Project Overview

The University of North Carolina at Charlotte (Novice Applicant) and Cabarrus County Schools are excited to submit a revised proposal for a teacher residency program, after responding to detailed feedback provided by reviewers of our 2018 submission. The proposal is a five-year, $1.83-million request to fund the implementation of the UNC Charlotte Teacher Residency Program, a cost-effective, efficient, and high-quality teacher preparation program designed to diversify the teaching workforce for high-need subject areas and hard-to-staff schools. The program, developed in collaboration (see Appendix C) with Cabarrus County Schools (CCS), addresses the *Absolute Priority (Partnership Grants for the Establishment of Effective Teaching Residency Programs)*, *Competitive Preference Priority 1 (increasing the number of and providing evidence-based professional development strategies to STEM educators), Competitive Preference Priority 2 (Novice Applicant),* and *Invitational Priority (Spurring Investment in Opportunity Zones).* Led by strategically developed task forces of highly qualified teacher educators and K-12 school partners, the proposed project has five main goals pertaining to recruitment of candidates (Goal 1: Task Force 1), filling teacher vacancies in high-need schools that serve students from economically distressed communities (Goal 2: Task Force 2), improving teacher candidate preparation (Goal 3: Task Force 3), increasing teacher retention (Goal 4: Task Force 4), and improving teacher performance (Goal 5: Task Force 5). Details related to the Task Force representation and responsibilities are outlined in Figure 4, and details specific to the five goals, objectives, strategies, milestones, and measurable outcomes are found below:

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instruction on racial and ethnic identities, cultural and academic experiences, strengths and needs.	coursework.	by December 2020.	Quality Matters certified.
Offer coursework that prepares candidates in their content area, with evidence-based practices.	Each spring semester of Year 1 (Phase I of the MAT) offer content-specific methodology and assessment coursework that helps candidates understand how to plan for their content and assess their students.	All first-year Residency candidates enroll by deadline (last week of August) in content-specific coursework (semester 2).	100% of candidates successfully complete coursework preparing them to teach and assess their content.
	Each spring semester of Year 2 (Phase II of the MAT) offer advanced content-specific coursework in the candidates' concentration.	All second-year Residency candidates (MAT candidates) enroll by deadline (last week of August) in concentration coursework (TESL, secondary mathematics, etc.)	100% of candidates successfully complete concentration coursework.
Provide candidates with a full-time internship and customized coursework.	Provide candidate support and coaching from the CCS mentor teacher and Site Coordinator (school-embedded supervisor)	All year one candidates in each cohort enroll in internship course (*MDSK/TESL/FLED 6470*) and customized course (*SECD 5140/MDLG 5130*) by first week of January.	100% of candidates complete the internship and customized coursework and obtain their teaching license.
	Provide coursework specific to candidate's intended level of licensure (middle or secondary).		

Goal 4: To increase retention of highly qualified mathematics, science, special education, ESL, and foreign language teachers in high-need schools. [Task Force 4 provides oversight.]			
Objectives	**Strategies**	**Milestones**	**Measurable Outcomes**
Retain teachers in high-need schools.	Provide induction support following the Phase I of the Residency Program via the N.C. New Teacher Support Program (NC NTSP) coaches for up to two years after they complete licensure requirements.	NC NTSP coaches visit each candidate at least once per week for two years following completion of licensure requirements and embed "in the moment" coaching such as huddle, sideline, co-teaching, and modeling.	Over 90% of each cohort of 12 (11) remain teaching in a high-need school served by CCS after three years.
	Task Force 4 meets to discuss retention plans, monitor teacher performance, and make adjustments to retention plan.	Task Force 4 meets in fall (November) and spring (March) to discuss retention plans, monitor teacher performance, and make adjustments to retention plan. Minutes from these meetings will be shared with other task forces.	100% of task force members attend each meeting.
Increase the number of CCS mentor teachers who have completed university-based mentor teacher training, the Teacher Education Institute (TEI).	Recruit experienced mentor teachers, in collaboration with CCS, who demonstrate past success in the classroom to participate in our annual TEI.	On scheduled teacher work days in fall 2019/spring 2020, fall 2020/spring 2021, and fall 2021/spring 2022, Task Force 4 begins recruiting mentor teachers via Residency Program orientation and information session at each of the six participating schools.	The number of CCS mentor teachers increases from the current 30 to 66 over the three-year period.
		In August of each year, recruited mentor teachers complete TEI.	
	Engage CCS mentor teachers in training through the TEI to learn to effectively coach candidates.	Mentor teachers complete TEI training in August of each year.	
Increase the number of mathematics	Provide professional development and coaching to mentor	During student teaching internship (spring of each of first three years), mentor teachers and	STEM candidates and their

and science mentor teachers who complete professional development in effective, evidence-based teaching practices **(competitive preference priority 1)**	teachers and teacher candidates in STEM fields pertaining to project-based units of instruction.	teacher candidates complete four self-paced modules on project-based instruction by February and receive coaching in March and April of that same year to help develop a related curriculum unit.	mentor teachers design and implement at least one project-based curriculum unit.

Goal 5: To improve teacher candidate performance through coursework, support of cohort structure, and mentoring/induction support as measured through teacher performance assessments and student learning outcomes. [Task Force 5 provides oversight.]			
Objectives	**Strategies**	**Milestones**	**Measurable Outcomes**
Organize teacher candidates into three cohorts of 12 each.	Build community among teacher candidates through annual orientation with each cohort.	Task Force 5 plans, organizes and helps deliver orientation each July (2020, 2021, 2022) of the first three years of the grant.	All members of each cohort enroll in cohort-specific course sections and complete Residency Program within the same time frame as their cohort peers.
		Develop course schedules in August (for spring/summer semesters) and January (for fall semester) of the first four years.	
	Cluster teacher candidates in cohort-specific sections of courses.	Academic advisor meets with residents individually to review course schedule and address concerns, and share this information with Task Force 5.	
Improve candidate performance on performance-based assessments.	Offer content-specific edTPA support in seminars and via workshops provided by edTPA trained scorers.	Task Force 5 meets each May (following student teaching semester) to analyze candidate performance on both edTPA and Praxis Subject Assessments and discusses support strategies. Minutes from these meetings will be taken and shared with other task forces.	100% of task force members attend each meeting.
			Residents have higher edTPA and PRAXIS

			pass rates than their non-cohort counterparts.
Positively impact P-12 student performance.	Provide opportunities for candidates to: ▪ learn about the HLPs ▪ see practices modeled ▪ practice/rehearse these practices	Each year, the Office of Assessment and Accreditation tracks and documents performance of our graduates in their classrooms.	Student achievement in residents' classrooms is statistically significantly higher compared to a matched sample.

Project Significance

The critical shortage of qualified K-12 teachers is well documented in the United States. Recent analysis of National Center for Education Statistics (NCES) data estimates yearly teacher attrition in the United States at approximately 7.68%, a figure substantially higher than other nations, including Finland and Singapore (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). According to the most recent report by the U.S. Department of Education (2017), the national shortage is particularly acute in high-need areas, including mathematics, science, special education, foreign language instruction, and English as a Second Language (ESL), and North Carolina reflects these same shortage areas. According to the *Report to the North Carolina General Assembly: 2017/2018 State of the Teaching Profession* (NC Department of Public Instruction, 2019), classroom vacancies at the beginning of the 2017-2018 academic year totaled 200 in grades 6-12 mathematics, 119 in grades 6-12 science, and 197 in special education.

Teacher attrition contributes to the teacher shortage in the United States. Among teachers in their first five years, national attrition rates fall between 17% and 30% (Gray & Taie, 2015; Guha, Hyler, & Darling-Hammond, 2016). Data from the NC Department of Public Instruction

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(2019) indicate that North Carolina's annual attrition rate is approximately 8.1%, slightly more than the national turnover average (7.68%). Among beginning teachers (i.e., teachers with fewer than three years), the NC teacher attrition rate rises substantially to 12.34%.

Teacher shortages and attrition are even more problematic in high-poverty schools (Boe, Cook, & Sunderland, 2008; Ingersoll & May, 2011). School districts turn toward uncertified and under-prepared personnel to fill teacher vacancies. National data show that schools with higher proportions of students of color, which are often also schools serving students of poverty, were staffed with four times as many uncertified teachers as their counterparts (Sutcher et al., 2016). These teachers report greater workplace demands (Fitchett, McCarthy, Lambert, & Boyle, 2018) and leave teaching at twice the rate of their peers (Ronfeldt, Schwartz, & Jacob, 2014; Sutcher et al., 2016), exacerbating teacher shortages for the students who need quality teachers the most.

In addition to the employment of teachers in hard-to-staff schools, the recruitment of teachers of color remains a challenging issue across the education sector. NCES data from 2012 indicate that non-White students comprise approximately 49% of the student population, yet teachers of color make up only 18% of the workforce (Sutcher et al., 2016). Mirroring national data, approximately 19% of NC teachers self-report as non-White, though slightly more than half of the student population (50.5%) self-identifies as non-White (NC Report Card, 2017). Recruitment and retention of non-White teachers are potential solutions for high-minority, hard-to-staff schools (Achinstein, Ogawa, Sexton, & Freitas, 2010). Teachers of color are more likely to choose to work in such schools and provide substantial community and societal role models (Darling-Hammond & Carver-Thomas, 2017; Irvine, 1989).

Across the nation, enrollment in Colleges of Education has declined by 31% in the United States (American Association of State Colleges and Universities, 2017), and North

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Carolina is no different. Accompanying this decline in enrollment is growing scrutiny and criticism of traditional teacher training programs. Teacher preparation programs have faced increasing pressure to prepare candidates who provide data-based evidence that they are ready to teach (Ball & Forzani, 2010; Cochrane-Smith, Piazza, & Power, 2013). Teacher education has been criticized for being too theoretical and focused more on teacher identity, philosophy, and foundations of education rather than on practice (Grossman, Hammerness, & McDonald 2009).

Response to a Changing Landscape

Faced with the realities of the teacher shortage, teacher attrition, the need for more teachers of color, and the need to improve how teachers are prepared, the Cato College of Education at UNC Charlotte chose to meet these challenges head on. The following initiatives ground our proposed Teacher Quality Partnership (TQP) residency teacher education program.

