

WINTHROP UNIVERSITY

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2019 Teacher Quality Partnership Grant Program

NetSERVE: Network for Sustained Educational Residencies that Value Equity

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Winthrop University (WU) will implement **NetSERVE: Network for Sustained Educational Residencies that Value Equity**, a MAT residency program, in partnership with three high-need LEAs in South Carolina (SC) and eight high-need schools: Chester County School District (Chester Middle, Chester High), Chesterfield County School District (Petersburg Primary, Pageland Elementary, New Heights Middle, Central High), and Fairfield County School District (Geiger Elementary, Fairfield Central High). All districts qualify for the RLIS Program (*Eligibility A4*), have a high percentage of teachers on provisional license and high teacher turnover (*Eligibility B2,B3*), and participate in the Community Eligibility Provision with all partner schools having free/reduced-priced lunch rates over 60% (elementary) and 45% (not elementary) (*Eligibility C2, C3*). NetSERVE addresses **Competitive Preference Priority (CPP) 1** and the **Invitational Priority**.

CPP 1: Promoting STEM Education with a Particular Focus on Computer Science (CS)

NetSERVE will address CPP 1 through strategies that will (a) increase STEM teachers in the partner LEAs; (b) increase capacity to use educational technology to support student learning; (c) increase teachers who are trained to imbed CS content and skills in classroom instruction; and (d) increase secondary STEM teachers who can teach CS courses. NetSERVE will focus recruitment on SC's critical subject areas, including middle and high math and science. Computer science is not a stand-alone certification in SC; however, with the recent introduction of the SC K-8 CS and Digital Literacy Standards and SC CS Standards for High School, accompanied by a new requirement for high school students to graduate with one unit in CS, the need is great for teachers at all levels, especially STEM high school teachers, to receive CS training.

As noted in *Project Design - Section 4*, recruitment will target three populations: current non-education undergraduate STEM majors, recent graduates with degrees in STEM or other fields with a high-level of math and science, and mid-career professionals with STEM work experience. Recruitment will be a partnership-wide endeavor, with LEAs publicizing the program to non-instructional LEA personnel while WU shares information with current and graduated STEM

majors and professionals. WU has an NSF-funded Robert Noyce Scholarship Program called the Winthrop Initiative for STEM Educators that offers a paid summer internship to WU's math, biology, and chemistry majors; students do not have to be in the teacher education program. Through NetSERVE, efforts will be made to recruit those students when they complete their bachelor's degree. WU will also offer juniors and seniors in programs with a heavy science and math focus, such as accounting and exercise science, information about the MAT residency program. Efforts will be made to encourage STEM faculty advisors to promote the MAT residency option to their advisees. Our partners, the Center for Educator Recruitment, Retention, and Advancement (CERRA) and the SC Department of Education (SCDE), will assist in recruitment by sharing information about NetSERVE through their communication channels. NetSERVE staff will create an easy-to-navigate website that will facilitate contact and the admissions process.

We will provide evidence-based preparation to residents and professional development to partner schools in the use of educational technology (Glowa & Goodell, 2016; US ED, 2017). *Technology for the 21st Century Classroom* will be offered during the Residency I semester and include classroom-based assignments. WU Riley College of Education's (COE) Instructional Technology Center (ITC) will host technology workshops for residents and teachers at WU and partner schools. Workshops will connect CS concepts and skills such as computational thinking and interdisciplinary problem solving; applications and tools to manipulate data; and coding. The ITC Director and trained ITC program assistant will also visit our partner schools to provide guidance and support for use of technology to support student learning in the mentor/resident classrooms and support the integration and direct teaching of CS content and skills. We will also train partner schools' STEM teachers to effectively imbed CS content and skills in their classroom, and, for secondary STEM teachers, training to teach at least one of the SCDE-approved CS courses. Students benefit from learning CS concepts which improve problem solving and build high-level math (SREB, 2016). As discussed further in *Project Design – Section 1*, during the first two grant

years, the elementary and secondary STEM teachers, along with interested NetSERVE residents, will be recruited to participate in Code.org workshops. By Year 3, NetSERVE will have developed its own set of evidence-based annual summer CS workshops for its partner high-need schools. Winthrop Professional Development Course (WPDC) non-degree graduate credit will be offered to participants who complete this training. By Year 3, WU will host a state-wide STEM/CS symposium bringing together IHE STEM/CS faculty, STEM/CS high school teachers, and LEAs to delve into the critical STEM/CS shortage in the state.

Invitational Priority: Spurring Investment in Opportunity Zones

NetSERVE proposes to serve K-12 students who reside or attend TQP project schools located in five federally designated opportunity zones. All eight of the NetSERVE partnering schools serve students who reside in a qualified opportunity zone or the school they attend is in a qualified opportunity zone. In Chester County, partner schools (Chester Middle, Census Tract 202 and Chester High, Census Tract 203) pull students from zones 45023020200 and 45023020300. Petersburg Primary and Pageland Elementary (Census Tract 9501.01) in Chesterfield County lie in zone 45025950101. These schools feed into partner schools New Heights Middle and Central High. Geiger Elementary (Census Tract 9603) serves zone 45039960300 in Fairfield County with Fairfield Central High (Census Tract 9604) located in 45039960400 (SCDC, 2019).

Quality of the Project Design

1) Proposed project demonstrates a rationale. Winthrop University (WU), in collaboration with three rural, high-need LEAs in SC, have joined forces to create **NetSERVE**. NetSERVE partners include the Riley College of Education (COE) and the College of Arts and Sciences (CAS) at WU; Chester, Chesterfield, and Fairfield County School Districts; and the following partners: Bank Street College of Education's Prepared to Teach; SC Center for Educator Recruitment, Retention and Advancement (CERRA); SC Center of Excellence to Prepare Teachers of Children of Poverty; and SC Department of Education Office of Personalized Learning and Office of Career and

Technology Education. NetSERVE will respond to critical teacher shortages in SC, especially in rural, high-need LEAs and their schools, as outlined in the Needs Assessment in *Appendix C*.

NetSERVE will recruit and prepare 74 highly qualified teachers through a partnership-based MAT residency program for individuals who have strong academic backgrounds and interest in teaching students in rural, high-need schools. We will recruit recent college graduates and career changers who reflect the demographics of the partnering LEAs and equip them with skills to be successful in challenging school contexts (Lazarev, et al., 2017). Additional information on recruitment efforts is included in *Project Design – Section 4*. Since SC teacher shortages extend to most teaching fields (Sutcher, et al., 2016), new MAT residency programs will be created, adding to the established MAT suite available for those pursuing careers in secondary fields and foreign language. Curricula will address issues related to teaching in rural, high-need schools. The SCDE recently adopted K-12 CS standards that will be infused into the curricula for our NetSERVE residents and comprehensive professional development (PD) program.

The overarching goals of our program are to 1) promote higher levels of P-12 student learning; 2) increase the number and effectiveness of teachers in the partner schools; and 3) provide better post-baccalaureate access to quality, clinically-based teacher preparation through an innovative and impactful MAT residency program, including in-depth, hands-on CS training and PD (*CPP 1*) (Goldrick, 2016; SREB, 2018b; Woods, 2016). Our program’s logic model (*Appendix G*) provides an overview of our goals, outcomes, and program components, which includes NetSERVE’s *seven program components*: 1) MAT residency; 2) Cohesive academic and clinical design; 3) Community engagement and cultural responsiveness; 4) Computer science competency; 5) Mentoring and induction; 6) Professional learning; and 7) Structural and financial sustainability.

► **MAT Residency:** Our partner LEAs are grappling with critical teacher shortages in almost every subject/grade level. To meet this need, we will create three new MAT programs: special education, middle level education, and early childhood/elementary education. Due to the severe

teacher shortage in special education, an add-on option will be available for all MAT residents; and with similar shortages in STEM fields, recruitment and retention will target math and science at secondary and middle school levels. Curricula will be guided by WU's collaboratively designed Unit Standards for Initial Preparation Programs and include new and reinforced content and field components to ensure competence in **CS** (Blikstein, 2018; Freeman, Adams Becker, Cummins, Davis, & Hall Giesinger, 2017; Google Inc. & Gallup Inc., 2016; Google Inc. & Gallup Inc., 2017; K-12 Computer Science Framework, 2016; Nager & Atkinson, 2016; Office of Educational Technology, 2017; U.S. Department of Education, 2016), **math, science** (Ebert-May, et al., 2015; Killpack & Melón, 2016), **literacy** (Baker, et al., 2014; Foorman, et al., 2016; Gersten, et al., 2008; Kamil, et al., 2008; WWC, 2014), **personalized learning** (Friend, Patrick, Schneider, & Vander Ark, 2017; KnowledgeWorks, 2019; Pane, Steiner, Baird, & Hamilton, 2015; Rudenstine, Schaeff, & Bacallao, 2018; SCDE, 2016), and **community/family engagement and outreach** (Bandy, n.d.; Garcia, Frunzi, Dean, Flores, & Miller, 2016; Redding, Murphy, & Sheley, 2011; Reform Support Network, 2014; Witte & Sheridan, 2011; Wood & Bauman, 2017), **including the use of culturally relevant instruction** (Bennett, Gunn, Gayle-Evans, Barrera, & Leung, 2017; Ford, Stuart, & Vakil, 2014; NEA, 2008). Curriculum will be delivered 60% online and 40% face-to-face (on campus and in schools) with an emphasis on authentic assignments, high engagement, and personalized learning (Caulfield, 2011; Glazer, 2011; Picciano, Dziuban, Graham, 2013; Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014). COE and CAS faculty have experience in designing online and hybrid courses and are required to receive WU Online Teaching Certification through two professional development courses. The MAT program will span 16 months (Spring, Summer, Fall, Spring), allowing for pre-residency coursework, and school and community-based assignments as noted in Table 3. The second summer will allow early childhood/elementary education majors to complete the final two of the six required special education courses. ► **Academic and Clinical Design:** The NetSERVE residency will employ a

collaborative university/partner Curriculum Design Team (CDT) to create a profile of the NetSERVE completer; building on the Unit Standards to identify the knowledge, skills, and competencies that program graduates need to be successful teachers in rural, high-need schools. The CDT will identify a continuum of clinical experiences for the program's foundation and then wrap academic and pedagogical course content around the clinical components to ensure that university and P-12 classroom learning experiences work in tandem to develop teachers who meet the NetSERVE profile. Prepared to Teach will provide emerging research and data for effective residency programs to inform program design elements, including connections between course work and clinical practice (DeMoss, et al., 2017). Common assessments will be used in courses and field components, checked regularly for validity and reliability across instructors, and the data used to analyze student progress. MAT Advisory Committees consisting of WU/partner school representatives, along with NetSERVE graduates with at least one year in the classroom, will meet each semester to review student and program data to determine improvements. ► **Community Engagement and Cultural Responsiveness:** Teachers entering our target LEAs from areas outside the region often find themselves ill-prepared for the unique characteristics of high-need schools. In any school setting, especially in rural, high-need LEAs, teachers must develop basic cultural sensitivity and understanding to establish relatable connections to students, their families, and the communities (Garcia, et al., 2016; NEA, 2008; Zygmunt, et al., 2018; Ford, et al., 2014; Bennett, et al., 2017). MAT coursework will include content related to teaching children living in poverty, English learners, and students with special needs in a general classroom environment following principles of the SC Framework for Personalized Learning (SCDE, 2016). Residents will engage in a three-week summer experience grounded in a community-based teaching approach. Co-facilitated by WU/district faculty and community advisors, residents will gain in-depth knowledge of the schools in which they will be working. They will plan meaningful learning experiences for students using community resources available to teachers and parents. This

