Summary of Recommendations for the Educational Program Vision for the North Carolina School of Science and Mathematics-Morganton Campus

North Carolina School of Science and Mathematics Western Campus Core Planning Team

and

The Friday Institute for Educational Innovation, College of Education, North Carolina State University

With input from:

Duda| Paine Architects

September, 2017
Dear Colleagues and Friends,

As the North Carolina School of Science and Mathematics expands to include a second campus in Morganton, North Carolina, an Educational Program Plan is critical in guiding this new chapter in NCSSM's history, as we embrace this opportunity to serve even more NC students and educators. To this end, we have worked with representatives both internal and external to NCSSM, including representatives of the school and the UNC System, as well as the City of Morganton, Burke County, and leaders in business, education, and community members across the region. Each has provided invaluable insight throughout this planning process.

As you will see in the following pages, thoughtfully prepared by our partners at the William and Ida Friday Institute for Educational Innovation, this comprehensive Educational Program Plan includes an overview of the process employed to gather and evaluate information, defining features for our second campus, as well as a series of recommendations to inform future phases of our NCSSM-Morganton implementation timeline. This plan will serve as a living document as we move forward together, expanding our institution to make the transformative NCSSM experience available to hundreds more talented, young North Carolinians each year.

We are so appreciative of the extensive and painstaking work that went into this plan by the Friday Institute team, and to so many of you for your input and insight along the way. We are also incredibly appreciative of the broader NCSSM community and our partners throughout North Carolina for their commitment and contributions to this process.

Thank you for taking the time to read this report. We look forward to continuing to work together as we strive to advance public education in North Carolina.

Sincerely,

J. Todd Roberts, Ed.D
Chancellor, NCSSM

Thomas J. Williams, Ed.D
Chair, NCSSM Board of Trustees
Summary of Recommendations

This document outlines the NCSSM-Morganton Core Planning Team’s recommendations for the vision and educational program design for the new campus. These recommendations fall into four broad categories:

A. An Overall Academic Vision Statement;
B. Defining Features of the new campus;
C. Proposed New Oversight Committees and Working Groups needed to implement some of the recommendation; and
D. Concept Area Recommendations from six strand workgroups.

Overall Academic Vision Statement (Summary Version)

Institutional Values Motivating the Vision Statement

- **Foundational Knowledge.** Students develop a foundation of content knowledge in mathematics, science, engineering, computer science, and the humanities, applying that content to solve complex problems and analyze the human condition.
- **Balance between Breadth and Depth.** Students develop broad understandings across disciplines and also complete in-depth work in areas in which they have particular interest.
- **Problem Solving.** Students develop the capacity to solve complex problems using a diversity of approaches.
- **Communication and Collaboration.** Students communicate effectively with all audiences and are able to work collaboratively with people representing different areas of expertise, perspectives, and work styles.
- **Critical Thinking and Creativity.** Students think critically and creatively; pose good questions; engage in higher-order thinking; and are able to synthesize and evaluate information.
- **Ethical Reasoning.** Students recognize ethical issues and apply ethical perspectives and concepts in decision-making.
- **Lifelong Learning and Growth.** Students pursue learning for its own end, embracing mastery over grades, and consistently seek greater challenges. Students perceive setbacks not as negative indicators of their ability, but rather as incremental stages in achieving success.
Foundational Principles across Campuses

- The NCSSM strategic plan and its contents—including its beliefs, mission, parameters, objectives, and strategies—will apply fully to NCSSM, a single school with two campuses in Durham and Morganton.

- Every NCSSM student will develop knowledge, habits of mind, skills, and dispositions from mathematics, science, engineering, computer science, and the humanities. This experience will be oriented towards preparing students to respond to opportunities and challenges in a changing world. NCSSM’s community balances high academic achievement with attention to social and emotional needs, helping each individual to advance holistically, maintaining a balance of physical, mental, academic, social, and spiritual well-being.

Defined Flexibilities of the NCSSM-Morganton Program

- **Academic Structures.** The Core Planning Team believes that it is important to create a flexible foundation for the academic program during the first phase of the planning process, and does not think it appropriate to declare a position on academic structures. As much as is logistically possible, founding faculty should play a key role in that decision-making process, and should consider all possible models. The Team does intend, however, for the academic program to leverage both residential and virtual assets moving forward, using each delivery method to the benefit of the others.