Data-based Decision-making. To respond to the changing landscape in teacher education and better meet the needs of our school partners, the College sought, collected, and analyzed outcome data and stakeholder feedback from a variety of sources: 1) an all-day event in which teacher candidates and mentor teachers showcased for university faculty, K-12 partners, and other education stakeholders what they learned in clinical experiences and coursework (the College of Education Charrette, Nov. 15, 2016); 2) focus group interviews with 300+ student teachers in 2017 to determine strengths and needs of the current programs; 3) a summit with school partners to review program data and provide recommendations on programs (March 21, 2018); 4) program completer exit surveys and focus group interviews of candidates, faculty, Site Coordinators (school-embedded supervisors), and 20 mentor teachers in area partner schools (May 5, 2018); 5) candidate performance on a performance assessment (edTPA), as well as other

assessments; and 6) EVAAS (Education Value-Added Assessment System) data available on the UNC System Data Dashboard that monitors graduates' impact on student learning.

High-Leverage Practices (HLPs). We received feedback from multiple stakeholders that some of our programs were too theoretical, addressed too many topics on a superficial level, and did not adequately prepare all teacher candidates to teach in today's K-12 classrooms. This feedback is supported by a growing body of research suggesting teacher training programs shift away from familiarizing candidates with a wide variety of instructional practices to instead focus on mastery of a small number of critical (high-leverage) skills that all new teachers need to be effective, regardless of grade level or content area expertise (Ball & Forzani, 2010). Research has made headway in identifying HLPs that new teachers should master before stepping into the classroom (Franke, Grossman, Hatch, Richert, & Schulz, 2006; Sleep, Boerst, & Ball, 2007; TeachingWorks, 2017). Guided by our internal data, stakeholder feedback, and research, the College began its redesign of teacher preparation by focusing on a set of HLPs (i.e., eliciting student thinking, leading whole class discussion, and managing small group work) that we have infused throughout coursework. Each year, we will add new practices through our joint training conference, the Teacher Education Institute (described later).

Faculty Professional Development. With a better understanding of what was needed, the College set out to prepare its faculty to redesign how we prepare teachers. In 2016, the College received a private grant to redesign its teacher preparation programs. The grant provided funds to allow multiple faculty members and administrators to 1) participate in "learning tours" of innovative teacher preparation programs, including residency programs; 2) attend conferences focusing on improving programs; 3) organize "text talks" to read and discuss influential articles on critical teaching skills; 4) invite consultants from TeachingWorks

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(teachingworks.org) and elsewhere to campus for in-depth professional development (PD) for faculty; and 5) conduct the first of what has become an annual Teacher Education Institute.

Teacher Educator Institute (TEI). The UNC Charlotte Teacher Education Institute (TEI) (https://education.uncc.edu/about-college/teacher-education-institute) was developed in response to the need to break down the "silos" that exist among teacher education faculty, Site Coordinators, and K-12 mentor teachers who often work separately when preparing teacher candidates. The information collected from stakeholders helped to shape the TEI and its focus on four goals: 1) develop among all teacher educators across silos a shared understanding and language of HLPs essential for successful beginning teaching, 2) learn and practice coaching strategies, 3) develop trust and respect among faculty and mentor teachers, and 4) continue to build mindsets of learning among all teacher educators. During the four days of the TEI, faculty, Site Coordinators, and mentor teachers worked collaboratively to accomplish these goals. The second TEI was held June 13-15, 2018, and the third is scheduled for August 7-9, 2019. To date, approximately 30 teachers from Cabarrus County Schools have participated in the TEI.

Curricular Redesign. Using data and stakeholder feedback as a guide, and as an extension of the TEI conference, faculty across all teacher preparation programs at UNC Charlotte worked with school partners to examine and update the total curriculum of each program with the goal of "braiding" the HLPs in coursework and related clinical experiences in a developmental trajectory that supports candidate success. Programs have supported candidate development of these HLPs through a practice-based teacher education (PBTE) framework (McDonald, Kazemi, & Kavanagh, 2013). The PBTE learning cycle includes modeling, video decomposition, and literature on the HLPs. Then, candidates plan and rehearse specific practices with teacher educators and peers from which they receive feedback on their early attempts at the

practice. Using the feedback, candidates revise their tasks and enact them with students in a K-12 setting. Finally, they reflect on the process and continue with another iteration of the practice. The redesign also included attention to state legislation. For example, in response to House Bill 155 that requires the development of curriculum guidelines that align with the K-12 Computer Science Framework, we used the North Carolina Computer Science Standards as a guiding document to identify areas of alignment with the Residency Program curriculum, including clinical experiences **(competitive preference priority 1).**

Common Indicators System. Beginning in August 2018, we received access to comparison teacher preparation outcomes data compiled and held by Deans for Impact (deansforimpact.org) called the Common Indicators System (CIS). The CIS Network includes eight public, three private, and two hybrid educator preparation programs (EPPs) serving approximately 9,000 teacher candidates annually, in undergraduate, graduate, residency, and alternative-pathway programs. Leaders from CIS Network EPPs share a commitment to gathering formative data on candidate knowledge and skills and program performance using common measures and data collection protocols, and engaging in cross-institutional learning informed by these data to identify promising practices for preparing future teachers. Analyses conducted using data collected from the CIS are expected to contribute to building a more robust evidence base about the features of educator preparation that matter, for whom, and why. To date, the CIS Network has generated data on roughly 3,200 teacher candidates, 500 program graduates, and 100 employers using the four common measures.

Residency Program. Studies of residency teacher education programs are emerging. Teacher residency programs (TRPs) offer a viable option for helping sustain the labor supply in high-demand contexts (i.e., high-need schools and teachers of color), thereby improving the

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educational landscape for learners (Cowan, Goldhaber, Hayes, & Theobald, 2016; Sutcher et al., 2016). In an Institute for Education Sciences (IES) report of TRPs funded through the Teacher Quality Partnership initiative, Silva and colleagues (2015) noted that residency teachers were more likely to remain in their districts compared to other novice teachers (82% to 72%). TRPs also recruit teachers of color at higher rates compared to other programs. In a national review of TRPs, Guha et al. (2016) noted that 45% of the residency program teachers self-identify as non-White, substantially higher than the 17% reported nationally. Furthermore, promising findings suggest that TRPs positively correlate with student learning outcomes. The Hunter College Urban Teacher Residency (UTR) residents outperformed their New York City novice counterparts on the majority of Regents tests (Sloan & Blazevski, 2015).

Informed by our internal data, stakeholder recommendations, research on residency programs, the PD and our redesign efforts, faculty and administrators designed a new Residency Program to launch fall of 2019. The program was developed in collaboration with our partner school district so that it addresses the challenges of that district: teacher shortage, teacher attrition, a lack of diversity in the workforce, and the need for better prepared teachers.

Quality of the Project Design

The UNC Charlotte Teacher Residency Program is streamlined, cost-effective, practice-based, and reflective of evidence-based practices in content as well as pedagogy (e.g., HLPs and coaching). The program was developed in collaboration with our key school partner and was vetted by faculty, program completers, and other K-12 partners. The Residency Program represents Phase I (16 credit hours) of a two-phase sequence of coursework that leads to a master's degree via completion of Phase II (14 more credit hours), all of which can be completed in less than 18 months and meets the requirements of the Absolute Priority.

The UNC Charlotte Teacher Residency Program is for current and aspiring middle and secondary school teachers in the following areas: mathematics, science, social studies, English language arts, special education, K-12 foreign language, and K-12 ESL. It is a three-semester (Summer, Fall, Spring) program that candidates can complete in less than a year, and for approximately $4,000. To maximize convenience and affordability, while still adhering to a practice-based approach to teacher preparation, the program offers a blended approach that includes a combination of primarily online instruction with some opportunities for candidates to meet off-site to practice strategies and receive instructor feedback. The program offers the strengths of online and face-to-face (F2F) instruction, while avoiding their limitations (Garrison & Kanuka, 2004; Gedik, Kiraz, & Özden, 2012; Kissau & Algozzine, 2015). To ensure quality online instruction, faculty teaching UNC Charlotte Residency Program coursework were incentivized to create their online coursework in collaboration with an instructional designer at the university's *Center for Teaching and Learning*. Together, they worked to ensure the online courses met *Quality Matters* (QM) standards (standards developed by a nationally-recognized program subscribed to by universities across the country to assure the quality of online education). To pass the Quality Matters review, courses must score a specified number of points across 42 review standards (Quality Matters, 2018).

The UNC Charlotte Teacher Residency Program is geared specifically to serve two distinct populations in high-need areas: 1) traditional teacher candidates who complete their year-long internship (residency) in the classroom and under the supervision of a K-12 mentor teacher; and 2) teacher candidates who have already been hired by school districts, but who have not completed a teacher training program and who will complete their year-long residency period in their own classroom. Our program is intended to address the shared needs of these distinct

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populations through common online coursework and face-to-face labs, and to address their unique needs through differentiated clinical experiences.

The UNC Charlotte Teacher Residency Program was guided and informed by the work of Guha and colleagues (2016). While conducting a national review of residency programs, Guha et al. (2016) identified eight characteristics of successful Teacher Residency Programs.

Residency Program Characteristics

1. *Strong partnerships between a school district and university*. Teacher residency programs require a partnership between a teacher preparation program and targeted school systems to address hiring needs and instructional supports (Guha et al., 2016). The UNC Charlotte Teacher Residency Program was developed in collaboration with our neighboring school district, Cabarrus County Schools (CCS), with which it has a longstanding and mutually-beneficial partnership (see **Collaborative History**). Principals and practicing teachers within this district provided feedback and input while developing the program. Its Superintendent of Human Resources (Glenda Jones) serves as a Co-Principal Investigator on the project, and members of district administration will be involved in reviewing applications, recruiting, interviewing and selecting candidates to address their instructional needs, and monitoring program effectiveness throughout the project via participation on each of the five project task forces (see Figure 4. Management Task Forces). District teachers will serve as mentoring teachers for residency candidates, and will participate in UNC Charlotte's annual summer TEI in preparation for this role. Off-campus labs (see Figure 1. Teacher Residency Program Overview*) w*here candidates meet to rehearse strategies and receive feedback will be held at CCS schools. UNC Charlotte and CCS also plan to collaborate in the development and implementation of extended PD opportunities for residency program candidates. Reflecting

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its continued dedication to this mutually beneficial partnership beyond the grant funding period, CCS has committed to hiring future residency candidates as substitute teachers, ensuring continued financial support of residency program candidates.