approach provides residents an opportunity to analyze literacy, math, science, and CS content standards through the lens of differentiated, personalized learning that results in student ownership. (Rudenstine, et al., 2018; Friend, et al., 2017). ► **Computer Science (CS) Competency:** NetSERVE will take a dual approach to increasing CS competency in MAT residents and teachers in the partner schools: **1)** Through the MAT program, residents will be introduced to the Profile of the SC Graduate, incorporating a focus on STEM competencies, including critical thinking, problem solving, and “communication, information, media and technology” (SCDE, 2019). Residents will become familiar with the newly adopted SC CS and Digital Literacy Standards for grades K-8 and the SC CS Standards for High School that expand availability of CS education to all students (SCDE, 2017; SCDE, 2018a). NetSERVE will incorporate computing principles, theories, and computational thinking in coursework and prepare candidates to engage students in interdisciplinary problem-solving activities where they apply computation to digital world scenarios. **2)** Summer workshops will be offered to elementary, middle, and secondary STEM teachers in the partner schools, including NetSERVE graduates. In Years 1-2, teachers will be recruited to participate in Code.org workshops to infuse the SC CS standards into their classroom. Grade K-5 teachers will take a 6-8 hour CS Fundamentals workshop to implement CS in science and math and extension activities and projects. Middle and high school STEM teachers will engage in a 30-hour CS Discoveries workshop offered by Code.org to prepare them to teach the state’s Discovering CS or Fundamentals of CS course, allowing students to fulfill SC’s new CS graduation credit requirement. Code.org CS PD K-12 curriculum and resources are supported by CS Teachers Association, Common Core English Language Arts and Math, and Next Generation Science standards. **3)** LEA teams will attend the National Integrated Cyber Education Research Center Annual Conference to gain knowledge and understanding of CS integration. By Year 3, WU and school STEM/CS faculty, under the direction of the COE’s ITC Director, will develop evidenced-based CS summer workshops for delivery to NetSERVE partner educators (Ebert-May,

et al., 2015; Killpack & Melón, 2016). This training will include content on computer hardware, software design, coding, analytics, data management tools, computer applications, and management of computer hardware and electronics related to sharing, securing, and using digital information (*CPP 1*). Winthrop Professional Development Course non-degree graduate credit will be offered to participants who complete this training. The ITC Director and SC Department of Education staff will visit each school to support effective CS instruction and implementation of technology. ► **Mentoring and Induction:** Residents will be placed into cohorts of 3-4 in partner schools and matched with a carefully selected and trained mentor teacher (MT). Each cohort will meet at least twice a month in Learning Lab sessions – one to observe a high-performing teacher with follow-up reflection (with the support of video capture technology systems); and another on collective design thinking and problem-solving classroom challenges (Learning Lab, n.d.; Dam & Siang, 2019; Portnoy, 2018). Once a month, MTs will join a resident cohort meeting to discuss shared experiences, challenges, and lessons learned as cross-career colleagues. Each semester, all residents and MTs will convene to extend the collaborative approach to peer and mentor learning with the Project Director. In these meetings, residents and MTs will share successes and challenges, and participate in structured PD (Scherff, 2018). In the classroom, residents will serve as co-teachers with their MT, following PD in co-teaching provided by NetSERVE staff prior to residency placements. Residents will engage in faculty, department/grade level, IEP, and committee meetings; parent conferences; school improvement council and board meetings; and school/district PD. Residents will receive support from a content-based university supervisor and the MT (MTs will complete the CERRA-developed training in residency mentoring and instructional coaching to serve as resident MTs and as an induction coach. As residents transition to their induction years, the NetSERVE Mentoring and Induction Specialist (MIS) will work with the partner LEAs and schools to offer personalized classroom-based and virtual supports to induction teachers and their coaches. Twice a semester, webinars on timely topics that align with

NetSERVE goals and components will be offered to induction teachers, including Q&A feedback from content and pedagogy experts (recorded and archived on Blackboard for future use). Induction teachers will engage in group processing and professional learning activities similar to their residency experiences (Scherff, 2018). They will meet monthly as a peer support network and at the district level with the MIS who will facilitate sessions where they learn from and help each other address challenges. At the beginning and end of the school year, induction teachers will meet in an extended session that will include MTs and principals with role-alike and whole group sessions with NetSERVE staff facilitating; as MTs gain experience, they will lead these sessions. NetSERVE will host an annual New Teacher Town Hall to support their journey from beginning teacher to teacher leader who advocates for better schools, support for public education, and informed educational policies. As graduates enter their third year of teaching, mentoring and teacher leadership training will be offered so they can prepare to mentor new NetSERVE residents.

► **Professional Learning:** To build a strong system where teachers across their careers are supported, novice teachers need strong mentorship and high-quality PD (Darling-Hammond, Hyler, & Gardner, 2017; Scherff, 2018; SREB, 2018a; SREB, 2018b). NetSERVE will implement a “tripartite” model that will provide shared PD opportunities for NetSERVE students, the school, and university partners involved in their preparation. Co-teaching during the clinical residency provides inimitable opportunities for residents to translate educational theory into effective practice and gain a deeper understanding of instructional strategies. Residents will be part of a community focused on collaboration and ongoing professional learning while seeing university faculty (COE and CAS) also engage in shared professional learning activities (Scherff, 2018).

Winthrop’s COE, through its Rex Institute for Educational Renewal and Partnerships, coordinates ongoing PD for educators across the existing Partnership Network (e.g., Technology Nights offered through the COE Instructional Technology Center). With logistical structures in place, PD will be developed for NetSERVE related to CS, personalized learning, teaching diverse learners

(e.g., teaching children in poverty, English learners, culturally responsive teaching, community-based instruction), design thinking/problem solving, emotional resilience, using valid and reliable data to inform instruction, literacy across content areas, and STEM inquiry. Specific training will be provided to residents and MTs prior to residency placements in the schools, including co-teaching, collaborative inquiry, design thinking/problem solving, mentoring, induction coaching, and induction training for leaders. WU will work with the partner LEAs to offer non-degree graduate credit to teachers who receive PD training offered by WU, CERRA, and other partners. NetSERVE residents, graduates, and their MT will have networking opportunities through PD workshops across all partner LEAs. Additionally, NetSERVE residents will attend the WU-School Partnership Network's Annual Partnership Conference for Educational Renewal. Approximately 250 educators from the Network's 50 partner schools attend the conference and present sessions on innovative practices and findings from collaborative action research projects. Through NetSERVE, pre-conference workshops and conference sessions will be offered for residents and induction teachers. Residents will have the benefit of attending sessions led by recent NetSERVE graduates and highly effective teachers from across the Partnership Network. MTs will be encouraged to attend the conference, participating in professional learning and networking opportunities. ► **Structural and Financial Sustainability:** Because such deeply partnered projects require substantive shifts in expectations and resources across LEAs, schools, and universities, it is important that NetSERVE be structured to sustain the work and launch partnerships with other high-need LEAs after grant funding has ended. WU and its partner LEAs are committed to leveraging TQP funds and their own resources to ensure long-term sustainability of the residency program. The intent is to deeply embed the NetSERVE residency model within current governance and administrative structures at WU and in partner LEAs. During Year 1, WU and its partners will determine how existing outreach, university-school governance, and advisory structures (e.g., Rex Institute) can be leveraged to ensure sustainability. Prepared to Teach will

lead these deliberations using the five domains of their Learning Agenda and Guiding Questions: 1) partnership development, 2) program redesign, 3) authentic school learning communities, 4) mentor development, and 5) resident learning. During bi-annual meetings, beginning Year 1, NetSERVE will receive targeted technical assistance from Prepared to Teach to design program and fiscal structures allowing for efficiency with cost savings and reallocating resources to sustain the project (DeMoss et al., 2017). A Sustainability Task Force, led by Prepared to Teach, will facilitate these efforts by visiting current success models and constructing plans for NetSERVE.

2) **Goals, objectives, and outcomes are clearly specified and measurable.** Table 1 below provides our goals objectives, and measures that align with our logic model in *Appendix G*.

Table 1. Goals, Objectives, and Measures
<p>Overall Goals: 1: Promote higher levels of P-12 student learning. 2: Increase the number and effectiveness of teachers in the partner schools. 3: Provide better post-baccalaureate access to quality, clinically based teacher preparation through an innovative and impactful MAT residency program, including computer science training and professional development (<i>CPP 1</i>).</p>
<p>GPRA 1. The percentage of program graduates who have attained initial state certification/licensure by passing all necessary licensure/certification assessments within one year of program completion will be 95% or more. Measure: SC licensure/certification documentation.</p>
<p>GPRA 2. The percentage of math/science program graduates who attain initial certification/licensure by passing all necessary licensure/certification assessments within one year of program completion will be 95% or more. Measure: SC licensure/certification documentation.</p>
<p>GPRA 3. The percentage of program participants who were enrolled in the post-secondary program in the previous grant reporting period, did not graduate, and persisted in the post-secondary program in the current grant reporting period will be 100%. Measure: IHE records.</p>
<p>GPRA 4. The percentage of program completers who were employed for the first time as teachers</p>

of record in the preceding year by the partner high-need LEAs and were retained for the current school year will be 95% or more. **Measure:** District school staff rosters.

GPRA 5. The percentage of program completers who were employed by the partner high-need LEAs for three consecutive years after initial employment will be 85% or more. **Measure:** District school staff rosters.

GPRA 6. The percentage of grantees that report improved aggregate learning outcomes of students taught by new teachers. These data can be calculated using a teacher evaluation measure that will increase by .25 points each year in Years 3-5. **Measure:** SLO Effectiveness Rubric (1 = unsatisfactory; 4 = exemplary). **Baseline:** 3.10 in 2017-18.

Program (PGM) 1. At least 75% of NetSERVE teachers *score proficient* on at least 8 of 17 ratings from Instruction and Planning standards, increasing by 10% each year in the classroom or until 95% score proficient or higher on 8 of 17 ratings. **Measure:** South Carolina Teaching Standards 4.0 (SCTS 4.0) ratings (unsatisfactory, needs improvement, proficient, exemplary) compared to other new hires. **Baseline:** 69% average proficiency.

PGM 2. By the end of three years of teaching, *retain* at least 85% of NetSERVE teachers. **Measure:** District school staff rosters. **Baseline:** 82.1% retention after three years.

PGM 3. In Years 2-5, at least 85% of NetSERVE teachers *pass initial State certification or licensure*. **Measure:** SC licensure/certification documentation. **Baseline:** 80% pass.

PGM 4. In Years 2-5, at least 95% of NetSERVE teachers meet the applicable state certification and licensure requirements and are *hired* by the high-need LEAs. **Measure:** SC licensure/certification documentation and district hiring records.

PGM 5. By Year 5, at least 40% of NetSERVE teachers are members of *underrepresented groups* who meet state certification and licensure and are hired by the high-need LEAs. **Measure:** SC licensure/certification documentation and district hiring records. **Baseline:** 23% diversity.