- **A Shared Content Core, with Additional Distinct Content and Innovative Pedagogies.** As a new campus of a long-established school, NCSSM-Morganton’s academic offerings will preserve fundamental elements of the academic offerings of NCSSM’s campus in Durham, based on a pursuit of challenge through learning that both sharpens the mind and betters the world.

- **Cross-Curricular Design.** The curriculum will be organized around major cross-disciplinary challenges in mathematics, science, engineering, computer science, and the humanities, selected by faculty and student committees (rather than by specific content areas or themes). These challenges should be incorporated into student learning experiences across the curriculum in ways that help students appreciate the advantages of cross-disciplinary approaches to problem-solving.

- **Experiential Learning.** Per NCSSM’s Strategic Plan Objectives, the curriculum will incorporate real-world experiences into instruction, student research, and mentorships.
Defining Features of the New Campus

Defining Features Related to Guiding Academic Principles

1. The new campus should be referred to as NCSSM-Morganton.
2. All NCSSM-Morganton faculty should have advanced degrees.
3. The academic calendar should be synchronized with the academic calendar in Durham.
   but will not necessarily exactly mirror
4. The admissions requirements and process should be universal across all NCSSM campuses and programs.
5. The campus initially should serve 300 residential students, at least some and potentially all of whom will be juniors and seniors.
6. The campus should feature a robust calendar of summer program activities.
7. The campus should allow for expanded opportunities through NCSSM’s DEEP (Distance Education and Extended Programs) division.

Defining Features Related to School Structure

8. The campus should leverage shared services and facilities with local/regional partners and NCSSM in Durham.

Proposed New Committees and Working Groups (Summary Version)

NCSSM should establish and engage the following committees and work groups to oversee implementation of proposed recommendations:

1. A Morganton-Based Instructional Council;
2. A Physical Structure and Technology Infrastructure Planning Committee;
3. A Campus Services Network Team;
4. A Community and Government Relations Team; and

Concept Area Recommendations (Summary Version)

Because of the close working relationships between the Core Planning Team, the Friday Institute, and Duda|Paine Architects, all recommendations inform the companion school physical design being developed by Duda|Paine. Recommendations that directly inform that plan are labeled throughout this
document with the initials DF and also are identified on maps of the proposed campus and the larger Broughton District (included at the end of this summary).

Guiding Academic Principles

1. Expand Recruitment of Potential NCSSM Students: Leverage K-16 stakeholder partnerships to identify and recruit potential students from underrepresented communities from across the state for the NCSSM experience.

2. Provide Pre-Enrollment Opportunities for Accepted and Prospective NCSSM Students: Provide a combination of online courses and residential summer programs designed to further the readiness of students entering NCSSM for both academic requirements and transition to a residential school.

3. DF Expand NCSSM Residential Course Offerings through Distance Education: The NCSSM-Morganton and Durham campuses should collaborate in developing and offering an expanded catalog of online programming for residential students.

4. Expand the Mentorship and Internship Programs: Capitalize on emerging business, government, and nonprofit relationships to support expansion of curriculum-relevant student mentorships that leverage the diversity of work-based experiences in the area and across the state.

5. DF Create a Teaching and Learning Innovation Collaboratory: The Collaboratory should facilitate STEM-related professional development and mentorships for teachers from across North Carolina, with a focus on deepening content knowledge in STEM areas and developing innovative pedagogical practices that integrate theoretical and applied research.

6. Develop a Research Agenda for NCSSM: Support efforts for faculty and staff to contribute to generalizable knowledge about best practices for advanced STEM partnership, instruction, and learning.

School Structure

1. Clarify NCSSM-Morganton’s Representation in the NCSSM Governance Structure: Determine how NCSSM-Morganton leadership will: be incorporated into the NCSSM governance structure and decision-making process; collaborate with leadership at NCSSM’s campus in Durham; and maintain effective relationships with local, regional, and state officials.

2. DF Design all Physical Spaces with Future Growth in Mind: Even if specific spaces will not be used immediately, if there is likelihood for a future need, these spaces should be integrated into the design process.

3. DF Target Joint Management of Utilities with other Broughton District Tenants: NCSSM-Morganton will be co-located with other Broughton District
schools and facilities; planning for campus utilities should include opportunities to capitalize on economies of scale.

