primary use.

The 2013 capital improvement plan sets out almost $4.5 million for the next five years for demolition and walking trail creation.

An unclear power structure, in which the development process has no clear "quarterback," may also slow progress. The Fairfield Hills Authority is an appointed group that considers development proposals and manages leases to developers. But a 2014 article suggests that the authority is "little more than a sounding board" because the board of selectman, zoning officials, and other officials maintain control of what happens on the site. Since its forming, the authority has not proactively pursued development and has instead waited for others to approach it. [36]

In 2013, local leaders shared a plan to offer $1 a year, 30-year leases to developers, who would then be responsible for remediation and demolition costs[37]

In 2013, Town was planning a 4,000 square foot ambulance facility and a parks and recreation center. They have discussed a fire station and police station, as well. As of 2013, five hospital buildings had been demolished.

Though the Town became a major anchor tenant as a way to support the success of Fairfield Hills, its municipal offices move was not without consequence. In February 2016, a town selectman alerted the Town's Board of Finance that the former town hall, which the Town vacated when it moved to Fairfield Hills, is on its way to exhausting all of its financial resources within a year. The historic structure was home to the Town operations until 2009, when the Town moved and stopped paying rent. The publicly-owned building has been unable to generate sufficient revenues since its major tenant moved out, and elected officials proposed increasing their annual subsidy to the building to $75,000 per year, or half its operating expenses.[38]

## STAUNTON, VA

The ongoing redevelopment of the former Western State Hospital site in Staunton, Virginia illustrates how a creative public-private partnership with clear inter-governmental cooperating can serve a master redevelopment. It is an instructive project in its similarities to historic Broughton as well: the large site is in a similarly-sized downtown, with interstate frontage, neighboring a school for the deaf and blind, with the new hospital relocated adjacent to the site.

| COMMUNITY PROFILE (2014) | STAUNTON, VA | STAUNTON-WAYNESBORO, METRO AREA | MORGANTON, NC |
|---|---|---|---|
| POPULATION | 24,132 | 119,016 | 16,816 |
| POPULATION DENSITY (PER SQ. MILE) | 1,208.1 | 118.8 | 878 |
| TOTAL LAND AREA (SQ. MILES) | 19.98 | 1,002.01 | 19.15 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | $39,982 | $49,262 | $35,144 |

The Western State Hospital, which was most recently used as a prison, closed in 2003.[39] In 2006, the Commonwealth decided to replace the Western State Hospital and the General Assembly approved $112.5 million for the new facility.[40] The new hospital was built on adjacent

[34] Driscoll, Eugene, "Warning: Stay Away from Fairfield Hills," *News-Times* (Danbury, CT), 28 September 2004.
[35] "Fairfield Hills Master Plan (Amendment)."
[36] Hutson.
[37] Ibid.
[38] "Edmond Town Hall Facing Financial Difficulties," *Newtown Bee*, 25 February 2016.
[39] Peters, Laura, "More Renovations Begin at Villages at Staunton," *News Leader*, 15 December 2015.
[40] "Fact Sheet: New Western State Hospital and Economic Development of Western State Property in Staunton," from the website of the City of Staunton, 9 July 2009, http://www.staunton.va.us/directory/departments-a-g/economic-development/western-state/documents/WSH_Fact_Sheet_7-9-09.pdf.

property. Construction for the hospital broke ground in late 2009, and pre-development activities for the former hospital property began in early 2010.[41]

The City of Staunton contributed $15 million toward the relocation of the hospital and in return the Commonwealth deeded the City 265 acres of the old hospital campus that sits along I-81. The City contributed to the project as a way to free up the old hospital campus; the Commonwealth's allocation would have funded some new facilities within the old campus, but kept some hospital functions in the old buildings. With the City's contribution, the new hospital could be built on an entirely different property in one phase.[42]

The City planned to have a single master developer working on the site as a way to coordinate development activities and maximize value. The City was advised on master developer selection by a private firm whose CEO was a former Commonwealth secretary of commerce and trade.[43] The master developer, Staunton Gateway Partners, was chosen from several companies that responded to a solicitation by the Staunton Industrial Development Authority.[44]

"Staunton Crossing" is the name of the master development. To prepare the site, the City has made several investments, including building a four-lane boulevard entrance to the site and demolishing some buildings.[45] Delays in the construction of the boulevard and traffic circle, which has cost $2.1 million and began in spring 2015, has slowed down the larger project. The road is expected to be completed in April 2016.[46]

"The Villages at Staunton" is meant to be a village-like community within the city. Adaptive reuse and new construction that complements the historic nature of the campus will serve residential, office, hospitality, entertainment, and commercial uses.[47]

The development is in process. As of December 2015, two sets of condominium developments and another home development have occurred on the site. A 45,000 square foot building is currently being developed into office space.[48] A hotel, called Blackburn Inn, is in the planning stages.

## BUFFALO, NY

The Richardson Olmsted Complex in Buffalo, New York, serves as an example of a Kirkbride redevelopment that while seemingly successful in terms of reuse, has taken decades and large infusions of public money. After decades of neglect and negotiation over reuse, the complex is being redeveloped solely with public money—the development failed to leverage large and sustained public investments to attract private partners, and thus the citizens of New York fully bear the potentially nine-figure cost.

| COMMUNITY PROFILE (2014) | BUFFALO, NY | BUFFALO-CHEEKTOWAGA-NIAGARA FALLS METRO AREA | MORGANTON, NC |
|---|---|---|---|
| POPULATION | 259,959 | 1,135,667 | 16,816 |
| POPULATION DENSITY (PER SQ. MILE) | 6,437.2 | 725.6 | 878 |
| TOTAL LAND AREA (SQ. MILES) | 40.38 | 1,565.05 | 19.15 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | $31,668 | $50,726 | $35,144 |

The Buffalo State Asylum for the Insane opened in 1880, eight years after construction began on what is now known as the Richardson Olmsted Complex in Buffalo, New York.[49] Architect Henry Hobson Richard designed the Kirkbride building. Landscape architect Frederick Law Olmsted, designer of New York City's Central Park, designed the grounds.[50]

The hospital's history is similar to that of Broughton: the hospital grew through the first half of the 20th century and patient labor played an important role in maintaining the large complex. Amidst national moves toward rehabilitation and community care, the hospital demolished three of the Richardson building's patient wards in 1968 to build a one-story rehabilitation center in 1970. In 1974, all patients were moved out of the original Richardson Building and into a newer complex. Administrative offices remained in the building until the 1990s.[51] The building was placed on the National Register of Historic Places in 1973 and was declared a national historic landmark in 1986.[52]

[41] "Pre-Development Agreement for Old Western State Authorized," WHSV.com, 8 January 2010.
[42] Fact sheet.
[43] Ibid.
[44] "Pre-Development Agreement for Old Western State Authorized."
[45] "Commercial Development Coming to Former Western State Site," WHSV.com, 22 October 2015.
[46] Peters, Laura, "Staunton Crossing Moving Forward," *News Leader*, 28 January 2016.
[47] The website of the Villages at Staunton, http://www.villagesatstaunton.com.
[48] Peters, Laura, "More Renovations Begin at Villages at Staunton."

[49] From the website of the Richardson Olmsted Complex, Accessed 7 February 2016, http://www.richardson-olmsted.com
[50] Ibid.
[51] "Richardson Olmsted Complex Structures Report," prepared by Goody Clancy, July 2008: 110, http://www.richardson-olmsted.com/files/documents/planning_and_reports/historic_structures_full_report.pdf
[52] The website of the Richardson Olmsted Complex.

The Richardson Olmsted Complex (Map data: Google)

Largely unoccupied, the main building deteriorated throughout the 1970s and 80s, despite various attempts, including a governor's task force in 1984, a 1986 adaptive reuse design competition, and a $3.5 million interior and exterior rehabilitation in 1989. The building was significantly boarded up in 1989 in response to continued acts of vandalism.[53] In 1998, then-mayor Anthony Masiello successfully requested that Governor Pataki not include the building in attempts to sell 12 of New York's psychiatric hospital buildings to private developers. The mayor hoped to redevelop the site into a magnet school and residential development.[54]

Still, the hospital sat unused. In 2004, a group of local citizens filed a lawsuit to bring attention to the facility's deterioration. The State allocated $5 million toward stabilization.
In 2006, Governor Pataki pledged $100 million to redevelop the 500,000 square foot complex. A quarter of those funds were used to create an art museum and pavilion; the remainder has "funded important activities to prevent further deterioration of the Complex and to ready it for reuse." The Richardson Center Corporation (RCC), composed of community members and appointees of the governor, was made responsible for exploring adaptive reuse feasibility.[55]

In 2007, the Urban Land Institute (ULI) began to study the feasibility of redeveloping the site. Within a year, historic structures and cultural landscapes reports were completed and a $2 million stabilization effort began. In 2010, another nearly $8 million was put toward further stabilization.[56]

In 2011, a master plan was completed, which focused on a hotel and conference center and city architecture center. The State also enacted special legislation to allow the conveyance of the property to the Richardson Center Corporation. [57]

[53] "Richardson Olmsted Complex Structures Report," 118.
[54] Rozhon, Tracie. "A Fight to Preserve Abandoned Asylums; Sales Seen as Threat to Landmarks Of Architecture and Idealism," *New York Times*, 18 November 1998.
[55] The website of the Richardson Olmsted Complex.
[56] Ibid.
[57] Ibid.

In 2013, the South Lawn was re-greened, as a precursor to greater development activity. This included the planting of 125 trees, creation of environmentally friendly rain gardens, and the building of a pedestrian loop trail.[58]

The first phase of the building redevelopment centers on an 88-room hotel and conference center. Construction began in late 2014 and was expected to take two years. Local hospitality management firm InnVest Lodging will operate the hotel, known as the Hotel Henry Urban Resort Conference Center.[59]

The Richards Center Corporation is the developer. Total development cost is estimated to be $69 million. The project is being funded by $54 million in state money and $16 million in state and federal historic tax credits. Empire State Development, the state economic development agency, provided grants for predevelopment, stabilization, and re-greening. Several foundations have provided unspecified support for the project, as well.