PGM 6. In Years 2-5, at least 55% of NetSERVE teachers meet state certification and licensure and are hired by the high-need LEAs to *teach high-need academic subject areas* (reading, science, math, foreign languages). **Measure:** SC licensure/certification documentation and district hiring records by subject. **Baseline:** Districts' recent hiring in *high-need subjects* was 52%.

PGM 7. In Years 2-5, at least 15% of NetSERVE teachers meet state certification and licensure and are hired by the high-need LEAs to *teach high-need areas* (special education). **Measure:** SC licensure/certification documentation and district hiring records by subject. **Baseline:** Districts' recent hiring in *high-need areas* was 10%.

PGM 8. In Years 2-5, at least 95% of NetSERVE teachers meet state certification and licensure requirements and are hired by the high-need LEA to teach *high-need schools*, disaggregated by elementary and secondary levels. **Measure:** SC licensure/certification documentation and district hiring records by school level and high-need status.

PGM 9a. Each year, at least 85% of NetSERVE residents earn an A or B in coursework to integrate technology effectively into curricula and instruction. **Measure:** Final grade in EDCO 602 *Technology for the 21st Century Classroom*.

PGM 9b. In Years 2-5, at least 85% of NetSERVE residents use technology effectively to collect, manage, and analyze data to improve teaching and learning for the purpose of improving student academic achievement. **Measure:** EDCO 605 *Educational Assessment Rubric Score*.

Project 1. In Years 3-5, decrease by one teacher per year hired from international countries. **Measure:** District school staff rosters. **Baseline:** 2018-19, average six teachers in three districts.

Project 2. In Years 3-5, increase by 10% the number of students that score “meets or exceeds” on SCReady ELA. **Measure:** SCReady ELA Grades 3-8 and EOC English I (Cronbach's $\alpha = 0.90$). **Baseline:** 2017-18 combined district average: 35% Grades 3-8; 48% high school.

Project 3. In Years 3-5, increase by 10% the number of students that score “meets or exceeds” on SCReady Math. **Measure:** SCReady Math Grades 3-8 and EOC Algebra I (Cronbach’s $\alpha = 0.93$). **Baseline:** 2017-18 combined district average: 38% Grades 3-8; 56% high school.

Project 4. In Years 3-5, increase by 10% the number of students that score “meets or exceeds” on SC PASS Science. **Measure:** SC PASS Science Grades 3-8 and EOC Biology I (Cronbach’s $\alpha = 0.90$). **Baseline:** 2017-18 combined district average: 42% Grades 3-8; 53% high school.

Project 5. In Years 3-5, at least 70% of NetSERVE residents will report a gain in efficacy to integrate CS and technology in the classroom. **Measure:** Survey of Preservice Teachers’ Knowledge of Teaching and Technology (TKTT) (Schmidt, Baran, Thompson, Koehler, Mishra, & Shin, 2009; *Reliability:* Cronbach’s Alpha = 0.78-0.93; validity established for eight factors in Shinas, Yilmaz-Ozden, Mouza, Karchmer-Klein, & Glutting, 2013) and TSTEM (Friday Institute for Educational Innovation, 2012); *Reliability:* Cronbach’s Alpha = 0.945, *Validity:* Confirmatory factor analysis validates presence of seven constructs and post-survey items.

Project 6. In Years 3-5, at least 65% of students of NetSERVE teachers will report an increase in their pre-to-post mean score on the CS Attitude and Efficacy Survey. **Measure:** CS Attitude and Efficacy Survey (Phillips & Brooks, 2017); reliability established for our population until Cronbach’s alpha reaches 0.70 or higher.

Project 7. In Years 3-5, students of NetSERVE teachers will score at least 65% proficient on a CS assessment developed by the project compared to students in non-NetSERVE classrooms. **Measure:** CS assessment.

3) Project is designed to build capacity and yield results beyond Federal financial assistance.

► NetSERVE is designed to create sustainable systemic shifts rather than stand-alone, short-term efforts. The Rex Institute, through the WU COE, supports the WU-School Partnership Network (PN) that has sustained the collaborative work among WU and its ten partnership districts for over

ten years. The roles of the PN are to maintain and continually improve WU's clinical approach to educator preparation; engage in "simultaneous renewal" among teachers, administrators, and WU faculty; and support professional learning for district and university faculty and teacher candidates. The Partnership Network Advisory Council, consisting of a liaison from each of the PN's fifty schools and WU, meets every six weeks during the academic year to guide the shared agenda. Additionally, the Rex School/Community Council (district and university administrators) meets at least twice a year and organizes professional learning opportunities, collaborates on projects and grants, examines budget and assessment data, examines teacher shortage areas, and ensures program accountability. With these structures in place, NetSERVE will have a home in which it can prosper and grow beyond TQP funding. ► **Serving as a Model:** NetSERVE will create partnerships and systems to sustain and expand the MAT residency post-grant. WU and its partners are committed to the success of NetSERVE; and understand the pressing need for effective teachers to fill the vacancies in SC's rural schools. NetSERVE partners realize the problem requires collaboration and shared purpose, as witnessed in our letters of support (*Appendix I*). For over 10 years, SC has witnessed fewer teachers graduating from the state's IHEs. Although there has been an increase in the number of post-baccalaureate, non-degree alternative programs in the state, they produce a small percentage of teachers in the workforce. SC schools, especially in rural communities, are facing an increase in teachers who leave for another part of the state or country or leave teaching altogether. Further challenges facing our partner high-need LEAs and schools are included in our needs assessment (*Appendix C*). Through a partnership-driven MAT residency program that prepares individuals to be successful teachers in rural, high-need schools, the expectation is a model that WU can extend to other IHEs and LEAs in SC and the nation. This occurred when WU transformed its pre-baccalaureate teacher education programs to be clinically-based and partnership-driven as several colleges of education in the Carolinas sought guidance on shifting to such a model and many have initiated similar partnerships and are moving to year-long

internships. ► **Financial Sustainability:** Throughout implementation of the MAT residency, NetSERVE partners will receive direct, focused technical assistance (in-person and virtual) to design program structures and identify resource allocation strategies from Prepared to Teach (DeMoss et al., 2017). For example, when LEAs embed integrated teacher development efforts into job descriptions, projects can save on personnel. Moreover, LEAs will benefit from a well-prepared teaching force licensed in areas of need allowing for accrual of cost savings from decreased turnover. Initial analysis run by Prepared to Teach on the NetSERVE model predicts that within five years, reallocation of small portions of PD and paraprofessional dollars could pay for 40-50% of the \$20,000 stipend; while savings from reduced turnover could pay for the other half (DeMoss, 2018). ► **Project Dissemination:** Essential aspects of the model, successful strategies, and outcomes will be analyzed and communicated through various professional outlets. We will use formative evaluation to articulate what works, existing challenges, and supports needed in establishing sustainable residencies in partnership with high-need LEAs. Dissemination will take four major approaches: 1) The project model will be shared through presentations at professional conferences, such as the American Association for Colleges of Teacher Education. Proposals will be submitted by WU and NetSERVE partners to share WU's innovative, community-based MAT residency. At the state level, WU and its partners will present at meetings and conferences held by SC Association of School Administrators, SC Department of Education, and SC Education Oversight Committee. 2) WU will maintain a NetSERVE residency website and social media presence for recruitment and resource archiving and to highlight the success of graduates who moved into careers as teachers as well as the success of partner schools in recruiting and retaining effective teachers through the program. This is currently part of the WU Rex Institute's website specifically for sharing professional learning events, housing curriculum information, and archiving reusable learning objects; thus, adding NetSERVE will be a natural process for partners. In addition, NetSERVE will create a Twitter account that connects with

Prepared to Teach and other residency programs. Not only can Twitter provide a dissemination outlet, it can be a tool for PD chats, Q&A, and more. These virtual learning networks will reach educational and broader public audiences. 3) NetSERVE staff, WU faculty, and partners will collaborate to publish findings and lessons learned. In partnership with the external evaluator and Prepared to Teach, a data-based approach will be used to highlight best practices in reports as well as infographics and white papers. Action research projects will result in white papers and articles posted as resources on the NetSERVE website. 4) WU COE will continue to offer its annual Partnership Network Conference for Educational Renewal that brings over 250 teachers, school administrators, community leaders, faculty, and teacher candidates to share results of their collaborative projects, persistent challenges, and action research solutions. As an increasing number of residents, MTs, teachers, and school leaders participate, opportunities to share program successes and design will reach other LEAs, thus WU and Prepared to Teach will co-facilitate a symposium that will be open to IHE and school educators to gain understanding of critical residency program components.

4) Project represents an exceptional approach to the priority. WU and its partners envision NetSERVE providing a direct, clinically-based pathway for individuals who hold a bachelor's degree to become effective teachers in high-need schools that are desperate for committed educators (*Absolute Priority*). Most schools having difficulty recruiting and retaining qualified teachers are high-poverty urban or rural schools that serve economically depressed communities, serve diverse populations, and are under-resourced (NEA, n.d.; Sutchter, et al., 2016). This is true in SC, as hard-to-staff schools are located throughout rural areas. In partnership with three rural LEAs with schools identified as SC "critical geographic schools," NetSERVE will offer a MAT year-long residency to prepare teachers in SC's "critical subject areas" of math, science, English, social studies (secondary and middle levels), Spanish and French languages, special education, physical education, as well as needed fields of early childhood (grades PK-3) and elementary

education (grades 2-6)—all providing an expedient option to add special education certification (SC Student Loans, n.d.). MAT course work will be delivered 60% online and 40% face-to-face to promote access and maximize time in the school (Bernard, et al., 2014; Caulfield, 2011). Currently, partner LEAs identify middle level grades (all subjects), secondary math and science, and special education as critical fields. Recruitment will be directed to all critical subject areas. Elementary and middle/secondary level STEM teachers will be recruited to participate in CS training to integrate CS into their curricula and, for middle/secondary level, to teach a course in support of SC's implementation of new CS Standards (*CPP 1*).

NetSERVE partners will focus recruitment efforts on three populations: 1) current undergraduate students not pursuing an education degree, especially those in STEM majors; 2) individuals who graduated from WU or another university with a non-education degree within the last five years; and 3) mid-career professionals wishing to pursue a teaching career. NetSERVE LEAs will promote the program in their communities, including a search for non-instructional personnel who hold a bachelor's degree. WU will distribute fliers, use campus email, and hold on-campus and online information sessions for junior and senior undergraduate students majoring in fields that would allow them to directly enter the MAT residency program. WU's Center for Career and Civic Engagement, which facilitates service learning, volunteer opportunities, community service, and career guidance activities, will help share information about the MAT residency program to upcoming non-education graduates who have shown interest in working in schools and rural communities. The CAS dean/associate deans will take the lead in encouraging CAS faculty to share information about the program and students to consider an education career. Specific strategies will be employed to recruit individuals into STEM/CS teaching fields (*See CPP 1*). In addition to reaching out to current and soon-to-graduate undergraduate majors, WU will contact recent graduates through email, social media, COE e-newsletter, and alumni events. To reach mid-career professionals, stories will be sent out to local media (newspaper, radio, TV) with a website

and social media presence used for outreach to local schools, businesses, and community organizations in the partner LEAs and surrounding counties. The COE and CAS deans/associate deans will contact other colleges and universities in the state and region, especially those not offering a residency or clinical-based initial preparation graduate program and encourage them to share the opportunity with their non-education graduates. Advertising of the program will also occur through CERRA’s website, e-blasts, social media, and presentations around the state.