2. *Recruitment of high quality teacher candidates and candidates of color.* Successful residencies, such as the Boston Teachers Residency Program (Papay, West, Fullerton, & Kane, 2012; Solomon, 2009), selectively recruit candidates who demonstrate the capacity to be successful teachers and come from diverse demographic and professional backgrounds. The UNC Charlotte Teacher Residency Program will take a number of similar steps to ensure selection of candidates with diversity in mind. The inclusion of CCS district administration in the interview and selection process will help to ensure that selected candidates reflect the diversity of students found in their schools. Further, the Cato College of Education plans to enlist the services of its Teacher Recruiter, Director of Diversity and Inclusion, and the UNC Charlotte Faculty Affairs and Diversity Office to recruit underrepresented minority teacher candidates using a variety of targeted strategies including: 1) creating partnerships with predominantly minority-serving institutions to recruit aspiring teachers (e.g., Johnson C. Smith University); 2) partnering with the nonprofit Profound Gentlemen, whose mission is to build a community of male educators of color (see letter of Support); 2) sponsoring and organizing recruitment days to high school students from underrepresented groups to campus to introduce them to the teaching profession and areas of critical need (e.g., mathematics and science); 3) sending University representatives to attend meetings focused on underrepresented groups on campus; 4) advertising the UNC Charlotte Teacher Residency Program in outlets targeting minority groups (e.g., *The Charlotte Post* newspaper); and 5) attending job fairs at minority-serving institutions to advertise the program.

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In addition to diversity-related recruitment goals, the UNC Charlotte Residency Program will seek to increase the number of educators adequately prepared to deliver rigorous instruction in the STEM fields, including the new North Carolina Computer Science Standards via the active recruitment of mathematics and science teachers from our College of Liberal Arts and Science and College of Computing and Informatics (**competitive preference priority 1**). More specifically, we will set the annual goal to recruit a minimum of four STEM teacher candidates in each cohort of 12. To ensure a strong computer science background among these recruits, the UNC Charlotte Teacher Recruiter will visit required classes of computer science majors to encourage them to consider becoming a STEM teacher and to share the details of the UNC Charlotte Residency Program (see letter from College of Computing and Informatics Department Chair Mary Maher). Additional recruitment plans include advertising the UNC Charlotte Residency Program at computer science conferences and other annual events attended by prospective STEM teachers (e.g., NC Science Festival).

To ensure high quality candidates, all successful applicants must meet the following rigorous selection criteria: 1) an undergraduate degree from a regionally accredited four-year institution; 2) a cumulative GPA of 2.75, or a 2.7 with strong references; 3) three recommendations from persons knowledgeable of the applicant's interaction with children or youth; 4) strong content knowledge via one of the following requirements: a) an undergraduate degree majoring in a field relevant to the area of instruction, b) the equivalent of a major in a field relevant to the content area via the completion of 24 credit hours of instruction, or c) passing scores on the corresponding Praxis Subject Assessment; 5) demonstration of strong communication skills via a well-written statement of purpose and

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participation in an interview; 6) a clear criminal background check; and 7) consideration of candidates who reflect the communities in which they will work.
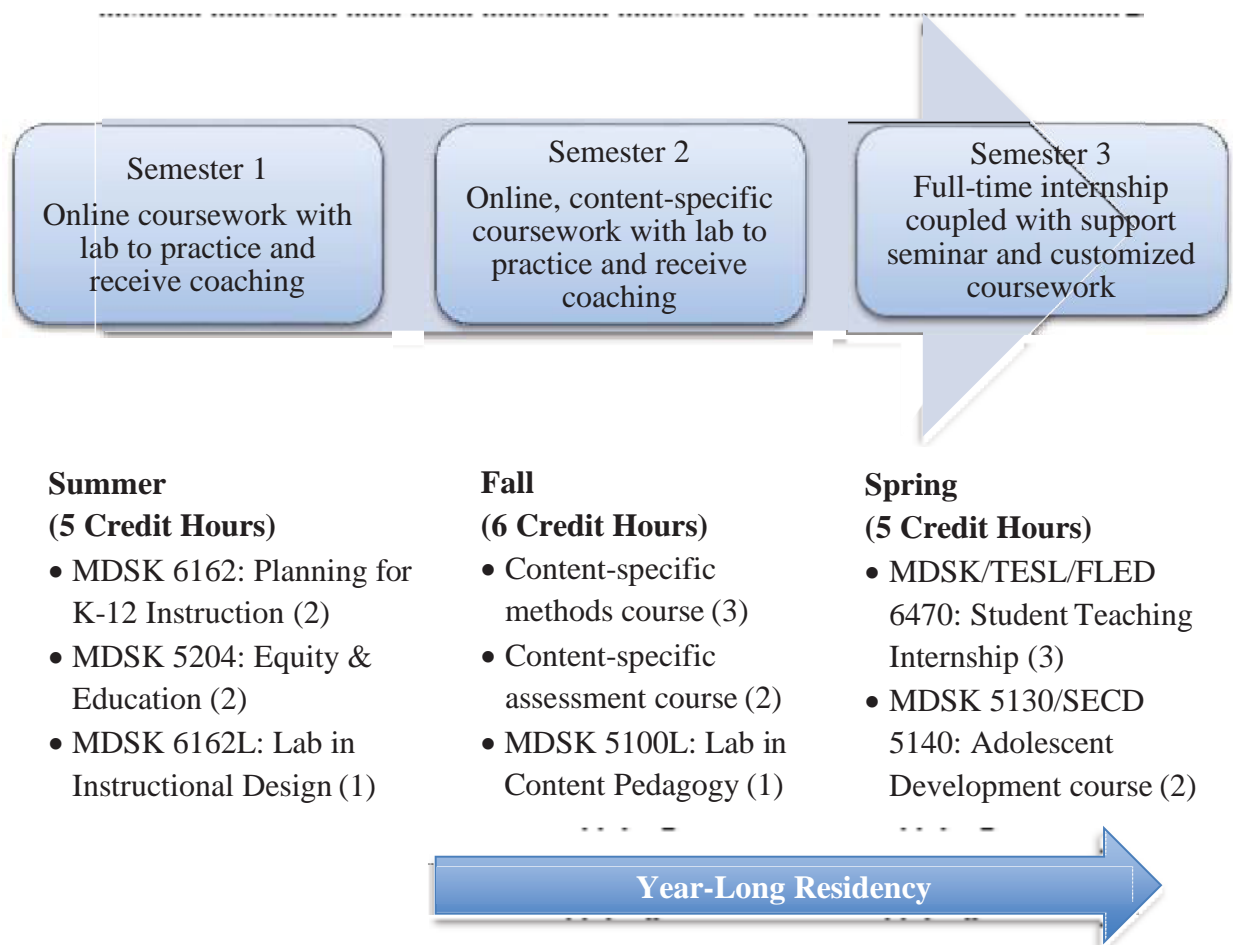
3. *Sustained and deliberate clinical experiences.* While alternative certification programs frequently undervalue clinical experiences (Guha et al., 2016), Teacher Residency Programs (TPR) require candidates to spend significant time embedded in schools working alongside a mentor teacher. Meaningful clinical partnerships are the foundation of UNC Charlotte's Teacher Residency Program. In fall 2018 and spring 2019, teacher preparation faculty and the Director of Assessment and Accreditation collaborated to develop a logical progression of meaningful clinical experiences that are connected to coursework. These clinical experiences are differentiated for traditional teacher candidates and residency teachers, require sustained involvement in K-12 classrooms, and provide opportunities for candidates to practice the skills learned in coursework and receive feedback from their mentor teacher.

4. *Relevant, clinically-driven coursework.* Effective and sustaining TRPs "braid" clinical experiences and teacher education coursework so that candidates have opportunities to practice the skills and engage content-specific curriculum (Solomon, 2009). Building on our efforts to integrate coursework and clinical work, Semester 1 of the UNC Charlotte Teacher Residency Program (summer start) will prepare teacher candidates with the skills they need prior to stepping foot in the classroom (see Figure 1 below). Specifically, *MDSK 5204: Equity and Education* will help candidates understand and respond to their students' racial and ethnic identities, cultural and academic experiences, strengths, and needs. Introductory coursework in Semester 1 (*MDSK 6162: Planning for K-12 Instruction*) also prepares candidates to effectively lead a classroom with quality and respectful management, and familiarizes them with standards, lesson plan design, and assessment. The co-requisite lab

(*MDSK 6162L: Lab in Instructional Design*) will offer candidates the opportunity to rehearse strategies taught in *MDSK 6162* via a Project-based Teacher Education (PBTE) learning cycle (McDonald et al., 2013) and receive immediate feedback from instructors and peers.

Semester 2 becomes more specialized and content-specific. In two online courses (methods and assessment), candidates will dig deep into content-specific standards, evidence-based practices, and culturally-responsive assessment. Candidates will have opportunities to practice and hone the skills required in a high-stakes performance assessment (edTPA) (mandated across North Carolina as a licensure requirement beginning fall 2019). Connecting coursework to clinical experiences, in Semester 2, candidates will once again be required to register for a one-credit-hour lab where they rehearse the subject area HLPs taught in their coursework and receive coaching from a faculty member with expertise in the candidate's content area, trained at our annual Teacher Education Institute (TEI). Candidates already hired as classroom teachers will complete this practice in their own classrooms with support and coaching from their school-assigned mentor teacher and assigned Site Coordinator (as stated, these are university supervisors who are embedded in our partner schools). In Semester 2, all candidates will begin their year-long residency program. In this first semester of the residency, traditional teacher candidates will complete at least 60 hours over the course of the entire semester at a high-need school in the partnering district that serves students residing in an *"opportunity zone,"* specifically Census Tracts #410, 419.02, and 423 [Invitational Priority]. Under supervision of a mentor teacher, they will become familiar with the school and students, enhance their content knowledge, and gain valuable teaching practice while completing required practice tasks as part of their assigned lab work.

In Semester 3, candidates begin the full-time student teaching internship in the same school while completing a two-credit-hour, online course that is customized to meet their specific needs. For example, high school teacher candidates will complete a course focusing on secondary school learners (*SECD 5140: The Secondary School Experience*) and middle school candidates will complete a course specific to the middle school learner (*MDLG 5130: The Middle Grades Experience*). During this time, candidates will continue to receive support and coaching from their trained CCS mentor teacher and assigned Site Coordinator.