## MORRIS PLAINS, NJ

The pre-development process and eventual demolition of the Greystone Park Kirkbride building demonstrates the pitfalls of a confusing and seemingly opaque process for determining the fate of an historic hospital. The State of New Jersey, by rejecting redevelopment proposals in favor of a costly publicly-funded demolition, lost a landmark building, missed what several developers saw as an opportunity to attract investment and create local economic value, and outraged and lost the trust of a portion of the public. The public sector, as this case suggests, can inhibit development, just as in other cases, it can enable it.

| COMMUNITY PROFILE (2014) | MORRIS PLAINS, NJ | NEW YORK-NEWARK-JERSEY CITY, NY-NJ-PA METRO AREA | MORGANTON, NC |
|---|---|---|---|
| POPULATION | 5,635 | 6,550,191 | 16,816 |
| POPULATION DENSITY (PER SQ. MILE) | 2,203.8 | 1,720 | 878 |
| TOTAL LAND AREA (SQ. MILES) | 2.56 | 3,808.17 | 19.15 |
| MEDIAN HOUSEHOLD INCOME (IN 2014 DOLLARS) | $110,167 | $74,217 | $35,144 |

Greystone Park opened in 1876 as the New Jersey State Lunatic Asylum at Morristown. The main building was a 675,000 square foot, five-story Kirkbride. It has three, three-story wings. Its

[58] Ibid.
[59] Ibid.

three-foot thick walls are made of gneiss.[60] Samuel Sloan, Broughton architect, was Greystone's architect, as well. He followed the Kirkbride plan.[61]

Greystone Park
(Source: Preserve Greystone)

Similar to Broughton, Greystone was constructed between the 1870s and mid-20th century and contains a mix of Victorian and modern architecture.[62] It has underground tunnels used for patient transport, similar to Broughton.[63] The buildings are on a large site that once contained occupational therapy and a self-supporting agricultural operation.[64]

The hospital was at its highest patient capacity, 6,719 people, in 1954. The process of deinstitutionalization, along with a class-action lawsuit, led to the reduction in patients served from the 1950s on.[65] The state opened a new hospital adjacent to the original hospital in 2008. The Kirkbride was permanently closed after those patients were transferred to the new facility that year.[66]

The state commissioned a redevelopment feasibility assessment for the main building, which was delivered in early 2013. [67] The report deemed the main building's condition to range from "good" to "failed," and identified the deteriorated roof as a major cause of damage, which it also attributed to a lack of climate control, vandalism, and age. Based on its market analysis, the report considered three redevelopment scenarios, all of which it concluded were economically infeasible without decreasing development costs, providing State incentives to developers to encourage larger private investment, or permitting new construction on other parts of the site to create additional economic value.

| | DEVELOPMENT COST | AVAILABLE FUNDING | FUNDING GAP |
|---|---|---|---|
| **315 APARTMENTS** | $112,500,000 | $101,425,000 | $11,075,0 |
| **MIXED-USE: 181 APARTMENTS, ASSISTED-LIVING FACILITY, INN** | $103,025,000 | $77,275,000 | $25,750,000 |
| **199 APARTMENTS CONVERTED TO CONDOS AFTER TAX CREDIT PERIOD** | $107,375,000 | $95,500,000 | $11,875,000 |

Following the feasibility report, the state issued a request for expression of interest. Six firms responded with proposals of varying specificity for how they could redevelop the building (a seventh came later). The State ultimately rejected all seven responses it received. Instead, they awarded a $34 million demolition contract. Quoted in the *New York Times*, State Treasurer Andrew P. Sidamon-Eristoff said, "We are sympathetic to those who are passionate about architectural preservation. However, the Kirkbride building's advanced deterioration, which has worsened since 2011, massive size and challenging configuration present unique obstacles to a viable redevelopment."[68]

A local group, Preserve Greystone, sued to prevent demolition. The group's president said that a private developer could put the building "to good use at no cost to taxpayers," while the State instead spent $35 million to demolish it.[69] Star-Ledger reporter Mark Di Ionno articulated many of the strong citizen objections to the State's decision and its opaqye decision making process: "If it doesn't stink, then it's just lazy. Or lacks vision and creativity. Or shows an unwillingness to compromise. But we don't know, because the process wasn't open."[70] Di Ionno notes that the State's stated reasons for tearing down the building were that it was too deteriorated to save and that it would require public money to reuse, but no officials have elaborated on the process or criteria used to reach these conclusions.

The six proposals that the State received before the response deadline had varying degrees of specificity, though each included a way to preserve the main building and overcome the funding gap that the feasibility report had identified.

Developer Resource Group's proposal to the State, which centered on a sustainable agriculture and education program, included a plan for fully financing the estimated $98 million development with private capital in return for full ownership of the property following development.[71]

Building and Land Technology Corporation proposed at least 550 residential units in the Kirkbridge building, 100 new townhouses, and 5,000 square feet commercial and office space. Financing would come from a first mortgage, federal and state historic tax credits, equity, and

[60] Hurley, Dan, "Preservationists Fight to Save a Former Asylum in New Jersey," *New York Times*, 18 August 2014.
[61] "History of Greystone Park Psychiatric Hospital," Preserve Greystone, accessed 10 September 2015, http://www.preservegreystone.org/history.html.
[62] "Greystone Played a Significant Role in the Evolution of Mental Health Treatment," New Jersey State Division of Property Management and Construction, accessed 8 September 2015, http://www.state.nj.us/treasury/dpmc/Assets/Files/A1132%20Greystone%20campus%20timeline.pdf.
[63] Ben Horowitz, "State Awards $34 Million Contract to Tear Down Historic Greystone Building," *Star-Ledger* (New Jersey), 18 August 2014.
[64] "Greystone Played a Significant Role in the Evolution of Mental Health Treatment."
[65] Ibid.
[66] Ibid.
[67] Urban Partners, *Greystone Park Hospital Main Building Redevelopment Feasibility Assessment*.
[68] Ibid.
[69] Ibid.
[70] Di Ionno, Mark, "Something Stinks about the Greystone Deal," *NJ.com*, 9 April 2015.
[71] Developer Resource Group's response to a request for expression of interest in the redevelopment of the former Greystone Psychiatric Hospital, 28 May 2013, http://www.state.nj.us/treasury/dpmc/Assets/Files/GCA%20Management%2005-28-13.pdf

an inventive grant from the State's Economic Development Authority. Their proposal was the most specific, and listed the following required incentives: [72]

- Title to the 90 acres for a $1 consideration.
- The approval of a Part 1 for the entire property by the NJ SHPO and the NPS, as well as Part 2 and Part 3 applications for each building as they are renovated in accord with the Standards of the Secretary of the Interior.
- An award of State Economic Incentive Tax Credits of a minimum of $20,000,000, the sum necessary to cover the site work, demolition, abatement, and remediation necessary to undertake the rehabilitation.
- The adoption of State Historic Tax Credit legislation to provide a minimum of $15,000,000 per annum of State Historic Tax Credits for qualified commercial structures.

Forest City's proposal centered on high-end rental residential and a mix of other uses that tie into the neighboring public recreation facilities. They acknowledged that a public-private partnership would be an important element of a successful redevelopment. The firm highlighted its experience securing tax credit financing to make projects feasible.[73]

Cross Properties proposed a 310-unit residential development. Its financial assessment was vague: the proposal said the firm did not foresee funding gaps, and would respond to any gaps by selling land, seeking grants, seeking public investment, tax abatement, an easement donation, and historic tax credits.[74]

Greystone Community Innovation Team proposed a smart growth, village-style development that centered on a range of residential options and a mix of commercial, and recreation uses, including an organic farm.[75]

Auto Mart, a West Virginia firm responsible for preserving the Trans-Allegheny Lunatic Asylum and operating it as a paranormal tourist attraction, proposed a similar program for Greystone. Their proposal appears to assume similar development costs and schedules, with development phases being funded by visitor revenues as they are received. Their five-year development costs for the Trans-Allegheny Lunatic Asylum were $6.2 million, reflecting in-house preservation and demolition and limited redevelopment.[76]

Reporter Mark Di Ionno spoke with representatives of two of the responding firms following the State's rejection of their responses. Both said the State did not acknowledge or respond to their responses, or explain why they had rejected them.

Demolition of 26 structures and their connecting tunnels began in the spring of 2015 and was completed by October.[77] The state is planning to then deed the site to the county for use as open space. The state is saving some elements of the Kirkbride, such as the stone veneer and some columns, to honor the site's history.[78]

[72] Building and Land Technology Corporation's response to a request for expression of interest in the redevelopment of the former Greystone Psychiatric Hospital, May 2013, http://www.state.nj.us/treasury/dpmc/Assets/Files/kirkbride%20building%20response-13may21.pdf.

[73] Forest City's response to a request for expression of interest in the redevelopment of the former Greystone Psychiatric Hospital, May 2013, http://www.state.nj.us/treasury/dpmc/Assets/Files/Greystone%20RFEI%20-%20ForestCity.pdf.

[74] Cross Properties' response to a request for expression of interest in the redevelopment of the former Greystone Psychiatric Hospital, 30 May 2013, http://www.state.nj.us/treasury/dpmc/Assets/Files/Greystone%20RFEI%20-%20Cross.pdf.

[75] Greystone Community Innovation Team's response to a request for expression of interest in the redevelopment of the former Greystone Psychiatric Hospital, 30 May 2013, http://www.state.nj.us/treasury/dpmc/Assets/Files/Greystonevillage5-30-13final.pdf.

This page intentionally left blank.

# 7 SHPO LETTER OF SUPPORT

**North Carolina Department of Natural and Cultural Resources**
**State Historic Preservation Office**
Ramona M. Bartos, Administrator

Governor Pat McCrory
Secretary Susan Kluttz

Office of Archives and History
Deputy Secretary Kevin Cherry

February 22, 2016

Mr. Peter Cvelich
Development Finance Initiative/School of Government
University of North Carolina at Chapel Hill
Campus Box 3330, Knapp-Sanders Building
Chapel Hill, NC 27599

Re: Broughton Hospital and North Carolina School for the Deaf Historic Districts
Conceptual Reuse Plans
Morganton, Burke County, NC

Dear Mr. Cvelich:

Thank you for your study submittal regarding the proposed conceptual reuse plans for the Broughton Hospital and North Carolina School for the Deaf buildings and sites within both National Register Historic Districts. Our staff has reviewed the information you provided, and we offer the following comments within the body of your February 10, 2016 email below.