Our goal is to prepare 74 MAT residency candidates in Years 1-4 as noted in Table 2 below. NetSERVE will provide induction for two years to align with SCDE’s teacher evaluation system using the Student Learning Objectives (SLO) Rubric to score teachers for formative and summative evaluation (Carver-Thomas & Darling-Hammond, 2017; Goldrick, 2016; Woods, 2016). Upon completion, the initial teacher certificate moves to a professional certificate.

Table 2. NetSERVE Teacher Resident Recruitment Projections					
Participant Classification	Y1	Y2	Y3	Y4	Y5
Pre-Residents	10	16	24	24	
Residents		10	16	24	24
Induction I (<i>Formative evaluation year</i>)			10	16	24
Induction II (<i>Summative evaluation year</i>)				10	16

► **Selection Criteria:** Criteria for admission into NetSERVE are highly selective; and involve a two-phase process: 1) initial MAT admission and selection; and 2) admission to the WU Teacher Education Program with pre-residency review. To be admitted into the program, candidates must submit a Graduate School application, official transcripts, and passing score on the appropriate Praxis subject area assessment or GRE or MAT scores. Once screened by the respective MAT content area coordinator, additional admission materials specific to the residency program will be assessed by a MAT Residency Selection Committee, consisting of NetSERVE Co-PIs, Project

Director, the respective content area coordinator, and a representative from each partner LEA. An Admissions Assessment Rubric will be collaboratively developed in Year 1. Through this review, the committee will determine if the candidate has an appropriate level of interest in and commitment to the program and teaching in a rural, high-need school. Preference will be given to candidates who are from underrepresented populations and who reflect the communities in which they will teach as a resident (Rosen, 2017).

Selection Phase I: MAT Residency Admissions and Resident Selection. In the fall prior to the first semester, the MAT Residency Selection Committee will review the following materials and interview applicants: **1)** NetSERVE MAT Residency Application including: a) summary of academic and professional background; b) 200-word statement of long-term career goals; c) statement of interest in the residency and teaching in a high-need rural LEA; and d) connections to any of the three partnering LEAs, communities in those counties, or any similar districts. **2)** Copy of all undergraduate and graduate transcripts with a transcript evaluation by the content area coordinator and COE Associate Dean/Student Academic Services Director. For mid-career professionals without a baccalaureate degree in the content area, a professional portfolio must be submitted documenting strong content knowledge or record of accomplishment in the teaching field. **3)** Extemporaneous handwritten response to an authentic teaching scenario. **4)** Interview with Committee to discuss information provided and additional authentic scenario questions and determine if the candidate reflects the communities in which they will teach.

Selection Phase II: TEP Admissions and Pre-Residency Review. After initial program coursework in spring and beginning summer, candidates will apply to WU's Teacher Education Program (TEP). For admission, candidates must submit an application including an analysis of learning in the program, a cumulative 3.0 GPA in graduate courses, a statement concerning any criminal/unethical record, and a dispositional review/reflection. Additionally, a criminal background check is required for work in a SC public school. If these criteria are met, the

committee will assess the candidates' progress and their demonstrated competencies. This review will focus on professional dispositions and skills of fairness, integrity, communication, and commitment; beginning proficiency in WU's Unit Standards; competence in verbal and written communications; demonstrated proficiency in content, judgment, and perceptiveness; ability to relate to students; and level of interest in completing the residency, teaching in a high-need school, and engaging with the community (SREB, 2018b). This review will include: 1) Formative feedback received on the Professional Dispositions Student Assessment and, if applicable, any remediation required by the Professional Dispositions and Skills Intervention forms; 2) Pre-residency MAT grades and field-based assessments; 3) Documentation of success in the community-based summer experience; and 4) Interview with committee members to determine continued interest in the residency experience and teaching in one of the rural, high-need schools. This process is critical to assessing overall readiness for the residency; and to determine the best school placement and MT. The committee will identify strengths and areas for targeted development and will recommend a set of professional learning goals for the candidate's residency year with MT support. If the committee determines the candidate is not ready to enter the residency, the candidate will be provided guidance on how to further prepare for the residency or if other options must be considered. Admission criteria for the MAT residency program are demanding; however, candidate success is the shared goal of NetSERVE partners. As depicted in Table 3, continued review of program competencies by the university supervisor, MT, and content area coordinator occur for individualized goal setting to ensure continued professional learning.

Table 3. MAT Selection, Continued Review Schedule, and Coursework	
MAT Admission Review and Resident Selection (summer/fall)	
Spring	15 credit hours coursework connected to school-based experiences
Summer	12-15 credit hours coursework with three-week community-based experience

TEP Admissions and Pre-Residency Review (June 15 – July 1)	
Fall	Residency I (includes 9-12 credit hours coursework)
<i>Competency Review with Goals for Residency II</i>	
Spring	Residency II (includes 9 credit hours coursework)
<i>Competency Review with Goals for Induction Year I</i>	

► **Cohort Structure and Professional Collaboration:** As described in *Project Design – Section I*, residents will be placed into cohorts in partner schools and will have regular opportunities to collaborate professionally with their cohort, across cohorts, and with their MT. Beginning in project Year 3, induction teachers in the partner schools will participate in collaborative networking and professional development (PD), as described in *Project Design – Section I* and depicted in Table 4 below (Darling-Hammond, et al., 2017). Peer-support and PD meetings at times are directly confined to individual cohorts or cohorts within a school, while some bring together residents and/or induction teachers across schools in the LEA or across the partner LEAs. NetSERVE staff and MTs with the school and LEA leadership will facilitate these meetings. MTs will ensure that school-based meetings occur as planned; district liaisons will assume responsibility for scheduling cross-school residency and induction meetings; and NetSERVE staff will plan cross-district meetings and events while facilitating the programming of the school-level and district-wide meetings. NetSERVE partners, community experts, and WU faculty will participate in and lead collaborative PD workshops and webinars (SREB, 2018b).

Table 4. Professional Collaboration Activity Schedule				
Key: R (Resident), MT (Mentor Teacher), IT (Induction Teacher), SL (School Leader)				
Activity	R	MT	IT	SL
Resident Cohort Meetings	3/month	1/month		

Resident Cross-District Meetings	1/semester	1/semester		
Mentor Training		2.5 days	2.5 days	
Induction Coaching Training		1 day		1 day
Webinars	Virtual	Virtual	2/semester	Virtual
School Peer-Support Meetings			1/month	
District Peer-Support Meetings		2/year	2/year	2/year
New Teacher Town Hall	1/year	1/year	1/year	1/year
NetSERVE Workshops	1/semester	1/semester	1/semester	1/semester
Partnership Conference	1/year	1/year	1/year	1/year

The three partner LEAs and eight partner high-need schools need more qualified teachers; appreciate the focus on critical subject areas including math, science, and special education; and recognize the value in partnering with WU to offer a MAT-based residency program. District leaders have been actively engaged in the planning process and principals are prepared to support the engagement of their teachers in NetSERVE PD and will encourage their most effective teachers to serve as MTs, while participating in related PD themselves (Hudson, 2013). School leaders are looking forward to participating in the selection of MAT residents for their schools and having them join their school staff as junior faculty under their MT. They have verified their commitment to hiring the residents and supporting them in their induction, as evidenced in their support letters (*Appendix I*).

► **Effective Pre-Service Preparation:** NetSERVE will ensure all residents receive quality pre-service preparation and are equipped for the unique challenges of working in rural, high-need schools (Witte & Sheridan, 2011). The MAT residency program will be clinically designed

through pre-residency and residency course work that will require school and community-based experiences. Our partner schools will provide input into the profile of the NetSERVE resident and, as a collaborative Curriculum Design Team, will arrange coursework around a continuum of clinical experiences, including the year-long residency (SREB, 2018b). As framed in Table 3 above, candidates begin with five courses providing foundational learning in reading and special education with three of the courses engaging candidates in applied clinical learning. During this semester, candidates will be trained on co-teaching strategies. In the summer, candidates will take 4-5 courses addressing developmental sciences, teaching children of poverty, assessment, classroom management, and reading in the content area. As part of the coursework, candidates will participate in a three-week community- and school-based experience to develop cultural understanding while learning effective teaching, assessment, and classroom management skills with the supervision of a classroom teacher, community advisor, and university faculty (Ford, et al., 2014; NEA, 2008). The first two semesters of pre-residency theoretical and applied learning builds capacity for residents to enter the partner schools as contributing co-teachers. The practice of co-teaching is a required collaborative structure of the internship, which provides a rigorous experience for the resident, allows the MT to remain involved in the classroom, and enriches the students' quality of learning. Co-teaching supports continuous mentoring as the resident refines skills necessary to be successful. The various co-teaching models give the MT and resident opportunities for increased collaboration, strategies for meeting diverse learner needs, and research-based methods of increasing student achievement (Friend, Cook, Hurley-Chamberlain, Shamberger, 2010; Leach, Johnson, Blumhardt, & Bush, 2014; Murawski & Swanson, 2001; Weiss & Brigham, 2000). Co-teaching will not be required for every lesson but aims for balance between the resident's co-teaching and solo teaching.

Each resident will be part of a collaborative team that provides opportunities for extended practice under the guidance of experienced professionals. Each team member has specific responsibilities

to ensure the development of the resident's competency in the art and science of teaching, including the MT, school leaders, partner school liaison, and university supervisor, Office of Field and Clinical Experiences Director, Rex Institute Director, and COE associate dean (Co-PI), and CAS associate dean (Co-PI). The LEA superintendent, district liaison, COE and CAS deans, WU department chair, WU content area coordinator, and COE field placement coordinator will play supportive roles. Residents will engage in "learning by doing" as they continue to master content and the pedagogy through the rigorous graduate courses. The coursework and residency are integral parts of building the knowledge, skills, and dispositions required for effective teaching. The MT, resident, university supervisor, and faculty teaching graduate courses will use a Residency Handbook to establish norms for their communication and collaboration. As residents engage as a co-teacher in the MT's classroom, they will have opportunities to observe other effective teachers in the school, gain experience in other grade levels, and participate in various aspects of school life in collaboration with teachers, principal and assistant principals, school counselors, and other support staff (SREB, 2018b). Throughout the year, residents will be guided by the MT through five stages of development as an effective teacher: 1) developing a collaborative classroom; 2) mastering content and pedagogy, including teaching skills and STEM/CS content; 3) guided leadership; 4) lead teaching; and 5) learning from the larger community (Hudson, 2013; SREB, 2018a; Woods, 2016). In addition to formative feedback from the MT and university supervisor, more formal observations with pre- and post-conferencing are required involving both the MT (2-3/year), supervisor (1-2/year), and a site-based observer, typically the partner school liaison (1/year).