4. Integrate “Smart” Systems for Monitoring and Control of Utilities: Campus buildings will be constructed and renovated with sustainability and green building standards as guiding principles; all utilities should incorporate connected monitoring and control systems.

5. Provide both Shared and Dedicated Laboratory Spaces: Laboratories should be built for flexibility, and careful thought should be given to laboratory spaces dedicated to specific disciplines.

6. Equip both NCSSM Campuses with Video Conferencing to Enhance Collaboration between Campuses: For example, courses on both campuses should be available to students through distance education opportunities.

7. Establish an NCSSM-Morganton Living/Learning Model: NCSSM-Morganton’s open areas and blank canvas offers an opportunity to develop the types of spaces needed to support a diverse, year-round student body with a healthy living environment, varied activities, personalized options, and flexibility.

8. Clarify Separation and Connections between NCSSM-Morganton and the Larger Broughton District Community: Define campus boundaries and policies related to those boundaries; explore opportunities to share student support services with other tenants; and consider options for on-District staff and faculty housing.

9. Incorporate Precise Technical Specifications into Construction and Renovation Plans: The campus’s design should include wired and wireless Internet infrastructure configured to support robust and varied uses, with an eye toward rapid expansion of demand in the near future.

10. Create Adaptations for Student and Faculty Travel: Accommodations for travel to and from the new campus for students, faculty, and staff will be an important ingredient in securing the success of the new campus.

External Partnerships

1. Integrate NCSSM-Morganton into the Existing NCSSM Communication Strategy: In particular, integrate the new campus vision and community, government, business, and K-16 partnership opportunities into the overall communication strategy.

2. Establish a Strategic Partnership Framework for Financially Engaging Businesses: Devise a plan for initiating and maintaining non-academic relationships with area businesses.
3. Develop a Protocol for Managing Area Philanthropic Support: To fully execute its mission and vision, NCSSM-Morganton must identify and secure additional financial support beyond government and business support.

4. Engage the NCSSM Education Advisory Council in K-16 Outreach: Compile an inventory of regional K-16 educational resources; revise the existing NCSSM engagement plan; recruit key regional K-16 partners; and explore multiple approaches to sharing educational resources across partners.

5. Develop a Strategic Plan for Connecting Students, Faculty, and Staff with the Community: The plan should include strategies for continuous engagement with local and regional communities, connections between campus and community student life services, a process for assessing the campus’s impact on the region, and establishment of an online communications portal.

6. Create a Shared Public/Private Research and Collaboration Space: Work in partnership with the Broughton District and Morganton City leadership to provide space and parameters for area public/private entities to establish collaboration opportunities on the Broughton District.

7. Design Joint Enrichment Opportunities for NCSSM and Regional Students: NCSSM-Morganton and partnering K-12 school districts can benefit mutually from efforts to provide enrichment opportunities shared by students in both constituencies.

8. Determine an Approach for Measuring NCSSM-Morganton’s Impact and Establish an NCSSM Value Proposition: Create a sustainable process for determining and reporting regularly on NCSSM-Morganton’s local, area, state, and, if feasible, national impact across a variety of dimensions.

NCSSM-Morganton campus and Broughton District summary maps with indications of connections between recommendations above (labeled with DIF) and the school physical design are included on the next two pages.
Recommendations with Direct Impact on the Design of the New Campus

- **D-GAP 3:** Expand NCSSM Residential Course Offerings through Distance Education
- **D-SS 2:** Design all Physical Spaces with Future Growth in Mind.
- **D-SS 5:** Provide Both Shared and Dedicated Laboratory Spaces
- **D-SS 7:** Establish an NCSSM-Morganton Living/Learning Model.

The Friday Institute for Educational Innovation
Recommendations that May Impact Use of Space on the Larger Broughton District

These recommendations include:

- **D-GAP 5**: Create a Teaching and Learning Innovation Collaboratory
- **D-SS 2**: Design all Physical Spaces with Future Growth in Mind, specifically to accommodate interactions with local businesses, government, and community members
- **D-SS 3**: Target Joint Management of Utilities with Other Broughton District Tenants
- **D-SS 8**: Clarify Separation and Connections between NCSSM-Morganton and the larger Broughton District Community
- **D-EP 6**: Create a Shared Public/Private Research and Collaboratory Space
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