*During the course of the Broughton Hospital Study, DFI has developed a conceptual strategy for reusing and significantly improving the majority of historic hospital buildings and attracting additional private investment to surrounding public property. These conceptual plans would respect historic architecture and would expect to benefit from the Historic Preservation Tax Credits in so doing. Nevertheless, to adaptively reuse the historic buildings would require some modification to the historic campus and structures.*

*Per our prior conversations with your team at the N.C. State Historic Preservation Office (SHPO), we understand that there is agreement in principle to our proposed adaptive reuse strategies and conceptual site plans based on the historic district nomination forms and your interpretation of the scope of the proposed rehabilitation work, assuming it adheres to the following conditions:*

- *Before any contributing structure be demolished, all alternatives to its preservation be explored.* **HPO response: In general demolition may be acceptable when the building or component is outside the period of significance of the district, it is so deteriorated or altered that its integrity has been irretrievably lost, or it is a secondary building or component that lacks historic, engineering, or architectural significance or does not occupy a major portion of the site and persuasive evidence is present to show that retention is not technically or economically feasible.**
- *Interior architectural features and finishes in public lobbies and corridors and other principle interior spaces be preserved or are altered in accordance with the Standards based on review of detailed architectural drawings.* **HPO response: We concur.**





- *New building construction be sited and designed to be compatible with the historic scenic character and views of the site, based on review of detailed site plans and architectural drawings.* **HPO response: We concur.**

*We respectfully request a signed letter from SHPO by Feb. 22, confirming that draft plans provided to SHPO for review are consistent with those principles, with the understanding that 1) decisions regarding HTC eligibility and qualified rehab expenses would not be rendered until specific application with development plans would be made to SHPO, and that 2) those decisions ultimately lie with the federal National Park Service and IRS.* **HPO response: We concur.**

*Please let me know if this is a reasonable time frame for SHPO to provide such a letter or if you have questions.*

*As a summary, below is the scope of site planning and building rehabilitation from the conceptual plans that we have presented and discussed:*

- *Broughton Hospital historic district:* **HPO response: We concur, with one comment below.**
  - *Modifications to the Avery Building, a landmark property:*
    - *Construction of porches on back façade to match existing porches on two wings*
    - *Penetrations through parting walls between patient rooms on interior*
  - *Demolition of building fabric that is non-contributing:*
    - *Appendages to Avery and Machine Shop*
    - *Bricked-in porches on Bates*
    - *Walkways between Avery and Jones, Avery and Reece, Scroggs and F2-Dining, F2-Dining and Harper, F2-Dining and Thomas, and between sections of Bates*
  - *Demolition of non-contributing and unidentified structures outside the period of historical significance from the nomination:*
    - *Jones*
    - *Moran*
    - *Carpenter (aka Nurses Dorm)*
    - *Chiller Building*
  - *Demolition of a contributing structure that has been significantly modified so as to have lost any of its historic architectural character:*
    - *Thomas*
  - *Preservation of non-contributing, but culturally significant structures: The Chapel*
  - *Relocation of contributing structures:*
    - *Relocation of five small sheds in southern portion of district.* **HPO response: Relocation must be sited to be compatible with the historic scenic character and views of the site, based on review of detailed site plans and architectural drawings.**
- *NC School for the Deaf Historic District:* **HPO response: We concur.**

  - *Demolition of non-contributing structures:*
    - *Rankin*
    - *Joiner Warehouse*
    - *Jeter*
    - *Henderson*

- *New construction: Nothing taller than 5 stories and sited so as to preserve prominent views to and from icon architecture and landscapes.* **HPO response: New building construction must be sited and designed to be compatible with the historic scenic character and views of the site, based on review of detailed site plans and architectural drawings.**

We appreciate the opportunities our staff had to meet with everyone. These meetings allowed for an understanding of the respect for the historic architecture being taken as well as the conceptual reuse plans for the buildings and sites within both National Register Historic Districts.

These comments are made in accord with G.S. 121-12(a) and Executive Order XVL. If you have any questions regarding them, please do not hesitate to contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919-807-6579 or renee.gledhill-earley@ncdcr.gov or Tim E. Simmons, Senior Preservation Architect and Income-producing Tax Credit Coordinator, at 919-807-6585 or tim.simmons@ncdcr.gov.

Sincerely,

for

Ramona Bartos, Deputy
State Historic Preservation Officer

cc: Patricia Mitchell
Michael Lemanski
Tyler Mulligan
Renee Gledhill-Earley
Tim E. Simmons

This page intentionally left blank.

# 8 CASE STUDIES OF PRECEDENT PROJECTS

## Blackberry Farm, Walland, TN

Blackberry Farm is a 4,200-acre, resort that first opened as a six-room inn in 1976. Guests travel to the resort, located in the Smoky Mountains, for fine dining and wine and natural beauty. On site amenities and activities include multiple upscale and casual dining options, a spa, fly fishing, horseback riding, several miles of private hiking trails, sporting clays, and tennis.[1] The resort is a pioneer in farm-to-table dining, and is unique in that it is one of the few luxury destinations in this part of Tennessee. It is near the large tourist draws of Gatlinburg and Pigeon Forge, but is as different as could be. People travel to the resort from around the country for its setting and its focus on luxury comfort.

The resort's various restaurants source heavily from the property: vegetables, cheeses, and meats come from the farm. The resort employs a master gardener, baker, cheese maker, butcher, jam maker, and chocolatier. Blackberry Farm has been rated the top resort in the US by readers of *Travel and Leisure* and the best food lover's hotel by *Bon Appetit*.[2] The resort has earned three James Beard awards.[3]

Guests may schedule their stays around the resort's full calendar of special events. A sample of 2016 events at the resort:[4]

- A weekend of food and wine featuring chef Alice Waters
- Performances by musicians including John Prine, Emmylou Harris, and John Hiatt
- A fitness bootcamp
- Holiday events over Thanksgiving and New Year's
- Cycling tours
- Seminars with financial planners

The resort's approximately 70 units are spread over a range of accommodation types.[5]

- Hill Cottages: Contain living rooms, screened porches with rockers, soaking tubs, high speed internet and flat screen televisions, and dining nooks. Each cottage comes with a private golf cart.
- Cottage Suites: Two- to four-suite buildings offer combination living room/bedroom, king sized beds, covered porch, and in some, connecting doors to allow friends and families to book adjoining suites. Each suite includes a private golf cart.
- One- to Five-Bedroom Houses: The houses have full kitchens, dining rooms, and common areas. Private chefs are available to serve meals in-house.

In addition to guest rentals, Blackberry Farm offers a limited number of ownership opportunities. Owners enjoy all the amenities of the resort.[6]

## The Omni Homestead Resort, Hot Springs, VA

The Omni Homestead Resort combines luxury in a mountainous southern setting with up-to-date, family-friendly amenities that attract a range of guests. The case illustrates the appeal of a grand, historic hotel with access to outdoor activities and typical resort amenities, such as a water park and golf courses. The resort is also a successful example of how expansive programming can lead to success year round, as guests consider the Homestead Resort a destination in both summer and winter.

Homestead Resort is a 2,300-acre, amenity-rich, year-round resort. The resort opened in 1766 as an 18-room lodge. It hosted Thomas Jefferson for three weeks and has hosted 23 US presidents in total. The property has two natural hot springs which have drawn visitors to the property for centuries.[7] The resort is anchored by a palatial Greek Revival lodge built around 1903.[8]

The resort features a water park with slides, a lazy river, and a sandy beach; two 18-hole golf courses; a spa; movie theater; and tennis courts. Other on-site activities include horseback riding, skiing and snowboarding, paintballing, falconry, and ice skating. There are eight food and beverage establishments, ranging from a main dining room, to casual dining, golf course-side comfort food, and a sports bar.[9] Though the resort partnered with Canyon Ranch in 2012 to open a holistic spa on the site,[10] the concept was abandoned when Omni purchased the resort the following year.[11]

Homestead Resort has 483 guest rooms and suites and 26 meeting rooms with 73,000 square feet of flexible space.[12] The resort hosts approximately 100,000 guests per year.[13]

## Old Edwards Inn & Spa, Highlands, NC

Old Edwards Inn & Spa shows how a downtown hotel can combine historic facilities with luxurious but rustic new construction and connect guests to a charming downtown filled with arts and dining experiences. The Inn does not have the expansive set of amenities of Homestead, but can attract visitors with its great food and wine, charming downtown location, and cool summer weather.

The Inn began as a boarding house in downtown Highlands in 1878. It closed in the mid-1960s before being purchase and renovated in 1982. In 2001, new owners purchased it and invested $50 million in updating the

[1] Website of Blackberry Farm, http://www.blackberryfarm.com.
[2] Grimes, William, "Sam Beall, Farm-to-Table Restaurateur Right on His Farm, Dies at 39," *New York Times,* 27 February 2016.
[3] Galarza, Daniela, "Remembering Sam Beall, Owner of Blackberry Farm, Who Died in a Tragic Accident," *Eater*, 26 February 2016.
[4] Website of Blackberry Farm
[5] Ibid.
[6] Ibid.
[7] The website of Omni Homestead Resort, https://www.omnihotels.com/hotels/homestead-virginia.
[8] Arthur, Nicole, "'Taking the Waters' at the Regal, Glamorous Homestead Resort," *Washington Post*, 26 November 2014.
[9] The website of Omni Homestead Resort.
[10] "The Homestead and Canyon Ranch Partner to Launch Canyon Ranch SpaClub at The Homestead in Hot Springs, Virginia," (press release) 27 September 2012, http://www.kslresorts.com/canyon-ranch.aspx.
[11] Burt, Bernard, "Canyon Ranch SpaClub Splits with The Homestead," *Examiner*, 26 November 2013.
[12] Ibid.
[13] Blackwell, John Reid, "Omni Hotels & Resorts Buys The Homestead," *Richmond Times-Dispatch*, 13 June 2013.

property. Renovations and acquisitions included a spa, executive conference center, restaurants, and a golf club.[14]

The Inn was named TripAdvisor's "#5 Top Hotel" in 2015 and for the past five years has topped many lists of the best resorts and spas in the country.[15]

The property has a range of accommodations:[16]

- The historic downtown inn
- Three groupings of cottages
- Three multi-room homes that can be rented for larger groups, such as wedding parties

There is also a range of food and beverage establishments on site, all of which embrace the farm-to-table experience. Many ingredients come from the property's gardens or from other regional producers.[17]

## CATS Academy Boston

CATS Academy Boston is an example of how a residential school can easily inhabit a former hospital campus. School administration, dealing with a disconnected campus around Boston, found a great fit in the boarding school-like campus of the hospital and the large, contiguous property that was otherwise inaccessible in the Boston market. Administration expects this new campus to drive demand for the school, because it lends the feeling that people seek in boarding schools.

The Boston campus is the first US campus for CATS, which also has three schools in the UK.[18] The school serves students ages 14 to 18 and costs $55,000 per year.[19] The campus is 10 miles from downtown Boston, which CATS believes balances the needs for the energy of downtown Boston with the safety of the pastoral campus, which resembles those of other boarding schools. Currently, the campus is split, and dorms are located 20 minutes from the classroom buildings, and private shuttles transport students back and forth.[20] A new, all-inclusive campus is opening in 2016.[21]

The new, 19-acre campus has 400 en-suite bedrooms, 36 classrooms, four language labs, nine wet and three dry science labs, four music rooms, fitness areas, art studios, a theater room, yoga and dance studios, and social areas. Each student has a private bedroom. The campus features several flexible areas that allow students a variety of socializing and studying options.[22]

The new campus adaptively reuses a former historic hospital campus. In addition to the 100,000 square foot adaptive reuse, the school will build a new 20,000 square foot athletic facility.[23] The school began in 2012 with 27 students and had 270 by 2015. Administration expects the school to have 400 students by summer 2016, owing to strong demand from international students and domestic demand for the experience of a New England boarding school.[24]

## North Carolina School of Science and Mathematics, Durham, NC

The North Carolina School of Science and Mathematics (NCSSM) exemplifies the opportunities and challenges of adapting a hospital campus into a residential school. The boarding school inhabited the former hospital buildings soon after they were made vacant, with little adaptation. NCSSM enjoys the unique campus and the status that comes with the historic architecture, yet the case also illustrates how adaptation is still needed for a new program to best achieve its purposes.