► **Mentor Teacher (MT) Component:** A MT is an effective teaching professional who is approved by WU to serve as a role model, instructor, and coach for the resident. Under the MT, the resident moves from guided practice to direct teaching experience. The MT, in coordination with a content/field-specific university supervisor, is responsible for leading the resident through

progressively challenging activities so the resident applies theory and content knowledge while developing practical professional skills. Since the MT role is critical to resident's professional growth and success, recruitment and selection of MTs will be a priority (Hudson, 2013; SREB, 2018a; Woods, 2016). NetSERVE MTs are selected through criteria that reflect high expectations and a collaborative process involving school leaders, school liaison, and the NetSERVE Project Director meeting with interested school faculty to discuss the residency program and the role of teacher mentor. Teachers discuss their interest with the principal; and if supported, complete an application and self-assessment to include their resume; PD records; student growth data; letters of recommendation from a school administrator, teacher colleague, and a former mentor; and a copy of their most recent SC Teaching Standards 4.0 Rubric (SCDE, 2018b). The school principal and liaison (or designee) will each complete a Mentor Qualification Assessment form based on the following criteria: 1) At least four years teaching experience with at least one year on a professional license; 2) Outstanding performance evaluations for the last two years; 3) Commitment to continuing PD and contributing to the professional growth of others; 4) Knowledge of research-based instructional strategies related to content and effective student assessment based on SC academic standards; 5) Excellence in teaching and professional conduct; 6) Strong skills in planning, oral/written communication, shared decision making, judgment, human relations, and collaborating with other teachers and parents with a focus on improving student learning; 7) Willingness to deepen understanding of cultural, racial, and cognitive diversity; and provides personalized learning based on what each student knows and how they learn best; 8) Emphasizes the importance of literacy and math, and demonstrates skills in the essential components of reading, teaching reading across core content areas, and in teaching math, as appropriate; and 9) Commits to the time and effort needed to serve as a MT. The principal, Mentor and Induction Specialist, WU content area coordinator, and the COE Director of Field and Clinical Experiences will serve as the MT Selection Committee to review the application and the Mentor Qualification

Assessment forms prior to conducting an interview. Once MTs are selected, school principals are notified along with the districts' NetSERVE liaisons; and then the principals, school liaisons, COE Field Placement Coordinator, and the Project Director collaborate to assign residents to partner schools and MTs. These highly effective teachers will grow in their roles through mentor and induction coach training as well as SLO training, if needed; and they will participate and facilitate other NetSERVE professional learning activities that occur in the partner school or LEA. Mentors will play an active role through co-teaching, observing, coaching, and providing written and oral feedback (Hudson, 2013; SREB, 2018a; Woods, 2016). As residents graduate, gain their teacher certification, and assume a classroom of their own, MTs will assume the role of induction coach to small groups of new teachers in their schools. Throughout mentoring and induction coaching, teachers assume the role of colleague in their school's learning community and as teacher leader, building the capacity of others to positively impact student learning. Especially important is the ability of the MT, with the support of the school principal and school liaison, to have designated time for professional conversations, reflections, and planning for co-teaching. Schools will provide substitutes to allow teachers at least a half day each week for mentoring or coaching activities since this support cannot be added on top of their teaching responsibilities. The MTs need protected time to engage in mentoring and induction activities, such as observing and meeting with their protégés, and planning together (SREB, 2018). The partner LEA superintendents and school principals are committed to creating time in the schedules of MTs, providing release time from teaching duties as needed, thereby acknowledging the value of the MTs' contributions to the success and retention of the resident and induction teachers.

► **Residency Stipends:** Residents will be guaranteed a one-year living stipend of \$20,000 with the understanding that the resident, upon program completion, will apply for SC teacher certification and agree to serve as a teacher for a minimum of three years in one of the high-need schools in the partner LEA in which they served as a resident. The three partner superintendents

may determine that the resident can fulfill the teaching responsibility in one of the other two NetSERVE LEAs depending upon need. To receive the stipend and enter the residency, the candidate must sign a promissory note that outlines: a) requirements of the stipend, b) stipulations for repayment of the award with service, c) definition of qualifying service, d) definition of qualifying high-need school or LEA in which service can be repaid, e) terms of repayment, f) hardship repayment/cancellation options and special considerations of program requirements, g) late charges, h) default, i) change of status, and j) authorizations. The resident must also sign a NetSERVE Resident Term Agreement, requiring the resident to respond promptly to requests and submit an Annual Service Confirmation (also signed by the partner principal) at the beginning or at the end of each year or partial year of service in which the resident teaches to fulfill the requirements. If the resident fails to a) complete the NetSERVE MAT residency program, b) teach the required three years, or c) submit the required verification form by the due date, the resident will be required to repay in a lump sum the entire award amount (prorated for any years of teaching) with interest at the rate of the Stafford Student Loan Program (currently 5.045%). In the event that any portion of the award must be collected from the resident, the funds must be paid directly to WU when the resident a) ends the teacher certification program, b) notifies of intent not to fulfill the teaching obligation, or c) is unable to complete the teaching obligation within eight years. Such funds will be returned to the NetSERVE program. In cases of hardship, such as inability to secure employment in a school serviced by the partnership, active military duty, or health conditions, the resident may request that the deadline for repayment through service be extended up to three years. In cases of significant hardship, such as incapacitation or extraordinary circumstances, the resident can contact the Project Director, COE associate dean (Co-PI), or the WU Office of Financial Aid for assistance in requesting that the required repayment through service be waived and/or teaching requirements be altered. WU will determine whether accommodations or changes in expectations can be extended.

Adequacy of Resources

1) Adequacy of support from the applicant organization. NetSERVE is a diverse partnership with a shared purpose of addressing the SC teacher shortage and meeting the needs of all students through purposeful, sustained residency programming. Winthrop University (WU) and two associated teacher preparation colleges [Riley College of Education (COE) and College of Arts & Sciences (CAS)] serve as the **IHE eligible partners**. Moreover, the WU Rex Institute for Educational Renewal and Partnerships will provide support to the program as its goals of improving P-12 student learning, improving professional learning for district and university faculty and teacher candidates, strengthening pre-service teacher preparation, and increasing support for new teachers and leaders are aligned with the goals of NetSERVE. As highlighted in *Appendix I*, the Provost and Vice President for Finance and Business Affairs understand and are committed to providing institutional resources including access to technology support, finance and employment expertise, marketing and communication resources, and space access. The WU COE is a successful manager of grant programs. Having multiple programs over the past ten years (e.g., TQP, School Leadership, National Professional Development, and Noyce), the college leadership is committed to NetSERVE as part of the simultaneous renewal of schools and teacher preparation institutions. The COE will ensure sufficient leadership to facilitate program activities and assume fiscal responsibility, lead curriculum redesign efforts, collaborate with districts to deliver needs-based professional learning, and ensure access to and support from student-focused offices and systems. With current secondary MAT programs housed in the College of Arts & Sciences (CAS), WU has experienced cross-college collaboration for many years. Faculty and CAS administrators were heavily involved in WU's 2009 TQP project to transform undergraduate teacher preparation curriculum (current Provost was the CAS Dean) and continues efforts with engaged membership in WU-School Partnership Network governance structures. Committed to recruiting, preparing, and supporting secondary STEM educators, the CAS will provide access to college leadership to

serve as a co-PI, approve time and effort for content program coordinators and faculty to examine curriculum and support residents and partner teachers, and ensure resident access to college support systems.

NetSERVE will benefit from existing resources and partner contributions to ensure program sustainability. Integrating various assets – human and capital – from multiple stakeholders signifies a resilient partnership with strong commitments. WU is providing matching funds from various budgets to facilitate the implementation and daily operation of NetSERVE. The **Riley College of Education (COE)** commits \$1,174,533 over the five-year grant period. Human resources dedicated to the project includes Associate Dean and Rex Institute Director, Dr. Lisa Johnson (25% FTE) who will serve as a co-principal investigator and others including Dean, Dr. Jennie Rakestraw (10% FTE) and Associate Dean and Director of Student Academic Services, Dr. Beth Costner (10% FTE): 1) Dr. Lisa Harris, MAT Program Coordinator, and Dr. Shawna Helf, COE Graduate Studies Coordinator, (both 10% FTE) will expand the suite of MAT program offerings from a general program perspective; 2) Content area coordinators (10% FTE) and department chairs (5% FTE) will devote time and effort into designing and refining programs to address specific contextual dynamics of partner LEAs as well as engage in program marketing, advising, and support throughout the project; 3) COE personnel from the Office of Field and Clinical Experiences [Ms. Carolyn Grant, Director (15%) and Ms. Dia Hablutzel, Field Placement Coordinator (10%)] will serve program participants through guidance on field and residency requirements, collaboration on placements for residency and other clinical experiences, delivering information sessions and co-teaching training, and distributing annual evaluations. Ms. Joanna Harris, Educator Services Coordinator, and Ms. Kathie Park, College and University Support Specialist, (10% FTE each) will assist residents in completing background checks, gateway applications, and state certification paperwork as well as ensuring accuracy of documentation. 4) The WU Instructional Technology Center (ITC) is housed in the COE. The director, Ms. Joyce

Camp (20% FTE) and one of her program assistants (\$7,000) will use prior experiences in working with school partners to collaboratively plan and deliver professional learning and provide ongoing consultation related to effective technology and computer science standards integration. Beyond human capacity, the COE will supply laptops for the Project Director and Mentoring and Induction Specialist to use considering the required time spent engaged with school partners versus in a stationary on-campus office. General office supplies needed for the project for PD sessions and communication are covered by the COE. Travel funds from the COE will be devoted to university supervisors traveling to partner schools to evaluate residents as well as for faculty researchers to attend national conferences and disseminate implementation best-practices and impact results. The **WU College of Arts & Sciences** will also devote time and effort through Dean, Adrienne McCormick (5% FTE) and Associate Dean, Robert Prickett who will serve as a co-principal investigator (25% FTE). Content coordinators (10% FTE) and department chairs (5% FTE) in secondary programs will provide course modifications, flexible scheduling, and participant support. Additional match funding is dedicated to support national conference travel for college leaders and program faculty to present NetSERVE success at national program-specific meetings. Over the five-year grant period, the CAS will contribute \$431,299. As an institution, WU understands the critical role NetSERVE plays in addressing the state's teacher shortage and continuing to fulfill its role as the flagship teacher education program in SC. Various university offices including Student Financial Services, Human Resources, and University Marketing and Communications provide access to critical information, assets, and expertise necessary for NetSERVE to support the resident stipend agreements and publish/post program information. WU agrees to provide conference space at no cost for annual meetings and symposia and access to interactive technology tools and resources. The Office of Online Learning (Dr. Kimarie Whetsone, Director and Mr. Thomas Cornelius, Program Designer, both at 10% FTE) will provide specialized support for faculty to develop master courses, create online webinars, and engage participants in

virtual learning environments. College and university support personnel, such as the new Adult Students Outreach Coordinator (to be hired July 1, 2019; 10% FTE), will recruit and support MAT students who are coming back to college after an extended time or changing careers. With flexible operation hours and personnel availability, these offices provide convenient access to busy residents and MTs.

2) Relevance and demonstrated commitment of each partner. NetSERVE partner high-need LEAs and schools are highly invested and eager to witness program success. **Three high-need LEAs** engaged in teacher recruitment and retention conversations with the Rex Institute for the past year will commit to sustainable residencies through NetSERVE. **Chester, Chesterfield, and Fairfield County School Districts** all represent rural communities experiencing high rates of poverty and challenges with teacher recruitment and retention (*Appendix C*). Although plagued by turnover and working to meet diverse student needs, these districts have much to offer the NetSERVE partnership. **All three high-need LEAs** are engaged partners with WU and have direct influence on teacher education curriculum and shared professional learning. In conversations over the past year about teacher shortage areas, they are prepared to study current resource allocation in order to commit district funds to support at least 40% of the teacher resident stipend by Year 5. Additionally, district level administrators [Dr. Chan Anderson, Dr. Jennifer Etheridge, Ms. Lisa Brett, and Ms. Shemmicca Moore] commit 10% FTE as members of the NetSERVE Leadership Team and associated sub-committees providing access to various district offices needed to facilitate the residency program (e.g., human resources, data/assessment) and will provide support to schools as they work on flexible schedules to facilitate PD for teachers and residents.