Figure 1. Teacher Residency Program Overview

| Semester 1 Online coursework with lab to practice and receive coaching | Semester 2 Online, content-specific coursework with lab to practice and receive coaching | Semester 3 Full-time internship coupled with support seminar and customized coursework |

Summer (5 Credit Hours)
- MDSK 6162: Planning for K-12 Instruction (2)
- MDSK 5204: Equity & Education (2)
- MDSK 6162L: Lab in Instructional Design (1)

Fall (6 Credit Hours)
- Content-specific methods course (3)
- Content-specific assessment course (2)
- MDSK 5100L: Lab in Content Pedagogy (1)

Spring (5 Credit Hours)
- MDSK/TESL/FLED 6470: Student Teaching Internship (3)
- MDSK 5130/SECD 5140: Adolescent Development course (2)

Year-Long Residency

5. *Capable mentor teachers*. Successful programs collaborate with partner schools to recruit experienced mentors who demonstrate past success in the classroom, show a capacity to

coach candidates, and have the potential to communicate effectively with university-based teacher educators (Guha et al., 2016). In alignment with this characteristic of successful TRPs and TQP program expectations, mentoring and coaching are critical components of the UNC Charlotte Teacher Residency Program. Candidates will receive mentoring support from their assigned CCS K-12 mentoring teacher, along with the support from the Site Coordinator.   This combined support will allow for both research-based and highly contextualized and practical support. Site Coordinators will share research-based practices with CCS mentors, and the mentors, in turn, will share practices that are successful with the unique demographics of the participating schools. To ensure high quality mentoring, we will use rigorous criteria to select CCS mentors. These mentors will share content area expertise, have a minimum of three years of teaching experience with their mentee, be recommended by their principal, collaborate with colleagues to improve instruction, and demonstrate evidence of teaching effectiveness (e.g., above average performance evaluations, evidence of student learning growth). CCS mentors will also have participated in district cultural awareness PD. All university faculty and CCS mentor teachers will be expected to participate in the TEI (described earlier) to gain invaluable mentoring and coaching skills for use while serving as a mentor to a UNC Charlotte Teacher Resident. The TEI further broadens the benefits of this program well beyond the grant period.

Importantly, UNC Charlotte received a large private gift that will enable us to support each mentor teacher trained at the TEI on coaching and HLPs with an $800 stipend for their year as a mentor, making recruitment and training of mentors easier. Additionally, each participating school will receive funds to hire substitute teachers to further compensate the mentoring teachers and allow them time to develop their leadership skills. Each CCS school-

based mentoring teacher will receive two substitute teacher days per semester of the residency (four substitute teacher days per K-12 mentor). This instructional release time will allow the CCS mentor to co-plan or co-teach with their mentee, provide coaching opportunities, participate in team meetings with other colleagues, and attend additional PD to support the mentoring partnership.

Beyond the funding period of the grant, CCS will provide PD funds at the school level to allow time for mentors to observe and coach their mentees. Lead mentors at each site will continue to work with the mentors and mentees in their building to encourage peer support groups for learning and coaching within the school.

6. *Cohort model.* The UNC Charlotte Teacher Residency Program will be cohort-based to provide additional instructional support for candidates, in accordance with Guha et al's (2016) findings. Each summer (Semester 1), cohorts of 12 teacher candidates will commence the UNC Charlotte Teacher Residency Program. We will hold an annual orientation at a participating school to familiarize all candidates with program requirements and expectations and help foster a sense of community among candidates, Site Coordinators, and course instructors. Course content will enhance participants' understanding of the individual, family, and cultural assets at their school sites and help them use that information to guide instructional decision-making and development of classroom culture. As candidates progress to content-specific coursework in Semester 2 (fall), they will work with colleagues who share content area expertise and develop their own networks of content-specific support. These teams (candidate, CCS mentor, and Site Coordinator) will meet monthly to discuss progress, offer support and feedback, and coach candidates to reflect practices learned in their coursework and use coaching strategies learned during the TEI. The release time gained by

using substitute teachers will allow opportunities for candidates to co-plan, co-teach, and participate in team meetings and PD activities.

7. *Ongoing supports for novice teachers.* Unlike conventional teacher education programs, successful TRPs provide continued instructional coaching beyond the residency year (Guha et al., 2016). The additional induction services are designed to reduce attrition, offer instructional supports, and improve educator effectiveness. The UNC Charlotte Teacher Residency Program offers continued mentoring and coaching support to teacher candidates through an established and highly effective induction program. Upon completion of Phase I of the residency program, all graduates will receive support for up to three years at a participating school through the NC New Teacher Support Program (NTSP), a statewide program designed to reduce attrition. A recent evaluation of the program indicates NTSP-supported teachers are more likely to remain in teaching and are associated with higher measures of educator effectiveness (i.e., value-added scores) than their peers (Bastian & Marks, 2017). At a cost of $2200 per teacher per year, the program offers multiple services designed to increase teacher effectiveness, enhance skills, and reduce attrition among beginning teachers. The ultimate goal of the NTSP is to improve student achievement by improving beginning teacher effectiveness and teacher retention through three core services: (1) Institute "boot camps"; (2) intensive, individualized classroom coaching, including "in-the-moment" coaching, that utilizes strategies such as huddle, sideline co-teaching, modeling, and "bug-in-ear;" and (3) aligned PD sessions.

8. *Financial support for residents who guarantee a commitment to teaching.* In order to draw from a high quality and diverse pool of potential candidates, Guha et al. (2016) found that effective TRPs offer financial support, which includes a living wage and/or tuition remission,

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in exchange for a guarantee that the candidate will remain teaching in the district for a required number of years. Accordingly, the UNC Charlotte Teacher Residency Program will offer a living wage stipend to each candidate who is not already working as a practicing teacher in their own classroom in CCS. Eligible candidates who receive the stipend must commit to teaching at a high-need school in CCS for a minimum of three years. More information on this living wage is provided in the budget narrative.

While grounded in the principles associated with successful TRPs (Guha, et al. 2016), the UNC Charlotte Teacher Residency Program has been designed to fit within, and benefit from, the exciting initiatives currently underway in the Cato College of Education. As described, our program has a strong focus on underrepresented populations (students of poverty, students of color, and English learners), and we are intentionally focusing our work on HLPs, braiding them throughout coursework and clinical work. Because our close examination of data indicated a need for more attention to practice, coaching, and English learners, below we include additional description on these critically important components of the residency program.

Deliberate Practice and Coaching. Teacher candidates need opportunities for deliberate practice (Ericsson, 2002) where they role play and rehearse skills and competencies in coursework, followed by discussion and critique, and then apply the skills in K-12 classrooms (Deans for Impact, 2016; Ericsson, 2002; Grossman, 2018). Our Teacher Residency Program includes opportunities for our candidates to learn about, observe, and practice via a PBTE learning cycle. Using a set of rubrics that target the HLPs adopted by the college and our school partners, candidates are provided feedback from both peers and instructors while practicing these skills in lab coursework. Candidates will also observe practices being modeled by instructors,

mentor teachers in clinical experiences, edTPA videos and videos showcasing National Board Certified Teachers via Accomplished Teaching Learning and Schools (ATLAS).

A shift in focus toward deliberate practice of skills must be accompanied by skilled coaching (Grossman et al., 2009; Ericsson, 2002) that involves candidates receiving feedback from trained coaches. We have taken definitive steps to infuse deliberate coaching throughout the coursework in our Teacher Residency Program. Each summer, faculty, Site Coordinators, and mentor teachers will receive PD on coaching teacher candidates through our TEI, and will implement these coaching strategies during the year-long residency period (Semesters 2 and 3) to help teacher candidates implement the instructional routines modeled, rehearsed, and practiced in their coursework and clinical experiences.

Preparing Teachers to Work with English Learners. In 2015, 9.5%, or 4.8 million, students were identified as English learners (ELs) in the United States (U.S. Department of Education, 2018). Meeting the needs of the growing population of ELs in our K-12 classrooms is now the responsibility of all teachers, not just designated English as a Second Language (ESL) teachers (Turkan & Schramm-Possinger, 2014). Yet, many do not receive ESL training in their teacher preparation and are not equipped with strategies to support their ELs (Samson & Collins, 2012).   Our project partner, CCS, reported more than 2,400 ELs representing at least 80 countries and 59 different languages in 2018-19. Our residency program includes components that will train our candidates to recognize and support the needs of this growing population, better preparing our new teachers to teach ELs.

UNC Charlotte has strong Teaching English as a Second Language (TESL) programs and recently implemented a large federal grant that provides PD to K-12 teachers of ELs. When developing our residency program, we included award-winning TESL faculty who helped to

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ensure attention to the needs of ELs. In the first semester of the residency program, candidates will learn key differences among individual students as assets for teaching and learning, including student membership in a variety of communities, with particular attention to ELs and students of color. Candidates will reflect upon their own biases before learning about the cultural and community assets of students in their classrooms. In this same semester, candidates will learn the fundamentals of lesson plan design through the lens of equity. They will become familiar with lesson planning resources such as the Common Core State Standards and the ESL-specific World-class Instructional Design and Assessment (WIDA) standards and teaching strategies (e.g., Sheltered Instruction Observation Protocol) that assist in the design of lessons that meet the needs of all learners, including ELs. Candidates will learn to look beyond individual differences to design lessons that incorporate family, community, and cultural assets of students. In Semester 2, coursework will focus on understanding and using research to modify and improve classroom instruction, helping candidates to modify or adapt classroom assessments to meet the needs of non-native speakers of English. Also in Semester 2, candidates will begin their year-long residency in a high-need school with a large percentage of ELs. This residency will allow them to practice the skills they developed with respect to ELs in an authentic setting. CCS will also ensure that their mentor teachers have been trained in Cultural Awareness and ELLevation, a web-based software platform specifically designed for EL educators.

Professional Development

Teacher candidates in our program and their K-12 mentor teachers will receive the following PD opportunities throughout and beyond the grant-funding period.

Testing Support. In response to increased scrutiny and criticism, teacher preparation programs have adopted high-stakes assessments to provide evidence that their candidates

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demonstrate adequate content knowledge and evidence-based practices. Aspiring middle and secondary school teachers and K-12 teachers of foreign language and ESL, for example, must pass the PRAXIS II Subject Assessment in their respective content area to earn a teaching license in North Carolina, and, as of fall 2019, they will have to reach a benchmark score on edTPA. According to our Title II report, our middle grades mathematics completers have an average of 82.7% on PRAXIS. Other content areas represented in this project have too small n to report. With current critical teacher shortages, these high-stakes, costly assessments represent a possible barrier to the profession (Kissau, Davin, & Wang, 2019). In response, the UNC Charlotte Teacher Residency Program will provide additional support to its candidates and their mentors to ensure successful completion of these assessments. For example, PRAXIS II workshops will be offered in high-need content areas. With respect to edTPA, we have infused practice tasks into Semester 2 coursework to familiarize candidates with the assessment and hone skills. Further, during Semester 3 when candidates complete edTPA, they participate in seminars that provide edTPA support led by UNC Charlotte faculty who are trained Pearson edTPA scorers in the candidates' respective content area. Mentor teachers will also receive edTPA PD to familiarize them with the assessment and ways they can support their candidates.