NCSSM is a public, residential school for academically-talented students that focuses on a STEM (science, technology, engineering, mathematics) curriculum. The school opened in 1980 with a class of 150 high school juniors. Currently, NCSSM plans to have 340 spots in its 2018 entering class and has more than 8,200 alumni that came to the school from across the state. It was the first school of its kind when it was founded; at least 18 such schools now exist.[25]

The campus adaptively reuses the former Watts Hospital, with buildings that date to the early 20th century and which closed to patients in 1976.[26] Students moved in in 1980. In 1986, Hunt Hall opened as a new student dorm building. In the years since, a few additional buildings have been renovated or demolished.[27]

According to the school's master plan:[28]

> The school moved into the abandoned hospital site after very little renovation work was completed; the program was placed in the best possible way in buildings that were originally designed to accommodate a hospital. While some uses from the school program were easily accommodated in hospital spaces, such as students' dormitories in patient rooms, others, such as classrooms, required major change in order to make it an adequate space, which in some cases was not possible. Today, the results of trying to fit the program in the space available are poor quality classrooms and student spaces.

The plan proposes that the school begin to design for its needs, instead of continuing to attempt to fit its needs into the existing design, which becomes increasingly challenging as the school grows and new STEM fields emerge with specialized space needs.

## SEED Schools (various locations)

SEED Schools are an example of a boarding school model that can be transplanted to new areas. Currently in three urban neighborhoods, the school—which boards students from underserved areas five nights a week as a way to provide a more immersive educational experience—represents an

[14] The website of Old Edwards Inn & Spa, http://www.oldedwardsinn.com.
[15] Ibid.
[16] Ibid.
[17] Ibid.
[18] The website of CATS Academy Boston, http://www.catsacademy.com/en.
[19] Carlock, Catherine, "CATS Academy Boston Plans $40M, 20-acre Campus in Braintree," *Boston Business Journal*, 20 February 2015.
[20] The website of CATS Academy Boston.
[21] Carlock.
[22] The website of CATS Academy Boston.
[23] Carlock.
[24] Ibid.
[25] The website of the North Carolina School of Science and Mathematics, http://www.ncssm.edu.
[26] Kueber, Gary, "WATTS HOSPITAL (1909-1980) / NORTH CAROLINA SCHOOL OF SCIENCE AND MATH," the website of *Open Durham*, http://www.opendurham.org.
[27] "North Carolina School of Science and Mathematics Campus Master Plan: October 2008,"
[28] "North Carolina School of Science and Mathematics Campus Master Plan Executive Summary:

innovative way to offer the boarding school experience to high-potential students who would benefit from additional support structures.

The SEED Foundation operates three schools, in Washington, DC, Maryland, and Florida. The schools are college-preparatory boarding schools for students from underserved areas. Each school handles its own admissions process, though lottery systems are in place at each since applications exceed available seats.[29]

The SEED school in Washington, DC, serves 325 students in grades six to 12 from the surrounding, low-income, predominantly-Black community. The students arrive to the neighborhood campus on Sunday evening and leave on Friday evening. The public charter school, which is free for admitted students, costs $35,000 per student, which comes primarily from local government funds.[30] This is about three times the cost per pupil of other area charter schools.[31]

The newest SEED school, in Miami, is a seven-day-a-week experience.[32]

The SEED Foundation seeks to open new schools in new areas.[33]

## Fearrington Village

Fearrington Village, a mixed-use community developed in the early 1970's eight miles south of Chapel Hill, occupies 1,200 acres of agricultural land and is home to 1800 residents in both detached single family homes and townhouse style residences. Fitch Creations, Inc., a family business formed in 1960, acted as the builder and developer of the entire Fearrington Village community and continues to own and manage most of the businesses within the Village Center.

The Fearrington Village Center includes an adaptively reused Inn and resort, several regionally renowned restaurants and cafes, a recently developed spa, a beer garden and several other boutique shops. The Village also incorporates large tracts of operational agricultural land, walking trails, gardens and other open spaces which are designed to link the residential neighborhoods with the Village Center. The historic Inn and spa have become a premier destination for weddings and events while the operational agricultural components of the village draw families from all around Central North Carolina for weekend visits.

In 2005, Galloway Ridge, owned by Galloway Ridge Inc. a North Carolina nonprofit corporation, was developed as the only Lifecare continuing care retirement community in the Triangle region of North Carolina. The retirement community is sited on a 50-acre tract within the 1200 acre Fearrington Village campus. Galloway Ridge has been described by the Wall Street Journal as a prototype of future housing development for older Americans, featuring a Center for Living operated by Duke University Health System, Rehabilitation and Wellness Center and a Primary Care Center operated by the University of North Carolina's Health system.

Galloway Ridge features residential units ranging from 1BR apartments style units of 800SF to detached cottages/villas of 2000SF. The Galloway Ridge CCRC model implements a one time entrance fee that ranges from $250,000-$1,000,000 and monthly fees that range from $2,400-$4,700. Life Care Services (LCS), a national management organization provides professional development, management, marketing and financial services. This senior living component is integrated into the Fearrington Village campus providing residents with a network of vehicular and pedestrian access to the outdoor and village center amenities.

## Givens Estates

Givens Estates Continuing Care Retirement Community, a Christian, ecumenical not-for-profit corporation established in 1975, is a 530-unit residential campus located just outside of Asheville, NC within the Blue Ridge and Great Smoky Mountains. As of 2013, Givens Estates posted a 100% occupancy rate on their Independent Living Units. Entrance fees to join the community ranged from $30,000-$800,000 with monthly fees between $1,100-$3,200.

The mixed-use residential campus features a wide variety of living options, including, apartments, villas, duplexes and individual homes accommodating seniors of all levels of independence. The campus is designed with the majority of the residential facilities on the periphery, focusing the central core of the campus on community amenities such as the dining halls, recreation and entertainment facilities. Recently, the campus invested in the construction of a 400 seat Performing Arts Center. In addition to the wide variety of residential options and common amenities, a health and wellness center, featuring a spa, pool, and psychical therapy gym is located on the campus providing the residents with health care and health related programming.

The 215-acre campus offers residents and guests with a wide variety of passive and active recreational spaces, many of which are connected with the mountainous landscapes of Western North Carolina. The campus grounds feature walking/hiking trails, healing and vegetable gardens, greenhouses, an arboretum, horseshoe pits and croquet fields.

In 2007, the Givens Estates campus expanded its residential offerings with the off-site development of the Great Laurels of Junaluska, which features 100 affordable apartments for residents of limited means. Approximately 25% of all the residents within Givens Estates are receiving some level of financial assistance for their residential fees.

[29] The website of the SEED Foundation, http://www.seedfoundation.com.
[30] Jones, Maggie, "The Inner-City Prep School Experience," *New York Times,* 25 September 2009.
[31] Einhorn, Erin, "The Rise of Urban Public Boarding Schools," *The Atlantic*, 26 December 2015.
[32] Ibid.
[33] The website of the SEED Foundation.

## AGRITOPIA[34,35,36]

Agritopia, in Gilbert, Arizona—20 miles from Phoenix—is a 160-acre residential development centered around a 15-acre certified organic farm. Between 2008 and 2010, 452 single-family homes were built on the site. By 2014, 150 assisted and independent living units were on site. In fall 2016, 250 mixed-use residences are scheduled to open, for a total of 950 residential units.

The development is located on the former Johnston family farm. Joe Johnston, seeing the growing residential developments of Gilbert enclosing on his family's property, planned a multigenerational mixed-use development based around the family farm.

Residents have access to rentable garden plots, and for those who would rather not get their hands dirty, the development runs a CSA program called the Good Food Box program. There is a farm stand that operates on the honor system and an outdoor food court. A farm-to-table restaurant is on site. Agritopia also sells its produce to restaurants in the area. There is a homeowners' association that governs as well as organizes social events.

The 143,000 square foot Generations at Agritopia contains 122 units: 74 independent and assisted living units and 48 memory care apartments. The CCRC opened on the grounds of Agritopia in July 2014. The $26 million project is operated by Retirement Community Specialists, which also operates two other CCRCs in Arizona.

The 18-month long construction was completed in July 2014. The project was developed through a joint venture of Retirement Community Specialists and Investment Property Associates. Investment Property Associates develops multifamily and senior communities in Greater Phoenix and Western Michigan.

All but one apartment layout has a full kitchen, washer, and dryer. One layout, a one-bedroom, has a kitchenette. Eighteen units have garages, and there are 18 storage units on the site.

As of February 2015, the CCRC was 75 percent occupied. The independent and assisted-living units were 95 percent occupied. The memory care apartments, which had opened five months earlier, were 50 percent occupied.

Generations has a movie theater, several dining establishments, a wine cellar, and a tea room. Its finishes and art collection make it resemble a high-end hotel more than a senior living facility. The interiors were designed by senior housing interior design firm Thoma-Holec Design.

One of the ways in which Generations is different from other CCRCs is the ways in which it is integrated into a larger community. Though RCS Agritopia wanted to open a CCRC, a market study showed insufficient demand within a five miles radius of the site. When a CCRC named Sunrise Senior Living opened in central Gilbert, RCS reassessed the market and found sufficient demand.

[34] The website of Agritopia, http://www.agritopia.com

[35] Jason Oliva, "Best of CCRC Design 2014: Fitting Into the Master Planned Community," *Senior Housing* News, February 4, 2015, http://seniorhousingnews.com/2015/02/04/best-ccrc-design-2014-fitting-master-planned-community

[36] Lisa Jackson, "How to Build Better Suburbs," *Huffington Post*, August 7, 2015, http://www.huffingtonpost.ca/lisa-jackson/green-suburbs_b_7941068.html

Initially, Generations was to be financed through HUD's Section 232 program, but those plans stalled due to an ownership change during the recession. In 2012, Investment Property Associates bought Generations at Agritopia and, besides a few small changes, proceeded with most of the original design.

Interest in the project was strong enough to lead RCS to begin developing another Generations product. Generations at Ahwatukee is opening outside Phoenix.