Through NetSERVE, we will target eight high-need schools across our partner LEAs. While they are diverse in their mission, the schools share a common goal of preparing all students to be college and career ready regardless of their context of poverty. Partners seek to build a school faculty who are culturally responsive to the students and their community, maintain a resiliency towards growth

and achievement, and meet individual needs through personalized instruction. Through research and discussion about residency programs, principals understand and commit to establishing strong resident-mentor partnerships. They will engage residents as “junior faculty” and provide equitable access to resources for all participants. Partner school principals will devote 10% FTE and also engage as Leadership Team members. Additionally, principals will lead implementation for their school and support flexible scheduling to ensure adequate time for PD and growth. Matching school funds will ensure residents, as junior faculty members, receive materials and supplies that align with other school faculty. Finally, district and school leaders will ensure residents are placed with a highly effective paid mentor during their induction years.

In addition to our partner high-need LEAs and schools, several state departments and organizations are supporting NetSERVE through personnel commitments, resource allocation, and PD access:

1) The **SC Center for Educator Recruitment, Retention and Advancement (CERRA)** partnered with WU in 2009 to establish a birth to five model for mentoring pre-service teacher candidates through induction. Still used in WU’s preparation program, CERRA will expand current Foundations in Mentoring training to include an “addendum” training specifically for mentoring in residency programs. CERRA Executive Director and Program Director will support NetSERVE induction efforts through principal training and coaching strategies. Continuous examination of data through CERRA’s annual supply and demand report will support evaluation efforts and Leadership Team formative feedback. CERRA will provide access to Dr. Jane Turner (Executive Director), Dr. Jenna Hallman (Program Director), and Dr. Jennifer Garrett (Program Evaluation Coordinator) at 10% FTE to assist in mentor and induction programming, designing advanced coaching trainings, gaining critical access to statewide data, and assisting with recruitment of new NetSERVE residents. CERRA will contribute \$187,614 in matching funds. 2) The **SC Department of Education (SCDE) Office of Personalized Learning** and **Office of Career and Technology Education** will collaborate with NetSERVE on milestones related to

meeting the needs of diverse learners and integrating computer science standards to facilitate quantitative reasoning, designing solutions, and investigating through inquiry. With established professional learning community structures, the SCDE offices will provide opportunities for teacher, resident, and faculty development and commit financial resources to have the necessary materials to engage students. The SCDE Office of Personalized Learning is committed to providing access to national training on competency-based, transformative education to three cohorts from each NetSERVE LEA. They will assume the cost of travel to NetSERVE schools to support implementation of developmental competencies aligned with the Profile of the SC Graduate. The SCDE Office of Career and Technology Education dedicates \$50,000 in computer science materials to support standards' implementation during and after PD. Both departments will provide in-depth face-to-face and virtual consultation with NetSERVE teachers, administrators, and faculty as stakeholders implement a "wrap-around" approach to integrating STEM and personalized learning into teacher education and professional learning. The total match value from the SCDE is \$203,240. 3) **Prepared to Teach**, works across the country to solve a key problem in education: making sure everyone who wants to be a teacher can afford to attend a quality preparation program. Building on WU's successful partnerships and current year-long internship, Prepared to Teach will assist in establishing residencies that integrate aspiring teachers into schools for the benefit of all involved and including financial support for teacher candidates so they can fully commit to the internship experience. Prepared to Teach has worked with multiple districts across the country in meeting their teacher shortage challenges. They will lead NetSERVE efforts to assume fiscal responsibility post-grant, collaborate on dissemination efforts (local, state, and national), and lead data collection efforts in partnership with the program evaluator through multiple meetings throughout the year and annual reports to the Leadership Team. Prepared to Teach will also co-facilitate an annual Sustainability Symposium. In order to ensure sustainability of the NetSERVE residency program and to provide a model for others, Prepared to Teach will

match consulting efforts to lead districts in resource allocation. They will provide personnel time and effort, supply NetSERVE with technology and evaluation resources, allocate additional travel expenses for program dissemination efforts, and cover office supplies and overhead valued at \$496,000. 4) **Center of Excellence to Prepare Teachers of Children of Poverty** leaders collaborate with WU to provide the field experiences and associated content needed to prepare new teachers to work with learners experiencing poverty. This original collaboration resulted in a specific course entitled, “Developmental Sciences and the Context of Poverty.” The Center of Excellence will further support NetSERVE as MAT students participate in a three-week community-based experience to develop an understanding of and skills in working with under-resourced schools and individuals.

Quality of the Management Plan

1) Adequacy of management plan to achieve objectives. In 2009, Winthrop University (WU) received a TQP grant resulting in a transformation of the undergraduate teacher education program. With a curriculum that is now clinically-based, teacher candidates spend up to 1,500 hours in field settings culminating in a co-taught, year-long internship in which teacher candidates are recognized as junior faculty in Partnership Network schools. Additionally, a set of “Unit Standards” was established with school partners and used to create an Education Core curriculum that prepares candidates to teach diverse learners (e.g., cultural competency, children living in poverty, English learners), become content experts, and effectively integrate technology to establish an inclusive classroom environment. The WU-School Partnership Network was established through this collaboration and now consists of ten school districts and fifty schools, including the three rural LEAs that will engage in this project. With this record of innovation and achievement, WU and its partners are well-positioned to achieve program goals in a timely manner, and within the established budget. NetSERVE will be directed by a **Leadership Team** with members including two Co-PIs (WU COE and CAS associate deans) and a Project Director who

will organize the group’s meetings (eight times/year in Years 1-3; six times/year thereafter). Additional members include the WU Master of Arts in Teaching Program Coordinator, the WU Instructional Technology Center Director, three district liaisons, eight principals/school leaders, and the NetSERVE Mentoring and Induction Specialist. The external evaluator will attend Leadership Team meetings along with other partners and stakeholders depending on topic of discussion. The Leadership Team will oversee recruitment, selection, and ongoing support for residents and mentors; design and deliver coursework and PD to meet each LEA’s identified needs; collaborate with the identified independent evaluation team to ensure program accountability; and ensure that each aspect of the project is accomplished on schedule and within budget and that the project’s objectives are fully met. NetSERVE project personnel serving on the Leadership Team are highlighted in Table 5. Additionally, Dr. Chan Anderson (Chesterfield Assistant Superintendent), Dr. Jennifer Etheridge (Fairfield Director of Special Projects), Ms. Lisa Brett (Chester Director of Teacher Quality), and Ms. Shemmicca Moore (Chester Director of Secondary Education) will represent their respective districts on the Leadership Team as well as the principal of each partner high-need school. WU Co-PIs and Project Director will facilitate the Leadership Team and ensure project implementation with fidelity including, but not limited to: establishment of 16-month MAT programs that meet the needs of partner LEAs; leadership for recruitment and selection of teacher candidate residents; organization of professional learning opportunities; and collaboration with the independent external evaluator.

Table 5. NetSERVE Project Staff
Key: Q (Qualifications), F (Function)
Co-PI: Dr. Lisa Johnson, Associate Dean, College of Education (.25 FTE) - Q: Ph.D. in Curriculum and Instruction with concentration in Mentoring, Supervision, and Instructional Technology; director of the Rex Institute for Educational Renewal and Partnerships and the

WU-School Partnership Network; successfully led NetSCOPE TQP grant awarded in 2009 with sustainable changes in curriculum and partnerships; oversees pre-service teacher education curriculum and associated faculty. **F:** Provide strategic direction and responsible for project oversight and accountability to ensure fidelity of project implementation; co-facilitate Leadership Team; lead Sustainability Task Force; oversee Project Director.

Co-PI: Dr. Robert Prickett, Associate Dean, College of Arts & Science (.25 FTE) - Q: Ph.D. in Curriculum and Instruction with experience in teacher education and content preparation; record of effective leadership of current MAT programs in secondary education fields; leads work in schools with dual enrollment and college-level PD; member of the WU-School Partnership Network; university supervisor for pre-service teacher candidates. **F:** Co-facilitate Leadership Team; provide leadership in the college for the implementation of NetSERVE; participate in the recruitment, selection, and ongoing support of program participants; provide faculty members to serve as content experts; collaborate to redesign curriculum aligned with project priorities; serve as member of the Sustainability Task Force.

Project Director: Dr. Audrey Allan, School Administrator and WU Instructor (1.0 FTE)
Q: Ed.D. in Curriculum and Instruction with experience in elementary, middle, and high schools; teaching and administrative expertise; work with pre-service teacher candidates as a course instructor and school liaison; in-depth knowledge of teacher education curriculum and teacher evaluation systems; application of data-based decision making and effective leadership.
F: Convene monthly Leadership Team meetings, oversee project operations, coordinate residency program, provide fiscal oversight, work closely with evaluators to analyze project impact; oversee Coordinators of Partnership Network Operations and Professional Learning.

Mentoring and Induction Specialist: TBA (1.0 FTE) – Q: Highly effective teaching skills; experience working with adult learners in a mentoring/coaching role; understanding of

andragogy principles and theories; strong communication and collaboration skills; ability to deliver high-quality PD; comfortable working in a technology-rich environment. **F:** Serve as a leader for NetSERVE mentoring and induction activities; collaborate with CERRA to develop and deliver advanced mentor trainings; visit MTs and provide formative feedback on a regular basis, assist with data collection; lead MT Selection Committee.

Special Education Faculty Member: TBA (1.0) – Q: Ph.D. in Curriculum and Instruction with experience in special education classrooms in elementary, middle and high schools. **F:** Lead efforts to establish new special education program and special education emphasis across all MAT programs; support implementation; co-teach; provide resident/MT consultation.

District Liaison (.10 FTE) – Q: Staff (e.g., Associate Superintendent, Special Director) from each LEA with superior qualifications and experience in roles such as instructional accountability, recruitment, training, and retention. **F:** Oversee NetSERVE as Leadership Team members; ensure alignment of program initiatives to school improvement process and district strategic plan; help maintain district-level awareness, commitment, and support for NetSERVE initiatives; support principals in implementation of residency model and budget planning; assist in planning induction and PD; support focused efforts in personalized learning and CS; provide access to data necessary for measuring program effectiveness; participate in regular re-assessment of needs; and work with Prepared to Teach to establish sustainable funding.

School Liaison (.10 FTE) – Q: Principals of high-need schools; dedicated to teacher and student growth; works well in a team-oriented environment. **F:** Serve as members of the Leadership Team to ensure program initiatives address school needs; facilitate residency model and lead PD efforts; dedicated to teacher and student growth; provide data for program evaluation.