Conference Attendance and Networking. Teacher candidates in the UNC Charlotte Teacher Residency Program, as well as their K-12 mentors, will be invited each fall (Semester 2) to attend (at no cost) the Pursuing Extraordinary Outcomes in Public Education National Conference held in October by the UNC Charlotte Urban Education Collaborative. This conference welcomes K-12 educators, postsecondary educators, undergraduate and graduate students, parents, community members and stakeholders concerned with the academic achievement of students in our nation's schools, particularly urban schools. Candidates in the
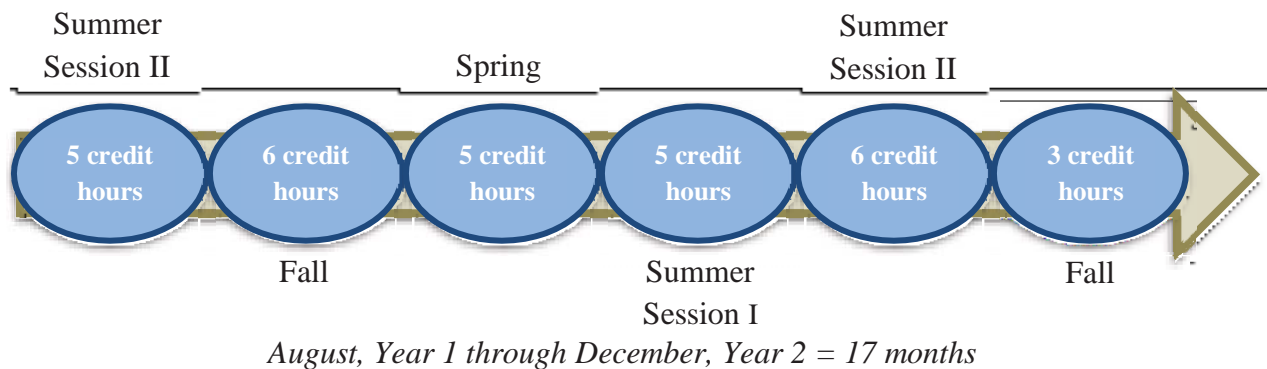
Teacher Residency Program and their mentors will also be invited to attend the UNC Charlotte Teacher-to-Teacher Conference held each spring (Semester 3). Residency Program teacher candidates and their mentors will be invited to participate and present at the conference (free of charge) to share what they have learned in the residency program, which will broaden the impacts of this project beyond the immediate participants.

STEM Professional Development. In further alignment with competitive preference priority 1, the UNC Charlotte Residency Program will offer evidence-based PD strategies to aspiring mathematics and science teachers enrolled in the residency program and their mentor teachers at each of the six participating schools in the partner district. In this pursuit, we will collaborate with the UNC Charlotte Center for STEM Education (CSTEM). With more than 35 years of experience working with teachers and schools in improving their STEM programming, the Center's core mission is to improve STEM teaching and learning in the region. Aspiring STEM teachers and their mentors at the six partner schools will be supported in designing and implementing project-based learning into their classrooms. Project-based learning is among the high-impact STEM practices that are related to student persistence, retention and graduation and are particularly beneficial to underserved students (Peters, Tisdale & Swinton 2019). A meta-analysis of research studies showed that project-based learning has a medium to large positive effect on students' academic achievement when compared with traditional methods of instruction (Chen & Yang, 2019). This support will come in the form of six self-paced online modules that will be infused into science and mathematics methodology and assessment coursework and made accessible to the mentor teachers. Complementing the online instruction will be face-to-face follow-up sessions with a faculty member from CSTEM who has expertise in project-based instruction, familiarity with the online modules, and high school teaching experience. This

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faculty member will attend the TEI to learn our coaching strategies and to support the teachers and teacher candidates in the application of what they have learned from the modules.

Master of Arts in Teaching (M.A.T). In alignment with TQP expectations, UNC Charlotte Teacher Residency Program participants will have the opportunity to further their PD via completion of a master's degree in less than 18 months (see Figure 2). Upon completion of the initial licensure residency program (Phase I), candidates can choose to complete 14 hours of additional online coursework (Phase II) to complete the M.A.T. with a concentration in their area of expertise (e.g., mathematics, science, special education, TESL, or foreign language).

Figure 2. MAT Timeline

Summer Session II		Spring		Summer Session II	
5 credit hours	6 credit hours	5 credit hours	5 credit hours	6 credit hours	3 credit hours
	Fall		Summer Session I		Fall

August, Year 1 through December, Year 2 = 17 months

As shown in Figure 3, the M.A.T. is a 30-credit-hour program leading to the advanced "M" license in a variety of concentrations (mathematics, science, special education, TESL, and foreign language). Upon successful completion of Phase I, candidates can apply to Phase II, during which they will complete an additional 14 credit hours to finish the M.A.T. Initial coursework in the M.A.T program (5 credit hours) is intended to be foundational, aligned with partnering school district needs, and shared across all concentrations. The next six credit hours are specialized and intended to prepare candidates to become instructional leaders in their chosen

content area. The final three credit hours will consist of an elective and are intended to be tailored to the individual needs of the candidates and/or their schools.

Figure 3. M.A.T Coursework

Master of Arts in Teaching (M.A.T.)
with concentrations in content areas

Online specialized content pedagogy (6 credit hours)

Foundational Coursework (5 credit hours)	Math Concentration Coursework	Elective Coursework (3 credit hours)
	Science Concentration Coursework	
	TESL Concentration Coursework	
Online modules addressing competencies that align with district professional development needs	Foreign Language Concentration Coursework	Candidates select a course that aligns with their professional needs or school context.
	Special Education Concentration Coursework	

Sustainability

Plans are in place to ensure the sustainability of the residency program at UNC Charlotte. First, to maintain financial support of candidates, CCS has agreed to employ, as substitute teachers, all eligible residency candidates who do not hold teaching positions, with a guarantee of two substitute teacher days per week. This commitment amounts to approximately $900/month in financial support. Second, UNC Charlotte offers multiple small scholarships each year for new and aspiring teachers. For example, the Jacqueline F. and Robert F. Hull Jr. Scholarship for Teachers funds up to four $1,000 awards annually, and the Graduate Initial Licensure Scholarship gives approximately fifteen $1,000 awards each semester. To demonstrate its commitment to the residency program, UNC Charlotte has earmarked twelve $1,000 awards

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for the residency candidates per year post grant funding for a minimum of five years. Building upon these scholarships, we will also seek support from the UNC Charlotte Graduate School to cover tuition costs for two cohorts of 12 residency program candidates (24 total) to complete the program, starting in fall 2023 and fall 2024. While availability of funding cannot be guaranteed multiple years in advance, the Graduate School at UNC Charlotte is committed to teacher training and has a history of providing tuition support, especially when supporting grant projects. Case in point, following completion of a grant-funded "NC Quest" project in 2018 that involved teachers completing the first four courses of a master's degree (M.Ed.) in TESL, the UNC Charlotte Graduate School provided tuition support for all 30 teacher participants to complete the remaining seven courses in the degree program.

Other key features of the project will remain in place post-funding. For example, the TEI will continue to be offered each year to prepare faculty and K-12 mentors to coach. It should be noted that the skills nurtured and enhanced among K-12 and faculty mentors via the TEI will continue to benefit teacher candidates and new teachers in years to come, and will help to develop a strong pool of exemplary mentor teachers. CCS will also continue to support the mentor program through training and release time to observe/coach with mentees. The testing support provided to candidates in the project (i.e., edTPA, Praxis Subject Assessments) will also remain in place post-funding. The Cato College of Education will also continue to offer $800 stipends for mentoring and coaching candidates.

It must also be noted that elements of the UNC Charlotte Residency Program are designed to build capacity and yield results that will extend beyond the period of federal financial assistance. When developing the residency program, attention was paid to create a high-quality program that is very affordable (approximately $4,000), convenient (online), and

that can be completed in a timely manner (less than a year). Further, the success of the residency program will be disseminated widely (see Dissemination Plan) and advertised on the Cato College of Education website that will remain live after the funding period.

<u>Quality of the Management Plan and Personnel</u>

A strong management and communication plan is in place to monitor the progress of the project and ensure that it meets its intended goals while remaining within the project budget. As illustrated in Figure 4 below, the entire grant team (Executive Task Force) will collectively monitor and ensure project quality and success, and an individual task force comprised of both university and CCS partners will be created specific to each goal. Led by grant team members, these task forces will meet regularly to monitor progress toward their respective goal and to ensure each goal is met. The task force members will work together to oversee and manage all activities pertaining to the recruitment of three diverse cohorts of 12 teacher candidates each year (36 total) in the high-need areas of mathematics, science, special education, ESL, and foreign language (Recruitment Task Force: Goal #1). Similar task forces will be created to monitor staffing needs at each of the six participating schools (Human Resources Task Force: Goal #2), to ensure high quality teacher preparation coursework (Residency Program Task Force: Goal #3), to increase retention of new teachers in high-need schools (Retention Task Force: Goal #4), and to improve teacher performance (Teacher Performance Task Force: Goal 5). PI Teresa Petty and the Project Manager (see Budget Narrative) will sit on all task forces and be responsible for reporting progress toward goals and next steps with all other task forces.