## SERENBE[37,38,39,40,41,42,43]

Near the Atlanta airport, the rural-inspired New Urbanist community Serenbe broke ground on its first home in 2004. It initially had 220 single-family homes on 1,000 acres, with another 800 home sites planned. Currently, about 400 residents live at Serenbe. The development has a 25-acre organic farm, 160 acres of protected open land, and 15 miles of trails. Serene has four themed "hamlets" that focus on different "elements of a well-lived life:" arts, agriculture, health, and education. Residences include:

- Farmettes: five to 25-acre lots designed to accommodate a single-family home, vegetable garden, farm animals, pastures, and a barn.
- Lots
- Cottages
- Lofts
- studio to three-bedroom apartments for sale and lease in a building meant to resemble a redeveloped textile mill
- Townhomes
- Live/work townhomes: lower levels house restaurants, galleries, and shops. Upper levels have two-bedroom apartments.

The developer is restaurateur Steve Nygren, who began the project on his land. The development began with the organic farm, which developed relationships with local restaurants. This provided strong initial word-of-mouth advertising.

The development grew out of a concern for land preservation and a realization that growth from nearby Atlanta was inevitable. Nygren and other landowners created the Chattahoochee Hill Country Alliance, which helped create a plan to balance development with land preservation. Through a mix of land-use

[37] The website of Serenbe, http://serenbe.com

[38] Jennifer Brett, "At Serenbe, sustainability is an art," *Atlanta Journal Constitution,* July 9, 2015, http://buzz.blog.ajc.com/2015/07/08/at-serenbe-sustainability-is-an-art/

[39] Lori Johnston, "Serenbe, Soleil add more housing options, wellness amenities," *Atlanta Journal Constitution,* March 30, 2015, http://www.ajc.com/news/lifestyles/home-garden/serenbe-soleil-add-more-housing-options-wellness-a/nkfdR/

[40] Josh Green, "Serenbe Expects Wave of Development this Fall, Next Year," Curbed, October 23, 2014, http://atlanta.curbed.com/archives/2014/10/23/serenbe-expects-wave-of-new-development-this-fall-next-year.php

[41] Harold Bubil, "New Urbanism takes root in the red Georgia clay," *Herald-Tribune*, September 10, 2013, http://realestate.heraldtribune.com/2013/09/10/new-urbanism-takes-root-in-the-red-georgia-clay

[42] Megan Kimble, "Serenbe in Chattahoochee Hills, Georgia," *Terrain.org*, December 15, 2012, http://www.terrain.org/2012/unsprawl/serenbe/

[43] "The Serenbe Story," handout by Development Concepts, 2014, http://development-concepts.com/wp-content/uploads/2014/04/Serenbe-Handout1.pdf

tools, such as land purchase, conservation easements, a transfer of development rights, and mixed-use zoning, their vision aimed to provide for 30,000 residences in the area while preserving at least 70 percent of the 40,000 acres of open space. The resulting plan created both dense development and preserved, open spaces.

Serenbe aims to attract residents with amenities such as local boutiques, art galleries, three critically acclaimed farm-to-table restaurants, a bed and breakfast, a well-reviewed theater and playhouse, dog park, fishing pond, stables, and forest with walking trails. There is a focus not just on comfortable living, but on sustainability: treated wastewater irrigates landscaping and homes make use of geothermal and solar features. An "Art Farm" is under development, meant to be a retreat space on the farm for artists.

The development has no spec homes—owners can buy resale homes or build new, using approved builders. In 2014, 75 percent of households were at least 40 years old. A nearby charter school opened in fall 2014, which is expected to help attract younger families to the development.

The Serenbe Homeowners Association is managed by the Nygren family and will transition to an HOA board once the development is 90 percent built-out. The HOA manages roads, parks, and ROW maintenance. Fees of approximately $550 to $1000 per year are based on usage of water, wastewater, and solid waste services.

To account for the placemaking concerns at Serenbe that are larger than those normally handled by an HOA, the Nygren family created the 501c3 Serenbe Institute. Every home sale results in a one percent transaction fee paid by the buyer to the Institute; every lot sale results in a three percent fee. With this money, the Institute manages the Serenbe community experience by sponsoring amenities such as theater groups and arts programs.

The community expected about $85 million in new development in 2015, including the first stages of construction on 200,000 square feet of office space.

The Textile Lofts—a 10,000 square foot apartment building with ground-floor retail—broke ground in late 2014. The new building, which is meant to recreate the experience of living in a redeveloped mill building, had a waiting list before construction began.

Serenbe includes a new section called Mado, which is marketed toward residents aged 55 and up. Mado has 16 one-story cottages. The cottages, designed by Monte Hewett Homes, all have private courtyards. One unique element is the Common House, a shared area between the cottages with two guest suites, a gourmet kitchen, and entertaining areas. This is part of the development's push to attract retirees who still seek active lifestyles and like to entertain, but also may need the cottages' accommodations for aging-in-place.

Nygren, the developer, had trouble finding a bank to fund the development, which he says was a result of there being no statistics showing that people would pay as much for a home near a farm as for a home along a golf course. A small community bank offered to lend the necessary money if Nygren put his downtown Atlanta property—worth three times the sum he hoped to borrow—up as collateral.

The development got off to a strong start, and the initial bank loans were paid back within a few years. Nygren borrowed money for the second phase just as the 2008 recession got underway. Banks were not loaning to builders, so Nygren was selling lots to individuals, which proved challenging. With infrastructure in place in 2002, lots began to sell for approximately $4,500 per acre. By 2014, such lots sold for $500,000 to $950,000 per acre. Nygren envisions 100,000 residents at full build out.

## APACHE ASL TRAILS[44,45,46,47,48,49,50,51]

Apache ASL Trails, in Tempe, Arizona, is an affordable housing development for deaf and hard-of-hearing seniors that communicate with American Sign Language. It opened in 2012. The 89,000 square foot mixed-use development has 75 one- and two-bedroom units, designed by a deaf architect, which cater to deaf residents. Residents, who may have felt isolated in hearing communities, value the development because they "share a common language" and are "not lonely anymore." When first leasing, deaf and hard-of-hearing applicants had preference, and the complex opened with a waiting list.

The development was designed by WSM Architects, which has experience with senior living projects. The contractor was Adolphson Peterson.

Design features and amenities include video phones in units; strobe lights that flash to alert residents to the phone, doorbell, and fire alarm; and announcements in common areas that can be routed to hearing aids. The complex has an ASL-friendly manager and an ASL-friendly beauty salon, in addition to a medical clinic. The development has four ground-floor retail/office spaces and a 1,895 square foot medical office unit. The development is on the light rail line.

Total development cost was $16.7 million, $2.6 million of which came from HUD grant and stimulus funding. The development was financed in part by Cardinal Capital Management, an affordable housing developer. Funding also came from the federal Low Income Housing Tax Credit program, Tax Credit Assistance Program funds, and HOME Investment Partnership Program funds.

Soon after construction, HUD—based on the development's marketing materials—charged Apache with discrimination for giving preference to deaf and hard-of-hearing people, in violation of Section 504 of the Rehabilitation Act of 1973. HUD said that the number of units reserved for individuals who are hearing-impaired or in wheelchairs should be capped at 19, or 25 percent of its units, and threatened to withhold funds from the state if it did not comply. According to a HUD officials, this was because, "federal law prohibits facilities that receive HUD funds from providing separate or different housing for one group of individuals with disabilities because this practice denies or limits access to housing for other individuals based on the types of disabilities they have."

These charges led to the scrapping of at least some other developments around the country that were to cater to certain disabled groups and were planning to receive federal monies. Faced with mountain national criticism from disability advocates, HUD ultimately backed down and removed its legal complaint.

[44] Website of Apache ASL Trails, http://www.apacheasltrails.com/main.html

[45] Fernanda Santos, "A Haven for the Dead Draws Federal Scrutiny Over Potential Discrimination," *New York Times*, April 28, 2013, http://www.nytimes.com/2013/04/29/us/arizona-haven-for-deaf-faces-discrimination-charges.html?_r=0

[46] Fernanda Santos, "Arizona: Challenge to Housing for the Deaf is Dropped," *New York Times*, January 24, 2014, http://www.nytimes.com/2014/01/25/us/arizona-challenge-to-housing-for-the-deaf-is-dropped.html

[47] "Tempe Medical & General Offices for Lease," real estate listing on Loopnet, http://looplink.levrose.com/ll/19360077/2428-E-Apache-Blvd

[48] "Housing for Persons with Special Needs: Deaf Seniors – Apache ASL Trails," Arizona Department of Housing brief, *https://www.ncsha.org/system/files/Arizona_HFPWSN.pdf*

[49] "Apache ASL Trails," from the website of WSM Architects, http://www.wsmarch.com/project.php?MA=7&PROJ=41

[50] Kimberly Cheng, "Senior apartment community opens for hearing impaired and deaf in Tempe," ABC15, July 15, 2011, http://www.abc15.com/news/region-southeast-valley/tempe/senior-apartment-community-opens-for-hearing-impaired-and-deaf

[51] Ken Harris, "HUD Reverses Decision on Setting Preferences in Senior Housing," the website of LeadingAge New York, http://www.leadingageny.org/providers/housing-and-retirement-communities/hud/hud-reverses-decision-on-setting-preferences-in-senior-housing