WU’s extensive Partnership Network and collaboration requires an organized system of governance and task-oriented committees. We will use this model to facilitate the work associated

with NetSERVE to ensure shared, equitable decision-making processes. The Leadership Team will establish the following: 1) **Sustainability Task Force (STF)**: Led by Director of Prepared to Teach, the STF will consist of Co-PIs, Project Director, and district leaders. Over Years 1-3, the STF will proactively plan for the allocation of district and school resources to sustain residencies starting in Year 3. In Year 4, the STF group will re-assess district needs and determine how to proceed with a full district-supported residency program. 2) **Curriculum Design Team (CDT)**: Co-led by the COE Co-PI and the MAT Program Coordinator, the CDT will consist of school liaisons associated with the program area/level, CAS Co-PI, and faculty program leaders. Adding to the suite of MAT secondary program areas, new MAT program options will be developed for the fields of special education, middle level education, and early childhood/elementary education. This team will ensure that the academic design of the program is entwined with a strong clinical design for the MAT residency programs. 3) **MAT Residency Advisory Committee**: Connected to the work of the CDT, a committee will be formed for each MAT program area (special education, middle level education, early childhood/elementary education, and each secondary teaching field) and will consist of program faculty along with a resident and MT. This group will review student data, curriculum and clinical components, and current feedback from program completers, their employers, and other stakeholders associated with the program in order to identify areas for program improvement. 4) **Residency Recruitment Committee (RRC)**: Led by the Project Director, the RRC will consist of the three district liaisons, CERRA Executive Director, and the Co-PIs. The RRC will develop a recruitment action plan and implement that plan to attain enrollment targets established in the NetSERVE proposal. 5) **Residency Selection Committee (RSC)**: Led by the Project Director, the RSC will consist of the COE and CAS Co-PI's, the respective content area coordinator, and a representative from each of the residency partner schools. Committee membership will adjust based on the field and level; for example, for selection of secondary math residents, the CAS math content coordinator and a representative from each

high school will participate with the Project Director and Co-PIs. This committee will review application materials, interview candidates, and make selections for the MAT residency program.

6) **Mentor Teacher Selection Committee (MTSC):** Led by the NetSERVE Mentoring and Induction Specialist, the respective partner principals, a WU content area coordinator faculty member, and the COE Director of Field and Clinical Experiences will serve as the MTSC. This group will review prospective MT applications and related application evidence, conduct interviews, and then select teachers to work with NetSERVE residents. In addition, our national and state partners, **Prepared to Teach, SC Center for Educator Recruitment, Retention, and Advancement (CERRA), SC Center of Excellence to Prepare Teachers of Children of Poverty, SC Department of Education’s Offices of Personalized Learning and Career and Technology Education**, will play a critical role in the implementation of NetSERVE and are described in *Adequacy of Resources – Section 2*. Our management plan is described in Table 6.

Table 6. NetSERVE Management Plan (October 2019 – September 2024)		
Key: CERRA, CDT (Curriculum Design Team), CC (Content Coordinators), FD (Field Director), ITC (Instructional Technology Center), LT (Leadership Team), MIS (Mentoring and Induction Specialist), MT (Mentor Teachers), MTSC (Mentor Teacher Selection Committee), PD (Project Director), PF (Program Faculty), RRC (Residency Recruitment Committee), RSC (Residency Selection Committee), STF (Sustainability Task Force), TEG (The Evaluation Group), WU COE (Winthrop University College of Education)		
Activities	Timeline	Responsible
<i>Milestone 1: Implement community-based 16-month MAT degree programs that meet partner LEA needs, including a full year residency, and result in teacher certification.</i>		
Design and present MAT curriculum to LT for review	Y1; Q1	CDT
Submit new programs to state review boards	Y1; Q1	WU COE Dean

Create master courses to allow flexible delivery models and optimize resident time in schools during residency	Y1; Q2-4	CDT; WU Online Learning Office
Develop Residency Handbook	Y1; Q1	FD, PD
Begin first semester of field and course work	Y1-4; Q2	CC, FD
Implement community-based experience during May to introduce candidate to school/area	Y1-4; Q3	CC, LT
Ensure residents apply to Teacher Education Program	Y1-4; Q3	PF, Host Teacher
Conduct residency I readiness review	Y1-4; Q4	RSC
Deliver resident and mentor residency orientations	Y1-4; Q4	PD, FD, MIS
Conduct residency II readiness review	Y2-4; Q1	PF, MT
Hold resident exit meeting and establishment of induction goals; recommendation for certification	Y2-4; Q3	PF, MT, WU COE Offices
<i>Milestone 2: Establish process and procedures for resident and mentor teacher selection resulting in 74 highly qualified teachers for partner LEAs.</i>		
Finalize qualifications, application, and selection criteria for NetSERVE residents	Pre-award	LT
Advertise NetSERVE opportunities and recruit NetSERVE cohort (ongoing advertisement)	Y1-4; Q1	RRC
Interview and select NetSERVE residents (Y1=10, Y2=16; Y3=24; Y4=24); complete agreement forms	Y1-4; Q1	RSC
Finalize qualifications, application, and selection criteria for NetSERVE MTs	Y1; Q2	MTSC
Interview and select NetSERVE MTs	Y1-4; Q3	MTSC

Develop processes for MTIC feedback and evaluation	Y1; Q4	MIS
<i>Milestone 3: Ensure resident and new teacher support through research-based mentoring and induction strategies to improve retention rates and impact student learning.</i>		
Develop advanced training for residency mentoring and induction coaching	Y1; Q1	MIS, CERRA
Provide foundation of mentoring training	Y1-4; Q3	MIS, CERRA
Hire and place graduates	Y1-4; Q3	Principals, District
Deliver resident and induction teacher orientations	Y1-4; Q3	MIS, Principals
Establish peer-support: learning labs, design thinking problem solving	Y1-5; Q3-4	MT
Implement resident cross-district meetings	Y2-5; Q3-4	District Liaisons
Conduct co-teaching meetings with MT	Y1-5; Q3-4	MT
Provide observational feedback to residents and induction teachers on their teaching	Y1-5; Q3-4	MT, Site-based Observers, MIS
Ensure five-stage teacher development MT feedback	Y1-5; Q3-4	Mentors
Highlight Partnership Network Conference sessions for residents and induction teachers	Y1-5; Q3	PD
<i>Milestone 4: Provide access to high quality, longitudinal professional learning associated with LEA/school target needs, aligned with the Profile of the SC Graduate, and focused on computer science skills and competencies.</i>		
Attend NICERC cyber education annual conference	Y1, Y4; Q3	ITC Director, School Teams
Facilitate cross-school/district PD meetings	Y1-5; Q1-4	LT

Offer CS Code.org & COE/ITC CS training	Y1-5; Q3	PD, ITC Director; School Liaisons
Implement ITC Director school-based professional learning with classroom visits for CS and technology training and integration	Y1-5; Q1,3	PD, ITC Director; School Liaisons
Attend iNACOL symposium on personalized learning	Y1-2; Q1	PD, School Teams
Conduct webinars (archived) on district/school target needs	Y1-5; Q1-3	PD, LT
Host New Teacher Town Hall	Y2-5; Q3	PD, LT
Host Partnership Network Conference	Y2-5; Q3	PD, LT
Host STEM/CS Symposium (annually)	Y3-5; Q1	PD, LT
<i>Milestone 5: Ensure sustainability of residency program and practices post-grant funding.</i>		
Establish Sustainability Task Force goals and timeline	Y1; Q1	Prepared to Teach
Conduct program evaluation (i.e., data analysis, tools)	Y1-5; Q1-4	TEG
Compile baseline data at target high-need schools and IHE	Y1; Q1	TEG
Provide evaluation updates to LT (ongoing)	Y1; Q2	TEG
Investigate successful sustainability models	Y1-2; Q2	Prepared to Teach
Attend TQP meeting in Washington, DC (annually)	Y1-5; Q3	PD, TEG
Host Sustainability Symposium (pre-conference for annual Partnership Network Conference)	Y2-5; Q3	Prepared to Teach, STF
Disseminate best practices of NetSERVE residency program through traditional outlets and social media	Ongoing after Y1	Prepared to Teach
Create program video for residency recruitment, then update video with program highlights in Year 5	Y1; Q3-4 Y5; Q2-3	LT, Videographer

Organize process for conducting financial burden survey include IRB, distribution, and results analysis	Y1-5; Q1	Prepared to Teach, STF
Deliver presentations to Leadership Team and LEA School Boards on sustainability planning	Y2-5; Q3	STF, Prepared to Teach
Publish final NetSERVE Sustainable Residency Program report outlining plans for moving forward	Y5; Q3	STF, Prepared to Teach
Finalize impact evaluation study and share findings	Y5; Q3	TEG

Quality of the Project Evaluation

1) Methods of evaluation will provide valid and reliable performance data on outcomes. The Evaluation Group (TEG), our external evaluator selected via a procurement process, will use a mixed-methods, utilization-focused evaluation approach that combines multiple quantitative and qualitative data sources (Table 1 and Table 8) from multiple reporters for triangulation, thereby significantly enhancing the validity and reliability of the evaluation (Creswell, 2014; Patton, 2014). The research questions guiding the evaluation include: 1) What is the retention rate of resident teachers compared to other licensed teachers entering the field at the same time; and 2) What is the effect of CS teacher training on students’ CS achievement on a newly developed CS assessment? Our *impact evaluation study* will utilize a quasi-experimental design (QED) to assess students’ science, math, and ELA achievement through the following confirmatory research question: What is the impact of NetSERVE on academic achievement for students taught by NetSERVE teachers compared to non-NetSERVE teachers hired at the same time by our three districts after three-years of implementation? The impact study meets What Works Clearinghouse (WWC) 4.0 evidence standards with reservations (WWC, 2017) to provide a moderate level of evidence assessing the effectiveness of the residency teacher model. ► **Impact Study:** A longitudinal, three-cohort, quasi-experimental design (QED) will assess the impact of NetSERVE

teachers training on students' science, math, and ELA achievement compared to students taught by other newly hired teachers from comparison schools within the three districts. The standardized instruments being used for assessing student achievement, have had acceptable levels of reliability and validity established by national publishers. As such, they meet the WWC design standard requirement for measurements. An a priori power analysis (*Appendix J*) indicates our study has enough statistical power to accurately test for program effects on science, math, and ELA (MDES = 0.202, $\alpha = .05$) (*See Table 7*). **Quantitative data** include: licensure/certifications; MAT degrees conferred; districts' hiring and retention records; SLO effectiveness ratings; Grades 3-8 EOG science, math, and ELA; and EOC Math I, Biology I, and English I; PD attendance and hours obtained; coaching logs; student and teacher CS/STEM attitudes and efficacy; number of teachers trained to teach CS in secondary schools; student CS assessment scores; and mentor, teacher, and principal surveys (*see Table 8*). EOG/EOC standardized scores are valid (content and concurrent validity established 2017) and reliable (Cronbach's α .89 for reading and .88 for math in 2017), thereby meeting the WWC 4.0 design standards. Reliability of survey scales will be calculated using a threshold of at least 0.7 Cronbach's α . Reliability and validity will be established for all surveys and reported in the annual report. The impact model will be analyzed using a three-level hierarchical linear model (HLM) with students nested in teachers nested in schools. Prior to running the HLM, propensity score matching at both teacher and student level will test for and assess baseline equivalence on key outcome variables, such as academic achievement in science, math, and ELA. **Qualitative data** include open-ended survey items on the mentor, principal, and teacher survey about the residency program, mentoring, and induction components, as well as principal, teacher, and mentor focus groups and teacher observations. Qualitative data analysis will be guided by code development (Saldana, 2016), informed by scholarly literature, stakeholder panels (Public Policy Associates, Inc, 2017), and member checking (Lub, 2015) and will provide a rich context in which to interpret our quantitative data. The constant comparative method (Glaser