Figure 4. Management Task Forces
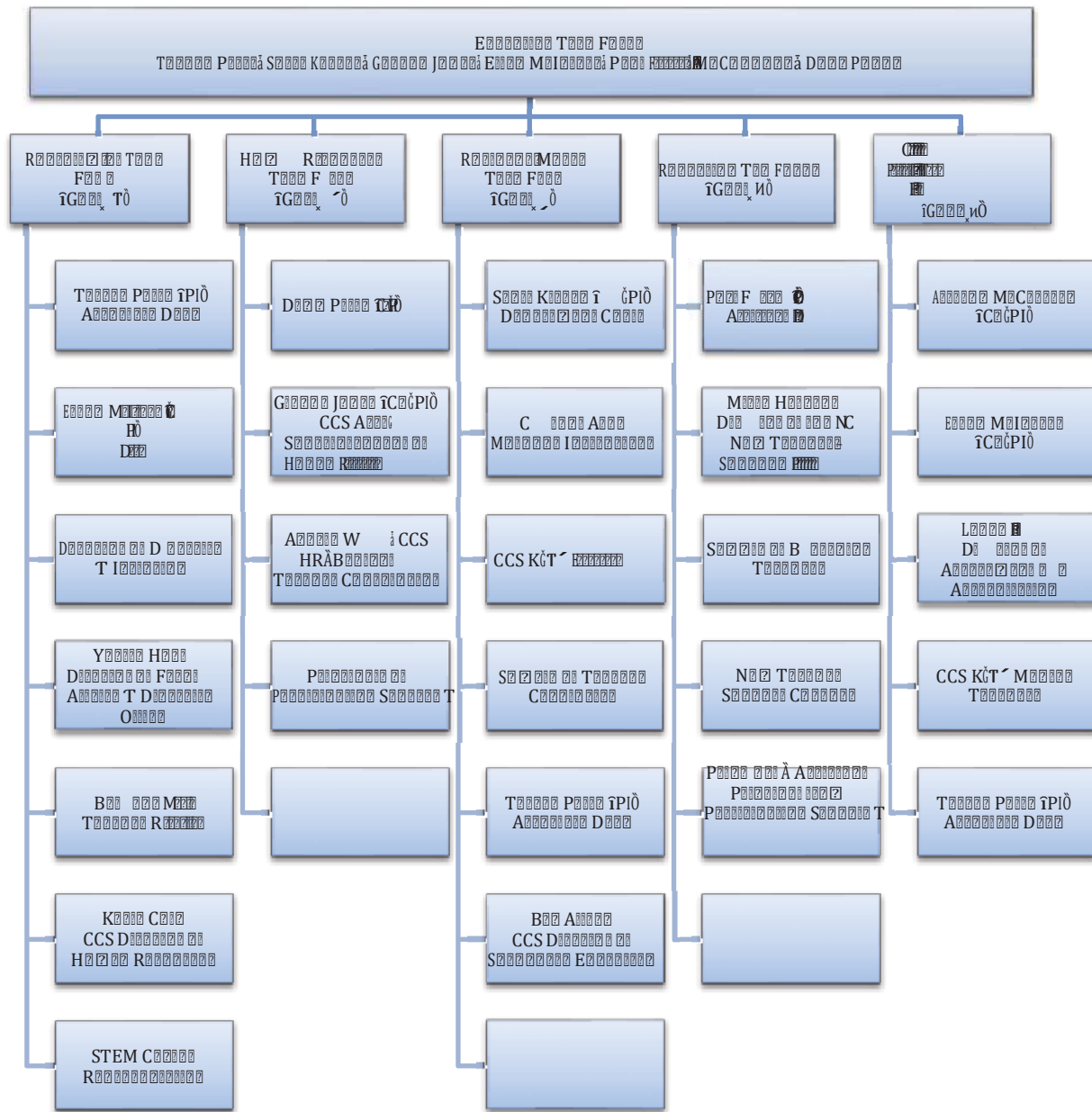
Project Feedback

To inform the above-mentioned task forces, the project team will continuously seek feedback from school partners and other stakeholders. Prior to launching the project, the Executive Task Force will meet with the principals in each of the six participating schools to provide an overview of the project, get their feedback and input, and discuss the quality
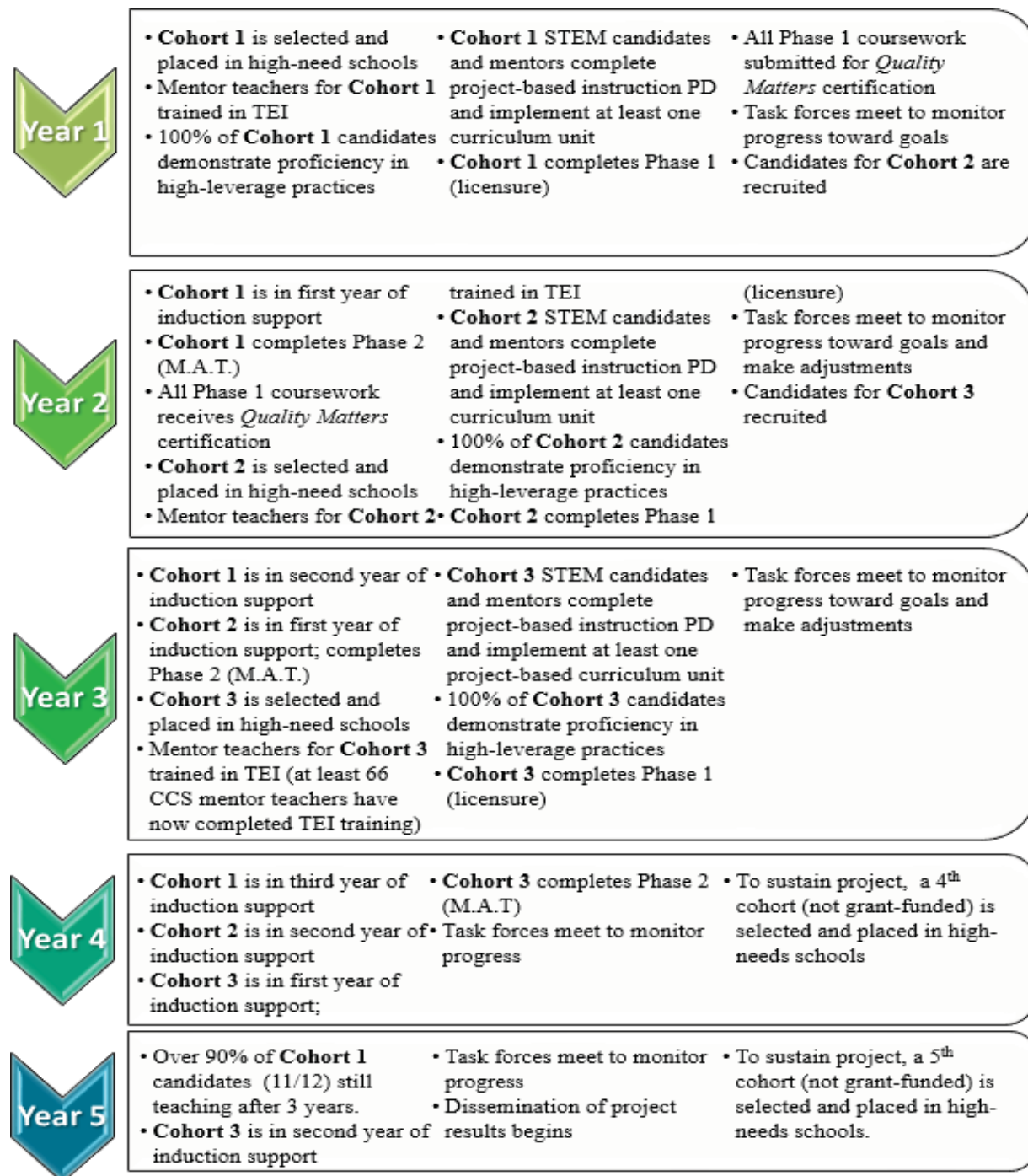
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management plan. As part of this plan, members of the Executive Task Force will meet at least once per semester with CCS school administrators, a sample of teacher candidates, and their assigned mentor teachers. During these meetings the team will seek feedback that will be used to inform and guide the project. Further, upon completion of each semester of the residency program, all participants will complete an online questionnaire to provide program feedback to guide subsequent instruction, PD, and support for current and future cohorts. Also, the Teacher Candidate Performance Task Force (Goal #5) will work with the external evaluator (Horizon Research, Inc.) and the Cato College of Education's Director of Assessment and Accreditation (Dr. Laura Hart) to examine program data in order to make improvements. Finally, as a member of the CIS Network at Deans for Impact, UNC Charlotte will have access to comparative data from many other teacher preparation programs, including several residency programs that will be used to discern the specific features of programs that impact the measures in the CIS. The CIS data will be part of the Project Evaluation, as described below.

Dissemination Plan

With a distinguished record of scholarship (see CVs), the grant team stands prepared and ready to share the project's findings. Locally, the results of the collaboration will be shared with school districts at regional superintendent meetings in hopes of inspiring future collaborations with UNC Charlotte. At the state level, we will present results at the annual conference of the North Carolina Association of Colleges and Teacher Educators.   Importantly, project team member Dr. Ellen McIntyre sits on the state Professional Educators Preparation and Standards Commission (PEPSC), which proposes policy on teacher preparation, and the UNC system's Advisory Board for Educator Preparation, which proposes evidence-based practices on teacher preparation. These positions will allow her to share practices and outcomes from this work to

shape state-level practice and policy. Of course, we will also present at national conferences and publish in key journals such as the *Journal of Teacher Education.* Regular updates related to the project will also be available on the Cato College of Education website.

Figure 5. Project Timeline

Year 1
- **Cohort 1** is selected and placed in high-need schools
- Mentor teachers for **Cohort 1** trained in TEI
- 100% of **Cohort 1** candidates demonstrate proficiency in high-leverage practices

- **Cohort 1** STEM candidates and mentors complete project-based instruction PD and implement at least one curriculum unit
- **Cohort 1** completes Phase 1 (licensure)

- All Phase 1 coursework submitted for *Quality Matters* certification
- Task forces meet to monitor progress toward goals
- Candidates for **Cohort 2** are recruited

Year 2
- **Cohort 1** is in first year of induction support
- **Cohort 1** completes Phase 2 (M.A.T.)
- All Phase 1 coursework receives *Quality Matters* certification
- **Cohort 2** is selected and placed in high-need schools
- Mentor teachers for **Cohort 2**

- trained in TEI
- **Cohort 2** STEM candidates and mentors complete project-based instruction PD and implement at least one curriculum unit
- 100% of **Cohort 2** candidates demonstrate proficiency in high-leverage practices
- **Cohort 2** completes Phase 1

- (licensure)
- Task forces meet to monitor progress toward goals and make adjustments
- Candidates for **Cohort 3** recruited

Year 3
- **Cohort 1** is in second year of induction support
- **Cohort 2** is in first year of induction support; completes Phase 2 (M.A.T.)
- **Cohort 3** is selected and placed in high-need schools
- Mentor teachers for **Cohort 3** trained in TEI (at least 66 CCS mentor teachers have now completed TEI training)

- **Cohort 3** STEM candidates and mentors complete project-based instruction PD and implement at least one project-based curriculum unit
- 100% of **Cohort 3** candidates demonstrate proficiency in high-leverage practices
- **Cohort 3** completes Phase 1 (licensure)

- Task forces meet to monitor progress toward goals and make adjustments

Year 4
- **Cohort 1** is in third year of induction support
- **Cohort 2** is in second year of induction support
- **Cohort 3** is in first year of induction support;

- **Cohort 3** completes Phase 2 (M.A.T)
- Task forces meet to monitor progress

- To sustain project, a 4th cohort (not grant-funded) is selected and placed in high-needs schools

Year 5
- Over 90% of **Cohort 1** candidates (11/12) still teaching after 3 years.
- **Cohort 3** is in second year of induction support

- Task forces meet to monitor progress
- Dissemination of project results begins

- To sustain project, a 5th cohort (not grant-funded) is selected and placed in high-needs schools.