# 9 INVESTMENT SCHEDULES BY REDEVELOPMENT APPROACH

## COMPREHENSIVE APPROACH - RECOMMENDED PROGRAM - ANCHORED BY RESIDENTIAL SCHOOL

| | | TOTAL SHARE | | | |
|---|---|---|---|---|---|
| **COMPONENT** | **TOTAL COSTS** | **STATE - SCHOOL** | **STATE - OTHER** | **LOCAL** | **PRIVATE** |
| AMENITIES | | | | | |
| ACCESS ROAD | $1,244,593 | | | $1,244,593 | |
| GATEWAY PARK/INTERSECTION | $7,605,481 | | | $7,605,481 | |
| POND | $2,993,474 | | | $2,993,474 | |
| GREENWAY SPINE | $1,286,644 | | | $1,286,644 | |
| ATHLETIC FIELDS | $557,555 | | | $557,555 | |
| GREENWAY PATHS | $2,518,920 | | | $2,518,920 | |
| MOTHBALLING | | | | | |
| BROUGHTON (NONE DUE TO IMMEDIATE REUSE AS SCHOOL/MIXED USE) | | | | | |
| NCSD (GOODWIN & JOINER) | $621,100 | | $621,100 | | |
| COLLEGE/COUNTY AREA (BARNS, COLONY, ABATTOIR) | $427,620 | | $427,620 | | |
| DEMOLITION | | | | | |
| BROUGHTON | $2,265,310 | | $2,265,310 | | |
| NCSD | $1,220,436 | | $1,220,436 | | |
| COLLEGE/COUNTY AREA | $934,682 | | | $934,682 | |
| ESTC | $7,500 | | | $7,500 | |
| REPLACEMENT (EXCLUDING LAND PURCHASE COSTS) | | | | | |
| DHHS - BROUGHTON | $10,886,000 | | $10,886,000 | | |
| DPS (BROUGHTON SHARE OF NEW FACILITY) | $7,700,000 | | $7,700,000 | | |
| COLLEGE - ESTC | $11,301,675 | | | $11,301,675 | |
| DHHS - WORKSOURCE WEST | $11,745,000 | | $11,745,000 | | |
| SITEWORK | | | | | |
| BROUGHTON - SCHOOL AND MIXED-USE | $4,102,884 | | $4,102,884 | | |
| HOSPITALITY VILLAGE | $4,212,179 | | | $4,212,179 | |
| NEW RESIDENTIAL | $664,624 | | | $664,624 | |
| CONSTRUCTION | | | | | |
| BROUGHTON - SCHOOL (PHASE 1 - HALF OF AVERY + ACADEMIC BUILDINGS) | $35,798,899 | $35,798,899 | | | |
| BROUGHTON - SCHOOL (PHASE 2) | $32,946,193 | $32,946,193 | | | |
| BROUGHTON - RESIDENTIAL | $19,519,118 | | | | $19,519,118 |
| BROUGHTON - COMMERCIAL | $5,228,161 | | | | $5,228,161 |
| SENIOR LIVING (PHASE 1 - IL/AL APARTMENTS) | $71,134,648 | | | | $71,134,648 |
| SENIOR LIVING (PHASE 2 - VILLAS) | $9,700,179 | | | | $9,700,179 |
| HOSPITALITY VILLAGE - RETAIL (BREWERY/RESTAURANT) | $4,992,130 | | | | $4,992,130 |
| HOSPITALITY VILLAGE - HOTEL | $29,965,931 | | | | $29,965,931 |
| NEW RESIDENTIAL | $11,902,200 | | | | $11,902,200 |
| | | | | | |
| | **$293,483,137** | **$68,745,092** | **$38,968,350** | **$33,327,327** | **$152,442,368** |

## COMPREHENSIVE APPROACH - ALTERNATIVE PROGRAM - ANCHORED BY HOTEL

| | | TOTAL SHARE | | | |
|---|---|---|---|---|---|
| **COMPONENT** | **TOTAL COSTS** | **STATE - SCHOOL** | **STATE - OTHER** | **LOCAL** | **PRIVATE** |
| AMENITIES | | | | | |
| ACCESS ROAD | $1,244,593 | | | $1,244,593 | |
| GATEWAY PARK/INTERSECTION | $7,605,481 | | | $7,605,481 | |
| POND | $2,993,474 | | | $2,993,474 | |
| GREENWAY SPINE | $1,286,644 | | | $1,286,644 | |
| ATHLETIC FIELDS | *$557,555* | | | *$557,555* | |
| GREENWAY PATHS | $2,518,920 | | | $2,518,920 | |
| MOTHBALLING | | | | | |
| BROUGHTON (MAY BE NECESSARY BASED ON TIMING OF HOTEL) | $0 | | $0 | | |
| NCSD (GOODWIN & JOINER) | $621,100 | | $621,100 | | |
| COUNTY SERVICES (BARNS, COLONY, ABATTOIR) | $427,620 | | $427,620 | | |
| CARRYING COSTS | | | | | |
| BROUGHTON (FOR 7-YEAR VACANT PERIOD) | $2,066,400 | | $2,066,400 | | |
| DEMOLITION | | | | | |
| BROUGHTON | $2,265,310 | | $2,265,310 | | |
| NCSD | $1,220,436 | | $1,220,436 | | |
| COLLEGE/COUNTY AREA | $934,682 | | | $934,682 | |
| ESTC | $7,500 | | | $7,500 | |
| REPLACEMENT (EXCLUDING LAND PURCHASE COSTS) | | | | | |
| DHHS - BROUGHTON | $10,886,000 | | $10,886,000 | | |
| DPS (BROUGHTON SHARE OF NEW FACILITY) | $7,700,000 | | $7,700,000 | | |
| COLLEGE- ESTC | $11,301,675 | | | $11,301,675 | |
| DHHS - WORKSOURCE WEST | $11,745,000 | | $11,745,000 | | |
| SITE PREPARATION | | | | | |
| BROUGHTON - HOTEL | $4,332,133 | | $922,566 | $3,409,567 | |
| NEW RESIDENTIAL | $2,708,694 | | | $2,708,694 | |
| CONSTRUCTION | | | | | |
| NEW SCHOOL (PHASE 1 ) - NOT LOCATED ON-SITE | $39,155,835 | $39,155,835 | | | |
| NEW SCHOOL (PHASE 2) - NOT LOCATED ON-SITE | $35,231,412 | $35,231,412 | | | |
| BROUGHTON - HOTEL | $80,233,765 | | | | $80,233,765 |
| BROUGHTON - RESIDENTIAL | $30,675,322 | | | | $30,675,322 |
| BROUGHTON - COMMERCIAL | $5,228,161 | | | | $5,228,161 |
| SENIOR LIVING (PHASE 1 - IL/AL APARTMENTS) | $71,134,648 | | | | $71,134,648 |
| SENIOR LIVING (PHASE 2 - VILLAS) | $9,700,179 | | | | $9,700,179 |
| RETAIL (BREWERY/RESTAURANT) | $4,992,130 | | | | $4,992,130 |
| NEW RESIDENTIAL | $22,311,302 | | | | $22,311,302 |
| | | | | | |
| | **$371,085,970** | **$74,387,247** | **$37,854,432** | **$34,568,785** | **$224,275,507** |

## LIMITED APPROACH - NARROW PROGRAM - RELIANT ON STATE SCHOOL

| | | TOTAL SHARE | | | |
|---|---|---|---|---|---|
| **COMPONENT** | **TOTAL COSTS** | **STATE - SCHOOL** | **STATE - OTHER** | **LOCAL** | **PRIVATE** |
| AMENITIES (NONE) | | | | | |
| MOTHBALLING | | | | | |
| BROUGHTON (NONE DUE TO IMMEDIATE REUSE AS SCHOOL/MIXED USE) | | | | | |
| DEMOLITION | | | | | |
| BROUGHTON | $2,265,310 | | $2,265,310 | | |
| REPLACEMENT (EXCLUDING LAND PURCHASE COSTS) | | | | | |
| DHHS – BROUGHTON | $10,886,000 | | $10,886,000 | | |
| DPS (BROUGHTON SHARE OF NEW FACILITY) | $7,700,000 | | $7,700,000 | | |
| SITEWORK | | | | | |
| BROUGHTON - SCHOOL AND MIXED-USE | $5,103,143 | | $5,103,143 | | |
| CONSTRUCTION | | | | | |
| BROUGHTON - SCHOOL (PHASE 1 - HALF OF AVERY + ACADEMIC BUILDINGS) | $35,798,899 | $35,798,899 | | | |
| BROUGHTON - SCHOOL (PHASE 2) | $32,946,193 | $32,946,193 | | | |
| BROUGHTON – RESIDENTIAL | $19,519,118 | | | | $19,519,118 |
| BROUGHTON - COMMERCIAL | $5,228,161 | | | | $5,228,161 |
| | | | | | |
| | $119,446,824 | $68,745,092 | $25,954,453 | $0 | $24,747,279 |

## LIMITED APPROACH - DEFERRAL - MOTHBALLING

| | | TOTAL SHARE | | | |
|---|---|---|---|---|---|
| **COMPONENT** | **TOTAL COSTS** | **STATE - SCHOOL** | **STATE - OTHER** | **LOCAL** | **PRIVATE** |
| AMENITIES (NONE) | | | | | |
| MOTHBALLING | | | | | |
| BROUGHTON | $6,600,000 | | $6,600,000 | | |
| NCSD (GOODWIN & JOINER) | $621,100 | | $621,100 | | |
| COUNTY SERVICES (BARNS, COLONY, ABATTOIR) | $427,620 | | $427,620 | | |
| CARRYING COSTS | | | | | |
| BROUGHTON (FOR 10-YEAR VACANT PERIOD, ALTHOUGH IT WOULD BE INDEFINITE) | $2,952,000 | | $2,952,000 | | |
| DEMOLITION (NONE) | | | | | |
| REPLACEMENT (NONE) | | | | | |
| SITEWORK (NONE) | | | | | |
| CONSTRUCTION | | | | | |
| NEW SCHOOL (PHASE 1 ) - NOT LOCATED ON-SITE | $39,155,835 | $39,155,835 | | | |
| NEW SCHOOL (PHASE 2) - NOT LOCATED ON-SITE | $35,231,412 | $35,231,412 | | | |
| | | | | | |
| | $84,987,967 | $74,387,247 | $10,600,720 | $0 | $0 |

# 10 DISTRICT APPROACH-FINANCIAL MODEL SUMMARY

## COMPREHENSIVE DISTRICT APPROACH – RECOMMENDED PROGRAM – ANCHORED BY RESIDENTIAL SCHOOL

Summaries of the financial pro forma models—projections of the performance of a real estate investment—for the comprehensive district approach are presented below. The financial models are presented for the private investment components of the recommended program for the comprehensive district approach, which is anchored by the residential school on the Historic Broughton Hospital Campus. The study recommends that this school be a public investment by the State. Therefore, the extent of the financial projections presented for that program are the development costs. The assumptions used in these pro forma models regarding development costs, sources of capital, and the marketability and income potential of the investments are current as of end of the first quarter of 2016.