& Strauss, 1967) will be used to increase the trustworthiness of results, and each qualitative data collection process will stop when saturation (Sanders, et al., 2018) is reached. The following questions will guide the **qualitative study**: 1) What impact did the collaboration of IHE and LEA partners in NetSERVE have on teacher preparation for residency teachers; 2) What components of the induction program contributed to changes in teaching pedagogy and teacher self-efficacy; and 3) What elements of NetSERVE implementation are most often cited by teachers, mentors, principals, district leaders, and partners as impacting student achievement? ► **Logic Model**: Our logic model in *Appendix G* provides a sound theoretical foundation to guide the program design, evaluation, and interpretation of evaluation findings (Knowlton & Phillips, 2013). The model articulates **key components** (graduate-level coursework, cohort model, induction support, and CS PD), **mediators** (intermediate outcomes—improved mentoring and induction support, pedagogical practices, use of data for instructional practices, and decreased international hires), and **long-term outcomes** (increased teacher retention, educators’ effectiveness, and student academic achievement). In concert with interim performance monitoring based on the measurable thresholds specified in Table 1, scheduled quarterly reviews of the logic model will allow us to gauge early impact, suggest needed program changes, identify unintended outcomes, and ensure results are useful for continuous quality improvement. Formative data includes our fidelity of implementation (Abry, Hulleman, & Rimm-Kaufman, 2015), that will assess our program as planned compared to our program as implemented, the outputs in our logic model, as well as progress towards our short- and long-term outcomes. TEG collaborates with staff on a bimonthly or monthly basis to check-in on program activities and progress and provides reports in a variety of formats to ensure communication about implementation and outcomes is maximized for all levels of stakeholders. Results will be reported in aggregate and disaggregated by relevant subgroups to promote utilization at all levels and school sites. Combining qualitative and quantitative methods will increase the depth of the information and provide formative feedback

that will enable the NetSERVE Leadership Team to make critical mid-course corrections and project adjustments in a timely manner. Evaluation findings will be shared via quarterly reports, mid-year reports, and end-of-year or final summative reports. In addition, survey briefs and snapshots will present findings related to specific program components. A **summative** evaluation report will include final outcomes across all cohorts answering the questions of how well our collaborative program impacted our long-term outcomes and the impact of the model for students, teachers, principals, and the schools. ► **Evaluator Expertise:** NetSERVE’s evaluation will be led by Dr. Melissa Page and Dr. Kathy Dowell and supported by TEG’s Cross Functional Team, all of whom have expertise in all areas of evaluation, including: research design; measurement; benchmarking; test and survey construction; and data analysis and reporting, as well as the development of project-specific, quantitative instruments and qualitative data collection methods. TEG has significant experience with more than 30 years and 180 completed evaluations of education programs, many of which have focused on teacher education and PD in rural, high-need areas, similar to our NetSERVE partnership. Some recent examples of relevant evaluation studies include: Teacher Quality Partnerships, Teacher and School Leader Incentive Program, Teacher Incentive Fund, GEAR UP, i3/Education Innovation and Research, and Race to the Top – District.

2) Methods of evaluation are thorough, feasible, and appropriate. ► **Impact Study:** The QED evaluation design for the NetSERVE program will not only be methodologically sound but will also be efficient and feasible. Data elements that are being collected for the formative and summative analyses are existing measures that are routinely collected by Winthrop University and our partner LEAs. The 1:1 propensity score matching (PSM) school model will include key variables, such as baseline test scores, school enrollment, percent female, and percent minority to help control for school-level differences that might influence outcomes. A 1:1 nearest neighbor student-level PSM without replacement will be run to assist in testing and establishing **baseline equivalence** on key student-level variables, such as baseline test scores, gender, minority status,

and free/reduced lunch. An a priori **power analysis** (Dong & Maynard, 2013) indicates our study has enough power to test for statistically significant program effects (MDES = 0.202, $\alpha = .05$) as designed below in Table 7.

Table 7. Summary of Design Parameters for Confirmatory Study	
Parameters	Study Design: Longitudinal QED
School Level	Elementary – High (Grades K - 12)
Unit of Analysis	Student (level-1) nested in teacher (level-2) nested in school (level-3)
Sample Size	<i>School Level:</i> 8 Treatment Schools, 8 Comparison Schools <i>Teacher Level:</i> 50 Treatment Teachers, 50 Comparison Teachers <i>Student Level:</i> 1,000 Treatment Students, 1,000 Comparison Students
Confirmatory Outcome(s)	SC EOG science, math, ELA and EOC Biology I, Algebra I, English I
Propensity Score Matching Variables	<i>School model:</i> Baseline science, math, ELA scores, school enrollment, gender, minority status; <i>Teacher model:</i> Years of experience, hire date, gender, ethnicity; <i>Student model:</i> Baseline science, math, ELA scores, gender (% female), minority status (% who are minorities), FRL (% receiving free or reduced lunch)
Statistical Analysis	Three-level HLM model with students (L-1) nested in teachers (L-2) nested in schools (L-3)
MDES	0.202 at alpha level .05, power .80; see <i>Appendix J</i>

Impact Model	<p>Y_{ijkt} = β₀ + β₁X_{1ijkt} + β₂X_{2ijkt} + β₃X_{3ijkt} + β₄X_{4ijkt} + β₅X_{5ijkt} + β₆X_{6ijkt} + β₇X_{7ijkt} + β₈X_{8ijkt} + β₉X_{9ijkt} + β₁₀X_{10ijkt} + β₁₁X_{11ijkt} + β₁₂X_{12ijkt} + β₁₃X_{13ijkt} + β₁₄X_{14ijkt} + β₁₅X_{15ijkt} + β₁₆X_{16ijkt} + β₁₇X_{17ijkt} + β₁₈X_{18ijkt} + β₁₉X_{19ijkt} + β₂₀X_{20ijkt} + β₂₁X_{21ijkt} + β₂₂X_{22ijkt} + β₂₃X_{23ijkt} + β₂₄X_{24ijkt} + β₂₅X_{25ijkt} + β₂₆X_{26ijkt} + β₂₇X_{27ijkt} + β₂₈X_{28ijkt} + β₂₉X_{29ijkt} + β₃₀X_{30ijkt} + β₃₁X_{31ijkt} + β₃₂X_{32ijkt} + β₃₃X_{33ijkt} + β₃₄X_{34ijkt} + β₃₅X_{35ijkt} + β₃₆X_{36ijkt} + β₃₇X_{37ijkt} + β₃₈X_{38ijkt} + β₃₉X_{39ijkt} + β₄₀X_{40ijkt} + β₄₁X_{41ijkt} + β₄₂X_{42ijkt} + β₄₃X_{43ijkt} + β₄₄X_{44ijkt} + β₄₅X_{45ijkt} + β₄₆X_{46ijkt} + β₄₇X_{47ijkt} + β₄₈X_{48ijkt} + β₄₉X_{49ijkt} + β₅₀X_{50ijkt} + β₅₁X_{51ijkt} + β₅₂X_{52ijkt} + β₅₃X_{53ijkt} + β₅₄X_{54ijkt} + β₅₅X_{55ijkt} + β₅₆X_{56ijkt} + β₅₇X_{57ijkt} + β₅₈X_{58ijkt} + β₅₉X_{59ijkt} + β₆₀X_{60ijkt} + β₆₁X_{61ijkt} + β₆₂X_{62ijkt} + β₆₃X_{63ijkt} + β₆₄X_{64ijkt} + β₆₅X_{65ijkt} + β₆₆X_{66ijkt} + β₆₇X_{67ijkt} + β₆₈X_{68ijkt} + β₆₉X_{69ijkt} + β₇₀X_{70ijkt} + β₇₁X_{71ijkt} + β₇₂X_{72ijkt} + β₇₃X_{73ijkt} + β₇₄X_{74ijkt} + β₇₅X_{75ijkt} + β₇₆X_{76ijkt} + β₇₇X_{77ijkt} + β₇₈X_{78ijkt} + β₇₉X_{79ijkt} + β₈₀X_{80ijkt} + β₈₁X_{81ijkt} + β₈₂X_{82ijkt} + β₈₃X_{83ijkt} + β₈₄X_{84ijkt} + β₈₅X_{85ijkt} + β₈₆X_{86ijkt} + β₈₇X_{87ijkt} + β₈₈X_{88ijkt} + β₈₉X_{89ijkt} + β₉₀X_{90ijkt} + β₉₁X_{91ijkt} + β₉₂X_{92ijkt} + β₉₃X_{93ijkt} + β₉₄X_{94ijkt} + β₉₅X_{95ijkt} + β₉₆X_{96ijkt} + β₉₇X_{97ijkt} + β₉₈X_{98ijkt} + β₉₉X_{99ijkt} + β₁₀₀X_{100ijkt}</p>
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► **Data Collection and Analysis:** Hierarchical linear modeling (HLM) will be utilized to examine the impact of the NetSERVE program on student achievement. The analysis model will examine student achievement scores nested within teachers nested within schools. The level one factors (students) will include free- and reduced-lunch status, gender, ethnicity, and baseline achievement test scores. Level two factors (teachers) will include years of experience, hire date, gender, and ethnicity. The level three factors (schools) will include school percent free- and reduced-lunch status, and school percent minority. To rule out internal threats to conclusion validity, matched cases will be established for teachers who have not participated in the NetSERVE program. Table 8 outlines data collection schedule, analysis method, and desired outcomes.

Table 8. Data Collection and Analysis and Linkage to Outcomes			
Source(s)	Time Period	Analysis Method	Measure
Certification or licensure	Annually each summer	Descriptive, frequencies	GPR A 1, 2 PGM 3, 4
Residency persistence	Ongoing	Descriptive, frequencies	GPR A 3
SCTS 4.0 standards	Annually each spring	Descriptive, frequencies, Repeated measures analysis	PGM 1
Teacher demographics	Annually each fall	Descriptive, frequencies	PGM 5, 6, 7, 8

Teacher, mentor, principal surveys and focus groups	Annually each spring	Repeated measures analyses Qualitative coding of themes	CPP 1; Project 5
District school rosters	Annually each spring	Descriptive, frequencies	GPRA 4, 5; PGM 2, 4; Project 1
Classroom observations	Ongoing	Repeated measures analyses	GPRA 6
CS PD post-evaluations	Ongoing after PD	Descriptive, frequencies, Repeated measures analysis	CPP 1; Project 5
Technology training and use for instruction	Ongoing; surveys each course	Observation and rubric score	PGM 9a, 9b
SLO Effectiveness	Annually each summer	Repeated measures analyses	GPRA 6, Project 2, 3, 4, 6, 7
SC EOG or EOC		Repeated measures analyses, hierarchical linear modeling (HLM)	
Focus groups		Qualitative coding for themes	
CS assessment	Annually	Repeated measures analyses	Project 6
Fidelity index	Ongoing	Repeated measures analyses	All components

All partners collaborating to develop this model program stand poised and ready to begin. Our vision is clear, and we believe that with TQP funding, we can meet the needs of South Carolina students through **NetSERVE: Network of Sustainable Educational Residencies that Value Equity**.