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Quality of Personnel

    Dr. Teresa Petty (PI) is Professor and Associate Dean for Undergraduate Education and Teacher Preparation in the Cato College of Education. Dr. Petty is trained in Quality Matters (QM), a faculty-centered, peer review process designed to certify the quality of online courses. Dr. Petty has experience carrying out grant projects, having served as Co-PI on a National Science Foundation grant and Co-PI on a Belk Foundation grant to design the TEI. As PI, Dr. Petty will oversee the grant project. She will lead Task Force #1, sit on all other task forces, assist in developing online components of the residency program to ensure they meet QM standards, and work with the Graduate School to facilitate the application and selection process of project participants. As the liaison between CCS and the Cato College of Education, Dr. Petty will work with the district to identify school placements and mentor teachers and to plan and organize PD experiences for teacher candidates and mentor teachers.

    Glenda Jones (Co-PI) is the Assistant Superintendent of Human Resources and Communications for CCS. Ms. Jones serves on the North Carolina Superintendent's Task Force for Teacher Recruitment, Retention, and Credentialing and was appointed by the North Carolina Senate in 2017 to serve on the Professional Educator Preparation and Standards Commission (PEPSC), where she chairs the Licensure Subcommittee. Ms. Jones is also the president-elect for the North Carolina Association of School Administrators (NCASA) and serves on the P-12 Advisory Board for UNC Charlotte. For this proposed TQP project, Ms. Jones will serve on Task Force #2, pertaining to teacher vacancies, and will ensure excellent stewardship of CCS funds.

    Dr. Scott Kissau (Co-PI) is a Professor and Chair of the Department of Middle, Secondary, and K-12 Education at UNC Charlotte. Recognized as an exemplary teacher educator, Dr. Kissau named the Higher Education Teacher of the Year by the Foreign Language

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Association of North Carolina in 2015, and in 2016 was granted a national award for teacher educators by the American Council on the Teaching of Foreign Languages. Recipient of the Cato College of Education Award for Teaching in 2011 and for Research in 2012, he has received more than $2 million in grant funding. As lead developer of the UNC Charlotte Teacher Residency Program, Dr. Kissau will lead Task Force #3. As such, he will oversee course scheduling and instruction. He will organize regular meetings with the teacher candidate cohorts, mentor teachers, faculty coaches, and participating school principals to monitor progress, receive feedback, evaluate program effectiveness, and plan next steps.

Dr. Ellen McIntyre (Co-PI), Dean of the Cato College of Education since 2013, previously served as Department Chair and Interim Associate Dean at NC State University from 2007 to 2013 and Professor and University Scholar at the University of Louisville from 1990 to 2007. Dean McIntyre is also a member of Deans for Impact, a national organization with a mission to transform teacher preparation. Dean McIntyre has brought in more than $7M in federal grants from the Department of Education and the National Science Foundation. She serves on the NC Professional Educator Preparation and Standards Commission, which has the charge to recommend to the State Board of Education ways to improve teacher preparation in North Carolina. For the proposed TQP project, Dean McIntyre will serve on Task Force 1 (Recruitment) and lead Task Force #5 (Teacher Candidate Performance). Dean McIntyre will also provide leadership in ensuring excellent stewardship of grant funds.

Dr. Paul Fitchett (Co-PI) is Professor and Assistant Dean for Teaching and Innovation in the Cato College of Education. He is tasked with leading teacher education curricular revision efforts and helping faculty build capacity to implement curricular changes. Dr. Fitchett has twelve years of experience working with schools in the area and conducting research related to

teachers' working conditions and preservice education. As lead of Task Force #4 (retention), Dr. Fitchett will be involved in the planning and organization of teacher candidate and mentor PD and the assignment and organization of new teacher support coaches (induction).

Dr. Allison McCulloch (Co-PI) is an Assistant Professor in the Department of Mathematics and Statistics at UNC Charlotte. Dr. McCulloch has taught undergraduate mathematics methods courses, graduate methods and research courses, and both middle and high school mathematics. With NSF-funding across multiple projects, she has developed curriculum materials to prepare teachers to teach secondary mathematics using technology and materials to deepen future teachers' understanding of connections between undergraduate mathematics and topics they will teach in high school. Dr. McCulloch will be responsible for the design, development and teaching of mathematics education courses for the residency program, and will serve on Task Force #5, involved in the collection and analysis of performance data.

Dr. Drew Polly is a Professor in the Department of Reading and Elementary Education and a PD facilitator in the areas of instructional design and planning, technology integration, and mathematics teaching. Dr. Polly has been a Co-PI and researcher on more than $9 million of grants focused on PD design and implementation in schools across the state of North Carolina. He has experience coaching and researching the influence of coaching on teachers. Leading Task Force #2, Dr. Polly will partner with CCS to monitor teacher vacancies and use this information to inform admission and selection criteria. He will also contribute to the PD and coaching.

Support

Collaborating in this project are the UNC Charlotte Cato College of Education, the UNC Charlotte Department of Mathematics and Statistics in the College of Liberal Arts & Sciences, and their valued and longstanding K-12 partner, Cabarrus County Schools.

UNC Charlotte. UNC Charlotte is North Carolina's urban research institution. It leverages its location in the state's largest city to offer internationally competitive programs of research and creative activity, exemplary undergraduate, graduate, and professional programs, and a focused set of community engagement initiatives. UNC Charlotte is among the fastest growing universities in the UNC system with more than 29,000 students.

Cato College of Education. The Cato College of Education, committed to being a national leader in educational equity, excellence, and engagement, provides faculty, staff and students with an exceptional support environment through its five academic departments, many centers, and state-of-the-art facilities. Some resources include the Center for STEM Education for outreach which addresses STEM priorities for PreK-16; the Office of School and Community Partnerships, which oversees all clinical placements and fosters collaborative relationships between the university and surrounding schools, public agencies and the community; the Partner School Network between college/university professional education programs and P-12 schools; and the Urban Education Collaborative that serves as a central hub and repository of empirically-based research and other resources to improve urban schools. The Cato College of Education building offers state-of-art technology and online resources.

The Cato College of Education is at the forefront of educational initiatives in North Carolina. In 2017, for example, the College opened the first (to our knowledge) early-college high school devoted to future teachers, called Charlotte Teacher Early College (CTEC). Each year, the College is consistently in the top two of the highest producers of new teachers in the state. The NC Report Card reports candidate proficiency above the state average on four of five standards. The College is consistently in the top two IHE producing the most teachers in the state. The NC Report Card reports candidate proficiency above the state on four of five

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standards. Finally, the Cato College of Education is consistently ranked by U.S. News and World Report in its top 100 graduate schools of education (#78 in 2019), and the Special Education program ranks in the top 20 in the nation (#15 in 2019).

College of Liberal Arts & Sciences. The UNC Charlotte College of Liberal Arts and Sciences, a long-standing collaborator with the Cato College of Education, is an active partner in this project through participation of its mathematics education faculty, including Co-principal Investigator Allison McCulloch. The Department of Mathematics and Statistics will lead the design, development, and teaching of all mathematics education courses (Semester 2), and collaborate in the planning of PD for mentor teachers.

Cabarrus County Schools. Among the largest school systems in North Carolina, Cabarrus County Schools (CCS) educated nearly 33,000 students for the 2017-2018 school year, and it is experiencing tremendous growth as more and more families move to the district. Currently, CCS is home to 20 elementary schools, eight middle schools, eight high schools, two early colleges, one preschool and one alternative school. Cabarrus County Schools serves 1,679 students from three census tracts in opportunity zones. All six of our partnering schools draw students from these opportunity zones. For example, 406 students attend Concord High School and 316 students attend Concord Middle School. The performance of the schools proposed for this TQP residency program is shown in Table 2.

Table 2. Partner School Performance 2016-17 and High-need Eligibility

School	Report Card Grade	Performance Grade Score	EOG Mathematics Grade (Score)	EOG Reading Grade (Score)	% Free and Reduced Lunch
C.C. Griffin Middle School	D	53	F (39)	D (54)	53.96%

Concord Middle School	D	43	F (36)	F (38)	100%
Harold Winkler Middle School	C	64	C (61)	C (56)	50.10%
Northwest Cabarrus Middle School	C	58	D (50)	C (59)	52.46%
Concord High School	C	60	63.8%	67.4%	52.81%
Jay M. Robinson High School	C	61	64.2%	64.2%	45.15%

Aligned with TQP program expectations, CCS and its two participating high schools and four feeder middle schools meet the requirements of a High-Need LEA. With respect to the poverty/rural area requirement (Component A), CCS serves 12,229 students from low-income families (36.98% of its total population). At least 45% of students at each of the six participating schools are eligible for free and reduced lunch. With respect to teacher need (Component B), out of 2287 certified staff members, CCS has 113 teachers with either an emergency, provisional or temporary license, representing around 5% of its teaching workforce. These schools also reflect many of the aforementioned challenges with respect to diversity. For example, whereas the participating schools involve a diverse population of students (see Table 3), only 136 (12.7%) of the 1,852 total CCS teachers identify as teachers of color (see Table 4).

Table 3. Cabarrus County Student Demographics

Male	Female	Caucasian	African American	Hispanic	Asian	Pacific Island	Biracial	Indian
16,694	15,782	17,276	6,629	5,462	1,523	60	1,381	145

Table 4. Cabarrus County Teacher Demographics

Male	Female	Race – Caucasian	Race - African American	Race – Other
363	1,489	1,675	136	101

<u>**Collaborative History**</u>

The Cato College of Education has a long-running partnership with CCS. Current CCS Superintendent Dr. Christopher Lowder sits on the Cato College of Education Advisory Board. UNC Charlotte faculty routinely provide PD to CCS teachers in multiple content areas and grade levels, teach university courses in school buildings, co-teach with Cabarrus administrators and teachers, and provide intensive support with planning and curriculum development.

The partnership with CCS includes support of the UNC Charlotte teacher education programs. For example, each fall semester a faculty member teaches a social studies methods course onsite at a high school in the district, and, as part of the experience, candidates tutor and work with high school students on social studies activities and projects. CCS is a member of our Partner School Network, and a participant in our Niner Clinical Immersion School (NCIS) experience for the College's Graduate Certificate programs in all licensure areas. For NCIS, pairs of strategically-selected schools host teacher candidates for four consecutive semesters to provide them with a stable set of meaningful experiences to help them develop into teachers.

The Cato College of Education also has experience collaborating with CCS on grant projects. Recent examples include, a collaborative project that partnered nine Saudi English as Foreign Language teachers with ESL teachers in CCS to learn student-centered language teaching strategies and to hone their English skills, and a project to launch in fall 2019 that will cover the tuition of 20 CCS teachers completing their M.Ed. in Curriculum and Instruction (TESL concentration) to better meet the needs of the growing population of ELs in schools.