Model summaries for the following components are presented on the following pages:

- Residential School
- Multi-use Village
- Senior Living Community
- Hospitality Village
- Multi-family Residential

## RESIDENTIAL SCHOOL (SEE P. 24-31 OF THE VISION SECTION OF THE MAIN REPORT)

| Development Budget | % | Per GSF | Total |
|---|---|---|---|
| **Hard Costs** | | | |
| Building Demolition | 3.0% | $4.70 | $2,265,310 |
| Sitework | 5.5% | $8.51 | $4,103,143 |
| Rehab | | | |
| Avery | 49.9% | $77.72 | $37,453,618 |
| Bates North | 2.9% | $4.54 | $2,185,750 |
| Machine Shop | 0.9% | $1.42 | $683,389 |
| Marsh | 2.0% | $3.09 | $1,486,818 |
| Reece | 2.9% | $4.59 | $2,209,710 |
| Saunders | 2.9% | $4.52 | $2,176,243 |
| Steam Plant | 1.8% | $2.87 | $1,385,072 |
| Laundry | 3.4% | $5.32 | $2,563,614 |
| Gym | 3.9% | $6.03 | $2,904,051 |
| Chapel | 0.7% | $1.09 | $525,000 |
| Contingency | 3.9% | $6.08 | $2,931,421 |
| Remobilization (second phase) | 1.6% | $2.49 | $1,200,000 |
| **Total Hard Costs** | **85.4%** | **$132.96** | **$64,073,139** |
| **Soft Costs** | | | |
| A&E fees | 4.9% | $7.65 | $3,684,794 |
| Legal and accounting | 0.5% | $0.80 | $385,510 |
| Appraisal | 0.1% | $0.10 | $48,189 |
| Survey | 0.1% | $0.20 | $96,378 |
| Insurance | 0.2% | $0.25 | $120,472 |
| Construction loan carried interest | 1.7% | $2.61 | $1,256,180 |
| Bridge loan carried interest | 0.7% | $1.16 | $561,281 |
| Loan fees | 0.9% | $1.39 | $670,539 |
| Contingency | 0.9% | $1.42 | $682,334 |
| **Total Soft Costs** | **10.0%** | **$15.58** | **$7,505,677** |
| **Other Costs** | | | |
| Project Management | 4.6% | $7.17 | $3,453,276 |
| **Total Other Costs** | **4.6%** | **$7.17** | **$3,453,276** |
| **Total Budget** | **100.0%** | **$155.70** | **$75,032,092** |

## MULTI-USE VILLAGE (SEE P. 27 OF THE VISION SECTION OF THE MAIN REPORT)

| Property Summary | |
|---|---|
| Gross Area (GSF) | 114,359 |
| Number of Units | |
| Residential | 73 |
| Commercial | 1 |
| Rentable Area (RSF) | |
| Residential | 87,294 |
| Commercial | 11,077 |
| Stabilized Occupancy | 95% |

| Development Budget | | |
|---|---|---|
| | Per GSF | Total |
| Acquisition Costs | $16 | $1,800,455 |
| Hard Costs | $126 | $14,415,960 |
| Soft Costs | $16 | $1,831,036 |
| Other Costs | $13 | $1,471,667 |
| Total | $171 | $19,519,118 |

| Permanent Capital Sources | | |
|---|---|---|
| Investor Equity | 13% | $2,442,257 |
| Developer Equity | 1% | $180,475 |
| Historic Tax Credit Equity | 25% | $4,786,584 |
| Seller Note | 9% | $1,800,455 |
| Primary Mortgage Note | 53% | $10,309,348 |
| Total | 100% | $19,519,118 |

| Debt Summary | |
|---|---|
| Amortization (years) | 30 |
| Interest Rate | 5.00% |
| Total Annual Debt Service | $780,097 |
| Stabilized Total Debt Service Coverage | 1.15 |

| Blended Stabilized Cash Flow (annual) | | | |
|---|---|---|---|
| | Per Unit | Per RSF | Total |
| Gross Potential Rent | $18,224 | $13.71 | $1,348,559 |
| Vacancy | $911 | $0.69 | $67,428 |
| Operating Expenses | $5,159 | $3.88 | $381,750 |
| Net Operating Income (NOI) | $12,154 | $9.14 | $899,381 |

| Disposition Summary | | | |
|---|---|---|---|
| Year of Sale | | | 6 |
| NOI at Sale (forward 12 months) | $14,200 | $10.68 | $1,050,793 |
| Capitalization Rate | | | 6.75% |
| Gross Sale Proceeds | $210,369 | $158.25 | $15,567,305 |
| Selling Fees | $6,311 | $4.75 | $467,019 |
| Outstanding Debt | $148,226 | $111.50 | $10,968,694 |
| Net Sale Proceeds | $55,832 | $42.00 | $4,131,592 |

| Returns Summary | |
|---|---|
| Internal Rate of Return | 14% |
| Equity Multiple | 2.0x |

| Development Budget | | | |
|---|---|---|---|
| | % | Per GSF | Total |
| **Acquisition** | **9.2%** | **$15.74** | **$1,800,455** |
| **Hard Costs** | | | |
| Rehab/Construction | | | |
| Bates South | 13.1% | $22.35 | $2,555,865 |
| F2 Dining | 4.8% | $8.15 | $932,372 |
| Harper | 29.0% | $49.49 | $5,659,913 |
| Scroggs | 13.8% | $23.59 | $2,697,224 |
| South | 9.7% | $16.48 | $1,884,112 |
| Contingency | 3.5% | $6.00 | $686,474 |
| **Total Hard Costs** | **73.9%** | **$126.06** | **$14,415,960** |
| **Soft Costs** | | | |
| A&E fees | 5.2% | $8.82 | $1,009,117 |
| Legal and accounting | 0.5% | $0.80 | $91,487 |
| Appraisal | 0.1% | $0.10 | $11,436 |
| County property taxes | 0.0% | $0.08 | $9,542 |
| City property taxes | 0.1% | $0.11 | $12,243 |
| Survey | 0.1% | $0.20 | $22,872 |
| Insurance | 0.1% | $0.25 | $28,590 |
| Construction loan carried interest | 1.0% | $1.75 | $200,649 |
| Bridge loan carried interest | 0.8% | $1.38 | $157,888 |
| Loan fees | 0.6% | $1.06 | $120,754 |
| Contingency | 0.9% | $1.46 | $166,458 |
| **Total Soft Costs** | **9.4%** | **$16.01** | **$1,831,036** |
| **Other Costs** | | | |
| Developer Fee | 4.6% | $7.89 | $902,373 |
| Operating Reserve | 2.9% | $4.98 | $569,294 |
| **Total Other Costs** | **7.5%** | **$12.87** | **$1,471,667** |
| **Total Budget** | **100.0%** | **$170.68** | **$19,519,118** |

## SENIOR LIVING COMMUNITY (SEE P. 32-35 OF THE VISION SECTION OF THE MAIN REPORT)

| Property Summary | |
|---|---|
| Gross Area (GSF) | 364,040 |
| Number of Units | 326 |
| Rentable Area (RSF) | 279,500 |
| Stabilized Occupancy | 92% |

| Development Budget | Per GSF | Total |
|---|---|---|
| Acquisition Costs | $14 | $4,968,474 |
| Hard Costs | $174 | $63,501,538 |
| Soft Costs | $18 | $6,631,979 |
| Other Costs | $16 | $5,732,837 |
| Total | $222 | $80,834,828 |

| Permanent Capital Sources | | |
|---|---|---|
| Investor Equity | 23% | $18,817,312 |
| Developer Equity | 1% | $751,020 |
| Historic Tax Credit Equity | 5% | $3,959,828 |
| Seller Note | 6% | $4,968,474 |
| Primary Mortgage Note | 65% | $52,338,193 |
| Total | 100% | $80,834,828 |

| Debt Summary | |
|---|---|
| Amortization (years) | 25 |
| Interest Rate | 5.50% |
| Total Annual Debt Service | $4,222,957 |
| Stabilized Total Debt Service Coverage | 1.22 |

| Stabilized Cash Flow (annual) | Per Unit | Per RSF | Total |
|---|---|---|---|
| Gross Potential Rent | $39,354 | $45.90 | $12,829,440 |
| Vacancy | $3,148 | $3.67 | $1,026,355 |
| Operating Expenses | $20,386 | $23.78 | $6,645,984 |
| Net Operating Income (NOI) | $15,819 | $18.45 | $5,157,101 |

| Disposition Summary | | | |
|---|---|---|---|
| Year of Sale | | | 6 |
| NOI at Sale (forward 12 months) | $20,037 | $23.37 | $6,532,003 |
| Capitalization Rate | | | 7.75% |
| Gross Sale Proceeds | $258,540 | $301.55 | $84,283,908 |
| Selling Fees | $7,756 | $9.05 | $2,528,517 |
| Outstanding Debt | $153,999 | $179.62 | $50,203,834 |
| Net Sale Proceeds | $96,784 | $112.89 | $31,551,556 |

| Returns Summary | |
|---|---|
| Internal Rate of Return | 14% |
| Equity Multiple | 2.1x |

| Development Budget | % | Per GSF | Total |
|---|---|---|---|
| **Acquisition** | **6.1%** | **$13.65** | **$4,968,474** |
| **Hard Costs** | | | |
| Sitework | 5.6% | $12.48 | $4,544,029 |
| Construction/Rehab | | | |
| New Construction | 54.0% | $120.01 | $43,687,390 |
| Goodwin | 7.1% | $15.86 | $5,773,180 |
| Joiner | 3.2% | $7.17 | $2,609,125 |
| Infirmary | 1.1% | $2.48 | $903,750 |
| Barn | 0.9% | $2.06 | $750,000 |
| Contingency | 6.5% | $14.38 | $5,234,064 |
| **Total Hard Costs** | **78.6%** | **$174.44** | **$63,501,538** |
| **Soft Costs** | | | |
| A&E fees | 4.2% | $9.36 | $3,406,147 |
| Legal and accounting | 0.4% | $0.80 | $291,232 |
| Appraisal | 0.0% | $0.10 | $36,404 |
| County property taxes | 0.0% | $0.07 | $26,333 |
| City property taxes | 0.0% | $0.09 | $33,786 |
| Survey | 0.1% | $0.20 | $72,808 |
| Insurance | 0.1% | $0.25 | $91,010 |
| Construction loan carried interest | 1.7% | $3.86 | $1,405,241 |
| Bridge loan carried interest | 0.2% | $0.35 | $128,851 |
| Loan fees | 0.7% | $1.48 | $537,260 |
| Contingency | 0.7% | $1.66 | $602,907 |
| **Total Soft Costs** | **8.2%** | **$18.22** | **$6,631,979** |
| **Other Costs** | | | |
| Developer Fee | 4.6% | $10.32 | $3,755,100 |
| Operating Reserve | 2.4% | $5.43 | $1,977,738 |
| **Total Other Costs** | **7.1%** | **$15.75** | **$5,732,837** |
| **Total Budget** | **100.0%** | **$222.05** | **$80,834,828** |