A history of collaboration also exists between the mathematics education faculty within the Department of Mathematics and Statistics and the Cato College of Education. Due to the interdisciplinary nature of teacher preparation programs (e.g., mathematics education), faculty in

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the Cato College of Education and the Department of Mathematics and Statistics routinely collaborate to develop and teach mathematics content and pedagogy coursework. Most recently, mathematics education faculty in both colleges collaborated on a proposal to join the Mathematics Teacher Education Partnership, an Association of Public and Land-grant Universities project that brings teams from across the U.S together to provide a coordinated research, development, and implementation effort for secondary mathematics teacher preparation programs to promote research and best practices in the field. Through this partnership, faculty led by Co-PI McCulloch are collaborating with mathematics and mathematics education faculty across the state of North Carolina and the NC Collaborative for Mathematics Learning (NC^{2}ML) to design and study resources for leveraging the statewide NC^{2}ML community to continue to support secondary mathematics teachers as they enter the field. As yet another recent example of collaboration, faculty members from both the Cato College of Education and the Department of Mathematics and Statistics at UNC Charlotte successfully completed a $300,000 state grant project that provided PD related to implementing the Common Core State Standards in mathematics and English language arts to 30 teachers at high-need schools.

Quality of the Project Evaluation

A strong evaluation plan is in place to measure the effectiveness of the project in reaching its goals. Horizon Research, Inc. (HRI), with more than 30 years of experience evaluating K–20 initiatives, will conduct the external evaluation. The external evaluation will have formative and summative components, each guided by a set of questions. The following formative evaluation questions align to the eight characteristics of effective TRPs, identified by Guha and colleagues (2016), and to the project's implementation plan:

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1. To what extent do the Cato College of Education and CCS function as partners in the design and implementation of the residency program, drawing on each partner's assets?

2. To what extent is the project able to recruit and retain candidates who meet the selection criteria? Can the project recruit and retain candidates of color in proportion to the district's students of color?

3. To what extent are clinical experiences focused on developing HLPs?

4. To what extent is coursework practice-based and focused on HLPs?

5. To what extent is the project able to attract and train school-based and faculty mentors?

6. To what extent do mentoring experiences meet the individual needs of candidates and help them develop competency with HLPs?

7. To what extent and in what ways do candidates benefit from being part of a cohort?

8. To what extent does the induction program meet the needs of candidates?

Table 6 describes how the evaluation will address each question. The size of each cohort will allow HRI to collect data from all members. HRI will also identify five individuals in each cohort as case study subjects to follow more closely than would be possible with all cohort members. The cases will involve observations and more frequent interviewing. Individuals will be selected purposively to ensure as diverse a sample as possible, including in terms of prior experience, grade level, discipline, race/ethnicity, and gender. Written longitudinal cases will help the project understand, in detail, how candidates experience the residency, pointing out particularly effective components and ones that need to be refined.

The summative evaluation will collect data on the extent to which project goals were achieved, addressing the TQP Performance Measures as well as other indicators. The summative evaluation will be guided by the following questions:

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1. Did the project achieve its recruitment, persistence, and certification/licensure targets for the high-need areas of mathematics, science, special education, ESL, and foreign language? (Goal 1; Performance Measures 1-3)

2. What is the impact of the Teacher Residency Program on filling teacher vacancies in CCS with highly qualified teachers? (Goal 2)

3. What is the impact on candidates' preparedness to use HLPs and to teach underserved students (e.g., minority students, ELs)? (Goal 3)

4. What is the impact on retention of highly qualified special education, science, mathematics, ESL, and foreign language teachers in high-need schools?   (Goal 4: Performance Measures 4-5)

5. What is the impact on teacher candidate performance? (Goal 5: Performance Measure 6)

In Year 5, HRI will compare the demographic characteristics of recruited and retained candidates and compare them to the targets established by the project (summative question #1). Using historical employment data from CCS, HRI will assess the extent to which the Residency Program is successful in filling CCS vacancies in high-need areas (summative question #2).

HRI will gather data on candidate preparedness (summative question #3) at multiple points. All candidates will complete a survey when they begin the residency and after each semester, allowing HRI to track their growth. HRI will also interview the case study subjects and observe their practice at multiple points using the Classroom Assessment Scoring System (CLASS). Candidates' emerging competence with the HLPs will be tracked using existing rubrics developed by the Cato College of Education (see Deliberate Practice and Coaching).

In addition to data collected by HRI, the evaluation will analyze data in the Common Indicator System (CIS) hosted by Deans for Impact. CIS maintains common data on all teacher

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candidates from the 13 teacher education programs in the CIS Network. The indicators include CLASS observation data, surveys of candidates' attitudes and mindsets, candidates' feedback on their programs, and employer feedback on the quality of candidate preparation.

To answer summative question #4, HRI will compare the retention of candidates to that of candidates in the original program. To investigate the extent to which the redesigned program influences candidate performance (summative question #5), all teacher candidates will complete edTPA during the culminating internship semester. All components of this performance-based assessment will be uploaded to a data management system and scored externally by Pearson evaluators. Once the official edTPA scores are obtained from Pearson, HRI will compare scores for candidates who completed the original and residency programs. Independent group comparisons will be completed for the total edTPA score as well as the score for each task.

To analyze student outcomes (another dimension of summative question #5), HRI will construct a comparison group of teachers in CCS using propensity score matching. (CCS has more than 2,000 teachers, more than enough to create a comparison group using this approach.) CCS has agreed to provide scores on state-mandated end-of-grade and end-of-course tests, which will be linked to teachers. These tests are a part of North Carolina's accountability system. Using a hierarchical linear model, HRI will compare the performance of residency candidates to those of the matched comparison group in a quasi-experimental design. In the analysis, student scores will be nested within teachers in the program.

Table 6. Evaluation Methods by Question

Formative Evaluation Question	Data Sources	Time Period	Analysis Methods
1. To what extent do the Cato College of	Annual one-on-one interviews with	Years 1–5	Qualitative analysis (using an emergent coding scheme) of

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Education and CCS function as partners in the design and implementation of the Residency Program?	project leaders from the Cato College of Education and CCS.		interview transcripts to identify strengths and weaknesses in the partnership
2. To what extent does the project recruit and retain candidates who meet the selection criteria? Candidates of color?	Demographic data for candidates	Years 1–3	Comparison of demographic characteristics of candidates to selection criteria
3. To what extent are clinical experiences sustained and focused on developing HLPs?	▪ Observations of a sample of clinical experiences ▪ 1:1 interviews with candidates and mentors ▪ Survey of all candidates ▪ CIS data on candidates' feedback	Years 1–4	▪ Qualitative analysis of observations and interviews for emphasis on HLPs in clinical experiences. An *a priori* coding scheme derived from the program design will be used. ▪ Descriptive quantitative analysis of survey and CIS data to identify emphases of clinical experiences
4. To what extent is course work practice based and focused on the target HLPs?	▪ Observations of a sample of courses ▪ 1:1 interviews with candidates and mentors ▪ Survey of all candidates ▪ CIS data on candidates' feedback	Years 1–4	▪ Qualitative analysis of observations and interviews on HLPs in course work. An *a priori coding* scheme derived from the program design and will be used. ▪ Descriptive quantitative analysis of survey and CIS data to identify relative emphases of course work
5. To what extent is the project able to attract capable school-based and faculty mentors?	▪ Annual 1:1 interviews with project leaders from ▪ 1:1 interviews with candidates and mentors ▪ Survey of all candidates ▪ CIS data on	Years 1–4	▪ Qualitative analysis of interviews to gauge project leaders' and candidates' perceptions of mentor capability. A coding scheme that is both *a priori* (based on the HLPs) and emergent will be used. ▪ Descriptive quantitative analysis of survey and CIS data to discern candidate opinions of mentor quality

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	candidates' feedback		
6. To what extent do mentoring experiences meet the needs of candidates and help them develop competency with HLPs?	▪ 1:1 interviews with a sample of candidates and mentors ▪ Survey of all candidates ▪ CIS data on candidates' feedback	Years 1–5	Qualitative analysis of interviews (a priori coding scheme) and quantitative analysis of survey and CIS data to identify ways mentoring experiences do/do not meet candidates' needs related to HLPs
7. To what extent and ways do candidates benefit from being part of a cohort?	▪ 1:1 interviews with a sample of candidates ▪ Survey of all candidates	Years 1–5	Qualitative analysis (using an emergent coding scheme) of interviews and survey data to identify benefits of cohorts
8. To what extent does the induction program meet the needs of candidates?	▪ One-on-one interviews with a sample of candidates ▪ Survey of all candidates	Years 2–5	Qualitative analysis (using an emergent coding scheme) and quantitative analysis of survey data to identify outcomes of the induction program
Summative Evaluation Question	**Data Sources**	**Time Period**	**Analysis Methods**
1. Did the project achieve its recruitment, persistence, and certification/licensure targets for the high-need areas of mathematics, science, special education, ESL, and foreign language? (Goal 1)	▪ Certification/licensure outcomes (Performance Measure 1) ▪ Program completion results (Performance Measure 2) ▪ One-year persistence rate among any residents who do complete the program in 15 months (Performance	Year 5	Compare demographic characteristics of candidates who were recruited, certified/licensed, and who completed the program targets for each.

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	Measure 3)		
2. What is the impact of the Residency Program on filling vacancies of the partnering district with highly qualified teachers? (Goal 2)	Cabarrus County Schools employment data	Years 2–5	Compare the percentage of vacancies filled during the project to percentage of vacancies filled prior to the project, using a z-test on proportions.
3. What is the impact on candidates' preparedness to use HLPs and to teach underserved students (e.g., minority students, ELs)? (Goal 3)	▪ 1:1 interviews with a sample of candidates ▪ Observations of a sample of candidates ▪ Survey of all candidates ▪ CIS data on candidate instructional skill	Years 2–5	▪ Longitudinal qualitative analysis of data for growth in preparedness to use HLPs and effectively teach underrepresented students ▪ Longitudinal quantitative analysis of survey and CIS data for growth in preparedness to use HLPs and effectively teach underrepresented students. HLM will be used, time points nested within candidates.
4. What is the impact on retention of highly qualified teachers in high-need schools? (Goal 4)	▪ One-year employment retention (Performance Measure 4) ▪ Three-year employment retention (Performance Measure 5)	Years 2–5	Compare retention rates for candidates to retention rates for a matched comparison group, using a z-test on proportions.
What is the impact on teacher candidate performance? (Goal 5)	▪ Scores on edTPA assessments ▪ Scores on state-administered student assessments (Performance Measure 6)	Years 2–5	▪ Compare candidate scores on edTPA assessments with those of candidates in the original program using ordinary least squares regression. ▪ Compare student outcomes for candidates with those of a matched comparison group of teachers using HLM, with scores nested within candidates.

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