## HOSPITALITY VILLAGE (SEE P. 36-39 OF THE VISION SECTION OF THE MAIN REPORT)

| Property Summary | |
|---|---|
| Gross Area (GSF) | 101,005 |
| Number of Hotel Rooms ("Keys") | 120 |
| Stabilized Hotel Occupancy | 75% |
| Commercial Rentable Area (RSF) | 19,420 |
| Stabilized Commercial Occupancy | 85% |

| Development Budget | Per GSF | Total |
|---|---|---|
| Acquisition Costs | $35 | $3,484,930 |
| Hard Costs | $258 | $26,029,680 |
| Soft Costs | $37 | $3,778,782 |
| Other Costs | $16 | $1,664,670 |
| Total | $346 | $34,958,061 |

| Permanent Capital Sources | | |
|---|---|---|
| Investor Equity | 8% | $2,652,724 |
| Developer Equity | 1% | $332,934 |
| Historic Tax Credit Equity | 9% | $2,980,388 |
| Seller Note | 10% | $3,484,930 |
| New Markets Tax Credit Loan | 22% | $7,600,000 |
| Primary Mortgage Note | 51% | $17,907,085 |
| Total | 100% | $34,958,061 |

| Debt Summary | |
|---|---|
| Amortization (years) | 25 |
| Interest Rate | 5.50% |
| Total Annual Debt Service | $1,920,528 |
| Stabilized Total Debt Service Coverage | 1.40 |

| Blended Stabilized Cash Flow (annual) | Per Key | Total |
|---|---|---|
| Dept. Profits and Lease Revenue | $47,013 | $5,641,578 |
| Deductions from Income | $28,647 | $3,437,629 |
| Net Operating Income (NOI) | $18,366 | $2,203,949 |

| Disposition Summary | | |
|---|---|---|
| Year of Sale | | 7 |
| NOI at Sale (forward 12 months) | $22,590 | $2,710,857 |
| Capitalization Rate | | 8.00% |
| Gross Sale Proceeds | $282,381 | $33,885,708 |
| Selling Fees | $8,471 | $1,016,571 |
| Outstanding Debt | $196,075 | $23,528,974 |
| Net Sale Proceeds | $77,835 | $9,340,162 |

| Returns Summary | |
|---|---|
| Internal Rate of Return | 21% |
| Equity Multiple | 4.1x |

| Development Budget | % | Per GSF | Total |
|---|---|---|---|
| **Acquisition** | **10.0%** | **$34.50** | **$3,484,930** |
| **Hard Costs** | | | |
| Sitework | 5.1% | $17.76 | $1,794,349 |
| Construction/Rehab | | | |
| Core & Shell | 19.4% | $66.99 | $6,765,990 |
| Upfit | 9.6% | $33.26 | $3,359,455 |
| Rehab | 24.3% | $84.25 | $8,509,830 |
| FF&E | 12.3% | $42.68 | $4,310,400 |
| Contingency | 3.7% | $12.77 | $1,289,655 |
| **Total Hard Costs** | **74.5%** | **$257.71** | **$26,029,679** |
| **Soft Costs** | | | |
| A&E fees | 3.7% | $12.89 | $1,301,484 |
| Legal and accounting | 0.2% | $0.69 | $69,960 |
| Appraisal | 0.0% | $0.09 | $8,745 |
| County property taxes | 0.1% | $0.18 | $18,470 |
| City property taxes | 0.1% | $0.23 | $23,698 |
| Survey | 0.1% | $0.17 | $17,490 |
| Insurance | 0.1% | $0.22 | $21,863 |
| Construction loan carried interest | 3.4% | $11.88 | $1,200,000 |
| Bridge loan carried interest | 1.4% | $4.88 | $492,445 |
| Loan fees | 0.6% | $1.97 | $198,938 |
| Leasing commissions | 0.2% | $0.81 | $82,164 |
| Contingency | 1.0% | $3.40 | $343,526 |
| **Total Soft Costs** | **10.8%** | **$37.41** | **$3,778,782** |
| **Other Costs** | | | |
| Developer Fee | 4.8% | $16.48 | $1,664,670 |
| **Total Other Costs** | **4.8%** | **$16.48** | **$1,664,670** |
| **Total Budget** | **100.0%** | **$346.10** | **$34,958,061** |

## MULTI-FAMILY RESIDENTIAL (SEE P. 39 OF THE VISION SECTION OF THE MAIN REPORT)

| **Property Summary** | |
|---|---|
| Gross Area (GSF) | 101,200 |
| Number of Units | 100 |
| Rentable Area (RSF) | 86,020 |
| Stabilized Occupancy | 95% |

| **Development Budget** | | |
|---|---|---|
| | Per GSF | Total |
| Acquisition Costs | $5 | $472,500 |
| Hard Costs | $94 | $9,467,628 |
| Soft Costs | $11 | $1,064,455 |
| Other Costs | $9 | $897,617 |
| Total | $118 | $11,902,200 |

| **Permanent Capital Sources** | | |
|---|---|---|
| Investor Equity | 20% | $2,346,621 |
| Developer Equity | 1% | $110,046 |
| Seller Note | 4% | $472,500 |
| Primary Mortgage Note | 75% | $8,973,034 |
| Total | 100% | $11,902,200 |

| **Debt Summary** | |
|---|---|
| Amortization (years) | 30 |
| Interest Rate | 5.00% |
| Total Annual Debt Service | $479,089 |
| Stabilized Total Debt Service Coverage | 1.53 |

| **Stabilized Cash Flow (annual)** | | | |
|---|---|---|---|
| | Per Unit | Per RSF | Total |
| Gross Potential Rent | $12,227 | $14.21 | $1,222,688 |
| Vacancy | $611 | $0.71 | $61,134 |
| Operating Expenses | $4,286 | $4.98 | $428,624 |
| Net Operating Income (NOI) | $7,329 | $8.52 | $732,930 |

| **Disposition Summary** | | | |
|---|---|---|---|
| Year of Sale | | | 5 |
| NOI at Sale (forward 12 months) | $8,343 | $9.70 | $834,317 |
| Capitalization Rate | | | 6.75% |
| Gross Sale Proceeds | $123,603 | $143.69 | $12,360,256 |
| Selling Fees | $3,708 | $4.31 | $370,808 |
| Outstanding Debt | $86,737 | $100.83 | $8,673,714 |
| Net Sale Proceeds | $33,157 | $38.55 | $3,315,735 |

| **Returns Summary** | |
|---|---|
| Internal Rate of Return | 13% |
| Equity Multiple | 1.8x |

| **Development Budget** | | | |
|---|---|---|---|
| | % | Per GSF | Total |
| **Acquisition** | **4.0%** | **$4.67** | **$472,500** |
| **Hard Costs** | | | |
| Sitework | 7.5% | $8.85 | $895,211 |
| Construction | 68.0% | $80.00 | $8,096,000 |
| Contingency | 4.0% | $4.71 | $476,417 |
| **Total Hard Costs** | **79.5%** | **$93.55** | **$9,467,628** |
| **Soft Costs** | | | |
| A&E fees | 4.0% | $4.68 | $473,381 |
| Legal and accounting | 0.7% | $0.80 | $80,960 |
| Appraisal | 0.1% | $0.10 | $10,120 |
| County property taxes | 0.0% | $0.02 | $2,504 |
| City property taxes | 0.0% | $0.03 | $3,213 |
| Survey | 0.2% | $0.20 | $20,240 |
| Insurance | 0.2% | $0.25 | $25,300 |
| Construction loan carried interest | 2.0% | $2.31 | $233,968 |
| Loan fees | 1.0% | $1.17 | $118,000 |
| Contingency | 0.8% | $0.96 | $96,769 |
| **Total Soft Costs** | **8.9%** | **$10.52** | **$1,064,455** |
| **Other Costs** | | | |
| Developer Fee | 4.6% | $5.44 | $550,229 |
| Operating Reserve | 2.9% | $3.43 | $347,388 |
| **Total Other Costs** | **7.5%** | **$8.87** | **$897,617** |
| **Total Budget** | **100.0%** | **$117.61** | **$11,902,200** |

# 11 PRE-DEVELOPMENT EXPENSES

## FUNDING TO PURSUE COMPREHENSIVE DISTRICT APPROACH

The State is not likely to find a single private developer who will be willing to acquire site control of all developable district property at once and privately fund all necessary predevelopment functions, such as further site planning and identifying specialized developers for each component of the district. Accordingly, the State will likely need to play that coordinating role in the pre-development phase of the project. Because this is not a function typically undertaken by a state agency, the State may find it necessary to retain consultants to assist with the pre-development process, including master development and asset management functions embodied in a Prime Consultant. The most critical phase of pre-development work for the State and local partners to fund is the planning through the execution of the first phase of the district development. Additional phases beyond the first will bring new resources to help cover the costs of further design, planning and project management.

The following funds would be required to pursue the comprehensive district approach through the first phase of the master plan (first 5 years). These funds represent the planning and due diligence work, as well as capital investment in replacement public facilities, site infrastructure and public amenities necessary to attract the first phase of private investment. This excludes the State investment in a western campus of the North Carolina School for Science & Mathematics, funding for which is allocated through the Connect NC Bond. The responsibility for this funding could be shared between State, local government, and third parties (e.g. Federal government, charitable organizations):

| PURPOSE | AMOUNT (EXPENDED OVER APPROX. 5 YEARS) |
|---|---|
| ENGAGE MASTER DEVELOPMENT AND ASSET MANAGEMENT EXPERTISE (PRIME CONSULTANT) | $1.5M |
| ENGAGE DESIGN AND ENGINEERING EXPERTISE (DIRECTED BY PRIME CONSULTANT) | $800K |
| CONDUCT ENVIRONMENTAL AND LAND DUE DILIGENCE STUDIES | $300K |
| PERFORM LEGAL AND TITLE WORK TO ESTABLISH DEVELOPMENT AGREEMENTS | $350K |
| MOTHBALL VACANT STRUCTURES (APPROX. 100K SF)<br>• $650,000 TO THE DEPARTMENT OF PUBLIC INSTRUCTION FOR GOODWIN HALL AND JOINER HALL BUILDINGS ON THE NC SCHOOL FOR THE DEAF CAMPUS<br>• $100,000 TO THE DEPARTMENT OF HEALTH AND HUMAN SERVICES FOR SOUTH BUILDING ON THE HISTORIC BROUGHTON HOSPITAL CAMPUS<br>• $250,000 TO WESTERN PIEDMONT COMMUNITY COLLEGE FOR COLONY BUILDING AND THE SILO BARNS ON THE WPCC CAMPUS | $1.0M |
| PUBLIC AMENITIES (I.E. GREENWAY SPINE, STORM WATER BASIN, ACCESS ROAD, INTERSECTION/GATEWAY PARK, ATHLETIC FIELDS) | $13.7M |
| BUILDING DEMOLITION ON HISTORIC BROUGHTON CAMPUS AND NCSD CAMPUS | $3.5M |
| REPLACE DHHS WORKSHOP/MAINTENANCE FUNCTIONS IN ANOTHER LOCATION OFF THE HISTORIC BROUGHTON CAMPUS SITE (EXCL. LAND ACQUISITION COST) | $10.9M* |
| RELOCATE ESTC FACILITY (WPCC-OWNED) OFF THE STUDY AREA (EXCL. LAND ACQUISITION COST) | $11.3M |
| RELOCATE DPS LAUNDRY FACILITY OFF THE STUDY AREA; BROUGHTON SHARE OF A LARGER, OPTIMIZED FACILIY (EXCL. LAND ACQUISITION COST) | $7.7M* |
| **TOTAL (EXPENDED OVER APPROX. 5 YEARS)** | **$51.1M** |
| *** EXPENSES ANTICIPATED REGARDLESS - NOT RESULTING FROM COMPREHENSIVE APPROACH** | **$18.6M** |